

Command Workshop

RESTRICTED

Army Code No. 61737/1

(1978)

DSS (ARMY) 44/8/277

The information given in this document
is not to be communicated, either
directly or indirectly, to the press or to
any person not authorized to receive it.

**USER HANDBOOK
FOR
CLANSMAN
RADIO INSTALLATIONS
IN
ARMoured PERSONNEL CARRIER
FV 432
PART 1
GENERAL DESCRIPTION**

Published under the authority of:-
**ASSISTANT CHIEF OF THE GENERAL STAFF
(OPERATIONAL REQUIREMENTS)**
Ministry of Defence

PUBLICATIONS AUTHORITY
QUALITY ASSURANCE DIRECTORATE (WEAPONS)
WOOLWICH LONDON
S.E.18 6ST.

RESTRICTED

CONTENTS

CHAPTER ONE		INTRODUCTION	
Para			Page
101	General		1
103	Clansman		1
108	Handbook Construction		2
CHAPTER TWO		EQUIPMENT	
201	Types of Equipment		5
202	Location of Equipment		6
203	Power Supply Circuit		9
204	Battery Charging		11
205	Rebroadcast Facilities		11
207	Remote Facilities		11
CHAPTER THREE		USER SERVICING	
301	Preventative Maintenance		13
302	Sealed Items		13
303	Routine Tasks		13
304	Removal and Refitting of Units		14
ANNEX A	LIST OF ABBREVIATIONS		A1
ANNEX B	CLANSMAN CES 'BRICKS' FOR FV 432		B1

TABLES

TABLE		
1	Clansman Radios	5
2	Location of Equipment	7

LIST OF ILLUSTRATIONS

	Page
Frontispiece The Armoured Personnel Carrier FV 432	(vi)
Fig No	
1 Block Diagram of User Handbook 'Parts' System	2
2 Block Diagram of Vehicle Mounted Clansman Radio Stations	6
3 Location of Clansman Radio Sets and Antenna Bases	7
4 Stowage Facilities on Rear Door	8
5 Power Supply Block Diagram	9
6 Communication Power Supply Items	10

LIST OF ASSOCIATED PUBLICATIONS

COMPLETE EQUIPMENT SCHEDULES

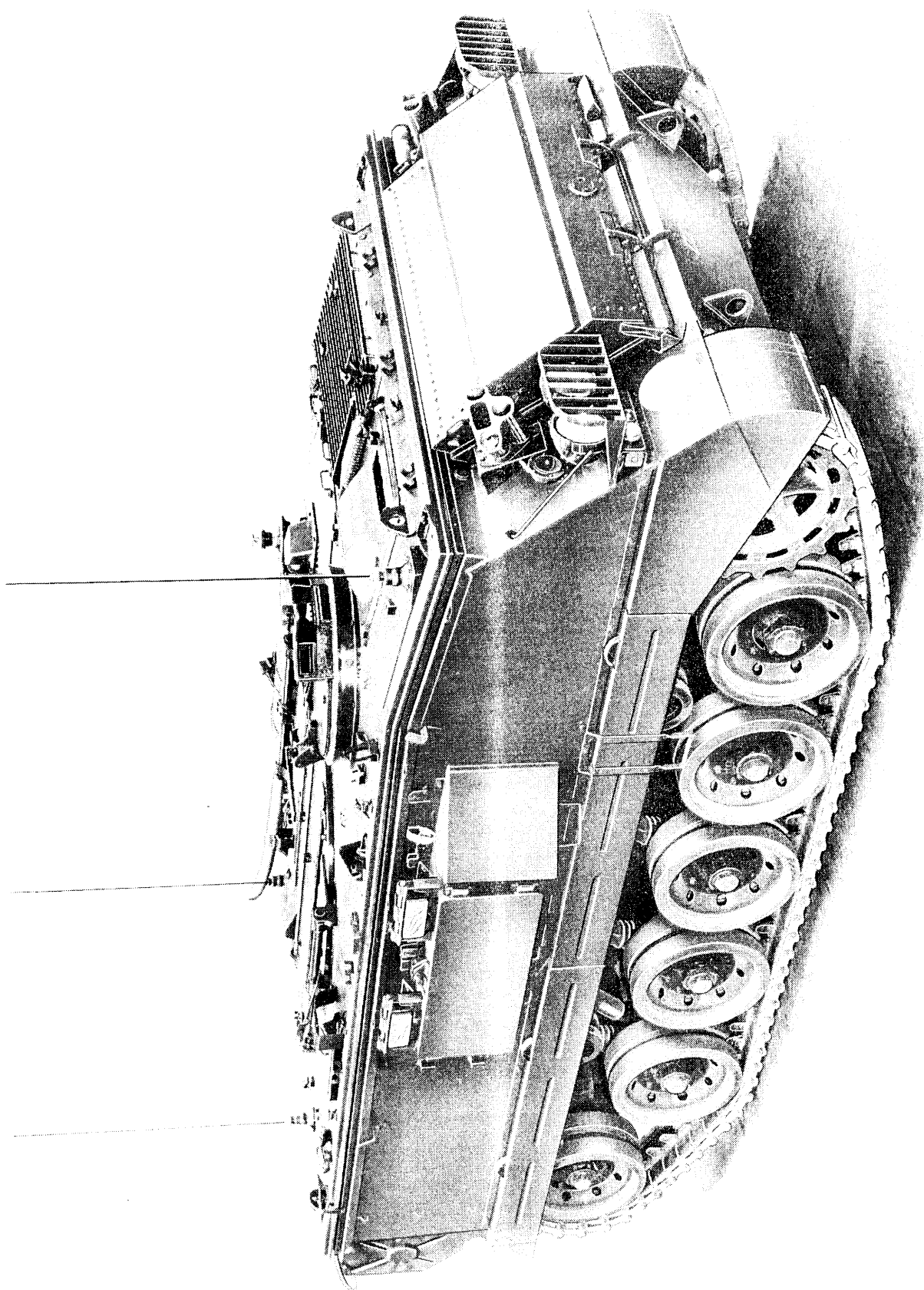
Carrier, Personnel, Full Tracked, FV 432 Mk 2/1	CES No 33061
Carrier, Personnel, Full Tracked (fitted with improved ventilation system) FV 432 Mk 2/1	CES No 33066
Installation Kit, Clansman Basic Harness - FV 432	CES No 44618

USER HANDBOOKS

Clansman Radio Control Harness	Army Code No 61172
Radio Three 'B' Harness (Larkspur) in APC FV 432	Army Code No 13980
Wireless Control Harness Type 'B' (Larkspur)	Army Code No 11195
Carrier Personnel Fully Tracked FV 432 Mk 1	Army Code No 14168
Carrier Personnel Fully Tracked FV 432 Mk 2 and Mk 2/1	Army Code No 14693
Reference Handbook for Clansman	Army Code No 61004
VHF Antennas for Clansman	Army Code No 61388
Clansman Secure Speech Harness (CSSH)	NYA

ELECTRICAL AND MECHANICAL ENGINEERING REGULATIONS

Basic Radio Three Set 'B' Harness (Larkspur)	COMNS INST H200-9
Wireless Control Harness Type 'B'	TELS L780-789



The Armoured Personnel Carrier FV 432

INTRODUCTION

GENERAL

101. The Armoured Personnel Carrier FV 432 has been in service for a number of years and during this time has contained Larkspur type 'B' control harness, a power supply distribution circuit and all the basic fittings to cater for a wide range of Larkspur type radio installations. The basic installation is fully described in the User Handbook for Radio Three Set 'B' Harness in APC FV 432 (Army Code No 13980) and the various radio installations are covered by separate user handbooks.

102. With the introduction of Clansman equipment, however, future installations will contain combinations of both Larkspur and Clansman equipment and finally Clansman only:

- a. Clansman radio with basic Larkspur harness.
- b. Larkspur radio with Clansman harness.
- c. Clansman radio with Clansman harness.

CLANSMAN

103. Clansman is an integrated range of combat net radio equipment designed to replace the current range of Larkspur radio equipment and provide all the net radio functions in a combat zone anywhere in the world.

104. The advantages of Clansman Radio Equipment when compared with the Larkspur range are:

- a. Increased efficiency.
- b. Increased reliability.
- c. Increased performance.
- d. Simpler to operate.
- e. Smaller and lighter in weight.
- f. Additional facilities.

105. Clansman equipment consists of:

- a. Manpack radios HF, VHF and UHF coverage.
- b. Vehicle radios HF and VHF coverage.
- c. A control harness.
- d. Audio ancillaries, ie Headgear, Handsets and Respirator Microphones.

106. A feature of the vehicular sets is that they can be used together in the same vehicle with the minimum amount of mutual interference. Sets can be operated either by themselves or through the control harness in the vehicle. Manpack radios may be used as Vehicle Stations in a 'clip-in' role where suitable installations exist.

107. The Clansman Radio Control Harness is an interconnected system of control junction and adaptor boxes and audio ancillaries which permits the use of up to three Clansman radios from various positions in a vehicle. It also provides intercommunication between these positions independent of the radios. Rebroadcast facilities are also available. With the use of an appropriate adaptor box (RAB or IBRA) a Larkspur radio may be installed and used with the Clansman Harness and a Clansman Radio can be used in a Larkspur Harness.

HANDBOOK CONSTRUCTION

108. There are many combinations of Clansman Radio fits in the FV 430 series of tracked vehicles, operating into both Larkspur and Clansman Harness. The equipment used in each fit is obtained from different combinations of CES kits or 'bricks' which ensures the most economical method of equipment provisioning. For details of the 'Brick' system see Annex B.

109. With this in view, the User Handbook has been divided into 'Parts' as shown in Fig 1, each 'Part' written specifically to complement individual or groups of CES kits or 'bricks' and planned to be an item in these kits. Hence the User will be issued with the information pertinent to his installation.

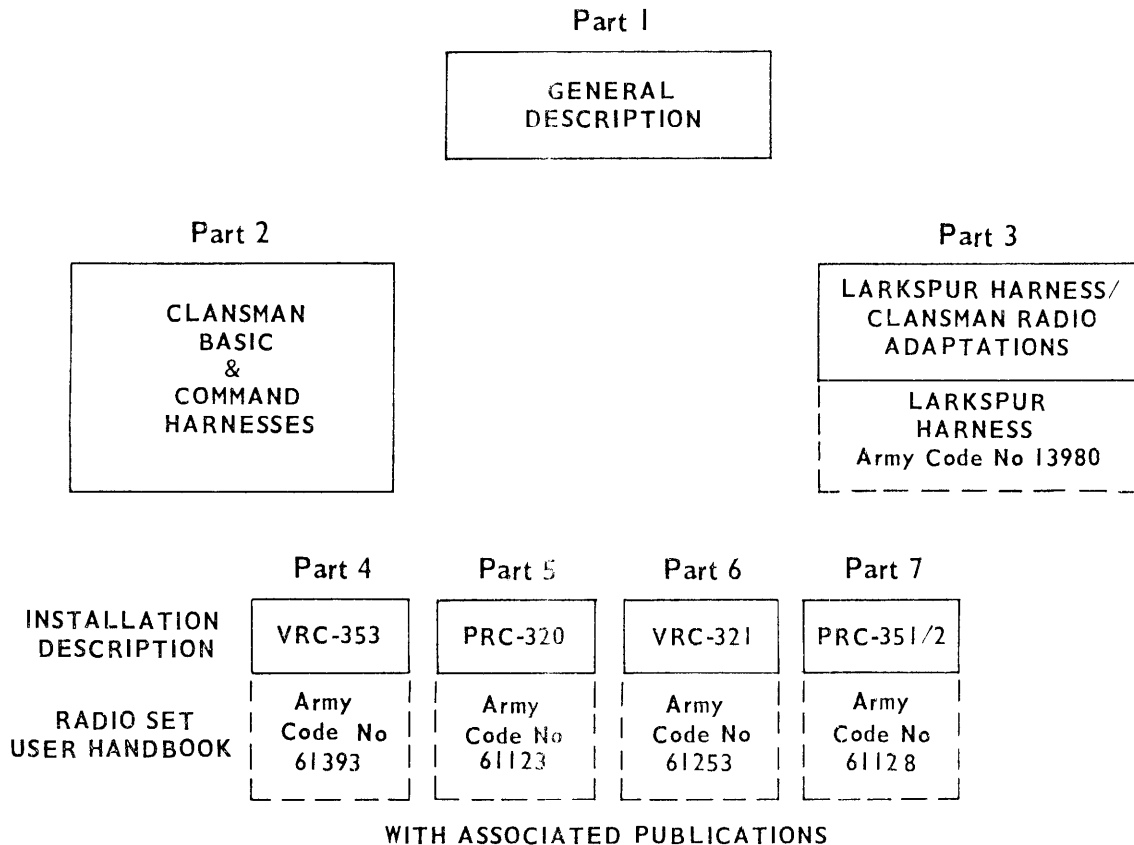


Fig 1 Block Diagram of User Handbook 'PARTS' System

110. The following examples should serve to illustrate this 'Parts' system.

- a. A FV 432 with Clansman Harness, VRC 353 and VRC 321 would require:
 - (1) Part 1 - General Description
 - (2) Part 2 - Clansman Harness
 - (3) Part 4 - Station Radio UK/VRC 353
 - (4) Part 6 - Station Radio UK/VRC 321
- b. A FV 432 with Larkspur Harness, VRC 353 and PRC 320 would require:
 - (1) Part 1 - General Description
 - (2) Part 3 - Larkspur Harness/Clansman Radio Adaptations
 - (3) Part 4 - Station Radio UK/VRC 353
 - (4) Part 5 - Station Radio UK/PRC 320

NOTE ...

It should be noted that Part 1 - 'General Description' (This part) will be required by every installation and gives an introduction to all FV 430 series installations.

111. In addition to the 'Parts', the User will receive the appropriate associated publications, the code numbers of which are given under the relevant Part Nos in Fig 1. The Clansman Secure Speech Harness (CSSH) will be the subject of a separate User Handbook at a later date.

EQUIPMENT

TYPES OF EQUIPMENT

201. Two types of radio sets are available in the Clansman range, namely vehicle/ground station sets and manpack sets. These are listed in Table 1 and their composition is shown in Fig 2. The following notes apply to the diagram:

NOTES ...

- (1) When two HF sets are installed and operated in close proximity, a SURF is inserted between each set and its TURF to reduce mutual interference.
- (2) SURFs 12W and 4W can be attached to the RT 320 and RT 351 respectively to enable two similar sets to be operated in close proximity. These particular SURFs are used ONLY in the dismounted role and should be disconnected when radios are vehicle mounted.

TABLE 1
CLANSMAN RADIOS

RADIO STATION	FREQUENCY RANGE (MHz)	RF POWER OUTPUT (W)
VEHICLE		
UK/VRC 321	1.5-30	40
UK/VRC 322	1.5-30	300
UK/VRC 353	30-75.975	50
MANPACK		
UK/PRC 320	2-30	30
UK/PRC 344	225-399.95	2
UK/PRC 349	37-46.975	250(mW)
UK/PRC 350	36-56.975	2
UK/PRC 351	30-75.975	4
UK/PRC 352	30-75.975	20

* SEE PARA 20I NOTE 1

** SEE PARA 20I NOTE 2

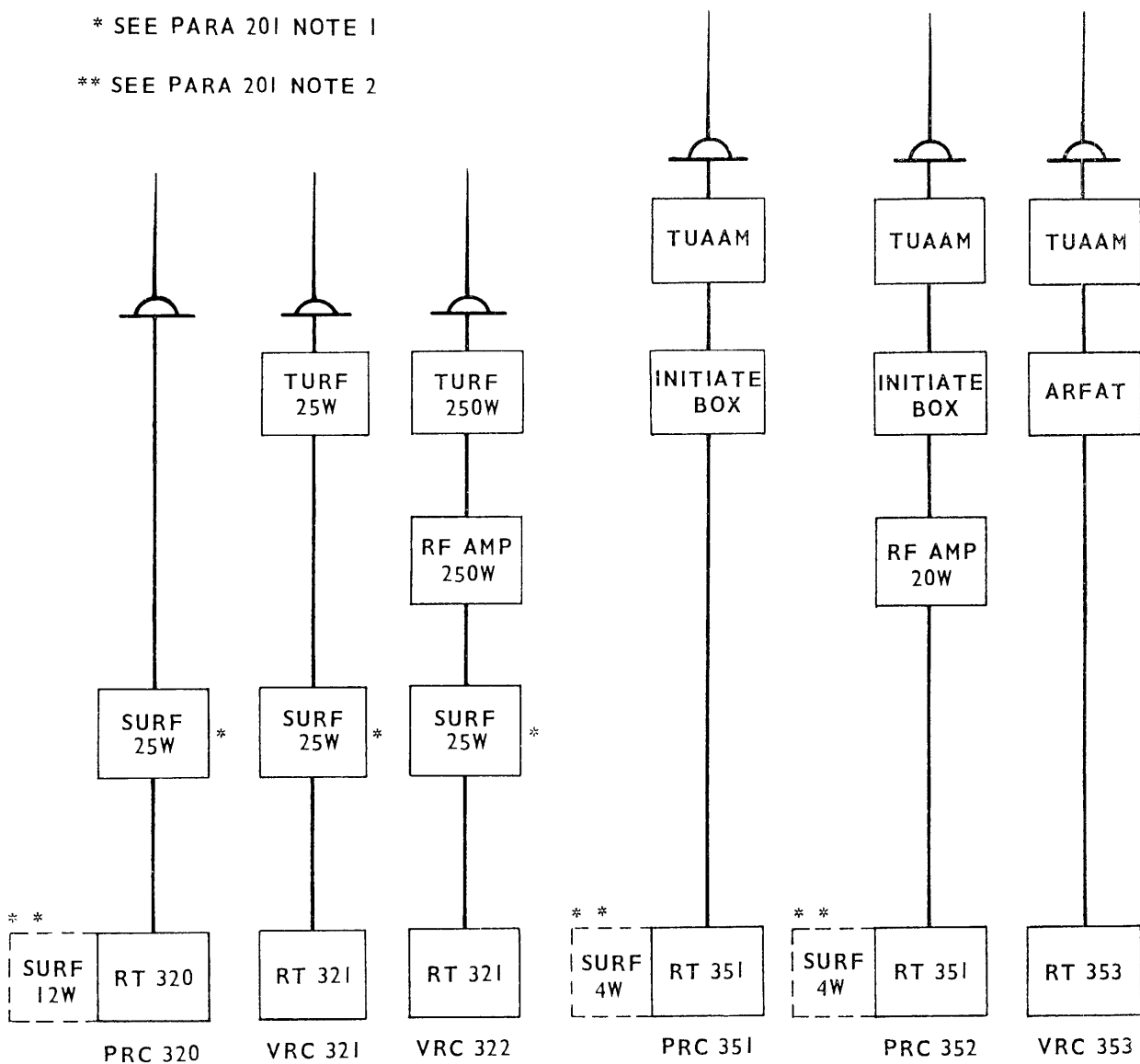


Fig 2 Block Diagram of Vehicle Mounted Clansman Radio Stations

LOCATION OF EQUIPMENT (Fig 3)

202. Combinations of various Clansman sets have been installed and accepted in the FV 432 vehicle to meet the requirements of most arms of the Service. Table 2 gives a list of such radio installations approved using the Larkspur or Clansman Harness, along with their respective antenna positions. It should be noted that these antenna positions are not always directly related to the radio positions and the associated tuning and matching units are located at the antenna position, not set position. In addition to the vehicle mounted radios, some manpack radios may be carried stowed as shown in Fig 4.

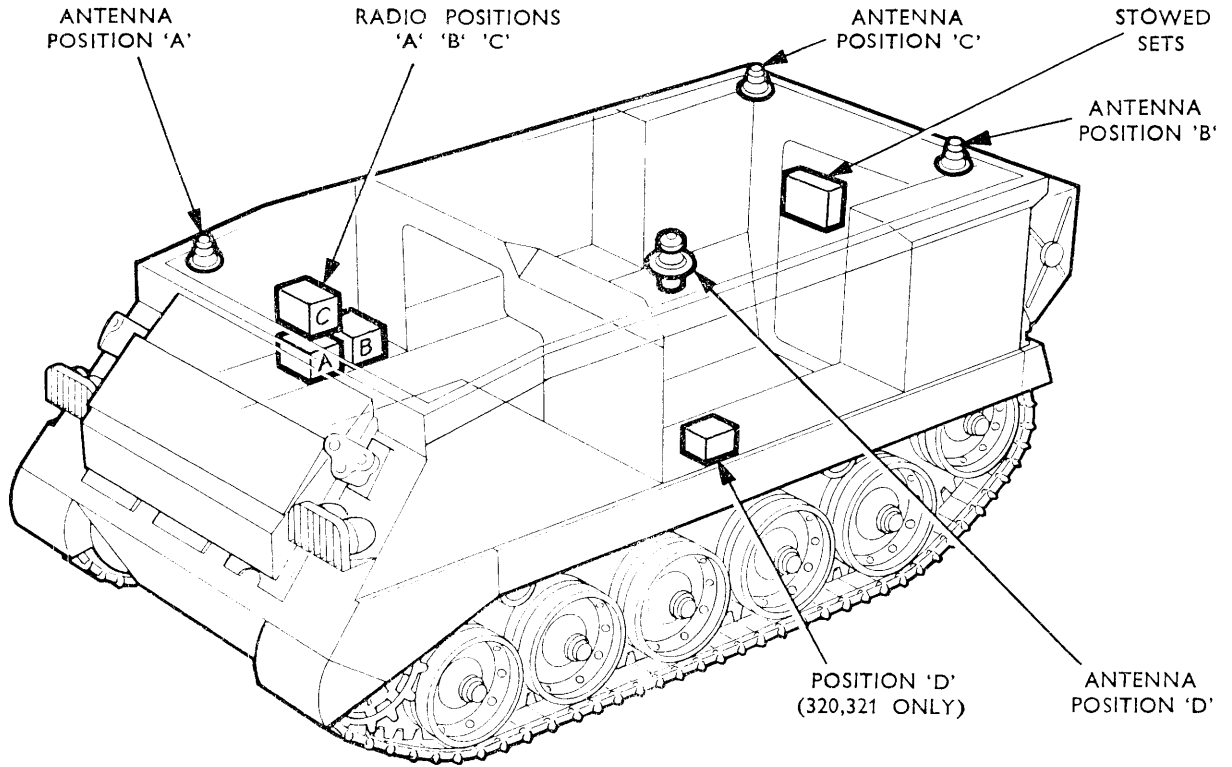


Fig 3 Location of Clansman Radio Sets and Antenna Bases

TABLE 2

LOCATION OF EQUIPMENT
(See Fig 3)

Radio Positions				Antenna Positions			
A	B	C	D				
VRC 353				A			
VRC 353	VRC 353			A	B		
VRC 353	VRC 353	VRC 353		A	B	C	
		PRC 351				C	
VRC 353		PRC 351		A		C	
SR C45Z		SR C45Z	VRC 321	A		B	D
SR C42Z		VRC 321		B		C	
VRC 353	VRC 353	SR C42Z		A	C	B	
VRC 353	VRC 353	PRC 351	PRC 320	A	B	C	D
		PRC 352				C	
VRC 353			PRC 320	A			D
		VRC 321				B	
VRC 353		PRC 351		A		C	
SR C42Z		SR C45Z	VRC 321	A		B	D
VRC 353	VRC 353	SR C42Z		A	B	C	
VRC 353	VRC 353	PRC 351	PRC 320	A	B	C	D
VRC 353	VRC 353	VRC 353	PRC 320	A	B	C	D
VRC 353	VRC 353	VRC 321	PRC 320	A	B	C	D
VRC 353	VRC 353	SR C45Z		A	B	C	
VRC 353	VRC 353	VRC 321		A	B	C	
VRC 353		PRC 352		A		C	