

THE ARMY FIELD MANUAL
VOLUME II
GENERIC ENEMY (MOBILE FORCES)
PART 1
OPERATIONAL ART
&
TACTICAL DOCTRINE

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AMENDMENTS

Amendment Number	By whom amended	Date amended

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PREFACE

GENFORCE MOBILE FORCES

GENFORCE

1. The purpose of the Generic Enemy Force (GENFORCE) is to provide a basis for the generation of enemy forces for all except the most specialised training needs. It is designed to be used flexibly, in a modular fashion, to craft enemy requirements for training.
2. GENFORCE offers three types of artificial, yet challenging and realistic, opposing force options. It has been issued in a series of three packages:

Basic Forces: This enemy has heavy and light armoured forces, predominantly equipped along Former Soviet Union (FSU) lines. Its Tactical Doctrine and Operational Art are modelled on the 1991 revision of Army Field Manual Volume II.

Mobile Forces: This enemy is a development from the Basic Forces, projecting forward to around 2005. It takes into account the impact of the early stages of the current revolution in military affairs and the effects of major force reductions. The battlefield, and consequently the operational art and tactics portrayed, are dominated by advanced weaponry and a manoeuvrist approach to warfighting. However, this GENFORCE is an army in transition and the majority of its formations and units are still of Basic Forces' type (albeit modified to cope with changing conditions on the battlefield).

Rest of the World Enemy (ROWEN): This composite enemy has a broad range of equipments of mixed origin. Its Tactical Doctrine and Operational Art are designed to support specific operational environments: normal, desert, mountain, FIBUA and jungle.

MOBILE FORCES

3. The final of the three GENFORCE packages, **Mobile Forces**, is issued in two separate folders as follows:

Part 1 - Operational Art and Tactical Doctrine
Part 2 - Tables of Organisations & Equipment

Acknowledgements

4. GENFORCE II, Operational Art and Tactics, was conceived and written by C J Dick, the Head of the Conflict Studies Research Centre, RMA Sandhurst (with help from the CSRC's air desk for the relevant air chapters). Comments and suggestions on this publication should be sent to Command Support Branch in the Directorate General of Development and Doctrine. Any enquiries about GENFORCE's concepts and *modus operandi* should be addressed to CSRC.

GENFORCE OPERATIONAL ART AND TACTICS II

INTRODUCTION

1. GENFORCE - Basic Forces “Tactics” and “Operational Art” described the GENFORCE approach to war in the nineteen eighties and early nineties. Essentially, this approach was a refined and updated version of that which had served GENFORCE well in World War II, but which took account of the lessons of subsequent local wars, particularly those in the Middle East in 1973 and 1982. However, GENFORCE theorists were increasingly aware that both their operational and tactical concepts needed considerable revision in the light of three developments. These were:
 - a. The reduction in the size of their own, and most of their potential enemies’, armed forces. The initial impetus for this contraction came from the requirements of the Paris Treaty of 1990 which limited the size of armies and air forces in Europe. It was subsequently driven (in all countries) by the spiralling cost of the new weapons systems which were indispensable to any state which aspired to be a great military power. The economy simply could not maintain a mass army and at the same time equip it plentifully with modern instruments of war.
 - b. The revolution in military affairs. This subject, addressed more fully in Chapter 1, concerns the impact which radically new technologies are having on the nature of future war. Qualitatively new weapons, when deployed in relative quantity, render former methods of warfighting obsolete and require new approaches to be developed. GENFORCE had been aware from the early eighties that technological warfare would become the dominant force in combat in the future. This perception was given great impetus by the Gulf War of 1991, when a numerically superior Iraqi force (based on 1970s weaponry) was defeated at small cost in casualties by a coalition whose cutting edge was the weaponry of future war.
 - c. The downgrading of operational and tactical nuclear weapons and chemical warfare. GENFORCE has come to the conclusion that NBC weapons have only limited utility on the battlefield of the future, at least after the initial period of war (the period of mobilization, concentration and deployment). Weapons of mass destruction are now seen as insufficiently discriminating and responsive to be employed routinely in the sort of fragmented, non-linear combat which is described in Chapter 1. Situations will change too rapidly and radically and opposing forces will be too intermingled over huge areas for the effective use of such blunt instruments. Moreover, they are now unnecessary as precision and other advanced conventional munitions (eg, fuel-air explosive and remotely-delivered mines) can accomplish battlefield missions hitherto performed by NBC weapons both more successfully and rapidly and with no attendant collateral damage and contamination or danger of escalation to a strategic nuclear exchange. If nuclear and chemical weapons are employed at all (and GENFORCE’S fear of escalation seems to make this unlikely) their

use will be largely restricted to attacking targets in the operational and operational-strategic depth. Of course, a breakthrough in NBC technology, particularly in the BW area, which GENFORCE perceives as giving it a decisive advantage over a potential adversary, might well change this situation.

2. GENFORCE II - Mobile Forces describes in outline the changes that are being effected in GENFORCE operational art and tactics as the century turns. As yet, only the outline is clear, for GENFORCE is still pondering the implications of far-reaching change. For this reason alone, GENFORCE II is somewhat less detailed and prescriptive than the previous pamphlets, which set out concepts that had been refined and elaborated over many years. Moreover, GENFORCE is at a transitional stage in its development. For at least three reasons, it can confidently be asserted that further, probably radical changes can be anticipated in the medium and even in the short term.
 - a. The advanced weapons systems that are revolutionizing the nature of future war have not reached their full development potential and are, as yet, deployed in only limited numbers (if only on grounds of cost). They exist alongside more traditional equipments and are, in effect, add-ons radically improving but not transforming capabilities.
 - b. The revolution in military affairs is still in its early stages. The new weaponry currently being integrated into GENFORCE is based on currently available technology. Under development, however, are other systems based on both emerging technologies and new physical principles (eg robotization, directed energy, plasma and membrane technology, electronic, laser damage and infrasound weapons). When available in quantity, these will require further changes of an even more radical nature.
 - c. GENFORCE is still testing its new concepts and force structures. Doubtless, trials and further theoretical work will combine to reveal problem areas and errors which will necessitate further development.

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GENFORCE OPERATIONAL ART AND TACTICS II

GLOSSARY OF TERMS AND EXPANSION OF ABBREVIATIONS

TERM	MEANING
AAG	Army Artillery Group. A temporary grouping of tube and sometimes also rocket artillery (usually pre-dominantly long-range) units under one command for the conduct of army (usually deep) fire missions. The composition of the group is tailored to the operational situation.
AAR	Air-to-Air Refuelling.
Accompaniment	The fourth phase of artillery and aviation support in the attack. It begins at the conclusions of the support phase (qv), ie on completion of the penetration of enemy forward brigades. In it, all fire is on call and artillery has to displace forward by bounds to keep up with the advance. When the rate of advance becomes high, the artillery will have problems in doing so and a proportionately greater burden will fall on aviation.
ACM	Advanced Conventional Munitions, eg precision weapons, fuel air explosives, cluster munitions, anti-radiation munitions.
ACOS	Air Combat Operations Schedule.
Administrative March Formation	A troop formation, consisting of columns, for the execution of a march where contact with enemy ground forces is unlikely. It must ensure: high rates of movement and manoeuvre; the least possible vulnerability to WMD, ACM or air attack; conservation of the strength of troops and vehicles; ease of troop control; security against minor ground opposition (eg by raiding, blocking or partisan actions. Administrative march formations are adopted to make maximum efficient use of available routes and to ease service support. As they preclude rapid deployment for combat, they must be abandoned in favour of tactical march formation where entry into battle against significant ground forces' opposition becomes possible.
Advanced Guard	A detachment moving ahead of the main body of a marching formation/unit to protect the latter, to safeguard it from surprise ground attack and to ensure favourable conditions for the main body to deploy and enter into battle.

AGRA	Army Group Rocket Artillery. A temporary grouping of long-range MBRL units under one command for the conduct of army (usually deep) fire missions. The composition of the group is tailored to the situation.
Air Assault	(1) Air assault troops are especially trained to be landed in the enemy rear to conduct combat actions there in coordination with missile and long-range artillery units, ground attack aviation and troops advancing on the ground. (2) In tactical terminology, the term air assault is usually used to describe a landing on the objective, often on a defended landing site.
Air Echelon	That part of the operational or tactical formation of a grouping which is air delivered, in the offensive usually into the enemy's rear.
Air Landing	An air landing describes the unopposed landing of air assault or airmobile troops, often requiring a tactical march to the objective followed by a ground assault. Air landing actions are coordinated with the actions of missile and artillery troops and those of ground units. Where specialized air assault troops are not used, the preference is for the employment of light motor rifle troops trained and equipped for airmobile actions.
Air Superiority	Possession of air superiority consists in establishing a situation in which friendly air forces can ensure a high level of activity and freedom of action during a definite period of time, either throughout the theatre of operations as a whole or in individual sectors.
Air Supremacy	Possession of air supremacy consists in establishing a situation in which enemy air action is confined to limited actions of only local significance. It is very difficult to achieve under modern conditions.
ALCM	Air-Launched Cruise Missile.
ALR	Anti-Landing Reserve; deals with airborne, airmobile and air assault threats which penetrate air defence cover to land troops in the tactical or operational depth.
AOA	Angle of Attack (aircraft).
Approach March Formations	A troop grouping, differentiated frontally and in depth for the purpose of ensuring: less vulnerability to enemy WMD, artillery fire and air strikes; rapid manoeuvring of troops on the battlefield; rapid deployment of troops into battle formation and/or rapid reversion to tactical march formation; high speeds of movement and rapid negotiation of zones of contamination and devastation.
ARM	Anti-Radiation Missile.

Armoured Group	An ad hoc, temporary grouping of BMPs, the infantry from which is dug-in in defence or mounting a dismounted attack, and which is often reinforced by tanks. In defence, the armoured group is usually used for counter penetration (qv). In the attack, it may be used to deliver fire support or to attack on a different axis from the main grouping.
ATR	Anti-Tank Reserve; includes motor rifle, artillery and air defence assets to deal with developing armoured threats without compromising viability of other groupings. Usually, there is a MOD under command for rapid obstacle creation.
BAG	Brigade Artillery Group. A temporary grouping of tube and MBRL artillery units and sub-units under one command for the conduct of brigade fire missions. The composition of the group is tailored to the tactical situation.
BAI	Battlefield Air Interdiction. The use of aviation to attack enemy tactical second echelons or reserves or potential choke points (eg, bridges) on their march routes to delay their entry into battle.
Basic Forces	Formations and units of traditional organization (armies, divisions and regiments) generally employed in performing the less demanding tasks. In defence, they absorb, disrupt and slow down or halt the enemy. In the offensive, they pin and wear down the enemy, hold passive sectors and provide flank protection.
Battle	Tactical level combat (ie, division, brigade, regiment and combined arms battalion); the aggregate of WMD and/or ACM strikes and combat actions by troops coordinated with regard to objective, time and place and conducted according to a unified plan by a lower formation or unit in order to achieve an assigned goal.
BC	Biological and Chemical.
BCW	Biological and Chemical Weapons/Warfare.
BDA	Battle Damage Assessment.
Belt (in defence)	Terrain, usually prepared for defence by engineers, intended for retention by higher formations. A belt usually consists of three or possibly four defensive positions (qv) organized in depth. Belts are most highly developed within the main defensive area (qv), though those in depth may not be occupied initially or may be only lightly defended.
BVR	Beyond Visual Range.

C2	Command and control.
C3(I)	Command, control, communications (and intelligence).
C4(I)	Command, control, communications, computers (and intelligence).
CAG	Corps Artillery Group. A temporary grouping of tube, and sometimes also rocket, artillery (usually predominantly long-range) units under one command for the conduct of corps (usually deep) fire missions. The composition of the group is tailored to the operational situation.
CAP	Combat Air Patrol. One of the basic methods of providing air cover for troops and rear targets using fighter aviation to ward off reconnaissance and air strikes. CAPs are used in those cases where a sortie by fighters from airfields will not ensure interception of the air enemy.
CAS	Close Air Support. The use of aviation in attacking ground targets in the immediate support of ground forces' combat actions.
CBW	Chemical and Biological Weapons/warfare.
CEP	Circular Error Probable; the area within which at least 50% of munitions will fall.
CF	Concentration of Fire. A method of conducting artillery fire for the purpose of destroying enemy personnel, weapons and material comprising a high density of fire over a short period of time.
CGRA	Corps Group Rocket Artillery. A temporary grouping of long range MBRL units under one command for the conduct of corps (usually deep) fire missions. The composition of the group is tailored to the situation.
CMT	Commander Missile Troops and Artillery.
Combat Formation	The grouping of a tactical formation (division, brigade) or unit (regiment, combined arms battalion) for deployment into battle. Combat formation depends on the type, nature and concept of the forthcoming battle.
Combat Security	Combat security is organized to prevent surprise attack or the penetration of enemy reconnaissance into the area where the protected troops are deployed and to provide friendly troops with sufficient time and advantageous conditions for deployment and entry into combat.

Combined Arms Reserve	Combined arms formations and/or units used to carry out missions which arise suddenly in the course of an operation or battle. They are part of operational and tactical formation.
Commandant's Service	Troops deployed by staffs at all levels for the purpose of maintaining order in areas where troops are disposed or deployed, for the regulation of traffic and for monitoring the observance by troops of camouflage measures. The Commandant's Service operates along march routes, in the vicinity of waiting areas, rear units and establishments, at passages through obstacles and contaminated areas, at water crossings, etc.
Concept of an Operation (Battle)	The idea expressing the basic thought and content of the decision of the commander. The concept of an operation or battle includes: the objective to be attained and the method of attaining it; the sector of concentration of main effort and the grouping of forces by sector; possible manoeuvres of forces in the course of combat; the measures to ensure timely completion of the mission.
COP	Command/Observation Post; command post on the main axis from which the commander and key staff officers can exercise command based on personal observation of the battlefield.
Corner Reflector	A reflector of electro-magnetic waves, usually comprising three perpendicular plane reflecting surfaces. It possesses the capability of reflecting electro-magnetic waves in the direction whence they came so that blips appear on the screen of the radar set irradiating the reflector. Corner reflectors are used to create false targets and to camouflage real objects and reference points or landmarks.
Counter Attack	An attack undertaken by defending troops at the tactical level against an attacking enemy for the purpose of destroying or routing him and achieving complete or partial restoration of the position lost by the defender. A counter attack is usually mounted by the second echelons and reserves of units and formations and also by part of the first echelon from sectors not under attack.
Counter Offensive	Transition from the defensive to a determined offensive to destroy or rout an attacking enemy who has been weakened in preceding battles and thus deprived of the capability of developing his attack further. A counter offensive is prepared during the course of defensive engagements: the defender exhausts the enemy to the greatest possible extent by attrition and at the same time concentrates sufficient forces for a transition to determined offensive action. Depending on the situation, a counter offensive may be mounted on a strategic or operational scale.

Counter Penetration	A manoeuvre undertaken by defending troops for the purpose of countering an actual or anticipated manoeuvre by the enemy. On the fluid, non-linear battlefield the importance of counter-penetration in defence is expected to increase. A most important condition for success is forestalling the enemy in delivering fire strikes and conducting airmobile and ground manoeuvre.
Counter Preparation	A pre-planned, brief, powerful, surprise artillery and/or aviation fire strike delivered by a defender against enemy groupings which are preparing to launch an attack. Priority targets are nuclear and precision weapons systems and their C3I, EW facilities, attack helicopters, artillery, fuel and ammunition dumps. The aim of the counter preparation is to break up the attack or at least to weaken the initial blow.
Counter Strike	An operational level blow inflicted by the defender for the purpose of destroying an attacking enemy, restoring partially or completely a lost position and creating favourable conditions for a transition to the counter-offensive. An expression of the active and manoeuvre nature of modern defence, the counter strike is the most important act of a defensive engagement. During the course of such an engagement, several consecutive counter-strikes may be delivered in one or more sectors.
Covering Forces	Lower formations, units or sub-units deployed in a security zone (qv) to: prevent a surprise attack on or reconnaissance of the forward edge by enemy forces; inflict delay and attrition on an advancing enemy; identify the enemy's main axis; canalise the enemy into ground favourable to the defence (eg, a fire pocket).
CRP	Combat Reconnaissance Patrol; battalion created platoon-sized recon patrol, especially when the battalion is in the first echelon, acting as advanced guard, forward or raiding detachment. Usually formed from the battalion reconnaissance platoon, though additional CRPs may be formed from ordinary tank and motor rifle platoons. Despite its name, the CRP will endeavour to conduct reconnaissance by stealth and will employ combat to gain information only as a last resort.
DAC	Defensive Air Command.
DAG	Divisional Artillery Group. A temporary grouping of tube and MBRL artillery units and sub-units under one command for the conduct of divisional fire missions. The composition of the group is tailored to the tactical situation.
DAS	Defensive Aid Suite of jamming or decoy systems against homing or guided warheads.

DCA	Defensive Counter-Air. When the enemy holds the initiative in the air, or aviation resources are being husbanded for future operations, the Air Force may conduct a DCA operation. This consists of engaging enemy aviation primarily in aerial engagements in friendly air space, with only limited offensive sorties against enemy airfields or fighter penetrations into enemy air space.
Deep Battle	Action in the enemy's tactical depth designed to undermine the enemy's cohesion and his efforts to combat the main forces. Deep battle is conducted by forward, raiding and air-delivered forces to seize vital ground, destroy enemy high value assets and CPs and to restrict enemy manoeuvre (especially of reserves).
Deep Operation	An operation which achieves simultaneous effect throughout the depth of the enemy's deployment and involves the advance of the offensive grouping through the entire depth of the enemy's operational defence, with a build up of effort in the course of the operation through the committal of air-delivered and exploitation echelons.
Deep Standing Barrage	A series of linear fire concentrations planned in defence on narrow approaches. The lines are arranged successively, in depth, but all or many are fired on simultaneously to strike an enemy in deep formation.
Defence	A basic type of combat action conducted for the purpose of repulsing an attack mounted by superior enemy forces, causing heavy casualties, retaining important regions and creating favourable conditions for going over to a decisive offensive. Defence is based on fire strikes, on extensive manoeuvre of fire and forces, an extensive use of obstacles (covered by fire) and on counter attacks/strikes with the simultaneous stubborn retention of important regions which block the enemy direction of advance. Defence makes it possible to win time and to achieve an economy of force in some sectors, thereby creating conditions for an offensive in others. Defence can be of two types, manoeuvre and positional.
Defended Area	An area prepared by a Basic Forces motor rifle or tank battalion for all-round defence. Battalion areas should be mutually supporting and normally consist, in turn, of a number of mutually supporting strongpoints (qv) tied together by a unified fire and obstacle plan.
Delaying Action	Combat actions conducted by troops on a series of successively defended lines for the purpose of gaining time, inflicting the greatest possible number of casualties on the enemy and creating the most favourable conditions for the defence without regard to the loss of ground and without becoming embroiled in decisive battles.

Deployment	Terrain lines on which troops deploy from tactical march formation (qv), or Line approach-march formation (qv) into combat formation.
Destruction	As an artillery term, the infliction of 50-60% casualties on a group target or 70-90% on an individual target. Such a level of loss will render the target combat ineffective for up to 24 hours. Destruction is considered the only worthwhile objective when engaging missile or MBRL units/sub-units.
Detachment	A temporary troop grouping, usually combined arms and of battalion size, created for the execution of a particular or special mission (eg, security, seizure of a feature, conduct of a raid, conduct of reconnaissance).
Disinformation	Propagation of false information about friendly forces and plans of action for the purpose of misleading the enemy. Means of disinformation include media reports, dummy radio nets, simulated troop movements and concentrations and many others.
Disruption	As an artillery term, the infliction of 25-30% casualties on an attacker to break up the attack.
DRP	Deep Reconnaissance Patrol, operating independently in the enemy rear, usually from division or brigade long-range reconnaissance company or from higher formation SPF.
DZ	Drop zone. An area of open ground for the dropping of airborne or air assault troops by parachute.
EJ	Escort Jamming (air).
EMP	Electromagnetic Pulse.
Engagement	The aggregate of WMD and/or ACM strikes and the battles of lower formations and units, united by a common operational concept, and conducted in one or several sectors simultaneously or sequentially.
Engineer Reserve	A grouping of engineer troops at the disposal of a commander intended to replace engineer units rendered ineffective, to reinforce the grouping of engineer troops in important sectors and to perform engineer missions which arise unexpectedly in the course of an operation or battle.
ERP	Engineer Reconnaissance Patrol, providing detailed reconnaissance of major obstacles or routes.
ERW	Enhanced Radiation Weapon/Warhead.

Extend Tactical Zone of Defence	A new term describing the area occupied and defended by first echelon armies in defence. (See tactical zone of defence).
FAE	Fuel-Air Explosive.
FIBU	Fighting in Built-up Areas.
Fire Support of Advance from the Depth	The first phase of artillery and aviation support in the attack. It lasts from the from departure of the attacking force from its waiting area until its arrival on its line the deployment (qv). During this period, enemy weapons that could interfere with the march and deployment are suppressed.
Fire Pocket	An area of ground into which an enemy attack is canalised, where the enemy can be subjected to heavy fire strikes, possibly being destroyed thereafter by a counter-attack.
First Echelon	That part of the operational or tactical formation of a grouping which is in the first line or in close contact with the enemy and is used to execute specific missions.
Formation	Generic term covering brigade, division, corps, army or strategic grouping. The first two are lower, tactical, formations, the second two higher, operational, formations and the last a major field force. (Operational-strategic or strategic).
Forward Detachment	(1) A combined arms groupings, usually of approximately battalion size, often reinforced, which is sent ahead of a unit or formation to seize and hold important terrain objectives (eg, major road junctions, defiles, bridgeheads over water obstacles/pending the arrival of the main body. (2) In defensive combat, a forward detachment is deployed to conduct defensive/delaying actions in the security zone.
Forward Position	A defensive position set up in front of the forward edge in a given sector for the purpose of misleading the enemy concerning the true location of the forward edge of the defence, to safeguard units or sub-units of the first echelon from surprise attack, to repulse enemy reconnaissance in force and to compel the enemy to deploy his main body prematurely. Sub-units from units of the first echelon are usually designated to defend forward positions.
FP	Forward Patrol, the most common march security patrol; section or platoon in size.
Front of Encirclement	The inner front of encirclement is a front created around encircled enemy forces or the purpose of trapping them and subsequently destroying them. The outer front (usually not more or less continuous

like the inner front) is created to isolate the encircled grouping from the remainder of the enemy forces, driving an ever deeper wedge between them and preventing any attempt to relieve the surrounded troops or link up with a breakout from encirclement.

FSG	Flank Security Group, company-sized and often combined arms, used during marches where the threat is not great enough to require a flank detachment but greater than that which would allow the deployment of only a patrol.
FSP	Flank Security Patrol; section to platoon-sized for a battalion.
GLCM	Ground-Launched Cruise Missile.
Ground Alert Intercept	A type of aerial combat used by fighter aircraft. It involves the interception and destruction of aerial targets in sorties flown by duty aircrews/sub-units/units which are held on an airfield at a prescribed state of readiness. In addition, such a method may be used to reinforce CAPs or fighters engaged in combat with an air enemy.
Group	A temporary troop grouping, usually combined arms, and of company size, created for the execution of a particular or special mission (eg, security, seizure of a feature, conduct of a raid, conduct of reconnaissance).
HALO	High Altitude Low Opening (parachuting).
Harassing Fire	Artillery fire to inhibit enemy manoeuvre or movement or to force him to move and thus expose himself to air attack. Also used to wear down morale.
HAS	Hardened Aircraft Shelter.
Hasty Defence	A defence created by troops in the course of combat. At the start of its organization, it is characterized by: incomplete readiness and consequent reduced stability; an insufficiently developed and organized fire plan: hurriedly organized coordination; insufficient development of the obstacle plan and of engineering defence works; weak exploitation of terrain; insufficiently stable command and control. A hasty transition to defence may stem from: the need to repulse counter-attacks/strikes by superior enemy forces during offensive operations; the result of an unsuccessful meeting battle/engagements; the efforts of a defender to halt, with his reserves, further advances of enemy troops which have broken through; the efforts of a withdrawing force to aid the extrication of a main body under attack by a pursuing enemy.

HET	Heavy Equipment Transporter.
Higher Formation	Army, Corps or sometimes Strategic Grouping: ie, an operational level formation.
IFF	Identification Friend or Foe.
Immediate Objective	The part of the overall combat mission in the offensive that must be accomplished first. Depending on the situation, the immediate mission may be to destroy the enemy's WMD and precision weapons, break up the enemy's basic grouping or seize regions, lines or positions the capture of which will ensure successful execution of the next mission.
Initial Period of War	A potentially decisive period of a war, ranging from the outbreak of hostilities of the attainment of the short term strategic goals assigned to the first strategic echelon of the attacker's armed forces. The attacker will usually try to achieve surprise so that the initial period coincides with the defender's period of mobilization, concentration and deployment. In such favourable conditions the goals of the war may be attained during the initial period.
IP	Initial Point (air).
IRLS	Infra-red Line Scan.
IRST	Infra-red Search and Track.
LD	Line of Departure.
Local War	A war waged with limited forces in a limited area.
Lower Formation	A tactical level formation of permanent organization (division, brigade) capable of conducting independent combat actions.
LS	Landing site. An area of open ground for the landing of troops by helicopter.
LRRP	Long-Range Reconnaissance Patrol.
LTD	Laser Target Designator.
Manoeuvre Defence	(1) A form of defence that foresees the destruction of an attacking enemy by fire strikes and the manoeuvre of troop-groupings to exploit their results. In manoeuvre defence, the main emphasis is placed not on the firm retention of terrain but rather on conducting counter attacks and counter strikes following concentrated fire strikes. In

order to accomplish this, the greater part of forces and weapons (as much as two thirds) is located in depth as counter attack/strike groupings while the remainder are deployed in the first echelon in a forward defensive region. (2) A form of defence in which inferior forces trade space for time, wearing down and canalizing the enemy attack and winning time for the organisation of a firm, positional defence on a favourable line or on vital ground or for the concentration of forces sufficient to mount a decisive counter attack/strike.

Manoeuvre of Fire	Redirection of weapons for the simultaneous or consecutive concentration of their firepower against important enemy targets and groupings or the distribution of firepower for the simultaneous destruction of several targets or groupings.
March Security Patrol	An element of march security, detailed from the advance guard or directly from sub-units or units for which security is provided. A march security patrol may be in the forward, flank or rear category. It is platoon or section in strength.
Massed Fire	The concentration of several formation level artillery units and sub-units on a given area to suppress a large enemy grouping in a short period of time.
MATS	Mobile Anti-Tank Strongpoint; tactical all arms defensive grouping, usually company-sized, capable of autonomous action.
MB	Moving Barrage: method of artillery support for troops in the attack consisting of successive shifts of high density fire from one line to another ahead of the advancing troops and according to a timed programme. A moving barrage may be single or double.
MBRL	Multi-Barrelled Rocket Launcher.
MDA	Main Defensive Area; area in which every effort will be made to halt and destroy the enemy.
Meeting Battle/Engagement	An encounter battle/engagement is a clash between opposing sides when both are simultaneously striving to fulfil assigned missions through offensive action. A meeting battle (tactical level) or engagement (operational level) may occur during a march or manoeuvre, in the course of an attack mounted to repel enemy counter-blows or when reserves/second echelons move up to execute counter-moves in defence. A meeting battle/engagement is characterized by: obscurity of the situation and abrupt changes in it; rapid movement to contact of the two sides; rapid changes in march, approach march and combat formations; the swift build up of efforts from the depth; an intense struggle to gain time and seize and hold the initiative; the presence of open flanks and free manoeuvre; the dynamic and decisive nature of the encounter.

MNF	Multi-National Force; allied forces in Gulf War 1991.
MOB	Main Operating Base (air).
Mobile Forces	Formations and units organized on modern lines (corps, brigades, combined arms battalions) generally employed in performing the more demanding tasks. In defence, they conduct counter attacks/strikes/offensive. In the offensive, they conduct deep battle and deep operations with decisive goals.
MOD	Mobile Obstacle Detachment. A detachment made up of engineer sub-units with the capability of constructing obstacles in sectors on which there is a threat of an enemy armoured penetration. A MOD may act independently or under the command of an anti-tank reserve.
MSD	Movement Support Detachment; a temporary engineer grouping, together with chemical reconnaissance, created by a unit or formation to support the movement of troops. A MSD carries out reconnaissance, removes obstacles from the assigned route, organizes by-passes where necessary, bridges gaps, does a limited amount of road repair work and marks the route.
MTI	Moving Target Indicator.
Neutralization	Fire delivered to inflict damage, thereby reducing the enemy's combat capability, limiting or eliminating his ability to manoeuvre and disrupting his troop control. The effects of neutralization are less than those of suppression (qv) and are thus of a more transient nature. Neutralization is the minimum acceptable effect in a fire preparation for an attack.
NKZ	Nuclear Killing Zone. An area into which the enemy is to be canalized or lived for destruction by nuclear strikes. NKZs can be tactical or operational in size.
Norms	Numerical indices that regulate the activity, in both time and space, of groupings executing a mission (width, density, speeds, time limits etc). Norms are worked out on the basis of careful mathematical analysis and are, as a rule, verified by experiment (on firing ranges, in exercises, etc).
NW	Nuclear Weapon/warfare.
OAC	Offensive Air Command.
OAS	Offensive Air Support.

Obstacle Plan	The aggregate of various engineering obstacles (minefields, mined sectors of routes, demolitions, etc created for the purpose of hindering the enemy's advance, delaying him, repulsing his attacks/counter attacks, inflicting losses upon him and canalizing his advance into nuclear or conventional fire pockets for destruction by fire and counter attacks/strikes.
OCA	Offensive Counter-Air. Air Force and supporting ground forces operations aimed at the defeat of major enemy aviation groupings. It comprises a series of powerful fire strikes against enemy airfields and aerial engagements. By seizing and holding the initiative in the air, the Air Force will then be able to support the operations of the ground forces. OCA operations are conducted in accordance with a unified concept and plan of the Supreme High Command or, possibly, of a single Strategic Grouping and is accordingly, theatre of war or theatre of operations wide and deep.
Offensive	A basic type of combat action of decisive importance in attaining victory. An offensive is conducted to achieve the prompt and utter defeat of a grouping and in order to seize important areas and objectives. This is achieved by breaking up the main enemy groupings and destroying his WMD and precision weapons by fire strikes and attacks at high tempo to great depth, coordinated with aviation and air-delivered forces. The fragmented enemy forces are destroyed in detail primarily by flank and rear attacks which exploit the results of concentrated fires.
OMG	Operational Manoeuvre Group; exploitation formation used to conduct deep operations.
Operation	The aggregate of nuclear and/or ACM strikes and combat operations by lower formations coordinated with regard to objective, time and place and conducted in accordance with a unified plan by major field force or higher formation in order to attain an assigned goal.
Operational Art	A component part of military art dealing with the theory and practice of preparing for and conducting combined and independent operations by major field forces and higher formations. Operational art is the connecting link between strategy and tactics. Stemming from strategic requirements, operational art determines methods of preparing for and conducting operations to achieve strategic goals and it provides the initial data for tactics, which organizes preparation for and waging of combat in accordance with the goals and missions of operations.
Operational Direction	A zone of terrain and/or air space leading to the objectives of operational actions, ie, to groupings of the enemy or to his important economic and/or political centres and permitting the combat

operations of major field forces/higher formations to be conducted within its boundaries. An operational direction, being part of a strategic direction and of a theatre of operations, alters with a change in the goals of an operation and is always determined by the specific operational-strategic situation in the theatre of operations.

Operational Formation	The grouping and organization of a major field force or higher formation created in accordance with the concept of the operation and meeting the requirements for their most effective utilization to bring about the utter defeat of the enemy.
Operational Group	(1) A temporary operational-level grouping acting in a particular operational sector and executing a single operational mission. The composition of an operational group depends on the situation and on the nature of the mission. The need to create an operational group arises from the conduct of an operation on a wide front and/or in inaccessible terrain where it may become difficult to organize and maintain coordinated action between groupings acting in different sectors. (2) A group of officers sent with appropriate C4I means by a major field force or formation staff to establish and maintain close coordinated action and tactical control with the parent formation or to command a particular grouping.
Operational-Tactical Missile	A surface-to-surface missile, either ballistic or cruise, in the table of organization and equipment of higher formations with a range of up to 600km and intended to accomplish missions of operational or tactical importance.
Patrol	Section or platoon-sized reconnaissance or security grouping.
Penetration	A method of offensive action used when conducting an offensive operation or battle directed towards breaking through a continuous front, usually prepared in the engineering sense and echeloned, by making breaches in it for the purpose of subsequent manoeuvre into the depth and/or towards the flanks.
PGM	Precision Guided Munition.
Position (in defence)	A sector of terrain intended for the conduct of a defensive battle by motor rifle and/or tank units. Defensive positions comprise a number of defended areas (qv) and strongpoints (qv), the latter disposed at intervals of 1-1.5kms with firing lines for tank and anti-tank sub-units, trenches for various weapons, shelters for personnel and vehicles and other defensive structures. Various obstacles and dummy strongpoints/targets are usually also set up within defensive positions. Between positions, switch lines (qv) are prepared, or at least reconnoitred and designated, to channel the attacker into directions favourable to the defender.

Positional Defence	Defence in which one of the main goals is tenacious retention of particular sectors/areas of terrain, well prepared in the engineering sense and occupied by troops.
Pre-Battle Formations	A troop grouping, differentiated frontally and in depth for the purpose of ensuring: less vulnerability to enemy WMD, artillery fire and air strikes; rapid manoeuvring of troops on the battlefield; rapid deployment of troops into battle formation and/or rapid reversion to tactical march formation; high speeds of movement and rapid negotiation of zones of contamination and devastation.
Preparation	Phase two of artillery and aviation support in the attack. Prepared artillery and aviation fire strikes delivered prior to the start of an attack for the purpose of neutralizing and destroying the most important enemy defensive positions and weapons and rendering the enemy incapable of offering organised resistance to advancing troops.
Prepared Defence	A defence fully prepared in the engineering sense and occupied by troops. It is characterized by: an organized obstacle and fire plan; thoroughly organized coordination between forces and weapons; stable command and control.
Pursuit	An attack on a withdrawing enemy, undertaken in the course of an operation or battle for the purpose of finally destroying or capturing his forces. Destruction of a withdrawing enemy is accomplished by: strikes from missiles, aviation and artillery; relentless and energetic parallel and/or frontal pursuit; straddling his withdrawal routes or creating obstacles on them; attacks into the flanks and rear by pursuing troops. Pursuit is conducted in tactical march or pre-battle formation or in battle formation. Air assault or air mobile troops may be used for deep penetration to block the enemy's withdrawal routes, establish ambushes or to attack the enemy's flanks.
RAG	Regimental Artillery Group. A temporary grouping of tube artillery under a single command for the conduct of regimental fire missions. The composition of the group is tailored to the tactical situation.
RBF	Rolling Barrage of Fire. A series of successive linear fire concentrations pre-planned in defence on the enemy's most likely approaches. The lines are planned to strike likely enemy deployment lines from pre-battle into battle formation.
RD	Reconnaissance Detachment, for reconnaissance in force; usually a reinforced MR or tank battalion.
RDM	Remotely-Delivered Mine/Mining.

Rear Guard	March protection element to safeguard, troops moving to the rear. The strength, composition and distance of the rear guard from the main body will depend on the size of the body being protected and on the situation.
Reconnaissance by Battle	Reconnaissance in force. One of the methods of reconnaissance in which data on the enemy's strength, locations and deployment are obtained by the combat actions of sub-units specially detailed for this purpose. Reconnaissance by battle is done only in those cases where the necessary information about the enemy cannot be obtained by other means in the time available.
Reconnaissance Group	A company-sized reconnaissance element deployed by units or formations to conduct reconnaissance of the enemy and terrain in manoeuvre types of combat, on the march and in a defensive situation where there is no contact with the enemy. Such groups are prepared to fight for information.
Reconnaissance Detachment	A reconnaissance element, usually approximately reinforced battalion-sized, deployed by formations to conduct reconnaissance of the enemy and of terrain in a given zone or on a given axis. Such detachments are prepared to fight for information and may, if they discover enemy weakness on vital ground, be redesignated as forward detachments (qv) and ordered to seize and hold terrain. Reconnaissance detachments are usually formed in fluid situations and may be created in the offensive or defensive.
RFC	Recce-Fire Complex. Precision weapons linked to an (usually dedicated) reconnaissance system providing real-time target data to a largely automated control/fusion centre which selects targets and organizes near-real time engagement. Tactical level.
RG	Reconnaissance Group, reinforced company-sized, usually formed during mobile phases of operations or to reconnoitre key objectives in depth.
Roving Guns/ Tanks/Batteries	Guns, tanks or batteries attached to defending troops to fire from various pre-selected fire positions for the purpose of misleading the enemy as to the amount and location of artillery in the defence.
RP	Reconnaissance Patrol, platoon sized, usually formed by elements of a reconnaissance battalion.
RPV	Remotely Piloted Vehicle; reconnaissance or attack drone.

RSC	Recce-Strike Complex. Precision weapons linked to an (usually dedicated) reconnaissance system providing real-time target data to a largely automated control/fusion centre which selects targets and organizes near-real time engagement. Operational level.
RSG	Rear Security Group, usually a reinforced company, used on marches when enemy threat to the rear is weak, but still greater than that which would require merely a rear security patrol.
RSHC	Reserves of the Supreme High Command. Formations and units not included in the composition of higher formations used for quantitative and qualitative reinforcement of SGs, armies and corps.
RSP	Rear Security Patrol; section to platoon sized for battalion, particularly when acting as advanced guard, forward or raiding detachment.
RTAV	Reconnaissance and Target Acquisition/Vectoring; part of RSC/RFC.
RWR	Radar Warning Receiver.
SAR	Synthetic Aperture Radar.
SATNAV	Satellite Navigation.
SB	Standing Barrage. A linear artillery concentration pre-planned near an obstacle or just in front of defending troops. The equivalent of a Western “defensive fire” task.
SCF	Successive Concentrations of Fire. The delivery of fire by an artillery unit or sub-unit against pre-selected targets on successive lines progressing into the enemy's depth. The lifting of fire from one line to the next is done on call by the combined arms commander. Successive concentrations of fire is the normal form of fire preparation (qv) and support (qv) in the attack.
SD	Strategic Direction. Operational-strategic or strategic major field force/ HQ above Basic Forces' army and Mobile Forces' corps: also known as strategic grouping. A SD is charged with fulfilling strategic missions within the context of a strategic operation in a theatre of military operations.
SEAD	Suppression of Enemy Air Defences. The suppression (qv) or destruction of ground based air defences by air, artillery or missile strikes or ground attack in order to create a breach in the enemy's air defence coverage for the safe passage of air raids, air landing/air assault or airborne forces.

Second Echelon	That part of operational or combat formation which is not directly participating in an engagement or battle at a given moment but which is intended to build up the power of a strike grouping in the offensive, to increase the stability and aggressiveness of defence or to replace troops of the first echelon in the event of heavy losses. The existence of a second echelon creates favourable conditions for building up strength, executing a manoeuvre, or rapidly shifting effort from one sector to another during an operation or battle. In contrast to a combined arms reserve, combat missions are assigned to a second echelon at the same time as the first receives its task.
Sector (in battalion)	The tactical area of responsibility of a unit (regiment or combined arms battalion) in defence.
Security Zone	A zone created ahead of the forward edge of defending troops. A security zone is created where there is no close contact with the enemy and usually consists of several delay lines covered by obstacles. The depth of the zone depends on the concept of the defence, the nature of the terrain and the availability of time for its preparation.
Separate	Designation used to describe a unit or lower formation which is not part of the table of organization and equipment of a larger unit or formation but is used for conducting autonomous or independent actions.
SG	Strategic Grouping. Operational-strategic or strategic major field force/HQ above army and corps level. A SG is charged with fulfilling strategic missions within the context of a strategic operation in a theatre of military operations.
SHC	Supreme High Command.
SLAR	Sideways Looking Airborne Radar.
SOJ	Stand-Off Jamming (air).
SOU	Separate Operational Unit; used to conduct raids in the enemy's operational-tactical and operational depth, particularly during a defensive operation.
Special Decontamination	Complete decontamination of personnel, clothing and material by specialist chemical defence troops. It is done once the troops have completed their assigned mission on instructions from the senior commander at special decontamination points created by chemical defence sub-units/units.

SPF	Special purpose forces. Formation level units and sub-units specially trained for deep reconnaissance sabotage and sometimes subversive and terroristic actions. SPF personnel are all parachute-trained (at higher formation level, using sophisticated techniques), familiar with a wide variety of foreign as well as indigenously produced weapons and explosives and with at least some competence in the language of at least one potential enemy.
SRP	Separate Reconnaissance Patrol, platoon-sized and reporting direct to its parent unit HQ.
Strategic Defence	A defensive posture adopted by the armed forces in the event of surprise attack or when the enemy's superiority in a theatre of operations precludes an offensive. Strategic defence is organized deliberately or as a matter of necessity for the purpose of: repelling an enemy offensive; preventing his invasion during the initial period of war; frustrating his advance during the course of hostilities; weakening enemy forces by attrition; and creating conditions for transitioning to a strategic offensive in the given, or another theatre of operations.
Strategic Offensive Operation	An operation planned and conducted under the direct guidance of the Supreme High Command in order to achieve major strategic goals - ie, a radical change in the military, political and strategic situation either within a theatre of operations or in the war as a whole. The purpose of a strategic offensive operation will usually be the destruction of enemy operational WMD and ACM systems and the main grouping of the enemy in a theatre of operations, the seizure of strategically important areas and installations and possibly the driving from the war of a member of a hostile coalition. A strategic offensive operation comprises a series of army and corps, air force and possibly naval offensive and defensive operations, conducted concurrently and/or successively, and coordinated in terms of time, place and mission in accordance with a unified plan.
Strategic Mission	A mission whose fulfilment in the course of an armed conflict leads to an abrupt change in the operational-strategic situation in a strategic sector or theatre of operations. Successful accomplishment of a strategic mission usually results in the attainment of numerical superiority over the enemy, in seizure of important areas and installations and in occupation by groupings of the armed forces of the most advantageous operational and strategic position with respect to the enemy, thereby creating favourable conditions for further conduct of hostilities. Successful conduct of a series of strategic missions leads to the attainment of intermediate and ultimate strategic goals. A strategic mission is executed by a major field force.

Strongpoint	That part of a defended area which is most fortified and reinforced with obstacles and organized for all-round defence. Strongpoints are defended by motor rifle or tank companies or platoons (often reinforced) and are prepared with trenches, communications trenches, shelters and other defensive structures. They are well camouflaged and often contain dummy weapons positions and targets. They are connected to each other frontally and in depth for the purpose of mutual defence and tied together by a unified fire and obstacle plan.
Sub-unit	In the New Basic Forces, a battalion, company or platoon. In the Mobile Forces, a company or platoon.
Subsequent Objective	The portion of the overall mission in an offensive operation or battle carried out on completion of the immediate mission. Envisaged in the subsequent mission are the destruction of any further nuclear or precision attack weapons revealed by the enemy, the destruction of his reserves and the attainment of the operation's or battle's goal. Normally, there will be partial changes in operational/combat formation (qv) to achieve it (eg, committal of a second echelon or reserve or resubordination of artillery).
Support	Phase three of artillery and aviation support for an attack. Successive neutralization and destruction of the enemy by artillery and aviation fire strikes in the course of an attack for the purpose of ensuring a rapid advance by attacking troops.
Suppression	As an artillery term, the infliction of about 30% casualties on a target, thus rendering it combat ineffective for a period of minutes to hours. This is the normal level of effect sought in support of an attack.
Supporting Artillery	Artillery which, while remaining subordinated to the senior artillery commander, carries out fire missions assigned by the commander of the combined arms formation or unit being supported. Artillery temporarily detached from second echelons to support combat actions of formations or units of the first echelon is also regarded as supporting artillery in relation to such formations or units.
Switch Line/ Position	A position or line created in defence for the purpose of preventing the enemy from spreading the flanks. A switch position/line may serve as a line for hitting the enemy with fire and for conducting counter-attacks.
Tactical Depth of Defence	The terrain occupied and defended by divisions of the first echelon of an army.

Tactical Formation	The grouping and organization of a lower formation, unit or sub-unit created in accordance with the concept for battle and meeting the requirements for the most effective utilization of the grouping for the achievement of the assigned tactical goal.
Tactical March Formation	A troop formation, consisting of columns, for the execution of a march where contact with enemy ground forces is possible or expected. It must ensure: high speed of advance and manoeuvre; rapid deployment for combat; the least possible vulnerability to WMD, ACM or air attack; conservation of the strength of troops and vehicles; ease of troop control; security against ground attack.
Tactical Zone of Defence	The terrain occupied and defended by divisions of the first echelon of an army.
Tactics	A field in the theory and practice of military art which studies the objective laws of combat and develops methods of preparing for and conducting combat actions by lower formations (division, brigade), units and sub-units. Tactics occupies a subordinate position with respect to operational art, acting in its interests and serving to achieve the goals set by operational art.
TAOR	Tactical Area Of Responsibility; sector.
Temporary Fire Position	Fire position occupied temporarily by weapons for specific fire missions. By using temporary fire positions, the locations of the main fire positions are not compromised.
TGSM	Terminally Guided Submunitions.
Theatre of	A particular territory, together with associated air space and sea areas adjoining it, within which one or more major field forces conducts strategic operations in accordance with the war plan.
Theatre of War Operations	The territory of a continent, together with sea areas adjoining it and the air space above it. A theatre of war usually includes several theatres of operations.
TWS	Track While Scan (radar).
UF	Unit of Fire; standard accounting unit of a given number of rounds.
Unit	In the New Basic Forces, a regiment or separate battalion. In the Mobile Forces, a combined arms battalion.
Unit of Fire	The supply and accounting unit of ammunition (a given number of rounds per type of weapon) adopted for operational, tactical and logistic planning

Waiting Area	The area from which formations or units of the second echelon or reserve are committed to battle to fulfill an assigned operational or tactical mission.
Withdrawal	A form of combat action, often forced, associated with leaving occupied regions, lines or positions. A withdrawal is executed for the purpose of extricating troops from under strikes or from attacks by superior enemy forces, permitting them to occupy positions more advantageous for subsequent defensive or offensive actions, saving time for the concentration of forces on a given sector, shortening the front, etc. A withdrawal may be conducted only with the permission of the senior commander.
WMD	Weapons of Mass Destruction.
Zone (in defence)	The tactical area of responsibility of a lower formation (division or brigade) in defence comprising two or three positions (qv).

CHAPTER 1

THE CHANGING FACE OF THE BATTLEFIELD

SECTION 1 - THE REVOLUTION IN MILITARY AFFAIRS

The Nature of the Revolution

0101. **General.** A revolution in military affairs occurs when technological change has proceeded so far as to transform the nature of the battlefield. Such a development took place in the thirties, with the widespread fielding of tanks, motor transport, efficient and portable radios and airpower. Another occurred with the application of nuclear and missile technology to the battlefield in the sixties and seventies. However, GENFORCE eventually decided that nuclear weapons were a dubious military asset: a weapon which destroys not only the enemy but the very medium in which it is used is not so much a usable weapon as a contradiction; moreover, nuclear firepower destroys military art in general as actions using it cannot be rationally guided and controlled. The eighties saw the start of a new revolution brought about principally by the microprocessor, but also by the introduction of new explosives such as fuel-air, and other technologies like satellite navigation systems and unmanned air vehicles. The effects of these developments on the areas of firepower, command and control, communications, intelligence and computers (C4I), on mobility and thereby on the development of operational art and tactics are outlined below. Perhaps the most important one, however, is to provide a viable alternative, in the GENFORCE view, to the use of battlefield nuclear firepower. When new conventional munitions are combined with new C4I, they possess the destructiveness of small nuclear weapons but without the latter's collateral damage and escalatory dangers. Moreover, the fragmented, non-linear battlefield where friendly and enemy forces are intermingled does not lend itself to the use of such area weapons as nuclear or even chemical weapons (especially non-persistent). Consequently, NBC warfare is now being played down by GENFORCE, especially against an enemy who has matching capabilities in this area. GENFORCE does, however, continue to maintain stocks of NBC weapons and to train for their use (separately or together) should deterrence fail or should GENFORCE perceive their use to confer an advantage over the enemy.
0102. **Firepower.** In terms of range, accuracy and lethality, modern weapons have improved enormously, in many cases by an order of magnitude, on those of World War II. Table 1-1 illustrates progress in the first of these areas. Popular attention has tended to focus primarily on the direct fire anti-armour battle. In the Second World War, anti-tank weapons could only be sure of a first round hit at quite short ranges. Even by the seventies, the increasing probability of both hit and kill by anti-tank weapons at a range of several kilometres was forcing considerable changes in armour design, in combat organization and in tactics. Much deeper significance, however, must now be attached to developments in artillery and airpower. In 1945, only aviation could reach into the enemy's operational depth. At the present time, a whole variety of systems can do so. Moreover, their range can now be more fully utilized than in the past as target acquisition means can now look from tens to hundreds of kilometres into the enemy rear and report in real or near-real time. At the same time, artillery and aircraft have been transformed

from area suppression weapons into systems that are capable of destroying point, hard, mobile targets thanks to the development of precision guided munitions. At the same time, their area suppression capability has greatly improved as a result of the introduction of such other advanced conventional munitions (ACM) as fuel-air explosives (FAE), cluster warheads, remotely delivered mines (RDM) and remotely delivered communications jammers. Together, precision and other ACMs can reliably destroy or suppress groupings throughout the enemy's tactical and even operational depth in near-real time. GENFORCE believes that, in future war, artillery and army aviation combined will inflict up to 80-90% of the damage inflicted on the enemy in the tactical zone (ie, to a depth of about 60km) with each accounting for about half the total. Moreover, they will do so without imposing an impossible strain on the logistic system, for a few ACMs can now accomplish what hitherto had required several hundred rounds or bombs. GENFORCE has calculated that their use will reduce ammunition expenditure for various types of fire mission by a factor of 5-15 times and execution time by a factor of 5-10. These developments in conventional firepower will, in GENFORCE's opinion, reduce the significance of the direct fire battle. Tanks and infantry will not decide the outcome of future battles. Rather, they will become the exploitation elements following up decisive fire strikes (much indeed, as was their role on the nuclear battlefield).

TABLE 1-1. MAXIMUM REACH OF WEAPONS IN KILOMETRES

Weapon	World War II	Present Era
Field artillery	5-20	20-35
Multiple launch rocket systems	5-10	20-70
Anti-tank weapons	0.8-1.1	1.5-6
Operational/tactical missiles	-	80-750
Army aviation (helicopters)	-	350-400
Tactical aviation	150-200	1,000
Recce-strike complexes	-	300-600
Air launched cruise missiles	-	550
Ground-launched cruise missiles	-	2,500

0103. **Mobility.** The progressive armouring of infantry, artillery and air defence and an across the board improvement in cross-country mobility has increased the survivability, flexibility and combat capability of combined arms units and formations (see glossary for definitions). Furthermore, the provision of satellite and other

navigation aids on generous scales has ensured that movement will be better controlled than in the past and more uniformly purposeful, a development the significance of which for manoeuvre can hardly be exaggerated. Of course, these improvements are marginal when compared with those in firepower. Of greater significance than the increased ability of armoured and mechanized units to manoeuvre is the ability of commanders to manoeuvre fire laterally and in depth without having physically to shift fire units. Long-range artillery and Multi-barrelled Rocket Launchers (MBRLs), attack helicopters, tactical and operational missiles and tactical aviation greatly increase the zone in which commanders can influence the development of the battle by rapidly concentrating fire and strikes from dispersed systems. (As indicated already, GENFORCE has calculated that 80-90% of the damage that will be inflicted on the enemy in the tactical zone will be caused by artillery and aviation.) The most profound development in mobility, raising it by more than an order of magnitude, has come in the field of air mobility. Thanks to the increased payload and range (and more accurate navigation) of transport aircraft, airborne troops have a greater radius of action than before and their secondary, armoured mobility when landed gives them greater flexibility and combat power. The widespread deployment of rotary wing aviation, including large helicopters capable of transporting Infantry Fighting Vehicles (IFVs) and artillery, gives commanders the ability to manoeuvre units and even formations rapidly over long distances, vertically by-passing both obstacles and enemy groupings. The consequent possibilities for conducting raiding actions against high value targets in the tactical, operational-tactical and even operational depth and for developing attacks on the enemy from unexpected directions are said by GENFORCE to be exercising a profound effect on tactics and operational art. Of course, the ability to exploit the vertical dimension to the full will be dependent on securing air superiority.

0104. ***Command, Control, Computers, Communications and Intelligence.*** The recent improvements in firepower and mobility would not have exercised a revolutionary effect had it not been for a simultaneous quantum leap in the efficiency of C4I. The information revolution has changed the nature of the battlefield in three fundamental ways.
- a. ***Reconnaissance Fire and Strike Complexes.*** Contemporary air and space based surveillance and target acquisition systems are capable of providing information in real time throughout the enemy's tactical and even operational depth. ADP has enabled command posts to process the consequently vastly expanded volume of information into intelligence and targeting data within a usable time frame, and computer assisted decision making enables commanders to allocate priorities and initiate engagements in a matter of only a few minutes. The marriage of precision and other ACM deep fire (tactical) and strike (operational) weapons with modern C4I has given birth to new and already dominant systems. These are recce-fire and recce-strike complexes (RFC and RSC) in which dedicated precision weapons are linked through a largely automated command and control/fusion centre with reconnaissance means (usually multi-sensor) which can accurately locate and report enemy groupings and weapons in real-time.
 - b. ***Extending the Span of Control.*** At the same time as enabling accurate fire to be brought to bear throughout the enemy's tactical and operational depth,

computerization and the proliferation of a variety of secure, broadband, long-range communications systems capable of passing unprecedented masses of data rapidly make it possible for headquarters to control a larger number of subordinate echelons in combat at a vastly increased tempo. This has enabled GENFORCE to remove two entire levels of command (one tactical and one operational), a military de-layering which not merely reduces military bureaucracy but also accelerates and improves reactions to changing situations (see Annexes A and C to Chapter 1).

c. *Philosophy of Command and Control.* Historically and instinctively, GENFORCE has always favoured centralized C2 on the grounds that decentralization works against unity of effort and thereby against the generation of momentum. It recognized, however, that decision making had to rest with the commander who could feel the beating pulse of the operation or battle, ie who possessed the relevant information on which decisions had to be based.

(1) *Manoeuvre Warfare, Old Style.* Increasingly in World War II and subsequently, operational and even higher tactical headquarters found it difficult to keep abreast of complex and rapidly changing tactical situations and to issue timely, detailed orders: the flow of information upwards was simply too slow and incomplete. GENFORCE was thus forced to adopt a philosophy of centralized operational control but decentralized battle management. Unable to control the battle in detail, formation commanders would issue operational and tactical directives and rely on the initiative of their subordinates to seize opportunities or cope with threats which only they could react to in good time. To ensure that this empowerment of battalion, regimental and divisional commanders did not lead to a dispersal of effort, the higher headquarters would specify the senior commander's intent and point of main effort. These supposedly uniting factors did not always succeed in avoiding the fragmentation which was always a danger inherent in such decentralization. (See Diagram 1-1a)

(2) *Manoeuvre Warfare, New Style.* The information revolution has dramatically changed the situation. Improvements in sensor technology and communications have made formation commanders less dependent on unit-level subordinates for an up to date picture of the situation along the line of contact: indeed, they may even be better informed. More importantly, they can now look deep in real time and thus enjoy a relatively complete operational as well as tactical picture (including an awareness of threats to tactical groupings emanating from outside their area of intelligence responsibility). This reversal of the flow of information has re-empowered commanders at the operational level. Now armed with appropriate amounts of timely information, higher headquarters can once again exercise authority and direction over most decisions (see Diagram 1-1b). They can exercise control over dispersed, fast moving elements in order to synchronize their actions and ensure concentration of effort in both time and space. They can also make a decisive contribution to the success of manoeuvre elements by concentrating the fire of dispersed, long-range artillery and aviation on key sectors at the decisive time, and

where necessary by coordinating their efforts with those of vertical envelopment forces.

- (3) *Adaptive Flexibility.* This recentralization of C2 is not intended by GENFORCE to reduce lower level commanders to the role of unthinking executors of detailed orders. The sheer volume of data that a higher headquarters has to deal with and the shortage of time to process it and generate orders in warfare which is steadily growing in tempo would alone prevent this, even if GENFORCE were not aware of the dangers of over-control. Rather, the aim is to direct subordinates in the “where and when” of their actions and to ensure coordination: the “how” is left to the executors. Moreover, GENFORCE is aware that victory in the information struggle (see paragraph 0107) is far from assured. Even if it does triumph ultimately, there will be periods when the new C4I system will not operate smoothly. GENFORCE is therefore prepared at any time for a reversion to the old system, flawed but not fatally so, of centralized operational control but decentralized battle management.

- d. *The Central Importance of the C4I Revolution.* In GENFORCE’s view, C4I will be the most critical aspect of future war. There will be an “information struggle” to degrade the enemy’s capabilities in this field while maintaining one’s own. This will be the crucial component of the struggle for fire superiority and hence mastery of the battlefield. This explains the elevation of EW from a form of combat support to the status of a weapon equivalent to fire in its effects and the development of RSCs targeted purely against enemy C3I systems.

0105. **Counter-Developments.** Naturally, these improvements have prompted dialectical responses. Thus, for instance, the threat of precision attack has been met by fitting tanks and other high value targets with defensive aid suites (DAS), ie, counter-measures against guided and homing munitions (ie, automatically triggered jamming systems and decoys and grenade launchers to intercept incoming warheads.) Counter-mobility has greatly extended in scope with the widespread use of RDM laid by artillery, MBRLs or aircraft. Enemy C4I and EW capabilities have prompted numerous responses. These include passive measures such as automatic encryption, burst transmission and frequency-hopping for radios, improved camouflage and the deployment of multi-sensor spoofing dummies and false electronic signals and active measures such as air and ground launched anti-radiation missiles and radio and radar jamming. GENFORCE believes that the outcome of future war will depend very largely on which side achieves an edge in the technological systems and counter-systems race. Its theorists are well aware of the fact that reliance on mere numbers will no longer suffice. Thanks to the latest revolution in military affairs, quality can and will negate quantity (assuming, of course, that the qualitative edge is more than marginal and that the will to victory is strong enough to accept casualties as the price).

0106. **The Future.** The current revolution in military affairs has recently entered a fresh spiral as new technologies start to become militarily usable in combat systems. These will include, for instance: acoustic effect means (eg, infrasonic weapons, acoustic generators, explosives generating acoustic energy); electromagnetic effect means (eg, laser and radio-frequency weapons and electromagnetic suppression);

radiation means (eg, particle beam, ionizing and radiological weapons). These, together with an acceleration of current trends (eg, towards greater automation and robotization, more powerful explosives, super-high-speed data processing) will produce yet more changes to the face of battle than those outlined below. Most radical of all, perhaps, they may transfer the main focus of combat into the air and space, relegating land (and sea) operations to the status of secondary (supporting) actions.

The Future Battlefield

0107. ***The Information Struggle.*** Technology has gone a long way towards enabling commanders to see through the fog of war and to react rapidly to what they see at the tactical and even the operational level. GENFORCE believes that the critical struggle in future war will be to keep the battlefield largely transparent to its eyes while fogging the enemy's vision. The side that achieves an information advantage and maintains the shorter intelligence - decision - reaction cycle will achieve what is, in effect, a continuous temporal lead which will result in the more effective engagement of targets and more timely and purposeful execution of manoeuvre. The principal targets of physical and electronic attack will thus become the enemy's eyes (mainly electronic in the form of radar and ELINT), his brain (ie, headquarters, weapons control centres and the computers they rely on) and his nervous system (radio and satellite communications). At the same time, everything possible will be done to deceive the enemy as to GENFORCE's true locations, nature of deployment and intentions.
0108. ***The Battlefield of the Past: A Point of Comparison.*** In World War II, there was usually a clearly identifiable front line. Along, and a few kilometres either side of, this line, there was an intense struggle for fire superiority between opposing direct fire weapons and artillery. With the important, but rarely decisive, exception of airpower, fire could not be delivered effectively into the enemy depth as artillery lacked the range and target acquisition capability and operational and tactical missiles were things of the future. If the attacker won the struggle, he could take some ground and sometimes generate tactical or even operational manoeuvre in the enemy's depth, thus shifting the focus of combat and increasing its dynamism. The predominant form of combat was, however, close-range fighting, and an attacker had to grind the enemy down in an attritional battle, often of an exhausting nature, before he could penetrate the enemy's defence and accomplish his ruin by manoeuvre and pursuit. In other words, positional and manoeuvre forms of warfare were roughly balanced, with the advantage perhaps resting with the former where the two sides enjoyed comparable mobility (though when this balance did not exist and one side possessed a distinct mobility advantage, the latter tended to prevail). In local wars of the subsequent forty years (excluding unconventional warfare, of course) this approximate balance remained, though it tilted somewhat in the opposite direction thanks to increasing mechanization and the growing influence of airpower.
0109. ***Effects of the Contemporary Revolution in Military Affairs.*** Although they have increased dramatically in effectiveness, direct fire weapons and artillery fires on the line of contact have lost much of their relative importance. Future war will be dominated by long-range combat, so much so, indeed, that it will often become

DIAGRAM 1-1: INFLUENCE OF THE REVOLUTION IN MILITARY AFFAIRS ON THE FOCUS OF CONTROL IN MANOEUVRE OPERATIONS

a. Pre-Revolution: Directive Control and Decentralized Battle Management.

Formation or Unit	Timely Access to Information Required for Decision Making	Decision Making Focus Consequent on Information Flow
Army	Relatively Limited. <ul style="list-style-type: none">● Time delays for intelligence from Air, RPV and Satellite Recce.● SIGINT gives partial picture.● Situation on line of contact often obscure and information flow subject to time delays and error.	Formation HQ cannot control battle in detail. Issue of operational/tactical directive, lessening danger of loss of unity of effort through stress on: <ul style="list-style-type: none">● Commander's Intention.● Designation of Main Effort.● Formation continues to control significant firepower resources (Artillery and Air)
Division		
Regiment	Limited knowledge of picture beyond line of contact. Up to date awareness of situation on line of contact (inclusive of dangers and opportunities).	Decentralized battle, management stresses: <ul style="list-style-type: none">● Tactical independence. Responsibility of commander to use initiative to further senior commander's intent.
Battalion		Drawbacks: <ul style="list-style-type: none">● Decentralization can lead to dispersal of effort.● Lower commanders lack timely access to firepower needed to react quickly to dangers or opportunities.

b. Post-Revolution: Recentralization of Command and Control.

Formation or Unit	Timely Access to Information Required for Decision Making	Decision Making Focus Consequent on Information Flow
Corps	Near real-time situation data: <ul style="list-style-type: none">● Satellite, Air, RPV recce.● SIGINT.● Data Link to battlefield surveillance means and combat elements, combined with SATNAV, gives clear view of current situation on line of contact.● Flexible, secure communications.	Formation HQ can control battle in detail. <ul style="list-style-type: none">● Commander can manoeuvre fire quickly in response to near real-time appreciation of op/tac situation (and fire is now more effective).● Commander can issue realistic orders to manoeuvre elements to meet dangers/opportunities.● Need for decentralized battle management reduced.● Unity of effort ensured.
Combined Arms Battalion	Commander has wider picture than previously enjoyed by regimental commander. Commander has up to date awareness of situation on line of contact (inclusive of dangers and opportunities).	Commander's independence more circumscribed. He now exploits results of fire directed by formation HQ. Initiative still required as time constraints preclude detailed orders. Commander has sufficient organic resources to act without needing to wait for reinforcement or combat support.

- Notes:
- a. Removal of a level of command simplifies and speeds-up command and control process.
 - b. Availability of airmobile troops at brigade and corps levels.

an independent form of battle. This, according to GENFORCE, is the inevitable result of the synergy of developments outlined earlier; of artillery and missile systems with ranges reckoned in dozens to hundreds of kilometres and delivering precision and other advanced conventional munitions; of the real-time responsiveness of these systems to target acquisition which can look as deep as they can fire; of aviation (fixed and rotary wing) that can launch precise attacks; of rapidly responsive C4I; of EW means. The side that wins the information struggle and long-range electronic fire superiority will be able to suppress or destroy manoeuvre elements with comparative ease, and the latter will be unable to respond effectively. Thus the main forces of today are not, as before, the bulk of the tank and mechanized formations of the enemy so much as his deep fire and strike (ie, tactical and operational level) systems, his C4I and his electronic attack capability. As these are all located in the tactical and operational depth, so the military centre of gravity of combat has shifted from the old front line into the depth. Each side, whether in attack or defence, will have to make every effort to take the battle into the enemy's rear. While GENFORCE sees fire and electronic systems - Electronic Counter Measures (ECM), is now considered the equal of fire in its destructive effect) as the principal means of accomplishing this - manoeuvre forces too play a vital part. Whether inserted by air or infiltrated on the ground, or by a combination of the two, tactical forward and raiding detachments and operational mobile groups (OMG) are essential elements of the deep battle and operations. The enemy now can, indeed must, be defeated simultaneously through his tactical and operational depth, something that really was not possible in the past. This will, of course, be made very much easier if the enemy can be pre-empted in the delivery of effective initial strikes. GENFORCE puts the greatest possible stress on the importance of the initial advantage that pre-emption can confer.

0110. ***The Eclipse of Positional Warfare and the Triumph of Manoeuvre.*** Three factors have combined to reduce the efficiency of positional defence. The spiralling cost of developing and deploying modern weaponry (in skilled personnel as well as other economic resources) has precluded the fielding of traditional, mass armies. This has reduced force densities on the battlefield and thus made continuous fronts, strongly held everywhere, a thing of the past. Moreover, no matter how well prepared in the engineering sense, no matter how dense or deep the defence, modern munitions make it possible to blast a way through (and without the collateral damage associated with their nuclear predecessors). It is also possible vertically to bypass the defence with heliborne or airborne troops that enjoy armoured secondary mobility, or to use such troops to destroy the cohesion of the defence through rear attacks. Together these developments limit the possibilities of positional defence to favourable terrain (eg, mountains and towns) or to the defence of key areas. Accordingly, GENFORCE sees the answer to most tactical and operational problems, whether in offence or defence, as lying in the application of manoeuvre of fire and of forces.
0111. ***The Forms of Combat Action.*** It follows, from all that has been said, that the initiative will be continually contested in future war and it will likely change hands more frequently than in the past. Units and even formations may suffer a critical level of losses and lose combat effectiveness in unprecedentedly (save for the nuclear era) short periods of time. Tactical and also operational situations will thus be characterized by fluidity, uncertainty and rapid change. (A GENFORCE contention

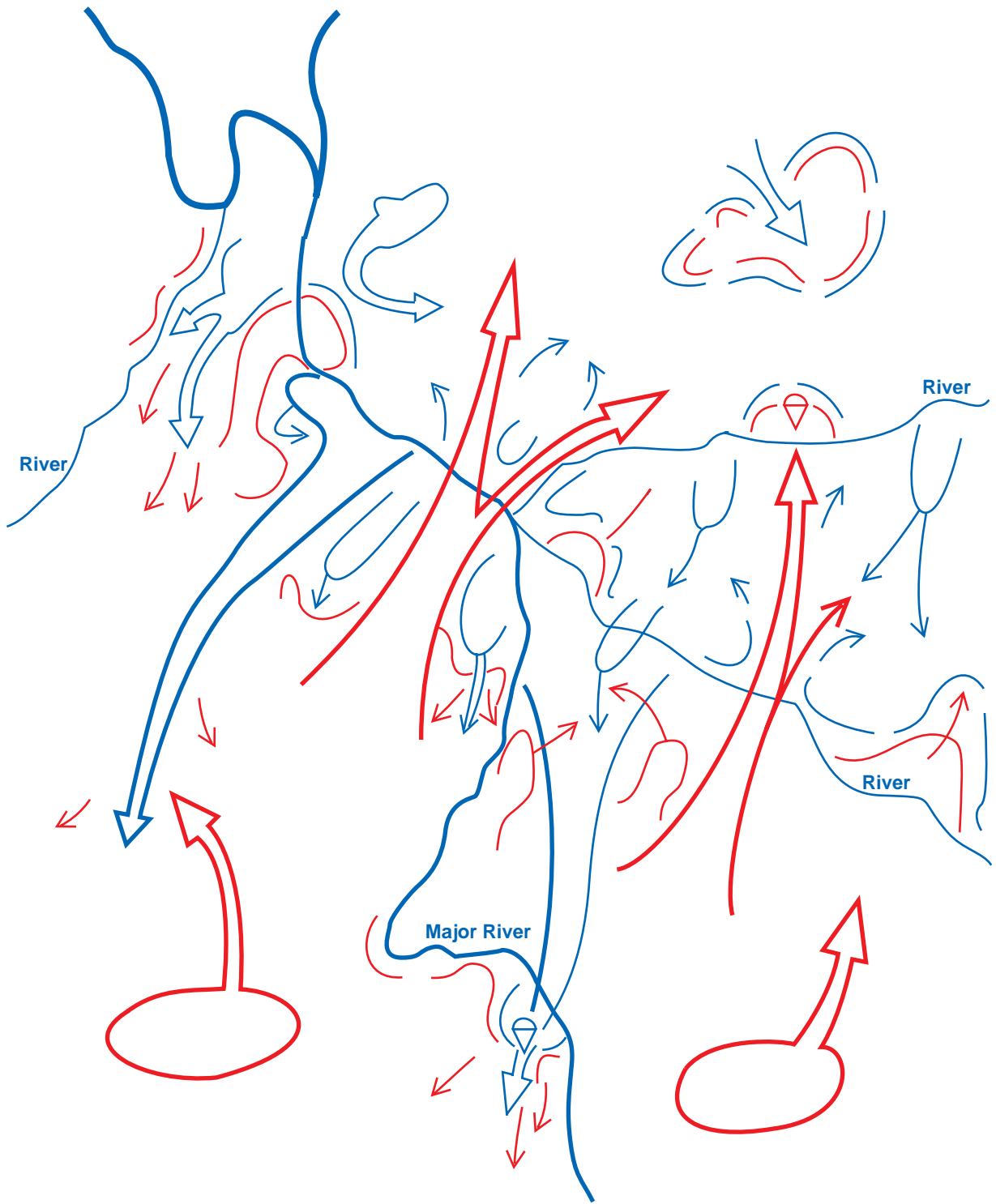


DIAGRAM 1-2: GENFORCE VIEW OF THE DYNAMIC, FRAGMENTED BATTLEFIELD

that bears repetition is that 80-90% of the losses inflicted in the tactical zone are expected to be caused by artillery and aviation.) In consequence of these factors and low force densities, the former clear distinction between forms of war will cease to exist. Both sides will have to be prepared for rapid transition from one to another, and even then the differences will be blurred. Two examples will clarify these points. One side may have established what it regards as a solid defence on a line (perhaps as a pivot for offensive manoeuvre elsewhere). The enemy, through a combination of precision and ACM strikes and a sudden, surprise concentration of armoured and air assault forces, may quickly smash through and force the defender into an unexpected combination of forced withdrawal under pressure, rapid and radical redeployments, and counter thrusts to restore the situation. On the other hand, an attacker may be so depleted and disrupted by long-range electronic fire strikes during his attempt to close with the enemy that the defender, perceiving a favourable change in the correlation of forces, may be able to go over to the attack himself to defeat the "attacker" in a meeting engagement: in the era of long-range battle, the attacker loses his traditional advantage of choosing where and when to initiate combat. In other words, in future war all operations will perforce comprise a mix of offensive and defensive actions, the proportions of each changing according to circumstances and often very suddenly.

0112. ***The Meeting Battle and Engagement.*** With manoeuvre, surprise action and rapid and kaleidoscopic change being the rule on the future battlefield, it is not surprising that GENFORCE theorists believe that the most typical form of combat action will be neither attack nor defence but the meeting battle and engagement (ie, at the tactical and operational levels respectively). This is a clash between two sides when both are trying to accomplish their missions through offensive action. Such combats will occur, for instance: when one side is preempted in its attempt to establish a defence on vital ground; when a counter-blow is delivered against an enemy whose advance has not been halted; when forces operating in the depth try to check or destroy enemy reserves moving forward to join the main battle (or are themselves attacked by an anti-landing or other reserve); when a grouping attempting to break out of encirclement meets a thrust designed to reimpose it. Such a battle or engagement, more than any other, will be characterized by: obscurity of the situation, with rapid and abrupt changes in it; shortage of time for decision making; swift movement to contact of both sides, with rapid changes from march to approach march and combat formations and a speedy build up of effort from the depth; an intense struggle to seize and hold the initiative; the presence of open flanks and unfettered manoeuvre; the dynamic and decisive nature of the encounter.
0113. ***Implications.*** The GENFORCE vision of the next battlefield, illustrated in Diagram 1-2, is one of great dynamism, intensity and destructiveness. It is of a struggle which will not take place along clearly identifiable lines, but which will spread out in great width and depth. The concept of a struggle to maintain or break a more or less stable front line must be replaced by one of combat flowing over huge areas. Formations and even units will no longer enjoy secure flanks or safe rear areas. Combat will be fragmented and non-linear. This does not imply the random dispersal of units and formations. Rather, commanders, who will not have sufficient forces to achieve viable force densities connected across wide frontages, but still need to deliver fire in width and in depth (and be able to transition rapidly from one to the other), will have to manoeuvre to achieve concentrations and counter-

concentrations. A fine balance will have to be found between concentration to apply decisive force, dispersal to reduce vulnerability and economy of force to insure adequately against attacks from flank or rear. Manoeuvre is seen to be the key to success, but manoeuvre must not be confused with mere movement. It must be purposeful and timely and moving units and formations must contain sufficient firepower to fulfil the mission: ie, manoeuvre is latent firepower, seeking the right place and time for its application. On the other hand, less firepower is required than in attritional combat, for the aim of manoeuvre is as much psychological dislocation of the enemy as his physical destruction. Actually, these two aims are not contradictory but complementary. A surprise application of prepared strength against unprepared weakness followed by rapid exploitation will enable one side to impose its will upon the other. The goal of combat in non-linear warfare will seldom be the seizure or retention of ground, but rather command of the area of operations which will be conferred upon the side that more successfully pursues the destruction of enemy forces, especially deep strike systems and their directing and supporting elements. In this way, land warfare is coming to resemble sea and air warfare. This vision of future war has driven GENFORCE into a major restructuring of its forces to provide groupings tailored at every level to be able to operate flexibly and independently. This is dealt with in Section 3 and the Annexes to this chapter.

The Relationship Between Operational Art and Tactics

0114. ***The Traditional Relationship.*** Operational art is the bridge between strategy and tactics, that is to say the means by which the senior commander transforms a series of tactical successes into operational “bounds” linked together by the commander’s intent and plan and contributing thereby to strategic success. Battles, concurrent and consecutive, are the building blocks of an operation and tactics are thus the material of operational art (just as the operation is the means of strategy and operational art is the material of strategy). One of the several features that differentiates tactics from operational art is the nature of the problems they face and the method of approaching a solution. In operational art, the point of departure is the goal and the missions arising from it. Necessary forces are fitted to these, creating groupings which will achieve the given aim. Thus there is no permanent force structure for operational groupings. In tactics, the start point is the available forces, and missions are determined and actions planned relative to them: ie, tactics is the specification of missions for available forces.
0115. ***The Developing Relationship.*** Technological developments are changing the relationship between these two levels of war, lessening the dependence of the former on the latter.
- a. ***The Past.*** In World War II, the cornerstone of GENFORCE’s design for the offensive was the concept of deep battle and deep operations. Tactical forward and raiding detachments and subsequently operational mobile groups would be inserted into the enemy’s rear at the earliest possible moment. These were to undermine the stability of the defence by seizing depth defence lines before they could be occupied by the enemy, by combatting enemy reserves in meeting battles/engagements, by destroying the C3 and logistic support on which the front line formations depended to halt the attacker’s main forces, and by

encircling the enemy's defending groupings. In this way the enemy would be defeated more or less simultaneously in front and rear and his defence would be collapsed and destroyed rather than merely pushed back to fight again. The success of deep battle, and even more, of deep operations was, however, dependent on the achievement of early tactical success in order to insert the exploitation echelons. Moreover, true simultaneity of actions in front and rear could not be achieved thanks to the limitations of artillery, airpower and airborne forces.

- b. *The Impact of Technology.* In recent times, technological progress has made it possible fully to implement the demands of theory. The operational commander now has the resources he needs to achieve operational-tactical and even operational goals in the enemy's depth at the same time as he is attacking the forward edge. All-weather deep strikes by aviation (fixed and rotary wing), missiles, long-range tube and rocket artillery (including the delivery of remote mines and jammers) and electronic means, coupled with the actions of airborne and heliborne raiding and ground-seizing forces can paralyse the enemy through attacks on his C4I, logistics, air, EW and long-range assets and reserves: the principle of simultaneous action against front and rear can, in other words, now be realized. Furthermore, most of the enemy reconnaissance and weapons systems that form the most potent threat to tactical units and formations will usually be deployed far outside the latter's area of fire effect or even of traditional intelligence interest: the most destructive weapons are now held at the operational level. Only the headquarters of higher formations, with wide boundaries and the means to look and strike deep, can be expected to combat the key elements of the enemy's operational formation. This, in GENFORCE's view, decisively changes the former relationship between the component parts of military art. Battle, conducted by tactical units and formations, ceases to be the only means of achieving victory. The operational commander has acquired considerable ability to inflict decisive defeat on the enemy with the resources he controls directly. Moreover, through the rapid manoeuvre and concentration of fire, he can exert a determining influence on the tactical battles of subordinates. There will thus be an increased dependence of tactics on operational art in future war. It follows from this that superior tactical performance will not be able to compensate for lack of operational, let alone strategic foresight or deficiencies in concepts or planning. Furthermore, GENFORCE theorists believe that it is necessary to get the answers right the first time at these higher levels. Failure to do so will be so severely punished in technological war, which reaches through the entire depth of deployment, that subsequent recovery and rectification of errors and deficiencies will hardly be possible. Incorrect appreciations and decisions made even before the first missile of the war is launched will likely doom the perpetrator to inevitable defeat.

The Initial Period of War

0116. **Definition.** GENFORCE theorists define the initial period of war as that in which the mobilization, concentration and deployment of the main forces is completed while permanently ready forces endeavour to achieve the immediate strategic goals

of the war, or at least create favourable conditions for the committal of the main forces to operations. They observe several trends in the characteristics of the initial period:

- a. The tendency for the massive use of new means and methods of warfare to have an increasing importance in determining the outcome.
- b. The tendency for the results of the initial period to have increasing influence over the subsequent course of hostilities.
- c. The tendency for the scale of military operations to increase.
- d. The tendency for surprise to become an important factor.
- e. The tendency for the initial period to shorten as a result of improvements in weaponry.
- f. The tendency for the role of manoeuvre to increase in importance.

0117. ***The Influence of New Technology on the Initial Period.*** The latest revolution in military affairs is increasing the significance of the initial period by exacerbating all these trends. Possession of a technological edge and/or a more profound understanding of the nature and demands of future war will be a crucial advantage. Given the accuracy and timeliness of modern surveillance means, mass, deep, conventional-precision and ACM strikes can inflict immense damage and disruption on an enemy just beginning to mobilize and deploy. Thus, the question of which side manages to get its blow in first may well be of decisive significance. GENFORCE places the greatest emphasis on surprise - first and foremost at the strategic level, as to timing if not as to intent, and then at the operational level as to timing, axes, weaponry, methods and the scope and scale of operations. The first operation in future war, ideally (or rather necessarily) preemptive in nature, will consist of an electronic-fire engagement. This will be an air, land and sea launched missile, aviation and electronic attack throughout the enemy's operational and even strategic depth to seize the initiative, establish dominance in the information struggle and the battle for air and fire superiority, thus creating the necessary preconditions for the actions of the ground forces. The electronic-fire engagement may last for several weeks and during it there may be only limited offensive activity by major ground formations. Preparations for it will have been carried out covertly in order to secure surprise in the preemptive, first, potentially decisive, mass strike. This would be prejudiced by highly visible prior mobilisation and deployment of ground forces. Thus the preparations of the latter will most probably be completed only after the outbreak of hostilities, with only permanently ready forces, long-range fire means and, perhaps, air and sea assault forces being involved in the first operation.

SECTION 2 - GENFORCE OPERATIONAL AND TACTICAL PRINCIPLES

0118. ***General Principles.*** The principles of GENFORCE operational art and tactics are not regarded as immutable. Major technological developments and/or changes in military doctrine and consequently in strategy will prompt corresponding changes

in operational art and tactics. As the contemporary period is one of rapid and fundamental change, the current guiding principles will certainly undergo development and shift in their relative importance. Those currently governing GENFORCE thinking are listed in this paragraph. The chief operational and tactical implications of these principles are described in the following paragraphs. The principles are:

- a. Selection and Maintenance of the Aim.
- b. Surprise.
- c. Activeness & Speed.
- d. Concentration.
- e. Action Throughout the Enemy's Depth.
- f. Realism.
- g. Coordination.
- h. Preservation of the Combat Effectiveness of Own Troops.

0119. ***Selection and Maintenance of the Aim.*** In selecting the aim of any combat action, GENFORCE commanders are taught to emphasise the destruction of the enemy.

- a. *Operational Art.* The ultimate aim of any operation is the utter defeat of the enemy's main opposing grouping. To this may be added, in the course of an offensive, the taking of an important area or line, thus ensuring the further development of the offensive: and in defence, frustrating the enemy attack, holding onto vital ground, and creating conditions favourable for going over to the offensive. The overriding aim, however, is always the destruction of the enemy. Merely pressing him back or, when in defence, stopping his advance, are inconclusive results, as the enemy can reconstitute and regroup his forces and fight again. When deciding on the form of operational action to be used, the phasing, the echeloning of forces, the geographical areas to be seized or held, the commander will always make sure that each element of this decision will lead, in the end, to the annihilation of the most important enemy grouping. The identification of this grouping, without which the enemy cannot achieve his aim, is thus the key part of the decision making process. In the past, this grouping was a combined arms formation, an army group or one to two corps. In future war, however, the enemy's main striking power will reside, not in his armoured formations but in his deep fire and strike capabilities, ie, in his fixed and rotary wing aviation, missiles, long-range artillery and EW means and in the C3I that direct them. The primary task will thus always be the destruction of these means through the conduct of deep operations, in this way winning the battle for fire superiority and creating the necessary preconditions for the destruction of manoeuvre formations.

- b. *Tactics.* Tactical commanders will have their aim closely defined by the senior commander and they will have little latitude to vary it. On the future battlefield, however, GENFORCE commanders will avoid dictating the detail of how to achieve the aim to their subordinates, accepting that the rapidity with which the situation may change and speed with which decisions must be taken render counter-productive much of the detailed staff work required in the past. Thus GENFORCE commanders at division/brigade and regiment/battalion will be expected to demonstrate much greater initiative in decision-making than in the past and to rely much less on passing responsibility back up the chain of command. In turn, this means that future GENFORCE tactical commanders must have greater command experience and staff training than in the past and that headquarters at unit and sub-unit level must have greater capabilities.

0120. **Surprise.** Surprise is considered an increasingly important component of victory. GENFORCE considers as virtually axiomatic the proposition that being surprised means defeat and achieving it brings success. So important is it that regulations lay down a mandatory requirement for commanders at all levels to complement all operational plans with a deception plan. In the offensive, surprise confers the initiative on the attacker, disrupting the plans of the defence, forcing the enemy into a reactive posture and depriving him of time when he most needs it. It enables GENFORCE to impose its style of warfighting on the enemy, compelling him to fight a series of meeting engagements where his defensive power is less effective. It is seen to be potentially decisive where the enemy is only partially or mal-deployed (especially in the initial period of war), has a low force density and/or lacks operational or strategic depth. Given the anticipated tempo of future operations, it is believed that a surprised defender will rarely be granted the time he needs to recover his balance and create an effective defence save at the expense of serious losses in combat power and space. In the defence, it enables GENFORCE to wrest the initiative from the attacker and it thus goes some way to negating the enemy's superior strength. If the attacker is wrongfooted and unbalanced, it may be possible to mount a counter-blow to strike him before he can transition to defence. There is thus a strong tendency to attempt the preemption of enemy action, whether it be offensive or the creation of a stable defence. As the range, accuracy and destructiveness of weaponry increases, surprise also becomes essential not merely to victory but to survival in the face of modern weaponry. It prevents the enemy from optimizing the use of his forces and shortens drastically his available reaction times, thereby helping to preserve combat effectiveness. At the same time, of course, it enables GENFORCE to gain maximum value from his own assets. The need for surprise makes growing demands on commanders at all levels. As reconnaissance systems grow in sophistication their troops must achieve higher standards of camouflage training, not only to protect themselves physically but also in order to ensure the integrity of the operational level concealment and deception plan. Junior commanders must learn to avoid stereotype in their tactical planning.

0121. **Activeness and Speed.** "Success in an operation or battle is achieved by that side which, all else being equal, acts more actively and resolutely, takes the initiative and holds it firmly. A side which only defends is inevitably doomed to defeat." Thus does a prominent GENFORCE commander encapsulate the obsession with seizing and holding the initiative, whether in attack or defence. This becomes

more important than ever in future war. If dominance is not established early in the struggle for electronic and fire superiority by carrying the battle into the enemy's depth, manoeuvre forces will be in danger of being reduced to the unenviable role of merely providing targets for the enemy's deep, precision strike systems.

- a. *Significance of the Initiative.* The advantages which accrue to the defence from ground, concealment and modern firepower are all outweighed, in GENFORCE eyes, by the advantage which possession of the initiative imparts to the attacker. Being able to choose the axes on which battles will be fought, being able to choose his own time and method of operating and with the greater possibility of achieving surprise, the attacker can hope to impose his will on the enemy. As he is dictating the course of events, he is much more likely to win the crucial battle for time than a defender forced to react to his moves. Moreover, the very fact of being on the offensive strengthens the morale of his troops: by contrast, an enemy forced onto the defensive or withdrawal, by admitting the enemy's will is stronger, will suffer a correspondingly negative effect. It follows that, when GENFORCE is compelled to adopt the defensive, every effort must be made to wrong-foot the enemy, catch him off balance and, having achieved a locally favourable correlation of forces, wrest the initiative from him with counter-blows. At all times, GENFORCE endeavours to maintain an offensive state of mind in its commanders.
- b. *Constant Pressure.* There must be no let up in the attack or counter attack and every effort must be made to turn offensive action into pursuit (revealingly studied by GENFORCE as a distinct and vitally important phase of war). Offensive action must be pursued round the clock, regardless of weather. Where necessary, momentum will be maintained through the acceptance of casualties, loss of men and equipment being more acceptable than loss of time. Time is seen to be the most precious commodity in modern war. Unremitting pressure will overstrain the enemy command and control and logistics system and disrupt his ability to conduct reconnaissance and make use of his most effective weapons systems by overrunning them or keeping them on the move. Plainly, this principle is more difficult to live up to when on the defensive. Nevertheless, every effort must be made through the use of raids and local counter-blows; the latter are often delivered in tactical and operational pockets into which the enemy is deliberately lured by planned withdrawals in manoeuvre defence.
- c. *Speed.* Pressure on the enemy is not enough of itself. A merely attritional approach will grind down both sides. It will not be decisive in the offensive and will probably lead to defeat in defence. The enemy must be unbalanced, his command and control must be disrupted and the will of his commanders paralysed, and his forces must be split up into isolated and demoralized fragments which can be destroyed in detail. In the offensive, this is accomplished by achieving as early as possible a high tempo of operations which capitalizes on the achievement of surprise and is itself surprising, and which retains the initiative. Attack should give way to pursuit as soon as possible: in pursuit, all the advantages are seen to lie with the attacker: his logistic consumption goes down and he enjoys a very favourable exchange rate in casualties to both personnel and equipment. Thus the greatest possible stress is laid on manoeuvre. Bypassing will usually be preferred to direct

assault, leaving enemy groupings to wither on the vine or be forced into a withdrawal which will expose them to destruction through parallel pursuit. In the defence, emphasis is now placed less on the unyielding holding of ground and more on rapid regrouping and reaction by reserves. Transition to the counter-attack/strike and counter-offensive, where tempo can be used to achieve success rather than merely avert failure, is always the goal. In both phases of war, the greatest possible stress is placed on the speedy reactions of air, missile and artillery strike systems and the use of air mobility to carry the battle into the enemy's depth. The proliferation of heliborne and airborne troops and their means of transport is seen to provide the vital quantum leap in mobility which will make possible the rapid shift of the centre of gravity of an engagement into the enemy's depth.

- d. *Commander's Initiative* is central to the fulfilment of this principle. The partial recentralization of C2 that has recently taken place (see paragraph 0104) will mean that subordinate commanders will be more closely controlled as to when and where they must act. The execution of manoeuvre and combat actions will, however, require bold and, above all, prompt decisions at all levels. Commanders are always aware of their senior's concept of operations or battle and are expected to seize any opportunities to further his aims. Moreover, while direct control (combined with flexibility of mind and force structuring) is no longer seen to be the only style of command suited to manoeuvre warfare, it still plays an important role in the most fluid and unpredictable phases (eg, in meeting engagements and battles and in pursuit).

0122. **Concentration.** Success stems from the concentration of superior force at the decisive time and place. GENFORCE, however, does not consider the correlation of forces (the comparative numbers of men, tanks, guns, etc) as being the end of the story. The ratio of forces to space, especially of the defender, is seen to be just as important. Thus a defender, overstretched by being given an excessive sector to defend, can be defeated by an attacker with little or no overall superiority but possessing the initiative and with the freedom to concentrate his efforts at the chosen point of attack. By the same token, a defender with an adequate force density will be difficult to overwhelm as in the past, given the range, accuracy and lethality of modern firepower: only the massive application of firepower to lower his force density will create the necessary conditions for the generation of tactical, and eventually, operational manoeuvre.

- a. *Differing Requirements for Concentration.* Depending on the enemy's situation, different levels of superiority are needed to achieve success in the offensive. Strategically, 1.5: 1 or even less is considered acceptable provided that 3-4:1 can be achieved on operationally decisive axes. At the tactical level, much will depend on the circumstances of the battle. Thus, a battalion or brigade, or regiment or division attacking a strong enemy in prepared defences on an axis of main effort requires a superiority of 5-6:1 to ensure success. Lesser superiority will suffice against a defence only partially prepared and/or overextended, and on a secondary axis, a ratio of 3:1 will be acceptable. In a meeting battle, an advantage of 1.5:1 is considered adequate, and even parity may be accepted. In any case, given the immense destructiveness of modern firepower, there can be no leisurely massing of men and materiel to gnaw through defences in an essentially attritional battle.

- b. *Approach to Concentration.* GENFORCE follows five complementary approaches to the problems of concentration to achieve the requisite correlation of forces in the offensive.
- (1) *Manoeuvre.* Ideally, the need for strong concentrations to conduct a penetration operation to break through the defence (always difficult and uncertain of success) should be obviated. Given a sufficient degree of operational surprise, the enemy will not be allowed to complete his deployment and prepare for either offensive or defensive action on the chosen axis. Opportunities for the conduct of operational and tactical manoeuvre will exist from the very start, and the enemy will be destroyed in meeting engagements. In defence, manoeuvre is even more important. A superior enemy cannot be defeated in an attritional struggle. Only manoeuvre to create counter-concentrations and surprise, aggressive counter-moves will bring success.
 - (2) *Deception.* If full enemy deployment cannot be preempted before an attack, then he must be persuaded through deception and feints to concentrate his forces on false axes, thus lowering the density of his offensive or defence on the chosen axes. In defence, it is vital that the enemy be deceived as to true deployment of the defending forces so that the attacker ends up by attacking strong and not weak sectors.
 - (3) *Concentration of Fire.* Rather than massing forces to overwhelm the enemy, the fire preparation and electronic attack should be concentrated on the selected sector from widely dispersed long-range systems, airfields and forward operating sites. With precision weapons and other ACMs, it is now possible to effect a rapid and dramatic reduction of the defender's strength and so reduce the numbers required to break through. They can be used to disrupt an attacker, making him vulnerable to a spoiling attack or even defeat in a meeting engagement. In many situations, the tactical commander will thus be dependent on his operational superior to create the fire superiority necessary for success.
 - (4) *March Separately, Fight Together.* Formations and manoeuvre units will advance rapidly from dispersed locations in depth, moving in more or less parallel columns and converging only at the last minute on the chosen sector. They will attack from the line of march against weak opposition, or with only a minimum of delay in forward concentration areas if against a stronger, better prepared enemy. Concentration, in other words, is seen as more a matter of time than of space. The aim is to achieve surprise and so to preempt any enemy counter-concentration or devastating counter-preparation. The most sudden and dramatic method of altering the correlation of forces on the chosen sector will be provided by airmobility. Moreover, forces committed in this way will be able to attack the enemy from the rear, thus enhancing their effectiveness (not least psychologically) out of all proportion to their numbers.
 - (5) *Dispersal.* To the principle of concentration, GENFORCE has added the requirement for controlled dispersal. Formation concentration areas are

now greater in area so that concealed dispersion of units can minimise the effect of enemy strikes. Units will also have to practise frequent relocation to escape precision or other ACM strikes.

c. *Maintaining a Favourable Correlation of Forces.* Having broken through, advancing forces will disperse to advance on multiple axes, but always with several columns within supporting distance. Such a pattern of advance will fragment the enemy and complicate his use of reserves by concealing the main axis and by presenting several threats to be countered. At the same time, interdiction will disrupt and slow down enemy attempts at regrouping and counter-penetration, and forces operating in the enemy depth will destroy the enemy's cohesion by attacking his command and control, logistics and morale. In these ways, the initially favourable balance of forces will be maintained.

0123. ***Action Throughout the Enemy's Depth.*** In previous wars, the single greatest problem in the offensive was that of achieving a timely breakthrough. If the tempo was too low, the enemy could retain his balance and continually offer organized and effective resistance. He did this by deploying immediate reserves, redeploying forces from passive sectors, bringing up fresh reserves from the strategic/operational depth or flanks and by refurbishing formations that had been seriously damaged. In other words, lack of tempo in the penetration of the defence prevented a breakthrough and the generation of operational manoeuvre and transition to pursuit: consequently, the attacker was condemned to an attritional struggle.

a. *A Traditional Concept.* The need to attack the enemy simultaneously throughout the entire depth of his deployment is a long established GENFORCE principle. In the offensive, to win the battle for time and reduce the casualty bill for an operation as a whole, it is necessary to destabilize the defence at the earliest possible moment and thereafter to prevent it from restoring balance and cohesion. Keys to accomplishing this are the disruption of enemy C3I and logistic support, the destruction, disruption or fixing of tactical and immediate operational reserves and the early seizure of vital ground in the depth on which the enemy could reestablish his defence if given the opportunity (eg, obstacle crossings, defiles, crossroads). This requires the early generation of tactical (and subsequently operational) manoeuvre.

b. *Growing Importance and Changing Nature.* The revolution in military affairs has increased the importance of this principle of simultaneity. New methods of warfighting, with the stress on long-range combat, and new approaches to concentration have produced fresh thinking about the enemy's centre of gravity and therefore the decisive point for the application of force. In the past, both attacker and defender thought in terms of the axes on which successful actions would mean the favourable outcome of a battle or operation. In future war, the centre of gravity of both sides will lie not so much in lines or positions but in groupings of key weapons systems and their associated C3I. These will be dispersed in width and depth. Thus the concept of main and subsidiary axes has been to a considerable extent replaced by that of areas for the concentration of effort. The main forces are no longer those engaged along the line of contact but those operating against and within the enemy's depth. Thus, the principle of simultaneous action throughout the enemy's depth has risen in the hierarchy

of importance. Raiding actions have become a new form of operations of central importance. Raiding detachments and deep strikes have become the cutting edge of contemporary formations, whether in attack or defence. GENFORCE tactical formations and units thus expect to receive missions from their operational commanders which require them to fight in the enemy's depth. A brigade may be tasked as an exploitation echelon by an army or corps, or even as an operational manoeuvre group. A combined arms battalion will often be sent out as a raiding or forward detachment.

- c. *In Defence.* Even in defence, observation of this principle is critical. It is important, despite the difficulties which face a defender inferior in resources, to strike into the enemy's depth. The attacker's plans and timetables are also vulnerable to disruption through such actions, and success will not only contribute to maintaining the stability of the defence but also help create favourable conditions for counter attacks or offensives. Above all, defensive success will only be achieved if the enemy is prevented from gaining mastery in the area of long-range combat. The considerable increase in airmobility and the fragmented, non-linear nature of the battlefield will combine to make the insertion of raiding forces and forward detachments much easier than it was previously, whether in attack or in defence.

0124. **Realism.** GENFORCE is acutely aware of the danger of overtasking. Its own history saw too many examples of forces being asked to bite off more than they could chew. Wishful thinking, and in particular, an overestimation of own forces and underestimation of the enemy's, has to be countered by objectivity and the scientific elaboration of norms to establish true requirements. At the same time, undertasking is almost as bad. Excessive concentration in one area will assuredly mean an unnecessary deficiency and possible problems elsewhere, perhaps even without adding to effective combat power. War, as GENFORCE has always maintained, is a risk business. The successful commander is the one who best balances the risks he faces so that he can achieve his aim whatever counter-move the enemy may undertake. Essential to this outcome is continuous and effective reconnaissance at all levels and flexibility inherent in the deployment of his forces, in his scheme of manoeuvre and, above all, in his mind and in his headquarters staff.

0125. **Coordination.** All GENFORCE commanders are taught to regard themselves as combined-arms commanders, whatever their service or branch of service. Only a combined arms approach to combat will bring success. Each branch has its own strengths and weaknesses and each uses its strength to compensate for the others' weakness so that the team as a whole maximises its effectiveness and presents the enemy with no exploitable vulnerability. Moreover, even at the lowest levels commanders must plan for a land-air or, where appropriate, a land-air-sea battle and expect the enemy to do the same. Within the ground forces the desire to improve inter-arm cooperation was a major factor in the introduction of the combined arms battalion (see Section 3). As all arms are integrated into the battalion structure and work and train together, commanders can fully understand their individual strengths and weaknesses and staffs become accustomed to coordinating their actions. The principle of coordination of combat and support elements is the easiest to state and, in GENFORCE's opinion, the most difficult to put into practice.

0126. ***Preservation of Combat Effectiveness of Own Troops.*** As GENFORCE has abandoned the mass army concept in favour of a qualitative approach to victory, this principle becomes even more important than in the past. It is also a much more difficult task. ACM strikes can inflict devastating losses in very short periods of time. Furthermore, the location of these losses has become more difficult to predict and insure against than hitherto. Modern target acquisition and delivery systems enable the enemy to execute effective strikes in the deep rear and not just against the first echelon. Nevertheless, GENFORCE is insistent that victory is only achieved if friendly losses are held to acceptable level, while those of the enemy are unacceptable. Routing the enemy is not enough if one's own combat effectiveness does not remain high enough to preserve the fruits of victory. GENFORCE currently sees four solutions to this problem.

- a. ***Offensive Action.*** At the operational level at least, GENFORCE regards the offensive as the stronger form of warfare. A surprise, in depth offensive pursued at a high tempo without let up will prevent the enemy from establishing a well organized defence and, crucially, from making optimum use of long-range weapons. Experience suggests that loss rates and logistic expenditure fall as the rate of advance rises. (This represents the difference between gnawing through a balanced defence and conducting a pursuit.) Even in defence, offensive action against enemy C4I and deep strike systems will be critical in reducing losses and maintaining an effective and balanced posture.
- b. ***Protective Measures.*** The increased scope and scale of the air, long-range artillery and missile threat have increased the importance of passive protective measures such as camouflage, concealment, the use of deceptive groupings, dispersion, the use of night and bad weather to cover movement, and security (especially electronic). Concealment, deception and disinformation are now considered crucial to survival at all levels of war. The enemy's attention must be shifted away from what should be his primary areas of concern to devote reconnaissance and strike resources to deal with dummy concentrations and diversionary manoeuvres. Above all, perhaps, stereotype in the planning and execution of missions must be avoided at all costs. The need for controlled dispersion and frequent redeployment to ensure survivability, coupled with the fact that massive concentrations of forces to achieve penetration are no longer needed before operational manoeuvre can be generated, will help to mask real plans. Careful orchestration of purposeful and deceptive moves and deployments at the operational level can both overload and confuse the enemy's intelligence gathering and processing system and present an at least ambiguous picture of intentions. Where deception confirms the enemy's preconceived ideas, it will be successful. Considerable stress placed on technological counter-measures to attack, eg, the use of corner reflectors, radar and infra-red reflecting materials, decoys, smokes and aerosols, systems to jam, fool or destroy smart munitions and ECM. These exist right down to individual vehicle level. Most AFVs, and all high value ones, have defensive aid suites which automatically detect incoming missiles and fire aerosols, grenades or decoys to defeat the attack. All air defence equipments are provided with corner reflectors. Of course, defensive measures alone will be insufficient. There has to be sustained physical and electronic attack on the enemy's whole intelligence gathering and fire control system at every stage of

its operation. Active measures to disrupt enemy strike and fire capabilities are the best means of preserving one's own forces combat effectiveness. Raiding actions and exploitation in the attack by tactical elements are important elements of this effort.

- c. *The Restoration of Combat Effectiveness* after devastating strikes is a great concern. Special reserves, eg of medical, engineer, repair and recovery and chemical defence troops, are maintained to ensure prompt reaction. Once command and control is restored, relatively unscathed elements continue the mission, and they are joined as soon as possible by composite detachments and groups which are formed through the amalgamation of badly mauled sub-units and units.
- d. *Logistic Support*. Fast moving, manoeuvre-dominated operations where there are no clearly defined front line or safe rear areas complicate the problem of logistic support, even when the stocks required have been correctly assessed and accumulated. GENFORCE has devised a logistics system which is designed to cope with this problem. (See Chapter 11).

0127. ***Synergy of the Principles***. GENFORCE believes that, at least at the operational level, the offensive is the stronger form of warfare. It should be noted, in this context, that there are synergetic benefits in combining several of the above principles. There appears, at first sight, to be some contradiction between the need for both surprise and concentration: the achievement of the latter can all too easily be achieved only at the expense of the former. Surprise is, however, a force multiplier (by a factor of 1.5-2 at the operational level and even more at the tactical in GENFORCE thinking). By catching the enemy unprepared or on the wrong foot, it reduces the need for large-scale, time-consuming concentrations and logistic build-up. This need is further reduced by the conduct of operations simultaneously throughout the depth of the enemy's deployment. (The insertion and actions of such forces are, in turn, made easier by surprise preventing the enemy from deploying in a balanced way to cope with the threat). By undermining the stability and viability of the defence through disrupting the enemy's command and control, logistics and reserves, deep operations reduce the ability of the enemy forward-deployed forces to resist the main attack. Moreover, the crumbling of the defence from within makes it easier and quicker to batter down its outer shell. This will lead to higher rates of advance and lower loss rates within the main forces, leading in turn to speedy link-ups with forces operating in the depth and reducing the time the enemy has available to deal with either threat.

Summary and Implications

0128. ***A Manoeuvrist Approach to Combat***. As Sections 1 and 2 have made clear, GENFORCE sees future war as being inevitably one of manoeuvre. This perception has strengthened some of its previous tenets, but it has also led to new thinking. This paragraph will summarize the fundamentals of manoeuvre warfare as identified by GENFORCE and Section 3 will deal with the implications for force structuring.
- a. *Command and Control*. The manoeuvre and concentration of missile, artillery and aviation fires by lower and higher formation commanders is expected to

be the decisive element in battle and the senior commander will closely coordinate the actions of his subordinates to exploit the results of such fires. He will direct the latter's actions to ensure the unity of their actions in terms of time and place to ensure the furtherance of his aim. The handling of tactical formations and units will, however, be left to their commanders. Moreover, the development of fast moving and changing situations will, thanks to time constraints, be entrusted to the initiative of the latter (guided, of course, by their understanding of the senior commander's intent and area/axis of main effort). To ensure that they can meet the challenge, tactical groupings are created which can act independently, without having to wait for reinforcement from above.

- b. *Designation of a Main Effort.* The commander will have to indicate clearly the axis, or more usually now, the area of main effort.
- c. *Focus on the Enemy, Not Terrain Objectives.* The main effort will be directed towards the destruction of the enemy's main grouping, ie that which is the cornerstone of his fighting power at each level. This will almost always be his means of controlling and waging long-range battle (at least at the tactical and operational levels).
- d. *Act Faster Than the Enemy Can React.* Getting within the enemy's intelligence-decision-orders-action/reaction cycle is now critical to success. This is particularly important in the conduct of long-range combat, where minutes can be decisive. As a general principle, GENFORCE believes that the winner in the battle for time will be the victor in the physical/electronic conflict. Enemy reactions will become increasingly belated and therefore ineffectual.
- e. *Bold, Decisive Action.* Even in defence, let alone the offensive, success will only be achieved by taking the battle to the enemy, especially into his depth wherein lie his key C4I assets and weapons systems. Passivity and/or any attempt to spread scarce resources more or less evenly over an increasingly large battle area will surely result in defeat. Having identified the enemy's centre of gravity, GENFORCE intends to attack it as aggressively as possible. In doing so, risks can and must be taken, and GENFORCE believes that the best way to minimize risk is to seize the initiative and impose its will upon the enemy, forcing him into a reactive posture.
- f. *Avoid Strength, Attack Weakness.* The destruction of key enemy groupings will normally be the aim at the tactical and operational levels. This should not, however, be approached in attritional fashion. By exploiting enemy weakness, it will be possible to generate tactical and operational manoeuvre which will be designed to attack the enemy's central nervous system (his C4I), his sinews (the logistic system) and to split the enemy's groupings into non-cohesive elements that can be destroyed in detail. Attacking the enemy where he is weakest does not conflict with the need to be decisive and concentrate the main effort. The way to the enemy's main grouping will usually be through his weak spots.

- g. *Interdependence of Firepower and Manoeuvre.* Concentration of fire makes it possible to generate and thereafter continue manoeuvre. Manoeuvre (especially in the enemy's depth) makes it possible to bring fire to bear at the critical points.
- h. *Use of Reserves to Achieve a Decision.* When the enemy reaches his culminating point, whether in attack or defence, it is vital to have a reserve in hand to break him. Thus, when reserves are committed, new ones must be created (and firepower manoeuvred to support their employment in a decisive blow.) A significant element of the reserve will have to be airmobile.
- i. *Command From the Front.* While control can be exercised from an headquarters in the rear, command, especially at the tactical level, will have to be from the front. Without a feel for the battle, and often personal observation of the key sector, which comes from the commander's presence forward, the commander will be unable to make the correct decision and, moreover, do so in good time.
- j. *Avoidance of Stereotype.* Actions which can be predicted by the enemy are not only likely to fail but also result in unjustified and possibly unacceptable losses.

SECTION 3 - COMBAT ORGANIZATION

0129. ***The Requirement.*** GENFORCE identified a requirement for its force structures to be able to cope with battles and operations that will spread over zones of greater width and depth than hitherto, areas in which there will be no secure flanks or safe rear areas. Combat will be dominated by long-range engagements, by constant tactical and operational manoeuvre (including vertical) and frequent shifts of axes as each side endeavours to hit the enemy's flanks and rear, and also by a mix of offensive and defensive action. This will require increased mobility, flexibility and capability to conduct independent action at all levels. The tailoring of forces to task should be inherent in standard organizations, both to improve all arms cooperation and because there will frequently be insufficient time to create suitable ad hoc packages for suddenly arising missions. The command and control system must facilitate centralized operational control while allowing for decentralized battle management when necessary. The automation of C3I is seen as vital to increase responsiveness, especially in the fields of air/missile defence and long-range combat, and an increase in the armoured mobility of C3 entities is regarded as essential to survival. (The following two paragraphs outline the implications of this new thinking for the Mobile Forces and Annexes A, B and C go into the subject in more detail.)
0130. ***The Development of Corps, Brigades and Combined Arms Battalions.*** The introduction of corps, brigades and combined arms battalions into the GENFORCE order of battle was inspired by the need to develop force structures appropriate to this future battlefield. At battalion level it was recognised that battalions already very rarely fought as discrete elements, without attached combat and service support sub-units. As the composition of these 'reinforced battalions' became more standardized and as the demand grew for such combined arms groupings to carry

out independent missions as various types of detachment, the combined arms battalion naturally evolved as a permanent structure. Because of its true combined arms nature it was also reclassified by GENFORCE as a unit, although traditionally battalions had been treated as sub-units, a significantly lower level of command. The new battalions are commanded by staff college graduates whereas previously this applied only at regimental (the old unit) level. Thus both the selection for battalion command and the capabilities of commanders at the level are greatly improved. At tactical formation level the traditional division appeared clumsy and inflexible. Brigades were developed to command a smaller number of more capable and flexible manoeuvre elements, while retaining significant combat and service support. Regiment was found to be a redundant level of command, the removal of which not only resulted in significant savings but also speeded up and improved GENFORCE's ability to react to changing tactical situations. The same logic led to the creation of the combined arms corps as an operational level of command. At this higher level, the Army was open to the same criticism as the division. The corps is smaller and more agile than the army, but contains a proportionately much higher level of capability to conduct long-range battle (not only in terms of missile troops and artillery but also with air assault and air mobile forces and tactical airpower).

0131. ***Peacetime and Wartime Organizations.*** As explained above, a major aim in the introduction of the corps, brigade and combined arms battalion was to produce more flexible structures. This cannot be fully achieved unless peacetime structures are varied in wartime. This will be particularly the case at the operational level, where both corps (and army) structures are tailored to meet the demands of their mission. At the tactical level, it is more common to suit missions to the capabilities of formations, though even here adjustments are increasingly possible in an era of scarce resources. Thus, for instance, a brigade will not always command six tank or motor rifle battalions; battalions may be moved between brigades as the situation demands and brigades will often receive reinforcements (particularly artillery and/or engineer) from the army or corps to which they belong. At battalion level there is more stability and companies will rarely be resubordinated to a different battalion headquarters in normal conditions. However brigades may attach additional combat or service support elements to battalions in certain circumstances; this is most likely to happen when fighting in special terrain, such as mountains or cities or when a battalion is acting as a forward or raiding detachment. In addition the combat effectiveness of battalions which have suffered heavy casualties may be restored by forming them into composite units, which will inevitably have an irregular organization.

THE TWO ARMIES CONCEPT

1. ***The “Two-Armies” Concept.*** Given the problems of organizing, training and, above all, financing all units and formations to meet the highly demanding requirements of future war, GENFORCE has adopted a “two armies” concept reminiscent of its World War II approach.
2. ***The Basic Forces.*** These comprise those formations stationed forward and mobilization reserves in the interior.
 - a. ***Organization.*** Both forward and reserve formations are manned largely by conscripts. Some of the former, particularly in low threat areas, are manned at only 65-75% in peacetime, though they are fully equipped. These have a modified version of the full training programme (ie, excluding cadre battalions) and practise mobilization procedures regularly, with their reservists receiving refresher training. The latter are fully kitted out only with combat equipment, often of older types, and rely on civilian transport and some engineer assets being mobilized from the economy. They are manned only at 20-25% and consequently do not do field training above battalion level except on rare mobilization exercises. Currently, the Basic Forces are being reorganized into cheaper, smaller, simpler and more easily handled divisions than those of the traditional type (see Annex B to Chapter 1).
 - b. ***Employment.*** The Basic Forces perform the less demanding wartime missions. In defence, they absorb, disrupt and slow down or halt the enemy attack, shaping the battlefield and winning time for counter-moves. In the offensive, they pin and wear down the enemy and provide protection for the flanks of major offensive efforts and for quiet sectors. In both phases of war they may be used to provide reserves to meet enemy deep thrusts or air or sea landings.
3. ***The Mobile Forces.*** These comprise a smaller proportion of the total ground forces than the Basic Forces. They are, however, the cutting edge. In peacetime, the bulk of the mobile forces are stationed centrally, ready to deploy to any theatre of military operations as required. Some corps and brigades, however, are deployed forward in peacetime to areas of high levels of threat in order to stiffen the Basic Forces there and provide formations fully capable of operational manoeuvre.
 - a. ***Organization.*** The Mobile Forces contain a high proportion of volunteer soldiers. All formations are fully equipped with the latest types and are fully manned in peacetime. They undergo a full and demanding training programme, including frequent formation level field training exercises, and they are kept at a high level of combat readiness. Formations are larger and more complex and more flexibly structured than the traditional, triangular divisions (which do not vary): the numbers and types of subordinate elements will be varied to suit the mission (see Annex C to Chapter 1).

- b. *Employment.* The Mobile Forces perform the strategically and operationally decisive missions, supported by the Basic Forces. In the defensive, they conduct the major counterattacks and offensives. In the offensive, they conduct deep operations with decisive goals. The bulk of GENFORCE's long-range combat capabilities are held in the Mobile Forces, and it is expected that, in consequence, GENFORCE will win the struggle for information and fire superiority in the areas where they are committed.
4. **Command and Control.** To increase flexibility and responsiveness within drastically shortened time periods, and also for reasons of economy, GENFORCE has removed two levels of command. Progress in communications and the now high level of automation in C4I has made this possible. Of particular importance, it has enabled GENFORCE to field effective RFCs/RSCs. Great attention has been paid to Electronic Counter Counter Measures (ECCM) to ensure continuity and security in C3, with frequency hopping, burst transmission and automatic retuning in the face of jamming all being employed to degrade electronic attack. Table 1-2 shows the traditional and new interrelationships of levels of war and command. The logic behind some of these changes is explained in Annexes B and C to Chapter 1.

TABLE 1-2: LEVELS OF WAR AND THEIR RELATED COMMAND LEVELS

Level of War	Traditional Relationship		Current Relationship	
Strategic	Theatre of Military Operations		Strategic Grouping	
Operational-Strategic	Higher Formation	Army Group	Basic Forces	Mobile Forces
Operational	Higher Formation	Army	Army	Corps
Tactical	Lower Formation	Division	Division	Brigade
Tactical	Unit	Regiment	Regiment	Battalion
Tactical	Sub-Unit	Battalion	Battalion	Company

REORGANIZATION OF THE BASIC FORCES

1. ***Rationale for Reorganization.*** The “two armies” concept, which assigns less demanding roles to the Basic Forces, is a result of the realization that the traditional heavy division was too large, cumbersome, complex and expensive for its tasks. Moreover, given the increased demands of the future battlefield, realization of the full combat potential of the heavy division often proved beyond the limited capabilities of average command cadres and conscripts. Consequently, GENFORCE has started a process of lightening the division. This process started in the less threatened areas and is expected to spread. There are, however, indications that some heavy divisions are being retained, perhaps one or even two per army, to give higher formations an element with greater punch for offensive or counter-attack missions.

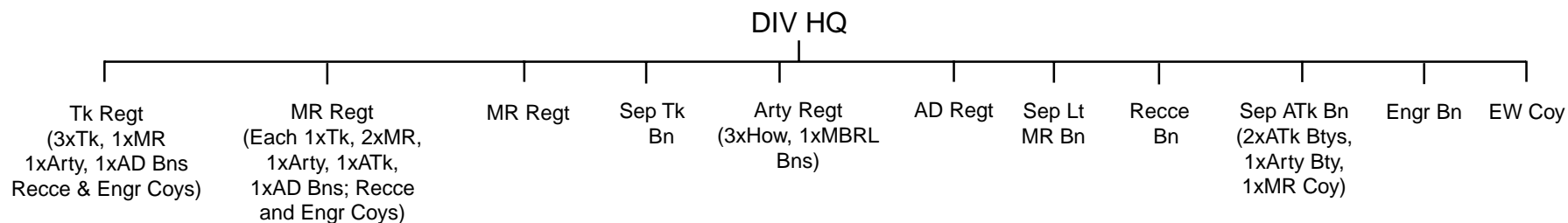
2. ***New Style Tank and Motor Rifle Divisions.*** The new divisions are structured to some extent on traditional, but slimmed-down lines. Instead of four manoeuvre regiments, each division will have only three. The artillery component, however, remains much the same and air defence (especially low level) is actually increased. These proportional increases reflect the growing importance of indirect firepower and aviation (particularly attack helicopters) on the future battlefield. GENFORCE expects 80-90% of casualties will be inflicted by these two branches in future war, with about half falling to each. Moreover, the same level of service support is retained, making the new divisions more sustainable, an important factor when logistic support from higher formation is likely to prove more problematical than before. Diagrams 1-3 and 1-4 give the typical organizations of new style divisions, though there will be structural variations based on potential regions of deployment (see Chapter 13).
 - a. ***Tank Division.*** The new tank division will have two tank and one motor rifle battalion fewer than its predecessor, but it still retains considerable shock power, making it a suitable instrument for offensive/counter-attack tasks. Three innovations have increased its effectiveness in these roles by giving it improved capability for conducting deep battle. Divisions are now receiving a separate light MR battalion trained in airmobile raiding and ground-seizing and holding roles, and also a combined arms separate tank battalion designed to act as a forward, raiding or outflanking detachment. The tank division also has, for the first time, a separate combined arms anti-tank battalion capable of covering an open flank or acting as an anti-tank reserve, in either case obviating the need to detach elements from the main forces and so weaken them. Any of these units is also capable of acting in anti-landing role as well.
 - b. ***MR Division.*** The new MR division is structured primarily for defensive actions. It has one tank and three MR battalions less than before. On the other hand, both regimental and divisional anti-tank battalions have been increased in numbers of anti-tank systems. Even more importantly, these battalions are now combined arms, increasing their versatility and making it

possible for them to act tactically independently. The motor rifle division also has a separate light motor rifle battalion ready for airmobile or anti-landing tasks and a combined arms separate tank battalion for use in deep battle or as a reserve.

- c. *Combined Arms.* As before, regiment remains the lowest level at which a truly combined arms organization exists. The option will remain, as in the past, to reinforce battalions at the expense of others. Alternatively, it is increasingly common to see cross attachment used (eg, a motor rifle battalion giving up a company in exchange for a tank company), a departure from previous GENFORCE practice. The issue of large numbers of short range ATGM has also made MR sub-units less dependent on their BMPs for anti-tank defence. This has increased the flexibility of MR units in defence, enabling them to form “armoured groups” from BMPs (less their dismounted infantry) for the execution of independent missions.

3. **Army Level.** Within the Basic Forces, the means for conducting long-range battle are concentrated at army level. The army commander controls the Surface-to-Surface Missiles (SSMs), long-range artillery and heavy MBRLs and ground attack and helicopter aviation. He will manoeuvre their fire in support of his divisions. Of course, given the growing spatial scope of future combat, it will often not be possible to support all lower formations from centrally located rocket and artillery groups, so he may, on occasion, either form two such groups or even temporarily detach elements to a division acting on a subsidiary axis or (in absence of a Mobile Force formation) as an OMG.

DIAGRAM 1-3: THE NEW MOTOR RIFLE DIVISION: (COMBAT AND COMBAT SUPPORT ONLY)

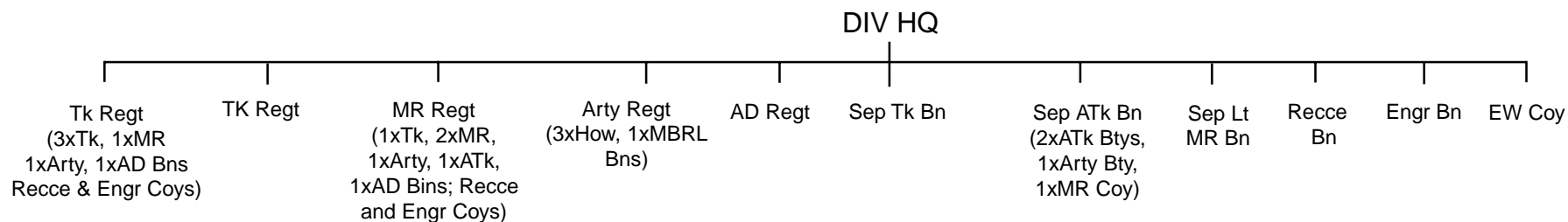


SUMMARY OF MAJOR COMBAT EQUIPMENTS (a) (b)

Unit	AFVs					Arty					ATk				AD			
	T80/ 72	BMP2	BRM 3K	BTR 80	BRDM3	2S23/ 2S12	2B 14	2SI	2S3/ 2S19	BM21 Prima	MT 12	9P148 9P149	Faktoriya/ Kornet	Metis	2S6	Strela	Igla	Tor- M1
MR Regt	40	119	7		4	16		24	6		12	12		36	6	6	18	
MR Regt	40	119	7		4	16		24	6		12	12		36	6	6	18	
Tk Regt	94	54	7		4	8		24						18	6	6	9	
Sep Tk Bn	40	20	1			8		6						6	4		9	
Sep Lt MR Bn				63	4		8					24		18			9	
Arty Regt								54	18									
Recce Bn		20	9	6	6													
Sep ATk Bn		17	1					6			12	12		6	4			
AD Regt																12		20
Total	214	349	32	69	22	48	8	78	72	18	36	36	24	120	26	30	63	20

Note: (a) Equipments listed are illustrative only. They could be of newer or older types.
 (b) Excluding rear services security sub-units.

DIAGRAM 1-4: THE NEW TANK DIVISION: (COMBAT AND COMBAT SUPPORT ONLY)



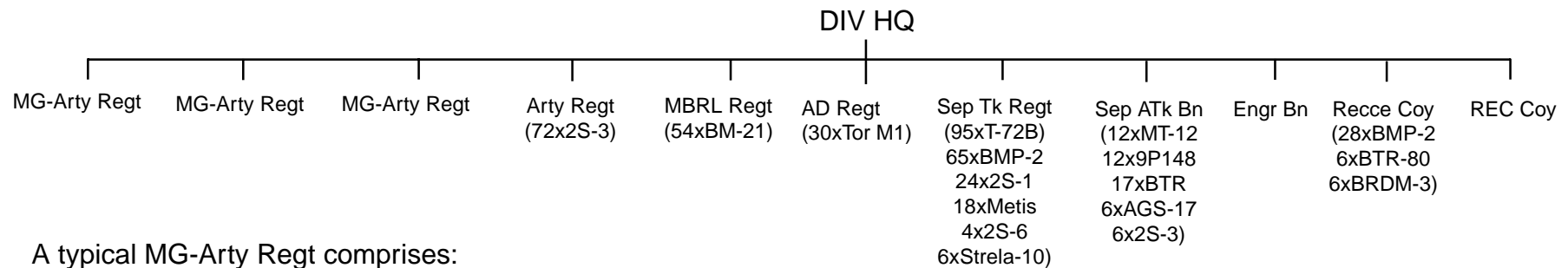
SUMMARY OF MAJOR COMBAT EQUIPMENTS (a) (b)

Unit	AFVs					Arty					ATK				AD			
	T80/72	BMP2	BRM3K	BTR80	BRDM3	2S23/2S12	2B14	2SI	2S3/2S19	BM21Prima	MT12	9P148/9P149	Faktoriya/Kornet	Metis	2S6	Strela	Igla	Tor-M1
Tk Regt	94	54	7		4	8		24						18	6	6	9	
Tk Regt	94	54	7		4	8		24						18	6	6	9	
MR Regt	40	119	7		4	16		24	6		12	12		36	6	6	18	
Sep Tk Bn	40	20	1			8		6						6	4		9	
Sep Lt MR Bn				63	4		8					6	24	18			9	
Arty Regt								54	18									
Recce Bn		20	9	6	6													
Sep ATK Bn		17	1								12	12		6	4			
AD Regt																12		20
Total	268	284	32	69	22	40	8	78	66	18	24	30	24	102	26	30	54	20

Note: (a) Equipments listed are illustrative. They could be of older or newer types.
 (b) Excluding rear services security sub-units.

1B4. **Machine Gun Artillery Divisions.** In accordance with the need to defend extended sectors with fewer troops and at lower cost, the Basic Forces now also field some machine gun-artillery divisions. These are linear descendants of the World War II fortified regions. They are strong in machine guns, mortars, artillery, ATGM and dug-in tanks but weak in bayonet and modern tank strength. There is no standard organization for these divisions as they are tailored specifically to the terrain they are to defend. The role of these semi-static, economy of force formations (and of separate machine gun-artillery regiments) is to hold long secondary sectors or areas where the terrain is especially suited to positional defence. Their tactical areas of responsibility are fortified in peacetime with well prepared and camouflaged primary and alternate positions and plentiful dummy/reserve ones. They form a series of independent strong points, often echeloned in considerable depth, with limited counter-penetration and counter-attack reserves to plug gaps and support the defence. Diagram 1-5 illustrates one of a number of possible variations of organization.

DIAGRAM 1-5: FIELD MACHINE GUN-ARTILLERY DIVISION (COMBAT AND COMBAT SUPPORT ONLY)



Note: A typical MG-Arty Regt comprises:

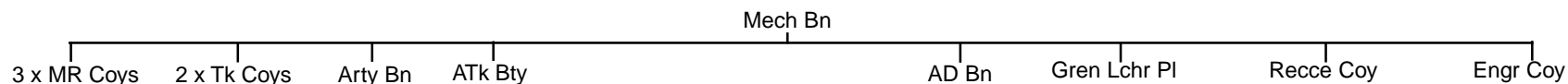
- (1) 4 x MG bns, each of 3 x MG Coys and a Sp Wpns Gp with 1 x ATk Coy, 1 x Mor Bty, 1 x Gren Lchr PI, 1 x AD PI.
- (2) 1 x Mech Bn with 1 x Tk Coy, 3 x MR Coys and a Sp Wpns Gp with 1 x ATk Coy, 1 x Mor Bty, 1 x Gren Lchr PI, 1 x AD PI.
- (3) 1 x Sp Arty Bn with 3 x SP How Btys.
- (4) 1 x sep ATk Bn with 2 x gun and 2 x SP ATGM btys.
- (5) 1 x AD Bn with 3 x SP btys.
- (6) 1 x Engr Coy, strong in minelaying and position preparation equipments.
- (7) 3 x Tk firing pt Coys, each with 10 x dug-in tks.
- (8) 2 x Arty Bns, each of 3 x casemate or dug-in towed How Btys.
- (9) 1 x casemate Coy with 18 x prefabricated, retractable ATGM/Gren Lchr/MG turrets.

ORGANIZATION OF THE MOBILE FORCES

1. ***Rationale Behind the Structure of the Mobile Forces.*** If the Basic Forces are GENFORCE's shield, the Mobile Forces form the sword. They are designed to deliver heavy blows in the pursuit of deep operations, though where necessary, elements may be used to stiffen the defence on the main axis of an enemy attack. While their main role is to provide the cutting edge of offensive or counter-offensive action, the Mobile Forces are not structured purely for the offensive. As all battles and operations are seen to comprise a mix of attack and defence and to involve broad manoeuvre with open flanks, dedicated anti-tank elements are included at all levels from battalion upwards; these are now combined arms groupings, with organic motor rifle, artillery and air defence assets. Each unit and formation is designed to operate independently where necessary, having all the combat and service support required to ensure sustainability when detached from the parent formation. GENFORCE regards it as axiomatic that any decentralization of decision making, any empowerment of tactical commanders to use their initiative to achieve broad goals must be matched by appropriate organizational structuring. Such commanders must be given the means with which they can fulfil their mission without having to wait on reinforcement from above if their independence is to have substance.
2. ***The Combined Arms Battalion.*** Non-linear combat increases the importance of sustained, independent actions by units and sub-units fighting on separate axes or isolated sectors, and of the flexibility, imagination and initiative of commanders at all levels. In future war, GENFORCE has come to believe that overall success will depend on the capabilities and actions of the smallest component of tailored force structuring - the combined arms battalion. It requires rapid penetration into the depth and wide use of outflanking and envelopment manoeuvres to deliver blows against the enemy's flanks and rear. Old style sub-units (ie, tank and motor rifle battalions) were not really up to meeting these demands. It had long been the practice to reinforce standard battalions to execute independent missions, but handling such ad hoc groupings often proved to be beyond the knowledge, experience and, indeed, the capacity of their commanders. Recognizing this, GENFORCE has made the battalion the basic combined arms unit in the Mobile Forces. The new tank and mechanized and motor rifle battalions are well balanced entities (see Diagrams 1-6 and 1-7) that are composed of elements that live and train together in peacetime instead of being hastily thrown together in battle. They possess considerably more combat power (the equivalent of two traditional battalions), a more flexible structure and greater sustainability than before, enabling them to conduct independent or semi-independent actions over significant periods on an increasingly lethal battlefield. They are now commanded by experienced, staff-trained lieutenant colonels selected for qualities of imagination, initiative and flexible minds, instead of the mere captains or junior majors of yore. They are capable of acting immediately as forward, raiding or outflanking detachments without requiring much or any reinforcement.

3. ***The Combined Arms Brigade.*** The traditional unit (ie, regiment) had three motor rifle battalions and one tank battalion (vice versa in a tank regiment). GENFORCE came to believe that this structure was relatively inflexible, and dissatisfaction was expressed with the need to weaken a sub-unit if a combined arms grouping was to be formed by reinforcement from another (GENFORCE never practised cross attachments). Moreover, the traditional regiment lacked enough organic reconnaissance, artillery, air defence and combat and service support to take on a truly independent role. The new style brigades (see Diagrams 1-8 and 1-9) are a radical departure in force structuring. They are lower formations, not units. They are distinguished from divisions by greater tailoring to achieve superior land-air mobility, flexibility and sustainability at a lower level than before. They have about the same manoeuvre strength as two and a half old style regiments, but almost the same combat and service support as a former heavy division. This reflects the demands of the fragmented, non-linear battlefield. They thus combine the high firepower of artillery for long-range combat with the shock power of strong tank and motor rifle units and the organic ability to undertake airmobile actions. Greatly strengthened air defence and engineer complements will do much to increase survivability and capability for manoeuvre. (In this context, the provision of short-range air defence within the air defence regiment will do much to improve the survivability of artillery, logistics and command elements, which will no longer have to rely totally on the area coverage of medium range systems.) Noteworthy innovations are the inclusion of an EW company, a deception/camouflage company, a separate light motor rifle battalion for use in the airmobile, anti-landing/raiding or combined arms reserve roles, the formation of a combined arms anti-tank reserve (an expanded anti-tank battalion) and the capability of using elements of the artillery regiment as a RFC.

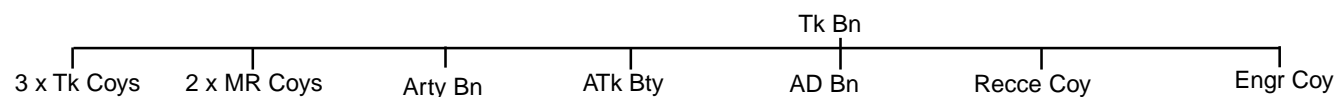
**DIAGRAM 1-6: ORGANIZATION OF THE MOBILE FORCES COMBINED ARMS MOTOR RIFLE BATTALION
(COMBAT AND COMBAT SUPPORT ONLY)**



SUMMARY OF MAJOR EQUIPMENTS

Sub-Unit	Tks	AFVs				Arty	ATk			AD		Gren Lchr	Engr		AD			
	T80/95	BMP 2/3	BRM 3K	BRDM 3	MTLB	2S 31	2A 45M	9P 149	Metis	2S6	Igla	AGS 17	MTU 72	GMZ	UMZ	IMR 2	BAT 2	PJM 2
3 x MR Coys 2 x Tk Coys Arty Bn ATk Bty AD Bn Gren Lchr Pl Recce Coy Engr Coy	26	42			4	24	4	4	18	8	12	6						
Total	26	55	3	4	7	24	4	4	18	8	12	6	2	3	3	1	1	1

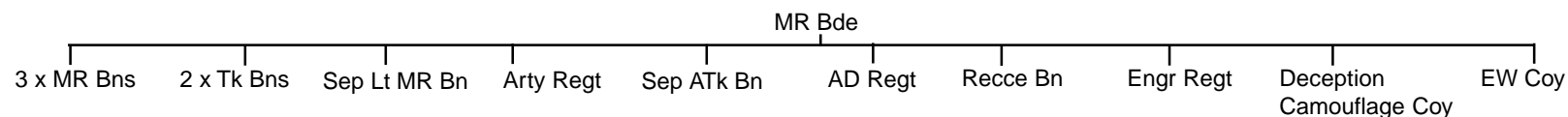
**DIAGRAM 1-7: ORGANIZATION OF THE MOBILE FORCES COMBINED ARMS TANK BATTALION:
(COMBAT AND COMBAT SUPPORT ONLY)**



SUMMARY OF MAJOR EQUIPMENTS

Sub-Unit	Tks	AFVs				Arty	ATk			AD		Engr					
	T80/95	BMP 2/3	BRM 3K	BRDM 3	MTLB	2S 31	2A 45M	9P 149	Metis	2S6	Igla	MTU 72	GMZ	UMZ	IMR 2	BAT 2	PJM 2
3 x Tk Coys 2 x MR Coys Arty Bn ATk Bty AD Bn Recce Coy Engr Coy	39	28			4	24	4	4	12	8	12						
Total	39	38	3	4	7	24	4	4	12	8	12	2	3	2	1	1	1

**DIAGRAM 1-8: ORGANIZATION OF THE MOBILE FORCES MOTOR RIFLE BRIGADE
(COMBAT AND COMBAT SUPPORT ONLY)**

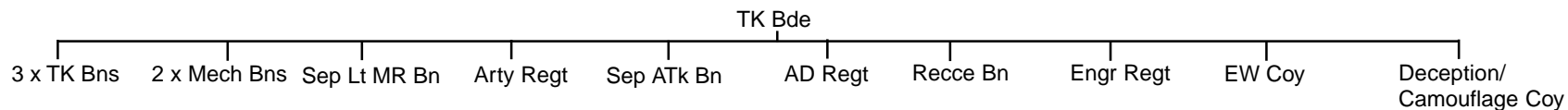


SUMMARY OF MAJOR EQUIPMENTS

Unit	AFVs						Arty					ATk					
	T80/95	BMP 2/3	MTLB	BTR 80/90	BRM 3K	BRDM3	2S31	2B16	2B14	2S19	Prima	SU-125	2A 45M	9P 149	9P 150/151	Kornet	Metis
2 x Tk Bns	80	76	14		6	8	48						8	8			24
3 x MR Bns	78	165	21		9	12	72						12	12			54
Sep Lt MR Bn				63		4		8	8							24	18
Arty Regt										54	18						
Sep ATK Bn		17			1					6		12			12		6
Recce Bn		20		6	6	6											
Engr Regt			6	3													
Total	158	278	41	72	22	30	120	8	8	60	18	12	20	20	12	24	102

Unit	AD				Engr												
	2S6	Strela	Tor M1	Igla	MTU 72	TMM3	GMZ	UMZ	IMR 2M	BAT2	MDK3	BTM4/PJM2	MTK	UR88	IRM	PTS	PMM-2
2 x Tk Bns	16			24	4		6	4	2	2		2		6			
3 x MR Bns	24			36	6		9	9	3	3		3		6			
Sep Lt MR Bn				12													
Arty Regt																	
Sep ATK Bn	4																
AD Regt		12	16	5													
Engr Regt				3		12	9		4	10	4	4	8		3	12	20
Total	44	12	16	80	10	12	24	13	9	15	4	9	8	12	3	12	20

**DIAGRAM 1-9: ORGANIZATION OF THE MOBILE FORCES TANK BRIGADE
(COMBAT AND COMBAT SUPPORT ONLY)**



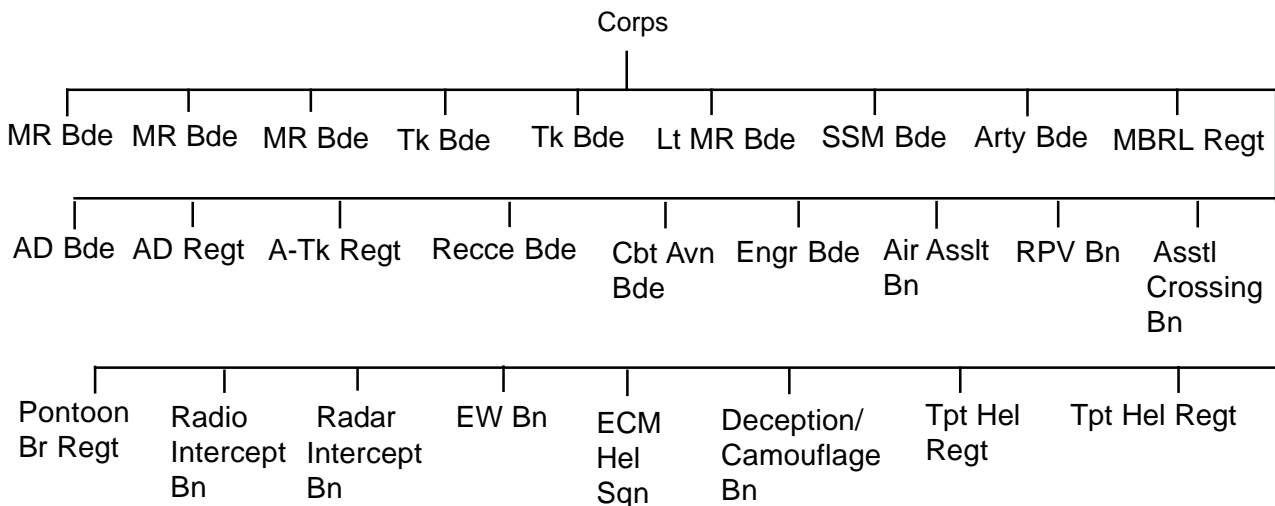
SUMMARY OF MAJOR EQUIPMENTS

Unit	AFVs						Arty					ATk					
	T80/95	BMP 2/3	MTLB	BTR 80/90	BRM 3K	BRDM3	2S31	2B16	2B14	2S19	Prima	SU-125	2A 45M	9P 149	9P 150/151	Kornet	Metis
3 x Tk Bns	120	114	21		9	12	72						12	12			36
2 x Mech Bns	52	110	14		6	8	48					8	8				36
Sep Lt MR Bn				63		4		8	8							24	18
Arty Regt																	
Sep ATk Bn		17			1				54	18							
Recce Bn		20		6	6	6			6		12			12			6
Engr Regt			6	3													
Total	172	261	41	72	22	30	120	8	8	60	18	12	20	20	12	24	96

Unit	AD				Engr												
	2S6	Strela	Tor M	Igla	MTU 72	TMM3	GMZ	UMZ	IMR 2M	BAT2	MDK3	BTM4/PJM2	MTK	UR88	IRM	PTS	PMM-2
2 x Tk Bns	24			36	6		9	6	3	3		3		9			
3 x MR Bns	16			24	4		6	6	2	2		2		4			
Sep Lt MR Bn				12													
Arty Regt																	
Sep ATk Bn	4																
AD Regt		12	16	5													
Engr Regt				3		12	9		4	10	4	4	8		3	12	20
Total	44	12	16	80	10	12	24	12	9	15	4	9	8	13	3	12	20

4. **The Combined Arms Corps.** The new corps is a higher (ie, operational) formation. As such, it has no fixed composition, being tailored to its operational mission. Thus, Diagram 1-10 shows a typical corps, but the proportion of tank to motor rifle brigades could be reversed, or it could have only four tank and motor rifle brigades (such a balanced formation being described as a mechanized corps). Equally, it might be reinforced with extra aviation and/or combat support elements. The corps which is illustrated, with six manoeuvre brigades is roughly equal in manoeuvre strength to three old style divisions. It does, however, contain significantly more artillery and air defence assets than those three divisions plus army troops, not to mention the very strong EW and aviation components. These disproportionate increases reflect the growing importance of indirect precision and ACM fire (including the delivery of remote mines and jammers), just as the considerable fixed and rotary wing aviation element reflects the increasing significance of the third dimension in non-linear, fragmented combat. In pursuance of the deep operations theme, the corps disposes of powerful air assault and airmobile forces, including a sizeable Special Purpose Forces (SPF) element. As the corps will deploy in considerable width and depth, significant resources are provided for area air and anti-air landing/raiding defence (the latter provided by the light motor rifle brigade, which also provides airmobile elements). To help meet the threat of precision attack, a separate camouflage and deception battalion is fielded, its efforts being carefully coordinated with those of engineer, chemical defence and EW troops. The new corps is a large, complex formation, but GENFORCE believes that improvements in C4I will make it sufficiently controllable and flexible to be managed even on tomorrow's battlefield. A summary of major equipments follows Diagram 1-10.

DIAGRAM 1-10: ORGANIZATION OF A MOBILE FORCES COMBINED ARMS CORPS (Type, Combat and Combat support only)*



* Excluding rear services security unit and sub-units.

** See major equipments summary below.

SUMMARY OF MAJOR EQUIPMENTS

Formation/ Unit	AFVs							Arty										
	T80/ 95	BMP 2/3	MTLB	BTR 80/90	BMD2 BTRD	BRM 3K	BRDM3	2S3 1	2B16	2B9/ 2B14	2S9	2A61	2S19	2A65	2A36	2S5	Prima	9P140
Mech Bde	158	278	41	72		22	30	130	8	8							18	
Mech Bde	158	278	41	72		22	30	130	8	8							18	
Mech Bde	158	278	41	72		22	30	130	8	8							18	
Tk Bde	172	261	41	72		22	30	130	8	8							18	
Tk Bde	172	261	41	72		22	30	130	8	8							18	
Lt MR Bde	40	20	12	239		5	4	6	24	24			24				18	
Air Asslt Bn					50					8								
Recce Bde		54		72		18	24											
ATk Bde		60				3							18					
Arty Bde														48	48			
MBRL Regt																		72
Total	858	1490	217	671	50	136	178	656	64	72	8	24	318	36	48	48	108	72

Formation/ Unit	ATk							AD					SSM
	SU 125	2A 45M	9P 149	9P 150/151	BTR -D	Kornet	Metis	2S6	Strela	Tor -M1	Igla	Buk M1/M2	Tochka
Mech Bde	12	20	20	12		24	102	44	12	16	75		
Mech Bde	12	20	20	12		24	102	44	12	16	75		
Mech Bde	12	20	20	12		24	102	44	12	16	75		
Tk Bde	12	20	20	12		24	96	44	12	16	75		
Tk Bde	12	20	20	12		24	96	44	12	16	75		
Lt MR Bde		12	12			72	66	14	6		42		
Air Asslt Bn					4						12		
ATk Bde	36			36			18	16				24	
AD Bde													
AD Regt									16	12			
SSM Bde													18
SSM Bde													18
Total	96	112	112	96	4	192	582	250	102	96	441	24	36

COMBAT AVIATION BRIGADE

Aircraft	Combat Aircraft				Hy/Med Lift & Recce Liaison			Airborne CP		ECM	
	SU-25TM	Ka-52	Mi-40	Mi-28	Mi-38	Mi-26	Mi-34	Mi-26	Mi-38	Mi-17 (c)	M1-17 P(d)
Gd Att Regt (a)	45										
Att Hel Regt		40		20			6				
Att Hel Regt		20		40			6				
Asslt Hel Regt			30	20	20		6				
Tpt Hel Regt (b)					60						
Tpt Hel Regt (b)					20	36					
Gen Purpose Hel Regt					8	8	8	2	2		
ECM Regt										14	14
Total	45	60	30	80	108	44	26	2	2	14	14

- Notes:
- (a) In direct support from SG.
 - (b) SG may temporarily attach another Regt for specific missions.
 - (c) COMINT and comms jammer.
 - (d) ELINT and radar jammer.

5. ***Echelons Above Corps.*** GENFORCE now deploys only one operational-strategic headquarters above the Basic Forces' army and the Mobile Forces' corps. This is known variously as a strategic grouping or strategic direction (SG or SD). In peacetime, this headquarters commands the Basic Forces and any reinforcing elements of the Mobile Forces that are deployed in the forward area. In war, it will take command of reinforcing armies and corps from the interior that are allocated by the Supreme High Command (SHC) for the fulfilment of the given mission. If such additions threaten to overstretch the span of control, they will be accompanied by an additional headquarters and the theatre will be split either into two SDs or perhaps a single SG and an operational direction where the force totals are smaller and only the latter will be required to control a secondary sector. As in the past, much of the long-range firepower and manoeuvre forces for the conduct of deep operations is held at the level of the SD. Yet more is held in the reserves of the SHC (RSHC). The latter will release assets to SGs to create the force packages the mission will require. The same process is repeated at the lower level, with formations and units being decentralized to subordinate armies and corps. The guiding principle will always be that assets will be controlled at the highest possible level to ensure flexibility in their use and the concentration of effort on the most important axes and tasks.

6. ***Forces held by Echelons Above Corps*** include the following:
 - a. *Aviation.* Each SG possesses an air force with a mixture of light bomber, fighter bomber, fighter, reconnaissance, ECM, AWACs and transport aviation (the latter including some rotary wing for general transport tasks and airmobile operations). The RSHC holds more of all types, and the SHC also controls strategic aviation which will be employed in the struggle for air superiority as well as strategic nuclear missions (for which a reserve is held of 25-30%).
 - b. *Cruise Missiles and SSMs.* Operational missiles with a range of 500-1000km are always controlled at SG level. On an important axis, there could be 6-8 brigades, each of 18 SSMs or cruise missiles. Together with the air force, these provide the principal deep strike capability of the grouping.
 - c. *Artillery.* Each SG holds one, possibly two artillery divisions, with the possibility of further reinforcement from RSHC. These divisions have no fixed composition, but they always have a mixture of long-range guns and howitzers for the strengthening of efforts to gain fire superiority on the most important operational directions. There will also be 2-4 MBRL brigades, at least half being heavy with the 9A52-2 Smerch: the latter, together with airpower, provide the main means of manoeuvring fire in the operational-tactical zone.
 - d. *EW.* Each SG will deploy 1-2 radio intercept, 1-2 radio and radar intercept regiments, 1-2 radio jamming and 1-2 air defence jamming regiments. These themselves will vary in composition. There will also be 2-3 helicopter ECM squadrons. These resources have both tactical and operational missions on the main axes.
 - e. ***Airborne Forces*** are, of course, crucial to the conduct of deep

operations. In the exploitation of deep fire strikes they can seize and hold ground vital to the momentum of an offensive. In the offensive or the defensive, they can be used to conduct highly destructive and disruptive raiding actions or mount unexpected attacks from the rear. Each SG will have 2-3 air assault brigades for actions at the operational-tactical level and possibly an airborne division for the operational level.

- f. **SPF.** While electronic and air (including RPV) reconnaissance will provide most intelligence on the enemy's operational depth, there will often be a desire to confirm their results by human observation to preclude the possibility of being deceived. There will also be reconnaissance tasks such as the capture of PWs for interrogation or the maintenance of continuous observation of some key feature or installation that can only be done by patrols. GENFORCE therefore places strong emphasis on information gathering by SPF. Such forces are also used to vector airstrikes (often with laser designation for missiles) and they have a secondary, sabotage role. Each SG has a SPF brigade whose strength varies with the importance of the direction.
- g. **Air Defence.** Given the critical role ascribed to air, missile or airborne attack by a probable enemy, GENFORCE, as unit and formation organization makes clear, puts the heaviest possible emphasis on air defence. A SG will deploy 2-4 long-range Surface-to-Air Missile (SAM) brigades for area protection and probably 1-2 separate air defence regiments for the point defence of important installations or groupings.
- h. **Manoeuvre Forces.** A SG will have 2-6 separate manoeuvre divisions or brigades to provide combined arms and anti-landing reserves. It will also have 1-2 separate anti-tank brigades to provide counter-penetration and flank defensive anti-tank reserves.
- i. **Engineer.** The non-linear battlefield and the remote mining threat have increased the need for both mine and counter-mine warfare means. Fluid and deep operations (on both sides) have increased the needs for route opening and obstacle crossing throughout the battle area and in the friendly depth. The threat of precision and ACM strikes has heightened the requirements for digging in and camouflaging troops and installations and facilities of all types and for reserve bridging. Each SG will therefore deploy two engineer brigades and 3-4 assault crossing and 3-4 pontoon bridge regiments. These will be used both to augment efforts on key axes and to provide support in rear areas.
- j. **Deception/Camouflage.** Growing enemy deep reconnaissance and fire capabilities have impelled GENFORCE to field deception and camouflage units at formation level. A SG will also have a deception/camouflage regiment to simulate groupings to mislead the enemy and attract strikes that would otherwise hit real units and facilities. The chemical defence brigade will also provide extensive smoke concealment for march routes, concentration areas and facilities.

- k. *Communications.* GENFORCE perceives the need for considerable redundancy in communications and a SG will have 2-3 signals brigades.
- l. *Logistics.* While the logistic support of formations has increased in recent years to boost sustainability, there is still a strong concentration of resources at SG level. There will be 3-4 material support brigades, 1-2 field pipeline brigades, some separate transport units, 2-4 maintenance and recovery regiments, 4-6 mobile hospital bases and up to 10 separate medical battalions, road and rail construction brigades and airfield construction and technical battalions. Elements of these will be used to augment formations on key axes. A security division will also be deployed to protect rear area installations and facilities against raiding and partisan actions.

Current Trends

- 7. ***Air Assault and Air Mechanized Formations.*** In view of the increasing importance it attaches to raiding and other actions in the depth and consequently to air mobility, GENFORCE is dissatisfied with the traditional answer of marrying up air assault or, especially, motor rifle units/sub-units with transport and attack helicopter units for specific missions. It realizes that the time has come for the deployment, as a component of the Mobile Forces, of specialized air-ground units and formations. Prototypes have been successfully trialled and the conversion of existing units may be anticipated soon, if it has not, as is more likely, commenced already.
 - a. *Combined Arms Corps.* The assault helicopter regiment is being replaced by an air assault regiment. This comprises: a reconnaissance helicopter squadron; an assault-storm unit with 30 Mi-40 “flying BMPs” which carry an air assault battalion into battle, 12 Mi-8 follow-ons to carry the battalion’s mortar battery, grenade launcher, anti-tank and air defence platoons and HQ; an attack helicopter unit of 20 Ka-52 to provide extra fire support and engage enemy attack helicopters. This air assault capability is in addition to that provided by the BMD-mounted battalion and the airmobile capability provided by the Light Motor Rifle Brigade.
 - b. *Air Mechanized Corps.* The air-mechanized corps will replace one of its combined arms brigades with a brigade comprising two air assault regiments of the above type, three BMD-mounted air assault battalions and light artillery, air defence and anti-tank units with appropriate heavy lift for transport.
- 8. ***Increases in Army Aviation.*** It is clear that GENFORCE is beginning to form separate attack helicopter and ground attack regiments. These will presumably belong to RSHC or SGs in the same way that separate transport helicopter regiments do. They will be used to reinforce formations operating on the most important axes.
- 9. ***Enhancing the Strategic Mobility of the Mobile Forces.*** GENFORCE has already started the process of pre-positioning unit and formation sets of equipment and logistic stockpiles on likely strategic axes of employment. This process is likely to accelerate as more resources are made available. In this way,

CHAPTER 2

STRATEGIC, OPERATIONAL AND TACTICAL MARCHES

SECTION 1 - STRATEGIC AND OPERATIONAL MARCHES

Importance of March Capabilities

0201. ***Mobilization, Concentration and Deployment.*** The outcome of initial operations, which may well shape the rest of a war, is usually dependent on which side wins the race to mobilize its forces, concentrate them in the area of conflict and deploy them for battle. In the event of both sides adopting an offensive strategy, the winner will receive the invaluable prize of the initiative, with his opponent being caught off balance to boot. If one side has opted for the strategic defensive and wins the race, it will be able to face the enemy with a balanced defence with prepared positions and strong operational reserves: this is a formidable prospect for the contemporary aggressor, especially when the defender has strong airpower and high precision weapons. On the other hand, should the attacker win the race, he will forestall the creation of prepared defences, probably find gaps or weak spots in the defender's combat formation and thus avoid through pre-emption the need for a penetration operation and instead be able to generate momentum and engage in operational manoeuvre from the outset. Thus rapid mobilization procedures and the march capabilities of formations assume a fundamental importance, whether offensive or defensive operations are contemplated. On these will depend the achievement of surprise and the seizure and retention of the initiative in the attack or the avoidance of those advantages accruing to the enemy in the defence.
0202. ***The Initial Period.*** In future war, the principal characteristic of the initial period will be an intense struggle to win fire superiority through the conduct of an electronic-fire operation which will last for many days or even a few weeks. This will primarily involve fixed wing aviation, long-range missiles and EW means, at least in the operational depth. An important role will, however, also be played by the permanently ready, forward deployed forces and those elements that can augment them from the depth. These will disrupt enemy forward reconnaissance and air defence assets through long-range artillery, rotary wing aviation and electronic strikes and airborne, heliborne and ground raids. These actions will also create a favourable situation for the committal of the main body of a SG once it is deployed from the depth. Both sides will therefore devote at least some of their effort in the initial period to trying to disrupt the other's mobilization, concentration and deployment. This can now be done to a depth of up to 1,000km, with efforts increasing in scale and intensity over the last few hundred km of the enemy's move to the line of contact. The organization and conduct of marches will thus have to take into account the likelihood that there will be considerable efforts made to interfere with them long before the troops can expect to go into action against enemy main forces.

Measures to Support the March

0203. **March Support.** To ensure the timely arrival in the combat zone of formations in battleworthy condition, the following measures are undertaken:
- a. *Priority in Movement.* Top priority is given to the deployment of the ground elements of aviation, missile and EW troops, long-range artillery, air assault units and some ground forces formations and key support units that are held at constant readiness to execute important tasks.
 - b. *March Capabilities.* Full advantage must be taken of both the march capabilities of formations and of the infrastructure in the area of the march. Where combined rail and road marches are conducted, the movement of heavy equipment by rail must be closely coordinated with road columns.
 - c. *March Support.* The successful execution of a march depends on several support measures. Constant cover against air attack must be ensured, especially at obstacle crossings and choke points and in concentration and rest areas. Measures must be undertaken beforehand to support the passage of obstacles. The constant supply of material reserves, especially POL, must be ensured. Troop control must be flexible and continuous. The secrecy of embarkation, movement and debarkation, and of assembly areas must be assured: various forms of disinformation and deception will be employed to cover movement and deployment.
0204. **Peacetime Preparation.** Ideally, theatres are prepared in advance for strategic movement. Amongst these preparations are included:
- a. *Infrastructure.* The road and rail net, bridges and by-passes round major junctions and administrative centres are prepared.
 - b. *River Lines.* Crossing sites, including reserve sites, are organized on important rivers. Emergency bridging and/or ferrying means are hidden near key bridges to ensure crossing continuity while destroyed bridges are repaired using prepositioned materials.
 - c. *Material Support.* Dumps of POL and other material reserves are established.
 - d. *March Zones.* Alternative march plans are prepared in peacetime and march zones and axes allocated.

Rail Marches

0205. **Advantages.** Rail marches are seen to confer three benefits. Fuel and engine and track life are conserved. Personnel are not exhausted by prolonged exertion and discomfort. Above all, a high rate of movement is ensured regardless of weather conditions. On modern lines, 600-1,000km per day can be achieved (including loading and unloading times, which may amount to over 50% of the total).

0206. **Disadvantages.** There are two major drawbacks to rail movement. The paucity of lines means that an army or corps relying totally on rail will require a long time to deploy. Thus, for instance, a corps of five brigades and normal corps assets or a combined arms army of four small Basic Forces divisions and army assets will require in excess of 420 trains. If that formation has to move a distance of, say, 1,200km on lines with a capacity of 100 trains per day at an average rate of 600km per day (including loading and unloading times), it will take over eight days to complete its concentration - and that assumes that enough trains are available to avoid having to wait on locomotives and rolling stock to become available (ie, each echelon has its own trains and does not have to wait on the return of empty ones), and that there is no non-deployment traffic on the lines. The other disadvantage of rail movement is that it is very vulnerable to air, or precision interdiction. Both the level of destruction and the delay and disruption that such attacks would cause are insupportable.
0207. **Conclusions.** GENFORCE maintains that, certainly for distances under 1,000km, road, or combined road and rail marches will result in a more rapid concentration than pure rail moves. Moreover, whatever the relative time advantages of road or rail movement, the latter becomes unacceptably dangerous once hostilities have begun. Thus deployment in peacetime may be conducted by rail, but during combat, the movement of formations by rail will, save in strategic depth, be rare and used only in exceptional circumstances.

Combined Marches

0208. **Combined Road and Rail Movement,** with tracked and heavy equipments being transported by rail and the rest travelling by road, is seen to offer an optimum solution. It is economical in the use of transport resources and preserves both equipment and personnel. The price, of course, is the destruction of unit and formation integrity and problems in command and control. In the event of the severe disruption of either form of march, a whole brigade, division or more may be rendered ineffective. Thus, this sort of march, too, is most suited to pre-war deployments.
0209. **Use of Air and Sea Movement.** While the deployment of whole mechanized formations by air is not practical, air transport may be used to deploy high value items needed forward urgently: SSMs, SAMs, EW equipments and headquarters elements may come into this category. Large numbers of personnel may also be moved rapidly by air, to man pre-stocked sets of unit equipment, to preserve them from the rigours of a long road march or to provide replacements of purely infantry units. Sea movement is probably too slow and too vulnerable to interdiction to be much used when war has already started.

Road Marches

0210. **Significance.** With its doctrinal emphasis on the importance of manoeuvre and its experience of land operations conducted on a continental scale, GENFORCE naturally emphasises the importance of conducting marches efficiently and rapidly. Marches are exercised over considerable distances and SOPs well developed.

0211. **Rates of March.** GENFORCE formations train to achieve daily administrative march rates of up to 350km (see Table 2-1), sustain this for 4-5 days and then enter battle with only a day's pause. Of course most, and ideally all of each march stage should be completed during darkness or bad weather to aid concealment.

TABLE 2-1: DAILY MARCH PERFORMANCE OF MARCH COLUMNS (KM)

Column Type	Paved Roads	Dry, Dirt Roads	Muddy, Hilly, Urban Rds
Motorised	250-350	180-300	80-180
Mixed	200-300	120-240	80-140

Notes: (a) The route is measured on the map and 5-10% of distance is added on average terrain and 20% in mountainous terrain.

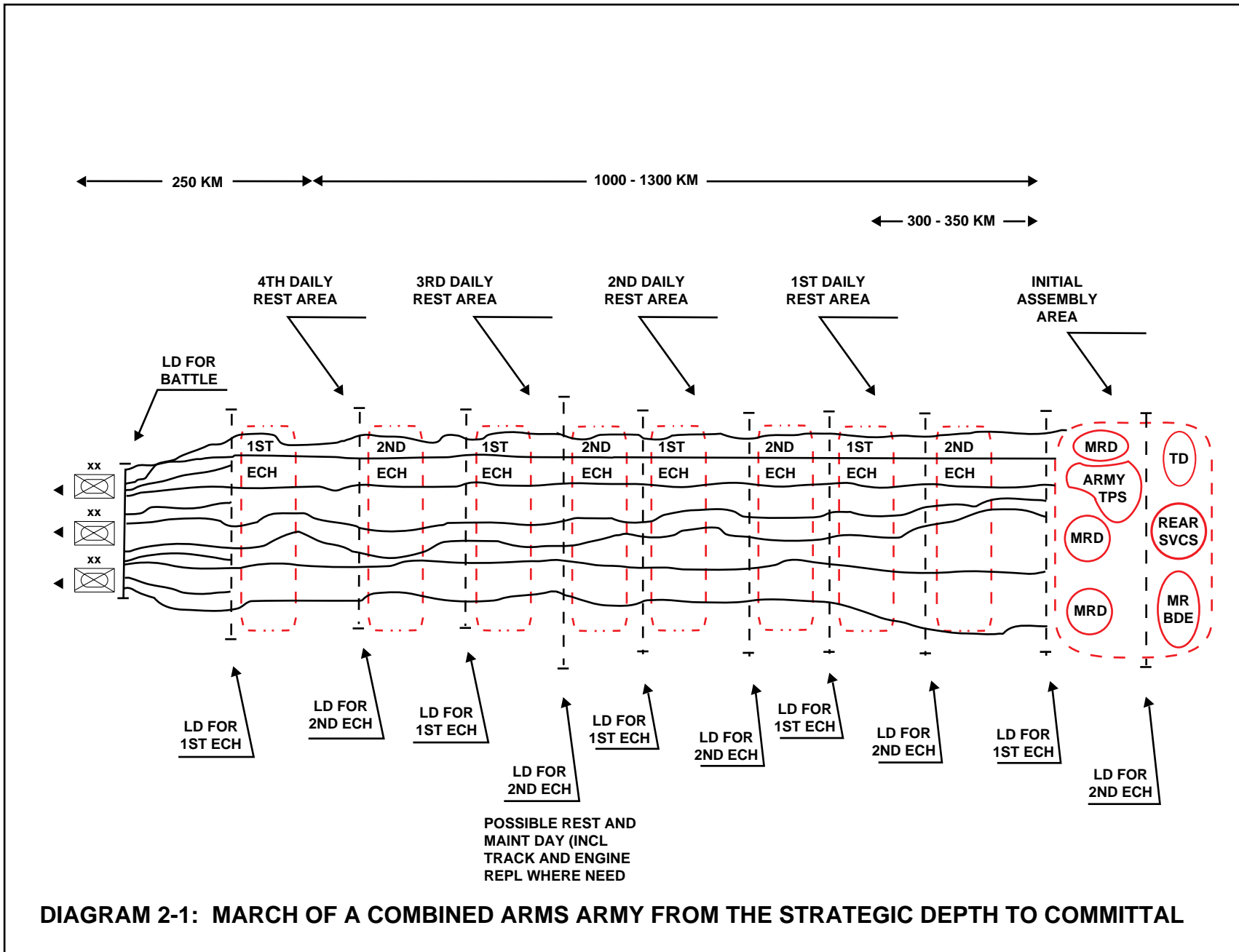
(b) Calculation is for a march of 10-12 hours. The remaining 12-14 hours are spent on:

- (1) Technical maintenance 3-4 hrs
- (2) Serving hot meal 1-1.5 hrs
- (3) Deployment and camouflage 1-1.5 hrs
- (4) Movement to start line 1-1.5 hrs
- (5) Rest 4-8 hrs.

(c) On a march of over 1,000km, and possibly even on a shorter one, there will be a rest day, probably in the rest area before the final assembly area, for essential repair and maintenance work.

0212. **Ensuring Combat Capability at the Conclusion of March.** Long road marches impose considerable wear and tear on tracked and heavy equipments. To an extent, the problem of ensuring the viability of units at the end of such a march is limited by the very sparing use of combat vehicles in peacetime training. GENFORCE expects a fall-out rate of only 1-2% of vehicles per day. There are two other ways of overcoming the problem:

- a. **Replacement of Parts.** The problem is most acute in the case of tanks and, to a lesser extent, self-propelled (SP) artillery and BMPs. GENFORCE regulations demand that tanks must always have up to 3,600km of operable range. This means that tanks should be able to march 1,000-1,500km and then conduct an offensive of up to another 1,000km. Thus, they must be able to cope with a march of 1,000-1,500km with a "manoeuvring in the march coefficient" of 1.2, for a total of 1,200-1,800km, and then be able to advance 1,000km with a "manoeuvring in the march coefficient" of 1.8, for a



a total of 1,800km, giving a grand total of 3,000-3,600km. If the performance range of some tanks is less than that specified by regulations, then a change of tracks and/or engines will be necessary during the course of the march. One description of a 1,250km march by a combined arms army includes the changing of these items on 30% of its tanks during the rest day. Such a necessity is, understandably, described as “absolutely undesirable”. Should it be necessary, however, the required items will be pre-dumped in the chosen rest area to await the arrival of the formation.

- b. *Use of Heavy Equipment Transporters (HETs)*. Tanks and other tracked and heavy equipments may be transported on HETs, at least to the final assembly area. GENFORCE maintains a substantial HET fleet to ease the strain of long marches. Of course, the number of usable routes will be limited by the use of HETs: adverse meteorological conditions may make unpaved roads unsuitable, and bridges with a capacity for 80-100 tonne loads will be required to cross rivers.

0213. ***March Routes***. It must be borne in mind that to GENFORCE, whose equipments are designed with this in mind, a dirt road is an adequate march route for armoured or mixed columns. This is considered to be very important as the depth of the combat area grows. As enemy actions to inflict damage and disruption on approaching formations are expected to increase significantly from about 300km or so from the line of contact and dramatically from about 80km, so GENFORCE will usually wish to adopt tactical march formations from a final assembly area up to 250-300km distant from the intended line of committal. Table 2-2 shows the number of routes considered desirable for each force package. It will be seen from the table that, with only five routes available, an army of four divisions or a corps of six brigades (including one light MR) would be able to go into action with only two lower formations in the first echelon, and these would be deeply echeloned. Ideally, therefore, an army or corps will have at least seven routes and preferably nine to ten. Only these numbers will enable formations to deploy for combat in a short time with a strong first echelon and minimal lateral movement. In an ideal world, there would also be 1-2 reserve routes for each lower formation to facilitate speedy forward movement even in the face of enemy remote mining, attacks on bridges etc. Diagram 2-1 illustrates the strategic march of a combined arms army.

TABLE 2-2: OPTIMUM NUMBER OF ROUTES FOR THE MARCH OF GENFORCE FORMATIONS

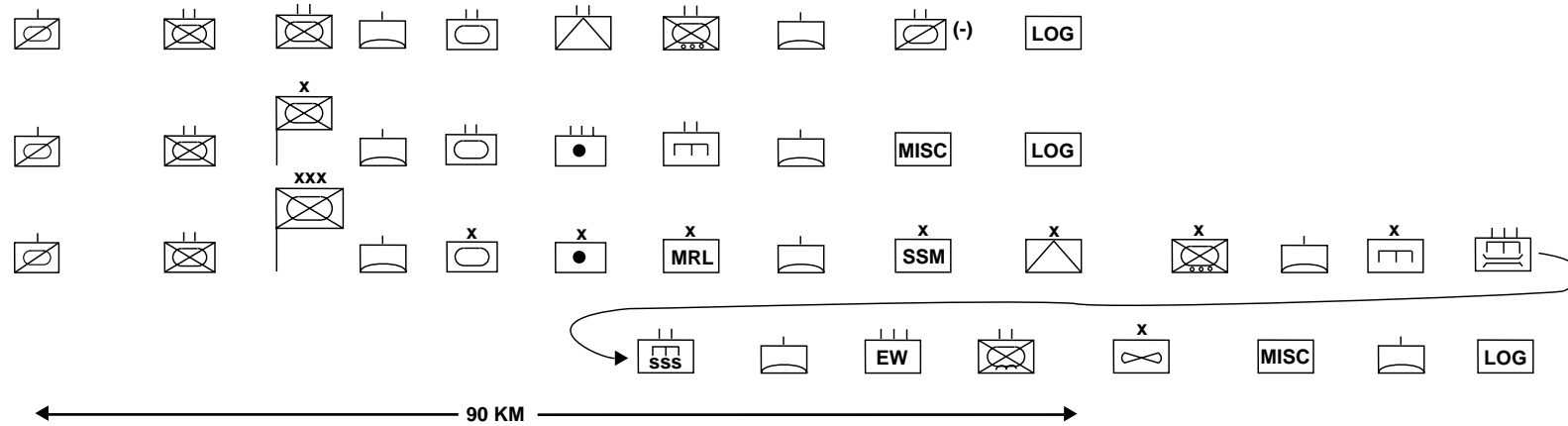
Formation/Unit	From the Strategic Depth to the Operational Rear	From Operational Rear to Line of Committal
Regiment	1	1-2, preferably with a reserve.
Division	2, ideally with 1 reserve	2-3, preferably with 1-2 reserve.
Combined Arms Battalion	1	1
Combined Arms Brigade	2, ideally with 1 reserve	2-3, preferably with 1-2 reserve.
Army/Corps Troops	1-2	In the combat formation of the army/corps

0214. **March Formations.** In a march when enemy contact is not expected columns are organized primarily for administrative convenience. Vehicles of similar type, speed and cross-country capability may be kept in packets rather than being tactically grouped. Tracked and wheeled vehicles may use different routes. However the deployment of certain sub-units is determined primarily by tactical considerations, even on an administrative march.

- a. *Security elements.* Some form of march security will always be deployed, because of diversionary and airborne threats. In the deep rear these elements may be relatively weak patrols but they will increase in number and strength as the formation approaches its line of commitment. Security patrols and outposts will be deployed around rest and assembly areas.
- b. *Air Defence.* During an administrative march primary responsibility for air defence lies with the higher formation through whose rear area the tactical formation is marching. The higher formation's air defence assets provide early warning and will engage enemy aircraft at long-range. Air defence sub-units will, however, be deployed throughout the tactical formation's march columns, operating on electronic silence until their formation is directly threatened. Priority in deployment of air defence sub-units will be given to headquarters, missile and artillery units and the first echelon. The higher formation will also deploy resources to cover obstacle crossings and other choke points.

RECCE GP

ADV GD + MSD



RECCE GP

ADV GD + MSD

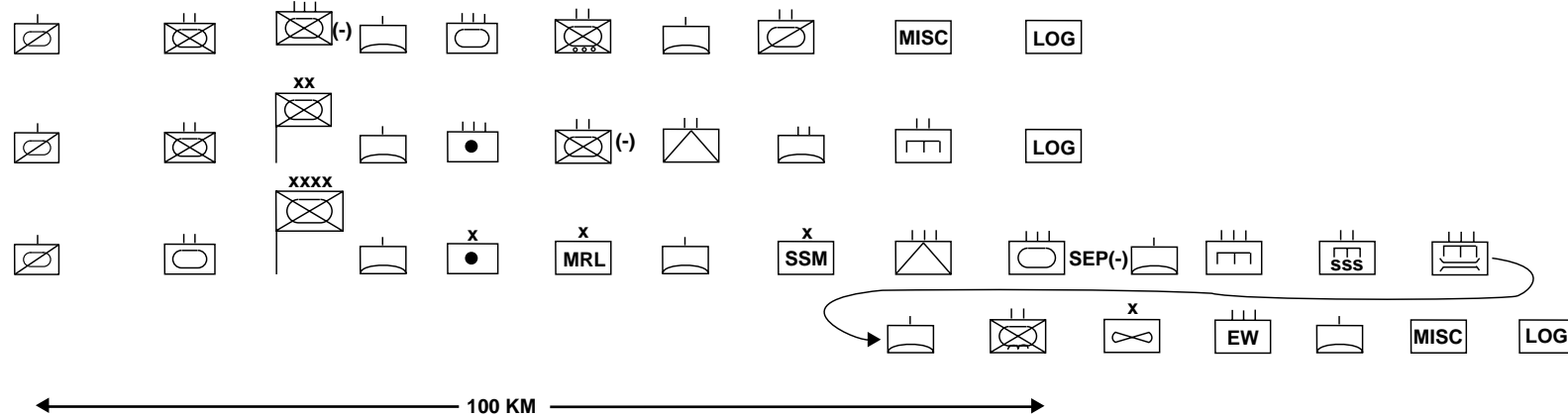


DIAGRAM 2-2: TYPICAL MARCH COLUMNS OF BRIGADES/DIVISIONS AND ARMY/CORPS TROOPS IN ADMINISTRATIVE MARCH

- c. *Combat & Service Support.* Engineer reconnaissance, route clearance and obstacle crossing units will be deployed throughout the marching columns but the primary responsibility for maintaining routes lies with the higher formation's headquarters. Chemical reconnaissance and defence sub-units will also be tactically deployed within columns, in case of enemy strikes during the march. Higher formation headquarters are also responsible for maintaining, re-fuelling and feeding units marching in their rear areas, so that those units are, as far as possible, committed into battle at full strength and with their basic combat loads intact.
0215. **Troop Control.** Firm and continuous control is essential, as is the maintenance of secrecy.
- a. *Deployment of Command Posts (CPs).* Within units and sub-units command posts lead their columns (apart from any march security or movement support detachments). Within formations one CP must always be deployed. The preferred option is for the main CP to move simultaneously with the troops (usually in the first echelon) while control is exercised from the forward CP which is situated in the next daily rest area. When the formation moves into the rest area the forward CP moves on to the next one, mainly or entirely by helicopter.
 - b. *Traffic Control.* The Commandant's Service exercises traffic control. The march route is divided into 50-80km sectors, each being the responsibility of a sub-unit. Traffic control posts, usually comprising an officer or SNCO and 2-3 soldiers, are established at the start point (5-10km from the concentration area and marked on a clearly identifiable terrain feature) and at all obstacle crossings, defiles, by-passes, road junctions and population centres: if necessary, markers may be substituted for posts if personnel are in short supply. In rugged areas, recovery assets may be located at some posts.
 - c. *Communications.* Communications security is very tight. Radios are normally allowed to operate in receive mode only. Radio silence is only broken for air and chemical warnings. Within sub-units the march is controlled by verbal orders and visual signals, such as flags or lights. Communication between headquarters is by mobile means, such as liaison vehicles and, at higher levels, helicopters. In addition unit and sub-unit commanders may use Commandant's Service line communications or civil systems to notify their passage of report lines.
0216. **Space Occupied by Formations.** As illustrated in Diagram 2-2, a division on two routes will be about 100km deep and a brigade about 90km (exclusive of combat security elements). Thus, the length of an army's or corps' first echelon columns, including forward deployed combat support elements and logistic tail, will be in the order of 140-150km. An interval of 80-100km will separate first and second echelons, and a second echelon division on three routes will be about 80km deep (a brigade about 70 km). Thus, the total length of an army's or corps' columns marching on seven routes will be about 300km. If only five

routes were available, the depth of the army could extend to 500-600km. The army's or corps width will be 150-200km.

SECTION 2 - TACTICAL MARCHES

General

0217. **Definition.** When contact with enemy forces is likely, the march assumes a tactical posture. The march will begin in an assembly area where formations, units and sub-units reorganise themselves from the order in which they completed their administrative march. Final maintenance, servicing and logistic checks are carried out. The new march order will be determined by the mission, the terrain through which the march will take place and the nature of the enemy threat. Formations must flow smoothly and quickly from the march into battle in pre-formed groupings tailored for combat against the expected enemy in the terrain where battle might or will take place. This will help to beat the enemy to the punch in a meeting engagement and to surprise a defending enemy through the speed with which an attack is mounted. Once in the combat zone, stronger march security is deployed, including to any open or threatened flank, and forward detachments may be formed in readiness to conduct deep battle. Movement support detachments (MSD) which are tailored to the ground and the degree of enemy route denial effort will follow immediately behind forward march security or behind advance guard battalions. If a meeting battle, attack against an ill-prepared or over-extended enemy, or pursuit is anticipated, the first echelon will normally be tank heavy at both tactical and operational levels and forward detachments will probe ahead. The army or corps artillery and rocket artillery groups (CAG/AAG and CGRA/AGRA) will usually move in the first echelon so that their deployment is not hampered and delayed: in the same way, the Division/Brigade Artillery Groups (DAG/BAG) will often move at the front of a division's or brigade's main body. At both operational and tactical levels, anti-tank reserves and mobile obstacle detachments will move on a threatened flank or forward within the main body and ready to deploy to either flank. Second echelons and CPs will normally move on the main axis at either level. When the threat of air attack (rotary or fixed wing) is high, and especially when within range of enemy MLRS, formations may not continue to move in continuous columns. Instead, they may divide into smaller packets which move rapidly from cover to cover. Much will depend on whether dominance has been won in the electronic-fire engagement, the concealment offered by the terrain and the importance of speed.

0218. **Planning Factors.**

- a. **Routes.** In normal terrain a brigade or division will require a zone of advance up to 25km wide. Within that zone they will normally advance on 2-3 routes, whenever possible with 1-2 spare routes in case the enemy denies one of the original routes (eg, through remote mining or demolition of an obstacle crossing). The existence of alternate routes minimizes any delay and disruption caused by enemy action. It is also considered important to reconnoitre lateral routes and even sometimes to improve them so that

axes can be shifted rapidly in the interests of tactical manoeuvre (eg to bypass obstacles, to carry out outflanking manoeuvres, to achieve rapid concentration by a formation marching dispersed or to achieve defensive dispersal). In normal terrain battalions advance along one route until they begin deployment into battle formation.

- b. *Intervals and Road Space.* The standard interval between vehicles within columns is 25-50m, with 100m between companies and 3-5km between battalion and other packets within a brigade's main body. Larger intervals (5-10km) separate the vanguard (march security) from the main guard of an advanced guard (or forward or raiding detachment) and a gap of up to 30km will separate an advanced guard and the main body of a brigade column. A combined arms battalion acting as an advanced guard (or as a forward or raiding detachment) will require 20-27km of road space (excluding reconnaissance). A second echelon battalion, with less need for march security, requires only 10-15km. Thus a brigade on two routes will have a depth of up to 180km in tactical march formation (assuming 50m intervals between vehicles and allowing up to 55km for the advanced guard and the interval between it and the main body). A division on two routes would take up rather more road space, perhaps up to 240km. At night and under adverse weather conditions the intervals are increased. When subunits are required to cross open country, due to the constant threat of PGMs, speeds may be increased and vehicle intervals increased to 100m and gaps between platoons widened to 300-400m. Of course, all the figures quoted here are norms and, as is the case with all norms, they can be altered to meet particular missions and situations.
- c. *Rate of March.* Table 2-3 sets out GENFORCE planning norms for calculating the time required to execute a tactical march.

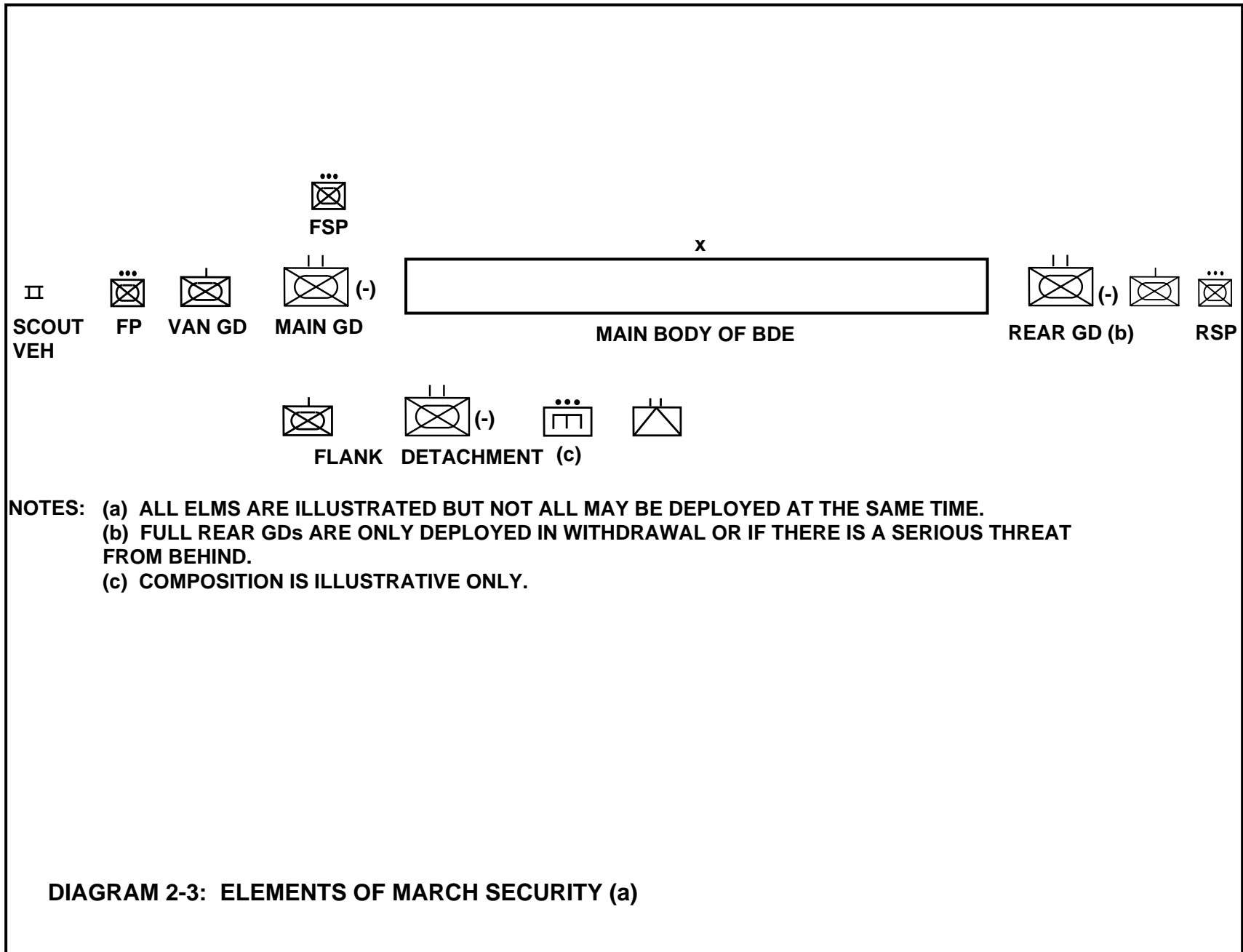
TABLE 2-3: AVERAGE SPEEDS OF MARCH COLUMNS (KM PER HOUR)

Column Types	Paved Roads		Dry Dirt Roads		Muddy, Hilly, Urban Roads	
	Day	Night	Day	Night	Day	Night
Motorised	30-40	25-30	20-25	18-20	10-15	8-10
Mixed	20-30	14-20	15-20	12-15	10-12	9-12

- Notes:
- (1) During fog, reduce by 25-30% of day speed.
 - (2) Performance is sharply reduced in mountains, desert, arctic, marshy areas and during winter.
 - (3) Rest halts:
 - (a) Short halt of 20-30 minutes every 2-3 hours (first one after 1-2 hours).
 - (b) Long halt of 2-4 hours necessary if a forced march of 12-14 hours is being conducted.

March Security

0219. **General.** Measures are taken to repulse, or at least lessen the impact of precision and air attacks and remote mining. It is also necessary to prevent enemy ground reconnaissance from penetrating to the main body and to preclude the possibility of a ground attack surprising the main body before it can deploy to meet it. To this end, and to assist the main body's deployment into battle, march security elements are always sent out. Their strength and composition will depend on the nature of the threat and on the terrain: the greater the threat and the more difficult the terrain, the stronger the march security required.
0220. **Precision, Air and RDM Attacks.** These are a constant danger in the battle zone, and the threat grows exponentially as the grouping comes within the reach of enemy attack helicopters and artillery.
- a. **Precision Strikes.** Countering this threat is a top priority for the operational commander. He will endeavour to destroy or at least disrupt the weapons systems of the enemy and the reconnaissance and C3 on which they depend. He may also be able to use passive measures. Where possible, march routes make use of protective features such as forests and the existence of power lines. Reconnaissance can be confused by the use of corner reflectors (both static, eg strung from telephone wires, and mobile). Smoke and decoys can be pre-deployed to hide columns and divert PGMs on warning of an approaching missile. For the most part, however, units will probably have to rely on their on board counter-measures (automatically triggered jamming systems, decoys and grenade launchers).
 - b. **Air Attack.** Constant air surveillance is maintained at every level, from the operational down to platoon. Formations maintain a radio net dedicated solely to the transmission of air, missile and chemical warnings. CAPs may protect important moves and routes are chosen which minimize the danger (with passive protective measures being used on exposed stretches). During long halts, vehicles are dug in using their self-entrenching devices and engineer assistance where these are not fitted. They are then camouflaged, and dummies may be deployed as well. Finally, GENFORCE is saturated with effective air defences at all levels.
 - c. **Remote Mining.** RDM strikes will usually achieve surprise. They may be placed in front of a unit, in which case it may be possible to bypass the obstacle. They may be delivered on top of the column, however, or onto a choke point which cannot be avoided. In either case, engineer assistance cannot be relied on to be at hand, and accordingly all sub-units are trained in self-help mine clearing (eg with issue grapnels): individual vehicles clear the sector of ground between them and the next ahead in the column until an exit is created.



0221. **March Security Elements.** These comprise advanced guards, rearguards, flank detachments or groups and forward, flank and rear security groups and patrols. (In GENFORCE terminology, a combined arms detachment is always battalion-sized, often reinforced; a group indicates a reinforced company and a patrol varies from section to platoon in strength.) In addition, though it is not their prime function, forward and raiding detachments (see Chapter 8) will incidentally provide some march security. Diagram 2-3 illustrates the different sorts of march security which may be deployed.

- a. *Advanced Guard.* The roles of the advanced guard are: to prevent an attack from striking the main body before it can deploy; to drive back enemy reconnaissance; to clear minor opposition from its axis; if strong opposition is encountered, to seize a favourable line to support the deployment of the main body into battle. Generally, brigades deploy a battalion on each axis as an advanced guard (whether motor rifle or tank tends to depend on the terrain), though there may be only a reinforced company on a secondary axis (eg, of a flank detachment), especially where the likelihood of meeting the enemy is small. Brigade may reinforce an advance guard with extra artillery, air defence or engineers, though this is unusual in the Mobile Forces as battalions are already organized as combined arms entities. NBC reconnaissance will be added, though, if there is a NBC threat. The advanced guard moves about 20-25km ahead of the main body. It breaks down into two elements, a vanguard of a (usually) reinforced company which moves 5-10km in front of the second element and the main guard (ie the rest of the battalion.)
- b. *Rearguard.* A rearguard, in similar strength to the advanced guard described above, is deployed by a brigade conducting a withdrawal. When the enemy threat is weak and/or the brigade has broken clean, a rear security group (RSG) may be adequate.
- c. *Flank Detachment.* A flank detachment is employed when marching parallel to the line of contact and is posted on the flank nearer the enemy. In addition, whenever a formation has to operate with open flanks, for example when exploiting into the enemy rear or in mountain areas, a flank detachment may be used. It may comprise an anti-tank battalion and attached mobile obstacle detachment (MOD), usually reinforced by a company group and some air defence. If the threat is greater, it may consist of a combined arms battalion reinforced by an anti-tank battery or battalion, MOD and air defence. It may divide into groups which move in bounds from one blocking position to another, the last one moving on when the main body has passed by. Alternatively, it will march in parallel and level with the head of the main body at a distance of 5-10km laterally from the main route.
- d. *Flank Security Group.* A flank security group (FSG) is deployed on a potentially threatened flank but where the threat is not so great as to require a flank detachment. It may be reinforced with anti-tank and mine-laying assets, or be prepared to cooperate with an ATR and MOD. Flank security patrols usually march level with the head of the main body and about 5-10km from the main route. Static flank security groups are often used, for

example, to block the exit from a mountain pass while the main body passes by.

- e. *Rear Security Group.* This may be the rear element of a rearguard or the only rear security element of a division or regiment withdrawing when the enemy is not close. Rear security patrols are also posted in the advance during mobile operations in the enemy depth.
- f. *Patrols.* The most common sort of march security patrol is the forward patrol (FP), which may be found throughout a brigade's formation. Thus the vanguard of first echelon battalions, advanced guards, forward detachments and so on will probably be led by FPs. Second echelon battalions may use FP only. When the likelihood of contact with the enemy is low, FPs may be used instead of vanguards. Although these patrols have a secondary reconnaissance function they should not be confused with the reconnaissance patrols described in Chapter 3. The FP operates closer to the main body (generally about 3-5kms ahead) and travels along the main body's actual route. They are less inclined to avoid contact with the enemy, but should not be expected to attack an enemy who is clearly stronger or in well-prepared defences. Flank and rear security patrols (FSP and RSP) are employed in appropriate tactical security situations. Motor rifle or tank platoons are used as march security patrols and they may include engineer or NBC reconnaissance. The smallest form of patrol is the scout section or scout vehicle. These may be sent ahead of platoons or companies operating independently but even battalions deep in the main body of the brigade may use a scout section as a minimal march security element. Scout sections are also frequently deployed on the open flanks of sub-units.

March Formations: Mobile Forces

- 0222. *General.* There is no stereotypical march formation. It will be determined by the mission, the terrain to be crossed, any attachments or detachments ordered by the higher commander and the assessment of the threat likely to be encountered. March formation is designed to ensure security against air and ground threats and to make it possible for each unit or formation to flow rapidly from march into pre-battle and thence battle formation with little or no pause for regrouping.
- 0223. ***The Order of March: Brigade.*** Diagrams 2-4, 2-5 and 2-6 illustrate variants. In each case, it is assumed that the brigade is not operating on an army or corps main axis: if it were, then elements of the army/corps artillery group and probably other reinforcements would be included in its columns. Similarly, if the brigade faced a significant water obstacle, it would be augmented by extra assault crossing and/or bridging means, and these would move well forward. Diagrams 2-4 and 2-5 show a possible formation when the brigade is moving

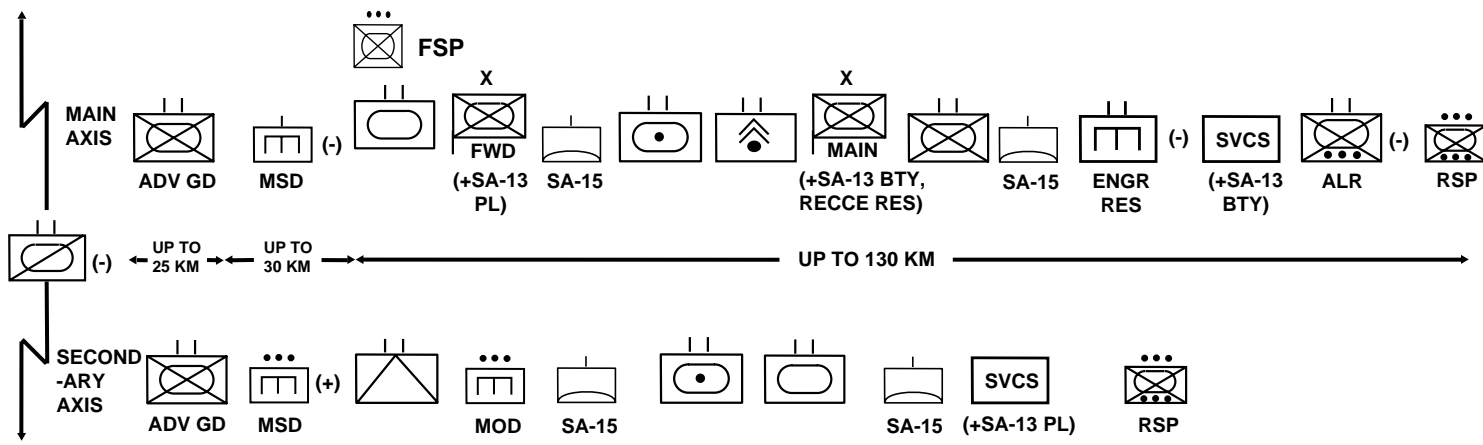


DIAGRAM 2-4: BRIGADE MARCH FORMATION WHEN ENEMY FORCES ARE IN FRONT (VARIANT)

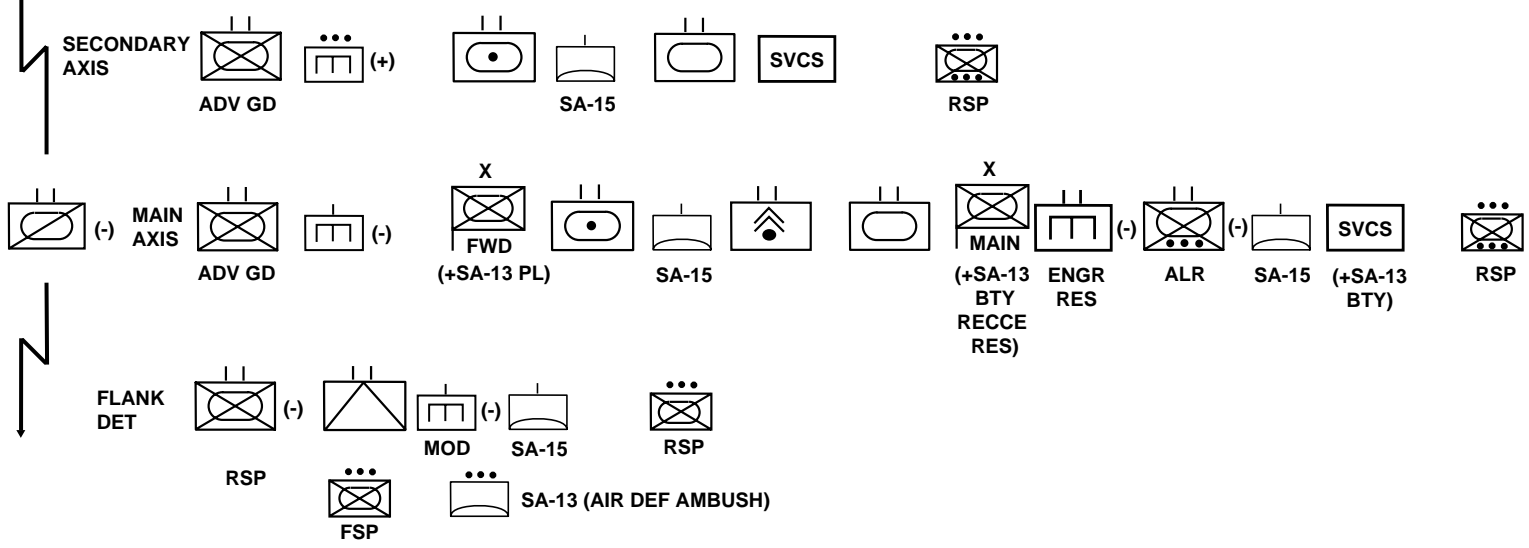
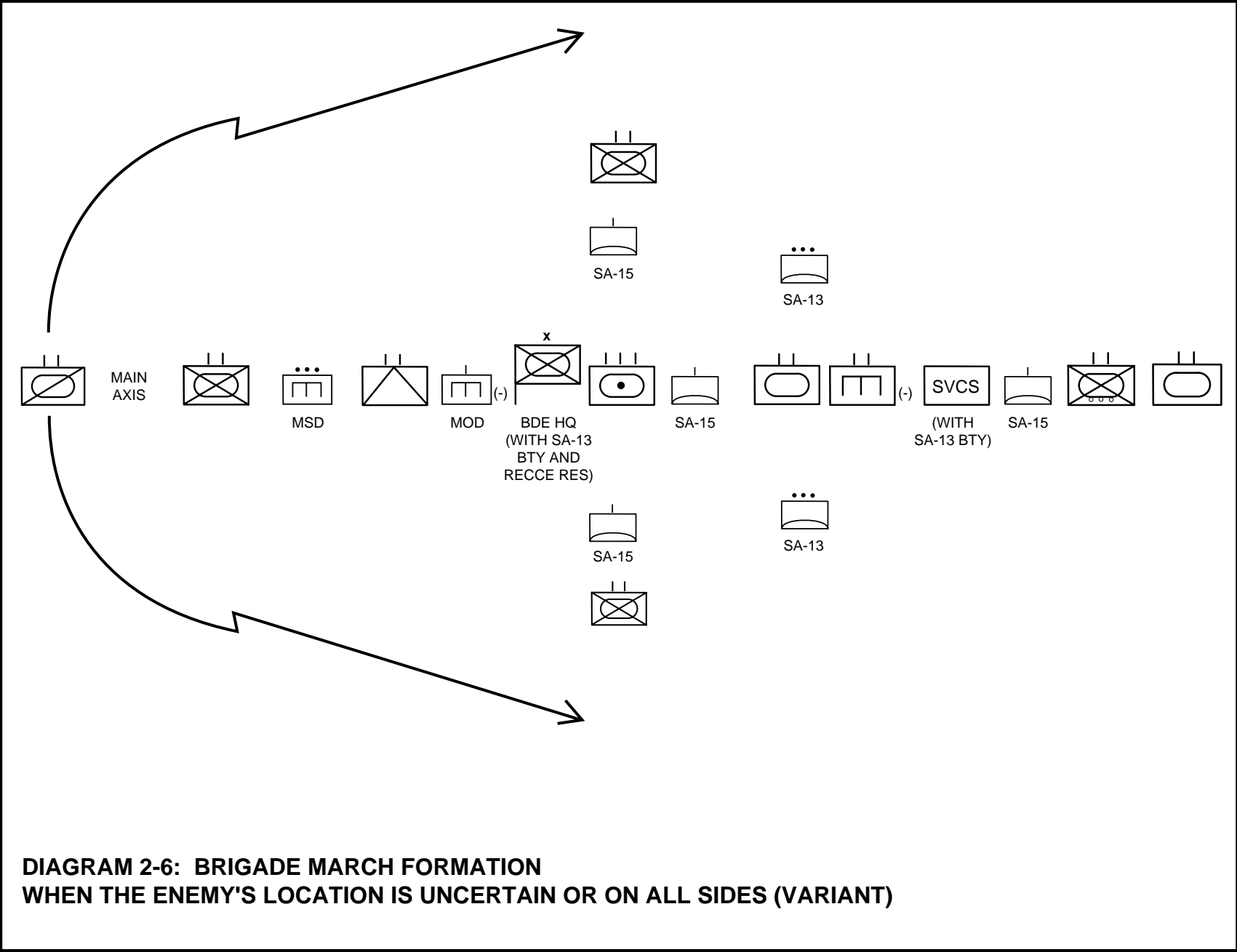


DIAGRAM 2-5: BRIGADE MARCH FORMATION WHEN MAIN ENEMY IS TO THE FRONT BUT THERE IS A FLANK THREAT (VARIANT)



**DIAGRAM 2-6: BRIGADE MARCH FORMATION
WHEN THE ENEMY'S LOCATION IS UNCERTAIN OR ON ALL SIDES (VARIANT)**

to attack an enemy to its front, though in the latter case there is also a possible threat to the open left flank. These are the sort of formations assumed when advancing against a covering force screening a strong defensive position or against an enemy employing manoeuvre defence. The advanced guard will deal with minor opposition, obviating the need to waste valuable time by deploying the main body, which will only be committed (ideally) for the battle against the enemy's main forces or the attack on the final objective if the brigade is operating in the enemy's depth. Diagram 2-6 shows the diamond formation often adopted when operating in the enemy's depth where, as is so often the case, there is uncertainty about the enemy's locations and strengths or where there is a potential threat from all directions. A battalion is ready to repel an attack from any side and the brigade can quickly manoeuvre fire from centralized artillery and if necessary anti-tank and other manoeuvre assets to reinforce as necessary. Alternatively, the brigade is well placed to switch to a secondary axis or conduct an envelopment of any enemy grouping which is encountered.

- a. *Reconnaissance.* Corps assets will be operating to the front, and if necessary, to the flanks of the brigade to provide early warning of potential problems and opportunities. The brigade reconnaissance battalion will deploy a screen as well, providing information of specific interest to brigade. There will probably be a reconnaissance detachment on the main axis and patrols to cover the rest of the sector of advance, and a reconnaissance reserve is usually held. See Chapter 3 for details.
- b. *Forward and Raiding Detachments.* While such a grouping is not illustrated here, either corps or the brigade may deploy a battalion (possibly reinforced) as a forward detachment. This will be usual in an advance against manoeuvre defence or when operating in the enemy's depth. A forward detachment operates ahead of the main forces to seize early an obstacle crossing, defile or other vital ground in the interests of maintaining the momentum of the advance. Because it is trying to capture a depth objective, the forward detachment will try to avoid battle until it reaches its objective. It thus moves off the main axis. Similarly, a reinforced company or a battalion may be operating ahead as a raiding detachment against enemy C3I, artillery and helicopter assets. This, too, will be trying to avoid contact until its target is reached. While tasked neither with providing security nor reconnaissance for the brigade as their primary mission, both forward and raiding detachments may incidentally provide a measure of both.
- c. *Advanced Guard.* There will be an advanced guard on each axis exploited by the brigade. Usually of battalion size and sometimes reinforced with extra artillery or anti-tank assets, the unit's mission is to clear minor opposition from the path of the main body. While it is prepared to fight to achieve this, it will generally avoid a frontal assault if this is possible. Ideally, the flank of the enemy position will be turned and the advanced guard will then try to destroy the withdrawing enemy on the move. Alternatively, the advanced guard may simply be ordered to by-pass the enemy by the brigade commander, leaving the main body to by-pass in turn or to clear the axis. All will depend on the concept of the operational commander. Advanced guards generally move about 20-25kms ahead of their main bodies, ie about

an hour's march in advance. This interval will inevitably be reduced, however, if serious resistance and/or obstacles are encountered.

- d. *The Main Body.* The relative placing of manoeuvre units and artillery will vary greatly with circumstances. Some general principles obtain, however. The forward brigade CP usually moves at or near the head of the column and always on the main axis. This ensures a speedy command reaction at the most crucial point. The main CP also moves on the main axis, usually after the artillery. Artillery generally moves well forward so that it offers timely support to the advanced guard and cover the deployment of the manoeuvre battalions without having to displace. The anti-tank battalion, which is invariably accompanied by a mobile obstacle detachment, acts either in a flank detachment or as an anti-tank reserve. The light motor rifle battalion usually moves near the rear of the column on the main axis and acts as anti-landing reserve unless and until it is committed either on wheels or in helicopters.
- e. *Brigade Air Defence.* The three or four SA-15 batteries of the air defence regiment are distributed throughout the march columns so that, on deployment, they cover the whole brigade (less any forward detachment). The brigade CP and artillery are priorities for defence. The three SA-13 batteries of the air defence regiment are used to provide low level air defence to elements that lack organic assets. Commonly, they defend the brigade main CP, the artillery and the rear services. A section or platoon may, however, be deployed to one or both flanks to create air defence ambushes on likely attack-helicopter approaches.
- f. *Engineers*
 - (1) *Movement Support Detachments (MSD).* The engineer battalion will provide a movement support detachment for each axis that is being exploited. The task of the MSD is to clear routes of obstacles, bridge minor water obstacles or ditches or create bypasses round obstacles too time consuming to clear. Its work is thus critical to maintaining the speed of advance and to security: if work is not completed in good time, the column will halt and probably bunch up and thus present a good target for air, missile or long-range artillery attack. Where the likelihood of meeting the enemy is low, the MSD may move in front of the main guard. If the chance of contact is higher, it will move immediately behind the advanced guard (ie, up to one hour ahead of the main body). The composition of each MSD will vary according to the importance of the axis and the problems that it expects to encounter.
 - (2) *Mobile Obstacle Detachment (MOD).* The battalion will detach some minelayers and perhaps other elements to form a mobile obstacle detachment which will come under command of the anti-tank battalion. The MOD will thus be found in a flank detachment or with the anti-tank reserve (ATR).

- (3) *Assault Crossing Means.* If a major water obstacle is to be crossed, some ferries and amphibians will move with the forward detachment and/or advanced guard. The rest will move well up the column, usually behind the artillery. Otherwise, they will move towards the back of the column.
- (4) *Engineer Reserve.* Those elements of the battalion not deployed elsewhere form an engineer reserve which tends to move near the back of the column.
- g. *Chemical Defence and Deception.* The chemical defence company will provide chemical reconnaissance throughout the brigade formation. Decontamination assets are usually kept concentrated towards the rear of the main axis column, often with elements on a secondary axis as well. The deployment of smoke generating assets and of the deception and camouflage company will vary with the deception and concealment plan.
- h. *Rear Services.* Most of the rear services come at the tail of each column, but some medical evacuation and recovery and maintenance elements may be distributed to units throughout the column, especially where the terrain is likely to complicate support from the rear.

0224. ***The Order of March: Combined Arms Battalion.*** While a brigade will usually move on two or three routes, a battalion will always move on a single route. If acting as a raiding or (especially) a forward detachment, a battalion may well be reinforced with extra reconnaissance, anti-tank, artillery or engineer resources (eg, for gap crossing). Generally speaking, however, the Mobile Forces' battalion is a sufficiently balanced combined arms entity to operate without additional resources. Diagrams 2-7 and 2-8 illustrate typical battalion march columns.

- a. *Battalion As Advanced Guard (or Forward or Raiding Detachment).* As shown in Diagram 2-7, the reconnaissance platoon is deployed forward as a combat reconnaissance patrol (CRP). Flank and rear security patrols (FSP and RSP) of section to platoon strength are also deployed. The leading company is always reinforced to produce a combined arms grouping. In addition to a tank or MR platoon, it will receive at least engineer reconnaissance and a sapper section and it may have a tank launched bridge and/or armoured engineer vehicle. It will have a section of air defence, probably of 2S-6 but possibly BMPs with SAMs. It may receive an anti-tank platoon and NBC reconnaissance as well. An interval of 5-10km separates this company from the main body so that the latter does not run into the vanguard's fight before being able to deploy. A brigade MSD will often move in this interval to improve the route, falling behind the battalion when it goes over to attack. The order of march of the main body endeavours to balance the desire for security with getting the battalion quickly into battle with elements in the correct order. Thus, the CP is well forward so that the commander can speedily establish a command and observation post (COP) overlooking the key ground. Artillery too is at or near the front of the column so that it can quickly come into action to support the vanguard and/or the main body. Diagram 2-9 shows a typical march plan, in the case of a motor

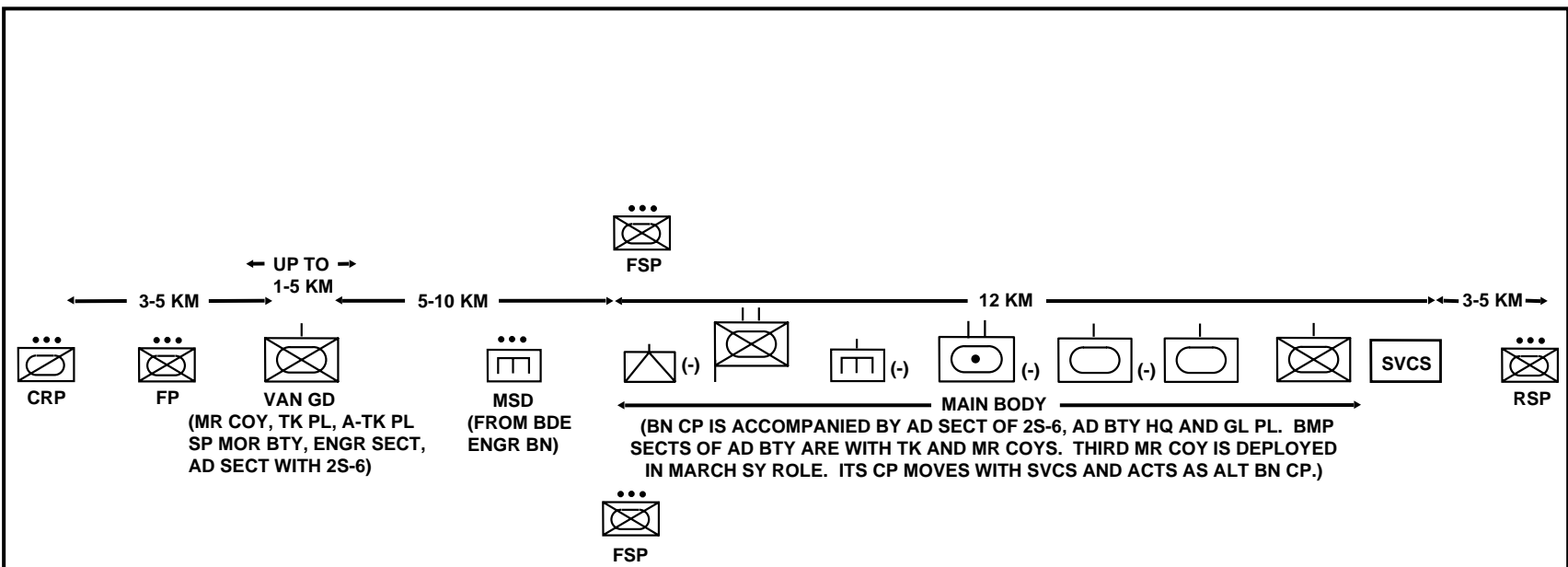


DIAGRAM 2-7: MARCH FORMATION OF A COMBINED ARMS MR BATTALION ACTING AS ADVANCED GUARD OR FORWARD DETACHMENT (VARIANT)

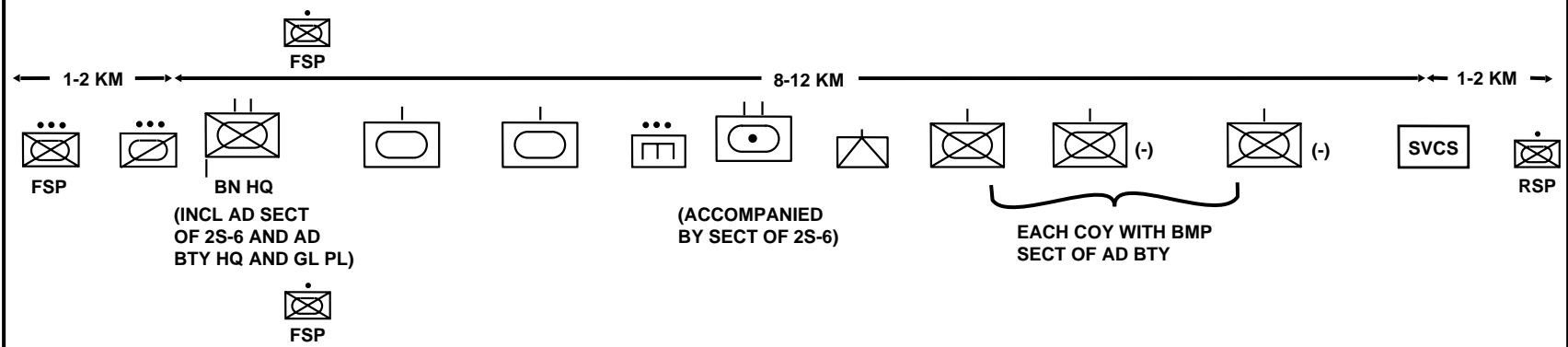
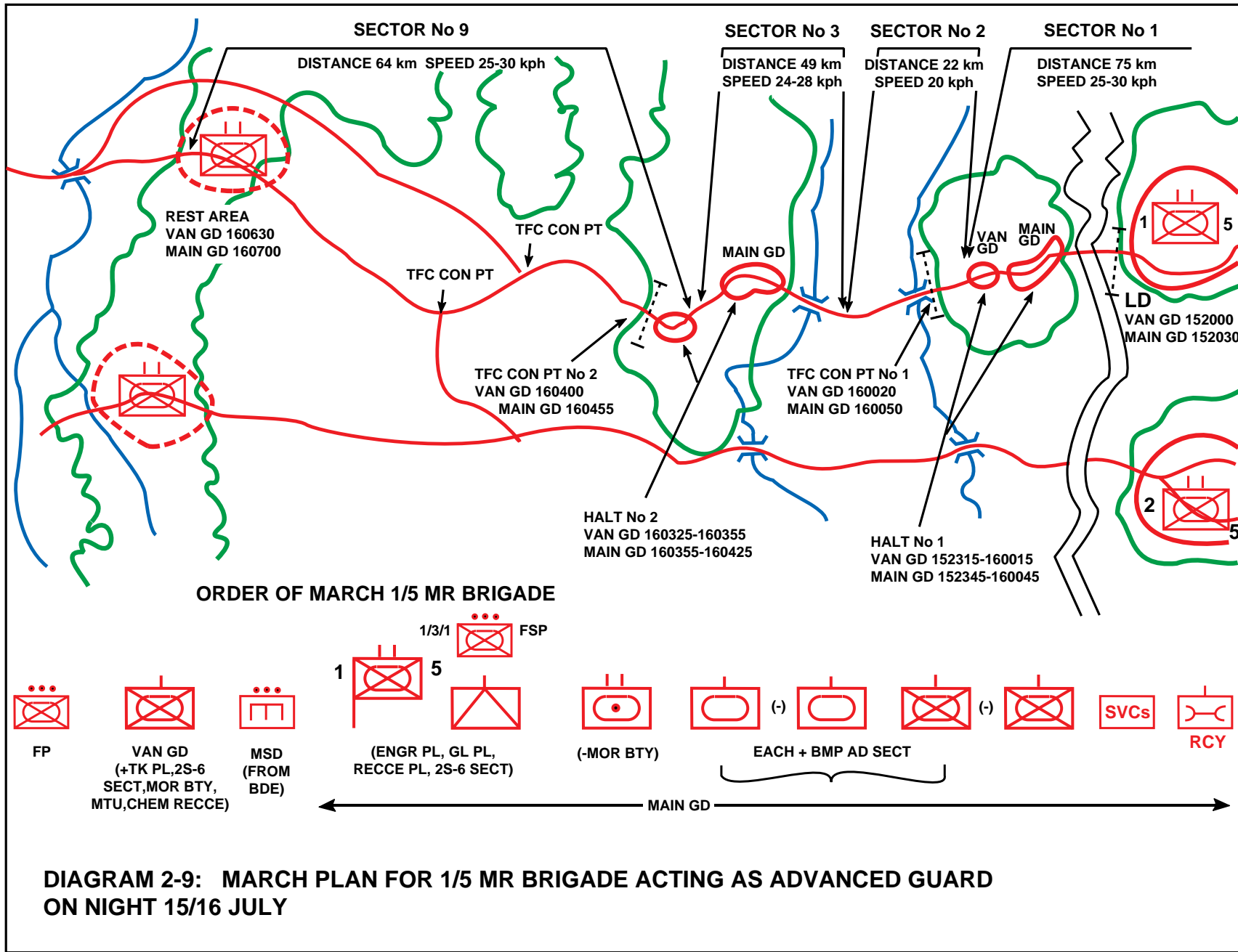


DIAGRAM 2-8: MARCH FORMATION OF A COMBINED ARMS MR BATTALION WITHIN A BRIGADE COLUMN (VARIANT)



rifle brigade advanced guard.

- b. *Battalion in the Main Body of the Brigade.* Illustrated in Diagram 2-8, the battalion will often deploy less combat security, though this will depend on the tactical situation. It is unlikely to deploy its reconnaissance platoon as a CRP until committal (probably until after it has penetrated through the depth of enemy first echelon companies in attacks on a positional defence). It is more likely that the artillery will bring up the rear of the column, but the CP will always be found at the head.
- c. *Sub-Unit Integrity.* The motor rifle company of a tank battalion operating outside the brigade main body is usually used complete (with tank, air defence and engineer reinforcement) as the vanguard of the battalion, especially in close country. If, however, the battalion is operating from within the main body, the motor rifle company is more likely to be split up, with a platoon attached to each tank company (less security elements). On the other hand, tank companies of motor rifle battalions are more likely to be kept together (less a platoon for the vanguard where needed) and they usually lead the motor rifle troops in the battalion column. On committal to battle, the tank company may be used as an entity or its platoons may be used to reinforce motor rifle companies.

March Formations: Basic Forces

0225. **General.** The same terrain, mission and security concerns that influence Mobile Forces march formations help to determine those of the Basic Forces. The following paragraphs will only single out the differences which stem from the different organizational structure of the latter.
0226. **Routes.** A division's zone of advance will be 25-30km wide, and in executing a tactical march it will utilize 2-3 routes, whenever possible with 1-2 alternate and some lateral, connecting routes to aid concentration or dispersal as appropriate. A regiment will normally march on a single route unless it needs to throw out a flank detachment. Battalions invariably use only one route.
0227. **Intervals and Road Space.** The same variable intervals between vehicles and sub-units are observed by the Basic Forces, with 5-10km separating regimental sized groupings and 3-5km battalion packets. A regiment in tactical march formation on one route will normally occupy 60-100km of road space (depending on whether or not it deploys an advanced guard). A division will require up to 240km on each of 2-3 routes (with a total road space requirement for up to 480km). These figures of course exclude reconnaissance elements and any forward detachment that may have been deployed. They also assume that proper intervals are observed, which is often not the case.

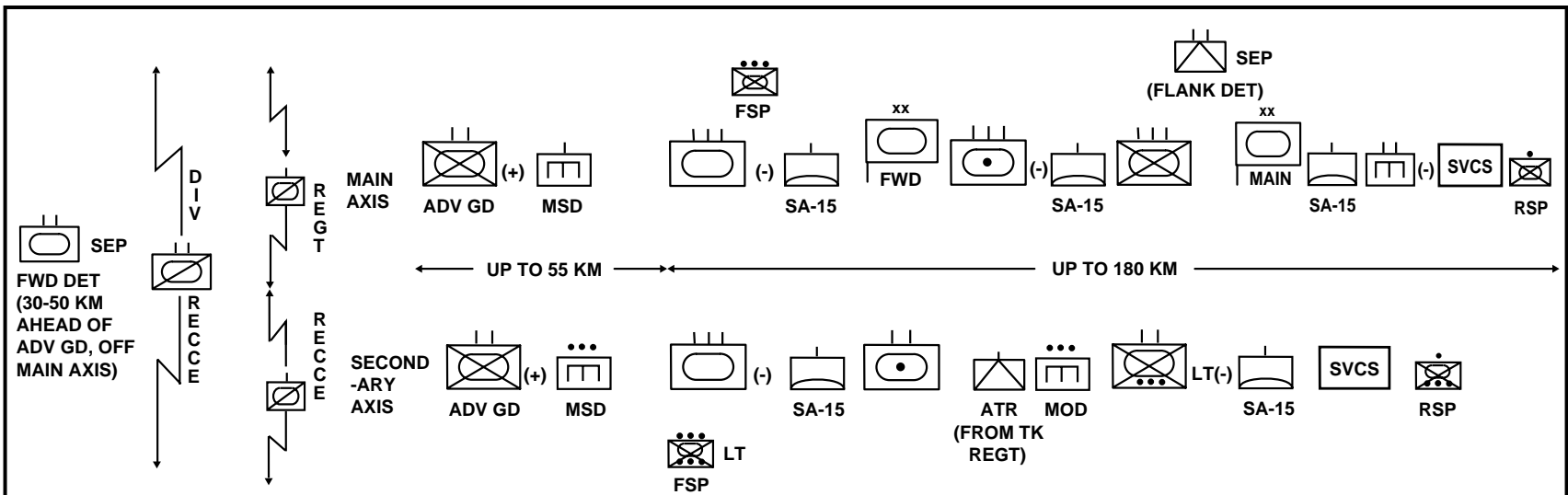


DIAGRAM 2-10: TANK DIVISION MARCH FORMATION TO COUNTER-ATTACK (VARIANT)

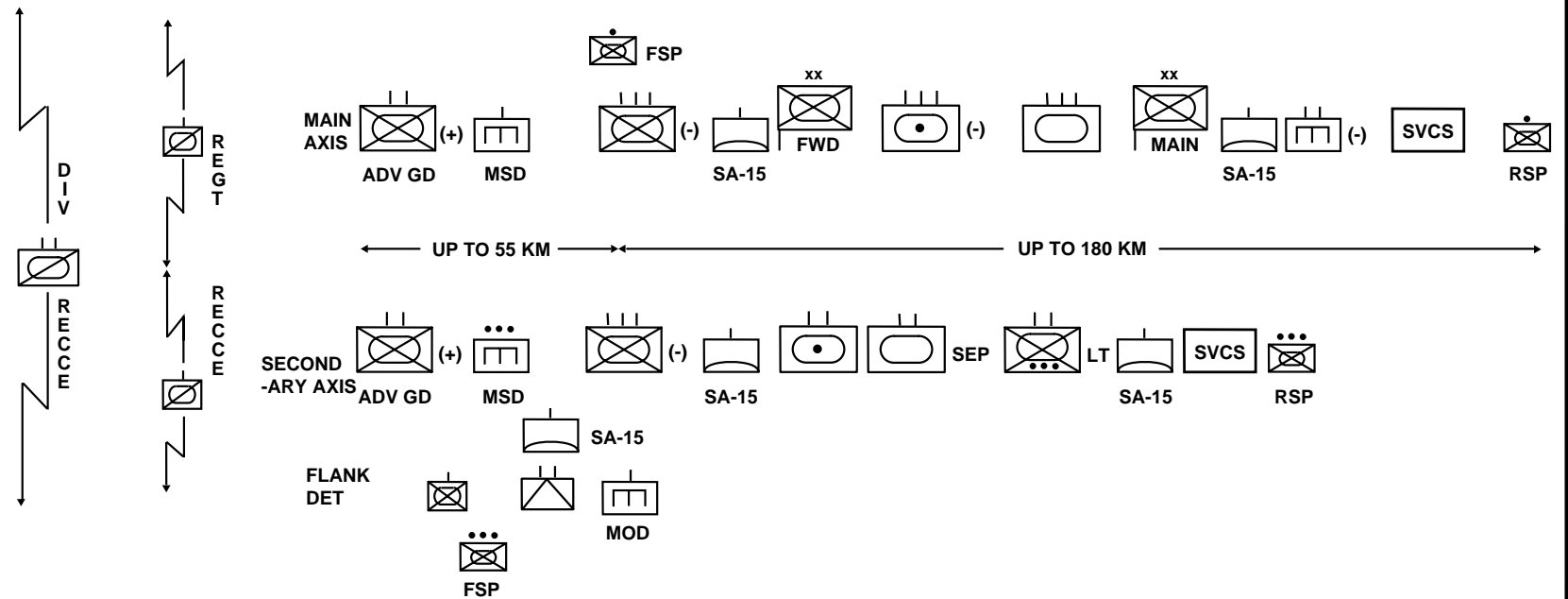


DIAGRAM 2-11: MR DIVISION MARCH FORMATION WITH AN OPEN FLANK (VARIANT)

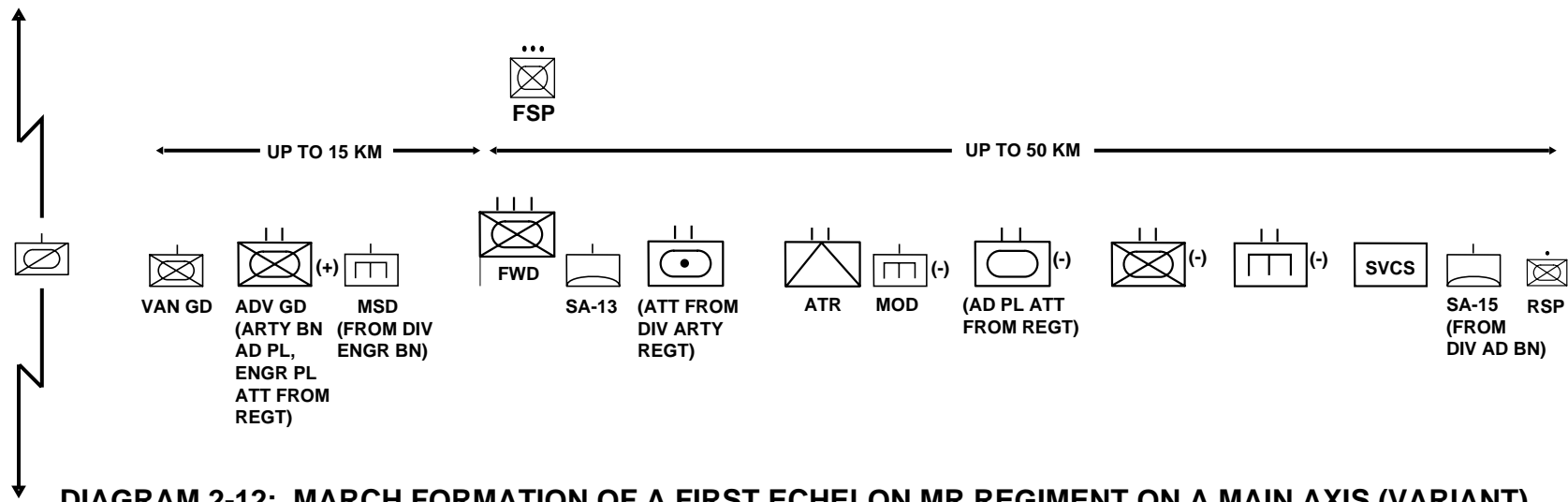


DIAGRAM 2-12: MARCH FORMATION OF A FIRST ECHELON MR REGIMENT ON A MAIN AXIS (VARIANT)

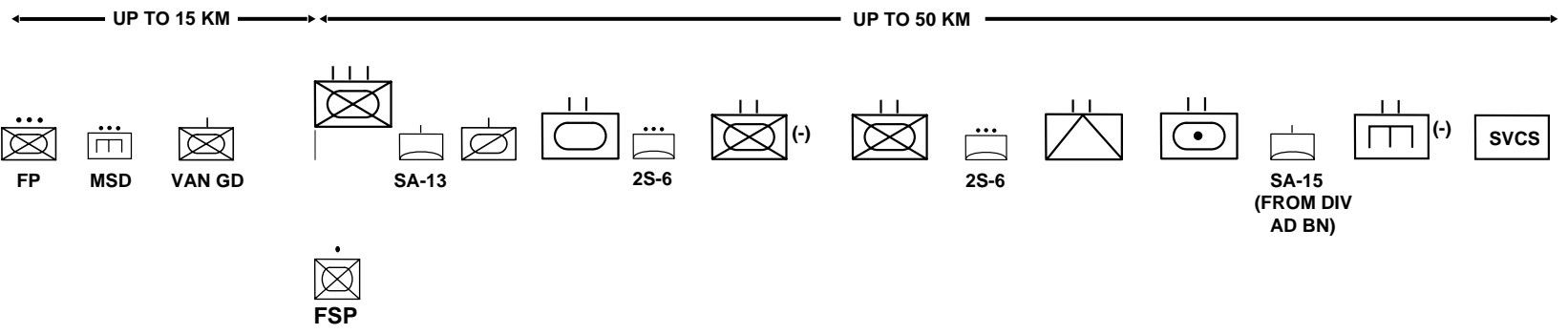


DIAGRAM 2-13: MARCH FORMATION OF A SECOND ECHELON MR REGIMENT (VARIANT)

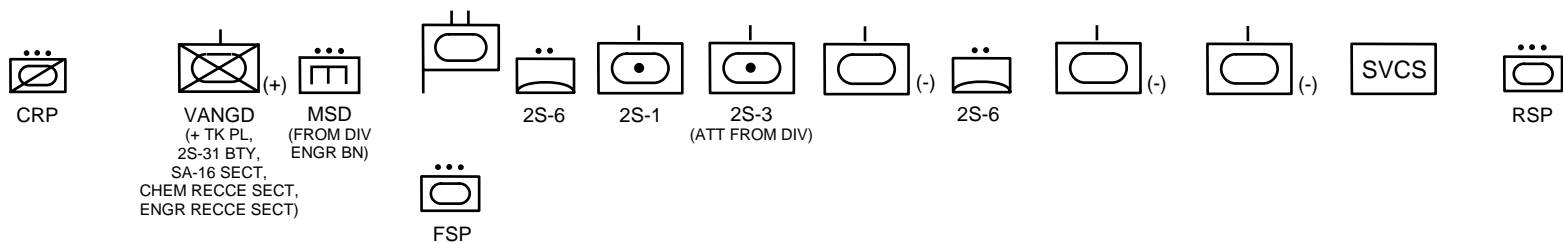
0228. **Order of March: Division.** If a division is marching to attack a weak enemy and it has three routes available, it may march with three regiments in the first echelon (especially if it still has the traditional four manoeuvre regiments). More usually, it will move in two echelons, perhaps with a flank detachment. The bulk of the artillery and manoeuvre forces will be found on the main axis, as will most combat and service support. A tank division will often, perhaps usually, employ its separate tank battalion as a forward detachment, though its deployment will frequently take place only after the division has penetrated into (but not through) the defence. Diagrams 2-10 and 2-11 illustrate a tank and a motor rifle division in tactical march columns.
0229. **Order of March: Regiment.** Diagrams 2-12 and 2-13 show motor rifle regiments acting in both the first and second echelons. The difference between them lies principally in the strength of the march security and reconnaissance deployed and in the relegation of the artillery and anti-tank to the rear of the column in the latter case (though this is far from universal, even in the second echelon where contact is not expected to be imminent.) It will be noted that the tank battalion is kept together (save any detachment to reinforce an advance guard). This is the normal practice. On the regiment being committed to battle, the battalion could be used as a separate entity or companies/ platoons used to reinforce motor rifle battalions, perhaps with a company being retained as regimental reserve. On the other hand, in tank regiments it is usual to reinforce each tank battalion with a motor rifle company when going into battle and often (especially when in the first echelon) even in march formation as well. Although it is not shown in the diagrams, a regiment could have a reinforced company or battalion marching on a secondary route as a flank or outflanking group or detachment: this is particularly common in rugged terrain.
0230. **Order of March: Battalion.** Diagram 2-14 illustrates the formation of Basic Forces battalions in various roles.
- a. *Forward Detachments and Advanced Guards* are always combined arms groupings. The tank division's separate tank battalion is already combined arms though it may receive engineer and air defence reinforcements from divisional resources. A tank or motor rifle battalion from a regiment will need reinforcements. Note that the forward detachment deploys a CRP as it is operating in the enemy's depth, but the advanced guard, with regimental reconnaissance out in front, uses only a FP. Artillery is placed well forward if a meeting battle is likely. Otherwise it can equally move at the head or rear of the main body.
 - b. *First Echelon* tank battalions will often be reinforced by a motor rifle company. A platoon of the latter will be allocated to each tank company (save possibly one which is used as a FP). A motor rifle battalion may receive a tank company, in which case it is likely to be kept intact until committal and then elements are allocated to motor rifle companies according to the tactical plan. First echelon battalions do not deploy CRPs, though the reconnaissance platoon, and even another nominated platoon as well on occasion, will be ready for deployment in this role when the enemy's defensive position has been broken into.

- c. *Second Echelon Battalions* are not usually reinforced on the march until immediately before committal.

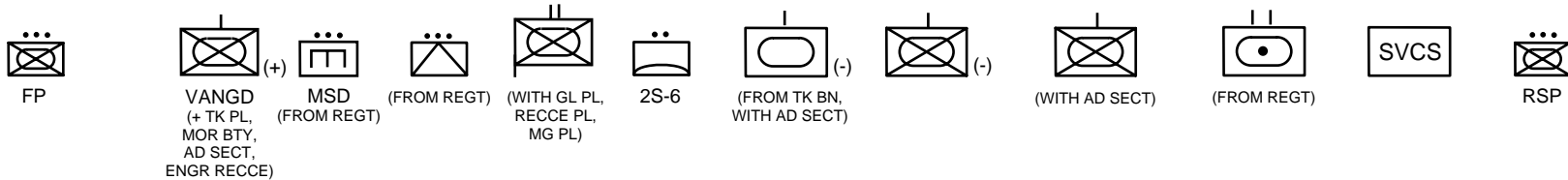
SECTION 3 - WAITING AREAS

0231. **General.** During long rest halts or when waiting for committal, units and formations occupy waiting or assembly areas. Deployment therein has to balance the conflicting needs of security from both air/missile and ground attack (eg by raiding detachments, including airborne). All-round defence is prepared. Troops are entrenched and, whenever time permits, vehicles and equipment are also dug-in, ideally with overhead cover to reduce signatures and give protection against sub-munitions (especially TGSMs): this is easy and quick with tanks, SP guns, BMPs, MT-LBs and some other vehicles as these have self-entrenching devices, but others require engineer support. OPs and patrols are deployed to give warning of attack in any dimension or of contamination. Communications are by line and vehicle liaison wherever possible to increase operational security. Passive deception and concealment measures are executed by the brigade/divisional camouflage and deception and chemical defence companies. These deploy dummies, false radio nets and radars, corner reflectors and smoke pots in accordance with the brigade/divisional plan. Deception is organized at the operational level, centralization being necessary to avoid the risk of subordinate elements compromising the larger picture being painted for the enemy: this is especially important where false groupings are being created. GENFORCE stresses that, to succeed, deception requires continuity. Such work is, of course, in addition to unit self-help camouflage.
0232. **Location of Waiting or Assembly Areas.** In view of the effectiveness of enemy ground surveillance, such areas will seldom be located nearer than 20-30km from the line of contact. The concealment offered by terrain is exploited to the fullest extent. Villages and towns are favoured because of their intrinsic Infra-Red (IR) signatures and ease of concealment and camouflage. Woods too are valued, but GENFORCE does not like to move more than about 200m into a forest because of the danger of enemy use of incendiary munitions and the danger of tree blowdown. Gullies and ravines offer the possibility of rapid creation of overhead concealment.
0233. **Size of Waiting or Assembly Areas.** Allowing for an interval of 1-1½kms between companies, a Basic Forces battalion waiting area will be 8-10 or more square km and a combined arms battalion will need 12-15 square km. Other major units require about two thirds of that area, though the artillery regiment will need almost three times as much and the material support battalion four times as much. The total area thus required for a formation is shown in Table 2-4. Diagram 2-15 illustrates typical concentration or assembly areas of a tank division and a motor rifle brigade.

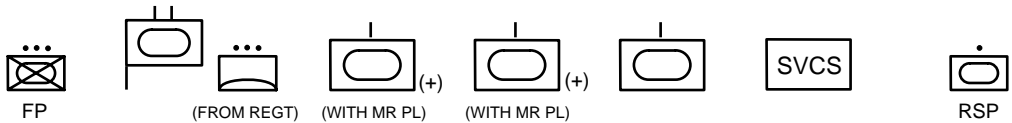
a. SEPARATE TANK BATTALION ACTING AS DIVISIONAL FORWARD DETACHMENT



b. MR BATTALION ACTING AS REGIMENTAL ADVANCED GUARD



c. TANK BATTALION IN FIRST ECHELON REGIMENT



d. MR BATTALION IN SECOND ECHELON REGIMENT

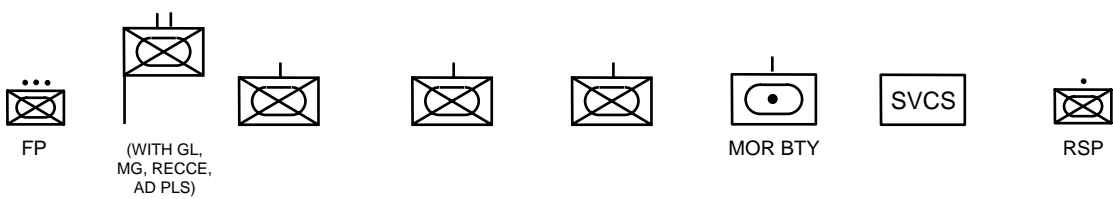
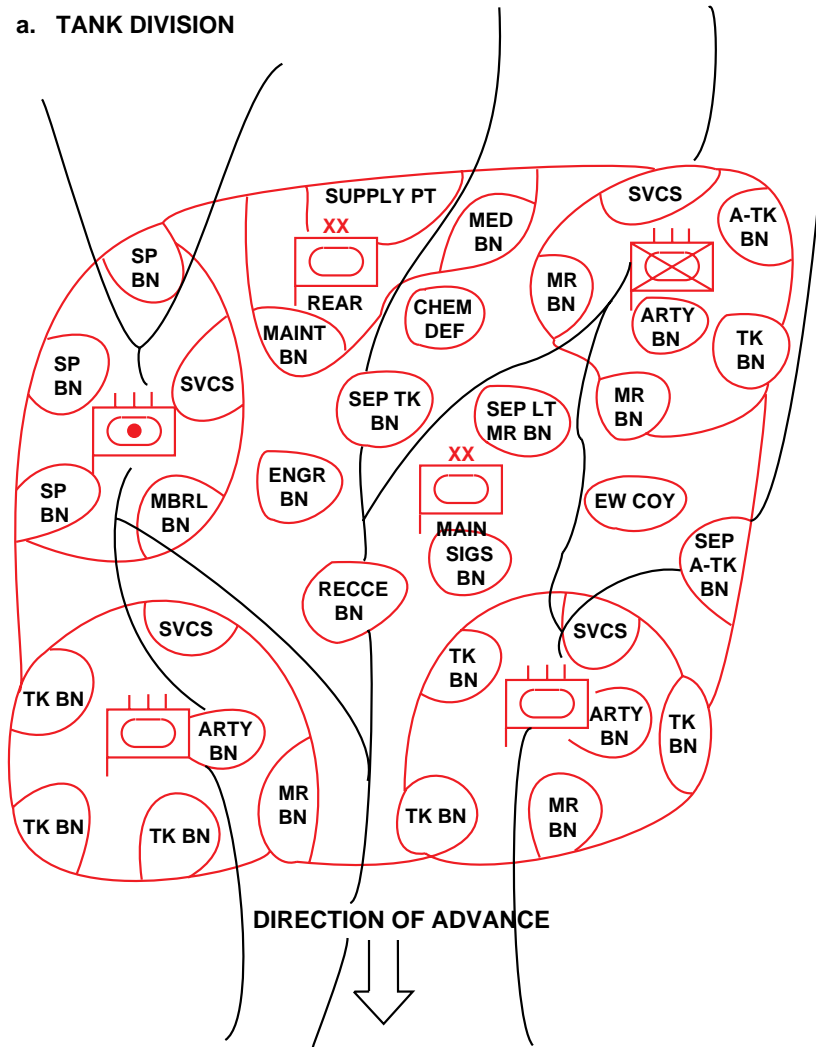


DIAGRAM 2-14: BASIC FORCES TANK AND MR BATTALION FORMATIONS (VARIANTS)

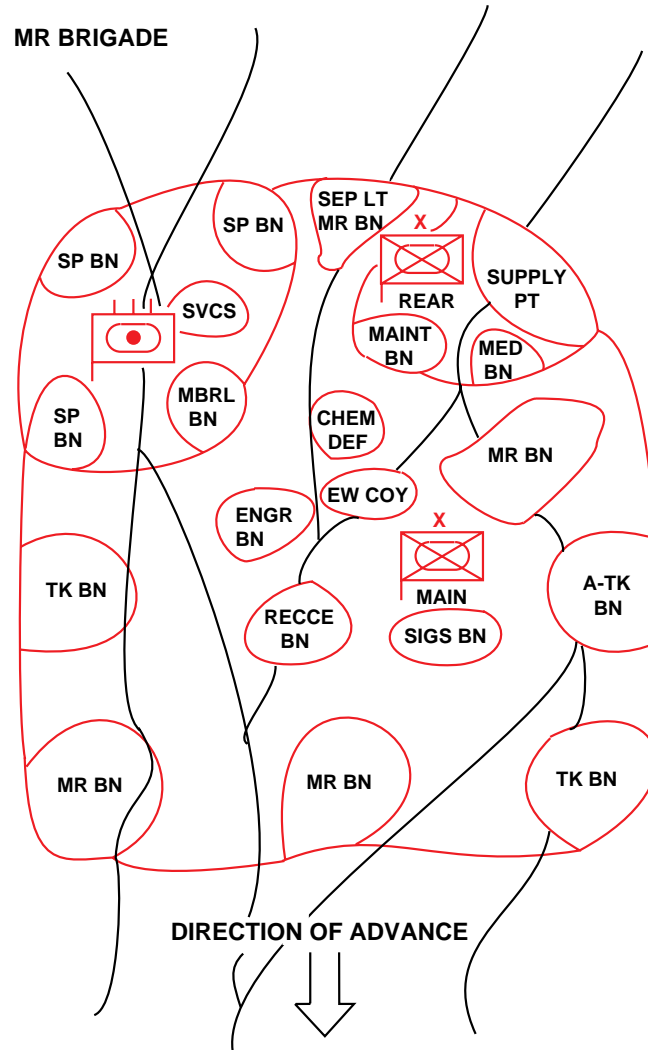
a. TANK DIVISION



NOTE: FORMATION AND UNIT LEVEL AIR DEFENCE WILL BE TACTICALLY DEPLOYED THROUGHOUT THE AREA TO COVER ALL ELEMENTS

DIAGRAM 2-15: TYPICAL ASSEMBLY AREAS

b. MR BRIGADE



NOTE: FORMATION AND UNIT LEVEL AIR DEFENCE WILL BE TACTICALLY DEPLOYED THROUGHOUT THE AREA TO COVER ALL ELEMENTS

DIAGRAM 2-15: TYPICAL ASSEMBLY AREAS

**TABLE 2-4: DIMENSIONS OF FORMATION WAITING OR ASSEMBLY AREAS
(Square km)**

Unit or Formation	Terrain (sq km)		
	Wooded	Normal	Open
Brigade Division	120-150 150-200	220-260 250-300	360(+) 400(+)

Notes:

- a. Wooded = more than 30% of 100 sqkm being wooded.
- b. Normal = 10-30% of 100 sqkm being wooded.
- c. Open = less than 10% of 100 sqkm being wooded.

CHAPTER 3

RECONNAISSANCE

SECTION 1 - PRINCIPLES

Reconnaissance On the Future Battlefield

0301. **General.** GENFORCE has always regarded reconnaissance as the most important element of combat support. In future war, it will be even more critical than in the past, given the increased range, accuracy and responsiveness of modern weapons systems. The side that wins the information struggle will be well positioned to win the struggle for operational and tactical fire superiority and thus the battle as a whole. As well as growing in importance, reconnaissance has changed its relationship with combat systems. In the past, reconnaissance collected data which was then collated, analyzed and evaluated to turn it into intelligence. The resulting intelligence was then disseminated upwards, downwards and sideways as appropriate and used in the formation of operational and tactical plans and for targeting purposes. This process often took a long time, too long for the requirements of modern warfare where critical time periods are measured in minutes rather than hours or days. Victory in long-range combat depends on a much more intimate link between reconnaissance and fire systems than existed in the past. Thus, as reconnaissance becomes a determining factor in achieving success, it is moving beyond the category of combat support and becoming part of the essence of combat action. It is becoming intimately linked with fire delivery systems rather than being at one remove, and the old, sequential operation of reconnaissance and combat elements is giving way to simultaneity.
0302. **Problems.** GENFORCE identifies three particular problems facing reconnaissance in future war:
- a. *The Non-Linear Battlefield.* Combat will develop very unevenly and spread over wider areas than in the past. Neither units nor formations will enjoy secure flanks and rear areas. Friendly and enemy forces will become intermingled and situations will develop and change with great rapidity. Reconnaissance must be able to give timely warning to commanders of rapidly developing threats, particularly from precision weapons, and identify fleeting enemy vulnerabilities and targets for ACM, electronic and other strikes. The intermingling of opposing forces will obviously complicate greatly the problem of targeting, especially for indirect fire systems. Developing an Identification Friend or Foe (IFF) system that will operate reliably without allowing any possibility of the enemy jamming or reproducing it is a major GENFORCE research and development task. Fratricide as seen as a potentially major problem in future war. Of course, satellite and inertial navigation systems combined with improved C4I will at least enable commanders to have a clearer, real-time picture of their own troops locations and this will help to lessen, but not eliminate, the problem.

- b. *Completeness.* As weapons systems become more and more capable, so the requirement for their accurate location (and thereafter destruction) grows. Today, GENFORCE believes that, for an attack to have a good chance of success, it will generally be necessary to pinpoint 70-80% of possible targets and 90-100% of the most critical ones (eg, RFCs, MBRLs, CPs).
- c. *Data Processing.* At the same time as the battlefield is becoming more and more complex and the requirement for intelligence greater and greater, the number of sources and agencies at work producing information is growing. An enormous amount of data pours continuously into CPs and this has to be turned into intelligence and targeting data very rapidly indeed. The information struggle is only partly a matter of collection. Just as important is the speed of processing, for the side that acts faster will win the crucial battle for time. This has forced GENFORCE into the use of automated and semi-automated systems to preclude time-lags.

Principles of Reconnaissance

0303. **Principles.** GENFORCE staffs and collectors stress the following principles in intelligence work:

- a. *Purposefulness.* At each level, all reconnaissance assets must work within a coordinated reconnaissance plan using each to its full potential. The plan is, of course, dictated by the requirements of the commander's mission and activity must be concentrated against the principal areas and objects of interest. Trained reconnaissance troops and dedicated equipments are both a limited resource and must not be risked or wasted on peripheral activities: they are not expendable.
- b. *Continuity.* Reconnaissance must be continuous, by day and night and in all weathers, and the plan that drives it must be updated as the situation changes. The manoeuvre nature of future combat has altered the balance between reconnaissance effort before the start of an operation and during its conduct, with the latter growing in relative importance. The process of gathering data has harmonically merged with combat action itself, emerging as a recurring cycle. The foundation of modern warfare is constituted by a dialectic triad of reconnaissance, fire and electronic attack and manoeuvre. These activities are now concurrent and not, as in the past, consecutive. GENFORCE stresses, too, that reconnaissance is not the exclusive preserve of specialist troops. It is an all arms mission.
- c. *Aggressiveness.* Acquiring intelligence will always be a struggle and the reconnaissance battle must be waged aggressively, whether in attack or defence. In troop reconnaissance, for instance, as well as covert techniques, GENFORCE highlights the use of ambushes and raids to seize prisoners for interrogation and equipment for technical analysis. Combat will often be necessary for frequently large reconnaissance groups or detachments to penetrate enemy screens to get to targets of interest. In addition, reconnaissance elements are required to attack enemy high value systems when they are encountered, especially if they are in action. (The particularly

demanding nature of reconnaissance work has led GENFORCE to elevate troops dedicated to the role to something approaching elite status: reconnaissance units receive a higher quality of officers and soldiers than line battalions and their training is especially rigorous.) In similar vein, air reconnaissance is increasingly performed by armed aircraft, often operating in pairs, which can immediately engage critical targets. A combined reconnaissance and strike Remotely Piloted Vehicle (RPV) is also under development.

- d. *Timeliness.* Only intelligence received in good time will enable commanders to adjust their plans to a changing situation and thus retain or seize the initiative. When setting a reconnaissance mission, the commander will specify the time by which the information he requires must be provided.
- e. *Security.* GENFORCE is well aware that the scale of its reconnaissance effort and the general and specific areas and objectives targeted may enable the enemy to learn a lot about intentions and plans. Every effort is made to conceal the scale, missions and targets of the reconnaissance effort. Thus, where it is possible, covertness is practised and a deception plan is always implemented to confuse the enemy. This demand for operational security will, of course, often clash with the need for concentration of effort, speed and aggressiveness.
- f. *Accuracy and Reliability.* GENFORCE's own enthusiasm for deception breeds a fear of being deceived. An effort will always be made to confirm the information provided by one source with the findings of another type of collector.
- g. *Integration.* Increasingly, reconnaissance assets are required not merely to locate targets but to guide weapons onto them and analyze the impact of their strikes (battle damage assessment - BDA - is almost as important as target acquisition: near-real time BDA is necessary to ensure continuous engagement of enemy forces, thus improving tactical and operational tempo). Moreover, many of these targets will be moving and thus transient targets of opportunity. This requires the vertical integration of some reconnaissance systems with strike/fire systems into a RSC/RFC. (At the lowest level, this will be a ground patrol able, with a laser designator, to guide a Precision-Guided Munition (PGM) onto a target, while at the highest it will be an aerial platform capable of giving mid-flight guidance to a ballistic missile). GENFORCE found, however, that such vertical integration meant that not all the product of reconnaissance was shared. Some was not even used. There is now a requirement for all reconnaissance systems to support several branches and arms of service and headquarters simultaneously to ensure the economical use of firepower, the servicing of all important targets and maximum transparency of the battlefield. In other words horizontal integration is stressed, even for assets within a RFC/RSC. All collectors feed information into formations' all-sources cells where there is semi-automated data processing and analysis. In this way, situational awareness is improved at both tactical and operational levels, enabling a hitherto unprecedented synchronization of combat actions.

- h. *Reserves.* In this, the information age of warfare, commanders are expected to retain a reconnaissance reserve, and, when that is expended, to create one anew. Thus, for instance, a battalion will designate a platoon as a reconnaissance reserve on committal of its recce platoon, or a brigade/division will hold back scout helicopters if their RPVs are all committed or used up, or an Air Army may re-role combat aircraft in a reconnaissance configuration if dedicated assets are being expended at an unacceptable rate.

SECTION 2 - THE ORGANIZATION OF RECONNAISSANCE

Zones of Responsibility

0304. ***The Need for Change.*** GENFORCE used to use a centralized, top down method for organizing reconnaissance and fire planning. It now appreciates that, in future war, this will no longer allow the timely and effective delivery of fire. The sequential approach does not fit the requirement of a battlefield where situations are constantly changing and where reconnaissance, fire and electronic strikes and manoeuvre are closely interlinked and concurrent. Time was not being exploited to the utmost as lower echelons were idle while their superiors did the fire planning. Excessive detail increased the scope and the time required in the higher headquarters for planning. Nor did this system exploit to the full the capabilities of new, automated C4I systems.
0305. ***The New Approach.*** Today, different levels of command are assigned reconnaissance and engagement zones. These, as illustrated in Diagrams 3-1 and 3-2, are separated by lines of coordination of fire. In turn, reconnaissance and engagement zones at each level are subdivided into deep and close (immediate) fire engagement zones, the latter coinciding with the entire zone of the subordinate formation. The size of recce and engagement zones is determined by the nature of combat operations and the terrain, the enemy and friendly capabilities. They are not fixed but vary according to the reach of reconnaissance and weapons. Thus, for instance, a unit or formation reinforced with long-range artillery or attack helicopters may have an extended deep fire engagement zone. The widths of zones are those of unit and formation boundaries. The use of zonal responsibilities enables each level to plan fire damage independently in its own zone of immediate fire destruction. In the deep fire destruction zone, the senior headquarters will designate as targets for its own assets only those which will affect the outcome of its battle, leaving others to be hit by subordinate elements. GENFORCE sees this approach as reducing the work involved in planning reconnaissance and fire damage at each level. The allocation of zones prevents the superfluous passage of information both upwards and downwards and contributes to the delineation of functions between headquarters. It also gives greater responsibility and initiative to lower echelons in the organization of fire and it consolidates the employment of reconnaissance, C3 and weapons into a unified system, making effective use of automated C3 facilities and RFCs/RSCs. The planning process is accelerated as it is simultaneously top down and bottom up, with higher headquarters coordinating the two fire plans.

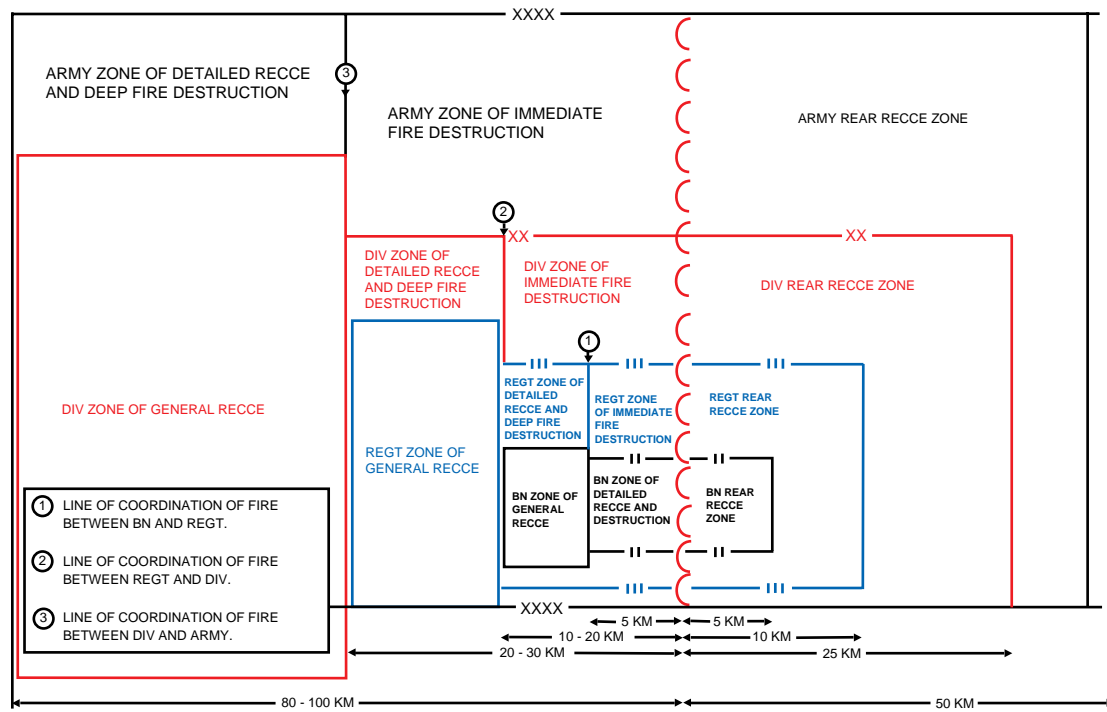
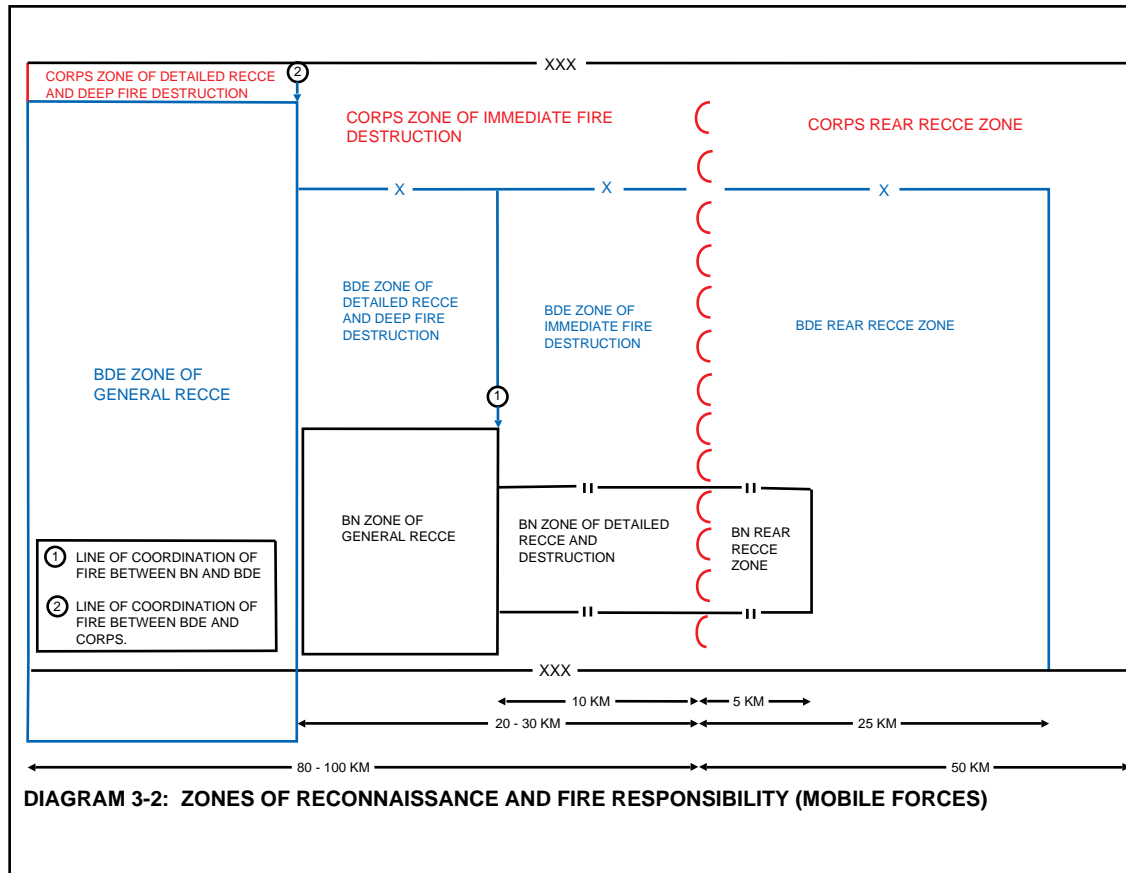


DIAGRAM 3-1: ZONES OF RECONNAISSANCE AND FIRE RESPONSIBILITY (BASIC FORCES)



- a. *Zone of Detailed Reconnaissance and Deep Fire Destruction.* The depth of this zone is determined by the effective range over the line of contact of the weapons systems commanded by the headquarters. The width of the zone is that of the unit's or formation's boundaries. The zone is, in effect, the area of intelligence responsibility in British terminology.
- b. *Zone of Immediate Fire Destruction.* This is the zone in which most of the unit/formation's weapons can be brought to bear, where the enemy is generally engaged immediately.
- c. *Zone of General Reconnaissance.* This zone equates to the British concept of the area of intelligence interest. Within this zone, the headquarters must be able to monitor enemy activity sufficiently to ensure that its own plans are not disrupted by unexpected enemy moves. For this reason, the zone overlaps boundaries. GENFORCE believes that a brigade or divisional commander now needs to monitor the enemy situation in an area 2-3 times larger than the formation's area of responsibility (ie, at the operational as well as tactical level).
- d. *Rear Reconnaissance Zone.* Headquarters have to monitor enemy activity in their own rear areas, especially the use of air landing, diversionary or bypassed elements.
- e. *Lines of Fire Coordination.* These lines are used to separate the reconnaissance and engagement zones at each level. Subordinate headquarters will not engage targets beyond such a line. The superior headquarters may designate targets for its assets within its subordinate's zone of deep fire destruction and will inform the latter accordingly, freeing the lower echelon to concentrate on other targets. Lines of coordination of fire are updated daily at army/corps level, and at lower levels on the completion of immediate and subsequent missions.

Resources and Organization

0306. ***Higher Formation Assets.*** Most of a tactical formation's intelligence on the situation in its zone of general reconnaissance will come from higher formations. Concerned divisions and brigades will be direct recipients of the relevant product of operational reconnaissance.
- a. *Satellites.* For several decades GENFORCE has deployed operational-strategic surveillance satellites. Using electro-optical, infra-red line scan (IRLS), synthetic aperture radar (SAR) and radar and radio intercept sensors, these have an all-weather, day and night capability and, combined with relay satellites, report in near-real time. These are, however, of limited use to operational-tactical commanders, who need continuous coverage and real time reporting. They are also very expensive and their launches (an important intelligence indicator to the enemy) are difficult to conceal. GENFORCE has accordingly developed a family of small, comparatively inexpensive satellites to support SGs' operations. These can be launched, if necessary in large numbers, covertly from aircraft. A "hot reserve" is maintained to

ensure responsiveness in the face of enemy anti-satellite attacks. As well as conducting operational-tactical reconnaissance (including missile launch detection and warning) small satellites are used to monitor the effectiveness of camouflage and concealment measures, to evaluate the effectiveness of measures to deceive the enemy and to provide one of the reconnaissance components of RSCs: the latter role is highly valued as the deep coverage of satellites enables GENFORCE to make full use of the reach of long-range SSMs and cruise missiles. Mobile ground stations for receiving and processing data are now deployed down to lower formation level (ie, to brigade and division).

- b. *RPVs* are used to penetrate into areas where air defences are known to be dense: not only is a pilot thus not put at risk, but the small size of the platform reduces its detectability and vulnerability. SG deploys the DR5, with a range of 500km and corps/army have the DR3, with a range of 300km. With their real-time reporting capability, these multi-sensor RPVs can be used not only for operational reconnaissance but as the eyes of RSCs (at army/corps level using SS-21 and at SG using cruise missiles and operational SSMs as the strike component). Such RPVs also provide post-strike reconnaissance to aid the BDA process. Air force drones and RPVs are also deployed to act as decoys and/or to conceal the size and axes of air raids. By persuading the enemy air defenders to switch on engagement radars, they help to reveal the enemy's air defence order of battle, tactics and locations.
- c. *Manned Aircraft*. Much of the reconnaissance hitherto carried out by manned aircraft is now performed by satellites and RPVs. However, GENFORCE does not believe that the former has lost its significance. Aircraft are more responsive than satellites. They have a longer range and faster transit time to the target than RPVs and are not, like the latter, vulnerable to jamming of the link with the ground controller. Several types of air reconnaissance are used, the first three from the comparative safety of friendly airspace. All provide real time information to ground stations.
 - (1) *AWACS* aircraft are now the principal means of air surveillance and tactical control in air operations, though their ability to exercise this function depends on GENFORCE achieving a benign air environment.
 - (2) *ESM* missions are flown continually to update the Electronic Intelligence (ELINT) picture and provide target information.
 - (3) *Ground Surveillance* is likewise continuously exercised by SLAR equipped aircraft. The latest versions combine SAR with MTI techniques to overcome the problem of ground clutter and improve image resolution at longer ranges (ie, over 100km).
 - (4) *Deep Reconnaissance* is flown by specialist reconnaissance regiments. Bomber-type aircraft may penetrate 800-1,000km and fighter-types 400-500km. In addition, each bomber and fighter-bomber regiment has a squadron with a secondary, reconnaissance role and the IRLS, ELINT, SLAR and camera pods to execute it.

- (5) *Armed Reconnaissance*. Pairs of fighter-bombers with weapons as well as reconnaissance pods may be tasked with not only reconnoitring an area or route but also with attacking any high value target identified. Frequently such missions will arise from an approximate location of a target by other means such as radio Direction Finding (DF) and intercept.
- d. *SIGINT*. Although satellites and aircraft are now the main tactical Signals Intelligence (SIGINT) collectors at the operational level, both SG and army/corps have substantial numbers of ground-based DF and intercept troops.
- e. *SPF*. SG has a SPF brigade and each army/corps a small battalion: in each case, the size of the grouping depends on the importance and mission of the formation. Ideally at least some of the deep reconnaissance patrols formed from these troops will be inserted covertly before hostilities begin. Otherwise they may be deployed by parachute (often using a high-altitude, low-opening technique), by helicopter, by microlite (a favoured method) or by ground infiltration.

0307. ***Divisional and Brigade Assets***. The reconnaissance battalions of the two lower formations are similar, though division may have older EW equipments. The brigade reconnaissance battalion has three mechanized companies of three platoons each, compared with the divisional battalion's two companies of two platoons. This reflects the elimination of the regimental level in the Mobile Forces and the consequent concentration of assets at formation level.

- a. *RPV Company*. The long-range platoon has three RPVs with a range of 70kms (ie, a round trip totalling 140km) and an endurance of over two hours, while the short-range platoon has three RPVs with a range of 30km and an endurance of only one hour. Both are steerable by the ground station and relay real-time camera pictures. These are used primarily for general reconnaissance and not for target acquisition purposes: the artillery regiment has its own RPV battery for targeting, designation of targets for laser-guided projectiles (air as well as artillery delivered) and BDA.
- b. *Mechanized Companies*. The two or three mechanized (ie, BMP) companies of the reconnaissance battalion may either operate as company-sized reconnaissance groups (RG) or be broken down into platoon-sized reconnaissance patrols (RP). Mechanized reconnaissance will operate right across the formation front up to a depth of 50km and to the flanks as well in fluid situations where flanks are open. All vehicles have satnav and laser rangefinders, thus ensuring that the locations of identified enemy equipments or positions will be established with great accuracy. In addition, all platoons have laser designators to provide terminal guidance for PGM attacks on high value targets they encounter. They also possess battlefield surveillance radars with a range of up to 25km. It is not unknown for additional RGs or RPs to be formed from ordinary motor rifle or tank battalions, though such elements lack any but basic training in reconnaissance skills, especially in the Basic Forces.

- c. *The Long-range Reconnaissance Company.* RPs from this company operate in greater depth than the mechanized companies - up to 100km on occasion. Patrols either infiltrate in their BTRs and BRDMs or are inserted by helicopter or even parachute. All platoons have laser designators to provide terminal guidance for PGM attacks on high value targets they encounter.
 - d. *The Radio and Radar DF and Intercept Company.* The SIGINT company can intercept and direction find (DF) HF groundwave stations out to about 80kms, and VHF to 30-80kms (low/high power and depending on terrain masking). VHF DF may sometimes be good enough to target MBRLs. It is certainly good enough to direct other reconnaissance means to refine the intelligence gained, or to direct raids or perhaps air strikes. TURN series Box Bodied Vehicles (BBVs) are being replaced by MT-LBu SIGINT variants (the TARAN series), improving the company's capabilities and survivability in the forward area. Radar DF can be effective out to 50km, depending on terrain screening, and location will often be accurate enough to target a MBRL strike. GENFORCE's main ELINT interest is in air defence and airborne radars. The ELINT provided by ground intercept is vital to the operations of army and air force aviation.
 - e. *Forward and Raiding Detachments.* These will provide valuable intelligence, even if that is not their primary function. Units in contact must also keep divisional/brigade HQ up-to-date with information about the enemy. Formations naturally also exchange intelligence with flanking headquarters.
0308. **Regimental Assets.** Tank and motor rifle regiments (Basic Forces only) have a reconnaissance company. It includes a BMP platoon with 2 BMP vehicles and a BRM-1K with a battlefield surveillance radar as headquarters vehicle and a BRDM platoon with 4 BRDM-2. The company can deploy 2 RPs to cover the regiment's front which usually operate 10 to 15kms in front of the units' advance guard (or even the line of contact, where possible). These reconnaissance platoons, too, possess laser designators. It appears not to be general practice to mix the company's BMP and BRDM vehicles within patrols. Additional RPs may be formed from motor rifle or tank sub-units.
0309. **Battalion Assets.** All battalions now have an organic reconnaissance platoon with a BRM-1K (with a radar) and either BMP or BTR vehicles. In addition ordinary motor rifle platoons may be used as RPs or combat reconnaissance patrols (CRPs). Battalions may deploy a variety of reconnaissance groupings. A scout vehicle on the axis of advance is the absolute minimum, and as the battalion approaches the enemy a Forward Patrol (FP) will usually form part of the march security grouping. In mobile battles, for example after breaking through the enemy's tactical defence and in meeting battles, and when the battalion has an independent mission, such as when acting as a forward detachment, a CRP will be formed. When the terrain or tactical situation demand it two or even three patrols may be formed from one battalion.

0310. **Other Reconnaissance Assets.**

- a. *Air.* Divisions and brigades both have their own scout helicopter assets. Helicopters are frequently used by engineer and chemical troops to assess routes and obstacles and areas of contamination behind the FLOT. This is not generally done within enemy airspace, though opportunities will frequently arise in a highly fluid battle. Attack helicopters and ground attack aircraft will, of course, submit normal In-Flight Reports (IFREPs) during their missions.
- b. *Engineer.* It is common practice to reinforce reconnaissance patrols with an engineer element. The divisional engineer battalion has a reconnaissance platoon and the regiment's engineer company can provide scouts as well. The engineer element may consist of a section with its own vehicle (BTR, BRDM or IRM) or a couple of sappers travelling in one of the patrol's vehicles. In addition Engineer Reconnaissance Patrols (ERPs) may be despatched to examine major obstacles or important routes in detail. In defence, or before an attack from a position of close contact, engineer observation posts will be established.
- c. *NBC.* All sub-units are responsible for continuous monitoring of their own NBC state. In addition divisional and regimental chemical defence sub-units can provide specialist reconnaissance teams. They may operate from their own vehicles (BRDM-RKh or RKhM) or travel in a patrol's vehicles. Any reconnaissance patrol may have a chemical reconnaissance element attached and additional chemical patrols will be dispersed through unit columns to evaluate enemy strikes.
- d. *Artillery.* Each artillery battalion has two battlefield surveillance radars with a range of 25-30km. The most important target acquisition means are, however, found in the regimental reconnaissance battalion. This has a radar platoon equipped with battlefield surveillance radars and, more significantly the ZOOPARK system which can locate artillery and mortars accurately enough for counter-battery purposes. The POLE DISH radar DF equipment can be used to target enemy radars (especially air defence radars). The Sterkh RPVs, with a range of 50km, can provide real-time imagery of any potential artillery target and provide laser designation for engagement with artillery or air delivered laser-homing projectiles. A sound ranging platoon is still held as well, though its value is limited in highly mobile operations, despite the fact that survey now presents less of a problem given accurate land navigation systems in the laying vehicles. One, or more usually several of these systems are linked by a dedicated C2/fusion centre to an artillery battalion to form a tactical RFC.

0311. **Organization of Reconnaissance.** Reconnaissance is centralized and all embracing. All data goes to an all-sources cell managed by the Chief of Reconnaissance (ie, it is not sub-divided into discrete compartments such as artillery intelligence or EW). Information for target acquisition and battle management is not gathered and handled as separate functions, with the important exception of RFCs where data is utilized immediately to organize

strikes in accordance with priorities set by the commander (though such data also goes to the all-sources cell). Responsibilities for organizing reconnaissance and the system for passing information is as follows:

- a. *The Commander* analyzes the requirements for intelligence and often determines the effort needed. He defines and specifies: the aim of reconnaissance, the basic tasks, the areas and axes on which the main effort must be concentrated and the time by which information must be delivered.
- b. *The Chief of Staff* is directly responsible for the organization of reconnaissance. He interprets the commander's general instructions and converts them into specific tasks. In his instructions, he lays down the following: specification in detail of the tasks assigned by the commander and higher headquarters and the sequence of their execution, as well as the allocation of troops and means for the performance of each task; the coordination measures for different types and methods of reconnaissance; the time and method of collection of information; confirmation and adjustment of objectives, areas and axes of the main effort of reconnaissance; the deadline for the preparation of the reconnaissance plan and the combat instructions on reconnaissance; the reconnaissance reserve which must be held to be tasked for missions which arise during the course of operations.
- c. *The Chief of Reconnaissance* organizes the reconnaissance effort, based on the instructions of the Chief of Staff. His actions include: issuing reconnaissance missions to troops and specifying the time for the completion of each mission, as well as the time and method for reporting information; establishing the measures for co-ordination (interaction) between various reconnaissance activities and units conducting them; issuing instructions on the method of deployment to reconnaissance areas; instructing the reconnaissance staff on preparing the plan; controlling the attainment of assigned missions. At battalion level, where there is no chief of reconnaissance, the chief of staff does all the organizing himself.
- d. *Communications*. Divisions, brigades and regiments have dedicated radio nets linking all reconnaissance units and sub-units with the headquarters. Battalions may monitor this net, especially when operating separate from the main body (eg, as a forward or raiding detachment) but do not usually organize a specific reconnaissance net.

SECTION 3 - MISSIONS, GROUPINGS AND METHODS

Missions

0312. ***Operational Level Missions***. An operational formation's intelligence priorities may well become missions for collectors in tactical formations operating in the enemy's depth. These are the locations and activities of:

- a. Formation HQs, RSC control centres and communications centres/nodes.

- b. Intelligence gathering assets.
- c. Nuclear and precision weapons.
- d. EW systems.
- e. Air defence weapons, radars and control centres.
- f. Airfields and forward operating sites.
- g. Artillery groupings and their C3.
- h. Major enemy groupings. GENFORCE will want to identify their defended areas, concentration areas, movements, future locations, combat capabilities, boundaries and intentions.

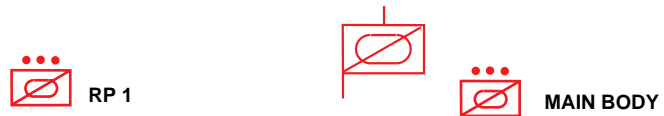
0313. **Tactical Level Missions.** In addition to meeting army/corps requirements, divisional and brigade reconnaissance will be concerned with more local threats, targets and opportunities. Priorities will be:

- a. Enemy brigade, battalion and RFC CPs and communications.
- b. Precision weapons, helicopter forward operating sites, MBRLs.
- c. Air defences.
- d. Other artillery and mortars and their fire plans.
- e. The strength and dispositions of enemy defences (at the lower tactical level, including locations of individual ATGM and tanks), the location and composition of attack groupings and reserves and their routes and waiting areas.
- f. The positions and nature of field defences.
- g. The extent and effectiveness of obstacles, both natural and emplaced (especially minefields and demolitions), and possible crossing points.
- h. The identification of usable routes for manoeuvre units, especially through difficult terrain that the enemy might consider impassable. Lateral routes, ground of tactical significance and potential concentration areas, EW and communications sites for the future use of friendly forces must also be found.

Groupings of Ground Reconnaissance

0314. **Groupings.** A grasp of the terminology used to describe GENFORCE ground reconnaissance groupings is vital to an understanding of their tactics. The following terms are used:

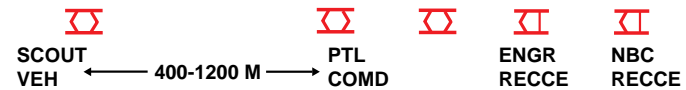
- a. *A Reconnaissance Group (RG) or Detachment (RD)*. A RG may be formed from a reconnaissance, motor rifle or tank company. It is used during mobile phases of operations on the main axis, or to reconnoitre key objectives in depth. Company-sized RGs are most common. Battalion-based RDs are used to reconnoitre objectives which it may be advantageous to seize and hold for some time, for example a mountain defile or a river crossing. RGs and RDs send out their own reconnaissance patrols and thus enable these platoon-sized elements to operate more independently of the main force and for longer periods. RGs and RDs are often all-arms groupings; typical RGs might be composed of a motor rifle company with a tank platoon, engineer and chemical reconnaissance sections or a tank company with a motor rifle platoon, engineer and chemical reconnaissance sections. An artillery battery, air defence element and (for motor rifle troops) anti-tank element might also be added. Helicopters may also be assigned to cooperate with a RG or RD. Sometimes a RG, or more often a RD, may be tasked during a mission to seize a key objective which has been found to be lightly defended, for example a weakly held river crossing. (See Diagram 3-3 for the tactical grouping of a RG.)
- b. *A Reconnaissance Patrol (RP)* is a platoon-sized element which may be reinforced by engineer and NBC reconnaissance teams. RPs are sent out by recce battalions and companies, by RGs and RDs and by leading tank and motor rifle battalions. A RG or RD always has at least one, and usually two, RPs operating in its sector, at distances of up to 10km from the parent body. One RP will always be forward on the RG or RD's axis. RPs are usually sent out by motor rifle and tank battalions with independent missions (such as forward or raiding detachments) or first echelon battalions in open phases of battle. In such cases the RP may operate up to 15kms from the battalion. (See Diagram 3-4 for patrol formation).
- c. *A Separate Reconnaissance Patrol (SRP)* is a platoon-sized element sent out by and reporting directly to the lower formation or unit chief of reconnaissance. It may be reinforced by engineer or chemical reconnaissance. SRPs may operate 10-20km ahead of march security elements. They will be deployed on open flanks.
- d. *A Combat Reconnaissance Patrol (CRP)* is a platoon-sized element sent out by and reporting to a tank or motor rifle battalion headquarters. Again it may include engineer or NBC reconnaissance troops. CRPs are not deployed by all battalions; second echelon battalions normally have no requirement for a CRP, unless tasked with an anti-air landing mission. CRPs are often used by advanced guards and battalions with independent missions and first echelon battalions are expected to deploy CRPs once they have penetrated the first crust of enemy defences. CRPs used in close contact with the enemy normally operate no deeper than their parent battalion can support them by fire, but out of direct contact CRPs may be separated by up to 10km from the main body of the battalion.
- e. *A Forward Patrol (FP)* is a march security element sent out by a vanguard (or a unit of the main body). It is not primarily a reconnaissance element, but



NOTES:

- a. The RG is formed from a recce coy, reinforced by a sapper sect in a BTR and a chemical recce sect in an RKhM.
- b. Two RPs have been deployed to cover a frontage of 6 km or more. The third recce platoon provides a reserve.
- c. Each RP and the main body will deploy a scout BMP in front. The sapper BTR will move with RP 1 on the main axis, but 2 sappers will be in one of RP 2's BMPs.
- d. The chemical recce will be in the main body.

DIAGRAM 3-3: MARCH FORMATION OF A RECONNAISSANCE GROUP



NOTES:

- a. This is the standard formation for any patrol, whether RP, CRP or FP.
- b. Engineer and NBC recce is not found in all patrols. Alternatively, the former may take the form of a couple of sappers in a patrol BMP.
- c. The separation of the scout vehicle from the commander's will be determined by the visibility at the time.

DIAGRAM 3-4: MARCH FORMATION OF A PATROL

while carrying out its primary mission will also be able to provide intelligence on the enemy for the headquarters which deployed it. As it is a security element, it usually moves on the road being used by the main body. Similarly, flank and rear security patrols (FSP, RSP) are created mainly to give timely warning of a threat but serve an incidental reconnaissance function.

- f. *A Patrol Section (Patrol Vehicle, Patrol Tank)* is, as the name implies, a single vehicle (or motor rifle section in operations on foot) with a reconnaissance mission. Patrol Sections may be the only reconnaissance element when the risk of meeting the enemy is low. They may also be sent to cover the flanks or rear of a sub-unit. All forms of patrol (RP, CRP or FP) deploy a Patrol Section (Vehicle or Tank) to the limit of visibility ahead of them (400-1200 metres).
- g. *A Deep Reconnaissance Patrol (DRP)* operates independently in the enemy's rear area. Within a division or brigade it is almost certain to come from the long-range reconnaissance company. DRPs are usually section strength and are particularly targeted on PGMs, headquarters and reserves. They may be either mobile or deployed as static OPs observing such key areas as choke points or crossroads. They will often be equipped with laser designators to provide terminal guidance for PGM strikes.

Methods Used in Ground Reconnaissance

0315. **Tactics.** The most common methods of conducting reconnaissance include observation, raids, ambushes and patrols.

- a. *Observation.* Observation is, of course, the most common reconnaissance technique in all forms of battle. Observation posts as such, apart, of course, from battlefield surveillance radars, are most commonly deployed in more static phases of the battle, such as in defence and when preparing an attack in contact. They may be reinforced with engineer and chemical reconnaissance troops and, at night or in bad weather, are often supplemented by listening posts.
- b. *Battlefield Surveillance Radars and EW.* With each mechanized reconnaissance platoon being equipped with a radar and with each battalion of brigade or divisional artillery regiment having a further two, there is a plethora of such battlefield surveillance means. Being mounted in armoured vehicles, these are usually pushed well forward. Those DF and intercept systems that are mounted in MT-LBu (TARAN series) will also deploy close to the line of contact. The more vulnerable BBVs carrying the older TURN series will deploy further back - 4-6km from the line of contact for VHF DF and intercept and 10-30km for HF groundwave. Communications jammers of the brigade ECM company (or reinforcements from corps/army) will often deploy with DF and intercept stations to ensure rapid response.
- c. *Raids.* Raids are often used when in direct contact with the enemy to snatch prisoners, documents or equipment and may be mounted by either specialist recce or motor rifle troops. Specialist recce troops may also be tasked with

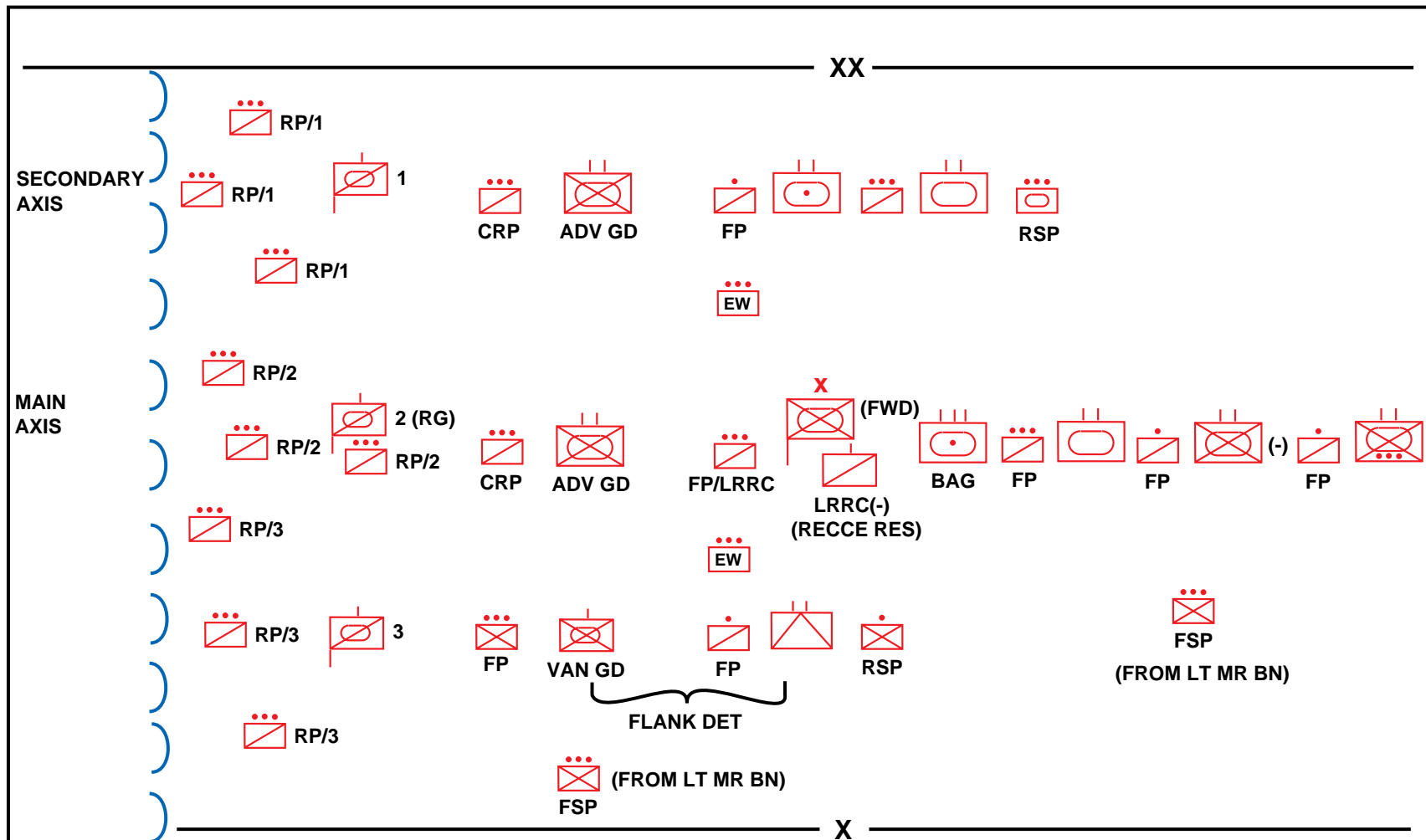
raids deeper into the enemy rear, against command posts or high priority targets such as PGM systems. The widespread deployment of laser designators to recce troops enables RGs or even RPs to provide terminal homing for PGM strikes from distant positions of observation.

- d. *Ambushes.* The value of reconnaissance ambushes is increasingly stressed. Sub-units may be specifically tasked to lay an ambush to capture prisoners, documents etc. Alternatively a patrol may set an ambush during its operations in the enemy depth.
- e. *Patrols.* In open, mobile forms of warfare which GENFORCE expects to dominate the future battlefield, OPs, and perhaps raids and ambushes may be less significant sources of intelligence than patrols sent out by marching units. The types of patrol which GENFORCE operates have been described in previous paragraphs. Patrol techniques are described below.

0316. ***Patrol Techniques.*** Whatever the designation of the patrol, its *modus operandi* is fairly standardized. On the move a patrol usually sends a patrol vehicle forward to the limit of visibility and support by fire. Obviously this distance is determined by terrain, time of day, weather and so on, but it is usually expressed as 400-1,200 metres. When enemy contact is not expected, all the patrol's vehicles may be moving at the same time, but when contact is imminent the patrol moves more circumspectly, by bounds, between good overwatch positions. The patrol commander will observe from such a point while the patrol vehicle moves covertly to the next position. In open terrain, where covert movement is difficult, the patrol vehicle makes its bound at best speed, followed by the rest of the patrol once it is safely in place. When contact is not anticipated, the patrol moves along its assigned axis at its best speed. When contact is possible the patrol never uses the axis route itself, but rather moves by bounds between positions from which it can observe the axis, making every effort to avoid detection. If the enemy is discovered in an unexpected position, the patrol commander must immediately report the location to his own headquarters. If a patrol observes enemy reconnaissance or march security elements, its task is to avoid contact and press on to locate the main force as rapidly as possible. In the event of a surprise encounter with a small enemy force, and when evasion is impossible, the patrol is expected to act decisively to destroy the enemy, capture prisoners if possible and continue its mission. On the whole recce patrols try to avoid combat, which is almost bound to compromise their mission.

0317. ***Tactical Employment.*** The combination of these reconnaissance groupings and techniques used within a divisional or brigade area will vary with circumstances. The following paragraphs outline the organization of reconnaissance during different phases of battle.

0318. ***Reconnaissance In The Advance.*** (See Diagram 3-5). When advancing to contact and penetrating an enemy covering force a GENFORCE division or brigade will cover its front with patrols, each with a 2-3km sector. A RG will probably advance on the main axis; the remainder of the front will be covered by RPs. This screen will avoid combat as far as possible and press on to contact the main body of the enemy force. In a meeting battle, some patrols will then



NOTES:

- (a) Diagram not to scale and representative of assets available, not a stereotype.
- (b) One or more platoons of the LRRRC might have been infiltrated or airlifted into the enemy depth.
- (c) Recce battalion HQ with SIGINT company HQ and one platoon and RPV company with brigade main HQ (not shown).

DIAGRAM 3-5: BRIGADE RECONNAISSANCE IN THE ADVANCE

stay in contact with the leading enemy units as they approach the GENFORCE formation or unit, moving back on a parallel route. Other patrols will attempt to penetrate to the enemy main body. If the enemy is preparing to hold a main defensive position, some patrols will establish a line of static observation posts and report on the nature of the defences. Other patrols will seek gaps or open flanks and press on into the depth of the position. Some RPs will be deployed on the flanks of the formation: the number of such patrols will be determined by the closeness of friendly formations and the possible level of threat. DRPs may be inserted by vehicle or air at least to the depth of the formation's mission.

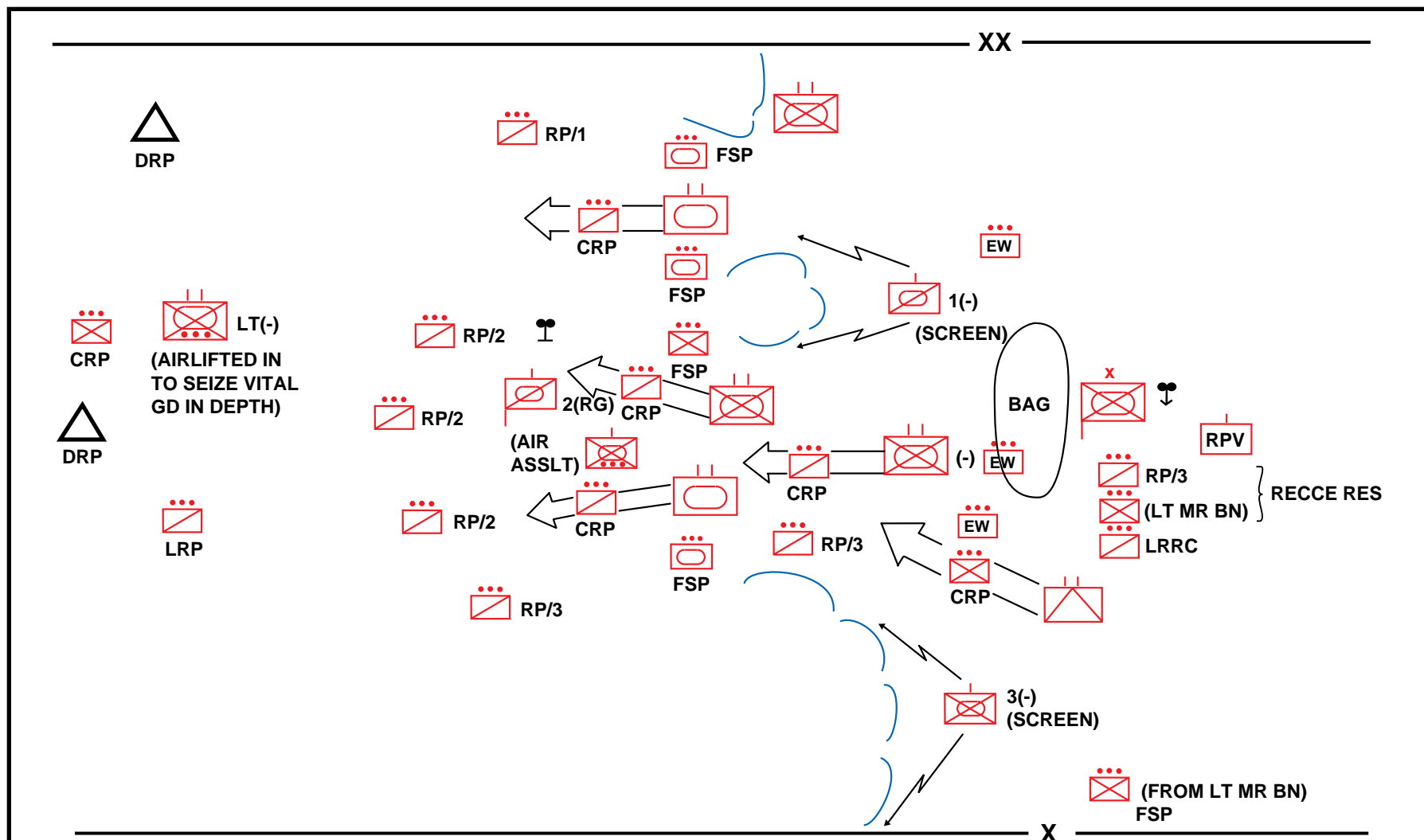
0319. **Regimental Reconnaissance** (Basic Forces only). First echelon regiments will deploy their own RPs behind the divisional patrols.
0320. **Battalion Reconnaissance.** The advanced guard battalions and any forward detachments will deploy CRPs and possibly their own RPs. Battalions in the main body of the first echelon may deploy FPs, but will not employ CRPs unless they are about to contact the enemy. Within the second echelon, only patrol vehicles are likely to be used.
0321. **Reconnaissance In The Penetration Battle.** Much of the division's or brigade's intelligence will be acquired by observation posts in the front line. Radars, DF and intercept, RPs and artillery reconnaissance assets will be fully deployed. The formation reconnaissance battalion will try to find gaps through which RPs may be inserted to identify targets in depth. Snatch raids may be mounted by reconnaissance or motor rifle units to identify opposing units and clarify their strength and deployment. A considerable proportion of the divisional long-range reconnaissance company should by now have been inserted into the depth of the enemy defences.
0322. **Reconnaissance By Battle.** If these sources fail to provide the detailed targeting information required to ensure the success of the fire plan, it may be necessary to employ reconnaissance by battle (essentially the same as the British concept of reconnaissance in force). This is only employed when other methods have failed because of the high casualties which may be sustained. Reconnaissance by battle will be employed on the sector of the main attack but, in order not to reveal this sector, diversionary reconnaissances will be conducted across the whole front. Each will involve a reinforced company or battalion, supported by a heavy fire plan (possibly including air strikes) and deception measures to convince the enemy that a major assault is contemplated. The attacking force might aim to penetrate 1-2kms and launch raiding parties to capture prisoners or equipment. Every possible reconnaissance asset will monitor the progress of the reconnaissance and commanders at all levels will be located in observation posts to make their personal assessments of the defences. First echelon units will be prepared to launch major attacks in case the reconnaissance reveals exploitable weaknesses in the enemy defences. Such reconnaissance by battle was widely used in the past, but today is only used in the last resort when preparing an attack from close contact.
0323. **Reconnaissance During The Battle In The Enemy Depth.** (See Diagram 3-6). As a major attack is launched on the enemy's main defences, reconnaissance

elements will stand ready immediately behind the assaulting troops. First echelon battalions will hold CRPs immediately behind their first echelon companies and will commit them once the enemy's forward company positions have been overcome. Divisional/brigade (and regimental) RPs, and perhaps a formation level RG will be inserted once gaps have been created. Artillery strikes and smoke screens will cover their commitment. When exploiting a breakthrough, units and sub-units will operate with open flanks and additional CRPs, FSPs and RSPs will be generated to cover them.

0324. **Reconnaissance In The Defence.** (See Diagram 3-7). In the defence there is considerable emphasis on the use of static observation posts. Within each first echelon battalion these may include 3-5 OPs, the battalion command and observation post (COP), 3-4 company COPs, 9-12 platoon COPs, up to 5 artillery OPs, 3-6 listening posts and 3-4 ground radar sets. If defending out of contact with the enemy, a CRP and/or RP may be pushed forward. Formations (and regiments) will establish their own OPs, including OPs for staff officers and the commander. Radio-electronic intelligence and artillery reconnaissance assets will be fully deployed. If the brigade or division withdraws to occupy its defensive position, some DRPs of the long-range reconnaissance company will usually be left as stay-behind parties. If the division goes over to the defensive out of contact with the enemy, a RG or RD may be sent to establish contact with the attacking enemy and monitor his approach to the defenders. Second echelon regiments or battalions may also deploy assets into the intervals between defence lines.

Out of Role Employment of Reconnaissance Troops

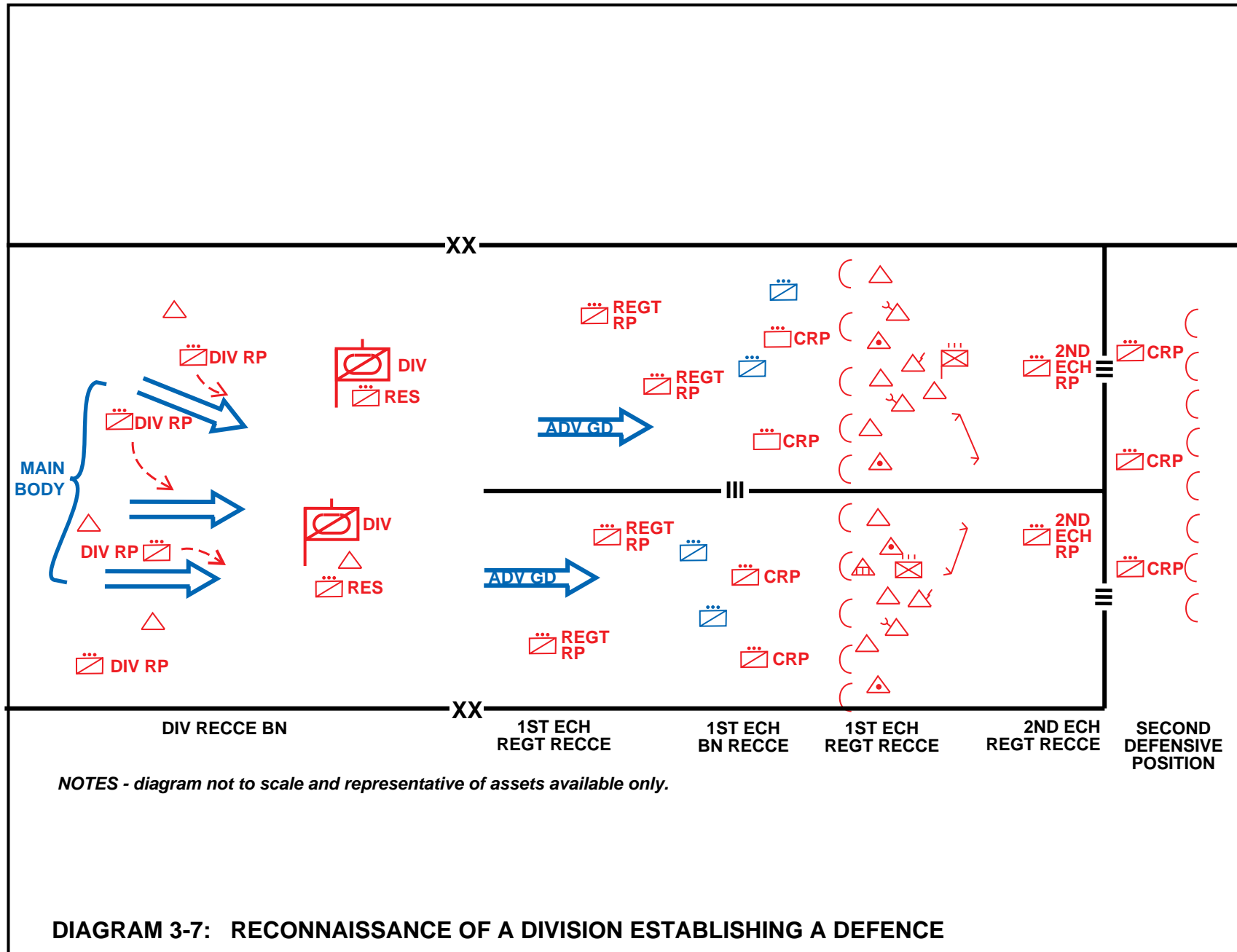
0325. **Raiding.** Reconnaissance troops form something of an elite within the Ground Forces (though they are not to be compared with the SPF). Because of their select nature, above average training standard and skill in infiltration tactics they are sometimes used to form raiding groups to attack vulnerable and high priority targets such as HQs, EW sites or RSC/RFC control centres. The formation level long-range companies, being trained in helicopter and parachute insertion (including HALO techniques) may be used to attack deep targets. This employment of reconnaissance troops is becoming less common, however. The increased demand for (and demanding nature of) reconnaissance on the non-linear battlefield has inhibited it, and the creation of separate tank battalions and airmobile light motor rifle battalions as the Basic Forces' elements for the conduct of deep battle has reduced the need for such a diversion of specialist resources.



NOTES:

- (a) Diagram not to scale and representative only.
- (b) DRPs from the LRRC have been inserted by air to observe important routes likely to be used by approaching reserves or for withdrawal.

DIAGRAM 3-6: BRIGADE RECONNAISSANCE AS OPERATIONS IN THE ENEMY'S DEPTH BEGIN



CHAPTER 4

OFFENSIVE OPERATIONS

SECTION 1 - STRATEGIC OFFENSIVE OPERATIONS

General

0401. **Scope of Chapter 4.** This chapter will focus on army and corps level offensive operations. It will, however, be introduced by a study of the forms of strategic offensive operations envisaged by GENFORCE today as these provide the context into which such operations must be placed. Historically, strategic actions have generally been undertaken by several army groups. They have, on occasion, been undertaken by a single army group, usually where unusual circumstances prevailed: where a limited objective was envisaged; where a separate theatre of operations contained only a single army group; or where the army group concerned was unusually large. With the force reductions that have taken place over recent years and the consequent lowering of force densities the focus of strategic operations is now the Strategic Grouping (SG). This will comprise 2-4 combined arms armies and 1-3 combined arms corps, 1-2 airborne divisions, a number of separate divisions and brigades (including air assault), together with an air army and strong combat support elements.

Encirclement

0402. **General.** Encirclement is still often the preferred form of strategic operation for it offers the possibility of achieving decisive operational and even strategic results - ie, the destruction of a key enemy grouping - without the need to deploy overwhelmingly superior forces. GENFORCE theorists are, however, increasingly expressing doubts about the feasibility of strategic and large scale operational encirclements in future war. If the enemy can afford the space to trade for time and has the opportunity to wear down the attacker and accordingly opts for manoeuvre defence, it will be difficult to plan such an encirclement from the start as the enemy's centre of gravity will be to the rear. Even if the enemy's weight is forward, encirclement is more problematical than in the past. The grouping that is being enveloped can seriously delay and damage the arms of encirclement with precision and massed air strikes and remote mining from within and without the grouping, following up with counter-blows. At the same time airmobile forces can deploy rapidly to counter the penetrations and raiding actions and interdiction strikes can disrupt the C3 and logistic support of the arms and the forward move of second echelons.
0403. **Circumstances Which Favour Encirclement.** Encirclement is a suitable form of manoeuvre when: the enemy's centre of gravity is well forward (ie, most of his strength is up front and operational reserves are weak); the enemy is in a salient; the enemy has a strong formation sandwiched between two weak ones (especially if the enemy is committed to holding forward and will be reluctant to withdraw); the enemy can be crushed against an obstacle; the encircled enemy will immediately start to suffer logistic problems through the cutting of his lines of communication; the enemy has largely exhausted his stocks of precision

weapons through intensive use and attrition; the attacker lacks a decisive overall superiority in numbers.

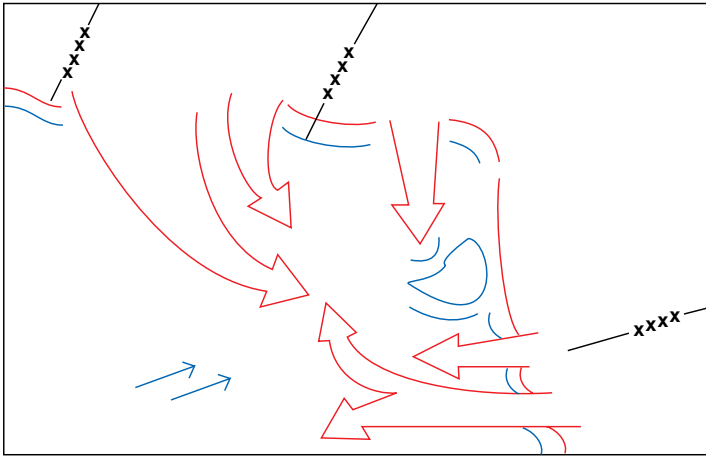
0404. **Forms of Encirclement.** The four basic forms of encirclement are illustrated in Diagram 4-1. These are:

- a. Thrusts on converging axes against a salient.
- b. Penetrations in several sectors to fragment the enemy, destroying elements in encirclement and catching the main enemy grouping in a series of deep encirclements as it attempts to withdraw.
- c. Conducting one or two enveloping thrusts to crush the enemy against a major obstacle: this could be a major water obstacle or mountain range or the sea.
- d. Launching frontal attacks on parallel axes, with the thrusts later converging to form a two-sided envelopment.

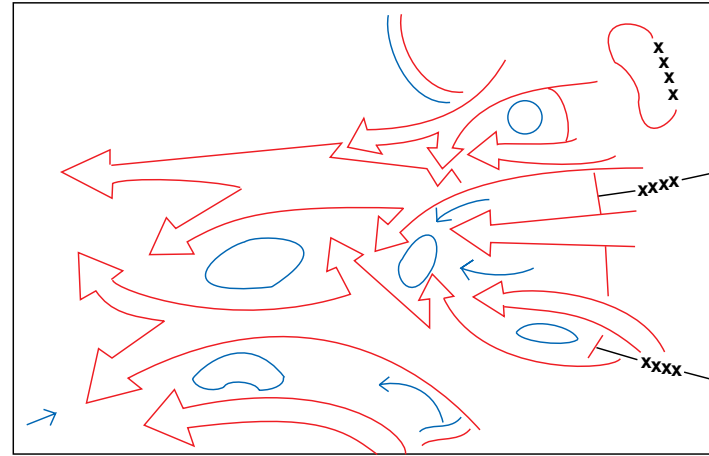
0405. **Execution of an Encirclement.** Diagram 4-2 illustrates the key elements in the successful conduct of an encirclement, in this case by the forces of a SG comprising three combined arms armies, three mobile corps and a reserve of a separate division and a separate brigade.

- a. *Choice of Axes.* Having carefully selected the grouping to be destroyed, it is essential to choose the most favourable axes for the arms of the encirclement. These are the axes that will most rapidly get the enveloping forces into the rear of the enemy. This is not necessarily synonymous with good going for armour. It may be better to attack through difficult terrain because it is correspondingly ill-defended and surprise will be easier to achieve there. In GENFORCE's view, the best tank going is through any area lacking anti-tank weapons. Other vulnerable sectors for the initial blows could be astride major formation boundaries or where the defence is entrusted to a weak or over-extended grouping.
- b. *Correlation of Forces and Rapidity.* A large overall superiority is not necessary. Weak, economy of force elements can be left to face the front of the victim formation. However, strike groupings must attain a decisive superiority over the enemy in order to deliver an initial blow sufficiently powerful to penetrate rapidly through the tactical zone of defence and thereafter maintain momentum during the advance into the operational depth. Speed is all important. The enemy must be kept off balance throughout the operation and given no time to stabilize the situation or withdraw his endangered forces. Usually, therefore, the pincers are deeply echeloned to break through, complete the encirclement and deliver strong attacks into the encircled grouping while still retaining a favourable correlation of forces on the principal axes throughout the operation. Of course, maintaining the required force ratio to achieve the desired rate of advance (see paragraph 0432) will be much more difficult in future as the enemy can rapidly alter the balance with deep strikes and reinforcement by airmobile troops.

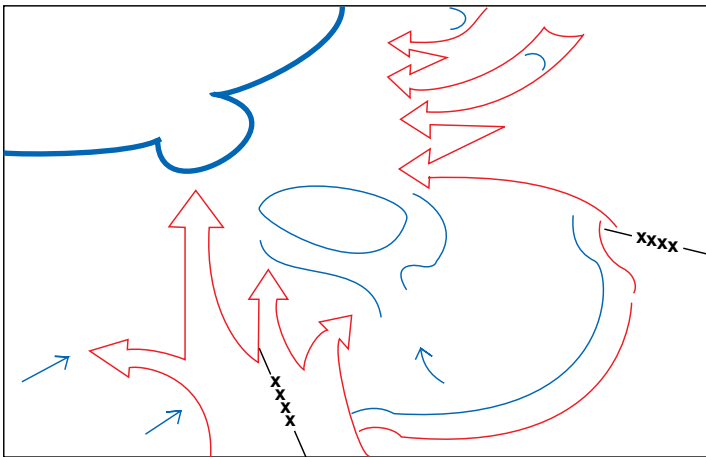
a. THRUSTS IN CONVERGING DIRECTIONS



b. PENETRATIONS IN SEVERAL SECTORS TO FRAGMENT THE ENEMY AND CATCH HIS MAIN GROUPING IN DEPTH ENCIRCLEMENT



c. ENVELOPING THRUSTS TO CRUSH THE ENEMY AGAINST THE SEA



d. FRONTAL THRUSTS ON PARALLEL AXES, WITH THRUSTS LATER CONVERGING TO FORM TWO-SIDED ENVELOPMENTS

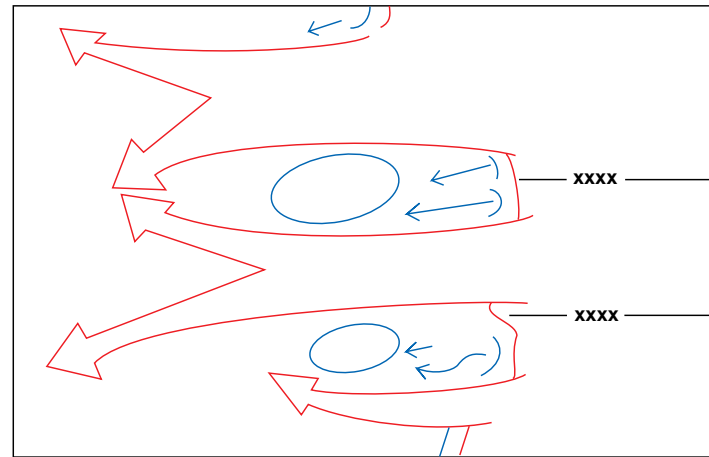


DIAGRAM 4-1: FORMS OF ENCIRCLEMENT OPERATIONS

- KEY:**
- 1. OUTER FRONT OF ENCIRCLEMENT.
 - 2. INNER FRONT OF ENCIRCLEMENT.
 - 3. SPLITTING ATTACKS.
 - 4. LINE OF COMMITMENT AND AXIS OF SG'S OMG.
 - RAIDING ACTIONS BY AIR - LAND GPS.
 - 5. CORPS, ARRIVING FROM THE DEPTH.
 - 6. CORPS (OMG) ARRIVING FROM THE DEPTH.

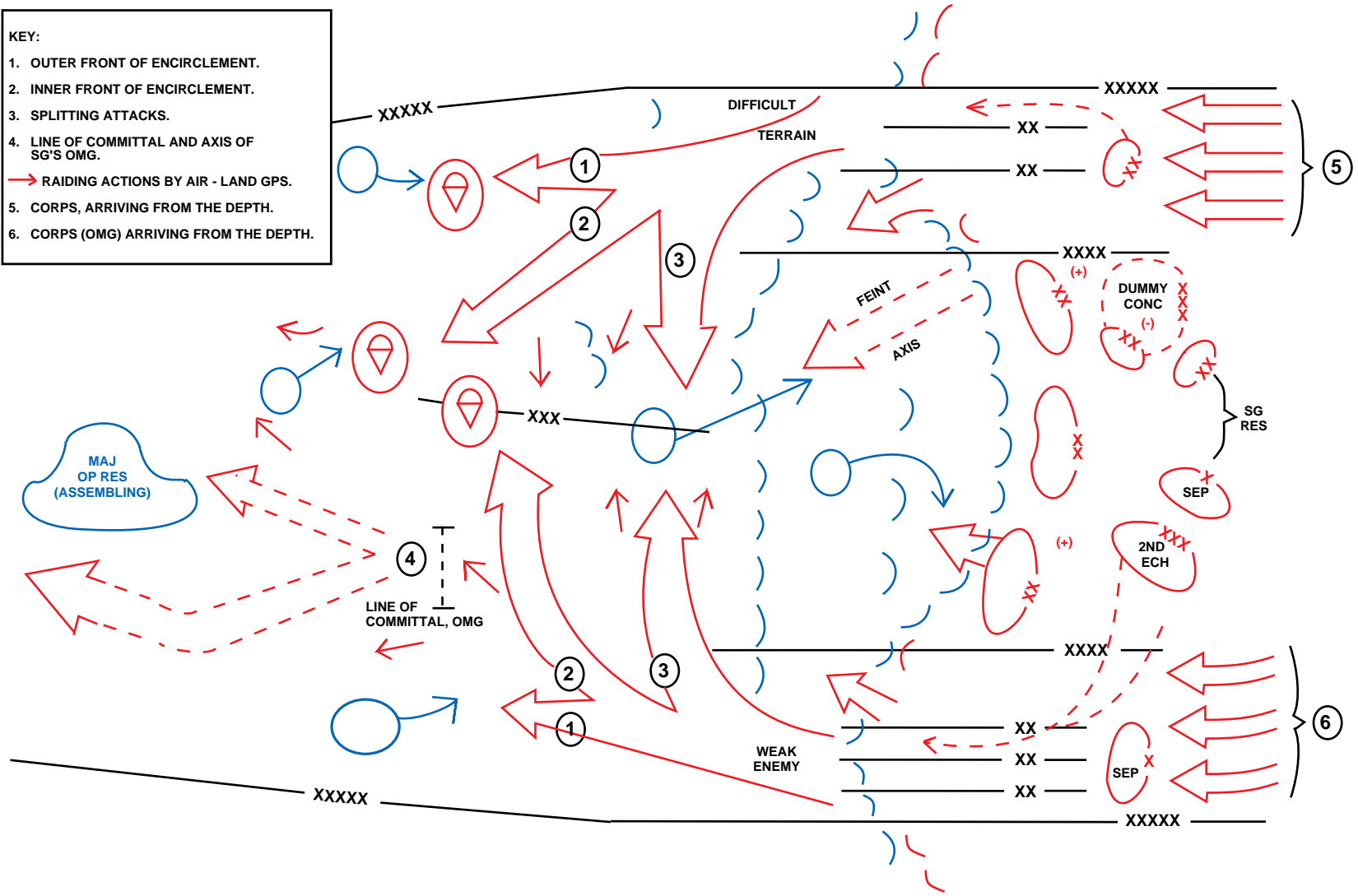


DIAGRAM 4-2: AN ENCIRCLEMENT OPERATION BY A STRATEGIC GROUPING

- c. *Surprise* is usually essential. The intention to encircle must be hidden from the enemy. Therefore the build up on the axes of the pincers must be concealed, with second/exploitation echelons, not initially deployed forward, directly behind the penetration elements. The enemy's eyes must be fixed on his front, not his flanks, and this should remain the case until the operation is well underway. To this end, the enemy should be led to expect a frontal attack, ideally on what intelligence reveals to be the axis on which he expects the main blow to fall. To this end, reconnaissance and other activities indicating an offensive should be conducted on the false axis. A dummy concentration should be created on this axis, perhaps given verisimilitude by deploying in it elements that can side-step onto one of the real axes. When the real attack is launched, or shortly before, a feint thrust will be launched to confuse the enemy in the crucial early stages.
- d. *Fronts of Encirclement*. It is necessary to allocate in situ advance forces to the inner and outer points of encirclement. Both are usually needed to achieve rapid success. Generally, each arm of encirclement devotes about half of its available forces to each front.
- (1) *The Inner Front* completes the encirclement and prevents any breakout. It will probably be aided in this by air-delivered forces which, working in combination with forward detachments and mobile groups, will seal withdrawal routes. It must commence the destruction of the target grouping even before the encirclement is complete, launching splitting attacks into the flanks to divide it into fragments which can be destroyed in detail. Any pause gives the enemy time to go into all-round defence which may greatly slow the completion of his destruction or even win time for relief forces to arrive.
 - (2) *The Outer Front* of encirclement presses on into the enemy depth, widening the gap between the encircled and potential relieving forces. Ideally, it destroys enemy operational reserves in meeting engagements, retaining the initiative. If, however, the enemy is too strong, it may have to transition to defence on a favourable line. The outer fronts, too, may be helped by the use of air-delivered forces which block or slow the movement of enemy reserves and seize key features on which, given time, the enemy could establish a new defence line.
- e. *Flank Security* is vital for the strike groupings. This may be achieved either through supporting advances by flanking formations (especially when the defending enemy, being outflanked, is compelled to withdraw) or through the formation of flank detachments which include strong mobile obstacle detachments.
- f. *Command and Control* must be organized with special care, especially in the coordination of splitting attacks and closing the encirclement by the inner fronts and in the coordination of air-delivered and ground forces. Decisions on this rest with the senior headquarters, which corrects lower-level plans as necessary and issues coordinating instructions. Changes will often have to be made during the course of the operation, for instance when the two

arms of the pincers are faced with attacks on both inner and outer fronts of encirclement, thus distracting from cooperation between and within the arms. Sectors have to be placed under unified command, often necessitating the resubordination of formations and units. The senior headquarters may even have to amend plans to cope with unexpected developments, eg by shifting axes or emphasis.

- g. *Fire Superiority*, particularly air superiority, is essential. Air cover and support are vital to the rapid progress of both fronts of encirclement and to the insertion of air-delivered forces. Interdiction will be necessary to delay and disrupt potential relieving forces, and air power will be an important means of destroying the encircled grouping if it tries to withdraw. If the latter succeeds in going into all-round defence, it will be necessary to establish an aerial blockade to prevent its resupply. It should be noted that an electronic-fire operation will be materially aided by airborne or heliborne, raiding and forward detachments attacking enemy air defences, airfields and forward operating bases. These forces will also carry out the no less important task of destroying or at least disrupting enemy means for conducting long-range fire, particularly his RFCs and RSCs, and of attacking HQs and logistic support.

Cleaving Blows to Fragment the Defence

0406. ***Form of Operation.*** Cleaving blows are delivered on at least two axes by strong frontal thrusts that drive right through to the depth of the enemy's deployment. As a result of powerful initial blows on several axes, considerable breaches are made in the enemy's defences and the enemy is split up into isolated, non-cohesive fragments which can then be destroyed in detail. Enemy forces that are outflanked by the penetrations may stay put, in which case they will be encircled, or they may withdraw and be harassed and destroyed in a combination of frontal and parallel pursuit. Once the enemy starts to withdraw, the width of the zone of advance grows as economy of force formations on hitherto passive sectors transition to the offensive against the enemy pulling out of his prepared positions and falling back. These forces were too weak to attack strong defences, but they are strong enough to conduct a frontal pursuit to slow the enemy while forces from the principal axes execute parallel pursuit to destroy retreating "roving pockets" in flank attacks.
0407. ***Circumstances Favouring Cleaving Blows.*** An offensive on several axes was the favoured form of nuclear offensive when weapons of mass destruction simply eliminated the problem of the breakthrough. It has been restored to favour now that there are enough precision and improved conventional munitions available to achieve the effect of multiple nuclear strikes (without, be it noted, collateral damage to, or contamination of, terrain over which the attacker has to pass). This increases the attraction of the multi-axis, broad front approach vis-a-vis encirclement, for, in the latter, the concentrated arms of the pincers are vulnerable to precision and massed air and long range artillery strikes from both without and within the projected pocket. Other circumstances favouring cleaving blows are: when strategic and/or operational surprise have caught the enemy not fully deployed and with a consequent low force density in the forward area,

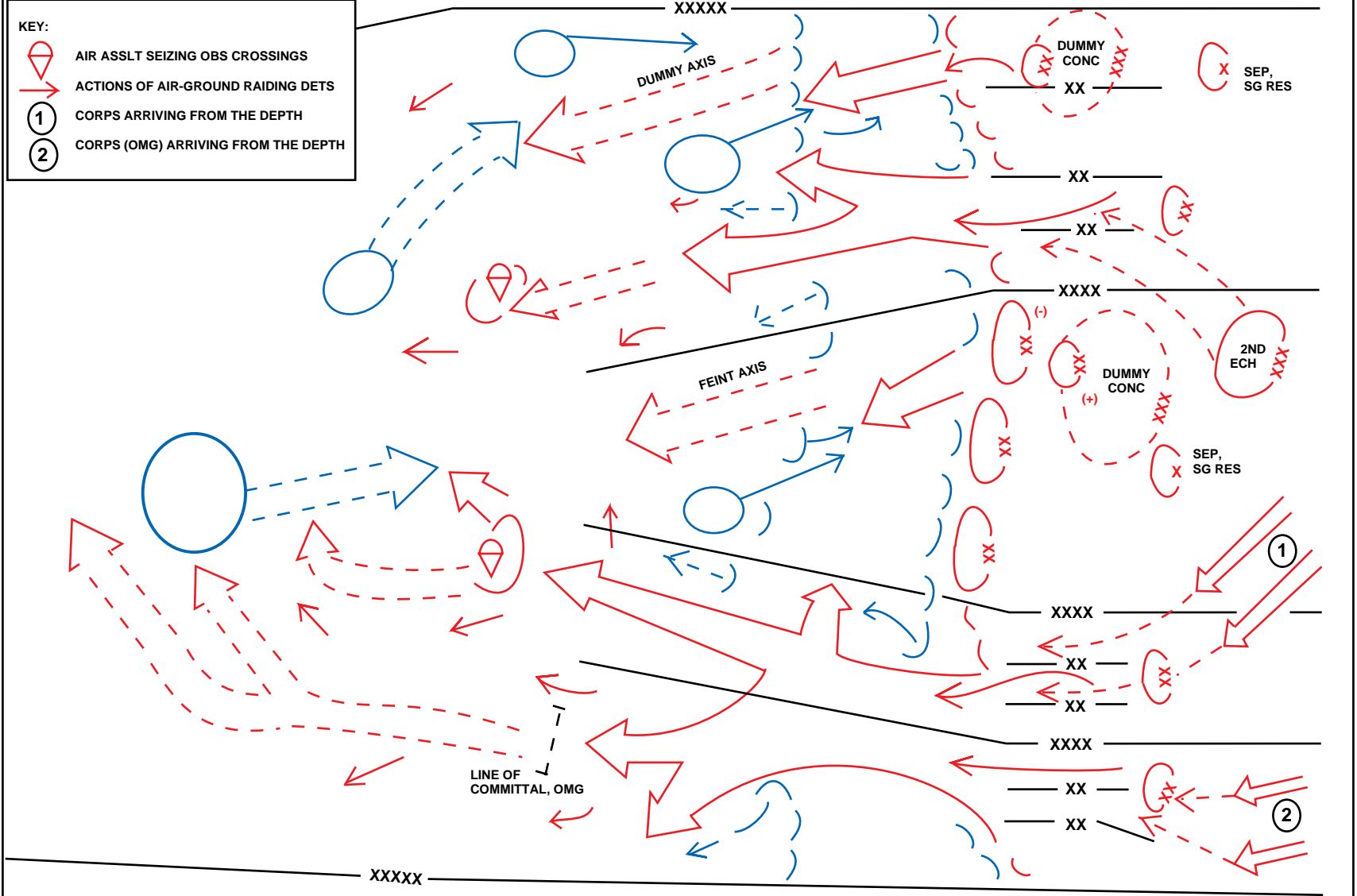


DIAGRAM 4-3: CLEAVING BLOWS BY A STRATEGIC GROUPING

ie, with his centre of gravity to the rear; when the attacker enjoys such an advantageous correlation of forces that he can achieve a decisive superiority on several axes simultaneously; when neither the lie of the land nor the deployment of the enemy favour encirclement (eg, when there is no salient, when attacking from a large bridgehead, when the enemy's strength is distributed evenly along his front with no especially weak sectors); when a linear objective has to be reached on a wide front (eg, when a major river has to be forced in several places).

0408. **Advantages of a Cleaving Offensive.** In many ways the most dynamic form of operation, an offensive on a broad front is seen to confer several major advantages.

- a. *Surprise* is often easier to achieve when attacking on a broad front.
- b. *Maximum Pressure* is exerted on the enemy, leaving him with no passive sectors which he can strip to reinforce the defence on easily identified principal axes or create new reserves.
- c. *Multiple Threats* vastly complicate the enemy's decision as to where and when he should deploy his operational reserves. This may result in the decision being made too early, with committal on a less threatening axis, or too late, when the offensive has already achieved momentum and width. The enemy is also prevented from manoeuvring forces laterally, across the front.
- d. *Flexibility.* The attacker has more options for the switching of emphasis from one axis to another in response to the defender's moves.
- e. *Breaching Subsequent Defence Lines*, especially when based on a formidable obstacle, is best done on a wide front. This complicates the enemy's efforts to restore stability: ie, it becomes not so much a matter of plugging gaps as of stemming a flood.

0409. **The Execution of an Offensive with Cleaving Blows** is illustrated in Diagram 4-3. The offensive is conducted by a SG with four combined arms armies, three mobile corps and a reserve of two separate brigades. Success in such an operation would depend on the following factors.

- a. *The Choice of Axes* is vital. The enemy's main grouping, the disruption, destabilization and consequent destruction of which will compromise the entire strategic front, must be correctly identified, together with the axes that will produce such a paralysing dislocation.
- b. *Speed.* As in encirclement, tempo is all-important. The stability of the defence must be shattered by a quick break-through and the defence must be kept off balance and prevented by a rapid advance from establishing new defence lines in depth. This demands strong strike groupings on the principal axes. A SG will need strong reserves, an exploitation echelon and perhaps a second echelon to maintain a favourable balance of forces in the

enemy's depth despite casualties and the need to divert troops to encircle by-passed forces or destroy them in parallel pursuit. Depth defence lines must be forced from the march before they can be adequately defended - a task well suited to air-delivered forces, forward detachments and mobile groups.

- c. *Surprise* is needed, especially as to the scope and scale of the offensive. Feints should further exacerbate the enemy's already complicated problem of identifying the principal axes.
- d. *Flexibility* is important if the enemy's centre of gravity is to the rear. The senior commander must be able to switch emphasis rapidly from one axis to another in response to enemy counter-moves. This requires strong reserves well-placed to move rapidly onto any axis.
- e. *Troop Control* has to be continuous, flexible and able to react rapidly to changing circumstances.
- f. *The Logistic System* has to have the capacity and flexibility to supply and maintain forces operating to great depth on a wide front.
- g. *Fire Superiority* is essential.

Combination of Encirclement and Cleaving Operations

0410. ***Combined Forms of Operation*** are likely, in practice, to be more common than pure encirclement or broad-front advances. Elements of both will be seen in any strategic offensive operation. If the enemy's centre of gravity is forward and other circumstances favour it, such an operation may begin with a major encirclement. Once the key enemy grouping is destroyed, or at least neutralized, the advance into the enemy's depth will face only feeble reserves and can therefore be conducted on multiple axes. If, on the other hand, the enemy's weight is on his back foot, the offensive may start on several axes. Some of these may subsequently converge to encircle the forces between them if the enemy transitions to all-round defence instead of offering himself up for destruction through parallel pursuit. An encirclement may also be executed in the operational depth against reserves that are attempting a counter-blow, or which attempt to form an "island of resistance". Diagram 4-4 illustrates a major and a minor encirclement, followed by a combination of broad front advance and the encirclement of enemy reinforcements and elements that escaped an earlier encirclement.

SECTION 2 - OPERATIONAL FORMATION IN THE OFFENSIVE

General

0411. ***Operational Formation*** is the term GENFORCE uses to describe the grouping adopted by a formation for the conduct of an operation. It must: be in accordance with the senior commanders' concept; secure a decisive superiority on the main axis; make possible the rapid reinforcement and manoeuvre of forces in the

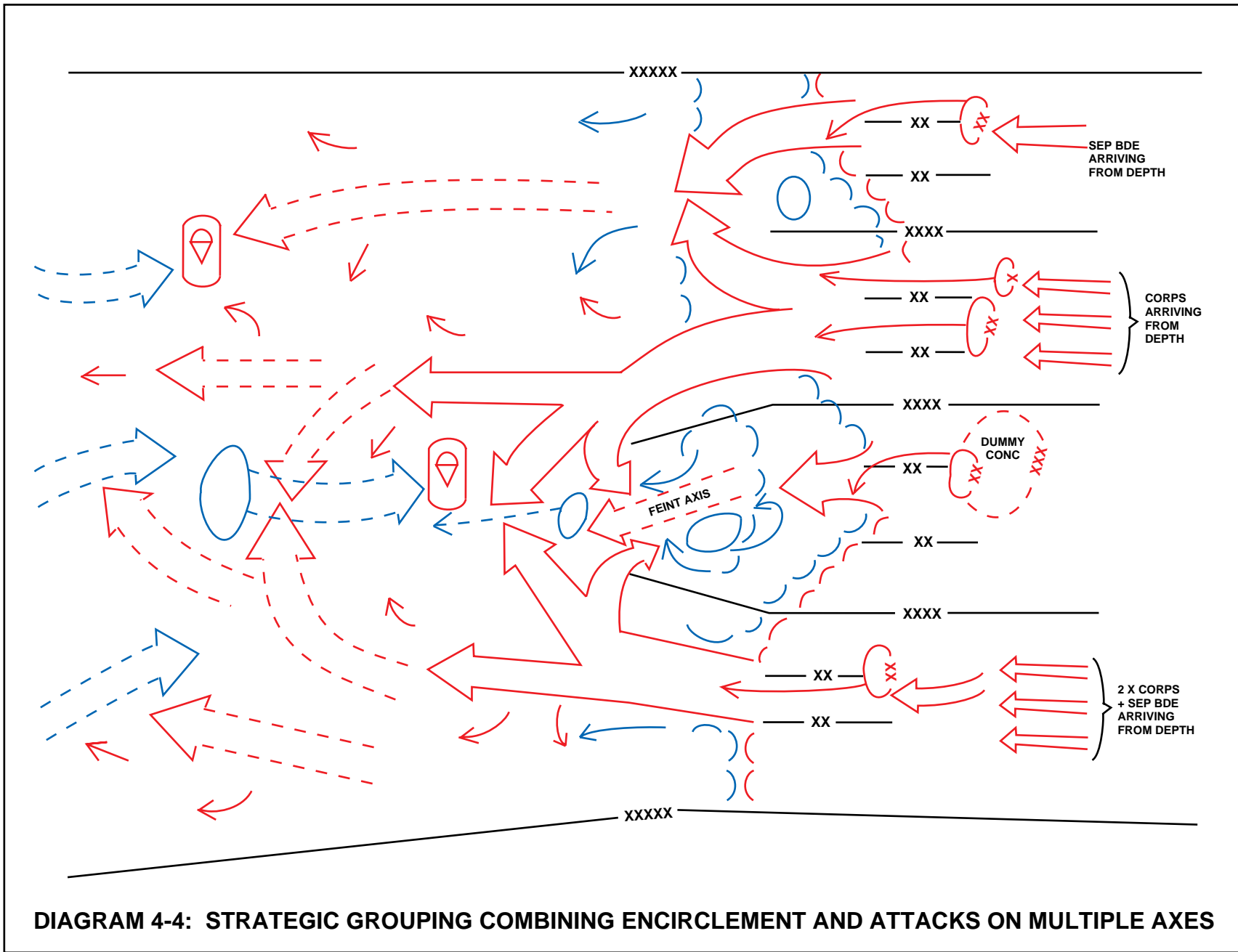


DIAGRAM 4-4: STRATEGIC GROUPING COMBINING ENCIRCLEMENT AND ATTACKS ON MULTIPLE AXES

course of the operation; enable a rapid transition from one form of combat action to another; ensure uninterrupted command and control.

0412. **Elements.** The operational formation will include most or all of the following elements: one, possibly two attack echelons; an exploitation echelon; raiding forces; a combined arms reserve; special reserves (anti-tank, engineer, etc); groups of missiles, artillery and air defences, an air element, mobile obstacle detachments; air (and possibly sea) delivered forces; special purpose forces (SPF). The following sub-sections will elaborate on each of these at army/corps level.

Echelons

0413. **Attack Echelons** are formed to break through the enemy's tactical zone of defence and defeat the enemy's immediate operational reserves. Thereafter, they continue the advance into the enemy's depth. They comprise the main forces of the formation and are not expendable.

- a. *The First Echelon* achieves the first, and basic mission of the operation: the penetration of the defence. The bulk of the formation will be located in the first echelon. Its task is to defeat the enemy's corresponding first echelon (the immediate mission) and develop the offensive into his depth (subsequent mission). If the senior commander's calculations have been done properly, the first echelon should be capable of penetrating to the entire tactical depth of the defence before additional forces have to be committed to maintain momentum.
- b. *The Second Echelon*, if formed (the practice, always far from universal is even less so now), is tasked with augmenting the efforts of the first. It is formed and receives its mission at the same time as the first echelon. This enables it to do a substantial amount of pre-planning for the various options it will be given and this, in turn, will make possible its rapid and timely committal. Its role is to develop the success achieved by the first echelon on the main axis. Thus, it may: conduct pursuit; breach defence zones in the depth; defeat counter-attack groupings (ideally destroying them in meeting battles through flank and rear attacks); destroy by-passed "islands of resistance" which threaten the development of the operation or unduly restrict deployment and limit the operational flexibility of the higher formation. Only when resistance is unexpectedly effective will the second echelon replace the first. That implies fighting the first echelon to a standstill and then suffering an operational pause - two cardinal crimes in the GENFORCE military lexicon. Always, the basic principle is to use the second echelon to reinforce the efforts of the first, to use it to exploit success and not to redeem failure. Sometimes, the second echelon will have to undertake radical replanning for committal in an unanticipated sector in pursuance of this principle.
- c. *The Exploitation Echelon* may have to complete the penetration of the tactical zone of defence if time would otherwise be lost. Ideally, however, it is committed through a clear breach or gap in the enemy's deployment or,

perhaps, infiltrated through in small packets and reunited in the enemy's rear. Its role is the conversion of tactical into operational success. (At SG level, a corps acting in this role will convert operational into strategic success.) By operating in the enemy's depth, usually ahead of and physically separated from the main forces (though not necessarily from their supporting fire), the exploitation echelon, working in close cooperation with air-delivered forces, crumbles the defence from within. By attacking the command and control, long-range weapons and logistical support of the enemy's first echelon and by engaging the operational reserves and seizing depth defence lines before they can be occupied, they help to precipitate the collapse of the defence and accelerate the advance of the main forces. Thus, if conditions are favourable to an early insertion, the exploitation force will, through its actions, make the deployment of a second echelon superfluous. In future war, operational level second echelons are much less likely to be formed as GENFORCE anticipates that it will usually be possible to generate operational manoeuvre more or less from the outset. They may, however, be necessary to reduce a key fortified area; or the nature of the terrain may preclude putting most forces in the first echelon; or the offensive may be launched before mobilization, concentration and deployment have been completed, with subsequently arrived formations forming the second echelon. Its role is quite distinct from that of the second echelon, as Table 4-1 illustrates, and it requires a higher level of mobility, flexibility and combat power.

TABLE 4-1: COMPARISON OF THE ROLES OF SECOND AND EXPLOITATION ECHELONS.

Tasks of Second Echelon	Tasks of Exploitation Echelon
<ol style="list-style-type: none"> 1. Build up pressure on the main axis and break through depth defence zones. 2. Widen the penetration sector or bridgehead. 3. Repel counter-attacks and provide flank protection for further advance. 4. Strengthen the inner front of encirclement and destroy the encircled grouping with flank and rear attacks. 5. Replace exhausted first echelon formations where necessary. 	<ol style="list-style-type: none"> 1. Drive deeply, rapidly into enemy rear, destroying/disrupting enemy high value weapons, command and control and logistic support in raids. 2. Parallel pursuit and destruction of withdrawing enemy groupings. 3. Create the inner front of encirclement or act as the outer front, destroying enemy reserves moving forward in meeting engagements. 4. Seize defence lines in the enemy depth before they can be defended. 5. Seize key political, economic or military objectives.

0414. ***Trends in Echeloning.*** The increasing transparency of the battlefield, combined with the destructiveness of long-range fire and airpower, has had a profound effect on the GENFORCE approach to echeloning.

a. *Single Echelon Formation.* Once battle is joined, paradoxically, units in contact with the enemy or operating in his depth may be less at risk than those not yet committed. In a fast moving, confused situation, it will often be difficult to distinguish friend from foe in the area of contact, and therefore difficult to target the latter with RFCs/RSCs or even airpower: no such problem will complicate deep engagements. This is now predisposing commanders of higher formations in the offensive to attack in a single operational echelon with an exploitation force which ideally, will start within the first echelon or at least be committed very rapidly indeed; in this case, the commander will retain only a relatively small combined arms reserve. It should be noted that this factor merely reinforces other tendencies pushing in this direction. In the past, deep echeloning was only favoured when strong, deeply echeloned defences had to be broken through before operational manoeuvre could be generated. When the enemy was surprised and overextended, with a weak and shallow forward defence, a single echelon attack was preferred because it delivered the heaviest possible initial blow and offered the possibility of collapsing the enemy's front simultaneously over a wide sector. The low force densities on the future battlefield, the effectiveness of preparatory strikes in ensuring penetration and the vulnerability of follow on forces to precision and air attack will probably combine to make the single echelon the normal offensive operational formation. There is an important corollary to this increased stress on a single operational echelon: it must be capable of achieving its mission without major reinforcement of its efforts. This development does not mean that commanders of higher formations will be surrendering their ability to influence the course of the operation by committing most of their manoeuvre forces immediately. They will control the aviation, missile, long-range artillery and MBRL and EW assets that will comprise their main destructive power. They will have an air echelon of airborne, air assault and airmobile formations and units for the immediate conduct of deep operations, especially raiding actions against the enemy's deep strike capabilities. They will also have the combined arms and special reserves. It will be through the manoeuvre of the blows of these forces that senior commanders will decisively influence engagements on the non-linear, fragmented battlefield.

b. *Two Echelon Formation.* There is, however, an influential body of thought which maintains that developments in long-range fire capabilities actually increase, rather than diminish the need for a substantial second operational echelon or reserve. Using an analogy from the nuclear period, it points out that the enemy can very suddenly deprive entire first echelon formations of their combat capability through massed precision and ACM strikes. This makes it vital to have resources in the depth that can replace them and maintain the momentum that is crucial to success. This school of theorists may yet reinstate the second echelon to its previous position of importance.

Reserves

0415. **Roles.** Reserves do not receive definite missions when the operation is planned. They are used: to increase the offensive effort; to reinforce or replace elements of the first echelon; to undertake unforeseen missions that arise suddenly in the course of the operation. Thus, unlike a second echelon, reserves cannot be pre-tasked. They may be of six types.
- a. *Combined Arms Reserve.* If there is a second echelon, a combined arms reserve may not be formed: if it is, then it is likely to be very small (eg, a regiment at army level or 2-3 battalions at corps). If the operation is likely to develop in a highly fluid, unpredictable fashion, a combined arms reserve will be formed instead of a second echelon. Such a reserve may be the same size as a second echelon could have been but it differs from the latter in not being pre-tasked as its precise mission is essentially unforeseeable. In future war, with the development of operations being much less predictable, it is likely that second echelons will be eschewed in favour of reserves at the operational level.
 - b. *Airmobile Reserve.* Many GENFORCE theorists are maintaining that, in modern conditions, it is vital to have an airmobile reserve at the operational level. The enemy's deployment of such a force could quickly alter a favourable force ratio carefully achieved and thus raise the loss rate and reduce the rate of advance of the attacking formation. It is important to meet enemy manoeuvres with counter-manoeuve. By the same principle, an airmobile reserve may be necessary to create rapidly a defence of the flank of an offensive grouping faced with a counter-blow, or to reinforce the actions of anti-landing reserves (see sub paragraph e, below).
 - c. *Anti-Tank Reserves (ATR)* Working in conjunction with mobile obstacle detachments, these are automatically formed by all formations to repel counter attacks and/or provide flank security. They are based on anti-tank units (which now include organic motor rifle, artillery and air defence elements) but may be reinforced by artillery, tank or motor rifle elements as appropriate. ATRs play an important role in the fluid, manoeuvre battles and engagements anticipated by GENFORCE. They provide an economy of force grouping that can deal with developing armoured threats without having to weaken an attack echelon and thereby compromise its viability.
 - d. *Mobile Obstacle Detachments (MOD)* are engineer groupings with rapid minelaying, ditching and other obstacle-creating capabilities. A MOD is always placed in support of an ATR. Others may be formed as well to help to prepare positions for a transition to defence. The efforts of the MOD may well be supplemented or replaced by remote mining, especially by air or MBRLs.
 - e. *Anti-Landing Reserves (ALR).* The enemy is expected to mount numerous air-delivered raids to attack deep fire resources, air defences, HQs, logistic units and to attempt to disrupt the actions of second echelons/reserves. In the offensive, he will also endeavour to seize terrain features essential to

maintain the momentum of the advance. At all formation levels, combined arms ALRs will be formed to deal with such forces that penetrate air defences. These will often be based on light infantry units with strong anti-tank resources but may also be reinforced by or created from tank or mechanized elements. Their efforts will be reinforced by artillery groups within range and by fixed and rotary wing aviation where necessary. It is considered important to eliminate the landing early, preferably before its elements are organized on the ground. If resources are scarce, second echelons or combined arms or even anti-tank or airmobile reserves may be “double hatted” as ALRs, though GENFORCE dislikes this procedure as committal will create an important gap in operational formation, often at a critical period.

- f. *Special reserves* are often formed from reconnaissance, air defence, engineer, chemical defence troops, medical or other rear services. These are used to reinforce efforts on the main axis and/or cope with unforeseen problems.

Missile Troops, Artillery and Air Defence

0416. ***Flexible Deployment.*** The combat grouping and control of both artillery and air defence will change as the nature of combat changes during an operation:

- a. *Missiles.* Army and corps SSM Brigades will always remain under army/corps control for the conduct of the deep fire battle. Formations on key operational axes will be reinforced with SSM formations from the SG. The missiles will be the basis of the main RSCs.
- b. *Artillery.* In the event that a penetration operation is necessary, strong army/corps artillery groups (AAG/CAG) will be formed, with organic long-range assets being augmented from SG resources. Usually there will also be an army/corps group of rocket artillery (AGRA/CGRA). These groups deploy over considerable areas, but their centralized control ensures the concentration of fire on the main sector and the rapid manoeuvre of massed fire in support of the penetration and committal of second or exploitation echelons as well as the effective waging of the deep fire struggle which is critical to the winning of fire superiority. When operations become mobile and fluid (as, of course, they may well be from the outset), all the medium range and some of the long-range artillery and MBRLs will be decentralized to divisions and brigades on important axes (and especially to OMGs) to increase their punch while operating independently or semi-autonomously. Long-range assets will, for the most part, still remain in army and corps groups, though, to conduct the deep fire battle and to give the senior commander the means of manoeuvring massed fire in support of his most successful subordinates. These will mostly be organized into RFCs and RSCs. The importance of the role of artillery can be gauged from the fact that GENFORCE expects up to 40-45% of the destruction visited on the enemy in the tactical zone to be inflicted by it.
- c. *Air Defence.* Strong air defence groups, capable of area and point defence, will be formed to protect deep fire groups, HQs and logistic support against

air, missile and heliborne/airborne attacks. For a penetration operation, other such groups will be necessary to cover the concentration areas of formations. In mobile operations, some air defence units will be decentralized to formations operating independently or semi-autonomously.

0417. ***Air-Delivered Forces*** form the cutting edge of deep battle and deep operations. They are a vital complement to deep fire means, including aviation, being able to complete the destruction of targets in an immediate follow up of strikes and to take on high value targets that are too spread out, too mobile or inadequately located to allow for destruction by other means. They also spread confusion, uncertainty and disruption in the enemy rear, with an important psychological impact. Finally, they play an important role in assisting the main forces by delaying and disrupting enemy attempts to withdraw or reinforce the battle against either the main forces or OMGs and by seizing and holding vital ground such as defiles, crossroads and obstacle crossings. In these ways, they help to convert tactical into operational and operational into strategic success. Their actions will usually be reinforced or complemented as soon as is practicable by ground forward and raiding detachments and OMGs, and they will receive long-range artillery and air support as required to achieve success in their vital role. So important is this element of operational formation that it is only touched on here and is fully described in Chapter 8.

- a. *Motor Rifle Units in the Heliborne Role.* Divisional, brigade and corps light motor rifle units usually provide airmobile resources for action in the enemy's tactical depth, including flank protection and taking ground on which the enemy may establish a firm defence or which he needs to conduct manoeuvre. They may also be used to reinforce deeper vertical envelopment once air assault elements have established themselves on an objective. In defence during the course of an offensive, they form an important counter-penetration force.
- b. *Army/Corps Air Assault Battalions* are usually inserted into the operational-tactical depth. With their secondary mobility, they are most often employed as raiding detachments or as air-delivered forward detachments. In defence, they may be used for counter penetration, though they will more likely be used for raiding actions if the air situation allows.
- c. *SG Air Assault Brigades* are generally employed in the operational-tactical or even operational depth in the execution of missions of critical importance to the concept of the senior commander.
- d. *SG Airborne Divisions* are reserved for action in the operational or even strategic depth.
- e. *SPF* will normally be deployed by air (save for those covertly deployed before hostilities begin) though at the lower level they may infiltrate into the rear. They are primarily concerned with deep reconnaissance (operational-tactical and operational) and with target acquisition and marking. They may, however, also be used for sabotage missions.

0418. **Army Aviation.** Attack helicopter and ground attack units are normally held under centralized control. GENFORCE shows an increasing preference for using them together in large mixed raids against the enemy's operational-tactical depth, supported, air defence suppression by missiles, artillery, aviation and ECM. Elements may also be placed under command of forward or raiding detachments, forming land-air groupings. Their other role is to provide flexible, rapid reacting fire support for the contact battle, especially when it is so fast moving that artillery has problems in keeping up and reacting to sudden changes in the situation. GENFORCE expects army aviation to account for up to 40-45% of the destruction visited upon the enemy in the tactical zone. Assault helicopter units are used to deliver air assaults, but can also be used in attack helicopter roles. Transport helicopters remain under army/corps control, to be deployed as required for specific missions in support of divisions/brigades on the decision of the army or corps commander.

The Commander's Decision On Operational Formation

0419. **Factors.** Along with the selection of the main and supporting axes, the commander's decision on the operational configuration of his army or corps is the most important element in his decision. It must ensure a rapid penetration of the tactical zone of defence and an early shift in the focus of combat action into the enemy's operational depth. The factors influencing the decision will be:

- a. The aim of and plan for the operation.
- b. The strength, depth, density and degree of preparedness of enemy defences and operational reserves.
- c. The resources available.
- d. The nature of the terrain in the zone of advance.
- e. The optimum use of resources. Basic Forces' formations will generally be used to achieve the initial penetration, deliver feint or supporting attacks and provide flank protection in the advance. They will also provide the pinning forces in manoeuvre operations, holding the enemy in place and providing a pivot for decisive manoeuvre by Mobile Forces to destroy the enemy. Mobile forces separate brigades and corps are usually employed as exploitation forces to conduct deep battle and deep operations. Of course, they are eminently capable of fulfilling all roles, but their full potential is best realized in the manoeuvre role.

0420. **Configuration Against a Prepared Defence.** World class enemy heavy divisions each deployed on a 30km frontage to a depth of about 50km will have 15-20 or more major anti-tank systems per km of front: this is a highly efficient density and depth. If such defences are well prepared and balanced by a strong operational reserve, GENFORCE foresees the need for a deeply echeloned attack. Both SG and first echelon armies and corps will deploy in two echelons, and while the SG will always have an exploitation force, army/corps may have only a strong second echelon. Moreover, tactical formation (ie, division/brigade

level, and below), even down to battalion, will also, for the most part, be in two echelons: the only exception will be elements deployed on passive sectors or possibly on the axes of secondary, supporting or holding attacks where objectives will be shallower. The army/corps will only attempt to penetrate on one, narrow sector (often shoulder to shoulder with a neighbouring army/corps). It will be difficult to break through rapidly and generate a high tempo of operations through the early committal of an exploitation force, for the stability of the defence will be difficult to shake through frontal blows. Moreover, operational-tactical air-delivered forces will be difficult to deploy early in the face of a prepared air defence system and strong, ready reserves. Operational manoeuvre will only be generated after a possibly prolonged attritional struggle and the defeat of the enemy will, perforce, have to be sequential rather than simultaneously through his depth. Actually, given the likely force densities in modern war, GENFORCE does not anticipate that penetration operations will often be necessary. However, with the experience in Kuwait in mind, it still considers them to be theoretically possible (eg, when eliminating bridgeheads or taking key enemy centres). A growing number of GENFORCE theorists also maintain that while deep echeloning will still be necessary at the tactical level, it may be less necessary at the operational as the greatly increased firepower available in future war will ensure that the first echelon will achieve a penetration without being itself exhausted (assuming, of course, that fire superiority is achieved before the operation is mounted). Diagrams 4-5 and 4-6 illustrate the operational formation of an army and corps for a penetration operation along traditional lines.

0421. ***Configuration Against Partially Prepared Defence.*** It is far easier to crack a partially prepared defence, where strong covering forces are deployed when the blow falls, but the main defensive area is not even fully manned, far less prepared, and where operational reserves are not fully deployed. The concern here is to maximise the rewards of surprise by delivering the strongest possible blow before the enemy's parry is prepared. Having caught the enemy off balance, it is essential to keep him in a purely reactive posture and prevent him from creating a stable defence, even in the operational depth. A SG is likely to utilize all available axes (including difficult terrain) and to attack in a single echelon with a strong exploitation echelon and a relatively weak combined arms reserve (perhaps 2-3 divisions or brigades). Armies/corps will also attack on a broader front, deploying in one echelon with an exploitation force (though a second echelon might be formed if there is insufficient room to deploy all its constituent formations in one echelon). The AAG/CAG and AGRA/CGRA may be smaller, with more assets being decentralised to main axis divisions/brigades. For ease of control, to maintain momentum, and perhaps because room to deploy is limited, tactical formation is likely to be in two echelons but there will be extensive use of forward detachments from the outset. In such a situation, the insertion of the exploitation echelon should be relatively easy and therefore rapid: an army or corps should be able to commit its exploitation force on the first day, and SG between the first and third. Moreover, the deployment of air delivered forces should pose fewer problems and the delay before link up by tactical and operational manoeuvre elements should be short: survivability, in other words, will be less of a problem. With a combination of air interdiction, airborne and heliborne assaults and the deployment of mobile groups at all levels, the principle of simultaneous action throughout the enemy's depth can

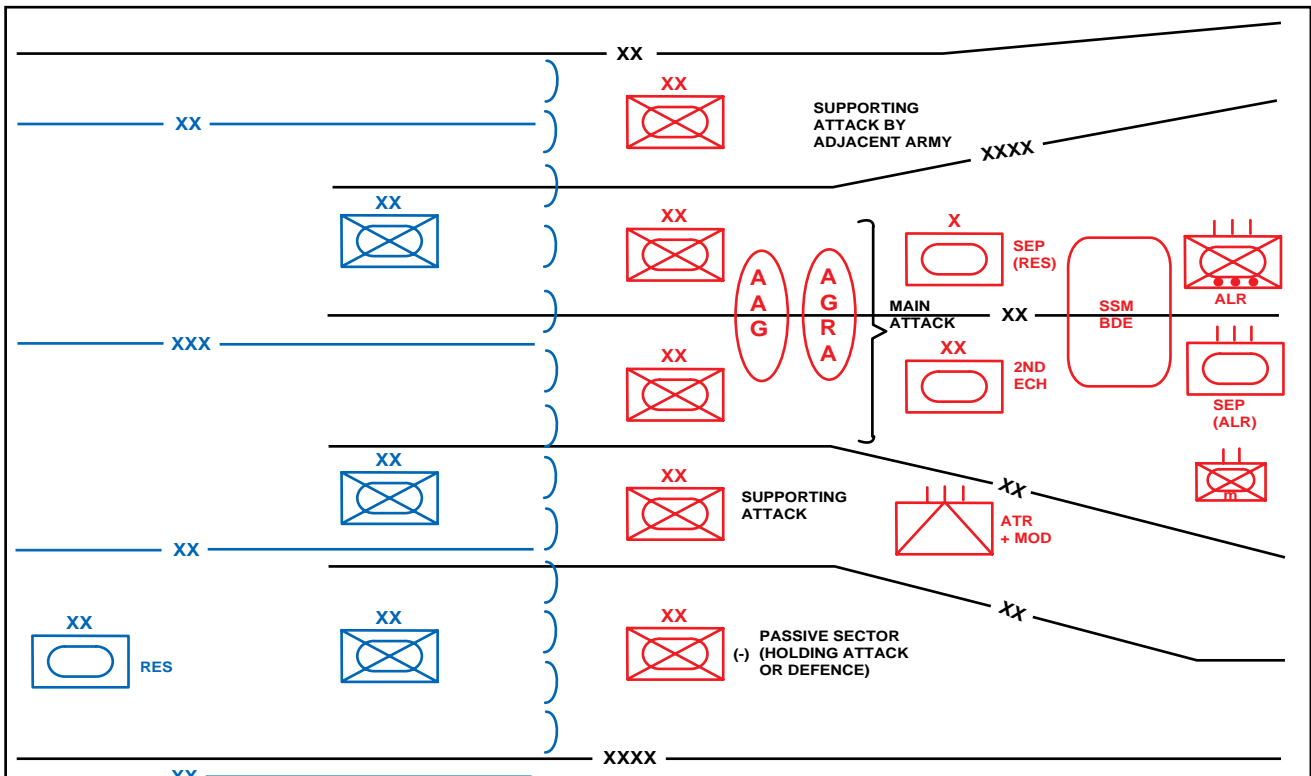


DIAGRAM 4-5: ARMY OPERATIONAL FORMATION AGAINST PREPARED, FRONT-LOADED DEFENCE

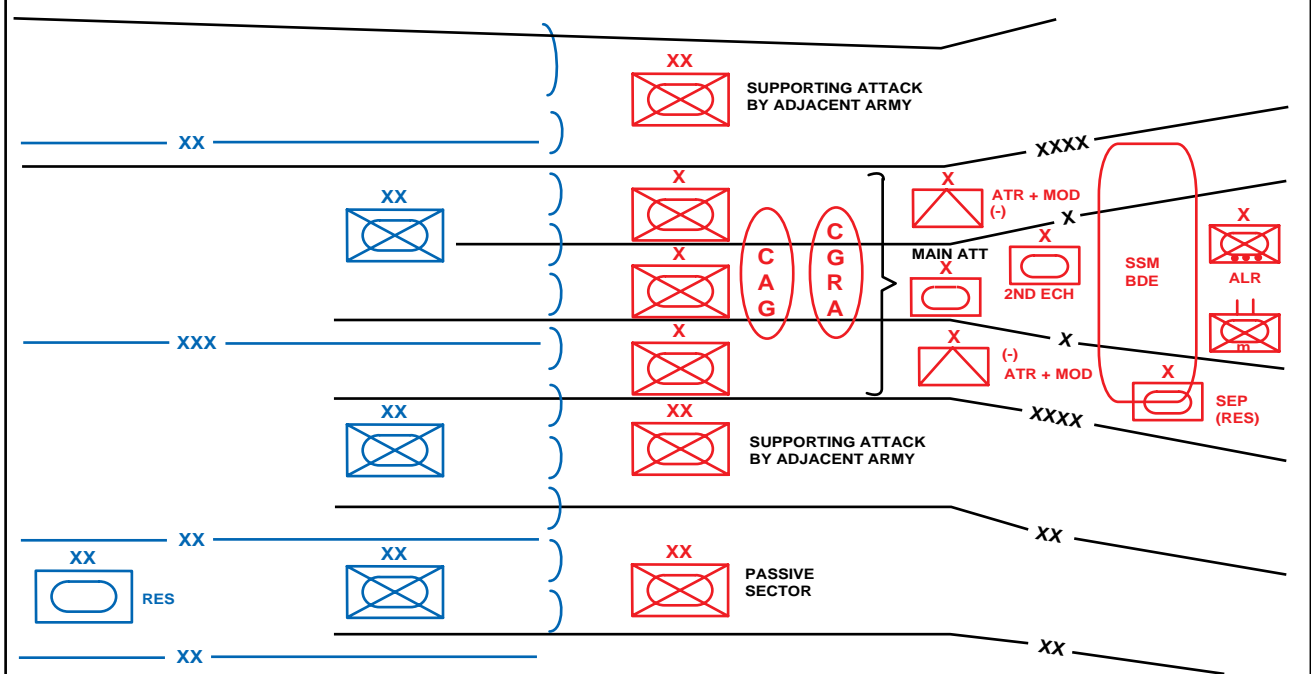


DIAGRAM 4-6: CORPS OPERATIONAL FORMATION AGAINST PREPARED, FRONT-LOADED DEFENCE

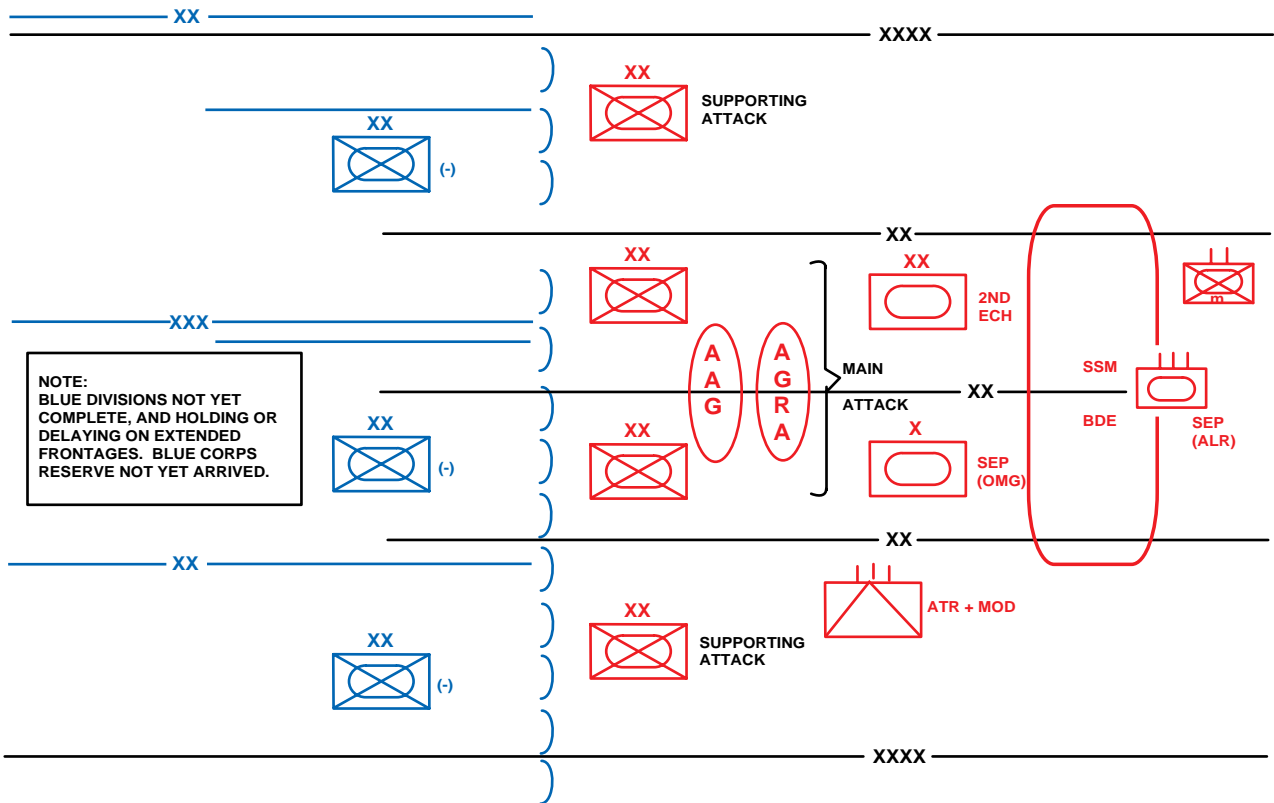


DIAGRAM 4-7: ARMY OPERATIONAL FORMATION AGAINST PARTIALLY PREPARED DEFENCE

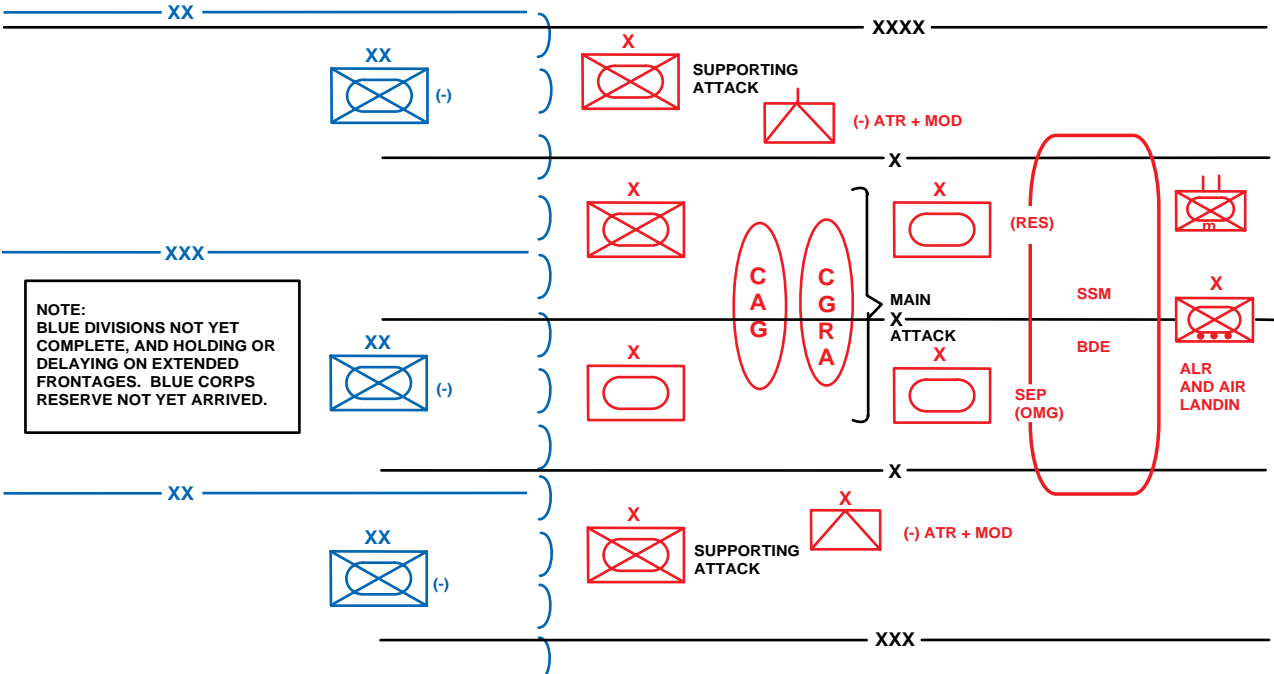
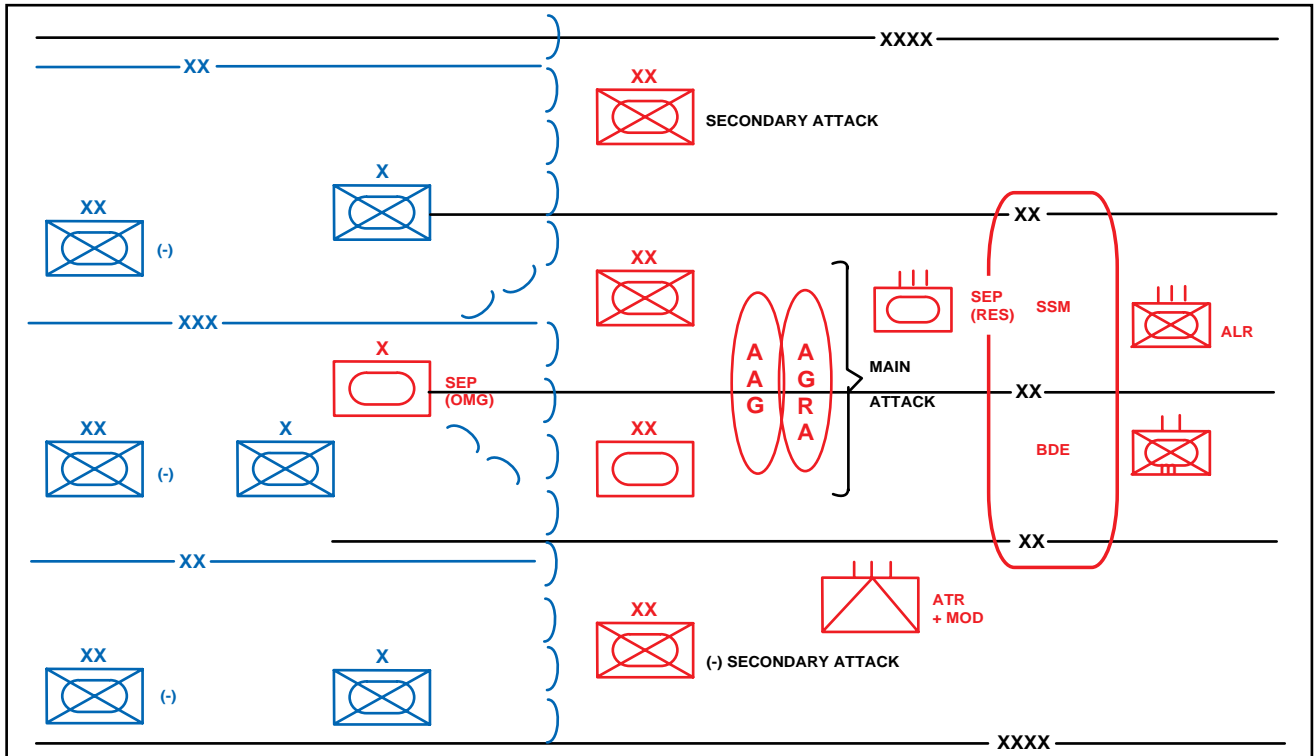
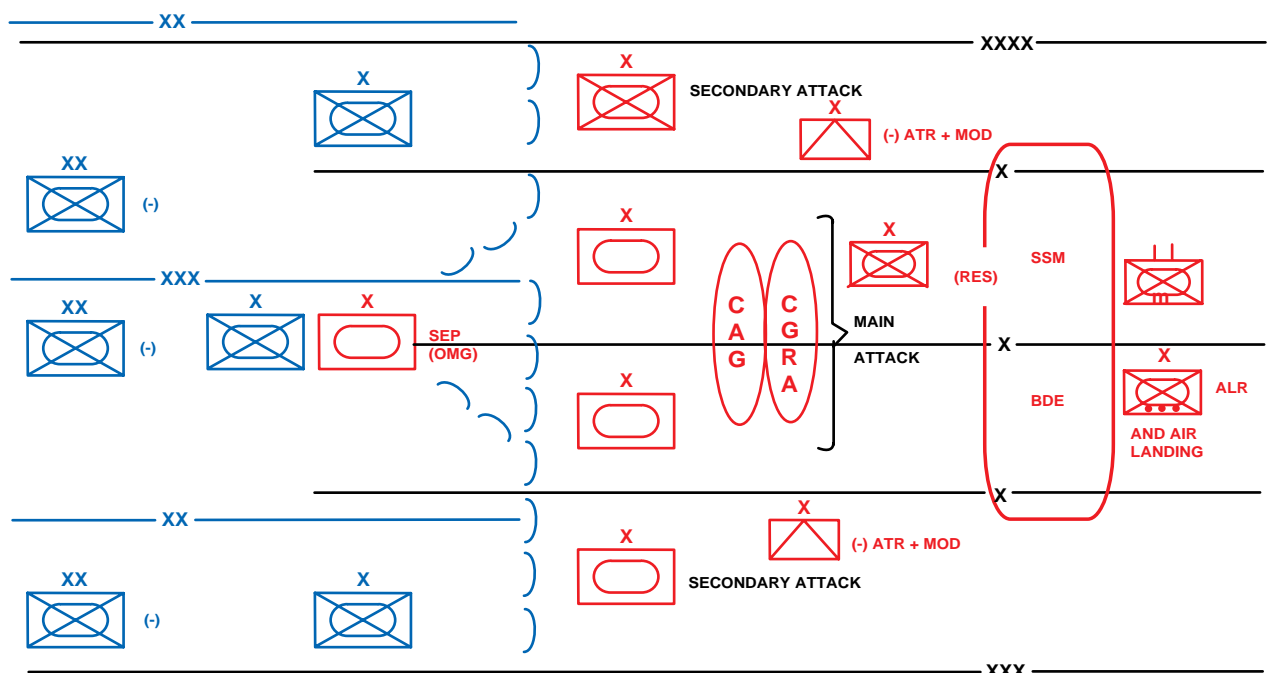


DIAGRAM 4-8: CORPS OPERATIONAL FORMATION AGAINST PARTIALLY PREPARED DEFENCE



NOTE: MAIN BODIES OF BLUE DIVISIONS STILL MOVING UP: CORPS RESERVE NOT YET AVAILABLE.

DIAGRAM 4-9: ARMY OPERATIONAL FORMATION AGAINST AN UNPREPARED DEFENCE



NOTE: MAIN BODIES OF BLUE DIVISIONS STILL MOVING UP: CORPS RESERVE NOT YET AVAILABLE.

DIAGRAM 4-10: CORPS OPERATIONAL FORMATION AGAINST AN UNPREPARED DEFENCE

be acted on effectively. In GENFORCE's view, the same operational formation is suitable if the enemy is prepared, but has chosen to conduct a manoeuvre defence with delaying forces forward and half or even more of his grouping held back for counter moves. In this case, it is important rapidly to destroy the delaying forces and to present those in the depth with a multiplicity of threatened axes to complicate enemy reactions. The bulk of the operational level air-delivered forces will probably be held back until such time as the enemy has committed much of his strength in the depth. Diagrams 4-7 and 4-8 illustrate an army and a corps operational formation against a partially prepared defence.

0422. ***Configuration Against Unprepared Defence.*** An unprepared enemy, with weak covering forces, no preparation of the main defensive area and few ready operational reserves represents the ideal target. It is desirable to maximise the fire and shock action brought to bear at the outset so that the weight of the blow is sufficient to overwhelm the defence across virtually its entire frontage and generate operational manoeuvre on all axes simultaneously. Thus, both at SG and army/corps level, deployment will probably be in a single echelon with relatively small reserves and even more artillery decentralised to the divisions and corps. The defence being very weak and the possibility of initiating deep battle and operations from the start being very good, more numerous air delivered forces may be used more freely and exploitation echelons may lead the attack at all levels, including army/corps. Operational formations against an unprepared enemy are shown in Diagram 4-9 and 4-10.

SECTION 3 - THE ELECTRONIC-FIRE ENGAGEMENT

Initiating the Offensive

0423. ***The Need for Fire Superiority.*** No offensive operation has any hope of success if fire superiority is not established by the outset and maintained thereafter. GENFORCE recognizes that this will be the most difficult, as well as the most vital, aspect of an offensive operation. Winning the information struggle and the electronic-fire initiative will require an offensive to be preceded by a pre-emptive, electronic-fire operation to destroy a significant proportion of the enemy's C3 entities, aviation, EW and long-range fire assets and suppress the rest. This will take several days, possibly weeks. Moreover, while victory in this operation will create the necessary precondition for an offensive, it will not be conclusive. Recognizing that he is losing the long-range battle, the enemy will probably withdraw much of his remaining capability from combat and husband it, awaiting reinforcement from the depth or other sectors, until such time as he can once again challenge GENFORCE for the initiative. Even if he has no prospect of securing electronic-fire dominance, the enemy may, by preserving his deep strike forces, be able to intervene at a crucial stage of the offensive to deliver a telling blow against the main attack grouping and thus deprive it of the superiority necessary to maintain momentum. The struggle for electronic-fire mastery is thus continuous, and GENFORCE concedes that it may well be impossible to do more than ensure it for particularly important phases of the offensive.

The Electronic-Fire Engagement

0424. **The Target Set.** The principal targets to be destroyed will be: military satellites (reconnaissance, navigation and communication); deep reconnaissance means, especially AWACs and those associated with RSCs and RFCs; C3I facilities, especially those controlling precision weapons; operational and operational-tactical SSMs and cruise missiles; air defences; bomber, fighter-bomber and fighter aviation and EW aircraft; army aviation; long-range artillery and MBRLs; fixed and rotary wing transport aviation; logistic support for aviation and long-range weaponry. Most of these weapons and associated facilities will be located in the depth, outside the reach of tactical reconnaissance and fire means. Many of them can be dispersed and camouflaged and well protected by air and ABM defences. Many of them, too, are highly mobile and capable of employing “shoot and scoot” techniques, making their engagement problematic.
0425. **The Stages of an Electronic-Fire Engagement.** GENFORCE identifies four stages in the struggle for information and electronic-fire superiority, though these overlap and do not exist as discrete entities:
- a. *The Information Struggle.* The enemy targets are located using space, air, EW and SPF reconnaissance. Simultaneously, enemy reconnaissance is countered through a mix of concealment and camouflage, simulation of high value targets, and, increasingly, active measures (ie, physical and electronic attack).
 - b. *Deployment* of electronic and strike/fire groupings, wherever possible in the depth. In this phase, covertness to achieve surprise is stressed, as is destruction of enemy reconnaissance, sabotage and raiding parties.
 - c. *Fire Strikes* are begun with a massive simultaneous attack throughout the enemy’s depth. Thereafter, targets are engaged successively as they are revealed. Conditions are created in which air landings can take place in the enemy rear and ground raiding detachments are inserted into the enemy tactical depth as well.
 - d. *The Closing of the Main Bodies* of the two sides, developing the long-range into a close contact battle.
0426. **Conduct of the Engagement** is expected to be complicated because the struggle will be of an exceptionally dynamic nature. Moreover, long-range combat will usually be organized in conditions of information shortage, situations will change rapidly and targets will often be fleeting. This increases the importance of foresight and the ability to cope with sudden changes in the correlation of forces and countering new and unexpected methods employed by the enemy.
- a. *Levels of Command.* The operation will be orchestrated at SG level, for its scope will necessarily be greater in both width and depth than the sum total of all the participating formations’ areas of influence. Most of the targets in the operational depth will be engaged by SG resources, though army and corps SSM brigades will also be directed to engage targets there. In the

operational and operational-tactical depth, the majority of strikes and raids will be conducted by army and corps assets.

- b. *Reconnaissance and Counter Reconnaissance* are the keys to success in the operation.
 - (1) *Areas of Intelligence Interest* at all levels are expanded to 2-3 times the zones of action and depth of combat missions of formations. This is vital because, without a clear picture of the availability of deep reserves and long-range weapons (especially aviation, RSCs, RFCs, cruise and ballistic missiles and MLRS) it is impossible to model the dynamics of battle and anticipate its development.
 - (2) *Timeliness, Reliability, Accuracy and Completeness* become more important than ever, given the mobility and concealment possibilities of many high value targets. The requirement is not merely for intelligence about enemy activities but for the timely delivery of fire against often fleeting targets. This has led GENFORCE to the vertical integration of reconnaissance means with weapons systems to ensure prompt engagements. Thus, many air and RPV reconnaissance assets have the capability to guide weapons to the target as well as find them. Such vertical integration is not enough, however, for the product of reconnaissance is not always shared and there is the possibility of some targets being engaged more than once by scarce resources where zones of reconnaissance overlap. For this reason, GENFORCE now stresses horizontal integration as well. All intelligence is passed sideways and upwards as well as to weapons control centres to ensure the creation of a single, general target situation picture in the form of an electronic situation map. This facilitates the discovery of the enemy concept of operations, the making of a sound operational-tactical appreciation and the development of recommendations for fire strikes. Comparing information from different sources greatly increases the reliability of intelligence and thus the effectiveness of weapons employment and their coordination with electronic attack. Cybernetic methods and artificial intelligence enable the processing of intelligence on the enemy in the required near-real time.
 - (3) *Counter-Reconnaissance* must deprive the enemy of his ability successfully to conduct an electronic-fire engagement. His reconnaissance means will be destroyed (to prevent collection), his communications disrupted (to prevent transmission), his automated control systems disrupted (to prevent data processing and storage) and his C2 system attacked (to prevent dissemination and action). If each stage of the intelligence - decision - action cycle is successfully disrupted, GENFORCE will win the critical struggle for time.
- c. *Combined Arms*. The operation will comprise a mix of: air and missile defence; air and missile engagements; individual and massed and concentrated missile, air, artillery and electronic strikes; systematic combat actions by RSCs and RFCs of higher and lower formations; target acquisition

and sabotage by SPF; raiding actions by ground, air and air-ground detachments. All will be conducted under a unified concept and plan to win and thereafter maintain electronic-fire superiority according to the principle of reliable reconnaissance, continuous infliction of fire damage and constant manoeuvre.

SECTION 4 - ARMY AND CORPS OFFENSIVE OPERATIONS

Tasks and Missions

0427. ***The Army's Role in the SG Concept.*** An army's mission will depend upon its place in the SG concept of operations; ie, whether it is acting in the first echelon (and then, whether on the main or a subsidiary axis), in the second echelon or, though rarely, and only when a corps is not available, as an exploitation force (ie, as an operational manoeuvre group - OMG). This factor will also determine the army's composition, that is to say, the number of divisions and the degree of support allocated to it by the SG. Generally speaking, combined arms armies are used to conduct penetrations, to act on secondary sectors (offensively or defensively), to operate in difficult terrain or to form second echelons or reserves. Tank armies usually act in the second echelon or, less commonly now, fill the more specialised role of operational exploitation, manoeuvre forces. They are almost always found on the main axis, acting in the first echelon against weak defences or as an OMG or reserve/second echelon against a stronger enemy.
0428. ***The Corps and Separate Brigade Role in the SG Concept.*** Mobile Forces are designed to execute operational manoeuvre. Thus, they are generally cast in the role of OMG. Thus, against a strong, front-loaded defence, a corps will usually will be held back until the first echelon armies have created, or at least almost completed, a penetration. Against a weaker enemy first echelon, a corps may well be committed at the start. Likewise, a separate brigade will usually be used as a small OMG at army level.
0429. ***Tasks.*** An army or corps operation will involve some or all of the following aims: the destruction of an enemy grouping; the seizure of political or economic centres or of vital ground to create favourable conditions for subsequent operations; consolidation on achieved objectives if specifically ordered by the SG - generally "objectives" are more like phase lines and formations do not halt on them except in specific circumstances (ie, transition to defence on a SG final objective, when faced with a superior enemy force, when the SG switches the focus of its offensive effort elsewhere, or when combat power is exhausted).
0430. ***Criteria for Success.*** Three indicators are used to assess the success of an operation: the degree of destruction inflicted on the enemy; the depth of penetration achieved; and the degree to which the fighting power of the formation is preserved, at least on the main axis. The degree of destruction to be imposed on the enemy is said to be at least 50% of his initial strength and at least 75% of his high value systems and the ruination of his command and control system, for these together will render the enemy combat ineffective. The degree of penetration demanded will vary according to relative strengths, terrain and other factors. The third indicator is relative. The ability of the attacker to maintain the

offensive is a function of the loss rates of both sides. If the defender has lost not less than 50% and the attacker not more than 40%, momentum can be maintained: (losses even greater than 40% can be accepted if a slight superiority in numbers remains and the enemy's morale has been broken.) GENFORCE has established that, at least in past wars (ie, before the advent of precision weapons and greatly enhanced capabilities for conducting long-range battle), loss rates on both sides were a function of force ratios. The calculation is set out in Table 4-2. The operation is considered a success if all three criteria are met, partially if only the second is achieved and not at all if the depth of penetration is inadequate.

Note:

- (a) The percentages given are those of each side's strength. Thus, a force of 100,000 attacking another of 50,000 would expect to lose 16,000-25,000 while the defender would lose 2,000-5,000.
- (b) Diagram 4-11 and paragraph 0432 show how rates of advance are also determined by force ratios.

TABLE 4-2 LOSS RATES AS A FUNCTION OF FORCE RATIOS

Attacker's Losses	Force Ratio	Defender's Losses
25-16%	1-2 : 1	4-10%
16-10%	2.5-3.5 : 1	10-16%
10-4%	5-6 : 1	16-25%

0431. **Army/Corps Missions.** Formation missions will, of course vary according to their place in the SG's operational formation. The missions they are assigned will be those which will contribute to the fragmentation of the defence, rendering it untenable.

- a. *First Echelon Armies or Corps* constitute the bulk of a SG's forces and their success is essential if the SG aim is to be achieved. If they do not accomplish a breakthrough, exploitation forces will be unable to conduct deep operations and there will probably be insufficient combat power residing in them and the second echelon to carry the offensive through to the SG subsequent objective. Moreover, GENFORCE fears that, particularly if the operation develops slowly, enemy interdiction may prevent the timely committal of the second echelon in battleworthy condition. The first echelon is therefore required to reach at least the immediate objective of the SG without reinforcement. It should be able to continue its advance beyond this point. That, however, means that each army/corps will be expected to conduct two successive operations with little or no pause between them. Of course, if the depth of the SG operation is very shallow and the enemy lacks strong reserves, a single army operation will be enough to achieve the SG goal.

- (1) *The Immediate Mission* (ie, the first offensive operation) must destroy the main forces of the opposing grouping and immediate operational reserves and seize lines or areas which will upset the stability of the

defence, thus creating favourable conditions for the continuation of the offensive.

- (2) *The Subsequent Mission* will be the completion of the destruction of the enemy, the defeat of operational reserves and the seizure of the area designated as the SG immediate objective.
- b. *Second Echelon or Reserve Armies/Corps* will usually execute only one offensive operation, reinforcing the first echelon in order to carry the SG operation forward from its immediate to its subsequent objective if the first echelon is beginning to flag or the enemy deploys larger than expected reserves. Other tasks which may be given to a second echelon army/corps include: widening the penetration sector through flank and rear attacks; destruction of encircled or by-passed groupings; pursuit. A second echelon may still be moving up when the offensive is launched. If not committed on arrival, it may be held anywhere between 80 and 120km (ie, a comfortable night's march, depending on road conditions) from the line of contact. Of course, it is considered highly undesirable for a formation to wait for any length of time in such close proximity to the enemy's forces. It will be very vulnerable to enemy deep strikes.
- c. *Army/Corps Acting as an Exploitation Echelon.* When acting as a SG OMG, a corps or, more rarely, an army or separate brigade, may conduct one operation, or more probably two successive ones with little or no pause between them. The task of the OMG is to destroy the cohesion and stability of the defence at the operational level through actions within the enemy depth. In this way, it will ease the progress of the main forces which are engaging the bulk of the enemy's combat power. It is vital, therefore, that committal takes place as early as possible. If not actually leading the advance from the start, as it will against a weak and unprepared enemy, an OMG will be held well forward, probably only 50-70km from the line of contact to ensure rapid committal in exploitation of the breakthrough. It must spend as little time as possible in such an exposed position. The calculation of the time by which sufficient penetration will be achieved to make committal possible is a crucial element in the senior commander's appreciation. If he gets it wrong, he may lose much of the combat effectiveness of the OMG from enemy deep strikes. Ideally, it will be committed on the first day, and certainly by the second if it is to achieve its purpose. The OMG will operate 50-60km or more ahead of the main forces, its activities will be elaborated on in Section 5 and Chapter 8.
- d. *Mission Changes.* While SG missions are generally immutable, those of armies and corps may be changed as a result of an alteration in the SG concept of operations, shifting emphasis from one axis to another. Factors which lead to such a change include: unexpectedly successful resistance on one sector or another, resulting in a lowering or even loss of combat power due to heavy casualties; the enemy's committal of operational reserves; the reducing capacity of the SG to reinforce, support and supply its armies and corps.

Scope of Army Offensive Operations

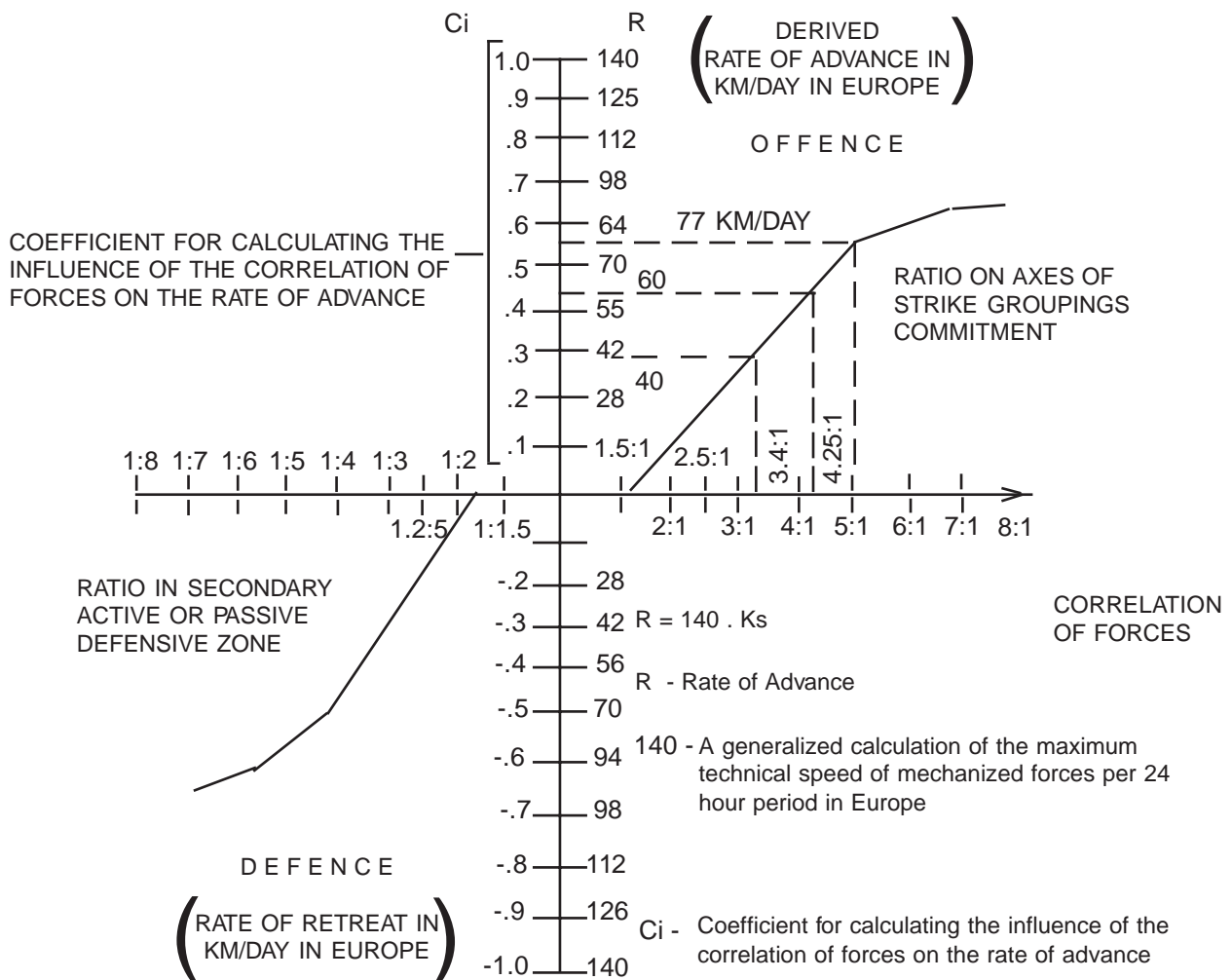
0432. ***The Dimensions of an Army's or Corps Offensive.*** The traditional combined arms army of four heavy divisions deployed a total of 64 tank and MR battalions (excluding any army level separate units). The Basic Forces replacement comprises only 46 (assuming it contains three MR and one tank divisions, none of them heavy) and a Mobile Forces corps fields only 34 (with the equivalent strength of over 51, when the size of the combined arms battalions is taken into account). Despite being only 70-80% as strong as their predecessors (though only, be it noted, in manoeuvre elements), modern higher formations are likely to be allotted similar, or even greater frontages. This is the inevitable result of lowering overall force densities. Of course, wide sectors of responsibility do not by any means imply that formations spread evenly across them. There will be concentrated efforts to destroy enemy groupings or seize vital ground, followed by a degree of dispersion in width and depth, and there will be long, sparsely filled passive sectors. There is still an unresolved debate amongst GENFORCE theorists about the depth of objectives that can realistically be assigned in future war. Some maintain that, with increased indirect and air-delivered firepower available and lower force densities allowing increased manoeuvre, the old norms can be adhered to. Others, currently it would seem in a growing minority, argue that the increased destructiveness of modern warfare will lead to formations losing their combat effectiveness more rapidly and that expectations should be lowered in consequence. In any event, the scope of army or corps offensive operations will vary according to the relative strengths of the sides, the terrain and the mission. The following generalizations are thus the broadest of guidelines only:

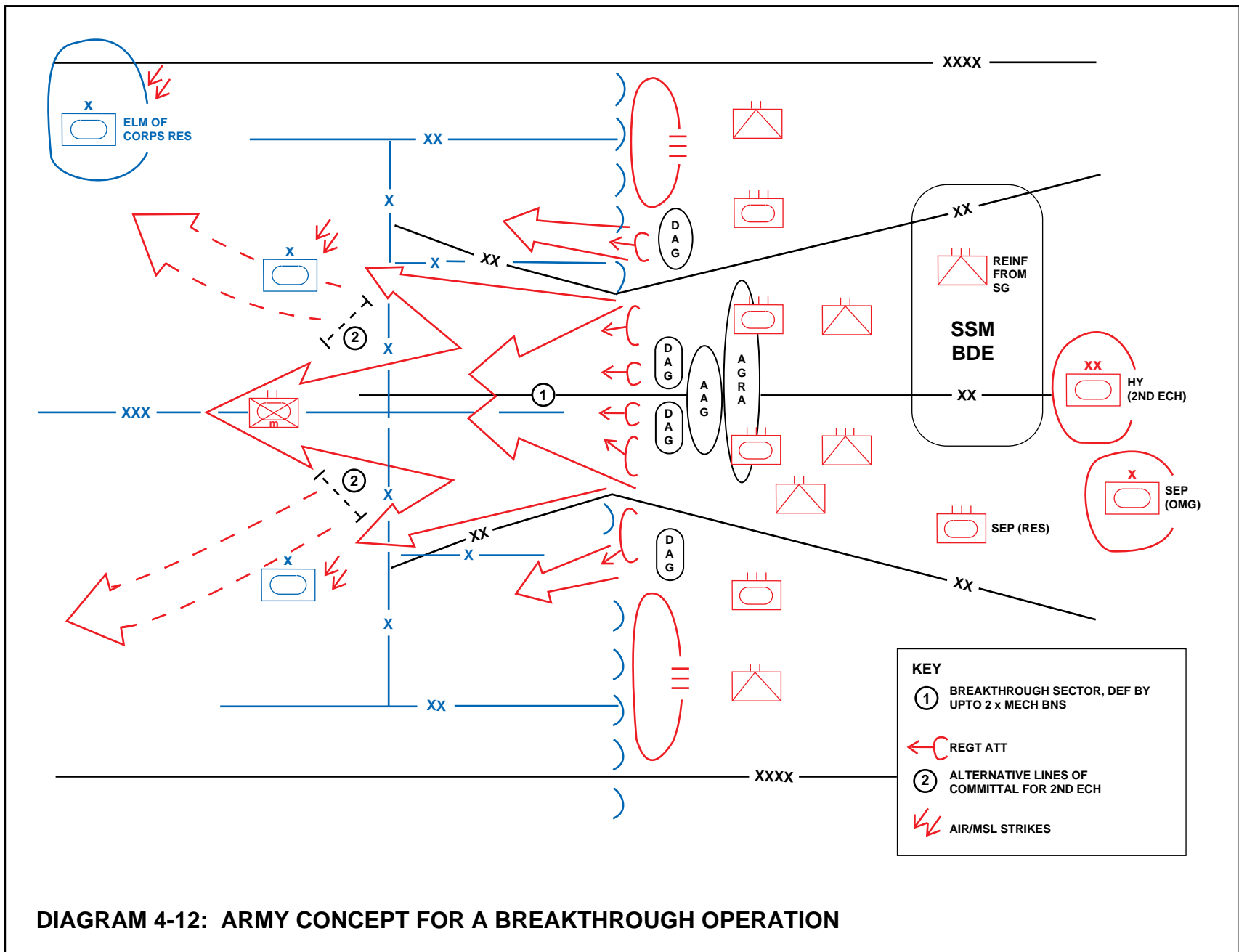
- a. *Width.* The sector of responsibility of a main axis formation of 4-5 divisions/brigades is likely to be 100-120km in "normal" conditions. On secondary sectors, or sectors where the enemy's force density is inadequate to create any effective defence, the frontage may grow to 120-150km or even more. The effect of force reductions has thus been a widening of sectors of responsibility. Where penetration battles continue to be necessary, however, penetration sectors are likely to remain much the same, as little as 10-16km for two divisions or brigades. The determining factor is the need to concentrate the superiority required to ensure success. An overall superiority of 1.5:1 is adequate, but that must be translated into 3-4:1 operationally (and usually rather more in artillery) on the main axis. That, in turn, allows the creation of 5-6:1 or greater superiorities on key tactical sectors.
- b. *Depth.* The depth of a first echelon army's or corps' immediate mission will normally be about 100-120km (ie, the depth of a defending corps). Against a strong, well prepared defence, however, it could shrink to 80-100km. The subsequent mission of such a formation will vary from 200 to 300km or more from the original line of contact, depending on the enemy resistance, the strength of depth positions and the enemy's use of reserves. These norms may well be revised as a result of ongoing analysis of likely loss rates.
- c. *Rates of Advance and Duration.* The rate of advance in "normal" terrain is largely a function of the relative strengths of the opposing forces. Diagram

4-11 illustrates this relationship graphically. Usually, on the main axis, GENFORCE plans on achieving an average rate of advance of 30-40km per day in "normal" terrain and 20-30 in low mountainous or other difficult going. Thus, for instance, in planning an operation extending to a depth of, say 350km over average going, an army staff would calculate on requiring 9-12 days. These calculations assume that the force density of the defender is such that he cannot prevent GENFORCE from conducting operational manoeuvre, and that the attacker can constantly maintain the force ratio of 3.5-4.5 : 1 which is required to achieve such high rates. Many theorists point out that, in view of the high mobility of the defending forces, especially of his airmobile forces, and the ability of the defender to manoeuvre fire and mine obstacles over long distances, this will not, in practice, be possible. They foresee rates of advance closer to 15-20km per day. It is increasingly likely that these more modest norms will be used in future.

Despite the problem of establishing definitive norms, empirical evidence shows a correlation between the rate of advance (R, in km per day) and the coefficient of the influence of the correlation of forces (Ci), using the formula $R = 140 \times Ci$. (The quantity 140 represents the maximum possible speed of advance in "normal" terrain). Using the formula and the Nomogram in Diagram 4-11, it is possible to evaluate approximately the necessary

DIAGRAM 4-11: RATE OF ADVANCE AS A FUNCTION OF THE CORRELATION OF FORCES





correlation of forces to achieve a planned rate of advance, or to determine the likely rate of advance with a given correlation, eg:

- a. An average rate of advance of 40km per day is required on a strike grouping's sector. The necessary superiority is found as follows: $C_i = R/140$, or $C_i = 40/140 = 0.29$. The quantity 0.29 is entered on the Nomogram and it follows that a correlation of 3.4:1 is necessary on the strike grouping's sector.
- b. On a strike grouping's sector, a 2.5:1 superiority has been created. Its rate of advance will be determined as follows: from the Nomogram, it is clear that $C_i = 0.13$ corresponds to a superiority of 2.5. According to formula $R = 140 \times 0.13$, 18.2km per day will be the average rate of advance.

Concept for the Operation.

0433. ***The Commander's Decision*** depends first and foremost on a clear understanding of the SG plan and the missions of the other elements of the SG. Having established the context of his army's or corps' actions, the commander will make his assessment and arrive at a decision. His decision, in turn, will include his concept of operations for the guidance of his subordinates.

0434. ***The Concept of Operations*** includes the following basic elements.

- a. *The Enemy*. The main grouping of the enemy, his strengths and weaknesses and likely intentions are identified, as is the consequent form of his destruction and therefore where obstacles will have to be overcome and battles fought.
- b. *Axes*. The number of axes on which attacks are mounted is determined largely by the requirement for the establishment of a decisive superiority on specified directions. Sometimes a formation will mount attacks on two or even three axes during the initial offensive operation. The entire direction of the main thrust will be specified at least to the depth of the immediate mission and often to the depth of the operation. The axes of other attacks will be determined by the need to support the main blow (including through feint thrusts).
- c. *Operational Formation* will be determined by the mission requirements (eg, the prescribed form of the operation and its depth), by the requirement to establish strike groupings strong enough not only to achieve penetration but thereafter to maintain momentum, and by the terrain.

0435. ***Forms of Army and Corps Offensive Operations***. There are basically four forms of operation, though of course elements of them may be combined.

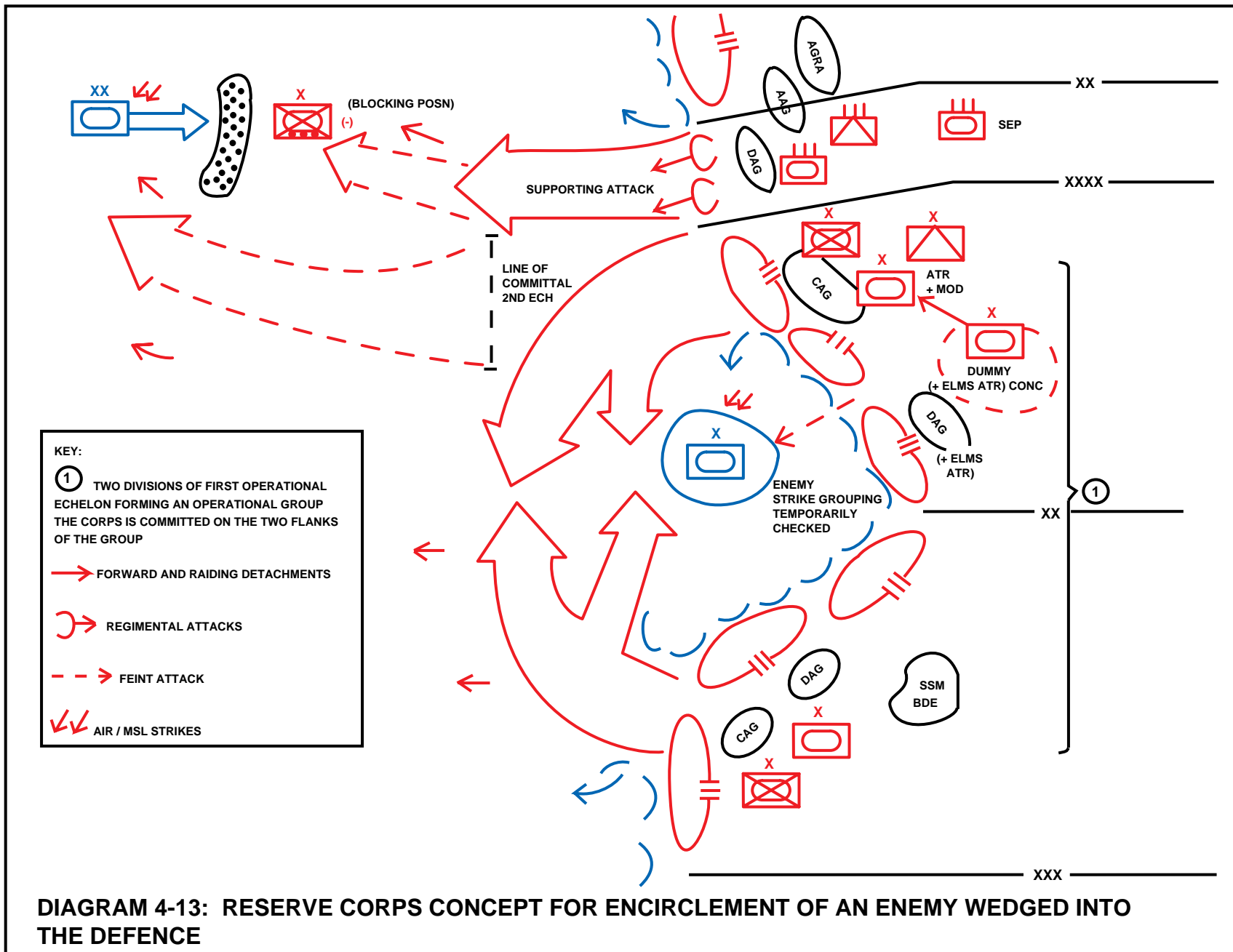
- a. *The Single Thrust* is most common when the enemy defence is strong, well prepared and deeply echeloned. In these circumstances, as is portrayed in Diagram 4-12, most of the army's or corps' strength has to be concentrated on a narrow sector to achieve a breakthrough, widen the penetration sector to permit the insertion of operational manoeuvre forces and still retain enough strength to carry the offensive through to the depth specified by SG.

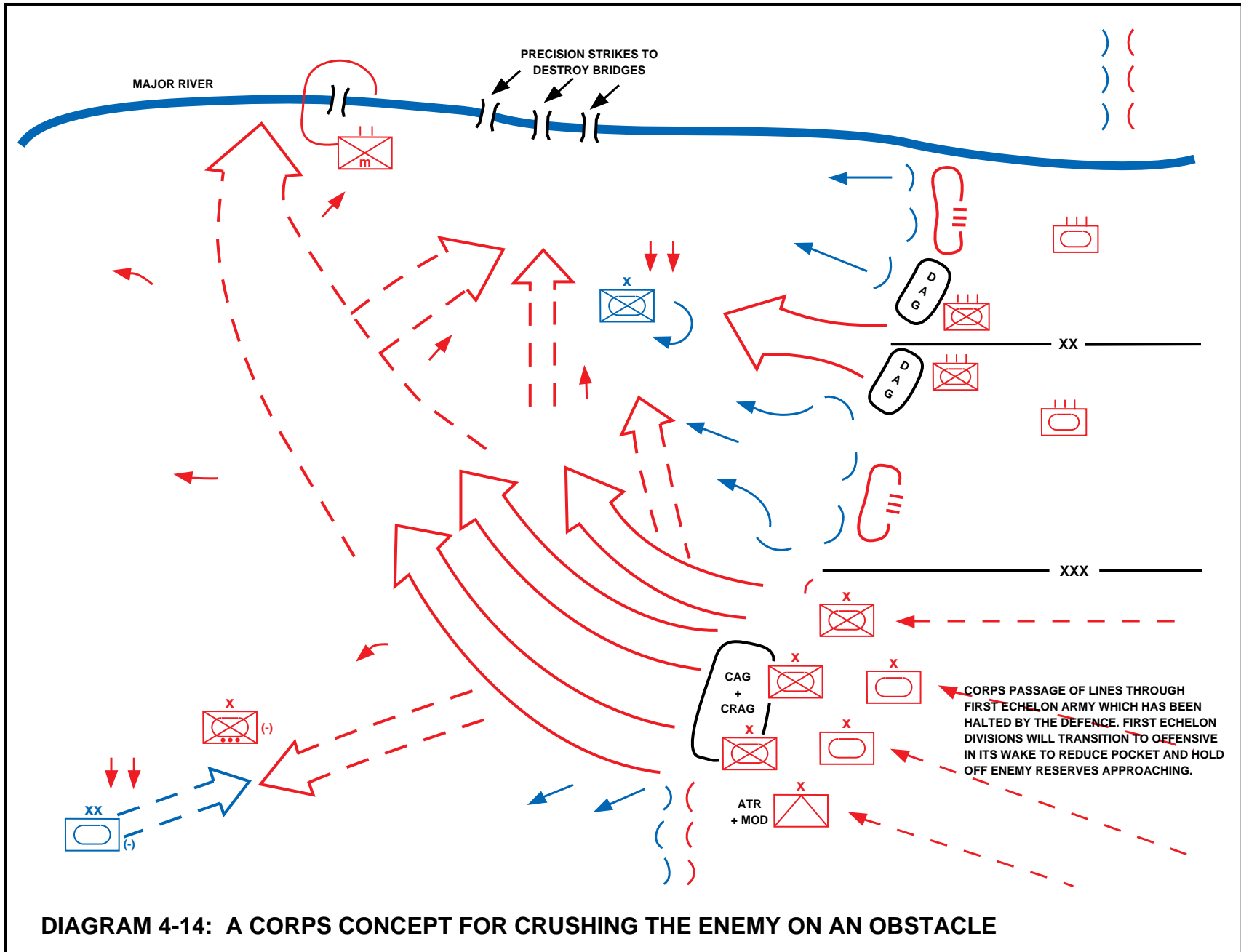
GENFORCE does not believe that this sort of operation will be common in modern warfare. Both the lowering of force densities and the increase in firepower and mobility militate against such attritional struggles. Where it is necessary, the blow is delivered against the weakest sector of the defence (eg, on a boundary or against a grouping where morale is low).

- b. *Encirclement.* An army or corps is, of course, too small to execute an encirclement of operational scale by itself. There may, however, be opportunities, particularly when launching a counter-blow, to eliminate a badly balanced enemy grouping. Diagram 4-13 illustrates the encirclement of an enemy strike grouping that has failed to break through but has, instead, created a vulnerable salient. This sort of operational-tactical or tactical encirclement may well be more common on the future battlefield, given its non-linear and fragmented nature. The destruction of an enemy higher formation may well be encompassed by a series of such small-scale encirclements at varying depths in the enemy's rear rather than by the large-scale ones that characterized GENFORCE actions in World War II.
- c. *A Blow from One Flank.* A variation on the theme of encirclement, depicted in Diagram 4-14, is the crushing of the enemy against an obstacle, there to destroy him. In coastal operations, where the obstacle is the sea, annihilation will be complete. If the obstacle is a major river or canal or a mountain ridge, crossings have to be seized or denied by destruction and remote mining. If such interdiction is successful, groups of men will be able to exfiltrate, but at the price of abandoning all their heavy equipment: effectively, the force will be destroyed. The concentrated blow from one flank is also used to encircle a much larger enemy grouping in cooperation with the forces of another army formation, or to turn the position of the main enemy grouping so that it can be destroyed in flank and rear attacks.
- d. *Offensive on Several Axes.* Two or more rupturing blows may be delivered to achieve the disintegration of the enemy grouping, splitting it up into isolated pockets. Illustrated in Diagram 4-15, this sort of operation can be undertaken when the enemy's defence is hasty, over-extended, lacking in depth and deficient a strong reserve. It is also the most appropriate model when the enemy is quite strong but has chosen to adopt manoeuvre defence rather than try and hold forward. When the enemy holds about half his manoeuvre forces in the depth, relying on counter moves to stall the offensive, it is necessary to present him with multiple threats to complicate his use of reserves. The key to victory is said to be the full exploitation of opportunities for manoeuvre which will exist at all formation levels due to low force densities in order to conduct deep battle and then deep operations to eliminate quickly enemy long-range engagement means. At the same time, the battle area must be so shaped that the enemy manoeuvre formations can be destroyed in detail.

SECTION 5 - CONDUCT OF ARMY/CORPS OFFENSIVE OPERATIONS

0436. *Deploying for the Offensive.* Ideally, an attack will be mounted from the march, from concentration areas out of contact. In this case, leading formations will





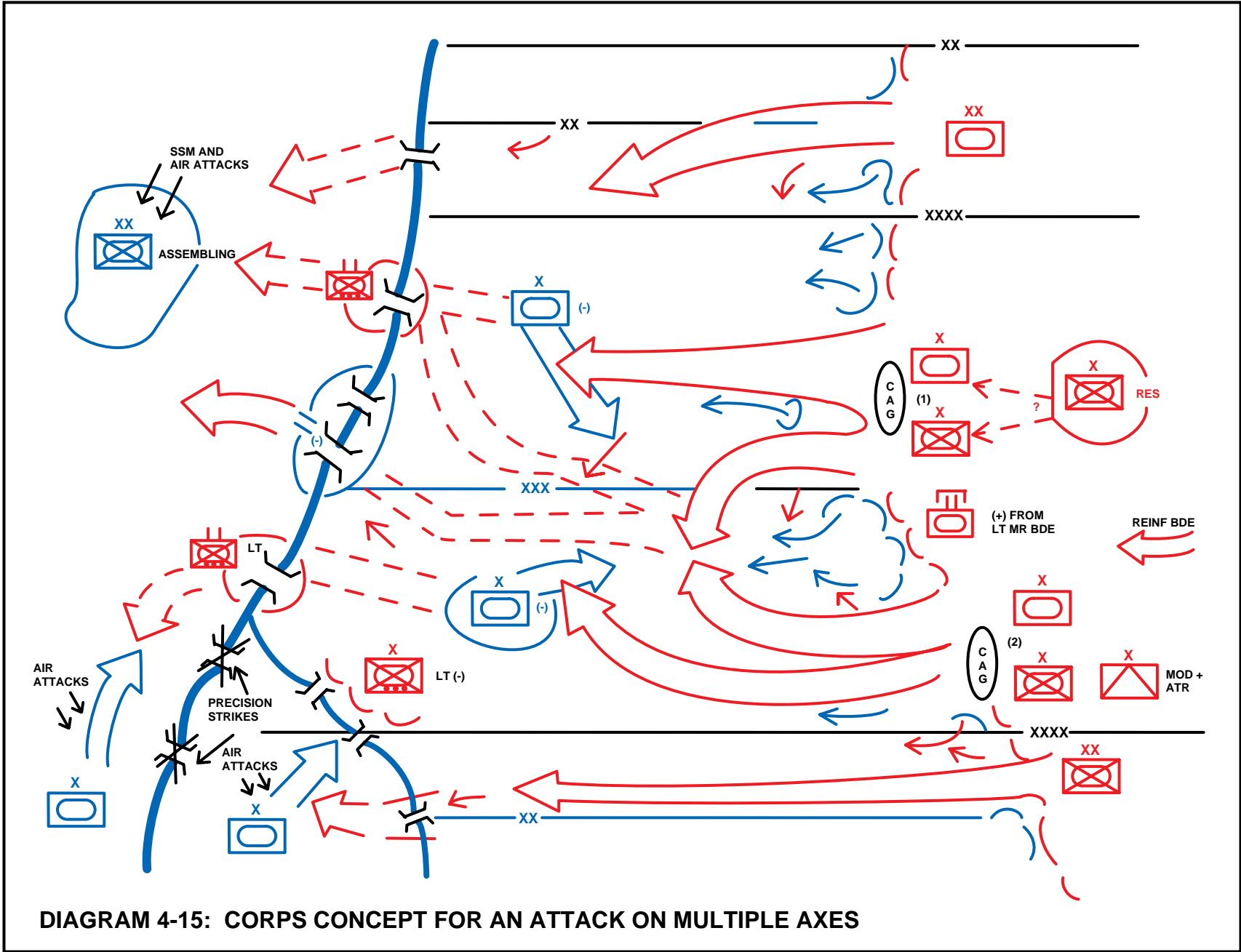


DIAGRAM 4-15: CORPS CONCEPT FOR AN ATTACK ON MULTIPLE AXES

have their final assembly areas 60-80km from the enemy forward line (or international border), with covering forces deployed 1-5km from the enemy (or border). They are thus out of range of pre-emptive artillery strikes, but still only 4-6 hours night march from the line of going over to the attack. Where the enemy has succeeded in deploying a covering force, this will be destroyed by battalion and regimental sized forward detachments of the first echelon divisions/corps with strong artillery and air support. The main bodies of divisions and corps will follow the forward detachments in tactical march or pre-battle formation, aiming to attack the enemy FEBA hard on the heels of the retreating covering force and gain a lodgement. If, however, enemy resistance in the security zone is very strong, it may be necessary for first echelon regiments, even whole divisions or brigades, to be committed. It is considered important to ensure that the development of the actions of units penetrating the covering force must be in such a way that they can be integrated into appropriate groupings once they come into contact with the enemy main defended area. There are circumstances in which an attack may have to be launched from a position of close contact, ie, when an army/corps resumes an offensive that has been checked or when it transitions to the attack after conducting a successful defensive engagement. In the latter case, the timing is seen to be of great importance. The formation should go over to the offensive only when the enemy has taken such heavy losses that he has lost his capability to continue his attack, but before such time as he has regrouped or reorganized to meet the counter-blow.

Overcoming Strong, Positional Defence

0437. ***Destroying a Defending Enemy.*** Breaking through a well-defended position is seen to be a difficult task requiring detailed preparation and great concentration particularly of fire, though also, temporarily, of manoeuvre forces. Success depends on the following:
- a. *Penetration Areas* have to be carefully selected to lead to an early eruption of forward and raiding detachments (including air-delivered) into the deployment areas of enemy long-range weaponry, the achievement of geographical objectives and the destruction of the main enemy grouping. Ideally, weak enemy groupings should be penetrated to get to the strong from the flank or rear. Other vulnerabilities that can be exploited are inter-formation boundaries (especially when these are between different nations as well) and difficult terrain that the enemy has defended but lightly because of its unsuitability for offensive action.
 - b. *Detailed Reconnaissance* of both terrain and the enemy is essential if accurate calculations about required force levels and densities are to be made and reliable suppression of the defence is to be achieved. Previously, it was thought to be sufficient to locate 60-65% of targets: today, reconnaissance is required to reveal 75-80%, and up to 100% in the case of particularly vital systems.
 - c. *The Estimate of Forces Required* to break through must be correct and staff work must be meticulous to concentrate those dispersed groupings

rapidly to attack from the march. Section 2 of Chapter 12 goes into the detail of operational calculations to establish the required size of shock groupings and the width of the penetration sector.

- d. *Sufficient Neutralization* of the enemy on the penetration sector and to its immediate flanks is crucial. Suppression, ie, the destruction of up to 30% of all enemy personnel and weaponry in the target area, is the norm usually required. It will, for instance, reduce the density of major enemy anti-tank weapons from 15 per km, which will stop even the densest armoured attack with about two thirds casualties, to about 10 per km, which will reduce casualties to around 25% and thus give the attack a fair chance of success. This used to involve the concentration of large quantities of artillery: eg, an army penetration on a 12km sector used to require 95-110 guns, multiple rocket launchers and mortars per km (the number varying according to the strength of the opposition). Such phenomenal masses of artillery consumed equally phenomenal quantities of ammunition when tasked with inflicting such a level of casualties. Thus, a 12km sector might be defended by two reinforced battalions in the first echelon. To achieve suppression of these, and their supporting artillery, some 31,500 rounds were considered necessary (and considerably more if reconnaissance had failed to reveal most of the targets). The problems of movement, coordination and logistic support involved are self evident. While they were not insuperable in overcoming the first echelon of a prepared defence, the same is not necessarily true if a further penetration battle has to be fought at the back end of the enemy tactical zone of defence, ie, 40-60km from the forward edge. To move both tank and motor rifle elements and their supporting artillery and the ammunition required through possibly narrow penetration corridors, over battle-damaged terrain, and in face of enemy interdiction was in danger of overtaxing the system. GENFORCE now believes that, intelligence is available, these norms can be reduced very considerably thanks to the availability of precision weapons and cluster, fuel air and other ACMs. Of course, stocks of such munitions are limited, and any prolonged conflict could result in their exhaustion and a consequent reversion to previous norms.
- e. *Neutralization of Enemy Long-Range Weapons, Tactical Reserves and CPs* must be accomplished by artillery, EW and air attacks and forward, raiding and heliborne detachments if the stability of the defence is to be destroyed and early momentum gained. The problems of locating and then effectively dealing with such targets in a dense and deep defensive deployment may be considerable.
- f. *Rapid Penetration* by the first echelon is essential to destroy the cohesion of the defence and generate operational manoeuvre from an early stage. Otherwise, the battle degenerates into one of attrition and precious time is lost. This, in turn, depends on the continuity of fire support and the timely reinforcement of efforts by second echelons (reserves) at all levels. These are thorny problems on a congested battlefield.

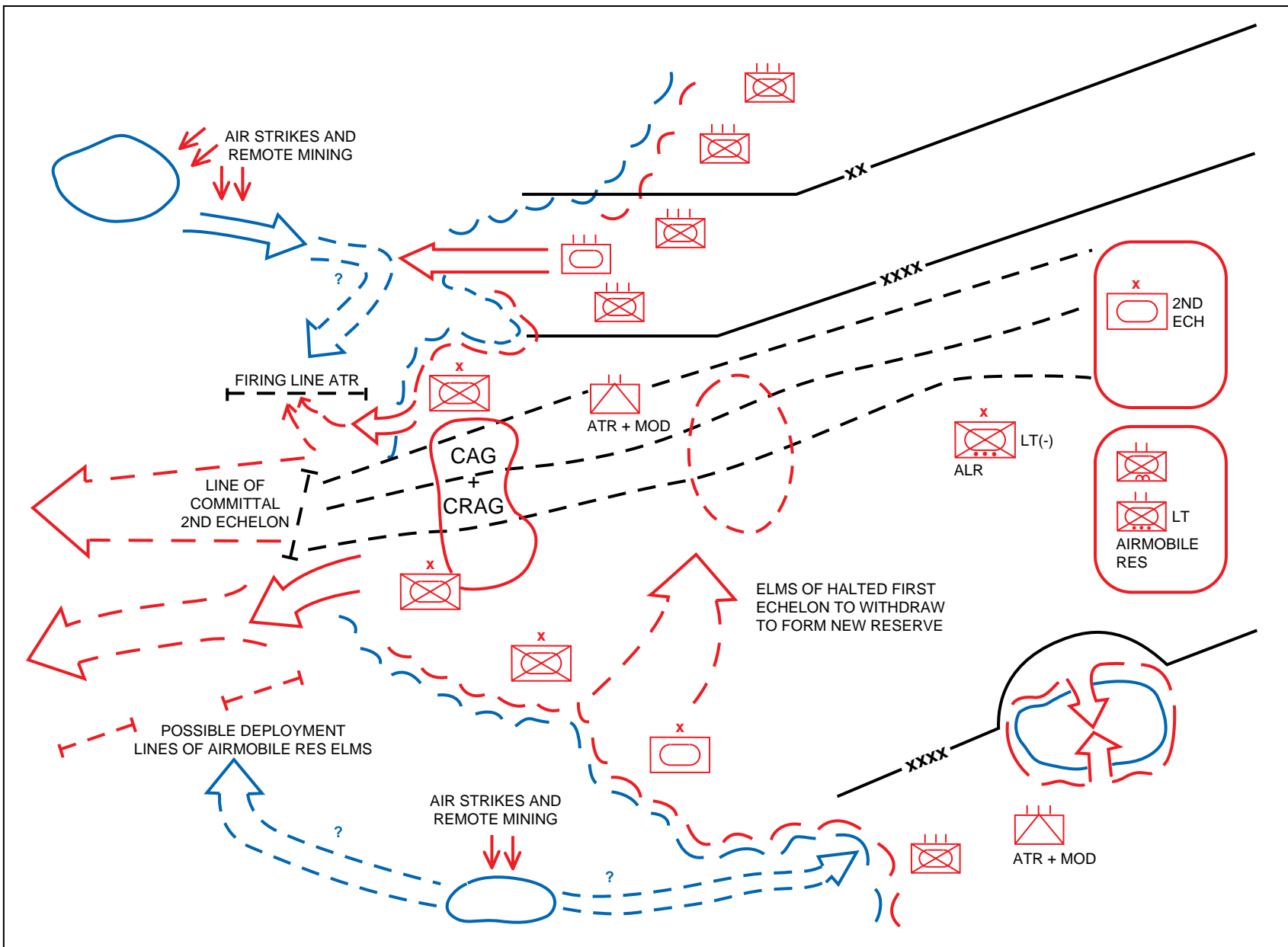
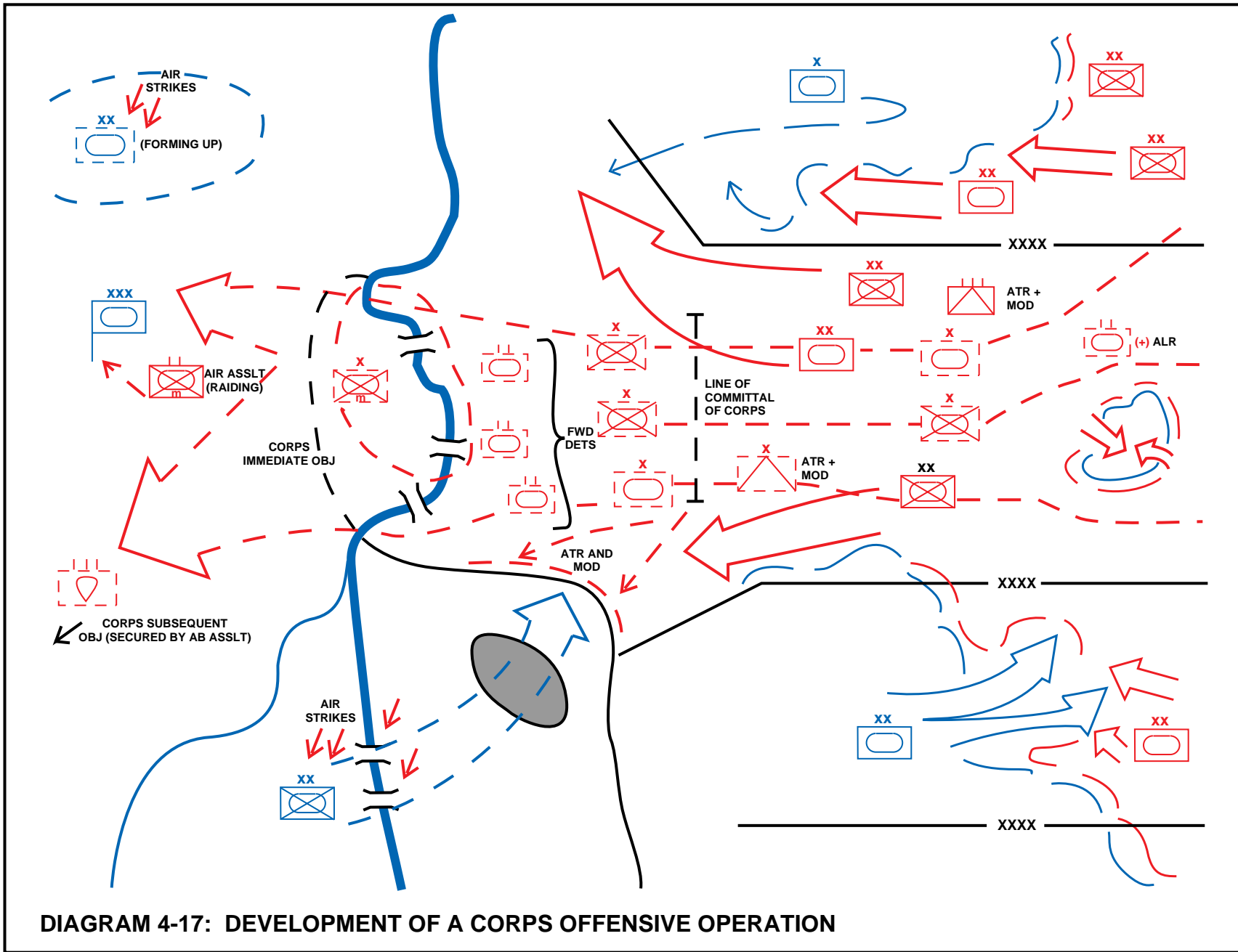
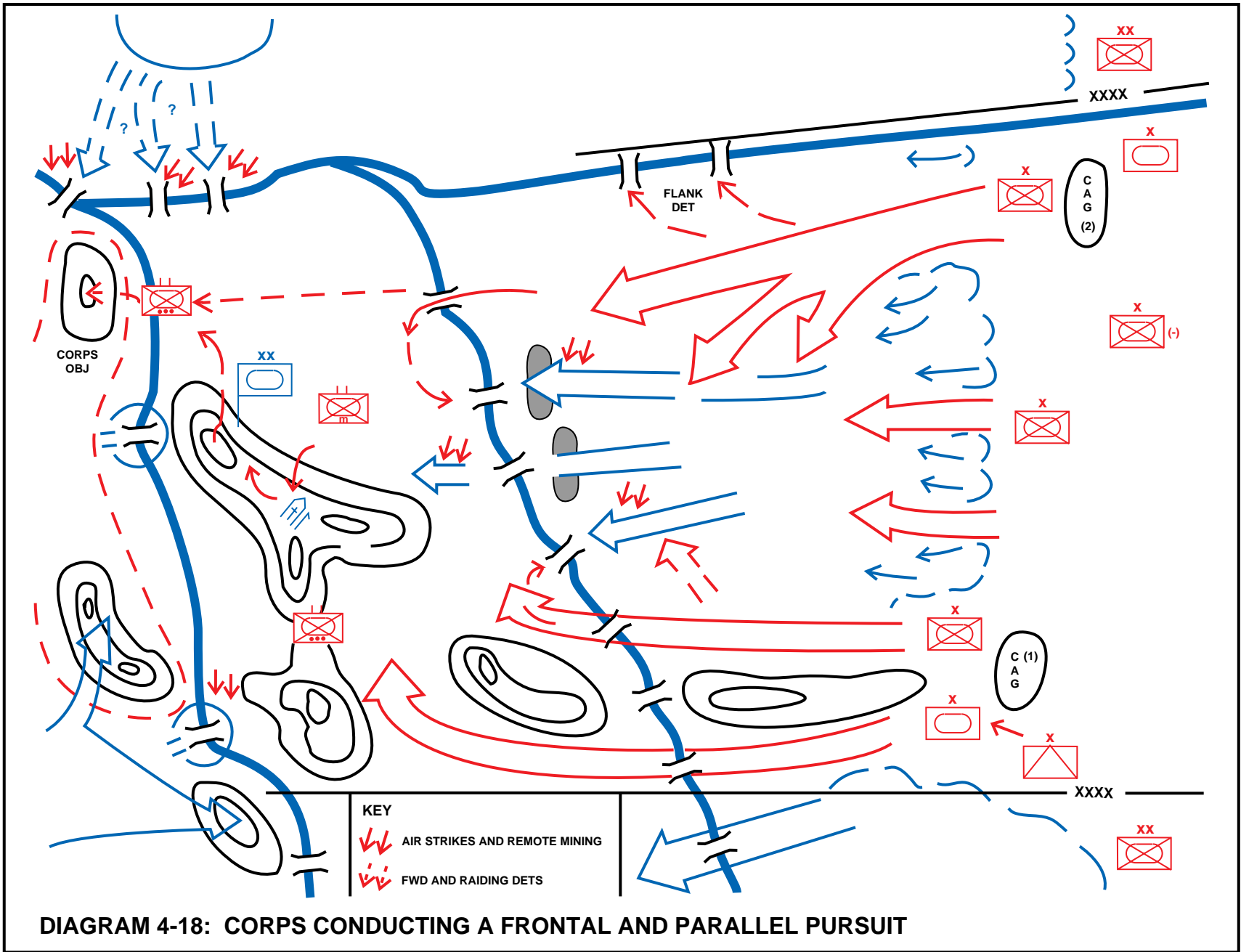


DIAGRAM 4-16: COMMITMENTAL OF A CORPS SECOND ECHELON OR OMG





Developing the Offensive into the Depth

0438. *Developing Deep Battle and Operations.* For strategic goals to be achieved in good time, it is necessary from the earliest moment to develop deep battle, using forward, raiding and heliborne detachments, and then, as a result of successful tactical manoeuvre, to conduct deep operations with OMGs working in concert with air and airborne assault forces. Diagram 4-16 illustrates the committal of a corps second echelon or OMG and Diagram 4-17 portrays the desired development of a corps operation as a whole. There will be five major problems in executing operations in the enemy depth, these being dealt with in the following paragraphs.
0439. ***Destroying Enemy Reserves and Repelling Counter-Blows.*** Enemy reserves will be used wherever possible to deliver counter attacks (strikes). In circumstances less favourable for the enemy, they will be employed to reinforce the defending first echelon on critical axes or to occupy intermediate lines of defence. The counter blow poses the most difficult problem as it represents an enemy effort to regain the initiative. Approaching enemy reserves should be delayed, disrupted and damaged by air attacks and then by long-range artillery and RDMs. First echelon forces, or perhaps an OMG, should then destroy them in meeting engagements if force ratios will allow, or they should be blocked by strong anti-tank reserves, MODs and flank detachments. If, however, the enemy enjoys too great a superiority and/or is the victor in a meeting engagement, it will be necessary to transition to the defence. In that case, it may be necessary to switch the axis of main effort, for nothing must be allowed to prevent deep penetration. The second echelon, or elements of it, may be committed to destroy the enemy counter blow and resume the offensive. GENFORCE sees a considerable role for MODs and, particularly, remote mining in breaking up the cohesion of counter blows and reducing their tempo to a crawl.
0440. ***Pursuit.*** Pursuit is seen, and taught, as a separate and decisive phase of war. Given that 60-80% of the duration of an offensive may well be spent in pursuit, this seems sensible. The purpose of an offensive is not merely to drive the enemy back but to destroy him so that he cannot reinforce, reorganize and continue the struggle. Encirclement and pursuit are the two basic methods of completing the elimination of a grouping. There are three basic elements in pursuit, illustrated in Diagram 4-18: frontal pursuit is conducted vigorously by a portion of the army or corps to prevent the enemy from disengaging and to slow him down by forcing him to deploy not just rearguards but elements of the main body. The attacker's main body will conduct parallel pursuit, moving on routes parallel to the withdrawing columns with the aim of overtaking them and of delivering flank attacks to split the enemy force into isolated groupings for destruction in detail. Meanwhile, blocking forces of forward detachments, heliborne and even airborne forces are sent ahead to seize defiles and/or obstacle crossings which the enemy needs to escape or over which enemy reinforcements may arrive. Remote mining is seen as a potent means of slowing the enemy withdrawal and bolstering the strength of blocking positions. Strong flank detachments and/or anti-tank reserves may also be necessary to prevent the disruption of the pursuit by approaching enemy forces, eg, from sectors which are quiet or on which less success has been achieved. Pursuit is centrally

organized, but its execution is decentralized (as are resources, such as artillery). It should be planned for in advance, for precious time, of incalculable advantage to the enemy, will be lost if there has not been prior identification of routes for withdrawal and the advance; the issue of an outline plan for combat organization and the scheme of manoeuvre and the formation ahead of time of forward and heliborne detachments will be pre-planned. Reconnaissance, and for that matter, counter-reconnaissance efforts have to be intensified for a pursuit to be successful. The early detection of a withdrawal, difficult if it is deliberate rather than forced, is also important, both to avoid the enemy stealing a march (literally) and to escape the danger of precision attack, for which withdrawal may be a precursor: warning indicators are looked for, such as the rearward shift of logistic elements, the preparation of obstacles and demolitions in depth, the overall diminution of fire across the front (but with local intensification), and the preparation of local counter attacks. Commanders at all levels are required to initiate pursuit immediately on detecting an attempt to withdraw, informing higher headquarters as they do so: it is an occasion when the exercise of initiative without awaiting orders is mandatory. A pursuit is continued until the enemy is destroyed, or until terminated by the higher commander because the pursuing forces or logistic resources have become overstretched, or because the correlation of forces has changed for the worse as the result of the arrival of enemy reserves. A pursuit will often end with the seizure of an operational scale bridgehead over a major obstacle.

0441. **River Crossings.** Europe is criss-crossed with rivers and canals. Six 20m wide streams are found every 20km, a river up to 100m wide every 35-60km, one 100-300m in width every 100-150km and a major obstacle over 300m wide every 250-300km. The enemy will certainly use these to try to stabilize the situation, or at least to impose delay: historically, one third of the time spent in operations by tank armies was used up in forcing water obstacles. It is thus seen as very important, whenever possible, to pre-empt the establishment of defence along a river line through the use of heliborne or forward detachments at the tactical level and airborne units and OMGs at the operational. Following hard on the heels of a retreating enemy, the main forces will endeavour to crush the enemy against the obstacle, destroy him on the home bank and thus cross the river unopposed. Should an opposed crossing be seen to be inevitable, the decision for it must be made well in advance: combat missions are issued at least 1-2 days in advance of leading divisions or brigades reaching the obstacle so that combat groupings, engineer and air support, air and heliborne assaults and deception measures can be organized ahead of time. This is essential if the necessary speed and surprise are to be achieved and crossings are to be made from the march. Generally, a river line will be forced on a broad front, as this reduces the danger of vulnerable concentrations and traffic jams and so complicates the intelligence picture for the defender in the crucial early stages that he is unable to deploy his firepower and reserves to best advantage. Thus, all leading divisions will attempt to cross with at least two regiments, and each of those will, in turn, often attempt a crossing at two points. Similarly, brigades will try to establish 2-3 footholds. As soon as tactical footholds are seized, efforts will be made to link them up and deepen them into an operational-sized bridgehead. Ideally, formations will not pause to consolidate bridgeheads: rapid, onward progress is always of paramount importance. The enemy, however,

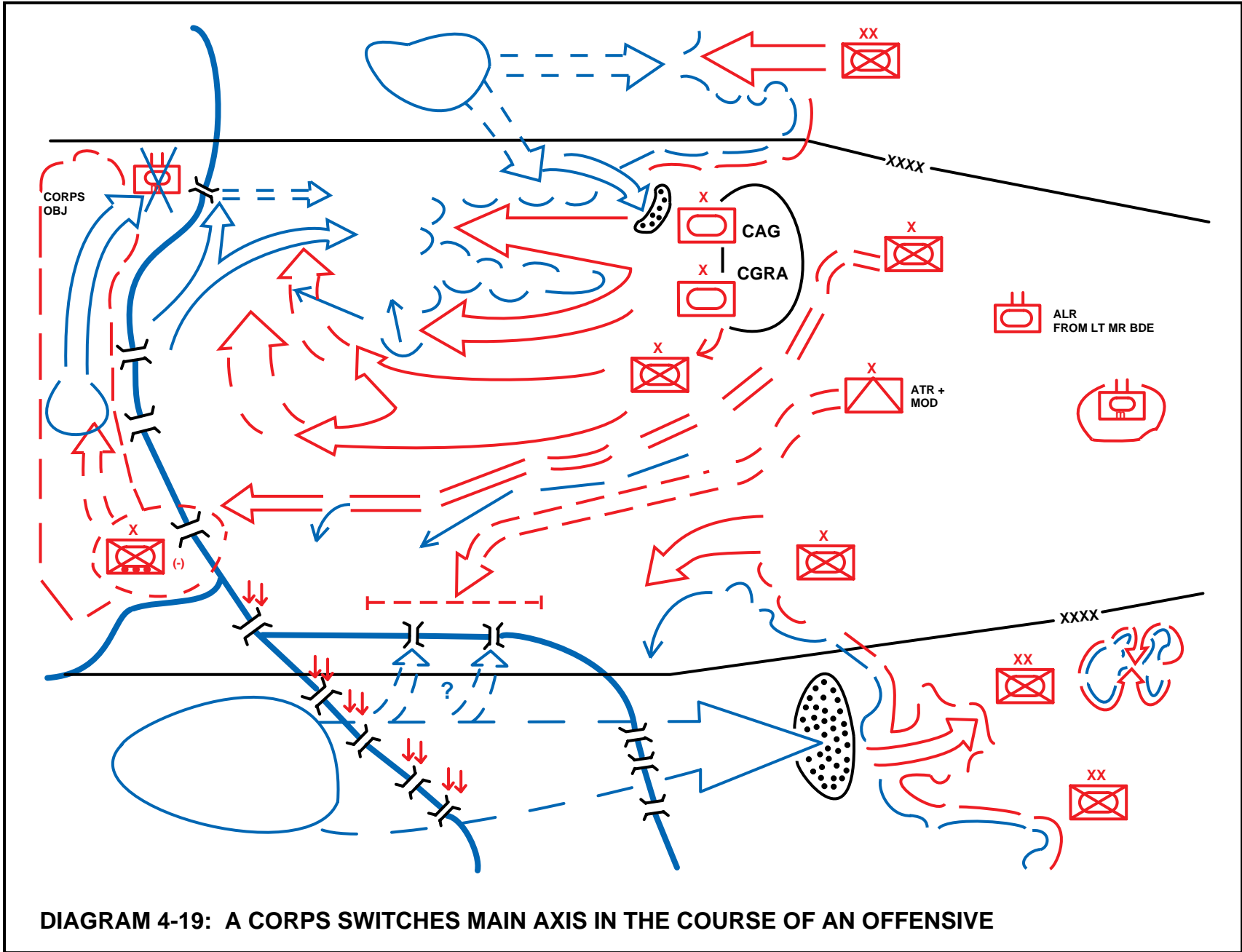


DIAGRAM 4-19: A CORPS SWITCHES MAIN AXIS IN THE COURSE OF AN OFFENSIVE

will often put up a determined fight for river lines, and heavy counter-attacks may often force formations onto the defensive to hold the favourable line gained for exploitation by subsequent echelons.

0442. ***Operations at Night or in Adverse Weather.*** Operations have to be continued round the clock to deny the enemy any breathing space and prevent his consolidation on new lines or the restoration of the defence. In practice, of course, combat in conditions of limited visibility is fraught with problems, even when troops are well supplied with TI and other night vision aids, and GENFORCE soldiers too need rest and time for equipment maintenance and resupply. Complex manoeuvres will have to be avoided. Lower formations and units will take turns to attack and to rest. Most offensive action will be restricted to exploiting gaps and weak spots where the enemy is in disarray, to seizing limited objectives which provide a favourable line for resuming full-scale offensive operations at dawn, and to raiding, air-delivered assaults and the actions of forward detachments. Full use will, however, be made of the hours of darkness for major operational moves and for regrouping. However, the committal of second echelons and OMGs may well take place at night, on the calculation that surprise and the enemy's lack of balance will offset the dangers involved.
0443. ***Reinforcement of Success.*** Success in developing the offensive will depend on the timely committal of OMGs, second echelons and reserves, on shifting the army's or corps' axis of main effort onto a different direction when resistance is too strong, and consequently on regrouping forces from less favourable axes. The underlying principle is the continual reinforcement of success and never of failure. Such a principle is actually seen as helping those formations that have run into trouble: the continuation of the advance will expose to attack the flanks and rear and lines of communication of a successful defending or counter-attacking enemy. The decision to switch a higher formation's main effort onto a new axis is made only on the instruction, or with the permission, of the SG commander. The resultant regrouping, it is stressed, must be both rapid and secret, quite possibly with attacks being continued on the former direction for deception purposes. Diagram 4-19 depicts a corps switch of axis.

Overcoming Manoeuvre Defence

0444. ***Destroying Manoeuvre Defence.*** An enemy who is prepared to trade space for time and the opportunity to wear down the attacker until he is ripe for defeat through a counter offensive will place half or even more of his forces in his second operational echelon. It is thus much more difficult to pre-plan the destruction of the main enemy grouping of manoeuvre forces. Its time and direction of committal and the concept for its use to seize back the initiative will be difficult to predict. There will therefore have to be a much greater reliance on improvisation during the course of the operation. This must not, however, be unprepared and belated or the initiative will be lost. It must be based on foresight, on a sound appreciation of all the courses open to the enemy and consequently on one of a number of pre-prepared concepts for the development of the operation in the depth. There are three keys to success in overcoming a manoeuvre defence.

- a. *Early Conduct of Deep Battle and Operations.* Capitalizing on the relative ease of generating tactical manoeuvre early thanks to low enemy force density, deep battle can be started ab initio with forward and raiding detachments (including air delivered elements) to destroy the enemy's tactical level deep fire means, EW and reconnaissance on which the stability of the defence depends. Initially, friendly strikes in operational depth will perforce be confined to missile, air, electronic and SPF actions. The early use of air assault and airborne forces in the deep rear would be suicidal in the face of strong, uncommitted reserves. However, they will be used as soon as operational manoeuvre forces are approaching the point where an early link up will be assured, and this should happen sooner rather than later as OMGs can be inserted more or less at the start of the operation.
- b. *Early Destruction of the Enemy First Echelon.* The comparative weakness and overextension of the first echelon makes it potentially vulnerable to defeat in detail before the second can try to recover the initiative. From the outset, forward detachments and air landing forces can be used to break up the cohesion of the defence and isolate elements for destruction in encirclement. They will be aided in this by the use of remote mining to prevent enemy delaying forces from breaking contact and executing timely withdrawals. A few such successes will make possible a general advance all along the sector of the offensive against a fragmented enemy who is retreating rather than conducting a balanced, manoeuvre defence. Vital to success in this endeavour is the driving of a wedge between the enemy's first and second echelons so that the latter cannot come to the timely rescue of the former. This is accomplished by interdictory deep strikes and the extensive use of forward detachments and OMGs operating in conjunction with air landed forces seizing defiles, crossroads, obstacle crossings etc. The isolation of the first echelon and its destruction through a vigorous, round-the-clock pursuit will then leave the second facing multiple threats with inadequate resources.
- c. *Attack Across a Broad Front.* Penetration and advance on multiple axes, with formations operating within supporting distance of their neighbours, is seen to present the enemy with a considerable problem in his employment of his second operational echelon. In his attempt to concentrate superior forces for a counter blow against one or two of such axes, the enemy will expose himself to the threat of flank or rear attacks by formations advancing on the others and by air delivered groupings. The elements targeted for the counter blows can transition to defence if force ratios require it and act as anvils on which the enemy can be fixed and destroyed by the enveloping force's hammer.
- d. *Flexibility and Initiative.* Commanders at all levels must display foresight and be prepared to take responsibility for decision making in the face of a rapidly changing situation. Fleeting opportunities must be seized and risk taking encouraged, but balance retained to cope with suddenly appearing danger. Units and formations must be prepared for speedy changes from one type of action to another (eg, attack to either defence or pursuit) and for shifts in axis and sometimes in mission. Diagram 4-20 illustrates a corps' concept for the conduct of an offensive against manoeuvre defence.

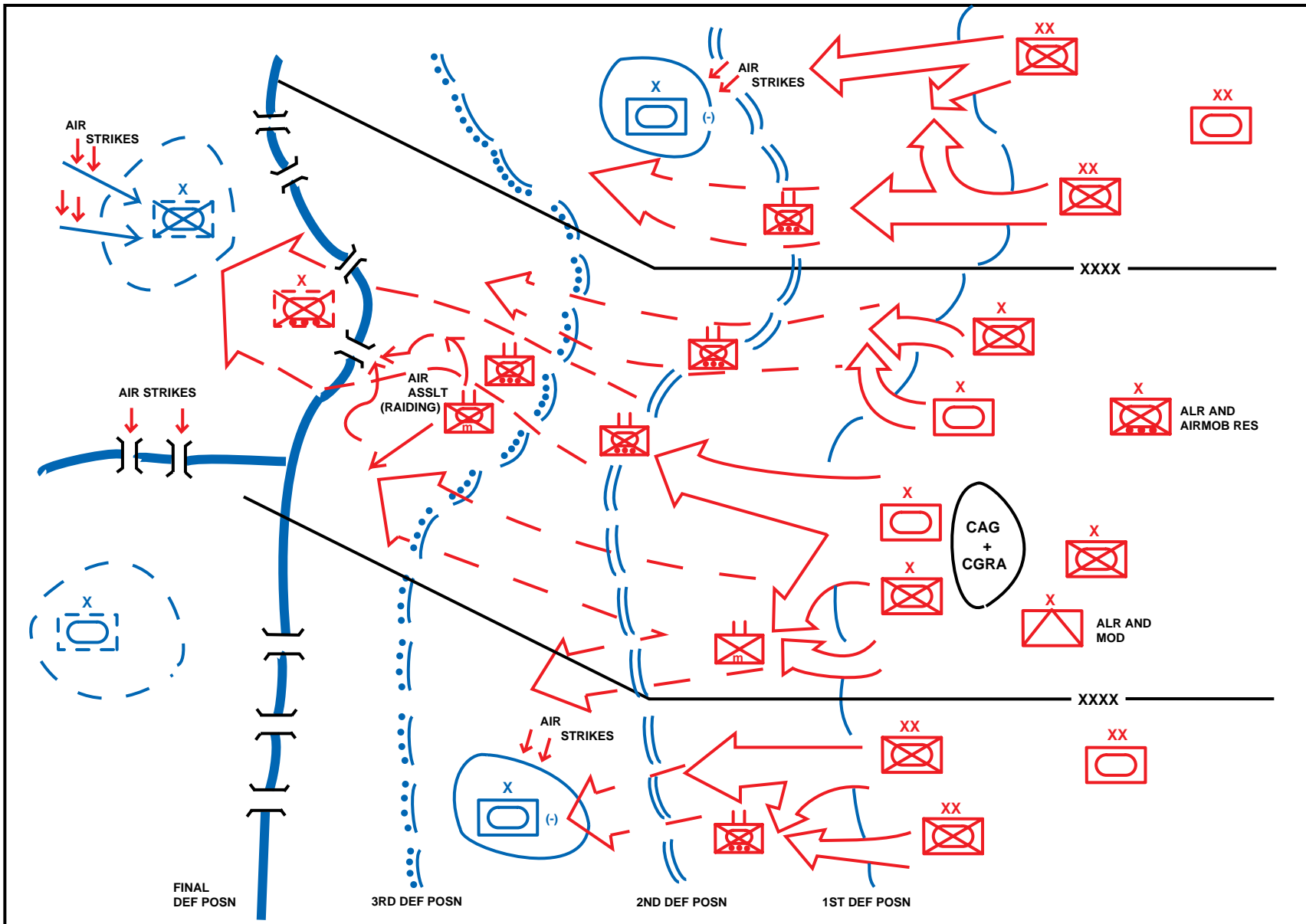


DIAGRAM 4-20: CORPS CONCEPT OF OPERATIONS AGAINST MANOEUVRE DEFENCE

SECTION 6 - MEETING ENGAGEMENTS

The Nature of Meeting Engagements

0445. **Definition.** A meeting engagement is a clash between opposing sides when they are both simultaneously striving to fulfil their assigned missions by means of offensive action. The goal of such a combat is to rout the enemy rapidly, seize the initiative and create advantageous conditions for subsequent operations.
0446. **Occurrence.** Meeting engagements may occur during the course of a march, especially in the initial period of war when the enemy has been surprised and is still in the process of deployment when the blow falls. They may also take place during the course of an offensive, when exploiting a breakthrough, in pursuit, or when dealing with counter attacks (strokes). In defence, they may occur during counter blows or when dealing with enemy air or sea assault landing forces. A meeting engagement is the preferred form of combat action compared with a penetration operation, and often, too, compared to a defensive posture. It is also likely to be the most characteristic form of combat in future war. If however, operational aims can be achieved without combat, by manoeuvre, then of course a meeting engagement will be avoided. The GENFORCE does not move in order to fight. It fights in order to be able to move.
0447. **Characteristics.** In many ways, the meeting engagement is the most difficult, demanding and unpredictable form of combat. It is characterized by:
- a. *Shortage of Time.* There will be only limited time to organize for combat. To take an extreme example, if both sides are advancing at, say 20km per hour, the closing speed will be 40km per hour, so even an initial separation of, for example, 80km will leave only 2 hours for the commander to make a decision and transmit its content to his subordinates. This problem is exacerbated for both sides by the fact that neither enjoys the advantage of choosing the time or place of the engagement. Formations and units will often have to be committed from the march, though it is also possible that they will already be in pre-battle formation.
 - b. *Obscurity of the Situation.* With limited time for reconnaissance, forces will usually enter combat on the basis of limited information. Once battle is joined, there will be frequent, abrupt changes in the situation as both sides will be acting aggressively in conditions where there is no continuous front.
 - c. *Struggle for the Initiative.* The essence of the meeting engagement is an intense struggle to win time and seize the initiative. The winning side will be the one which imposes its will upon the enemy, forcing him into a reactive posture. The struggle for the initiative begins well before the main forces actually clash. The engagement will start with air attacks, long range artillery fire and the use of heliborne forces and forward detachments.

- d. *Fluid Battlefield.* The engagement will develop on a wide front and in considerable depth: historically tank armies with upwards of 500 tanks and 1,500 guns and mortars found the struggle extending over a frontage of up to 60km and lasting from one to three days. This is a consequence of each side trying to gain advantage through manoeuvre against the flanks and rear of the enemy, combined with the endeavours of both to deploy their maximum first echelon strength in delivering the initial blow. Inevitably, there will be exposed flanks and gaps in combat formations, and these will create opportunities for manoeuvre.
- e. *Decisiveness.* The losing side, outflanked and/or penetrated frontally, with its command and control disrupted and lacking prepared positions to fall back on, will find transition to defence very difficult. It will probably be rendered combat-ineffective as a result of heavy losses and fragmentation.

The Conduct of Meeting Engagements

0448. ***Conditions for Success.*** There are several principles for the conduct of meeting engagements which, properly observed, will enable an equal, or even somewhat weaker force to triumph:

- a. *Reconnaissance.* Constant, aggressive reconnaissance is required to detect and monitor the size, composition, order of march, speed of movement and deployment of the enemy grouping: especially important targets for reconnaissance are, of course, enemy RFCs/RSCs and other high value weapons. Good and timely intelligence is the basis of a correct decision by the commander and thus the key to seizing the initiative.
- b. *Pre-Emption.* The seizure of the initiative, being the first to deliver air strikes, open artillery fire and deploy the main forces is considered to be of fundamental importance. This puts a premium on careful organization of both operational and march formation. There will be no time to regroup prior to a meeting engagement, so the order of march will be the order of deployment and committal.
- c. *Commander's Decision.* The commander must make a timely decision if the enemy is to be forestalled and the initiative seized. It is not permissible for commanders to wait until the situation is clarified before adopting a decision, for that would allow the enemy to deliver the first blow and deploy earlier.
- d. *Manoeuvre.* Swift manoeuvre is essential: to forestall the enemy in the occupation of advantageous ground; to concentrate a decisive superiority on the main axis; to deliver surprise attacks into the flanks and rear of the enemy grouping; and to exploit weak sectors in the enemy's deployment.
- e. *Security.* Flank detachments, anti-tank reserves and MODs assume an important role in meeting engagements, providing security against enemy attacks without diverting elements of the main forces and thus weakening the force of their blow.

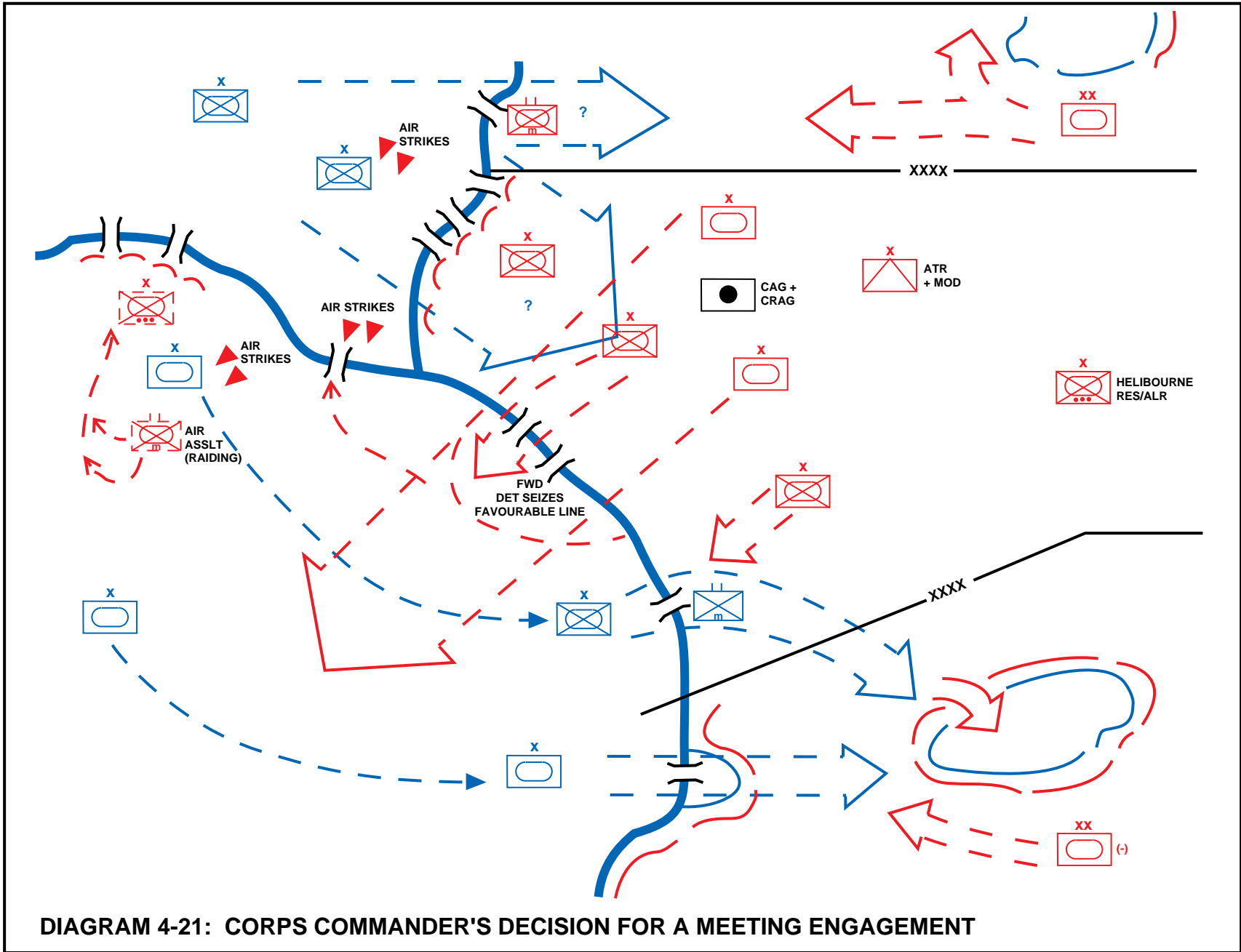


DIAGRAM 4-21: CORPS COMMANDER'S DECISION FOR A MEETING ENGAGEMENT

- f. *Command and Control.* Firm, uninterrupted troop control and constant coordination, forward command and the exercise of initiative by subordinate commanders are all seen as being of crucial importance.

0449. ***Conduct of Meeting Engagements.*** The engagement opens with air and missile strikes on the approaching enemy grouping. Meanwhile, air delivered assaults and often large forward detachments act far in advance of the main forces to seize key terrain such as defiles, obstacle crossings, and dominating features. As their success will ensure favourable conditions for the committal of the main forces, the commander will pay considerable attention to their efforts and he will provide them with prompt support. The concept for the engagement will usually be one of rapid and bold manoeuvre to strike the enemy on one or both flanks and/or his rear, these blows being accompanied by pinning frontal action. It is also possible, when the enemy's front is over-extended, to deliver frontal attacks into the gaps between enemy columns and split the enemy grouping into isolated fragments. While the destruction of the enemy first echelon is being accomplished, the approach and committal of his second echelon is delayed and disrupted by air and long range artillery strikes and perhaps by heliborne assaults. Diagram 4-21 illustrates the decision of a corps commander for a meeting engagement.

CHAPTER 5

OFFENSIVE BATTLE

SECTION 1 - TERMINOLOGY AND TACTICAL FORMATION

Terminology Used in the Offensive

0501. **General.** GENFORCE makes use of some terminology that does not exist in the British military lexicon and some other terms have different connotations. It is important to understand the distinctions.
0502. **Types of Attack.** GENFORCE defines types of attack in terms of the enemy's tactical posture.
- a. *Attack from the Line of March.* Such an attack is executed by a force which has not been in direct fire contact with the enemy beforehand. It is mounted against a defending enemy, usually from an assembly area in the depth but it is increasingly likely to happen unexpectedly in the fluid conditions of future war. In either case, there is no pause in a Forming Up Area (FUP). The troops flow directly from march into pre-battle and thence battle formation. Section 3 goes into detail.
 - b. *Attack from a Position of Close Contact.* This attack is conducted by a force already in close contact with the enemy. In the era of positional warfare, when opposing forces faced each other from defended positions and one went over to attack, this was the most common form. GENFORCE believes it will be less frequent than attacks from the march in future war, when manoeuvre will predominate. On tomorrow's battlefield, it will most likely occur when a force that has failed in an attack from the march is ordered to renew the attack. See Section 3.
 - c. *Meeting Battle.* A meeting battle is an attack on an enemy who is also on the offensive. GENFORCE believes that this will be the most common form of combat on the manoeuvre-dominated, ever-changing battlefield of the next war. Section 5 examines this in detail.
 - d. *Pursuit.* This is an attack on an enemy attempting to withdraw.
 - e. *Attacks With and Without Detailed Preparation.* Both attacks from the line of march and from a position of close contact may be launched with or without detailed preparation. The former equates loosely with the British deliberate attack and the latter with the quick attack. Which approach is adopted will depend on the perceived strength, density, depth and engineer preparation of the defence.

0503. **Objectives.** As GENFORCE is usually concerned with destroying enemy forces rather than with seizing and holding ground, an objective normally equates to the British concept of a phase line. That is to say, a force that is still combat effective will not halt and consolidate on an objective unless specifically ordered to do so (as in the case of a forward detachment, for instance, or an advanced guard ordered to seize a dominant feature as a pivot for formation manoeuvre).
0504. **Direction of Further Advance.** A unit or formation may be given both immediate and subsequent objectives or only the former. It will almost always be given a direction of further advance along which offensive action will be continued. This ensures that momentum will not be lost by a halt on an objective.
0505. **Echelons.** When a formation or unit commander makes his decision for an attack, he divides his force into one or two echelons and reserves. Diagram 5-1 illustrates echeloning and the allocation of echelons to objectives.
- a. **First Echelon.** The first echelon is tasked with breaking through the enemy's corresponding first echelon as its immediate mission and developing the attack into the enemy's depth as its subsequent mission. Thus, for instance, if the commander of the tank division illustrated in Diagram 5-1 has been correct in his calculations, the first echelon battalions of the first echelon regiments will be able to penetrate through enemy forward companies as their immediate mission and to the rear boundary of enemy forward battalions as their subsequent mission. Table 5-2 expands on this theme. The aim is not the destruction of the entire corresponding echelon of the defence. Rather, it is to disrupt the defence, destroy its cohesion, split the enemy grouping into fragments and create the conditions necessary for the generation of tactical and ultimately operational manoeuvre.
 - b. **Second Echelon.** The second echelon receives its mission at the same time as the first, so it is able to do a substantial amount of pre-planning for the two or three options it will be given. This makes possible its rapid and timely committal. Of course, in future war, there will be many battles in which the obscurity and uncertainty of the development of a battle will preclude such prior tasking. In these situations, a second echelon will be eschewed in favour of a combined arms reserve (see paragraph 0506a.) Its role is to develop the success of the first echelon (usually on the main axis). GENFORCE sees the second echelon as reinforcing the efforts of the first once space for tactical manoeuvre has been created: the first echelon continues to advance even after the second is committed. That is to say, the second echelon does not replace the first unless the battle is going badly wrong. If such a need arose, it would imply that three cardinal errors had been committed by the GENFORCE commander: ie, he had fought the first echelon to a standstill, had allowed a loss of momentum and reinforced failure. If elements of the first echelon fail on the main axis, the second may have to undertake radical replanning for committal in an unanticipated sector, but this will be accepted in order to realize the principle of reinforcing success rather than trying to redeem failure. The second echelon will be prepared to fill one or more of the following roles: breach defended zones in the enemy's depth; destroy by-passed islands of

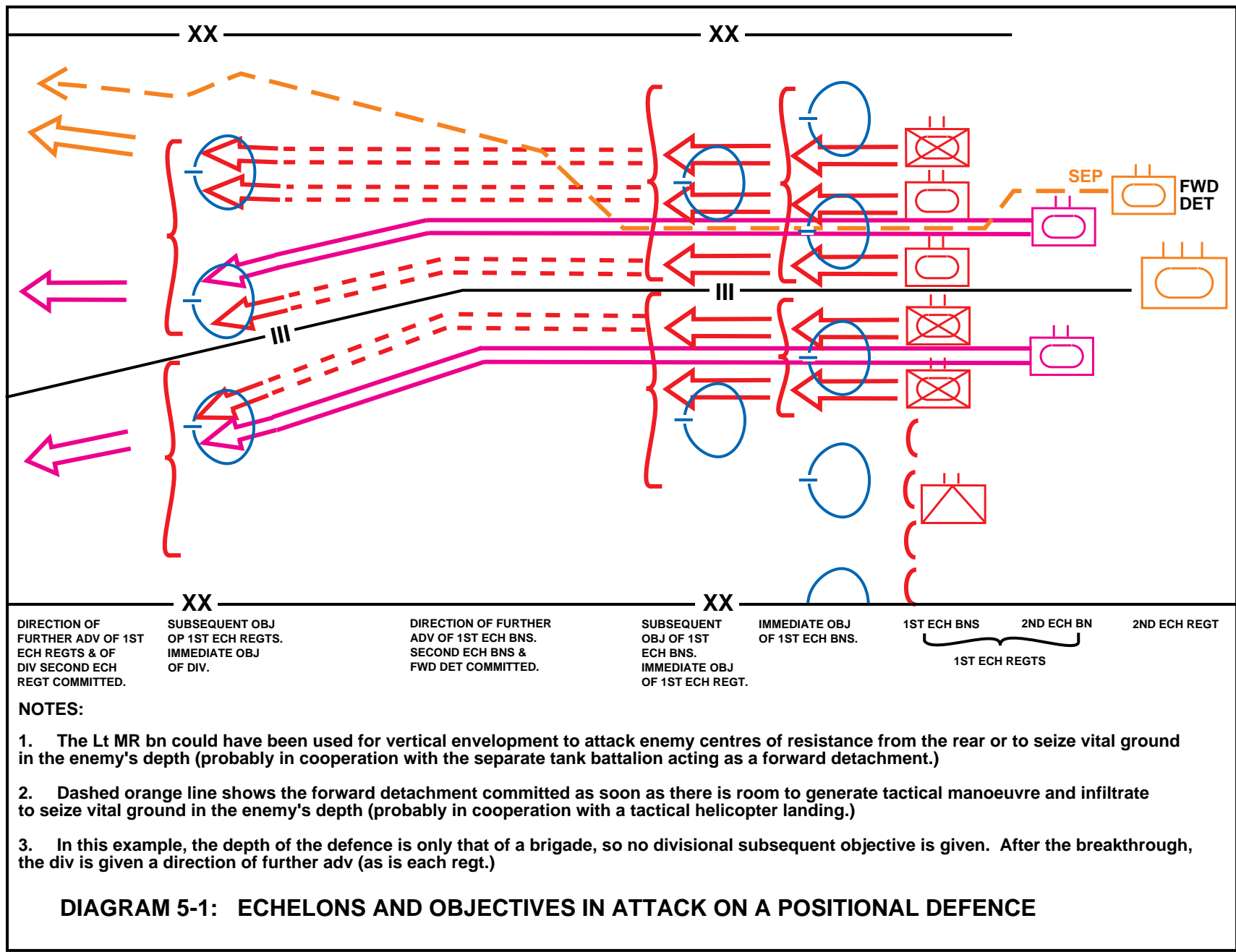


DIAGRAM 5-1: ECHELONS AND OBJECTIVES IN ATTACK ON A POSITIONAL DEFENCE

resistance which threaten the development of operations by restricting deployment and limiting the flexibility needed by the senior commander; defeat counter attack groupings, preferably in meeting battles through flank and rear attacks; conduct pursuit.

- c. *Exploitation Echelon.* At the tactical level, the role of an exploitation echelon is to build on early success and create conditions for further success. Through the conduct of tactical manoeuvre, it will aim to crumble the defence from within, attacking key forces and areas to destroy the cohesion and viability of the defence. It will thus help to pave the way for the subsequent committal of operational level exploitation forces (OMGs - operational manoeuvre groups) which will convert tactical into operational success. Opportunities to employ exploitation forces, particularly early in a battle will be most common when surprise has been achieved. In turn, such groupings will prolong and deepen the destabilizing effects on the defence which are the consequences of being surprised. They will thus do much to help achieve and thereafter maintain a high tempo in the advance and attack. There are four types of tactical exploitation echelons.

- (1) *A Raiding Detachment* is a battalion-sized combined arms force which is inserted, always at the earliest possible moment, and preferably covertly, into the enemy's depth. It is tasked with the destruction, or at least disruption, of elements essential to the stability of the defence. Examples are: component parts of RSCs and RFCs; headquarters; helicopter and forward air operating sites; air defence radars and weapons; EW assets; artillery (especially MBRLs); logistic areas. A raiding detachment may divide into reinforced company sized raiding groups, or individual reinforced companies may be detached from the first or second echelon to form such a group.
- (2) *A Forward Detachment* is usually organized at divisional, brigade or OMG level. Like the raiding detachment, it is usually a combined arms battalion, but unlike the former, its role is to seize ground of tactical or operational-tactical importance, ie terrain features which, if secured before the enemy can defend them properly, will make it possible for the main forces to maintain momentum and conduct manoeuvre. Examples are: dominant features; defiles; obstacle crossings; road junctions. It is also possible that a forward detachment may be used to engage enemy reserves to prevent them from influencing the main battle. Given the nature of its mission, the forward detachment is inserted through a gap opening or deliberately created in the enemy's combat formation and it advances ahead of the parent formation, manoeuvring where possible to avoid battle, until it arrives intact on its objective.
- (3) *Outflanking Detachments or Groups* are combined arms battalion or company groupings formed at division/brigade or regimental level. Their mission is to exploit an open flank of an enemy force to assist in its destruction by attacking into its flank or preferably rear. Thus, its actions are generally in shallower depth compared with raiding or forward detachments.

- (4) *Air Echelon*. GENFORCE sometimes refers to airmobile or air assault elements as an air echelon. These can be employed in any of the above roles, especially where the strength and depth of the defence makes the insertion of combined arms detachments or groups difficult and/or when time is critical. It is also very common for an air echelon to be employed in cooperation with a ground detachment.

0506. **Reserves.** The difference between an echelon and a reserve as far as GENFORCE is concerned is that reserves do not receive specific missions when a battle is planned. They are created with an eye to: increasing the offensive effort; reinforcing or even replacing elements of the first echelon; undertaking missions unforeseen (save in very general terms) that always arise, often suddenly, during the course of an operation. GENFORCE forms six different types of reserve, though not all may be created for every battle.

- a. *Combined Arms Reserve*. Where a second echelon is formed, there will usually be no combined arms reserve at the tactical level. On the other hand, if a battle is likely to develop in a highly fluid, unpredictable fashion, the commander is likely to dispense with a second echelon and instead create a combined arms reserve. This could well be the same size as a second echelon would have been. It will differ from the latter in not being pre-tasked as its mission is essentially unforeseeable. This would be the case, for instance, in attacking an enemy conducting a manoeuvre defence or in pursuit. There is one invariable rule, however. Whenever he has committed all his manoeuvre forces to battle, the GENFORCE formation commander is enjoined to recreate at least some sort of combined arms reserve, however small, so that he can still exploit the results of fire strikes and influence the course of the battle.
- b. *Airmobile Reserve*. Even at the higher tactical level, it is usual to form an airmobile reserve. This will almost always be the divisional or brigade light motor rifle battalion or elements thereof. This may be used to: seize vital ground in the enemy's depth; execute raids; conduct vertical envelopment against a stubborn centre of resistance; help to counter enemy air-landings; form, or reinforce a flank detachment or group.
- c. *Anti-Tank Reserve (ATR)*. These are automatically formed at formation and often at unit level to repel counter attacks and/or provide flank security. They also have some capability for dealing with enemy air landings. They are usually based on anti-tank units which, now that they have MR, artillery and air defence assets, are capable of operating independently. (The artillery component is particularly significant not merely because it can separate infantry from tanks but also because it can deliver RDMs and laser-homing anti-tanks rounds). Where a threat is deemed to be great, they may, however, be reinforced by further elements as appropriate. The ATR provides an economy of force grouping that can deal with developing armoured threats without having to weaken an attack echelon or combined arms reserve and thereby compromise its viability.

- d. *Mobile Obstacle Detachment (MOD)*. These are engineer groupings with rapid minelaying, ditching and other obstacle creating means. Each ATR is supported by a MOD (which comes under its command). Other MODs may also be formed to help to prepare positions for a transition to the defence during the offensive by elements of a formation.
- e. *Anti-Landing Reserve (ALR)*. The enemy will, like GENFORCE, mount airmobile and air assault raids on deep fire resources, HQs etc and may attempt to disrupt the actions of second echelons/reserves with air delivered forces. To cope with such threats, all formations create an ALR to deal with those elements that succeed in penetrating air defences. The ALR will be supported by artillery within range and any fixed wing and/or rotary wing aviation and perhaps the airmobile reserve as well to eliminate the landing before it is properly organized on the ground. If resources are scarce, a second echelon or combined arms (or even anti-tank or airmobile) reserve may be “double-halted” as an ALR, though GENFORCE dislikes this practice as committal will create an important gap in tactical formation, often at a critical period.
- f. *Special Reserves*. GENFORCE formations usually create reconnaissance, air defence and engineer, chemical defence and medical reserves. These are usually employed to reinforce efforts on the main axis and/or to cope with unforeseen problems. Often, at least elements of such reserves will come from a higher formation.

0507. **Frontages**. In the advance and attack, GENFORCE distinguishes between the zone of advance and attack frontages.

- a. *Zone of Advance*. This is the area between formation, unit and sub-unit boundaries. The grouping does not necessarily fill the entire zone of advance and certainly does not deploy evenly within across it. Rather the boundaries define the area within which it may conduct manoeuvre, for instance to launch attacks on the enemy’s flanks or deploy exploitation forces.
- b. *Attack Frontage*. Groupings will concentrate onto narrow attack frontages within their zones of advance in order to achieve the necessary superiority to be able to penetrate to their assigned objectives. This will inevitably mean that not all elements of the defence will be destroyed in the attack. This is not believed to matter as the enemy will be disrupted and split into isolated fragments which will be of little more than nuisance value.

0508. **Artillery and Air Defence Groups**. GENFORCE anticipates that 80-90% of the casualties inflicted in future war in the tactical zone will be caused by artillery and aviation, so the correct deployment of artillery and air defence assumes a position of great importance. The combat grouping and control of both artillery and air defence will change as the nature of combat changes during the course of a battle or operation.

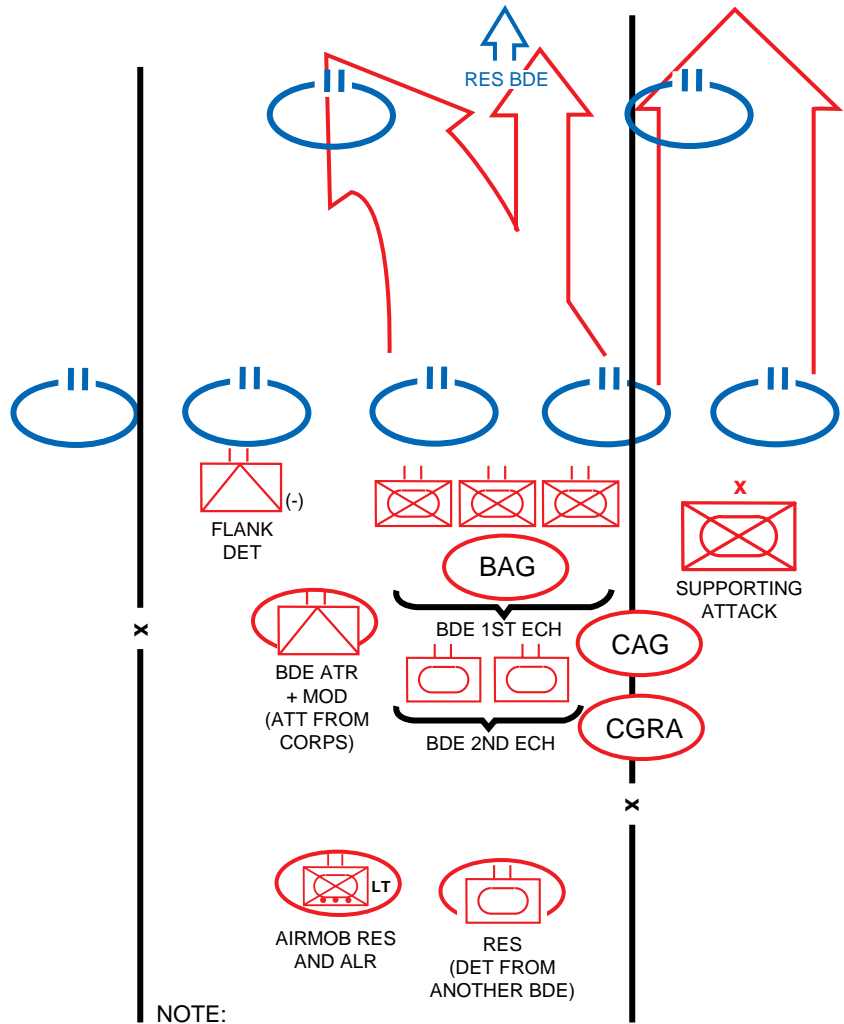
a. **Artillery Groups.**

- (1) *Army/Corps Groups.* Strong army/corps artillery groups (AAG/CAG) and rocket artillery groups (AGRA, CGRA) will be formed in the area of main effort of the higher formation. These will comprise organic long-range artillery and MBRLs augmented by others from SG heavy artillery and MBRL brigades. These groups will be deployed over considerable areas but their centralized, higher formation control ensures the concentration of fire on the main sector and the rapid manoeuvre of massed fire in support of the breakthrough and committal of operational second or exploitation echelons as well as the fulfilment of their priority mission, the winning of the deep fire battle which is critical to achieving fire superiority.
- (2) *Divisional/Brigade Groups.* Lower formations will be reinforced by extra medium artillery and MBRLs from army/corps and even SG resources if they are deployed on the main axis. This will be used, together with some organic resources to form divisional/brigade artillery groups (DAG/BAG). These will be very strong for penetration operations. After the committal of formation second/exploitation echelons, when combat will become more manoeuvre orientated, elements will be decentralized to reinforce manoeuvre units especially on the main axis. Such decentralization would be practised *ab initio* if attacking a delaying force or, to some extent, if attacking a defence only partially prepared. MBRLs and some medium artillery will always be held in a DAG/BAG, however, for the prosecution of the deep fire battle.
- (3) *Regimental Groups.* When attacking strong defences, a regiment will usually be reinforced by medium artillery from division. In manoeuvre combat, some artillery battalions will normally be put under command of manoeuvre battalions of regiments or brigades which are acting as the cutting edge.

- b. *Air Defence.* Strong air defence groups, capable of area and point defence, will be formed to protect deep fire groups, main combat groupings, HQ and logistic support against air, missile and heliborne attacks. Others will be formed to cover detached forces, choke points, likely LZs or to set up air defence ambushes. As operations become more mobile and spread over wider areas, some elements will be placed under command of manoeuvre elements which can no longer be covered by the umbrella provided by the main group.

0509. **Basic and Mobile Forces.** As explained in the Annexes to Chapter 1, GENFORCE has divided the army into these two types of forces. Much attention is paid to optimizing the use of each resource. Basic Forces' formations will generally be used to achieve the initial penetration against strong defences, to deliver feint or supporting attacks and to provide flank protection and/or reserves against counter attacks in the advance: the latter tasks can provide an offensive role for mobile machine gun-artillery divisions and regiments. They will also provide the pinning forces in manoeuvre operations, holding the enemy in place

a. MR BRIGADE



NOTE:

b. STANDARD MR DIVISION

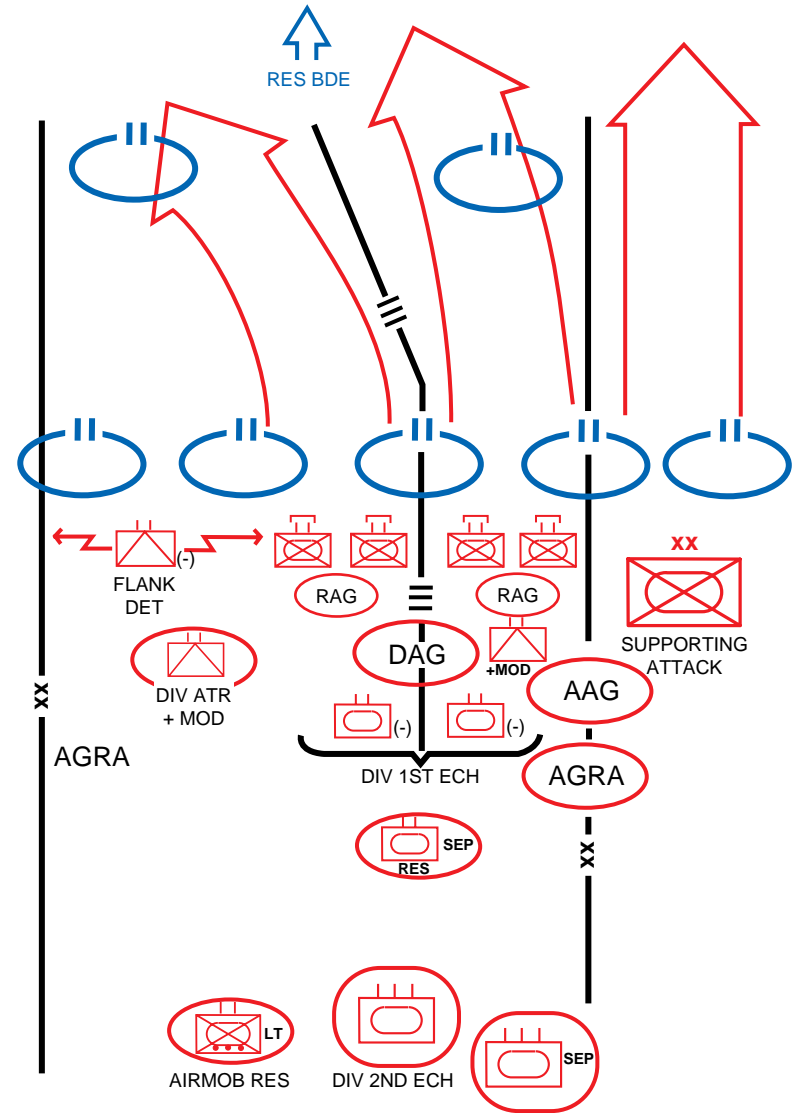
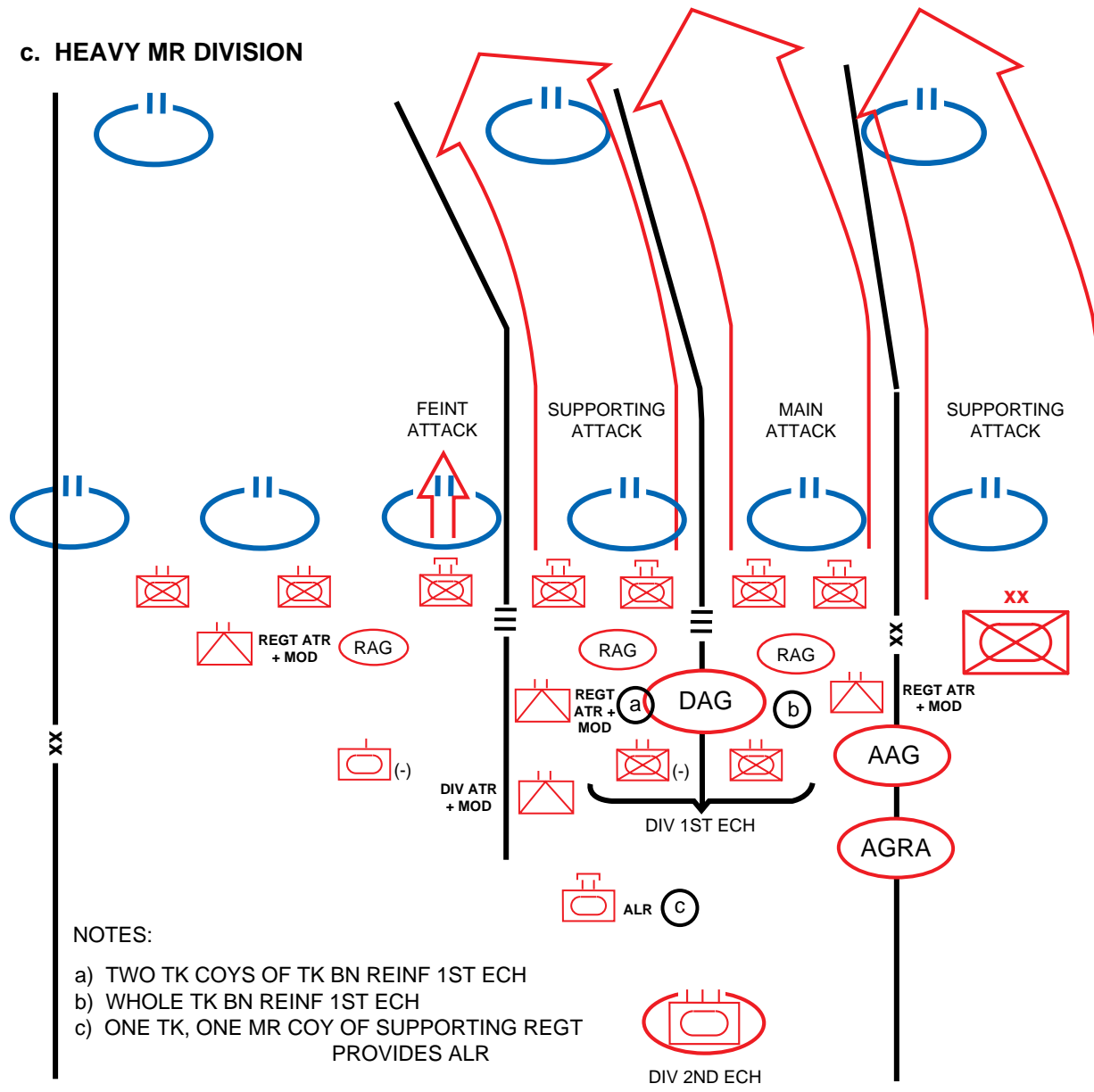


DIAGRAM 5-2: TACTICAL FORMATION AGAINST A PREPARED, POSITIONAL DEFENCE

c. HEAVY MR DIVISION



NOTES:

- a) TWO TK COYS OF TK BN REINF 1ST ECH
- b) WHOLE TK BN REINF 1ST ECH
- c) ONE TK, ONE MR COY OF SUPPORTING REGT PROVIDES ALR

DIAGRAM 5-2B

and providing a pivot for decisive manoeuvre by Mobile Forces to destroy the enemy. Mobile Forces' separate brigades and corps are usually used as exploitation forces to conduct deep battle and deep operations respectively. Of course, they are capable of fulfilling all roles, but their full potential is best realized in the manoeuvre role.

Tactical Formation

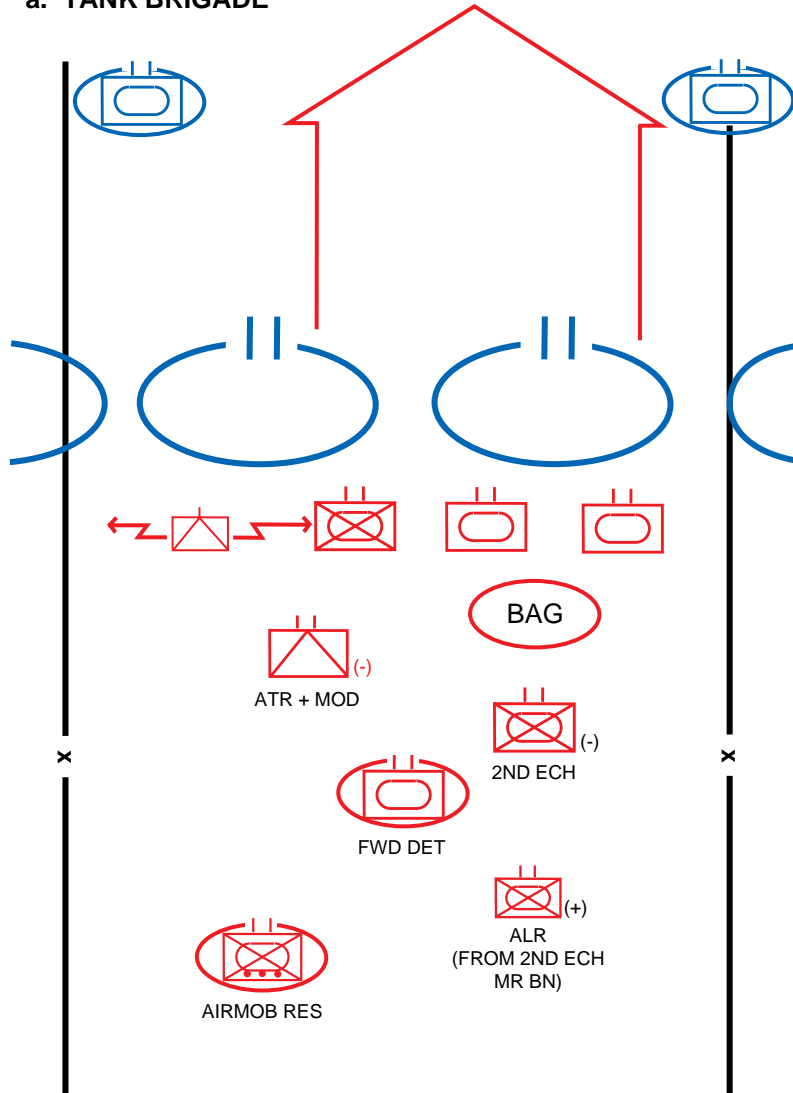
0510. **General.** Tactical formation is the term used by GENFORCE to describe the grouping adopted by a formation or unit for the conduct of a battle. It must: be in accordance with the senior commander's concept; secure a decisive superiority on the main axis; make possible the rapid reinforcement and manoeuvre of forces in the course of the battle; enable a rapid transition from one form of combat action to another; ensure uninterrupted command and control. It will include most or sometimes all of the following elements (at least at formation level): one or possibly two attack echelons; an exploitation echelon; a combined arms reserve; an ALR; an ATR and MOD; an airmobile reserve; special reserves; artillery and air defence groups. Rotary wing aviation and/or a number of fixed wing sorties may be allocated in support.
0511. **The Commander's Decision on Tactical Formation.** Along with his selection of the main and supporting axes (see paragraph 0518) the commander's decision on his tactical formation is the most important element in his decision. It must ensure a rapid penetration of the main enemy defences and an early shift in the focus of combat action into the enemy's tactical depth. The factors influencing this decision will be:
- a. The aim of plan for battle.
 - b. The strength, depth, density and degree of preparedness of enemy defences and tactical reserves.
 - c. The resources available, including any reinforcements from higher formation.
 - d. The nature of the terrain in the zone of advance.
0512. **Configuration Against a Prepared Defence.** GENFORCE does not anticipate penetration and breakthrough operations looming as greatly in its concerns in future war as they did in the past. However, the experience in liberating Kuwait in 1991 shows that they cannot be entirely relegated to the dustbin of history. A modern heavy division defending to a depth of 50-60km and with 20 or more major anti-tank systems per km of frontage will pose a formidable problem for attacking divisions or brigades. Accordingly, tactical formation will have the following characteristics (illustrated in Diagram 5-2).
- a. **Penetration Sectors.** These will be narrow at each level, and there will be only one per division or brigade. Often, formations will attack shoulder to shoulder to widen the higher formation penetration sector. Unit attack frontages and zones of advance may well more or less coincide until the immediate objective is reached, when the latter will widen to allow room for manoeuvre.

- b. *Echelonning*. From division or brigade level down to battalion, the main attack is likely to be delivered in two echelons to allow for the build up of combat power to defeat successive echelons of the defence. Motor rifle-heavy units and sub-units are likely to be used to lead the attack. On passive sectors and where feints or pinning attacks are launched, units may, however, be deployed in a single echelon.
- c. *Artillery*. Substantial reinforcement from higher formation will permit the creation of strong DAGs/BAGs and RAGs. This will allow for the concentration and manoeuvre of massed fires. Moreover, a penetration and breakthrough will be supported by large AAG/CAG and AGRA/CGRA.
- d. *Exploitation and Airmobile Elements*. Given the depth, density and stability of both ground and air defences, there will often be little opportunity for the early generation of tactical manoeuvre or vertical envelopment at the tactical level. Accordingly, there will be no forces earmarked *ab initio* for these tasks, though elements may be detached from second echelons or reserves for deep battle as opportunity offers. It is, however, more than likely that the resources for this will have to be found from higher formation. Lower formation light motor rifle battalions may well be double-hatted as ALRs in view of the small likelihood of their early use beyond the line of contact.
- e. *Anti-Tank Reserves*. ATRs may be used initially to screen wide passive sectors, thereafter moving through the breach to provide flank detachments or reserves. An extra ATR and MOD may well be provided from army or corps assets, though, to replace assets tied up in the screening role. When the defence is strong, armoured counter attacks are inevitable and ATRs will be needed to defeat them.

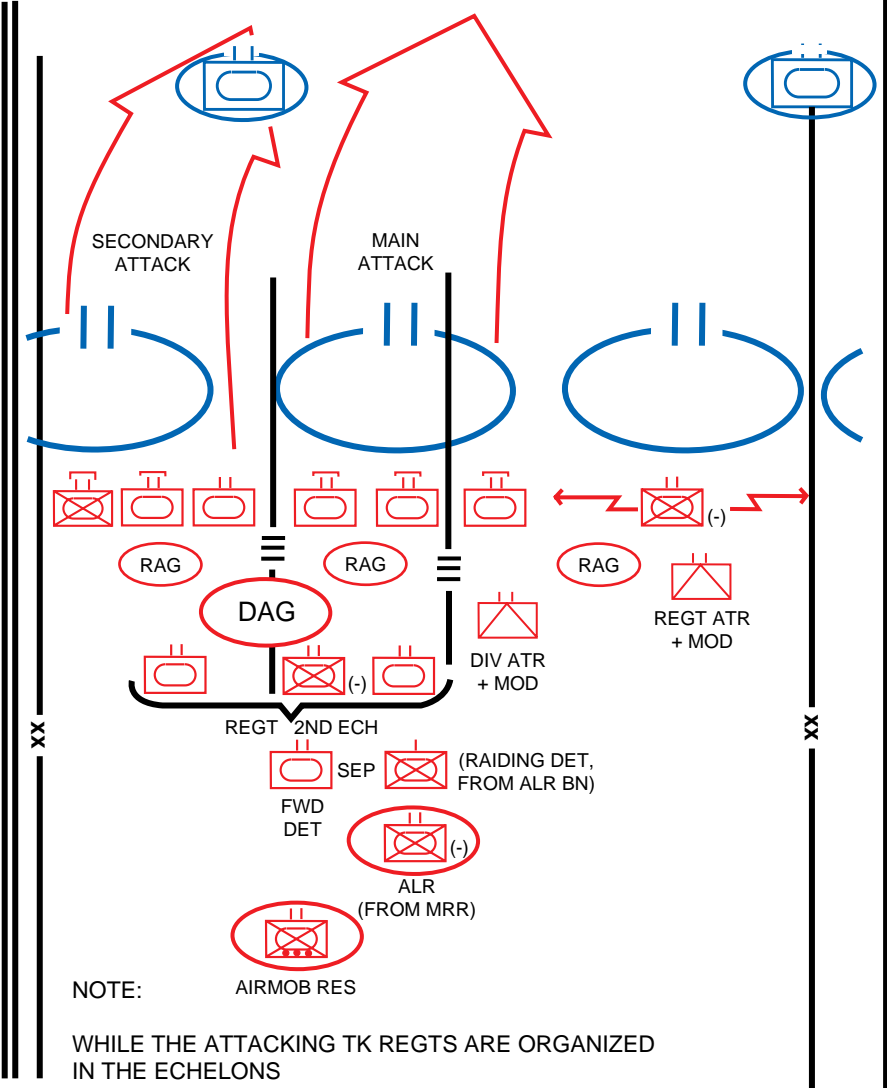
0513. ***Configuration Against a Partially Prepared Defence***. Penetration of a strong covering force or a main defensive area that is not fully manned and therefore lacks density and depth is an altogether easier proposition. The aim must be to capitalize on surprise by delivering the strongest possible blow before the enemy has time to prepare a parry. Having caught the enemy off balance, it is necessary to keep him in a purely reactive posture and prevent him from establishing a stable defence. Diagram 5-3 illustrates tactical formation against such a defence.

- a. *Attack Sectors*. It may be possible to break through on more than one sector, or at least to do so on a wider frontage where only one is used. Passive sectors may held by even thinner screening forces.
- b. *Echelonning*. A division is quite likely to deploy in a single echelon, though regiments will still generally form two. First echelon battalions may attack in one echelon where the defence is especially weak, but they, too, are more usually formed into two. Brigades will mainly deploy two echelons, as will their constituent battalions, though the second echelon will be smaller than in an attack on prepared defences. If the enemy not only lacks density and depth but has had little time to prepare positions, it is probable that the attack will be led by tank-heavy units and sub-units.

a. TANK BRIGADE



b. STANDARD TANK DIVISION



NOTE:
WHILE THE ATTACKING TK REGTS ARE ORGANIZED
IN THE ECHELONS

DIAGRAM 5-3: TACTICAL FORMATION AGAINST A PARTIALLY PREPARED DEFENCE

c. HEAVY TANK DIVISION

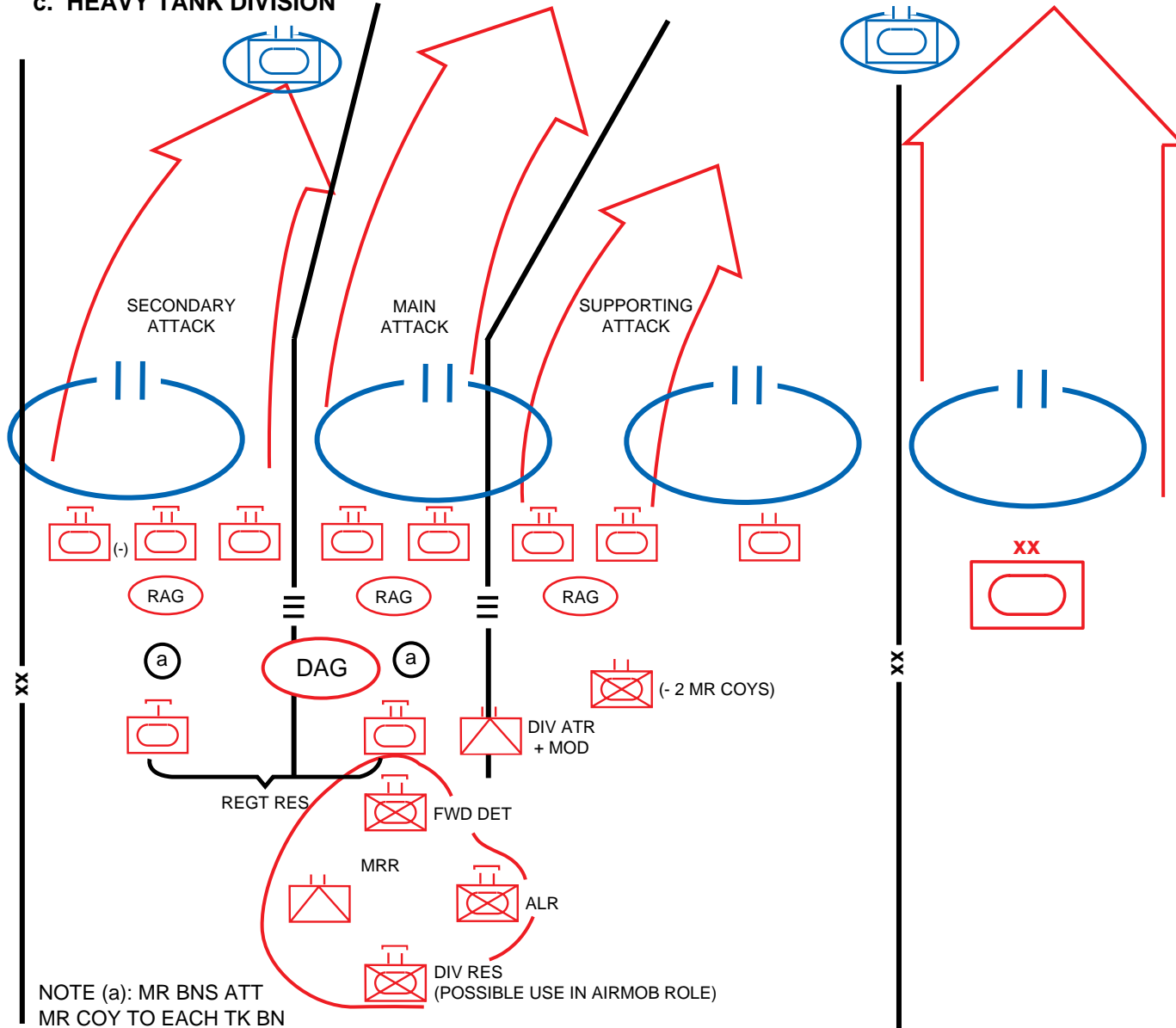
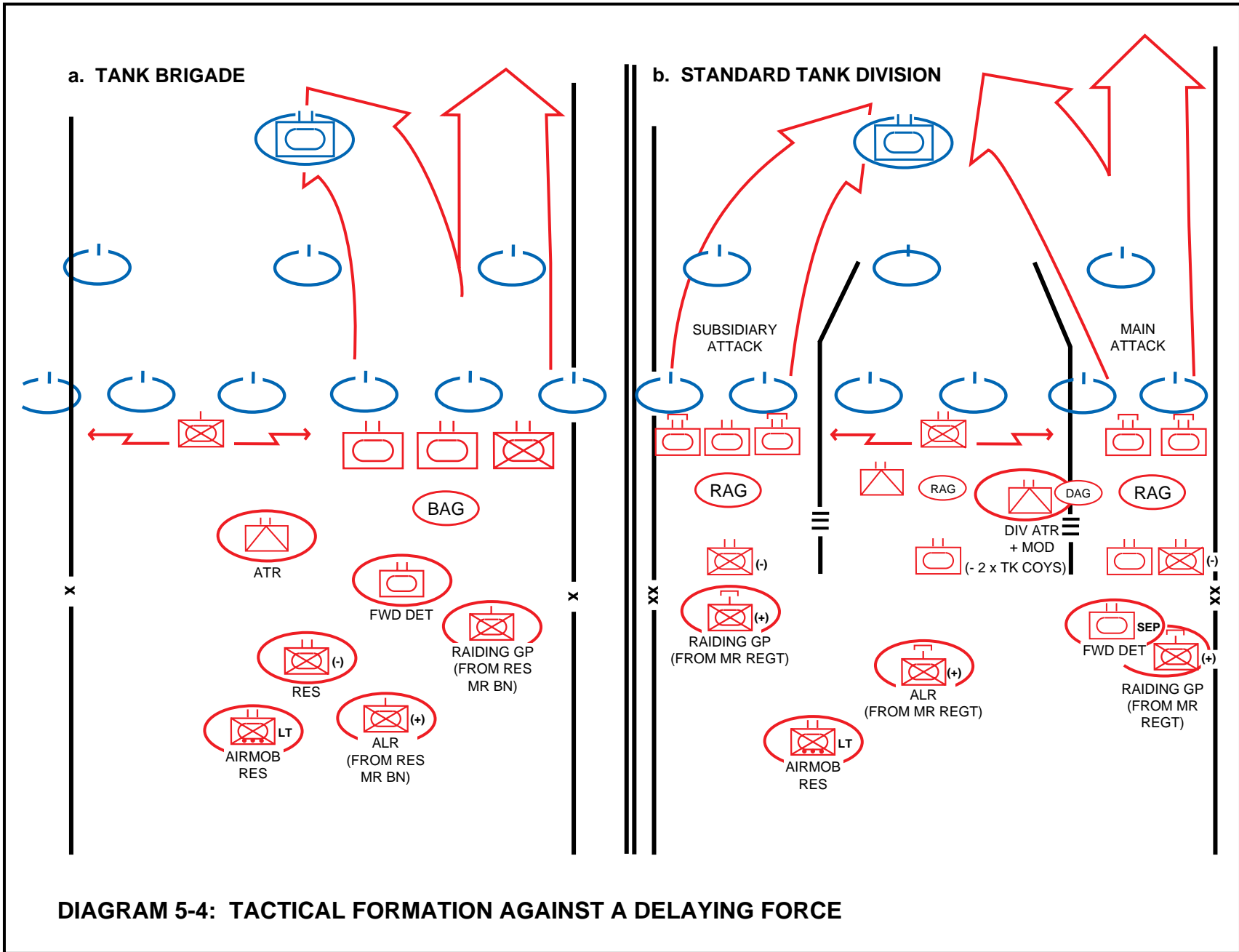
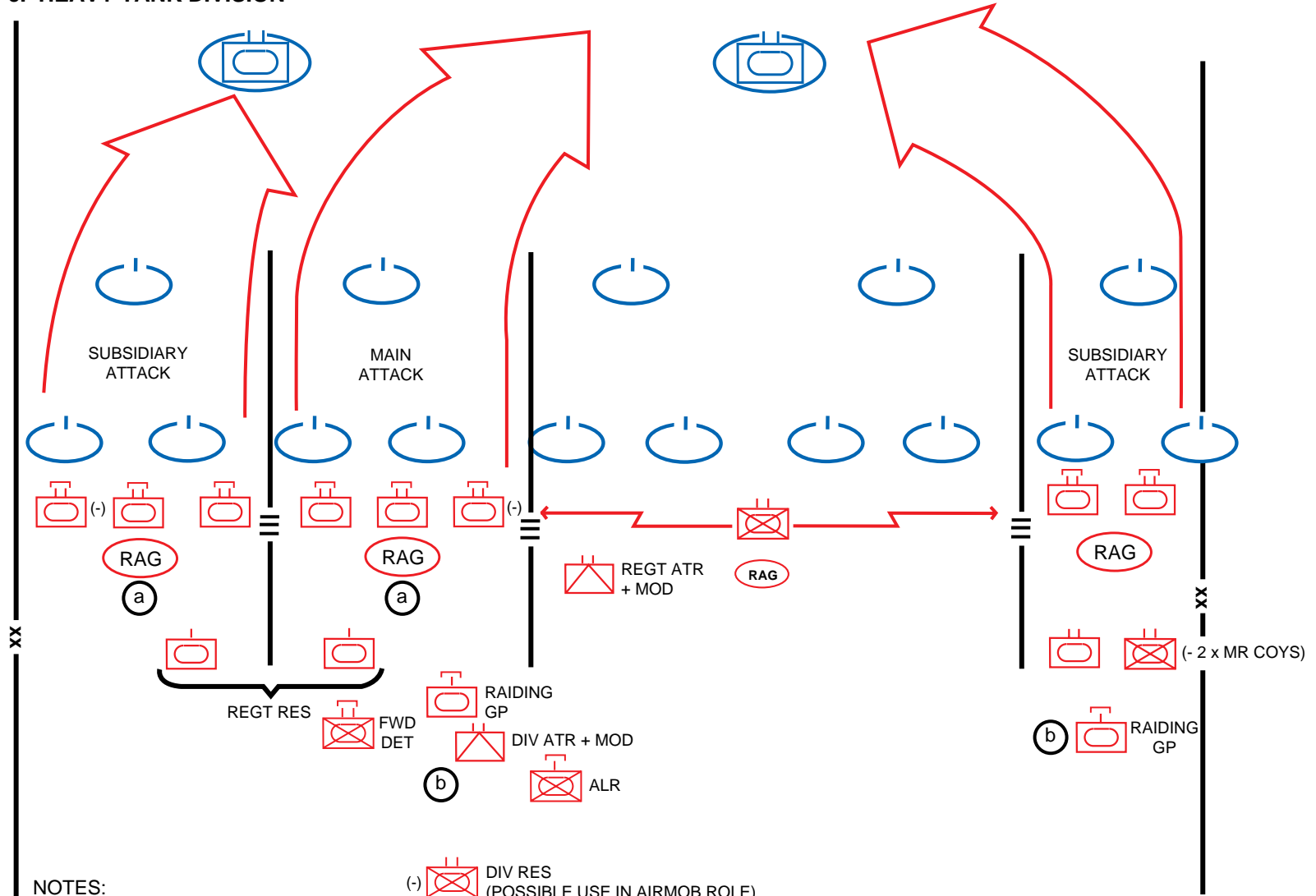


DIAGRAM 5-3B



c. HEAVY TANK DIVISION



NOTES:

(-)  **DIV RES**
(POSSIBLE USE IN AIRMOB ROLE)

(a) MR BN BROKEN UP TO PROVIDE MR COY TO EACH TK BN. SP WPNS SP MAIN ATTACK

(b) MR REGT DET 2 x MR BNS TO PROVIDE FWD DET AND DIV RES.

DIAGRAM 5-4B

- c. *Artillery.* It is possible that more artillery will be decentralized even at the start of the battle. That will certainly be the case as the battle progresses into the enemy's depth and takes on a manoeuvre character.
- d. *Exploitation and Airmobile Elements.* As penetration should not be a long drawn out process, it should be possible to generate tactical manoeuvre early on. Accordingly, forward detachments and probably raiding detachments or groups will be designated at the outset, for insertion as soon as the crust of the defence is pierced. The airmobile elements, too, can be used aggressively from an early stage when enemy air defences and ALRs are weak.
- e. *Anti-Tank Reserves.* Early, spoiling counter attacks may be anticipated to prevent the generation of momentum in the attack or help elements of the first echelon defending battalions to withdraw. ATRs will be needed well forward to fend these off without having to divert elements of the attacking echelons.
- f. *Anti-Landing Reserves.* The enemy may try to compensate for a weak defence in the forward area by holding airmobile forces ready to move to the most threatened sector. Elements may also be used aggressively and not just for counter penetration, so it is important to hold an ALR.

0514. ***Configuration Against a Delaying Force.*** GENFORCE considers it desirable to bring the maximum fire and shock action to bear at the outset to overwhelm the defence across as much of a division or brigade's frontage as possible. The early fragmentation of the defence into non-cohesive, non-mutually supporting elements and the early transfer of the focus of battle in the enemy's depth is the aim. Such gaps should be torn in the enemy's tactical formation that he cannot hope to repair them. Diagram 5-4 shows typical versions of tactical formation against such a defence.

- a. *Attack Sectors.* At division or brigade level, it will be possible to attack across a wider frontage or to have two penetration sectors. Where the enemy is very weak, tactical level envelopment or encirclement becomes a real possibility. Yet greater risks may be accepted on passive sectors as the enemy lacks the capability to exploit opportunities that the mere screens deployed there theoretically offer.
- b. *Echeloning.* A single echelon formation with a small reserve could well be adopted at every level, though at regiment and battalion space and C2 considerations as well as tactical may incline GENFORCE to two echelons. Tank heavy sub-units will usually lead the attack.
- c. *Artillery.* DAGs and BAGs will probably be reduced to those elements required for the deep fire battle as the manoeuvre of concentrated fire will not be needed to ensure a breakthrough. Much divisional artillery will be decentralized to RAGs and even to individual tank and motor rifle battalions. In brigades, main axis combined arms battalions may be similarly reinforced.

- d. *Exploitation and Airmobile Elements.* Tactical manoeuvre will be possible virtually from the outset. Thus a higher proportion of manoeuvre elements can be designated as forward and raiding detachments/groups from the very start. If the enemy is badly unbalanced, forward detachments could even lead the attack: otherwise, these exploitation forces will be inserted as soon as an opportunity has been created. In this scenario, there will be plenty of scope for the use of airmobile assets in the ground seizing, raiding or vertical envelopment roles.
- e. *Anti-Tank Reserves.* The enemy will probably rely on small scale counter attacks to enable screening elements to break clean and withdraw. ATRs should be ready to advance immediately a gap is opened to check these and provide a pinning force for manoeuvre units to envelop and destroy counter attacking forces.
- f. *Anti-Landing Reserves.* As in the case of a partially-prepared defence, the enemy may well try to disrupt the attack by the aggressive use of air landings, so an ALR will be necessary.

SECTION 2 - PLANNING AN ATTACK

The Operational Context

0515. ***The Struggle for Fire Superiority.*** In future war, no offensive operation or battle has any hope of success if fire superiority is not established by the outset and maintained for its duration. GENFORCE recognizes that this will be the most difficult, as well as the most vital, aspect of an offensive operation. Winning the information struggle and thence the electronic-fire initiative will require an offensive to be preceded by a preemptive electronic-fire operation to destroy a significant proportion of the enemy's C3 entities, aviation, EW and long-range fire assets and suppress the rest. (Tactical units, in the form of raiding detachments and groups, will participate in this process). However, success in this operation will not be the end of the matter, leaving tactical formations and units as free from deep fire strikes as, say, those of the Anglo-American forces in north west Europe 1944-45. Recognizing that he is losing the long-range battle, the enemy is likely to withdraw his remaining capability from combat, husband it and, when reinforcements have been brought in from the depth or passive sectors, renew his challenge for the initiative. Even if he has no prospect of obtaining electronic-fire dominance, the enemy may, by preserving his deep strike forces, be able to intervene at a crucial stage of the offensive to deliver a telling blow against the main attack grouping and thus deprive it of the superiority necessary to maintain momentum. In other words, tactical success will be dependent on operational success (a reverse of the World War II position), though there will be a requirement for tactical groupings to contribute as early and as fully as possible to the long-range struggle by conducting deep battles and by being instruments of deep operations.
0516. ***The Role of the Tactical Grouping in the Operational Concept.*** The mission of a division or brigade will, of course, vary according to its place in army/corps operational formation and its role in the concept of operations. This paragraph

sets out the generalized mission of higher formations to provide an operational context.

- a. *First Echelon Armies or Corps* constitute the bulk of a SG's forces and their success is essential if the SG aim is to be achieved. If they do not accomplish a breakthrough, exploitation forces will be unable to conduct deep operations and there will probably be insufficient combat power residing in them and the second echelon to carry the offensive through to the SG subsequent objective. Moreover, GENFORCE fears that, particularly if the operation develops slowly, enemy interdiction may prevent the timely committal of the second echelon in battle worthy condition. The first echelon is therefore required to reach at least the immediate objective of the SG without reinforcement. It should be able to continue its advance beyond this point. That, however, means that each army/corps will be expected to conduct two successive operations with little or no pause between them. Of course, if the depth of the SG operation is very shallow and the enemy lacks strong reserves, a single army operation will be enough to achieve the SG goal.
 - (1) *The Immediate Mission* (ie, the first offensive operation) must destroy the main forces of the opposing grouping and immediate operational reserves and seize lines or areas which will upset the stability of the defence, thus creating favourable conditions for the continuation of the offensive.
 - (2) *The Subsequent Mission* will be the completion of the destruction of the enemy, the defeat of other operational reserves and the seizure of the area designated as the SG immediate objective.
- b. *Second Echelon or Reserve Armies/Corps* will usually execute only one offensive operation, reinforcing the first echelon in order to carry the SG operation forward from its immediate to its subsequent objective if the first echelon is beginning to flag or the enemy deploys larger than expected reserves. Other tasks which may be given to a second echelon army/corps include: widening the breakthrough sector through flank and rear attacks; destruction of encircled or by-passed groupings; defeating counter attacks; pursuit. A second echelon may still be moving up when the offensive is launched. If not committed on arrival, it may be held anywhere between 80 and 120km (ie, a comfortable night's march, depending on road conditions) from the line of contact. Of course, it is considered highly undesirable for a formation to wait for any length of time in such close proximity to the enemy's forces. It will be very vulnerable to enemy deep strikes if electronic-fire dominance has not been fully achieved.
- c. *Army/Corps Acting as an Exploitation Echelon.* When acting as a SG OMG, a corps or, more rarely, an army or separate brigade, may conduct one operation, or more probably two successive ones with little or no pause between them. The task of the OMG is to destroy the cohesion and stability of the defence at the operational level through actions within the enemy depth. In this way, it will ease the progress of the main forces which are engaging the bulk of the enemy's combat power. It is vital, therefore, that

committal takes place as early as possible. If not actually leading the advance from the start, as it will against a weak and unprepared enemy, an OMG will be held well forward, probably only 50-70km from the line of contact to ensure rapid committal in exploitation of the breakthrough. It must spend as little time as possible in such an exposed position. The calculation of the time by which sufficient penetration will be achieved to make committal possible is a crucial element in the senior commander's appreciation. If he gets it wrong, he may lose much of the combat effectiveness of the OMG from enemy deep strikes. Ideally, it will be committed on the first day, and certainly by the second if it is to achieve its purpose. The OMG will operate 50-60km or more ahead of the main forces. Its activities will be elaborated on in Chapter 8.

- d. *Mission Changes.* While SG missions are generally immutable, those of armies and corps may be changed as a result of an alteration in the SG concept of operations, shifting emphasis from one axis to another. Factors which lead to such a change include: unexpectedly successful resistance on one sector or another, resulting in a lowering or even loss of combat power due to heavy casualties; the enemy's committal of operational reserves; the reducing capacity of the SG to reinforce, support and supply its armies and corps.

Tactical Planning

0517. ***The Role of the Tactical Grouping.*** The decision and planning of a lower formation commander will depend on his grouping's role in the higher formation context. Similarly, regimental and battalion concepts will be conditioned by the decisions made at division and brigade.

- a. ***Acting in the First Echelon,*** a division, brigade or battalion could fulfil any of the following roles.

- (1) *The Main Attack.* If part of the main attack, the grouping will be required to destroy the enemy forces within boundaries. It will be given an immediate and perhaps a subsequent objective and a direction of further advance. It will be given the strength to, and be expected to achieve, at least its immediate objective without reinforcement. Additional forces from the second echelon or reserve may augment its efforts to accomplish its subsequent mission, though increasingly GENFORCE stresses the need to be able to do so without reinforcement as enemy Battlefield Air Interdiction (BAI), remote mining or raiding actions may prevent the timely arrival of fresh troops. The most likely form additional help will take is in the shape of air and/or artillery delivered fires concentrated in its sector by the senior commander, and perhaps the intervention of an air echelon.

- (2) *A Secondary Attack.* Forces engaged in a supporting or secondary attack will be weaker and enjoy a lower priority in the allocation of fire support. They will generally be given shallower objectives in consequence.

- (3) *Pinning or Feint Attacks* will often be mounted to prevent an enemy withdrawal or lateral redeployment and to complicate his use of reserves. Such deceptive attacks are kept up for only a limited duration and have a very shallow objective.
- b. *Acting in the Second Echelon*, a formation or unit will pre-plan for committal in 2-3 sectors (in conjunction with the units that it will have to pass through or round.) It will be ready to perform one or more of the following tasks:
 - (1) *Reinforce the First Echelon*, adding weight to the drive for depth objectives and helping to breach defensive lines in depth or in the conduct of pursuit.
 - (2) *Widen a Narrow Breach in the Defence*, for instance to facilitate the more rapid committal on a wider front than would otherwise be possible of the senior commander's second echelon or an OMG.
 - (3) *Repulse An Enemy Counter Attack*, thus enabling the first echelon to continue its advance unhindered.
 - (4) *In an Encirclement Operation*, form part of the inner or outer front of encirclement.
 - (5) *Destroy a Grouping by-passed by the First Echelon*. Such a task will be given only when its accomplishment will free the subsequent movement of both echelons and exploitation forces. Otherwise, there is the danger that tying down the second echelon in reducing a pocket will lead to dispersal of effort and thus loss of momentum.
 - c. *Acting as an Exploitation Echelon*, a formation or unit will, like a second echelon, prepare 2-3 alternative schemes for committal. Given wide zones of advance (ie, those of the tasking division or brigade) it should be able to find an indirect approach to its objective or main targets.
 - d. *Acting as an Air Echelon*, a unit or sub-unit will be prepared to deploy by helicopter or fixed wing transport for any of the following missions: seizure of key terrain in the enemy's depth, often in cooperation with a forward detachment; conduct raids against high value depth targets; attack stubborn centres of resistance from the rear in cooperation with elements of the first or second echelon; block the deployment of enemy reserves; block enemy withdrawal routes.
0518. **Axes.** In planning an attack, a GENFORCE commander will always designate an axis of main effort. (At the tactical level, this will often be laid down by the higher commander. It will always be chosen to provide an avenue to those key areas in the enemy's depth where deep fire, EW and C3 assets are located so that they may be subject to early ground attack). He will concentrate the bulk of his effort on this axis to ensure that he obtains the force ratio required to guarantee success. If he has sufficient forces remaining, he may well launch a secondary or supporting attack and/or pinning and deception attacks. What he

will not do, however, is to parcel his resources out more or less equally amongst his axes of attack.

0519. **Concentration.** GENFORCE has done much operational analysis and analysis of historical operations to establish norms for planning purposes. One of the most important areas of such research has been the correlation of force ratios and the chances of achieving success and the attack frontage that will allow the necessary concentration to be achieved. The following sub-paragraphs lay out GENFORCE's conclusions and Table 5-1 illustrates the method of calculation of a possible attack sector at battalion level. Two points must be stressed. The superiorities demanded are not those at the time the attack is planned but those existing at the end of the fire preparation of the attack: GENFORCE anticipates knocking out up to 70-75% of enemy anti-tank weapons (and up to 100% of CPs and precision weapons in such a preparation (see Chapter 9, Section 2)). The superiorities required can also be shaved if the enemy's skills, training and morale are reckoned to be poor.
- a. *The Main Attack.* A 5-6:1 superiority in tanks and Infantry Fighting Vehicles (IFVs) and other armoured anti-tank means is required to ensure success: ie, to enable the grouping to achieve its subsequent objective and still retain sufficient combat power to continue in action.
 - b. *A Secondary Attack.* Here 3:1 is considered adequate, but the grouping will not be expected to remain combat effective after achieving its subsequent objective: it might well not even succeed in getting that far.
 - c. *A Pinning/Deception Attack.* A superiority of 1:1 is believed adequate to give the impression of a serious attack and perhaps reach an immediate objective.
 - d. *Passive Sectors.* In order to create sufficiently favourable force ratios on attack sectors, GENFORCE is prepared to take risks on sizeable passive, defensive sectors. Ratios of 1:2 or even worse will be accepted.
 - e. *Meeting Battle.* As the attack develops into the enemy's depths, the prospect of a meeting battle may arise, eg between a second echelon/reserve and an enemy counter attack grouping. While a greater superiority would be desirable, GENFORCE is reasonably confident of success with a 1.5:1 correlation of forces.

TABLE 5-1: CALCULATION OF BATTALION ATTACK FRONTAGE

1. What is the total number of tanks, AFV with ATGW and other anti-tank firing posts in the enemy battalion group?
2. What is the frontage of the enemy battalion group?
3. What will be the enemy's strength after the predicted casualties caused by friendly fire preparation? (It is normally expected that the enemy will suffer up to 60% casualties during the fire preparation of the attack).
4. What is the density of surviving enemy tanks, Motorised Infantry Combat Vehicle (MICV) with ATGW and other ATGW firing posts per 1km of defended front after the fire preparation?
5. What is the number of tanks and infantry combat vehicles required to achieve a 5-6:1 superiority over the enemy per 1km of attack frontage?
6. What is the number of tanks and infantry combat vehicles in the battalion, after allowing for losses to enemy fire during the advance? (Losses to enemy fire in this phase are normally predicted at 10-20%).
7. What is the actual attack frontage over which the battalion can achieve the required superiority of force?

0520. **Echelonning.** This subject is explored fully in the sub-section on tactical formation, paragraphs 0511-0514 and Diagrams 5-2 to 5-4, but a reminder of principles is appropriate here. In planning their combat formation commanders at divisional, brigade and regimental or battalion levels may organise their forces either in two echelons or in one echelon with a combined arms reserve. In normal terrain companies and platoons always deploy in one echelon and do not have a reserve. Within the division the pattern of echelonning may vary at different levels of command. Thus a division might deploy its regiments in two echelons but some at least of the regiments might deploy in one echelon.

- a. **Two-Echelon Formation.** A two-echelon formation is usual when attacking a defence in depth and on the higher commander's main axis. The first echelon usually contains two-thirds or more of the combat power. Its mission is to destroy the enemy's forward defences and achieve the immediate objective. The second echelon is then normally committed to increase the unit's effort and enable it to achieve the subsequent objective and advance into the enemy's depth. The commander pre-plans deployment lines for the committal of the second echelon, but retains flexibility in implementing them, depending on the progress of the battle. When the second echelon is committed a combined arms reserve is formed out of the first echelon. The remainder of the first echelon continues its attack. It is important to remember that a second echelon is a reinforcement, not a replacement, for the first echelon. Echelons are not "exchanged".

- b. *One-Echelon Formation.* A one-echelon formation is employed when the enemy defence lacks depth or when attacking on a secondary axis. When using a one-echelon formation the commander must keep a combined arms reserve at all times, to ensure that he retains the ability to influence the battle. If he commits his reserve, he must create another one immediately.

0521. ***The Scope of Tactical Offensive Actions.*** Table 5-2 gives average frontages and depth of objectives for the various tactical levels in an attack on a prepared, positional defence. While the figures are merely illustrative and must not be regarded as a template, they do indicate the effect that the demand for the concentration of large superiorities has on the space occupied by units and formations in penetration battles.

- a. *Width.* In executing a penetration, zones of advance are likely to be at the lower end of the range given, and the overwhelming bulk of combat power will be concentrated on the assault frontage. As the defence becomes less dense, attack frontages may broaden somewhat and, with more possibility of conducting tactical manoeuvre, forces will be able to utilize their designated zones of advance to outflank stubborn centres of resistance and deliver forward and raiding detachments into the depth.
- b. *Depth.* Because objectives are related to the ratio of forces in the attack sector, it is also possible (and possibly more useful) to express their depth in terms of enemy deployments rather than in a fixed number of kilometres. This becomes particularly true in manoeuvre battle. The depth of a unit's or formation's action will always be related to the density and quality of the defence.
- c. *Temporal.* At formation level, when penetrating a reasonably dense and well prepared defence, GENFORCE calculates on achieving a tempo of 10-15km per day in breaking through the tactical zone (50-60km). In attacking against a delaying force, or in actions in the less densely defended operational zone, the rate of advance is expected to rise to 30-40km per day where a superiority of 5-6:1 pertains and 15-20 on axes where the force ratio is only 2-3:1.

The Concept For An Attack

0522. ***The Commander's Decision*** depends first and foremost on a clear understanding of his superior's concept, including any constraints it imposes, and on the missions of flanking groupings and those earmarked for deep battle. Having established the context of his actions, the commander will make his assessment and arrive at a decision. His decision, in turn, will include his design for battle for the guidance of his subordinates. At each level, the commander will state what must be accomplished, but how it is to be done is left to his subordinates (though the latter will have to act within often narrow constraints imposed from above, particularly as regards space and time - this is especially true during a penetration or when a second or exploitation echelon is being committed).

TABLE 5-2: FRONTAGES AND OBJECTIVES IN THE ATTACK (km) (a)

Frontage and Objectives (b)	Mobile Forces			Basic Forces			
	Brigade	Battalion	Company	Division	Regiment	Battalion	Company
Zone of Advance	15-25	Up to 5	N/A	20-30	Up to 10	2-3	N/A
Attack Frontage (c)	4-8	2-3	0.5-1	6-8	3-4	1-1.5	0.5
Depth of immediate objective in penetration sector	20-25 Approx depth of 1st ech def bde	2-3 Approx depth of 1st ech def coy	Up to 0.5 Approx depth of 1st ech def pl	20-25 Approx depth of 1st ech def bde	6-8 Approx depth of 1st ech def bn	2-3 Approx depth of 1st ech def coy	Up to 0.5 Approx depth of 1st ech def pl
Depth of subsequent objective in penetration sector	50-60 Approx depth of 1st ech def div	6-8(d) Approx depth of 1st ech def bn	N/A	50-60 Approx depth of 1st ech def div	20-25 Approx depth of 1st ech def bde	6-8 Approx depth of 1st ech def bn	N/A

Note:

(a) These are yardsticks only and not to be used as a template. Figures will vary according to task, enemy strength, terrain and the organization for the attack (eg, level of reinforcement).

(b) Figures given here are for an attack on a prepared, positional defence. Against a weak or over-extended defence or against manoeuvre defence, attack frontages down to battalion level could be wider and objectives deeper. In attacking such an enemy, probably only an immediate objective and a direction of further advance would be laid down, at least at formation level.

(c) The attack frontage is not necessarily unitary. A division or a brigade could attack on two sectors, the attack frontage of the two equalling the sum total given here.

(d) Being more than twice as powerful as their Basic Forces counterparts, combined arms battalions will be expected to retain sufficient combat power after seizing their subsequent objectives to be able to take on immediate tactical reserves of the enemy, either in the form of repulsing counter attacks or in penetrating a depth defensive position.

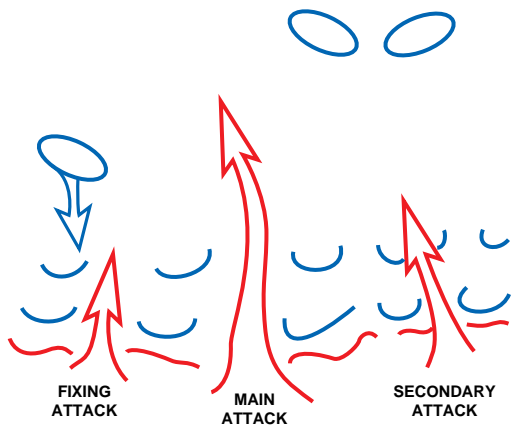
0523. **The Concept for Battle** includes the following basic elements.

- a. *The Enemy*. The main grouping of the enemy, his strength and weaknesses and likely intentions are identified. Following from this, the form of his destruction is worked out and tasks assigned accordingly to fire and manoeuvre units and sub-units. The places where obstacles will have to be overcome and battles fought will be identified and plans will be laid to deal with them (these becoming progressively more generalized and tentative the further ahead the commander has to look).
- b. *Axes*. The number and direction of axes will most likely be decided by the senior commander, at least as far as the main direction is concerned. The number will be determined by the requirement to establish a decisive superiority on specified directions. A formation, and even a unit may mount attacks on two axes (excluding feints). The direction of the main thrust (there can only be one) is specified at least to the depth of the immediate mission, and often to the depth of the battle task. The axes of other attacks will be determined by the need to support the main blow and accomplish the enemy's destruction.
- c. *Tactical Formation* will be determined by the mission requirements (ie, the prescribed form of the operation and its depth) and by the need to establish strike groupings strong enough not only to achieve penetration but thereafter to maintain momentum. Terrain may also exercise a profound influence.

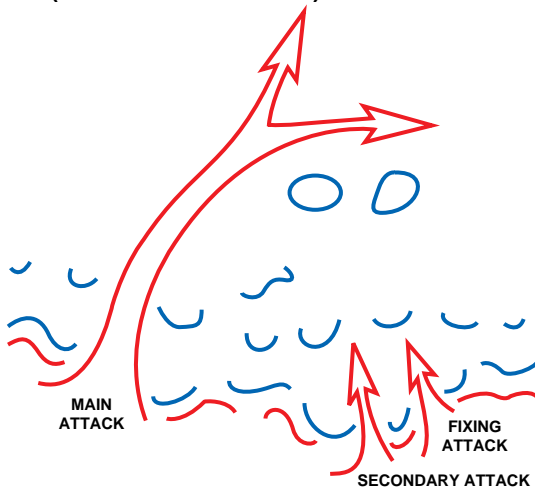
0524. **Forms of Tactical Action**. At the tactical level, there are basically four forms of action, illustrated in Diagram 5-5 (a-d).

- a. *Frontal (Splitting) Attack*. This is usually the least favoured form of attack as it is predictable. It is employed where there is no alternative or where GENFORCE's superiority is so marked that the enemy can be overcome with little difficulty. Ideally, the main blow is delivered against a relatively weak sector or on a boundary. It must rapidly open a breach wide enough to insert tactical and perhaps even operational exploitation echelons at an early stage. An air echelon will often be used to attack the defending enemy from the rear and thus impart momentum from the outset. Splitting attacks are designed to divide the enemy grouping into non-cohesive fragments whose sum is less than the total of its parts as they cannot properly coordinate their actions in a timely fashion. Moreover, the presence of multiple threats will complicate the enemy's decision making on the use of reserves.
- b. *Shallow Envelopment (Outflanking)*. The main attack is delivered to a (usually weak) flank with the aim of rolling up the defence. An air echelon may be used to expedite the initial breakthrough or to block withdrawal routes or the intervention of enemy reserves. Again, it is important to create a breach wide enough for the early committal of exploitation forces to drive deep.

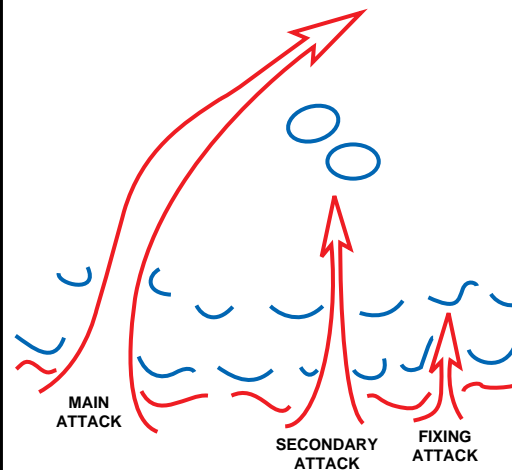
a. **FRONTAL (SPLITTING) ATTACKS**



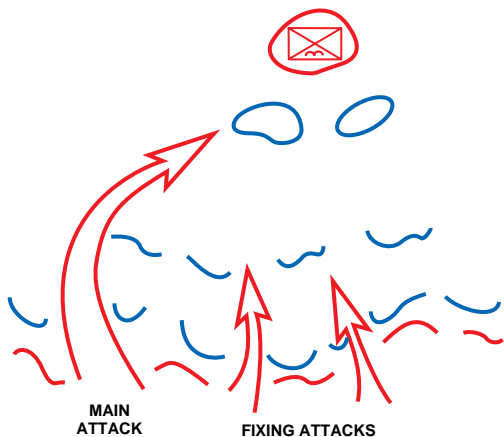
c. **DEEP ENVELOPMENT (TURNING MOVEMENT)**



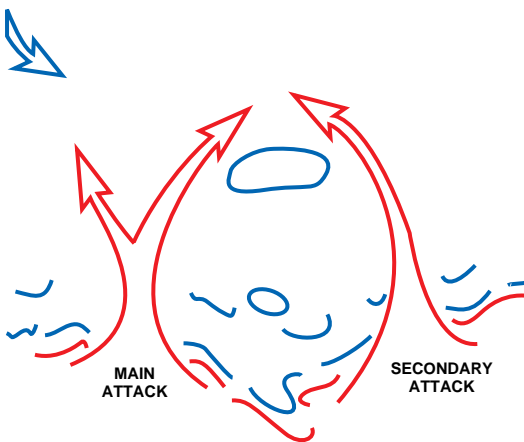
d. **COMBINATION OF FRONTAL ATTACK AND DEEP ENVELOPMENT**



b. **SHALLOW ENVELOPMENT (OUTFLANKING)**



d. **DOUBLE ENVELOPMENT (ENCIRCLEMENT)**



e. **COMBINATION OF DEEP AND SHALLOW ENVELOPMENT**

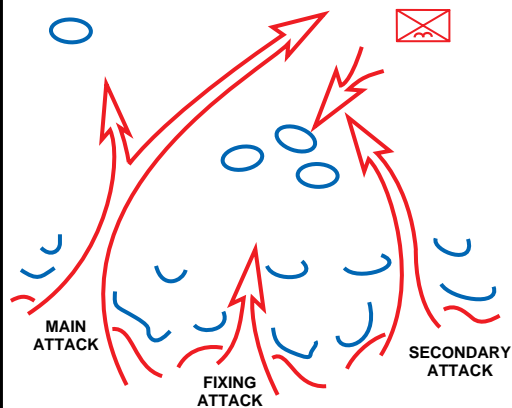


DIAGRAM 5-5: FORMS OF TACTICAL MANOEUVRE

- c. *Deep Envelopment (Turning Movement)*. The shallow envelopment is designed to destroy the forces along the line of contact immediately. If, however, the enemy has reserves capable of intervening straight away it is considered expedient to defeat these before, or preferably simultaneously with, launching rear attacks on the main defending forces. A deep envelopment is also considered to be more difficult for the enemy to react to effectively, and to exercise a more damaging effect on the psychological state of the enemy commander. Air and exploitation echelons will figure largely in deep envelopment manoeuvres.
- d. *Double Envelopment (Encirclement)*. Tactical formations, let alone units, will rarely be strong enough to encircle a significant enemy grouping by themselves. Two may, however, combine to execute such a manoeuvre. Opportunities are expected to arise on the non-linear, fragmented battlefield more frequently than they did in the past. For instance, an enemy attack or counter attack that has failed to gain momentum might create a vulnerable salient with the enemy's weight forward and few or no reserves. In an encirclement, the air echelon frequently plays a vital part in closing the encirclement or holding off reserves, in either of which roles it may be assisted (or replaced) by exploitation forces. When an enemy force is encircled, GENFORCE stresses the importance of a speedy reduction of the pocket. The process should even be started before the encirclement is completed, while the enemy is still surprised and off balance: any delay will enable the enemy to go into all-round defence and become a potentially troublesome centre of resistance.
- e. *Combination Attacks*. As Diagrams 5-5(e) and (f) show, different forms of action can be combined to meet different tactical situations.

0525. ***Surprise and Deception***. The more powerful weaponry becomes, the more emphasis GENFORCE places on the need to achieve surprise. This becomes particularly true where GENFORCE does not enjoy the desirable level of superiority in numbers, when surprise is seen to compensate for a degree of deficiency. Tactical and operational regulations remind commanders of the mandatory requirement for every plan for battle to contain measures to conceal their own forces' locations and intentions and to deceive the enemy. GENFORCE sources discuss several means of achieving these aims.

- a. *Selection of the Attack Sector*. In the past, GENFORCE always endeavoured to deliver at least the main blow against the weakest part of the enemy grouping, eg where the force density was low, defence preparations poor or morale was questionable, or on a boundary between units or formations. Often, this meant attacking over terrain deemed unsuitable by the enemy, on the basis that the best going for an armoured thrust is an area weak in anti-tank weapons. While these are still favoured, GENFORCE now also considers the possibility of achieving surprise by attacking a strong sector. Powerful fire strikes followed by attacks from the rear (made possible by vertical envelopment) as well as the front can result in penetration of sectors previously deemed unassailable.

- b. *Concentration Areas and Forward Routes.* Attack groupings will be well concealed in dispersed assembly areas prior to the delivery of the blow. These need to be 20-30km from the line of contact as, with modern surveillance means, enemy ground units can look up to 5km over that line and formation assets can see 10-15km deep. Of course, air reconnaissance (including by RPVs) can reveal concentrations at almost any depth. Thus, concealment in moving into and in occupation of assembly areas is vital, and waiting time should be minimized. Forward moves from assembly areas will be vulnerable to precision and other attack, so these too must be concealed as much as possible. Where time permits, poor visibility is exploited to give cover, as are concealing terrain and power lines. Observable gaps in march routes are covered by IR reflective vertical roadside screens or metallic nets covered by dipole radar reflectors (these being used also on passive sectors to hide real routes). Artillery delivered chaff with very slow fall rates can also be used to confuse enemy radars. Deceptive movement is also conducted on a wide front and artillery fire is used to conceal the noise made by sub-units moving near the line of contact.
- c. *Counter-Reconnaissance.* Before an attack is mounted, a determined effort will be made to blind the enemy by destroying reconnaissance means (again, on a wide front so as not to reveal true axes) and to disrupt the work of enemy headquarters and fire control systems.
- d. *Deception.* Deception plans are usually organized at the operational level and tactical formations and units implement the measures laid down. Otherwise, individual initiatives may well prejudice the success of the grand design by detracting from the persuasiveness of the whole through revealing inconsistencies.
- e. *Tactical Methods.* GENFORCE continually stresses the importance of avoiding stereotype in executing an attack. Commanders are continually exhorted to be creative in finding tactical solutions unexpected by the enemy. They are told to take risks if this will contribute to surprise.
- f. *Continuity.* Surprise must not be episodic but a constantly active destabilizing factor in relation to the defence. Once the attack is launched, it is guaranteed by speed and broad manoeuvre as these deprive the enemy of the possibility of effective counter actions.

SECTION 3 - THE EXECUTION OF AN ATTACK

The Attack From the Line of March

0526. **Definition.** "Attack from the march" is not another term for a hasty attack. It occurs when the attacking and defending forces are not in tactical contact beforehand. As practised by GENFORCE its most common form is an attack prepared in an assembly area, hidden from the enemy and out of range of his artillery. The attacking force moves out of the assembly area, marches towards the enemy and then, under cover of artillery and air support, deploys into attack formation. The deployment takes place in territory held by friendly forces in contact which hold the enemy in place and assist the force attacking from the

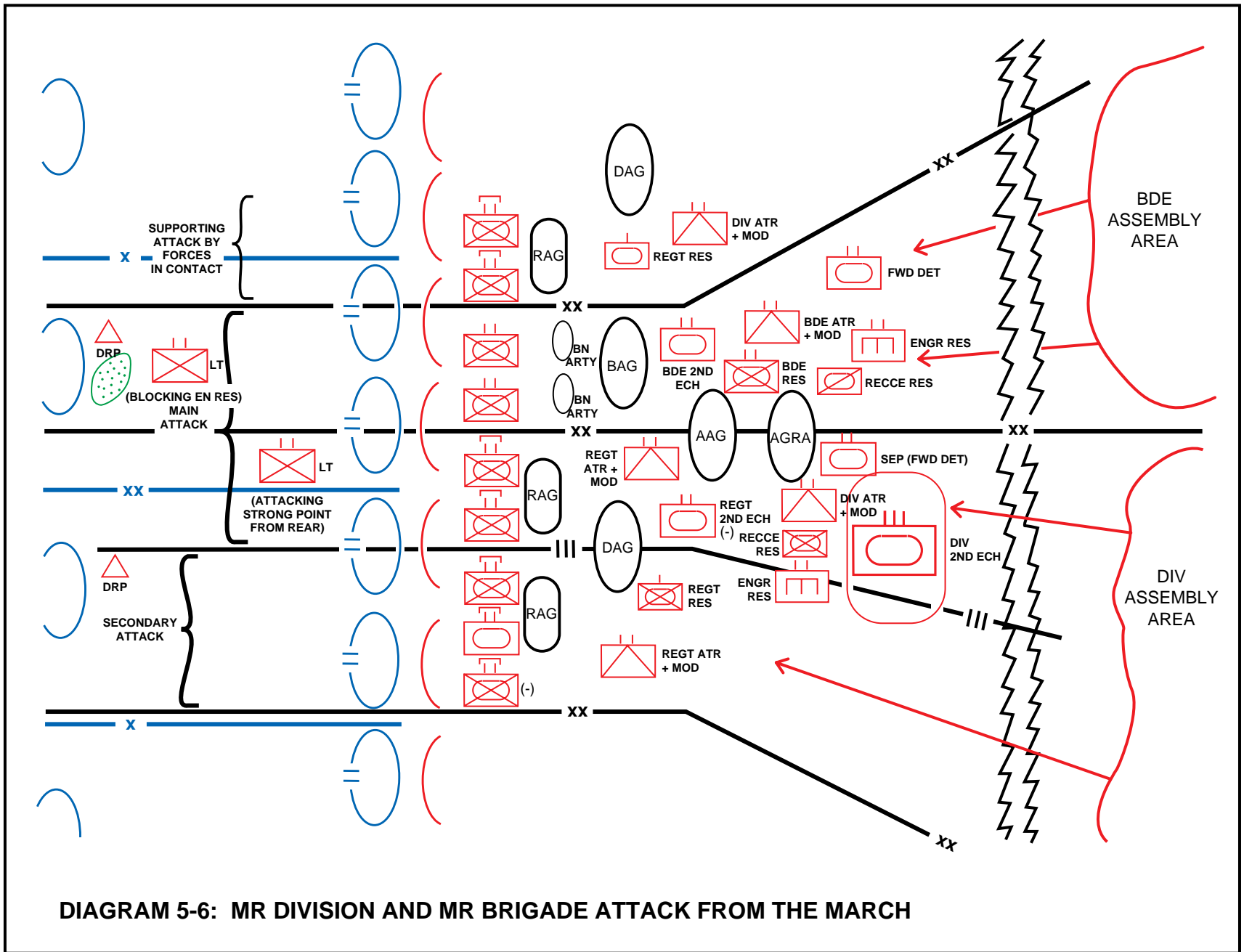


DIAGRAM 5-6: MR DIVISION AND MR BRIGADE ATTACK FROM THE MARCH

march with direct and indirect fire and engineer support, movement control and intelligence. A somewhat less common form of the attack from the march occurs when a force on the march encounters the enemy unexpectedly. This may happen to march security elements, especially after a breakthrough, when exploiting into the depth of the enemy position. For example, a GENFORCE vanguard might attempt to over-run an enemy rearguard in a hastily-prepared position by an attack directly from the march. However the GENFORCE commander would still have to believe that he had a sufficient superiority of force.

0527. **Preparation of the Attack.** Preparation of the attack begins in an assembly area which should at least be outside the effective range of most enemy artillery (ie 20-30km and often as much as 60-80km deep in friendly territory). (Paragraphs 0231-0233 and Diagram 2-15 describe typical unit and formation assembly areas.) Some engineer preparation of the area is desirable, to improve routes and provide protection for equipment and personnel. Final maintenance and re-supply will be conducted and units and sub-units will be re-grouped tactically in accordance with their commanders' plans. Strict camouflage and concealment discipline will be enforced and radio silence maintained. The camouflage and deception company may well be tasked to prepare a dummy assembly area nearby (with some real troops to lend verisimilitude) and the chemical defence company will prepare bi-spectral smoke concentrations for use in the event of air attack.
0528. **The March Into Battle.** Being very much aware of the high risk of being discovered in the final approach to the defence and of the many fixed and rotary wing air and rocket and tube artillery assets that can rapidly emplace remotely delivered minefields and deliver powerful fire strikes, as much work as time will allow will go into preparing the march.
- a. *Engineer, Camouflage and Chemical Defence Troops* will move out well before the rest of the formation. Working together with any assets assigned by the senior commander from both his own resources and those of the formation through which the march is conducted, these will prepare the march routes. Passages through difficult terrain (valued for the concealment it offers) will be improved. Exposed sectors will be concealed from optical, IR and radar observation and bispectral smoke pots will be emplaced to cover them and possible choke points liable to be attacked. Minefield clearing means may also be deployed where RDMs would be most likely to cause delay. As the time for the arrival of the attacking forces at their line of going over to the attack approaches, troops already in contact will clear gaps through their own and perhaps enemy obstacles and create smoke screens on the attack sectors and to their flanks (probably including deception ones as well). At the same time as engineer and concealment preparations are started, Commandant's Service (traffic control) elements will mark routes and establish control posts at choke points and obstacle crossings.

- b. *Air Defence.* The air defence of the march will be worked out by the senior commander. Ideally it will be accomplished entirely or largely using his assets and those of the formation in contact, but some of the attacking forces' means may also need to be pre-deployed to cover sections of the march routes.
- c. *Artillery and EW Units* will deploy next. They need to occupy their fire positions and EW sites at least 1-2 hours before the electronic-fire preparation is due to begin, and even before that, their positions need to be reconnoitred and, usually, prepared by engineers and covered by air defence elements and smoke generators. When the main body starts its forward move, missiles, EW, artillery and air attacks will begin suppression of enemy deep fire capabilities and associated C3 and air defence. The emphasis in the electronic-fire preparation will shift to enemy forces about to be attacked (and to deception strikes) as the assault groupings approach the line of going over to the attack.
- d. *Air Assault or Landing Elements* will often be inserted rather before or at the moment of going into the attack to block the movement of enemy reserves, conduct raids against high value targets and begin attacks on the rear of centres of resistance.
- e. *The Assault Troops of the First Echelon* will move out of the assembly area in accordance with a timetable designed to bring them to the line of attack at H Hour. Their normal rate of movement will be 15-20kph on 2-3 routes with 1-2 reserve (formation level).

0529. ***Deployment for the Attack: Formation Level.*** Diagram 5-6 illustrates a joint attack by a motor rifle division and a motor rifle brigade as the first echelon of an army offensive against a main defensive position. The diagram, and the following description, give a concrete example of themes dealt with earlier in the chapter.

- a. *Boundaries.* The two attacking formations start from dispersed assembly areas in the depth. They will converge on the assault sector as late as possible. The breakthrough of the first echelon of the defence will take place on a narrow frontage, but boundaries will widen again for action in the enemy's depth (ie, after the forward brigades are penetrated) to allow the possibility of tactical manoeuvre.
- b. *Echeloning.* The main attack is mounted by a motor rifle regiment in two echelons and by two strong combined arms battalions of the brigade (remember that these together are stronger than a motor rifle regiment). Each battalion in the main attack will also attack in two echelons. The secondary attacks, executed by the second motor rifle regiment of the division and by a regiment of a division in contact with the enemy already, are in a single echelon on a wider frontage with only a small reserve. Here too, however, the two attacking battalions which border on the main attack will be in two echelons, the one on the outer flank which has provided the reserve being in a single echelon. The units on the main attack sectors will

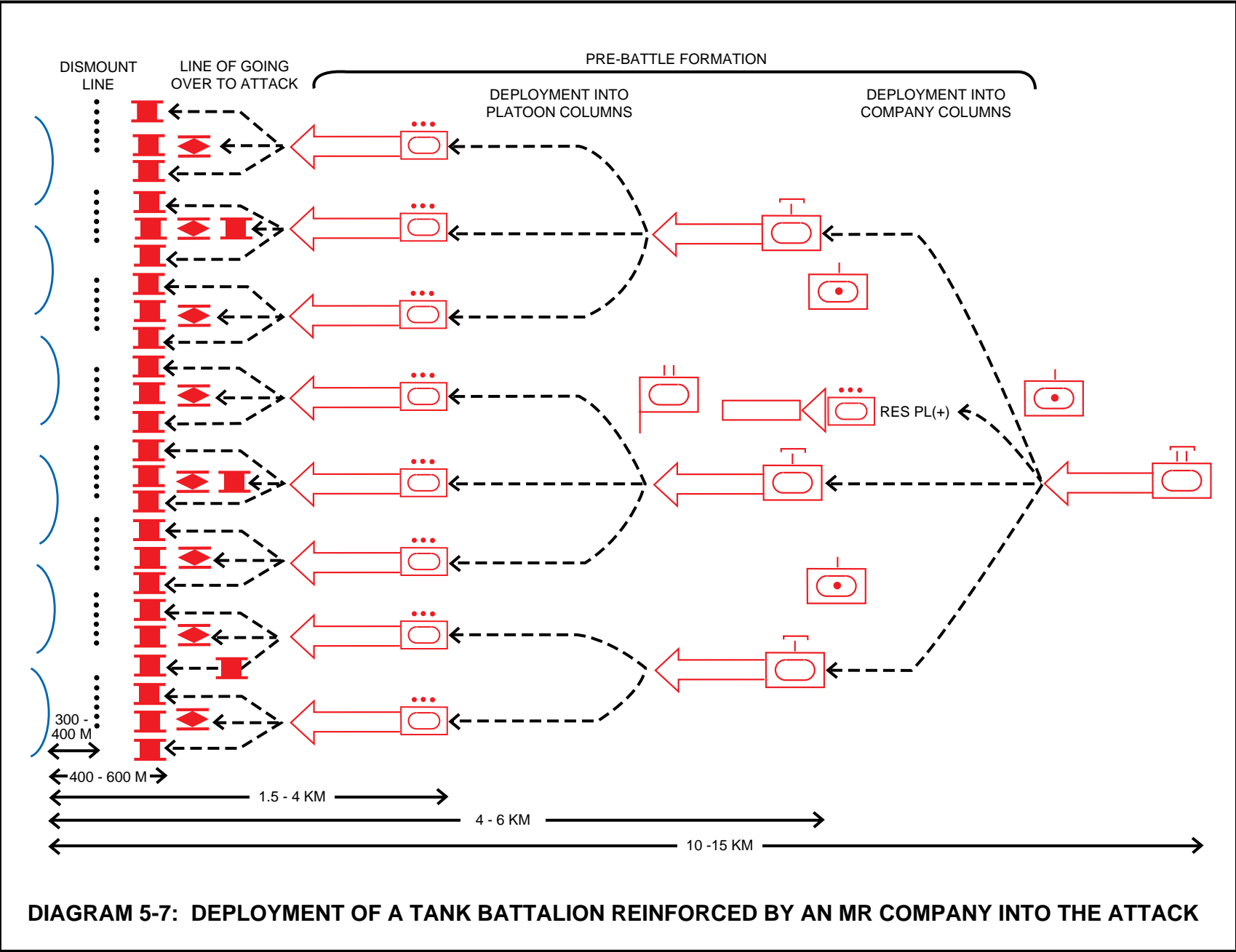
be expected to penetrate through to the depth of the enemy forward brigades, while the secondary attacks will overcome only the forward battalion positions before they need to reorganize. The division has a tank regiment in its second echelon, and the brigade has a combined arms battalion in that role and another in combined arms reserve. These forces will help to carry the battle through to the depth of the defending divisions on a widening frontage after the forward brigades are defeated. The brigade has also earmarked a battalion for deep battle as a forward detachment.

- c. *Fire and EW Support.* Direct fire support will be given by the troops already in contact, probably augmented by elements temporarily detached from the ATRs. Both first echelon regiments will form RAGs with artillery decentralized from division. In the given example, on the main attack sector, the RAG will be of three battalions (one organic and two from division) and on the secondary sectors the RAG will have one organic and one attached battalion. In the first case, one battalion would be in direct support of each first echelon motor rifle battalion and one used to engage targets as ordered by the regimental commander. In the second, the two battalions would concentrate their fires in support of the centre and right flank attack battalions but could be shifted to deep fires on order of the regimental commander. In the brigade attack, one battalion from the artillery regiment is allocated in direct support to each of the already strong motor rifle battalions' artillery. The DAG will comprise the organic MBRL battalion and 2-4 howitzer battalions from higher formation resources. The BAG will hold the organic MBRL and one organic howitzer battalion augmented by 2-4 howitzer battalions from higher formation. These groups will be used for deep fire prior to the assault, then to thicken fires on defending strong points during the preparation, then again for deep fire missions. The offensive being the army's main effort, an AAG of 2-4 long-range gun battalions and an AGRA of 2-3 heavy MBRL battalions are available for deep fire strikes. GENFORCE believes that, given the increasing ranges of both direct and indirect fire systems preparatory and supporting fire plans must be in great depth (up to 25km). During the assault, it will be necessary, through a combination of fire and smoke, to neutralize two defensive positions simultaneously (ie, to a depth of 5-6km) to prevent ATGM in the depth from writing down assault groupings. Moreover, the high effectiveness of modern weapons requires the suppression of higher proportions than hitherto. GENFORCE holds that it must suppress 70-75% of defending anti-tank weapons and up to 100% of precision delivery systems and C2 facilities. See Chapter 9 for details. EW assets (including reinforcements from army) will be deployed well forward to provide targeting data and, at crucial times (especially the start of the attack) jamming of enemy communications.
- d. *Air Defence.* The formation level air defence will give area coverage for each formation, concentrating particularly on defending the first echelon, the divisional and brigade HQs and the artillery groups: some short range elements could reinforce the first echelon to ensure adequate cover for both attacking troops and their supporting artillery and C2.

- e. *Anti-Tank.* Elements will be used initially for direct fire support, rejoining the ATRs as the attack moves forward. ATRs and MODs at each level are ready to move forward either behind the attack or to a flank to break up any counter attacks and provide a pivot for manoeuvre to destroy the counter attacker.
- f. *Airmobile Elements.* In this example, the light motor rifle battalion of the division is used to increase the tempo of the penetration by attacking a forward strong point from behind. That of the brigade has gone deeper to block a potential counter attack force. Army level air assault could also be used, either for raiding or for seizing ground of importance to manoeuvre towards the rear of the tactical zone of defence. Committal would, of course, be preceded by artillery and air suppression of enemy air defences. Long-range artillery and MBRLs can also give fire and remote mining support.
- g. *Engineers.* Those elements of the engineer battalions not used to supplement lower level resources in obstacle breaching, route preparation and MOD tasks will be held as an engineer reserve.
- h. *Chemical Defence.* Smoke generating and flame-thrower elements will be used to support the main attacks and artillery groups, air defence assets and CPs, with decontamination assets held back as a chemical defence reserve.
- i. *Reconnaissance.* Elements of the reconnaissance battalion of each formation will have been used before the outset to thicken the web of OPs established by troops in contact and of the first echelon to provide targeting data for the fire preparation. As infiltration through a dense defence will be difficult until the defence is disrupted, the bulk will be held back as a reconnaissance reserve, for committal as the battlefield opens up. Until then, only the long-range company will be able to deploy (by air), usually in the depth of the tactical zone of defence.

0530. ***Deployment for the Attack: Basic Forces Battalion Level.***

- a. *Organisation.* If a battalion attacks in two echelons the first echelon will consist of at least two reinforced companies and the second echelon will be up to a company strong. If the battalion attacks in one echelon, a reserve, consisting of at least one platoon, will be formed. A tank battalion can expect to be reinforced by a motor rifle company and a motor rifle battalion usually has a tank company under command. The tank battalion normally allocates a motor rifle platoon to each tank company. However the motor rifle battalion generally uses the tank company at full strength with its first echelon. One tank platoon may be kept under the battalion commander's hand initially. A motor rifle battalion's organic fire support will be concentrated on the main axis. The mortar battery will deploy a kilometre or so behind the first echelon. The AGS-17 platoon may be in the interval between two companies or on the flank of a company or about 300m behind a first echelon company. The anti-tank platoon (if held) may be deployed to give direct fire support or else moves 500m behind a first echelon company on the flank



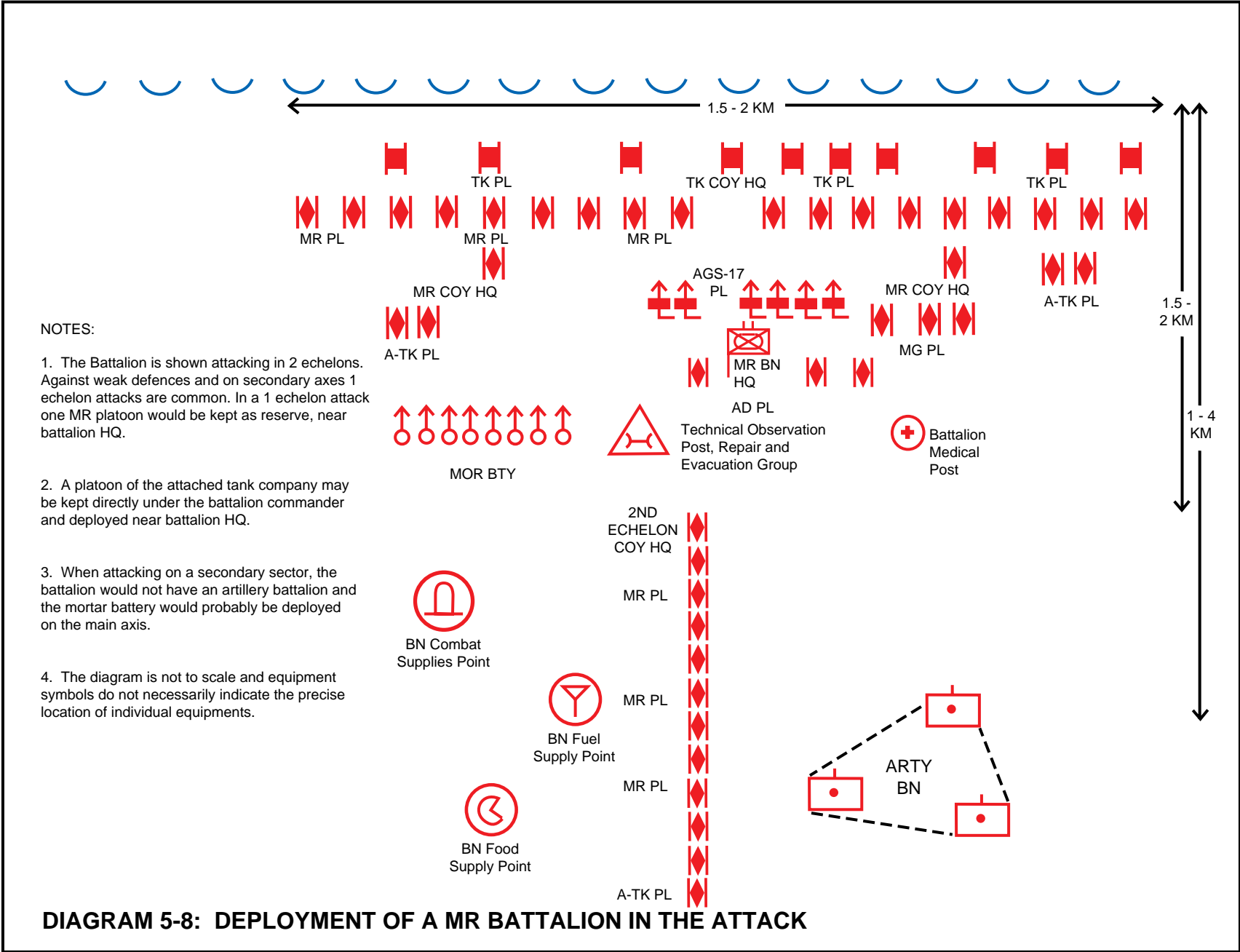
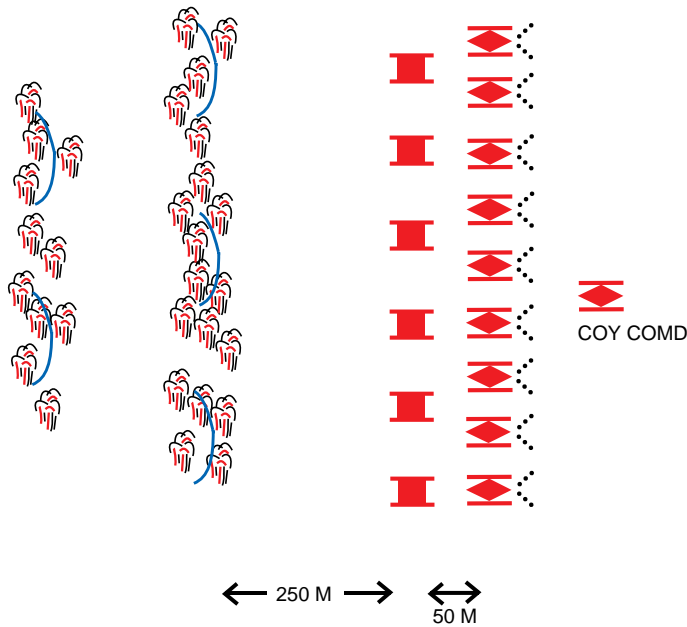


DIAGRAM 5-8: DEPLOYMENT OF A MR BATTALION IN THE ATTACK

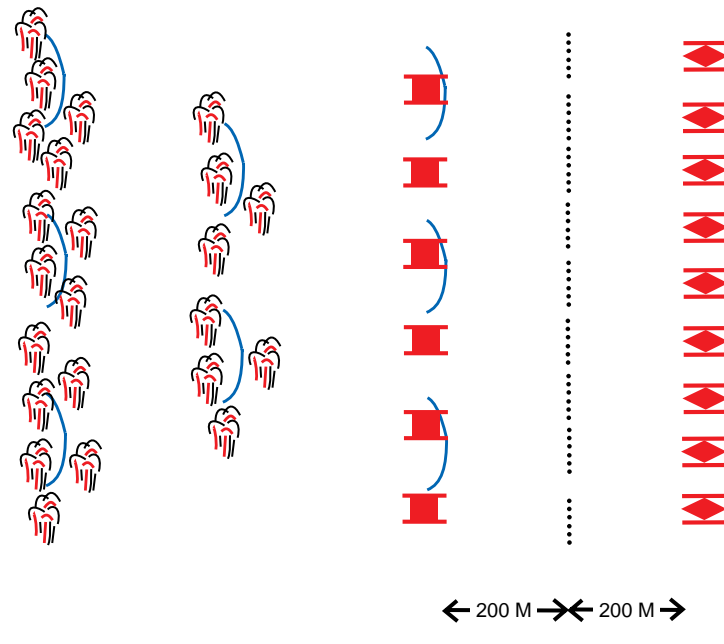
a. SITUATION AT THE MOMENT THE INFANTRY DEBUS



Artillery preparation continued until attacking troops reach the limits of safe distances. These are:

- a. TANKS: 200 M
- b. BMPs: 300 M
- c. DISMOUNTED INFANTRY: 400 M

b. SITUATION 1.5 MINUTES LATER



Artillery lifted from forward positions to next line. However, enemy AFV crews will take 30 seconds to recover from the shock of the bombardment and bring their weapons into action: crew served weapons will take 1 - 2 minutes to begin firing. Thus, by the time the defenders on the forward edge have recovered, they will find the attacking tanks are already amongst them, and small arms fire from the Infantry which is fast approaching and tank machine gun fire will suppress hand held anti-tank weapons. The defence is overrun.

If there is an interval between the lifting of the artillery fire and the arrival of the tanks on the forward edge, it is filled by grenade launcher and machine gun fire from support weapons in the rear and by tank and BMP fire on the move.

DIAGRAM 5-9: COORDINATION OF FIRE PREPARATION WITH THE ASSAULT

most exposed to enemy armour. The air defence platoon moves behind the first echelon companies and is usually not far from the battalion COP. If, as often happens, the battalion is reinforced by a pair of 2S-6, these will usually advance about 500m behind the attacking troops and 600-1000m apart. This close proximity to the line of attack is necessitated by the need to engage attack helicopters carrying long-range ATGM.

- b. *Deployment Drills.* GENFORCE employs a standard drill for deployment into battle which is illustrated in Diagram 5-7. The use of drills is stressed because they save much time in the organization and execution of an attack, and success in modern battle is seen to depend on acting faster than the enemy can react, surprising him with the speed with which the blow is delivered. Moreover, the use of simple drills, which can even be triggered by flag or light signals if necessary, reduces dependence on long radio orders which warn the enemy that something is afoot and are increasingly likely to be jammed. They can also be implemented by commanders and soldiers under severe stress with less chance of something going wrong than when executing an original and complicated plan. While drills themselves are stereotypical, they can be tailored to terrain and tactical circumstances and the commander can exercise skill and judgement in deciding where and when to initiate them and in the methods used to cover them (eg, in the use of smoke, which is generally liberal). This deployment drill can be incorporated in almost any form of attack, but is most common in the attack from the march and the meeting battle. The drill proceeds from march formation (regimental and battalion columns) through pre-battle formation (company and platoon columns) into battle formation (line abreast). The sequence of deployment and the distances of the lines of deployment from the enemy are determined by the concealment offered by the terrain and tactical considerations, as outlined below.
- (1) *Line of Deployment into Battalion Columns.* Deployment into battalion columns should begin beyond the range of the bulk of the enemy's artillery (approximately 10-15kms from the enemy FEBA). The artillery preparation and the start of the smoke programme of the attack are usually timed to begin as the attacking force reaches this line. However, given GENFORCE's stress on avoiding stereotype and achieving surprise, a false start may well be practised if time, ammunition and smoke resources allow it.
 - (2) *Line of Deployment into Company Columns.* This line should be set outside the maximum range of the defender's ATGM, tanks and other direct fire systems (thus reaching 4-6km from the enemy FEBA, depending on the terrain).
 - (3) *Line of Deployment into Platoon Columns.* This should ideally be located in dead ground, screened particularly from the defender's short range ATGM. It will normally be 1.5-4kms from the enemy FEBA.

- (4) *Line of Going Over to the Attack.* This is the line by which the attackers deploy into attack formation, line abreast, with tanks 100-200m in front of the infantry vehicles. Its location depends on the preparedness of the enemy defence and the degree of destruction inflicted by the attackers' artillery. The line should be outside the range of enemy light anti-tank weapons and small arms and permit a rapid advance into the enemy positions. It is usually at least 600m from the enemy FEBA but it may occasionally be farther out.
- (5) *Dismount Line.* In a dismounted attack the dismount line is set as close as possible to the enemy trenches, if possible in some cover from small arms and short range anti-tank weapons. 3-400m from the enemy is a normal distance.

0531. ***The Execution of the Attack at Battalion Level.*** Diagram 5-8 illustrates the execution of an attack by a reinforced motor rifle battalion on the forward edge of the enemy defence. Where such a frontal attack is needed to achieve penetration, the attack will be launched in such a linear fashion without conducting fire and movement within the battalion. This is because the fire to cover the forward movement is provided by heavy artillery concentrations or even a rolling barrage (see Chapter 9, Section 2) and this requires a linear approach. GENFORCE emphasizes the need for close coordination between the supporting artillery and the attacking troops. If the fire lifts too early, the enemy will have time to recover from the psychologically paralyzing effect of bombardment, bring his weapons into action and inflict unnecessary casualties on the advancing sub-units, perhaps halting the attack (see Table 5-3 for GENFORCE's estimate of recovery times). If it lifts too late, the attackers will run into their own artillery fire. Diagram 5-8 shows a typical assault formation and 5-9 illustrates the coordination that GENFORCE seeks to achieve. In this example, the motor rifle troops are dismounted for the assault. Wherever possible, however, (eg, against a weak and demoralized defender) GENFORCE prefers to attack mounted. This increases the tempo of the attack from that of the soldier on foot (0.8-1km per hour) to 3-4km per hour. The speed and shock of an armoured overrun will reduce the enemy's ability to recover and fight back. Such an overrun can be supported by the artillery which will suppress non-armoured targets by delivering flechette rounds onto the objective even as the tanks and BMPs are moving onto it. GENFORCE believes that increasing the tempo of an attack by 1½ times will reduce sub-unit losses by a factor of two or even three.

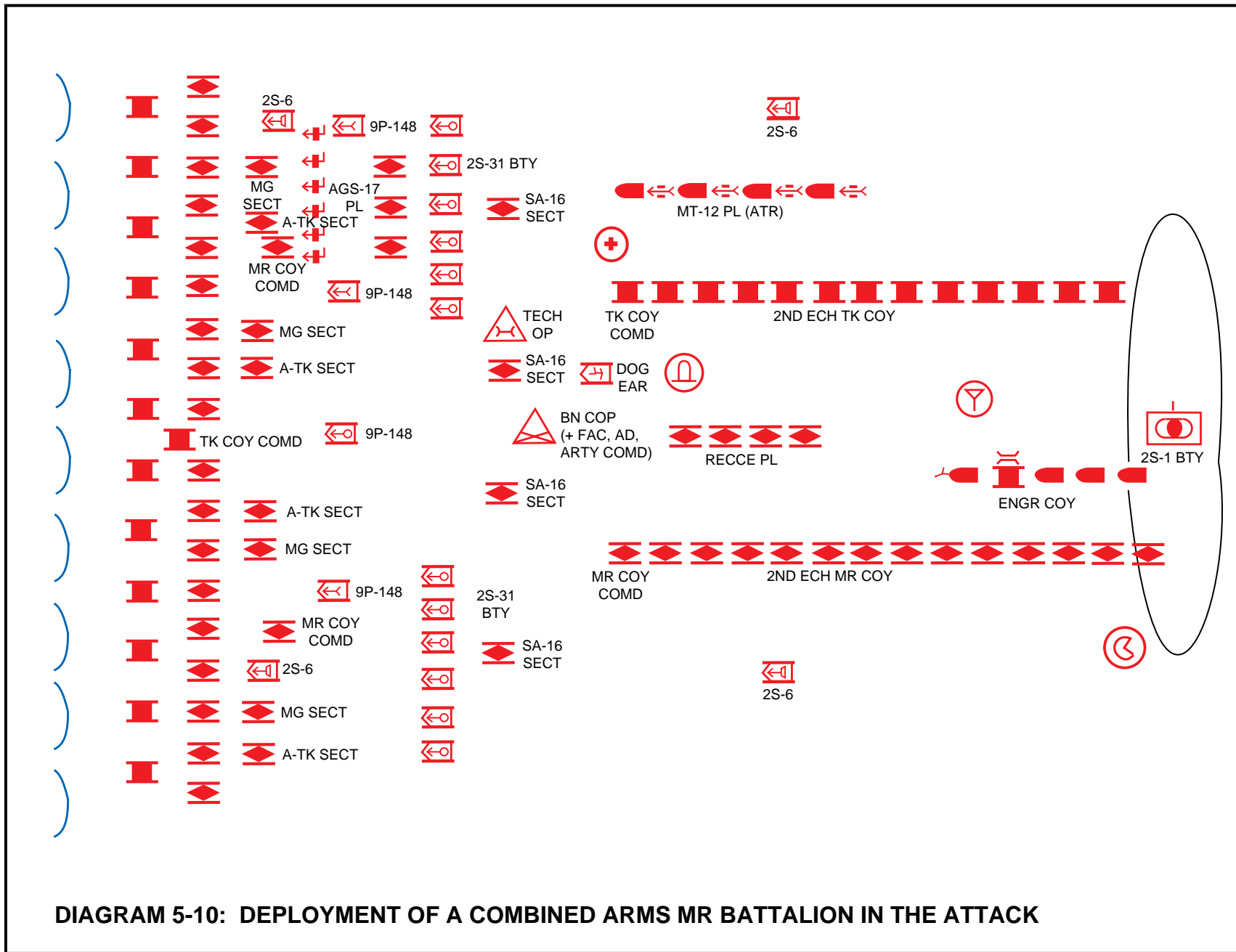


DIAGRAM 5-10: DEPLOYMENT OF A COMBINED ARMS MR BATTALION IN THE ATTACK

TABLE 5-3: TIME NECESSARY FOR THE RESTORATION OF COMBAT EFFECTIVENESS AFTER THE FIRE PREPARATION LIFTS

Defender	Time, in Minutes, Required for Restoration of Combat Effectiveness (percentages)					
	1 min	2 mins	3 mins	4 mins	5 mins	6 mins(a)
Strongpoint	0%	33%	55%	70%	89%	100%
Separate group of armoured targets	30%	60%	80%	100%	100%	100%

Note: (a) The fire control system of a strongpoint will be fully restored after 5-6 minutes.

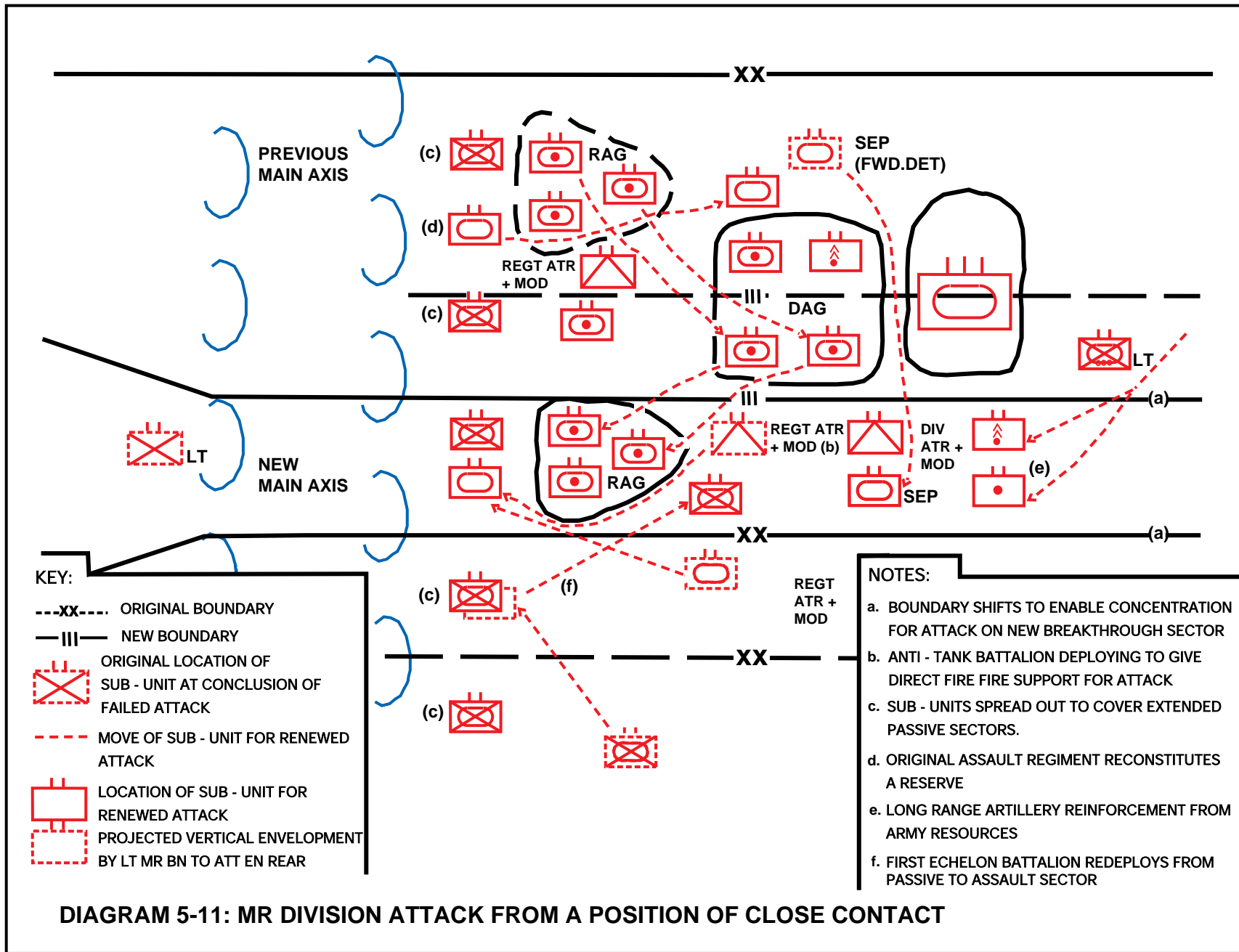
0532. **Deployment for and Execution of the Attack: Mobile Forces Battalions.**

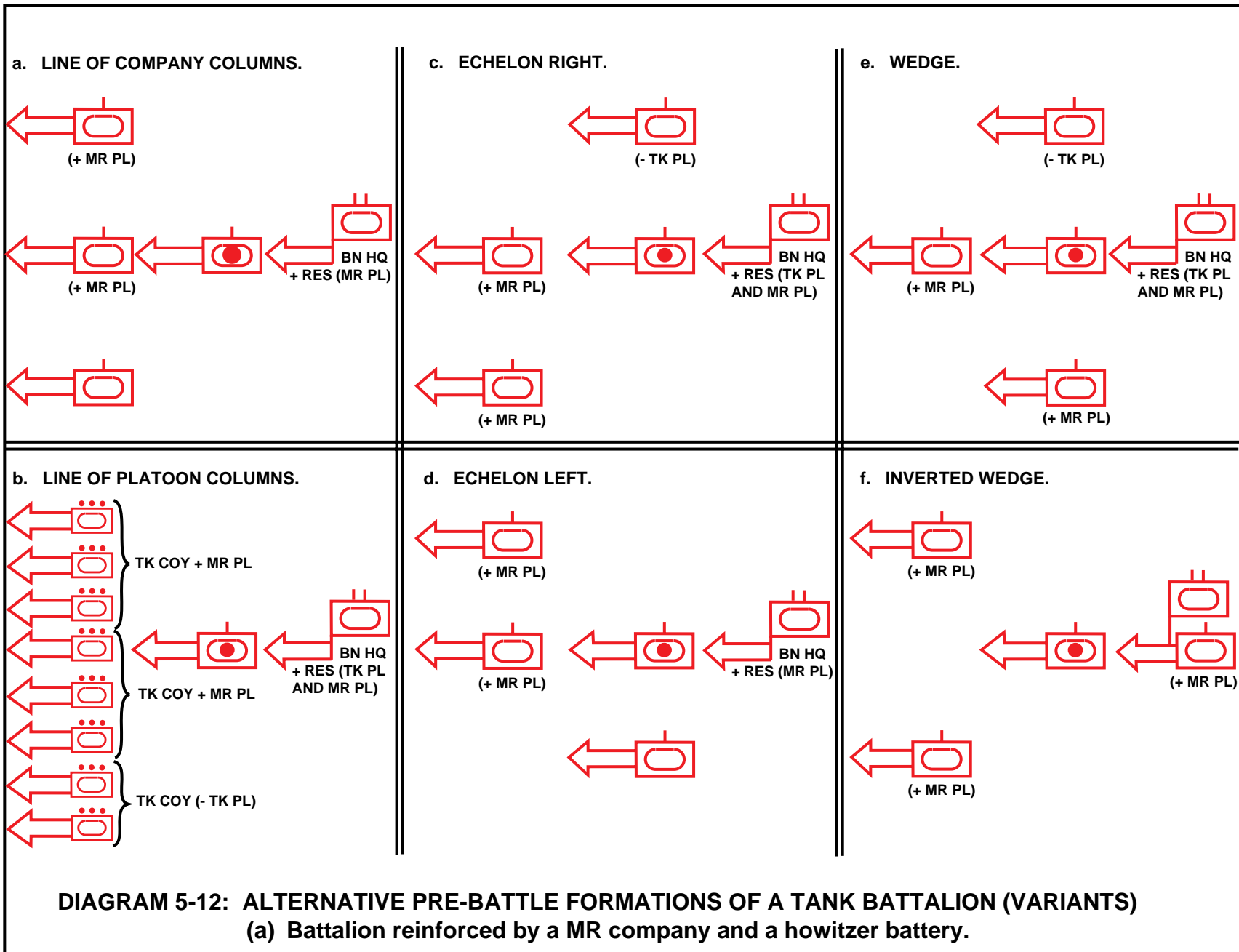
Possessing more than twice the combat power of their Basic Forces counterparts and with better training, combined arms battalions are expected to penetrate more deeply without the need for brigade to reinforce their efforts by committing more manoeuvre elements. For this reason, and for ease of command and control, they are usually deployed in two echelons. There may be only one company of tank or motor rifle troops in the second echelon, but more often there will be two. Sometimes, eg when an enveloping attack is employed, a 1-2 platoon reserve will be held instead of a second echelon. The reinforcing or cross-attaching of sub units is routinely practised. Most of the battalion's considerable organic fire support is concentrated on the main axis, though a battery of 2S-31 and a section of the grenade launcher platoon (in motor rifle units) may support a secondary axis. The anti-tank battery either helps to shoot in the attack or moves behind the attack line on the most tank-threatened flank or is held as a centrally placed ATR: it can, of course, deliver direct fire support and then become an ATR. The 2S-6s of the AD battery commonly work in pairs with one protecting the attack line and the other covering an air-threatened flank or protecting the main artillery area of deployment. The SA-16s defend elements not covered by the 2S-6s (or set up AD ambushes). Combined arms battalions use the same deployment drills as Basic Forces' sub-units. Diagram 5-10 illustrates a typical assault formation.

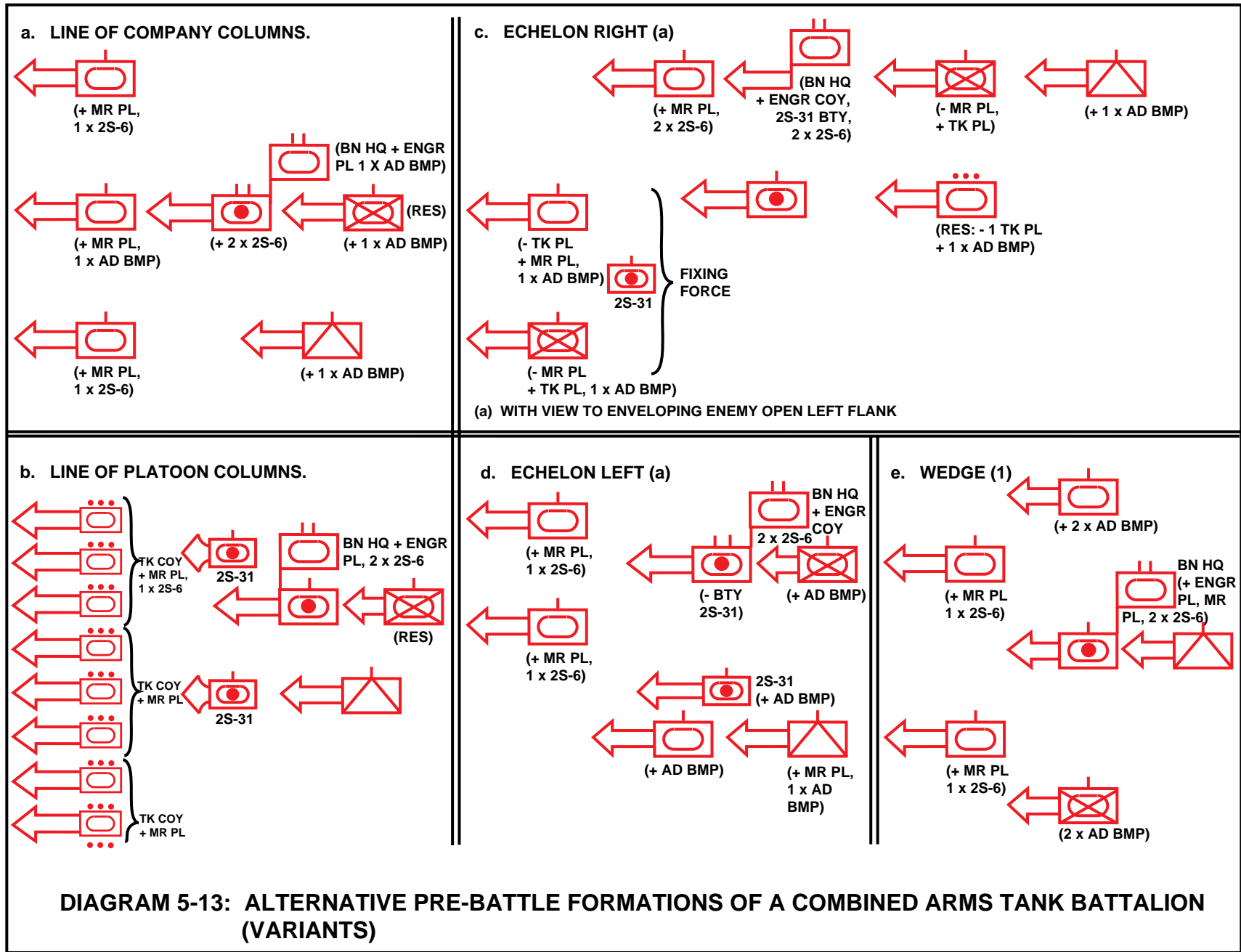
0533. **Obstacle Breaching.** GENFORCE units holding the front line will be responsible for clearing and marking gaps in any minefields they may have laid prior to the attack. Enemy minefields may be breached mechanically using KMT series mine ploughs fitted to tanks or BMPs or by explosive or manual means before the attack begins. Manual lifting is only likely if the attack is prepared during darkness but explosive breaches may be blown during the artillery preparation of the attack. Two methods may be used. Explosive hoses may be winched across the minefield or fired across by MTK armoured vehicles or UR-77 pods attached to tanks. Artillery fire or Fuel-Air-Explosive (FAE) strikes can be employed to detonate mines. (See Sections 2 and 6 of Chapter 9 for

details). Normally one breach is required for each assaulting platoon. Tanks lead through the breach, followed by infantry in file along the tank tracks. BMPs provide covering fire. All available means will be used to cover the gaps with smoke. Smokepots may be pre-positioned while breaches are prepared and vehicles may use their smoke grenade launchers as they approach the minefield. Meanwhile, artillery delivered smoke will blind known fire positions and OPs. It is normal to make extensive use of smoke to cover breaching actions, not only on the assault sector but to its flanks and in deception sectors.

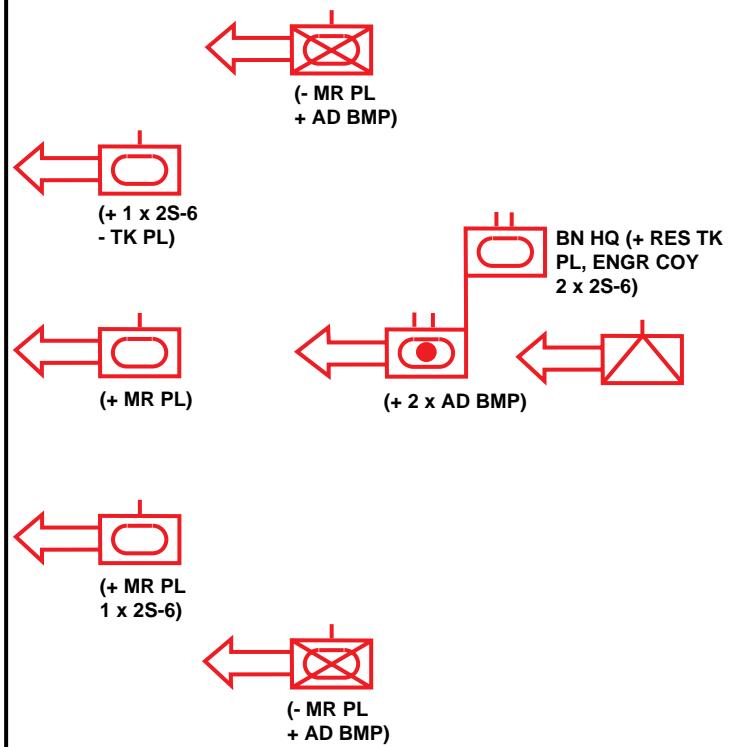
0534. **The Assault.** Once through any minefield the assaulting force will deploy in line and advance at its best speed. The tanks lead, followed by infantry in line. BMPs follow by bounds, using folds in the ground to reach fire positions and cover their dismounted element. Alternatively, BMPs using their stabilized main armament may move in line with the infantry. As the line of infantry approaches to within 25-40m of the enemy trenches grenades are thrown and personnel in the trenches destroyed by point-blank fire.
0535. **Fire and Movement.** In the assault on the enemy's first positions there is little scope for fire and movement at the lowest levels. The emphasis is on generating and maintaining momentum and even the briefest pause is forbidden. However, as the battle develops in the enemy's depth, fire and manoeuvre tactics may be employed within battalions, companies and even platoons. At what level will depend on the enemy's strength and combat effectiveness and, crucially, on the scope and intensity of indirect and direct fire support and the availability of concealment for the advance, either natural or, in the case of smoke, man-made.
- a. *Battalions and Companies* may use their support weapons and up to two thirds of their manoeuvre strength to deliver suppressive fire to enable the remainder to approach the enemy position. In this way a sufficiently strong force to assault the enemy strongpoint will be worked forward by bounds to a position from which an assault can be executed. In finally closing with the enemy, it is rare for dismounted infantry to assault alone, with tanks merely giving fire support. GENFORCE puts much stress on the morale effect, both on its own troops and on those of the enemy, and on the synergistic effects, of armour and motor rifle troops overrunning the defence together.
 - b. *Motor Rifle Platoons* may work their way forward in section rushes, covered by the fire of the remainder of the platoon and BMPs and support weapons. Alternatively, and more usually, all sections will advance simultaneously using fire and movement. Each section is divided into two sub-sections of three and the commander and RPG operator. Within each "three", the RPK will cover a rush by the two riflemen, then vice versa. Each rush is of 5-6 seconds, about 30-40m, to present the defenders with hard targets. After the platoon is concentrated on a line certainly not more than 100m from the objective, the decisive assault is launched simultaneously.
0536. **Trench and Bunker (pill box) Clearance.** If it is necessary to clear a length of continuous trench, two or three soldiers will advance along the bottom of the trench while the remainder of the section move along either side of the trench.



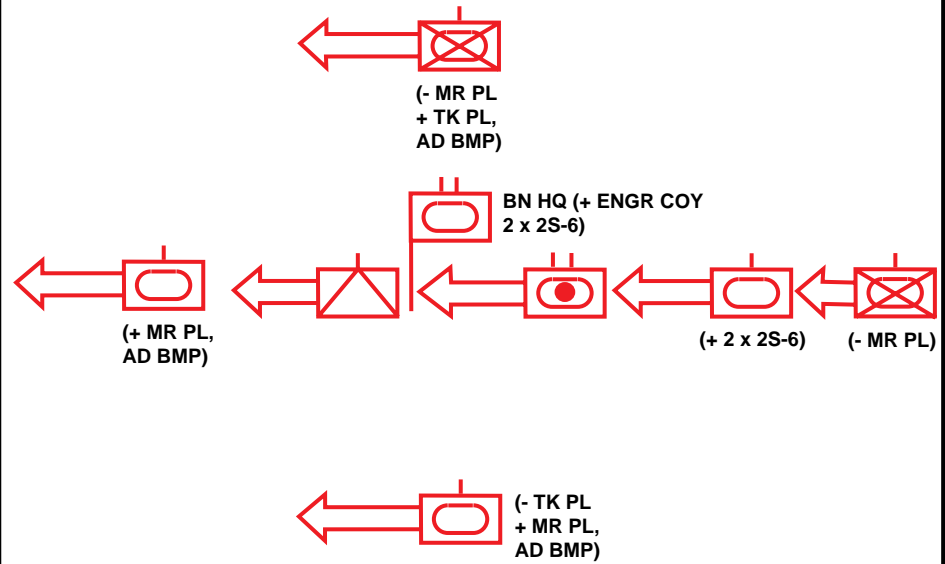




f. WEDGE (2)



g. DIAMOND



h. BOX

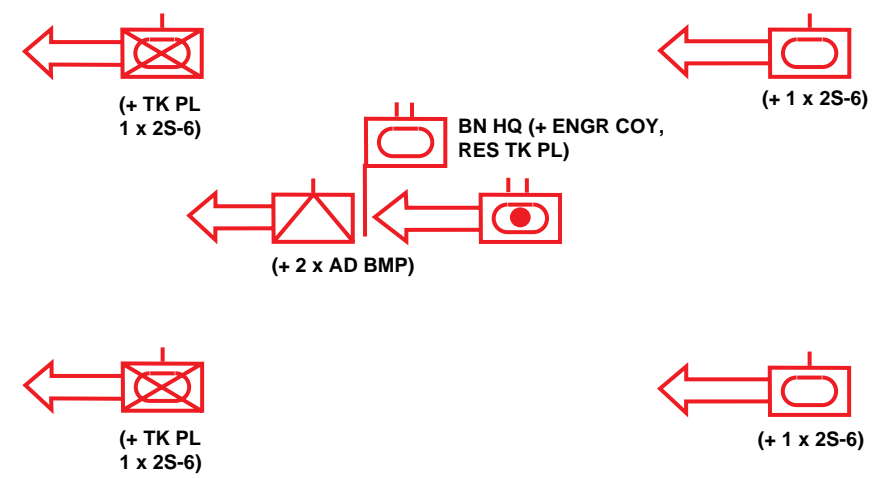


DIAGRAM 5-13B

Flame-throwers and grenades are used to clear dug-outs. Bunkers and pill boxes are demolished by tank or artillery direct fire or RPO(A) and infantry approach to clear the remains covered by machine gun fire. Grenades and flame-throwers prepare the way for entry. Of course, while bunkers or pill boxes are being attacked, suppressive fire and smoke must be used to neutralize other position capable of giving mutual support.

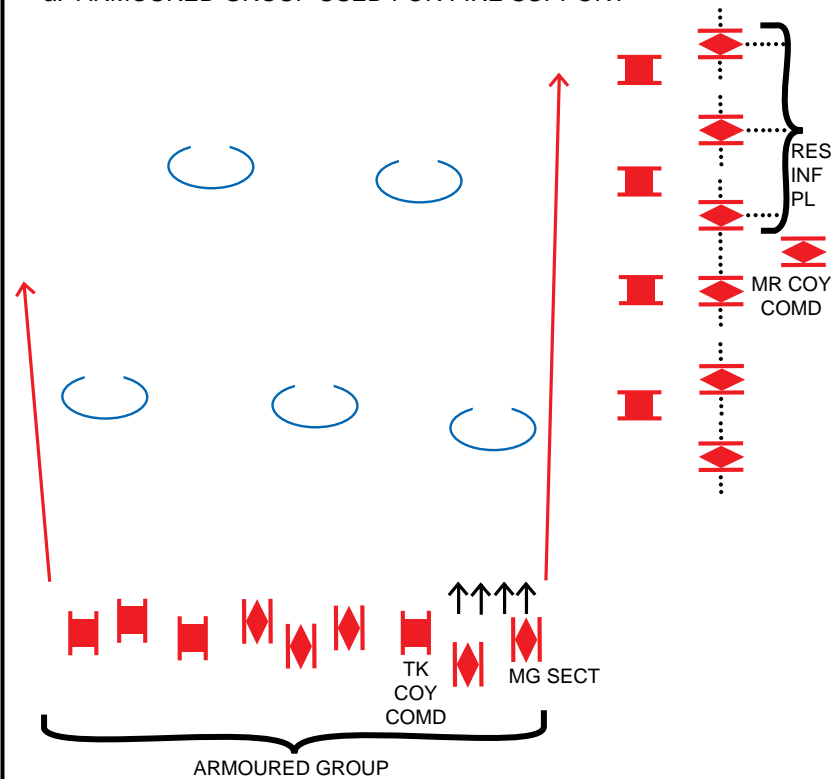
The Attack from a Position of Close Contact

0537. **Definition.** An attack from a position of close contact begins with the attacker in tactical contact with the defender. Such a position might occur as the result of an earlier unsuccessful attack, after which the GENFORCE unit or formation was obliged to go over to the defence on the line achieved. The advantage of this type of attack is that the attacker is able to reconnoitre the enemy position thoroughly. The disadvantage is that it is difficult to disguise preparations for the attack from the enemy and if preparations are detected the attacking force is very exposed to the enemy's fire.
0538. **The Combination of Types of Attack.** Obviously it is possible to combine the two types of attack on a defending enemy. Thus, after an unsuccessful first attack from the march a regiment, division or brigade might try again, using first echelon troops in an attack from a position of close contact and new, second echelon forces in an attack from the march.
0539. **Preparation of the Attack.** Detailed reconnaissance will take place and if observation and small raids do not provide the intelligence required, reconnaissance by battle may be organized (see Chapter 3, paragraph 0322). Additional artillery will be massed and ammunition dumped at firing positions. Engineer work is likely to include the preparation of routes and covered positions for vehicles close to start lines. Under cover of darkness, re-grouping will take place. In particular, fresh units may be introduced and less combat-effective ones withdrawn. Assault sub-units in the first line will close onto narrower attack sectors, probably leaving elements in vacated positions to maintain the impression that they are still occupied. Tank sub-units supporting motor rifle troops in the first echelon occupy waiting areas 5-7km from the line of contact ideally to one side or other of the attack axis as a security measure. Such moves must be made in strict secrecy, in order to create powerful assault groupings in sectors where the enemy is not expecting to be attacked. Diagram 5-11 illustrates a divisional attack from a position of close contact.
0540. **The Assault.** Under cover of the artillery preparation of the attack, tank sub-units will advance, deploying into battle formation as they do so. As the tanks pass the trenches of the motor rifle troops they are supporting, the infantry will climb out and follow, shaking out into standard assault formation. Some tanks and other direct fire weapons will continue to engage targets in the enemy front line. From this point there is little difference between the two forms of attack.

The Battle in the Enemy Depth

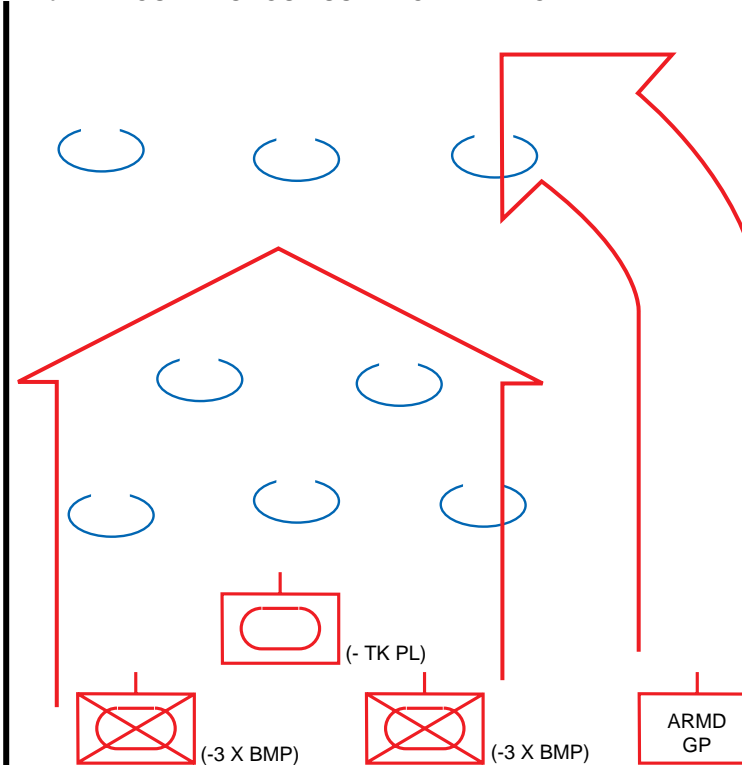
0541. **General.** The emphasis in this phase of the attack is to maintain momentum. Points of resistance will be by-passed if possible. Units and sub-units are expected to advance unevenly but GENFORCE doctrine teaches that a headlong advance is the best way to help flanking units. The situation is expected to change rapidly as the defender tries to close the gaps in his position. If the enemy tries to seal off or counter attack a penetration, a minimum force, usually an ATR, supported by artillery and smoke, will isolate the enemy on the threatened flank while the main body manoeuvres further into the depth.
0542. **Combat Formation in the Enemy's Depth.** After penetrating through the enemy's forward battalion strong points, it is possible that units will reform tactical march columns for a further advance. This is most likely to happen when only a thin crust had to be overcome and the enemy has not had time to deploy significant reserves or prepare depth defensive positions. Where the enemy is stronger, however, it is likely that battalions will advance in some variant of pre-battle formation. Which one is selected will depend on the proximity of the enemy, his activeness (eg, whether he is defending in depth positions or likely to counter attack), the presence of open flanks (enemy and/or friendly) and the terrain. GENFORCE's preference is to advance in tactical march columns or, where that is not possible, to adopt the pre-battle formation closest to it. This eases command and control and makes for a speedier advance. Diagrams 5-12 and 5-13 illustrate some possible pre-battle forms of advance.
0543. **Defeating Enemy Counter Moves.** Provided long-range fire superiority has been established and the penetration of the forward defences has been rapid, the enemy will be disrupted and unbalanced. Given a high level of mobility (including by helicopter) and the ability to manoeuvre fire, he can react quickly, however. It is thus vital to keep him off balance by the early insertion of reconnaissance, raiding and forward detachments and groups to intensify and prolong the disruption that has been caused. Groupings that have been identified as having the potential to conduct effective counter-moves must be pinned or slowed down by remote mining, air and long-range artillery and even ground attack. The same means must be used to destroy his artillery (especially MBRLs), air defences, EW assets and C3I facilities and means.
0544. **Attacking Positions in the Enemy Depth.** Whether the attack is mounted by a forward or raiding detachment or part of the main forces, there is likely to be less formidable artillery support for actions in the enemy depth than for penetrating forward defences. Reconnaissance information for targeting purposes is likely to be less complete and artillery has difficulty in supporting a high speed advance due to the time taken to get into action and prepare ammunition for major fire plans (for which, anyway, there is little preparation time). While regiments and battalions, at least on the main axis, will have significant quantities of artillery under command (much having been devolved downwards by DAGs and BAGs after the completion of the preparation and support phases), there will perforce have to be more reliance on traditional area suppression and less on more certain and economical precision fires. Aviation, especially attack helicopters, is expected to compensate for much of

a. ARMoured GROUP USED FOR FIRE SUPPORT



1. ATTACK BY MR COY REINFORCED BY TK COY (-TK PL)
2. ARMD GP OF A TK PL AND BMPs OF A MR PL AND THE MG SECT PIN THE ENEMY FROM THE FRONT AND SUPPORT THE ATTACK WITH ENFILADE FIRE. THE ARMoured GP IS COMMANDED BY THE TK COY COMD.
3. TAKING ADVANTAGE OF TERRAIN CONCEALMENT, THE MR COY AND A TK PL MOVE TO A GAP IN THE ENEMY'S DEPLOYMENT (FOUND BY THE CRP). THE INFANTRY FROM THE MR PL OF THE ARMD GP RIDE TO THE START LINE ON THE BACK OF THE TANKS AND FORM A DISMOUNTED RES.

b. ARMoured GROUP USED FOR ENVELOPMENT



1. ATTACK BY TWO MR COYS AND A TK COY. (EACH LESS 1 X PL)
2. ARMD GP OF A TK PL AND BMPs OF TWO MR PLs USES TERRAIN COVER TO INFILTRATE THROUGH GAP IN ENEMY DEPLOYMENT (FOUND BY CRP) TO OVERRUN DEPTH DEFENDED POSITIONS WHILE MAIN ATTACK GOES IN.
3. INFANTRY DISMOUNTED FROM ARMD GP's BMPs MOVE FORWARD TO ATTACK LINE ON THE BACKS OF THE TANKS. ALTERNATIVELY, THEY COULD FORM DISMOUNTED RESERVE FOR EACH MR COY FOR THE DETAILED CLEARING OF OVERRUN POSITIONS.

DIAGRAM 5-14: ATTACKS EMPLOYING AN ARMoured GROUP

the shortfall, but it cannot be everywhere at once, and units and sub-units on secondary axes in particular cannot rely on receiving air support when and where they need it. They will therefore have to rely much more on manoeuvre and on fire and movement executed by direct fire weapons than in the attack on the forward positions of the main defended area. Fortunately, the defender in the depth will usually lack the force density and the well prepared, integrated obstacle and fire plans that characterize the forward defences, so manoeuvre to catch the enemy at a disadvantage will be easier (provided, of course, that reconnaissance succeeds in revealing weakness and proving routes). Where a grouping has to rely largely on direct fire and movement to advance, it is common for about half its strength to provide covering fire while the other half advances. Any less proportion devoted to overwatch is considered likely to result in failure as enemy weapons have to be engaged in great depth and not just on the line of contact. Thus, for instance, GENFORCE believes that, to enjoy a reasonable certainty of knocking out an enemy ATGM at a range of 3km, the concentrated fire of no less than three tanks is needed.

0545. **Armoured Groups.** In order to maximise the use of all their assets, motor rifle units and sub-units will often form armoured groups in the attack. These comprise the BMPs of some of the infantry being employed in a dismounted attack and frequently, some tanks as well. Armoured groups are used in two roles:

- a. *Fire Support.* The group may be used to deliver direct fire support from the front while the main body manoeuvres to strike the enemy from the flank. Diagram 5-14(a) illustrates a motor rifle company reinforced by a tank company (less a platoon) utilizing this technique.
- b. *Manoeuvre.* If adequate indirect fire support is available and the tactical situation is favourable, the armoured group can be used more dynamically. In this variant, as Diagram 5-14(b) shows, it can be used to infiltrate through a gap in the enemy's deployment to deliver a flanking blow simultaneously with or successively to the start of the main attack. The firepower of the BMP (especially BMP-3) makes it effective in this role. While armour overrunning positions in this way cannot clear them properly, it can prevent depth defences from delivering long-range direct fire against the main attack and suppress the defenders until the infantry of the main attack arrives. Another possible manoeuvrist use of the armoured group is to work its way into the enemy rear and establish a blocking position to prevent the withdrawal of enemy forces facing the main attack. This is commonly done during an attack on a village or small wood, where all the infantry are required for clearance purposes but there is a redundancy of AFVs.

The Committal of Second Echelons/Reserves and Exploitation Forces

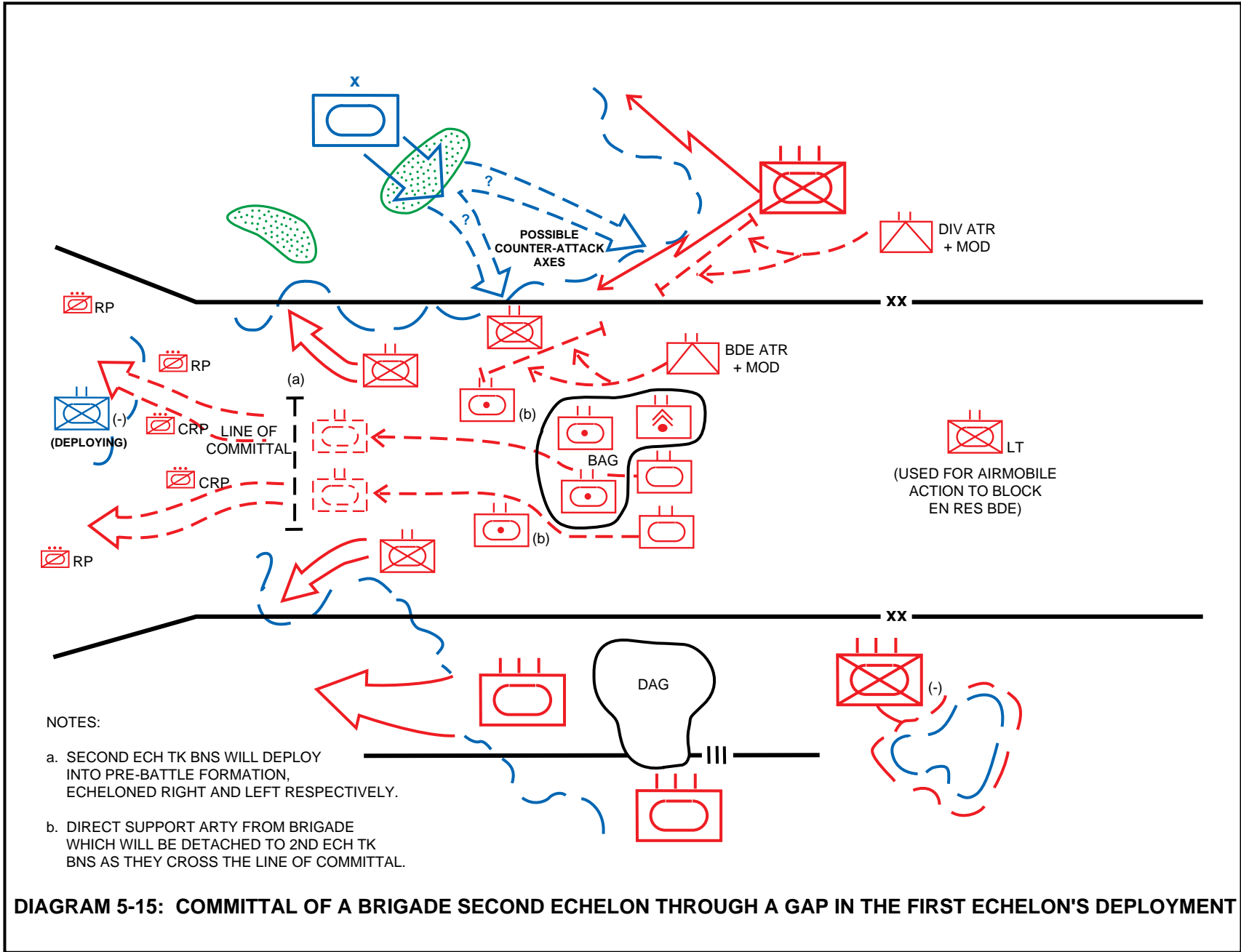
0546. **General.** The committal of a second echelon/reserve or exploitation element is a critical moment in the battle. It is vital to capitalize as early as possible on initial success to insert tactical manoeuvre elements into the enemy's depth to conduct deep battle. Only if this is successfully accomplished will the enemy's long-range strike capabilities be suppressed, momentum maintained and the

enemy kept off balance by prolonging and intensifying his disruption. Committal is not only critical but also a difficult and potentially high risk undertaking. The period of insertion will be characterized by great force density in the area of deployment, with all the attendant possibilities of confusion and delay and the presentation to the enemy of a rich target array for precision, air, artillery and even ground attack. The following paragraphs consider GENFORCE's view of problems and principles.

0547. **Timing.** The timing of committal is crucial. If attempted too early, there may not be space enough to employ effectively all the combat power of both echelons and the enemy may be strong enough to halt the process and take advantage of the target-rich environment to ruin the attack irretrievably. On the other hand, a belated move is almost as bad. The entry of a second or exploitation echelon into battle is part of a competition in escalating combat effort, with forestalling the enemy as the prize. If committal is left too long, the progress of the first may be slowed or stopped and its combat effectiveness may become dangerously low as enemy counter-moves take effect. The defender may thus recover his balance and eliminate the threat to his high value assets in the depth. The time window for the optimal moment of committal is often going to be relatively small. To exploit it correctly puts a heavy emphasis on the commander's ability to forecast and then read correctly the course of the battle. This, and the rapid reaction of the echelon in question to the order for insertion is, in turn, dependent on two other factors. Pre-planning, during which much of the detail is worked out beforehand, and well rehearsed drills are critical to speedy and smooth entry into combat (hence the logic of forming pre-tasked second and exploitation echelons rather than reserves). The grouping must also be well forward at the time of decision, despite the attendant risks. It will also have to be in a denser formation than is normal in tactical march columns in order to shorten the time taken to pass the line of committal. Table 5-4 gives broad yardsticks for the place of second echelons in tactical formation and Table 5-5 sets out the likely response times of enemy elements which have to be forestalled if momentum is to be maintained.

TABLE 5-4: DISTANCE BETWEEN ECHELONS (KM)

Phase of Battle	Sub-Unit, Unit and Formation		
	Battalion	Regiment	Division/ Brigade
During the first echelon's penetration	3-5	10-15	20-30
Just before entry into battle	1.5-2	3-5	10-15



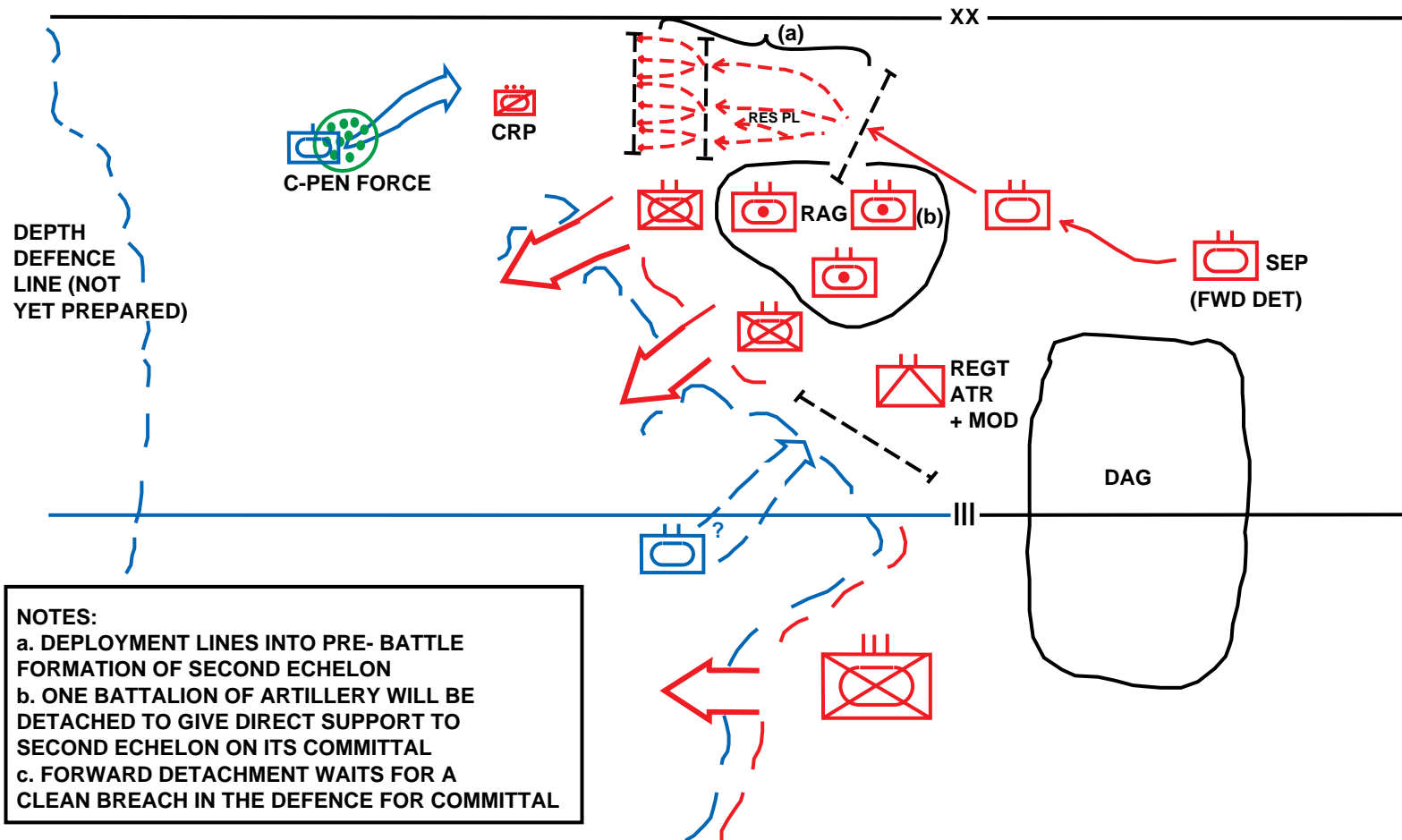


DIAGRAM 5-16: COMMITTAL OF A REGIMENTAL SECOND ECHELON TO THE FLANK OF THE FIRST ECHELON

TABLE 5-5: TEMPORAL INDICATORS FOR THE MANOEUVRE OF RESERVES IN DEFENCE

Defender's Force	Distance (km)	Rate of Movement	Movement and Deployment time (a)	Time to Completion of Manoeuvre (b)
Reserve battalion of first echelon brigade	5	15-20kph	20-25 mins	30-40 mins
	10	15-20kph	35-50 mins	45-60 mins
	15	15-20kph	50-70 mins	60-80 mins
Reserve brigade of first echelon division	10	15-20kph	40-55 mins	60-80 mins
	15	15-20kph	55-75 mins	75-100 mins
	20	15-20kph	75-100 mins	95-130 mins
Artillery battalion (move to new position)	10	15-20kph	30-40 mins	35-50 mins
	15	15-20kph	45-60 mins	50-70 mins

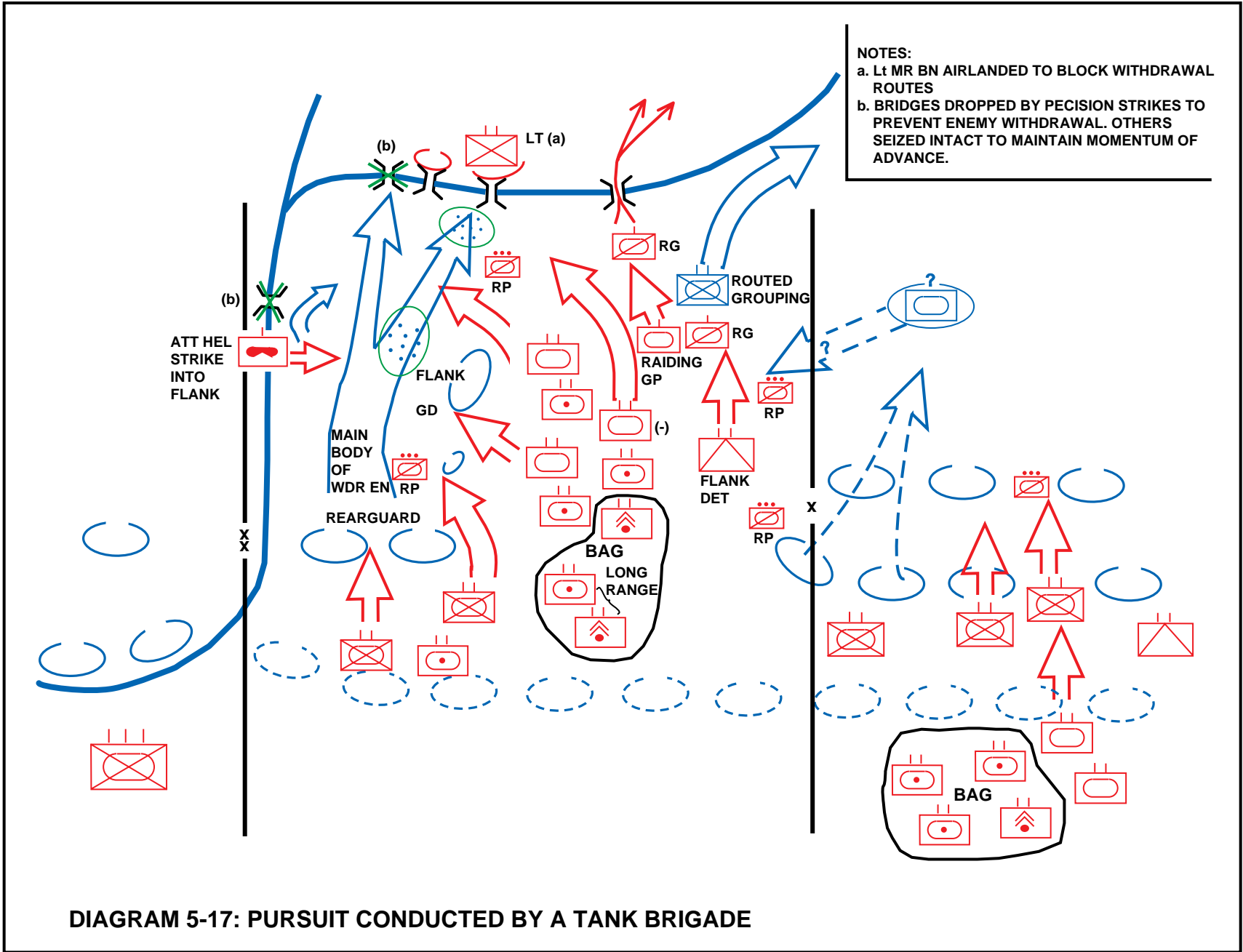
Notes: (a) Time includes preparation time and ends with arrival on the designated line.

(b) Time includes the above and time required to deploy for combat action.

0548. **Line of Committal.** The second echelon should be launched into battle after the densest part of the defence (usually the first echelon) has been penetrated and the enemy's fire system disrupted. This will generally be in the area of the sub-unit, unit or formation's immediate objective. Several alternative lines of committal and routes to them will be pre-selected and plans (including for air defence and engineer work) will be worked out in advance. The one selected will depend on the degree of success attained by the first echelon, enemy reactions and capabilities and the capabilities and limitations of supporting elements. There are three possible options.

- a. *Into a Gap.* The second/exploitation echelon can enter into battle through a gap in both the first echelon's and (ideally) the enemy's deployment, either on an axis where there has been little combat previously or into one created by the first echelon (see Diagram 5-15).
- b. *To a Flank.* Another favourable circumstance for committal is when the second/exploitation echelon can be passed round the flank of the first. If, in so doing, it outflanks the enemy or hits a gap in the defence, so much the better (see Diagram 5-16).
- c. *Passage of Lines.* The least desirable option is a passage of lines through the first echelon. This will create considerable C2 problems, slow the whole process to a snail's pace and run the risk of confusion and congestion which will be a gift to enemy targeters.

0549. **Support for Committal.** When a second or exploitation echelon enters into battle, all available resources are employed to ensure the success of the venture. Routes will have been prepared by the engineers, who will also be ready to clear passages through enemy remote mining. Air defence will cover the approach and line of committal (at formation level, there will often be protective Combat Air Patrols (CAPs) as well). Chemical troops will provide smoke cover. Aviation, EW and artillery will suppress all enemy fire units capable of engaging (including direct fire weapons to the front and flanks). They will also neutralize enemy reserves and prevent the lateral shift of enemy forces to fill the breach through remote mining and the delivery of fire strikes. The first echelon will mount supporting attacks. Air landings in the enemy's rear are often timed to coincide with the committal of second echelons to take advantage of the air and counter air defence effort that supports the entry into battle and to complicate the enemy's reactions. They may be executed in support of the second echelon, to block the moves of enemy reserves or destroy enemy long-range systems.
0550. **Organizing Committal.** During the fight for the immediate objective, the commander of the second/exploitation echelon moves very near to the senior commander to keep his finger on the pulse of the tactical situation and make sure that his plans are continuously updated on the basis of the latest intelligence. He needs to know many things in order to refine his decision, including:
- a. *The Missions of First Echelon Elements* (including the direction of main effort) and their combat effectiveness.
 - b. *The Role of His Command* with respect to the mission of the senior commander and his concept.
 - c. *Reinforcements* earmarked to join his echelon, either from the first or from the resources of the senior commander.
 - d. *The Enemy Situation*, including his strength, probable deployment pattern at the time of entry into battle; deployment areas of reserves and artillery and the likely employment of the former.
 - e. *Responsibility of Different Elements* for neutralizing the enemy on the line of contact and in the depth on the echelon's axis.
 - f. *The Effects Terrain will have* on movement and deployment and the subsequent advance.
 - g. *The Time of Arrival on the Line of Committal* as laid down by the senior commander.
 - h. *The location of CPs.* That of the second/exploitation echelon and of the first echelon will be co-located if a passage of lines is contemplated.



0551. ***The Conduct of Committal.*** On receiving the order to enter battle, the commander of the second/exploitation echelon despatches his reconnaissance to provide intelligence, both on the situation in the area of committal and in the enemy's depth. He will then refine his decision in the light of developments and issue final instructions. Given the pre-planning that has gone before for likely variants, these changes will ideally be few and brief. The march is conducted at the highest possible speed to reduce the danger period of interdiction and remote mining. Prior engineer preparation and route marking and clearance will expedite the move. The line of committal and, if necessary, the flanks of the second/exploitation echelon will have been secured by the first or by an ATR. The formation adopted to cross the line of committal will depend on the enemy's strength and actions. Ideally it will be in (initially compressed) tactical march formation. Alternatively, it could be in either a variation of pre-battle formation or in battle order.

Action Against Counter Attacks

0552. ***General.*** Enemy counter attacks are expected whatever the nature of the defence. If the enemy is strong, whether in positional or manoeuvre defence, there will be weighty counter attacks to destroy the penetration. If the enemy is weak and using manoeuvre defence to buy time at the expense of ground, then counter blows will be delivered with the more limited aim of helping forces in contact to withdraw. Therefore every commander's plan of attack must include provision for the repulse of counter attacks. Moreover, this must be done without weakening the attack on the main axis and without loss of momentum. Three methods, or more usually a combination of them, may be used.

0553. ***Deep Fire and Manoeuvre.*** The best method of defeating any counter move is to deplete and disrupt it before it can engage the main forces. A reconnaissance priority will be to locate enemy reserves. These can then be pinned or diverted from their chosen axis by remote mining (either by aircraft or artillery) and hit by air and artillery strikes (especially using precision weapons). Forward or air-delivered detachments may also be tasked with establishing blocking positions or even destroying the enemy through ambush or in a meeting battle.

0554. ***Repulsing the Enemy Through Defensive Action.*** Formation and unit MODs and ATRs will move on a threatened flank and/or in the centre of the combat formation ready to move to a threatened flank. (This is illustrated at combined arms battalion level in Diagram 5-13). When the threat materializes, the ATR deploys into 1-2 firing lines in the enemy's path and the MOD lays a minefield in front (often using surface laying if time is short). Where it is necessary to win time to enable the ATR to deploy to a favourable line, remote mining may be used to delay the enemy: at formation level, this can be done using the ATR's organic artillery battalion. As the enemy approaches, artillery and mortar fire are used to disrupt his attack and separate dismounted infantry from tanks, and the attack is repulsed by both direct fire and indirect (using laser-guided artillery and air-delivered rounds). If the enemy is particularly strong, the defender may be able to call upon attack helicopters to attack the enemy on his distant approach or to thicken defensive fire on the chosen line. Assuming the

helicopters are at readiness stage 1, a flight can deliver an attack in 16-20 minutes and a company in 17-23 minutes (given a flight distance of 40-50km). Providing it does not distract the main forces from fulfilling their offensive mission, GENFORCE will often seek to use the blocking forces as an anvil on which the counter attacker is destroyed in an envelopment manoeuvre. (At the operational level, a machine-gun artillery division may be used as an economy of force flank guard or reserve to block a major counter attack and provide a pivot and fixing force for manoeuvre to destroy the enemy.)

0555. ***Destroying the Enemy in a Meeting Battle.*** If the enemy force is equal to or somewhat weaker than the attacker and cannot be bypassed, GENFORCE prefers to encompass his destruction in a meeting battle rather than repulse him from a defensive posture. This is dealt with in Section 5 of this chapter.

SECTION 4 - PURSUIT

0556. ***General.*** GENFORCE stresses that to defeat the enemy is not enough. Forces that are merely forced back may be reinforced and fight again, this time successfully. Destruction of the enemy is the goal, and this is most often accomplished by encirclement or in the course of a vigorous pursuit. Significantly, pursuit is studied as a separate and distinct phase of war. The pursuit phase begins when the enemy is routed or when he attempts to break contact and withdraw. Commanders at all levels from battalion upwards are obliged to maintain contact and to initiate pursuit without awaiting further orders.
0557. ***Conduct.*** GENFORCE distinguishes between two types of pursuit, frontal and parallel. The former is not considered sufficient on its own and needs to be conducted simultaneously with the more decisive latter form. Diagram 5-17 illustrates all the elements of a pursuit.
- a. *Frontal Pursuit* consists of closely following up a withdrawal, maintaining constant pressure with the aim of overcoming rear guards and falling on the tail of the retreating columns or of forcing the enemy to deploy to stop this from happening.
 - b. *Parallel Pursuit* is conducted on parallel axes with the aim of both striking into the flanks of the withdrawing enemy to slow him down and to overtake him and block any further withdrawal. The enemy will then be destroyed by a combination of flank and rear attacks.
0558. ***Slowing and Halting the Enemy.*** Withdrawing columns will be particularly vulnerable to parallel pursuit if only they can be slowed down or stopped. Three complementary methods are used to achieve this. Remote mining and air and long-range artillery strikes, especially on choke points, will have a significant retarding effect: precision strikes on bridges are seen to be particularly effective. Airmobile forces will be inserted into the enemy rear to establish blocking positions, preferably behind an obstacle that the enemy has to negotiate. Forward detachments will likewise be tasked to establish blocking positions. Usually, they will be used to reinforce the air-landing troops so that their armour,

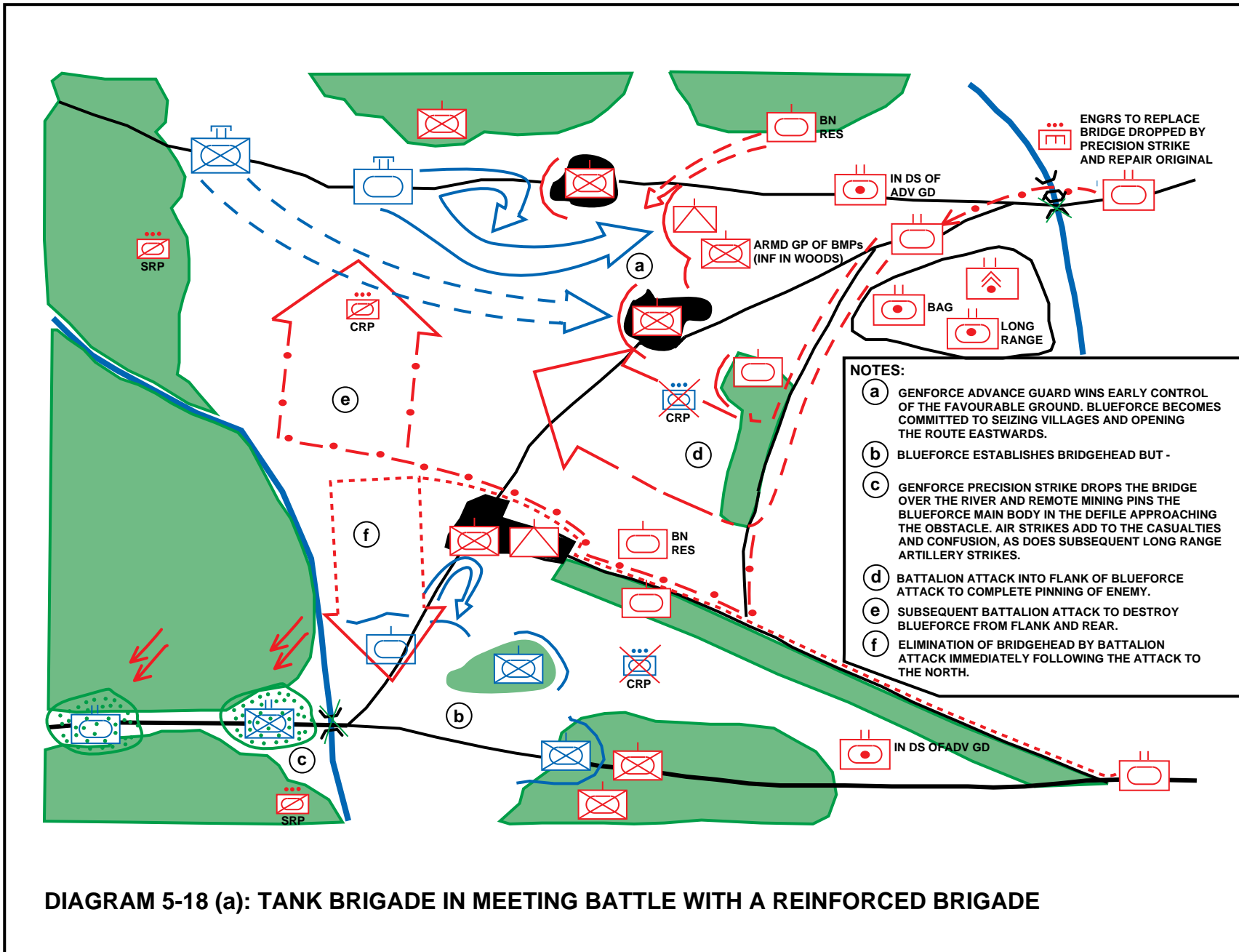


DIAGRAM 5-18 (a): TANK BRIGADE IN MEETING BATTLE WITH A REINFORCED BRIGADE

artillery and engineer resources can stiffen the more lightly equipped infantry and provide a manoeuvre element in the area of the block.

0559. **Tactical Formation.** In pursuit, even greater than normal freedom of action is accorded to units and sub-units and these are reinforced to make them tactically independent. Generally, the emphasis will be placed on the forces conducting parallel pursuit. Those following up the withdrawal directly will be as small as is compatible with maintaining strong pressure on the rear guards. Artillery will be largely decentralized to the pursuing units and will be held well forward in order to support leading elements as quickly as possible. Groupings conducting parallel pursuit will, of course, have open flanks and ATRs and MODs may be stronger and more numerous than usual. This will certainly be the case if the battle has developed unevenly and one unit or formation is conducting a pursuit while others are still engaged in battle with a stubborn defence or repulsing enemy counter attacks. There will be even greater than normal demands placed on reconnaissance. Not only must the withdrawal be monitored but possible landing sites and obstacles must be reconnoitred, routes proved and long open flanks covered as far out as possible. Accordingly, extra RGs and RPs may well have to be found from tank and motor rifle sub-units.

SECTION 5 - THE MEETING BATTLE

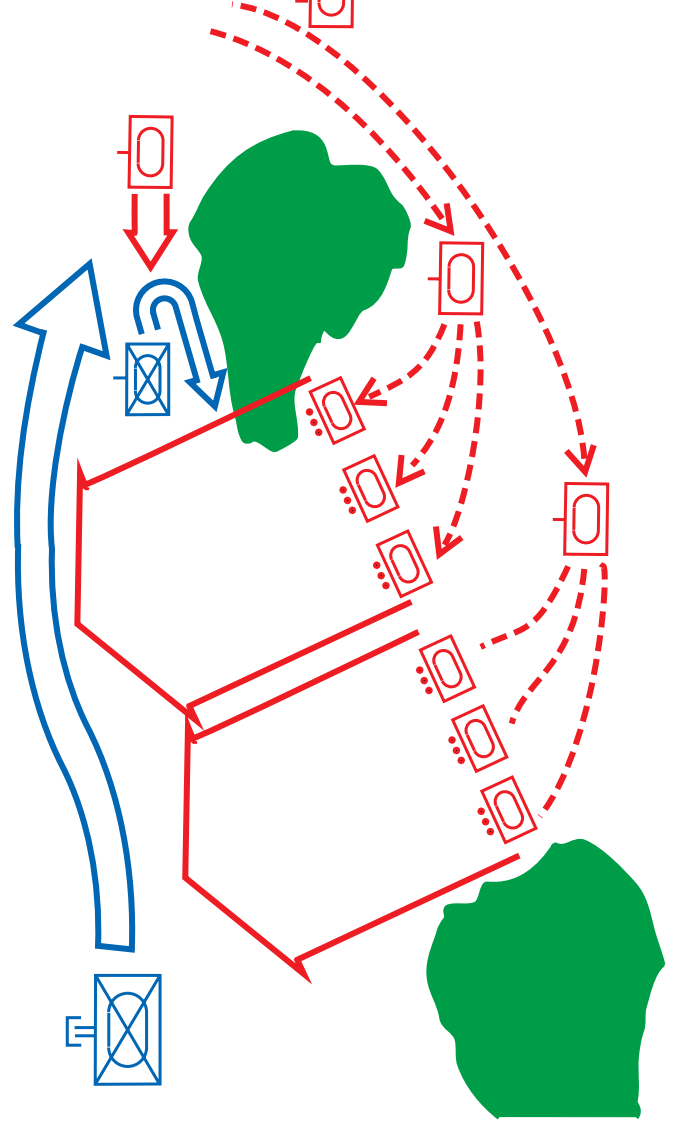
0560. **Definition.** In GENFORCE doctrine a meeting battle occurs when both sides are trying to fulfil their mission by attacking. For both sides, the goal is to rout the enemy rapidly, seize the initiative and create advantageous conditions for subsequent operations. On the more open, non-linear, manoeuvre dominated battlefield expected in future wars it will be an increasingly common form of battle. Unlike the British Army, GENFORCE does not expect meeting battles to be only small-scale affairs. Not only can they easily take place at division/brigade level, but GENFORCE anticipates even operational level meeting engagements. Such clashes are likely to occur in the following circumstances:
- a. At the outbreak of hostilities when one side has been surprised and is trying to deploy into forward defensive areas.
 - b. After a breakthrough into the depth of the enemy defence when his reserves are forestalled at a counter penetration position or he is trying to counter attack.
 - c. During an enemy withdrawal, when he is outflanked or arrives at a blocking position simultaneously with friendly forces.
 - d. In the defence, when a counter attack is launched against an enemy breakthrough which has not been halted by counter penetration.
0561. **Characteristics.** In the GENFORCE view, the chief characteristics of the meeting battle are as follows:

- a. *A Clash on the Move.* Both sides will be attacking from the march or pre-battle formation leading to a close quarter battle in which speed and surprise will be the crucial factors, closely followed by numbers.
- b. *Struggle for the Initiative.* There will be an intense struggle to seize the initiative with each side trying to impose its will through offensive action. The winning side will be that which imposes his will upon the enemy, forcing him into a reactive posture.
- c. *Fluid Battlefield.* The battle will be one of manoeuvre, with both sides having to accept open flanks and quite possibly gaps in their deployment as the action spreads over a wide area. As neither side will enjoy the advantage of having chosen and prepared the ground (and this will apply even if one goes over to the defensive at the last minute) there will be everything to be gained from bold manoeuvre.
- d. *Obscurity of the Situation.* For most, or all, of the time the situation will remain fluid and obscure. Intelligence will be limited and will date rapidly. The GENFORCE conclusion from this is not that commanders should wait until the situation is clarified but that they should attack vigorously into the gaps and flanks of the enemy deployment. Given that there may be sudden and dramatic developments, special reserves, in particular anti-tank, will be needed to meet the unexpected. Only an uncompromising commitment to the offensive, however, will ensure that most of the unpleasant surprises happen to the enemy; the gains from offensive action out-weigh the risks.
- e. *Shortage of Time.* The time available for decision-making and deployment will be very limited. To take an example, if opposing groupings are approaching at 15kph, the closing speed will be 30kph. If, say, 45km separate the two sides, the commander will have only 1-1.5 hours to make his decision, issue his orders and have his command deploy. It is this shortage of time that makes GENFORCE put such emphasis on simple battle drills. He who gets his blow in first and builds up combat power fastest is likely to win.
- f. *Decisiveness.* Meeting battles are expected to be decisive. The defeated side, outflanked and penetrated deeply from the front, with no prepared positions to fall back on, and with massive command and control problems, will find it very difficult to go over to the defensive or withdraw. Such a force will not survive for long as a coherent combat grouping.

0562. **Conduct.** As the GENFORCE unit advances in tactical march formation, the action in a meeting battle usually follows the sequence below. Diagram 5-18 illustrates a typical meeting battle.

- a. *Location and Identification of an Approaching Enemy.* First reports of an approaching enemy and thus of the possibility of a meeting battle are likely to come from higher headquarters. One of the first reactions of the GENFORCE commander will be to direct his own reconnaissance assets to provide more detail of the enemy's location, strength, movements and

A - IN SEQUENCE



B - SIMULTANEOUSLY

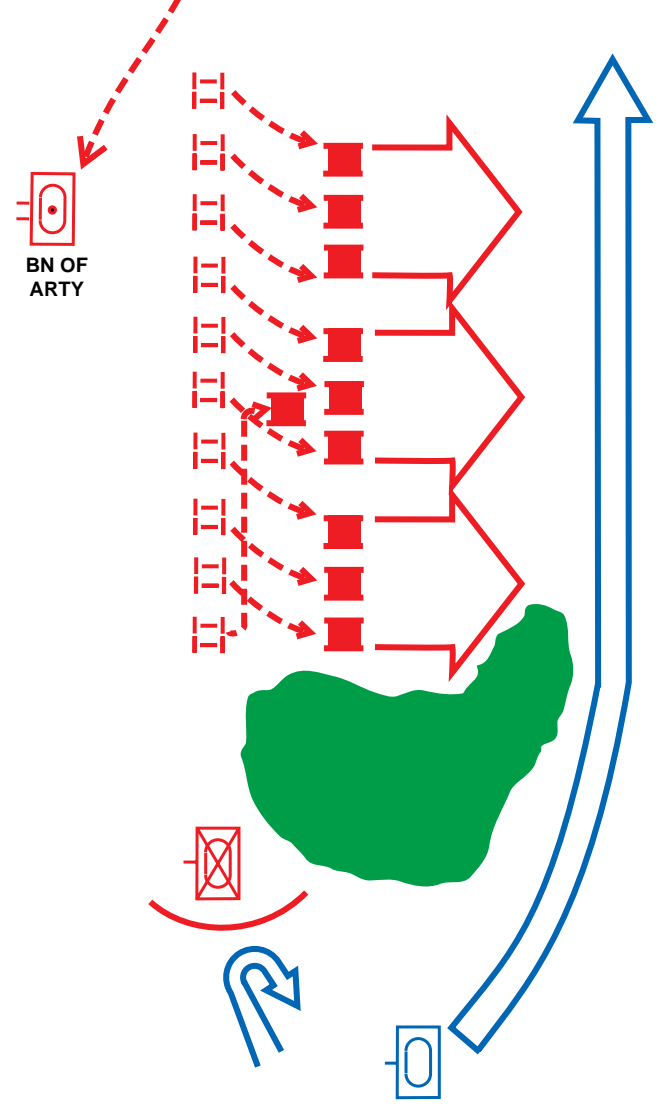


DIAGRAM 5-18B: ALTERNATIVE DEPLOYMENT DRILLS FOR SUB-UNITS IN A MEETING BATTLE

intentions. Thus, for example, a regiment might be warned of the approach of an enemy force by its parent division and send out additional separate reconnaissance patrols to contact the enemy. Similarly a battalion might learn of an advancing enemy battalion from its regimental CP and the commander could well decide to send out at least an additional combat reconnaissance patrol. In the worst case, a battalion acting as a vanguard or forward detachment might learn of an approaching enemy only from a contact report from its own reconnaissance or forward patrol. In such a case, little more than 10-15 minutes may be available to the commander to organize his force for the meeting battle.

- b. *Decision to Initiate a Meeting Battle.* A commander may be ordered to undertake a meeting battle or may have to take the decision on his own initiative, although in the latter case his decision will have to be confirmed as soon as possible by his senior commander. Meeting battles will often arise in the course of a march and a commander who has not considered the possibility of a meeting battle in planning his order of march may be fatally handicapped. However the mission to conduct a meeting battle may also be received while waiting in an assembly area, which will allow more detailed planning.
- c. *Selection of the Point of Contact.* The GENFORCE commander will assess the locations of the opposing forces and their speed of advance. Using a nomogram or a mathematical calculation, possibly with the assistance of a programmable calculator, he can plot the likely line of contact on his map. From a map assessment he determines the location of the key terrain in that area. It is vital to seize this ground before the enemy and this task may be allocated to a forward detachment or to leading march security elements. It may be necessary to slow the enemy down so that he is forestalled in the race for the favourable ground. Remote mining and/or air attack may be used to accomplish this, as may the actions of a forward detachment.
- d. *Engagement of the Enemy.* The battle will open before the sides reach the stage of a direct fire battle. Precision, air, long-range artillery and remote mining attacks will be delivered against the approaching enemy. If the upcoming battle is of great importance to the senior commander, he may even commit an airmobile force to seize the favourable ground or delay the enemy's approach to it. The intention is to assault the enemy's main body and destroy or disorganize his force, save perhaps for some isolated pockets of resistance. Speed and shock action are paramount. The forward march security elements can occupy a blocking position and begin engaging the approaching enemy. Attached artillery will also deploy as rapidly as possible and open fire. Anti-tank elements should be well forward in the march formation so that they may join in the task of pinning the enemy force. The commander is likely to join his forward element and try to judge the situation for himself. The main body should deploy to the selected assault position without delay and strike the enemy's main body as it advances to support its forward elements. Ideally the enemy is then distracted and assaulted while on the move or deploying, preferably from a flank or even both flanks. If flank attacks are impossible a frontal attack will be launched, but the

commander will still try to introduce an element of surprise. The main body should usually act together, in order to ensure an effective blow is delivered, though sequential attacks may be conducted to save time: the first blow will pin and disorganize the enemy and the subsequent one will destroy him. A mounted attack is the rule in meeting battles.

- e. *Facing a Superior Enemy.* The attacking force is not expected to attain the degree of superior force over the enemy required in attacks on a defending enemy. A force which has parity with the enemy, or is even slightly inferior, can achieve victory if it holds the initiative. However, if the enemy is significantly superior in strength, or pre-empts the GENFORCE unit in seizing the key ground, the GENFORCE unit will try to deploy on a favourable firing line and check the enemy advance. It must then continue to disrupt the enemy's deployments and try to create favourable conditions for a senior commander to introduce new forces into the battle.
- f. *Influence of the Senior Commander.* Given the nature of the meeting battle, much must be left to the judgement and initiative of the commanders on the spot. This is not to say that the senior commander does not exert any influence on the outcome. He will provide intelligence and supporting fire, including air support at formation level. He will also delay any approaching enemy reserves by both remote mining and air and long-range artillery attack. He may also commit an air mobile or air assault force to attack a key enemy grouping from the rear, destroy the enemy controlling HQ or block potential enemy withdrawal or reinforcement routes.

0563. ***Subsequent Action.*** The meeting battle ends when one side is destroyed or adopts a new tactic, such as establishing a defensive position or withdrawing. An attack from a position of close contact could then be mounted or, depending upon the situation, a pursuit or withdrawal.

SECTION 6 - RIVER CROSSINGS

General

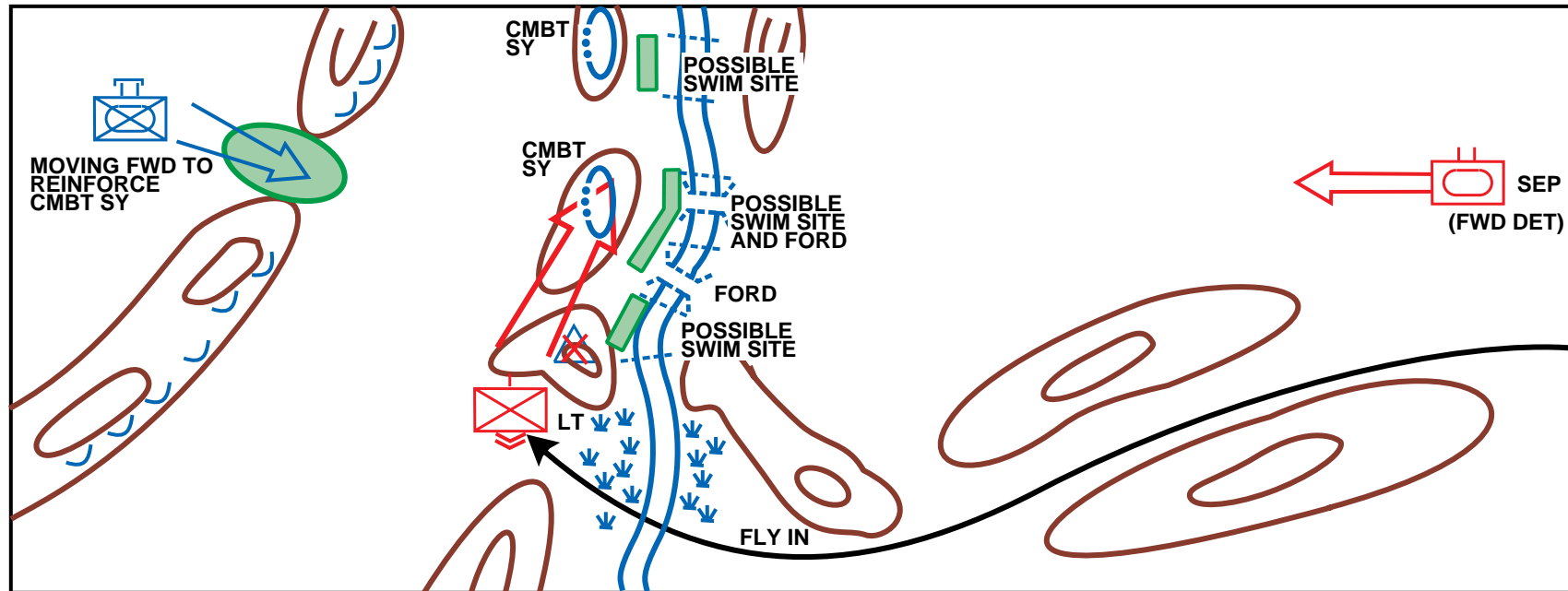
0564. ***Attitudes Towards Water Obstacles.*** There was a time when GENFORCE purported to regard river and canal crossings as routine actions that could be executed from the march without a pause either before the obstacle or in the bridgehead and with little slackening of offensive impetus. In practice, this proved difficult to live up to, even in training. Now obstacle crossings are regarded as being amongst the most potentially dangerous and difficult of operations. Ferry and bridge sites and the concentrations of troops behind them are very vulnerable to ACM, particularly precision, strikes. At any stage in a formation's attempt to cross, the enemy may be able to sever the links between a bridgehead and the forces waiting to cross and destroy the former in a counter attack before it has become sustainable and inflict severe damage on the latter as they bunch on the obstacle.

0565. **Requirement for Preemption.** The best solution to the problem is seen to be the seizure of crossings before the enemy can deploy adequate forces to defend the line of the obstacle. The exploitation force concerned can create a well defended bridgehead. Not only will this ease the crossing of the main forces, preventing the loss of time consequent on having to force the obstacle, but they may also trap the retreating enemy on the wrong side of the river or canal so that he can be crushed on the obstacle. The consequent gap opening in the enemy's combat formation will ease the subsequent advance.
0566. **Crossing on a Broad Front.** The difficulty in finding suitable crossing sites often forced GENFORCE to cross on a wide front in the past. Now, even where no such terrain considerations intervene, obstacles are always crossed on a broad front. This complicates the enemy's intelligence picture in the crucial early stages, increases the probability of creating at least one or two viable bridgeheads and reduces the danger of vulnerable concentrations and traffic jams.
0567. **Equipment.** Recognising that water crossings will loom as large in future war as in the past (in withdrawal and regrouping as well as in the advance), GENFORCE has given an amphibious capability to as many combat vehicles as possible and provided generous quantities of engineer crossing means.
- a. **Combat Equipments.** Given favourable bank and bottom conditions, tasks can be performed across a river up to 5.5m deep. BMPs and BTRs, some of the lighter SP artillery pieces and some air defence vehicles can swim provided the entry and exit gradients are not more than 20-25% and 25-30% respectively (though wheeled vehicles are limited to an exit gradient of 10-12%) and provided the current is not more than 2m per second.
 - b. **Engineer Equipments.** With their organic tank-launched bridges MT-55 or MTU-30, units can cross gaps of up to 20m in width, ie about 60% of the obstacles they are likely to encounter. Regimental and divisional/brigade engineers also have TMM sets spanning up to 40m. Both tank bridges and TMM are Class 60. The PMM-2 and PP-91 systems, held at formation level, can be used to construct medium or heavy ferries or bridges over wide rivers. Amphibians with trailers can be used to transport soft-skinned vehicles and artillery. A variety of assault boats are also available. In addition to the considerable crossing means available to lower formations, army and corps possess specialist assault crossing and bridging units as well as extra TMM and MTU bridging.

Forced River Crossings

0568. **Foresight.** Should an opposed crossing of a major obstacle be inevitable, the decision for it must be made well in advance: the army or corps commander issues combat missions at least 1-2 days in advance of leading lower formations reaching the river or canal so that combat groupings, engineer and air and air defence support, assault landings and camouflage/deception measures can be organised ahead of time. This is essential if the necessary speed and surprise are to enable a crossing to be executed from the march.

0569. **Level of Command.** Regiments and combined arms battalions are deemed capable of dealing with small obstacles. If a river or canal is 20-100m wide, forcing it will be a brigade/divisional task. Medium sized and major rivers (100-150m wide and over 150m in width) must be organised at army/corps or SG level respectively. The following paragraphs will concentrate on forcing actions by lower formations.
0570. **Reconnaissance.** Even more detailed reconnaissance than normal is required, especially by engineers. During the approach to the obstacle, continuous and active reconnaissance is conducted by RPVs, mobile patrol and static OPs. As well as identifying enemy positions and weapons and discovering weak spots and gaps in the defence it is necessary to find suitable crossing sites (the specialist IPR and IRM reconnaissance vehicles are considerable aid here), routes, areas for sealing schnorkeling tanks, hides for assault crossing equipments, loading areas for ferries and concealed concentration areas for the main forces.
0571. **The Approach to the Obstacle.** The tactical formation of a division or brigade must be adjusted as the obstacle is approached in order to force it from the march without a potentiality dangerous pause for reorganisation in front of it. Motor rifle units should lead as they can use the amphibious capabilities of their BMP, ATGM vehicles and light artillery to cross without preparation. Artillery and chemical troops need to be well forward as an opposed crossing usually requires heavy fire support and smoke cover on the approaches and during the crossing. Consolidation of the bridgehead too will require strong artillery support to compensate for the initial absence of tanks. Engineer mine clearing means and amphibians will also have to move well up the tactical march column as it will be essential to get tanks, medium artillery and air defenders into the bridgehead as rapidly as possible to ensure its early expansion to a viable size and its retention in the face of counter attacks. Plainly there will be much competition for road space and careful staff work will be at a premium.
0572. **Seizing a Bridgehead Early.** Almost invariably, an attempt will be made to establish a bridgehead (preferably with an intact bridge or at least a fording site) before the advanced guards of the formation arrive. Ideally, this will already have been done for the division/brigade by an operational air landing or OMG elements. If, however, self-help is required, a forward detachment and/or (usually and) an air landing detachment or group will be despatched to seize a crossing if there is any chance of doing so before the enemy can establish a strong defence. A forward detachment will move at least 2-3 hours ahead of the main body, but it may well be expected to seize and hold a crossing for up to 12-18 hours before relief, depending on the enemy's ability to react and the availability of fire support. It will of course have attached assault crossing means. An air landing force may be used to seize a bridgehead, either before the forward detachment, which will then reinforce it, or independently. In the latter case, given its lack of armoured firepower and paucity of air defence, it will not be expected to hold for as long as a forward detachment.



DESCRIPTION OF ACTION

1. A sep tk bn acting as a fwd det has been ordered to seize a bridgehead over the river. It is defended by 2 x cmbt sy pls, but a full mech BG is moving fwd to reinforce the def of the only crossing sites. As the en reinf is likely to arrive before the fwd det, a heliborne coy from the sep lt MR bn has been tasked to eliminate a cmbt sy pl and hold the bridgehead to cover the crossing. The coy is reinf by an AD Gren and launcher sect and a A-Tk pl. The force is allocated 4 x att hels for escort and fire sp.

2. The landing coy first despatches a fwd gp of a MR pl with a MG sect and the AD sect. This secures the LS for the main body, destroying the en OP with the assistance of 2 x att hels and clears any mines on the LS or finds an alternative site.

3. While the main body is en route to the LS, arty and FGA att the pl holding the obj and any AD within range. En arty is also suppressed and remote mining is used to pin the reinf en mech BG. On landing, the lt MR coy forms pl colms and advances to seize the obj, supported by rkt atts by the att hels.

4. Having pen the remote minefield, the en mech BG mounts a hasty counter-att. This is repulsed with the assistance of a hel strike into the en flank and arty fire from long range arty and that of the fwd det (now in range).

5. The MR coy of the fwd det swims the river and reinforces the bridgehead, if possible expanding it by eliminating the cmbt sy pl to the north. The tks and AD and arty then cross by the tk fords and crossing means and expand the bridghead to the ridge to the west before the en can defend it in strength.

**DIAGRAM 5-19: A FORWARD DETACHMENT FORCES A RIVER LINE
(IN COOPERATION WITH A HELIBORNE ASSAULT)**

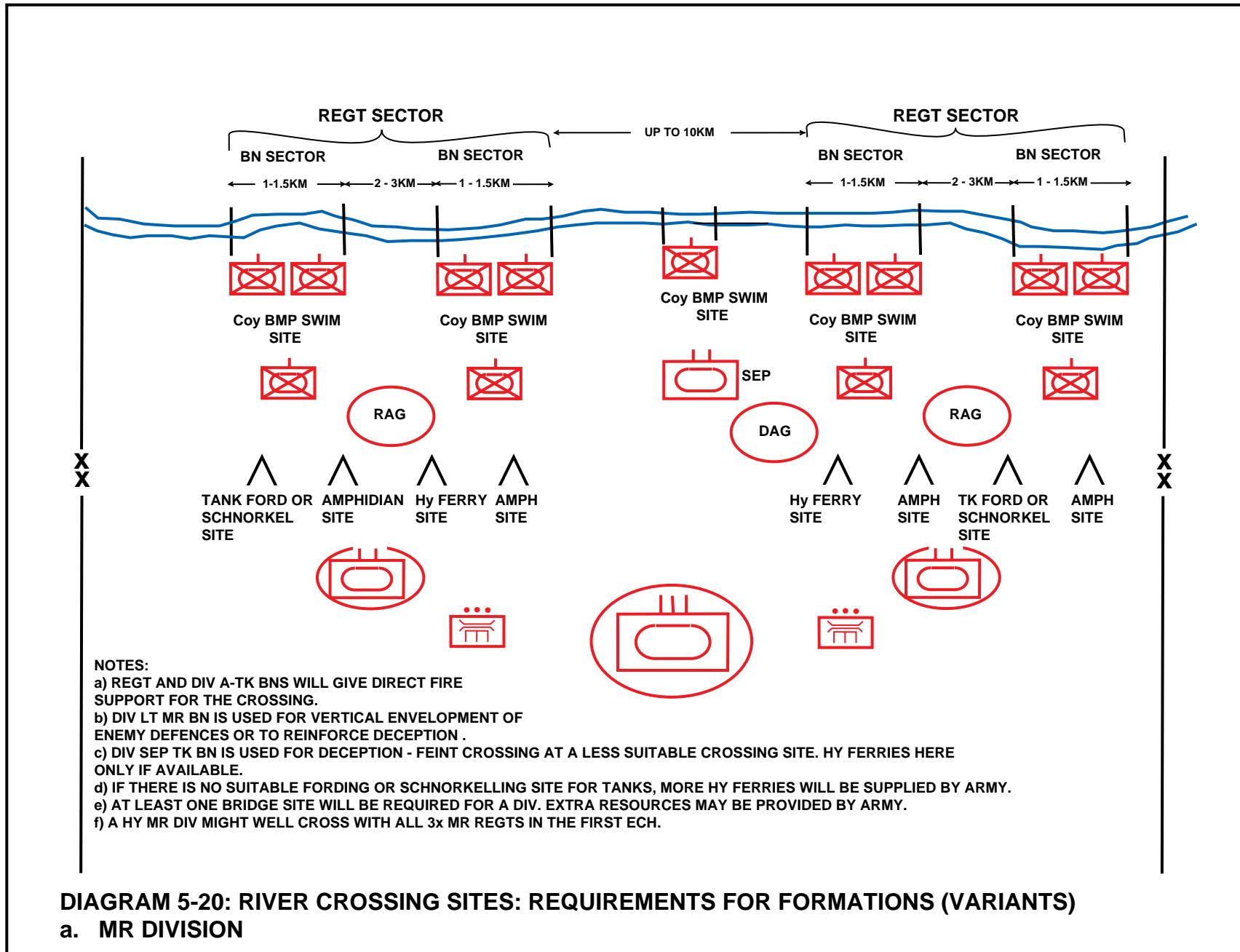
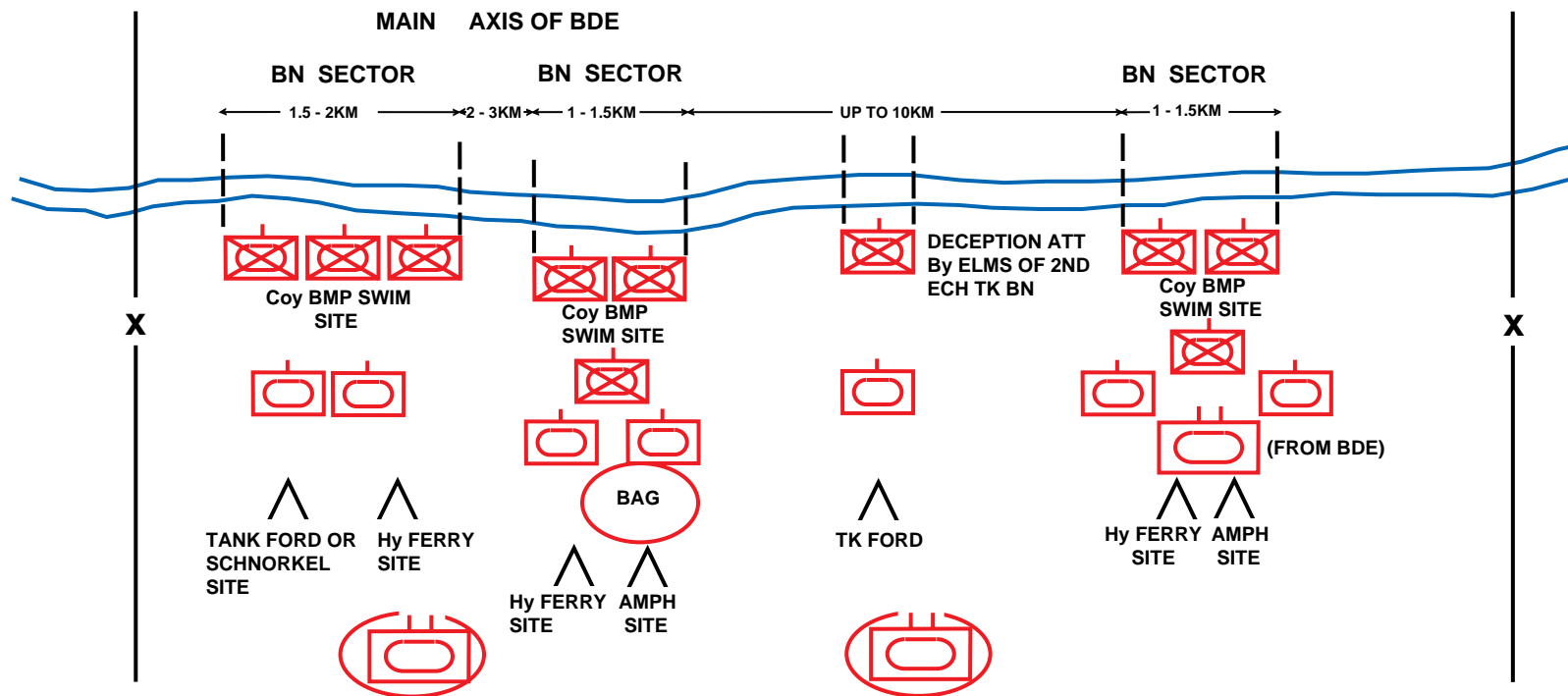


DIAGRAM 5-20: RIVER CROSSING SITES: REQUIREMENTS FOR FORMATIONS (VARIANTS)

a. MR DIVISION



NOTES:

- a) BN AND BDE WILL GIVE DIRECT FIRE SUPPORT FOR THE CROSSING.
- b) BDE LT MR BN IS USED FOR VERTICAL ENVELOPMENT OF ENEMY DEFENCES (OR POSSIBLY ELEMENTS COULD REINFORCE THE DECEPTION ATT).
- c) LACKING TANK FORDING OR SCHNORKEL SITES, THE BRIGADE WILL BE REINFORCED BY ARMY/CORPS ASSETS.
- d) AT LEAST ONE BRIDGE SITE WILL BE REQUIRED FOR A BRIGADE. EXTRA RESOURCES MAY BE PROVIDED BY ARMY/CORPS.

DIAGRAM 5-20B
b. MR BRIGADE

0573. **Assault Crossing by the Main Forces.** Where there is no bridgehead secured beforehand and a forcing is necessary, and if the enemy is weak, advanced guard battalions will try to gain a foothold before the arrival of the main body. For this purpose, each might receive a heavy ferry and an amphibian platoon. These attacks are likely to be supported by vertical envelopment of the defence by the air assault or airmobile detachment or group (see Diagram 5-19). If the enemy is too strong for a crossing to be “bounced”, unit level assaults with full artillery and attack helicopter support will be mounted. First echelon battalions will seize bridgeheads which will deny the enemy direct fire, at least by small arms, against ferry, amphibian, fording and schnorkeling sites. Table 5-6 sets out the sort of timings that GENFORCE seeks to achieve and Diagram 5-20 illustrates the organisation of engineer crossing sites. Having secured some viable battalion sized bridgeheads, second echelon elements will cross using tank fords or schnorkeling and engineer assets. Bridgeheads will then be linked up into regimental or up to two combined arms battalion-sized ones. Subsequent action at formation level will depend on the enemy strength and reactions and the senior commander’s concept. The formation’s second echelon may be used to link up bridgeheads until there is a divisional/brigade sized one through which second operational echelon elements may develop the offensive. If the enemy is weak, however, the formation may pass its own second echelon through the most developed bridgehead and continue the advance.

TABLE 5-6: TIMINGS FOR A MOTOR RIFLE BATTALION FORCING A RIVER FROM THE MARCH.

TIME	ACTION
H-1.5 hrs	CRP reaches obstacle in area selected as a result of previous reconnaissance by senior commander. Battalion commander gives his orders for the forcing. Heliborne OP made available.
H-20 mins	Artillery preparation begins.
H-5 mins	Tanks and anti-tank weapons deliver direct fire.
H-Hr	Two first echelon companies swim across in BMPs supported by direct and indirect fire and possibly attack-helicopters.
H+30 mins	Second echelon Motor Rifle company crosses. In a combined arms battalion, amphibious anti-tank weapons also cross.
H+1-2 hrs	Tank company crosses on heavy ferries. Artillery battalion crosses, one battery at a time.
H+2 hrs	Bridgehead consolidated to depth of about 3 km. Enemy counter attacks repulsed.

Notes:

- (a) The RAG and even elements of the DAG/BAG could support the crossing.
- (b) Smoke cover could be used to conceal approaches to the obstacle.
- (c) The attack could be coordinated with a heliborne assault (see Diagram 5-19).
- (d) If BMPs cannot exit the river, they can be beached on the far bank and recovered later.

0574. **Crossing Sites.** The number of crossing sites will depend on the terrain, the enemy's strength and deployment and the tactical formation of the division/brigade. As a rule, each first echelon motor rifle battalion will require one swim site per first echelon company (against token resistance, all may cross in the first echelon) and 1-2 alternates. Once the first echelon is over and there is a site free from at least small arms fire, heavy ferries and amphibians use the same sites (perhaps using smoke cover against long-range anti-tank weapons). Tanks, artillery and air defence cross using these means and fording or schnorkelling sites where these exist. Diagram 5-20 is a guide to the number of crossing sites deemed desirable for a lower formation. Army/corps assets will be supplied when organic resources are insufficient. When forcing a river, GENFORCE prefers whenever possible to select sites which form a salient protruding into friendly territory. Such sectors are difficult for the enemy to defend as he is surrounded on three sides and, when expelled from the salient will find it more difficult to observe the establishment of crossing sites on or near the tip of the salient. By the same token, the least preferred sector for a forcing is where the river bends into hostile territory and attacking troops will find themselves subjected to observation and fire from three sides.

0575. **Crossing with Detailed Preparation.** This would normally be used against a large, well defended obstacle, but might also become necessary if a crossing from the line of march had failed.

- a. *Advanced Guard.* When an assault from the line of march fails, or is not tried because of the strength of the opposition, the advanced guard will clear the home bank and hold it. It will probably undertake reconnaissance by battle over the obstacle with a dismounted company in assault boats to locate enemy positions and defences.
- b. *Main Body.* When faced with a well defined obstacle the main body will probably move into regimental concentration areas some 15-20km back from the river, beyond the range of most artillery.
- c. *Motor Rifle Battalions* will always lead the assault, crossing in battalion waves on a regimental frontage of about 5km, advancing without pause from the concentration areas to the far bank. A motor rifle battalion will cross either in pre-battle or assault formation, depending on the width and entry and exit slopes of the crossing sites and on the strength of the opposition. BMPs enter the water at H hour, and on reaching the far bank,

the infantry dismount and begin clearing operations. They will be supported from the near bank by direct fire from tanks, anti-tank weapons and artillery. If the enemy has mined right up to the river bank, the BMPs may be preceded by amphibious MTK mine clearers which can fire explosive hoses over the minefield and create gaps for the BMPs to go through in pre-battle formation.

- d. *Tank Battalions* are unlikely to schnorkel against opposition until a firm bridgehead has been established on the far bank as desealing is necessary before they become combat effective. Tanks from the first echelon regiments are therefore likely to cross by ferry (from which they can fire their guns.)
- e. *Ferries and Amphibians* may be in operation as early as H+20-30 minutes, depending on the tactical situation and requirements for bank preparation. Priorities for crossing will usually be tanks, artillery and air defence.
- f. *Bridges*. Construction starts as soon as the enemy is denied the ability to subject the crossing to direct fire. A bridge could be opened as early as H+90 minutes, through this again will depend on the tactical situation and bank preparation time (usually much longer than construction time). If, however, the air situation is unfavourable, bridges may only be used during periods of limited visibility and tucked into the bank and camouflaged at other times.
- g. *Artillery*. Opposed river crossings often require even more fire support than attacks against a well prepared enemy.
 - (1) RAGs will be within 3km of the river, DAGs and BAGs 3-5km back. The AAG/CAG will fire to support divisions on the army's or corps' main axis. Some howitzers will be used in the direct fire role, as will tanks and ATGM.
 - (2) The preparatory fire for a well defended obstacle will be similar to that of an attack from a position of close contact. Intensive air attacks are likely to be called at, or shortly before, H Hour and, depending on visibility, smoke may be used in great quantities.
 - (3) Artillery battalions will cross the obstacle by batteries, one crossing while two remain deployed. Amphibians will normally swim and amphibious artillery and trailers for towed weapons and their prime movers may be available as early as H+30 minutes.
- h. *Air Defence*. Both because the forcing of a river line may have profound implications for the stability of the defence and because crossings present tempting targets, a major air effort may be expected against the most promising crossings. Higher formation may well reinforce divisional/brigade air defence with extra assets and arrange a fighter CAP. Unit level air defence will cross early and divisional/brigade resources will ensure a dense, overlapping area coverage of its crossing.

- i. *Second Echelon and Rear Services.* The second echelon and rear services may temporarily move to a hide if the advance is delayed. Despite the optimistic target times, construction of the divisional bridge, on which these troops will cross, is unlikely to begin as early as H+30 minutes and thus to be completed before H+60 or H+90 minutes at the earliest. As soon as it crosses, the second echelon usually continues the division's advance and is not normally used to consolidate or expand the division's or brigade's bridgehead. The decision will rest with the senior commander.
- j. *Concealment and Deception* are critical to the success of a forcing. Feints and diversions (possibly using air landings) will be used to confuse the enemy and draw his attention away from intended crossing sectors. Concentration areas and FUPs will be fully camouflaged and routes to and from them concealed by screens and corner reflectors. Dummy areas and routes will be used to lend verisimilitude to feint crossings. Massive use of smoke is normal in river crossings, on false as well as real sectors and engineer sites. Underwater bridges may be built with the roadway just beneath the surface and corner reflectors will be used to simulate bridges for airborne radars.

CHAPTER 6

DEFENSIVE OPERATIONS

SECTION 1 - GENFORCE VIEW OF DEFENCE

General

0601. **Scope of Chapter 6.** This chapter will focus on army level defensive operations. It will, however, outline the scope and concept of Strategic Grouping (SG) level defensive operations in order to put the former into proper context. It will also consider the corps in defence, but in somewhat more cursory fashion as the main role of that formation is in the counter blow.

Relationship Between the Offensive and the Defensive

0602. **Circumstances in which Defence is Adopted.** Operational level defence, especially by a SG used to be considered as a temporary form of combat action, assumed when, due to inadequate resources, offensive action was not possible, or when, considering the operational and strategic situation, it was undesirable. It is now accepted that all strategic operations will inevitably consist of a mix of offensive and defensive and that, moreover, the switch from one to the other may well be very rapid in the case of some formations. A formation may act on the defensive in the following circumstances:
- a. *The Initial Period of War.* At the beginning of a war superior enemy forces, probably aided by surprise, may have to be met, at least initially, by strategic defensive action to prevent the enemy seizure of important economic, administrative and political centres and to gain time for the mobilisation, concentration and deployment of strategic groupings. GENFORCE will be prepared to conduct a manoeuvre defence initially, giving up some territory to preserve its forces while those of the enemy are weakened by combat and the need to garrison conquered areas, secure lines of communication, etc. Major engagements will not be fought in unfavourable circumstances merely for reasons of prestige and historical memory. It is considered undesirable to expend large forces in conditions for which the enemy is better prepared. Such a defence is, of course, viewed as merely a prelude to a decisive counter-offensive when the balance of advantage has swung in GENFORCE's favour.
 - b. *Defeat.* Either at the beginning of a war or during the course of operations, a formation may transition to defence after defeat in a meeting engagement or in an offensive.
 - c. *Counter Offensive.* In the course of offensive operations, a formation may be forced to transition to defence to repulse a counter strike or offensive which is too strong to be met in a meeting engagement.

- d. *Completion of the Mission.* At the conclusion of an offensive operation, a formation may assume the defensive because it has taken the designated strategic objective, because there is a need to regroup and resupply before offensive operations can be resumed on its axis, or to cover the exposed flank of another grouping conducting an offensive.
- e. *Deliberate.* It is possible for a formation to assume the defensive even when superior in strength to the enemy. This could be either because it is deemed politically expedient or in a deliberate attempt to wear down and unbalance an enemy determined on the offensive. In the latter case, defence is only a prelude to a decisive counter offensive. A deliberate defence may also be adopted as an economy of force measure to make possible the achievement of a decisive superiority on another axis: this is a role particularly suited to machine gun- artillery divisions. It can also be used to shape the battlefield, canalizing the enemy and forcing him to overextend his forces so that he is set up for a counter-offensive which will defeat him in detail on ground of the defender's choosing.

0603. ***The Strengths and Weaknesses of Operational Defence.*** GENFORCE clearly recognizes both the advantages and the drawbacks of a defensive posture.

- a. *Advantages of Defence.* The defender can choose his ground and protect his forces by digging and creating or enhancing obstacles. He can conceal his forces, and from the safety of prepared positions destroy enemy attack concentrations by manoeuvring fire and then decisively counter attacking depleted and disrupted penetrations. The growth in the range, accuracy and lethality of modern weaponry has, moreover, done much to enhance the stability of the defence: in previous wars, the covert massing of vastly superior numbers made it possible, if not easy, to overwhelm the defender and generate operational manoeuvre, but today a defence which achieves optimal density and depth can be relied on to preclude a quick breakthrough and might well be able to impose a battle of attrition on the attacker.
- b. *Disadvantages of Defence.* Traditionally all the advantages accruing to the defender have been outweighed, in the GENFORCE view, by the surrender of the initiative. The attacker's ability to choose the time and place to launch an offensive, now coupled with the contemporary capability for the conduct of deep operations, gives him a crucial edge. This advantage becomes potentially decisive when the defender has an inadequate force density and/or has not been allowed his choice of ground or time to prepare, either because he has been surprised or because he has been forced onto the defensive by a changing correlation of forces. Finally, all the benefits enjoyed by the defence are seen to be eroded by the mass employment of precision and advanced conventional munitions. These can be relied on to suppress the enemy's defence much more reliably than the traditional artillery preparation, and at much lower cost in terms of the number of weapons and weight of ammunition required.

- c. *Critical Importance of the Electronic-Fire Engagement.* This swing in the balance of advantage between the offensive and the defence in favour of the former is, however, posited on the assumption that the attacker has won the preliminary struggle for fire superiority. This is, indeed, seen by GENFORCE as an essential pre-requisite for any offensive. If the defender is holding his own in the electronic-fire engagement, or even if he has recognized impending defeat and has successfully withdrawn substantial deep strike and fire assets from combat and preserved them, the picture may look very different. The manoeuvre of long-range fires and obstacle creation, especially by aviation, precision weapons and remote mining, and of mechanized or airmobile reserves can quickly reduce the momentum of an offensive or even halt it by effecting dramatic changes in force ratios. It is, in other words, easier for the defender to challenge the attacker for the initiative in future war than it was in the past, especially if the former draws the latter along predetermined axes into selected operational fire pockets, having preserved his main manoeuvre forces well back during the electronic-fire engagement until the bulk of the latter's limited stock of precision weapons has been destroyed or exhausted, thus creating favourable conditions for a counter offensive.

SECTION 2 - THE NATURE OF MODERN DEFENCE

0604. ***The Threat.*** In the GENFORCE view, a contemporary offensive (or counter-offensive) will pose three principal threats to the viability of the defence.

a. *Deep Strike/Fire and ACMs* pose a dual threat to the stability of the defence.

(1) *The Penetration* becomes much less problematic. Modern reconnaissance can locate the defender's groupings and weapons systems with a higher level of completeness, accuracy and timeliness than hitherto. Discovered targets can be eliminated with a higher degree of assurance and using fewer weapons and less ammunition now that there is no longer a need to rely on area suppression by aviation or artillery. Precision, cluster, fuel-air, remote mine and jammer and other ACMs will reliably destroy and suppress individual weapons, strongpoints, reserves and HQs. Thus blasting a corridor through even an enemy well dug in in considerable depth will be easier and more certain than it used to be.

(2) *Deep Battle/Operations* can now be pursued simultaneously with the struggle for the tactical zone of defence. The simultaneous engagement of aviation, long-range systems, HQs and reserves as well as the forward lower formations will offer the possibility of disrupting and destabilizing the defence at the operational level at the same time as at the tactical.

b. *Armour.* Modern armies base their offensive, ground-taking and holding capabilities on masses of AFVs, especially tanks. These possess high mobility, flexibility, firepower and shockpower. In consequence, they can quickly exploit any weakness in the defence to generate tactical and

thereafter operational manoeuvre in the defender's rear areas. This will be easier than in the past where the defender's force density is inadequate to accomplish more than a delaying action.

- c. *Air Assault and Airmobile* forces are an essential complement to the attacker's deep strike and fire means. Exploiting and supplementing their strikes, air-delivered forces will be employed to undermine the defence's stability by destroying the defender's long-range systems, disrupting his C3I, logistic support and reserves and by seizing vital ground. They will often work in conjunction with armoured forces conducting operational and tactical manoeuvre, either by reinforcing their efforts through vertical envelopment or by taking obstacle crossings on which they could otherwise be checked or by delaying the committal of enemy reserves for counter moves.

0605. ***The Characteristics of GENFORCE Defence.*** The three basic characteristics of GENFORCE defence are thus that it is anti-air/missile, anti-tank and anti-air and sea assault. The requirements for these are to some extent contradictory, and failure fully to reconcile the contradictions must create some problems in defence. These are illuminated by a consideration of the GENFORCE principles of defence.

Principles of Defence

0606. ***Concentration and Dispersal.*** GENFORCE stresses the need to identify the main directions of the enemy offensive and to concentrate their main efforts on the enemy's principal axes. This poses two major problems. Today, it is even more difficult correctly and in good time to discern the enemy's intentions, given the enemy's ability to manoeuvre fire from dispersed weapons systems and given the mobility and flexibility of his formations and consequent short periods required for concentration. Moreover, any counter-concentration must be tempered by the possibility of the enemy using massed ACM strikes to achieve a quick breakthrough. It is no longer possible to defend continuous lines with high densities of troops. Partial answers to these problems are found in:

- a. *Concentration of Fire.* Given the range of modern artillery and missiles, not to mention both fixed and rotary wing aircraft, it is now considered possible both tactically and even operationally to concentrate the fires of dispersed weaponry on key sectors and so break up the attack. The defence should rely not on numbers of troops but on the manoeuvre of long-range fire strikes and of obstacles (with remote mining, precision attacks on bridges, etc).
- b. *Dispersal Laterally and in Depth.* Tactically, it is increasingly recognised that to sit on vital ground is to attract devastating fire. It may be better to defend the approaches to it and dominate the ground itself by fire from flank and rear. Alternatively, minimal forces may be left in place until the conclusion of the enemy's preparatory fire, when earmarked forces will move in. Operationally, it is considered desirable to defend in great depth; the heavier the expected blow, the greater that depth should be. In the

future, the second echelon may well be as strong as the first, perhaps even stronger. Defence in depth is seen as vital to prevent the enemy from ever reaching the exploitation phase of his offensive and generating operational manoeuvre.

0607. ***Activeness and Manoeuvre.*** The defender cannot afford to be passive, relying on static, positional defence. The initiative must not be surrendered to the attacker. Defensive operations in the future will be characterised by a defensive-offensive mix, with the share of offensive activity tending to increase. The more aggressive the defence, the more stable it is said to be. Within the context of SG and army operations respectively, formations can be expected to deliver attacks of limited goals and spatial scope but with important roles on decisive axes.

- a. *Preemption.* This ultimate expression of activeness is considered highly desirable, especially against enemy precision systems and airpower. These, together with their associated C3I and other long-range weapons, are the highest priority targets for destruction, and every effort will be made to divine and then pre-empt the enemy's mass, initial, in depth strikes. Counter-preparation is also considered a key to success in that it may alter unfavourable force ratios at the last minute and disrupt the enemy's timetables. Ideally, a defensive operation should start with a surprise counter-air operation and strikes on enemy artillery and missile concentrations and on the assembly areas of assault troops. Spoiling attacks by divisions, armies or corps are also not excluded, even perhaps an attack on a strategic scale. Indeed, it can even be held that the best way to repulse an invasion is to overtake the enemy in deployment and launch a preemptive surprise offensive.
- b. *Manoeuvre.* The manoeuvre of fire and of obstacles, a key concept, has already been touched on. Just as important is the manoeuvre of combat troops, both laterally from passive sectors and from the depth. This will be done to form counter-concentrations either for counter penetration (ensuring that the enemy is prevented from achieving a decisive superiority, ie, a force ratio of more than 2 or 3:1 at most) or for counter attacks (strikes). This avoids lengthy occupation of the attack sector, with its consequent heavy losses to the enemy's preparation, and fulfils the need for anti-precision manoeuvre (ie, the frequent relocation of units to get out from under enemy strikes). Successful, timely, manoeuvre increases the power of the defence and makes it possible to defeat a superior enemy force.
- c. *Counter Attacks/Strikes.* These offensive actions, to destroy any enemy penetrations and retake ground, are the basis of a successful defence. Ideally, they are launched when the stability of the defence is unimpaired, yet the enemy has already committed his immediate reserves and those more distant are delayed and disrupted by interdiction. They can be initiated against an enemy temporarily transitioning to the defence or in the expectation of a meeting engagement with a disrupted penetrating force. They must, however, be sure of producing significant operational (or operational-tactical) results. If only a dent can be achieved in an enemy

penetration, it is better to use second echelons or reserves for counter penetration. There is one very important exception to this rule, however. GENFORCE now considers small scale, local counter attacks to be an essential element of manoeuvre defence. These are mounted to inflict delay and assist the withdrawal of forces which have problems in disengaging.

- d. *Counter Penetration.* In the event of the attacker making better than expected progress, upsetting the stability of the defence and still having combat power within reinforcing reach of the battle area, counter attacks (strikes) may be eschewed in favour of replacing or reinforcing elements of the first echelon and blocking the enemy's further advance and generation of operational manoeuvre. In this case, more decisive counter moves will be left to the senior commander using his reserves (the ultimate aim always being not merely to stop the enemy but to destroy him). As well as the second echelon and reserves, SG and army air assault elements, or heliborne motor rifle troops, will usually be available for counter penetration tasks.
- e. *Reconnaissance and Counter Reconnaissance.* Without continuous and aggressive reconnaissance extending well into the enemy's depth, the prospects of success will be compromised. Determining the enemy's main axes, the locations of his high value weapons, his groupings and his timetable are essential to pre-emptive actions, the disruption of approaching attack forces by long-range fire, timely manoeuvre and damaging counter blows. By the same token, a vigorous, ongoing effort must be made to deceive and degrade enemy reconnaissance by both passive and active measures. The victor in the information struggle will be the victor in combat.
- f. *Deep Battle and Deep Operations.* Even in defence, there is a place for deep attacks to disrupt, damage and delay the attacker. These will not be confined to EW, air and missile strikes. Air (and sea) assaults in the enemy rear are expected to yield considerable dividends. While raiding actions will not be possible on the same scale as when on the offensive, given a generally adverse air situation and an overall enemy superiority, they will still be mounted. Elements of by-passed groupings may well be used in this role when not ordered to stand firm. In friendly territory, there will also be intensive efforts to organise a partisan movement, the activities of which will be reinforced by regular troops and carefully coordinated with the main forces.
- g. *Withdrawal.* In a departure from traditional thinking, GENFORCE now accepts that withdrawal may, in some circumstances, be an expression of activeness. This would be the case, for instance, in manoeuvre defence, when creating reserves for a counter attack, or when luring the enemy into a tactical or operational pocket to be destroyed there.

0608. ***Steadfastness.*** Not all defensive actions can have a manoeuvre character. Some key areas and lines will have to be held to maintain the stability of the defence, disrupt the enemy and gain time for the execution of manoeuvre, both

from passive sectors and from the depth and to provide a pivot or anvil for the use of counterblow forces. Defending units and formations do not have the right to withdraw without orders from the senior commander (though nowadays, he might well concede this right in advance, especially in manoeuvre defence). They must be prepared to hold resolutely, even when communications with superior formations and flanking forces have been lost and even when they are encircled. Generally, attempts to break out of encirclement are equated with the effective loss of the formation as a fighting entity, quite apart from the adverse effect such a move is likely to have on efforts to stabilize the defence in depth or counter attack . The mix of static resistance and manoeuvre will vary from sector to sector. In some areas, solid retention of occupied lines and areas will be combined with local counter attacks, in others, manoeuvre defence may be used, and in still others a combination of the two. Methods will vary according to the mission, the terrain, force available and other criteria. As a result, operations will develop in a non-linear fashion. This makes it imperative for units and formations to adopt all round defensive deployments, or at least to be able to move rapidly into all round defence.

0609. **Engineer Preparation.** Forces involved in positional defence must be well dug in to withstand ACM or conventional artillery bombardment. For similar reasons, second echelons and reserves must be protected to survive enemy deep strikes. Furthermore, depth positions and waiting areas must receive engineer preparation if enemy penetrations and attempts to generate operational manoeuvre are to be stopped. GENFORCE engineers are very generously equipped with plant to achieve the necessary depth and density of prepared defences. Equally important is a comprehensive obstacle plan. Lavish use will be made of mines to disrupt and canalise enemy attacks. In this respect, note must be made of minelaying during the course of operations. GENFORCE believes that it is generally more effective to lay a minefield at the last minute, during the course of a battle and directly in the enemy's path, rather than lay it beforehand and thus give the enemy time to detect it and prepare breaching means in advance. Such surprise minefields are also more economical with resources, often a factor in defence during the course of offensive operations. It is this consideration which makes the MOD (mobile obstacle detachment) and its associated anti-tank reserve so important a part of tactical and operational formation. There is also growing stress on surprise, rapid surface laying of mines by helicopters and, more importantly, by aircraft and MBRLs delivering remotely delivered mines (RDMs). These can be used to seal gaps in the defence or to tie down even deep reserves in order to win time for the defence.
0610. **Surprise.** It is recognised that it is much easier for the side holding the initiative to achieve surprise. However, it is still an essential tool of the defence, helping to compensate for shortage of forces and persuading the attacker to conduct operations in unfavourable conditions. It is achieved by concealing the nature and locations of defences and, by deceiving the enemy as to its alignment and deployment and, by unexpectedly conducting active operations, wresting the initiative back from the attacker. GENFORCE stresses several points on achieving surprise in defence:

- a. *Avoidance of Stereotype.* The alignment, grouping and methods used in defence must not be according to a template, predictable to the enemy even if his intelligence picture is incomplete. This does not mean the abandonment of norms, but their imaginative application. (Norms are only averages and vary according to troop strengths, capabilities, terrain and the mission.)
- b. *Counter-Reconnaissance.* Surprise in defence can only be achieved through an active struggle against enemy reconnaissance. Reconnaissance means must be located and destroyed. They must also be deceived by extensive use of dummy positions and structures, false movement, dummy radio nets etc. Strict camouflage discipline and the extensive use of bi-spectral smoke is, of course, vital to both the concealment of real defended lines and areas, weapons groupings, CPs and reserve concentrations and to the success of deception plans.
- c. *False Forward Edge.* If possible, a false front should be created to mislead the enemy into a mistaken fire preparation and attack plan. Where that is not possible, it is considered desirable temporarily to withdraw troops covertly before the enemy's artillery and air preparation, a technique used in the past and now very important in view of the increased destructiveness of modern weaponry. In view of its complexity, such a withdrawal must necessarily be shallow (though there has been argument in favour of deep withdrawals, leaving only enough forces on the forward edge to repel an attack by forward units).
- d. *Counter-Preparation.* To be successful, the preparation of counter-preparatory fires and strikes must be covert. Given the long-range and accuracy of modern weapons, little if any prior manoeuvre will be required for many of the participatory systems, provided the correct time and place of the attack have been anticipated.
- e. *Manoeuvre.* Manoeuvre is essential to maintaining the stability of the defence. It must, however, be covert or the enemy will disrupt and defeat regrouping or counter attacking forces. Thus it is essential thoroughly to prepare routes and to use concealment, bad visibility and deception to cover movement.

0611. ***Air Defence.*** Defeat of the air enemy is essential to successful ground defence. If accomplished, it will restrict or deny enemy air reconnaissance, air preparation and interdiction and the insertion of significant air assault forces. The main contribution at the operational level should be made by the air forces (aided by missile troops, SPF and raiding detachments) conducting a (ideally pre-emptive) counter-air operation. The air defence of the ground forces will in addition attempt to create a dense, seamless, overlapping air defence umbrella with considerable redundancy (ie, ability to absorb losses).

0612. ***Anti-Landing Defence.*** Both large and small scale air (and on coastal regions, sea) assaults are now seen as integral parts of offensive operations. Such

forces are capable of disrupting the stability of the defence by destroying C3I elements, logistic support and key weapons systems, by checking the deployment of reserves and by seizing vital ground. They may also be used for vertical envelopment to aid frontal attacks in reducing defended positions or to interfere with planned withdrawals. It is now considered desirable to hold dedicated anti-landing reserves at both tactical and operational levels. Usually, these will be substantial as threats are likely to be multiple. Where this is not possible, second echelons (reserves) will be located so as to defend particularly important areas or targets, and anti-landing obstacles may be created by engineers. The mobility and flexibility of the SG level air assault brigades and army air assault battalions (with their BMDs) make them effective anti-landing forces in the defence.

0613. **Deep Battle.** The struggle in the enemy's operational and operational-tactical depth retains its significance in defensive operations. Deep reconnaissance and targeting, diversionary-sabotage action, ground forces and air assault raiding and air/missile interdiction are all practised, though on a reduced scale compared with offensive operations.
0614. **Reserves.** Enemy mass strikes may well inflict massive and sudden damage on the defending forces. It may well be that even whole lower formations are rendered at least temporarily combat ineffective. It is certain that the operation will develop in a dynamic, uneven, non-linear fashion and that the unexpected will occur frequently. In these circumstances, GENFORCE increasingly stresses the importance of creating several types of reserve.
- a. *The Combined Arms Reserve* is fundamental to the maintenance of stability in defence. It may: replace combat ineffective elements of the first echelon; conduct counter penetration; destroy raiding detachments; mount its own counter attacks or join in those mounted by the second echelon; using elements of its composition, carry out deceptive moves or impart animation and realism to dummy groupings.
 - b. *Air-Mobile Reserves.* Given the increased spatial scope and irregular development of the area of operations, together with the possibility of sudden losses in defending formations and of unexpected enemy changes in axis, it is considered vital to maintain a substantial airmobile reserve. With mobility greater by a factor of 8-10 times that of the combined arms reserves, and, moreover, being able to ignore such obstacles as destroyed bridges or remote minefields, the airmobile reserve will often be the only counter penetration force that can react in good time. They will also be able to: provide raiding forces to exploit fleeting opportunities; reinforce, or substitute for, anti-landing reserves; hamper the forward move of enemy reserves; assist counter attacks through vertical envelopment; provide flank protection; or fill gaps opening up in the combat formation.
 - c. *Anti-Tank Reserves* and associated MODs provide the first line counter penetration forces: it is hoped that their timely committal on threatened axes will be enough to stabilize the situation and thus preserve the combined arms reserve. They are also important in covering the deployment and

supporting the committal of counter blow forces and in providing flank protection.

- d. *Air Defence Reserves* will be necessary to repair damage done to the air defence system or to fill gaps which open in it. They will also provide cover for the deployment of counter move groupings.
- e. *Anti-Landing Reserves* have, as paragraph 0612 indicates, assumed an increased importance at every level.
- f. *Engineer Reserves* will be needed to: provide extra MODs; prepare extra depth defences; assist the forward deployment of counter move forces; clear enemy remote minefields and repair (or create substitute) bridges in the depth, etc; create in advance protection within concentration areas; help to implement deception plans.
- g. *Other Special Reserves*, such as reconnaissance, artillery, chemical defence and medical, may also be formed for manoeuvre onto threatened sectors as the operational situation is clarified.

Types of Defence

0615. **Positional Defence** used to be considered by GENFORCE to be the basic form of defensive action. Indeed, until fairly recently it was the only form at the operational level, for only a resolute, unyielding defence was seen to not only deny the enemy his territorial objectives but also to wear down his strength and thus prepare the way for a decisive counter offensive. However, lower force densities and the increasing effectiveness of the attacker's fire have combined to end the primacy of positional defence.

- a. *Employment.* Positional defence is the norm when: adequate forces are available to achieve an efficient density of weapons (especially anti-tank); key areas must be held (eg, bridgeheads, communications hubs, economic or political centres, terrain the retention of which is important to operational stability and/or the mounting of counter blows); the terrain lends itself to this form of defence.
- b. *Conduct.* Positional defence does not imply that every metre of the forward edge is to be defended to the death and, if necessary, retaken by automatic counter attack. Rather, GENFORCE accepts that penetration is inevitable. It designs its defence to ensure that such penetrations cannot be turned into a breakthrough which will enable the enemy to generate operational manoeuvre. The aim is to ensure that penetrations are only achieved on axes acceptable to GENFORCE, and at a cost in time, casualties, disruption and loss of momentum unacceptable to the enemy. In this way, optimal conditions will be created for a counter blow, and the enemy will then be destroyed by offensive action. Thus, positional defence implies a considerable use of manoeuvre. Certainly, vital ground is stubbornly defended to wear down the enemy and canalize his offensive, but manoeuvre is the "soul of defence". It is necessary for counter penetration to slow

down and then halt the attacker and to achieve the necessary force ratios to destroy him once he has reached his culminating point.

0616. ***Manoeuvre Defence*** is now a co-equal form, intended to economize forces on less important axes and/or to buy time for the deployment of forces from the depth and/or passive sectors in order to create a positional defence in depth or mount a decisive counter blow. In manoeuvre defence, the aim is to wear down the enemy's strength and deny him operational momentum by defending on successive, deeply echeloned lines but refusing to become decisively engaged on any of them. Given the lower force densities anticipated on the battlefield of the future, it will not be possible to create strong, continuous defences everywhere, so manoeuvre defence will, of necessity, be resorted to more frequently than in the past.

Conditions Under Which Defence is Adopted

0617. ***Deliberate or Hasty (Forced) Defence.*** The circumstances under which defence is adopted will do much to determine the layout and resilience of the defence.
- a. ***Deliberate Defence.*** A formation preparing to defend prior to the outbreak of war, or preparing depth defences during the course of hostilities, may be said to be preparing deliberate defence. Such a defence, planned and organised out of contact with the enemy, is characterised by relatively long preparation time. Alternative plans are prepared for attacks on different axes; selected groups from armies are (with General Staff approval) briefed on the concept of operations; cooperation is organised; extensive engineering work is undertaken. The combat troops may not, however, be deployed until the last minute to maintain secrecy and to give the maximum time to study the enemy deployment and divine his intentions, thus ensuring the implementation of the most suitable variant of the formation plan. In such a defence, the bulk of the formation's combat power may well be to the rear. This will enhance its survivability by keeping it out of range of most enemy artillery systems. It will also allow maximum freedom of and time for manoeuvre to adjust the emphasis of the defence in accordance with the perceived weight of the attack on various axes and ensure the availability of a strong counter blow force.
 - b. ***Hasty (Forced) Defence.*** A defence adopted while in contact with the enemy may be characterised as hasty. If a formation is already severely attrited or under strong counter attack, or is defeated in a meeting engagement, the defence will not be merely hasty but forced. In both cases, but particularly in the second, preparation time will be strictly limited, and in the second, preparation will have to be undertaken simultaneously with efforts to repulse enemy ground and air attacks and stabilise the first echelon's position on favourable ground. The weight of the defence is likely to be forward, quite possibly with emphasis on the wrong axes. Moreover, limited offensive action may be necessary even as the defence is being established in order to seize favourable ground. In these circumstances, typical of defence during the course of the offensive or as a result of a surprise attack, defence is considered to be very difficult and uncertain of success.

SECTION 3 - STRATEGIC GROUPING DEFENSIVE OPERATIONS

The Aims and Missions of Defence

0618. **Aims.** The aims of a SG defensive operation will be specified by the Commander-in-Chief of the theatre and will depend on: the strategic mission and concept of the theatre; the significance of the axis to be defended; the missions of adjacent formations; the likelihood of enemy air and ground attacks and their likely strength. In most cases, the aim will be to repel enemy attacks, inflict maximum casualties, retain important lines or areas, and also to establish favourable conditions for mounting subsequent offensive operations. In the initial period of a war, if the enemy has achieved strategic surprise, the aim may well be the covering of the deployment of strategic groupings and their organised committal into combat.
0619. **Missions.** In pursuance of these aims, SG missions will be to: win, or at least prevent the enemy from winning, electronic-fire superiority; inflict heavy casualties on the enemy's approach to the defended area (a mission which will be accomplished largely by air and missile strikes); repel ground and air attacks; destroy penetrations of defended areas; eliminate enemy air or sea landings; create the necessary conditions for the mounting of a counter-offensive.

Layout of the Defence, Operational Formation and Tasks

0620. **General.** The following paragraphs will describe the operational formation and defensive layout of a SG in deliberate defence. This is the ideal, which will be replicated as far as possibly adverse circumstances permit, by a SG adopting a hasty or forced defence. It assumes that the SG will be employing a mix of positional and manoeuvre defence.
0621. **Scope of a SG Defence.** The scope of the defence will depend on a number of factors. These can vary so widely that it is difficult to talk about average frontages and depths. The most important of these variables will be: the importance of the strategic direction that the SG is defending and, within it, the number and location of areas that **must** be held; the composition and strength of the expected offensive; the terrain; the composition of the SG. Ideally, the latter factor will be determined by the former ones, though this will probably not be the case in the event of a surprise attack or, perhaps, when the SG transitions to defence during or at the conclusion of its own offensive. A SG in defence may comprise 2-4 combined arms armies, 1-2 corps, 3-4 separate divisions or brigades, 1-2 air assault brigades, possibly an airborne division and SG combat support troops (an artillery division, SSM and SAM brigades, etc).
0622. **Changes in Echeloning.** The division of the defence's deployment into tactical, operational and strategic zones continues, but for GENFORCE their composition has changed dramatically. Previously, the first echelon divisions of forward armies occupied the tactical zone. The second echelon of forward armies occupied the operational-tactical zone and the army group second echelon occupied the operational zone. Great stress was laid on halting the enemy and destroying any penetration within the narrow confines of the tactical zone. For

this purpose, GENFORCE would commit any or all of the forces in the operational-tactical and operational zones. In contemporary conditions, the now somewhat inappropriately named extended tactical zone is seen as stretching as far back as the rear boundary of first echelon armies. This greatly increases the depth allowed for the absorption and disruption of the attack before decisive counter blows have to be considered. This should increase the stability of the defence. The second echelon armies and corps of the SG occupy the operational zone. They will probably be committed to the battle for the extended tactical zone, but they now have more time for decision making, more room for manoeuvre and the enemy forces that have penetrated will be much more likely to have been seriously weakened and disorganized and thus ripe for counter blows.

0623. **The Main Defensive Area.** In the past, the decisive battle was always that for the tactical zone. GENFORCE has now introduced the concept of the main defensive area (MDA). This is the area in which every effort will be made to halt and destroy the enemy. In positional defence, this will be within the extended tactical zone. Depending on circumstances, it will start either on the forward edge of the tactical zone or deeper, at the beginning of either the second or third defensive belts. In manoeuvre defence, it will be located in the operational zone, probably at its forward edge. The location of the MDA will probably not be uniform throughout a SG. Different armies or corps will place it differently according to their mission and available strength. On the location of the MDA, more than any other factor, will depend the echeloning of the formation. Within both extended tactical and operational zones, GENFORCE creates a series of defensive belts with switch positions as appropriate. Even on those sectors where positional defence is intended, however, these belts are not intended simply for the conduct of successive, passive defensive battles. Prepared positions in depth provide for depth groupings' protection and lines or areas for counter penetration, but the basis of the defence is manoeuvre and ultimately counter strike/offensive action against enemy forces endeavouring to reduce prepared defences. The defence, it must be remembered, is designed to be penetrated, but at a significant cost in casualties, time, momentum and disruption. Having thus created the optimum conditions for a counter strike or offensive, the enemy is to be destroyed by offensive action.

0624. **First Echelon.** The strength and task of the first echelon formations will vary depending on whether positional or manoeuvre defence is being practised. It will be either to absorb and wear down the attack or to repel attacks with heavy losses and hold important areas. In either case it will be required to create favourable conditions for SG counter strikes/offensives. It is possible that the bulk of the SG will be deployed in the first operational echelon, especially when the MDA is situated in the extended tactical zone and the enemy must be held forward, but increasingly GENFORCE is inclining, wherever circumstances and the mission permit, to put half or even more of the SG's manoeuvre elements in the second echelon and reserve: this will always be the practice when manoeuvre defence is adopted and the MDA is in depth. Most of the first echelon will be provided by the Basic Forces. First echelon armies deploy in the security zone and first two or three belts, as follows:

- a. *Security Zone.* When defence is organised out of contact with the enemy, a security zone at least 20-30km deep but preferably up to 50-60km is organised in front of the first belt and defended by troops temporarily detached from the army second echelon or, more usually, from an attached Mobile Forces brigade (either instead or even in addition.) Its purpose is to: force the enemy into premature deployment; force him to concentrate and thus provide targets for deep fire and strike means; canalise him onto unfavourable axes; establish the enemy's main groupings, axes and intentions; and inflict delay for the preparation of defence and counter moves. (A security zone may also be established when defence is assumed in contact with the enemy, when the forward edge of the MDA is not established on the line of contact but in depth.) Invariably, the form of action adopted for the security zone battle is manoeuvre defence (for which the Mobile Forces are better organized and trained). The tendency is for the committal of more and more forces to the security zone battle.
- b. *First Belt.* The first belt, defended by an army's first echelon divisions, may be the MDA in positional defence. In this case, it comprises three or more defensive positions to a depth of about 30-50km. If the MDA is further back (as is increasingly the case even in positional defence), it may have only 2-3 defensive positions.
- c. *Second and Third Belts.* Each of these belts comprises 2-3 defensive positions, depending on where the MDA is sited, with 60-80km separating the second from the forward edge and up to 130km separating the third from the forward edge. The second echelon and reserve of the army are held in these belts. The total depth of a first echelon army, and thus of the tactical zone of defence, is therefore 130-150km.

0625. ***Second Echelon and Reserves.*** In the event of the enemy achieving strategic and/or operational surprise, the formation of second echelons and reserves may have to take place during the course of the first defensive battle. GENFORCE is so sensitive about being surprised, however, that this will be very difficult for the enemy to achieve. The size of the second echelon will depend on the location of the MDA and the commander-in-chief's concept of operations.

- a. *Combined Arms and Anti-Landing Reserves.* The SG's combined arms reserve comprises several separate motor rifle and/or tank divisions/brigades. Its primary roles are: the provision of counter penetration elements, the reinforcement of forces operating on decisive axes; the relief of battered formations; the destruction of airborne assaults or the execution of other, unexpected, missions. Several units will also be designated as dedicated anti-landing reserves and deployed near likely targets for air or sea assaults.
- b. *Second Echelon.* A second echelon army or corps deploys 200km or more from the forward edge. Its primary role is to act as a counter strike force, used to destroy major penetrations and, usually, to restore stability to the MDA. In the event of a collapse of the first echelon it may, however, be

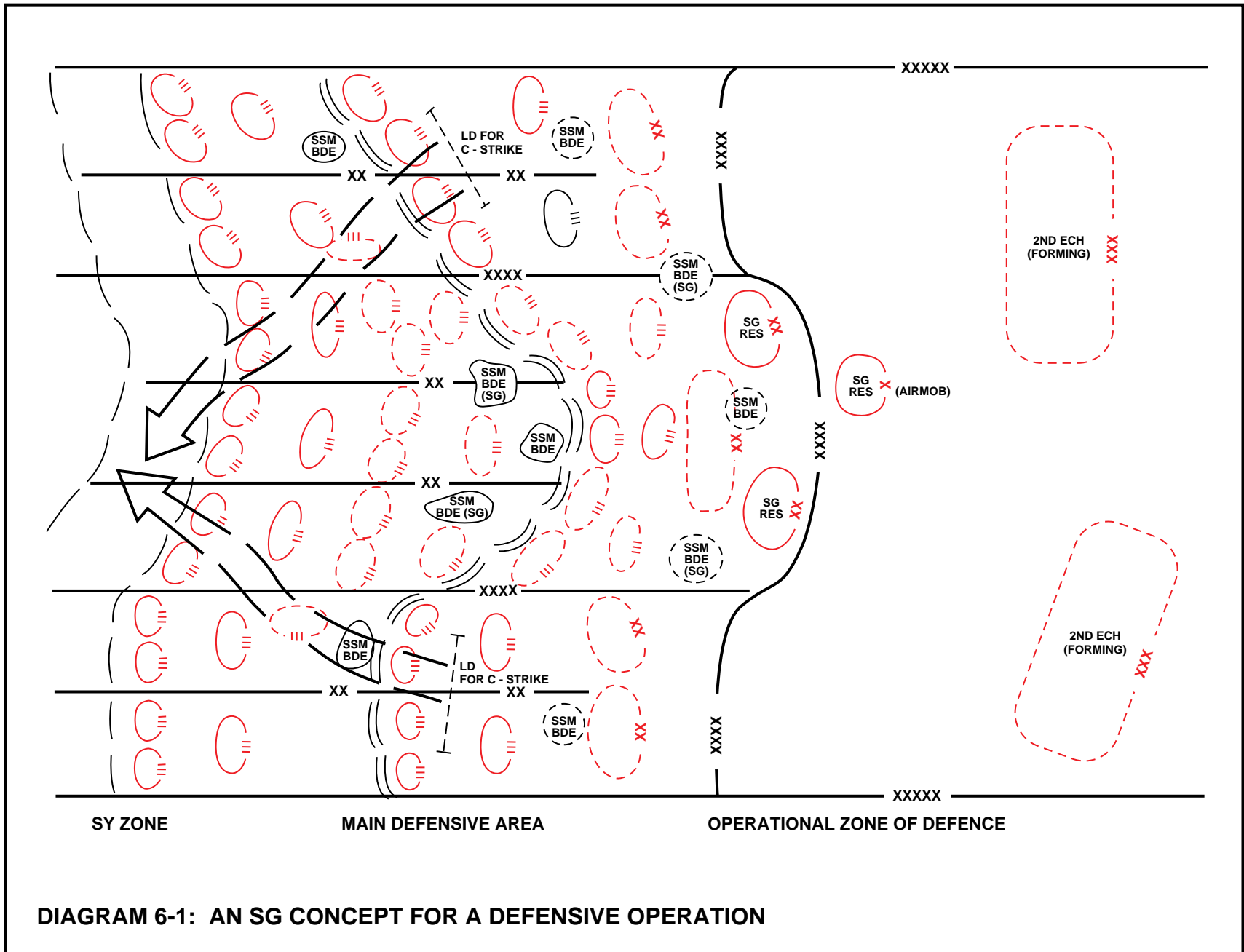


DIAGRAM 6-1: AN SG CONCEPT FOR A DEFENSIVE OPERATION

used to establish a defence on vital lines in the operational depth on the enemy's main axis. The second echelon and reserve deploy in the defensive belts (usually two or three) established by SG troops. Together, they form the operational zone of defence. Usually most, if not all of the SG's Mobile Forces are located in the operational zone. If time permits, defences will be prepared in the operational zone as alternative positions or positions which can be occupied by withdrawing forces. The total depth of a SG defence, with two or three army belts and two SG belts, may reach 300-350km. Diagram 6-1 illustrates the typical deployment of a SG in defence. In this case, prior warning has made a prepared defence possible, but the SG awaits the arrival of two Mobile Forces corps from the strategic depth to complete its deployment by providing a counter strike/offensive grouping. The SG commander's concept is to lure the enemy into an operational pocket, while at the same time wearing him down and disrupting his forces. To this end, the two flank armies are deeply echeloned and present a dense defence. The centre army conducts mobile defence until it reaches a final line which is the base of the pocket. The counter strike corps will deploy to the flanks to encircle the penetrating enemy grouping. Not shown on the diagram for reasons of clarity are AAGs/AGRAs, ATRs, MODs, ALRs, dummy positions, switch lines and lines prepared in depth.

0626. ***The Airmobile Reserve*** will comprise SG air assault brigades and perhaps an airmobile-trained MR brigade and/or an airborne division. These assets are initially held well back, out of harm's way. They may be used for: counter penetration; plugging gaps; reinforcing forward formations; countering enemy operational manoeuvre or air-landings; relieving encircled groupings or helping them to break out of encirclement; delaying and disrupting the committal of enemy reserves; providing raiding forces; forming part of a counter blow grouping.

0627. ***Deployment of Other SG Assets:***

- a. ***SSM Brigade.*** SSM brigades are assigned a primary area 60-80km from the forward edge and one or two alternative areas which are 15-30km apart.
- b. ***Long-Range Artillery and MBRLs,*** including reinforcements from the RSHC will be used to reinforce army and corps groups on the main directions of attack. Usually a reserve will be held in case the enemy's main axis has either been incorrectly identified or changed.
- c. ***Anti-Tank Reserve and MOD.*** The anti-tank reserves are established from organic resources and from large anti-tank units attached to the SG from the RSHC. They almost always work in close cooperation with MODs, of which the SG usually establishes 2-3. Together, these anti-tank forces are used to reinforce the anti-tank defence of the first echelon, act as counter penetration groupings, or deploy to support the committal of SG counter strikes/offensive.

- d. *Engineers.* Elements will reinforce the first operational echelon but the bulk of SG resources will be used to: prepare main and alternate positions for the second echelon and defensive lines in the operational-strategic depth and also concentration areas; prepare and keep open routes for operational manoeuvre; assist in implementing the operational deception plan; provide an engineer reserve.
- e. *SG Level Air Defence* will provide area and area-point defence for high value targets in the operational and operational-strategic depth. Elements may reinforce the first or second echelon on principal enemy air axes and a reserve will always be maintained to plug gaps, replace destroyed groupings and cover major operational manoeuvre.
- f. *Air Forces.* Fighter-bomber and reconnaissance airfields are located no nearer than 100-150km from the forward edge, with bomber bases several hundred km distant. Each aviation division is assigned an airfield complex which includes four to six operational airfields and two or three reserve fields. Attack helicopters deploy in squadron sized packets on forward operating sites 50-100km from the forward edge.

0628. ***Deployment of HQs.*** A SG may deploy up to six HQs (excluding dummies) as follows:

- a. *Main CP.* This is deployed 120-150km from the forward edge, to the flank of the most likely axis of the main attack.
- b. *Alternate CP.* This is deployed to the flank or rear of the main CP. It is constantly manned by an operations group from army group HQ, and all communications are duplicated.
- c. *Rear CP.* This is deployed with the SG forward supply base, up to 200km to the rear. It is able to take over from Main if required to do so.
- d. *Airborne CP.* This auxiliary CP is used when the army group commander visits an area of operations.
- e. *Auxiliary CP.* This may be established to ease command and control problems of formations operating on an independent axis.
- f. *Forward CP.* Such a CP will always be set up to control army group-level counter strikes.

The Fire System

0629. ***The Fire System*** includes the organization of fire strikes, the establishment of multi-layered, massive fires of all types of weapon from well in front of the security zone and to the flanks and rear, and preparation for the manoeuvre of fire onto all axes. Generally, the air and missile forces will engage targets beyond artillery range, and moving and point targets that cannot be engaged by artillery. The fire system and air strikes are carefully tied into the obstacle plan. They are designed to accomplish the following:

- a. *High Value Systems.* The destruction of enemy C3I, precision weapons, air assets (fixed and rotary wing), EW elements and MLRS is the first priority.
- b. *Strike Groupings.* Losses are to be inflicted on enemy forces in their assembly areas, during their forward movement, while they are deploying and in attack positions. Mass tank-infantry attacks are to be repelled, or destroyed if they penetrate the defence. Within the defended area, the enemy will be worn down by having to fight through a succession of mutually supporting strongpoints and anti-tank areas deployed in great depth.
- c. *Artillery, Air Defences, CPs and Radars.* All are to be neutralized at appropriate stages of the operation.
- d. *Security Zone.* Friendly troops operating in the security zone will receive very strong fire support. Substantial army assets will initially deploy in the zone to conduct deep fires, and some will remain during the fighting withdrawal to make the battle firepower, rather than manpower, intensive.
- e. *Counter-Preparation.* Where intelligence makes it possible, the enemy attack will be forestalled by a surprise counter-preparation.
- f. *Counter strikes.* The full weight of all available fire support is brought to bear to support counter strikes.
- g. *Weak Spots.* Flanks, intervals in combat formations (covered only by obstacles) and gaps created by enemy action must be covered. Remote mining is particularly important in fulfilling this task.

Combat Support

0630. **Engineer.** Engineer works are seen to be vital to the stability of the defence. Of course, such work is an all-arms, and not just an engineer responsibility. Complete preparation of a SG's defensive belts is said to require 8-10 days and nights.
- a. *First Priority.* Divisions occupying defensive belts concentrate first on: digging weapons pits and trenches; constructing OPs, CPs and medical centres; creating obstacles in front of the forward edge, in gaps in the combat formation, to the flanks and in depth (including anti-landing minefields and obstacles); preparing fields of fire for anti-tank weapons; preparing lines for counter penetration and counter strikes and routes to such lines; preparing bridges and other vital targets for demolition; establishing water supply points.
 - b. *Second Priority.* After the initial tasks are completed, work will be done to: integrate weapons pits into section, then platoon, trenches and prepare alternate positions for tanks and other weapons; improve deployment lines for counter moves and routes to them; increase the density of obstacles in front of the forward edge, in depth, to the flanks and in gaps. Assist in the implementation of the formation deception plan.

0631. **Reconnaissance.** With the initiative in the hands of the attacker, timely intelligence is vital to forestalling the enemy with a counter-preparation, to recognizing in advance critical moments in the operation (eg, the enemy's preparing to commit reserves or operational manoeuvre forces or his switching his axis of main effort) and to prepare counter moves in good time. The organization of reconnaissance includes: the planning and issuing of missions to troops executing reconnaissance tasks, including the establishment of a reconnaissance reserve; the coordination of reconnaissance efforts with combat and combat support; the organization of communications, including with groups operating in the enemy rear; the collection, assessment, and analysis of information and dissemination of intelligence to higher, lower and flanking formations.
0632. **Deception and Camouflage.** It is crucial to deceive the enemy as to the concept of the defence and the missions to be executed by the defending formations and to decrease the effectiveness of precision and other strikes. Measures include: the concealed movement of troops and secret occupation of defensive positions; the establishment of all types of concealment (against optical, radar, EW, thermal, magnetic and acoustic intelligence gatherers) to hide the main forces and vital targets; the establishment of dummy operational formations (or parts of them), SSM deployments and CPs and a deceptive system of engineer obstacles and positions; the establishment of a security zone or forward positions to conceal the actual forward edge; the establishment of dummy airfields, forward operating sites and EW sites; the use of the media to spread disinformation. All measures of operational deception are interconnected and coordinated in terms of time, place and objectives.

The Electronic-Fire Engagement

0633. **The Crucial Importance of Electronic-Fire Superiority.** If the defence wins the struggle for information and therefore for electronic fire superiority also, the offensive will be doomed to fail. If the attacker wins conclusively, the offensive will almost certainly be successful. As the enemy would hardly contemplate an offensive without an initial advantage in the air and long range combat means, the prospect for the defender winning the struggle outright must be poor. Probably the best that the defender can hope for, and therefore what he should aim to achieve, is a draw in which both sides are heavily depleted but both retain important capabilities for surge operations. If this does not seem to be attainable, and the attacker is clearly gaining the upper hand, the defender will have to cede the electronic-fire initiative and seek to preserve his remaining capabilities.
0634. **Conduct of the Operation.** This is dealt with in Section 3 of Chapter 4. All that will be considered further here is those aspects of the operation peculiar to a defender who starts from a disadvantageous correlation of forces.
- a. **A Defensive-Offensive Approach.** The attacker must try to establish electronic-fire dominance. He must therefore take the battle to the defender. All the defender has to do is deny the enemy a clear victory. Thus, he can opt for a defensive counter-air campaign. By largely fighting defensively

over his own territory, the defender can hope to achieve a favourable attrition rate using the methods outlined in Section 3 of Chapter 10. Offensive activity will be limited to the exploitation of opportunities created by enemy mistakes and failures and to missions which promise high gains. Ground, air-ground and air raiding actions will be limited in depth and in number, but will still be executed. As the enemy advances, stay-behind detachments can be used in this role without the problems which normally beset insertion into the enemy rear. In these ways, the defender can gradually shift the balance of advantage in his favour and create the necessary conditions for a later attempt to regain the electronic-fire initiative, even if only for short periods on selected sectors at critical stages in the defence.

- b. *Temporary Withdrawal from Combat.* If the enemy's initial superiority is potentially decisive, or if he is clearly en route to electronic-fire dominance, the defender will have to concentrate on preserving his deep strike and fire means. This will involve withdrawing them into the depth, in the case of strike aviation perhaps even out of range in distant home bases. They are then husbanded until a critical point in the defensive operation is reached, at which stage they are committed to inflict a major set-back on the enemy. They can then be withdrawn from combat again until another crisis point or opportunity occurs which will prompt another limited reentry into the fray. Examples of such climactic points are: when the enemy is lured into an operational pocket; when he has achieved a breakthrough and is about to commit operational manoeuvre forces; when important defending groupings are in danger of encirclement; when the enemy is trying to force a major obstacle.

Conduct of a SG Defensive Operation

- 0635. ***In the Event of the Defender Winning Local Electronic-Fire Superiority.*** It is possible, either through enemy miscalculation or poor execution of his electronic-fire engagement, that the defender will win the struggle on at least one sector of the defence. This is most likely on an enemy secondary axis. In this case, deep strike and fire systems can be used to wear down the attacker as he moves forward from the depth. By the time he has penetrated into the security zone he may be so damaged and disrupted that he will lack the necessary correlation of forces to continue the attack, yet he may still be offensively deployed though disorganized. In these circumstances, GENFORCE believes that it may be possible to transition to the offensive with the second and elements of the first echelon and destroy the enemy in a meeting engagement.
- 0636. ***Before Penetration of the Forward Edge.*** Much will depend on whether the defence is assumed in or out of contact with the enemy. If out of contact, the SG initiates the engagement by hitting the enemy on the distant approaches with air and missile strikes especially with high precision weapons, principal targets being high value systems, C3I entities, EW systems, air defences, airfields, the main manoeuvre groupings and key logistic elements. Ideally, if intelligence warning and preparation time allow, a surprise counter preparation is executed by air, missile and artillery strikes against enemy combat, combat

support and C3I elements forming up for the attack but before the attack is launched. (A SG level counter preparation is fired over a period of 25-30 minutes with an artillery density of up to 30-40 weapons per km. It is normally conducted on a 20-25km wide sector, often on the junction of two armies, and to a depth of 25-50 km.) If the SG transitions to the defence in contact, or worse, when facing a counter strike in the course of the offensive, the defence will be much more difficult to establish as operations will commence before preparations are completed and reorganization executed in accordance with the concept for defence. In such circumstances, elements of the SG may have to continue their attack in order to seize an advantageous line. In either eventuality, during the actual start of the attack, all weapons that can be brought to bear will open intensive fire to disrupt attacking groupings, separate tanks from infantry and suppress fire support and reconnaissance/target acquisition means, and in this way create favourable conditions for the destruction of mechanized forces by the anti-tank system. As soon as the enemy likely or actual axes of attack are identified, measures will be undertaken to reinforce these to increase the density of anti-tank weapons and obstacles and to increase the depth of the defence: the mission of the air forces, artillery, air defence mobile anti-tank reserves and other troops will also be adjusted and confirmed.

0637. ***When the Extended Tactical Zone of Defence Contains the MDA***, GENFORCE believes that defensive success will depend on preventing enemy penetration beyond the zone. If, despite the fact that the bulk of the defending troops are forward deployed, the enemy succeeds in breaking through the first operational echelon, it will be difficult to prevent him from committing operational exploitation forces and generating momentum. Once the enemy has managed to achieve a tempo of 30km or more per day with a significant grouping, GENFORCE believes he will be all but unstoppable short of the SHC providing strong strategic reserves. Therefore, both the reserves and second echelon of the SG will be committed to preserving the integrity of the MDA. Generally, the combined arms, anti-tank and probably elements of the airmobile reserve will be used to replace or reinforce formations of the first operational echelon or to execute counter penetration. The second operational echelon will, if possible, be held back for the execution of a counter strike to destroy any penetration or, better still, to mount a counter-offensive. This important and complex subject is dealt with separately in Section 4 of this Chapter. It should, however, be noted here that there is no automaticity about counter blows as once there was. In times past, it was the habit of GENFORCE to view the arrival of penetrating forces on a given line as the trigger for the launching of a counter attack /strike at the relevant level. Now, counter blows are only mounted if the conditions are decidedly favourable, indeed, almost certain of success. GENFORCE does not believe in gambling on their results as there is too much at stake. Failure will result in the defence becoming unbalanced, with its reserve/ second echelon expended and the enemy still possessed of the initiative. Thus, at any given level from regiment to SG, counter penetration will be preferred to counter blow whenever the outcome of the latter will be in serious doubt.
0638. ***When the MDA is situated in the Depth***, it usually starts with the first belt of the second operational echelon's defence, though it could be as far back as the second. The enemy's offensive is supposed to be shaped and canalized

before it comes up against the forward edge. Stable defensive groupings will be holding firmly. It may even be that the encirclement of one might be tolerated if its location will disrupt the offensive and tie down large enemy forces. Withdrawing forces will wear down the enemy using mobile defence techniques (see Section 4), his attempts to widen his zone of penetration and to break through will be foiled by the manoeuvre of fire, by the rapid creation of minefields using both RDMs and MODs and by the actions of anti-tank, combined arms and airmobile reserves using pre-prepared switch lines and depth defences. The defeat of the offensive may be accomplished in one of three ways, though the third is the least favoured.

- a. *Meeting Engagement.* Where the attacker has suffered sufficient attrition and been disorganized by the defence, the second operational echelon, together with all available elements of the first, can transition to the offensive and destroy the enemy forward of the MDA in a meeting engagement.
- b. *Operational Pocket.* If the enemy's offensive is very powerful, the enemy is lured into an operational pocket. The sides of this will be formed by obstacles and/or forces firmly holding switch positions (preferably pre-selected and prepared). The base will be the forward edge of the MDA. Once the enemy is halted in the pocket, his grouping will be damaged and disorganized by fire and then broken up and destroyed by counter strikes by the second operational echelon and those elements of the first that can be brought to bear.
- c. *Further Defensive Action.* If the attacker is simply too strong to be destroyed by SG counter blows, the second operational echelon will halt him through defensive action in the MDA. Meanwhile, further defensive belts are created in the strategic rear and strategic reserves are deployed to either provide yet more depth to the defence or to mount a counter strike.

SECTION 4 - STRATEGIC GROUPING COUNTER BLOWS

General

0639. **Definitions.** As the definition of the tactical zone of defence has now been extended to cover the entire depth of deployment of first operational echelon armies, so the terminology of counter blows has changed.
- a. *A Counter Attack* is the term used to describe an offensive turn in a defensive operation. It is a blow delivered by any grouping up to and including army (or corps) level with the purpose of destroying an enemy grouping which has wedged into the defence and, in consequence, restoring the integrity and stability of the defence.
 - b. *A Counter Strike* is a transition from defensive to offensive operations at strategic grouping level with the purpose of restoring the defence and at the same time creating favourable conditions for pursuing further offensive operations. If the correlation of forces is unfavourable, the first operational echelon will not be able to launch a counter attack and will, instead, use its

reserve and second echelon to reinforce the defence and execute counter penetration. In this case, responsibility for restoring the situation will perforce rest with the SG.

- c. *A Counter Offensive* is mounted at SG level. Its purpose is not merely the restoration of the defence but the seizure of the strategic initiative and the accomplishment of strategic goals. It will usually develop from, or at least build on, a favourable situation created by a preceding counter strike (or strikes) and its scope will spread beyond the destruction of any penetration into other sectors. GENFORCE does not discount the possibility of allowing the enemy to launch an offensive even when it itself possesses enough forces to do so instead. The enemy can then be lured into a situation where he is worn down and unbalanced by defence and rendered ripe for annihilation by a counter offensive on a massive scale.

0640. **Importance.** Counter blows are the climax of any defensive operation. Only through them can the initiative be wrested from the enemy and major operational or strategic goals achieved. Whatever the level at which they are mounted, all the resources available to the commander are committed - second echelons, remaining reserves, elements of the first echelon redeployed or transitioning to the attack from a position of close contact. Thus failure will severely compromise the defence. The defender will have exhausted his resources for no decisive gain and will have become unbalanced in the process. For this reason, GENFORCE stresses that counter blows will only be mounted when they are all but certain of success: when this certainty is lacking, counter penetration will be the preferred option.

Preparing a Counter blow.

0641. **Preconditions.** The operational-strategic situation will only be considered favourable to the mounting of a SG counter blow if most, if not all, of the following preconditions are met.

- a. *The Integrity of the Defence* must remain substantially intact. This means the enemy advance must have been either halted or at least slowed to a crawl and he must have expended his immediate operational reserves. If this is not the case, the chances are too high that the enemy will be able to forestall and thwart the counter blow through his own success.
- b. *Electronic-Fire Superiority* must be achieved, at least in the area of, and for the time required to mount the counter blow. This is an independent mission executed prior to the offensive action of manoeuvre forces. Within it, the disruption of enemy C3 and the defeat of enemy reconnaissance are important elements, as is protection of the mounting areas from enemy strikes or ground attacks.
- c. *Surprise* is usually essential as the defender will rarely enjoy such a superiority as to make it redundant. The enemy should be caught off-balance, ie before he has given up his offensive and transitioned to defence. GENFORCE reckons it will take a division 2-3 days or a corps 4-6 days to

go over to a prepared defence and recreate immediate reserves. GENFORCE will, where possible, avoid mounting a counter blow that falls initially against the enemy's main strength. Wherever possible, the initial blow will be delivered against a weaker, perhaps passive sector, with the aim of undermining the stability of the enemy's principal grouping and gaining its flank or rear.

- d. *Force Ratios.* There must be a clear superiority in deep strike and fire and EW means sufficient to establish electronic-fire dominance and ensure that the main work of destroying the enemy can be accomplished by firepower: essentially the manoeuvre forces only exploit the damage inflicted by fire to complete the destruction of the enemy. As a rough guide, this implies a 3-4:1 superiority in artillery and at least local air superiority. In manoeuvre forces, GENFORCE will be content with 1.5-2:1 if the enemy is unbalanced and unprepared. If, however, the enemy has had sufficient time to transition to defence, then 3-4:1 will be necessary.
- e. *Interdiction.* Initially favourable force ratios must be maintained for the duration of the counter blow. This means that GENFORCE must be able to prevent the enemy from reinforcing either from the depth or through redeploying from other sectors. This requires not only deep interdiction strikes by air and missile troops but perhaps also airborne landings in the enemy rear and holding attacks on sectors outside the area of the counter blow.

0642. **Preparation.** The preparation of a counter blow is much more complex than for an offensive, for it is necessarily undertaken simultaneously with the conduct of complicated defensive battles. Some of the SG's forces will be defending, others will be withdrawing or counter attacking and still others may be acting in encirclement or dealing with enemy air or sea landings. The enemy will still possess the initiative and his intentions and even capabilities may be difficult to predict. Yet predicted both must be, as must the strength and capabilities of the depleted first operational echelon. On accurate prediction of the course of the defensive operation will depend: the allocation of forces to maintaining the integrity of the defence and to the counter blow; the location and axis of the counter blow; its timing (a particularly sensitive area as the enemy must be surprised and caught off-balance, which means there must be no operational pause between the halting of the enemy and the delivery of the counter blow to ensure his defeat in detail and high rates of advance); the choice of suitable concentration areas for the counter blow groupings.

0643. **Planning.** Plans for the counter blow are prepared during the defensive operation. A special planning team under the deputy chief of staff will be given this as its exclusive task. The team will identify for destruction an enemy grouping whose elimination will cripple his offensive and leave the initiative with GENFORCE. It will then decide on the axes of attack and force groupings that will be required to accomplish this: this may have considerable bearing on the conduct of the defence, for instance in its creation of an operational pocket. It will plan the winning of electronic-fire dominance and establish force groupings and logistic stockpiles, using projections about likely casualty and consumption

rates and forces that will become available as time progresses. It will be quite usual to contemplate mounting the counter blow before its second echelon is actually formed, relying on forces approaching from the depth or laterally redeployed to complete the operational formation during the course of the attack (and bearing in mind that such deployments will be lengthy if they are to be concealed in the face of enemy reconnaissance.) Frequently, it will be accepted that the optimal method for destroying the enemy will be impractical as deploying for it would take so long that the blow would fall after the enemy's culminating point had passed. Often, too, detailed planning will only be undertaken for the initial stages as time will preclude planning to the entire depth of the operation. Finally, the team will prepare a deception plan, usually disguising preparations as moves to strengthen the defence.

Missions and Execution of Counter Blows

0644. **Missions** will vary with the type of counter blow.

- a. *Counter Strikes* have as their immediate mission the destruction of the enemy's main grouping. The subsequent mission will be the elimination of the whole penetration, the restoration of the integrity of the defence, the defeat of enemy reserves advancing to the area of combat and possibly the seizure of a favourable line for the mounting of a counter-offensive. The counter strike concludes either with a reformation of the defence and recreation of reserves or with a transition to a general offensive into the enemy's depth.
- b. *A Counter Offensive* will usually develop from a successful counter strike. It will develop beyond the area and aims of the latter to recover the strategic as well as operational initiative and achieve strategic goals. It will be developed into the enemy's depth and on a wider front than any counter strike. For this to be possible, of course, considerable second echelon/reserves will have to be made available and some first echelon armies will have to transition to the offensive, at least in supporting or pinning roles. It is also possible that a counter offensive will be mounted against the shoulders of the enemy's penetration, hitting weaker flanking formations rather than the strong strike grouping. The aim then will be a deep encirclement of the latter, or its destruction during its hasty and unplanned withdrawal.

0645. **Execution.** The method chosen to defeat the enemy in either sort of counter blow will, of course, depend on the aim, force ratios, the enemy's deployment (especially the nature of the salient) and the terrain. They will be substantially the same as those described in Chapter 4, with encirclement usually being the best method of dealing with an enemy wedged into the defence. There will be special emphasis on some aspects of a "normal" offensive.

- a. *The Penetration* into the enemy's depth may be difficult as the enemy's combat formation will be compacted by his offensive: a corps may be only 40-80km deep and a higher formation only 180km or so. This point underlines the need for getting the timing right and hitting the enemy before he can prepare defences. It also emphasises the need for attaining early

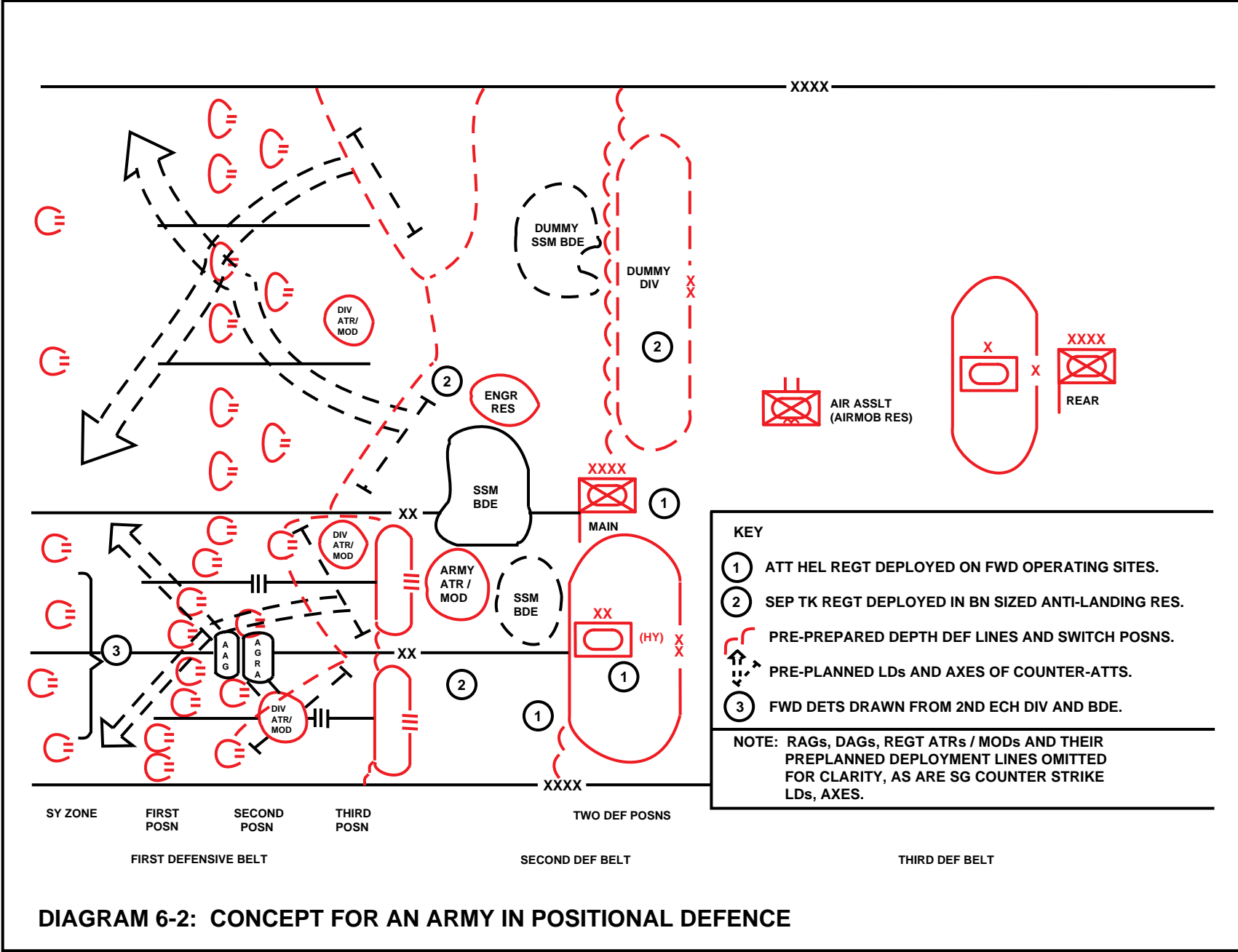
electronic-fire superiority so that the enemy can be severely damaged by fire before he can dig in. After all, the manoeuvre forces merely exploit the damage inflicted by fire to complete the enemy's destruction.

- b. *Widening the Branch.* If the counter blow forces do not enjoy a substantial superiority they may have to break through dense enemy forces on a narrow frontage. This will be dangerous as the enemy may be able to close the gap with RDMs, fire and a counter attack . Early efforts will have to concentrate on widening the breach by rolling up the unprepared defence.
- c. *Deep Operations* will be easier to mount from an early stage through both vertical envelopment and the insertion of exploitation forces, thanks to the shallow nature of the enemy's combat formation in the salient (provided, of course, the enemy has been allowed no time to redeploy forces within it). This should make it possible to seize early those lines in depth on which the enemy will try to stabilize the situation. It will also make it possible to achieve operational momentum at an early stage.
- d. *Maintaining a Local Superiority* of forces until the enemy grouping wedged into the defence is destroyed will be a particular problem if the counter blow starts with only a slender advantage. This places even more emphasis than normal on measures to retain one's own forces' freedom of action while depriving the enemy of his. Within the salient, this is very much a matter of achieving a high rate of advance early and maintaining it thereafter. It also requires measures to prevent the enemy from restoring the situation by deep strikes to regain electronic-fire dominance and stop or slow the forward moves of second echelon/reserve forces forming during the progress of the counter blow. Finally, great importance will be attached to keeping enemy depth reserves out of the battle and preventing any redeployment from the flanks of the salient. Deep air, missile and artillery strikes and remote mining will be important here. Usually, such efforts will be insufficient by themselves and airborne and/or heliborne landings will be needed to check the enemy on obstacles which favour delaying action. Flanking formations may also be required to launch pinning and/or deception attacks.
- e. *Enemy Air Landed Forces.* In his efforts to unbalance the defence and destroy its integrity, the enemy will have mounted airborne and heliborne assaults into the defence's depth. These will usually have to be eliminated before counter blow preparations can be implemented. The enemy may also try to reinforce his salient from the air. Attacks on mounting bases or forward operating sites and strong air defence coverage of the salient should prevent this where possible. Otherwise, such landings will be preempted by GENFORCE's own air assaults onto possible depth defence lines. Anti-landing reserves will also be important, as always, in preventing enemy interference with the build up for and execution of the counter blow.

SECTION 5 - ARMY AND CORPS DEFENSIVE OPERATIONS

Circumstances in which Defence is Adopted

0646. **Reasons for Assuming the Defence.** As with SG, even army level defensive operations used to be considered a forced and temporary form of combat employed in support and in the interests of offensive actions (ie, to inflict losses on the enemy's strongest groupings and thus support the conduct of offensive operations on an important operational or strategic direction). While army defensive operations were always going to be more frequent than those of a whole SG, they may now become commonplace. An army or a corps may act on the defence in the following circumstances:
- a. *SG Defensive Operation.* An army or corps defensive operation may be within the context of a SG defensive (whether at the beginning of a war or during the course of operations). In this context, it may defend in the first echelon, either on a main or secondary axis, or it may act in the second echelon, where its primary role is to launch counterblows.
 - b. *SG Offensive Operation.* There are several circumstances in which an army or corps may act on the defensive while most or all of the rest of the SG continues to advance: eg, when the formation has secured a geographical objective; when the enemy launches a counter strike; when defending a bridgehead; when repelling enemy attempts to break out of encirclement; as an economy of force measure, defending an extended frontage to free forces to concentrate on an offensive axis.
 - c. *Forced Defensive Action.* Defence may be forced on a formation: by heavy losses inflicted by precision and ACM and massed air attacks; by the enemy overtaking the army/corps in deploying; by defeat in a meeting engagement; by encountering an enemy with superior forces.
0647. **Problems in Transitioning to Defence.** Going over to the defensive during the course of an offensive will often be done in an adverse ground and air situation, even under enemy attack. The main forces of the army or corps will probably be already engaged in combat, with subordinate formations at varying depths and on different axes. All elements may not be able to transition to defence simultaneously: some may continue to attack to seize favourable lines from which to defend, and others may have to deal with enemy air landings in the rear. Often, an army/corps will have to conduct its defensive battle with little or no help from SG, the higher formation having concentrated its efforts either on continuing the offensive on another axis or on supporting the defence on a more dangerous axis. Of course, an army/corps assuming the deliberate defensive ahead of the enemy's attack and on ground of its own choosing will be considerably better placed to create a stable, enduring defence.



Aims and Missions of Defence

0648. **Aims.** The aims of a defensive operation will include some or all of the following: repel an attack or counter attack by superior forces; inflict maximum losses on the enemy; support the development of an attack on an important direction; hold vital operational lines or areas; cover the flank of a SG's main grouping; restore the combat capabilities of the formation when it has taken such heavy casualties that it cannot continue to attack; create favourable conditions for the initiation of an attack, either by the army/corps or by other formations.
0649. **Mission.** In pursuance of these aims, the army/corps missions will be: to destroy enemy deep strike and fire systems and inflict heavy losses on the enemy's main grouping as it approaches and deploys to attack; repel the enemy attack and hold vital ground; destroy any enemy groupings penetrating through the depth of the MDA; repel any sea or air landings; create conditions for a transition to the offensive. Whether the formation achieves these missions through positional or manoeuvre defence, or a combination of both, will be decreed by the SG commander in chief in accordance with his concept.

Scope and Echeloning of an Army or Corps Positional Defence

0650. **Scope and Echeloning.** The breadth and depth of a formation's sector will depend on: the importance of the axis; the assessment of the enemy's strength and intentions; the strength of the army/corps; the nature of the terrain (in mountainous, desert or arctic terrain, a formation will defend a wider sector than in normal terrain, as the enemy will be restricted in his choice of axes).
- a. *Main Axis, High Level of Threat, MDA Forward.* Where a formation is required to deny a strong enemy any significant penetration it will be deployed on a limited frontage and will have to have a significant counter attack capability. Thus, on the most threatened directions, defending first echelon divisions will cover only 20-25km of front. This will give them the density of anti-tank defence which is considered sufficient to stop an attack within the first defensive belt of the MDA. GENFORCE calculates that, with 15 major anti-tank systems per km of front, 65% casualties will be inflicted on the maximum density that an attack can achieve in a single wave, ie 40 tanks per km: such losses will certainly halt the attacker. Of course, this density of defending systems must be that confronting the attacker after artillery preparation has taken its toll, so an original strength of over 20 per km is necessary to absorb losses and still promise a reliable defence. A standard motor rifle division with 6 motor rifle, 3 anti-tank and 6 tank battalions deployed on a 20km sector will have a density of 27.5 major anti-tank systems per km, including 16 in the first echelon if both the motor rifle regiments are deployed therein. If it occupies a frontage of 30km, the density will fall to 18.8 and 11 respectively. (These are, of course, average densities and will be greater on the most tank-threatened directions). To eliminate any penetration achieved, the counter attack force will need a favourable force ratio of at least 3-4:1 to be sure of success. Thus the army second echelon will need to comprise at least a division, as well as a largely intact second echelon of the penetrated division, to be sure of eliminating a

penetration equivalent in strength to a weak brigade. A stronger second echelon, up to half the army's strength, will be required if a stronger enemy is expected.

- b. *Secondary Axis, Moderate Threat, MDA Further Back.* On those axes where a strong, deeply echeloned attack is not anticipated and a limited degree of penetration is acceptable, first echelon divisions may positionally defend 30km sectors and a second echelon strong enough only to conduct successful counter penetration, or destruction of very minor penetrations will be acceptable. Even longer defensive frontages may be allocated if ground can be traded for space and time and, in consequence, manoeuvre defence becomes acceptable.
- c. *Passive Sectors* are those where the enemy too is on the defensive. Here, it is often possible to leave only screening forces which conduct manoeuvre defence if attacked.

Operational Formation and Tasks in Positional Defence

- 0651. ***Operational Formation.*** Diagram 6-2 illustrates a typical defensive layout of an army of four divisions, a separate tank regiment and an attached separate brigade. A major blow is expected on the left of the army's sector, where the MDA begins with the forward edge, and the two first echelon divisions astride the main axis are each deployed on a 25km frontage. The other first echelon division, situated on a passive sector, is covering 50km, but in difficult terrain well suited to delaying actions. One (heavy, tank) division and the separate brigade are held in the second echelon to deliver a powerful counter blow or to ensure reliable counter penetration if the attack proves very strong. The following paragraphs go into the operational and tactical formation in more detail.
- 0652. ***Selection of the Forward Edge.*** The selection of the forward edge will often depend on the conditions in which the army goes onto the defensive. First echelon forces doing so in the course of an attack usually do so on the lines they have reached, though sometimes only after seizure of more favourable terrain further on. Sometimes, it is seen as desirable to establish the first defensive belt on a favourable line within the depth of friendly territory, cover for its preparation being provided by forward units. The MDA will have been decreed by the commander in chief of the SG and the forward edge is designated by the army commander and confirmed on the ground by divisional and regimental commanders. The number of defensive positions created within the defensive belt of each division and their precise location is specified by individual divisional commanders.
- 0653. ***First Echelon.*** The tasks of the first echelon are to repel enemy attacks with maximum casualties, prevent penetration and, should that be impossible, to hold vital ground and support the second echelon (reserve) counter attack or counter penetration. Generally, the bulk of the army is deployed in the first echelon, though there is an increasing tendency to reduce the proportion to around a half. This reflects the growing emphasis on manoeuvre from the

depth to conduct counter moves as the principal means of preserving the stability of the defence.

- a. *Security Zone and Forward Positions.* Whenever possible, a security zone is established in front of the first defensive belt. This is at least 20-30km deep but could extend forward up to 50-60km in deliberate defence. If the security zone is deep and considerable time must be won to establish a strong defence, it may be defended by substantial elements of the army's second echelon. When these have completed their mission, they withdraw to rejoin their parent formation and refurbish. When circumstances preclude a strong, deep security zone, or where it is considered unnecessary, it is held by forward detachments of combined arms sub-units, usually separate tank battalions or elements drawn from the second echelon regiments of first echelon divisions. In either case, these conduct a mobile defence, withdrawing from one prepared position to another when the pressure grows too strong. Their purpose is to delay the enemy, force him to deploy and attack on unfavourable directions, and detect his grouping and intentions. The battle for the security zone is supported by strong combat support elements, especially MBRLs and other artillery. On the most important directions, 3-6km forward of the forward edge, forward positions may be established by sub-units detached from first echelon regiments. These may comprise the final positions of the security zone. If, however, the army has gone over to a hasty defence, it may not be possible to establish a security zone at all, and the only deployment forward of the forward edge will be the forward positions. Their role is to deceive the enemy as to the layout of the defence, prevent surprise attacks on the forward edge and force premature deployment on the enemy.
- b. *First Defensive Belt.* First echelon divisions establish the first, often still the main, defensive belt. Within it, each division will hold three or more positions, with each regiment holding two defensive positions and each battalion, one. The basis of each position is company strongpoints, integrated into battalion defended areas, each 3-5km wide and about 2.5-3km deep, with gaps of up to 5km between such battalion areas. Generally, a standard regiment is responsible for a frontage and depth of 10-15km, and a new style division for a sector up to 30km wide (as little as 20km on a key axis) and 30-50km deep.

0654. **Second Echelon.** The strength of the second echelon will depend on the army's strength, the width of the army's sector, the army's mission, the importance of the axis, the conditions under which defence was undertaken, and the strength of the enemy. The normal mission of the second echelon is to launch counter attacks but in the event of an attack too strong to be defeated at army level, the second echelon will be used to reinforce the efforts of the first echelon on the main axis, possibly relieving troops that have lost combat effectiveness, or to hold firmly in the second or third defensive belt, or to hold a line which will canalise the enemy into an area where he can be destroyed by a SG countermove. The second echelon may also have the mission of destroying enemy air landings. The initial deployment area of the second echelon is likely to be in the second defensive belt (ie, towards the rear of the

tactical zone of defence, about 60-80km from the forward edge): elements may also be found in the third defensive belt, up to 120km from the second, though this will often be only prepared, but not manned initially. The location of these belts will depend on the terrain, the likely character of the enemy's actions, and the concept for the army's operation.

0655. **Reserves.** A combined arms reserve will be formed when there is no second echelon created. Even if there is a second echelon, a small combined arms reserve may be established to reinforce or replace elements of the first echelon or cope with other unexpected missions: an army's separate motor rifle or tank regiment could form such a reserve. Almost always, a dedicated anti-landing reserve will be created. This may include the army air assault battalion as a rapid reaction force though the preferred role of the battalion is to provide one or more raiding detachments. Airmobile motor rifle troops may well form the main part of the airmobile reserve to free the air assault unit for this role. Other special reserves that may feature in the operational formation are air defence, engineer, chemical defence and medical reserves. There will always be an anti-tank reserve, based on the army separate anti-tank regiment but often reinforced with other artillery, tank and/or motor rifle assets. This almost invariably works in tandem with a MOD. The anti-tank reserve and MOD will deploy on or near the most important or most threatened direction ready to move quickly to pre-reconnoitred positions to reinforce the first echelon or to conduct counter penetration.
0656. **Missile Troops and Artillery.** If on an important axis, the army may be reinforced with army group assets.
- a. **SSM Brigade.** The brigade has one main and one or two alternative deployment areas. Positions are 60-80km from the forward edge, to the flank of the likely direction of attack. The brigade's principal tasks are: the destruction of high accuracy and other key weapons; strikes on the enemy's main forces and his airfields; disruption of troop control; destruction of air defences in support of air action or the insertion of air raiding detachments; disruption of logistic support.
 - b. **Army Artillery and Rocket Artillery Groups.** An AAG/CAG may not be formed, particularly if the army is defending a very wide sector, or if there is no axis more obviously important or threatened than any other. If formed, as is usual, the AAG/CAG deploys on the most important axis, probably about 10-12km from the forward edge (having started further forward if it was used to support the battle for a security zone). An AGRA/CGRA will always be created. The principal tasks of both groups are: the destruction of high value weapons; counter bombardment; reinforcing the artillery fire strikes of first echelon divisions; disrupting the approach and deployment of strike groupings (including, if possible, a counter preparation); supporting the launching of counter blows; inflicting casualties on, and separating, enemy tanks and infantry in the assault; destroying enemy CPs and logistic elements; aiding the destruction of air or sea landings; suppressing enemy air defence in support of air action or the insertion of raiding detachments.

Organization of the Fire System

0657. **The Fire System.** The fire system is combined with the system of natural and artificial obstacles. It is seen as the main means of breaking up and halting the attack. An important element of it is the delivery of RDMs to: thicken obstacles; fill gaps created by the enemy or between strong points; cover exposed flanks; aid in the withdrawal of forces threatened with encirclement; increase the effectiveness of CB by pinning enemy artillery; harass and degrade enemy CPs; delay the move of reserves; pin air-landed forces or forward/raiding detachments so that they can be destroyed by fire and/or counter attacks.
- a. *Long-Range Fires.* Short but powerful fire strikes by one or several artillery battalions are planned on obstacle crossings, defiles, road junctions and likely routes approaching the forward edge. These may be reinforced by subsequent air or helicopter strikes.
 - b. *Fire to the Immediate Front.* Massive fire concentrations and barrages, both moving and standing, are prepared on several lines in front of the forward edge (but approaching no closer than 400m from friendly positions). Such fires are planned on likely FUPs and approaches. These too may be supplemented by aviation strikes.
 - c. *Fire in the Depth of the Defence.* In depth, both fire concentrations and barrages are planned in likely areas of penetration and on the axis of planned counter attacks and to the flanks of strongpoints and defended areas. It will be even easier to employ aviation, especially helicopters, in the depth as the enemy's air defence will be less dense and well organized there.
 - d. *Anti-Tank Defence.* Particular attention is paid to anti-tank defence throughout the defended area, but especially on the best tank approaches. The anti-tank capability of a tank or motor rifle division or brigade is said to be capable of repulsing the attack of up to two enemy divisions. However, the defence of a division or brigade may be reinforced by troops from a less threatened direction or by an army/corps anti-tank reserve and MOD. Anti-tank weapons are deployed within the defended areas of battalions (for the most part, within company strongpoints) on tank-threatened axes, and several alternative firing lines for the anti-tank reserves, both divisional/brigade and army/corps as well as regimental, are pre-designated and, if possible, prepared. So, too, are firing lines for attack helicopters.
0658. **Organization.** The principal organizers of the fire system are the divisional and brigade commanders. The army/corps commander, however, is responsible for: coordination between lower formations; conducting the manoeuvre of AAG/CAG and AGRA/CGRA fire to threatened areas and to cover boundaries and flanks; organizing a counter preparation; organizing the preparatory and support fire for counter attacks or strikes; calling on fire from second echelon or flanking formations.

Conduct of an Army's Defensive Operation in Positional Defence

0659. **Security Zone Battle.** When a security zone can be established, the forces allocated to it (or covering force or forward detachments) hold critical positions on the main approaches. They are supported by strong artillery groupings engaging from temporary fire positions, with gun and MBRL artillery hitting targets 15-25km and howitzers targets 10-15km distant. Also located in the security zone will be depth fire systems such as heavy MBRLs to hit the enemy on distant as well as on the near approaches. During the fight for the security zone, the direction of the enemy's main attack is determined. First echelon divisions improve their defences, reconfiguring their plans and regrouping as necessary onto critical axes.
0660. **Counter Preparation.** The counter preparation is designed to inflict heavy losses and disruption and delay on enemy forces preparing to attack the forward edge or a depth defensive belt. To fire a counter preparation, a division needs 3-5 hours planning time, but at army/corps level, 6-8 hours will be needed. A successful counter preparation needs a lot of artillery - up to 30 guns, MBRLs per km. To produce the right density, army/corps will involve not only the artillery of the threatened divisions and the AGRA/CGRA and the AAG/CAG, but also the weapons of adjacent formations and sometimes of second echelon formations as well. To be successful, a counter preparation must also take the enemy by surprise, preferably as the enemy is completing his attack preparations, and be based on accurate reconnaissance data. It usually lasts 25-40 mins, with fire reaching 20-50km over the forward edge (up to 80-100km if airpower is deployed as well) and it is combined with the jamming of enemy artillery and air support nets.
0661. **Spoiling Attacks.** A counter preparation may well be followed by a spoiling attack to inflict further casualties, disruption and delay. Usually, elements of the army second echelon/reserve will be used in this role to avoid compromising the stability of the defence.
0662. **Halting the Enemy Penetration.** The first echelon divisions and brigades are expected to fight a stubborn, defensive battle. They will rarely mount counter attacks on their own. Penetrations that are being made through company strongpoints on the forward edge will trigger the deployment of the unit ATR and MOD, and perhaps of elements of the unit second echelon to reinforce the defence of forward edge battalion areas and plug the gaps between them. If, on the other hand, the enemy gains momentum early, the unit second echelon, ATR and MOD will defend from their positions and switch lines to contain the wedge that is being driven into the defence. Similarly, the divisional/brigade second echelon, ATR and MOD will usually be deployed forward to reinforce the defence of either the first or second defensive positions (ie, of the first echelon regiments) if the attack is so strong that it cannot otherwise be checked. If the enemy tempo preempts this option, then the divisional/brigade second echelon will fight from its original positions, probably being reinforced to do so by the army or corps ATR and MOD and probably elements of the army/corps reserve also. If the only way of stopping the enemy is to deploy yet more forces, then the army or corps second echelon too will be deployed for counter

penetration to try and prevent a breakthrough of the MDA. Great stress is always laid on the creation of obstacles during the enemy's penetration, mainly by MODs and, especially, by remote mining, but also in the form of demolitions and ditching.

0663. ***Combatting Enemy Attempts to Conduct Deep Battle.*** The enemy is expected to try and break up the cohesion of the defence through the use of air landings and forward detachments in both the tactical zone of defence and operational-tactical depth, in this way creating conditions favourable for achieving a breakthrough. These must be countered promptly by artillery and air attacks (both rotary and fixed wing), by the actions of dedicated anti-landing reserves and, if necessary, by second echelons at all levels. Rapid response is stressed to eliminate such threats before the enemy is able to seize his objectives and establish a firm defence on them. GENFORCE believes that a battalion landing can be destroyed by a battalion and a battery if they attack immediately after the landing, but that three times that force will be required if the enemy is allowed 2-3 hours preparation time.

Army/Corps Level Counter Attacks

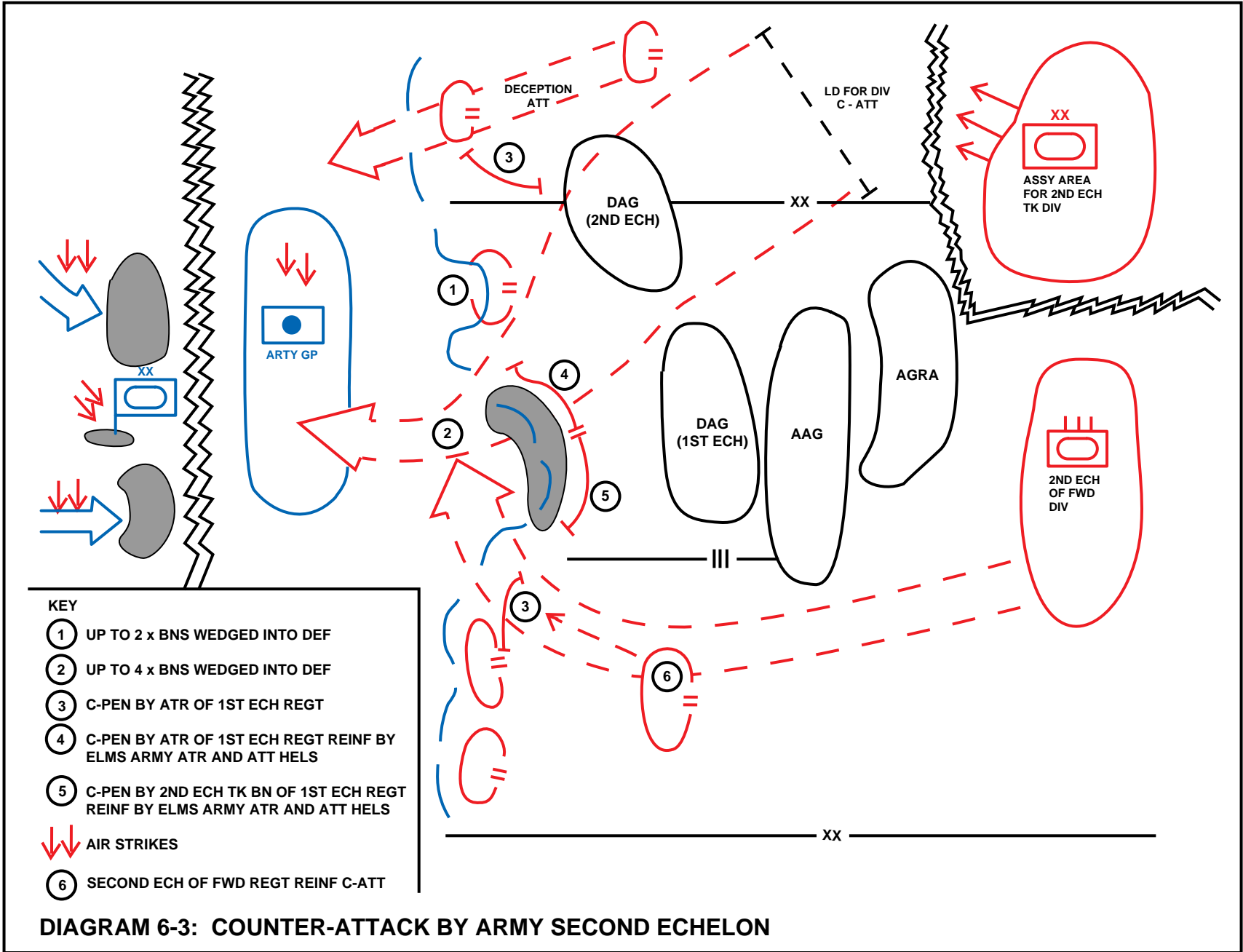
0664. ***The Place of Counter Attacks in Defence.*** The counter attack is considered the decisive moment of the defensive battle. For this reason, all available resources are committed to it. If it succeeds, it regains the initiative and alters the correlation of forces in favour of the defender. Ideally it will help to create favourable conditions for the mounting of a counter strike or even counter offensive by the SG. At least, providing it is successful, it will restore stability to the defence and win crucial time. If, on the other hand, it fails, it will worsen dramatically the position of the defender. He will have expended his last reserves to little effect, often leaving them ill-placed to prevent enemy reserves or second echelons from renewing the momentum of the offensive and perhaps expanding its scope. For this reason, GENFORCE will usually only mount a counter attack if it is sure of success.
0665. ***Preconditions for Initiating Counter Attacks.*** GENFORCE will only deliver a counter attack if its outcome will substantially influence the future course of the battle or operation. Thus, unless it be a desperate move to gain time and/or distract the enemy it will only be contemplated if it is all but assured of eliminating the enemy penetration. This implies the achievement of the following conditions:
- a. ***Intact Defence.*** The attacker must be halted, or at least slowed to a crawl, if a counter attack is to be preferred to counter penetration. His forces and their command and control should be disrupted. He must already have committed his immediate reserves and be unable to generate more combat power before the blow falls.
 - b. ***Correlation of Forces.*** A favourable correlation of forces must be achieved. This means that the SG will have to have established local electronic-fire superiority and be able to give considerable fire and air support. The army (or corps) will need to muster a 3-4:1 superiority in artillery. If the enemy is

surprised and caught off-balance the same superiority in manoeuvre strength will suffice, but if the enemy has already transitioned to hasty defence, 4-5:1 will be required. Thus an army second echelon, consisting of a new style, small division will be deemed capable of eliminating a penetration of only 2-3 battalions equivalent strength after the fire preparation has taken its toll. In practice, of course, elements of the first echelon and, if not yet committed, the combined arms reserve will reinforce the counter attack, increasing the size of grouping that can be destroyed. The favourable force ratio must be maintained for the duration of the battle by using air interdiction, remote mining and, if possible, air assaults to fix or delay enemy deep reserves which might be able to join the battle before it is over.

- c. *Local Air Superiority* is essential to ensure the timely, uninterrupted arrival of the counter blow force, the neutralization of enemy fire support and reserves and the unfettered use of close air support and air assaults.
- d. *Surprise* is crucial to catch the enemy before he has transitioned from an offensive to a defensive posture. This need not be a surprise as to intention or direction, though these are plainly desirable, but may merely be surprise as to the scale and timing of the blow. If it is achieved, surprise may compensate for a less than optimum correlation of forces, particularly if the enemy is disorganized and his command or control impaired.

0666. ***The Timing and Axes of a Counter Blow*** are critical, especially the former.

- a. *Timing*. As already mentioned, the blow must be launched before the firmness and sustainability of the defence is compromised. In practice, this equally means, in the case of an army level counter blow, before the enemy has penetrated beyond the depth of the first position of the MDA and widened his penetration and/or generated even tactical manoeuvre in the less densely defended depth of the MDA. This stricture faces the commander with an exceptionally difficult problem of timing. To illustrate this problem, assume that a second echelon division located 80km from the forward edge of the MDA is to counter attack elements of two enemy brigades that are wedged into the defence. With a line of departure say 20km from the forward edge, the time required to execute the physical move will be at least 3-4 hours by day or 4-6 by night. To this must be added: the time taken to finalize plans; issue orders; deploy traffic control, air defence, engineer and chemical troops to support the march; deploy and organize fire support and interdiction measures; update coordinating instructions. Some of these measures can be accomplished even as the troops are moving, but even so they must double or more likely treble the time required to launch the attack. That means that the army/corps commander must make his decision up to 18 hours before the blow can be delivered. This requires very good intelligence and confidence in operational-tactical calculations and foresight of a high order to identify in advance the enemy's culminating point. It also assumes that the commander will be able to bend the enemy to his will and so shape the battlefield that, when the blow falls, it will do so at the right place and time. This is difficult to accomplish when the enemy enjoys an overall superiority and the initiative. It also puts a premium on much detailed prior



planning and preparation and on efficient tactical and staff drills.

- b. **Axes.** The direction of the counter attack is determined by the aim, by the terrain, and also by the time taken to achieve a concentration on one axis rather than another. Normally, it is mounted against one or both flanks of the enemy penetration as the most likely way quickly to cut off spearheads from their reinforcements, attack enemy fire support weapons and CPs and split up and destroy his forces piecemeal. However, head on blows to cleave the enemy are not excluded: they may be dictated by the terrain, or the lack of time to move forces to a flank when that would prejudice surprise, or when it is necessary to re-establish the defence on a specific favourable line. Whichever axis is chosen, routes to the line of departure and deployment lines will have been chosen and prepared in advance, and lines to cover them should be firmly held. (Counter attacks are planned for two or three sectors, with one or two deployment lines per sector, about 10km apart.) The necessary superiority over the enemy must be achieved. To this end, the army second echelon (reserve) will be reinforced by forces of the first echelon on the direction of the counter attack and, after regrouping, by other first echelon elements drawn from sectors not under heavy pressure. The counter attack must be preceded by powerful fire strikes, and the bulk of the army level artillery will be committed to this end together with that of the second echelon and as much of the first echelon's as can be brought to bear. This is also seen as the time for the maximum committal of air support, with the especially important task of isolating the penetrating enemy force and delaying the forward move of reserves.

0667. ***The Conduct of a Counter attack*** by an army's second echelon division (in this case, an old style, heavy division) is illustrated in Diagram 6-3. It will be seen that a force of about 2 enemy brigades had wedged itself into the defence, on one sector having overrun a defending battalion. The committal of the regimental second echelon and the ATRs and MODs of both regiment and division, combined with attack helicopter and artillery fires and remote mining have, however, halted the attack. In anticipation of this, the army commander has ordered a flank counter attack by his second echelon tank division. This attack will be supported by another flank blow mounted by the divisional second echelon which is to be reinforced by the second echelon battalions of a forward regiment not heavily engaged. The other first echelon regiment will launch a joint attack to deceive the enemy. Fire support will come from the DAGs of both first and second echelon divisions, their RAGs (not shown) and the AAG and AGRA. Air and MBRL strikes will neutralize the enemy fire support and identified HQs in conjunction with electronic attack. Meanwhile, remote mining and air strikes will impose delay on approaching enemy reserves. Should the commander's calculations about the steadfastness of the defence prove to be wrong, he can always cancel the counter attack and use the designated forces, or elements of them, for counter penetration. In that case, the mounting of a decisive counter strike will have to be done by SG.

Aims and Missions of an Army/Corps Conducting Manoeuvre Defence

0668. **Aims.** Manoeuvre defence is designed to win time and wear down the enemy while avoiding becoming involved in a decisive engagement with superior forces. Particularly at the operational level, it is not regarded with enthusiasm by GENFORCE. It leaves the initiative firmly in enemy hands, it sacrifices much ground and it is very difficult and risky, having a tendency to degenerate into a rout or become a fierce fight against superior forces in adverse circumstances. Generally, it is a form of defence adopted only when forced upon GENFORCE, either because the enemy has achieved surprise as to the timing and/or axis of his offensive or because force density on a (usually secondary) axis does not permit positional defence or because of defeat in positional defence or a meeting engagement. The only time it is likely to be the method of choice is when the enemy is to be lured into an operational pocket for destruction by a SG counter strike or offensive. In all cases, GENFORCE will determine a line on which manoeuvre defence will have to stop because an operationally or strategically vital area must be defended. When it reaches that line, which ideally will be occupied or at least prepared by operational reserves, the army or corps will transition to positional defence or, better still, be withdrawn into reserve for refitting.
0669. **Mission.** The formation's missions will be: to destroy enemy high value weapons systems and inflict losses on the enemy main grouping while refusing to become decisively engaged; to conduct a phased withdrawal, usually according to a timetable laid down by SG; to transition to positional defence on a designated line and repel any attacks on it; to repel or destroy any sea or air landings; to create conditions for a transition to the offensive.

Scope and Operational Formation of an Army/Corps in Manoeuvre Defence

0670. **Scope.** Frontages and depths of a formation defence will vary more widely in manoeuvre than in positional defence, but they will always be greater in the former. Often, they will be dictated by circumstances over which GENFORCE will have little control. They will be dependent on the mission (especially on the location of the MDA), the relative strengths of the opposing sides, the nature of the terrain and obstacles, the time that has to be won and the time and resources available to prepare successive defence lines. By stretching sub-unit and unit defences to the utmost while still retaining balance, divisions will be able to delay on frontages of up to 40-45km (50-60km for a heavy division) on the most threatened axis and up to 50-60km (65-75km for a heavy division) on passive sectors (assuming normal terrain). A brigade would normally delay on a 30-35km frontage, but this could be stretched to 40-45km. Thus an army of 4 standard divisions, employing one of them in the second echelon, could conduct manoeuvre defence on a frontage of 130-150km, depending on the threat. The depth will vary from 80-90 to 150km or more from the first to the last positions, depending on how much ground can be given up.
0671. **Echeloning.** Given that the aim is not to stop the enemy in the extended tactical zone of defence (which requires a force density incompatible with manoeuvre defence), it would be inappropriate to put the main weight of the

defence forward. Rather, the problem is to ensure that, when trading space for time, there is always one foot firmly on the ground when the other is being withdrawn to the next line and there is a counter move force capable of denying the enemy the ability to generate momentum and deep operations. Invariably, the bulk of the army or corps will be found in the first operational echelon and the second will be capable only of counter penetration or small counter attacks designed merely to inflict delay or assist the withdrawal of elements of the first echelon that have trouble in disengaging or are threatened with encirclement.

- a. *Where the Entire Sector Appears Threatened*, the tendency will be to deploy all first echelon divisions or brigades in two approximately equal tactical echelons. Each will be capable of delaying action across the entire frontage of the formation and then leapfrog back, through the other, to the next position. In an army of four divisions, three might deploy in this fashion in the first operational echelon, leaving one to act in the second. In a corps with five mechanized/tank brigades, perhaps one reinforced brigade would form the second echelon.
- b. *Where there is a Clearly Identifiable Enemy Main Axis*, the operational echeloning is likely to be similar. Tactical echeloning in the forward formations may be similar, too, on the threatened direction, if possible with reduced frontages. On the secondary sector, formations may defend on an extended frontage with, in consequence, a smaller second tactical echelon.
- c. *In Difficult Terrain*, where the enemy is limited in his choice of axes and cannot readily switch forces laterally from one to another, or build up combat power on any one because of restrictions imposed by the ground on deployment, an army or corps may be able to deploy in a single operational echelon with small, local, tactical reserves.

0672. **Reserves.** Special reserves will assume an even greater importance in manoeuvre defence as the enemy will enjoy increased opportunities for achieving rapid penetration and employing air-delivered forces.

- a. *Anti-Tank Reserves and MODs* will be needed in greater number, and SG will usually reinforce the manoeuvre defence with elements from its own resources. Attack helicopters will provide an important anti-tank reserve which is capable of deploying rapidly anywhere across the formation's sector.
- b. *Anti-Landing Reserves.* The enemy will certainly try to undermine the stability of the defence by using vertical envelopment to attack defended areas from the rear, block withdrawal routes and seize key features on depth defence lines before they are occupied. Extended first echelon formations will be unable to provide more than their light motor rifle battalions and the second echelon will have no resources to spare, so SG may have to provide additional light motor rifle elements, at least to an army which lacks an organic brigade.
- c. *Airmobile Reserves* will be very important to carry out counter penetration over extended distances more rapidly than can mechanized units, to protect

flanks, counter landings, fill in gaps opening in the combat formation or, where resources allow, conduct raids. Again, SG may well reinforce a manoeuvre defence with air assault and/or airmobile motor rifle troops and helicopters.

- d. *Artillery and Engineer Reserves* will probably be formed when the enemy's main axis cannot be identified in advance.

0673. ***Missile Troops and Artillery.*** Because of the increased manoeuvre character of operations, groupings may deploy somewhat further back than in positional defence. Where the direction of the enemy's main effort is unclear, or where he attacks strongly over the whole sector, more artillery than usual will be decentralized to the first echelon. However, the army or corps commander will wish to retain artillery and, particularly, rocket artillery groups, for it is by the manoeuvre of their fire, and remote mining and that of any available air support, that he will most rapidly be able to support threatened sectors.

0674. ***Engineers and Chemical Defence.*** Given the increased requirement for obstacle creation, position preparation, movement support and smoke concealment of withdrawals or local counter attacks (including feints), GENFORCE believes that up to twice the number of these troops will be required compared with positional defence. The army/corps will therefore be strengthened from SG resources, particularly for the creation of depth positions.

Conduct of Manoeuvre Defence

0675. ***Ways of Increasing the Stability of the Defence.*** GENFORCE recognizes the increased vulnerability of the defence to both ground and air attack and the possibility of it being destroyed in detail. To cope with these problems, it stresses several factors in the conduct of the defence.

- a. *Combined Arms.* The company strongpoints and battalion defended areas that comprise each defended line will inevitably be wider than desirable (Basic Forces battalion areas being 7-10km wide, sometimes even more) and the gaps between them will sometimes, in extremis, reduce or preclude mutual support. These factors will make it certain that combat will become even more fragmented than usual. This makes it important that tactical groupings are combined arms, and thus capable of autonomous action, down to low tactical levels. GENFORCE recommends the creation of mobile anti-tank strongpoints. The composition of these can vary widely, but a typical one could be a tank company, a mechanized/motor rifle company, an anti-tank battery or platoon, a howitzer battery, a flamethrower company, an air defence section and smoke generating means. It should be noted that, while this involves considerable decentralization of artillery, its fire can still be massed in the early stages of the battle, thanks to the flexibility of its C4I.
- b. *Utilization of the Full Range of Weapons Systems.* To force the enemy to deploy early and inflict delay, GENFORCE stresses opening fire at maximum range (starting with RFCs, air strikes, helicopter ambushes, then

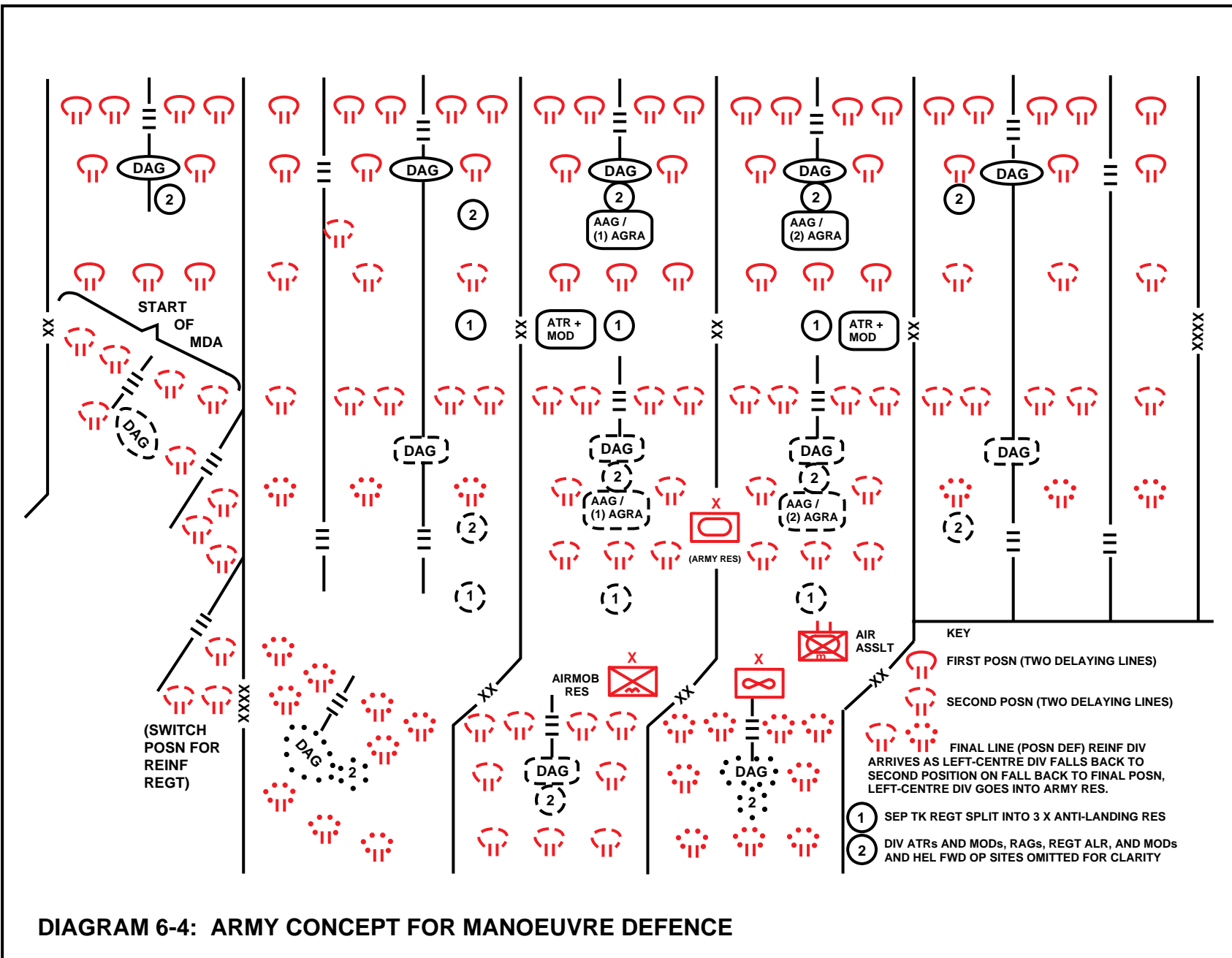


DIAGRAM 6-4: ARMY CONCEPT FOR MANOEUVRE DEFENCE

conventional artillery concentrations and finally ATGM and tanks deployed on forward slopes). As the enemy closes, he should be enticed into a fire pocket, or at least held at a point when maximum fire can be brought to bear by minefields, especially remotely delivered ones just in front of the attack.

- c. *Aggressiveness* is necessary to induce uncertainty in the enemy's mind and therefore slowness in his reactions. Aggressiveness manifests itself in wide use of fire pockets, ambushes (particularly between positions and by helicopters), counter attacks and raids by air assault troops and by-passed elements that cannot withdraw.
- d. *Terrain Preparation* is required in the form of obstacle creation (especially controlled and other minefields and demolitions), preparation of main and alternative positions and route opening (including reserve routes).
- e. *Withdrawals* must be covered by strong artillery or, where possible, air strikes (especially by helicopters), by the use of controlled minefields, remote mining and smoke, by the actions of the anti-tank reserve and, where necessary, by local counter attacks and ambushes.
- f. *Surprise* actions and reactions are considered crucial to inducing a mood of caution in the enemy, thereby reducing his momentum and increasing the likelihood of GENFORCE getting away with risk taking. Deception will be important to compensate for weakness in combat strength, eg through the creation of dummy positions (given animation by placing some troops in them), false minefields, the use of dummy radio nets, the creation of underwater bridges beside demolitions, etc.

0676. **Operational Concept.** Diagram 6-4 illustrates a manoeuvre defence being conducted by an army of four divisions and a separate tank regiment, reinforced by separate tank, airmobile and combat aviation brigades, anti-tank and transport helicopter regiments and two engineer regiments from SG. The army's role is to lure the enemy into an operational pocket. The sides will be formed by another army in positional defence to the left and a strong screen in very difficult terrain to the right. The base of the pocket will be formed by the army transitioning to positional defence, being aided in doing so by reinforcement with a fresh division. As the enemy's intention is assessed to be the deep envelopment of the flanking army, the direction of main threat is likely to be in the centre. The principal factors determining the army commander's concept will be: the threat appreciation; the time which the army has to win to allow the SG to complete its operational formation; the depth of the operation and the terrain (especially the number of natural obstacles which could form the basis of delaying lines); the line on which a transition to positional defence is mandated. The concept described below is set out in sequential fashion, but in manoeuvre defence even more than in positional, phases are bound to overlap and even merge. The enemy will be trying constantly to destabilize the defence, penetrating through gaps and weak spots, endeavouring to execute tactical encirclements to create holes in tactical formation and executing air assaults and landings to trap and annihilate some defending groupings and to seize

footholds on depth defence lines. His aim will be to turn the carefully organized, phased withdrawal into a rout in which the defender is destroyed in parallel pursuit and encirclement.

0677. **Combat Formation.** In view of the army's extended frontage all four divisions will have to be deployed in the first operational echelon. The two divisions on the most threatened sector have narrower areas of responsibility and are thus capable of forming the desirable two approximately equal tactical echelons. The two divisions on the flanks are able to form only a weak second tactical echelon on their flanks adjacent to the main axis. The AAG and AGRA are positioned to support the main axis and the two army level anti-tank reserves and MODs are placed to block any penetration in the centre (including just outside the areas of the two main axis divisions). The separate tank regiment and elements of the separate light motor rifle brigade provide anti-landing reserves in the operational-tactical and operational depth. The latter also provides two helicopter-mobile battalions for the airmobile reserve (the army air assault battalion being reserved, ideally, for raiding actions). The second echelon comprises the separate tank brigade. The engineers from SG will prepare depth positions and obstacles and routes to them.
0678. **On the Approaches to the First Position.** On the distant approaches, aviation, missiles and long-range artillery will inflict casualties and delay. In the security zone, which is shallow as few troops can be spared to man it, forward detachments comprising some mobile anti-tank strongpoints and airmobile forces will try to force the enemy to deploy, to reveal his intentions and to canalize his attack. These will be provided by the second tactical echelon of forward divisions and by the airmobile reserve. Stay behind SPF patrols will be used to provide intelligence and perhaps to direct deep fires on enemy forces concentrating to break through and, in particular, on enemy deep fire systems.
0679. **Delay on Successive Lines.** On each defended line, battalion defended areas or mobile anti-tank strongpoints will be positioned to block routes and good off-route going for mechanized forces. Wherever possible, these centres of resistance will be mutually supporting, though overstretch will often preclude this. The gaps will always be filled by obstacles and covered at least by artillery fire. The distances separating the lines to be defended will vary according to the terrain: obviously, wherever possible the lines will be behind obstacles. The enemy should have to reform his tactical march columns or pre-battle formation and displace his artillery forward (together with any ammunition he has dumped to mount his attack) so that he has to repeat the time consuming process of deploying against each line. Thus regimental lines should be separated by at least 10km and will more usually be 12-15km or more apart. The enemy will not be allowed a clear run between lines. He will be harassed by artillery fire, remote mining and ambushes (including by attack helicopters). Choke points are selected for these actions wherever possible. Each defended position should be strong enough to repulse an attack from the line of march, with ATRs and MODs plugging any penetrations into or between positions. The enemy will then be forced to mount an attack with detailed preparation. Ideally, the forward groupings will withdraw before such a blow can be delivered, their "break clean" being assisted by powerful air and fire strikes, remote mining,

smoke and the actions of ATRs and ambush groups. They will pull back through the positions of the second echelon to occupy the next line behind them. In this way, the two echelons of each division/brigade leapfrog backwards. It may happen, of course, that an echelon will have to remain long enough on one line to repulse an attack with detailed preparation, to allow time either for the next one to be properly prepared and occupied or to eliminate a lodgement made on vital ground on the next line by enemy air assault troops and/or forward detachments. It is also possible, even likely, that units and sub-units will not succeed in “breaking clean” and that they will have to fight a running battle. In this case, encircled elements and rearguards may have to be sacrificed. Such an eventuality may create significant gaps in tactical or even operational combat formation. These may have to be filled by the deployment of immediate reaction airmobile reserves to either delaying positions or to the next defensive line.

0680. **Withdrawal.** The plan for withdrawal of an echelon will specify: the sequence of withdrawal; the location of any ambushes or intermediate delay lines between defended positions; the composition of any delaying detachments or ambushes; the procedure for occupying delay lines and the next position; timings (including the relocation of artillery, helicopters, logistic elements and CPs); the obstacle and route maintenance/opening plan in the zone of withdrawal.
0681. **Counter Attacks** will be much more common in manoeuvre than in positional defence. They will, however, have a fundamentally different purpose. There will be no attempt to retake and then hold ground. Even destruction of the enemy will be a secondary task. For the most part, counter attacks are mounted to check penetrations, to eliminate enemy forces conducting deep battle (especially air assault and forward detachments), to assist forces heavily engaged on a defended line to break contact and withdraw, and to win time for the preparation of depth positions. Because they are not expected to be decisive blows against an enemy who has reached his culminating point, they will be executed with poorer force ratios than are required in positional defence, and their objectives will be correspondingly shallower. It will frequently be the case that quick counter attacks will be launched by reinforced battalions or even companies (with every effort being made, for instance by generous use of smoke, to make them appear larger). They will receive the heaviest possible fire and air support and will be terminated before the enemy has completed his regrouping to destroy them.
0682. **The Final Defence Line.** Ideally, when the line for transitioning to positional defence is reached, the army will redeploy to achieve the sort of “front loaded” defence, with normative densities in the first echelon, that positional defence requires. This will rarely be possible, however, unless either fresh troops are available to form at least part of the final line or unless the enemy is not pressing the withdrawal closely. In the given example, SG has provided a fresh motor rifle division to provide a firm hold on the final line on the most threatened direction, at the same time increasing considerably the density of the defence that the army can offer.

SECTION 6 - REACTION TO ENCIRCLEMENT

0683. **General.** Historically, the most decisive engagements, inflicting the heaviest casualties, were generally encirclements. These are seen to be even more likely in modern warfare, given both the increased level of mobility of forces and the availability of airborne and air mobile troops to seal the trap. There are several circumstances in which formations may become encircled: as the result of a surprise attack at the outset of a war; when the support for the flanks of offensive or counter-offensive groupings is inadequate; when forces are defending important areas which cannot be given up; when forces are deliberately left in the enemy rear to defend a city which will interfere with enemy communications and split the attacker's forces; when forces are pressed back onto an obstacle. GENFORCE has devoted some attention to the correct reactions to encirclement, both to reap benefits and minimise consequences.
0684. **Costs and Benefits of Encirclement.** All but inevitably, the enemy sees encirclement as but a prelude to the destruction of the trapped grouping, and success in accomplishing its elimination will usually create a significant gap in the defender's order of battle, further undermining his ability to resist. However, an encircled force can, in certain circumstances, contribute materially to the stability of the defence. It can tie down large enemy forces (usually, at least double the number of defending troops), often for considerable periods. This diversion of resources may decisively weaken the attacker's ability to build up combat power on the main axis. Moreover, a force located in a favourable position in the enemy depth may hamper his manoeuvre and logistic support. Indeed, aggressive action by the encircled forces, perhaps reinforced by or working in conjunction with airborne forces, can create a battle front in the enemy rear, severely disrupting his command and control and rear services. Both for these reasons, and because an unsupported breakout attempt will almost certainly result in the destruction of the encircled grouping, GENFORCE will usually order such a grouping to stand its ground and fight from within encirclement. An exception is during manoeuvre defence, when the right to order an immediate breakout in the event of communications with higher headquarters being broken may be given beforehand to formation and unit commanders.
0685. **Successful Action and Survival of Encircled Groupings.** There are three pre-conditions for surrounded forces to have an impact on the enemy's operations and still survive to break out or be relieved. Firm command and control and adequate logistic stocks or support are crucial, and decisive steps must be taken to ensure that the gap which is opened between the pocket and the main body is not so wide as to preclude operational coordination with, and support from, the main forces.
0686. **Problems of Organisation Within Encirclement.** Perhaps the biggest problem facing a grouping in the process of being enveloped is lack of time to organise to cope with the event. The situation is likely to change rapidly, radically and unpredictably. To cope successfully, speedy reactions are necessary to maintain combat effectiveness. These include: immediate measures to centralise the command and control of all elements within the trapped grouping; an immediate

assessment of the combat and logistic capabilities of the grouping, quite possibly with measures to strengthen them before the enemy can organise a tight blockade; redeploying in order to establish a reliable perimeter force and a strong mobile reserve to prevent the enemy from cleaving the grouping into fragments which can be destroyed in detail; the maintenance of stable communications; the creation of a strong air defence umbrella. In addition the main forces, with some help from the pocket, must prevent the enemy from tightly sealing off the encirclement and then increasing the interval between the two. Air power must be able to make up for deficiencies in the combat support of the pocket, and to ensure its logistic support.

0687. **The Breakout.** It is considered unlikely that an encircled force will be able to break out without the aid of the main forces: indeed, the latter will usually play the major role in the exercise and thus dictate the plan. Usually, the axes of the pocketed and relieving forces will be convergent, on the shortest route separating them (though the surprise consequent upon the choice of other axes may be held to outweigh the obvious advantages of this). The breakout may be on a single axis. This has the advantages of retaining organizational integrity and concentration of combat power, but it may take a long time to organize and it enables the enemy to strip passive sectors and use the forces so released to block the escape corridor or close it before the main body has passed through. It may, therefore, be desirable to attack on more than one axis. This has the advantages of reducing the time required for organization, the complication of the enemy's use of reserves and the reduction of pass times in vulnerable corridors. In either event, feint attacks, from both within and without the encirclement, will be necessary to confuse the enemy and delay and weaken his reactions. The immediate mission of the breakout grouping will be to penetrate the inner front of the enemy's encirclement, and the subsequent either to continue the advance against the rear of those enemy fighting the main forces, or to seize and consolidate on an important line (perhaps with the aid of air delivered troops) until link-up is achieved. The enemy will try, not merely to halt the breakout, but to rout it. The operational formation of the encircled forces must be organised with this in mind. Screening forces are needed to cover both flanks and the rear, and these need to be supplemented with strong combined arms and anti-tank reserves and MODs. Extensive use should be made of both forward detachments to lead the breakout (and probably on false axes as well, for deception) and of raiding detachments to destroy enemy high precision weapons and disrupt command and control.
0688. **Exfiltration.** In a desperate situation, it may be necessary to order the encircled grouping to divide into detachments which will attempt to exfiltrate through the encircling forces. Such groups will lack the combat power to survive if intercepted, and they will usually be forced to abandon much or all of their heavy equipment in order to escape through difficult terrain. The encircled formation will effectively cease to exist, though the elements that get out may have limited value in conducting raiding actions in the enemy rear.

MACHINE GUN-ARTILLERY DIVISIONS (FORTIFIED REGIONS)

Background

1. **Historical.** In past wars, Genforce made considerable use of a special type of defensive lower formation: the fortified region (FR). This was a formation strong in defensive firepower but with limited manpower and offensive capability. Sometimes FRs were deployed on critical axes where an attack was expected to provide a dense and deep, well fortified sector that would be difficult to penetrate. As the enemy often shied away from attacking well-prepared FRs, such a sector was often intended not merely to deny an avenue of advance to the attacker but also to provide a shoulder of a pocket into which the enemy was to be canalized and halted for subsequent destruction by fire and counter-attack. On other occasions, FRs were used to hold extended passive sectors where a major offensive effort was deemed unlikely: their firepower being superior to that of rifle divisions, they could defend a longer portion of the front. In either case, they fulfilled an important role in providing an economy of force alternative to standard formations. FRs were of two types.
 - a. *Fixed FRs* lacked mobility. They were created to provide static, positional defence of fortified areas astride anticipated enemy axes, making use of permanent fortifications. Where necessary, they could be reinforced by “filler” troops to increase defensive density.
 - b. *Field-Mobile FRs* were, as the name implies, used in manoeuvre operations. On the defensive, they were often deployed to reinforce the defence on a key axis, often being dug in behind forward formations to provide greater depth and resilience. Alternatively, they could be used to relieve other formations on axes not being exploited by the enemy, freeing them for a counter-attack role. In the offensive, they were employed either to protect the flanks of an attacking grouping or to consolidate the defence of captured lines and release other troops to continue the offensive or withdraw for refurbishment.
2. **Contemporary Conditions.** Genforce has never doubted the value of fixed FRs. Even the advent of greatly improved reconnaissance capabilities and PGMs have not dented this faith. Improved protection, concealment and deception are seen as providing adequate answers. On the other hand, field-mobile FRs fell out of favour for a time. However, the advent of an arms control regime combined with escalating costs of both equipment and manpower revived interest in such economy of force formations. Recently, Genforce has resurrected these in the modern guise of machine gun-artillery divisions. These are equipped with a judicious mix of old weaponry, unsuited to a battle of manoeuvre but useful in positional defence, and new where improved capability is needed. They are, as of old, comparatively light in manpower as they lack rifle strength. They also have comparatively little treaty-limited equipment, such as tanks and IFVs, but are strong in transportable, pre-fabricated field fortifications (such as Gorchak and SPM-2), engineers, machine guns, ATGM and artillery. They are to be found in all theatres within the structure of the Basic Forces, though most are manned at only 20-25% in peacetime and require a work-up

period before they can be employed to good effect. Conversely, the length of such a training period is significantly less than for a low-readiness tank or motor rifle division as a machine gun-artillery division does not have to be prepared to carry out a full range of tasks: it is required merely to move to its allotted sector and then dig in and conduct a resolute positional defence.

Fixed Fortified Regions

3. ***Strategic and Operational Roles.*** Genforce has always been concerned with the possibility of being the victim of operational, even strategic surprise attack. Fixed FRs play a fairly significant role both in deterring and, should that fail, in coping with such an eventuality. Their contribution is seen to be greatest in remote areas where a timely defensive build up is most problematic. Coincidentally, such areas are generally characterized by defensible terrain, a sparse road network and a potential threat from relatively unsophisticated, low-mobility enemies: such a concatenation of circumstances particularly favours the use of FRs although their use is not confined to such areas.
 - a. ***Frontier Defence.*** Fixed FRs have been established on all Genforce's frontiers. Their role, together with the Border Troops and forward-based formations, is to win time and provide cover for the mobilization, concentration and deployment of the main forces. They accomplish this by: compelling the enemy to concentrate strong forces for his offensive, thus prejudicing his ability to achieve surprise; inflicting delay; fragmenting the enemy attack and canalizing it into directions favourable to the defender. Of course, no attempt has been made to provide a continuous fortified line along the entire length of each frontier. Rather, FRs are sited on likely offensive avenues, especially at defiles, river crossing sites and communications hubs. Having learned the lessons of previous wars, no FRs are created within field artillery range of the frontier. To get at them, the attacker will first have to fight his way through covering forces provided by Border and Army formations, exposing his forces to defensive fire as he concentrates to achieve penetration of the FR.
 - b. ***Depth Defences.*** Recognizing that the enemy will attempt to project offensive forces into the operational depth at an early stages using air-mobile, airborne and operational manoeuvre formations, Genforce has also placed FRs in the depth to protect communications nodes, military and civil administrative C3 centres, defiles and obstacle crossings vital to deployment, and other likely targets for surprise attack.
4. ***Characteristics.*** Fixed FRs vary in strength from regiment to division, and these in turn are of variable strength depending on the task and the terrain. They make extensive use of reinforced concrete emplacements for machine guns, grenade launchers, anti-tank weapons and artillery and of turrets taken from tanks scrapped as a result of arms control agreements. All such fire positions have well protected magazines to enable them to continue resistance when the resupply system breaks down. Excellent camouflage, deceptive and alternative positions and the use of new materials such as synthetic armour all help to enhance survivability, even in the face of PGMs. FRs are always organized for all-round defence and are protected by minefields (which can be quickly augmented using remote mining). Their internal communications are

provided by deeply buried land-lines with radio back-up. Genforce believes that the superior protection offered by permanent fortifications, compared with field works, greatly enhances the stability of the defence, as Table 6.1 illustrates.

TABLE 6.1: PERCENTAGE OF COMBAT EFFECTIVENESS RESTORED AFTER THE CESSATION OF ARTILLERY PREPARATION

Type of Defence Works	Time Elapsed After Conclusion of Artillery Preparation						
	1 min	2 mins	3 mins	4 mins	5 mins	6 mins	7 mins
Field Fortification	0	3	13	30	49	70	85
Permanent Fortification	30	60	80	100	100	100	100

Machine Gun-Artillery Divisions

5. **Role in Operational Defence.** With adequate warning time of an enemy offensive, a machine gun-artillery division can be deployed in the first echelon, either to establish a deeply echeloned defence on a critical sector or to occupy an extended sector where the enemy is not expected to make a major effort. Alternatively, it can be held in army or SG reserve for deployment as a counter-penetration force once the enemy's main axis has been determined. In this role, it may be used either to block the enemy's advance or to hold the flank of the penetration. Whichever task it performs, it frees-up more versatile manoeuvre divisions for other tasks.
6. **Role in the Operational Offensive.** When Genforce is on the offensive, a machine gun-artillery division is used either to protect the flank of a shock grouping against a counter-attack or it is held in reserve. In the latter case, it will be available for counter-penetration tasks or to consolidate gains that have been made and relieve elements of the first echelon to either continue the offensive or pull back for reconstitution as a new combined arms reserve.
7. **Tasks.** A machine gun-artillery division which has been given adequate time to fortify itself for all-round defence is expected to be able to conduct a positional defence for a considerable period (longer than a motor rifle division, the precise time depending, of course, on the extent of its frontage and therefore its depth and on the intensity of the attack). If deployed on the enemy's main axis of advance, it will either impose delay, winning time for the preparation and execution of counter-moves or, in the event of the enemy bypassing, it will divide the enemy forces, hamper manoeuvre and resupply by its placement astride essential routes and crossroads and also compel the enemy to weaken his offensive by leaving a masking force to prevent raids by the division's manoeuvre elements. When deployed on an extended frontage on a hitherto passive sector which becomes active as a result of an enemy switch of main effort, it can hold until reinforced by reserves which can increase the density of the defence by acting as "filler" troops. When positioned on the flank of a penetration, it can provide a secure line of departure for a counter-blow.
8. **Time and Space.** Machine gun-artillery units and formations are believed capable not only of providing a stable and reliable positional defence but of doing so with

economy of effort. Whereas a standard motor rifle regiment is able to defend a sector 10-15 km in width, a machine-gun artillery regiment can hold a frontage of 20-40km. A motor rifle division defends on a 20-30 km front, but a machine gun artillery division's sector is 50-120 km. (The longer the frontage, the less deeply echeloned the unit or formation.) Genforce is careful to stress, however, that a successful defence is dependant on the machine gun-artillery troops having enough time to reconnoitre and prepare positions in advance or reinforce the division's strong organic engineer capability to accelerate the process.

9. ***Tactical Employment*** of field-mobile machine gun-artillery divisions is covered in Annex A to Chapter 7.

CHAPTER 7

TACTICAL DEFENCE

SECTION 1 - GENFORCE VIEWS ON DEFENCE

General

0701. **Scope of Chapter 7.** This chapter will concentrate on defence by all lower formations, units and sub-units. However, it should be borne in mind that, wherever possible, defence is a mission of the Basic Forces and on occasion Mobile Forces' separate brigades. Brigades within corps are, circumstances permitting, usually held back for counter blows. To understand the full operational context of the tactical defence, the reader is referred to Chapter 6.

Relationship Between the Offensive and the Defensive

0702. **Circumstances in which Defence is Adopted.** While at the operational level, GENFORCE used to consider defence as a temporary and forced form of combat action, it always recognized that it would be adopted more commonly at the tactical level. Given the nature of future war, with its rapid and radical changes in the situation, operational defence will become more usual and tactically it will be routine and often assumed at very short notice and in adverse circumstances. The situation in which a division, brigade or subordinate entity will defend are as follows:
- a. *Within the Context of an Army or Corps Defence.* This will be very likely in the initial period of war when a superior enemy has achieved strategic or operational surprise, but large-scale defensive actions will also take place even during strategic offensives. It will also be forced on higher formations if they lose the struggle for electronic-fire dominance.
 - b. *Economy of Force.* To permit the concentration of the requisite superiority for an attack in one sector, some formations will often be responsible for long passive sectors. This is a role particularly suited to machine-gun artillery divisions.
 - c. *Counter Attacks.* During offensive operations, counter attacks will usually be repulsed by defensive action.
 - d. *When the Enemy is Considerably Superior.* Even during the course of an offensive, the enemy may concentrate a stronger force on a given sector, or inflict such attrition on an attacking grouping through long-range fire that it is forced onto the defensive. Defeat in a meeting battle will force a grouping onto the defensive (and often adjacent units as well).
 - e. *Consolidation of Captured Areas.* Forward and airmobile detachments and OMGs will generally be required to seize and hold ground in the interests of the main force's advance.

- f. *Losses.* When a unit or formation outruns its logistic support and/or suffers such serious losses that it can no longer sustain offensive action, it may have to transition to defence.

0703. ***Dialectical Unity Between Offence and Defence.*** Most of the conditions outlined in the previous paragraph are ones where defence has been forced on GENFORCE by circumstances. While it is true that GENFORCE, like most armies, has a preference for the offensive as the only decisive form of warfare, it would be wrong to assume that, as in the past, it will not deliberately choose defensive action even when an attack would be a viable option. Frequently, and particularly at the tactical level, defence will be adopted deliberately by part of a grouping as the best means of creating favourable conditions for mounting a decisive attack. This is especially true on the non-linear battlefield. Thus, it will often be seen as advantageous to force the enemy to concentrate and lure him into a tactical or operational pocket so that he can be broken by fire and then destroyed on the defensive anvil by the hammer of an enveloping counter attack.

0704. ***The Strengths and Weaknesses of Defence.*** GENFORCE acknowledges the traditional advantages and drawbacks of defence, but recognizes some subtle changes to each.

- a. *Advantages of Defence.* The defender is usually able to choose his ground, making effective use of its protective and concealing features and natural obstacles. Moreover, he can improve the terrain through engineer work, both by digging in and creating minefields and other obstacles. In the era of precision and area effect ACMs such as cluster munitions, this is important: GENFORCE holds that simple field fortifications will reduce the effectiveness of these by two thirds. From the comparative safety of prepared positions, the defender can concentrate long- and later short-range fires to weaken and disrupt the attack (at the same time reducing his own casualties not only through protection and concealment but also by the judicious deployment of dummy targets). Nor is the attacker going to find it so easy to overwhelm the defence as it was in the past. Large concentrations are vulnerable in the age of precision weapons and even if accomplished successfully, the defender can manoeuvre fires and remote mining efforts from widely dispersed long-range weapons to create fire barriers as needed. Airmobile reserves can be moved rapidly to plug gaps and, indeed, to disrupt the attacker by raids into his depth. Given an adequate density of weapons, particularly anti-tank, and an adequate depth, it may be difficult to prevent a break-in against the defence but it will be easier than in the past to prevent a break-through.
- b. *Disadvantages of Defence.* Traditionally, all the advantages accruing to the defence have been outweighed, in GENFORCE's view, by the surrender of the initiative. The attacker can choose the time and place to launch his offensive, and he now enjoys a greatly enhanced capability for the conduct of deep battle from the outset. Moreover, the mass employment of precision and other ACMs and EW can be relied on to suppress at least forward defences and even reserves with a higher degree of reliability than with a

traditional artillery and air preparation (and, furthermore, using fewer weapons and less weight of ammunition than in the past). If the defender has an inadequate force density and/or has not been allowed his choice of ground or time to prepare, these disadvantages can be decisive. Against a prepared and balanced defence in reasonable strength, however, GENFORCE theorists are not now sure where the balance of advantage lies.

- c. *Critical Importance of the Electronic-Fire Engagement.* The fate of many tactical defences will depend on the outcome of this operational clash. If the attacker establishes dominance, he will enjoy a crucial edge on chosen sectors and will be able to slow and disrupt the defender's reactions and retain the initiative. If, on the other hand, the defender is able to hold his own in the electronic-fire engagement, or at least successfully withdraws substantial long-range fire assets from combat and preserves them for later intervention, the picture may look very different. The manoeuvre of deep strikes and obstacles by missiles, artillery, MBRLs and aviation, and of mechanized and aerial reserves can quickly reduce the momentum of an attack or even halt it by effecting a dramatic change in force ratios. It is, in other words, easier for the defender to challenge the attacker for the initiative than was the case in the past, especially if the latter is drawn into a pre-selected operational or tactical pocket for destruction. But tactical success will often be conditional on operational, especially at the level of division and brigade.

SECTION 2 - THE NATURE OF MODERN DEFENCE

The Aims of Defence and the Threat

0705. **Aims.** The goal of any defensive action is to create favourable conditions for the ultimate defeat of the enemy through offensive action. The accomplishment of this will be a balance of three fundamental factors (depending on the situation).
 - a. *The Enemy.* Such losses must be inflicted on the enemy as to deprive him of further offensive capability while still retaining combat effectiveness of friendly forces.
 - b. *Spatial.* It is desirable to retain as much ground as possible, but GENFORCE is prepared to give up terrain, at least temporarily, as long as critical areas are held (including those the retention of which is essential for counter blows to succeed).
 - c. *Temporal.* Time must be won for the deployment of further forces from the depth, the regrouping of forces and the creation of shock groupings for counter blows.
0706. **The Threat.** At the tactical level, the threat to the viability and stability of defence is threefold. These three factors condition the nature of the defence, but the requirements they impose are somewhat contradictory. The failure fully to reconcile these contradictions will cause some problems, as the GENFORCE principles of defence will reveal.

- a. *Artillery and Air Attack.* GENFORCE expects these to cause most of their casualties. Precision and other ACMs are perceived to be capable of suppressing the defence with a greater reliability and to a greater depth (thanks to improved target acquisition) than previously when air and artillery were purely area suppression systems of limited effectiveness and reliant on less accurate complete and timely target data.
- b. *Armour.* The enemy's ground-taking and subsequent holding will depend primarily on massed armour, especially tanks. With their high mobility, flexibility, firepower and shock power, armoured groupings can quickly exploit any weakness created in the defence by artillery and air attack and generate tactical momentum and manoeuvre in the defence's depth to break up its cohesion and stability.
- c. *Air Assault and Airmobile Forces* will be used to assist the armoured breakthrough by vertical envelopment so that strongpoints and defended areas are attacked simultaneously from front and rear. They will exploit deep strikes to undermine the defence's stability by attacking CPs, artillery and air defences, EW sites, logistic support and reserves. They will also be employed to block withdrawal and reinforcement routes and seize vital ground in the depth on which new defence lines can be based. These will usually act in cooperation with ground tactical manoeuvre elements which have penetrated the forward positions.
- d. *Characteristics of Defence.* It follows from the above that GENFORCE defence characteristics are anti-armour, anti-air/missile and anti-landing.

Principles and Problems in Tactical Defence

0707. ***Concentration and Dispersal.*** GENFORCE stresses the need to identify the main axes of the enemy's offensive effort so that it can effect a counter-concentration to reduce the enemy's superiority to no more than 2-3:1 to be reasonably sure of stopping or slowing him and, of course, to tilt the odds in the other direction if he is to be destroyed in a counter blow. This will be very difficult. The enemy can manoeuvre fire from dispersed weapons systems onto his chosen penetration sector and the mobility and flexibility of modern formations, both ground and airmobile, will enable him to concentrate rapidly to exploit their effects. It will be difficult to execute a timely counter-concentration as enemy deep strike and deep battle assets will make every effort to prevent it. Anyway, a high density of defending forces will offer a rich target array for enemy artillery and airpower. Partial answers to these problems are found in:

- a. *Manoeuvre of Fire and Obstacles.* The ranges of modern missiles and artillery, not to mention both fixed and rotary wing aircraft make it possible to concentrate fire and remote mining from dispersed assets onto key sectors and so break up the attack. The defence should rely less on numbers of troops but more on the manoeuvre of long-range fires for success. Direct fire will merely complete the task largely accomplished by indirect fire and air action.

b. *Dispersal Laterally and in Depth.* It is increasingly recognised that to sit on vital ground is to attract devastating fire. It may often be better to defend the approaches to it and to dominate the ground itself by fire from flank and rear. Alternatively, minimal forces, sufficient to check the enemy, may be left in place until the conclusion of the enemy's preparatory fire and sufficient defensive strength is moved in only when the fire lifts. Recognizing that stopping the enemy right on the forward edge is increasingly difficult, GENFORCE is also deploying in greater depth, relying on a wearing down and disrupting process to create favourable conditions for counter blows rather than on static defence. In future war, the second echelon may be as strong as the first or even stronger.

0708. ***Tenacity.*** A unit or formation ordered to hold a position must do so with the utmost stubbornness and may only give ground or withdraw with the permission of the senior commander (sometimes conceded in advance, however). This stricture applies even in encirclement and when communications with the senior commander and flanking units break down. Generally, attempts to break out of encirclement (at least without a coincidental relieving attack) are equated with the effective loss of the grouping concerned. Prolonged resistance, however, may restrict enemy manoeuvre and will tie down troops needed elsewhere. It may also provide a pivot for friendly manoeuvre or an anvil on which to crush the enemy. The mixture of static resistance and manoeuvre will vary from sector to sector. In some areas, steadfast retention of occupied lines and positions will be combined with local counter attacks; in others manoeuvre defence may be employed and in others a combination of the two. Methods will vary according to the mission, the terrain, relative strengths and other criteria. As a result, combat will develop in a non-linear fashion.

0709. ***All-Round Defence.*** The non-linear nature of the battlefield and the ever present threat of vertical envelopment make it imperative that tactical formations and units adopt all-round defensive deployments or are at least able to move rapidly into all-round defence.

0710. ***Activeness and Manoeuvre.*** The defender cannot afford to be passive, relying on static defences. The initiative must not be surrendered to the enemy. Defensive battles in the future will be characterized by a defensive-offensive mix with the share of offensive activity tending to increase. The more aggressive the defence, the more stable it is expected to be. Counter attacks will be more frequent but will often have more limited aims than in the past.

a. *Preemption.* This ultimate expression of activeness is considered highly desirable, especially against enemy precision weapons, attack helicopters, EW assets and artillery (especially MBRLs). These, together with their associated C3I, are the highest priority for destruction and every effort will be made to locate and destroy them before they can open fire. A preemptive counter-preparation is also considered important in that it may alter unfavourable force ratios at the last minute (the best time) and disrupt the enemy's timetables. Nor are spoiling attacks at division or brigade or even higher levels excluded if circumstances are propitious (eg, after a successful counter-preparation).

- b. *Manoeuvre*. The manoeuvre of fire, a key concept, has already been touched on. Just as important is the manoeuvre of troops, both laterally from passive sectors and from the depth. This will be done to form counter-concentrations either for counter penetration, ensuring that the enemy does not achieve a significant or decisive superiority of 4-5:1 or more, or for counter attacks. This approach avoids lengthy occupation of the attack sector with consequent heavy losses to the enemy's fire preparation and it fulfils the need for anti-precision attack manoeuvre (ie, the frequent relocation of units to get out from under enemy strikes). Successful, timely manoeuvre increases the power and stability of the defence and makes it possible to defeat a superior enemy force. This principle is not in conflict with the demand for tenacity in holding some positions. Stubborn defence of vital ground forms the pivot necessary for aggressive counter moves and/or an anvil on which these can destroy the attacker. At very least, it will inhibit the enemy's ability to conduct manoeuvre and gain time for the reinforcement of sectors where the defence is beginning to crumble. GENFORCE believes that firmness in defence is lost when a unit or formation has suffered 50-60% losses.
- c. *Counter Attacks/Strikes*. These offensive actions, to destroy enemy penetrations and/or retake lost ground, are the basis of successful defence. Ideally, they are launched when the stability of the defence is unimpaired yet the enemy has already committed his immediate reserves and those more distant are delayed and disrupted by interdiction. They can be initiated against an enemy temporarily transitioning to defence or in expectation of a meeting battle with a disrupted penetrating force. Major counter blows must be sure of achieving significant tactical results. If only a dent can be created in a penetration, it is considered better to utilize second echelons or reserves for counter penetration. On the other hand, small scale, local counter attacks are now seen to have an important place in maintaining the stability of the defence. They can be used to inflict delay, winning time for essential manoeuvre to be completed, and, especially in manoeuvre defence, to assist in the withdrawal of troops which have problems in disengaging.
- d. *Counter Penetration*. In the event of the attacker making better than expected progress, upsetting the stability of the defence and still having additional combat power within reinforcing reach of the battle area, counter attacks/ strikes will be eschewed in favour of replacing or reinforcing elements of the first echelon and blocking the enemy's further advance and attempts to generate tactical manoeuvre. In this case, more potentially decisive counter moves will be left to the senior commander using his reserves.
- e. *Reconnaissance and Counter-Reconnaissance*. Without continuous and aggressive reconnaissance extending well into the enemy's depth, the prospects for a successful defence will be poor. Determining the enemy's main axis, the locations of his high value weapons and C3I assets, his shock groupings and his timetables are essential to preemption, the disruption of approaching attack forces by long-range fire and the timely reactions of manoeuvre units. By the same token, a vigorous, ongoing effort must be made to deceive and degrade enemy reconnaissance by both passive and active measures. The victor in the information struggle will be the victor in combat.

- f. *Deep Battle.* Even in defence, deep attacks must be mounted to disrupt, damage and delay the attacker. These will not be confined to EW, artillery, missile and air strikes. Airmobile assaults into the enemy rear to conduct raids will be needed, though, given a generally unfavourable air situation, these will not be on the same scale as when on the offensive. By-passed groupings can also be used in this role when not required to stand firm. The subject of deep battle is dealt with in detail in Chapter 8.
- g. *Withdrawal.* In a departure from traditional thinking, GENFORCE now accepts that withdrawal may, in some circumstances, be an expression of activeness. This will be the case, for instance, when creating reserves for a counter attack or when luring the enemy into a tactical pocket for destruction there.

0711. ***Engineer Preparation.*** Engineer work in defence is carried out to enhance the protection of troops, to create or improve obstacles to enemy manoeuvre and to ensure the ability of GENFORCE to conduct manoeuvre.

- a. *Protection.* Defending forces must be well dug in to withstand both conventional and ACM bombardment. Even second echelons and reserves must be protected to survive deep strikes. Furthermore, depth positions and waiting areas must receive engineer preparation if enemy penetrations and attempts to generate operational manoeuvre are to be stopped. Of course, most defence works have to be carried out by the combat troops themselves (aided by the self-entrenching devices fitted to tanks, BMPs and some self-propelled artillery). However, GENFORCE engineers are very generously equipped with plant to help achieve the necessary depth and density of prepared positions. Particular attention is now being paid to defeating enemy aerial reconnaissance and precision attack: GENFORCE believes that simple field fortifications will reduce casualties from PGMs by two-thirds. Where time permits, all fighting positions and their communications trenches are given overhead cover. Vehicles, too, are dug in and covered with locally produced polyurethane screens (lightly covered in turn with soil) to disperse heat and disguise radar signatures. Tracks are eliminated where necessary. Radar and thermal decoys are deployed and dummy positions created to draw enemy attention and fire away from real positions. Bi-spectral smoke pots and jog oil generators, together with decoys are emplaced to defeat incoming PGMs targeted against real positions.
- b. *Obstacle Creation.* Of great importance is the creation of a comprehensive obstacle plan. Lavish use will be made of mines to disrupt and canalise enemy attacks. In this respect, note must be made of minelaying during the course of operations. GENFORCE believes that it is generally more effective to lay a minefield at the last minute, during the course of a battle and directly in the enemy's path, rather than lay it beforehand and thus give the enemy time to detect it and prepare breaching means in advance. Such surprise minefields are also more economical, often a major factor in defence during the course of offensive operations. It is this consideration which makes the MOD and its associated ATR so important a part of tactical and operational

formation. There is also growing emphasis on surprise, rapid surface laying of mines by helicopters and, more importantly, by aircraft and MBRLs delivering RDMs.

These can be used to seal gaps in the defence or to fix deep reserves in order to win time for the defence.

- c. *Movement Support.* Routes for the manoeuvre of reserves and the second echelon are reconnoitred and marked. Where possible, they are improved and open sectors are camouflaged and provided with smoke pots and decoys. Reserve bridging may be deployed in hides near bridges likely to be targeted by the enemy or at alternative crossing sites: sometimes, underwater bridges are built beside permanent structures. MSDs are created in advance to support the deployment of troops from the depth.

0712. **Surprise.** It is recognised that it is much easier for the side holding the initiative to achieve surprise. However, it is still an essential tool of the defence, helping to compensate for shortage of forces and persuading the attacker to conduct operations in unfavourable conditions and on unfavourable axes. It is achieved by concealing the nature and locations of defences and, by deceiving the enemy as to the defence's alignment and deployment and, by unexpectedly conducting active operations, wresting the initiative back from the attacker. GENFORCE stresses several points on achieving surprise in defence:

- a. *Avoidance of Stereotype.* The alignment, grouping and methods used in defence must not be according to a template, predictable to the enemy even if his intelligence picture is incomplete. This does not mean the abandonment of norms, but their imaginative application. (Norms are only averages and vary according to troop strengths, capabilities, terrain and the mission.)
- b. *Counter-Reconnaissance.* Surprise in defence can only be achieved through an active struggle against enemy reconnaissance. Reconnaissance means must be located and destroyed. They must also be deceived by extensive use of dummy positions and structures, false movement, dummy radio nets, etc. Strict camouflage discipline and the extensive use of bi-spectral smoke is, of course, vital to both the concealment of real defended lines and areas, weapons groupings, CPs and reserve concentrations and to the success of deception plans.
- c. *False Forward Edge.* If possible, a false front should be created to mislead the enemy into a mistaken fire preparation and attack plan. Where that is not possible, it is considered desirable temporarily to withdraw troops covertly before the enemy's artillery and air preparation, a technique used in the past and now very important in view of the increased destructiveness of modern weaponry. In view of its complexity, such a withdrawal must necessarily be shallow (though there has been argument in favour of deep withdrawals, leaving only enough forces on the forward edge to repel an attack by forward units).

- d. *Counter-Preparation.* To be successful, the organization of counter-preparatory fires and strikes must be covert. Given the long-range and accuracy of modern weapons, little if any prior manoeuvre will be required for many of the participatory systems, provided the correct time and place of the attack have been anticipated.
 - e. *Manoeuvre.* Manoeuvre is essential to maintaining the stability of the defence. It must, however, be covert or the enemy will disrupt and defeat regrouping or counter attacking forces. Thus it is essential thoroughly to prepare routes and to use concealment, bad visibility and deception to cover movement.
0713. **Continuous Command and Control.** As the defender will be in a reactive posture for much if not most of the time, it is essential that these reactions be prompt. Some pre-planning will help to ensure this, but the very nature of defence makes it much more difficult for the commander to forecast the course of the battle than when on the attack. Moreover, the attacker will seek to exploit his superiority to attack the defender's C3I to make his reactions belated and ineffectual. Even more attention will therefore have to be paid to ensuring continuous C3, for instance, by building extra redundancy into the system.
0714. **Air Defence.** Defeat of the air enemy is essential to successful ground defence. If accomplished, it will restrict or deny enemy air reconnaissance, air preparation and interdiction and the insertion of significant air assault forces. The main contribution at the operational level should be made by the air forces (aided by missile troops, SPF and raiding detachments) conducting an (ideally pre-emptive) counter-air operation. Tactical air defence of the ground forces will in addition attempt to create a dense, seamless, overlapping air defence umbrella with considerable redundancy (ie, ability to absorb losses).
0715. **Anti-Landing Defence.** Both large- and small-scale air (and on coastal regions, sea) assaults are now seen as integral parts of offensive operations. Such forces are capable of disrupting the stability of the defence by destroying C3I elements, logistic support and key weapons systems, by checking the deployment of reserves and by seizing vital ground. They may also be used for vertical envelopment to aid frontal attacks in reducing defended positions or to interfere with planned withdrawals. It is now considered desirable to hold dedicated anti-landing reserves at both tactical and operational levels. Usually, these will be substantial as threats are likely to be multiple: tactically, for instance, divisional separate tank battalions may well be used in this role. Where this is not possible, second echelons (reserves) will be located so as to defend particularly important areas or targets, and anti-landing obstacles may be created by engineers. The mobility and flexibility of the divisional and brigade light motor rifle battalions (provided helicopters are made available) make them useful in this role. Army and corps air assault or light motor rifle units may also be committed to anti-landing roles within tactical formations' deployment if the enemy landing threatens operational stability.

0716. **Reserves.** Enemy mass strikes may well inflict massive and sudden damage on the defending forces. It may well be that even whole lower formations are rendered at least temporarily combat ineffective. It is certain that operations will develop in a dynamic, uneven, non-linear fashion and that the unexpected will occur frequently. In these circumstances, GENFORCE increasingly stresses the importance of creating several types of reserve.

- a. *The Combined Arms Reserve* is fundamental to the maintenance of stability in defence. It may: replace combat ineffective elements of the first echelon; conduct counter penetration; destroy raiding detachments; mount its own counter attacks or join in those mounted by the second echelon; using elements of its composition, carry out deceptive moves or impart animation and realism to dummy groupings.
- b. *Air-Mobile Reserves.* Given the increased spatial scope and irregular development of the area of operations, together with the possibility of sudden losses in defending formations and of unexpected enemy changes in axis, it is considered vital to maintain a substantial airmobile reserve. With mobility greater by a factor of 8-10 times that of the combined arms reserves, and, moreover, being able to ignore such obstacles as destroyed bridges or remote minefields, the airmobile reserve will often be the only counter penetration force that can react in good time. They will also be able to: provide raiding forces to exploit fleeting opportunities; reinforce, or substitute for, anti-landing reserves; hamper the forward move of enemy reserves; assist counter attacks through vertical envelopment; provide flank protection; or fill gaps opening up in the combat formation. Lower formations on important axes will generally have enough lift on call to move their light motor rifle battalions and those on other sectors may well be provided with helicopters if the need arises.
- c. *Anti-Tank Reserves* and associated MODs provide the first line counter penetration forces: it is hoped that their timely committal on threatened axes will be enough to stabilize the situation and thus preserve the combined arms reserve or second echelon. They are also important in covering the deployment and supporting the committal of counter blow forces and in providing flank protection.
- d. *Air Defence Reserves* will be necessary to repair damage done to the air defence system or to fill gaps which open in it. They will also provide cover for the deployment of counter-move groupings.
- e. *Anti-Landing Reserves* have, as paragraph 0715 indicates, assumed an increased importance at every level.
- f. *Engineer Reserves* will be needed to: provide extra MODs; prepare extra depth defences; assist the forward deployment of counter-move forces; clear enemy remote minefields and repair (or create substitute) bridges in the depth, etc; create in advance protection within concentration areas; help to implement deception plans.

- g. *Other Special Reserves*, such as reconnaissance, artillery, chemical defence and medical, may also be formed for manoeuvre onto threatened sectors as the tactical situation is clarified.

SECTION 3 - TYPES OF DEFENCE AND TERMINOLOGY USED IN DEFENCE

Types of Defence

0717. **Positional Defence** used to be considered by GENFORCE to be the basic form of defensive action. Indeed, until fairly recently it was the only form at the operational level, for only a resolute, unyielding defence was seen to not only deny the enemy his territorial objectives but also to wear down his strength and thus prepare the way for a decisive counter offensive. However, lower force densities and the increasing effectiveness of the attacker's fire have combined to end the absolute primacy of positional defence. Positional defence is the norm when: adequate forces are available to achieve an efficient density of weapons (especially anti-tank); key areas must be held (eg, bridgeheads, communications hubs, economic or political centres, terrain the retention of which is important to tactical or operational stability and/or the mounting of counter blows); the terrain lends itself to this form of defence. Section 4 considers positional defence in detail.
0718. **Manoeuvre Defence** is now a co-equal form, intended to economize forces on less important axes and/or to buy time for the deployment of forces from the depth and/or passive sectors in order to create a positional defence in depth or mount a decisive counter blow. In manoeuvre defence, the aim is to wear down the enemy's strength and deny him operational momentum by defending on successive, deeply echeloned lines but refusing to become decisively engaged on any of them. Given the lower force densities anticipated on the battlefield of the future, it will not be possible to create strong, continuous defences everywhere, so manoeuvre defence will, of necessity, be resorted to more frequently than in the past. Section 5 will examine the conduct of manoeuvre defence.
0719. **Deliberate or Hasty (Forced) Defence.** The circumstances under which defence is adopted will do much to determine the layout and resilience of the defence.
- a. *Deliberate Defence.* A formation or unit preparing to defend prior to the outbreak of war, or preparing depth defences during the course of hostilities, may be said to be preparing deliberate defence. Such a defence, planned and organised out of contact with the enemy, is characterised by relatively long preparation time. Alternative plans are prepared for attacks on different axes; cooperation is organised; extensive engineering work is undertaken. The combat troops may not, however, be deployed until the last minute to maintain secrecy and to give the maximum time to study the enemy deployment and divine his intentions, thus ensuring the implementation of the most suitable variant of the formation plan. In such a defence, the bulk of the formation's combat power may well be to the rear. This will enhance its survivability by keeping it out of range of most enemy artillery systems. It will also allow maximum freedom of and time for manoeuvre to adjust the

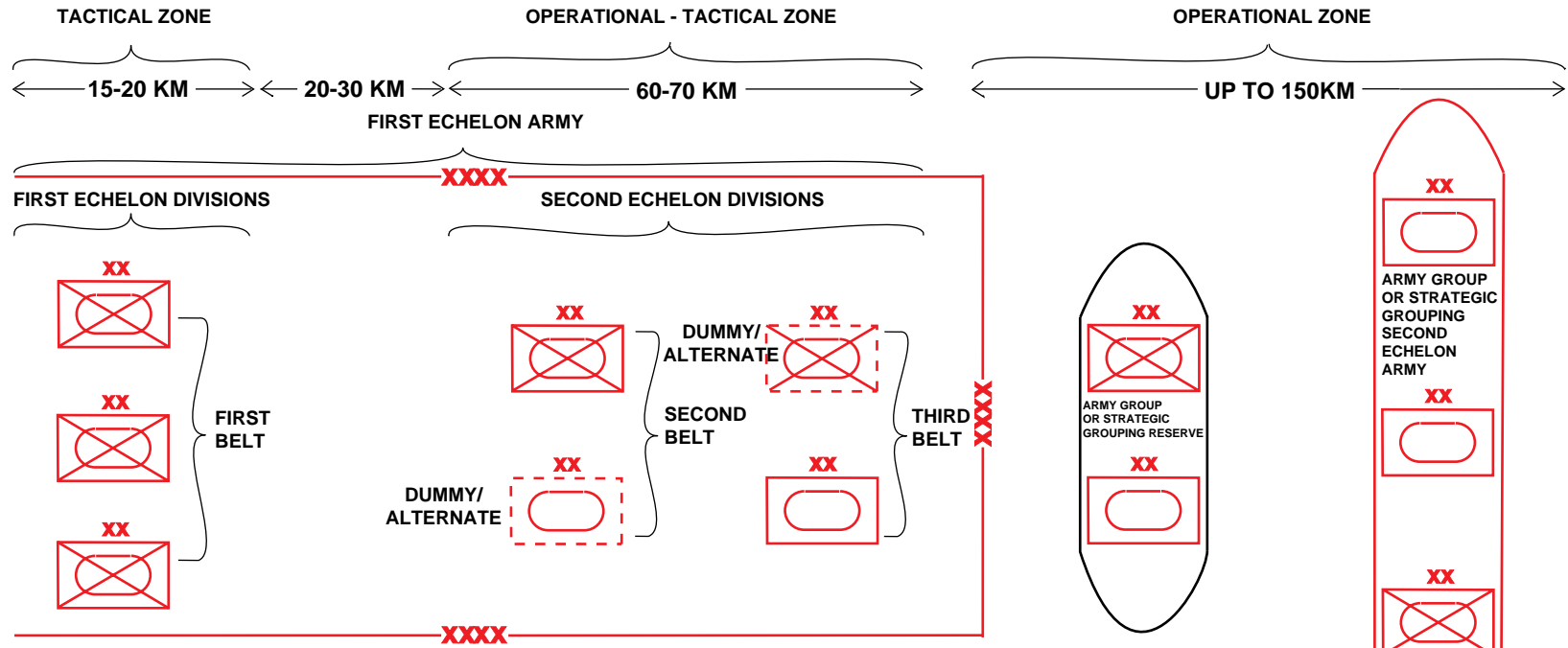
emphasis of the defence in accordance with the perceived weight of the attack on various axes and ensure the availability of a strong counter blow force.

- b. *Hasty (Forced) Defence.* A defence adopted while just about to be or actually in contact with the enemy may be characterised as hasty. If a formation is already severely attrited or under strong counter attack, or is defeated in a meeting engagement, the defence will not be merely hasty but forced. In both cases, but particularly in the second, preparation time will be strictly limited; and in the second, preparation will have to be undertaken simultaneously with efforts to repulse enemy ground and air attacks and stabilise the first echelon's position on favourable ground. The weight of the defence is likely to be forward, quite possibly with emphasis on the wrong axes. Moreover, limited offensive action may be necessary even as the defence is being established in order to seize favourable ground. In these circumstances, typical of defence during the course of the offensive or as a result of a surprise attack, defence is considered to be very difficult and uncertain of success.

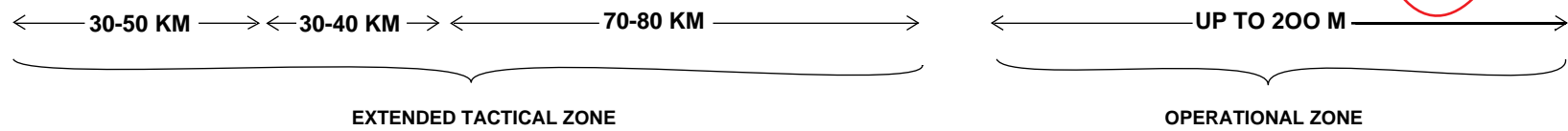
Terminology and Concepts used in Operational and Tactical Defences

0720. ***Zones of Deployment.*** Traditionally, the defence has been organized into the tactical, operational-tactical and operational zones occupied respectively by the first echelon and second echelon divisions of forward armies and, in the latter case, by second echelon armies (see Diagram 7-1). Great stress was laid on halting the enemy and destroying any penetration within the narrow confines of the tactical zone. For this purpose, GENFORCE would commit any or all of the forces held in the operational-tactical and operational zones. In contemporary conditions, GENFORCE recognizes that even in positional defence it will be impractical to attempt to stop the enemy so far forward and accomplish his destruction there. In contemporary conditions, GENFORCE accepts that the somewhat inappropriately termed "extended tactical zone" stretches back to the rear boundary of first echelon armies. This greatly increases the depth allowed for the absorption and disruption of the enemy attack before decisive counter blows have to be considered. This, it is believed, will increase the stability and resilience of the defence. Second echelon armies and corps occupy the operational zone. These will probably be committed to the battle for the extended tactical zone, but they now have more time for decision making, more room for manoeuvre and the enemy forces that have penetrated will be much more likely to have been seriously weakened and disorganized and thus be ripe targets for counter blows.
0721. ***The Main Defensive Area.*** Whereas in the past, the decisive battle was always for the tactical zone, and that always started on the forward edge (ie, immediately behind the security zone), GENFORCE has introduced the operational concept of the main defensive area (MDA). This is the area in which every effort will be made to halt and destroy the enemy. Ground in front of the MDA can be sacrificed (at a cost to the enemy, of course).

a. TRADITIONAL DIVISIONS



b. CONTEMPORARY DIVISION (a)



NOTE (a) : THE SECOND ECHELON / RESERVE OF FIRST ECHELON ARMIES AND THE STRATEGIC GROUPING RESERVE COULD COMPRISE A MIX OF DIVISIONS AND SEPARATE BRIGADES. THE SG SECOND ECHELON IS LIKELY TO COMPRISE 1-3 CORPS AND PERHAPS A DIVISION OR TWO OR A TANK ARMY.

DIAGRAM 7-1: ZONES OF DEFENCE, TRADITIONAL AND CONTEMPORARY.

- a. *In Positional Defence*, it will always be found within the extended tactical zone. Depending on circumstances, the forward edge (the forward edge of the (main) battle area) will start either with the first defensive belt (the first echelon divisions) or deeper at the start of the second or third defensive belts.
- b. *In Manoeuvre Defence*, it will be located in the operational zone, probably at its forward edge but possibly even deeper.
- c. *Variable MDAs*. Operationally, the location of the MDA will not be uniform throughout a SG's or army's deployment. Different armies and corps will place it differently according to their mission and available strength. On the location of the MDA, more than on any other factor, will depend the echeloning of a higher formation.
- d. *Structure of the MDA*. Within the extended tactical zone and the operational zone, GENFORCE creates a series of defensive belts. These are most highly developed within the MDA. Switch positions are created as appropriate to canalize the enemy into the strongest defences or into operational or operational-tactical pockets. Even in those sectors where positional defence is intended, these belts are not intended simply for passive defensive battles. Prepared positions in depth provide for depth groupings' protection and lines or areas for counter penetration, but the basis of defence is manoeuvre and ultimately counter attacks/strikes against enemy attempts to reduce prepared defences. The defence, it must be remembered, is designed to be penetrated, but only at a significant cost to the attacker in time, casualties, disruption and momentum. Having thus created the optimum conditions for counter attack or counter strike, the enemy is to be destroyed by offensive action. Ideally, this should be a prelude to a counter offensive.

0722. ***Defensive Belts and Their Sub-Sets***. The series of defensive belts which are created within each zone are prepared for defence though, in the case of those in the depth, not necessarily occupied until the approach of the enemy. Those unoccupied initially serve the dual purpose of providing false positions to attract enemy reconnaissance and strikes (dummies with some token units providing verisimilitude) and alternative positions for withdrawing elements or deploying reserves. These belts are further sub-divided as follows.

- a. *Defensive Positions*. The first belt of the MDA usually comprises three or possibly four positions. Subsequent belts will comprise 2-3 positions. Each position is designed for defence or delay, often alternating between one and the other. A division or brigade will defend a zone of varying width, occupying two defensive positions simultaneously and sometimes holding key terrain in a third with its ALR. Higher formation second echelons or reserves will be able to utilize prepared positions to effect counter penetration, add depth to the defence or as LDs for counter blows. Between each position, switch lines are prepared (or at least designated on the map if time does not allow for anything more than reconnaissance) to channel the attacker into directions favourable to the defence (especially into fire pockets).

- b. *Sector* is the term used by GENFORCE to describe the tactical area of responsibility (TAOR) of a regiment.
- c. *Defended Area* is GENFORCE parlance for a battalion TAOR. Defensive positions are planned as a series of mutually supporting defended areas. Some battalions will hold vital ground in positional defence. Others will be prepared to conduct manoeuvre defence between positions, often with the aim of creating tactical or operational-tactical fire pockets.
- d. *Strongpoints*. Within defended areas, companies and platoons are organized in mutually supporting strongpoints.

0723. **Covering Forces.** A covering force is not always deployed, particularly when a formation or unit transitions to defence while actually in contact with the enemy. Where one is used, the type depends on the circumstances in which defence is adopted and the level of command involved.

- a. A *Security Zone* is organized at formation level, usually when defence is adopted while out of contact with the enemy. It extends at least 20km beyond the forward edge and often up to 50-60km. Within the security zone delaying actions are fought using manoeuvre defence tactics (see Section 5). The formation or unit so employed (which depends on whether the zone is deep or shallow) endeavours to: identify the composition and strength of the main enemy forces, their chosen axes and intentions; force the enemy into premature deployment, thus winning time for the organization of the MDA; force the enemy to concentrate, thus providing lucrative targets for deep strike means; canalize the enemy into axes favourable to the defence (especially into fire pockets).
- b. A *Forward Detachment*, confusingly, has a different connotation in defence from in the attack. It is a battalion-sized combined arms grouping deployed by a lower formation within its zone to provide security where no higher formation covering force is deployed. They operate up to 20km in front of the forward edge.
- c. *Forward Positions* are created when the proximity of the enemy precludes the creation of a security zone. These company sized positions are created 4-6km in front of the forward edge with the aim of defeating enemy reconnaissance and probing attacks and thus concealing the true forward edge of the main position.
- d. *Combat Security Outposts* are platoon-sized strongpoints organized up to 2km in front of the forward edges on threatened axes not covered by a forward position. They defeat enemy reconnaissance and prevent a surprise attack on the forward edge.

0724. **Counter Moves.** Second echelons/reserves and forces redeployed from passive sectors can be used to conduct any of four different types of counter move. Section 6 will deal with these in detail.

- a. *Counter Penetration* is carried out when a grouping is not strong enough for a more aggressive response. It consists of a deployment to halt and repulse an attack through defensive action.
- b. A *Counter Attack* is an offensive turn during a defensive battle. It is a blow delivered by any grouping up to army/corps level with the purpose of destroying an enemy grouping which has wedged into the defence and, in consequence, restoring the integrity and stability of the defence.
- c. A *Counter Strike* is a transition from defensive to offensive operations at SG level to restore the defence and create favourable conditions for pursuing further offensive action.
- d. A *Counter Offensive* is mounted at SG level. Its purpose is not merely the restoration of the defence but the seizure of the strategic initiative and the accomplishment of strategic goals. It will usually develop from and build on a favourable situation created by a counter-strike (or strikes) and its scope will spread beyond the original zone of penetration into other areas.
- e. *Deep Battle and Deep Operations.* Air, missile and electronic pressure will be exerted against enemy means for conducting long-range battle. They will not, however, be enough, in GENFORCE's opinion, to prevent the attacker from achieving a potentially decisive electronic-fire dominance. At the tactical level, raiding detachments and groups will have to carry the struggle into the enemy's depth. At the operational level, which cannot be neglected without dire consequence, GENFORCE intends to form separate operational units (SOU) for deep operations. These are the defensive equivalent of OMGs (which lose their raison d'être in defence, given the radically reduced scope of offensive action in defensive - as opposed to counter-offensive-operations. These comprise a reinforced regiment or, more usually, a temporary grouping of 2-3 Mobile Forces, combined arms battalions appropriately reinforced. SOUs are rarely required to take and hold ground (though this might be required in support of a major counter blow). Their role is to destroy and disrupt enemy forces dedicated to long-range battle and enemy C3I through raiding actions. This will be covered in Chapter 8, paragraphs 0845 and 0846 and Section 5.

SECTION 4 - POSITIONAL DEFENCE

General

0725. ***The Nature of Positional Defence.*** Positional Defence does not imply that every metre of the forward edge is to be defended to the death and, if necessary, retaken by automatic counter attack. GENFORCE accepts that penetration is inevitable. It designs its defence to ensure that a break-in cannot be converted into a penetration which will enable the enemy to generate tactical, let alone operational manoeuvre to ensure that a breakthrough is achieved. The aim is to ensure that penetrations are only achieved on axes acceptable to GENFORCE and at a cost in time, casualties, disruption and loss of momentum unacceptable to the enemy. In this way, favourable conditions will be created for the delivery

of a counter blow which regains the initiative and destroys the enemy through offensive action. Thus positional defence is not synonymous with static defence. Certainly, vital ground is stubbornly defended to wear down the enemy and canalize his attack, but manoeuvre is seen as the soul of defence. It is necessary for counter penetration to slow down and then halt the attacker, in the form of planned withdrawal to channel him into fire pockets, and ultimately to achieve the requisite force ratios to destroy him once he has reached his culminating point.

0726. **The Context of a Defensive Battle.** Paragraph 0702 outlined the circumstances in which a lower formation or unit may act on the defensive. Plainly, these circumstances will exercise a marked effect on its deployment and preparation for and conduct of the defence. Thus, for instance, transitioning to the defence during the course of an offensive will often take place in an adverse ground and air situation, even while under attack. The main forces will probably already be engaged in combat, with subordinate elements being located non-linearly at different depths on different axes. All elements may not be able to go onto the defensive simultaneously: some may have to continue to attack temporarily to seize favourable lines from which to defend and others may have to deal with enemy air landings in their rear. Often, a grouping will have to fight its defensive battle with little or no help from the senior commander as he is concentrating his efforts either on continuing the attack on another axis or on supporting the defensive on a more dangerous axis. On the other hand, assuming a deliberate defence ahead of the enemy's attack and on ground of its own choosing will enable a unit or formation to create a stable defence with much greater ease. The remainder of this section will describe the latter, ideal case, not because it is the more likely for any given grouping but because it will be the model that GENFORCE will try to replicate as far as is possible given the circumstances of the time.

Aims and Missions of Defence

0727. **Aims.** The aims of a defensive battle will include some or all of the following: repel an attack or counter attack by superior forces; inflict maximum losses on the enemy; support the development of an attack on an important direction; hold vital tactical or operational lines or areas; cover the flank of a higher formation's main grouping; restore the combat capabilities of the formation or unit when it has taken such heavy casualties that it cannot continue to attack; create favourable conditions for the initiation of an attack, either by the defending grouping or by other formations.
0728. **Mission.** In pursuance of these aims, missions will be: to destroy enemy deep-strike and fire systems and inflict heavy losses on the enemy's main grouping as it approaches and deploys to attack; repel the enemy attack and hold vital ground; destroy any enemy groupings penetrating through the depth of the MDA; repel any sea or air landings; create conditions for a transition to the offensive. Whether a unit or formation accomplishes these missions through positional or manoeuvre defence, or a combination of both, will be decreed by the higher commander in accordance with his concept.

Scope of Tactical Defence

0729. **Variable Factors.** The breadth and depth of a formation's zone or a unit's sector will depend on: the importance of the axis/area defended; the assessment of the enemy's strength and intentions; own forces' strength; the nature of the terrain - in mountainous, desert or arctic terrain, wider zones and sectors than normal can be held as the enemy will be restricted in his choice of axes. Table 7-3 sets out yardsticks for deployments in positional defence. Tables 7-1 and 7-2 explain how these are arrived at.

0730. **Main Axis, High Level of Threat.** Where a grouping is required to deny a strong enemy any significant penetration (eg, within the MDA), it will be deployed on a limited frontage and possess a significant counter attack capability. The frontage on which a given force can reliably repulse an attack can be calculated mathematically, using Tables 7-1 and 7-2.

TABLE 7-1: SURVIVAL CHANCES OF TANKS AND IFVs AGAINST MAJOR ANTI-TANK WEAPONS (Percentages)

Nos of Attacking AFVs per km of Frontage	Numbers of anti-tank weapons Defending, per km of Frontage					
	5	10	15	20	25	30
15	0.50	0.02	-	-	-	-
20	0.75	0.10	0.0-1	-	-	-
25	0.92	0.30	0.05	0.01	-	-
30	0.98	0.50	0.10	0.02	-	-
40	1	0.75	0.35	0.10	0.03	0.01

Explanation of table: Suppose 20 tanks are attacking 5 tanks/ATGM. Each tank has a 75% chance of survival; ie, 5 of them (25%) will be destroyed during the attack. At odds of 4:1 against him, the efficiency of each defending weapon is 1. If, however, the number of defending weapons is doubled, the efficiency of each goes up to 1.8 owing to the synergistic effect of combining weapons: the combined effectiveness of N weapons is higher than that of N individual weapons. Tanks and ATGM count as 1 and RPGs as 0.5.

TABLE 7-2: PROBABILITY OF THE ENEMY GIVING UP AN ATTACK AS A FUNCTION OF LOSSES (Percentages)

Losses in personnel and equipment	10	20	30	40	50	55	60	70
Probability of enemy discontinuing attack	4	14	38	65	88	95	97	99

When the data on the efficiency of defensive densities in Table 7-1 is combined with that on the likelihood of an attack being abandoned, it is possible to calculate defensive requirements (bearing in mind that the maximum density of an attacking wave is 40 tanks per km). Thus, for instance, a standard motor rifle regiment contains 170 tanks, BMPs and major anti-weapons. That should allow it to hold a frontage of 12km against any attack where only direct fire weapons are involved on both sides (at which its density of 15 anti-tank weapons per km will destroy two thirds of the attacker's AFVs). If the defender reckons on losing one third to the enemy's preparatory and supporting fire, that would reduce the frontage to 8km. However, the defender's artillery, using laser-guided anti-armour munitions, and his mines can be expected to take their toll, so an efficient density for such a motor rifle regiment will allow it to defend a 10km sector. By the same token, a motor rifle division with two motor rifle regiments in the first echelon, backed up by a divisional ATR and possibly attack helicopters, can reliably hold a zone of 20km while still retaining a full tank regiment in its second echelon and significant ALR and airmobile reserves. The tank regiment will be capable

of eliminating a penetration comprising a weak and disorganized battalion in a counter attack or of conducting a strong counter penetration if the first echelon is worn down in attritional combat. GENFORCE calculates that units and sub-units will lose firmness in defence if they take 50-60% casualties and reinforcement will then become essential if the defence is to be sustained in the face of further pressure. The commander is required to show considerable foresight in anticipating both his own and enemy likely losses and to adjust his plans for utilizing second echelons and reserves accordingly.

0731. **Secondary Axis, Moderate Threat.** On those axes where a strong, deeply echeloned attack is not anticipated and a limited degree of penetration is acceptable (eg, in front of the MDA), wider frontages may be defended. Extended zones and sectors will, however, be defended only by some sacrifice of depth and counter attack capability.
0732. **Passive Sectors.** Where the enemy, too, is on the defensive, it will be possible to leave only a screening force which will conduct manoeuvre defence until stiffened by airmobile and/or ground counter penetration forces.

TABLE 7-3: FRONTAGES AND DEPTHS IN POSITIONAL DEFENCE (km)

Spatial Scope	Divisional Zone	Brigade Zone	Regimental Sector	Combined Battalion Area	Basic Forces Battalion Area	Company Strongpoint	Platoon Strongpoint
Frontage (a)	20-30	15-25	10-15	5-7.5(c)	3-5(c)	1-1.5(c)	Up to 0.4
Depth (b)	20-30	15-25	10-15	4-10	2.5-4	Up to 1.0	Up to 0.3

Notes: (a) Groupings forced to cover wide frontages will perforce have to deploy in a single echelon with a small reserve and will have to sacrifice depth.

(b) Yardsticks exclude any security zone or forward positions. As Table 7-4 indicates, deployment of a forward detachment would add up to 20km to a division's or brigade's depth and a forward position up to 6km to that of a regiment or combined arms battalion.

(c) Intervals between company strongpoints can be up to 1,000m and between platoon strongpoints up to 300m.

Tactical Formation and Tasks

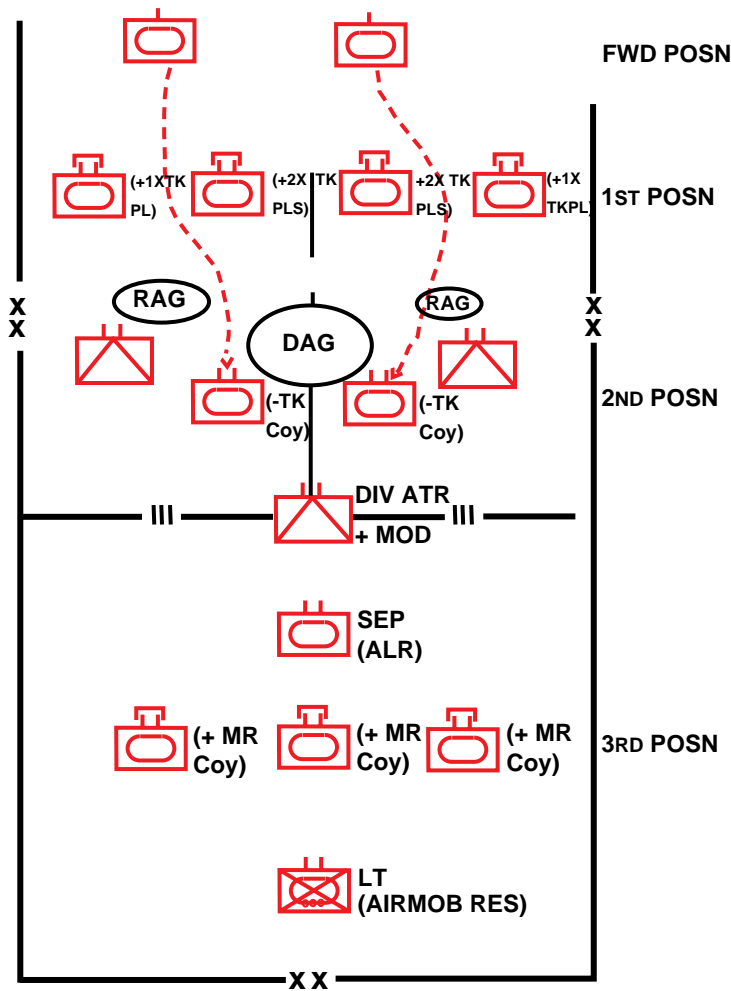
0733. **Covering Forces.** These are created to: determine the composition and strength of the attacker, his chosen axes and intentions; force the enemy into premature deployment on successive delay lines, thus winning time for the organization of the main defences and counter moves; force the enemy to concentrate and thus offer a rich target array for deep-strike weapons (including aviation); channel the enemy into the strongest part of the main defences (especially fire pockets); wear down and disrupt the attacker; conceal the true location and trace of the forward edge. Covering forces are usually formed when defence is assumed out of contact (including by formations in the operational-tactical or operational zones of defence). Even when there is a transition to defence while in contact, however, the forward elements may be ordered to act as a covering force while the main grouping redeploys and organizes defensive belts in the depth. Table 7-4 summarizes the various types and their deployment.

- a. *A Covering Force* is organized at SG or army/corps level. It will comprise 1-2 lower formations, deployed up to 50-60km in front of the MDA. Separate brigades are most commonly used as their highly flexible organization and the superior training of the Mobile Forces fits them best for manoeuvre defence. Otherwise, heavy divisions are preferred as their square composition is well suited to manoeuvre defence. On conclusion of its delaying task, the covering force will fall back into the second echelon or reserve and carry out refurbishment.
- b. *A Forward Detachment* is organized at army or, less usually, division/brigade level, and only when there is no covering force out in front. It is formed from the first echelon lower formation in whose zone it is operating and its battle is controlled by that headquarters. In a brigade, it will consist of a combined arms battalion, reinforced by 1-2 artillery battalions, 1-2 engineer companies, probably an air defence battery or platoon and very often extra anti-tank and flamethrower resources. A division will usually use its separate tank battalion with similar attachments, though a reinforced tank or motor rifle battalion from a second echelon regiment could be employed (the latter being, of course, favoured in broken or close terrain). The forward detachment is pushed up to 20km in front of the forward edge and will delay on 2-3 lines before reverting to formation reserve or second echelon for refurbishment.
- c. *Forward Positions* are ordered by division or brigade but planned in detail and provided by first echelon units (from their second echelon). They are reinforced company in strength, deployed 3-6km beyond the forward edge on the most threatened axis for their parent unit, though not usually in a

sector in which a forward detachment is to fight its final delaying action before withdrawing to refit. The troops in the forward position are tasked with the defeat of enemy reconnaissance, the repulsing of probing attacks and thus with misleading the enemy as to the true location of the forward edge. When the enemy prepares to launch a serious attack, the regimental/combined arms battalion commander will order a withdrawal and the company will rejoin its battalion in the second echelon/reserve. There is a trend to deploying a whole battalion in a forward position, extending across a frontage of up to 10km. This reflects the growing importance GENFORCE places on disguising the true forward edge in view of the effectiveness of modern reconnaissance and the destructiveness of ACM fire. Upon completion of its mission, such a battalion will join the second echelon of the defence.

- d. *Combat Security Outposts.* A unit commander may well order that a second echelon company temporarily detach a platoon to form a combat security outpost on an approach not covered by a forward position. Sited up to 2km in front of the forward edge, the outpost will defeat enemy reconnaissance and prevent an attack taking the first echelon by surprise.
- e. *Combat Support in the Security Zone.* Each battalion acting in the first echelon of a covering force will have at least one and usually two artillery battalions in direct support and is likely to receive CAS at critical moments (especially the withdrawal to the next delay line). Strong engineer and smoke-generating support is also provided. There will be other, long-range, artillery and MBRLs and target acquisition means deployed in the zone. Its role is, together with air attack, to wear down and disrupt the enemy long before he reaches the forward edge. The forward detachment or covering force provides both protection and (by forcing the enemy to concentrate) targets for this artillery. The latter may be used to help the former break clean by creating fire and RDM barriers. Strong air defence has also to be deployed forward to protect this artillery and choke points on the tank and motor rifle troops withdrawal routes as well. On conclusion of the security zone battle, the artillery and air defenders rejoin their designated groupings.
- f. *Trends in the Security Zone.* The concept of the security zone battle is assuming steadily growing importance in GENFORCE eyes and there is a noticeable tendency to deploy increasing forces for it.

(a) MAIN AXIS, COVERING FORCE IN FRONT



(b) MAIN AXIS, No COVERING FORCE IN FRONT

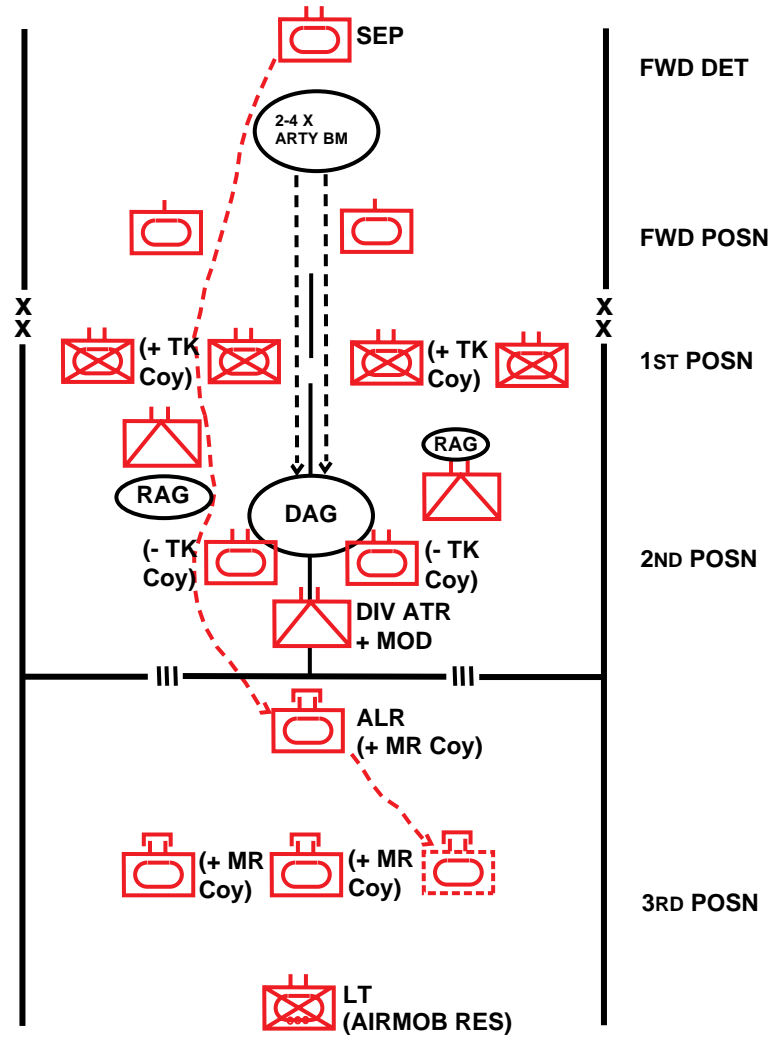
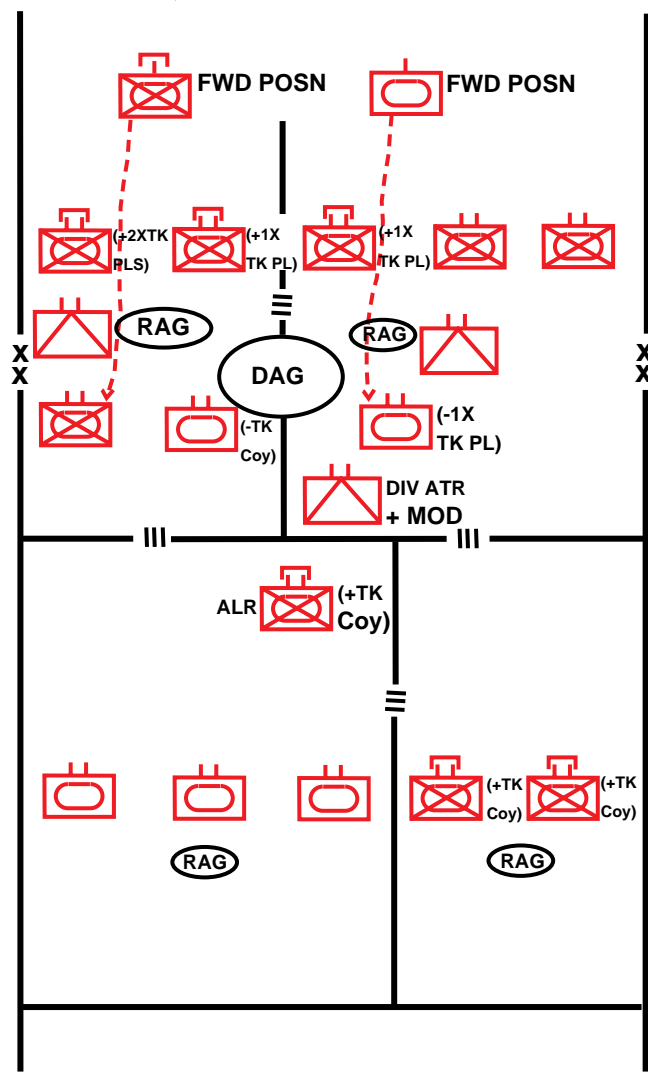


DIAGRAM 7-2: TACTICAL FORMATION OF A STANDARD MR DIVISION IN DEFENCE (VARIANTS)

(a) MAIN AXIS, COVERING FORCE IN FRONT



(b) SUBSIDIARY AXIS, No COVERING FORCE IN FRONT

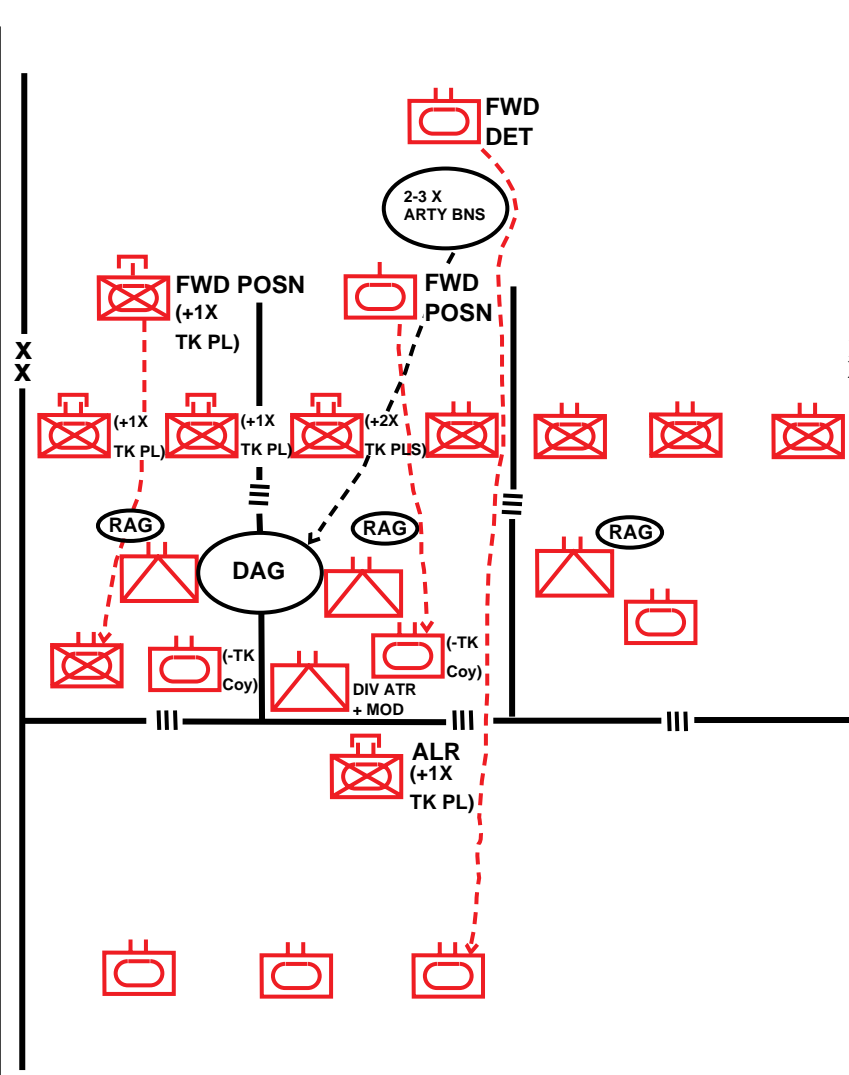


DIAGRAM 7-3: TACTICAL FORMATION OF A HEAVY MR DIVISION IN DEFENCE (VARIANTS)

(c) SUBSIDIARY AXIS, COVERING FORCE IN FRONT (d) SUBSIDIARY AXIS, No COVERING FORCE IN FRONT

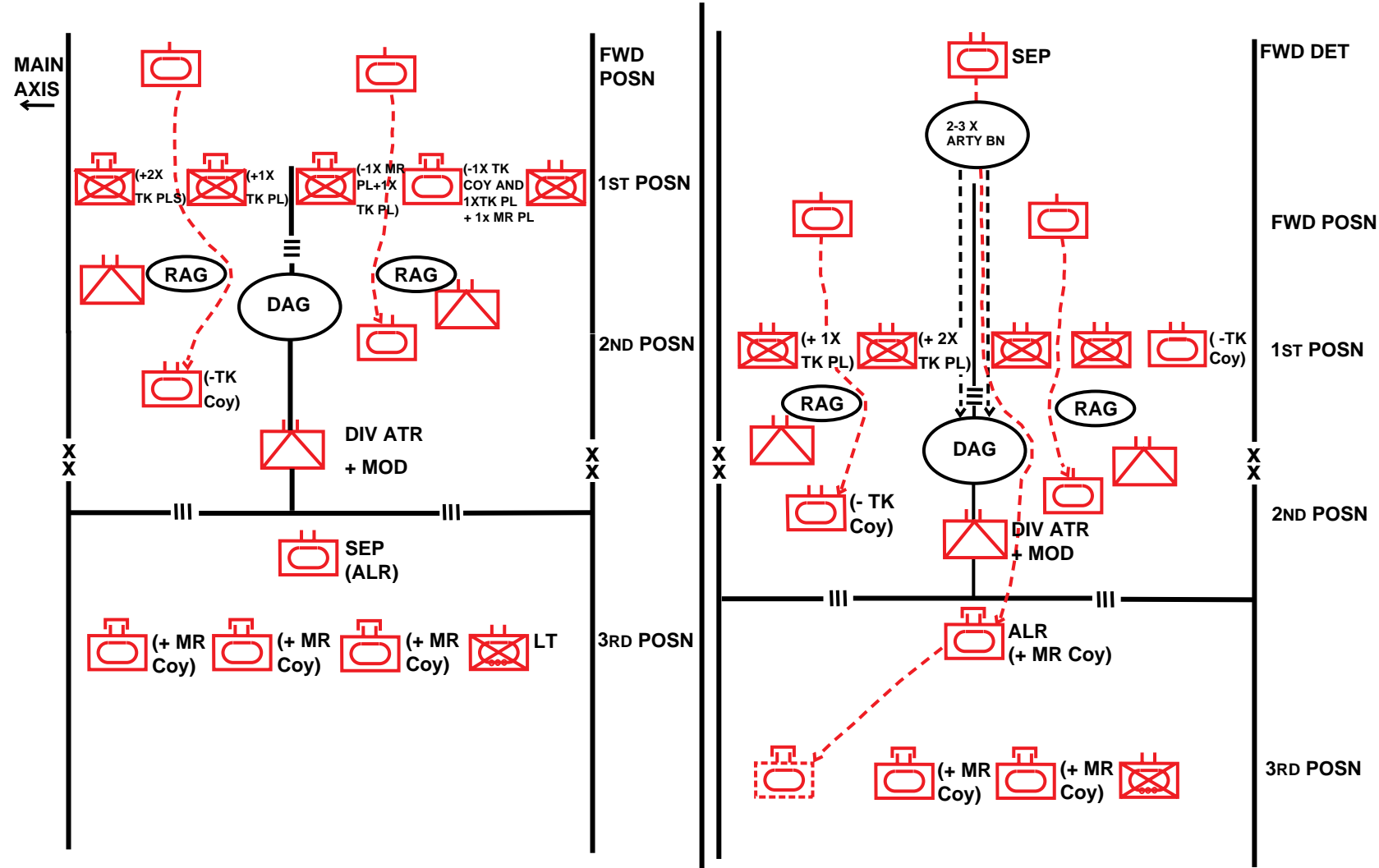
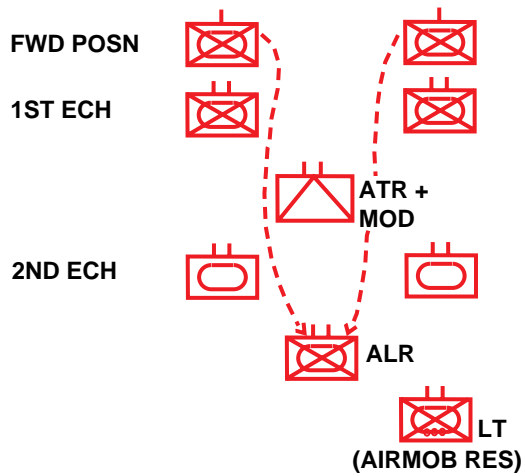
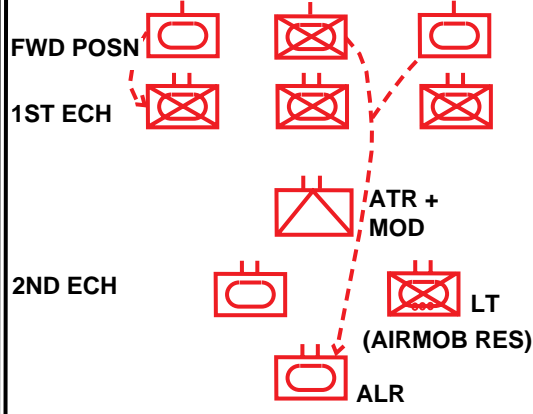


DIAGRAM 7-3B

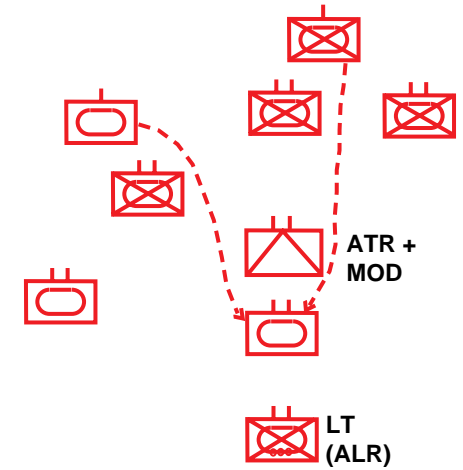
(a) MAIN AXIS, COVERING FORCE DEPLOYED



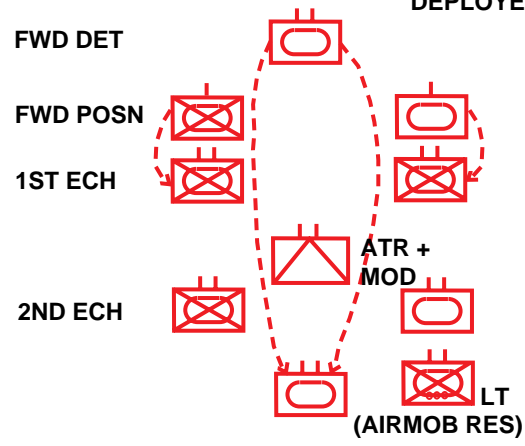
(c) SUBSIDIARY AXIS, COVERING FORCE DEPLOYED



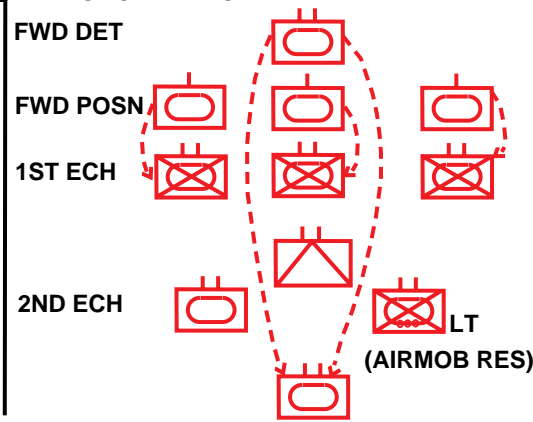
(e) ECHELOINED LEFT (THREAT TO FLANK)



(b) MAIN AXIS, NO COVERING FORCE DEPLOYED



(d) SUBSIDIARY AXIS, NO COVERING FORCE DEPLOYED



(f) ALL - ROUND DEFENCE (THREAT OF ENCIRCLEMENT)

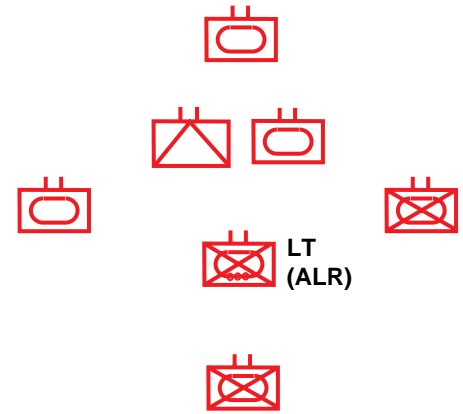


DIAGRAM 7-4: TACTICAL FORMATION OF A BRIGADE IN DEFENCE (VARIANTS, COMBAT ELEMENTS ONLY)

TABLE 7-4: TYPES OF COVERING FORCE

Force/Mission	Deployed When Defending:		Command Level			Distance in Front of Forward Edge	Frontage of Delaying Action
	In Contact	Out of Contact	Setting Mission	Deploying Force	Fighting Battle		
Covering Force	Not usually(a)	Yes	SG or Army/ Corps	Army/ Corps	Bde/Div	50-60km	30-60 (b)
Forward Detachment	No	Yes(c)	Army or Div/Bde	Div/Bde	Bn	Up to 20km	10-15km (d)
Forward Position	Yes	Yes	Div/Bde	Rgt/CABn	Coy (d)	3-6km	1.5-3km
Combat Security Outpost	No	Yes	Regt/CABn	Bn	PI	Up to 2km	0.5km

Notes: (a) To form a covering force in these circumstances, the force in contact would have to assume the role and others conduct a possibly substantial withdrawal.

(b) Brigade 30-35km, heavy division 50-60km, standard division 40-45km.

(c) Not usually formed if higher formation has already deployed a covering force.

(d) A Mobile Forces combined arms battalion could delay on a frontage of 10-15km and a Basic Forces Battalion 7-10km.

(e) See paragraph 0733 (c) for battalion-sized forward positions.

0734. **Echelons.** As in the offensive, a force may be deployed in one or two echelons. In general terms, a two-echelon deployment is usual on the most threatened axis and a one-echelon deployment is more appropriate to secondary axes. One echelon formations are also adopted when the defender has suffered heavy casualties but still has to cover a considerable frontage. (Forces deployed in one echelon retain a combined arms reserve.) Within a formation, different levels of command may use different echeloning schemes. Thus if a division or regiment deploys in two echelons, the corresponding second echelon regiment or battalion is likely to be deployed in one echelon. Diagrams 7-2, 7-3 and 7-4 illustrate typical defensive tactical formations for standard and heavy motor rifle divisions and brigades. In the latter case, defence against envelopment and encirclement are shown, as Mobile Forces formations are particularly likely to have to transition to the defence in the enemy's depth when separated from other elements of their parent corps/army.

- a. *The First Echelon's tasks* are to: repel enemy attacks with maximum losses; prevent penetration or channel it into a pocket for destruction; hold vital ground if penetration cannot be avoided; and to support the second echelon or reserve in carrying out counter moves. In the past, two-thirds to three-quarters of a grouping were usually deployed in the first echelon. It is now increasingly common, where circumstances allow, for only about a half to

be so employed. This reflects the increasing emphasis on manoeuvre from the depth for counter penetration or counter attack as the principal means of maintaining the stability of the defence.

- b. *The Second Echelon's tasks* are to: reinforce the efforts of the first echelon; conduct counter penetration; launch counter attacks, either alone or as part of a counter attack planned by the senior commander. At unit level, counter penetration (often in conjunction with the ATR and MOD of the senior commander) is the more usual employment. Even at division/brigade level, there will rarely be enough strength to eliminate any but the most minor penetration unaided, and counter attacks will generally be part of a larger scheme of manoeuvre. An exception is the elimination of air landings, which may involve elements of the second echelon if the ALR alone lacks sufficient strength.
- c. *Grouping of Tank and Motor Rifle Elements.* Within motor rifle formations and units, commanders generally strive to keep a strong tank element in the second echelon or reserve because the tanks' armoured mobility and firepower can be most effectively used in counter attack and counter penetration roles. In tank formations and units there is a strong tendency to concentrate subordinate motor rifle elements in the first echelon because of their advantages in holding ground and providing OPs and sentries.

0735. **Reserves.** Given that the enemy will possess the initiative, at least in the early stages of the battle, reserves assume an even greater importance in the defence than they do in the attack.

- a. *Combined Arms Reserve.* Where a formation or unit is forced to deploy in a single echelon, it will always retain a combined arms reserve. At division or brigade level, this will comprise at least a battalion (in the former case, often the separate tank battalion); a regiment will have at least a company and a battalion a platoon.
- b. *Anti-Tank Reserve and Mobile Obstacle Detachment.* All units and formations deploy an ATR and a MOD for counter penetration tasks or for shaping the battlefield (eg canalizing the enemy into a fire pocket). The ATR and MOD of the senior commander may also intervene in the unit/formation's area.
- c. *Anti-Landing Reserve.* The enemy will undoubtedly try to destabilize the defence through vertical envelopment and air-mobile raids. GENFORCE expects the enemy to launch battalion-sized detachments 15-20km over the line of contact and company groups up to 5-7km. Each division or brigade, and where possible each unit will form an ALR (respectively battalion and company sized). Second echelon elements may have to join in the destruction of landings which the ALR can only contain, but GENFORCE frowns on simply "double-hatting" the second echelon as the ALR: after all, a grouping cannot fulfil two roles at the same time and it is very likely that the need for anti-landing action and counter penetration will arise simultaneously.

- d. *Airmobile Reserve.* Where a formation has guaranteed lift for its separate light motor rifle battalion, an airmobile reserve is formed. This can be used not merely for counter penetration but also for raiding actions in the enemy's depth. If, being on a minor axis, a formation is unlikely to have lift made available, the light motor rifle battalion may form part of the second echelon or combined arms or anti-landing reserves.
- e. *Special Reserves.* Reconnaissance, air defence, engineer and chemical defence reserves will usually be held to plug gaps, replace losses and support counter moves.

0736. **Artillery.** Formations on important axes will be augmented by army/corps artillery and may be supported by higher formation artillery and rocket artillery groups. Elements of long-range artillery will deploy in the security zone initially and then rejoin their AAG/CAG and AGRA/CGRA about 10-12km from the forward edge. They, together with aviation, will conduct the deep fire battle. Lower formations will form DAGs/BAGs on their main axis, though if a wide zone is to be defended, some artillery may have to be decentralized to units. In principle, as much artillery as possible is held in the DAG/BAG, to allow the formation commander to manoeuvre massed fires in support of threatened units and to destroy air landings. RAGs will generally be formed to support only those units which are beyond the effective range of support from the DAG.

The Fire and Obstacle System

0737. **General.** In GENFORCE's view, the key to success in defence is the combination of obstacles and an effective system of fire. The former are used to inflict delay, confusion and casualties, break up the cohesion of the attack and/or channel the attacker into fire pockets. The latter faces the enemy with a growing intensity of fire as he approaches the forward edge and attempts to penetrate and so damages and disrupts him in fire pockets that he becomes vulnerable to destruction by counter attack. With the wide availability of RDMs, cluster munitions and laser-homing projectiles, artillery is now seen to be a major anti-armour system.
0738. **Obstacles.** Natural obstacles are exploited wherever possible to provide protection for positions and individual defended areas and strongpoints and to canalize the attack. These are reinforced and supplemented by an integrated system of minefields, anti-tank ditches and traps, demolitions and wire obstacles. GENFORCE starts by implementing the obstacle plan in front of the forward edge and in the covering zone. It then, as time and resources permit, extends it both in front of the forward edge and into the depth of the defence. An important element of the obstacle system is the delivery of RDMs to: thicken obstacles; fill gaps created by the enemy or between strongpoints; cover exposed flanks; aid in the withdrawal of forces threatened with encirclement; increase the effectiveness of CB by pinning enemy artillery; harass and degrade enemy CPs; delay the move of reserves; pin air-landed forces or forward/raiding detachments so that they can be destroyed by fire and/or counter attacks. Details of GENFORCE obstacle creation are given in the section on engineers in Chapter 9.

0739. **The System of Fire.** The fire system embraces artillery and aviation delivered fires and that of direct fire weapons.

a. *Artillery.* Details of the organization of artillery fire are given in Chapter 9. In summary, it is as follows:

(1) *Long-Range Fires.* Powerful fire strikes of short duration by one or several artillery battalions are planned on obstacle crossings, defiles, road junctions and likely routes approaching the forward edge. These may be reinforced by subsequent air or helicopter strikes.

(2) *Fire to the Immediate Front.* Massive fire concentrations and barrages, both moving and standing, are prepared on several lines in front of and up to 400m from the forward edge. Such fires are planned on likely FUPs and approaches. Again, they may be supplemented by aviation strikes.

(3) *Fire in the Depth of the Defence.* In depth, both fire concentrations and barrages are planned in likely areas of enemy penetration and on the axis of planned counter attacks and to the flanks of strongpoints and defended areas. It is even easier to use aviation, especially helicopters, in the depth as the enemy's air defence will be less dense and well organized there.

b. *Direct Fire.* Particular attention is paid to anti-tank defence throughout the defended area, but especially on the best tank approaches. The anti-tank capability of a tank or motor rifle division or a brigade is said to be capable of repulsing the attack of up to two enemy divisions. However, the defence of a division may need to be reinforced by troops from a less threatened direction or by an army/corps anti-tank reserve and MOD if the defending formation has suffered severe attrition and disruption from the enemy's fire and electronic preparation. Anti-tank weapons are deployed within the defended areas of battalions (for the most part, within company strongpoints) on tank-threatened axes, and several alternative firing lines for the anti-tank reserves, both divisional/brigade and army/corps as well as regimental, are pre-designated and, if possible, prepared. So, too, are firing lines for attack helicopters. Breaking up the attack begins with artillery concentrations and barrages on likely axes, choke points and deployment lines. Direct fire weapons join in until, when the enemy reaches the zone of continuous fire, from about 400m in front of the position, every available weapon is firing. Any dead ground in the zone of continuous fire must be covered by indirect fire from mortars or artillery.

0740. **Forward and Reverse Slope Defence and Fire Pockets.** GENFORCE teaching stresses that the system of fire should be as deep as possible and it is therefore still common for the forward edge of the defence to be sited on a forward slope. Reverse slopes may in this case be used to protect vehicles and for ambushes. GENFORCE has, however, come to appreciate the vulnerability of forward-slope positions in the face of modern reconnaissance means and precision/ACM fire, so there is now an increasing trend to site most of the defence (ie, less weapons designated for the repulse of reconnaissance) on reverse slopes. Within the system of fire, the commander may plan to create fire pockets in which the enemy is confronted from front and flanks with the maximum volume of fire. Fire pockets may be created in front of the forward edge or in the depth of the defence and when possible minefields will be laid on their edges. Typical dimensions of battalion-scale fire pockets are 800-1,000m wide and up 1,000m deep when sited in front of a position and 500-600m wide by up to 1,000m deep when sited between strongpoints, in the body of the position. Regimental and even formation-sized fire pockets can also be created to trap larger enemy groupings.
0741. **Organization.** The principal organizers of the fire system are the divisional and brigade commanders. The army/corps commander, however, is responsible for: coordination between lower formations; conducting the manoeuvre of AAG/CAG and AGRA/CGRA fire to threatened areas and to cover boundaries and flanks; organizing a counter-preparation; organizing the preparatory and support fire for counter attacks or strikes; calling on fire from second echelon or flanking formations.

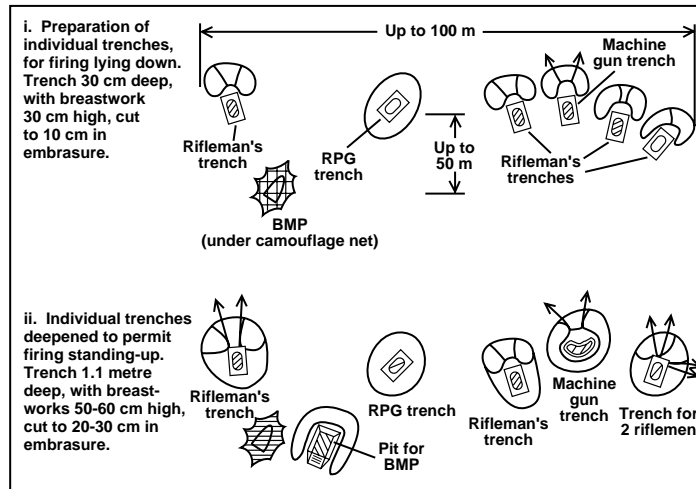
Engineer Preparation of the Defence

0742. **Basic Fortifications.** The basic forms of field fortification are as follows:
- a. **Shell Scrapes.** The simplest form of field fortification is the shell scrape dug by the individual infantryman when he is in range of the enemy. The finished position will be about 30cm deep and with a 30cm breastwork which will be cut for an embrasure.
 - b. **Individual Trenches.** Scrapes are then dug down to a depth of 1.1m, with 50-60cm high breastworks, forming 'trenches for firing standing up'. Various forms of trench are dug to fit the battalion's weapons, for example, the RPK, the RPG-7 and the AGS-17.
 - c. **AFV Pits.** When going over to the defence under fire individual vehicles will merely seek cover in convenient folds in the ground. As soon as practical, however, proper pits will be prepared for AFVs as well as personnel. A dug in tank or BMP is seen to enjoy a 5:1 advantage over an AFV in the open, even moving at speed. Section BMPs will be placed 50m behind the section's trenches. Tanks will be sited as required by the system of fire. GENFORCE tanks and BMPs will be expected to dig their own positions, using the fitted dozer blade. Other vehicles depend on tanks fitted with BTU dozer blades or specialist engineer equipments. If necessary a BTR section may have to dig in its vehicle.

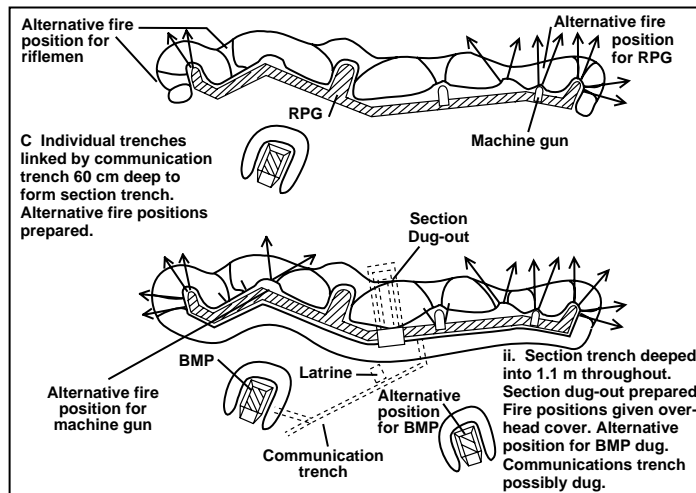
0743. **Preparation of the Defence.** The preparation of the defence is divided into three stages, the first and second stages and further work. Diagram 7-5 illustrates these in the case of a motor rifle sub-unit.

- a. *The First Stage of Preparation.* Barbed wire and other obstacles are laid in front of the position and fields of view and fire are cleared. Pits or trenches are prepared at the primary position of each AFV, crew-served weapon, and individual infantryman. COPs and medical posts are dug in. Then individual trenches are linked into a 100m section trench and additional obstacles laid on the flanks of the position and in depth. Normally 5-6 hours is allowed for this work. Completion of this stage is said to increase the survivability level of a sub-unit by 50% compared with merely using cover offered by the terrain.
- b. *The Second Stage of Preparation.* During the second stage of preparation of the position, AFVs and weapons systems are provided with alternate fire positions. Trenches are linked until they run continuously across the company and even battalion frontage. Communication trenches are prepared. Section dug-outs are prepared, providing overhead cover against enemy artillery fire or air attack. Again 5-6 hours is usually allowed for this phase.
- c. *Further Work.* Further preparation of the position will include improvement of existing trenches and positions, laying further obstacles and preparation of firing lines and routes for anti-tank reserves and second echelons. Communication trenches may be improved for use as fighting trenches. Dummy positions will be prepared in intervals between platoon strongpoints or on their flanks. If a sub-unit or unit is fortunate enough to have over 48 hours to prepare (which time constitutes prepared, as opposed to hasty, defence), its survivability level is believed to increase by 50% over that achieved in the first 5-6 hours of preparation.
- d. *Mechanical Digging.* A range of mechanical diggers is available within regimental and divisional/brigade engineer units. Out of contact with the enemy (for example, in second echelon forces) mechanical digging means will be used whenever possible. Once the outline trench has been dug it will be improved by hand. In difficult soil or when time is limited explosive means may be used to open trenches. Standard charges are available to blow individual trenches.
- e. *Preparation Time.* Some of the norms laid down for the completion of various defensive works are shown in Table 7-5.

a. FIRST STAGE IN PREPARING A SECTION POSITION



b. SECOND STAGE



c. THIRD STAGE

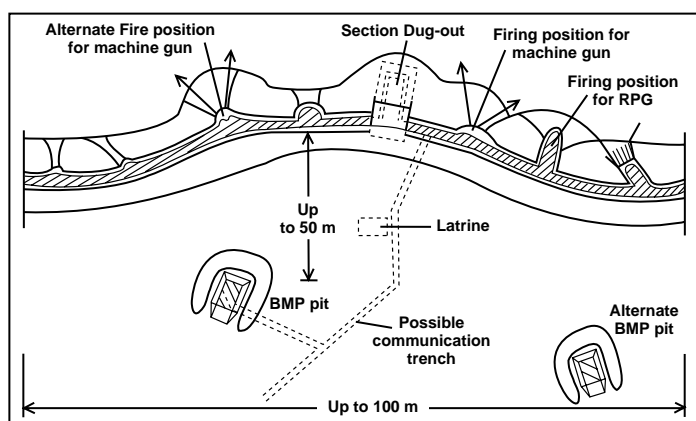
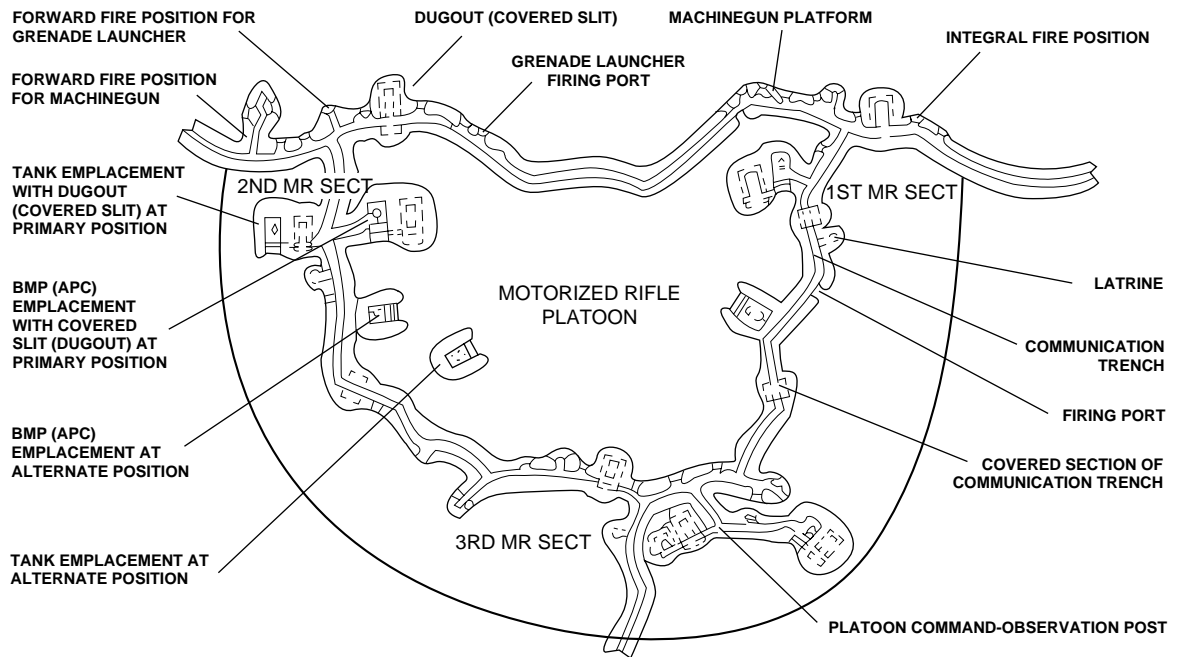


DIAGRAM 7-5: PREPARATION AND LAYOUT OF A MR SECTION POSITION AND PLATOON STRONGPOINT

COMPLETED PLATOON STRONGPOINT IN THE FIRST ECHELON



COMPLETED PLATOON STRONGPOINT IN THE SECOND ECHELON

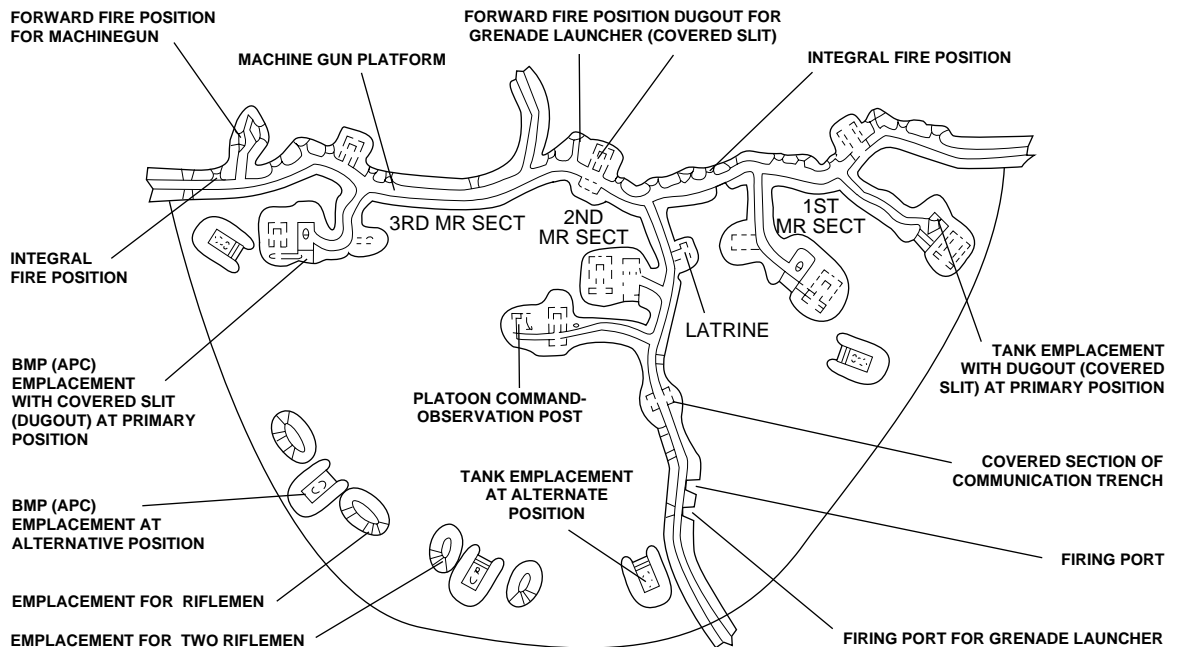


DIAGRAM 7-5B

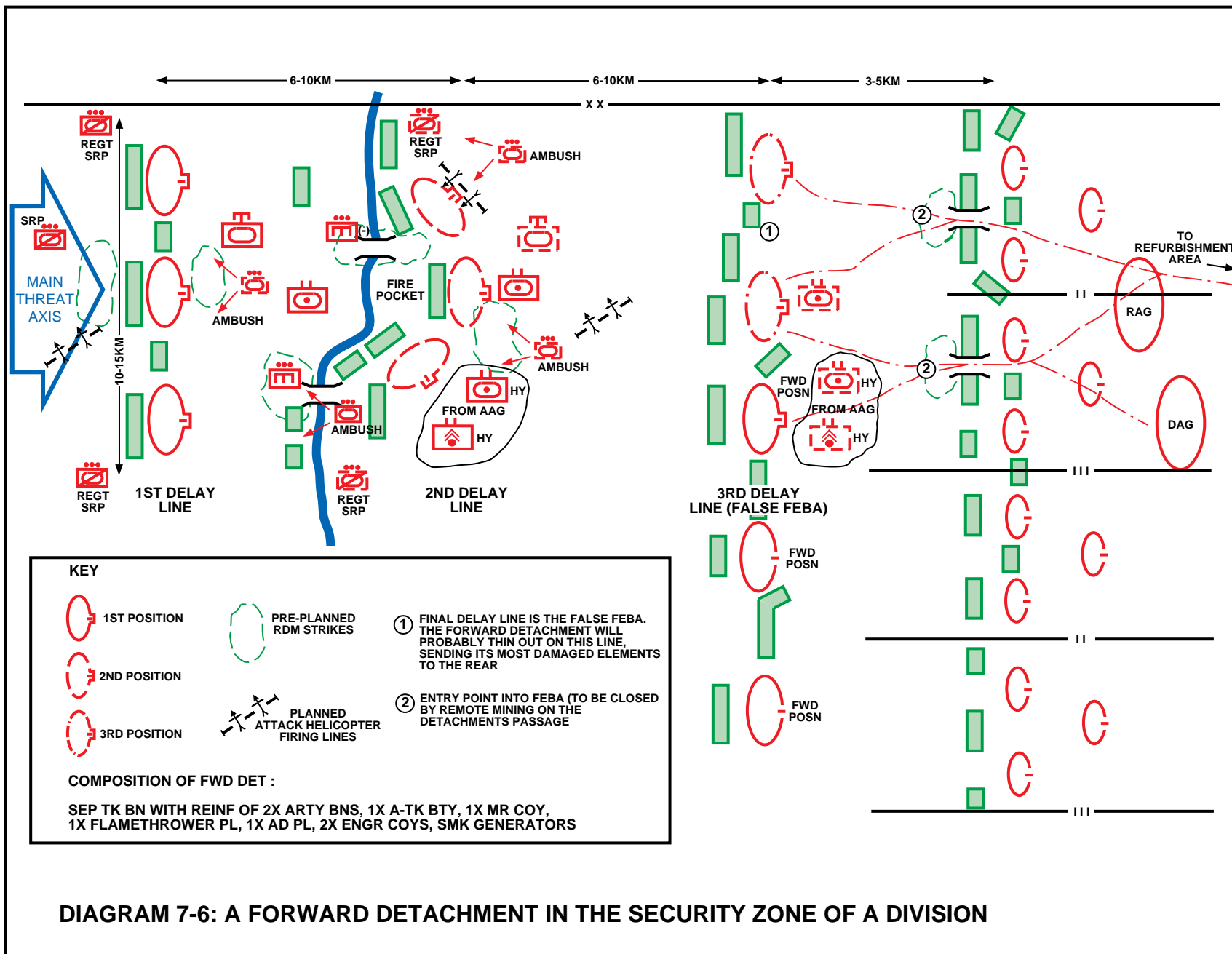


TABLE 7-5: TIME REQUIRED TO PREPARE INFANTRY TRENCHES

Type of Fortification	Time Required to Dig (man hours)	
	With Entrenching Tool	With Engineer Spade
Rifleman's shell scrape	0.5	
Rifleman, RPG gunner position, standing	2.5	1.5
RPK position, standing	4.0	2.5
AGS-17 position, standing	5.0	3.8
100 m continuous section trench	200-300 (a)	100-150 (b)

Notes: (a) To complete a trench dug mechanically needs 120 man hours.

(b) To complete a trench dug mechanically needs 65 man hours.

Conduct of the Defence at Formation Level

0744. ***Battle in the Security Zone.*** The covering force battle will be conducted using the manoeuvre defence tactics described in Section 5. This paragraph will concentrate on a divisional separate tank battalion acting as a forward detachment.

a. ***Organization.*** The reinforcement of a forward detachment will depend on the extent of the frontage on which it has to delay, the terrain, the forces available and the time that has to be won. Typically, a basic forces manoeuvre battalion might receive two howitzer battalions, a motor rifle or tank company, 1-2 engineer companies, an anti-tank battery, a flamethrower company or platoon, an air defence platoon and smoke-generating means. If delaying on a wide frontage (10 or even 15km), sub-units will have to fight semi-autonomously and will therefore be organized into mobile anti-tank strongpoints able to fight tactically independently. Such a grouping could comprise a tank company reinforced by a motor rifle platoon, a mortar or howitzer battery, an anti-tank platoon, a flamethrower platoon or section, an air defence section and smoke generating means.

b. ***Conduct of the Battle.*** Diagram 7-6 illustrates a delaying action by such a force.

(1) ***Deployment.*** The battle will be fought on 3-4 delay lines, ideally sufficiently far apart to make the enemy displace his artillery to attack each one. Positions will be sited to take advantage of natural obstacles and where they cannot easily be outflanked: mining will improve any

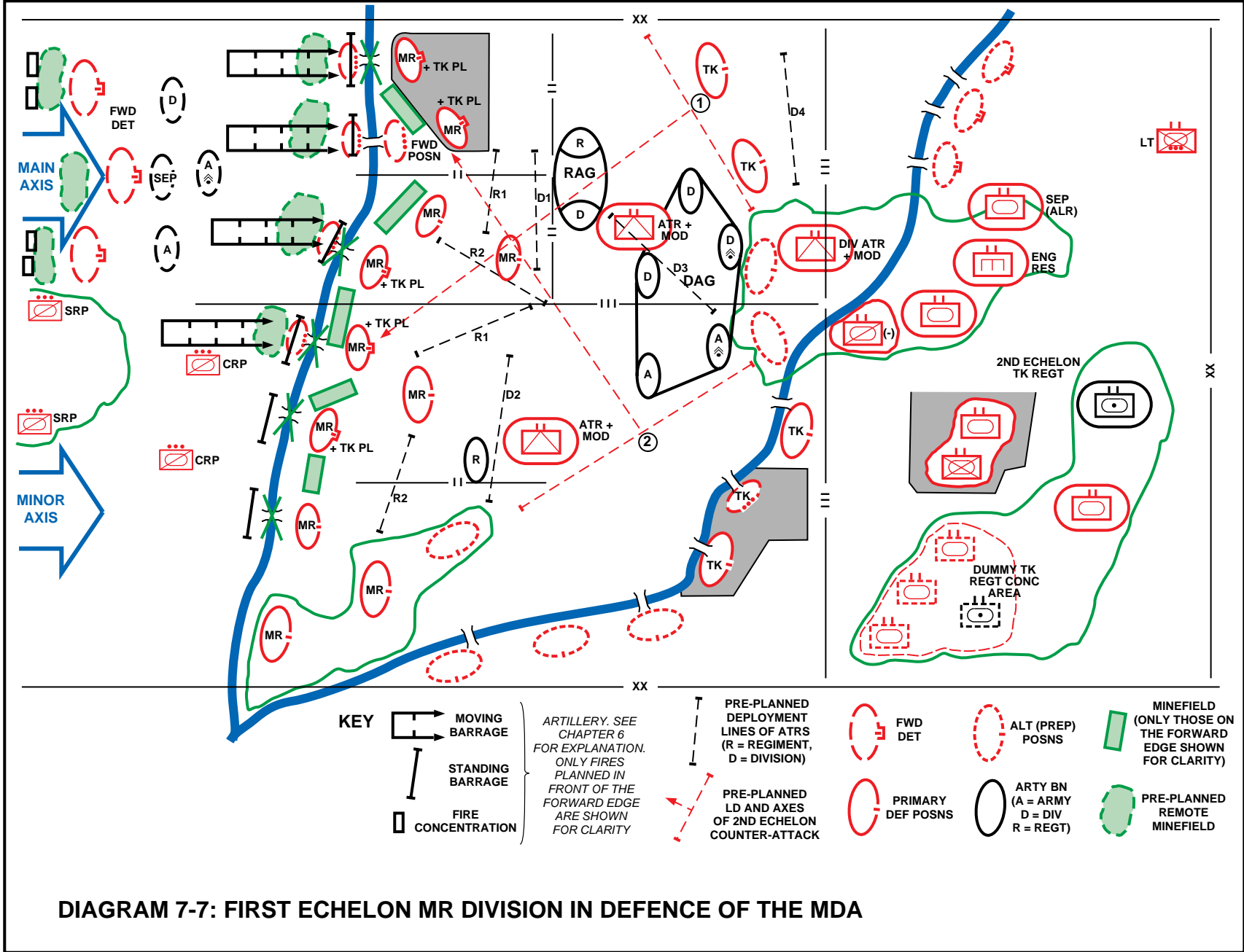
obstacles and cover flanks and gaps between strongpoints (such obstacles being covered by the fire of ambushes and artillery). The battalion will deploy three of its mobile anti-tank strongpoints on the delay line, keeping one for counter penetration, counter envelopment or a limited counter attack to aid one of those in the first echelon to withdraw. The attached artillery will often deploy with a battalion immediately behind both first and second (later second and third) delay lines. The forward one can deliver deep fire, targets being indicated by divisional or (later) regimental reconnaissance or the forward detachment's CRP. Both can put down defensive fire when the enemy deploys to attack and the depth battalion can offer continuous support during the detachment's withdrawal to the next line.

(2) *Conduct.* The forward detachment is expected to repulse the hasty attack of the leading enemy brigade. While the enemy deploys his main body (this is expected to take about an hour), the artillery and aviation deliver fire strikes and, upon the authorization of the divisional commander, the detachment will withdraw under cover of smoke, artillery and air-delivered fire and remote mining as required to its next pre-prepared delay line. Pre-positioned engineers will help the withdrawal over obstacles if necessary and ambushes are deployed in gaps and between delay lines to inflict casualties and induce caution in the enemy. RDMs can also be used to pin pursuers. The final delay line usually coincides with the false forward edge (portrayed in adjacent sectors by forward positions). Here, the forward detachment will probably thin out, sending its most damaged elements back to the refurbishment area. The attached artillery will also retire, rejoining their parent groups. On this line, the full weight of various artillery groups can deliver support for the final delaying action and the withdrawal through selected entry points over the forward edge.

(3) *Aviation.* At various stages of the battle, attack helicopters and even fixed wing aviation may be used to strike the enemy. The former are considered particularly useful in helping the forward detachment to withdraw and in executing ambushes.

c. *Command and Control.* The battle is directed by division, but the divisional commander will generally be occupied in organizing the defence. He will usually have his deputy (already responsible for reconnaissance, the obstacle plan and deep fire missions) run the battle from an auxiliary CP.

0745. **Counter-Preparation.** The operational commander will endeavour to inflict heavy losses and disruption on the enemy through carrying out a counter-preparation which will strike the enemy as he is completing his attack preparations and pre-empt the enemy's fire preparation (whether it be for an attack on the forward edge or on a subsequent defensive belt). This requires excellent intelligence and forecasting as planning at army/corps level will require 6-8 hours and then fire units have to be deployed to achieve a worthwhile density (up to 30 guns/MBRLs and mortars per km on a 20-25km frontage). To be successful, a counter-preparation must catch the enemy by surprise so



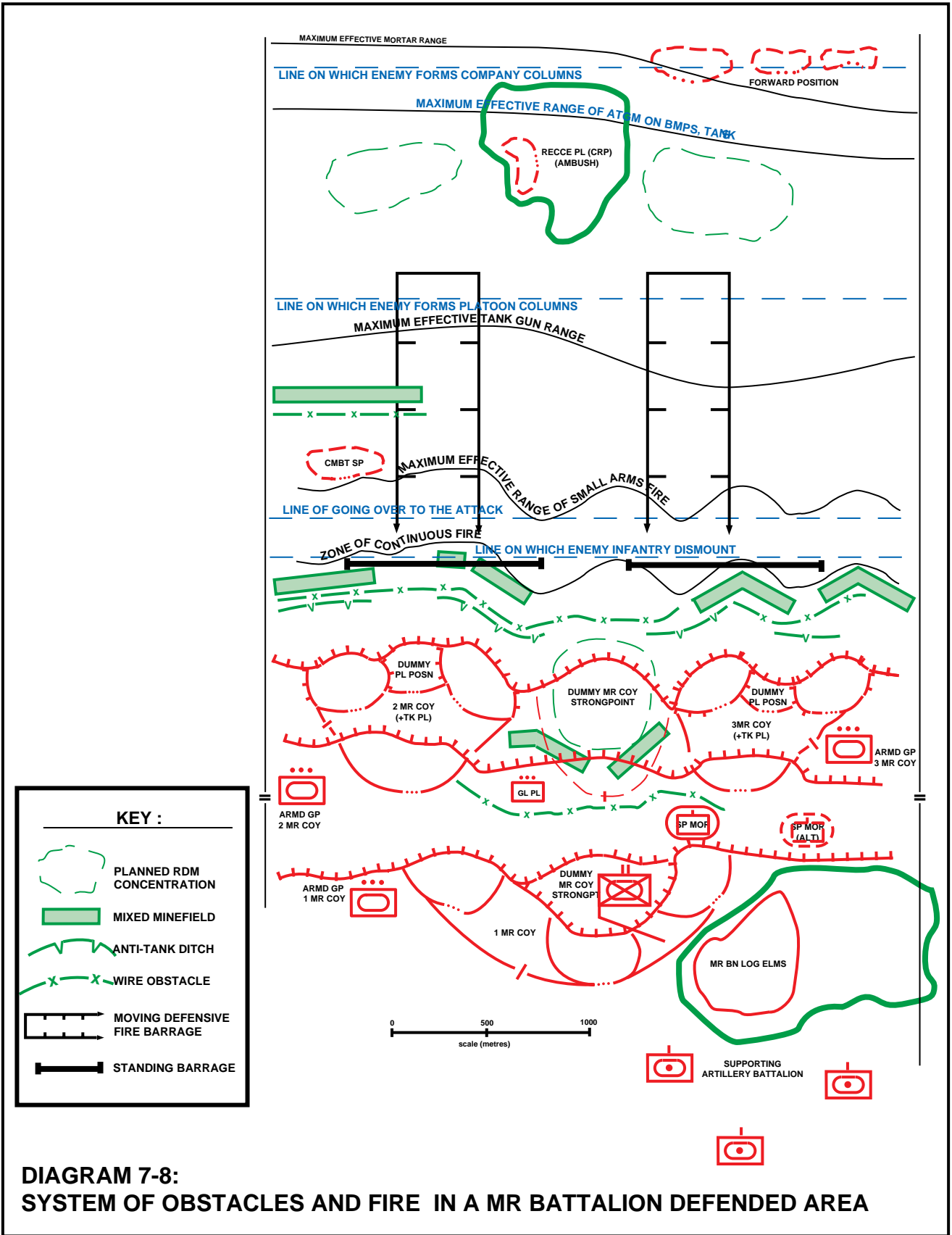
preparations need to be carefully concealed at a time when the enemy's reconnaissance is subjecting the chosen attack zone to careful scrutiny. An operational level counter-preparation will reach 15-40km over the forward edge and last 25-40 minutes. If airpower is deployed as well, the depth will increase to 80- 100km. Fire is, of course, combined with intensive jamming of enemy artillery and air support nets (and of air defenders if airpower is involved) to prevent an effective enemy response. Operational level counter-preparations were always difficult to accomplish successfully and are now seen by GENFORCE as becoming even more problematical. It may well be that, in the future, more emphasis will be placed on divisional/brigade counter-preparation reinforced by the weight of AAG/CAGs and AGRA/CGRAs. Such smaller scale efforts will require only 3-5 hours planning time (including working in elements of the higher formation artillery groups). Although only on a tactical scale, success in such a counter-preparation could have operational repercussions if the enemy's main attack is disrupted.

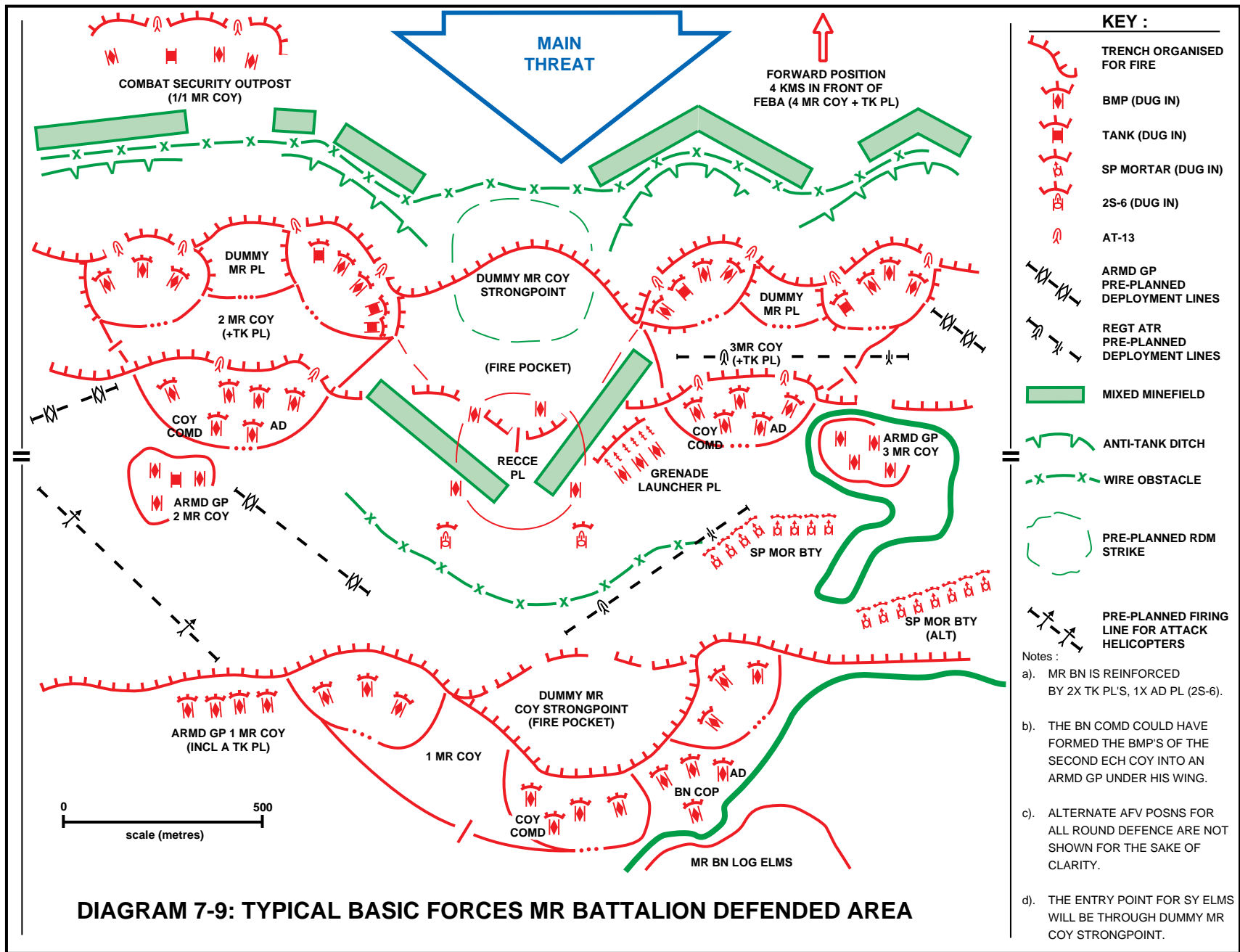
0746. ***Spoiling Attacks.*** An effective counter-preparation may well be followed by a spoiling attack. This will be an attack with a strictly limited objective - ie, the infliction of further casualties, delay and disorganization and not the seizure of ground. The attack will be mounted by the army/corps or division/brigade second echelon (from the march) to avoid compromising the stability of the defence.
0747. ***Halting the Penetration of the MDA: Formation Level.*** The first echelon divisions and brigades are expected to fight a stubborn, defensive battle. They will rarely mount counter attacks on their own. Penetrations that are being made through company strongpoints on the forward edge will trigger the deployment of the unit ATR and MOD, and perhaps of elements of the unit second echelon to reinforce the defence of forward edge battalion areas (ie, the first defensive position) and plug the gaps between them. If, on the other hand, the enemy gains momentum early, the unit second echelon, ATR and MOD will defend from their second positions and switch lines to contain the wedge that is being driven into the defence. Similarly, the divisional/ brigade second echelon, ATR and MOD will usually be deployed forward to reinforce the defence of either the first or second defensive positions (ie, of the first echelon units) if the attack is so strong that it cannot otherwise be checked. If the enemy tempo preempts this option, then the divisional/brigade second echelon will fight from its original positions, probably being reinforced to do so by the army or corps ATR and MOD and probably elements of the army/corps reserve also. If the only way of stopping the enemy is to deploy yet more forces, then the army's or corps' second echelon too will be deployed for counter penetration to try and prevent a breakthrough of the MDA. Great stress is always laid on the creation of obstacles during the enemy's penetration, mainly by MODs and, especially, by remote mining, but also in the form of demolitions and anti-tank ditching. Diagram 7-7 illustrates a motor rifle division deployed for defence of the MDA, showing pre-prepared counter-penetration and counter-attack lines.
0748. ***Combatting Enemy Attempts to Conduct Deep Battle.*** The enemy is expected to try and break up the cohesion of the defence through the use of air landings and forward detachments in both the tactical zone of defence and operational-tactical depth, in this way creating conditions favourable for achieving

a breakthrough. These must be countered promptly by artillery and air attacks (both rotary and fixed wing), by the actions of dedicated anti-landing reserves and, if necessary, by second echelons at all levels. Rapid response is stressed to eliminate such threats before the enemy is able to seize his objectives and establish a firm defence on them. GENFORCE believes that a battalion landing can be destroyed by a battalion and a battery if they attack immediately after the landing, but that three times that force will be required if the enemy is allowed 2-3 hours preparation time.

0749. ***Halting the Penetration: Battalion Level.*** Diagram 7-8 illustrates the system of fire and obstacles with which a motor rifle battalion of the Basic Forces will endeavour to halt any penetration or at least canalize it into a fire pocket for destruction. Diagrams 7-9 and 7-10 show the layout of the defence of the same battalion in more detail. The rest of this paragraph describes the conduct of the defence. It is worth noting that GENFORCE expects the enemy to use the same tactics in the attack that it uses itself.

- a. *Defeating Enemy Reconnaissance.* The forward position, an ambush by the CRP and the combat security outpost will prevent effective early reconnaissance of the forward edge. Any penetration of this counter-reconnaissance system will be engaged by “duty weapons” firing from the dummy positions and by “roving” tanks and BMPs temporarily stationed in the dummy motor rifle company strongpoint (thus adding to its credibility).
- b. *The Fire System.* Artillery concentrations and RDM strikes are planned on likely deployment areas for enemy artillery. Defensive barrages take two forms (illustrated in Diagram 7-8, where two artillery battalions are supporting the motor rifle battalion.) Moving barrages are prepared on the likely lines of deployment into platoon columns and RDM strikes are planned to pin the enemy within the effective range of ATGM on BMPs and from tanks. Standing barrages are registered just short of the line where enemy infantry is expected to dismount and where enemy AFVs will be held up by the anti-tank obstacles. These will cause casualties and separate the tanks from the infantry. Chapter 9, Section 2 will describe artillery techniques in detail. Direct fire weapons generally open fire at maximum effective range, with more and more joining in as the range closes until small arms can join in. From the obstacle belt about 400m from the forward edge, there is a “zone of continuous fire”. (The defending infantry leave their dug-outs as the enemy’s preparatory fire lifts from that line to allow his own troops to press forward. Sentries and sub-unit commanders will have remained at their posts during the bombardment to observe the enemy’s approach).
- c. *Reaction to Penetration.* If the enemy penetrates into the fire pocket, pre-planned deployment of armoured groups (see sub-para d) and of troops within strongpoints to alternative positions and possibly of the unit ATR and MOD will halt the advance and destroy the enemy with fire. If the enemy penetrates a strongpoint, sub-units within it move into alternative positions, adopt all round defence and put up a determined defence, aided by flanking fire. If a battalion is outflanked or even in danger of encirclement, there will be no question of withdrawal without the order of the senior commander.



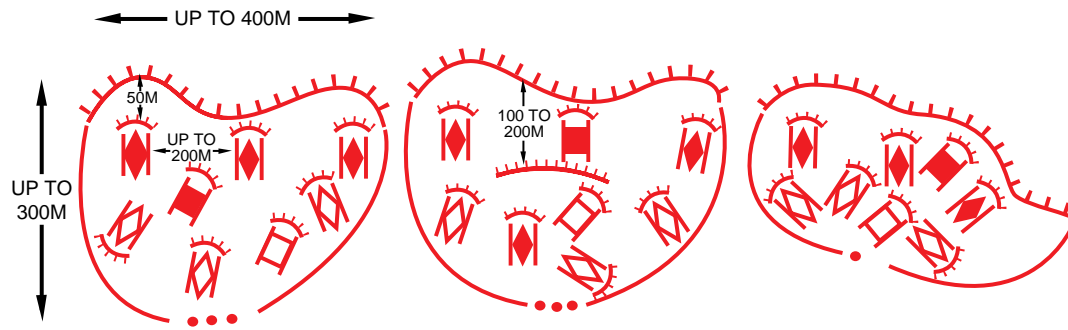


a. MR PLATOON

(1) IN ONE LINE

(2) IN TWO LINES

(3) ECHELONED RIGHT



b. TANK PLATOON

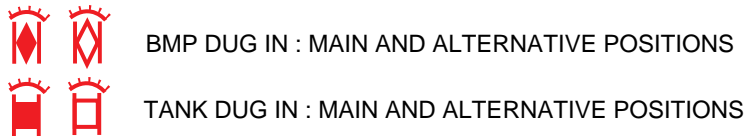
(1) INVERTED WEDGE

(2) WEDGE

(3) ECHELONED LEFT

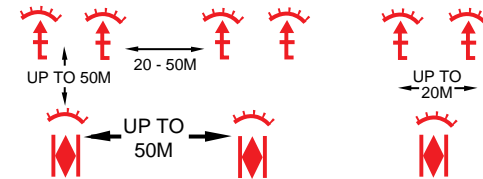


KEY :



c. GRENADE LAUNCHER PLATOON

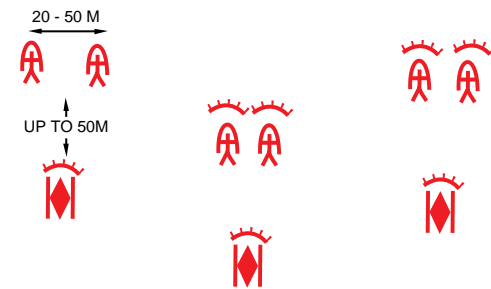
UP TO 150 M



Notes:
SECTIONS COULD BE DEPLOYED IN STRONGPOINTS,
THOUGH IT IS USUAL TO DEPLOY AS A COMPLETE
PLATOON TO BRING CONCENTRATED FIRE ON THE MAIN AXIS

d. ANTI-TANK PLATOON

500 - 1000M



Notes:
A. BTR MOUNTED BATTALIONS ONLY
B. A LINEAR DEPLOYMENT IS NEVER PRACTISED

DIAGRAM 7-10 : LAYOUT OF PLATOON STRONGPOINTS (VARIANTS)

Necessary adjustments are made in deployment to meet threats from new directions and the battalion will draw upon itself the greatest possible part of the enemy forces. It is essential that the enemy does not succeed in widening his penetration and thus gain space for manoeuvre, so strengthening the flanks of the penetration is as much a priority as stopping the enemy's forward movement.

- d. *Armoured Groups.* In order to make the maximum use of mobile and armoured anti-tank resources, it is customary to form armoured groups at company and/or battalion level to provide additional manoeuvre assets in the defence. They comprise groupings of BMPs whose infantry has been dismounted and possibly tanks. Nominated vehicles are withdrawn from their firing positions and concentrated in hides in dead ground, woods or other cover behind the first echelon positions. A company armoured group might consist of 2-4 BMPs and perhaps a tank and a battalion group might have 4-7 BMPs and up to a platoon of tanks. Usually, the BMPs forming armoured groups are taken from sub-units in the second echelon, from elements defending less threatened axes and/or from the anti-tank and machine gun platoons. Armoured groups are assigned 2-3 firing lines to cover gaps between strongpoints and flanks. Routes to these firing lines (and those for the unit ATR) are prepared beforehand.
- e. *Depth Battalions.* While the first echelon elements are conducting a determined defence of their strongpoints and defended areas in the first position, perhaps reinforced by the unit level ATR, the senior commanders will be assessing the various threats posed to their units and formation. On the basis of their appreciations the decision will be reached to employ depth forces in one of the following roles:
 - (1) *A Limited Counter attack* may be ordered to check the enemy and inflict casualties, stabilizing the situation or enabling troops in untenable strongpoints or areas to withdraw.
 - (2) *A Counter Attack* to eliminate the penetration may be mounted if the enemy is weak and disorganized. Such counter attacks will be rare at low level, counter penetration being more common: a second echelon battalion can only eliminate up to a company in a counter attack but it can repulse a brigade from prepared positions. Counter attacks will be considered fully in Section 6.
 - (3) *Reinforcement of the First Echelon* may be the chosen option if doing so will mean the retention of ground and the halting of the attack within the confines of the first position. A second echelon battalion will reconnoitre, and if possible prepare 1-2 firing lines for the counter penetration.
 - (4) *Fighting From Their Prepared (Second) Positions* is the other role in which second echelon elements may be employed. This will be the response to a strong attack that cannot be halted within the defended areas of first echelon battalions. If the enemy has to be allowed to

penetrate as far as the second echelon, he will have to be prevented not only from advancing further into the depth but also from expanding the width of the penetration, rolling up the defence from the flanks. Thus attention will have to be paid to reinforcing the flanks containing the wedged-in enemy forces.

- (5) *Countering Air Landings.* If the ALR is unable to eliminate an enemy air landing, elements of the second echelon may have to be committed to this task.
 - f. *Ambushes.* Ambushes are very characteristic features of any GENFORCE defensive layout. In size they vary from individual weapon systems to a platoon and are generally found from second echelon sub-units. Tanks, BMPs, ATGM, helicopters, SAMs and flamethrowers are all used for ambushes. They are sited on likely axes of approach, on flanks and in gaps and between first and second echelon positions. Their role is to eliminate enemy reconnaissance, reduce the enemy's strength before he reaches the main or second position and to slow his advance.
0750. ***Roving Strongpoints.*** The growing problem of the survivability of defending troops as reconnaissance and munitions improve has increased the need to disguise the precise location of the forward edge and the alignment of the defence. By increasing the size and numbers of combat security outposts and forward positions (to the extent of using whole battalions to create a false forward edge) and by stressing the frequent manoeuvre of depth elements to avoid strikes, GENFORCE has gone some way to solving the problem. Theorists are not yet satisfied however, and GENFORCE is now experimenting with the concept of roving strongpoints.
- a. *The Concept* is based on the high manoeuvre and firepower capabilities of modern forces and the need for activeness in the defence. Battalion defended areas retain their usual frontage but their depth will increase to 6-8km for the Basic Forces and to 8-15km for the Mobile Forces. Within this extended depth, company and platoon strongpoints are prepared not in the usual 1-2 lines (depending on width) but in 2-4 lines with switch lines as well. In other words, for each sub-unit there are at least two prepared strongpoints. Companies "rove" between these, either according to a prepared plan or on order of the battalion commander. In this way, the actual forward edge and the shape of the battalion changes periodically. This makes it difficult for the enemy to determine the disposition of weapons and sub-units prior to his attack. (Duty weapons and covering elements will occupy the forward strongpoints if the main forces are held in an intermediate line.)
 - b. *Advantages.* The technique is seen as an improvement to the concept of strengthening the second echelon of a unit and using it, or part of it, to move forward to replace casualties in the first and strengthen its resistance. It concentrates rather on preserving the troops in the first position. It forces the enemy to expend up to four times the ammunition he would normally require to ensure reliable suppression of the whole of the echelon as he has to engage each strongpoint, being unsure about which are occupied in

strength. Companies can occupy the most favourable positions immediately after the completion of the enemy fire preparation and sometimes will do so under its cover when a decisive enemy concentrates fire on the wrong strongpoints. In this way the dynamism and stability of the defence is increased and the second echelon, no longer being required to reinforce the first, is preserved for other tasks.

- c. *Disadvantages.* The creation of such a “floating” forward edge will require prodigious effort and much time. Even if the technique is used only for the first position of a formation, GENFORCE calculates that it will require at least six days to prepare the system, including alternate, dummy and switch positions and obstacles throughout the depth. Moreover, a plethora of obstacles may hamper the manoeuvre of armoured groups. ATRs and MODs and counter attack forces and the area available for the deployment of artillery and air defence elements will be reduced. Finally, the organization and coordination of the system of fire will be very complex and liable to break down under attack.

0751. ***Manoeuvre Timings in Defence.*** Plainly, some nice timings are necessary in conducting manoeuvre to prevent the enemy from capitalizing on initial success and generating tactical manoeuvre in the depth. Some examples for the manoeuvre of sub-units in defence which GENFORCE tries to achieve are as follows:

- a. *To move a motor rifle company to a new strongpoint and to organize its system of fire:* up to an hour.
- b. *To move a tank company to occupy a firing line to beat off an attack:* up to 9 minutes by day and 12 minutes by night.
- c. *To quit a position or firing line:* 5-7 minutes by day, 7-10 minutes by night.
- d. *To move a second echelon battalion 8-10km to reinforce a threatened sector or to launch a counter attack:* 40-45 minutes.

SECTION 5 - MANOEUVRE DEFENCE

General

0752. ***The Nature of Manoeuvre Defence.*** Manoeuvre defence, like positional, is designed to create favourable conditions for the enemy’s eventual destruction through a counter blow and the consequent recovery of the operational initiative. Unlike the latter form, however, manoeuvre defence accepts the loss of possibly substantial areas of ground in the process. The essence of manoeuvre defence is thus acceptance that the enemy will be able to advance but being able to control the rate of that advance, especially on crucial axes, and above all, preventing the enemy from achieving a breakthrough and conducting uncontrolled tactical and even operational manoeuvre in the depth. On a line designated by the operational commander (usually the start of the MDA), manoeuvre defence will give way to positional defence.

0753. ***The Context of a Manoeuvre Defence.*** Again as with positional, manoeuvre defence may be deliberate or forced. In the former case, where the decision has been made to trade space for time and forces organized accordingly and engineering work carried out in advance, GENFORCE believes that it will be possible, though far from easy, to control the development of the battle. Such a delaying force is capable of coping with enemy forces 1.5-2 times stronger than those it would be expected to repulse in positional defence. If, however, it is forced on a formation, eg, as a result of huge and sudden casualties resulting from enemy ACM strikes followed by a surprise attack by a superior force, or in consequence of defeat in a meeting battle, it will be all but impossible to dictate the tempo and direction of the enemy's advance. It will not be possible, with unbalanced and disrupted forces to organize a leapfrogging rearwards manoeuvre, breaking clean from the enemy and withdrawing to the next delay line after repulsing each enemy attack. Enemy pressure will be unremitting and the ideal of a carefully phased series of consecutive delaying actions is likely to give way to a running battle with opposing forces intermingled and significant defending groupings being caught in encirclement. This section will describe only the deliberate manoeuvre defence as this is the model that GENFORCE will try to replicate as far as possible, given the prevailing situation. It will only consider manoeuvre defence at formation level, as delaying actions at battalion level have already been dealt with in paragraph 0743 and Diagram 7-6, which covered the battle of a forward detachment in the security zone.

Aims and Missions of a Division/Brigade Conducting Manoeuvre Defence

0754. ***Aims.*** Manoeuvre defence is designed to win time and wear down the enemy while avoiding becoming involved in a decisive battle with superior forces. This may be needed either to have enough time to prepare positional defence in the depth or as an economy of force measure to build up an offensive or defensive grouping on another axis. Particularly at the operational level, it is not regarded with enthusiasm by GENFORCE. It leaves the initiative firmly in enemy hands, it sacrifices much ground and it is very difficult and risky, having a tendency to degenerate into a rout or become a fierce fight against superior forces in adverse circumstances. Generally, it is a form of defence adopted only when forced upon GENFORCE, either because the enemy has achieved surprise as to the timing and/or axis of his offensive or because force density on a (usually secondary) axis does not permit positional defence or because of defeat in positional defence or a meeting engagement. The only time it is likely to be the method of choice is when the enemy is to be lured into an operational pocket for destruction by a higher formation counter attack or strike. In all cases, GENFORCE will determine a line on which manoeuvre defence will have to stop because an operationally or strategically vital area must be defended. When it reaches that line, which ideally will be occupied or at least prepared by operational reserves the division or brigade will transition to positional defence or, better still, be withdrawn into reserve for refitting (as will be the cases where, for instance, the lower formation has been acting as a covering force). Whatever the circumstances in which manoeuvre defence has been adopted, the preservation of the combat effectiveness of the forces employed must be an aim of the senior commander.

0755. **Mission.** The formation's missions will be: to destroy enemy high value weapons systems and inflict losses on the enemy main grouping while refusing to become decisively engaged; to conduct a phased withdrawal, usually according to a timetable laid down by army or corps, transition to positional defence on a designated line and repel any attacks on it; to repel or destroy any sea or air landings; to create conditions for a transition to the offensive; to preserve the combat capabilities of the troops involved.

Scope and Tactical Formation of a Division/Brigade in Manoeuvre Defence

0756. **Scope.** Frontages and depths of a formation defence will vary more widely in manoeuvre than in positional defence, but they will always be greater in the former. Often, they will be dictated by circumstances over which GENFORCE will have little control. They will be dependent on the mission (especially on the location of the MDA), the relative strengths of the opposing sides, the nature of the terrain and obstacles, the time that has to be won and the time and resources available to prepare successive defence lines. By stretching sub-unit and unit defences to the utmost while still retaining balance, formations, units and sub-units will be able to delay on the frontages set out in Table 7-6. Even more than with the spatial scope of positional defence laid down in Table 7-3, these yardsticks will vary with circumstances. They can, indeed, be stretched still further, but only by accepting a loss of balance which is likely to result in catastrophic failure if any sub-component of the defence gives way.

TABLE 7-6: FORMATION AND DEPTH IN MANOEUVRE DEFENCE

Spatial Scope	Heavy Division Zone	Standard Division Zone	Brigade Zone	Regiment Sector	Basic Forces Battalion Area	Combined Arms Battalion Area	Company Strongpoint
Frontage (a)	50-60km	40-45km	30-35km	15-20km	7-10km	10-15km	1.5-3km
Depth (b)	10-15km	10-15km	10-15km	4-10km	2-5km	1-3km	up to 1km

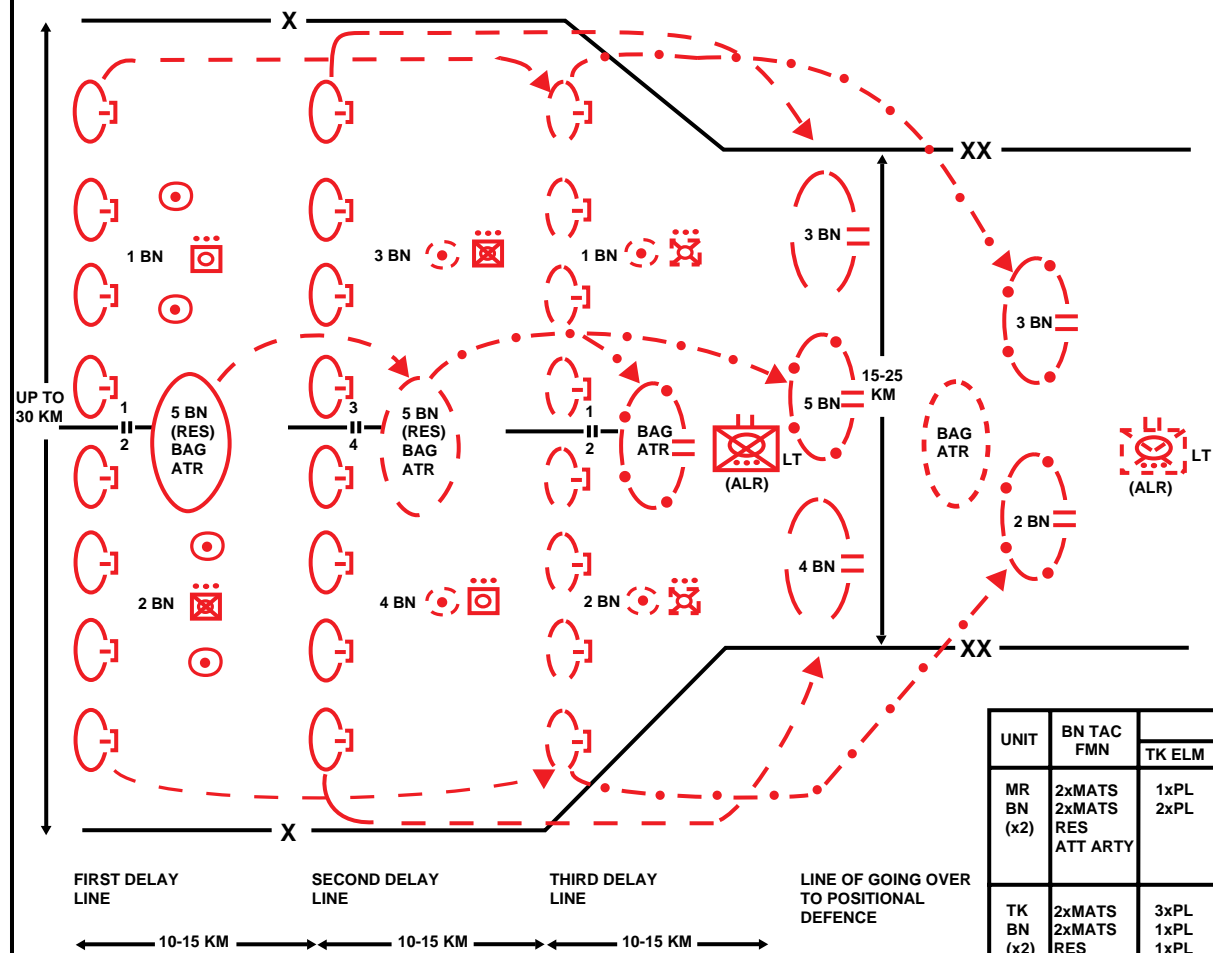
Notes: (a) By sacrificing depth and thereby taking considerable risks with the stability of the defence, these frontages could be extended by up to 50% down to battalion level. This is only really likely (assuming normal terrain) on passive sectors or and when there is an airmobile reserve available to prevent a local penetration escalating into a general breakthrough. These frontages assume that formations, units and sub-units are at or near full strength. In practice, of course, they will often be depleted and will be capable of inflicting delay only within the upper spatial limits that are the norm established for positional defence. Larger than normal frontages are achieved by accepting greater intervals between strongpoints and by reducing or eliminating the second echelon, not by increasing the size of individual platoon strongpoints.

(b) The depth given here is that on each delay position. The total depth of a formation's delaying battle could be 50-60km (in a typical covering force mission), up to 150km or more in the event of the enemy achieving strategic or operational surprise in mounting an offensive.

Tactical Formation

0757. **Selection of Formations.** Where possible, GENFORCE prefers to use Mobile Forces' separate brigades or corps (or elements thereof) for manoeuvre defence. Their flexible structure and superior training fit them best for the role. If Basic Forces formations are employed, heavy divisions are preferred as their square organization lends itself to forming two approximately equal echelons without violating existing structures.
0758. **Echelonning: Principles.** Given that the aim is not to stop the enemy in the extended tactical zone of defence (which requires a force density incompatible with manoeuvre defence) it would be inappropriate to put the main weight of the defence forward. Rather, the problem is to ensure that, when trading space for time, there is always one foot firmly on the ground when the other is being withdrawn to the next line and there is a counter-move force capable of denying the enemy the ability to generate momentum and deep battle, let alone operations.
- a. *Where the Entire Formation Zone is Threatened*, the ideal is to deploy in two approximately equal echelons. Each will be capable of delaying action across the entire frontage of the formation's zone and then leapfrogging back, through the other, to the next delay line. This deployment ensures balance and the availability of local counter attack forces to help extricate elements in contact that are having difficulty in withdrawing. Of course, shortage of forces will preclude deploying in two equal echelons at every level. It will, however, be enough to compensate for the lack of depth at one level by the existence of a second echelon at another. Thus, for instance, a division's first echelon regiments may deploy in a single echelon (with a small reserve) if there is a second echelon regiment behind. Diagram 7-11 illustrates possible variants. See paragraph 0763(a) for an explanation of mobile anti-tank strongpoints.
 - b. *Where there is a Clearly Identifiable Main Axis*, a division or brigade will deploy in two echelons on that axis but in only a single echelon on the passive sector. If the enemy switches his effort to the passive sector, however, there will be a considerable danger that, with the whole force remaining continuously in contact, a running battle will develop which will make it difficult to hold the enemy on designated delay lines and the possibility of an enemy breakthrough will increase. Diagram 7-12 illustrates this variant.
 - c. *In Difficult Terrain*, where the enemy is limited in his choice of axis, cannot readily switch forces laterally from one to another or cannot easily build up combat power on any one because of restrictions imposed by the ground on deployment, a formation may well deploy in a single echelon with local, tactical reserves.
0759. **Reserves.** Special reserves will assume an even greater importance in manoeuvre defence as the enemy will enjoy increased opportunities for achieving a rapid penetration and employing air-delivered forces.

a. TK BRIGADE



KEY:

- INITIAL POSITION
- SECOND POSITION
- THIRD POSITION
- FOURTH POSITION
- ARTILLERY BATTALION

NOTES:

- IDEALLY, THE BRIGADE WOULD PASS THROUGH ANOTHER FORMATION THAT HAD PREPARED THE FIRST BELT OF THE MDA FOR DEFENCE. THE BRIGADE WOULD THEN GET A CHANCE TO REFURBISH IN RESERVE.
- THE BRIGADE'S BOUNDARIES MUST NARROW AT THE APPROACH TO THE MDA TO GIVE A REALISTIC FRONTAGE FOR POSITIONAL DEFENCE.

UNIT	BN TAC FMN	COMPOSITION OF ELEMENTS					
		TK ELM	MR ELM	A-TK ELM	HOW/MOR	FLAME SECT	AD SECT
MR BN (x2)	2xMATS 2xMATS RES ATT ARTY	1xPL 2xPL	3xPL 1xPL 1xPL	1xPL	1xBTY 1xBTY 1-2xBNs	1 1	2 2
TK BN (x2)	2xMATS 2xMATS RES ATT ARTY	3xPL 1xPL 1xPL	1xPL 2xPL	1xPL	1xBTY 1xBTY 1-2xBNs	1 1	2 2
BDE RES (5 TK BN) BAG		3xCOY	2xCOY	1xCOY	1xBN 2-3xBns		1xBTY

DIAGRAM 7-11: TACTICAL FORMATION IN MANOEUVRE DEFENCE WHEN THE ENTIRE ZONE IS THREATENED.

b. HEAVY MR DIVISION

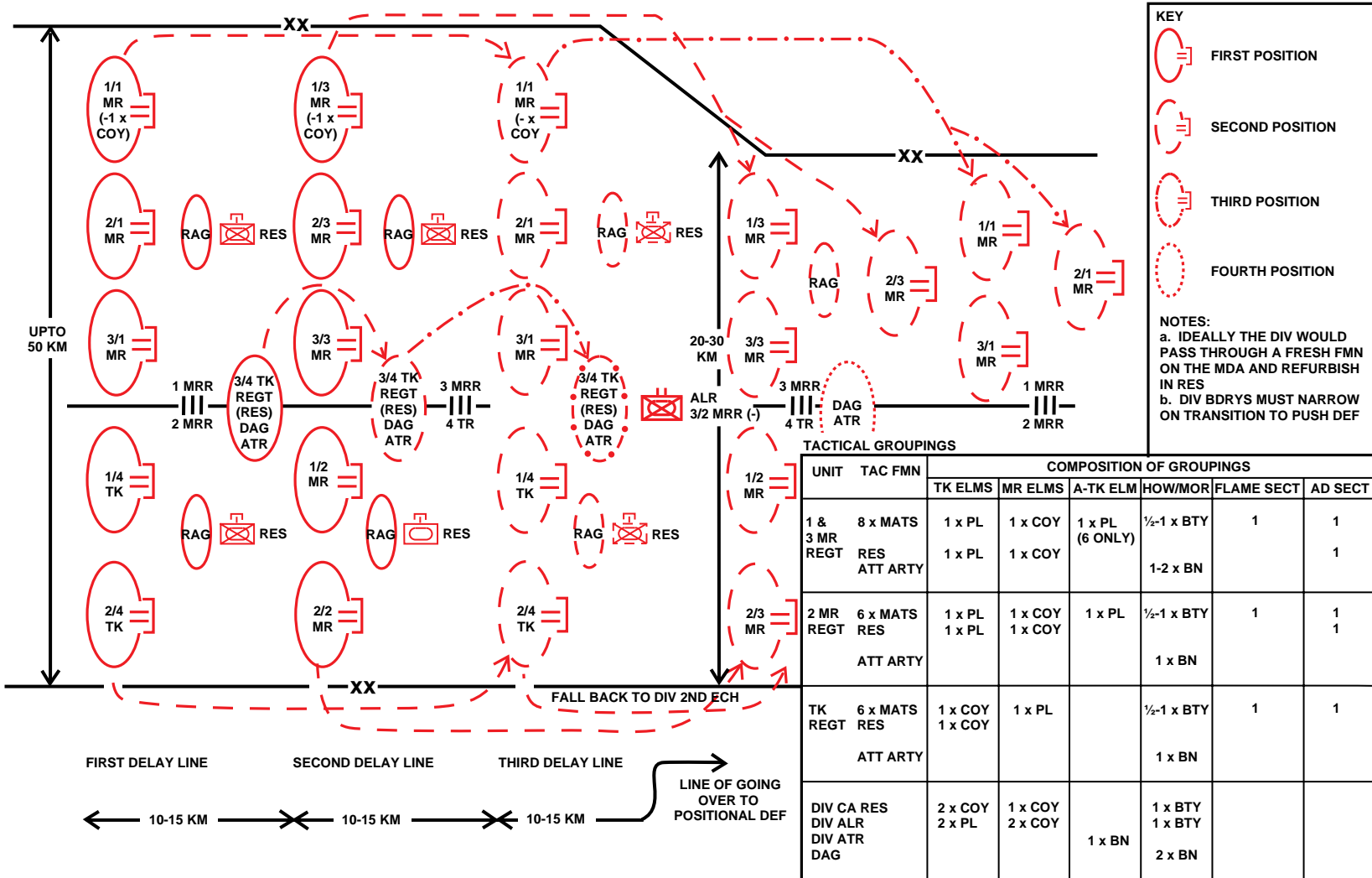


DIAGRAM 7-11B

a. MR BRIGADE

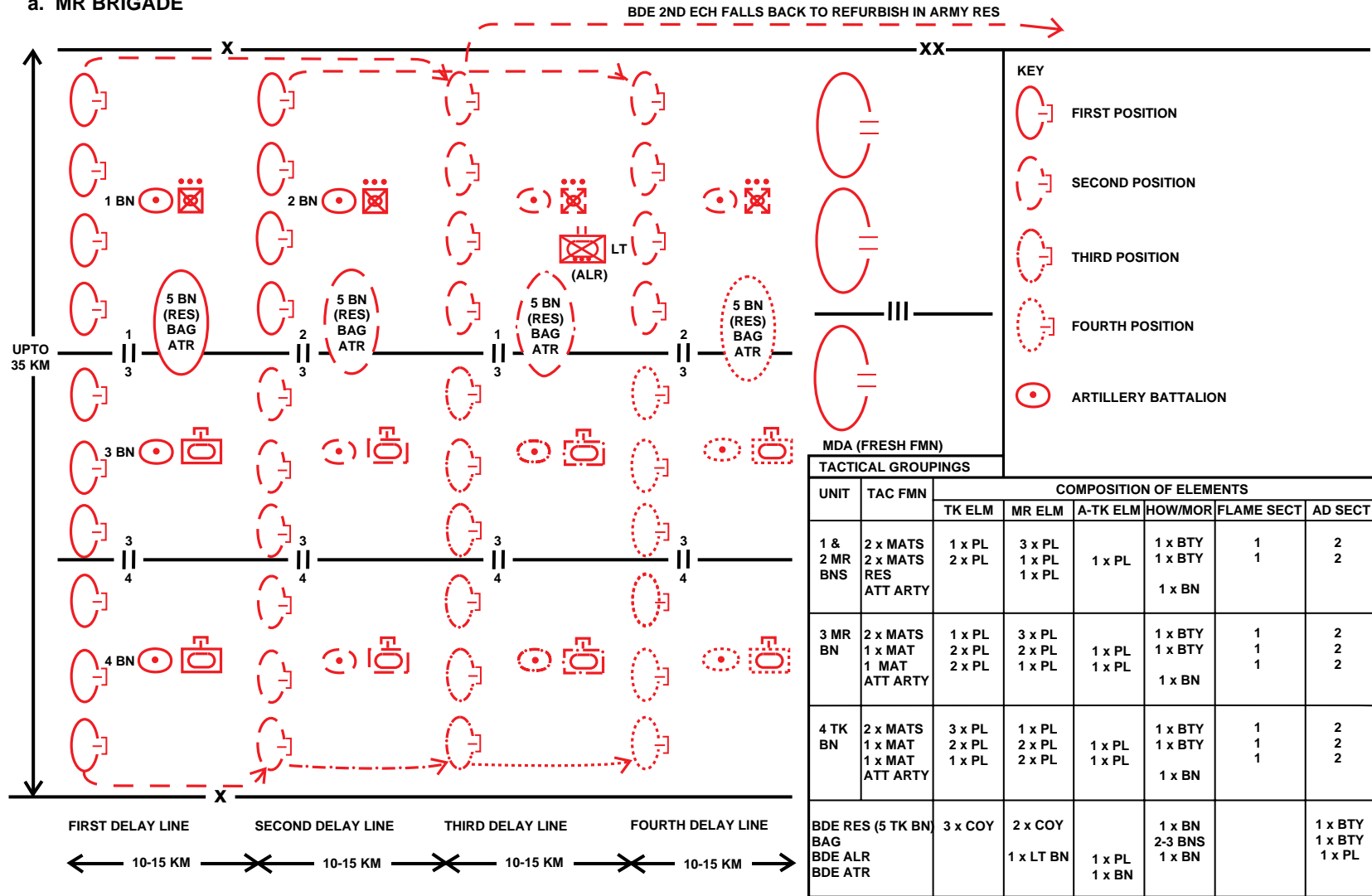


DIAGRAM 7-12: TACTICAL FORMATION IN MANOEUVRE DEFENCE: MAIN THREAT TO RIGHT OF ZONE

b. HEAVY MR DIVISION

TO ARMY RESERVE FOR REBURFISHMENT

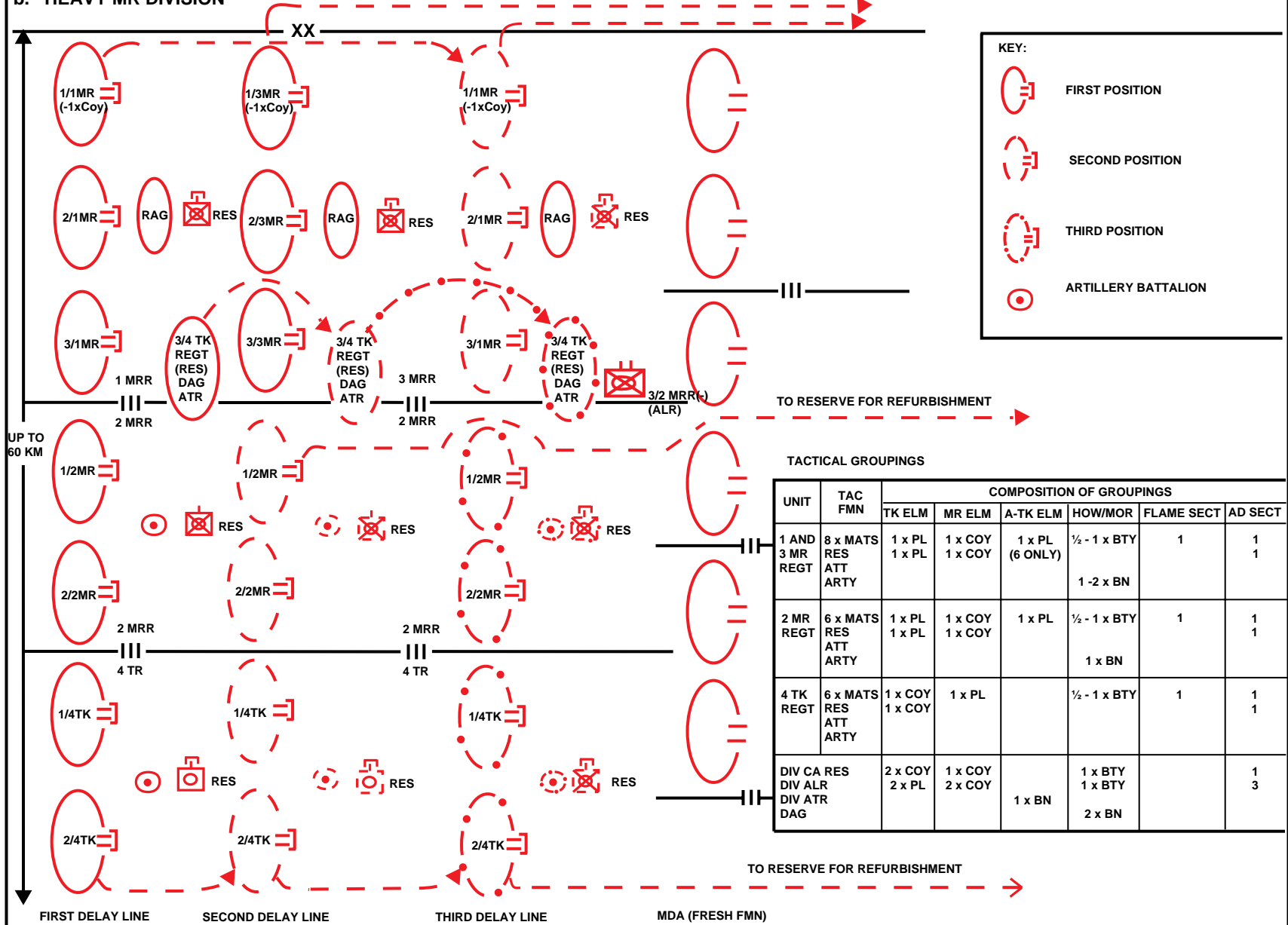


DIAGRAM 7-12B

- a. *Combined Arms Reserve.* There will frequently be a requirement for a short, sharp local counter attack to help forces on a delaying line to withdraw or to check a penetrating or outflanking force. It is desirable to deliver this without taking second echelon troops out of their prepared delay positions and committing them forward, thus unbalancing the defence. It will often be the case, therefore, that in manoeuvre defence there will be a combined arms reserve of about battalion size in a division or brigade in addition to a second echelon.
- b. *Anti-Tank Reserves and MODs* will be needed in greater number, and army/corps will usually reinforce the manoeuvre defence with elements from its own resources. Attack helicopters will provide an important anti-tank reserve which is capable of deploying rapidly anywhere across the formation's sector.
- c. *Anti-Landing Reserves.* The enemy will certainly try to undermine the stability of the defence by using vertical envelopment to attack defended areas from the rear, block withdrawal routes and seize key features on depth defence lines before they are occupied. Extended first echelon formations will often be unable to provide more than their light motor rifle battalions and the second echelon will have no resources to spare, so army/corps may have to provide additional elements. An army level separate regiment may well be split up to provide a combined arms battalion to each first echelon division or brigade.
- d. *Airmobile Reserves* will be very important to carry out counter penetration over extended distances more rapidly than can mechanized units, to protect flanks, counter landings, fill in gaps opening in the combat formation or, where resources allow, conduct raids. Again, higher formation may well reinforce a manoeuvre defence with air assault and/or airmobile motor rifle troops and helicopters.
- e. *Artillery and Engineer Reserves* will probably be formed when the enemy's main axis cannot be identified in advance.

0760. ***Missile Troops and Artillery.*** Because of the increased manoeuvre character of operations, groupings may deploy somewhat further back than in positional defence. Where the direction of the enemy's main effort is unclear, or where he attacks strongly over the whole sector, more artillery than usual will be decentralized to the first echelon. However, the divisional or brigade commander will wish to retain at least the MBRL and one howitzer battalion in a DAG/BAG on the main axis so that he can influence the course of the battle by manoeuvring their fires (including remote mining). The senior commander will, as usual, deploy artillery and rocket artillery groups on the main axis for the engagement of deep targets and, on occasion, to mass fire on the line of contact to help units or sub-units in trouble.

0761. ***Engineers and Chemical Defence.*** Given the increased requirement for obstacle creation, position preparation, movement support and smoke concealment of withdrawals or local counter attacks (including feints), GENFORCE believes that up to twice the number of these troops will be required

compared with positional defence. The lower formation will therefore be strengthened from army/corps resources, particularly for the creation of depth positions and obstacles.

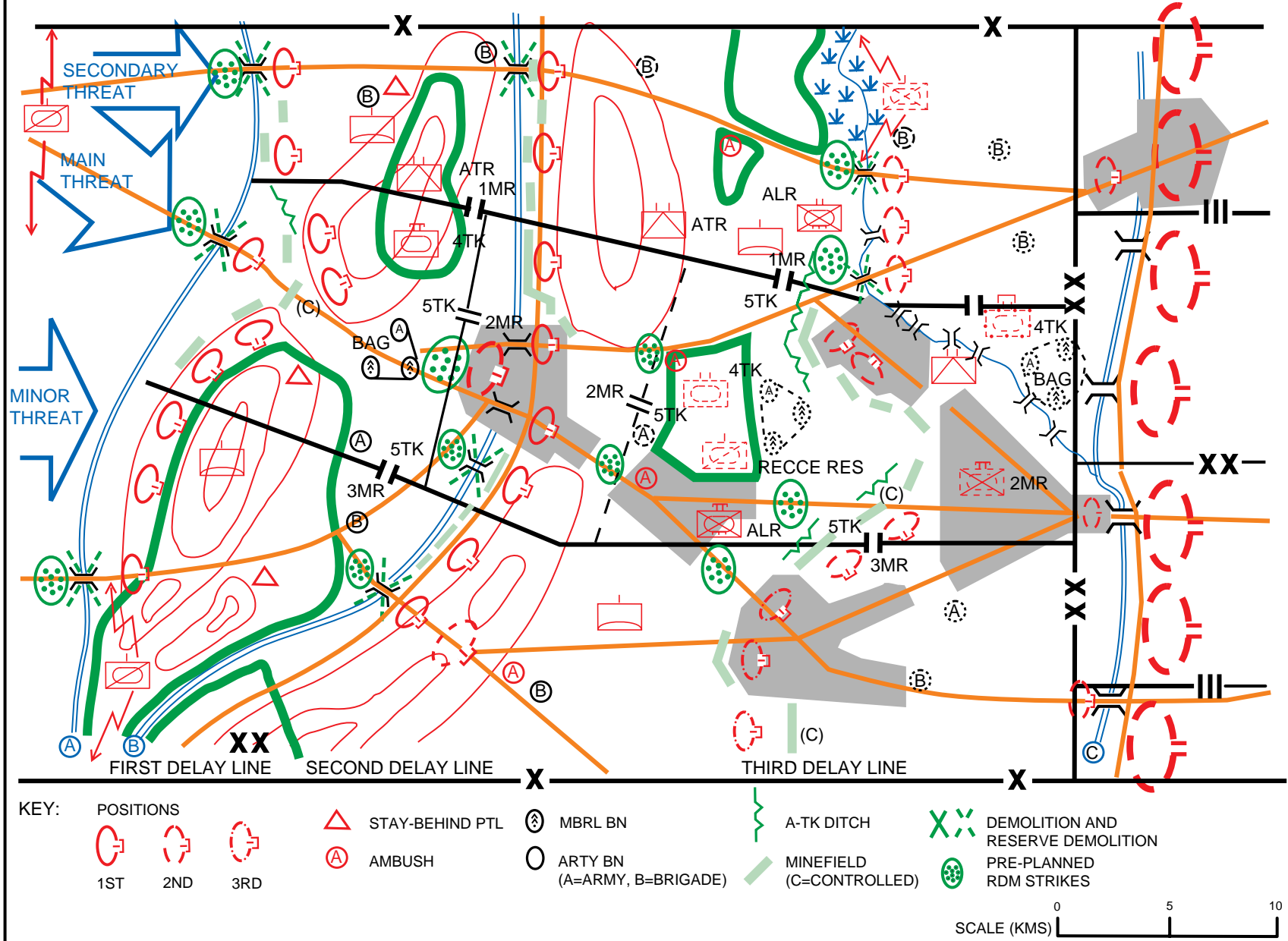
0762. ***Air Defence.*** The lengthy withdrawals practised in manoeuvre defence and the threat of both air attack and air landings to those withdrawals and to prepared but as yet unoccupied depth delay lines usually necessitate the reinforcement of division/brigade air defenders to provide extra depth to the defence.

Conduct of Manoeuvre Defence

0763. ***Ways of Increasing the Stability of the Defence.*** GENFORCE recognizes the increased vulnerability of the defence to both ground and air attack and the possibility of it being destroyed in detail. To cope with these problems, it stresses several factors in the conduct of the defence.

- a. ***Combined Arms.*** The company strongpoints and battalion defended areas that comprise each defended line will inevitably be wider than desirable (Basic Forces' battalion areas being 7-10km wide, sometimes even more) and the gaps between them will sometimes, in extremis, reduce or preclude mutual support. These factors and the ever present danger of envelopment or encirclement or of being driven apart from the main body will make it certain that combat will become even more fragmented than usual. This makes it important that tactical groupings are combined arms, and thus capable of autonomous action, down to low tactical levels. GENFORCE recommends the creation of mobile anti-tank strongpoints (MATS). The composition of these can vary widely, but a typical one could be a tank company, a mechanized/motor rifle company, an anti-tank battery or platoon, a howitzer battery, a flamethrower company, an air defence platoon or section and smoke generating means. On a smaller scale, it could comprise a tank or motor rifle company reinforced with a motor rifle or tank platoon, an anti-tank platoon, a mortar or howitzer battery, a flamethrower platoon or section, an air defence section and smoke-generating means. It should be noted that, while this involves considerable decentralization of artillery, its fire can still be massed in the early stages of the battle, thanks to the flexibility of its C3.
- b. ***Terrain Preparation.*** Shortage of troops will necessitate larger than normal intervals between strongpoints and usually shallower as well as less dense defence. One way of compensating for this is to create more obstacles than usual, both in front of each delay line and between strongpoints. Some minefields will also be laid and demolitions carried out between delay lines to slow the enemy down and make him bunch up to provide artillery and air (especially attack helicopter) targets. (Controlled minefields are considered especially useful in helping withdrawing forces to break clean). MODs will thus be active throughout the depth of the defence and not just in support of ATRs. Considerable preparation of main, alternate and ambush positions is necessary on and between each delay line. There will also be demands for numerous MSDs to open (and after enemy strikes and remote mining, reopen) withdrawal routes (including reserve ones). It is easy to see why

DIAGRAM 7-13: A MR BRIGADE CONDUCTS A COVERING FORCE BATTLE ON THREE DELAY LINES



KEY:

- | | | | | |
|-----------|-------------------|-------------------------------|----------------------------|-------------------------------------|
| POSITIONS | △ STAY-BEHIND PTL | ⊙ MBRL BN | ⚡ A-TK DITCH | ⊗ DEMOLITION AND RESERVE DEMOLITION |
| 1ST | ⊙ AMBUSH | ○ ARTY BN (A=ARMY, B=BRIGADE) | ⚡ MINEFIELD (C=CONTROLLED) | ⊙ PRE-PLANNED RDM STRIKES |
| 2ND | | | | |
| 3RD | | | | |

SCALE (KMS) 0 5 10

GENFORCE considers manoeuvre defence to require twice the normal complement of engineers.

- c. *Delay Positions.* Forward slope defence is still definitely the norm in delaying actions. To force the enemy to deploy early and inflict delay, GENFORCE stresses opening fire at maximum range (starting with RFCs, air strikes, helicopter ambushes, then conventional artillery concentrations and finally ATGM and tanks deployed on forward slopes). As the enemy closes, he should be enticed into a fire pocket, or at least held at a point where maximum fire can be brought to bear by minefields, especially remotely delivered ones just in front of the attack. If the enemy's initial, hasty attack is allowed to penetrate into the defence, breaking clean to withdraw will become problematical to say the least. As soon as he is checked, the enemy will try to find weak spots and flanks that can be turned. These will inevitably exist, but as long as they are denied by obstacles covered by ambushes and artillery fire, enough time can be won for the main body to withdraw or, if the senior commander has not yet given his authorization, to manoeuvre reserves to plug the gap that the enemy seeks to exploit.
- d. *Aggressiveness* is necessary to induce uncertainty in the enemy's mind and therefore slowness in his reactions. Aggressiveness manifests itself in wide use of fire pockets, ambushes (particularly between positions and by helicopters), counter attacks and raids by air assault troops and by-passed elements that cannot withdraw.
- e. *Withdrawals* must be covered by strong artillery and, where possible, air strikes (especially by helicopters), by the use of controlled minefields, remote mining and smoke, by the actions of the anti-tank reserve and, where necessary, by local counter attacks and ambushes.
- f. *Surprise* actions and reactions are considered crucial to inducing a mood of caution in the enemy, thereby reducing his momentum and increasing the likelihood of GENFORCE getting away with risk taking. Deception will be important to compensate for weakness in combat strength, eg through the creation of dummy positions (given animation by placing some troops in them), false minefields, the use of dummy radio nets, the creation of underwater bridges beside demolitions, etc.

0764. **Organising Manoeuvre Defence: An Example.** Perhaps the best way of describing a delaying action is by way of example. Diagram 7-13 and the following six paragraphs illustrate the theme of a separate Motor Rifle Brigade acting as the covering force for an army preparing the MDA behind river line C. The brigade has been reinforced from army by a long-range gun, heavy MBRL and howitzer battalion; a reinforced motor rifle battalion from a separate regiment; three extra MODs, a MSD and a position preparation company; an air defence battery. Had the terrain been more favourable for enemy armour (given the 35km frontage of the brigade) an extra ATR would also have been provided. Army has further assets on call to the brigade. If the enemy looks like achieving a breakthrough or turning movement, the air assault battalion and appropriate

lift are held ready to plug a gap or cover an open flank. The army's attack helicopter regiment is in direct support.

0765. **Tactical Concept.** The principal factors determining the brigade commander's concept will be: the threat appreciation; the time which the brigade has to win to allow the army to complete its operational formation and defensive preparations; the depth of the operation and the terrain (especially the number of natural obstacles which could form the basis of delaying lines); the line on which a transition to positional defence is mandated. The concept described below is set out in sequential fashion, but in manoeuvre defence even more than in positional, phases are bound to overlap and even merge. The enemy will be trying constantly to destabilize the defence, penetrating through gaps and weak spots, endeavouring to execute tactical encirclements to create holes in tactical formation and executing air assaults and landings to trap and annihilate some defending groupings and to seize footholds on depth defence lines. His aim will be to turn the carefully organized, phased withdrawal into a rout in which the defender is destroyed in parallel pursuit and encirclement. The brigade commander's appreciation is as follows:

- a. **Obstacles.** The terrain offers three good delay lines, rivers A and B and the stream and built-up areas to the east of B. These are respectively 12 and 16km apart, so the enemy will have to displace his artillery in order to attack both the second and third delay lines, a desirable feature. (GENFORCE teaches that lines should be at least 10km apart and preferably 12-15). All three will need to be improved, especially the third where there is no natural anti-tank obstacle across two thirds of the delay frontage.
- b. **Approaches.** The forested hill feature to the South with only one route through it does not lend itself to rapid progress by enemy armour. A similar, though less intractable feature inhibits progress on the right flank. The best avenue for a speedy advance lies through the valley in the centre. Once the enemy has forced river B there, he can concentrate against any part of the brigade frontage. The big forest to the South offers a good approach to enemy air-landing forces, and the ridges to the East of river B provide other good approaches from the flanks and Landing Zones (LZ) out of observation to troops defending the river line. Vertical envelopment of the second delay line is likely, and the enemy may also seek to seize one of the built-up areas on the third line before it can be defended by withdrawing forces.
- c. **Conclusion.** The main defensive effort will have to be in the centre and strong ALRs will be required to prevent the enemy from compromising the second and the third delay lines at the outset.

0766. **Tactical Formations and Tasks.** The brigade will deploy in two echelons with strong combined arms, anti-tank and anti-landing reserves.

- a. **Tactical Grouping.** The tank and motor rifle battalions will organize themselves into four mobile anti-tank strongpoints (MATS) to give them the tactical independence necessary to cover often extended frontages and cope with possible separation from the main body in the event of penetration. Each

Each battalion will have a platoon-sized reserve (not shown for clarity).

- b. *The Left Flank* can be covered by 3 MR Bn, reinforced by a howitzer battalion and a screen of a reconnaissance company. The battalion will deploy in a single echelon with a reserve covering its withdrawal route over river B. A MSD will construct an underwater bridge beside the reserve demolition in case the enemy tries to prevent withdrawal by destroying the bridge. The second delay line will also be in one echelon with a reserve on the only route through the defended area. On the third line, the frontage will narrow to 11km, but even so, a single echelon defence will be required to provide an adequate density of fire to both the front and the right flank.
- c. *The Centre*. This being the most likely avenue of attack, both first and second delay lines will be held simultaneously in strength, the first by 5 Tk Bn and the second by 2 MR Bn. Each battalion will of necessity be deployed in a single echelon. 5 Tk Bn will have a howitzer battalion attached, but this will be passed over to 2 MR Bn on 5 Tk Bn's withdrawal to the third delay position. Although this is the most threatened sector, the defending battalion on each line has only one attached artillery battalion because the BAG will give priority to each line in turn. On both its first and third delay positions, 5 Tk Bn will endeavour to draw the enemy into a fire pocket (in the latter case in conjunction with 3 MR Bn).
- d. *The Right Flank*, like the left, is defended throughout by a single battalion. Initially, its area is comparatively narrow and so 1 MR Bn can defend both first and second delay positions simultaneously with two MATS on each. Although the area widens on the third position, the marshy ground and wood on the right mean that half of it can be covered by a single motor rifle company. The battalion has two artillery battalions attached as the threat level is quite high and it will be important always to have at least one in action. An underwater bridge will be constructed alongside the only road bridge in 1 MR Bn's forward area in case the enemy destroys the latter to trap the battalion between the rivers.
- e. *The Combined Arms and Anti-Tank Reserves* are deployed so that they can quickly conduct counter penetration or launch a limited counter attack on either the centre or the right.
- f. *Anti-Landing Reserves*. The enemy is likely to attempt vertical envelopment to assist the forcing of either river A or river B and he might also try to seize a foothold on the third delay line before it can be occupied. Any threat to the first line can be dealt with by the BAG and the combined arms reserve after the ATR. The BAG can also engage any landing behind the second delay line. Two battalions are positioned to counter immediately any landing on the third delay line and one ALR is approximately half an hour's march from any landing behind the second. Of course, the ALRs can also be used for counter penetration should the enemy threaten to break through the second delay line, as can the army air assault battalion.

- g. *The BAG* has the organic MBRL battalion and the attached heavy MBRL and long-range gun battalions. As the enemy approaches the first delay position, ground and artillery reconnaissance will direct its fire onto approaching columns and FUPs. Each successive position of the BAG will enable it to deliver strong fire support against an attack on delaying positions or against attempts to exploit gaps between them. Delayed on obstacles, the enemy will offer good artillery targets. Remote mining is pre-planned to help troops about to withdraw to disengage.
- h. *Air Defence*. The Tor M1 (SA-15) battalion will deploy to cover the most threatened area (including likely landing sites). The brigade's gun/SAM battalion and the reinforcement battery from army will cover the BAG, brigade CP and (with air defence ambushes) likely air assault approaches and gaps in the Tor coverage (not shown for clarity). Battalion level air defence is divided amongst the MATS.
- i. *Reconnaissance*. The long-range company will deploy stay-behind DRPs in front of the first delay line and between the first and second. Two companies will reconnoitre the enemy as he approaches the first line, while one screens the left flank. When the enemy attacks the brigade, one company will form the reconnaissance reserve and the other will form SRPs to cover gaps between strongpoints.
- j. *Aviation Support*. Fixed wing aviation may be made available to attack lucrative targets. Attack helicopters will be deployed to thicken defensive fires, help the disengagement of MATS that are in trouble and to carry out ambushes against enemy columns advancing between delay lines. The latter may be executed in conjunction with platoon-sized ground ambushes. Helicopters may also be used for rapid mining in front of the enemy.

0767. ***Delay on Successive Lines***. Each defended position should be strong enough to repulse an attack from the line of march, with ATRs and MODs plugging any penetrations into or between positions. The enemy will then be forced to mount an attack with detailed preparation. Ideally, the forward groupings will withdraw before such a blow can be delivered, their "break clean" being assisted by powerful air and fire strikes, remote mining, smoke and the actions of ATRs and ambush groups. They will pull back through the positions of the second echelon to occupy the next line behind them. In this way, the two echelons leapfrog backwards. It may happen, of course, that an echelon will have to remain long enough on one line to repulse an attack with detailed preparation, to allow time either for the next one to be properly prepared and occupied or to eliminate a lodgement made on vital ground on the next line by enemy air assault troops and/or forward detachments. It is also possible, even likely, that units and sub-units will not succeed in "breaking clean" and that they will have to fight a running battle. In this case, encircled elements and rear guards may have to be sacrificed. Such an eventuality may create significant gaps in tactical combat formation. These may have to be filled by the deployment of immediate reaction airmobile reserves to either delaying positions or to the next defensive line.

0768. **Withdrawal.** The plan for withdrawal of an echelon will specify: the sequence of withdrawal; the location of any ambushes or intermediate delay lines between defended positions; the composition of any delaying groups or ambushes; the procedure for occupying delay lines and the next position; timings (including the relocation of artillery, helicopters, logistic elements and CPs); the obstacle and route maintenance/opening plan in the zone of withdrawal. The subject of withdrawal is considered in detail in Section 7.
0769. **Counter Attacks** will be much more common in manoeuvre than in positional defence. They will, however, have a fundamentally different purpose. There will be no attempt to retake and then hold ground. Even destruction of the enemy will be a secondary task. For the most part, counter attacks are mounted to check penetrations, to eliminate enemy forces conducting deep battle (especially air assault and forward detachments), to assist forces heavily engaged on a defended line to break contact and withdraw, and to win time for the preparation of depth positions. Because they are not expected to be decisive blows against an enemy who has reached his culminating point, they will be executed with poorer force ratios than are required in positional defence, and their objectives will be correspondingly shallower. It will frequently be the case that quick counter attacks will be launched by reinforced battalions or even companies (with every effort being made, for instance by generous use of smoke, to make them appear larger). They will receive the heaviest possible fire and air support and will be terminated before the enemy has completed his regrouping to destroy them.
0770. **The Final Defence Line.** Ideally, when the line for transitioning to positional defence is reached, the army or corps will redeploy to achieve the sort of “front loaded” defence, with the densities in the first echelon, that positional defence requires. This will rarely be possible, however, unless either fresh troops are available to form at least part of the final line or unless the enemy is not pressing the withdrawal closely. In the example given in Diagram 7-13, army has provided fresh motor rifle divisions to provide a firm hold on the final line on the most threatened direction, at the same time increasing considerably the density of the defence that the army can offer.

SECTION 6 - COUNTER ATTACKS

Types of Counter Attack

0771. **Definition.** A counter attack is an offensive turn in a defensive operation or battle: ie, it is mounted against an enemy who still possesses the initiative. Counter attacks may take three forms:
- a. *With a Decisive Aim.* The only form of a counter attack considered by GENFORCE in the past was one with the decisive aim of destroying an enemy grouping wedged into the defence, thus restoring the stability of the defence.
 - b. *With a Limited Aim.* This is a new concept born out of manoeuvre defence, of which it is an essential component (though it can also be used in positional defence). The purpose of such a counter attack is not the destruction of the

enemy but the reduction of his rate of advance and the consequent winning of time for the execution of a manoeuvre or preparation of a defensive position in depth.

- c. *The Destruction of Air Landings.* GENFORCE stresses the early destruction of air-landings. If this is not achieved, the defence will be disrupted or even unhinged and troops will be tied down in containing the landing force.

Counter Attacks with a Decisive Aim

0772. ***The Place of Decisive Counter Attacks in Defence.*** Such a counter attack is considered the decisive moment of the defensive battle. For this reason, all available resources are committed to it. If it succeeds, it regains the initiative and alters the correlation of forces in favour of the defender, at least temporarily. Ideally it will help to create favourable conditions for the mounting of a counter strike by an operational level grouping. At least, providing it is successful, it will restore stability to the defence and win crucial time. If, on the other hand, it fails, it will worsen dramatically the position of the defender. He will have expended his last reserves to little effect, often leaving them ill-placed to prevent enemy reserves or second echelons from renewing the momentum of the offensive and perhaps expanding its scope. For this reason, GENFORCE will usually only mount a counter attack if it is sure of success. Otherwise, counter penetration is the preferred option. GENFORCE will rarely mount a counter attack with a decisive aim at levels below division/brigade. A second echelon battalion of a regiment will not be able to eliminate a penetration of more than company size, though that same force will be able to halt an enemy brigade if deployed for counter penetration.

0773. ***Preconditions for Initiating Decisive Counter Attacks.*** Such a counter attack is an attempt to wrest the initiative from the enemy and achieve a turning point in the battle. It thus presents many points of difficulty (in contrast to a counter strike which is mounted after that turning point has been passed). It will therefore be made only if its outcome will substantially influence the future course of the battle and if it is all but assured of eliminating the enemy penetration. This implies the achievement of the following conditions:

- a. *Intact Defence.* The attacker must be halted, or at least slowed to a crawl, if a counter attack is to be preferred to counter penetration. His forces and their command and control should be disrupted. He must already have committed his immediate reserves and be unable to generate more combat power before the blow falls (ie, effective interdiction of the battle area must be achieved for the duration of the counter attack).
- b. *Correlation of Forces.* A favourable correlation of forces must be achieved. This means that the operational commander will have to have established local electronic-fire superiority and be able to give considerable fire and air support. The army (or corps) will need to muster a 3-4:1 superiority in artillery in the area of counter attack. If the enemy is surprised and caught off-balance the same superiority in manoeuvre strength will suffice, but if the enemy has already transitioned to hasty defence, 4-5:1 will be required.

Thus a divisional second echelon, consisting of a tank regiment which is joined in the counter attack by an as yet uncommitted second echelon battalion of a first echelon regiment will be deemed capable of eliminating a penetration of only 1-1½ battalions equivalent strength after the fire preparation has taken its toll. If an air-landing by say a battalion could be mounted to attack the enemy from the rear at the same time, the enemy force that is to be eliminated could be as strong as 2-2½ battalions in view of the synergistic effect of hitting the enemy from two directions simultaneously, one of which he is ill-placed to deal with. The favourable force ratio must be maintained for the duration of the battle by using air interdiction, remote mining and, if possible, air assaults to fix or delay enemy deep reserves which might be able to join the battle before it is over.

- c. *Local Air Superiority* is essential to ensure the timely, undisrupted arrival of the counter blow force, the neutralization of enemy fire support and reserves and the unfettered use of close air support and air assaults.
- d. *Surprise* is crucial to catch the enemy before he has transitioned from an offensive to a defensive posture. This need not be a surprise as to intention or direction, though these are plainly desirable, but may merely be surprise as to the scale and timing of the blow. If it is achieved, surprise may compensate for a less than optimum correlation of forces, particularly if the enemy is disorganized and his command or control impaired.

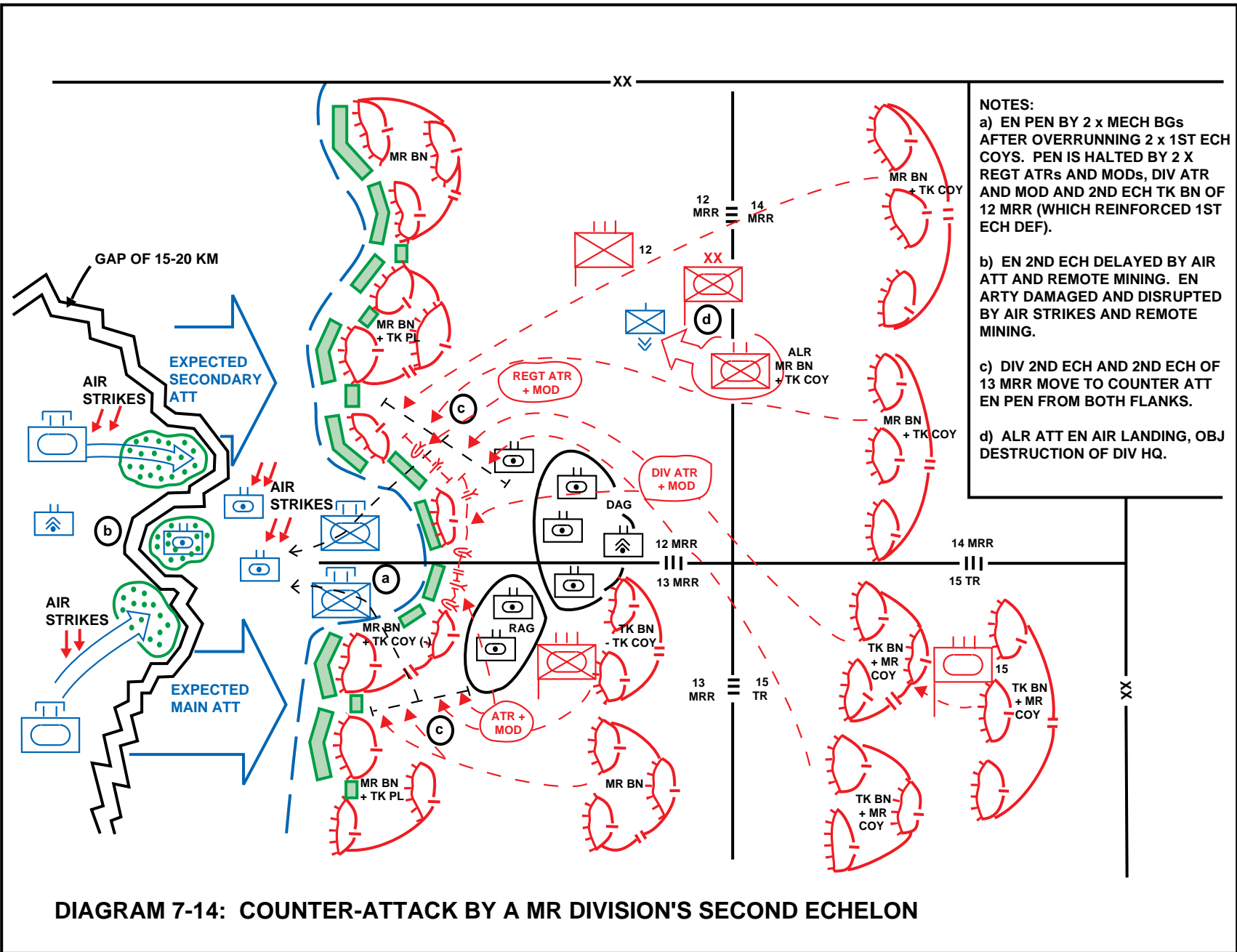
0774. ***The Timing and Axes of a Counter Blow*** are critical, especially the former.

- a. *Timing*. As already mentioned, the blow must be launched before the firmness and sustainability of the defence are compromised. In practice, this equally means, in the case of a division or brigade level counter blow, before the enemy has penetrated beyond the depth of the first echelon company strongpoints and widened his penetration and/or generated even tactical manoeuvre in the less densely defended depth of the MDA. This stricture faces the commander with an exceptionally difficult problem of timing. To illustrate this problem, assume that a second echelon regiment located 20km from the forward edge of the MDA is to counter-attack elements of two enemy battalions that are wedged into the defence. With a line of deployment say 10km from the line of contact, the time required to execute the physical move into contact will be at least 1½ hours by day or 2 by night. To this must be added: the time taken to finalize plans; issue orders; deploy traffic control, air defence, engineer and chemical troops to support the march; deploy and organize fire support and interdiction measures; update coordinating instructions. Some of these measures can be accomplished even as the troops are moving, but even so they must double or more likely treble the time required to launch the attack. That means that the divisional commander must make his decision at least 3-6 hours before the blow can be delivered. This requires very good intelligence and confidence in tactical calculations and foresight of a high order to identify in advance the enemy's culminating point. It also assumes that the commander will be able to bend the enemy to his will and so shape the battlefield that, when the blow falls, it will do so at the right place and time. This is difficult to accomplish when

the enemy enjoys an overall superiority and the initiative. It also puts a premium on much detailed prior planning and preparation and on efficient tactical and staff drills.

- b. *Axes.* The direction of the counter attack is determined by the aim, by the terrain, by the location of the enemy's principal grouping and high value weapons and also by the time taken to achieve a concentration on one axis rather than another. Normally, it is mounted against one or both flanks of the enemy penetration as the most likely way quickly to cut off spearheads from their reinforcements, attack enemy fire support weapons and CPs and split up and destroy his forces piecemeal. However, head on blows to cleave the enemy are not excluded: they may be dictated by the terrain, or the lack of time to move forces to a flank when that would prejudice surprise, or when it is necessary to re-establish the defence on a specific favourable line. Whichever axis is chosen, routes to the line of departure and deployment lines will have been chosen and prepared in advance, and lines to cover them should be firmly held. (Counter attacks are planned for two or three sectors, with one or two deployment lines per sector, about 5km apart.) The necessary superiority over the enemy must be achieved. To this end, the division/brigade second echelon/reserve will be reinforced by forces of the first echelon on the direction of the counter attack and, after regrouping, by other first echelon elements drawn from sectors not under heavy pressure. The counter attack must be preceded by powerful fire strikes, and the bulk of the lower and higher formation level artillery will be committed to this end together with that of the second echelon and as much of the first echelon's as can be brought to bear. This is also seen as the time for the maximum committal of air support, with the especially important task of isolating the penetrating enemy force and delaying the forward move of reserves.

0775. ***The Conduct of a Counter Attack*** by a division's second echelon regiments (in this case, from an old style, heavy division) is illustrated in Diagram 7-14. It will be seen that a force of about two enemy battalions has wedged itself into the defence on one sector, having overrun two defending companies. The committal of the second echelon of a first echelon regiment and the ATRs and MODs of both regiment and division, combined with attack helicopter and artillery fires and remote mining have, however, halted the attack. In anticipation of this, the divisional commander has ordered a flank counter attack by his second echelon. This attack will be supported by another flank blow mounted by the second echelon battalions of a forward regiment not heavily engaged. Fire support will come from the DAG and RAGs, regiments of both first and second echelon, and the AAG and AGRA. Air and MBRL strikes will neutralize the enemy fire support and identified HQs in conjunction with electronic attack. Meanwhile, remote mining and air strikes will impose delay on approaching enemy reserves. Should the commander's calculations about the steadfastness of the defence prove to be wrong, he can always cancel the counter attack and use the designated forces, or elements of them, for counter penetration. In that case, the mounting of a decisive counter strike will have to be done at army level.



0776. **Scope.** As in any attack, the frontage will be dictated primarily by the requirement to achieve the required superiority on the attack sector. The depth of objectives will usually be determined by the need to restore the integrity of the defence, though there will always be the possibility of exploiting success and advancing beyond the forward edge, especially if an operational level counter strike is intended and such exploitation would support it. GENFORCE is aware of the opportunities offered by early success against an enemy defeated while still in an offensive posture: once the dense crust of the enemy grouping is pierced, there will often be little depth and tactical manoeuvre will become correspondingly easier. GENFORCE anticipates achieving a tempo of 10-15km per day overall. Comprehensive reconnaissance will be required, however, to ensure that the counter attack is not lured into a tactical pocket for destruction.

Counter Attacks with a Limited Aim

0777. **The Place of Limited Counter Attack in Defence.** Such counter attacks are not intended as an attempt to wrest the initiative from the enemy and create a turning point in the battle. They are not mounted to retake ground (any that is gained will probably be given up again shortly). They are executed to achieve one or more of the following objectives.

- a. *Gaining Time* is often critical to the defender as he is in a reactive position and the enemy will be trying to ensure that his reactions are belated and inadequate. A limited counter attack can impose a temporary check on the enemy giving a second echelon or reserve (often an airmobile reserve) time to occupy a defensive position in the rear and organise its system of fire. This may be necessary in several circumstances, for instance when remote mining and/or air attack has delayed the move of a counter penetration force or when the enemy has achieved surprise and made rapid progress on an unexpected axis.
- b. *Disrupting an Attack.* Just as a limited counter attack can help restore balance to the defence, it can also be used to disrupt the cohesion of an enemy thrust. A spoiling attack against part of an offensive grouping can be used to turn a powerful blow into successive, ill-coordinated jabs. This will increase the prospects of a defending force repulsing the attack.
- c. *Assisting a Withdrawal.* A defending grouping may be required to fall back to occupy a defence line in depth or a switch line but be unable to break clean. A counter attack may enable it to do so by distracting the attacker and disrupting him.
- d. *Deception.* Wherever possible, a limited counter attack will be mounted in support of a decisive counter blow, either prior to the latter or simultaneously with it. The aim will be to distract the enemy and leave him uncertain, for a time, as to the true direction of the main thrust.

- e. *Causing Casualties.* Although one of the above aims will usually be primary, the infliction of losses on the enemy will be a by-product. These are important per se but they also instil a mood of caution in the enemy, thus reducing the tempo of his advance, and they leave him in continual uncertainty about his possession of the initiative.

0778. **Characteristics of Limited Counter Attacks.** Limited counter attacks will be mounted much more frequently than decisive ones, and at much lower levels: GENFORCE anticipates their execution by battalions and even companies.

- a. *Correlation of Forces.* As the effect on the enemy that is sought is merely local and temporary, limited counter attacks can be launched with much poorer force ratios than would otherwise be the case. Even parity in the immediate area of the action is considered acceptable. However, every effort will be made to make the blow seem stronger than it is. This can be done through the massive use of smoke, not only to conceal the attacking force but also to the flanks and rear to suggest a wider frontage and the approach of reserves. Limited counter attacks will also receive the maximum fire support that can be brought to bear. This is designed to make them appear more serious, to compensate for a poor correlation of forces and to ensure that the grouping employed does not become decisively engaged but can withdraw after achieving the aim.
- b. *Objectives* will be shallow and there will be no consolidation on them after success. Rather, the counter attack force will pull back under cover of an anti-tank screen as soon as the enemy has completed his regrouping to destroy it.
- c. *Surprise* is vital in limited counter attacks. If the enemy has already transitioned to hasty defence and organised his system of fire, the attack will be repulsed with heavy losses and no commensurate gain. It is, of course, much easier to take advantage of fleeting opportunities in launching small-scale jabs as the amount of coordination required is less than with a major effort.

Countering Enemy Air Landings

0779. **The Threat.** GENFORCE anticipates that a division or brigade facing the enemy main effort might be subjected, in 24 hours, to up to 3-4 airmobile attacks, with one in battalion strength. There are also likely to be landings by 8-16 raiding and reconnaissance groups and patrols. These must be effectively countered if the defence is to be maintained.

0780. **The Fly-In.** Ideally, the airmobile force is destroyed or at least written down and disrupted before it can land. This process will usually start at the operational level with air, missile and long-range artillery strikes on mounting areas. During the fly-in, the enemy will be attacked by fighters and attack helicopters (the latter being more effective against low level penetrations). The defending ground forces' formation will also take measures to repulse the air landing force in flight. Smoke screens and controlled, directional anti-helicopter minefields will be

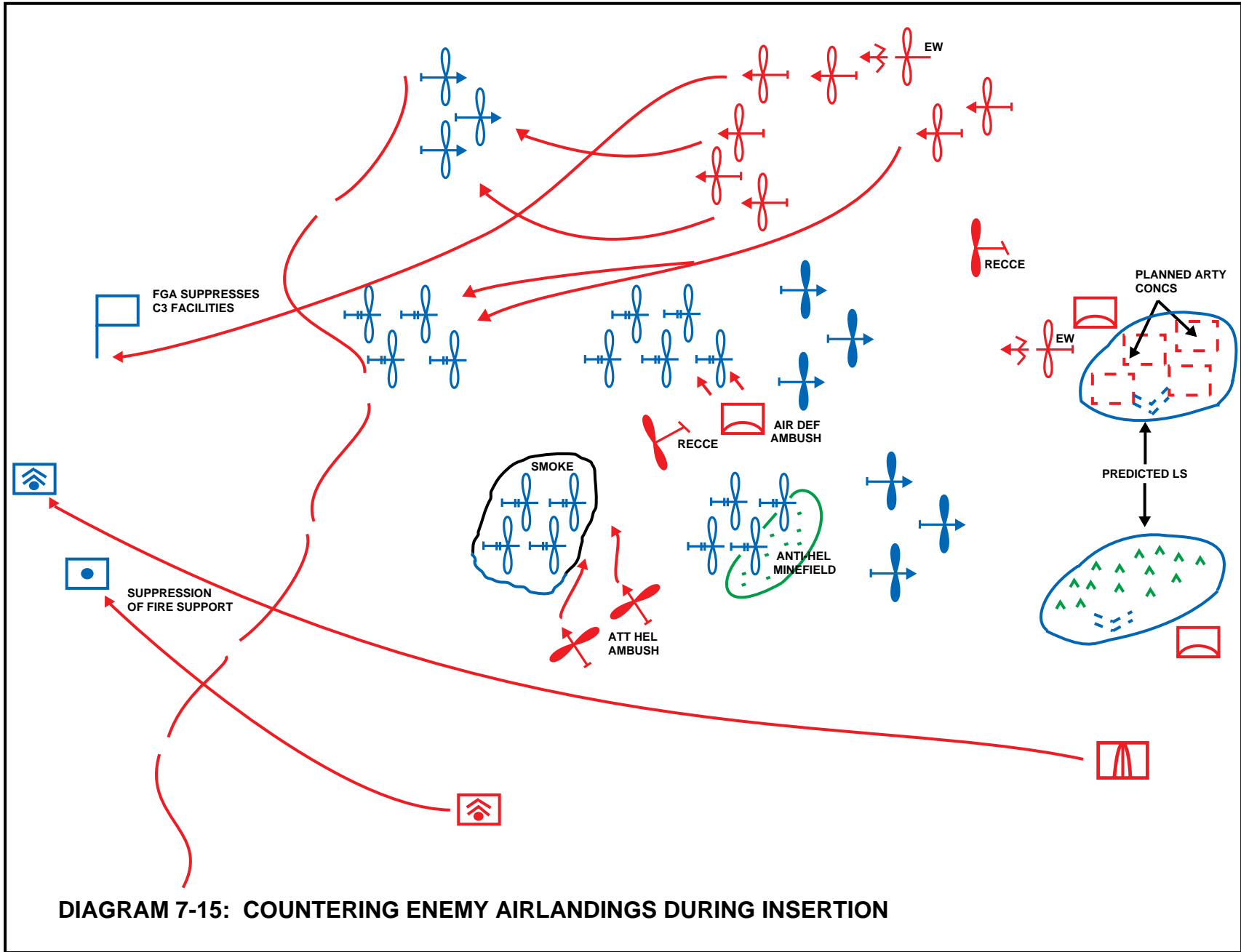
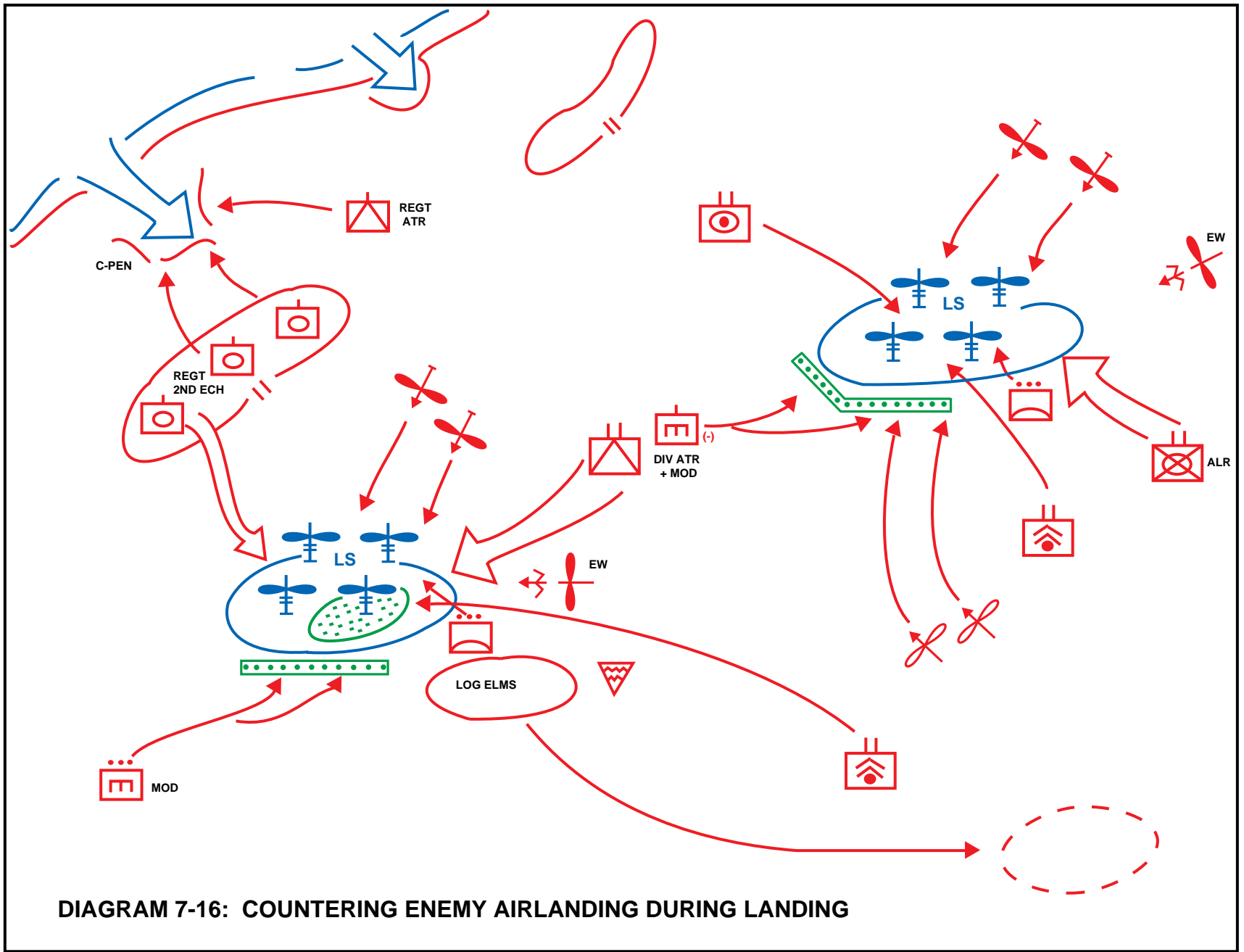


DIAGRAM 7-15: COUNTERING ENEMY AIRLANDINGS DURING INSERTION



prepared on likely flight paths to hamper manoeuvre of and cause casualties and disruption to low flying streams of helicopters. In addition to area air defence cover, air defence ambushes will also be sited to inflict surprise attacks on possible approach routes. Likely landing sites can also be denied by explosive and non-explosive obstacles and concealed air defenders, having been determined in advance by a map appreciation and assessment of patterns of enemy reconnaissance activity and air defence suppression and other deep fire strikes. Diagram 7-15 illustrates engagement of the fly-in.

0781. **The Landing.** Airmobile and air assault forces are seen to be especially vulnerable during their landing: they can generate little fire and suffer from C3 and logistic problems (for a period of up to 40-50 minutes in the case of a battalion attack). Accordingly, immediate counter actions by even small forces during the landing are seen to be more effective than a later blow by a larger force. Thus, for instance, a battalion-sized assault force can be suppressed by 6-8 times less artillery if engaged within 15-20 minutes of landing than would be required once the enemy has consolidated on the ground after three quarters of an hour or so. It takes up to 30-35 minutes for the enemy to land a battalion. If the decision is taken to launch both attack helicopters and the move of an ALR at the start of the enemy's fire preparation (ie, 15-30 minutes earlier), there is a good chance that the enemy landing will be destroyed before it can organise on the ground. Prompt reactions depend, of course, on comprehensive pre-planning and preparation. This will include: obstacle creating and air defence measures; the preparation of artillery fire plans (including remote mining to constrain manoeuvre); ECM directed against enemy C3, air support and reconnaissance; the actions of both ALRs and of sub-units nearest to the landing sites. Diagram 7-16 shows anti-landing actions.
0782. **After the Landing.** The enemy's employment of air landings is interrelated with other actions. He will probably employ them against the weakest part of the defence's alignment. Thus the main effort of anti-landing defence will be concentrated on sectors not included in the battalion defended areas. When the enemy lands within the sector of a first echelon regiment, the divisional ALR and/or ATR and MOD and/or elements of the second echelon will be used to destroy the enemy or at least contain him and prevent the enemy's main forces from linking up. If the ALR is committed to the defence of the first echelon, a new one must be created (probably from the second echelon) in case the enemy executes a further landing.

SECTION 7 - WITHDRAWAL

General

0783. **Growing Acceptance.** Historically, GENFORCE has regarded withdrawal as permissible only as a last resort when faced with defeat. It was always forced and so unpalatable was its prospect that GENFORCE did not train for its conduct. In future war, by contrast, it is considered likely that withdrawal will be as common as the advance. In a dynamic situation characterised by broad manoeuvre and the intermingling of friendly and enemy forces, all directions of movement are equally valid and must be trained for.

0784. **Aims of Withdrawal.** A withdrawal may be executed to remove troops from under the expected strikes of ACM weapons; to occupy a more favourable position or line; to gain time; to lure the enemy into a tactical pocket for destruction; to disengage forces so that they can enjoy freedom of action to execute another manoeuvre (eg deliver a surprise blow against the enemy from another direction).
0785. **Types of Withdrawal.** The conduct of a withdrawal will vary according to the circumstances in which it is embarked on. These are as follows:
- a. **Reasons.** A withdrawal may be either intentional or forced. In the former case, it can be carefully prepared beforehand. In the latter preparations may be perfunctory owing to shortage of time.
 - b. **Actions of the Enemy.** Withdrawal can take place from a position in or out of direct contact with the enemy. If performed out of contact, it is merely an administrative problem. If forces are in contact, it may be executed without enemy interference (though it would be folly to count on this), under fire or under pressure from ground attack (including air assault).
0786. **Phases.** Whether premeditated or forced, withdrawal takes place in three phases. This paragraph will concentrate on the level of battalion.
- a. **Logistics Elements** are pulled back before any of the troops in contact. They will be preceded by march security elements in case the enemy executes an air landing in the depth. These will be provided from the second echelon.
 - b. **Removal from Contact.** This phase, which ends when the main body is able to transition into tactical march formation, is the most difficult. Disengagement will take one of two forms.
 - (1) *If the Enemy is Passive*, covering units or sub-units (eg, from a battalion, usually one company from the first echelon or a platoon from each first echelon company) will remain in the position and maintain the pattern of combat activity which preceded the withdrawal. The main body moves covertly into concealment from observation, embusses infantry into their BMPs and moves into company assembly areas not nearer than 2-8km from the line of contact. The companies then pull back to a battalion assembly area usually 10-15km from the line of contact. (As removal from a battle is the mirror image of attack, distances for forming pre-battle and tactical march columns are analogous to distances for deployment in the attack.) Usually the second echelon moves to the battalion assembly area first. Covering elements move last, displacing when the main body is ready to retire in tactical march column. They may rejoin their parent units/sub-units or be used to reinforce a rearguard or other security elements.
 - (2) *If the Enemy is Attacking* he must be checked by fire and/or a limited counter attack before the withdrawal can start. Covertiness will be impossible to achieve, so compensation is sought in the suddenness of its commencement and the rapidity of its execution by the entire force

simultaneously, less covering elements which will, of course, have to be stronger than when the enemy is passive. Such a forced withdrawal is covered by EW, much smoke, artillery fire and remote mining and perhaps air strikes.

c. *The Move to the new Defended/Concentration Area* will likewise vary in conduct according to the actions of the enemy.

(1) *If the Enemy Remains Passive*, the main body moves without halting on intermediate lines until it reaches its assigned area. In essence, this takes the form of a protected march from the front, with normal march principles applying, but with dispositions opposite to that applied during the advance (eg, the rear services march at the head of the column). A forward detachment may be sent on ahead to secure a feature on which an enemy air landing could disrupt the march. A brigade or division will form a rearguard on each route employed. Units will only form a rearguard if it is not covered by one organised by the senior commander: otherwise a RSP will suffice. The structure of the rearguard is analogous to that of advanced guards. The level of flank security assigned will depend on the threat level.

(2) *If the Enemy Conducts a Pursuit*, the conduct of a withdrawal will follow the pattern of manoeuvre defence as described in Section 5. Depending on the concept of the senior commander, it will be practised by the whole of a formation or unit or merely by the rearguard while the main forces hasten to the new location. Rearguards can only withdraw from a delay position when given permission by the senior commander.

0787. **Organizing a Withdrawal** is seen to be a difficult task for commanders and units. In addition to the usual issues, the commander must address the following questions: What is the final line of withdrawal and by what time must it be occupied? What must be the composition of covering and march security elements? What should be the order of withdrawal from contact? Where should assembly areas be sited and what axes be used for withdrawing? What delay lines can be used to check pursuit? How can wounded men and damaged equipment be evacuated? What engineer reconnaissance, route preparation and obstacle creation will be necessary? What cover and concealment, natural and artificial, can be used to help the withdrawal and how can the enemy be deceived?

SECTION 8 - REACTION TO ENCIRCLEMENT

0788. **General.** Historically, the most decisive engagements, inflicting the heaviest casualties, were generally encirclements. These are seen to be even more likely in modern warfare, given both the increased level of mobility of forces and the availability of airborne and airmobile troops to seal the trap. There are several circumstances in which formations may become encircled: as the result of a surprise attack at the outset of a war; when the support for the flanks of offensive or counter-offensive groupings is inadequate; when forces are defending important areas which cannot be given up; when forces are deliberately left in

the enemy rear to defend a city which will interfere with enemy communications and split the attacker's forces; when forces are pressed back onto an obstacle. GENFORCE has devoted some attention to the correct reactions to encirclement, both to reap benefits and minimise consequences.

0789. ***Costs and Benefits of Encirclement.*** All but inevitably, the enemy sees encirclement as but a prelude to the destruction of the trapped grouping, and success in accomplishing its elimination will usually create a significant gap in the defender's order of battle, further undermining his ability to resist. However, an encircled force can, in certain circumstances, contribute materially to the stability of the defence. It can tie down large enemy forces (usually, at least double the number of defending troops), often for considerable periods. This diversion of resources may decisively weaken the attacker's ability to build up combat power on the main axis. Moreover, a force located in a favourable position in the enemy depth may hamper his manoeuvre and logistic support. Indeed, aggressive action by the encircled forces, perhaps reinforced by or working in conjunction with air-delivered forces, can create a battle front in the enemy rear, severely disrupting his command and control and rear services. Both for these reasons, and because an unsupported breakout attempt will almost certainly result in the destruction of the encircled grouping, GENFORCE will usually order such a grouping to stand its ground and fight from within encirclement. An exception is during manoeuvre defence, when the right to order an immediate breakout in the event of communications with higher headquarters being broken may be given beforehand to formation and unit commanders.
0790. ***Successful Action and Survival of Encircled Groupings.*** There are three pre-conditions for surrounded forces to have an impact on the enemy's operations and still survive to break out or be relieved. Firm command and control and adequate logistic stocks or support are crucial, and decisive steps must be taken to ensure that the gap which is opened between the pocket and the main body is not so wide as to preclude tactical/operational coordination with, and support from, the main forces.
0791. ***Problems of Organisation Within Encirclement.*** Perhaps the biggest problem facing a grouping in the process of being enveloped is lack of time to organise to cope with the event. The situation is likely to change rapidly, radically and unpredictably. To cope successfully, speedy reactions are necessary to maintain combat effectiveness. These include: immediate measures to centralise the command and control of all elements within the trapped grouping; an immediate assessment of the combat and logistic capabilities of the grouping, quite possibly with measures to strengthen them before the enemy can organise a tight blockade; redeploying in order to establish a reliable perimeter force and a strong mobile reserve to prevent the enemy from cleaving the grouping into fragments which can be destroyed in detail; the maintenance of stable communications; the creation of a strong air defence umbrella. In addition, the main forces, with some help from the pocket, must prevent the enemy from tightly sealing off the encirclement and then increasing the interval between the two. Air power must be able to make up for deficiencies in the combat support of the pocket, and to ensure its logistic support.

0792. **The Breakout.** It is considered unlikely that an encircled force will be able to break out without the aid of the main forces: indeed, the latter will usually play the major role in the exercise and thus dictate the plan. Usually, the axes of the pocketed and relieving forces will be convergent, on the shortest route separating them (though the surprise consequent upon the choice of other axes may be held to outweigh the obvious advantages of this). The breakout may be on a single axis. This has the advantages of retaining organizational integrity and concentration of combat power, but it may take a long time to organize and it enables the enemy to strip passive sectors and use the forces so released to block the escape corridor or close it before the main body has passed through. It may, therefore, be desirable to attack on more than one axis. This has the advantages of reducing the time required for organization, the complication of the enemy's use of reserves and the reduction of pass times in vulnerable corridors. In either event, feint attacks, from both within and without the encirclement, will be necessary to confuse the enemy and delay and weaken his reactions. The immediate mission of the breakout grouping will be to penetrate the inner front of the enemy's encirclement, and the subsequent either to continue the advance against the rear of those enemy fighting the main forces, or to seize and consolidate on an important line (perhaps with the aid of air delivered troops) until link-up is achieved. The enemy will try, not merely to halt the breakout, but to rout it. The operational formation of the encircled forces must be organised with this in mind. Screening forces are needed to cover both flanks and the rear, and these need to be supplemented with strong combined arms and anti-tank reserves and MODs. Extensive use should be made of both forward detachments to lead the breakout (and probably on false axes as well, for deception) and of raiding detachments to destroy enemy high precision weapons and disrupt command and control.
0793. **Exfiltration.** In a desperate situation, it may be necessary to order the encircled grouping to divide into detachments which will attempt to exfiltrate through the encircling forces. Such groups will lack the combat power to survive if intercepted, and they will usually be forced to abandon much or all of their heavy equipment in order to escape through difficult terrain. The encircled formation will effectively cease to exist, though the elements that get out may have limited value in conducting raiding actions in the enemy rear.

FIELD-MOBILE MACHINE GUN-ARTILLERY DIVISIONS

Characteristics and Roles of the Machine Gun-Artillery Division

1. **Characteristics.** Field-mobile machine gun-artillery divisions are strong in machine guns, anti-tank firepower, artillery (though about half is towed) and engineer resources for obstacle creation and position preparation (including the installation of prefabricated fortifications and the construction of reinforced concrete defences). They are weak in rifle strength, modern tanks and other armoured vehicles. They are thus designed for the conduct of positional defence, though they have enough organic transport to move unaided to their deployment area.
2. **Roles.** The division can perform the following tasks within the operational formation of a combined arms army.
 - a. *On the Main Axis* of an army defence, the division may form a dense, deeply echeloned defended zone. Being exceptionally difficult to penetrate, such a zone may often serve to canalize the attacker into an area selected for his destruction by fire and counter-blows. It will provide a secure line of departure and/or a pivot for the manoeuvre of other formations.
 - b. *On a Secondary Axis* of an army defence, the division may act as an economy of force formation. Given time to prepare and its considerable firepower, it can hold an extensive frontage.
 - c. *In the Depth of the Defence*, the division may hold the flank of an expected penetration, preventing the attacker from widening his zone of advance, canalising him into an area chosen for his destruction and providing a secure line of departure for counter-blow formation.
 - d. *Acting in the Second Echelon or Reserve* of an army, the division may be deployed for counter-penetration once the enemy's main axis is revealed. During an offensive operation, it may be used to consolidate captured ground, releasing manoeuvre formations for refurbishment or to go into reserve or for further offensive action.
 - e. *Key Terrain* such as defiles, river lines, bridgeheads or communications hubs may be held by the division, either operating as a complete formation or forming a series of separate regimental and/or battalion areas. In the latter case, some of the manoeuvre elements may be used to form a combined arms and/or anti-landing reserve, often directly subordinated to army.

Deployment of Machine Gun-Artillery Divisions

3. **Tactical Formation.** Echeloning will depend on the employment of a formation, unit or sub-unit, the frontage and the terrain.

- a. *On the Main Axis*, a division may either deploy its machine gun-artillery regiments in a single echelon, with each regiment deeply echeloned or, more commonly, it will have two such regiments in the first echelon and one in the second. The divisional artillery may all concentrate in the DAG when the enemy's main axis is clear, or it may decentralize significant elements, at least initially, to RAGs. The anti-tank battalion forms the divisional ATR. The tank regiment may be employed as a covering force if no other formation is providing one. Once the battle for the MDA starts, it acts as a combined arms reserve, often doubling as an ALR unless the mechanized battalion of a second echelon machine gun-artillery regiment can be temporarily detached for this purpose or the reconnaissance battalion is used. The engineer battalion conducts position preparation and obstacle creation and provides 1-2 MODs. The air defence regiment covers the whole divisional zone but pays particular attention to protecting the manoeuvre of mobile elements in the conduct of counter-moves. Diagram 7-17a illustrates one variation of defence on a main axis.
 - b. *On a Subsidiary Axis*, where the frontage is almost always much greater, a division will usually deploy its machine gun-artillery regiments in a single echelon, with regiments deploying a second echelon only on the most threatened direction. Other elements are deployed in the same way as in defence of a main axis. Diagram 7-17b illustrates a typical deployment on a secondary axis.
 - c. *Acting in Isolation from the Main Forces*, for example in defence of a communications hub or a bridgehead, a division will go into all-round defence or, where its rear is protected by the terrain, a hemispherical defence (as illustrated in Diagram 7-17c). Usually, to give maximum depth to the zone of defence, deployment will be in a single echelon of machine gun-artillery regiments, but with regiments deploying in two echelons on the most threatened direction.
4. **Spatial Scope of Defence.** The area defended by a division will vary according to its role. Table 7-7 sets out broad yardsticks.

TABLE 7-7: FRONTAGES AND DEPTH OF MACHINE GUN-ARTILLERY FORMATIONS AND UNITS (km)

Spatial Scope	On the Main Axis			On a Secondary Axis/Switch Line		
	Division	Regiment	Battalion	Division	Regiment	Battalion
Frontage	50-60	20-30	8-10	90-120	30-40	10-12
Depth	30-50	15-20	4-6	20-30	10-15	4-5

5. **“Filler” Troops.** Often, especially when a division or regiment is allocated a wide zone or sector, provision will be made for the use of “filler” units or sub-units to increase the density of the defence on critical axes. These can be either the mechanized battalions of machine gun-artillery regiments or reinforcing motor rifle or tank troops. Within each machine gun battalion area, primary and alternative positions are created, usually for 1-2 companies but possibly up to a “filler” battalion. When the direction of the enemy's main attack is determined, “filler” troops are moved in to give

added firepower to the front, to increase the depth of the defence, to create ambushes, to cover gaps between strongpoints and to create armoured groups for counter-penetration or local counter-attacks.

6. **Conduct of the Defence.** The defence is based on the resolute positional defence of strongpoints and defended areas (even when by-passed or encircled) and on the employment of mobile elements to create counter-concentrations against the enemy's main effort, or to conduct counter-attacks.
 - a. *Machine Gun-Artillery Regiments* defend within sector, as described in paragraphs 7-8. Genforce believes that, given adequate preparation time, even an extended sector can be held for several hours until help arrives.
 - b. *Divisional Artillery.* Where the enemy's main axis is clear, a single, powerful DAG is formed on it. Otherwise, where the frontage is wide and the enemy's intentions are unclear, elements will be passed down to RAGs. Once the direction of the main attack is clear, some redeployment and recentralization is likely.
 - c. *The Tank Regiment* will often be used to create a covering force in a security zone if there are no other forces in front of the division. Thereafter, it is employed as a combined arms reserve for counter-penetration or for counter-attacks against minor penetrations of up to battalion in size. Counter-attacks will, of course, be supported by all artillery within range and be reinforced by the mobile elements of the regiment in whose sector the blow is delivered. The tank regiment may also double as an ALR.
 - d. *The Anti-Tank Battalion* provides a strong ATR for counter penetration, probably in the depth of a regimental sector.
 - e. *The Reconnaissance Battalion* may provide a reconnaissance screen on a subsidiary axis where a covering force is not deployed. During the main defensive battle, the battalion may cover gaps between defended areas (often using ambush tactics), act as an ALR and provide reconnaissance for counter-attacks.
 - f. *The Air-Defence Regiment's* main task is to ensure the timely deployment of mobile forces in the face of an active air enemy. As far as possible, it also covers sub-units involved in positional defence on the main axis.
 - g. *The Engineer Battalion*, often assisted by army or SG engineers, reinforces the efforts of machine gun-artillery regimental engineers to create obstacles and defensive positions (primary, alternate and dummy) and to camouflage them. First priority goes to front and flank positions for all-round defence. Then depth and switch positions are prepared in forward sectors (including counter-penetration deployment lines and routes to them). When that work is completed, the emphasis moves to rear sector defence and switch lines, including some facing to the rear, positions for "filler" troops and to the support for manoeuvre of mobile troops laterally and from the depth (eg through route opening and camouflage, emplacement of under-water and/or reserve bridges, etc). Genforce believes that it will take at least 1.5-2 days to complete adequate engineer preparation of the battlefield. The battalion also provides 1-2 MODs to act with the

ATR and, if necessary, reinforce machine gun-artillery units or the tank regiment.

Deployment of Machine Gun-Artillery Regiments

7. **Employment.** A regiment may be employed in the first or second echelon of a divisional defence, the latter role being common only when the division is holding a relatively narrow zone (50-60 km). Alternatively, the regiment may be detached to perform an independent mission directly under army command, for instance to hold a water crossing or defile or to protect a major installation.
8. **Deployment and Conduct of the Defence.** In a single echelon formation with mobile reserves, a regiment can defend a sector up to 40 km wide. On a likely enemy main axis, a regiment will deploy in two echelons with reserves, holding a sector up to 30 km in width.
 - a. *Machine Gun Battalions* form the basis of the defence. Defended areas vary from 8 to 12 km frontage and 4-6 km in depth. They comprise a series of mutually supporting company and platoon strongpoints, the intervals between them being covered by obstacles and fire and counter-penetration lines.
 - b. *The Mechanized Battalion* performs a variety of roles suited to a sub-unit with armoured mobility. Prior to the development of the enemy attack, it provides forward positions and/or combat security outposts that machine gun battalions cannot provide for themselves. These both prevent a surprise attack and deceive the enemy as to the true forward edge. Thereafter, the battalion may either provide "filler" troops for the machine gun battalions or act as a combined arms reserve. In the latter case, the battalion may form a depth defence line, be used for counter-penetration or conduct local counter-attacks to destroy penetrations in up to company strength. In the event of a counter-attack by the divisional combined arms reserve into the regiment's sector, it will reinforce the blow. Usually, the mechanized battalion also forms the regimental ALR.
 - c. *The Anti-Tank Battalion* forms one, sometimes two ATRs. These are used to reinforce the first echelon to conduct counter-penetration when an armoured threat develops or to create a flank screen if the enemy penetrates an adjacent unit.
 - d. *Artillery.* The regimental organic artillery comprises two towed medium battalions and one SP battalion. If the regiment is beyond supporting range of the DAG, it may be reinforced by an additional SP and/or MBRL battalion.
 - (1) *The Two Towed D-20 Battalions* are dug in in dispersed combat formation. Ideally, both cover the entire regimental sector. Where a very wide sector precludes this, deployment is organized so as to cover all approaches with maximum concentration on the most dangerous. With their ability to fire LGPs and RDM munitions, the D-20s considerably augment the unit's anti-tank capabilities as well as providing the means for breaking up dismounted attacks. Genforce recognizes, however, that even well-emplaced unarmoured weapons are vulnerable to counter-bombardment. This prob-

lem is solved only to a degree by the provision of alternative fire positions for it takes a battery 10 minutes to evacuate a position and another 12 to occupy a new one (rather more by night). Towed artillery is also vulnerable to ground attack and, when moving, to enemy air. The former threat is dealt with where possible by siting batteries within the depth of machine gun battalions or at least behind switch lines which can be manned by reserves or redeployed elements. Some batteries with their main positions sited within depth machine gun battalions will initially fire from temporary positions 6-8 km from the forward edge to support the first echelon battle. The air threat inclines Genforce towards avoiding redeployment (as opposed to switching to alternative positions within a battery area) for as long as possible.

- (2) *The 2S-1 Battalion* is deployed on the main axis but can use its armoured mobility to redeploy if the threat develops elsewhere. In view of its lesser vulnerability, it alone (or together with attached SPs) is used to engage enemy reconnaissance and to support combat security forces, allowing the D-20s to hold their fire for a major attack.
- e. *The Casemate Company*. The Gorchak turret (see Diagram 7-18b) possesses formidable fire power (an ATGM, a grenade launcher and heavy and medium machine guns). Being small, armoured and retractable, it is survivable. Gorchaks are emplaced both near the forward edge and in depth within battalion areas to strengthen the defence, especially on the most threatened axis. Less commonly, they may also be used to cover gaps between units or sub-units.
- f. *Tank Firing Point Companies* are employed as mobile pill boxes rather than for attack, their armour protection being inferior to that of modern tanks. Types of fire position are illustrated in Diagram 7-18c: with their self-entrenching devices, tanks are able to do much of their position preparation without help. One to two platoons or a company may reinforce a machine gun battalion on tank threatened directions.
- g. *The Engineer Company* is strong in position and obstacle creation assets and can rapidly create trenches, gun pits, CP bunkers, minefields, anti-tank ditches etc. Once fighting positions are completed, alternative and dummy ones are created. The company also improves routes within the regimental sector and provides 1-2 MODs.
- h. *The Air Defence Battalion's* primary role is to cover the HQ and the deployment of mobile assets. It may also reinforce sub-units on the enemy's main axis and provide air defence ambushes.

Deployment of Machine Gun Battalions

9. **Employment.** Machine gun battalions are almost always employed in the first or second echelons of a regimental defence. Even although they are motorized, they are rarely held in reserve: being mainly equipped with soft skinned transport, they would be vulnerable when deploying and their survivability depends on well-prepared defensive works. It is possible, however, that a battalion could be held back to

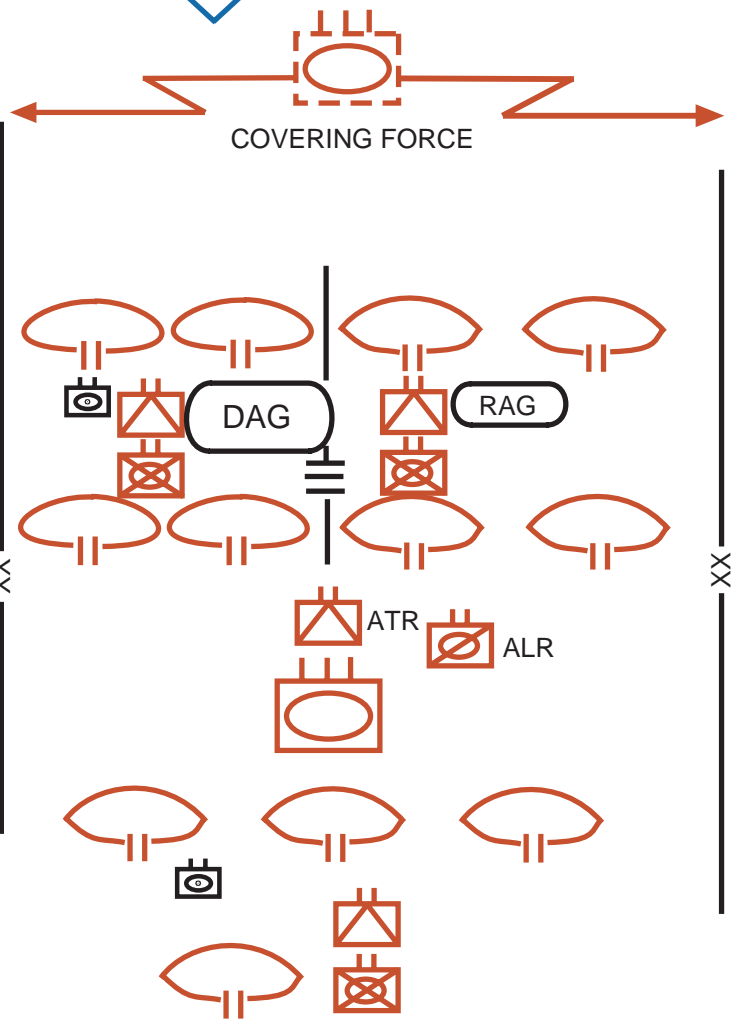
occupy one of a number of pre-prepared areas within the second echelon, the one selected depending on the direction of the enemy attack. Sometimes, a battalion may be detached to defend a piece of vital ground or a key, fixed installation.

10. **Deployment.** As with motor rifle battalions, the basis of defence is a series of mutually supporting company and platoon strongpoints organized for all round defence. If by-passed or encircled, the battalion is expected to continue to defend its area. The battalion defended area will vary between 8 and 12 km in frontage and 4-6 km in depth. Diagram 7-19 illustrates a machine gun battalion, reinforced by three Gorchak turrets and two tank firing point platoons deployed on a secondary sector.
 - a. *Machine Gun Companies.* The basic building block is the machine gun section comprising the commander, a PKM and a RPG team, each of two and a sniper with a SVD. These are organized in depth with interlocking fields of fire to create all-round defence in depth. Sections should have alternative as well as primary positions. They are prepared to act as stay-behind roving ambushes if the enemy overruns much of their parent strongpoint: Genforce experience shows that mopping these up is difficult and time consuming. The anti-tank platoon's ATGMs reinforce sections on tank-threatened directions. The heavy machine gun platoon's weapons are sometimes deployed in individual positions, sometimes in sections of 2-4 depending on the ground and the dimensions of the position: often a section from one or two companies is held in battalion reserve.
 - b. *The Mortar Battery.* Ideally, the two platoons will deploy in such a way that both can concentrate their fire on any threatened point. When the battalion frontage is wide, however, it will often be necessary, at least initially, to split the battery. Roving weapons are used in the phase when enemy reconnaissance is combatted in order to conceal primary fire positions.
 - c. *The Anti-Tank Company.* Usually, two platoons are emplaced within company strongpoints to cover-tank threatened axes. The other two platoons are held back initially, then deployed as 1-2 ATR to one of several pre-prepared lines when the enemy main armoured axis becomes clear.
 - d. *The Grenade Launcher Platoon* may be placed in its battle position from the start. Alternatively, especially if the battalion covers a wide frontage, it may be deployed to pre-prepared positions as the threat develops.
 - e. *The Air Defence Platoon* normally has a section with each company CP and another with the battalion CP or the ATR.
 - f. *Reinforcements.* A machine gun battalion will usually be reinforced by 2-6 Gorchak, between a platoon and a company of tanks and possibly an air defence section from regiment. Once the battalion positions are dug, work is done to prepare firing lines for the regimental ATR and, where they might be available, defences for occupation by "filler" troops.

DIAGRAM 7-17: TACTICAL FORMATION OF MACHINE GUN - ARTILLERY DIVISION (VARIANTS)

a. ON THE MAIN AXIS

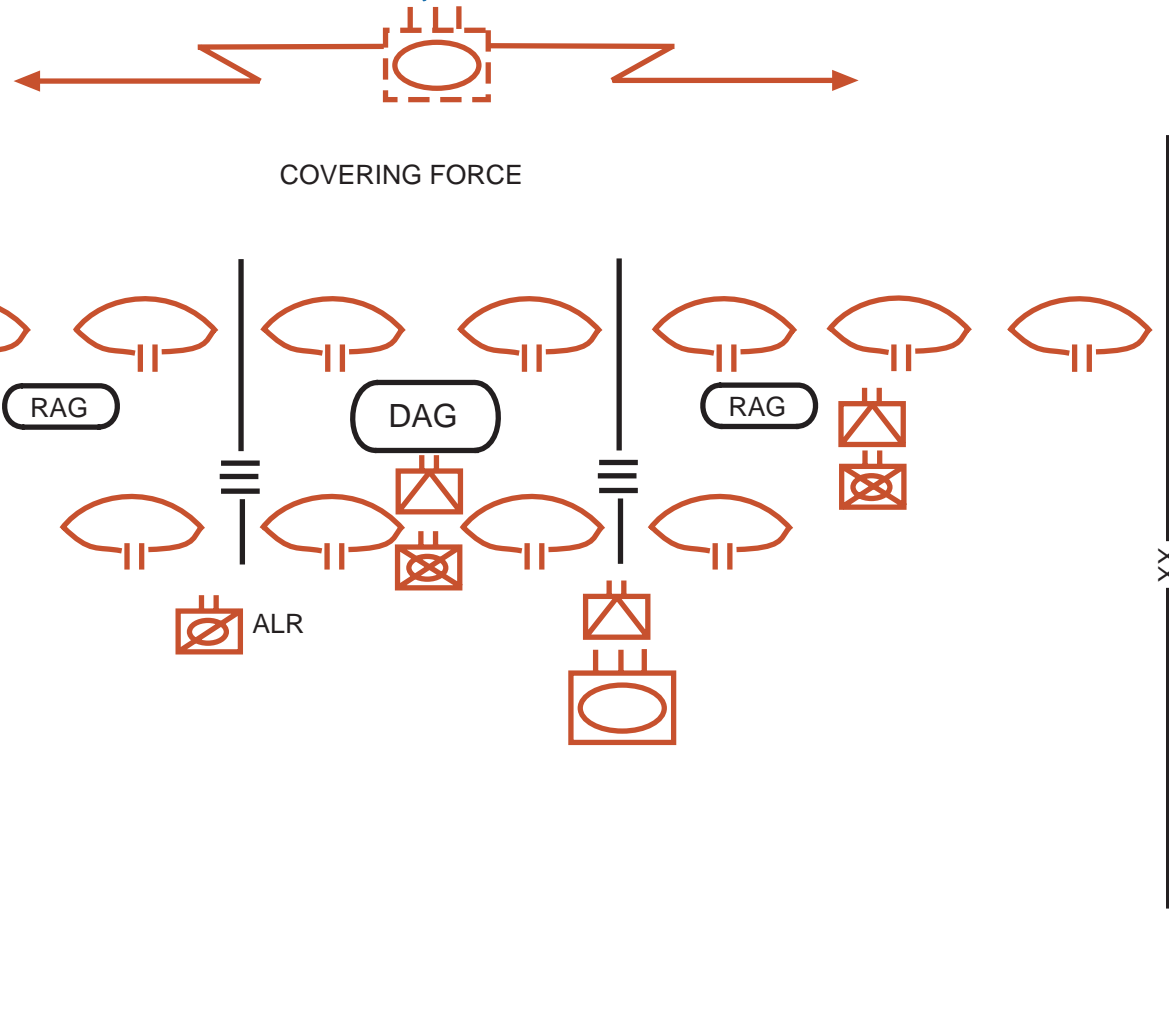
MAIN THREAT



50 KM

b. ON A SUBSIDIARY AXIS

MAIN THREAT



100 KM

NOTES:
 a. REGIMENTAL D-20 BATTALIONS OMITTED FOR CLARITY.
 b. A MR REGIMENT MIGHT BE AVAILABLE TO PROVIDE "FILLER" TROOPS.

c. IN HEMISPHERICAL DEFENCE OF A RIVER CROSSING

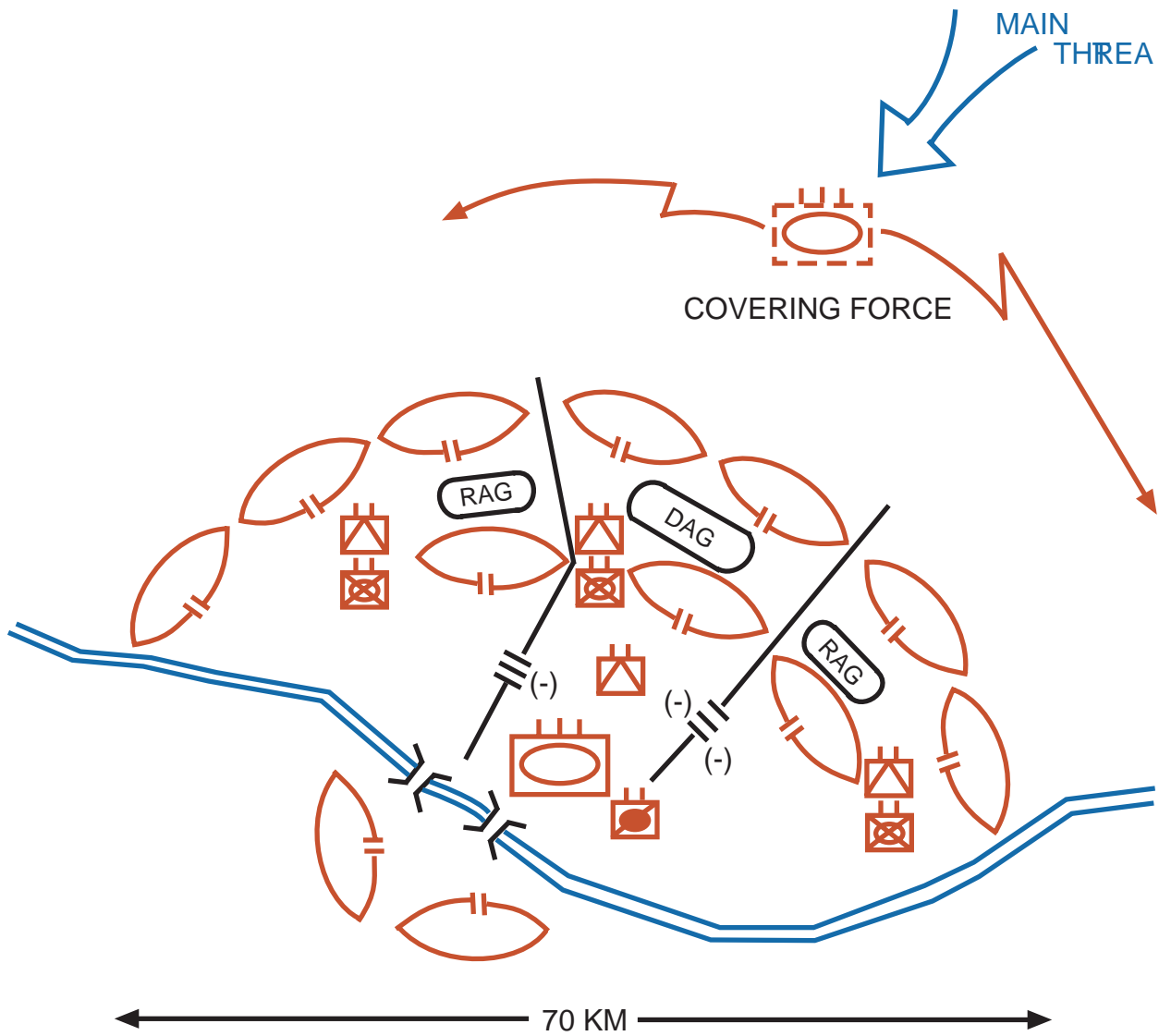
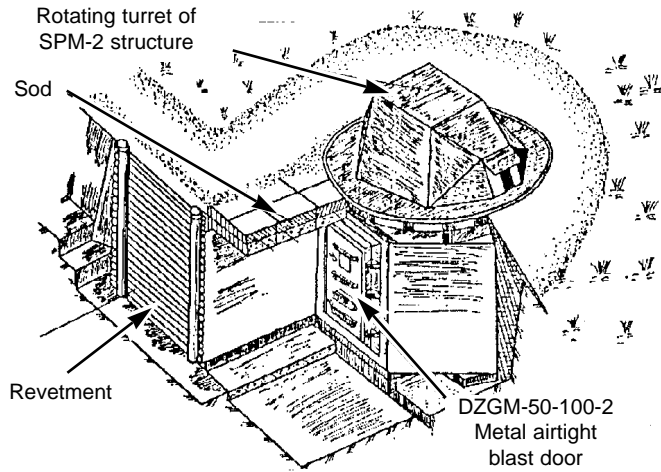
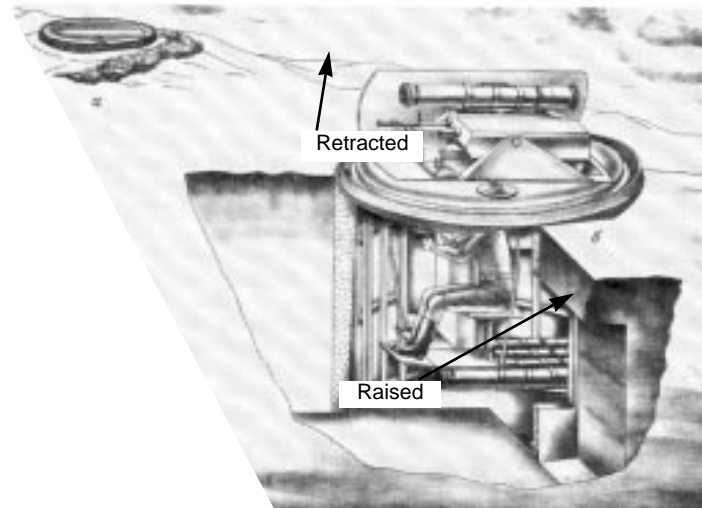


Diagram 7-18 : Prefabricated and Engineer Created Defence Works

a. SPM-2 metal machinegun structure with standardised precast concrete construction

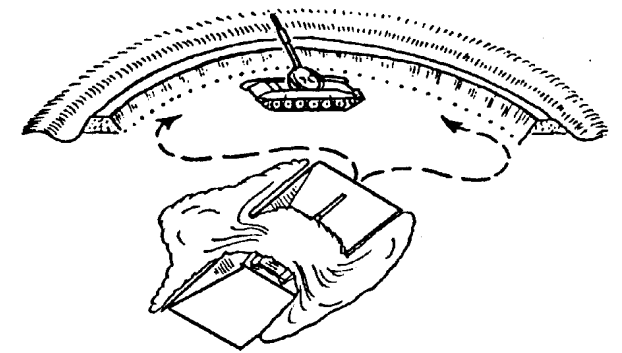


b. Gorchek rotating, retractable turret with ATGM, grenade launcher and heavy machine gun.



c. Tank hide and firing point

1) Type 1



2) Type 2

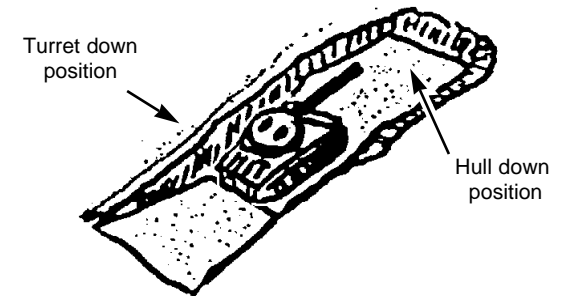
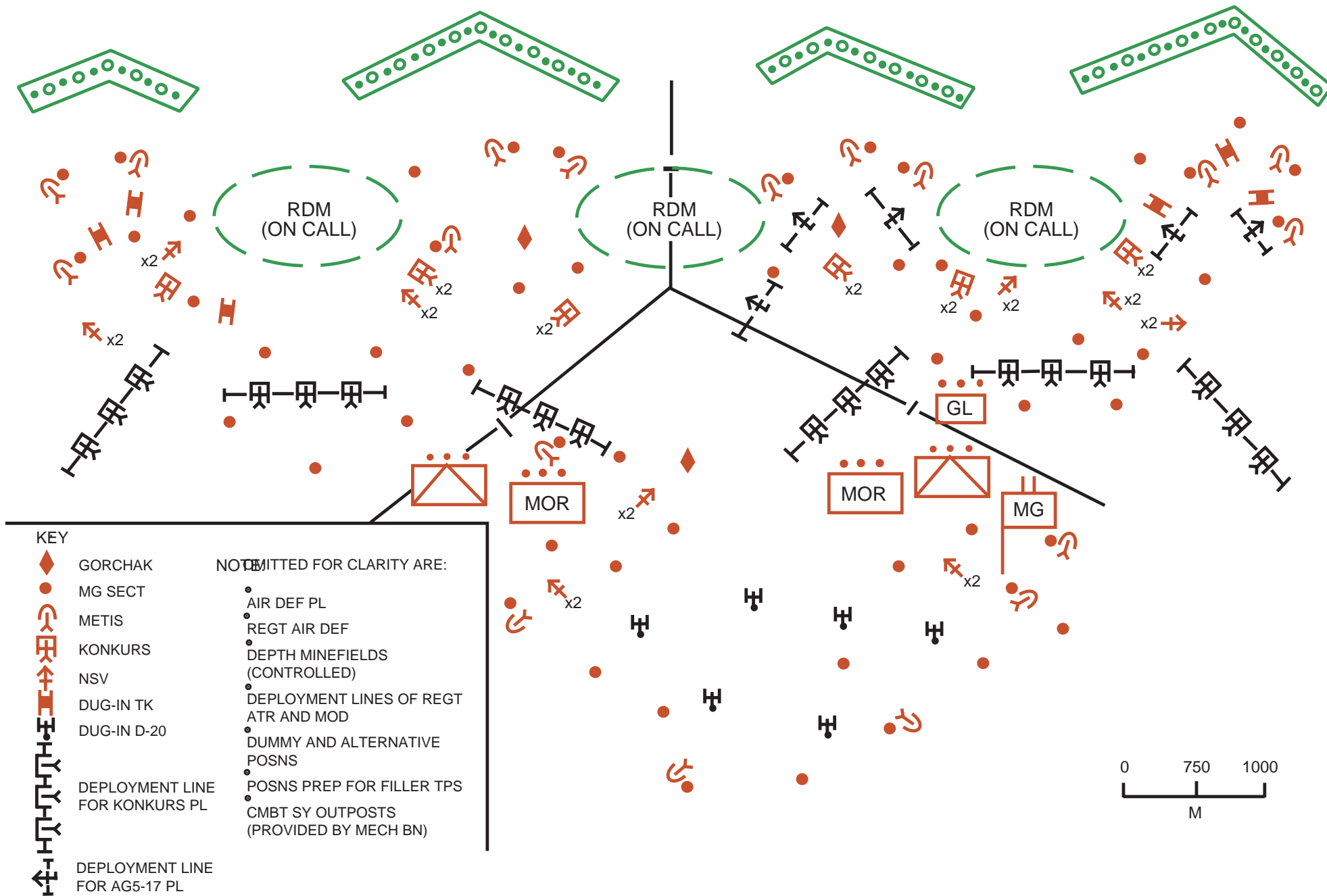
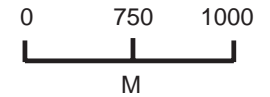


DIAGRAM 7-19: MACHINE GUN BATTALION DEPLOYMENT



- KEY**
- ◆ GORCHAK
 - MG SECT
 - ⤴ METIS
 - ⤵ KUNKURS
 - ⤴ NSV
 - ⤵ DUG-IN TK
 - ⤴ DUG-IN D-20
 - ⤴ DEPLOYMENT LINE FOR KUNKURS PL
 - ⤴ DEPLOYMENT LINE FOR AG5-17 PL

- NOT OMITTED FOR CLARITY ARE:**
- AIR DEF PL
 - REGT AIR DEF
 - DEPTH MINEFIELDS (CONTROLLED)
 - DEPLOYMENT LINES OF REGT ATR AND MOD
 - DUMMY AND ALTERNATIVE POSNS
 - POSNS PREP FOR FILLER TPS
 - CMBT SY OUTPOSTS (PROVIDED BY MECH BN)



CHAPTER 8

DEEP BATTLE AND DEEP OPERATIONS

SECTION 1 - PHILOSOPHY OF DEEP BATTLE AND OPERATIONS

The Offensive

0801. ***The Context.*** Modern forces are able to create a strong, stable defence very rapidly. GENFORCE has, as previous sections show, developed a concept for the penetration of such a defence. It is increasingly confident, given the increased effectiveness of firepower thanks to the availability of improved reconnaissance and precision and other advanced conventional munitions, about its ability to accomplish this rapidly enough to achieve the momentum essential to victory. Firepower provides part of the answer and surprise another part: preempt the establishment of a prepared defence. Surprise confers a substantial initial advantage, but it is, however, inevitably a wasting asset. Given time, the defender will recover, identify the main thrusts and take effective steps to counter them; he will probably be aided in this by having large reserves, either because many of his main defence forces have failed to occupy their allotted positions in time or because he has deliberately adopted a manoeuvre defence concept with his centre of gravity to the rear. For an offensive, or for that matter, a counter offensive, to be successful, it is essential to prolong and deepen the effects of surprise. The enemy must be prevented from recovering his cohesion and balance.
0802. ***The Need for Deep Battle and Operations.*** The disruption of the enemy is not accomplished solely by head-on attacks. Such attacks may be necessary, of course, but a decision can only be reached by bold, rapid and deep manoeuvre. The enemy must be destroyed as near as possibly simultaneously in both front and rear, and not in sequential phases. This requirement has become absolute with the new dominance of long-range battle. The struggle for fire superiority will be decided according to which side more effectively preserves its aviation (fixed and rotary wing), its SSMs, its long-range artillery (especially MBRLs) and its reconnaissance/target acquisition and C3 and EW capabilities and at the same time writes down those of the enemy. Table 8-1 shows the depth at which GENFORCE believes the likely enemy will deploy his deep strike assets and their range of influence over the line of contact. It is these means now, even more than conventional manoeuvre forces, that have to be neutralized and destroyed by deep battle (tactical level) and operations (operational level). Thus simultaneous pressure against the enemy throughout the depth of his deployment has become so fundamental to success that it has been elevated into a principle of operational art and tactics.

TABLE 8-1: DEPLOYMENT DEPTH AND APPROXIMATE DEPTH OF STRIKES OF REPRESENTATIVE DEEP STRIKE SYSTEMS OF A LIKELY ENEMY.

Weapon System	Deployment distance from line of contact (km)	Depth of Fire strikes (km)
Long Range artillery	5-10 (a)	20-25
MLRS	5-10 (a)	30-35
SSMs	10-50 (a)	160-450
Army aviation	30-50 (in small	up to 100 or so
Tactical aviation (a)	From 150 to several hundred	Throughout operational depth
RSCs (b):	30-300	up to several hundred
C2 centres	150 to several hundred (basing)	
Recce aircraft	50-160 (patrol pattern)	

Note (a) Depending on whether the enemy is offensively or defensively orientated.

(b) Deployment distances are totally scenario dependent and range depends also on payload-range/attack profile characteristics, not to mention aircraft type and in-flight capabilities.

(c) Depends on type and mission of RSC: all present a major threat, some to manoeuvre units, some to C3I. RSCs are deployed closer to the line of contact and enjoy more limited reach.

0803. ***Roles of Forces in the Enemy's Depth.*** In other words, action in the enemy rear is not merely a useful addition to the GENFORCE offensive effort. It is seen as its decisive element. The morale, cohesion and physical strength of the defence is to be eroded from within more than battered down from in front. It is intended to accomplish the following:

- a. ***Neutralize Enemy Long-Range Weapons.*** The most important mission is to prevent the enemy from using long-range, especially precision, weapons, by destroying their C3I and some delivery means and forcing others to keep on the move and by reducing, through their speed of movement and their intermingling with defending troops, the vulnerability of the most dangerous spearheads.

- b. *Exploit Surprise Fully.* Action in the enemy's depth will prolong the destabilizing effects on the defence consequent on initial surprise.
- c. *A Battle of Manoeuvre.* It is seen as desirable to force defensive groupings to fight a running battle in which they will reap no advantage from the ground, or alternatively, if they remain in place, to force them to face the threat of attacks from flanks and rear.
- d. *Capture Vital Ground.* To maintain the momentum of the advance, it is necessary to capture ground vital to the enemy before it can be prepared for defence and occupied.
- e. *Attacks on the Command and Control and Logistics System.* The easiest and quickest way to defeat the enemy is to destroy, or at least so to disrupt as to render ineffective, the defender's command and control and logistic system, on which intact combat groupings depend for their effectiveness. Particularly important are the weapons control elements of RSCs and RFCs.
- f. *Attack on Morale and Political Will.* Operations in the enemy's rear are calculated to undermine the enemy's morale and spread panic, not least amongst the civil population and the political leadership: refugees will hamper deployment, defensive manoeuvre and logistics, and it is probably easier to destroy a government's will to continue the struggle than it is to destroy its armed forces.

The Defensive

0804. ***A New Imperative.*** Previously, only the attacker, with the initiative firmly in his possession, could take the battle into the enemy's operational depth in a serious and sustained fashion (though with the partial but important exception that the defender could sometimes organize large-scale and effective partisan resistance to occupation). In future war, the side acting on the strategic or even operational defensive cannot afford to forego deep battle and deep operations (respectively at the tactical and operational levels). To do so would be to cede electronic-fire supremacy to the enemy and with it any prospects for defensive success. Plainly, the defender, suffering virtually by definition from an inferiority in resources, will find it much more difficult than the attacker to find the means with which to deliver telling blows against the enemy's rear. He will have to husband his deep strike capabilities for use in critical periods (which must be anticipated in advance) and preserve them from enemy attack. Nor will he be able to rely on electronic and fire strikes alone. Many targets can only be eliminated by ground attack and such action is also needed to disrupt and confuse enemy plans.

Forces Employed in the Enemy's Depth.

0805. ***Deep Fire and Strike.*** SSMs and cruise missiles, fixed and rotary wing aviation, long-range artillery (especially MBRs) and electronic warfare are the principal means of destroying high value targets and disrupting the enemy. They depend on the smooth and continuous functioning of a complex C3I system. Together, these assets are the main targets of deep battle and operations. On the preservation of one's own and the attrition of the enemy's will depend the crucial struggle for electronic-fire superiority.
0806. ***Ground and Airmobile Forces.*** Some targets will be too large or spread out or well defended to be reliably destroyed by long-range fire or air attack (eg, some HQs and logistics areas). Others will be too well dispersed and/or camouflaged or too mobile to be located with sufficient accuracy and timeliness (eg, missile units, some air defences and EW installations). Others will require more prolonged attention than transitory fire strikes (eg, second echelons and reserves and main supply routes). Such targets will be subject to attack by manoeuvre forces inserted into the depth by air or ground. Because of the critical importance of deep battle and operations, GENFORCE is prepared to devote substantial forces to this role. These are as follows, their employment being elaborated on in subsequent sections.
- a. ***Special Purpose Forces (SPF).*** The main role of SPF is special reconnaissance, though they are also used for target designation and sabotage. Each SG has a SPF brigade, the size varying with the importance of the strategic direction. Each army/corps deploys a battalion and each division/brigade a company within the organic reconnaissance battalion.
 - b. ***Air-Delivered Forces.*** GENFORCE deploys a wide range of such forces and is flexible as to which assets are employed for any given mission. Usually, when used to take vital ground, they will operate in cooperation with ground detachments.
 - (1) ***SG.*** Airborne formations are used to achieve strategic or operational-strategic goals. Operational tasks are performed by the 2-3 air assault brigades that are held by each SG. These brigades may be used as complete formations to seize and hold ground or their units can be deployed individually as raiding elements or possibly as forward detachments for OMGs.
 - (2) ***Army/Corps.*** The 1-3 air assault battalions held by higher formations are used equally frequently as forward and as operational or operational-tactical raiding detachments. Elements of the separate light motor rifle brigades are usually used for ground seizing and holding as their lack of secondary mobility when used in the airmobile role precludes wide ranging raiding actions. They can, however, be used for raids against static targets and extracted on completion of the mission.

- (3) *Division/Brigade.* The organic separate light motor rifle battalions of lower formations are used mainly for the securing of deep tactical objectives or for rear attacks against defended areas that cannot be by-passed, though they, too, can be employed for raids against single, static targets. Ordinary motor rifle troops can also be used in either role, though their lack of heliborne training and of portable ATGM usually restricts their use to missions close to the line of contact, well within range of artillery support.
- c. *Ground Forces.* There are no specific formations or units dedicated to the conduct of deep battle and operations. There is, however, a clear preference for using Mobile Forces' elements (and the separate tank battalions of divisions) as their more flexible structures and higher training standards suit them better for the role.
- (1) *Deep Operations.* At the operational level, in the offensive, the main executors are OMGs. SG may deploy a corps-sized OMG and armies or corps will usually deploy a brigade (or, if one is not available, a division in the former case). In the defensive (as opposed to the counter offensive) the scope of offensive action is radically reduced, resource constraints are greater and the enemy enjoys the initiative. There is therefore much less scope for the employment of OMGs: but as deep operations are still desirable, albeit on a reduced scale and devoted to raiding and spoiling attacks and not ground holding, separate operational units (SOU) are formed more often than OMGs. These generally comprise a reinforced regiment or a temporary grouping formed from 2-3 combined arms battalions (with reinforcement) from a brigade.
 - (2) *Deep Battle.* At the tactical level, lower formations deploy battalion/company-sized raiding detachments/groups and, in the offensive, battalions as forward detachments to seize ground or engage enemy reserves.

SECTION 2 - SPECIAL PURPOSE FORCES

0807. **Resources.** GENFORCE attaches great importance to SPF, particularly when the enemy is unprepared and when significant elements can be deployed covertly prior to the start of the offensive. The effects of their activities can be out of all proportion to their numbers, if only through spreading fear and uncertainty through their surprise actions. They are seen to be particularly valuable if they can operate in conjunction with partisan groups in the enemy rear. Not surprisingly, GENFORCE deploys them in comparatively large numbers. Each division and brigade has a small long-range reconnaissance company, each army and corps deploys a small battalion, and each SG a brigade, the composition of which will depend on the importance of the strategic direction.
0808. **Missions.** The role of the SPF is special reconnaissance, by which GENFORCE means both reconnaissance (the main function) and sabotage.

- a. *Reconnaissance.* Priority tasks will be: the monitoring of airbase activity; location of high value weapons systems, especially precision weapons and their associated C3I elements; army aviation forward operating sites; formation HQs; air defences and EW means; major groupings; logistics bases; suitable drop zones and beaches for airborne and seaborne assaults. As a uniquely discriminating asset, the information gathered by SPF is accorded special significance by GENFORCE intelligence staff.
- b. *Physical Attack.* There is a severe limit to the amount of sabotage that SPF teams can accomplish, even against less well defended targets. Such groups can also, however, vector air attacks and designate targets using laser and other systems. Precision weapons, HQs, air defences and fixed and rotary wing air bases could all be targets: so too could be the destruction of key economic/infrastructure targets, such as power stations, transformers, pipelines and oil and gas storage facilities, and the disruption of communications, ports and road and rail traffic, especially when the enemy is still in the throes of mobilization, concentration and deployment.

SECTION 3 - HELIBORNE AND AIRBORNE FORCES

Missions

0809. ***Depth and Missions.*** Given the payload/range limitations and vulnerability of helicopters, most heliborne assaults will be confined to the tactical and operational-tactical depth of the defence though their significance may well be operational. They will be organized at not lower than divisional or brigade level and may well be ordered by army, corps or even SG (possibly drawing the required resources from a motor rifle or airborne formation if enough specialist air assault troops are not available). The most important role of air assault units will be to act as raiding detachments and groups. So significant is this role that the whole of Section 5 is devoted to it. Other missions include the following:
- a. *Early Seizure of Vital Ground.* The capture of such features as defiles, crossroads and obstacle crossings, especially on the main axis, are seen to be important to the maintenance of the momentum of the advance. Often just as important is the use of mechanized air assault or airborne forces as forward detachments tasked with preventing enemy reserves from intervening against main axis forces: they will do so by preemptively seizing key terrain or even by combatting them in meeting battles. Ideally, such features should be taken before the enemy has had time to prepare their defence.
 - b. *Against Enemy Reserves.* It may be necessary to block the approach routes of reserves or counter attack forces which might influence the outcome of the main battle. A heliborne force might be used as an air-delivered forward detachment in this role.

- c. *Preventing Withdrawal.* GENFORCE will endeavour to block the withdrawal routes of retreating forces to aid their destruction, or to prevent their occupation of a potentially troublesome position, eg, in a city GENFORCE wishes to bypass.
- d. *Vertical Envelopment.* Airmobile forces may help to overcome the defence by mounting an attack from the rear.
- e. *Deception.* Airmobile assaults may be mounted as a feint, to mislead the defence as to the main axis of the advance. The committal of such high value assets should contribute materially to the success of deception.
- f. *Seizure of an Airhead.* The capture of an airfield or highway strip to airland mechanized, air defence and artillery elements, eg, of an air assault brigade, may well figure in operational planning.
- g. *Counter Penetration.* Airmobile elements will be valuable in defence (including during an offensive), for counter penetration, or to check a counter attack/stroke.
- h. *Anti-Air Landing.* The mobility of heliborne troops makes them valuable in defence as rapid reaction forces.

Heliborne Assaults

0810. ***Forces Availability.*** The forces available for heliborne assaults include:

- a. *Ordinary Motor Rifle Troops.* These are most commonly employed for shallow penetrations. They will usually operate within range of supporting artillery, ie, not more than 20km from the line of contact, if they are expected to take and hold ground or to destabilize the defence by an attack from the rear. Missions will generally be in support of a main axis formation, with approval from and lift provided by army/corps. Such troops will be taken from separate light motor rifle units/formations or, though this is not considered at all desirable, from second echelon units, or perhaps even formations. It should be noted that the troops of separate light motor rifle units are extensively trained to operate in the airmobile role and they are plentifully equipped with anti-tank weapons. The IFVs/ APCs of sub-units so employed will often be used as an armoured group, usually in the ALR role, until they are reunited with their infantry.
- b. *Army and Corps Level Air Assault Battalion.* Being mounted in BMDs, air assault troops are usually used for raiding actions or as forward detachments. In view of this, and the elite nature of the battalion, it could well be used in greater depth than ordinary motor rifle elements whether to mount raids or to seize an area of concern to the army or corps commander.

- c. *SG Level Air Assault Brigade.* With four BMD or two air assault and two BMD mounted battalions, an artillery battalion (including MBRLs), anti-tank and air defence batteries, reconnaissance and engineer companies, the elite air assault brigades are formidable formations. A brigade could be used as a whole to seize an important objective on the main axis of a higher formation, or act as an operational manoeuvre formation (for instance, to check enemy reserves or open a new front in the enemy's rear), and given its organic resources it can operate in some considerable depth for a relatively long time. Assaults by major elements of the brigade could well be launched up to 100km over the line of combat or even more. Alternatively, smaller elements of the formation could be used in the same fashion as the army or corps battalions. In defence, the brigade will more rarely be used as a complete entity. Elements will be used for raiding and the main body will provide an anti-landing/counter-penetration force.
0811. ***Size of Force.*** The size and equipment of a heliborne force will depend on the mission, its planned duration and the available lift. A raiding grouping would be likely to be quite small, perhaps a group of a BMD company with some air defence and a mortar or artillery battery, or perhaps a battalion-sized detachment for deeper raids. A force intended to seize and hold ground would require to be larger - how much so depending on the estimated time to link-up. A battalion, with its mortar and anti-tank platoons, an engineer platoon with a mine laying trailer, and artillery and air liaison officers to direct friendly artillery (when in range) and attack helicopter or FGA sorties, could hold out for up to 18-24 hours provided its ammunition does not run out and it is not attacked in overwhelming strength. The key factor is seen to be the amount of fire support available, whether artillery or air-delivered.
0812. ***Mounting a Heliborne Assault.*** The air assault, light motor rifle or motor rifle reinforced company or battalion designated to conduct the air landing will move to a mounting area (up to three km² for a company or 20 km² for a battalion). The mounting area may be in the depth of the deployment but will never be nearer than 20-30km from the line of contact so that it is out of range of all but the longest range artillery. Main and alternative pick up points will be designated for the helicopters. A company group will require 10-15 minutes to mount and a battalion detachment 25-30 minutes. In view of the time required, especially in the latter case, ground and air defence of the mounting area is vital, and smoke cover will also be provided where possible.
0813. ***Insertion.*** A heliborne assault/landing will usually be an important part of a commander's plan, but the helicopters are a valuable and relatively scarce resource - more so, perhaps than the troops they carry. Every effort will be made to minimize the risk involved in penetrating into the enemy's depth.
- a. ***Battle Formation.*** Once airborne, the helicopters will form up into three groups:

- (1) *The Forward Group* will comprise those forces necessary to seize and protect the LZ. A company group will normally use a platoon and a battalion detachment two platoons or even a company. In either case, the forward group will have attached engineers, manpack SAMs and possibly ATGM, an artillery observer and/or a FAC and perhaps reconnaissance troops.
- (2) *The Main Body* comprises the rest of the assault/landing force.
- (3) *The Support Group* consists of reconnaissance, ECM and attack helicopters to suppress enemy air defences and provide fire support for the seizure of the objective and to break up counter attacks. Attack helicopters fly ahead and to the flanks of the battle formation, prepared to do battle with either air defences or enemy attack helicopters.

b. ***The Fly-in.***

- (1) *The Fly-in Route* will be selected to take full advantage of gaps in the enemy's low level air defence coverage and of protective terrain features. The flight corridor is usually 2-4km wide and will usually be within a corridor created by SEAD in support of air operations.
- (2) *The Flight* is usually executed in single file, though a large landing force could fly in double file. GENFORCE prefers to penetrate at very low level (10-15 m) or, with heavy lift helicopters, at low level (up to 300 m). Flight speed is generally 4km per minute which, allowing for manoeuvre in flight, permits an average speed of 3km per minute. The forward group flies 10-20 minutes ahead of the main body.
- (3) *SEAD*. Known and suspected enemy air defences on and to the flanks of the fly-in will be suppressed beforehand by artillery, ground aviation and EW.

c. *Air-Ground Coordination*. The safe passage of the heliborne force is assisted by the designation of a number of lines to coordinate movement. These include:

- (1) *Line to Check Fire of Friendly Air Defenders*. This will be just before the rear boundary of the air defences concerned.
- (2) *Line to Check Own Artillery Fire*. This line must be short of the relevant artillery group's locations. The last salvo fired will usually be smoke, after which there will be no friendly fire until the assault/landing force has crossed the line of contact.
- (3) *Line of Deployment into Attack Formation*. At this line, in a fashion analogous to the tactics of ground units, helicopters deploy from column into landing formation.

- d. *Landing Zones.* LZs for foot-mobile landing forces are on or as near to the objective as the tactical situation will allow. BMD-mobile air assault troops may land some distance from the objective and rely on a concealed ground approach to achieve surprise. A company group needs a LZ with an area 2km x 2km, with a primary and alternate dismounting point. A battalion detachment needs a LZ 5km x 5km within which there will be 2-3 dismounting points and alternates. Alternative dismounting areas are needed in case the forward group discovers mines or concealed obstacles.

0814. **Action on Landing.**

- a. *The Forward Group* will land and, supported if necessary by the attack helicopters, clear the LZ of any enemy. Simultaneously, defenders take up fire positions and the engineers reconnoitre the area for mines or other obstacles. These will be cleared where possible, or their positions marked if this would take too long. Any attached reconnaissance troops (or a patrol from organic resources) will set off immediately to reconnoitre the route along which the landing force will approach the objective (and subsequently provide guides from the RV).
- b. *The Main Body.* The landing is covered by the forward group and accompanying attack helicopters (and possibly artillery and ground attack strikes). It takes a reinforced company five minutes to dismount and a battalion requires 10-15 minutes. If the mission is to seize and hold ground, the objective will be taken as quickly as possible and consolidated. In the case of a raiding mission, the destruction of the target will be followed immediately by a rapid withdrawal. The raiding force will then follow one of three courses, as ordered. It may move straight away to execute a subsequent raid or ambush. It may go to ground to reorganize and perhaps await helicopter resupply. It may move to a mounting area for extrication by helicopter.
- c. *The Helicopter Force.* The transport helicopters return to friendly territory as soon as the landing has been accomplished: it is far too dangerous to remain in the area to extricate a raiding force from the LZ used for the attack. A proportion of the attack helicopters will escort the withdrawal, the rest remaining on call for 20-40 minutes to provide support for the landing force.

0815. **Risk Against Gain.** Complete success in a ground-taking and holding mission will depend very much on the rate of advance achieved by the troops moving up to use the feature seized by the heliborne force. Should it be slower than expected, the enemy may well eliminate the assault detachment and recover the vital ground. Even in this case, however, the heliborne troops will have made an important contribution. They will have drawn on to themselves substantial forces which would otherwise have opposed the ground forces' advance, and they will have prevented the enemy from preparing the area for defence with the thoroughness he would doubtless desire. Bearing in mind the benefits that will accrue from even a partial

failure, GENFORCE commanders may well be prepared to undertake what otherwise might be considered risky ventures in vertical envelopment. The more fluid the situation, the more likely such risk taking will be.

Airborne Assaults

0816. **Missions.** Whereas heliborne units fulfil tactical and operational-tactical missions, the airborne troops are generally used for operational and strategic missions. Airborne operations are likely to be planned and executed by SG, though some may be mounted at the outset to seize theatre objectives. Some airborne divisions will undoubtedly be held in theatre reserve to meet strategic contingencies. Their very existence can be expected to exert a powerful negative influence on the enemy, inhibiting his planning and deployment. Missions for parachute assaults include, in approximate order of importance depending on the operational situation:
- a. *Destruction of Strategic Nuclear Delivery Systems* and their associated means of command and control and logistic support.
 - b. *Seizure of Vital Ground*, eg, bridgeheads, defiles, bridges, commanding ground in support of the ground forces or the capture of large islands and peninsulas and/or straits in conjunction with a seaborne assault.
 - c. *Destruction or Disruption of Higher Level C3*, political as well as military, eg, assault on centres of government.
 - d. *Destruction of Key Air Defence Systems*, in support of the air operation and in preparation for larger-scale airborne operations.
 - e. *Destruction or Neutralization of Key Reinforcement Ports and/or Airfields* and of transport choke points crucial to the enemy's mobilization, and perhaps even of some units before they have completed their deployment.
 - f. *Block Routes* being used by enemy reserves moving forward or by groupings attempting to withdraw.
 - g. *Destruction or Disruption of Key Industrial Facilities* eg, power stations, oil refineries and storage depots, military electronics plants.
 - h. *Destruction of Logistic Installations*, especially fuel and ammunition.
 - i. *Disruption of the Enemy Transportation Infrastructure*. This will be particularly important in the initial period of war.
 - j. *Seize an Airhead or a Port* for the build up of a substantial force to open a new front in the enemy's depth.
 - k. *Support Partisan Operations* inside enemy (or enemy-held) territory.

0817. **Size of Force and Depth of Mission.** As with heliborne forces, the size of an airborne assault is tailored to mission requirements. Major determining factors are the enemy strength, especially in main battle tanks and aircraft, whether and for how long ground has to be held and, inevitably, the lift available.
- a. *Groupings to Seize Vital Ground.* Assaults to seize and hold ground of operational significance will normally be made in greater depth than is risked with heliborne troops - ie, over 100km from the line of contact. Operational missions mounted in support of a SG offensive are likely to be up to 150-300km deep. The deeper the mission, the larger the force that will be required. Because they are launched in great depth and presumably have to hold out for longer before link-up, they are likely to be in at least reinforced regimental strength, including a fair number of support weapons. For instance, seizure of a major obstacle crossing 100km beyond the line of contact could be a regimental task. Moreover, the regiment would require incremental support from division, perhaps two or three artillery batteries, an engineer company and a recce platoon. Such a force would be expected to hold a position for 24-48 hours, depending on the scale of effort the enemy deployed against it. Should it be dislodged, however, it would revert to being a raiding force harassing the enemy rear with whatever combat power remained to it.
 - b. *Raiding Detachments and Groups.* These are likely to vary from company to battalion size, usually mounted in BMDs. After destroying their main target, they will cause as much havoc as possible within the enemy rear areas through raids and ambushes. Their armoured mobility in BMDs makes such groups a major threat to the deep strike systems and command and logistic support so essential to the main battle. Airborne forces are particularly likely to be used in this role, supplementing the efforts of the air assault brigades, when the enemy has adopted a manoeuvre defence or is himself on the offensive. Usually, provision for the extrication of such forces by air or their exfiltration by ground will only be planned when GENFORCE is on the defensive.
 - c. *Operational-Strategic Tasks.* Missions in the enemy's operational-strategic depth would be executed with the expectation of either no relief from the ground forces or at best a link up only after several days. They would thus have to be mounted on a considerable scale, ie, divisional or even greater. Because of limited lift available and the vulnerability of an airborne force flying deep into the enemy rear, such missions are very much less likely than raiding or operational tasks. A possible exception is the very start of war, when airborne troops might be used to execute coup de main operations.
0818. **Airlanding.** Larger forces could be delivered quickly if a prior airborne or even ground forces assault had secured an airhead. Ideally, this would be a proper airfield, but a suitably long, straight stretch of motorway (about 2,000m) would suffice. When airlanding, larger loads can be carried, and civil aircraft pressed into service can be used. It is noteworthy that all

GENFORCE military transports and most civil airliners and transports have heavy duty landing gear, enabling them to operate on to and off rough strips.

0819. **Preconditions for Mounting.** Any airborne assault larger than battalion strength is going to involve large quantities of scarce and valuable resources, both of troops and aircraft. Thus it will only be attempted if there is a very high probability of delivering the unit or formation safely to the objective. Preconditions for mounting an operation are:
- a. *Reconnaissance.* Thorough reconnaissance is required by all available means of the route to the objective, the DZ and the objective itself, including the insertion of Long-range Reconnaissance Patrols (LRRPs) some 24 hours before the drop. The presence of significant quantities of armour in the target area will preclude an attack unless it can be reliably neutralized.
 - b. *Air Defence Suppression.* Ground based air defences must be effectively suppressed 20-50km (or more against Patriot SAMs) on either side of the fly-in route and around the DZs.
 - c. *Air Superiority.* At least temporary local air superiority must be achieved. If it can only be maintained for a short time, the whole force should be delivered in one lift. Enemy fighter airfields, radars and air defence centres are attacked from 200 to 800km from the line of contact.
 - d. *Security.* Strict security is vital to achieve surprise and thus cut enemy reaction time to a minimum.

Usually, drops will take place at night, often just before dawn, to ensure surprise and conceal from the enemy the size and target of the assault. Any operation of greater than regimental size will be mounted from more than one airfield to enhance security and speed up the operation.

0820. **Mounting an Airborne Assault.** It is a general rule that no more than one transport regiment should be based on a single airfield in case of attack. Operations are mounted from 1,000km or more in the strategic depth so that operational missiles and tactical aviation cannot hit troops or transport on the ground. An operation can be got underway in 25-27 hours with aircraft at the third stage of readiness. If the transports are held at levels two or one, the time required can be lessened by 5-8 hours. Because of the stipulation on the dispersal of assets, an airborne regiment needs 3-4 main and 1-2 reserve airfields, so a divisional assault will be mounted from 12-16 main and 4-6 reserve airfields spread over a wide area. Troops move to departure fields by night and remain there no more than 24 hours before embarkation.
0821. **Insertion.** The fly-in offers a large target. The battle formation of a regimental-sized force on full scales, using IL-76 transports, will be over 30km deep (ie, flying in a column of wedges of three aircraft, a formation now deemed possible by night as well as by day). The depth of an airborne

division's transports, assuming full scales and the use of IL-76, and two minute intervals between regiments, will be 180 or so km. If air defence suppression allows, it is, of course, considered desirable to fly in such a large drop on over one axis. The fly-in will be preceded by artillery and air attacks and raids on known and suspected air defences on the chosen route(s) and around the DZs. It will almost certainly be down a corridor punched through the ground-based air defences as part of the air operation. As a general principle, the fly-in will be at the lowest safe altitude, with fighter top cover and sweeps ahead of the transports and with fighter-bomber escorts to suppress hitherto unlocated air defences. There will be ECM support, both from stand-off and escort jamming aircraft, and chaff trails will be laid to conceal the size of the force and defeat enemy SAMs. The enemy will probably be further confused by deception attacks and ECM activity on routes not chosen for the fly-in. To minimize the effects of any losses, careful attention will be paid to combat loading: key personnel and equipments will be dispersed amongst several aircraft.

0822. **Drop Zones.** When selecting DZs, GENFORCE usually adhere to the principle that they should be as near as possible to the objective to maximise the surprise effect and cut to a minimum the time available for the enemy to react. It must be noted, however, that the equipping of airborne units with BMD makes it possible to land some distance from an objective (eg, with strong air defences) and yet attack it after only a short period. DZ characteristics are as follows:

- a. *Numbers.* GENFORCE does not use separate DZs for personnel and the heavy drop. Instead, elements secure the DZ and establish standing patrols. Then equipments are dropped, followed by their crews. A battalion will thus use only one DZ. A regiment will preferably have three, one for each sub-unit, though it may make do with two or even one. A division requires at least one per regiment and may use as many as 6-9 (including alternate DZs), which are seen as necessary for any operation planned some days in advance (as in the case with large-scale, strategic missions).
- b. *Dimensions.* A battalion DZ could be as small as 1.5 x 1km, while a single, regimental DZ would need to be about 6 x 1km.
- c. *Separation.* In a regimental drop, battalion DZs should be separated by up to 5km, and there should be 5-15km between regiments. This minimizes and localizes the effectiveness of any enemy counter-measures.
- d. *Pathfinders.* Guidance groups may precede the drop by as little as 20-25 minutes.

0823. **Speed of Insertion.** If a transport division flies in on a single axis, it will take 25 minutes to complete the drop. As such extended presence over the dropping area is unwelcome, it is usual for a division to use two ingress routes. Dropping heights are 600-800 m, but a tight grouping on the ground

and thus speedy clearing of the DZ is achieved by the simultaneous use of multiple exits. A battalion can be put down and organized, ready for action in as little as 45 minutes by day, longer by night. (BMDs do not need to be dropped on stressed platforms, thanks to their special suspension and the use of retrorockets, and each vehicle has a homing device to enable its crew to find it.)

0824. **Tactics.** After clearing their DZs, GENFORCE airborne troops employ the same tactics as motor rifle troops. Of course, being in the enemy depth, speed and surprise are even more important to them than to motor rifle units. They will generally try to avoid contact with the enemy until such time as they reach their objective, though raiding parties may be detailed en route to accomplish incidental missions. The point is stressed, however, that BMD equipped units are quite capable of conducting meeting battles and may even be given the task of covering the main axis of the main advance. Whatever role they are performing, airborne troops will certainly display a higher level of initiative, skill and aggression, than ordinary motor rifle troops both in attack and defence.

SECTION 4 - GROUND FORCES

General

0825. **The Need for Ground Action.** Airborne and heliborne forces can carry the battle into the enemy's depth. They suffer, however, from some major limitations. Airborne and perhaps even deep heliborne assaults cannot be carried out until at least local and temporary air superiority has been guaranteed. This may take several days. Moreover, the availability of transport aircraft limits both the size of any air-delivered force and its mobility and firepower once on the ground. Such a force is also always going to be vulnerable to air and armoured counter attacks. In other words, vertical envelopment is rarely likely to be sufficient, by itself, to so destabilize the defence as to bring about an operational, far less a strategic collapse.
- a. **The Offensive.** Air-delivered forces play an important role in disrupting the cohesion of the defence, but the decisive element in the struggle in the enemy's rear can only be provided by significant armoured groupings. These are to be inserted early into the enemy's depth in order to overstretch the defender's resources by forcing him to fight in two directions, to front and rear, while at the same time denying him the means to do so by destroying his deep fire means and by disrupting his command and control and logistic systems. These exploitation echelons are forward and raiding detachments and groups at the tactical level and OMGs at the operational level.
 - b. **The Defensive.** The defender, too, must reduce the enemy's capability for conducting deep fire and strikes to prevent the attacker from achieving undisputed electronic-fire superiority. He must also do his utmost to prevent the smooth development of the offensive by harrying the enemy's C3 and logistics and by using spoiling attacks to prevent the timely

committal of second echelons/reserves to battle. For him also, ground action will be necessary. Tactically, this will take the form of raiding and spoiling attacks against second echelons/reserves by forward detachments. Operationally, actions will necessarily be less ambitious than in the offensive or counter offensive. They will usually comprise deep raiding by SOUs, though there may be opportunities to strike enemy follow-on forces preemptively with a strike by an OMG.

Forward and Raiding Detachments and Groups

0826. ***Role of Forward Detachments.*** A forward detachment is a tactical grouping, usually (though not invariably) organized at divisional or brigade level and within OMGs, which is used to capitalize on initial success and open the way for future tactical or even operational success. It is inserted through a gap created, or which opens up, in the enemy deployment, or by air, and it then advances ahead of the main body, manoeuvring to avoid contact wherever possible, to seize and hold obstacle crossings or other vital ground in the path of the main forces. Alternatively, a detachment might be tasked to engage enemy reserves to prevent them from influencing the course of the main battle. Accomplishing either of these tasks, forward detachments will help to maintain the momentum of their parent formations and prevent the enemy from stabilizing the situation on a good defensive position or from completing a withdrawal. In defence, they will be used to ambush or attack tactical reserves to win vital time for the main defence by disrupting the attacker's timetable. Forward detachments will also perform an incidental but valuable reconnaissance role for the main body. Such detachments may work in cooperation with or in support of airborne or heliborne assaults, for instance by acting as a relieving force.
0827. ***Composition of Forward Detachments.*** Forward detachments with tactical objectives will generally be of reinforced battalion size; whether they are based on tank or motor rifle sub-units will depend on the troops available and the terrain. As they operate separately from their units, they have to be all arms groupings. A typical forward detachment might thus comprise a BMP battalion, a medium tank company, a SP howitzer battalion, an engineer platoon (possibly including ferries and/or amphibians), an anti-tank platoon, a recce platoon (including engineer and NBC reconnaissance), an air defence platoon and a TACP. Plainly, a Mobile Forces' battalion or a separate tank battalion will need little or no reinforcement as it is already combined arms: a Basic Forces' battalion, on the other hand, will need substantial augmentation. If the situation allowed, it is possible that an even bigger forward detachment, based on a regiment or two combined arms battalions, in either case suitably reinforced and acting as a SOU, could be committed as an army or corps forward detachment to seize ground of operational-tactical importance or strike at reserves. Such a large force would, however, find it much more difficult to infiltrate through the enemy deployment, and it would present greater command and control problems. It is thus likely to be used only in a very fluid situation, or in the initial period of war against surprised groupings or where the enemy is conducting a manoeuvre defence. Army separate regiments are ideal in this role, as are elements of separate brigades found from SG resources.

0828. ***Planning the Use of Forward Detachments.*** Ideally, the employment of a forward detachment will be pre-planned by the employing formation. The best unit/sub-unit available from the second echelon/reserve will be tasked and the grouping made up well ahead of actual committal. It will sometimes be the case, however, that an opportunity unexpectedly presents itself, and because it is likely to be fleeting, the nearest available unit/sub-unit is used. In this case, lack of a well balanced team and command and control problems may make success more doubtful in the case of the Basic Forces, and such detachments will generally be given objectives of lesser depth - perhaps 20-30km into the enemy's depth rather than 30-50km which might be expected of a task-orientated grouping. It is now very common, indeed almost universal, that ground-holding air landing detachments will be reinforced as early as possible by forward detachments.
0829. ***Raiding Detachments and Ground.*** Raiding detachments are combined arms or reinforced battalions dispatched, not to take and hold ground, but to attack important targets such as deep fire means, EW sites, HQs, air defence systems, VTOL aircraft or helicopter operating sites, logistic areas. They are particularly appropriate where helicopters are not available for air delivery and where the enemy's location has not been ascertained accurately enough to enable his engagement by air or artillery attacks. They are also required when the objective is too large and/or well defended to be dealt with by a lightly equipped raiding force and where the enemy's mobility precludes other methods of attack. Raiding groups are reinforced companies used to attack smaller or more vulnerable targets than those requiring a full detachment. They may be separate or dispatched temporarily from a raiding or forward detachment, either in a pre-planned attack or to engage an opportunity target, especially precision weapons and EW sites. In offensive operations, after destroying their primary target or targets, detachments or groups may harass the enemy rear until the main forces link up with them. Alternatively on completion of a raid, a raiding detachment may be transformed into a reconnaissance or forward detachment. In the offensive, withdrawal is unlikely as GENFORCE thinks it will contribute more to the enemy's defeat if the grouping continues to act in the enemy's depth. On the defensive, a raiding force may be ordered to go to ground after completing its initial mission. It will then be resupplied by air if this is necessary and it will await the allocation of further targets. Alternatively, provision may be made for its exfiltration to rejoin the main forces. (The employment and tactics of raiding elements are considered in detail in Section 5).
0830. ***Preconditions for the Success of Forward/Raiding Detachments and Groups.*** GENFORCE identifies the following conditions as necessary, or at least highly desirable, for the successful committal and action of a forward or raiding detachment or group:
- a. ***A Fluid Situation.*** There must be a gap or an open flank in the enemy deployment. This will normally be the case either as the result of successful attacks on the forward edge of the defence or during action in the enemy's operational or operational-tactical depth, ie, after the penetration of at least the forward battalion positions and associated

obstacles and more usually after the defeat of a forward brigade or when surprise has prevented the enemy's organization of a cohesive defence in the first place. In a meeting engagement or battle, a detachment has a very good chance of manoeuvring to arrive undetected in the enemy rear. In defence, advantage may be taken of the uneven development of the battle to insert detachments or groups. The defender will often try to shape the battlefield to create opportunities for their committal. The committal of the detachment should receive maximum fire, smoke and electronic support.

- b. *Pursuit* offers almost unlimited opportunities for reaching the enemy rear and forestalling his occupation of important terrain features on the path of withdrawal. In this situation, there will be fewer dangers and a considerable gain in time through using a successful first echelon sub-unit or unit as an impromptu forward detachment.
- c. *Initiative*. Forward and raiding detachments are, of course, given an axis of advance (off the main axis, until approaching the objective). They are, however, given considerable freedom to manoeuvre to reach their objective. Their zone of advance is usually about 10-15km though it may be greater.
- d. *Reconnaissance*. Thorough and continuous reconnaissance is vital.

The Operational Manoeuvre Group: Role and Tasks in the Offensive

0831. ***Role of the OMG***. The OMG is, in effect, a formation tasked in the offensive to achieve at the crucial operational level what the forward and raiding detachments accomplish at the tactical. It is little more than the logical development of these. As an exploitation force, it is thus quite distinct from an ordinary second echelon. The OMG is given an ultimate objective. The conduct of a deep, operational raid may, however, be its main purpose, and even when it is tasked with seizing and holding ground, it will usually be required to execute intermediate missions en route, these being outlined in a broad directive rather than detailed by higher formation. The OMG commander is thus given much greater latitude, and is expected to show much more initiative and independence than his second echelon counterpart. Possible missions can include:

- a. *Raids*. The OMG will carry out raids against key targets in the enemy depth, such as precision weapons, EW sites, HQs, communications centres, airfields, forward operating bases and air defences, logistics units and facilities and lines of communication. These raids are designed to help the main forces by reducing the effectiveness of the enemy opposing them. They are thus an essential part of the OMG's operational task, and not a mere "optional extra". Nor do they distract the OMG from any ultimate geographical objective as the raids are launched against targets on or near the formation's axis. More distant targets are engaged by specially created raiding detachments and/or groups.

- b. *Pre-Emptying the Defence.* The ultimate mission of an OMG will usually be the seizure of possible defence lines in the enemy rear before they can be prepared and occupied for defence.
- c. *Enemy Reserves.* An OMG will sometimes be ordered to destroy in meeting engagements enemy reserves moving to counter the main body, especially when acting in the outer front of an encirclement. This and the previous missions are particularly important when the enemy has adopted a manoeuvre defence, with much or most of his strength deployed in the depth.
- d. *Enemy Forward Formations.* OMGs may be used to aid the main body in destroying the defence opposing it by attacks from the rear, by establishing blocking positions on withdrawal routes (completing the inner front of an encirclement) or by parallel pursuit.
- e. *Strategic Objectives.* Seizure of a key political and/or economic objective, such as an enemy capital is a possible role for SG's OMG.

0832. ***Dynamism of OMG Concept.*** Both OMGs and second echelons serve the same ultimate purpose - ensuring the speedy advance of the main forces, the destruction of selected enemy groupings and the consequent occupation of important areas. The concept of assisting the main body through the use of an exploitation echelon is, however, more flexible, more dynamic, perhaps more potentially damaging and difficult to counter than the concept of using a second echelon:

- a. *The Second Echelon* merely reinforces the efforts of the first, piling on more force until the defence eventually cracks under intolerable pressure. Such a use of available forces is, however, essentially predictable. The defender, faced with consecutive attacks on broadly known axes, launched indeed at more or less predictable intervals, can take effective counter-measures. Troops can be redeployed from secondary sectors and reserves moved to behind the point of greatest danger. Meanwhile efforts can be made to interdict the forward move of the second echelon.
- b. *The OMG*, by contrast, is intended, not to overwhelm the defence from in front, but to erode its viability from within; hence the stress on early committal, usually long before that of a second echelon. By destroying and disrupting the deep strike means that are the basis of the struggle for fire superiority and also the soft infrastructure which supports and directs the hard defensive shell, by forcing the defence to face the possibility of attack from behind as well as in front, and through its impact on enemy military and civilian morale, the OMG is designed to pre-empt and negate possible counter-measures. The concept is, of course, most easily translated into practice if at least partial strategic and/or operational surprise is achieved.

0833. **OMG as Replacement for Second Echelon.** As the OMG and the second echelon are but two different variations on the theme of the subsequent echelon, GENFORCE commanders may well not form both if the defence is weak or overstretched initially. If the use of an OMG is planned, there should, if all goes well, be less requirement for a major intensification of the efforts of the main forces. Furthermore, the situation is likely to develop unpredictably, and a pre-tasked second echelon would thus not be appropriate. Moreover, as the OMG promises an earlier disruption and destruction of enemy deep fire systems, there is now much more emphasis on the OMG as a substitute for the second echelon wherever possible. Another factor inclining GENFORCE to stress the OMG over the second echelon is the problem of vulnerability. A fast moving formation operating within the enemy's depth, often intermingled with enemy forces, is much more difficult to target than one which is awaiting committal in the friendly rear area. For all these reasons, higher formations deploying OMGs will probably forsake a second echelon in favour of a relatively small combined arms reserve. Should the strength and stability of the defence preclude the use of an OMG, the formation will simply become part of this reserve.

Organization of an OMG

0834. **Level of Deployment and Scale.** OMGs can be formed, as their name implies, by either or both operational level formations - army/corps and SG. Generally speaking, the former levels will only form an OMG on an axis where SG is not deploying one, though in the fluid, less predictable conditions where the enemy is practising manoeuvre defence, this may not be so. As they will be expected to operate semi-independently up to the subsequent objective of the parent formation, possibly up to 150-250km for an army or 500(+)km for SG, and as they will be expected to undertake a multiplicity of tasks, they will require to be strong, all arms formations with substantial air support. Their composition will be task orientated and organized thoroughly in advance.

- a. *An Army or Corps OMG.* This would be based on a division or, preferably, a brigade, usually tank, given its superior mobility and capacity for shock action. The chosen formation is likely to be the best in the army or corps. The use of a division will be unusual as the Mobile Forces are designed very much with exploitation tasks in mind. Much more likely would be the use of a separate brigade, perhaps reinforced, or in a corps, an organic brigade.
- b. *SG Level OMG.* This is likely to be a tank heavy combined arms corps. In a strategic offensive operation of limited depth, it is quite possible that large SG OMGs would not be formed, suitable force levels being provided instead by the multiple effects of several army or corps level OMGs over the whole front, exploiting and deepening the effects of multiple, surprise blows. Alternatively the SG level OMG in a limited operation could be a small corps (eg, of four manoeuvre brigades).

- c. *Improvised OMGs.* Should GENFORCE achieve an unexpected success, it would automatically adjust the objectives and momentum of the operation to exploit its advantage fully. It might, as part of this process, nominate any formation in a favourable position to become an OMG. Such an improvised grouping, lacking both preparation time and probably the resources normally allocated, would probably be given a less demanding mission than a pre-designated OMG.

0835. **Reinforcement.** Operating separately from their parent higher formations in the enemy's depth, OMGs will possibly need enhancement packages, particularly if they are based on divisions which are not, like brigades, designed for the role. These will include:

- a. *Fire Support.* Being some distance from the main forces and with the likelihood of meeting strong enemy reserves, the OMG may well receive extra, long-range artillery. There will also be strong air support, both fixed wing and rotary. The OMG will usually have an attack helicopter unit integrated into its structure to ensure rapid and intimate support. The ground element will move with the main body of the OMG. Fixed wing ground attack elements can operate from highway strips where VTOL aircraft are lacking. Deep fire elements, especially RFCs and attack helicopters, will be especially dangerous to the enemy if operating from within his depth. An OMG may also have a considerable EW establishment, for the effectiveness of SIGINT and communications jamming will be greatly enhanced if the equipments are operating from within the enemy rear areas.
- b. *Air Defence.* The OMG will need to take its own air defence envelope with it and may need extra assets. It may well have dedicated fighter aviation; as it will be operating within a corridor cleared through enemy air defences, it should be possible to provide fighter cover at acceptable cost.
- c. *Engineers.* Substantial and varied engineer support will be necessary, including elements for route opening, bridging and ferrying, minelaying, exploiting captured POL resources and even the creation of improvised runways.
- d. *Helicopter Lift.* An OMG may be reinforced with sufficient helicopters to provide lift for up to a motor rifle battalion's strength in infantry and manpackable heavy weapons for airmobile raids or ground seizing actions.
- e. *Logistics.* With no secure land line of communications, an OMG will have to be largely self-sufficient and will thus need extra load carriers. This problem should not, however, be exaggerated as the OMG will not be expected to fight the sort of gruelling battle or engagement that characterizes the action of the main forces. Raids, and short but intense meeting battles, will be the norm. At least limited air resupply may well be necessary, either by parachute or by airdropping. Refuelling tanks

from heavy lift helicopter “tankers” has, for instance, been a feature of several exercises. There will be exploitation of captured fuel stocks, a possibly important source.

- f. *Command and Control.* OMGs will almost certainly make use of airborne CPs (in helicopters) and liaison aircraft and will have secure, long-range and reliable communications means (eg, troposcatter and satellite communications).

The Committal of an Army or Corps OMG

- 0836. **Early Insertion.** Bearing in mind that the *raison d’être* of an OMG is to help to smooth and accelerate the progress of the main forces by eroding the defence from within, the group must be inserted as early as possible into the enemy’s depth. Ideally, ie, when the enemy’s defence is essentially unprepared, army/corps, and even SG OMGs may lead the advance of their parent formations. Otherwise, manoeuvre groups are ideally committed on the first or second day of the battle in the enemy’s main defence zone. Such an early committal assumes a substantial degree of surprise is achieved by the offensive, there being little likelihood that a deep, well prepared defence (whether positional or manoeuvre) could be substantially fractured in a mere day by a first echelon army. Of course, the diminution of the OMG’s combat effectiveness consequent on its having to complete the penetration is unwelcome - but less so than a loss of tempo.
- 0837. **Nature of Insertion.** If a substantial level of surprise is achieved, or if the enemy adopts a manoeuvre defence, a brigade-sized OMG may well be able to infiltrate the defence, taking advantage of low defensive densities (and often, of difficult terrain). This is described in paragraphs 0852-0853(b). The remainder of this paragraph and the next will deal with the more formidable problem of penetrating a stronger, forward defence. Even with partial surprise, it must be considered doubtful whether a first echelon army will succeed in a matter of hours in creating a gap through the enemy’s deployment. Although it is quite likely that an OMG will have to complete the penetration of well-prepared forward defences itself, it will not be expected to fight a major battle to do so. If a clean breach has not been created, the enemy defence must, at least, be on the point of breaking in the chosen sector or sectors of committal. The group will attack in one of two ways.
 - a. *A Unified Grouping* will penetrate a main defensive position on a narrow front using forward detachments on each axis to complete the penetration in conjunction with elements of the first echelon and also, in all probability, the use of vertical envelopment to destroy defences in front of the OMG and to the immediate flanks. The committal will receive the maximum support possible from all army assets and maximum aviation effort. The role of the forward detachment is crucial. Its flank and rear attacks on strong points on the chosen sector for committal must speedily and reliably complete the breach. It must then dash into the enemy depth to seize a lodgement in the enemy’s second defence area before it can be

strongly defended to check the OMG. Almost certainly, it will be preceded by an air assault to secure the position and hold it until reinforced by the detachment. Almost as important an element is the MSD, which closely follows the forward detachment and improves the routes being used to commit the OMG across battle damaged terrain. Flank protection may be provided by elements inserted by helicopter onto key terrain blocking counter attack routes.

- b. *A Dismembered Grouping.* An OMG may divide into two or even three groups to penetrate a main defensive position. These will then reunite in the enemy's depth in a temporary concentration area adjacent to the corps' or army's main axis, thereafter advancing as a unified grouping (though temporarily hiving off raiding detachments and groups). Such a method of insertion is seen to confer several advantages. It will be more difficult for enemy reconnaissance to detect a dismembered grouping and even more difficult for enemy intelligence to divine the operational significance of several apparently unconnected tactical penetrations. Committal on two or three sectors will complicate enemy decision making on his distribution of fire and his use of reserves. At the same time, it will enable the OMG to receive greater fire support for its committal since elements of the first echelon will be helping on more than one sector. Furthermore, the pass time of each part of the grouping moving through the defence into the enemy's rear will be much shorter than that of a single, large force; this will substantially reduce vulnerability. Finally, the success of the defender in stopping one penetration will weaken the OMG significantly but will not negate it completely. These are substantial advantages. On the other hand, reuniting the OMG in the enemy's depth will not be easy and the constituent elements may be destroyed in detail.
- c. *The Choice of Method* will depend very much on the nature of the defence. Against a dense but shallow defence with weak operational-tactical reserves, the use of a dismembered grouping may be appropriate. Where the defender has chosen to accept a weaker forward area and has strong reserves, a unified grouping may be preferred. Other factors, too, may influence the decision, especially the terrain, the ability to suppress the enemy with fire and the availability of lift to insert airmobile forward detachments, flank guards and/or vertical envelopment forces.

0838. ***Penetration, Not Destruction of the Defence.*** The aim will not be to open a breach and to keep it open. It is merely to push the OMG through the last vestiges of the forward defences into the rear area. It is quite possible that enemy reserves or troops moved from more passive sectors to form a defensive counter-concentration will re-establish some sort of integrity temporarily to the defence. This is quite acceptable as long as the OMG has got through, for the OMG will then be able to help the main forces to create a more permanent, indeed irreparable rupture.

0839. **Committal.** Where it has to take place through a relatively strong, at least semi-prepared defence, the committal of the OMG is the most difficult, most dangerous and most crucial part of the whole concept. It is absolutely dependent on the prior establishment of information and fire superiority (including air superiority). The process of committing a unified grouping is illustrated in Diagrams 8-1 and 8-2. The committal and concept of a dismembered OMG is shown in Diagram 8-3. GENFORCE commanders realize that certain things must be accomplished if the insertion of the group is to be successful and avoid a huge concentration of troops stalled nose to tail presenting a lucrative target for enemy artillery and ground attack aircraft.

a. *Security.* The time and area of committal must remain unknown to the enemy until it is too late for him to take effective counter-measures. Thus:

- (1) *The Assembly Area* of the OMG must be close to the line of contact to ensure that the opportune moment is not lost and surprise prejudiced through having to conduct a long approach march. Thus, the group is likely to be held just out of artillery and surveillance radar range, 40-50km (ie, 3-4 hours night march) from the line of contact. As well as being dangerously close to the enemy, the concentration area will necessarily be much less dispersed than is normally desirable as the OMG cannot afford long periods of time to assemble march columns. These are vulnerabilities that deeply concern GENFORCE. It will, of course take every precaution to conceal the presence of the formation through normal camouflage means and strict electronic silence. There will also be an attempt to confuse the defence by siting the waiting area to the flank of the intended line of committal, and by deploying dummy concentrations behind secondary sectors, backing up their deception with false radio nets and misleading radars. While concealment of a large grouping so far forward is certainly difficult, it does not have to be accomplished for long if insertion is intended on the first day (or more likely, night) of the battle. Furthermore, the assembly and forward move of the OMG will be preceded and accompanied by a massive active as well as passive counter-reconnaissance effort to blind the enemy.
- (2) *The Forward Move* of the OMG must be impeccably coordinated with the first echelon formation through which it is being committed. To this end, considerable engineer effort will be deployed to improve routes; routes will be ruthlessly cleared of first echelon traffic, the OMG will establish a strong liaison team with both the forward and main CPs of the formation through which committal will take place, and the Commandant's Service will deploy a massive traffic control effort; often key Commandant's posts are commanded by senior officers, for instance the OMG's deputy commander or chief of engineers, to make sure traffic jams do not occur. Until the last minute, however, communications will be restricted to line and LOs in vehicles and helicopters to avoid prejudicing surprise. The group will move forward, and indeed through the defence on two or three

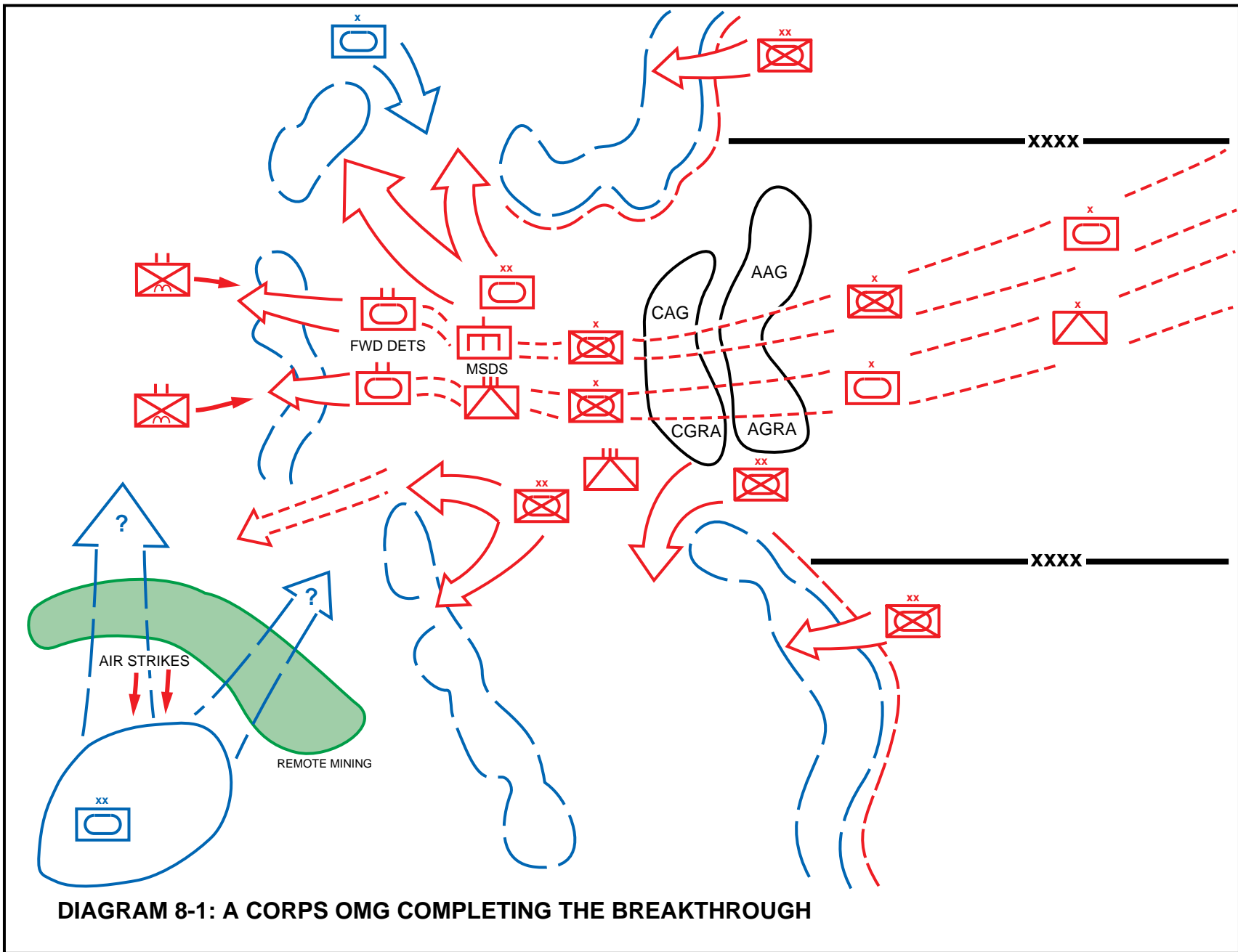


DIAGRAM 8-1: A CORPS OMG COMPLETING THE BREAKTHROUGH

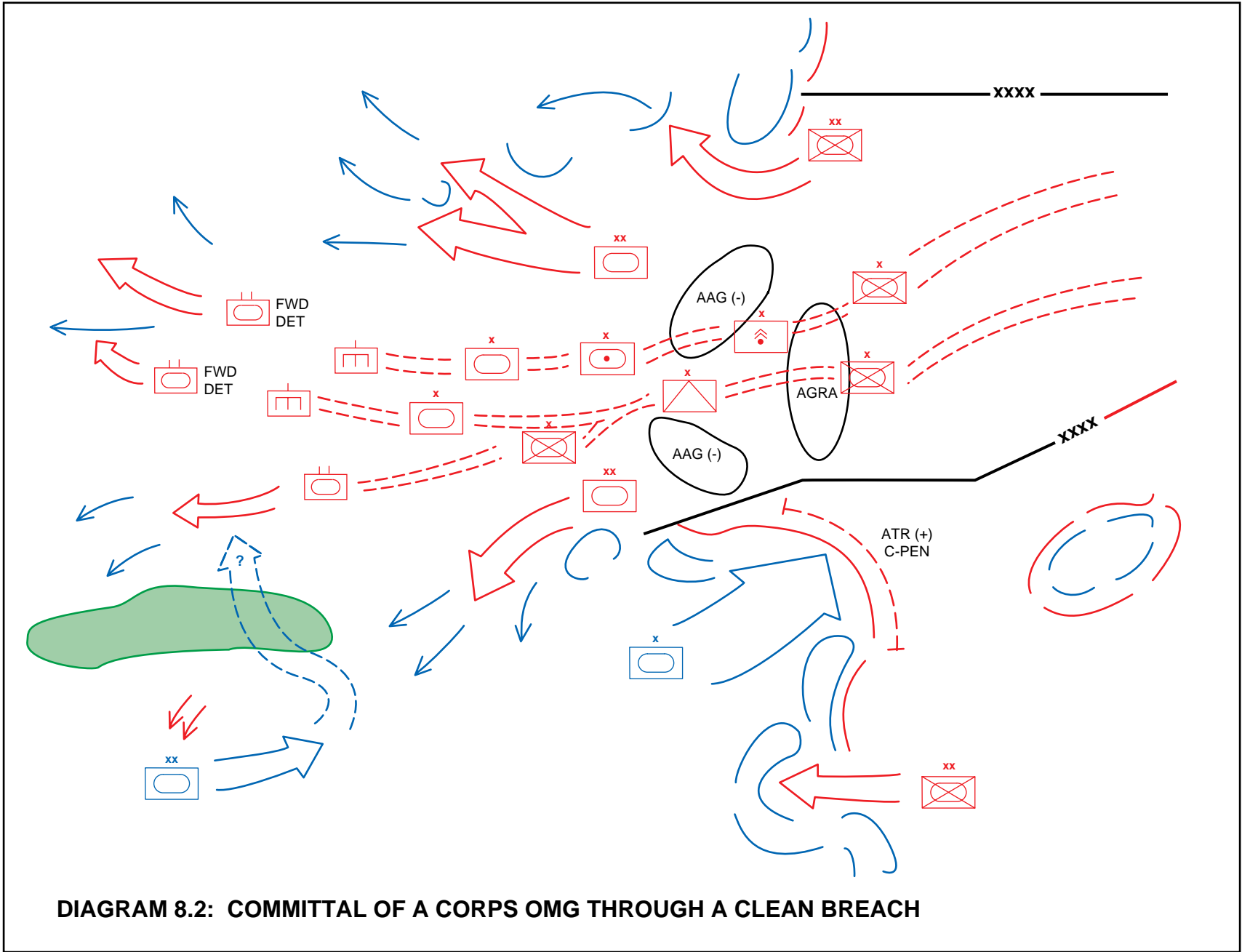


DIAGRAM 8.2: COMMITTAL OF A CORPS OMG THROUGH A CLEAN BREACH

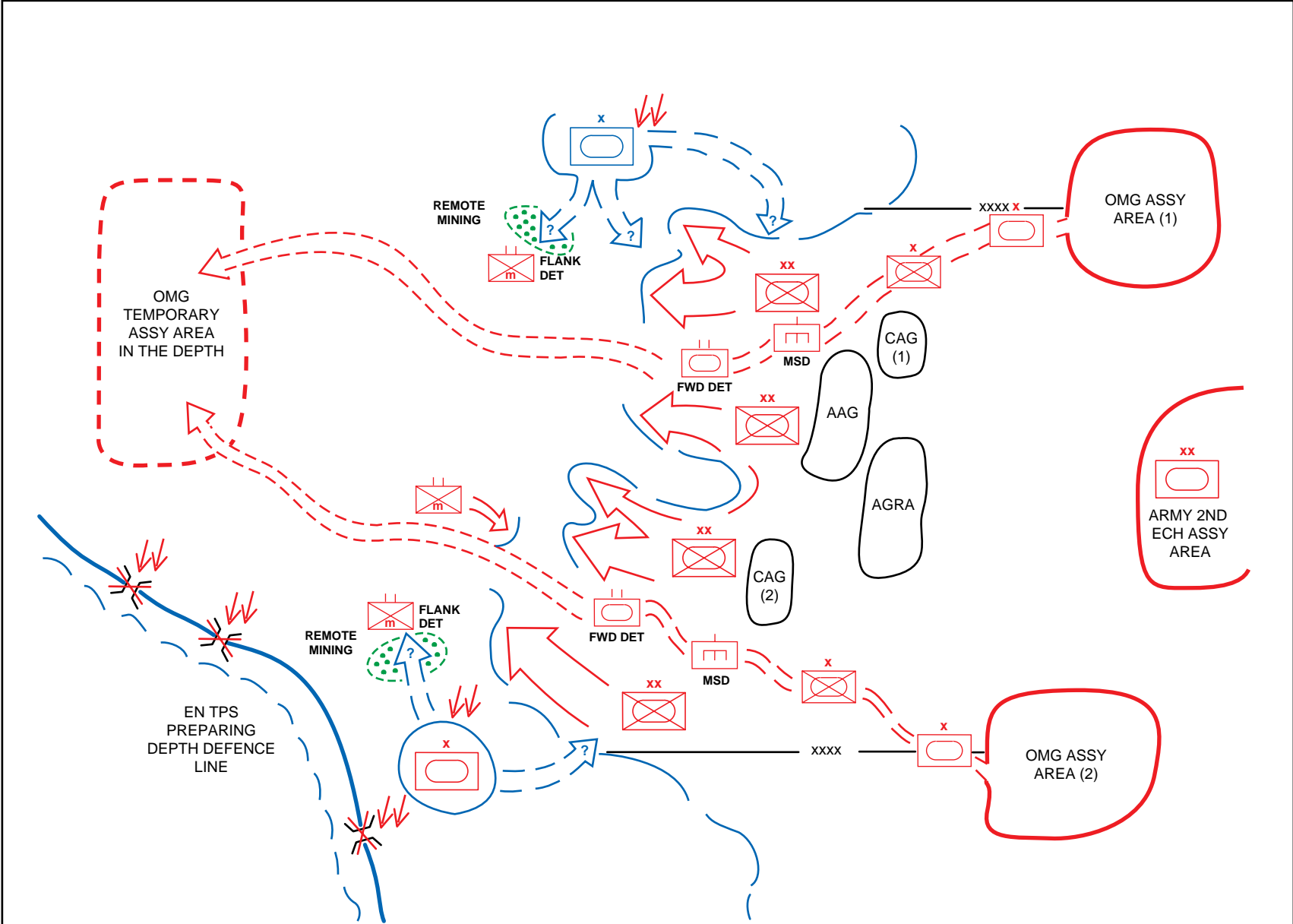


DIAGRAM 8-3: COMMITMENT OF A CORPS OMG AS A DISMEMBERED GROUPING

routes (if possible) to ease control problems and shorten the time taken to insert the formation. Normal march intervals will be largely ignored in the interests of control and speed, and a whole reinforced brigade may be only about 25km deep on a front of as little as 4-6km. The passage of the line of committal is, however, likely to take place at speeds of only 8-10km per hour, given the presence of battle damage (both to the ground and first echelon elements) and of enemy minefields and anti-tank ditches, etc. Thus, a reinforced brigade-sized OMG will take 2-3 hours to complete its insertion, and a corps in two echelons, using four routes, will require up to 6-10 hours.

- b. *Intelligence.* GENFORCE forces will need to have formed an accurate intelligence picture. Of crucial importance are the identification of the weak spot in the defence through which the OMG will drive and the correct moment to do so, the location of any reserves that can react within even the short warning that they intend to allow, and the location of all artillery, especially multiple rocket launchers, and aviation that can strike the penetration sector. While the combined arms army elements through which committal is to be made are fighting through the tactical zone of defence, reconnaissance groups from the OMG follow and exploit any opportunity to move through gaps created and get into the enemy depth. Also, mobile, officer-manned OPs of the OMG move in the front line, reporting on progress and likely weak sectors for committal. There is an intensification of normal air space and electronic reconnaissance as well, of course.
- c. *Air Superiority.* At least local and temporary air superiority must be guaranteed, or enemy airpower will severely maul the OMG and upset a very delicate timetable. Overwhelming fighter and attack helicopter strength will be concentrated to provide top cover, there will be an intensification of offensive counter air action, and the air defence weapons of the OMG and the formation through which it moves will give priority to its protection. Committal may well take place at night to further confuse enemy reconnaissance and counter moves, both by air and ground forces.
- d. *Concentration of Maximum Support.* Every available weapon from first echelon units and formations and army resources will concentrate on supporting the OMG as it approaches and then passes through the defence. The aim will be to put down so much mortar, howitzer, rocket launcher, helicopter and ground attack fire that there will be no combat-worthy units in the corridor through which the OMG will move, or to its immediate flanks. Fire support will begin up to an hour before the OMG arrives on the line of contact, with the last 20-30 minutes being an intense preparation for committal. Ideally, the OMG would not use its own artillery to support its committal because of the resultant distortion of the group's tactical march formation. The need for firepower, however, will often force its employment. Both preceding and during the OMG's committal, supporting attacks will be delivered on the flanks by first echelon formations.

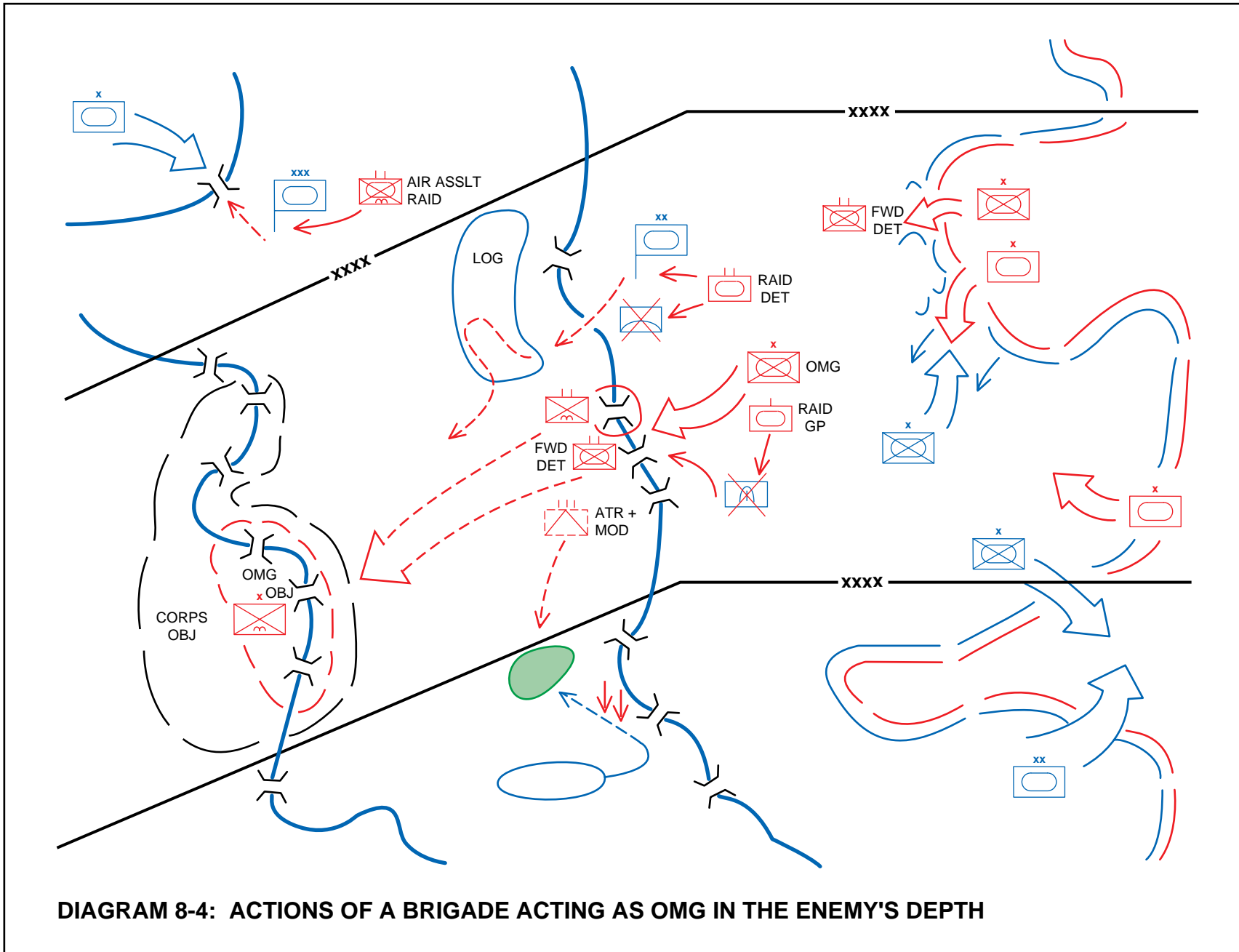
- e. *Command and control* over the committal of an OMG is usually exercised from an airborne CP.

The Army or Corps Level OMG in the Defender's Depth

0840. ***Actions During the Advance.*** Once inserted, the OMG's ultimate task will depend on the SG concept of the operation. On the way to its geographical objective, the OMG will launch company or battalion-sized groups and detachments in raids against targets crucial to the viability of the defence still resisting the main forces. The OMG will also make considerable use of forward and heliborne detachments to smooth its advance by forestalling defensive or counter attack preparations. Diagram 8-4 illustrates the activities of such an OMG, in this case a mechanized brigade working in close cooperation with an airmobile brigade. Note both the air assault battalion in BMDs attacking a major enemy HQ and then blocking the move of a reserve formation and also the forward detachment from the main forces which helps protect the OMG's rear and form a link between the two groupings. The OMG will have rotary wing aviation attached and fixed wing on call.
0841. ***Cooperation with Other Forces.*** Although operating ahead of the main forces, the group will not be fighting in isolation. Air recce and SPF patrols will provide intelligence and targeting data. Heliborne and airborne assaults will be used directly to help the OMG, while others will help indirectly by confusing the enemy and inhibiting his reaction. Air interdiction will endeavour to prevent counter attacks or counter penetration. The group will receive the highest priority for both air defence and ground attack aircraft. Indeed, as the group advances beyond comfortable supporting range of helicopters operating from over the line of contact, it will probably acquire its own air component - helicopters moving with the OMG, complete with a mobile forward operating base. It will also be possible to make at least temporary use of captured airfields or highway strips to base fighters or fly in resupply. OMGs, airborne and heliborne and air operations are all crucially inter-dependent, the successes of each contributing materially to the viability of the others.

SG Level OMGs

0842. ***Missions.*** A SG subordinated OMG will, if formed, be tasked against much deeper and larger targets than the smaller, army or corps level group. The objective will be of strategic significance, eg, an enemy capital, or (in conjunction with the OMG of another SG) a major encirclement. A SG may also deploy two corps working in close cooperation, as mobile groups. This will give it a powerful strike group operating in the enemy depth - one capable of dealing with strong enemy reserves.
0843. ***Insertion.*** The problem of inserting over 3,000 vehicles of an army or corps level OMG through a small penetration sector is immense, and the risks being run are very great. Obviously it would be impractical to try to commit a SG group of up to five times that size in the same way. The risk would



also be quite disproportionate. The loss of a division or brigade to an army or corps would be serious, but not, at one twentieth or less of the SG's total strength, fatal: it would certainly have relatively little operational importance. The loss of a whole corps to a SG is another matter altogether, and it would have serious operational repercussions. Thus, a SG OMG is likely to be inserted only after the penetration of the tactical depth of the defence has been largely completed on a broader front, say 12-20km. This is likely to be on the first or second day against an unprepared, weak or overextended defence but possibly on the third or even fourth day, and perhaps even after the committal of the second echelon, against prepared defences of some strength or against a manoeuvre defence.

0844. ***Actions in the Enemy Depth.*** A SG level OMG is less likely to have to expend combat power in raiding activities, especially if preceding army/corps level groups have already disrupted the enemy's operational-tactical rear and the major point of raids, the undermining of resistance to the first echelon, will have become less compelling with that echelon's success. If, as is more likely, an army/corps OMG has not preceded the SG's then raiding actions will still be the norm, though conducted to greater depth.

Separate Operational Units and OMGs in Defence

0845. ***General.*** A defender suffering a markedly adverse correlation of forces and deprived of the initiative will be hard pressed to find the resources for deep operations and the problems of the committal of a sizeable operational grouping and supporting it in the depth will be formidable. In those circumstances, action is likely to be confined to the employment of relatively small SOUs in a purely raiding role. If, however, the balance of forces is not hopelessly unfavourable and/or the enemy's offensive has been seriously disrupted (eg, by a counter attack or strike), it may become possible to launch an OMG into the enemy's rear to hit a critical follow-on formation as it hurries forward to restore momentum to the offensive or, if enemy reserves have already been committed, to conduct a turning movement and strike his main forces from the rear. Such an action is most likely to precede or coincide with the mounting of a major counter strike or counter offensive. GENFORCE considers that this use of an OMG in defence is most likely in manoeuvre defence when half or more of available strength is held back for counter moves and when the battlefield can be shaped so as to create a situation favourable for committal.
0846. ***Separate Operational Units.*** As their name implies, although only units and not formations, SOUs perform an operational task. They are used to conduct raids in the enemy's operational-tactical and operational depth. When pre-formed, their composition is tailored to fit their role. Ideally, Mobile Forces elements will be used. A typical SOU would comprise 2-3 combined arms battalions, reinforced by 1-2 reconnaissance companies, 2-3 artillery/MBRL battalions, 1-2 air defence batteries, an anti-tank battery, and engineer and EW resources as appropriate. If formed from a Basic Forces formation, it could comprise a tank or motor rifle regiment augmented in similar fashion. A large SOU may well be given an attack helicopter element which will join

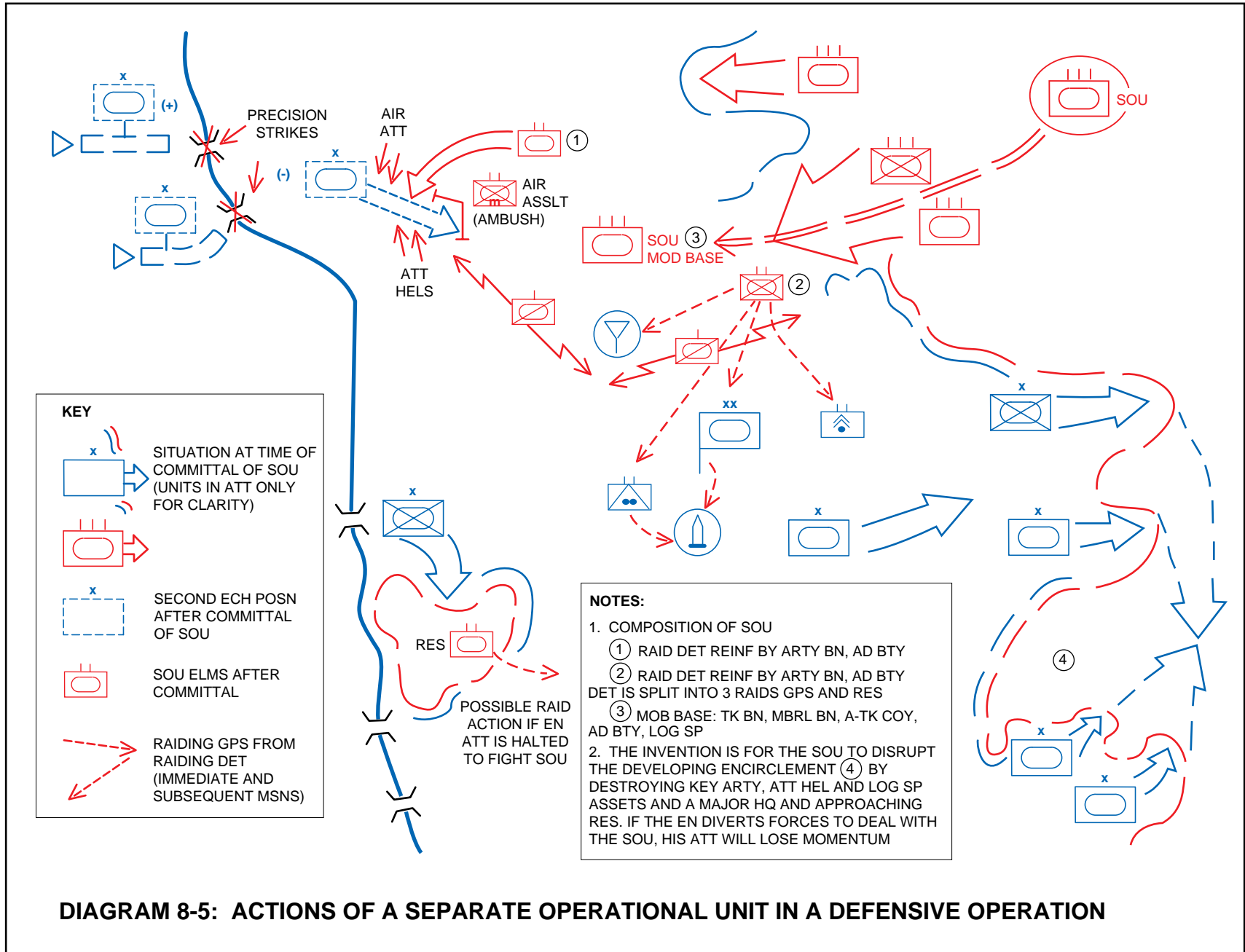
it in the depth and move with it. GENFORCE also envisages the use of bypassed units as improvised SOUs. Where the air situation allows, SOUs may well work in cooperation with air-delivered forces. The tactics employed by a SOU are described in Section 5 and illustrated in Diagram 8-5.

0847. **Operational Manoeuvre Groups.** The organization, committal and actions of an OMG in a defensive operation are similar to those of an offensive OMG outlined in paragraphs 0834-0839. Only the role differs materially. Such an OMG may be intended purely for raiding or it may be used to destroy or at least delay an enemy follow-on formation. In the latter case, raiding action will be limited as the main mission will require a strong blow to be delivered rapidly, before the enemy can prepare to counter it. After a successful attack on such an enemy second echelon/reserve, the OMG may turn to raiding actions or it may be ordered to support a counter offensive, either by a rear attack on the enemy facing it or by seizing vital ground in the depth.

SECTION 5 - TACTICAL AND OPERATIONAL RAIDS

General

0848. **Definition.** A raid is an action conducted in the enemy's depth and separated from the main body. Raids are an integral part of an operation or battle designed to create favourable conditions for the execution of missions by the main forces. Raids are carried out by specially designated elements of tactical and operational groupings. They involve a high degree of independent action, with the detachment or group commander deciding on his scheme of manoeuvre, where and when concealed pauses are necessary and how sudden strikes should be executed.
0849. **Importance and Tasks.** Raids have always assumed a significant place in GENFORCE's operational and tactical thinking, but they have now become central, an independent form of operational action vital to success, thanks to the overriding importance of destroying the enemy's deep fire and strike means and C3I system. This is now as true of defensive as of offensive operations, though plainly the problems of mounting in the former are more formidable. Raids are used to destroy targets which cannot be dealt with effectively by fire, either because they are too difficult to locate accurately, because they are mobile, or because they are too dispersed, hardened (or well defended, in the case of air attack). Principal targets will thus be long-range artillery (especially MLRS) and SSMs, EW facilities, C3 centres (especially control for precision weapons), air defences, helicopter and VTOL ground attack forward operating sites, airfields, logistic installations. They may also be used to cause casualties to, and disrupt the actions of, enemy manoeuvre forces, especially reserves, preventing their timely and organized committal to battle. Such blows might be delivered to force the enemy to concentrate and thus provide targets for friendly fire strikes. Finally, a raid might be concluded by seizing a feature important to the concept of the formation commander.



0850. **Types and Size of Raiding Forces.** GENFORCE categorizes raiding forces as land, air-land, air and partisan (the last not being considered further). Their size will vary according to the number, importance and strength of their targets.
- a. *Land Raiding Detachments and Groups* are tactical groupings, generally of battalion or company size; if the former, they will always be combined arms, and they will probably be so at the lower level too. They may well enjoy air support (most likely from helicopters) and artillery support if their parent formation's artillery is within range.
 - b. *Separate Operational Units* act at the operational level. Their organization is described in paragraph 0846. They will have priority call on fixed wing air support. Such formations will detach a series of smaller raids from the main body to attack specific targets: these may be either land or air-land or air detachments or groups.
 - c. *Air Raiding Detachments.* Some GENFORCE theorists talk of large raids by a mix of ground attack and rotary wing aviation (usually a squadron of the former and a regiment of the latter) as air raiding detachments. Most, however, think that the term is properly applied only to an air assault force delivered by fixed or rotary wing transport. Typically, this would be a BMD company or battalion, often with guaranteed attack helicopter support, though it could also be a unit or sub-unit landed from helicopters (especially from Mi-40s).
 - d. *Air-land Groupings.* When a land and an air raiding detachment/group work in close cooperation under a single commander, GENFORCE refers to the grouping as an air-land or land-air detachment, the appellation used depending on which is the dominant component.

Execution of Raids

0851. **Phases of a Raid.** Raiding actions are divided into four phases: insertion, the execution of the mission, extraction and force regeneration. Each is dealt with below.

0852. **Insertion**

- a. *Land Raids* may be initiated from a position of close contact, but they are best mounted from the march as this gives them a better chance of gaining an early tempo. A detachment will ideally be committed through a gap in the enemy deployment. With this in mind, plans for offensive action (and even in the defence as well) should include the creation of the necessary gap for despatching the raid in the right direction: with precision and electronic strikes as well as more traditional artillery and air support, this is no longer seen to be the problem it was in previous times.

- b. *Large SOUs (or OMGs)* may have to fight their way into the enemy rear as described in paragraphs 0836-0838. On a fluid battlefield, where the enemy's force density is low, it may, however, be possible to infiltrate into the enemy's depth. This will often be an attractive option where the difficulty of the going has persuaded the enemy to devote scant resources to deploying a mere screen. Several tactically independent sub-groups will penetrate on several axes, uniting only when in the enemy rear. The unit or formation CP and rear services, escorted by the combined arms reserve, will follow the first echelon on the route which, in the situation revealed by the initial penetration, offers the best chance of covert infiltration. This technique, known as that of the "dismembered grouping", is seen to maximize versatility, manoeuvrability and survivability. When penetrations are detected at all, the enemy may ascribe only tactical significance to them, being unaware of their operational purpose until too late.
- c. *Air Raiding Detachments/Groups* will depend on a combination of factors for successful insertion. These are: at least local air superiority; suppression of enemy air defences by physical and electronic attack; finding fly-in routes which avoid air defences or are masked from them by terrain. Enemy attack helicopters with an air to air capability are seen as a potent threat to low flying columns of helicopters, more so than fixed wing fighters, and the detachment will have to be escorted by helicopter "fighters" (such as the Ka-52).

0853. **Execution.** All types and sizes of raiding forces will rely on surprise as well as on combat power to destroy their targets. This stems from varying combinations of covert approach, speed, concealed pauses and sudden strikes. The most complex operations are, of course, those of large land-air/air-land groupings. Once a raiding formation has been inserted into the depth, it can operate as either a compact or dismembered (ie, loose) grouping. Which concept is adopted will depend on the conditions of the raid and the type of missions being executed (eg, destruction of mobile or dispersed targets, the capture and holding of ground or combatting enemy reserves).

- a. *Compact Groupings* manoeuvre united, sending out separate land, air-land/land-air and air raids to destroy individual targets and then return to the main body. This mode of action preserves the combat power of the formation concentrated to cope with any major counter move, it ensures protection for its vulnerable tail and it eases the problems of C2. On the other hand, it is impossible to achieve covertness in moving such a large body, and this will prejudice surprise. GENFORCE prefers this operational form when the enemy has forces available capable of destroying the grouping in detail if it is dispersed, and when the main, or ultimate, mission is to capture and hold ground or combat strong enemy reserves (whether by attack, ambush, meeting engagement or delaying action.) Most operational and many tactical raids in the offensive culminate in one of those two missions.

- b. *Dismembered Groupings* manoeuvre dispersed. Half or more of the tank and mechanized elements infiltrate through the enemy's depth, avoiding contact where possible, to strike their allocated raid targets. They will then join the mobile base group. This group comprises the unit/formation CP, rear services, helicopter operating base and a long-range artillery fire support base to give fire support to raids and engage high value targets discovered in the depth. It is accompanied by up to half of the manoeuvre units which protect it and provide both a reserve and the resources for the mounting of further raids when the original ones come in for rest and refurbishment. The mobile base will relocate once, perhaps even twice a day. This method of operation greatly increases the possibility of individual raiding detachments achieving surprise and it creates more doubts, uncertainty and fear in the minds of enemy commanders and units in the depth. It is the usual method employed by SOUs in a defensive operation.
- c. *Use of Air Raiding Detachments and Groups.* Heliborne air assaults are seen to be particularly useful when attacking targets which are distant from the main body and/or highly mobile and frequently relocating: a surprise, unheralded blow is called for. It will also very often be necessary to outpace the enemy to a terrain objective that has to be seized and held. In the latter case, ground reinforcement by a forward detachment will often be planned.

0854. ***Extraction and Force Regeneration*** represent the final stages of any raid, large or small.

- a. *Link-up with the Main Forces* in the offensive will usually be achieved at the end of a raid by the raiding force seizing an area and waiting for the arrival of the main forces. It will be necessary to establish the latter's direction of approach, primary and reserve meeting points and a line for interrupting fire beyond which the advancing forces cannot fire without prior agreement. Sometimes, especially the defensive tactical land raids will break through to the main forces (whether these be on the line of contact or the main body of a land-air raiding formation.) The procedure is similar to insertion, save that the latter cannot help as much. Surprise should be sought and an axis chosen which will give terrain cover and/or penetrate a weak enemy. Again, close coordination of fire is vital. Such conditions are, however, expected to be rare. Surprise will probably have been lost and enemy counter moves will likely be underway. The return of a raiding detachment may well resemble a break out from encirclement and fighting withdrawal. The main forces will provide fire and air support and may well launch a supporting or diversionary attack (perhaps reinforcing the raiders with a detached unit). If the main forces are in defence or withdrawing, the problem is compounded. The raid may then have to withdraw, not to its parent formation, but to one to a flank (with all the coordination problems that that implies). Helicopters may be used to extract air assault raids in areas fairly remote from the main forces, provided, of course, conditions are favourable.

- b. *Force Regeneration.* The refurbishment, resupply and reorganization of raiding forces will be accomplished on their return to the parent formation. In the case of a formation operating in the enemy's depth, this will be accomplished in the area of the mobile base. When required, air resupply will be used to sustain the mobile base.

CHAPTER 9

COMBAT SUPPORT

SECTION 1 - INTRODUCTION

0901. **Definition.** Combat support is the term used by GENFORCE to describe the actions of those arms of service which enable the tank and motor rifle or air assault troops to enter battle successfully and to achieve their mission.
0902. **Content of Combat Support Chapter.** The chapter will go into detail on GENFORCE artillery, anti-tank artillery, air defence, combat engineers, and chemical support. Reconnaissance and electronic warfare used to be considered as elements of combat support, but they have both been elevated to higher status in view of the central importance to success in future war of the information struggle. The former has already been dealt with in Chapter 3. The latter will be considered only briefly in this chapter.

SECTION 2 - MISSILE AND ARTILLERY TROOPS

General

0903. **The Place of Artillery in GENFORCE Thinking.** GENFORCE has always put the greatest possible stress on the role of artillery in combat. Foreign observers have often been mesmerized by GENFORCE's tank and infantry strength, but GENFORCE has traditionally regarded artillery as the main battle-winner.
- a. *In the Offensive*, artillery was the principal means by which an advantageous force ratio was achieved on chosen sectors, gaps were blasted through the defence, the enemy's tactical reserves were destroyed or disrupted and counter attacks were repulsed. It was the effective action of artillery that was primarily responsible for creating conditions in which tactical and subsequently operational manoeuvre could be generated.
 - b. *In Defence*, artillery was the principal means by which the attacker's preparations were disrupted and any force that reached or penetrated the forward edge was repulsed and counter attacks executed successfully.
0904. **Growing Importance.** If anything, the role of artillery has grown in significance as far as GENFORCE is concerned. Fire superiority was always regarded as the pre-condition for success in the attack - ie, the attacker had to be able to execute his fire missions while reliably suppressing counter-fire. It was also the cornerstone of defence, even if it could only be achieved for a limited time at the crucial point in the battle. In future war, artillery will be restored to the sort of dominance it enjoyed before the large scale mechanization of armies, thanks to its ability to locate and immediately destroy even individual, moving armoured targets to depths of 70km and

more (with MBRLs) or even hundreds of km (with cruise or ballistic missiles). The outcome, not only of battles but also operations will be decided largely by which side gains and maintains electronic-fire superiority. In the tactical zone, the primary executors of this mission are the missile troops and artillery and, closely following, EW and airpower. Tank, motor rifle and airmobile troops will make a significant, but still lesser contribution. Moreover, the generation of tactical, and later operational, manoeuvre will depend on the reliable suppression of an even higher proportion of the enemy's direct fire weapons than before as they, too, have gained in range, accuracy and lethality and thus in the ability of relatively small groupings to stop and even destroy superior forces. Thus, to a significant extent, tactical success will, in the future, depend on the operational commander's manoeuvring and concentration of the fire systems which he controls.

Organization for Combat and Missions

0905. ***The Basic Principles*** in allocating missions and organizing subordination of missile and artillery units are fourfold:

- a. ***Centralized Control.*** GENFORCE believes in exercising control at the highest possible level to ensure maximum flexibility, maximum effort at the decisive point and logistic economy. The ability to manoeuvre massed fires laterally and in depth, made possible by the contemporary improvements in reconnaissance, target acquisition, communications, automated assistance to decision making, weapons' range and lethality can only be fully exploited with centralized direction. Centralized control does not, however, extend to the details of fire planning in most instances. The senior commander will establish the area for the concentration of effort and the scale of that effort, timings and the target priorities. Lower echelons choose the method and form of inflicting fire damage. Thus the system of forming task oriented artillery groupings at different levels does not reduce flexibility and contradict the principle of centralized control. Army and corps commanders have the wide and deep looking reconnaissance and target acquisition means, the logistic flexibility and the high speed data processing and communications capability to establish or re-establish control rapidly and at will. The employment of missiles with ranges of several hundred kilometres will always be determined by SG. The level of control over the bulk of artillery will vary according to the phase of an operation. During a penetration, it will be exercised at higher formation level: in an advance against a weak enemy and on a broad frontage, or in a large meeting engagement, it may be focused at lower formation but with a strong grouping of long-range assets still held at army/corps level: in pursuit, much control will usually be devolved downwards to unit level. In defence, a counter-preparation (see paragraphs 0927-0928) will be organized at higher formation level while the rest of the operation may see the lower formation as the main focus but with strong, long-range groups at army/corps.

- b. *The Struggle for Fire Superiority* is always the first priority task for the missile and artillery troops (in close cooperation with EW and aviation).
 - c. *Priority for Support.* GENFORCE continually stresses the importance of concentration of effort and the reinforcement of success. Thus, in allocating artillery to subordinate formations and units, an even distribution is rejected in favour of massing support on the main axis. In the attack, resources will be switched from the support of less successful elements to aiding those making the best progress. In defence, they will bolster the position of those forces in greatest need.
 - d. *The Basic Fire Unit.* When employing non-precision ammunition fired by tube artillery, GENFORCE will engage small targets with a single battery. A raiding or outflanking group or a vanguard or flank guard based on a motor rifle or tank company may be reinforced by a battery. Normally, however, the basic fire unit is the battalion. This reflects GENFORCE's desire to deliver the scientifically established norm to achieve the desired effect on the target as rapidly as possible. This is partly because the bulk of casualties inflicted by a fire strike are suffered in the first minute or two (before the enemy recovers from surprise and takes cover), partly because of the danger of an armoured, mobile target motoring out of the impact area before the norm has been fired, and also because short engagements lessen the likelihood of enemy counter-bombardment being conducted in good time.
0906. **Groupings.** Artillery groups are formed at various levels, their composition depending on the enemy's strength, the mission of the supported headquarters and the importance of the axis in the operational plan. A high proportion of GENFORCE's artillery (25-30%) is held in the Reserve of the Supreme High Command (RSHC) and from there allocated and reallocated to different axes in accordance with the overall strategic concept. SGs also possess formidable artillery groupings (typically 2-5 SSM and cruise missile brigades, an artillery division, 1-2 heavy artillery brigades and 1-2 heavy MBRL brigades) which are likewise devolved to armies and corps according to operational requirements.
- a. *Missile Groups.* SG will form a variable number of groups of operational SSMs and cruise missiles for deep strike. Their task is to win (of course, in cooperation with air and deep operations) the operational level contest for electronic-fire superiority. Their principal targets will be enemy airfields, deep strike means (especially RSCs), air defences and major HQs. Others could include operational reserves and key infrastructure targets such as bridges or power generation. Army and corps SSM brigades are used against similar objects in the operational-tactical zone.
 - b. *Higher Formation Artillery Groups.* Army artillery and rocket artillery groups (AAG, AGRA) and corps equivalents (CAG, CGRA) are formed from organic and attached long-range assets and, as needed by the phase of an operation, medium artillery as well. These are used first

and foremost for deep fire missions, to carry on the struggle for electronic-fire superiority. Their primary targets will be enemy artillery (especially elements of RSCs and RFCs, MBRLs), C2 entities, helicopter forward operating sites, EW facilities and air defence systems. They will also manoeuvre massed fires in support of manoeuvre elements, to suppress strong resistance, damage and disrupt reserves and break-up counter attacks.

- c. *Lower Formation Artillery Groups.* Divisional and brigade groups (DAG and BAG) comprise organic and attached medium artillery and MBRLs, though a formation acting autonomously may also receive some long-range assets as well. These groups are used as directed from above to contribute to the long-range battle (eg, by suppressing air defences in support of friendly air penetrations or the insertion of airmobile or ground raiding forces). Their main role, however, is the fire support of the manoeuvre elements of their formation.
- d. *Unit Artillery Groups.* A regimental artillery group (RAG) consists of organic and attached artillery which acts in direct support of the unit. Similarly, a combined arms battalion may be reinforced by a medium artillery battalion in direct support.
- e. *Tactical Manoeuvre Detachments and Groups* which are operating semi-independently will usually have an artillery battalion or battery placed under command. Examples include forward, raiding, outflanking, air assault and airmobile detachments and groups.

0907. **Regrouping.** Whenever possible, changing situations will be met by the manoeuvre of fire from one axis to another. GENFORCE's flexible communications, computer-assisted decision making and centralization (as far as possible) of control make it possible to mass fire on threatened sectors or opportunity targets regardless of unit or formation boundaries. As combat becomes more fluid, actual artillery groupings will be altered in line with the evolving nature of combat and the strengths and missions of supported groupings. For instance, on the committal of a second echelon, artillery may be detached from a "tired" formation and used to reinforce the fresh one. The centralization of much logistic support at higher formation level makes quite substantial regroupings relatively quick and easy.

0908. **Deployment.** GENFORCE tends to deploy artillery well forward, especially in the offensive. There are three reasons for this: the need to reach as deep as possible; the increase in expenditure norms as range lengthens; the time required to relocate artillery (by deploying forward, it can ensure continuity of fire support for attacking units for longer before having to displace).

- a. *Indirect Fire.* Table 9-1 sets out deployment norms. These are yardsticks only and actual deployments will depend on terrain, real estate management and the anticipated course of the battle.

- b. *Direct Fire.* GENFORCE frequently deploys sections or individual guns very close to the line of contact to destroy point, hard targets such as pill boxes and defended houses with fire over open sights (a capability possessed by all towed and SP weapons). In combat in built up areas, forests and mountains, a high proportion of artillery may be so employed.

Fire Planning: Basics

- 0909. **General.** Artillery fire is usually the basic means by which a favourable correlation of forces is achieved for the attack. GENFORCE calculates scientifically its artillery requirements in terms of the numbers of weapons and rounds needed to produce a given effect on enemy targets. These norms are strictly adhered to. If insufficient artillery or ammunition is available to achieve its necessary result, GENFORCE will accept the imperative to engage fewer targets, if necessary adjusting the tactical or even operational plan (for instance, by narrowing an attack sector): alternatively, the artillery preparation may be prolonged to take in more targets, or airpower may (weather permitting) be used to make good any shortfall.
- 0910. **Definitions.** GENFORCE defines various levels of effect that may be sought by bombardment. The combined arms commander specifies the effect required and on that basis the artillery commander calculates how many rounds have to be fired to achieve it.
 - a. *Harassing Fire* is used to inhibit manoeuvre or force the enemy to move and thus provide targets for air attack and to damage enemy morale.
 - b. *Neutralization.* Artillery fire at this level inflicts minimal damage but paralyses the defence during, and for a very short time after the bombardment. This is the minimum acceptable effect if an attack is to succeed and fire has to be timed precisely to see the attacking troops onto the defended position: GENFORCE calculates that an AFV crew will require only 30 seconds to recover from the effects of a bombardment and an ATGM crew will need 1-2 minutes. Neutralizing fire is usually employed only against an enemy assessed to be weak and when insufficient time is available to artillery reconnaissance to establish precisely the enemy's positions. Often, in such a case, an attack will be executed without the motor rifle troops dismounting, the artillery continuing to neutralize enemy infantry as it is overrun by switching from HE to flechette rounds as the attackers arrive at the forward edge.
 - c. *Suppression* is the effect achieved on a sub-unit by the infliction of about 30% casualties to men and equipment. It will render the target grouping combat-ineffective for a period of minutes to hours as the morale effect of the bombardment will render even the uninjured troops incapable of offering organized resistance and command and control will be disrupted. GENFORCE commanders will normally aim to achieve at least suppression before subjecting even a hastily defended position to attack by tank and motor rifle troops.

- d. *Disruption.* By inflicting 25-30% casualties on an attacking force, GENFORCE believes that it will effectively break up an enemy attack.
- e. *Destruction* is to all intents and purposes achieved if 50-60% losses are suffered by an enemy grouping or 70-90% of an individual target. The target grouping will cease to exist as a fighting force for up to 24 hours (depending on its morale state, availability of replacements, command and control restoration, etc. Destruction is seen as the only worthwhile objective when engaging missile or MBRL units or, increasingly, artillery.

0911. ***Expenditure Norms.*** Norms are established and adhered to for every conceivable combination of target, desired effect, range and weapons used. Table 9-2 shows how many HE rounds GENFORCE considers necessary to suppress or annihilate various targets. The weight of ammunition required for several target types is colossal, though the targets themselves are often small. For this reason, GENFORCE prefers, wherever possible, to engage point targets with precision munitions delivered by artillery or aircraft or by direct fire from tanks, ATGM, anti-tank guns or howitzers. The norms can be reduced significantly if ACMs are employed. Cluster munitions will lower them by a factor of 3-6, depending on the nature of the target. With laser guided rounds, they can be reduced by a factor of 10, and with carrier munitions with Terminally Guided Sub-Munitions (TGSMs), by a factor of 15.

TABLE 9-1: DEPLOYMENT OF ARTILLERY

Distance	Mortars		Comb mor/ hows(a)		Guns and Hows		122mm MBRL		220mm MBRL		300mm MBRL	
	Att	Def	Att	Def	Att	Def	Att	Def	Att	Def	Att	Def
Between weapons	20-60m		50-150m		50-300m(b)		100-300m(b)		150-500m(b)			
Between batteries	-	-	0.5-3 km, usually about 1km(c)				1-2km(c)		Individual weapons widely dispersed(c)			
From line of contact	0.5-1.5 km	1-2km	1-3km	2-4km	-	-	-	-	-	-	-	-
RAG/Comb Arms Bn	-	-	1-3km	2-4km	2-4km	4-6km	-	-	-	-	-	-
DAG/BAG	-	-	-	-	4-6km	6-8km	4-6km	6-8km	10-15km	15-20km	-	-
AG/CAG: AGRA/CGRA	-	-	-	-	8-10km	10-12km	5-8km	6-8km	10-15km	15-20km	-	20-25km

Notes: (a) 2S-9, 2S-23, 2S-31

(b) Batteries normally deploy in irregular patterns with varying distances (usually about 200m for guns and howitzers) between weapons, taking full advantage of the concealment offered by the terrain. Lack of time, ammunition resupply problems or the failure of sophisticated land navigation, communications or fire control systems could lead to a reversion to tighter, more vulnerable deployment patterns.

(c) Batteries (and individual weapons within them) will have both a main and 1-2 alternate fire positions separated by at least 500m to allow for manoeuvre to avoid counter-bombardment. In defence, there may also be temporary fire positions for use in supporting forces in the security zone prior to the main battle. MBRL sub-units, whether in attack or defence, will also be prepared to move forward to temporary fire positions to execute deep fire raids. Where time permits, dummy positions will also be prepared. Whenever time and resources allow, gun and ammunition pits will be dug to enhance survivability (by a factor of 2-5 according to GENFORCE calculations).

(d) When displacing, battalions usually leapfrog forward or rearwards by batteries, moving 3-4km at a time (or further in a fast-moving battle). This ensures continuous support of manoeuvre forces.

(e) Artillery groups used to deploy directly on the main axis so that the guns could engage by fire over open sights any armour breaking through in an attack or counter-attack. This practice is, however, becoming less common as it makes it too easy for the enemy to locate the artillery and even SPs are not seen as a match for modern tanks in a direct fire engagement.

TABLE 9-2: HE AMMUNITION EXPENDITURE NORMS AGAINST UNOBSERVED, STATIONARY TARGETS AT 10km OR LESS

TARGET	REQUIRED EFFECT	GUNS AND HOWITZERS				MORTARS			MRLs	
		122 mm	130 mm	152 mm	203 mm	82 mm	120 mm	160 mm	Medium Calibre	Large Calibre
Missile Launcher	Destruction	300	280	200	70	-	-	140	360	200
Battery of armd SP guns (mortars)	Suppression	450	360	270	120	-	450	220	400	240
Battery of towed guns (mortars) when dug in	Suppression	240	220	180	100	400	240	160	320	180
Unarmoured SP guns	Suppression	310	260	260	115	-	300	290	440	210
Battery of towed guns (mortars) in the open	Suppression	90	80	60	30	180	90	40	120	60
SAM battery	Suppression	150	150	100	60	-	-	-	200	100
Signal and radar vans in the open	Suppression	200	200	150	60	-	200	100	240	100
Troops in prepared strongpoint	Suppression of 1 hectare of target	200	200	150	60	-	200	100	240	100
Troops in hastily prepared defensive position, tanks and APCs	Suppression of 1 hectare of target	150	150	110	45	300	140	85	180	80
Troops in assembly area in the open	Suppression of 1 hectare of target	20	20	15	5	35	10	8	8	5
Dug in CP with overhead cover	Suppression of 1 hectare of target	200	200	150	60	-	200	100	240	100
CP in the open, or vehicle mounted	Suppression of 1 hectare of target	50	50	40	15	-	25	20	20	15
ATGM, anti-tank gun or other individual target in the open	Suppression	140	140	100	50	240	140	80	-	-

Notes: (a) The table is based on the assumption that batteries are laid on the basis of survey or the combined use of satnav and laser range finders and meteorological data that is no more than 3 hours old.

(b) When engaging with observed fire, or adjusting from a known point, expenditure is reduced by 25 per cent.

(c) When engaging targets at ranges in excess of 10 kilometres, 10 per cent is added for every additional kilometre.

(d) Only figures for destruction are given for missile launchers as nothing less will suffice. Increasingly GENFORCE also considers that destruction should be the goal in engaging artillery and MBRLs as well.

(e) There will often be a requirement to inflict a higher level of casualties than suppression, eg to ensure a 5-6:1 superiority in tank and motor rifle troops in the attack following an artillery preparation. The coefficient relative to suppression by which the latter norm must be increased is: 1.6 for 40% casualties; 2.3 for 50%; 3.4 for 60%; 7.4 for 80%.

0912. **Size of Target.** Table 9-3 sets out the size of target area that can be engaged effectively by various fire units. Such concentrations are used to neutralize enemy positions in the attack, to break up troop concentrations, and in defence to disorganize attacking infantry and tanks.

TABLE 9-3: MAXIMUM EFFECTIVE DIMENSIONS OF ARTILLERY FIRE CONCENTRATIONS IN HECTARES

Fire Unit	Target Type and Duration of Fire					
	Tanks and APCs 10 mins or 1 rocket salvo	Troops, equipment in the open 3-4 mins or 1 rocket salvo	Troops, Equipment Under Cover			
			5 mins	20 mins	5 mins	20 mins
120mm Mortar Battery	1-2	15	1	1-2	2	2-3
122mm/152mm Howitzer Battalion	5-6	18	3-4	5-6	7-8	9
130mm Gun Battalion	3-4	15	2	3-4	4-5	5-6
BM-21 Battalion	3-4	60	3-4		6-8	

Note: A battalion concentration can cover 3-12 hectares, but an average concentration covers 6 hectares in a 200 x 300 metre rectangle. This figure is used for calculating when producing quick fire plans in a rapidly changing situation.

0913. **Density of Fire.** GENFORCE is not concerned merely to deliver the prescribed number of rounds to the target. It recognises that, in contemporary conditions, the density of fire is important (ie, the number of rounds per minute landing on each hectare). In several circumstances, a high density of fire, 24-30 rounds per minute per hectare minimum, is desirable, for the following reasons:

- a. **Surprise.** The first salvo is the most destructive and should therefore be heavy. GENFORCE believes that the greatest morale and material returns are achieved in the first 3-5 minutes of any fire mission, and one third to one half of the ammunition allocated to the target should be fired in that time. The burst fire capability of 2S-19 and MBRLs is particularly valued for this reason.

- b. *Accuracy.* Even in a mobile, fast developing battle where detailed survey becomes impossible, accurate fire can still be delivered thanks to the combined use of satellite navigation, laser rangefinders and computerized fire control. These systems also, by doing away with the requirement for adjustment, avoid the loss of time and of surprise in executing fire strikes. If satnav fails and time constraints preclude detailed survey, GENFORCE recognizes the need for a high density of fire to compensate for subsequent inaccuracy.
- c. *Armoured, Mobile Targets.* Tanks and APCs or SP guns can simply motor out of a fire concentration in 2-3 minutes. Therefore the required number of rounds to suppress or destroy a target must be delivered in less than that time.
- d. *Enemy Counter-Battery.* Artillery may be located in as little as 1-2 minutes after opening fire, and enemy counter-battery fire can be brought down in a further 2-3 minutes. Short engagements will lessen GENFORCE vulnerability by allowing timely changes of fire positions.
- e. *Meeting Battles.* In a fast developing meeting battle there will only be a short time available for artillery preparation before the manoeuvre troops close with the enemy.

0914. **Rates of Fire.** To achieve the required density of fire within an acceptable time scale, sufficient artillery must be allocated to the mission. It is rare, using traditional munitions, that this can be achieved by a single battery. This has led GENFORCE artillery to make the battalion the basic fire unit. Some targets will need to be serviced by even more than a battalion. It is necessary to combine the data in Tables 9-2 and 9-3 with that in Table 9-4, which deals with rates of fire, to calculate the artillery concentration needed to deal with a target. Of course, with modern computerized fire control, it is possible to service a target needing, say 21 howitzers firing for no more than 5 minutes (eg an SP battery 15km distant) by tasking weapons from several battalions. This would have the advantage of confusing enemy locators and reducing the effectiveness of counter bombardment. It would also optimize artillery usage by selecting appropriate howitzers on the basis of such factors as known barrel wear, need for barrel cooling, ammunition availability with each weapon.

TABLE 9-4: MAXIMUM PERMITTED RATES OF FIRE

Duration of Fire (Minutes)	120mm Mor		122mm How Charge		152mm How Charge		152mm Gun/How Charge		203mm gun, all Charges	MBRL		
	Large bomb	Small bomb	Full	Red	Full	Red	Full	Red		122 mm	220 mm	300 mm
1	9	9	6	6	4 (lb)	4 (lb)	4	4	1	1	1	1
3	25	25	16	16	12	12	12	12	2			
5	30	30	25	25	20	20	20	20	3			
10	35	35	40	40	30	30	30	30	6	2		
15	40	40	55	55	40	40	40	40	9			
20			65	70	50	50	50	50	12	3	2	
25			70	80	60	60	55	60	15			
30	50	75	75	90	65	70	65	70	18	4		2
40			85	110	75	90	70	80	22	3		
50			90	130	80	105	80	95	26	5		
60	70	105	100	150	90	120	85	110	30	6	4	3
120	110	165	150	260	135	210	120	200	60	8	6	5

Notes: (a) Calculations based purely on reload times. As MBRLs usually relocate immediately after firing, travel time will normally have to be added.

(b) The 2S-19 can fire 8 rounds in the first minute as it has a burst fire capability.

Precision and Advanced Conventional Munitions (ACM) Attack

0915. **Precision Munitions.** The neutralization and suppression of area targets will, in GENFORCE’s view, still be the most common mission of artillery, thanks to enemy camouflage and concealment measures, mobility and the frequent lack of time or means for detailed in depth reconnaissance, not to mention the limited supply of precision munitions due to cost considerations. However, the revolution in military affairs has given missile and artillery troops the additional capability of engaging group or point, hard, mobile targets with precision weapons which have a 70-90% probability of destroying the target.

a. **Laser-Guided Munitions.** All artillery over 100mm calibre can now fire semi-active laser-homing rounds. These are used to destroy armoured vehicles and other point targets quickly, economically and with a high level of certainty (70%). Maximum ranges are, respectively: 152mm, 18km; 122mm, 10km; 120mm howitzer/mortar, 7.5km; 120mm mortars, 4km. The main limitation on their use is the need to illuminate the target with a laser target designator (LTD) whose range is only 7km. The restricted range of the LTD and the low rate of fire consequent on conducting only one engagement at a time with each LTD are problems partly overcome by the widespread issue of LTDs. Each reconnaissance

platoon has one, as does each artillery OP, each motor rifle company (in the commander's vehicle) and all attack and observation helicopters. There may be a reserve pool held in each unit to equip SRPs, air-landing units and others in need. It is possible that tactical drones are being equipped with a smaller version in addition to their normal sensors.

- b. *Terminally-Guided Sub-Munitions (TGSM)*. SSMs, cruise missiles and large calibre rocket artillery (220mm and 300mm) can now deliver carrier warheads which release a number of TGSMs over a group target such as a column or concentration of AFVs. These TGSMs then home on individual vehicles using millimetric wave and/or IR terminal guidance. Unfortunately, the numbers carried in each carrier and the beaten zone are as yet classified.

0916. **Advanced Conventional Munitions.** Seven other types of ACM have been identified in GENFORCE's arsenal.

- a. *Concrete Penetrating* sub-munitions can be delivered by missiles. They are primarily used for airfield denial. Shells for 152mm and 203mm artillery are also available for destroying fixed fortifications and demolishing other concrete structures such as motorway bridges or buildings.
- b. *Fuel-Air Explosive (FAE)* warheads can be delivered by missiles, artillery of 152mm calibre or over or large MBRLs (Uragan and Smerch). These are employed against buildings, field fortifications, large group targets, airfield installations and any other target vulnerable to a blast wave of minor-nuclear force. FAE is also used for rapid minefield clearing.
- c. *Cluster Munitions* were developed before TGSMs for use in missiles and large rocket artillery. These remain a mainstay of the inventory and will continue to do so as TGSMs are too expensive to be used freely. The large beaten zone of unguided sub-munitions (both anti-tank and anti-personnel) makes them highly effective area suppression systems for use against such targets as missile launch sites, aircraft in the open, HQs, deployed artillery, logistics installations, concentration areas and strongpoints. As the CEP of rocket carriers is normally about 0.5% of range, Uragan and Smerch have rockets with cluster munitions that can be given mid and late-flight guidance by artillery locating radars to ensure high accuracy at long-ranges.
- d. *Anti-Radiation Missiles*. Both Uragan and Smerch can deliver ARMs to destroy enemy radars, especially air defence associated ones and artillery locators.
- e. *Remote Jammers*. All MBRLs and artillery of 122mm or greater calibre can deliver carrier munitions which dispense varying numbers of VHF and HF communications jammers over a wide area. These are used to disrupt communications within dispersed artillery positions, concentration areas, etc through barrage jamming lasting up to one hour.

- f. *Electromagnetic Pulse (EMP)*. Artillery of 152mm or greater calibre or large MBRLs can deliver a round which will create a localized EMP. This is used to disrupt communications within dispersed artillery positions, defended areas, troop concentrations etc.
- g. *Chaff Munitions*. All guns and multiple rocket launchers can deliver chaff to jam all types of enemy radar. This is especially important in suppressing enemy air defences where actual destruction is not possible.

0917. ***Reconnaissance Strike/Fire Complexes***. The development which has wrought the most far-reaching change in the nature of the future battlefield has been the development of the RSC and the RFC. Each type of complex comprises four main, interconnected components: a dedicated reconnaissance and target acquisition/ vectoring (RTAV) system with a multiplicity of sensors (optical, IR, radar, magnetic, acoustic and radio/radar DF and intercept) and secure downlinks with a large capacity; a mobile, automated intelligence fusion and fire direction centre; dedicated precision weapons systems. Given real-time reconnaissance/target data, automated processing of the rapid stream of data and an up-to-date set of target priorities based on the operational/ tactical situation, commanders can engage the most important elements of an enemy grouping in near real-time and verify the effectiveness of fire strikes.

- a. *RSCs* are formed to engage targets at the operational and operational-tactical levels. The RTAV systems include satellites, small, low radar signature (ie, survivable) RPVs with long endurance, manned aircraft that can look deep from the safety of friendly airspace and LRRPs. Fire means include SSMs, cruise missiles and stand-off weapons launched by aircraft. The strength and composition of each complex will vary according to the operational situation and the demands likely to be made on it, but dedicated systems (with a measure of redundancy) are required to ensure that vital targets are not left unserved because the means are otherwise employed. The dimensions of the reconnaissance-strike area will correspond with the zone of detailed reconnaissance and deep fire destruction of the parent formation.
- b. *RFCs* are formed to engage targets in the tactical zone. The RTAV systems include shorter range RPVs, ground based radars and radio/ radar DF and intercept, EW helicopters and LRRPs. Fire means include MBRLs, long-range artillery and possibly aviation. As with the RSC, strength and composition will depend on circumstances and the area covered by the RFC will be that of the parent formation's zone of detailed reconnaissance and deep fire destruction.

0918. ***Combatting Enemy Precision Weapons***. Finding technical and tactical solutions to this problem is GENFORCE's highest priority. Precision weapons are information dependent: they need very accurate, timely information on the nature and location of the target, the terrain and atmospheric conditions. Effectiveness depends on the "normality" of the position and state of each precision weapon's subsystems, each target and the environment in the

location of the weapons system, the warhead's flight path and the target. Thus, it is possible to disrupt strikes by: physically attacking system components; inflicting electronic disruption; denying reconnaissance accurate information about target locations; disrupting the normal state of the atmosphere in the area of the flight path of carrier munitions and TGSMS; influencing sub-systems controlling navigation, precise timing and meteorological support and automatic control. Therefore, combatting precision weapons is a multi-measure business consisting of consecutive and simultaneous, joint and separate actions by formations, units and sub-units. Countering precision attack takes place in four areas:

- a. *Physical Attacks* on: associated reconnaissance sub-systems; C3I centres; delivery means (including both launchers and "carrier" munitions); elements of navigation, precise time and meteorological support; munitions depots; deployment routes.
- b. *Electronic Attack* on information sub-systems and channels for the passage of reconnaissance data, navigation and precise time and meteorological support and C3I.
- c. *Concealment* of the locations and movements of friendly troops, deception of the enemy through the use of dummies and disinformation, combined with dispersion and manoeuvre to avoid likely strikes.
- d. *Collective Protection* of friendly troops to destroy or deflect guided munitions as they approach the target (eg, through the use of automatically triggered directional grenades or decoys, eg, in tank defensive aid suites, or, in the near future perhaps, the employment of a plasma weapon to ionize highly the air through which incoming missiles must fly, thus causing them to malfunction).

Remote Mining

0919. **General.** GENFORCE places great stress on remote mining by both aircraft (fixed and rotary wing) and by artillery. Its great range, speed of obstacle creation, flexibility and (in the latter case) responsiveness at short notice make it an essential tool in defence and one of great value in the offensive. The casualties inflicted by the mines themselves are generally considered less important than the disruption and delay they cause. This is particularly the case where the enemy can be held in a fire pocket or other location when he can be hit by air or artillery strikes. Often as significant is the violence done to the enemy's scheme of manoeuvre and timetables. The late arrival of, for instance, a second echelon or an outflanking detachment may mean that the enemy can be defeated in detail.
0920. **Capabilities.** Remotely delivered mine (RDM) munitions have been fielded for operational and operational-tactical missiles for deep strikes. At the tactical level, they can be delivered either by 152mm or larger calibre guns or howitzers or by MBRLs. The latter are, however, the principal delivery means because of their range (especially the Uragan and Smerch systems)

and their greater payload and beaten zones, not to mention the speed with which they can carpet large areas with mines.

a. *Type of RDM.* Mines known to be in service include:

- (1) *Anti-Personnel.* The PFM is a plastic, pressure operated mine which self destructs after up to 24 hours. The POM-2S is a tripwire operated fragmentation mine with a tripwire length and lethal radius of 10m, also designed to self-destruct after a period of up to 24 hours.
- (2) *Anti-Tank.* The PGMDM is a plastic, track-attack mine which can be set to self-destruct in up to 24 hours. The PTM-3S is a magnetic influenced mine of the second generation which can be set to self-destruct in up to 24 hours.

b. *Tube Artillery.* The standard 152mm RDM round contains 9 anti-tank or 36 anti-personnel mines. The area covered by a single salvo from a battalion of 18 weapons is 525 x 375m.

c. *MBRLs.* A 122mm rocket can carry 6 anti-tank or 24 anti-personnel mines and a 9P140 “Uragan” rocket 24 anti-tank or 312 anti-personnel mines. The beaten zone of battery and battalion fire missions of each is given in Table 9-5. Corresponding figures are not available for the 9A52 “Smerch”.

TABLE 9-5: PLANNING DIMENSIONS OF REMOTE ANTI-TANK MINEFIELDS LAID BY BM-21 AND 9P140 MBRLs.

Dimensions	Battery		Battalion	
	BM-21	9P140	BM-21	9P140
Width (m)	1200	4000	3500	12000
Depth (m)	300	500	300	500
Area (ha)	36	200	105	600

Notes: (a) A BM-21 battery comprises 6 weapons and a battalion 18: the 9P140 counterparts are 8 and 24.

(b) The calculation is based on there being at least 0.2 anti-tank mines per metre throughout the minefield and on the level of dispersion likely at half the maximum range. At maximum range, the beaten zone is likely to increase by up to 75% and the density to fall correspondingly. Therefore more rounds need to be delivered at long-ranges to achieve an efficient density in an area of the above dimensions.

0921. **Types and Use of Remote Minefields.** The manoeuvre of obstacles is used both to create barriers to enemy manoeuvre and to pin forces in place and inflict disruption. In the first case, mines are delivered in front of the enemy on the direction where his progress is undesirable. In the second, they are laid actually onto his troops to prevent further movement save at a cost in either casualties if he drives through or time if he stops to clear lanes. Each technique has several applications:

- a. *Barrier Minefields* are created on actual or potential avenues of advance, withdrawal or redeployment to inflict delay; hamper a passage of lines; hinder deployment into pre-battle or battle formation; disrupt the enemy's entry into combat; close passages already created through obstacles; close gaps in deployment; build up obstacles in a penetration sector; prevent the enemy's widening of a penetration to the flanks; protect boundaries; cover the manoeuvre of friendly forces (especially during counter attacks or withdrawal); seal off the area of an air-landing.
- b. *Pinning Minefields* are used to: delay or prevent the movement of columns (particularly of second echelons, reserves or outflanking, forward or raiding detachments); disrupt an attack or counter attack, strike the enemy just before or even after he is within effective range of direct fire weapons; close breaches driven through the obstacle system; disrupt the work of CPs, logistics facilities, helicopter forward operating sites or gun positions; prevent the relocation of artillery or of manoeuvre forces which are to be subject to air or long-range artillery attack; prevent air landing forces from moving immediately against their objective and win time (half an hour to an hour) for the anti-landing reserve to mount a counter attack.

Fire Planning in the Attack

0922. **General.** The fire planning process includes target acquisition, combat organization, the assignment of missions, determination of ammunition requirements and the formulation of a detailed fire plan. This plan is coordinated and approved at the level of the highest participating formation. Thus, in an army attack, the army commander will lay down timings and specify the engagement priorities. His Commander of Missile Troops and Artillery (CMTA) will allocate targets and timings and communications to the AAG and DAGs. With the fire units, time and ammunition remaining, the divisional commanders and their CMTAs will apportion tasks to their DAGs and RAGs. Regimental commanders may then use what is left for targets of purely regimental interest.

0923. **Priorities.** The priority given to each target will obviously vary according to the stage of the battle. Thus, for instance, enemy reserves will be a high priority at the time of committal of a second echelon. The approximate order of importance is, however:

- a. Precision delivery means, nuclear weapons and associated C2 are always the first priority.

- b. Conventional artillery, air defence systems and mortars.
- c. Defensive strong points, especially ATGM and tanks within them.
- d. Command posts, OPs, communications and radar facilities.
- e. Reserves, logistic support units and routes used by the units moving up to counter attack.

0924. **Phases of Fire Support.** The aim is to crush the enemy through the conduct of an “artillery offensive”, the continuous supporting fire of artillery through the entire depth of the defence. The duration of this will vary with circumstances. There are four stages in the fire support of a penetration and breakthrough from the march. Each phase may be repeated for the committal of a subsequent echelon.

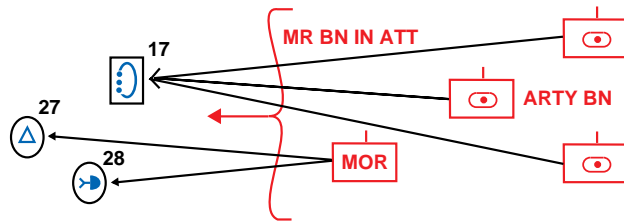
- a. *Fire Support of the Advance from the Depth.* This phase lasts from the attacking formation’s departure from its waiting area until its arrival on its line of deployment. It may last over an hour. During this period, air, missile and long-range artillery attacks are carried out against enemy air defences, surveillance means, precision weapons, artillery, aircraft on their bases (including helicopters and EW and reconnaissance means). The aim is to protect the advancing columns by destroying or harassing enemy systems that could interfere. Artillery fire for this phase is likely to be conducted largely from temporary fire positions, with the artillery shifting to its main positions for the preparatory phase.
- b. *Preparation.* The preparation phase begins when the attacking force deploys into battalion columns and lasts until it arrives at the enemy’s forward positions. It thus lasts up to 40-50 minutes, or less in an attack from a position of close contact. GENFORCE does not favour long preparations, however, as they compromise surprise and give the enemy time to carry out counter measures. If enough artillery and/or ACMs are available, giving a high density of fire, the preparation should be as little as 20-25 minutes. Electronic-fire superiority should already have been established in phase one, but aviation will continue to suppress enemy artillery, air and EW assets in phase two. The artillery will shift the focus of its fire to enemy forward positions, then to immediate reserves, then back to forward positions again. All known or suspected strongpoints, anti-tank weapons, OPs, radars and EW sites will be suppressed and enemy command and control disrupted. The use of precision, cluster and FAE munitions will greatly reduce the weight of ammunition and time required while still ensuring the adequate servicing of all targets: FAE is seen to be particularly effective against field fortifications. Although the preparation period usually lasts for 40-50 minutes, ideally all the artillery will not be firing for the whole period. There will be a series of bombardments, the first and last being the most powerful, with pauses for batteries to alter their gun positions to avoid enemy counter-bombardment. Ideally, for this reason, individual fire missions should not last for more than about five minutes (possibly longer if enemy artillery

has been thoroughly suppressed), possibly with air attacks filling any significant gaps, though problems of coordination and target acquisition in the dust and smoke created by artillery fire will limit the effectiveness of aviation.

- c. *Support.* The support phase begins as the assault troops deploy into battle formation. It is considered vital that the enemy does not identify the transition from preparatory to support phases, alerting him to the need fully to man fire positions and unleash defensive fires. To conceal the imminence of the assaulting troops arrival on the enemy's forward edge while still continuing to suppress the enemy, artillery may switch for the last salvo or two to flechette rounds which will not endanger the leading tanks. It continues until they have fought through the first echelon brigade's defences. In this phase, first priority goes to maintaining fire superiority. To help the advance forward, fire is preplanned on sequential lines moving progressively deeper into the enemy's deployment, and to the flanks of the advance. Great stress is placed on the continuity of support, making sure that the fire of the artillery and the advance of the manoeuvre troops do not get out of phase.
- d. *Accompaniment.* This phase begins when the enemy's forward brigades have been bypassed or penetrated and continues until the formation's mission is accomplished. It is a phase of greater manoeuvre, characterized by meeting battles, attacks off the line of march to penetrate defended lines in depth, the repulse of counter attacks and the support of heliborne landings. Artillery units will have to displace more frequently, moving forward with the units they are supporting. In this phase, artillery is expected to show considerable flexibility in manoeuvring its fire and in shifting units onto the most critical sector, for example to support the committal of a second echelon. There must be close cooperation between the gunners and army aviation, on whom much of the fire support burden will fall in this phase as much of the artillery will, at any time, be either moving or out of effective range and thus unable to support attacks during a rapid advance. Because GENFORCE sees the future battlefield as being highly dynamic, characterised by great mobility and meeting engagements/battles, accompaniment will, in fact, be the normal form of artillery support. Multiple rocket launchers are seen as being particularly valuable in fast moving actions. Thanks to their ability to deliver a heavy weight of fire in a matter of seconds (14.1 tonnes of HE can be put down by a BM-21 battalion in 20 seconds), they are very suitable for engaging mobile armoured targets or for counter-bombardment. The long-range, ACMs and RDMs of 9P140 and 9A52 are an important addition to GENFORCE's artillery's ability to support a rapidly developing battle.

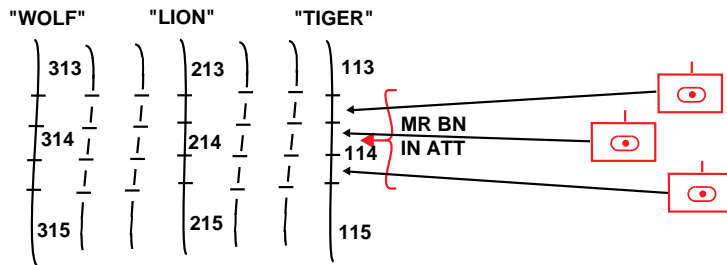
0925. ***Types of Fire Support.*** Artillery offers several forms of support to attacking troops, these being illustrated in Diagram 9-1 (a-d). The techniques are not, of course mutually exclusive. A combination of three or four is likely.

a. FIRE AGAINST INDIVIDUAL TARGETS AND CONCENTRATION OF FIRE



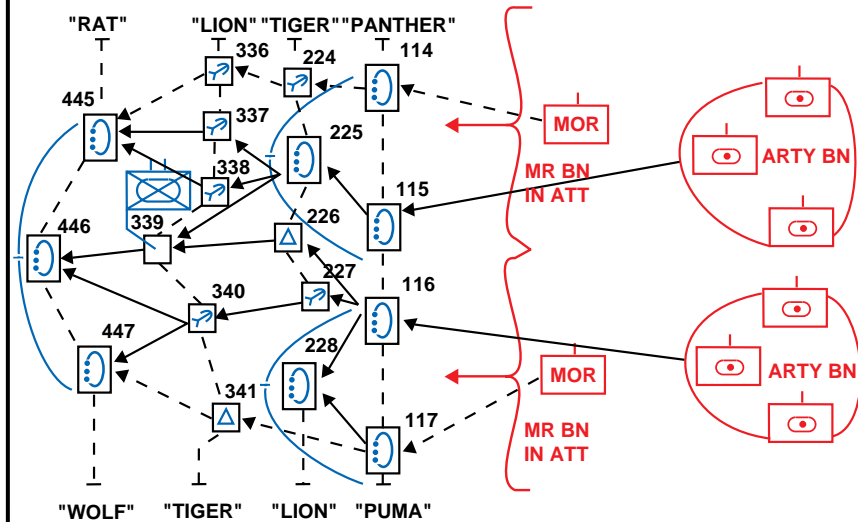
NOTES:
 (a) TARGET NUMBERS ARE SHOWN BY THE CONCENTRATION SYMBOL.
 (b) FOR DIMENSIONS OF TARGET AREAS, SEE NOTES b-d TO DIAGRAM 7-2(b).

c. MOVING BARRAGE



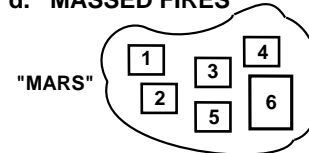
NOTES:
 (a) FIRE LINES ARE NAMED AFTER PREDATORY ANIMALS. THE DISTANCE BETWEEN MAIN LINES IS 300-1000 M, AND BETWEEN INTERMEDIATE LINES 100-300 M. THE SPACING DEPENDS ON THE CHARACTER OF THE DEFENCE AND THE PLANNED TEMPO OF THE ATTACK. THE MAIN LINES COINCIDE WITH THE PRINCIPAL DEFENSIVE POSITIONS.
 (b) INTERVALS BETWEEN SHELLS MUST BE NOT MORE THAN 15 M FOR 122 MM OR 25 M FOR 152 MM.
 (c) INFANTRY APPROACH NO CLOSER THAN 500 M FROM UNOBSERVED FIRE, AND ARMOUR NO CLOSER THAN 300 M. WITH OBSERVED FIRE INFANTRY CAN BE 400 M BEHIND AND AMOUR 200. TROOPS SHOULD NOT BE NEARER MBRL STRIKES THAN 1000 M. FIRE IS SHIFTED ON THE ORDER OF THE SUPPORTED UNIT COMMANDER AS ATTACKING SUB-UNITS REACH THE TROOP SAFETY LINE (IE, USUALLY EVERY 2-3 MINS).
 (d) WITH TWO ARTILLERY GROUPS, A DOUBLE MB CAN BE FIRED AGAINST TWO LINES SIMULTANEOUSLY.

b. SUCCESSIVE CONCENTRATIONS OF FIRE



NOTES:
 (a) FIRE LINES ARE NAMED AFTER PREDATORY ANIMALS. THEY ARE USUALLY 300-1000 M APART.
 (b) MAXIMUM DIMENSIONS OF GROUP TARGETS ARE:
 (1) 122 MM BATTALION - 6 HA
 (2) 152 MM BATTALION - 9 HA
 (c) MAXIMUM DIMENSIONS OF INDIVIDUAL TARGETS ARE:
 (1) 122 MM BATTERY - 2 HA
 (2) 152 MM BATTERY - 3 HA
 (d) IN 12 MINUTES, A SINGLE ARTILLERY BATTALION CAN SUPPRESS:
 (1) 1 X SP BATTERY, 1 X MORTAR PLATOON, 1-2 INDIVIDUAL TARGETS, OR
 (2) 1 X PLATOON STRONG POINT, 1-2 X INDIVIDUAL TARGETS, OR
 (3) 6-8 X INDIVIDUAL TARGETS.

d. MASSED FIRES



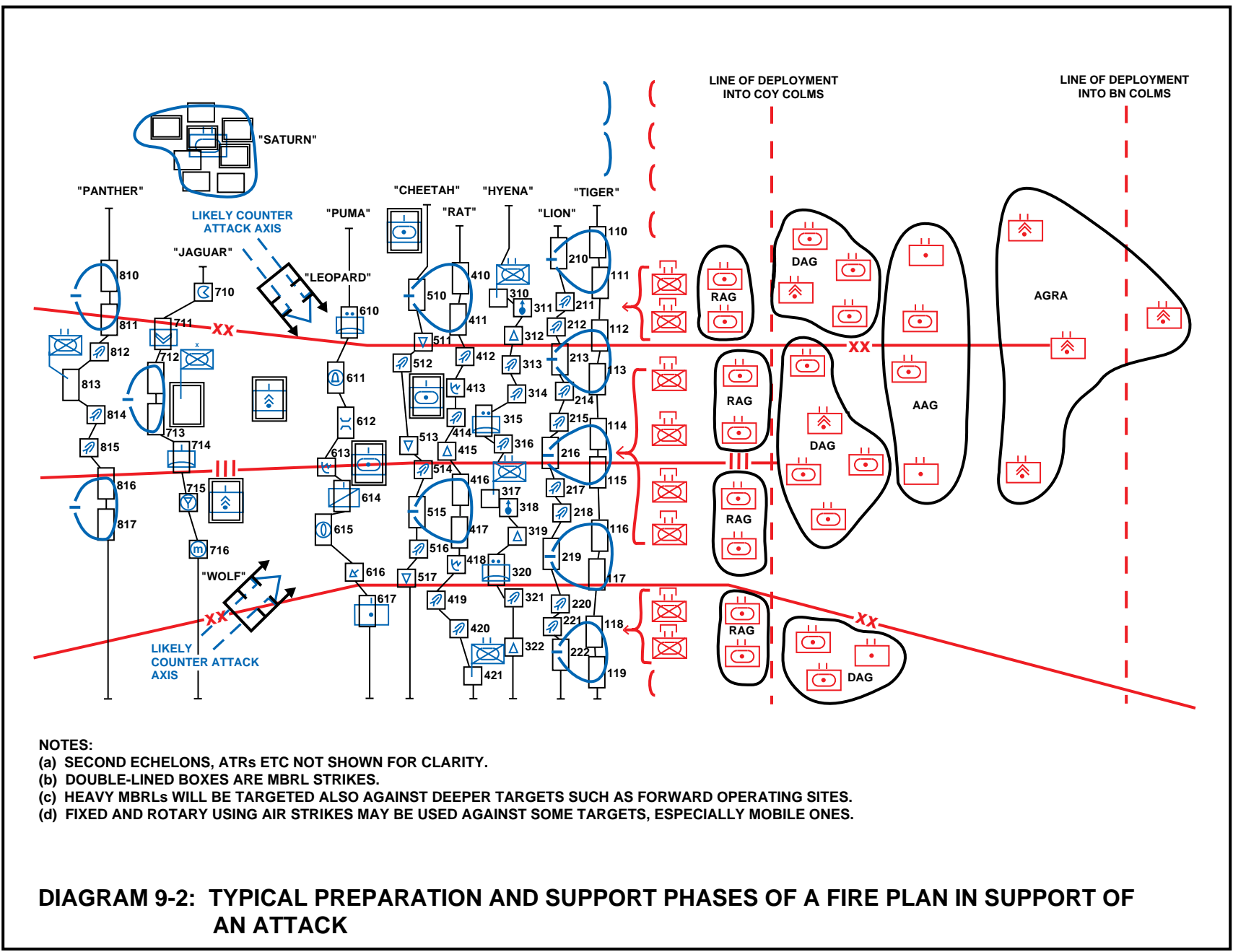
NOTES:
 (a) MASSED FIRES ARE NAMED AFTER PLANETARY BODIES.
 (b) ILLUSTRATED IS A CONCENTRATION OF 5 X ARTILLERY BATTALIONS AND A MBRL BATTALION (NO 6).

DIAGRAM 9-1: TYPES OF ARTILLERY FIRE IN THE ATTACK

- a. *Fire Against an Individual Target*, such as an ATGM, OP, radar post, weapon emplacement. A battery can engage up to two such point targets simultaneously.
- b. *Concentration of Fire (CF)* is the fire of several batteries or even battalions on a single area target. It is used against precision weapons, strongpoints, CPs, OPs, artillery and mortar positions and enemy columns.
- c. *Successive Concentrations of Fire (SCF)*. The normal form of artillery support in the attack is lines of SCFs to the front and flanks of the advancing troops. On each line of SCFs an artillery battalion is given either one group target (eg, a platoon strongpoint) or 2-3 individual targets (eg, ATGM). Given that anti-tank weapons are deployed in great depth, it is considered desirable to fire on two or even three lines simultaneously. SCFs are on call, as are their transfer to subsequent lines, enabling supporting artillery to react flexibly to differing rates of advance within the attacking formation.
- d. *Moving Barrage (MB)*. The use of SCFs is appropriate against strongpoint defence. If the enemy has created a fortified area, or even a thick network of trenches, making it difficult to locate the exact position of strongpoints, a barrage is seen to be the most reliable support for a breakthrough. The MB is a continuous curtain of fire successively switched from bound to bound immediately in front of the attacking troops. It may be single or double, depending on the strength of the defence and availability of artillery. Main and intermediate lines are nominated. The distance between them depends on the nature of the defence and the expected rate of advance, but it is usually 300-1000m between main and 100-300m between intermediate lines. The switching of fire from one main line to the next is done on the order of the commander of the supported manoeuvre unit, and from one intermediate line to the next on the order of individual artillery battalion commanders on the basis of their observation of progress on their sector (on average, after 2-3 minutes).
- e. *Massed Fire* is the concentration of the bulk or all of available artillery of a lower or even higher formation to destroy a large grouping in a short period of time (eg, an enemy FUP or assembly area). They are planned at formation level only.
- f. *Direct Fire*. Fire over open sights is seen to be economical of ammunition and at the same time giving a better guarantee of the destruction of point targets than indirect fire. This role is not limited to tanks, ATGM and other traditional direct fire weapons. Often substantial numbers of guns may be used in this way, particularly against structures which require large rounds for their demolition.
- g. *Smoke* shoots will be dealt with in paragraph 0998 and Table 9-10.

0926. **Typical Fire Plan.** Diagram 9-2 illustrates a typical fire plan for the preparation and support phases of a division conducting a penetration battle. The enemy's covering forces have been destroyed or driven back and the troops in contact have established that the division faces the better part of a brigade at about 70-80%, dug in in a hasty strongpoint type of defence. Intensive reconnaissance has revealed the alignment of the defence and has pinpointed many targets in the depth as well as in forward positions. Meanwhile, the artillery to support the attack has deployed: the division has been reinforced by three battalions and an AAG and an AGRA of four battalions each is in general support. During the night, the division has moved up, its advance from the depth being covered by air and long-range artillery strikes on enemy airfields, helicopter forward operating sites, precision weapons and other long-range artillery, EW sites, radars and air defences.

- a. *Preparation.* The first echelon regiments will move forward from a waiting area 20km from the line of contact, deploying into battalion columns at a distance of 12km, into company columns at 5km and into platoon columns at 2km. The advance and deployment into battle order will take 50 minutes. During this period, a preparation will be fired as follows:
 - (1) H-50 to H-45. A sudden heavy series of fire strikes against all identified strongpoints, artillery and mortar positions, CPs, OPs, radars, EW sites and air defences. (Troops in contact prepare for reconnaissance by battle and assault troops deploy into battalion columns.)
 - (2) H-45 to H-30. Systematic attacks on all identified elements of the enemy first echelon battalions, to be followed by reconnaissance/raids by platoons of the units on the line of contact. Air attacks on enemy artillery responding.
 - (3) H-30 to H-24. Intense counter-bombardment effort. (Tank and motor rifle troops will be deploying into company columns. Troops in contact will conduct reconnaissance by battle, probing for weak spots or any sign that the enemy is trying to withdraw).
 - (4) H-24 to H-16. Systematic attacks on enemy depth defences, reserves and air defenders. Meanwhile, fire planning for the support phase is revised in light of the results of reconnaissance by battle.
 - (5) H-16 to H-11. Counter-bombardment and attacks on command and control. (Tank and motor rifle troops will be deploying into platoon columns. Reconnaissance by battle is ended and troops so engaged consolidate any gains or withdraw where repulsed).
 - (6) H-11 to H Hr. Intense fire on forward defending companies and anti-tank weapons. (Assault troops deploy into battle formation.)



c. *Support.*

- (1) H Hr to H+25. SCFs in timed programme to depth of forward defending companies and counter-bombardment.
- (2) H+25 to H+50-60. SCFs on call to depth of forward enemy battalions. Defensive fires on call to meet counter attacks (see below).

d. *Planned Variant.* The above fire plan will be executed if the enemy remains in place to conduct a positional defence. If, however reconnaissance by battle, conducted either during the fire support for the advance from the depth or in phases (2)-(3) of the preparation, reveals that the enemy is preparing to withdraw and practise manoeuvre defence, an alternative, pre-prepared fire plan will be employed.

e. *Avoidance of Stereotype.* While the above fire plan is described as “typical”, it must be remembered that GENFORCE stresses the need to avoid stereotypical plans in the interests of surprise. Thus, for example, false shifts of fire or the use of flechette rounds to allow fire support to overlap the beginning of an assault are but two possible variations on a theme.

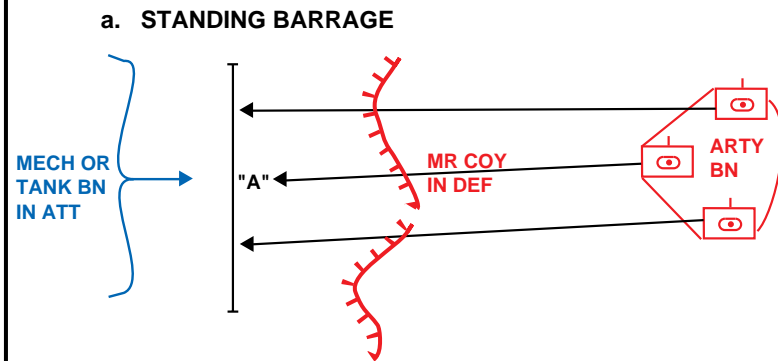
Artillery in Defence

0927. **General.** Great stress is laid on the integration of artillery, air, anti-tank and EW assets into an overall defensive fire plan. Several variations of the plan are produced, based on the various approach and deployment options open to the enemy. It is recognised that, in the attack, the enemy is likely to enjoy superior fire support. It is thus particularly important to manoeuvre massed fire-power against key groupings at the crucial moment and not dissipate resources. Fire support is planned in five phases, the first two being of an operational and operational-tactical nature and planned at SG and army/corps levels respectively. These are:

a. *Fire on Distant Approaches* (ie, denial of movement and deployment of enemy forces). This is carried out by fixed wing aviation, SSMs and long-range artillery using both precision and conventional munitions. Where possible, enemy units are destroyed as they move up, but if target intelligence is inadequate, disruption and delay will be inflicted by creating barriers of remotely delivered mines. To ensure maximum reach into the enemy’s depth, long-range systems and SSMs (including RSCs and RFCs) will deploy as far forward as the security zone initially. If the defensive is adopted when already in contact with the enemy, then this phase will concentrate on the enemy’s second echelon. Throughout the period before the enemy’s attack, considerable attention is paid to denying the enemy good target intelligence for his preparation by the maintenance of strict radio silence and the destruction, by specially chosen anti-tank systems firing from temporary fire positions, of enemy reconnaissance vehicles. As much of the artillery as possible will remain

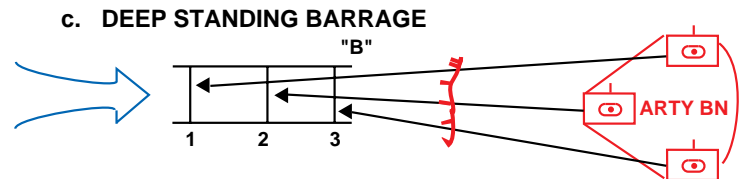
silent until needed to repulse a major attack, and batteries used prior to the main enemy blow falling will fire from temporary fire positions or be used as roving batteries to confuse enemy artillery intelligence.

- b. *Counter-Preparation.* This desirable operational-tactical blow is part of the first phase, being designed to disrupt the enemy's deployment and preparation for his attack. It employs all available weapons. The aim is to anticipate the enemy's preparatory bombardment by a few minutes. The intelligence necessary to achieve this is not, of course, easy to acquire, and the time required to organize it may well be lacking (ie, 6-8 hours at army or corps level). Commanders will be faced with a difficult decision. When accomplished successfully, however, it can be devastatingly effective. Artillery is best used to hit enemy tank and infantry concentrations forming up for the attack, though counter-bombardment is not neglected. Meanwhile, air attacks are launched against enemy air bases, helicopters, VSTOL forward operating sites and artillery.
- c. *Support of the Battle for the Forward Edge.* Artillery repulsion of the attack is the second phase of the defence. Largely tactical in nature, most artillery assets will be controlled by the forward divisions in this phase. AAGs/AGRAs and CAGs/CGRAs will still be held, however, for counter-bombardment and to give the army/corps commander the means to switch support quickly from one axis to another and to support higher formation counter attacks. Army aviation resources will also remain under army/corps direction to continue hitting depth targets and to provide a flexible firepower reserve that can be quickly manoeuvred to meet dangerous developments. DAGs/CAGs and (where formed) RAGs will endeavour to break up attacks and split armour from the infantry with pre-planned linear and box concentrations both in front of forward edge positions and minefields, in gaps between strongpoints, and eventually in depth. Generally, guns and multiple rocket launchers will start to engage the enemy 25-30km from the line of contact and howitzers will open fire when the enemy is 15-20km distant. Short but intense fire strikes, no more than 5 minutes in duration, are fired, and will be followed by displacement to nearby alternative fire positions to avoid counter-battery fire.
- d. *Support for Defending Troops in Their Depth.* The enemy is expected to penetrate the defence, but to pay an appropriate price and be canalized. The artillery will support defensive positions in depth, separate enemy infantry from armour and fighting troops from their logistic support and create disruption. If necessary, artillery may even be used in the direct fire role as a backstop against armoured penetrations. Generally, the artillery plays a key role in creating suitable conditions for the launching of a counter attack (strike).



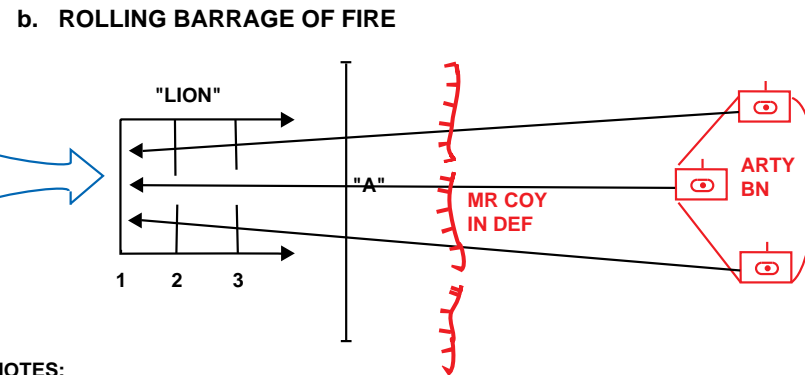
NOTES:

- (a) STANDING BARRAGES ARE NAMED AFTER TREES AND DENOTED ON PLANNING MAPS BY THEIR INITIAL LETTERS (EG "A" FOR ASH, "B" FOR BIRCH).
- (b) THEY ARE LOCATED NO NEARER THAN 50 M FROM ENTRENCHED TROOPS OR 400M FROM TROOPS IN THE OPEN.
- (c) THE WIDTH IS NO MORE THAN 50 M PER GUN (THUS, UP TO 900 M FOR AN 18 WEAPON BATTALION OR 400 M FOR A BATTERY OF 8 MORTARS).
- (d) STANDING BARRAGES ARE PLANNED NO CLOSER TO COVER THAN 150-200 M TO ENSURE THAT THE ENEMY DOES NOT PASS THE LINE BEFORE THE FIRST FOUNDS LAND, THANKS TO A COVERT APPROACH.



NOTES:

- (a) A DEEP STANDING BARRAGE (ALSO NAMED AFTER TREES) CAN BE FIRED BY A SINGLE BATTALION ON A NARROW APPROACH (300 M FOR AN 18 GUN BATTALION) OR BY SEVERAL BATTALIONS ON A WIDER APPROACH. FIRE IS DELIVERED ONTO EACH LINE SIMULTANEOUSLY.
- (b) LINE 3 IS LOCATED 300-400 M FROM THE FORWARD EDGE.

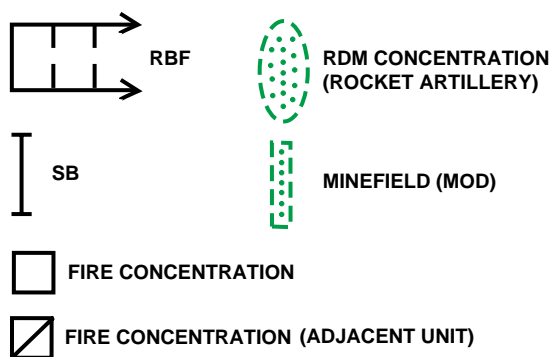
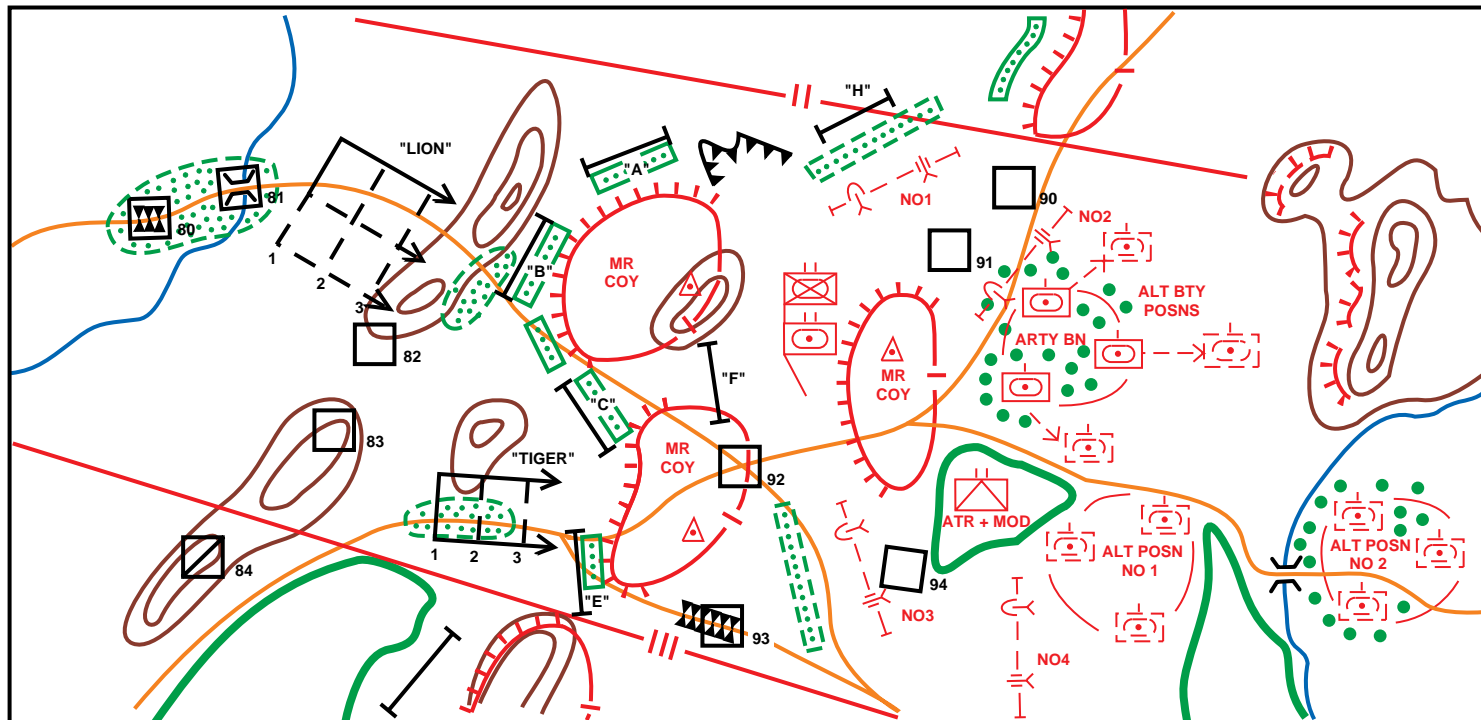


NOTES:

- (a) DEFENSIVE ROLLING BARRAGES ARE NAMED AFTER PREDATORY ANIMALS.
- (b) THE FARTHEST (FIRST) LINE IS ESTABLISHED 2-4 KM FROM THE FORWARD EDGE OF THE DEFENCE, AT THE DISTANCE AT WHICH ATTACKING TROOPS ARE EXPECTED TO DEPLOY FROM COMPANY INTO PLATOON COLUMNS. THE DISTANCE BETWEEN BARRAGE LINES IS 400-600 M, DEPENDING ON TERRAIN, THE ANTICIPATED SPEED OF THE ATTACKERS AND OBSERVATION REQUIREMENTS. THE FINAL LINE IS 700-1000 M FROM THE FORWARD EDGE. OFTEN, A STANDING BARRAGE IS SITED BETWEEN THE END OF THE RBF AND THE FORWARD EDGE.
- (c) THE WIDTH OF THE BARRAGE IS NO MORE THAN 25 M PER SHELL BURST (IE, UP TO 450 M PER BATTALION OF 18 GUNS).
- (d) FIRES ARE INITIATED AS THE ENEMY APPROACHES THE FIRST LINE AND SHIFT FROM LINE TO LINE AS THE BULK OF ENEMY ARMOUR LEAVES THE IMPACT AREA. FIRE IS CONTINUED ON THE LAST LINE AFTER TANKS HAVE PASSED THROUGH TO SEPARATE TANKS FROM FOLLOWING MOUNTED OR DISMOUNTED INFANTRY.

(1) CONCENTRATIONS OF FIRE AND MASSED FIRES CAN ALSO BE USED IN DEFENCE (SEE DIAGRAM 7-1).

DIAGRAM 9-3: TYPES OF ARTILLERY FIRE IN DEFENCE (1)



ARTILLERY BATTALION MISSIONS:

1. DURING THE ARTILLERY DENIAL OF MOVEMENT AND DEPLOYMENT, BE PREPARED TO ENGAGE ENEMY COLUMNS WITH CONCENTRATIONS 80, 81, 82, 83.
2. DURING THE REPULSION OF THE ATTACK, BE PREPARED TO EXECUTE ROLLING BARRAGES "LION" AND "TIGER" AND STANDING BARRAGES "ASH", "BIRCH", "CEDAR", "ELM", "HAZEL". (NOTE THE ALTERNATIVE LINES FOR RBF "LION".)
3. DURING THE ARTILLERY SUPPORT FOR THE DEFENCE IN THE DEPTH, BE PREPARED TO FIRE CONCENTRATIONS 92, 93 AND STANDING BARRAGE "FIR".
4. DURING THE FIRE DESTRUCTION OF THE ENEMY IN SUPPORT OF A COUNTER-ATTACK, BE PREPARED TO FIRE 10 MIN CONCENTRATIONS 90, 91, 92, 93, 94.

RDM CONCENTRATIONS ARE ON CALL FROM DIVISIONAL MBRL BATTALION.

DIAGRAM 9-4: DEFENSIVE FIRE PLAN OF AN ARTILLERY BATTALION SUPPORTING A MR BATTALION

- e. *Support for Counter Blows.* A density of at least 50-60 weapons per km will be necessary to ensure the success of a counter blow, and the preparation will last at least 30-40 minutes. Artillery will require two hours for preparation, including one of daylight. This factor, and the time required to move second echelon artillery forward, must be taken into account in planning.

0928. **Fire Planning.** Artillery and aviation fire support in defence are planned to accomplish the following, in rough order of priority/order of occurrence:

- a. *A SG Counter Preparation* is normally fired on the junction of two armies/corps, using the assets of both. It is conducted on a sector 20-25km wide with a density of 40-50 weapons per km to a depth of 25-30km (including air strikes). Normally, 3-4 fire strikes will be delivered in a period of 25-30 minutes.
- b. *An Army or Corps Counter Preparation* is executed on a 10-15km sector with a density of 30-40 weapons per km to a depth of 10-15km (or 25-30km if airpower is made available). It, too, will last 25-30 minutes.
- c. Destruction of enemy precision weapons and their C3I.
- d. Destruction of aviation on airfields and destruction, or at least neutralization, of enemy artillery. This includes use of smoke to blind enemy OPs and fire units.
- e. Disruption of command and control.
- f. Support for covering forces in the security zone.
- g. Neutralization or disruption of enemy march columns, concentrations and units deploying to attack.
- h. Defensive fire to protect forward units, cover gaps or halt units which have achieved a penetration.
- i. Support for counter attacks.
- j. Remote mining of terrain, or of breaches in obstacles.
- k. Battlefield illumination at night.
- l. Destruction or remote mining of logistic dumps.

0929. **Types of Defensive Fire.** These are three types of defensive fire peculiar to defence, illustrated in Diagram 9-3. Diagram 9-4 illustrates the combination of such defensive fires in support of a defending battalion. Of course, standard concentrations and massed fire may be employed as well.

- a. *Standing Barrage (SB)*. SBs are established in the open, where the enemy can be seen in time to bring down fire on the target (ie, 150-200m in front of cover), and not less than 300m in front of dug in troops or 400m forward from troops in the open. The width of a SB will depend on the terrain and the organization of the defence, but must ensure a density of not more than 50m per shell. Battery, or supported company commanders, may call down a SB.
- b. *Deep Standing Barrages* are fired on narrow approaches, with fire delivered simultaneously on several lines simultaneously.
- c. *Rolling Barrages of Fire (RBF)* are prepared on the most likely enemy approaches. They consist of two or three lines, the distance between them depending on likely enemy deployment lines and rates of advance and the visibility between bounds. The first line may be 2-4km from the forward line of defence (where the enemy is expected to deploy into platoon columns), with a second 700-1000m distant and a third 400-600m away. The final line is designed to create a curtain of fire which will separate enemy tanks from their infantry. The width of a RBF will vary as does that of a SB, but there must not be more than 25m between shells.

0930. ***Artillery in the Direct Fire Role.*** GENFORCE guns and howitzers are all equipped with the sights necessary for direct fire engagements. Should enemy armour break through, artillery sub-units may be used, in extremis, as an anti-armour back-stop. They will be expected to delay and disrupt the attackers and thus create favourable conditions for a counter attack into the enemy's flank.

0931. ***Protection of Support Assets.*** Especially if the enemy has superior resources, it is necessary to ensure the continuing viability of fire support units. Thorough camouflage of gun positions and helicopter forward operating sites is stressed. Radio silence is maintained for as long as possible (certainly until the start of the main attack), line communications being used until no longer adequate to exercise timely control. Artillery guns and batteries each have primary and alternate firing positions. Artillery concentrations will be short, but very intense, and fire units will expect to move frequently to avoid counter bombardment. Roving batteries will also be used to confuse enemy artillery intelligence. The activities of these are carefully planned in advance by the CMTA, who lays down their itinerary, fire positions and missions. Roving batteries should leave dummies in their positions when they move on to give the impression they are still occupied. Some batteries and individual guns may also be deployed in the direct fire role, preferably in defilade or reverse slope positions so that they can surprise the enemy at short range.

Counter Bombardment

0932. ***The Problem.*** In the offensive, the attainment of electronic-fire superiority is a precondition for success. In defence, it must be denied to the enemy

and actually achieved for at least a specified time in specific areas to create favourable conditions for the conduct of counter moves. These essential requirements mean that the duel with enemy artillery is the most critical of the artillery's missions. The struggle is a difficult one. Most artillery is now self-propelled and armoured. It tends to deploy just long enough to complete a fire mission and then relocates to a hide or the next fire position (ie, it is in action for only about 5 minutes in any one position or considerably less for MLRS). It is thus more difficult to locate in advance than was the case in the past and the time available to bring down fire is greatly reduced: if the enemy guns have a burst-fire capability which enables them to move after an engagement of only a minute or so, there may not even be time for artillery locating radars to do their job and pass data to the fire control centre. Furthermore, with batteries dispersed over a km square or more (and even greater areas for MLRS), there can no longer be any question of suppressing an entire battery with area fire: guns and rocket launchers have to be engaged individually.

0933. **Organization of CB.** Winning electronic-fire superiority is the priority task for any formation. This requires a combined arms effort. As army/corps is normally the lowest level at which operational and operational-tactical missiles, fixed and rotary wing aviation and long-range artillery and MBRLs are integrated with deep-looking RTAVs, CB is usually organized at this level. Automated collection, processing and dissemination of intelligence in a system integrated with fire means has reduced the time from detecting a target to engagement by RSCs and RFCs to 2-3 minutes: efforts are being made to halve this time. Because artillery earmarked for CB has to be in constant readiness to engage fleeting targets, such units are not considered to be available for other fire missions not connected with the struggle for electronic-fire superiority. In practice, the entire AAG and CAG and AGRA/CGRA will generally be devoted almost exclusively to this struggle, at least until fire superiority is won. GENFORCE particularly favours the use of Uragan and Smerch for CB missions because of their great range and beaten zone with cluster munitions. These MBRLs are linked to RPVs and artillery locating radars in RFCs for the conduct of CB, as is much tube artillery.
0934. **CB Tactics.** Increasingly, GENFORCE theorists argue that mere suppression of enemy artillery is not enough. It may win time to execute an attack or a manoeuvre, but the suppressed unit will still be able to return to the battle for electronic-fire superiority. Destruction is now the normal goal.
- a. *The size of Fire Units* employed is driven by the need to deliver the volume of fire required to destroy the target before it can leave the impact area (ie, in 1-2 minutes in the case of a SP gun). Thus, to give a 50% chance of destroying a single gun at a range of 15km and firing for one minute with HE will require 21 x 152mm gun-howitzers. Alternatively, 1-2 heavy MBRL cluster rockets with terminal guidance provided by an artillery locating radar will almost certainly accomplish the task.

- b. *Pinning the Enemy in Place.* A favoured GENFORCE tactic is to pin enemy artillery with RDMs so that the norm for ammunition expenditure can be fired by a smaller fire unit over a longer period or so that the enemy can be attacked by aviation.
- c. *Disrupting Enemy Communications.* The most promising approach to CB is seen to be the disruption of radio communications within dispersed battery positions, either with remotely delivered jammers or the use of EMP. This will force the enemy either into a time consuming move or into a more compact deployment pattern where line or even voice is used to control the gun position. In the latter case, the enemy will present a more vulnerable target for subsequent CB fire missions.
- d. *Other Targets.* CPs, fire direction centres, artillery locating radars, DF and intercept stations, ammunition dumps and other targets vital to the enemy's conduct of long-range battle enjoy as high a priority for engagement as fire means.

0935. **Reducing Vulnerability to Enemy CB** is, of course, critical to success in the struggle for electronic-fire superiority. Where possible, artillery will fire short fire missions and then relocate immediately. Where necessity precludes this tactic, "roving" guns will be used to confuse enemy locators and dummies will be deployed when time and the tactical situation permit to draw fire (GENFORCE believes that replicating 20-30% of the actual number of fire positions will reduce losses by about one third: moreover, enemy guns engaging dummies reveal themselves for destruction by counter-fire).

SECTION 3 - ANTI-TANK RESERVES AND MOBILE OBSTACLE DETACHMENTS

Roles and Composition

0936. **General.** While GENFORCE has always stressed the importance of ATRs, their significance has grown in recent decades. This is partly because major armies are now almost totally mechanized, so defence must first and foremost be anti-tank in nature. It is also a function of the trend for units and formations in defence to be assigned broader frontages as a result of reduced force levels and of the desire to seek protection through dispersal. This will lead to gaps existing between them. Even where such gaps do not exist, for instance on key axes, the firepower available to the attacker will enable him rapidly to destroy at least the forward elements of the defender on chosen sectors. Penetration of the defence is accepted as inevitable and there is therefore a need for a grouping that can manoeuvre quickly to plug breaches and halt, or at least delay the attacker and prevent him from gaining momentum. Furthermore, future war will be characterized by fluidity, manoeuvre and by the possibility of heavy losses suffered by groupings over short time periods. As a result, units and even whole formations may have to transition rapidly from one form of combat action to another. They will routinely find themselves with no secure flanks or rear areas, for combat will develop in an uneven, non-linear fashion. Frequently, opposing forces

will find themselves intermingled and armoured threats and counter-threats will often develop suddenly and unexpectedly. In these circumstances, it is important for the combined arms commander to have in hand assets with which he can execute counter moves without weakening his main grouping, or with which he can cover the deployment of key elements of his force. The ATR and MOD provide the economy of force grouping which is dedicated to meeting armoured thrusts and counter thrusts, whether to maintain the stability of the defence or to ensure the maintenance of momentum in attack.

0937. **Missions.** The ATR and MOD work together as a team, with the latter under the command of the former. The MOD may, however, be temporarily detached when the level of threat is low to carry out obstacle creation in support of defending forces before reverting to its main role.

a. *On the Defensive.* Missions include: reinforcing the anti-tank defence of the first echelon on important axes; carrying out counter penetration against armoured groupings that have wedged into the defence or are penetrating into the depth; covering gaps in defensive formation, or boundaries or flanks; protecting the deployment lines of counter attack groupings or SOUs or raiding detachments/groups; gaining time for the mounting of a counter attack; countering air landings.

b. *In the Offensive.* Missions include: covering the flanks of attacking groupings; repulsing counter attacks; covering the committal of second echelons, OMGs or raiding or forward detachments/groups; sealing lines of retreat for encircled forces; consolidating captured lines or areas; countering air landings.

0938. **Composition.** The growing importance of the ATR and MOD and the requirement for them to act autonomously have led to their expansion into combined arms groupings with greater mobility and survivability than before. The current organic composition of the regimental and lower formation anti-tank units is outlined in Table 9-6. An anti-tank brigade will comprise 3-4 such battalions (which may be employed as a complete formation or deployed as 2-4 separate groupings). However, the composition of an ATR and MOD will always be tailored to the mission assigned to the parent unit or formation, the likely strength of the enemy and the terrain. Thus, they may be reinforced by extra artillery, motor rifle troops, tanks, air defence or engineers and often by a reconnaissance/target designation helicopter. Moreover, they will frequently find their efforts augmented by remote mining and by the actions of attack helicopters.

0939. **Artillery.** The organic artillery battery of the ATR is important not merely for its ability to suppress infantry and separate them from the tanks. It can also deliver RDMs and, firing the Krasnopol semi-active laser homing projectile, destroy tanks at a range of 18km with a 70% chance of success (though the range of the laser designator is only 7km).

0940. **Engineers.** The main task of the engineers is to lay minefields, the design of which is dealt with in Section 6. Where time is short, the MOD will resort to surface laying for part or all of the protective minefield. It has smoke generators which can cover obstacle creation and/or be used for deception purposes. The MOD also has the capability of digging anti-tank ditches, destroying road surfaces, blowing bridges and culverts, creating abattis and other obstacles.

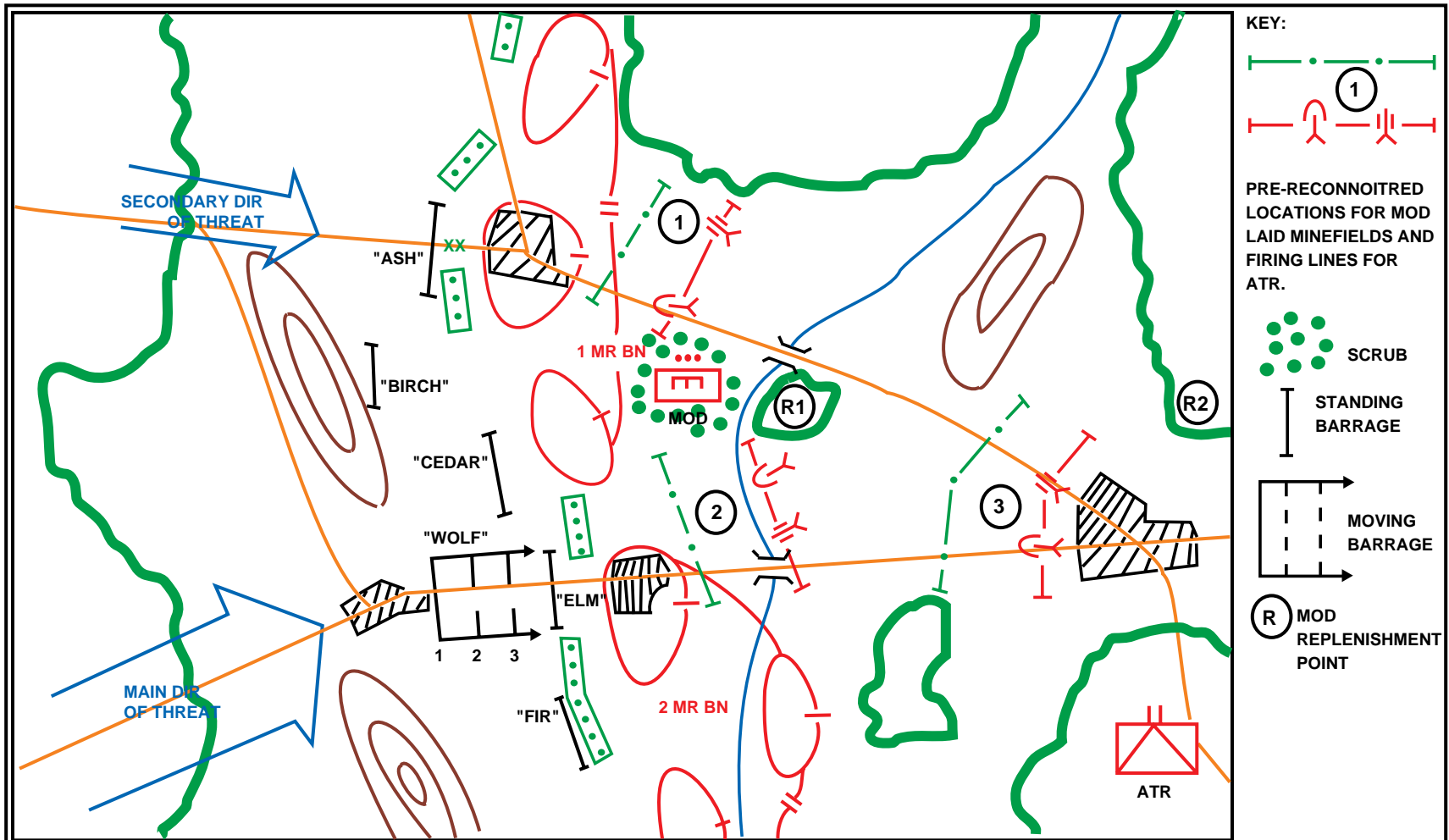
TABLE 9-6: COMPOSITION OF AN ANTI-TANK BATTALION AND MOBILE OBSTACLE DETACHMENT (combat elements only)

Sub Unit	EQUIPMENT											
	GMZ/ PMZ4	UMZ	Ditcher/ rd harrow	Dozer/ Crane	TDA-M	MT-12/ 2A-45 (a)	9P148/ 9P149	Metis	BMP	2S-3 /19	2S-6	Radar
A-Tk Coy						12						1
A-Tk Coy							12					1
MR Coy								6	14			
Arty bty										6		
AD bty											4	
Recce pl									3(b)			
MOD	3-6	1	1	1	2				1(c)			

- Notes:
- (a) The armoured, SP version of 2A-45M is found in many higher formation units.
 - (b) Excluding 1 x BRM-1K. A reconnaissance/target designation helicopter will often be under command.
 - (c) Sapper section (not always found).

Tactical Deployment of the ATR and MOD

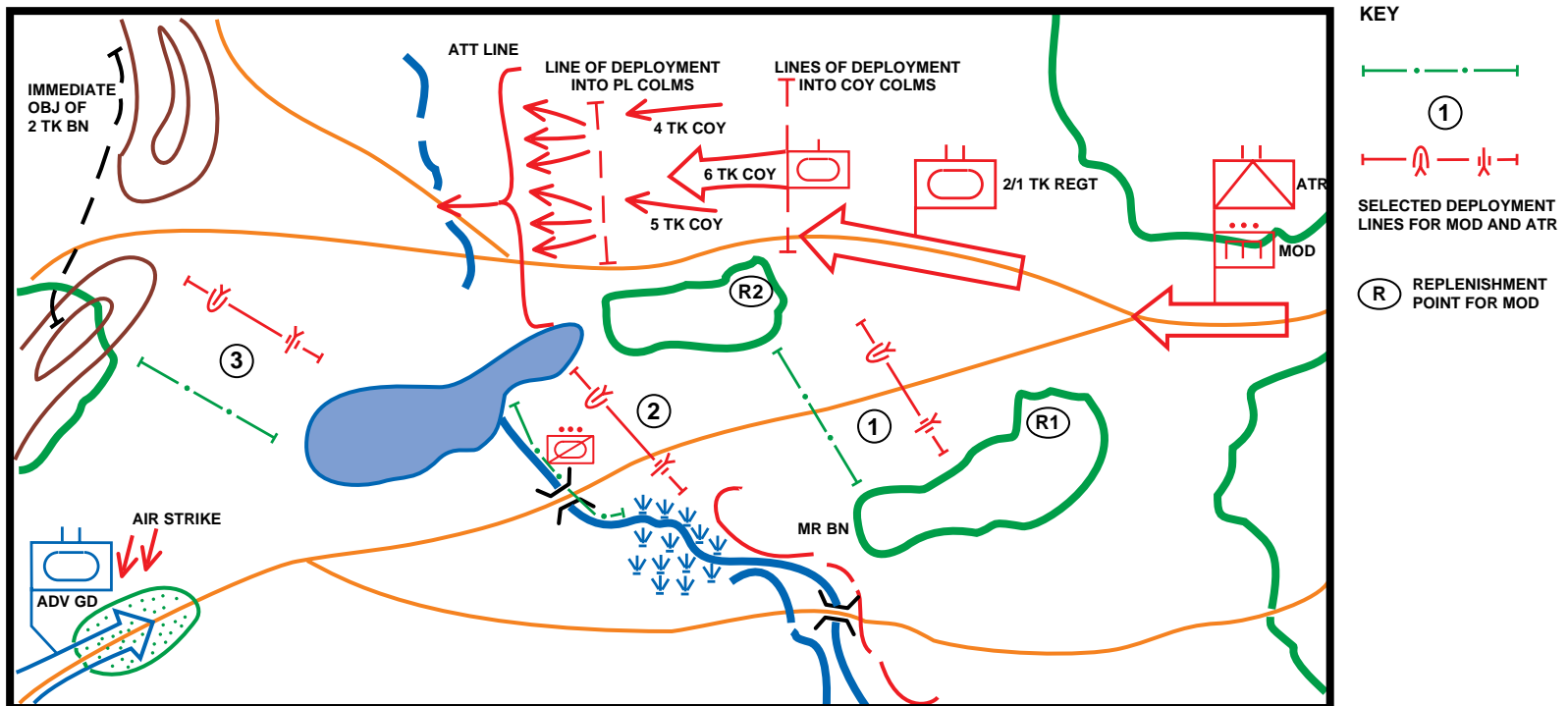
0941. **Surprise.** GENFORCE believes that surprise is an important element in the use of the ATR and MOD. It therefore favours the last minute emplacement of minefields and deployment behind them of anti-tank elements. In this way, it will suddenly face an attacker with a strong defence when he is already committed to a course of action and pattern of deployment which cannot be readily altered to meet the unexpected. Thus, minelaying will often commence when just outside enemy tank range and be completed well within it, the action being covered by a bi-spectral smoke screen laid by TDA-M smoke generators or other smoke means. The smoke will also cover the deployment of the anti-tank weapons. This tactic is seen as particularly damaging to the enemy if, instead of breaking through as he had anticipated, he finds himself trapped in a fire pocket.



NOTES:

- THE BATTALION ON THE DIRECTION OF MAIN THREAT IS DEPLOYED IN TWO ECHELONS AND THAT OF THE SECONDARY DIRECTION IN ONE ECHELON.
- THE MOD IS DEPLOYED WELL FORWARD, APART FROM THE ATR, TO DEPLOY QUICKLY TO EITHER C-PEN POSITION 1 OR POSITION 2. LACKING COVER FURTHER FORWARD, THE ATR WAITING AREA IS NECESSARILY FURTHER BACK.
- IF THE ENEMY ATTACKS IN STRENGTH ON BOTH AXES SIMULTANEOUSLY AND ACHIEVES EARLY MOMENTUM, THE MOD AND ATR WILL DEPLOY TO C-PEN POSITION 3.

DIAGRAM 9-5: DEPLOYMENT OF A REGIMENTAL MOD AND ATR IN DEFENCE



a) THE DIVISION'S SECOND ECHELON, 1 TK REGT, IS TO BE COMMITTED TO THE FLANK OF THE STALLED ATTACK TO THE SOUTH. THERE IS A GAP IN THE DIVISION'S DEPLOYMENT JUST SOUTH OF THE LAKE. AN ENEMY TANK BRIGADE IS APPROACHING FROM THE SOUTHWEST, ITS TIME OF ARRIVAL WILL DEPEND ON THE EFFECTIVENESS OF A PLANNED AIR STRIKE AND REMOTE MINING.

b) THE TANK REGIMENTAL COMMANDER PLANS TWO POSSIBLE DEPLOYMENT LINES FOR THE MOD AND ATR, BOTH ARE DESIGNED TO COVER THE COMMITMENT OF THE LEADING BATTALION (2ND TANK BATTALION) AGAINST A POSSIBLE FLANK ATTACK IN CASE THE ATTEMPT TO DELAY THE ENEMY RESERVE FAILS. WHICH WILL BE USED WILL DEPEND ON THE ENEMY'S PROGRESS.

c) A THIRD DEPLOYMENT LINE IS SELECTED TO COVER THE FLANK OF 2 TANK BATTALION'S ADVANCE ONTO ITS IMMEDIATE OBJECTIVE. IT WILL BE NEEDED IF THE ENEMY'S ADVANCE IS SUCCESSFULLY DELAYED SO THAT IT CAN ONLY INTERFERE WITH ACTIONS SUBSEQUENT TO COMMITMENT.

DIAGRAM 9-6: DEPLOYMENT OF A REGIMENTAL MOD AND ATR IN ATTACK

0942. **Location in Combat Formation.** The ATR and MOD are usually colocated or at least very close together for ease of defence against air and all forms of ground attack and for command and control reasons.

- a. *In Defence*, they locate somewhat to the rear of the first echelon of the parent grouping (eg, behind the forward battalions at regimental level). The waiting area is chosen so that it is conveniently near the most likely armoured approaches. Up to three firing lines are selected on each approach and whenever possible firing positions are prepared. Routes to them are reconnoitred and possibly marked. Alternative replenishment points will be established for the MOD on the completion of each mission. Diagram 9-5 illustrates the employment of a MOD and an ATR in defence. Where the enemy enjoys several good tank approaches and his axis of attack cannot be predicted, the MOD may lay one or more minefields in advance. These may be controlled fields if the second echelon may need to cross them for a counter attack, or if the first echelon may have to withdraw through them.
- b. *In Attack*, the whole or at least part of the ATR is likely to be used in the fire preparation, the long-range and precision of ATGM being valued for their ability economically to destroy point targets identified by reconnaissance in the first 3-5km of the enemy's depth. Once they have fulfilled their preparatory role, such elements will join the ATR and MOD in their place in the attack formation as the advance begins. During the advance, the ATR and MOD are usually found far forward, often at the head of the unit or formation's main body and thus able to deploy to protect the committal of the second echelon or to either flank to repulse counter attacks. Alternatively, they could form a flank detachment, or part of one, covering an open flank from which a threat is thought likely to emanate. Diagram 9-6 illustrates a typical employment of a MOD and an ATR in the offensive.

0943. **Deployment Patterns.** The reconnaissance platoon deploys initially on the most threatened axis, usually with LTDs to enable the artillery to engage at long-range with precision munitions. A reconnaissance helicopter will often reinforce the ATR's surveillance and target designation capabilities. Subsequently, the platoon will cover an open flank or reconnoitre alternative, depth positions. The siting of the MOD's protective minefield and other obstacles is generally at about the optimum range of the ATR's weapons, ie where the guns start to engage with ATGM. However, when the terrain and the tactical situation permit, GENFORCE prefers to prepare an anti-tank ambush (either "L" or horseshoe shaped). To reduce vulnerability and take full advantage of the concealment offered by the ground, guns and missile launchers deploy in irregular patterns, with as many as possible sited to take the enemy in enfilade (an important consideration for ATGM launchers at short ranges as tanks are said to enjoy an advantage over them at under 1,500m). With weapons deployed 100-300m apart, an anti-tank battalion can cover a frontage of up to 7km. Such a thinly spread defence is, however, relatively easily penetrated and, where circumstances allow, an ATR will adopt a two echelon defence: with one battery in the second echelon, the

frontage is usually 3.5-5km. The ATR's motor rifle company will deploy its troops on an infantry threatened direction (usually in close country), but some or even all of its BMPs may form an armoured group to act as a mobile anti-tank reserve.

0944. **Helicopters.** GENFORCE commonly uses helicopters in the ATR and MOD role. Transport helicopters can rapidly surface-lay a minefield and land infantry strong in manpack anti-tank weapons. Attack helicopters can engage armour so halted or execute ambushes against columns (especially when they are pinned by RDMs.) The mobility, regardless of terrain limitations, speed and range of action of these assets fit them well for the task of imposing casualties and a check on the enemy's advance. They are vital in this role in manoeuvre defence, when combatting enemy forces in the friendly depth and in fast developing offensive or defensive actions. They are not, however, considered a substitute for ground troops in all circumstances as they cannot hold ground.

SECTION 4 - ELECTRONIC WARFARE

Concepts

0945. **General.** For several decades now, EW has been treated as an integral part of all combat actions. By the 1990s, it had become so important that it was being regarded as the equal to fire in its impact on combat. In future war, the side that achieves electronic and fire dominance will be the victor: the former is as important as the latter and the two are inextricably and synergistically linked. Major investment has been made in all aspects of EW, from Electronic Support Measures (ESM) satellites through EMP munitions and jammers to reducing the vulnerability of equipments to EMP and enemy Electronic Counter Measures (ECM).
0946. **Concepts.** GENFORCE sees the electronic struggle as a whole, with victory depending on success in all its areas. The EW staff have responsibility for emission control and communications security as well as for attacks on enemy systems.
- a. **Intelligence Gathering.** SIGINT and Direction Finding (DF) are totally integrated into the overall intelligence effort.
 - b. **Offensive Activity** is concentrated on key systems in the enemy's depth and on the main axis. It is carefully coordinated with the manoeuvre of air and artillery fires and of combined arms forces, both to achieve synergy and to avoid the jamming of friendly emitters along with those of the enemy. A careful selection is made of what frequencies can be jammed and at what times.
 - c. **Defensive Measures.** Considerable attention is paid in training to operating in an EW environment, and GENFORCE signals security and operator skills in Electronic Counter-Counter Measures (ECCM) are good. Persistence in the use of basic battle drills at the lower tactical

level, where jamming is most easily carried out, is motivated at least in part by the desire to minimize vulnerability to electronic attack. A critical defensive task is seen to be the protection of computers from virus warfare, and sophisticated programmes have been developed to detect the implantation of viruses and anti-viruses have been designed to destroy them.

- d. *Deception.* EW is seen as vital to the success of any deception plan. Emitters are used to replicate CPs, traffic control nets, air defence zones etc. Various passive measures are used to deceive enemy electronic reconnaissance. For instance, corner reflectors are deployed down to unit level to conceal troop movements and locations of such varied targets as bridges and air defence equipments.

0947. **ECM.** The estimated GENFORCE goal is the destruction or disruption of at least 50% of the enemy's C3I and fire control communications.

- a. *Critical Time.* GENFORCE recognizes the impossibility of depriving enemy forces of their sources of control for extended periods of time. Accordingly, it has established mathematical models to estimate "critical times" in command and control procedures. The critical time is the sum of the time required to complete a sequence of steps: collection and reporting of data; evaluation and decision; issue of orders and preparation; completion of action. The aim of EW is to disrupt the enemy's critical time phasing to the extent that the perishable information on which decisions are based becomes obsolete and goals cannot therefore be achieved.

- b. *Target Priorities.* Targets are assigned a priority according to their expected relative impact on the battle. These are generally as follows, though they may be altered as the situation develops:

- (1) Precision delivery means and their associated control systems.

- (2) Conventional field artillery, air support and air defence.

- (3) CPs, communications centres, OPs and radar stations.

- (4) Reserves and logistic support.

- c. *Methods of Engagement.* When a target is located, a command decision is made at divisional level or above as to whether it should be exploited for intelligence purposes, jammed or destroyed. Destruction is usually preferred, particularly now that encryption down to low levels has reduced the intelligence value of radio intercept, but it depends on the accuracy of the position fix and the availability of a suitable weapons system. Even approximate location will be sufficient for engagement with some area suppression weapons, or to task armed reconnaissance aircraft or ground or heliborne raiding detachments or groups. GENFORCE VHF DF can probably provide a sufficiently refined picture for attack by multiple

rocket launchers, if not by guns; the range of Uragan and Smerch and the beaten zone of ACM warheads makes them particularly suitable systems for a conventional artillery bombardment. Radar DF is accurate enough for engagement by multiple rocket launchers, and even, in some circumstances, by guns. GENFORCE has also fielded ARMs launched from Uragan and Smerch for use against important air defence and artillery locating radars.

Organization

0948. **Intelligence Gathering.** Essential to the success of EW is the timely collection, collation and interpretation of intelligence. Every effort is made in peacetime to build up a picture of the enemy's electronic order of battle, together with equipment types, emission characteristics, operating procedures and operator characteristics. In war, all sources contribute to the picture, though the main ones are electronic intercept and DF. The latter are organized as follows:
- a. *SG.* A SG can deploy ESM satellites. It is also likely to deploy at least one EW brigade. The radio intercept element concentrates on enemy higher formation communications, ie, from corps rearwards. The radar intercept unit and elements of the radio regiments are targeted against the enemy's air forces, supplementing the work of the radar early warning units. An air army helicopter EW squadron supports fixed and rotary wing operations.
 - b. *Army/Corps.* Each higher formation has a SIGINT (ie, radio and a radar intercept and DF) regiment. Radio sub-units are tasked against communications from corps to division, and radar elements against enemy airpower. All formation artillery regiments also deploy a ground radar locating system.
 - c. *Division/Brigade.* Lower formation reconnaissance battalions contain a SIGINT company, and the artillery regiment has the battlefield radar locating system. The division is concerned with enemy tactical communications. Intercept and DF posts, both divisional/brigade and army/corps, are set up very close to the line of contact, within 3-6km for VHF and 10-30km for HF groundwave depending on the availability of a suitable base line, to look as deep as possible.
 - d. *Air Force.* Significant numbers of SIGINT aircraft are deployed. These greatly enhance the GENFORCE capability both to intercept and locate emitters in the enemy's depth, ie, at higher formation level.
0949. **Jamming.** Deliberate use will be made of conventionally generated EMP to defeat enemy emitters. Other methods used are as follows:
- a. *Radar.* GENFORCE has not deployed active jammers against battlefield radars, presumably because destruction is preferred and their high radiated power and directional nature make their accurate location

relatively easy. However divisional/corps EW units do deploy jammers against enemy proximity fused rounds. Jammers are deployed by SG level regiments and army/corps level battalions against airborne radars, both navigation and bombing. They are used to protect high value targets such as major HQs, communications centres, precision weapons, major troop concentrations, airfields, river crossings and potential bottlenecks such as bridges and defiles. The air force puts great stress on jamming enemy air defence radars.

- b. *Radio.* There will be at least one active radio jamming regiment per SG, a battalion per army and corps and a company in each division and brigade. (Of course, all units conduct passive jamming through the use of corner reflectors etc.) Most elements will be deployed in direct support of formations to attack UHF, VHF and HF groundwave nets, with helicopter borne jammers concentrating on radio-relay and tropospheric links. Operational level jammers will be targeted against HF skywave nets and satellite communications. Tactical and operational-tactical jammers deploy well forward, within 3-6km of the line of contact, or 10km for HF groundwave. They are co-located with their own organic DF and intercept posts which are used to confirm targets and assess jamming effectiveness. GENFORCE also makes use of unattended jammers for specific phases of an operation. These may be delivered into the enemy's depth by SPF or by parachute or more commonly in the tactical zone, by artillery.
- c. *Computers.* To cope with the pace and complexity of modern warfare, armed forces are dependent on computers. Thus attacks on enemy computer systems through virus implant are viewed as a force multiplier of potentially decisive significance, particularly in the initial period of war (which can be reduced to pure chaos if they are released in a timely manner). GENFORCE foresees the use of several types. They are: the "Trojan horse" virus which remains idle for a period of time and then causes a catastrophic destruction of the system; the "forced quarantine" virus which knocks out the programme of the unit into which it was planted and which will destroy the entire system if the components are not separated; the "overload" virus which quickly spreads throughout the entire system and gradually slows its operation; the "sensor" virus which penetrates a pre-planned sector of the computer's data storage area and destroys the data bank and its information at a critical moment. Every attempt will be made in peacetime to introduce bugs into the software of potential enemies, adding a whole new dimension to the principle of surprise.
- d. *Quantum-Electronic Jamming* will, looking to the future, be conducted by plasma and infra-red; laser transmitters (for blinding observers); aerosol, laser and infra-red ray reflectors.

SECTION 5 - AIR DEFENCE

General

0950. **Importance of Air Defence.** Increases in payload, range and accuracy of delivery of modern aircraft, fixed and rotary wing, have led to a situation where over 50% of the destructive fire potential in the tactical zone now resides in airpower. Along with missile systems, it provides the most flexible and fast reacting means by which massed firepower can be manoeuvred operationally. In other words, air operations have ceased to be auxiliary. On both sides, it is an essential element in the combined arms team, and success in either defensive or offensive battles or operations will depend on keeping enemy air off the backs of manoeuvre, fire, C3I and logistic support elements. The primary responsibility for this, especially at altitudes below 6,000m, belongs to the air defence troops. (This frees as many aircraft as possible for offensive missions, and their escort, and solves the problem of the limited effectiveness of fighters against very low level penetrators, particularly helicopters.) GENFORCE air defence is an integral component of the combined arms force right down to battalion and often company level. Such large numbers of air defenders are fielded that, in providing an integrated air defence system with built-in redundancy, they now comprise about 15% of the ground forces manpower.
0951. **Phases of Air Defence.** Air defence incorporates three related efforts involving all services and branches of the armed forces.
- a. *Destruction of the Air Enemy on the Ground.* Whenever possible, the fight is taken to the enemy as part of the struggle for electronic-fire superiority. Enemy aircraft are attacked on the ground, air bases are closed, C3I systems and logistic support facilities are destroyed or suppressed. These missions are accomplished against fixed wing aviation by missile troops, the Air Force, EW units and raiding and SPF detachments, groups and patrols. Forward based VTOL aircraft and helicopters can, in addition, be engaged by long-range artillery.
 - b. *Destruction of Aircraft on Distant Approaches,* before they penetrate friendly airspace is the task of longer range SAMs, EW units and fighter aviation.
 - c. *Destruction of Aircraft Penetrating Over Manoeuvre Forces* is the joint responsibility of fighter aviation, EW and the air defence of the ground forces. It is the primary responsibility of the latter at altitudes below 6,000m and shared at from 6,000-15,000m altitudes. The actions of the ground forces' air defence is the subject of this section.

Mission of Ground Forces' Air Defence

0952. **Mission.** The air defenders' mission is to prevent enemy air action (including reconnaissance, ballistic and cruise missile strikes and the landing of air assault and air mobile forces) from interfering with the actions of manoeuvre

forces. Ideally, this is accomplished by destroying the air enemy before it can perform its reconnaissance or target acquisition and vectoring task or deliver its ordnance. However, GENFORCE accepts that the aim is achieved if enemy aircraft either expend their weapons too early to achieve accuracy (in order to escape ground fire) or are forced to fly so low (ie, under 100m) that their chances of making a correct and timely identification and engagement of their target are very poor.

Principles of Air Defence

0953. **Prioritization.** There is never enough air defence, so the commander must ensure that he creates a multi-layered defence of the most important targets. GENFORCE's normal order of priorities is: C3I facilities and SSM/cruise missile units; troop concentrations and marches, artillery (especially MBRLs) and airfields and helicopter forward operating sites; reserves; logistic units and installations; infrastructure targets. These priorities are not immutable and may change with circumstances, though the main axis will always take precedence over secondary ones.
0954. **Activeness and Manoeuvre.** The targets for which cover must be provided are very mobile and will frequently change in both location and shape as they conduct manoeuvre and deploy. The air enemy is even more mobile and can attack from a variety of directions and altitudes. The combined arms commander, who is responsible for air defence (one of his most important tasks) must always consider the manoeuvre and fire capabilities of his air defenders and the time required to deploy them when making his plan. He must utilize them to the full to create optimum groupings and fire plans.
0955. **Surprise.** The speed and evasiveness of modern aircraft can drastically reduce engagement times. Modern aircraft possess great firepower to suppress air defences and decoys to deceive them. These factors make it necessary for units to achieve surprise, getting in the first shot against aircraft not taking evasive action. This means that the enemy must be denied the intelligence about the air defence system which he requires to mount an aerial penetration. It also means that early warning about the strength, composition and axis of a raid must be given. Of course the air enemy too is trying to achieve surprise, and careful consideration must be given to how he might exploit the terrain in making a concealed approach. The principle of surprise is also important in the wider context of denying the enemy's intelligence organization an accurate and comprehensive picture of the deployment of air defence radars, for this is a principal means of determining GENFORCE operational formation and is, of course, the basis of his air defence suppression plan.
0956. **Continuity and Depth.** Air defence must function with unremitting reliability throughout the deployment of the supported formation and unit, in terms of both area and altitude. This requires careful deployment, uninterrupted ammunition supply and a comprehensive early warning system. Usually, too, GENFORCE formation commanders try to maintain an air defence

reserve to preserve continuity of coverage in the face of the expected heavy casualties to air defenders.

0957. ***Creativity and Initiative.*** These qualities are considered necessary to realize fully the capabilities of the equipments available. Also contained within the principle is the demand for efficient staff work in advising the combined arms commander and in implementing his decision.
0958. ***Coordination.*** The coordination of air defenders with supported groupings, with flanking formations and with defensive and offensive aviation and air landings is critical to ensure continuous coverage of key targets, avoid fratricide and prevent excessive ammunition expenditure.

Organization of Air Defence

0959. ***The Threat.*** Modern air defence is complicated by the variety of the threats posed. Aircraft may seek to penetrate at any altitude from low and very low level (0-300m), medium level (300-6,000m), high level (6,000-15,000m) to very high level (over 15,000m - GENFORCE definitions) and probably from several directions and altitudes simultaneously. As well as aircraft, air defences have to deal with cruise and ballistic missiles, stand-off ASMs and the individual and mass employment of RPVs. They have to operate continuously and effectively in an environment where they are subject to physical and various forms of electronic attack and deception measures.
0960. ***Resources.*** GENFORCE has fielded a variety of early warning radars with different but overlapping frequencies and a mix of fire units for the various height bands that use different methods and frequencies for target tracking and missile guidance. This variety and redundancy complicates the ability of aircraft to dodge or defeat air defences. As well as weapons of physical destruction, numerous ECM equipments are also deployed. Most of these are designed to interfere with the accurate operation of aircraft avionics and weapon control radars through jamming or presenting misleading information. There is also a laser weapon which can disrupt optical-electronic guidance systems out to 20km and which can attack not only manned aircraft but also cruise missiles and guided bombs.
0961. ***Types of Air Defence Organization.*** GENFORCE recognizes three different methods of organizing air defence, usually in practice using a mix of all of them.
- a. ***Point Defence*** is established on the perimeter of an important target to destroy aircraft on their approach to their mission execution line. Such defence can also be used on likely avenues of approach to surprise the enemy before he reaches the target. This form of defence has advantages. It allows concentration on likely approaches and targets, forces the enemy to concentrate to penetrate and eases the problem of coordination with fighter aviation. It is only useful against low and very low level attack, however, as it cannot have an envelope sufficiently large to preclude the launching of stand-off weapons.

- b. *Linear Defence* is designed to create a continuous barrier to attack well in front of the enemy's main targets. This enables the engagement of attackers on the distant approaches, but it possesses low stability as the enemy can drive a corridor through the line on a narrow axis.
- c. *Area Defence* creates a perimeter round an area which contains several important targets. Such a defence can be stable and effective, but may not be able to cope with low or very low level penetrators making good use of terrain cover.
- d. *Point-Area or Point-Area-Line Defence* is generally adopted by GENFORCE. This combines the immediate defence of key targets and axes with the creation of a general umbrella coverage. It forces the air enemy to concentrate and/or to attack at altitudes where accuracy of weapons' delivery becomes problematical.

Command and Control

0962. ***A Unified Operational System.*** The organization of long-range high-very high level air defence is carried out at the operational level. Centralized control is seen to be necessary to avoid both fratricide and the dissipation of effort onto separate groupings and installations with no unity of responsibility for destroying the air enemy in specific areas. It enables commanders to take full account of the capabilities and limitations of all weaponry in a grouping (SAMs, EW and fighters) and improves its stability in the face of air defence suppression. It ensures the economical use of resources, maximizes efficiency, ensures the swift restoration of damaged sections and greater safety for friendly aircraft operating in areas defended by SAMs. It also makes it possible to give air defence a more aggressive, offensive character by conducting actions on the distant approaches to disrupt the organization of enemy attacks and it ensures that proper attention is given to the destruction of enemy C3I, reconnaissance and EW aircraft. Of course, centralization imposes a considerable load on the responsible commander, but the high level of automation in the C2 process alleviates this problem. The system has the following characteristics.

- a. ***Centralized Command, Decentralized Battle Management.*** SG comprises a single air defence zone, divided into army/corps areas. The deployment of ground based systems is organized at zonal level, as is their integration with fighter aviation. This ensures coverage of the whole zone's airspace according to a common plan and dense protection for key targets such as airfields, missile groupings and CPs. SG also coordinates the activities of air defence with those of reconnaissance and offensive aviation. Battle management is the responsibility of area air defence commanders. The latter also monitor carefully the actions of tactical air defenders.

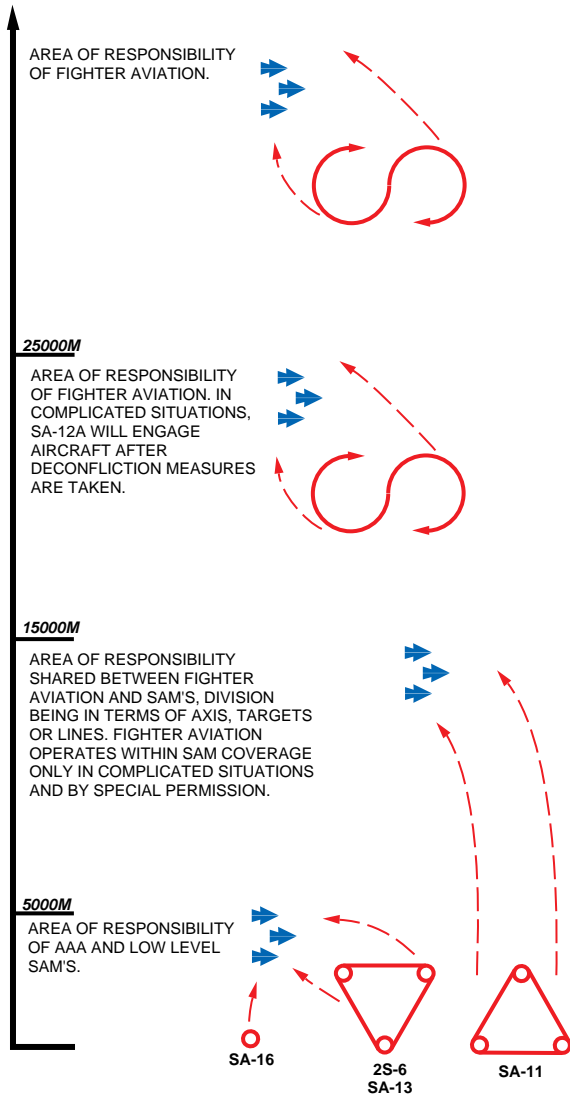
- b. *Integration.* C2, air surveillance and fire/EW units are integrated in an automated system to provide a rapid response proportionate to level of threat, ensuring that all targets are serviced without the waste of resources which follows from multiple engagements of a single target.
- c. *ECCM.* The system is believed to possess a high level of resistance to electronic attack, both against air surveillance and fire units and against the organization's structure as a whole.
- d. *Stability.* Recognizing that the Achilles heel of a unified air defence system is its C3I, GENFORCE has built in a considerable measure of redundancy, both to cope with attacks on it and to lessen their effects. The system is also capable of rapid restructuring to cope with ground and air redeployments and the results of physical attacks on its elements.

0963. ***Tactical Air Defence.*** Air defence for the s-lf protection of manoeuvre formations and units is excluded from the operational unified system, though it supplements it by destroying aircraft that penetrate the centrally controlled system to attack targets at very low to medium level. The air defence commanders of divisions and brigades deploy their formation level radars and SAMs and AAA to provide area defence of the formation and point defence for divisional/brigade units in accordance with the combined arms commanders' plan and priorities. They receive and disseminate early warning and fire control orders from area. They also monitor the frequently changing deployments of unit level air defence and arrange coordination between it and friendly air activity (including attack helicopters acting in the anti-helicopter role) and artillery.

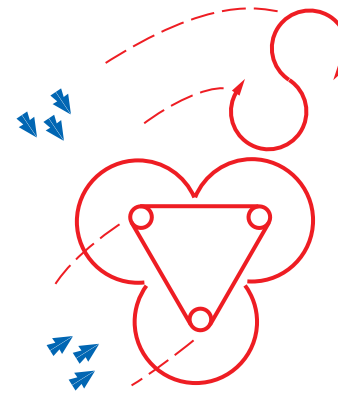
0964. ***Airspace Management.*** Coordination between offensive and defensive aviation, helicopters, ground based air defences and artillery is the most complex aspect of air defence. As GENFORCE has not yet succeeded in developing a totally reliable IFF system that cannot be replicated by the enemy, organizational measures are necessary to supplement IFF.

- a. *Zones of Responsibility* are delineated both horizontally and vertically, as illustrated in Diagram 9-7. The engagement of aerial targets under 6,000m is the exclusive preserve of ground forces air defence (including attack helicopters used to combat helicopters) save in intervals between or dead spaces in formations' coverage. At higher altitudes, deconfliction is accomplished by reserving height bands and/or geographical areas to either SAMs or fighter aviation.
- b. *Offensive Air Missions.* When offensive missions are mounted either by SG or army/corps, the relevant air defence zone or area headquarters will establish exit and reentry corridors through the whole depth of the air defence system at specified heights and times. A weapons tight or weapons hold regime will be imposed as appropriate to safeguard friendly aircraft in those corridors.

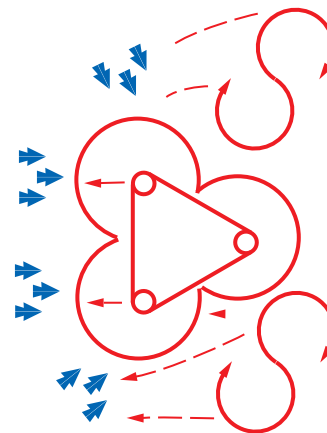
a) IN TERMS OF ALTITUDE



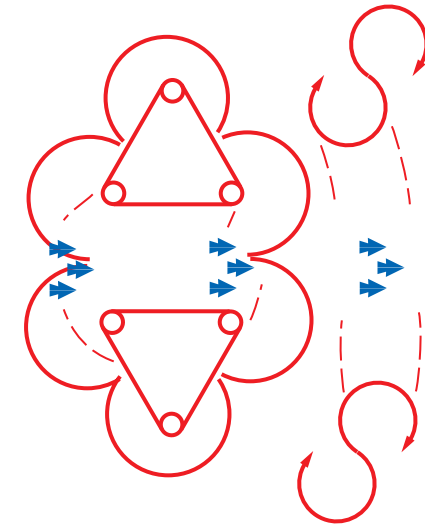
b) IN TERMS OF AXIS



c) IN TERMS OF TARGETS



d) IN TERMS OF LINES



KEY




-  PENETRATING RAID
-  SAM BATTERY COVERAGE
-  COMBAT AIR PATROL

DIAGRAM 9-7: COORDINATION OF GROUND BASED AIR DEFENCE WITH FIGHTER AVIATION

Target Intelligence

0965. **Requirements.** GENFORCE divides the intelligence data needed by air defence into two categories:
- a. Data from which a determination of probable enemy air action may be divined. This is the data necessary to the planning and organization of the air defence system. It includes the composition and strength of enemy air power, the capabilities of enemy aircraft, knowledge of enemy operational and tactical employment of airpower, the locations of airfields, command and control centres, resupply bases and likely avenues of low-level flight. Provision of this information is the joint responsibility of all intelligence agencies.
 - b. Data used to develop a clear picture of the air situation as it develops. This is the data necessary to determine the enemy plans, air order of battle and objectives in order to assign targets to fire units or redeploy resources. It includes the positions, types, numbers, direction, speed and altitude of aircraft in flight. Some data will be provided by radio intercept, but most comes from air defence radars and AWACS.
0966. **Air Surveillance.** GENFORCE air defence radars at all levels are integrated into an overall system covering all the defended airspace. Most early warning radars are held at SG and army/corps levels allowing higher formation air defence commanders to make a rapid and informed assessment of the threat and pass both information and fire missions down to the appropriate fire units. Army/corps early warning battalions will deploy their radars 10km or so from the line of contact, giving them the ability to detect medium and high altitude targets up to 160km in the enemy's depth and low flying aircraft out to 80km. SG will establish a second line of radar posts about 50km behind the first to give depth. Both will maintain reserves to expand coverage as the operation develops, replace casualties or establish a new line of radar posts. While defensive or offensive operations are in preparation, army/corps posts are kept inactive as part of the security and deception plan and SG reserve radars deploy forward. Fire control radars are only turned on at the last minute to achieve surprise and avoid exposing themselves to enemy physical or electronic attack (including anti-radiation missiles). The GENFORCE air surveillance radar network will be difficult to avoid or defeat. There are large numbers of radars which are highly mobile and can quickly displace. The wide spread of operating frequencies and the use of frequency hopping makes ECM difficult. GENFORCE operator training stresses ECCM skills and the use of radio and electronic silence where possible. Radar reconnaissance is backed up by visual observation within units. This is stressed by GENFORCE as being as important as it ever was, especially against low flying aircraft. GENFORCE units and formations have a radio net devoted exclusively to the passage of air and missile attack warnings.

Deployment of Fire Units

0967. **Higher Formations.** SG level S-300 (SA-10) and S-300V1 (SA-12A/B) units are mainly deployed within army/corps air defence areas but elements will also protect deep targets. Their principal roles are, respectively, defence against cruise missiles and SSM; though the S-300V1 has a secondary, anti-aircraft role extending up to 50km over the line of contact. It is possible that S-300 and S-300V1 are also intended to engage AWACS, JSTARS/ASTOR and stand off jamming aircraft which come within 100-150km of the line of contact. The army/corps Buk (SA-11) brigade is deployed to provide area defence against low to high level penetrators with coverage extending up to 20km over the line of contact. SG Buk units defend depth targets but may reinforce forward air defence areas.
0968. **Tactical Air Defence.** Defence against low to medium level threats is exclusively the province of the ground forces' air defence and of attack helicopters in the anti-helicopter role. Deployments will, of course, change with the tactical situation and the deployment of supported formations and units.
- a. *On the March,* air defenders are distributed throughout the march columns. Up to 30% of weapons conduct air surveillance on the move and all are ready to open fire immediately. Elements may deploy ahead to cover choke points such as defiles or bridges. At long halts, air defenders deploy to fire positions on the most likely approaches.
 - b. *Attack and Defence.* An area point system is created. Special attention is paid to any open flank.
 - (1) *Division/Brigade.* Where elements of higher formation air defence are deployed within the lower formation's area, their coverage and capabilities are taken into account in deploying organic resources. The Tor (SA-15) regiment will cover the entire formation area, but giving priority to the defence of the first echelon, the main CP and artillery. Deploying as close as 5km from the line of contact, the forward batteries will reach up to 7km over it. Formation level Strela-10 (SA-13s) are used to give point defence for important targets in depth (eg, logistics troops, bridges) which are in the Tor's dead spaces and/or to create air defence ambushes.
 - (2) *Unit.* To ensure efficient command and control, this is generally the lowest level at which air defence is deployed, though detached sub-units (eg, forward or raiding detachments or groups) are often reinforced with some air defenders from either unit or formation. The disposition of unit assets will take into account the coverage and capabilities of any Tor battery which is in the unit's sector. 2S-6s, Strela and Iglas give point defence, priority going to manoeuvre elements, CPs and artillery. The former usually cover the troops on the main axis as the 2S-6 is the most capable system. Some Strelas or 2S-6s will deploy about 1,000-1,500m from the line of contact,

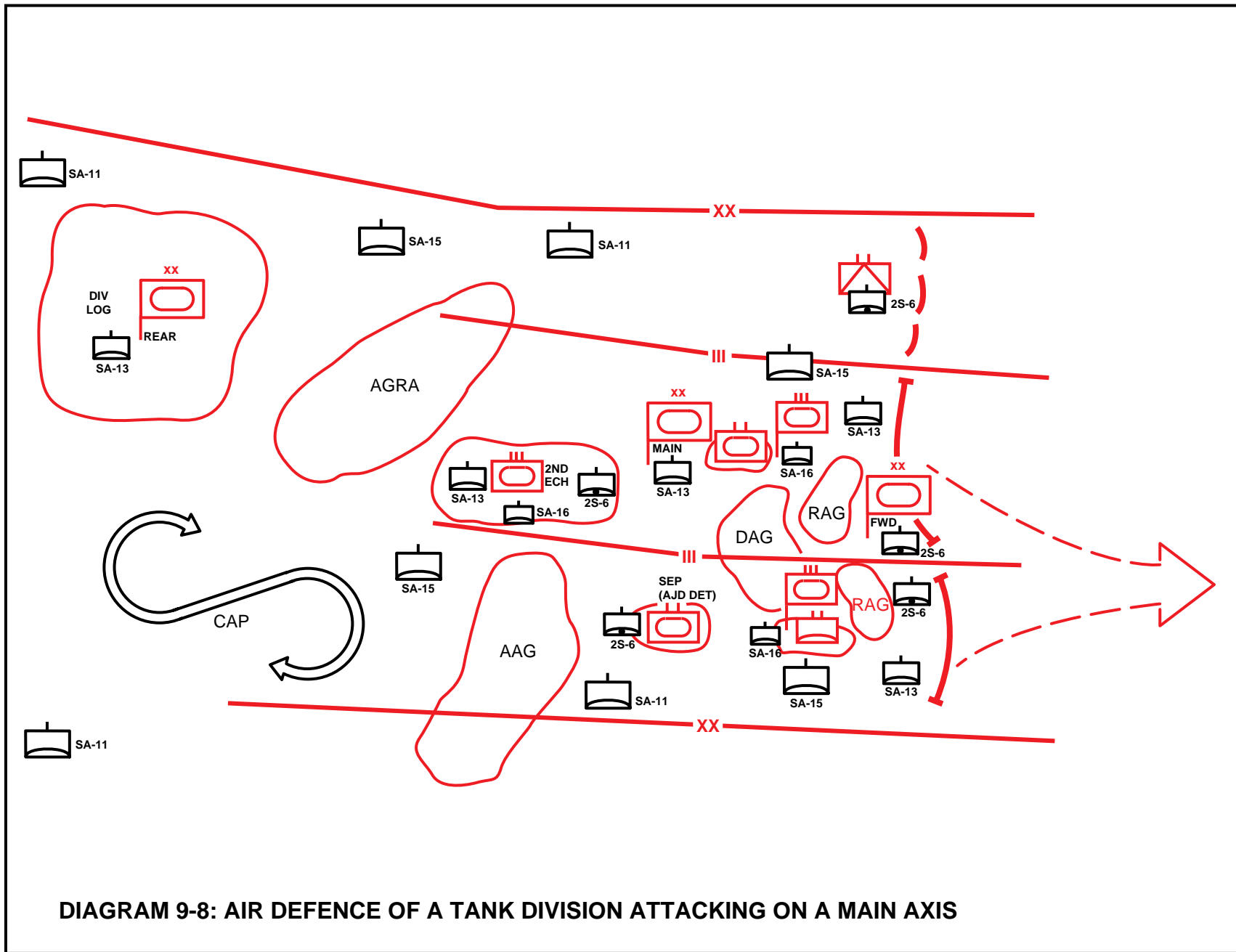


DIAGRAM 9-8: AIR DEFENCE OF A TANK DIVISION ATTACKING ON A MAIN AXIS

sometimes even nearer, to be able to hit targets 7km beyond it. They deploy in pairs, with vehicles about 500m apart and pairs being separated by 1,000-1,500m. A section of Igla (SA-16) gunners deploys with up to 50m between SAMs and acts as a single fire unit (together with the section's BMP). Defence against very low level penetrators, especially helicopters, is augmented by the use of tank anti-helicopter rounds, the cannons on BMPs and by machine gun and small arms fire putting up a dense volume of fire on the flight path. The rotary wing threat can also be countered by using anti-helicopter mines to cause casualties and force others to gain height and thus move into other weapons' engagement envelopes. Attack helicopters equipped with AAMs and cannon are increasingly being used, especially in defence. Diagram 9-8 illustrates the air defence of a tank division attacking on a main axis.

- c. *Air Defence Ambushes and Roving Batteries (Weapons).* Air defence ambushes are often set up as temporary firing positions on less likely approaches or in gaps between the coverage of the main defences. Roving batteries or individual weapons may be used to cover gaps, or on the main approaches but away from their main firing positions to avoid compromising the latter prior to the main threat developing, and to confuse enemy intelligence. These tactics are particularly favoured when on the defensive.
- d. *Increasing Survivability.* To increase the survivability of air defence weapons, they avoid stereotype in their deployment (something made easier by the fact that all weapons are capable of acting autonomously, even if the formation level air surveillance system is disrupted). Weapons are also supposed to relocate to an alternative fire position 1-2km distant after enemy reconnaissance aircraft or RPVs have passed nearby and after any engagement, or routinely after 4-6 hours at unit level and after 8-12 hours for formation SAMs. Whenever possible especially in defence, dummy SAMs are deployed to reduce casualties from air defence suppression. Other deception measures include changing emitter characteristics, regulating operating times for radars and controlling their use (especially the air surveillance capabilities of individual SAMs), camouflage and jamming (passive and active) and the use of smoke.
- e. *Readiness Status.* A constant, high level of readiness to repulse air attacks will wear out crews and equipment. GENFORCE has a system of alert states that are proportionate to the threat (usually, that is, to the parent unit's location and actions, the meteorological conditions and enemy aerial activity.)
 - (1) *Alert State 3* is the lowest. Weapons are serviced and checked, but remain switched off and crews are stood down. It requires 30 minutes to be ready to fire. Most weapons are held at this state in waiting areas or conducting marches in the depth.

- (2) *Alert State 2* means that weapons are ready for action after a short period of preparation and crews are on reduced manning. The time into action is 10-15 minutes. On the march, most weapons are in State 2, with about 50% going up to State 1 as the line of contact is approached.
 - (3) *Alert State 1*. Weapons are fully manned and ready for immediate engagement with support systems warmed up and ready to control fire. All air defenders are at this state when units are in pre-battle or battle formation, when negotiating water obstacles or defiles or in complicated situations.
- f. *Effectiveness of Tactical Air Defence*. GENFORCE believes that the effectiveness of its weapons, expressed as the probability of a hit with a single missile launch or gun engagement, is as follows: Tor, 90%; Strela and Igla, 50%; 2S-6, 85% (missile) or 60% (guns).
- g. *All Arms Air Defence*. GENFORCE does not leave air defence entirely to the specialists. All personnel are instructed in aircraft recognition and all sub-units are exercised in firing against low or very-low flying aircraft. Tank and other vehicle mounted heavy machine guns and BMP cannons are considered the mainstay of all-arms air defence, but troops are also taught to use small arms to place a box of fire in the path of approaching aircraft. Such fire is believed to be of limited effectiveness against fixed wing aircraft, but it might deter pilots from pressing home their attacks and is good for morale. It is seen to be of significant value in combatting enemy helicopters. GENFORCE also holds tht it can be important against surveillance and target acquisition drones. These are difficult to detect with radar, being slow, low fliers with a small radar cross section. However, the noise they generate and their low altitude mean that they will sometimes be acquired by air sentries and gun crews and their low speed and height are a vulnerability not entirely compensated for by their small size. Of course, GENFORCE's enthusiasm for all-arms air defence does not mean that all aircraft are indiscriminately engaged. Often, a weapons-tight policy will be in force, either to preserve concealment or because friendly aircraft are likely to be in the vicinity, and positive identification of an enemy is (at least theoretically) required before a sub-unit commander gives the order to open fire.

SECTION 6 - COMBAT ENGINEERS

General

0969. **Engineers**. GENFORCE has a plethora of specialist engineer units at the operational level for: lines of communications bridging; road, rail, airfield and pipeline construction; topogeodetic support. This section will, however, deal only with combat engineer work in direct support of combat elements.

0970. **Organization for Combat.** Even more than is the case with artillery, combat engineer units do not always deploy as complete entities. The Chief of Engineers at each level will use his resources to form task-orientated groupings in accordance with the combined arms commander's concept for battle and his instructions on engineer support. These groupings will often include reinforcement from the senior commander (especially on the main axis) as well as organic assets. They will not be permanent but will be reformed and resubordinated as the operational and tactical situations change. Although there are never enough engineers, particularly as future war produces a level of demand every bit as great as nuclear war, it is normal for formations to retain a reserve to meet the unexpected and replace casualties.

Offensive Operations: General

0971. **Aims of Engineer Support in Offensive Operations.** The basic aims of engineer support are as follows:

- a. Creating the necessary conditions for timely and concealed movement and deployment for the attack.
- b. Maintaining and enhancing the protection of troops and equipment against all forms of attack.
- c. The repulse of likely enemy preemptive or spoiling attacks.
- d. The maintenance of momentum in the offensive despite enemy and natural obstacles and the creation of areas of mass destruction (eg, from the destruction of nuclear power facilities or dams).

0972. **The Preparation of Offensive Operations.** Engineer support tasks during the preparation of an offensive are many:

- a. *Engineer Reconnaissance* of the terrain and the enemy is carried out (usually starting even before hostilities begin).
- b. *Preparation of FUPs and Assembly Areas* of first and second echelons, OMGs and reserves is executed to enhance their protection. Work in this context may be very extensive.
- c. *Protection of Missile Air Defence Units and CPs* is carried out.
- d. *Road Networks* are established and improved to support the manoeuvre of front forces and the movement of second echelons, OMGs and reserves and of CPs, SSM and air defence troops.
- e. *Concealment and Deception.* The implementation of formation plans will largely fall to the engineers.

- f. *Army Aviation* requires engineer support to prepare alternative airfields, highway strips and forward operating sites.
- g. *Defensive Lines* may have to be prepared on passive sectors or in anticipation of pre-emptive attacks by the enemy, or on the attack axis as part of a deception plan.
- h. *Preparation to Eliminate the Consequences of Nuclear Attack* must be undertaken in case the enemy contemplates a preemptive strike.
- i. *Water Supply* must be ensured.

0973. **Support During the Conduct of Offensive Operations.** Engineer troops perform various tasks to establish favourable conditions for the development of a high speed advance. Some of these are developed in detail below, but a comprehensive list is as follows:

- a. *Continuous Reconnaissance* of the enemy and the terrain.
- b. *Support for the Penetration, Breakthrough and Subsequent Operations in the Enemy's Depth.* This includes support for the movement and committal of army/corps and SG OMGs, second echelons and reserves.
- c. *Support for the Crossing of Water Obstacles.*
- d. *Support for the Repulse of Counter Attacks/Strikes.* This encompasses the actions of MODs both during the advance and consolidation on important lines, and in the face of superior forces or because the final objective has been reached.
- e. *The Protection of Missile and Air Defence Units and CPs* as they relocate.
- f. *Keeping Army Aviation Airfields and Forward Operating Sites Open,* and the creation of new strips/sites or the repair of captured airfields as the advance progresses.
- g. *Operational and Tactical Camouflage and Concealment.*
- h. *Extraction and Purification of Water Supplies.*
- i. *The Elimination of the Consequences of Nuclear Devastation or Flooding.*
- j. *Supply of Engineer Equipment and Materials* as needed to combat formations and units.

Reconnaissance, Protection and Movement Support

0974. *Engineer Reconnaissance Patrols.* These are included in all combined arms reconnaissance groupings, (including engineer reconnaissance personnel being inserted with DRPs for deep reconnaissance). Helicopters are also

used for route reconnaissance, though usually only in rear areas. These patrols assess the routes chosen by the staff, checking the validity of plans made from the map. They report on: the nature of obstacles and the effort, resources and time required to overcome them; the conditions of crossing sites on water obstacles; the location and quantity of materials which can be used to improve routes and the general nature of the terrain and the location of areas that do/do not offer natural concealment. Engineer advice is an important element in the combined arms staff's selection of routes, waiting areas and crossing points.

0975. *Protective Tasks.* As much as the fluidity of operations will allow, engineer troops will work to enhance the survivability of formations in their assembly areas and later in waiting areas. Priority is given to digging in CPs and SSMs. Tank and motor rifle units will provide their own protection, with engineer advice. Most work is done at night for concealment, though the preparation of dummy positions must proceed during daylight hours.
0976. ***Movement Support.*** Crucial to the maintenance of momentum is the work of movement support detachments (MSD).
- a. *Role.* The MSD moves either before or after the vanguard, about 2 hours ahead of the main body, and improves the axis of advance. It fills in cratering or constructs bypasses; constructs bridges over minor gaps and improves the approaches to and exits from them; clears and marks lanes through minefields. The task of the MSD is seen as vital to both a rapid advance and to security: if its work is not completed in time, the main body will be forced to halt, bunch onto the obstacle and create a target for precision, artillery or air attack. Once the first echelon is committed to battle, the MSD moves behind or prepares a route for the committal of the second echelon.
 - b. *Composition.* A MSD may have motor rifle and tank troops and air defence for protection (the former also providing unskilled labour), tracked diggers, dozers with cranes, dump trucks, tank and truck launched bridges, mine detectors and clearers, trucks with explosives and possibly metal trackway, and NBC reconnaissance. With its organic resources a division can form 3 to 4 MSDs of approximately company size.
 - c. *Grouping.* A MSD will be organized in two or three sub-groups. They are the reconnaissance and clearance group (or a reconnaissance group and a clearance group) and the road-bridge group. Some examples of the composition and grouping of typical MSDs are given in Table 9-7. Grouping depends on terrain and the tactical situation. It may be varied during the course of operations.
 - d. *Planning Norms.* A company size MSD is expected to prepare 80-100km of route per day in summer. Preparation rates are degraded by 15-25% in winter and in both spring and autumn where roads are poor and rain heavy and frequent. Night reduces performance by a further 25-30%,

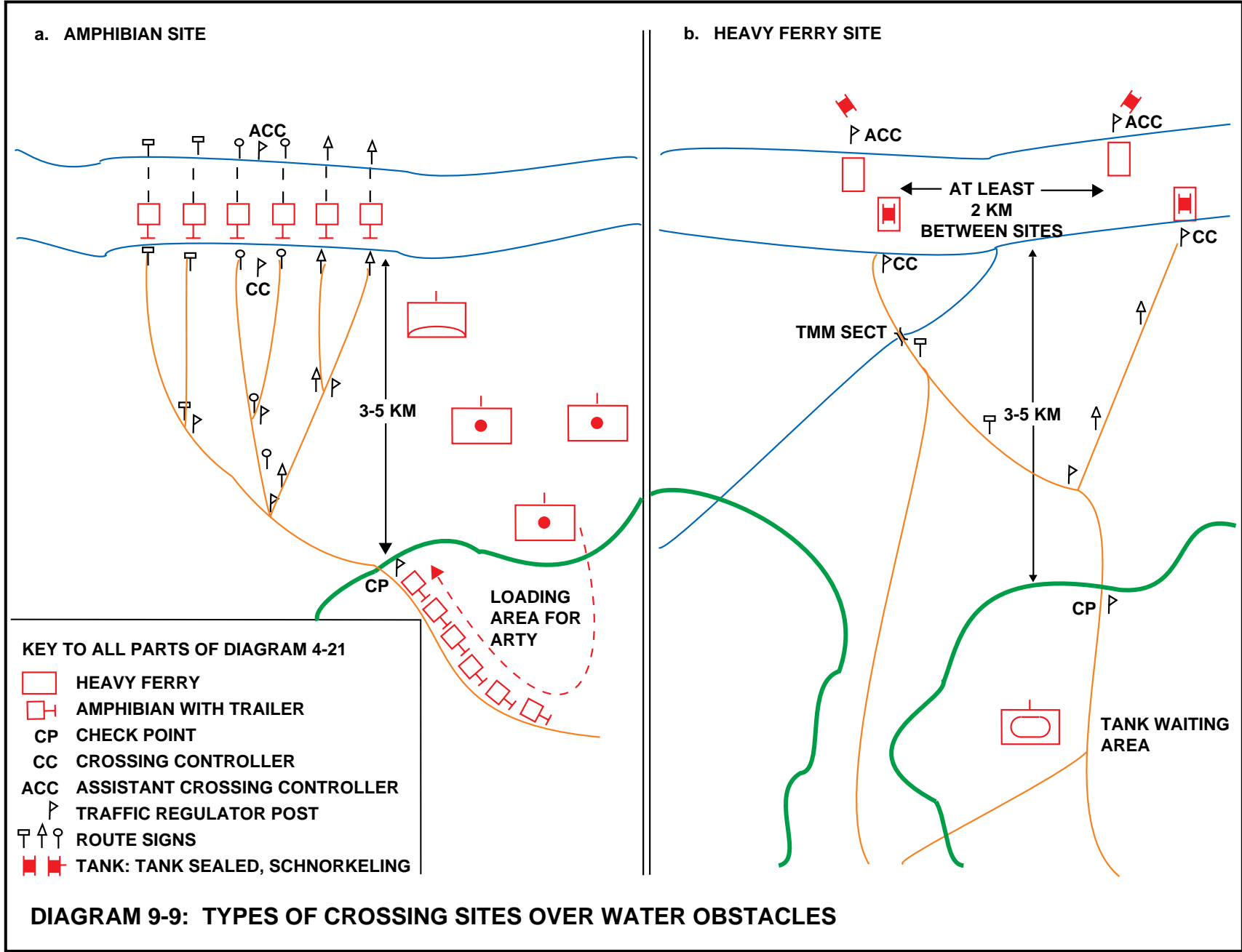
and if the enemy has destroyed sections of the route, the rate falls by another 50-75%.

TABLE 9-7: COMPOSITION AND GROUPING OF TYPICAL MSDs

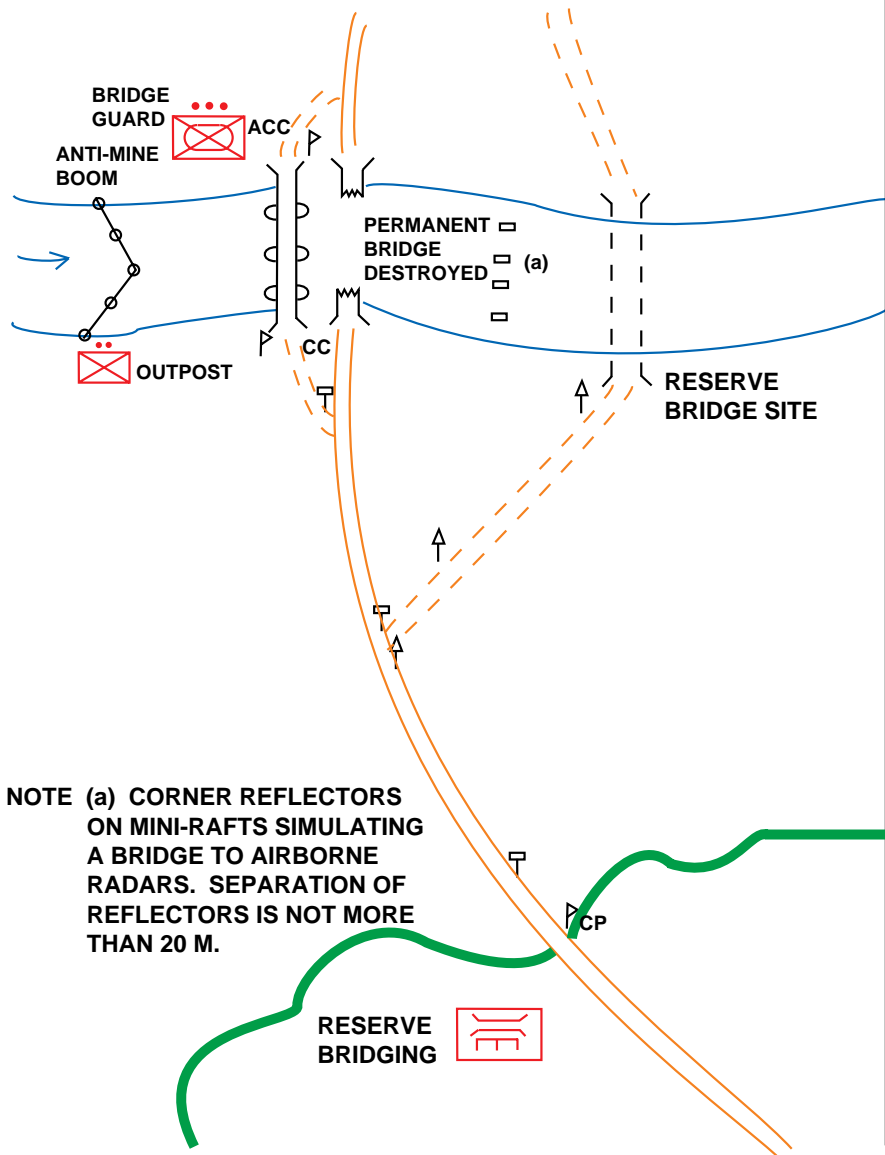
Variant	Reconnaissance and Clearance Group	Road-Bridge Group	
1	Sapper sections (2 x BTR), MT-55/MTU-72, Tank with KMT-6/8	Sapper sections (2 x BTR), BAT-2/3 2-4 x TMM	
2	IMR, MTK, Sapper section (BTR)	BAT-2/3, 2-4 x TMM, Fire Engine, Sapper section (BTR)	
	Reconnaissance Group	Clearance Group	Road-Bridge Group
3	Sapper section (BTR) MT-55/MTU-72	IMR, sapper section (BTR)	2 sub-groups, each engr section, BAT-2/3 and 2-4 x TMM
4	Helicopter, sapper section (truck) MT-55/MTU-72 , tank with KMT-6/8	Sapper section (truck) tank with BTU dozer blade	Engr section, 2 x BAT-2/3, 2-4 x TMM
	Reconnaissance & Mine-Clearing Group	Obstacle-Clearance Group	Road-Bridge Group
5	Sapper pl (-section) (2 x BTR) tank with KMT-6/8	Sapper section (BTR) IMR, tank with BTU dozer blade	MT-55/MTU-72, 2-4 x TMM, BAT-2/3

Note: Any MSD may be reinforced with motor rifle or tank troops for local protection. Motor rifle troops may also act as a labour force. A chemical reconnaissance section often accompanies the MSD.

0977. **Mine Clearing.** Sappers will reconnoitre minefields and give advice, but breaching during an attack from the line of march is usually done either by artillery fire (especially using FAE) or by tanks fitted with mine ploughs. Each platoon has one or other variant of the KMT plough (the latest including hard surface clearance and electro-magnetic countermine capabilities) and tanks will plough through minefields in platoon or company columns. A battalion will generally plough one lane for each first echelon platoon, making 6 in all. Of these, at least two will be fully cleared and widened by sappers using bangalore torpedoes or line charges for the passage of artillery and logistic vehicles. As plough tanks can only advance at about 6km per hour and columns are very vulnerable, GENFORCE doctrine emphasizes the plentiful use of smoke and strong artillery support. In an attack with detailed preparation or from a position of close contact or a river crossing, sappers may well be called in to carry out explosive breaching. Explosive line charges can be towed up to the minefield and then winched across, and the MTK armoured mine-clearer can project an explosive hose to a depth of about



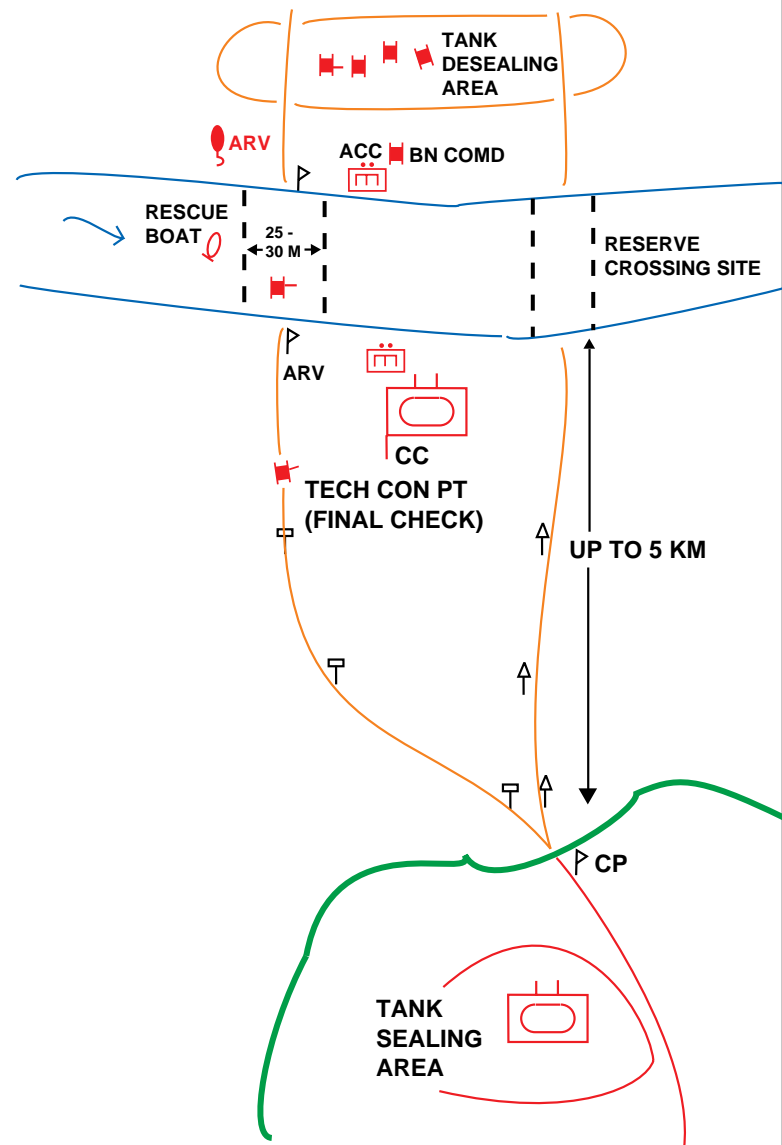
c. BRIDGE CROSSING SITE



NOTE (a) CORNER REFLECTORS ON MINI-RAFTS SIMULATING A BRIDGE TO AIRBORNE RADARS. SEPARATION OF REFLECTORS IS NOT MORE THAN 20 M.

DIAGRAM 9-9B

d. TANK UNDERWATER (SCHNORKELLING) SITE



180m: the latter, being amphibious, are particularly valuable in river crossings as they can clear a path on the enemy bank for APCs swimming over to exploit. Though now rare, except for dealing with nuisance mining, manual clearing is still practised when surprise is required and where clearance can be done at night, or sometimes on the approaches to a river crossing. Engineers are responsible for the marking of, and traffic control in, cleared lanes. A growing concern today is remote mining. Fixed wing aircraft may lay minefields to almost any depth; helicopters may produce surprise fields in front of the enemy's defences or in depth; multiple rocket launchers may also deliver RDMs up to 30km forward and tube artillery can reach up to 25km. Such minefields are greatly feared. Their unpredictability and uncertain extent can cause considerable disruption and delay. It is now stressed that all arms must be able to extricate themselves from a remotely delivered minefield or breach it, for engineers will not always be available. Every company-sized sub-unit now has at least one section trained and equipped as a "supernumerary mine clearance group."

Assault River Crossings

0978. **GENFORCE View of Water Obstacles.** The enemy will be expected to try and hold, or at least to delay on river lines. Ideally, his attempts to do so will be pre-empted and thwarted by the actions of forward detachments and air assault or landing forces, and his main forces will be crushed on the home bank as they try to withdraw. Whether or not these succeed, formations will endeavour to cross water obstacles on a wide frontage, from the march without pause and develop the attack into the depth without halting to consolidate. If a forcing from the march does not succeed, a further effort with brief or even detailed preparation will be mounted. Crossings over small rivers (up to 100m wide) are organized at divisional/brigade level, largely using organic engineer resources. The forcing of medium rivers (100-150m wide) is usually an army/corps task, using the organic and attached means. Major rivers (those over 150m wide) are often considered a SG level problem.
0979. **Army/Corps Assault Crossings.** In order to ensure a high rate of advance, the need for assault river crossings must be foreseen in good time, the means must be appropriately positioned within the army's or corps' operational formation, and the organization and conduct must be rapid. Forward detachments are expected to cross in 1½-2 hours, first echelon divisions or brigades in 6-9 hours and the combat elements of the whole army or corps in 15-24 hours. To achieve these demanding timings, the following tactical and engineer measures are necessary:
- a. **Crossing Sites.** Each first echelon lower formation initially establishes at least three assault crossing points (ie, 1-2 for each leading regiment or one per combined arms battalion), then 3-4 crossings for heavy ferries and amphibians, 3-4 underwater or fording points for tanks (if the nature of the river allows) and, eventually, 1-2 pontoon bridges. Diagram 9-9 illustrates the organization of various types of crossing sites.

- b. *Deployment of Engineer Resources.* It is very important to have bridging and ferrying units well forward to ensure a speedy build up on the far bank. Otherwise the enemy will have time to bring up reserves or forces from passive sectors and seal off the bridgehead. Forward detachments will have assault crossing equipments attached. Other engineer elements, assigned to support the crossing of the main forces of first echelon divisions or brigades will move immediately behind the forward detachments if the enemy is holding the far bank but weakly. If, however, the defence is strong, such elements will move within the main body of each division. The pontoon bridging will probably follow the first echelon of leading lower formations with the aim of facilitating the crossing of the second echelon rapidly, by bridge. Army/corps level bridging will subsequently be used to establish crossings for the second echelon formation troops.
- c. *Engineer Tasks.* During the approach to the obstacle, continuous and active reconnaissance is conducted, both from OPs and through the use of mobile patrols (equipped with such vehicles as IPR). The engineer commander advises formation commanders on the choice of crossing sites, though tactical realities may compel the utilization of less than optimal points to start with. Engineers prepare or improve routes to the crossing sites, establish the sites themselves and organize a Commandant's Service (traffic control) at them. They are also responsible for the concealment of real crossings and the creation of dummy ones as part of the deception plan.

0980. ***SG Contribution to Assault Crossings.*** When faced with a major river, a SG may be reinforced by 1-2 bridging and construction regiments. It will in turn reinforce armies/corps on the main direction (or where success has been achieved) with extra crossing means. It will, however, keep at least one Class 60 bridge in reserve. In addition to assault crossing and bridging equipments, SG possesses large quantities of line of communications bridging. At the earliest possible moment, these are used to replace tactical bridges to free the latter for future tactical use. Construction could start as early as 180 hours after the initial crossing.

Committal of Second Echelons/OMGs

0981. ***Aims of Engineer Support.*** The committal of an OMG or second echelon is one of the most critical and vulnerable periods of combat. The engineer troops play a vital part in ensuring its success. They ensure their timely arrival on the line of committal, and provide support for their deployment and protection against flank attacks. Tasks include:
- a. *Engineer Reconnaissance* of the area of the advance and the sector of committal (not least to assess the impact of battle damage on routes). This becomes exceptionally difficult if there is a last minute change of axis to an unexpected new direction. In this case a map reconnaissance must be backed up by a helicopter survey of the routes.

- b. *Preparing Routes and Breaching Obstacles* for the movement and deployment of the formation. These may be wholly or in part roads used by the first echelon in its advance. In its move to its line of deployment, a division or brigade will require 2-3 routes and an army or corps at least 5-7 (including 2 for each first echelon lower formation and one for army/corps troops). Simultaneously, at least 1-2 reserve routes should be created. Ideally, engineer work for the committal of an OMG or second echelon should be completed by the resources of the first echelon. In the event of early committal, however, these are likely to be overstretched, with even mineclearing being incomplete, never mind other tasks. Higher formation engineers (including the reserve) may have to be used to prepare routes, and it may even be that MSDs of the OMG/second echelon will have to be employed as well. When the exploitation force reaches its line of committal, it will need even more routes to deploy for battle (usually two for each first echelon unit). The preparation of these, together with associated minefield breaching and gap crossing, will be the responsibility of the formation being committed.
- c. *Protection of Exposed Flanks* during deployment and the completion of the breakthrough. The MOD of the formation (see below) will increase the stability of a defensive line established by higher formation anti-tank reserves.
- d. *Concealment and Deception*. Engineer troops will execute operational measures to conceal movement and deceive the enemy.

0982. **Resources.** Preparation of routes must be accomplished in a very limited time, and bypasses may have to be created where battle damage is especially severe or where obstacles (including remotely delivered minefields) are insurmountable in the time available. Thus strong road sub-units are required. Each route has one engineer road construction company allocated to it, possibly reinforced by bridge construction elements. A portion of the engineer reserve may have to be committed to provide sufficient resources.

Defensive Operations

0983. **Aims of Engineer Support.** Much will, of course depend on the conditions under which a formation assumes the defensive. If it is during the course of the offensive, support will have to begin with the protection of threatened directions by MODs and anti-tank reserves and the route work needed for regrouping. If it is assumed out of contact with the enemy, then support can begin with the creation of defence works and the improvement of routes for the formation to deploy. In any case, the aims of engineer support are to:

- a. Establish the necessary conditions for organizing the defence.
- b. Protect personnel and equipment from the effects of precision and other fire.

- c. Enhance the effectiveness of weapons.
- d. Create or improve obstacles.

0984. **Support During the Preparation of the Defence.** The principal engineer support tasks are as follows:

- a. The provision of advice to combined arms commanders on the protective and camouflage features of the terrain and the local resources available that can be used for defence stores.
- b. The establishment of obstacles in front and to the flanks of the first echelon and in the depth of the defence.
- c. The preparation of defence works for the first defensive belts (ie, the first echelon divisions and brigades) and, when time allows, for higher formation defence lines, switch positions and the deployment areas of reserves. Of course, most of the work is done by the combat arms, with engineer advice and supervision.
- d. The protection of SSM, cruise missile and air defence units and CPs.
- e. The preparation and extension of routes for the manoeuvre of troops, and especially for the execution of counter moves by second echelons and reserves. These routes are marked and, if possible, camouflaged. Such preparatory work does not, of course, render unnecessary the formation of MSDs by counter move groupings.
- f. The repair, improvement or activation of airfields, air strips and forward operating sites.
- g. The concealment of forces and creation of dummy positions and groupings in accordance with the formation deception plan. Engineers monitor the camouflage state of units and report to the commander.
- h. The extraction and purification of water.

0985. **Support During the Conduct of the Defence.** This consists essentially of improving on and expanding the scope of all the above measures and undertaking new tasks as the situation develops. Support for counter attacks/ strikes is similar to that for the committal of second echelons in the attack.

Counter Mobility

0986. **The MOD.** Motor rifle sub-units carry mines to create local protective minefields. The MOD (mobile obstacle detachment) is, however, the basic building block of GENFORCE's counter-mobility effort. They are formed at every level from unit to SG and are a standard feature of tactical and operational formation:

- a. *Tasks.* MODs lay minefields, dig anti-tank ditches, carry out demolitions and create other obstacles such as tree blow-down to block forest rides. In defence, they help to prepare the obstacle system and, once the attack commences, they wait concealed to create fresh obstacles on the most threatened directions. Whether on the attack or in defence, they are used to: protect the deployment lines of attacking/counter attacking forces; cover the flanks of formations/units; fill in gaps which exist or develop within operational or tactical formation; gain time for the mounting of counter moves; cover gun lines; help to seal in encircled forces; create deceptive obstacles as part of the overall deception plan. MODs normally work in close conjunction with the anti-tank reserves during the course of an operation or battle, their work materially contributing to their survivability and to the stability of their defence.
- b. *Composition.* MODs are built around minelayers. Higher formation minelayers can be used to reinforce the MODs of subordinate formations or units as well as to form up to 2-3 MODs of their own. In addition to minelayers, MODs will have trucks with extra mines, explosives for demolition and the creation of obstacles, and they will often have dozers, road harrows and mechanical ditchers for obstacle creation and digging in elements of the anti-tank reserve.
- c. *Tactics.* In the offensive, the MOD will usually move forward with the anti-tank reserve, either on an open flank or in a central position ready to deploy to any threatened direction: in the latter case, they usually advance behind the first echelon to ensure a prompt response to any threat. In defence, they lurk concealed in hides on a threatened axis or flank, or in a central position, often between the first and second echelon. GENFORCE considers that the element of surprise is very important in mine warfare. Minefields laid in advance can be discovered by enemy reconnaissance and timely measures can be undertaken to overcome them. It is therefore often more efficacious to lay a minefield during the course of a battle, preferably at the last minute, directly in the path of a developing threat. Such a use of mines is not only tactically advantageous, but economical in resources: this may be an important consideration when supplies are limited, eg, when a hasty defence is adopted during operations in the enemy's depth.

0987. ***Tactical Minefields.*** Tactical minefields figure largely in defence, whether deliberate or forced. They help to compensate for numerical inferiority and they win precious time to react to an attack. They are laid in front of defensive positions and in depth to help to break up the attack and to canalize the enemy into fire pockets. They may also be used to cover gaps in combat formation and flanks and boundaries. In all cases, GENFORCE insists that they be covered by fire, even if, in extremis, it is only that of artillery. Intended to exercise a major effect on the course of battle, they are ordered by formation commanders.

- a. *Tactical Minefield Design.* The usual practice is to lay panels of three or four parallel rows of mines, 20-40m apart, often with one of the rows comprising belly-attack mines. Rows are so laid that the mines form a chequerboard pattern with a spacing in each row of 4-5.5m between track-attack mines and 8-11m between tilt-fused mines. A tactical minefield will comprise at least two such panels, generally three and sometimes even four. These are laid at such distances from the forward line of defence that growing numbers of weapons can be brought to bear against an enemy attempting to penetrate. Thus, a typical tactical minefield will have its first panel about 3-4,000m from the forward positions so that it is covered by the fire of ATGM (including from some in the depth) and artillery (with both HE and laser-guided munitions). The second panel will be 1,000-1,500m in front, at which range tank guns, BMP cannons, shorter range ATGM and infantry grenade launchers and heavy machine guns can add their fire. The final panel is almost always 3-400m distant, where RPGs and small arms can engage. Table 9-8 gives the estimated stopping power of typical panels and Diagram 9-10 illustrates a typical tactical minefield and a GMZ platoon laying a panel.
- b. *Speed and Methods of Laying.*
- (1) *Mechanical Laying of Anti-Tank Mines.* GMZ or mine trailers towed by a BTR or a truck will lay buried mines at about 6 kph on clear ground or half that in furrows. Thus a platoon of three can expend its basic load of 200 mines to create a 1,100m panel of three rows, with 5.5m spacing between mines, in 11 or 22 minutes: if the mines are laid 4m apart, the panel will be only 800m long and will be laid in 8 or 16 minutes. In an emergency, surface laying could be employed, taking only half the time. After laying, minelayers will have to replenish, a task which takes about 20 minutes. Of course these timings are purely for laying and take no account of the time required for reconnaissance, the issue of orders and the marking of the fields limits.
 - (2) *Anti-Personnel Mines.* Currently, anti-personnel mines have to be emplaced by hand or delivered by the UMZ dispenser system carried on the back of a load carrier and firing 11,520 x PFM-1S or 720 x POM-2S per salvo out to 100m. Frequently, anti-personnel mines are not laid, save perhaps in the panel nearest to the forward positions, as they complicate the recovery of the mines for future use.
 - (3) *Aircraft Laying.* Ground attack aircraft can carry up to eight KMGU dispensers, each with 12 x anti-tank mines. Medium lift helicopters can surface lay anti-tank mines (200 per load) at 5m spacing using chutes. A flight of three can create a panel 1000m long in 5 minutes. Alternatively, helicopters can use the PKP-1 dispenser, laying a 2400 x 50m strip though with only half the density of a chute laid panel.

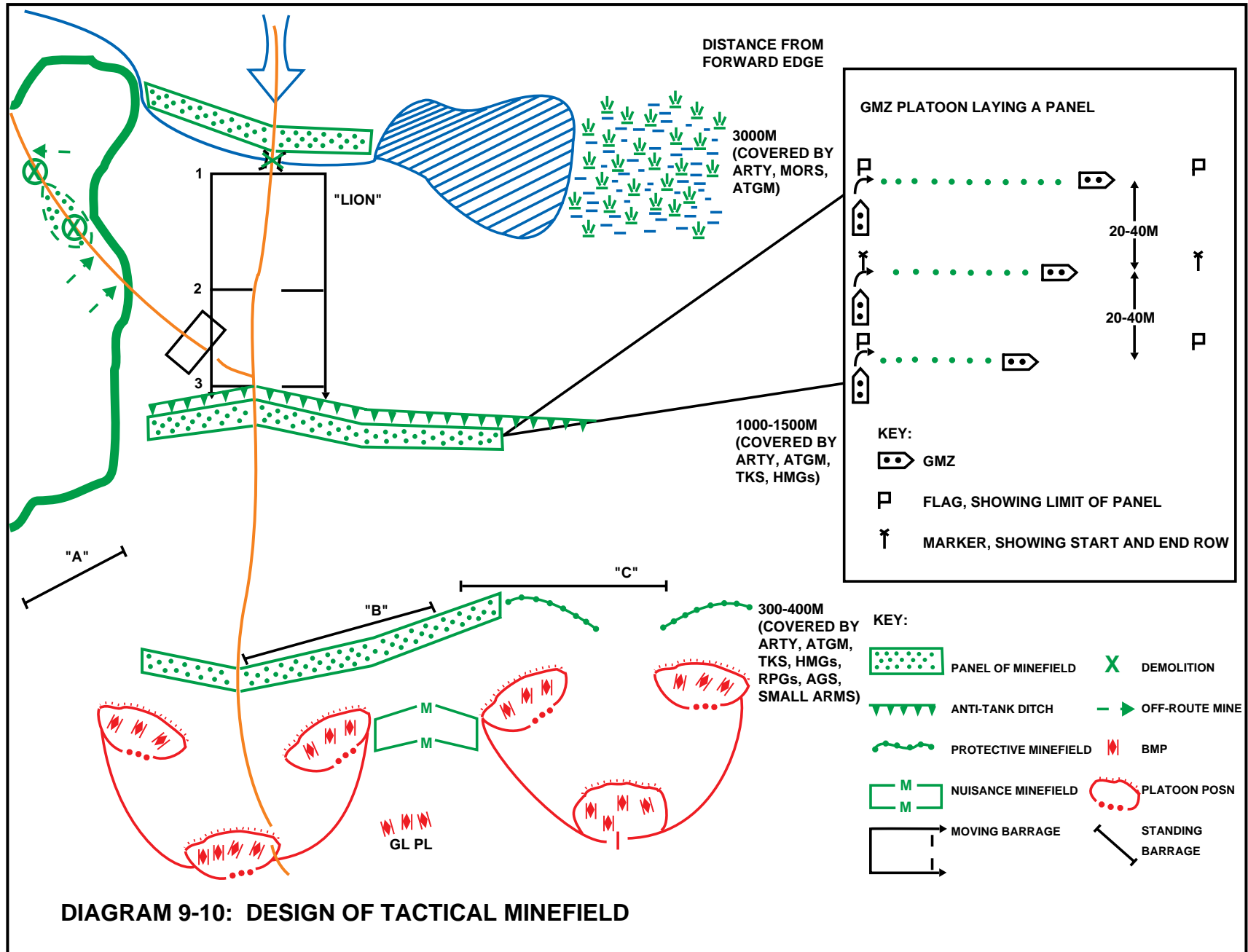


DIAGRAM 9-10: DESIGN OF TACTICAL MINEFIELD

- c. **Anti-Tank Ditches.** The presence of an anti-tank ditch is seen to improve considerably the stopping power of a minefield. MDK-2M will create a ditch 4.5m deep and 4m wide, the time required depending on the nature of the soil.
- d. **Controlled Minefields.** Where the tactical situation dictates and time allows, a controlled minefield may be hand laid. This is often desirable in manoeuvre defence, when friendly forces may have to withdraw over it, or when a counter attack or resumption of the offensive may have to cross it.
- e. **RDMs.** A minefield can be thickened or breaches closed by tube or MBRL delivered RDMs (see paragraph 0920). They may also be the only means of covering areas unsuitable for mechanical laying such as water meadows or thick crops.

TABLE 9-8: CHANCES OF A TANK OR MAN HITTING A MINE WHEN TRAVERSING A MINEFIELD PANEL

Minefield Characteristics	Anti-Tank Minefield				Anti-Personnel Minefield		
	Track-Attack			Belly Attack			
	TM-57/62	TM-57/62	TM-57/62	TMK-2	PMN/PMD-6N	POMZ-2M	OZM-4
Density per km	550	750	1000	360	2000	200	200
Depth of field (m)	30-80	30-80	45-120	30-80	5-30	10-20	10-20
Number of Rows	3	3	4	3	2-4	2	2
Distance between: rows (m) mines (m)	15-40 5.5	15-40 4	15-40 4	15-40 8-10	over 5 1-2	10 10	10 10
Chance of hitting (%) tanks personnel	45	65	75	75	15	30	63

0988. **Other Minefields.**

- a. **Protective Minefields.** If sappers have not laid a panel immediately in front of their position, motor rifle sub-units will hand lay their own protective field for close in protection of their position to prevent it from being overrun. They can also create small instant anti-personnel mine obstacles using the 100m range PKM man portable dispensers. Air landing detachments will usually have enough mines to create these sorts of obstacles.

- b. *Nuisance Mining* is much favoured by GENFORCE, particularly in manoeuvre defence and by forward and raiding detachments and groups. The enemy should be conditioned to mine consciousness and therefore cautiousness, for this will help to slow his momentum and to disrupt enemy activities even in his own depth. Nuisance mining has become more effective and difficult to cope with as a result of the development of off-route mines (seen as especially useful in defeating attempts at infiltration by reconnaissance troops or even, when coupled with other obstacles such as tree blow-down and conventional mining, outflanking, forward or raiding detachments/groups.) Nuisance minefields are not necessarily covered by fire, though this is plainly desirable, even if it is only by artillery.
- c. *Dummy Minefields* may be the only answer in secondary sectors when mine resources are low. They are also used more positively than in a spirit of desperation during manoeuvre defence. Defending troops can withdraw through them and win time to occupy their next position while the enemy probes the minefield. An enemy bypassing a dummy minefield in the interest of speed may also regard it as a protection for his flank, only to fall victim to a counter attack through it. A variant on the theme favoured by GENFORCE is to lay a single row of active mines, or one or two inert rows to give verisimilitude to the deception.
- d. *Anti-Helicopter Minefields* are laid on likely avenues of approach both to cause casualties and to force the helicopters to gain altitude and thus expose themselves to ground fire from which the terrain previously sheltered them.
- e. *River Mines*. GENFORCE has now fielded a mine that can be laid in water obstacles to attack amphibians passing over or bridges as they extend over the obstacle. These are also, obviously of use in protecting beaches against amphibious assault.

SECTION 7 - CHEMICAL DEFENCE AND SMOKE GENERATION

General

0989. ***Possibility of Nuclear or Chemical Use.*** GENFORCE does not seem to expect a technologically sophisticated enemy to use weapons of mass destruction (WMD) from the outbreak of hostilities. Nor does GENFORCE appear to anticipate doing so itself (though the evidence for this cautious assertion is decidedly mixed). This is partly because both sides fear the possibility of escalation. Even more important, perhaps, is the perception that neither nuclear nor chemical weapons (let alone biological) have quite their former utility on the battlefield of tomorrow. There are few missions that cannot be performed at least as efficiently by precision and other ACMs. Moreover, the indiscriminating effects of NBC weapons over huge areas, especially the collateral damage consequent on nuclear strikes, limits their employability on the manoeuvre dominated, non-linear, fragmented battlefield where friendly and enemy forces are intermingled. This does not

mean that the possibility of their use can safely be discounted. If one side achieves a technological breakthrough that it perceives to be unmatched by the enemy, particularly in the BW field, it may be tempted by the preferred force multiplier into using a WMD. It is also anticipated that either side may use them as weapons of last resort if their release might avert defeat. There is also the possibility of either side resorting to them if it exhausts its stocks of precision and other ACMs and perceives itself to be at a fatal disadvantage in consequence. If they are to be used, it is likely to be mainly in the operational rear rather than in the tactical or even operational-tactical zones where the danger to friendly forces or the scheme of manoeuvre will usually be significant. Chapter 14 goes into the conduct of NBC warfare in detail.

0990. ***The Requirement for Chemical Troops.*** There is still a significant NBC threat, particularly from an unsophisticated enemy that may seek to compensate for lack of ACMs through the use of WMD. There is also a significant danger of contamination resulting from the destruction of nuclear power stations or chemical production facilities. For these reasons, GENFORCE still maintains a NBC capability and specialist Chemical Defence Troops, albeit on a reduced scale compared with yesteryear. These troops also play an important role in conventional war. They are responsible for most smoke generation and for some counter-measures employed against precision attack.

NBC Defence

0991. ***Reconnaissance.*** Continuous NBC reconnaissance is considered vital to the maintenance of momentum and combat effectiveness. Improved data management and flow resulting from the C4I revolution has greatly improved GENFORCE's ability to do effective risk management and thus to minimize the impact of contamination hazards on timetables and schemes of manoeuvre.
- a. ***Responsibilities of Chemical Defence Troops*** include reconnoitring and assessing known and suspected areas of contamination, passing warning of such contamination on a net reserved for NBC and air warning and monitoring changes in the levels of contamination of troops, equipment, positions and terrain. This is not, of course, the exclusive responsibility of the Chemical Defence troops. All units are trained and required to conduct local and self-protective NBC reconnaissance.
 - b. ***Equipment.*** NBC reconnaissance troops are equipped with heavy duty (but air-permeable) protective clothing, radiation monitors and sophisticated chemical and biological detection equipment, portable markers, flags and signs, and warning equipment such as rockets, sirens and smoke generators. They travel in the specialist reconnaissance vehicle RKhM, equipped with air filtering and ventilating units, detection equipment and devices which allow them to plant marker flags without leaving the vehicle. Helicopters, fitted with detection devices, are also commonly used to provide a rapid monitoring facility for large areas. In addition, all sub-units of all arms have radiation and chemical detection equipment and teams trained in their use for their own, local protection.

- c. *Method of Operation.* NBC reconnaissance elements are usually attached to detachments operating in advance of main forces, such as advance guards or forward detachments. They may also be allotted routes, axes or areas to reconnoitre independently. An NBC reconnaissance section on the march will usually follow immediately behind the normal reconnaissance elements on the main axis. A section will similarly often accompany engineer route clearing detachments (MSDs); further sections will march with the reconnaissance elements travelling just ahead of each column of the main force and they also travel with reserve or decontamination units and major medical units. When a proposed route passes through a contaminated area, the reconnaissance team marks the boundaries of the contamination and monitors and records the zones of intensity. Its aim is then to discover an alternative route avoiding the contaminated area; failing that, it must select the route which offers the safest passage across it and mark it accordingly. In the case of traversing fallout contamination, marker flags, planted auto-matically, are usually put down to delineate radiation "contours" of 0.5, 8 and 30 roentgens per hour, above which detours are always sought.

0992. **Protective Equipment.** GENFORCE is well equipped with individual and collective protection means.

- a. *Individual.* A range of respirators and permeable protective clothing is issued. Each soldier has a medical kit, with counter measures against nerve agents, vesicants and toxic smoke. A personal decontamination kit for small areas of skin and another for clothing and personal weapons complete the inventory.
- b. *Collective.* All modern AFVs, command, signal, workshop and logistic vehicles have overpressure and air filtration systems to keep out toxic agents. Collective protection facilities are also available where work can be done without protective clothing and many filter and overpressure "add-on" systems are available.

0993. **Decontamination.** At all levels, chemical defence reserves are formed. These carry out decontamination of attacked units or those unable to bypass contaminated areas. This is done at the earliest possible moment to maintain combat effectiveness. Decontamination of routes is also practised extensively to prevent units moving forward from being affected (though alternative routes are always the preferred option).

- a. *Decontamination.* Self-help is seen to be the first line in chemical defence, both in reconnaissance and in the restoration of combat effectiveness. In addition to individual prophylactic/decontamination kits, each equipment is accompanied by an appropriate decontamination equipment. At least partial decontamination can be accomplished at sub-unit level without waiting on unit/formation aid.

- b. *Specialist.* Manoeuvre units and formations have Chemical Defence elements. These form the chemical defence reserves which move on the main axis or to affected areas on demand. They set up decontamination points for both vehicles and crew served equipments using TMS-65 and ARS-14, and for personnel and their clothing using DDA-53/66. Prompt decontamination is seen to be a more effective means of preserving combat effectiveness than expecting troops to rely on their protective equipment and fight "dirty". It can be carried out quite speedily: a TMS-65 platoon can decontaminate a tank battalion in 30-90 minutes, and a motor rifle battalion can be treated in 2 hours using ARS-14s. GENFORCE will endeavour to give specialist treatment within five hours of contamination.

0994. **Post-Strike Recovery.** Commanders at all levels must include in their plans provision for the restoration of units which fall victim to NBC strikes. This involves restoring command and control, reconnoitring the target area, conducting rescue work (including vehicle repair, evacuation of wounded, extinguishing fires) and decontaminating personnel and equipment. Recovery detachments are detailed for second echelon or reserve groupings or are provided by higher headquarters from their specialist reserve. They include chemical reconnaissance and decontamination assets, engineers, medical and vehicle repair personnel and motor rifle troops for labour. Priority for help goes to personnel and equipment which can be quickly returned to combat, the aim being to form a new unit or sub-unit or, if the damage is too severe, to add effective elements to other units.

Smoke

0995. **Importance.** Historically, much of GENFORCE's military experience has been of operations conducted over wide, somewhat featureless spaces. Where concealment was not provided by the terrain, it had to be manufactured. GENFORCE's answer was smoke, the concealment that it could carry with it and turn on at will. Prodigious quantities have been used during actual combat - covering thousands of square km of concentration areas and creating hundreds of km of screens during a single operation. The importance of smoke has greatly increased in recent years as a result of the revolution in military affairs. The long-range, accuracy and lethality of contemporary direct fire weapons makes even short exposures to their fire all but suicidal. Nor is the danger of direct fire engagement confined to the line of contact: helicopters and ground attack aircraft will penetrate into the tactical depth to attack with guided weapons. Even the operational depth is not safe as precision weapons will seek out targets there.

0996. **Types of Smoke Usage.** GENFORCE identifies five ways in which smoke can be used.

- a. *Signalling.* Coloured smoke grenades, shells and bombs are used to indicate targets, mark boundaries or axes, indicate the end of phases of a fire plan or to transmit such other information as is desired by the commander.

- b. *Blinding*. Blinding smoke is delivered directly in front of known or suspected weapons or OPs (especially observers with LTDs who can direct precision air or artillery strikes) for critical periods. It is believed to reduce weapons effectiveness by up to ten times and thus reduce casualties from those weapons by 90%.
- c. *Concealing*. Concealment smoke is used to cover an area or screen a line from observation and aimed fire. It is said to reduce weapons' effectiveness by a factor of four and to reduce casualties by up to 60-80%. It has the added advantage that it forces attack helicopters or other low flying aircraft to fly above or round the screen, exposing themselves to air defence weapons that could not otherwise have engaged them. The use of concealment smoke is usually combined with that of corner reflectors, chaff and other anti-radar measures to defeat radar as well as optical and IR target acquisition. Tactically, it can be employed in several ways.
 - (1) *Area Smoke* is used to conceal a grouping in a waiting area or a target such as a CP, missile launcher, logistics dump or bridge.
 - (2) *Smoke Screens* may be laid on successive lines to cover the advance and deployment or extrication from combat and withdrawal of combat elements. Such screens may be echeloned many km in depth. Screens may also be used to cover march routes, eg in defiles or when a column is halted by remote mining, or to conceal a move from one area of terrain cover to another.
 - (3) *Area/Screening Smoke*. A combination of concealing smokes can be used to cover lengthy and vulnerable operations such as river crossings or tactical minefield breaching/gap crossing over a period of several hours.
- d. *Decoy*. Smoke screens are seen as a quick, easy and effective means of creating uncertainty in the enemy. Decoy smoke can direct enemy attention and fire away from the point of main effort, especially if it is used to conceal the true scale of a feint attack. By causing the enemy to disperse his fire and misuse his reserves, it effectively reduces the density of the defence at a critical time. It can also be used to disguise the true withdrawal route in manoeuvre defence.
- e. *Reconnaissance*. Smoke can be laid prior to an attack to induce the enemy to fire into it in anticipation of an imminent blow. Having used this expedient to locate enemy weapons, the fire plan for the real attack can be amended.

0997. **Obscurants**. GENFORCE makes full use of all obscurants, both natural and artificial, to conceal its activities and to defeat aimed fire. Table 9-9 summarizes the effectiveness of each type.

TABLE 9-9: SUSCEPTIBILITY OF SENSORS TO DEGRADATION

Obscurant	Affected Systems				
	Optical Sight	Image Intensifier	Laser Designator	Thermal Imager	Millimetric Wave Chaff
Rain, snow	Major	Major	Major	Moderate	Moderate
Fog	Major	Major	Major	-	-
Dust	Major	Major	Major	Major	-
Visual smoke	Major	Major	Major	-	-
White Phosphorous	Major	Major	Major	Moderate	-
Bi-spectral smoke	Major	Major	Major	Major	-
Millimetric Wave chaff	-	-	-	-	Major

Notes: (a) Levels of degradation are:

- (1) Moderate implies a degradation of 10-15%.
- (2) Major implies a degradation of 20% or more.

(b) Dust created by artillery bombardment is an important source of degradation.

0998. **Smoke Generating Capabilities.** GENFORCE smoke technology has kept pace with potential enemy reconnaissance and guidance systems. Most generating means can now produce bi-spectral smoke which will have a major impact on thermal imagers and laser systems. Millimetric wave chaff is employed against MMW TGSMs, both in AFV defensive aid suites and in dispensers deployed by the chemical troops for area protection. Current smoke generators include:

- a. *Artillery.* As in Western armies, artillery is used to fire WP rounds (which have a moderate degrading effect on thermal imagers and a major one on lasers). It is as well to remember, too, that the dust created by bombardment creates considerable obscuration of its own. Table 9-10 summarizes artillery requirements for creating a screen.
- b. *Aircraft.* Smoke bombs or pots dropped by fixed or rotary wing aircraft are seen to enjoy increased significance as combat has become more dynamic and fast developing. It is used in the enemy's depth, to cover flanks, neutralize air defences on fly in routes, etc. A medium lift helicopter can carry 24 BDSH 15 pots which, dropped at 200m intervals, will create a five km long screen in two minutes.

- c. *Smoke Pots.* GENFORCE still makes considerable use of smoke pots. Tables 9-11 and 9-12 set out their characteristics and the numbers needed to create and maintain a km long screen for one hour.
- d. *Specialist Vehicles.* Although primarily a de-contamination equipment TMS-65 is very often used to generate huge quantities of smoke, either stationary or on the move. For instance, two TMS-65 can create a 1.5km impenetrable screen 400m high for five minutes with a wind speed of 3m per second. The TDA-M, a specialist smoke generating vehicle, can create a similar one km long screen in the same wind conditions while moving at 20km per hour. The former creates only visual smoke but the latter can produce bispectral.
- e. *Armoured Fighting Vehicles.* All tanks and BMPs can generate optical-defeating smoke through their exhaust systems. A platoon can produce a screen which will cover a battalion frontage for 4-6 minutes. In addition, their forward firing smoke grenade dischargers can produce a bispectral screen up to 300m ahead of the vehicles.
- f. *Infantry* have a variety of smoke grenades.

TABLE 9-10: NUMBERS OF 122mm HOWITZERS AND AMMUNITION EXPENDITURE TO CREATE SMOKE SCREENS

Length of Screen	Wind Towards or from Enemy/Cross Wind		Number of Rounds Per Gun, Depending on Screening Time. Salvo at 30/20 secs and 60/30 secs Intervals		
	Guns Needed For Screen	Guns Needed for Continuous Fire	1 min	2 mins	3 mins
100m	4/1	1/1	2/3 and 1/2	4/6 and 2/3	6/9 and 3/5
200m	9/2	2/3	2/3 and 1/2	4/6 and 2/3	6/9 and 3/5
300	12/3	3/3	2/3 and 1/2	4/6 and 2/3	6/9 and 3/5
400m	15/4	4/4	2/3 and 1/2	4/6 and 2/3	6/9 and 3/5
500m	18/5	5/5	2/3 and 1/2	4/6 and 2/3	6/9 and 3/5

Notes: (a) The use of smoke shells is most effective at wind speeds not exceeding 5m per second. At speeds of 6-7m per second, the norm is increased by 60%. At higher speeds, it is virtually impossible to use artillery to create a smoke screen.

(b) When the norm is increased by 60%, the time interval for continuous fire will be 20 seconds when the wind is towards or away from the enemy and 30 seconds when there is a cross wind.

(c) If the screening time is greater than 3 minutes, the number of rounds per gun is found from the formula $N = (T-1) \times 2$ when the wind is blowing towards/away from the enemy or $N = (T-1) \times 1$ when there is a cross wind.

(d) When using 120mm rounds, the above norms are increased by 50%. With 152mm, they are reduced by one third.

TABLE 9-11: CHARACTERISTICS OF SMOKE POTS

Characteristics	Smoke Pots				
	DM-11	DMKh-5	DSKh-5	BDSH-5	BDSH-15
Weight	2.4	2.7	7.5	40	41
Intensive smoke generating time (mins)	5-7	5-7	15-17	5-7	15-17
Length, impenetratable screen (m) (a)	up to 50	up to 50	up to 70	250-300	125-150

Note: (a) Assumes average conditions.

TABLE 9-12: NUMBER OF SMOKE POTS NEEDED TO SCREEN ONE KILOMETRE FOR ONE HOUR

Wind Direction/(a) Met Conditions	Dm-11			DMKh-5		
	Frontal	Oblique	Cross Wind	Frontal	Oblique	Cross Wind
Favourable	600	500	300	400	300	200
Average	800	600	400	600	450	300
Unfavourable	1200	900	600	900	600	450
Wind Direction/(a) Met Conditions	DSKh-5			DDSh-5/15		
	Frontal	Oblique	Cross Wind	Frontal	Oblique	Cross Wind
Favourable	150	100	75	70	50	25
Average	200	150	100	90	60	30
Unfavourable	300	200	150	120	80	40

Note: (a) Definitions of meteorological conditions are given in Table 9-13.

TABLE 9-13: CLASSIFICATION OF CONDITIONS FOR USING A BI-SPECTRAL SMOKE SCREEN

Meteorological and Topographical Situation	Meteorological Conditions		
	Favourable	Average	Unfavourable
Average wind speed at height of 1m	3-5m/sec	1.5m/sec	under 1.5, over 5m/sec
Character of wind	Stability as to Direction	Stability as to Direction	Gusty, total calm
Vertical stability of wind	Inversion, isotherm	Isotherm	Convection
Relative humidity	Over 70% or mist	50-70%	Less than 50%
Air temperature	Positive	Positive	Negative
Terrain relief	Flat	Rolling	Broken
Presence of snow cover	Absent	Depth under 20cm	Depth over 20cm

CHAPTER 10

AIR OPERATIONS AND TACTICS

SECTION 1 - THE NATURE, PRINCIPLES AND EMPLOYMENT OF AIR POWER

The Contemporary Air Arm

1001. ***The Importance of Air Power.*** GENFORCE theorists do not maintain, as do some in other air forces, that air power can achieve war winning results independently. The air arm has, however, progressed far from its previous status as an auxiliary service, albeit an important one. The significance of air power has increased dramatically since World War II and it goes on rising. In future war, victory will be impossible without air superiority, for all combat has become air-land in nature. Up to 70% of the destruction of ground targets will be inflicted by air-delivered weapons, including up to 45% of those in the tactical zone. Moreover, the air element has progressed beyond being merely an essential component in the combined arms team at both lower and higher formation levels. It has become the principal component of some deep operations, accomplishing operational missions with the aid of missile troops and raiding forces.
1002. ***The Struggle for Electronic-Fire Superiority.*** GENFORCE sees the likelihood of a future war beginning with an air operation which may assume the dimensions of a campaign. This will determine which side wins the struggle for electronic-fire superiority at the critical operational level and therefore, in all probability, the outcome of initial operations or even the war as a whole. The aims of this operation/campaign will be as follows.
- a. The neutralization of enemy air defences as an essential preliminary to:
 - b. The destruction of enemy aircraft, especially long-range, offensive assets and of operational and operational-tactical missile systems and the other components of RSCs;
 - c. The disruption of enemy C3I.
 - d. Having thus secured electronic-fire dominance, hamper the operations of ground forces by disrupting the enemy's mobilization, concentration and deployment and inflicting heavy losses on his ground troops, logistic support and infrastructure.
1003. ***The Characteristics of Air Power.*** Air Forces possess certain attributes which impart to them the principal role in the struggle for electronic-fire superiority and which make them a major player in all operations. These are their tremendous reach, ability to deliver large payloads with considerable (often precise) accuracy and their speed of reaction at the operational and even tactical levels. These qualities give air power the following characteristics.

- a. *Flexibility and Ubiquity.* Air power can effectively engage many target sets anywhere in the operational or tactical zones, and it can rapidly switch its emphasis from area to area or target set to target set.
- b. *Responsiveness.* Firepower may be manoeuvred very rapidly across the front and into the enemy's depth.
- c. *Concentration.* Modern aircraft can bring formidable weights of firepower to bear as long as they are employed en masse or with precision weapons.
- d. *Surprise.* By virtue of its other characteristics, air power is capable of producing a sudden, mass concentration of firepower anywhere of interest to the operational commander. The existence of this capability is known to the enemy, but the where and when may be surprising, particularly in the sense that it may be difficult to defend against in all sectors of importance simultaneously.

Principles in the Use of Air Power

1004. **General.** In order fully to exploit the characteristics of air power to achieve the greatest possible impact on the course of operations and battles, GENFORCE has identified certain principles. These apply equally at its operational and tactical levels, ie, to the employment of both the Air Force and Army Aviation. They are outlined below.
1005. **Concentration and Continuity of Effort.** As far as possible, Air Force resources must be concentrated to achieve the main operational goal. Initially, this will always be the achievement of air (and fire) superiority. Thereafter, while maintaining air superiority with whatever assets are necessary, it is likely to be deep interdiction with occasional (but en masse) diversions into OAS in support of ground operations on the main axis or support for air landings. It is considered essential to avoid spreading forces too thinly by pursuing several operational goals simultaneously and thus failing to achieve any of them fully. It is equally important to avoid switching from one operational objective to another before the first is fully achieved. Continuity of effort is thus stressed. The same injunction to avoid "penny packeting" applies to the employment of Army Aviation in the tactical sphere.
1006. **Centralized Command and Control.** To achieve concentration of effort, it is necessary to centralize command and control. This also makes it possible rapidly to refocus air effort as the operational situation develops.
1007. **Exercise of Control at the Highest Possible Level** is a corollary of centralized command and control. It ensures that effort will indeed be concentrated on the main operational/ tactical goal and at the same time it guarantees the full exploitation of the flexibility that is characteristic of air power. The highest level will be determined by the operational objectives and by the range and capabilities of the assets available. Thus bomber, fighter-bomber, fighter and transport aviation are usually considered theatre

assets, while ground attack aircraft and some heavy lift helicopters are SG resources and some ground attack aviation and most helicopters are army/corps assets.

1008. ***Decentralized Execution.*** The need for rapid reactions precludes the detailed planning of all air operations by a single headquarters. The actual execution of missions must be left to the judgement of subordinate formations acting within the constraints imposed by the overall plan.
1009. ***Coordination.*** The coordination of force packages and of air actions with those of the ground forces, air defence and EW is seen to be a complex and difficult task. It must be organized at the highest practical level.
1010. ***Economy of Force.*** If concentration and continuity of effort are to be achieved, air assets must not be used to perform missions which could be executed by other means. Thus, for instance, some air defences are better suppressed by cruise missiles and SSMs, artillery and raiding detachments or SPF than by manned aircraft; reconnaissance and attacks on heavily defended point targets may better be left to RPVs; ground attack aircraft or attack helicopters are not used to strike targets that can be neutralized by artillery. In order to economize on very expensive aircraft and crews and to free them for offensive action, GENFORCE has put much effort into increasing the size and effectiveness of the ground forces' air defence. This is now believed to be capable of making the ground forces self-sufficient in air defence, at least at low to medium level (see Section 5 of Chapter 9). GENFORCE does, however, recognize that a combination of losses amongst air defenders and rapid and frequent moves will create holes in the air defence umbrella, especially amongst forces conducting deep battle and deep operations. This may impel GENFORCE to provide top cover in some situations. When conducting offensive action, economy must be achieved by ensuring that strikes are coordinated in terms of time and geographical area to minimize the effort required to suppress enemy air defences and defeat enemy fighter aviation.
1011. ***Surprise.*** To reduce attrition rates to acceptable levels, surprise is an important part of air action. It can be achieved by: choosing unexpected axes; attacking at an unlikely time; attacking in unanticipated strength; using new weapons and/or tactics; degrading enemy early warning capabilities; deceptive actions (especially by RPVs).
1012. ***Preservation of Combat Effectiveness.*** The major contribution made by air power to the struggle for electronic-fire superiority and the immense cost of modern aircraft combine to make this a very important principle.
 - a. ***Defensive Measures.*** GENFORCE is paying particular attention to the survivability of airfields, air defences, EW and reconnaissance assets in order that aviation can be preserved long enough to achieve its potential and gain a decisive superiority over the enemy. This requires large numbers of dispersal airfields with hardened aircraft shelters (HAS) and other hardened facilities for vital installations: redundancy in both

operating surfaces and air bases themselves is considered vital to maintaining maximum sortie levels. Rapid runway and taxiway repair is also important and repair parties are maintained at a high state of readiness and training.

- b. *Deception.* Deception measures to tempt the enemy into expending his expensive and therefore scarce precision weaponry will assume a particularly important role.
- c. *Offensive Action.* GENFORCE believes that offensive action is critical to preserve its ability to conduct deep strikes. Enemy aviation, both offensive and defensive, must be attacked on its bases. In the air, the effectiveness of enemy command and control aircraft, including their associated communications, will be neutralized by a combination of air and ground jammers working in support of air defence aviation resources employing anti-radiation as well as air to air missiles. Enemy AWACS type targets are very high in priority for destruction. Attempts will also be made to destroy the communications and navigation satellites on which so much of an enemy's air effort will depend.

Missions

- 1013. **General.** SG will concentrate Air Force efforts on achieving operational goals, though its intervention in tactical battles of operational significance is also anticipated. The ground forces possess their own, organic Army Aviation to provide the essential air element of the tactical combined arms team.
- 1014. **Achievement of Electronic-Fire Superiority.** For GENFORCE, the most important task is to prevent the enemy from exploiting to the full the characteristics of his RSCs and air power while allowing his own to be utilized to the full. This means that most fixed wing aviation, save for dedicated ground-attack aircraft, will be devoted for the most part to offensive or defensive counter-air operations until at least air and other deep strike superiority is achieved. A significant part of this struggle for electronic-fire superiority will be the destruction and degradation of the enemy's C3I, particularly of the reconnaissance and control elements of RSCs and RFCs. Considerable effort will be devoted to the destruction of enemy reconnaissance, navigation, communications and meteorological satellites, AWACS and those aircraft associated with RSCs.
- 1015. **Deep Interdiction.** GENFORCE holds that deep interdiction has the greatest impact on the conduct of ground operations in manoeuvre warfare provided, of course, that the enemy is under heavy pressure from the ground forces. Thus the second priority after the achievement of air and fire superiority goes to the destruction, disruption and delay of the movement of enemy reserves and logistic support. The more fluid and mobile operations become, the more important interdiction becomes. GENFORCE realizes, however, that the efforts of a deep interdiction operation will only be significant if that operation is conducted continuously over an extended period and with adequate resources.

1016. **Offensive Air Support** (OAS) is seen to have a more immediate, but inevitably also a more localized influence on the conduct of ground operations. It is therefore the main form of support for the ground forces only when either an insufficiently favourable air situation or a lack of resources preclude a deep interdiction operation, or during certain crucial phases of the ground operation (eg, the committal of an OMG or operational second echelon, to defeat an enemy counter attack, the forcing of a major obstacle in the enemy's depth, to break up an enemy attack or to damage and delay a penetration or exploitation force): such interventions in the land battle must, of course, be closely coordinated with the actions of the ground forces. The preference is to employ fixed wing aviation against targets outside artillery range, ie for shallow (battlefield air) interdiction (BAI) and attacks on enemy reserve concentrations, deep fire systems and formation CPs. Close air support (CAS) is generally left to dedicated units unsuited to deep strike and to attack helicopters.
1017. **Reconnaissance** is considered a vital mission of the Air Force despite the proliferation of satellites and RPVs. The issue has been addressed in detail in paragraph 0306.
1018. **Air Landings.** The actions of airborne and air assault troops are key components of deep operation and battles. Their employment is utterly dependent on the achievement of a favourable air situation. The delivery of these important assets is always preceded and accompanied by a major air effort to eliminate threatening enemy air and air defence elements and to neutralize ground forces which could intervene against the landing.
1019. **Aerial Resupply** is routinely practised for the delivery of key items needed in a hurry. It is also envisaged occasionally on a large scale, when the air situation allows, to support forces operating in the enemy depth or encircled groupings.

Organization

1020. **Air Commands.** To meet the many demands made of aviation, GENFORCE has functionally divided his resources into four commands. There is, however, a degree of interchangeability between the first two and multi-role aircraft may be switched from one to the other as the operational situation requires.
- a. **Offensive Air Command (OAC)** comprises all those Air Force assets employed to reconnoitre and strike targets on the ground, together with the ESM, escort and stand-off jamming (EJ and SOJ) aircraft and decoy drones which help them to reach their targets.
 - b. **Defensive Air Command (DAC)** controls the air defence, air superiority and AEW and AWACS aircraft which combat the air enemy in the air. The latter also control offensive aircraft and deconflict their actions with those of defensive aviation.

- c. *Army Aviation*, which belongs to the ground forces, exists to provide the air dimension for the tactical battle. Of course, OAC assets will also be used in this role for specific phases of combat, but GENFORCE perceives the need for a dedicated component to guarantee intimate air support at all times. Army aviation consists primarily of attack and transport helicopters but also includes day-only ground attack aircraft.
- d. *Transport Command* comprises fixed wing aircraft used for logistics purposes and the delivery of airborne forces and those rotary wing transports required to support air operations. Also coming under Transport Command are the air to air refuelling (AAR) IL-78s, though operationally these support both OAC and DAC as required. (AAR is seen to be an important force multiplier, extending the loiter time of aircraft on CAPs or on airborne alert to provide OAS. They also extend the range of deep strike aircraft and their fighter protection, ensuring that they will not be inhibited from conducting aerial manoeuvre through shortage of fuel and they enable aviation to operate from bases situated in the relative safety of the deep operational or even strategic rear.)
- e. *Operational Groupings*. Each SG has an air army comprising 2-5 air defence and strike divisions and separate reconnaissance, EW and transport regiments. A SG on an important strategic direction will usually be reinforced from the substantial resources held in the Reserve of the Supreme High Command (whence also comes the transport aviation for large scale logistics or airborne operations). Thus, there is no such thing as a standard operational grouping. The composition will vary according to the role and missions of the SG and the strength of the air enemy.

Aircraft, Armament and Force Structuring

1021. ***Stand Off Weapons***. The problem of destroying targets in the enemy's depth in the face of sophisticated fighter and SAM opposition is approached in a number of different ways. The best way of reducing risk and therefore attrition is seen to lie in long-range weapons with TGSMs or other ACM warheads (eg, FAE or cluster). The delivery platform can engage its target without entering the engagement zone of the enemy's fighters or dense SAM defences. In some cases, it will not even be necessary to leave friendly airspace to launch such "fire and forget" weapons. In the latter case, old and vulnerable platforms such as the Tu-95 can be used with relative impunity. GENFORCE has developed a range of air and ground launched cruise missiles (ALCM and GLCM) to attack deep targets. With a low radar cross section and a terrain hugging capability, these are difficult to intercept and destroy with either air or ground based defences. It is probable that the latest versions will have a facility for damage assessment and subsequent retargeting either by external sources (usually AWACS) and/or by onboard systems. Even where aircraft have to penetrate enemy airspace, exposure to some SAMs is reduced by using long-range "fire and forget" ATGMs or laser homing guided bombs that can be released some way from the target. Of course, stand off weapons in the form of radiation homing missiles (ARM) are used against the fire control radars of threat SAMs themselves to suppress

air defences on the approaches to targets and to destroy AWACS. The cost of precision weaponry being very high, it can only be provided in relatively limited quantities to deal with the most problematical targets. Therefore, most missions, at least in the tactical zone, will still have to be accomplished using free fall (including retard) bombs and cluster munitions which require aircraft to overfly the target. The inherent risks are, however, reduced by the fitting of inertial navigation systems to OAS aircraft, enabling them to bomb accurately from very low level and thus underfly several threat systems.

1022. **Stealth.** GENFORCE has not been slow to appreciate the advantages of stealth technology to enable aircraft to operate within a hostile air defence environment. These aircraft do not have large flat surfaces, breaks in their skin or vertical control surfaces, their engines and weapons are hidden in the fuselage and air intakes are on the upper surfaces to reduce IR patterns. With very low radar returns and weak IR radiation, their vulnerability is greatly reduced, especially at night (their favoured time of operation). The immense cost of such aircraft has inevitably limited their numbers, so they are generally reserved for deep strikes on high value targets, or for suppressing the defences of such targets prior to attack by other offensive aircraft.
1023. **Conventional Offensive Aircraft.** GENFORCE recognizes that, while SAM defences can be avoided, or at least exposure to them limited, by careful routing and low flying, enemy fighters cannot easily be evaded if controlled by AWACS: AWACS has effectively closed the gap beneath ground based radars which in the past was exploited by attack aircraft, thus forcing the latter to fight their way to and from the target rather than try to avoid the defence. Fighter-bomber design therefore stresses high speed and manoeuvrability and such aircraft now carry short range AAMs for self-protection as well as offensive stores. There is, in fact, less and less difference in performance between advanced fighter-bombers and fighters, with either being usable (albeit with some limitations) in the other role: the weapon load is becoming the major differentiating factor rather than aircraft type, though obviously air superiority fighters lack terrain following radars for low level penetration and fighter-bombers do not have radars suitable for beyond visual range (BVR) engagements. In the event of a BVR attack, the latter have to rely on radar warning receivers (RWR), decoys and manoeuvre to defeat the attack while closing to short range.
1024. **Support Aircraft.** Given that little will escape the AWACS eye in the sky, offensive aircraft are likely to have to fight their way to their target (and back again). They will often need fighter escorts and will always require EW support. GENFORCE does not rely solely on self-protection ECM pods and decoys carried by attack aircraft. They are supplemented by large SOJ platforms which operate from the safety of their own airspace and are escorted by EJ aircraft (which may not only jam ground and airborne intercept radars and engage them with ARMs but also lay very long, slow-fall chaff trails to conceal the size of raids and the location of individual aircraft within them). On the other hand, fighter-type reconnaissance aircraft are expected to rely on fast, low level penetration and self-protection pods and AAMs and above all on the possibility of single aircraft or pairs being able to avoid acquisition

or perhaps even being considered unworthy of attention.

1025. **Fighters.** The trend in GENFORCE is to build larger fighters than in the West. This reflects a desire for long-range/loiter times and for a platform that will carry a large inventory of AAMs for different types of engagement. It also reflects a growing stress on BVR engagements, including those using long-range and look-down, shoot-down radars and missiles, in preference to dog fighting. However, the latter is not neglected and fighters always carry both short range, all aspect AAMs and a 30mm cannon (impervious, of course, to ECM) for close-in fights.
1026. **AWACS.** Both airspace management and air defence are crucially dependent on GENFORCE's small number of AWACS platforms.
1027. **Nuclear Capable Aircraft.** All bomber aviation and a high proportion of fighter-bombers are dual capable (ie of nuclear as well as conventional delivery). GENFORCE faces a dilemma in conventional operations. It needs to maximise the use of its air assets, yet cannot be caught unprepared if and when escalation takes place. It is surmised that, following an initial operation to achieve air superiority, which will involve all available aircraft, there will be a nuclear withhold of up to 15% of bombers and about 5% of fighter bombers. These proportions could well increase as GENFORCE perceives the nuclear threshold being approached and it prepares to deliver a preemptive nuclear strike.
1028. **Army Aviation.** GENFORCE continues to emphasize the importance of a sturdy, survivable ground attack aircraft capable of delivering a heavy weight of ordnance in the tactical depth. Advanced inertial navigation systems enable such aircraft to deliver attacks accurately from very low level against targets whose location is known in advance and optronic target acquisition/aiming systems aid surprise attacks by eliminating active systems. In attack helicopter design, three trends are discernable. One is to provide a fire support helicopter thought of and described as "flying artillery". The second takes the shape of a well armed vehicle that can carry an infantry section, known as a "flying BMP": such aircraft are to be seen in growing numbers in association with air assault units. The third is a rotary wing "fighter" with the ability to engage both ground and air targets, and with the agility to engage in dog fights with enemy helicopters. As attack helicopters are now required to operate throughout the enemy's tactical depth (by night as well as day) and not just along the line of contact, they now carry the same protective features as ground attack aircraft (eg, armour against 20mm cannon fire, RWRs and radar and IR decoys) and they too have inertial navigation and optronic targeting and sighting systems (using mast-mounted sights) and laser target acquisition and marking systems.

Aircrew

1029. **Manning.** Expensive and thus scarce assets must be fully utilized. GENFORCE has established an aircrew to aircraft ratio of 2:1 for all weather, day and night aircraft and 1.5:1 for day only aircraft in order to achieve sustainability.
1030. **Training.** GENFORCE has greatly improved the selection procedures for aircrew and the quality of flight instruction and training. Training realistically addresses the problems of complex air operations and standards are maintained by an average of 150 hours per annum for combat aircrew. Fighter and fighter-bomber crews are cross trained so that they can perform adequately in their secondary role. Much more emphasis than in the past is laid on the initiative of low level commanders and individual aircrew.

SECTION 2 - THE OFFENSIVE COUNTER-AIR OPERATION

Aims, Missions and Characteristics

1031. **Offensive Action.** The struggle for air and deep strike superiority can be waged offensively (attacking enemy aircraft in their own airspace and striking enemy airbases and SSMs) or defensively (waiting for enemy penetrations into friendly airspace and attacking them there). GENFORCE prefers offensive action as long as the numerical and technological correlation of forces permits. The reasons are as follows:
- a. **Initiative.** Only an offensive operation can confer the initiative. With it, the attacker can maximize his exploitation of the capabilities of his assets and can concentrate against enemy vulnerabilities.
 - b. **Reduction of Enemy Capabilities.** By taking the battle to the enemy, GENFORCE will reduce the enemy's level of offensive air action at a time of GENFORCE's choosing. This is accomplished by closing down enemy bases, disrupting C3I, destroying equipment and personnel and by forcing the enemy to concentrate on defensive actions.
 - c. **Decisiveness.** Only by seizing and retaining the initiative, by the achievement of a favourable exchange rate (balancing numerical and technological factors) and by continuous offensive action can air superiority be established where and when it is needed. An air enemy forced onto the defensive and with no safe refuges for his aircraft (at least within reasonable range of his major targets) will be unable to interfere effectively with ground operations. Moreover, only through taking the fight to the enemy can air power assist in those other areas of the struggle for electronic fire superiority - eg the destruction of the air reconnaissance and ground control elements of RSCs, and of enemy CPs and SSMs.

1032. **Aim.** The offensive counter-air (OCA) operation is usually mounted to gain the air and deep strike superiority without which ground operations will not be successful. Ideally, the OCA operation will seize and thereafter maintain air superiority theatre wide for the duration of ground operations. It is recognized, however, that this will be difficult against a strong air enemy and that a more limited aim may have to be pursued: that is, to preclude the enemy from making a significant air and other deep strike effort for limited periods only, in this way supporting the manoeuvre of the ground forces for the duration of important phases of their operations. GENFORCE also foresees the possibility of conducting a short OCA operation against a superior airforce by way of a spoiling attack designed to prevent the enemy from launching his own offensive in a well-coordinated fashion: such a move will make it easier for the air defence forces to deal with the enemy as his attacks will be launched in a piecemeal way.

1033. **Missions.** The tasks to be accomplished in the OCA operation are:

- a. *Neutralization and Destruction of Enemy Air Power* is to be accomplished partly through aerial combat and mainly through attacks on enemy airbases and on command, air navigation and logistics systems. Priority is given to attacks on airborne early warning and control aircraft (by far the most important targets) and the more capable (and especially multi-role) combat aircraft. Older and less sophisticated types and close air support forces are seen to be of less importance in the struggle for air superiority. Attacks on air bases can take one of two basic forms. Enemy aircraft on a base may be neutralized by shutting down operating surfaces. Concrete penetrating bombs are used to crater runways and taxiways and minelets are sown to slow down and complicate repair work. If well executed in sufficient strength, such an attack may close a base for 12-24 hours, depriving the enemy of the use of the aircraft on the base and dislocating the operations of aircraft that have already flown from it: such aircraft will be forced to recover to a different airfield which may not be equipped to maintain and rearm them and even recovery may be problematical if their endurance is running out. Alternatively or consecutively, precision attacks can be made against HAS and logistic and C2 facilities. To be worthwhile, such strikes depend on accurate intelligence about the deployment and precise location of both aircraft and installations: destroying empty shelters can be an expensive exercise for limited gains.
- b. *Destruction of Enemy RSCs and Nuclear Systems.* Long-range, precision missiles and their associated reconnaissance and command and control systems can have a major impact on both the air and ground operations and are therefore targeted alongside high value air systems.
- c. *Strategic Targets* which contribute to the enemy's generation of air and missile power may be attacked in a strategic air operation coincidental with the OCA operation.

1034. **Characteristics.** In GENFORCE's view, the OCA operation will be characterized by the following features.

- a. *Decisive Aim.* A decisive measure of air superiority is seen to be achieved with the destruction of 50-60% of the enemy's air power, assuming of course that the attrition rate has been favourable to GENFORCE. Where this cannot be achieved, the aim will be to gain air superiority by keeping the enemy on the defensive and achieving a favourable attrition rate for a period specified by the SHC. Because of the overriding importance of this aim, all available resources which can contribute to it will be thrown into the OCA operation. There will even be no nuclear withhold during the initial strikes of a conventional war.
- b. *Broad Spatial Scope.* Given the range of modern aircraft especially with AAR capabilities and the relative ease and speed with which they can redeploy, the operation has to be theatre-wide and deep.
- c. *Pre-Emptive Nature.* To give a high probability of success, GENFORCE believes that pre-emption is all but essential. The first, mass strike must achieve at least partial operational and tactical surprise. To this end, the initial OCA operation may well be mounted before the ground forces are ready to initiate operations, whether offensive or defensive. No tell-tale major redeployment of air assets will take place prior to the operation (a requirement that is aided by GENFORCE's possession of a substantial AAR fleet).
- d. *Combined Arms.* Virtually all aviation resources that can be brought to bear will participate, including at least elements of strategic aviation and most other fixed wing aviation. Other services will also make vital contributions. Some ACM or precision tipped strategic missiles and SSBMs will be used to attack enemy bases and destroy command and control centres. Operational and operational-tactical cruise and ballistic missiles will do the same for targets within range and neutralize air defences. Long-range artillery will hit near air defence missiles and radars. SPF will carry out reconnaissance and target designation and perhaps sabotage. Air landing forces may be used to destroy air defences and seize airfields, Naval forces will destroy enemy aircraft carriers and elements of Naval Aviation may participate in airfield attacks.
- e. *Complexity in Organization.* The coordination and control of the various services and combat arms in time and space is seen to be both difficult and essential.
- f. *Duration.* Ideally, given surprise and a weaker opponent, GENFORCE would hope to achieve air superiority, or at least a favourable air situation, within 48-72 hours of an initial, preemptive attack. Thereafter, enough assets would be allocated to the conduct of the OCA operation to maintain air superiority and some could be diverted to supporting ground operations. In practice, against a strong air enemy, GENFORCE is prepared for a long and hard struggle in which its possession of the initiative will be challenged, at least intermittently if not continually.

Conduct of the OCA Operation

1035. ***The Initial Blow.*** The initial, mass strike is crucial to the success of the operation as a whole. If it does not achieve a high proportion of its goals, imparting an unstoppable momentum, the operation, and the air war as a whole, are likely to settle down to a struggle of attrition in which victory will probably go to the technologically superior side. The first strike is delivered in four phases: the pinning, support, main and development attacks. These are dealt with below.
- a. ***The Pinning Attack.*** The OCA operation opens with a massive, surprise pinning strike on as many main operational airbases as possible by strategic, submarine launched (low trajectory) and operational SSMs with conventional warheads. The first salvo will probably be fuel-air explosive warheads to destroy personnel and equipment caught in the open and followed immediately by a minelet bombardment to close runways and taxiways for the time it takes aviation and cruise missile strike groupings to arrive.
 - b. ***The Support Attack.*** The support echelon will open up the air penetration corridors, attack the defending command and control system, execute further mining of airfields, conduct reconnaissance and deception and engage any enemy fighters not pinned to their airfields by the missile strikes. The suppression of enemy air defences (SEAD) involved in the opening of penetration corridors will be dealt with in paragraphs 1082-1087. The support echelon will devote to these tasks about 10% of available light bomber forces, 30% of fighter-bombers, 25-30% of fighters and 55-60% of reconnaissance assets, as well as elements of strategic aviation. In addition, cruise and ballistic missiles and SPF raiding forces will help to suppress enemy air defences.
 - c. ***The Main Attack.*** The strike echelon will include about 85-90% of the light bombers, 65-70% of the fighter-bombers, 15-20% of the fighters, 10-15% of recce aircraft, about 75% of strategic aviation and elements of the cruise missile force. The mission of the strike echelon is to destroy enemy missiles and enemy aircraft and personnel on airbases, to destroy or neutralise CPs and close airfields so that aircraft cannot rebase or get fighters into the air before the second mass strike. Accompanying reconnaissance will provide near real time damage assessment.
 - d. ***The Development Attack.*** The development forces and reserves are assigned on the basis of post-strike reconnaissance after the strike echelon's attack to service targets not sufficiently damaged by the strike echelon, and to hit newly located targets (such as aircraft which managed to rebase before being hit). These forces comprise the remaining aviation assets.
 - e. ***Post-Strike Recovery.*** Recovery will generally be to dispersal airfields to avoid retaliatory strikes. It is a GENFORCE precept that an air grouping should never, where it can be avoided, return to the base from which it

mounted a raid. In practice, however, the cost of total redundancy of bases in terms of manpower, maintenance facilities and fuel and weapon provisioning is insupportable. Out of the total number of prepared airfields, 35% will be permanent, 35% will be dispersal and 30% will be for manoeuvre or reserve. Deception airfields can amount to 1/3 or more of all permanent airfields. Sophisticated dummies are deployed on them to impart realism.

1036. **Subsequent Actions.** From the pinning missile strike to the end of the development attack will be about 2½-3 hours. Those elements which can be turned round rapidly will follow up with a further attack in the middle of the day on CPs, air defences and runways. There will then be a further massed strike towards the end of the day. The dose will be repeated on the second, and probably third day of operations or until at least temporary air superiority is won. The initial OCA operation's successful conclusion is not, however, the end of offensive counter-air effort. The enemy, it is recognized, will reinforce from his strategic depth and will redeploy forces from other, less or inactive theatres. Continual action will be required to keep the initiative in the air, losses being made good through reinforcement from military districts designated to provide reserves. There will also be a requirement for air defence operations (see next section) either because the initial OCA operation has not been successful or, even if it has, to cope with the residual threat.

SECTION 3 - THE DEFENSIVE COUNTER-AIR OPERATION

Aims, Missions and Characteristics

1037. **Defensive Action.** GENFORCE will resort to a defensive counter-air (DCA) operation only when it either starts from a position of inferiority in the air or has found an OCA operation too expensive to continue (ie the attrition rate is unacceptably adverse). Although the defensive option surrenders the priceless benefit of the initiative, it does confer some advantages, exploitation of which may lead to such an improvement in relative attrition rates as to make offensive action possible in the future.
- a. *Combat in Friendly Skies.* With most combat action taking place over territory held by the defending side, the enemy will be exposed to SAM and AAA fire and ground based jammers as well as to aerial attack. He can also be lured into attacks on dummy targets and into air defence ambushes. Moreover, when friendly aircraft are shot down, aircrew who succeed in ejecting safely will soon be available for return to battle whereas those of the enemy will be captured.
 - b. *Proximity of Bases to the Combat Area.* When combat takes place near to the defender's airbases and far from those of the attacker, the former will be able to generate a higher sortie rate and thus make his resources go further.

- c. *Conservation of Forces.* Given enough dispersal airfields with the necessary hardened shelters, the defender can, if he so wishes, refuse battle to husband his resources for the time when a major air effort will be required: meanwhile ground-based systems will continue to erode the enemy's strength. Moreover, with the sort of depth that GENFORCE enjoys, it will also be possible to hold many aircraft on bases outside the range of most of the attacker's inventory and to hold fighters quite far back so that they can achieve a decisively superior concentration against selected raids.
1038. **The Aims** of a DCA operation are the defence of friendly forces from enemy air action, giving them freedom of manoeuvre where and when this is required on key sectors, and the achievement of such an attrition rate as will contribute towards the eventual seizure or recovery of air superiority. The achievement of air superiority, if only for limited periods and over limited sectors, will always remain a goal.
1039. **Missions.** GENFORCE believes that it is impossible to defend everywhere against the air enemy, and therefore choices have to be made as to what will be left lightly or undefended, at least by active means. Operational level defensive tasks, in rough order of priority, will be as follows.
- a. *Infrastructure.* Administrative-political and key military industrial targets and communications nodes in the operational-strategic zone must be protected.
- b. *High Value Targets* such as SSMs, airbases, higher formation CPs and defiles and choke points vital to operational manoeuvre must be covered.
- c. *Troop Concentrations and Deployments* of major groupings will be defended on principal axes. On secondary axes these may be left to rely on their organic air defence. In offensive operations, this task is seen to be difficult as a rapid advance will open holes in the ground-based umbrella and, at the same time, increasingly long open flanks will offer opportunities for air attack.
- d. *Air Landings.* Any proposed airborne assault (always problematical if the air situation is adverse, of course) must be protected in its concentration area, while mounting and en route to its objective.
- e. *Offensive Missions.* A DCA operation does not imply purely defensive action. Limited offensive sorties will continue to be mounted against high value targets, eg enemy SSMs, other elements of RSCs, HQs, threatening concentrations. There will also be some airbase attacks with the aim of disrupting enemy operations, especially at critical times.
1040. **Characteristics.** GENFORCE sees a DCA operation as possessing the following characteristics.

- a. *Aims.* The generalized aims stated in paragraph 1038 need further elaboration before the nature of defensive action is determined. If the main aim is to maximize the attrition inflicted on the air enemy, with a view to an early contest for air superiority, then enemy air groupings will be attacked wherever possible, whether on ingress or egress. If, on the other hand, it is essential to reduce the effectiveness of enemy attacks on friendly forces and facilities and the defending forces are weaker, then effort will be concentrated on penetrating forces only.
- b. *Spatial Scope.* DCA operations may still be theatre wide, but there will be fewer and shallower penetrations into enemy airspace. There may also be substantial areas where enemy air action will not be contested by friendly air action.
- c. *Reactive Nature.* By definition, DCA actions will be largely reactive. This will lead to air groupings being generally based further to the rear than during offensive operations. Some offensive assets may be held far back, out of the battle, to conserve their strength. They can still intervene when needed by dint of AAR.
- d. *Combined Arms.* Ground-based air defences (including EW) will obviously play a large role in a DCA operation. Also important will be the actions of separate camouflage units and of all arms in concealing targets and creating dummy ones to divert attacks and thus increase survivability (and also enemy losses to no purpose as he hits dummy targets and runs into air defence ambushes). Some ground forces support will be required for the limited offensive forays that will still take place during a DCA operation.

Execution

1041. ***Deployment of Ground Based Air Defence.*** Ideally the air enemy should be faced with defences layered by altitude and in depth to force him to face repeated threats of engagement. Of course, with limited assets, the defence must concentrate on the most important targets, axes and altitudes: with regard to the latter, GENFORCE believes that closing medium-high altitude penetration to the enemy will contribute most to the defence of targets as low level attackers cannot use PGMs and will have difficulty in acquiring well concealed targets in good time, thus lowering the number of successful strikes. Ground forces units and lower formations all have strong organic air defence and this will form a belt that has to be penetrated. Inevitably, however, there will be gaps and weak spots exploitable by enemy air attackers. These will often become substantial, both as a result of losses and through the need for ground manoeuvre and economy of force deployments. Operational level air defenders may be deployed in several fashions.
 - a. *Linear Groupings* defend specific axes by creating a zone of continuous and overlapping engagement envelopes on the distant approaches to key areas and targets. GENFORCE recognizes, however, that such a belt is relatively easily penetrated by mass attacks which simply swamp the defence.

- b. *Point Groupings* defend important targets using a perimeter defence but concentrating on the most likely axes.
- c. *Area Groupings* create a perimeter defence of an area which contains several point targets.
- d. *Point-Line and Point-Area Groupings* are the most common approach as they achieve the layered effect considered desirable: ie, the defence of key axes combined with immediate defence of point targets. Such a defence is also able to repulse attacks at all altitudes: area groupings alone will not be able to defeat low level attacks.
- e. *Air Defence Ambushes* will be created in gaps between concentrations of air defences to effect surprise engagements of an air enemy trying to exploit them. This technique helps to realize the principles of surprise, manoeuvre and aggressiveness that are stressed in air defence.
- f. *Manoeuvre*. GENFORCE stresses the need for the frequent, covert redeployment of air defenders in order to surprise the enemy, maximize survivability and cope with the frequently changing deployment of the targets air defence is charged with protecting.
- g. *Reserves*. GENFORCE believes that it is necessary to maintain air defence reserves to restore stability to a system that has come under heavy attack or to cope with changes in the operational situation or mass attacks.
- h. *Dummy Air Defences* will be created to divert air attacks and to increase the survivability of real systems by absorbing attacks. Dummy targets will also be created using sophisticated mock-ups and ECCM techniques which replicate targets such as bridges and runways to deceive airborne radars. These force the enemy to expend effort to no purpose.

1042. ***Deployment of Fighter Aviation.*** The mobility and manoeuvrability of fighter aircraft enables them to defend large areas and to concentrate quickly on gaps in the ground based air defence or against enemy saturation raids. The air enemy is expected to attack across a broad front with a large number of aircraft operating in small groups echeloned both in height and depth. To repel such attacks, the operational formation of fighter aviation is in several echelons, to include 2-3 at low altitude and two at high altitude. The first echelon is committed to combating the enemy on distant approaches. For this mission, the best pilots are used to conduct independent "free hunt" sweeps in enemy air space, beyond the reach of friendly SAMs. The second echelon is committed in the area of the line of contact or somewhat over it. The operations of these fighters are developed and reinforced by others on standby on airfields (ie, in reserve). To intercept small groups or individual aircraft, each fighter division is allocated a sector of responsibility. The destruction of targets within that sector is accomplished, according to the decision of the divisional commander, by the simultaneous committal of not more than one third of the available aircraft. The proportion of fighters

deployed on combat air patrols (CAPs) in front of key target areas and of those held on airfield alert will depend on numerous factors, chiefly the level of threat and the problem of sustaining CAPs over long periods.

1043. ***Coordination with Ground-Based Air Defences.*** The problem of coordinating fighter and SAM defences is becoming more difficult as the engagement envelopes of the latter continue to grow. Where fighters are operating in the same area as ground based air defences, it is necessary to ensure a strict segregation of aircraft and air defence fires, by height and/or by area, to prevent fratricide. Diagram 9-7 illustrated the four possible ways of separating the activities of fighter aviation and SAMs.

SECTION 4 - DEEP INTERDICTION

Deep Interdiction

1044. ***Importance.*** Deep operations are central to GENFORCE's operational concepts, especially when on the offensive but also even when on the defensive, given the decisive influence that deep strike systems can exert on the outcome of an engagement. On the offensive, it must be carefully coordinated with pressure by the ground forces. If the enemy is not thus pressed, he will not suffer severely from delays in redeployment or from interruptions to the resupply system. Similar close coordination is needed in defensive operations where inhibition of enemy manoeuvre and disruption of his logistic support can play havoc with his carefully planned, time-sensitive offensive. Air power and long-range missiles provide the most responsive and flexible means of manoeuvring firepower in the enemy's operational and operational-strategic depth and thus are seen to be the major contributors. For this reason, air interdiction is second in importance only to counter-air/RSC operations. The destruction it wreaks, particularly on high value targets, is expected to make a significant impact on the enemy's ability to control and fight the battles against both the main ground forces and those airborne and OMG/SOU elements operating in the depth. At least as important will be the disruption and delay inflicted both on the command and control system and on enemy forces redeploying, being committed to battle or preparing depth defence lines. Of significance too, will be the disruption of enemy logistic support. By winning a tempo or by denying one to the enemy, interdiction will help the ground forces to act within the enemy's intelligence - decision - reaction cycle and to force him into (or keep him in) a merely reactive posture. In short, it is a potentially decisive weapon in the struggle for the initiative.
1045. ***Concentration and Continuity.*** At the operational level, the scale of effort required to achieve effective interdiction will be very large. It will also be necessary to continue to devote substantial resources to the maintenance of air superiority (without which interdiction operations will be impossible). Together, these will inevitably absorb almost all of the more capable fixed wing assets. Moreover, only a continuing effort over an extended period will yield significant results. Recognizing this, GENFORCE resists the temptation to divert its air power to intervene in the tactical battle except in

phases where it is crucial to the conversion of tactical into operational success. Even then, such diversions will be for the shortest possible period. Of course, if, as is very likely against a strong air enemy, there are not enough resources left after gaining air superiority to prosecute a lengthy, deep interdiction operation, GENFORCE will limit its deep strikes to RSC and C3I elements and attacks on particularly important reserve formations. Correspondingly greater effort can then be put into the operational-tactical use of air power.

1046. **Coordination.** GENFORCE stresses the need for close coordination between air and missile forces involved in continuing OCA efforts and those devoted to deep interdiction. This is necessary in the interests of economy of force (ie, in minimizing the proportion of assets required for SEAD and fighter escort) and of simplifying as much as possible the problem of airspace management.

SECTION 5 - OFFENSIVE AIR SUPPORT

General

1047. **Defensive.** OAS is the direct intervention of air power in the land battle. It is the primary mission of Army Aviation and will be an occasional task for the Air Force. It may take two forms.
- a. *Battlefield Air Interdiction (BAI)* is conducted to prevent the timely, organized committal of enemy tactical second echelons and reserves to battle, to hamper and delay tactical regrouping or the establishment of defensive positions in the operational-tactical or tactical depth and to interfere with logistic support. BAI missions can be accomplished through obstacle creation (eg, the destruction of bridges or aerial mining), by direct attack or, preferably, by a combination of the two: air strikes are considered especially effective when launched against columns which have been halted and become bunched on an obstacle. BAI will be the principal means by which enemy operation-tactical and tactical manoeuvre will be restricted and delayed. In keeping with the principle of economy of force, it is executed against targets beyond artillery range, and this reduces the problem of coordination with the ground forces. Together with the destruction of enemy deep fire and C3I, it is the principal form of OAS, whether in attack or defence, at least as far as the Air Force is concerned. (This is not to deny the role of Army Aviation in BAI. Improvements in attack helicopter performance now permit their use, usually in cooperation with ground attack aircraft, beyond the line of contact. Army aviation now expects to conduct raids even, on occasion, into the operational-tactical depth).
 - b. *Close Air Support (CAS)* comprises air action against enemy forces in close proximity to the line of contact. It may be used against targets on the line of contact, but this is not generally favoured, for fixed wing aviation especially. Smoke and dust, the intermingling of friend and foe and the rapidly changing trace on the line of contact all combine to reduce the effectiveness of strikes and increase the risk of fratricide. Besides,

such usage hardly exploits the characteristics of tactical or even ground attack aviation and adds little to the weight of fire put down by artillery. This form of employment will thus usually be limited to emergency situations or to assisting units which are in the depth (friendly or enemy) and lack strong artillery support (as is the case, for instance, with air-delivered forces, forward detachments or, in some cases, anti-landing reserves). CAS is best used to strike targets which cannot be efficiently engaged by artillery, either because of problems of precise target location or because of terrain masking or because the target is moving or dispersed: CAS poses formidable problems of coordination, needing to be tied in not only with friendly air defence but also with the artillery fire plan and ground forces manoeuvre. Most CAS tasks will be performed by Army Aviation which is equipped, organized and trained primarily for this mission. Attack helicopter units in particular are seen to be capable of providing rapid and intimate fire support, especially at night, in conditions of poor visibility and in difficult terrain or a confused situation. Helicopters have other advantages over high performance aircraft. They can concentrate and often manoeuvre undetected for an attack more easily than fixed wing aircraft, though even they are not able to escape the attention of reconnaissance satellites or AWACS. They can conduct ambushes and deliver large numbers of mines. Helicopter pilots are also held to be more capable of evaluating battlefield conditions rapidly and exactly.

1048. **Critical Periods.** The most important role that air power can play in the offensive is to keep enemy air off the backs of the ground forces and help to maintain fire superiority. This requirement is vital and ongoing. There are, however, periods when the failure to make a substantial OAS commitment may prejudice the success, or at least the timely success of the ground operation. At such times, air effort may be diverted from deep interdiction missions and even from OCA. Such periods are listed in sub-paragraphs a-e. Sub-paragraph f deals with a defensive ground operation.
- a. *The Breakthrough.* While most of the fire support for the breakthrough is provided by artillery, air action is important in the speedy elimination of unexpected centres of resistance that cannot be bypassed, in suppressing enemy RFCs, artillery and helicopter assets, in disrupting enemy C3I (in conjunction with EW) and in disrupting and delaying the intervention of enemy reserves.
 - b. *Committal of an OMG or Second Echelon.* The period of committal of an exploitation echelon is often one of great vulnerability to enemy air, indirect fire and/or counter attack, especially if the new echelon is required to complete the penetration of the tactical zone of defence and/or conduct a passage of lines. A massed target array will often be presented to the enemy over a period of several hours, even in the case of a division/brigade-sized force. Air defence must be impregnable, and if the artillery has not kept up in adequate strength, OAS may well be necessary to complete the breakthrough, crush hostile artillery, interdict reserves, repulse counter attacks and even to lay mines and/or smoke. During

this period the bulk of available air power will be committed in support (traditionally, 70-80%).

- c. *Repulse of Countermoves.* If the enemy succeeds in getting his timing right, a counter attack or strike will be mounted at a time when the attacker is unbalanced and in poor shape to meet it. Air power may be the main or even the only means of breaking up the attack, or at least of disrupting and slowing it down.
- d. *Operations in the Enemy's Depth.* When in the enemy's depth, conducting operational manoeuvre, OMGs, whether they be of divisional/brigade or corps size, are relatively light in artillery. Moreover, their gunners may find that keeping up with the manoeuvre units and, even more, logistic support, become real problems. The Army thus looks to OAS to compensate for the deficiencies, especially when forcing water obstacles or breaching lines in the depth. Of course, air action also plays a key role in destroying withdrawing forces, interdicting enemy reserves and disrupting enemy command and control and logistic support.
- e. *Encirclement.* Air power will often, at least for a while, provide the primary source of fire to disrupt or prevent break out efforts or relief attacks. In the event of a pocket establishing a viable defence (a very unwelcome development), air action will also play a major role in preventing enemy aerial resupply.
- f. *During a Defensive Operation,* the initiative will be held by the enemy. He may well be conducting an effective deep interdiction operation of his own. In these circumstances, and especially where the enemy enjoys a significant ground superiority (at least on his chosen axes of attack), air power may form the only substantial operational reserve of firepower that can be committed in good time to disrupt and check an attack. This will certainly be the case if the enemy has achieved a significant degree of surprise as to the axis, timing or the scale of his blow, or if, exploiting his fire superiority, he has managed to render key formations combat ineffective in a short space of time and accordingly threatens to achieve, or has actually achieved, operational momentum.

Offensive Air Support Operating Procedures

1049. ***Air Plan Tasking.*** Air assets are allocated as part of the senior commander's plan, usually in response to requests from unit commanders and their staff. OAC aircraft are assigned to missions in support of a unit only on the decision of the army/corps commander, whilst Army Aviation is employed by the decision of the division/brigade commander. Details of mission tasking are communicated to the regiment or combined arms battalion as part of the air combat operations schedule (ACOS) for any 24 hour period.

1050. **Organizing Coordination.** The command and control of OAS aviation at the tactical level is co-ordinated through the unit command staff under the direction of the commander. At staff level, missions are coordinated by the tactical air controller who works closely with the regimental artillery and air defence commanders. They ensure that all air activity in support of the unit is conducted in such a way as to ensure deconfliction with other fire support assets and the activities of troops on the ground. Individual mission information is passed from the unit staff direct to FACs, who are responsible for close control of the aircraft onto the target and for ensuring the safety of own troops. Information and tasking instructions (eg, air support request messages, time-on-target information, etc.) are usually passed through the unit tactical air control group on the air control radio net. Additionally, information may be exchanged, or air tasking messages may be sent, over the divisional co-ordination radio net. Information required by air and ground units respectively is as follows:
- a. *Ground Units and Sub-Units* need to be made aware of: the targets and timings of OAS sorties; firing lines for helicopters; the direction of repeat attacks and of exit from the combat area; aircraft airborne alert (ie, loiter) zones; lines for laying minefields and/or smoke screens; the location of air ambush sites; the location of forward operating sites; routes to and from targets; coordination signals.
 - b. *Air Units and Sub-Units* must be informed of: the mission of the supported unit (where applicable); positions of forward sub-units; locations of artillery groups; air defence deployments; the location and missions of the ATR and MOD; targets and timings of the artillery fire plan; the sectors and altitudes of air defence fire and timings of “weapons tight” period; the location of FACs; reference points; target designation procedure; coordination signals.
1051. **FAC Work.** In all operations involving tactical air activity a vital link in the whole co-ordination chain is the FAC. Though each battalion has a FAC (often two in combined arms battalions), there is increasing emphasis on the use of FACs carried in helicopters or even fixed wing aircraft as they are more able, through superior mobility and range of vision, to cope with the demands of a fluid, fast moving battle of manoeuvre. Once the regimental commander has passed air tasking information to the FAC, it is the latter's responsibility to ensure that the mutual notification and recognition procedures are made known to those sub-units in the areas where CAS aircraft are likely to be active. GENFORCE operates a complicated set of procedures to ensure a minimum of fratricidal attacks. Notwithstanding the precautions taken, like any other military organisation GENFORCE has not perfected a system that nullifies this problem. Some of the more important aspects of FAC operations are now discussed.
- a. *Codes and Signals.* The FAC co-ordinates the complicated series of codes and signals which are used to ensure deconfliction and safety during CAS operations. For example, once notified by higher authority, the FAC determines the requisite number and disposition of posts and

points from which final control onto the target will be given. They are supplied with signalling equipment and pre-arranged signals or codes for recognition and verification: the FAC determines the particular procedure for putting them into effect. Throughout the battle, the unit staff and the FAC will constantly monitor the actions of unit and air sub-units and if necessary change or adapt marking signal procedures as necessary.

- b. *Tasking Details.* The unit commander and staff can control support aviation, which is engaging enemy targets on the line of contact, through the FAC. But the FAC's function also includes the capacity to initiate air requests and to re-task or update any particular mission: this function will usually only be permitted with the agreement of the tactical air control party, which is normally co-located with unit staff. As a general rule, the combat support mission will be updated by the tactical air control party or the FAC once communication is established at a pre-designated initial contact point. It is at this stage of the attack that any re-targeting is carried out if there is a need to attack a more important target that has materialised since the original air request was made.
- c. *Final Vectoring to Target.* Once communication is established between aircraft and FAC, an attack profile will be agreed. The start point for the attack run will usually be selected from a series of pre-determined initial points. The FAC will try to ensure, whenever and wherever possible, that attacking aircraft are talked into a position permitting them to detect, identify and attack the target on a single pass and without having to re-attack. In the final phase of vectoring (ie, once the attack aircraft is in visual range of the target), the FAC transmits brief, precise, easily understandable information to the aircrew about the target's location, description and the whereabouts of friendly forces. Various methods are employed in vectoring and target designation: the heading and azimuth method; by using grid squares on a coded map; using marker equipment (smoke, laser designators, etc.); by visual markers; by indicating target location relative to reference points; and also according to characteristic reference points on the final target heading. Of all these methods, laser target designation for the delivery of stand off precision weapons is nowadays the most important. It is usual for attack helicopters to be given an initial point situated on friendly territory about 3km from the line of contact - usually a conspicuous feature such as a lake or road junction. Fixed wing aircraft will have an IP to target run of 6-10 km.
- d. *Attacks Without FACs.* OAC aircrew prefer not to be dependent on FACs whenever possible. Such dependency tends to force them onto a restricted approach rather than using the flexibility conferred by the modern inertial navigation systems which are fitted to fighter bombers (including the ground attack aircraft of Army Aviation). Moreover, the requirement for a link with the FAC renders the attack vulnerable to communications jamming and aircraft which can be seen by the FAC can be seen by the enemy: aircrew prefer a surprise low level lay-down attack to the shallow dive implicit in FAC controlled attacks. However, the FAC can only be dispensed with if the

target's location is accurately known or can be found and identified by on board sensors.

Responsiveness of OAS Aircraft

1052. ***Aircraft Response Times.*** There are four levels of combat readiness for both rotary and fixed wing aviation. The first two categories are those most appropriate at the tactical level of operations - that is in order to respond to on-call missions. Transit times will, of course, vary according to proximity of bases or forward operating sites to the target. Reaction times will also, of course, depend to a not inconsiderable extent on enemy actions. Air bases and forward operating sites are high priority targets for attack. Enemy OCA raids may close bases for a time or his ground forces conducting deep battle/ operations may force air units to relocate.
- a. *Airborne Alert.* Aircraft are in the air, awaiting a target to be designated. In the case of an air ambush, aircraft are airborne waiting for the enemy to arrive. This method offers the most rapid response but is sparingly used because it increases aircraft and aircrew fatigue; and it runs the danger of aircraft carrying the wrong weapon load for the mission. It is most likely to be encountered in forcing water obstacles or depth defence lines, in committing OMGs or second echelons or in engaging attacking or counter-attacking forces detected well in advance. Crews are generally briefed by a FAC or sub-unit commander on the ground in the target area, or by an airborne observation aircraft.
 - b. *Category 1.* Aircraft are fully serviced and armed with crews on standby and fully briefed. Aircraft can usually be airborne within 5-15 minutes. This means that GENFORCE ground commanders can expect attack helicopters, which are operating in the CAS role, to be in the target area within 15-20 minutes of making a request for air support. Fixed wing CAS aircraft will usually be over the target area in 20-30 minutes from receipt of a tasking order.
 - c. *Category 2.* Aircraft are serviced, but not armed with external or internal stores. Crews are designated but are not fully briefed for any particular mission. Aircraft will usually be airborne in 1-2 hours.
 - d. *Category 3.* Aircraft are not serviced and crews will be stood down.
1053. ***Basing.*** Where a sophisticated and strong air enemy is faced, the continuity of air operations will be critically dependent on possession of an adequate number of airfields and, though to a lesser extent, on the distance of those bases from their targets.
- a. *Fixed Wing.* Each aviation regiment should have 2-3 airfields, including one main operating base (MOB), and thus each air division should have 6-9, including 2-3 MOB. A proportion of MOB are multi-functional, being able to support the actions of bomber and transport as well as all forms of tactical aviation. Usually, two thirds of all airfields are active bases

and one third are alternative. In the theatre as a whole, probably 35% will be permanent bases, 35% will be deployment fields and 30% will be manoeuvre/alternative fields for dispersal in the face of attack or for the use of temporary groupings. (Normally, aircraft do not, where possible, recover to the bases whence they mounted their mission and reserve fields are needed for redeployment from other sectors and/or from the depth to create groupings for surge operations). In emergency, highway strips can also be used for recovery or for transit to proper bases. The aim is to ensure survivability of air assets through a combination of manoeuvre and dispersal, keeping a reserve of airfields for surge operations. Extensive use is also made of deception to enhance survivability. Between one third and one half of all bases may use dummies to divert enemy reconnaissance and attack effort: of course, dummy fields can be activated as the situation demands. During deep offensive operations, the problem of acquiring forward bases will become significant, and GENFORCE puts stress on their seizure, intact if possible, by airborne, air assault or forward detachments. These, and suitable highway strips, will be restored/improved by the SG's 4-8 airfield maintenance battalions, some of which may even advance with OMGs. In defence, when the enemy is mounting an effective OCA operation, bomber aviation and much of the fighter-bomber and long-range fighter forces will, if possible, be held rearwards to gain protection from depth. GENFORCE's extensive in-flight refuelling capability will make this possible, though sortie rates will inevitably be lower.

- b. *Rotary Wing.* Attack helicopters normally deploy in small packets to forward operating sites which move forward with the advance or rearwards during withdrawal. For protection, they are usually sited near the second echelons of forward divisions/brigades in the offensive (ie, as close as 40-50km from the line of contact). OMGs will take with them the resources to create 1-2 forward operating sites so that up to a regiment can continue to operate from within the formation once separation from the main forces has become too great for safe transit or adequate loiter times. In defence, forward operating sites will generally be found within the deployment area of second echelon divisions/brigades (ie, 80-100km from the line of contact).

1054. ***Allocation of OAS.*** The rapidity with which OAS missions can be mounted is often critical. In the offensive, it will frequently be possible to anticipate where and when a major air effort will be required, and in a favourable air situation it should not be too difficult to deploy the necessary CAPs to protect the ground attack aircraft. In the defence, however, the enemy will hold the initiative and many calls for air intervention will be in response to emergencies. Inevitably, there will be more calls for OAS than there are resources available. In such circumstances, organizing cooperation will be far more difficult and, in an adverse air situation (which is most likely to pertain), the generation of effective top cover will be problematical. Whether in attack or in defence, and depending crucially on the balance of advantage in the air, each day SG allots tactical aviation sorties to subordinate army/corps commanders. The air commander is always required to maintain a

daily reserve of 10-20% of sorties to meet contingencies, especially the appearance of the unexpected threats that are so likely in manoeuvre warfare. In similar fashion, the higher formation commanders allot their Army Aviation sorties to divisional and brigade commanders (also maintaining a reserve). Thus fighter-bomber support for a unit depends on the decision of the army/corps commander and ground attacks/attack helicopter support depends on that of the commanders of divisions and brigades. There is one major exception to this rule. A lower formation operating on a separate axis or (more usually) within the enemy's depth may have attack helicopters attached and possibly a daily number of fixed wing sorties guaranteed for the duration of its mission.

Mission Assignment

1055. ***OAC Mission Assignment.*** The range of missions which can be expected at the tactical level of operations can be very broad and will often overlap with operational level requirements. As a general rule, missions can be divided between those allocated to OAC aircraft operating in the tactical zone and Army Aviation. The primary missions of OAC aircraft will be to engage a wide range of targets as part of the struggle for electronic-fire superiority and to achieve BAI. Their targets will include: helicopter assets at basing and staging sites; EW, artillery and combat units in the depth of the enemy combat formation; airborne assault forces and raiding detachments operating in the friendly depth; brigade and division reserves; engineering structures on the enemy's routes of forward or rearward movement; and finally, C3I facilities.
1056. ***Army Aviation Mission Assignment.*** Army Aviation can perform a range of missions and tasks. These can be broadly divided into four main categories, which are usually associated with aircraft role and weapons load.
- a. ***Fire Support Missions.*** Both rotary and fixed wing aircraft in the fire support role will be expected to engage a range of targets: enemy tanks, artillery, anti-tank and other armoured weapons; personnel in strong points and in combat or approach march formations; enemy airborne assault forces, airmobile units or sub-units; raiding and reconnaissance units; suppression of air defences; and destroying helicopters in the air and on the ground. The aircraft usually assigned to these tasks will be Su-39, Mi-28, Ka-52 and, (where a mixed mission of attack/transport is required) the Mi-40 attack helicopter: for air-to-air engagements of enemy helicopters GENFORCE will usually deploy the Mi-28, though Ka-52 is also used in this role.
 - b. ***Transport Missions.*** The type of support tasks performed by transport helicopters at tactical levels will involve the following: carrying sub-units; evacuating wounded and sick; delivering logistic supplies; and replenishment of ammunition and fuel. GENFORCE uses the Mi-38 which has a 30 seat/5 tonne payload capacity and the Mi-40 attack/transport helicopter which carries an air assault section. Heavy lift is provided by the Mi-26 which can transport two BMDs or about 100 troops or 20 tonnes).

- c. *Reconnaissance Missions.* Light helicopters (eg Mi-34) will conduct route and NBC reconnaissance and surveillance of the forward edge or open flanks. On occasion, attack helicopters may also be used in the reconnaissance role, and pairs may be used for armed reconnaissance missions.
- d. *Deep Raids.* Increasingly, the actions of Army Aviation are extending beyond the contact battle. The improved performance and survivability of both fixed and rotary wing aircraft enable them to conduct small and large-scale raids to the depth of the tactical zone of defence to strike the important targets that seek protection through remoteness. Usually, such raids are conducted by a mixed force of ground attack aircraft and helicopters.
- e. *Special Missions.* A number of helicopters will be assigned to special missions including the following: liaison and communications; adjusting artillery fire; airborne FAC duties; aerial minelaying; and laying smoke screens for deception/concealment purposes.

1057. **Aviation Capabilities.** GENFORCE calculates the capabilities of aviation support based on a number of variable criteria: mission performance time; depth of combat operations; mathematical expectation of the number of destroyed or suppressed targets; load-carrying capacity of the helicopter; the number of targets located or reconnoitred; the number and size of minefields laid; etc. GENFORCE believes that its aviation assets - whether OAC or Army Aviation or a force mix - can fully support a unit's combat operations to the full depth of its assigned mission, though only units on the main axis can expect to receive strong air support. Of course, the following calculations of capabilities do depend greatly on GENFORCE's control of the air and effective suppression or avoidance of air defences.

- a. *Capabilities - Helicopters.* One pair of attack helicopters, operating in one sortie against the target, can expect to destroy 5-6 tanks in the open or 3-4 tanks dug-in. One pair of medium lift transport helicopters can carry a load of 10 tonnes or 60 combat equipped men to a target area. In the reconnaissance role, one helicopter can reconnoitre 2-3 areas (covering 50 sq km each) in one sortie. In the minelaying role, one pair of medium lift transport helicopters can lay a minefield covering 1300m x 30 or more m (though more usually three would be used to lay a three row panel).
- b. *Fixed Wing Tasking Requirements.* Fixed wing tasking is based on the availability of both Army Aviation and OAC ground attack aircraft, although in any 24 hour period the rate of OAC tasking will be dependent on higher operational demands. However, for the purposes of planning, GENFORCE works on the principle of the availability on demand of a single flight of ground attack aircraft. Based on the capability of a sortie consisting of 4 aircraft, operating in support of a regiment or combined arms battalion, it is expected that the following capabilities would be planned for: up to 16 enemy helicopters destroyed at 1-2 locations; or

the suppression of a tank (or motorised infantry) company in the open or a platoon in a strongpoint; or 1-2 brigade CPs neutralised; or delaying the advance of a tank (motorised infantry) battalion for a period of up to 3 hours (if there are no detours on the route). Up to a maximum of 5-7 times this capability can be expected for specific tactical level situations (including the occasional overlap between the tactical and operational levels).

Phases of Air Support for Ground Offensive Operations

1058. **General.** This sub-section deals with the air support of ground formations in an offensive operation at tactical or operational-tactical levels. As with artillery, the use of offensive air support falls into four phases. Air strikes are coordinated at the highest level with artillery and other fire/strike and EW means to produce a single plan for the destruction of the enemy by fire. The phases used are the same as those used in artillery fire planning.
1059. **Phase One - Fire Support of the Advance from the Depth.** This phase takes place prior to the onset of the ground battle in a given sector (ie, the move from concentration area to LD) and therefore employs OAC (ie, operational level) aviation assets. Air attacks are used to destroy those targets which cannot be destroyed by conventional artillery and missiles due to distance and mobility. Generally, excluding OCA missions, the air preparation will extend no further than the enemy's immediate operational depth (ie, to the rear areas of the enemy's defending corps, about 200km). The aim of air support in this phase is to protect advancing columns from enemy fire strikes by destroying, or forcing movement on, enemy systems and by blinding them. Target lists include: long-range missiles and artillery, enemy reconnaissance (especially associated with RSCs/RFCs), aircraft (fixed and rotary wing), EW sites, command and control centres. Support for the advance from depth may extend over several hours.
1060. **Phase Two - Preparation for the Attack.** When considering aviation support, this phase is often treated together with the first phase. However, for present purposes, specific reference is made to the period covering the advance from LD to the line of contact. Support for the advance extends to about 40-50 minutes for an attack from the line of march (less for an attack from a position of close contact) and strikes targets in the tactical zone of defence. As it usually takes place simultaneously with rocket and artillery fire strikes, detailed coordination is necessary for timing, targeting, and entry and exit routes. For the most part, therefore, preparation fire for the attack is done according to a strict and detailed plan. GENFORCE does not generally favour the use of air power in the immediate tactical depth in this phase, not least because the intensity of the artillery barrage seriously reduces visibility in the target area, making air strikes less effective. Moreover, unless particular effort has been expended to neutralise enemy air defences, attacking aircraft remain vulnerable and their freedom to manoeuvre and their flexibility are greatly reduced. In certain circumstances, if the required level of destruction can only be achieved by using aviation, then it is brought in. However, it is still considered unable to add more than an additional 10% or so to the total

destructive fire. Making a separate airstrike, which will normally involve a suspension of artillery fire, is considered undesirable as it gives the enemy some sort of respite. It can generally be assumed that GENFORCE will not employ aviation assets close in during this phase, particularly those of OAC, if there is sufficiently powerful artillery fire available. Of course, the operational level struggle for electronic-fire superiority will continue.

1061. **Phase Three - Air Support in the Attack.** Once battle is joined and GENFORCE has penetrated the enemy's forward edge of defence then targets are engaged in accordance with a prepared fire plan. As with earlier phases, coordination with other fire strike assets is essential. Most targets will be pre-designated and will generally be those beyond the range of, or in ground dead to, artillery or unsuited to rocket and artillery attack. Aircraft will operate either on-call missions or follow the pre-designated air plan. Once the attack has penetrated in some depth, or when reconnaissance data is scarce and intelligence reveals that strongpoints have been missed or newly created by the manoeuvre of reserves, then it often falls on aviation to engage targets. In these stages of the attack it is likely the majority of missions will be CAS using Army Aviation. Operating from airborne alert (eg, with fixed wing assets) or from ambush sites (eg, with attack helicopters) Army Aviation can be directed by either a FAC or sub-unit commander or act independently, thus quickly neutralising targets which may be impeding the advance of friendly forces. It is here that the combat qualities of Army Aviation assets can be fully utilised: that is, both the high level of mobility (fire against a newly discovered target can be organised in as little as two minutes) and the effectiveness of their fire. Of course, operating from airborne alert is very expensive in fuel and inflicts extra strain on aircrew and their aircraft. In practice, in the interests of the sustainability of air units, many, probably most CAS missions will be flown by aircraft on category one readiness at their bases (see paragraphs 1052 and 1053). In this phase, BAI (including the laying of minefields) by Army Aviation, perhaps reinforced by OAC aircraft also becomes very important to inflict casualties, disruption and delay on enemy reserves attempting to execute counter-moves. Some attack helicopters and probably minelaying transports as well will be held in reserve for this task.
1062. **Phase Four - Aviation Support in Developing the Attack.** Once the attack has penetrated the enemy's tactical zone of defence and/or the pre-planned air support plan has been overtaken by events, then the requirement for air support increases. GENFORCE calculates that only approximately 50% of artillery will be immediately available for support as artillery finds it difficult to keep up and target acquisition becomes increasingly difficult once the rate of advance reaches 5km per hour - should the rate of advance reach 8km per hour then only 30% of supporting artillery will be able to deliver speedy, massed fire. The importance of BAI and CAS - most usually provided by fixed and rotary wing elements from Army Aviation - increases dramatically during this phase, especially in the conduct of meeting engagements and battles and of pursuit, and this period requires a considerable stretching of Army Aviation forces. The basic method of its operations will be on-call strikes by flights or pairs of aircraft waiting at readiness category one. At this state,

aircraft are fully serviced and armed, with crews on standby and fully briefed. Aircraft can be airborne in 5-15 minutes which means that commanders requesting support can expect attack helicopters in the CAS role to be in the target area in 15-20 minutes from initial call. Fixed wing support will usually be in the target area within 20-30 minutes. The use of this readiness category, rather than airborne alert, is justified on the grounds that air support from airborne alert zones and from ambush sites requires too many sorties. Only when resistance increases (through arrival at depth defence lines, a water obstacle, etc.) would it be found necessary to switch to air support provided by rotary or fixed wing aircraft in continuous airborne alert over the battlefield. An exception to this role is the period of committal of an OMG or second echelon, which generally requires a maximum offensive and defensive air support if a clean breach has not been created in the enemy's defence.

Phases of Support for Ground Defensive Operations

1063. **General.** OAS will often be even more important in defence than in attack. If the enemy has achieved surprise and has concentrated superior forces against a critical sector, the concentration of air-delivered fire will often be the only means by which an acceptable correlation of forces can be quickly restored and the enemy deprived of momentum. At the same time, the enemy is likely to enjoy at least a measure of air superiority if he has been able to transition to the offensive, so defending formations and units will not be able to rely on aerial intervention in all circumstances. Indeed, the enemy may well have effectively suppressed many GENFORCE airfields and forward operating bases and, moreover, forced GENFORCE to re-role OAC aircraft for defensive missions. There may be little or no air support available to the ground forces, save for emergency surge operations, probably of shallow depth. Usually, therefore, only those formations in trouble on key axes will have any assurance of air support, particularly from OAC aircraft. Higher formation commanders will make decisions on the employment of OAC resources, based on an air allotment from SG. Divisions and brigades will either have a number of Army Aviation sorties allotted to them or they will have to request them as the situation demands. Units can only call for support without reference to formation if they have been specifically allocated sorties or had some attack helicopters placed under command. The phases of aviation support in defence are the same as those for missile troops and artillery, and are a mirror image of those in the attack. As implied above, however, the availability of OAC aircraft in particular, but also of Army Aviation, may be very limited. After allocating resources to the fight for air superiority, GENFORCE may have little left and may be unable to use air power in all four phases (and especially the first).
1064. **Phase One - Fire on the Distant Approaches.** This phase covers the period of the enemy's advance from the depth (ie, from his concentration areas) to his LD. It will see the integrated employment of operational and operational-tactical missiles, long-range artillery and OAC and Army Aviation. The tasks of these fire means will be as follows.

- a. *Winning the Struggle for Electronic-Fire Superiority.* Targets will include: air defences; aviation, both fixed and rotary wing; long-range missiles and artillery: EW sites; battlefield surveillance and target acquisition systems and fire control centres, especially those associated with RSCs/ RFCs.
 - b. *Battlefield Air Interdiction.* Casualties, disruption and delay will be inflicted on advancing enemy columns. Scattered and remote minefields laid by aircraft and artillery will be as important as, and often combined with, direct attack.
 - c. *Counter Preparation.* If the enemy is too strong to make it possible to contest from the outset his bid for electronic-fire superiority and his forward move, resources may be husbanded to deliver a short but intense, surprise counter-preparation against his supporting fire units and manoeuvre units in their FUPs before they go over to the attack. The counter-preparation should anticipate the enemy's own artillery preparation by a few minutes and aviation will engage targets between 15km and 30km over the line of contact.
1065. ***Phase Two - Disruption of the Enemy's Deployment.*** In this phase, efforts are concentrated on disrupting enemy tank and mechanized units as they deploy into pre-battle formation and on suppressing their artillery and attack-helicopter fire support. The burden will fall largely or entirely on Army aviation on airborne, or readiness on ground, alert and on artillery. As in the attack, meticulous coordination is essential to success. The surprise laying of minefields by both aircraft and artillery is seen to be an effective way of disrupting the attack at this critical stage, especially when the halted enemy can be subjected to air or artillery attack.
1066. ***Phase Three - Combatting an Enemy Wedged into the Defence.*** While CAS, especially by attack helicopters, will be an important mission to take the momentum out of the attack and inflict disruption and casualties, most aviation efforts will concentrate on BAI and enemy C3I and fire support. If, however, the enemy succeeds in achieving a penetration, air power (probably including OAC assets) will have to concentrate on slowing down and disrupting the successful penetration to gain time for counter moves to take place. Acting in cooperation with ATRs and MODs, air power is seen as particularly critical in manoeuvre defence, not only to check the enemy and adjust the correlation of forces in the defender's favour but also to cover the withdrawal of delay units and to enable them to occupy a new defensive line.
1067. ***Phase Four - The Counter Attack.*** Shortage of artillery resources and time may well mean that a greater reliance has to be placed on aviation in the fire preparation for the counter attack than in the attack.

1068. **Countering Enemy Actions in the Friendly Depth.** The enemy will certainly employ vertical envelopment in support of his attack. This could take place in any phase. If intelligence and the air situation allows, the enemy will be attacked in his mounting areas. Army Aviation, in cooperation with air defence, will combat the enemy in flight and on landing, and it will often be the principal form of fire support for attacks on those elements that succeed in landing. Air action may also be the only means initially available to engage enemy forward detachments and manoeuvre formations that have broken through and are attempting to conduct tactical and operational manoeuvre.
1069. **Movement of Counter-Penetration Groupings.** GENFORCE anticipates the need to move counter penetration sub-units rapidly over long distances to check possible armoured penetrations or airmobile forces. Army Aviation will provide transport helicopters for deployment and mining and attack helicopters for fire support.

SECTION 6 - TACTICAL HELIBORNE ASSAULTS

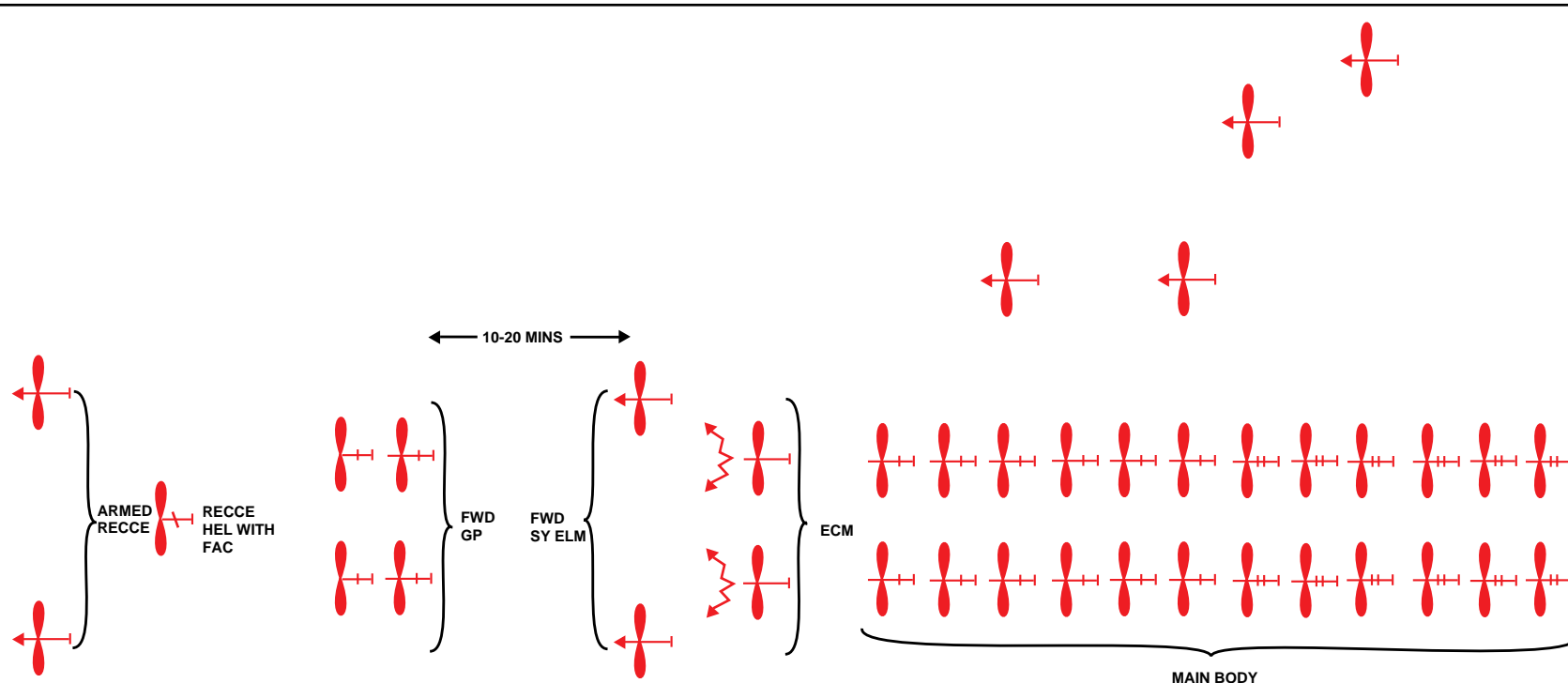
Preparation

1070. **General.** GENFORCE has developed standard procedures for the employment of air assault and motor rifle troops in heliborne assaults/landings. 'Vertical envelopment', or to use GENFORCE's own term 'the air echelon', is increasingly stressed in GENFORCE tactical thinking. Air landing or air assault actions may be launched up to 50km or more into the enemy's depth. Thus, at both tactical and operational levels, the heliborne assault will require careful coordination and cooperation with other ground and air assets and will, of course, be dependent on at least local air superiority. The conduct of such operations is laid out in the following paragraphs.
1071. **Preparation For The Assault.** An assembly area is given to the company or battalion designated to conduct a heliborne assault. The area will be located 20-30km behind the line of contact and main and alternate pick-up points for the helicopters will be designated for each company sized sub-unit in this area (which will be up to 3 sq km for a company and up to 20 sq km for a reinforced battalion). GENFORCE stresses the coordination of helicopter movements with air defence forces and air support aircraft to avoid fratricide. The ground unit commander and his staff will be responsible for deconfliction of air and air defence and artillery assets involved in the airborne assault, not only during the preparation phase but throughout the whole airborne assault.
1072. **Helicopter Lift Requirements.** To embark a light motor rifle or air assault battalion on light scales takes approximately 25-30 minutes loading time and requires up to 12-15 x Mi-38 or 30 x Mi-40 for personnel and manportable support weapons and 12 x Mi-38 or 6 x Mi-26 for an artillery battery. A full BMD equipped air assault battalion will require 28-31 x Mi-26 aircraft. A company requires about 10-15 minutes to load and a fifth of the helicopter requirement. These requirements will of course vary according to the number of organic vehicles taken on the mission and the level of reinforcement that

is given to the detachment or group. It must also be remembered that the load time and helicopter numbers are calculated for the assault lift only and do not take into account the large numbers of attack and ECM support helicopters required or amount of time taken during the preparation phase.

Insertion

1073. **Heliborne Force Flight Formation.** The heliborne detachment or group will usually comprise two sub-groups. A forward group will fly 10-20 minutes (ie, 30-60km) ahead of the main body to clear and secure the LZ for the latter. In a company-sized mission, the forward group will consist of a platoon reinforced with manportable SAMs and perhaps support weapons and engineers. A battalion will normally be preceded by two platoons or a company, also reinforced. The flight formation for a detachment is illustrated in Diagram 10-1. It is divided into a support group of attack, ECM and reconnaissance helicopters and a transport group carrying the troops. These groups break down in a fashion analogous to the march formation of a battalion on the ground, with an advanced guard and combat security in front and to the flanks of the main body.
1074. **Surprise.** Surprise and therefore deception are of particular importance to the successful conduct of the heliborne assault. As a consequence, reconnaissance of the landing area must be concealed for as long as possible. Routes must be carefully chosen. In addition, if resources permit, there may be a simulated assault on a different axis. If possible, the fly in will coincide with an air raid on the same axis to take advantage of the latter's SEAD support and the possibility of saturating the defence.
1075. **Fly-in Route.** The flight corridor should ideally be 2-4km wide and should be planned along such a route as to allow the assault force to fly at the lowest possible level. It is usual to find the assault force at heights of only 10-15 metres, although in adverse conditions (poor weather, hilly terrain, etc.) heights of up to 300 metres may be necessary. Flying low should help to avoid detection by enemy air defences and thus enhance the element of surprise. In any case, the route will be planned to avoid dense areas of enemy air defence, but SEAD support will still be necessary to deal with undisclosed air defenders. En route flight speed is normally 4km per minute, but once allowance is made for manoeuvre in flight the average rate of advance is more usually 3km per minute.
1076. **Air-Ground Coordination.** The safe passage of the heliborne assault is assisted by nominating a number of lines to coordinate the movement of the various groups and sub-groups.
- a. *Line to Check Fire of Own Air Defences.* This line is located just before the rear boundary of the air defence zone concerned.
 - b. *Line to Check Own Artillery Fire.* This line must be short of friendly artillery groups' locations. The last salvo fired will often be smoke, after which there will be no friendly fire until the assault force has crossed the enemy front line.



NOTES:

- a. GROUND ATTACK AIRCRAFT WILL PRECEDE THE FLY-IN TO SUPPRESS GROUND BASED AIR DEFENCES AND ATTACK HELICOPTER FORWARD OPERATING SITES AND (IF NECESSARY, ENEMY FORCES NEAR OR ON THE LZ).
- b. ADDITIONAL ECM SUPPORT MAY BE PROVIDED BY SOJ AIRCRAFT.
- c. THE ARMED RECCE AND FORWARD AND FLANK SECURITY ELEMENTS ARE MAINLY TASKED WITH SEAD AND SUPPRESSING ENEMY TROOPS NEAR OR ON THE LZ, BUT THEY ALSO CARRY AAMs.
- d. THE MAIN ROLE OF THE "FIGHTER" HELICOPTERS IS TO COMBAT ENEMY HELICOPTERS, BUT THEY MIGHT ALSO CARRY WEAPONS FOR GROUND ATTACK.
- e. GROUND-ATTACK AIRCRAFT MAY BE ON CALL TO SUPPORT THE LANDING FORCE, THEIR EFFECTS BEING DIRECTED BY THE FAC IN THE RECCE HELICOPTER.

DIAGRAM 10-1: FLIGHT FORMATION OF AN HELIBORNE AIR ASSAULT DETACHMENT

- c. *Line of Deployment into Assault Formation.* At this point - in a way analogous to ground units - helicopters deploy from column into their landing formation.
1077. ***Landing Zones.*** The size of the LZ is determined by the type of heliborne assault. Motor rifle troops on foot with only a few vehicles for support weapons will need little space. On the other hand, an air assault unit or sub-unit with all its BMDs and support weapons will need substantial areas. GENFORCE considers that the minimum landing zone for a reinforced air assault company on full scales would need to be 4 sq km; within this area there would normally be a primary and an alternate disembarkation point. A battalion needs a minimum area of 25 sq km, within which there will be 2 or 3 drop-off points and a similar number of alternates.
1078. ***Action on Landing - Forward Group.*** Using the cover of the supporting armed helicopters, the forward group will land and clear the site of the enemy. Immediately, air defence troops will take up fire positions whilst the sappers will reconnoitre the area for mines and other obstacles: these will be cleared if possible, but if the task is too lengthy, alternate drop-off points will be notified to the main body.
1079. ***Action on Landing - Main Body.*** The main body will land under cover of the forward group's and its own accompanying armed helicopters, and possibly artillery and fixed wing airstrikes. In accordance with the commander's plan, the landing may be directly on the objective or some short distance away depending on the tactical situation. Time required to land a reinforced company and its equipment (light scales) is 5 minutes; a battalion takes 10-15 minutes.
1080. ***The Helicopter Force.*** Once the troops have landed, the transport helicopters and a proportion of the attack helicopter force will return to friendly territory. The rest will remain on-call for 20-40 minutes in order to provide support (eg, against possible counter attack) before they too return.

Heliborne Actions in Defence

1081. ***Raids and Counter Penetration.*** GENFORCE intends that heliborne raids will be as much a feature of defence as attack (though his forward operating bases will be a high priority for enemy attack and availability may be limited) and their conduct will be as outlined earlier in this section. Airmobile forces will also be used for counter penetration. Landings by air assault or motor rifle sub-units with a plethora of ATGM will be used to close gaps in deployment, cover flanks or reinforce the density of defence on threatened axes. Usually, in performing counter penetration or moving troops to destroy an enemy landing force, less or no SEAD or "fighter" support will be necessary as the transport helicopters will be operating in friendly airspace. In a fluid situation, with forces intermingled and enemy attack helicopters active, however, this will not hold true. Frequently, such actions will be executed in cooperation with armoured groupings tasked to link up with the heliborne element.

SECTION 7 - CONDUCT OF OFFENSIVE MISSIONS

Penetration and Recovery

1082. **General.** At both operational and tactical levels, the ingress and egress of offensive aviation pose major problems in the face of modern ground based and fighter defences. This sub-section will deal with GENFORCE's answers: the suppression of enemy air defences (SEAD), battle formations, combat manoeuvre, altitude selection.
1083. **Suppression of Enemy Air Defences.** Single reconnaissance aircraft or groups of 2-4 offensive aircraft may be able to avoid SAM defences through careful routing and low level flight. They may even be able to dodge defending fighters, especially if operating only in the tactical depth, or they may not be considered to merit interception. However, offensive action on a larger scale will require the creation of safe flight paths to and from the target through the use of weapons engagement and electronic suppression of both the complex web of overlapping SAM envelopes and the barrier of enemy fighters. The air defence system on the axis of main effort must be destroyed or neutralized by attacks on ground based equipments and fighter sweeps ahead of the attacking force to divert, dislocate and/or discourage intervention by defending fighters. GENFORCE describes this process as the breakthrough of enemy air defences, a process illustrated in Diagram 10-2.
- a. *The Establishment of Corridors.* Specially assigned elements of OAC aviation will suppress the enemy air defences by a combination of strikes and electronic jamming. The aim is to drive corridors through the enemy defences to allow for the passage of assault elements to their targets: these will be 30-40km wide for low level raids but up to 80-100km wide if Patriot defences have to be suppressed in the interests of medium-high level attacks. Initially, aircraft and drones will be used to deliver strikes, jointly with air and ground-launched cruise missiles, SSMs and artillery and ground raiding elements against radar posts, air defence command and control centres, SAM positions, and fighter airfields. GENFORCE avoids the use of conventional manned aircraft where possible in attacking fixed installations or those targets whose location is known in advance. In this context, it should be noted that a modern missile with a CEP of 50m and a FAE warhead with a blast radius of about 120m will enjoy a 90% chance of destroying the target. Other elements of the attack formation will employ SOJ and EJ to further paralyse the enemy defences. In addition, fighter escort aircraft will assist in SEAD operations by sweeping the corridors ahead of the assault force and engaging any enemy fighters. In addition, fighters will sometimes even set up CAPs on the approaches to the assault objectives. All fighter and SEAD activity will be co-ordinated by AWACS. Once corridors have been secured then assault aircraft are free to engage their targets.
 - b. *Duration of Assault.* GENFORCE considers that the duration of an air attack and SEAD operation should be the shortest possible time in order to maximise the preservation of the attacking force. It is argued that the

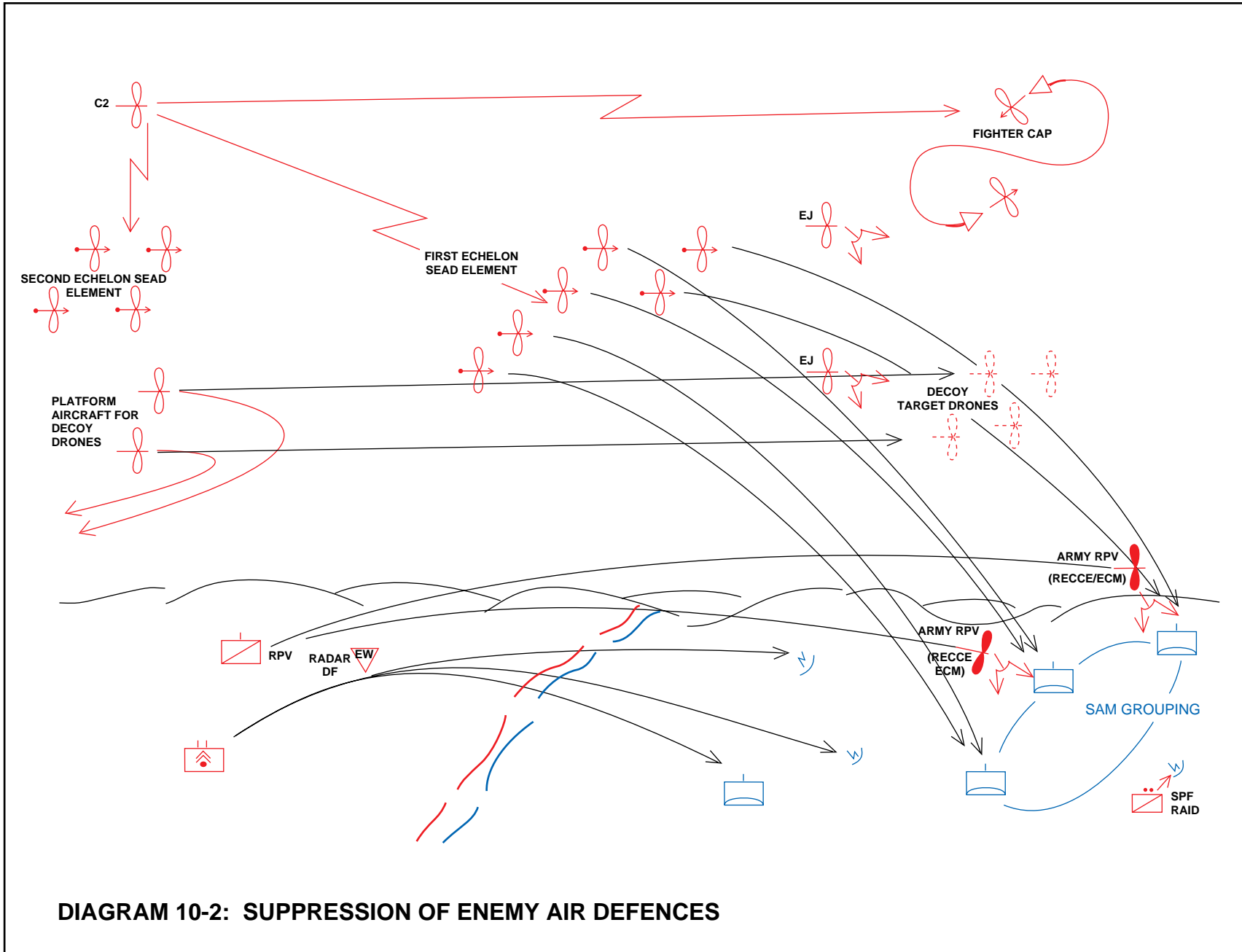


DIAGRAM 10-2: SUPPRESSION OF ENEMY AIR DEFENCES

shorter the duration of the assault, the less time will enemy fighters have to repel the attack - many may not even have had time to get airborne or arrive at the scene. Under the conditions of intensive jamming, the surviving air defence assets will have a severely reduced capability to engage all the aircraft involved in the assault.

- c. *Saturation Attacks* (including by decoy drones and cruise missiles as well as aircraft) are a favoured GENFORCE tactic. Mass attacks can swamp the enemy's data processing systems and the ability of weapons to service all the air targets presented and they have the additional synergistic effect of the simultaneous operation of self-protection ECM pods and EJ and SOJ jamming. Once SAM belts and CAPs are penetrated, packages break off from the raid to attack individual targets.

1084. ***Assault Formations.*** Whilst it is expected that assaults will be driven through a number of corridors over a short period, the number of aircraft required is likely to be very large in order to achieve a degree of saturation and also to take advantage of surprise. However, these massed assaults will differ from the past in that the disposition will be considerably altered. With the spread of precision guided munitions and advanced target designation equipment, battle formations can consist of small elements: the usual formation will be 2 or 4 and rarely more than 6-8 strike aircraft. Therefore, a short, massed assault by many small formations with a mixture of SEAD and assault aircraft combining EW and precision strikes, will be the normal tactics adopted by OAC aviation when engaging against an enemy with sophisticated air defences.

1085. ***Concealment, Deception and the Avoidance of Enemy Action.*** GENFORCE accepts that such penetration tactics, concentrating many aircraft in a limited air space over a short duration, will inevitably mean that the element of surprise will quickly be lost. Therefore, it is considered necessary to supplement the breakthrough of air defences with supporting measures to ensure the dispersion of enemy defensive efforts. GENFORCE believes that this should be achieved through disinformation and deception. It should be noted, given the high tempo of air warfare, that the enemy need not be deceived for long in order for raiders to reach their targets. Large-scale disinformation and deception measures are thus increasingly becoming a characteristic of GENFORCE offensive air operations. Tactical innovations have the goal, not of destroying or suppressing enemy air defence forces, but of concealing the composition, time and direction of air assaults. The aim is to deceive the air defence forces into believing that an assault is being conducted on an entirely different axis with the result that assets and resources are concentrated away from the axes of penetration. This has the effect, GENFORCE argues, of forcing the enemy fighter effort onto the dummy attack axes and weakening its strength in the breakthrough sectors. This is nothing new to air warfare tactics but it has recently been given a much higher priority.

- a. *Electronic Counter Measures.* Enemy early warning, ground control and intercept and AWACS radars are blinded or confused by the laying of chaff on a broad front behind the line of contact and by the actions of SOJ aircraft from within it. Under cover of this concealment, raiding forces can assemble and approach the enemy's airspace without the enemy being able to determine their strength and composition. Each penetration corridor is protected by the sowing of slow-fall chaff trails (up to 40km wide and 400km deep and lasting for several hours). These conceal the size and formation of a raid and provide cover from within which EJ aircraft can operate and from which strike aircraft can briefly emerge to fire ARMs or other stand-off missiles. False chaff trails will also be laid to "conceal" non-existent raids. These electronic measures will cause confusion and uncertainty and impose time delays on the defence's reaction, delays which pass right through the system and which are exacerbated by attacks on key nodes and communications links in the system. It also means that information passed by the early warning network will be ambiguous, especially as to range. These effects result in acquisition radars receiving only tentative information and being able, in consequence, to pass only limited information on to SAM fire control radars. If sufficient degradation at the top and middle levels of the air defence system is achieved, fire control radars (the most numerous and hardest to jam) will be forced to operate autonomously using only target azimuth data which is, itself, derived from jamming spokes from a mixture of SOJ, EJ and self-screening jammers on attack aircraft. The breakdown of centralized control and the engagement of targets out of range will lead to a rapid depletion of ammunition stocks for relatively poor returns.
- b. *Attack Simulation.* At the same time as deception tactics are employed, GENFORCE will initiate a series of simulated attack profiles to further confuse the enemy defence forces. In periods preceding the main attack there will be simulations of massed scrambling of aviation from airfields. This will be accompanied by false radio and radar transmissions. The theory is that enemy defences will be weakened because fighters will be launched unnecessarily, aircrew will become fatigued and the awareness of command and control centres will be blunted.
- c. *Decoy Raids.* Decoy targets will be used on a massive scale in line with previous practices. They may be used both within raid formations and to simulate complete raids. Great emphasis is now placed on sophisticated decoy measures incorporating EW and other advanced technologies. A large number of decoy targets can be expected, ranging from the relatively simple to elaborate drones with powerplants, navigation systems, active EW jammers and chaff dispensers. Decoys will fly profiles analogous to those of combat aircraft as well as using deception routes across the entire front in order to generate maximum confusion in the enemy's defence control centres. False chaff trails may be laid to "conceal" these non-existent raids.

1086. **Combat Manoeuvres.** Despite the general measures used to confuse the enemy air defences it is of course still expected that offensive aircraft will be engaged by enemy fighters. Therefore, in addition to the above measures, offensive aircraft can be expected to employ various types of anti-fighter manoeuvres which will usually depend on the detection range of the enemy fighters. The purpose of these manoeuvres is to avoid any encounter with enemy fighters, to leave the zone of possible attack and to thwart an AAM attack. There are many variations of anti-fighter manoeuvre and all are now part of the GENFORCE OAC training programme. It is important to recognise that the more positive approach to aircrew training now means that individuals have a greater ability and freedom to engage in such manoeuvres than was the case in the past.

- a. *Long-Range Detection.* The introduction of advanced weapons systems such as radars with greater detection ranges and sophisticated AAMs (especially look-down, shoot-down radars and missiles) has meant that OAC aircraft need to manoeuvre at the earliest opportunity to negate the risk of attack by enemy fighters. Therefore, upon recognising an enemy fighter threat - advanced RWRs can detect both radar and IR guidance systems - crews will use a variety of manoeuvres either in combination or singular. This is most likely to involve a transition to maximum flight speed and descent to minimum altitude, in combination with course alterations and active jamming (jammers, chaff dispensers and IR tracers can be automatically activated by RWRs).
- b. *Short-Range Detection.* Although GENFORCE accepts that greater detection ranges and sophisticated AAMs mean that most manoeuvring will have to be conducted before full engagement occurs, there is still a high probability of offensive aircraft becoming involved in close combat. Therefore, the traditional use of a sharp turn towards the attacking fighter is regularly practised by OAC aircrew. Sharp turns will be conducted with maximum possible angular velocity - this will depend on a variety of factors such as weapon load, fuel capacity, etc. - and will be accompanied by the use of chaff and IR decoys.

1087. **The Choice of Altitude.** The use of altitude to evade the actions of the enemy's air defence system is no longer simply a matter of flying low. GENFORCE identifies a number of problems associated with choice of altitude, which applies not only to anti-fighter manoeuvring but also to general attack profiles. The merits of low, medium and high altitude are discussed below.

- a. *Low Level Evasion.* Rapid descent to low level, as was the usual manoeuvre until recently, no longer allows the offensive aircraft the previous guarantee of safety in the era of look-down, shoot-down. Moreover, flying low does not necessarily achieve surprise, since the enemy's AWACS will be capable of detecting targets flying in radar ground clutter. Therefore, avoiding engagement with fighters and SAM systems is becoming more and more difficult. The experience of recent local wars suggested that heights of 15-20m were needed to avoid the

SAM threat; but this presents problems of trying to avoid collision with the terrain, AAA and small arms fire. Furthermore, GENFORCE accepts that with an increase in speed the minimal safe flight altitude increases, manoeuvrability decreases and terrain following becomes more difficult. Another problem is that target detection becomes increasingly more difficult as flight altitude decreases and speed increases. On the other hand, where a low level route can exploit terrain masking to avoid SAMs (or where these have been suppressed), such an approach shortens the detection range of enemy AI radars, prevents fighter intercept from below and may skyline an enemy CAP, enabling the penetrator to get off a preemptive AAM shot if the range is close enough.

- b. *The Medium Level Option.* Given the problems of low level flight and manoeuvre, GENFORCE may resort to penetration at medium level. Surprise will be lost as soon as aircraft climb to medium level and they will be exposed to all enemy air defences save low level SAMs and AAA. However, with fighter escorts and a comprehensive SEAD effort, especially large scale ECM support, this may be the best option for large raids.
- c. *The High Level Option.* A raid at high level will overfly most SAMs and there is likely to be less of an overlap, or even gaps between the envelopes of defending systems. Moreover, the danger zone will be crossed more quickly. On the other hand, surprise will be forfeit from the outset and enemy fighters may attack from any aspect, especially from below, now the most dangerous threat. It will also be difficult to locate small, mobile targets.
- d. *Conclusion.* There is no such thing as a typical GENFORCE height profile. Which altitude is chosen for each leg of the raid will depend entirely on the scenario: ie, on the size and depth of the raid; the enemy AWACS situation; the strength and deployment of enemy ground based air defences and the likelihood of being able to suppress them; the enemy's fighter capabilities and strength and the availability of escorts; the presence or absence of terrain concealment; the nature of the target.

Tactics in the Offensive

1088. ***Target Considerations.*** Even before the air commander can make decisions about offensive force packaging and tactics, he must evaluate criteria relating to the type of targets to be attacked. Upon receipt of a target list he will take account of the following factors: the deadlines for accomplishment of his missions; the precise characteristics of each target; the range of the targets from base; and the integrity of the intelligence information available. In addition, he will also calculate the expected resistance from enemy air defences, the capabilities of his own aircraft and their munitions, and the level of proficiency of his crews. Finally, he will also have to study the terrain, weather and the presence of any characteristic reference points from which

the final phase of the attack can be initiated.

1089. **Force Packaging.** Following his consideration of the target list the commander will put together force packages. This involves assessing the availability of assets, matching aircraft and munition types to different targets and the provision of support for the strike element. Usually, the pre- and post-strike reconnaissance, SEAD and fighter escort aircraft will together outnumber the strike force by about 1.5:1, though this will depend very much on the strength of the defence and on how much reconnaissance and SEAD can be accomplished by satellites and RPVs and missiles, artillery and raiding actions. Two basic options are open.
- a. *Simultaneous, Massed Attack.* A massed offensive effort to break through the enemy's air defences and deliver simultaneous strikes at a pre-set time over the target has its attractions. Defences can be overwhelmed and there is no demand for long term SEAD efforts to keep attack corridors open. On the other hand, the complexity of the mission makes very exacting demands on the coordinating abilities of staffs and the flying skills of aircrew (especially in the target area). Moreover, there may be insufficient aircraft available for such an attack, or the target may not be suited to it.
 - b. *Long Term Repeat Attacks.* If a mass strike is not possible or its suppression will require long term action (often the case in counter-air operations and interdiction), the air commander may deploy a series of smaller packages spread over time. This does have the advantage of reducing mission complexity, but there is an increased demand for SEAD and probably the risk of a higher attrition rate.
1090. **The Use of Stealth Aircraft.** The need for deep penetration to suppress or destroy key targets poses considerable problems for the non-stealth combat aircraft that dominate the inventory. Therefore, as many such missions as possible are performed by stealthy aircraft, either independently or in support of attacks by more conventional assets.
- a. *Planning and Training.* The foundation of stealth offensive aircraft tactical techniques will be the capacity for penetration to the target unnoticed by the enemy radar and IR air defence acquisition means. Further consideration is given to visual observation from both air and ground so that the majority of sorties will be flown at night. GENFORCE does accept that it is impossible fully to eliminate the give-away signs of an attacking aircraft: therefore, considerable stress is put on the tactical route planning stage of offensive operations. To this end, GENFORCE relies quite heavily on the ability to route their aircraft around areas with high air defence radar intensity. This of course depends to a large degree on the quality of intelligence and the professionalism of the aircrew. Whilst it is generally accepted that the aircrew selected for stealth squadrons are of the highest calibre and receive a good standard of training, the quality of intelligence required to plan minimum hazard routes may sometimes be suspect in a fluid situation.

- b. *Use of On-board Equipment.* It is to be expected that there will be a strict limitation on the use of airborne radars and other electronic emissions, reliance being placed on passive detection systems to warn of threats. Moreover, almost complete radio silence can be expected throughout the entire combat flight. Stealth aircraft will, however, make full use of on-board EW assets to further deceive the enemy's air defence system where this is necessary.
- c. *Attack Altitudes.* GENFORCE considers that the optimum flight altitudes for stealth aircraft will be at medium or high level. Extensive low level penetration by stealth aircraft is not to be expected due to the problems of low altitude flight at night and in difficult weather conditions. This is predominantly because the continuous use of terrain following radar, which is considered essential under such conditions, would lift the cloak of secrecy that 'invisible' aircraft rely upon.
- d. *Mixed Sortie Packages.* Due to the limitations of GENFORCE's stealth operations, it is to be expected that most sorties will be flown in conjunction with non-stealth aircraft. The favoured option would be for the stealth element of a sortie package to penetrate enemy territory and suppress his air defences in order for 'conventional' aircraft to attack specific objectives. Alternatively, it is possible that a first wave of conventional aircraft could use long-range and cruise missiles to neutralise air defences: this would give a second wave of stealth bombers the ability to reach high value targets deep in enemy airspace through a combination of their invisibility and the enemy's confusion.

1091. ***Non-Stealth Battle Formations.*** Having determined the composition of a force package, the air commander will decide on flight formation. Diagram 10-3 illustrates a "typical" raid. The strike aircraft fly in pairs in loose formation. The separation of aircraft depends on visibility, terrain and the requirements of mutual support, but it should allow for maximum manoeuvrability of its elements, maximum concealment through dispersion and for the engagement of any fighter which attacks any element of the group (except, of course, for the rear pair). While enemy fighters are trying to establish the size and shape of the formation to engage in a low-risk attack, escorting fighters can strike at them from an advantageous direction and altitude. On the run-in to the target, the strike group is likely to move into a tighter attack formation. Egress from the target area will be in similar formation to ingress. On the return journey, the fighter-bombers, having expended their offensive stores but still with AAMs, will be a formidable opponent for enemy fighters launching close-in revenge attacks.

1092. ***Flexible, Multi-functioning Within Raid Groupings.*** GENFORCE will sometimes allocate more than one task to elements of a force package, particularly where resource limitations are tight. Thus, for instance, SEAD aircraft may be responsible for pre-and/or post-strike reconnaissance or escorting fighters may conceivably form an additional element of the SEAD or strike group (though only with a severe performance penalty if it comes to

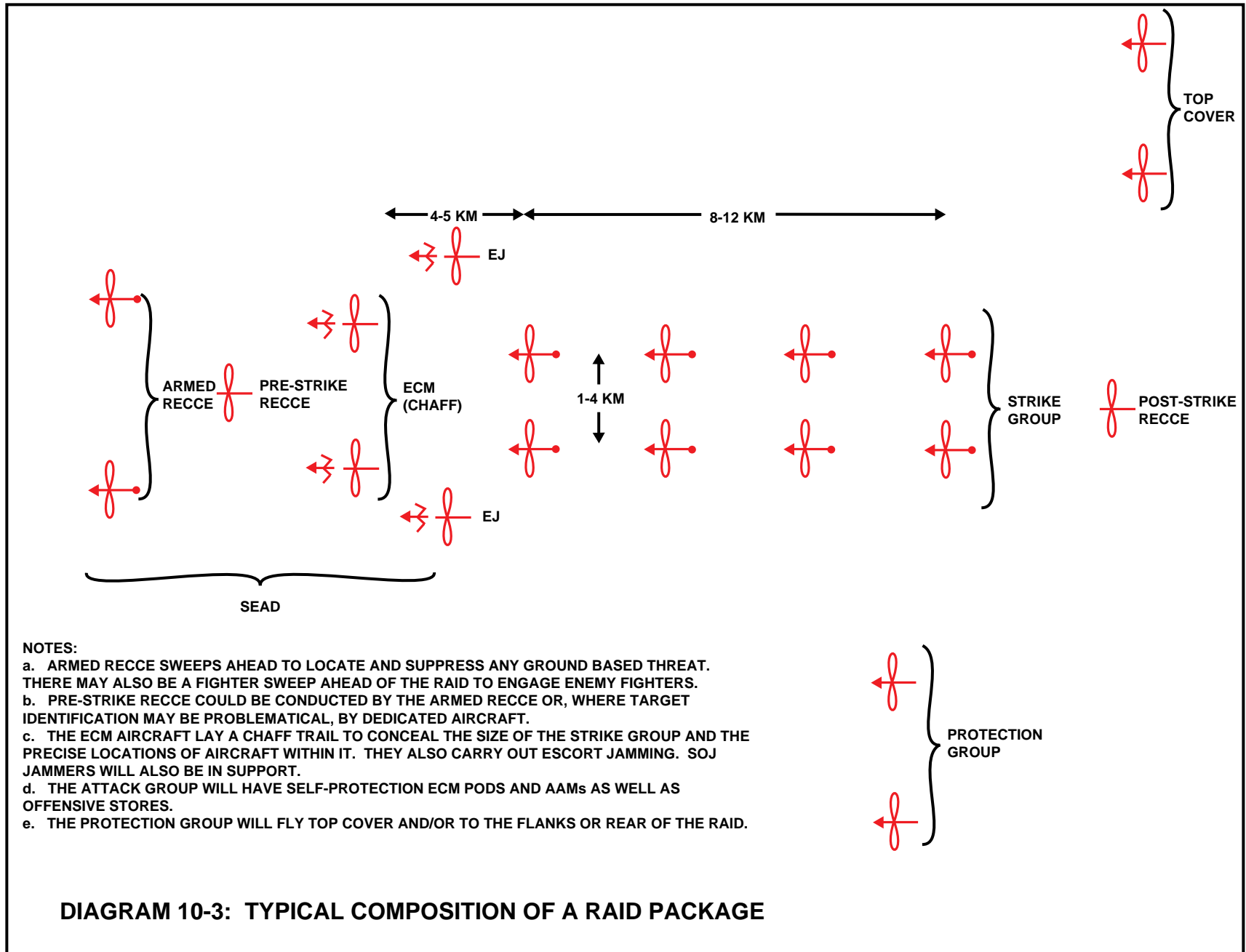


DIAGRAM 10-3: TYPICAL COMPOSITION OF A RAID PACKAGE

a dog fight).

1093. ***The Flight to the Target Area.*** Strike aircraft are at their most vulnerable on ingress as they are fully laden. For protection, they will largely depend on their ECM, armed reconnaissance and fighter escorts and on their own onboard equipment (such as advanced navigation systems, terrain following radar, data link information transfer, self-protection ECM pods). However GENFORCE also puts much emphasis on confusing the enemy. Routes should be planned to include a series of unpredictable course alterations (often signalled by chaff bursts from the ECM element) and general manoeuvring within flexible formations. The unpredictable behaviour of packages, combined with decoy raids and comprehensive EJ and SOJ, will greatly complicate enemy C3I and attempts at interception by fighters.
1094. ***Target Engagement Profiles.*** In determining how to make the final attack run onto a target there are a number of options that GENFORCE aircrew can take up. There are no ready-made solutions that will fit all circumstances. Final attack profiles will inevitably depend on the size and shape of the target.
- a. ***Low Level Lay-down Attacks.*** A straight and level lay-down attack at high speed from very low altitude may well reduce the risk of detection and of being shot down over the target area, but there are inherent problems associated with this option. First, pilots may simply be unable to identify the target because they have so little time over the target area. Secondly, where attacks go in waves, there is the danger of bomb debris from earlier waves damaging or destroying aircraft in subsequent ones. This necessitates a 30 second delay between waves, compromising surprise for the later ones and removing the advantage gained through a saturation attack. Moreover, considerable skill and much practice is required to fly at extremely low altitude: add to this the expertise that has to be shown during final manoeuvring prior to weapon release. Without well above average levels of professionalism this type of attack will often end in an unsuccessful engagement. The assumption can be made however, that GENFORCE aircrew will be capable of exploiting this option.
 - b. ***Low Level Pull-up Attacks.*** The second option involves a low level approach into the target area but in order to facilitate easier target identification a vertical pull-up manoeuvre is executed prior to weapon release, which takes place during a shallow dive. This pull-up manoeuvre has certain disadvantages. Firstly, any increase in altitude from extremely low level will increase the likelihood of detection both from the ground and from the air. Additionally, the time taken to execute the manoeuvre gives both SAM and/or AAA operators and air defence fighters more opportunity for a successful engagement. (Indeed, GENFORCE accepts that this type of manoeuvre greatly enhances the effectiveness of small-arms fire against aircraft, and emphasises this fact to its own ground forces.) Ultimately the problem with this manoeuvre is that the element of surprise is lost and the initiative passes to the enemy. However, in some situations this will be the only practical option.

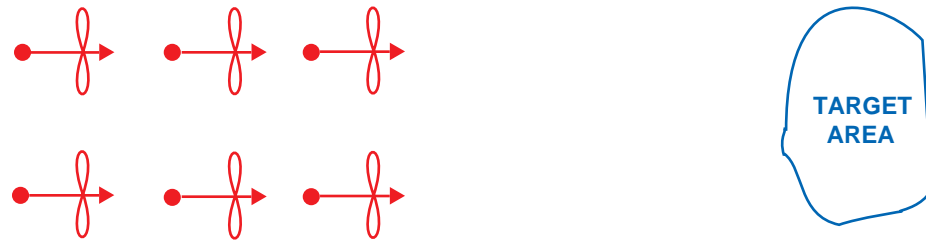
- c. *Toss Bombing.* Lacking stand-off weapons, one way of avoiding overflying the target is toss bombing: the aircraft pulls up sharply, executing a half loop and releasing its bombs just before it reaches the top of its loop. While relatively inaccurate with free fall bombs, the technique is suited to the use of laser-guided munitions. The aircraft does gain considerably in altitude executing the manoeuvre, but at least this is temporary and removed from some close-in air defence of the target: nevertheless, it may expose the attacker to other weapons and can be dangerous.
 - d. *Composite Attack Profiles.* A possible variant of the first two options would be suitable for two pairs or waves of aircraft in trail formation as they approach the target. The first pair execute a pull-up manoeuvre to identify the target and suppress enemy air defences, whilst the second attack using the lay-down tactic. There is yet another alternative allowing two or even three pairs to strike simultaneously. The first could deliver a lay-down cluster bomb attack (which creates little debris), the second could toss bomb and the third deliver retard bombs in another lay-down profile (see Diagram 10-4). Such simultaneous attacks benefit from saturation of the defences and the delivery of all munitions before the target is obscured by smoke and debris.
1095. **Coordination.** Coordinating such joint operations is not easy. The airborne force can move 40-50km in 30-40 minutes; the ground group may require 2 or more hours link up if moving over a comparable distance. Thus the air landing group will need the support of aviation (eg, combat helicopters operating in pairs) for a time. Coordination with friendly fire air defence (including that of the reinforcing ground troops) will be just as vital as in offensive missions.

SECTION 8 - DEFENSIVE AIR TACTICS

Characteristics of Air Defence Fighters

1096. **General.** GENFORCE accepts that the new generation of fighters must be fast, manoeuvrable and be able simultaneously to engage a large number of targets in all weathers. Particular stress is now being laid on the ability to conduct BVR engagements, including look-down, shoot-down. To satisfy these demands they have incorporated into their aircraft inventory a range of fifth generation fighters. The backbone of the air defence fighter force is made up of MiG-29M, Su-35, Su-27 and MiG-31M. It is anticipated that the new MiG-2000 (similar to the European Fighter Aircraft and the F-22) will eventually replace the current MiG-29 and Su-27 series, relegating the latter to ground attack roles. The basic features of fifth generation fighters have been developed following modernisation programmes of earlier types in service. GENFORCE considers that fighter aircraft should be developed as families under continuous modernisation programmes involving new engines, improved radars, new navigation equipment, EW equipment, armaments, etc.

a. APPROACH TO THE TARGET



b. ATTACK PROFILE

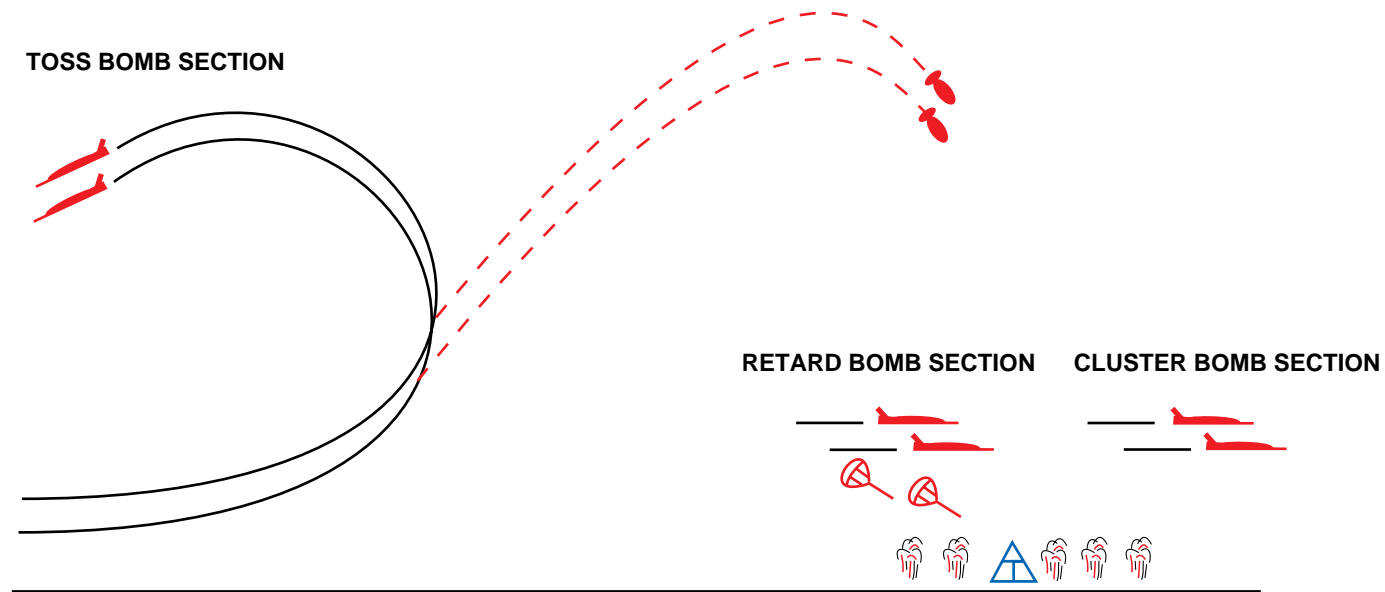


DIAGRAM 10-4: SATURATION ATTACK RETAINING SELF-DAMAGE SEPARATION

1097. **Speed.** Supersonic cruising speed (in non-afterburning mode) enables AD fighter aircraft to expand the area of effective coverage against air strikes whilst maintaining economical fuel expenditure. It also allows for rapid intercept of distant targets - distant basing is often an important GENFORCE defence consideration to increase survivability - and reduces pursuit duration time. The threat of engagement by enemy fighters or ground-based AD systems is also reduced. Power plants vary but most are equipped with full authority digital engine controls and a range of additional sophisticated attributes; for example, anti-surge systems, compressor speed limiters, etc. Flight data recording systems keep track of all flight data and automatic ground testing/diagnostic systems reduce turn-round times.
1098. **Manoeuvrability.** Increased engine power combined with improved aerodynamic airframe qualities mean that GENFORCE fighters have high manoeuvring capabilities throughout the full range of the combat environment. These capabilities are enhanced by the use of vectored thrust and automated flight control systems (eg, even the old Su-27 has a quadruply redundant fly-by-wire control system incorporating angle-of-attack (AOA) and G-loading limiters). Just as important to manoeuvre, of course, is an accurate knowledge at all times of the aircraft's location. GENFORCE's navsat system provides this with a high degree of reliability.
1099. **Stealth Technology.** The new generation of fighters will incorporate a range of stealth technology in order to reduce the possibility of detection. However, GENFORCE believes in a compromise between stealth and aerodynamics to produce a low signature aircraft without significant loss of manoeuvrability. Construction techniques incorporate radar absorbent materials and thermal screening alongside improvements to aerodynamic configurations. Wherever possible, the use of external carriage for weapons, fuel tanks, EW pods, etc. has been abandoned in favour of internal or flush fitting to reduce signatures and increase supercruise capability. Retractable refuelling probes are fitted to all aircraft.
10100. **Detection and Fire Control Systems.** Integrated fire control and detection systems have the capability to operate either in a multi-mode or single mode capacity, allowing both ground-mapping and air intercept roles. In addition, fighters have forward-looking Infrared Search and Track Systems (IRST) with associated TV tracker and integrated laser range and electro-optical systems capable of long-range detection and assisting with the identification of targets. Naturally, air defence aircraft will expect early warning of the strength and direction of threat aviation from satellite reconnaissance and AWACS. Targets can be engaged with missiles at altitudes from 10-30,000m and at all speeds up to 300km range. Radars have an all weather, look-down, shoot-down capability and can operate under ECM conditions. Other features include simultaneous tracking capability for 10 to 15 air targets and engagement of up to six targets all at once using track-while-scan (TWS) and raid-sort function. Air-to-ground radar functions, which incorporate synthetic aperture ground mapping, include tracking of both stationary and moving targets. GENFORCE has also placed great emphasis on developing an anti-satellite capability, thus demonstrating their concern about the

importance of space-based assets in future wars. (Whilst their intent is acknowledged, it remains a matter of uncertainty as to specific details of detection and engagement capability against such targets, although it is known that a variant of the MiG-31M has been specifically developed for the anti-satellite role.)

10101. **Armaments.** The development of new weapons to juxtapose with modernised radar systems has been a priority for GENFORCE over the last decade. The new range of air-to-air missiles has a mix of long-, medium- and short-range capabilities, the most modern with a fire-and-forget capability. Attention has been given to developing missiles with active homing - either active radar, anti-radiation or IR multi-window seekers - mid-launch guidance systems, and a home-on-jam capability (to operate in challenging ECM conditions). The full range of AAMs is available in the GENFORCE inventory - from a missile with a range of 300km for attacking targets such as AWACS through 150km range missiles for BVR engagements of combat aircraft down to highly manoeuvrable dogfight missiles - so that the full range of targets can be engaged. A look-down, shoot-down capability against low fliers, including helicopters goes a long way to closing a gap which hitherto existed in fighter defences. Additionally, it must be remembered that GENFORCE has devoted considerable resources towards the development of an anti-satellite capability. Most AAMs utilise laser fusing and have expanding rod warheads. GENFORCE also places great importance on the value of cannon in the high manoeuvre dogfight environment: a single, internally mounted 30mm gun is usually favoured. In the air-to-ground role a variety of ordnance can be carried but autonomous laser guided air-to-surface missiles or ARMs are favoured.

10102. **Avionics and the Cockpit.** Considerable attention in the design of the fifth generation fighter aircraft has been given to the cockpit working environment. The use of head-up-displays and sympathetic cockpit layouts incorporating CRT displays ensures, wherever possible, that aircrew are 'eyes-out' for as much time as possible. Helmet mounted sighting devices slave the radar,IRST and IR missile seekers to the pilot's scan during dogfight conditions. Data-link systems provide automatic information exchange between not only controlling agencies (eg, ground-based control centres and AEW/AWACS) but also fighters within a formation. For example, a designated command MiG-31M has the ability to combine up to five flights of four aircraft on the data link to receive target and command information. In this mini-AWACS role the MiG-31M can control four additional interceptors to provide coverage across a 1200km wide frontage. Thus, in the event of an AWACS being lost or neutralized, the defensive system will not collapse (an illustration of GENFORCE's desire for redundancy in C3I systems). That is not to say, however, that it will not be put under great, and perhaps intolerable, strain: the primary role of MiG-31M is the interception of enemy bombers and it will not be able to cope with the very dense tactical environment of the battle for air superiority.

10103. **Self-protection Devices.** All fighters are equipped with sophisticated RWRs which incorporate multi-lens systems which have the ability to determine

whether a threat is from above or below and also other self-protection systems (eg, chaff dispensers, IR flares, etc.); wing-tip ECM pods can be fitted to all AD fighters. It is also possible that some fighters can be fitted with a rear-facing active threat warning radar which would provide an 'over-the-shoulder' radar missile firing capability.

10104. ***Air-to-Air Refuelling.*** All fighters are equipped with an AAR capability to increase loiter time and extend patrolling range. For example, it is to be expected that the MiG-31M could routinely remain on task for a period of seven hours with AAR. This vital force multiplier is provided by the IL-78 tanker which is likely to remain the mainstay of the AAR tanker fleet.
10105. ***IFF and Data Link.*** Considerable emphasis is placed on the need to identify friend from foe (IFF) in the complex air battles of future wars - particularly, as GENFORCE is increasingly stressing BVR engagements. Electronic IFF systems have been greatly improved over the past few years, whilst many fighters are fitted with visual enhancing equipment to relieve the problem of identification. GENFORCE has placed great emphasis on providing fighter aircraft with as much information about the air battlefield as possible. Additionally, navigation equipment now has far greater accuracy which improves the quality of information available through the data link system. Fighters are fitted with a powerful data link which allows the leader and three wingmen to exchange information automatically, in addition to the limited command MiG-31M capability mentioned earlier.

Tactics

10106. ***General Considerations.*** AD fighters may operate as singleton aircraft, at least in bomber intercept in the depth, but they will more usually be in multi-aircraft formations. The high performance and technological advancement of not only fighter aircraft but also their likely targets, has meant that tactics have had to change. Various factors have an effect on the development of tactics.
- a. ***Aircraft Performance.*** In the past, altitude advantage over an adversary was considered an important consideration before engaging. However, the high thrust available in today's fighters means that attack from a lower level is no longer a problem. Indeed, GENFORCE accepts that surprise is inversely proportional to altitude - the aircraft flying higher is visible on the radar at greater distances, whilst it has greater difficulty detecting its adversary against ground clutter. Additionally, today's fighters have advanced aerodynamic control systems which make them capable of performing flat turns without roll and other features which make them highly manoeuvrable.
 - b. ***Weapon Systems.*** New weapon systems have changed the shape of the air battle. Fighters armed with missiles, which have various ranges of action, can now engage targets at long, medium and short ranges. Moreover, they can engage their adversary manoeuvring with high G and from any direction. Most fighters can engage at long-range, head-on and

then convert to a high G rear engagement down to gun range. The air-to-air battle has become an all-aspect one. It follows that the capabilities of AAMs and their associated weapon systems will have a great influence over the nature of future air battles.

10107. **Formations.** There is a debate within GENFORCE over whether aircraft performance or weapon systems would have the greater influence over the conduct of air battles. These factors, in turn, dictate to a large extent the formations in which fighter aircraft will operate, although it is usual for a combination of factors to be taken into account. When deciding formations, various options are considered.

- a. *Single Aircraft.* A weapon system capable of BVR engagement at extremely long-range could theoretically negate the necessity of a wingman or multi-aircraft groups. However, GENFORCE considers that a single fighter armed with even the most powerful weapons will be unable to engage all the targets in a multi-aircraft target group. Moreover, without a wingman or other mutual support and despite advanced self-protection devices, a single fighter will be vulnerable. Therefore, single aircraft will not usually be deployed unless it is an operational necessity (ie, due to a shortage of aircraft or for specific tasks).
- b. *Pairs of Aircraft.* The traditional functions of leader and wingman will continue to be the normal deployment of fighter aviation. Pairs of fighters offer mutual support and can cover a wider target area. However, with the impact of new technologies, the role of wingman has become almost the equal of that of his leader. Therefore, the wingman will normally adopt a wide battle formation and search for targets in the same fashion as the leader. Both aircraft are then able to make contact with the enemy and the one in the most advantageous position will conduct the attack. Whilst either fighter can control each individual engagement it is the responsibility of the leader to manage the wider battle.
- c. *Multi-aircraft Formations.* Standard GENFORCE combat groups would be made up of a multi-aircraft fighter group; usually one or two pairs of aircraft providing a continuous search pattern. The formation leader has command and control of the battle whilst providing essential data links between both AEW/AWACS and the formation aircraft. Although a command MiG-31M has the capability of controlling up to five flights of four aircraft, this mini-AWACS role would normally only be required if air and/or ground based C3 systems were unavailable: it is, after all, deployed for defence against bomber aviation and not for the air superiority battle, for the complexities of which it is inadequately prepared. Numbers of fighters in any formation could vary according to poor weather conditions, shortage of serviceable fighters or any other unusual circumstance.

10108. **Combat Air Patrols.** CAPs are generally employed only to protect vulnerable, high value targets such as AWACS aircraft or ground forces formations at critical times (eg, during the committal of an OMG or a river

crossing). Keeping fighters on CAP imposes great fatigue on aircrew and serviceability problems on aircraft. CAPs also require a large number of fighters to maintain them for any length of time (9-10 will be needed to keep two on station at a distance of 550km from base). Moreover, if the enemy launches a saturation attack early in the patrol, there is the danger of the fighters exhausting their armament and thus leaving a gap in the defence. For these reasons, GENFORCE generally prefers to use aircraft on ground alert, in readiness category one, for air defence. AWACS, with its ability to look deep, should give adequate warning time to scramble aircraft for the defence even of targets quite near to the line of contact.

Attack Profiles

10109. **General.** Having detected the target, various attack profiles can be put into practice depending to a large extent on the detection range. GENFORCE considers the following basic profiles to be standard operating procedures.

10110. **Long-Range Head-on Attacks.** In the opinion of GENFORCE an air-to-air intercept should be started at the maximum range possible. Weapon engagement will be commenced at optimum head-on range with the intention of destroying or neutralising the maximum number of targets before visual or close range combat ensues. Various factors in the long-range, head-on attack are considered.

a. **Tactical Superiority.** Because it is assumed that the enemy will have the same destructive capabilities, initial tactical superiority will depend upon early detection, and certainly before the enemy. This will ensure that assessment of the air situation can be achieved earlier than the adversary, with the result that attack profile decisions can be made which will maintain tactical superiority. In order to secure surprise, attacks will normally be conducted from an altitude below that of the enemy. The enemy is then put in a worse tactical position, since the range of detection of his radar is likely to be reduced in the look-down mode.

b. **Attack Limitations.** Any long-range attack will usually start from the head-on situation and ideally from below the target altitude. However, it is likely that the enemy will have some stealthy or inconspicuous fighters: this will undoubtedly affect the tactical situation. Forward hemisphere attacks will be extremely difficult against such targets because detection ranges will be severely reduced. It is expected that detection ranges could drop to 20-25km and lock-on ranges to as low as 15 km. Additionally, active homing AAMs will have similar reductions in performance. Consequently, the fighter that first detects the adversary will be in the favourable position and most likely to be able to close covertly and make a successful attack. GENFORCE considers that air battles between similar inconspicuous fighters will not be fought in the forward hemisphere but will more often involve short-range attacks and air-to-air combat. Consequently, GENFORCE places great emphasis on fighter agility and dog fight combat capabilities (including gun engagements).

- c. *Fire-and Forget.* In long-range head-on attacks it will be important not only to detect the target early but also to be able to engage the maximum number of targets in the forward hemisphere. Fighters with TWS and armed with advanced, long-range missiles will be able to take advantage of the latter's fire-and-forget capability, thus ensuring more than one target will be able to be engaged before having to break off the attack or convert to the rear hemisphere. This capability will be enhanced by effective distribution of targets within the fighter formation. The lead aircraft will allocate targets in order to avoid multiple engagement of the same target: the leader will usually engage the most important element of the enemy formation.
- d. *Target Discrimination.* In order to distribute targets effectively, the lead aircraft must know the precise number and disposition of the adversary. Assuming difficult ECM conditions and long-range visual identification limitations, fighters may have to rely upon target information from airborne and/or ground controllers.
- e. *Target Engagement.* Once targets are allocated among the formation the assumption is made that the head-on attack will be successful and the formation will then execute evasive manoeuvres in order to avoid retaliatory fire. However, the leader may order a re-engagement should any enemy aircraft survive the first attack. The repeat attack could be in the front hemisphere if time allows, but it is more likely that a second attack would be from the rear hemisphere. Such a re-attack would involve a further radar engagement and/or develop into visual close range combat. Once the attack is completed the formation will begin searching for new targets.

10111. **Close Range Combat.** It is accepted that in many instances it will be more advantageous for fighters to return to base in order to replenish missiles following an engagement than to continue to close with a few remaining targets. However, GENFORCE considers that close range combat will continue to play a decisive role in the air battles of future war. This is particularly the case with air battles involving equally matched fighters where no tactical advantage is achieved prior to visual engagements. Moreover, GENFORCE acknowledges that potential enemies pay special attention to dog fight combat training following a long or medium range radar engagement. Various characteristics of close range combat are highlighted.

- a. *Visual Engagement.* The main distinguishing characteristic of close range combat will remain the ability to conduct the battle within visual contact. Notwithstanding the increasing use of advanced visual enhancement devices, which can dramatically increase the visual detection range, most battles will be between fighters in normal visual contact utilising short-range weapons such as dogfight AAMs and cannon.
- b. *Aircraft Capabilities.* Modern advanced fighters will inevitably speed up the dynamics of air-to-air combat, reduce the time between attacks and increase the probability of kill rates. GENFORCE realises the importance

of developing fighters that can match enemy capabilities including high thrust-to-weight ratios and acceleration characteristics, which will allow fighters quickly to conclude an engagement, restore lost energy/speed, and catch up with a fleeing adversary.

- c. *Weapon Capabilities.* Short-range dogfight AAMs with autonomous guidance after launch, exceptional manoeuvrability and agility - incorporating thrust vectoring - will also increase the tendency for air-to-air combat to be concluded more rapidly than in the past.
- d. *New Problems.* Whilst these advanced features have expanded the capabilities of fighters they have also made air-to-air combat a more dangerous and risky type of air battle. It has become much easier successfully to engage a target and probability of kill has increased, but at the same time it has become more difficult to defend against an adversary with technological equivalence. Moreover, the danger of collision has grown, especially in high speed or high aspect angle attacks.
- e. *Tactical Considerations.* In accordance with these changing conditions of air-to-air combat, training now concentrates on improving tactical techniques. Particular attention is paid to combining tight manoeuvring and high acceleration in order to create the most favourable conditions for close range, rear hemisphere engagement with dogfight AAMs or cannon. Crew training, aircraft and weapon capabilities are not considered by GENFORCE to be sufficient to ensure a kill unless these are combined with a potent EW capability. Therefore, the air-to-air battle will also require fighters effectively to employ EW through the use of active jammers, chaff and IR decoys to foil AAM guidance systems.

CHAPTER 11

LOGISTICS

SECTION 1 - PHILOSOPHY

Views on Future War

1101. **Short War Scenario.** GENFORCE planners traditionally prepared for a war that would be characterized by a single high speed, deep strategic offensive operation. It was believed that combat would be very intense in the early stages, consuming vast quantities of supplies. Once organized defences had been penetrated, however, and the attacking formations had progressed deep into the enemy's rear, logistic requirements would lessen along with the effectiveness of the defence. GENFORCE planners intended the overall duration of the war to be short, ie, to achieve a decisive victory within 3-4 weeks at most. GENFORCE army group level logistics were organized to support this sort of war. The main emphasis was on the supply of fuel and ammunition and the immediate repair of lightly damaged equipment. Fuel and ammunition supply chains were designed to be highly mobile and flexible to cope with the dynamic, manoeuvre character of operations.
1102. **Future War.** GENFORCE has moved away from this single variant concept in which it would indubitably be the one to seize the initiative and make the running. It now recognizes that it may have to conduct a strategic defensive operation, at least initially. Even if this is the case, however, the nature of combat will still be characterized by broad manoeuvre and GENFORCE believes that the logistic system at SG level and below is thus still appropriate, albeit with some adjustments to meet the possibility of a defensive phase and the changing demands of the high-tech battlefield (eg, the provision of air and ground defence for logistics elements). After all, a system capable of supporting deep offensive operations is going to be up to the less demanding task of supporting defensive operations with shortening lines of communications (always assuming, of course, that the enemy is denied a level of air superiority that will enable him to carry out an effective air interdiction operation). Future war is still expected to be short. Even if neither side has achieved decisive goals, a political settlement is expected within a few weeks now that ideology no longer drives a fight to the finish and fear of nuclear escalation provides a powerful incentive to end hostilities.
1103. **Hedge Against a Long War.** Recognizing that, as so often happens in war, things might not go as planned, GENFORCE has also hedged against the possibility of a protracted conflict. Mobilization divisions provide field formations for this eventuality, and logistic stocks for a further two months of fighting are held in the strategic depth (though the figure is considerably smaller for expensive but all-important items such as precision munitions). If, however, war is to become at all prolonged, it will by definition have become more attritional in nature. In consequence, at least in some SGs, less flexible modes of logistic support will become the norm, for example utilizing forward fuel farms and pipelines and permanent forward ammunition dumps (though it is recognized

that these will be vulnerable to precision attack if the enemy has not, as is quite possible, exhausted his stocks of long range systems). National reserves will become important, including the conversion of factories to military output for industrial surge production. The GENFORCE economy is still specifically designed with this in mind. Given the inherent flexibility of such basic items as computer controlled machine tools, GENFORCE should not find force reconstitution and expansion a serious problem, provided, of course, it is granted the six months or more that will be necessary to switch to a full war footing.

1104. ***A Fluid Combat Zone.*** GENFORCE commanders believe that there will be no continuous front line in the next war. Instead, combat will have a highly fluid, dynamic character and will spread over a wide area. They anticipate deep salients as formations bypass strong opposition and thrust into the enemy rear, and as enemy counter attacks endeavour to cut off and destroy these spearheads and conduct their own deep operations. There will be sudden and dramatic changes in the situation, and accordingly there will be major shifts in emphasis from one axis to another and from attack to defence. Attrition will not take place more or less evenly across the front. Rather, there will be areas of intense, but localized destruction and long passive sectors where logistic demands will be much lighter. Secure rear areas and predictably developing operations have, in the GENFORCE view, become a thing of the past.
1105. ***The Nature of the Logistic System.*** On the sort of battlefield described in Chapter 1 and summarized in paragraph 1104, GENFORCE does not consider wholly appropriate the traditional logistics system whereby forward divisions collect supplies from dumps to the rear and evacuate rearwards their casualties and damaged equipment. Rather, they insist that formations must be prepared to live off mobile stocks, at least for a few days, and not depend on constant resupply from higher formation. Medical and repair facilities must move well forward to work in areas where there has been heavy fighting and casualties are concentrated. Combat is also expected to take place round the clock (with the cover of darkness becoming an increasingly illusory advantage for logisticians). There are consequently increased demands on logistic support and for a higher level of operational security for logistic units. Accordingly, the logistic support for lower formations has been increased. New, smaller Basic Forces' divisions and armies and Mobile Forces' brigades and corps have a tail comparable in size with their larger predecessors, thus raising their sustainability. To prevent identification and attack, their resupply logistic units are prepared to move almost as frequently as the combat units they support and other logistics elements (workshops, hospitals, etc) are organized to keep up with and support the combat troops. To this end, their mobility and flexibility are being improved and greater provision is being made for their ground and air defence. There is still seen to be a requirement for a high degree of centralized direction and control, however, so that rapid adjustments can be made to meet changing operational situations. These are the themes that will be developed in this chapter.

Principles

1106. **Foresight.** Given the combined arms commander's assessment of the probable course of future operations the logistics commander (the Chief of the Rear) must forecast the likely requirements for personnel, materiel and equipment (including for their movement.) He will specify the logistic point of main effort as a guide to his planners and subordinates: this will coincide with the operational or tactical direction of main effort in spatial terms but may well be different in temporal terms as the demands for tactical and logistic concentration of effort do not necessarily coincide in time. The operational plan must not be limited or its implementation delayed through a lack of logistic support which could have been anticipated. Given the increased destructiveness and reach of current and future weaponry, this principle becomes both more fundamental and more difficult to realize.
1107. **Simplicity.** Although the support of deployed forces on the fluid battlefield is a complex undertaking, the plan to provide that support must remain simple, easy to understand and to put into effect.
1108. **Economy and Centralized Operational Control.** The principles are inextricably linked.
- a. **Economy.** Many items of supply are exceedingly expensive and can therefore be provided in only limited numbers (eg, precision munitions, air defence missiles). Moreover, even if cost were no object, GENFORCE would be reluctant to over-insure logistically as an unnecessarily large logistic tail will hamper manoeuvre and divert excessive combat strength to its protection. It is vital to make the most economical use of available assets, and this demands control at the highest practical level.
 - b. **Centralized Operational Control.** The bulk of logistic resources are held at SG and army/corps levels. The amount allocated to each higher formation will be tailored according to its strength, the importance of its mission, the nature of the terrain and the anticipated nature and intensity of combat. This ensures their economical use, the concentration of effort on the most important axes and on those groupings executing the main tasks and it contributes to operational flexibility. Commanders of higher formations who are familiar with the overall operational concept and situation can reach balanced decisions as to priorities for support, if necessary stripping resources from stalled or burned out subordinate formations or from those on axes which have lost their significance and reallocating them to others making a more decisive impact on operations. The rapid switches of emphasis from one sector or axis to another and from offensive to defensive action (and vice versa) that will characterize future war would, in GENFORCE's view, be far more difficult in a decentralized system. (They will, of course be difficult anyway, not least because offensive and defensive action each put stress on different aspects of logistic support: such switches are thus sources of inefficiency and possibly of waste.) The management of a centralized system within the context of a dynamic, manoeuvre-dominated battlefield has been made possible by the automation of many

processes and the provision to logistic headquarters and units of the same satcom, radio and land navigation systems as are issued to combat elements. Asset tracking, the monitoring of expenditure and the transmission of the huge volumes of data required are no longer an inseparable problem. The logistics elements of formations are sufficiently flexible and manoeuvrable to conform to the frequent changes that will inevitably beset commanders' plans. The rear services are accordingly able to ensure that the combat customer is supplied where and when required, tactical situation permitting.

1109. **Limited Autonomy of Troop Groupings.** The continuous, uninterrupted supply of tactical formations from the operational rear will not always be possible in non-linear combat. Divisions and brigades must be able to cope with limited periods of intense combat without resupply from above, that is, until enemy groupings in the friendly depth have been eliminated or the logistic system is re-jigged to meet the new situation. They thus carry on wheels the mobile stocks necessary to make them self-sustaining for a period of at least 3-5 days. The aim is to preserve these stocks intact for as long as possible so that, when the supply chain breaks down, the formation can continue to fight until such time as army/corps can restore it. As a corollary, whenever mobile stocks are eaten into, even at the lowest rates of consumption, they are replenished as soon as possible.
1110. **Reserves.** Ammunition and fuel holdings at all levels include an emergency reserve. The size of this will be specified by the senior commander. At the operational level, substantial reserve stocks are created in peacetime and (bearing in mind the likely nature of the initial period) echeloned in some depth on likely axes.
1111. **Forward Delivery.** It is the responsibility of higher commanders to keep their subordinates supplied: ie, the concept governing resupply is not demand-pull, but supply-push, with resources being distributed to subordinate commanders in accordance with priorities established at the higher level (ie, in line with the logistic point of main effort). This philosophy will often cramp the style of formations on secondary axes, but it ensures economy in the use of both stocks and transport and the maintenance of the operational commander's aim. Using their transport assets, formations deliver forward to their subordinates. Often, to save time, an echelon will be skipped. For example, SG transport may deliver direct to divisions, or army to regiments. Sometimes, however, uncommitted or less hard pressed units/formations will be required to collect from their superiors to maintain the concentration of resources on key axes. In the offensive this may also be required when the separation of division/brigade from army/corps and the latter from SG rear becomes too great as a result of higher formation assets having difficulty in keeping pace with the advance. As a principle, however, each level must keep up with its subordinates and not complain about the rapidity of the advance, far less press the resources of its successful subordinates for its own use. The concentration of the bulk of transport assets at higher formation level underpins the forward delivery system. The waste which this system used to create when stocks were delivered which changes in the tactical situation rendered redundant, resulting in their dumping,

is now greatly lessened by improved asset tracking and stock control. It is not eliminated, however: eg, a supplementary reserve of artillery ammunition dumped in gun areas for a bombardment may have to be temporarily abandoned if the enemy decides to withdraw rather than fight. GENFORCE considers the cost worth paying in the interest of speed and simplicity, the more so now that the recovery of such stocks is eased and accelerated by their being dumped on dismountable flat racks.

1112. ***Flexibility in the Use of Movement Resources.*** Planning is based on the use of all movement resources available. Thus rail transport is used as far forward as possible, certainly to SG and, in the early stages at least, to army/corps also. Pipelines deliver fuels down to army/corps level. Motor transport is the primary means of supply from army/corps downwards, though high priority items may be delivered by air. In an emergency, large scale air resupply may be attempted (for instance to an OMG, separate operational unit or an encircled grouping). Strict delineation of vehicles by function is not followed. Standard load carriers are used, where necessary, to carry fuel (in pillow tanks or cans) and when returning, they carry the wounded. Even combat vehicles are pressed into service at times. The mobility of rear services is expected to match that of combat formations. If the logistic support elements fail to achieve this, operational success may be prejudiced. Realizing this, GENFORCE has now equipped most tactical level logistics units with some lightly armoured and tracked vehicles with the latest satnav equipment.
1113. ***Supply Priorities.*** The usual order of priorities for resupply is precision and other ACMs; POL; technical material (which requires little lift); conventional “dumb” ammunition; well at the bottom, if supplied at all, food, medical supplies and clothing. During a pursuit (which may, of course, constitute four fifths or so of an offensive operation’s duration), the priorities of ammunition and fuel will usually be reversed, but otherwise the principal demand is normally for ammunition. Only ammunition and fuel resupply are considered in Section 3 as the bulk of, and therefore transport requirements for, other items are by comparison very small (less than 20% by weight for all other items combined): this is not, of course, to gainsay the great complexity of, for instance, the supply of spares for technologically advanced equipments.
1114. ***Captured Material and Local Resources.*** While logistic planning in no way depends upon them, units and formations are urged to make maximum use of local resources and captured material. Special staffs exist at higher formation level to organize their exploitation. Fuel in particular is likely to prove valuable and the engineers of the fuel supply service are equipped with special pumps to exploit civilian filling stations. Foraging may well provide most of the troops’ food after a few days. (Combat units too are expected to utilize local resources. For example, airborne troops may acquire civilian transport, engineers will hunt around for hard core for filling in craters, etc.) Of course, captured fuel and food will generally be utilized only after testing and approval by mobile field laboratories.

1115. **Forward Positioning of Support Elements.** In non-linear combat, losses will not be incurred more or less evenly along the line of contact and at a predictable rate. There will, instead, be areas of intense fighting and often lengthy passive sectors. Opposing forces will often be intermingled and the enemy will be attempting to conduct deep battle. In these circumstances, the traditional evacuation of personnel and equipment casualties for treatment in safe rear areas will no longer be appropriate. Repair and medical facilities are moved well forward to the areas of greatest need, where battles have been fought, and set to work in situ. The emphasis is on quickly returning to combat lightly wounded personnel and quickly repairable equipment. More serious casualties are then evacuated, if possible, and longer repairs are left to higher formation facilities. The divisional and brigade teams move on to the next battle area and start again, with army/corps and SG resources following as fast as possible. In defensive operations, however, casualties are physically evacuated if there is little likelihood of an assumption of offensive action in the near future. The operation of the system is described in Section 4.
1116. **Survivability.** The growing threats of enemy aviation, missile and raiding attacks, added to uncertainties inherent in the fragmented nature of the battlefield, have put an end to illusions that there is such a thing as a safe rear area. The need to protect the rear services and to ensure their mobility has perforce been added to GENFORCE principles of logistic support. This is the subject of Section 6.
1117. **Force Restoration.** Units may be kept up to strength by piecemeal replacement of casualties during combat, especially using lightly wounded personnel and damaged equipment that can be returned to duty within hours. Once casualties are sufficient to threaten total loss of combat effectiveness, however, the unit concerned is withdrawn and restored out of combat. Timely replacement of no longer effective units and formations in the first echelon is vital to the maintenance of momentum in the advance and stability in defence. The eroded formation would not necessarily be removed from the order of battle. It may be reorganized into composite groupings or it may be reconstituted with repaired equipment and fresh personnel.
1118. **Pre-positioned Materiel.** This is not so much a principle of logistic support as an infrastructural move to cope with the changing nature of war in the modern world. As such, it provides essential background to an understanding of the system at work. With the increasing transparency of nations' affairs to the international community through such agencies as the mass media and the UN, the potential geographic location of a future war will be identifiable much earlier than has often previously been the case. On the other hand, highly visible mobilization, concentration and deployment may be politically undesirable or it may provoke a preemptive strike. For this reason, GENFORCE is pre-positioning sets of unit equipment for whole formations of the Mobile Forces in forward areas, along with some of the logistics stocks they will need: (not all their logistic requirements are pre-positioned as the expense would be unbearable and GENFORCE calculates that a logistic build up, particularly of a non-warlike nature such as medical and repair facilities, can be carried on in crisis or even pre-crisis periods without a severe public relations penalty.) Pre-

positioning arrangements are also being negotiated with friendly countries. This will greatly speed up the process of mobilization and deployment as only the requisite personnel need be moved, and they can do so quickly by rail and by air.

SECTION 2 - ORGANIZATION

Control of the Rear

1119. ***The Chief of the Rear and Deputy Commander for Armament.*** There is no exact Western equivalent of the Chief of the Rear. He is a deputy commander and the principal logistics staff officer at every level upwards from unit. He coordinates all logistic planning and controls transport resources. The Deputy Commander for Armament is responsible for technical support (repair, maintenance and the supply of major end items) among other functions. He is the other major figure in the organization of rear support and is, like the Chief of the Rear, a deputy commander. It is essential for the Chief of the Rear to know the exact situation, both tactically/operationally and logistically, so that he can adjust to sudden changes in plan. To accomplish this, he:
- a. Monitors continuously the fuel, ammunition and other states of all subordinate elements. This is no longer the problem it was as all vehicles have computer management of the consumption of combat supplies and they regularly update the computer network at all command levels. The rear commander will be able to interrogate the computer system to request details of the state of any unit or conceivably even of any vehicle that he is required to support, though for the most part he will, of course, require only read-outs giving the macro picture. Using the supply push rather than demand pull principle, he will be able to anticipate when resupply is needed. This is particularly important in the case of deep strike and fire systems such as MBRLs, in the provision of precision and other ACMs, of SAMs and of fuel.
 - b. Monitors the operations net and maintains constant communication with all subordinates.
 - c. Checks on movements through the Commandant's Service and through use of helicopter reconnaissance.
 - d. Pays frequent visits to subordinate units, or has members of his staff do so.
1120. ***Staff Procedures.*** The greatest sin for any rear services officer is delay. To ensure rapid reaction to the combined arms commander's decision, the Chief of the Rear, the artillery supply officer and chief of POL supply attend combat briefings. While manoeuvre unit/formation commanders are preparing their combat plans, the rear commander and his two principal deputies rapidly work out proposals for logistic support using prepared calculation tables. Using prepared proformae, the Chief of the Rear issues his proposals at the same time as unit/formation commanders issue their orders. Once they have been approved by the combined arms commander, he issues copies, either paper or

by secure fax, to subordinate combat units/formations so that their rear services can be briefed at the same time as their manoeuvre sub-units/units. Thus rear support planning is completed at the same time as combat planning. The Chief of the Rear and his deputies then return to the Rear Control Post to implement the logistic plan.

The Organization of the Rear

1121. **General.** GENFORCE organizes the rear into three levels, corresponding to the different levels in military art:
- a. *Strategic Rear.* This extends from, but excluding, the SG rear back to the homeland.
 - b. *Operational Rear.* This comprises the rear of armies, corps and SG.
 - c. *Troop (Tactical) Rear.* This is the rear of divisions, brigades and their subordinate units.
1122. **Tasks of the SG Rear.** The rear services of the SG have six basic tasks. These are: the maintenance of adequate material reserves and the timely supply of the subordinate formations (with priority going to those acting on the main direction); the collection, evacuation and treatment/repair of casualties and damaged equipment; the preparation and operation of railways and main supply routes (including traffic control); the organization of the security and defence of its rear services installations and the maintenance of order in the operational rear; the exploitation of local and captured resources.
1123. **Assets of the Rear Services of a SG.** The growing complexity and diversity of equipments and units have resulted in SG rear services becoming similarly complex, diverse and large. There is no fixed composition of a SG's rear. The size of the formation, the scope and importance of its mission, the terrain over which it is to operate and the availability of logistic resources will all help to determine the make up of the rear services. Varying numbers of the following principal units and installations will, however, be included: 1-3 SG mobile bases; 1-2 SG rear bases; 2-3 material support brigades; 1-2 railway brigades; 2-3 road and Commandant's service brigades; 2-3 pipeline brigades; 2-3 SG rear hospital bases; 4-6 SG mobile hospital bases; mobile technical bases and other units involved in supporting cruise missile, SSM and SAM units; repair and evacuation units; separate medical detachments and specialized medical units; rear services signals units; security formations and units. There are many other minor units as well, so that, in total, the rear services of a large SG may easily reach a total of at least 250 major and minor units and installations, 160,000 men and 30,000 vehicles.
1124. **Organization and Deployment of the SG Rear.** To make this vast conglomeration of disparate units manageable, the rear services are divided into two basic groupings, with substantial resources also being decentralized to armies and corps as required by the operational plan.

- a. *A SG Mobile Base* is set up to maintain a specific amount of material reserves, usually at least 2½ days worth of stocks, held on wheels (much being carried on demountable flat racks) to ensure a speedy and flexible response to changes in the operational situation. Each of its material support brigades is, in fact, totally self-sufficient in transport and can thus displace forward or rearward without having to draw on non-organic resources. It is expected to move every three days if the SG's rate of movement is averaging 40-60km per day. The guiding principle is that the separation from the army/corps material support brigade is preferably 60-100km and certainly no more than 150km (ie, half a day's march). Redeployment is executed sequentially, by sub-units to ensure continuity of operation. Ideally, it should also be located close to a railway line. A mobile base can maintain up to 2-3 armies/corps and attached SG troops. To do so, it will comprise a depot for each supply item; a material support brigade; missile engineer technical bases (located respectively 30-40km and 50-70km from the supported missile brigades); 1-2 mobile hospital bases; mobile repair units and installations; pipeline units; two separate service companies for loading and unloading and providing security; a separate engineer company and a separate camouflage and concealment company to provide protection and help in camouflage and concealment; a chemical company for reconnaissance and decontamination. Naturally, the deployment of such a base requires a large area, at least 150 square km and more usually double that.
- b. *The SG Rear Base* maintains a further ten days of stocks, of which its organic transport can lift rather more than one tenth in a single lift (more if the separate transport battalion is used to ship materials forward rather than to provide transport within the base area, its primary function). The rear base comprises depots for each supply item; a transport brigade and a separate battalion; a missile fuel battalion; 2-3 rear hospital bases; separate evacuation battalions and repair shops for tanks, artillery, motor transport and other items; repair shops for SAMs and SSMs, radars, signals equipment etc. Working in and from the rear base will also be: 2-3 pipeline brigades; a railway construction brigade; a separate railway bridge construction regiment; a railway exploitation regiment; 2-3 road construction and Commandant's Service brigades; a bridge construction brigade; an airfield construction brigade; minor units. The rear base is located along a railway line or near a port and usually depends on rail transport to displace. Thus the interval between it and the SG mobile base is likely to grow alarmingly in offensive operations, and skip-echelon delivery forward will become impossible as army/corps bases become over 200km distant. The SG rear is expected to grow in depth from 300-400km when assembling for an offensive to 800-900km or more by the end.

1125. ***Organization and Deployment of the Army/Corps Rear.*** The army/corps rear is much smaller than the SG mobile base, as befits an organization that is required to be as mobile and flexible as the formations it supports. It is envisaged that it will displace every second day, assuming the tempo of an operation is 40-60km per day. Initially deploying only 60-80km from the line of contact, it must not permit the interval between it and the rear of the first echelon formations

to exceed 125km, ie, half the range of army/corps transports' daily march: ideally, it should remain about 60km from lower formation rear areas (with the base having an alternate deployment area 15-20km from the main one). Thus, in the event of a rapid pursuit or withdrawal, the rear may even be expected to move daily (less some medical and repair facilities needed to care for the seriously wounded and to complete at least light repairs and to tackle some medium ones). Redeployment is executed sequentially, by sub-units, to ensure continuity of operation. The army/corps rear normally holds only 3-4 days stocks on wheels, which helps to explain the insistence on the SG material support brigades keeping up with the advance: of course, if consumption rates are lower in some of the formation's subordinate elements, this figure will be conservative for the formation as a whole. The army/corps rear comprises: a material support brigade; a mobile missile technical base for SSMs and another for SAMs; a separate bridging company; 1-2 separate Commandant's Service battalions; recovery sub-units for different types of equipment; separate service, engineer and chemical defence companies; minor units. In addition to organic elements, SG level units will be working in the army/corps rear, their numbers depending on the size of the higher formation, its mission (including its importance in the formation concept), the nature of the terrain over which it operates and the strength of the enemy. These elements will include: road, bridge and possibly rail construction units; possibly extra transport (especially if the formation is on a separate axis and needs more material support); separate tank, motor vehicle and artillery repair battalions (the formation lacking these organically, it having only a company); 1-2 mobile hospital bases and up to 12 separate medical detachments.

1126. ***Organization and Deployment of the Divisional/Brigade Rear.*** In all, the troop rear carries about 5-6 days' stocks (depending on the intensity of combat), of which almost one half is held at division/brigade level. The lower formation rear is small and highly mobile, comprising only a material support, a maintenance and a medical battalion. Increasingly, all its vehicles at unit level are armoured and tracked, especially in the Mobile Forces. It moves daily, sometimes twice a day in fast moving operations or when it has to displace to escape from under strikes. In recognition of the increased fixed and rotary wing air threat posed to the logistic elements of formations, point air defence batteries are now usually provided for their protection (in addition, of course, to the area protection afforded by lower and higher formation SAM regiments). There is now also a greatly increased ground threat from forward and raiding detachments, stay-behind parties and by-passed groupings. These can do great damage to logistics areas and even small numbers of armoured vehicles can destroy convoys or block supply routes. To cope with this problem, the rear services now possess their own dedicated protection elements. This reduces, though does not always eliminate the need to divert combat elements. These troops are under the command of the Chief of the Rear. The troop rear aims to remain within 40-50km of the line of contact in the offensive or up to 70km on the defensive. Army/corps elements will also operate in the divisional/brigade rear. These will include 1-2 separate medical detachments and repair and evacuation elements. Table 11-1 gives broad yardsticks for the depth of the deployment of tactical logistics units.

TABLE 11-1: DEPLOYMENT OF TACTICAL LEVEL LOGISTICS UNITS (average distances in km from the line of contact)

Logistics Element	Division		Brigade		Regiment		Basic Forces Bn		Combined Arms Bn	
	Attack	Defence	Attack	Defence	Attack	Defence	Attack	Defence	Attack	Defence
Sup, ammo and fuel pts (a)	25-50	35-50	20-40	25-45	10-15	15-20	2-3	3-5	4-6	6-10
Tech obsn pt and recycling repair gp	-	-	Up to 8	Up to 10	Up to 8	Up to 10	1-2	2-4	1-2	2-4
Assy pt for damaged vehs	20-40	35-50	15-30	25-45	5-8	6-10	-	-	-	-
Med pt/post/fd hospital (b)	10-20	10-20	10-20	10-20	5-6	6-10	1-2	2-4	2-4	5-6

Notes (a) There should not be more than 40km separating formation and unit supply points, even during a rapid advance which will tend to stretch supply lines.

(b) Unit medical teams will allocate casualty collecting detachments with armoured ambulances to sub-unit sectors.

SECTION 3 - THE SUPPLY SYSTEM

General

1127. **Principles.** It is considered essential to maintain stock levels at or near the norm for as long as possible in all formations and units. This means that, when interdiction, enemy counter moves or even the rapid pace of operations interferes with or even cuts the logistic cord, formations can continue combat action by eating into their mobile stocks until such time as supply lines are reopened. In order to achieve this, skip-echelon resupply is practised wherever possible. Thus, for instance, SG material support elements will, where they can, bypass the army/corps rear and deliver direct to division/brigade, or army/corps transport may dump a supplementary reserve of ammunition for an artillery preparation with the divisional/brigade artillery regiment or even in the gun areas. This procedure speeds up the operation of the system by avoiding time consuming transloading (a lessened problem, though, now that GENFORCE is using dismountable flat racks). Where a formation's stocks are consumed, however, early resupply must be carried out to bring them back up to the normative level. Army/corps may be resupplied daily and divisions and brigades up to twice a day.

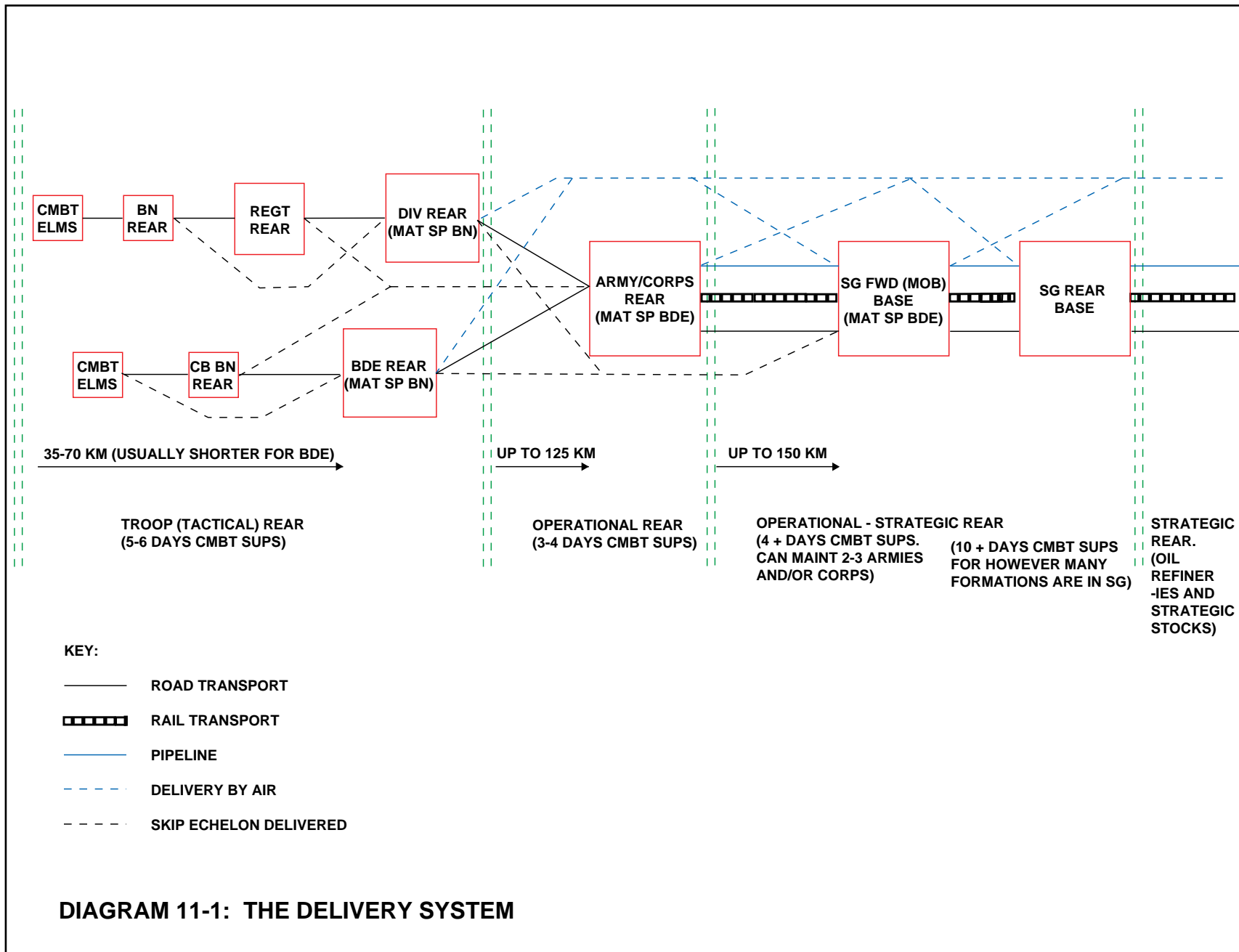
1128. **Modes of Transport.** Supplies will be delivered to the SG rear base mainly by rail. Up to 75% may be moved thus, with 15% by road and 10% by pipeline. From the SG rear to the SG material support brigade, only 15% or less may be rail delivered, about 75% being carried by road transport and approximately 10% being carried by pipeline. Supplies moving forward from SG to army/corps mobile bases will be transported overwhelmingly by road - at least 90%. Some urgent, high value items such as high precision munitions may be

delivered by air. Air resupply will also be used to sustain airborne formations operating in the enemy rear, and perhaps forward detachments and, to the limited extent it is possible, OMGs, separate operational units or encircled groupings. Diagram 11-1 illustrates the supply chain.

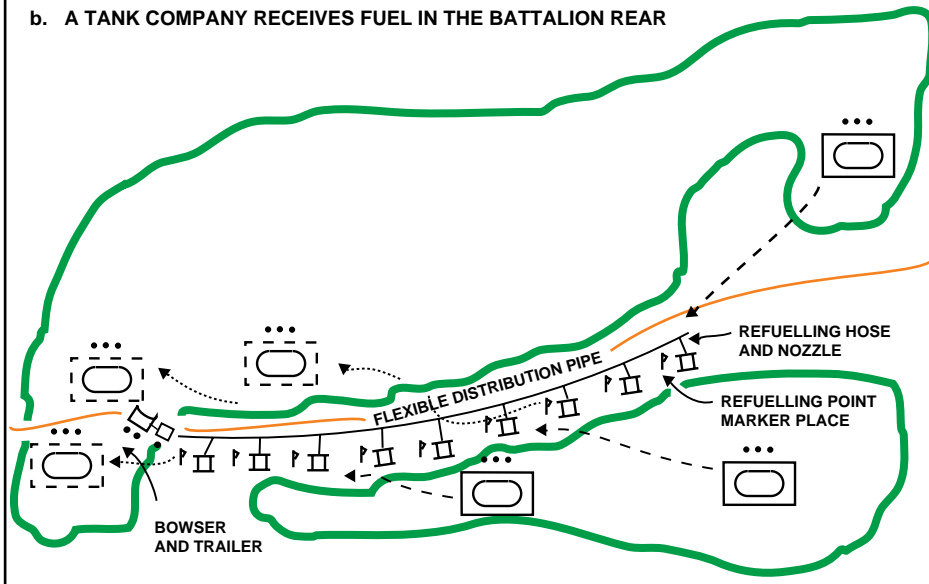
1129. ***Dismountable Flat Racks.*** GENFORCE, like other armies, is now making wide use of dismountable flat racks. This has greatly increased turn-round times and has made easier the recovery of stocks dumped but not used as a result of changes in the tactical situation. GENFORCE regards this, together with the introduction of a proportion of armoured, tracked cargo vehicles at unit level, as a revolutionary development in military transportation. It significantly reduces the problem inherent in its forward delivery system and at the same time enables the rear services to keep pace with the demands of manoeuvre warfare.

Ammunition Supply

1130. ***General.*** In terms of complexity as much as of the weight to be moved, ammunition supply, particularly artillery ammunition, is normally the biggest headache facing GENFORCE logisticians. It will normally amount to well over half the total tonnage (depending, of course, on the intensity of combat: the figure used to be as high as 70-80%, but precision and other ACMs have significantly reduced the amount which needs to be moved). Getting the right number of the right calibre and type of rounds to the right place at the right time will be a challenging task, especially where the routes available are limited in number and have suffered battle damage or route denial. This problem is yet another reason for ensuring that an offensive should only be launched against an unprepared or partially prepared defence. Should a penetration battle be required to break through the enemy's main defensive area, this problem will be somewhat mitigated by the short distance ammunition has to be moved, and by the ability to pre-plan with a high degree of accuracy. The need to mount a substantial effort against positions in the enemy's depth will pose altogether greater difficulties. The real problem is not so much accumulating the necessary amount of ammunition - that has been done - as that of moving it and ensuring that the correct natures are delivered to the right units at the right time. In defence, of course, the problem is less acute, though still significant.
1131. ***Holdings.*** To simplify logistic planning and standardize ordering and issuing procedures, GENFORCE uses accounting units called "units of fire" (UF) comprising a given number of rounds per weapon (usually equating to a basic load). Tables 11-2 and 11-3 give an idea of the holdings of major items of ammunition held within a division or brigade. All the ammunition held by the division/brigade is in the form of mobile stocks, replenished daily to maintain established levels. This ensures ready availability, ability to weather an interruption of supply or an unanticipated increase in consumption, possession of an emergency reserve and the ability to cope with highly mobile operations.
1132. ***Planning for Artillery Supply.*** The system works as follows. Once the commander has made his plan and designated the groupings to be supported, his Commander Missile, Rocket and Artillery Troops works out a fire plan and

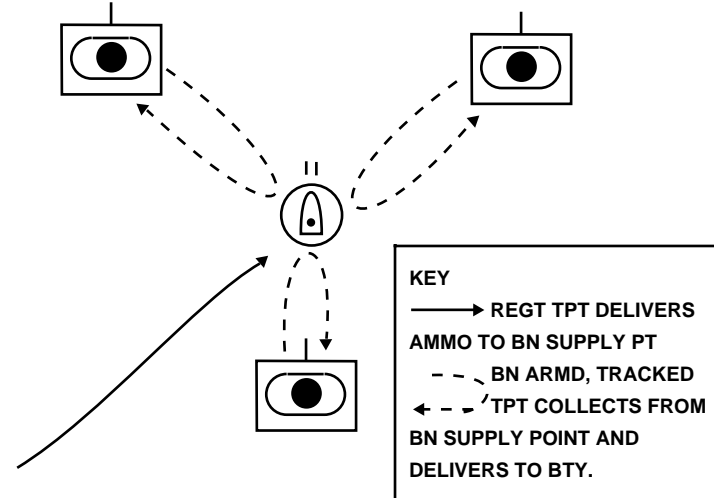


b. A TANK COMPANY RECEIVES FUEL IN THE BATTALION REAR



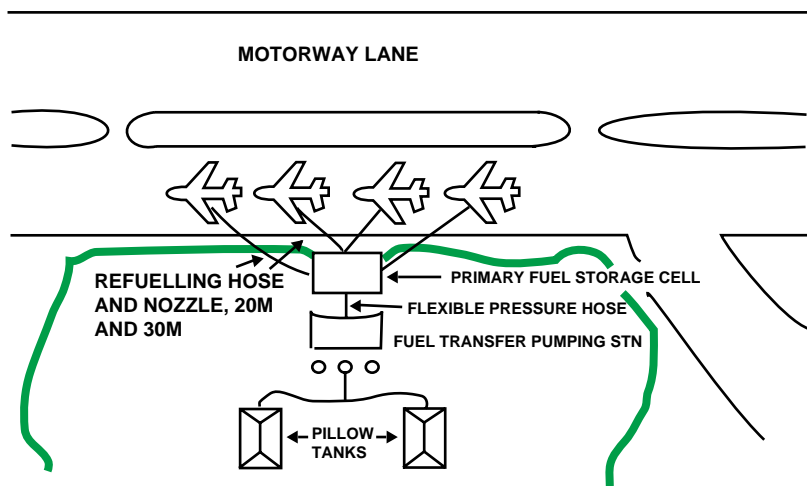
a. ARTILLERY AMMUNITION RESUPPLY

(1) BATTALION

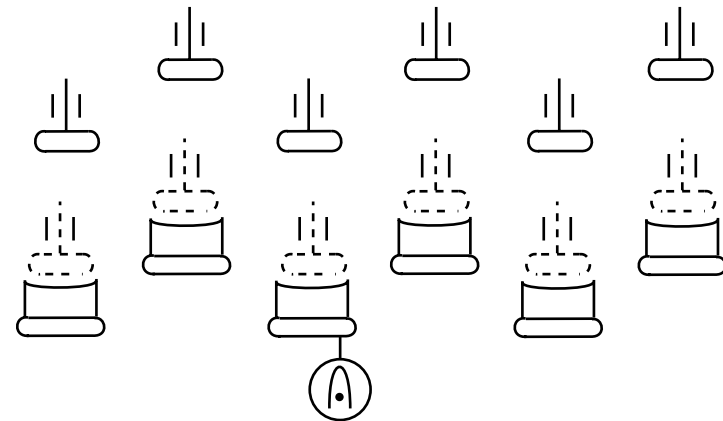


c. REFUELLING A GROUND ATTACK AVIATION FLIGHT ON A HIGHWAY STRIP

NB: THIS TECHNIQUE IS USED TO REFUEL ATTACK HELICOPTERS OPERATING IN THE ENEMY'S DEPTH.



(2) BATTERY



NOTE:
 ARM'D RESUPPLY VEHS VISIT BTY SUPPLY PT IN TURN AND MOVE TO ALT FIRE POSNS. GUNS REPLENISH ON MOVING TO ALT FIRE POSNS AFTER A FIRE MSN.

DIAGRAM 11-2: RESUPPLY AT THE TACTICAL LEVEL

the resulting ammunition requirements. The Chief of Missile and Artillery Armaments then designates ammunition dumps to supply the ammunition and coordinates its delivery with the Chief of the Rear and the recipient units. The Chief of the Rear provides the transport for delivery. Ideally, there will be time for army/corps transport to deliver ammunition to divisional/brigade artillery regiments before the attack. This "supplementary reserve" preserves the lower formation's "mobile reserves" intact. In the event of a more hurried attack, divisional or brigade transport may deliver the rounds direct to the gun areas (preserving the unit's mobile reserves) and be resupplied from army/corps later. The procedure is now more complicated than it used to be as batteries now usually (when there is time) deploy over wider areas with their guns and MBRLs arranged in irregular patterns to minimize the effects of counter-bombardment. The supplementary reserve will now be dumped at the artillery battalion's or even batteries' "rear" (usually a central location), with individual weapons coming back for replenishment or with individual, armoured, resupply vehicles going forward. Diagram 11-2(a) illustrates the system at work. Vastly improved satnav systems make such a system workable, but it will, of course, lengthen somewhat the time required. Shells are delivered fully prepared, but time must be allowed in planning for their unpacking from pallets, sorting, degreasing and stacking or loading into SP guns or resupply vehicles and for arming.

1133. **Expenditure.** In fighting through well prepared defences, GENFORCE used to calculate on using over 3 UF of artillery ammunition per lower formation per day, with hasty defences requiring about 2½ UF, a meeting engagement under 2, an advance against covering forces about 1 UF, and a pursuit approximately ½ UF. In defence on the enemy's main axis, a division or brigade will expect to expend over 3 UF per day, whether the defence is well prepared or hasty. With the widespread use of ACMs (eg, area effect warheads like cluster or FAE and precision munitions which can destroy identified point targets with 1-2 rounds), GENFORCE anticipates a considerable reduction in the number of rounds required to achieve the suppression or destruction of many targets. On the other hand, artillery is expected to destroy a higher proportion of enemy weapons than previously and is now responsible for the delivery of most RDMs and remote jammers. In all, expenditure in each phase of combat is expected to be perhaps 10-15% less than before, but new norms have not yet been published. Tank ammunition expenditure is likely to be at a rate of about 1½ UF per day against a defending enemy and in a meeting battle and much less in other forms of action, but it is less of a problem, requiring about one third of the lift required for the artillery. Small arms and air defence ammunition, mines, explosives and other natures pose very much smaller lift problems, their weight being almost infinitesimal compared with that of artillery and tank combined. The total size of the ammunition supply task amounts to shifting about 2,500/2,000 tonnes for each first echelon division/brigade per day when engaged in breaking through a prepared defence, about 2,000/1,600 tonnes for a hasty defence and over 1,400/1,120 tonnes for a meeting engagement. To these totals must be added the weight of ammunition required by army/corps and SG assets supporting the attacking divisions and brigades. The GENFORCE ability to lift these tonnages can be gauged from the fact that a lower formation carries about 4,500 tonnes in its organic ammunition vehicles, and a higher formation material support brigade will move about 4,500 tonnes in a single lift.

TABLE 11-2: SOME STANDARD UNITS OF FIRE (Rounds per weapon)

Artillery (a)	Rds	AFVs	Rds	ATk (b)	Rds	AD	Rds
MBRL: 9A52	24	Med Tk:T-95:gun	40	SP: BTR-RD	24	S-300	8
9P140	32	ATGM	6	9P148	10-14	S-300V1(a)/(b)	12/6
BM-21	120	Cannon	200	9P149	12	Buk M2	12
Prima	150	T-80U: gun	39	9P150	15	Buk M1	8
BM-21V	36	ATGM	6	9P151	15	Tor M1	8
Gun: 2S-7	40	T-80B: gun	33	SU-125	40/6/	2S-6(SAM/gun)	16/5700
2S-5	60	ATGM	6		500	ZU-30	6000
2A36	50	T-72B: gun	39	Guns:MT-12	80	SA-13	8
How: 2S-19	80	ATGM	6	2A45M	60		
2S-3M1	60	IFV: BMP-3: gun	40	ATGM:Metis	8	Inf Wpns	Rds
2S-1	80	ATGM	8	(MP)Faktoriya	8	AGS-17	300
2S-31	80	Cannon	500	Konkurs	8	RPG-29	8
2A-61	60	BMP-2: ATGM	4	Kornet	8	RPG-27(per rfmn)	1-2
Mor: 2S-23	50	Cannon	500			RPG-16	20
2S-9	50	Gren Lchr	300	AFVs (cont)	Rds	AK-74	450
2S-12	80	BMD-3: ATGM	4	BTR-90:ATGM	4	RPK-74	1500
2B-16	50	Cannon	300	Cannon	500	PKM	2500
2B-14	120	Gren Lchr	200	BTR-80:Cannon	300		
2B-9	300	BMD-2: ATGM	4	BTR-70:HMG	500		
2B-11	80	Cannon	500	BRDM-3	500		

Note (a) Numbers given are HE rounds only. Special natures (precision, fuel-air, cluster, RDM, incendiary, smoke, remote jammers etc) have to be provided separately, according to need. Relative scarcity of ACMs means that their issue will be rationed, particularly to formations and units not at the point of logistic main effort.

TABLE 11-3: AMMUNITION HOLDINGS WITHIN A DIVISION/BRIGADE

Location	Arty	Tk	IFV	ATGM	SAM	SAA
With Weapons	1	1	1	1	1	1
In Bn and Regt Tpt	2	2	2	2	4	1
In Div/Bde Tpt	2	2	2	2	2	1
Total	5	5	5	5	7	4

Fuel Supply

1134. **General.** The fuel supply problem is more tractable than that of ammunition, despite the fact that it will sometimes account for over half the total weight to be moved (up to 70% in pursuit). Firstly, the number of different types of fuel and lubricants which have to be moved is very limited compared with the multifarious natures of ammunition. The overwhelming bulk will be diesel (of which improved engine efficiency has significantly reduced consumption). Secondly, at least 20% of the POL can be moved forward as far as the army/corps rear by pipeline, thus obviating a dependence on road transport. Pipelines are also difficult to interdict, and they are very flexible in so far as it is possible at a moment's notice to change the fuel being pumped by simply inserting a separating plug. Thirdly, captured stocks can be utilized. These, when civilian supplies are included, are likely to be very considerable, especially if GENFORCE mounts a surprise offensive at the outset of a war. Similarly, when defending on friendly territory, civilian stocks can be tapped, at least in more populated areas.
1135. **Holdings.** The POL accounting equivalent to the UF is the "refill", the amount of fuel carried in a vehicle's internal fuel tanks (ie, excluding the external fuel barrels often mounted on AFVs for non-tactical moves). The road range of most GENFORCE A and B vehicles with one refill is approximately 500km, though some logistic vehicles enjoy a substantially greater range. A division or brigade normally carries 3½ refills of diesel (including the vehicles' initial fill), with another 2 and 3 respectively at army/corps level and two or three times that at SG. As with ammunition, stocks are kept up for as long as possible by timely resupply from higher formation.
1136. **The Supply System.** The bulk of the fuel required by a SG is pumped to it through permanent and field pipelines. Most army/corps bases, at least on important axes, are also fed by a pipeline from SG. These tactical pipelines are laid at a rate of about 30km per day across country (manual) or 60-75km per day (automatic), with mobile pumping stations every 14 or so km. Laying can thus keep up with anticipated rates of advance (though automatic laying will result of a loss rate of 12-25% of fuel being pumped, a factor that has to be taken into account in planning). Moreover, each pipeline brigade can lay up to 1,600km. Their capacity is sufficient to meet the most demanding operational requirements. In 24 hours, 800 tonnes of fuel can be passed through 100mm pipe, or 2,000 tonnes through 150mm pipe up to 150km. To move fuel further forward, bowsers are normally used. Following the desirable practice of skip echelon resupply, wheeled, soft skinned bowsers will often deliver to first echelon battalion refilling points, with combat vehicles retiring thence to replenish. However, GENFORCE generally prefers to use mainly tracked, armoured bowsers in the forward area where possible. Diagram 11-2(b) and (c) illustrates the replenishment of a tank company and a ground attack aviation flight operating off a forward operating strip. Fuel can also be delivered by ordinary load carrying vehicles, either in pillow tanks or in cans, to divisional/brigade or even unit supply points: in the case of delivery by can, demountable flat racks are all but mandatory to save time. A separate missile fuel battalion (with a capacity of 640 tonnes) supports SG and army/corps missile brigades.

1137. **Consumption.** GENFORCE planners believe that each division/brigade will need around 200/160 tonnes of fuel per day to maintain itself in the field, with expenditure rising to over 500/400 tonnes daily in the attack or meeting engagement - ie, one fifth to one third of the weight of ammunition required. With almost 600/480 tonnes already in the vehicles and a further 1500/1200 carried in unit and higher formation transport, a division/brigade has enough stocks for 3-5 days of combat. Thus, at lower formation level, where resupply is most problematical, POL is much less of a problem than ammunition. At higher formation levels, the weights required in total are more nearly equal. Once combat has lessened in intensity as penetration and breakthrough give way to manoeuvre, bowsers can be supplemented by using ordinary load carrying vehicles, fewer of which will be needed for ammunition, to carry fuel. They can transport POL in cans, drums or, greatly saving in labour and time for increased volume, in pillow tanks delivered on demountable flat racks. Air resupply, using fixed or rotary wing aircraft, can also be used to a limited extent, for instance to support forward or airborne detachments or, for short periods in emergency, even entire OMGs. This will, of course depend on achieving a favourable air situation.

SECTION 4 - MEDICAL, MAINTENANCE AND REPAIR

Equipment Maintenance, Recovery and Repair

1138. **Importance.** Recovery and repair of damaged materiel plays a crucial part in the sustainability of GENFORCE formations. Rapid repair, rather than the provision of replacement equipments, is the basic means whereby combat strengths are maintained. GENFORCE expects up to one third of all AFV "kills" to prove irreparable. Of the remainder, it expects to put up to two thirds back into action within 1-2 days.
1139. **GENFORCE Advantages.** GENFORCE expects to benefit from two major factors in keeping up equipment strengths when they are conducting offensive operations. These are:
- a. *Availability and Reliability.* Combat vehicles are kept in a nearly run-in state and little used in peacetime training (heavy reliance being placed on simulators and training vehicles held over the wartime establishment). As a result GENFORCE can expect approaching 100% availability at the start of the war (after normal teething problems have been overcome). They can also expect relatively few routine mechanical breakdowns during the course of a short operational life. (Given the limited life expectancy of AFVs in future war, GENFORCE designs them with an operable range of only 3,600km before a major overhaul is needed. This limitation produces valued compensatory trade-offs, such as reducing the size and therefore weight of vehicles and the scale of maintenance support that units require.)
 - b. *Possession of the Battlefield.* In the advance, it is possible for GENFORCE to recover and repair both combat and non-battle casualties. By the same token, the enemy will be denied this ability.

1140. **The System.** The system is based on the accomplishment of repair as far forward as possible with repair facilities being moved to the scene of combat rather than waiting for damaged equipment to be evacuated to them. Priority is given to light repairs taking a maximum of three hours. After all these are completed, medium repairs requiring replacement or overhaul of at least two major assemblies and taking nine hours maximum are tackled. Capital repairs are unlikely to be undertaken during the course of an operation.
- a. *Unit.* The regimental maintenance company/combined arms battalion platoon recovers casualties to a damaged vehicle collection point. The unit repair shop, located nearby, then classifies them and does as many light repairs as it can before following the combat elements to their next area of battle.
 - b. *Division/Brigade.* The divisional or brigade maintenance battalion moves forward to an area conveniently located near the scene of the heaviest fighting and sets up repair points for AFVs and artillery and for other vehicles. It will tackle the light repairs left undone by unit, and in the unlikely event that these are completed before the battalion moves on, it will begin on medium repairs. Even divisional/brigade assets will, however, expect to move two or even three times in a day if the advance is very swift, though the deleterious effect such frequent moves may have on repair rates can be lessened by leapfrogging elements forward. If the formation is conducting manoeuvre defence or withdrawal, efforts will concentrate on recovery and repair of lightly damaged vehicles and the destruction of those perforce left on the battlefield.
 - c. *Army/Corps.* Organic assets are limited to a single maintenance battalion each for armoured vehicles, wheeled vehicles and artillery. In addition, there is one recovery and one repair battalion for tanks and one vehicle recovery company (and repair units for special equipments). Working in the army or corps area, there will, however, be substantial SG assets, the numbers depending on the importance of the axis and the severity of the fighting that is anticipated. These will deploy to points convenient for the various damaged vehicle collection points established by the lower formations and will carry out as many repairs as possible before the momentum of the advance demands their forward displacement. They try not to fall back more than 60-80km from the line of contact. In defence or withdrawal, they will concentrate on evacuation and repair of lightly damaged vehicles.
 - d. *SG* will have up to five battalions each for armoured and wheeled vehicles and for artillery maintenance. There will be 3-4 battalions each for tank and wheeled vehicle recovery and 6-10 repair battalions. These are the resources (together with others for specialized equipments) which deploy forward, either in the army/corps rear or in the SG mobile base. A further 6 or more workshops will be at work in the SG rear base.
 - e. *Spares.* Lower formations have parts to deal with the results of three days of average intensity combat, and cannibalization from equipments needing

capital repairs will provide more. Army/corps and SG have sufficient replacement parts to cover the demands of their respective operations. With each repair battalion dealing with approximately 10 tank or 27 motor vehicle medium repairs per day, or twice those numbers of light repairs, GENFORCE forces expect to return well over half their equipment losses to units within 2-3 days. These will go to restore the strength of units withdrawn from the first echelon into reserve or possibly to augment fresh formations arriving from the operational depth. Combat strengths will thus be maintained at acceptable levels (operationally speaking) until the end of an operation: ie, a SG will hope to conclude its operation with, for instance, about 60% of its tanks.

1141. **Anticipated Loss and Repair Rates.** In conventional operations, armies and corps anticipate a loss rate of 10-15% per day in tanks and about one third of that for IFVs, APCs and wheeled vehicles. These figures (already double those of past wars) may increase by about 50% where the enemy employs significant quantities of high accuracy conventional weaponry, though casualties inflicted by shaped charge projectiles will usually be quickly repairable unless they set off secondary explosions.

Medical

1142. **General.** The medical system is designed to return as many soldiers as quickly as possible to duty, and, apart from emergency life saving treatment, priority is given to those men who can be put back into action.
1143. **The System.** Medical units move forward with the troops they are supporting, setting up facilities in areas where heavy fighting is taking place.
- a. **Unit.** At Basic Forces' battalion level, casualties merely receive first aid. The regiment's medical company can undertake emergency operations, but treatment is kept to a minimum. For the most part, casualties are assessed and documented and left to division or brigade or, in the most serious cases, earmarked to go straight to army/corps. Light casualties are retained until fit to return to duty. In the Mobile Forces, the combined arms battalion has a large medical platoon capable of giving treatment, though stabilization and are its main functions and detailed work is left to brigade.
 - b. **Division/Brigade.** The medical battalion can handle up to 500/400 casualties in 24 hours. Serious cases are sent on to army/corps or direct to SG after any necessary stabilizing treatment. Serious surgery and extended care are practised only at the operational level. Casualties likely to recover in 10-15 days are held at division/brigade, which has facilities for up to 500/400. These men can then be returned to units of the formation needing replacements. It is not anticipated that the divisional or brigade medical battalion will be able to handle the heavy casualty load involved in a penetration battle. Indeed, it will be overstretched by the first day's fighting and will be unable to move even after two days. Thus, each first echelon lower formation will be augmented by 1-2 separate medical detachments from SG resources (each organized like a divisional/brigade medical

battalion). These medical units will leapfrog forward, moving every two days on average.

- c. *Army/Corps.* Army/corps resources are deployed to support the axis likely to see the most casualties. Separate medical detachments reinforce forward divisions and brigades, supplementing their effort and easing the problem created by frequent moves by the lower formation battalions. A further 2-4 separate medical detachments are kept as a medical reserve to deal with the sudden influx of mass casualties which will result from enemy surge operations and/or deep strikes. Also operating in the army/corps rear, 60-80km from the line of contact (at least initially) will be mobile hospital bases from SG. One is deployed in support of every 2-3 divisions or brigades in contact. A mobile hospital base comprises up to 6,500 beds in all, deployed in 1-3 locations. There are two triage hospitals (each of 500 beds), four multi-purpose hospitals (each 300 beds), nine field surgical hospitals (each 200 beds), three mobile internal hospitals (for diseases, each 200 beds), two field mobile psychiatric and two field epidemic hospitals (each 200 beds) and one for especially contagious diseases. There is a 1,000 bed hospital for the lightly wounded, where patients expected to recover in 15-30 days are held pending return to combat units, and minor units such as blood banks, mobile oxygen and X-ray stations etc.
- d. *SG.* In addition to the 4-6 mobile hospital bases supporting army/corps operations, there will be 2-3 rear hospital bases established in the SG rear base. These comprise the same elements as mobile hospital bases (though with three triage hospitals) and in addition 15 evacuation hospitals (each 400-500 beds), and six hospitals for the lightly wounded (each 1,000 beds). These hospital bases are deployed at or near railheads in 2-3 locations. The mobile elements can be used as medical reserves or to set up new mobile hospital bases if the interval between those operating in the army/corps rear and the SG rear base becomes too large.
- e. *Evacuation.* At each level, it is the responsibility of the higher echelon to collect casualties from the lower. Ambulance facilities are limited, with divisional and brigade companies moving 80 casualties and SG and army/corps battalions being able to carry only 300 casualties each in one lift (and the separate air ambulance regiment transporting 180). Thus most wounded, especially when being evacuated back to army or corps, can expect to be backloaded in empty load carrying vehicles returning from ammunition or fuel runs. From army/corps backwards, ambulances and rail transport will be more common. Of course, as with ammunition and POL supply, skip-echelon evacuation will be practised whenever possible.

1144. **Anticipated Loss Rates.** Loss rates vary sharply with organization levels and according to the type of fighting involved. GENFORCE anticipates an average daily loss rate of about 0.9-1.8% for armies and corps, 4.5-9% for divisions and brigades and 15-25% for units, these figures being 50% higher than those of past wars. These averages conceal important variations. In penetration battles and city fighting, for instance, daily loss rates double or treble, while they can fall to half or less during pursuit. About one quarter of all casualties are expected

to be killed or missing. Of the wounded, up to one quarter are expected to be severe, about 50% “medium” and about 35% light. The medium and light cases provide the manpower reserve for replenishing losses.

SECTION 5 - ROUTE REPAIR, MAINTENANCE AND MANAGEMENT

Railways

1145. ***Repair and Maintenance.*** Each SG probably has two railway construction brigades, with a mixture of railway and railway bridge construction battalions: there is no standard allocation as the requirements of SGs will vary. In addition, there is a separate railway bridge construction regiment for the repair or construction of large bridges. These units are used to repair and keep open the rail lines needed by the SG within its boundaries, advancing them steadily during the course of an offensive. With two brigades, 40-50km of track may be restored per day if damage is light: total destruction is reckoned to halve the rate of repair. In addition, as an offensive proceeds, 1-2 railheads will be established to increase the turn round of trains by up to 30 per day (and the rear services will create 2-3 distribution stations per army or corps, with two reserve ones as well).
1146. ***Running Rail Communications.*** A railway exploitation regiment provides the skilled personnel to run the railways within the operational rear.

Military Roads

1147. ***Repair and Maintenance.*** A SG will have 2-4 road construction and Commandant's Service brigades (each usually with three construction and traffic control battalions, a separate construction battalion and a separate bridge construction battalion), and a separate bridge construction regiment (with up to six battalions) for work on large bridges over major rivers: as with railway troops, the allocation and grouping varies according to need. Each road construction and Commandant's Service brigade can run sectors totalling 900km of road, repairing up to 90km, constructing underwater bridges up to 110m long (bearing 16 tonnes) and establishing up to 160 traffic control posts. Bridging regiments deal with large bridges linking military roads. Each army or corps will be supported by at least one military road capable of taking a traffic volume of 10,000 vehicles per 24 hours.
1148. ***Traffic Control.*** Both at army/corps and SG level, the Commandant's Service provides a large and efficient traffic control organization. It is seen as essential to provide for timely and concealed movement, concentration and deployment of troops and supplies. The Commandant's Service regulates the movement of troops on routes, water crossings and passages through natural or engineering obstacles, monitors progress and the observation of established procedures (including camouflage and concealment measures), marks routes and concentration areas, provides security against enemy reconnaissance efforts and maintains order in the civil population. After a thorough prior reconnaissance of routes, crossings and assembly areas to be used, a Commandant's Service is set up. It may be reinforced by engineering assets,

recovery vehicles and helicopters, and a reserve will be kept to react to enemy actions (eg, by setting up bypasses). Numbers, already substantial, will be swollen in wartime by the addition of troops from the Military Vehicles Inspectorate (ie, garrison traffic police), and the Service enjoys a high proportion of carefully selected and trained officers.

SECTION 6 - REAR AREA SECURITY

The Threat

1149. **Historical.** In past wars, many armies have made effective use of partisan and guerilla movements to support their operations, both offensive and defensive. Often, these have been augmented by the use of regular forces to create a front in the enemy's rear. Such actions have often given returns disproportionate to the level of effort involved. Rear area security is thus seen to be a problem of significant dimensions.
1150. **Future War.** GENFORCE undoubtedly expects any enemy to make a considerable effort to conduct reconnaissance, espionage and diversionary action in its operational rear. These will be particularly effective, it is supposed, in areas where the local population is not sympathetic to the GENFORCE cause. In addition to these threats, GENFORCE anticipates attacks on their rear areas by aviation and airborne and heliborne forces, as well as larger scale problems caused by enemy operational manoeuvre forces and/or bypassed groupings. The more operations are characterized by fluidity and manoeuvre, and the less dense the forces deployed on either side, the greater the threat is perceived to be.

Measures to Meet the Challenge

1151. **Dedicated Security Forces.** Each SG deploys a considerable counter-intelligence effort. Each also possesses a whole division for security tasks. This may well be an Interior Troops' formation, equipped and trained for conventional as well as unconventional warfare. Each army or corps deploys a logistic protection regiment as well, while divisions and brigades have strong battalions, and regiments and combined arms battalions have a company. These troops come under command of the Chief of the Rear and are not available to reinforce the efforts of the combat elements. Their task is purely the protection of logistics areas and convoy escort. Usually, the Chief of the Rear of a lower formation is allocated some point air defence from the brigade/divisional air defence regiment to fill gaps in the regiment's general, area coverage and/or thicken the defence of key installations. Moreover, as the threat of air and sea landings grows, there is an increasing stress on deploying anti-landing reserves (probably including, or even based on airmobile units) to provide a rapid reaction. Such forces will often be well placed to reinforce threatened logistics areas.
1152. **Other Measures.** All logistics and communications units are supposed to be capable of self-defence. (Repair units will have an augmented ability to protect themselves, as the crews of damaged equipments usually remain with their equipments while they undergo repair. Similarly, the convalescent sick and

wounded provide a reserve of manpower.) Wherever possible, added security is also achieved by deploying rear support elements near refurbishing or second echelon forces. As is the case with combat troops, the rear services are expected to be able to deal with remotely delivered mines, both in logistics areas and when carrying out resupply.

CHAPTER 12

COMMAND, CONTROL AND COMMUNICATIONS

SECTION 1 - THE CHANGING FACE OF COMMAND AND CONTROL

Problems Posed by the Contemporary Battlefield

1201. **Time.** GENFORCE has always stressed that time is a critical element in warfare. Often the side that wins the battle for time and gains a tempo will have gained a decisive advantage. Conversely, GENFORCE is uneasily aware that several operations in the past failed through lack of adequate planning and preparation. This problem cannot be solved in the future by giving commanders and staffs more time to prepare. In modern war, victory is likely to go to whoever reacts fastest: this is particularly true in the conduct of the electronic-fire engagement, and also in the meeting engagement/battle (the typical forms of combat in future war). The overriding need for speed and the expected sudden, sharp changes in the tactical, and even operational situation make it difficult to conduct thorough reconnaissance and to produce and disseminate timely intelligence. The increasing spatial scope and complexity of operations is also creating a massive increase of the work load imposed on commanders and staffs. Simultaneously with this increase, there is a drastic reduction of time available for decision making and the issue and implementation of orders.
1202. **Space.** Not only will combat spread over greater areas (in width and in depth) than ever before, but there will be no clearly defined front line. Opposing forces will be intermingled and will have substantial elements operating in each other's rear areas.
1203. **Dynamism of Combat.** Formations must practise controlled dispersion yet be able to concentrate to deliver or receive blows, with the concentration being in terms of fire and time rather than of physical massing. They must be capable of wide and deep-ranging manoeuvre. They must be able to react effectively to sudden and radical changes in the operational and tactical situation. Nor will these be predictable, especially if the struggle for electronic-fire superiority is undecided or is going badly. Moreover, the results of battles and engagements are likely to be more decisive than in the past.
1204. **Coordination.** As warfare has become ever more complex and deadly, the need for well integrated action by combined arms groupings has grown. Operations and battles are also air-land in content. Such interaction often proved difficult to organize in the past, and even less time is available for the task in future war. It is also complicated by the physical separation of the constituent elements as well as by their diversity.
1205. **Sustainability.** In the past, GENFORCE was often able to rely on weight of numbers to absorb casualties without compromising the combat effectiveness of large operational formations. This is no longer possible in an era characterized by considerable reductions in force levels, by the supersession of quantitative by qualitative parameters and by an increased reluctance of the population to

tolerate heavy casualties. The enemy must not only be defeated quickly but this must be accomplished at a cost which does not compromise GENFORCE's capacity for further combat.

1206. **Conclusions.** All these factors greatly complicate the C4I problem. As if they were not enough, CPs at all levels will be one of the principal targets of electronic and fire attack, not only during the electronic-fire engagement but at all times. This has forced GENFORCE to emphasize the ability of units and formations to act autonomously, often for prolonged periods when centralized C2 breaks down. Commanders may no longer rely on personal supervision of their subordinates' work. They must depend on fallible communications means and when they fail, as often they will, on the military-technical knowledge, leadership and managerial skills, decision-making ability and initiative of those subordinates.

Solutions to the Problems of Contemporary C3I

1207. **Changes in the Organization of Command.** GENFORCE has adopted two measures in this area. Technological progress in the realm of C3I, reductions in force levels and the improved professionalism of commanders and staffs have allowed the elimination of an operational level of command (the army group) and, in the Mobile Forces, a tactical one (the regiment). This streamlining will have important repercussions which extend far beyond the mere saving in resources. It will greatly increase GENFORCE's responsiveness to changes in the operational/tactical situation. Most importantly, it will, as a corollary, save that most precious of commodities, time. Also, as an interim measure for this transitional period in military affairs, GENFORCE has adopted the "two army" concept. As this is dealt with in Chapter 1 and its annexes, it will not be elaborated on here.
1208. **Debate on Centralization Versus Decentralization.** To centralize control is an instinctive GENFORCE reaction. The Army has traditionally worked on the dictum that the order of the superior commander is law for the subordinate: such an order was beyond question or criticism, and had to be obeyed precisely, unconditionally, and within the prescribed time. Generally, orders were very detailed, defining the precise course of actions to be followed by subordinates, and variations could only emanate from higher headquarters and not from the executors. Arguably, in organizing a deliberate defence or a breakthrough, this was essential. If a huge military machine is to work with machine-like precision, cogs must behave as cogs and not display any sort of independence in their actions. Centralization of control also had several advantages. It made possible flexibility in the employment of resources to meet the overall goal of an operation. It ensured a unity of views on the management of forces and prevented the dissipation of effort. It is also crucially important in the management of air and air defence operations and in the employment of long-range, high precision weaponry. Progressive GENFORCE theorists, however, increasingly came to doubt the applicability of centralized, one might argue, over- control on the battlefield. They maintained that fluid and deep operations required much looser, directive control. On a manoeuvre-dominated, fast changing battlefield of vastly increased spatial scope and where time was critical, the detailed planning or even control of tactical actions could not be accomplished by operational level

headquarters. Given the limitations of former communications means and the multi-layered pyramidal structure of an army, there was always a significant time lag between the acquisition of intelligence and its dissemination to army level. The army commander had to base his decisions on knowledge of the enemy and of his own forces engaged in battle that was both old and incomplete. Moreover, the time lag between making a decision and its transmission to lower tactical echelons was significant. This led GENFORCE to adopt universally the sort of mission-oriented control which previously was applied only to the use of exploitation echelons. The watchword, then, became centralized operational control but decentralized battle management. Reliance was placed on the initiative of subordinate commanders, their unity of purpose being achieved through their familiarity with their commander's intention and his point of main effort. This concept was adopted *faute de mieux*, however. It had grave drawbacks. Decentralization always carried with it the danger of the fragmentation of effort (despite the supposedly unifying factor of the commander's directive). Moreover, lower level commanders often found themselves unable to react effectively to suddenly arising opportunities or dangers as they lacked sufficient artillery and air support (much of it necessarily controlled at a higher level): conceptually, they had been empowered, but were at the same time denied all the tools necessary to do the job.

1209. ***The Effects of the Information Revolution on C2.*** The unsatisfactory, if once necessary, compromise of centralized operational control but decentralized battle management is no longer regarded as inevitable. The information revolution has once again empowered senior commanders. They are no longer dependent on their tactical subordinates for an inevitably dated picture of the situation on the line of contact. They no longer have to endure frustrating delays while photo-reconnaissance is translated into intelligence on the situation in the enemy's depth. Modern surveillance and reconnaissance means, tactical as well as operational, can provide them with real or near-real time information on the situation throughout the enemy's depth of deployment on which they can base decisions. Computers enable them both to process the consequently vast flows of information into their headquarters quickly and to provide them with a choice of options which aids them in decision making. Flexible, secure communications systems which can handle a greatly increased flow of traffic allow them not only timely access to information but also to exercise timely control.
1210. ***The Recentralization of C2.*** Now that they can enjoy a relatively complete and up to date tactical and operational picture, corps and army commanders can once again exercise authority and direction over the actions of their subordinates. The reassertion of centralized control is not only possible but necessary. The full potential of long-range weapons and aviation, delivering ACM warheads, cannot be realized without it: the capability for the manoeuvre and concentration of their fire on key targets depends upon it. So too, in many ways, does tactical success. The C4I revolution has reversed the previous situation in which the operational commander was dependent on the tactical successes of his subordinates to generate operational manoeuvre and momentum and thereby victory. In future war, he will have under his own hand substantial deep-strike systems and air-delivered forces with which he can resolve operational problems

both independently of and simultaneously with the actions of tactical formations on the line of contact. Moreover, the latter are now increasingly dependent on corps/army for it is, to a significant extent, through the timely massing of operational fires and EW against both the enemy's deep strike systems that threaten them and on the manoeuvre units that oppose them in the close battle that they will achieve success. Thus GENFORCE's concept of the new relationship between operational and tactical commanders is one in which the former will exercise control over the latter in order to synchronize the actions of the latter in time and space and with the delivery of fire and electronic strikes and with air-delivered forces. In this way, coordinated efforts will be concentrated on key tasks and areas at the appropriate time.

1211. ***Adaptive Flexibility.*** This recentralization of C2 is not intended by GENFORCE to reduce lower commanders to the role of unthinking executors of detailed orders. For at least two major reasons this would be inappropriate. The sheer volume of information that a higher headquarters has to process and acute shortages of time for collation, decision-making and the dissemination of intelligence and orders to the larger number of subordinates that has resulted from the flattening of the military hierarchy would alone militate against such over-control (even if GENFORCE was not aware of its intrinsic undesirability). Moreover, GENFORCE is acutely aware that its C4I system will be a high priority for enemy attack, both physical and electronic. The ability to exercise centralized control may be lost temporarily, sometimes for long periods. Thus, when the system is working well, the aim of the operational commander is to direct his tactical commanders in the "where and when" of their actions and to ensure the coordination of their efforts with each other and with operational fires and air-delivered elements: the "how" is left to the executors. If and when the enemy succeeds in disrupting C4I, GENFORCE is prepared to revert to the old style of task-orientated control where the mission is stated in broad terms and accompanied by the essential elements of the superior's plan which is contained in his concept of operations. In the event of circumstances changing, a subordinate who is familiar with his superior's intention, concept and area of main effort can adapt his actions to ensure a worthwhile contribution to the overall goal: he is told what resources he can have and what he is supposed to accomplish with them rather than how it is to be done. This means continuing to demand initiative and independent action from lower formation, unit and even sub-unit commanders. Initiative and a creative approach are described as the main criteria of tactical maturity in a commander. Initiative is not, however, used in the British sense of the word: GENFORCE derides what it sees as a reliance on "native wit" in place of foresight and a sound plan. To a GENFORCE commander, initiative consists of an intelligent anticipation, or at least correct interpretation, of the higher intent, and effective implementation of it without detailed guidance. It is seen to be dependent on the ability, and the farsighted, flexible organization, of the combined arms grouping to react speedily, without waiting for direction or support, to meet unexpected changes in the situation and exploit unexpected opportunities or cope with suddenly arising dangers. In other words, it is not enough to empower commanders in theory: they must be given the tools they need to do the job. All units, even sometimes sub-units, must be all arms groupings and their reinforcement must be carefully tailored to their task.

1212. ***Automating the Command and Control Process:***

- a. *Promise.* A major part of the solution to the problems of time and control on the battlefield of the future is sought in the computerization of command and control. Automation is seen as offering many benefits. Through satnav and asset tracking of vehicles, it increases the commander's ability to rely on units going where they are told and it enables him to monitor progress in real time. It speeds up information handling by at least an order of magnitude. It greatly aids the process of parallel planning and makes possible rapid, last minute adjustments to plans by subordinate headquarters as a result of changes ordered by their superiors. It enables headquarters to handle the growing volume and complexity of work without a possibly counter-productive growth in size. Above all, perhaps, it frees commanders and staffs from much routine drudgery and allows them time for the more creative aspects of their work. It makes possible a fruitful fusion between scientific calculation and foresight and the artistry which commanders are supposed to display, all within an acceptable (and very short) timescale: it also makes initiative possible by providing commanders with adequate information on which to base their decisions. In theory, a degree of automation of the command and control process allows adaptive flexibility down to low levels of command.
- b. *Possible Pitfalls.* It can also be used, however, to overdo centralized control. Higher headquarters can, in the future, have (at least theoretically) almost as comprehensive a picture of a subordinate's situation as the latter itself. This, combined with skip echelon communications (eg, direct from SG to division or brigade) could easily lead to a reinforcement of the natural tendency to centralization, or, to be more controversial, to over-involvement in detail which would dissipate the theoretical advantages to be gained from automation. Stern warnings are issued to senior commanders against this regressive step, though in practice, the increased span of control of most higher formations will probably preclude this anyway. Less than enthusiastic GENFORCE commentators also point out that over-reliance on computers in decision-making will lead to stereotyped and therefore predictable decisions, a disastrous outcome once enemy computers have succeeded in replicating the decision making process. Moreover, undue dependence on automation may lead to a massive failure of command and control if enemy physical and/or electronic attack shuts down the computers.

1213. ***Progress in Automation.*** Whatever the misgivings of the traditionalists, the overriding need to save time has led to a substantial degree of automation. Starting, naturally enough, in the air defence world, it has spread steadily downwards in the Ground Forces to such an extent that manoeuvre and artillery battalions now have a variant of a field automatic system for troop control and programmable calculators have become common in sub-units. The result has been a reduction of reaction times to approximately one fifth of those common in the pre-computer era. There are also signs that a proper balance is being found in the man-machine mix. Computers are not to replace traditional military skills or override competent staff work, far less take the man out of the decision-making loop altogether. Rather, they are used to streamline procedures and

aid decision-making. Thus, for instance, a commander will have his computer set out for him, in a matter of minutes, the possible variants that are available to him in making his decision, together with their logistic requirements and forecast outcomes. The commander will consider all the plus and minus points of each option presented to him and make his decision accordingly. He is not obliged to follow computer advice or heed its forecasts, but if he subsequently fails, he will have some difficult explaining to do to his superiors. Having enthusiastically adopted the computer, GENFORCE is still aware of the dangers of total dependence on it. In true GENFORCE "belt and braces" style, the Army has worked considerable redundancy into the system and prepared as best it can for a reversion to a non-automated system in the event of failure.

1214. **Staff Training and Procedures.** Improvements in the professional training of commanders and staffs and in their working procedures obviously offer some possibilities for saving time and increasing efficiency. Progress has been made in both areas. For instance, the consecutive planning method, whereby each headquarters would only commence work on receipt of a complete set of orders from its superior has been replaced by parallel planning, in which all levels (both operations and logistics staffs) work concurrently. This change has cut planning times by 20-30% or more. Further time has been saved by giving commanders and staffs access to tactical databases via secure fax and digital radios. At the tactical level (and, indeed, at the operational level, as a back up to vulnerable automated systems) GENFORCE has extended the use of preprepared calculations, nomograms (ie, graphs reflecting the relationship of elements in one or more calculations), and proformae, and by cutting drastically the volume of paperwork. The extensive employment of standardized tables, graphs etc deals with about half the information used in the planning process. It also has an additional advantage apart from saving time. When commanders and staffs are tired, possibly frightened, and under great pressure, constructive, even rational thought becomes an early casualty. By reducing their work as far as possible to mechanical processes, in which they can be drilled, their ability to cope is enhanced. There are, however, obvious limits, not least psychological ones, to the extent that such efforts will save time and increase efficiency.
1215. **Expansion of Staffs.** GENFORCE has accepted the need for some increase in staff size to cope with the growing complexity of modern warfare. They have, for instance, created a series of deputy commanders who each command a component of the total effort and thus relieve the commander and staff of much of the demand that would otherwise be placed upon them. They have, however, set themselves firmly against the flowering of military bureaucracies in fighting formations. Increasing the size of staffs is seen to complicate, and thus slow down rather than speed up, information handling. There have also been some compensating rationalizations and reductions enabled by the introduction of databases and automatic processes. For example, the automation and processing of fire control has led both to a reduction in the numbers of artillery officers and NCOs required at the various command levels and simultaneously increased the speed with which fire can be delivered (a factor crucial in the operation of RSCs and RFCs). Similarly, automatic stock management and asset tracking technologies have led to a reduction in logistics staffs.

SECTION 2 - CALCULATING THE BATTLEFIELD

Norms

1216. **General.** Military Art is aptly named, for creativity is required in understanding and applying the objective laws of war and the scientific realities that govern military operations. A thorough grasp of these scientific certainties is, in the GENFORCE view, the first essential step, without which artistry has no firm foundation. GENFORCE believes that almost all aspects of war fighting can be reduced to mathematical calculation. This, of course, is one of the reasons why computers have been so readily accepted by commanders and why they fit so peculiarly well into the GENFORCE system of troop control.
1217. **Definition.** Norms are believed to be scientifically arrived at measures of material expenditure for a given result or measure of achievement that can and should be reached. Military norms are defined as follows:
- a. *Operational-Tactical* numerical quantities used to characterize space and time factors for operational or tactical activities of forces and the areas in which they take place. Space factors include: depths of objectives, widths of sectors, dimensions for combat formations, etc. Time factors include: the time to fulfil every mission, complete marches or manoeuvres, etc. These are developed based on the make up of GENFORCE formations, their capabilities, enemy capabilities, combat and exercise experience, level of training, results of special research studies, terrain, weather and the time of day. The basic operational-tactical norms are reflected in regulations and directives.
 - b. *Timeliness, and Quantitative and Qualitative Factors* for fulfilment by personnel and small units of specified tasks, methods of application of weapons or technology in the course of combat preparation. Norms ensure a uniform and objective approach to the determination of times for the fulfilment of combat actions and for the evaluation of the level of training of personnel and units.
1218. **The Use of Norms.** The use of norms is all pervasive in the military, as the numerous examples scattered throughout this volume will testify. There are norms for everything, from the time required to change the fan belt on a GAZ-66 truck to the number of 152mm artillery rounds required to destroy a tactical missile launcher at a range of 15km. Norms are used both as a basis for staff calculations and as measures against which troops and units may be tested and assessed. There are three principal methods used to do calculations using norms: their direct application in mathematical formulae and tables derived from them; relating them to other variables in nomograms; their use in the critical path method. All three methods have been greatly accelerated by the use of computers and the programmable calculators that are now on issue on a wide scale. The use of norms, calculations and nomograms in two key related operational decision-making areas will be illustrated in the following sub-section by way of example of the GENFORCE approach.

1219. **Norms as a Guide.** Until the late eighties, operational and tactical norms were seen as absolutes that had to be adhered to. Now, however, a more realistic view prevails. It is suggested that they should be seen as averages rather than absolutes, as guides in planning rather than figures to be adhered to rigidly in all circumstances. The further the current revolution in military affairs takes GENFORCE away from the tried and true and into dependence on unproven technologies, the more debate there is about what the new norms should be.

Calculations: Two Examples

1220. **Example 1: The Creation of Shock Groupings.** It is critically important to create a decisive superiority in a shock grouping which is to break through the enemy defence. The passive sectors, however, must not be so weak that the enemy can attack through them to attain the flank or rear of the shock grouping or shift forces from them to meet the main attack. Several variants may be used to determine the mutual connection between the overall correlation of forces along the entire front (C), the correlation of forces required on the main axis (Cb), between the overall width of the whole attack frontage (W) and the width of the penetration zone (Wb) and between the minimum allowable correlation of forces which must be achieved on other axes (Cs).

- a. *Determine the Width of the Penetration Sector.* The formula used is:

$$W_b = W \times \frac{C - C_s}{C_b - C_s}$$

Thus, where,

Overall attack frontage $W = 120\text{km}$

Overall correlation of forces $C = 1$ (ie, 1:1)

Planned correlation of forces on penetration sector $C_b = 3$ (ie, 3:1)

Planned correlation of forces on secondary sectors $C_s = 0.5$ (ie, 1:2), then

$$W_b = 120 \times \frac{1 - 0.5}{3 - 0.5} = 24 \text{ km}$$

(ie, the other 96km must be passive sectors).

- b. *Determine the Superiority That Can Be Created on a Penetration Sector on condition that the correlation elsewhere does not fall below an acceptable minimum.* The formula used is

$$C_b = \frac{W}{W_b} \times (C - C_s) + C_s$$

Thus, where,

Overall width of front $W = 400$ km

Overall correlation of forces $C = 0.8$ (ie, the enemy is stronger) Width of shock grouping's front $W_b = 120$ km

On remaining front, correlation of forces must not fall below $C_s = 0.5$, then

$$C_b = \frac{400}{120} \times (0.8 - 0.5) + 0.5 = 1.5$$

This means that on a 120km frontage, there can be created no more than a 50% superiority.

c. *Increasing the Superiority Enjoyed By a Shock Grouping.* If the superiority created using calculation (b) is insufficient, there are four ways of creating a greater superiority: by allowing an even greater enemy superiority on passive sectors; by decreasing the width of the shock grouping's front; by bringing up additional forces; by weakening the enemy grouping through fire strikes.

(1) To achieve a two fold superiority on the main sector, the remainder of the front must be weakened to the correlation:

$$C_s = \frac{(W \times C) - (W_b \times C_b)}{W - W_b}, \text{ or } C_s = \frac{(400 \times 0.8) - (120 \times 2)}{400 - 120}$$

This means that, on passive sectors, the enemy would have a 3:1 superiority, which is inadmissible.

(2) Reducing the width of the shock grouping's penetration sector does not proportionately increase the correlation of forces (eg, halving the attack front from 120 to 60km does not increase the correlation of forces from 1.5 to 3:1, as formula (b) shows:

$$C_b = \frac{400}{60} \times (0.8 - 0.5) + 0.5 = 2.5$$

To achieve a 3:1 superiority on the shock grouping's front, it must be reduced as follows:

$$W_b = W \times \frac{C - C_2}{C_b - C_s}, \text{ or } 400 \times \frac{0.8 - 0.5}{3 - 0.5} = 48 \text{ km}$$

- (3) Bringing in more forces will chiefly influence the correlation of forces along the entire front, that is W. To determine the new overall correlation of forces (Cn) that is required to achieve a 3:1 superiority on the shock grouping's front, the formula used is:

$$C_n = \frac{W_b}{W} \times (C_b - C_s) + C_s, \text{ or } C_n = \frac{120}{400} \times (3 - 0.5) + 0.5 = 1.25$$

- (4) Weakening the enemy through fire strikes depends on calculating the minimal degree of destruction of the enemy which would enable the achievement of the necessary correlation of forces, at least on the shock grouping's front. The enemy, however, will retaliate against strikes to alter the force correlation, and one's own losses must be taken into account too. The formula to calculate the necessary degree of fire destruction is:

$$M = 100 - \frac{C_i}{C_n} \times (100 - F),$$

where

M = The necessary destruction of the enemy, as a percentage

C_i = The initial correlation of forces

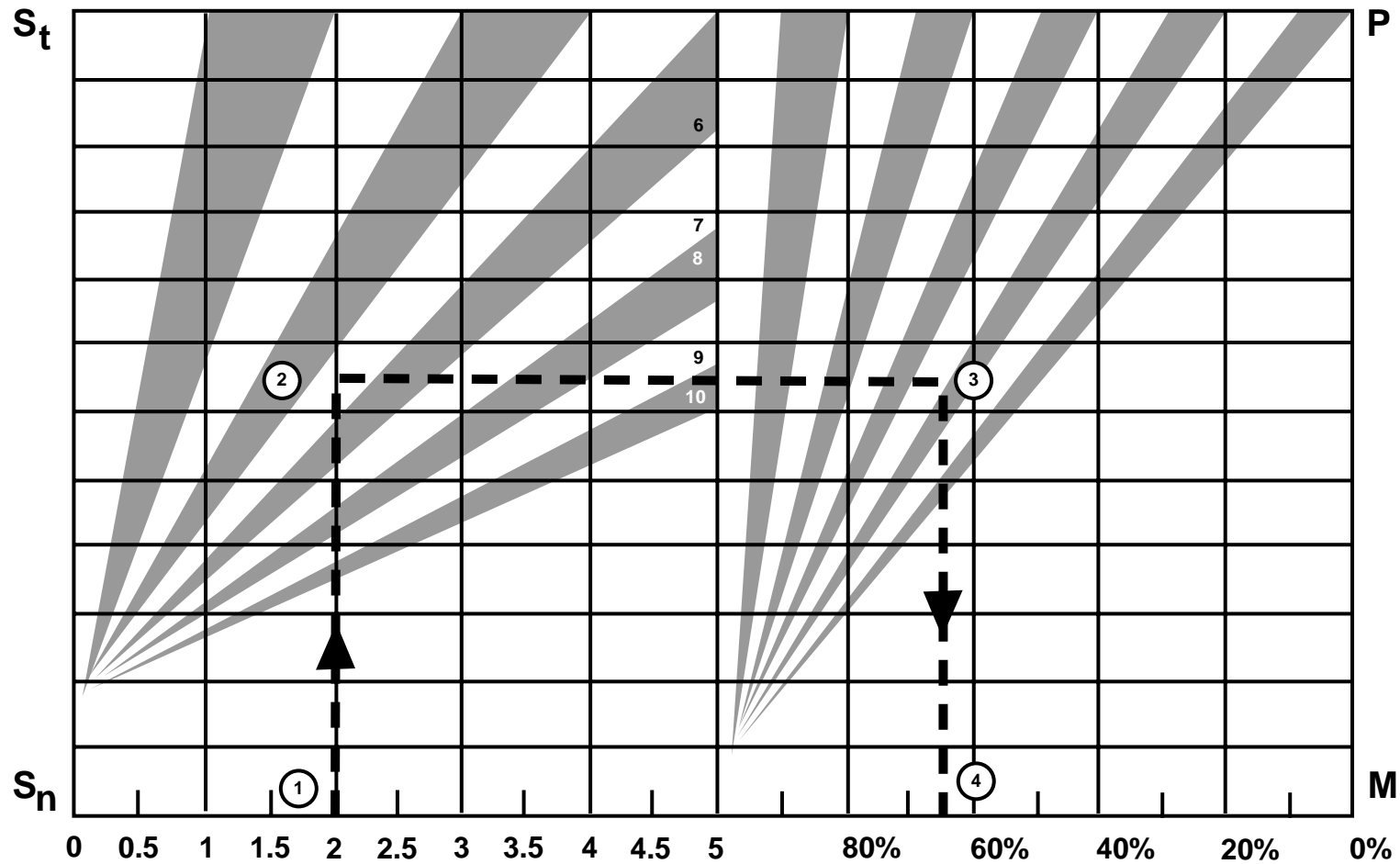
C_n = The necessary correlation of forces

F = The forecast of percentage losses to own forces.

By way of example, assume that the secret regrouping of forces from other areas onto the penetration sector has created a correlation C_i of 2 (ie, 2:1). It is deemed necessary, however, to create a correlation C_n of 4. The necessary amount of damage to the enemy on the penetration sector for the attack to succeed must be (assuming own forces will take 30% losses),

$$M = 100 - \frac{2}{4} \times (100 - 30) = 65\%$$

For a quick calculation of both the necessary degree of damage and the effects of enemy resistance on force correlations, the nomogram in Diagram 12-1 can be used.



S_n Initial correlation of forces of the sides 2 (1)

P Forecast of enemy counter action (expected level 30%) (3)

S_t Required correlation of forces of the sides 4 (2)

M Required level of Destruction as a percentage 65% (4)

DIAGRAM 12-1: REQUIRED LEVEL OF DESTRUCTION

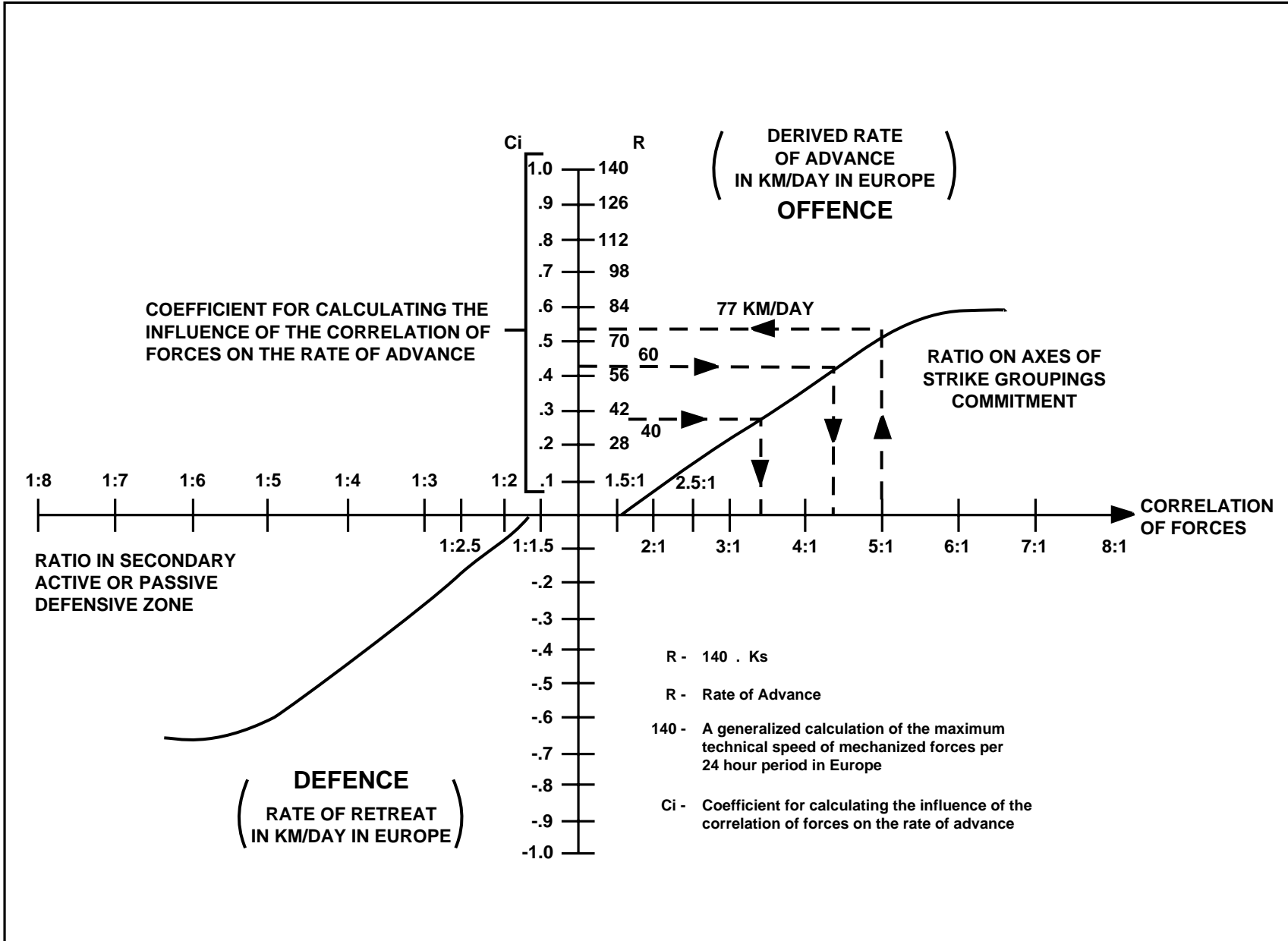


DIAGRAM 12-2: RATE OF ADVANCE AS A FUNCTION OF THE CORRELATION OF FORCES

- d. *Other Variables.* Absolute norms for the necessary correlation of forces on the attack and breakthrough sectors are difficult to establish as a multitude of other factors, objective or subjective, and varying widely, will influence the correlations. These include missile and air strikes from the depth; actions by raiding and mobile groups and air and sea landings in the operational depth; the electronic struggle; the effectiveness of command and control. These and other factors outside the direct confrontation of forces on the line of contact in the main sector complicate the calculation of the true total combat potential of the sides. Many GENFORCE theorists now point out that these variables are now actually much more important than the correlation of forces in traditional terms of men, tanks, conventional artillery, etc.

1221. *Example 2: Rate of Advance as a Function of Superiority.* Despite the problem of establishing definite norms, empirical evidence shows a correlation between the rate of advance (R, in km per day) and the coefficient of the influence of the correlation of forces (Ci), using the formula $R = 140 \times C_i$. The quantity 140 represents the maximum possible speed of advance in normal terrain (in kms per day) and Ci represents the coefficient of the correlation of forces. Using the formula and the nomogram in Diagram 12-2, it is possible to evaluate approximately the necessary correlation of forces to achieve a planned rate of advance, or to determine the likely rate of advance with a given correlation. eg:

- a. An average rate of advance of 40km per day is planned on a shock grouping's sector. The superiority necessary is found as follows:

$$C_i = \frac{R}{140}, \text{ or } C_i = \frac{40}{140} = 0.29$$

The quantity 0.29 is entered on the nomogram and it follows that a correlation of 3.4:1 is necessary on the shock grouping's sector.

- b. On a shock grouping's sector, a 2.5:1 superiority has been created. The rate of advance will be determined as follows: from the nomogram, it is clear that $C_i = 0.13$ corresponds to a superiority of 2.5. According to the formula $R = 140 \times 0.13$, 18.2km per day is the average rate of advance.

1222. ***Comment on the Calculations.*** These formulae facilitate the comparative evaluation of different variants of a plan. They do not, of course, exclude the need for further and more detailed calculations and mathematical modelling at the stage of adopting a decision and planning troop actions.

SECTION 3 - COMMANDERS AND STAFFS

The Commander

1223. **Responsibility.** At the tactical level, the commander's responsibility derives from the GENFORCE principle of "one man command". It is the fundamental concept of command in the GENFORCE. It makes the commander personally responsible for the morale, discipline and training and combat activity of his command. Only the commander can make decisions and he, individually, will be held to account in the event of failure, even on the part of his subordinates. The penalty for failure was traditionally severe - eg, posting to a punishment battalion. This helps to explain the persistent tendency, until recently, to over-control and interfere with work which should really be left to subordinates' own devices. Initiative does not thrive in such conditions. There used to be a persistent tendency for commanders to wait on orders from above before acting, rather than to accept responsibility for acting independently. There is plenty of evidence to suggest that, particularly in the Mobile Forces, GENFORCE is succeeding in creating a culture change in its command cadres. Educational reforms in military academies, improved selection procedures, encouragement in place of threats from on high and, above all, the realities of non-linear, fragmented combat with its rapid and abrupt changes in the situation have all combined to produce a current generation of unit commanders which is becoming accustomed to, is even thriving on, taking responsibility and exercising initiative. At the operational level, the situation was always somewhat different. Orders are issued over the signatures of the members of the higher formation military council, ie, the commander, the chief of staff, and others coopted as necessary. This difference reflects an acceptance of the fact that the complexity of the control process and the sharp rise in the level of responsibility is really beyond the capabilities of a single individual to cope. This sharing of responsibility and risk may well be a contributory factor in explaining the much greater display of initiative that always characterized command at the operational level.
1224. **Duties.** The commander is responsible for the combat capability of subordinate formations and units, the organization of combat operations, the maintenance of uninterrupted troop control and the successful conduct of combat missions. He clarifies the mission he has received (ie, determines his formation's place in the senior commander's concept of operations). This may be done alone or jointly with the chief of staff. He then gives instructions to the chief of staff on preparing the troops and staff for combat and gives out his instructions about the timing of preparations. The commander makes his own intelligence estimate from the data supplied by the chief of intelligence and, with advice from the chiefs of combat and combat support arms and the rear, makes an assessment of his own forces. After discussing his deductions and proposals with the chief of staff, the commander reaches a decision, issues combat missions to subordinates and gives instructions about planning the operation. He then organizes coordination within his formation and with adjacent forces and other elements operating in his area of responsibility. During the course of operations, the commander is obliged constantly to evaluate the changing situation, to predict likely developments and to issue new combat missions in accordance

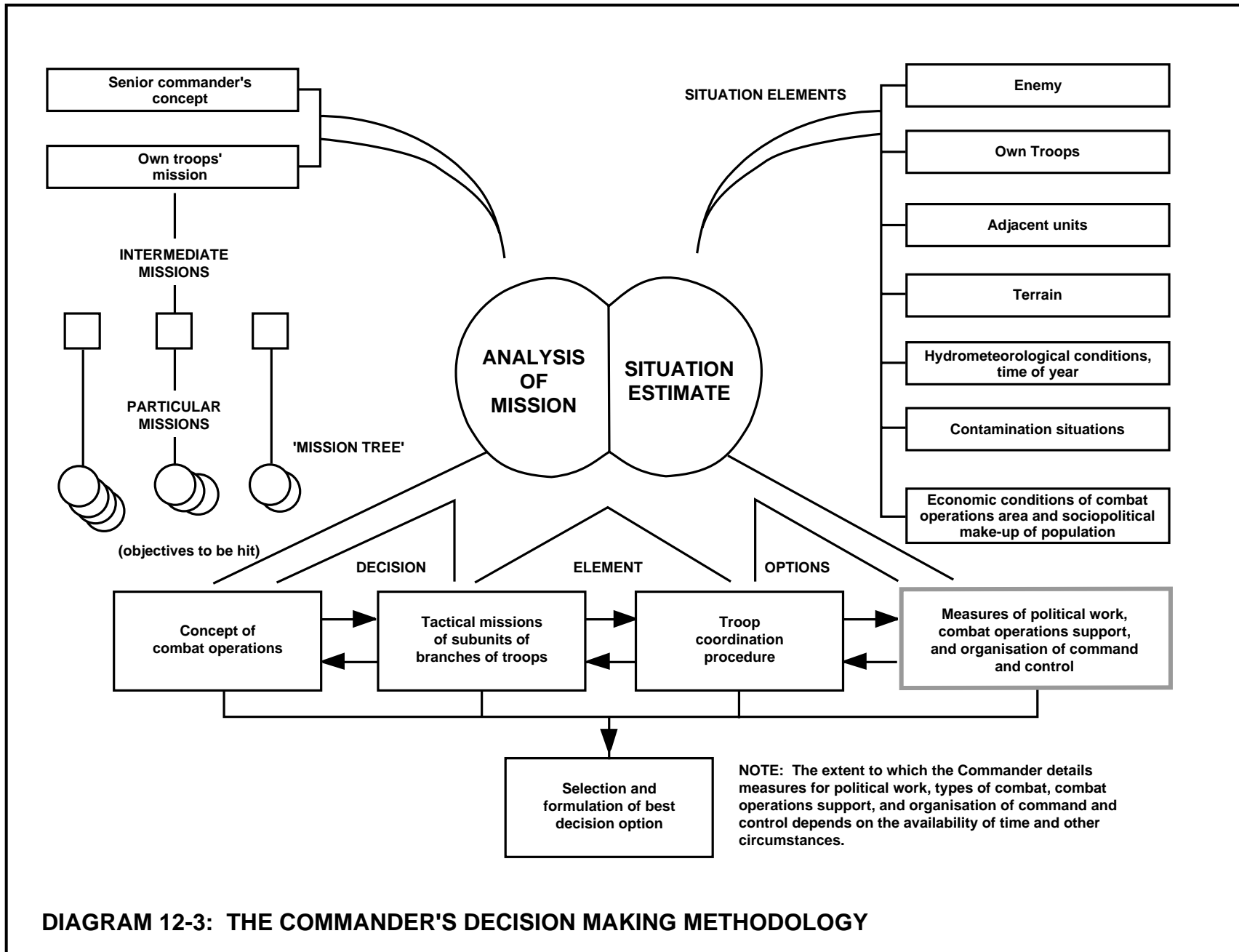


DIAGRAM 12-3: THE COMMANDER'S DECISION MAKING METHODOLOGY

with his forecast. He must also keep his superiors informed as to the situation and character of friendly and enemy actions and his current decisions.

1225. ***The Commander's Decision.*** Everything stems from the commander's decision. The decision-making process begins when the commander receives a warning or combat order from the senior commander. His first steps are to clarify the mission and assess the situation.
- a. ***Clarification of the Mission.*** The commander must make sure that he understands the senior commander's concept for the operation or battle and his own formation or unit's role in it. Having done so, he will make a time appreciation and, through his chief of staff, set in train any measures which are required immediately and issue warning orders to his subordinates.
 - b. ***Assessment of the Situation.*** His assessment is made in the sequence: enemy forces; own forces; flanking forces and those operating in the enemy's depth; terrain; the air and precision and (where applicable) the NBC situation; weather and time of day. Details of the assessment's content are given in Table 12-1 and Diagram 12-3. Having decided on the possible options open to him, a formation level commander will have his chief of staff test the validity of each using computer modelling: at the tactical level, he may do this himself using his programmable calculator. He will then arrive at his decision.
 - c. ***Components of the Decision.*** The decision will include:
 - (1) ***The Concept for the Operation or Battle.*** The commander will specify: which enemy groupings are to be destroyed, with what resources in what order; the area/sector of main effort; the organization of combat groupings and the broad nature of the manoeuvre to be employed. This section will become the most important part of the subsequent order. It will guide his subordinates' actions when a dramatic and unexpected change in the situation coincides with a failure of communications with the commander.
 - (2) ***Missions*** are laid down for organic and attached formations/units/sub-units.
 - (3) ***Coordination.*** The commander indicates objectives, phase lines, targets, timings and boundaries.
 - (4) ***Measures for Service Support and C2 Organization.*** When time is limited, these will be left to the chief of staff. Indeed, when time is very pressing, coordination instructions are also delegated to the staff.
1226. ***Implementing the Decision.*** The decision is reported to the senior commander for his approval. Once this is secured, it is passed to the chief of staff and subordinates for translation into detailed plans and instructions (particularly for cooperation and coordination). Detailed and precise orders are issued only for

the initial phase of an operation or battle as enough hard data will rarely be available to allow an accurate forecast of the development of the situation in future war. Up to this point, commanders, even at battalion level, will be working primarily from the map and perhaps air photography. If time permits, the decision will then be refined on the ground. The commander may attend his senior's personal reconnaissance of the ground and/or he may conduct his own personal reconnaissance with his subordinates. What is worth noting is that GENFORCE usually considers ground reconnaissance before decision making as a waste of valuable time, perhaps a disastrous one in a rapidly developing situation. The decision may be modified through verbal orders as a result of the ground reconnaissance. The commander supervises the preparations of his subordinates, either through his deputy or chief of staff or personally. Then, at the appointed time, he reports his readiness to the senior commander.

TABLE 12-1: THE GENFORCE PROCESS OF ASSESSING THE SITUATION AND REACHING A DECISION IN ATTACK

Function	Main Issues Considered	Deductions by Commander and Influence on his Plan
<p>1. Clarify the Senior Commander's Mission</p>	<p>Senior Commander's Concept of Battle:</p> <p>From Senior Commander's orders identify:</p> <p>(a) Which enemy he plans to attack and how. What percentage of destruction will be inflicted on the enemy.</p> <p>(b) His sector of main effort and penetration sector.</p> <p>(c) Main targets for precision electronic, artillery and air strikes.</p> <p>(d) Combat formation and nature of manoeuvre.</p> <p>(e) Own mission: incl aim, immediate and subsequent missions and timings, reinforcing or supporting assets, boundaries, penetration sector, routes and deployment times.</p>	<p>Deductions</p> <p>(a) Own unit's role in Senior Commander's plan.</p> <p>(b) Where to attack and required rate of advance.</p> <p>(c) What percentage of losses will be suffered.</p> <p>These deductions guide the commander in planning:</p> <p>(d) His own sector of main effort and penetration sector.</p> <p>(e) His combat formation and manoeuvre plan.</p> <p>(f) Outline missions for subordinates.</p> <p>(g) Priorities in planning battle.</p>
<p>2. Assess the situation</p> <p>(a) Assess the enemy</p>	<p>Major elements in assessment include:</p> <p>(a) Composition of enemy force and combat capability.</p> <p>(b) Density of enemy forces to depth of immediate and subsequent missions.</p> <p>(c) Defence lay-out, incl fire and obstacle plans.</p> <p>(d) Boundaries, HQs, COMCENS, logistic sites.</p> <p>(e) Morale of troops and personal qualities of comd.</p> <p>(f) Enemy options during battle, incl sector of main effort, counter-attack plans, air strikes.</p>	<p>Deductions</p> <p>(a) Main enemy groupings.</p> <p>(b) Strong and weak points of defence.</p> <p>(c) Probable enemy concept of operations.</p> <p>These deductions guide the commander to plan:</p> <p>(d) Outline plan, incl sector of main thrust, and combat formation.</p> <p>(e) Subordinates' missions.</p> <p>(f) Combat support plan (incl final recce plan).</p>
<p>(b) Assess own forces</p>	<p>Headings include:</p> <p>(a) Effective fighting strength, incl morale.</p> <p>(b) Combat capabilities, classified by arm of service.</p>	<p>Deductions</p> <p>(a) General condition of own force.</p> <p>(b) Any requirement for regrouping.</p> <p>These provide guidance in:</p> <p>(c) Selecting sector of main thrust, combat formation, sub-unit missions, plan for deployment.</p>
<p>(c) Assess Flanking Units</p>	<p>Assess their position, nature of operations, missions incl tempo of attack. Includes assessment of 2nd/exploitation echelon lines of deployment and axes.</p>	<p>Deductions</p> <p>(a) Influence of flanking units on air operations.</p> <p>(b) Priorities of operation with flanks</p> <p>These provide guidance in planning:</p> <p>(c) Sector of main thrust (to link with flanking units).</p> <p>(d) Measures to coordinate with flanking units.</p>

Function	Main Issues Considered	Deductions by Commander and Influence on his Plan
(d) Assess Terrain	<p>Terrain is assessed in the sequence:</p> <p>(a) In the assembly area. (b) From line of departure to line of contact. (c) In depth of enemy position and under the main headings:</p> <p>General nature of terrain, effects on observation, fire and camouflage and concealment possibilities.</p> <p>A guide to GENFORCE classification is found in the Note.</p>	<p>Deductions</p> <p>(a) Effect of terrain on accomplishment of mission. (b) Most favourable axes for operations. These provide guidance in planning: (c) Sector of main effort and penetration sector. (d) Routes, deployment lines, objectives, 2nd/exploitation echelon committal line, river crossing sectors.</p>
(e) Assess Hydrography, Meteorology, times of year and day	<p>(a) Water barrier conditions. (b) Weather, incl temperature, winds, clouds, fog, visibility. (c) Hours of light and darkness and timings.</p>	<p>Deductions</p> <p>Effect on operations and on employment of various weapons by either side.</p> <p>Used as guidance in planning:</p> <p>(a) Sector of main thrust, combat formation. (b) Measures to anticipate changes in conditions, eg, floods, snow storms etc.</p>
(b) Assess Economic/Social and Political Conditions in Combat Zone	<p>(a) Possibilities of using local resources, incl repair facilities, medical facilities and communications. (b) Mood and attitude to war and to own troops of local population.</p>	<p>Deductions</p> <p>Effect on combat operations and measures to exploit local resources.</p>

Function	Main Issues Considered
3. Selection and Formulation of the most appropriate Decision	<p>The commander proceeds to select the most appropriate decisions which is outlined under the following headings:</p> <ol style="list-style-type: none"> 1. Concept of Operations <p>(a) Which enemy to rout and how, including the percentage of destruction to be achieved. (b) Main targets to be hit. (c) Axis of main effort, combat formation, manoeuvre plan.</p> 2. Missions of sub-units, incl groupings, objectives, axes, timings and the percentage of losses that is acceptable in own forces. 3. Cooperation <p>How to coordinate operations in terms of objectives, place and time.</p> 4. Support <p>Combat support, command and control.</p> <p>The decision, once approved by the Senior Comd, is passed to the staff and forms the basis of the plan which they produce.</p>

Note: Examples of GENFORCE Terrain Classification

(1) *Relief* is divided into five categories as follows:

Type	Height above Sea Level (metres)
Plain	up to 300
Hilly	300-500
Low Mountains	500-1,000
Medium Mountains	1,000-2,000
High Mountains	over 2,000

(2) *Quantity of Natural Obstacles*. Measures the area of ravines, gullies, rivers, lakes and other natural obstacles as a percentage of total area. Eg, a lightly-obstructed area has less than 10% covered by natural obstacles. A heavily-obstructed area has more than 30% covered by natural obstacles.

(3) *Camouflage Conditions*. Defined as: open, semi-covered, covered. Measured in terms of the numbers of battalion-sized units that can be concealed in the area, allowing that a Basic Forces battalion requires 4 sq km of wood, a village of at least 75 houses, or a ravine 2km long to hide in and battalions must be 2-3km apart. Mobile Forces' battalions need twice this space.

(4) *Density of Road Network*. Assessed in terms of length of roads found in a 100 sq km area. Eg, a dense road network has more than 40km per 100 sq km. A sparse road network has less than 10km per 100 sq km. The figure should include both hard surface roads and dirt tracks.

(5) *Settlement*. A densely populated area has more than 15 settlements per 100 sq km, with an average distance between settlements of up to 3km. A sparsely populated area has less than 3 settlements per 100 sq km, with an average distance between them of more than 7km.

1227. **Personal Control**. At all levels, though particularly at the tactical level, GENFORCE commanders believe that personal contact with subordinates is of great importance. Commanders usually move well forward in the advance with a small command group. Even at divisional/brigade level, they will try whenever possible to achieve personal observation of the battlefield (ie, carry out a commander's reconnaissance) to gain a feel for the battle. They like to issue orders to subordinates face to face to ensure that they are thoroughly conversant with the concept, and to be on hand to supervise the execution of their decisions. Tactical commanders are supposed to lead from the front, setting an example to their subordinates. Operational commanders, on the other hand, are less likely to be seen by the fighting troops. Continuous troop control of large formations cannot be exercised from the front line, and it is the task of the army/corps and SG commander to turn tactical into operational success and not to supervise the achievement of the former. A major part of this role is played through the commander's decisions on the distribution, manoeuvre and concentration of the fire of those systems which come under

his control (eg, long range artillery, cruise and ballistic missiles and aviation) and of his EW troops. On the other hand, operational commanders will descend on the CPs of main axis subordinate formations from their nearby forward CPs to check on work or issue fresh instructions.

1228. **Temporary Commanders.** It is quite possible that a commander will use one of his trusted staff officers or a senior line officer to take over temporary command of a particularly important subordinate force fulfilling a mission of vital operational importance. This is a task commonly allotted to the deputy commander.

The Staff

1229. **Function.** The staff release the commander from having to solve administrative and technical problems, thereby allowing him to concentrate on the battle. It translates his decisions into plans and helps him to control the actions of his subordinates. The staff is also responsible for keeping the commander informed of developments and for the provision of advice as required. Diagram 12-4 lays out, by way of example, the composition of a SG staff, and Diagram 12-5 shows the composition of a combined arms battalion staff.
1230. **The Chief of Staff.** The chief of staff is also a deputy of the commander. As such he is, apart from the first deputy commander, the only officer eligible to issue orders and instructions on behalf of the commander to formations, units and the chiefs of combat, supporting and rear services. He runs the main CP and controls the battle during the commander's absences. It is thus vital that he understands not merely the commander's specific instructions but also his general concept and train of thought. His duties are: to direct and oversee all the work done by the staff (preparing some key documents personally); to brief the deputy commander, chiefs of staff departments and chiefs of combat, combat support and rear services about their missions and give instructions about issuing warning orders, calendar plans and calculations for the decision making process; and then to lead the planning process; to coordinate the operation of all organs of control. The chief of staff is obliged to be constantly abreast of the situation and to predict likely changes. He is prepared to report on the situation, status and character of friendly and enemy operations, deductions from the estimate of the situation and proposed decisions and on measures for the organization of troop control and coordination.
1231. **The Chief of Operations** prepares warning orders, calendar plans, and, sometimes personally preparing them, combat directives. He also prepares some of the calculations required for the commander to make his decision and he plays a key role in planning the operation. During the course of the operation, the chief of operations is responsible for: collecting and analyzing situation information; reporting to higher headquarters and disseminating to subordinate and adjacent formations; organizing and maintaining continuous coordination; controlling the accomplishment of combat missions by subordinates.
1232. **The Chief of Reconnaissance** is responsible for: preparing the reconnaissance plan, allocating forces to achieve the set aims and issuing missions to the reconnaissance department staff (after the plan is signed by the chief of staff

and approved by the commander); coordinating all the efforts of different reconnaissance means in terms of missions and objectives; organizing continuous communications with reconnaissance forces and with subordinate headquarters; receiving and analyzing reconnaissance information and disseminating it within the headquarters and to superior, subordinate and flanking headquarters.

1233. ***The Chiefs of Combat and Combat Support Arms*** have the following duties: reporting to the commander information on enemy capabilities in their specialist fields and on their own capabilities; advising on the employment of their respective troops; preparing calculations for the commander's decision; planning the combat employment of subordinate troops and issuing missions to them (based on the commander's instruction and with his approval); organizing coordination and supervising the timely accomplishment of missions. In addition, certain chiefs of departments are responsible for the conduct of various aspects of operations.
- a. *The Chief of Combat Arms* is responsible for the conduct of the electronic-fire engagement. In fulfilling this role, he works in close cooperation with the chiefs of reconnaissance, operations, missile troops and artillery, army aviation and air defence, the deputy chief of signals for EW and the air force commander.
 - b. *The Chief of Signals* organizes signal communications and the redeployment and relocation of CPs.
 - c. *The Chief of Special Combat Forces* prepares and implements the plan for operational concealment and deception. He works closely with the chiefs of operations, reconnaissance, signals, air defence, engineers, chemical defence troops.
1234. ***The Deputy Commander for Rear Services*** is not only a staff officer but the commander of logistic assets and rear area security forces. His duties are: the preparation of initial data for the logistic plan; the issue of missions to rear service elements; the supply of all necessary material and its transport to the troops; the preparation and maintenance of supply routes and traffic control; the collection, evacuation and repair of damaged vehicles and equipment; the provision of medical services; the preparation of mobile technical bases and fuel depots for missile units; the organization of defence and security and the maintenance of order in the rear; the exploitation of the local economy and captured stocks; the movement of rear service elements to keep pace with operations.
1235. ***The First Deputy Commander*** may fulfil several roles. He may lead an operations group which will take command of a portion of the operational formation acting on a separate axis or performing a particularly important and complex mission. He may be the head of an operations group working within the headquarters which is tasked with preparing alternative plans for future operations (a prime example being the planning of a counter-strike during the course of a defensive operation). He may act as the commander's personal

representative, gingering up subordinate commanders becoming tired or defeatist. Finally, he will replace the commander in the event of his incapacitation.

1236. **Staff Procedures.** It is emphasized that planning and the issue of orders must be accomplished at a speed appropriate to fast-changing situations. Time constraints are severe, and to cope with this problem, parallel planning methods, networks and automation are used. By drastically cutting the time taken in making and communicating decisions, adequate provision is made for preparation time for the combat units. The essence of this method is that lower echelons do not wait for higher HQs to complete the full operational plan before embarking on their own planning. Subordinate formations/units are thus kept continuously in the picture by the staff and they are given a warning order as soon as the commander has received his from above. The commander will follow this with a preliminary decision, enabling detailed planning to be done. Should developments affect the initial concept in any way, this will be reflected in the final decision, and planning will be tailored accordingly.
1237. **Control.** GENFORCE commanders recognize that the issue of orders does not automatically ensure their execution, or even that they will be correctly understood. They thus place great emphasis on supervision after an order is issued. The chief of staff checks on the work of the staff, and each staff section checks that the orders which it has prepared are properly understood, any problems being resolved by the chief of staff. Supervision of formations/units is ideally accomplished by personal visits by the commander or appropriate staff representatives, possibly after observation of their actions from the ground or air. GENFORCE also makes extensive use of special representatives. These officers are thoroughly familiar with the commander's concept. They monitor the actions of the grouping to which they are attached and inform its commander if his orders seem to conflict with it; any disagreement is referred upwards before the subordinate commander executes his plan. During the development of an action, subordinate commanders are expected to use their initiative and react aggressively to any changes in the situation. They are also required to keep the commander and chief of staff fully informed of their decision.

DIAGRAM 12-4 COMPOSITION OF A STRATEGIC GROUPING STAFF

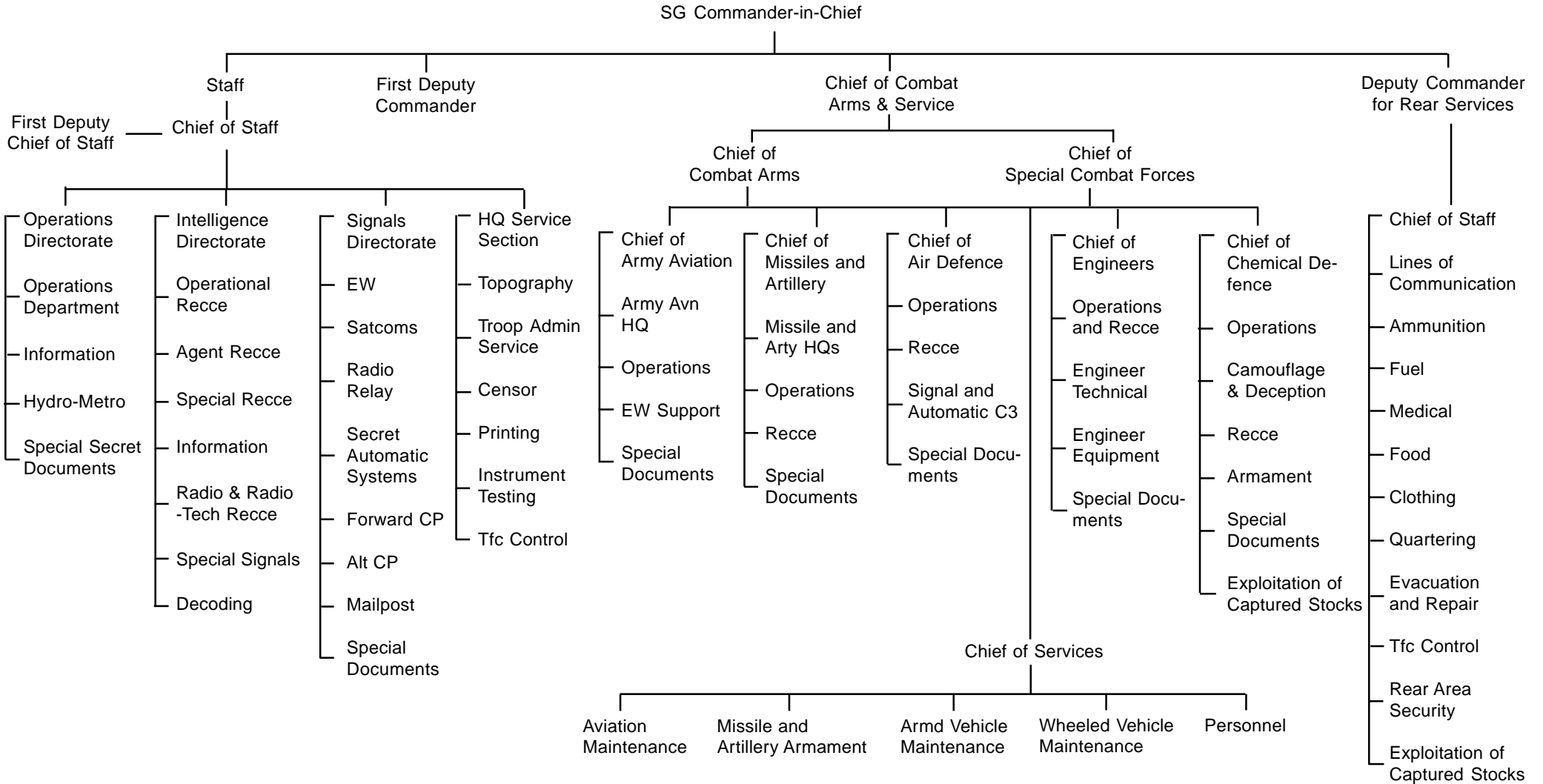
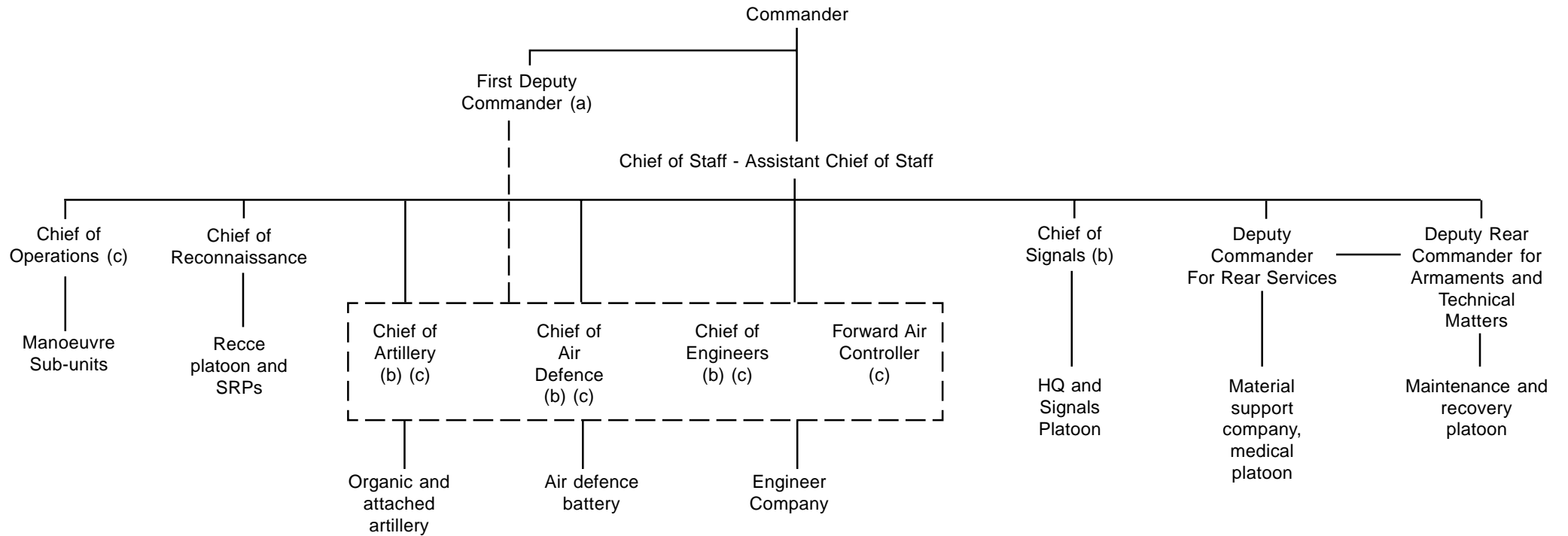


DIAGRAM 12-5 COMPOSITION OF A COMBINED ARMS BATTALION STAFF



Notes:

- a. First Deputy commander often organizes combat support for manoeuvre and combat.
- b. Sub-unit commanders.
- c. Members of commander's personal reconnaissance group and COP (if formed).

SECTION 4 - COMMAND POSTS

Types of Command Post

1238. **General.** Command and control is exercised through a series of command posts (CPs), their numbers and size depending on the level of command. Security of CPs is considered very important and is ensured by a number of measures.
- a. *Siting.* CPs are well dispersed and camouflaged and communications facilities are remotized to lessen the chance of the actual command element being located as a result of enemy DF.
 - b. *Defence.* CPs are a high priority for air defence. Ideally, they are also placed near second echelon/reserve units to gain protection from ground attack, though circumstances will often dictate that they provide for their own local defence. Engineer support is normally arranged to dig in and camouflage key elements.
 - c. *Manoeuvre.* By British standards, CPs are relatively small. They are also very mobile, particularly at the tactical level and they displace frequently (see Table 12-2). These factors, combined with a painstaking attention to camouflage and deception measures help to reduce vulnerability.
1239. **Types of CP.** There are seven different types of CP, though not all are formed by lower level units or formations.
- a. *Main CP.* At all levels from unit upwards, this is the principal focus of control. At army/corps and SG levels, it will generally also be the main focus of command as commanders at these levels tend to remain at their HQs to keep a firm grip on developments across their wide frontages. The main CP is run by the chief of staff, who directs the formation/unit staff in translating the commander's decision into plans and orders. Main coordinates the movement and deployment of units/formations and monitors their combat effectiveness (including supply states).
 - b. *Forward CP.* Unit and divisional/brigade commanders in particular like to move with their first echelon on the main axis in offensive operations to obtain personal observation of key sectors and maintain contact with their sub-unit/unit commanders. This ensures that decisions are based on accurate, up to date information, including those nuances that are filtered out of second-hand reports. Orders can then be issued in person, and their execution personally supervised. They are accompanied by a small group of principal advisers, eg, the chiefs of operations, intelligence, EW, artillery, air defence, engineers, an air force representative and a small signals back-up. When formed, and when the commander is present, the forward CP is the main focus of command, though the first deputy commander or chief of staff is empowered to issue orders in the commander's absence.

- c. *Alternate CP.* This is established laterally from the main CP, usually commanded by the first deputy commander and with reduced manning levels. It is not a step-up, but a reserve CP, available to assume control if main is destroyed. If an alternate CP is not formed, a subordinate HQ will be designated to perform its function. While it is usual to create an alternate CP in defence, it may well be less common during the offensive, at least at divisional/brigade level. It is not formed at unit or sub-unit levels.
 - d. *Airborne CP.* These may be established by commanders of SGs (in fixed wing aircraft), armies/corps (in a heavy lift helicopter) or divisions/brigades (in a medium lift helicopter). They are needed when operations become very fluid and spread over a wide area, and to maintain continuity of control when other CPs are displacing.
 - e. *Rear Control Point.* From this CP, the Chief of the Rear organizes logistic support for the concept of operations he receives from main. He monitors supply states and reports them to main. He also controls rear area security.
 - f. *Command and Observation Post (COP).* The only sort of CP formed by sub-units, COPs will often be formed by unit and sometimes by divisional/brigade commanders also, as personal observation of the battlefield is considered highly desirable at the tactical level. This enables commanders to make decisions based on their own observations. Such CPs are kept very small; they consist only of the commander, his most important advisers, and the necessary communications vehicles.
1240. **Operations Groups.** It is quite common for armies/corps or SGs to form temporary operations groups to assume control over part of the formation, either because of geographical separation or the fact that the grouping in question is operating on a different axis from the main body makes control from the main headquarters problematical. Operations groups with a high-powered commander and a team of specialists can also be set up to plan and control special operations, eg, a sea landing.
1241. **The Management of CPs.** Because GENFORCE does not employ an alternating main and step-up system, work patterns perforce differ from those in a British headquarters. CP personnel are divided into three groups, each of which work for 16 hours and have 8 hours rest. Diagram 12-6 illustrates the shift system as employed at an army/corps headquarters.

Location and Movement of CPs

1242. **Location.** All GENFORCE CPs are fully mobile, and divisional/brigade and regimental forward CPs are contained in armoured vehicles. Increasingly, more and more elements of army and corps CPs are also being armoured. CPs will be sited well dispersed in areas affording good concealment and with a good road net access, either on or just off the main axis. Higher HQs dictate the locations of their immediate subordinates' main and rear CPs. Table 12-2 shows the approximate location of CPs relative to the line of contact. These distances will, however, increase as the momentum of operations quickens. Similarly,

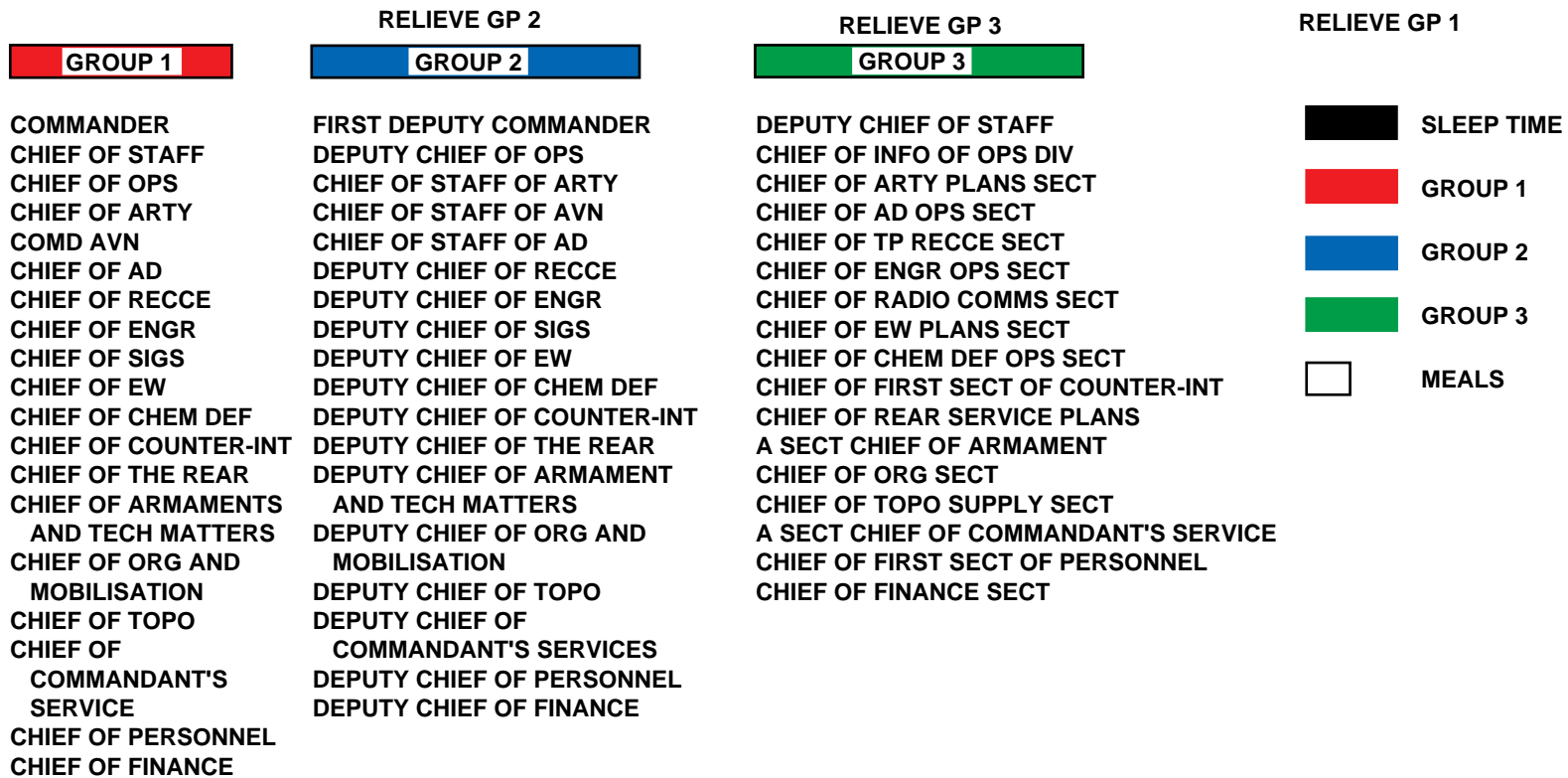
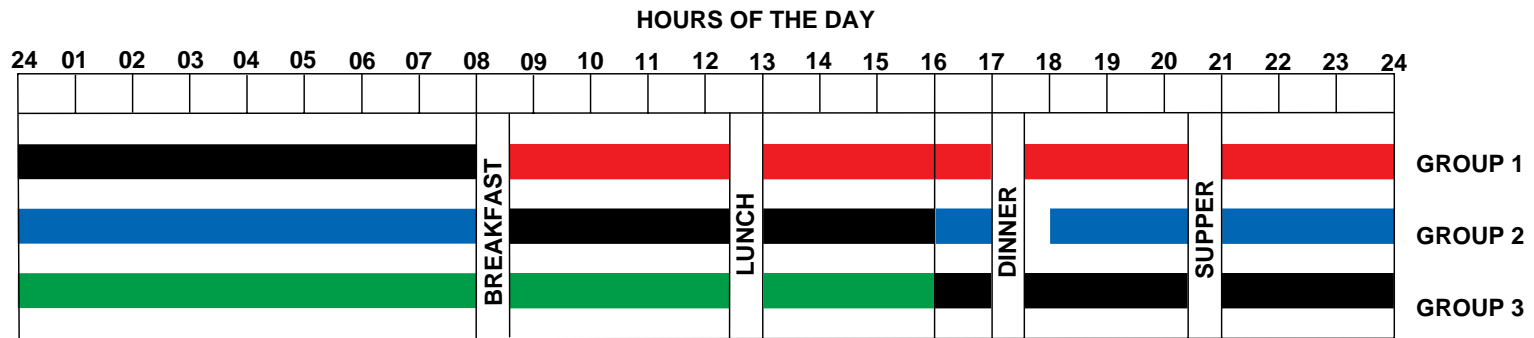


DIAGRAM 12-6: GRAPHIC OF THE SHIFT SYSTEM OF AN ARMY OR CORPS STAFF

the frequency of movement will be dictated by the speed of advance, the stability of defence or the rate of withdrawal.

1243. **Movement.** During the movement of a main CP, continuity of control is maintained either by handing over to the forward or airborne CP, or, more rarely, to the alternate CP. Usually key staffs will be moved to the new location by helicopter to reduce the time spent away from their posts.
1244. **Co-Location of CPs.** During some particularly difficult phases of an operation/ battle, where close cooperation between formations/units is deemed essential, the forward CP of one may be co-located with the forward or main of another. Examples are the committal of an OMG or the passing of a second echelon through the first.

SECTION 5 - COMMUNICATIONS

Resources

1245. **Strategic Grouping.** Each SG has considerable satellite, radio, radio-relay, land line and mobile communications resources. A high level of redundancy and reliable, multi-channel, automated systems ensure that long interruptions to communications through physical or electronic attack will be hard to achieve. The maintenance of continuity in troop control is seen to be even more essential than in other armies, where the degree of operational level centralization is less and reliance on lower level initiative greater. GENFORCE has established an effective, robust, automated communications system that operates seamlessly from SG down to unit level to realize its concepts.
- a. **Radio and Satcoms.** One signals regiment of three battalions provides the command nets, ie, one each for main, forward and alternate CPs. The signals regiment for rear services establishes links to lower echelons with its two battalions. The signals battalion for auxiliary signals centres can set up six such centres. Communications within CPs are the responsibility of the cable and line battalion with its 500km of line.
 - b. **Radio-Relay and Line.** Two radio-relay battalions are used to set up the SG radio-relay axes, each being able to work up to 1,000km. Two further battalions, working up to 480km each, provide lateral communications. Two cable battalions establish permanent land lines, each with 420km of cable, 100 of which can be rigged as overhanging (ie, suspended) line. Further line battalions, the numbers depending on the number of armies/corps in the SG exist to establish up to 400km of line to each army. A missile brigade line battalion exists to establish communications with each subordinate SSM brigade, each laying up to 280km.
 - c. **Mobile Communications Means.** Mail stations and a combined signals-aviation regiment are used to deliver classified documents and to transport staff officers and the commander's representatives. As well as vehicles such as the BRDM, there are at least eighteen helicopters and twelve fixed wing aircraft. Even with secure fax being available, key documents are

TABLE 12-2: COMMAND POST DEPLOYMENT IN THE ADVANCE

Command Post (b)	Distance from line of contact (km) (a)			Frequency of Displacement (a)
	Tactical March Formation	Pre-Battle March Formation	Battle Formation	
SG Forward	80-150	80-150	50-70	Moves with a first echelon army/corps on main axis, relocating daily.
SG Main/Alt	150-250	150-250	100-150	Moves behind first echelon armies/corps on main axis relocating every 1-2 days.
SG Rear	250-350	250-350	150-250	Usually collocated with rear services, probably near a railhead, moving every 2-3 days.
Army/Corps Forward	20-40	20-40	20-40	Moves with a first echelon div/corps on main axis, relocating up to three times per day.
Army/Corps Main/Alt	75-100	75-150	50-70	Moves behind a first echelon div/bde on main axis, relocating daily.
Army/Corps Rear	150-200	150-200	60-100	Usually collocated with rear services, relocating daily.
Div/Bde Forward	10-20	2-5	2-5	Moves by bounds with a first echelon unit on main axis, near to unit main CP, but sometimes the commander will establish a COP.
Div/Bde Main/Alt	50-75	20-40	20-40	Moves behind a first echelon unit on main axis, relocating up to three times per day.
Div/Bde Rear	75-100	60-80	50-70	Usually collocated with rear services, relocating up to twice per day.
Unit Forward	5-10	2-5	2-5	Constantly moving with first echelon sub-unit on main axis, often establishing a COP.
Unit Main	20-30	10-20	6-8	Moves by bounds behind main axis sub-units.
Unit Rear	30-40	20-30	10-15	Moves by bounds behind the second echelon, along with the rear services.

Notes:

- (a) Figures are yardsticks only. The frequency of displacement will obviously depend partly on the tempo of the operation. Figures here assume a rate of advance of 40-60 km per day. Even given a slower rate of advance, it is, however, likely that moves would be made with the same frequency to avoid detection and destruction.
- (b) Formation level main command posts are divided into two groups. The control group comprises the commander and staff, and the support group, the transport and signals. Signal centres are remoted 1-4 km from the support group, and HF transmitters may be remoted as much as 15-20 km.
- (c) Before any move, the new location is carefully reconnoitred and marked out by the Commandant's Service. Engineer preparation will also be carried out to give protection and concealment.

often delivered by hand in the interests of security.

- d. *Security.* Virtually all traffic is encrypted. Nevertheless, a radio control centre monitors radio and radio-relay communications security. The recent introduction of frequency hopping radios at all levels, down to and including tactical, has increased security against jamming as well as intelligence exploitation.

1246. **Army/Corps.** The assets available to army and corps mirror those existing at SG level, though on a smaller scale as befits the more restricted geographical spread of their operations. Thus, there are signals regiments to provide communications for forward, main and alternate CPs and for the Rear Services. Two radio-relay and cable battalions establish radio-relay links up to 600km in total and up to 240km of line. Separate line companies provide communications to the missile brigades, and there is a field mail centre and aviation squadron with twelve aircraft.

1247. **Tactical.** Divisional and brigade signals battalions provide radio and radio relay communications down to unit level and for forward, main, alternate and rear CPs. They also carry up to 130km of land line and the flight of six light reconnaissance/liaison helicopters can be called on to provide mobile means.

Non-Radio Communications

1248. **General.** GENFORCE is well aware that radio DF and intercept is considered by likely enemies to be one of the main sources of combat intelligence. Thus, while radio must remain the primary means of communication during combat, GENFORCE stresses the use of alternate means wherever possible. These become particularly important when EW disrupts radio communications, and when radio silence is being maintained, for instance on the march or in a waiting area, in order to obtain both security and surprise. At all levels, the custom of outlining the commander's concept makes it possible for subordinates to act within the spirit of the commander's intentions, even if communications fail. At the tactical level, the use of simple battle drills also helps to reduce reliance on radio somewhat.

1249. **Means.** The following alternatives to radio are widely employed.

- a. *Mobile.* Messages and orders are frequently passed by Liaison Officers (LOs) in aircraft, or vehicles such as the BRDM. LOs will usually be used to disseminate higher formation operation orders, especially those looking far ahead. Obsessed as they are with security and a true understanding of missions, personal contact between commanders (or their representatives) and subordinates is heavily emphasised whenever possible as a means of dissemination.

- b. *Land Line.* GENFORCE still makes extensive use of line in defence, in waiting areas, along march routes and wherever possible in the offensive as well.

- c. *Visual and Audio.* At unit and sub-unit level, flag, flare and vehicle horn signals are used to transmit simple instructions or warnings.
- d. *Data Links.* Automated information exchange has had a significant impact on the speed and nature of communications up and down the command chain. Secure computer networks linking higher, lower, adjacent and supporting units and formations can be established rapidly and eliminate much voice and paper traffic, particularly of a routine nature. Data flows in both directions can be achieved in near real-time. While most network nodes will be linked by high-capacity data cable managed from a communications hub well to the rear, burst transmission via satellite will be used by units on the forward edge.

Radio

- 1250. ***Responsibility for Establishing Communications.*** This rests with the superior HQ to its subordinates; at the tactical level, it is from supporting to supported unit. Lateral communications must also be established, from left to right. Should the responsible HQ fail to establish communications, however, its subordinates/neighbour must do so.
- 1251. ***Uninterrupted Troop Control.*** GENFORCE communications reflect the desire of commanders to exert centralized control at the operational level, and their concern to ensure that that control is uninterrupted despite what are expected to be determined enemy efforts to that end. It is also vital to maintain uninterrupted communications so that commanders, being totally conversant with the situation, can make timely decisions about the manoeuvre of deep strikes to assist those subordinates most in need of help. The principal control nets can be reconfigured, albeit at the expense of time, to cope with attacks on the system. Skip echelon working is widely employed (ie, enabling an HQ to talk “two down”, for example from army direct to regiment or division direct to a battalion operating as a forward or raiding detachment). In emergencies, traffic can be switched through the special staff nets. Considerable redundancy makes this possible.
- 1252. ***Communications Systems.*** GENFORCE signal troops are well supplied with sophisticated equipments. Formations operate trunk communications systems similar to those of Western armies, with outstations down to unit level. These systems use three different means to ensure continuity: landline as far forward as possible; multi-channel radio-relay; troposcatter and satellite links down to unit level. All communications from unit rearward are encrypted, and great stress is laid on ECCM. Combat net radio used within units is now all frequency hopping to defeat jamming.
- 1253. ***Formation Radio Nets.*** GENFORCE establishes several different nets at formation level:
 - a. *Command.* This net links the commander to his major subordinate formations/units, including supporting units. Provision is usually made before the start of an operation/battle for skip echelon working to key subordinate

formations/units. In the event of an intermediate level being destroyed, communications could be reorganized, albeit with some delay, to allow the higher HQ to take control of the otherwise undirected subordinates.

b. *Staff.*

(1) *The Chief of Staff.* When the commander is working from a forward or airborne CP, the command net is duplicated so that the chief of staff as well as the commander is in touch with all major subordinate HQs. This enables both to keep fully in touch with the battle/operational situation and enables the former to issue detailed orders implementing the latter's decision, and it ensures coordination. There is also a back-up net enabling the alternate CP to stay on listening watch and to assume control without delay if the main CP is disrupted or destroyed.

(2) *Staff.* Certain principal staff officers have their own dedicated nets to ensure the uninterrupted receipt of information and the issue of orders necessary to fulfil their function in timely fashion. At higher formation level, these are the Chief of Missile Troops and Artillery, the Chief of Reconnaissance, the Chief of the Rear, the Chief of Air Defence Troops, the Chief of Engineers, the Deputy Commander for Aviation. Should the command net fail for any reason, staff nets provide alternative channels of communication. Principal amongst these is the artillery net.

c. *Coordination.* Nets are established to ensure co-ordination with flanking formations and between main and rear CPs. Liaison nets will also be established between formations/ units operating in close cooperation, eg, between first and second echelons/OMGs to ensure coordination at the critical time of committal.

d. *Warning.* A net devoted purely to NBC, to air warning and to the passage of meteorological information is established at all levels. Warning messages are not acknowledged in order to maintain security.

e. *Special Purpose.* A special purpose link is established to communicate with units and formations executing special missions (eg, from SG to an OMG) and with airborne or air assault groupings operating beyond the line of contact.

1254. ***Battalion Radio Nets.*** The organization of battalion nets will depend on the nature of combat actions.

a. *Combined Arms Battalions* may operate with all stations (including attached sub-units) on the same net. This is usual during the march and may be practised if attacking a weak enemy. In this case, with 40 or more stations on the same net, strict radio discipline is required to avoid chaos. The only stations with authority to transmit are those of the battalion commander and chief of staff, company commanders and the commanders of CRPs. In a more complicated situation, company nets are always established.

- c. *Platoon Nets* are only formed when the sub-unit is operating independently from the main body.
- d. *Support Weapons* maintain their own sub-unit nets. As artillery battery commanders are always collocated with the tank/MR companies they are supporting, the artillery net can be used for communication between battalion and the companies if the battalion command net is not functioning properly (eg, due to jamming).

1255. ***Non-Radio Communications.*** While radio must, inevitably, be the principal means of communication in a fluid, mobile battle, GENFORCE is well aware of the threat posed by enemy DF, intercept and communications jamming. The use of alternative means when possible is stressed. Line is used extensively in defence, in waiting areas and along march routes. Much use is made of liaison officers in light vehicles, and of personal contact between commanders or their representatives and subordinates. Visual and audio signals, eg flares, flags and vehicle horns, are used within sub-units when out of contact to pass simple messages and instructions. As a general rule radio communications are kept to the minimum until contact with the enemy is made. Thus a battalion in the attack will be forbidden to use radios until their supporting artillery begins its bombardment. In defence line communications are the norm until the enemy begins his artillery preparation of the attack. GENFORCE believes that its reliance on battle drills at sub-unit level not only cuts reaction times and lessens the chances of error and confusion but also reduces reliance on radio communications until battle is joined.

CHAPTER 13

COMBAT IN SPECIAL CONDITIONS

SECTION 1 - INTRODUCTION

1301. **Definition.** Combat in forests and swamps, in mountains, in deserts, under arctic conditions and in built up areas are all classed by GENFORCE as “combat in special conditions”. The changes in operational art and tactics which such specialized fighting requires are the subject of this chapter.
1302. **Organization.** Basic Forces’ formations deployed in areas characterized by special conditions are structured on traditional lines but with important modifications. (There are no specialized Mobile Forces formations).
- a. *Forested and Mountainous Areas.* Most or all divisions in such areas are motor rifle or rifle. Often, these will have an extra infantry regiment instead of the normal tank regiment, though in compensation some will have an additional separate tank battalion. Some or all unit self propelled mortars are replaced by manpackable 82mm weapons, and light-weight 76mm mountain howitzers and 160mm mortars may replace some or all of the SPs in the divisional artillery regiment. Anti-tank battalions may be gun only instead of a gun-ATGM mix. Signals and engineer battalions may be larger than usual. Large numbers of pack animals are available for the carriage of both infantry support weapons and supplies.
 - b. *Northern Areas.* All divisions based in the North are rifle or motor rifle. They, too, have exchanged their tank regiment for a MR one and have an additional separate tank battalion. They also have some light regimental artillery (which can be towed on sleds) and manpack medium mortars. The standard APCs are wide tracked MT-LBs with low ground pressure and many logistics vehicles are of a similar type (eg GT-T). Motorized sleds with excellent oversnow mobility are supplied in large number, as are pack animals.
 - c. *Strategic Echelon Forces.* SG and the Reserve of the Supreme High Command have tank flamethrower, artillery, engineer, signal and other special reserves as appropriate to reinforce formations operating in special conditions.
1303. **Training.** Forces based in areas characterized by special conditions have training programmes suited to them. Some Mobile Forces formations and units and airborne elements regularly do some training in the techniques required in special conditions.

SECTION 2 - TACTICS IN FORESTS AND SWAMPS

General

1304. ***GENFORCE View of Forest-Swampy Terrain.*** Historically, GENFORCE has not shunned such areas in conducting offensive operations, despite its enthusiasm for manoeuvre warfare and its stress on a high tempo of operations. In areas where tracks hardly existed the enemy often defended them lightly or not at all. Thus, on the principle that the best tank going is that devoid of anti-tank weapons, they often offered a good axis of advance for a formation seeking to achieve surprise and unbalance the enemy. Doubtless the low force densities likely in future war and the likelihood that a heavily mechanized enemy will regard large forests as a barrier to major armoured forces will combine to ensure that such an apparently unpromising approach will retain its attractions. Even if forest-swampy terrain is not exploited for the conduct of significant operational manoeuvre, it will frequently be used to conceal tactical manoeuvre, ie the infiltration of forward, raiding and outflanking detachments. It is worth noting that the excellent performance of GENFORCE AFVs and of many B vehicles on soft going such as forest rides, combined with the cover woods provide against precision attack, add to their attractiveness as an avenue of advance. Conversely, GENFORCE is unlikely to ignore them in defence. In the event of an enemy offensive avoiding large forests in order to achieve a rapid advance, GENFORCE will regard them as excellent bases from which by-passed formations and units (including airborne forces) can conduct raiding and even counter attack operations.
1305. ***Characteristics of Forest Fighting.*** Fighting in forested and swampy terrain is characterized in GENFORCE eyes by:
- a. The abundance of natural obstacles, easily and quickly improved. This is particularly the case where a chain of lakes and swampy areas will hamper or preclude attempts to turn a position.
 - b. The paucity of metalled roads and through routes of any description. The majority of roads and tracks have no more than local significance as connections between villages, logging roads or cleared lanes. In wet weather, these and forest rides may quickly become impassable unless they are improved. The attacker will be canalised down roads and tracks. Infantry units and sub-units can and will manoeuvre through forest (though this will be far from easy in primeval, as opposed to cultivated forest), but then through routes will have to be cleared (and kept clear against infiltration counter-moves) for formations to make meaningful progress.
 - c. Concealment from aerial and ground observation and difficulty in adjusting artillery fire and employing CAS (though columns of vehicles may be caught by ground attack aircraft, artillery fire and/or remote mining on roads/tracks they cannot leave because of dense trees or soft ground/water on either side). This increases the possibility of conducting covert manoeuvre and achieving surprise. Moreover, enemy difficulties in

assessing the size of an attack or counter attack may impart a disproportionate effectiveness to surprise actions by even small forces.

- d. Limited opportunities for employing ATGM but increased possibilities for the use of mines (especially off-route) and hand held anti-tank weapons.
- e. The possibility of forest fires. GENFORCE artillery (including MBRLs) has thermite rounds to use fire as a weapon.
- f. The complexity of C3I and the need for greater reliance on small sub-unit leadership and initiative.

The Offensive

1306. **General.** Motor rifle, and in particularly difficult areas, infantry formations and units are naturally preferred, at least to lead the advance where serious resistance is possible. However, great efforts will be made, even where the ground is exceptionally difficult, to bring at least some tanks and artillery in the direct fire role into action as their morale effect in unexpected places can be great.
1307. **Frontages, Echeloning, Objectives and Rate of Advance.** The advance will usually be organized on a wider front but in less depth than on normal terrain. A multi-axis advance using as many routes as possible is preferred to overstretch and confuse the defender, to conceal the principal axis and to ensure that any weak sectors are discovered and exploited. Because of the difficulty in building up combat power from the depth and the even greater problems that often inhibit lateral movement, there is a tendency for formations to deploy in a single echelon with a combined arms reserve. Similarly, shallower objectives are assigned than in open country as confusion and disruption are likely to set in more speedily, even if casualties are not heavier. In view of the difficulties in observation and orientation, the troops need distinct terrain features which are easily recognizable as objectives, eg. rivers and streams, ridges, clearings, crosscuts, tracks, the edges of swamps or islands within them. Intermediate objectives in the form of successive phase lines are needed to help maintain command and control. The rate of advance is expected to be one third to one half that normally planned for. Operations in forests and swamps require the most meticulous preparation and their execution has to be methodical to achieve significant results.
1308. **Organization.** Units and even sub-units will often act autonomously on an axis. Even when they are operating as part of a larger body, any attempt to carry out regrouping will inevitably be attended by delay and possibly disruption. For these reasons, in addition to the forward, raiding and (especially numerous) outflanking groupings, GENFORCE will often create assault detachments and groups capable of autonomous action within the main body. Each motor rifle/rifle battalion and company is reinforced with tanks, artillery (preferably SPs for use in the direct fire role), sappers (with flamethrowers and, in swampy areas, assault boats) and perhaps air defence and smoke generating means. Thus, sub-units become combined arms

groupings capable of coping with the sort of fragmented, low-level combat that characterizes forest fighting. The employment of artillery en masse will be possible only in exceptional cases and most will be decentralized to RAGs or placed in direct support of individual motor rifle battalions. At all levels, from unit upwards, extra engineers will be required for route opening and maintenance, mine clearing and the provision of safe drinking water. Additional reconnaissance and flank, logistic and headquarters security elements will be needed to cope with stay behind parties and raiding forces. Pack animals will be used to transport infantry support weapons and for resupply, thus increasing the off-road manoeuvre capabilities of at least some elements.

1309. **The March.** The organization of the march column is most important in thick woods, for it will usually be very difficult to implement changes during the course of combat. The only major differences from normal marches are as follows:

- a. Formations and units may be more deeply echeloned where there is a paucity of routes and where manoeuvre is easier to organize from the depth of deployment than laterally. Each unit and sub-unit will need to pay attention to march security. The fact that friendly forces are moving ahead is no guarantee that opposition will not be encountered.
- b. The role of reconnaissance and flank protection is enhanced. Reconnaissance troops will be reinforced by motor rifle and possibly tank troops, and each sub-unit will be responsible for its own protection against ambush or surprise. Flank guards will move closer than normal to the column, and if possible a flank detachment will advance on a route parallel to the main body on an exposed flank.
- c. Forward detachments assume a greater importance, both to forestall the creation of a defence line and to cover the deployment of the main forces. Their use is made easier by the concealment offered by the forest.
- d. Movement support detachments have to be stronger than in open warfare, not only to support forward movement but also to create lateral routes for manoeuvre. They will need extra bridging as existing bridges will often be too weak to support armour without reinforcement, and corduroy tracking will be needed to cross soft ground in swampy areas. Recovery vehicles will have to be deployed throughout the march column as a single breakdown or destroyed vehicle can, on some sectors, bring a whole unit to a halt.
- e. Strong air defence is vital on those sectors where roads are on causeways or are hemmed in by trees.
- f. Commanders move well forward so that decisions can be made rapidly on the basis of personal observation of the ground and enemy.

- g. Route marking and traffic control assume increased importance. Reconnaissance troops may reinforce the Commandant's Service for these purposes. Where possible, too, commanders will be given aerial photographs as well as maps, and these will be marked with phase lines based on conspicuous features as an aid to coordination and control.
1310. **The Attack.** Frontal attacks are disliked even more than in normal combat as it is more difficult to assess accurately the enemy's strength, alignment of defence and depth of deployment and reliably to achieve his suppression with artillery and air attack. The bold use of outflanking and heliborne detachments and groups to hit the enemy's flanks and rear is the usual response to strong resistance. There are differences in minor tactics from fighting in the open. To speed up the advance and provide intimate protection for tanks, infantry are often carried on the engine decks rather than in BMPs or BTRs to the rear and the infantry will lead the tanks in the assault. Armour will need protection from tank-hunting parties at all times, especially at night. Most mine clearing will have to be done by sappers by hand or with line charges as mine ploughs will be of only limited utility. Much artillery support will be in the form of direct fire and the importance attached to flamethrowers and the "bunker busting" RPO-A is increased. Contrary to standard practice, even companies will often keep a small reserve.
1311. **Deep Battle.** Forest-swampy areas will usually offer the defender a plenitude of possible depth defence lines. It is important to prevent the enemy from re-establishing a stable defence on these successive lines. Heliborne and forward detachments and groups are inserted/infiltrated to seize in advance road/track junctions, obstacle crossings, gaps between lakes and swampy areas and the far sides of large clearings to inhibit enemy manoeuvre and withdrawal and help to maintain the momentum of the main forces, especially those elements conducting parallel pursuit. The terrain will also afford great opportunities for the use of raiding and ambush groups and patrols to attack enemy artillery, HQs, logistics sites, etc and to disrupt movement for substantial periods on chosen routes.

Defence

1312. **Concepts.** Defence is established either outside the forest or several hundred metres in its depth, with outposts on the edges. It is not considered sensible to hold the edge in strength as it is too easily targeted by enemy artillery and air attack. Defence is organized in depth (in two echelons down to company level) and is based on a series of company strongpoints, employing all round defence, on key obstacles, track junctions, etc. The careful removal of underbrush is undertaken to create good fields of fire. Clearings are considered ideal for defence, with fire concentrated on the entrances from which the enemy will have to debouch. Anti-tank weapons, tanks and artillery in the direct fire role can be used to maximum effect in such a strongpoint. Strongpoints are well dug in and camouflaged so that the attacker will often be quite unable to pinpoint weapons. The gaps between them are patrolled and possible by-passes denied by obstacles and ambushes (GENFORCE recognizes the impossibility of forming a

continuous line in thick forests or in swamps). In swamps and marshes, the defender clings to islands, dunes, farms, clumps of trees and any natural elevations in the terrain. Artificial islands, such as anchored rafts, stacks of wooden planks or peat piles may be created and camouflaged. In areas of this type, GENFORCE believes a small but well trained unit, familiar with the terrain and determined to take every advantage of impassable stretches, ponds, fallen trees or peat pits is able to delay a numerically superior enemy for a long time. GENFORCE accepts the inevitability of penetrations, but maintains that they will not destroy the stability of the defence as long as it maintains control over all significant routes through the forest at points which cannot be by-passed by mechanized forces.

1313. ***Aggressive Defence.*** Stress is placed on making the defence active. Immediate counter attacks will be mounted, even by small groups, as soon as the attacker penetrates a position. Reserves are kept from battalion level upwards for this purpose. Speed is seen as more important than weight in a counter attack, and large reserves are eschewed in favour of numerous small ones kept near the forward positions at convenient track junctions. Concealed routes for counter attacks are thoroughly reconnoitred, and if necessary improved by engineers. GENFORCE will not wait passively for enemy attacks to develop. Continuous reconnaissance is mounted to determine the enemy's intentions and to enable artillery and air attacks to disrupt and delay his preparations. Raiding groups and patrols are infiltrated into the enemy rear or landed by helicopter to set ambushes and attack the enemy command and control and logistic systems and fire support.
1314. ***Reaction to a Breakthrough.*** Combat will develop as a confusing series of probes, attacks, encirclements, counter attacks and counter encirclements and deep raiding actions. Should the enemy succeed in converting local penetrations into a breakthrough, GENFORCE will endeavour to destroy the exploiting columns and close the breach by a series of attacks into their flanks. If, however, the enemy manages to split the defence apart and penetrate to open country beyond, GENFORCE is unlikely to withdraw all forces deployed in the forest-swampy area. Rather, units and sub-units, perhaps even formations, will be reorganized for raiding actions or limited counter attacks. Operating from hides in the fastness of difficult terrain, such groupings can be expected to harass and disrupt the enemy rear for an extended period unless a determined, resources and time consuming, effort is made to eliminate them. They will be sustained by aerial re-supply and may be reinforced by airborne troops.

SECTION 3 - TACTICS IN MOUNTAINS

General

1315. ***GENFORCE Definition of Mountains.*** GENFORCE describes as "low-mountainous" all terrain 500-1000m above sea level or rising 200-500m above the surrounding plain. Such ground is seen as making very difficult the use of massed armour. "Medium mountainous" terrain rises 1,000-2,000m above sea level or 500-1,000m above the adjacent countryside. It is

considered difficult to cross, with armour limited as to its choice of axes. Even higher features are described as “high mountainous”, virtually precluding the use of armour.

1316. ***Effects of Mountainous Terrain on Combat.*** Mountains hamper combat even more than forests, especially where they are medium or, even more so, high and/or wooded. Important tactical features include:

- a. *Sharp Relief.* This creates a lot of dead ground. The defence will suffer from problems in conducting surveillance. On the other hand, the attacker’s reconnaissance task will be made much more difficult. He will also find it difficult to use artillery effectively, and counter-battery fire will be especially difficult. In these conditions, artillery observation and attack helicopters assume increased importance, as does fixed wing close air support. Mountains also exercise a screening effect on electronic equipments, requiring extra signals support for units and formations.
- b. *Rivers.* Steep or broken banks, rocky bottoms, fast currents and a paucity of bridges make even small rivers into major obstacles (though some dried-up river beds may be used as “roads”, especially in summer).
- c. *Roads.* Road and track networks are often poor to non-existent, with low load carrying capacities. Routes tend to run along features and often have steep slopes on either side and ridge crossings are usually narrow. These characteristics make route denial easy and render march columns vulnerable to ambush. They also impose a requirement for extra engineer support, and for extra recovery and maintenance assets and logistics as there is increased wear and tear on equipments and increased fuel consumption. Some of the limitations imposed on manoeuvre by the lack of adequate roads can, however, be alleviated by the use of pack animals.
- d. *Axes of Advance.* These are limited to the valleys and other accessible areas and are frequently separated by inaccessible terrain. This makes it difficult to switch effort from one axis to another or to offer mutual support between axes. Nor will it be possible to maintain centralized control over a large proportion of artillery, engineer and logistic resources so as to deploy them quickly to a threatened sector or to exploit success as necessary. It also poses command, control and communications problems.
- e. *Limited Manoeuvre Space.* It is difficult to bring superior combat power to bear as terrain limits the force that can concentrate to attack on any axis.
- f. *Weather.* Mountainous areas are subject to frequent, often unpredictable changes in weather. These, especially when they result in flash floods, icing or deep snow, compound the problems posed by terrain.

The Offensive

1317. **General.** Naturally, the main burden of the fighting falls on MR or rifle troops. Tank units tend to be held in the second echelon/reserve to exploit more armour-friendly terrain when it is reached (eg, wide valleys, plateaux or “normal” going on the other side of the mountains.) GENFORCE will, however, make every effort to get tanks into the least accessible areas in view of their morale effect and usefulness in giving fire support.
1318. **Frontages, Echeloning and Objectives.** Zones of advance for formations and units tend to be much wider in mountains, even when compared with forest fighting, though actual attack frontages and force concentrations on them are much the same wherever the terrain permits. A single echelon formation (with a strong reserve) is usual because of the difficulty in passing one echelon through or round another and in shifting from one axis to another. Objectives, based on norms of distance, are abandoned altogether. Objectives are dictated by the nature of the ground. Success is seen to depend on gaining control of the passes, road junctions, built up areas and therefore the high ground which dominates them. As mountain fighting inevitably consists of a methodical clearing of valleys and of the ridges on either side, rates of advance will not exceed one third of those on the flat and may well be less.
1319. **Organization.** Units and very often sub-units have to be capable of acting autonomously, whether as forward, raiding or outflanking elements or as part of the main force. It is thus common to form combined arms groupings down to company level, particularly in medium and high mountains. Because of the restrictions imposed by the relief on both deployment and the ability to manoeuvre fire, artillery tends to be decentralized, with the battery becoming the basic fire unit and much of it being used in the direct fire role. Gun equipped artillery units will often be replaced by howitzer, mountain or heavy mortar units and extra manpackable 82mm mortars will be deployed in MR/rifle sub-units. Pack animals will be used to enable infantry to penetrate areas otherwise inaccessible with the burden of heavy support weapons and for resupply. Their quietness is seen to be an additional advantage for forward, raiding or outflanking detachments attempting to infiltrate by stealth. Limitations on the capabilities of artillery, on which GENFORCE normally relies so heavily, will be compensated for by increased use of smoke and of aviation, especially attack helicopters, for fire support. Considerable engineer reinforcement is usual, not only for MSDs but to provide 1-2 sapper sections for each motor rifle/rifle company. Additional radios and rebroadcast facilities will also be required.
1320. **The March.** The difficulty and loss of time involved in regrouping are often even greater than in forests, so the correct march formation assumes great importance.
- a. **Organization.** Units and sub-units will be formed into all arms combat groupings, each with engineer and recovery support. Columns move more spread out than on the flat to minimize the effectiveness of any ambush: march intervals are frequently doubled.

- b. *March Security.* Even greater emphasis is placed on reconnaissance, especially topographical. Strong combat reconnaissance patrols are formed, moving about 8km (half an hour) in front of the vanguard to prove routes, identify bottlenecks and possible detours/alternative routes and to locate ambushes. Helicopter reconnaissance will assume great significance in both assessing routes and in detecting enemy attempts to infiltrate into gaps in the march column to create ambushes or road blocks: such enemy diversionary attacks, even by small bodies, are seen to be a major threat. Flank security patrols will often be unable to move parallel to the main body, in which case foot patrols have to be leapfrogged forward, perhaps by helicopter, to picket the heights overlooking the valleys which provide the main axes of advance. Helicopters and, whenever available, fixed wing fighters are also important in providing air defence as mountains degrade the capabilities of air defence troops and offer many covered approaches to the air enemy.
- c. *Logistics.* Marches in mountains impose additional logistic burdens. Fuel consumption is expected to be 30%-50% higher, more vehicle spares and engineer stores will be needed, and extra radios are required for rebroadcast stations and static dismounted patrols. The use of pack animals for resupply will both ease problems created by the lack of roads and enable GENFORCE to operate in otherwise inaccessible areas.
- d. *Speed.* The norms for daily march rates are halved, and poor weather may slow columns down to a 5-8km/hour crawl. Night marches are seen to be very difficult, requiring careful preparation, and major night marches are unlikely if there is any likelihood of meeting the enemy.

1321. ***The Attack.*** There are significant differences from attacks on flat terrain. A thorough evaluation and subsequent exploitation of terrain are seen to be essential. Planning and orders require to be more detailed. For these reasons, and because there will rarely be sufficient routes and space for deployment, attacks off the line of march are uncommon, at least against a prepared defence. Most common will be attacks from a position of close contact, despite the loss of surprise and momentum that these entail and the vulnerability of the attacker to defensive fire while static prior to the attack.

- a. *Planning Attacks.* The most effective and typical tactic is seen to be the execution of a main attack along an accessible axis, coordinated with one or more separate detachments or groups advancing on difficult and possibly therefore unexpected axes. Thorough reconnaissance of all types is stressed, with, for instance, about twice the normal number of aerial reconnaissance sorties being flown. Wherever possible, gaps will be found in the defence and exploited to bypass strongpoints, breaking up the cohesion of the defence. If such gaps have not been left, then they have to be created by eliminating one or two strongpoints and then driving wedges into the defence. Frontal attacks are even less likely to succeed in mountains as it is difficult to deploy overwhelming fire and shock power and generate a high momentum of advance. Thus flank attacks and envelopment assume even greater than normal importance.

Outflanking detachments can vary in size from reinforced platoon to battalion groups, with company groups being most common. They are always as self contained as possible: for instance a company group would probably include an engineer section, a mortar platoon (probably 82mm, if the weapons were to be manpacked), anti-tank weapons and flamethrowers as well as normal weapons. A company sized outflanking detachment could be expected to infiltrate up to 10km into the enemy's depth, with a battalion going up to 15km over the line of contact - the limit of the practical range for artillery support. Where outflanking detachments cannot be used, heliborne sub-units will be used for vertical envelopment. Considerable use will also be made of heliborne raiding detachments to disrupt the defence and of larger air delivered groupings to fulfil the sort of mission given to forward detachments on normal terrain. The latter may operate in greater depth than outflanking detachments, relying on attack helicopters for fire support. Generally, much greater reliance than normal will be placed on close air support, both fixed wing and rotary, and control of aircraft will take place at a lower level.

- b. *Use of Tanks.* Tanks are restricted to valleys, roads and ridges and are vulnerable to mines and plunging fire (and to thrown tracks and clutch burn-out). They thus tend to be used in small numbers in broken terrain and as armoured artillery rather than for shock action leading the infantry in attack.
- c. *Night.* Night attacks on any scale are unlikely, given the immense difficulties involved. The cover of darkness will, however, be used to aid the infiltration of forward, outflanking and raiding groups.

Defence

- 1322. **Concepts.** The essential task is to prevent the enemy from gaining control of one or more valleys and thus forcing the mountain obstacle. The valley floors must be held (if they are wide, in the same way as in normal terrain), as must the shoulders and any commanding height positioned to control the through- routes. Mountain roads and tracks that could take the enemy through the obstacle or onto the flanks or rear of the main defences are also defended. Generally, the defence of a mountain range starts on the forward edge to take advantage of the target array presented by the enemy on the approaches to the hidden weapons on the heights. Successive positions can then be held to the depth of the feature, including in front of any exits onto a plateau which could offer the enemy opportunities for manoeuvre.
- 1323. **Organization of the Defence.** While mountains usually offer a plenitude of good defensive positions, GENFORCE maintains that defence will take longer to organize than usual. Very detailed terrain, artillery and air defence reconnaissance is needed and engineer preparation of routes and strongpoints will require extra time. On the other hand, GENFORCE is very conscious of the fact that, with adequate preparation, concealment and surprise are much easier for the defender to achieve in mountains.

- a. *Security Zone.* The enemy can and should be engaged forward not only of the main position but also in front of each subsequent one. This denies him timely intelligence, forces him into premature deployment and imposes casualties and delay. Given the nature of the terrain, security elements can be relatively small without loss of effectiveness, and their successful withdrawal from combat is usually easier than on the flat. The favourite tactic used is a combination of long-range fire from dominating features and ambushes.
- b. *Echeloning.* It is normal to deploy in two echelons at all levels down to company, though the trend towards the second echelon being as strong as the first is rarely replicated in mountains.
- c. *Defended Positions.* Defence is not linear but based on a series of mutually supporting strongpoints organized for all-round defence and shaped to take full advantage of the ground and catch the enemy in fire pockets. Areas between strongpoints are covered by mined obstacles, snipers, patrols and ambushes and artillery/mortar fire. Because of the nature of the terrain, strongpoints larger than platoon-sized will often cover up to three times the sector normal on the flat. Primary fire positions are generally on forward slopes to maximize fields of fire, a practice believed less dangerous than elsewhere as the enemy will have greater problems in identifying and engaging them.
- d. *Counter Attacks.* Counter attack forces are held from battalion level upwards. GENFORCE believes that small scale counter attacks mounted immediately can be very effective in mountains through exploitation of their familiarity with the ground and the exhaustion and disorientation of the successful enemy. At formation level, an airmobile reserve of at least a battalion is usually held to ensure a prompt reaction in usable strength to any penetration. Working in conjunction with local reserves, it is generally considered enough to eject the enemy from an important position or at least to conduct successful counter penetration from the next feature.

1324. ***Aggressive Defence.*** Mountain warfare offers excellent opportunities for the conduct of an active defence, often with forces that would be too small to be of more than nuisance value in normal terrain. Long-range patrols infiltrated or helicopter-lifted into the enemy rear can cause much damage, disruption and delay through raiding and ambush actions. Enemy outflanking detachments or groups can be effectively checked by ambushes and/or flank attacks. The unexpected use of remote jammers or mining or artillery concentrations in areas believed by the enemy to be free from observation will all be more than usually disruptive.

Combat Support

1325. ***Artillery.*** Centralized control of artillery will often be impractical because of the spatial separation of axes and/or crest clearance problems. Each axis is given its own artillery and mutual fire support cannot be counted on to

increase the weight of fire. Limited opportunities for manoeuvre and the paucity of suitable fire positions will result in the battery, sometimes even the platoon becoming the basic fire unit. Artillery support will usually take longer to organize thanks to difficulties in target acquisition and fire correction. Although difficult to organize because of the nature of the ground, there will be increased emphasis on using individual guns in either the direct or indirect fire role. The vulnerability of fire positions, and of artillery on the move, to diversionary attack may require infantry protection for the gunners.

1326. **Air Support.** Because of the limitations of artillery, both in reach and in the volume of fire it can concentrate, there is a greater than normal reliance on CAS. It will be used for counter-battery work, the suppression of strongpoints, the break-up of attacks and counter attacks, the disruption and delay of reserves and the engagement of reverse slope defences and concentrations. Control of CAS will be more decentralized than normal and “free hunt” armed reconnaissance will be more common. Helicopters will also become very important for reconnaissance, airborne CPs, relay links, jamming, moving command elements forward and resupply and casevac as well as for the insertion of patrols and raiding and forward detachments and groups. At the same time as placing greater emphasis on the air dimension, GENFORCE is aware of the limitations imposed upon it by communications difficulties, high altitudes, weather, temperature and turbulence problems and complications in route selection and manoeuvre.
1327. **Air Defence.** The terrain will surely complicate comprehensive air surveillance and long-range engagements, communications and the manoeuvre of assets. Consequently, more emphasis may be placed on manportable SAMs and small arms fire and on helicopters in the air to air role. On the positive side, there will be increased opportunities for laying air defence ambushes.
1328. **Smoke.** Lacking the usual weight of artillery support in the attack or counter attack, GENFORCE will expect to make increased use of smoke to cover manoeuvre and assaults.
1329. **Engineers.** Extra engineer resources will be required to cope with the increased demands for route opening, maintenance, uprating and repair, clearing of landing sites, position preparation in rocky terrain and possibly provision of water and/or cold weather shelters. As heavy plant will often be of limited utility, sappers and explosives will be in particular demand.

Logistics

1330. **Supply Norms.** Mountain fighting increases demand for many items. While fewer vehicles, especially AFVs, may be used, those that are employed will require up to 50% more fuel and the replacement of parts will also be higher. Small arms ammunition expenditure will be higher, as will that of artillery where there are problems in adjusting fire and the reduced effectiveness of rounds in trees or snow. Up to ten times the normal quantities of engineer explosives will be needed. Cold weather clothing and extra rations and water may also be required.

1331. **Conduct of Resupply.** The restricted road/track net, poor weather and enemy raiding actions are expected to hamper and delay logistic support and to restrict both tactical and operational manoeuvre (though these problems are alleviated somewhat where pack animals are available in significant numbers). An increased Commandant's Service will be required to cope with the problems of traffic management.

Command and Control

1332. **Locations of CPs.** These will normally be sited nearer to the line of contact than in normal terrain. Regimental as well as battalion commanders will establish COPs and lower formation main CPs may be as close as 4-5km. Auxiliary CPs will often be needed for groupings acting on separate axes and alternates may also be formed to hedge against the increased vulnerability of mains which are limited in their choice of location and ability to move. Airborne CPs will assume increased importance, especially if the tempo of operations grows.
1333. **Communications.** Relief will restrict the range of line-of-sight communications. This imposes a requirement for extra radios and the extensive use of rebroadcast facilities. Of course, the limited number of suitable sites will restrict mobility and present another vulnerability (these being predictable) to an active enemy. Helicopters will assume an enhanced role in helping to maintain communications and satellite communications will help to solve problems at higher tactical levels.

SECTION 4 - TACTICS IN DESERTS

Characteristics of Desert Terrain and Their Influence on Tactics

1334. **Tactical Features of Deserts.** Deserts actually vary considerably, but some common features that influence combat are as follows:
- a. **Going.** The road net is very limited and this, combined with lack of concealment, forces movement onto other terrain for much of the time. Here, trafficability can vary greatly. Dry, loose, sandy soil can hinder or preclude cross-country movement, especially for wheeled vehicles, though it may be possible early in a winter's morning before the sun has burned off the hard crust formed by the dew. Saline soil may, on the other hand, be rock-hard when dry but difficult to negotiate when wet. Gravel surfaces provide excellent going, but rocky surfaces may cause problems, particularly for wheeled vehicles.
 - b. **Relief and Obstacles.** Desert terrain is generally very flat (though with small tactical features that often do not show up on maps.) The sparsity or absence of vegetation and the dust clouds raised by movement (including by very low flying helicopters) make concealment difficult. The general featurelessness and absence of landmarks complicate navigation and orientation, though the widespread use of accurate satnav systems has reduced this particular problem considerably. Where some high

ground rises about the flat, up to 75% of the surrounding area will be visible from it. Mountainous areas and escarpments can be major obstacles, canalizing movement within and round them. Their commanding nature gives them considerable importance for both visual and radar surveillance. Shallow wadis (dried watercourses) impose only a minor delay to vehicles crossing them, though deep, steep-sided ones can form major obstacles. In either case, they can provide concealment.

- c. *Night or Day.* Visibility is generally excellent in early morning and evening but difficult up-sun in the heat of the day. The advantage of even a few metres of height to get above the heat haze is considerable. At the time of the full moon, night visibility is excellent, while even a quarter moon is adequate for driving without lights: no moon means total blackness. Temperature fluctuations affect movement. Daytime heat will not only affect traction in sandy soil but it may limit or even prevent movement altogether as the water consumption of men and vehicles grows to potentially alarming proportions.
- d. *Weather.* Rain may provide transiently good going in sand and turn other areas into a morass. Flash floods can make wadis a dangerous place to be. High winds, often blowing up suddenly and unpredictably, will create sand storms which dramatically reduce visibility and degrade communications. It is possible, on good going to move through them with satnav, but the damage inflicted by sand on machinery will cause severe serviceability and maintenance problems and the restriction of vision will lead to the dispersal of a grouping (and possibly to collision with an obstacle). On the other hand, even a complete calm will not prevent movement from creating tell tale dust clouds.
- e. *Water.* The security and location of water exercises a major influence on combat.

1335. ***Operational and Tactical Implications of Terrain.*** The features of operational and tactical importance are: water sources such as lakes, rivers, oases and wells; towns and villages; road junctions; airfields; economic resources (eg oilfields); high ground; and obstacle crossings. Combat will centre round control of these. As they are usually widely separated, desert warfare assumes an even more pronouncedly fragmented character than normal. Taking place largely over featureless terrain, it is predominantly manoeuvre warfare, with the meeting battle and engagement being the most common form of action: opportunities for positional defence and therefore also for attacks from a position of close contact with detailed preparation will be limited. There will almost always be possibilities for shallow and often for deep envelopment and for the early and rapid penetration into the enemy's depth by the elements of deep battles (forward, raiding and airmobile detachments and groups).

The Offensive

1336. **General.** The paucity of natural obstacles, the difficulty of concealing defending forces and the great scope for manoeuvre mean that the offensive is stronger than the defensive in desert warfare, even at the tactical level - providing that is, that air superiority can be achieved. In any operation, the desirable balance between tank and motor rifle formations will depend very much on the type of desert. The role of artillery and army aviation will be increased and extra engineer and, especially, logistic resources will be required. There will be a role for airlanded infantry in seizing tactically important features, but air assault troops with secondary mobility will be of more significance in the conduct of deep battle.
1337. **Frontages, Echeloning and Objectives.** Troop actions are bound to areas which have water supplies. The locations of these and airfields, together with the shape of the transportation infrastructure, will determine both objectives and axes. They will also determine the level of force concentration that can be achieved on a given direction. As a rule, geography will thus dictate that formation zones of advance will usually be wider than in temperate climes (this factor will also allow greater room for tactical manoeuvre when contact is made) and objectives will often be much deeper. As in normal terrain, the enemy's strength, density and depth of deployment will influence echeloning. There may, however, be an increased tendency towards operating in a single echelon in expectation of a meeting battle/engagement in order to maximize the power of the initial blow and to allow for the speedy envelopment of the enemy and penetration into the gaps in his deployment. In this event, a strong reserve would still be held.
1338. **Organization.** Given the wide dispersion of axes and substantial gaps that may thus exist between them, units as well as formations may have to operate autonomously with their own artillery, air defence and logistics resources to do so effectively. There will be more resources than normal devoted to the creation of forward, raiding, outflanking and airmobile detachments and groups for the conduct of deep battle. Moreover, these may be created at a lower level than is usual: thus, for instance, a regiment may deploy a forward detachment.
1339. **The March.** March formations will be similar to those on normal terrain, but there will nevertheless be peculiarities imposed by desert conditions.
- a. **Reconnaissance.** Strong reconnaissance detachments will be formed more frequently to fight their way through the enemy's reconnaissance screen and march security to get at the main forces. Reconnaissance will also be conducted to greater than usual depth.
 - b. **March Security.** Flank security becomes even more important in deserts. Flank detachments as well as patrols may be expected to be stronger and deployed further from the main body.

- c. *March Intervals.* Mainly because of the air threat but also because of problems caused by trafficability and vehicle-raised dust, vehicle movement is more dispersed, both in depth and, where the going allows it, laterally. Intervals are commonly 100-150m.
- d. *Air Defence.* The problem of defending a more than usually spread out grouping is compensated for by the lack of terrain concealment exploitable by the air enemy. Some formation-level assets will move further out to the flanks, both to cover flank detachments and to engage attacks on the main body early.
- e. *Rates of March.* When moving off roads with prepared surfaces, GENFORCE planners work on the basis of the following planning norms:
 - (1) Sand dunes, loose sand, shale: by day 7-8kph, by night 5-6kph.
 - (2) Sand valleys: by day 10-12kph, by night 8-10kph.
 - (3) Clay surface: by day 24-26kph, by night 22-24kph.

1340. ***The Attack.*** The attack from the line of march will be the norm. Frontal attacks being even more vulnerable than usual, thanks to long and uninterrupted fields of fire and, probably, extensive mining, GENFORCE stresses:

- a. *Intelligence* must have revealed the extent of enemy surveillance, the shape and strength of his defence (and a high proportion of individual locations), weak flanks and the position of counter-move forces.
- b. *Surprise*, to be achieved through rapid concentration and execution and through deceptive feints.
- c. *Concentration* of even greater superiorities than normal (7-8:1 tactically against prepared defences or 6:1 against a hasty defence).
- d. *Very Strong Combat Support*; large areas will have to be suppressed by EW and artillery. Concealment must be created where it is not afforded by terrain, ie by the use of smoke and dust (created by bombardment and by vehicles).
- e. *Flank and Rear Attacks* should comprise the main blow wherever the ground and air situation permit.
- f. *An Early Transition to Pursuit*; the penetration should be accomplished rapidly, by-passing centres of resistance where possible, forcing the enemy to abandon his defensive positions for fear of being destroyed in detail and thus forcing him to fight in the open without the benefit of prepared positions.

- g. *Seizing and Retaining the Initiative* is even more important than ever, and offers the greatest dividends in desert conditions; bold decisions, flexibility (both of mind and in C3) and military cunning are the attributes which bring success.

1341. **Minor Tactics** are little changed from normal terrain. Lack of concealment offered by the ground will, however, force earlier deployment into pre-battle formation: company columns are usually formed 12-15km from the forward edge and platoon columns are formed 3-5km distant. Infantry will more often attack mounted in their BMPs, supported onto the enemy position by the delivery of flechette rounds to suppress hand held anti-tank weapons.

The Defensive

1342. **General.** For the most part, ground is of no value in deserts. Base areas, ports, airfield complexes, water sources and politically and/or economically vital areas may have to be defended, but otherwise ground is not worth fighting for unless a favourable balance of attrition is achieved in doing so. The pressing need for the defender is to preserve his manoeuvre forces for decisive, offensive action. An inferior force will generally be prepared to trade space for time in order to wear the enemy down (not least in his capacity to support his formations logistically) in order to create favourable conditions for the recovery of the initiative through the offensive action that desert conditions favour.

1343. **Manoeuvre Defence.** Wide sectors and the inevitability of open flanks and/or gaps in deployment make manoeuvre defence the most common form of action in deserts. Ideally half or more of each formation, and where possible, of units as well, is held in the second echelon/reserve. Exploiting the limitation of the road-track net, areas of poor going and mining conducted by MODs and remote means, the first echelon will try to catch the enemy in fire pockets and ambushes. Then, taking advantage of the enemy's losses and disruption, counter attacks will be mounted by the second echelon to destroy him or, at least, to inflict further casualties and delay and to extricate the defending elements. GENFORCE is well aware of the temptation towards and dangers in dispersing the defensive effort, particularly at the operational level. Very strong forces must be kept in hand to meet the enemy's main effort, which will almost always consist of a sweep round an open flank to encircle defending formations.

1344. **Positional Defence.** The ground will offer relatively few opportunities for the conduct of positional defence at the operational level, though some favourable sectors may be held positionally in manoeuvre defence to provide a pivot for the manoeuvre of counter attack forces. Defensive positions are based on terrain which inhibits flanking moves and canalizes frontal attacks, ie mountainous areas, escarpments, soft sand or salt flats. Ideally, defences are sited in broken country which aids concealment and slows the enemy. Wadis and depressions are exploited to hide and protect both defences and second echelons/ reserves, and a good track net is desirable for the rapid manoeuvre of the latter. As in the case of manoeuvre defence, except on

the rare occasion when there are no flanks to turn, even positional defence requires that a good half of a defending formation be deployed in the second echelon/reserve. The counter attack, particularly against an enveloping attack, is the critical element in desert defence, on which the stability of the defence rests.

1345. **Defended Areas.** Given extensive fields of fire, defended areas are usually somewhat wider and deeper than on normal terrain. They are prepared for all-round defence and must be able to maintain themselves for long periods without resupply. Because of the difficulty in achieving concealment, more dummy positions than usual need to be prepared. Inevitably, there will often be substantial gaps between areas, and often between strongpoints within them. These are covered by surveillance means and patrols and may be plugged by remote mining and artillery fire/attack helicopters and/or by the actions of ATRs and MODs.
1346. **Position Preparation** generally poses considerable problems in deserts. Digging in in soft sand is not possible without re-vetments and explosive means are usually necessary in rocky areas. Moreover, there are rarely any locally available materials to be used. Concealment, too, is difficult. Positions must be more or less flush with the ground and high winds will disturb or ruin camouflage and shift sands to reveal defences and minefields.
1347. **Obstacle Creation.** With few natural obstacles, there is increased emphasis on anti-tank ditching (on suitable soils) and mining (including the extensive use of dummy obstacles for deception and controlled minefields to avoid inhibiting friendly forces' manoeuvre). Tactical and, especially, protective mine-fields are important to shape the battle but, given the unpredictability of a battle's development and logistic constraint, even more emphasis will be placed on mining during the course of combat by MODs, artillery and aircraft. Increased resources will be devoted to this.

The Air Dimension

1348. **General.** The general absence of cover from vegetation or relief makes airpower even more effective than usual against the ground forces and thus increases its importance in the struggle for electronic-fire superiority and for securing one's own freedom of manoeuvre and inhibiting that of the enemy. Air superiority is critical for operational, and often for tactical, success. In view of the great distances involved in, and the heavy logistic demands of, desert warfare, interdiction can exercise a decisive effect on the outcome. BAI can have an important influence on the crucial struggle for time, as well as inflicting significant casualties, and CAS will often be required to substitute for artillery support when the tempo of operations has outpaced the ability of the artillery to keep up and/or when the spatial spread of combat has precluded the massing of artillery fire on a given sector.
1349. **Coping with Air Defence.** The lack of terrain masking and consequent long looks for surveillance radars and long shoots for SAMs significantly reduce the protection offered by low level approaches. In particular,

helicopters flying very low are liable to betray their presence by the dust clouds they create and they will find it difficult to act from ambush. Attack from an up-sun direction can reduce the effectiveness of air defenders relying on optical tracking, but generally air attacks will require a greater SEAD effort if unacceptable casualty rates are to be avoided. Even more intimate cooperation than usual will be required between attack helicopters and artillery.

Logistics

1350. **Problems.** Desert warfare considerably increases the strain on the rear services. The demand for fuel, water, spares and maintenance is considerably increased. These problems are exacerbated by the greater dispersal of units, the lack of cover and concealment and the increased possibilities of enemy ground raiding actions as well as air attack. Nor will there be much in the way of local resources which can be tapped by logisticians. Furthermore, being largely reliant on wheeled vehicles, the rear services will not be able to follow combat elements in some areas and will move much more slowly, lagging behind in others. This factor, as well as increased consumption, will impose a limit on the freedom of tactical and operational manoeuvre enjoyed by commanders.

SECTION 5 - TACTICS IN CONDITIONS OF EXTREME COLD

General

1351. **Scope of the Problem.** While at their most acute in the Arctic, the problems of operating in conditions of extreme cold can affect operations in other areas as well. Moreover, in many areas, they will not be faced in isolation. On the contrary, they will often be an additional complication to other difficulties of warfare under other special conditions - ie, in mountains and forests. Thus this section should be considered in conjunction with Sections 2 and 3 of this chapter.

Effects of Extreme Winter Conditions on Combat

1352. **Mobility.** Tactics are considerably limited by the effects (mainly restrictions) on mobility.
- a. **Water Obstacles.** Swamps, rivers and some lakes become passable as a result of freezing: ice 10cm thick will bear fully equipped motor rifle troops, and when 70cm thick it will support at least GENFORCE tanks.
 - b. **Snow.** Deep snow makes orientation difficult. It also considerably reduces march rates.
 - (1) Motor rifle troops on foot can cover 3-4km per hour in snow less than 30cm deep and half that in deeper snow. A day's march is reckoned to be only 12-24km. Infantry can, however, be carried on the engine decks of tanks to increase their mobility.

- (2) Ski troops can cover 3-6km per hour and 32-40km per day. Formations in the Far North undertake ski training, and reconnaissance and dedicated raiding elements in particular must be expected to be proficient. Motor rifle troops on skis can also be towed by tracked vehicles (two sections by a tank or one by an APC).
- (3) Tracked vehicles can cover 18-24km per hour, reducing to 10 when the snow is 50-75cm deep: when the snow is deeper than 75cm, movement is confined to roads. Tracked vehicles can accomplish a march of 96-112km per day. In the Far North, specialised vehicles with extremely low ground pressure are used for both combat and service support tasks - eg MTLB is used as the standard APC and GT-T and GT-TS are employed as prime movers and logistic vehicles. Motorized sledges and pack animals are also used to enhance off-road mobility and thus increase the scope for tactical manoeuvre. The quietness of the latter enhances their value in areas where sounds carry for great distances.
- (4) Engineer reconnaissance and route preparation assume increased importance.

1353. **Efficiency.** The capabilities of both men and equipment are severely reduced, with consequent effects on planning norms. All military activity is greatly slowed down and the debilitating effects of severe cold have to be taken into account.

- a. *Personnel.* The efficiency of soldiers is reduced by extreme cold, and troops ill-trained or equipped for it will suffer casualties and an even greater than normal loss of effectiveness. Much effort must be expended in creating warming shelters, and much time spent in them.
- b. *Equipment.* Mechanical efficiency is impaired, especially in equipments not designed for the conditions. Communications may be interrupted by storms and electromagnetic anomalies.
- c. *Weapons' Effect.* Deep snow lessens the effectiveness of artillery fire and mines. Air activity is limited by fog, snow storms, low cloud ceilings and the ever present threat of icing.
- d. *Visibility.* Snow blindness is an ever-present danger and the difficulty in determining the true horizon complicates orientation.

1354. **Special Arctic Conditions.** The long polar day in summer makes concealment and surprise more difficult to achieve. The polar winter night creates command and control and target acquisition problems. Mobility is restricted in even the lowlands in arctic regions by the rocky nature of the terrain strewn with boulders and scree.

1355. **Logistics.** Cold weather warfare increases the logistic burden. Special clothing, rations, fuel and lubricants and shelters have to be supplied. Extra

spares and artillery ammunition (especially of some natures) are needed. The restricted mobility of wheeled transport imposes tactical limitations which are only partially alleviated by the use of over-snow vehicles and pack animals.

The Offensive

1356. **Frontages, Echelons and Objectives.**

- a. *Frontages.* Where terrain and snow limit manoeuvre, formations and units will usually be allotted larger than normal zones of advance. Unit and sub-unit attack frontages may be restricted by conditions.
- b. *Echelonning.* If lateral manoeuvre to shift axes is precluded, formations may well advance in one echelon, with a reserve. Units and even sub-units may attack in two or even three echelons, not necessarily from choice, but because of limited off-road mobility.
- c. *Tactical Objectives.* Roads and tracks assume a crucial importance for both manoeuvre and speed of advance. Villages and towns and, to a lesser extent, forests (though not, of course, in tundra regions) are significant, quite apart from their tactical location, as sources of warmth and shelter: they may be contested solely for this reason.

1357. **The Attack.** Basic tactical concepts do not differ greatly from those in “normal” conditions, though there are modifications and shifts in emphasis.

- a. *Limitations on Manoeuvre.* Often artillery and even tanks may be limited to the roads, especially during the period of thaw. This may oblige GENFORCE to conduct consecutive frontal attacks as the only way to build up pressure. They will, however, make every effort to attack the enemy’s flanks and/or rear. Even small outflanking detachments, eg, of company size, are seen to have a disproportionately great effect on the enemy. Often, mechanized elements will advance on roads with ski sub-units moving parallel to them to infiltrate the defence (advantage may be taken of bad weather to achieve infiltration undetected and to achieve surprise in the attack). Where the enemy’s flank rests on a lake or the sea, an outflanking detachment could consist of amphibious light tanks and APCs: accounts of GENFORCE exercises describe tactical moves of 15km or so by sea. Operational outflanking can be accomplished by naval infantry carried in assault shipping. Great emphasis is also placed on vertical envelopment, tactically by heliborne forces and operationally by airborne. Again, small forces are believed to be potentially very effective; for instance, a heliborne company astride a key route in the enemy’s depth could unhinge the defence by stopping or at least delaying resupply or reinforcement.

- b. *Speed.* Attacks take longer to mount than in “normal” conditions. It is also much more difficult to generate momentum. To ease these problems, and to reduce fatigue and exposure to the elements, waiting areas are sited closer than normal to the enemy prior to an attack. Second echelons also move closer to the leading elements to reduce committal times. Because the momentum of the advance is of necessity somewhat slow, there is greater emphasis than ever on carrying the battle into the enemy’s depth to prevent his timely recovery from tactical reverses.
- c. *Initiative.* As in other combat under special conditions, cold weather warfare is seen to demand a greater than normal degree of initiative and independent action from low level commanders, eg of forward, outflanking and raiding detachments and groups.

Defence

- 1358. ***Lack of Continuous Front.*** The defence will be concentrated on likely approaches - the roads and areas of light snow. Ideally, strongpoints will be sited in forests (where these exist) and villages for the shelter they provide as well as for tactical reasons. Gaps between strongpoints will be patrolled by ski-troops to prevent undetected infiltration by the enemy.
- 1359. ***Concept in Defence.*** GENFORCE hopes to use the weather as an ally in defeating attacks. Every effort will be made to force the enemy off the roads and to deny him shelter. In this way, the enemy’s progress will be slowed, his troops tired and affected increasingly by exposure to the elements.
- 1360. ***Problems.*** The preparation of defensive positions takes much longer than in “normal” conditions. Shelters from the weather have to be constructed as well as defence works, and all engineering tasks will take much longer. Once the defence is established, it is held that only one third of a unit’s strength can actually man their positions at any time; the rest are in warming shelters.

Combat Support

- 1361. ***Limitations on Fire Support.*** Several factors combine to reduce the effectiveness of artillery support. The effectiveness of HE is reduced by snow, requiring an increase in norms for expenditure. Rates of fire are also reduced by the increased time required to prepare ammunition and to maintain weapons. The manoeuvre of artillery to avoid counter-battery fire may be circumscribed by terrain and snow conditions and displacement forwards to support attacks may be complicated and slowed by clogged roads. The availability of air support cannot be relied upon because of the vagaries of weather.
- 1362. ***Engineer Support*** will be in great demand to prepare routes and keep them clear, prepare artillery fire positions, fortifications and shelters and keep airfields and forward operating bases in usable condition.

Logistics

1363. **Problems.** Demands for increased supply of artillery ammunition, extra spare parts, cold weather stores and maintenance effort impose extra strain on the system. Logistic traffic will also have to compete with combat units for scarce road space (a problem that can be alleviated by the extensive use of pack animals and over-snow sledges). These factors, together with enemy raiding actions will tend to circumscribe manoeuvre and slow down operations. To an extent, these problems are overcome by stockpiling well forward, but this in turn both limits flexibility and increases vulnerability to enemy action. The use of over-snow vehicles and pack transport will alleviate these problems, but will not eliminate them.

SECTION 6 - TACTICS IN URBAN COMBAT

General

1364. **Types of Built-up Area.** GENFORCE divides urban areas into four classifications. A city has a population of 100,000 or more and a perimeter of over 25km; a large town's population is 50-100,000 and its perimeter is 15-25km; a small town has fewer than 50,000 inhabitants and a circumference of under 15km; anything smaller is a village or hamlet. The last two types are seen to pose lesser problems in fighting in built-up areas (FIBUA), not merely because their small size will swallow up fewer troops but because their layout is easier to master and they contain fewer large, strongly built, defensible buildings. On the other hand, large towns and cities contain many steel-reinforced concrete buildings such as municipal offices, hotels, factories, apartment blocks and multi-storey car parks that are resistant to bombardment and thus make excellent centres for defence. They often contain elaborate underground systems (sewers, amenities, tunnels and metros) which add a dimension to manoeuvre and combat. Older ones also frequently have complex street plans that can be confusing and well suited to defence. The problems involved in dealing with larger areas are thus very much more difficult than those of the smaller, requiring different techniques.
1365. **Characteristics of FIBUA.** Fighting in large built-up areas, and to a lesser extent in small towns and villages, is characterized by the following.
- a. **Consumption of Resources.** FIBUA tends to require large numbers of troops methodically to clear the area, yet it is difficult to make superior numbers tell as there is little scope for manoeuvre and deployment. It also leads to high casualties and a sharp increase in the expenditure of ammunition and other items of supply, thus imposing considerable additional burdens on the rear services.
 - b. **Fuel-Air Explosives.** GENFORCE does, however, expect that its extensive use of FAE will help significantly to reduce both casualties and ammunition expenditure compared with historical FIBUA. Munitions relying not on the effects of fragments to cause casualties to the enemy

but on blast waves which are unaffected by cover from HE fire and which are particularly lethal in confined spaces will greatly ease the capture of even the strongest buildings. Racks for launching large calibre, FAE-tipped rockets can be attached to tanks in the same fashion as containers for rocket propelled mine-clearing line charges. Smaller munitions are available in quantity in the shape of the manportable RPO(A).

- c. *Fragmentation of Combat.* Fighting degenerates rapidly into local battles by small groups. Centralization of C2 rapidly becomes impossible and it is necessary to give sub-units, even down to platoons, a large measure of tactical autonomy.
- d. *Complicating Factors.* Destruction caused by bombardment, fires, mined obstacles and booby traps, combined with limited observation and fields of fire limit manoeuvre, hinder the application of effective fire and pose great coordination problems (on top of those already existing thanks to communications blind spots).
- e. *Rates of Advance* tend, for all the above reasons, to be very low.

1366. ***Avoidance of FIBUA.*** Because of its characteristics, GENFORCE prefers to avoid major FIBUA battles wherever possible.

- a. *By-Passing.* If it can, GENFORCE will endeavour to by-pass a built-up area, at least with the first operational echelon. It may, however, be forced to try and capture a town or city because it is vital ground (eg, an economic or political centre, a transportation hub or port), because it is unavoidable as a result of the spread of urbanization or because it is necessary to protect an exposed flank. If an area held by the enemy is by-passed, it will be masked by a flank detachment. The decision to attack or by-pass will be taken at army/corps level or above.
- b. *Preempting the Defence.* If the operational commander decides that a built-up area has to be taken, he will try to prevent the enemy from preparing strong defences. This can be accomplished by achieving surprise, with a rapid rate of advance bringing his forces to the area before the defender has time to react effectively. Alternatively, the enemy can be prevented from occupying the town or city by using airborne, heliborne or forward detachments to block the approaches and thus prevent reserves or withdrawing forces from entering the area. Meanwhile, GENFORCE will endeavour to destroy his main body in a series of meeting battles. Another form of preemption is for an air assault force (preferably in BMDs) or a forward detachment to penetrate rapidly, by-passing as yet unprepared opposition to seize vital ground in the urban area before it can be prepared for defence and then await the arrival of the main forces. (Airborne forces may be used in this way to conduct a raid on a government or military C3 centre to decapitate the enemy's political or military leadership).

- c. *Massive Bombardment.* GENFORCE might well follow some historical precedents and seek utterly to destroy a town or village through intense land and air bombardment with high explosive and incendiary munitions, reckoning that a force moving in immediately after its termination would face little or no organized resistance. This option would, of course, consume vast quantities of ammunition (unless the target was very small) and may thus be impractical in manoeuvre warfare where logistics impose considerable constraints. The time required to clear routes through the devastation could also outweigh the possible savings in casualties.

Attacks on Villages and Small Towns

1367. **General.** There will be three circumstances in which GENFORCE might find it necessary to attack, rather than to bypass, a village or small town.
 - a. *Blocking Position.* Where a built-up area straddles a through route that will be needed, for instance in a valley, it will often have to be cleared.
 - b. *A Web of Defended Villages* within mutual supporting distance may be the enemy's chosen method of denying progress across an otherwise obstacle-free plain. Some key villages will have to be taken to open up possibilities for generating tactical or operational manoeuvre.
 - c. *High Value Targets* such as HQs or key logistics facilities will be sited in built-up areas. They will be the objective of raiding detachments or groups.
1368. **The Tactical Problem.** Small built-up areas consist generally or entirely of buildings of light construction. There are often relatively large open areas between buildings and streets. The defence will usually start with small combat outposts 1km or so outside, on routes leading in, or perhaps in the village outskirts. It will be all-round defence, usually with a centre of resistance inside the village/town, based on whatever substantial buildings exist (eg, a church or municipal offices). Resistance may well be light and fragmented if the enemy has had no time to prepare, and even when preparation time has been adequate, the enemy will often lack enough troops to mount a serious defence of anything other than the centre of resistance.
1369. **The Attack.** GENFORCE stresses a speedy seizure from the march where the defence is light and/or ill prepared. Often, a systematic clearing will not be necessary, especially in the case of a raid: a quick dash to take the centre of resistance before the enemy can react is the ideal. Where there is a prospect of more serious resistance, the following course is adopted.
 - a. *Organization.* FIBUA assault detachments and groups may be formed (see paragraph 1373) if the enemy is believed to be in strength and well prepared. Against a hasty defence, however, it is considered inadvisable to lose time through regrouping, though it will be resorted to if the attack fails initially and has to be renewed as an attack from a position of close contact.

- b. *The Advance Guard.* The vanguard will clear combat outposts and establish an overwatch position (preferably reinforced with medium artillery in the direct fire role). The main guard, supported by the vanguard, artillery and possibly attack helicopters and the use of smoke will then establish a foothold in the edge of the built-up area to provide a place for troops to enter the locality which is covered from enemy fire. A small village (about 2-4 streets) may then be cleared by the advance guard alone. A larger one will require the committal of additional troops from the main body, probably passed through the lodgement. Then the erstwhile advance guard will either become the second echelon or it will assume responsibility for a sector.
- c. *The Main Body.* Elements of the main body, usually tank-heavy to leave as many motor rifle troops as possible for the clearance action, are used to conduct an envelopment of the built-up area and set up blocking positions to prevent the enemy from reinforcing and to destroy any defenders as they attempt to withdraw. Forces used to take the village or small town may be committed either through the advance guard or possibly used to mount a flank attack if the enemy has concentrated his resources against the latter.
- d. *Combat Support.* Troops in lightly constructed buildings are quite vulnerable to artillery fire, particularly if they have not been given time to prepare houses properly for defence. A short but intense bombardment will drive the defenders into cellars and lower morale so that an attack which follows immediately on its conclusion will be greatly aided. To ensure a rapid exploitation of the effects of fire, assault troops may often approach within normal (ie, open country) safety distances. Direct fire support, preferably conducted by medium artillery, is considered essential for house clearing, so some SPs will be attached to assault companies (up to a battery on the main axis). Smoke cover is also necessary to minimize casualties: smoke pots, grenades and mortar laid white phosphorous (WP) will be used extensively to conceal both attacks on defended houses and infantry using infiltration tactics. WP and thermite rounds may also be employed to create fires which will force the withdrawal of defending troops and provide further smoke.

Attacks on Large Towns and Cities

1370. ***The Tactical Problem.*** The defence is expected to depend on centres of resistance, ie linked blocks of buildings of very strong construction, ideally steel reinforced ferro-concrete. Between these, strongpoints consisting of groups of 2-3 buildings will be held. These will be mutually supporting and organized for all-round defence. The main line of resistance may well follow the line of a natural obstacle (rivers and canals being particularly difficult to force in built-up areas owing to the nature of their banks and the fact that they are everywhere overlooked). There may also be a citadel into which area the defender will concentrate for a final stand. Given time to prepare, GENFORCE expects the enemy to prepare an elaborate system of obstacles to stop armour (especially at intersections and across parks and wide streets)

and to separate tanks from infantry. Some structures will be demolished to create fields of fire for ATGM and other weapons, others will be reinforced to withstand bombardment (particularly isolated, sturdy buildings which make good strongpoints). Communications routes will be reconnoitred and prepared through terraces ("mouseholing" from attic to attic) and using covered trenches, sewers and tunnels.

1371. **Forms of Attack.** As with smaller built-up areas, GENFORCE will try to take a large town or city from the march. In the event of this failing, or if intelligence has shown the area to be well defended, an assault from close contact with detailed preparation will be mounted from the lodgement seized by forward elements. In either case, the attacking forces will try to advance rapidly and deeply on axes suited to armour (eg, through-routes, wide streets, parks) to prevent the enemy from organizing his defence on favourable lines and to fragment the defence into uncoordinated segments. Where possible, forward detachments will infiltrate to establish themselves on an identified main line of resistance and/or the citadel before the enemy has fallen back to man them for defence. They will often act in cooperation with heliborne troops conducting vertical envelopment. Meanwhile, first echelon units and sub-units will try to bypass strongpoints (often using subterranean envelopment) to maintain momentum. By-passed areas are neutralized with artillery and sealed off using minimal first echelon elements: they will then be reduced by the second echelon. The remainder of this sub-section will deal with the attack with detailed preparation.
1372. **Reconnaissance.** Thorough reconnaissance is even more important than ever in FIBUA. During the approach to a defended town or city, GENFORCE will hope to build up a picture of the defence from agents, DRPs, SIGINT and formation reconnaissance patrols. Detailed street maps, plans of sewers and utilities tunnels and aerial photography will be provided where possible. As built-up areas provide excellent concealment, however, much will depend on tactical reconnaissance patrols and dedicated reconnaissance units and sub-units will be reinforced to cope with increased demand. Expensive reconnaissance by battle will often prove necessary, especially on the main line of resistance. At all levels, commanders will conduct a personal reconnaissance before mounting an attack.
1373. **Organization for Combat.** Invariably, FIBUA degenerates into a series of sub-unit actions with command and control at higher levels becoming weak at an early stage. Therefore, GENFORCE stresses the importance of forming combined arms assault detachments and groups that are capable of operating autonomously to achieve their objectives.
- a. *Assault Groups* are the basic building blocks in FIBUA. They comprise a MR company reinforced by: a tank platoon; a SP battery or platoon (preferably 152mm); 2-4 mortars; 2-4 ATGM; 2-4 anti-tank guns; up to a sapper platoon; a flamethrower or RPO-A section and, whenever possible, a flamethrower tank; some chemical defence personnel for smoke generation; possibly a 2S-6, not only for air defence but also to be used in the ground role. The precise strength of each assault group

will depend on the importance of its axis and on the terrain.

- b. *Break-down of Assault Groups.* Each assault group will be organized into some or all of the following sub-groups.
 - (1) *Reconnaissance and Obstacle Clearing* sub-group. Some sappers and riflemen, possibly with a dozer and/or mine plough tank will reconnoitre the structure of obstacles and the objective and clear or widen passages through the former and, if necessary, open an entry point in the latter with shaped charges.
 - (2) *Fire Support* sub-group. Tanks, BMPs, SP howitzers, machine guns, grenade launchers, RPGs and snipers are used to suppress all known or suspected fire positions in the objective and adjacent structures to cover obstacle clearing and the assault: SP and/or tank fire may be used to open an entry point for the assault group. Chemical troops will usually be available to create smoke in greater quantities than is possible using smoke grenades: it is used for deception as well as to cover the assault and any attempt at infiltration.
 - (3) *Assault* sub-group. Usually of platoon size with a flame thrower or RPO-A, this group is used to clear the objective.
 - (4) *Cut-Off* sub-group. Where possible, a cut-off sub-group will infiltrate into the enemy rear to engage any enemy attempting to withdraw from the objective and to intercept a counter attack force.
 - (5) *Reserve* sub-group. This will be of platoon or section strength. It may reinforce the assault force in dealing with a large building and/or help to consolidate on the objective.
- c. *Artillery.* About 50% of available artillery will be decentralized to assault groups for use in the direct fire role (a 44kg 152mm round makes a much better entry point into a building and shakes the defenders much more than a high velocity tank round). In keeping with the fragmented nature of combat and because of problems of target identification and clearance of buildings, most of the remaining artillery is used in direct support of assault detachments and in forming unit level artillery groups. Heliborne OPs and the infiltration of OP parties with reconnaissance patrols will be important to ensure the accurate engagement of targets.
- d. *Engineers.* Extra engineers are always needed in FIBUA. MSDs are needed for each main street to clear rubble and bridge gaps. Sappers in large numbers are needed to help manoeuvre by: clearing passages through minefields and other obstacles; breaching walls and railings to aid covered movement through courtyards and gardens (as streets are best avoided), mouseholing from house to house in terraces or large buildings; disposing of booby traps and demolition charges on bridges and in underground passages; demolishing defended structures or

creating entry points. They will also be important in obstacle creation (above and below ground) in anticipation of counter attacks and for the provision of water.

- e. *Chemical Defence.* Smoke is required in considerable quantities to cover manoeuvre and attacks, and more than the usual allocation of flame equipments is needed.
- f. *Air Defence.* The main air threat will be to artillery deployed in open spaces, to reserves concentrating or moving forward and to manoeuvre away from the line of contact. Often, there will be a surplus of air defenders after these are protected and some 2S-6s may well be available for use in the ground role.
- g. *Logistics.* There will be considerable extra demand for ammunition, especially tank HE, small arms, RPG rounds, grenades, explosives, flame munitions and man pack radios.

1374. ***Echeloning, Frontages and Objectives.*** These will all be radically different from combat in the open.

- a. *Echeloning.* Formations may well attack in a single echelon with a relatively small combined arms and anti-tank reserve. This will enable them to press forward on as broad a front as possible, maintaining pressure on the entire defence. At unit and sub-unit levels, however, the attack is always deeply echeloned. Even assault groups form a reserve.
- b. *Frontages.* Where opposition is strong and systematic clearance is necessary, an assault group will be allocated a single street, with a platoon working up each side. Thus its frontage will be only 200-300m, and that of an assault detachment will be 400m-600m. A motor rifle regiment could be responsible for 2-3km and a MR division or brigade twice that if by-passing is permitted. Of course, single, very large buildings are easily capable of swallowing up an entire regiment.
- c. *Objectives.* Assault detachments are allocated an immediate objective, perhaps 1-2 city blocks or a single strongpoint, and thereafter a direction of further advance.

1375. ***Assault Groups in the Attack.*** The basis of FIBUA tactics is the application of overwhelming fire to cover all movement and attacks.

- a. *Advance to Contact.* Against light opposition, motor rifle troops will usually advance down main and some side streets, on both sides of the road behind tanks, with each column covering the opposite side of the road with its weapons. When the enemy is encountered, house clearing drills will be initiated and, in an effort to maintain momentum, infantry elements will endeavour to continue the advance by outflanking the defenders, infiltrating forward through gardens, or a combined arms sub-group will try to utilize a parallel side street.

- b. *Attacking a Strongpoint.* Where possible, an intense but short artillery preparation is fired, under cover of which the various sub-groups get into their covering fire and assault positions and the cut-off group infiltrates into the enemy rear. The fire support sub-group (and, if necessary, smoke) covers the obstacle clearers as they create paths through mine and wire obstacles and blast entry points in houses. Fire is not stinted. Every known and possible fire position which can bear on the attack is suppressed (preferably by two weapons - organizing the distribution of fire is a complex and time consuming task) and the fire preparation concludes with the laying of smoke. This is used not only to conceal the real attack but also for deception and for reconnaissance (to persuade weapons on fixed lines to open fire). Defensive fire having been thoroughly suppressed, the assault sub-group, covered by smoke and preceded by flame into the chosen entry point created by artillery or satchel charge, gains a lodgement in the building. The building is then methodically cleared, room by room, with grenades and (if available), flame being used before each is entered by infantrymen. Assault sub-groups always have ladders and grapnels to get to upper storeys if the stairs have been demolished. (Upper floors are cleared after the ground level one, and basements are guarded until dealt with last). Once the building is taken, sappers disarm booby traps and the fire support sub-group consolidates the building and prepares to cover the advance to the next.
- c. *Terraces.* The first house has to be entered on the ground floor, but thereafter they are cleared from the top down, with movement from one to the next being via "mouseholing" through the attics. When dealing with a street of detached houses, approaches and subsequent movement are always through gardens to avoid fire-swept streets. In advancing down a street, houses are taken alternately on each side so that flanking fire from one newly captured house can support the attack on the next.
- d. *Isolated Buildings* of strong construction are often used as strong points as they have good fields of fire. They are demolished by underground explosion or artillery (sometimes using MBRLs) and then attacked from two or even three directions simultaneously.
- e. *Consolidation.* At all levels from assault group to formation, consolidation receives unusual stress. At the lowest level, snipers, artillery observers, booby traps and mines have to be eliminated or casualties will be taken. Counter attacks will be frequent, usually very early to take advantage of the disorganization inevitable in house clearing. At all levels, anti-tank defence is considered important as the success of offensive action is seen to depend on using a combined arms team. There is, however, an important exception to this rule. Enemy infantry can infiltrate back into cleared areas using garden or underground approaches and cause great problems by raiding and setting ambushes. Mining, patrolling and underground demolitions must be used to prevent this.

1376. **Air Support.** Problems of identifying friendly from enemy forces virtually precludes CAS, even by attack helicopters, save for attacks on isolated buildings and across open spaces such as parks. Most offensive air effort is devoted to suppressing enemy reserves, HQs and logistic support, and to escort and shoot-in air landings in the enemy rear. BAI is, however considered vital to prevent the enemy from reinforcing and resupplying the defenders and air reconnaissance is also very important.
1377. **Command and Control.** Problems of observation to get a coherent picture and in communications will beset every level of command: the higher the level, the worse the problem. GENFORCE copes with this in several ways.
- a. *Responsibility* is devolved downwards along with resources.
 - b. *Commanders* move well forward to keep a personal grip on the battle and to urge subordinates on. Even assault detachment commanders and their supporting artillery commanders will be as close as 200-300m from leading sub-groups. Unit and formation commanders will move on the main axis but will often despatch trusted staff officers to maintain a vicarious grip on elements on subsidiary axes.
 - c. *Orders* are very much more detailed than in open combat.
 - d. *Detailed and Alternative Signals Plans* are prepared, making extensive use at lower levels of such visual signals as coloured smoke, Very lights and of runners where radio and line cannot be relied on.

Defence of Large Towns or Cities

1378. **Operational Considerations.** GENFORCE foresees the likelihood of having to fight for major urban centres, to deny a port or transportation hub to the enemy or to protect an important administrative or economic centre. The decision as to which will be defended will be as much political as military and taken at the strategic level. It does not follow, however, that steps to prepare a large town or city for defence can be put off until orders are received from the SHC. Plans are worked out in advance and resources gathered to implement orders as soon as they are received. It takes up to two weeks to make such an area truly defensible and hasty preparation is seen usually to be ineffectual. In planning the defence of a city, GENFORCE foresees an operation developing in three phases, though the rest of this section will go into some detail only on the final one.
- a. *Forward Defence.* Satellite towns and villages and industrial sites should be held for as long as possible to inflict delay and keep open road, rail and air links with the rear.
 - b. *Perimeter Defence.* GENFORCE likes to make a stand on the perimeter, both to exploit to the full the plentiful concealment and long-range of weapons using it and to ensure that the enemy cannot seize the city from the march or even to insert forward detachments to destabilize in

advance the defences within the city. Ideally, the enemy can be defeated outside by a well organized defence and counter attack. Failing that, he can at least be canalized in a direction favourable to the defence. The enemy will also be forced to deploy his main forces to break into the urban area and to use up precious time in organizing a storming. The aggressive action of strong reconnaissance detachments in this and the previous phase will be considered necessary to reveal the enemy's grouping and concept in advance and to hamper the actions of forward detachments.

- c. *Defence within the City.* A favourable defensive line will be selected that offers maximum protection and observation to defending troops and denies as much as possible of the latter to the attacker. Thus the main defence will include such features as: river or canal lines, or embankments or cuttings where these are formidable obstacles; open areas like parks or marshalling yards that give good fields of fire; hills and structures which dominate large areas; strongly constructed buildings which offer good protection from both indirect and direct fire and the possibility of mutual support; concealed routes to allow for manoeuvre by defending and counter attacking forces. The entire urban area in front of the main defensive position will be used as a security zone, the manoeuvre defence of which will: wear down the enemy (who will be unable to bring his full weight to bear as effectively as in the open); win time for preparations to be completed and draw the enemy into a fire pocket or at least determine his axis of main effort; conceal the forward trace of the main defensive position. Looking towards the time when the main defensive position will be breached, switch and depth positions will also be prepared for defence and a particularly strong feature may be designated as a citadel and prepared for a final stand.

1379. ***Organization for Combat.*** In defence, no less than in attack, combat will rapidly become fragmented. Unit and even sub-unit commanders, let alone those at formation level, will find that limited observation and unreliable communications will hamper their ability to exercise control. It is therefore necessary to form combined arms groups capable of autonomous action down to company, and often even to platoon level.

- a. *Motor Rifle Battalions* may be reinforced with up to a howitzer battalion, a tank company, a composite anti-tank battery, a sapper platoon, a flamethrower or RPO-A section, a flamethrower tank and chemical defence smoke generators. The level of reinforcement will depend on the importance of the axis and the nature of the terrain. The same considerations will determine the composition of the company groups that defend individual strongpoints or are earmarked for the counter attack role.
- b. *Tank and Anti-Tank Units and Sub-Units* will generally be broken up to reinforce MR battalions. There will, however, be some open areas where they can be used conventionally in defence and counter attack. These will not always be on the line of contact. Possible LZs for enemy heliborne

assaults must be denied and air defenders and a predominantly armoured grouping can do this.

- c. *Artillery.* Up to 50% of tube artillery will be de-centralized to motor rifle battalions, mainly for use in the direct fire role. Most of the remaining assets will be concentrated in DAGs/BAGs, though unit artillery groups may be formed to cover axes on which formation groups cannot bring down fire because of terrain masking.
- d. *Engineers.* Most sappers will be deployed with motor rifle battalions. There will, however, be a need for MSDs to open routes blocked by rubble created by bombardment and remote mining. Some MODs will also be required both to counter enemy penetrations and to help prepare depth and/or switch defence lines. Special parties will also have to be formed for fire fighting as conflagrations are a frequent hazard in FIBUA.

1380. ***Echelonning and Organization.*** As in the offensive, defence swallows up a lot of troops if it is to be effective.

- a. *Echelonning.* It is usually very difficult for the attacker to achieve momentum in FIBUA, at least where the defender is well prepared and has an effective density. On the other hand, the latter implies a short frontage as few weapons can utilize to the full their effective ranges. Large scale counter attacks are precluded by the terrain, but small ones mounted immediately after a position is lost will often be successful. These considerations generally lead to formations deploying in a single echelon with a small combined arms reserve and ALRs as required by the amount of open space in the depth. Regiments will often deploy in one echelon if on a minor axis or two on a major one. Combined arms or reinforced motor rifle battalions will usually deploy in two echelons to allow for the mounting of quick local counter attacks, though lack of resources may prevent the retention of anything other than a reinforced platoon-size reserve on a subsidiary sector.
- b. *Organization.* The basic building block of defence is the company/platoon strong point. These are grouped into battalion centres of resistance. Each is organized for all round defence and ideally prepared to fight for a considerable time in encirclement. The frontage and depth of each will depend on the mission (ie, whether on a major or minor axis and whether in the covering force or, if in the main defensive position, in the first or second echelon); on the strength of the grouping; and on the terrain. Typically, a platoon strongpoint will comprise 1-2 sturdy buildings, preferably with basements or semi-basements, located at a crossroads, on a street corner or overlooking a bridge or open ground. A reinforced company strongpoint will consist of one large, four storey or higher building or 1-2 blocks or groups of buildings with mutually supporting platoon positions. Its frontage will thus vary from 200 or so metres up to about 600m with a depth of 200-400m. A battalion centre of resistance will comprise 2-3 strong points in one or two echelons according to the significance of the axis. In the main defensive position, centres of resistance form a continuous line without significant intervals between

units. In the security zone, only main routes are strongly defended, with obstacles, ambushes, patrols and snipers used to delay attempts to outflank individual strongpoints and centres of resistance or centres of resistance.

1381. **Strong Points.** Locations are chosen both for their tactical importance and, wherever possible, for their good fields of fire. Where the latter are unavoidably short, it is considered necessary to provide several tiers of weapons to produce the volume of fire necessary to defeat attack. Strong points and centres of resistance are always organized for all-round defence.
- a. **Obstacles.** All approaches are covered by mines and wire and tank approaches are also denied by dragon's teeth or cratering. To the flank or rear, some obstacles will be portable to allow for rapid withdrawal, or for the ingress of counter attackers.
 - b. **AFVs and Heavy Weapons.** Some will be emplaced within buildings and well protected and camouflaged: (multi-storey car parks are ideal fire positions as they give excellent protection, freedom for manoeuvre of defending weapons and good fields of fire.) Others are dug in outside with 2-3 alternative positions for each (preferably enfiling the approaches to the buildings).
 - c. **Motor Rifle Troops.** Some troops will be dug-in in gardens or the street. Others will be positioned in buildings, utilizing semi-basements and all floors to provide multi-layered fire positions: attics are used to site mortars, AAMGs or handheld SAMs. Buildings are prepared for defence in the following way. Doors and windows are blocked with sandbags, bricks or earth filled and covered furniture and embrasures are created in these and in the walls (including false ones to draw fire). Floors and firing positions are reinforced to reduce the effects of collapse as a result of shellfire. Stairways are removed or covered in wire to complicate clearing, communications between floors subsequently being done by ladders; outside fire escapes are wired and booby trapped. To reduce the effect of flame attack, combustible materials are removed or covered in earth, moveable shields are placed in front of embrasures and a 15-20cm high earth wall is built in front of the entrances to underground shelters to defeat napalm. Basements are made into shelters against bombardment, storerooms, medical points and CPs: every one should have two exits, going in different directions, with at least one being in the form of a covered passage whose exit is beyond the reach of collapsing rubble. Ground floor exits are given blast proof protection and lead to a communications trench. Communications between platoon strongpoints are mainly by underground passages (which may also be used to deliver surprise fire from the rear against attackers).
1382. **Engineer Tasks in Defence.** Built-up areas can be transformed into fortresses, but only at the expense of much time and effort. There will rarely be enough engineers on hand to accomplish all tasks and they will need extra manpower. Cities provide a wealth of local resources for ditching,

creating obstacles, etc, so resources or materials will not be a problem. Engineer tasks are as follows:

- a. *Implementation of the Obstacle Plan.* This will include demolitions, anti-tank ditching and the creation of hedgehogs and dragon's teeth on likely approaches: wire and anti-personnel mining will protect them against enemy sapper demolition/clearing parties. Parks, squares and other open spaces as well as streets will be denied to the enemy, and those within the defence itself (and not in use as artillery fire positions) will be covered with anti-landing obstacles and/or anti-helicopter mines to prevent vertical envelopment. The obstacle plan will protect all strong points, canalize the enemy into fire pockets and cover gaps between strong points (along with patrols, ambushes, snipers and artillery/mortar fire). Extensive booby trapping may also be used to hamper enemy consolidation of captured buildings, and booby traps and mines will similarly complicate the enemy's use of houses etc not prepared for defence.
- b. *Clearing fields of Fire* by demolishing buildings, walls or trees will be necessary, especially to provide long shoots for anti-tank weapons.
- c. *Creating Fire Positions.* Digging guns or tanks into buildings is a skilled task requiring sappers. They will also be needed to create artillery emplacements in squares, gardens, courtyards and parks for artillery used in the indirect fire role. Engineer protection, camouflage and air defence will necessarily substitute for manoeuvre in ensuring the survivability of much of the artillery in FIBUA.
- d. *Improving Communications.* Terraced houses or rooms in large buildings are interconnected by mouseholing. Separate buildings are joined by communications trenches. Underground routes (eg, sewers, utilities tunnels, drainage ditches) may need to be improved and signed (or blocked if unwanted by the defence and useable by the enemy.)
- e. *Improving Survivability.* Shelters need to be dug or improved (together with access routes) and structures reinforced to withstand fire.
- f. *Fire Fighting Teams* will be needed to extinguish or contain conflagrations.
- g. *Route Opening.* Manoeuvre, already restricted by the very nature of the built-up area, will become even more problematical with bombardment and the collapse of buildings. Strong MSDs will be needed to keep routes open for resupply, counter attacks and redeployments.
- h. *Rapid Obstacle Creation* will require MODs to prevent the attack from gaining momentum.

1383. **Conduct of the Defence.** GENFORCE believes that a static defence is doomed to failure, however well prepared. It therefore puts great stress on the following.

- a. *Reconnaissance.* It is important to determine the imminence, direction and strength of impending enemy attacks. Constant reconnaissance is necessary to reveal these in conditions where the terrain aids concealment. GENFORCE makes widespread use of stay behind patrols (both within and outside the city) and will insert reconnaissance, fighting and ambush patrols into the enemy depth, often utilizing underground routes.
 - b. *Stubborn Defence* of strongpoints and centres of resistance is necessary to win time for counter moves and provide a pivot for counter attacks. No withdrawal is allowed without the express order of the senior commander, even in the face of encirclement. Stubborn defence does not, however, imply stolidity. Frequent manoeuvre within both strong points and centres of resistance is used to confuse the enemy, ensure adequate counter concentration against attacks and to set-up counter attacks.
 - c. *Counter Moves.* GENFORCE believes that speed and surprise matter more than finesse and strength in counter attacks in an urban environment. An enemy disorganized by the process of clearing a building or strongpoint, unsure of the geography of the area and possibly running low in ammunition is more likely to be thrown back with heavy casualties by an early counter attack by local reserves than by a set-piece later. There is therefore an emphasis on battalion and regiment level reserves, organized as assault groups and detachments, over those at formation level. GENFORCE is also known to practise manoeuvre defence even within a main defensive position: a strongpoint may be lightly held to reduce casualties from bombardment and abandoned as the attack comes in, relying on immediate counter attack rather than static defence to ensure possession at the end of the fight. Both at unit and formation level, commanders are also expected to take calculated risks to redeploy reserves and troops from passive sectors for both counter penetration and counter attack tasks. The concealment offered by the terrain and the time the enemy requires to organize attacks even if he detects such a move are believed to make bold manoeuvre possible and effective.
 - d. *Aggressiveness.* GENFORCE does not believe in leaving the enemy in undisturbed possession of his gains. Attempts will be made to infiltrate back into captured areas to harass the enemy, get artillery OPs into favourable positions and even to reestablish a position in the enemy's depth or to counter attack from the rear.
1384. **Command and Control.** The defender will benefit from a lengthy preparation time to improve his communications. The civil telephone network will be exploited and additional land line can be deeply buried to protect it from the effects of bombardment. Thorough reconnaissance will also reveal the requirement for radio re-broadcast facilities. Nevertheless, communications will be put under great strain and will be subject to interruptions, so commanders place themselves well forward on the main axis, where possible in COPs: this will apply even at division/brigade level.

This ensures not only a good grasp of the tactical situation but the ability of commanders to exert a personal influence on their subordinates.

1385. **Logistics.** Every effort will be made to ensure that each individual strongpoint and defended area and the city itself is sufficiently well supplied to meet the heavy demands of urban combat without its need for early resupply. At every level, fighting in encirclement is a possibility that must be catered for.

CHAPTER 14 - WEAPONS OF MASS DESTRUCTION

SECTION 1 - GENFORCE ATTITUDE TO NBC WEAPONS

Background

1401. **Historical.** GENFORCE's attitude to weapons of mass destruction (WMD) has undergone several permutations over the last half century. In the days when only GENFORCE's enemies possessed nuclear weapons, chemical weapons (CW) were regarded as a rather poor substitute, a counter-balancing capability of sorts. There followed a period, after GENFORCE had acquired its own strategic and operational-tactical nuclear weapons in war fighting numbers, when future war was regarded as inevitably global and nuclear from the outset. Nuclear and chemical strikes would be used to inflict decisive blows and conventional forces would exploit their results to complete the enemy's destruction. As stocks of WMD increased in the arsenals of both GENFORCE and its most likely enemies, and with them grew fears that nuclear war would be difficult to limit and that general war would be catastrophic for all, GENFORCE moved towards a concept of limited deterrence and limited war. It argued that war is a tool of policy and that it is inconceivable that any ends of policy could be served by a strategic nuclear exchange. Therefore, the assured capability to visit nuclear destruction on an enemy's homeland would deter any resort to strategic weapons in any situation where the issue fell short of national survival. It could also plausibly deter the use of operational and even tactical weapons for fear of escalatory consequences. There would thus be a possibility of conducting a conventional war, especially if it were for limited aims, in conditions of nuclear parity. At the very least, there was likely to be a conventional phase lasting until one side or the other decided that escalation was the only alternative to an unacceptable level of defeat. GENFORCE hoped that the time gained in such a phase would allow its first operational and possibly strategic echelon formations to penetrate the defence, reducing their own vulnerability through rapid manoeuvre and the intermingling of their forces with enemy elements and at the same time destroying and disrupting enemy nuclear forces and their C3I so that, in effect, they would have foreclosed the non-strategic nuclear option by the time the enemy had decided to rely on it. There was much discussion about whether CW could be or should be used in this phase. Would it confer an advantage on GENFORCE and, if so, would it merely accelerate the escalatory process? No clear conclusions could be drawn either from a survey of the available literature or from observation of GENFORCE exercise practice. On the other hand, BW seems to have been regarded, primarily, as a weapon of strategic value, an add-on to nuclear capabilities.
1402. **Technological Progress.** Over the last couple of decades, research on, and at least in the Advanced Conventional Munitions area development of weaponry has proceeded apace. It is now a commonplace for GENFORCE theorists to point out that ACMs, especially precision weapons, can now be used to accomplish economically many missions which would previously have required the use of WMD. Thus, for instance, a single warhead with TGSMs can destroy a tank company on the move as effectively as a 10kt fission low air burst. A large FAE munition will eliminate a fortified strong point as certainly as the same nuclear strike. Conventional EMP weapons will be able to attack tactical targets instead of

indiscriminatingly affecting huge areas. RDMs will more assuredly deny an area to manoeuvre forces than will persistent chemical agents, and they will do so for a period chosen by the user. Various types of ACM will be more reliable casualty producers than traditional chemical weapons where the enemy is well-trained and equipped for chemical defence (an important point for commanders attempting to calculate the effects of fire on force ratios). Not only can ACMs provide effective substitutes for WMD for many missions but they do so without creating the vast swathes of collateral damage and ground contamination consequent on nuclear and some forms of chemical use - an advantage as important for the conduct of military manoeuvre as it is for humanitarian and political reasons. For all these reasons, they are regarded as more usable than WMD on a battlefield characterized by non-linearity, the intermingling of forces and fast changing situations. Above all, they are not escalatory in their effect as nuclear weapons almost certainly are and CBW may well be. These calculations have inclined most GENFORCE experts to consider at least tactical and possibly operational (though not strategic deterrent) WMD as passé in the event of conflict with a competent enemy. This preference for the conventional option is reflected in GENFORCE organization and training as well as in the literature. ACMs are well integrated into coherent operational and tactical concepts while training tends to downplay, though not neglect, NBC warfare. Of course, all this could change if GENFORCE perceives that it has achieved a breakthrough in the development of WMD which is not paralleled in potential enemy forces. Possible developments in this area will be considered in subsequent sections.

The Current Status of WMD in GENFORCE Doctrine

1403. ***Uncertainty.*** This sub-section will outline what appears to be the GENFORCE approach to the use of WMD in future war. Moreover, military thinking on the subject is less than half the story as the decision as to whether, and to a large extent as to how such weapons may be used rests firmly with the political leadership.
1404. ***The Utility of WMD.*** Although NBC weapons are usually lumped together under the heading of “weapons of mass destruction”, in practice GENFORCE distinguishes between them as to both role and, possibly, utility.
 - a. ***Nuclear Weapons*** are seen as having a role at every level of war. Strategically, they deter attack on the homeland. GENFORCE does not believe that it can “win” a strategic nuclear war in any meaningful sense of the word. Operationally, their unique characteristics make them peculiarly well suited to certain tasks, eg, the destruction of air bases and hardened C2 entities, of nuclear weapons whose location is known only approximately and of forces concentrating in and deploying from the depth. Tactically, they can substitute for immense volumes of conventional fire. Enhanced radiation weapons (ERW) in particular are regarded as valuable as they produce little or no collateral damage, a factor of considerable importance in the offensive in particular. Against an enemy with remotely comparable capabilities, however, the use of even tactical weapons is considered likely to be of limited value at best and actually counter-productive at worst; unless there is a very high probability that enemy operational and tactical systems can be destroyed in a

pre-emptive strike. In conditions where both sides are making widespread use of nuclear weapons, not only will operations not proceed any faster and more certainly but, on the contrary, organized military activity is likely to come to a halt. The results of any nuclear use are literally incalculable: given the likelihood of escalation, they are potentially horrendous.

- b. *Biological Weapons* are of increasing interest to GENFORCE. Medical and pharmaceutical research is bringing effective prophylaxis within reach. Biotechnology has opened up the possibility of speedy and covert production of significant quantities of agents tailored to task (and resistant to known enemy detection and treatment means) and of vaccines for the protection of friendly forces. Like virus attacks on enemy computers, BW is well suited to a covert attack prior to the “official” start of hostilities. It is also capable of inflicting massive disruption and delay in the initial period of war (the period of mobilization, concentration and deployment). Potentially a key strategic or operational capability, BW is not, however, seen as yet to have tactical value: incubation periods are too long and, though research is dealing with these problems, results are too uncertain and the area affected and persistence are also too uncertain. On the other hand, a devastatingly effective biological attack dooming the enemy to defeat may well trigger a counter-productive nuclear response.
- c. *Chemical Weapons*, in contrast to nuclear and biological weapons, are seen as essentially tactical weapons, though their area of employment (eg, against logistics installations or air bases) could have operational effects. Their casualty-producing effect, particularly against troops ill-equipped and/or trained to defend against them can be very great over a substantial area. This could be true even against a well-prepared enemy if GENFORCE has succeeded in developing new agents which will defeat enemy protective measures, a perfectly possible development. At least of equal importance, persistent agents will significantly disrupt, degrade and above all slow down all forms of military activity without creating collateral damage which will inhibit friendly manoeuvre. Like BW, they have considerable value as terror weapons, particularly against the civilian population. Their use, or even threat of it, may put pressure on enemy governments and create a stampede of refugees which will hamper mobilization, concentration, deployment, logistic support and manoeuvre. The main effect of CW is to reduce the momentum of operations and greatly to increase the stress on troops. If this could be imposed one-sidedly on the enemy, GENFORCE would be happy to do so, but it would balk at anything which would reduce its own manoeuvre capability. Thus, while some GENFORCE theorists believe that CW is less escalatory, the decision to employ it is likely to depend on GENFORCE’s perception of enemy capabilities in the area, both offensive and defensive.

1405. ***The Importance of the Initial Mass Strike.*** If WMD are to be employed in war, GENFORCE stresses the significant, indeed potentially decisive advantage that will accrue to the side that is first to deliver a mass, in-depth nuclear, or even biological or chemical strike, especially if surprise is achieved. Pre-emption is critical to crippling the enemy’s WMD capabilities and to imparting a momentum to operations that will lead to an early conclusion before escalation to a strategic level

can take place. The possibility of achieving surprise and therefore maximising the effects of such a strike will be greatest if delivered as the first hostile act or at least during the initial period of war. If the Strategic High Command has concluded that surprise and/or a technological edge will ensure that GENFORCE will derive long term profit from using any or all WMD from the outset, it will certainly press the political leadership to authorize such a move. There is no doubt, however, that the military is firmly under civilian control and that political considerations will dominate decision making. The current political establishment shows an awareness of the negative international repercussions of starting a war in this way and, more importantly, is acutely fearful of escalation to the strategic level. Where there is common ground between political and military leaderships it is in the determination not to allow the enemy to reap the benefits of pre-emption. If intelligence clearly and unambiguously demonstrates that the enemy is about to initiate the use of NBC (particularly nuclear), GENFORCE will endeavour to overtake the enemy in launching a mass attack. It is worth noting, in this context, that GENFORCE may be prepared to ride out a limited strike "to demonstrate resolve". The critical point is being the first to deliver a really strong and effective blow. To this end, even during conventional operations, GENFORCE will always maintain a significant nuclear withhold of dual capable operational and tactical systems. This has been estimated at around 5% of fighter-bomber aviation and at least 15% of bomber aviation and cruise/ballistic missiles. The size of the withhold will increase to 30% or more if and when escalation appears to be imminent.

1406. **Conclusions.** The decision as to whether or when to employ WMD will depend on a wide variety of circumstances, notably on the aims of the war on both sides (whether far-reaching or limited), the composition and nature of opposing coalitions, the attitude of powerful neutral states, perceptions of enemy offensive and defensive capabilities.
- a. *Defensive War.* GENFORCE would prefer to defeat aggression by conventional means. If, however, there were doubts, either at the start of hostilities or arising during their course, that this could be accomplished, GENFORCE would certainly consider the use of biological or chemical weapons and quite possibly nuclear as well if this would restore stability to the defence and deter the continuance of aggression through threat of further escalation. Such a recourse would be particularly likely if the enemy's aims were perceived to threaten fundamental national interests (eg, an invasion of the homeland to overthrow the regime and/or detach important territory).
 - b. *Aggressive War.* At least against an enemy with a comparable WMD capability, both offensive and defensive, GENFORCE would probably hope to keep any conflict conventional, particularly if war aims were limited. It is unlikely that GENFORCE would contemplate attempting to reinvigorate a stalled conventional offensive through initiating nuclear operations, though the use of biological or chemical weapons in these circumstances is just conceivable.
 - c. *Partial Use of WMD.* If nuclear weapons are employed, then so too will biological and chemical. If GENFORCE perceives that it enjoys a real advantage in the field, BW or CW could be employed on its own or the two

could be used together. The possibility of limited, selective use against key targets cannot be ruled out, particularly in the case of the former where an attack could not immediately and conclusively be established and laid at GENFORCE's door. The likelihood of CBW will be increased where the enemy is perceived to be weak either offensively or defensively as the escalatory link to strategic nuclear weapons is doubtful.

- d. *Exhaustion of ACM Stocks.* Should a war last long enough for GENFORCE to run out of ACMs before the enemy, thus finding itself at a potentially fatal disadvantage, recourse to NBC weapons to restore the balance might be considered.

SECTION 2 - NUCLEAR OPERATIONS

Conventional Operations Under Nuclear Threat

1407. ***Nuclear and Conventional Operations Contrasted.*** Even if the escalation to a strategic exchange can be deterred (itself a dubious proposition), GENFORCE thinks that a conflict conducted with WMD between sides of approximately equal capability is likely to be indecisive as well as almost unimaginably destructive. Their widespread use is almost certain to end rather quickly all purposeful military activity. The possible exception to this would be where one side was able to win operational level nuclear dominance through the delivery of an effective, surprise pre-emptive strike. Given the greater destructiveness, by orders of magnitude, of nuclear weapons (and a disregard for collateral damage), such a side would conduct operations in a different way from conventional warfare.
 - a. *Air Superiority* could be won quickly and without an attritional struggle as air bases are very vulnerable to nuclear attack.
 - b. *Penetration Operations* on relatively narrow sectors would become unnecessary. Enemy defences could be reliably suppressed throughout their tactical and operational-tactical depth. This would preclude the need for conventional concentrations to achieve a breakthrough. In effect, all ground forces formations would become exploitation elements, exploiting the results of nuclear strikes to drive fast and deep on multiple axes across a broad front to complete the enemy's destruction before he could restore the combat effectiveness of shattered groupings.
 - c. *Deep Operations* could be mounted from the very start and on a wide front thanks both to the elimination of the need for preliminary penetration battles and to the ease with which air defences can be suppressed to allow air-delivered forces early access into the enemy rear. Even strong enemy operational reserves could be neutralized by nuclear strikes to prevent their interference with deep operations. Thus the principle of simultaneity of action throughout the enemy's depth could be fully and immediately realized.
 - d. *Logistic Constraints* on operations would be lessened by the widespread reliance on nuclear strikes.

1408. **The Problems.** For reasons already discussed, GENFORCE does not expect to receive political authorization to use nuclear weapons from the outset of hostilities. Nor does it have much faith in its ability to emasculate a comparable enemy's operational (let alone strategic or tactical) nuclear capability in a pre-emptive strike. GENFORCE is thus faced with the need to plan for conventional operations against a nuclear-armed enemy which may at any time (though most probably when in danger of defeat) decide to resort to their use. As the characteristics of nuclear and conventional operations are somewhat different, GENFORCE must organize and deploy for conventional war in such a way as to minimize its vulnerability to nuclear strikes and to ensure that the transition from conventional to nuclear operations is as smooth as possible and with a minimal delay. Although the differences are still marked, GENFORCE believes that the C4I and ACM revolutions (described in Chapter 1) have significantly narrowed the divide between the nature of nuclear and conventional conflict. Therefore the concepts outlined in previous chapters will go far to easing the transition. Particular stress is laid on the following aspects of a conventional war, or phase.

- a. *Enemy Nuclear Weapons.* The highest priority for destruction will go to enemy nuclear systems and their associated C3 and logistics. As most such systems are now dual-capable and used also for delivering ACM strikes, this requires no change in priorities from conventional to nuclear combat.
- b. *Concentration.* The massing of forces to penetrate enemy defences will offer tempting nuclear targets. It must be avoided by pre-empting the establishment of an effective defence through surprise. If this is not possible, concentration must be in time rather than space, with the massing of fire from dispersed systems and the last minute convergence on chosen penetration sectors of dispersed groupings attacking from the march without pause.
- c. *Deep Operations* are vital to destroy and disrupt enemy nuclear capabilities before he can reach the decision to use them. They will also lessen the utility of such weapons by making the cutting edge of the ground forces hard targets. It is difficult, given nuclear planning lead times, to hit fast moving groupings or those intermingled with friendly units.
- d. *Anti-Nuclear Manoeuvre.* GENFORCE stresses the controlled dispersion and frequent relocation of formations in its own depth in order to escape from under nuclear, or for that matter, ACM attack.
- e. *Command and Control.* Centralized C2 is likely to be an early victim of nuclear attack. Therefore GENFORCE continues to emphasize the need for commanders and staffs at all levels to revert to decentralized battle management using mission-oriented control techniques. At the minor tactical level, reliance on simple drills also helps to reduce vulnerability.

Offensive Operations In Nuclear Conditions

1409. **The Initial Nuclear Blow.** When nuclear operations are contemplated, whether it be at the outset of hostilities or during their course, and whether on the strategic offensive or defensive, a Strategic Grouping will have a plan, constantly updated,

for its initial, pre-emptive nuclear strike. This will include biological and chemical weapon attacks, for nuclear war by definition includes all WMD. The content of this mission will vary with circumstances, the principal determinants being political constraints, the enemy's strength and degree of preparedness and the level of preparedness of friendly forces for a transition to nuclear operations.

- a. *Readiness.* Ideally, a SG will use half or more of its WMD-capable systems (including those of subordinate formations) to deliver an integrated, in-depth strike. It is, possible however, possible that escalation taking place relatively unpredictably will catch the SG with only 30% or so of its dual capable systems ready for WMD use.
- b. *Scope.* The initial strike will be SG wide. The rear boundary will be determined by political considerations but is likely to be 300-500km or more in the enemy's depth. The duration will be 2-4 hours.
- c. *Targets.* Primary targets will be enemy C3I facilities, major air bases (especially those containing AWACS and dual-capable aircraft), nuclear delivery means, air defences and major troop groupings. To these may be added logistics installations and interdiction targets and less critical formations if resources permit or as they come on line in a short warning scenario.
- d. *Follow-up Strikes* will be launched hard on post-strike analysis, as and when delivery systems are readied.
- e. *Circumstances.* The initial nuclear blow may be delivered either at the start or during the course of either offensive or defensive operations. In the latter case, it will be the immediate prelude to a transition to a counter offensive.

1410. ***Planning Offensive Operations.*** The concept of operations will depend on whether they begin with the initial nuclear strike or whether they are already underway when escalation takes place. In the latter case in particular, there may be a need for substantial modifications in response to enemy nuclear blows.

- a. *An Advance on Multiple Axes* is the favoured form of nuclear offensive. Decisive losses can be inflicted in the initial strike and, with the resulting favourable correlation of forces on several axes, multiple thrusts can be conducted by the shortest routes to strategic objectives. The enemy will be split into isolated, non-cohesive groupings for piecemeal destruction. Faced with numerous fast-moving spearheads and probably unclear as to which is on the main axis, the enemy will find it difficult to produce an effective nuclear response.
- b. *Encirclement* is often the operational form of choice in conventional war as it offers the possibility of a decisive outcome without an overwhelming superiority of forces. In nuclear conflict it tends to be less favoured as nuclear strikes can change the correlation of forces to allow the generation of manoeuvre rather than rely on manoeuvre to change the correlation of forces. Moreover, the relatively fewer axes of advance, which are essentially predictable, help to simplify enemy decision-making and nuclear targeting.

However, an encirclement operation may already be underway when escalation takes place, and nuclear strikes may be relied on to ease the tasks of both inner and outer fronts of encirclement and thus accelerate their progress.

- c. *Deep Battle and Operations.* As well as being even more important in nuclear conditions, combat in the enemy's depth becomes easier to implement from an early stage. The insertion of raiding detachments and groups can be facilitated by nuclear strikes and widespread use of air assaults and landings will be possible *ab initio* thanks to the facility with which enemy air defences can be suppressed.
- d. *Echelonning.* In the era when nuclear war predominated, GENFORCE persisted with a two echelon operational and tactical formation despite the fact that the penetration would be accomplished largely through the application of nuclear strikes. There were good reasons for this. Formations had to be dispersed laterally and in depth to minimize both their chances of being located and the effectiveness of enemy nuclear strikes. Significant first echelon elements were expected to be rendered combat ineffective at a stroke and second echelon groupings would be required to maintain momentum and to repulse enemy counter-moves. Furthermore, C3 was sure to suffer as headquarters were hit by nuclear strikes and the effects of EMP. There was thus a requirement for a simple, comparatively rigid force structure that could function largely by drill. The importance of speed and manoeuvre became even greater as they became a vital contributor to maintaining viability. Mobile groups (now OMGs) disappeared from operational formation, however, as all ground forces' formations became exploitation forces in effect, with penetration accomplished largely by nuclear strikes. To an extent, these ideas have now been modified. The second echelon is now much easier to locate and engage in near-real time thanks to the C4I revolution and more stress is now placed on the first echelon, including on its ability to survive by hugging the enemy and by moving rapidly when it is not. In practice there is likely to be a significant second operational echelon as a surprise offensive will, virtually by definition, have to be mounted before mobilization, concentration and deployment are complete. Follow-on forces will need to practise anti-nuclear manoeuvre to survive. OMGs are, of course, restored to operational configuration as GENFORCE hopes that operations will be able to remain conventional and escalation, in most cases, is something to be avoided.

1411. ***Scope of Nuclear Operations.*** GENFORCE does not believe that the geographical scope of operations can be extended in nuclear war. Nor does it believe that overall rates of advance will be higher. The increased level of destruction visited upon its own forces and the devastation and contamination of terrain will combine to impose spatial and temporal limits.

1412. ***Weapons and Targets.*** The type of weapon used to engage a target will depend above all on political constraints. The military considerations influencing choice will include the nature of the target, the effects sought and the degree of collateral damage that is acceptable.

- a. *Sub-Surface and Surface Bursts* are used to destroy hardened targets, airfield operating surfaces and infrastructure and to deny ground or the use of facilities not only through destruction but also as a result of contamination.
- b. *Low or Medium Level Air Bursts* are used to destroy field troop targets or to create obstacles to manoeuvre through tree blow down or damage to urban areas.
- c. *High Air Bursts* (ie above 10km from the surface) are used to destroy the enemy and to create EMP in order to disrupt enemy C4.
- d. *Enhanced Radiation Weapons* are generally preferred over fission weapons in the tactical zone or in strikes in the depth which are to be exploited immediately by ground or air-delivered forces. With over 50% of the energy released going into prompt radiation as opposed to the approximately 5% with fission explosions, ERW are much more effective casualty producers against troops in AFVs or dug in, but they create much less collateral damage and no fallout hazard. (Thus, for instance, a 1kt ERW warhead will inflict the same casualties as a 10kt fission weapon: in both cases, a burst at 60m height will disable tank crews out to 900m but in the former collateral damage to houses will be limited to about 700m as opposed to the latter's 1,800m - ie, the area of blast damage of the ERW is only 15% that of the larger fission weapon). Accordingly, GENFORCE relies mainly on small ERW munitions that can be delivered by medium or heavy artillery for tactical strikes. Reaction times are shorter and there is much less inhibition of manoeuvre through terrain damage or contamination than when fission weapons are used.

1413. ***The Conduct of Nuclear Operations.*** The improvements in conventional firepower stemming from the revolution in military affairs have brought conventional operations much closer to nuclear in content than was previously the case. Nevertheless, there are still differences, if only in emphasis.

- a. *Exploiting the Initial Nuclear Strike.* It is vital that the results of the initial nuclear strike be exploited to the full, and as rapidly as possible. Speedy penetration into the enemy's depth is necessary to reduce the effectiveness of the enemy's response and to bring the operation to an early conclusion. Operations will be of a wholly manoeuvre character. Where the enemy has suffered decisive losses and can oppose with only isolated groupings lacking much combat power, formations can advance in pre-battle or even loose march formation, bypassing pockets of resistance and leaving behind forces necessary for the mopping-up that cannot be left to second echelons or reserves. The normal form of combat will be the meeting engagement/battle. Of course, it is entirely possible that GENFORCE will also have suffered massive casualties on one or several axes, requiring a radical revision of plans. It is, however, imperative that the enemy be overtaken in the mounting of attacks with those elements retaining combat effectiveness and with air delivered forces and in the delivery of repeat nuclear strikes on surviving forces and reserves.
- b. *The Development of the Offensive.* The successful development of the offensive will depend on the effectiveness of subsequent nuclear strikes and

on the timely reinforcement of efforts of the first echelon by the second, or reserve, or the regrouping of forces from less important axes to maintain a favourable correlation of forces. The committal of the second echelon is expected to change the operational or tactical situation sharply in the attacker's favour: normally, it will take place to complete the immediate mission or at the beginning of the subsequent mission, but in nuclear conditions it is not ruled out that it would be committed immediately (after the fashion of an exploitation force) if nuclear strikes have radically altered the correlation of forces in GENFORCE's favour. Normally, the second echelon will be committed on the main axis, but given the highly unpredictable development of nuclear operations, it may be required to develop the offensive on a new direction or even to replace a shattered element of the first echelon. In effect, it must be prepared for committal at virtually any time to fulfil any type of mission. GENFORCE is very aware that the enemy will try to canalize advancing forces into pre-planned nuclear killing zones (NKZ), possibly, given the nature of nuclear weapons, of large dimensions. This fear could well alter normal behaviour, impelling advancing formations to avoid obvious gaps, especially if they are believed to have been created deliberately, and instead to attack, with nuclear preparation, on an axis where opposition remains, particularly if it is seen to be the likely shoulder of such a NKZ. In developing an offensive, an increased role will be played by air-delivered forces. Their rapidity of deployment over long distances and their ability to bypass vertically zones of destruction and contamination increase their significance in exploitation as well as in raiding.

Defensive Operations in Nuclear Conditions

1414. **General.** If defence is forced and hasty, either because the enemy has achieved surprise in initiating nuclear operations or because an offensive grouping has been badly damaged, disrupted and halted and is subject to aggressive counter-moves, it is seen to be complicated even more than usual by nuclear conditions. The enemy's ability to deliver decisive blows, changing the correlation of forces in a short period, will be enhanced at a time when GENFORCE's own nuclear capability may well have suffered severe attrition and disruption.
1415. **Manoeuvre Defence.** Even when defence is deliberate, let alone when it is forced, GENFORCE sees the manoeuvre option as preferable to the positional. This is not to gainsay the value of fortified areas covering vital communications nodes or likely enemy objectives. Nor, of course, does it downplay the importance of engineer work in defence: on the contrary, its significance is greatly increased. It will, however, be impossible to prevent major penetrations being accomplished relatively quickly when the way is prepared by nuclear strikes. The situation at both operational and tactical levels is likely to develop more rapidly and radically in nuclear conditions than in conventional warfare. It is therefore desirable to rely on counter-moves, especially aggressive ones, to surprise and wrong foot the attacker rather than mainly on the dogged defence of fixed positions. To this end, it is usual to form larger and more numerous ATRs and MODs than normal and to hold half or more of manoeuvre forces in the second echelon.

1416. **Conduct of the Defence.** The possibility of conducting a devastating counter-preparation and spoiling attack is much greater in nuclear war. It is even possible that such a preemptive blow could allow the defender to transition to the counter offensive or counter attack without waiting on the enemy's attack. If this is not possible, the defence will usually take the following form.
- a. *Deception.* The creation of a false forward edge and dummy positions and groupings will deceive the enemy into expending much of his nuclear firepower to little effect. When the attack starts, remote mining will halt or delay his troops as they deploy so that they can be subjected to nuclear strikes: ERW can be used against deployment lines that are quite close to really well dug in troops warned in advance of the strikes. His forces will then run onto unexpectedly strong opposition, perhaps in pre-battle formation, and the momentum will be taken out of the attack.
 - b. *Canalization.* Every effort will be made to canalize the enemy thrusts into prepared NKZs. Halted in a suitable pocket by ATRs and MODs and/or reserves, the enemy will then be subject to nuclear strikes.
 - c. *Interdiction.* Efforts will be made to break up the attack even as the enemy approaches the line of contact. As the attacker penetrates the defence, his spearheads will become more difficult to target as the situation will be characterized by obscurity and the intermingling of forces. The focus of nuclear fire engagement will then shift to disrupting and destroying reserve formations and units to deprive the attack of momentum. As well as air bursts to cause maximum casualties and create obstacles (eg, through tree blow-down), surface bursts will be used, especially against choke points, to inflict disruption and delay through cratering and the spread of contamination. Interdiction strikes have to be carefully integrated with plans for counter-moves to ensure that troops involved in the latter do not find their manoeuvre circumscribed by the effects of their own side's strikes.
 - d. *Counter Attacks/Strikes* are the main means by which the enemy is destroyed. While flank and rear attacks are still the preferred option, GENFORCE does not rule out the possibility of a frontal blow in nuclear conditions. Nuclear strikes, particularly using ERW, can quickly produce favourable force ratios and can so damage the enemy's leading elements that a head-on counter-attack will become feasible: the enemy can be split into fragmented, non-cohesive groupings and destroyed piecemeal.
 - e. *Deep Battle and Operations* will be of just as great importance in defence and counter-moves as they are in the nuclear offensive.

Preservation of Combat Effectiveness

1417. **Pre-Strike Measures.** In anticipation of nuclear attack there may be an intensification of measures used to protect groupings from ACM strikes. As well as stressing concealment and engineer work both in defence and out of contact, GENFORCE will, circumstances permitting, put even more stress on both dispersal and the conduct of anti-nuclear manoeuvre to escape from under likely

attack. Preparations will be made to restore units and formations subject to nuclear strikes by creating increased engineer, chemical defence, evacuation and repair and medical reserves. Combined arms and anti-tank reserves may be increased in number and/or size and prepared to defeat enemy efforts to exploit nuclear blows.

1418. **Post-Strike Measures.** To restore combat effectiveness to groupings that have fallen victim to nuclear attack, GENFORCE will act according to the following priorities: the restoration of control; assessment of the situation; rescue and evacuation; regrouping and the resumption of combat action.
- a. *Restoration of Control* is the first requirement. Where possible, this is done by using surviving commanders, staffs and communications. It is recognized, however, that this may require either resubordination or the committal of a command group from the senior headquarters.
 - b. *Assessment of the Situation.* Ground and helicopter reconnaissance is organized to ascertain the extent of losses, contamination, blow-down, flooding and fires. If the damage is obviously extensive, the higher commander will be taking simultaneous steps to reorganize, regroup and redefine tasks to ensure the success of his mission.
 - c. *Rescue and Evacuation.* Both from within the stricken groupings and from special reserves, composite groups are formed to create routes through areas of blow-down, flooding and fires to reach affected elements, evacuate them and give medical treatment to casualties and repair lightly damaged equipment. Partial decontamination will be carried out as soon as the contaminated area is left behind and full decontamination as soon as possible.
 - d. *Regrouping* to enable the resumption of combat action will take one of two forms.
 - (1) *Reduced Establishments.* Whenever possible, the original structure of a unit or formation is preserved as this helps to maintain cohesion. This can be done by reducing the number of companies in a battalion, regiments in a division, battalions in a brigade, etc.
 - (2) *Composite Groupings.* Where losses have been too severe to allow the retention of initial organizations, units and even formations may be amalgamated to form "composite detachments". Thus, for example, a division which has suffered heavy losses in two of its three manoeuvre regiments could reconstitute the remains into a regimental composite detachment and a regiment. The combat effectiveness of such detachments is recognized as being limited, but it is better than nothing; and GENFORCE recognizes that the actions of even small and battered elements can be of great importance in the fluid conditions of a post-nuclear situation.

SECTION 3 - BIOLOGICAL WARFARE

Characteristics of BW Weapons

1419. **Definition.** BW agents are living micro-organisms which are intended to cause disease or death in man, animals or plants and which depend for their effects on their ability to multiply in the victim. It is this capacity for self-multiplication that distinguishes them from inanimate chemical agents and makes them more effective casualty producers per given weight of agent by several orders of magnitude: to illustrate the latter point, under the most favourable meteorological conditions, 1,000kg of nerve agent GB will contaminate about 8 square km but a mere tenth of that weight of anthrax could cover about 300 square km. (Toxin weapons are usually produced from living organisms, but are also inanimate and incapable of multiplying and are dependent on their direct toxicity for their effects. They are therefore classed by GENFORCE as CW agents, through their virulence is generally much greater). BW agents fall into three broad categories. Details of some of the more likely GENFORCE agents are given in Annex A to this chapter.
- a. *Bacteria* are microscopic (0.4-1.5um), unicellular organisms that, when used as BW agents, may cause disease in man, animals or (rarely) plants. They can be cultured on simple nutrient sources and produced in bulk using fermenter technology. A few bacterial agents (eg, anthrax) can form spores, a resting form which will germinate in favourable circumstances. Spores have greater resistance to cold, heat, chemicals, radiation and other environmental factors and this makes them particularly attractive for BW purposes. Some species produce toxins which can also be used as WMD: GENFORCE regards toxins as CW agents. For BW purposes, bacteria would be used primarily against humans.
 - b. *Rickettsia* are microscopic (0.4-1.4um), unicellular organisms that are similar to bacteria. The majority are strict parasites that can grow only in the living tissues of a suitable animal host. They are generally more difficult to produce in bulk than bacteria. For BW purposes, rickettsia would be used primarily against humans.
 - c. *Viruses* are the smallest (0.01-0.3um) and simplest of micro-organisms. All are strict parasites that grow only within the tissues of a suitable animal, plant (or bacterial or fungal) host. They can be produced in cell cultures or by harvesting tissue from an infected host. Viral BW agents could be developed against man, animals or crops.
 - d. *Fungi* are large (2-10um) microorganisms that are somewhat more complex than bacteria. They can be cultured on simple nutrient sources and produced in bulk using fermenter technology. Like bacteria, some species produce toxins. They are best suited as anti-crop agents.
1420. **Criteria for Effectiveness.** For a micro-organism to have military utility, GENFORCE considers that it must meet the following criteria.

- a. *Consistency.* The agent must reliably produce the desired effect - either death or incapacitating disease.
- b. *Infections Dose.* The infectious dose should be low, thus increasing the military effectiveness of exposure to low concentrations of agent for short periods of time. GENFORCE is believed to favour agents with low man-to-man transmissibility for use against military targets, or where its own protective measures are less efficacious. The use of highly contagious agents cannot be ruled out, however, particularly for attacks against large civilian targets at long range.
- c. *Time to Effect.* Generally, short incubation periods are desirable, though for some strategic applications a long incubation time can be acceptable or even preferable. In either case, it must be predictable.
- d. *BW Defence.* The target population should have little or no natural or acquired immunity or resistance to the agent in aerosol form and prophylaxis should not be available to it. The agent should be difficult to detect and identify and little or no treatment should be readily available to combat the disease.
- e. *Self Defence.* GENFORCE stresses the importance of being able to protect own forces and population from the effects of the agent through the implementation of clandestine measures.
- f. *Production and Storage.* The agent should be capable of economic production in militarily significant quantities. It needs to be reasonably robust and stable under production and storage conditions, during transportation and in munitions. Storage methods must ensure against gross decline in the agent's activity.
- g. *Dissemination.* The agent must be capable of efficient dissemination. If it cannot be delivered by aerosol, living vectors (eg, fleas, mosquitoes or ticks) should be available for dispersal or some form of infected substrate. The agent must be stable during dissemination until it reaches the target population.

1421. ***Recent Developments.*** GENFORCE has long conducted research into BW. There is strong, though far from conclusive evidence, that it has also conducted development, production and stockpiling of BW agents in contravention of its signature to the BW Weapons Convention. Nevertheless, it seems likely that GENFORCE did not, in the past, regard BW as a key part of its armoury: it was certainly less important than nuclear weapons and probably less than chemical weapons also. This was a result of the difficulty in finding agents that met the criteria outlined in the previous paragraph. Most putative agents until the 1980s were bacterial or fungoid. Many viruses hitherto seen as too dangerous to handle have recently become usable as a result of modern genetic engineering techniques. It is now possible to transfer properties from one micro-organism to another, to reinforce existing properties or to add new ones - ie, to tailor the weapon to the requirement. Moreover, viral diseases are more debilitating than those cause by bacteria because they cannot be treated by specific therapy and because they are more difficult to diagnose without isolating the virus as symptoms

cannot easily be clinically distinguished from numerous other infections (as is the case for instance, with encephalitis or haemorrhagic fevers). Genetic engineering can be used to modify infectivity, pathogenesis, virulence and time to take effect, and to make them resistant to existing antibiotics. It can also make them easier to produce, store and disseminate. Finally, and critically, it is possible to develop vaccines specific to the agent to protect one's own troops. Furthermore, new production techniques mean that militarily significant quantities of agent, and of prophylactic vaccines, can now be produced in very short time scales, even in small facilities. This makes evasion of the BW Weapons Convention easier than before and increases the possibility, already inherent in genetically engineered weapons, of achieving technological surprise. GENFORCE is believed to be seeking, perhaps has even achieved, breakthroughs in BW capabilities along these lines. Conventional microbiological techniques and biotechnology are being explored for ways to improve the production and/or performance of BW agents and in the means of protection for GENFORCE personnel. The areas in which advances might be anticipated are as follows:

- a. Improved dual use capability for domestic biotechnology industry, enabling a switch from commercial purposes in peacetime to BW agents' production immediately prior to use: this will enhance the break-out potential from any restrictions imposed by international agreements.
- b. Enhanced producibility of agent, in terms of speed, quantity, cost, etc.
- c. Extended shelf life.
- d. Enhanced virulence.
- e. Ability to evade detection systems.
- f. Ability to overcome enemy physical protection.
- g. Ability to defeat enemy medical counter-measures.
- h. Improved medical counter-measures for GENFORCE personnel.

1422. **Conclusions.** Taken together, these developments have probably increased substantially GENFORCE's interest in biological weapons as a useable, indeed possibly decisive weapon of war. However, fear of retaliation in kind may well inhibit an attack, at least on a large scale, on countries that have, or could rapidly create, a BW inventory. Fear of a nuclear response to a major epidemic might also limit or preclude the use of BW.

Employment of BW Weapons

1423. **Level of War.** Currently, BW is seen to have considerable strategic and operational utility. As yet, GENFORCE does not seem to envisage tactical employment, not least because incubation periods are measured in days. Further developments in the field could, however, make BW agents useable on the battlefield. GENFORCE is presumably working on this as tactical BW would have

several advantages over CW: the weight of munitions required would be considerably less than with chemical in order to achieve the same effect and means for detecting biological attack and for treating its victims are considerably less well developed.

1424. ***The Initial period of War.*** GENFORCE believes that the initial period is likely, in the future, to exercise a decisive effect on the outcome of the war. Moreover, there is a tendency for the distinction between war and peace to become blurred and for it to become more difficult to identify definitively the first hostile act. Reconnaissance is conducted continually in peace and reconnaissance means might be destroyed or interfered with during that period. Computer viruses may be introduced in peacetime into the enemy's C4I systems, to lie dormant until the right moment for activation. National liberation movements or terrorist groups may be encouraged and supported covertly as a matter of routine, activities being stepped up in periods of tension. Deniable acts of sabotage may be carried out in such periods. A BW attack could fit well into such a scheme of things. A disease with a latent period of days to weeks could be introduced covertly into key areas. The fact that this was a BW attack might not even be apparent if it could be made to appear a natural outbreak. Even if its true nature becomes known, its authorship will not be readily provable, especially if the victim has more than one enemy that could have been responsible.
1425. ***Limited Use.*** Although biological weapons are placed in the "mass destruction" category, they need not necessarily be employed on a large scale to inflict mass casualties. They may be employed in a limited, discriminatory fashion for highly specific, restricted tasks. Limited attacks on key facilities, personnel or even individuals could exercise a far-reaching influence on hostilities, especially if mounted in the initial period. Targets could include key headquarters, aircrew (particularly for such critical systems as AWACS or stealth) or national leaders, commanders or officials in sensitive posts. It may be relatively easy to mount such limited attacks and to do so covertly so that their origin, or even the fact that they have been made at all, can be concealed.
1426. ***BW Targets.*** Should the decision to initiate BW be taken by the national leadership, strict political control will be exercised on the timing, scale and targets of attacks. Many factors will influence decision making, the principal ones probably being: the likelihood of the attack not being recognized as such, or if it is, of it being plausibly deniable; likely enemy responses; possible effects on neutrals; the effect on international opinion.
- a. ***Strategic Targets*** could cover a wide range, from attacks on key personnel, through economic disruption caused by the spread of crop and/or animal diseases (which may or may not be transmittable to humans in the form of zoonosis) to attacks on population centres. BW may be used as a terror weapon to deprive the armed forces of the civilian support necessary for their mobilization deployment or logistic support or even to undermine popular support for the war and pressure a government into an accommodation with GENFORCE. Minor allies, with no NBC capability of their own but where host nation support is crucial to war fighting by major powers, may be especially vulnerable to this form of pressure.

- b. *Operational-Strategic and Operational Targets.* These too can vary from limited attacks on key personnel such as command staffs or aircrew, through strikes against airfields and ports required for deployment to major troop concentrations, logistics facilities and field headquarters. GENFORCE is conscious of the potentially catastrophic effect that a BW attack can exert on the process of mobilization, concentration and deployment. Even if troops can be well protected, widespread disease in the civilian population in certain areas could severely disrupt their logistic support. Even limited success in attacks on troops could greatly complicate decision making as the true extent of the problem will not be revealed for some time: a commander will face a real problem when some soldiers show symptoms of disease as this may be the harbinger of an epidemic occurring at a critical time. Moreover, the impact of even a limited BW attack on morale is likely to be great as the implied effects will be unknown but possibly widespread.

1427. **Mode of Attack.** Surprise is an essential feature of BW. This can take two forms, ideally in combination. The agent should be difficult to identify and, following identification, be difficult or impossible to treat effectively within an acceptable time scale (ie, technological surprise). The arrival of the contamination should be unexpected and/or unnoticed so that it can take effect before counter-measures can be undertaken (tactical surprise). There are many methods of dissemination. Which one is chosen will depend on the nature of the target, the nature of the agent, the effect desired and the need for covertness. Some means are outlined here, but the list is not exhaustive.

- a. *Sabotage.* Covert action by SPF or state-sponsored terrorist groups can be used to contaminate water supplies (either reservoirs or, better, the supply system of a target facility) and/or foodstuffs (prepared food is a good environment for micro-organisms to flourish, especially toxin-producing bacteria - the toxins themselves being resistant to heat treatment). Aerosol sprays can be disguised as lighters, fly-sprays, deodorants etc and used to attack indoor personnel. In each of these examples, with the exception of attacks on reservoirs, the amount of agent needed is very small. Moreover, as BW agents are undetectable in transit, they are ideal weapons to smuggle into the target country/area for use by saboteurs.
- b. *Area Attacks.* Insect vectors can be used to spread disease amongst animals and possibly thence to people. Such means pose problems of storage and dissemination, however. More likely are aerosol attacks. These can be either on or off-target. The former method reduces the quantity of agent required by decreasing the dispersal of the agent and its degradation through exposure to the elements. It also reduces mask-up time for troops alert to possible danger. It should be noted that the increased accuracy of modern delivery systems and the use of sub-munitions combine to reduce the amount of agent required while still achieving high density in the target area. On the other hand, off-target attacks relying on the downwind hazard, may be best for delivering covert strikes. Delivery systems could include everything from vehicles, crop-sprayers (airborne or terrestrial) or boats for covert attacks through to more obviously military means such as aircraft, low-observable RPVs or missiles (ballistic or cruise).

SECTION 4 - CHEMICAL WARFARE

GENFORCE's CW Capabilities

1428. **Stockpiles.** Estimates of GENFORCE's holdings vary, but they are said to amount to a minimum of 40,000 agent tonnes. How much of this is weaponized is unknown. The relevance of this factor is, however, less than in other armies as GENFORCE is known to practise the field-filling of chemical munitions despite the dangers inherent in this procedure: this is a task for the Chemical Defence Troops.
1429. **Currently Fielded Agents.** Those agents known to be available are as follows:
- a. **Blood.** (Hydrogen Cyanide (AC) is a highly non-persistent, fast-acting agent whose effects depend on inhalation. Blood agents are considered suitable for use against targets that are to be attacked immediately following the chemical strike as they disperse very rapidly and create no downwind hazard.
 - b. **Vesicants.** Mustard (H), thickened mustard and lewisite (L) are persistent to very persistent agents posing both inhalation/ingestion and percutaneous hazards. Although their lethality is very low, GENFORCE still considers them to be useful as casualties from them will not only lower morale but also overburden the enemy's medical services. They are used to deny the use of ground and/or equipment to the enemy, or at least to exact a price for using them in terms of efficiency (if decontamination is not practised or of time (if decontamination is resorted to).
 - c. **Nerve.** GENFORCE fields four traditional nerve agents the non-persistent Sarin (GB), semi-persistent Soman (GD), persistent thickened Soman (VR-55) and VX. All pose inhalation/ingestion and percentaneous hazards, though the latter threat is small with GB. All are highly toxic, requiring little contamination to produce casualties. GB is normally used to prepare for ground assault (which must be made by troops using protective equipment) or for harassing: it produces a downwind hazard. The others are chosen according to the persistence called for by the tactical situation for denying ground and/or equipment. GENFORCE has introduced two new nerve agents, N5 and N7 (the N standing for "newcomer"). These are binary agents with, respectively 5-8 times the toxicity of VX and 10 times that of GD.
1430. **Delivery Means.** Where the casualty producing effect is the primary concern, GENFORCE stresses a combination of surprise and massive concentration of agent. Where denial of ground and/or equipment is the aim, these factors are of lesser concern. GENFORCE can hit targets throughout the enemy's tactical and operational depth using the same delivery systems that are used for HE and ACMs.
- a. **Blood Agent**, which requires particularly large concentrations to be effective, delivered by large aerial bombs or heavy MBRLs.
 - b. **Non-persistent Nerve Agent (GB)**, which is used for its instantaneous effect, is delivered by aerial bombs/bomblets, MBRLs or tube artillery of 120mm calibre

or greater: in the latter case, either base ejection or fragmentation rounds may be used, usually mixed with HE to achieve surprise. Off-target aerial spray attacks may be used for the harassment of depth targets.

- c. *Semi-persistent and Persistent Agents* can be delivered by any of the above systems or by SSMs or cruise missiles. Either of the missile systems could employ cluster munitions to increase the area contaminated and cruise missiles could employ the spray technique to cover a long swathe of territory.

1431. ***Holdings of Chemical Weapons.*** Plainly, the amount of CW ammunition held by units and formations will depend on GENFORCE's appreciation as to whether or not CW should be, or is likely to be used. When its employment is considered likely or certain, probably about 5% of tube artillery ammunition will have a chemical fill. The figure for MBRLs, SSMs and cruise missiles is probably in the range of 20-30%. Should more be required, provision is made in the SG, and possibly even in the higher formation rear, for the field-filling of chemical munitions. The availability of Air Force munitions is less of a problem as large stocks could be built up in well protected fixed bases and resupply is easier.
1432. ***Increased Effectiveness of CW.*** Various developments have combined to make CW more effective. Improved surveillance and target acquisition have rendered it more responsive than hitherto. The increasing range and accuracy of delivery systems have made depth targets more accessible. Improved accuracy, together with the introduction of cluster munitions and of agents with increased toxicity have simultaneously increased agent density and effectiveness in the target area, reduced mask-up time for enemy personnel and reduced the quantity of agent required to achieve a given effect.
1433. ***Chemical Defence.*** The ability to conduct CW depends not only on the possession of suitable agents and delivery systems but also on the ability to defeat contamination - not least that created by friendly strikes in areas subsequently required for manoeuvre. GENFORCE is well prepared for chemical defence. All armoured, command, signals and workshop vehicles and most logistics vehicles have efficient filtration systems. Collective protection shelters with filtration and overpressure systems exist for CPs, medical posts, resting troops etc. Individual protective clothing and respirators are reliable and reasonably habitable without undue stress (except for the impermeable suits worn by specialist Chemical Defence Troops, whose job often requires more heavy duty clothing). Naturally, even the new air-permeable all-arms suits degrade the wearers' performance, but much less than the former, excessively cumbersome kit and certainly no more than current British individual protective equipment: the significant improvement which has taken place in this area may allow GENFORCE to use CW agents in closer proximity to their own forces than was hitherto the case. There is an impressive range of CBW detection and identification equipments (many automated and using sophisticated mass spectroscopy and ionization techniques); these are designed to detect GENFORCE as well as potential enemy agents. Every individual and every equipment has his/its own decontamination kit, and there are extensive, mobile decontamination facilities for both personnel and equipments held at each level from unit upwards. Operationally, too, GENFORCE is well-prepared for CBW. Chemical reconnaissance and decontamination facilities are

integrated into organizational structures (the former with a dedicated warning and reporting net that it shares only with air warning). The military medical services are geared to the evacuation, decontamination and treatment of mass casualties. Tactical training routinely contains a chemical defence element.

1434. **CW Research and Development.** It is clear that R and D on, and even production of, new agents proceeded even while the stillborn Chemical Weapons Convention was under discussion and despite claims to the contrary by the government, a whistleblower has produced proof that the “N” agents were adopted during this period. GENFORCE is developing its capabilities across the whole spectrum of CBW to optimize the tactical and operational options available to it through providing a range of agents tailored to different tactical and operational requirements and through improving defences.

- a. *Agents.* Work is going on to increase lethality and improve persistence, mostly through using binary techniques. Binary weapons offer an attractive way of improving nerve agents while evading any revived attempt at a Chemical Weapons Convention: their precursors (as is the case in the “N” agents) are ordinary organophosphates that can be made at civilian commercial production facilities for fertilizers or pesticides. Other areas of research will probably include respirator penetrants and possibly, bio-regulators (which interfere with the body’s regulatory mechanisms) and toxins, though the last two are possibly taken less seriously than other approaches as, although they can exert a similar level of effect to conventional agents, they are perceived as being more costly, harder to produce and more difficult to store. GENFORCE seems to display little interest in psychotropic agents.
- b. *Delivery Systems.* Efforts are being made to improve munitions so that optimum concentration and/or dispersion is achieved (depending on the tactical aim).
- c. *Defence.* Work is ongoing to improve detection and alarm systems and protection and to develop both prophylaxis and antidotes. It is possible that GENFORCE may be able to achieve breakthroughs in any of these areas, and in the development and fielding of new agents, without this being discovered by potential enemies. Any such outcome will obviously affect the likelihood of CW use by GENFORCE.

Employment of Chemical Weapons

1435. **Likelihood of Employment.** Whether or not GENFORCE makes use of its large chemical capability will depend on political considerations, on the assessed probability of CW being escalatory and on the degree of preparedness of the enemy for CW. Assuming that political authorization is given and that the risk of nuclear retaliation is low (both major assumptions), the latter consideration will be decisive.

- a. *Against an Enemy Poorly-Prepared for CW,* the one-sided advantage conferred by use will make the temptation very strong. There may even be selective employment against a poorly-prepared member of a coalition when

other belligerents have a better capability, accepting the risk that they will reply in kind. The advantage gained through the rapid defeat of one enemy may well outweigh the consequences of retaliation by another.

- b. *Against an Enemy Well-Prepared for Defence but with no Retaliatory Capability*, the temptation may be almost as strong as is the first case. Even if the casualties expected are relatively low, the benefit to GENFORCE will be considerable. The main effect of CW in this case will be to slow the enemy down, to decrease his efficiency and to impair his morale. To an army obsessed by tempo, the prospect of reducing the enemy's while retaining its own will be a considerable incentive. Certainly, the initiative will rest firmly in GENFORCE's hands.
- c. *Against an Enemy with Good Defensive and Offensive Capabilities* the decision will depend on whether a decrease in the tempo of operations will favour GENFORCE or the enemy. If GENFORCE is the victim of a surprise attack and caught off balance, CW may be a means of winning time. If the boot is on the other foot, CW is likely to be perceived as counter-productive. GENFORCE would then be likely to rely on its own efficient defensive and offensive capabilities to deter enemy use. In either case, however, GENFORCE will be determined to deliver the first, massive, in-depth chemical strike. Any perception that the enemy is about to initiate CW will lead to an attempt to overtake him in implementing his decision.

1436. ***The Impact of CW.*** Against troops poorly equipped and/or trained for chemical defence, GENFORCE will expect CW to inflict high casualties and will factor these into operational and tactical calculations, for instance reducing the norms for conventional artillery suppression accordingly in the attack. Against troops well equipped and trained, however, GENFORCE will not rely on chemical strikes to reduce significantly enemy combat strength. The full artillery HE norms will be adhered to and chemical casualties will be regarded as a bonus, perhaps extending the effect from suppression towards destruction and thus increasing the tempo of an offensive or counter attack. The main impact on a prepared enemy is on the efficiency and rapidity with which he can attempt to fulfil his mission. Chemical attacks can:

- a. Degrade the effectiveness of weapons' usage, airfield or CP operation, etc by forcing personnel to work in protective clothing. (This will apply even where the enemy has provided for collective protection as this will be breached sooner or later, eg for ammunition resupply of SP artillery or a shift change in a HQ).
- b. Restrict the use of weapons, equipment and supplies (eg, supplementary reserves of ammunition on gun positions) through contamination.
- c. Disrupt and slow down the working of the logistic system.
- d. Reduce the overall speed, cohesion and freedom of movement of enemy units and formations, thus both winning a tempo and increasing the enemy's vulnerability to strikes by other weapons.

- e. Restrict or deny the use of key terrain or force the enemy to lose time through decontamination.
- f. Significantly increase fatigue levels and lower morale in enemy troops.
- g. Cause widespread panic amongst unprotected civilians, promoting a flight of refugees. This will further hamper logistic activity and deployment by both removing necessary labour and by blocking roads.

1437. ***The Employment of Non-persistent Agents*** against a prepared enemy. As the main value of CW is seen to be the reduction of the enemy's tempo of operations and combat action relative to that of GENFORCE, less emphasis is placed on non-persistent agents compared with persistent as their effects are transient. They are particularly used on those axes which GENFORCE wishes to exploit without the risk of running into its own contamination.

- a. *Attacks on the Civilian Population.* A nerve agent such as GB will create a considerable downwind hazard, given favourable weather conditions, and can thus be used to spread panic over a wide area for a relatively small expenditure of munitions.
- b. *Attacks on Strongpoints* to be attacked immediately, and on supporting positions to the flanks may be subjected to nerve agent attack, particularly if GENFORCE intends to overrun the enemy in a mounted attack: dismounted infantry would have to wear respirators to follow up such a strike. To achieve chemical surprise, a mix of chemical/fragmentation and HE rounds is likely to be used. A blood agent attack may be used where it is considered desirable for MR troops to assault unencumbered by protective clothing and respirator.
- c. *Preparing a LZ or LS* for an airborne/heliborne assault. A massive blood agent strike may precede a landing prior to, or as part of, the fire preparation. The use of nerve agent is less likely (and impossible for an airborne drop) as assault troops would need to wear chemical protection.
- d. *Harassing.* Non-persistent nerve agent can be used against HQs, communications centres, defence or demolition preparations, artillery positions and administrative areas on the axis of advance. The downwind hazard may spread the disruptive effect over a wide area.

1438. ***The Employment of Persistent Agents.*** These may be used against targets too dispersed to be engaged by conventional means, those which GENFORCE wishes to capture intact at a later stage or which are located with insufficient accuracy to be taken on by other than a wide area weapon. Their great value lies in the fact that their effects are not transient. As well as producing casualties initially, they will cause a steady, if low rate of attrition and greatly sap morale and efficiency. Should the enemy decide to conduct decontamination, he will pay a serious time penalty and perhaps offer a target for conventional attack. Persistent agents will also restrict the manoeuvre of contaminated units or force them to spread their contamination. They also have some capacity to deny ground (especially if used in conjunction with RDMs). Generally speaking, they will not be

used against targets on terrain GENFORCE intends to exploit before the expected period of contamination is ended. It is, however, possible that GENFORCE will accept the degradation of performance implied in driving through its own contamination if time is short or in order to achieve surprise. Likely targets are:

- a. *Nuclear or Precision Delivery Means, EW Systems* too imperfectly located for destruction to be possible.
- b. *Airfields and Forward Operating Bases* to lower sortie rates and to complicate the repair of operating surfaces and infrastructure.
- c. *Headquarters and Communications Centres*, especially where these are hardened to resist conventional attacks.
- d. *Reserves* at all levels, or defended positions to the flanks of an attack axis.
- e. *Ports, Bases and Rear Area Installations* including logistics areas and civil targets that GENFORCE wishes to capture intact.
- f. *Artillery and Air Defence Units*, if possible in conjunction with conventional attack, to hamper the restoration of combat effectiveness.
- g. *Bypassed Groupings* to complicate efforts at breakout or the organization of all-round defence.
- h. *Troops Preparing Depth Defences or Demolitions* to slow the work down.
- i. *Defiles*, including gaps created through obstacles, to restrict enemy manoeuvre or impose penalties for their use.
- j. *Possible Concentration Areas* for enemy counter attacks into the flanks of advancing formations or against GENFORCE defended areas.

1439. **Command and Control.** Persistent contamination, like remotely-delivered minefields, can inhibit GENFORCE manoeuvre as much as the enemy's. The downwind hazard from non-persistent use may affect troops operating, or about to operate, in the enemy's depth. It is therefore necessary to ensure that strikes will not be made to the detriment of subsequent manoeuvre. To the end, CW attacks are organised by, or made only with the approval of lower formation CPs or higher authority. It is probable that only delivery systems at formation level will routinely have chemical ammunition available to avoid indiscriminate use: as larger calibre weapons are the most effective delivery means, this also makes for greater efficiency. The authorizing headquarters is responsible for warning lower, higher and flanking groupings.

**CHARACTERISTICS OF POSSIBLE BIOLOGICAL AGENTS EMPLOYED
AGAINST HUMAN BEINGS**

Disease	Incubation Period (Days) (a)	Disease Period (Days) (b)	Mortality (c)	Epidemic Effect	Treatment
A. Airborne Infections Agents					
i. Bacteria Infections					
Plague	2-5	-(1-2)-	High	Great	Antibiotics
Anthrax	3-5	-(3-5)-	High	Slight	Antibiotics+Vaccine
Rabbit Fever (tularemia)	1-10	-(14-21)-	Low	Slight	Antibiotics
Diphtheria	2-7	-(7-70)-	High	Great	Vaccine (anti-toxin)
Meningitis	2-10	-(?-14)-?	High	Great	Antibiotics
(Rickettsia Infections)					
Q-fever	14-21	5-(7-14)-21	Moderate	Slight	Antibiotics
ii. Virus Infections					
Lassa Fever	2-14	?	High	Great	Lacking
Marburg Fever	?	?	High	Great	Lacking
Adeno-infections	5-7	-(2-5)-7	Slight	Great	Lacking
Influenza	1-3	2-(3-4)-	Low	Great	Lacking
Smallpox	12-14	approx 21	High	Great	Antibiotics, Isolation
Coxsackie Infections	3-5	-(1-3)-14	Slight	Great	Difficult
B. Infections Conveyed by Water and Foodstuffs					
i. Bacteria Infections					
Typhoid Fever	7-21	-(28-42)	Low	Great	Antibiotics
Salmonella Infections	<2-2	-(1-4)-	Slight	Great	Liquid Treatment
Dysentery	1-7	-(5-7)-14	Low	Great	Liquid Treatment
Cholera	<1-5	-(7-14)-	High	Great	Liquid Treatment
Enterotoxin-producing E.coli	2-6	-(7-14)-	Slight	Slight	Liquid Treatment
Stomach Infection-Campylobacter	2-10	-7(14)	Slight	Slight	Liquid Treatment
Undulant Fever (Malta Fever)	14-60	-(90-?-)-360	Low	None	Antibiotics
ii. Virus Infections					
Yellow Fever (epidemic hepatitis)	10-40	14-(35-42)-70	High	Slight	
Polio					

Disease	Incubation Period (Days) (a)	Disease Period (Days) (b)	Mortality (c)	Epidemic Effect	Treatment
C. Infections Carried By Insects					
i. Bacteria Infections					
Tularemia, see under Ai					
Plague, see under Ai					
(Rickettsia infections)					
spotted typhus	6-15	14-(21-28)-	High	None	Antibiotics
ii. Virus Infections					
Yellow Fever	3-6	-(7-10)	High	None	Difficult
Dengue Fever	3-15	5-8	Slight	None	Difficult
Encephalitis	7-14	17-32	Low	None	

- Notes:
- a. Period will vary with level of agent challenge.
 - b. Normal length of illness is given in brackets. It may decrease with lethal agents due to early death or increase with non-lethal agents due to poor medical care.
 - c. This reflects Genforce assessment of mortality in targets having poor pre- and post-exposure treatment.