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# **FV 430 SERIES, VEHICLES, ALL MARKS EQUIPMENT SUPPORT POLICY DIRECTIVE**

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*Kevin T. ...*

Ministry of Defence  
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## PREFACE

Sponsor:  
DLO LASS IPT  
File ref:

Publication Agency:  
DLO Chertsey  
Project No: SO/008(339)  
File ref: 8745(281)

## INTRODUCTION

- 1 Service users should forward any comments on this publication through the channels prescribed in AESP 0100-P-011-013. An AESP Form 10 is provided at the end of this publication; it should be photocopied and used for forwarding comments on this AESP.
- 2 AESPs are issued under Defence Council authority and where AESPs specify action to be taken, the AESP will of itself be sufficient authority for such action and also for the demanding of the necessary stores, subject to the provisions of Para 3 below.
- 3 The subject matter of this publication may be affected by Defence Council Instructions (DCIs), Standing Operating Procedures (SOPs) or by local regulations. When any such instruction, order or regulation contradicts any portion of this publication it is to be taken as the overriding authority.

## RELATED AND ASSOCIATED PUBLICATIONS

### Related publications

- 4 The Octad for the subject equipment consists of the publications shown opposite. All references are prefixed with the first eight digits of this publication. The availability of the publications can be checked by reference to the relevant Group Index (see AESP 0100-A-001-013).

Category/Sub-category			Information Level			
			1 User/ Operator	2 Unit Maintenance	3 Field Maintenance	4 Base Maintenance
1	0	Purpose and Planning Information	*	*	*	*
	1	Equipment Support Policy Directives	111	*	*	*
2	0	Operating Information	*	*	*	*
	1	Aide-Memoire	*	*	*	*
	2	Training Aids	*	*	*	*
3		Technical Description	*	*	*	*
4	1	Installation Instructions	*	*	*	*
	2	Preparation for Special Environments	*	*	*	*
5	1	Failure Diagnosis	*	*	*	*
	2	Repair Instructions	*	*	*	*
	3	Inspection Standards	*	*	*	*
	4	Calibration Procedures	*	*	*	*
6		Maintenance Schedules	*	*	*	*
7	1	Illustrated Parts Catalogues	*	*	*	*
	2	Commercial Parts Lists	*	*	*	*
	3	Complete Equipment Schedule, Production	*	*	*	*
	4	Complete Equipment Schedule, Service Edition (Simple Equipment)	*	*	*	*
	5	Complete Equipment Schedule, Service Edition (Complex Equipment)	*	*	*	*
8	1	Modification Instructions	811	*	*	*
	2	General Instructions, Special Technical Instructions and Servicing Instructions	821	*	*	*
	3	Service Engineered Modification Instructions (RAF only)	*	*	*	*

\*Category/Sub-category not published

**Associated publications**

5	<u>Reference</u>	<u>Title</u>
	AESP 2350-T-250	Carrier Full Tracked FV 430 Series – Common Items
	AESP 2350-T-251	Carrier Full Tracked FV 432 Series– Armoured Personnel Carrier
	AESP 2350-T-252	Carrier Full Tracked FV 434 Series – Maintenance Vehicle
	AESP 2350-T-253	Carrier Full Tracked FV 436 Series – Armoured Staff Vehicle
	AESP 2350-T-254	Carrier Full Tracked FV 439 Series – Communications Vehicle

**FV 430 Series (Common Items)**

EMER Power S 560 – 569	Engine, Rolls Royce K 60
EMER Power P 320 – 329/11	Starter motor No. 3 Mk1
ETS 033/41	Equipment Table Scale
MVEE Spec 1031	Welding (may be superseded by Def Stan 03-44)
MVEE Spec 666	Paint (may be superseded by Def Stan 03-32 Iss 2)

**FV 432 Mk 2**

JSP 341	Road Transport Regulations
AC 14660	Illustrated Parts Catalogue (IPC)

Reference

Title

AC 14693	User handbook FV 430 Mk 2
AC 33066	CES FV 432 Mk 2
AC 34926	CES, Conversion kit, Ambulance
AC 34927	CES, Conversion kit, Command post
AC 34925	CES, Conversion kit, 81mm mortar
AC 34903	CES, Installation kit, Internal stowage
AC 43522	CES, Installation kit, 2 batteries
AESP 5800-H-201-Octad Command,	Control, Communications and Information (C <sup>3</sup> I)
AESP 5800-H-202-octad	C <sup>3</sup> I Installation FV 432 (BATES)
AESP 5800-H-203-octad	C <sup>3</sup> I Installation FV 432 (BATES Minor Access Cell)
EMER Instrument S 300 – 309	Sight AV No 67
MVEE Spec 1031	Welding (may be superseded by Def Stan 03-44)

**FV 432 Mk 2 (Mortar Mount)**

(EMER Tkd Veh E 105/2 Installation Instruction No. 1 refers)

EMER Armt R 350 – R 359	Mortar 81 mm
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**FV 432 Mk 2 (Radar No 15 Mk 1)**

EMER RADAR FCE P 150 – 159	RADAR Set, Cymbeline
AC 61116	RADAR FA No 15 Cymbeline Parts 1 to 4

**FV 434**

AC 14811	User Handbook
AC 14861	Illustrated Parts Catalogue
AC 33060	CES (simple)
AESP 5800-H-204 Octad	Command, Control, Communication & Information (C <sup>3</sup> I) FV 434
AGAI Vol 4	Equipment and Stores - Periodic REME Examination
EMER General O 330 – 339	Fuel tank safety
EMER T & M A O28 Chap 650	Winch or crane version receipt
EMER Tels A 010 – 019	Electronics, testing
EMER Tels A 410 – 419	Semi-conductor devices
EMER Tels A 770 – 779	Electronics, overhaul
EMER Workshop B 017	Ropes, Lifting Tackle, Lifting Machines and Associated Equipment

**Armoured Staff Vehicle (ASV) FV 436**

AESP 5800-H-201-octad	Command, Control, Communications and Information (C <sup>3</sup> I) Installation in Carrier Full Tracked AFV 432
AESP 5800-H-280-octad	Communication Installations in FV 436 ASV System
AESP 5800-H-281-octad	ASV 436 – Harness and Installation Kits
AESP 5800-H-282-octad	ASV 436 – Basic Installation
AESP 5800-H-285-octad	Air Defence Command and Information System ADCIS Installation in ASV 436 BADLO
AESP 5800-H-290-octad	C <sup>3</sup> I ASV 436 Armoured Staff Vehicle (BATES)
AESP 5800-H-291-octad	C <sup>3</sup> I Installation, ASV 436 BATES Minor Access Cell
AESP 5895-H-516-octad	Carrier, Personnel, Full Tracked, Terminal Armoured Staff vehicle, (TASV) FV 436 Mk 2/2
EMER Pwr C 460/4	Generator set 3.5 kW 1 phase 250 VAC

<u>Reference</u>	<u>Title</u>
<b>FV 439 Secondary Access Switch / Message Centre Mk 2/2.</b>	
AESP 5890-H-514-octad	Secondary Access Switch / Message Centre (Tkd) In AFV 439
<b>FV 439 Radio Relay Station, Carrier Mounted, Full Tracked. Mk 2/1.</b>	
AESP 5890-H-515-Octad	Radio Relay Installation in Carrier Full Tkd FV 439
<b>Carrier Full Tracked, FV 430 Series ( All Marks )</b>	
EMER E 108 Part 1 E 108 Part 2	Field Std. FV 430 Mk 1 and Mk 2 Inspection Std. FV 430 Mk 1 and Mk 2
<b>Carrier Full Tracked, FV 432 Series ( Mk 1, 1/1, 2 and 2/1 )</b>	
EMER E 100/2 E 101/2 E 102/2 E 103/2 E 104/2 E 105/2 E 108/2 Part 1 E 108/2 Part 2	Data Summery. FV 432 Mk 1 & Mk 2 Operator's Instr. FV 432 Tech Description. FV 432 Unit Repairs. FV 432 Field Repairs. FV 432 Installation Instr. FV 432 Field Std. FV 432 Base Std. FV 432
<b>Carrier Full Tracked, FV 434 Mk 1 and 1/1</b>	
<b>MAINTENANCE</b>	
EMER E 100/4 E 102/4 E 103/4 E 104/4 E 108/4 Part 1 E 108/4 Part 2	Data Summary. FV 434 Tech Description. FV 434 Unit Repairs. FV 434 Field Repairs. FV 434 Field Std. FV 434 Base Std. FV 434
<b>Carrier Full Tracked, FV 436</b>	
<b>Armoured Staff Vehicle (ASV) and Bates</b>	
EMER E 100/6 E 103/6 E 104/6 E 108/6	Data. FV436 Unit Repairs. FV 436 Field Repairs. FV 436 Field Std. FV 436
<b>Carrier Full Tracked, FV 439 (SAS/MC)</b>	
<b>Secondary Access Switch /Message Centre -- Radio Relay</b>	
EMER E 100/9 E 102/9 E 103/9 E 104/9 E 108/9	Data Technical Description, Chapter 10 only Unit Repairs Field Repairs Field Std
AC 14693 AC 14660 AC 11195 AC 14564 AC 14653 AC 14660	User Hand Book FV 432 Mk 2 only IPC FV 432 Mk 2 only UHB Radio harness Service Schedule FV 434 Service Schedule Mk 2 FV 430 IPC



<u>Reference</u>	<u>Title</u>
AC 14693	UHB FV 430 Mk 2
AC 14811	UHB FV 434
AC 14861	IPC FV 434
AC 33060	CES simple FV 434
AC 33066	CES FV 432 Mk 2
AC 34903	Installation Kit, Internal Stowage for Carrier, Personnel, Full Tracked, FV 432
AC 34925	CES 81mm mortar
AC 34926	CES Ambulance
AC 34927	CES Command Post
AC 34930	CES Shelter
AC 43522	CES 2 battery
AC 43523	CES 4 battery
AC P/50117/4	CES Seat assembly
AC 60092	Service Schedule FV 434
AC 61116	RADAR FA No 15 Cymbeline Parts 1-4
AC 71276	Standing Orders for the Safety of Crews of Armoured Fighting Vehicles

## GENERAL INFORMATION

6 With the formation of DLO, Logistic Support Publications have been organised into the following three tier structure:

- 6.1 Level 1 – Quartermaster General's Instructions (QMGI's).
- 6.2 Level 2 – Materiel Regulations for the Army (Mat Regs).
- 6.3 Level 3 - Family of Specialist and Technical Publications (FSTPs). This level includes the following Equipment Support publications:

### Non-equipment EMERs

7 The non-equipment EMER Parts General, Management and Workshops are being withdrawn from use. Equipment Support information which cannot be absorbed elsewhere in the DLOs three tier publications structure, which is not equipment or equipment type specific, will be published in AESP Group 02 – Equipment Support.

8 Those non-equipment EMERs required to be retained will be revised, reformatted and then published in this Group.

9 The information given in this publication was previously published in:

- 9.1 EMER General A 003 – General Description.
- 9.2 EMER General A 004 – Allocation of Parts.

10 As it will take time to reproduce all Non-Equipment EMERs as AESPs, cross references are shown as follows:

AESP 0200-A-011-013 (EMER General A 022)

**EQUIPMENT SUPPORT POLICY DIRECTIVE**

**INTRODUCTION**

1 This ESPD deals with the FV 430 series of vehicles which entered service in 1964. Production is complete. The series of vehicles is made up in Table 1.

**TABLE 1 FV 430 SERIES OF VEHICLES**

Serial (1)	Vehicle designation (2)	CES (3)	Asset code (4)	NSN (5)
1	APC FV 432 Mk 2 (EW)		GA0039 3000	2350 99 908 5507
2	APC FV 432 Mk 2	31382	GA0040 2111	2350 99 893 2405
3	APC FV 432 Mk 2/1	31382	GA0040 2112	2350 99 893 2406
4	APC FV 432 Mk 2/2	31382	GA0040 3002	2350 99 893 5051
5	APC FV 432 SCRA Mk 2	31382	GA0042 3000	2350 99 893 6737
6	APC FV 432 SCRA Mk 2/1	31382	GA0042 3001	2350 99 893 6738
7	APC FV 432 CYMBELINE	31165	GA0045 3000	2350 99 893 5959
8	APC FV 432 BATES	32076	GA0060 3000	2350 99 893 9041
9	FV 434 Mk 1/1	33060	GA0070 0141	2350 99 893 2040
10	FV 434 Mk 1/1	33060	GA0070 3000	2350 99 893 5782
11	FV 434 Mk 1	33060	GA0070 3001	2350 99 893 5900
12	FV 439 RR	31785	GA0735 3000	2350 99 893 6835
13	FV 439 EW	31785	GA0735 3002	2350 99 893 9532
14	FV 439 SAS/MC	31763	GA0736 3000	2350 99 893 6753
15	FV 439 RR/SHF	31785	GA0738 3001	2350 99 893 7443
16	FV 436 ASV (EW)		GA0753 3000	2350 99 893 5508
17	FV 436 ASV	31731	GA0754 3000	2350 99 893 6615
18	FV 436 BATES	32077	GA0755 3000	5820 99 893 6616

**MANAGEMENT INFORMATION**

- 2 The following act as focus for FV 430:
  - 2.1 Equipment sponsor: Director Equipment Capability (Directorate Battlefield Engagement).
  - 2.2 Manufacturer/contractor/design authority: Alvis Vehicles Ltd.
  - 2.3 LASS IPT Complete equipment. Viewing optics and gun sights.
  - 2.4 DESS/ICSS IPT Radio and harness items.
  - 2.5 Lt CSV IPT - GPMG.
  - 2.6 DESS/GUISS IPT – MILAN.
  - 2.7 STASPSS IPT – CYMBELINE.

**EQUIPMENT OUTLINE DESCRIPTIONS****Common aspects**

3 The basic FV 430 series vehicle is a fully tracked personnel carrier having a welded armour steel hull of box-like construction. A power pack is mounted in the left-hand forward compartment, comprising the engine, transfer box, automatic gearbox, two hydraulically operated fans, radiator and heat exchanger. Powered by Rolls Royce K 60 No. 4 Mk 4F or Mk 6F CI engine. Power is transmitted to the tracks through the transfer box and the six-speed GM Allison TX 200B automatic gearbox, which incorporates a torque converter, through a controlled differential type steering unit, to the final drive units. Two AC generators with DC rectification provide a 24-volt negative earth electrical system. The vehicle and NBC batteries, connected in parallel, are charged by the front generator. The rear generator is used to charge the radio and specialist installation batteries when fitted. An electrically operated air filtration installation provides limited protection against Nuclear, Biological and Chemical (NBC) attack.

3.1 FV 432 Mk 1 and 1/1 (RR B80 petrol engine) now obsolete.

3.2 Mk 2: - K60 engine. Overall hull width increased over the Mk 1 for side mounted exhaust.

3.3 Mk 2/1: - As Mk 2 vehicle but a more efficient air conditioning system. The filter box is mounted inside the hull, thereby eliminating the external armoured filter box.

3.4 There are three basic vehicle types. The basic box bodied standard APC, FV 432, from which the FV 436 and FV 439 are derived. The 105 mm Field Artillery Self-Propelled Abbot (FV 433), now no longer in service and the FV 434 repair/recovery role. The standard FV 432 APC is capable of easy conversion to the following roles: 81 mm Mortar role, Command role, Ambulance role, MILAN role, Bar mine laying role, BATES role, Radar No.14 Mk 1 role and Cymbeline Mortar Locating Radar role.

**FV 432 Armoured Personnel Carrier (APC) Mk 2 and 2/1**

4

4.1 Under armour vision: Driver, wide-angle periscope AFV No. 32 Mk 1. Commander, 360 degree rotation cupola two outer periscopes fixed, middle one pivoted axially in the vertical plane, periscope No. 32, Mk 1.

4.2 The standard radio installation consists of Clansman radio and harness facilities UK/RT 353 with radio stations UK/PRC 320 and UK/PRC 344, provision for teleprinter and associated equipment is also included.

4.3 Armament: - GPMG, Crew: - driver, commander plus 10 personnel.

**FV 432 Ambulance role**

5 Armament:- Crew weapons. Crew:- driver, commander + 1 Medic and four stretchers, or 1 Medic, two stretchers and five seated.

**FV 432 Mortar role**

6 Armament:- GPMG. Crew:- driver, commander plus two personnel and 82 mm mortar plus 160 rounds.

**FV 432 Command post and penthouse role**

7 Armament: - Crew weapons. Crew:- driver, commander plus five personnel.

**FV 432 Cymbeline mortar locating radar**

8 Armament: - Crew weapons. Crew: - driver, commander plus two personnel.

**FV 432, Ground surveillance role No. 14 Mk 1 (ZB 298)**

9 Armament: - GPMG. Crew: - driver, commander plus two personnel.

**FV 434, Carrier, maintenance, full tracked Mk 1 and 1/1**

10

10.1 Armament as FV 432. Equipment:- 3 tonne crane. Crew: - driver, commander plus two fitters.

10.2 Crane, HIAB, Model 6111.

10.3 Crane details:

Angle of slew	190 degrees	(3 377 mils)
Hook height	3.81 m at 2.89 m rad	(12 ft 6 in. at 9 ft 6 in. rad)
Hook height with extension fitted	6.1 m at 3.96 m rad	(20 ft 0 in. at 13 ft 0 in. rad)

10.4 Maximum lifts:

Main hook	3 048 kg at 2.26 m rad	(6720 lb at 7 ft 5 in. rad)
	2585 kg at 2.59 m rad	(5700 lb at 8 ft 6 in. rad)
	2390 kg at 2.98 m rad	(5270 lb at 9 ft 6 in. rad)
Extension hook	1524 kg at 3.2 m rad	(3360 lb at 10 ft 6 in. rad)
	1247 kg at 3.96 m rad	(2750 lb at 13 ft rad)

**FV 436 Carrier, personnel, full tracked, Mk 2 and 2/1 Armoured Staff Vehicle (ASV)**

11

11.1 Based on FV 432 hull, roof mounted de-mountable, 1.5 kw or 3 kw, generator power supply. Common ASV 436 radio facilities include the following: Clansman basic harness, Clansman conversion kit, Clansman 3-set control harness, Installation Kits (IK) for up to three UK/VRC 353. Remoting system for UK/VRC 321. A secure remoting system for secure radio nets (UK/VRC 353'Z'), a Commander's box fixed (digital) for mobile radio working. Loudspeaker secure net monitoring system (UK/VCR 353'Z'). Tactical Intercom communications system (UK/VIC 418). Ptarmigan patching facilities. Also provision for one DEL telephone and a SCRA facility.

11.2 Armament: - GPMG, Crew: - driver, commander plus three staff users and 1 radio operator.

**FV 436 Carrier, personnel, full tracked, Mk 2/2 Terminal Armoured Staff Vehicle (TASV)**

12 No longer in service in this role, mainly converted to the ASV role.

12.1 Based on FV 432 hull, roof mounted de-mountable 2.5 kw generator power supply x 2, communications system that operates through the Clansman radio system, provides Ptarmigan interface.

12.2 Armament GPMG, Crew: - driver, commander plus three staff users and 1 radio operator.

**FV 439 Radio relay station, carrier mounted, full tracked Mk 2/1**

13

**REDACTED**

13.2 Armament: - GPMG, Crew: - driver, commander plus two personnel.

**FV 439 Secondary access switch/message centre, full tracked. Mk 2/1**

14

14.1 Based on FV 432 hull, two roof mounted 3.0 kw generators, Ptarmigan access/civilian telephone link.

14.2 Armament: - GPMG, Crew: - driver, commander plus two personnel.

**Types of electronic installation in FV 432/FV 436 that does not require change of status**

15

**PLANNED ROLE**

16 The FV 432 was designed, primarily for use in Europe, to meet the requirement for a light armoured tracked vehicle to transport the Infantryman and his weapons safely in battlefield conditions.

16.1 Mk 2/1 vehicles are fitted with an improved forced air ventilation system and a lower profile hull.

16.2 Flotation is no longer a British Army requirement for FV 430 series vehicles. (Reference OR11 letter D/GS (OR) 17/1/25 dated Jun 79).

**PLANNING DATA**17 Planned life. The equipment was introduced into service during 1964 with a planned life of 30 years. This period has been extended to meet with MRAV and FCLV ISD dates. MRAV (Multi Role Armoured Vehicle) is provisionally due into service in 2004 and FCLV (Future Combat Light Vehicle) is provisionally due into service in 2015. Only some not all the FV 430 fleet will be replaced by MRAV and FCLV.18 Production programme. The production programme of vehicles is complete.19 Planned utilisation. The planned utilisation is shown in the following table.

**TABLE 2 PLANNED UTILISATION**

Location	432 Mk 2	432 CYM	432 BATES	434 Mk 1	436 ASV	436 BATES	439 RR	439 SAS/MC	439 Odette
UK	306	10	53	53	77	9	12	9	
GERMANY	438	0	39	81	108	9	10	10	
ATRA	122	3	10	9	0	1	0	0	
BATUS	56	0	4	7	0	0	0	0	
<b>TOTAL</b>	<b>922</b>	<b>13</b>	<b>106</b>	<b>150</b>	<b>185</b>	<b>19</b>	<b>22</b>	<b>19</b>	<b>(29)</b>

19.1 Mean Variance Between Repair (MVBR). For major assemblies and running gear are as follows: -

19.2 Engine K60 Mk 6F- NSN 2815-99-808-1275 is 5263 km.

19.2.1 Steering gearbox - NSN 2530-99-865-3847 is 7347 km.

19.2.2 Gearbox TX200-4B - NSN 2520-99-867-0403 is 9531 km.

19.2.3 Final drive - NSN 2520-99-808-0563 is 62970 km.

19.2.4 Track - NSN 2530-99-838-4922 is 435 km.

19.2.5 Road wheel - NSN 2530-99-865-6129 is 573 km.

**Availability**

20 The required availability of serviceable equipment is:

20.1 At any time. 70%.

20.2 After a warning period of 24 hours. 80%.

**Physical data**

21

21.1 FV 432 Mk 2:

21.1.1 Length - 5.2 M (17ft 0½ in.)

21.1.2 Width - 2.982 M (9ft 9 in.)

21.1.3 Height - 2.172 M (7ft 1½ in.)

21.1.4 Weight unladen - 13,607 Kg (13.6 Tonnes)

21.1.5 Weight laden - 15,104 Kg (15.1 Tonnes)

21.1.6 Bridge Classification - 15

21.2 FV 432 Mk 2/1:

21.2.1	Length	-	5.2 M (17 ft 0½ in.)
21.2.2	Width	-	2.87 M (9 ft 5 in.)
21.2.3	Height	-	2.172 M (7ft 1½ in.)
21.2.4	Weight unladen	-	13,607 7Kg (13.6 Tonnes)
21.2.5	Weight laden	-	15,104 Kg (15.1Tonnes)
21.2.6	Bridge Classification	-	15

21.3 FV 434:

21.3.1	Length	-	5.88 M
21.3.2	Width	-	2.84 M
21.3.3	Height	-	2.77 M
21.3.4	Weight unladen	-	15,050 Kg (15.05 Tonnes)
21.3.5	Weight laden	-	17,800 Kg (17.80 Tonnes)
21.3.6	Bridge Classification	-	18

21.4 FV 436 ASV:

21.4.1	Length	-	5.37 M
21.4.2	Width	-	2.83 M
21.4.3	Height	-	2.83 M
21.4.4	Weight unladen	-	TBA
21.4.5	Weight laden	-	16,000 Kg (16.00 Tonnes)
21.4.6	Bridge Classification	-	17

21.5 FV 439 SAS/MC:

21.5.1	Length	-	5.18 M
21.5.2	Width	-	2.812 M
21.5.3	Height	-	2.78 M
21.5.4	Weight unladen	-	TBA
21.5.5	Weight laden	-	17,708 Kg (17.7 Tonnes)
21.5.6	Bridge Classification	-	18

21.6 FV 439 R/R.

21.6.1	Length	-	5.2 M
21.6.2	Width	-	2.87 M
21.6.3	Height	-	3 M
21.6.4	Weight unladen	-	TBA
21.6.5	Weight laden	-	17,700 Kg (17.7 Tonnes)
21.6.6	Bridge Classification	-	17

**Operational range**

22

22.1 Maximum road speed: 52 km/h (32.5 miles/h).

**REDACTED**

22.6	<u>Turning radius:</u>	5.33 m	(17 ft 6 in.).
22.7	Max gradient:	35 degrees.	
22.8	Vertical obstacle, max:	609 mm	(2 ft 0 in.).
22.9	Trench width, max:	2060 mm	(6 ft 9 in.).

**MAINTENANCE POLICY**

**Maintenance**

23 This is a user task in accordance with the relevant maintenance schedules which are published as a Category 6 in the relevant octads of the Army Equipment Support Publication.

**ENGINEERING SUPPORT POLICY**

**Repair**

24 This policy is for the repair of 430 Series of vehicles and is applicable to all variants. All repairs and servicing are to be undertaken in accordance with current publications and employing best engineering practice

**Level 1 and 2 (unit repairs)**

25 Unit Repairs (Level 1 and 2) are to be restricted to operations which can be carried out in the field in 8 hours or less, employing as many REME tradesmen as can conveniently work together on the task, with the proviso that no single operation should have a work content in excess of 16 man-hours under normal conditions.



26 Tools and equipment are to be limited to those which can readily be carried on the LAD engineering support vehicles without restricting the mobility of the unit and which are justified by the frequency on operational importance of the repair.

27 Unit Repairs will consist of:

27.1 Replacement of defective component or minor assembly.

27.2 Adjustment, setting up and repair of any component or assembly within the limitations of Para 26 above.

### **Level 3 (field repair)**

28 Field Repairs (Level 3) are generally restricted to operations which can not be carried out in 16 hours or less, employing as many REME tradesmen as can be conveniently work together on the task. No individual field repair should take more than 32 man-hours altogether, with a limit of 150 hours for a combination of tasks; most field repairs will take considerably less.

29 Tools and equipment are to be limited to those which can be readily carried on the workshop vehicles without restricting its mobility and which are justified by the frequency or operational importance of the repair. Tools and jigs, which can be readily manufactured by the workshop, may be included.

30 Field Repairs are normally carried out by REME personnel in the supporting ES Battalion Workshop and consist of:

30.1 The repair of any part of the vehicle or its equipment, including the power pack, by replacement of a component, minor assembly or major assembly, not necessitating the stripping of the assembly. CS Workshops Teams may exchange unserviceable power packs and other major assemblies.

30.2 The adjustment, setting up and repair of any component minor assembly or assembly within the limitations of the tools and test equipment available, and the limitations of Para 5 above.

30.3 Extensive field repairs to a FV 430 which do not justify base repair, but which exceed in total work content that allowed for the workshop concerned, may be transferred to another workshop in accordance with the HQ Land BLR policy, or repaired in situ under authority of theatre headquarters REME Staff.

### **Level 4 (base repair)**

31 Base repairs (Level 4) are normally to be carried out by designated ABRO workshops in the UK. They are to consist of repairs to the 'Base Standard' of complete vehicles, associated equipment and assemblies so as to extend its life by not less than required to achieve the planned mileage between overhauls. Where practical Economic Base Repair (EBR) techniques are to be applied.

## **BASE REPAIR PLANNING**

### **Complete equipment**

32 Vehicles should be overhauled after reaching 20,000 miles or 20 years use since new or last Base overhaul, whichever is reached first. Vehicles will be called in by the ESM, and every effort should be made to ensure that vehicles returned on age have achieved 15,000 miles. Unscheduled overhauls, which arise before reaching these target figures may be authorised by the ESM.

## ASSEMBLY MANAGEMENT

### Major assemblies

33 These will be backloaded for repair by ABRO workshops or contractor, under arrangements made by the appropriate ESM, when condemned as Class Z by REME ES BTN workshops.

### Minor assemblies

34 Such failed items which have been replaced by REME are to be backloaded for repair and subsequent return to RLC stock.

### Centremms

35 Failed items are to be backloaded in accordance with prevailing instructions.

### Installation kits

36 Kits will not be subject to Base repair and will be removed from vehicles by units before basic carriers are dispatched for Base repair. Installation kit repair programmes are arranged periodically.

### Power packs

37

37.1 Power packs are provided primarily for the support of specialist role vehicles. They consist of the main engine, gearbox and transfer box, which are mounted together as one unit. They may be lifted by LADs to provide access to in inaccessible components or may be exchanged as a field repair by the supporting ES BTN.

37.2 The supporting ES BTN holds an Authorised Operating Stock (AOS) of power packs and are responsible for their repair, by the replacement of unserviceable assemblies. No provision has been made for backloading power packs for base overhaul.

### Mean active maintenance times

38

38.1 The time for any single unit or field repair is indicated at Para 2, but it must be appreciated that the repair of an equipment will often entail a combination of several unit and field repairs.

38.2 The total time, which may be spent on the repair of any specific equipment in any particular workshop, must depend on:

- 38.2.1 The requirement of the General Staff (or Operational Staff) in the prevailing situation.
- 38.2.2 REME policy for the Theatre.
- 38.2.3 REME order of battle.
- 38.2.4 Workload outstanding in the workshop.
- 38.2.5 Availability of spares.
- 38.2.6 Availability of replacement vehicles.

38.3 For the purpose of peacetime planning, the period during which equipment is held in the workshops under repair when spares are available should not normally exceed:

38.3.1 Repair level 1 and 2: 3 working days.

38.3.2 Repair level 3: 14 working days.

39 **Modifications.** The modification policy for these equipments is in accordance with EMER Management N 097.

40 **Examination.** In those months when a REME inspection is not carried out, a unit inspection is done. This is called the Unit 'A' Vehicle Inspection.

41 **REME inspection** Six monthly at unit level. (857A EMER Insp I 228 or I 218)

#### NOTE

The two inspection requirements 'Mandatory Equipment Inspection' (MEI) and 'Equipment Care Inspection' (ECI) have since 1 Jul 01 taken the place of the 'Periodic REME Examination (PRE)'. Details of the new MEI/ECI policy can be found in AESP 0200-A-100-013 and in AGAI Volume 4 Chapter 142.

42 **Mandatory Equipment Inspection (MEI).**

43 **Equipment Care Inspection (ECI).**

#### RECOVERY AND BACKLOADING

##### Recovery

44 The following vehicles can recover FV 430 Series vehicles:

44.1 FV 434.

44.2 EKA (AFV 432 only).

44.3 Foden (All FV 430 vehicles).

45 FV 430 vehicles may be given a straight tow, using hollebone drawbar, by any of the vehicles in Para 25 above. The drive must be disconnected if the vehicle is to be towed for any distance over half a mile. The FV 430 may be carried, for backloading, on the listed trailers subject to the observance of the appropriate precautions in accordance with current REME instructions. Refer to REME Recovery Manual (AESP 0200-A-308-013).

##### Backloading

46 The following trailers can be used for the backloading of FV 430 Series vehicles:

46.1 20 Tonne trailer (AFV 432 only).

46.2 35 Tonne trailer (All FV 430 vehicles).

47 The normal recovery and backloading chain is to be used for the movement of casualties in the rear regiments.

##### STTE

48 Tools and equipment to repair FV 430 Series vehicles in units and workshops are listed in the appropriate unit Equipment Tables and equipment table scales.

48.1 ETS 03341F. Equipment Table Scale.

48.2 Subordinate Equipment Tables:

48.2.1 03904. Engines Rolls-Royce B Series (obsolete).

48.2.2 03908. Engines Rolls-Royce K60 (Multi-fuel) Fitted to FV 430 Series.

**Reliability**

49 To enable timely and appropriate action to be taken to ensure the vehicle remains reliable throughout its life it is essential that the following reports are raised:

49.1 Equipment Failure Reports (EFR). Equipment failures are to be reported on AF G8267A/B in accordance with Mat Regs for the Army Vol 2, Pam 2 and submitted to the EFR Focal Point.

49.2 Safety and Serious Failures. Failures that affect the safe operation of the vehicle and crew.

49.3 Steering or Braking. Any defect of the steering or braking systems of the vehicle.

49.4 New Stores Reject (NSR). A NSR is a store or spare that is found to be unfit for the purpose for which it was demanded.

49.5 If the originator believes that an item of equipment has failed prematurely or unreasonably early in its life.

49.6 Special Investigations. When the ESM decides that a special investigation into an equipment failure is required following the results of a Basic Strip Report (BSR)

**Review of ESPD**

50 The details and policies set out in this ESPD are based on existing and planned deployments intended roles and experience of utilisation and reliability. The composition and deployment of the FV 430 Series fleet will be subject to much change over the coming years and this ESPD can act as a general guide only.

**ANNEX A**  
**CREW AIR HEATER**  
**CONTENTS**

Para

- 1 Scope
- 3 Purpose
- 6 Maintenance
- 7 Unit maintenance (Levels 1 and 2)
- 8 Field repairs (Level 3)

Table

Page

- 1 Items contained in mod set (NSN 2540-99-842-0395) crew air heater for use in FV 430 series of vehicles against UOR(L) 15/94 ..... 1

**SCOPE**

1 This annex to the ESPD for FV 430 series vehicles deals with the Crew Air Heater , which entered service against UOR(L) 15/94.

2 This heater consists of items listed in Table 1.

**TABLE 1 ITEMS CONTAINED IN MOD SET (NSN 2540-99-842-0395) CREW AIR HEATER FOR USE IN FV 430 SERIES OF VEHICLES AGAINST UOR(L) 15/94**

Serial (1)	NSN/Part No. (2)	Designation (3)	Qty per eqpt (4)
1	2540-99-795-3436 (FV 2200585)	Heater, air, 5 kW	1
2	5920-12-193-5464 (204 00 099)	Carrier, fuse	1
3	NIV (18759)	Terminal, ring	1
4	NIV (8989)	Louvre, outlet, assy	1
5	4720-99-411-1442 (10021)	Hose, flexible	1
6	NIV (10030)	Clip, duct	2
7	NIV (19740)	Adaptor, fuel	1
8	NIV (19739)	Locknut 5/8 in. UNF	1
9	NIV (17467)	Seal	1
10	NIV (17466)	Adaptor, hose	1
11	NIV (17465)	Hose, armoured	1
12	NIV (10 2063 01 20 98)	Clip, worm drive	2
13	NIV (17471)	Clip, 'P'	3
14	NIV (18066)	Tie, nylon	30
15	NIV (19735)	Cover, armoured	1
16	NIV (E1010)	Exhaust, assembly	1
17	NIV (10204)	Elbow, exhaust	1
18	5340-99-312-1686 (152 61 102)	Clamp, exhaust 26 mm	2

(continued)

**TABLE 1 ITEMS CONTAINED IN MOD SET (NSN 2540-99-842-0395) CREW AIR HEATER FOR USE IN FV 430 SERIES OF VEHICLES AGAINST UOR(L) 15/94 (continued)**

Serial (1)	NSN/Part No. (2)	Designation (3)	Qty per eqpt (4)
19	5340-99-052-0757 (152 10 051)	Clip, exhaust 28 mm	1
20	NIV (17469)	Sealant	1
21	NIV (17468)	Plate, warning, exhaust	1
22	NIV (17124)	Plate, warning, battery	1
23	NIV (19728)	Nut, hex, 5/8 in. UNF	4
24	NIV (19736)	Nut, hex, 5/16 in. UNF	5
25	NIV (19729)	Washer, flat, 5/8 in.	20
26	NIV (19737)	Washer, flat 5/16 in.	4
27	NIV (19730)	Washer, spring, 5/8 in.	4
28	NIV (19738)	Washer, spring, 5/16 in.	5

**PURPOSE**

- 3 The purpose of the crew heater is to provide heat for the occupants of FV430 service deployed to cold climates such as Bosnia and Kosovo.
- 4 The method of installation is detailed in AESP 2350-T-251-811 Mod Instr No. 1 to 138.
- 5 HQ LAND and DLO will grant authority for heaters to be deployed.

**MAINTENANCE**

- 6 Servicing. A user task in accordance with the relevant servicing schedule (AESP 2350-T-250-601).
- 5 Engineering Support Policy.

**UNIT MAINTENANCE (Levels 1 and 2)**

7

7.1 Unit maintenance (Level 1 and 2) are to be restricted to operations which can be carried out in the field in two hours or less, employing as many REME tradesmen as can conveniently work together on the task, with the proviso that no single operation should have a work content in excess of 4 man-hours under normal conditions.

7.2 Tools and equipment are to be limited to those which can readily be carried on the LAD engineering support vehicles without restricting the mobility of the unit and which are justified by the frequency on operational importance of the repair.

7.3 Unit repairs (levels 1 and 2) will consist of:

- 7.3.1 Replacement of defective component or minor assembly.
- 7.3.2 Adjustment, setting up and repair of any component or assembly.

### FIELD REPAIRS (Level 3)

8 Field repairs (Level 3) are generally restricted to operations which can not be carried out in four hours or less, employing as many REME tradesmen as can be conveniently work together on the task. No individual field repair should take more than eight man-hours altogether, with a limit of 40 hours for a combination of tasks; most field repairs will take considerably less.

9 Tools and equipment are to be limited to those which can be readily carried on the workshop vehicles without restricting its mobility and which are justified by the frequency or operational importance of the repair. Tools and jigs, which can be readily manufactured by the workshop, may be included.

10 Field repairs are normally carried out by REME personnel in the supporting second line workshop and consist of:

10.1 The repair of any part of the equipment, by replacement of a component, minor assembly or major assembly, not necessitating the stripping of the assembly.

10.2 Extensive field repairs which do not justify base repair, but which exceed in total work content that allowed for the workshop concerned, may be transferred to another workshop in accordance with the HQ Land BLR policy, or repaired in situ under authority of theatre headquarters REME Staff.

11 Modifications. The modification policy for this equipment is in accordance with EMER Management N 097.

12 Examination. The equipment is to be examined annually by REME in accordance with the provisions of EMER Management 0 026, as part of the vehicle annual inspection.

13 Review of ESPD. The details and policies set out in this ESPD are based on existing and planned deployments intended roles and experience of utilisation and reliability. The composition and deployment of the FV 430 Series fleet will be subject to much change over the coming years and this ESPD can act as a general guide only.

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