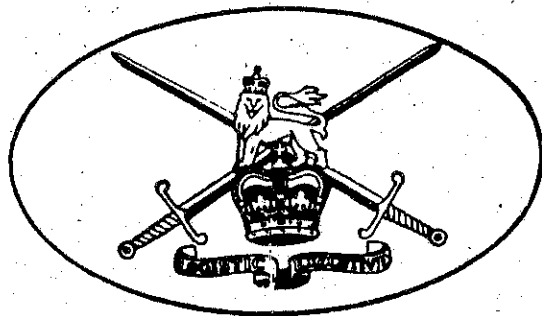


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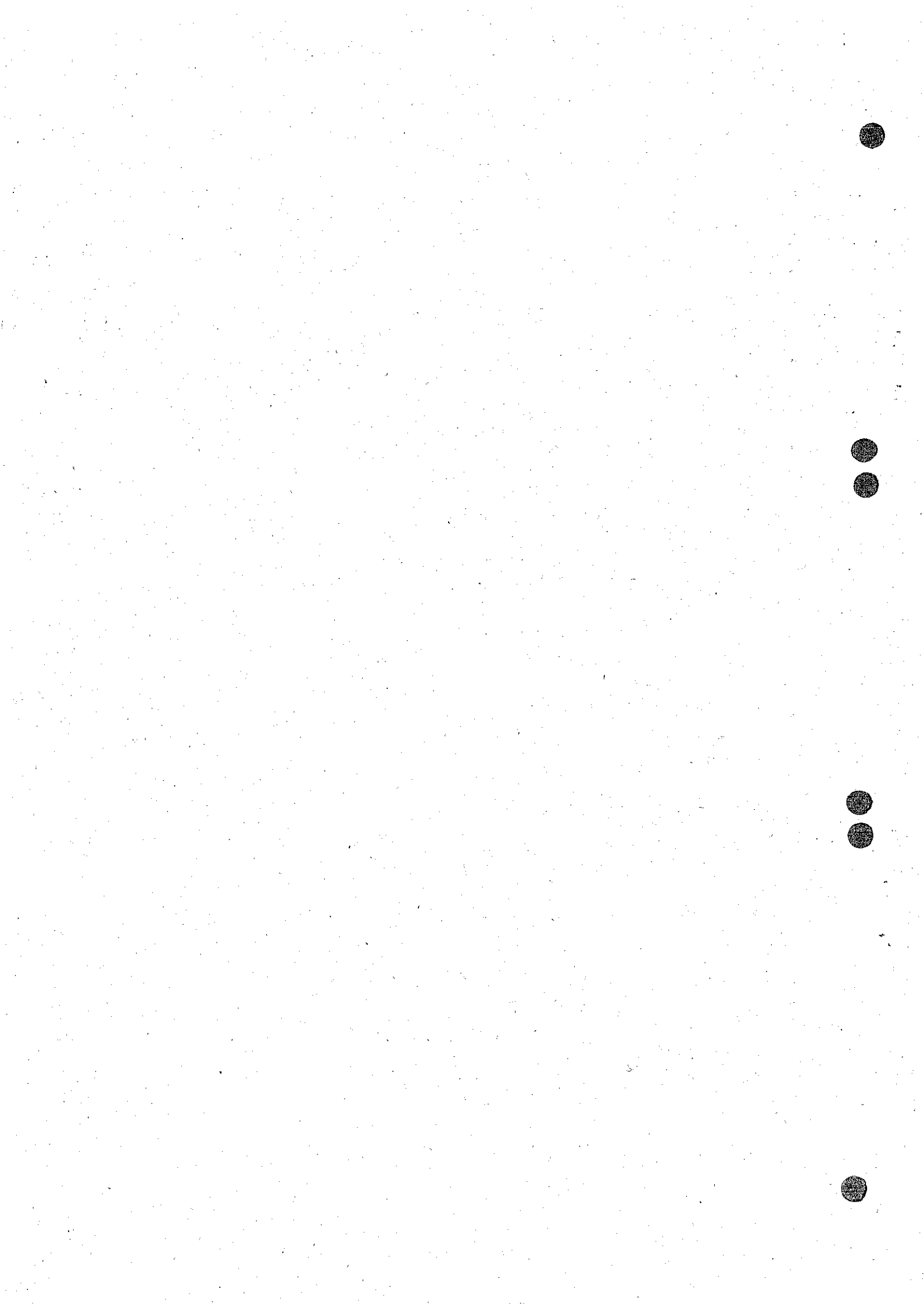
LOGISTIC EXECUTIVE (ARMY)

**SWITCHBOARD TELEPHONE MANUAL
16 LINE UNIT LEVEL**

**EQUIPMENT MANAGEMENT POLICY
STATEMENT No 173**

D/DGEME/188/10/1 EME 8c(3)

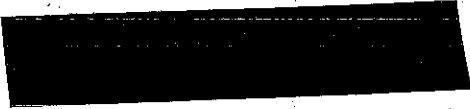




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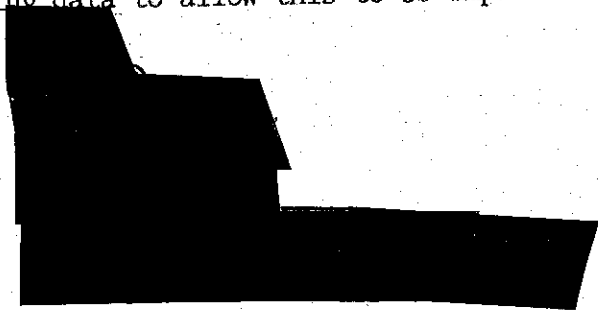
Our reference D/DGEME/188/10/1 EME8c(3)

Date 23rd February 1979

See Distribution

EQUIPMENT MANAGEMENT POLICY STATEMENT NO 173
SWITCHBOARD TELEPHONE MANUAL 16 LINE UNIT LEVEL

This Equipment Management Policy Statement details the maintenance and engineering support policy to be adopted for the Switchboard Telephone Manual 16 Line Unit Level and its associated Applique Unit. Planning data to allow this to be implemented is also included.



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EQUIPMENT MANAGEMENT POLICY STATEMENT NO 173
SWITCHBOARD TELEPHONE MANUAL 16 LINE UNIT LEVEL
Y1/5805-99-632-8190

INTRODUCTION

1. General. This policy statement deals with the Switchboard Telephone Manual 16 Line, Unit Level. It is a manual, cordless telephone switchboard for forward areas. The equipment is manufactured by Marconi Space and Defence Systems Ltd and replaces the Switchboard 10 Line Magneto and the Switchboard F and F20 Line. It was developed to satisfy the requirement of GSR No 3251. The equipment is an ATCC controlled item.

2. Description

- a. The basic equipment consists of a Switchboard Unit, its Line Terminal Unit, a combined head/hand set and earth spike. The lid of the Switchboard Unit contains the stowage position for the Line Terminal Unit, head/hand set, earth spike and a 41-way Interconnecting cable assembly for coupling two Switchboard Units when required. The Switchboard Unit may be mounted on its lid, which acts as a stable base, or in a framework or vehicle by means of the fixing holes provided.
- b. An Exchange, or Applique, Unit and its associated Line Terminal Unit is provided for operation into a public telephone network. The 41-way cable of the Switchboard Unit is used to couple the Applique Unit to the basic equipment.
- c. The battery used in the switchboard is a battle battery:

Battery dry, 12v, 1.6AH Manganese alkaline type Y3/6135-99-106-1769.

This is currently used with the Radio PRC 316 (A16).

3. Physical Data:

a. Switchboard Unit and Ancillaries

Height	14.52in	(369mm)
Width	19.5in	(495mm)
Depth	7.4in	(188mm)
Weight	38.81b	(17.6kg)

b. Exchange (Applique) Unit 3 Line

Height	14.52in	(369mm)
Width	8.99in	(228mm)
Depth	7.4in	(188mm)
Weight	12.311b	(5.6kg)

4. Climatic Range:

Operating temperature	0 to 55°C
Storage temperature	-40 to +70°C (with battery removed)



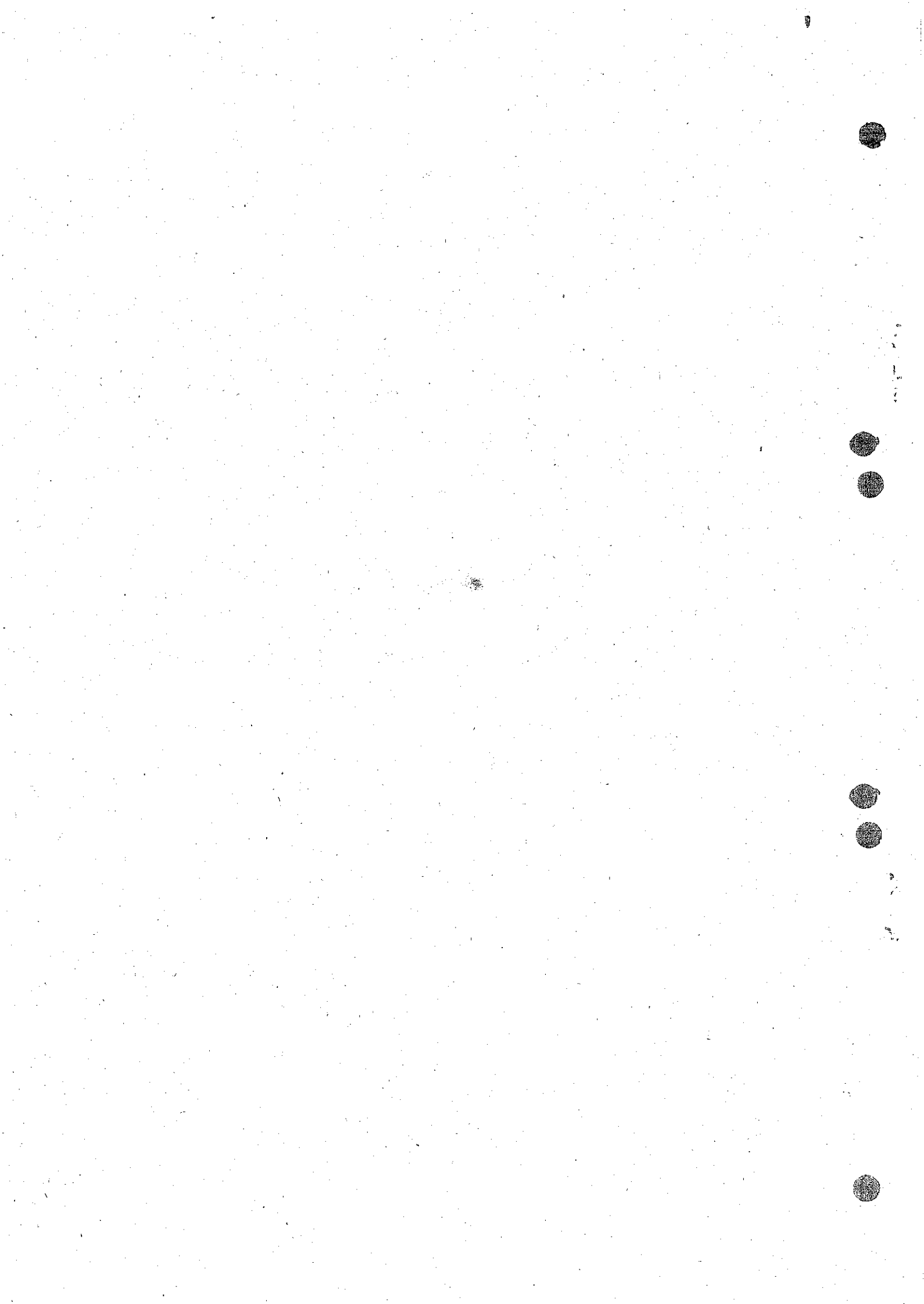
DEPLOYMENT OF SWITCHBOARD TELEPHONE MANUAL
16 LINE UNIT LEVEL AND ASSOCIATED APPLIQUE UNIT

1. SWITCHBOARD

Command/ Theatre		Peace Unit Entitlement (PUE)	Repair Pool (RP)	Initial Maintenance (IM)	War Maintenance Reserve (WMR)	PUE Stockpile
(a)		(b)	(c)	(d)	(e)	(f)
UK	Units	217	-	-	-	-
	COD Donnington	-	38	10	7	4
BAOR	Units	102	-	-	-	-
	Ordnance Depots	-	20	10	-	13
ELSEWHERE (incl Berlin)		20	-	-	-	-
TOTALS		339	58	20	7	17

2. APPLIQUE UNIT

Command/ Theatre		Peace Unit Entitlement (PUE)	Repair Pool (RP)	Initial Maintenance (IM)	War Maintenance Reserve (WMR)	PUE Stockpile
(a)		(b)	(c)	(d)	(e)	(f)
UK	Units	117	-	-	-	-
	COD Donnington	-	15	6	5	1
BAOR	Units	61	-	-	-	-
	Ordnance Depots	-	10	3	-	2
ELSEWHERE (incl Berlin)		18	-	-	-	-
TOTALS		196	25	9	5	3



5. Planned Role. The switchboard is used primarily at Unit level to provide internal communications. The secondary role is as a small locality or systems control switchboard.

6. Management. The equipments are single-serviced managed on behalf of the Royal Marines, Army and Royal Air Force by LE(A) EME8c.

PLANNING DATA

7. Deployment. The deployment of the equipment is detailed in Annex A.

8. User Availability. The required availability of serviceable equipments is:

a. At any time - 80% of Unit Entitlement (UE).

b. After 24 hrs warning - 90% of UE.

Availability is defined as the probability that the UE can, at a stated instant in time, perform its function.

9. Planned Life. On present planning the equipment will not be superseded before 1993.

10. Delivery Programme. 200 Switchboards and 100 Applique Units are planned to be delivered to COD Donnington in early 1979 followed by 20 Switchboards and 10 Applique Units per month until completion of contract.

11. Economic Life. The estimated economic life of a complete equipment is 10 years.

12. Anticipated Utilisation. It is anticipated that the equipments will be used for up to a maximum of 3000 hours per year. The average peace utilisation of the complete equipment is expected to be 1000 hours per year.

MAINTENANCE SUPPORT POLICY

13. Spares. Initial spares support is being provided to cover the first two years of the deployment of the equipment. This has been achieved by the application of GNC 29 advance ordering procedures, now to be followed by completion to a 17% Initial Spares Requirement.

14. CENTREMS. The equipment has two CENTREMS, which are to be backloaded for repair in accordance with Material Regulations Volume 1 Pamphlet 7 Annex B:

<u>NSN</u>	<u>Designation</u>	<u>Stocking of Spare CENTREMS</u>
Y1/5805-99-620-8944	Subscriber unit	One) at supporting Armoured/Field
Y1/5805-99-620-8945	Operators unit	Four) Workshop Stores Section

15. Battle Batteries. It should be noted that supply of battle batteries is normally by automaint issue.

16. Repair Pool. To date 58 switchboards and Applique Units have been requisitioned for the Repair Pool, of these 20 switchboards and 10 Applique Units are to be held in BAOR controlled by EME Directorate BAOR the remainder are to be held in COD Donnington controlled by EME8.

17. Initial Maintenance. To date 20 switchboards and 9 Applique Units have been requisitioned for Initial Maintenance, of these 10 switchboards and 3 Applique Units are to be held in BAOR controlled by EME Directorate BAOR, the remainder are to be held in COD Donnington controlled by EME8.



18. Publications. The equipment is supported by the common series of publications supplied by RAOC and REME:

User Handbook

EMER

IPC

CES (Switchboard)

(Applique Unit)

Army Code No 61451

Telecommunications UO80

Army Code No 61525

Army Code No 44410

Army Code No 44833

19. Training. No special training is required. Repair and specification testing are within the capabilities of personnel trained to carry out unit level telecommunications repair.

20. Manpower. There will be no increase in manpower to support the equipment where it directly replaces the current equipment in service.

ENGINEERING SUPPORT POLICY

21. Servicing. Servicing is to be carried out by the user in accordance with the instructions laid down in the User Handbook and EMERs.

22. Unit Repair. Unit repairs are confined to replacement of CES items including the Operator and Subscriber units (CENTREMs), and functional testing of the equipment.

23. Field Repair. Field repairs are confined to the replacement of items not contained in the Operators and Subscribers units, and the replacement of the Operators and Subscribers Units.

24. Base Repair. Base repair at 34 Central Workshop REME will consist of:

a. CENTREM repair of Operators and Subscribers Units.

b. Overhaul of the complete installation and assemblies.

25. Examination. The equipment is to be examined annually in accordance with EMER Management O 026.

26. Backloading. Equipments which are sentenced BLR at Field Level are to be back-loaded through normal RAOC channels.

27. Unauthorised Modifications. Unauthorised modifications can cause serious damage and are not permitted.

REVIEW OF EMPS

28. The policy stated in this EMPS is based on the planned deployment and intended role of the equipment, together with estimates of their utilisation and reliability. This policy may require amendment in the light of experience gained with the equipment or changes in utilisation and deployment. Although EME8c(3) will carry out periodic reviews it is the responsibility of MOD branches concerned and theatre staff to recommend policy changes to EME8c(3) as experience is gained with the equipment.



BAE SYSTEMSBAE SYSTEMS Avionics Limited
Customer Support Servicesoriginal on 37/16/3/1
LXD 1/11/01

Ref: M1369DoC/ULS/T1445

DECLARATION OF CONFORMITY**Category: UNIT LEVEL SWITCHBOARD EQUIPMENTS****Equipments:** Switchboard Telephone Manual 16-Line Unit Level
Exchange Unit 3-Line (Original)
Exchange Unit 3 Line Mark II
Case Protection Assembly
Cable Assembly Telephone (Extension Cable)**NSNs:**
16-Line 5805-99-620-8939
3-Line 5805-99-620-8946
3-Line Mk.2 5805-99-661-6786
Case Protection 5975-99-799-9822
Cable Assembly 5995-99-736-1853**Modification Status:**

NSN	Description	Eqpt	Mod Strike	Tels U087	ATMC
5805-99-620-8939	Switchboard Telephone Manual 16-line	ULS	1	1	02240
			2	4	02565
			3	4	02566
5805-99-620-8945	Operators Unit Assembly	16-line	1	3	02357
			2	8	03109
5805-99-620-8946	Exchange Unit 3-line	ULS	1	6	02567
5965-99-620-8952	Handset/Headset Assembly	16-line	Stripe	2	02368
5805-99-636-9248	Panel Electronic Circuit	16-line	1	3	02357
			2	8	03109
5805-99-751-4547	Panel Electronic Circuit	3-line Mk.2	1	9	03110
5820-99-764-7498	Panel Assembly Exchange Unit	3-line Mk.2	1	9	03110



Design Status:

The original Unit Level Switchboard consists of a 16-line magneto telephone switchboard unit, and a 3-line add-on exchange unit providing connection to either manual or automatic telephone exchanges. This equipment was developed to meet the requirements of GSR 3251.

The 3-line exchange unit mark 2 is a variant of the original unit. It was developed under PDS for use in Ptarmigan vehicles and to satisfy British Post Office Telecommunications licensing requirements. The 16-line & 3-line mark 2 units were later modified to meet German Post Office licensing requirements (GMSS PDS Report R/085 referred).

The Case Protection and Cable Assembly were introduced by modification action (ATMC 02538 refers) to meet a user requirement to remote the 16-line termination unit from the actual switchboard. These were designed on a cost and time basis to meet the users requirements, and do not fully conform to Defence requirements (ATMC 02538 refers).

Their designs conform to the following specifications:-

- (a) 16-line RSRE Design Specification DS1354 (Issue 1 + Amendments 1 & 2).
3-line RSRE Design Specification DS1354 (Issue 1 + Amendments 1 & 2)
3-line Mk.2 RSRE Design Specification DS1354 Annex A (Issue 1, May 1990)
- (b) 16-line General Assembly Drawing SD/D240000 (Latest Drawing List Issue)
3-line General Assembly Drawing SD/D240100 (Latest Drawing List Issue)
3-line Mk.2 General Assembly Drawing SD0/268580 (Latest Drawing List Issue)
Case Prot. General Assembly Drawing SD0/269470-PD (Latest Drawing List Issue)
Cable Assy. General Assembly Drawing SD1/269482-PD (Latest Drawing List Issue)
- (c) 16-line Production Test Specification EQD/L/5466 (Issue 1 plus Amdts.1 & 2)
3-line Production Test Specification EQD/L/5466 (Issue 1 plus Amdts.1 & 2)
3-line Mk.2 Production Test Specification EQD/L/5466 Annex A (Iss.1 plus Amdt.1)
- (d) Those other specifications as detailed in paragraph A5.1 of DS 1354 & DS 1354 Annex A and/or paragraph 1.7 of EQD/L/5466 & paragraph 1.8 of EQD/L/5466 Annex A.

Assemblies, sub-assemblies and modules forming part of these units and ranged as spares are detailed in paragraph 1.1.1 of EQD/L/5466 & EQD/L/5466 Annex A (see Attachment 2).

Known Safety Hazards:

All ULS Equipments and their assemblies, sub-assemblies or modules may contain piece parts and/or fixings that are cadmium plated or use beryllium copper. These hazardous substances are still detailed in the design drawing package. A previous decision was made (on the basis of cost) to replace them with alternatives only as and when a drawing was changed for some other reason. Warning labels are not fitted.

The 16-line Unit Level Switchboard generates a nominal 60 volt 14-25 Hz ringing supply for magneto telephones which is present on the external line terminals when calling is in progress. This is a normal telephony function and no warning labels are fitted.

The 16-line Switchboard weighs approximately 17.8 kilograms (40 pounds). These units may cause physical injury if dropped and/or when mishandled under operational conditions.



All external Pattern 105 connectors on ULS Equipments are cadmium plated underneath their protective colour finish. Where connectors are worn and show signs of oxidation (white powder), safety-handling precautions should be observed.

All other components specified for ULS Equipments are to known military or commercial standards. However, the chemical composition of these components may possibly contain hazardous substances beyond the knowledge of BAE SYSTEMS. They are not dangerous when handled correctly during normal operations or maintenance.

Exclusions:

BAE SYSTEMS cannot account for materials used by third parties in the repair and/or manufacture of individual items/assemblies where we have no control other than the supply of drawings as authorised by MoD Project Management.

BAE SYSTEMS are not the MoD authorised repair contractor for the subject equipment and in consequence can only comment on items/assemblies manufactured under our control against the listed Baseline Documents/Specifications.



EQD/L/5466 Issue 1 Extract

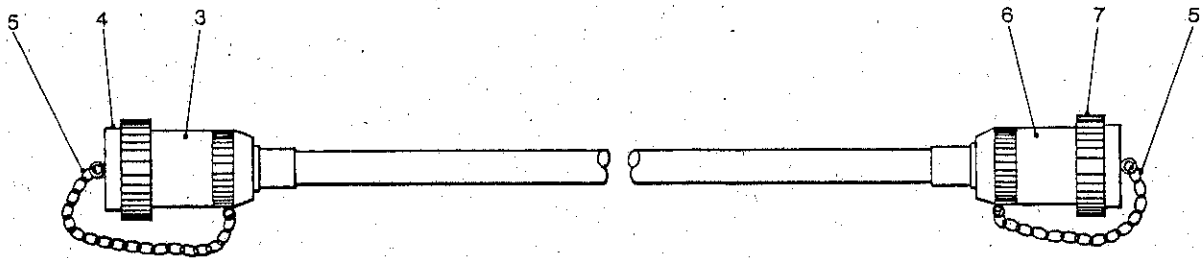
1.1.1 The Switchboard Unit Level and Exchange Unit have been designed to the requirements of Design Specification DS 1354 and comprise the following assemblies and modules ranged as spares.

Item Designation and Equipment Identification No.	Drawing List No.	Specification No.	NATO Codification No.
16-Line Unit			
PSU PEC	SD2/254552	EQD/L/5476	5805-99-636-9249
Subscribers Unit	SD/D240220	EQD/L/5468	5805-99-620-8944
Subscribers PEC	SD/C240221	EQD/L/5473	5805-99-634-6193
Operators Unit	SD/D240230	EQD/L/5467	5805-99-620-8945
Operators PEC	SD2/254538	EQD/L/5474	5805-99-636-9248
Panel CB	SD/C254540	EQD/L/5475	5805-99-634-8341
Protector Telephone	SD/C240010	EQD/L/5469	5920-99-620-8941
3-Line Unit			
Panel CB 1	SD/C240141	EQD/L/5471	5805-99-634-7215
Panel CB 2	SD/C240171	EQD/L/5472	5805-99-634-7216
Protector Telephone	SD/C240130	EQD/L/5470	5920-99-620-8948

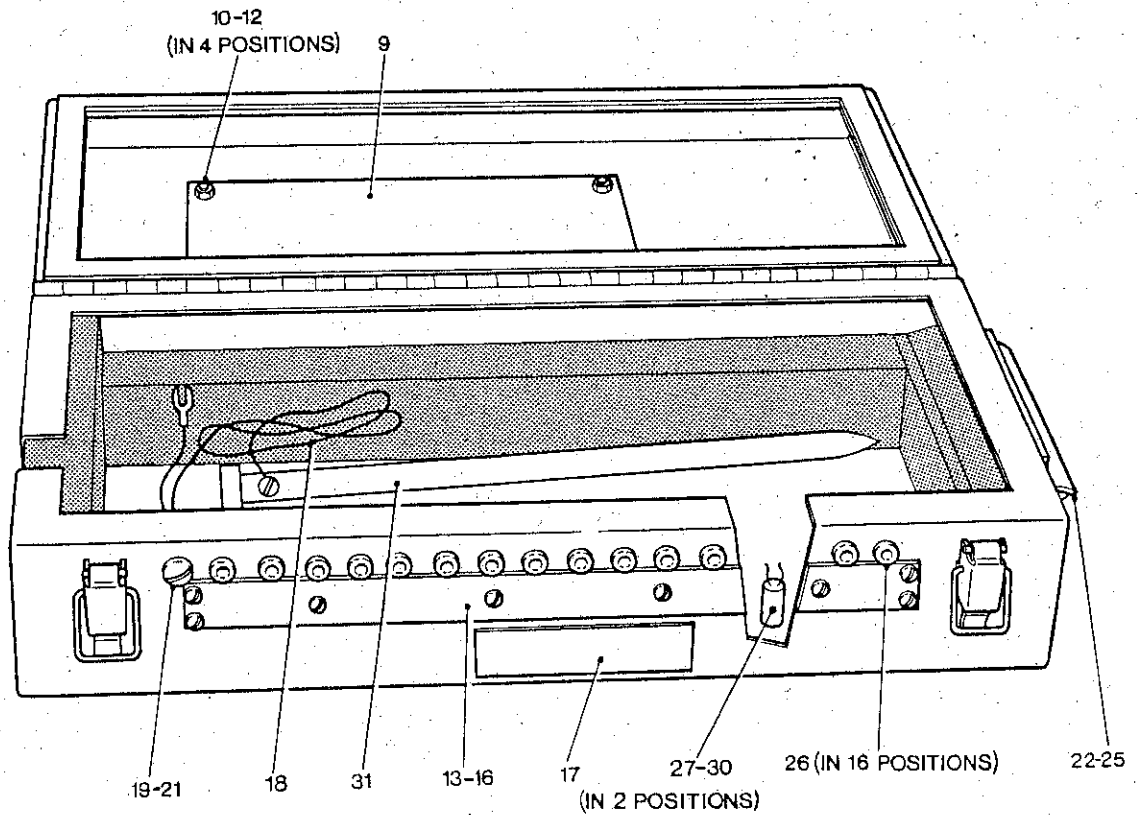
EQD/L/5466 Annex A Issue 1 Extract

1.1.1 The 3-line Exchange Unit Mark 2 is designed to the requirements of Design Specification DS 1354 Annex A and comprises the following assemblies and modules ranged as spares.

Item Designation and Equipment Identification No.	Drawing List No.	Specification No.	NATO Codification No.
Link Indicator Module	SD1/269502	EQD/L/7058	5805-99-751-4600
Dial Interface PEC	SD1/268560	EQD/L/7057	5805-99-751-4586
Main Panel Electronic	SD1/268555	EQD/L/7056	5805-99-751-4547



CABLE ASSEMBLY TELEPHONE (ITEM 2)
5995-99-736-1853



CASE PROTECTION ASSEMBLY (ITEM 8)
5975-99-799-9822

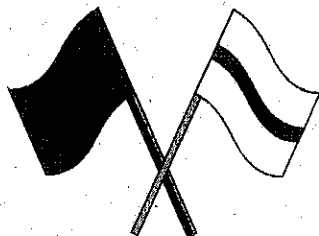
FIG.1- CASE PROTECTION ASSEMBLY AND CABLE ASSEMBLY TELEPHONE



FIG. ITEM	MAN CODE		NATO STOCK NUMBER	I N D E N T	ITEM NAME AND DESCRIPTION	PART NO./ DRAWING NO.	NO. OFF	ANNOTATK	
	NAVY-N	ARMY-A						RAF-R	CLASS OF STORE AND SERV. LINE
1-1			- - -	A	CASE PROTECTION ASSEMBLY AND CABLE ASSEMBLY TELEPHONE fitted on MOD ATMC 02538		1	REF	
2	A	Z42	5995-99-736-1853	B	CABLE ASSEMBLY TELEPHONE	SD1/269482/ PD	1		
3	A	Z32	5935-99-013-0041	C	RECEPTACLE shell size 20; 41 way	DEF STAN 59-35 Pt 1, Sec 3, 51T-20-41SB	1		
4	A	Z42	5999-99-723-7698	C	CAP, ELECTRICAL	SD4/269488/ PD	1		
5	A	G1	5340-99-731-2276	C	CHAIN ASSEMBLY	SD3/269483/ PD	2		
6	A	Z32	5935-99-013-0009	C	PLUG shell size 20; 41 way	DEF STAN 59-35 Pt 1, Sec 3, 56T-20-41PB	1		
7	A	Z42	5999-99-723-7699	C	CAP, ELECTRICAL	SD4/269489/ PD	1		
8	A	Y1	5975-99-799-9822	B	CASE PROTECTION ASSEMBLY	SD0/269470/ PD	1		
9	A	G2	9905-99-731-2273	C	PLATE INSTRUCTION inscribed; "DESIGNATION"	SD2/269475/ PD	1		
10	A	G1	5305-99-135-0680	Z	SCREW, SLOTTED pan head; M2.5 x 6mm lg; cadmium plated	DEF STAN 53-23	4		
11	A	G1	5310-99-135-0764	Z	NUT, PLAIN, HEXAGON M2.5; mild steel; cadmium plated	DEF STAN 53-27	4		
12	A	G1	5310-99-135-2532	Z	WASHER, SPRING TENSION M2.5	DEF STAN 53-31	4		
13	A	Z1	9905-99-731-2274	C	PLATE DESIGNATION inscribed; "16.12.8.4.1"	SD2/269476/ PD	1		
14	A	G1	5305-99-135-0680	Z	SCREW, SLOTTED pan head; M2.5 x 6mm lg; cadmium plated	DEF STAN 53-23	8		

CSD/80/1/4/1

Army Code 70804



**LAND COMPONENT HANDBOOK
(INFORMATION COMMUNICATIONS
SERVICES)**

Section 3.2.3.3.2.5

**UNIT LEVEL SWITCHBOARD
16 LINE**





CONTENTS

	Para	Page
Contents Page		i
General	1	1
Main Parameters	2	1
Construction	3	2
Switchboard	4	2
Exchange Unit	5	2
Outline of Working	6-8	2
Functional Checks	9-13	3
Exchange Unit	14	3-4
Push-Button Dialler	15	4
Functional Tests		5
Repair Procedure	16-17	6



[REDACTED]

UNIT LEVEL SWITCHBOARD - 16 LINE

GENERAL

1. The switchboard is a lightweight, cordless, magneto field telephone switchboard for military use. The complete equipment consists of 2 main units:

a. The Switchboard Unit

This contains all the necessary facilities for 16 magneto extension lines and the operator's circuit. There are 7 connecting links. (Switchboard levels).

b. The Exchange Line Unit

This allows 3 CB or 3 Auto lines to be added. A "Push-Button Dialler" is provided for auto working.

MAIN PARAMETERS

2. a. Operating Distance: at least 10 miles (16 km) using D10.
- b. Magneto Signalling: 14/25 Hz (60V).
- c. Speech range: 0,3 to 3 kHz.
- d. Switchboard loss: less than 0.5 dB.
- e. Indicators: Electromagnetic fluorescent discs.
- f. Line Protection: Magneto lines: Gas protectors 16a.
 Exchange lines: Surge arrestors XSA2.
 Quick blow fuses.
 250 mA.
- g. Push Button Dialler: Store: 18 digits.
 Speed 10 IPS.
 Break/make ratio: 2:1.
 IDP: 800 msec.
- h. Power Supply: Internal: 16V manganese alkaline cell.
 External: 24V.



CONSTRUCTION

3. Cases

Both units are housed in metal cases. The lids provide:

- a. Seals so that when closed exclude water and dust to protect the equipment.
- b. Storage compartments for the installation accessories.
- c. Mounting platforms when the exchange is in use.

SWITCHBOARD

4. The operator's unit, containing all the facilities for the operator's circuit including supervisory, and the subscriber's unit containing all facilities for 2 subscriber circuits, are of modular construction and connected by double-sided printed circuit edge connectors. When all the modules are removed the front panel can be removed. The front panel provides a mounting for all sub assemblies. That is the ringer, external battery supply regulator, internal battery and the alarm buzzer.

EXCHANGE UNIT

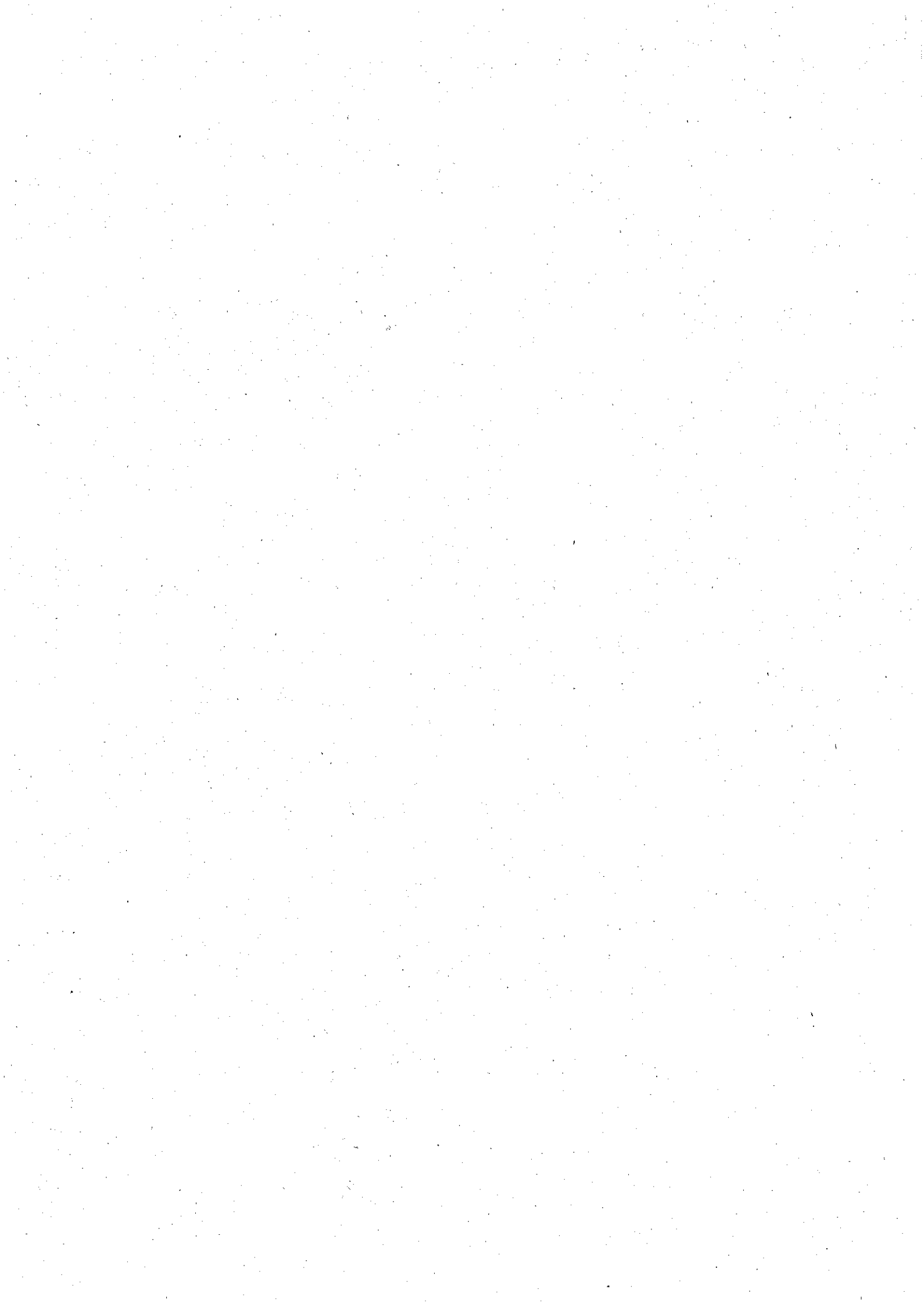
5. All sub assemblies are mounted on the rear of the front panel giving facilities for 3 exchange lines. There is a Push Button Dialler provided with only the buttons protruding through the panel.

OUTLINE OF WORKING

6. The exchange employs a switched crossbar system brought into use by miniature level keys. There are 7 link circuits. The state of use of each link is shown by a disc type magnetic indicator showing black for link not in use and white when the link is busy.

7. The subscriber's lines use magneto signalling. There are 2 disc type magnetic indicators for each circuit, both show black when not operated. The calling indicator shows fluorescent red to indicate a call and the clearing indicator shows fluorescent green to show the subscriber has cleared. The associated detection circuit is sensitive to magneto but rejects DC and interference spikes. A switched audible alarm is provided so that an interrupted tone can be heard on an incoming call or clear. The interruption of the tone helps to conserve the battery. The switch enables the tone to be loud, soft or off.

8. The operator can call a subscriber by operating the associated ring key which operates a 17 Hz (60V) oscillator to ring the subscriber's bell. A Speak/Monitor/Off key is provided, in the "Speak" position the microphone amplifier and the receiver amplifier are energised. When the key is switched to monitor the microphone amplifier is switched off. In the "Off" position both amplifiers are switched off.



FUNCTIONAL CHECKS

9. Ensure that the internal battery is connected correctly and if an external battery is available connect this to the "EXTL DC" terminals.
10. Set the "TEST/OFF/ON" key to ON: the meter should indicate in the green area, the meter will indicate red if the external battery is below 18V. Set the switch to the "TEST" position and the meter should indicate green, a red indication shows that the internal battery is below 10V.
11. Set the switch to the "ON" position.
12. Test each line termination and link circuit by making both outgoing and incoming calls to and from each subscriber, using appropriate magneto telephones, as per Table 1.
13. During this test the "SOFT/OFF/LOUD" control on the operator's unit is also tested. On receipt of an incoming call with the control at "LOUD" a loud resonant note should be heard, when the control is switched to "SOFT" a softer note, and at "OFF" no audible alarm is heard.

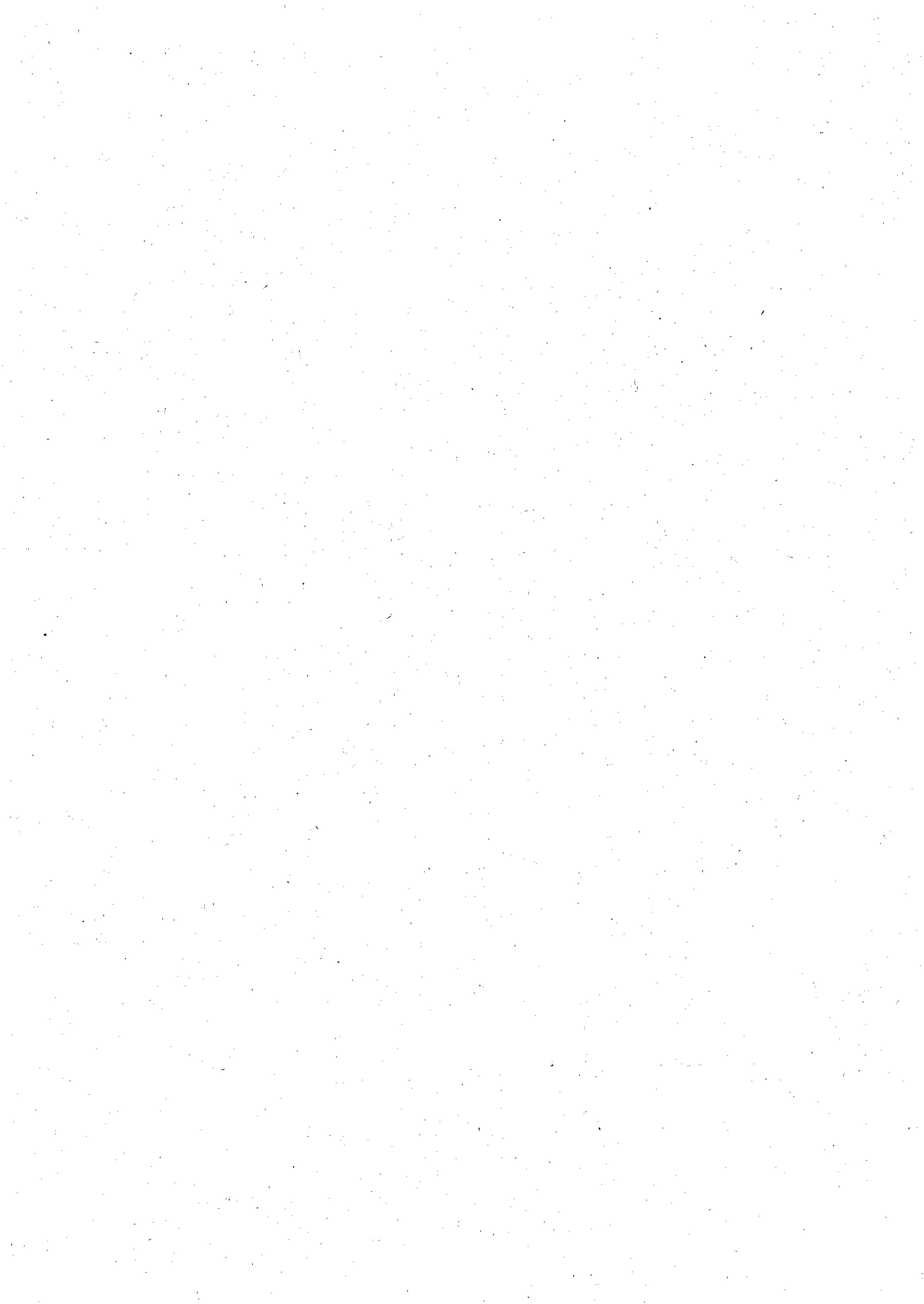
Action	Effects
(a)	(b)
Incoming ring	Calling indicator shows red.
Operate SPEAK key	Calling indicator cancelled. Speech possible between calling subscriber and operator.
Operate MONITOR key	Speech from subscriber heard by operator.
Call second subscriber by operating RING key	When subscriber answers speech between called subscriber and operator possible.
Operate one pair of LINK keys	Link busy indicator shows white. Speech is possible between both subscribers.
Either subscriber rings off	Both clearing indicators show green (See Note 1).
Restore LINK keys to normal	Clearing and busy indicators cancelled.


Table 1. Magneto Circuit Tests

NOTE 1. *When field telephones with a cradle switch are used then the indicator will show green when the handsets are replaced.*

EXCHANGE UNIT

14. Test each exchange termination and link circuit by making a call using each circuit in turn as per Table 2. A field telephone can be used in place of an exchange line for the purpose.





Action	Effects
(a)	(b)
Incoming ring	Calling indicator shows red.
Operate SPEAK key	Calling indicator cancelled. Speech possible between operator and exchange subscriber.
Operate LINK key on exchange unit	Holds exchange subscriber's circuit.
Call magneto subscriber by operating RING key	When subscriber answers speech is possible between called subscriber and operator.
Operate LINK key on magneto unit	Link busy indicator shows white. Speech is possible between exchange and magneto subscribers.
Operate MONITOR key	Speech between subscribers can be overheard by the operator.
Called subscriber rings off	Both clearing indicators show green.
Restore LINK keys	Clearing and busy indicators cancelled.

Table 2. Exchange Circuit Tests

PUSH-BUTTON DIALLER

15. The operation of the push-button dialler can be checked by connecting up to an exchange line or an ohmmeter and completing the tests as per Table 3.

Action	Effects when connected to an exchange link	Effects when connected to meter
(a)	(b)	(c)
Operate LINK key	Loop to exchange dial tone sent back.	Meter indicates approximately fsd.
Operate DIAL key and press push-buttons for number required	Impulses sent to exchange.	Meter deflections representative of digits dialled.
Operate SPEAK key and restore DIAL key	When dialled subscriber answers speech is possible between operator and subscriber.	Loop retained.
Restore SPEAK key	Exchange line held.	Loop retained.
Restore LINK key	Exchange line cleared.	Loop released.

Table 3. Push-Button Dialler Tests


16 LINE UNIT LEVEL SWITCHBOARD

Functional Tests

(Reference EMER U083 para 9-17)

1. Battery Test

3. Alarm soft/loud

2. Operator and Subscriber's Units

Ser	IC Ringing	Speak	Monitor	Ring	Operate Link Keys	Ring Off	Restore Link Keys
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							

4. Exchange Line Unit

Ser	IC Ringing	Speak	Operate Link (exch)	Ring	Operate Link (mag)	Ring Off	Restore Link Keys
1							
2							
3							

5. Push-Button Dialler

Ser	Operate Link Key	Dial Key	Operate 'Speak' Restore 'Dial'	Restore 'Speak'	Restore 'Link'
1					
2					
3					



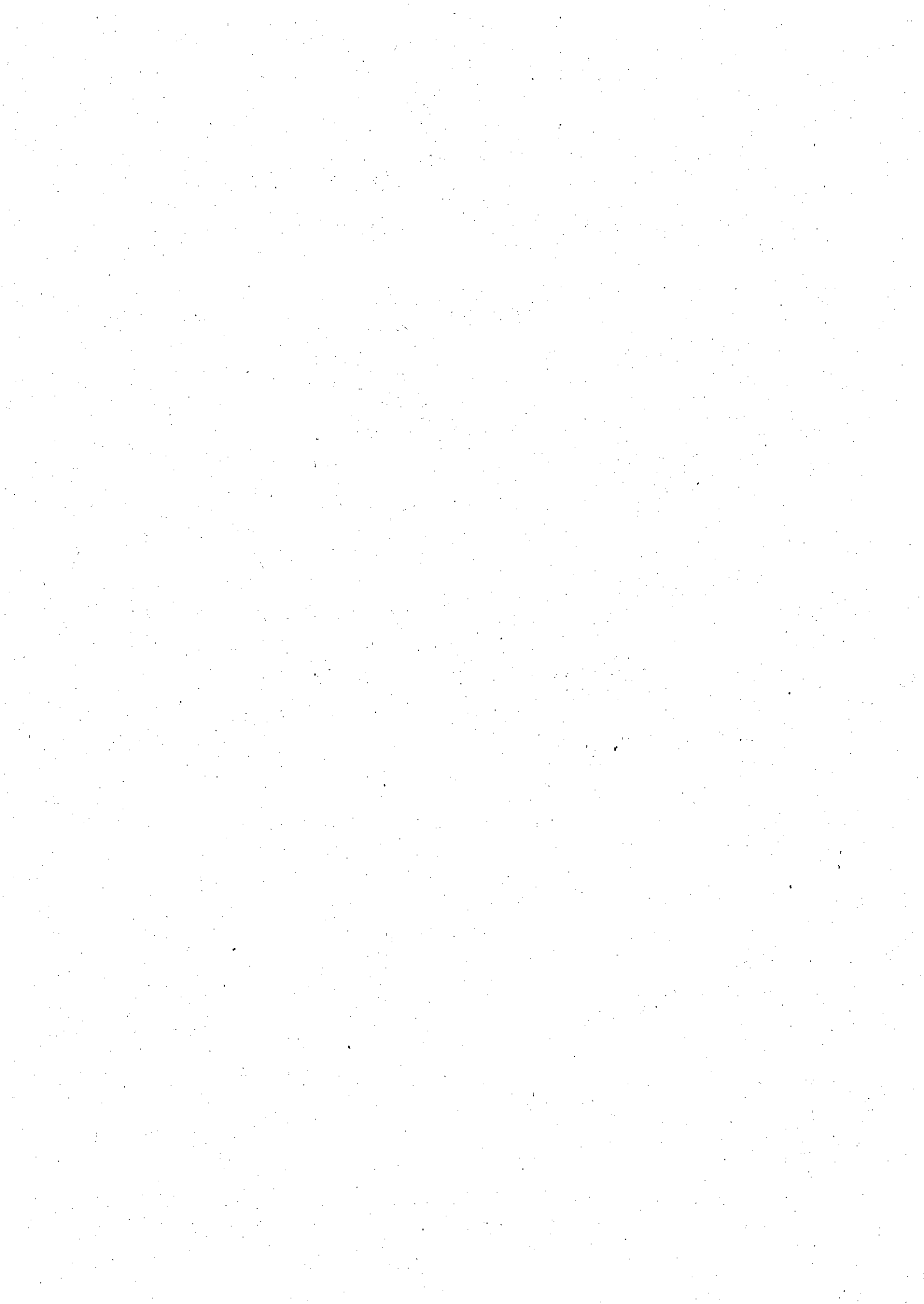
REPAIR PROCEDURE

16. If any of the tests fail, peripheral items, eg fuses, connectors etc should be checked for serviceability before disturbing switchboard assemblies.

17. If the operator unit or subscriber unit is suspected they should be replaced and the suspect items returned as CENTREMs.

References:

- A. EMERs U080-U089
- B. User Handbook Army Code No 61451



OSD DEC 2009/2011.

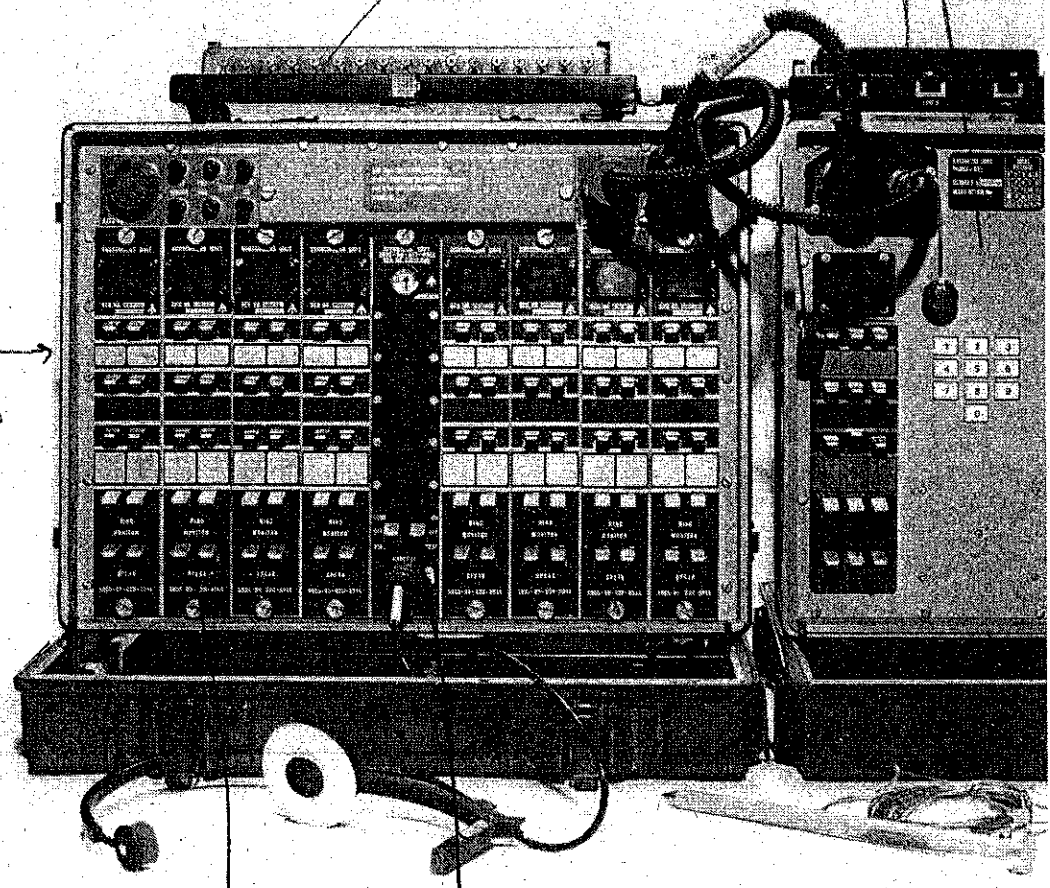
5805-99-632-8190
SWITCHBOARD TELEPHONE MANUAL 16 LINE
complete to CES 44410.

EXCHANGE UNIT 3 LINE
5805-99-620-8046

PROTECTOR
TELEPHONE
5920-99-620-8948

PROTECTOR
TELEPHONE
5920-99-620-8941

SWITCHBOARD
TELEPHONE
MANUAL
5805-99-620-8939



Subscriber
UNIT
ASSY
5805-99-620-8944
(8 off)

OPERATIONS
UNIT
ASSY
5805-99-620-8945

Fig. 1 UNIT LEVEL SWITCHBOARD

R

GENERAL DESCRIPTION

FUNCTION

The Unit Level Switchboard (ULS) is a lightweight, cordless, magneto telephone switchboard for Army use. (see Fig. 1).

The complete ULS equipment consists of two main units. A 16-line Magneto Switchboard and a 3-line Exchange Unit which enables the Magneto Switchboard to work to Central Battery (CB) Manual or Automatic Exchanges.

The units are built into lightweight metal cases with space in the cases for stowing accessories. When the covers are clamped into position for transit the equipment is immersion proof, but when set-up for operation it should be used under light shelter for protection from the elements.

The Magneto Switchboard is connected, via the Exchange Unit, to the manual or automatic exchange in exactly the same manner as an extension line. The additional 3-lines supplied by the Exchange Unit can only be used for connection to CB manual or automatic exchanges, they cannot be used as individual magneto or CB telephone extensions.

If additional magneto line capacity is required two 16-line Magneto Switchboards can be coupled together to form a 32-line board. In this condition one Exchange Unit may still be used to give three lines to CB exchanges. With two Exchange Units connected to the coupled Magneto Switchboards, six lines to CB exchanges are accessible. In this case the current drawn from the internal batteries becomes excessive and connection to external power supply is therefore recommended.

A lightweight Hand/Headset is provided, although if occasion demands a standard Handset can be used which is fully compatible.

A variant of the Exchange Unit, the Exchange Unit (PTARMIGAN) is provided for use with Ptarmigan vehicles. (see Fig. 3b).



1.14 The Exchange Unit has five rows of keys corresponding to those on Magneto Switchboard, with one exception, the RING keys on the switchboard are replaced by the DIAL keys on the Exchange Unit. There is also a Push Button Dialler (10 buttons, 1 to 9 plus 0) which performs the same function as the more familiar rotary dial. This is used in conjunction with the appropriate DIAL key for calling numbers on an external exchange.

1.15 A 41-way socket marked SWITCHBOARD is provided for coupling the Exchange Unit to the Magneto Switchboard, an adjacent 10-way socket marked TERM UNIT is for connection to the 3-Line Protection Unit.

1.16 Call/Clear visual indicators are provided for each of the three lines.

1.17 The Exchange Unit (PTARMIGAN) variant, Fig. 3(b) has a rotary dial replacing the push-button dialler, and other circuits to conform to British Telecom, isolation regulations. The PTARMIGAN vehicle installation removes the requirement for the Line Protection Unit, and provides external 24V D supplies. The 10-way socket is marked C.B. LINE, and fuses are provided each line.

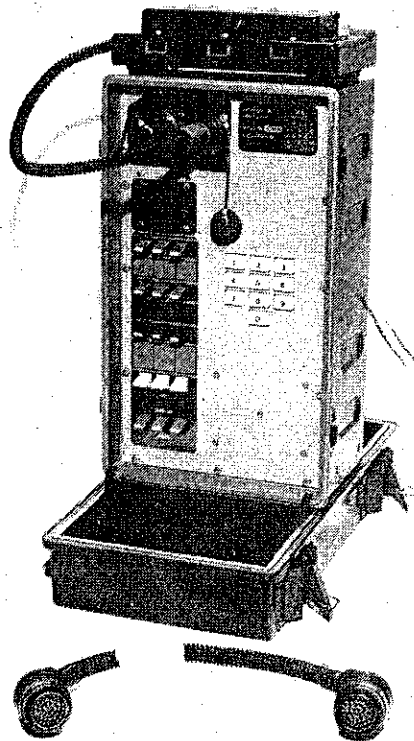


Fig. 3a THE EXCHANGE UNIT

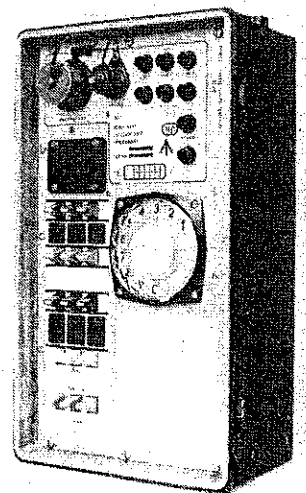


Fig. 3b THE EXCHANGE UNIT
(PTARMIGAN)



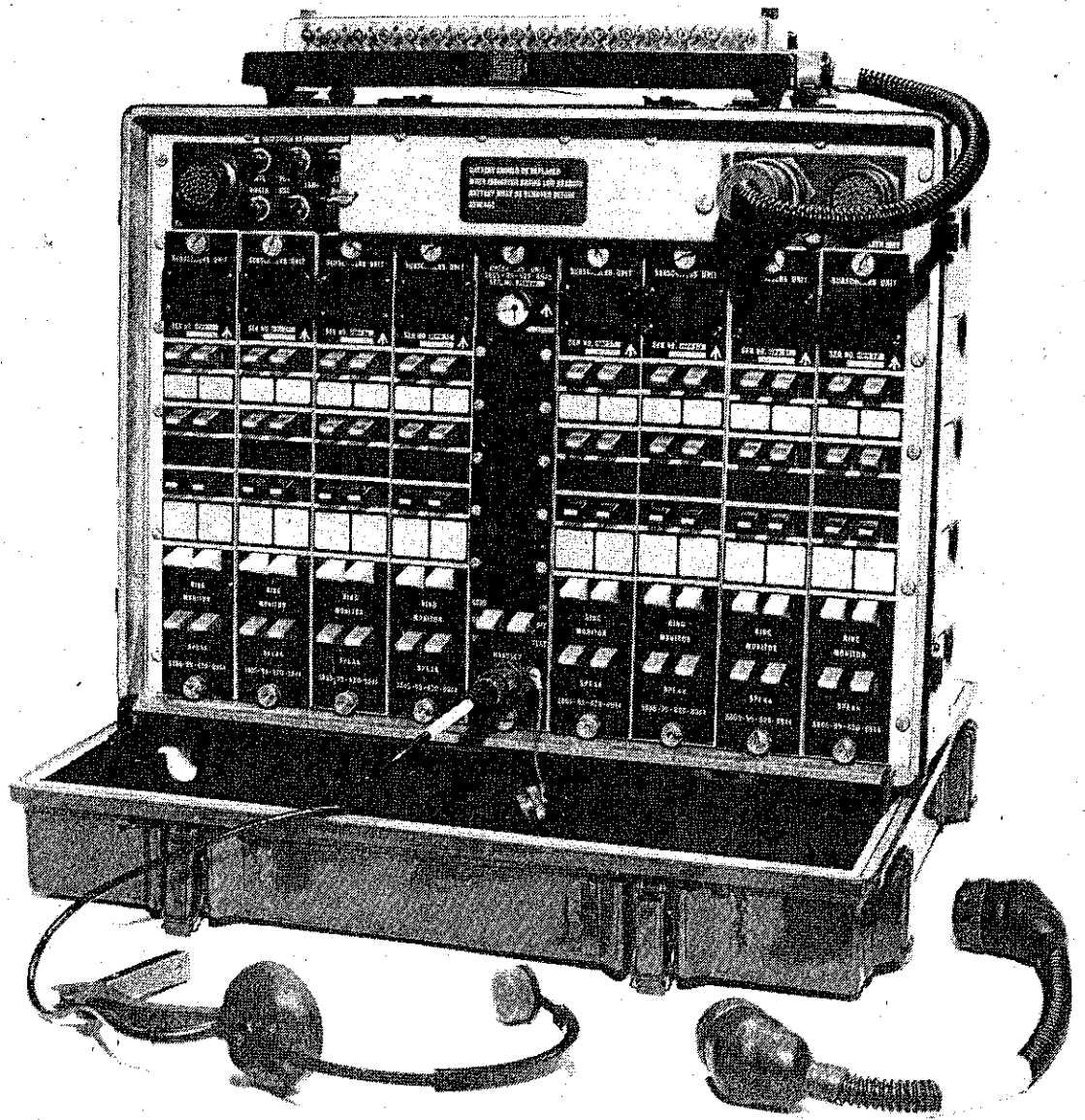
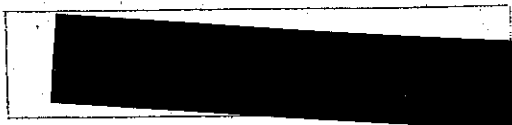


Fig. 2 THE 16-LINE MAGNETO SWITCHBOARD



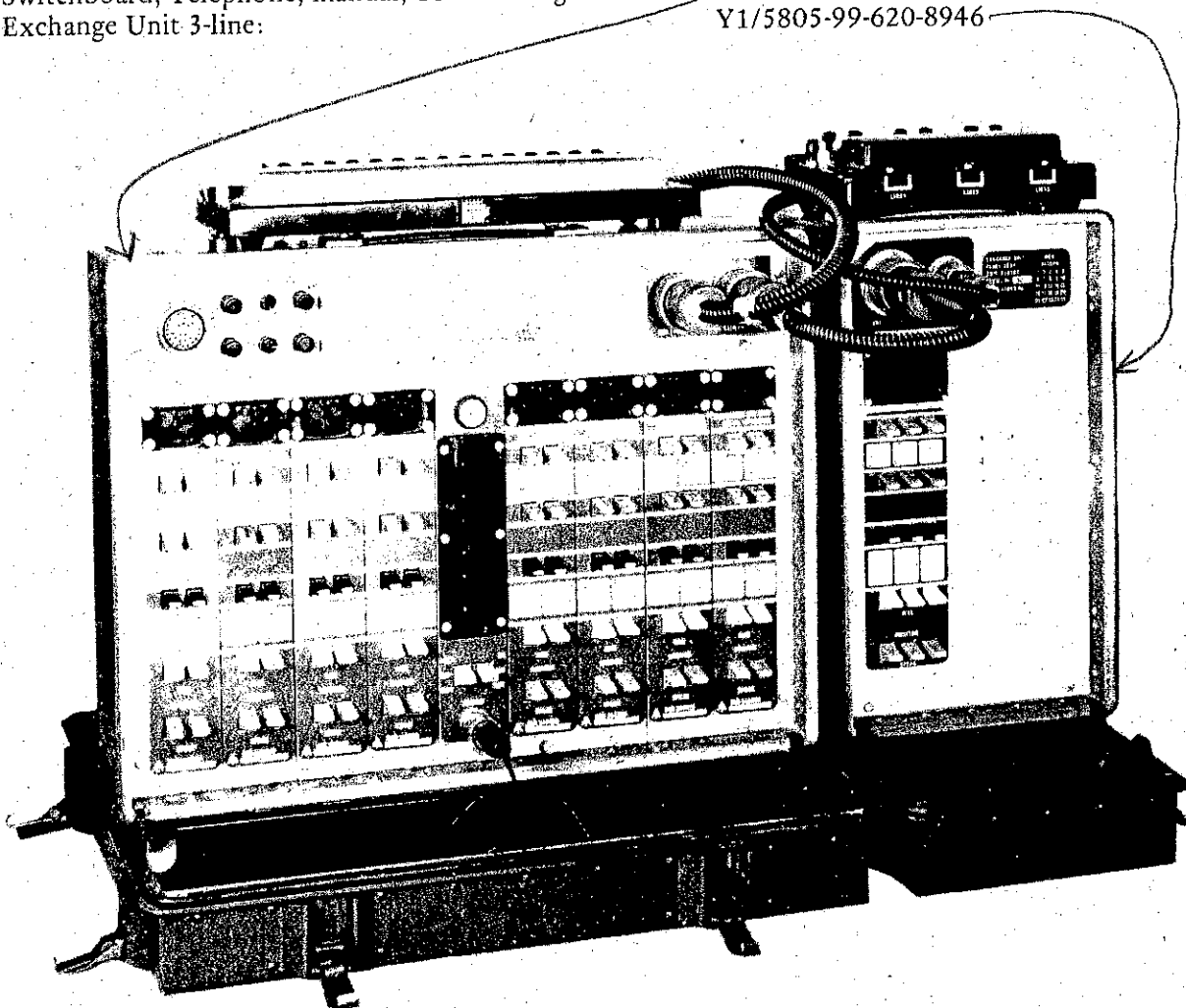


SWITCHBOARD, TELEPHONE, MANUAL, 16 LINE, UNIT LEVEL
TECHNICAL HANDBOOK – DATA SUMMARY

EQUIPMENT IDENTITY

Switchboard, Telephone, manual, 16-line Magneto:
Exchange Unit 3-line:

Y1/5805-99-620-8939
Y1/5805-99-620-8946



3817/1

Fig 1 – General view of equipment

CLIMATIC RANGE

Operating temperature : 0 to 55°C
Storage temperature : -40 to +70°C (with battery removed)

TRANSPORTATION DATA

Relief valves must be opened before air transportation. Constitutes a one man load.

PACKAGING DATA

DEF 1234A : Service packaging instruction sheets (SPIS)
SRDE/PKG/620/8939 : for Switchboard
SRDE/PKG/620/8946 : for Exchange unit

PERFORMANCE

Distance limit: At least 10 miles using D10.

ELECTRICAL DATA

Switchboard unit 16-line

Magneto signalling frequency : 14-25Hz (at 60V)
Speech frequency range : 300Hz -3kHz
Switchboard loss : less than 0.5d B
Call/clear indicators : Electromagnetic fluorescent discs
Protection : Gas protectors type 16A, fitted to line terminal unit.

Exchange unit

Push button dialler : Permits a choice of impulse speed, ratio and interdigital pause
Impulse speed : 10 or 20 impulses per second (i.p.s.) $\pm 5\%$
Impulse ratio : 50, 62 or 80%
Interdigital pause : At 10 i.p.s. 400 ms or 800 ms
At 20 i.p.s. 200 ms or 400 ms

Note: The exchange unit is supplied with straps to give:

Impulse speed : 10 i.p.s.
Impulse ratio : 68%
Interdigit pause : 800 ms

Protection: Surge arrestors type XSA2
Quick blow fuses : 250mA
(All fitted to Exchange line terminal unit)

POWER REQUIREMENTS

The switchboard is powered either from an easily replaceable internal 16V manganese alkaline cell (Y3/6135-99-106-1769 Battery dry) or from an external d.c. supply, nominally 24V. A battery state indicator, together with an associated OFF/ON/TEST switch is fitted to the operators unit. Power for the exchange unit is derived from the parent switchboard.

CONTENTS

	Page
GENERAL DESCRIPTION	
Chapter 1	
Introduction	1
The 16-LINE Magneto Unit	3
The 3-LINE Exchange unit	3
Weights and Dimensions	5
Stowage of Accessories	6
Controls and Indicators	9
Installation	15
Battery testing	19
OPERATION	
Chapter 2	
Headset	20
Battery check	20
To call A Subscriber (Magneto only)	20
Interconnecting Two Subscribers (Magneto only)	20
Clearing the Link	21
Monitoring	21
Operation of Exchange Unit	22
Incoming call	22
Clearing	22
Monitoring	22
Outgoing call	22
Chapter 3	
PREVENTIVE MAINTENANCE	
Responsibility	25
Operator servicing	25
ILLUSTRATIONS	
Fig	
1 Unit Level Switchboard	(vii)
2 The 16-LINE Magneto Unit	2
3a The Exchange Unit	4
3b The Exchange Unit (PTARMIGAN)	4
4 Transit Cases	5
5 Accessories stowed in Magneto Unit Cover	6
6 Accessories stowed in Exchange Unit Cover	6
7 Hand / Headset ready for stowage	7
8 Hand / Headset ready for use	7
9 Controls and Indicators	8
10 Mounting Brackets	14
11 Switchboard in operating position	14
12 Line Protection Unit fitted within Case Protection	17
13 Typical Earth Spike Braid Connections	18



ASSOCIATED PUBLICATIONS

Illustrated Parts Catalogue (IPC)	-- Army Code 61525
Complete Equipment Schedule (CES) for Unit Level Switchboard NSN Y1 / 5805-99-620-8939	-- CES 44410
Complete Equipment Schedule (CES) for Exchange Unit NSN Y1 / 5805-99-620-8946	-- CES 44833
Complete Equipment Schedule (CES) for Exchange Unit (PTARMIGAN) NSN Y1 / 5805-99-661-6786	-- CES TBA
Electrical and Mechanical Engineering Regulations (EMER)	-- EMER Telecomms U080-089

WARNINGS

- (1) **HEAVY EQUIPMENT. CERTAIN ITEMS AND EQUIPMENT CONTAINERS ARE CLASSIFIED AS HEAVY OBJECTS. CURRENT LIFTING AND HANDLING PRECAUTIONS MUST BE OBSERVED INCLUDING THE WEARING OF STEEL CAPPED BOOTS.**
- (2) **BERYLLIUM/BERYLLIA. THE ASSEMBLY CONTAINS COMPONENTS INCORPORATING THE HIGHLY TOXIC MATERIAL BERYLLIUM AND/OR ITS OXIDE BERYLLIA. THESE MATERIALS ARE ESPECIALLY HAZARDOUS IF:**
 - (A) **BERYLLIUM MATERIALS ARE ABSORBED INTO THE BODY TISSUES THROUGH THE SKIN, MOUTH OR A WOUND.**
 - (B) **THE DUST CREATED BY BREAKAGE OF BERYLLIA IS INHALED.**
 - (C) **TOXIC FUMES ARE INHALED FROM BERYLLIUM/BERYLLIA INVOLVED IN A FIRE.**

FURTHER INFORMATION ON THE HANDLING OF BERYLLIUM/BERYLLIA IS GIVEN IN AESP 0200-A-092-013.

- (3) **CADMIUM. THIS EQUIPMENT CONTAINS A SIGNIFICANT NUMBER OF COMPONENTS THAT HAVE BEEN CADMIUM PLATED, TYPICALLY CONNECTORS, FIXINGS AND BRACKETS. DUE TO THE AGE OF THE EQUIPMENT THERE MAY BE A POSSIBILITY OF CADMIUM CORROSION IN THE FORM OF CADMIUM SALTS, (A WHITE POWDER IN THE FORM OF CADMIUM OXIDE). CARE SHOULD BE TAKEN WHEN OPENING THE EQUIPMENT FOR REPAIR OR ADJUSTMENTS. THE HANDLING, CLEANING AND DISPOSAL OF CONTAMINATED EQUIPMENT, AND CADMIUM-PLATED COMPONENTS, SHOULD BE DEALT WITH IN ACCORDANCE WITH AESP 0200-A-092-013 CHAPTER 10.**

CAUTION

**ELECTROSTATIC SENSITIVE DEVICES. This equipment contains Electrostatic Sensitive Devices (ESD's).
Observe the general precautions of AESP 6600-A-100-013.**

CONTROLS AND INDICATORS

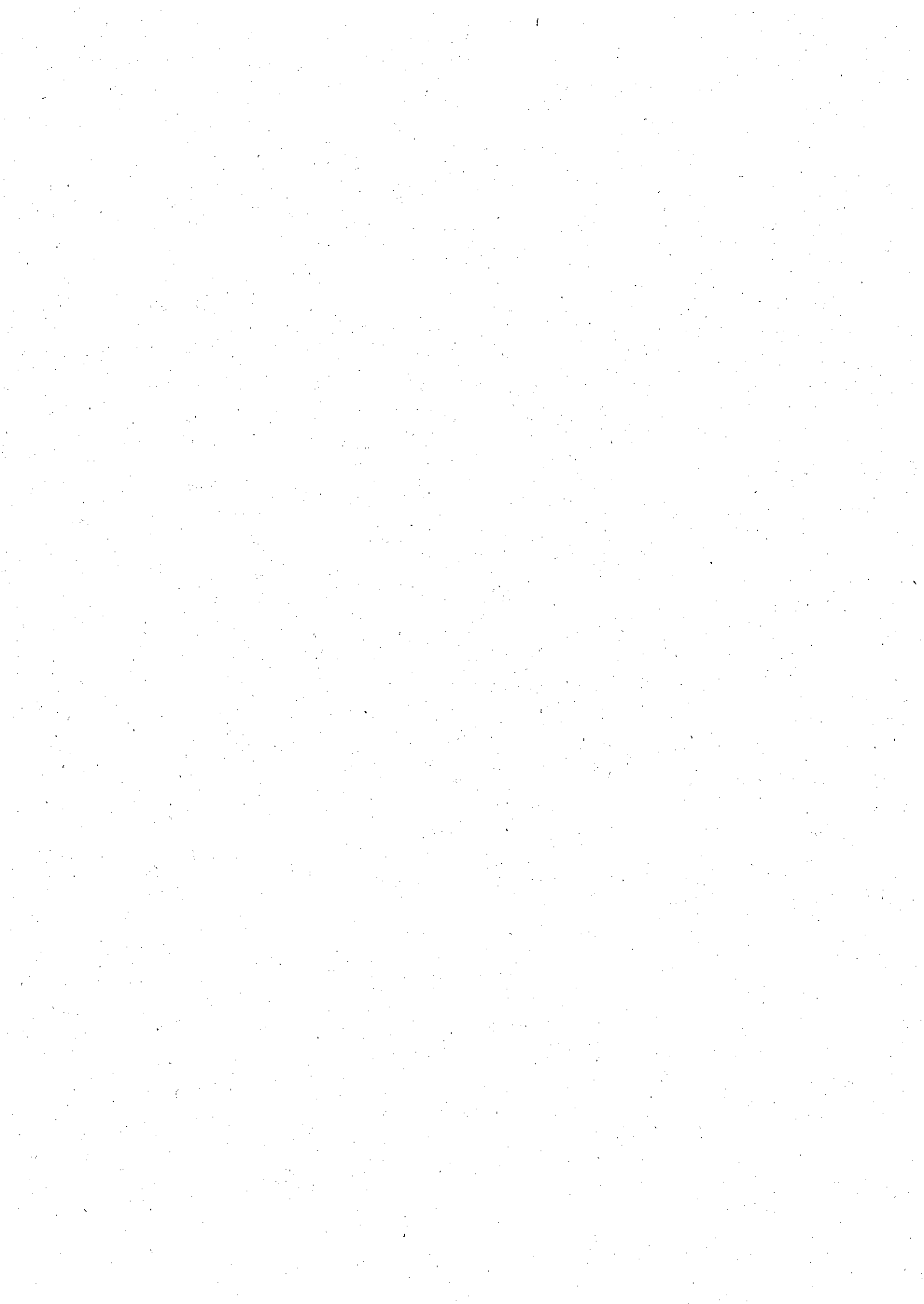
1.22 The following bracketed Sub-paragraph numbering relates to the identifications shown in Fig 9.

1.22.1 Magneto Switchboard:-

- (1) SPEAK / MONITOR key: There are 16 of these 3-position keys, coloured green, one for each Subscriber line. Each key is biased to the centre ('off') position. When held against the bias in the 'up' position the Switchboard Operator can monitor the line; when held in the 'down' position the Operator can speak on the subscribers line.
- (2) RING key One 3-position centre biased key for each subscriber line, coloured yellow. When held against the bias in the 'down' position it enables the Operator to connect a ringing current to the particular subscriber selected. When set in the 'up' position it acts as a Link key for Link No 7. (Sub-para's (4), (5) and (6) refer). The centre position is 'off'.
- (3) IDENTIFICATION labels One flat aluminium panel for each subscriber line on which to write, in pencil, the subscriber's identity. The inscription can easily be erased when the subscriber is superseded.
- (4) LINK key Three-position key, coloured black, one for each subscriber line. When set to the 'up' position it connects the subscriber to Link No 5, and in the 'down' position connects to Link No 6. Any other Link key in the same row that is similarly set, will interconnect the particular subscribers. The centre position of the key is 'off'.
- (5) LINK key Similar to Sub-para (4), but coloured blue and giving access to Link No's 3 and 4 respectively.
- (6) LINK key Similar to Sub-para (4), but coloured red and giving access to Link No's 1 and 2 respectively.



- (7) CALL / CLEAR visual indicators
- One pair of red and green discs per subscriber.
- (a) Call Normally black but on receipt of subscriber ringing current a red indicator disc appears; this cancels to black on operation of the SPEAK key, (Sub-para (1) refers).
- (b) Clear When subscriber 'rings off' a green indicating disc appears; this cancels to black when the appropriate Link key is reset to its centre ('off') position. (Sub-para (4), (5) and (6) refer).
- (8) EXTN UNIT A 41-way socket enabling the connection of either an Exchange Unit or a second 16-LINE Unit; or both when used with item (16).
- (9) EXTL RINGER Two spring-loaded terminals for connecting an external ringer to the equipment, eg a Telephone Type J, in the event of failure of the internal ringer.
- (10) FS1 and FS2 A pair of cartridge type fuse holders containing 1 Amp fuses.
- (11) EXTL DC Two spring-loaded terminals for connecting an external battery or DC source to the Equipment. (Voltage limits 20 to 33 V DC).
- (12) 16-LINE PROTECTION UNIT The 16-Line Protection Unit contains a pair of gas discharge tubes for each pair of lines, and 16 pairs of spring-loaded terminals for line termination. A captive connector is attached with a 41-way plug for connecting to the LINE TERM socket on the Switchboard. (Sub-para (15) refers). An Earth terminal 'E' is also provided to which the Earth Spike braid MUST be connected by use of the forked spade terminations. (For connections see Sub-para 1-23-5, Fig 13.)
- (13) TEST METER Used in conjunction with the ON / OFF/ TEST switch to measure the internal or external battery voltage.



- (14) LINK ENGAGED indicators Seven indicators, one for each Link. Normally black, indicating that the Link is free. A white disc indicates that the associated Link is in use, ie that a Link key in that row is operated. The white disc cancels to black when all the Link keys in that row are reset to their centre 'off' position.
- (15) LINE TERM A 41-way socket to which is coupled the 16-LINE Protection Unit.
- (16) EXTN UNIT A 41-way socket identical to that described in Para (8).
- (17) ON / OFF / TEST switch A 3-position switch used as a battery power ON / OFF switch and also, in conjunction with the Test Meter (Sub-para (13)), to measure the internal or external battery voltage
- (18) HANDSET A 7-way socket for the Hand / Headset connection. Clansman type handsets can be used as an alternative to the handset provided.
- (19) SOFT / OFF / LOUD alarm A 3-position switch enabling the Operator to set the Audible Alarm system to the required state.

1.22.2 Exchange Unit:-

- (20) SWITCHBOARD A 41-way socket used for inter-connection to the Magneto Switchboard.
- (21) CALL / CLEAR indicators Three pairs of disc indicators, one pair for each of the exchange lines. Red disc indicates calling signal, green disc indicates clearing signal. Cancelling action similar to that described in Sub-para (7).
- (22) TERM UNIT A 10-way socket used for connecting the 3-LINE Protection Unit.



(23) 3-LINE PROTECTION UNIT This unit contains three pairs of spring-loaded terminals for Exchange line termination and two cartridge type fuses, it also contains a pair of voltage protection devices for each of the three lines. A captive connector is attached with a 10-way plug for connecting to the TERM UNIT socket on the Exchange Unit. An Earth terminal 'E' is also provided to which the Earth Spike braid MUST be connected by use of the forked spade terminations. (For connections see Sub-para 1-23-5, Fig.13.)

(24) PUSH BUTTON DIALLER A set of 10 push buttons numbered 1 to 9 plus 0. These must be pressed to accord with the code number of the subscriber required; used in conjunction with the DIAL key to send the appropriate pulses to the line.

NOTE The circuit has a memory capable of storing a number with up to 18 decimal digits. The buttons therefore can be pressed at any speed, but the circuit will send pulses out to line at a standard frequency of 10 impulses per second.

(25) SPEAK / MONITOR keys Three-position keys, coloured green, biased to the centre ('off') position. One key for each exchange line; identical in operation with the keys described in Sub-para (1).

(26) DIAL keys Three-position keys, coloured yellow, one for each exchange line. When in the 'down' position they connect the push-button dialler to Line, enabling the Operator to dial out on that line. When in the 'up' position they act as Link keys for Link No 7. Centre position of the key are 'off'.

NOTE Always listen for ringing tone after dialling before setting a DIAL key to 'off'.

(27) LINK key Three keys, coloured black, one for each of the three exchange lines. When set to the 'up' position they give access to Link No 5, when set to the 'down' position the access is to Link No 6. Centre position is 'off'.

(28) and (29) LINK keys.

Similar to Para (27) but coloured blue and red respectively, giving access to Links No 3 and 4 and Links No.1 and 2 respectively.

1.22.3 Exchange Unit (Ptarmigan):-

(30) ROTARY DIALLER

A standard dialler, numbered 0 to 9, used in conjunction with the DIAL key to send appropriate pulses to the line.

(31) FS1 to FS6

Three pairs of cartridge type fuse holders containing 250 mA fuses.

(32) SPARE FUSES

One pair of cartridge type fuse holders containing 250 mA fuses.

(33) SWITCHBOARD

A 41-way socket which is coupled to the Magneto Switchboard.

(NN) CB LINE

A 10-way socket (adjacent to (33)) to which is connected 3 pairs of Exchange lines via the PTARMIGAN vehicular installation.



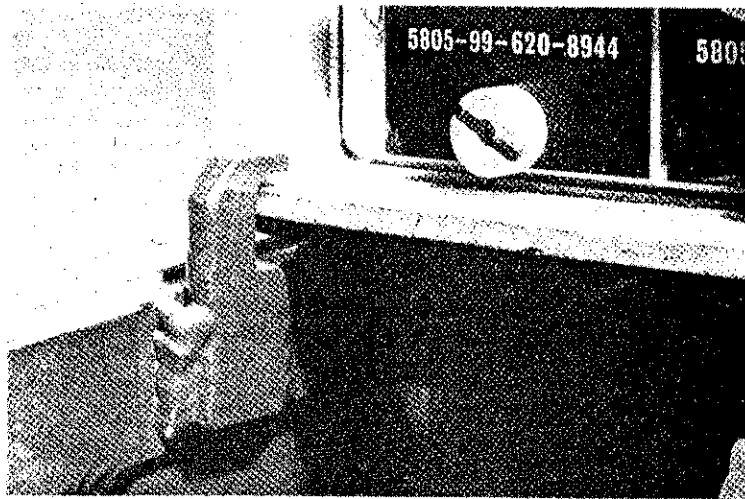


Fig 10 MOUNTING BRACKETS

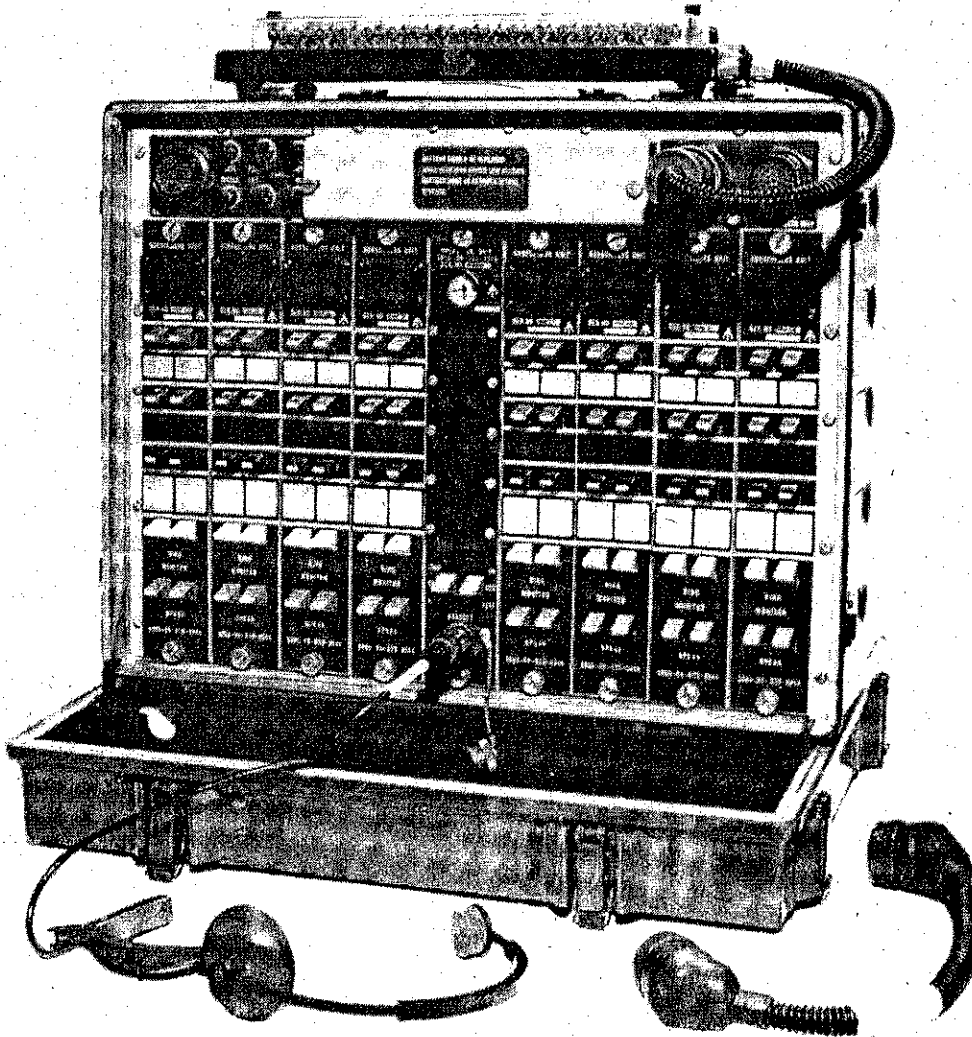


Fig 11 SWITCHBOARD IN OPERATING POSITION

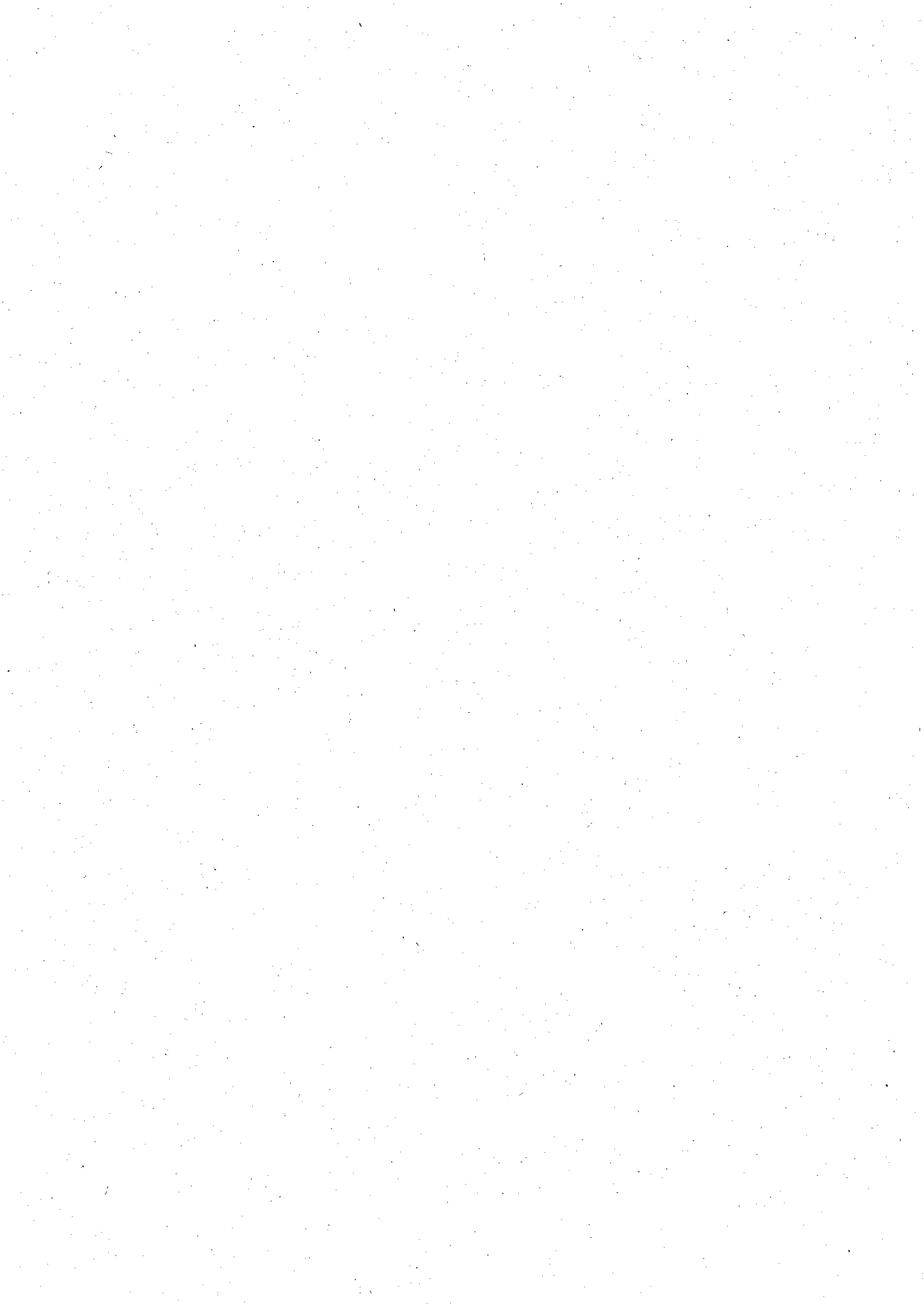


INSTALLATION

1.23 The following sub-paragraphs detail the method used to install the various units and to make the inter-connections.

1.23.1 Setting-up the Magneto Switchboard:

- (1) Release the eight securing clamps on the (Magneto) Switchboard and remove the cover.
- (2) Remove the Accessories from the cover, (the Protection Unit, the Earth Spike and the Hand / Headset) and lay them in a convenient place for future use. Do not remove the 41-way connector unless the Switchboard is to be used with an additional unit e.g. the Exchange Unit.
- (3) Place the cover (inside uppermost) on a table or other flat surface, for use as a base for the Switchboard.
- (4) Stand the Switchboard on the cover, and tilt the Switchboard forward so that the mounting brackets attached to each side of the cover fit over the front surround of the Unit. (Fig 10).
- (5) Allow the Switchboard to return to a position where the back of the Unit is resting against the end-stops of the brackets. The Unit is now held by the brackets in the operating position, ie, tilted slightly backwards at about 15 degrees from the vertical. (Fig 11).
- (6) Position the 16-LINE Protection Unit on the top of the Magneto Switchboard, with the terminals facing towards the rear of the Unit, so that the captive screws at each end of the Protection Unit mate with the holes in the top of the Switchboard. Secure by turning the screws, DO NOT overtighten.
- (7) Ensure that all the protectors are in position on the Protection Unit.
- (8) Connect the 41-way cable, attached to the Protection Unit, to the socket marked LINE TERM on the front panel of the Switchboard.
- (9) Connect the Hand / Headset to the socket marked HANDSET on the front panel of the Switchboard.
- (10) Connect each pair of subscriber telephone lines to the terminal pairs on the 16-LINE Protection Unit.



(11) Drive the Earth Spike into the ground at the nearest convenient point, and connect BOTH of the spade terminations of the braid from the spike to the terminal marked 'E' on the Protection Unit. The Earth connection on the face of the Magneto Switchboard is used for Failure Diagnostics and is NOT connected to the Earth Spike braid.
See also Fig 13.

NOTE The Earth connection is improved by keeping the ground around the spike moist, whenever this is possible.

(12) Check that all the switches are in the centre ('off') position.

(13) Remove the battery cover on the front panel of the Magneto Switchboard by unscrewing the two captive screws; insert a new Battery and couple into circuit. Replace the battery cover and tighten the two retaining screws.

(14) The Magneto Switchboard is now ready for testing and operation.

NOTE If it is desired to use an external DC supply, connect this across the terminals marked EXTL DC on the front panel of the Switchboard; ensuring correct polarity.

1.23.2 Setting-up the Exchange Unit:-

(1) Release the four securing clamps on the Exchange Unit and remove the cover.

(2) Remove the 3-LINE Protection Unit and the 10-way connector from the cover.

(3) Place the cover (inside uppermost) on a table or other flat surface, adjacent to the Magneto Switchboard on the right or left hand side whichever is convenient.

(4) Stand the Exchange Unit on its cover and fit it into the curved brackets in a manner similar to that used when assembling the Magneto Switchboard.

(5) Position the 3-LINE Protection Unit on the top of the Exchange Unit, with the terminals at the rear, so that the two captive screws mate with the holes in the top of the Exchange Unit, tighten the screws.

(6) Connect the 10-way cable attached to the 3-LINE Protection Unit to the socket marked TERM UNIT on the front panel of the Exchange Unit.

(7) Remove one of the Earth leads spade terminations currently on the earth terminal 'E' of the 16-LINE Protection Unit and attach it to the earth terminal 'E' on the 3-LINE Protection Unit so that both Protection Units are interconnected and both attached to the Earth Spike. See also Fig 13.

(8) Check that all switches are in their centre ('off') position.



- (9) Connect one end of the 41-way cable into the socket marked SWITCHBOARD on the Exchange Unit, and the other end of the cable into the socket marked EXTN UNIT on the front panel of the Magneto Switchboard.
- (10) Connect each pair of exchange lines to a terminal pair on the 3-LINE Protection Unit.
- (11) The Magneto Switchboard and the Exchange Unit are now ready for testing and operation.

1.23.3

Remote Siting of 16-LINE Protection Unit, (within 20 Meters of the Switchboard).

- (1) Secure the Line Protection Unit within the Case, Protection. Drive the internally stowed Earth Spike into the ground at the nearest convenient point and connect BOTH spade terminations of the braid from the spike to the terminal marked 'E' on the Protection Unit. See also Fig 13.
- (2) Pass each pair of subscriber telephone lines through the appropriate grommetted hole and terminate at the Protection Unit. Mark line destinations on the card mounted inside the lid, using pencil or erasable marker.
- (3) Connect the Line Protection Unit to the Switchboard using the 20 meter Extension Cable.
- (4) Close the lid of the Case, Protection and suspend the Case, by its handle, from a suitable fixture

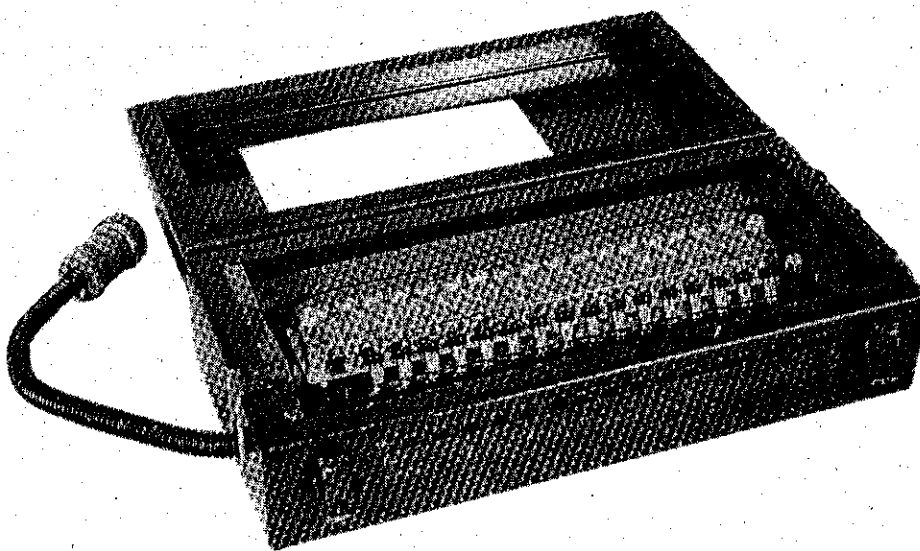


Fig 12 LINE PROTECTION UNIT FITTED WITHIN CASE, PROTECTION



1.23.4 Connecting two Unit Level Switchboards together

- (1) Position the two Switchboards adjacent to each other on a flat surface. Set up each Switchboard in accordance with the instructions detailed in Para 1.23.1, with the following exceptions:- Remove the 41-way connector from one of the covers before positioning the Switchboard upon the cover. Only one Hand / Headset is necessary, but BOTH Earth Spikes should be used for the associated Line Protection Units as detailed in Para 1.23.1 (11). See also Fig 13.
- (2) Couple the two 16-LINE Switchboards together by connecting the EXTN UNIT socket on one with the adjacent EXTN UNIT socket on the other, using the 41-way connector.
- (3) The resulting 32-line Switchboard is now ready for testing and operation.

1.23.5 Connecting-up a 32-LINE Switchboard with an Exchange Unit

Set up the two 16-LINE Switchboards as detailed in Para 1.23.4. Position the Exchange Unit to the right of the two Switchboards. Set up the Exchange Unit as detailed in Para 1.23.2.

NOTE

If the Switchboard's Line Protection Units are sited using a 20 meter Extension Cable then the Exchange Units Line Protection Unit MUST be co-sited with the Switchboard Line Protection Unit so to enable correct connection to the Earth Spike as detailed in Para 1.23.2 (7) and Para 1.23.3. See also Fig 13.

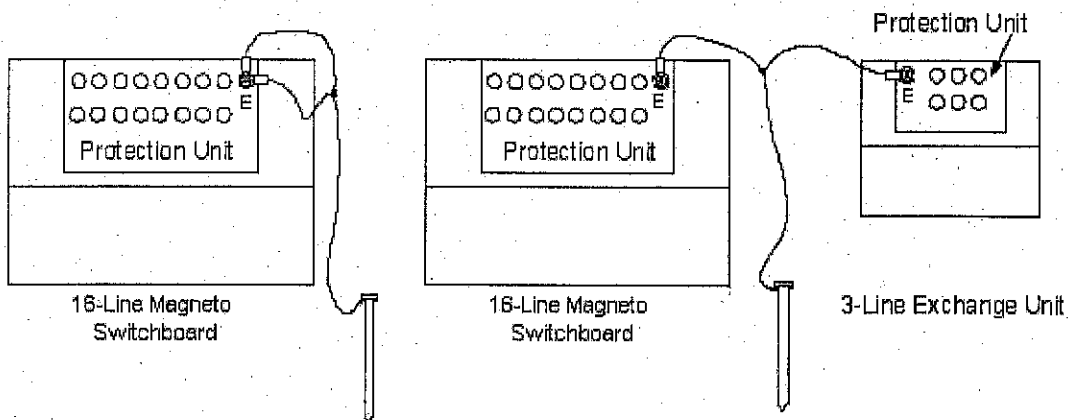


Fig 13 TYPICAL EARTH SPIKE BRAID CONNECTIONS



BATTERY TESTING

1.24 The method used to test the internal battery or the external DC source is as follows:-

1.24.1 Internal Battery

NOTE

Battery Type 16 V Dry. NSN 6135-99-106-1769.

- (1) Set the ON / OFF / TEST switch on the front panel of the Magneto Switchboard to the TEST position. The Test Meter will indicate the Internal Battery voltage. For a new battery this indication should be approximately 16.5 volts. This will fall steadily with usage to the lower operational limit of 10 volts.
- (2) If the indication lies in the Red section, ie, below 10 volts, the battery MUST be changed.
- (3) When the Switchboard is withdrawn from use for storage, remove the battery. If the battery is left in position when discharged, corrosive chemicals can be emitted.
- (4) For Battery removal and replacement refer to Chapter 3, Para 3.3 (6).

1.24.2 External DC Source

- (1) Set the ON / OFF / TEST switch to the ON position. With an external DC source between 20 V and 33 V connected to the EXTL DC terminals on the Switchboard, the meter should indicate in the Green band. If the meter indication is in the Red band, check the external voltage source.
- (2) Failure of the external source will give a low indication on the meter. If the external source fails, the internal battery is automatically connected to the Switchboard circuits but NOT to the meter.



CHAPTER 2

OPERATION

NOTE The in-text bracketed numbers given throughout this Chapter refer to the identification numbers given in Fig 9.

HEADSET

2.1 A Headset is used with the field installations and should be positioned on the Operator's head with the microphone approximately in front of the mouth. A GP Handset is used with the Exchange Unit (PTARMIGAN) installation, which requires the 'pressel' to be operated when speaking

BATTERY CHECK

2.2 Carry out the battery check detailed in Sub-para 1.24.1 and then set the ON / OFF / TEST key (17) to the ON position. Set the SOFT / OFF / LOUD alarm switch (19) to the required position.

TO CALL A SUBSCRIBER (Magneto only)

2.3 Check the Identification Labels (3) to ascertain which is the correct vertical column of keys for the particular subscriber required.

2.4 Check the vertical column of the Link keys associated with that subscriber, situated above the selected Identification label, to ensure that the line is not already engaged.

2.5 Press the appropriate RING key (2) 'down', (the key immediately below the selected Identification Label) hold for a few seconds then release.

2.6 Set the appropriate SPEAK / MONITOR key (1) to the SPEAK position and when the subscriber answers, talk. At the end of conversation return the SPEAK key to centre ('off') position.

INTERCONNECTING TWO SUBSCRIBERS (Magneto only)

2.7 Switchboard Operator's attention attracted by audible alarm or Call indicator (7):-

(1) Ascertain which of the Call Indicators (7) is showing red.

(2) Set its SPEAK / MONITOR key (1) to the SPEAK position and ask the caller which extension is required.

(3) Inform the caller to 'wait one moment please' and glance at the Link Indicators (14) in the central sub-unit to ascertain that at least one of the seven links is free.

(4) Set the calling subscriber's appropriate Link key 'up' or 'down' to connect the caller to a free link.

SWITCHBOARD TELEPHONE MANUAL
16 LINE UNIT LEVEL

Y1/5805-99-632-8190 complete to CES

CES 44233
5805-99-165-5676

NSN	Description	Equipment	STOCK			FQD	REPAIR					
			A1	A2	EO		AI/DI	03/04	04/05	05/06	06/07	
5805-99-632-8190	Switchboard Telephone Manual 16-Line Unit Level	To CES	0	10	0	0	0.13	0	0	0	0	0
5805-99-620-8939	Switchboard Telephone Manual 16-Line	ULS	82	41	1	1	2.18	0	0	0	0	0
5805-99-620-8945	Operators Unit Assembly	16-line	19	0	5	0	1.93	10	10	8	2	
5805-99-620-8944	Subscriber unit Assy	16 Line	159	1	77	0	9.31	0	0	0	0	0
5805-99-620-8940	Lid Assembly	16 Line	31	0	8	2	0.3	0	0	0	0	0
5805-99-620-8946	Exchange Unit 3-Line	ULS	23	4	0	2	0.27	0	0	0	0	0
5965-99-620-8952	Headset/handset Assy	16-Line	0	0	0							
5805-99-636-9248	Panel Electronic Circuit	16-Line	0	0	0							
5805-99-751-4547	Panel Electronic Circuit	3-Line Mk2	5	0	0		0.05					
5820-99-764-7498	Panel Assy Exchange Unit	3-Line Mk2	0	0	0							
5805-99-661-6786	Exchange Unit 3-Line Mk2 (Ptar)		120	0	0	2	0.16	0	0	0	0	0
5975-99-799-9822	Case Protection Assembly		1	0	0	0	0.05					
5995-99-736-1853	Cable Assy		0	0	0	0	0.05					
5920-99-620-8941	Protector telephone 16 wire	16 Line	0	0	11	0	1.12	3	3	3	4	
5920-99-956-0579	Protector series cct 150-350VDC	16 Line	362	0	0	0	9.16					
5975-99-620-8942	Rod earthing	16 Line	20	0	0	200	34.63					
5995-99-620-9923	Wiring Harness 33 conductr	16 Line	15	0	0	10	0.62					
5805-99-634-6877	Case Assembly	16 Line	0	0	0	0	0.05					
5965-99-620-8320	Headset assy B V&I		76	0	60	1465	272.1					
5805-99-620-8947	Lid Assy Exch unit	3-Line	0	0	0	5	0.21					
5805-99-634-7218	Case Assy	3-Line	0	0	0	0	0					

Amended 01 Apr 2003

Denotes Repairable
5920-99-620-8941 Protector Telephone 3-Line

