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COMMAND CONTROL COMMUNICATION AND INFORMATION (C^3I) INSTALLATIONS IN COMBAT VEHICLE RECONNAISSANCE (TRACKED) SABRE

INSTALLATION INSTRUCTIONS

REPRINTED INCORPORATING AMDT No. 1

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BY COMMAND OF THE DEFENCE COUNCIL

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Ministry of Defence

Publications Authority: Electronics Branch REME

Service users should send their comments through the channel prescribed for the purpose in AESP 0100-P-011-013

[redacted]

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1-1 Installation of UK/VRC 353A, UK/VRC 353B, Basic Harness and DCCU in CVR(T) SABRE

CES BRICK INSTALLATION INSTRUCTIONS

2-0 Introduction to CES Brick Installation Instructions
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PREFACE

Codified title: COMBAT VEHICLE RECONNAISSANCE (TRACKED) CVR(T) SABRE

INTRODUCTION

1 Service users should forward any comments on this publication through the channel prescribed in AESP 0100-P-011-013.

2 The subject matter of this publication may be affected by Defence Council Instructions (DCIs), Standing Operating Procedures (SOPs) or by Local Regulations (LRs). When any such Instruction, Procedure or Regulation contradicts any portion of this publication it is to be taken as the overriding authority.

RELATED PUBLICATIONS

3 The octad plan for the CVR(T) SABRE installation is shown below:

AESP OCTAD

CATEGORIES AND INFORMATION LEVELS														
Category / Level	1	2	3	4		5				6	7		8	
				1	2	1	2	3	4		1	2	1	2
1 User/Operator	*	*	*	*	*	*	*	*	*	*	*	*	+	+
2 Unit Maintenance	*	*	*	412	*	*	*	*	*	*	*	*	*	+
3 Field Maintenance	*	*	*	*	*	*	*	*	*	*	*	*	*	+
4 Base Maintenance	*	*	*	*	*	*	*	*	*	*	*	*	*	+

1.0 Purpose & Planning Information
2.0 Operating Information
3.0 Technical Description
4.1 Installation Instructions
4.2 Preparation for Special Environments
5.1 Failure Diagnosis
5.2 Repair Instructions
5.3 Inspection Standards
5.4 Calibration Procedures
6.0 Maintenance Schedules
7.1 Illustrated Parts Catalogue
7.2 Commercial Parts List
8.1 Modification Instructions
8.2 General Instructions

* Not published

\+ Published as and when required

ASSOCIATED PUBLICATIONS

4 The following publications are associated with this installation:

Code No.	Type	Title
5800-A-200-821	AESP	C^3I System Earth Bond Testing
6625-J-102	AESP	Test Set Bond Resistance DT 109
5995-C-100-521	AESP	C^3I System Cable Repair Techniques
5995-C-110	AESP	CLANSMAN Cable Assemblies Manufacture and Repair Detail
COMMS INST A009 Misc Instr No.3	EMER	Maintenance of Engineering Integrity
TELS L800	EMER	CLANSMAN Radio Control Harness
CES 46781	CES	IKEE for Basic Harness in CVR(T) SABRE
CES 44551	CES	IKEE for UK/VRC 353A in CVR(T) SABRE
CES 44548	CES	IKEE for UK/VRC 353B in CVR(T) SABRE
CES 46782	CES	IKEE for DCCU in CVR(T) SABRE
CES 46783	CES	Installation of UK/VRC 353A, UK/VRC 353B, DCCU and Clansman Basic Harness in CVR(T) SABRE
61172	UHB	CLANSMAN Radio Control Harness
61393	UHB	Radio Station UK/VRC 353

LIST OF ABBREVIATIONS

5 The following abbreviations are used in this publication:

AESP	Army Equipment Support Publication
ARFAT	Adaptor, Radio Frequency Antenna Tuning
CB2	Crew Box 2 Set
CBF	Commanders Box Fixed
CES	Complete Equipment Schedule
C^3I	Command, Control, Communication and Information
CVR(T)	Combat Vehicle Reconaissance (Tracked)
DCCU	D.C. Charging Unit
ECC	Emergency Crew Control
hex hd	hexagon head
IB2	Interconnecting Box 2 Radio
IB3	Interconnecting Box 3 Radio
IB12	Interconnecting Box 12 Way
LH	Left hand
l.h.s.	left hand side
Lg	Long
Pl	Plated
Qty	Quantity

RBJ	Rotary Base Junction
RH	Right hand
r.h.s.	right hand side
Stl	Steel
TUAAM	Tuning Unit Automatic Antenna Matching
UHB	User Handbook
UNC	Unified Coarse
UNF	Unified Fine
Yds	Yards

WARNING

6 The following Warning relates to these instructions:

SOLVENTS. WHEN WORKING WITH DEGREASING AGENTS ENSURE THAT BOTH THE VEHICLE AND THE WORKING AREA ARE ADEQUATELY VENTILATED.

CHAPTER 1-0

INTRODUCTION TO COMPLETE INSTALLATION INSTRUCTIONS

GENERAL

1 Command, Control, Communications and Information (C^3I) installations consist of different configurations of communications and electronic equipment installed in specific vehicles. Each variant is intended for a particular role, and it is this which determines the content, layout of the installation and the way in which it functions.

STRUCTURE OF CATEGORY 412

2 Category 412 of this AESP consists of two chapters, 1 and 2 preceded by some preliminary pages. Chapter 1 is divided into sub-chapters each of which deals with a complete installation. Each sub-chapter contains a Complete Equipment Schedule (CES) 'brick' diagram showing which bricks described in Chapter 2 are to be installed. Chapter 2 is also divided into sub-chapters and each of these describes the installation of one brick.

3 These chapters between them describe in detail the installation of the individual CES items and the co-ordination of the installation to avoid duplication of work.

PURPOSE OF CHAPTER 1

4 The purpose of the following instructions is to describe the actions necessary to install the CES bricked equipment into a Combat Vehicle Reconnaissance (Tracked) CVR(T) SABRE. References are made to figures or paragraphs in the sub-chapters of Chapter 2 where detailed instructions for the fitting of each part are given. Following the order in which the installation is to be carried out will result in an integrated installation with the minimum of manpower.

CVR(T) SABRE FITTED WITH BASIC CLANSMAN RADIO CONTROL HARNESS

CHAPTER 1-1

COMPLETE INSTALLATION INSTRUCTION

SUBJECT: Installation of UK/VRC 353A, UK/VRC 353B, Basic Harness and DCCU in CVR(T) SABRE

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1 Introduction
2 Estimated time required
3 Action required by
4 Stores, tools and test equipment
5 Associated publications
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7 General notes
9 Preparation of vehicle
10 Installation notes (WARNING) (CAUTION)
12 Function checks
13 Redundant items

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1 CES brick diagram — 4
2 Location diagram — 6
3 Cable routeing/connection diagram — 9
4 Interconnection diagram - radio — 10
5 Interconnection diagram - harness — 11/12

GENERAL INFORMATION

INTRODUCTION

1 The CVR(T) SABRE vehicle was the result of the amalgamation of a CVR(W) FOX turret and a SCORPION hull. This instruction details the installation of two UK/VRC 353 Radios in the 'A' and 'B' positions, a Basic Clansman Radio Control Harness and a D.C. Charging Unit (DCCU) holding three Clansman man pack radio batteries.

ESTIMATED TIME REQUIRED

2 The total time required to install this Complete Installation is 14 man hours broken down as follows:

2.1	Installation of Basic Harness	6 man hours
2.2	Installation of UK/VRC 353A Radio	3 man hours
2.3	Installation of UK/VRC 353B Radio	3 man hours
2.4	Installation of DCCU	2 man hours.

ACTION REQUIRED BY

3 The following actions are required:

3.1 Units affected. When instructions have been received through staff channels, demand the stores, and upon receipt, request REME to install the equipment.

3.2 REME and R. Signals Units authorised to carry out unit, field and base (REME only) repairs.

3.2.1 Install the equipment as detailed in these instructions.

3.2.2 Endorse the vehicle logbook AB 413 (revised) with the installation details.

STORES, TOOLS AND TEST EQUIPMENT

4 The following stores, tools and test equipment are required:

4.1 Stores to be demanded

4.1.1	CES 46783	Installation of UK/VRC 353A, UK/VRC 353B, DCCU and Clansman Basic Harness in CVR(T) SABRE	Qty 1

4.2 Stores to be obtained locally

Approved degreasing agent.

4.3 Stores to be manufactured

Nil.

4.4 Special tools

Nil.

4.5 Test equipment

4.5.1 6625-99-786-5771 Test Set, Bond Resistance DT 109.

ASSOCIATED PUBLICATIONS

5 The following publications are associated with this installation:

Code No.	Type	Title
5800-A-200-821	AESP	C^3I System Earth Bond Testing
6625-J-102	AESP	Test Set Bond Resistance DT 109
5995-C-100-521	AESP	C^3I System Cable Repair Techniques
5995-C-110	AESP	CLANSMAN Cable Assemblies Manufacture and Repair Detail
COMMS INST A009 Misc Instr No.3	EMER	Maintenance of Engineering Integrity
TELS L800	EMER	CLANSMAN Radio Control Harness
CES 46781	CES	IKEE for Basic Harness in CVR(T) SABRE
CES 44551	CES	IKEE for UK/VRC 353A in CVR(T) SABRE
CES 44548	CES	IKEE for UK/VRC 353B in CVR(T) SABRE
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CES 46783	CES	Installation of UK/VRC 353A, UK/VRC 353B, DCCU and Clansman Basic Harness in CVR(T) SABRE
61172	UHB	CLANSMAN Radio Control Harness
61393	UHB	Radio Station UK/VRC 353

INFORMATION

6 If any further information is required regarding this installation, application should be made to:

Commanding Officer
Electronics Branch REME
Leigh Sinton Road
MALVERN
Worcestershire, WR14 1LL.

giving all relevant details and quoting this AESP.

INSTALLATION

WARNING

SOLVENTS. WHEN WORKING WITH DEGREASING AGENTS ENSURE THAT BOTH THE VEHICLE AND THE WORKING AREA ARE ADEQUATELY VENTILATED.

CAUTION

EARTH BONDING. Earth bonding is an essential part of the installation. Poor bonding will degrade the performance leading to reduced operational range and susceptibility to RF interference (RFI). All earth bonding points, harness braids, screws, tapped holes and braid contact area must be free from paint and degreased using an approved solvent. This also applies to the raised metal rings of harness control boxes base belting.

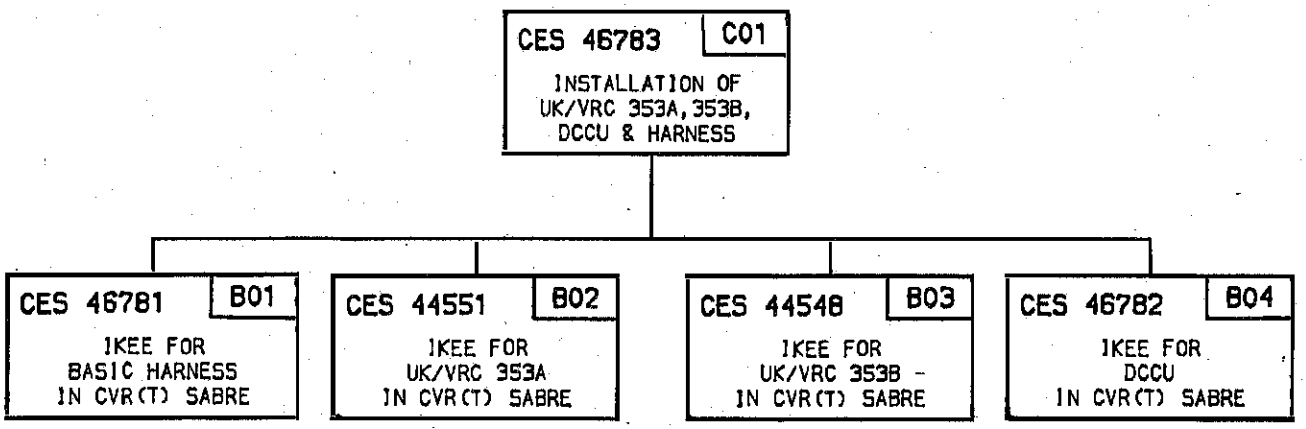


Fig 1 CES brick diagram

GENERAL NOTES

7 The recommended procedure for the use of washers and earthing connections is given in AESP 5800-A-200-821, General Instruction No. 1.

8 The abbreviations l.h.s. and r.h.s. denote the left and right hand sides of the vehicle facing forward and viewed from the rear of the vehicle. All other references to the left and right hand are with respect to the observer facing the front of the equipment.

PREPARATION OF VEHICLE

9 Before commencing installation, turn Battery Master Switch OFF.

INSTALLATION NOTES

10 These notes are designed to enable the installer to avoid unnecessary work during a multi brick installation. The information in brackets at the end of each paragraph depicts the brick installation number and the figure or paragraph number in that instruction.

WARNING SOLVENTS - SEE WARNING.

CAUTION EARTHING - SEE CAUTION.

11 To install this Complete Installation refer to the cable routeing diagram and interconnection diagram; Figs 3 and 4 respectively and carry out the following:

11.1 Install Installation Kit Electronic Equipment for Basic Harness in CVR(T) SABRE (B01). Do not fit the Cover Plate, Blanking Plate and Gaskets to the LH and RH antenna outlets at this stage.

11.2 Route and connect all cable assemblies (B01, Fig 11). Secure in runs loosely using the appropriate cable clips.

11.3 Install Installation Kit Electronic Equipment for UK/VRC 353A Radio in CVR(T) SABRE (B02).

11.4 Install Installation Kit Electronic Equipment for UK/VRC 353B Radio in CVR(T) SABRE (B03).

11.5 Install Installation Kit Electronic Equipment for DCCU in CVR(T) SABRE (B04).

11.6 Tighten all cable clips to secure cable assemblies.

Function checks

12 Carry out function checks as detailed in the relevant chapter.

Redundant items

13 Return all redundant items to stores.

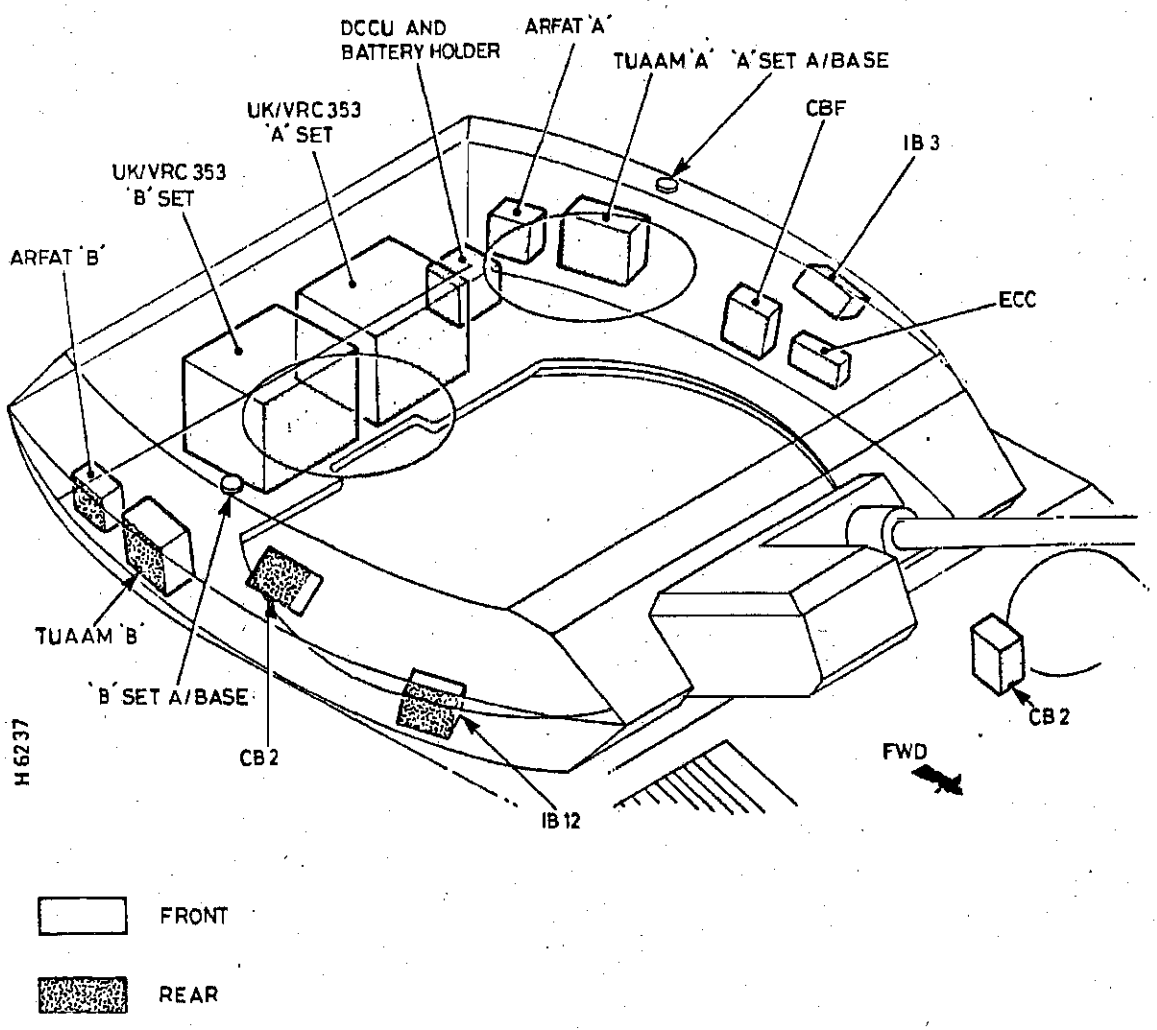


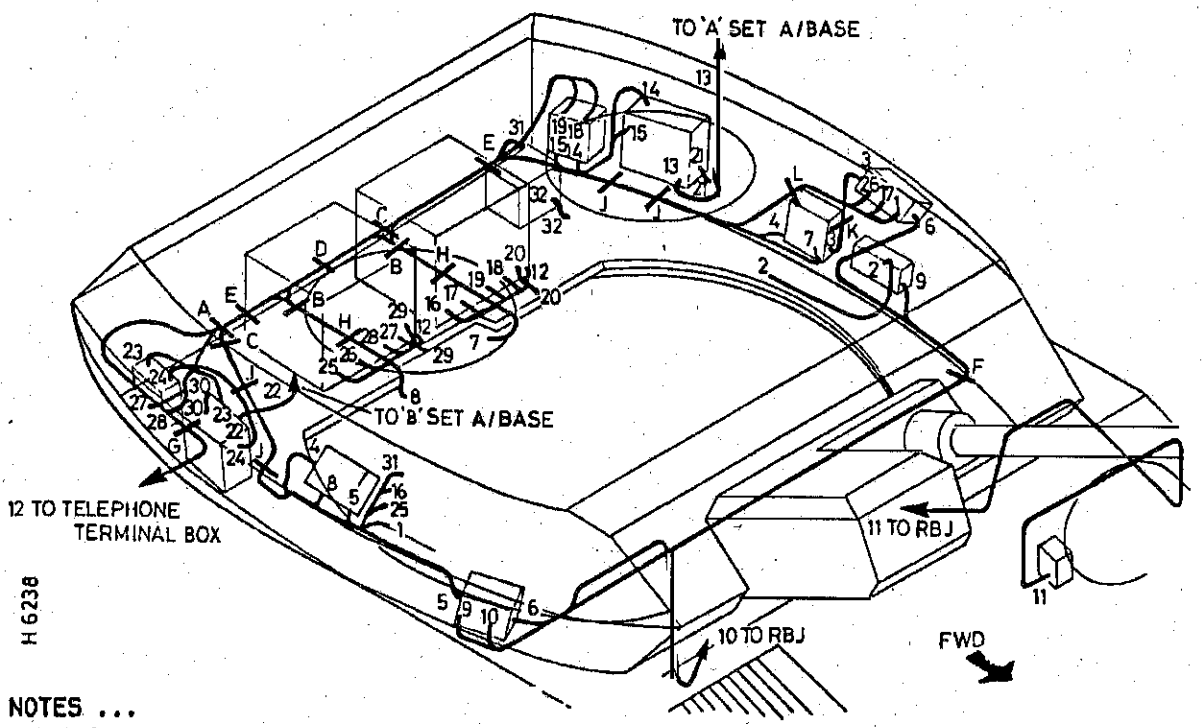
Fig 2 Location diagram

TABLE 1 CABLE ROUTEING/CONNECTIONS

Ref No.	Part No.	Cable Type	Route/Connection
1	FV943761/10	2 way	IB2/IB3 - PDB
2	FV563614/3	2 way	ECC - Light
3	FV745757/176	12 + screen	IB2/IB3 - CBF
4	FV745757/177	12 + screen	CBF - CB2
5	FV745757/179	12 + screen	IB12 - CB2
6	FV745757/178	12 + screen	IB12 - IB2/IB3
7	FV943855/1	10 + screen	CBF - ALT
8	FV943854/1	6 + screen	CB2 - ALT
9	FV745765/5	2 way	ECC - IB12
10	FV745756/7	12 + screen	IB12 - RBJ
11	FV745755/3	12 way	CB2 - RBJ
12	FV943869/1	4 way	TEL - Radios
13	FV745829/65	co-ax	TUAAM A-Antenna A
14	FV745837/51	4 way	ARFAT A-TUAAM A
15	FV745811/54	co-ax	ARFAT A-TUAAM A
16	FV943761/11	2 way	PDB - Radio A
17	FV943774/16	6 way	IB3 - Radio A
18	FV745757/174	12 + screen	ARFAT A-Radio A
19	FV745811/118	co-ax	Radio A-ARFAT A
20	FV943811/16	Braid	Radio A-Earth
21	FV943811/11	Braid	TUAAM A-Earth
22	FV745829/65	co-ax	TUAAM B-Antenna B
23	FV745837/51	4 way	ARFAT B-TUAAM B
24	FV745811/54	co-ax	ARFAT B-TUAAM B
25	FV943761/12	2 way	PDB - Radio B
26	FV943774/17	6 way	IB3 - Radio B
27	FV745757/175		ARFAT B-Radio B
28	FV745811/118	co-ax	Radio B-ARFAT B
29	FV943811/16	Braid	Radio B-Earth
30	FV943811/11	Braid	TUAAM B-Earth
31	FV2050950/1	2 way	DCCU - PDB
32	FV2053549/1	Braid	DCCU - EARTH

New cable clips

A	5340-99-736-2809	Qty 1	K	5340-99-452-3888	Qty 1
B	5340-99-771-6752	Qty 2	L	5340-99-325-1947	Qty 1
C	5340-99-736-2810	Qty 2			
D	5340-99-771-6753	Qty 1			
E	5340-99-771-6754	Qty 2			
F	FV964639/27	Qty 1			
G	5340-99-736-2808	Qty 1			
H	5340-99-362-6580	Qty 2			
J	5340-99-784-3906	Qty 4			



NOTES ...
(1) PLAIN NUMBERS DEPICT THE ROUTEING AND CONNECTIONS OF CABLES TO BE INSTALLED.
(2) ▬ NEW CABLE CLIPS.

Fig 3 Cable routeing/connection diagram

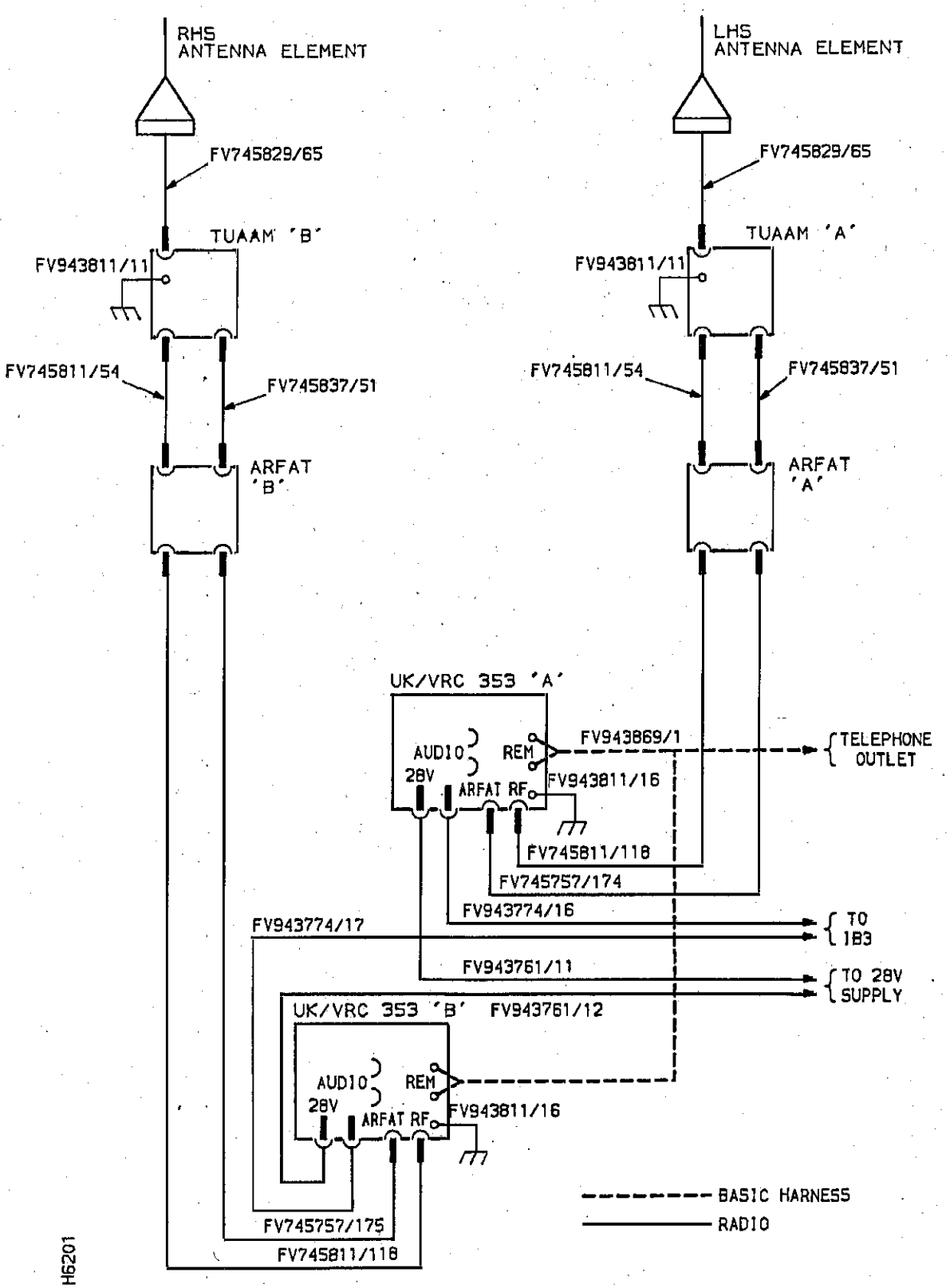


Fig 4 Interconnection diagram - radio

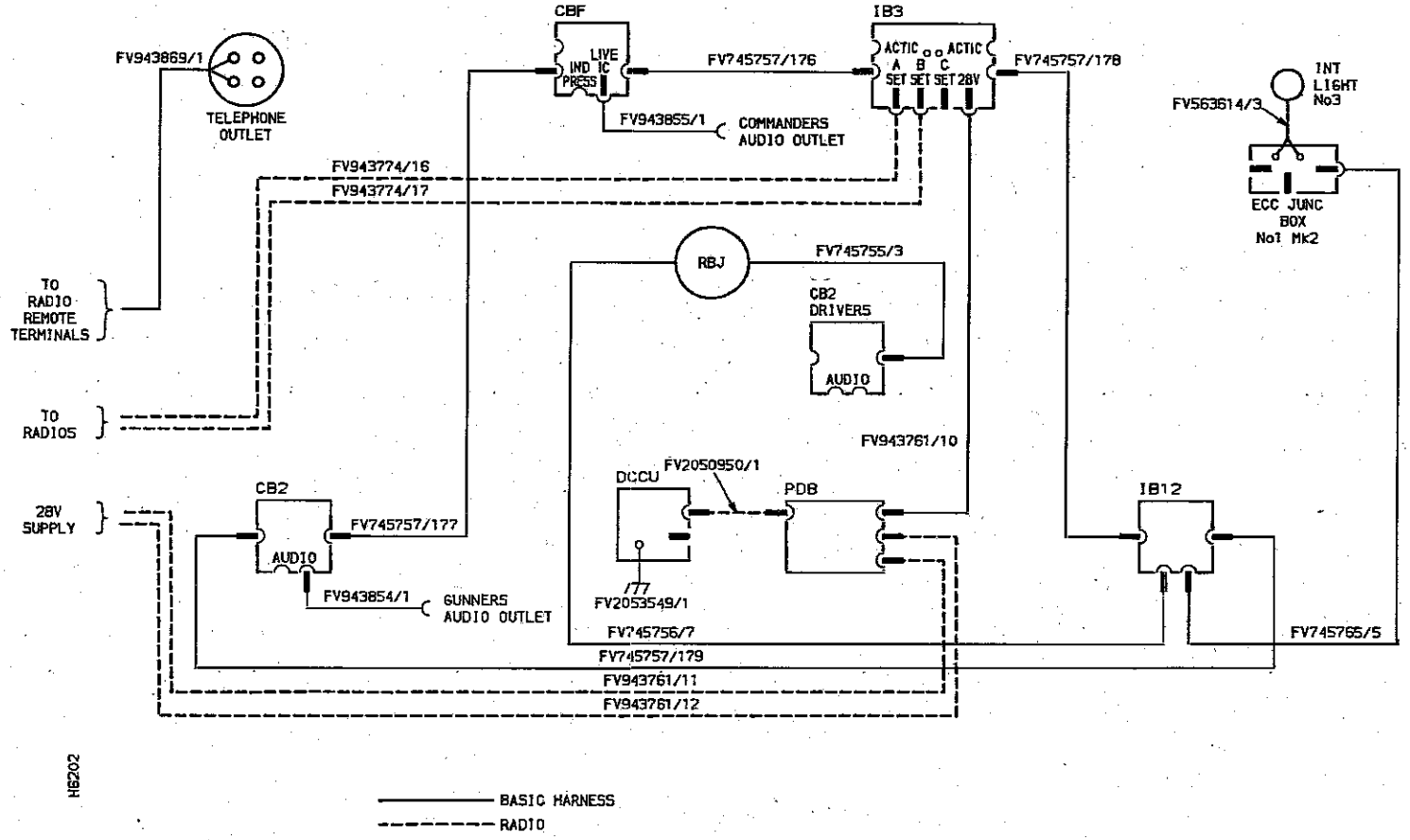


Fig 5 Interconnection diagram - harness

CHAPTER 2-0

INTRODUCTION TO CES BRICK INSTALLATION INSTRUCTIONS

GENERAL

1 Command, Control, Communications and Information (C^3I) installations consist of different configurations of Complete Equipment Schedule (CES) bricks installed in specific vehicles as shown in Chapter 1. Each variant is intended for a particular role, and it is this which determines the content, layout of the installation and the way in which it functions.

PURPOSE OF CHAPTER 2

2 Each sub-chapter of this chapter (brick installation instruction) deals with one brick. If a complete installation were installed brick by brick, much effort would be wasted in duplication and previous work be unnecessarily disturbed. Constant reference should, therefore, be made to the relevant part of Chapter 1 to ensure that each part of each brick is installed in its due turn. Each brick installation instruction includes a table listing all the parts in the CES brick except fixings. A second table in each instruction lists, in matrix form, all the fixings required to secure each part in place.

3 The purpose of each brick installation instruction is to describe fully the procedure for installing one CES brick. By following the various instructions in the order laid down in the appropriate Complete Installation Instruction in Chapter 1, the required variant is built up on a modular basis.

TESTING

4 When all CES bricks have been installed the complete installation is to be tested as described in the appropriate part of Chapter 1.

CVR(T) SABRE FITTED WITH BASIC CLANSMAN RADIO CONTROL HARNESS

CHAPTER 2-1

CES BRICK INSTALLATION INSTRUCTION

SUBJECT: Installation Kit Electronic Equipment for Basic Harness in CVR(T) SABRE

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3 Action required by
4 Stores, tools and test equipment
5 Associated publications
6 Information
INSTALLATION
Warning
Caution
7 General notes
12 Preparation of vehicle
Installation of CES items (WARNING) (CAUTION)
13 Interconnecting box 2 radio (IB2), or interconnecting box 3 (IB3)
14 Crew box 2 set (CB2)
18 Commanders box fixed (CBF)
20 Interconnecting box 12-way (IB12)
23 Emergency crew control (ECC) junction box No. 1
24 Telephone outlet box
25 Brackets
26 Cover and blanking plates
28 Plate radio mounting
29 Cable assemblies
30 Filter unit repositioning
31 Stowed items
32 Function checks
33 Redundant items

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1 Items required to install basic harness in CVR(T) SABRE — 15
2 Fixings detail — 16

Fig

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2 CB2 mounting (driver) — 6
3 CB2 mounting (operator) — 7

(continued)

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4	CBF mounting	8
5	IB12 mounting	9
6	ECC junction box No. 1 mounting	10
7	Telephone outlet box mounting	11
8	LH and RH antenna base cover and blanking plate	12
9	Plate radio mounting	13
10	Location diagram	17
11	Cable routeing/connection diagram	19
12	Interconnection diagram	20

GENERAL INFORMATION

INTRODUCTION

1 The CVR(T) SABRE vehicle was developed as a result of the amalgamation of a CVR(W) FOX turret and a SCORPION hull. This instruction details the installation of the Basic Clansman Radio Harness fitted to CVR(T) SABRE.

ESTIMATED TIME REQUIRED

2 The total time required to install the Basic Clansman Radio Control Harness is 6 man hours broken down as follows:

2.1 Installation of Basic Harness 6 man hours.

ACTION REQUIRED BY

3 The following actions are required:

3.1 Units affected. When instructions have been received through staff channels, demand the stores, and upon receipt, request REME to install the equipment.

3.2 REME and R. Signals Units authorised to carry out unit, field and base (REME only) repairs.

3.2.1 Install the equipment as detailed in these instructions.

3.2.2 Endorse the vehicle logbook AB 413 (revised) with the installation details.

STORES, TOOLS AND TEST EQUIPMENT

4 The following stores, tools and test equipment are required:

4.1 Stores to be demanded

4.1.1 CES 46781 Installation Kit Electronic Equipment for Basic Harness in CVR(T) SABRE Qty 1

4.2 Stores to be obtained locally

Approved degreasing agent.

4.3 Stores to be manufactured

Nil.

4.4 Special tools

Nil.

4.5 Test equipment

4.5.1 6625-99-786-5771 Test Set, Bond Resistance DT 109.

ASSOCIATED PUBLICATIONS

5 The following publications are associated with this installation:

Code No.	Type	Title
5800-A-200-821	AESP	C^3I System Earth Bond Testing
6625-J-102	AESP	Test Set Bond Resistance DT 109
5995-C-100-521	AESP	C^3I System Cable Repair Techniques
COMMS INST A009 Misc Instr No. 3	EMER	Maintenance of Engineering Integrity
TELS L800	EMER	CLANSMAN Radio Control Harness
CES 46781	CES	IKEE for Basic Harness in CVR(T) SABRE
61172	UHB	CLANSMAN Radio Control Harness

INFORMATION

6 If any further information is required regarding this installation, application should be made to:

Commanding Officer
Electronics Branch REME
Leigh Sinton Road
MALVERN
Worcestershire, WR14 1LL.

giving all relevant details and quoting this AESP.

INSTALLATION

WARNING

SOLVENTS. WHEN WORKING WITH DEGREASING AGENTS ENSURE THAT BOTH THE VEHICLE AND THE WORKING AREA ARE ADEQUATELY VENTILATED.

CAUTION

EARTH BONDING. Earth bonding is an essential part of the installation. Poor bonding will degrade the performance leading to reduced operational range and susceptibility to RF interference (RFI). All earth bonding points, harness braids, screws, tapped holes and braid contact area must be free from paint and degreased using an approved solvent. This also applies to the raised metal rings of harness control boxes base belting.

GENERAL NOTES

7 The recommended procedure for the use of washers and earthing connections is given in AESP 5800-A-200-821, General Instruction No. 1.

8 The abbreviations l.h.s. and r.h.s. denote the left and right hand sides of the vehicle facing forward and viewed from the rear of the vehicle. All other references to the left and right hand are with respect to the observer facing the front of the equipment.

9 Table 1 lists the main kit items of this installation.

10 Table 2 lists the fixings, together with the operation for which each fixing item is required. These operations are listed 1 to 18 in Table 2 and correspond to operations 1 to 18 in the text.

11 The number shown in brackets after an item designation refers to the item number in Table 1.

PREPARATION OF VEHICLE

12 Before commencing installation, turn Battery Master Switch to OFF.

INSTALLATION OF CES ITEMS

WARNING SOLVENTS - SEE WARNING.

CAUTION EARTHING - SEE CAUTION.

Interconnecting box 2 radio (IB2), or Interconnecting box 3 (IB3)

13 Fit the IB2 (14) or IB3 (15) to the upper l.h.s. panel of the turret, as shown in Fig 1. Locate the four IB2/IB3 fixing holes. Fit the UNC end of stud (21) in each of the tapped holes and secure tightly. Fit the IB2/IB3 over the studs and secure using eight off 3/8 UNF nuts, 3/8 shakeproof washers and 3/8 plain washers. (Operation 1).

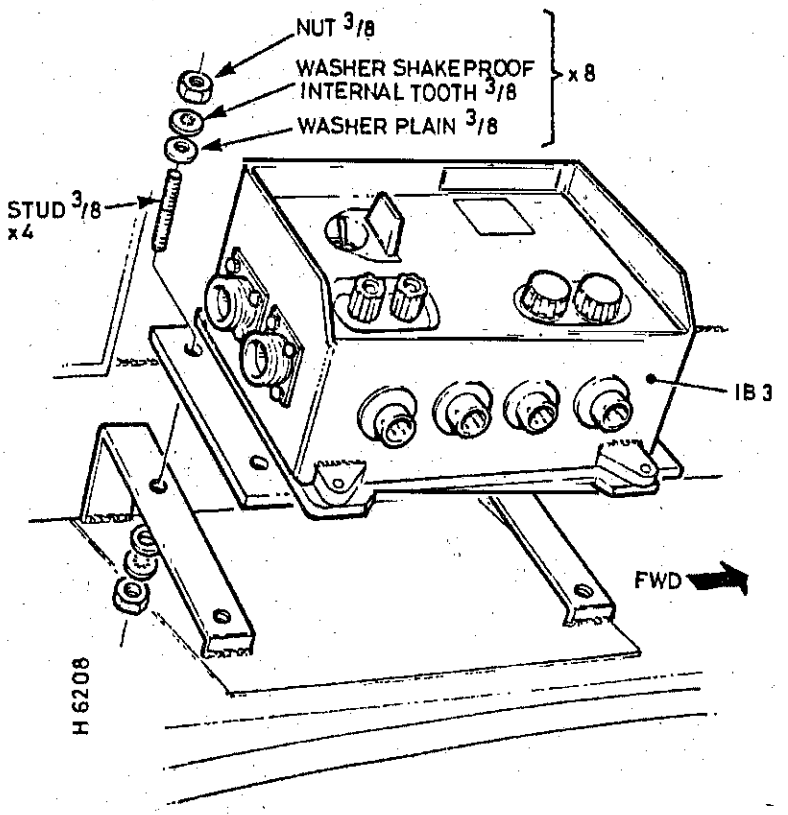


Fig 1 IB3 mounting

Crew box 2 set (CB2)

14 Two CB2s (7) are fitted, one for the driver and one for the operator as shown in Figs 2 and 3 respectively.

15 Locate the two CB2 fixing holes in the drivers compartment. Fit the UNC end of 5/16 stud (20) in each of the tapped holes and secure tightly. Locate the CB2 over the two studs and secure using two off 5/16 plain washers, 5/16 shakeproof washers and 5/16 nuts. (Operation 2).

16 Locate the two CB2 bracket fixing holes in the upper right hand rear side panel of the turret. Fit the UNC end of stud (21) in each of the tapped holes and secure tightly. Position Bracket Stand-off (6) over the studs and secure using four off 3/8 UNF nuts, 3/8 shakeproof washers and 3/8 plain washers. (Operation 3).

17 Fit the CB2 (7) to the Bracket Stand-off (6) using two off 5/16 UNF screws, 5/16 shakeproof washers and 5/16 plain washers. (Operation 4).

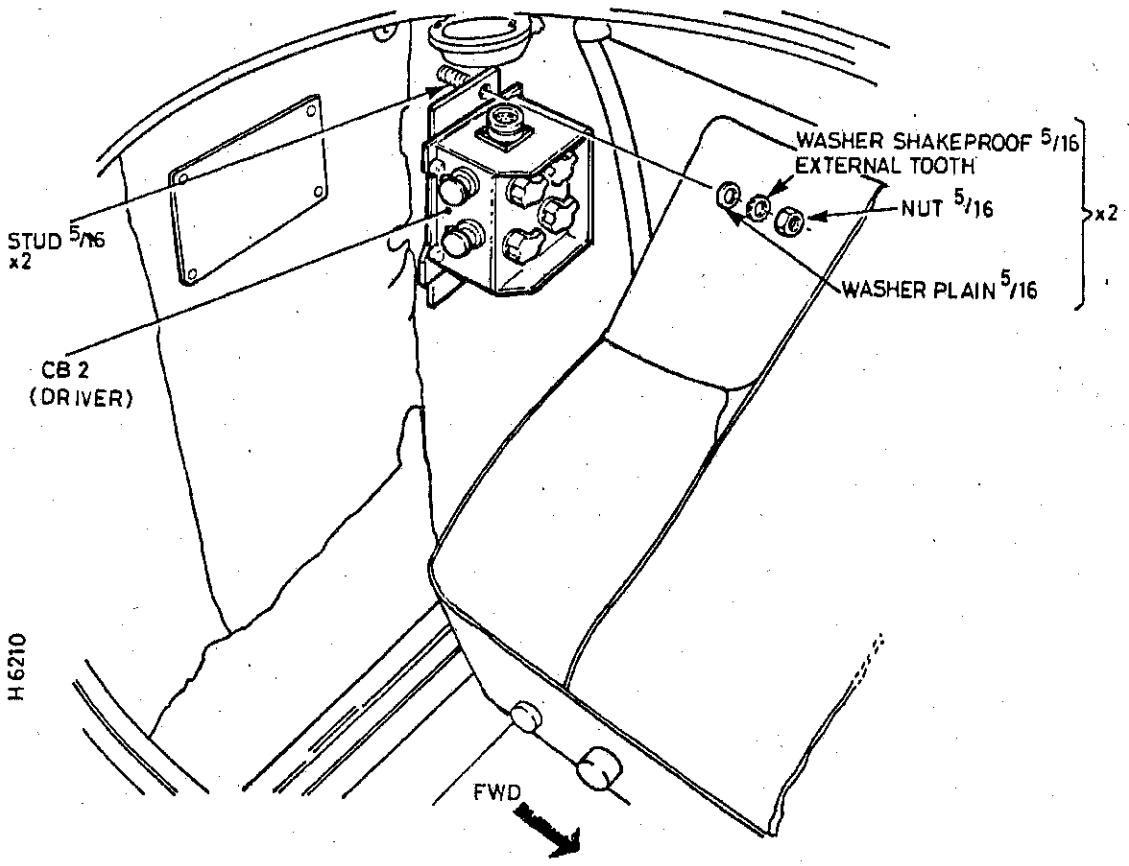


Fig 2 CB2 mounting (driver)

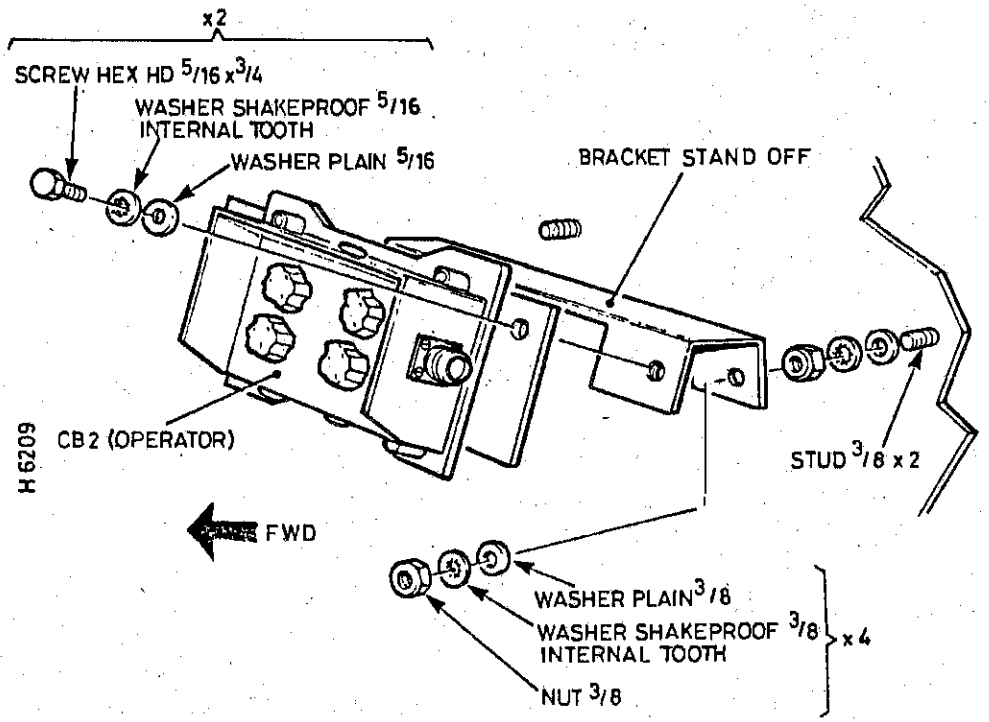


Fig 3 CB2 mounting (operator)

Commanders box fixed (CBF)

18 Locate Plate Mounting (18) to the forward l.h.s. of the turret as shown in Fig 4 and secure using three off 3/8 UNC x 3/4 lg screws, two off 3/8 UNC x 1 lg screws, five off 3/8 shakeproof washers and 3/8 plain washers. (Operation 5).

19 Position CBF (8) over the fixing holes on the l.h.s. of Plate Mounting (18) and secure using two off screw hex hd M8 x 20, washer shakeproof M8 and washer plain M8. (Operation 6).

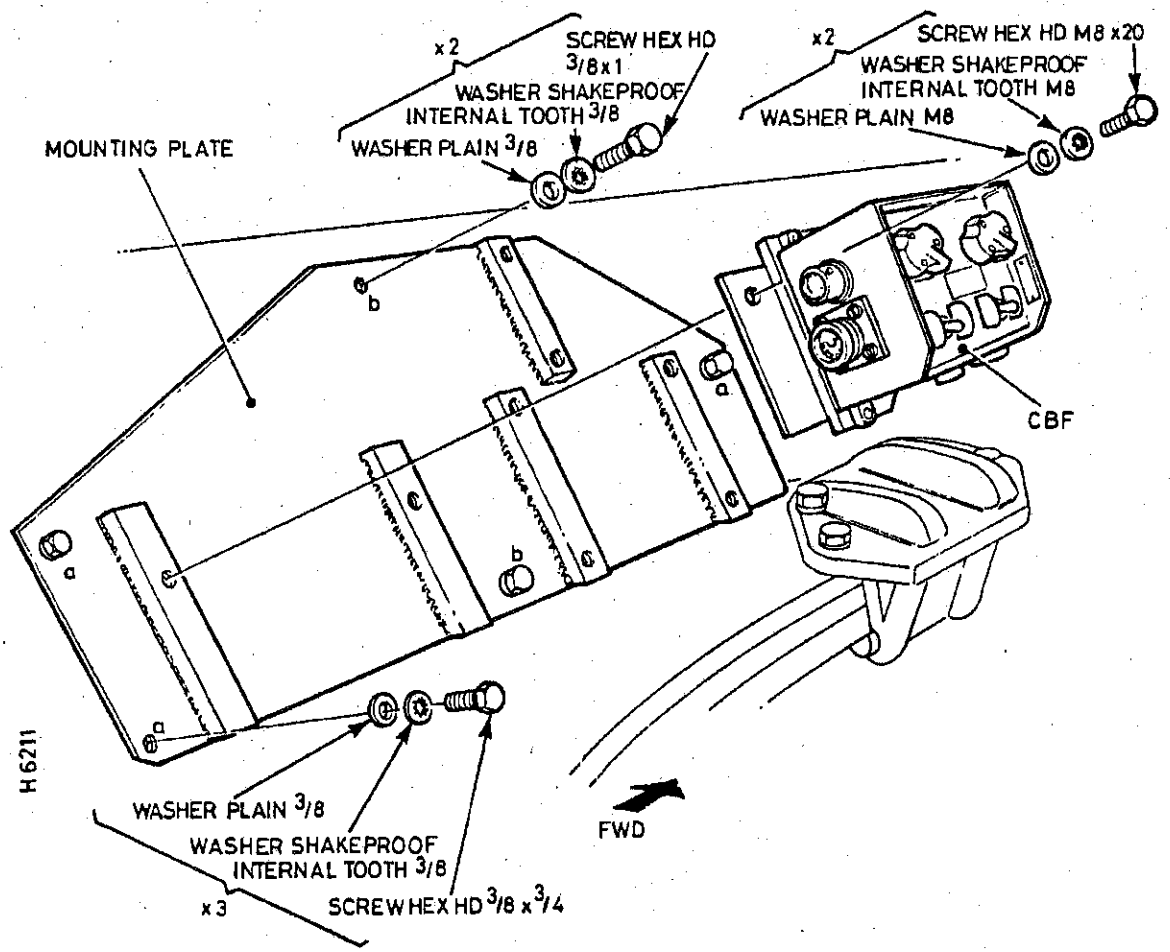


Fig 4 CBF mounting

Interconnecting box 12-way (IB12)

20 Secure Bracket Mounting (3) to the forward r.h.s. position as shown in Fig 5, using four off each 5/16 UNC screws, 5/16 shakeproof washers and 5/16 plain washers. (Operation 7).

21 Fit one Plate Adaptor (17) to the two LH fixing holes on the Bracket Mounting (3) and the other Plate Adaptor (17) to the two RH fixing holes on the Bracket Mounting (3), using four off each 5/16 UNF screws, 5/16 shakeproof washers and plain washers. (Operation 8).

22 Locate IB12 (16) over the two fixing holes in the Plate Adaptors (17) and secure using two off each M8 x 20 screws, M8 shakeproof washers and M8 plain washers. (Operation 9).

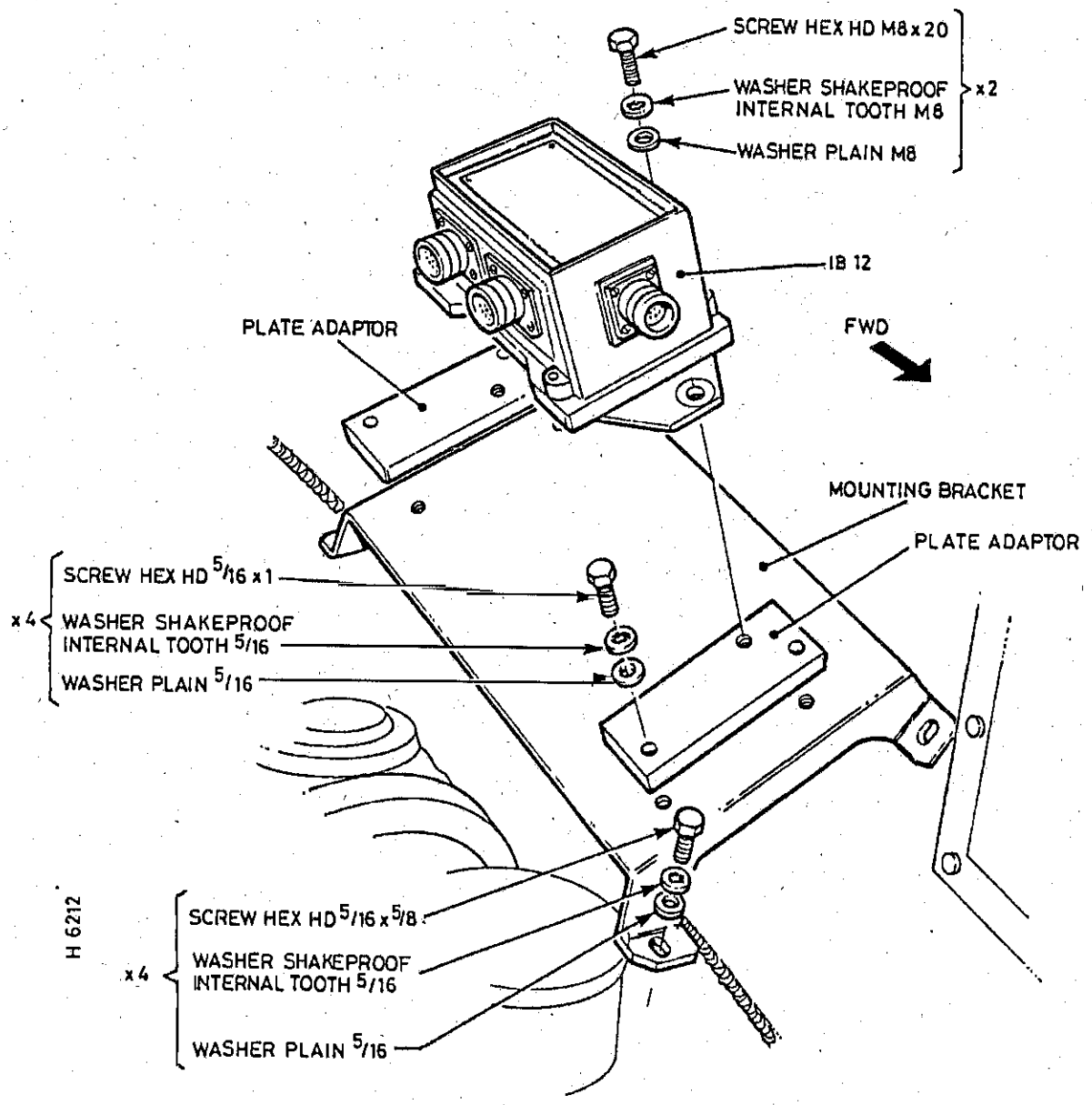


Fig 5 IB12 mounting

Emergency crew control (ECC) junction box No. 1

23 Locate ECC junction box No. 1 (10) over the four fixing holes on the r.h.s. of Plate Mounting (18) fitted in para 18, and secure using four off each M8 x 16 screws, M8 shakeproof washers and M8 plain washers. Refer to Fig 6. (Operation 10).

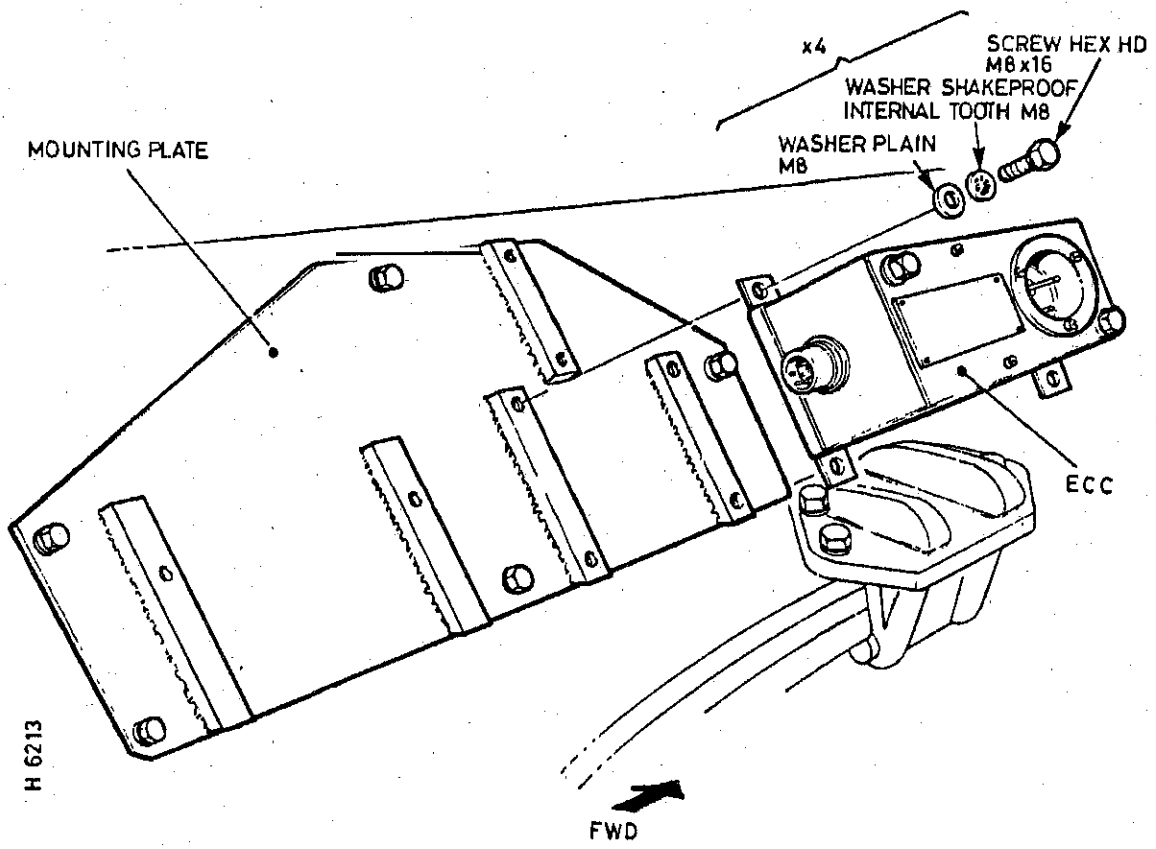


Fig 6 ECC junction box No. 1 mounting

Telephone outlet box

24 The Telephone Outlet Box (1) is mounted at the rear of the exterior r.h.s. plate. With reference to Fig 7 install the telephone outlet box as follows:

24.1 Remove the cover from the Telephone Outlet Box (1).

24.2 Feed the shorter conductors of Cable Assembly from the lucon connectors in through the conduit gland in the side of the telephone outlet box and connect them to the appropriate terminals on the terminal board inside the outlet box. Secure one end of the plastic conduit covering the harness to the conduit gland in the side of the outlet box.

24.3 Feed the free conductors of the harness into the interior of the turret via a conduit gland in the side of the antenna base support. Secure the free end of the plastic conduit to the conduit gland.

24.4 Position the Gasket (12) over the appropriate securing holes in the turret side plate and secure the Telephone Outlet Box (1) using two off each 5/16 UNC screws, 5/16 shakeproof washers and 5/16 plain washers. (Operation 11).

24.5 Replace the cover on the Telephone Outlet Box (1).

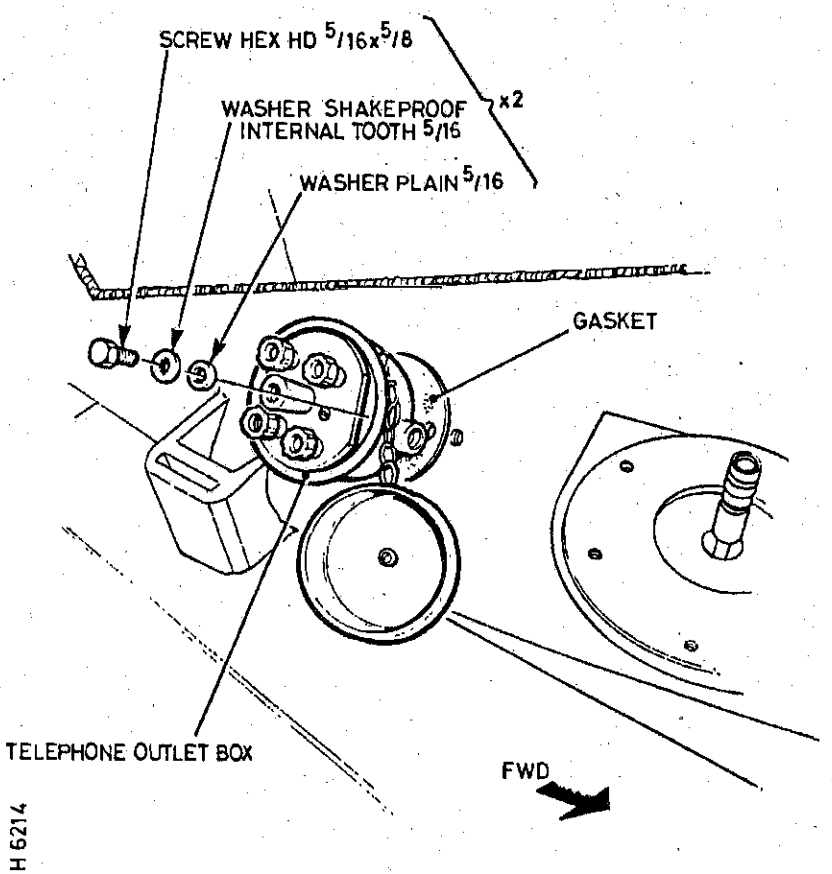


Fig 7 Telephone outlet box mounting

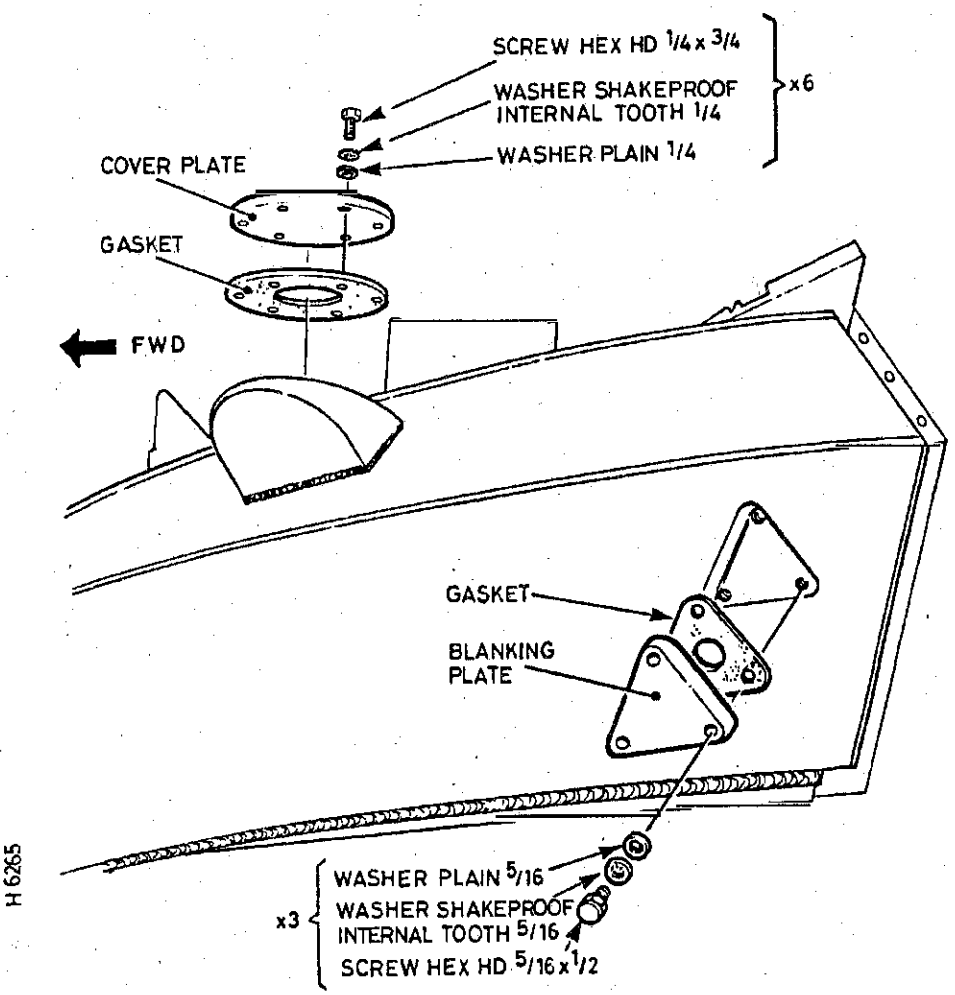
Brackets

25 Locate the fixing holes for Bracket 10 Way Plug (4) on the turret interior below the RH radio position and for Bracket 7 Way Socket (5) below the LH radio position. Secure using two off each 1/4 UNC screws, nuts, shakeproof washers and plain washers for each bracket. (Operation 12).

Cover and blanking plates

26 Fit Cover Plate (9) and Gasket (11) to the LH and RH antenna outlets, refer to Fig 8. Secure each using six 1/4 UNC screws, shakeproof washers and plain washers. (Operation 13).

27 Fit Blanking Plate (2) and Gasket (13) in place over each of the two antenna outlets and secure using three off each 5/16 UNC screws, shakeproof washers, and plain washers for each outlet. (Operation 14).



NOTE...
ANTENNA BASE 'A' AS SHOWN
ANTENNA BASE 'B' USES IDENTICAL FIXINGS

Fig 8 LH and RH antenna base cover and blanking plate

Plate radio mounting

28 Position the Plate Radio Mounting (19) over the fixing holes on the rear sill as shown in Fig 9, and secure using eight off each 1/4 UNC screws, shakeproof washers and plain washers. (Operation 15).

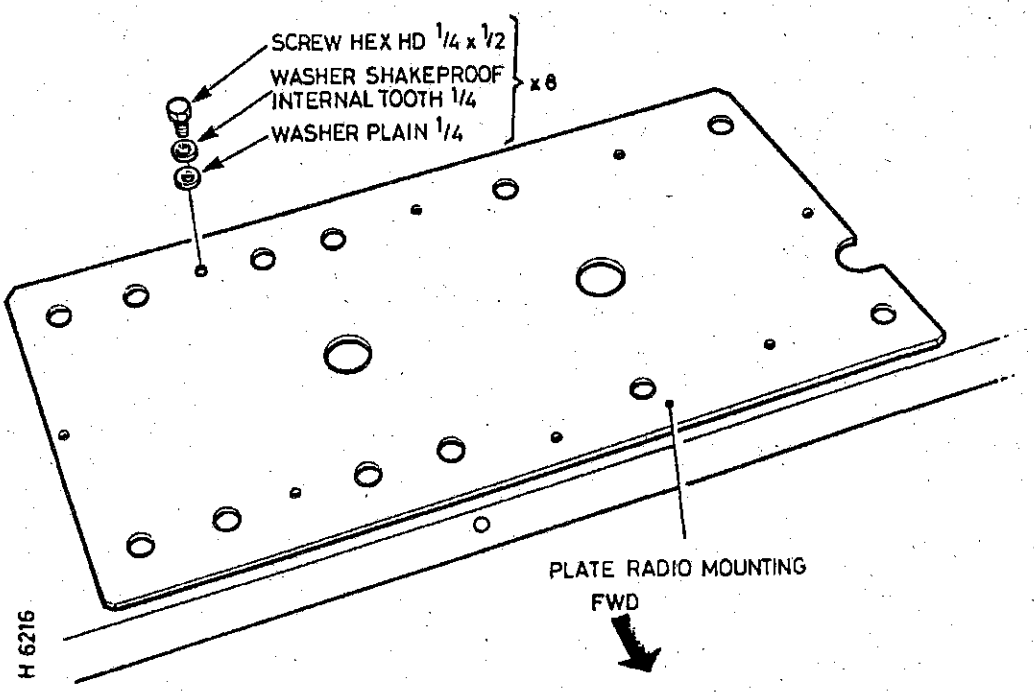


Fig 9 Plate radio mounting

Cable Assemblies

29 Route and connect all Cable Assemblies as shown in Fig 11, secure in runs using Cable Ties (34). Secure Cable Assembly (28) and (29) using four off each 4-40 UNC screws, nuts, 0.116 I/D shakeproof washers and 0.135 I/D plain washers. (Operations 16 and 17).

Filter unit repositioning

30 Locate the Filter Unit over the top RH two fixing holes on the Plate Mounting (18) and secure using two off each M6 x 16 screws, M6 shakeproof washers and M6 plain washers. (Operation 18).

Stowed items

31 Stow items (35) to (45) appropriately on the vehicle.

Function checks

32 Set the Battery Master Switch to ON, connect headset assemblies and carry out a functional test of the intercommunication facility at each operating position.

Redundant items

33 Nil.

TABLE 1 ITEMS REQUIRED TO INSTALL BASIC HARNESS IN CVR(T) SABRE

Item	Designation	FV No.	Nato Stock No.	Qty	
1	Assy Telephone Outlet	FV760470	5940-99-634-8081	1	
2	Blanking Plate	FV756596	5820-99-634-5344	2	
3	Bracket Mounting	FV818170	5820-99-640-9085	1	
4	Bracket - 10 Way Plug	FV990267	5340-99-700-6911	1	
5	Bracket - 7 Way Socket	FV990266	5340-99-404-1788	1	
6	Bracket Stand-off	FV818504	5820-99-640-9087	1	
7	CB2		5895-99-117-4911	2	
8	CBF		5895-99-117-4909	1	
9	Cover Plate	FV639761	5820-99-634-2889	2	
10	ECC Junction Box No. 1	FV702523	6110-99-818-4829	1	
11	Gasket No. 1		5330-99-949-1082	2	
12	Gasket	FV760494	5330-99-634-0869	1	
13	Gasket	FV705989	5330-99-628-5068	2	
14	IB2		5820-99-117-6250	1	IB2 or IB3
15	IB3		5820-99-117-6110	1	IB3 or IB2
16	IB12	FV990560	5820-99-775-9211	1	
17	Plate Adaptor	FV990060	5820-99-212-1264	2	
18	Plate Mounting	FV990217	5820-99-330-0849	1	
19	Plate Radio Mounting	FV990067	5820-99-500-0147	1	
20	Stud 5/16 UNC - UNF	FV756644	5307-99-634-2890	2	
21	Stud	FV990064	5307-99-215-0615	6	
	Cable Assemblies				
22	Cable Assembly	FV943761/10	5995-99-661-4925	1	IB2/IB3-PDB
23	Cable Assembly	FV563614/3	5820-99-636-6529	1	ECC - Light
24	Cable Assembly	FV745757/176	5995-99-661-4916	1	IB2/IB3-CBF
25	Cable Assembly	FV745757/177	5995-99-661-4917	1	CBF - CB2
26	Cable Assembly	FV745757/179	5995-99-661-4919	1	IB12 - CB2
27	Cable Assembly	FV745757/178	5995-99-661-4918	1	IB12-IB2/3
28	Cable Assembly	FV943855/1	5995-99-661-4933	1	CBF - ALT
29	Cable Assembly	FV943854/1	5995-99-661-4932	1	CB2 - ALT
30	Cable Assembly	FV745765/5	5995-99-661-4920	1	ECC - IB12
31	Cable Assembly	FV745756/7	5995-99-661-4913	1	IB12 - RBJ
32	Cable Assembly	FV745755/3	5995-99-634-7513	1	CB2 - RBJ
33	Cable Assembly	FV943869/1	5995-99-537-8809	1	TEL- Radios
34	Cable Ties			25	
	Stowed items				
35	Bag Ancillaries		5820-99-621-9028	1	
36	Audio Gear Respirator		5965-99-622-5437	3	
37	Cord Coiled 2M Lg		5995-99-630-6466	1	
38	Microphone Hand 5ft Lg		5965-99-901-0730	1	
39	Cable Assembly - switch		5965-99-620-5667	2	
40	CPU		5820-99-117-5043	1	
41	RPU		5820-99-117-6144	1	
42	D10 Cable 880YDs		6145-99-103-8301	1	
43	AGS		5965-99-649-8166	1	
44	Handset Remote Control		5965-99-620-5670	1	
45	Audio Extension Lead		5820-99-117-6142	1	

TABLE 2 FIXINGS DETAIL

1. IB2 or IB3
2. CB2 (Driver)
3. Bracket stand-off (CB2)
4. CB2 (Operator)
5. Plate mounting (CBF)
6. CBF
7. Bracket mounting (IB12)
8. Plate adaptor (IB12)
9. IB12
10. ECC junction box No. 1
11. Telephone outlet box
12. Brackets LH and RH
13. Cover plate
14. Blanking plate
15. Plate radio mounting
16. Cable assembly (FV943855/1)
17. Cable assembly (FV943854/1)
18. Filter unit repositioning

Designation	NSN/FV No.	Operation No.																	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Screw, hex hd 4-40 UNC x 1/2 lg stl zinc pl	5305-99-945-8424																		
Screw, hex hd 1/4 UNC x 1/2 lg stl zinc pl	5305-99-941-0685															8	4	4	
Screw, hex hd 1/4 UNC x 3/4 lg stl zinc pl	5305-99-941-0687												4	12					
Screw, hex hd 5/16 UNC x 1/2 lg stl zinc pl	5305-99-941-0696														6				
Screw, hex hd 5/16 UNC x 5/8 lg stl zinc pl	5305-99-941-0697							4				2							
Screw, hex hd 5/16 UNF x 3/4 lg stl zinc pl	5305-99-941-0525				2														
Screw, hex hd 5/16 UNF x 1 lg stl zinc pl	5305-99-941-0527								4										
Screw, hex hd 3/8 UNC x 3/4 lg stl zinc pl	5305-99-941-0712					3													
Screw, hex hd 3/8 UNC x 1 lg stl zinc pl	5305-99-941-0714					2													
Screw, hex hd M6 x 16 lg stl zinc pl	5305-99-122-5360																		2
Screw, hex hd M8 x 16 lg stl zinc pl	5305-99-122-5365										4								
Screw, hex hd M8 x 20 lg stl zinc pl	5305-99-122-5366						2			2									
Nut, Ordinary 4-40 UNC stl zinc pl	5310-99-941-2405																4	4	
Nut, Ordinary 1/4 UNC stl zinc pl	5310-99-120-9316												4						
Nut, Ordinary 5/16 UNF stl zinc pl	5310-99-941-0925		2																
Nut, Ordinary 3/8 UNF stl zinc pl	5310-99-941-0926	8		4															
Washer, shakeproof internal tooth .116 I/D stl	5310-99-120-6040																4	4	
Washer, shakeproof internal tooth 1/4 stl	5310-99-100-6945												4	12		8			
Washer, shakeproof internal tooth 5/16 stl	5310-99-101-0187				2		2	4	4			2			6				
Washer, shakeproof internal tooth 3/8 stl	5310-99-912-9583	8		4		5													
Washer, shakeproof external tooth 5/16 stl	5310-99-100-6941		2																
Washer, shakeproof internal tooth M6 stl	5310-99-138-8379																		2
Washer, shakeproof internal tooth M8 stl	5310-99-636-4996									2	4								
Washer, plain .135 I/D stl	5310-99-120-1021																4	4	
Washer, plain 1/4 stl	5310-99-120-4032												4	12		8			
Washer, plain 5/16 stl	5310-99-941-8386		2		2			4	4			2			6				
Washer, plain 3/8 stl	5310-99-941-8635	8		4		5													
Washer, plain M6 stl	5310-99-122-6474																		2
Washer, plain M8 stl	5310-99-122-6475						2			2	4								

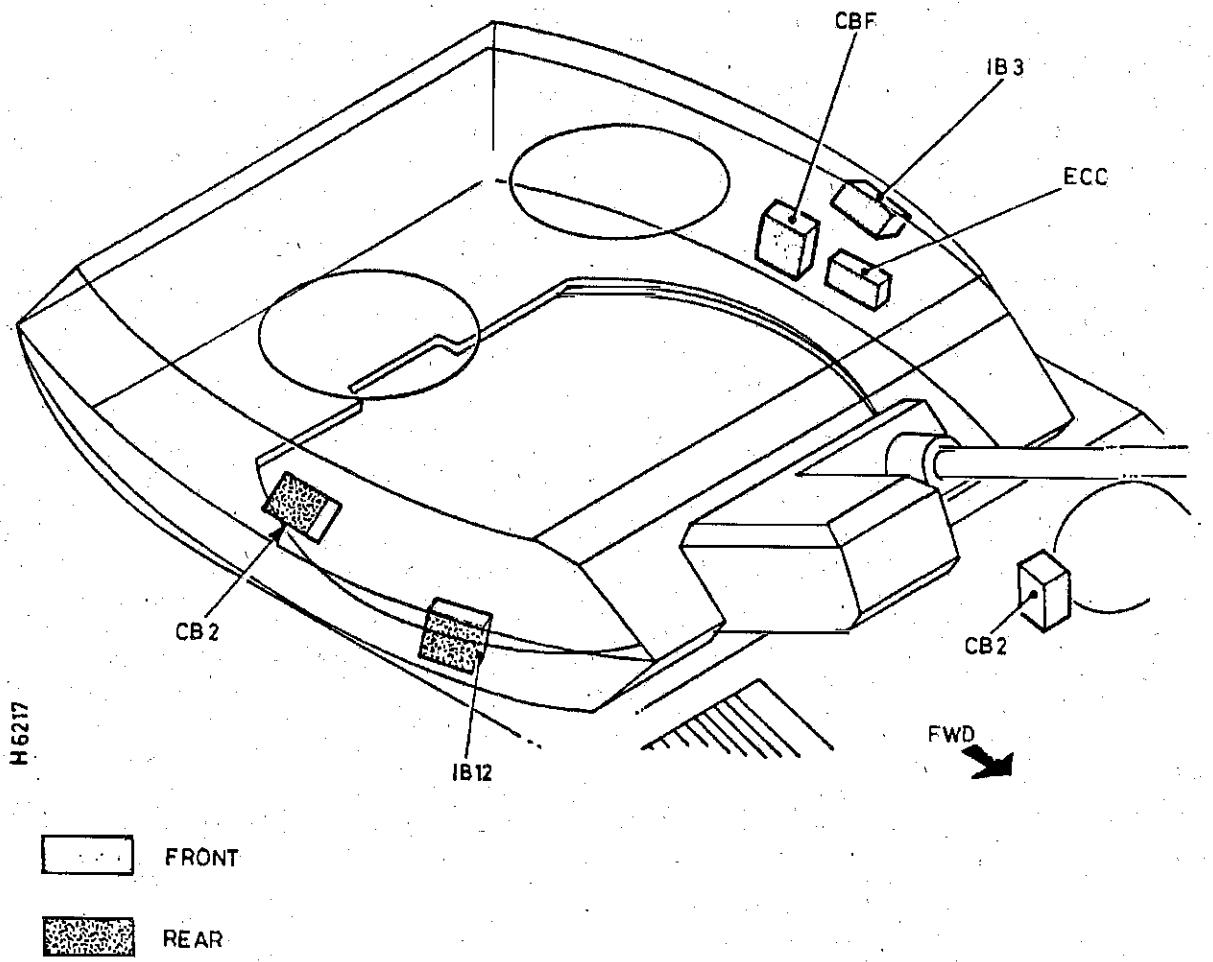


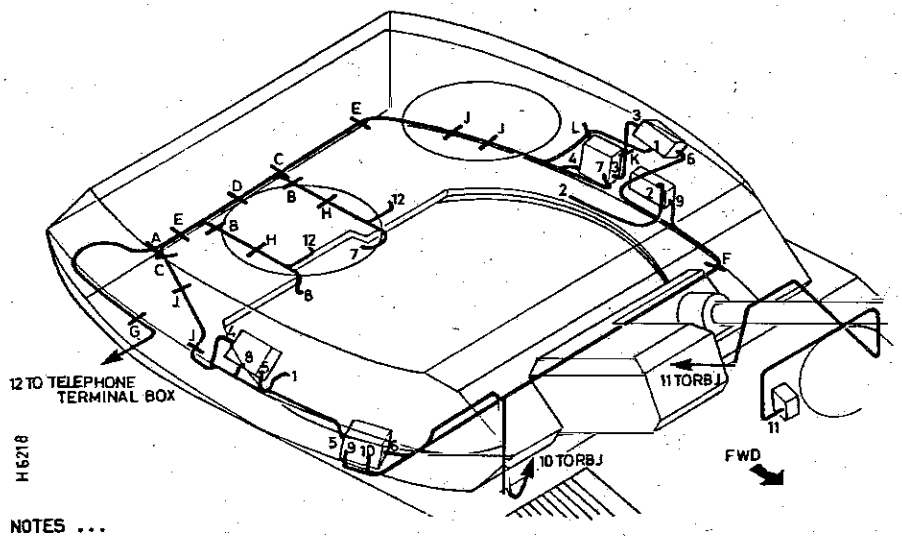
Fig 10 Location diagram

CABLE ROUTEING/CONNECTIONS

Ref No.	Part No.	Cable Type	Route/Connection
1	FV943761/10	2 way	IB2/IB3 - PDB
2	FV563614/3	2 way	ECC - Light
3	FV745757/176	12 + screen	IB2/IB3 - CBF
4	FV745757/177	12 + screen	CBF - CB2
5	FV745757/179	12 + screen	IB12 - CB2
6	FV745757/178	12 + screen	IB12 - IB2/IB3
7	FV943855/1	10 + screen	CBF - ALT
8	FV943854/1	6 + screen	CB2 - ALT
9	FV745765/5	2 way	ECC - IB12
10	FV745756/7	12 + screen	IB12 - RBJ
11	FV745755/3	12 way	CB2 - RBJ
12	FV943869/1	4 way	TEL - Radios

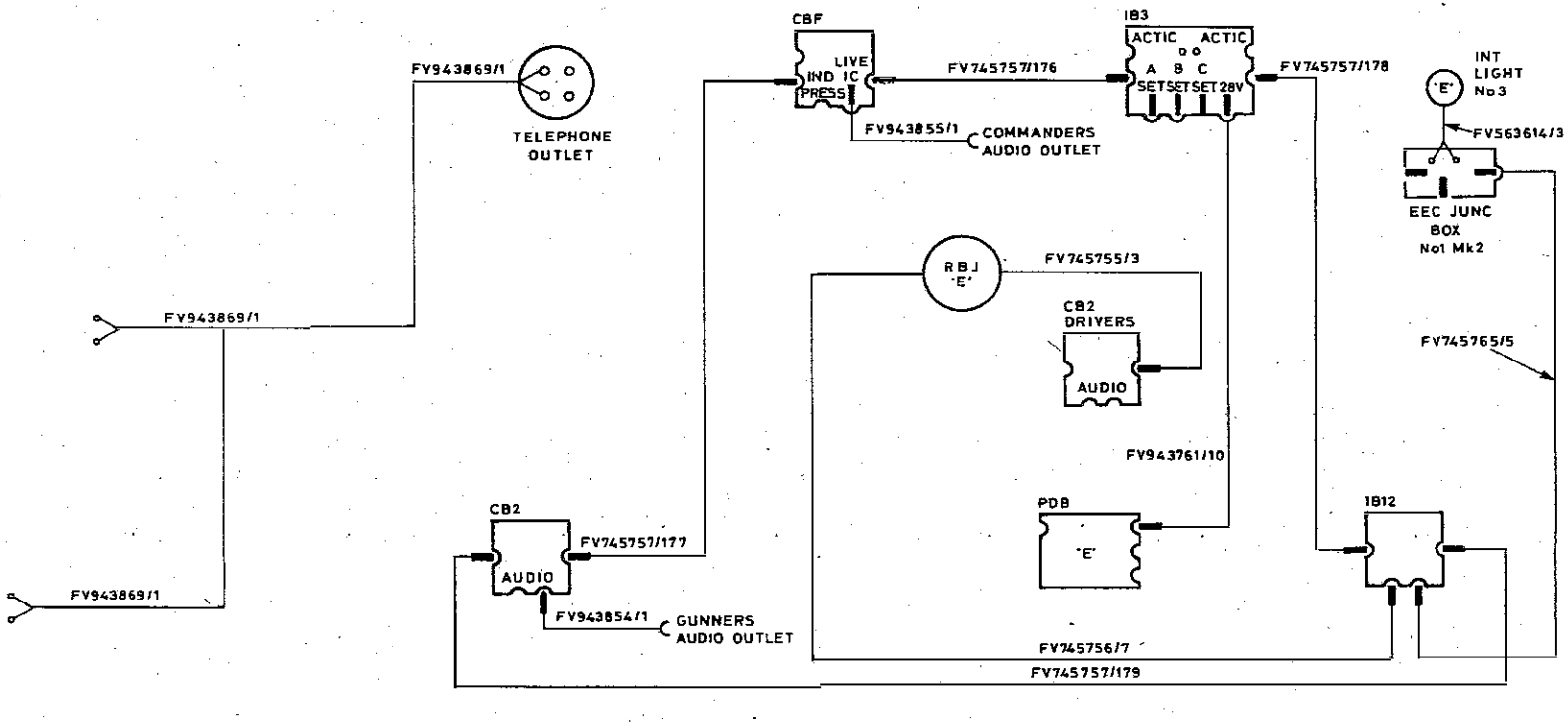
New cable clips

A	5340-99-736-2809	Qty 1
B	5340-99-771-6752	Qty 2
C	5340-99-736-2810	Qty 2
D	5340-99-771-6753	Qty 1
E	5340-99-771-6754	Qty 2
F	FV964639/27	Qty 1
G	5340-99-736-2808	Qty 1
H	5340-99-362-6580	Qty 2
J	5340-99-784-3906	Qty 4
K	5340-99-452-3888	Qty 1
L	5340-99-325-1947	Qty 1



NOTES ...
(1) PLAIN NUMBERS DEPICT THE ROUTEING AND CONNECTIONS OF CABLES TO BE INSTALLED.
(2) ▬ NEW CABLE CLIPS.

Fig 11 Cable routeing/connection diagram



Note...
Items identified as 'E' are existing vehicle fittings

Fig 12 Interconnection diagram

CVR(T) SABRE FITTED WITH UK/VRC 353A RADIO

CHAPTER 2-2

CES BRICK INSTALLATION INSTRUCTION

SUBJECT: Installation Kit Electronic Equipment for UK/VRC 353A Radio in CVR(T) SABRE

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19 UK/VRC 353A radio
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23 Function checks
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GENERAL INFORMATION

INTRODUCTION

1 The CVR(T) SABRE vehicle was developed as a result of the amalgamation of a CVR(W) FOX turret and a SCIMITAR/SCORPION hull. This instruction details the installation of a UK/VRC 353A Radio fitted to CVR(T) SABRE.

ESTIMATED TIME REQUIRED

2 The total time required to install the Basic Clansman Radio Control Harness is 3 man hours broken down as follows:

2.1 Installation of UK/VRC 353A Radio 3 man hours.

ACTION REQUIRED BY

3 The following actions are required:

3.1 Units affected. When instructions have been received through staff channels, demand the stores, and upon receipt, request REME to install the equipment.

3.2 REME and R. Signals Units authorised to carry out unit, field and base (REME only) repairs.

3.2.1 Install the equipment as detailed in these instructions.

3.2.2 Endorse the vehicle logbook AB 413 (revised) with the installation details.

STORES, TOOLS AND TEST EQUIPMENT

4 The following stores, tools and test equipment are required:

4.1 Stores to be demanded

4.1.1	CES 44551	Installation Kit Electronic Equipment for UK/VRC 353A Radio in CVR(T) SABRE	Qty 1

4.2 Stores to be obtained locally

Approved degreasing agent.

4.3 Stores to be manufactured

Nil.

4.4 Special tools

Nil.

4.5 Test equipment

4.5.1 6625-99-786-5771 Test Set, Bond Resistance DT 109.

ASSOCIATED PUBLICATIONS

5 The following publications are associated with this installation:

Code No.	Type	Title
5800-A-200-821	AESP	C^3I System Earth Bond Testing
6625-J-102	AESP	Test Set Bond Resistance DT 109
5995-C-100-521	AESP	C^3I System Cable Repair Techniques
COMMS INST A009 Misc Instr No. 3	EMER	Maintenance of Engineering Integrity
CES 44551	CES	IKEE UK/VRC 353A in CVR(T) SABRE
61393	UHB	Radio Station UK/VRC 353

INFORMATION

6 If any further information is required regarding this installation, application should be made to:

Commanding Officer
Electronics Branch REME
Leigh Sinton Road
MALVERN
Worcestershire, WR14 1LL.

giving all relevant details and quoting this AESP.

INSTALLATION

WARNING

SOLVENTS. WHEN WORKING WITH DEGREASING AGENTS ENSURE THAT BOTH THE VEHICLE AND THE WORKING AREA ARE ADEQUATELY VENTILATED.

CAUTION

EARTH BONDING. Earth bonding is an essential part of the installation. Poor bonding will degrade the performance leading to reduced operational range and susceptibility to RF interference (RFI). All earth bonding points, harness braids, screws, tapped holes and braid contact area must be free from paint and degreased using an approved solvent. This also applies to the raised metal rings of harness control boxes base belting.

GENERAL NOTES

7 The recommended procedure for the use of washers and earthing connections is given in AESP 5800-A-200-821, General Instruction No. 1.

8 The abbreviations l.h.s. and r.h.s. denote the left and right hand sides of the vehicle facing forward and viewed from the rear of the vehicle. All other references to the left and right hand are with respect to the observer facing the front of the equipment.

9 Table 1 lists the main kit items of this installation.

10 Table 2 lists the fixings, together with the operation for which each fixing item is required. These operations are listed 1 to 7 in Table 2 and correspond to operations 1 to 7 in the text.

11 The number shown in brackets after an item designation refers to the item number in Table 1.

PREPARATION OF VEHICLE

12 Before commencing installation, turn Battery Master Switch to OFF.

INSTALLATION OF CES ITEMS

WARNING SOLVENTS - SEE WARNING.

CAUTION EARTHING - SEE CAUTION.

Antenna base radio A

13 Remove the antenna cover plate, and gasket (fitted in B01) from the A radio antenna base outlet located on the vehicle LH side. Retain with the fixings for possible future use.

14 Feed the straight end of Cable Assembly (14) from inside turret through the centre hole in the antenna base mounting bracket (l.h.s.) and connect to the Antenna Base Assembly (1).

15 Secure the Antenna Base Assembly (1) to the mounting bracket as shown in Fig 1. (Operation 1).

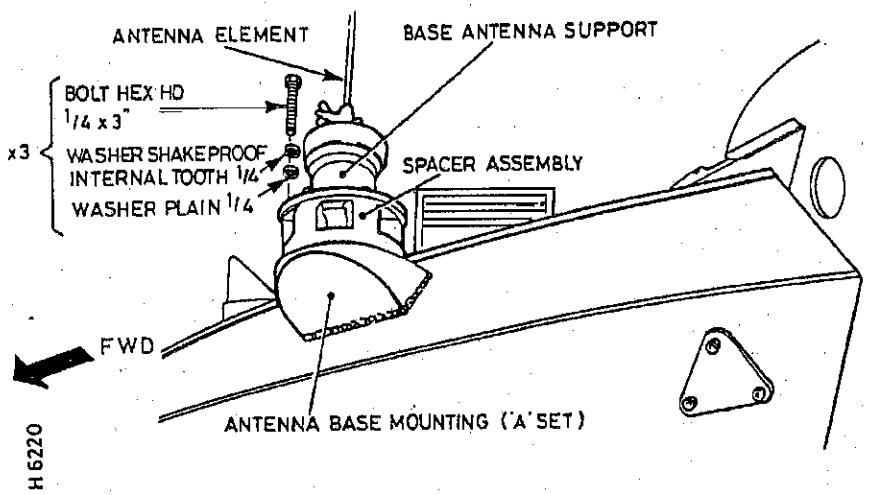


Fig 1 Antenna base assembly

TUAAM A

16 Fit the TUAAM (12) to the interior turret LH side, as shown in Fig 2:

16.1 Ensure that the l.h.s. plate is drilled in accordance with EMER Comms Inst J 705, Instr No. 0, Issue 2.

16.2 Locate the fixing holes on the interior turret l.h.s. rear for the mounting plate.

16.3 Fit Mounting Plate Assembly (9) over the fixing holes and secure. Secure one end of Lead Electrical (22) under the front RH fixing screw. (Operation 2).

16.4 Assemble Bushings Rubber (5 and 6) on TUAAM (12), refer to Fig 2.

16.5 Fit TUAAM (12) over the four studs on the Support Assembly (11), so that with the TUAAM facing forward the slotted part of the support assembly is on the r.h.s. of the equipment, and secure. (Operation 3).

16.6 Fit the support assembly and TUAAM to the Mounting Plate Assembly (9) fitted in para 16.3, and secure. (Operation 4).

16.7 Connect the free end of Cable Assembly (14) and Lead Electrical (22) to the TUAAM (12).

ARFAT A

17 Locate the ARFAT (4) over the two remaining holes on the Mounting Plate Assembly (9) and secure. Refer to Fig 2. (Operation 5).

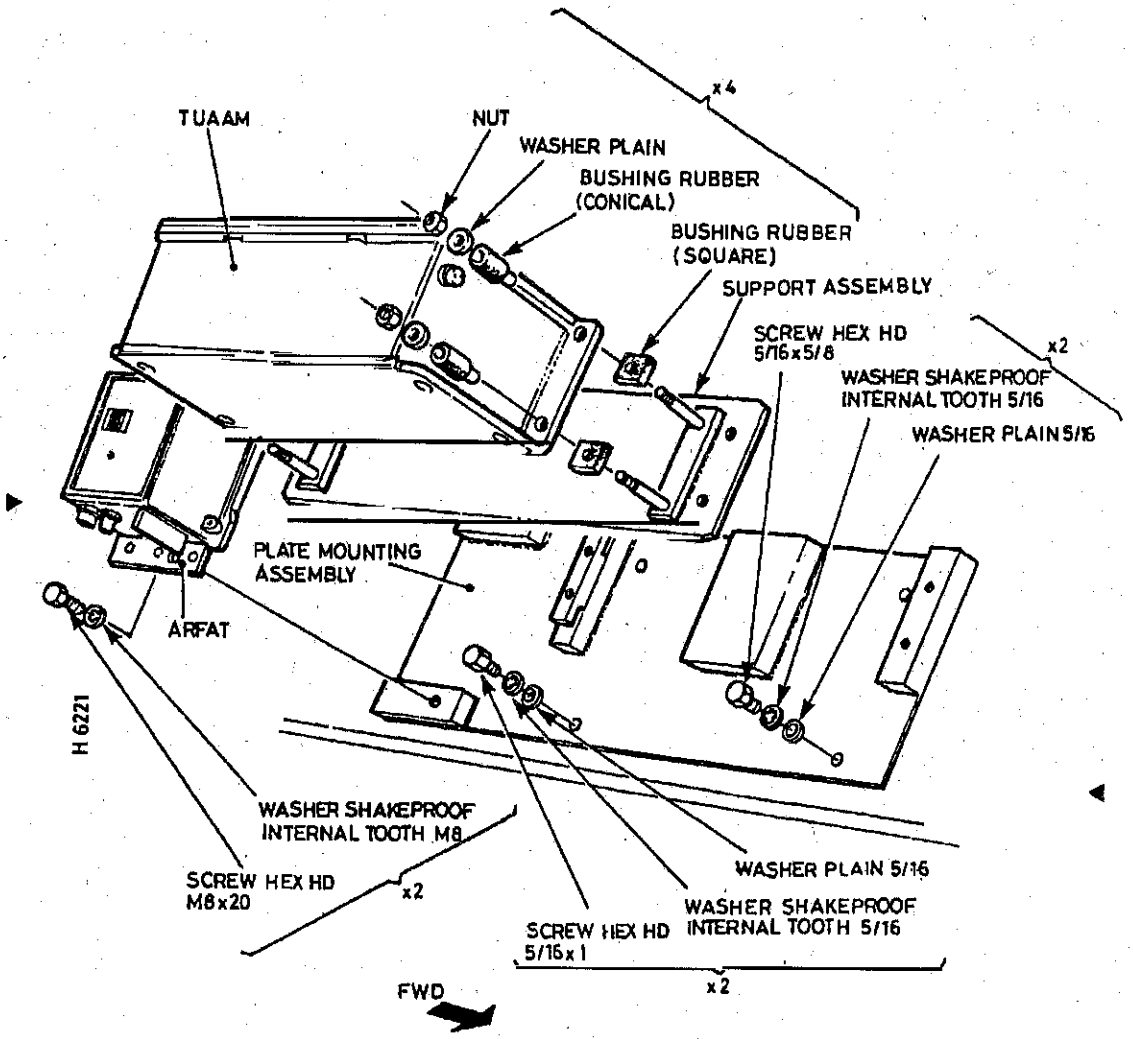


Fig 2 TUAAM and ARFAT mounting

Radio mounting bars

18 The UK/VRC 353A Radio is mounted on the rear sill to the r.h.s. of the B Radio set position. Fit the UK/VRC 353A Radio as shown in Fig 3:

18.1 Remove the radio tray from the rear sill plate and retain the fixings.

18.2 With reference to Fig 3, Fit a pair of Shockmounts (10) to Mounting Bar LH (7) and Mounting Bar RH (8). (Operation 6).

18.3 Position the radio tray so that the slot is on the RH side.

18.4 Fit the mounting bars and assembled shockmounts to the inner two sets of four holes on the r.h.s. of the radio tray, ensuring that the mounting bar securing clamps are towards the front. (Operation 7).

18.5 Replace the radio tray and secure with the retained fixings. Secure one end of Lead Electrical (21) under the front LH cable clip.

UK/VRC 353A radio

19 Unscrew and pull forward the clamping screws on the radio mounting bars. Locate the V-shaped slot entrances in the rear base of the radio with the alignment keys on the mountings, and slide the radio to the rear of the mountings until it engages with the dovetail wedges.

20 Tighten the clamping screws at the front of the radio mounting bars to secure the radio in position.

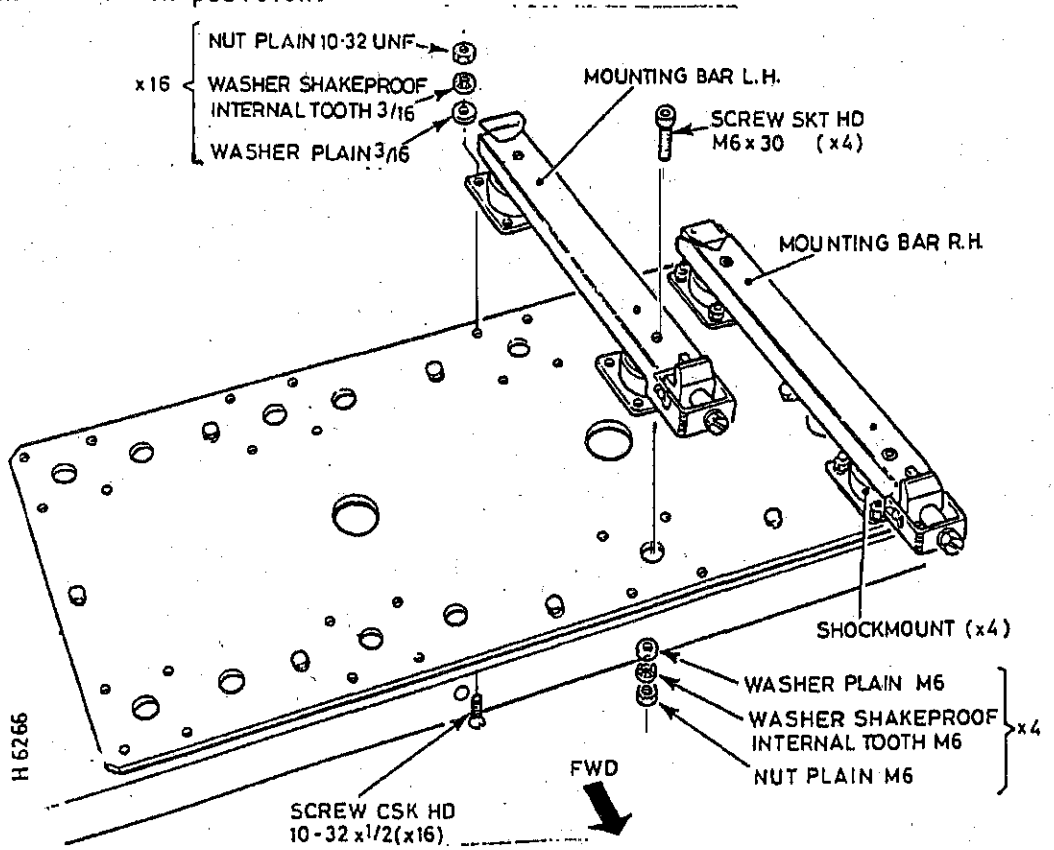


Fig 3 UK/VRC 353A radio mounting

21 Secure Lead Electrical (21) to the earth terminal on the front lip of the radio.

Cable assemblies

22 Route and connect all cable assemblies as shown in Fig 5, secure in runs using existing cable clips.

Function checks

23 Set the Battery Master Switch to ON, and check the operation of the UK/VRC 353A Radio in accordance with User Handbook 61393.

Redundant items

24 Return the following redundant items to stores:

24.1 Cover Plate 5820-99-634-2889 Qty 1

24.2 Gasket 5330-99-628-5068 Qty 1

TABLE 1 ITEMS REQUIRED TO INSTALL UK/VRC 353A RADIO IN CVR(T) SABRE

Item	Designation	FV No.	Nato Stock No.	Qty	
1	Antenna Base Assembly		5985-99-630-6495	1	
2	Antenna Element		5985-99-630-8456	1	
3	Antenna Element		5985-99-630-8457	1	
4	ARFAT		5820-99-630-6465	1	
5	Bushing Rubber		5340-99-949-1084	4	
6	Bushing Rubber		5340-99-949-1043	4	
7	Mounting Bar LH		5820-99-620-0062	1	
8	Mounting Bar RH		5820-99-620-0061	1	
9	Mounting Plate Assembly	FV990199		1	
10	Shockmount		5340-99-102-7802	4	
11	Support Assembly	FV989869		1	
12	TUAAM		5821-99-630-6156	1	
13	UK/VRC 353 Radio Station		5820-99-114-3159	1	
	Cable Assemblies				
14	Cable Assembly	FV745829/65	5995-99-661-4923	1	TUAAM - ANT
15	Cable Assembly	FV745837/51	5995-99-661-4924	1	ARFAT-TUAAM
16	Cable Assembly	FV745811/54	5995-99-647-7500	1	ARFAT-TUAAM
17	Cable Assembly	FV943761/11	5995-99-661-4926	1	PDB - Radio
18	Cable Assembly	FV943774/16	5995-99-661-4928	1	IB3 - Radio
19	Cable Assembly	FV745757/174	5995-99-661-4914	1	ARFAT-Radio
20	Cable Assembly	FV745811/118	5995-99-661-4922	1	Radio-ARFAT
21	Lead Electrical	FV943811/16	5995-99-661-4930	1	Radio-Earth
22	Lead Electrical	FV943811/11	5995-99-661-0160	1	TUAAM-Earth

TABLE 2 FIXINGS DETAIL

1. Antenna base assembly
2. Mounting plate assembly
3. TUAAM
4. Support assembly and TUAAM A
5. ARFAT
6. Mounting bar LH and RH
7. Shockmounts

Designation	NSN/FV No.	Operation No.						
		1	2	3	4	5	6	7
Bolt, hex hd 1/4 UNC x 3 lg	5306-99-941-1529	3						
Screw, hex hd, 5/16 UNC x 1 lg stl zinc pl	5305-99-941-0700		2					
Screw, hex hd, 5/16 UNC 5/8 lg stl zinc pl	5305-99-941-0697		2					
Screw, hex hd, M8 x 20 lg stl zinc pl	5305-99-122-5366				2	2		
Screw, skt hd, M6 x 30 lg stl zinc pl	5305-99-122-3078						4	
Screw, csk hd, 10-32 UNF x 1/2 lg stl zinc pl	5305-99-941-1738							16
Nut, ordinary M6 stl	5310-99-122-5295			4			4	
Nut, plain 10-32 UNF	5310-99-941-2419							16
Washer, shakeproof, internal tooth 1/4 stl	5310-99-100-6945	3						
Washer, shakeproof, internal tooth 5/16 stl	5310-99-101-0187		4					
Washer shakeproof, internal tooth M6 stl	5310-99-138-8379			4			4	
Washer shakeproof, internal tooth 3/16 stl	5310-99-914-0112							16
Washer shakeproof, internal tooth M8 stl	5310-99-636-4996				2	2		
Washer plain, 1/4 stl	5310-99-120-4032	3						
Washer plain, 5/16 stl	5310-99-941-8608		4					
Washer plain, M6 stl	5310-99-122-6474						4	
Washer plain, 3/16 stl	5310-99-941-8179							16
Washer plain, M6 large dia, Form G, stl	5310-99-139-0070			4				
Washer plain, M8 stl	5310-99-122-6475				2	2		

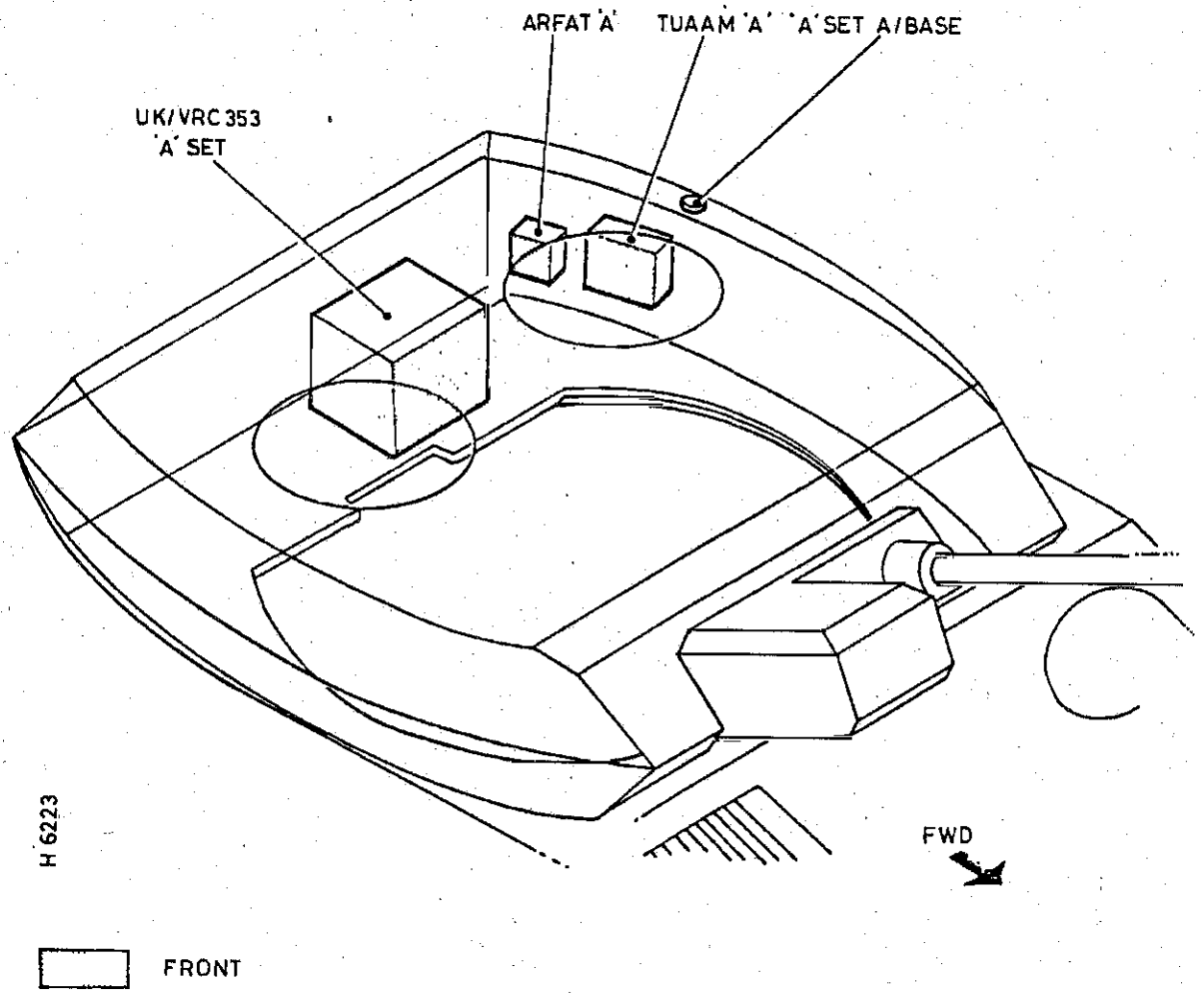
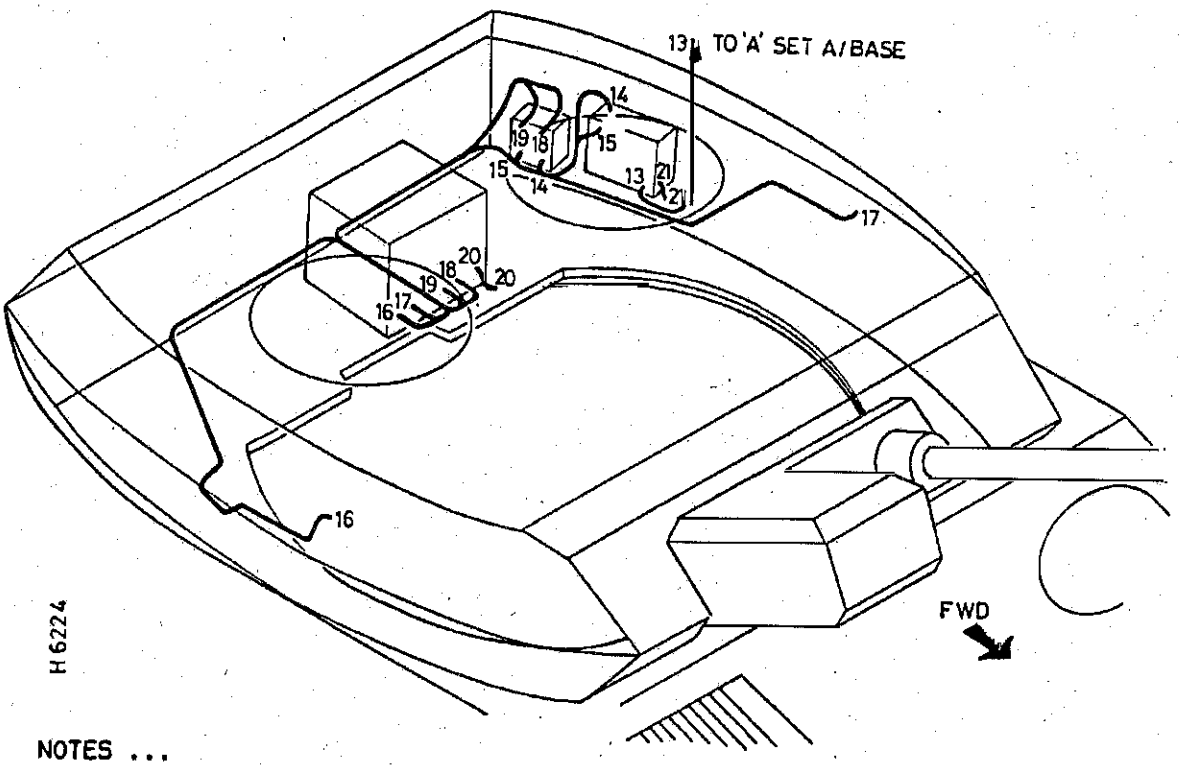


Fig 4 Location diagram

CABLE ROUTEING/CONNECTIONS

Ref No.	Part No.	Cable Type	Route/Connection
13	FV745829/65	co-ax	TUAAM A-Antenna A
14	FV745837/51	4 way	ARFAT A-TUAAM A
15	FV745811/54	co-ax	ARFAT A-TUAAM A
16	FV943761/11	2 way	PDB - Radio A
17	FV943774/16	6 way	IB3 - Radio A
18	FV745757/174	12 + screen	ARFAT A-Radio A
19	FV745811/118	co-ax	Radio A-ARFAT A
20	FV943811/16	Braid	Radio A-Earth
21	FV943811/11	Braid	TUAAM A-Earth



NOTES ...
(1) PLAIN NUMBERS DEPICT THE ROUTEING AND CONNECTIONS OF CABLES TO BE INSTALLED.
(2) ▬ NEW CABLE CLIPS.

Fig 5 Cable routeing/connection diagram

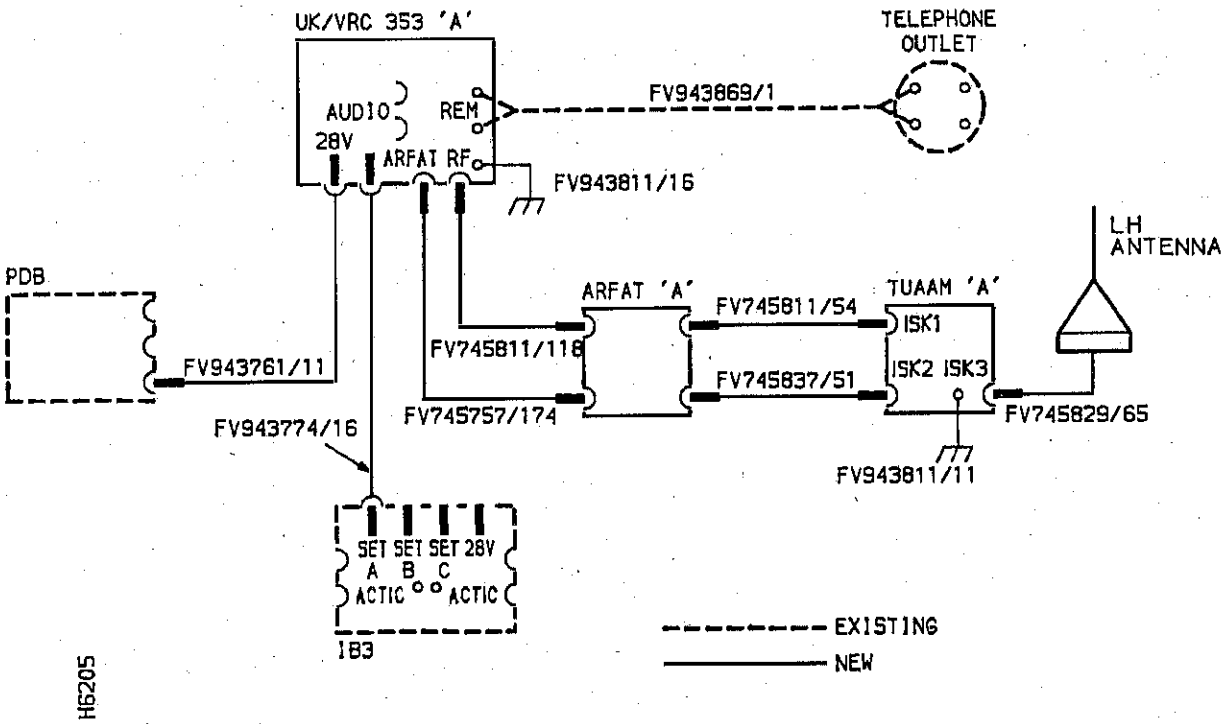


Fig 6 Interconnection diagram

CVR(T) SABRE FITTED WITH UK/VRC 353B RADIO

CHAPTER 2-3

CES BRICK INSTALLATION INSTRUCTION

SUBJECT: Installation Kit Electronic Equipment for UK/VRC 353B Radio in CVR(T) SABRE

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12 Preparation of vehicle
Installation of CES items (WARNING) (CAUTION)
13 Antenna base radio B
16 TUAAM B
17 ARFAT B
18 Radio mounting bars
19 UK/VRC 353B radio
22 Cable assemblies
23 Function checks
24 Redundant items

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2 Fixings detail — 8

Fig

1 Antenna base assembly — 4
2 TUAAM and ARFAT mounting — 5
3 UK/VRC 353B radio mounting — 6
4 Location diagram — 9
5 Cable routeing/connection diagram — 11
6 Interconnection diagram — 12

GENERAL INFORMATION

INTRODUCTION

1 The CVR(T) SABRE vehicle was developed as a result of the amalgamation of a CVR(W) FOX turret and a SCORPION hull. This instruction details the installation of a UK/VRC 353B Radio fitted to CVR(T) SABRE.

ESTIMATED TIME REQUIRED

2 The total time required to install the UK/VRC 353B Radio is 3 man hours broken down as follows:

2.1 Installation of UK/VRC 353B Radio 3 man hours.

ACTION REQUIRED BY

3 The following actions are required:

3.1 Units affected. When instructions have been received through staff channels, demand the stores, and upon receipt, request REME to install the equipment.

3.2 REME and R. Signals Units authorised to carry out unit, field and base (REME only) repairs.

3.2.1 Install the equipment as detailed in these instructions.

3.2.2 Endorse the vehicle logbook AB 413 (revised) with the installation details.

STORES, TOOLS AND TEST EQUIPMENT

4 The following stores, tools and test equipment are required:

4.1 Stores to be demanded

4.1.1 CES 44548 Installation Kit Electronic Equipment for UK/VRC 353B Radio in CVR(T) SABRE Qty 1

4.2 Stores to be obtained locally

Approved degreasing agent.

4.3 Stores to be manufactured

Nil.

4.4 Special tools

Nil.

4.5 Test equipment

4.5.1 6625-99-786-5771 Test Set, Bond Resistance DT 109.

ASSOCIATED PUBLICATIONS

5 The following publications are associated with this installation:

Code No.	Type	Title
5800-A-200-821	AESP	C^3I System Earth Bond Testing
6625-J-102	AESP	Test Set Bond Resistance DT 109
5995-C-100-521	AESP	C^3I System Cable Repair Techniques
COMMS INST A009 Misc Instr No. 3	EMER	Maintenance of Engineering Integrity
CES 44548	CES	IKEE UK/VRC 353B in CVR(T) SABRE
61393	UHB	Radio Station UK/VRC 353

INFORMATION

6 If any further information is required regarding this installation, application should be made to:

Commanding Officer
Electronics Branch REME
Leigh Sinton Road
MALVERN
Worcestershire, WR14 1LL.

giving all relevant details and quoting this AESP.

INSTALLATION

WARNING

SOLVENTS. WHEN WORKING WITH DEGREASING AGENTS ENSURE THAT BOTH THE VEHICLE AND THE WORKING AREA ARE ADEQUATELY VENTILATED.

CAUTION

EARTHING. Good earthing is essential for the efficient working of this installation. All earthing points must be scraped down to bare metal and cleaned with an approved solvent. This also applies to the raised metal rings around fixing holes of the units employing base belting.

GENERAL NOTES

7 The recommended procedure for the use of washers and earthing connections is given in AESP 5800-A-200-821, General Instruction No. 1.

8 The abbreviations l.h.s. and r.h.s. denote the left and right hand sides of the vehicle facing forward and viewed from the rear of the vehicle. All other references to the left and right hand are with respect to the observer facing the front of the equipment.

9 Table 1 lists the main kit items of this installation.

10 Table 2 lists the fixings, together with the operation for which each fixing item is required. These operations are listed 1 to 7 in Table 2 and correspond to operations 1 to 7 in the text.

11 The number shown in brackets after an item designation refers to the item number in Table 1.

PREPARATION OF VEHICLE

12 Before commencing installation, turn Battery Master Switch to OFF.

INSTALLATION OF CES ITEMS

WARNING SOLVENTS - SEE WARNING.

CAUTION EARTHING - SEE CAUTION.

Antenna base radio B

13 Remove the antenna cover plate, and gasket (fitted in B01) from the B radio antenna base outlet located on the vehicle RH side. Retain with the fixings for possible future use.

14 Feed the straight end of Cable Assembly (14) from inside turret through the centre hole in the antenna base mounting bracket (r.h.s.) and connect to the Antenna Base Assembly (1).

15 Secure the Antenna Base Assembly (1) to the mounting bracket as shown in Fig 1. (Operation 1).

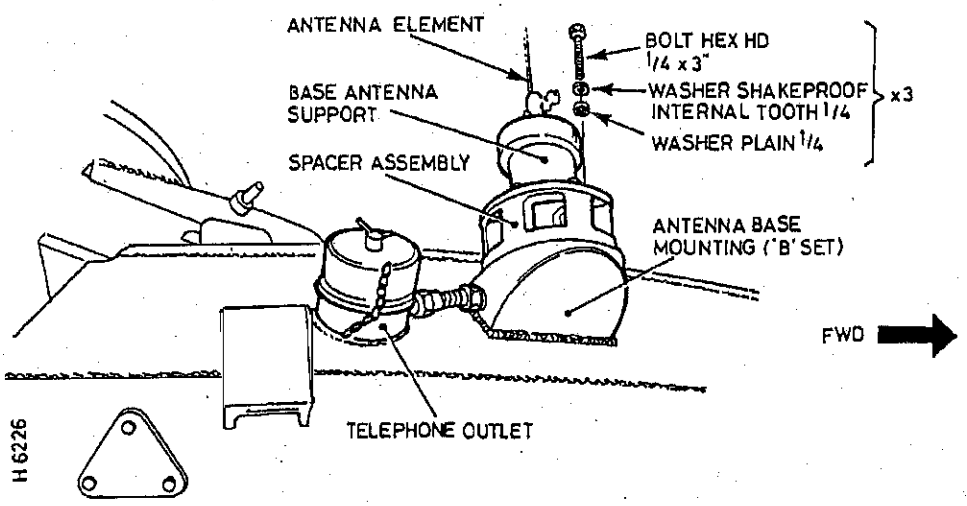


Fig 1 Antenna base assembly

TUAAM B

16 Fit the TUAAM (12) to the interior turret RH side, as shown in Fig 2:

16.1 Ensure that the r.h.s. plate is drilled in accordance with EMER Comms Inst J 705, Instr No. 0, Issue 2.

16.2 Locate the three fixing holes in a triangular formation on the interior turret r.h.s. rear.

16.3 Fit Mounting Plate Assembly (9) over the three fixing holes and secure. Secure one end of Lead Electrical (22) under the front RH fixing screw. (Operation 2).

16.4 Assemble Bushings Rubber (5 and 6) on TUAAM (12), refer to Fig 2.

16.5 Fit TUAAM (12) over the four studs on the Support Assembly (11), so that with the TUAAM facing forward the slotted part of the support assembly is on the r.h.s. of the equipment, and secure. (Operation 3).

16.6 Fit the support assembly and TUAAM to the Mounting Plate Assembly (9) fitted in para 16.3, and secure. (Operation 4).

16.7 Connect the free end of Cable Assembly (14) and Lead Electrical (22) to the TUAAM (12).

ARFAT B

17 Locate the ARFAT (4) over the two remaining holes on the Mounting Plate Assembly (9) and secure. Refer to Fig 2. (Operation 5).

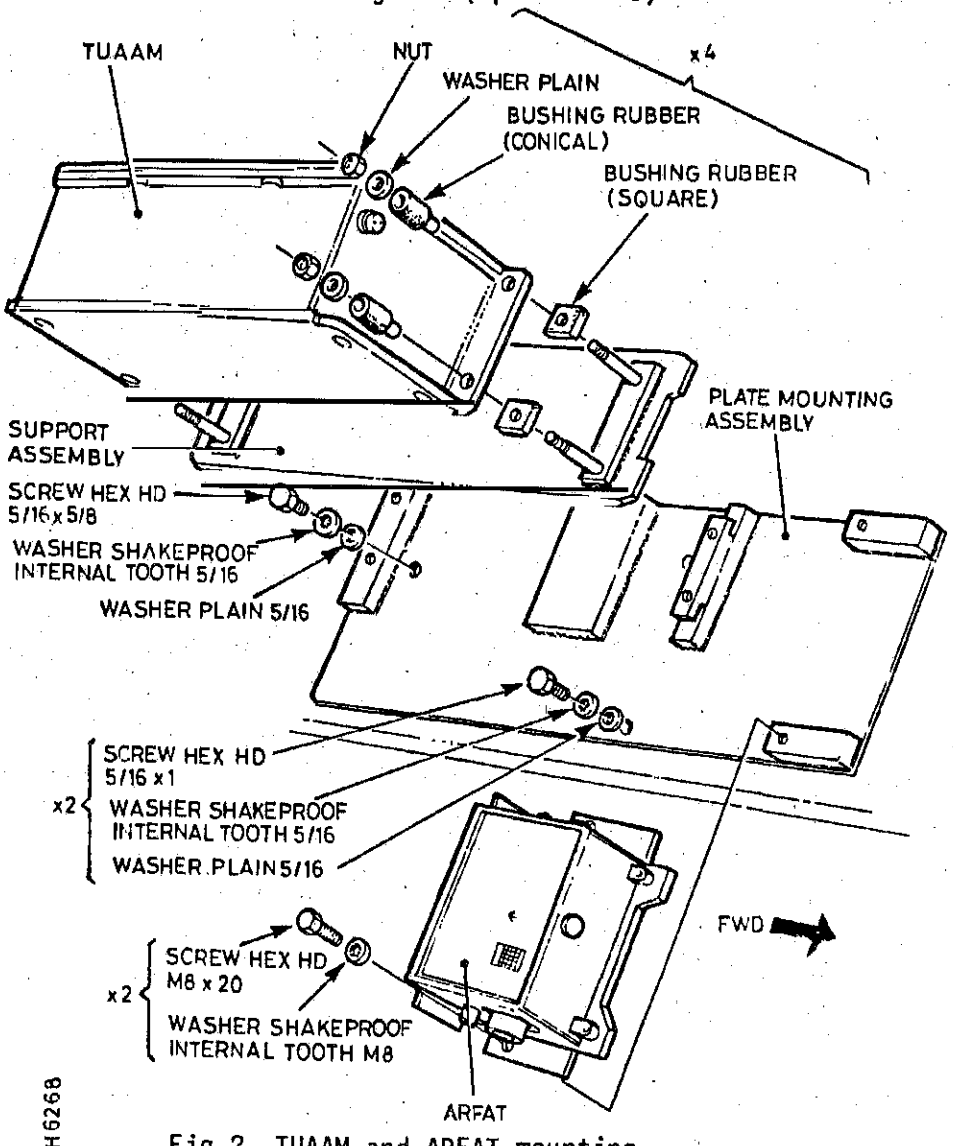


Fig 2 TUAAM and ARFAT mounting

Radio mounting bars

18 The UK/VRC 353B Radio is mounted on the rear sill to the l.h.s. of the A Radio set. Fit the UK/VRC 353B Radio as shown in Fig 3:

18.1 Remove the radio tray from the rear sill plate and retain the fixings.

18.2 With reference to Fig 3, Fit a pair of Shockmounts (10) to Mounting Bar LH (7) and Mounting Bar RH (8). (Operation 6).

18.3 Position the radio tray so that the slot is on the RH side.

18.4 Fit the mounting bars and assembled shockmounts to the inner two sets of four holes on the l.h.s. of the radio tray, ensuring that the mounting bar securing clamps are towards the front. (Operation 7).

18.5 Replace the radio tray and secure with the retained fixings. Secure one end of Lead Electrical (21) under the front RH cable clip.

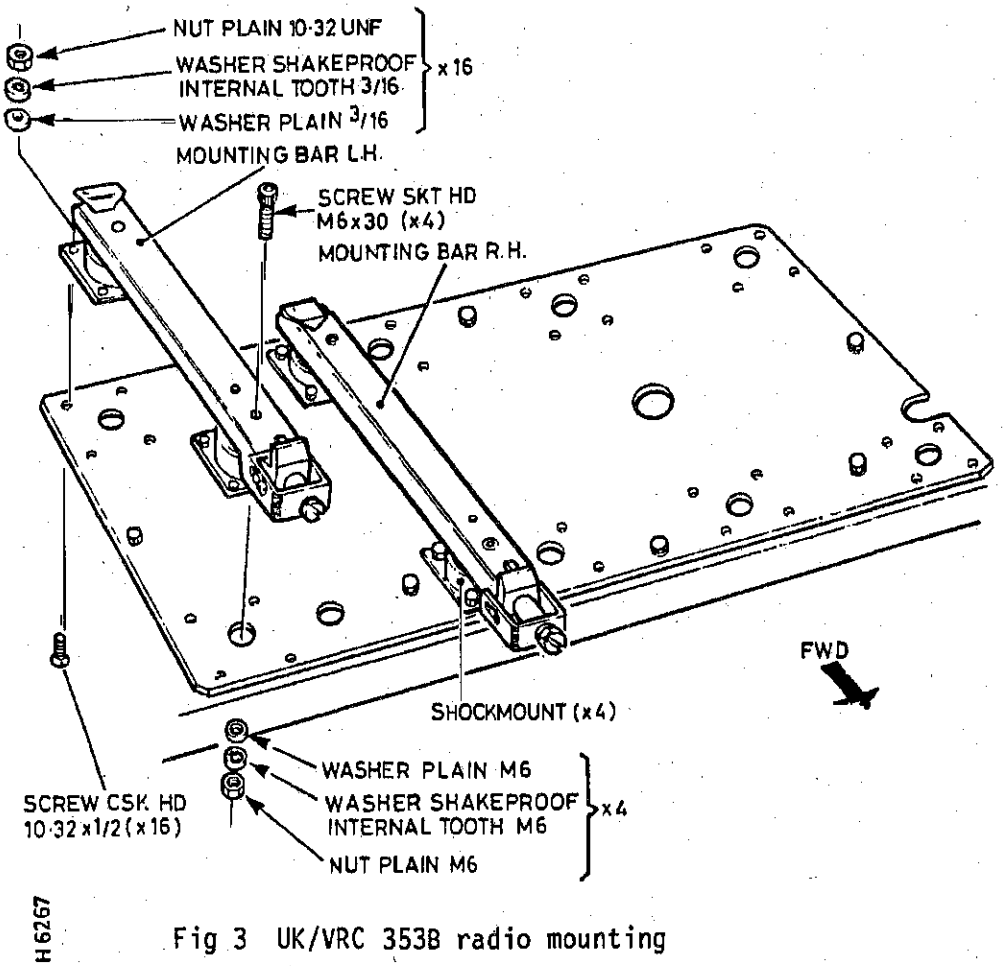


Fig 3 UK/VRC 353B radio mounting

UK/VRC 353B radio

19 Unscrew and pull forward the clamping screws on the radio mounting bars. Locate the V-shaped slot entrances in the rear base of the radio with the alignment keys on the mountings, and slide the radio to the rear of the mountings until it engages with the dovetail wedges.

20 Tighten the clamping screws at the front of the radio mounting bars to secure the radio in position.

21 Secure Lead Electrical (21) to the earth terminal on the front lip of the radio.

Cable assemblies

22 Route and connect all cable assemblies as shown in Fig 5, secure in runs using existing cable clips.

Function checks

23 Set the Battery Master Switch to ON, and check the operation of the UK/VRC 353B Radio in accordance with User Handbook 61393.

Redundant items

24 Return the following redundant items to stores:

24.1 Cover Plate 5820-99-634-2889 Qty 1

24.2 Gasket 5330-99-628-5068 Qty 1

TABLE 1 ITEMS REQUIRED TO INSTALL UK/VRC 353B RADIO IN CVR(T) SABRE

Item	Designation	FV No.	Nato Stock No.	Qty	
1	Antenna Base Assembly		5985-99-630-6495	1	
2	Antenna Element		5985-99-630-8456	1	
3	Antenna Element		5985-99-630-8457	1	
4	ARFAT		5820-99-630-6465	1	
5	Bushing Rubber		5340-99-949-1084	4	
6	Bushing Rubber		5340-99-949-1043	4	
7	Mounting Bar LH		5820-99-620-0062	1	
8	Mounting Bar RH		5820-99-620-0061	1	
9	Mounting Plate Assembly	FV990200		1	
10	Shockmount		5340-99-102-7802	4	
11	Support Assembly	FV989869		1	
12	TUAAM		5821-99-630-6156	1	
13	UK/VRC 353 Radio Station		5820-99-114-3159	1	
	Cable Assemblies				
14	Cable Assembly	FV745829/65	5995-99-661-4923	1	TUAAM - ANT
15	Cable Assembly	FV745837/51	5995-99-661-4924	1	ARFAT-TUAAM
16	Cable Assembly	FV745811/54	5995-99-647-7500	1	ARFAT-TUAAM
17	Cable Assembly	FV943761/12	5995-99-661-4927	1	PDB - Radio
18	Cable Assembly	FV943774/17	5995-99-661-4929	1	IB3 - Radio
19	Cable Assembly	FV745757/175	5995-99-661-4915	1	ARFAT-Radio
20	Cable Assembly	FV745811/118	5995-99-661-4922	1	Radio-ARFAT
21	Lead Electrical	FV943811/16	5995-99-661-4930	1	Radio-Earth
22	Lead Electrical	FV943811/11	5995-99-661-0160	1	TUAAM-Earth

TABLE 2. FIXINGS DETAIL

1. Antenna base assembly
2. Mounting plate assembly
3. TUAAM
4. Support assembly and TUAAM B
5. ARFAT
6. Mounting bar LH and RH
7. Shockmounts

Designation	NSN/FV No.	Operation No.						
		1	2	3	4	5	6	7
Bolt, hex hd 1/4 UNC x 3 lg	5306-99-941-1529	3						
Screw, hex hd, 5/16 UNC x 1 lg stl zinc pl	5305-99-941-0700		2					
Screw, hex hd, 5/16 UNC 5/8 lg stl zinc pl	5305-99-941-0697		1					
Screw, hex hd, M8 x 20 lg stl zinc pl	5305-99-122-5366				2	2		
Screw, skt hd, M6 x 30 lg stl zinc pl	5305-99-122-3078						4	
Screw, csk hd, 10-32 UNF x 1/2 lg stl zinc pl	5305-99-941-1738							16
Nut, ordinary M6 stl	5310-99-122-5295			4			4	
Nut, plain 10-32 UNF	5310-99-941-2419							16
Washer, shakeproof, internal tooth 1/4 stl	5310-99-100-6945	3						
Washer, shakeproof, internal tooth 5/16 stl	5310-99-101-0187		3					
Washer shakeproof, internal tooth M6 stl	5310-99-138-8379			4			4	
Washer shakeproof, internal tooth 3/16 stl	5310-99-914-0112							16
Washer shakeproof, internal tooth M8 stl	5310-99-636-4996				2	2		
Washer plain, 1/4 stl	5310-99-120-4032	3						
Washer plain, 5/16 stl	5310-99-941-8608		3					
Washer plain, M6 stl	5310-99-122-6474						4	
Washer plain, 3/16 stl	5310-99-941-8179							16
Washer plain, M6 large dia, Form G, stl	5310-99-139-0070			4				
Washer plain, M8 stl	5310-99-122-6475				2	2		

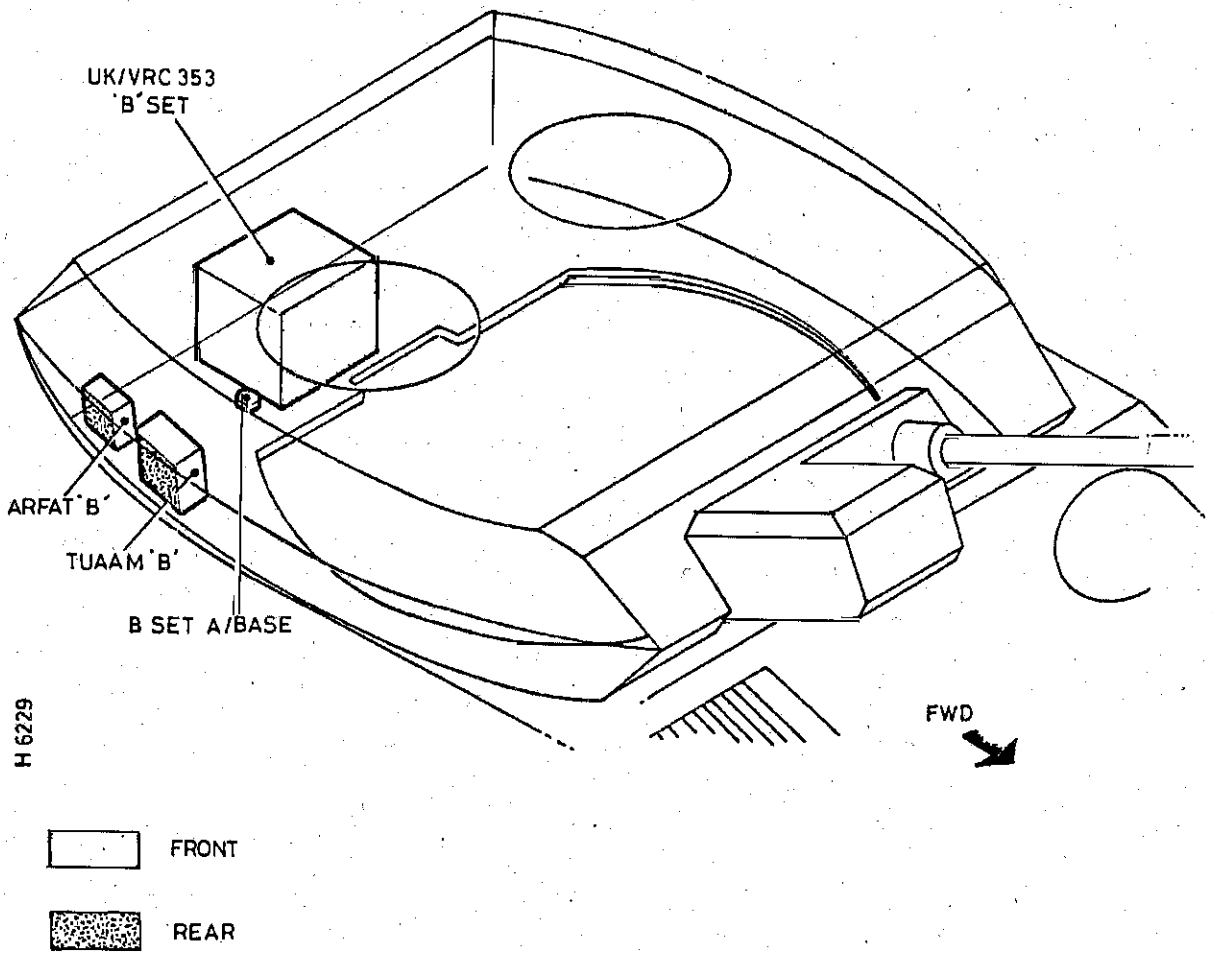
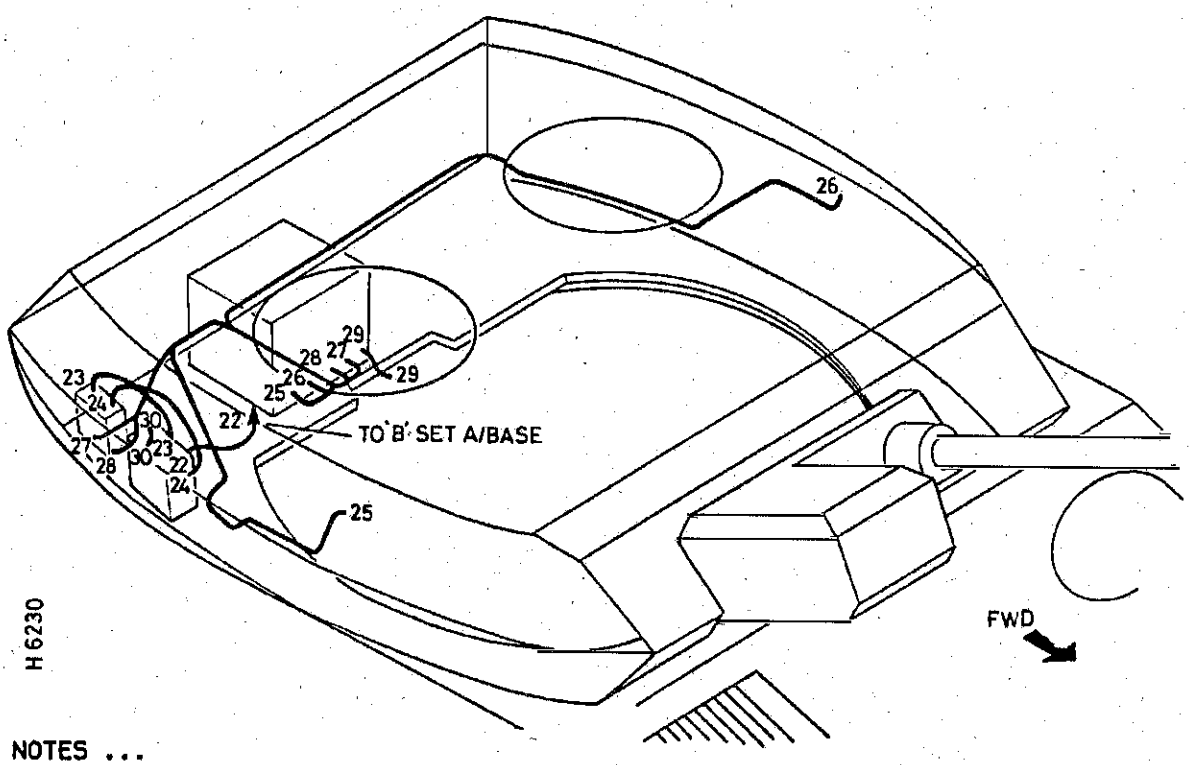


Fig 4 Location diagram

CABLE ROUTEING/CONNECTIONS

Ref No.	Part No.	Cable Type	Route/Connection
22	FV745829/65		TUAAM B-Antenna B
23	FV745837/51		ARFAT B-TUAAM B
24	FV745811/54		ARFAT B-TUAAM B
25	FV943761/12		PDB - Radio B
26	FV943774/17		IB3 - Radio B
27	FV745757/175		ARFAT B-Radio B
28	FV745811/118		Radio B-ARFAT B
29	FV943811/16		Radio B-Earth
30	FV943811/11		TUAAM B-Earth



NOTES ...
(1) PLAIN NUMBERS DEPICT THE ROUTEING AND CONNECTIONS OF CABLES TO BE INSTALLED.
(2) ▬ NEW CABLE CLIPS.

Fig 5 Cable routeing/connection diagram

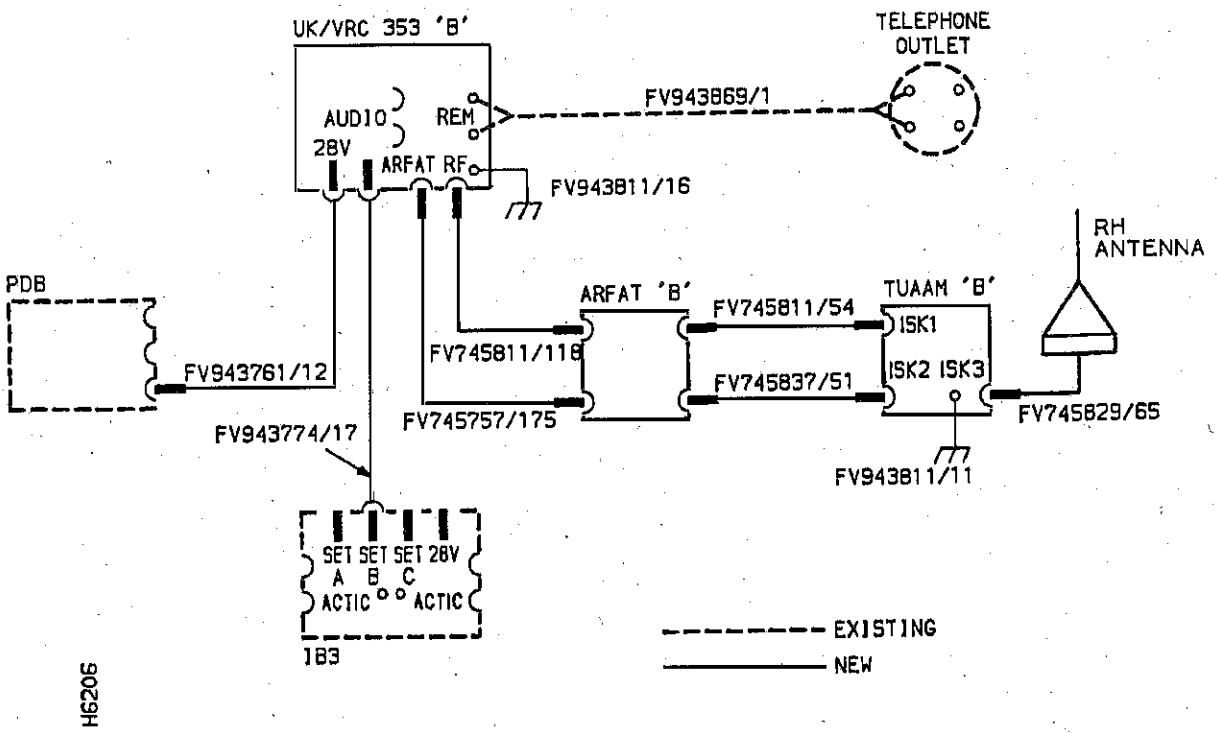


Fig 6 Interconnection diagram

CVR(T) SABRE FITTED WITH D.C. CHARGING UNIT (DCCU) AND BATTERY HOLDER

CHAPTER 2-4

CES BRICK INSTALLATION INSTRUCTION

SUBJECT: Installation Kit Electronic Equipment for DCCU in CVR(T) SABRE

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2 Fixings detail 6

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1 DCCU and battery holder 5
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3 Cable routeing/connection diagram 9
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GENERAL INFORMATION

INTRODUCTION

1 The CVR(T) SABRE vehicle was developed by the amalgamation of a CVR(W) FOX turret and a SCIMITAR/SCORPION hull. This instruction details the installation of a D.C. Charging Unit (DCCU) and bracket to hold three Clansman man pack radio batteries.

ESTIMATED TIME REQUIRED

2 The total time required to install the DCCU and Battery Holder is 2 man hours broken down as follows:

2.1 Installation of DCCU and Battery Holder 2 man hours.

ACTION REQUIRED BY

3 The following actions are required:

3.1 Units affected. When instructions have been received through staff channels, demand the stores, and upon receipt, request REME to install the equipment.

3.2 REME and R. Signals Units authorised to carry out unit, field and base (REME only) repairs.

3.2.1 Install the equipment as detailed in these instructions.

3.2.2 Endorse the vehicle logbook AB 413 (revised) with the installation details.

STORES, TOOLS AND TEST EQUIPMENT

4 The following stores, tools and test equipment are required:

4.1 Stores to be demanded

4.1.1	CES 46781	Installation Kit Electronic Equipment for DCCU in CVR(T) SABRE	Qty 1

4.2 Stores to be obtained locally

Approved degreasing agent.

4.3 Stores to be manufactured

Nil.

4.4 Special tools

Nil.

4.5 Test equipment

4.5.1 6625-99-786-5771 Test Set, Bond Resistance DT 109.

ASSOCIATED PUBLICATIONS

5 The following publications are associated with this installation:

Code No.	Type	Title
5800-A-200-821	AESP	C^3I System Earth Bond Testing
6625-J-102	AESP	Test Set Bond Resistance DT 109
5995-C-100-521	AESP	C^3I System Cable Repair Techniques
COMMS INST A009 Misc Instr No. 3	EMER	Maintenance of Engineering Integrity
CES 46781	CES	IKEE for DCCU in CVR(T) SABRE

INFORMATION

6 If any further information is required regarding this installation, application should be made to:

Commanding Officer
Electronics Branch REME
Leigh Sinton Road
MALVERN
Worcestershire, WR14 1LL.

giving all relevant details and quoting this AESP.

INSTALLATION

WARNING

SOLVENTS. WHEN WORKING WITH DEGREASING AGENTS ENSURE THAT BOTH THE VEHICLE AND THE WORKING AREA ARE ADEQUATELY VENTILATED.

CAUTION

EARTH BONDING. Earth bonding is an essential part of the installation. Poor bonding will degrade the performance leading to reduced operational range and susceptibility to RF interference (RFI). All earth bonding points, harness braids, screws, tapped holes and braid contact area must be free from paint and degreased using an approved solvent. This also applies to the raised metal rings of harness control boxes base belting.

GENERAL NOTES

7 The recommended procedure for the use of washers and earthing connections is given in AESP 5800-A-200-821, General Instruction No. 1.

8 The abbreviations l.h.s. and r.h.s. denote the left and right hand sides of the vehicle facing forward and viewed from the rear of the vehicle. All other references to the left and right hand are with respect to the observer facing the front of the equipment.

9 Table 1 lists the main kit items of this installation.

10 Table 2 lists the fixings, together with the operation for which each fixing item is required. These operations are listed 1 to 2 in Table 2 and correspond to operations 1 to 2 in the text.

11 The number shown in brackets after an item designation refers to the item number in Table 1.

PREPARATION OF VEHICLE

12 Before commencing installation, turn Battery Master Switch to OFF.

INSTALLATION OF CES ITEMS

WARNING SOLVENTS - SEE WARNING.

CAUTION EARTHING - SEE CAUTION.

DCCU and battery holder

13 Fit screw csk M6 x 25 to the RH flange of the DCCU (part of item 5) with one each off M6 washer shakeproof and nut.

14 Fit Lead Electrical (7) between the DCCU and the RH rear fixing screw on the Mounting Assembly (3) using one off washer shakeproof M6, then fit the Lead Electrical (7), another washer shakeproof M6 and finally one off nut M6.

15 Remove the DCCU quick release plate from the Mounting Assembly (3) by removing the M8 fixings. Retain the fixings for re-use.

16 Fit the DCCU to the quick release plate, with the release plate lugs on the l.h.s. Refer to Fig 1. (Operation 1).

17 Refit the DCCU and quick release plate to the Mounting Assembly (3) using the retained fixings.

18 Lay in Cable Assembly (6), as shown in Fig 3, and secure into the existing cable run with the existing cable clips. Connect to socket 4 of the turret power distribution box.

19 Position the Mounting Assembly (3), with the DCCU to the rear, on the turret sill to the right of the UK/VRC 353A Radio, as shown in Fig 2. Fit a Spacer (4) under each of the corner fixing holes and secure. (Operation 2).

20 Secure the three Radio Batteries in their holder and connect the DCCU to battery cable (part of item 5), between the DCCU and any battery.

Function checks

21 Set the Battery Master Switch to ON, and check the operation of the DCCU.

Redundant items

22 Nil.

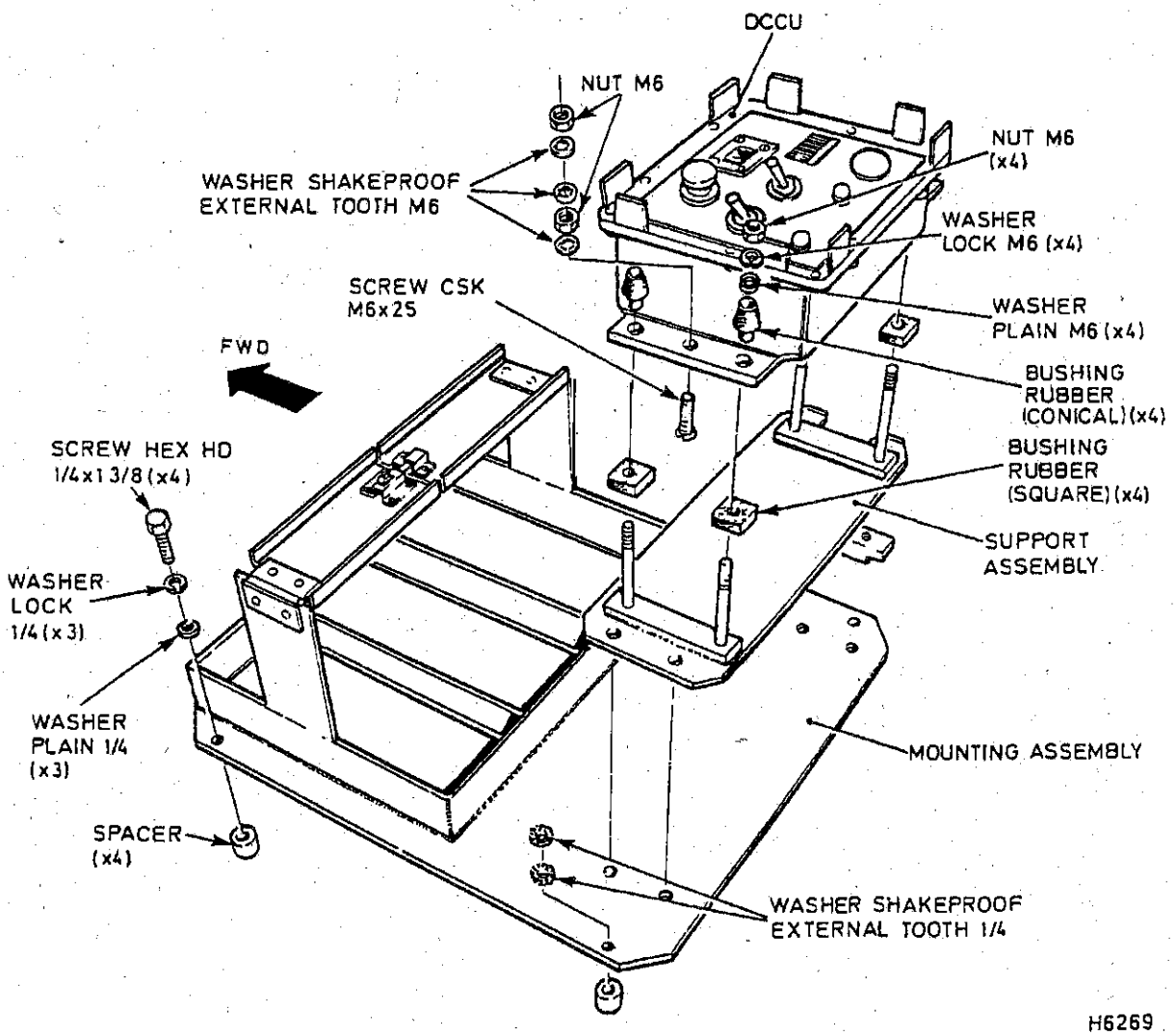


Fig 1 DCCU and battery holder

TABLE 1 ITEMS REQUIRED TO INSTALL DCCU IN CVR(T) SABRE

Item	Designation	FV No.	Nato Stock No.	Qty
1	Bushing Rubber - square		5365-99-949-1043	4
2	Bushing Rubber - conical		5365-99-949-1084	4
3	Mounting Assembly	FV2137027		1
4	Spacer	FV2051884		4
5	Station Kit Battery Charging		5820-99-628-9655	1
	Cable Assemblies			
6	Cable Assembly	FV2050950/1		1 DCCU - PDB
7	Lead Electrical	FV2053549/1		1 DCCU-Earth

TABLE 2 FIXINGS DETAIL

1. DCCU
2. Mounting assembly

Designation	NSN/FV No.	Operation No.	
		1	2
Screw, hex hd 1/4 UNC x 1 3/8 lg stl zinc pl	5305-99-760-2716		4
Screw, csk hd M6 x 25 lg stl zinc pl	5305-99-122-5292	1	
Nut, plain M6	5310-99-122-5295	6	
Washer, lock s/coil 1/4 stl zinc pl	5310-99-134-3860		3
Washer, lock s/coil M6 stl zinc pl	5310-99-137-9232	4	
Washer shakeproof, external tooth, 1/4 stl	5310-99-100-7777		2
Washer shakeproof, external tooth, M6	5310-12-124-0890	3	
Washer, plain, 1/4 Form A stl zinc pl	5310-99-120-4032		3
Washer, plain, M6 large Dia Form C, stl zinc pl	5310-99-139-0070	4	

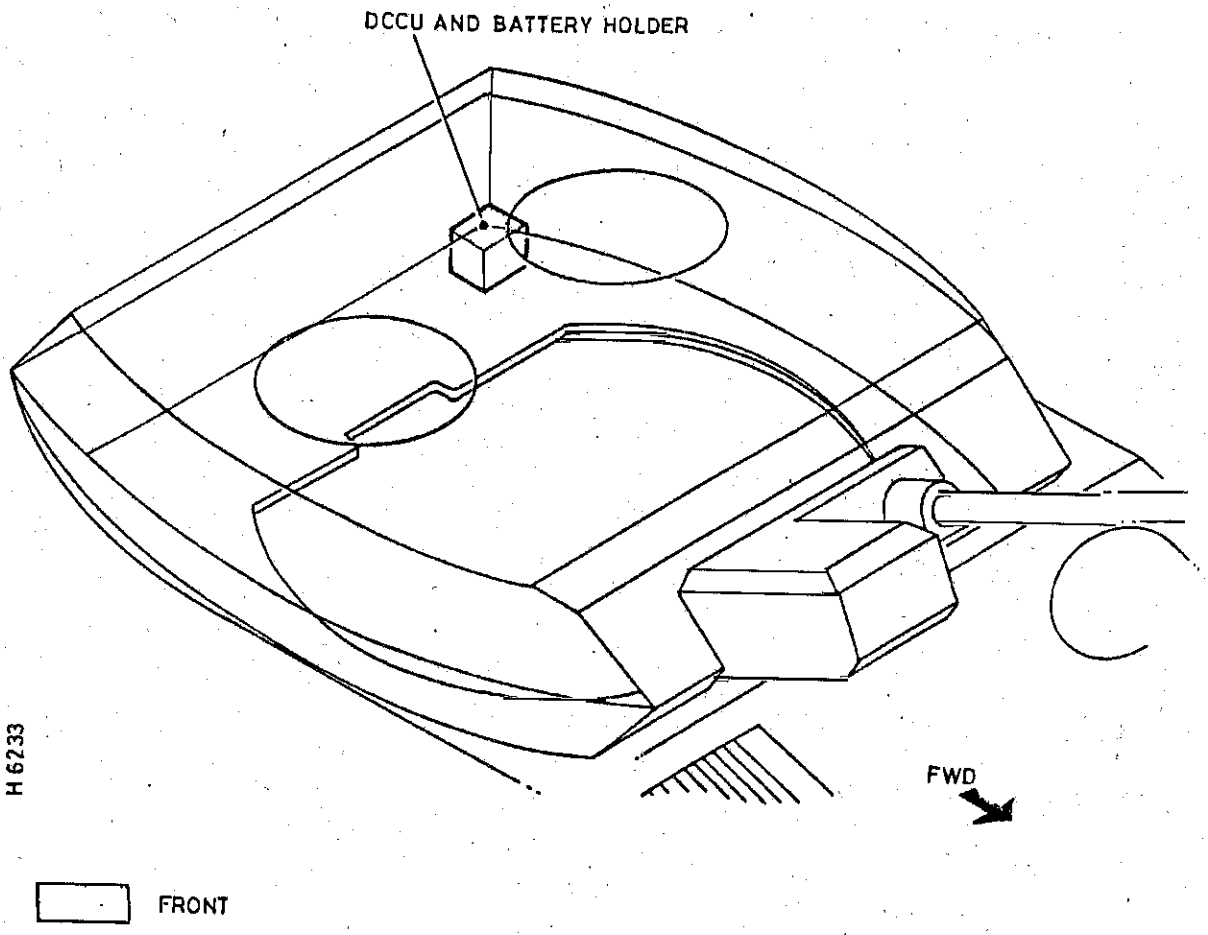
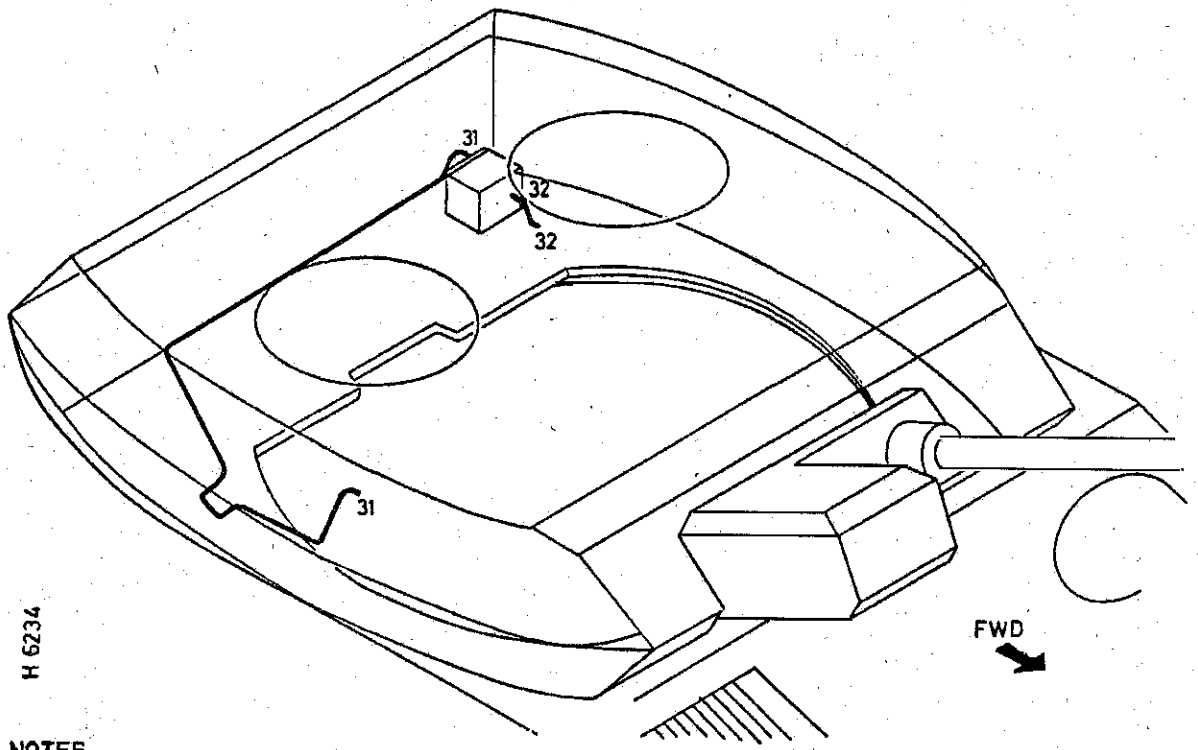


Fig 2 Location diagram

CABLE ROUTEING/CONNECTIONS

Ref No.	Part No.	Cable Type	Route/Connection
31	FV2050950/1	2 way	DCCU - PDB
32	FV2053549/1	Braid	DCCU - EARTH



NOTES ...
(1) PLAIN NUMBERS DEPICT THE ROUTEING AND CONNECTIONS OF CABLES TO BE INSTALLED.

Fig 3 Cable routeing/connection diagram

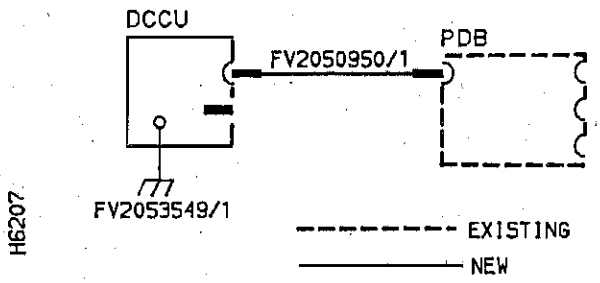


Fig 4 Interconnection diagram