



Ministry  
of Defence



[REDACTED]  
DE&S Secretariat Land Equipment

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26-Sep-17 Our Reference:2017/09171

[REDACTED]

Thank you for your e-mail dated 20<sup>th</sup> September 2017, requesting the following information:

*I have just purchased an ex-military Air Log 4169A 5.6kva 240V AC generator from your disposal agents Witham Specialist Vehicles Ltd*

*I would be grateful if you could supply copies of any of the following documents but especially the 201 – Operating Information.*

- 6115-G-350-101 Purpose and Planning Information*
- 6115-G-350-201 Operating Information*
- 6115-G-350-302 Technical Description (contains wiring diagram)*
- 6115-G-350-512 Failure Diagnosis*
- 6115-G-350-601 Maintenance Schedule*
- 6115-G-350-711 Illustrated Parts Catalogue*
- 6115-G-350-811 Modification Instruction and Index*

I am treating your correspondence as a request for information under the Freedom of Information Act 2000 (FOIA).

A search for the information has now been completed within the Ministry of Defence, and I can confirm that information in scope of your request is held. The information you have requested can be found attached below, but some of the information falls entirely within the scope of the absolute exemption provided for at Section 40 (2) (Personal Data) of the FOIA and has been redacted.

Section 40(2) has been applied to some of the information in order to protect personal information as governed by the Data Protection Act 1998. Section 40 is an absolute exemption and there is therefore no requirement to consider the public interest in making a decision to withhold the information.

If you have any queries regarding the content of this letter, please contact this office in the first instance.

If you wish to complain about the handling of your request, or the content of this response, you can request an independent internal review by contacting the Information Rights Compliance team, Ground Floor, MOD Main Building, Whitehall, SW1A 2HB (e-mail CIO-FOI-IR@mod.uk). Please note that any request for an internal review should be made within 40 working days of the date of this response.

If you remain dissatisfied following an internal review, you may raise your complaint directly to the Information Commissioner under the provisions of Section 50 of the Freedom of Information Act. Please note that the Information Commissioner will not normally investigate your case until the MOD internal review process has been completed. The Information Commissioner can be contacted at: Information Commissioner's Office, Wycliffe House, Water Lane, Wilmslow, Cheshire, SK9 5AF. Further details of the

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role and powers of the Information Commissioner can be found on the Commissioner's website at <https://ico.org.uk/>.

Yours Sincerely



DE&S Secretariat Land Equipment

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**GENERATOR SET  
DIESEL ENGINE DRIVEN  
4.5kW (5.6kVA) 240V AC,  
SINGLE PHASE, 50 Hz  
(AIR LOG 4169A)**

REPRINTED NOV 1993 INCORPORATING AMDT No 1

**PURPOSE AND PLANNING INFORMATION**

**BY COMMAND OF THE DEFENCE COUNCIL**

Ministry of Defence

**PUBLICATIONS AUTHORITY  
Directorate General of Defence Quality Assurance  
Royal Arsenal West, Woolwich, SE18 6ST**

**CONDITIONS OF RELEASE**

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2. ~~This information must be accorded the same degree of security protection as that accorded thereto by the UK Government.~~
3. ~~This information may be disclosed only within the Defence Department of the recipient Government, except as otherwise authorized by the Ministry of Defence (Army).~~
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AMENDMENT RECORD

| Amdt No. | Incorporated By (Signature) | Date     |
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Purpose and Planning Information

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PREFACE

Sponsor: EME10 (c) (4)

INTRODUCTION

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

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

RELATED PUBLICATIONS

3 The Octad for the subject equipment consists of the publications shown below. All references are prefixed with the first eight digits of this publication.

| CATEGORIES AND INFORMATION LEVELS |     |     |     |     |     |     |     |     |   |     |     |     |   |   |
|-----------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|---|-----|-----|-----|---|---|
| CATEGORY                          | 1   | 2   | 3   | 4   |     | 5   |     |     |   | 6   | 7   |     | 8 |   |
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| 1 USER/OPERATOR                   | 101 | 201 | 201 | 411 | 411 | 201 | 201 | *   | * | 601 | *   | *   | * | * |
| 2 UNIT MAINTENANCE                | *   | *   | 302 | *   | *   | 512 | 522 | 532 | * | *   | 712 | 722 | * | * |
| 3 FIELD MAINTENANCE               | *   | *   | 302 | *   | *   | 512 | 522 | 532 | * | *   | *   | *   | * | * |
| 4 BASE MAINTENANCE                | *   | *   | *   | *   | *   | *   | *   | *   | * | *   | *   | *   | * | * |

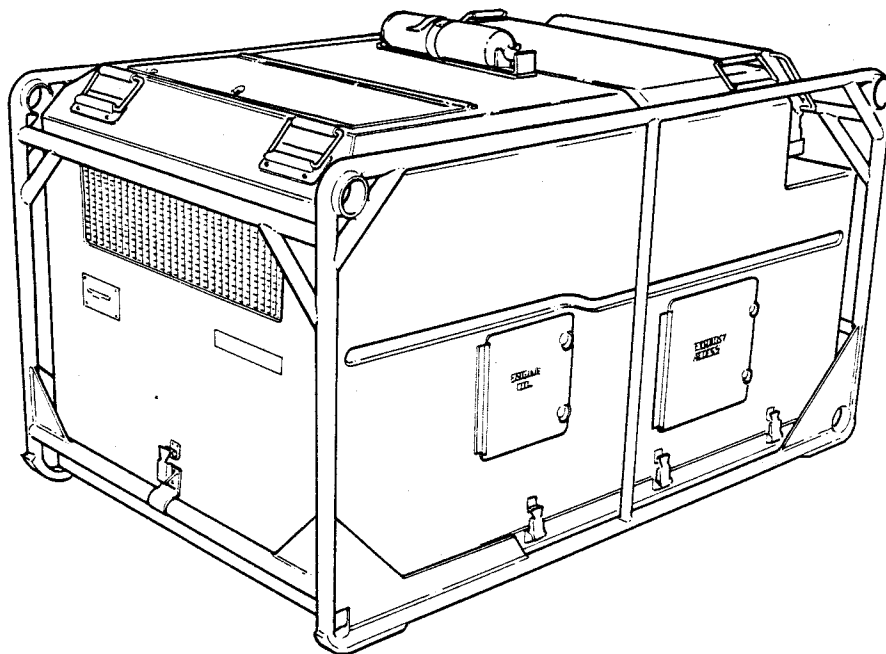
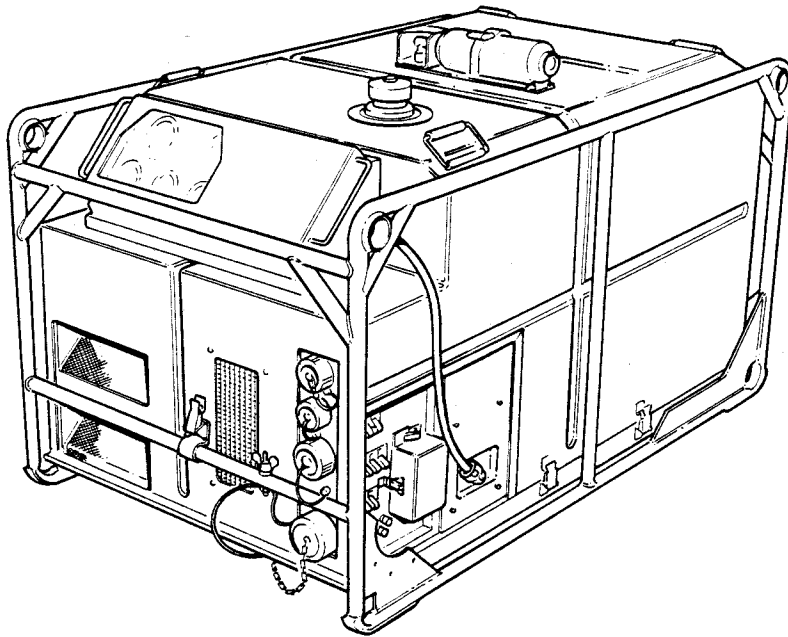
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 7.1 Illustrated Parts Catalogue  
 7.2 Commercial Parts List  
 8.1 Modification Instructions  
 8.2 General Instructions

\* Not Published

Note ...

Reference to AESP 0100-A-001-001 must be made to ensure the availability of the listed publications.



Frontispiece



EQUIPMENT IDENTITY

- 1 Item Name GENERATOR SET, DIESEL DRIVEN  
4.5kW (5.6 KVA) 240V AC, SINGLE  
PHASE, 50Hz (AIR-LOG 4169A)
- NSN X2/6115-99-795-5787
- Manufacturer Air-Log Ltd
- 2 The main items of equipment are detailed in table 1.

TABLE 1 PRINCIPAL COMPONENTS

| Item | Man.<br>Code          | NSN                 | Designation                                      | Qty |
|------|-----------------------|---------------------|--|-----|
| 1    | 0-4169-1/83           | X3/2819-99-145-9201 | Diesel Engine (Air-Log)                          | 1   |
| 2    | 0-4169-1/84           | X2-2815-99-700-3216 | Alternator (Air-Log)                             | 1   |
| 3    | ESC 63C<br>-7/-17/-23 |                     | Engine Governing System<br>(Air-Log)             | 1   |
| 4    | 0-4169-1/104          |                     | Output Panel Control Box<br>(Air-Log)            | 1   |
| 5    | 0-4169-1/3            |                     | Acoustic Cover (Air-Log)                         | 1   |
| 6    | 1-4169-1/138          |                     | Cable Assembly 3/4 metre<br>for Item 4 (Air-Log) | 1   |
| 7    | 1-4169-1/53           |                     | 10 metre Extension Cable<br>for Item 4 (Air-Log) | 1   |
| 8    | 2-4169-1/97           |                     | Extension Exhaust<br>(flexible) (Air-Log)        | 2   |
| 9    | 2-4169-1/99           |                     | Extension Exhaust (rigid)<br>(Air-Log)           | 3   |
| 10   | 0-4169-1/103          |                     | Fixed Box (Air-Log)                              | 1   |
| 11   | 1-4169-1/56           |                     | Protection Circuit Board<br>(Air-Log)            | 1   |

STOWED ITEMS

3 The stowed items forming part of the complete generator set are listed in tables 2 and 3.

TABLE 2 EXTERIOR STOWED ITEMS

| Item | Man. Code    | NSN                     | Designation  | Qty |
|------|--------------|-------------------------|--|-----|
| 1    | 890 423      | LV6MT1/4210-99-881-4724 | Fire Extinguisher BCF (Chubb)                                    | 1   |
| 2    | 0-4169-1/104 |                         | Output Panel Control Box (Air-Log)                               | 1   |
| 3    | 1-4169-1/138 |                         | Cable Assembly 3/4 metre (Air-Log) - Normally attached to item 2 | 1   |

Note ...

The exterior stowed items are stowed on the acoustic cover.

TABLE 3 INTERIOR STOWED ITEMS

| Item | Man. Code     | NSN                  | Designation                 | Qty |
|------|---------------|----------------------|-----------------------------|-----|
| 1    | IE/B/59367    | X42/5975-99-901-0148 | Rod Earthing                | 1   |
| 2    | MEXE/3/9753/7 | X2/6110-99-901-5502  | Lead, Earthing              | 1   |
| 3    |               | Z32/5935-99-038-5515 | Connector, Electrical, Free | 1   |
| 4    |               | Z32/5935-99-038-5507 | Connector, Electrical, Free | 2   |
| 5    |               | Z32/5935-99-940-1668 | Connector, Electrical, Free | 1   |
| 6    |               |                      | AD2 Starter Rope (Petter)   | 1   |

Note ...

The Interior stowed items are stowed in the stowage compartment on top of the acoustic cover.

UNSTOWED ITEMS

4 The unstowed items forming part of the complete generator set are listed in table 4.

TABLE 4 UNSTOWED ITEMS

| Item | Man. Code   | NSN | Designation                               | Qty |
|------|-------------|-----|---|-----|
| 1    | 2-416901/97 |     | Extension Exhaust<br>(flexible) (Air-Log) | 2   |
| 2    | 2-4169-1/99 |     | Extension Exhaust (rigid)<br>(Air-Log)    | 3   |
| 3    | 1-4169-1/53 |     | 10 metre Extension Cable<br>(Air-Log)     | 1   |

WARNINGS

5 The following warnings indicate hazards present during normal use of the equipment and can cause harm to personnel.

LETHAL VOLTAGES

- (1) THE VOLTAGES GENERATED IN THIS EQUIPMENT CAN ENDANGER HUMAN LIFE. CARELESSNESS CAN BE FATAL.
- (2) ENSURE THE EQUIPMENT IS PROPERLY EARTHED: SWITCH OFF POWER BEFORE CONNECTING AND DISCONNECTING CABLES.

TOXIC GASSES

THE EQUIPMENT EMITS TOXIC GASSES WHEN OPERATING.  
ENSURE THE SITE IS WELL VENTILATED.

FIRE HAZARD

- (1) LEAKAGE OF FUEL, ENGINE OIL, COOLANT, HYDRAULIC FLUID OR EXHAUST GASSES IS A FIRE HAZARD.
- (2) DIESEL FUEL IS FLAMMABLE. REFUELLING MUST BE CARRIED OUT AWAY FROM ANY POTENTIAL SOURCES OF IGNITION.

ROLE AND PURPOSE

6 The generator set is designed for field deployment to supply 240V (nominal) 50Hz single phase 5.6kVA, at 0.8 power factor.

### BRIEF DESCRIPTION

7 The generator set type 4169A consists of an air-cooled twin-cylinder diesel engine coupled to an alternator. The generator is mounted into a tubular steel frame and is enclosed by a demountable GRP enclosure which is held in place by seven quick-release fasteners. The tubular steel frame houses a 25 litre (5.5 gallon) fuel tank that provides an on-load running time of 12 hours. Engine and alternator cooling is accomplished by an integral engine fan, plus an additional fan driven from the engine shaft. External air for engine cooling is drawn through an inlet on the engine end of the GRP enclosure and is expelled with exhaust gas through louvres on the opposite end of the enclosure. A second inlet provides air for cooling the alternator.

Normal starting is accomplished by means of an electric starter motor which is driven by a maintenance free starter battery mounted within the chassis assembly. The battery is automatically charged from a battery charger unit on the generator set. Emergency starting is accomplished by means of a rope and pulley. The control box containing the starter switch can be remotely deployed using the 10 m cable.

Generator output is obtained from a single 50A socket, two 25A sockets, one 13A socket or from stand-off terminals. All output sources are protected by electro-mechanical circuit breakers; these isolate the load from the generator.

#### Parallel Running

8 Two type 4169A generator sets can be connected in parallel to increase output capability.

#### Trailer Mounting

9 A single generator set type 4169A can be mounted to the three-quarter tonne trailer type FV2381 Mk II. Two generators of this type can be mounted to the two-and-a-half tonne trailer type FV2406 Mk II. Mounting kits are available for both of these trailers.

### PHYSICAL DATA

10 Dimensions and Weights:

|        |          |                     |
|--------|----------|---------------------|
| Size   | - Length | 1310mm              |
|        | - Width  | 800mm               |
|        | - Height | 840mm               |
| Weight | -        | 270kg dry (nominal) |

### ELECTRICAL DATA

11 Output 240V single phase (220 to 250V adjustable 50Hz at 3000rpm, 4.5kW (5.6 KVA at 0.8 power factor).

OPERATIONAL DATA

12 Ideally the generator set should be deployed on firm level ground, clear of scrub and protrusions. The generator set will function at an angle of 20 degrees in any axis.

13 Fuel Consumption Unit (FCU) = 24 litres

ENVIRONMENTAL DATA

14 The generator set will operate within a temperature environment of -30°C to +44°C and will operate in relative humidity conditions of up to 100 percent and an atmospheric pressure of 503 to 1080 millibars.

TRANSPORTATION DATA

15 Transportation details are as follows:

- 15.1 AIR - To be advised
- 15.2 SEA - To be advised
- 15.3 RAIL - To be advised

MANNING REQUIREMENTS

16 For normal use, one man can operate the generator; operator maintenance and repair tasks need two men (to remove the acoustic cover). Manual start requires two men.

One Man Operator Tasks

17 The following tasks can normally be carried out by one operator:

- 17.1 Top up fuel tank with or without the set being operational (provided the acoustic cover is in place).
- 17.2 Adjust VOLTAGE CONTROL for load variations.
- 17.3 Adjust ENGINE SPEED CONTROL for fine tuning of frequency.
- 17.4 Shutdown the generator set.
- 17.5 Start up the generator set (battery start).
- 17.6 Deploy the extension exhaust tubes.
- 17.7 Deploy the output panel control box to a remote position by fitting the 10 metre cable in place of the 3/4 metre cable. (The engine must be stopped for this procedure).

ASSOCIATED PUBLICATIONS

18 The publications associated with this generator set are listed below:

| <u>Code No.</u> | <u>Type</u> | <u>Title</u>  |
|-----------------|-------------|---|
| 2815-B-641      | AESP        | Engine, Diesel, 1 & 2 Cylinder, Petter A Range, Air and Water Cooled. |



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**GENERATOR SET  
DIESEL ENGINE DRIVEN  
4.5kW (5.6kVA) 240V AC,  
SINGLE PHASE, 50 Hz  
(AIR LOG 4169A)**

**OPERATING INFORMATION**

REPRINTED INCORPORATING AMDT 1

**BY COMMAND OF THE DEFENCE COUNCIL**

Ministry of Defence

**PUBLICATIONS AUTHORITY  
Directorate General of Defence Quality Assurance  
Royal Arsenal West, Woolwich, SE18 6ST**

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AMENDMENT RECORD

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Chapter

- 1 Description
- 2 Operating procedures
- 3 Failure diagnosis and repair
- 4 Destruction of equipment

PREFACE

Sponsor: EME10 (c) (4)

INTRODUCTION

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

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

RELATED AND ASSOCIATED PUBLICATIONSRelated Publications

3 The Octad for the subject equipment consists of the publications shown below. All references are prefixed with the first eight digits of this publication.

| CATEGORIES AND INFORMATION LEVELS |     |     |     |     |     |     |     |     |   |     |     |     |   |   |
|-----------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|---|-----|-----|-----|---|---|
| CATEGORY                          |     |     |     | 4   |     | 5   |     |     |   | 6   | 7   |     | 8 |   |
|                                   | 1   | 2   | 3   | 1   | 2   | 1   | 2   | 3   | 4 |     | 1   | 2   | 1 | 2 |
| 1 USER/OPERATOR                   | 101 | 201 | 201 | 411 | 411 | 201 | 201 | *   | * | 601 | *   | *   | * | * |
| 2 UNIT MAINTENANCE                | *   | *   | 302 | *   | *   | 512 | 522 | 532 | * | *   | 712 | 712 | * | * |
| 3 FIELD MAINTENANCE               | *   | *   | 302 | *   | *   | 512 | 522 | 532 | * | *   | *   | *   | * | * |
| 4 BASE MAINTENANCE                | *   | *   | *   | *   | *   | *   | *   | *   | * | *   | *   | *   | * | * |

- |                                    |                                 |
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| 1.0 Purpose & Planning Information | 5.3 Inspection Standards        |
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| 5.1 Failure Diagnosis              | 8.1 Modification Instructions   |
| 5.2 Repair Instructions            | 8.2 General Instructions        |

\* Not published

Note ...

Reference to AESP 0100-A-001-001 must be made to ensure the availability of the listed publications.

Associated Publications

| <u>Code No.</u> | <u>Type</u> | <u>Title</u>   |
|-----------------|-------------|--|
| 2815-B-641      | AESP        | Engine, Diesel 1 and 2 Cylinder,<br>Petter A Range, Air and Water<br>Cooled. |

WARNINGS...

LETHAL VOLTAGES

(1) VOLTAGES OUTPUT FROM THIS GENERATOR SET CAN ENDANGER LIFE. CARELESSNESS CAN BE FATAL. ENSURE THAT THE CHASSIS IS CORRECTLY EARTHED AND THAT THE EARTH LEAKAGE CIRCUIT BREAKER FUNCTIONS CORRECTLY FOR OUTPUT 4.

(2) BEFORE OPENING THE ACCESS COVER TO THE EMERGENCY TERMINALS, THE EMERGENCY TERMINALS 13A CIRCUIT BREAKER SHOULD BE AT THE OFF POSITION.

(3) THIS GENERATOR SET IS FITTED WITH RFI/EMP FEED THROUGH FILTERS. THE GENERATOR SET MUST BE CORRECTLY EARTHED BEFORE USE.

INJURY TO PERSONNEL

(1) WHEN REMOVING/REPLACING THE ENGINE/ALTERNATOR FROM THE CHASSIS, PREVENT INJURY TO PERSONNEL BY USING ADEQUATE SUPPORT DURING THE LIFTING OPERATIONS.

(2) PRECAUTIONS SHOULD BE TAKEN TO PREVENT EXHAUST GASES FROM ENTERING TRENCHES OR OTHER AREAS OCCUPIED BY PERSONNEL.

SPILLAGE OF DIESEL FUEL

PRECAUTIONS SHOULD BE TAKEN TO PREVENT THE SPILLAGE OF FUEL ONTO THE SOFT NOISE ABSORBANT AREAS WITHIN THE ENGINE ENCLOSURE AND THE ACOUSTIC COVER. ANY SUCH SPILLAGES SHOULD BE ATTENDED TO IMMEDIATELY. ANY SPILLAGES MUST BE CLEANED UP BEFORE RUNNING THE GENERATOR SET.

BOOST CHARGING

BOOST CHARGING OF SEALED FOR LIFE (MAINTENANCE FREE) BATTERY. THE GENERATOR SET IS FITTED WITH SUCH A BATTERY. ON NO ACCOUNT MUST THIS BATTERY BE SUBJECTED TO A RAPID BOOST CHARGE OF THE TYPE USED FOR A NORMAL LEAD/ACID TYPE OF BATTERY. ANY BOOST CHARGE MUST BE FROM A CONSTANT VOLTAGE SOURCE NOT EXCEEDING 15 VOLTS AND A MAXIMUM CHARGE CURRENT OF 35 AMPERES (30 AMPERES NOMINAL).

# RESUSCITATION

## TREATMENT OF THE NON-BREATHING CASUALTY

### NOTICE

The inclusion of the emergency resuscitation placard (MOD Form 656) in Military Technical Publications has been discontinued.

This notice is to be retained in the publication until removed by amendment instruction.

Chapter 1

DESCRIPTION

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INTRODUCTION

GENERAL

1 This generator set is a chassis mounted diesel driven alternator that can be man handled over short distances. The engine/alternator assembly is enclosed in a demountable acoustic cover.

Role and Purpose

2 The generator set is designed for field use and can be deployed on trailer, or free-standing. The generator set provides 240V 50Hz (nominal) single phase and is rated at 4.5kW (5.6 kVA at 0.8 power factor). It is designed for operation with the acoustic cover in place (use without the acoustic cover is not recommended). Two generator sets of this type can be connected in parallel for greater output power.

Generator Set On/Off Loading (Fig 1)

3 The generator set can be on/off loaded from a trailer using a crane with the appropriate slings.

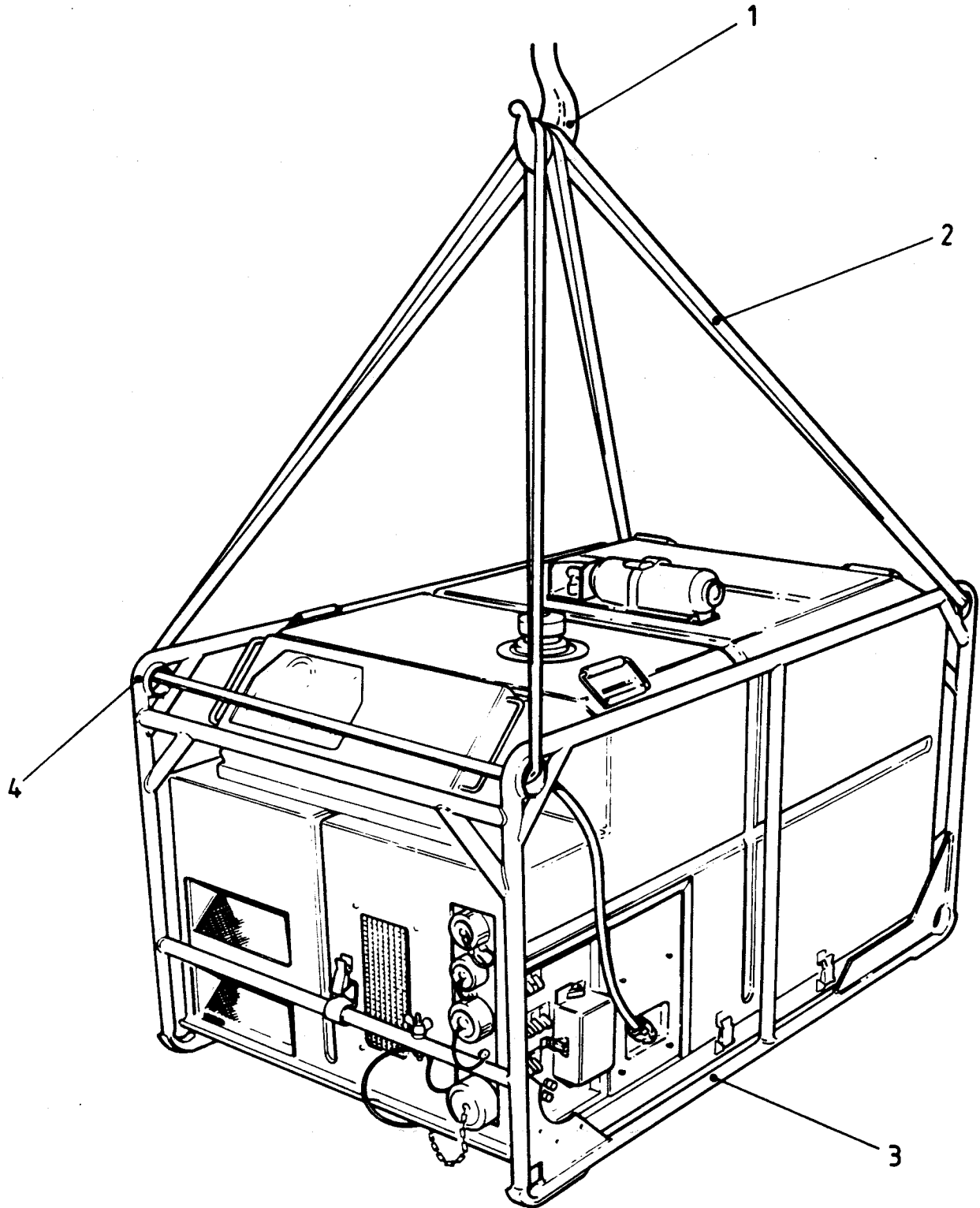
Lifting (Fig 1)

4 Before lifting the generator set ensure that all external stowed items are properly secured or stowed. All doors and other apertures must be closed and properly secured. The acoustic cover must be correctly fitted and secured by means of the quick release toggle catches.

WARNING ...

THE SAFE WORKING LOAD (SWL) OF THE SLINGS MUST BE NOT LESS THAN 2.0 TONNES.

4.1 Using two lifting slings the generator set can be lifted by crane or helicopter.



- |  |                                     |
|--|-------------------------------------|
| 1. Hook (from mobile crane)              | 3. Tubular Chassis of Generator Set |
| 2. Lifting Slings (SWL 2 tonnes minimum) | 4. Lifting Points (4 off)           |

Fig 1 Generator Set Lifting Arrangements



Mounting onto Three-Quarter Tonne Trailer (Fig 2)

5 The Generator set can be mounted onto the FV2380/1 Mk.II trailer using the Air-Log Ltd. Parts Kit No. 4-4169-1-121 the contents of which are listed in TABLE 1. The generator set is mounted in accordance with the instructions contained in figure 3.

TABLE 1 PARTS KIT FOR MOUNTING TO FV2380/1 MK II

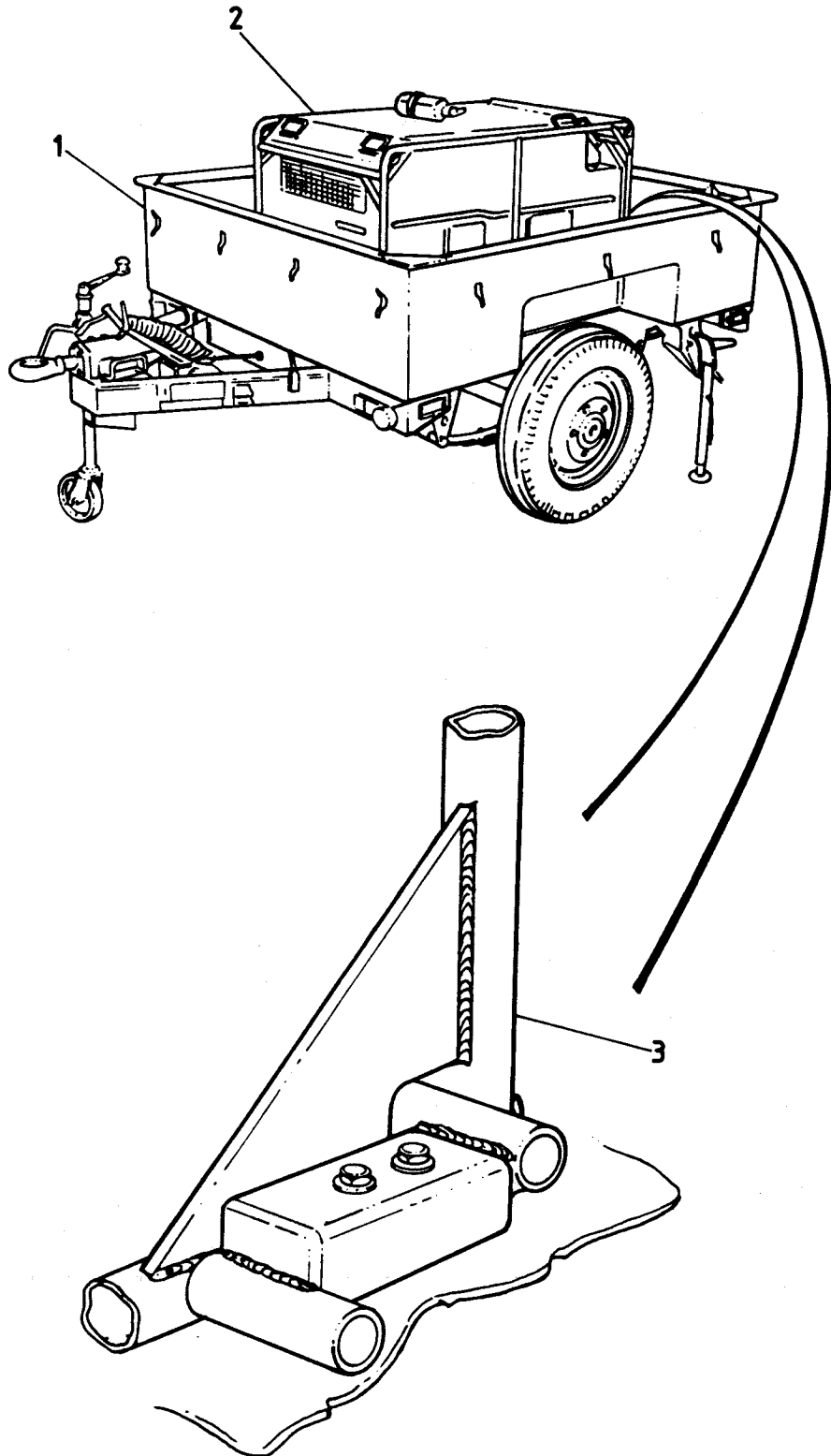
| Item | Item Identity                               | Part No.     | NSN | Qty |
|------|---|--------------|-----|-----|
| 1    | Clamp Assy.                                 | 1-4169-1/118 |     | 4   |
| 2    | Plate, Small                                | 4-4169-1/120 |     | 4   |
| 3    | Bolt, 3/8" UNF x 3"<br>Hex Ltd. to BS1768   |              |     | 8   |
| 4    | Nut, Stiff, Ordinary,<br>3/8" UNF to BS1768 |              |     | 8   |
| 5    | Washer, 3/8" dia. to<br>BS1768              |              |     | 16  |

Mounting onto Two and a Half Tonne Trailer (Fig 4)

6. The generator set can be mounted onto the FV2406 Mk. II trailer using the Air-Log Ltd. Parts Kit No. 4-4169-1-122 the contents of which are listed in TABLE 2. The generator set is mounted in accordance with the instructions contained in figure 5.

TABLE 2 PARTS KIT FOR MOUNTING TO FV2406 Mk II

| Item | Item Identity                               | Part No.     | NSN | Qty |
|------|---|--------------|-----|-----|
| 1    | Clamp Assy.                                 | 1-4169-1/118 |     | 8   |
| 2    | Plate, Small                                | 4-4169-1/120 |     | 4   |
| 3    | Bolt, 3/8" UNF x 4"<br>Hex to BS1768        |              |     | 16  |
| 4    | Nut, Stiff, Ordinary,<br>3/8" UNF to BS1768 |              |     | 16  |
| 5    | Washer, 3/8" dia. to<br>BS1768              |              |     | 32  |



1. FV2380/1 Mk II
2. Generator Set
3. Clamp Assy. 4 off  
(see fig. 3 for  
mounting detail)

SIMILAR IN FOUR POSITIONS

Fig 2 Generator Set - Method of Mounting to  
Three-quarter Tonne Trailer Type FV2380/1 Mk. II

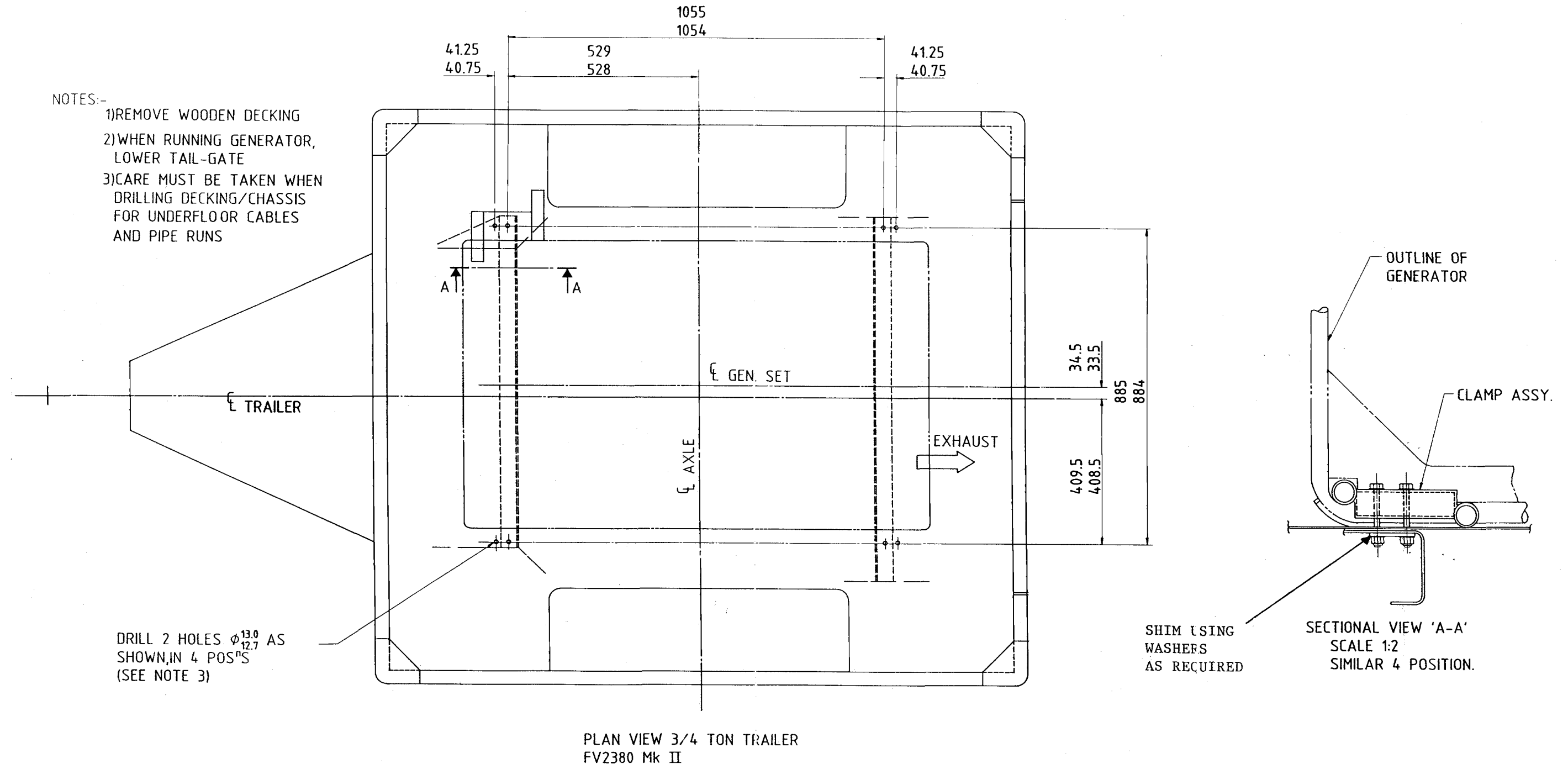
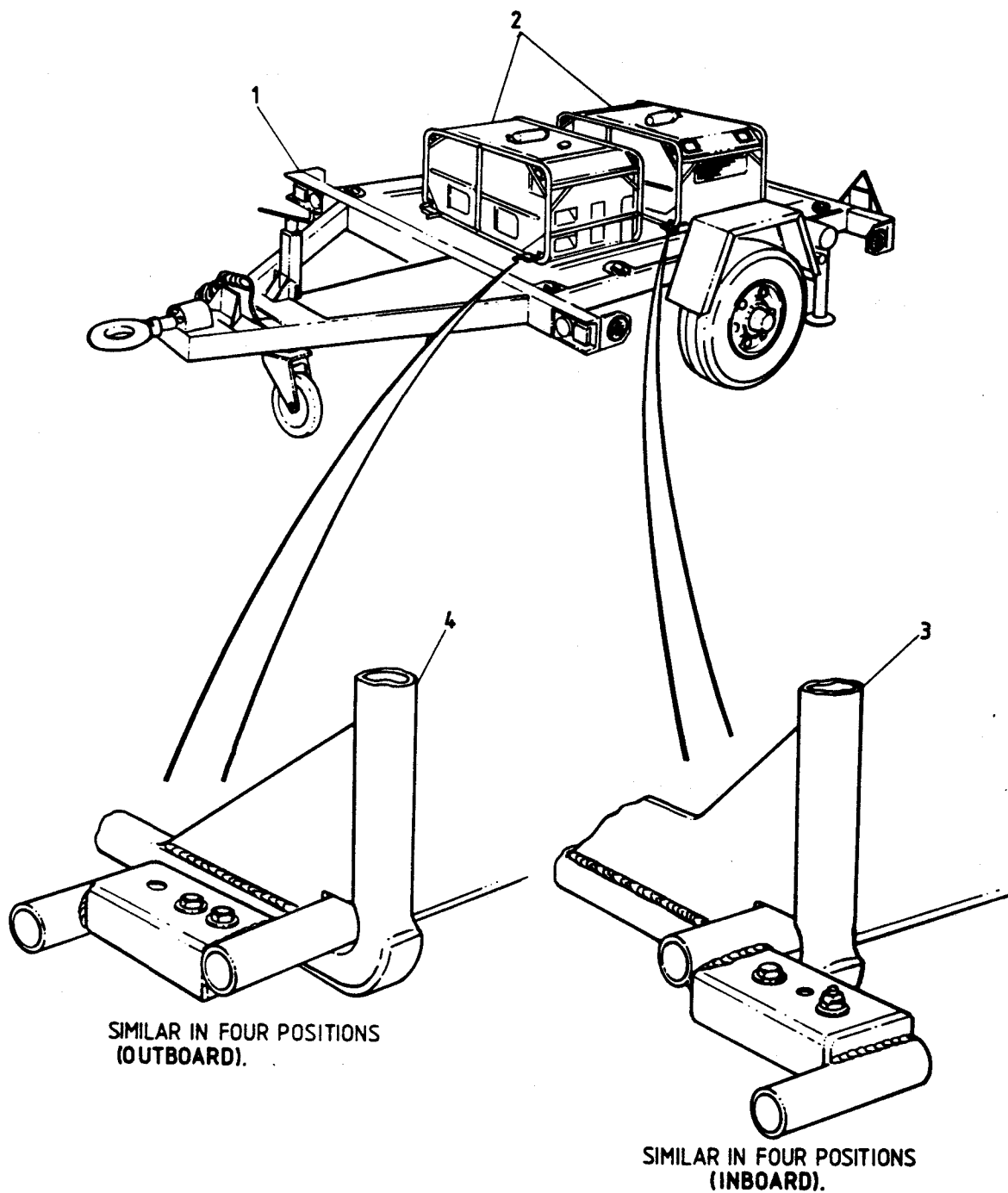


Fig 3 Mounting Data for FV2380/1 Mk. II



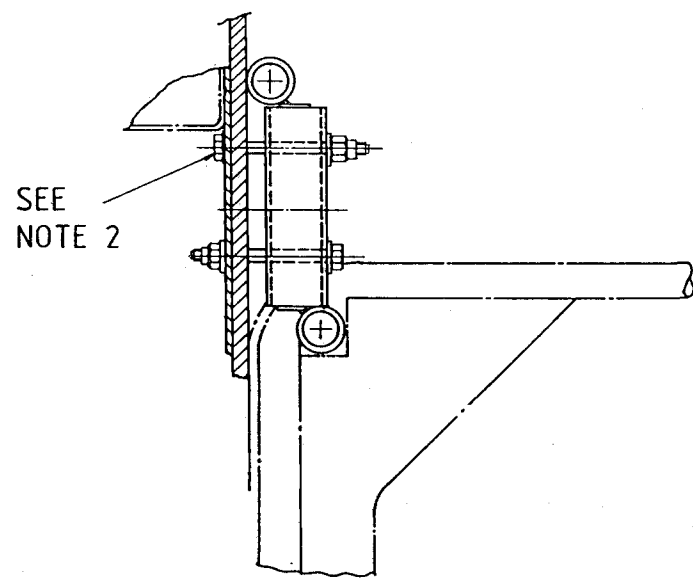
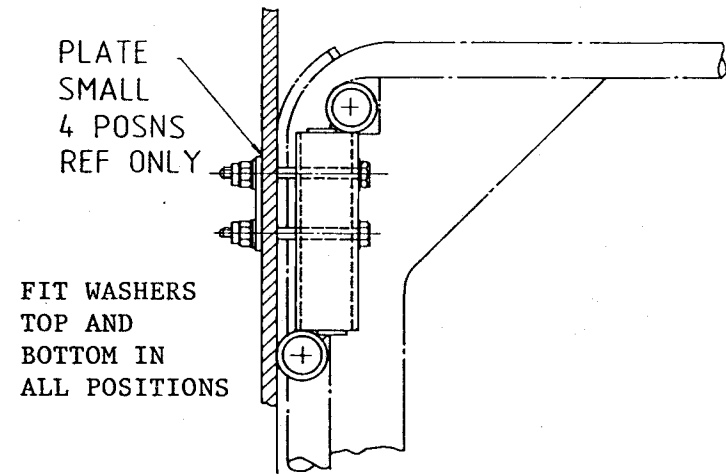
1. FV2406 Mk II
2. Correct positions for two generators
3. Clamp Assy. 4 off; for inboard mounts\*
4. Clamp Assy. 4 off; for outboard mounts\*

\* see Fig. 5 for mounting detail.

Fig 4 Generator Set - Method of Mounting to  
Two-and-a-half Tonne Trailer Type FV2406 Mk. II

- NOTES:-
- 1) CARE MUST BE TAKEN WHEN DRILLING DECKING /CHASSIS FOR UNDERFLOOR CABLES AND PIPERUNS
  - 2) ASSEMBLE BOLTS FROM THE UNDERSIDE AT THESE POSITIONS ONLY.

SECTIONAL VIEW ON ARROWS 'A-A'  
SCALE 1:2



SECTIONAL VIEW ON ARROWS 'B-B'  
SCALE 1:2

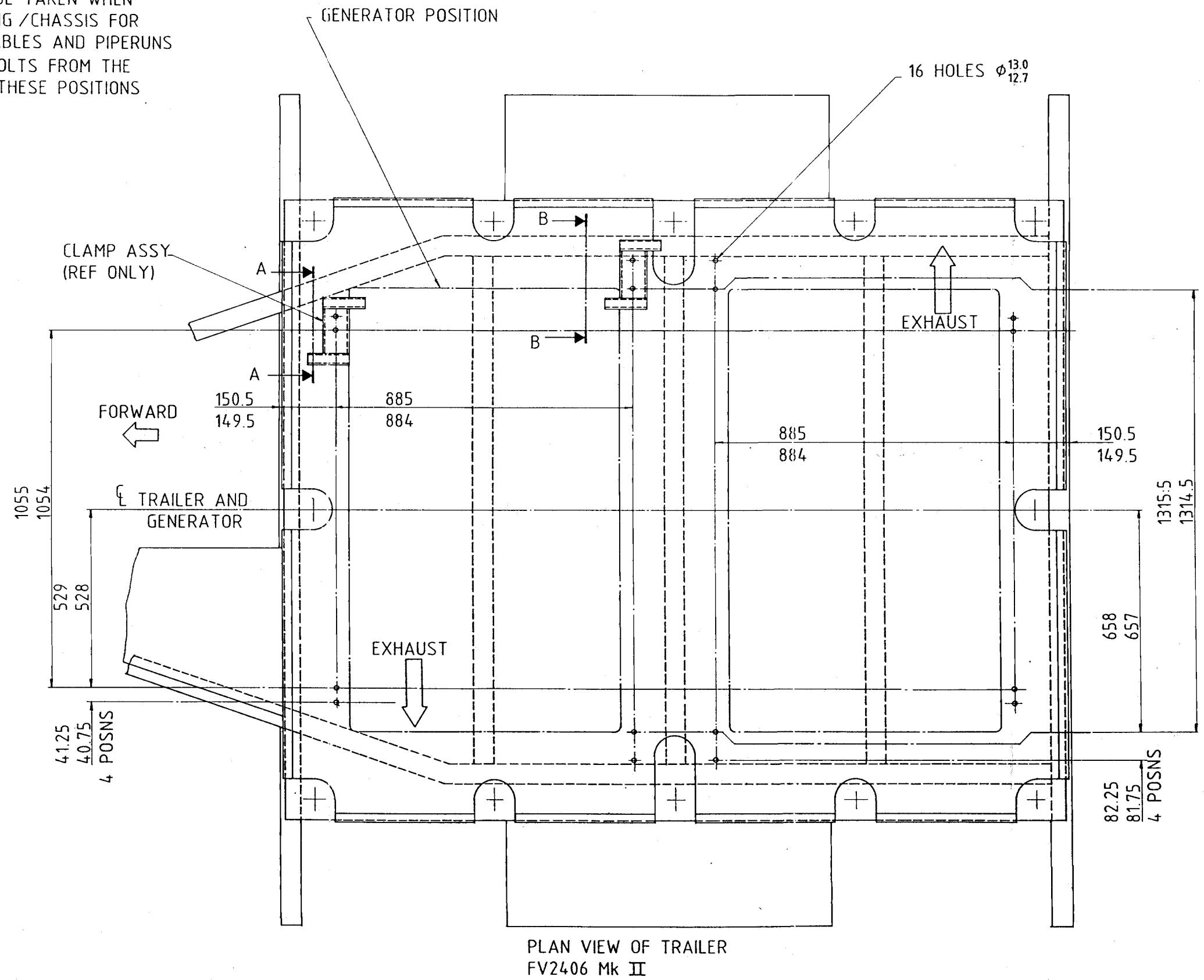


Fig 5 Mounting Data for FV2406 Mk. II

GENERAL DESCRIPTION

DESCRIPTION (Fig 6)

7 The generator set consists of an air-cooled twin-cylinder diesel engine coupled to an alternator. The generator is mounted into a tubular steel frame and is enclosed by a demountable glass reinforced plastic (GRP) enclosure which is held in place by seven quick-release fasteners. The tubular steel frame houses a 25 litres (5.5 gallons) fuel tank that provides an on-load running time of 12 hours. Engine and alternator cooling is accomplished by an integral engine fan, plus an additional fan driven from the engine shaft. External air for engine cooling is drawn through an inlet on the engine side of the GRP enclosure and is expelled with exhaust gas through louvres on the opposite side of the enclosure. A second inlet provides air for cooling the alternator.

STARTING

WARNING ...

THIS GENERATOR SET CONTAINS FEED THROUGH FILTER CAPACITORS. BEFORE USING THE GENERATOR ENSURE THAT IT IS CORRECTLY EARTHED.

8 Normal starting is accomplished by means of an electric starter motor which is driven by a starter battery mounted on the floor panel. Emergency starting is accomplished by means of a rope and pulley. The control box containing the starter switch can be remotely deployed using the 10m remote cable, or it can be left mounted within the tubular frame.

OUTPUT

9 Generator output is obtained from a single 50A socket, two 25A sockets, one 13A socket or from stand-off terminals. All output sources are protected by electro-mechanical circuit breakers.

NOTE: The above current ratings apply to the sockets and not to the output that can be drawn from them.

SPECIFICATION

10 The physical and operational parameters are defined as follows:

|        |  |
|--------|--|
| Size   | Length 1310mm                                |
|        | Width 800mm                                  |
|        | Height 840mm                                 |
| Weight | 270kg dry (nominal)                          |
| Engine | Petter AD2, twin cylinder air-cooled diesel. |
|        | Normal start, electric motor.                |
|        | Emergency start, rope and pulley.            |
|        | Fuel tank capacity 25 litres (5.5 gallons).  |

Cooling, air-cooled twin fan off engine shaft.

Engine oil - DEF STAN 01-5 according to environment  
(3.8 litres).

Exhaust, local or remote extension tubes.

Fuel input, is automatically controlled by engine  
start-up switch.

Alternator

Allam, 4.5Kw

Output 240V single phase (220 to 252V adjustable)

50Hz at 3000 rpm

Control Console Mounted on the GRP enclosure. Can be deployed up to 10m  
from generator.

Protection

When the generator set is running the following  
protection circuits are operational:

- Over current
- Over voltage
- Reverse Power
- Over/Under Frequency
- Air Cooling Over Temperature
- Oil Over Temperature
- Oil Pressure Low

ENGINE

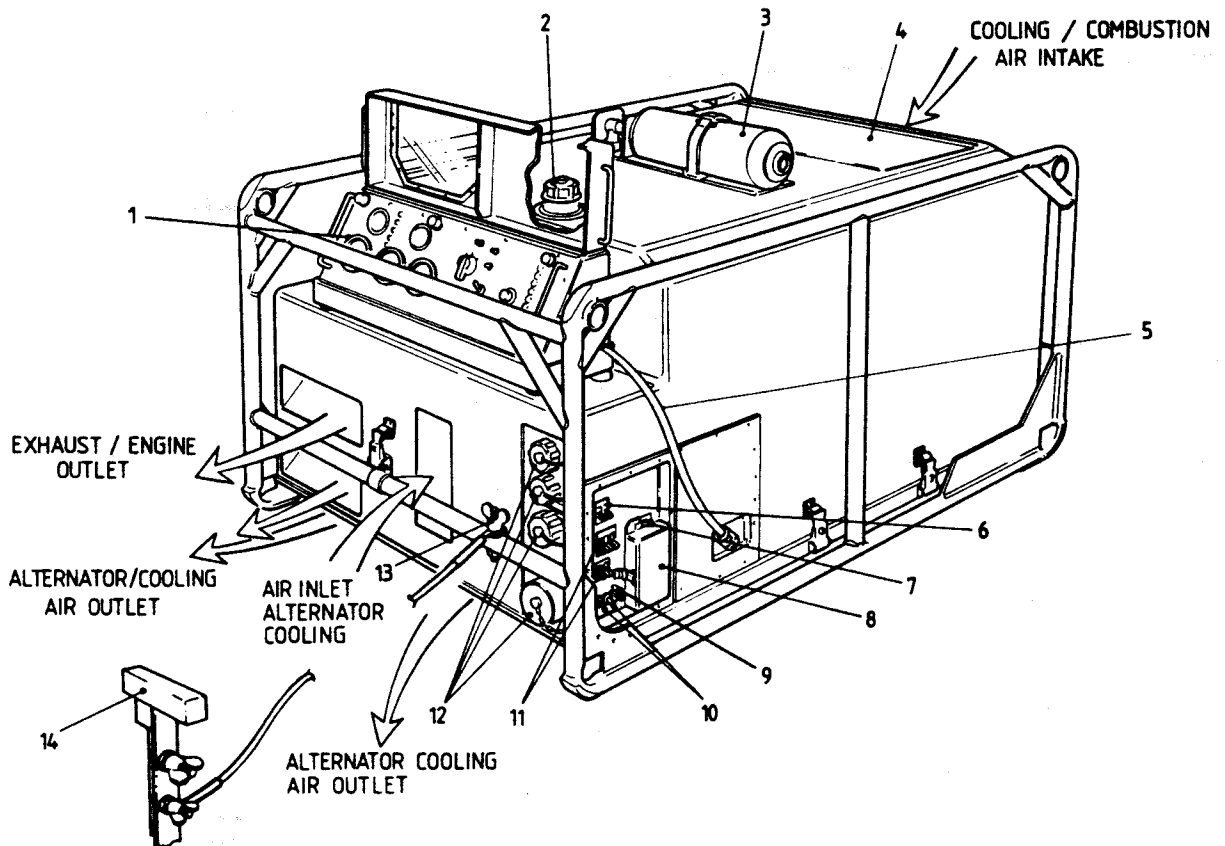
11 This is a Petter AD2 twin cylinder air-cooled diesel engine of 734cc capacity; bore and stroke are 80.0 x 73.0mm respectively. The cylinders are vertical in-line north/south configuration. The engine is included in the MOD type approval list DEF-STAN 28-2. The AD2 has many components common to the AC2 and the AC1 engines. The flywheel is of the high inertia type producing good cyclic regularity. The drive from the AD2 engine is taken from the flywheel end which is coupled to the alternator. The whole of the generator set is enclosed in a demountable glass reinforced ply (GRP) acoustic cover held in place by means of seven quick release fasteners.

Cooling (Fig 6)

12 The engine is air cooled by means of twin fans run from the engine output shaft. Cooling and combustion air for the engine enters the acoustic cover, through the grill at the rear end, and is forced out through louvres at the front end. Cooling air for the alternator enters the acoustic cover through the centre-mounted grill at the front end and is expelled from underneath the chassis at the front end.

CAUTION

When the generator set is deployed the air inlet/outlet areas must be free from obstructions.



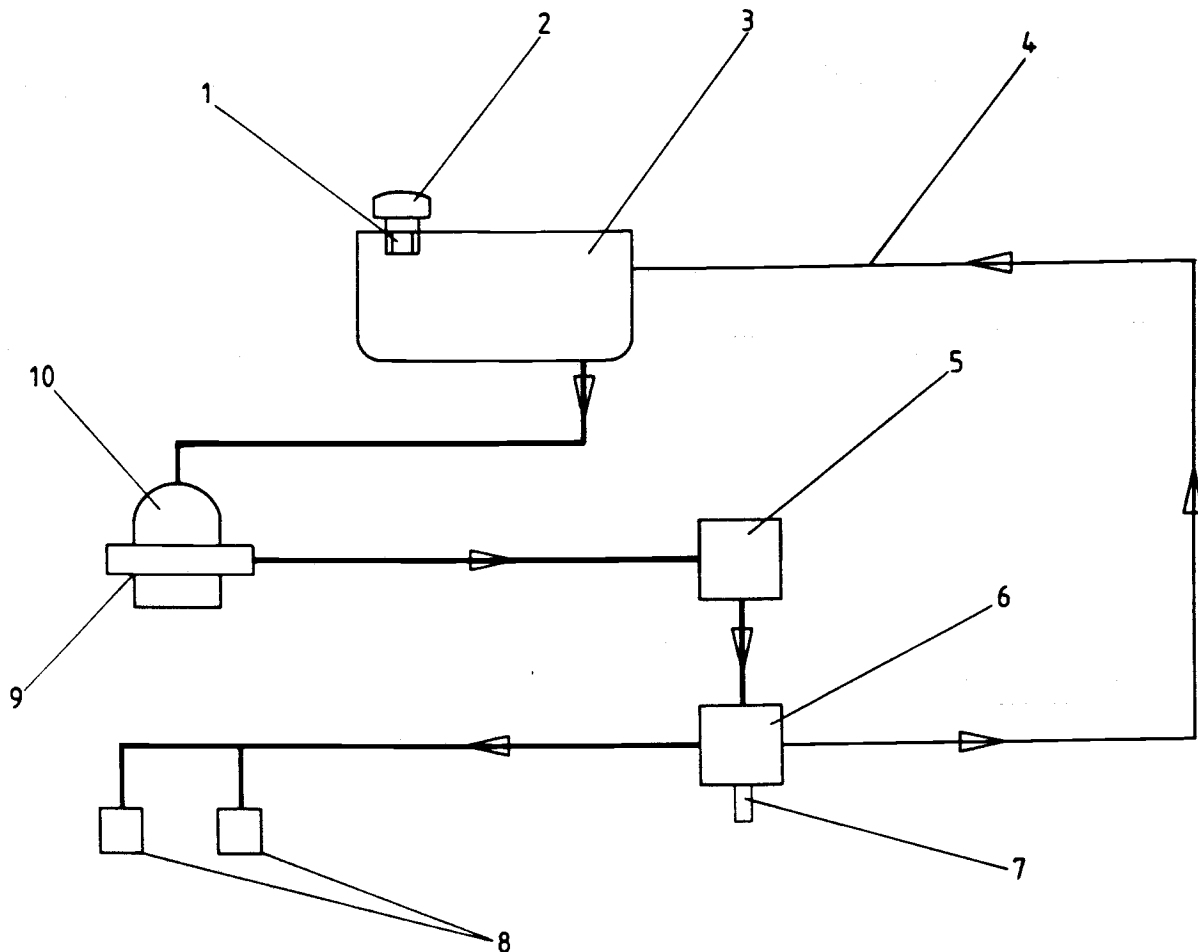
- |                                     |   |
|-------------------------------------|---|
| 1. Output Panel Control Box         | 8. Emergency Output Terminals Cover       |
| 2. Fuel Filler Cap                  | 9. Synchro Lamp and Switch                |
| 3. Fire Extinguisher (BCF)          | 10. Single/Parallel Mode Switches (2 off) |
| 4. Stowage Compartment              | 11. Output ON/OFF Switches                |
| 5. 3/4 m Cable                      | 12. Output Sockets                        |
| 6. Generator Output Switch          | 13. Earth (Ground) Connector              |
| 7. Emergency Terminals Switch (30A) | 14. Earth Spike and earth lead            |

Fig 6 Generator Set, Diesel Driven 4.5kW (5.6kVA)  
240V Single Phase, 50Hz - General View



Fuel System (Fig 7)

13 The fuel system for the generator set is shown in Figure 7 block schematic diagram. The fuel tank capacity is 5.5 gallons (25 litres) providing an on-load running time of 12 hours (nominal). The fuel system is automatically bled and, for normal use, no preparation is needed before using the engine. The fuel actuator is automatically operated when the starter switch is operated.

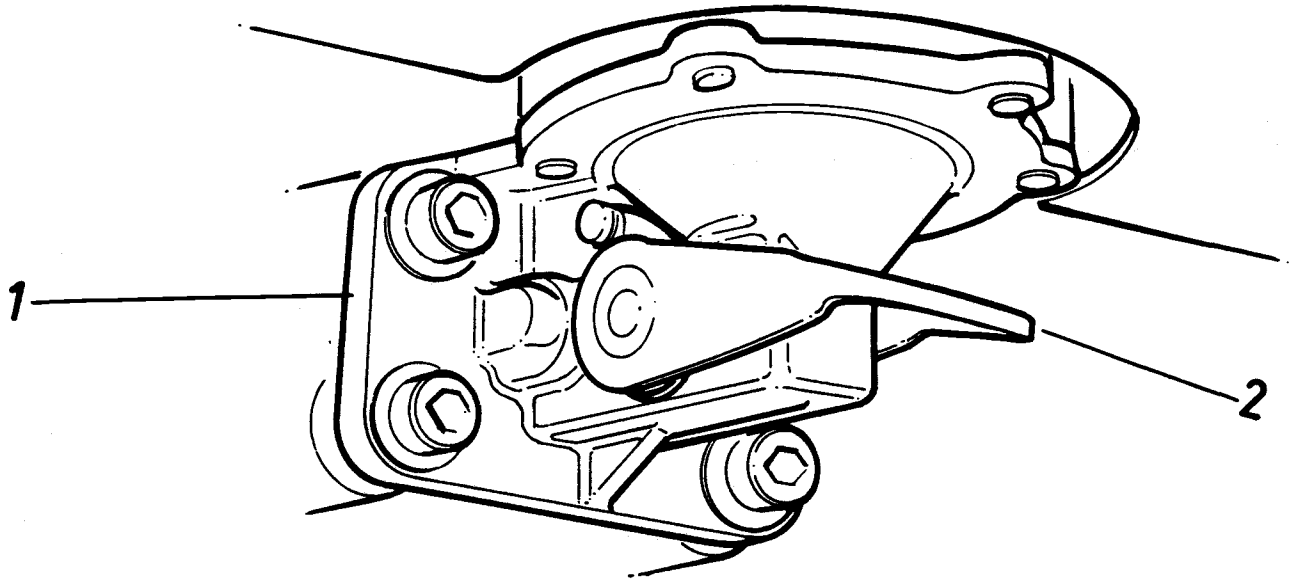


- |                           |  |
|---------------------------|--|
| 1. Fuel Tank Inlet Filter | 6. Fuel Flow Regulator                                       |
| 2. Fuel Tank Filler Cap   | 7. Mechanical Actuator (Controlled from Electronic Governor) |
| 3. Fuel Tank              | 8. Fuel Injectors  |
| 4. Fuel Bleed Pipe        | 9. Fuel Pump Hand Primer                                     |
| 5. Fuel Filter Bowl       | 10. Fuel Pump  |

Fig 7 Fuel System Block Diagram

Fuel System Bleeding

14 The fuel system automatically bleeds, but if the fuel system is allowed to run dry it will be necessary to operate the hand primer (Fig 8) approximately twenty times to prime the fuel system.



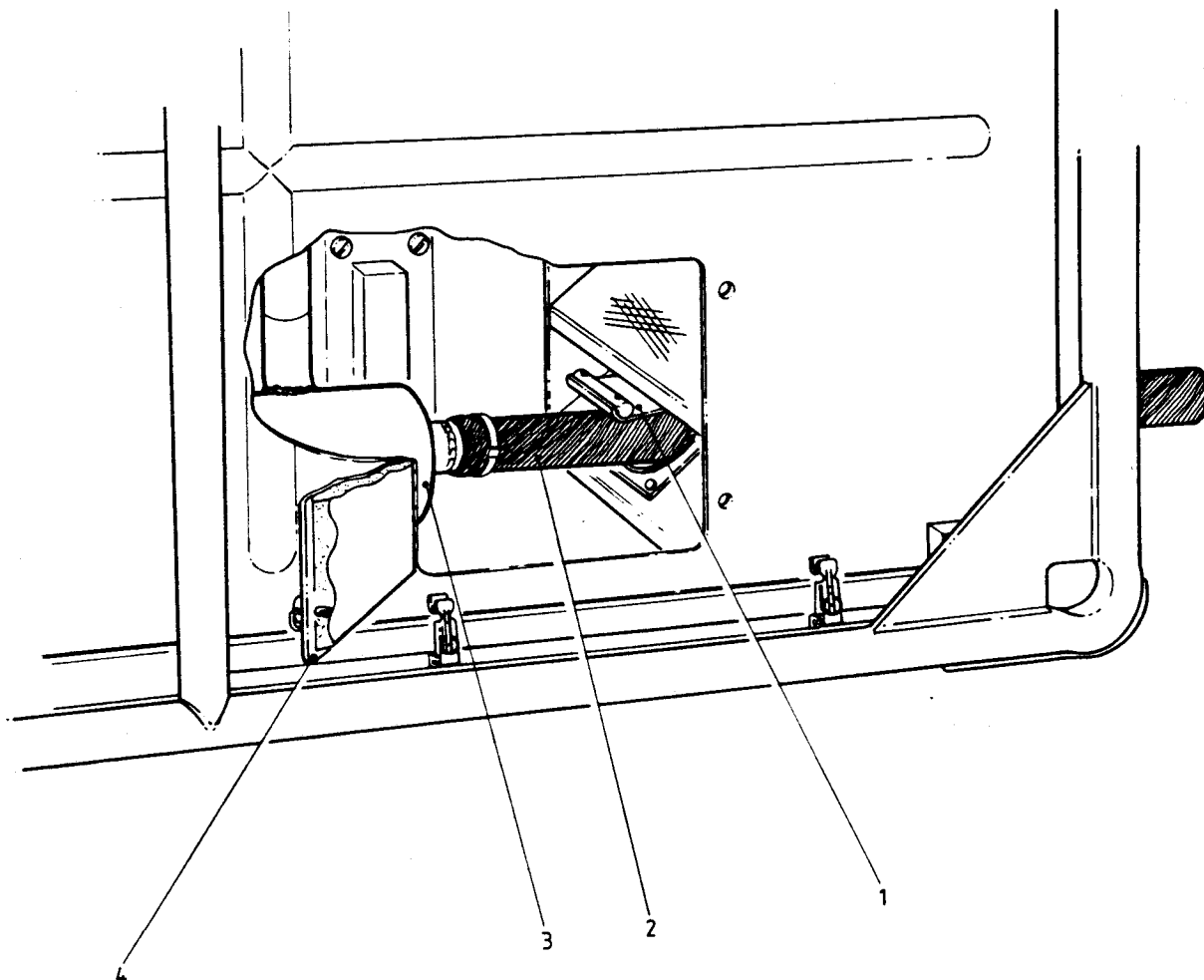
1. Fuel Pump Assembly

2. Fuel Pump Hand Primer

Fig 8 Fuel Pump Hand Primer

Exhaust System (Fig 9)

15 The exhaust system consists of an insulated expansion box, attached by means of a clamp, to the combined down pipe and silencer box. The exhaust gasses are output through a louvre at the front of the GRP acoustic cover. Additionally there are five 1.2 metre extension tubes that enable the exhaust gasses to be output up to six metres from the generator set. All five extension tubes are covered externally with heat resistant material. Three of the five extension tubes are rigid and are manufactured from aluminium alloy. The two remaining tubes are made from flexible coiled steel and can be bent by hand. All five extension tubes are a taper fit and no clamps are necessary during deployment. The first extension tube is passed through the lower rear louvre in the GRP acoustic cover. This action raises the extension exhaust access flap. The operator needs to open the EXHAUST ACCESS hatch on the right side of the acoustic cover and to fit the first extension tube onto the silencer box outlet. The exhaust system extension tubes (three rigid and two flexible) are supplied as unstowed items.



- |                         |                         |
|-------------------------|-------------------------|
| 1. Exhaust Access Flap  | 3. Expansion Box        |
| 2. First Extension Tube | 4. Exhaust Access Hatch |

Fig 9 Exhaust Silencer

Engine Speed Control - Governing

16 There are two methods of engine speed control; mechanical and electronic. The mechanical method consists of a mechanical governor built into the engine assembly during manufacture. This mechanical governor is preset to 3300 rpm and is used as a back-up safety feature to prevent engine runaway in the event of a failure of the electronic governor.

17 The principal method of engine speed control is by means of the electronic governor unit. This unit (Fig 10) is mounted in a metal box adjacent to the engine pulley. Access is by removing the six countersunk screws that secure the lid to the metal box. The unit can be extended out on the wiring for adjustment purposes. There are three preset potentiometers preset to govern the engine speed to 3000 rpm. These control SPEED, GAIN, and STABILITY. Normally no adjustments are necessary as the adjustments are factory preset during production and testing of the generator.

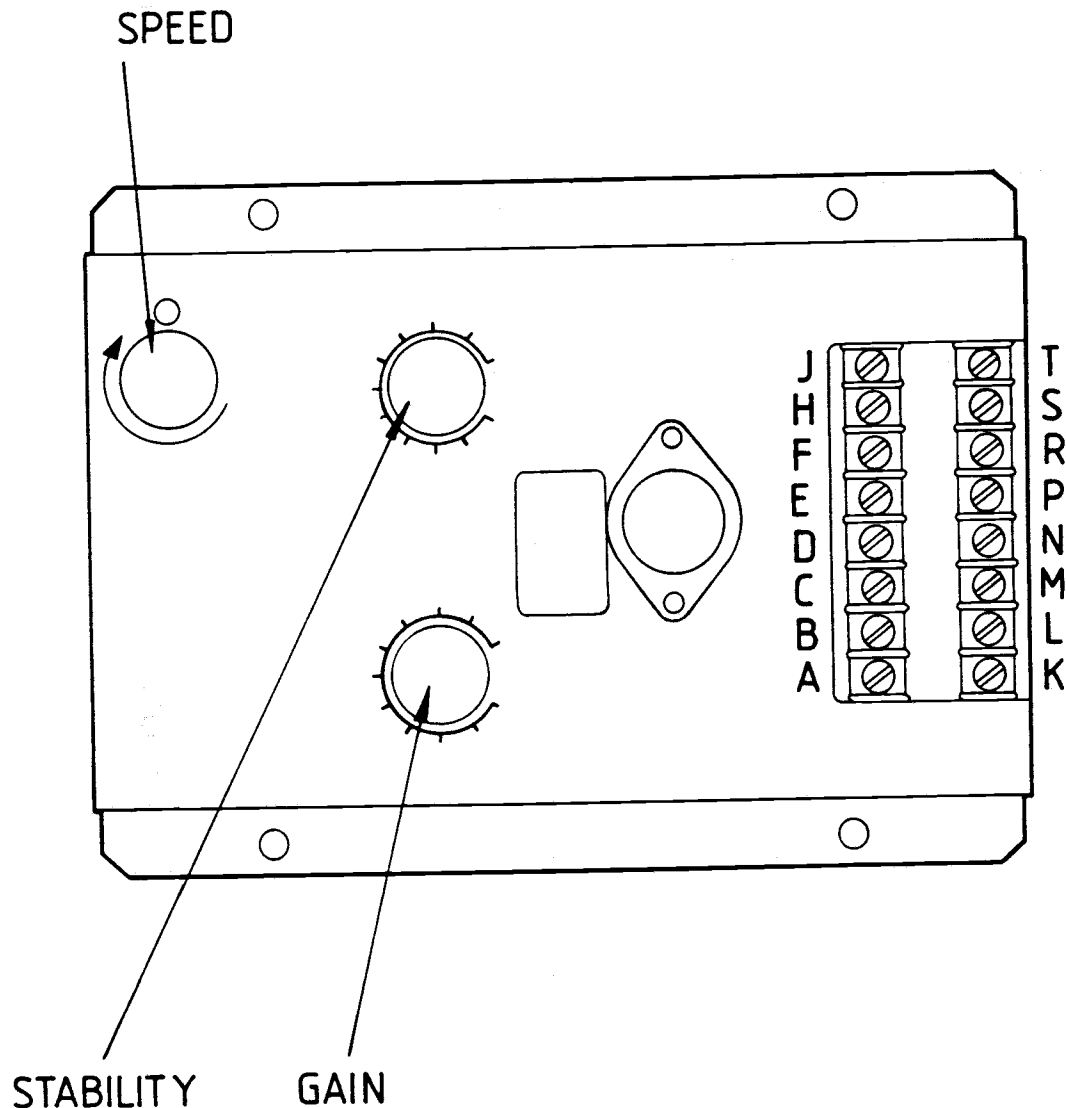


Fig 10 Electronic Governor Unit

ALTERNATOR - GENERAL INFORMATION

18 The alternator is driven by the close-coupled Petter AD2 diesel engine. The speed of the engine is electronically governed to 3000 rpm to produce an output of 240 V 50 Hz. The output of the generator is related to the speed of rotation. Slight adjustments to the engine speed can be made from the output panel control box so that the engine speed can be trimmed under all load conditions with reference to the frequency meter (50 Hz).

19 This is a brushless, compound, self-exciting unit consisting (Fig. 11) of two main components, the rotor and the stator. The rotor contains exciter and field windings connected by diodes. The stator houses the main output winding and exciter field winding. There are no sliding parts. The bearings are permanently lubricated for life, therefore no maintenance is needed for the alternator, except to ensure that cooling air inlets/outlets are not obstructed.

Operation

20 The basic compounding regulation of the alternator is improved by a permanently connected automatic voltage regulator operating in conjunction with transformer T1 and the diode bridge D3 to maintain the output voltage within fine limits for all changes of load within the specified rating. The alternator output is connected to U2 and V2 terminals on the terminal block.

21 Transformer T2 provides for phase quadrature compensation when two generators are run in parallel (switch S4 open). During normal single generator operation, switch S4 is left closed so that the input side of transformer T2 is a short circuit. The 240 V (nominal) 50 Hz output from V2 and W1 on the termination block is taken via filters and circuit breaker CB1 to the output connectors and emergency output terminals.

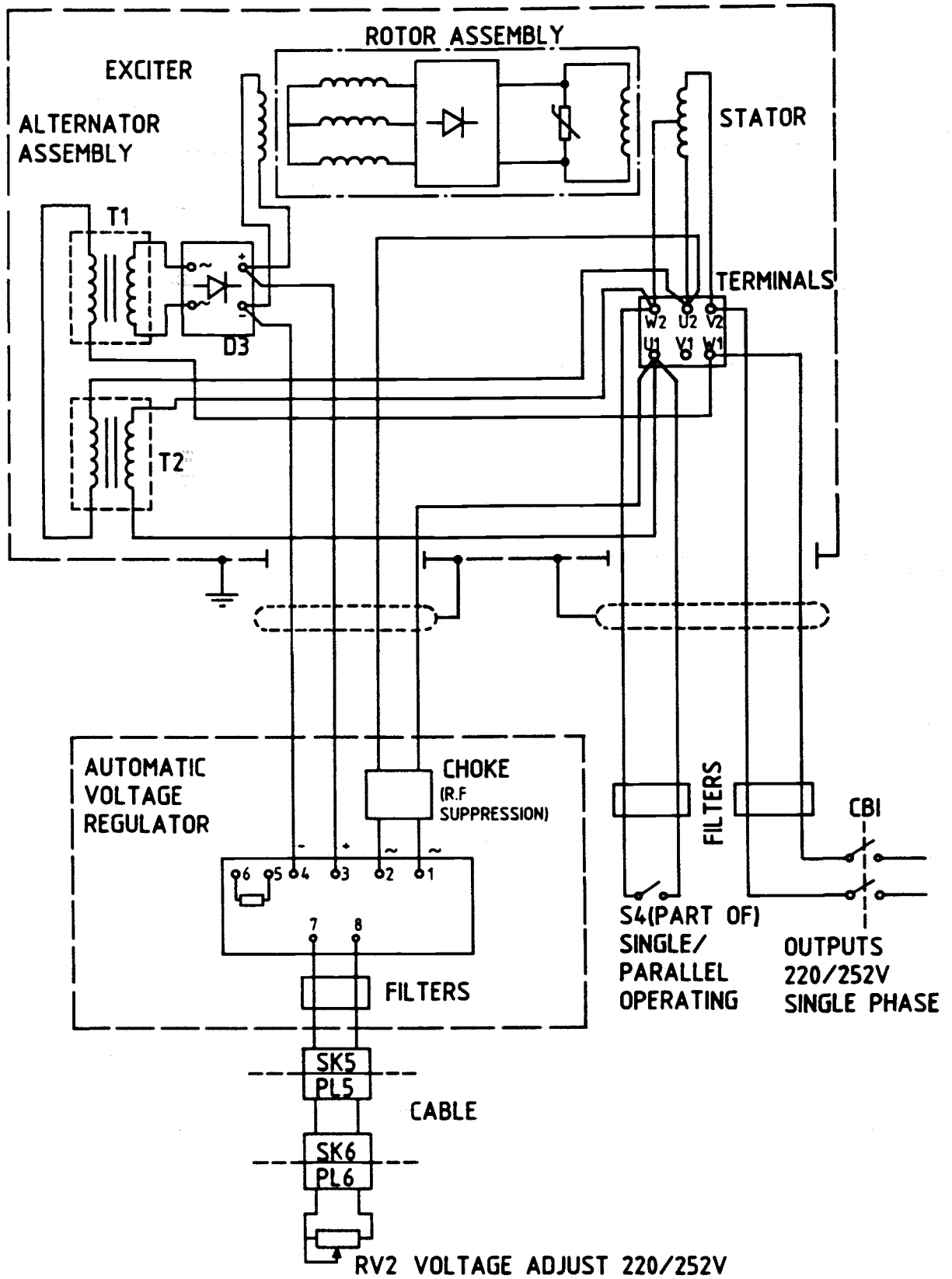


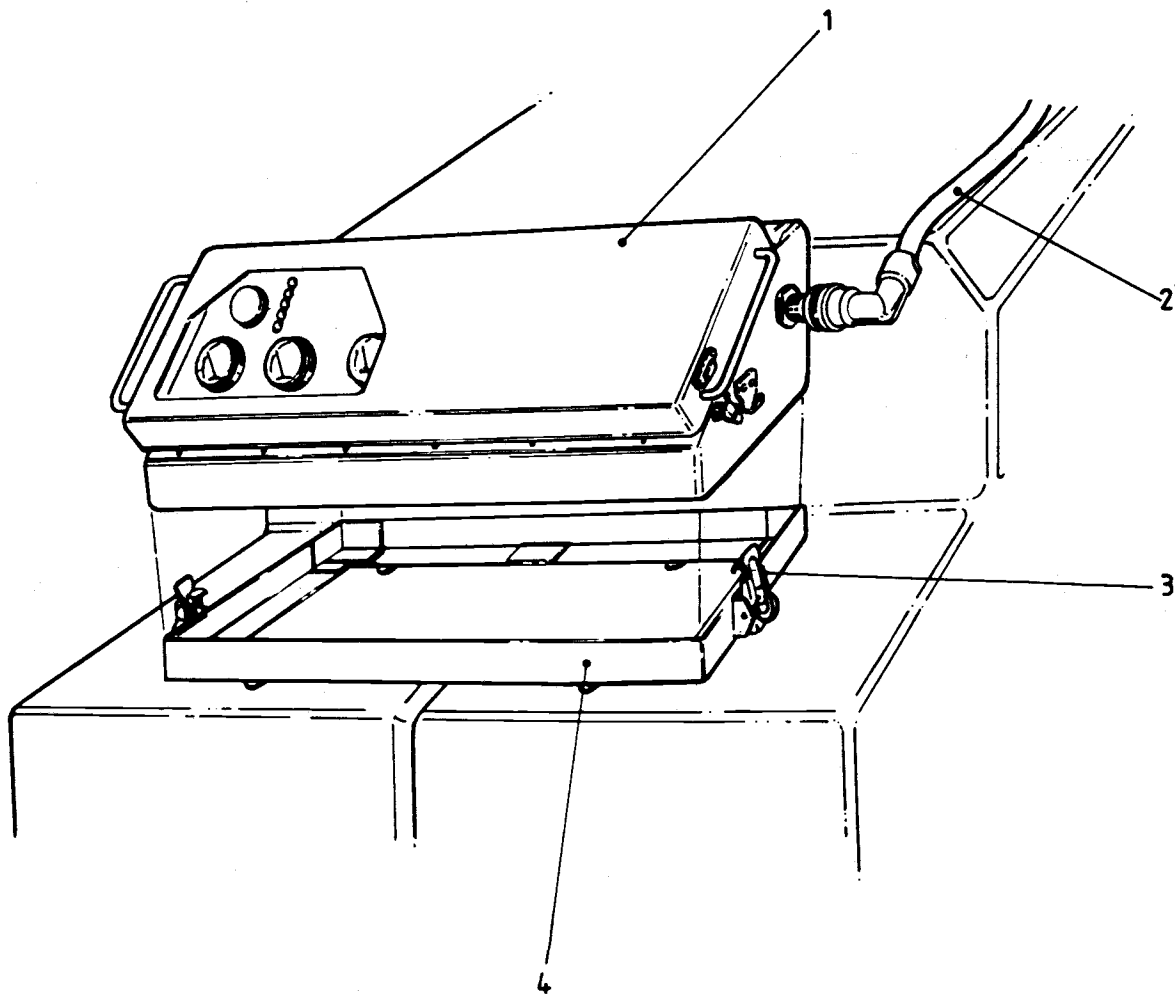
Fig 11 Alternator - Schematic Circuit

OUTPUT PANEL CONTROL BOX (Fig 12)

22 The output panel control box is normally mounted onto the control box mounting tray which is attached to the acoustic cover. The control box attaches to the tray by means of two quick-release fasteners. Normally the control box is connected to the generator set by means of the three-quarter metre interconnecting cable. The cable is terminated at each end by a plug and socket arrangement. A similarly terminated 10-metre extension cable is supplied with the generator set. The switches and indicators on the control box front panel are protected by a hinged lid which is held closed by means of two quick release catches.

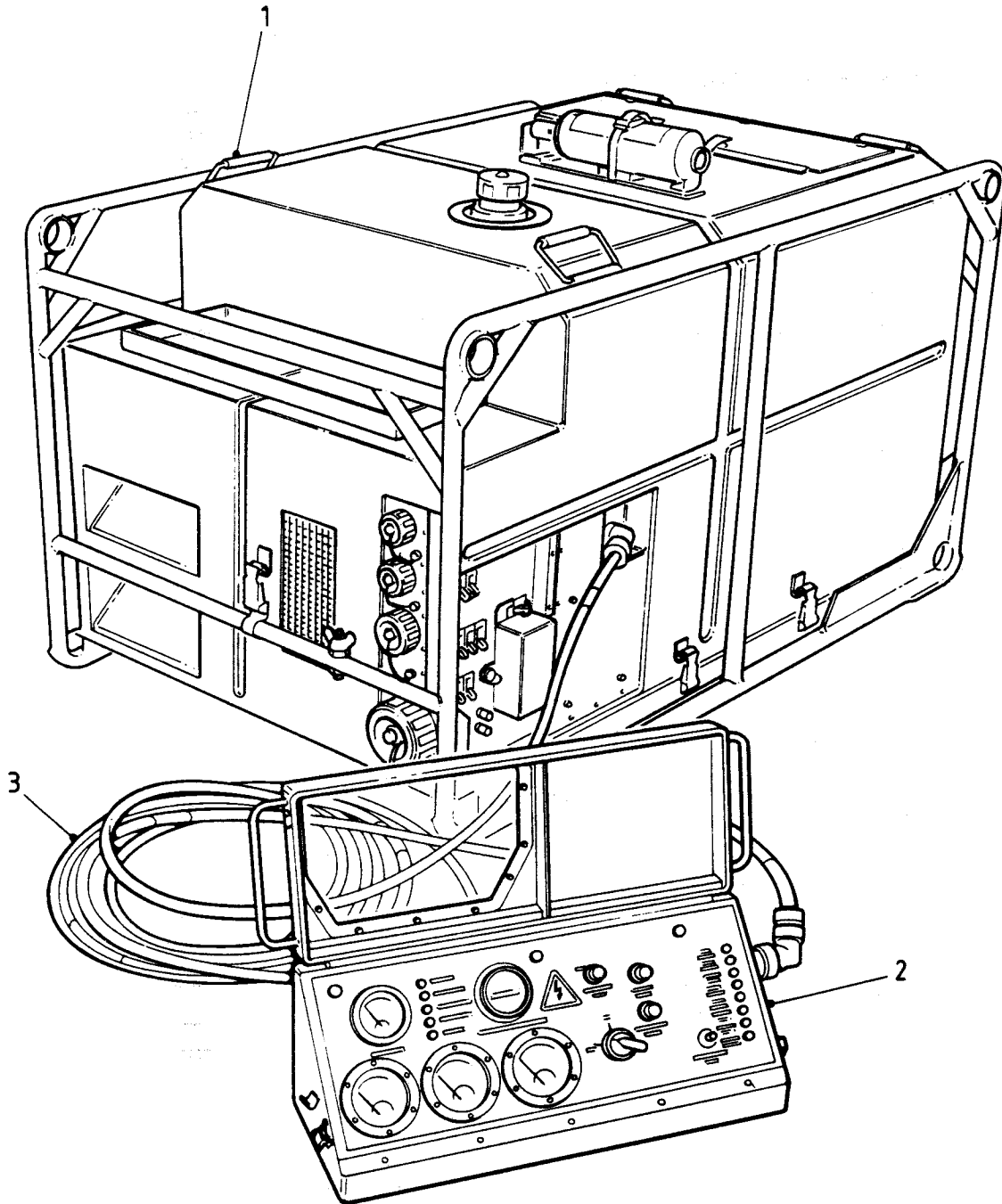
Remote Deployment

23 The output panel control box can be released from the mounting tray and remotely deployed (Fig 13) by changing the three quarter meter cable for the 10-metre cable.



- |                            |   |
|----------------------------|---|
| 1. Control Box             | 3. Mounting Tray Quick Release Fastener |
| 2. Remote Cable (10 Metre) | 4. Control Box Mounting Tray            |

Fig 12 Output Panel Control Box

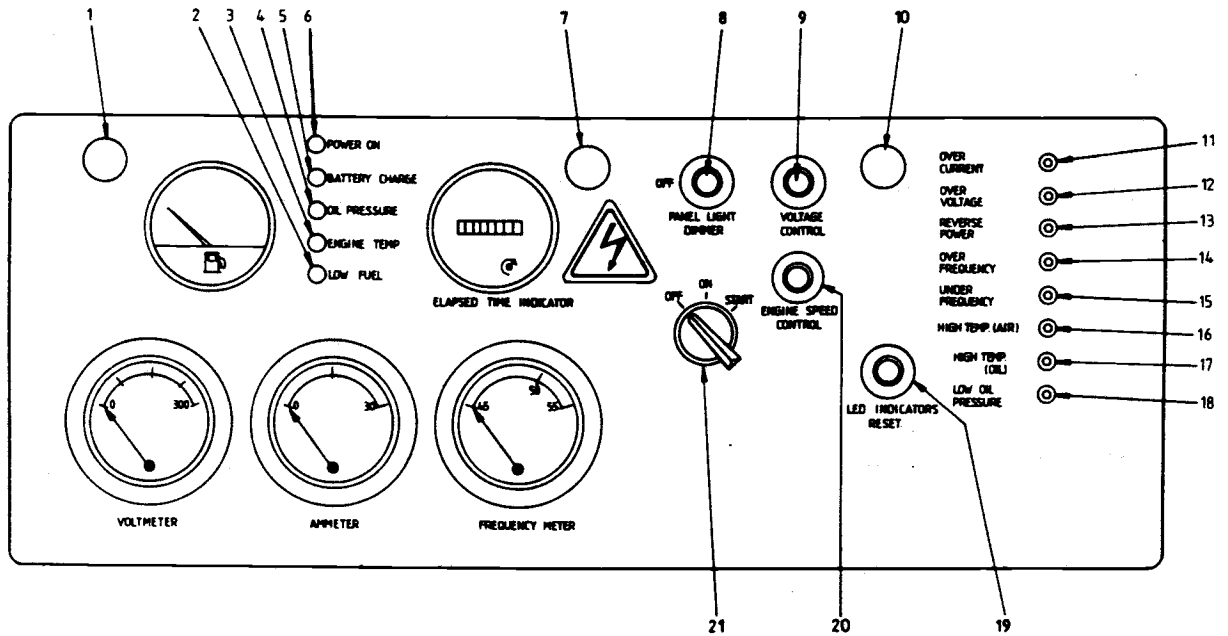


- 1. Generator Set
- 2. Output Panel Control Box

- 3. 10 Metre Extension Cable

Fig 13 Output Panel Control Box - Demounted





- |   |                                    |
|---|------------------------------------|
| 1. Panel Lamp                               | 12. Over Voltage Indicator         |
| 2. Low Fuel Indicator                       | 13. Reverse Power Indicator        |
| 3. Engine Temperature (Excessive) Indicator | 14. Over Frequency Indicator       |
| 4. Oil Pressure (Low) Indicator             | 15. Under Frequency Indicator      |
| 5. Battery Charge (Failed) Indicator        | 16. High Air Temperature Indicator |
| 6. Power On Indicator                       | 17. High Oil Temperature Indicator |
| 7. Panel Lamp                               | 18. Low Oil Pressure Indicator     |
| 8. Panel Lamps Dimmer Control               | 19. LED Indicators Reset Button    |
| 9. Voltage Control                          | 20. Engine Speed Control           |
| 10. Panel Lamp                              | 21. OFF/ON/START switch            |
| 11. Over Current Indicator                  |                                    |

Fig 14 Controls and Indicators - Output Panel Control Box

Controls and Indicators - Output Panel Control Box (Fig 14)

24 The function of the controls on the output panel control box and indicators are defined in TABLE 3.

TABLE 3 CONTROLS AND INDICATORS - OUTPUT PANEL CONTROL BOX

| Item No. | Item Identity      | Description   |
|----------|--------------------|---|
| 1        | PANEL LAMP         | One of three panel lamps that illuminate the front panel. Controlled by the PANEL LIGHT DIMMER control/switch.  |
| 2        | LOW FUEL           | This red indicator lamp illuminates when the fuel level is low, in the integral fuel tank.  |
| 3        | ENGINE TEMP        | This red indicator lamp illuminates when the sensed air temperature in the engine housing exceeds 110°C. The lamp will operate before the engine over temperature shutdown circuit becomes operational. |
| 4        | OIL PRESSURE       | This red indicator lamp extinguishes when the generator is running and the oil pressure is above 15 psi.  |
| 5        | BATTERY CHARGE     | This red indicator lamp extinguishes when the generator is running and the battery charger is operating.  |
| 6        | POWER ON           | This red indicator lamp is illuminated when 240V 50Hz is being generated.   |
| 7        | PANEL LAMP         | One of three panel lamps that illuminate the front panel. Controlled by the PANEL LIGHT dimmer control/switch.  |
| 8        | PANEL LIGHT DIMMER | Operating the dimmer control varies the intensity of the three panel lamps and the lamps in the meters on the control box front panel. This dimmer control also contains an ON/OFF switch.              |
| 9        | VOLTAGE CONTROL    | Varies the output voltage when the generator is running under different load conditions. Normally set for 240V on the front panel VOLTMETER.  |
| 10       | PANEL LAMP         | One of three panel lamps that illuminate the front panel. Controlled by the PANEL LIGHT dimmer control/switch.  |

TABLE 3 CONTROLS AND INDICATORS - OUTPUT PANEL CONTROL BOX (Continued)

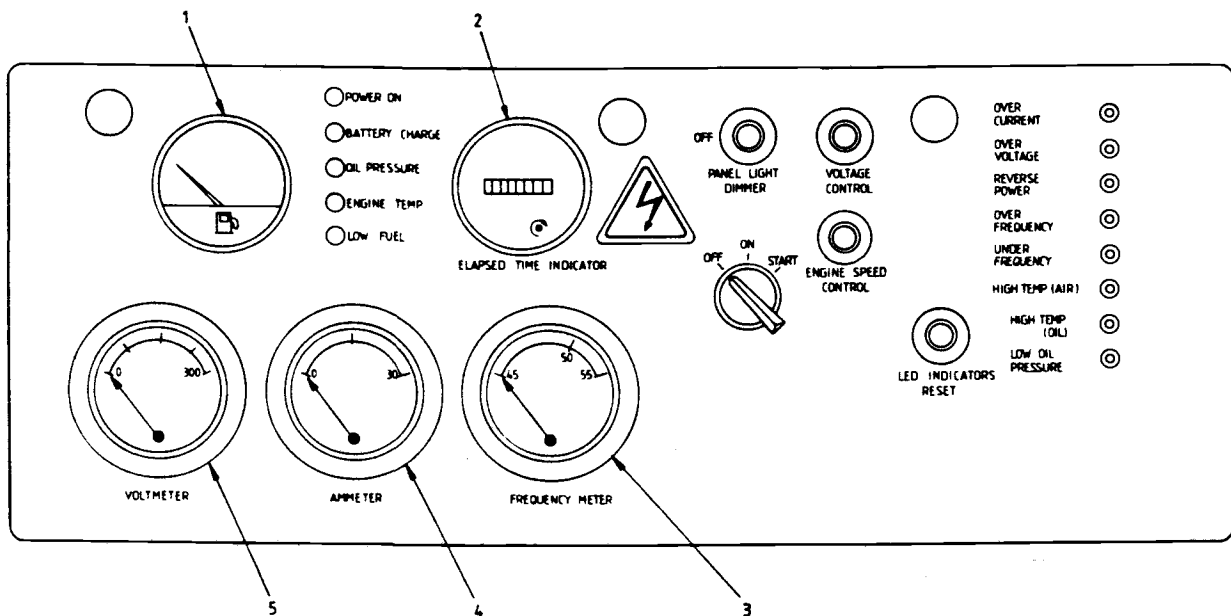
| Item No. | Item Identity   | Description   |
|----------|-----------------|---|
| 11       | OVER CURRENT    | This red LED indicator lamp is illuminated when an output current overload occurs (three times maximum output current) for more than five seconds. When this LED indicator lamp is illuminated the load is automatically disconnected. Can be reset by operating the LED INDICATORS RESET button.   |
| 12       | OVER VOLTAGE    | This red LED indicator lamp is illuminated if the output voltage exceeds 264V for more than five seconds. When this LED indicator is illuminated the load is automatically disconnected. Can be reset by operating the LED RESET button.  |
| 13       | REVERSE POWER   | This red LED indicator lamp is part of the reverse power protection circuit which is operational when two generators of this type are connected in parallel. The REVERSE POWER LED indicator lamp is illuminated if the output from one generator exceeds a predetermined level for more than five seconds and is detrimental to the second generator. When this LED indicator lamp is lit, the load is automatically disconnected. Can be reset by operating the LED RESET button. |
| 14       | OVER FREQUENCY  | This red LED indicator lamp is illuminated if the generator frequency exceeds 55Hz for more than five seconds. When this LED indicator lamp is lit, the load is automatically disconnected and the generator is shut down. Can be reset by operating the LED RESET button.  |
| 15       | UNDER FREQUENCY | This red LED indicator lamp is illuminated if the generator frequency falls below 45Hz for more than five seconds. When this LED indicator lamp is lit, the load is automatically disconnected and the generator is shut down. Can be reset by operating the LED RESET button.  |

TABLE 3 CONTROLS AND INDICATORS - OUTPUT PANEL CONTROL BOX (Continued)

| Item No. | Item Identity        | Description  |
|----------|----------------------|--|
| 16       | HIGH TEMP (AIR)      | This is the high air temperature red LED indicator lamp which is illuminated when the sensed air temperature in the engine housing exceeds 120°C for more than five seconds. When this LED indicator lamp is illuminated the load is automatically disconnected and the generator is shut down. Can be reset by operating the LED RESET button.              |
| 17       | HIGH TEMP (OIL)      | This is the high oil temperature red LED indicator lamp which is illuminated when the temperature of the engine lubricating oil exceeds a preset danger level for more than five seconds. When this LED indicator lamp is illuminated the load is automatically disconnected and the generator is shut down. Can be reset by operating the LED RESET button. |
| 18       | LOW OIL PRESSURE     | This is the low oil pressure red LED indicator lamp which is illuminated when the pressure of the engine lubricating oil falls below the preset danger level for more than five seconds. When this LED indicator lamp is illuminated the load is automatically disconnected and the generator is shut down. Can be reset by operating the LED RESET button.  |
| 19       | LED INDICATORS RESET | This push-button is used to reset a tripped protection circuit indicated by any of the LED indicator lamps 11 to 18 being illuminated.   |
| 20       | ENGINE SPEED CONTROL | Provides fine control of engine speed. Permits precise setting of the output frequency with reference to the FREQUENCY METER (48 to 52Hz nominal).   |
| 21       | OFF/ON/START         | This is a 3-position function switch that controls the stop/start/running modes of the generator set:<br><br>OFF. With the switch in the OFF position the generator is switched off and all electrical circuits are disconnected.  |

TABLE 3 CONTROLS AND INDICATORS - OUTPUT PANEL CONTROL BOX (Continued)

| Item No.   | Item Identity | Description   |
|------------|---------------|---|
| 21 (Contd) |               | <p><b>ON.</b> With the switch in the ON position, battery 12V dc is ON to the control circuits. When the engine is running the switch is set to the ON position by spring-return action from the START position.</p> <p><b>START.</b> When the switch is moved to the START position, a relay located in the battery charger enclosure, is energised to supply battery volts to the starter motor solenoid to initiate engine startup. When the switch is released it returns to the ON position (normal running position).</p> |



- |                           |              |
|---------------------------|--------------|
| 1. Fuel Gauge             | 4. Ammeter   |
| 2. Elapsed Time Indicator | 5. Voltmeter |
| 3. Frequency Meter        |              |

Fig 15 Meters and Dials - Output Panel Control Box

Meters and Dials - Output Panel Control Box (Fig 15)

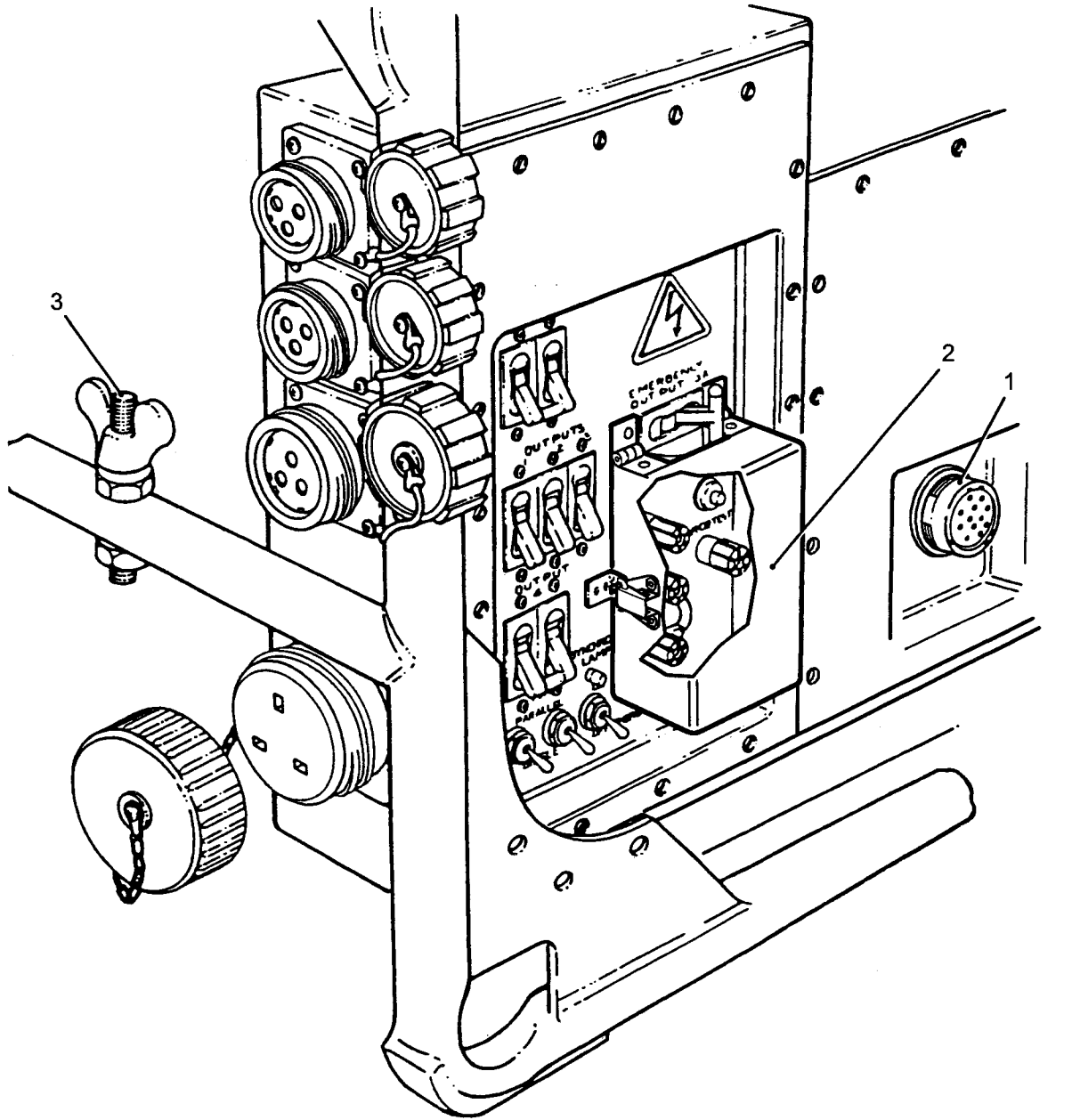
25 The functions of the meters and dials on the output panel control box are defined in TABLE 4.

TABLE 4 METERS AND DIALS - OUTPUT PANEL CONTROL BOX

| Item No. | Item Identity          | Remarks  |
|----------|------------------------|--|
| 1        | FUEL GAUGE             | An analogue meter that shows the amount of fuel held in the integral fuel tank. Full indication is 25 litres (5.5 gallons).  |
| 2        | ELAPSED TIME INDICATOR | This is an electrically driven elapsed time indicator that provides a digital readout, in hours, of the engine running time. |
| 3        | FREQUENCY METER        | Provides an indication of the generator output frequency on a scale of 45 to 55 Hz.  |
| 4        | AMMETER                | Provides an analogue indication of the current load on the generator on a 0 to 30A scale.                                    |
| 5        | VOLTMETER              | Provides an analogue indication of the generator output voltage on a 0 to 300V scale.  |

FIXED BOX (Fig 16)

26 The fixed box is mounted to the front right-hand side of the chassis assembly. The fixed box contains the output connectors for the generator set, emergency output terminals, output circuit breakers, single/parallel running mode switch, single/parallel running mode synchronising lamps and a residual current circuit breaker test button. All of these items are accessible through cut-outs in the GRP acoustic cover. Table 5 and figure 17 define the functions of the fixed box controls and indicators; table 6 and figure 18 define the functions of the output controls and terminals.



1. 41-Way Socket Connector (mates with corresponding plug connector on the interconnecting cable).
2. Emergency Output Terminals Hinged Cover.
3. Earth Ground Point Connection.

Fig 16 Fixed Box - General View

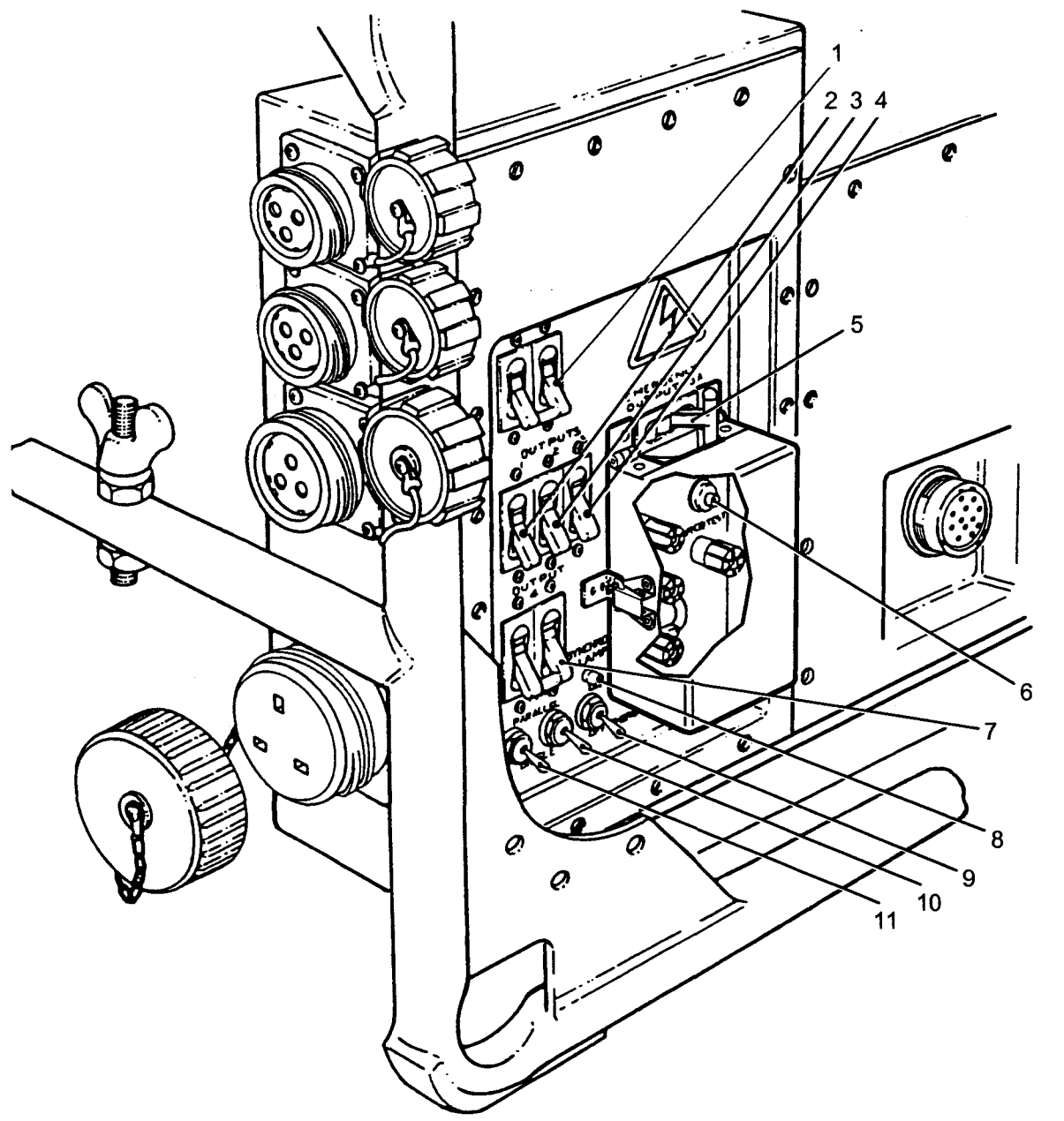
TABLE 5 CONTROLS AND INDICATORS - FIXED BOX

| Item No. | Item Identity    | Description   |
|----------|------------------|---|
| 1        | POWER ON/OFF     | This circuit breaker is rated at 50A. When set to the ON (up) position the output from the generator is available at the output sockets/terminals. When set to the OFF (down) position the generator output is isolated from the output sockets/terminals.  |
| 2        | OUTPUT 1         | This circuit breaker is rated at 30A. In the ON (up) position, 240V 50Hz is available at the 30A output socket, OUTPUT 1. In the OFF (down) position the 30A output socket is isolated from the generator output.   |
| 3        | OUTPUT 2         | This circuit breaker is rated at 15A. In the ON (up) position, 240V 50Hz is available at the 15A output socket, OUTPUT 2. In the OFF (down) position the OUTPUT 2 socket is isolated from the generator output.   |
| 4        | OUTPUT 3         | This circuit breaker is rated at 15A. In the ON (up) position, 240V 50HZ is available at the 15A output socket, OUTPUT 3. In the OFF (down) position OUTPUT 3 socket is isolated from the generator output.   |
| 5        | EMERGENCY OUTPUT | This switch controls the output to the emergency terminals located under the EMERGENCY TERMINALS hinged cover (2 Figure 16). When the cover is opened the switch is mechanically set to the OFF position.   |
| 6        | RCB TEST         | This is the test button for the residual current circuit breaker associated with OUTPUT 4, When the button is pressed, the circuit breaker trips.   |
| 7        | OUTPUT 4         | This circuit breaker is rated at 15A. In the ON (up) position, 240V 50Hz is available at the 13A socket, Output 4. In the OFF (down) position OUTPUT 4 socket is isolated from the generator output. A residual current sensor (earth leakage) is connected to this circuit breaker; sensitivity is 30mA. |



TABLE 5 CONTROLS AND INDICATORS - FIXED BOX (Continued)

| Item No. | Item Identity          | Description  |
|----------|------------------------|--|
| 8        | SYNCHRO Lamp           | Provides an indication of synchronised speed of two generators when they are being connected in parallel.  |
| 9        | SYNCHRO LAMP<br>ON/OFF | This switch is normally in the OFF position for single generator deployment. The switch is used to assist phasing/synchronisation when two generators are connected in parallel; in this event the switch is set to the ON position and the SYNCHRO lamp is made operational. The switch is used in conjunction with the PARALLEL/SINGLE 'A' and PARALLEL/SINGLE 'B' switches. |
| 10       | PARALLEL/SINGLE 'B'    | This switch is normally in the OFF position for single generator deployment. In parallel generator deployment, the switch is set to ON and is used in conjunction with the SINGLE/PARALLEL 'A' switch and the SYNCHRO LAMP ON/OFF lamp.  |
| 11       | PARALLEL/SINGLE 'A'    | This switch is normally in the OFF position for single generator deployment. In parallel generator deployment, the switch is set to ON and is used in conjunction with the SINGLE/PARALLEL 'B' switch and the SYNCHRO LAMP ON/OFF switch.  |

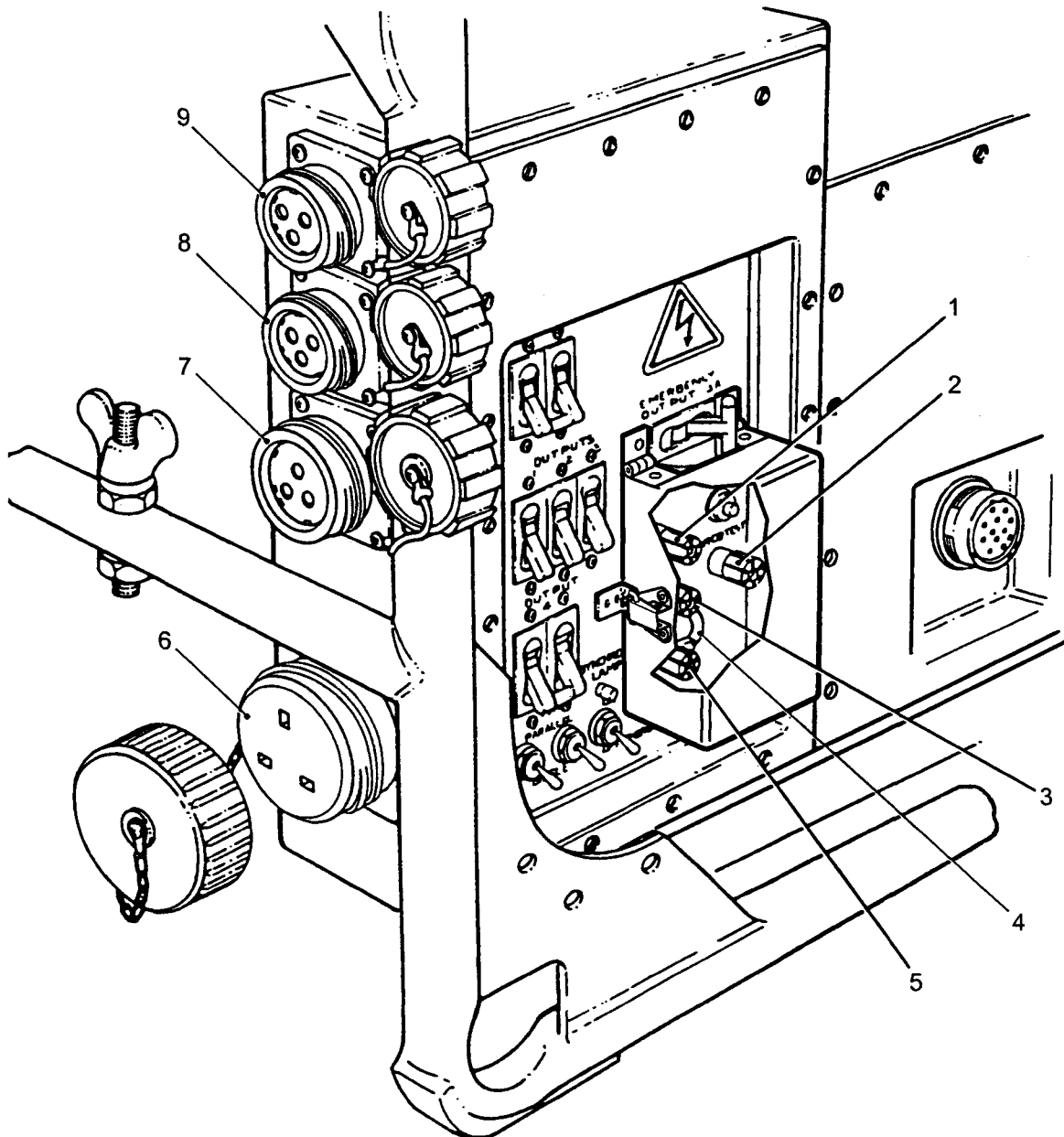


- |                                 |                                |
|---------------------------------|--------------------------------|
| 1. POWER ON/OFF Circuit Breaker | 7. OUTPUT 4 Circuit Breaker    |
| 2. OUTPUT 1 Circuit Breaker     | 8. SYNCHRO Lamp                |
| 3. OUTPUT 2 Circuit Breaker     | 9. SYNCHRO LAMP ON/OFF switch  |
| 4. OUTPUT 3 Circuit Breaker     | 10. PARALLEL/SINGLE 'B' switch |
| 5. EMERGENCY OUTPUT 13A switch  | 11. PARALLEL/SINGLE 'A' switch |
| 6. RCB Test Button              |                                |

Fig 17 Controls and Indicators - Fixed Box

TABLE 6 OUTPUT CONNECTORS AND TERMINALS - FIXED BOX

| Item No. | Item Identity                            | Remarks  |
|----------|--|--|
| 1        | LINE Terminal<br>Emergency Connection    | This is the line output from the generator set. It is exposed when the emergency terminals hinged cover (2) (Figure 16) is released.   |
| 2        | STOWAGE Terminal                         | The earth link (4) from the earth terminal connection (5) can be connected to the stowage terminal, when it is not necessary to connect the earth link to the neutral terminal (3). It is exposed when the emergency terminals hinged cover (2) (Figure 16) is released. |
| 3        | NEUTRAL Terminal<br>Emergency Connection | This is the neutral output from the generator set. It is exposed when the emergency terminals hinged cover (2) (Figure 16) is released.  |
| 4        | Wire Link/Strap                          | This removable wire link/strap is normally connected between the NEUTRAL terminal (3) and the EARTH terminal (5).  |
| 5        | EARTH Terminal<br>Emergency Connection   | This terminal is connected to the generator set chassis and for normal use the EARTH terminal is connected to the NEUTRAL terminal (3) by means of the wire link/strap (4).  |
| 6        | OUTPUT 4 Socket                          | This is a square pin socket connector of similar figuration to a domestic 13A socket.  |
| 7        | OUTPUT 1 Socket                          | This is a round pin socket connector rated at 30A.   |
| 8        | OUTPUT 2 Socket                          | This is a round pin socket connector rated at 15A.   |
| 9        | OUTPUT 3 Socket                          | This is a round pin socket connector rated at 15A.   |

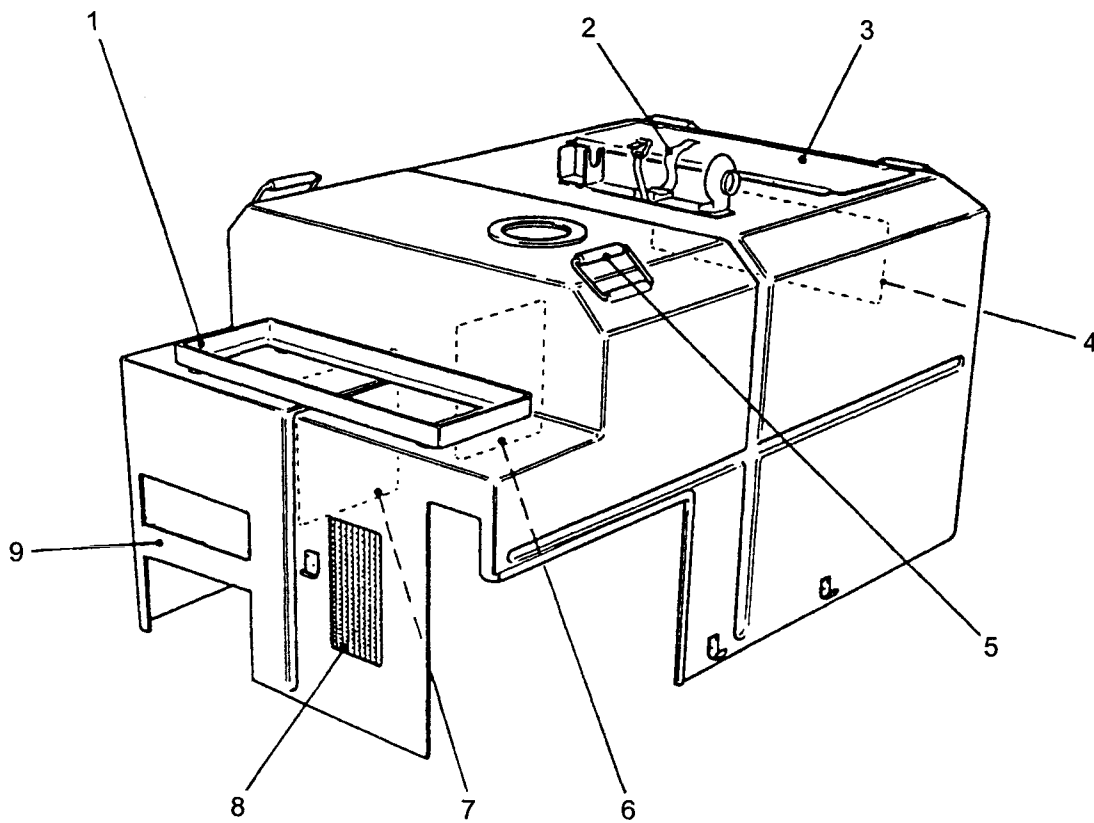


- |  |                                    |
|--|------------------------------------|
| 1. LINE Terminal Emergency Connection    | 6. OUTPUT 4 Socket Connector (13A) |
| 2. STOWAGE Terminal                      | 7. OUTPUT 1 Socket Connector (30A) |
| 3. NEUTRAL Terminal Emergency Connection | 8. OUTPUT 2 Socket Connector (15A) |
| 4. Wire Link/Strap                       | 9. OUTPUT 3 Socket Connector (15A) |
| 5. EARTH Terminal Emergency Connection   |                                    |

Fig 18 Output Connectors and Terminals - Fixed Box

ACOUSTIC COVER (Fig 19)

27 This demountable GRP acoustic cover is held in place by means of seven quick-release fasteners. Lifting the cover free from the generator set for maintenance purposes is a 2-man task. The acoustic cover contains ventilation louvres, access hatches, a stowage compartment, a mounting tray for the output panel control box, and a retaining strap for the BCF fire extinguisher.



- |   |                                     |
|---|-------------------------------------|
| 1. Output Panel Control Box Mounting Tray | 6. Engine Oil Access Hatch          |
| 2. BCF Fire Extinguisher Securing Strap   | 7. Exhaust System Access Hatch      |
| 3. Stowage Compartment Access Hatch       | 8. Air Inlet for Alternator Cooling |
| 4. Cooling Air Inlet                      | 9. Cooling Air Outlet Ducts         |
| 5. Lifting Handle (4 off)                 |                                     |

Fig 19 Acoustic Cover - General View

Chapter 2

PREPARATION FOR USE

CONTENTS

Para

- 1 GENERAL
- 3 Siting (CAUTION)
- 5 EARTHING (WARNING)
- 6 Earth Terminal Emergency Connection
- 7 PRE-START CHECKS (CAUTION)
- 13 START-UP PROCEDURE (NOTE)
- 16 Running Status Check
- 18 Normal Shutdown Procedure
- 19 Emergency Shutdown
- 20 EMERGENCY START
- 24 RUNNING TWO GENERATORS IN PARALLEL (CAUTION)
- 32 Transferring the Load
- 33 Returning to Single Generator Operation (CAUTION)

Table

- 1 Generator Set Controls - Startup Positions

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4

GENERAL

1 If the engine sump oil is at the correct level on the dipstick (measured on level ground) then the generator set is able to operate continuously for 30 hours, if deployed at any angle to a maximum of 25 degrees from horizontal, in any direction.

2 After 30 hours of continuous running the engine sump oil level must be checked with the generator set in the horizontal position. The sump oil must be topped up to the correct level on the dipstick before further use.

SITING

3 For trailer mounted generator sets, the trailer should be chocked up so that the generator set is as level as possible and is within 25 degrees of horizontal.

CAUTION

Ensure all air outlets and intakes are clear of obstructions.

4 For non-trailer mounted sets, level ground should be chosen whenever possible. Clear away any scrub and rocks so that the alternator cooling air can be forced out from underneath the front end of the chassis assembly. Ensure that there are no rocks or roots or vegetation protruding into the generator set from underneath. If necessary chock up one or more corners of the generating set to accomplish, as near as possible, a horizontal deployment which is clear of ground obstructions. Ensure that the cooling air intake and outlets are clear of obstructions by at least a 1/2 meter (20 inches). Do not deploy the generator directly on boggy or saturated ground.

EARTHING

WARNING

THIS GENERATOR SET CONTAINS FEED THROUGH FILTER CAPACITORS. BEFORE USING THE GENERATOR SET ENSURE THAT IT IS CORRECTLY EARTHED.

5 An earth spike is supplied with the generator set. This is normally kept in the stowage compartment on top of the acoustic cover. Before the generator set is used, the earth spike must be driven into the ground and the earth braid must be attached to the earth ground point connection on the chassis assembly or to the appropriate trailer earth point, for trailer-mounted sets.

EARTH TERMINAL EMERGENCY CONNECTION

6 For normal operation of the generator set, the earth terminal emergency connection is connected to the neutral terminal emergency connection by means of the wire link/strap. These are the two lower terminals underneath the emergency output terminals hinged cover plate.

PRE-START CHECKS

7 Set all the output circuit breakers to their OFF (down) positions. Set the SINGLE/PARALLEL switch to SINGLE.

8 Check that the engine sump oil is at the correct level on the dipstick. An access hatch is positioned on the left-hand side of the acoustic cover, towards the rear.

- 9 Check that there is adequate diesel fuel in the integral tank.
- 10 Make the following checks of the acoustic cover:
- 10.1 Check that the seven securing toggle catches are closed.
  - 10.2 Check that the two air intake louvres are clear of obstructions.
  - 10.3 Check that the air outlet louvre is clear of obstructions.
- 11 If required, deploy the extension exhaust tubes through the access hatch located in the bottom outlet louvre of the acoustic cover.
- 12 If the output panel control box is to be remotely deployed remove the three quarter metre cable and connect in its place the 10-metre extension cable. Undo the two quick-release fasteners holding the output panel control box on the mounting tray. Remotely deploy the output panel control box.

**CAUTION**

If the output panel control box is sited on the mounting tray, it must be secured with the two quick-release fasteners.

**START-UP PROCEDURE**

- 13 On the output panel control box, set the controls as follows:

TABLE 1 GENERATOR SET CONTROLS - START-UP POSITIONS

| Control                                | Position                     |
|--|------------------------------|
| OFF/ON/START                           | OFF                          |
| VOLTAGE CONTROL                        | Mid-Position (not mandatory) |
| ENGINE SPEED CONTROL                   | Mid-Position (not mandatory) |
| SYNCHRO LAMP ON/OFF Switch (Fixed Box) | OFF                          |
| PARALLEL/SINGLE 'A' Switch (Fixed Box) | SINGLE                       |
| PARALLEL/SINGLE 'B' Switch (Fixed Box) | SINGLE                       |

**Note**

When the ambient temperature is 0°C (32°F) or below, the pre-heaters must be used to assist engine starting. Operate the pre-heater switch for 30 seconds before proceeding with start up. The pre-heater switch is located on the engine housing behind the engine oil access hatch.

- 14 Rotate the OFF/ON/START switch to the ON position, check that the BATTERY CHARGE and the OIL PRESSURE indicators are illuminated. Further rotate the switch to the START position and hold the switch in this position until the engine fires. When the engine fires, release the switch which will return to the ON position. (If the engine fails to turn over due to a flat battery, refer to EMERGENCY START-UP PROCEDURE). Allow one minute warm up before connecting load.

- 15 On the output panel control box, adjust the voltage and speed controls for the voltage and frequency required.



RUNNING STATUS CHECK

16 Check the POWER ON indicator lamp and the three panel lamps are illuminated. The brightness of the PANEL lamps can be controlled by the PANEL LIGHT DIMMER. No other indicator lamps should be illuminated.

CONNECTING THE LOAD TO THE GENERATOR

17 Connect the load to the appropriate output connector or to the emergency output terminals. Switch on the POWER ON/OFF contact breaker. Set the appropriate circuit breaker to the ON (up) position.

NORMAL RUNNING ACTIVITIES

18 During normal running the following activities can be carried out:

- 18.1 Top up the fuel tank (provided the acoustic cover is in place.)
- 18.2 Adjust VOLTAGE CONTROL for load variations.
- 18.3 Adjust ENGINE SPEED CONTROL to fine tune the frequency.

NORMAL SHUT DOWN PROCEDURE

19 Switch OFF the appropriate contact breaker for the output socket (or terminals) in use. Switch OFF the POWER ON/OFF circuit breaker. After one minute set the OFF/ON start switch to the OFF position.

EMERGENCY SHUT DOWN

20 Set the battery OFF/ON/START switch to the OFF position.

EMERGENCY START

21 Emergency start is by rope and pulley arrangement from the front end of the engine output shaft; it is a 2-man operation. To use the emergency start, the acoustic cover must be removed. Emergency start is accomplished with the battery OFF/ON/START switch set to the ON position.

Air Temperature Above 0°C (32°F)

22 When the air temperature is above 0°C carry out the following procedure; two operators are required:

22.1 The first operator must hold open the decompression lever of the cylinder that is nearest to the alternator, (this is the green lever on the head of the assembly adjacent to the air cleaner). The same operator must also hold open the mechanical actuator arm to the fuel flow regulator.

22.2 The second operator must rotate the rope start pulley by hand, anticlockwise until compression is felt. Bounce the engine against compression approximately ten times to prime the fuel injection system.

22.3 The second operator must engage the rope in the pulley notch and wind it around the pulley approximately two-and-a-half turns (the pulley rope is normally kept in the stowage compartment on the acoustic cover).

22.4 To start the engine the second operator must pull the rope sharply until it unwinds completely and turns the engine over compression. As the engine fires the first operator must release the decompression lever and release the mechanical actuator. If the engine does not fire, repeat the procedure.

#### Air Temperature 0°C (32°F) and Below

23 Where the air temperature is 0°C (32°F) or below, carry out the following procedure; two operators are required:

23.1 The first operator must decouple the plastic ball joint on the mechanical actuator linkage to the fuel flow regulator, this will allow him to move the actuator to the full throttle position for the cold start procedure. The same operator must hold open the decompression lever of the cylinder that is nearest to the alternator (this is the green lever on the head assembly adjacent to the air cleaner).

23.2 The second operator must operate the preheater switch for at least 30 seconds, even if the battery is considered to be flat.

23.3 The second operator must rotate the rope start pulley by hand, anticlockwise until compression is felt. Bounce the engine against compression approximately ten times to prime the fuel injection system.

23.4 The second operator must engage the rope in the pulley notch and wind it around the pulley approximately two-and-a-half turns (the pulley rope is normally kept in the stowage compartment on the acoustic cover).

23.5 To start the engine the second operator must pull sharply until it unwinds completely and turns the engine over compression. As the engine fires, the first operator must release the decompression lever and move the mechanical actuator from the full throttle position then re-engage the ball joint on the linkage. If the engine does not fire, repeat the procedure.

#### RUNNING TWO GENERATORS IN PARALLEL

##### CAUTION

Both Generator sets must be of the same type for parallel running.

24 On both generator sets, ensure that OUTPUT circuit breaker 1,2,3,4 are at their OFF (down) position and that the POWER ON/OFF circuit breaker is at the ON (up) position. Set the PARALLEL/SINGLE 'A' and 'B' switch to SINGLE and the SYNCHRO LAMP ON/OFF switch to OFF.

25 Ensure that the output lines from both generators are correctly paired.

26 Run up generator 1 in the normal way and switch in the load (not exceeding 4.5 kW) on the OUTPUT circuit breakers.

- 27 On both generator sets set the PARALLEL/SINGLE 'A' and 'B' switches to PARALLEL then set the SYNCHRO LAMP ON/OFF switches to ON.
- 28 Start up generator 2 and adjust the ENGINE SPEED CONTROL so that the frequency matches that of generator 1. Trim the VOLTAGE CONTROL to match the voltage of generator 1.
- 29 Adjust the ENGINE SPEED CONTROL on generator 2 until the SYNCHRO lamp cycle is at its lowest (lamp extinguished). At this point switch-on the required OUTPUT circuit breakers for generator 2.
- 30 Adjust the load sharing by trimming the ENGINE SPEED CONTROL on one generator only. Do not adjust voltage control.
- 31 Switch - OFF the SYNCHRO LAMPS ON/OFF switches on both generators.

#### Transferring the Load

- 32 It is possible to transfer the load from one running generator to a second running generator, provided they are synchronised and the load does not exceed the nominal full load value for the incoming generator:
  - 32.1 Adjust the ENGINE SPEED CONTROL of the second generator until it is carrying all the load. Set the output circuit breakers on the first generator to OFF; do not adjust the voltage control.
  - 32.2 Adjust the voltage control and the engine speed control on the second generator as required.

#### Returning to Single Generator Operation

##### CAUTION

When the total loading for parallel generators exceeds 4.5 kW the load must be reduced to less than 4.5 kW before returning to single generator operation.

- 33 On outgoing generator, set all output circuit breakers to OFF then set POWER ON/OFF circuit breaker to OFF.

##### CAUTION

If parallel running is required again after shutdown of the generator, the full parallelling procedure must be followed.

Chapter 3

USER MAINTENANCE

CONTENTS

Para

- 1 INTRODUCTION (WARNING)
- 2 ROUTINE MAINTENANCE TASKS
- 3 Preliminary Tasks
- 4 Servicing the Fuel Strainer Filter
- 5 Replacing the Air Filter
- 6 Replacing the Oil Filter
- 7 Replacing the Fuel Filter
- 8 GENERATOR BATTERY
- 9 Routine Maintenance
- 10 Battery Charge - General
- 11 Boost Charging - General (CAUTION)
- 12 REPLACEABLE LAMPS
- 13 PROTECTION DEVICES
- 14 LUBRICATION - MECHANICAL COMPONENTS
- 15 COOLING
- 16 USER FAULT FINDING
- 17 FUNCTIONAL TEST
- 18 Operational Status

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| 2 Generator Fail Lamp Analysis   | 11   |

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| 1 Fuel Tank Filler Neck and Fuel Strainer Filter | 5  |
| 2 Air Filter Element Assembly                    | 5  |
| 3 Oil Filter Element Assembly                    | 6  |
| 4 Fuel Filter Assembly                           | 7  |
| 5 Generator Battery Assembly                     | 8  |
| 6 Indicator Lamp Filament Bulb and Lens          | 9  |
| 7 Start-up Failure Analysis Flow Chart           | 10 |

WARNING

WHEN REMOVING/REPLACING THE ENGINE/ALTERNATOR FROM THE CHASSIS, PREVENT INJURY TO PERSONNEL BY USING ADEQUATE SUPPORT DURING THE LIFTING OPERATIONS.

INTRODUCTION

1 User maintenance between major overhauls consists of a number of routine tasks carried out at pre-defined intervals. These pre-defined intervals are determined by the number of hours that the generator set has been operational, as defined in Cat. 601. Special tools are not needed for user maintenance tasks. Table 1 defines recommended spares for field use.

TABLE 1 RECOMMENDED SPARES FOR FIELD USE

| Item No. | Description                           | Man.                 | Part No.    | NATO Stock No. |
|----------|---------------------------------------|----------------------|-------------|----------------|
| 1        | Element Pack<br>Air Cleaner           | Petter               | ADZ12       |                |
| 2        | Element Pack<br>Oil Filter            | Petter               | AAZ11       |                |
| 3        | Element Pack<br>Fuel Filter           | Petter               | AAZ10       |                |
| 4        | Decarbonising<br>Joints Set           | Petter               | ADZZ        |                |
| 5        | Rocker Box<br>Joint<br>(2 per engine) | Petter               | 350031      |                |
| 6        | Oil Filler Cap                        | Petter               | 257007      |                |
| 7        | Oil Filler Cap<br>Seal                | Petter               | JA45        |                |
| 8        | Fuel Filler<br>Cap                    | F.P.T.<br>Industries | FT-A3-21812 |                |
| 9        | Fuel Filler<br>Strainer Filter        | F.P.T.<br>Industries | FT-A3-21829 |                |
| 10       | Plastic Piping<br>(used on engine)    | Petter               | 671110      |                |
| 11       | Injector Nozzle<br>(2 per engine)     | Petter               | 300740      |                |
| 12       | Oil Sump Gasket                       | Petter               | 294512      |                |

TABLE 1 RECOMMENDED SPARES FOR FIELD USE Continued

| Item No. | Description  | Man.       | Part No.     | NATO Stock No. |
|----------|--|------------|--------------|----------------|
| 13       | Lampholder<br>(4 per gen. set)   | Peter Gray | LS7-BE-W-Red |                |
| 14       | Filament Lamp<br>(4 per gen. set)  | Peter Gray | 525CD        |                |
| 15       | Lampholder -<br>clear with<br>waterproofing<br>washers<br>(5 per gen. set) | Peter Gray | LS9-W-9      |                |

ROUTINE MAINTENANCE TASKS

2 In order to carry out the routine maintenance tasks, the generator set must be out of use with the engine not running.

Preliminary Tasks

3 Ensure that the starter switch is in the OFF position.

3.1 Release the interconnecting cable from the output panel control box.

3.2 Release the output panel control box from the mounting tray and place it clear of the acoustic cover.

3.3 Undo the seven quick-release fasteners that secure the acoustic cover to the chassis assembly. Lift the acoustic cover clear of the chassis assembly; this is a 2-man task. On completing routine maintenance tasks replace and secure the acoustic cover, the output panel control box, and the interconnecting cable.

Servicing the Fuel Strainer Filter (Fig. 1)

4 Release the fuel tank filler cap (2)

4.1 Extract the fuel strainer filter (1) by hand from filler neck of fuel tank. This is a wire mesh device with a foam surround. The foam surround is retained by four bolts and should not be removed.

4.2 Check fuel strainer filter for dirt particles. If contaminated, flush out in diesel fuel until clean then refix in neck of tank. Replace fuel strainer filter if damaged.

- 1 Fuel Strainer Filter
- 2 Fuel Filler Cap
- 3 Fuel Filler Cap Retaining Chain
- 4 Fuel Tank Body
- 5 Fuel Tank Filler Neck

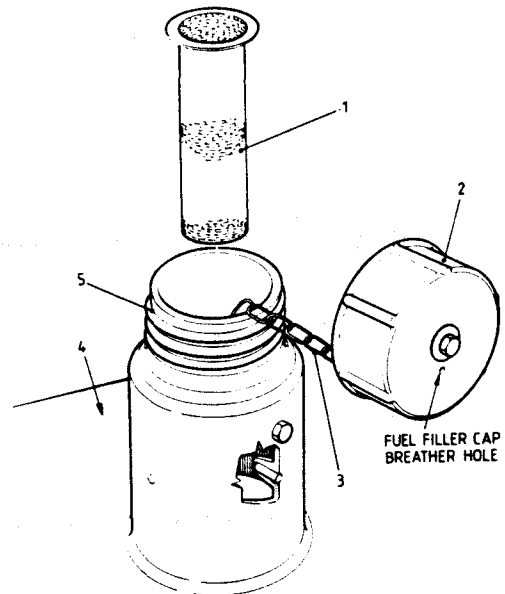


Fig. 1 Fuel Tank Filler Neck and Fuel Strainer Filter

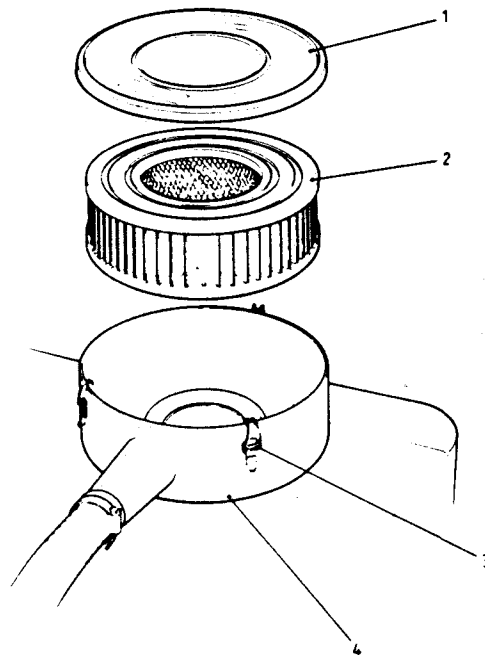
Replacing the Air Filter (Fig. 2)

5 Release the three quick release fasteners (3) and lift off the air filter assembly top cover (1).

5.1 Remove the air filter element (2) and throw away if dirty.

5.2 Insert new air filter into air filter assembly container (4).

5.3 Position air filter assembly top cover onto air filter assembly container. Secure top cover with the three quick release fasteners.



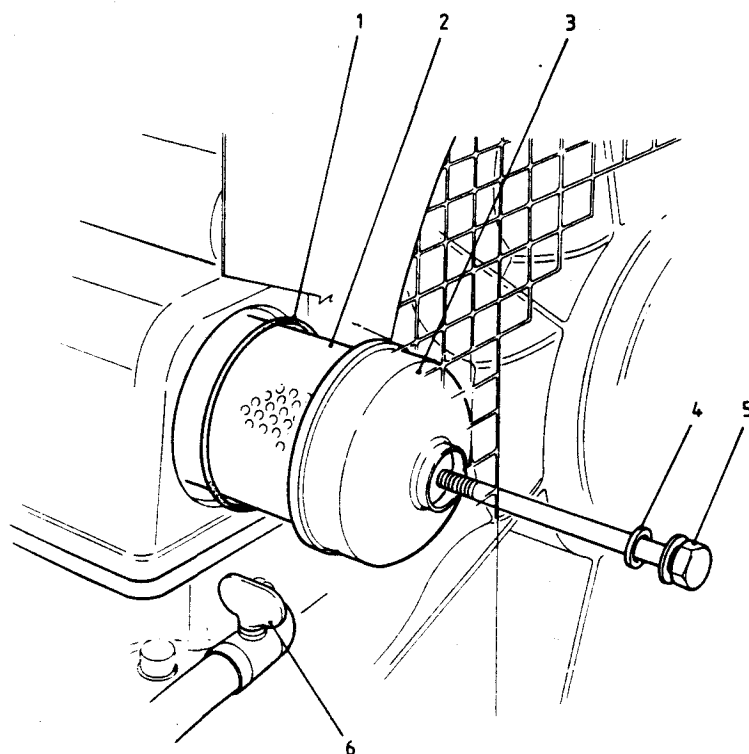
- |                                 |                                 |
|---------------------------------|---------------------------------|
| 1 Air Filter Assembly Top Cover | 3 Quick Release Fastener        |
| 2 Air Filter Element            | 4 Air Filter Assembly Container |

Fig. 2 Air Filter Element Assembly

Replacing the Oil Filter (Fig. 3)

6 The oil filter assembly is positioned at the front end of the engine and is secured to the engine assembly by means of a single hexagonal bolt. Change the oil filter when the engine sump oil is changed. The blades of the cooling fan are staggered for easy removal of the oil filter assembly. If necessary, turn the fan to best advantage, with the engine decompressed.

6.1 Remove the hexagonal bolt (5) and withdraw the oil filter assembly consisting of the joint washer (4), filter end cap (3), filter element (2) and filter seal (1). Replace these items from the servicing kit and assemble the items in the reverse order. Secure the items within the engine assembly by means of the hexagonal bolt (5).



- |   |                    |    |                                   |
|---|--------------------|----|-----------------------------------|
| 1 | Oil filter seal    | 4  | Oil filter joint washer           |
| 2 | Oil filter element | *5 | Oil filter assembly securing bolt |
| 3 | Oil filter end cap | 6  | Sump oil drain tap                |

\* Torque setting for item 5 is 10 lb.ft. (13.5 Nm)

Fig. 3 Oil Filter Element Assembly

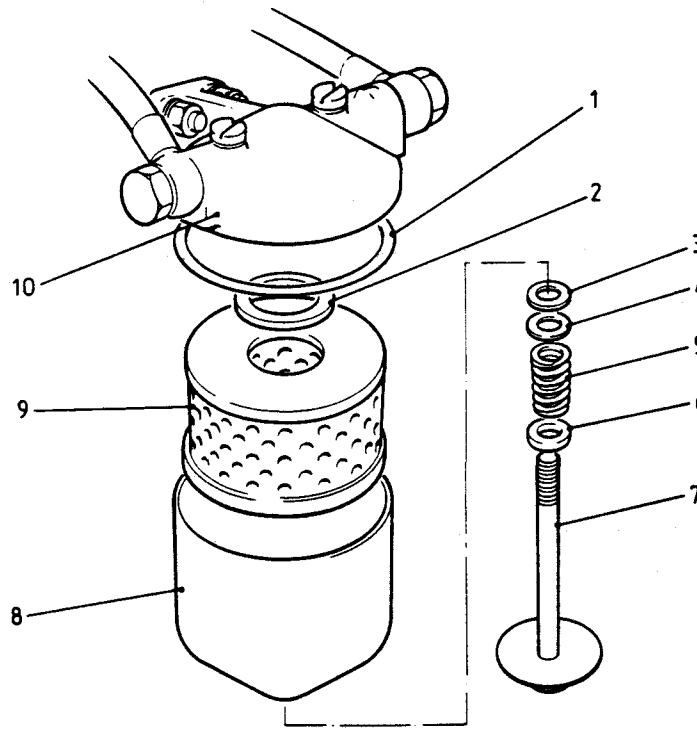
Replacing the Fuel Filter (Fig. 4)

7 The fuel filter is contained in the fuel filter bowl which is bolted to the side of the engine housing. The fuel filter element is secured within the filter bowl by means of a single hexagonal bolt.

7.1 Undo the hexagonal bolt (7) and release the fuel bowl (8) from the fuel filter assembly head (10).

7.2 Replace items (1), (2), (3), (4), (5), (6) then secure the filter bowl assembly with the hexagonal bolt (7).





- |   |   |    |   |
|---|---|----|---|
| 1 | Fuel Filter Bowl, Seal                      | 5  | Fuel Filter Element Centre Bolt, Spring     |
| 2 | Fuel Filter Element, Joint Washer           | 6  | Fuel Filter Element Centre Bolt, Lower Seal |
| 3 | Fuel Filter Element Centre Bolt, Upper Seal | *7 | Fuel Filter Element, Bolt                   |
| 4 | Fuel Filter Element Centre Bolt, Washer     | 8  | Fuel Filter Element, Bowl                   |
|   |   | 9  | Fuel Filter Element                         |
|   |   | 10 | Fuel Filter Assembly, Head                  |

\* Torque setting for item 7 is 8 lb.ft. (10.75 Nm)

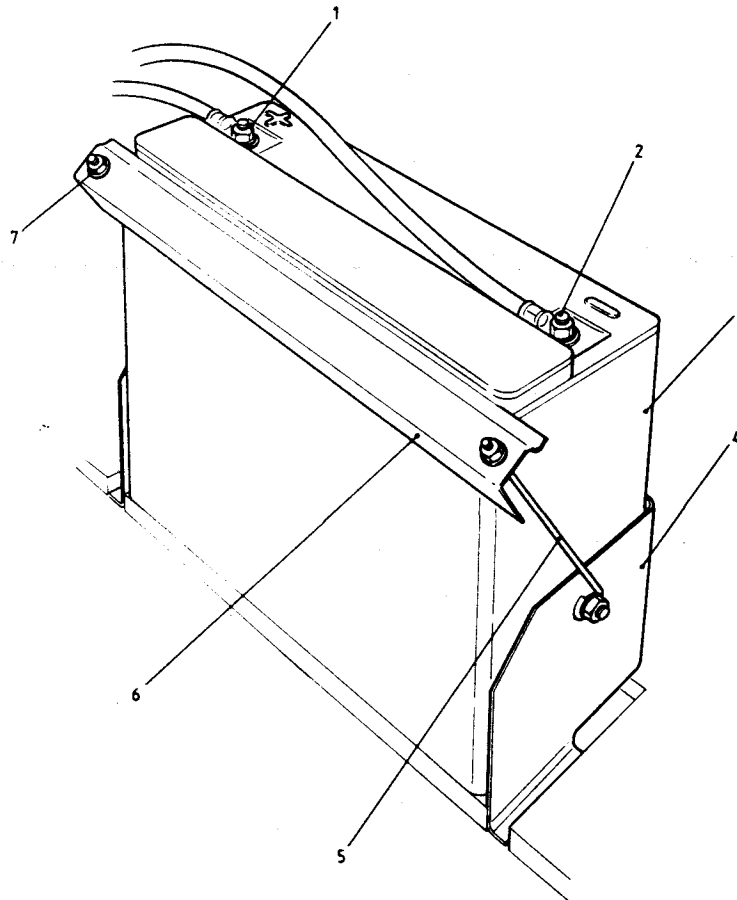
Fig. 4 Fuel Filter Assembly

GENERATOR BATTERY (Fig. 5)

8 The battery is a high quality sealed lead acid type of 12 volts potential and 35 ampere hour capacity. the physical size of the battery is approximately 10 inches (25cm) long x 4 inches (10cm) wide x 8 inches (20cm) high. The battery is located within the chassis assembly, adjacent to the engine. To obtain access to the battery, the generator set should be switched off (engine not running) and the acoustic cover removed (this is a 2-man task).

Routine Maintenance

9 Battery maintenance is minimal and no topping up is needed. The battery should be periodically examined for signs of physical damage and the terminals should be checked for signs of corrosion. The terminals should be checked periodically for signs of a good electrical connection; if necessary the terminals can be scraped clean and a light smear of pure petroleum jelly (vaseline) applied. Note that when disconnecting the battery terminals, the negative terminal is connected to chassis (ground) and should be disconnected first. When reconnecting the battery, the negative terminal should be connected last.



- |   |  |   |                            |
|---|--|---|----------------------------|
| 1 | Battery Positive Terminal                              | 5 | Stay                       |
| 2 | Battery Negative Terminal                              | 6 | Battery Retaining Arm      |
| 3 | Battery (12 volts, 35 ampere hour)<br>maintenance free | 7 | Retaining Arm Securing Nut |
| 4 | Battery Housing  |   |                            |

Fig. 5 Generator Battery Assembly

### Battery Charge - General

10 A fully charged battery will retain at least 80 percent of its charge for 12 months if left stowed on the generator set in a United Kingdom type of environment. The battery will retain its performance within an operational temperature band of  $-31^{\circ}\text{C}$  to  $+70^{\circ}\text{C}$ .

10.1 The generator set delivers a charge to the battery of 2 amperes (nominal). If the generator set has been cold started more than ten times for running periods of only one to two hours duration or more than five times for running periods of less than one hour duration, then the battery will be in a partially discharged state and it is advisable to boost charge the battery to ensure that it is in a state of operational readiness. The boost charge can be applied in two ways:-

10.1.1 By running the generator set continuously for not less than six hours.

10.1.2 By removing the battery from the generator set and applying a boost charge from an external battery charger as described in para. 11.

Boost Charging - General

CAUTION

A motor vehicle type booster charger must not be used. This could cause catastrophic damage to the battery.

11 If a boost charge is to be applied, the battery should first be removed from the generator set. A BOOST CHARGE MUST ONLY BE APPLIED FROM A CONSTANT VOLTAGE SOURCE as follows:

11.1 Normal overnight boost charge at 14.7 volts maximum, with a maximum charging current of 5 amperes (3 amperes nominal).

11.2 Extra boost charge at 15 volts and 35 amperes maximum (30 amperes nominal). This can be used for a battery which is discharged to less than 50 percent capacity.

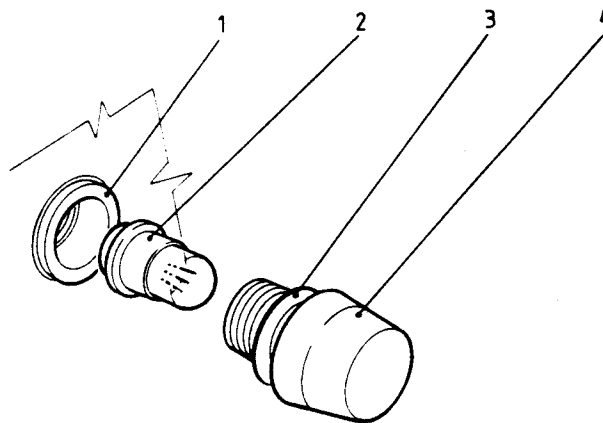
REPLACEABLE LAMPS (Fig. 6)

12 The lens and the filament bulb can be replaced on the five red lens indicators and three panel lamps on the output panel control box, and also the SYNCHRO lamp on the fixed box.

12.1 To replace a filament bulb, unscrew and remove the lens and withdraw the filament bulb. Replace the bulb and screw in the lens.

PROTECTION DEVICES

13 There are no fuses associated with the generator set. Output connectors and terminals can be isolated by means of their associated circuit breakers. Output connector 4 circuit includes a residual current circuit breaker. The circuit breaker operation can be tested before use by operating the RFC TEST button which is located on the fixed box, beneath the emergency output terminals hinged cover.



- |   |                 |   |                   |
|---|-----------------|---|-------------------|
| 1 | Lampholder Body | 3 | Waterproof Washer |
| 2 | Filament Bulb   | 4 | Lens              |

Fig. 6 Indicator Lamp Filament Bulb and Lens

LUBRICATION - MECHANICAL COMPONENTS

14 Periodically lubricate the mechanical control linkages. This can be done using a few drops of clean engine oil at the time the engine oil is changed. Wipe away any surplus oil.

COOLING

15 The engine is air cooled. Cooling air for the engine is drawn into the acoustic cover by twin fans driven by the engine. Cooling air enters the acoustic cover through the rear grill and is expelled at the front. Cooling air for the alternator is drawn into the acoustic cover through the centre-mounted grill at the front. These grills should be cleared of foreign matter such as dead leaves, paper and so on, before the engine is started.

USER FAULT FINDING

16 Provided that the routine maintenance tasks are carried out at the recommended intervals, the generator set should run for many hundreds of hours without failure. In order to assist the user in diagnosing operational problems that could occur, the output panel control box contains warning indicator lamps that illuminate if certain operational parameters are exceeded. Some of these warning lamp circuits are coupled to a generator shutdown circuit that will shut down the generator to prevent damage should the operational parameters be exceeded. The function of these lamp circuits is defined in chapter 1. Action to be taken if the lamps indicate a fault condition is defined in table 2.

Note ...

In some circumstances more than one lamp may be illuminated. Start up failure and possible causes are defined in the flowchart (Fig. 7).

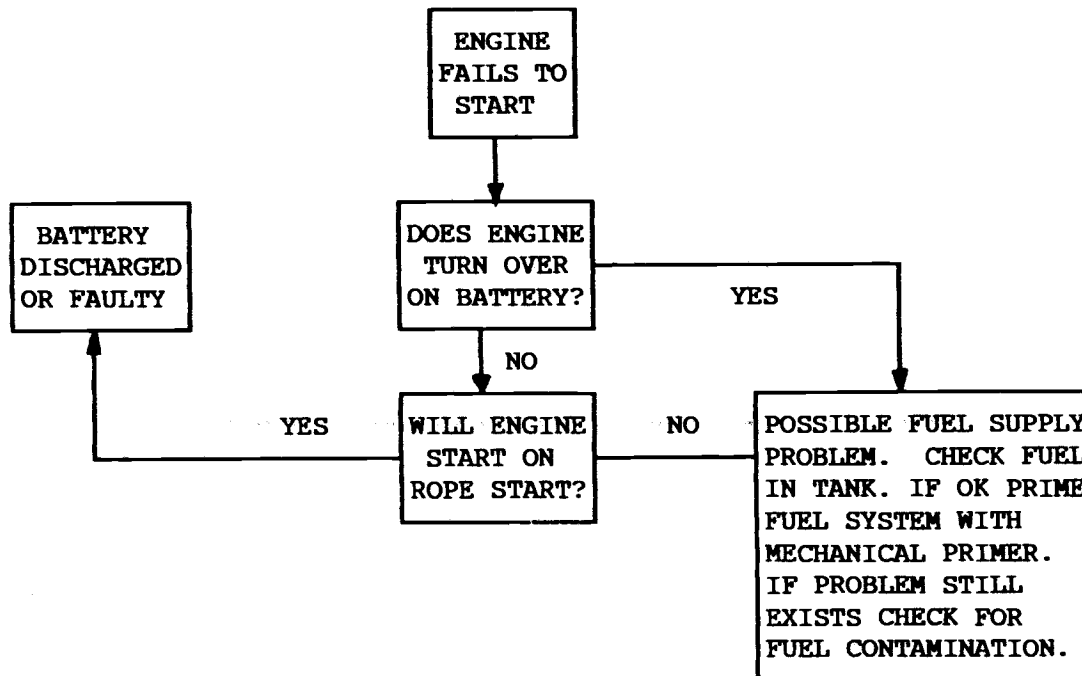


Figure 7 Start up Failure Analysis Flowchart

TABLE 2 - GENERATOR FAIL LAMPS ANALYSIS

| Lamp Definition and Status              | Cause of Failure   | Correcting Action  | Remarks  |
|---|--|--|--|
| POWER ON, red lamp has extinguished.    | 1 The filament lamp has failed.  | Check the filament lamp. Change if failed.   |  |
|   | 2 Alternator output failure.   | Check output voltmeter reading. If low or zero suspect failure in the alternator or control box. Switch OFF engine.  | Check for broken or loose wires on control box terminals at front of chassis assembly. If OK refer to next level of servicing.                       |
| BATTERY CHARGE red lamp is illuminated. | A failure has occurred in the battery charger circuit.   | Check battery terminals are tight. check for broken wires. If all OK the battery charging circuit has failed.  | Refer to next level of servicing.  |
| OIL PRESSURE red lamp is illuminated.   | The oil pressure has dropped below 15 psi.   | Switch-OFF the engine. Check oil level. If OK check grade of oil is correct for the operating environment.   | If oil is OK suspect worn big end bearings. Refer to next level of servicing.  |
| ENGINE TEMP red lamp is illuminated.    | If this lamp is illuminated the engine shutdown circuit will shutdown the engine. This is because the engine temperature has exceeded 110 degrees C. | Remove acoustic cover and allow engine to cool down. Check that the air input/output ducts on the acoustic cover are clear. Operate the LED INDICATORS RESET button. | If the air ducts are free from obstructions, suspect overloading of the generator. Disconnect some of the outputs or run two generators in parallel. |
| LOW FUEL red lamp is illuminated.       | Low fuel in tank.  | Top up the tank.   |  |

TABLE 2 GENERATOR FAIL LAMPS ANALYSIS (Continued)

| Lamp Definition and Status                    | Cause of Failure  | Correcting Action  | Remarks  |
|---|---|--|--|
| OVERCURRENT<br>white lamp is illuminated.     | The output load is three times what it should be and to protect the alternator, the output has been shut down.  | Remove some of the output load then operate the LED INDICATORS RESET button.   | If operating with a heavy load consider connecting two generators in parallel.   |
| REVERSE POWER<br>white lamp is illuminated.   | Two generators are running in parallel and the output from one is exceeding the operational parameters for running the generators in parallel and the outputs of one or both generators have shut down automatically. | Isolate the loads on both generators using the output circuit breakers. Operate the LED INDICATORS RESET button on both generators. Run up both generators in accordance with chapter 2. | The generators have become unsynchronised. Possibly due to a large load being disconnected from one of the generators.   |
| OVER FREQUENCY<br>white lamp is illuminated.  | The frequency is not within the operational parameters and the load has been disconnected automatically.  | The engine speed has risen, possibly because a heavy load has been disconnected. Isolate the output load and investigate the problem. Operate the LED INDICATORS RESET button.           | Investigate cause and run up engine to speed. Adjust ENGINE SPEED CONTROL if necessary to trim engine speed when loaded. |
| UNDER FREQUENCY<br>white lamp is illuminated. | The frequency is not within the operational parameters and the load has been disconnected automatically.  | The engine speed has fallen. This could be due to an engine fault (misfiring). Isolate the output load and investigate the problem. Operate the LED INDICATORS RESET button.             | Investigate cause and run up engine to speed. Adjust ENGINE SPEED CONTROL if necessary to trim engine speed when loaded. |

TABLE 2 GENERATOR FAIL LAMPS ANALYSIS (Continued)

| Lamp Definition and Status                     | Cause of Failure  | Correcting Action   | Remarks   |
|--|---|---|---|
| HIGH TEMP.<br>(AIR) white lamp is illuminated. | The cooling air to the generator has exceeded 120 degrees C and the engine has shutdown.  | Remove the acoustic cover and let the engine cool down. Isolate the output load. Operate the LED INDICATORS RESET button. Clear any obstructions in the air ducts of the acoustic cover.  | Provided the ventilation ducts and grills are not obstructed, this is unlikely to occur during normal operation.  |
| HIGH TEMP.<br>(OIL) white lamp is illuminated. | The temperature of the lubricating oil within the engine has reached a dangerous level and the engine has been automatically shut down. | Remove the acoustic cover and let the engine cool down. Isolate the output load. Operate the LED INDICATORS RESET button. Check the oil level and ensure it is on the correct level mark on the dipstick. Check that you have the correct oil type for the operational environment. | If this problem continues suspect a faulty oil temperature sensor. If the problem is due to operational conditions, change the oil more frequently because its film strength can break down with excessive temperature. |
| LOW OIL PRESSURE white lamp is illuminated.    | The oil pressure has fallen below the accepted danger level and the engine has been automatically shut down.                            | Remove the acoustic cover and let the engine cool down. Isolate the output load. Operate the LED INDICATORS RESET button. Check the oil level and ensure it is on the correct level mark on the dipstick.   | If the problem continues, possibly the engine is faulty or the oil pressure sensor is faulty. Refer to next level of servicing. Check for the correct type of oil for the operational environment.                      |

FUNCTIONAL TEST

17 To test the generator set after a repair, or at any other time, the generator should be started from cold in the normal manner and should run within ten seconds of the starter being operated and 240V 50 Hz must be available as indicated on the panel meters.

Operational Status

18 Operational status of the machine should be indicated as follows:

18.1 With the generator running normally the POWER ON lamp only should be illuminated; any other lamp will indicate a fault condition.

18.2 Note the positioning of the ENGINE SPEED CONTROL and with the generator outputs isolated, verify that movement of the engine speed control anticlockwise, then clockwise, causes the engine speed to decrease and increase accordingly. Reset the engine speed control to the noted position; this normally corresponds with the FREQUENCY METER indicating 50Hz.

18.3 Note the position of the VOLTAGE CONTROL and with the generator outputs isolated verify that movement of the voltage control anticlockwise, the clockwise, causes the VOLTMETER indication to decrease and increase accordingly. Reset the voltage control to the noted position; this is normally 240V.



Chapter 4

DESTRUCTION OF EQUIPMENT

CONTENTS

| Para |   |
|------|---|
|      | DESTRUCTION OF EQUIPMENT TO PREVENT ENEMY USE |
| 1    | MANDATORY DIRECTIVE                           |
| 3    | Degree of damage                              |
| 5    | Spare parts                                   |
| 6    | MEANS AND PROCEDURES                          |
| 8    | Mechanical                                    |
| 9    | Burning (WARNING)                             |
| 10   | Gunfire (WARNING)                             |
| 11   | PRIORITIES                                    |

| Table |                            | Page |
|-------|----------------------------|------|
| 1     | Priorities for destruction | 3/4  |

DESTRUCTION OF EQUIPMENT TO PREVENT ENEMY USE

MANDATORY DIRECTIVE

1 Destruction of the equipment when subject to capture by the enemy, will be undertaken by the user arm, ONLY WHEN, in the judgement of the unit commander concerned, such action is necessary in accordance with order of, or policy established by the Army or Divisional Commanders.

2 The reporting of the destruction of the equipment is to be done through command channels.

Degree of Damage

3 The degree of damage inflicted, to prevent the equipment being used by an enemy, shall be as follows:

3.1 Methods of destruction should achieve such damage to equipment and essential spare parts that it will not be possible to restore the equipment to a usable condition in the combat zone either by repair or by cannibalisation.

3.2 Classified equipment must be destroyed in such degree as to prevent, whenever possible, duplication, or determination of operation or function by the enemy.

3.3 Any classified documents, notes, instructions, or other written material pertaining to function, operation, maintenance or employment, including drawings or parts lists, must be destroyed in a manner to render them useless to the enemy.

4 In general, destruction of essential parts, followed by burning will usually be sufficient to render the equipment useless. However, selection of the particular method of destruction requires imagination and resourcefulness in utilisation of the facilities at hand under the existing conditions. Time is usually critical.

#### Spare Parts

5 The same priority, for destruction of component parts of a major item necessary to render the item inoperable, must be given to the destruction of similar components in spare parts storage areas.

#### MEANS AND PROCEDURES

6 If destruction is ordered, due consideration should be given to:-

6.1 Selection of a point of destruction that will cause greatest obstruction to enemy movement and also prevent hazard to friendly troops from fragments or ricocheting projectiles which may occur incidental to the destruction by gunfire.

6.2 Observance of appropriate safety precautions.

7 The following information is for guidance only. Of the several means of destruction, those most generally applicable are as follows:

#### Mechanical

8 This requires an axe, pick, crowbar or similar implement. The equipment should be destroyed in accordance with the priorities given in Table 1 - PRIORITIES.

#### Burning

#### WARNING ...

DUE CONSIDERATION SHOULD BE GIVEN TO THE HIGHLY INFLAMMABLE NATURE OF GASOLINE AND ITS VAPOUR. CARELESSNESS IN ITS USE MAY RESULT IN PAINFUL BURNS.

9 This requires gasoline, oil or other flammables:

9.1 Remove and empty the portable fire extinguishers.

9.2 If quantities of combustibles are limited, smash all vital elements, such as switches, instruments and control levers.

9.3 Place ammunition and charges in and about the equipment so that the greatest damage will result from the explosion.

9.4 Pour gasoline and oil over the equipment. Ignite by means of an incendiary grenade fired from a safe distance, by a flame thrower, by a combustible train of suitable length or other appropriate means. Take cover immediately.

Gunfire

WARNING ...

FIRING ARTILLERY AT RANGES OF 500 YARDS OR LESS, AND FIRING GRENADES OR ANTI-TANK ROCKETS SHOULD BE FROM COVER.

- 10 When destroying the equipment by gunfire, proceed as follows:
- 10.1 Remove and empty the portable fire extinguishers.
  - 10.2 Smash all vital elements as outlined in sub-paragraph 2.
  - 10.3 Destroy the equipment by gunfire, using tank guns, self-propelled guns, artillery, rifles, using rifle grenades or launchers using anti-tank rockets.

PRIORITIES

- 11 The priorities for destruction should be considered as follows:
- 11.1 Priority must be given to the destruction of classified equipment and associated documents.
  - 11.2 When lack of time and/or means prevents complete destruction of equipment, priority is to be given to the destruction of essential parts, and the same parts are to be destroyed on all like equipment.
  - 11.3 A guide to priorities for destruction of the equipment is shown in Table 1 - PRIORITIES.

TABLE 1 PRIORITIES FOR DESTRUCTION

| Priority | Container fitted equipment                     |
|----------|--|
| 1        | Any classified equipment held for repair/test. |
| 2        | Automatic Test Equipment (ATE) System.         |
| 3        | Manual Test Equipment (MTE) Station.           |
| 4        | Air Conditioning Units (AC60).                 |
| 5        | NBC Unit.                                      |
| 6        | Portable generator.                            |



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**GENERATOR SET  
DIESEL ENGINE DRIVEN  
4.5kW (5.6kVA) 240V AC,  
SINGLE PHASE, 50 Hz  
(AIR LOG 4169A)**

**TECHNICAL DESCRIPTION**

**BY COMMAND OF THE DEFENCE COUNCIL**

Ministry of Defence

**PUBLICATIONS AUTHORITY  
Directorate General of Defence Quality Assurance  
Royal Arsenal West, Woolwich, SE18 6ST**

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Technical Description

Chapter

- 1 General description
- 2 Description and principles of operation

PREFACE

Sponsor: EME10 (c) (4)

INTRODUCTION

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

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

RELATED AND ASSOCIATED PUBLICATIONS

Related Publications

3 The Octad for the subject equipment consists of the publications shown below. All references are prefixed with the first eight digits of this publication.

| CATEGORIES AND INFORMATION LEVELS |     |     |     |     |     |     |     |     |   |     |     |     |   |   |
|-----------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|---|-----|-----|-----|---|---|
| CATEGORY                          | 1   | 2   | 3   | 4   |     | 5   |     |     |   | 6   | 7   |     | 8 |   |
|                                   |     |     |     | 1   | 2   | 1   | 2   | 3   | 4 |     | 1   | 2   | 1 | 2 |
| LEVEL                             |     |     |     |     |     |     |     |     |   |     |     |     |   |   |
| 1 USER/OPERATOR                   | 101 | 201 | 201 | 411 | 411 | 201 | 201 | *   | * | 601 | *   | *   | * | * |
| 2 UNIT MAINTENANCE                | *   | *   | 302 | *   | *   | 512 | 522 | 532 | * | *   | 712 | 721 | * | * |
| 3 FIELD MAINTENANCE               | *   | *   | 302 | *   | *   | 512 | 522 | 532 | * | *   | *   | *   | * | * |
| 4 BASE MAINTENANCE                | *   | *   | *   | *   | *   | *   | *   | *   | * | *   | *   | *   | * | * |

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

\* Not published

Note ...

Reference to AESP 0100-A-001-001 must be made to ensure the availability of the listed publications.



Associated Publications

| <u>Code No.</u> | <u>Type</u> | <u>Title</u>   |
|-----------------|-------------|--|
| 2815-B-641      | AESP        | Engine, Diesel 1 and 2 Cylinder,<br>Petter A Range, Air and Water<br>Cooled. |

WARNINGS...

LETHAL VOLTAGES

(1) VOLTAGES OUTPUT FROM THIS GENERATOR SET CAN ENDANGER LIFE. CARELESSNESS CAN BE FATAL. ENSURE THAT THE CHASSIS IS CORRECTLY EARTHED AND THAT THE EARTH LEAKAGE CIRCUIT BREAKER FUNCTIONS CORRECTLY FOR OUTPUT 4.

(2) BEFORE OPENING THE ACCESS COVER TO THE EMERGENCY TERMINALS, THE EMERGENCY TERMINALS 13A CIRCUIT BREAKER SHOULD BE AT THE OFF POSITION.

(3) THIS GENERATOR SET IS FITTED WITH RFI/EMP FEED THROUGH FILTERS. THE GENERATOR SET MUST BE CORRECTLY EARTHED BEFORE USE.

INJURY TO PERSONNEL

(1) WHEN REMOVING/REPLACING THE ENGINE/ALTERNATOR FROM THE CHASSIS, PREVENT INJURY TO PERSONNEL BY USING ADEQUATE SUPPORT DURING THE LIFTING OPERATIONS.

(2) PRECAUTIONS SHOULD BE TAKEN TO PREVENT EXHAUST GASES FROM ENTERING TRENCHES OR OTHER AREAS OCCUPIED BY PERSONNEL.

SPILLAGE OF DIESEL FUEL

PRECAUTIONS SHOULD BE TAKEN TO PREVENT THE SPILLAGE OF FUEL ONTO THE SOFT NOISE ABSORBANT AREAS WITHIN THE ENGINE ENCLOSURE AND THE ACOUSTIC COVER. ANY SUCH SPILLAGES SHOULD BE ATTENDED TO IMMEDIATELY. ANY SPILLAGES MUST BE CLEANED UP BEFORE RUNNING THE GENERATOR SET.

BOOST CHARGING

BOOST CHARGING OF SEALED FOR LIFE (MAINTENANCE FREE) BATTERY. THE GENERATOR SET IS FITTED WITH SUCH A BATTERY. ON NO ACCOUNT MUST THIS BATTERY BE SUBJECTED TO A RAPID BOOST CHARGE OF THE TYPE USED FOR A NORMAL LEAD/ACID TYPE OF BATTERY. ANY BOOST CHARGE MUST BE FROM A CONSTANT VOLTAGE SOURCE NOT EXCEEDING 15 VOLTS AND A MAXIMUM CHARGE CURRENT OF 35 AMPERES (30 AMPERES NOMINAL).

Chapter 1

GENERAL DESCRIPTION

CONTENTS

Para

- 1 GENERAL
- 2 ROLE
- 3 Special Features
- 4 Deployment
- 5 CONSTRUCTION
- 6 Fixed Box
- 7 Acoustic Cover

Fig

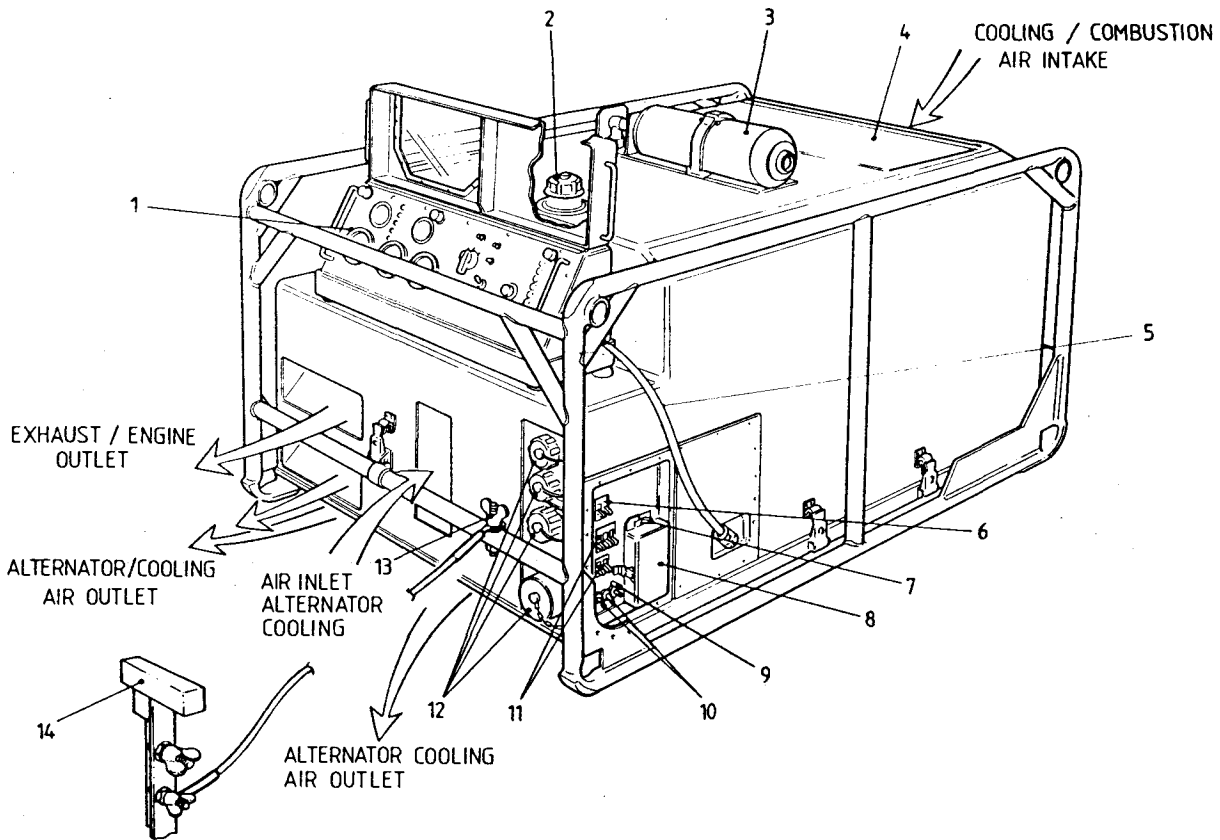
- 1 Generator Set - General View
- 2 Fixed Box - General View
- 3 Acoustic Cover - General View

Page

- 2  
4  
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GENERAL

1 The Air-Log Limited Generator Set 4169A (Fig 1) is a chassis mounted, diesel driven, air-cooled generator set that can be lifted by six men and manhandled over rough ground by four men. The combined engine/alternator unit is enclosed within a demountable glass reinforced plastic (GRP) acoustic cover, that houses a demountable output panel control box that can be remotely deployed. The generator set is supplied with five extension exhaust tubes, two of which are flexible. The generator set can be operated mounted singly on FV2380 Mk II Trailer, or as a pair mounted on a FV2406 Mk II Trailer. Four clamps, installed as a mounting kit, secure each set to the decking of the trailers.



- |                                     |   |
|-------------------------------------|---|
| 1. Output Panel Control Box         | 8. Emergency Output Terminals Cover       |
| 2. Fuel Filler Cap                  | 9. Synchro Lamp and Switch                |
| 3. Fire Extinguisher (BCF)          | 10. Single/Parallel Mode Switches (2 off) |
| 4. Stowage Compartment              | 11. Output ON/OFF Switches                |
| 5. 3/4 m Cable                      | 12. Output Sockets                        |
| 6. Generator Output Switch          | 13. Earth (Ground) Connector              |
| 7. Emergency Terminals Switch (30A) | 14. Earth Spike and earth lead            |

Fig 1 Generator Set - General View

### ROLE

2 The generator set is designed for field use and is especially suitable for powering communications equipment and other equipment where good cyclic regularity is needed from the engine to produce a good quality sine wave output from the alternator. The brushless alternator is close coupled to the engine and is able to produce a high quality, single phase sine wave output of 240V 50Hz (nominal) with low distortion and noise levels. Maximum continuous output is 5.6 kVA at 0.8 power factor. Normal starting is by battery but there is also an emergency rope and pulley start capability which is a two-man function. The generator set is enclosed in a GRP acoustic cover.

### Special Features

3 The generator set contains protection circuits that can disconnect the load when an electrical fault occurs and can also shut down the engine should operational parameters exceed predetermined levels. Two generator sets of the same type can be connected in parallel to provide extra output capability or load transfer. Other important features of the generator set are the low audible noise level and low infra-red emissions. Five extension exhaust tubes (two flexible and three rigid) are supplied so that exhaust gases can be piped up to five metres from the generator set, should this be required.

### Deployment

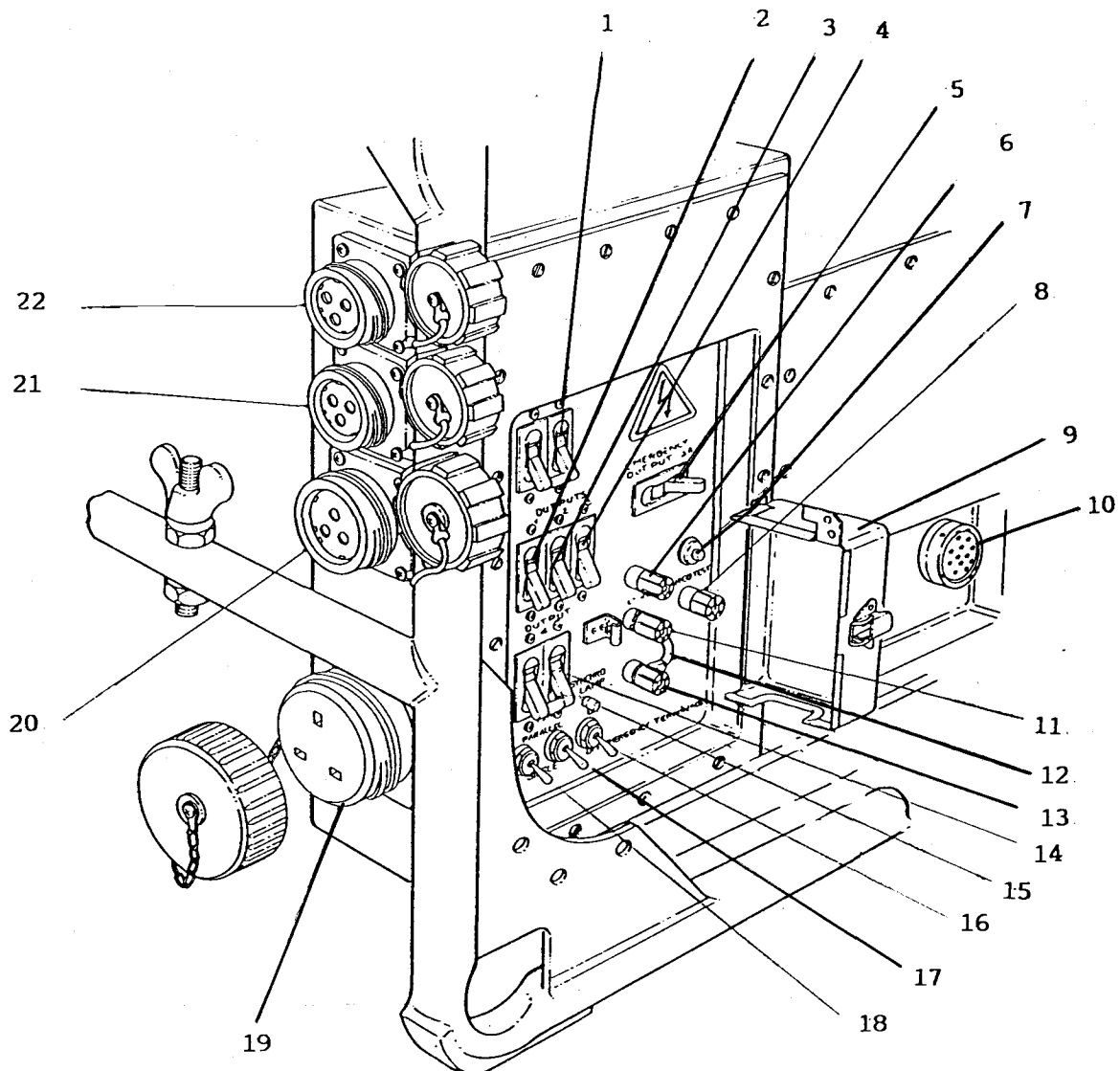
4 The generator set can be deployed at ground level as a free-standing unit or it can be trailer mounted as a single item or in pairs. The generator set will function at any angle up to 20 degrees in any axis.

### CONSTRUCTION

5 The engine/alternator assembly is contained in a welded tubular chassis assembly and held in place by nuts and bolts and shock mounts. There is an integral fuel tank of 25 litres (5.5 gallons) capacity which is mounted onto the engine assembly. The engine is a Petter AD2, twin cylinder, air cooled diesel unit which is fuelled by mechanical injection. Pre-heaters are built in to assist cold starting. The engine is close coupled to the alternator which is an Allam brushless unit with low electrical noise output. The alternator is bolted onto the engine and can be separated with the engine/alternator assembly removed from the chassis assembly, as described in category 5 of this AESP.

### Fixed Box

6 This a fabricated steel box, housing externally and internally mounted items (Fig 2). The externally mounted items consist of the power output connectors, output circuit breakers, output emergency terminals, and synchronising switches and lamps for running two generators in parallel. The acoustic cover is cut away for easy access to these items. Also mounted to an exterior panel of the fixed box is the output connector for the interconnecting cable to the output panel control box (para. 12). The fixed box contains two screwed-on panels that can be removed for easy access and removal of externally and internally mounted items. The internally mounted items include the engine protection printed circuit board, residual current



- |   |                                       |
|---|---------------------------------------|
| 1. Power ON/OFF Circuit Breaker   | 12. Wire Link/Strap                   |
| 2. OUTPUT 1 Circuit Breaker   | 13. EARTH Terminal (Emergency Output) |
| 3. OUTPUT 2 Circuit Breaker   | 14. OUTPUT 4 Circuit Breaker          |
| 4. OUTPUT 3 Circuit Breaker   | 15. SYNCHRO Lamp                      |
| 5. EMERGENCY Output 13A Switch  | 16. SYNCHRO Lamp ON/OFF Switch        |
| 6. LINE Terminal (Emergency Output)   | 17. PARALLEL/SINGLE 'B' Switch        |
| 7. RCD TEST Button  | 18. PARALLEL/SINGLE 'A' Switch        |
| 8. STOWAGE Terminal   | 19. OUTPUT 4 Socket Connector (13A)   |
| 9. Emergency Output Terminals Cover   | 20. OUTPUT 1 Socket Connector (30A)   |
| 10. 41-Way Socket Connector for Interconnecting Cable to Output Panel Control Box | 21. OUTPUT 2 Socket Connector (15A)   |
| 11. NEUTRAL Terminal (Emergency Output)   | 22. OUTPUT 3 socket Connector (15A)   |

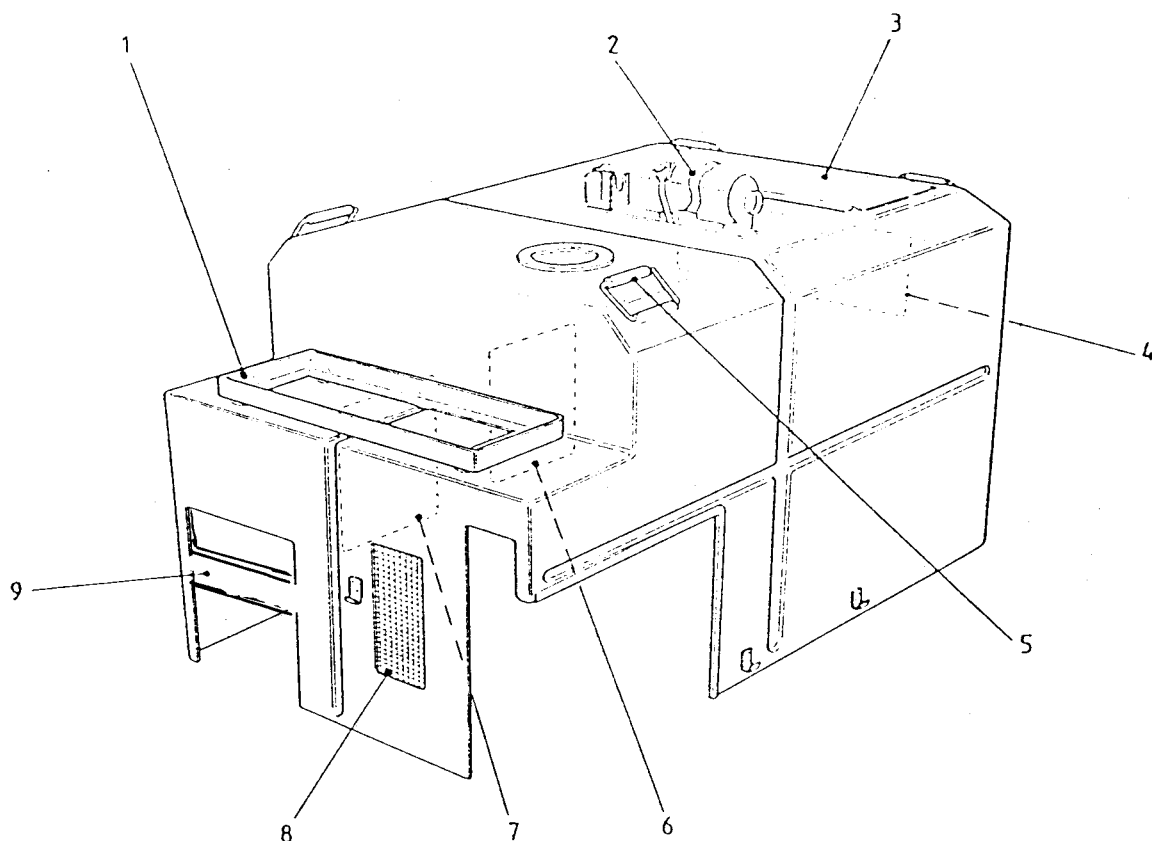
Fig 2 Fixed Box - General View

6 Continued.

detector unit, load disconnection relay, dc connecting relay, current transformer CT1, automatic voltage regulator, filters, and termination boards TB1 and TB2. Information on the removal of these items is contained in category 5 of this AESP.

Acoustic Cover

7 The acoustic cover, Fig 3, is fabricated from glass reinforced plastic, supplemented with noise absorbant sponge material. The acoustic cover contains cut-away areas and hinged panels for access to chassis or engine mounted items. The acoustic cover also contains input-output louvres and grills for easy flow of cooling and induction air for the generator set. The cover is held in place by means of seven quick-release fasteners. Lifting the cover from the chassis assembly is a two-man task.



- |   |                                     |
|---|-------------------------------------|
| 1. Output Panel Control Box Mounting Tray | 6. Engine Oil Access Hatch          |
| 2. BCF Fire Extinguisher Securing Strap   | 7. Exhaust System Access Hatch      |
| 3. Stowage Compartment Access Hatch       | 8. Air Inlet for Alternator Cooling |
| 4. Cooling Air Inlet                      | 9. Cooling Air Outlet Ducts         |
| 5. Lifting Handle (4 off)                 |                                     |

Fig 3 Acoustic Cover - General View

Chapter 2

DESCRIPTION AND PRINCIPLES  
OF OPERATION

CONTENTS

Para

- 1 Introduction
- 2 Engine
- 3 Alternator
- 4 Fuel system
- 5 Output panel control box
- 6 Battery Charger unit
- 7 Principles of operation
- 8 Battery
- 9 Engine speed electronic control - electronic governor
- 10 Operation
- 11 Mechanical governor
- 12 Protection board
- 13 Principles of operation
- 14 Automatic voltage regulator (AVR)
- 15 Principles of operation

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| 11 Automatic voltage regulator unit - circuit diagram  | 25/26 |

Introduction

1 The generator set consists of the items shown in Fig 1, with the two main items being the Petter AD2 engine and the alternator.

Engine

2 The engine is a Petter AD2 twin cylinder air-cooled diesel engine of 734 cc capacity; bore and stroke are 80.0 x 73.0 mm respectively. The engine is supplied to a build standard defined in the current Air-Log Limited production drawing and is included in the MOD type approval list DEF-STAN 28-2. The two cylinders are a vertical in-line north/south configuration. The flywheel is of the high inertia type producing good cyclic regularity. The drive from the AD2 engine is taken from the flywheel end of the crankshaft, which is mechanically coupled to the alternator rotor shaft. The engine mechanical speed governor is preset to 3300 rpm and acts as a back-up safety device in the event of a failure in the electronic governing and control systems.

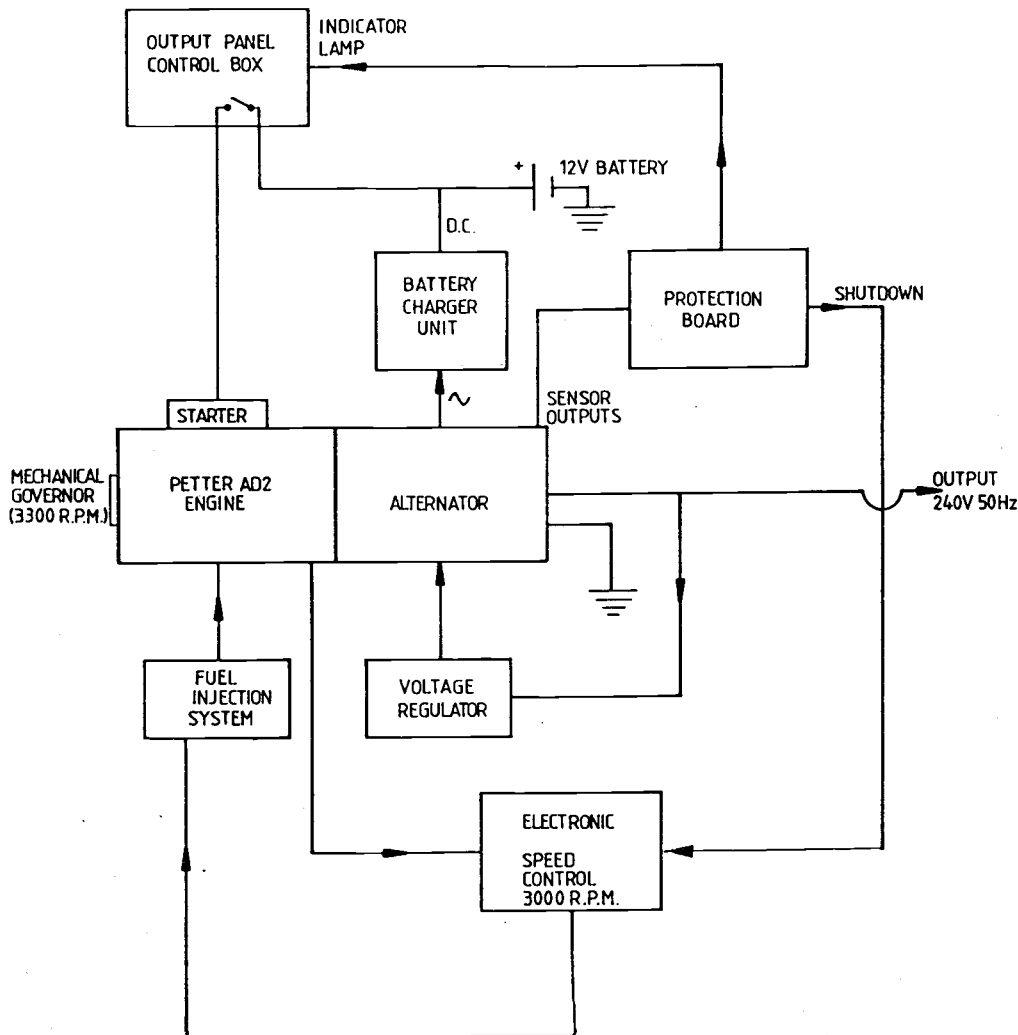


Fig 1 Generator Set Block Diagram



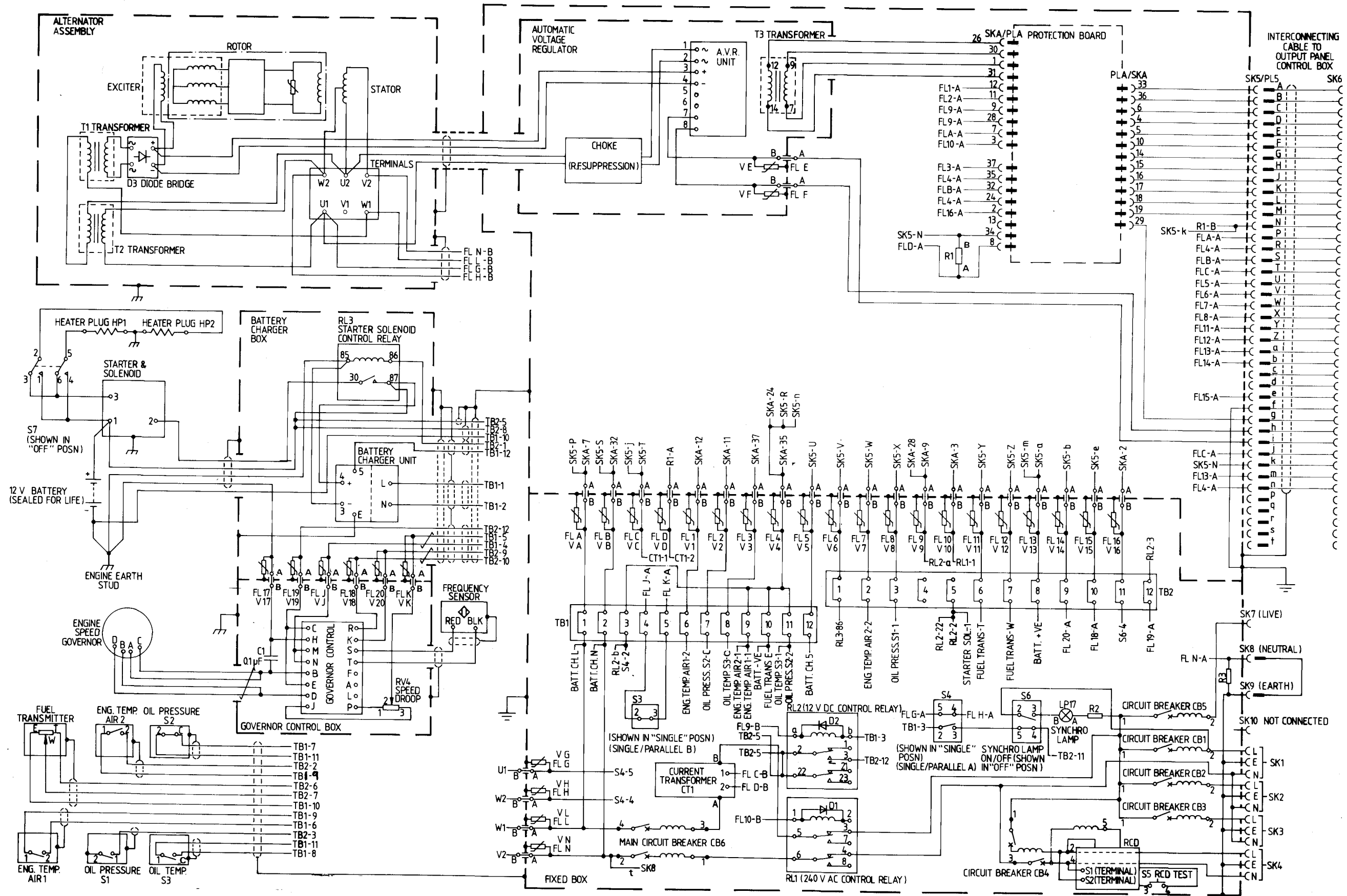


Fig 2

Generator Set - Circuit Diagram

Fig 2

Alternator

3 The alternator (Fig 3) is an Allam MT3E self exciting brushless generator which produces a good quality sine wave output of low electrical noise level. The output is 240V 50Hz (nominal) at 3000 rpm; this produces a maximum continuous output of 4.5kW (5.6 kVA at 0.8 power factor). Voltage output and frequency are essentially a function of rotor speed, therefore the engine speed is governed electronically to 3000 rpm. Provision is made to trim the engine speed from the output panel control box with reference to the frequency meter. The output voltage can also be adjusted from the output panel control box, within the limits 220 to 250V. The generator bearings are permanently lubricated and there are no sliding contacts within the rotor assembly; the generator therefore needs no mechanical maintenance except for routine visual inspection.

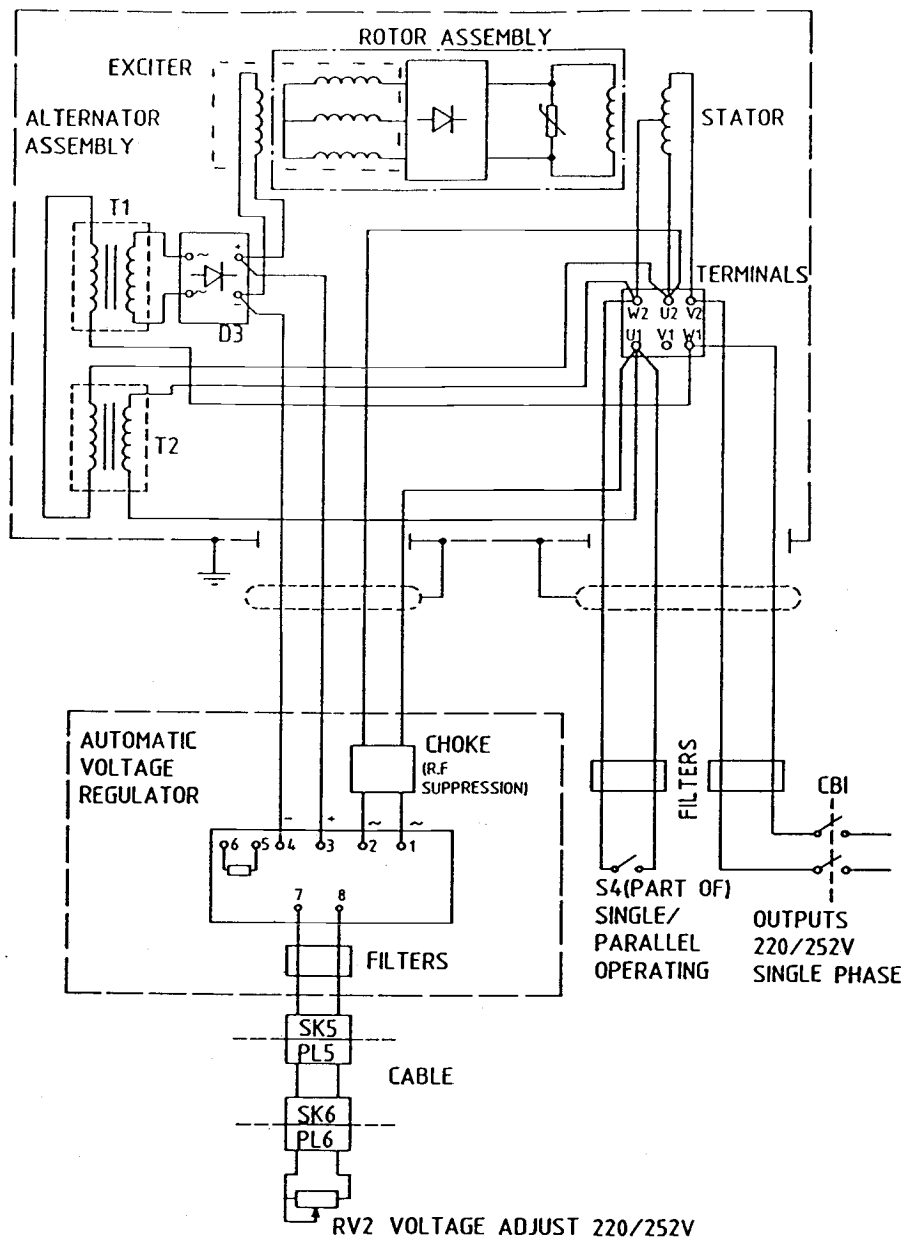
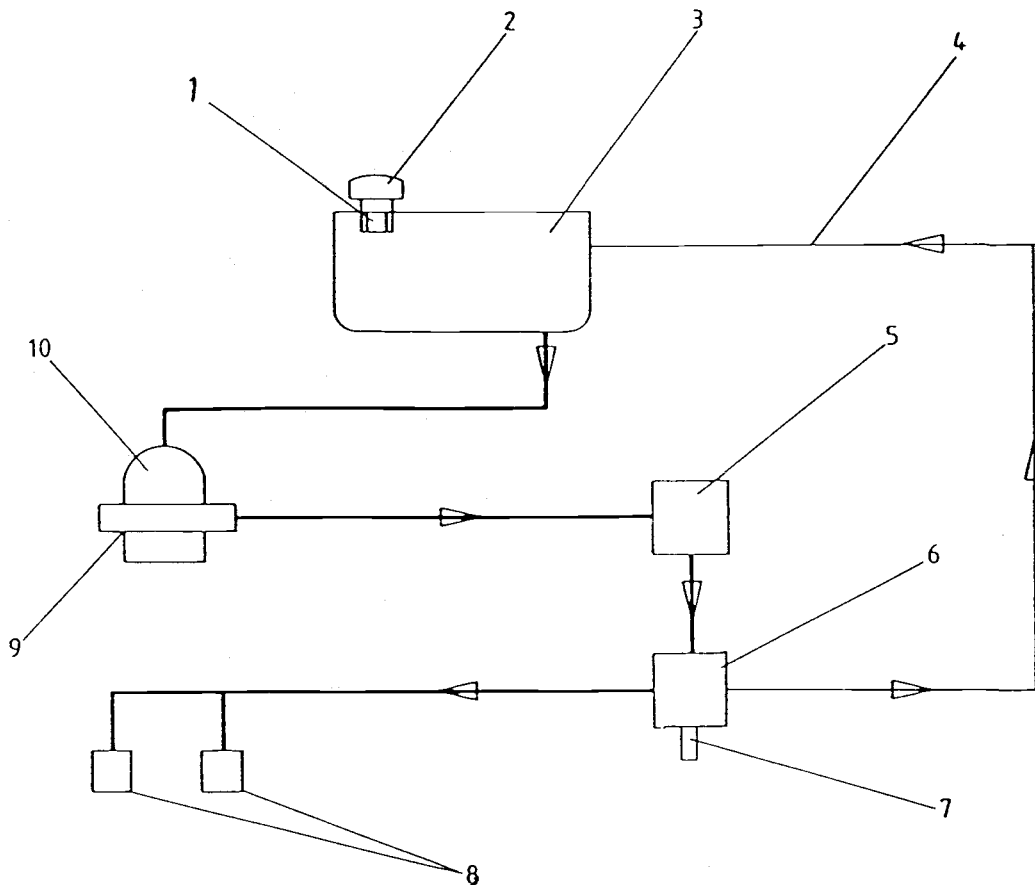


Fig 3 Alternator - Schematic Circuit

Fuel System

4 The engine (Fig 4) is fuelled by mechanical injection of diesel oil; there is a single injector mounted into each of the two cylinder heads. To assist cold starting, a preheater plug is mounted into each cylinder head. The diesel fuel is contained in a 25 litres (5 gallons) tank mounted in the chassis assembly. The fuel is pumped mechanically through the fuel system which contains a replaceable filter within the fuel filter bowl. The fuel pump can be operated by hand to prime the fuel system if it has been allowed to run dry. In normal use the fuel system is self bleeding and does not require priming. The fuel system contains a fuel flow regulator with a mechanical actuator arm which is controlled from the engine speed electronic governor unit. The fuel actuator is automatically operated to the correct position when the engine starter switch is operated on the output panel control box.

FCU = 24 litres.



- |                           |   |
|---------------------------|---|
| 1. Fuel Tank Inlet Filter | 7. Mechanical Actuator<br>(Controlled from Electronic Governor) |
| 2. Fuel Tank filler Cap   | 8. Fuel Injectors   |
| 3. Fuel Tank              | 9. Fuel Pump Hand Primer  |
| 4. Fuel Bleed Pipe        | 10. Fuel Pump   |
| 5. Fuel Filter Bowl       |   |
| 6. Fuel Flow Regulator    |   |

Fig 4 Fuel System Block Diagram

Output Panel Control Box (Figs 5 and 6)

5 The output panel control box is normally mounted in a tray, on top of the acoustic cover, but it can be remotely deployed by using the 10-metre extension interconnecting cable supplied with the generator set. The output panel control box provides the means for starting and stopping the generator set, adjusting the output, monitoring the performance, and receiving indicator lamp warnings of mechanical and electrical problems.

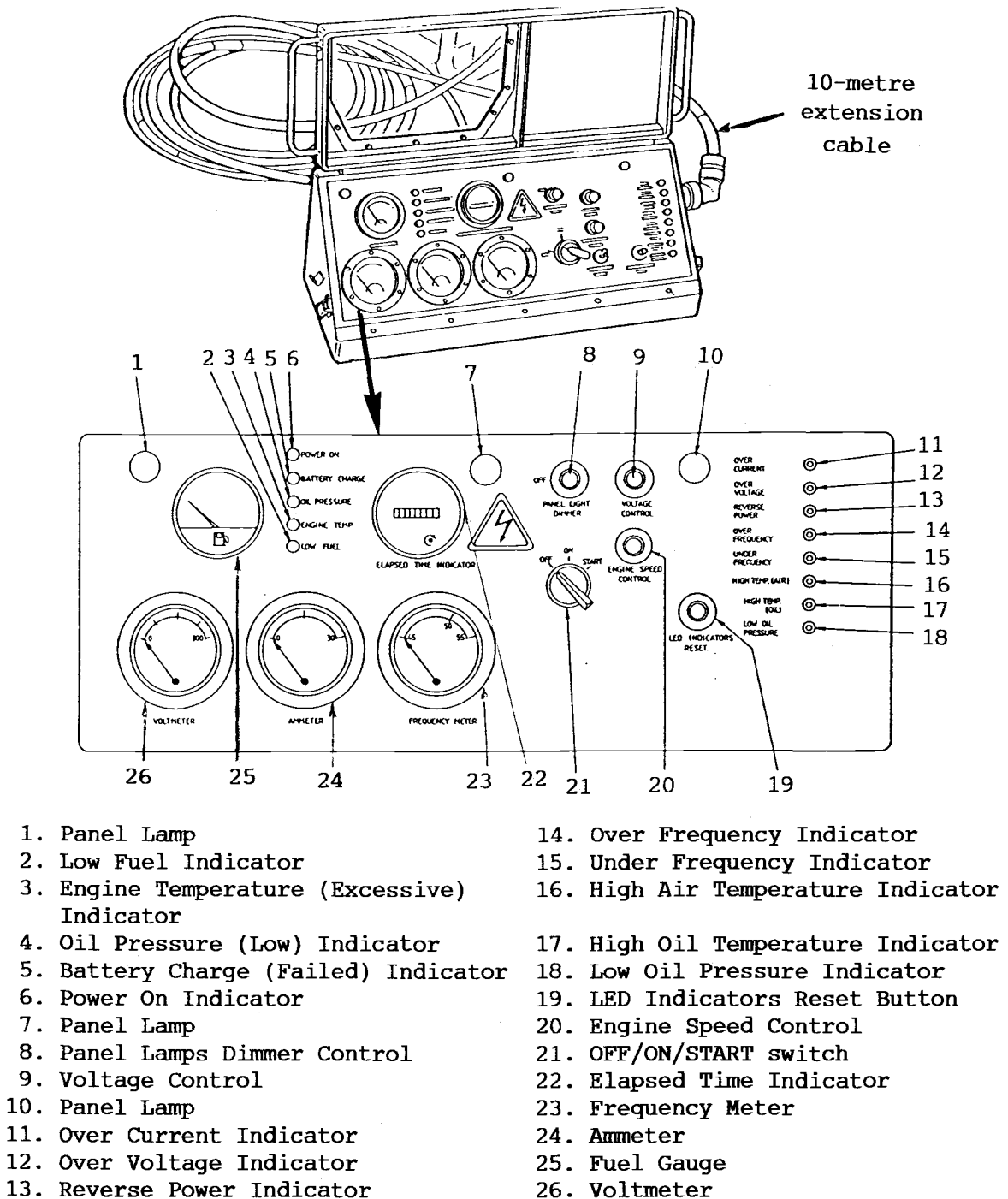


Fig 5 Output Panel Control Box (Demounted) - General View

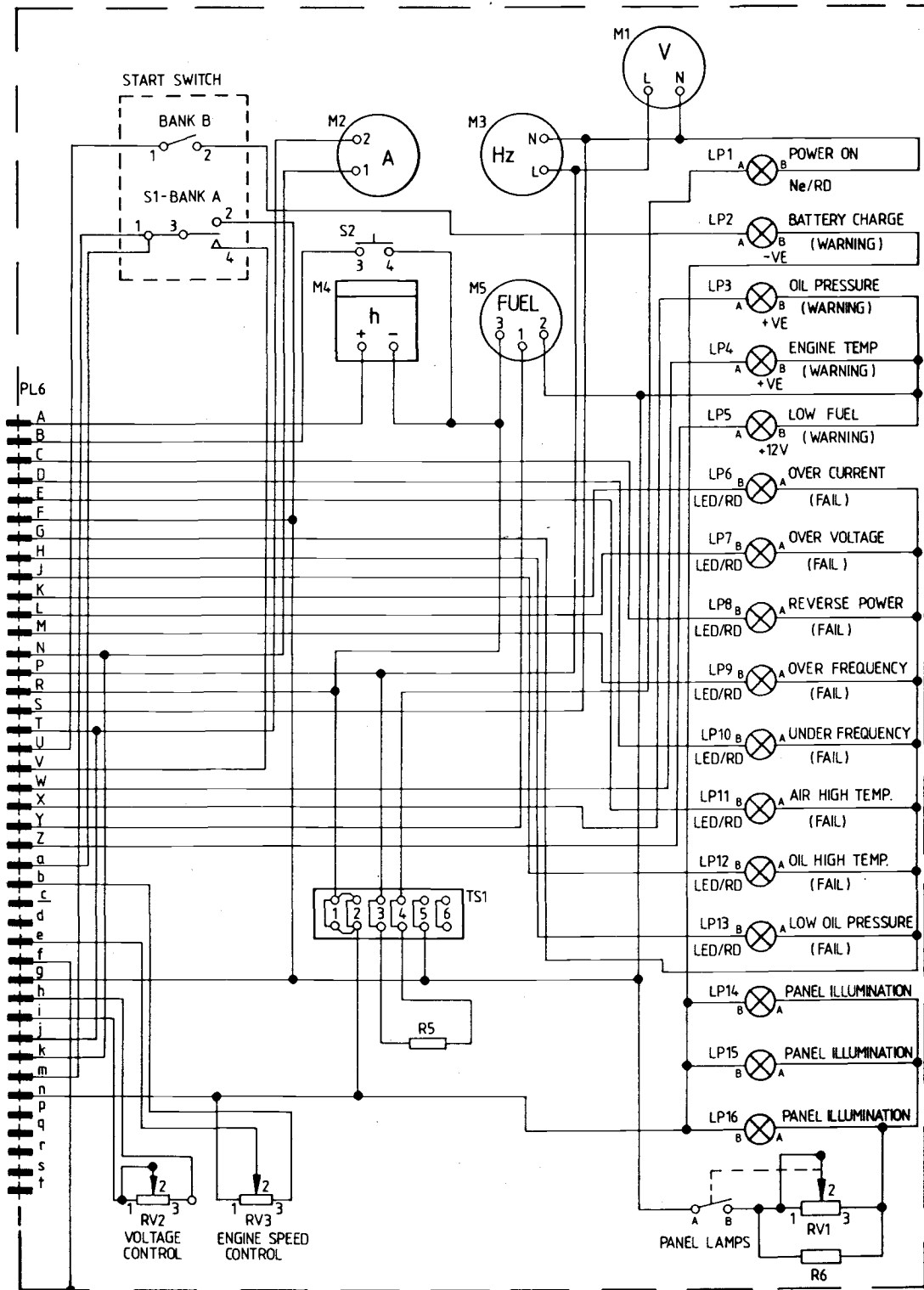


Fig 6 Output Panel Control Box - Circuit Diagram



### Battery

8 This is a sealed for life lead/acid battery of 12V and 35 ampere hours capacity charged from the generator set via the battery charger unit; the physical size of the battery is 25 cm long x 10 cm wide x 20 cm high and it is mounted within the chassis assembly. The battery needs no topping up or other routine maintenance except for visual inspection for cracks or other damage. The battery negative terminal is connected to chassis (ground). Externally applied boost charges must only be applied from a constant voltage source. On no account should a motor vehicle type booster charger be used. This could cause catastrophic damage to the battery. The battery must be disconnected from the generator set before any external charge is applied (See WARNINGS, page (vii)/(viii)).

### Engine Speed Electronic Control - Electronic Governor

9 This is an electronic unit (Fig 8), designed around the phase - locked loop principle to control engine speed with fast response time to load changes. It is mounted in a die-cast box adjacent to the engine pulley. There are three preset potentiometers on the engine control unit, these are SPEED, STABILITY and GAIN. A unit supplied with a generator is preset at the factory to suit the characteristics of the generator and should not need adjustment, except if a new unit is fitted. The preset speed is 3000 rpm. This unit controls the movement of the throttle actuator at start-up and during normal running.

### Operation

10 The operation of the electronic governor is described as follows:

10.1 The electronic governor is comprised of an input amplifier, control loop incorporating a voltage controlled oscillator and phase detector, and speed control circuit. The unit receives a signal from the engine speed sensor at a frequency which is proportional to the speed at which the engine is running. This signal is amplified and input to the phase detector where it is compared with a preset reference signal from the voltage controlled oscillator. Any difference in frequency results in a change to the signal output to the speed control circuit which drives the engine throttle actuator. When the frequencies of the speed sensor signal and that of the voltage controlled oscillator are equal the control loop becomes 'locked' and outputs a steady signal to the speed control circuit.

10.2 During engine start up and initial acceleration the frequency of the signal, from the engine speed sensor, input to the phase detector will be low compared to the reference signal from the voltage controlled oscillator. This results in a high output to the speed control circuit which drives the throttle actuator to the maximum fuel setting.

10.3 As the engine accelerates up to speed the frequency of the signal from the speed sensor will increase, the frequency difference sensed at the phase detector will decrease, the output signal to the speed control circuit will be decreased and correspondingly the throttle actuator will be driven towards the minimum fuel setting. When the engine speed is at 3000 rpm the frequency of the speed sensor signal matches that of the reference signal and the control loop becomes 'locked'. This results in a constant output signal (approx. +5V) to the speed control circuit and the throttle actuator is held at that particular fuel setting.

10.4 Any variation in engine speed, e.g. due to changes in the load on the alternator, will be sensed as a frequency change by the phase detector; as a result the control loop 'unlocks', the signal to the speed control circuit increases or decreases to drive the throttle actuator towards either a high or lower fuel setting. When the engine speed is at 3000 rpm the control loop becomes 'locked' and the engine speed remains constant.

10.5 To ensure smooth operation, and reduce 'overshoots', feedback techniques are employed in the control circuits. Fine control of engine speed is enabled by operation of the ENGINE SPEED control mounted on the OUTPUT PANEL CONTROL BOX. Engine speed droop control is brought into operation when generator sets are operated in parallel.



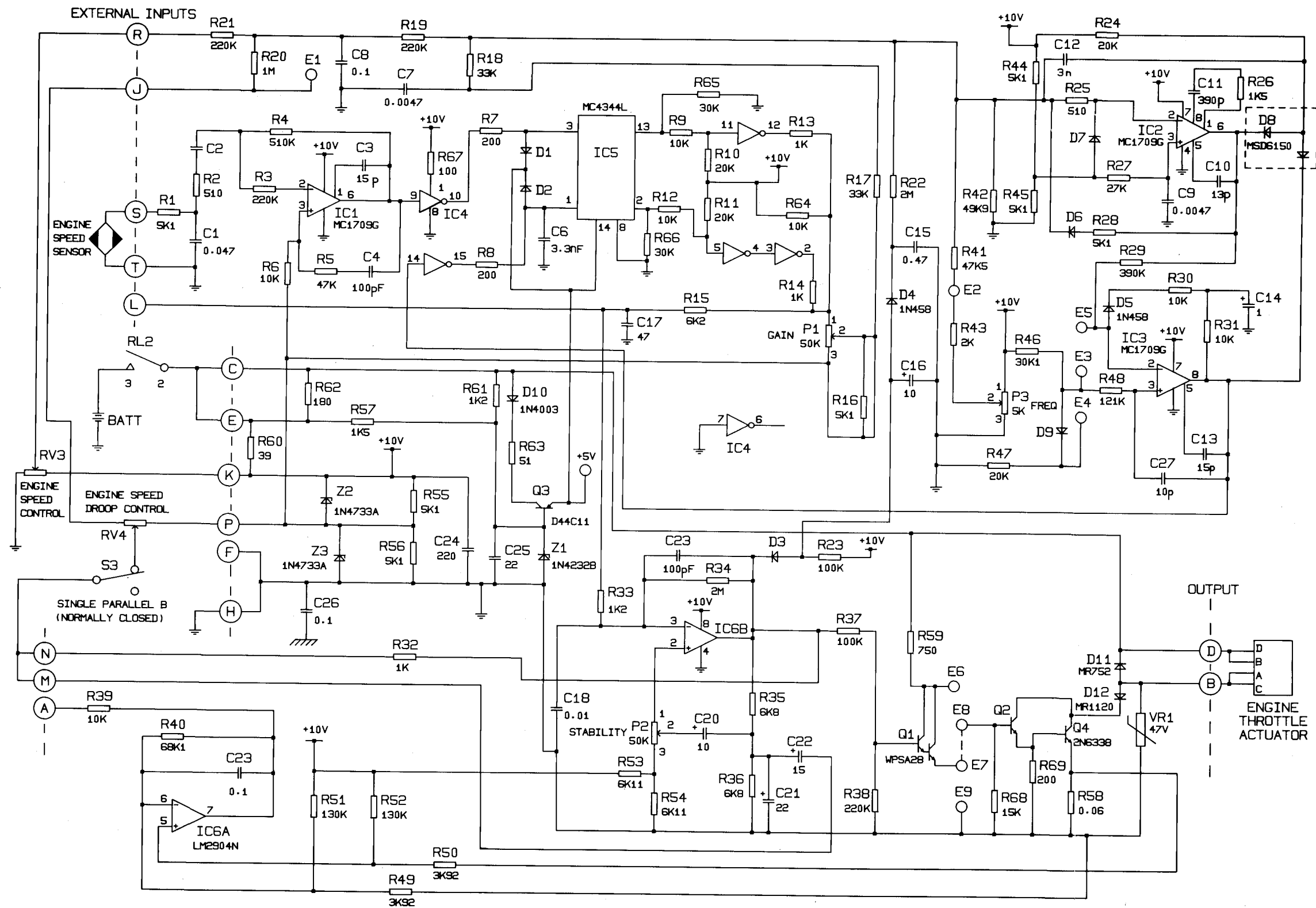


Fig 8

Engine Speed Control Unit Circuit

Fig 8

### Mechanical Governor

11 The Petter AD2 engine is fitted with a mechanical engine governor which is preset to 3300 rpm for this application. The mechanical governor acts as a back-up safety device to limit the engine speed to 3300 rpm should there be a failure in the electronic governor and the engine protection electronic circuits.

### Protection Board (Figs 9 and 10)

12 The generator set contains a protection printed circuit board which is able to monitor essential operational parameters either electronically, or by using external sensors. In some circumstances, the external sensors (mounted to the various parts of the generator assembly) provide a short circuit condition which is sensed by the protection board. The protection board can, via relay contacts, disconnect the load from the alternator (for electrical problems) and also shutdown the engine (for mechanical problems that could endanger the operational capability of the engine). Additionally, the protection board provides a visual indication of the problem by means of indicator lamps on the output panel control box. The functions of these lamps are defined in category 201. If the protection board has disconnected the load or shut down the engine, the circuits need to be reset before engine restart or load reconnection. This can be accomplished by operating the LED INDICATORS RESET button on the output panel control box. All adjustments are factory preset and must not be changed.

### Principles of Operation

13 Operation of the protection circuits is described as follows:

13.1 The sensors monitoring ENG AIR TEMP, OIL TEMP and OIL PRESS (S2) are electrically similar with a set of contacts monitoring the relevant parameter. During normal engine running OIL PRESS (S2) contacts are normally closed, and the contacts of ENG AIR TEMP and OIL TEMP are normally open. OIL PRESS (S1) contacts form part of a warning circuit only and is not a function of the protection board. If a particular parameter exceeds its limits the sensor contacts operate and cause a comparator on the protection board to change state and activate a 5 sec timer. If the condition still persists at the end of this period of time, the load disconnect and engine shutdown relays are energised and the relevant warning LED on the output panel control box is lit.

13.2 OVERVOLTAGE TRIP. This circuit comprises a transformer rectifier with its primary winding connected across the generator output. The dc output of the rectifier is monitored by a comparator. If the generator output voltage exceeds the limit, the comparator changes state and activates the 5 sec timer. After this time delay the load disconnection relay is energised and the OVERVOLTAGE LED on the output control panel is lit.

13.3 OVERCURRENT TRIP. Load current is monitored by a sense resistor, the ac voltage developed across the resistor is rectified and output to a comparator. If the load current exceeds a preset limit the comparator changes state and activates the 5 sec timer. After the time delay the load disconnection relay is energised and the OVERCURRENT LED on the output control panel is lit.

13.4 REVERSE POWER. Reverse power is monitored by a phase detection circuit whose reference phase is connected across the generator output voltage; whilst the variable phase monitors the load current. The output of the phase detector is a dc voltage which is compared with a preset reference voltage.. If the phase relationship between generator voltage and load current exceeds the preset limit the comparator changes state and activates the 5 sec timer. After the time delay the load disconnection relay is energised and the REVERSE POWER LED on the output control panel is lit.

13.5 FREQUENCY. The frequency of the output voltage is monitored by a frequency -to- voltage converter. The dc output of the converter is applied to a comparator. A change in frequency results in a change of the converter dc output ie an increase in frequency gives rise to an increase in output of the converter. If the frequency exceeds either the upper or lower limit the comparator changes state and activates the 5 sec timer. After the time delay the load disconnection and engine shutdown relays are energised and the UNDER FREQUENCY or OVER FREQUENCY LED on the output control panel is lit.

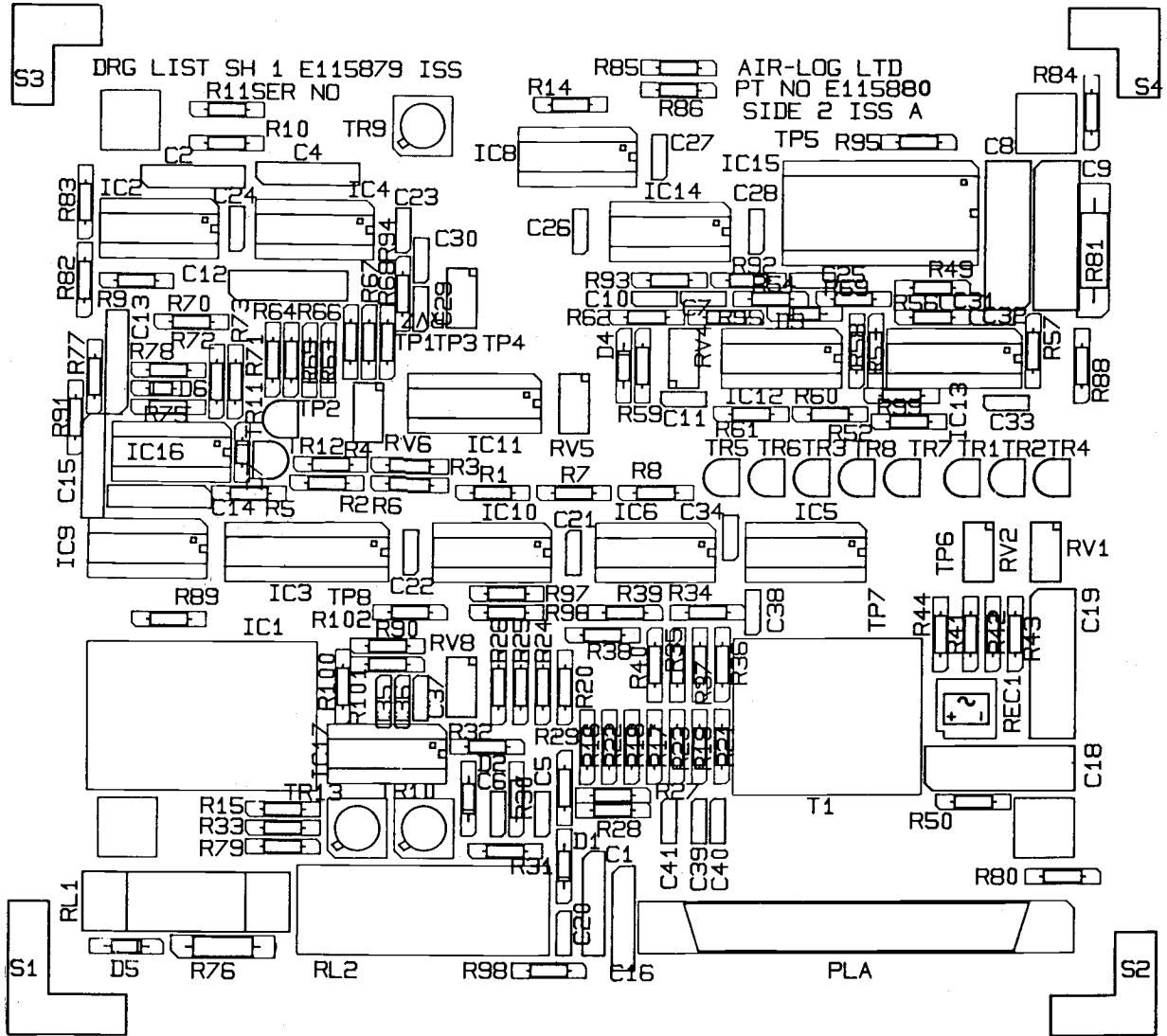


Fig 9 Protection PCB - Layout

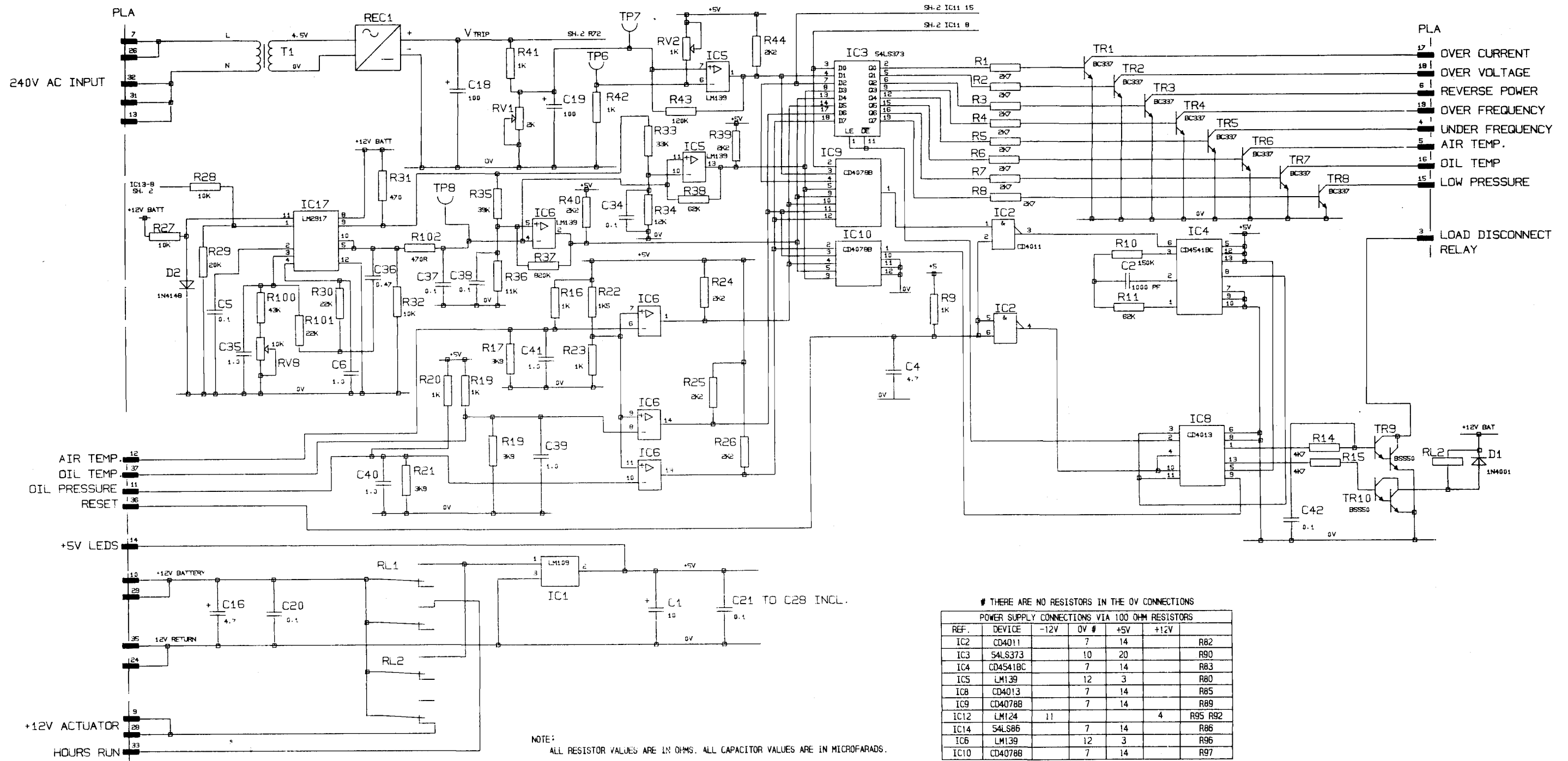


Fig 10

Protection PCB Circuit Diagram (Sheet 1 of 2)

Fig 10

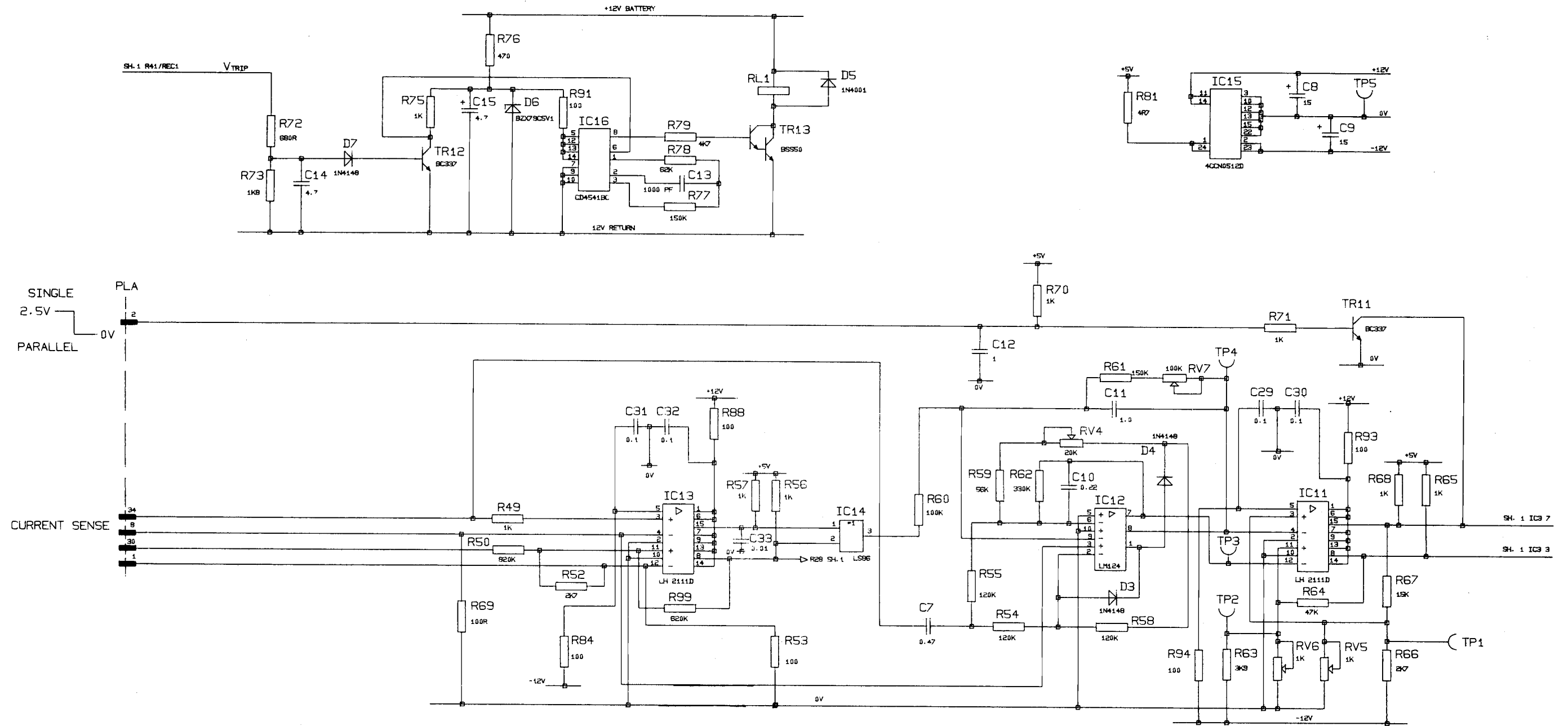


Fig 10

Protection PCB Circuit Diagram (Sheet 2)

Fig 10

Automatic Voltage Regulator Unit (AVR) (Fig 11)

14 The AVR is contained in a metal box within the right-hand section of the fixed box. The majority of the PCB mounted components are encapsulated in compound, however some components can be replaced if found to be faulty.

Principles of Operation (Figs 2 and 11)

15 The AVR Controls the alternator output voltage by varying the field current in the exciter windings. The exciter field current is derived from the rectified output of diode bridge D3 and connected in parallel to the d c terminals of the AVR. The AVR incorporates a voltage sensing circuit, and a trigger circuit controlling a silicon controlled rectifier (SCR). The voltage sensing signal is derived from the centre tap output of the alternator stator windings and is directly proportional to the main output voltage.

16 When the alternator is running the output from the secondary winding of T1 is rectified and applied to the exciter field windings and the AVR d c terminals. At the same time the AVR receives a voltage sense input from the stator windings. At governed speed and an output voltage of 240V, the voltage sensing signal developed by the AVR is insufficient to trigger the SCR and current flow from D3 is at a minimum and low in comparison to that flowing through the exciter field coils.

17 If the output voltage rises above 240V, a corresponding rise in output voltage from the stator centre tap is sensed in the AVR. The resultant generated error signal switches on the trigger circuit allowing the SCR to conduct and shunt current away from the exciter windings, exciter field current begins to fall reducing the main output voltage until such time that it is at 240V. At this point the voltage sensing signal input to the AVR has fallen too low to maintain conduction through the SCR and current flow from D3 to the AVR is at a minimum again.

18 Voltage trimming is available at RV2 mounted on the Output Panel Control Box.





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GENERATOR SET DIESEL ENGINE DRIVEN

4.5KW (5.6KVA) 240V AC, SINGLE PHASE, 50HZ

(AIR-LOG 4169A)

FAILURE DIAGNOSIS

This publication contains information  
covering the requirements of Category  
5.1 levels 2 and 3.

BY COMMAND OF THE DEFENCE COUNCIL

Sponsor: DGDEME(A)

*W. S. Gindler*

Publications Authority:

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MINISTRY OF DEFENCE

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PREFACE

Sponsor: EME10(c) (4)

INTRODUCTION

- 1 Service users should forward any comments concerning this publication through the channels prescribed in AESP 0100-P-011-013.
- 2 The subject matter of this publication may be affected by Defence Council Instructions (DCIs), Standard Operating Procedures (SOPs) or by Local Regulations (LRs). When any such Instruction, Order or Regulation contradicts any portion of this publication they are to be taken as the overriding authority.

RELATED AND ASSOCIATED PUBLICATIONS

Related Publications

- 3 The Octad for the subject equipment consists of the publications shown below. All references are prefixed with the first eight digits of this publication.

| CATEGORIES AND INFORMATION LEVELS |     |     |     |     |     |     |     |     |   |     |     |     |   |   |  |
|-----------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|---|-----|-----|-----|---|---|--|
| CATEGORY                          | 1   |     | 2   |     | 3   |     | 4   |     | 5 |     | 6   | 7   |   | 8 |  |
| LEVEL                             | 1   | 2   | 3   | 1   | 2   | 1   | 2   | 3   | 4 | 6   | 1   | 2   | 1 | 2 |  |
| 1 USER/OPERATOR                   | 101 | 201 | 201 | 411 | 411 | 201 | 201 | *   | * | 601 | *   | *   | * | * |  |
| 2 UNIT MAINTENANCE                | *   | *   | 302 | *   | *   | 512 | 522 | 532 | * | *   | 712 | 722 | * | * |  |
| 3 FIELD MAINTENANCE               | *   | *   | 302 | *   | *   | 512 | 522 | 532 | * | *   | *   | *   | * | * |  |
| 4 BASE MAINTENANCE                | *   | *   | *   | *   | *   | *   | *   | *   | * | *   | *   | *   | * | * |  |

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

\* Not Published

Note ...

Reference to AESP 0100-A-001 must be made to ensure the availability of the listed publications.

Associated Publications

| <u>Octad No.</u> | <u>Title</u>   |
|------------------|--|
| AESP 2815-B-641  | Engine, Diesel, 1 and 2 Cylinder,<br>Petter 'A' Range, Air and Water<br>Cooled |

WARNINGS ...

LETHAL VOLTAGES

- (1) VOLTAGES OUTPUT FROM THIS GENERATOR SET CAN ENDANGER LIFE. CARELESSNESS CAN BE FATAL. ENSURE THAT THE CHASSIS IS CORRECTLY EARTHED AND THAT THE EARTH LEAKAGE CIRCUIT BREAKER FUNCTIONS CORRECTLY FOR OUTPUT 4.
- (2) BEFORE OPENING THE ACCESS COVER TO THE EMERGENCY TERMINALS, THE EMERGENCY TERMINALS 13A CIRCUIT BREAKER SHOULD BE AT THE OFF POSITION.
- (3) THIS GENERATOR SET IS FITTED WITH RFI/EMP FEED THROUGH FILTERS. THE GENERATOR SET MUST BE CORRECTLY EARTHED BEFORE USE.

INJURY TO PERSONNEL

- (1) WHEN REMOVING/REPLACING THE ENGINE/ALTERNATOR FROM THE CHASSIS, PREVENT INJURY TO PERSONNEL BY USING ADEQUATE SUPPORT DURING THE LIFTING OPERATIONS.
- (2) PRECAUTIONS SHOULD BE TAKEN TO PREVENT EXHAUST GASES FROM ENTERING TRENCHES OR OTHER AREAS OCCUPIED BY PERSONNEL.

SPILLAGE OF DIESEL FUEL

PRECAUTIONS SHOULD BE TAKEN TO PREVENT THE SPILLAGE OF FUEL ONTO THE SOFT NOISE ABSORBANT AREAS WITHIN THE ENGINE ENCLOSURE AND THE ACOUSTIC COVER. ANY SUCH SPILLAGES SHOULD BE ATTENDED TO IMMEDIATELY. ANY SPILLAGES MUST BE CLEANED UP BEFORE RUNNING THE GENERATOR SET.

BOOST CHARGING

BOOST CHARGING OF SEALED FOR LIFE (MAINTENANCE FREE) BATTERY. THE GENERATOR SET IS FITTED WITH SUCH A BATTERY. ON NO ACCOUNT MUST THIS BATTERY BE SUBJECTED TO A RAPID BOOST CHARGE OF THE TYPE USED FOR A NORMAL LEAD/ACID TYPE OF BATTERY. ANY BOOST CHARGE MUST BE FROM A CONSTANT VOLTAGE SOURCE NOT EXCEEDING 15 VOLTS AND A MAXIMUM CHARGE CURRENT OF 35 AMPERES (30 AMPERES NOMINAL).

# **RESUSCITATION**

## **TREATMENT OF THE NON-BREATHING CASUALTY**

### **NOTICE**

The inclusion of the emergency resuscitation placard (MOD Form 656) in Military Technical Publications has been discontinued.

This notice is to be retained in the publication until removed by amendment instruction.

Chapter 1

SYSTEM FAILURE DIAGNOSIS

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Para

- 1 INTRODUCTION (WARNINGS AND CAUTIONS)
- 2 TEST EQUIPMENT REQUIRED
- 3 GENERAL
- 4 OPERATING PROBLEMS
- 5 STARTUP PROBLEMS
- 6 Generator is running but POWER ON lamp is extinguished
- 7 BATTERY CHARGE lamp is illuminated while generator is running
- 8 Generator Malfunction when on load

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INTRODUCTION

- 1 This chapter provides information that will enable a service technician to analyse faults that may occur when the generator set is in an operational environment. The diagnostic procedures consist of flow diagrams that will enable a technician to determine the cause of a failure. Reference is made to Cat. 522 for repair information. The flow diagrams contained in this chapter expand upon the LEVEL 1 information contained in Cat. 201.

TEST EQUIPMENT REQUIRED

2. Minimum test equipment is required to analyse faults on the generator set, because it is fitted with a protection unit with indicator lamps which assist a technician to determine the cause of a failure (Table 1). The following test equipment is required.
  - 2.1. General purpose analogue multimeter with accuracy better than 5%. An AVO multimeter model 8 is suitable.



GENERAL

3. Provided that the routine maintenance tasks are carried out at the recommended intervals, the generator set should run for many hours without failure, since the mechanical and electrical/electronic components are designed for maximum service life. It is especially important that the correct grade of engine oil is used for the particular operating environment, and that the oil and oil filter are changed at the recommended intervals. Particular attention should be paid to keeping the air intake/outlet ducts and grills free from obstruction by foreign matter such as vegetation, paper, grease and so on. Special attention should also be paid to the battery which is required to produce a heavy current (up to 30A) when the preheaters are used and a very heavy current (up to 300A) when the starter is used. The battery terminals should be checked for cleanliness and tightness; often, corrosion on a battery terminal is an indication of problems with the battery.

OPERATING PROBLEMS

- 4 The heart of the generator set is the Allam MT3E brushless alternator which is driven by a close-coupled Petter AD2 twin-cylinder diesel engine. Provided that routine servicing is carried out, these units will run for many hundreds of hours without problems occurring. The two main features of this generator set are the electronic governor unit for precise engine speed control (this is in addition to the normal mechanical speed governor which is preset to 3300 rpm), the generator set protection unit, the voltage regulator unit, and the battery charger unit. The generator set protection unit and its associated indicator lamps provide a visual indication of the operational status of the generator set when it is running. If a failure occurs, or if operational parameters are exceeded, a lamp will illuminate and the load will be automatically disconnected from the generator set and in some cases the engine will be shut down automatically. For reference purposes the functions of the status lamps are listed in table 1.

TABLE 1 GENERATOR SET STATUS LAMPS

| Serial | Lamp Designation | Function  | Remarks |
|--------|------------------|---|---------|
| (1)    | (2)              | (3)   | (4)     |
| 1      | POWER ON         | When illuminated, 240V 50Hz is available, to the output connectors.               |         |
| 2      | BATTERY CHARGE   | is extinguished when the battery charger is operational (with generator running). |         |

(continued)

TABLE 1 GENERATOR SET STATUS LAMPS (Continued)

| Serial | Lamp Designation | Function   | Remarks   |
|--------|------------------|--|---|
| (1)    | (2)              | (3)  | (4)   |
| 3      | OIL PRESSURE     | Will extinguish when oil pressure is above 15 psi.   |   |
| 4      | ENGINE TEMP      | Illuminates when engine temperature exceeds 110°C.   |   |
| 5      | LOW FUEL         | Illuminates when fuel level is low in fuel tank.   |   |
| 6      | OVER CURRENT     | Illuminates when output current overload occurs for more than five seconds.  | Load is automatically disconnected. Must be reset by operating LED INDICATORS RESET button.                         |
| 7      | OVER VOLTAGE     | Illuminates when output voltage exceeds 264V for more than five seconds.   | Load is automatically disconnected. Must be reset by operating LED INDICATORS RESET button.                         |
| 8      | REVERSE POWER    | Illuminates when two generators of this type are connected together in parallel and the output from one exceeds the predetermined level for more than five seconds and is a danger to the other generator. | Load is automatically disconnected and engine is shut down. Must be reset by operating LED INDICATOR RESET button.  |
| 9      | OVER FREQUENCY   | Illuminates if the frequency exceeds 55Hz for more than five seconds.  | Load is automatically disconnected and engine is shut down. Must be reset by operating LED INDICATOR RESET button.  |
| 10     | UNDER FREQUENCY  | Illuminates if the frequency falls below 45Hz for more than five seconds.  | Load is automatically disconnected and engine is shut down. Must be reset by operating LED INDICATORS RESET button. |

TABLE 1 GENERATOR SET STATUS LAMPS (Continued)

| Serial | Lamp Designation | Function  | Remarks   |
|--------|------------------|---|---|
| (1)    | (2)              | (3)   | (4)   |
| 11     | HIGH TEMP (AIR)  | Illuminates when the engine cooling air exceeds 120°C for more than five seconds. | Load is automatically disconnected and engine is shut down. Must be reset by operating LED INDICATORS RESET button. |
| 12     | LOW OIL PRESSURE | Illuminates when the engine oil pressure falls below the preset danger level.     | Load is automatically disconnected and engine is shut down. Must be reset by operating LED INDICATORS RESET button. |

START UP PROBLEMS

5. When in the field, the first signs of problems that an operator may experience with the generator set is that it fails to start. Figure 1 flowchart will assist a technician in solving a startup problem.

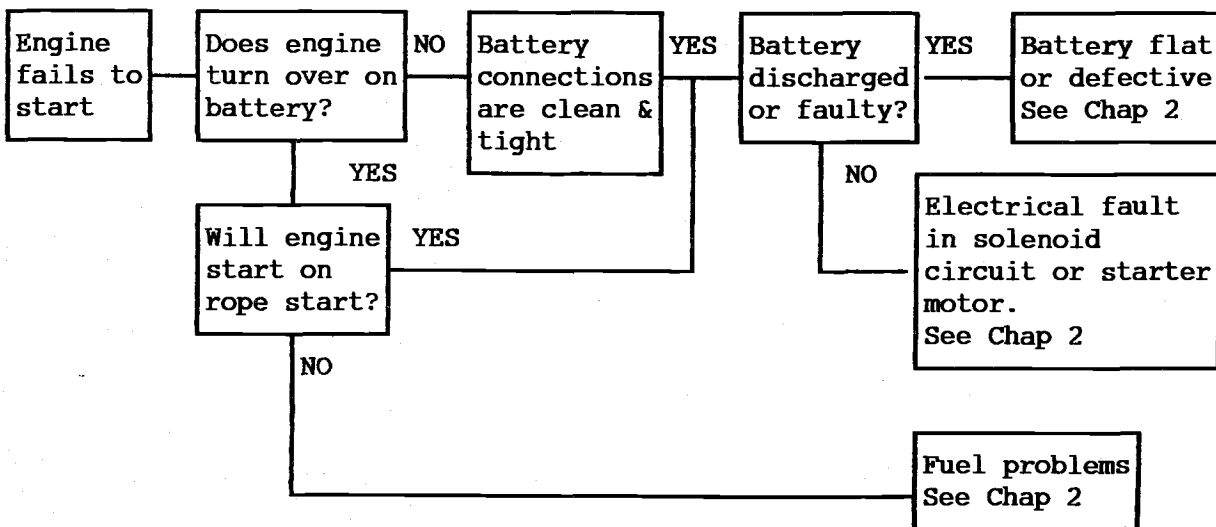


Fig 1 Startup Failure Analysis Flowchart

BATTERY CHARGE lamp is Illuminated while Generator is Running

6 Figure 2 flowchart will assist in fault diagnosis.

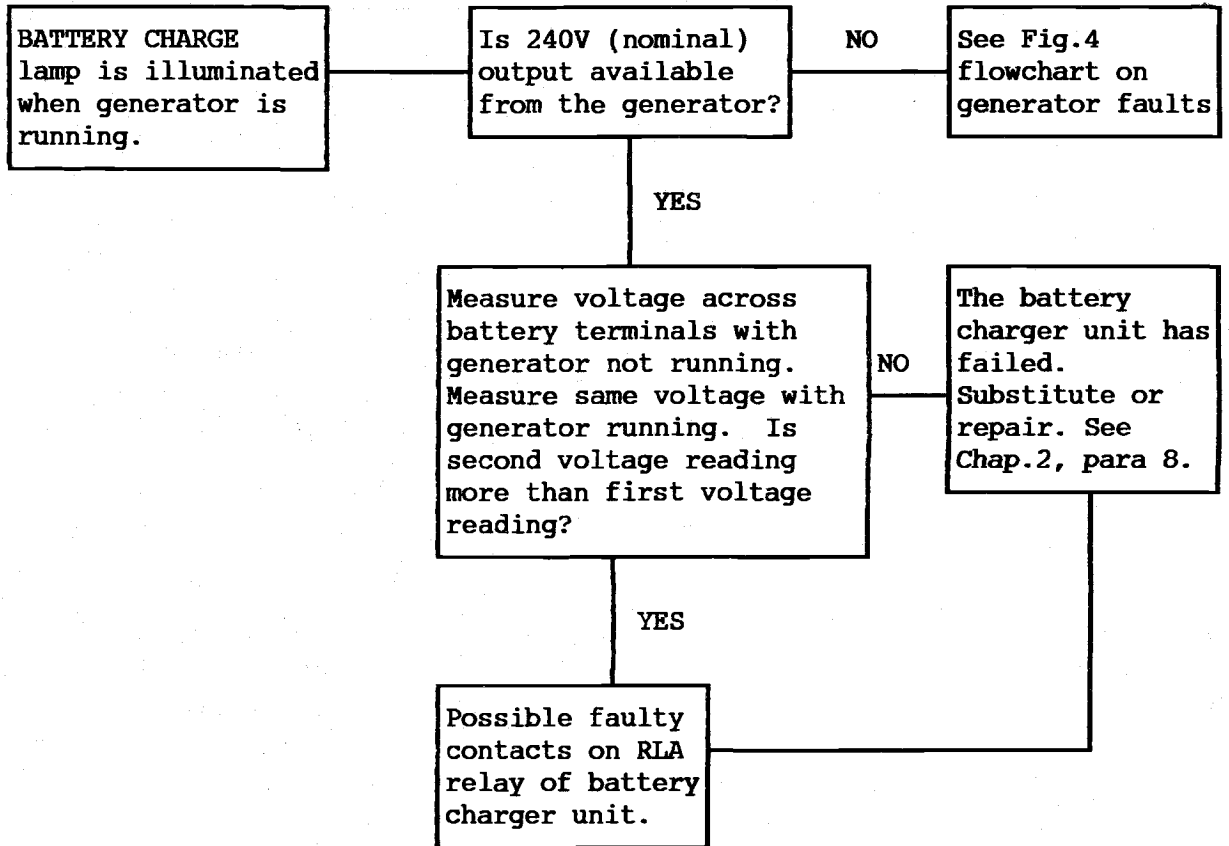


Figure 2. Battery Charger - Trouble Shooting Chart.

Generator is Running but POWER ON lamp is Extinguished.

7. Figure 3 flowchart will assist in fault diagnosis:

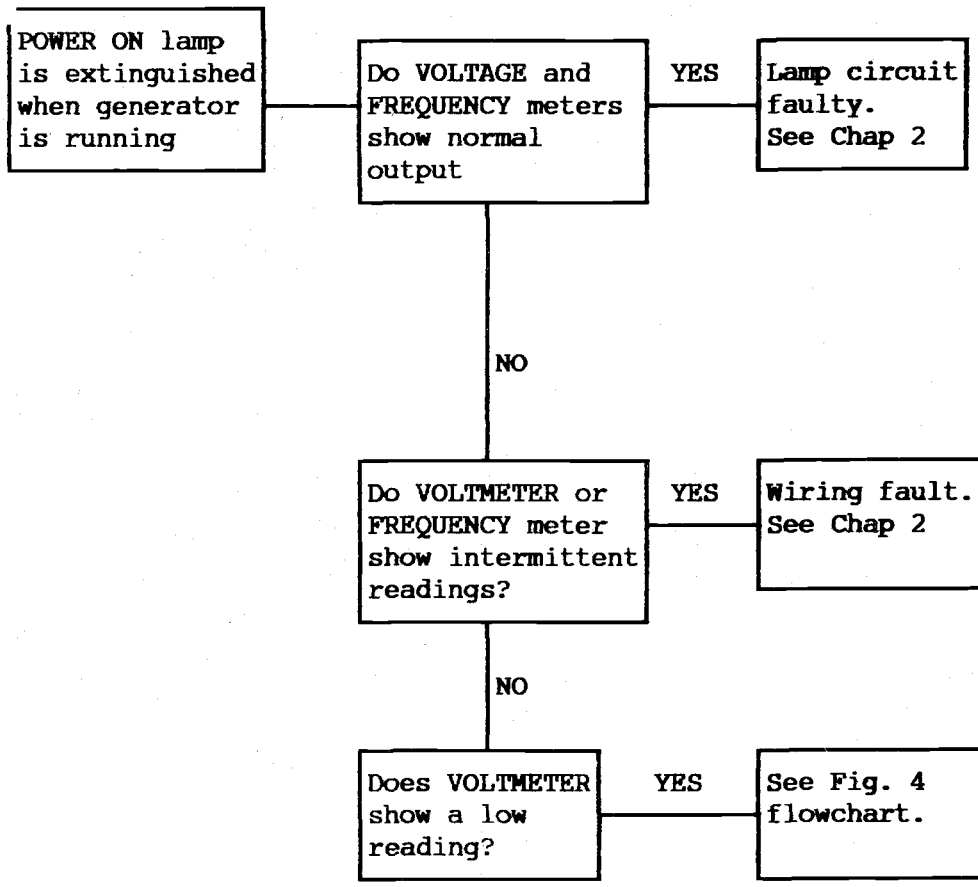


Fig 3. Generator Running - Trouble Shooting Chart.

Generator Malfunction when on Load

8. Fig. 4 Flowchart will assist in fault diagnosis.

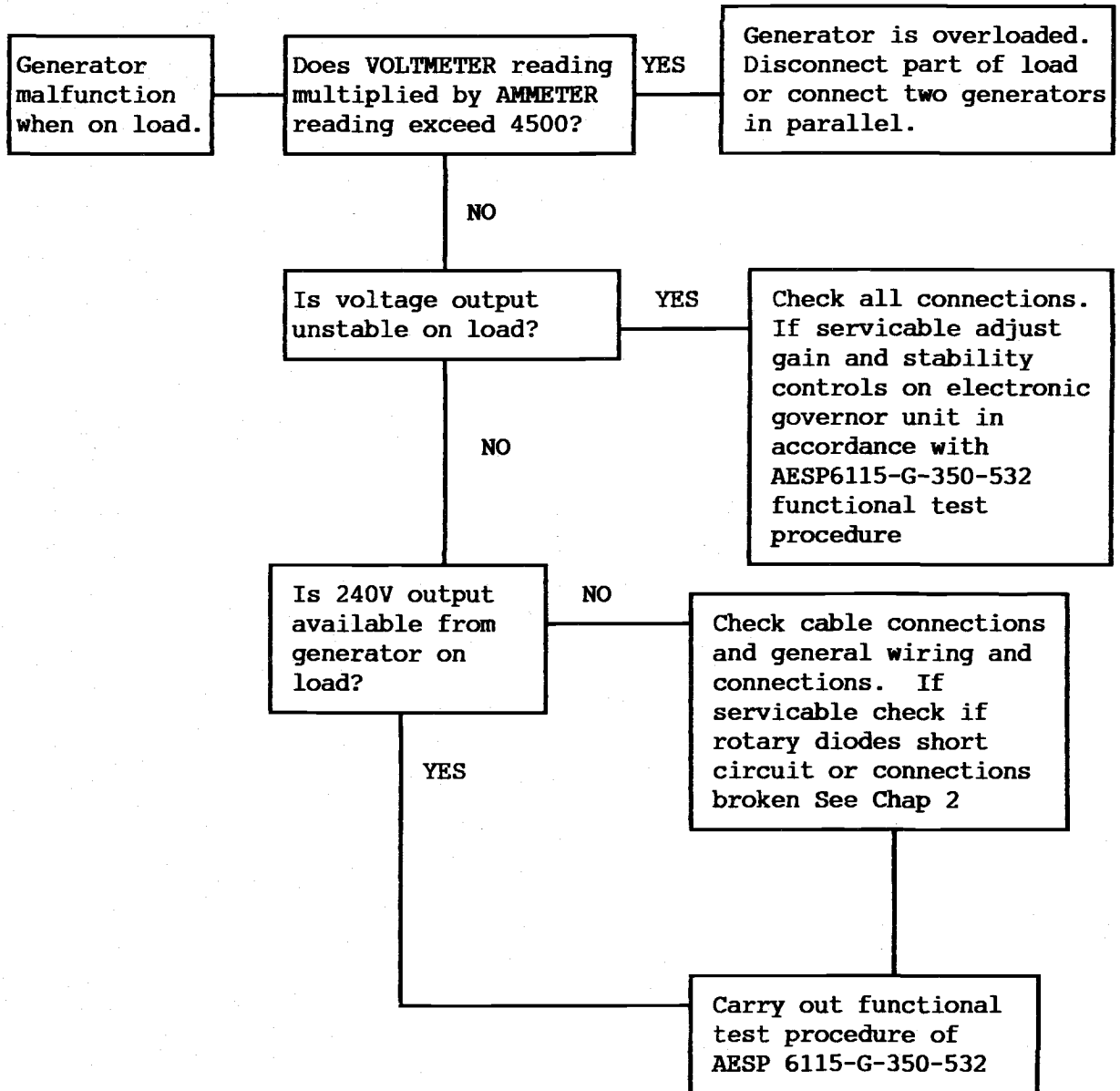
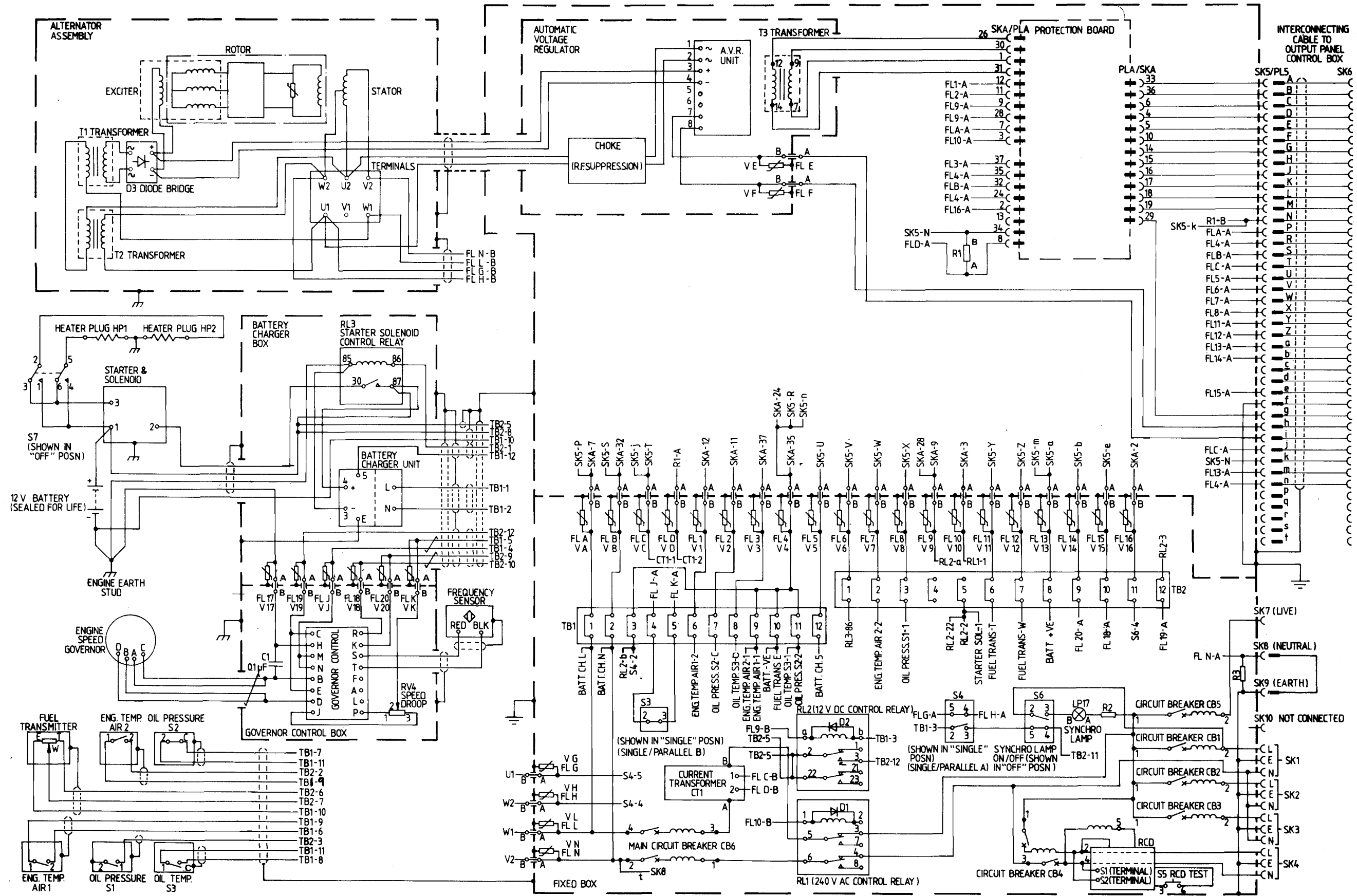


Fig 4. Generator Malfunction - General Flowchart.



Fig

Generator Set - Circuit Diagram

Fig 5

Chapter 2

COMPONENT/ASSEMBLY FAILURE DIAGNOSIS

CONTENTS

Para

- 1 INTRODUCTION  
Printed Circuit Boards - Repair Policy
- 2 EQUIPMENT REQUIRED
- 3 ENGINE FAILS TO START
- 4 BATTERY PROBLEMS
- 6 SOLENOID AND STARTER MOTOR PROBLEMS
- 7 FUEL SUPPLY PROBLEMS
- 8 BATTERY CHARGER PROBLEM
- 9 POWER ON LAMP CIRCUIT FAULTS - GENERAL
- 10 POWER ON LAMP CIRCUIT FAULTS - WIRING
- 11 GENERATOR OUTPUT LOW - DIODE FAILURE

Table

- 1 Test Equipment

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Fig

- 1 Solenoid Circuit Diagnostic Flowchart
- 2 Starter Solenoid Circuit Diagram
- 3 Fuel System Block Diagram
- 4 Battery Charger PCB Circuit Diagram
- 5 POWER ON Lamp Circuit - Diagnostic Flowchart 1
- 6 POWER ON Lamp Circuit - Diagnostic Flowchart 2
- 7 Output Panel control Box - Schematic Circuit Diagram
- 8 Stator/Rotor End View
- 9 Rotor Diodes Configuration - Simplified Diagram

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INTRODUCTION

1. This chapter contains information that will enable a technician to determine the cause of faults defined in Chap 1. Where appropriate, flow diagrams and circuit diagrams are used to simplify the task. This chapter assumes that technicians are familiar with the basic principles of operation of a generator set and have an understanding of electrics. When appropriate, reference should be made to AESP 6115-G-350-522 (Disassembly).

1.1. Printed Circuit Boards - Repair Policy

The repair policy is substitution, unless it is evident that a simple repair can make the unit serviceable.

Note ...

If a repair has involved disturbance of electrical or electronic circuits (other than a level 1 repair), then a confidence test should be carried out on the generator set with reference to AESP 6115-G-350-532 chap 2. The generator set should be tested to a level that will satisfy the technician that its normal operational capability is not impaired.



EQUIPMENT REQUIRED

2. The following equipment is required as listed in table 1 below

TABLE 1 TEST EQUIPMENT

| Test Equipment<br>(1) | Type<br>(2)                     | NSN<br>(3)      |
|-----------------------|---------------------------------|-----------------|
| Multimeter            | AVO Model 8<br>( or equivalent) | 6625-99-6209571 |

ENGINE FAILS TO START

3. The procedures in this section considers the electrical and mechanical possibilities and expands on the information contained in Chap 1.

Battery Problems

Note...

If the battery is flat or defective the generator may not start even on a manual start, because the electronic control circuits require battery power for initial startup.

4. If the battery is flat, attempt manual rope start and recharge it on the generator, for a minimum of six hours. Alternatively, remove the battery from the generator set and boost charge overnight using a constant voltage source. This constant voltage source must not be greater than 15V for a boost charge or must not be greater than 14.7V for an overnight charge. (see WARNING on page (vii)).
5. On completing the recharge, reconnect the battery to the generator set. Connect a dc voltmeter (AVO) set for 15 V to 25 V full scale deflection. Verify that the voltmeter reads 12.6V (nominal). Operate the preheater button for approximately 10 seconds; if the VOLTMETER reads less than 12V when the button is held closed the battery is defective.

Solenoid and Starter Motor Problems (Fig 1)

6. Operate the start switch and listen for sounds of the starter solenoid operating; the starter solenoid is mounted onto the starter assembly. Follow the instruction in Fig 1. When necessary refer to Fig 2 circuit diagram.

Note...

RFI/EMP Filters.

Filters such as FL13 (Fig 2) will test short circuit between wires A and B. The associated varistors such as V13 will test open circuit. If either has gone short circuit to earth (chassis) there should be evidence of overheating or burning in the adjacent area.

CAUTION ...

The battery must be disconnected before performing electrical repairs.

INSTRUCTION

ACTION

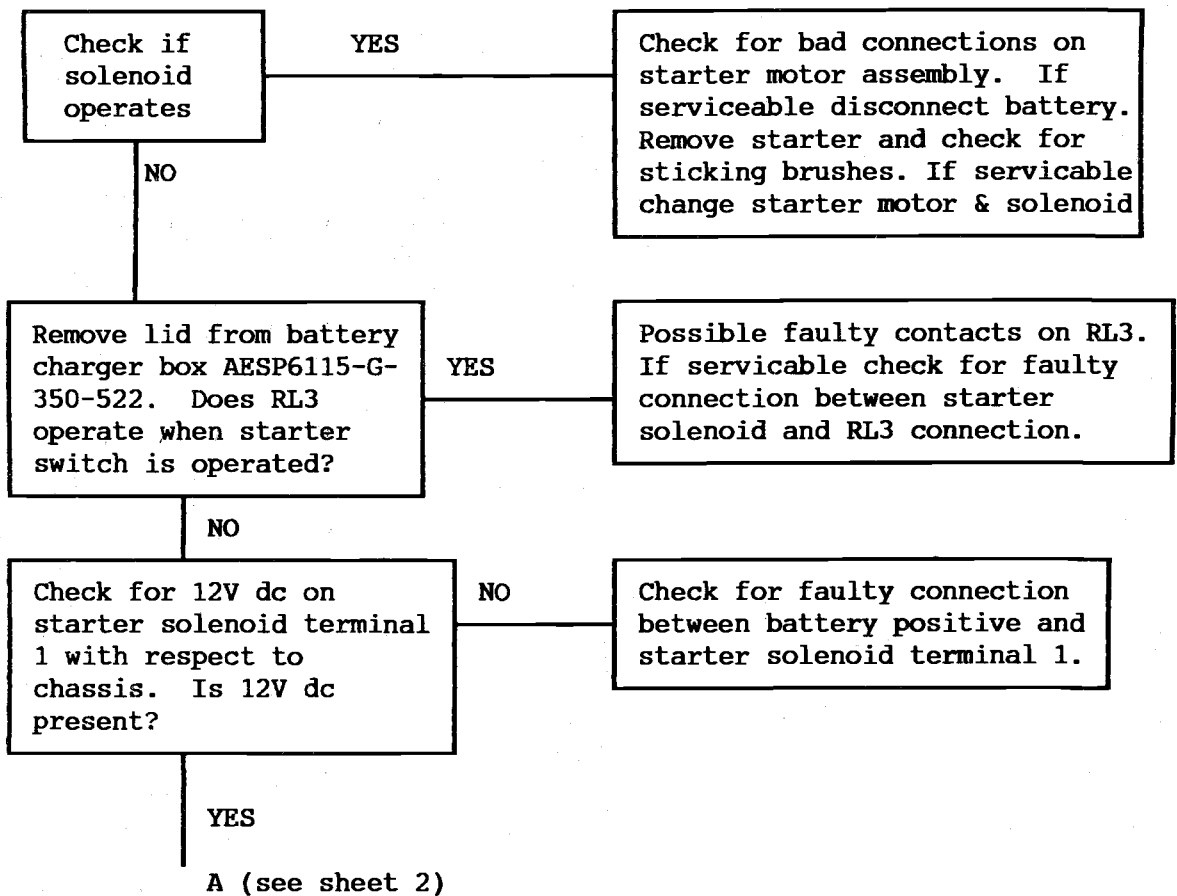


Fig 1 Solenoid Circuit Diagnostic Flowchart (Sheet 1 of 2)

INSTRUCTION

ACTION

Fig 1 (Continued)

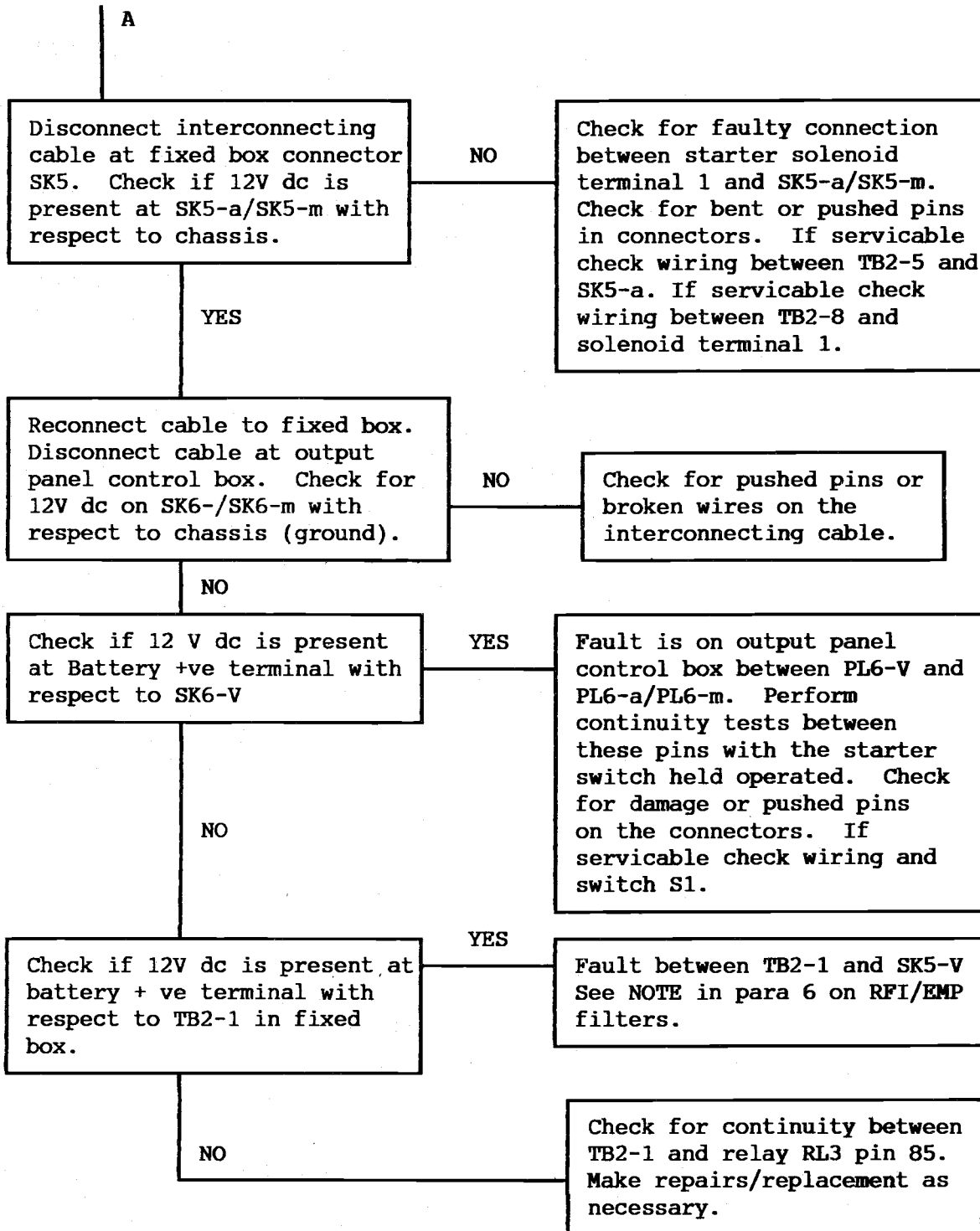


Fig 1 Solenoid Circuit Diagnostic Flowchart (Sheet 2)

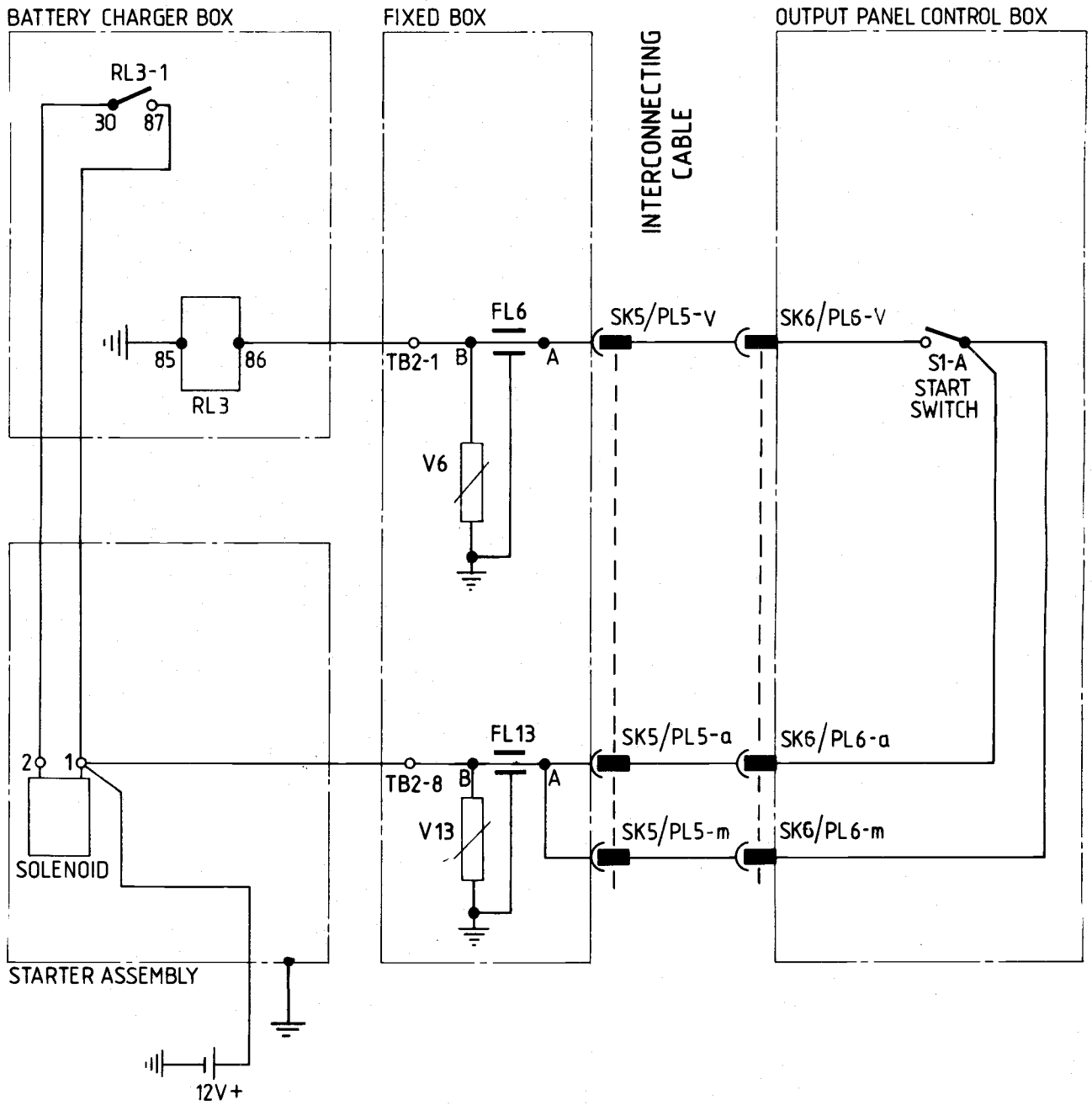
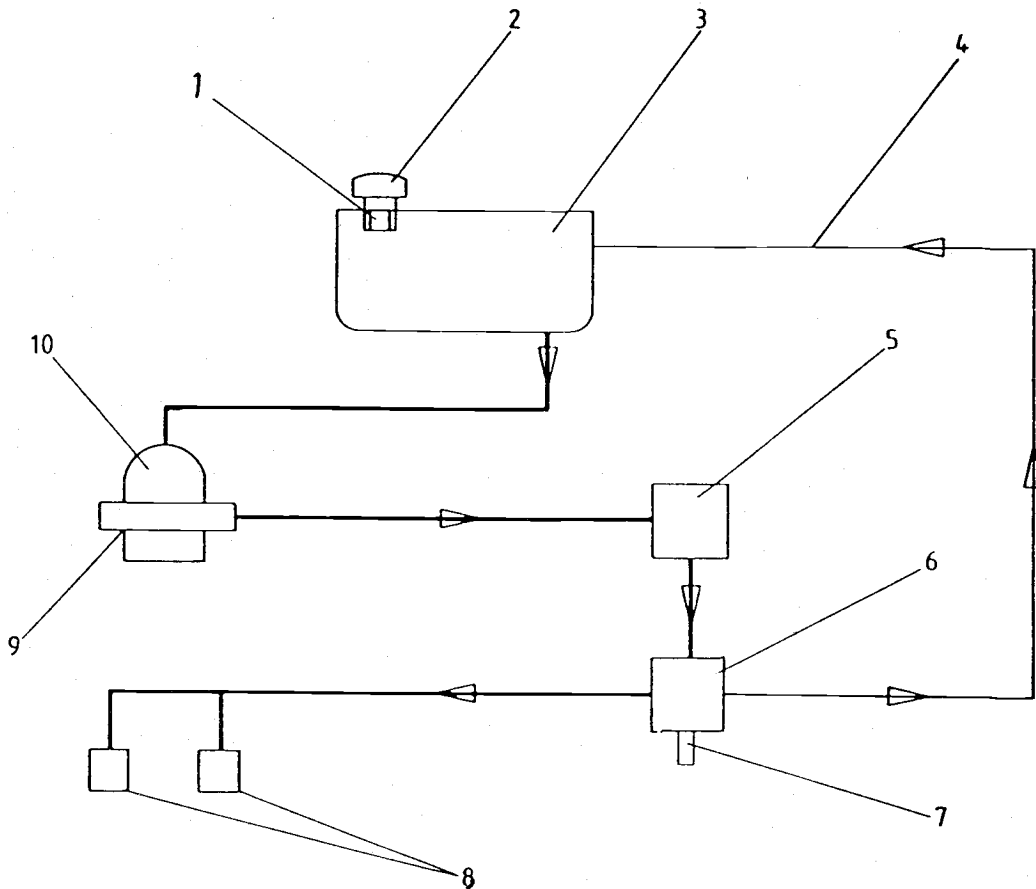


Fig 2 Starter Solenoid Circuit Diagram

Fuel Supply Problems (Fig 3)

7. If the engine is known to be in good condition, then a problem exists with the fuel supply. Verify that there is fuel in the tank and that it is of the correct grade for the operating environment. If the generator is being used on sloping terrain, the fuel tank should be at least half full. If an airlock has occurred in the fuel system then it will need to be primed using the fuel pump hand primer (30 times is recommended). Once the fuel system is primed it will bleed itself automatically, provided all the fuel pipes are connected up correctly and there are no air or fuel leaks. If the fuel is being delivered correctly and the engine still does not start then possibly the fuel is contaminated and the fuel system must be drained, refilled, and primed. If the engine fires but only runs on one cylinder then possibly there is a faulty injector on the non-running cylinder.



- |                           |   |
|---------------------------|---|
| 1. Fuel Tank Inlet Filter | 7. Mechanical Actuator<br>(Controlled from Electronic Governor) |
| 2. Fuel Tank filler Cap   |   |
| 3. Fuel Tank              |   |
| 4. Fuel Bleed Pipe        | 8. Fuel Injectors   |
| 5. Fuel Filter Bowl       | 9. Fuel Pump Hand Primer  |
| 6. Fuel Flow Regulator    | 10. Fuel Pump   |

Fig 3 Fuel System Block Diagram



POWER ON Lamp Circuit Fault - General

9. Follow Fig 5 flow chart and refer to Fig 7. For disassembly instructions refer to AESP 6115-G-350-522.

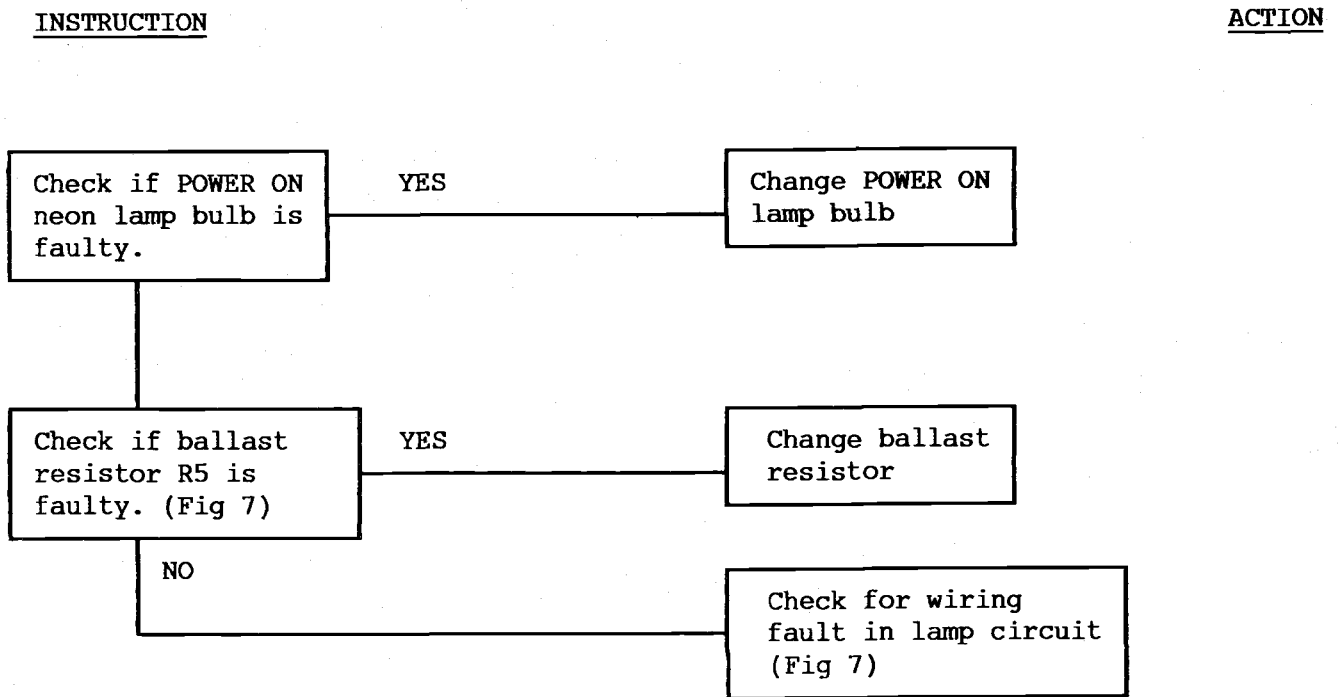


Fig 5 POWER ON Lamp Circuit - Diagnostic Flowchart 1

POWER ON Lamp Circuit fault - Wiring

10. Follow fig 6 flowchart and refer to Fig 7.

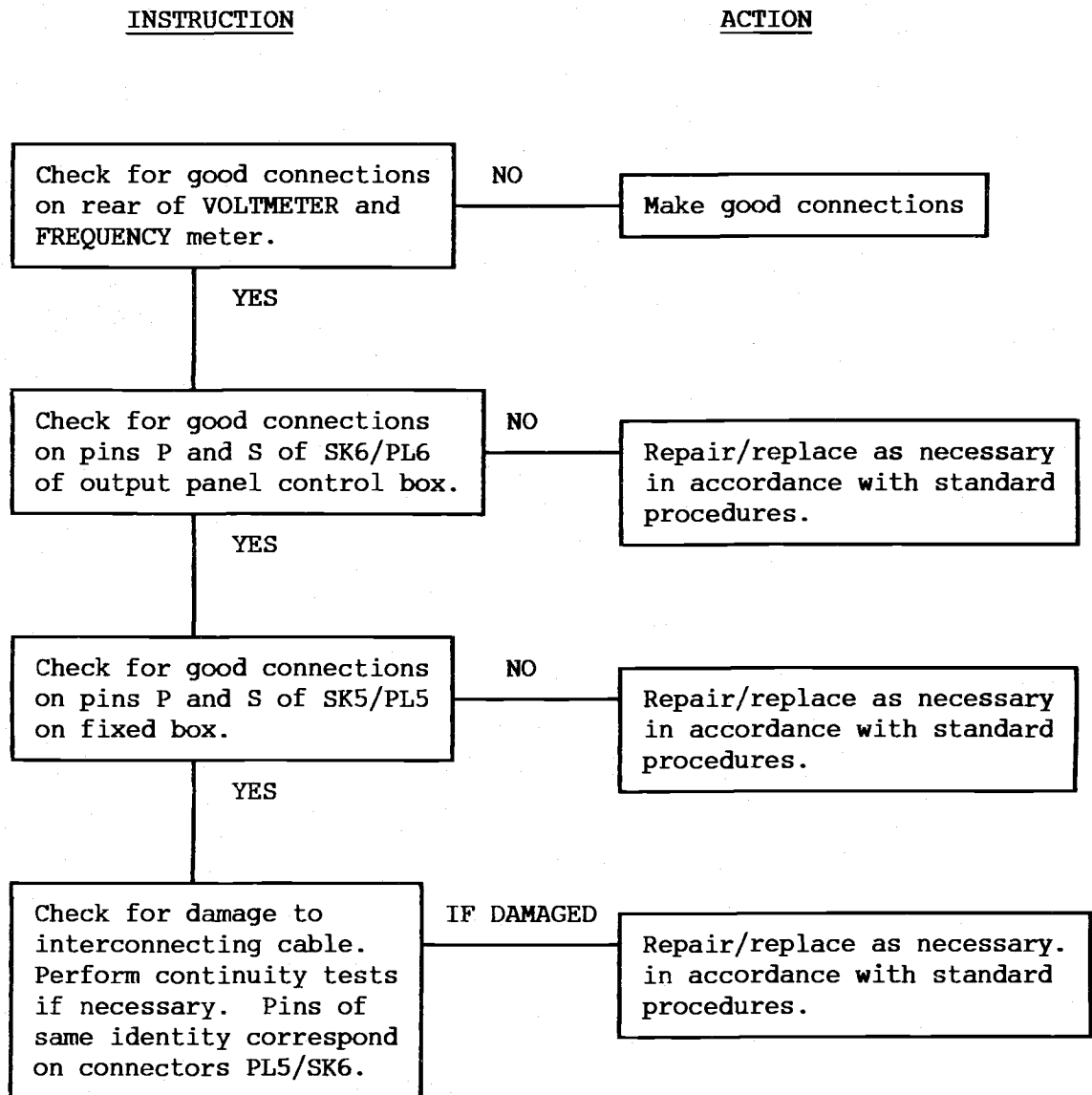


Fig 6 POWER ON Lamp Circuit - Diagnostic Flowchart 2



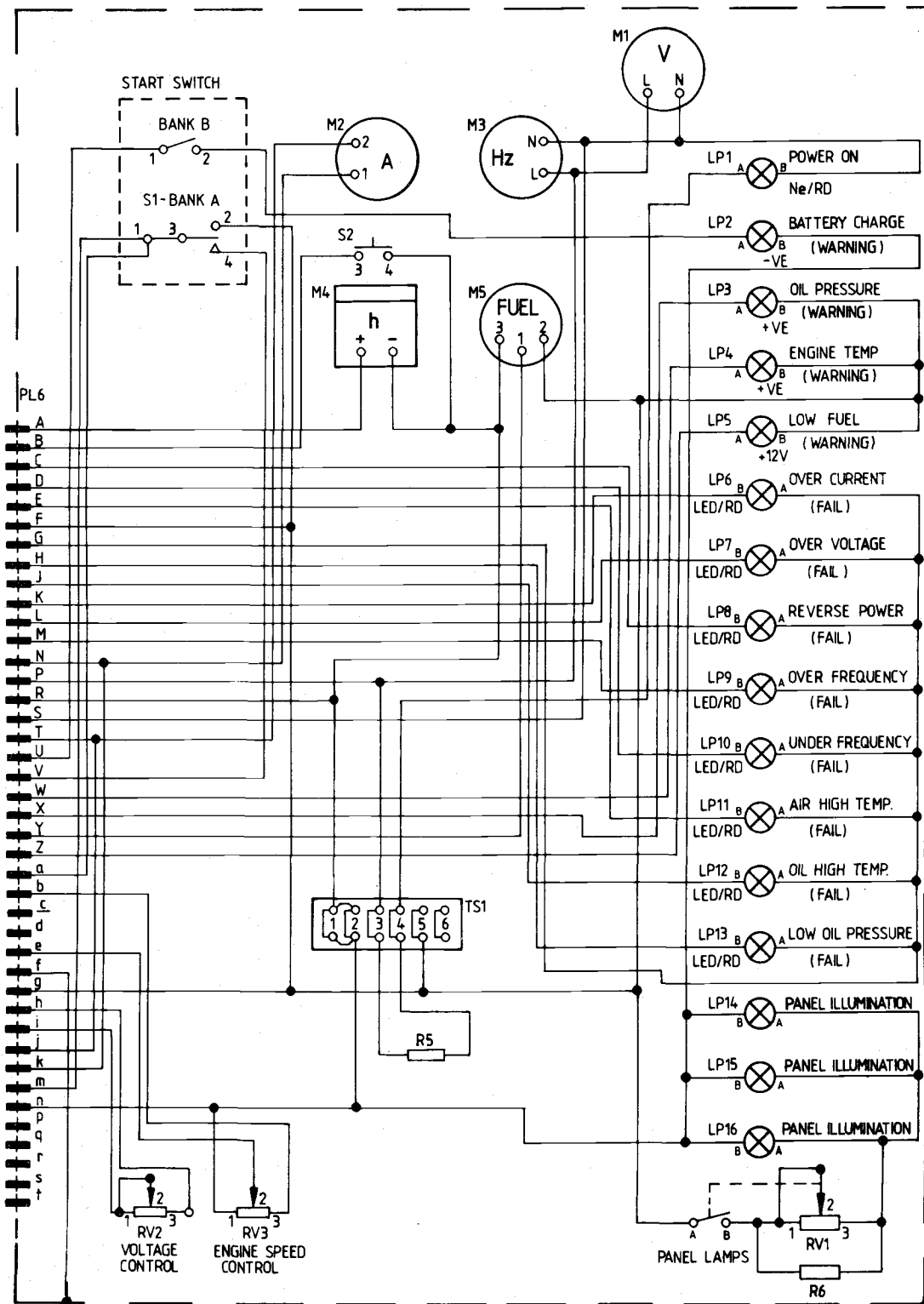


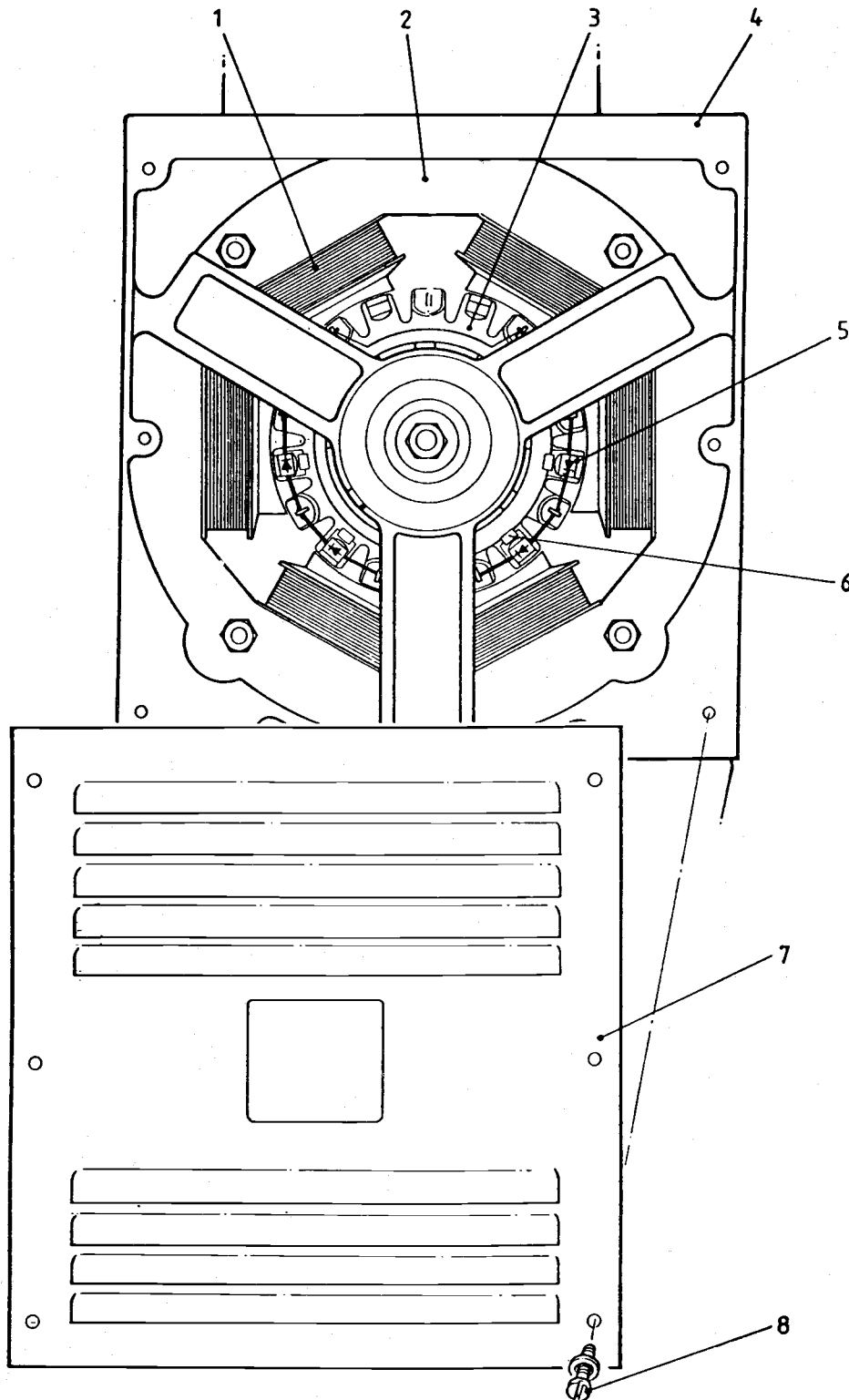
Fig 7 Output Panel Control Box - Circuit Diagram

Generator Output Low - Diode Failure

11. Six diodes are located in the alternator rotor assembly. Access to these diodes is through the stator housing end cover, proceed as follows:

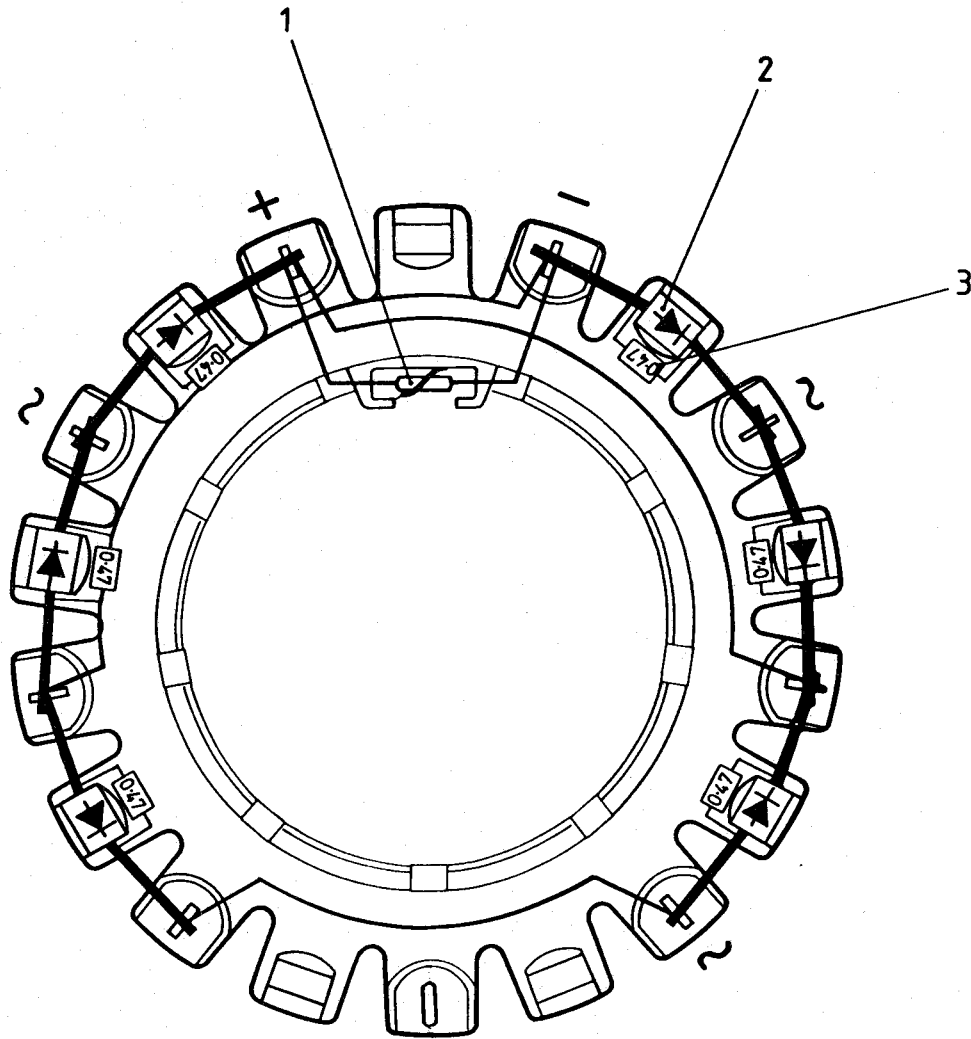
Notes ...

- (1) Where appropriate refer to AESP 6115-G-350-522 for Disassembly.
  - (2) Each diode has a 0.47 $\mu$ F capacitor connected across it (Fig. 9).
- 11.1. Ensure engine keyswitch is at the off position.
  - 11.2. Remove the acoustic cover (this is a two-man task).
  - 11.3. Remove the four retaining screws (8 Fig 10) and remove the housing, end cover (7).
  - 11.4. Raise the two decompression levers on top of the engine, so that the engine can be easily turned over without firing.
  - 11.5. The six diodes (5) are soldered to the rotor connections on the rotor assembly. Rotate the engine from the pulley end and expose each diode for testing. A simplified configuration is shown in Fig. 9.
  - 11.6. Using an ohmmeter (AVO) test each diode in turn. The ohmmeter will read 1.5K Ohms in one direction and 0 Ohms (short circuit) in the other direction. Verify that the soldered joints are intact and there are no broken leads.
  - 11.7. On completion of the diode tests, reassemble the housing end cover and secure it with the four retaining screws.



- |                         |                                   |
|-------------------------|-----------------------------------|
| 1. Stator Coil (1 of 6) | 5. Rotor Diode (1 of 6)           |
| 2. Stator Assembly      | 6. Suppression Capacitor (1 of 6) |
| 3. Rotor Assembly       | 7. Housing End Cover              |
| 4. Housing              | 8. Retaining Screw (1 of 6)       |

Figure 8 Stator/Rotor End View



- 1. Varistor
- 2. Diode (6 off)

- 3. Capacitor (6 off)  $0.47\mu\text{F}$   
(electrical noise suppression)

Fig 9 Rotor Diodes Configuration - Simplified Diagram

Chapter 3

WIRING LIST

CONTENTS

Para

WIRING LIST

1 INTRODUCTION

Table

- |   |                               |
|---|-------------------------------|
| 1 | Fixed Box/Generator Set Wires |
| 2 | Interconnecting Cable Wires   |
| 3 | Remote Box Wires              |

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Fig

- |   |                               |
|---|-------------------------------|
| 1 | Generator Set Circuit Diagram |
| 2 | Remote Box Circuit Diagram    |

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WIRING LIST

INTRODUCTION

1 The information provided in this chapter details the point-to-point wiring within the generator set to assist a technician in diagnosing and isolating electrical faults.

2 The information is presented in the form of circuit diagrams supported by tables containing details of individual wires.



TABLE 1 FIXED BOX/GENERATOR SET WIRES

| WIRE No. (1) | SIZE (2) | COLOUR (3) | FROM (4) | TO (5)   | ROUTE/REMARKS (6)                         |
|--------------|----------|------------|----------|----------|---|
| 1            | 20 AWG   | PINK       | SKA - 1  | T3 - 7   |   |
| 2            | "        | "          | " - 2    | FL16 - A |   |
| 3            | "        | "          | " - 3    | FL10 - A |   |
| 4            | "        | "          | " - 4    | SK5 - D  |   |
| 5            | "        | "          | " - 5    | SK5 - E  |   |
| 6            | "        | "          | " - 6    | SK5 - C  |   |
| 7            | "        | "          | " - 7    | FLA - A  | With wire No. 46                          |
| 8            | "        | "          | " - 8    | R1 - A   | With wire No. 40                          |
| 9            | "        | "          | " - 9    | FL9 - A  | With wire No. 28                          |
| 10           | "        | "          | " - 10   | SK5 - F  |   |
| 11           | "        | "          | " - 11   | FL2 - A  |   |
| 12           | 20 AWG   | PINK       | " - 12   | FL1 - A  |   |
| 13           | --       | --         | " - 13   | --       | Not fitted                                |
| 14           | 20 AWG   | PINK       | " - 14   | SK5 - G  |   |
| 15           | "        | "          | " - 15   | SK5 - H  |   |
| 16           | "        | "          | " - 16   | SK5 - J  |   |
| 17           | "        | "          | " - 17   | SK5 - K  |   |
| 18           | "        | "          | " - 18   | SK5 - L  |   |
| 19           | 20 AWG   | PINK       | " - 19   | SK5 - M  |   |
| 20           | --       | --         | " - 20   | --       | } Not fitted                              |
| 21           | --       | --         | " - 21   | --       |   |
| 22           | --       | --         | " - 22   | --       |   |
| 23           | --       | --         | " - 23   | --       |   |
| 24           | 20 AWG   | PINK       | " - 24   | FL4 - A  | With wires No's 35, 47 and 68             |
| 25           | --       | --         | SKA - 25 | --       | Not fitted                                |
| 26           | 20 AWG   | PINK       | " - 26   | T3 - 12  |   |
| 27           | --       | --         | " - 2    | --       | Not fitted                                |
| 28           | 20 AWG   | PINK       | " - 28   | FL9 - A  | With wire No. 9                           |
| 29           | "        | "          | " - 29   | SK5 - g  |   |
| 30           | "        | "          | " - 30   | T3 - 9   |   |
| 31           | "        | "          | " - 31   | T3 - 14  |   |
| 32           | "        | "          | " - 32   | FLB - B  | With wire No. 48                          |
| 33           | "        | "          | " - 33   | SK5 - A  |   |
| 34           | "        | "          | " - 34   | R1 - B   | With wire No. 41                          |
| 35           | "        | "          | " - 35   | FL4 - A  | With wires No's 24, 47 and 68             |
| 36           | 20 AWG   | PINK       | SKA - 36 | SK5 - B  |   |
| 37           | "        | "          | " - 37   | FL3 - A  |   |
| 38           | --       | --         | --       | --       | } Not fitted                              |
| 39           | --       | --         | --       | --       |   |
| 40           | 20 AWG   | PINK       | R1 - A   | FLD - A  | From end of wire No. 8                    |
| 41           | 20 AWG   | PINK       | R1 - B   | SK5 - N  | See wire No.45, from end with wire No. 34 |
| 42           | --       | --         | --       | --       | } Not fitted                              |
| 43           | --       | --         | --       | --       |   |
| 44           | --       | --         | --       | --       |   |

TABLE 1 FIXED BOX/GENERATOR SET WIRES (CONT'D)

| WIRE No.<br>(1) | SIZE<br>(2) | COLOUR<br>(3) | FROM<br>(4)        | TO<br>(5)     | ROUTE/REMARKS<br>(6)  |
|-----------------|-------------|---------------|--------------------|---------------|---|
| 45              | 20 AWG      | PINK          | SK5 - N            | SK5 - k       | From end with wire No. 41                                   |
| 46              | "           | "             | SK5 - P            | FLA - A       | With wire No. 7   |
| 47              | "           | "             | " - R              | FL4 - A       | With wires No's 24, 35 and 68                               |
| 48              | 20 AWG      | PINK          | " - S              | FLB - A       | With wire No. 32  |
| 49              | "           | "             | " - T              | FLC - A       | With wire No. 66  |
| 50              | "           | "             | " - U              | FL5 - A       |   |
| 51              | "           | "             | " - V              | FL6 - A       |   |
| 52              | "           | "             | " - W              | FL7 - A       |   |
| 53              | "           | "             | " - X              | FL8 - A       |   |
| 54              | "           | "             | " - Y              | FL11 - A      |   |
| 55              | "           | "             | " - Z              | FL12 - A      |   |
| 56              | "           | "             | " - a              | FL13 - A      | With wire No. 67  |
| 57              | "           | "             | " - b              | FL14 - A      |   |
| 58              | --          | --            | " - c              | --            | } Not fitted  |
| 59              | --          | --            | --                 | --            |   |
| 60              | --          | --            | " - d              | --            |   |
| 61              | 20 AWG      | PINK          | SK5 - e            | FL15 - A      |   |
| 62              | "           | "             | " - f              | Chassis earth |   |
| --              | --          | --            | " - g              | SKA - 29      | See wire No. 29   |
| 64              | 20 AWG      | PINK          | SK5 - h            | FLF - A       |   |
| 65              | "           | "             | " - i              | FLE - A       |   |
| 66              | "           | "             | " - j              | FLC - A       | With wire No. 49  |
| 67              | "           | "             | " - m              | FL13 - A      | With wire No. 56  |
| 68              | "           | "             | " - n              | FL4 - A       | With wires No's 24, 35 and 47                               |
| 69              | --          | --            | " - p              | --            | } Not fitted  |
| 70              | --          | --            | " - q              | --            |   |
| 71              | --          | --            | " - x              | --            |   |
| 72              | --          | --            | " - s              | --            |   |
| 73              | --          | --            | " - t              | --            |   |
| 74              | --          | --            | --                 | --            |   |
| 75              | --          | --            | --                 | --            |   |
| 76              | 20 AWG      | PINK          | FLE - B            | AVR - 7       |   |
| 77              | "           | "             | FLF - B            | AVR - 8       |   |
| 78              | --          | --            | --                 | --            | } Not fitted  |
| 79              | --          | --            | --                 | --            |   |
| 80              | 20 AWG      | PINK          | SDR Red/White wire | AVR - ~1      | Via solder sleeve   |
| 81              | 20 AWG      | "             | SDR White wire     | AVR - ~2      | " "   |
| 82              | 16 AWG      | GREY          | SDR Yellow wire    | GEN TB - U1   | Via solder sleeve thru conduit, with wires No's 105 and 171 |



TABLE 1 FIXED BOX/GENERATOR SET WIRES (CONT'D)

| WIRE No.<br>(1)  | SIZE<br>(2) | COLOUR<br>(3)    | FROM<br>(4)          | TO<br>(5)   | ROUTE/REMARKS<br>(6)   |
|------------------|-------------|------------------|----------------------|-------------|--|
| 83               | 16 AWG      | GREY             | SDR Green wire       | GEN TB - U2 | Via solder sleeve thru conduit, with wires No's 93 and 104<br>Not fitted |
| 84               | --          | --               | --                   | --          |  |
| 85               | --          | --               | --                   | --          |  |
| 86               | 16 AWG      | GREY             | AVR - +VE            | D3 - +VE    | Thru conduit with wire No. 95  |
| 87               | "           | "                | AVR - -VE            | D3 - -VE    | Thru conduit with wire No. 96  |
| 88               | --          | --               | --                   | --          | Not fitted   |
| 89               | --          | --               | --                   | --          |  |
| 90               | --          | --               | --                   | --          |  |
| 91               | --          | --               | --                   | --          |  |
| 92               | --          | BLACK/<br>WHITE  | GEN STATOR           | GEN TB - V2 | With wire No. 174  |
| 93               | --          | BLACK/<br>WHITE  | GEN STATOR           | GEN TB - U2 | With wires No's 83 and 104   |
| 94               | --          | YELLOW/<br>WHITE | GEN STATOR           | GEN TB - W2 | With wires No's 106 and 172  |
| 95               | --          | YELLOW/<br>WHITE | GEN EXCITER          | D3 - +VE    | With wire No. 86   |
| 96               | --          | GREEN/<br>WHITE  | GEN EXCITER          | D3 - -VE    | With wire No. 87   |
| 97               | --          | --               | --                   | --          | Not fitted   |
| 98               | --          | --               | --                   | --          |  |
| 99               | --          | RED/WHITE        | T1 - RED/WHITE       | D3 - ~1     |  |
| 100              | --          | GREEN/<br>WHITE  | T1 - GREEN/<br>WHITE | D3 - ~2     |  |
| 101              | --          | BLACK/<br>WHITE  | T1 - BLACK/<br>WHITE | GEN TB - W1 | With wire No. 173  |
| 102              | --          | --               | --                   | --          | Not fitted   |
| 103              | --          | --               | --                   | --          |  |
| 104              | --          | BLACK/<br>WHITE  | T2 - BLACK/<br>WHITE | GEN TB - U2 |  |
| 105              | --          | BROWN            | T2 - BROWN           | GEN TB - U1 | With wires No's 82 and 171   |
| 106              | --          | GREEN            | T2 - GREEN           | GEN TB - W2 | With wires No's 94 and 172   |
| 107<br>to<br>116 | --          | --               | --                   | --          | Not fitted   |

TABLE 1 FIXED BOX/GENERATOR SET WIRES (CONT'D)

| WIRE No.<br>(1) | SIZE<br>(2) | COLOUR<br>(3) | FROM<br>(4) | TO<br>(5) | ROUTE/REMARKS<br>(6)                                   |
|-----------------|-------------|---------------|-------------|-----------|--|
| 117             | 20 AWG      | PINK          | FLA - B     | TB1 - 1A  |  |
| 118             | "           | "             | FLB - B     | TB1 - 2A  |  |
| 119             | "           | "             | FLC - B     | CT1 - 1   |  |
| 120             | "           | "             | FLD - B     | CT1 - 2   |  |
| 121             | "           | "             | FL1 - B     | TB1 - 6A  |  |
| 122             | "           | "             | FL2 - B     | " - 7A    |  |
| 123             | "           | "             | FL3 - B     | " - 8A    |  |
| 124             | "           | "             | FL4 - B     | " - 11A   | With link wire<br>No. 181                              |
| 125             | "           | "             | FL5 - B     | TB1 - 12A |  |
| 126             | "           | "             | FL6 - B     | TB2 - 1B  |  |
| 127             | "           | "             | FL7 - B     | " - 2B    |  |
| 128             | "           | "             | FL8 - B     | TB2 - 3B  |  |
| 129             | "           | "             | FL9 - B     | RL2 - a   |  |
| 130             | "           | "             | FL10 - B    | RL1 - 1   |  |
| 131             | "           | "             | FL11 - B    | TB2 - 6B  |  |
| 132             | "           | "             | FL12 - B    | " - 7B    |  |
| 133             | "           | "             | FL13 - B    | " - 8B    | With wire No. 162                                      |
| 134             | "           | "             | FL14 - B    | " - 9B    |  |
| 135             | "           | "             | FL15 - B    | " - 10B   |  |
| 136             | 20 AWG      | "             | FL16 - B    | TB2 - 11B |  |
| 137             | --          | --            | --          | --        | } Not fitted   |
| 138             | --          | --            | --          | --        |  |
| 139             | --          | --            | --          | --        |  |
| 140             | 20 AWG      | PINK          | TB1 - 4A    | S3 - 2    |  |
| 141             | "           | "             | TB1 - 5A    | S3 - 3    |  |
| 142             | --          | --            | --          | --        | Not fitted   |
| 143             | 20 AWG      | PINK          | TB1 - 3B    | S4 - 2    |  |
| 144             | --          | --            | --          | --        | Not fitted   |
| 145             | 20 AWG      | PINK          | TB2 - 11A   | S6 - 4    |  |
| 146             | --          | --            | --          | --        | Not fitted   |
| 147             | 20 AWG      | PINK          | R2 - A      | CB5 - 1   | With wire No. 209                                      |
| 148             | "           | "             | R2 - B      | LP17 - A  |  |
| 149             | --          | --            | --          | --        | } Not fitted   |
| 150             | --          | --            | --          | --        |  |
| 151             | 20 AWG      | PINK          | RL1 - 2     | RL2 - 23  |  |
| 152             | 16 AWG      | GREY          | RL1 - 6     | CB6 - 1   |  |
| 153             | "           | "             | RL1 - 4     | SK3 - N   | With wire No. 197                                      |
| 154             | "           | "             | CB6 - 3     | CT1 - A   |  |
| 155             | "           | "             | CT1 - B     | RL1 - 5   |  |
| 156             | 16 AWG      | GREY          | RL1 - 3     | CB3 - 1   | With wires No's<br>211 and 212                         |
| 157             | --          | --            | --          | --        | } Not fitted   |
| 158             | --          | --            | --          | --        |  |
| 159             | 20 AWG      | PINK          | RL2 - 2     | RL2 - 22  | With wire No.<br>162 and from end<br>with wire No. 160 |

TABLE 1 FIXED BOX/GENERATOR SET WIRES (CONT'D)

| WIRE No. (1) | SIZE (2) | COLOUR (3) | FROM (4)   | TO (5)                        | ROUTE/REMARKS (6)                                |
|--------------|----------|------------|------------|-------------------------------|--|
| 160          | 20 AWG   | PINK       | RL2 - 2    | TB2 - 5A                      | With wire No. 301 and from end with wire No. 159 |
| 161          | 16 AWG   | GREY       | RL2 - 3    | TB2 - 12A                     | With wire No. 295                                |
| 162          | 20 AWG   | PINK       | RL2 - 22   | TB2 - 5B                      | From end with wire No. 159                       |
| 163          | 20 AWG   | PINK       | RL2 - b    | TB1 - 3A                      | With link wire 180                               |
| 164          | --       | --         | --         | --                            | Not fitted                                       |
| 165          | 16 AWG   | GREY       | FLG - A    | S4 - 5                        |  |
| 166          | "        | "          | FLH - A    | S4 - 4                        |  |
| 167          | 16 AWG   | GREY       | FL.L - A   | CB6 - 4                       | From end with wire No. 168                       |
| 168          | 20 AWG   | PINK       | FL.L - A   | TB1 - 1A                      | From end with wire No. 167                       |
| 169          | 16 AWG   | GREY       | FL.N - A   | CB6 - 2                       | With wire No. 215 and from end with wire No. 170 |
| 170          | 20 AWG   | PINK       | FL.N - A   | TB1 - 2A                      | From end with wire No. 169                       |
| 171          | 16 AWG   | GREY       | FL.G - B   | GEN TB - U1                   | With wires No's 82 and 105 and thru conduit      |
| 172          | 16 AWG   | GREY       | FL.H - B   | GEN TB - W2                   | With wires No's 94 and 106 and thru conduit      |
| 173          | 16 AWG   | GREY       | FL.L - B   | GEN TB - W1                   | With wire No. 101 and thru conduit               |
| 174          | 16 AWG   | GREY       | FL.N - B   | GEN TB - V2                   | With wire No. 92 and thru conduit                |
| 175          | --       | --         | --         | --                            | } Not fitted                                     |
| to           | --       | --         | --         | --                            |  |
| 179          | --       | --         | --         | --                            |  |
| 180          | 20 AWG   | PINK       | TB1 - 3A   | TB1 - 9A                      | With wire No. 181 and from end with wire No. 163 |
| 181          | 20 AWG   | PINK       | TB1 - 9A   | TB1 - 10A                     | With wire No. 182 and from end with wire No. 180 |
|              | AWG      | PINK       | TB1 - 10A  | TB1 - 11A                     | With wire No. 124 and from end with wire No. 181 |
| 183          | --       | --         | --         | --                            | } Not fitted                                     |
| to           | --       | --         | --         | --                            |  |
| 185          | --       | --         | --         | --                            |  |
| 186          | 20 AWG   | PINK       | EARTH STUD | COLLECTIVE SCREENS ('P' clip) | From end with wires No's 194 and 207             |

TABLE 1 FIXED BOX/GENERATOR SET WIRES (CONT'D)

| WIRE No.<br>(1) | SIZE<br>(2) | COLOUR<br>(3)    | FROM<br>(4) | TO<br>(5)  | ROUTE/REMARKS<br>(6)  |
|-----------------|-------------|------------------|-------------|------------|---|
| 187             | --          | --               | --          | --         | } Not fitted  |
| to              | --          | --               | --          | --         |   |
| 190             | --          | --               | --          | --         |   |
| 191             | 20 AWG      | GREEN/<br>YELLOW | SK3 - E     | SK2 - E    | With wire No. 192   |
| 192             | 20 AWG      | "                | SK2 - E     | SK1 - E    | With wire No. 193<br>from end with wire<br>No. 191            |
| 193             | 20 AWG      | GREEN/<br>YELLOW | SK1 - E     | SK4 - E    | With wire No. 194<br>from end with wire<br>No. 192            |
| 194             | 20 AWG      | GREEN/<br>YELLOW | SK4 - E     | EARTH STUD | With wires No's<br>186 and 207 from end<br>with wire No. 193  |
| 195             | --          | --               | --          | --         | } Not fitted  |
| 196             | --          | --               | --          | --         |   |
| 197             | 16 AWG      | GREY             | SK3 - N     | SK2 - N    |   |
| 198             | 16 AWG      | GREY             | SK2 - N     | SK1 - N    | With wire No. 199<br>from end with wire<br>No. 197            |
| 199             | 16 AWG      | GREY             | SK1 - N     | CB4 - 3    | From end with wire<br>No. 198                                 |
| 200             | --          | --               | --          | --         | } Not fitted  |
| 201             | --          | --               | --          | --         |   |
| 202             | 16 AWG      | GREY             | SK1 - L     | CB1 - 2    |   |
| 203             | "           | "                | SK2 - L     | CB2 - 2    | With wire No. 214   |
| 204             | "           | "                | SK3 - L     | CB3 - 2    |   |
| 205             | 16 AWG      | GREY             | SK4 - L     | CB4 - 2    | Thru RCD with wires<br>No's 226 and 227                       |
| 206             | 16 AWG      | GREY             | SK4 - N     | CB4 - 4    | Thru RCD with wire<br>No. 225                                 |
| 207             | 20 AWG      | GREEN/<br>YELLOW | EARTH STUD  | SK9        | With wire No. 220   |
| 208             | --          | --               | --          | --         | Not fitted  |
| 209             | 16 AWG      | GREY             | CB5 - 1     | CB1 - 1    | With wire No. 210<br>from end with wire<br>No. 147            |
| 210             | 16 AWG      | GREY             | CB1 - 1     | CB2 - 1    | With wire No. 211<br>from end with wire<br>No. 209            |
| 211             | 16 AWG      | GREY             | CB2 - 1     | CB3 - 1    | With wires No's 156<br>and 212, from end<br>with wire No. 210 |

TABLE 1 FIXED BOX/GENERATOR SET WIRES (CONT'D)

| WIRE No. (1) | SIZE (2) | COLOUR (3)       | FROM (4)           | TO (5)      | ROUTE/REMARKS (6)           |
|--------------|----------|------------------|--------------------|-------------|-----------------------------|
| 212          | 16 AWG   | GREY             | CB3 - 1            | CB4 - 1     | From end with wire No. 211  |
| 213          | --       | --               | --                 | --          | Not fitted                  |
| 214          | 20 AWG   | PINK             | CB1 - 2            | S6 - 2      | From end with wire No. 202  |
| 215          | 16 AWG   | GREY             | CB6 - 2            | SK8         | From end with wire No. 169  |
| 216          | 16 AWG   | GREY             | CB5 - 2            | SK7         |                             |
| 217          | 20 AWG   | PINK             | S4 - 3             | S6 - 5      |                             |
| 218          | 20 AWG   | PINK             | S6 - 3             | LP17 - B    |                             |
| 219          | --       | --               | --                 | --          | Not fitted                  |
| 220          | 20 AWG   | GREEN/<br>YELLOW | SK9                | PANEL EARTH | From end with wire No. 207  |
| 221          | --       | --               | --                 | --          | } Not connected             |
| 222          | --       | --               | --                 | --          |                             |
| 223          | --       | GREEN            | RCD - 1 GREEN WIRE | S5 - 3      |                             |
| 224          | --       | "                | RCD - 2 GREEN WIRE | S5 - 4      |                             |
| 225          | --       | BROWN            | RCD - S1           | CB4 - 4     | With wire No. 206           |
| 226          | --       | BROWN            | RCD - S2           | CB4 - 2     | With wires No's 205 and 227 |
| 227          | --       | BLUE             | RCD - BLUE WIRE    | CB4 - 2     | With wires No's 205 and 226 |
| 228          | --       | RED              | RCD - RED WIRE     | CB4 - 5     |                             |
| 229 to 261   | --       | --               | --                 | --          | } Not fitted                |
| 262          | 20 AWG   | GREEN/<br>YELLOW | BATT CHARGER FRAME | EARTH STUD  |                             |
| 263          | 20 AWG   | PINK             | BATT CHG - 3       | RL3 - 85    | With wire No. 329           |
| 264          | 20 AWG   | "                | BATT CHG - 4       | RL3 - 87    | With wire No. 330           |
| 265          | --       | --               | --                 | --          |                             |
| 266          | --       | --               | --                 | --          | Not fitted                  |
| 267          | 16 AWG   | GREY             | GOV. CONT-C        | GOV. CONT-E | From end with wire No. 273  |
| 268          | 20 AWG   | PINK             | GOV. CONT-M        | GOV. CONT-N | From end with wire No. 275  |
| 269          | --       | --               | --                 | --          | } Not fitted                |
| 270          | --       | --               | --                 | --          |                             |
| 271          | 16 AWG   | GREY             | FL17 - B           | GOV. CONT-H |                             |
| 272          | 20 AWG   | PINK             | FL18 - B           | GOV. CONT-R |                             |
| 273          | 16 AWG   | GREY             | FL19 - B           | GOV. CONT-C | With wire No. 267           |
| 274          | 20 AWG   | PINK             | FL20 - B           | GOV. CONT-K |                             |

TABLE 1 FIXED BOX/GENERATOR SET WIRES (CONT'D)

| WIRE No.<br>(1) | SIZE<br>(2) | COLOUR<br>(3) | FROM<br>(4)                             | TO<br>(5)            | ROUTE/REMARKS<br>(6)   |
|-----------------|-------------|---------------|---|----------------------|--|
| 275             | 20 AWG      | PINK          | FLJ - B                                 | GOV. CONT-M          | With wire No. 267  |
| 276             | 20 AWG      | PINK          | FLK - B                                 | RV4 - 2              |  |
| 277             | --          | --            | --                                      | --                   | } Not fitted   |
| 278             | --          | --            | --                                      | --                   |  |
| 279             | 20 AWG      | PINK          | RV4 - 1                                 | GOV. CONT-P          | } Not fitted   |
| 280             | 20 AWG      | PINK          | RV4 - 3                                 | GOV. CONT-J          |  |
| 281             | --          | --            | --                                      | --                   | } Not fitted   |
| 282             | --          | --            | --                                      | --                   |  |
| 283             | 20 AWG      | PINK          | ENGINE                                  |                      |  |
|                 |             |               | SPEED GOV-A                             | GOV. CONT-B          | With wire No. 285  |
| 284             | "           | "             | ENGINE                                  |                      |  |
|                 |             |               | SPEED GOV-B                             | GOV. CONT-D          | With wire No. 286  |
| 285             | "           | "             | ENGINE                                  |                      |  |
|                 |             |               | SPEED GOV-C                             | GOV. CONT-B          | With wire No. 283  |
| 286             | 20 AWG      | PINK          | ENGINE                                  |                      |  |
|                 |             |               | SPEED GOV-D                             | GOV. CONT-D          | With wire No. 284  |
| 287             | --          | --            | --                                      | --                   | Not fitted   |
| 288             | 20 AWG      | RED           | FREQ SENSOR<br>- RED                    | GOV. CONT-S          |  |
| 289             | 20 AWG      | BLUE          | FREQ SENSOR<br>- BLACK                  | GOV. CONT-T          |  |
| 290             | 20 AWG      | PINK          | SCREENS OF<br>WIRES NO'S<br>288 AND 289 | 12V NEGATIVE<br>STUD | With wires No's<br>303, 328, 329<br>and 344                              |
| 291             | 20 AWG      | PINK          | FL18 - A                                | TB2 - 10A            |  |
| 292             | "           | "             | FL20 - A                                | TB2 - 9A             |  |
| 293             | "           | "             | FLJ - A                                 | TB1 - 4B             |  |
| 294             | 20 AWG      | PINK          | FLK - A                                 | TB1 - 5B             |  |
| 295             | 16 AWG      | GREY          | FL19 - A                                | TB2 - 12A            | With wire No. 161  |
| 296             | 20 AWG      | RED           | BATT CHARG.<br>TRANS - L                | TB1 - 1B             |  |
| 297             | 20 AWG      | BLUE          | BATT CHARG.<br>TRANS - N                | TB1 - 2B             |  |
| 298             | --          | --            | --                                      | --                   | Not fitted   |
| 299             | 20 AWG      | RED           | RL3 - 86                                | TB2 - 1A             |  |
| 300             | 20 AWG      | BLUE          | BATT. CHARG-5                           | TB1 - 12B            |  |
| 301             | 16 AWG      | GREY          | START<br>SOL - 1                        | TB2 - 5A             | With wire No. 160<br>and from end with<br>302, 330, 334, 335.<br>and 343 |
| 302             | 20 AWG      | RED           | START<br>SOL - 1                        | TB2 - 8A             | From end with wires<br>No's 301, 330, 334<br>335 and 343                 |
| 303             | 20 AWG      | BLUE          | ENGINE EARTH<br>STUD                    | TB1 - 10B            | From end with wires<br>290, 328, 329, 334<br>and 344                     |
| 304             | --          | --            | --                                      | --                   | Not fitted   |

TABLE 1 FIXED BOX/GENERATOR SET WIRES (CONT'D)

| WIRE No.<br>(1) | SIZE<br>(2) | COLOUR<br>(3) | FROM<br>(4)                            | TO<br>(5)                                  | ROUTE/REMARKS<br>(6) |
|-----------------|-------------|---------------|--|--|----------------------|
| 305             | 20 AWG      | RED           | ENG<br>AIR TEMP<br>SW1 - 2             | TB1 - 6B                                   |                      |
| 306             | 20 AWG      | BLUE          | ENG<br>AIR TEMP<br>SW1 - 1             | TB1 - 9B                                   | With wire No. 309    |
| 307             | 20 AWG      | PINK          | SCREENS OF<br>WIRES NO<br>305 AND 306  | LOCAL<br>EARTH POINT                       | With wire No. 310    |
| 308             | 20 AWG      | RED           | AIR TEMP<br>SW2 -2                     | TB2 - 2A                                   |                      |
| 309             | 20 AWG      | BLUE          | AIR TEMP<br>SW2 - 1                    | TB1 - 9B                                   | With wire No. 306    |
| 310             | 20 AWG      | PINK          | SCREENS OF<br>WIRES NO.<br>308 AND 309 | LOCAL<br>EARTH POINT                       | With wire No. 307    |
| 311             | 20 AWG      | RED           | OIL PRESS<br>SW1 - 1                   | TB2 - 3A                                   |                      |
| 312             |             | BLUE          | SPARE                                  | ENDS<br>INSULATED<br>AND STOWED<br>IN LOOM |                      |
| 313             | 20 AWG      | PINK          | SCREENS OF<br>WIRES NO.<br>311 AND 312 | LOCAL<br>EARTH POINT                       | With wire No. 316    |
| 314             | 20 AWG      | RED           | OIL PRESS<br>SW2 - C                   | TB1 - 7B                                   |                      |
| 315             | 20 AWG      | BLUE          | OIL PRESS<br>SW2 - 2                   | TB1 -11B                                   | With wire No. 318    |
| 316             | 20 AWG      | PINK          | SCREENS OF<br>WIRES NO.<br>314 AND 315 | LOCAL<br>EARTH POINT                       | With wire No. 313    |
| 317             | 20 AWG      | RED           | OIL TEMP<br>SW3 - C                    | TB1 - 8B                                   |                      |
| 318             | 20 AWG      | BLUE          | OIL TEMP<br>SW3 - 1                    | TB1 - 11B                                  | With wire No. 315    |
| 319             | 20 AWG      | PINK          | SCREENS OF<br>WIRES NO.<br>317 AND 318 | LOCAL<br>EARTH POINT                       |                      |
| 320             | 20 AWG      | RED           | FUEL TRANS-T                           | TB2 - 6A                                   |                      |
| 321             | 20 AWG      | BLUE          | FUEL TRANS-W                           | TB2 - 7A                                   |                      |
| 322             | 20 AWG      | PINK          | SCREENS OF<br>WIRES NO.<br>320 AND 321 | LOCAL<br>EARTH POINT                       | With wire No. 325    |
| 323             | 20 AWG      | RED           | SPARE                                  | ENDS<br>INSULATED<br>AND STOWED            |                      |
| 324             | 20 AWG      | BLUE          | FUEL TRANS-E                           | TB1 - 10B                                  | With wire No. 303    |

TABLE 1 FIXED BOX/GENERATOR SET WIRES (CONT'D)

| WIRE No.<br>(1) | SIZE<br>(2)       | COLOUR<br>(3) | FROM<br>(4)                      | TO<br>(5)                | ROUTE/REMARKS<br>(6)   |
|-----------------|-------------------|---------------|----------------------------------|--------------------------|--|
| 325             | 20 AWG            | PINK          | SCREENS OF WIRES NO. 323 AND 324 | LOCAL EARTH POINT        | With wire No. 322  |
| 326             | --                | --            | --                               | --                       | } Not fitted   |
| 327             | --                | --            | --                               | --                       |  |
| 328             | 16 AWG            | GREY          | FL17 - A                         | ENGINE 12V NEGATIVE STUD | With wires No's 290 303, 329 and 344                               |
| 329             | 20 AWG            | PINK          | RL3 - 85                         | ENGINE 12V NEGATIVE STUD | With wires No 290, 303, 328, 344 from end with wire No. 263        |
| 330             | 16 AWG            | GREY          | RL3 - 87                         | START SOL - 1            | With wire No's 301, 302, 334, 335, 343, from end with wire No. 264 |
| 331             | 16 AWG            | GREY          | RL3 - 30                         | START SOL - 2            |  |
| 332             | --                | --            | --                               | --                       | } Not fitted   |
| 333             | --                | --            | --                               | --                       |  |
| 334             | 16 AWG            | GREY          | START SOL - 1                    | S7 - 1                   | From end with wires No's 301, 302, 330, 335 and 343                |
| 335             | 16 AWG            | GREY          | START SOL - 1                    | S7 - 4                   | From end with wires No's 301, 302, 330, 334 and 343                |
| 336             | 16 AWG            | GREY          | START SOL - 3                    | S7 - 3                   | From end with wire No. 337   |
| 337             | 16 AWG            | GREY          | START SOL - 3                    | S7 - 6                   | From end with wire No. 336   |
| 338             | 16 AWG            | GREY          | S7 - 2                           | HEATER PLUG - 2          |  |
| 339             | 16 AWG            | GREY          | S7 - 5                           | HEATER PLUG - 1          |  |
| 340 to 342      | --                | --            | --                               | --                       | } Not fitted   |
| 343             | 16mm <sup>2</sup> | GREY          | BATT +VE                         | START SOL - 1            |  |
| 344             | 16mm <sup>2</sup> | GREY          | BATT -VE                         | ENGINE 12V NEGATIVE STUD | With wires No. 290 303, 328 and 329                                |



TABLE 2 INTERCONNECTING CABLE WIRES

| FIXED BOX<br>END<br>PL5 | REMOTE<br>BOX END<br>SK6 | FIXED BOX<br>END<br>PL5 | REMOTE<br>BOX END<br>SK6 |
|-------------------------|--------------------------|-------------------------|--------------------------|
| A                       | A                        | a                       | a                        |
| B                       | B                        | b                       | b                        |
| C                       | C                        | c                       | } Not<br>used            |
| D                       | D                        | d                       |                          |
| E                       | E                        | e                       | e                        |
| F                       | F                        | f                       | f                        |
| G                       | G                        | g                       | g                        |
| H                       | H                        | h                       | h                        |
| J                       | J                        | i                       | i                        |
| K                       | K                        | j                       | j                        |
| L                       | L                        | k                       | k                        |
| M                       | M                        | m                       | m                        |
| N                       | N                        | n                       | n                        |
| P                       | P                        | p                       | } Not<br>used            |
| R                       | R                        | q                       |                          |
| S                       | S                        | r                       |                          |
| T                       | T                        | s                       |                          |
| U                       | U                        | t                       |                          |
| V                       | V                        |                         |                          |
| W                       | W                        |                         |                          |
| X                       | X                        |                         |                          |
| Y                       | Y                        |                         |                          |
| Z                       | Z                        |                         |                          |

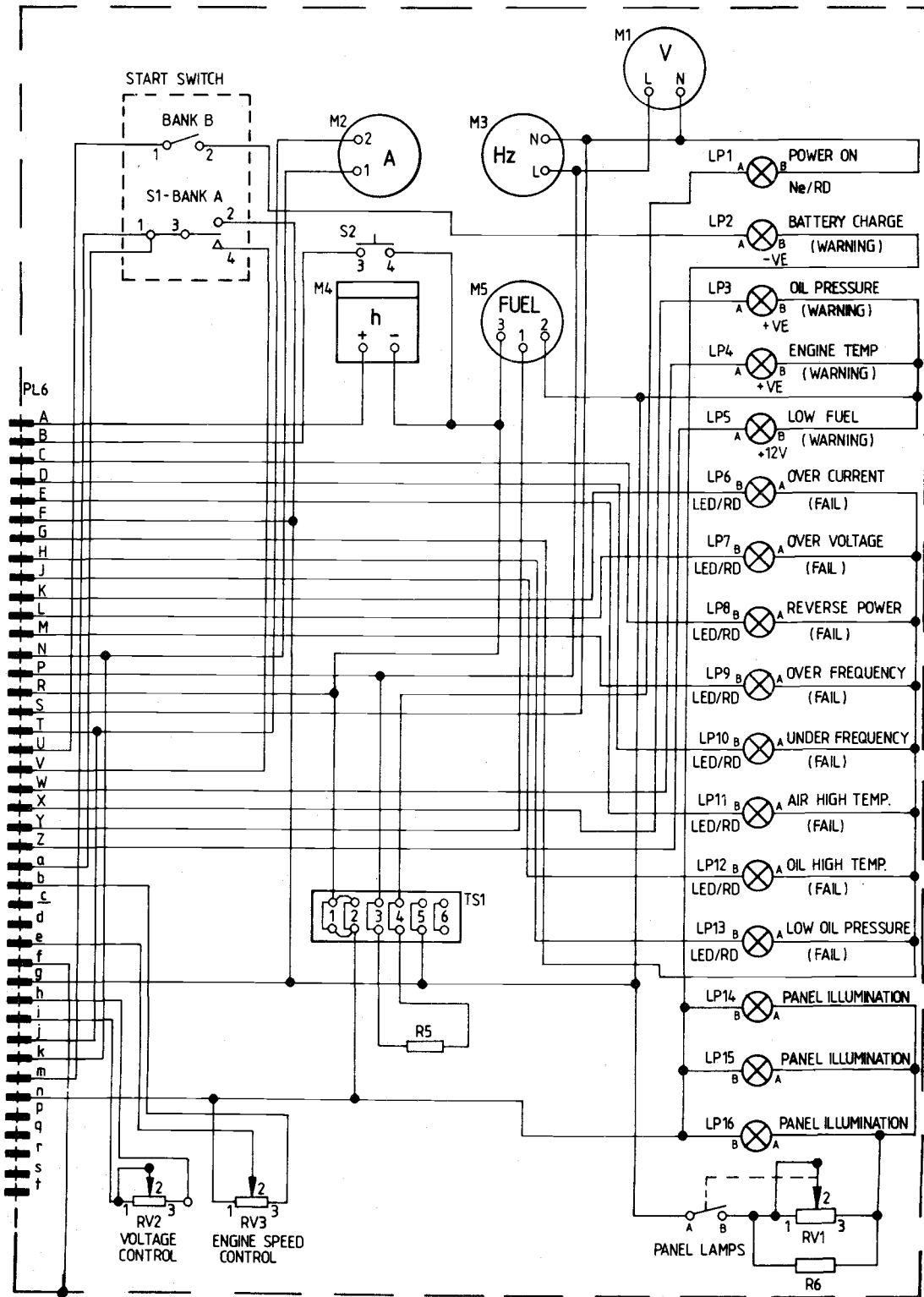


Fig 2 Remote Box Circuit Diagram

TABLE 3 REMOTE BOX WIRES

| WIRE No. (1) | SIZE (2) | COLOUR (3) | FROM (4) | TO (5)          | ROUTE/REMARKS (6)         |
|--------------|----------|------------|----------|-----------------|---------------------------|
| 1            | 20 AWG   | PINK       | PL6 - A  | M4 +VE          |                           |
| 2            | "        | "          | " - B    | S2 - 3          |                           |
| 3            | "        | "          | " - C    | LP8 - B         |                           |
| 4            | "        | "          | " - D    | LP10 - B        |                           |
| 5            | "        | "          | " - E    | LP11 - B        |                           |
| 6            | "        | "          | " - F    | S1 BANK A- 2    | With wires No. 30 and 95  |
| 7            | "        | "          | " - G    | LP13 - A        |                           |
| 8            | "        | "          | " - H    | LP13 - B        |                           |
| 9            | "        | "          | " - J    | LP12 - B        |                           |
| 10           | "        | "          | " - K    | LP6 - B         |                           |
| 11           | "        | "          | " - L    | LP7 - B         |                           |
| 12           | "        | "          | " - M    | LP9 - B         |                           |
| 13           | "        | "          | " - N    | M2 - 1          | With wire No. 34          |
| 14           | "        | "          | " - P    | M1 - L          | With wire No. 88          |
| 15           | "        | "          | " - R    | TS1 - 1A        | With wire No. 45          |
| 16           | "        | "          | " - S    | M1 - N          | With wire No. 89          |
| 17           | "        | "          | " - T    | M2 - 2          | With wire No. 33          |
| 18           | "        | "          | " - U    | S1 BANK B- 1    |                           |
| 19           | "        | "          | " - V    | S1 BANK A- 4    |                           |
| 20           | "        | "          | " - W    | LP4 - A         |                           |
| 21           | "        | "          | " - X    | LP3 - A         |                           |
| 22           | "        | "          | " - Y    | M5 - 1          |                           |
| 23           | "        | "          | " - Z    | LP5 - A         |                           |
| 24           | "        | "          | " - a    | S1 BANK A- 1    | With wire No. 99          |
| 25           | 20 AWG   | PINK       | PL6 - b  | RV3 - 3         |                           |
| 26           | --       | --         | " - c    | --              | } Not used                |
| 27           | --       | --         | " - d    | --              |                           |
| 28           | 20 AWG   | PINK       | PL6 - e  | RV3 - 2         |                           |
| 29           | "        | "          | " f      | CASE EARTH STUD |                           |
| 30           | "        | "          | " g      | S1 BANK A- 2    | With wires No. 6 and 95   |
| 31           | "        | "          | " - h    | RV2 - 3         |                           |
| 32           | "        | "          | " - i    | RV2 - 2         | With BTC link wire No. 97 |
| 33           | "        | "          | " - j    | M2 - 2          | With wire No. 17          |
| 34           | "        | "          | " - k    | M2 - 1          | With wire No. 13          |
| 35           | "        | "          | " - m    | S1 BANK A- 3    | With wire No. 99          |
| 36           | 20 AWG   | PINK       | PL6 - n  | TS1 - 2A        | With wire No. 46          |
| 37           | --       | --         | " - p    | --              | } Not used                |
| 38           | --       | --         | " - q    | --              |                           |
| 39           | --       | --         | " - r    | --              |                           |
| 40           | --       | --         | " - s    | --              |                           |
| 41           | --       | --         | PL6 - t  | --              |                           |
| 42           |          |            |          |                 |                           |
| to           | --       | --         | --       | --              | } Not fitted              |
| 44           |          |            |          |                 |                           |
| 45           | 20 AWG   | PINK       | TS1 - 1A | M4 - -VE        | From end with wire No. 15 |

TABLE 3 REMOTE BOX WIRES (CONT'D)

| WIRE No. (1) | SIZE (2) | COLOUR (3)          | FROM (4)     | TO (5)   | ROUTE/REMARKS (6)                      |
|--------------|----------|---------------------|--------------|----------|--|
| 46           | 20 AWG   | PINK                | TS1 - 2A     | S2 - 4   | With wire 98 from end with wire No. 36 |
| 47           | 20 AWG   | PINK                | TS1 - 5A     | M5 - 2   |  |
| 48           | "        | "                   | TS1 - 5A     | LP5 - B  | With BTC wire No. 62                   |
| 49           | "        | "                   | TS1 - 1B     | TS1 - 2B | With wire No. 51                       |
| 50           | "        | "                   | TS1 - 1B     | LP16 - B | With wire No. 80                       |
| 51           | "        | "                   | TS1 - 2B     | M5 - 3   | From end with wire No. 49              |
| 52           | "        | "                   | TS1 - 3B     | M3 - L   | With wire No. 88                       |
| 53           | "        | "                   | TS1 - 4B     | LP1 - A  |  |
| 54           | 20 AWG   | PINK                | TS1 - 5B     | RV1 - A  | With wire No. 95                       |
| 55           |          |                     |              |          |  |
| to           | --       | --                  | --           | --       | } Not fitted                           |
| 57           |          |                     |              |          |  |
| 58           | 20 AWG   | PINK                | S1 BANK B- 2 | LP2 - A  |  |
| 59           | 20 AWG   | PINK                | LP14 - B     | LP2 - B  | From end with wire No. 79              |
| 60           | --       | --                  | --           | --       | Not fitted                             |
| 61           | 24 SWG   | TINNED COPPER BRAID | LP3 -B       | LP4 - B  |  |
| 62           | 24 SWG   | TINNED COPPER BRAID | LP4 - B      | LP5 - B  | With wire No. 48                       |
| 63           | --       | --                  | --           | --       | } Not fitted                           |
| 64           | --       | --                  | --           | --       |  |
| 65           | 20 AWG   | PINK                | LP6 - A      | LP7 - A  |  |
| 66           | "        | "                   | LP7 - A      | LP8 - A  |  |
| 67           | "        | "                   | LP8 - A      | LP9 - A  |  |
| 68           | "        | "                   | LP9 - A      | LP10 - A |  |
| 69           | "        | "                   | LP10 - A     | LP11 - A |  |
| 70           | "        | "                   | LP11 - A     | LP12 - A |  |
| 71           | 20 AWG   | PINK                | LP12 - A     | LP13 - A | With wire No. 7                        |
| 72           |          |                     |              |          |  |
| to           | --       | --                  | --           | --       | } Not fitted                           |
| 74           |          |                     |              |          |  |
| 75           | 20 AWG   | PINK                | LP14 - A     | LP15 - A |  |
| 76           | 20 AWG   | PINK                | LP15 - A     | LP16 -A  | With wire No. 94                       |
| 77           | --       | --                  | --           | --       |  |
| 78           | --       | --                  | --           | --       | Not fitted                             |
| 79           | 20 AWG   | PINK                | LP14 - B     | LP15 - B | From end with wire No. 59              |
| 80           | 20 AWG   | PINK                | LP15 - B     | LP16 - B | With wire No. 50                       |
| 81           |          |                     |              |          |  |
| 82           | --       | --                  | --           | --       | } Not fitted                           |
| 83           | --       | --                  | --           | --       |  |
| 84           | 20 AWG   | PINK                | LP1 - B      | M3 - N   | With wire No. 89                       |

TABLE 3 REMOTE BOX WIRES (CONT'D)

| WIRE No.<br>(1) | SIZE<br>(2) | COLOUR<br>(3)       | FROM<br>(4)     | TO<br>(5)            | ROUTE/REMARKS<br>(6)                      |
|-----------------|-------------|---------------------|-----------------|----------------------|---|
| 85              | --          | --                  | --              | --                   | } Not fitted                              |
| 86              | --          | --                  | --              | --                   |   |
| 87              | --          | --                  | --              | --                   |   |
| 88              | 20 AWG      | PINK                | M1 - L          | M3 - L               |   |
| 89              | 20 AWG      | PINK                | M1 - N          | M3 - N               | With wire No. 52 from end with wire 14    |
| 90              | --          | --                  | --              | --                   | } Not fitted                              |
| 91              | --          | --                  | --              | --                   |   |
| 92              | 24 SWG      | TINNED COPPER BRAID | RV1 - 1         | RV1 - B              |   |
| 93              | 24 SWG      | TINNED COPPER BRAID | RV1 - 1         | RV1 - 2              |   |
| 94              | 20 AWG      | PINK                | RV1 - 3         | LP16 - A             | With wire No. 76 from end with R6 end B   |
| 95              | 20 AWG      | PINK                | RV1 - A         | S1 BANK A- 2         | With wires 6 and 30 from end with wire 54 |
| 96              | --          | --                  | --              | --                   | } Not fitted                              |
| 97              | 24 SWG      | TINNED COPPER BRAID | RV2 - 1         | RV2 - 2              |   |
| 98              | 20 AWG      | PINK                | RV3 - 1         | S2 - 4               | From end with wire 32                     |
| 99              | 20 AWG      | PINK                | S1 - 1          | S1 - 3               | With wire No. 46 from end with wire 24    |
| 100             | --          | --                  | --              | --                   | } Not fitted                              |
| 101             | --          | --                  | --              | --                   |   |
| 102             | 20 AWG      | GREEN/YELLOW        | CASE EARTH STUD | FIXED BOX EARTH STUD |   |

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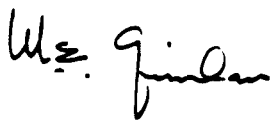


GENERATOR SET, DIESEL ENGINE DRIVEN

4.5KW (5.6KVA) 240V AC, SINGLE PHASE, 50HZ (AIR LOG 4169A)

MAINTENANCE SCHEDULE

BY COMMAND OF THE DEFENCE COUNCIL



Ministry of Defence

Sponsor:

DGEME(A)

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Publications Authority

Vehicles and Weapons Branch REME

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AMENDMENT RECORD

| Amdt | Incorporated by | Date |
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| Amdt | Incorporated by | Date |
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PREFACE

- 1 Amendments are identified by side lining.
- 2 Comments on this publication are to be forwarded in accordance with AESP 0100-P-011-013 to Vehicles and Weapons Branch REME, Chobham Lane, Chertsey, Surrey, KT16 0EE.

Associated Publications

AESP 2815-B-641 Octad      Engine, diesel 1 and 2 cylinder Lister Petter.  
A range, air and water cooled

AESP 6115-G-350-201

WARNINGS AND CAUTION

WARNINGS ...

- (1) THE OUTPUT VOLTAGE FROM THIS GENERATOR CAN ENDANGER LIFE. CARELESSNESS CAN BE FATAL. ENSURE THAT THE CHASSIS IS CORRECTLY EARTHED AND THAT THE EARTH LEAKAGE CIRCUIT BREAKER FUNCTIONS CORRECTLY FOR OUTPUT 4.
- (2) BEFORE OPENING THE ACCESS COVER TO THE EMERGENCY TERMINALS, THE EMERGENCY TERMINALS 13A CIRCUIT BREAKER SHOULD BE AT THE OFF POSITION.
- (3) THIS GENERATOR SET IS FITTED WITH RFI/EMP FEED THROUGH FILTERS. THE GENERATOR SET MUST BE CORRECTLY EARTHED BEFORE USE.
- (4) ANY GUARD OR COVER REMOVED FOR MAINTENANCE IS TO BE REPLACED BEFORE OPERATING THE MACHINE.
- (5) KEEP CLEAR OF HOT, MOVING OR ELECTRICAL PARTS.
- (6) ENSURE ADEQUATE VENTILATION WHEN USING IN ENCLOSED SPACES.
- (7) WHEN MOVING THE GENERATOR SET OR REMOVING THE ENGINE/ALTERNATOR, PREVENT INJURY TO PERSONNEL BY USING ADEQUATE SUPPORT DURING THE LIFTING OPERATION.
- (8) CARE SHOULD BE TAKEN TO PREVENT THE SPILLAGE OF FUEL ONTO THE SOFT NOISE ABSORBENT AREAS WITHIN THE ENGINE ENCLOSURE AND THE ACOUSTIC COVER. ANY SUCH SPILLAGES SHOULD BE ATTENDED TO IMMEDIATELY. ANY SPILLAGES MUST BE CLEANED UP BEFORE RUNNING THE GENERATOR SET.
- (9) THE GENERATOR SET IS FITTED WITH A SEALED FOR LIFE BATTERY. ANY BOOST CHARGE MUST BE FROM A CONSTANT VOLTAGE SOURCE NOT EXCEEDING 15 VOLTS AND A MAXIMUM CHARGE CURRENT OF 35 AMPERES (30 AMPERES NOMINAL).

CAUTION ...

Do not stop the engine by means of the decompressors.

# RESUSCITATION

## TREATMENT OF THE NON-BREATHING CASUALTY

### NOTICE

The inclusion of the emergency resuscitation placard (MOD Form 656) in Military Technical Publications has been discontinued.

This notice is to be retained in the publication until removed by amendment instruction.

MAINTENANCE SCHEDULE

INTRODUCTION

Authority

1 This Maintenance Schedule is the authority for carrying out all maintenance tasks on the subject equipment.

Responsibilities

2 The unit commander is responsible for ensuring that the operations detailed in this schedule are properly carried out. He may order any operation to be carried out more frequently than is specified if the conditions under which his equipments are operating render it necessary. He should consult his REME advisor before ordering such changes.

3 The unit commander may adjust the specified maintenance intervals by plus or minus 10 per cent to suit local circumstances.

4 The operator/driver is responsible for ensuring the equipment is fit for task. If the mechanical fitness is in doubt, the equipment is not to be used until advice has been sought.

Inspection and examinations

5 The unit commander is advised to arrange inspections to be carried out on receipt of the equipment and thereafter in accordance with JSP 341 Chap 16 para 16.454.

6 Examination are carried out by REME in accordance with AGAI Vol 4 para 142.031 - 142.036.

Records

7 Maintenance and inspections are to be recorded in the equipment documents.

Serial numbers

8 Serial numbers left blank may be taken up by amendment action at a later date.

Abbreviations

- 9 L1 - Level 1 (User Unit Maintenance)
- L2 - Level 2 (REME Unit Maintenance)
- L3 - Level 3 (REME Field Repair)
- L4 - Level 4 (Base Repair, including contract repair and Manufactures Repair)

TABLE 1 EQUIPMENT APPLICABILITY

Note ...

The information in this schedule applies to the following equipment.

| Ser | Equipment Code No | Designation  |
|-----|-------------------|--|
| (1) | (2)               | (3)  |
| 1   | N/K               | Generator Set, Diesel Engine Driven, 4.5kW (5.6KVA)<br>240V AC, Single Phase, 50Hz (Air Log 4169A) |

TABLE 2 FUELS, LUBRICANTS AND ASSOCIATED PRODUCTS

Notes ...

- (1) Only the F & L products listed below are to be used on this equipment.
- (2) The local REME advisor may authorise the use of OMD 30 where the ambient temperature is persistently below -15°C and the oil temperature is likely to reach -15°C for a significant period of time.

| Ser | Assembly/System     | Product                  |             | Capacity    |       |
|-----|---------------------|--------------------------|-------------|-------------|-------|
|     |                     | Above -15°C              | Below -15°C | Litres      | Pints |
| (1) | (2)                 | (3)                      | (4)         | (5)         | (6)   |
| 1   | Engine:             |                          |             |             |       |
|     | 1.1 Sump            | OMD 80                   | OMD 30      | 3.7         | 6.5   |
|     | 1.2 Fuel tank       | Local instructions apply |             | 25          | 44    |
| 2   | General lubrication | OMD 80                   | OMD 80      | As required |       |
| 3   | General grease      | XG 279                   | XG 279      | As required |       |
| 4   | Battery terminals   | PX 7                     | PX 7        | As required |       |

TABLE 3 EQUIPMENT DATA

| Ser | Item  | Detail                            |
|-----|---|-----------------------------------|
| (1) | (2)   | (3)                               |
| 1   | Valve/rocker arm clearnace,<br>(engine cold): |                                   |
|     | 1.1 Inlet valve                               | 0.10mm (0.004in)                  |
|     | 1.2 Exhaust valve                             | 0.10mm (0.004in)                  |
| 2   | Torque settings:                              |                                   |
|     | 2.1 Cylinder head nuts                        | 27Nm (20 lbf ft)                  |
|     | 2.2 Injector clamp nuts                       | 8Nm ( 6 lbf ft)                   |
|     | 2.3 Oil filter centre bolt                    | 14Nm (10 lbf ft)                  |
| 3   | Engine speed:                                 |                                   |
|     | 3.1 Governed - mechanically                   | 3300 rpm                          |
|     | 3.2 Governed - electrically                   | 3000 rpm                          |
| 4   | Engine oil pressure (minimum)                 | 2.4 bar (35 lbf/in <sup>2</sup> ) |
| 5   | Injector release pressure                     | 200 Atmospheres                   |

TABLE 4 ACTION ON RECEIPT OF EQUIPMENT

| Ser | Operation  |
|-----|--|
| (1) | (2)  |
| 1   | <p>Check:</p> <p>1.1 Equipment for damage</p> <p>1.2 Tools and equipment against CES</p> |
| 2   | Remove preservation, sealing and packaging where applicable                              |
| 3   | Refit any components removed to aid transit  |
| 4   | Clean equipment, tools and attachments   |
| 5   | Read Operator/User Handbook and learn position and function of all controls              |
| 6   | Report any defect or damage  |
| 7   | Maintenance:   |
|     | 7.1 Carry out column (5) tasks of table 6  |
| 8   | Inspection:  |
|     | 8.1 Request L2 to carry out a receipt inspection   |

TABLE 5 DAILY OPERATOR'S CHECKS

Notes ...

- (1) This maintenance is to be carried out on those days when the equipment is to be used.
- (2) All faults are to be reported as soon as possible to L2.

| Ser | Task   | Support Level | Product |
|-----|--|---------------|---------|
| (1) | (2)  | (3)           | (4)     |
|     | WARNING ...  |               |         |
|     | <u>BEFORE CARRYING OUT ANY MAINTENANCE TASK READ AND ABIDE BY WARNINGS AND CAUTIONS ON PAGE (VI)</u> |               |         |
| 1   | Before starting engine:  |               |         |
|     | 1.1 Check and top up engine oil level  | L1            | OMD 80  |
|     | 1.2 Visually check equipment for damage  | L1            |         |
|     | 1.3 Ensure all air passages are clear  | L1            |         |
|     | 1.4 Ensure fuel tank is full   | L1            |         |
|     | 1.5 Ensure the fire extinguisher is serviceable  | L1            |         |
| 2   | After starting and during running:   |               |         |
|     | 2.1 Check for oil, fuel and exhaust leaks  | L1            |         |
|     | 2.2 Check all gauges and warning lights are functioning correctly                                    | L1            |         |
|     | 2.3 Listen for any unusual running noises  | L1            |         |
|     | Note ...   |               |         |
|     | The engine oil level must be checked every 30 hours if being run continuously                        |               |         |
| 3   | At conclusion of work/day:   |               |         |
|     | 3.1 Close down   | L1            |         |
|     | 3.2 Check for damage/faults  | L1            |         |
|     | 3.3 Ensure fuel tank is full   | L1            |         |
|     | 3.4 Ensure equipment is ready for use  | L1            |         |
|     | 3.5 Ensure all relevant entries are made in equipment documents                                      | L1            |         |



TABLE 6 GENERATOR PERIODIC MAINTENANCE

Note ...

Column (6) tasks are to be carried out after a new or reconditioned engine has been fitted.

| Ser  | Task   | Support Level | Product | Int Maint | First 20 Hrs | Every 250 Hrs | Every 500 Hrs | Every 2000 Hrs |
|--|--|---------------|---------|-----------|--------------|---------------|---------------|----------------|
| (1)  | (2)  | (3)           | (4)     | (5)       | (6)          | (7)           | (8)           | (9)            |
| <b>WARNING ...</b>   |  |               |         |           |              |               |               |                |
| <b>BEFORE CARRYING OUT ANY MAINTENANCE TASK READ AND ABIDE BY WARNINGS AND CAUTIONS ON PAGE (VI)</b> |  |               |         |           |              |               |               |                |
| 1  | <b>Renew:</b>  |               |         |           |              |               |               |                |
|  | 1.1 Engine sump oil and filter   | L1            | OMD 80  |           | X            | X             | X             | X              |
|  | Note ...   |               |         |           |              |               |               |                |
|  | The engine oil and filter should be changed at least once a year               |               |         |           |              |               |               |                |
|  | 1.2 Air cleaner element  | L1            |         |           |              |               | X             | X              |
|  | 1.3 Fuel filter element  | L1            |         |           |              |               | X             | X              |
| 2  | <b>Tighten/adjust:</b>   |               |         |           |              |               |               |                |
|  | 2.1 Cylinder head nuts   | L2            |         |           | X            |               |               |                |
|  | 2.2 Valve clearances   | L2            |         |           | X            | X             | X             | X              |
|  | 2.3 Decompressor setting   | L2            |         |           | X            | X             | X             | X              |
|  | 2.4 All hoses, pipes mounting securing bolts/screws and electrical connections | L1            |         |           | X            | X             | X             | X              |
| 3  | <b>Lubricate/grease:</b>   |               |         |           |              |               |               |                |
|  | 3.1 Fuel pump linkage ball joints  | L1            | OMD 80  | X         |              | X             | X             | X              |
|  | 3.2 Cover, access hatch hinges   | L1            | OMD 80  | X         |              | X             | X             | X              |
|  | 3.3 Cover, over centre catches   | L1            | OMD 80  | X         |              | X             | X             | X              |
|  | 3.4 Battery terminals  | L1            | PX 7    | X         |              | X             | X             | X              |

(continued)

TABLE 6 GENERATOR PERIODIC MAINTENANCE (continued)

| Ser | Task   | Support Level | Product | Int Maint | First 20 Hrs | Every 250 Hrs | Every 500 Hrs | Every 2000 Hrs |
|-----|--|---------------|---------|-----------|--------------|---------------|---------------|----------------|
| (1) | (2)  | (3)           | (4)     | (5)       | (6)          | (7)           | (8)           | (9)            |
| 4   | Clean/drain/test:                                  |               |         |           |              |               |               |                |
|     | 4.1 Cylinder head and barrel fins                  | L2            |         |           |              |               | X             | X              |
|     | 4.2 Fuel injector                                  | L2            |         |           |              | X             | X             | X              |
|     | 4.3 Carry out cylinder head overhaul               | L2            |         |           |              |               |               | X              |
|     | 4.4 Remove excess carbon from exhaust system       | L2            |         |           |              |               | X             | X              |
|     | 4.5 Fuel tank filler cap vent hole                 | L1            |         |           |              | X             | X             | X              |
|     | 4.6 Fuel tank neck, metal and plastic mesh filters | L1            |         |           |              | X             | X             | X              |
| 5   | Examine generator set for damage/deterioration     | L1            |         | X         | X            | X             | X             | X              |

TABLE 7 OUT OF USE MAINTENANCE

Notes ...

- (1) An equipment taken out of use for periods not exceeding one year is to be put into preservation in accordance with these instructions. These instructions follow the procedures laid down in EMER Whld Vehs A019 Miscellaneous Instruction No 9.
- (2) An equipment taken out of use for periods exceeding one year or in depot stock is to be put into preservation in accordance with current procedures.

| Ser | Task  |
|-----|---|
| (1) | (2)   |
| 1   | Equipments are to be stored, where possible, under cover. If equipments have to be stored in the open they should not be placed under overhanging trees or structures and covered with a canvas cover.  |
| 2   | Periodic maintenance, if circumstances permit, is to coincide with inspection by L2 at the following intervals:<br>2.1 6 months - open storage<br>2.2 12 months - covered storage   |
| 3   | Prior to storage, the equipment is to be fully inspected by L2 and necessary repairs completed. During storage equipments are to be visually inspected at monthly intervals, or more frequently if considered necessary, for signs of deterioration due to age or storage conditions. |
| 4   | Prior to storage, all lubrication points are to be oiled or greased in accordance with Table 6 of this maintenance schedule.  |
| 5   | Unit fire orders should be displayed and cover any fire risk created by the choice of location for stored equipment. Units must observe the Regulations for Fire Services in the Army (1952) and the recommended action of fire service advisers.                                     |
| 6   | Equipments are to be thoroughly cleaned, signs of rust removed and coats of primer and finishing paints applied to the surface. For details of paints and methods of application see Wksp G500. Items liable to rust are to be smeared with a coating of oil or grease.               |
| 7   | The battery is to be removed and stored in the battery charging shop.   |

(continued)

TABLE 7 OUT OF USE MAINTENANCE (continued)

| Ser | Task   |
|-----|--|
| (1) | (2)  |
| 8   | <p>Every two months during storage, refit battery, carry out Table 5 Daily Operator's Checks and run engine up to full working temperature. Return the battery to the charging shop after this operation.</p> <p>Note ...</p> <p>The engine should be rotated 5 times on the pull start, with the ignition OFF, before attempting to start the engine, to allow the engine lubrication oil to circulate.</p> |
| 9   | <p>When an equipment is brought back into service, degrease all items that were greased in Serial 6 above, refit the battery and carry out any overdue maintenance.</p>  |



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**GENERATOR SET  
DIESEL ENGINE DRIVEN  
4.5 kW (5.6 kVA) 240V AC,  
SINGLE PHASE, 50 Hz  
(AIR LOG 4169A)**

REPRINTED INCORPORATING AMDTS 1-6

**ILLUSTRATED PARTS CATALOGUE**

**BY COMMAND OF THE DEFENCE COUNCIL**

Ministry of Defence

Issued by  
ARMY TECHNICAL SUPPORT AGENCY  
DIRECTORATE OF TECHNICAL SERVICES

AMENDMENT RECORD

| Amdt No | Incorporated By (Signature) | Date     |
|---------|-----------------------------|----------|
| 1       |                             | 8/10/99  |
| 2       |                             | 3/5/02   |
| 3       |                             | 3/5/02   |
| 4       |                             | 1-10-03  |
| 5       |                             | 12/11/03 |
| 6       |                             | 11/11/04 |
| 7       |                             |          |
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| Amdt No | Incorporated By (Signature) | Date |
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| 4                                      | Index of part/drawing numbers           |
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| A                                      | Specimen of AESP Form 10                |

PREFACE

Sponsor :  
Publication Agency : Army Scaling and Cataloguing Authority

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 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.

3 This Illustrated Parts Catalogue (IPC) is designed as an aid to the identification of component parts or assemblies of parts of the equipment, and to provide information necessary for demanding spares.

4 This IPC may list some or all of the parts comprising the equipment concerned, but only those parts assigned a NATO Stock Number, Service Catalogue or Reference Number will normally be available as spares. Should there be a requirement for an item not assigned a number, demands may be submitted quoting the AESP, Item Number, Figure Reference and Item Name. Where a manufacturer's reference is known, this should also be quoted.

Quantity

5 The figure in the 'Number off' column specifies the quantity for the unit (assembly, sub-assembly etc); it does not indicate the quantity to be demanded.

Demands

6 When demanding Spare Parts the following particulars must be quoted:

- 6.1 Management Code (Man Code).
- 6.2 NATO Stock Number.
- 6.3 Item name.
- 6.4 Name of Equipment for which the part is required.
- 6.5 Manufacturer's reference, if known.

NOTE

Alternatives quoted apply only to the Equipment covered by this IPC.

Modification State

7 When appropriate, a list at the front of each chapter or sub-chapter will indicate the modification numbers which have been incorporated in the IPC by amendment action, subsequent to initial issue.

Annotations

8 The following notations are used in this publication:

- 8.1 AR When appearing in the 'Number off' column indicates that the quantity is 'as required'.
- 8.2 NI (Not Illustrated) when appearing with a number in the 'Fig Item' column indicates that the item is not illustrated.
- 8.3 NP (Non-provisioned) - when appearing in the 'NATO Stock Number' column indicates that the item may be illustrated, but not available from stock as a replacement item.



- 8.4 Ref In the 'Number off' column indicates that the item is listed for reference purposes only.

#### Abbreviations

9 Abbreviations and symbols used in this IPC have been approved and are listed separately.

#### Amendments

10 Amendments to the catalogue will be published as and when necessary. They will be numbered consecutively, and the Amendment Record Sheet is to be completed for each Amendment List embodied.

11 New or amended material will be highlighted by side lining to show the extent of the amendment.

#### Indentations

12 Items are listed in a logical assembly/disassembly order and are indented by the 'Dot System' in which each 'dot' depicts the relationship of the item to the main assembly.

#### MAIN ASSEMBLY

Attaching parts for main assembly

- . FIRST LEVEL OF BREAKDOWN (Sub-assembly or detail part of main assembly)
- . Attaching part for first level
- . . SECOND LEVEL OF BREAKDOWN (Sub-sub-assembly or detail part of Sub-assembly)
- . . Attaching parts for second level
- . . . THIRD LEVEL OF BREAKDOWN (Sub-sub-sub-assembly or detail part of Sub-sub-assembly)
- . . . Attaching parts for third level

#### NOTES

- (1) Attaching parts for the Main Assembly are listed at the end of the text of the Main Assembly.
- (2) Catalogue numbers quoted in this catalogue will supersede any number that may have been allotted previously.

RELATED AND ASSOCIATED PUBLICATIONS

Related publications

13 The Octad for the subject equipment consists of the publications shown below. 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).

| CATEGORIES AND INFORMATION LEVELS |                   |   |     |     |   |   |     |     |     |     |     |     |   |     |   |     |   |   |   |  |
|-----------------------------------|-------------------|---|-----|-----|---|---|-----|-----|-----|-----|-----|-----|---|-----|---|-----|---|---|---|--|
| Level                             | Category          |   | 1   |     | 2 |   | 3   |     | 4   |     | 5   |     |   |     | 6 |     | 7 |   | 8 |  |
|                                   | 0                 | 0 | 1   | 2   | 0 | 1 | 2   | 1   | 2   | 3   | 4   | 0   | 1 | 1   | 2 | 1   | 2 |   |   |  |
| 1                                 | USER/OPERATOR     |   | 101 | 201 |   |   | 201 | 411 | 411 | 201 | 201 | *   | * | 601 | * | 711 | * | * | * |  |
| 2                                 | UNIT MAINTENANCE  |   | *   | *   | * |   | 302 | *   | *   | 512 | 522 | 532 | * | *   |   | 711 | * | * | * |  |
| 3                                 | FIELD MAINTENANCE |   | *   | *   | * |   | 302 | *   | *   | 512 | 522 | 532 | * | *   | * | 711 | * | * | * |  |
| 4                                 | BASE MAINTENANCE  |   | *   | *   | * | * | *   | *   | *   | *   | *   | *   | * | *   | * | 711 | * | * | * |  |

- |     |                                |     |                             |
|-----|--------------------------------|-----|-----------------------------|
| 1.0 | Purpose & Planning Information | 5.3 | Inspection Standards        |
| 2.0 | Operating Information          | 5.4 | Calibration Procedures      |
| 2.1 | Special to Arms                | 6.0 | Maintenance Schedules       |
| 2.2 | Training Aids                  |     |                             |
| 6.1 | Maintenance Schedules (RAF)    |     |                             |
| 3.0 | Technical Description          | 7.1 | Illustrated Parts Catalogue |
| 4.1 | Installation Instructions      | 7.2 | Commercial Parts List       |
| 4.2 | Prep for Special Environments  | 8.1 | Modification Instructions   |
| 5.1 | Failure Diagnosis              |     |                             |
|     |                                | 8.2 | General Instructions        |
| 5.2 | Repair Instructions            |     |                             |

\* Not published

Associated publications

14 Reference

Title

Abbreviations and symbols

|               |                                |
|---------------|--------------------------------|
| A             | ampere (s)                     |
| &             | and                            |
| AC            | alternating current            |
| al.           | aluminum                       |
| Amend         | amendment                      |
| Assy          | assembly                       |
| BULKHD        | bulkhead                       |
| CSK HD/csk hd | countersunk head               |
| C/O           | cut-out                        |
| DC            | direct current                 |
| °             | degree (s)                     |
| DIA/dia       | diameter                       |
| etc           | etcetera                       |
| Fig.          | figure                         |
| HD/hd         | head                           |
| HEX           | hexagonal                      |
| Hz            | hertz                          |
| in.           | inch                           |
| int.          | internal                       |
| k             | kilo                           |
| LED           | light emitting diode           |
| lg            | long                           |
| lp            | lamp                           |
| M(prefix)     | metric (thread size)           |
| mA            | milli ampere                   |
| MAX           | maximum                        |
| mm            | millimeter                     |
| MMCB          | micro magnetic circuit breaker |
| Mtg           | mounting                       |
| μF            | microfarad                     |
| nF            | nanofarad                      |
| No.           | number                         |
| +             | plus                           |
| ±             | plus or minus                  |
| %             | percent                        |
| R(suffix)     | ohms                           |

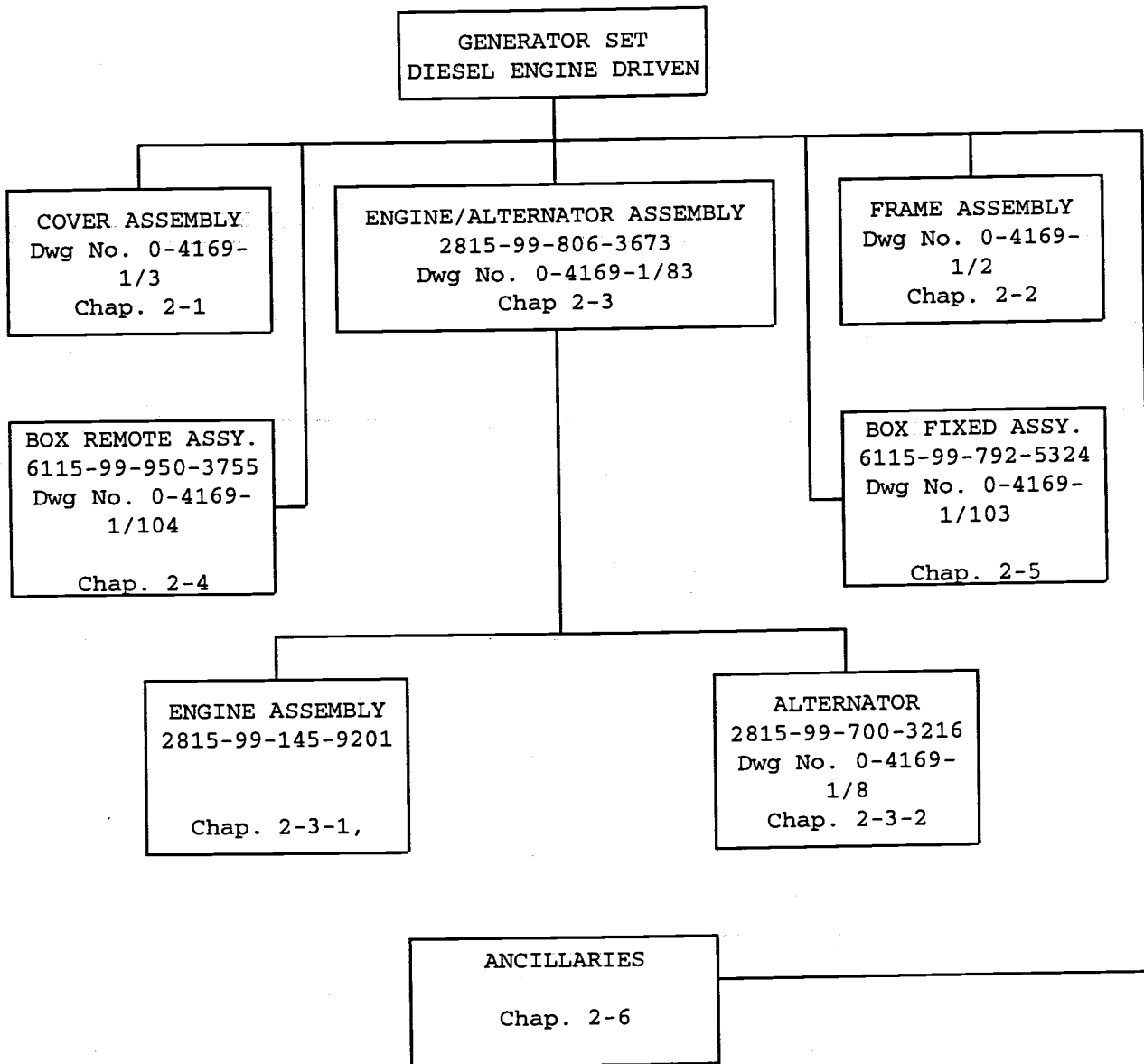
|           |                       |
|-----------|-----------------------|
| R(suffix) | ohms                  |
| REF/Ref   | reference             |
| RES       | resistant             |
| RD HD     | round head            |
| TBA       | to be advised         |
| UNC       | unified course thread |
| UNF       | unified fine thread   |
| V         | volt(s)               |
| VA        | volt ampere(s)        |
| W         | Watt(s)               |

Annotations

|     |                                   |
|-----|-----------------------------------|
| A/R | indicates quantity is as required |
| NI  | indicates item is not illustrated |
| NP  | indicates item is not provisioned |

**Chapter 1**

**INDEX OF ASSEMBLIES AND SUB-ASSEMBLIES**



FAMILY TREE

INDEX OF MAIN ASSEMBLIES AND SUB-ASSEMBLIES

| Item | Man. Code | NATO Stock No.   | Item Name                  | Part No./ Drawing No. | Location in Chap.2 or Separate Sched. No. |
|------|-----------|------------------|----------------------------|-----------------------|---|
| 1    | X2        | 6115-99-215-6706 | COVER ASSEMBLY             | 0-4169-1/3            | 2-1                                       |
| 2    | X2        | 6115-99-327-9202 | GENERATOR, FRAME ASSEMBLY  | 0-4169/1/2            | 2-2                                       |
| 3    | X3        | 2815-99-806-3673 | ENGINE/ALTERNATOR ASSEMBLY | 0-4169-1/83           | 2-3                                       |
| 4    | X3        | 2815-99-145-9201 | ENGINE ASSEMBLY            | REF                   | 2-3-1                                     |
| 5    | X2        | 2815-99-700-3216 | ALTERNATOR                 | 0-4169-1/84           | 2-3-2                                     |
| 6    | X2        | 6115-99-950-3755 | BOX REMOTE ASSEMBLY        | 0-4169-1/104          | 2-4                                       |
| 7    | X2        | 6115-99-792-5324 | BOX FIXED ASSEMBLY         | 0-4169-1/103          | 2-5                                       |
| 8    |           |                  | ANCILLARIES                | REF                   | 2-6                                       |

Chapter 2-1  
PARTS LIST  
COVER ASSEMBLY







ARMY EQUIPMENT  
SUPPORT PUBLICATION

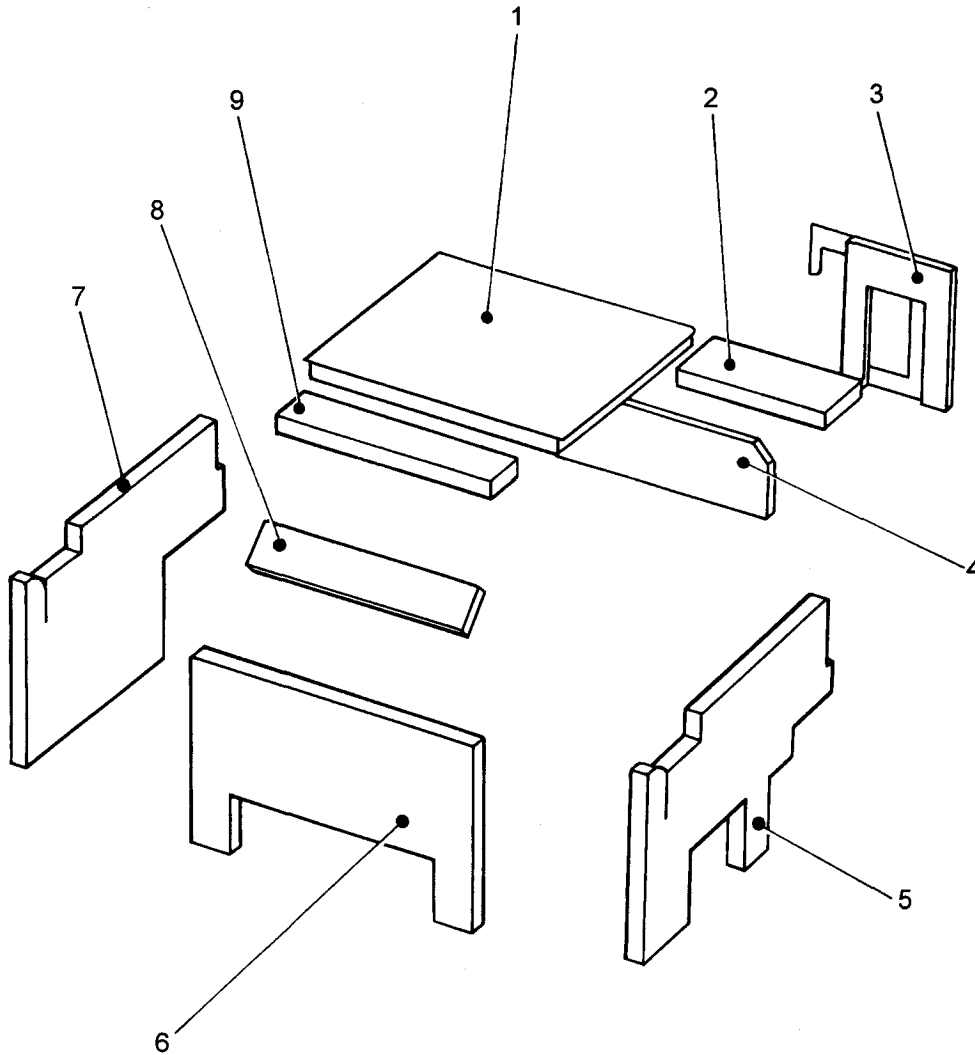
6115-G-350-711

| FIG<br>1<br>ITEM | DMC<br>Army | NATO STOCK NUMBER | ITEM NAME AND DESCRIPTION       | PART NO/<br>DRAWING NO. | NO.<br>OFF | ANNOTATIONS |
|------------------|-------------|-------------------|---------------------------------|-------------------------|------------|-------------|
| NI               | X2          | 6115-99-215-6706  | COVER ASSEMBLY                  | 0-4169-1/3              | REF        |             |
| 1                | X2          | 6115-99-663-5268  | .MOUNTING TRAY, REMOTE<br>BOX   | 0-4169-1/33             | 1          |             |
| 2                | 6MT1        | 4210-99-839-9904  | .BRACKET, FIRE<br>EXTINGUISHER  |                         |            |             |
| 3                |             | NP                | .LID, ASSEMBLY                  | 1-4169-1/6              | 1          |             |
| 4                |             | NP                | .ENGINE INLET MESH              | 2-4169-1/6              | 1          |             |
| 5                | X2          | 5340-99-197-7966  | .HANDLE, BAIL                   | 380086                  | 4          |             |
| 6                | X2          | 5340-99-957-5172  | .ENGINE OIL ACCESS PANEL        | 1-4169-1/5              | 1          |             |
| 7                | X2          | 5340-99-842-1776  | .EXHAUST SYSTEM ACCESS<br>PANEL | 1-4169-1/4              | 1          |             |
| 8                | X2          | 5335-99-623-9534  | .ALTERNATOR INLET MESH          | 2-4169-1/15             | 1          |             |
| 9                |             | NP                | .PANEL LOUVRED                  | 2-4169-1/170            | 1          |             |
| 10               | 6MT1        | 4210-99-839-9905  | .FIRE EXTINGUISHER              | 425 TG                  | 1          |             |
| 11               | X2          | 5340-99-660-7800  | .MOUNT, RESILIENT               | E1E11S 38 AC            | 1          |             |
| 12               | X2          | 4820-99-255-2676  | .DIAPHRAGM, RUBBER              | 2-4169-1/87             | 1          |             |
| 13               | X2          | 6115-99-361-4628  | .COVER, MOULDING                | 0-4169-1/12             | 1          |             |

Chapter 2-1-1  
PARTS LIST  
NOT YET ISSUED

Chapter 2-1-2  
PARTS LIST  
ACOUSTIC LINER





V14852/1

Fig 1 Acoustic liner – exploded view

| Fig<br>1<br>Item | DMC<br>Army | NATO Stock<br>Number | Item name and description | Part No./<br>Drawing No. | No.<br>Off | Annotations |
|------------------|-------------|----------------------|---------------------------|--------------------------|------------|-------------|
| N1               |             |                      | Acoustic liners           |                          |            |             |
| 1                | X2          | 6115-99-752-5037     | Acoustic liners - top     | 1-4169-1/65              | 1          |             |
| 2                | X2          | 6115-99-854-9236     | Acoustic pad              | 2-4169-1/71              | 1          |             |
| 3                | X2          | 6115-99-354-0180     | Acoustic liner- rear      | 2-4169-1/69              | 1          |             |
| 4                | X2          | 6115-99-494-1620     | Acoustic liner – centre   | 2-4169-1/70              | 1          |             |
| 5                | X2          | 6115-99-866-0110     | Acoustic liner RH         | 1-4169-1/67              | 1          |             |
| 6                | X2          | 6115-99-336-6794     | Acoustic liner – front    | 1-4169-1/68              | 1          |             |
| 7                | X2          | 6115-99-856-3595     | Acoustic liner LH         | 1-4169-1/66              | 1          |             |
| 8                | X2          | 6115-99-854-6051     | Acoustic pad              | 3-4169-1/72              | 1          |             |
| 9                | X2          | 6115-99-144-4961     | Acoustic pad              | 3-4169-1/73              | 1          |             |



Chapter 2-2  
PARTS LIST  
GENERATOR FRAME ASSEMBLY



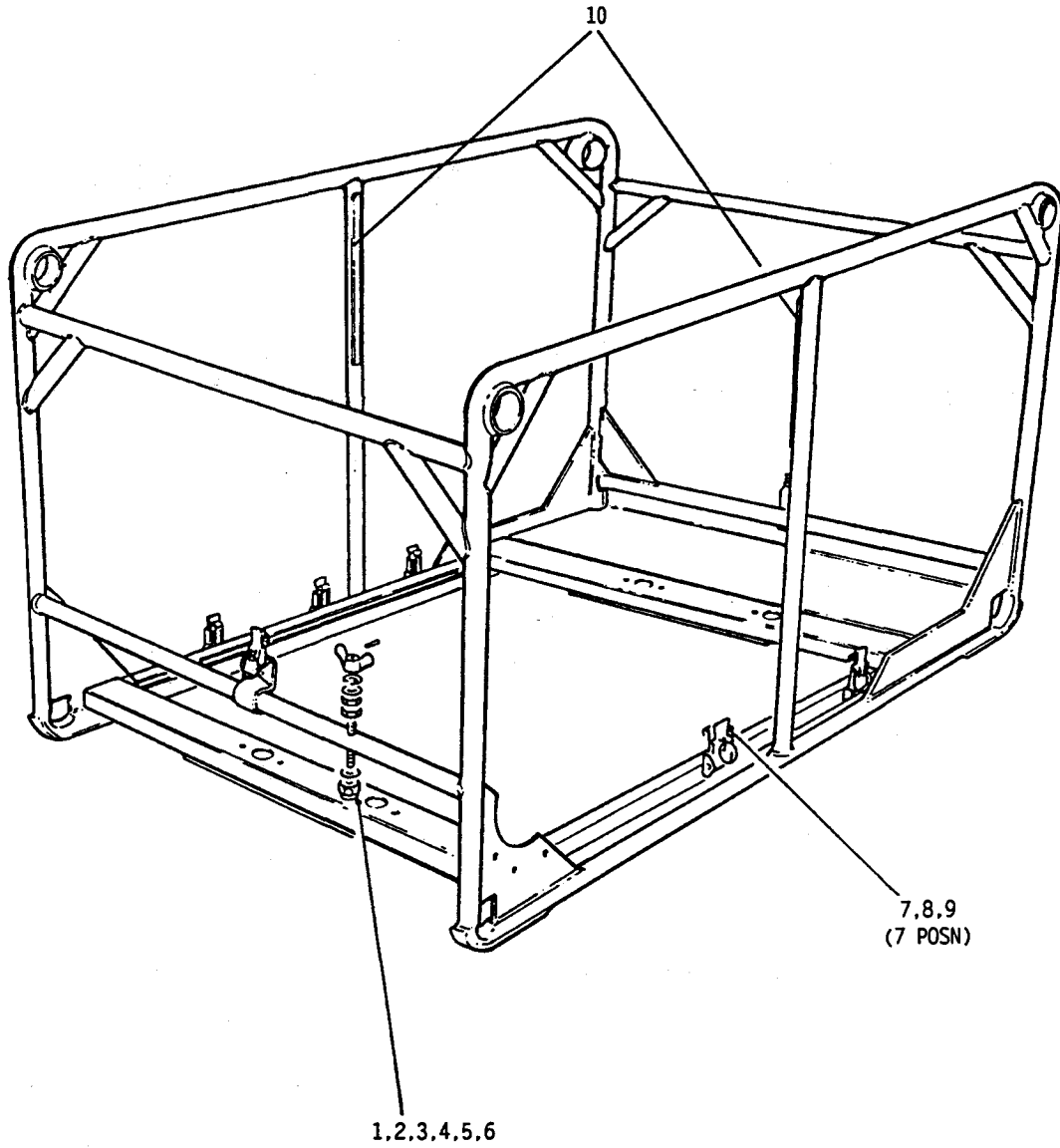
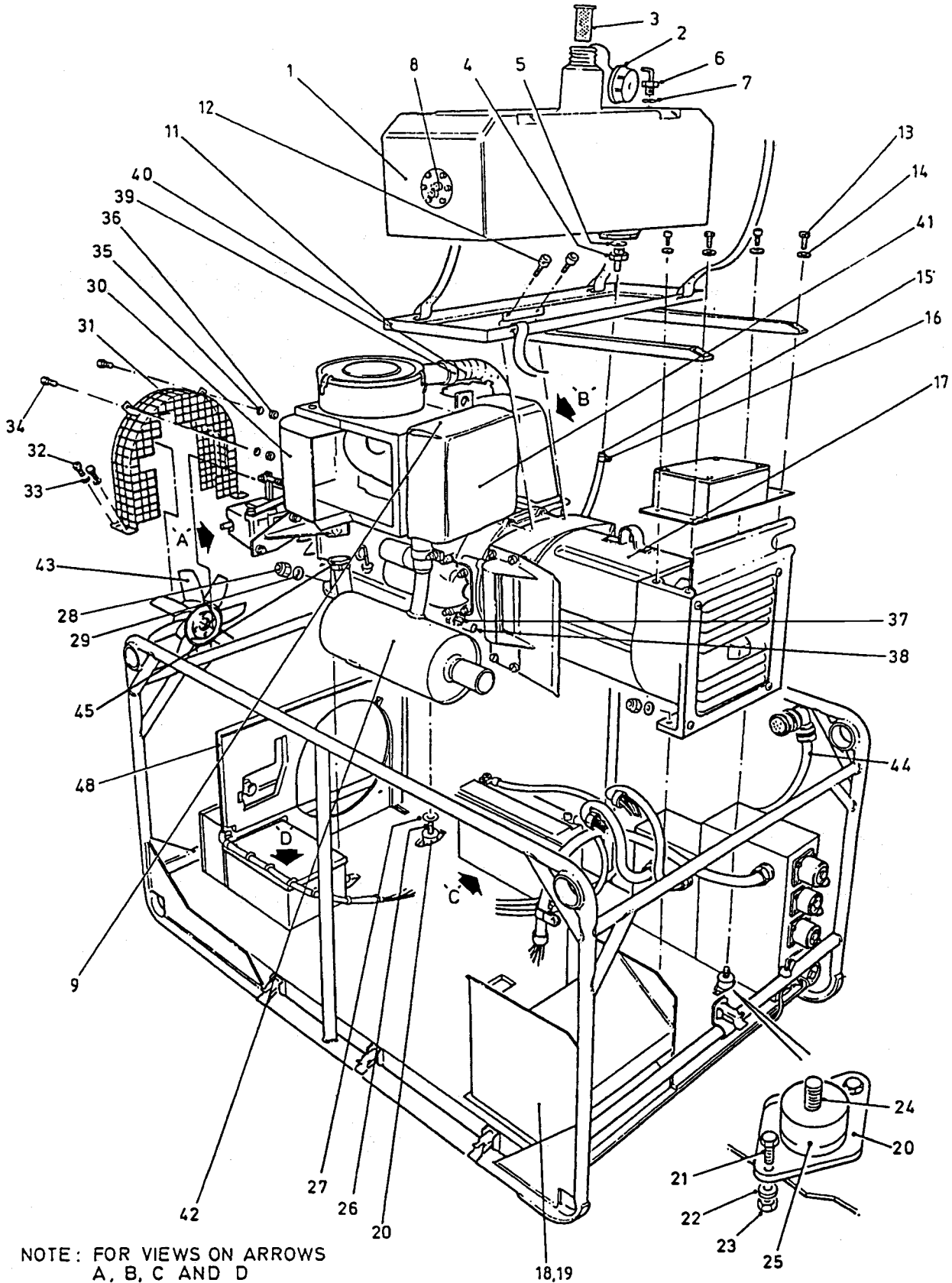


Fig.1 Frame assembly, generator

| FIG<br>1<br>ITEM | DMC<br>Army | NATO STOCK NUMBER | ITEM NAME AND DESCRIPTION                           | PART NO/<br>DRAWING NO. | NO.<br>OFF | ANNOTATIONS |
|------------------|-------------|-------------------|---|-------------------------|------------|-------------|
| NI               | X2          | 6115-99-327-9202  | FRAME ASSY, GENERATOR                               | 0-4169-1/2              | REF        |             |
| NI               |             | NP                | EARTH STUD ASSY                                     |                         | REF        |             |
| 1                | G1          | 5310-99-136-6576  | NUT, PLAIN, WING, M6,                               | BS 856                  | 1          |             |
| 2                | G1          | 5310-99-624-4452  | WASHER, LOCK, M6, COR<br>RES STEEL                  | BS 4464                 | 1          |             |
| 3                | G1          | 5310-99-122-3401  | NUT, PLAIN, HEXAGON,<br>M6, COR RES STEEL           | BS 3692                 | 2          |             |
| 4                | G1          | 5310-99-136-2752  | WASHER, FLAT, M6, COR<br>RES STEEL                  | BS 4320                 | 1          |             |
| 5                | G1          | 5310-99-977-8141  | NUT, SELF-LOCKING,<br>HEXAGON, M6, COR RES<br>STEEL | BS 4929<br>Part 1       | 1          |             |
| 6                |             | NP                | PIN, GROOVED, 3/32 in.<br>DIA x 1/4 in. lg          | GP3                     | 1          |             |
| 7                | G1          | 5340-99-541-5730  | FASTENER, SPRING<br>TENSION, TRIM                   | TL100AX                 | 7          |             |
| 8                | G1          | 5365-99-406-6467  | RING, CONNECTING,<br>ROUND, 1 in.                   | 479-100                 | 7          |             |
| 9                |             | NP                | RIVET, snap hd, 5/32 in.<br>dia x 5/16 in. lg       | BSSP81-505              | 14         |             |
| 10               | X2          | 6115-99-255-2674  | GUIDE STRIP   | 3-4169-1/60             | 2          |             |

Chapter 2-3  
PARTS LIST  
ENGINE/ALTERNATOR ASSEMBLY



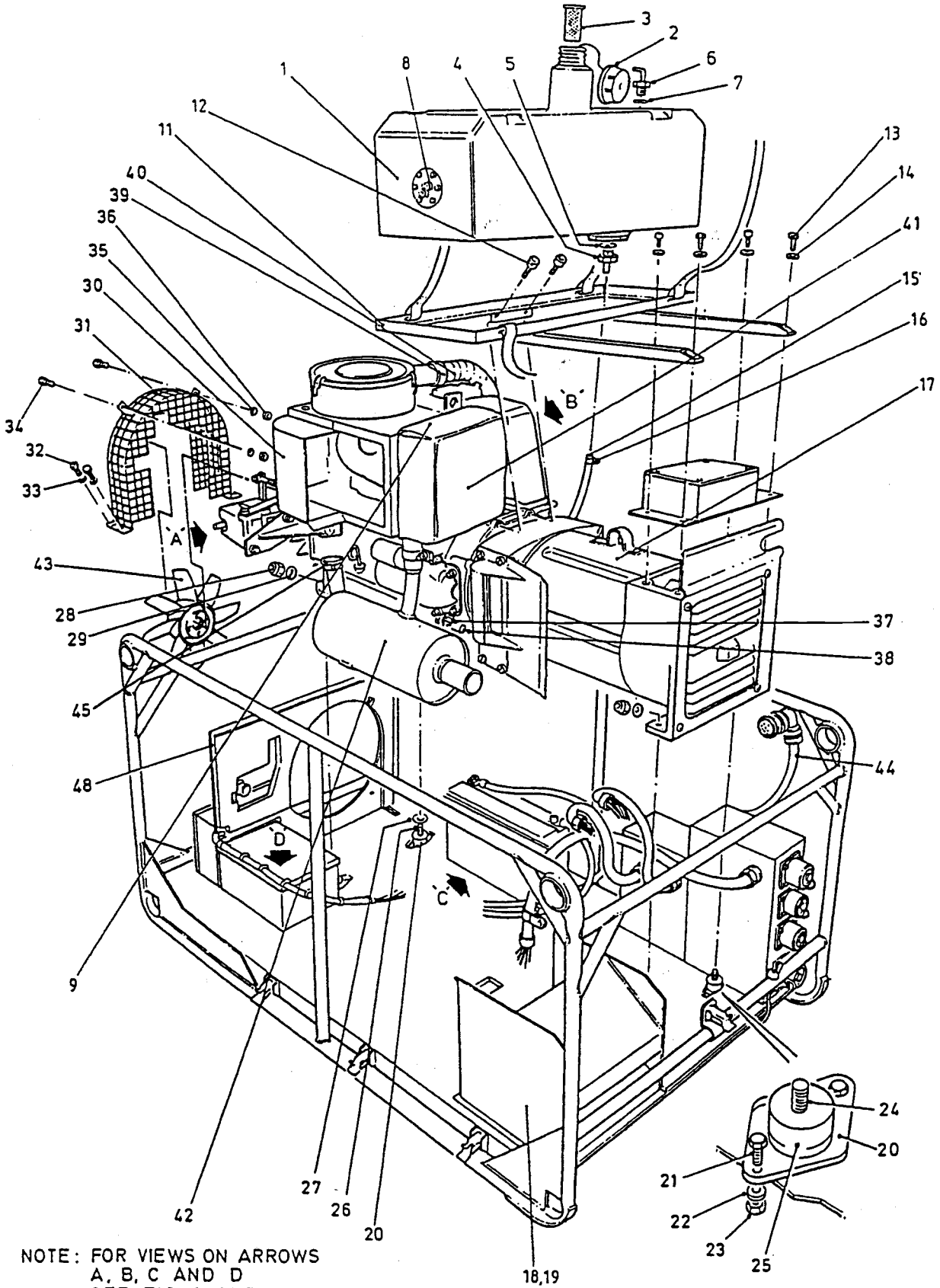


NOTE: FOR VIEWS ON ARROWS  
A, B, C AND D  
SEE FIG. 2 AND 3.

Fig.1 Engine/alternator assembly

| FIG<br>1<br>ITEM | DMC<br>Army | NATO STOCK NUMBER | ITEM NAME AND DESCRIPTION                         | PART NO./<br>DRAWING NO. | NO.<br>OFF | ANNOTATIONS |
|------------------|-------------|-------------------|---|--------------------------|------------|-------------|
| NI               |             |                   | ENGINE/ALTERNATOR ASSY                            | 0-4169/83                | REF        |             |
| 1                | X2          | 2910-99-255-2687  | .TANK, FUEL ENGINE                                | FT/A0-21804              | 1          |             |
| 2                | X2          | 2910-99-255-2688  | ..CAP, FILLER OPENING                             | FT-A3-21812              | 1          |             |
| 3                | X2          | 2910-99-255-2690  | ..STRAINER ELEMENT,<br>SEDIMENT                   | FT-A3-21829              | 1          |             |
| 4                | X2          | 4730-99-349-5180  | .ADAPTOR, STRAIGHT, PIPE<br>TO HOSE               | 3-4169-A/30              | 1          |             |
| 5                | 6MT1        | 5330-99-942-8453  | .GASKET   | AGS 1186B                | 1          |             |
| 6                | X2          | 4730-99-109-8905  | .ADAPTOR, ELBOW, PIPE TO<br>HOSE                  | 3-4169-1/31              | 1          |             |
| 7                | 6MT1        | 5330-99-942-8453  | .GASKET   | AGS 1186B                | 1          |             |
| 8                | X2          | 6680-99-255-2678  | .TRANSMITTER, LIQUID<br>QUANTITY                  | TB 9018 KIT              | 1          |             |
| 9                | X3          | 2815-99-145-9201  | .ENGINE, DIESEL AD2                               | 0-4169-1/83              | 1          |             |
| NI10             |             |                   |   |                          |            |             |
| 11               | X2          | 6115-99-702-4569  | .MOUNTING, FUEL TANK                              | 0-4169-1/21              | 1          |             |
| 12               | G1          | 5305-99-941-8263  | .SCREW, SOCKET HEAD                               | 754058                   | 2          |             |
| 13               |             | NP                | .SCREW, SOCKET HEAD                               | ) Supplied               | 4          |             |
| 14               |             | NP                | .WASHER   | ) with<br>) Alternator   | 4          |             |
| 15               | 6MT6        | 4720-99-643-6319  | .HOSE, RUBBER                                     | SAE100R6 1/4<br>BORE     |            |             |
| 16               | 6MT1        | 4730-99-533-2956  | .CLAMP, HOSE, 12 mm                               | BS 5315                  | 2          |             |
| 17               | X2          | 2815-99-700-3216  | .ALTERNATOR                                       | MT3E                     | 1          | Allam       |
| 18               | X2          | 6115-99-663-8216  | .BAFFLE ASSY, LOWER                               | 0-4169-1/7               | 1          |             |
| 19               |             | NP                | .RIVET, 1/8 in. DIA,<br>snap hd, monel            | AGS 2050-429             | 5          |             |
| 20               | X2          | 5340-99-255-2683  | .MOUNT, RESILIENT                                 | 507-2-N-S                | 4          |             |
| 21               | G1          | 5305-99-941-6548  | .SCREW, MACHINE, 3/4 in.<br>-24 UNF, 3/4 in. lg   | BS 1768                  | 8          |             |
| 22               | G1          | 5310-99-120-4032  | .WASHER, FLAT, 1/4 in.-28                         | BS 3410                  | 8          |             |
| 23               | G1          | 5310-99-941-9139  | .NUT, SELF LOCKING,<br>HEXAGON, 3/8 in.-24 UNF    | PTD126-11-6              | 8          |             |
| 24               | G1          | 5306-99-977-3188  | .BOLT, MACHINE, 3/8 in.-<br>24 UNF X 4 in. lg     | BS 1768                  | 2          |             |
| 25               |             | NP                | .SPACER   | 3-4169-1/14              | 2          |             |
| 26               | G1          | 5306-99-941-0320  | .BOLT, MACHINE, 3/8 in.-<br>24 UNF X 3 1/4 in. lg | BS 1768                  | 2          |             |
| 27               | G1          | 5310-99-477-3891  | .WASHER, FLAT, SIZE 507                           | R 18733-1                | 2          |             |
| 28               | G1          | 5310-99-941-9139  | .NUT, SELF-LOCKING,<br>HEXAGON, 3/8 IN.-24 UNF    | PTD126-11-6              | 4          |             |
| 29               | G1          | 5310-99-139-3568  | .WASHER, FLAT, 3/8 in.-24                         | BS 3410                  | 4          |             |
| 30               |             | NP                | .AIR DEFLECTOR ASSY                               | 1-4169-1/43              | 1          |             |
| 31               | X2          | 4140-99-770-0277  | .FAN GUARD ASSY                                   | 1-4169-1/17              | 1          |             |
| 32               | 3CC         | 5305-99-718-4926  | .SCREW, MACHINE, 10-32<br>UNF x 5/8 in. lg        | S204-5Z                  | 4          |             |
| 33               | G1          | 5310-99-941-8542  | .WASHER, FLAT, 10-32 UNF                          | BS 3410                  | 6          |             |
| 34               | G1          | 5305-99-135-4574  | .SCREW, MACHINE, 10-32<br>UNF PAN HD x 5/8 in. lg | BS 1981                  | 4          |             |
| 35               | G1          | 5310-99-941-8542  | .WASHER, FLAT, 10-32 UNF                          | BS 3410                  | 2          |             |
| 36               | G1          | 5310-99-941-8461  | .NUT, SELF-LOCKING,<br>HEXAGON, 10-32 UNF         | PPX106-11-6              | 8          |             |
| 37               | X3          | 6625-99-777-1704  | .TRANSDUCER, MOTIONAL<br>PICK-UP                  | 70D 1501                 | 1          |             |
| 38               | Z32         | 5930-99-255-2684  | .SWITCH, THERMOSTATIC                             | DCA/ACM/140              | 1          |             |
| 39               | 6MT1        | 4730-99-533-2963  | .CLAMP, HOSE, 40 mm                               | BS 5315                  | 1          |             |
| 40               | Z42         | 5975-99-743-0149  | .CONDUIT, NONMETALLIC<br>FLEXIBLE, 40 mm DIA      | FPY 40 B                 | 1          |             |





NOTE: FOR VIEWS ON ARROWS  
A, B, C AND D  
SEE FIG. 2 AND 3.

Fig.1 Engine/alternator assembly

| FIG<br>1<br>ITEM | DMC<br>Arm<br>y | NATO STOCK NUMBER | ITEM NAME AND DESCRIPTION                      | PART NO/<br>DRAWING NO. | NO.<br>OFF | ANNOTATIONS        |
|------------------|-----------------|-------------------|--|-------------------------|------------|--------------------|
|                  |                 |                   | ENGINE/ALTERNATOR ASSY -<br>continued          |                         |            |                    |
| 41               | X2              | 6115-99-257-4459  | GLOVE SILENCER                                 | 0-4169-1/1<br>Item 138  | 1          |                    |
| 42               | X2              | 2990-99-255-2671  | SILENCER, EXHAUST                              | 1-4169-1/111            | 1          |                    |
| 43               | X2              | 6115-99-008-1076  | FAN  | 275276                  | 1          |                    |
| 44(1)            | X2              | 6150-99-623-8290  | CABLE ASSEMBLY (0.75 m)                        | 1-4169-1/138            | 1          |                    |
| 44(2)            | X2              | 5995-99-255-2666  | CABLE ASSEMBLY, SPECIAL<br>PURPOSE, ELECTRICAL | 1-4169-1/53             | 1          |                    |
| 45               | X3              | 2815-99-202-3184  | CAP, OIL FILTER                                | 257607                  | 1          | Lister/<br>Petters |
| NI 46            | H9              | 9320-99-168-7094  | RUBBER SHEET, SOLID,<br>ACOUSTIC MAT, FLOOR    | PL560/2                 | 1          |                    |
| NI 47            | Y1              | 9905-99-942-9507  | PLATE, MODIFICATION<br>RECORD                  | WTB 111527<br>PART 2    | 1          |                    |
| 48               | X2              | 6115-99-255-2675  | PANEL, BULKHEAD, ACOUSTIC                      | 1-4169-1/82             | 1          |                    |
| NI 49            | X2              | 5340-99-255-2664  | STRAP, WEBBING                                 | 2-4169-1/95             | 1          |                    |
| NI 50            | X2              | 5340-99-255-2663  | STRAP, WEBBING                                 | 2-4169-1/94             | 1          |                    |

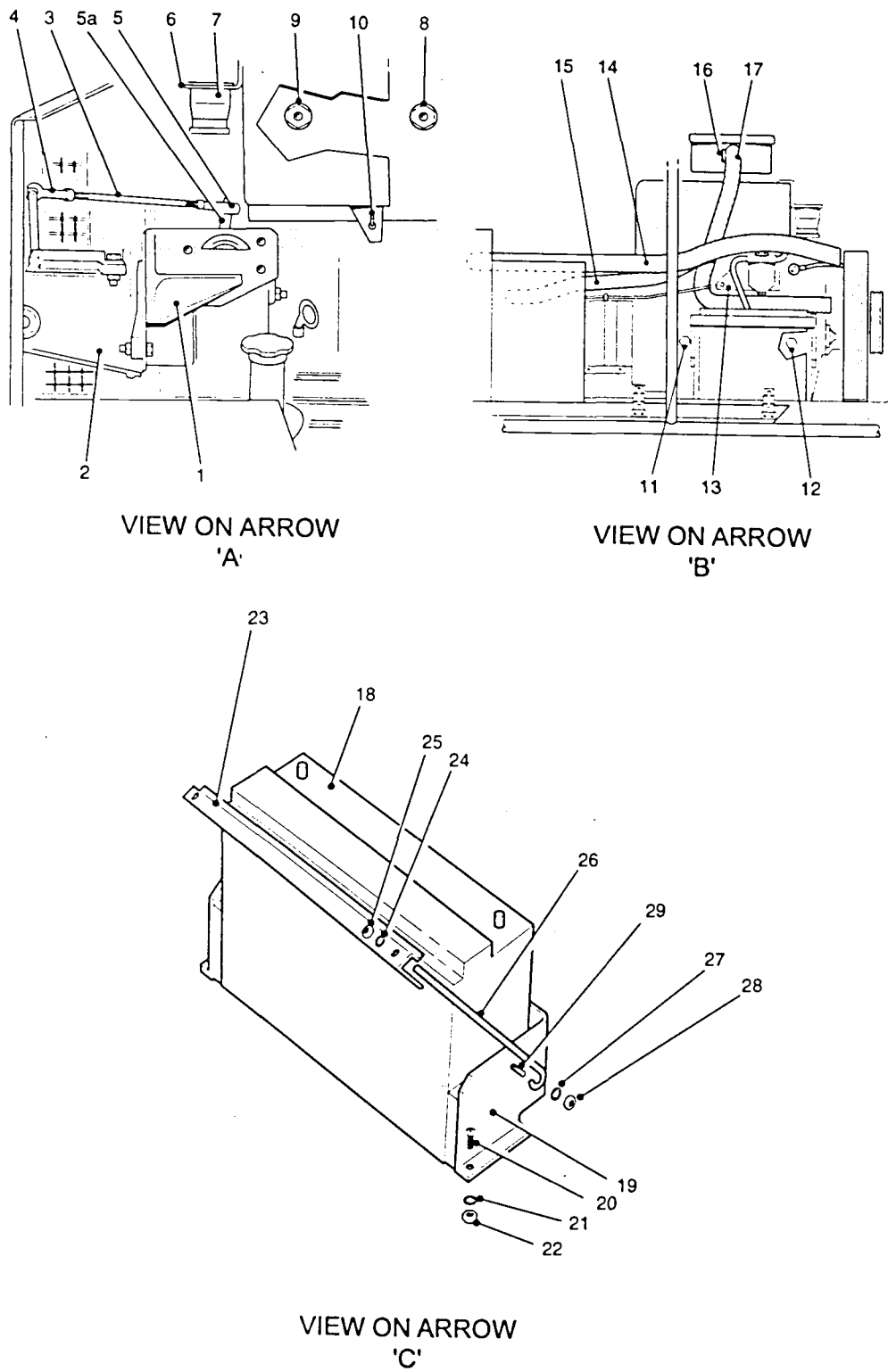


Fig. 2 Engine/alternator assembly - views A, B, and C on Fig. 1

| FIG 2 ITEM | DMC Army | NATO STOCK NUMBER | ITEM NAME AND DESCRIPTION                       | PART NO./ DRAWING NO. | NO. OFF | ANNOTATIONS       |
|------------|----------|-------------------|---|-----------------------|---------|-------------------|
| -          |          |                   | VIEW ON FIGURE 1 ARROW 'A'                      |                       |         |                   |
| 1          |          | NP                | . BRACKET, GOVERNOR MOUNTING                    | 1-4169-1/61           | 1       |                   |
| 2          | X2       | 6115-99-208-5342  | . ACTUATOR                                      | ACB 120               | 1       |                   |
| 3          |          | NP                | . ROD   | 3-4169-1/47           | 1       |                   |
| 4          | Z23      | 3120-99-923-3902  | . BEARING, PLAIN, ROD END                       | RF 4U                 | 1       |                   |
| 5          | X2       | 3040-99-382-5796  | . BALL JOINT                                    | QI 250                | 1       |                   |
| 5a         | X2       | 6115-99-907-6400  | . ACTUATOR LEVER ARM                            | LE 1400-2             | 1       |                   |
| 6          |          | NP                | . BRACKET                                       | 2-4169-1/159          | 1       |                   |
| 7          | X2       | 6645-121-66-2094  | . METER, TIME TOTALIZING                        | 05.29.<br>0004 1      | 1       |                   |
| 8          | Z32      | 5930-99-125-0593  | . SWITCH, THERMOSTATIC, 125° C                  | V13C-F04342           | 1       |                   |
| 9          | Z32      | 5930-99-255-2682  | . SWITCH, THERMSTATIC, 115° C                   | V13C-F04343           | 1       |                   |
| 10         | Z32      | 5930-00-655-4245  | . SWITCH TOGGLE                                 | 2TL1-8                | 1       |                   |
| -          |          |                   | VIEW ON FIGURE 1 ARROW 'B'                      |                       |         |                   |
| 11         | X3       | 5930-99-151-1644  | . SWITCH, PRESSURE (S1)                         | P10199A               | 1       |                   |
| 12         | X3       | 5930-99-770-7146  | . SWITCH, PRESSURE (S2)                         | 363831                | 1       | Lister/<br>Petter |
| 13         |          | NP                | . FILTER MOUNTING BRACKET                       | 3-4169-1/123          | 1       |                   |
| 14         | Z42      | 5975-99-743-0149  | . HOSE, COOLING, ALTERNATOR                     |                       | 1       |                   |
| 15         | Z42      | 5975-99-743-0149  | . HOSE, COOLING, AVR                            |                       | 1       |                   |
| 16         | 6MT1     | 4730-99-533-2963  | . CLAMP, HOSE, 40 mm                            | BS 5315               | 1       |                   |
| 17         | Z42      | 5975-99-743-0149  | . CONDUIT, NONMETALLIC, FLEXIBLE, 40 mm DIA     | FPY 40 B              | 1       |                   |
| -          |          |                   | VIEW ON FIGURE 1 ARROW 'C'                      |                       |         |                   |
| 18         | Z9       | 6140-99-798-9862  | . BATTERY                                       | 9750-0780             | 1       |                   |
| 19         | X2       | 6160-99-454-0361  | . BATTERY TRAY                                  | 0-4169-1/25           | 1       |                   |
| 20         | Z23      | 5305-99-135-4574  | . SCREW, MACHINE, 10-32 UNF, PAN HD, 5/8 in. lg | BS 1981               | 4       |                   |
| 21         |          | NP                | . WASHER, FLAT, 10-32 UNF                       | BS 3410               | 4       |                   |
| 22         | G1       | 5310-99-941-8461  | . NUT, SELF-LOCKING, HEXAGON, 10-32 UNF         | PPX106-11-6           | 4       |                   |
| 23         |          | NP                | . CLAMP, BATTERY                                | 2-4169-1/23           | 1       |                   |
| 24         | G1       | 5310-99-120-4032  | . WASHER, FLAT, 1/4-28                          | BS 3410               | 2       |                   |
| 25         | G1       | 5310-99-120-4982  | . NUT, SELF-LOCKING, HEXAGON, 1/4-20 UNC        | 86-11-6               | 2       |                   |
| 26         |          | NP                | . BATTERY CLAMP ROD                             | 3-4169-1/24           | 2       |                   |
| 27         | G1       | 5310-99-120-4032  | . WASHER, FLAT, 1/4-28                          | BS 3410               | 2       |                   |
| 28         | G1       | 5310-99-139-9423  | . NUT, SELF-LOCKING HEXAGON, 1/4-28 UNF         | FTD086-11-6           | 2       |                   |
| 29         | G1       | 5305-99-120-8076  | . SCREW, MACHINE, 1/4-28 UNF, HEX HD, 1 in. lg  | BS 1768               | 2       |                   |
| 30         | X3       | 3020-99-352-8309  | . PULLEY, ROPE START, 4 x 1/2" HOLE FIXING      | 275231                | 1       |                   |

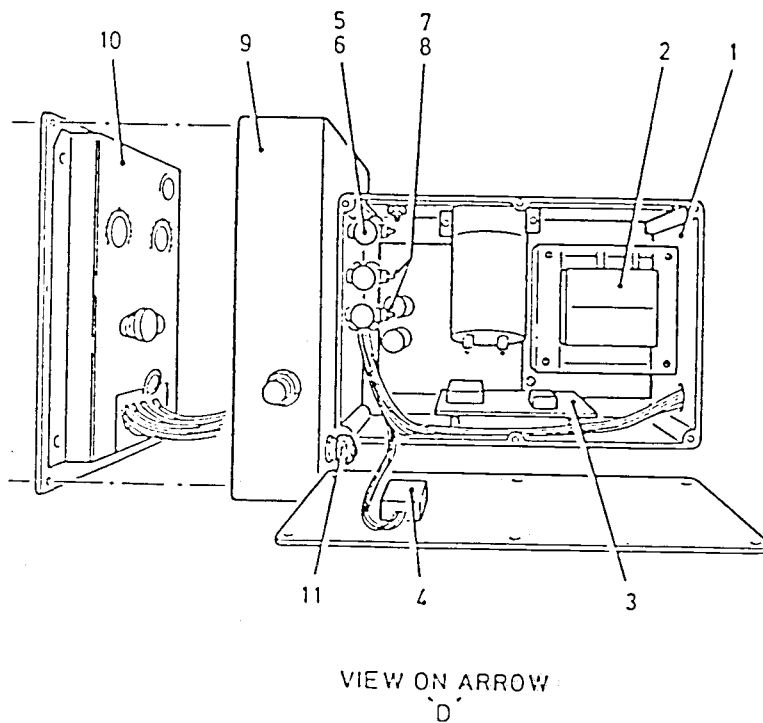


Fig. 3 Engine/alternator assembly - view D on Fig. 1

| FIG<br>3<br>ITEM | DMC<br>Army | NATO STOCK NUMBER | ITEM NAME AND DESCRIPTION                                 | PART NO/<br>DRAWING NO. | NO.<br>OFF | ANNOTATIONS |
|------------------|-------------|-------------------|---|-------------------------|------------|-------------|
| -                |             |                   | VIEW ON FIGURE 1 ARROW 'D'                                |                         |            |             |
| 1                | X2          | 6115-99-131-2075. | BOX, BATTERY CHARGER                                      | 0-4169-1/125            | 1          |             |
| 2                | X2          | 6130-99-255-2679. | POWER SUPPLY/CHARGER<br>MODULE                            | K703 K048               | 1          |             |
| 3                | X2          | 6115-99-255-2680. | OUTPUT CONTROL MODULE                                     | K703 K049               | 1          |             |
| 4                | Z37         | 5945-99-327-7425. | RELAY   | 07-3300-30              | 1          |             |
| 5                | Z31         | 5910-99-649-9992. | CAPACITOR, 1 $\mu$ F, 28 V<br>(FL17, 18, 19 & 20)         | DS 23444                | 4          |             |
| 6                | Z30         | 5905-99-477-1877. | RESISTOR, VOLTAGE<br>SENSITIVE (V17, V18, V19<br>and V20) | ZL 17 F                 | 4          |             |
| 7                | Z30         | 5905-99-150-4141. | RESISTOR, VOLTAGE<br>SENSITIVE (VJ AND VK)                | Z 250 E                 | 2          |             |
| 8                | Z31         | 5910-99-550-9493. | CAPACITOR   | DS 23727                | 2          |             |
| 9                | Z2          | 8115-99-701-1356. | BOX, GOVERNOR   | 1-4169-1/154            | 1          |             |
| 10               | X2          | 2990-01-420-9082. | CONTROL UNIT  | ESC63C-26A              | 1          |             |
| 11               | X2          | 5905-99-591-1509. | RESISTOR, VARIABLE  | CU 6711B                | 1          |             |

**Chapter 2-3-1**

**PARTS LIST**

**ENGINE ASSEMBLY**

**CONTENTS**

**Chapter**

|          |                                       |
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| 2-3-1-2  | Flywheel and Main Bearing             |
| 2-3-1-3  | Cylinder Head and Barrel              |
| 2-3-1-4  | Lubricating Oil Pump and Filter       |
| 2-3-1-5  | Starter Motor and Fixings             |
| 2-3-1-6  | Manifolds                             |
| 2-3-1-7  | Air Cleaner                           |
| 2-3-1-8  | Crankshaft, Connecting Rod and Piston |
| 2-3-1-9  | Crankcase and Sump                    |
| 2-3-1-10 | Fuel System                           |





| FIG<br>1<br>ITEM | DMC<br>Army | NATO STOCK NUMBER | ITEM NAME AND DESCRIPTION  | PART NO./<br>DRAWING NO. | NO.<br>OFF | ANNOTATIONS |
|------------------|-------------|-------------------|--|--------------------------|------------|-------------|
| NI 0             | X3          | 2815-99-145-9201  | ENGINE, DIESEL   | AD2 BUILD<br>STANDARD 28 | REF        |             |
| NI 1             |             | NP                | CAMSHAFT AND GOVERNOR<br>(CHAPTER 2-3-1-1 REFERS)                    |                          | REF        |             |
| NI 2             |             | NP                | FLYWHEEL AND MAIN BEARING<br>(CHAPTER 2-3-1-2 REFERS)                |                          | REF        |             |
| NI 3             |             | NP                | CYLINDER HEAD AND BARREL<br>(CHAPTER 2-3-1-3 REFERS)                 |                          | REF        |             |
| NI 4             |             | NP                | LUBRICATING OIL PUMP AND<br>FILTER (CHAPTER 2-3-1-4)                 |                          | REF        |             |
| NI 5             |             | NP                | STARTER MOTOR AND FIXINGS<br>(CHAPTER 2-3-1-5 REFERS)                |                          | REF        |             |
| NI 6             |             | NP                | MANIFOLDS<br>(CHAPTER 2-3-1-6 REFERS)                                |                          | REF        |             |
| NI 7             |             | NP                | AIR CLEANER<br>(CHAPTER 2-3-1-7 REFERS)                              |                          | REF        |             |
| NI 8             |             | NP                | CRANKSHAFT, CONNECTING<br>ROD AND PISTON<br>(CHAPTER 2-3-1-8 REFERS) |                          | REF        |             |
| NI 9             |             | NP                | CRANKCASE AND SUMP<br>(CHAPTER 2-3-1-9 REFERS)                       |                          | REF        |             |
| NI10             |             | NP                | FUEL SYSTEM<br>(CHAPTER 2-3-1-10 REFERS)                             |                          | REF        |             |
| NI11             | X3          | 4320-99-791-4548  | DECARBONIZING JOINT SET  |                          | 1          |             |

| FIG<br>1<br>ITEM | DMC<br>Army | NATO STOCK NUMBER | ITEM NAME AND DESCRIPTION                        | PART NO./<br>DRAWING NO. | NO.<br>OFF | ANNOTATIONS         |
|------------------|-------------|-------------------|--|--------------------------|------------|---------------------|
| NI               |             | NP                | CAMSHAFT AND GOVERNOR                            |                          | REF        |                     |
| 1                | X3          | 2815-99-257-4226  | . CAMSHAFT, ENGINE                               | 273396                   | 1          |                     |
| 2                | X3          | 2815-99-758-8002  | . THRUST PLATE, CAMSHAFT                         | 347477                   | 1          |                     |
| 3                | 6MT1        | 5315-99-943-5956  | . KEY, WOODRUFF                                  | 792011                   | 1          | )                   |
| 4                |             | NP                | . GEAR WHEEL, AND PINION<br>ASSEMBLY             | 363347                   | 1          | ) Lister/<br>Petter |
| 5                |             | NP                | . CAPSCREW                                       | 363340                   | 1          | )                   |
| 6                |             | NP                | . CAPSCREW                                       | 363063                   | 2          | )                   |
| 7                | X3          | 2815-99-205-0654  | . TAPPET, ENGINE POPPET<br>VALVE                 | 265092                   | 4          | Lister/<br>Petter   |
| 8                |             | NP                | . GOVERNOR ASSEMBLY                              | TBA                      | 1          |                     |
| 9                | G1          | 5305-99-970-6382  | . . SCREW, SOCKET HEAD,<br>1/4 in. UNC x 3/4 in. | 754004                   | 3          |                     |
| 10               | X3          | 2815-99-205-1386  | . . GEAR, SPUR                                   | 266010                   | 1          |                     |
| 11               | G1          | 5310-99-137-8805  | . . NUT, SELF LOCKING,<br>HEX. 1/2 in. UNF       | 747105                   | 1          |                     |
| 12               | X3          | 5315-99-943-5948  | . . KEY, WOODRUFF                                | 792002                   | 1          |                     |
| 13               | 6MT1        | 5365-99-942-5701  | . . RING, RETAINING                              | 784203                   | 1          |                     |

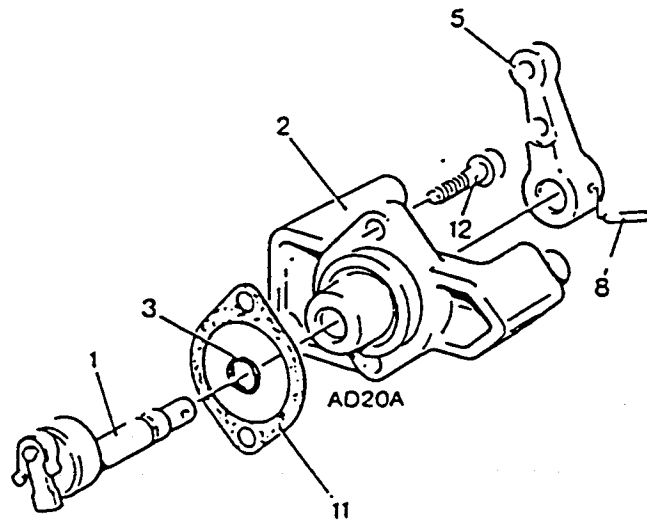


Fig. 2 Stop and run lever

| FIG<br>2<br>ITEM | DMC<br>Army | NATO STOCK NUMBER | ITEM NAME AND DESCRIPTION | PART NO./<br>DRAWING NO. | NO.<br>OFF | ANNOTATIONS |
|------------------|-------------|-------------------|---------------------------|--------------------------|------------|-------------|
| NI               |             | NP                | STOP AND RUN LEVER        |                          | REF        | )           |
| NI               |             | NP                | HOUSING AND SPINDLE ASSY  | 363205                   | 1          | ) Lister/   |
| 1                |             | NP                | SPINDLE ASSEMBLY          | 362238                   | 1          | ) Petter    |
| 2                | X3          | 2815-99-770-7141  | . HOUSING                 | 274425                   | 1          |             |
| 3                | 6MT1        | 5330-99-713-6164  | . RING, SEALING, TOROIDAL | 359981                   | 1          |             |
| NI               |             |                   |                           |                          |            |             |
| 4                |             |                   |                           |                          |            |             |
| 5                |             | NP                | . LEVER                   | 363859                   | 1          | Lister/     |
| NI               |             |                   |                           |                          |            | Petter      |
| 6                |             |                   |                           |                          |            |             |
| NI               |             |                   |                           |                          |            |             |
| 7                |             |                   |                           |                          |            |             |
| 8                | G1          | 5315-99-138-5983  | . PIN, SPRING             | 774204                   | 1          |             |
| NI               |             |                   |                           |                          |            |             |
| 9                |             |                   |                           |                          |            |             |
| NI               |             |                   |                           |                          |            |             |
| 10               |             |                   |                           |                          |            |             |
| 11               | X3          | 5330-99-206-2068  | . GASKET                  | 266017                   | 1          |             |
| 12               |             | NP                | . CAPSCREW                | 754005                   | 1          | Lister/     |
|                  |             |                   |                           |                          |            | Petter      |

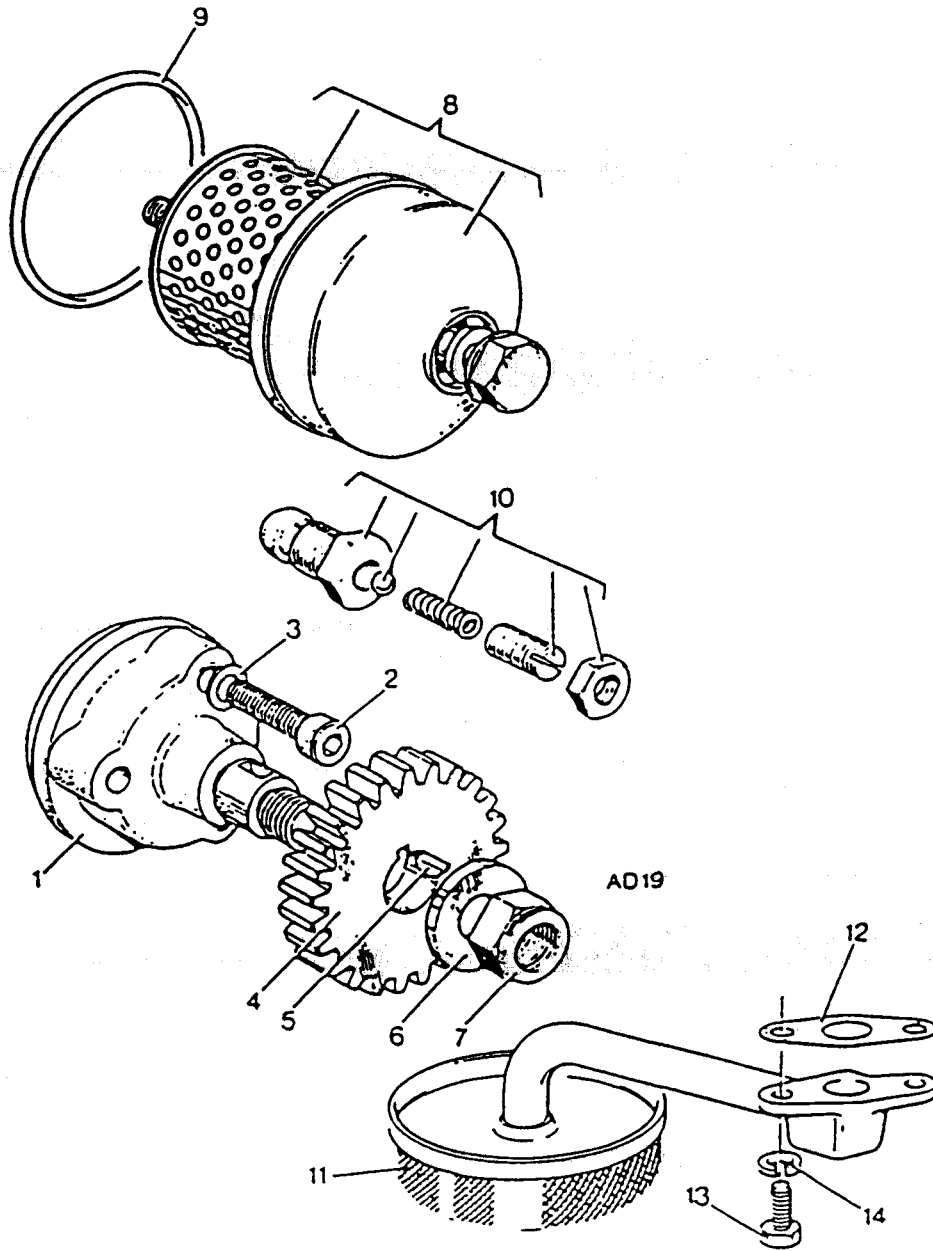


Fig. 3 Lubricating oil pump and filter - exploded view

| FIG<br>3<br>ITEM | DMC<br>Army | NATO STOCK NUMBER | ITEM NAME AND DESCRIPTION                      | PART NO/<br>DRAWING NO. | NO.<br>OFF | ANNOTATIONS |
|------------------|-------------|-------------------|--|-------------------------|------------|-------------|
| NI               |             | NP                | LUBRICATING OIL PUMP AND<br>FILTER             | -                       | REF        |             |
| 1                | X3          | 2910-99-758-8037  | OIL PUMP ASSY                                  | 298011                  | 1          |             |
| 2                | G1          | 5310-99-780-8693  | . SCREW, SOCKET HEAD,<br>1/4 in. UNC x 5/8 in. | 754184                  | 3          |             |
| 3                | G1          | 5310-99-120-4032  | . WASHER, FLAT, 1/4 in.                        | 785011                  | 3          |             |
| 4                | X3          | 4320-99-205-0686  | . GEAR, SPUR                                   | 267381                  | 1          |             |
| 5                | G1          | 5315-99-943-5949  | . KEY, WOODRUFF                                | 792003                  | 1          |             |
| 6                | G1          | 5310-99-941-8635  | . WASHER, FLAT, 3/8 in.                        | 785613                  | 1          |             |
| 7                | G1          | 5310-99-137-6545  | . NUT, SELF LOCKING, HEX.<br>3/8 in. UNF       | 747103                  | 1          |             |
| 8                | X3          | 2940-99-477-5383  | . FILTER, FLUID PRESSURE                       | 360981                  | 1          |             |
| NI               | X3          | 2940-99-752-3342  | . . FILTER ELEMENT, FLUID<br>PRESSURE          | 393204                  | 1          |             |
| 9                | 6MT1        | 5330-99-791-1640  | . . RING, SEALING,<br>TOROIDAL                 | 360983                  | 1          |             |
| 10               | X3          | 4320-99-205-1651  | . VALVE, RELIEF, OIL PUMP                      | 347638                  | 1          |             |
| 11               | X3          | 2940-99-758-8038  | . STRAINER ASSEMBLY, DIESEL<br>FUEL OIL        | 294326                  | 1          |             |
| 12               | X3          | 5330-99-759-3354  | . GASKET                                       | 344636                  | 1          |             |
| 13               | G1          | 5305-99-941-1168  | . SCREW, MACHINE,<br>1/4 in. UNC x 3/4 in.     | 752025                  | 2          | Lister/     |
| 14               |             | NP                | . SPRING WASHER                                | 786028                  | 2          | Petter      |

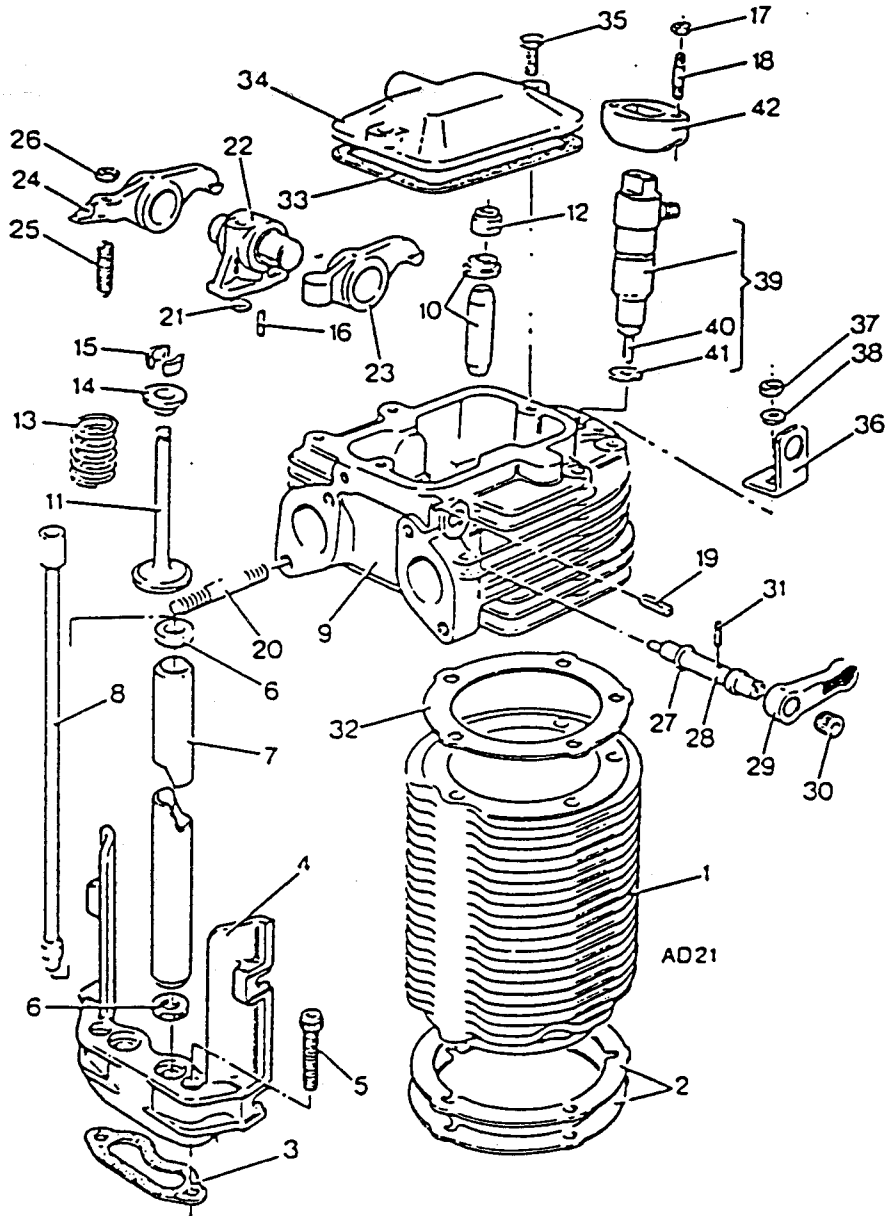


Fig. 4 Cylinder head and barrel - exploded view

| FIG<br>4<br>ITEM | DMC<br>Army | NATO STOCK NUMBER | ITEM NAME AND DESCRIPTION                     | PART NO/<br>DRAWING NO. | NO.<br>OFF | ANNOTATIONS       |
|------------------|-------------|-------------------|---|-------------------------|------------|-------------------|
| NI               |             | NP                | CYLINDER HEAD AND BARREL                      | -                       | REF        |                   |
| 1                | X3          | 2815-99-787-7832  | . CYLINDER BLOCK, DIESEL ENGINE               | 272523                  | 2          |                   |
| 2                | X3          | 5365-99-787-7833  | . SHIM, 0.38 mm                               | 362013                  | 2          |                   |
| NI               | X3          | 5365-99-787-7834  | . SHIM, 0.25 mm                               | 360718                  | 2          |                   |
| 3                | X3          | 5330-99-796-4904  | . GASKET                                      | 360737                  | 2          |                   |
| 4                | X3          | 2815-99-257-4219  | . HOUSING, PUSH ROD TUBE                      | 274177                  | 2          |                   |
| 5                | G1          | 5305-99-941-6968  | . SCREW, SOCKET HEAD, 1/4 in. UNC x 1 1/2 in. |                         | 5          |                   |
| 6                | X3          | 5310-99-205-0265  | . WASHER, FLAT                                | 754008                  | 8          |                   |
| 7                | X3          | 2815-99-787-7845  | . TUBE, PUSH ROD HOUSING                      | 318514                  | 4          |                   |
| 8                | X3          | 2815-99-787-7846  | . PUSH ROD, ENGINE POPPET VALVE               | 360705                  | 4          |                   |
| NI               | X3          | 2815-99-770-0075  | . CYLINDER HEAD, DIESEL ENGINE                | 360704                  | 2          |                   |
| 9                |             | NP                | . . CYLINDER HEAD                             | 363844                  | 2          |                   |
| 10               | X3          | 2815-99-790-3137  | . . GUIDE, ENGINE POPPET VALVE                | -                       | 2          | Lister/<br>Petter |
| 11               | X3          | 2815-99-791-4553  | . . VALVE, POPPET, ENGINE                     | 364533                  | 4          |                   |
| 12               | X3          | 5330-99-789-3451  | . . OIL SEAL                                  | 360709                  | 4          |                   |
| 13               | X3          | 5300-99-207-2989  | . . SPRING, HELICAL, COMPRESSION              | 358693                  | 2          |                   |
| 14               | X3          | 2815-99-207-2990  | . . LOCK, VALVE SPRING RETAINER               | 330204                  | 4          |                   |
| 15               | X3          | 2990-99-206-2060  | . . COLLET, SPLIT                             | 330241                  | 4          |                   |
| 16               | G1          | 5315-99-202-1357  | . . PIN, SPRING                               | 359401                  | 4          |                   |
| 17               | G1          | 5310-99-941-0924  | . . NUT, PLAIN, HEXAGON, 1/4 in. UNF          | 774122                  | 2          |                   |
| 18               | X3          | 3530-99-770-7159  | . . STUD, PLAIN, 1/4 in. UNF x 2 in. lg       | 746606                  | 4          |                   |
| 19               | Z88         | 5315-99-791-6291  | . . PIN, SPRING                               | 762609                  | 4          |                   |
| 20               | G1          | 5307-99-120-3551  | . . STUD, PLAIN, 5/16 in. UNF x 5/16 in. lg   | 774160                  | 2          |                   |
| 21               | X3          | 5330-99-209-9078  | . . RING, SEALING, TOROIDAL                   | 762633                  | 8          |                   |
| 22               | X3          | 2815-99-209-8046  | . BRACKET, ROCKER SHAFT                       | 355176                  | 2          |                   |
| 23               | X3          | 2815-99-783-2394  | . ROCKER ARM, ENGINE POPPET VALVE             | 355177                  | 2          |                   |
| 24               | X3          | 2815-99-790-3136  | . ROCKER ARM, ENGINE POPPET VALVE             | 359672                  | 2          |                   |
| 25               | X3          | 2815-99-205-0639  | . SCREW, ADJUSTING TAPPET                     | 359673                  | 2          |                   |
| 26               | G1          | 5310-99-941-0836  | . NUT, PLAIN HEXAGON                          | 266039                  | 4          |                   |
| 27               | Z88         | 5330-99-539-0064  | . RING, SEALING, TOROIDAL                     | 746006                  | 4          |                   |
| 28               | X3          | 2815-99-205-0656  | . SHAFT, SHOULDERED                           | 266003                  | 2          |                   |
| 29               | X3          | 2815-99-783-2393  | . LEVER, REMOTE CONTROL                       | 267354                  | 2          |                   |
| 30               | X3          | 5340-99-205-1644  | . RING, TOLERANCE                             | 361129                  | 2          |                   |
| 31               | G1          | 5315-99-202-1357  | . PIN, SPRING                                 | 268102                  | 2          |                   |
| 32               | X3          | 5330-99-796-4902  | . GASKET                                      | 774122                  | 2          |                   |
| 33               | X3          | 5330-99-208-9399  | . GASKET                                      | 360712                  | 2          |                   |
| 34               | X3          | 2815-99-617-3316  | . COVER, ROCKER, ENGINE                       | 350031                  | 2          |                   |
| 35               | G1          | 5305-99-941-0687  | . SCREW, MACHINE, 1/4 in. UNC x 3/4 in.       | 275163                  | 2          |                   |
| 36               | X3          | 2815-99-205-1606  | . BRACKET, LIFTING                            | 752625                  | 4          |                   |
| 37               | G1          | 5310-99-124-4450  | . NUT, PLAIN, HEXAGON, 5/16 in. UNF           | 266428                  | 2          |                   |
| 38               | G1          | 5310-99-941-8386  | . WASHER, FLAT, 5/16 in.                      | 746028                  | 2          |                   |
| 39               | X3          | 2910-99-796-4901  | . NOZZLE, FUEL, PRESSURE ATOMIZING            | 785612                  | 2          |                   |
| 40               | 6MT12       | 4320-99-791-4552  | . . NOZZLE, LONG TYPE                         | 362220                  | 2          |                   |
| 41               | X3          | 5310-99-791-9399  | . . WASHER, FLAT                              | 360740                  | 2          |                   |
| 42               | X3          | 2910-99-798-4249  | . CLAMP, INJECTOR                             | 361296                  | 2          |                   |
|                  |             |                   |   | 362215                  | 2          |                   |



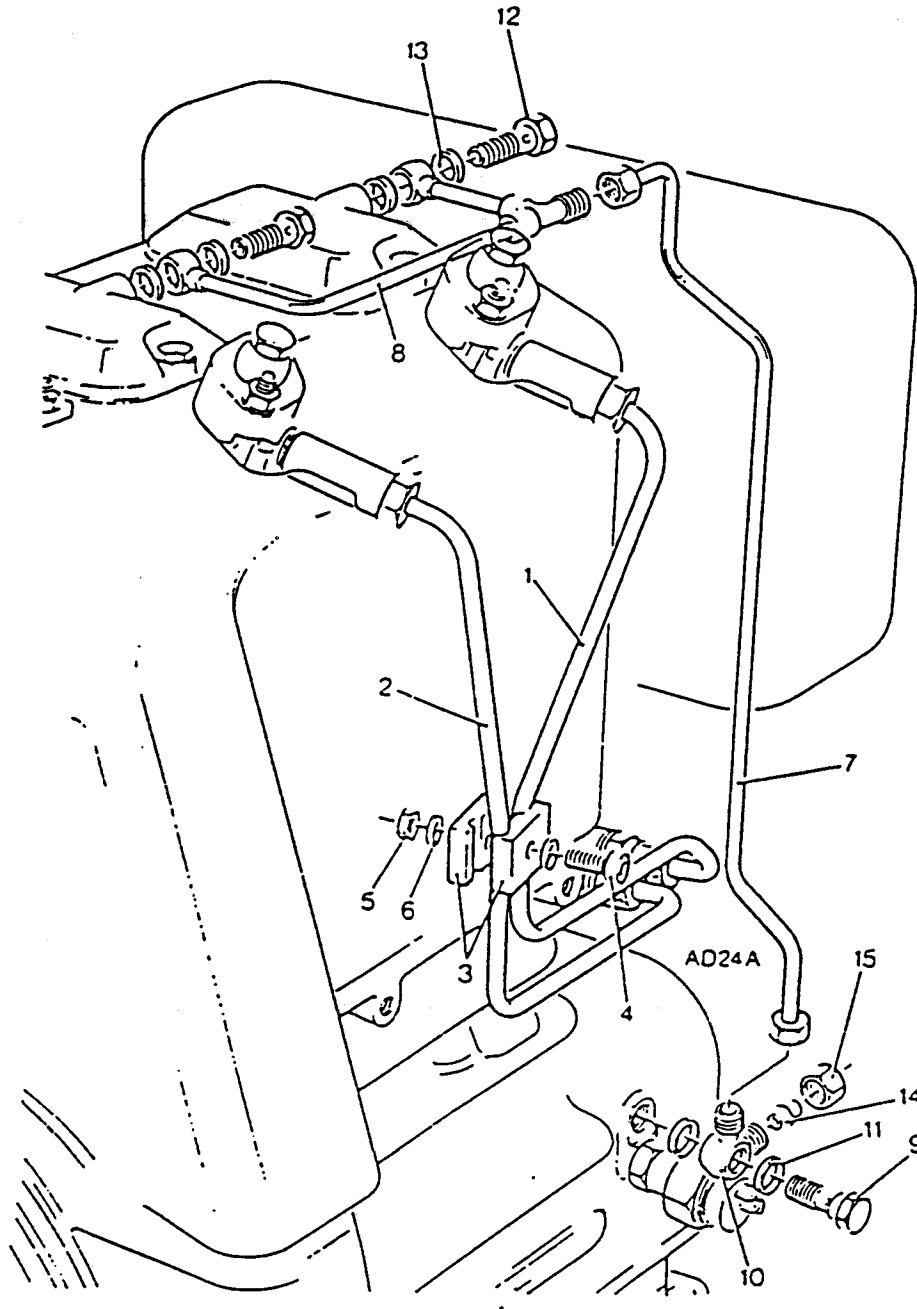
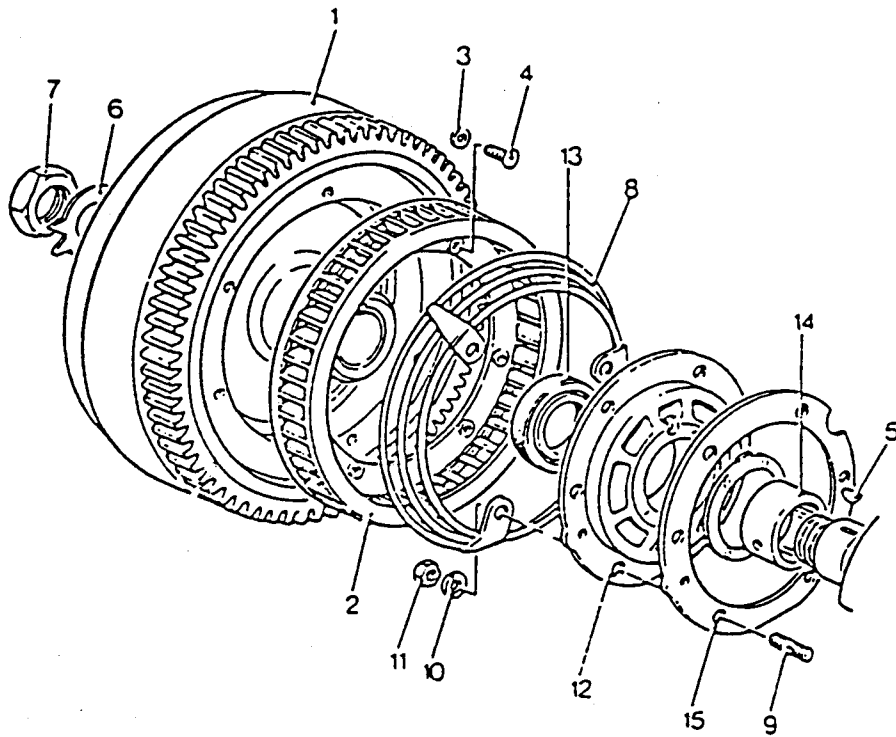


Fig. 5 Fuel and oil pipes - exploded view

| FIG<br>5<br>ITEM | DMC<br>Army | NATO STOCK NUMBER | ITEM NAME AND DESCRIPTION                          | PART NO./<br>DRAWING NO. | NO.<br>OFF | ANNOTATIONS       |
|------------------|-------------|-------------------|--|--------------------------|------------|-------------------|
| NI               |             | NP                | FUEL AND OIL PIPES                                 | -                        | REF        |                   |
| 1                | X3          | 2910-99-257-4229  | . PIPE ASSEMBLY, FUEL,<br>No. 1 Cyl.               | 274895                   | 1          |                   |
| 2                | X3          | 2910-99-257-4230  | . PIPE ASSEMBLY, FUEL,<br>No. 2 Cyl.               | 274896                   | 1          |                   |
| 3                | X3          | 2910-99-102-4256  | . DAMPER, FUEL PIPE                                | 256366                   | 2          |                   |
| 4                |             | NP                | . CAPSCREW   | 714010                   | 1          | )Lister/          |
| 5                |             | NP                | . NUT  | 716601                   | 1          | )Petter           |
| 6                | G1          | 5310-99-941-8569  | . WASHER, FLAT, 5 mm                               | 785605                   | 2          |                   |
| 7                |             | NP                | . PIPE LUBRICATING ROCKER<br>FEED - From Crankcase | 275151                   | 1          | )Lister/          |
| 8                |             | NP                | . PIPE LUBRICATING ROCKER<br>FEED - To Rockers     | 364806                   | 1          | )Petter           |
| 9                | X3          | 4730-99-752-3323  | . BOLT, FLUID PRESSURE                             | 362660                   | 1          | )                 |
| 10               |             | NP                | . SWIVEL UNION - Crankcase                         | 364796                   | 1          | Lister/<br>Petter |
| 11               | X3          | 5310-99-142-6892  | . WASHER, FLAT                                     | 843104                   | 2          |                   |
| 12               | X3          | 4730-99-205-1296  | . BOLT, FLUID PASSAGE                              | 323079                   | 2          |                   |
| 13               | X3          | 5310-99-206-7956  | . WASHER, FLAT                                     | 843103                   | 4          |                   |
| 14               | X3          | 2910-99-202-2602  | . SEAL, PIPE                                       | 257643                   | 1          |                   |
| 15               | X3          | 4730-99-202-2603  | . NUT, UNION PIPE                                  | 251708                   | 1          |                   |



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Fig. 6 Flywheel and main bearing housing - exploded view

| FIG<br>6<br>ITEM | DMC<br>Army | NATO STOCK NUMBER | ITEM NAME AND DESCRIPTION                                 | PART NO./<br>DRAWING NO. | NO.<br>OFF | ANNOTATIONS       |
|------------------|-------------|-------------------|---|--------------------------|------------|-------------------|
| 1                |             | NP                | FLYWHEEL AND MAIN BEARING HOUSING                         | -                        | REF        |                   |
| NI               |             | NP                | . GEAR RING   | 294143                   | 1          | Lister/<br>Petter |
| 2                | X3          | 2930-99-257-4221  | . FAN, ENGINE COOLING                                     | 274894                   | 1          |                   |
| 3                | X3          | 5310-99-770-7161  | . WASHER, FLAT, 5 mm                                      | 785351                   | 6          |                   |
| 4                | X3          | 5305-99-770-7161  | . SCREW, MACHINE, 12-32 UNF<br>x 1/2 in.                  | 740638                   | 6          |                   |
| 5                |             | NP                | . KEY   | 790112                   | 1          | Lister/<br>Petter |
| 6                | X3          | 5310-99-746-6975  | . WASHER, KEY   | 350481                   | 1          |                   |
| 7                | X3          | 5310-99-135-2455  | . NUT, PLAIN, HEXAGON,<br>1 1/4 in. UNF                   | 265093                   | 1          |                   |
| 8                | X3          | 2815-99-758-5061  | . SCREEN, FLYWHEEL  | 294913                   | 1          |                   |
| 9                | X3          | 5307-99-016-7546  | . STUD, FUEL PUMP   | 363065                   | 6          |                   |
| 10               | G1          | 5310-99-941-8623  | . WASHER, FLAT, 5/16 in.                                  | 785012                   | 6          |                   |
| 11               | G1          | 5310-99-928-0536  | . NUT, SELF-LOCKING,<br>HEXAGON, 5/16 in. UNF             | 747102                   | 6          |                   |
| 12               | X3          | 2815-99-208-4612  | . HOUSING, BEARING FLYWHEEL                               | 273120                   | 1          |                   |
| 13               | X3          | 5330-99-257-4222  | . SEAL, PLAIN, ENCASED                                    | 363686                   | 1          |                   |
| 14               | X3          | 3120-99-790-3139  | . BEARING, SLEEVE   | 355607                   | 1          |                   |
| 14(1)            | X3          | 3120-99-792-4411  | . . BEARING, SLEEVE -<br>0.25 mm u/s (Not<br>illustrated) | 360669                   | 1          |                   |
| 14(2)            | X3          | 3120-99-752-3237  | . . BEARING, SLEEVE -<br>0.51 mm u/s (Not<br>illustrated) | 360670<br>361871         | 1<br>1     |                   |
| 15               | X3          | 5330-99-792-4410  | . GASKET  |                          |            |                   |

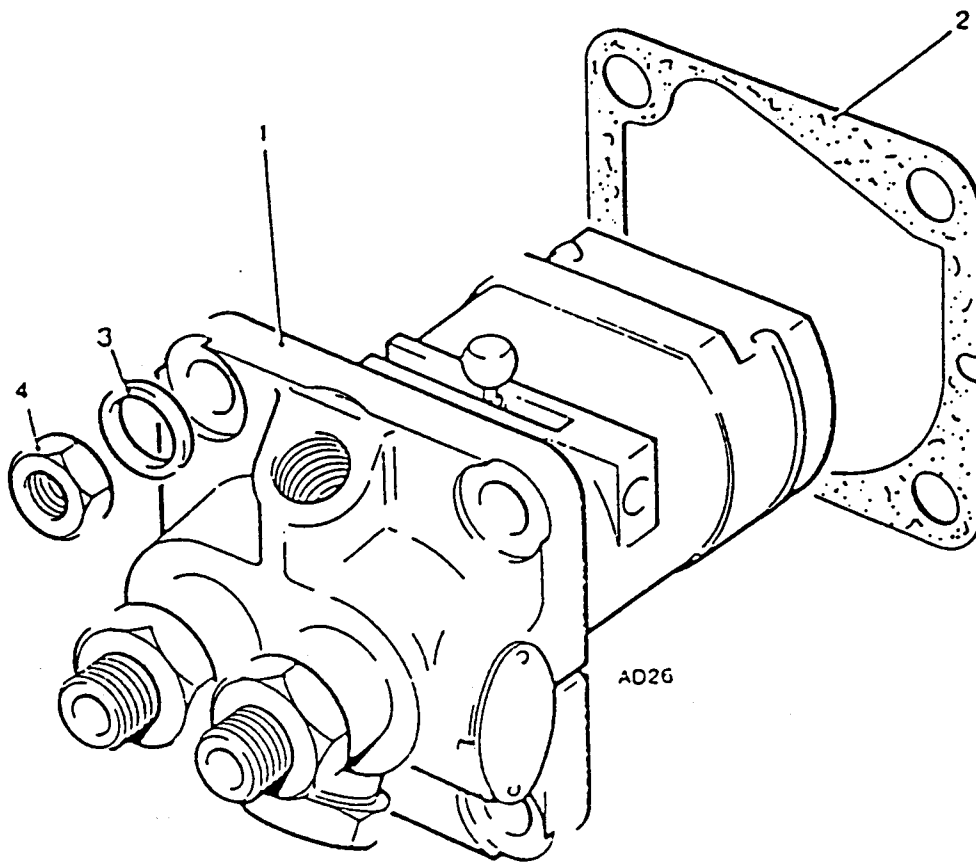
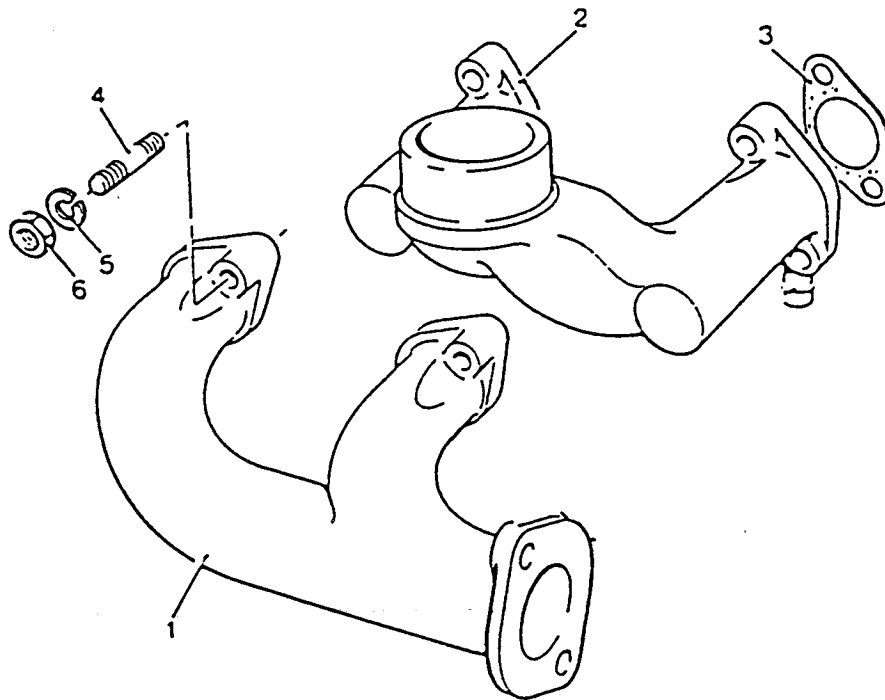


Fig. 7 Pump, fuel, metering and distribution - exploded view

| FIG<br>7<br>ITEM | DMC<br>Army | NATO STOCK NUMBER | ITEM NAME AND DESCRIPTION                  | PART NO./<br>DRAWING NO. | NO.<br>OFF | ANNOTATIONS |
|------------------|-------------|-------------------|--|--------------------------|------------|-------------|
| 1                | X3          | 2910-99-758-1698  | . PUMP, FUEL, METERING AND<br>DISTRIBUTING | 299700                   | 1          |             |
| 2                | X3          | 5365-99-758-8051  | . . SHIM - 0.0025 in.                      | 347720                   | A/R        |             |
| 2(1)             | X3          | 5365-99-758-8052  | . . SHIM - 0.005 in.                       | 347721                   | A/R        |             |
| 2(2)             | X3          | 5365-99-758-8053  | . . SHIM - 0.025 in.                       | 347722                   | A/R        |             |
| 2(3)             | X3          | 5365-99-758-8054  | . . SHIM - 0.005 in.                       | 360092                   | A/R        |             |
| 3                | G1          | 5310-99-305-3389  | . . WASHER, LOCK                           | 786029                   | 4          |             |
| 4                | G1          | 5310-99-941-0925  | . . NUT, PLAIN, HEXAGON,<br>5/16 in. UNF   | 746607                   | 4          |             |



AD25

Fig. 8 Manifolds - exploded view

| FIG<br>8<br>ITEM | DMC<br>Army | NATO STOCK NUMBER | ITEM NAME AND DESCRIPTION                    | PART NO./<br>DRAWING NO. | NO.<br>OFF | ANNOTATIONS |
|------------------|-------------|-------------------|--|--------------------------|------------|-------------|
| NI               |             |                   | MANIFOLDS                                    | -                        | REF        |             |
| 1                |             | NP                | . MANIFOLD, EXHAUST, ENGINE                  | 273358                   | 1          | )Lister/    |
| 2                |             | NP                | . MANIFOLD, INDUCTION,<br>ENGINE             | 364963                   | 1          | )Petter     |
| 3                | W3          | 5330-99-205-1864  | . . GASKET                                   | 266086                   | 4          | )           |
| 4                | G1          | 5307-99-120-3551  | . . STUD, PLAIN, 5/16 in.<br>UNF x 1 5/8 in. | 762633                   | 8          |             |



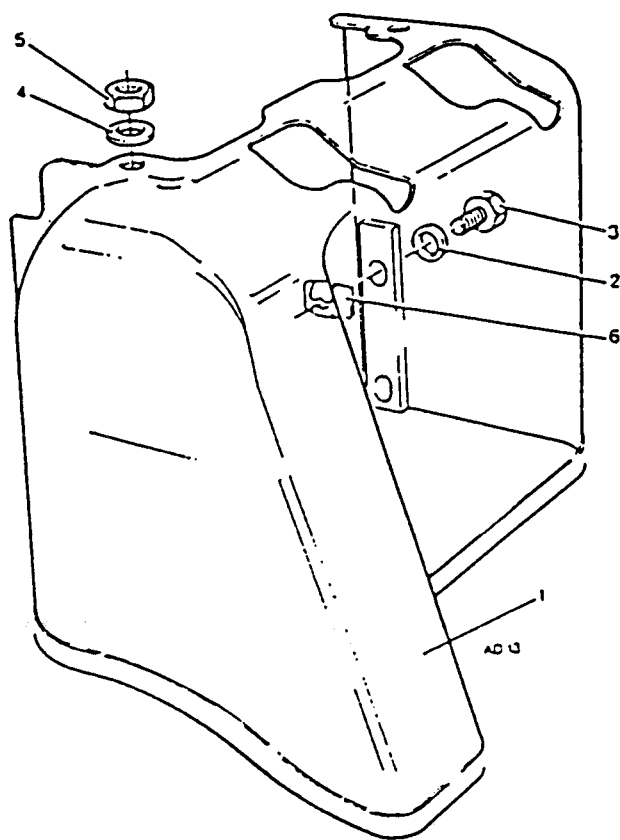


Fig. 9 Cowling - exploded view

| FIG<br>9<br>ITEM | DMC<br>Army | NATO STOCK NUMBER      | ITEM NAME AND DESCRIPTION                        | PART NO./<br>DRAWING NO. | NO.<br>OFF | ANNOTATIONS       |
|------------------|-------------|------------------------|--|--------------------------|------------|-------------------|
| NI               | 1 X3        | NP<br>2815-99-587-9863 | COWLING<br>. COWLING (Includes cowling<br>strip) | -<br>275140              | REF<br>1   |                   |
| NI               | 2           | NP                     | . . COWLING STRIP                                | 362706                   | 1          | )Lister/          |
|                  | 3           | NP                     | . . WASHER                                       | 363250                   | 4          | )Petter           |
|                  | 4 G1        | NP<br>5310-99-941-8386 | . . SETSCREW                                     | 363248                   | 4          | )                 |
|                  | 5 G1        | 5310-99-941-8386       | . . WASHER, FLAT, 5/16 in.                       | 785612                   | 2          |                   |
|                  | 6           | NP                     | . . NUT, PLAIN, HEXAGON,<br>5/16 in. UNF         | 746028                   | 2          |                   |
|                  |             |                        | . . NUT, CAPTIVE                                 | 363249                   | 4          | Lister/<br>Petter |

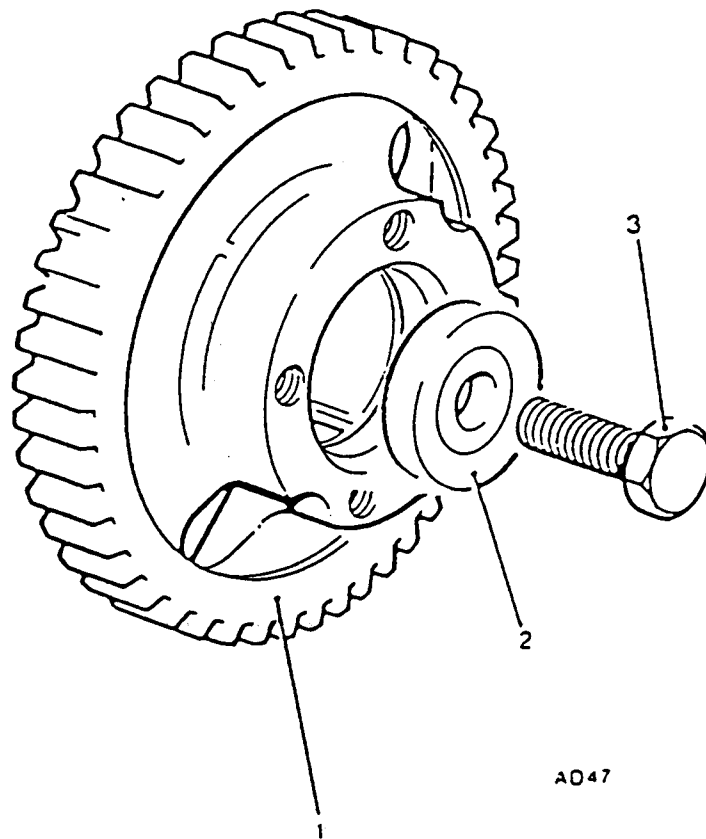


Fig. 10 Camshaft - exploded view

| FIG<br>10<br>ITEM | DMC<br>Army | NATO STOCK NUMBER | ITEM NAME AND DESCRIPTION                     | PART NO./<br>DRAWING NO. | NO.<br>OFF        | ANNOTATIONS |
|-------------------|-------------|-------------------|---|--------------------------|-------------------|-------------|
| NI                | 1 AX3       | NP                | CAMSHAFT<br>. GEAR, SPUR                      | -                        | REF               |             |
|                   |             | 3020-99-207-2291  |   | 330238                   | 1                 |             |
|                   | NP          | . WASHER          | 266392  | 1                        | Lister/<br>Petter |             |
|                   | 3 X3        | 5306-99-770-0091  | . BOLT, SELF-LOCKING,<br>5/16 in. UNF x 1 in. | 363064                   | 1                 |             |

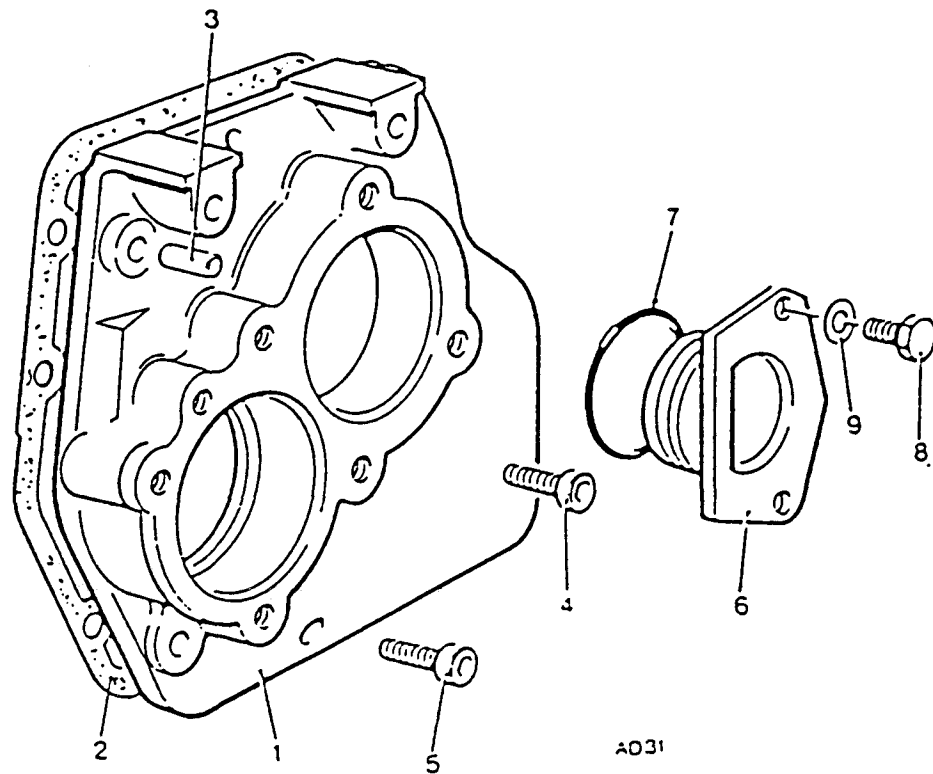
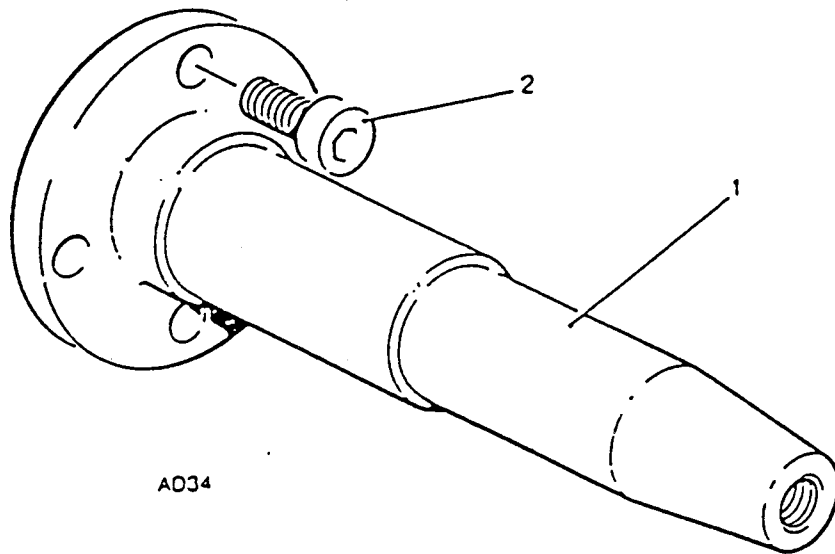


Fig. 11 Gear end cover - exploded view

| FIG<br>11<br>ITEM | DMC<br>Army | NATO STOCK NUMBER | ITEM NAME AND DESCRIPTION                         | PART NO./<br>DRAWING NO. | NO.<br>OFF | ANNOTATIONS |
|-------------------|-------------|-------------------|---|--------------------------|------------|-------------|
| NI                |             |                   | GEAR END COVER                                    | -                        | REF        |             |
| 1                 | X3          | 2815-99-205-0701  | . HOUSING, MECHANICAL<br>DRIVE                    | 299997                   | 1          |             |
| 2                 | X3          | 2815-99-206-2062  | . JOINT, COVER, GEAR                              | 197148                   | 1          |             |
| 3                 | X3          | 5315-99-205-1433  | . PIN, STRAIGHT HEADLESS                          | 266395                   | 2          |             |
| 4                 | G1          | 5305-99-970-6382  | . SCREW, SOCKET HEAD,<br>1/4 in. UNC x 3/4 in. lg | 754004                   | 7          |             |
| 5                 | G1          | 5305-99-941-6968  | . SCREW, SOCKET HEAD,<br>1/4 in. UNC x 1 1/2 in.  | 754008                   | 1          |             |
| 6                 | X3          | 2815-99-787-7819  | . PLUG, GEAR COVER                                | 272362                   | 1          |             |
| 7                 | X3          | 5330-99-791-6290  | . RING, SEALING, TOROIDAL                         | 359929                   | 1          |             |
| 8                 | G1          | 5305-99-941-0698  | . SCREW, MACHINE, 5/16 in.<br>UNC x 3/4 in. lg    | 752647                   | 2          |             |
| 9                 | G1          | 5310-99-941-8386  | . WASHER, FLAT                                    | 785612                   | 2          |             |

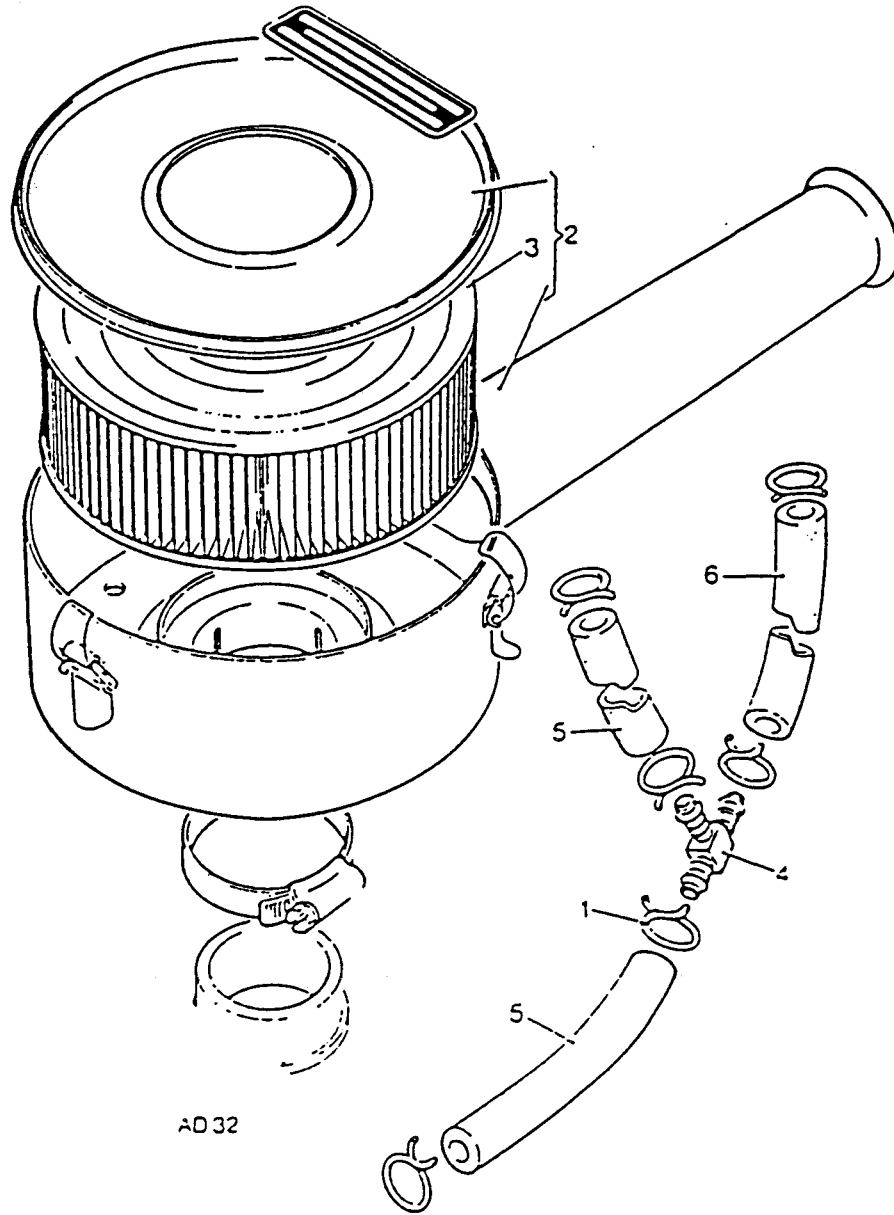


A034

Fig. 12 Shaft extension kit

| FIG<br>12<br>ITEM | DMC<br>Army | NATO STOCK NUMBER            | ITEM NAME AND DESCRIPTION                               | PART NO./<br>DRAWING NO.    | NO.<br>OFF  | ANNOTATIONS       |
|-------------------|-------------|------------------------------|---|-----------------------------|-------------|-------------------|
| NI<br>1<br>2      | X3          | NI<br>2815-99-257-4232<br>NP | SHAFT EXTENSION KIT<br>. SHAFT, EXTENSION<br>. CAPSCREW | Code B1<br>361613<br>360854 | 1<br>1<br>4 | Lister/<br>Petter |





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Fig. 13 Air cleaner kit

| FIG<br>13<br>ITEM | DMC<br>Army | NATO STOCK NUMBER | ITEM NAME AND DESCRIPTION        | PART NO./<br>DRAWING NO. | NO.<br>OFF | ANNOTATIONS |
|-------------------|-------------|-------------------|----------------------------------|--------------------------|------------|-------------|
| NI                |             | NP                | AIR CLEANER KIT<br>(Medium Duty) | Code AC                  | 1          |             |
| 1                 | X3          | 5340-99-205-1366  | . CLAMP, LOOP                    | 347258                   | 6          |             |
| 2                 | X3          | 2815-99-083-2571  | . AIR CLEANER                    | 366-07028                | 1          |             |
| 3                 | X3          | 2910-99-794-3814  | . FILTER ELEMENT                 | 366-07188                | 1          |             |
| 4                 |             | NP                | . TEE                            | 363921                   | 1          | )Lister/    |
| 5                 |             | NP                | . PIPE, BREATHER                 | 830791                   | 2          | )Petter     |
| 6                 | X3          | 2815-99-792-8443  | . TUBING, RUBBER                 | 830803                   | 1          |             |

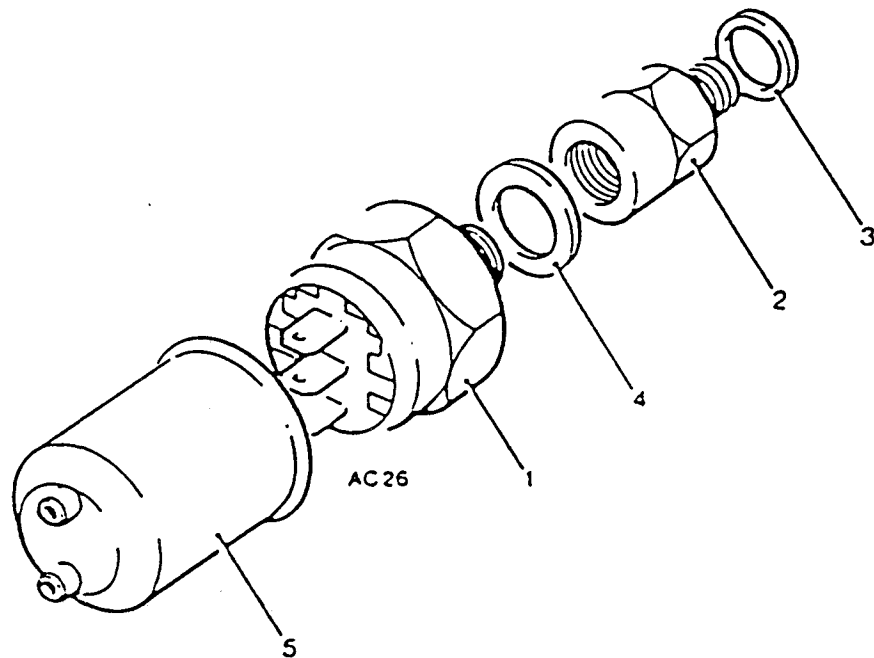


Fig. 14 Low oil pressure switch kit

| FIG<br>14<br>ITEM | DMC<br>Army | NATO STOCK NUMBER | ITEM NAME AND DESCRIPTION          | PART NO./<br>DRAWING NO. | NO.<br>OFF | ANNOTATIONS       |
|-------------------|-------------|-------------------|------------------------------------|--------------------------|------------|-------------------|
| NI                |             | NP                | LOW OIL PRESSURE SWITCH<br>KIT     | Code JA                  | 1          |                   |
| 1                 |             | NP                | . PRESSURE SWITCH                  | 363831                   | 1          | )Lister/          |
| 2                 |             | NP                | . ADAPTOR                          | 361712                   | 1          | )Petter           |
| 3 X3              |             | 5310-99-142-6892  | . WASHER, FLAT                     | 843104                   | 1          |                   |
| 4 X3              |             | 5310-99-618-5102  | . WASHER, FLAT, COPPER,<br>1/2 in. | 843105                   | 1          |                   |
| 5                 |             | NP                | . GAITER                           | 355149                   | 1          | Lister/<br>Petter |

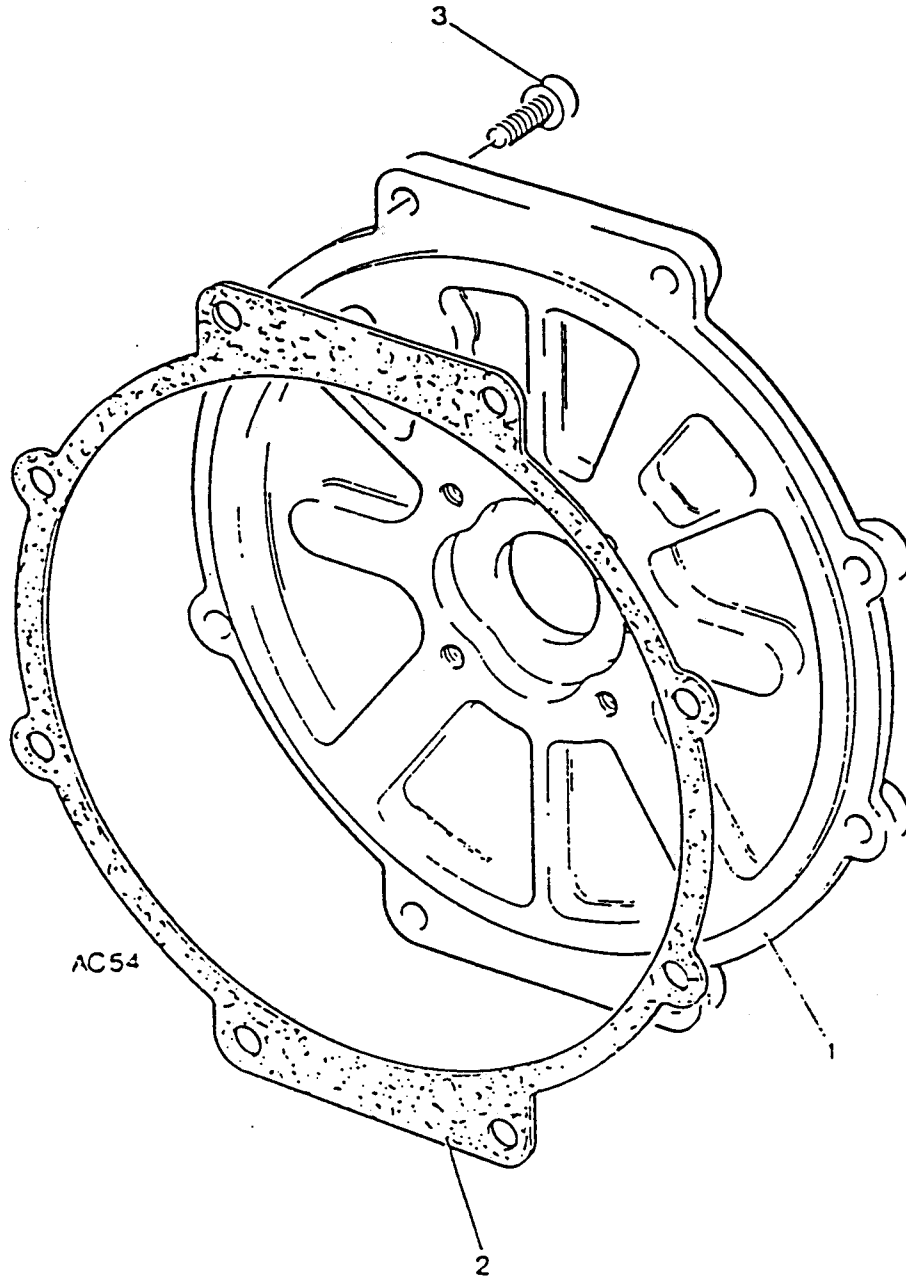


Fig. 15 Flywheel end adaptor - exploded view

| FIG<br>15<br>ITEM | DMC<br>Army | NATO STOCK NUMBER | ITEM NAME AND DESCRIPTION | PART NO./<br>DRAWING NO. | NO.<br>OFF | ANNOTATIONS |
|-------------------|-------------|-------------------|---------------------------|--------------------------|------------|-------------|
| NI                |             |                   |                           |                          |            |             |
| 1                 |             | NP                | FLYWHEEL END ADAPTOR      | -                        | REF        |             |
| 2                 | X3          | NP                | ADAPTOR                   | TBA                      | 1          |             |
| 3                 | G1          | 5330-99-792-7137  | . SHIM, 0.038 in.         | 298406                   | A/R        |             |
|                   |             | 5305-99-941-8263  | . SCREW, SOCKET HEAD      | 754058                   | 4          |             |

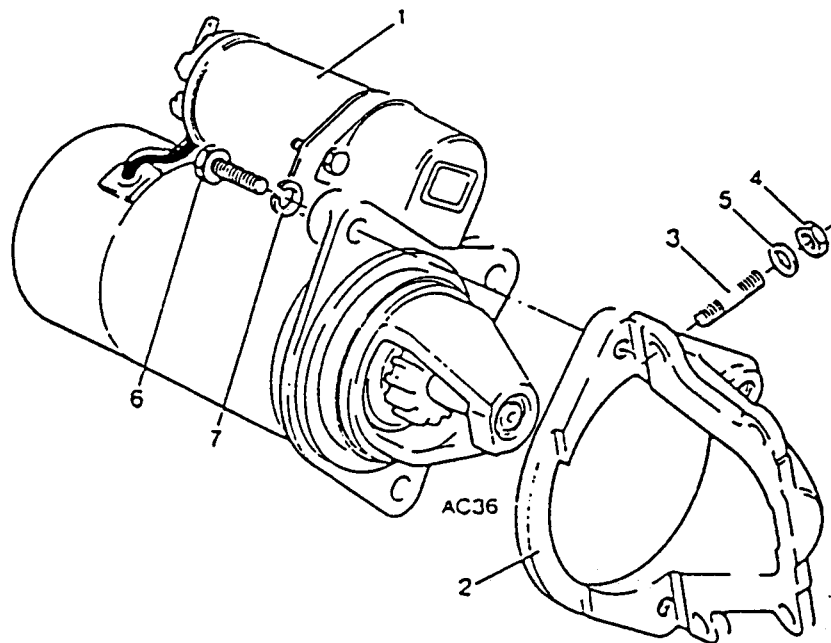


Fig. 16 Starter motor kit

| FIG<br>16<br>ITEM | DMC<br>Army | NATO STOCK NUMBER | ITEM NAME AND DESCRIPTION                     | PART NO./<br>DRAWING NO. | NO.<br>OFF | ANNOTATIONS       |
|-------------------|-------------|-------------------|---|--------------------------|------------|-------------------|
| NI<br>1           |             | NP<br>NP          | STARTER MOTOR KIT<br>STARTER MOTOR            | Code EH<br>275156        | 1<br>1     | Lister/<br>Petter |
| 2                 | X3          | 2990-99-207-2314  | . BRACKET, STARTER MOTOR<br>SUPPORT           | 289341                   | 1          |                   |
| 3                 | G1          | 5307-99-120-4257  | . STUD, PLAIN, 5/16 in.<br>UNF x 1 1/4 in. lg | 762630                   | 1          |                   |
| 4                 | G1          | 5310-99-941-0925  | . NUT, PLAIN, HEXAGON,<br>5/16 in. UNF        | 746607                   | 4          |                   |
| 5                 | W18         | 5310-99-214-9715  | . WASHER, LOCK, 5/16 in.                      | 786079                   | 4          |                   |
| 6                 | Z88         | 5305-99-765-7105  | . SCREW, MACHINE,<br>3/8 in. UNC x 7/8 in. lg | 752670                   | 3          |                   |
| 7                 | G1          | 5310-99-941-8635  | . WASHER, FLAT                                | 785613                   | 3          |                   |



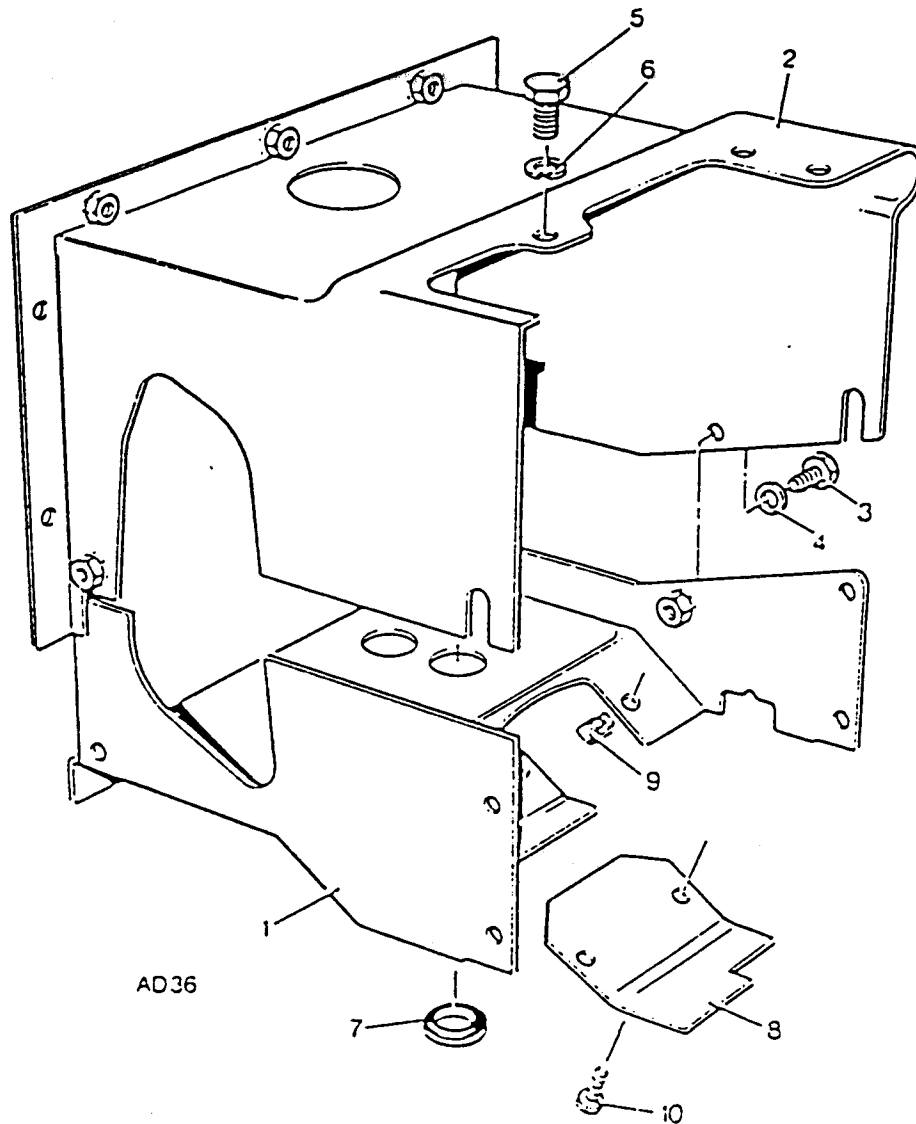


Fig. 17 Hot air outlet adaptor - exploded view

| FIG<br>17<br>ITEM | DMC<br>Army | NATO STOCK NUMBER | ITEM NAME AND DESCRIPTION                      | PART NO./<br>DRAWING NO. | NO.<br>OFF | ANNOTATIONS |
|-------------------|-------------|-------------------|--|--------------------------|------------|-------------|
| NI                |             | NP                | HOT AIR OUTLET ADAPTOR                         | -                        | REF        |             |
| NI                |             | NP                | ADAPTOR KIT                                    | Code DA                  | 1          |             |
| NI                |             | NP                | ADAPTOR KIT - With FLP                         | Code DB                  | 1          |             |
| 1                 |             | NP                | . DUCTING (Modified)                           | TBA                      | 1          |             |
| 2                 |             | NP                | . DUCTING (Modified)                           | TBA                      | 1          |             |
| 3                 | G1          | 5305-99-941-0511  | . SCREW, MACHINE,<br>1/4 in. UNF x 1/2 in. lg  | 742623                   | 4          |             |
| 4                 | G1          | 5310-99-122-1690  | . WASHER, FLAT, 1/4 in.                        | 785621                   | 4          |             |
| 5                 | G1          | 5305-99-941-0696  | . SCREW, MACHINE, 5/16 in.<br>UNC x 1/2 in. lg | 752645                   | 1          |             |
| 6                 | W18         | 5310-99-214-9715  | . WASHER, LOCK, 5/16 in.                       | 786079                   | 1          |             |
| 7                 |             | NP                | . GROMMET                                      | 787054                   | 2          | )           |
| 8                 |             | NP                | . BLANKING PLATE Code DA                       | 363288                   | 1          | )Lister/    |
| 9                 |             | NP                | . CAPTIVE NUT                                  | 323059                   | 2          | )Petter     |
| 10                |             | NP                | . SCREW, SPIRE                                 | 323060                   | 2          | )           |

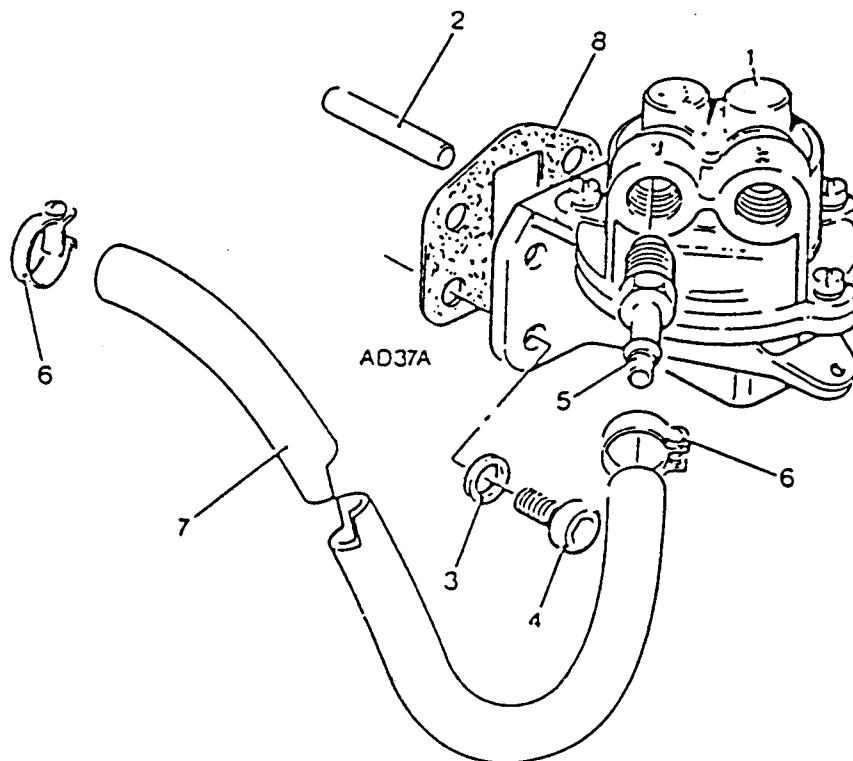


Fig. 18 Fuel lift pump kit

| FIG<br>18<br>ITEM | DMC<br>Army | NATO STOCK NUMBER | ITEM NAME AND DESCRIPTION | PART NO./<br>DRAWING NO. | NO.<br>OFF | ANNOTATIONS       |
|-------------------|-------------|-------------------|---------------------------|--------------------------|------------|-------------------|
| NI                |             | NP                | FUEL, LIFT PUMP KIT       | Code FF                  | 1          |                   |
| 1                 | X3          | 2815-99-376-2260  | . FUEL, LIFT PUMP         | 275235                   | 1          |                   |
| 2                 | X3          | 2815-99-244-3331  | . PUSH ROD                | 365150                   | 1          |                   |
| 3                 | Z88         | 5820-99-734-2277  | . WASHER                  | 785622                   | 4          |                   |
| 4                 | Z88         | 5820-99-734-2271  | . CAPSCREW-PUMP           | 754030                   | 4          |                   |
| 5                 |             | NP                | . CONNECTION              | 365253                   | 2          | Lister/<br>Petter |
| 6                 | X3          | 4730-99-208-4802  | . CLAMP, HOSE             | 327764                   | 2          |                   |
| 7                 |             | NP                | . FLEXIBLE FUEL PIPE      | 363862                   | 1          |                   |
| 8                 | X3          | 5330-99-560-0278  | . GASKET                  | 365229                   | 1          |                   |

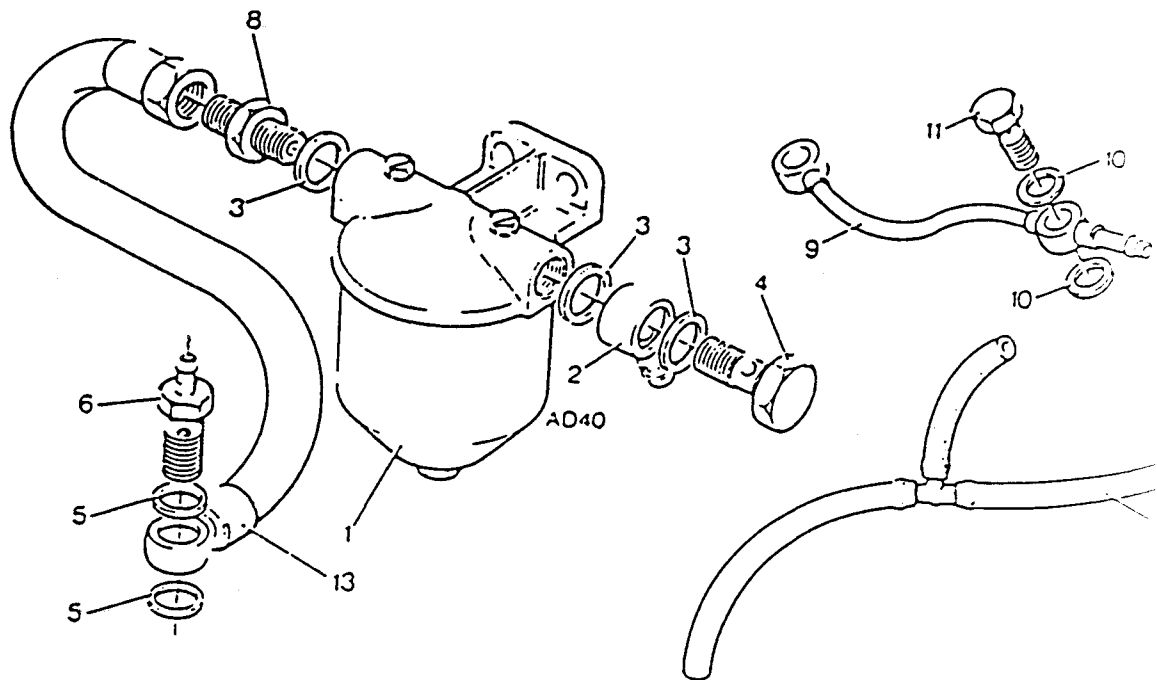


Fig. 19 Fuel filter assembly - exploded view

| FIG<br>19<br>ITEM | DMC<br>Army | NATO STOCK NUMBER | ITEM NAME AND DESCRIPTION                     | PART NO./<br>DRAWING NO. | NO.<br>OFF | ANNOTATIONS       |
|-------------------|-------------|-------------------|---|--------------------------|------------|-------------------|
| NI                |             | NP                | FUEL FILTER ASSEMBLY                          | -                        | REF        |                   |
| NI                |             | NP                | FUEL FILTER KIT                               | Code FH                  | 1          |                   |
| 1                 | X3          | 2940-99-204-8884  | . FILTER, FLUID, PRESSURE                     | 284359                   | 1          |                   |
| NI                | X3          | 2940-99-201-5465  | . . FILTER, ELEMENT,<br>FLUID, PRESSURE       | 252427                   | 1          |                   |
| NI                | X3          | 2910-99-206-0129  | . . REPAIR KIT, FUEL<br>FILTER                | 95710                    | 1          |                   |
| 2                 | X3          | 4730-99-758-8019  | . CONNECTOR, MULTIPLE,<br>FLUID PRESSURE LINE | 344215                   | 1          |                   |
| 3                 | X3          | 5310-99-618-5102  | . WASHER, FLAT, 1/2 in.                       | 843105                   | 3          |                   |
| 4                 | X3          | 4730-99-206-7622  | . BOLT, FLUID PASSAGE                         | 831026                   | 1          |                   |
| 5                 | X3          | 5310-99-205-1376  | . WASHER, FLAT, COPPER                        | 267326                   | 2          |                   |
| 6                 | X3          | 4730-99-207-1430  | . BOLT, FLUID PASSAGE                         | 336764                   | 1          |                   |
| 7                 |             | NP                | . PIPE ASSEMBLY, Self<br>Bleed                | 362373                   | 1          | Lister/<br>Petter |
| 8                 | X3          | 4730-99-205-1655  | . ADAPTOR, STRAIGHT, PIPE                     | 833027                   | 1          |                   |
| 9                 |             | NP                | . PIPE ASSEMBLY - Leak Off                    | 364670                   | 1          | Lister/<br>Petter |
| 10                | X3          | 5310-99-770-4375  | . WASHER                                      | 362483                   | 4          |                   |
| 11                | X3          | 4730-99-770-4376  | . BOLT, FLUID PASSAGE                         | 362997                   | 2          |                   |

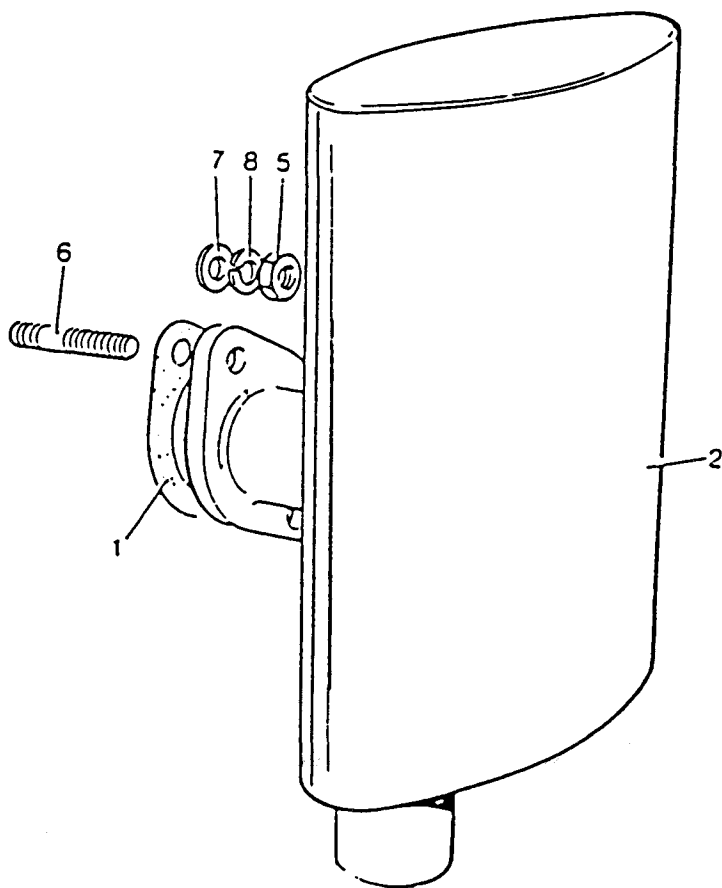


Fig. 20 Acoustic silencer - exploded view

| FIG<br>20<br>ITEM | DMC<br>Army | NATO STOCK NUMBER | ITEM NAME AND DESCRIPTION                     | PART NO./<br>DRAWING NO. | NO.<br>OFF | ANNOTATIONS       |
|-------------------|-------------|-------------------|---|--------------------------|------------|-------------------|
| NI<br>NI          |             | NP<br>NP          | ACOUSTIC SILENCER<br>SILENCER KIT             | -<br>Code NM             | REF<br>1   |                   |
| 1                 | X3          | 5330-99-431-1434  | . GASKET                                      | 203067                   | 1          |                   |
| 2                 |             | NP                | . SILENCER                                    | 407062                   | 1          | Lister/<br>Petter |
| 5                 | G1          | 5310-99-941-0925  | . NUT, PLAIN, HEXAGON,<br>5/16 in. UNF        | 746607                   | 2          |                   |
| 6                 | G1          | 5307-99-120-4256  | . STUD, PLAIN, 5/16 in.<br>UNF x 1 3/8 in. lg | 762631                   | 2          |                   |
| 7                 |             | NP                | . WASHER                                      | 785632                   | 2          | Lister/<br>Petter |
| 8                 | W18         | 5310-99-214-9715  | . WASHER, LOCK, 5/16 in.                      | 786079                   | 4          |                   |



Chapter 2-3-1-1

PARTS LIST

CAMSHAFT AND GOVERNOR

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| 2-3-1-1   | Camshaft and Governor |
| 2-3-1-1-1 | Camshaft Gear         |



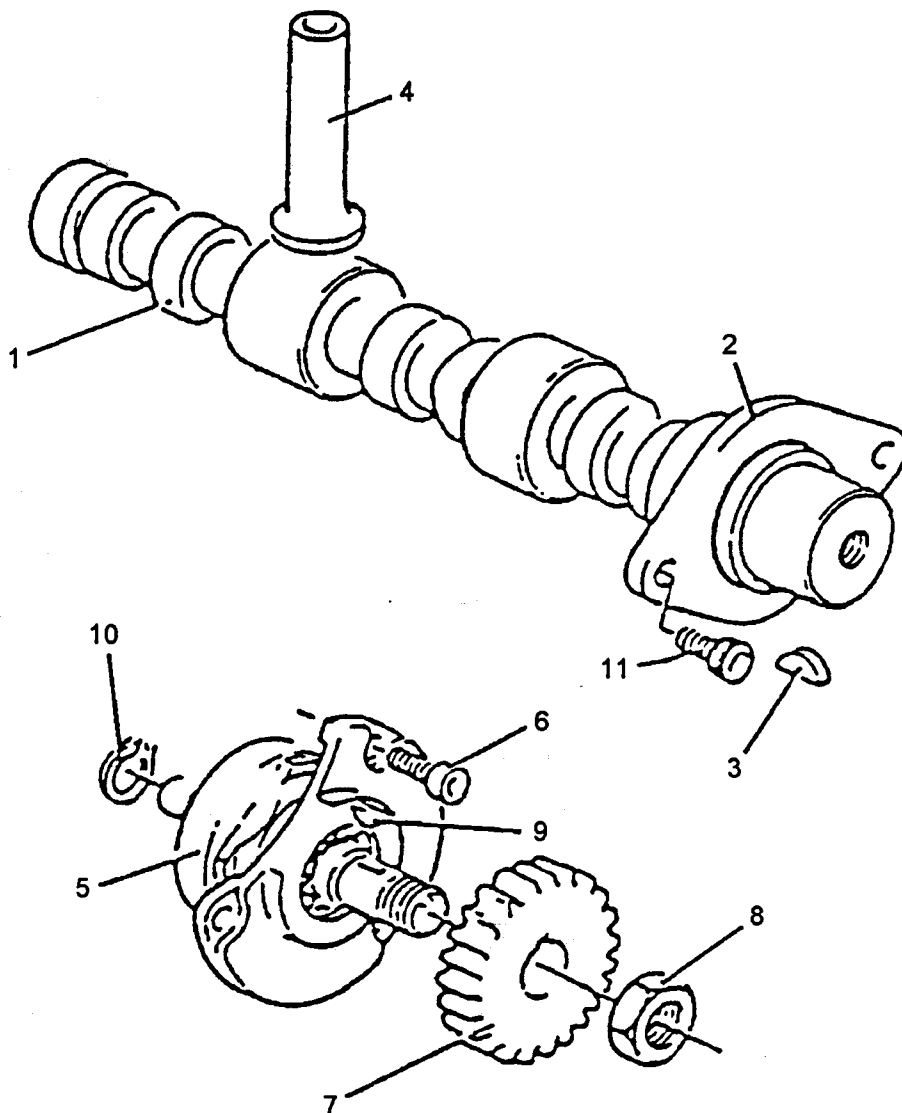


Fig.1 Camshaft and governor

ARMY EQUIPMENT  
SUPPORT PUBLICATION

6115-G-350-711

| FIG<br>1<br>ITEM | DMC<br>Army | NATO STOCK NUMBER | ITEM NAME AND DESCRIPTION  | PART NO/<br>DRAWING NO. | NO.<br>OFF | ANNOTATIONS                |
|------------------|-------------|-------------------|--|-------------------------|------------|----------------------------|
| NI 0             |             | NP                | CAMSHAFT AND GOVERNOR  |                         | REF        |                            |
| 1X3              |             | 2815-99-257-4226  | CAMSHAFT, ENGINE: 6 CAMS:<br>13-3/8 in. O/A LG   | 273396                  | 1          |                            |
| 2X3              |             | 2815-99-758-8002  | THRUST PLATE, CAMSHAFT<br>SEL28012 ACD 442   | 347477                  | 1          | )                          |
| 36MT1            |             | 5315-99-943-5956  | KEY, WOODRUFF STEEL; RDG<br>C 55 ROUND BOTTOM STYLE;<br>0.74 in CIRCLE DIA; 0.156<br>in THK; 0.31 in ROUND<br>BOTTOM TYPE HEIGHT | 792011                  | 1          | ) Lister/<br>) Petter<br>) |
| 4X3              |             | 2815-99-205-0654  | TAPPET, ENGINE POPPET<br>VALVE SEL28012 AAD 36   | 265092                  | 4          | ) Lister/<br>) Petter      |
| 5X3              |             | 2815-99-257-4227  | GOVERNOR, DIESEL ENGINE:<br>COMPRISING:- SHAFT, BALL<br>RACE, BUSHING AND VARIOUS<br>HARDWARE                                    | 336136                  | 1          |                            |
| 6G1              |             | 5305-99-970-6381  | SCREW, SOCKET HEAD,<br>1/4 in. UNC x 5/8 in.LG   | 754003                  | 3          |                            |
| 7X3              |             | 2815-99-205-1386  | GEAR, SPUR   | 266010                  | 1          |                            |
| 8G1              |             | 5310-99-977-4621  | NUT, SELF LOCKING,<br>HEX. 1/2 in. UNF   | 747105                  | 1          |                            |
| 9X3              |             | 5315-99-943-5948  | KEY, WOODRUFF STEEL; BS<br>KEY AND CUTTER NO.303; RD<br>BOTTOM TYPE  | 792002                  | 1          |                            |
| 1046MT1          |             | 5365-99-942-5701  | RING, RETAINING  | 784203                  | 1          |                            |
| 11X3             |             | 5305-99-770-7167  | SCREW, SOCKET HEAD   | 363063                  | 2          |                            |

**Chapter 2-3-1-1-1**

**PARTS LIST**

**CAMSHAFT GEAR**

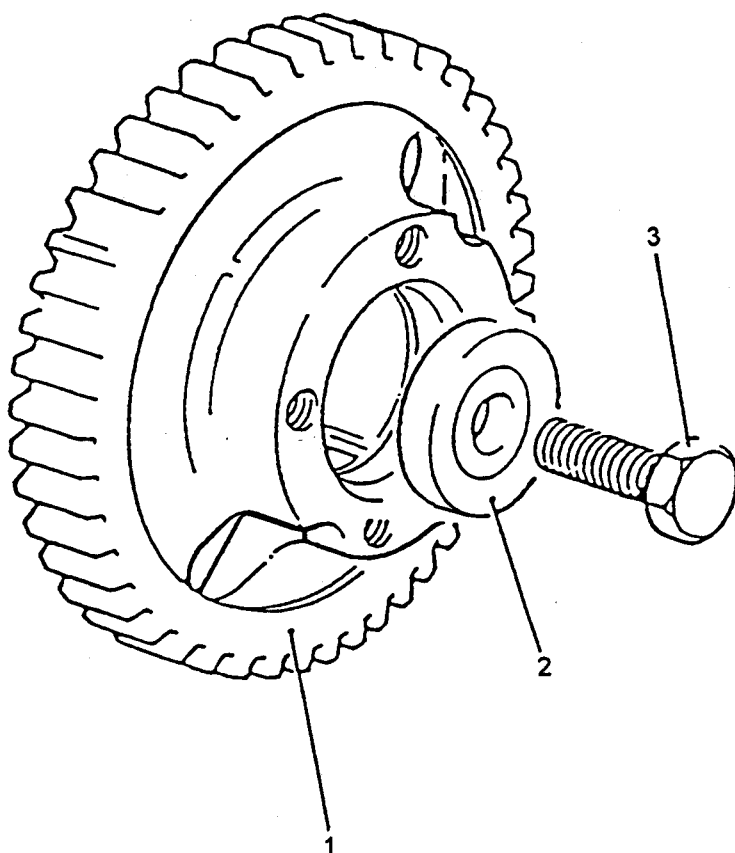


Fig 1 Camshaft - exploded view.

| FIG<br>1<br>ITEM | DMC<br>Army | NATO STOCK NUMBER | ITEM NAME AND DESCRIPTION  | PART NO/<br>DRAWING NO. | NO.<br>OFF | ANNOTATIONS |
|------------------|-------------|-------------------|--|-------------------------|------------|-------------|
| NI 0             |             | NP                | CAMSHAFT   | -                       | REF        |             |
| 1                | X3          | 3020-99-207-2291  | . GEAR, SPUR   | 330238                  | 1          |             |
| 2                | X3          | 2815-99-205-1569  | . PLATE, GEARWHEEL   | 2-266392                | 1          |             |
|                  | X3          |                   | RETAINING: STEEL, 11/32<br>in ID; 1-9/32 in OD;<br>3/16 in THK; 10 DEGREE<br>ANGLED FACE |                         |            |             |
| 3                |             | 5306-99-770-0091  | . BOLT, SELF-LOCKING,<br>0.312-24 UNF x 1 in.<br>NOMINAL LG                              | 363064                  | 1          |             |

**Chapter 2-3-1-2**

**PARTS LIST**

**FLYWHEEL AND MAIN BEARING**

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| 2-3-1-2-2 | Gear Cover                |
| 2-3-1-2-3 | Flywheel End Adaptor      |





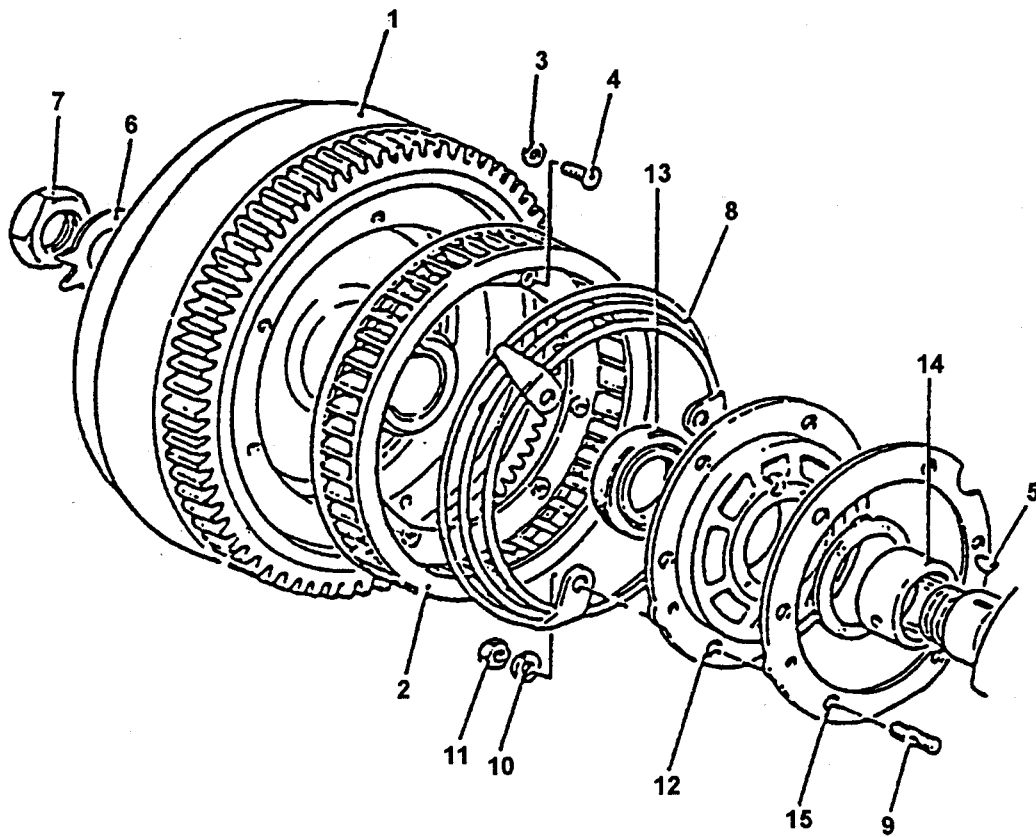


Fig. 1 Flywheel and main bearing housing - exploded view

| FIG<br>1<br>ITEM | DMC<br>Army | NATO STOCK NUMBER | ITEM NAME AND DESCRIPTION  | PART NO/<br>DRAWING NO. | NO.<br>OFF | ANNOTATIONS |
|------------------|-------------|-------------------|--|-------------------------|------------|-------------|
| 1 0              |             | NP                | FLYWHEEL AND MAIN BEARING HOUSING  | -                       | REF        |             |
| 1 X3             |             | 2815-99-861-9325  | . FLYWHEEL ASSEMBLY:   | 275197                  | 1          |             |
| 2 X3             |             | 2930-99-257-4221  | . FLYWHEEL C/W GEAR RING   | 274894                  | 1          |             |
| 3 X3             |             | 5310-99-738-3443  | . FAN, ENGINE COOLING  | BS4320                  | 6          |             |
| 4 X3             |             | 5305-99-779-6302  | . WASHER, FLAT, 5.3 mm DIA,<br>STEEL, ZINC PLTD  | BS1981PNCRU             | 6          |             |
| 5                |             | NP                | . SCREW, MACHINE, 0.019 in<br>UNF X 0.5 in LG, STEEL<br>ZINC PLTD.   | NO.190X008ST<br>OOZN    | 1          |             |
| 6 X3             |             | 5310-99-746-6975  | . KEY  | 790112                  | 1          |             |
| 7 X3             |             | 5310-99-135-2455  | . WASHER, KEY  | 350481                  | 1          |             |
| 8 X3             |             | 2815-99-758-5061  | . NUT, PLAIN, HEXAGON,<br>1 1/4 in X 12 UNF STEEL<br>PHOSPHATE CTD   | 265093                  | 1          |             |
| 9 X3             |             | 5307-99-016-7546  | . SCREEN, FLYWHEEL; MILD<br>ST, 7.5 in O/D, 6.25 in<br>I/D   | 294913                  | 1          |             |
| 10 G1            |             | 5310-99-941-8623  | . STUD, MADE FROM PART NO.<br>F.P.762631 AND TREATED<br>WITH LOCTITE DRI-; LOC211<br>AS USED ON AC1R ENGINE          | 363065                  | 6          |             |
| 11 G1            |             | 5310-99-202-9996  | . WASHER, FLAT, STL, RD,<br>CADMIUM PLTD, RD HOLE<br>5/16 in. NOM BOLT SIZE,<br>5/8 in O/A, 0.072 in<br>(15 SWG) THK | 785012                  | 6          |             |
| 12 X3            |             | 2815-99-208-4612  | . NUT, SELF-LOCKING,<br>HEXAGON, 5/16 in-24 UNF<br>STL ZINC PLTD   | 747102                  | 6          |             |
| 13 X3            |             | 5330-99-257-4222  | . HOUSING, BEARING FLYWHEEL<br>CI, 1-3/4 in I/D X 5-3/4<br>in O/D X 1-5/8 in H O/A<br>DIM                            | 273120                  | 1          |             |
| 14 X3            |             | 3120-99-790-3139  | . SEAL, PLAIN, ENCASED,<br>RUBBER VITON 0.313 in NOM<br>W  | 363686                  | 1          |             |
| NI 14 X3         |             | 3120-99-792-4411  | . BEARING, SLEEVE, COPPER<br>ALLOY, 25.5 mm LG 45.35<br>mm O/D, 41.33 mm I/D   | 355607                  | 1          |             |
| NI 14 X3         |             | 3120-99-752-3237  | . BEARING, SLEEVE; 0.25 mm<br>UNDERZIZE  | 360669                  | 1          |             |
| 15 X3            |             | 5330-99-792-4410  | . BEARING, SLEEVE; 0.51 mm<br>UNDERSIZE  | 360670                  | 1          |             |
| NI 16 X3         |             | 3020-99-352-8309  | . GASKET; ASBESTOS, RD<br>115.1 mm I/D, 146 mm O/D,<br>0.2 in NOM THK  | 361871                  | 1          |             |
| NI 17 X3         |             | 2990-99-203-8706  | . PULLEY, ROPE START   | 275231                  | 1          |             |
|                  |             |                   | . STARTER, ROPE, ENGINE  | 317459                  | 1          |             |

**Chapter 2-3-1-2-1**

**PARTS LIST**

**SHAFT EXTENSION**

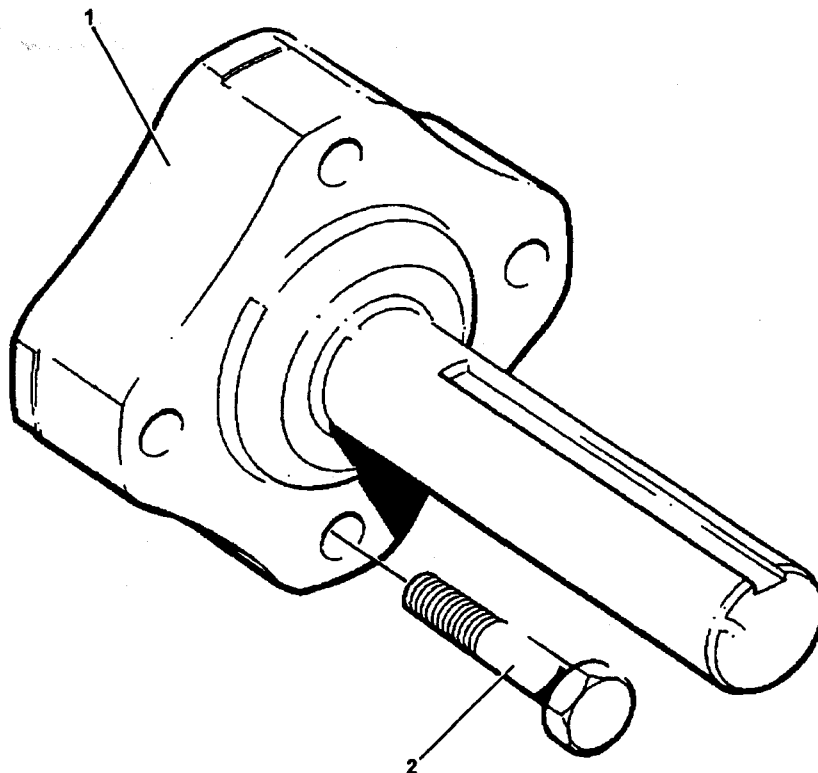


Fig. 1 Shaft extension kit

| FIG<br>1<br>ITEM | DMC<br>Army | NATO STOCK NUMBER | ITEM NAME AND DESCRIPTION   | PART NO. /<br>DRAWING NO. | NO.<br>OFF | ANNOTATIONS |
|------------------|-------------|-------------------|---|---------------------------|------------|-------------|
| 1 0              |             | NP                | SHAFT EXTENSION KIT   |                           | REF        |             |
| 1 1              | X3          | 2815-99-257-4232  | . SHAFT, EXTENSION; STEEL,<br>6-11/16 in O/A LG,<br>3-15/16 in MAJOR DIA    | 361613                    | 1          |             |
| 2                |             | 5306-99-798-4252  | . BOLT, MACHINE: ST,<br>PHOSPHATE/BLACK;<br>0.312-24 UNF, 1.75 in<br>MAX LG | 361610                    | 4          |             |

**Chapter 2-3-1-2-2**

**PARTS LIST**

**GEAR COVER**

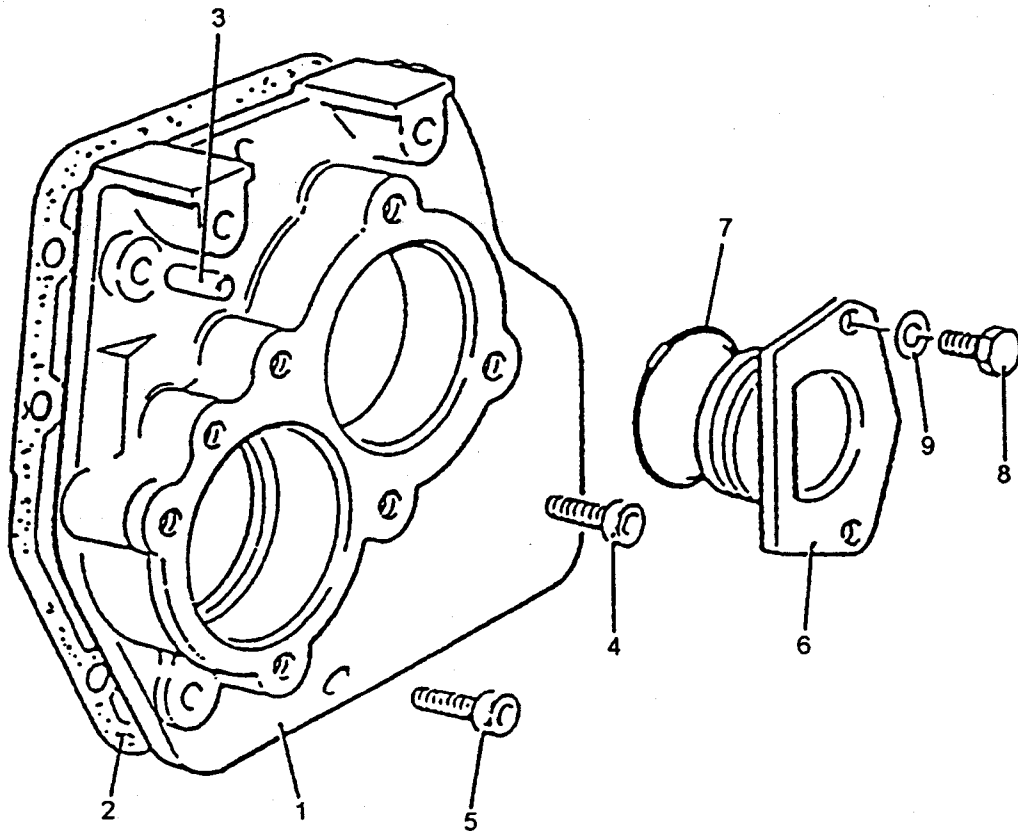


Fig. 1 Gear end cover - exploded view



| FIG<br>1<br>ITEM | DMC<br>Army | NATO STOCK NUMBER | ITEM NAME AND DESCRIPTION  | PART NO/<br>DRAWING NO.                  | NO.<br>OFF | ANNOTATIONS |
|------------------|-------------|-------------------|--|--|------------|-------------|
| NI 0             |             |                   | GEAR END COVER   | -  | REF        |             |
| 1                | X3          | 2815-99-205-0701  | . HOUSING, MECHANICAL DRIVE  | 272303                                   | 1          |             |
| 2                | X3          | 2815-99-902-1339  | . JOINT, COVER, GEAR; AAA 56 (SUPPLIE ONLY ON SET)   | 367870                                   | 1          |             |
| 3                | X3          | 5315-99-205-1433  | . PIN, STRAIGHT HEADLESS; SILVER STEEL 1/4 in O/D 7/8 in LG  | 266395                                   | 2          |             |
| 4                | G1          | 5305-99-970-6382  | . SCREW, SOCKET HEAD, 1/4 in. UNC x 3/4 in. lg   | 754004                                   | 7          |             |
| 5                | G1          | 5305-99-941-6968  | . SCREW, SOCKET HEAD, 1/4 in-20 UNC x 1-1/2 in LG, STL ZINC PLTD   | 754008                                   | 1          |             |
| 6                | X3          | 2815-99-787-7819  | . PLUG, GEAR COVER; ZINC ALLOY; 65 mm PLUG O/D FLANGE MOUNTED W/2 HOLES 9 mm DIA; 13 mm O/A THK          | 272362                                   | 1          |             |
| 7                | X3          | 5330-99-791-6290  | . RING, SEALING, TOROIDAL  | 359929                                   | 1          |             |
| 8                | G1          | 5305-99-941-0698  | . SCREW MACHINE, UNC S STL HX HD ZINC PLTD 5/16 in. X 3/4 in LG, CLASS 2A THD                            | BS1768HXEXUN<br>0.312X012STO<br>OZ180077 | 2          |             |
| 9                | G1          | 5310-99-941-8386  | . WASHER, FLAT STEEL RD ZINC PLTD FINISH, RD HOLE, 5/16 in NOM BOLT SIZE 5/8 in O/D; 0.04 in THK (195WE) | 785612                                   | 2          |             |

**Chapter 2-3-1-2-3**

**PARTS LIST**

**FLYWHEEL END ADAPTOR**

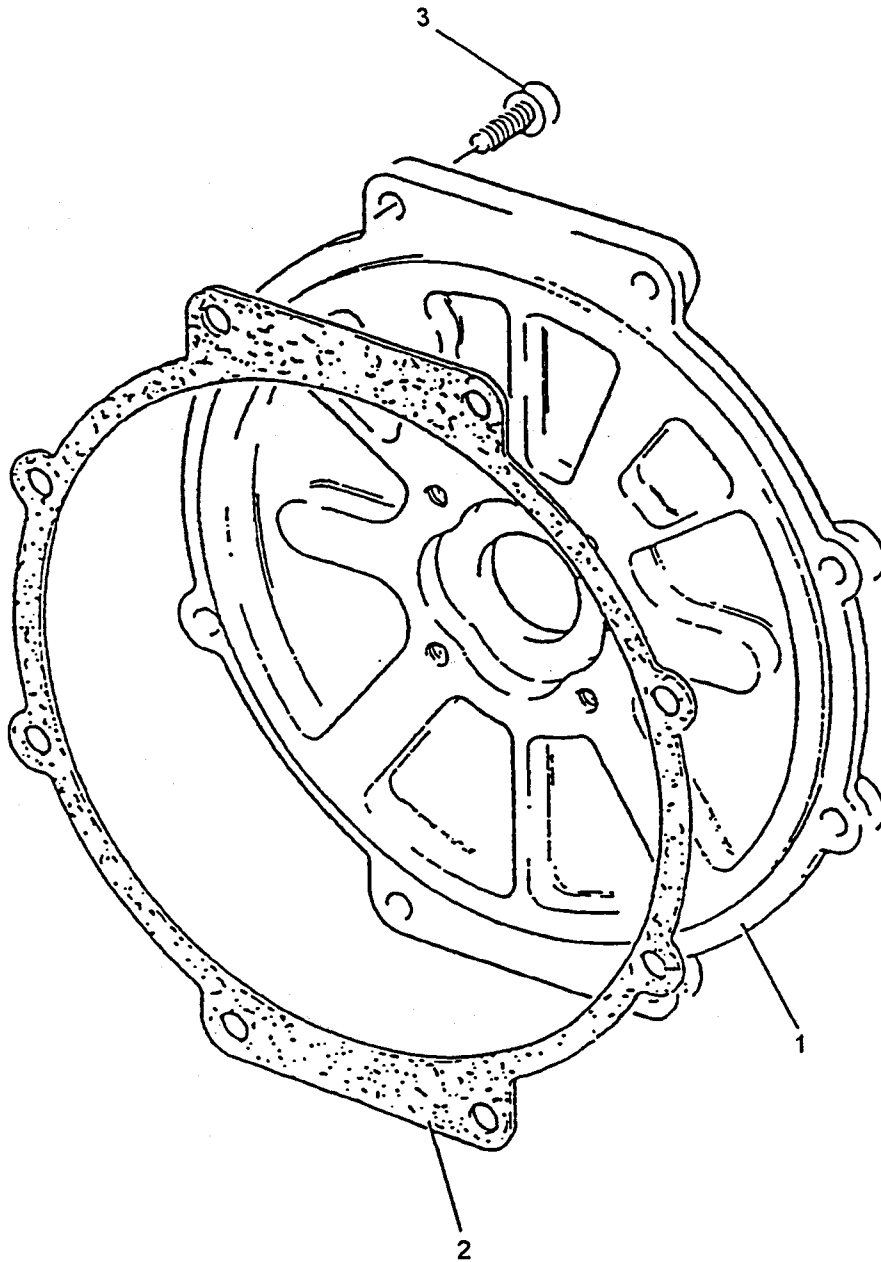


Fig. 1 Flywheel end adaptor - exploded view

| FIG<br>1<br>ITEM | DMC<br>Army | NATO STOCK NUMBER | ITEM NAME AND DESCRIPTION  | PART NO/<br>DRAWING NO. | NO.<br>OFF | ANNOTATIONS |
|------------------|-------------|-------------------|--|-------------------------|------------|-------------|
| 1                | 0           | NP                | FLYWHEEL END ADAPTOR   |                         | REF        |             |
| 1                | X3          | 2815-99-787-7826  | . ADAPTOR  | 296623                  | 1          |             |
| 2                | X3          | 5330-99-792-7137  | . GASKET; PLASTIC, RD,<br>268.3 mm I/D; 285.8 mm<br>O/D; 0.35 mm THK | 298406                  | 1          |             |
| 3                | G1          | 5305-99-941-8263  | . SCREW, SOCKET HEAD   | 754058                  | 4          |             |

**Chapter 2-3-1-3**

**PARTS LIST**

**CYLINDER HEAD AND BARREL**

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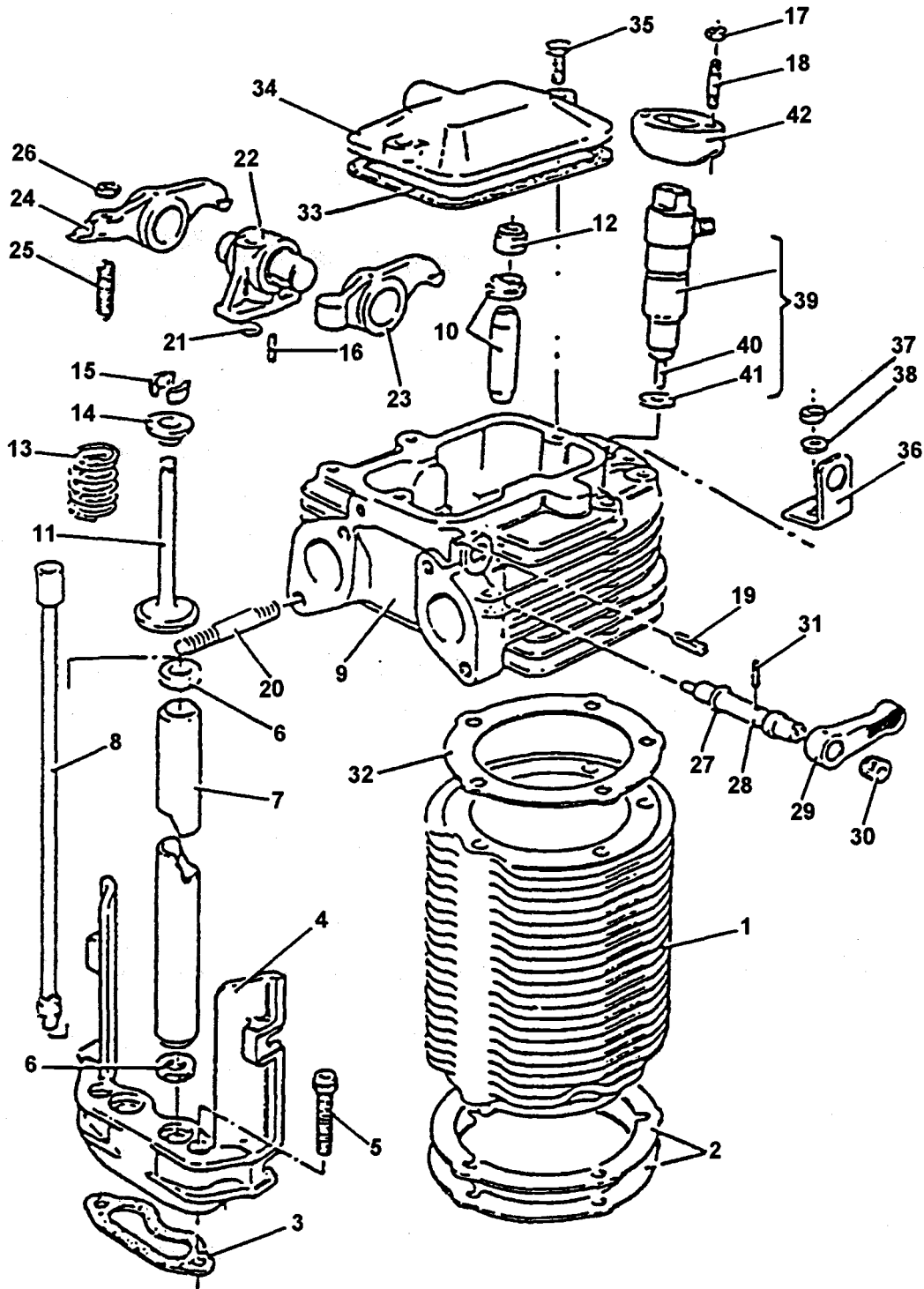


Fig. 1 Cylinder head and barrel - exploded view

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6115-G-350-711

| FIG<br>1<br>ITEM | DMC<br>Army | NATO STOCK NUMBER | ITEM NAME AND DESCRIPTION   | PART NO/<br>DRAWING NO.   | NO.<br>OFF | ANNOTATIONS |
|------------------|-------------|-------------------|---|---------------------------|------------|-------------|
| 1                | 0           | NP                | CYLINDER HEAD AND BARREL  | -                         | REF        |             |
| 1                | X3          | 2815-99-787-7832  | CYLINDER BLOCK, DIESEL ENGINE   | 272523                    | 2          |             |
| 2                | X3          | 5365-99-787-7833  | SHIM; STEEL 0.38 mm THK O/A DIMS APPROX 112 mm O/D; 88 mm 1/D.  | 362013                    | 2          |             |
| NI               | 2           | X3                | 5365-99-787-7834  | 360718                    | 2          |             |
| 3                | X3          | 5330-99-796-4904  | SHIM; STEEL 0.25 mm THK O/A DIMS APPROX 112 mm O/D; 88 mm 1/D.  | 360737                    | 2          |             |
| 4                | X3          | 5330-99-796-4904  | GASKET; ASBESTOS, 82.7 mm LG, 26 mm W, 0.41 mm THK  | 360737                    | 2          |             |
| 4                | X3          | 2815-99-257-4219  | HOUSING, PUSH ROD TUBE ALUMINIUM ALLOY, 126.5 mm LG, 125 mm H   | 274177                    | 2          |             |
| 5                | G1          | 5305-99-941-6968  | SCREW, SOCKET HEAD, 1/4 in-20 UNC x 1 1/2 in. LG, STEEL ZINC PLTD   | 754008                    | 5          |             |
| 6                | X3          | 5310-99-205-0265  | WASHER, FLAT, POLYACRYLIC 0.68 in I/D, 0.156 in THK   | 318514                    | 8          |             |
| 7                | X3          | 2815-99-787-7845  | TUBE, PUSH ROD HOUSING STEEL CADMIUM OR ZINC PLT 138 mm LG, 1/2 in I/D 5/64 WALL THK 15 DEG CHAMFER EITHER END                        | 360705                    | 4          |             |
| 8                | X3          | 2815-99-787-7846  | PUSH ROD, ENGINE POPPET VALVE, 202.1/204.55 mm LG FROM BALL END TO CUP  | 360704                    | 4          |             |
| NI               | 9           | X3                | 2815-99-770-0075  | 363844                    | 2          |             |
| 10               | X3          | 2815-99-790-3137  | CYLINDER HEAD, DIESEL ENGINE, C/W VALVE GUIDES VALVES, VALVE SPRINGS AND VALVE INSERTS  | 364533                    | 4          |             |
| 11               | X3          | 2815-99-791-4553  | GUIDE, ENGINE POPPET VALVE, CAST IRON O/A DIMS 44.5 mm LG, 13.207/13.22 mm O/D, 6.35/6.45 mm I/D, C/W STEEL SPRING PLATE 24.13 mm O/D | 360709                    | 4          |             |
| 12               | 6MT1        | 2805-99-775-2984  | VALVE, POPPET, ENGINE SEAL, VALVE STEM, RUBBER SYNTHETIC, O/A DIMS 13.97 mm DIA, 11.13 mm H   | 358693                    | 2          |             |
| 13               | X3          | 5360-99-207-2989  | SPRING, HELICAL, COMPRESSION, STEEL 0.756/0.776 in I/D 0.94/0.96 in O/D 1.79 in FREE LG   | 330204                    | 4          |             |
| 14               | X3          | 2815-99-207-2990  | LOCK, VALVE SPRING RETAINER   | 330241                    | 4          |             |
| 15               | X3          | 3460-99-206-2060  | COLLET, MACHINE; 8 mm LG 10 mm NOMINAL O/D, 7 mm I/D, 1 IN 4 EXTERNAL TAPER   | 359401                    | 4          |             |
| 16               | G1          | 5315-99-202-1357  | PIN, SPRING; STEEL, 0.125 in DIA, 0.5 in LG, 0.024 in MATL THK, 1840 LBS FORCE PER SQ/IN  | 774122                    | 2          |             |
| 17               | G1          | 5310-99-804-7941  | NUT, PLAIN, HEXAGON, UNF, STEEL, CHAMFERED BEARING SURFACE, ZINC PLTD FINISH 1/4 in-28, 7/16 W A/F, 0.224 in O/A H                    | BS1768PLHX0.<br>250STOOZN | 4          |             |
| 18               | X3          | 5307-99-770-7159  | STUD, PLAIN; STEEL ZINC PLTD; 1/4 in-28 UNF NUT END; 2 in O/A LG  | 762609                    | 4          |             |



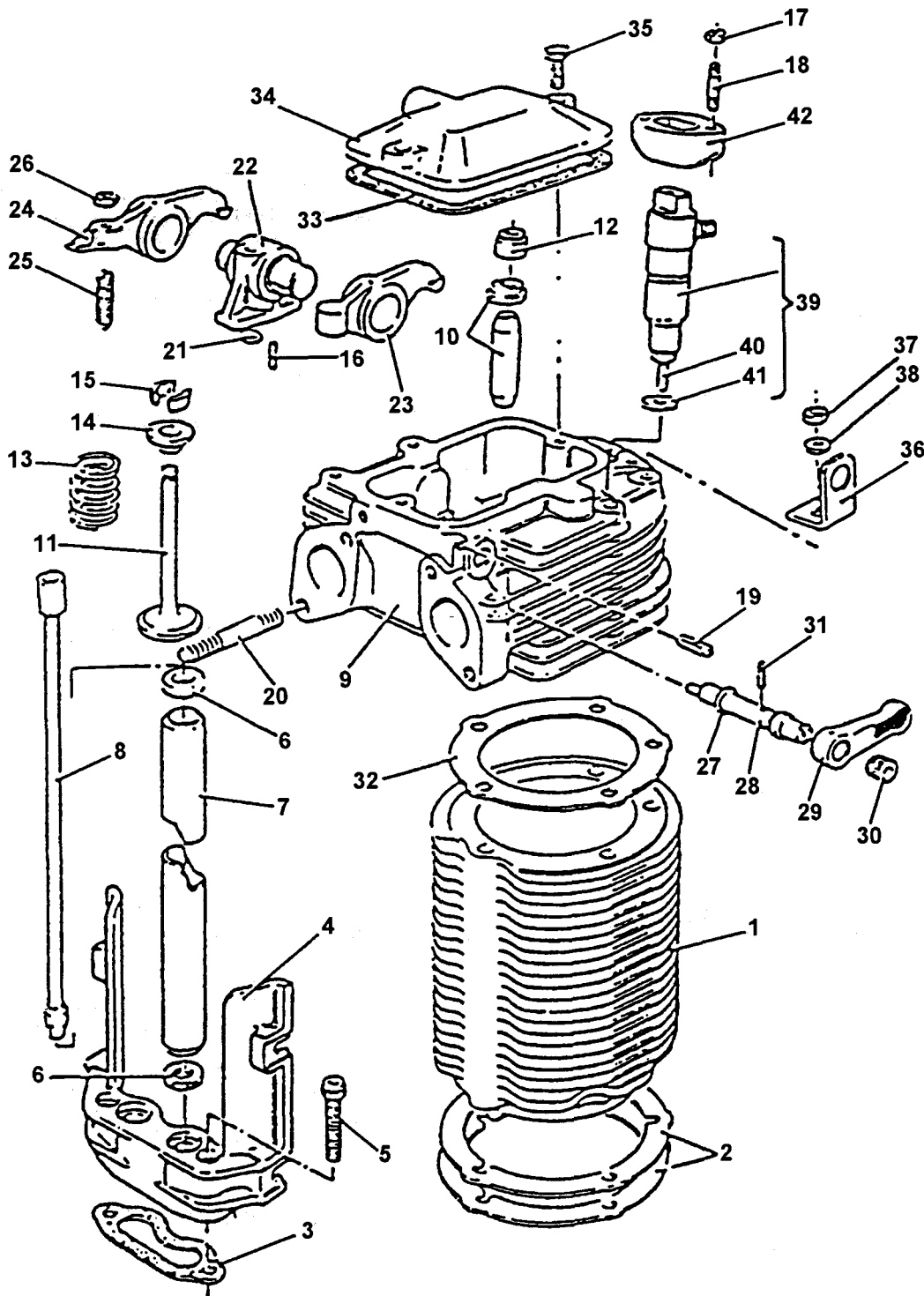


Fig. 1 Cylinder head and barrel - exploded view

| FIG<br>1<br>ITEM | DMC<br>Army | NATO STOCK NUMBER | ITEM NAME AND DESCRIPTION  | PART NO/<br>DRAWING NO.             | NO.<br>OFF | ANNOTATIONS |
|------------------|-------------|-------------------|--|-------------------------------------|------------|-------------|
| 1                | 19 X3       | 5315-99-791-6291  | CYLINDER HEAD AND BARREL<br>(continued)<br>PIN, SPRING STEEL<br>PHOSPHATE COATED; 0.194<br>in MIN 0.199 in MAX DIA<br>7/8 in LG                  | 774160                              | 2          |             |
|                  | 20 G1       | 5307-99-120-3551  | STUD, PLAIN, 5/16 in-24<br>UNF NUT END, 5/16-18 UNC<br>STUD END, 1.625 in O/A<br>LG  | 762633                              | 8          |             |
|                  | 21 X3       | 5330-99-209-9078  | RING, SEALING, TOROIDAL<br>RUBBER, 7.47/7.73 mm I/D<br>2.54/2.70 mm THK  | 355176                              | 2          |             |
|                  | 22 X3       | 2815-99-209-8046  | BRACKET, ROCKER SHAFT  | 355177                              | 2          |             |
|                  | 23 X3       | 2815-99-783-2394  | ROCKER ARM, ENGINE<br>POPPET VALVE, STEEL<br>0.54 in W, 0.626 in BORE<br>MAX DIMS HARDENED NOSE  | 359672                              | 2          |             |
|                  | 24 X3       | 2815-99-790-3136  | ROCKER ARM, ENGINE<br>POPPET VALVE, STEEL<br>3.25 in LG, 1.031 in W,<br>C/W REAMED PIVOT HOLE<br>1/4-28 UNF                                      | 359673                              | 2          |             |
|                  | 25 X3       | 2815-99-205-0639  | SCREW, ADJUSTING VALVE<br>TAPPET   | 266039                              | 4          |             |
|                  | 26 G1       | 5310-99-941-0836  | NUT, PLAIN HEXAGON; 1/4-<br>28 UNF, STEEL, CHAMFERED<br>OR WASHER FACED  | BS1768PLHXUN<br>0.250 STOONO        | 4          |             |
|                  | 27 X2       | 5330-99-539-0064  | RING, SEALING, TOROIDAL;<br>RUBBER VITON A, 0.25 in<br>I/D, 0.073 in MAX CROSS<br>SECT H, 60.0 SHORE<br>DUROMETER A NOMINAL                      | 266003*<br>ISSUE 3                  | 2          |             |
|                  | 28 X3       | 2815-99-205-0656  | SHAFT, SHOULDERED.   | 267354                              | 2          |             |
|                  | 29 X3       | 2815-99-783-2393  | LEVER, REMOTE CONTROL;<br>SINTERED IRON; BIG END<br>0.375/0.376 in I/D,<br>SMALL END 13/64 in I/D  | 361129                              | 2          |             |
|                  | 30 X3       | 5340-99-205-1644  | RING, TOLERANCE; STEEL,<br>3/8 in BORE, 3/8 in O/A<br>LG   | 268102                              | 2          |             |
|                  | 31 G1       | 5315-99-202-1357  | PIN, SPRING, STEEL 0.125<br>in DIA, 0.5 in LG, 0.024<br>in MATL THK, 1840 LBS<br>FORCE PER SQ/IN   | 774122                              | 2          |             |
|                  | 32 X3       | 5330-99-796-4902  | GASKET; ALUMINIUM ALLOY<br>APPROX 100 mm O/D,<br>81.3/81.5 mm I/D,<br>2.51/2.64 mm THK   | 360712                              | 2          |             |
|                  | 33 X3       | 5330-99-208-9399  | GASKET COPERITE A1<br>OBLONG, 4-3/8 in BY 2-<br>15/16 in, 0.015 in THK   | 350031                              | 2          |             |
|                  | 34 X3       | 2815-99-617-3316  | COVER, ROCKER, ENGINE  | 275163                              | 4          |             |
|                  | 35 G1       | 5305-99-941-0687  | SCREW, MACHINE, UNC,<br>STEEL, HEX HD, ZINC PLTD<br>1/4 in DIA-20 TPI, 3/4<br>in FASTENER LG, 3/4 in<br>THD LG, CLASS 2A<br>112000 LBF/IN SQ MTS | BS1768HXEX<br>UN0.250X01<br>2STOOZN |            |             |



| FIG<br>1<br>ITEM | DMC<br>Army | NATO STOCK NUMBER | ITEM NAME AND DESCRIPTION | PART NO/<br>DRAWING NO.   | NO.<br>OFF                         | ANNOTATIONS |  |
|------------------|-------------|-------------------|---------------------------|---|------------------------------------|-------------|--|
| 1                | 36          | X3                | 2815-99-205-1606          | CYLINDER HEAD AND BARREL<br>(continued)<br>BRACKET, LIFTING   | 266428                             | 2           |  |
|                  | 37          | G1                | 5310-99-124-4450          | NUT, PLAIN, HEXAGON, UNF<br>STEEL FULL BEARING<br>SURFACE, 5/16 in,<br>0.493/0.500 in A/F<br>0.261/0.271 in H   | 746028                             | 2           |  |
|                  | 38          | G1                | 5310-99-941-8386          | WASHER, FLAT, STEEL, RD<br>ZINC PLTD FINISH RD<br>HOLE, 5/16 in NOM BOLT<br>SIZE 5/8 in O/D, 0.04 in<br>THK (195WE)   | BS3410FT0.31<br>2RD0.622STOO<br>ZN | 2           |  |
|                  | 39          | X3                | 2910-99-796-4901          | SPRAY TIP, NOZZLE, FUEL<br>INJECTOR; 107 mm LG;<br>45 mm W; 22.9 mm H, 210<br>BAR PRESSURE SETTING, M8<br>FEMALE, M12 MALE THD<br>CONN                      | 362220                             | 2           |  |
|                  | 40          | 6MT12             | 4320-99-791-4552          | NOZZLE, LONG TYPE, O/A<br>APPROX LG 48.035 mm BODY<br>S 2% NICKEL CHROME<br>14.38/14.40 mm O/D X<br>16.875 mm LG, STEM DIA<br>6.9/7.0 mm O/D X APPROX<br>21 | 360740 @<br>ISSUE 3                | 2           |  |
|                  | 41          | X3                | 5310-99-791-9399          | WASHER, FLAT, COPPER,<br>BS2870, 15.75/16.25 mm<br>O/D, 7.25/7.75 mm I/D<br>1.25/1.75 mm THK  | 361296 @<br>ISSUE 1/2              | 2           |  |
|                  | 42          | X3                | 2910-99-798-4249          | CLAMP, INJECTOR, CAST<br>IRON O/A DIMS 48 mm LG,<br>34mm W, 21 mm H, RECT<br>CENTRAL HOLE W/ROUND<br>ENDS 2 MTG HOLES 7 mm<br>DIA                           | 362215                             | 2           |  |

**Chapter 2-3-1-3-1**

**PARTS LIST**

**STOP AND RUN LEVER**

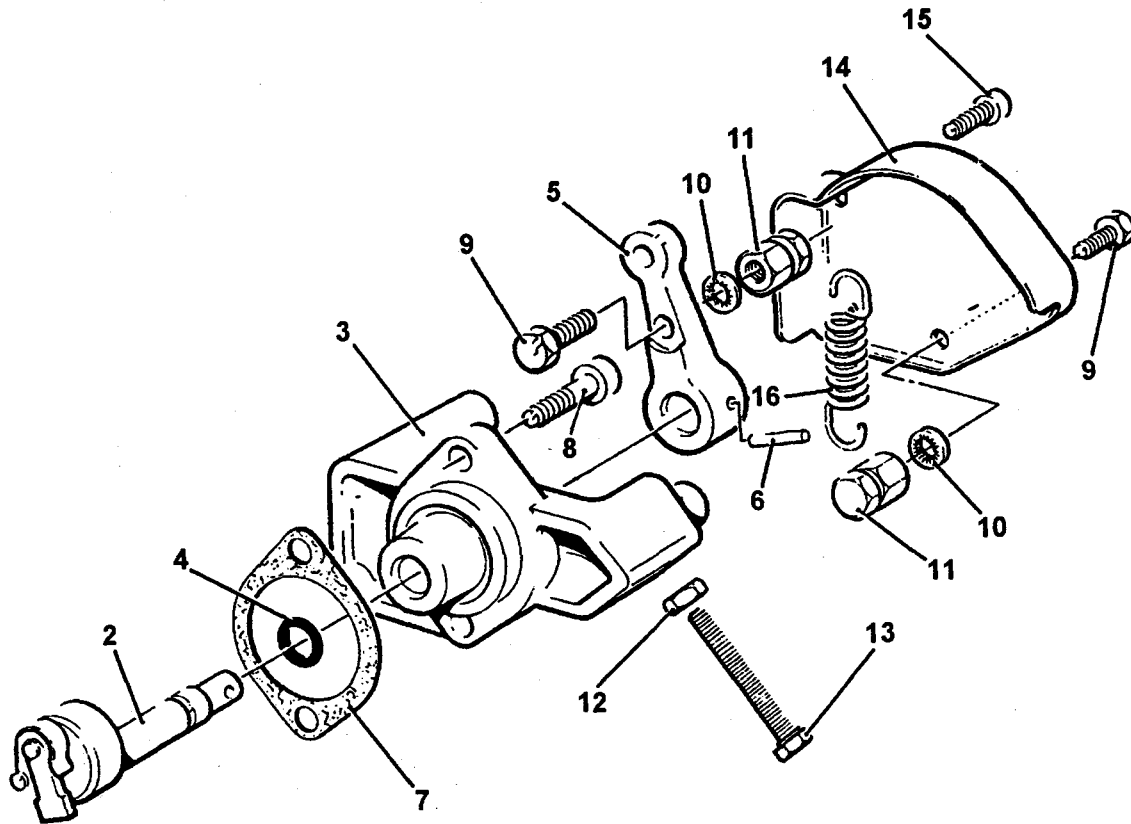


Fig. 1 Stop and run lever

ARMY EQUIPMENT  
SUPPORT PUBLICATION

6115-G-350-711

| FIG<br>1<br>ITEM | DMC<br>Army | NATO STOCK NUMBER | ITEM NAME AND DESCRIPTION  | PART NO/<br>DRAWING NO.             | NO.<br>OFF | ANNOTATIONS |
|------------------|-------------|-------------------|--|-------------------------------------|------------|-------------|
| NI 0             |             | NP                | STOP AND RUN LEVER   |                                     | REF        |             |
| NI 1             |             | NP                | HOUSING AND SPINDLE<br>ASSY  | 363205                              | 1          |             |
| 2 X3             |             | 2815-99-562-7504  | SPINDLE ASSEMBLY   | 362239                              | 1          |             |
| 3 X3             |             | 2815-99-770-7141  | HOUSING; STOP/RUN CONTR<br>SPINDLE ALUMINIUM ALLOY   | 274425                              | 1          |             |
| 4 6MT1           |             | 5330-99-713-6164  | RING, SEALING, TOROIDAL<br>RUBBER, 0.296/0.306 in<br>I/D, 0.067/0.073 in THK   | 359981                              | 1          |             |
| 5 X3             |             | 2815-99-035-3162  | LEVER  | 364964                              | 1          |             |
| 6 G1             |             | 5315-99-138-5983  | PIN, SPRING, STEEL,<br>ZINC PLTD, 0.125 in DIA<br>0.687 in O/A LG, 0.028<br>in THK; 2100 PSI SHEAR<br>STRENGTH   | RP125-0687-7-<br>6                  | 1          |             |
| 7 X3             |             | 5330-99-206-2068  | GASKET ASBESTOS,<br>1-11/32 in I/D, 0.008<br>in CROSS-SECT THK, 2<br>BOLT HOLES, 2-1/4 in<br>O/A W, 1/4 in OUTSIDE,<br>CORNER RAD, 1-3/4 in<br>BOLT HOLE | 266017                              | 1          |             |
| 8                |             | NP                | SCREW, SOCKET HEAD   | 754005                              | 2          |             |
| 9 X3             |             | 5305-99-770-7165  | SCREW MACHINE, STEEL<br>ZINC PLTD, 0.138-32 UNC<br>0.5 in LG   | BS1981HXEXUNO<br>.138X008STOOZ<br>N | 1          |             |
| 10 X3            |             | 5310-99-771-9227  | WASHER, LOCK, STEEL,<br>ZINC PLTD, 0.145 in I/D<br>0.305 in O/D, 0/018 in<br>THK   | 786603                              | 2          |             |
| 11 X3            |             | 5310-99-770-0088  | NUT, PLAIN, HEXAGON<br>STEEL, ZINC PLTD<br>6-32 UNC  | 363129                              | 2          |             |
| 12 G1            |             | 5310-99-941-2419  | NUT, PLAIN, HEXAGON UNF<br>STEEL, CHAMFERED<br>BEARING, ZINC PLTD, NO<br>10 BY 0.13 in O/H H   | BS1981PLHXUNO<br>.190STOOZN         | 1          |             |
| 13 X3            |             | 5305-99-770-7166  | SCREW, CAP, HEXAGON HD<br>STEEL, ZINC PLTD<br>0.190-32 UNF, 1.5 in<br>NOMINAL LG   | BS1981HXEXUNO<br>.190X024STOOZ<br>N | 1          |             |
| 14 X3            |             | 2815-99-770-0101  | GUARD SUB ASSEMBLY   | 363206                              | 1          |             |
| 15 G1            |             | 5305-99-970-6382  | SCREW, SOCKET HD, STEEL<br>0.25-20 UNC, 0.75 in<br>NOMINAL LG  | BS2470FLSOUNO<br>.250X012STOOO<br>X | 3          |             |
| 16 X3            |             | 5360-99-770-0096  | SPRING, HELICAL,<br>EXTENSION, CRES, 34.5<br>mm FREE INSIDE LG, 7.9<br>mm COIL O/D, HOOKENDS   | 363128                              | 1          |             |

Chapter 2-3-1-4

PARTS LIST

LUBRICATING OIL PUMP AND FILTER

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Chapter

|           |                                 |
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| 2-3-1-4   | Lubricating Oil Pump and Filter |
| 2-3-1-4-1 | Oil Pipes                       |
| 2-3-1-4-2 | Low Pressure Switch             |





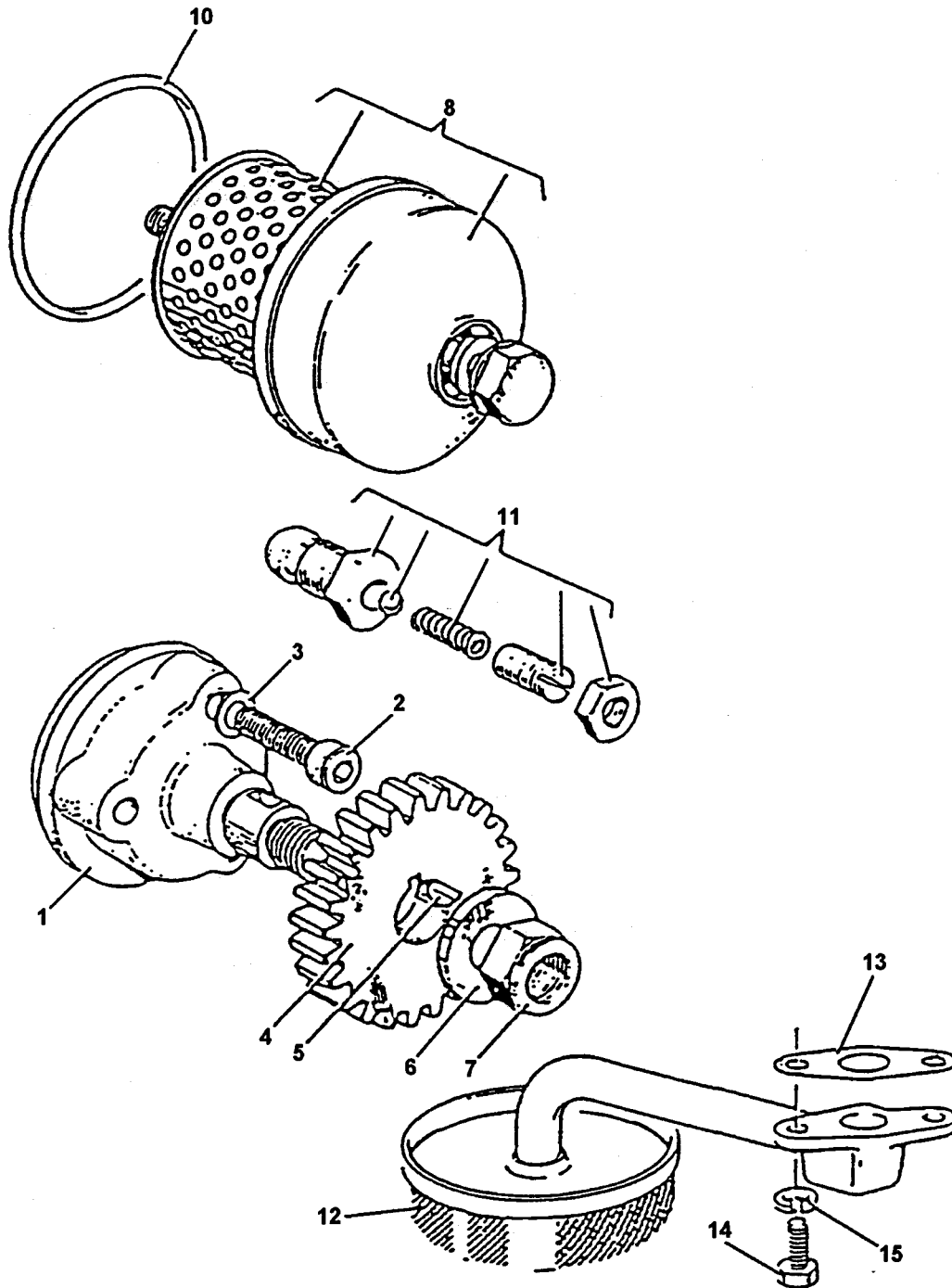


Fig. 1 Lubricating oil pump and filter - exploded view

| FIG<br>1<br>ITEM | DMC<br>Army | NATO STOCK NUMBER | ITEM NAME AND DESCRIPTION   | PART NO/<br>DRAWING NO. | NO.<br>OFF | ANNOTATIONS |
|------------------|-------------|-------------------|---|-------------------------|------------|-------------|
| NI 0             |             | NP                | LUBRICATING OIL PUMP AND<br>FILTER  | -                       | REF        |             |
| 1                | X3          | 2910-99-758-8037  | . OIL PUMP ASSY   | 298011                  | 1          |             |
| 2                | G1          | 5305-99-780-8693  | . SCREW, SOCKET HEAD, STEEL<br>1/4 in.DIA UNC, 2-3/8 in<br>LG   | 754184                  | 3          |             |
| 3                | G1          | 5310-99-120-4032  | . WASHER, FLAT, STEEL, ROUND<br>ZINC PLTD, 1/4 in NOMINAL<br>BOLT SIZE, 9/16 in O/D,<br>0.056 in (17SWG)  | 785011                  | 3          |             |
| 4                | X3          | 4320-99-205-0686  | . GEAR, SPUR, 2.250 in MAX<br>2.245 in MIN O/D, 0.4375<br>in MIN 0.4385 in MAX I/D<br>7/16 in W, NO OF TEETH 25   | 267381                  | 1          |             |
| 5                | G1          | 5315-99-943-5949  | . KEY, WOODRUFF, STEEL<br>0.370/0.375 in CIRCLE DIA<br>0.125/0.126 in THK<br>0.166/0.171 in H   | 792003                  | 1          |             |
| 6                | G1          | 5310-99-941-8635  | . WASHER, FLAT, STEEL<br>BS1449 PART 3B CS4 HARD,<br>RD SHAPE, ZINC PLTD<br>BS1706 ZN3, RD HOLE,<br>25/64 in NOM BOLT SIZE<br>3.4 in O/D, 0.072 in<br>(15SWG) | 785613                  | 1          |             |
| 7                | G1          | 5310-99-137-6781  | . NUT, SELF LOCKING, HEX.<br>3/8-24 UNF   | FP/D129/19<br>/802      | 1          |             |
| 8                | X3          | 2940-99-477-5383  | . FILTER, FLUID PRESSURE<br>REPLACEABLE TYPE, C/W<br>ELEMENT AND SEALING RING   | 360981                  | 1          |             |
| NI 9             | X3          | 2940-99-752-3342  | . FILTER ELEMENT, FLUID<br>PRESSURE, 52.83 mm O/D<br>22.48 mm I/D, 70.1 mm O/A<br>LG  | 393204                  | 1          |             |
| 10               | 6MT1        | 5330-99-791-1640  | . RING, SEALING, TOROIDAL<br>RUBBER, 2.479/2.511 in<br>I/D, 0.064/0.076 in THK  | 360983                  | 1          |             |
| 11               | X3          | 4320-99-205-1651  | . VALVE, RELIEF, OIL PUMP,<br>VLAVE SET TO LIFT AT 43<br>TO 48 LB/IN <sup>2</sup>   | 347638                  | 1          |             |
| 12               | X3          | 2940-99-758-8038  | . STRAINER ASSEMBLY, DIESEL<br>FUEL OIL, COMPRISING,<br>PIPE, GAUGE, SPRING AND<br>CAP  | 294326                  | 1          |             |
| 13               | X3          | 5330-99-759-3354  | . GASKET, GRAPHITED<br>COOPERITE IRREGULAR SHAPE<br>1/2 in I/D, 2-3/8 in O/A<br>LG, 0.015 in THK, 2 BOLT<br>HOLES 9/32 in DIA                                 | 344636                  | 1          |             |
| 14               | G1          | 5305-99-941-1168  | . SCREW, MACHINE BS1768 UNC<br>S STEEL HEX HD, CADMIUM<br>PLTD, 1/4 in DIA, 3/4 in<br>LG, CLASS 2A THD  | 752025                  | 2          |             |
| 15               | X3          | 5310-99-208-6456  | . WASHER, LOCK STEEL, SPLIT<br>HELICAL RING, ZINC PLTD<br>0.465 in O/D, 0.28 in I/D<br>0.064 in THK   | 786078                  | 2          |             |

Chapter 2-3-1-4-1

PARTS LIST

OIL PIPES

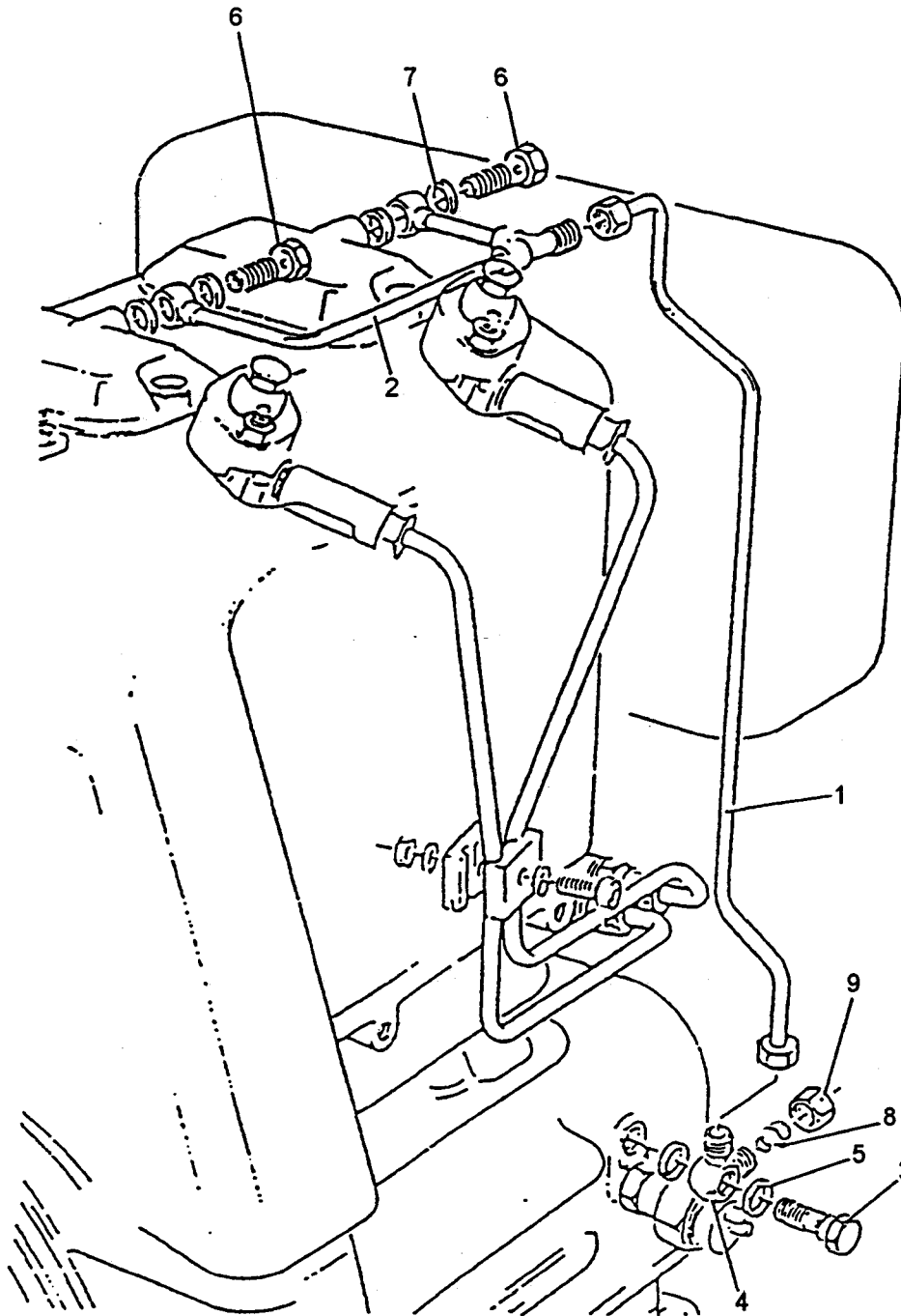


Fig. 1 Oil pipes

| FIG<br>1<br>ITEM | DMC<br>Army | NATO STOCK NUMBER | ITEM NAME AND DESCRIPTION  | PART NO/<br>DRAWING NO. | NO.<br>OFF | ANNOTATIONS                   |
|------------------|-------------|-------------------|--|-------------------------|------------|-------------------------------|
| NI 0             |             | NP                | OIL PIPES  |                         | REF        |                               |
| 1                |             | NP                | . PIPE, LUBRICATING, ROCKER<br>FEED FROM CRANKCASE   | 275151                  | 1          |                               |
| 2                |             | NP                | . PIPE, LUBRICATING, ROCKER<br>FEED TO ROCKERS   | 364806                  | 1          |                               |
| 3                | X3          | 4730-99-752-3323  | . BOLT, FLUID PASSAGE,<br>STEEL, ZINC PLTD<br>1.124/1.144 in O/A LG  | 362660                  | 1          | )Lister/<br>)Petter           |
| 4                | X3          | 4730-99-758-8020  | . CONNECTOR, MULTIPLE,<br>FLUID PRESSURE LINE,<br>COPPER ALLOY, 26.15 mm<br>LG, 14.3 mm W O/A, 12.7<br>mm THK, 9.9 mm DIA BOLT<br>HOLE, 1/8 BSP, 2 FEMALE<br>CONNECTIONS | 364796                  | 1          | )<br>)Lister/<br>)Petter<br>) |
| 5                | X3          | 5310-99-142-6892  | . WASHER, FLAT, COPPER RD<br>HOLE, 3/8 in NOM BOLT<br>HOLE, 0.563, 9/16 in O/D<br>0.047 in THK (PS843104)  | 843104                  | 2          | Lister/<br>Petter             |
| 6                | X3          | 4730-99-205-1296  | . BOLT, FLUID PASSAGE,<br>STEEL, ZINC PLTD   | 323079                  | 2          |                               |
| 7                | X3          | 5310-99-206-7956  | . WASHER, FLAT; COPPER<br>0.5 in O/D, 0.328 in I/D<br>0.031 in THK   | 843103 @<br>ISSUE 5     | 4          |                               |
| 8                | X3          | 2910-99-202-2602  | . SEAL, PIPE   | 257643                  | 1          |                               |
| 9                | X3          | 4730-99-202-2603  | . NUT, UNION   | 251708                  | 1          |                               |

Chapter 2-3-1-4-2

PARTS LIST

LOW PRESSURE SWITCH

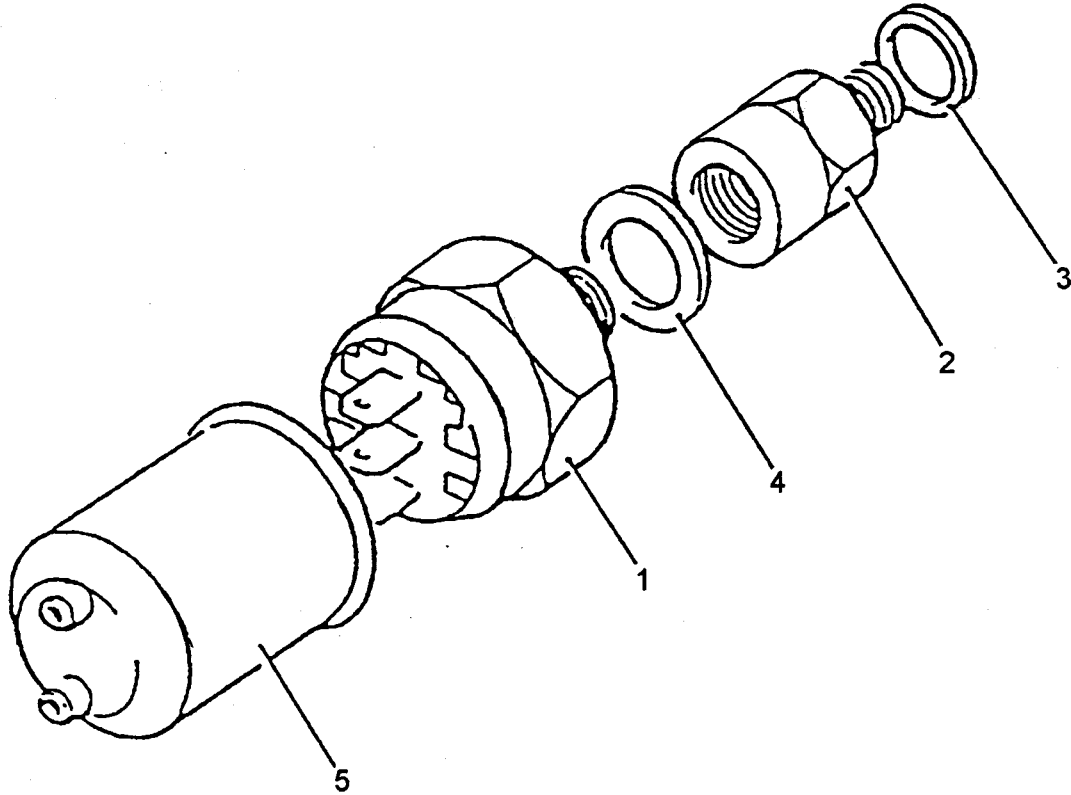


Fig. 1 Low oil pressure switch kit



| FIG<br>1<br>ITEM | DMC<br>Army | NATO STOCK NUMBER | ITEM NAME AND DESCRIPTION   | PART NO/<br>DRAWING NO. | NO.<br>OFF | ANNOTATIONS |
|------------------|-------------|-------------------|---|-------------------------|------------|-------------|
| NI 0             |             | NP                | LOW PRESSURE SWITCH   |                         | REF        |             |
| 1 X3             |             | 5930-99-770-7146  | SWITCH PRESSURE; 1 POLE<br>DOUBLE THROW, 24VDC/5A<br>RESIST, 48 mm O/A H, 32<br>mm W                      | 363831                  | 1          |             |
| 2 X3             |             | 4730-99-770-7150  | REDUCER PIPE, 30 mm O/A<br>LG, FIRST END 0.125 in<br>BSP SECOND END 0.25 in<br>BSP                        | 361712                  | 1          |             |
| 3 X3             |             | 5310-99-142-6892  | WASHER, FLAT, COPPER RD<br>RD HOLE 3/8 in NOM BOLT<br>HOLE 0.563, 9/16 in O/D,<br>0.047 in THK (PS843104) | 843104                  | 1          |             |
| 4 X3             |             | 5310-99-618-5102  | WASHER, FLAT, COPPER,<br>0.75 in O/D, 0.521 in<br>I/D, 0.047 in THK                                       | 843105 @<br>ISSUE 5     | 1          |             |
| 5 Z32            |             | 5930-99-650-8319  | BOOT, DUST AND MOISTURE<br>SEAL   | 355149                  | 1          |             |

**Chapter 2-3-1-5**

**PARTS LIST**

**STARTER MOTOR AND FIXINGS**

**CONTENTS**

Chapter

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|-----------|---------------------------|
| 2-3-1-5   | Starter Motor and Fixings |
| 2-3-1-5-1 | Starter Motor Assembly    |



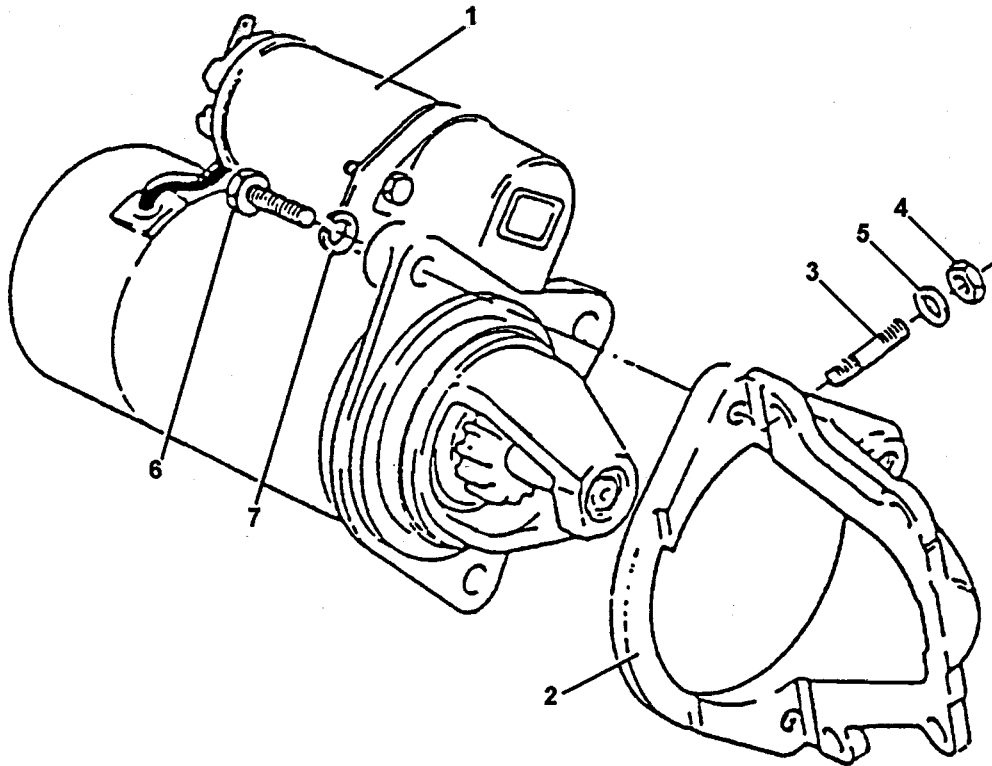


Fig. 1 Starter motor kit

| FIG<br>1<br>ITEM | DMC<br>Army | NATO STOCK NUMBER | ITEM NAME AND DESCRIPTION   | PART NO/<br>DRAWING NO.              | NO.<br>OFF | ANNOTATIONS |
|------------------|-------------|-------------------|---|--------------------------------------|------------|-------------|
| NI 0             |             | NP                | STARTER MOTOR ASSEMBLY  |                                      | REF        |             |
| 1                | X3          | 2920-99-257-4233  | . STARTER, ENGINE,<br>ELECTRICAL; CLUTCH TYPE<br>12VDC, INBOARD TYPE<br>LUCAS M79   | 54293252                             | 1          |             |
| 2                | X3          | 2990-99-207-2314  | . BRACKET, STARTER MOTOR<br>SUPPORT   | 289341                               | 1          |             |
| 3                | G1          | 5307-99-120-4257  | . STUD, PLAIN, BS2693,<br>STEEL ZINC PLTD, 5/16-24<br>UNC, 1/2 in LG, 1ST END<br>5/16-18 UNF 5/8 in LG,<br>2ND END 1-1/4 in O/A LG                          | 762630                               | 1          |             |
| 4                | G1          | 5310-99-941-0925  | . NUT, PLAIN, HEXAGON, UNF<br>STEEL, CHAMFERED, ZINC<br>PLTD, 5/16-24, 1/2 in W<br>A/F, 17/64 in H, CLASS<br>2B, NOT RATED RIGHT HAND                       | BS1768PLHXUN<br>0.312STOOZNE<br>FIG6 | 4          |             |
| 5                | W18         | 5310-99-214-9715  | . WASHER, LOCK, ST SPLIT<br>HELICAL RING, ZINC PLTD<br>5/16 in NOM BOLT SIZE<br>0.6 in O/D, 0.064 in THK  | 786079                               | 4          |             |
| 6                | Z88         | 5305-99-765-7105  | . SCREW, CAP, HEX HEAD<br>STEEL, ZINC PLTD, 0.375-<br>16 UNC, 0.875 in NOM LG   | 752670                               | 3          |             |
| 7                | G1          | 5310-99-941-8635  | . WASHER, FLAT, STEEL<br>BS1449 PART 3B CS4 HARD<br>RD SHAPE, ZINC PLTD<br>BS1706 ZN3, RD HOLE<br>25/64 in NOM BOLT SIZE<br>3.4 in O/D, 0.072 in<br>(15SWG) | 785613                               | 3          |             |

Chapter 2-3-1-5-1

PARTS LIST

STARTER MOTOR ASSEMBLY

ARMY EQUIPMENT  
SUPPORT PUBLICATION

6115-G-350-711

| FIG<br>1<br>ITEM | DMC<br>Army | NATO STOCK NUMBER | ITEM NAME AND DESCRIPTION   | PART NO/<br>DRAWING NO. | NO.<br>OFF | ANNOTATIONS |
|------------------|-------------|-------------------|---|-------------------------|------------|-------------|
| NI 0             | X3          | 2920-99-257-4233  | STARTER, ENGINE,<br>ELECTRICAL; CLUTCH TYPE<br>12VDC, INBOARD TYPE<br>LUCAS M79   | 54293252                | REF        |             |
| NI 1             | X3          | 2920-99-251-3196  | BRUSH BOX ASSEMBLY<br>COMPRISING: BRUSH BOX<br>INSUL PLATE, SPRING AND<br>RETAINER ASSY, CLIPS  | 60600960                | 1          |             |
| NI 2             | X3          | 2920-99-251-3197  | BRUSH KIT, COMPRISING:<br>BUS BAR ASSY, EARTH<br>BRUSH  | 60600961                | 1          |             |
| NI 3             | X3          | 2920-99-795-6747  | WINDING, ARMATURE, COIL<br>ASSY   | 54291892                | 1          |             |
| NI 4             | X3          | 2920-99-075-0123  | ARMATURE, STARTER<br>GENERATOR 21A/2W,<br>COMPRISES: COMMUTATOR,<br>LAMINATION PACK, COIL,<br>2 INSULATOR PLATES,<br>THRUST COLLAR, SHAFT<br>93.57 mm LG  | 54292192                | 1          |             |
| NI 5             | X3          | 2920-99-777-2648  | SOLENOID, ELECTRICAL  | 77201                   | 1          |             |
| NI 6             | X3          | 2920-99-776-6704  | PIVOT KIT, COMPRISING:<br>PIVOT AND PACKING PIECE   | 60600913                | 1          |             |
| NI 7             | X3          | 2920-99-433-8808  | DRIVE, ENGINE ELECTRICAL<br>STARTER, 9 TEETH, 61.43<br>O/A LG   | 54292698                | 1          |             |
| NI 8             | X3          | 2920-99-207-5985  | DRIVE RETENTION,<br>COMPRISING: JUMP RING<br>AND THRUST COLLAR  | 54245339                | 1          |             |
| NI 9             | X3          | 2920-99-776-6706  | BUSH KIT, COMPRISING:<br>2 BUSHES, DRIVE END AND<br>COMMUTATOR END  | 60600914                | 1          |             |
| NI 10            | X3          | 2920-99-776-6708  | PARTS KIT, COMPRISING:<br>POLE SCREWS (4), FIXING<br>BOLTS DE (2), FIXING<br>BOLTS CE (2), FIXING<br>SCREWS SOLENOID (2),<br>SCREWS (2), THRUST<br>WASHER, Cu WASHER,<br>TERMINAL NUT, SPRING<br>WASHER, NUT, WASHER,<br>JUMP RING, THRUST WASHER | 60600916                | 1          |             |

**Chapter 2-3-1-6**

**PARTS LIST**

**MANIFOLDS**

**CONTENTS**

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2-3-1-6      Manifolds  
2-3-1-6-1    Silencers





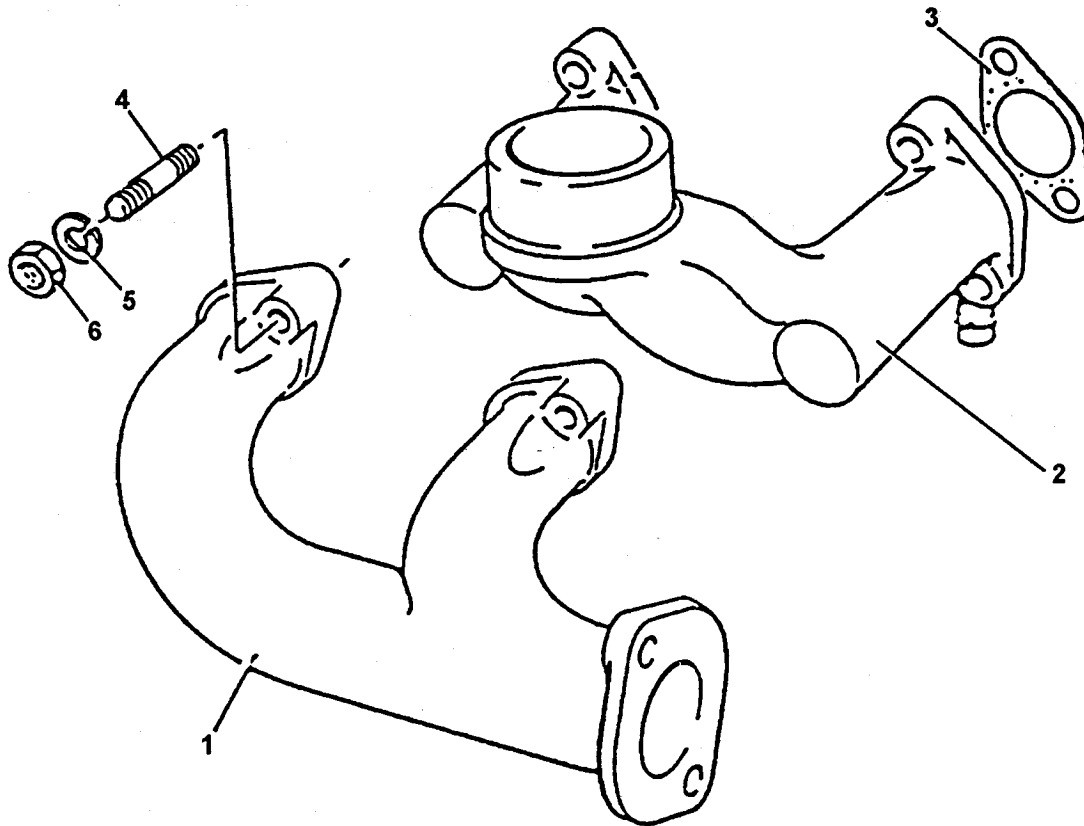


Fig. 1 Manifolds - exploded view

| FIG<br>1<br>ITEM | DMC<br>Army | NATO STOCK NUMBER | ITEM NAME AND DESCRIPTION   | PART NO/<br>DRAWING NO.               | NO.<br>OFF | ANNOTATIONS |
|------------------|-------------|-------------------|---|---------------------------------------|------------|-------------|
| NI 0             |             |                   | MANIFOLDS   | -                                     | REF        |             |
| 1                | X3          | 2815-99-720-8792  | . MANIFOLD, EXHAUST, ENGINE   | 273358                                | 1          |             |
| 2                | X3          | 2815-99-971-5888  | . MANIFOLD, INDUCTION,<br>ENGINE  | 364963                                | 1          |             |
| 3                | W3          | 5330-99-205-1864  | . GASKET, ASBESTOS, RUBBER<br>(NATURAL), SYNTHETIC<br>RUBBER, OVAL SHAPE, 2-3/4<br>in O/A LG, 1-5/8 in O/A W<br>1/32 THK              | 266086                                | 4          |             |
| 4                | G1          | 5307-99-120-3551  | . STUD, PLAIN, 5/16-24 UNF<br>NUT END, 5/16-18 UNC STUD<br>END, 1.635 in O/A LG   | 762633                                | 8          |             |
| 5                | G1          | 5310-99-941-0925  | . NUT PLAIN, HEXAGON, UNF,<br>STEEL, CHAMFERED, ZINC<br>PLTD, 5/16-24, 1/2 in W<br>A/F, 17/64 in H, CLASS 2B<br>NOT RATED, RIGHT HAND | BS1768PLHXUN<br>0.312STOOZNG<br>FIG6G | 8          |             |
| 6                | W18         | 5310-99-214-9715  | . WASHER, LOCK; ST SPLIT<br>HELICAL RING ZINC PLTD<br>5/16 in NOM BOLT SIZE<br>0.6 in O/D, 0.064 in THK                               | 786079                                | 8          |             |
| NI 7             | X3          | 2920-99-765-7101  | . PLUG, HEATER; TEST SPRC<br>12V 28.8A, THD SIZE 1/2<br>in BSP3, 5/6 in O/A LG  | 327523                                | 2          |             |

Chapter 2-3-1-6-1

PARTS LIST

SILENCERS

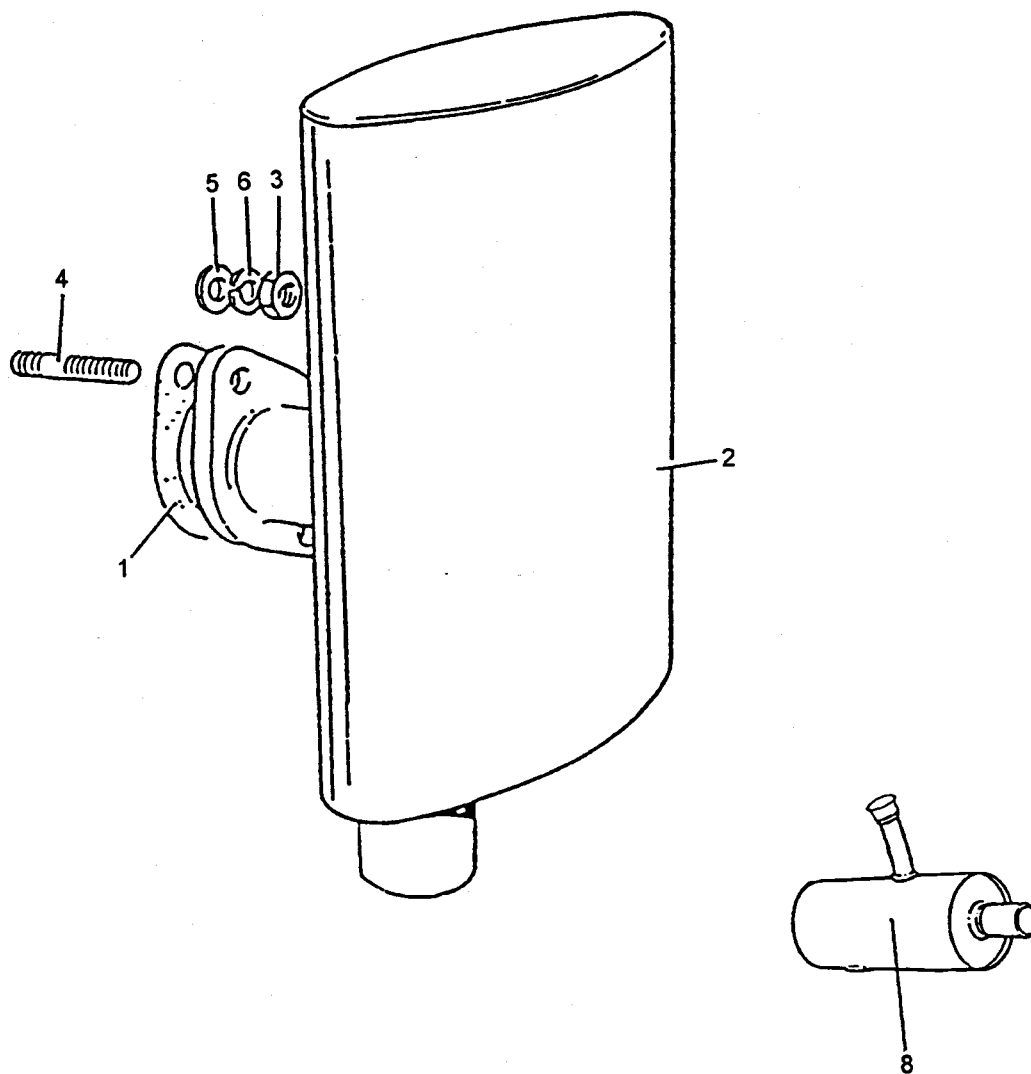


Fig. 1 Silencers

| FIG<br>1<br>ITEM | DMC<br>Army | NATO STOCK NUMBER | ITEM NAME AND DESCRIPTION  | PART NO/<br>DRAWING NO.               | NO.<br>OFF | ANNOTATIONS |
|------------------|-------------|-------------------|--|---------------------------------------|------------|-------------|
| NI 0             |             | NP                | SILENCERS  |                                       | REF        |             |
| 1                | X3          | 5330-99-431-1434  | GASKET; ASBESTOS, 3.375<br>in O/A W, 2in I/D,<br>FIXING HOLES ON 2.625 in<br>PCD   | 203067                                | 1          |             |
| 2                | X3          | 2990-99-257-4234  | SILENCER, EXHAUST,<br>ELIPTICAL BODY, STEEL<br>248 mm LG, 178 mm WD<br>89 mm H   | 274869                                | 1          |             |
| 3                | G1          | 5310-99-941-0925  | NUT, PLAIN, HEXAGON,<br>UNF, STEEL, CHAMFERED<br>ZINC PLTD, 5/16-24 UNF<br>1/2 in W A/F 17/64 in H<br>CLASS 2B, NOT RATED,<br>RIGHT HAND | BS1768PLHXUN<br>0.312STOOZNG<br>FIG6G | 2          |             |
| 4                | G1          | 5307-99-120-4256  | STUD, PLAIN, STEEL, ZINC<br>PLTD, 5/16-24 UNF, FIRST<br>END, 5/16-18 UNC SECOND<br>END, 1-375 in LG                                      | 762631                                | 2          |             |
| 5                |             | NP                | WASHER, FLAT   | 785632                                | 2          |             |
| 6                | W18         | 5310-99-214-9715  | WASHER, LOCK; ST SPLIT<br>HELICAL RING ZINC PLTD<br>5/16 in NOM BOLT SIZE<br>0.6 in O/D, 0.064 in THK                                    | 786079                                | 4          |             |
| NI 7             | X2          | 6116-99-257-4459  | GLOVE, SILENCER  | 0-4169-1/1<br>ITEM 138                | 1          |             |
| NI 8             | X2          | 2990-99-255-2671  | SILENCER, EXHAUST;<br>SECONDARY EXHAUST ASSY,<br>RD BODY   | 1-4169-1/111                          | 1          |             |
| 9                | X3          | 5340-99-752-3339  | CLAMP, LOOP; STEEL, ZINC<br>PLTD, U BOLT TYPE, 5/16<br>in UNF THREADED ENDS<br>WITH NUTS, 41mm I/D                                       | 359536                                | 1          |             |
| 10               | X3          | 2815-99-752-3332  | TAIL PIPE, EXHAUST,<br>STEEL, 1-5/8 in O/D   | 359537                                | 1          |             |
| 11               | X3          | 2990-99-052-2516  | SLEEVE, SILENCER,<br>ALUMINIZED GLASS CLOTH<br>476 mm LG, 396 mm W<br>WITH 12 BRASS EYELETS  | AD2                                   | 1          |             |

Chapter 2-3-1-7

PARTS LIST

AIR CLEANER

CONTENTS

Chapter

|           |             |
|-----------|-------------|
| 2-3-1-7   | Air Cleaner |
| 2-3-1-7-1 | Cowling     |





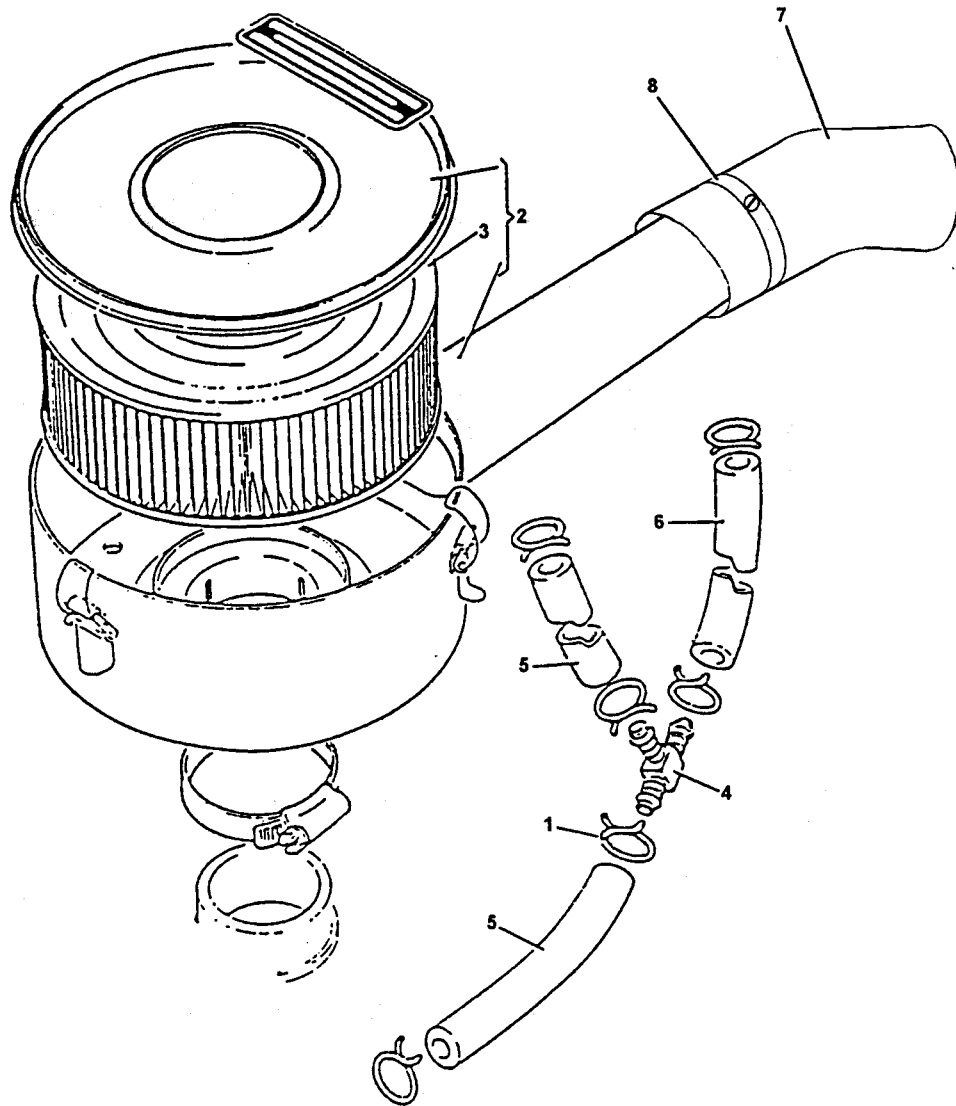


Fig 1 Air Cleaner Assembly

| FIG<br>1<br>ITEM | DMC<br>Army | NATO STOCK NUMBER | ITEM NAME AND DESCRIPTION   | PART NO./<br>DRAWING NO. | NO.<br>OFF | ANNOTATIONS |
|------------------|-------------|-------------------|---|--------------------------|------------|-------------|
| NI 0             |             | NP                | AIR CLEANER ASSEMBLY  |                          | REF        |             |
| 1                | X3          | 5340-99-205-1366  | . CLAMP, LOOP; STEEL, ZINC<br>PLTD  | 347258                   | 6          |             |
| 2                | X3          | 2815-99-083-2571  | . AIR CLEANER   | 366-07028                | 1          |             |
| 3                | X3          | 2910-99-794-3814  | . FILTER ELEMENT; 169 mm<br>O/A LG, INCLUDING TWO<br>38169 mm O/A LG,<br>INCLUDING TWO 38 mm DEEP<br>PLEATS, 71.75 mm MAX W | 366-07188                | 1          |             |
| 4                |             | NP                | . TEE   | 363921                   | 1          |             |
| 5                |             | NP                | . PIPE, BREATHER  | 830791                   | 2          |             |
| 6                | X3          | 2815-99-208-4569  | . TUBING, PLASTIC;<br>EPICHLOROHYDRIN, GREY/<br>BLACK, 19/64 in I/D,<br>27/64 in O/D BULK SUPPLY                            | 671120                   | 1<br>A/R   |             |
| 7                | Z42         | 5975-99-743-0149  | . CONDUIT, NON-METTALIC<br>FLEXIBLE, PLASTIC,<br>POLYAMIDE, 40 mm NOM O/D   | FPY40B                   | A/R        |             |
| 8                | 46MT1       | 4730-99-533-2963  | . CLAMP, HOSE; STEEL ZINC<br>PLTD, 27 mm TO 40 mm I/D<br>13 mm MAX W  | SGT25-40/13              | 1          |             |

Chapter 2-3-1-7-1

PARTS LIST

COWLING

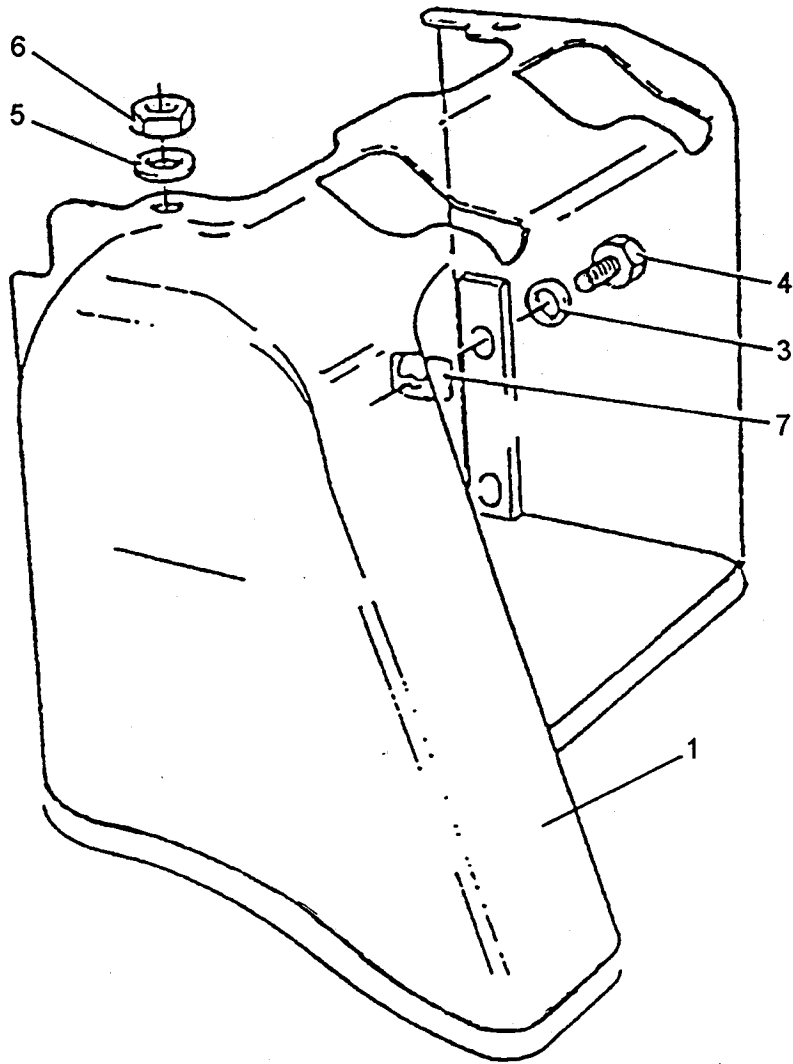


Fig 1 Cowling - exploded view

| FIG<br>1<br>ITEM | DMC<br>Army | NATO STOCK NUMBER | ITEM NAME AND DESCRIPTION  | PART NO/<br>DRAWING NO. | NO.<br>OFF | ANNOTATIONS |
|------------------|-------------|-------------------|--|-------------------------|------------|-------------|
| NI 0             |             | NP                | COWLING  | -                       | REF        |             |
| 1                | X3          | 2815-99-587-9863  | . COWLING INCLUDES COWLING STRIP   | 275140                  | 1          |             |
| NI 2             |             | NP                | . . COWLING STRIP  | 362706                  | 1          |             |
| 3                |             | NP                | . . WASHER   | 363250                  | 4          |             |
| 4                |             | NP                | . . SETSCREW   | 363248                  | 4          |             |
| 5                | G1          | 5310-99-941-8386  | . . WASHER, FLAT, STEEL, RD, ZINC PLTD W/CHROMATE, RD HOLE, 5/16 in NOM BOLT SIZE 5/8 in O/D, 0.072 in (15SWG) THK | 785612                  | 2          |             |
| 6                | G1          | 5310-99-124-4450  | . . NUT, PLAIN, HEXAGON, UNF STEEL FULL BEARING SURFACE 5/16 in, 0.493/0.500 in A/F 0.261/0.271 in H               | 746028                  | 2          |             |
| 7                |             | NP                | . . NUT, CAPTIVE   | 363249                  | 4          |             |

**Chapter 2-3-1-8**

**PARTS LIST**

**CRANKSHAFT, CONNECTING ROD  
AND PISTON**



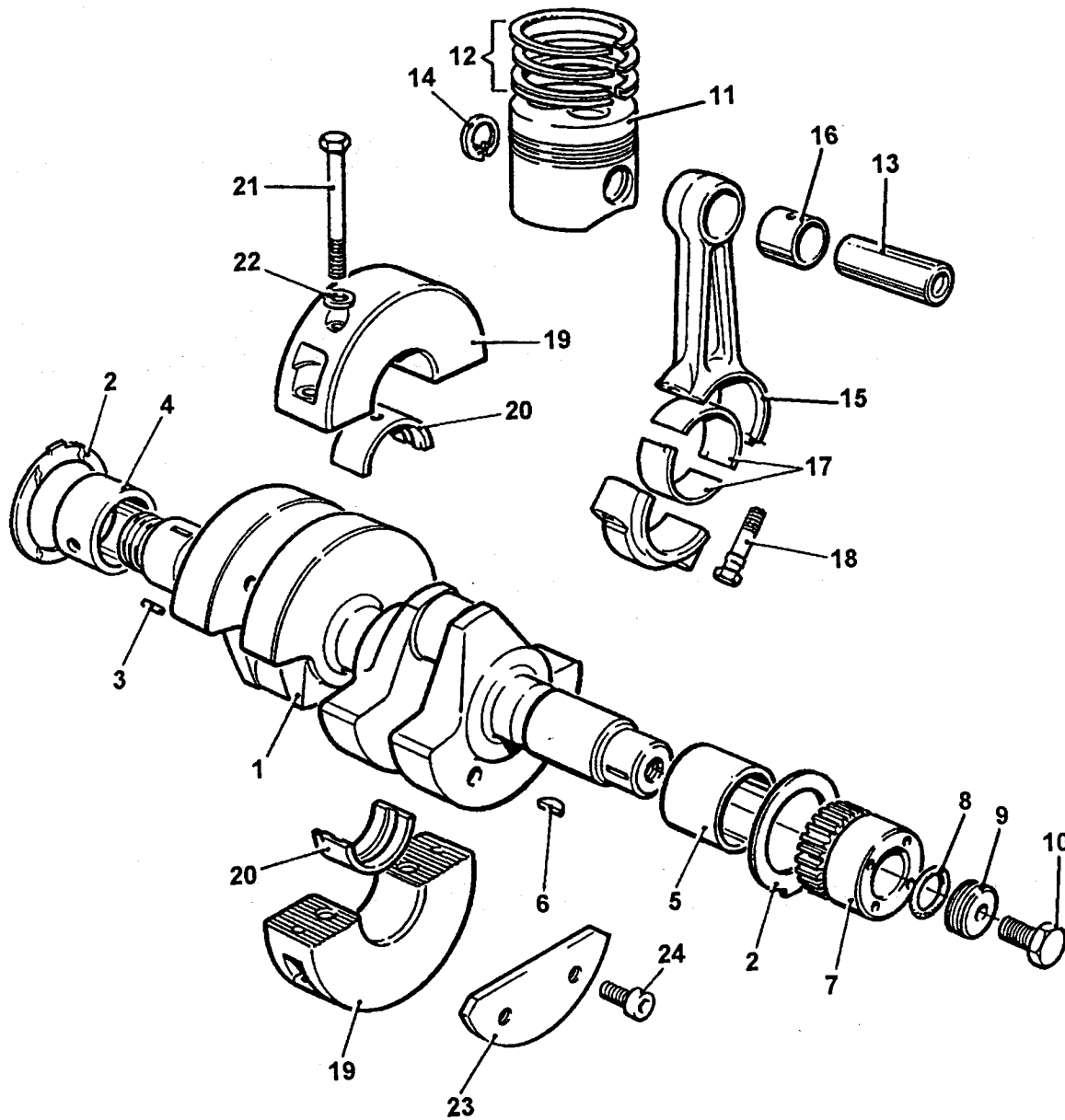


Fig 1 Crankshaft, connecting rod and piston



| FIG 1 ITEM | DMC Army | NATO STOCK NUMBER | ITEM NAME AND DESCRIPTION  | PART NO/<br>DRAWING NO. | NO. OFF | ANNOTATIONS |
|------------|----------|-------------------|--|-------------------------|---------|-------------|
| 0          |          | NP                | CRANKSHAFT, CONNECTING ROD AND PISTON  |                         | REF     |             |
| 1          | X3       | 2815-99-257-4220  | CRANKSHAFT, ENGINE. STEEL<br>2 CYLINDERS, 16-15/16 in<br>O/A LG  | 406665                  | 1       |             |
| 2          | X3       | 3120-99-204-8676  | WASHER, THRUST; 2.44 in<br>O/D, 0.375 in KEY W, 1.970<br>in I/D, 0.092 in THK  | GS1843L                 | 2       |             |
| 3          | G1       | 5315-99-137-1509  | PIN, SPRING, CRES, 1/8 in<br>DIA, 1/4 in O/A LG, 1250<br>LB DOUBLE SHEAR STRENGTH,<br>SPIROL STD DUTY                                  | 1-81NX1-<br>41NMCK      | 4       |             |
| 4          | X3       | 3120-99-790-3139  | BEARING, SLEEVE, COPPER<br>ALLOY, 25.5 mm LG, 45.35<br>mm O/D, 41.33 mm I/D  | 355607                  | 1       |             |
| 5          | X3       | 3120-99-204-8961  | BEARING, SLEEVE;<br>ST/ALUMINIUM, SPLIT,<br>1.7857 in MAX O/D, 1.6272<br>in MAX I/D, 1.5 in NOM LG                                     | 266358                  | 1       |             |
| 6          | 6MT1     | 5315-99-943-5956  | KEY, WOODRUFF, STEEL, RDG<br>C 55 ROUND BOTTOM STYLE,<br>0.74 in CIRCLE DIAMETER<br>0.156 in THK, 0.31 in<br>ROUND BOTTOM STYLE HEIGHT | 792011                  | 1       |             |
| 7          | X3       | 3020-99-790-3138  | GEAR, SPUR; STEEL, 25<br>TEETH, 2.282/2.283 in O/D<br>1.125 in I/D   | 272778                  | 1       |             |
| 8          | X3       | 5330-99-770-7162  | RING, SEALING, TOROIDAL<br>RUBBER SYNTHETIC, 1-3/16<br>in I/D, 1/16 in CROSS<br>SECTIONAL H, 80 DEG SHORE<br>A HARDNESS                | 844132                  | 1       |             |
| 9          | X3       | 5310-99-791-6295  | WASHER GROOVED, STEEL<br>33.27 mm O/D, 8.8 mm I/D<br>5.6 mm H, OUTSIDE EDGE<br>GROOVED 2.51 mm DEEP<br>CHAMFERED EDGE 45 DEG           | 358701                  | 1       |             |
| 10         | X3       | 5306-99-770-0091  | BOLT, SELF LOCKING, 0.312<br>-24 UNF, 1 in NOMINAL LG  | 363064                  | 1       |             |
| 11         | X3       | 2815-99-253-6416  | PISTON, INTERNAL,<br>COMBUSTION ENGINE,<br>ALUMINIUM, 70 mm LG, C/W<br>3 RINGS, 2 CIRCLIPS AND<br>GUDGEON PIN                          | 364700W                 | 2       |             |
| 12         | X3       | 2815-99-257-4224  | RING SET, PISTON   | 364709                  | 2       |             |
| 13         | X3       | 2815-99-787-9704  | PIN, GUDGEON; STEEL,<br>12.00/12.25 mm I/D<br>22.22/22.23 mm O/D<br>70.28/70.53 mm LG  | 360715                  | 2       |             |
| 14         | 6MT1     | 5365-99-910-8324  | RING, RETAINING,<br>PHOSPHATE COATED; INT<br>22 mm NOM BORE DIA<br>0.94 TO 1.00 mm THK MATL  | SSML7-3                 | 4       |             |

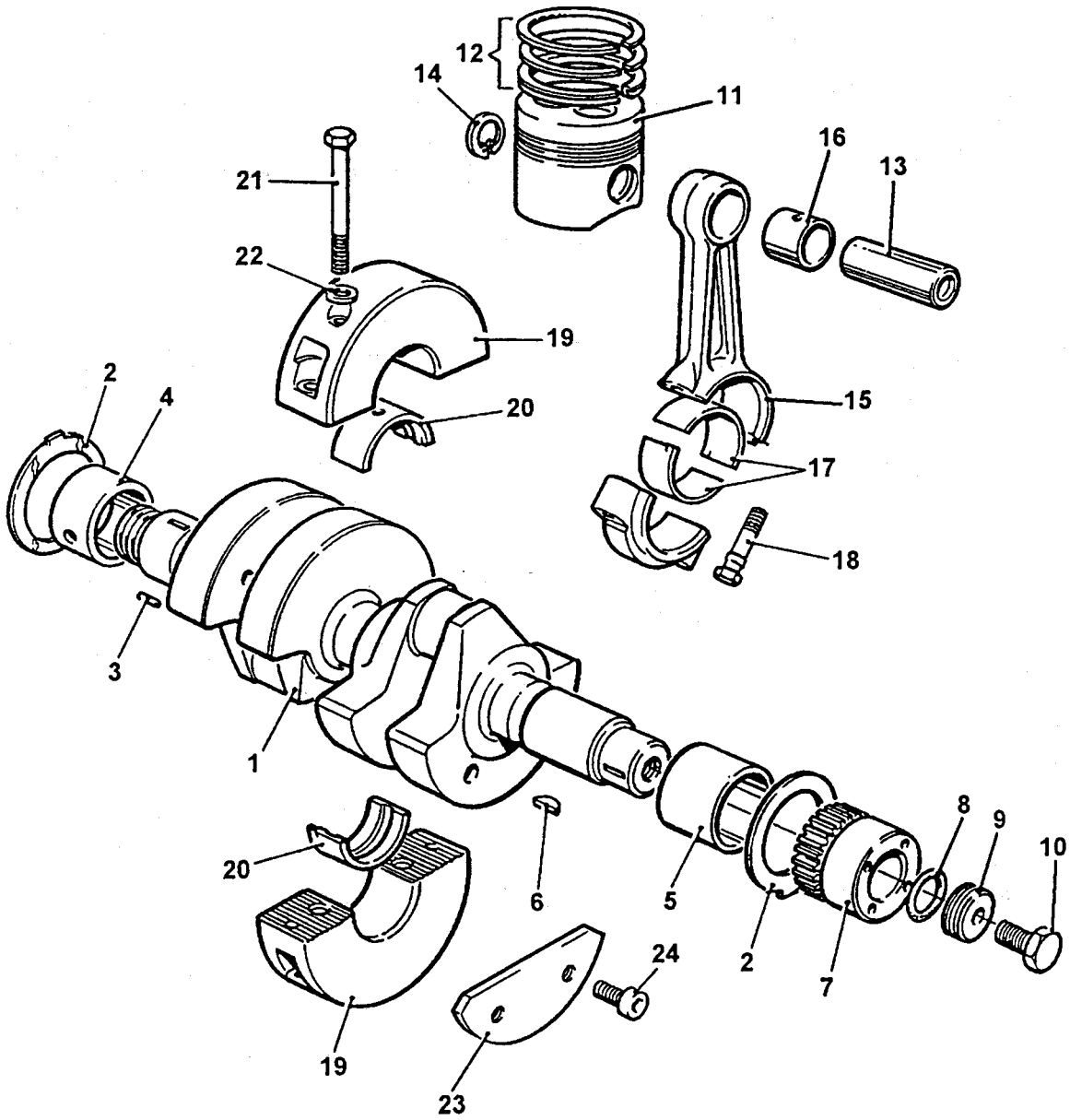


Fig 1 Crankshaft, connecting rod and piston.

| FIG<br>1<br>ITEM | DMC<br>Army | NATO STOCK NUMBER | ITEM NAME AND DESCRIPTION   | PART NO/<br>DRAWING NO. | NO.<br>OFF | ANNOTATIONS |
|------------------|-------------|-------------------|---|-------------------------|------------|-------------|
|                  |             |                   | CAMSHAFT, CONNECTING ROD AND PISTON (continued)   |                         |            |             |
| 1                | 15          | X3                | 2815-99-798-4251 . CONNECTING ROD, PISTON; COMPRISES CONNECTING ROD STANDARD L/E BEARING, CAP AND BOLTS   | 393103                  | 2          |             |
|                  | 16          | X3                | 3120-99-787-9709 . BUSHING, SLEEVE; STEEL OUTER LAYER, COPPER ALLOY INNER LAYER, PLAIN NO OUTSIDE FLANGES SPLIT, 29 mm O/A LG, 25.476-25-438 mm I/D           | 362306                  | 2          |             |
|                  | 17          | X3                | 3120-99-257-4460 . BEARING, SLEEVE, I/D 44.54 mm, HOUSING O/D 47.143 mm, 21.97 mm MIN/22.22 mm MAX LG   | 364671                  | 2<br>PR    |             |
|                  | 18          | X3                | 5306-99-257-4225 . BOLT, EXTERNALLY RELIEVED BODY, 5/16 UNF, STEEL, HEX HD, 1-9/16 in LG, 2A, 65 TON MIN TENSILE STRENGTH                                     | 363804                  | 4          |             |
|                  | 19          | X3                | 2815-99-758-5060 . HOUSING, BEARING UNIT ASSEMBLY, COMPRISING; TOP HALF, BOTTOM HALF, DOWEL AND RETAINING SCREWS  | 272344                  | 1          |             |
|                  | 20          | X3                | 3120-99-752-3238 . BEARING, SLEEVE, STANDARD  | 393015                  | 1<br>PR    |             |
|                  | 21          | X3                | 5306-99-758-5058 . BOLT, MACHINE, UNF, STEEL HEX HD, PHOSPHATED, 3/8 in BY 5-1/2 in LG, CLASS 2A THD  | 350863                  | 2          |             |
|                  | 22          | G1                | 5310-99-941-8635 . WASHER, FLAT, STEEL, BS1449 PART 3B CS4 HARD, RD SHAPE, ZINC PLTD BS1706 ZN3, RD HOLE, 25/64 in NOM BOLT SIZE 3.4 in O/D, 0.072 in (15SWG) | 785613                  | 2          |             |
|                  | 23          | X3                | 2815-99-754-4810 . CHEEK PLATE, CRANKSHAFT, STEEL, SEMI-CIRCULAR PLATE W/2 HOLES DRILLED AND TAPPED, 5/16 in-24 UNF THROUGH 4.935 mm MIN THK                  | 360726                  | 2          |             |
|                  | 24          | G1                | 5305-99-941-2444 . SCREW, SKT HD, UNF, STEEL FLAT FILLISTER/KNURLED HD 5/16 in -24 THD, 3/4 in LG, 3/4 in THD LG, CLASS 2A THD                                | 744030                  | 4          |             |

**Chapter 2-3-1-9**

**PARTS LIST**

**CRANKCASE AND SUMP**



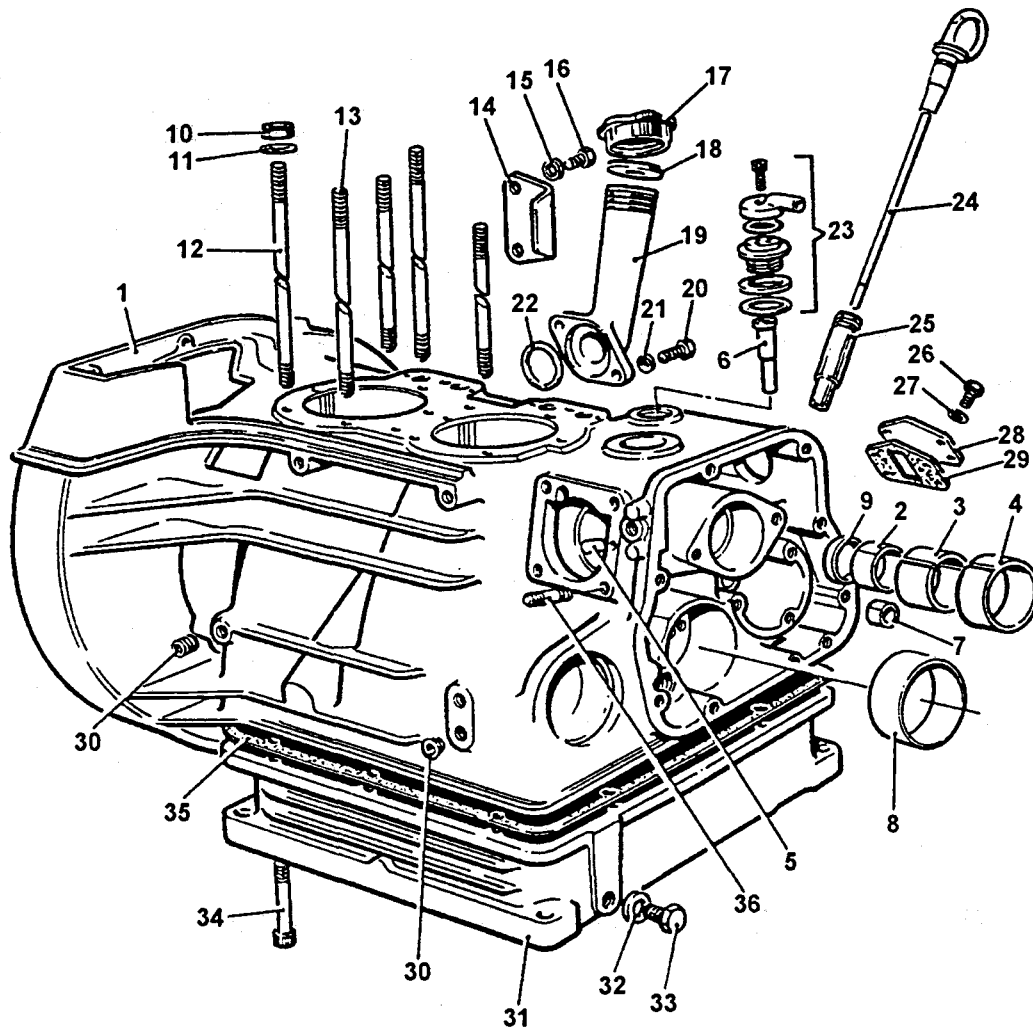


Fig 1 Crankcase and sump

| FIG<br>1<br>ITEM | DMC<br>Army | NATO STOCK NUMBER | ITEM NAME AND DESCRIPTION  | PART NO/<br>DRAWING NO. | NO.<br>OFF | ANNOTATIONS |
|------------------|-------------|-------------------|--|-------------------------|------------|-------------|
| 1                | 0           | NP                | CRANKCASE AND SUMP   |                         | REF        |             |
| 1                |             | NP                | CRANKCASE ASSEMBLY   | 363927                  | 1          |             |
| 2                | X3          | 3120-99-783-6683  | BEARING, SLEEVE, 25.44 mm I/D, 28.608/28.646 mm O/D 15.620/16.130 mm O/A LG  | 360716                  | 1          |             |
| 3                | 6MT1        | 3120-99-944-9789  | BEARING, SLEEVE, STEEL, MULTILAYER TYPE, 1-3/8 in I/D, 1-17/32 in O/D, 1 in LG   | 266383                  | 1          |             |
| 4                | X3          | 3120-99-758-5038  | BEARING, CAMSHAFT, GEAR END  | 336123                  | 1          |             |
| 5                | G1          | 5315-99-138-5982  | PIN, SPRING, STEEL, ZINC PLTD, 5/32 in DIA, 3/8 in O/A LG, 1/32 in THK   | 774137                  | 1          |             |
| 6                | X3          | 3120-99-758-9331  | BUSH, OPERATING SHAFT  | 344040                  | 1          |             |
| 7                | 6MT1        | 3120-99-200-2440  | BEARING, SLEEVE, 0.5 in O/D, 0.375 in I/D, 0.5 in LG, COPPER ALLOY   | 266032                  | 1          |             |
| 8                | X3          | 3120-99-204-8961  | BEARING, SLEEVE, ST/ALUMINIUM, SPLIT, 1.7857 in MAX O/D 1.6272 in MAX I/D, 1.5 in NOMINAL LG                           | 266358                  | 1          |             |
| NI               | 8 X3        | 3120-99-205-1599  | BEARING, SLEEVE, 1.78575 in MAX O/D, 1.6175 in MAX I/D, 1.5 in LG  | 268692                  | 1          |             |
| NI               | 8 X3        | 3120-99-205-1600  | BEARING, SLEEVE, 1.78575 in MAX O/D, 1.6075 in MAX I/D, 1.5 in LG  | 268693                  | 1          |             |
| 9                | X3          | 5340-99-205-1428  | PLUG, PROTECTIVE, DUST AND MOISTURE SEAL, STEEL FRICTION TYPE, 1-1/8 in O/A DIA  | 264553                  | 1          |             |
| 10               | G1          | 5310-99-124-4450  | NUT PLAIN HEXAGON, UNF STEEL FULL BEARING SURFACE 5/16 in, 0.493/0.500 in A/F 0.261/0.271 in H                         | 746028                  | 10         |             |
| 11               | G1          | 5310-99-941-8386  | WASHER, FLAT, STEEL, RD, ZINC PLTD W/ CHROMATE, RD HOLE 5/16 in NOM BOLT SIZE, 5/8 in O/D, 0.072 in (15SWG) THK        | 785612                  | 10         |             |
| 12               | X3          | 5307-99-787-7820  | STUD, PLAIN., ST PHOS COATED AND DYED BLACK 5/16-24 UNF, 241.8 mm LG 26.25 mm MAX THD LG 1ST END, 70.25 mm MAX NUT END | 360707                  | 4          |             |
| 13               | X3          | 5307-99-787-7821  | STUD, PLAIN., ST PHOS COATED AND DYED BLACK 5/16-24 UNF, 267.8 mm LG 26.25 mm MAX THD LG 1ST END, 34.25 mm MAX NUT END | 360708                  | 6          |             |

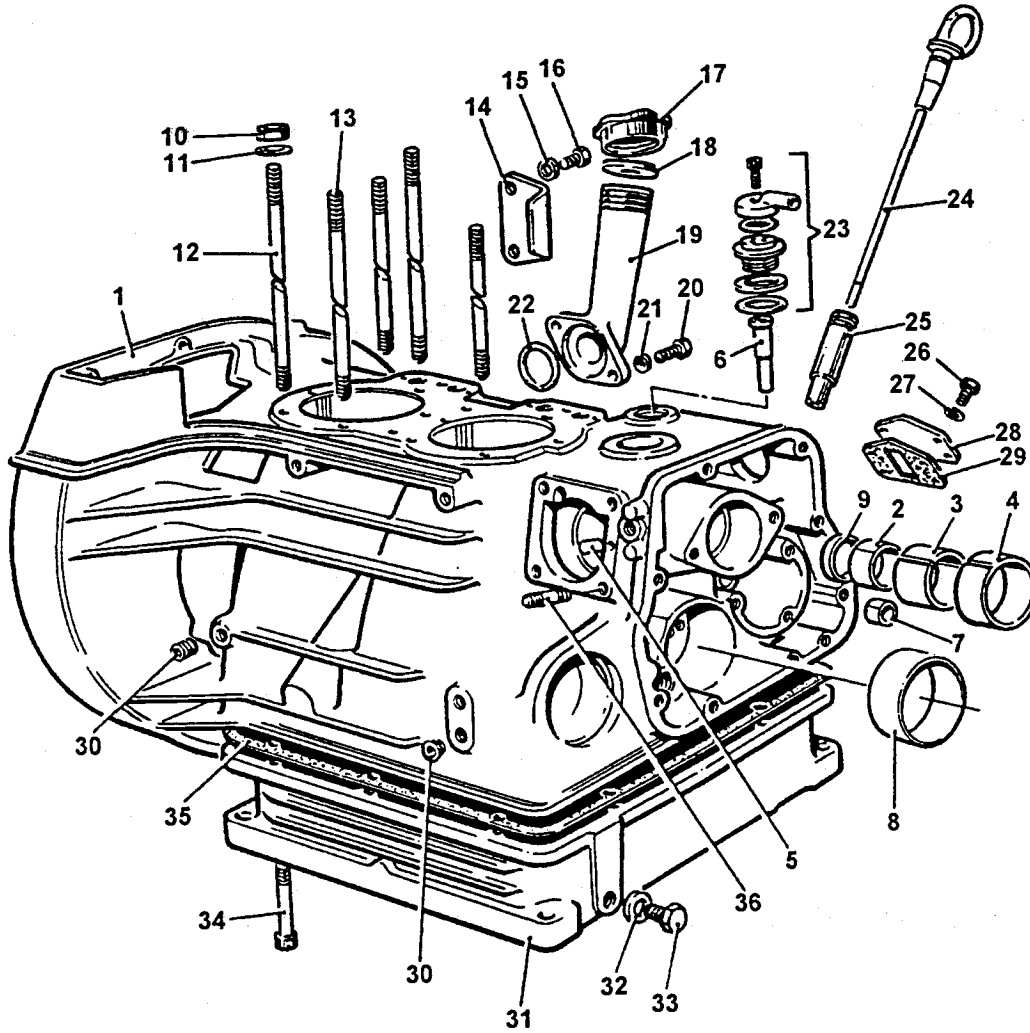


Fig 1 Crankcase and sump



| FIG<br>1<br>ITEM | DMC<br>Army | NATO STOCK NUMBER | ITEM NAME AND DESCRIPTION  | PART NO./<br>DRAWING NO. | NO.<br>OFF | ANNOTATIONS |
|------------------|-------------|-------------------|--|--------------------------|------------|-------------|
|                  |             |                   | CRANKCASE AND SUMP<br>(continued)  |                          |            |             |
| 1                | 14 X3       | 2815-99-758-5044  | COVER PLATE, ACCESS<br>STEEL, ZINC PLTD, 75 mm<br>O/A LG, 79.4 mm W, 0.9 mm<br>THK, 2 FIXING HOLES 8 mm<br>DIA                   | 358135                   | 1          |             |
|                  | 15 X3       | 2990-99-734-2277  | WASHER 5/16 in PLATED  | 785622                   | 2          |             |
|                  | 16 G1       | 5305-99-941-0696  | SCREW, CAP, HEX HD, STEEL<br>ZINC PLTD, 0.312 in-18<br>UNC, 0.5 in LG  | 752645                   | 2          |             |
|                  | 17 X3       | 2815-99-202-3184  | CAP, OIL FILLER, MAZAC<br>ALLOY, PLAIN TYPE, 1-5/16<br>in O/D, 11/16 in H, THD<br>TYPE   | 257607                   | 1          |             |
|                  | 18 X3       | 5310-99-201-5650  | WASHER, FLAT, RUBBER<br>CHLOROPRENE, 1.218 in O/D<br>0.375 in I/D, 0.062 in THK  | 258432                   | 1          |             |
|                  | 19          | NP                | OIL FILLER TUBE  | 274164                   | 1          |             |
|                  | 20 G1       | 5305-99-941-1180  | SCREW, CAP, HEX HD, ST,<br>CAD PLTD W/CHROMATE,<br>0.312-18 UNF CLASS 2A THD<br>HEX HD, 0.875 in FASTENER<br>LG, 0.875 in THD LG | 752648                   | 2          |             |
|                  | 21 G1       | 5310-99-941-8386  | WASHER, FLAT, STEEL, RD<br>ZINC PLTD W/CHROMATE, RD<br>HOLES, 5/16 in NOM BOLT<br>SIZE, 5/8 in O/D, 0.072<br>in (15SWG) THK      | 785612                   | 2          |             |
|                  | 22 4W2      | 5330-99-206-8870  | RING, SEALING, TOROIDAL  | 266788                   | 1          |             |
|                  | 23 X3       | 2990-99-734-0396  | BREATHER ASSEMBLY  | 358852                   | 1          |             |
|                  | 24 X3       | 6680-99-257-4228  | DIPSTICK, LIQUID QUANTITY<br>STEEL/PLASTICS, 126 mm<br>O/A LG, WITH RING HANDLE  | 364785                   | 1          |             |
|                  | 25 X3       | 2815-99-208-5094  | TUBE DIPSTICK  | 344451                   | 1          |             |
|                  | 26 G1       | 5305-99-941-0696  | SCREW, CAP, HEX HD, STEEL<br>ZINC PLTD, 0.312 in-18<br>UNC, 0.5 in LG  | 752645                   | 4          |             |
|                  | 27 G1       | 5310-99-941-8386  | WASHER, FLAT, STEEL, RD<br>ZINC PLTD W/CHROMATE, RD<br>HOLES, 5/16 in O/D, NOM<br>BOLT SIZE, 0.0712 (15SWG)<br>THK               | 785612                   | 4          |             |
|                  | 28 Z88      | 5820-99-734-0391  | COVER, FUEL LIFT PUMP  | 350556                   | 1          |             |
|                  | 29 X3       | 5330-99-560-0278  | GASKET, FIBRE/SYNTHETIC<br>RUBBER, 66.6 mm LG, 60.3<br>mm NOM W, 0.9 mm THK,<br>APERTURE 19 mm X 38.1 mm                         | 365229                   | 1          |             |
|                  | 30 X3       | 4730-99-206-9832  | PLUG, OIL-WAY, 1/8 in BSP  | 332968                   | 3          |             |
|                  | 31 X3       | 2815-99-752-3159  | SUMP, ENGINE, ALUMINIUM<br>ALLOY, 12-13/32 in LG<br>10-11/16 in W, 2-3/4 in<br>DEEP  | 406829                   | 1          |             |

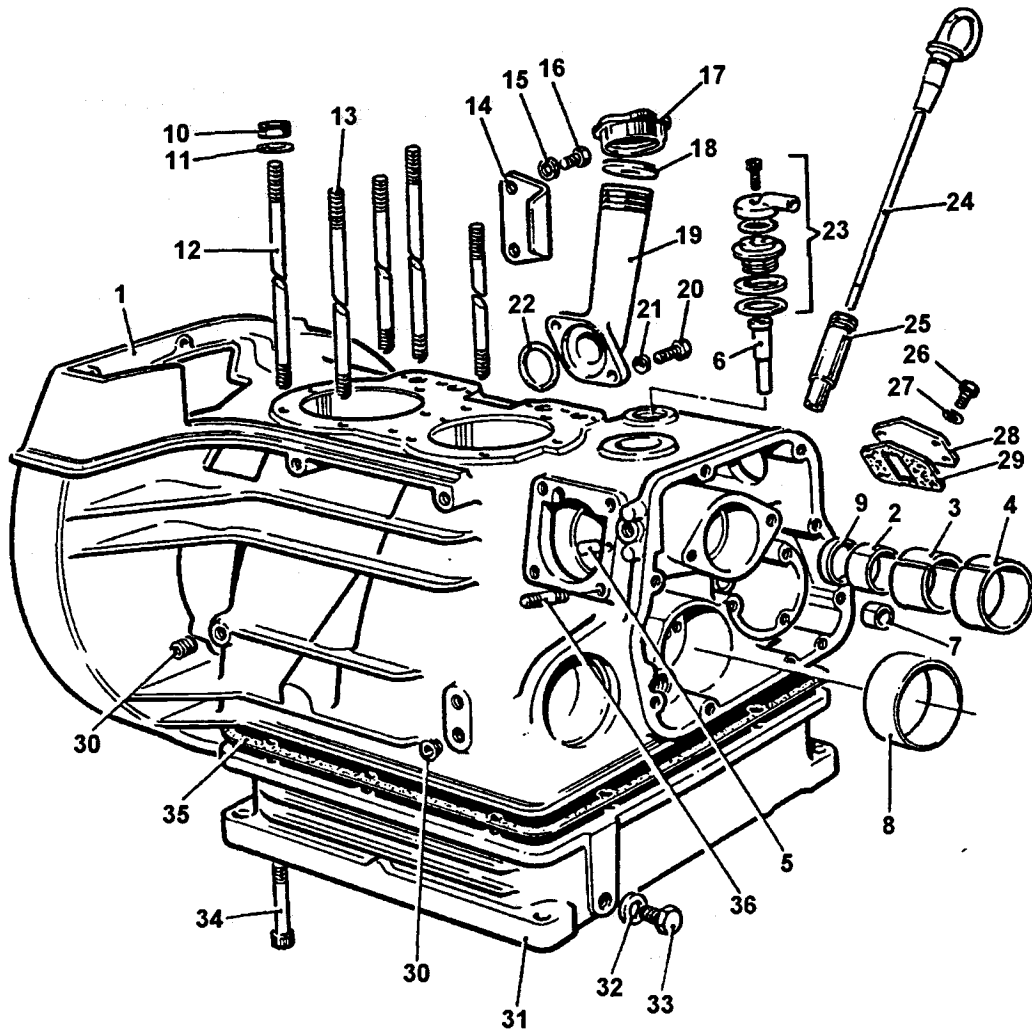


Fig 1 Crankcase and sump

| FIG<br>1<br>ITEM | DMC<br>Army | NATO STOCK NUMBER | ITEM NAME AND DESCRIPTION  | PART NO/<br>DRAWING NO. | NO.<br>OFF | ANNOTATIONS |
|------------------|-------------|-------------------|--|-------------------------|------------|-------------|
|                  |             |                   | CRANKCASE AND SUMP<br>(continued)  |                         |            |             |
| 1 32             | X3          | 5310-99-618-5102  | . WASHER, FLAT, COPPER<br>0.75 in O/D, 0.52 in I/D<br>0.047 in THK   | 843105@ISSUE<br>5       | 2          |             |
| 33               | X3          | 4730-99-967-8829  | . PLUG, SCREWED, BRASS, HEX<br>HD, 1/4 in BSP THREAD,<br>0.265 in LG                                       | 317267                  | 2          |             |
| 34               | X3          | 5305-99-208-6856  | . SCREW, SKT HD, STEEL,<br>BLACK OXIDE FINISH., FLAT<br>FILLISTER HD, 1/4-20 UNC<br>THRD X 3-1/4 in O/A LG | 350266                  | 10         |             |
| 35               | X3          | 5330-99-752-7490  | . GASKET, SUMP, 10-11/16 in<br>BY 12-13/32 in O/A DIA  | 294812                  | 1          |             |
| 36               | X3          | 5307-99-016-7546  | . STUD, MADE FROM PART NO.<br>F.P.762631 AND TREATED<br>WITH LOCTITE DRI-LOC 211<br>AS USED ON AC1R ENGINE | 363065                  | 4          |             |
| NI 37            | X3          | 5330-99-770-0083  | . SEAL, PLAIN, 8mm W, 58 mm<br>NOM SHAFT DIA, 72 mm O/D  | 359423                  | 1          |             |
| NI 38            | 6MT1        | 5330-99-203-1786  | . RING, SEALING, TOROIDAL,<br>DIPSTICK SEAL, 0.070 in<br>THK, 0.239 in I/D                                 | OS.5                    | 1          |             |

**Chapter 2-3-1-10**

**PARSTS LIST**

**FUEL SYSTEM**

Chapter

- 2-3-1-10 Fuel System
- 2-3-1-10-1 Pump Fuel Metering and Distribution
- 2-3-1-10-2 Fuel Lift Pump
- 2-3-1-10-3 Fuel Filter Assembly
- 2-3-1-10-4 Fuel Tank Assembly
- 2-3-1-10-5 Fuel Pipes



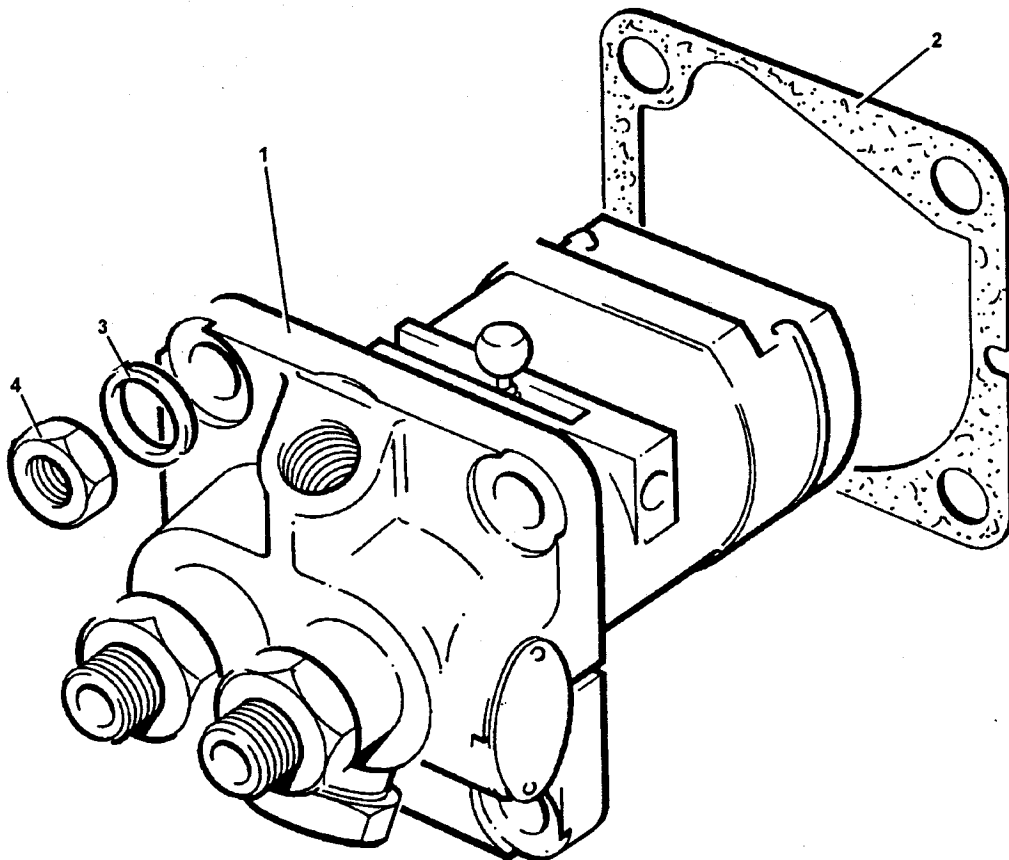


Fig 1 Fuel pump

| FIG<br>1<br>ITEM | DMC<br>Army | NATO STOCK NUMBER | ITEM NAME AND DESCRIPTION   | PART NO/<br>DRAWING NO.     | NO.<br>OFF | ANNOTATIONS |
|------------------|-------------|-------------------|---|-----------------------------|------------|-------------|
| 1                | 0           | NP                | FUEL SYSTEM   |                             |            | REF         |
|                  | 1 X3        | 2910-99-758-1698  | PUMP, FUEL, METERING AND DISTRIBUTING, FIXED SPEED 2500-3600 RPM (CHAPTER 2-3-1-10-1 REFERS)                          |                             |            |             |
|                  | 2 X3        | 5365-99-758-8051  | SHIM STEEL, LAMINATED, 2-11/16 in LG, 2.905 in W 0.0025 in THK, 4 HOLES 11/32 in DIA                                  | 347720                      |            | A/R         |
|                  | 2 X3        | 5365-99-758-8052  | SHIM STEEL, LAMINATED, 2-11/16 in LG, 2.905 in W 0.005 in THK, 4 HOLES 11/32 in DIA                                   | 347721                      |            | A/R         |
|                  | 2 X3        | 5365-99-758-8053  | SHIM STEEL, LAMINATED, 2-11/16 in LG, 2.905 in W 0.025 in THK, 4 HOLES 11/32 in DIA                                   | 347722                      |            | A/R         |
|                  | 2 X3        | 5365-99-758-8054  | SHIM, PLASTICS, SOLID 2-11/16 in LG, 2.905 in W 0.005 in THK, 4 HOLES 11/32 in DIA                                    | 360092                      |            | A/R         |
|                  | 3 G1        | 5310-99-305-3389  | WASHER, LOCK, STEEL, SPLIT HELICAL RING, 5/16 in NOM BOLT SIZE, 39/64 in O/D, 1/16 in THK                             | 786029                      |            | 4           |
|                  | 4 G1        | 5310-99-941-0925  | NUT, PLAIN HEXAGON, UNF STEEL, CHAMFERED, ZINC PLTD, 5/16-24, 1/2 in W A/F, 17/64 in H, CLASS 2B NOT RATED RIGHT-HAND | BS1768PLHXUN<br>0.312STOOZN |            | 4           |
| NI               | 5           | NP                | FUEL, LIFT PUMP ASSEMBLY (CHAPTER 2-3-1-10-2 REFERS)  |                             |            | REF         |
| NI               | 6           | NP                | FUEL, FILTER ASSEMBLY (CHAPTER 2-3-1-10-3 REFERS)   |                             |            | REF         |
| NI               | 7           | NP                | FUEL, TANK ASSEMBLY (CHAPTER 2-3-1-10-4 REFERS)   |                             |            | REF         |

**Chapter 2-3-1-10-1**

**PARTS LIST**

**PUMP FUEL METERING AND DISTRIBUTION**



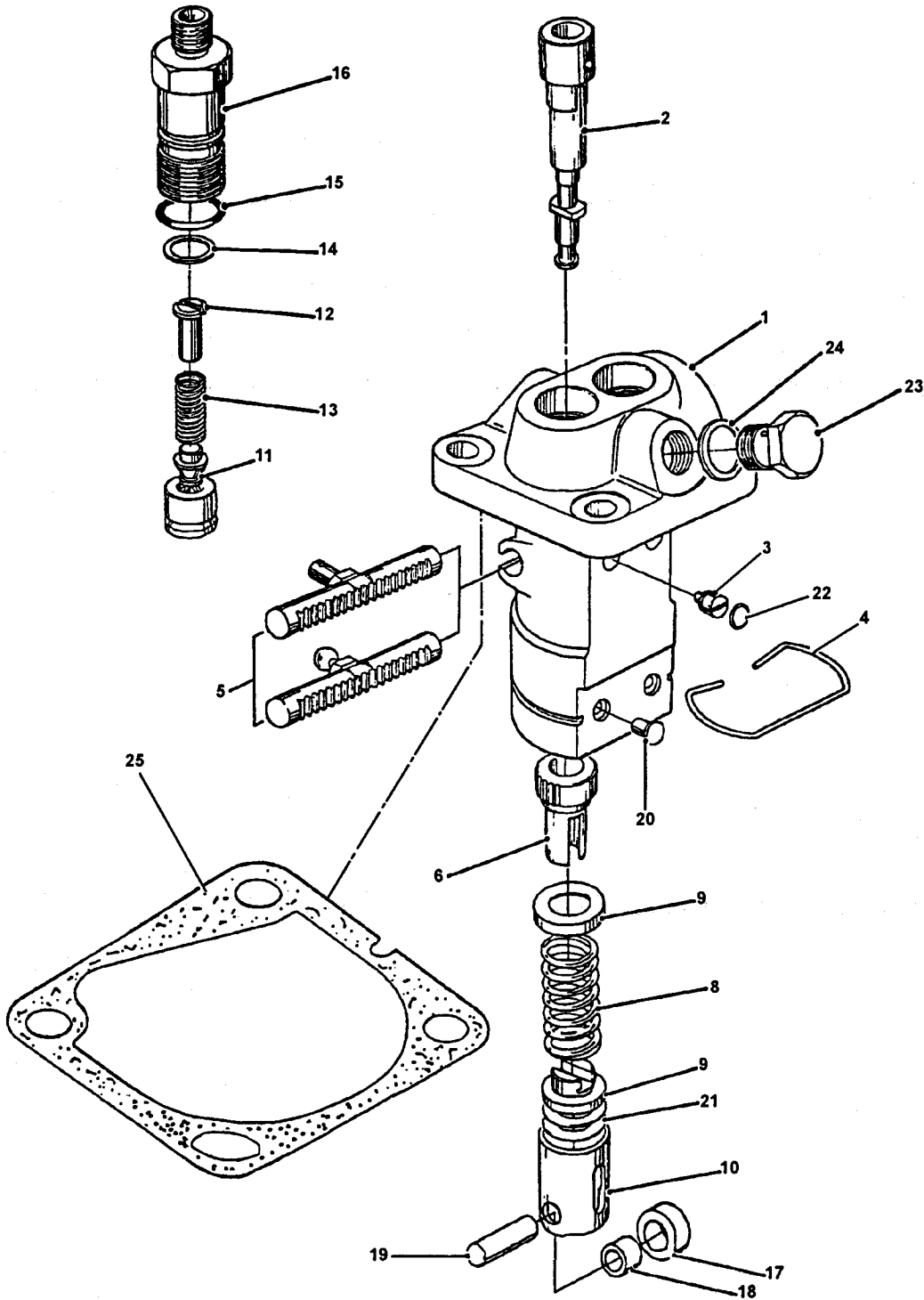


Fig 1 Pump fuel metering and distributing

| FIG 1 ITEM | DMC Army | NATO STOCK NUMBER | ITEM NAME AND DESCRIPTION  | PART NO./ DRAWING NO. | NO. OFF | ANNOTATIONS |
|------------|----------|-------------------|--|-----------------------|---------|-------------|
| 1          | 0 X3     | 2910-99-758-1698  | PUMP, FUEL METERING AND DISTRIBUTING, FIXED SPEED 2500-3600 RPM                            | FAOBR055E061 7        | REF     |             |
|            | 1        | NP                | . PUMP HOUSING   | 11/134                | 1       |             |
|            | 2 X3     | 2910-99-758-1699  | . ELEMENT ASSEMBLY BRYCE   | 11/108BD              | 2       |             |
|            | 3 X3     | 2910-99-977-8641  | . PLUG, BARREL LOCATING  | 11/114                | 2       |             |
|            | 4 X3     | 5365-99-758-1700  | . RING, RETAINING  | 11/135                | 1       |             |
|            | 5 X3     | 2910-99-758-1701  | . CONTROL ROD ASSEMBLY   | 11/138                | 1       |             |
|            | 6 X3     | 2910-99-977-8643  | . CONTROL SLEEVE   | 11/128                | 2       |             |
|            | 7 X3     | 5310-99-977-8644  | . WASHER, RECESSED   | 11/119                | 2       |             |
|            | 8 X3     | 5360-99-977-8645  | . SPRING, HELICAL, COMPRESSION   | 11/120                | 2       |             |
|            | 9 X3     | 2910-99-977-8646  | . SPRING PLATE, LOWER  | 11/129                | 2       |             |
|            | 10 X3    | 2910-99-977-8647  | . TAPPET   | 11/130                | 2       |             |
|            | 11 X3    | 2910-99-758-1702  | . VALVE AND SEAT ASSEMBLY  | 11/103AC              | 2       |             |
|            | 12 X3    | 5315-99-977-8649  | . PIN, STRAIGHT, HEADED  | 11/107                | 2       |             |
|            | 13 X3    | 5360-99-214-7626  | . SPRING, HELICAL, COMPRESSION BRYCE   | 11/152                | 2       |             |
|            | 14 X3    | 5330-99-977-8650  | . GASKET, PHOSPHOR BRONZE, BRYCE   | 11/121                | 2       |             |
|            | 15 6MT1  | 5330-99-802-8021  | . RING, SEALING, TOROIDAL SYNTHETIC RUBBER, 5/8 in I/D, 1/16 in H, 65 TO 75 DEG BS OR IRHD | 200-016-4470          | 2       |             |
|            | 16 X3    | 2910-99-977-8651  | . DELIVERY VALVE HOLDER BRYCE  | 11/106F               | 2       |             |
|            | 17 X3    | 2910-99-977-8652  | . ROLLER, ROCKER ARM-CAM FOLLOWER BRYCE  | 11/123                | 2       |             |
|            | 18 X3    | 3120-99-977-8653  | . BUSHING, SLEEVE BRYCE  | 11/132                | 2       |             |
|            | 19 X3    | 5315-99-977-8654  | . PIN, STRAIGHT, HEADLESS BRYCE  | 11/124                | 2       |             |
|            | 20 X3    | 5315-99-977-8655  | . PIN, STRAIGHT, HEADED BRYCE  | 11/125                | 2       |             |
|            | 21 X3    | 5365-99-977-8656  | . SHIM 0.30 mm THK BRYCE   | 11/126A               | 1       |             |
|            | 21 X3    | 5310-99-977-8657  | . WASHER, FLAT 0.41 mm THK BRYCE   | 11/126B               | 1       |             |
|            | 21 X3    | 5310-99-977-8658  | . WASHER, FLAT 0.44 mm THK BRYCE   | 11/126C               | 1       |             |
|            | 21 X3    | 5310-99-977-8659  | . WASHER, FLAT 0.47 mm THK BRYCE   | 11/126D               | 1       |             |
|            | 21 X3    | 5310-99-977-8660  | . WASHER, FLAT 0.50 mm THK BRYCE   | 11/126E               | 1       |             |
|            | 21 X3    | 5310-99-977-8661  | . WASHER, FLAT 0.53 mm THK BRYCE   | 11/126F               | 1       |             |

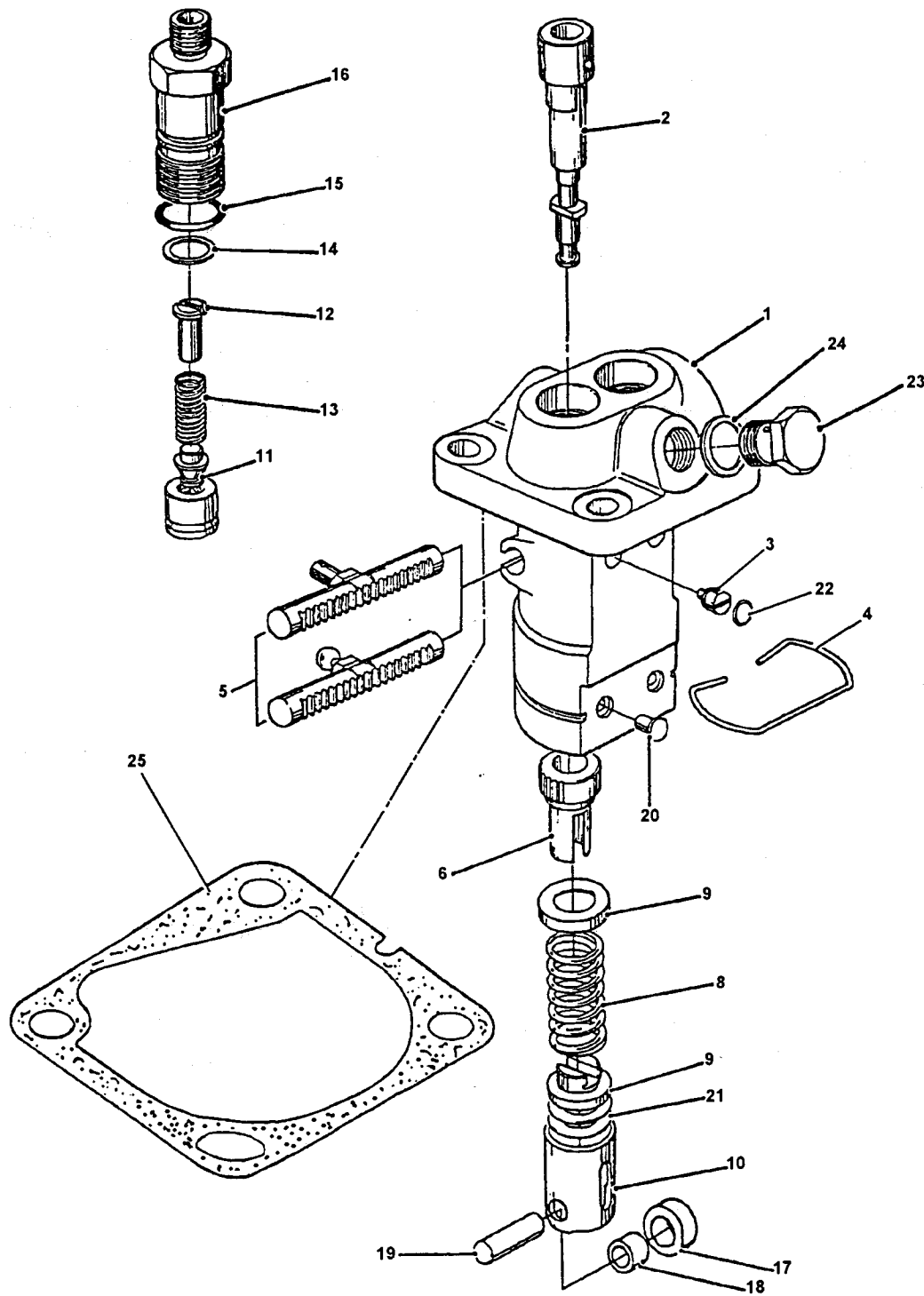


Fig 1 Pump fuel metering and distributing

| FIG<br>1<br>ITEM | DMC<br>Army | NATO STOCK NUMBER | ITEM NAME AND DESCRIPTION   | PART NO/<br>DRAWING NO. | NO.<br>OFF | ANNOTATIONS |
|------------------|-------------|-------------------|---|-------------------------|------------|-------------|
|                  |             |                   | PUMP, FUEL METERING AND<br>DISTRIBUTING, FIXED SPEED<br>2500-3600 RPM (continued)                       |                         |            |             |
| 21               | X3          | 5310-99-977-8662  | . WASHER, FLAT 0.56 mm THK<br>BRYCE   | 11/126G                 | 1          |             |
| 21               | X3          | 5310-99-977-8663  | . WASHER, FLAT 0.59 mm THK<br>BRYCE   | 11/126H                 | 1          |             |
| 21               | X3          | 5310-99-977-8664  | . WASHER, FLAT 0.62 mm THK<br>BRYCE   | 11/126J                 | 1          |             |
| 21               | X3          | 5310-99-977-8665  | . WASHER, FLAT 0.65 mm THK<br>BRYCE   | 11/126K                 | 1          |             |
| 21               | X3          | 5310-99-977-8666  | . WASHER, FLAT 0.68 mm THK<br>BRYCE   | 11/126L                 | 1          |             |
| 21               | X3          | 5310-99-977-8667  | . WASHER, FLAT 0.98 mm THK<br>BRYCE   | 11/126M                 | 1          |             |
| 22               | X3          | 5340-99-977-8668  | . PLUG, EXPANSION,<br>ALUMINIUM ALLOY, 8 mm O/D<br>0.71 mm THK, 10 mm RADIUS                            | 11/140                  | 2          |             |
| 23               | X3          | 2910-99-758-1703  | . SREW, VENT, BRYCE   | 11/122                  | 1          |             |
| 24               | 6MT12       | 5310-99-136-8632  | . WASHER, FLAT, COPPER<br>ALLOY, RD, TIN PLTD, RD<br>HOLE, 12 mm NOM BOLT SIZE<br>16 mm O/D, 1.5 mm THK | NW5/32W4                | 1          |             |
| 25               | X3          | 5365-99-758-8051  | . SHIM, STEEL, LAMINATED<br>2-11/16 in LG, 2.905 in W<br>0.0025 in THK, 4 BOLT<br>HOLES 11/32 in DIA    | 347720                  | 1          |             |
| 25               | X3          | 5365-99-758-8052  | . SHIM, STEEL, LAMINATED<br>2-11/16 in LG, 2.905 in W<br>0.005 in THK, 4 BOLT<br>HOLES 11/32 in DIA     | 347721                  | 1          |             |
| 25               | X3          | 5365-99-758-8053  | . SHIM, STEEL, LAMINATED<br>2-11/16 in LG, 2.905 in W<br>0.025 in THK, 4 BOLT<br>HOLES 11/32 in DIA     | 347722                  | 1          |             |
| 25               | X3          | 5365-99-758-8054  | . SHIM, PLASTIC, SOLID<br>2-11/16 in LG, 2.905 in W<br>0.005 in THK, 4 BOLT<br>HOLES 11/32 in DIA       | 360092                  | 1          |             |

Chapter 2-3-1-10-2

PARTS LIST

FUEL LIFT PUMP

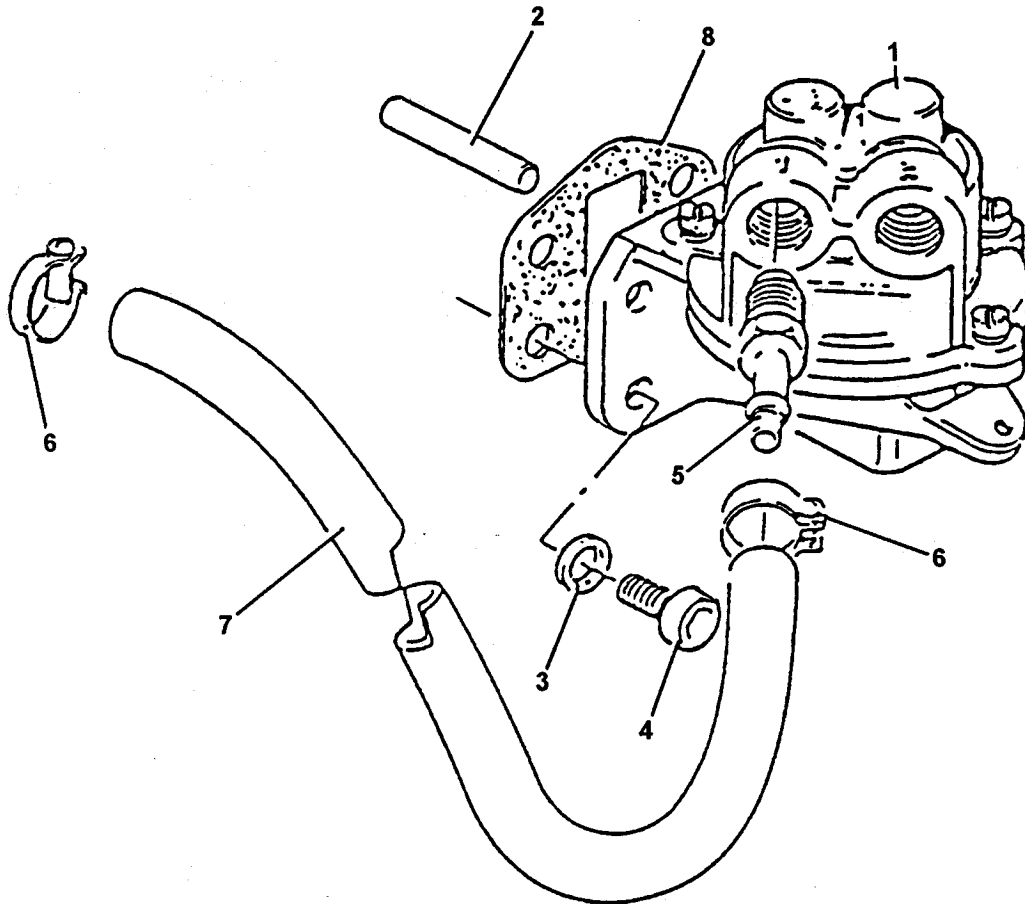


Fig 1 Fuel lift pump kit

| FIG<br>1<br>ITEM | DMC<br>Army | NATO STOCK NUMBER | ITEM NAME AND DESCRIPTION  | PART NO/<br>DRAWING NO. | NO.<br>OFF | ANNOTATIONS |
|------------------|-------------|-------------------|--|-------------------------|------------|-------------|
| N1 0             |             | NP                | FUEL, LIFT PUMP KIT  | Code FF                 | REF        |             |
| 1                | X3          | 2815-99-376-2260  | FUEL, LIFT PUMP  | 275235                  | 1          |             |
| 2                | X3          | 5315-99-244-3331  | PUSH ROD   | 365150                  | 1          |             |
| 3                | Z88         | 2990-99-734-2277  | WASHER, 5/16 in PLTD   | 785622                  | 4          |             |
| 4                | Z88         | 5820-99-734-2271  | CAPSCREW-PUMP, 0.75 in<br>NOM LG, 5/16-18 UNC  | 754030                  | 4          |             |
| 5                | X2          | 4730-99-435-6188  | PIPE   | 365312                  | 2          |             |
| 6                | X3          | 4730-99-208-4802  | CLAMP, HOSE  | CO-66-27                | 2          |             |
| 7                | 6MT6        | 4720-99-643-6319  | FLEXIBLE FUEL PIPE   | R604                    | A/R        |             |
| 8                | X3          | 5330-99-560-0278  | GASKET, FIBRE/SYNTHETIC<br>RUBBER, 66.6 mm NOM LG,<br>60.3 mm NOM W, 9 mm THK<br>APERTURE 19mm X 38.1 mm   | 365229                  | 1          |             |
| 9                | X2          | 4730-99-737-2100  | SLEEVE, COMPRESSION,<br>TUBE-HOSE FITTING, BRASS<br>0.25 in O/D PIPE, 7.21<br>mm MAX O/A LG  | 601-38360               | 2          |             |
| 10               | G1          | 4730-99-737-2099  | INVERTED NUT, TUBE<br>COUPLING, ST/BRASS, HEX<br>BODY, 0.5-20 UNF THD,<br>12.7 mm A/F, 10 mm BORE<br>17.5 mm O/A LG, 45 DEG<br>INT SEAT, THD END | 202-42370               | 2          |             |

Chapter 2-3-1-10-3

PARTS LIST

FUEL FILTER ASSEMBLY



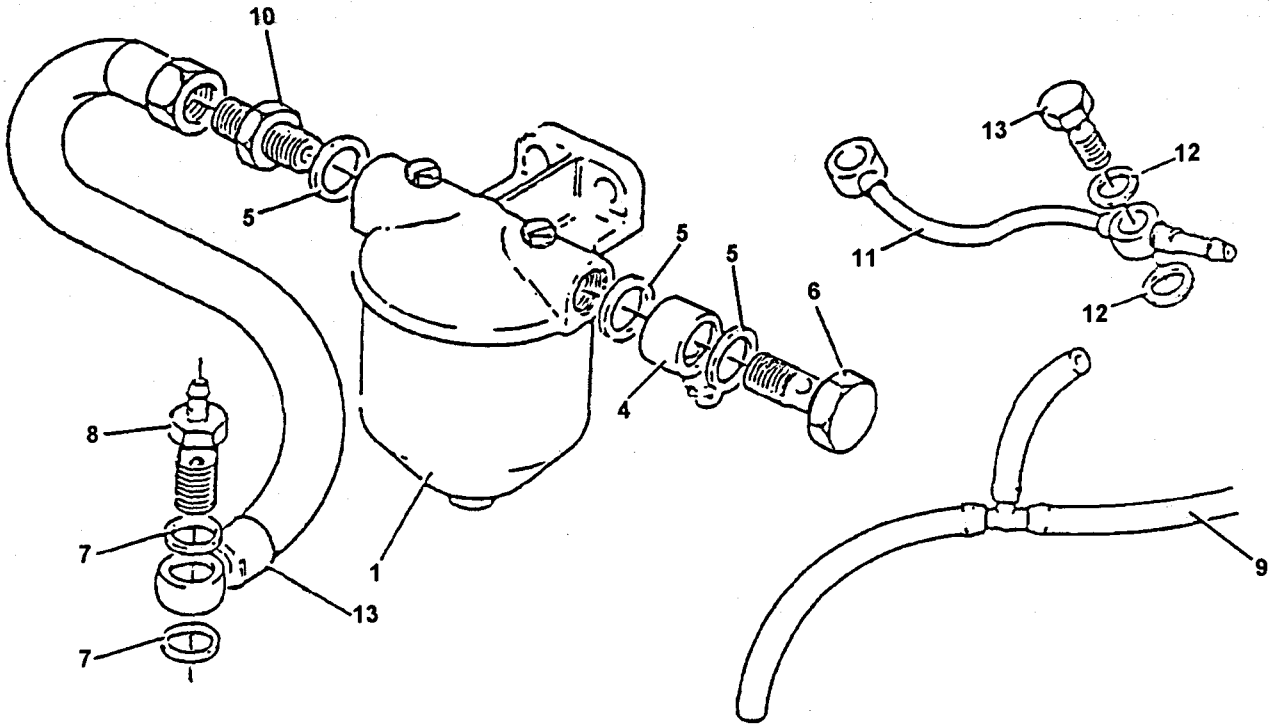


Fig 1 Fuel filter assembly - exploded view

| FIG<br>1<br>ITEM | DMC<br>Army | NATO STOCK NUMBER      | ITEM NAME AND DESCRIPTION  | PART NO/<br>DRAWING NO. | NO.<br>OFF | ANNOTATIONS |
|------------------|-------------|------------------------|--|-------------------------|------------|-------------|
| NI 0<br>1        | X3          | NP<br>2940-99-204-8884 | FUEL FILTER ASSEMBLY<br>FILTER, FLUID, PRESSURE<br>FUEL FILTER HEAD WITH<br>INLET AND OUTLET, BLEED<br>SCREWS AND TWO HOLE<br>MOUNTING ACD | Code FH<br>7973003      | REF<br>1   |             |
| NI 2             | X3          | 4330-99-409-0798       | FILTER, ELEMENT, FLUID,<br>PRESSURE, PAPER,<br>OUTSIDE-IN FLOW   | 7984314                 | 1          |             |
| NI 3             | X3          | 2910-99-206-0129       | REPAIR KIT, FUEL<br>FILTER   | 95710                   | 1          |             |
| 4                | X3          | 4730-99-758-8019       | CONNECTOR, MULTIPLE,<br>FLUID PRESSURE LINE,<br>COPPER ALLOY, 1.5 in LG<br>0.75 in W, 0.562 in DIA<br>HOLE                                 | 344215                  | 1          |             |
| 5                | X3          | 5310-99-618-5102       | WASHER, FLAT, COPPER<br>0.75 in O/D, 0.521 in<br>I/D, 0.047 in THK   | 8431050<br>ISSUE 5      | 3          |             |
| 6                | X3          | 4730-99-206-7622       | BOLT, FLUID PASSAGE,<br>BSPF ST in BSPF 19 TPI<br>1-5/16 O/A LG, SC 1/2 in<br>LG   | 831026                  | 1          |             |
| 7                | X3          | 5310-99-205-1376       | WASHER, FLAT, ANNEALED<br>COPPER, 31/64 in I/D, RD<br>HOLE 1/16 in O/D, 0.048<br>in (18SWG) THK U/O FUEL<br>PIPE                           | 267326                  | 2          |             |
| 8                | X3          | 4730-99-207-1430       | BOLT, FLUID PASSAGE  | 336764                  | 1          |             |
| 9                |             | NP                     | PIPE ASSEMBLY, SELF<br>BLEED   | 362373                  | 1          |             |
| 10               | X3          | 4730-99-205-1655       | NIPPLE, PIPE, COPPER<br>ALLOY, 1/4 in BSP MALE<br>1ST END, 1/4 in BSP MALE<br>2ND END, 1.05 in O/A LG                                      | 833027                  | 1          |             |
| 11               | X3          | NP                     | PIPE ASSEMBLY, LEAK OFF  | 364670                  | 1          |             |
| 12               | X3          | 5330-99-204-1042       | GASKET, COPPER, 0.317 TO<br>0.322 in I/D, 0.495 TO<br>0.505 in O/D, 0.064 in<br>CROSS-SECT THK   | 616/1608                | 4          |             |
| 13               | X3          | 4730-99-770-4376       | BOLT, FLUID PASSAGE,<br>STEEL ZINC PLTD, 26.5 mm<br>NOM LG   | 362997                  | 2          |             |

**Chapter 3-2-1-10-4**

**PARTS LIST**

**FUEL TANK ASSEMBLY**

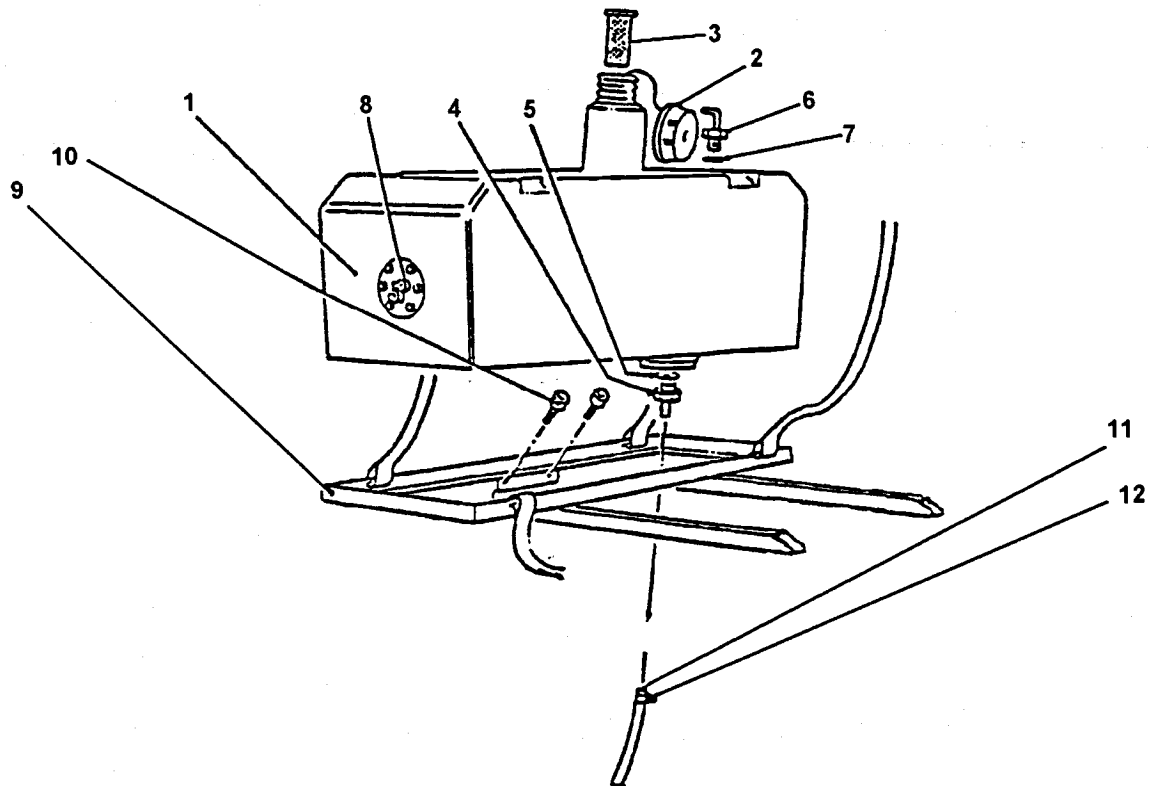


Fig 1 Fuel tank assembly

| FIG<br>1<br>ITEM | DMC<br>Army | NATO STOCK NUMBER | ITEM NAME AND DESCRIPTION  | PART NO/<br>DRAWING NO. | NO.<br>OFF | ANNOTATIONS |
|------------------|-------------|-------------------|--|-------------------------|------------|-------------|
| NI 0             |             | NP                | FUEL TANK ASSEMBLY   |                         | REF        |             |
| 1 X2             |             | 2910-99-255-2687  | TANK, FUEL, ENGINE   | FT/A0-21804             | 1          |             |
| 2 X2             |             | 2910-99-255-2688  | CAP, FILLER OPENING, NON-<br>PRESSURIZED, CAM TYPE,<br>MOULDED CAP, STEEL<br>FITTINGS, ZINC PLTD, VENT<br>PLATE AND GASKET                               | FT-A3-21812             | 1          |             |
| 3 X2             |             | 2910-99-255-2690  | STRAINER ELEMENT,<br>SEDIMENT, COMPRISES; MESH<br>TYPE FILTER, FILTER<br>ADAPTOR AND DRIVE SCREW   | FT-A3-21829             | 1          |             |
| 4 X2             |             | 4730-99-349-5180  | ADAPTOR, STRAIGHT, PIPE<br>TO HOSE, STEEL ZINC PLTD<br>THRD ONE END M12 X 1.75<br>UNTHRD END MAX O/D 7 mm<br>FOR HOSE FITTING, 45 mm<br>O/A LG           | 3-4169-1/30             | 1          |             |
| 5 46MT1          |             | 5330-99-942-8453  | GASKET   | 300-021-<br>1911-02     | 1          |             |
| 6 X2             |             | 4730-99-109-8905  | ELBOW, PIPE TO HOSE, CRES<br>& TUBE (BUNDY) THRD ONE<br>END M12 X 1.75, UNTHRD<br>END TUBE O/D 0.1875 in   | 3-4169-1/31             | 1          |             |
| 7 46MT1          |             | 5330-99-942-8453  | GASKET   | 300-021-<br>1911-02     | 1          |             |
| 8 X2             |             | 6680-99-255-2678  | TRANSMITTER, LIQUID<br>QUANTITY, 6-HOLE SIDE MTG<br>2 TERMS 6A, EARTH TERM<br>WARNING LIGHT CONTACT,<br>75.41 mm DIA BDY, 388 mm<br>ARM LG, 90 DEG SWING | TB9018/000              | 1          |             |
| 9 X2             |             | 6115-99-702-4569  | MOUNTING, FUEL TANK  | 0-4169-1/21             | 1          |             |
| 10 G1            |             | 5305-99-941-8263  | SCREW, SKT HD, ST/CAD<br>PLTD, 0.375-16 UNC, 1 in<br>NOM LG, FLAT FILISTER HD  | 64-074-009-<br>1000     | 2          |             |
| 11 6MT6          |             | 4720-99-643-6319  | HOSE, RUBBER, SYNTHETIC<br>RUBBER INNER, SYNTHETIC<br>RUBBER OUTER, TEXTILE<br>BRAID, 1/4 in I/D, 1/2 in<br>O/D, 400 PSI                                 | R604                    | A/R        |             |
| 12 46MT1         |             | 4730-99-533-2956  | CLAMP, HOSE, STEEL, ZINC<br>PLTD, 9.5 mm W, 9.5 TO 12<br>mm I/D  | 47-11-2@12MM            | 2          |             |

Chapter 2-3-1-10-5

PARTS LIST

FUEL PIPES

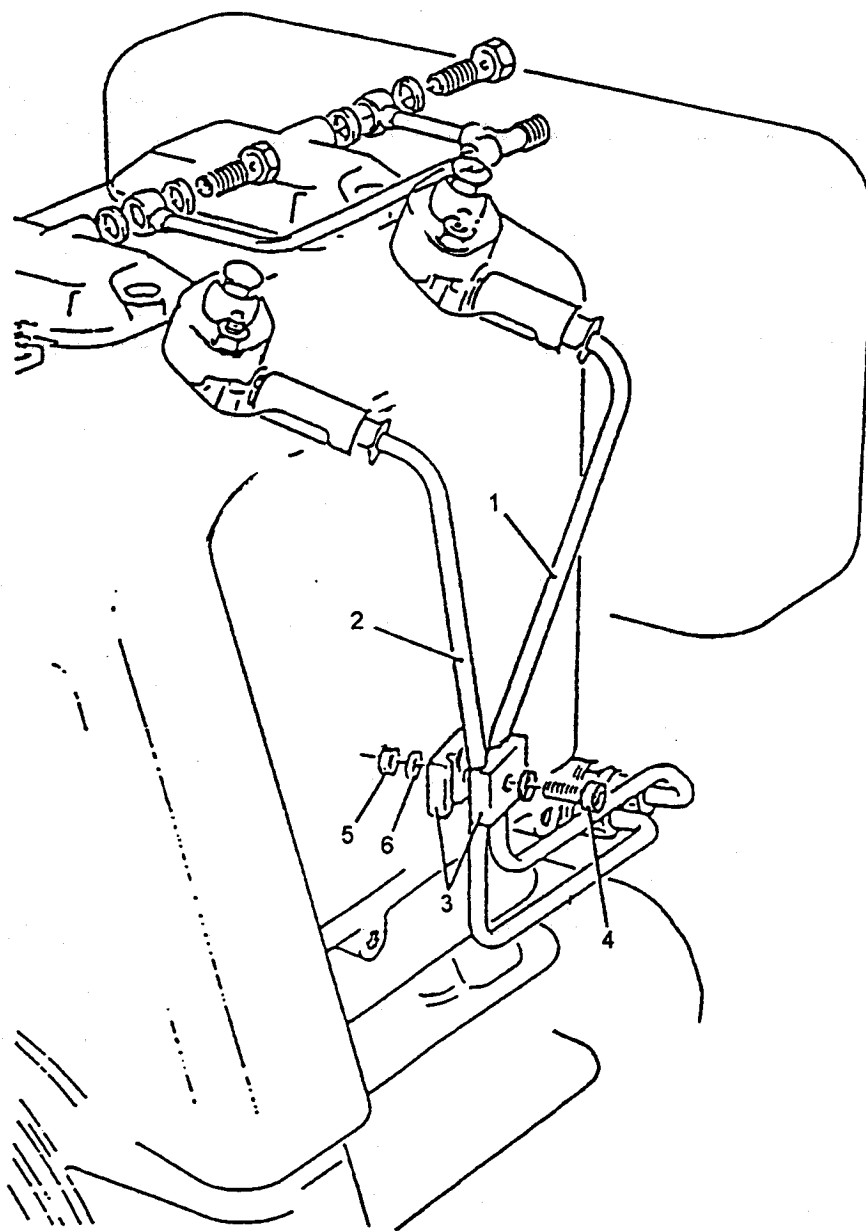


Fig 1 Fuel pipes

| FIG<br>1<br>ITEM | DMC<br>Army | NATO STOCK NUMBER | ITEM NAME AND DESCRIPTION  | PART NO/<br>DRAWING NO.             | NO.<br>OFF | ANNOTATIONS |
|------------------|-------------|-------------------|--|-------------------------------------|------------|-------------|
| NI               | O           | NP                | FUEL PIPES   |                                     | REF        |             |
| 1                | X3          | 2910-99-257-4229  | . PIPE ASSEMBLY, FUEL,<br>STEEL, IRREGULAR SHAPE,<br>425 mm LG, 6 mm O/D, 1.5<br>mm I/D, C/W NUTS  | 274895                              | 1          |             |
| 2                | X3          | 2910-99-257-4230  | . PIPE ASSEMBLY, FUEL,<br>STEEL, IRREGULAR SHAPE,<br>425 mm LG, 6 mm O/D, 1.5<br>mm I/D, C/W NUTS  | 274896                              | 1          |             |
| 3                | X3          | 2910-99-206-3009  | . DAMPER, FUEL PIPE  | 256366                              | 2          |             |
| 4                |             | NP                | . CAPSCREW   | 714010                              | 1          |             |
| 5                |             | NP                | . NUT  | 716601                              | 1          |             |
| 6                | G1          | 5310-99-941-8569  | . WASHER, FLAT, STEEL, RD<br>ZINC PLTD, RD HOLE NO 10<br>UNIFIED, 2BA OR 3/16 in<br>NOM BOLT SIZE, 0.391 in<br>O/D, 0.032 in (21SWG) THK | BS3410FT0000<br>02RD0.388STO<br>OZN | 2          |             |



Chapter 2-3-2

PARTS LIST

ALTERNATOR



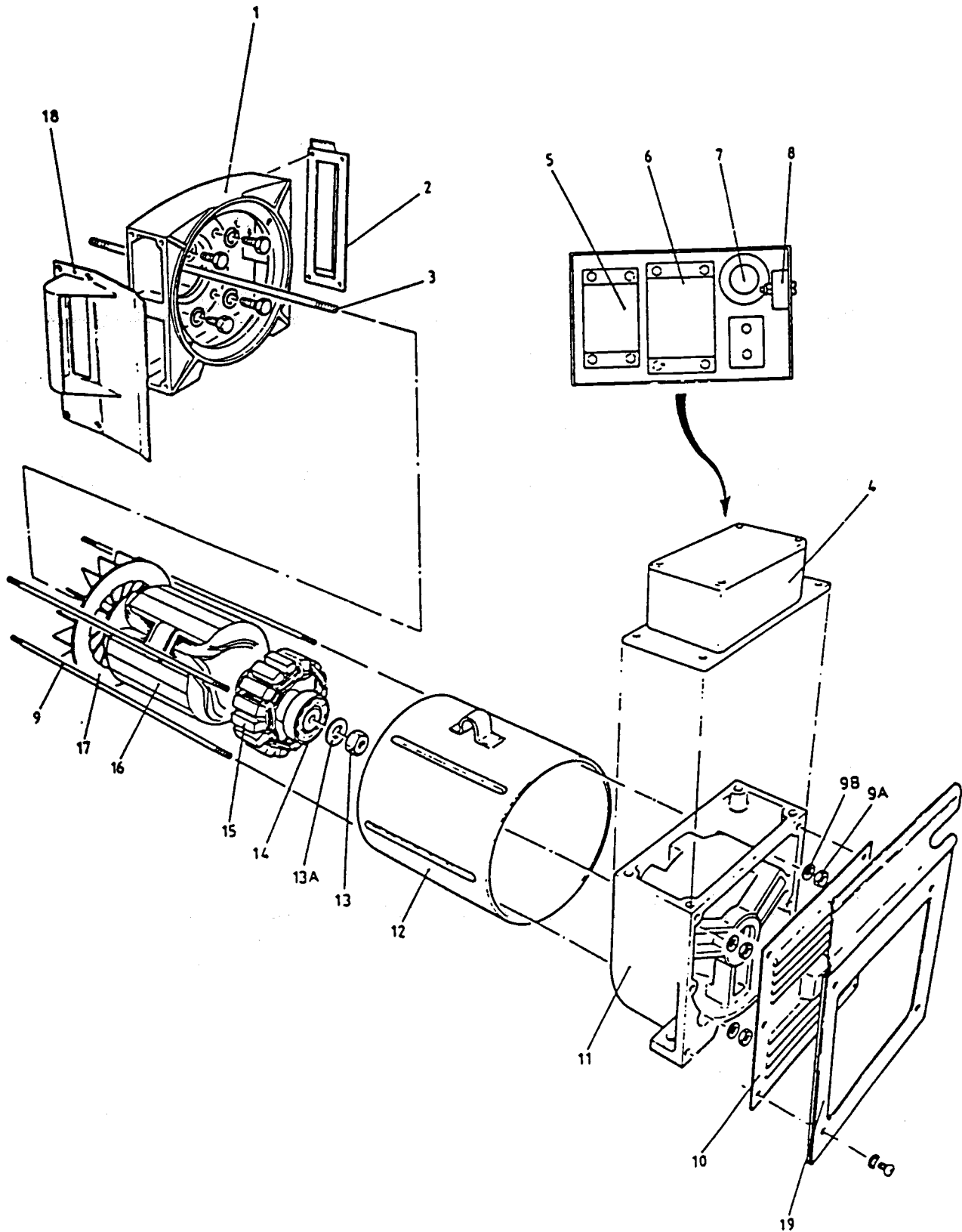


Fig.1 Alternator unit

| FIG<br>1<br>ITEM | DMC<br>Army | NATO STOCK NUMBER | ITEM NAME AND DESCRIPTION                            | PART NO/<br>DRAWING NO. | NO.<br>OFF | ANNOTATIONS |
|------------------|-------------|-------------------|--|-------------------------|------------|-------------|
| NI               | X2          | 2815-99-700-3216  | ALTERNATOR, 240 V, 4.5 kW<br>(5.6 kVA), SINGLE PHASE | MT3E                    | REF        |             |
| 1                | X2          | 6115-99-256-9520  | . BRACKET, DRIVE END                                 | Z 509                   | 1          |             |
| 2                |             | NP                | . OUTLET DUCT 'B'                                    | 1-4169-1/162            | 1          |             |
| 3                | X2          | 5307-99-256-4868  | . STUD, RETAINING                                    | Z 580                   | 1          |             |
| 4                | Z2          | 8115-99-722-2635  | . BOX, ALTERNATOR, MODIFIED                          | 6357P                   | 1          |             |
| 5                | X2          | 6115-99-256-4864  | . COMPOUNDING TRANSFORMER                            | Z 504                   | 1          |             |
| 6                | X2          | 6115-99-256-4865  | . DROOP KIT, TRANSFORMER                             | Z 570                   | 1          |             |
| 7                | H9          | 5325-99-434-7040  | . GROMMET, RUBBER                                    | SP93/C28                | 1          |             |
| 8                | X2          | 6115-99-256-4863  | . BRIDGE RECTIFYING                                  | Z 525                   | 1          |             |
| 9                |             | NP                | . SECURING STUD, c/w NUT<br>(9A) AND WASHER (9B)     | Z 528                   | 4          | )Allam      |
| 10               | X2          | 6115-99-591-2262  | . GUARD, ALTERNATOR INLET                            | Z501                    | 1          | )           |
| 11               | X2          | 6115-99-255-2501  | . EXCITER STATOR AND<br>HOUSING                      | Z 507                   | 1          |             |
| 12               | X2          | 6115-99-256-4858  | . FRAME AND STATOR                                   | Z 508                   | 1          |             |
| 13               |             | NP                | . NUT c/w FRICTION WASHER<br>(13A)                   | Z 581                   | 1          | )Allam      |
| 14               | 6MT7        | 3110-99-810-9373  | . BEARING, BALL, JOURNAL                             | Z 519                   | 1          | )           |
| 15               | X2          | 6115-99-256-4859  | . EXCITER ARMATURE AND<br>DIODES                     | Z 513                   | 1          |             |
| 16               | X2          | 6115-99-256-9521  | . ROTOR ASSY   | Z 514                   | 1          | Allam       |
| 17               | X2          | 6115-99-256-9522  | . FAN  | Z 515                   | 1          |             |
| 18               |             | NP                | . OUTLET DUCT 'A'                                    | 1-4169-1/160            | 1          |             |
| 19               | X2          | 6115-99-400-1489  | . BLANKING PLATE,<br>ALTERNATOR                      | 0-4169 1/174            | 1          |             |
| NI 20            | Z42         | 5961-12-311-2318  | . SEMICONDUCTOR DEVICE,<br>DIODE                     | BY255                   | 1          |             |
| NI 21            | Z30         | 5905-01-129-4879  | . RESISTOR, VOLTAGE<br>SENSITIVE                     | Z527                    | 1          |             |

Chapter 2-4

PARTS LIST

BOX REMOTE ASSEMBLY



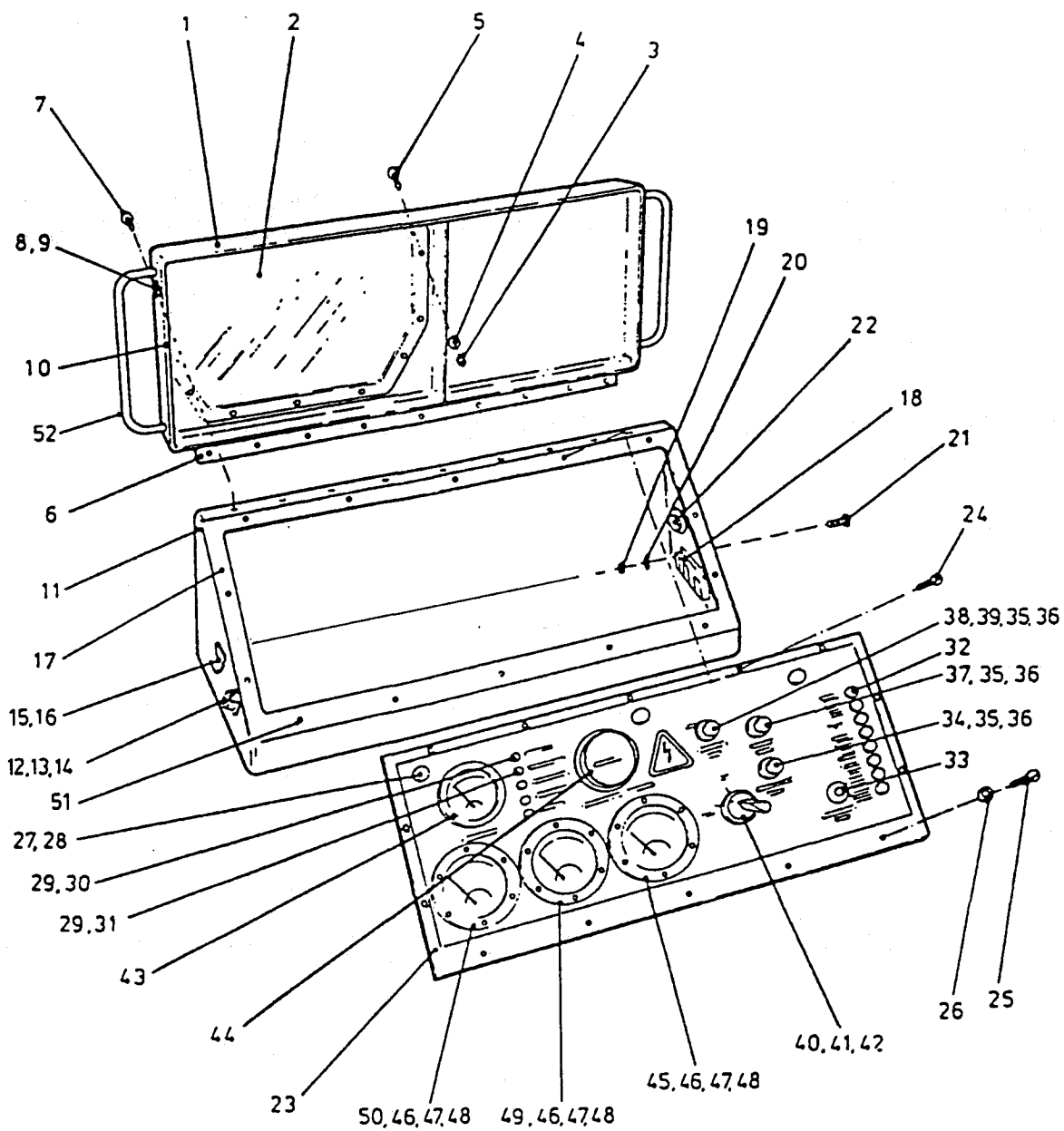


Fig.1 Box remote assembly

| FIG<br>1<br>ITEM | DMC<br>Army | NATO STOCK NUMBER | ITEM NAME AND DESCRIPTION   | PART NO/<br>DRAWING NO.          | NO.<br>OFF | ANNOTATIONS |
|------------------|-------------|-------------------|---|----------------------------------|------------|-------------|
| NI               |             | 6115-99-950-3755  | BOX REMOTE ASSEMBLY   | 0-4169-1/104                     | REF        |             |
| 1                | X2          | 6115-99-301-7598  | . COVER REMOTE BOX  | 0-4169-1/93                      | 1          |             |
| 2                | X2          | 6110-99-254-3917  | . . R.F.WINDOW  | 2-4169-1/114                     | 1          |             |
| 3                | G1          | 5310-99-118-4537  | . . NUT, SELF-LOCKING,<br>HEXAGON, 4-40 UNC                             | 5403-81 4-40                     | 13         |             |
| 4                | G1          | 5310-99-914-7925  | . . WASHER, FLAT, 4-40 UNC  | BS SP 122A                       | 13         |             |
| 5                | G1          | 5305-99-947-3367  | . . SCREW, MACHINE, 4-40<br>UNC, PAN HD 9/16 in. lg                     | BS 1981                          | 13         |             |
| 6                | X2          | 5540-99-254-3915  | . . HINGE (SUPPLIED IN<br>72 in. LENGTH)                                | A102013/4                        | 1          |             |
| 7                |             | 5320-99-103-2282  | . . RIVET 'AVDEL' SNAP HD<br>1/8 in. DIA x<br>9/32 in. lg               | AGS 2065-409                     | 11         |             |
| 8                | G1          | 5340-99-214-6932  | . . STRIKE PLATE (Part of<br>item 12)                                   | TL-100-5                         | 1          |             |
| 9                |             | NP                | . . RIVET 'POP' DOME HD<br>5/32 in. DIA x 1/4 in.<br>lg, monel break hd | AGS 2059-524                     | 2          |             |
| 10               | X2          | 5999-99-356-4598  | . . RF SEAL 'P' SECTION,<br>20 METRES LONG                              | G/WIRE/P-20M                     | A/R        |             |
| 11               | X2          | 6115-99-728-7914  | . REMOTE BOX  | 0-4169-1/35                      | 1          |             |
| 12               | G1          | 5340-99-628-3347  | . . LATCH, TOGGLE LEVER   | TL-803-B                         | 1          |             |
| 13               | Z22         | 5340-99-770-9346  | . . STRIKE CATCH  | TL-800-7                         | 1          |             |
| 14               |             | 5320-99-103-2282  | . . RIVET 'POP' DOME HD<br>5/32 in. DIA x 1/4 in.<br>lg, monel break hd | AGS 2065-409                     | 2          |             |
| 15               |             | NP                | . . STRIKE PLATE  | TL-100-4                         | 2          |             |
| 16               |             | NP                | . . RIVET, 5/32 in. DIA<br>x 1/4 in. lg, CSK HD,<br>al. alloy           | AGS 2059-524                     | 2          |             |
| 17               | X2          | 6110-99-254-3916  | . . SHIELDING STRIP   | T575-0032-<br>0048-0032-<br>0048 | A/R        |             |
| 18               | Z37         | 5940-99-786-3319  | . . TERMINAL STRIP 6-WAY  | R440003<br>000006000             | 1          |             |
| 19               | G1          | 5310-99-941-2406  | . . NUT, PLAIN, HEXAGON<br>6-32 UNC                                     | BS 1981                          | 2          |             |
| 20               | G1          | 5310-99-941-6642  | . . WASHER, LOCK, 6-32 UNC  | BS SP47B                         | 2          |             |
| 21               | G1          | 5305-99-941-8977  | . . SCREW, MACHINE,<br>6-32 UNC, PAN HD,<br>x 1/2 in. lg                | BS 1981                          | 2          |             |
| 22               | X32         | 5935-99-106-1293  | . . CONNECTOR, FIXED PLUG<br>PL6  | PTO7SE-20-<br>41P                | 1          |             |
| 23               |             | NP                | . FRONT PANEL   | 0-4169-1/92                      | 1          |             |
| 24               | G1          | 5305-99-033-2984  | . . SCREW, MACHINE, 6-32 UNC,<br>CSK HD, 1/2 in. lg                     | BS 1981                          | 9          |             |
| 25               | G1          | 5305-99-941-8977  | . . SCREW, MACHINE, 6-32 UNC,<br>PAN HD, 1/2 in. lg                     | BS 1981                          | 7          |             |
| 26               | G1          | 5310-99-912-9655  | . . WASHER, FLAT, 6-32 UNC  | BS SP 122B                       | 7          |             |
| 27               | X1          | 6250-99-254-3918  | . . LAMPHOLDER clear with<br>waterproofing washers                      | LS9 EW9                          | 3          |             |
| 28               | X5          | 6240-99-995-9120  | . . . FILAMENT LAMP 12 V<br>100 mA, LP 14-LP 16                         | T 13/4-725<br>(FLANGE)           | 3          |             |
| 29               | X2          | 6250-99-786-9480  | . . LAMPHOLDER INDICATOR,<br>RED LENS                                   | LS7-BE-W Red<br>525N             | 5<br>1     |             |
| 30               | X5          | 6240-99-256-0387  | . . . NEON LAMP, LP1  |                                  |            |             |
| 31               | X5          | 6240-00-103-0058  | . . . FILAMENT LAMP 12 V<br>60 mA, LP2 LP3 LP4<br>LP5                   | CM 32                            | 4          |             |
| 32               | Z42         | 5980-99-254-3920  | . . LED, LP6-LP13, RED,<br>5 V DC                                       | LPL34-UBR5H                      | 8          |             |
| 33               | Z32         | 5930-99-254-3926  | . . PUSHBUTTON SWITCH   | P3-71622                         | 1          |             |
| 34               | Z30         | 5905-00-643-5626  | . . TRIM POT 5K (RV3)   | CU 6710A                         | 1          |             |



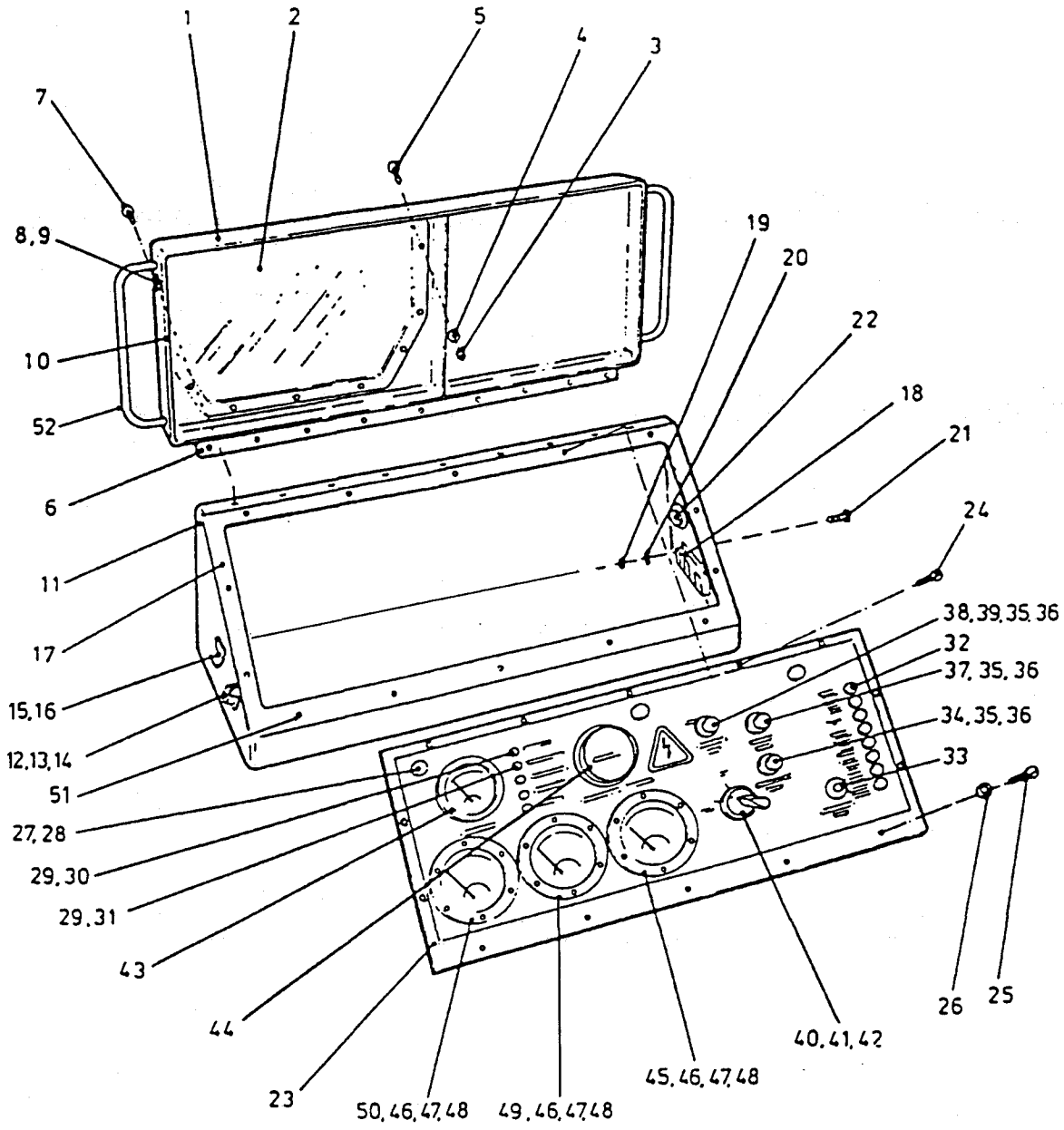


Fig.1 Box remote assembly

| FIG<br>1<br>ITEM | DMC<br>Army | NATO STOCK NUMBER | ITEM NAME AND DESCRIPTION  | PART NO/<br>DRAWING NO. | NO.<br>OFF | ANNOTATIONS |
|------------------|-------------|-------------------|--|-------------------------|------------|-------------|
|                  |             |                   | BOX REMOTE ASSEMBLY -<br>continued   |                         |            |             |
| 35               | G1          | 5310-12-124-4342  | . . WASHER, SHAKEPROOF,<br>int. teeth, fom J M10                                   | DIN 6797                | 3          |             |
| 36               | Z2          | 5355-99-561-8740  | . . KNOB   | 01797X                  | 3          |             |
| 37               | X2          | 5905-99-562-3643  | . . MANUAL VOLTAGE POT<br>100 k Piher (Log)  | T21-YA-<br>100KB-07     | 1          |             |
| 38               | Z30         | 5905-99-254-3924  | . . RESISTOR, VARIABLE   | 8A62A-B28-<br>A/20/R51  | 1          |             |
| 39               | Z30         | 5905-99-014-0537  | . . . RESISTOR 5 % 100R JB   | CECC 40201-<br>002      | 1          |             |
| 40               | Z32         | 5930-99-114-8697  | . . SWITCH, 3 POSITION<br>(Stayput left & centre<br>spring return from<br>right)   | 91000T355-3             | 1          |             |
| 41               | Z3          | 5930-99-948-5951  | . . CONTACT BLOCK  | 91000T1                 | 2          |             |
| 42               | X2          | 5355-99-775-9296  | . . LEVER  | 91000T-342              | 1          |             |
| 43               | X2          | 6680-99-254-3922  | . . FUEL GAUGE, 12 V, MATT<br>BEZEL, M5  | ACF 1206/00B            | 1          |             |
| 44               | X2          | 6645-99-255-8453  | . . HOURS RUN METER, 12 V,<br>WITH ANTIGLARE BEZEL &<br>GASKET                     | 006130                  | 1          |             |
| 45               | X2          | 6625-99-255-9201  | . . FREQUENCY METER, SELF<br>CONTAINED SCALE, 45 to<br>50 HZ, RED LINE AT<br>50 Hz | 084 ACMI                | 1          |             |
| 46               | G1          | 5310-99-118-4537  | . . NUT, SELF-LOCKING,<br>HEXAGON, 4-40 UNC  | 5403-81 4-40            | 6          |             |
| 47               | G1          | 5310-99-914-7925  | . . WASHER, FLAT, 4-40 UNC   | BS SP 122A              | 6          |             |
| 48               | Z2          | 5305-99-767-7405  | . . SCREW, MACHINE, 4-40<br>UNC, PAN HD, 1/2 in. lg                                | BS 1981                 | 6          |             |
| 49               | X2          | 6625-99-255-9200  | . . AMMETER 0-30 A RATING<br>1 A MAX, 240 V 50 HZ<br>RED LINE AT 20 A              | 084 ACMI<br>0-30A       | 1          |             |
| 50               | X2          | 6625-99-255-9199  | . . VOLTMETER, 0-300 V<br>50 Hz RED LINE AT 50HZ                                   | 084 ACMI                | 1          |             |
| 51               | G1          | 5310-99-130-1338  | . NUT, SELF-LOCKING PLATE  |                         | 14         |             |
|                  |             | 5340-99-772-9889  | No.6-32 UNC  |                         | 2          |             |
| 52               | X3          | 9905-99-541-3277  | . HANDLE, BOW  | 7411                    |            |             |
| NI 53            | X3          | 5940-00-436-1632  | . PLATE, INSTRUCTION,<br>OPERATING INSTRUCTIONS                                    | 2-4169-1/107            | 1          |             |
| NI 54            | X3          | 5940-00-378-7225  | . TERMINAL QUICK DISCONNECT<br>EXTERNAL  | RA 257                  | 4          |             |
| NI 55            | X3          | 5940-99-714-0997  | . TERMINAL QUICK DISCONNECT<br>INTERNAL  | RB 2517                 | 1          |             |
| NI 56            | Z37         | 5940-00-200-1239  | . TERMINAL, LUG  | PT4922-2-<br>821181-009 | 12         |             |
| NI 57            | Z37         | 5940-99-537-7843  | . TERMINAL, LUG, 4BA   | 18RA-6                  | 25         |             |
| NI 58            | 6MT4        | 5940-99-763-2349  | . TERMINAL QUICK DISCONNECT<br>INTERNAL  | 15671                   | 4          |             |
| NI 59            | 6MT4        | 5940-99-225-4548  | . TERMINAL QUICK DISCONNECT<br>BLADE TYPE, MALE                                    | 147A50                  | 1          |             |
| NI 60            | Z37         | 5940-99-769-3940  | . TERMINAL, LUG 4.3 mm DIA<br>FIXING HOLE  | 34.9003                 | 15         |             |
| NI 61            | Z37         | 5905-99-017-2101  | . TERMINAL, LUG  | 15714                   | 23         |             |
| NI 62            | Z30         |                   | . RESISTOR, FIXED, FILM  |                         | 1          |             |

Chapter 2-5  
PARTS LIST  
BOX FIXED ASSEMBLY



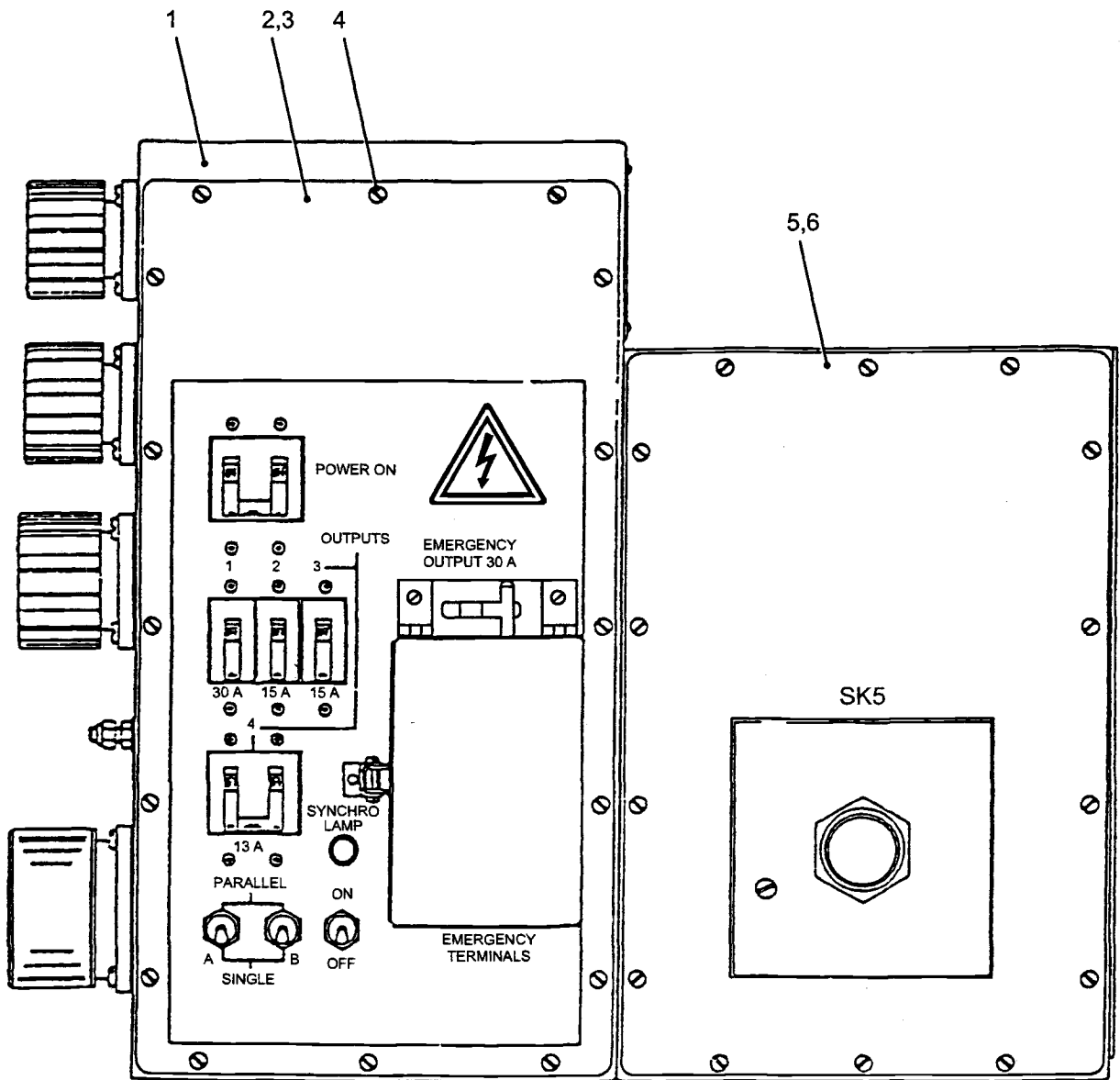


Fig. 1 Box, fixed assembly

| FIG<br>1<br>ITEM | DMC<br>Army | NATO STOCK NUMBER | ITEM NAME AND DESCRIPTION                          | PART NO./<br>DRAWING NO.         | NO.<br>OFF | ANNOTATIONS |
|------------------|-------------|-------------------|--|----------------------------------|------------|-------------|
| 1                |             | 6115-99-792-5324  | BOX FIXED ASSEMBLY                                 | 0-4169-1/103                     | REF        |             |
| 2                |             | NP                | . FRONT PANEL, SILK SCREEN                         | 1-4169-1/113                     | 1          |             |
| 3                | X2          | 6110-99-254-3916  | . SHIELDING STRIP                                  | T575-0032-<br>0048-0032-<br>0048 | 1          |             |
| 4                | G1          | 5305-99-941-1950  | . SCREW, MACHINE, CSK HD,<br>6-32 UNC x 1/2 in. lg | BS 1981                          | 30         |             |
| 5                | X2          | 5340-99-244-8060  | . COVER  | 1-4169-1/29                      | 1          |             |
| 6                | X2          | 5999-99-517-3241  | . GASKET   | 1-4169-1/27                      | 1          |             |

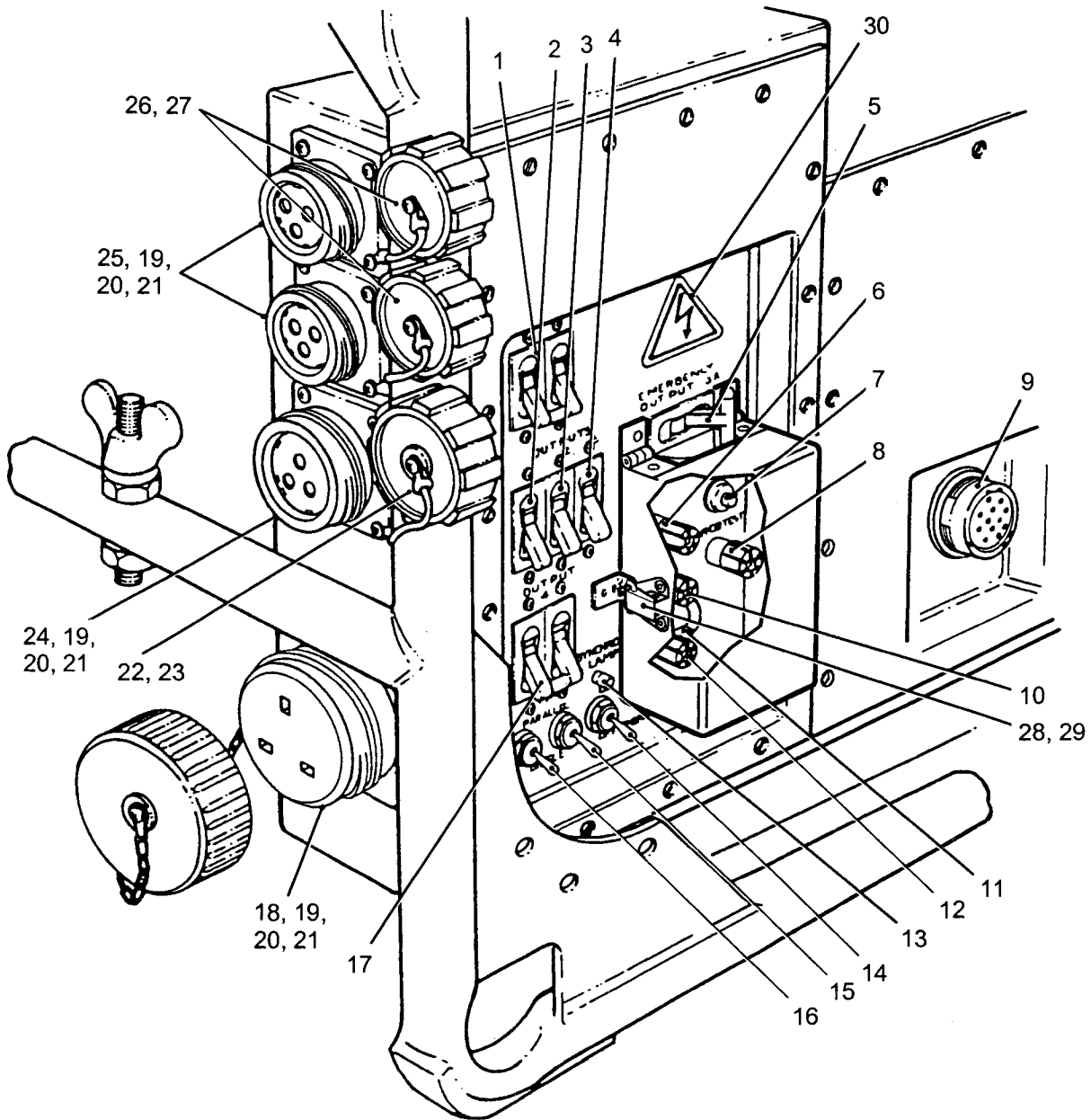


Fig. 2 Fixed box, controls, connectors and indicators

| FIG 2 ITEM | DMC Army | NATO STOCK NUMBER | ITEM NAME AND DESCRIPTION   | PART NO./ DRAWING NO. | NO. OFF | ANNOTATIONS       |
|------------|----------|-------------------|---|-----------------------|---------|-------------------|
| NI         |          | NP                | FIXED BOX, CONTROLS, CONNECTORS AND INDICATORS                                      |                       | REF     |                   |
| 1          | X32      | 5925-99-661-8092  | . MMCB 50 A, 2 POLE 240 V 50 Hz (with fixings)                                      | APL-11-1-66-503       | 1       |                   |
| 2          | X32      | 5925-99-257-2228  | . MINIATURE MAGNETIC CIRCUIT BREAKER (MMCB) 30 A, 1 POLE 240 V 50 Hz (with fixings) | APL-1-1-66-303        | 1       |                   |
| 3          | X32      | 5925-99-257-2229  | . MMCB 15 A, 1 POLE 240 V 50 Hz (with fixings)                                      | APL-1-1-66-153        | 1       |                   |
| 4          | X32      | 5925-99-257-2229  | . MMCB 15 A, 1 POLE 240 V 50 Hz (with fixings)                                      | APL-1-1-66-153        | 1       |                   |
| 5          | X32      | 5925-99-257-2228  | . MINIATURE MAGNETIC CIRCUIT BREAKER (MMCB) 30 A, 1 POLE 240 V 50 Hz (with fixings) | APL-1-1-66-303        | 1       |                   |
| 6          | Z37      | 5940-99-773-1419  | . TERMINAL INSULATION BROWN 30 AMP 240 V AC   | 148-253               | 1       |                   |
| 7          | Z32      | 5930-99-254-3926  | . SWITCH SEALED PUSH BUTTON 'OTTO' COMMERCIAL GRADE                                 | P3-71622              | 1       |                   |
| 8          | Z37      | 5940-99-749-9852  | . TERMINAL INSULATED GREEN  | 148-252               | 1       |                   |
| 9          | Z22      | 5935-99-106-1294  | . JAM NUT RECEPTACLE BULKHD MRG (connector fixed socket)                            | 07SE-20-41S           | 1       |                   |
| 10         | Z37      | 5940-99-710-3754  | . TERMINAL INSULATED BLUE 30 AMP 250 V AC   | 148-254               | 1       |                   |
| 11         |          | NP                | . WIRE LINK ASSY  | 3-4169-1/85           | 1       |                   |
| 12         | Z37      | 5940-99-749-9852  | . TERMINAL INSULATED GREEN  | 148-252               | 1       |                   |
| 13         | X5       | 6240-99-570-0923  | . NEON LAMP T1 3/4 FLANGE   | 527M                  | 1       |                   |
| 14         | X32      | 5930-00-683-1628  | . TOGGLE SWITCH-SINGLE POLE (SCREW TERMINAL)  | 2-TL1-2               | 1       |                   |
| 15         | X32      | 5930-00-683-1628  | . TOGGLE SWITCH-SINGLE POLE (SCREW TERMINAL)  | 2-TL1-2               | 1       |                   |
| 16         | X32      | 5930-00-683-1628  | . TOGGLE SWITCH-SINGLE POLE (SCREW TERMINAL)  | 2-TL1-2               | 1       |                   |
| 17         | X32      | 5925-99-807-7057  | . MMCB 15 A, 2 POLE 240 V 50 Hz 1 SERIES + 1 SHUNT TWIN MOUNTED (with fixings)      | APL13-28646-1         | 1       |                   |
| 18         | Z32      | 5935-99-327-4024  | . FIXED SOCKET 13 AMP WITH COVER & GASKET   | DEF STAN 59-35 PT7    | 1       | National Plastics |
| 19         | G1       | 5305-99-075-1115  | . SCREW, MACHINE, PAN HD, 10-32 UNF x 3/4 in. lg                                    | BS 1981               | 16      |                   |
| 20         | G1       | 5310-99-101-0519  | . WASHER, FLAT, 10-32 UNF   | BS SP 122-D           | 16      |                   |
| 21         | G1       | 5310-99-295-2467  | . NUT, SELF LOCKING, HEXAGON, 10-32 UNF   | BS 1981               | 16      |                   |
| 22         | Z32      | 5935-99-793-5028  | . PROTECTIVE CAP  | AB-PC-0065-22-0000-15 | 1       |                   |
| 23         | Z1       | 5330-99-256-4168  | . GASKET  | AB-PC-0095-22-0000-15 | 1       |                   |
| 24         | Z32      | 5935-99-535-3948  | . FIXED SOCKET OPEN WIRING 0° ORIENTATION   | AB-PC-2000-22-04SN-00 | 1       |                   |
| 25         | Z32      | 5935-99-300-6739  | . FIXED SOCKET OPEN WIRING 0° ORIENTATION   | AB-PC-2000-18-03SN-00 | 2       |                   |
| 26         | Z32      | 5935-99-902-2017  | . PROTECTIVE CAP  | AB-PC-0065-18-0000-15 | 2       |                   |
| 27         | Z1       | 5330-99-588-0559  | . GASKET  | AB-PC-0095-18-0000-15 | 2       |                   |
| 28         | G1       | 5340-99-528-9515  | . STRIKE, CATCH, STEEL ZINC PLTD  | TL802-2               | 1       |                   |
| 29         | G1       | 5340-99-628-3347  | . CATCH, TOGGLE LEVER   | TL803-B               | 1       |                   |



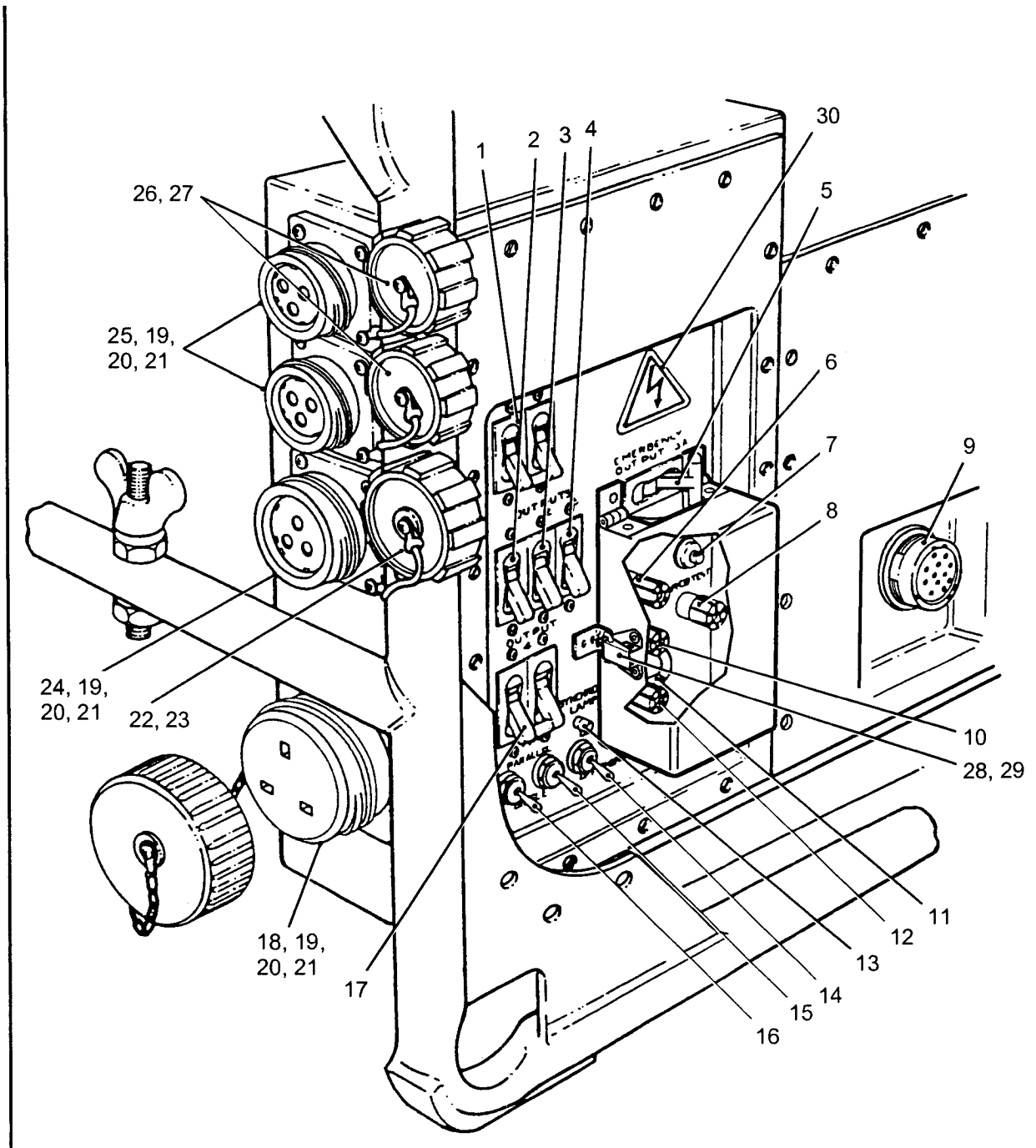


Fig. 2 Fixed box, controls, connectors and indicators

| FIG<br>2<br>ITEM | DMC<br>Army | NATO STOCK NUMBER | ITEM NAME AND DESCRIPTION  | PART NO/<br>DRAWING NO. | NO.<br>OFF | ANNOTATIONS |
|------------------|-------------|-------------------|--|-------------------------|------------|-------------|
| 30               | X2          | 9905-99-738-2211  | FIXED BOX, CONTROLS,<br>CONNECTORS AND INDICATORS -<br>continued   |                         |            |             |
| NI 31            | Z30         | 5905-99-714-4145  | . PLATE, DESIGNATION<br>ELECTRICAL HAZARD<br>RESISTOR, 2 KOHM ± 10%<br>(fitted rear face control<br>panel) | W8<br>TYPE W23.2K       | 1<br>1     |             |



| FIG 3 ITEM | DMC Army | NATO STOCK NUMBER | ITEM NAME AND DESCRIPTION   | PART NO./ DRAWING NO.   | NO. OFF | ANNOTATIONS |
|------------|----------|-------------------|---|-------------------------|---------|-------------|
| NI         |          | NP                | BOX FIXED, INSIDE VIEW  |                         | REF     |             |
| 1          | Z31      | 5910-99-841-9109  | . CAPACITOR, 0.1 $\mu$ F, 250 V AC, 25 A, RFI FILTER FEED THROUGH   | DS 23838                | 1       |             |
| 2          | Z31      | 5910-99-649-9992  | . CAPACITOR, 0.1 $\mu$ F, 28 V DC, RFI FILTER                       | DS 23444                | 16      |             |
| 3          | Z31      | 5910-99-550-9493  | . RFI FILTER OKLEY 4.7 nF 250 V AC CAPACITOR                        | DS 23727                | 8       |             |
| 4          | Z30      | 5905-99-150-4141  | . EMP PROTECTION VARISTOR A/C (SURGE SUPPRESSOR)                    | Z 250 E                 | 10      |             |
| 5          | Z30      | 5905-99-477-1877  | . EMP PROTECT VARISTOR D/C METAL OXIDE                              | ZL 17 F                 | 16      |             |
| 6          | Z37      |                   | . CURRENT TRANSFORMER 30/1 AMP 5 VA 50/60 Hz CLASS 3                |                         | 1       |             |
| 7          | X2       | 6115-99-700-2471  | . PRINTED CIRCUIT BOARD (PROTECTION)                                | 1-4169-1/56             | 1       |             |
| 8          | Z42      | 5975-99-816-8414  | . CABLE STRAIN RELIEF GLAND   | 9524                    | 1       |             |
| 9          | Y3       | 6145-99-830-3515  | . WIRE, ELECTRICAL  | GT551004                | A/R     |             |
| 10         | Y3       | 6145-99-709-9917  | . WIRE, ELECTRICAL  | XT1.80                  | A/R     |             |
| 11         | X2       | 5340-99-762-0729  | . ANTI-VIBRATION MOUNT  | 17/1405-01X45           | 4       |             |
| 12         | Z37      | 5940-99-745-9119  | . TERMINAL BLOCK 12 WAY   | R44000300001<br>2000    | 2       |             |
| 13         | Z31      | 5945-00-182-1934  | . RELAY DC  | 2T-2D-112               | 1       |             |
| 14         | Z30      | 5905-99-015-6726  | . RESISTOR 25W CGS STYLE HAS 25 0-22 ohms $\pm$ 1%                  | HSA 25                  | 1       |             |
| 15         | Z42      | 5961-99-720-5133  | . DIODE   | MR811                   | 2       |             |
| 16         | Z32      | 5935-14-404-9744  | . CONNECTOR, FIXED, ELECTRICAL                                      | DC37S064                | 1       |             |
| 17         | Z30      | 5905-99-639-9821  | . RESISTOR, FIXED, WIREWOUND  | HSA 25                  | 1       |             |
| 18         |          | 6115-99-256-4862  | . AUTOMATIC VOLTAGE REGULATOR (RT80)                                | Z 523                   | 1       | Allam       |
| 19         | X2       | 5915-99-256-4867  | . SUPPRESSOR RADIO  | Z 571                   | 1       |             |
| 20         | X2       | 6625-99-420-9863  | . EARTH LEAKAGE SENSOR, CURRENT ELS SERIES, 240 V 50 Hz 30 mA, TRIP | ELS-240/30              | 1       |             |
| 21         | Z37      | 5950-99-591-2318  | . TRANSFORMER, POWER, ISOLATION                                     | D6967                   | 1       |             |
| 22         | Z1       | 5945-99-568-5462  | . RELAY, ELECTROMAGNETIC  | 21CPX-2                 | 1       |             |
| 23         | Z32      | 5935-00-079-8970  | . SHIELD, ELECTRICAL CONNECTOR (part of item 16)                    | 10684122                | 1       |             |
| 24         | G1       | 5310-99-130-1338  | . NUT, SELF-LOCKING, PLATE 6-32 UNC                                 | MF1000-06               | 30      |             |
| 25         | Z42      | 5935-99-793-6792  | . SOCKET, PLUG-IN ELECTRONIC COMPONENTS                             | 70-446                  | 1       |             |
| 26         | Z2       | 8115-99-595-4320  | . BOX, METAL, SMALL PARTS A.V.R. BOX                                | 459L                    | 1       |             |
| 27         | Z37      | 5940-99-792-5274  | . MARKER STRIP, 12-WAY  | R44000.15-<br>STD-12000 | 1       |             |
| NI28       | Z37      | 5940-99-622-5782  | . TERMINAL LUG, 3.6 mm MOUNTING HOLE, BLUE INSULATION               | 32440                   | 7       |             |
| NI29       | Z37      | 5940-01-301-1964  | . TERMINAL LUG, 1/4" MOUNTING HOLE, RED INSULATION                  | RA717                   | 2       |             |
| NI30       | Z37      | 5940-00-106-9756  | . TERMINAL LUG, 1/4" MOUNTING HOLE, BLUE INSULATION                 | 14RB14                  | 5       |             |
| NI31       | Z37      | 5940-01-302-1982  | . TERMINAL LUG  | 18RA38                  | 4       |             |

Chapter 2-6  
PARTS LIST  
ANCILLARIES



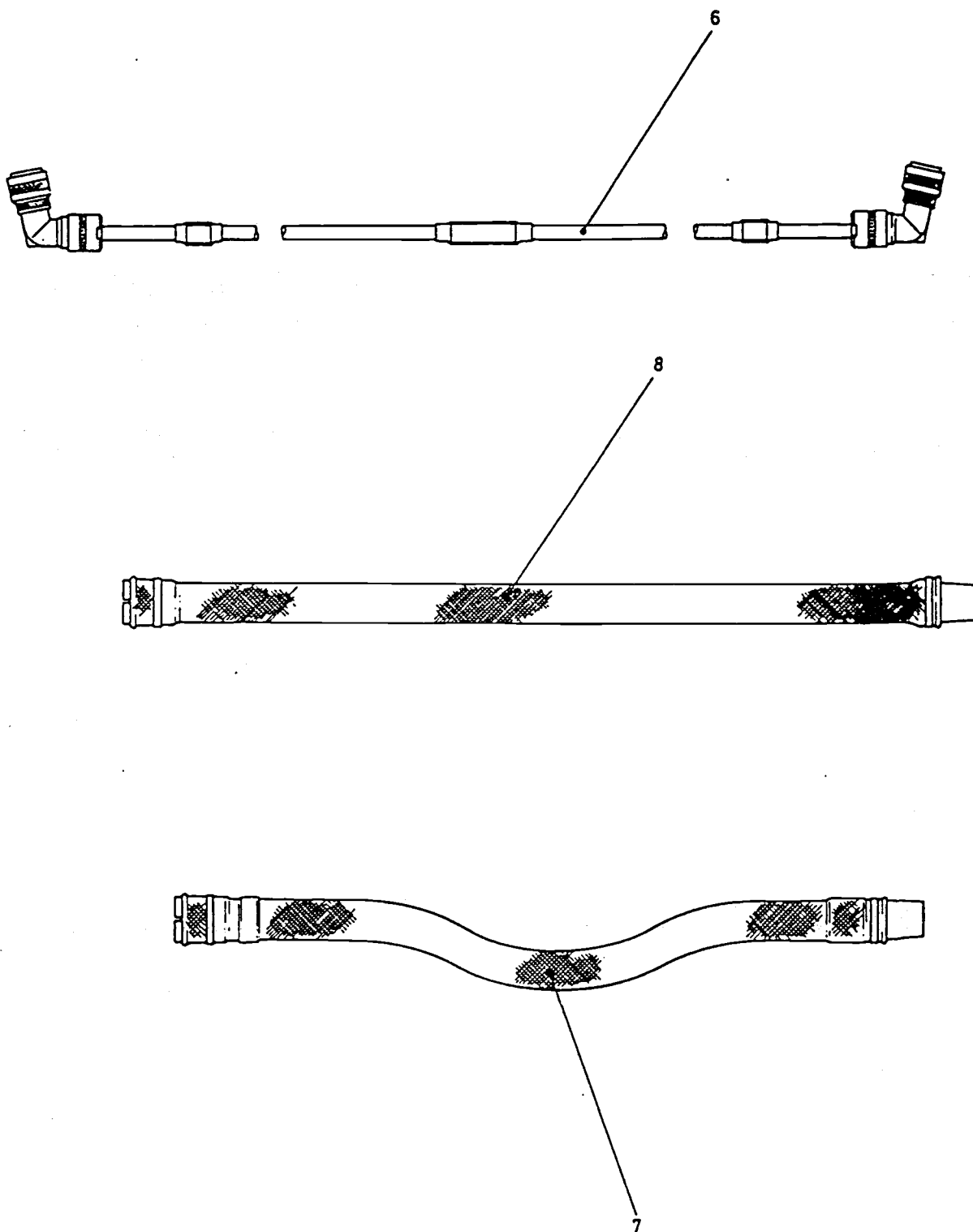


Fig. 1 Ancillary items

| FIG<br>1<br>ITEM | DMC<br>Army | NATO STOCK NUMBER | ITEM NAME AND DESCRIPTION                        | PART NO./<br>DRAWING NO. | NO.<br>OFF | ANNOTATIONS |
|------------------|-------------|-------------------|--|--------------------------|------------|-------------|
| NI               |             | NP                | ANCILLARY ITEMS                                  | -                        | REF        |             |
| NI 1             | Z42         | 5975-99-901-0148  | . ROD, EARTHING                                  | IE/B/59367               | 1          |             |
| NI 2             | X2          | 6150-00-901-5502  | . LEAD ELECTRICAL                                | MEXE3-9753-7             | 1          |             |
| NI 3             | Z32         | 5935-99-255-2672  | . CONNECTOR, FREE<br>ELECTRICAL                  | SPDT22-2-<br>PFOM/1      | 1          |             |
| NI 4             | Z32         | 5935-99-255-2673  | . CONNECTOR, FREE<br>ELECTRICAL                  | SPDT18-21-<br>PFOM/1     | 2          |             |
| NI 5             | Z32         | 5935-99-940-1668  | . PLUG, ELECTRICAL                               | SDB51090                 | 1          |             |
| 6                | X2          | 5995-99-255-2666  | . CABLE ASSEMBLY, SPECIAL<br>PURPOSE, ELECTRICAL | 1-4169-1/53              | 1          |             |
| 7                | X2          | 6115-99-255-2669  | . PIPE ASSEMBLY, EXTENSION,<br>FLEXIBLE          | 2-4169-1/96              | 2          |             |
| 8                | X2          | 6115-99-255-2670  | . PIPE ASSEMBLY, EXTENSION,<br>RIGID             | 2-4169-1/98              | 3          |             |



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Senders's Reference ..... Tel No .....

Date .....

Title of AESP GENERATOR SET DIESEL ENGINE DRIVEN 4.5KW (5.6 kVA) 240V AC  
SINGLE PHASE, 50 Hz  
COMMENT

Signed: .....

TO : .....  
.....  
.....

FROM: ASCA  
HA HA ROAD  
WOOLWICH  
LONDON SE18 4QF

Thank you for commenting on AESP. 6115-G-350-711

\*Action is being taken to:

\*(i) Revise the AESP

\*(ii) Amend the AESP

\* No action is considered necessary for the following reasons :

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**GENERATOR SET DIESEL ENGINE DRIVEN 4.5 kW (5.6 KVA) 240 V AC,  
SINGLE PHASE, 50 Hz (AIR-LOG 4169A)**

**MODIFICATION INSTRUCTIONS AND INDEX**

**BY COMMAND OF THE DEFENCE COUNCIL**

Ministry of Defence  
Issued by  
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PREFACE

Sponsor:  
DGES(A)

Publications Approving Authority:  
Vehs & Wpns Br REME  
Project No: ES52c 3042(47)  
File ref: KGA 4

INTRODUCTION

- 1 The publications approving authority is the authority for allocation of instruction numbers.
- 2 All modification instructions as issued are to be recorded in manuscript by the recipient on the Numerical Modification Instruction Index provided. Amendments to individual instructions are to be recorded on the Instruction Amendment Record. All extant instructions and amendments can be found listed in the main AESP index.
- 3 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 after the preliminary pages of this publication; it should be photocopied and used for forwarding comments on this AESP.
- 4 Priority codes:
  - I/U Immediate Unit
  - I/F Immediate Field
  - R/U Routine Unit
  - R/F Routine Field
  - R/B Routine Base

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**GENERATOR SET DIESEL ENGINE DRIVEN 4.5 kW (5.6 KVA) 240 V AC,  
SINGLE PHASE, 50 Hz (AIR-LOG 4169A)**

**MODIFICATION INSTRUCTION No 1**

Sponsor:  
DGES(A)

Publications Authority:  
Vehs & Wpns Br REME  
Project No: ES52c 3042(47)  
File ref: KGA4

**AMENDMENT RECORD**

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**SUBJECT: Removal of existing 1.4 kg fire extinguisher/bracket and fitting a 2 kg dry powder fire extinguisher/bracket.**

**INTRODUCTION**

1 This instruction introduces a replacement fire extinguisher to meet the requirements of the Montreal Protocol.

1.1 Limitations on use of equipment. Nil

**APPLICABILITY**

2 All subject generators.

2.1 Held by user units.

2.2 Unmodified stock, held at all levels of technical storage.

**REASON FOR MODIFICATION**

3 Code 6 - Montreal Protocol

**PRIORITY**

4 Army: Routine.

**ESTIMATED TIME REQUIRED**

5 Embodiment: 1 man-hour.

**MODIFICATION IMPLEMENTATION PLAN**

6

6.1 This modification is to be implemented by:

ARMY - Units authorised to carry out levels 2, 3 and 4 repairs.

6.2 Associated modification instructions: Nil

6.3 Modification plate strike action: N/A

**Action required by**

7

7.1 Units and establishments holding equipment.

7.1.1 Examine vehicle documents to see if modification is applicable.

7.1.2 Examine equipment to see if modification is embodied and where necessary Units with 1st line REME support demand the stores required.

7.1.3 On receipt of stores, request REME to embody the modification.

7.1.4 Record completion details of modification against appropriate entry in equipment documents.

7.2 Army Units authorised to carry out levels 2, 3 and 4 repairs.

7.2.1 ARMY: When requested by users or during overhaul of equipments on charge without REME 1st line support, obtain the items listed in Para 8 and carry out this modification.

7.2.2 ARMY: Record completion details of modification against appropriate entry in equipment documents.

**Stores, tools and equipment**

8

8.1 Stores to be demanded.

8.1.1 The following modification items are to be demanded quoting this instruction as authority for demand, and

8.1.2 Serial number of equipment held by user units.

8.1.3 Serial number of equipment for unmodified stock held at all levels of technical storage.

| Item No | DMC  | NSN/Part No      | Designation       | Qty per eqpt |
|---------|------|------------------|-------------------|--------------|
| 1       | 6MT1 | 4210-99-839-9905 | Fire extinguisher | 1            |
| 2       | 6MT1 | 4210-99-839-9904 | Bracket           | 1            |

| Item No  | DMC | NSN/Part No      | Designation           | Qty per eqpt |
|--|-----|------------------|-----------------------|--------------|
| 8.2 <u>Stores to be manufactured from locally obtained material.</u> |     |                  |                       |              |
| 3  | G2  | 9515-99-964-7749 | Backing plate         | 2            |
| 8.3 <u>Stores or suitable equivalent to be obtained locally.</u>     |     |                  |                       |              |
| 4  | G1  | 5305-99-948-0923 | Screw machine         | 4            |
| 5  | G1  | 5310-99-120-7577 | Nut self locking      | 4            |
| 8.4 <u>Stores to be removed.</u>                                     |     |                  |                       |              |
| 6  |     |                  | Fire extinguisher BCF | 1            |
| 7  |     |                  | Bracket               | 1            |

**Sequence of operations**

**NOTE**

The 'item numbers' of Para 8 are used as reference throughout this instruction.

**WARNING**

**THE VOLTAGES USED IN THIS EQUIPMENT CAN ENDANGER HUMAN LIFE. REPAIRS AND MODIFICATIONS ARE TO BE CARRIED OUT BY QUALIFIED TRADESMEN ONLY, USING AUTHORISED TOOLS AND TEST EQUIPMENT.**

9 Carry out this instruction as follows:

9.1 Dismantling. Dismantle as follows:

9.1.1 Remove acoustic cover. Refer to AESP 6115-G-350-522 Chap 2.

9.1.2 Remove fire extinguisher from bracket.

9.1.3 Position acoustic cover to gain access to the inside.

9.1.4 Cut foam lining as shown in Fig 1.

9.1.5 Remove five bolts, nuts and washers securing extinguisher bracket and remove bracket.

9.2 Embodiment.

9.2.1 Seal redundant hole by fitting one of the five bolts, nuts and washers removed with old extinguisher bracket.

9.2.2 Manufacture backing plates (item 3) as shown in Fig 2.

9.2.3 Fit and secure bracket (item 2), backing plates (item 3), screws (item 4) and nuts (item 5) as shown in Fig 1 using existing holes in acoustic cover.

9.2.4 Apply a suitable adhesive to the cuts made in the foam lining and attach the lining to the acoustic cover.

9.3 Assembling.

9.3.1 Fit acoustic cover to generator and secure.

9.3.2 Fit fire extinguisher (item 1) into bracket (item 2) and secure.

9.3.3 Dispose of the BCF fire extinguisher (item 6) as follows:

Charged: Return through RLC for disposal

Discharged: Reduce to scrap.

**Testing after embodiment**

10 Nil.

**EFFECT ON WEIGHT**

11 Increase 0.6 kg.

**PUBLICATION AMENDMENTS**

12 Necessary amendments will be issued separately.

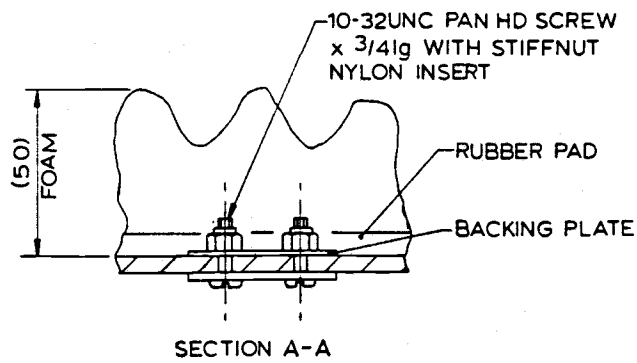
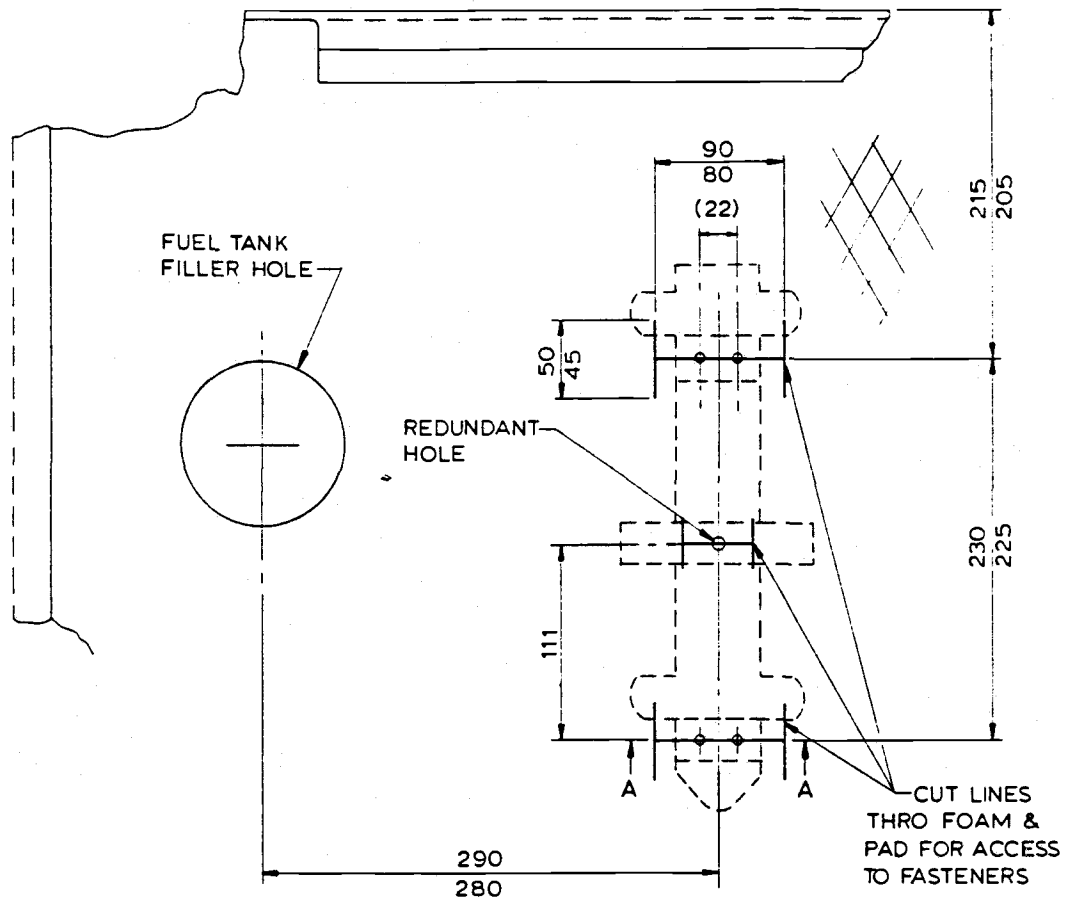


Fig 1 Cover assembly

V11929/1

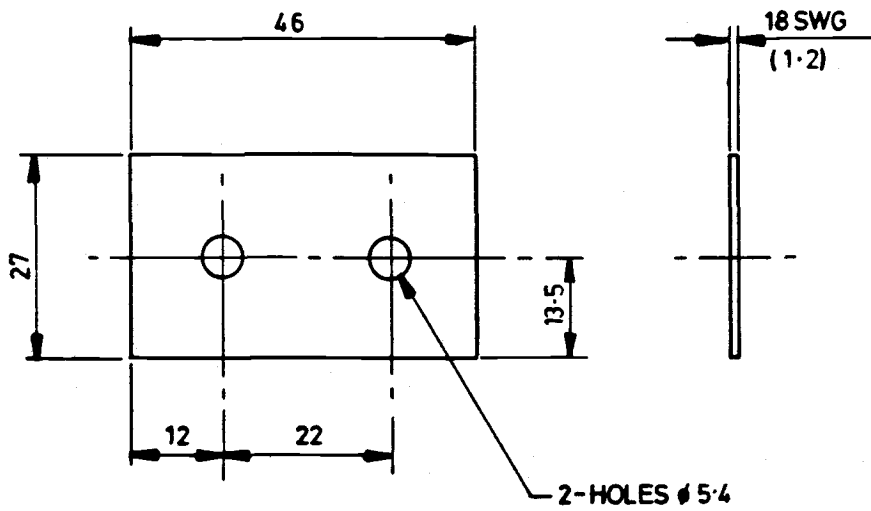


Fig 2 Backing plate

V11953/1



**GENERATOR SET, DIESEL ENGINE DRIVEN,  
4.5 kW (5.6 kVA), 240 V A.C., SINGLE PHASE, 50 Hz  
(AIR-LOG 4169A)**

**MODIFICATION INSTRUCTION No. 2  
(Completely Revised)**

Sponsor:  
DGES(A)

Publication Agency:  
ATSA Chertsey  
Project No: 72111(164)  
File ref: KGA4

**AMENDMENT RECORD**

| Amdt No. | Incorporated By (Signature) | Date   |
|----------|-----------------------------|--------|
| 1        |                             |        |
| 2        |                             | 9-9-96 |
| 3        |                             |        |

| Amdt No. | Incorporated By (Signature) | Date |
|----------|-----------------------------|------|
| 4        |                             |      |
| 5        |                             |      |
| 6        |                             |      |

**SUBJECT: Fitting of CECC 007 style connectors to the output sockets 1, 2 and 3, and power cables .**

**INTRODUCTION**

1 This instruction details the fitting of a new-style CECC 007 connectors to replace the existing items on the output sockets, plus the instructions required to assemble new free-end connectors to existing power cables, see Sub-Para 9.1. Should units experience problems with this instruction, advice can be obtained from Field Equipment and Recovery Group, ATSA, on Chertsey Mil 5222:

1.1 Limitations on use of equipment. Nil.

**APPLICABILITY**

2 Generator Set, 4.5 kW, Air-Log 4169A (NSN Z2/6115-99-795-5786), all variants:

2.1 Fitted to subject vehicles held by user units.

2.2 Unmodified stock, held at all levels of technical storage.

**REASON FOR MODIFICATION**

3 Code 1 - to improve safety. (Reduced risk of mis-aligned connector terminals.)

**PRIORITY**

4 ARMY: Immediate.

**ESTIMATED TIME REQUIRED**

5

- 5.1 Output sockets 1 to 3:
  - 5.1.1 Dismantling: 1.1 man-hours.
  - 5.1.2 Embodiment: 0.2 man-hour.
  - 5.1.3 Assembling: 1.0 man-hour.
  - 5.1.4 Testing: 0.6 man-hour.
  - 5.1.5 Assembling: 0.3 man-hour per cable end.

**MODIFICATION IMPLEMENTATION PLAN**

6

- 6.1 This modification is to be implemented by:
  - 6.1.1 ARMY - Units authorized to carry out levels 2, 3 and 4 maintenance.
  - 6.1.2 Vehicle Depots - before issue of vehicle.
- 6.2 Associated modification instructions. Nil.
- 6.3 Modification plate strike action: After carrying out this modification, strike out Modification No. 2.

**Action required by:**

7

- 7.1 Units and establishments holding equipment:
  - 7.1.1 Examine documents to see if modification is applicable.
  - 7.1.2 Examine equipment or modification record plate to see if modification is embodied and where necessary Units with 1st Line REME Support demand the stores required.
  - 7.1.3 On receipt of stores, request REME to modify equipment.
  - 7.1.4 Record the modification subject and AESP number in equipment documents.
- 7.2 Army units authorized to carry out levels 2, 3 and 4 maintenance:
  - 7.2.1 When requested by users or during overhaul of equipments on charge without REME 1st Line Support, obtain the items listed in Para 8 and carry out this modification.
  - 7.2.2 Erase Modification No. 2 from modification record plate.
  - 7.2.3 Record completion details of modification against appropriate entry in equipment documents.
- 7.3 All recipients of this instruction. Add particulars to AESP 6115-G-350 Mod Instr Index.

**Stores, tools and equipment**

8

8.1 Stores to be demanded.

8.1.1 The following items are to be demanded quoting this instruction as authority for demand, and

8.1.2 Serial number of equipment held by user units.

8.1.3 Serial number of equipment for unmodified stock held at all levels of technical storage.

| Item No. | DMC | NSN/Part No      | Designation                                | Qty per eqpt |
|----------|-----|------------------|--|--------------|
| 1        | Z32 | 5935-99-300-6739 | Connector, socket 3-pin, 15 A, 1-phase     | 2            |
| 2        | Z32 | 5935-99-535-3948 | Connector, socket 4-pin, 30 A, 1-phase     | 1            |
| 3        | Z32 | 5935-99-902-2017 | Cover, protective, socket, shell size 18   | 2            |
| 4        | Z32 | 5935-99-793-5028 | Cover, protective, socket, shell size 22   | 1            |
| 5        | Z1  | 5330-99-588-0559 | Gasket                                     | 2            |
| 6        | Z1  | 5330-99-256-4168 | Gasket                                     | 1            |
| 7        | Z32 | 5935-99-998-8981 | Connector, free-end 3-pin, 15 A, 1-phase   | As reqd      |
| 8        | Z32 | 5935-99-322-3131 | Connector, free-end 4-pin, 30 A, 1-phase   | As reqd      |
| 9        | Z32 | 5935-99-087-8804 | Cover, protective, free-end, shell size 18 | As reqd      |
| 10       | Z32 | 5935-99-370-9477 | Cover, protective, free-end, shell size 22 | As reqd      |

8.2 Stores to be removed and reduced to scrap.

|    |     |                  |   |   |
|----|-----|------------------|---|---|
| 11 | Z32 | 5935-99-038-5550 | Connector, socket, 3-pin, 30 A, 1-phase | 1 |
| 12 | Z32 | 5935-99-038-5542 | Connector, socket, 3-pin, 15 A, 1-phase | 2 |
| 13 | Z32 | 5935-99-038-5638 | Cover, protective                       | 1 |
| 14 | Z32 | 5935-99-038-5637 | Cover, protective                       | 2 |
| 15 | Z1  | 5330-99-038-5646 | Gasket                                  | 1 |
| 16 | Z1  | 5330-99-038-5645 | Gasket                                  | 2 |

8.3 Special tools and test equipment required.

|    |    |                  |                              |   |
|----|----|------------------|------------------------------|---|
| 17 |    |                  | Soldering iron               | 1 |
| 18 | Z4 | 6625-99-252-3606 | Digital multimeter, Fluke 25 | 1 |

| Item No. | DMC | NSN/Part No      | Designation                                 | Qty per eqpt |
|----------|-----|------------------|---|--------------|
| 19       | Z4  | 6625-99-620-9108 | Megohmmeter, Evershed & Vignoles 70514 Mk 2 | 1            |
| 20       | F1  | 6115-99-215-5189 | Spanner, cable assembly, shell size 18      | 1            |
| 21       | F1  | 6115-99-968-1319 | Spanner, cable assembly, shell size 22      | 1            |

#### 8.4 Items to be modified.

|    |    |                  |  |         |
|----|----|------------------|--|---------|
| 22 | Y3 | 6145-99-017-2679 | Existing power cables (see Sub-Para 9.1 Warning)<br>or<br>Cable, 3 core, 41 A per phase rating,<br>shell size 18 | As reqd |
| 23 | Y3 | 6145-99-017-2681 | Cable, 3 core, 73 A per phase rating<br>shell size 22  | As reqd |

#### Sequence of operations

#### NOTES

- (1) The item numbers of Para 8 are used as references throughout this instruction.
- (2) The warning stated below is to be applied to all equipments employing voltages of 230 V d.c. and 50 V a.c. or more.

#### WARNING

**LETHAL VOLTAGES. THE VOLTAGES USED IN THIS EQUIPMENT CAN ENDANGER HUMAN LIFE. REPAIRS AND MODIFICATIONS ARE TO BE CARRIED OUT BY QUALIFIED TRADESPERSONS ONLY, USING AUTHORIZED TOOLS AND TEST EQUIPMENT.**

- 9 Carry out the modification as follows:

##### 9.1 Assembly of power cables:

#### WARNING

**POWER CABLE SPECIFICATION. THE EXISTING POWER CABLES CAN BE USED ONLY IF THEY ARE OF THE CORRECT DIAMETER AND POWER CARRYING CAPABILITY TO FIT THE FREE END CONNECTORS. THE ITEMS DETAILED IN SUB-PARA 8.4 ABOVE ARE KNOWN TO MEET THESE REQUIREMENTS AND ARE THE RECOMMENDED ALTERNATIVES. IF PROBLEMS WITH THE CABLES ARE ENCOUNTERED, CONTACT FIELD EQUIPMENT AND RECOVERY GROUP FOR ADVICE. THE INSTRUCTION DETAILED BELOW APPLY TO ONE CABLE END. ALL ASSEMBLY DETAILS REFER TO FIG 1.**

9.1.1 Strip the cable to the dimensions given, and tin the ends of the cable.

9.1.2 Slide the following items onto the cable, ensuring that they fitted in the correct order and orientation:

9.1.2.1 Grommet nut.

9.1.2.2 Thrust ring.

9.1.2.3 Cable seal.

9.1.2.4 Braid clamp.

9.1.2.5 Outlet assembly.

9.1.3 Place the individual conductors through the grommet, ensuring that each is in the correct hole, and slide the grommet onto the cable as far as possible. Since the pilot connector (required for protective conductor loop monitoring (PCLM)) is not present on the listed cables, one hole in the grommet will not be used.

9.1.4 Feed and solder the conductors into their respective contacts of the free shell assembly, ensuring that they are not twisted.

9.1.5 Slide the grommet forward onto the rear of the free shell, with the grommet face-to-face with the rear of the insert.

9.1.6 Offer the free shell assembly into the coupling nut assembly. Rotate and manoeuvre until the 'clicker' spring fitted to the inside of the coupling nut meshes with the serrated edge of the free shell. Locate the circlip into position inside of the coupling assembly, ensuring that it is fully located and expanded in the groove thereby retaining the free shell assembly against the 'clicker' spring. Check that coupling nut rotates, and that the 'clicker' spring is audibly operating.

9.1.7 Apply sleeve lubricant to the outside of the grommet and outlet assembly O-ring. Tighten the accessory nut onto the free shell to a torque of 70 lb in. using spanner (item 20 or 21), aligning the tactile indicator with the earth pin, and ensuring that the serrations on both free shell and outlet assembly mesh. This process is best carried out with the free shell and coupling nut clamped to an output connector.

9.1.8 Slide the braid clamp, cable seal and thrust ring along the cable onto the outlet assembly.

9.1.9 Loosely screw the grommet nut onto the outlet assembly. Push the cable forward into the outlet body to remove any strain from the solder joints, and then tighten the grommet nut to 70 lb in. using item 20 or 21.

9.1.10 Fit protective cover (item 9 or 10) onto coupling nut, thread retaining braid through hole in grommet nut and knot.

## 9.2 Replacement of output sockets 1 to 3:

9.2.1 Ensure that the generator is not running. Disconnect the interconnecting cable at the fixed box connector, placing the free end of the cable through the frame and onto the acoustic cover. Undo the seven quick-release fasteners that secure the acoustic cover to the frame. Using a minimum of two persons, remove the acoustic cover clear of the chassis assembly.

9.2.2 Disconnect the negative lead from the engine starting battery.

9.2.3 Locate the fixed box; remove the sixteen countersunk screws that secure the left hand cover of the box. Pull cover away from box, extending internal wiring loom as required.

9.2.4 Remove the protective cover (item 14) from output socket 3 (item 12). Remove the four 10/32 UNF screws, washers and stiffnuts securing the socket. Retain screw, washers and nuts for later use.

9.2.5 Pull back the rubber sleeves on the wires; de-solder wires from terminals pins using soldering iron (item 17). Remove and discard items 12, 14 and gasket (item 16).

- 9.2.6 Repeat Sub-Para 9.2.4 and 9.2.5 for output sockets 2 and 1.
- 9.2.7 Using new output socket 3 (item 1) and gasket (item 5), re-solder wires to terminal pins as given in Table 1 using item 17. Relocate rubber sleeves on all terminal pins.
- 9.2.8 Refit items 1, 5 and protective cover (item 3) to fixed box using the four 10/32 UNF screws, washers and stiffnuts.
- 9.2.9 Repeat Sub-Para 9.2.8 for output sockets 1 and 2 (items 1, 2, 3, 4, 5 and 6).
- 9.2.10 Refit the left hand cover using the sixteen countersunk screws, ensuring that the RF/Environmental gasket is correctly seated and that the wiring loom is not trapped between the cover and box.
- 9.2.11 Reconnect the negative battery lead.
- 9.2.12 Refit the acoustic cover in the reverse order to Sub-Para 9.2.1.

TABLE 1

| Output socket     | Terminal pin identifier | Wire number(s) |
|-------------------|-------------------------|----------------|
| 1, 30 A, (item 2) | L                       | 202            |
|                   | N                       | 198 and 199    |
|                   | E                       | 192 and 193    |
| 2, 15 A (item 1)  | L                       | 203            |
|                   | N                       | 197 and 198    |
|                   | E                       | 191 and 192    |
| 3, 15 A (item 1)  | L                       | 204            |
|                   | N                       | 197 and 153    |
|                   | E                       | 191            |

**Testing after embodiment****10 Test the modification as follows:**

10.1 Continuity. Set POWER ON switch and all circuit breakers for outputs 1 to 5 to 'ON'. Check for continuity between pin-L of output socket 1 and pin L of output sockets 2 and 3 using the digital multimeter (item 18). Repeat continuity checks for pin-N and pin-E of all sockets. Also check for continuity between pin E of all sockets to generator frame.

10.2 Insulation. Set POWER ON switch and all circuit breakers for outputs 1 to 5 to 'OFF'. Using the megohmmeter set to 500 V (item 19), check the insulation resistance between pins-L and pin-N, pin L to frame, and pin N to frame for each output socket. The insulation resistance in each case must not be less than 1 megohm.

10.3 Functional. With the generator under normal operating conditions, check for the correct output on all sockets 1, 2 and 3.

**EFFECT ON WEIGHT**

11 Negligible.

**PUBLICATION AMENDMENTS**

**NOTE**

Necessary amendments will be issued separately.

12 Nil.

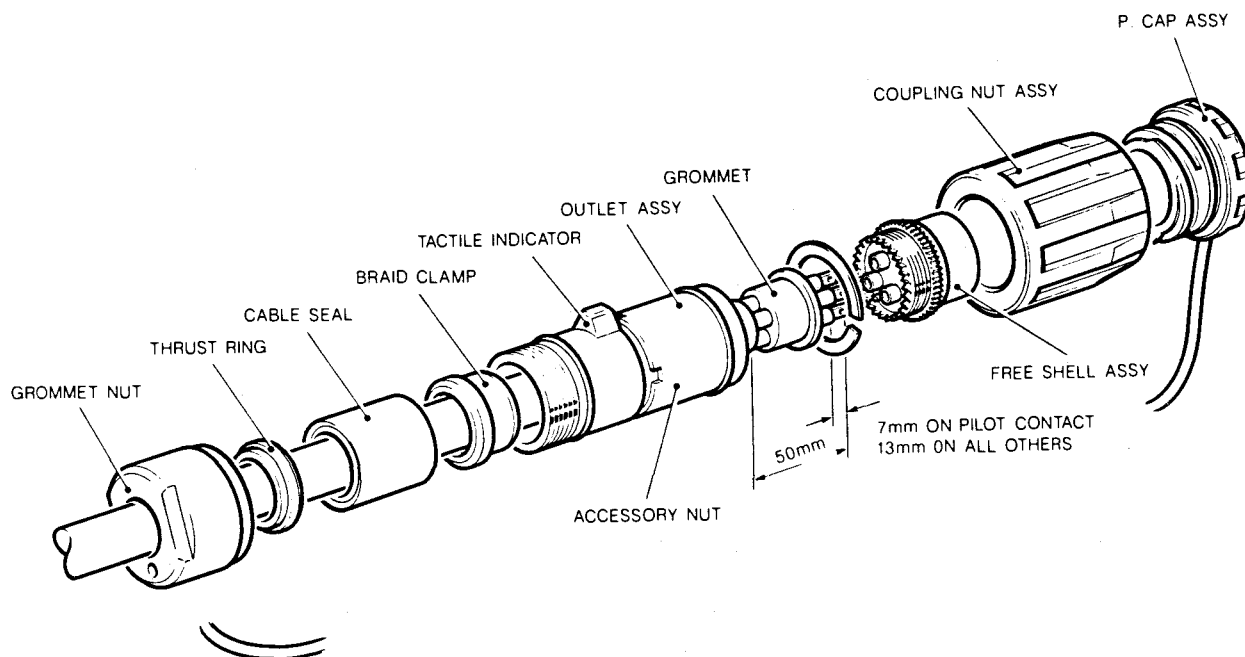


Fig 1 Assembly of free end connector

V12992/1

**GENERATOR SET, DIESEL ENGINE DRIVEN,  
4.5 kW (5.6 kVA), 240 V, SINGLE PHASE, 50 Hz  
(AIR-LOG 4169A)**

**MODIFICATION INSTRUCTION No 3**

Sponsor:  
DGES(A)

Publication Agency:  
Vehs & Wpns Br REME  
Project No: 72012(54)  
File ref: KGA4

**AMENDMENT RECORD**

| Amdt No. | Incorporated By (Signature) | Date |
|----------|-----------------------------|------|
| 1        |                             |      |
| 2        |                             |      |
| 3        |                             |      |

| Amdt No. | Incorporated By (Signature) | Date |
|----------|-----------------------------|------|
| 4        |                             |      |
| 5        |                             |      |
| 6        |                             |      |

**SUBJECT: Replacement of obsolete Residual Current Sensor**

**INTRODUCTION**

1 This instruction details the fitting of a new Residual Current Sensor to replace the existing sensor, a pattern no longer available via commercial stores.

1.1 Limitations on use of equipment. Nil.

**APPLICABILITY**

2 Residual Current Sensor, type SDU1, NSN X2/5945-99-700-3190, as fitted to Generator Set, 4.5 kW, Air-Log (all variants).

2.1 Fitted to subject vehicles held by user units.

**REASON FOR MODIFICATION**

3 Code 5 - to conform to changes in pattern of commercial stores.

**PRIORITY**

4 ARMY: Routine on failure of subject item.

**ESTIMATED TIME REQUIRED**

5 Dismantling: 0.75 man-hours  
Embodiment: 0.50 man-hours  
Assembling: 0.75 man-hours  
Testing: 0.20 man-hours



**MODIFICATION IMPLEMENTATION PLAN**

6

- 6.1 This modification is to be implemented by  
ARMY - Units authorised to carry out levels 2, 3 or 4 maintenance.
- 6.2 Associated modification instructions. Nil.
- 6.3 Modification plate strike action: NA.

**Action required by**

7

- 7.1 Units and establishments holding equipment.
- 7.1.1 Examine equipment to see if the instruction is embodied and where necessary, Units with 1st line REME support demand the stores required.
- 7.1.2 ARMY - On receipt of stores, request REME to modify the equipment.
- 7.2 Army units authorized to carry out levels 2, 3 and 4 maintenance.
- 7.2.1 ARMY - When requested by users or during overhaul of equipments on charge without REME 1st line Support, obtain the items listed in Para 7 and carry out this modification.
- 7.3 All recipients of this instruction. Add particulars to AESP 6115-G-350-811 Mod Instr Index.

**Stores, tools and equipment**

8

- 8.1 Stores to be demanded.
- 8.1.1 The following modification set is to be demanded quoting this instruction as authority for demand, and
- 8.1.2 Serial number of equipment held by user units.

| Item No | DMC | NSN/Part No      | Designation   | Qty per eqpt |
|---------|-----|------------------|---|--------------|
|         | X2  | 6115-99-562-7690 | Mod Set: Earth leakage sensor<br>Comprising:                                    | 1            |
| 1       | X2  | 6625-99-420-9863 | Earth leakage sensor, ELS series,<br>240 V 50 Hz 30 mA trip, Blakey electronics | (1)          |
| 2       |     |                  | Screw, pan hd, steel, M4 x 16 mm lg   | (2)          |
| 3       |     |                  | Nut, full hex, steel, M4  | (2)          |
| 4       |     |                  | Washer, spring, steel, M4   | (2)          |
| 5       |     |                  | Washer, plain, steel, M4  | (2)          |

| Item No  | DMC | NSN/Part No      | Designation                      | Qty per eqpt |
|--|-----|------------------|----------------------------------|--------------|
| 6  |     |                  | Grommet, blanking, rubber, Ø5 mm | (2)          |
| 8.2 <u>Stores or suitable equivalent to be obtained locally.</u> |     |                  |                                  |              |
| 7  |     |                  | Cable ties                       | As reqd      |
| 8  |     |                  | Nut, full hex, steel, M4         | 2            |
| 8.3 <u>Stores to be removed and reduced to scrap.</u>            |     |                  |                                  |              |
| 9  | X2  | 5945-99-700-3190 | RCD sensor                       | 1            |
| 10   |     |                  | RCD mounting bracket             | 1            |

**Sequence of operations**

**NOTES**

- (1) The item numbers of Para 8 are used as references throughout this instruction.
- (2) The warning stated below is to be applied to all equipments employing voltages of 230 V d.c and 50 V a.c or more.

**WARNINGS**

**(1) LETHAL VOLTAGES. THE VOLTAGES USED IN THIS EQUIPMENT CAN ENDANGER HUMAN LIFE. REPAIRS AND MODIFICATIONS ARE TO BE CARRIED OUT BY QUALIFIED TRADESPERSONS ONLY, USING AUTHORISED TOOLS AND TEST EQUIPMENT.**

**(2) GENERATOR STABILITY. WHEN THE GENERATOR IS ELEVATED FOR ACCESS TO THE FIXINGS ON THE UNDERSIDE, ENSURE THAT THE GENERATOR IS FULLY AND STABLY SUPPORTED.**

9 Carry out the modification as follows:

9.1 Ensure that the generator is not running. Remove the generator from its trailer (if fitted) in accordance with AESP 6115-G-350-411.

9.2 Disconnect the interconnecting cable at the fixed box connector, placing the free end of the cable through the frame and onto the acoustic cover. Undo the seven quick-release fasteners that secure the acoustic cover to the frame. Using a minimum of two persons, remove the acoustic cover clear of the chassis assembly.

9.3 Disconnect the negative lead from the engine starting battery.

9.4 To gain access to the fixing bolts which attach the fixed box assembly to the generator floor pan, raise or support the complete generator above the ground or, alternatively, raise and support the fixed box side only.

9.5 Locate the fixed box; remove the sixteen countersunk screws that secure the left hand cover of the box. Pull cover away from box, extending internal wiring loom as required.

9.6 Undo and remove the four M6 bolts and washers holding the fixed box to the floor pan, and retain for re-assembly.

9.7 Locate and remove the residual current detector (RCD) (item 9) from its mounting bracket in the base of the fixed box. De-solder wires numbered '205' and '206' from circuit breaker No 4 (CB4), (after noting which wire is connected to which terminal), cut cable ties as required to release wires and un-thread from the RCD aperture.

9.8 Cut the eight RCD wires (two brown, two green, red, blue, yellow and yellow/green) as close to the RCD as possible. Discard the (unterminated) yellow and yellow/green wires. Discard item 9.

9.9 Remove and discard the RCD mounting bracket (item 10) by releasing the two screws, nuts and washers.

9.10 Referring to Fig 1, mark out and drill two Ø4.2 mm holes in the rear panel of the fixed box.

9.11 Insert the blanking grommets (item 6) into the redundant holes.

9.12 Strip approximately 10 mm of insulation from the cut ends of the six wires, and connect to the new earth leakage sensor (item 1) in accordance with Table 1.

9.13 Thread wires '205' and '206' through RCD sensor aperture, and reconnect to their original terminals on CB4.

9.14 Using screw, nuts and washers, (items 2, 3, 4, 5 and 8), refer to Fig 1 and assemble RCD onto the fixed box rear panel. Re-secure wiring loom using cable ties as required.

9.15 Re-bolt the fixed box to the floor pan using the bolt and washers retained in Para 9.6.

9.16 Re-assemble the left hand cover to the fixed box using the sixteen screws retained in Para 9.5, ensuring that the RF/Environmental gasket is correctly seated and that the wiring loom is not trapped between the cover and fixed box.

9.17 Re-connect the negative battery lead.

9.18 Refit the acoustic cover in the reverse order to Para 9.2.

9.19 Lower the generator to the floor or refit to trailer.

TABLE 1

| Wire No | Wire Colour | Wire Remote End Location            | Earth Leakage Sensor Terminal |
|---------|-------------|-------------------------------------|-------------------------------|
| 223     | Green       | RCD test button (S5), terminal 3    | A1                            |
| 224     | Green       | RCD test button (S5), terminal 4    | T                             |
| 225     | Brown       | Circuit breaker 4 (CB4), terminal 4 | A2                            |
| 226     | Brown       | Circuit breaker 4 (CB4), terminal 2 | A1                            |
| 227     | Blue        | Circuit breaker 4 (CB4)             | COM                           |
| 228     | Red         | Circuit breaker 4 (CB4)             | NO                            |

**Testing after embodiment**

10 Test the modification as follows:

10.1 Start and operate the generator in accordance with AESP 6115-G-350-211. Check for normal output.

10.2 Connect a load to Output Socket 4, set CB4 to 'ON' and select 'POWER ON'.

10.3 Open the Emergency Output Terminal Hinged Cover and press the 'RCD TEST' button. Ensure that the load is automatically disconnected by the tripping of CB4.

10.4 Re-set CB4 and ensure that the load is re-connected.

10.5 Set CB4 and 'POWER ON' switch to their 'OFF' positions. Stop engine and disconnect the load.

**EFFECT ON WEIGHT**

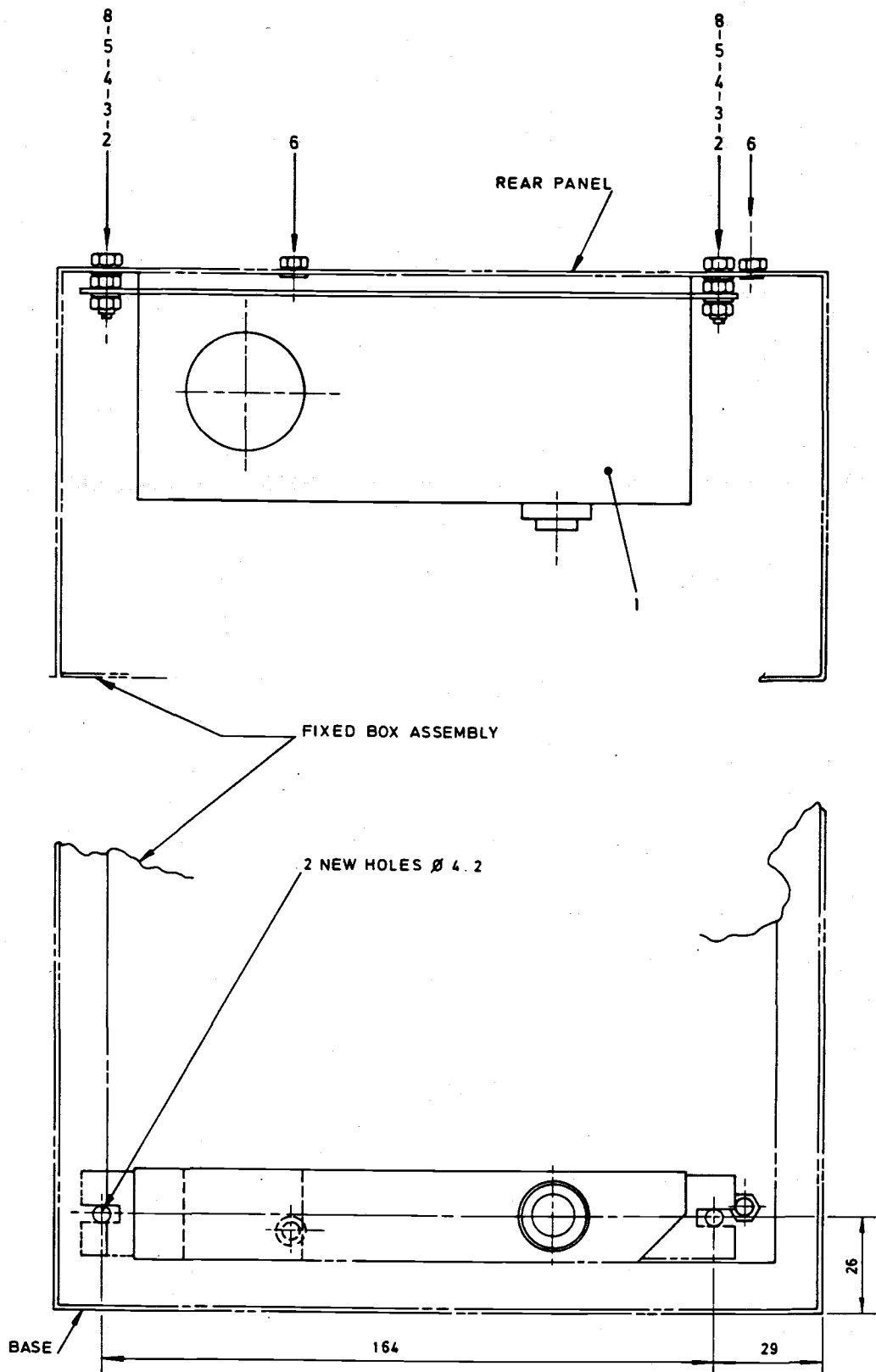
11 Nil.

**PUBLICATION AMENDMENTS**

**NOTE**

Necessary amendments will be issued separately.

12 Nil



V12651/1

Fig 1 Fixed box assembly, RCD sensor location and fixings

GENERATOR SET DIESEL ENGINE DRIVEN 4.5 KW (5.6 KVA) 240 V AC,  
SINGLE PHASE, 50 HZ (AIRLOG 4169A)  
MODIFICATION INSTRUCTION NO. 4

Sponsor:  
DGES(A)

Publication Agency:  
ATSA Chertsey  
Project No: 72212(355)  
File ref: KGA4

AMENDMENT RECORD

| Amdt No. | Incorporated By (Signature) | Date |
|----------|-----------------------------|------|
| 1        |                             |      |
| 2        |                             |      |
| 3        |                             |      |

| Amdt No. | Incorporated By (Signature) | Date |
|----------|-----------------------------|------|
| 4        |                             |      |
| 5        |                             |      |
| 6        |                             |      |

**SUBJECT:** Earth bonding

**INTRODUCTION**

1 Asset code JE 5927 3302 consists of two Airlog 4.5 kW generators mounted on a 2.5 tonne FV 2406 trailer. This instruction details the earth bonding of the generators to the trailer when supplied in this configuration.

1.1 Limitations on use of equipment. Nil.

**APPLICABILITY**

2 Twin Airlog 4.5 kW generators mounted on 2.5 tonne, FV 2406 trailer. Asset code JE 5927 3302.

2.1 Held by user units.

2.2 Unmodified stock, held at all levels of technical storage.

**REASON FOR MODIFICATION**

3 Code 1 - to improve safety.

**PRIORITY**

4 ARMY: Immediate.

**ESTIMATED TIME REQUIRED**

5 Assembling: 1 man-hour.

**MODIFICATION IMPLEMENTATION PLAN**

6

6.1 This instruction is to be implemented by:

6.1.1 ARMY - Units authorized to carry out levels 2, 3 or 4 maintenance.

6.2 Associated instructions. Nil

6.3 Strike plate action: N/A

**Action required by**

7

7.1 Units and establishments holding equipment:

7.1.1 Examine equipment documents to see if instruction is applicable.

7.1.2 Examine equipment or modification record plate to see if modification is embodied and where necessary Units with 1st Line REME Support demand the stores required.

7.1.3 ARMY - On receipt of stores, request REME to modify equipment.

7.1.4 ARMY - Record the AESP and instruction number in equipment documents.

7.2 Army units authorized to carry out levels 2, 3 and 4 maintenance:

7.2.1 ARMY - When requested by units or during overhaul of equipment on charge without REME 1st Line Support, obtain the items listed in Para 8 and carry out this modification.

7.2.2 Record completion details of modification against appropriate entry in vehicle documents.

7.3 All recipients of this instruction. Add particulars to AESP 6115-G-350-811 Instr Index.**Stores, tools and equipment**

8

8.1 Stores to be demanded:

8.1.1 The following modification kit is to be demanded quoting this instruction as the authority.

8.1.2 Registration number of trailer for equipment held by user units.

| Item No. | DMC | NSN/Part No.     | Designation  | Qty per eqpt |
|----------|-----|------------------|--|--------------|
|          | X2  | 6115-99-898-5000 | Mod set: Modification Kit, Earth Bonding comprising: | 1            |
| 1        |     | 2-4169-1/191     | Cable bonding.                                       | (2)          |
| 2        |     | 3-4169-1/195     | Collar.  | (2)          |
| 3        |     | BS3692           | Screw, hex hd M6 x 60 mm lg.                         | (2)          |

| Item No. | DMC | NSN/Part No. | Designation                                | Qty per eqpt |
|----------|-----|--------------|--|--------------|
| 4        |     | BS4320       | Washer, plain, form A, M6.                 | (4)          |
| 5        |     | BS4464       | Washer, spring, single coil, M6.           | (4)          |
| 6        |     | DIN6797      | Washer, shakeproof, ext teeth, form A, M6. | (2)          |
| 7        |     | BS3692       | Nut, full, M6.                             | (4)          |
| 8        |     | DIN4398      | Nut.                                       | (2)          |
| 9        |     |              | Holesaw, 20 mm dia.                        | (1)          |
| 10       |     |              | K1 arbor.                                  | (1)          |

**Sequence of operations**

9 Carry out this instruction as follows:

**NOTE**

The item numbers of Para 8 are used as reference throughout this instruction.

9.1 Referring to Fig 1 and 2 mark out the earth stud positions on the trailer deck.

9.2 Drill 20 mm holes (item 9), in the positions marked, through the trailer wooden deck allowing the holesaw pilot drill to continue through the steel floor below. If necessary use a suitable size drill to open out the holes in the steel floor to allow clearance for the M6 screws (item 3).

9.3 Remove the paint around the holes, on the underside of the steel floor, to a diameter of approximately 22 mm.

9.4 Referring to Fig 3 assemble the earth studs and earth bonding cables (item 1, 2, 3, 4, 5, 6, 7 and 8).

**TESTING AFTER EMBODIMENT**

10 Nil.

**EFFECT ON WEIGHT**

11 Negligible.

**PUBLICATION AMENDMENTS**

**NOTE**

Necessary amendments will be issued separately.

12 Nil.



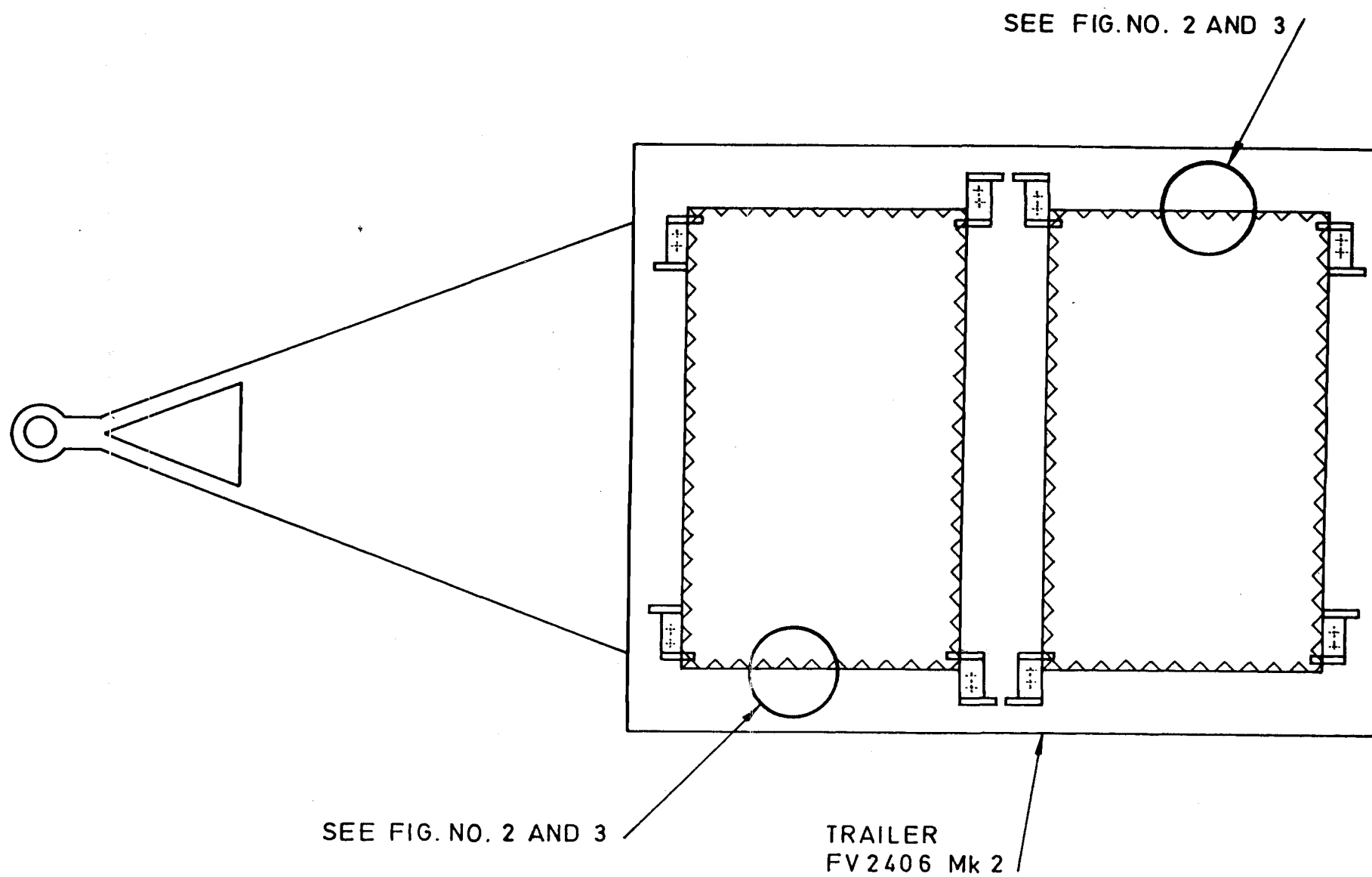
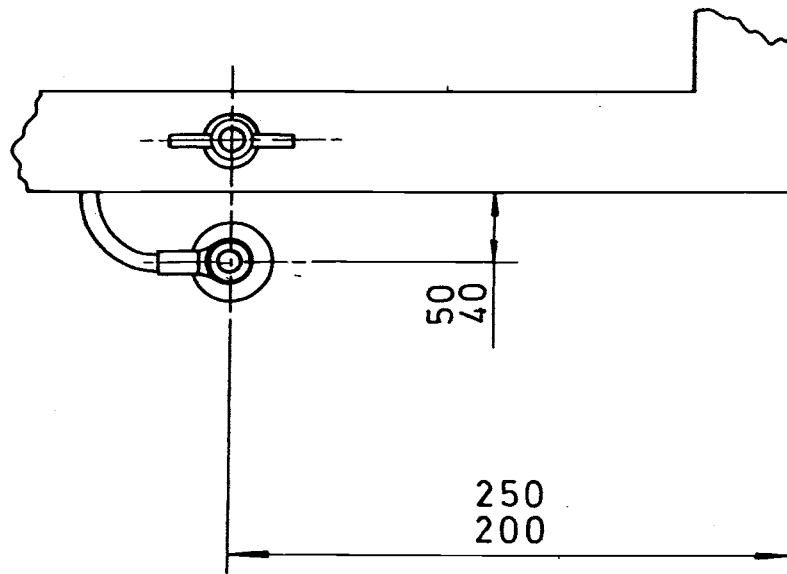


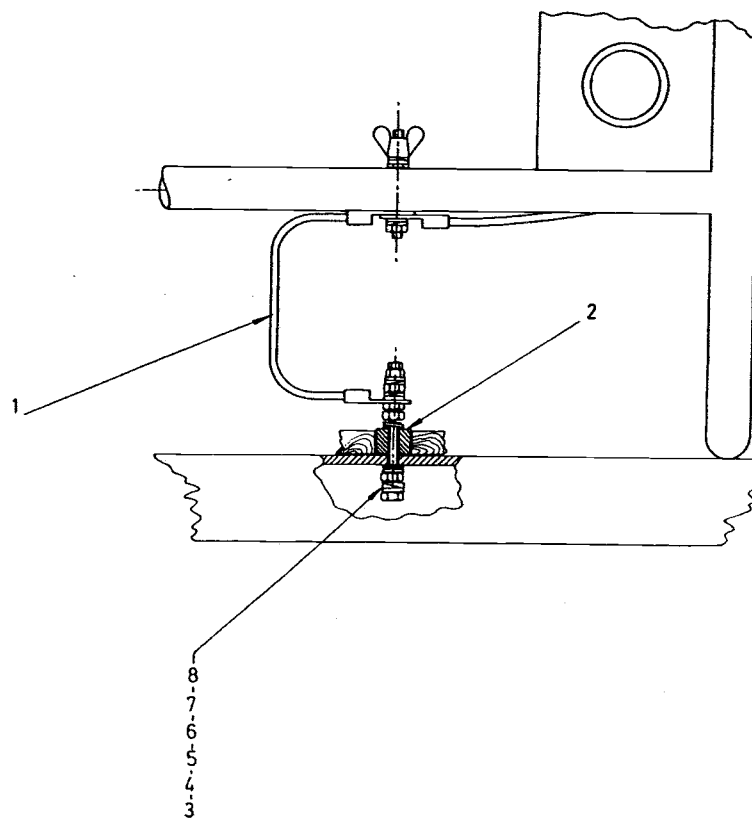
Fig 1 General arrangement

V14378/1



V14378/2

Fig 2 Positional detail



V14378/3

Fig 3 Earth stud and cable assembly

**GENERATOR SET, DIESEL ENGINE DRIVEN, 4.5 KW (5.6 KVA), 240 V AC,  
SINGLE PHASE, 50 HZ, (AIR-LOG 4169A)  
MODIFICATION INSTRUCTION NO. 5**

Sponsor:  
DGES(A)

Publication Agency:  
ATSA Chertsey  
Project No: 72212(354)  
File ref: KGA4

**AMENDMENT RECORD**

| Amdt No. | Incorporated By (Signature) | Date |
|----------|-----------------------------|------|
| 1        |                             |      |
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| Amdt No. | Incorporated By (Signature) | Date |
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**SUBJECT: Earth bonding**

**INTRODUCTION**

1 Asset code JE 5927 3301 consists of a single Air-Log 4.5 kW generator set mounted in a 0.75 tonne FV 2380 trailer. This instruction details the earth bonding of the generator to the trailer.

1.1 Limitations on use of equipment. Nil.

**APPLICABILITY**

2 Single Air-Log 4.5 kW Generator Set Mounted in 0.75 Tonne, FV 2380, Trailer, Asset Code JE 5927 3301.

2.1 Held by user units.

2.2 Unmodified stock, held at all levels of technical storage.

**REASON FOR MODIFICATION**

3 Code 1 - to improve safety.

**PRIORITY**

4 ARMY: Immediate.

**ESTIMATED TIME REQUIRED**

5 Assembling: 1 man-hour.

**MODIFICATION IMPLEMENTATION PLAN**

6

6.1 This instruction is to be implemented by:

6.1.1 ARMY - Units authorized to carry out levels 2, 3 or 4 maintenance.

6.2 Associated instructions: Nil

6.3 Strike plate action: N/A

**Action required by**

7

7.1 Units and establishments holding equipment:

7.1.1 Examine equipment documents to see if instruction is applicable.

7.1.2 Examine equipment or modification record plate to see if modification is embodied and where necessary Units with 1st Line REME Support demand the stores required.

7.1.3 ARMY - On receipt of stores, request REME to modify equipment.

7.1.4 ARMY - Record the AESP and instruction number in equipment documents.

7.2 Army units authorized to carry out levels 2, 3 and 4 maintenance:

7.2.1 ARMY - When requested by units or during overhaul of equipment on charge without REME 1st Line Support, obtain the items listed in Para 8 and carry out this modification.

7.2.2 Record completion details of modification against appropriate entry in vehicle documents.

7.3 All recipients of this instruction. Add particulars to AESP 6115-G-350-811 Instr Index.

**Stores, tools and equipment**

8

8.1 Stores to be demanded:

8.1.1 The following modification kit is to be demanded quoting this instruction as the authority.

8.1.2 Registration number of trailer for equipment held by user units.

| Item No. | DMC | NSN/Part No.     | Designation  | Qty per eqpt |
|----------|-----|------------------|--|--------------|
|          | X2  | 6115-99-474-4763 | Mod set: Modification Kit, Earth Bonding comprising: | 1            |
| 1        |     | 2-4169-1/191     | Cable bonding.                                       | (2)          |
| 2        |     | BS4183           | Screw, hex hd, M6 x 16 mm lg.                        | (2)          |
| 3        |     | BS4320           | Washer, plain, form A, M6.                           | (2)          |

| Item No. | DMC | NSN/Part No. | Designation                      | Qty per eqpt |
|----------|-----|--------------|----------------------------------|--------------|
| 4        |     | BS4464       | Washer, spring, single coil, M6. | (2)          |
| 5        |     | BS3692       | Nut, full, M6.                   | (2)          |

**Sequence of operations**

9 Carry out this instruction as follows:

**NOTE**

The item numbers of Para 8 are used as reference throughout this instruction.

9.1 Referring to Fig 1 and 2 mark out the earth stud positions on the trailer floor and trailer chassis frame.

9.2 In the positions marked drill suitable size clearance holes for the M6 earth stud screws (item 2).

9.3 Remove the paint, to a diameter of approximately 22 mm, around the trailer floor hole on the top side and around the trailer chassis frame on the underside.

9.4 Referring to Fig 3 assemble the earth bonding cables (item 1, 2, 3, 4 and 5).

**TESTING AFTER EMBODIMENT**

10 Nil.

**EFFECT ON WEIGHT**

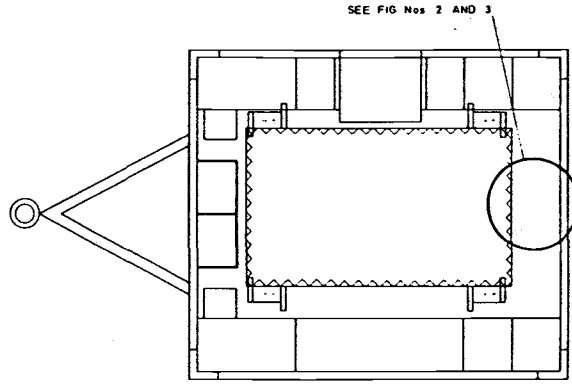
11 Negligible.

**PUBLICATION AMENDMENTS**

**NOTE**

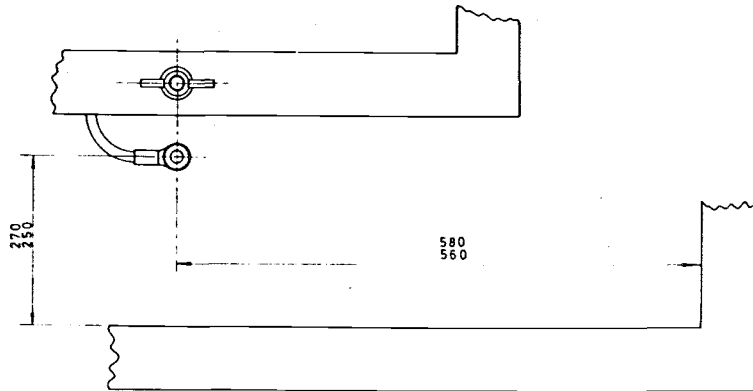
Necessary amendments will be issued separately.

12 Nil.



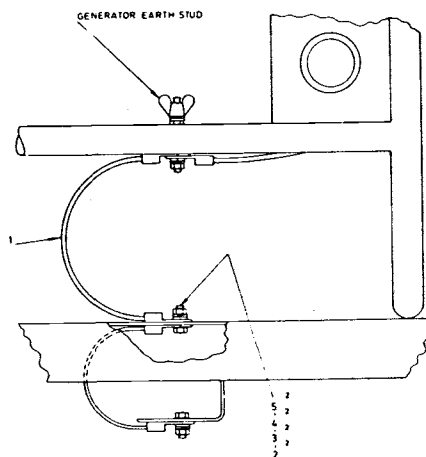
V14378/4

Fig 1 General arrangement



V14378/5

Fig 2 Positional detail



V14378/6

Fig 3 Earth stud cable assy

**GENERATOR SET, DIESEL ENGINE DRIVEN, 4.5 KW (5.6 KVA), 240 V AC,  
SINGLE PHASE, 50 HZ, (AIR-LOG 4169A)**

**MODIFICATION INSTRUCTION NO. 6**

Sponsor:  
DGES(A)

Publication Agency:  
ATSA Chertsey  
Project No: 72212(256)  
File ref: KGA4

**AMENDMENT RECORD**

| Amdt No. | Incorporated By (Signature) | Date |
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| Amdt No. | Incorporated By (Signature) | Date |
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**SUBJECT: Removal of engine mounted, mechanically operated, Hours Run Meter (HRM)**

**INTRODUCTION**

1 The air-log 4.5 kW generator is fitted with two HRMs. One is electrically operated and mounted on the front panel of the remote control box (RCB). The other is mechanically operated and is mounted in a bracket on the engine assembly. The control box HRM is accurate and easy to read and therefore this instruction authorises the removal of the mechanical HRM.

**NOTE**

In order to keep an accurate record of running time the RCB must be retained with its associated generator at all times. If replacement of the RCB is necessary then a record of running time must be made in the equipment documentation. The serial number of the generator is stencilled on the bottom of the RCB.

1.1 Limitations on use of equipment. Nil.

**APPLICABILITY**

2 Air-Log 4.5 kW Generator Set, All Variants X2/6645-12-166-2094 Meter - Time Totalizing.

2.1 Fitted to subject generators held by user units.

2.2 Unmodified stock, held at all levels of technical storage.

**REASON FOR MODIFICATION**

3 Code 6 - Removal of redundant components.

**PRIORITY**

4 ARMY: Routine on failure or at next service.

**ESTIMATED TIME REQUIRED**

5 Dismantling: 0.5 man-hours.

**MODIFICATION IMPLEMENTATION PLAN**

6

6.1 This instruction is to be implemented by:

6.1.1 ARMY - Units authorized to carry out levels 2, 3 or 4 maintenance.

6.2 Associated instructions. Nil

6.3 Strike plate action: N/A

**Action required by**

7

7.1 Units and establishments holding equipment:

7.1.1 Examine equipment documents to see if instruction is applicable.

7.1.2 Examine equipment or modification record plate to see if modification is embodied and where necessary Units with 1st Line REME Support demand the stores required.

7.1.3 ARMY - On receipt of stores, request REME to modify equipment.

7.1.4 ARMY - Record the AESP and instruction number in equipment documents.

7.2 Army units authorized to carry out levels 2, 3 and 4 maintenance:

7.2.1 ARMY - When requested by units or during overhaul of equipment on charge without REME 1st Line Support.

7.2.2 Record completion details of modification against appropriate entry in vehicle documents.

7.3 All recipients of this instruction. Add particulars to AESP 6115-G-350-811 Instr Index.

**Stores, tools and equipment**

8

8.1 Stores to be removed and reduced to scrap:

| Item No. | DMC | NSN/Part No.     | Designation              | Qty per eqpt |
|----------|-----|------------------|--------------------------|--------------|
| 1        | X2  | 6645-12-166-2094 | Meter - Time Totalizing. | 1            |



**Sequence of operations**

9 Carry out this instruction as follows:

**NOTE**

The item numbers of Para 8 are used as reference throughout this instruction.

9.1 Remove the two bolts fixing the HRM (item 1) mounting bracket to the engine. Remove the bracket and earth bonding cable. Discard the HRM (item 1), bracket, and one fixing bolt.

9.2 Using the remaining fixing bolt replace the earth bonding cable.

**TESTING AFTER EMBODIMENT**

10 Nil.

**EFFECT ON WEIGHT**

11 Negligible.

**PUBLICATION AMENDMENTS**

**NOTE**

Necessary amendments will be issued separately.

12 Nil.

**GENERATOR SET DIESEL ENGINE DRIVEN 4.5 KW (5.6 KVA) 240 V AC,  
SINGLE PHASE, 50 HZ (AIR-LOG 4169A)  
MODIFICATION INSTRUCTION NO. 7**

Sponsor:  
DGES(A)

Publication Agency:  
ATSA Chertsey  
Project No: S9900049(521)  
File ref: KGA4

**AMENDMENT RECORD**

| Amdt No. | Incorporated By (Signature) | Date |
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| Amdt No. | Incorporated By (Signature) | Date |
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**SUBJECT: Modification of control box cable assembly, X2/6150-99-623-8290**

**INTRODUCTION**

1 This instruction modifies the control box cable assembly to prevent the ingress of water into the control box connector:

- 1.1 Limitations on use of equipment. Nil.

**APPLICABILITY**

2 Control box cable assembly X2/6150-99-623-8290:

- 2.1 Fitted to subject equipment, EAC JE59273301, JE59273302 or JE59273303 held by user units.
- 2.2 Unmodified stock, held at all levels of technical storage.

**REASON FOR MODIFICATION**

3 Code 2 - to improve operational performance.

**PRIORITY**

4 ARMY: Immediate.

**ESTIMATED TIME REQUIRED**

5 Embodiment: 1.0 man-hours.

**MODIFICATION IMPLEMENTATION PLAN**

6

6.1 This instruction is to be implemented by:

6.1.1 ARMY - Units authorized to carry out levels 2, 3 or 4 maintenance.

6.2 Associated instructions: Nil.

6.3 Strike plate action: N/A.

**Action required by**

7

7.1 Units and establishments holding equipment:

7.1.1 Examine equipment to see if modification is embodied and where necessary Units with 1st Line REME Support demand the stores required.

7.1.2 ARMY - On receipt of stores, request REME to modify equipment.

7.1.3 Record the AESP and instruction number in equipment documents.

7.2 Army units authorized to carry out levels 2, 3 or 4 maintenance:

7.2.1 When requested by users without 1st Line REME Support, obtain the items listed in Para 8 and carry out this modification.

7.2.2 Record completion details of modification against appropriate entry in equipment documents.

7.3 All recipients of this instruction. Add particulars to AESP 6115-G-350-811 Instr Index.**Stores, tools and equipment**

8

8.1 Stores are to be obtained from Item 4:

| Item No. | DMC | NSN/Part No.     | Designation                                   | Qty per eqpt |
|----------|-----|------------------|---|--------------|
| 1        | Z42 | 5970-99-640-1141 | Self amalgamating tape.                       | As reqd      |
| 2        | Z42 | 5970-99-887-6317 | Tubing 4:1 heat shrink, black 50 mm diameter. | 12 cm        |

8.2 Items/stores to be modified:

3 X2 6150-99-623-8290 Cable assembly (0.75 m). 1

8.3 Special tools and test equipment required:

4 W3 4940-99-839-8288 General purpose electrical cable repair kit. 1

**Sequence of operations**

**NOTE**

The item numbers of Para 8 are used as reference throughout this instruction.

**9 Carry out the modification as follows:**

- 9.1 Remove the cable assembly (item 3) from the subject equipment.
- 9.2 Using the tape (item 1) form a taper, which is to extend 8 cm from the base of plug 5.
- 9.3 Using the electrical cable repair kit (item 4) heat the tape to give a watertight seal.
- 9.4 Slide a 12 cm length of tubing (item 2) over the plug end of the cable. Ensuring that the ends of the tubing are cut square.
- 9.5 Position the tubing over the taped taper to give an equal overlap at either end.
- 9.6 Using the electrical cable repair kit (item 4) shrink the tubing to give a watertight seal.

**TESTING AFTER EMBODIMENT**

10 Nil.

**EFFECT ON WEIGHT**

11 Negligible.

**PUBLICATION AMENDMENTS**

12 Nil.

**GENERATOR SET DIESEL ENGINE DRIVEN 4.5 KW (5.6 KVA) 240 V AC**

**SINGLE PHASE, 50 HZ (AIR-LOG 4169A)**

**MODIFICATION INSTRUCTION NO. 8**

Sponsor:  
DGES(L)

Publication Agency:  
DLO Chertsey  
Project No: S01024 (88)  
File ref: FP&MEE 20

**AMENDMENT RECORD**

| Amdt No. | Incorporated By (Signature) | Date |
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**SUBJECT: Replacement of alternative transformer**

**INTRODUCTION**

1 The transformer fitted to the generator is no longer available from commercial stores. The new transformer is a different pattern but comes complete with a mounting plate that ensures existing holes can be used. This instruction details the fitting of the alternative transformer upon failure of the existing transformer.

1.1 Limitations on use of equipment. Nil.

**APPLICABILITY**

2 Current transformer NSN Z37 5950-99-352-4761 superseded by new transformer NSN X2 6115-99-479-5468, ref. AESP 6115-G-350-711, Chap 2-5, Fig 3, Item 6, fitted to Air-Log 4.5 kW Generator Set, NSN X2/6115-99-795-5786.

**REASON FOR MODIFICATION**

3 Code 5 - to conform to changes in pattern of commercial stores.

**PRIORITY**

4 Routine on failure of subject transformers.

**ESTIMATED TIME REQUIRED**

5

5.1 Dismantling: 0.25 man-hours.

5.2 Embodiment: 0.50 man hours.

5.3 Assembling: 0.25 man-hours.

5.4 Testing: 0.2 man-hours.

**MODIFICATION IMPLEMENTATION PLAN**

6

6.1 This instruction is to be implemented by:

6.1.1 ARMY - Units authorized to carry out levels 2, 3 or 4 maintenance.

6.1.2 RAF - Units as appropriate.

6.2 Associated instructions. Nil.

6.3 Strike plate action: N/A.

**Action required by**

7

7.1 Units and establishments holding equipment:

7.1.1 Examine equipment documents to see if instruction is applicable.

7.1.2 Examine equipment to see if modification is embodied and where necessary Units with 1st Line REME Support demand the stores required.

7.1.3 ARMY - On receipt of stores, request REME to modify equipment.

7.1.4 ARMY - Record the AESP and instruction number in equipment documents.

7.1.5 RAF - Record modification details.

7.2 Army units authorized to carry out levels 2, 3 and 4 maintenance and RAF units:

7.2.1 ARMY - When requested by units or during overhaul of equipment on charge without REME 1st Line Support, obtain the items listed in Para 8 and carry out this instruction.

7.2.2 Record completion details of modification against appropriate entry in equipment documents.

7.3 All recipients of this instruction. Add particulars to AESP 6115-G-350-811 Instr Index.

**Stores, tools and equipment**

8

8.1 Stores to be demanded:

| Item No. | DMC | NSN/Part No.     | Designation                              | Qty per eqpt |
|----------|-----|------------------|--|--------------|
|          | X2  | 6115-99-479-5468 | Modification kit transformer comprising: | 1            |
| 1        |     |                  | Modified transformer.                    | (1)          |
| 2        |     |                  | M6 plain washer, steel.                  | (2)          |
| 3        |     |                  | M6 single coil spring washer, steel.     | (2)          |

| Item No. | DMC | NSN/Part No. | Designation                              | Qty per eqpt |
|----------|-----|--------------|--|--------------|
| 4        |     |              | M6 terminal ring tongue, insulated.      | (2)          |
| 5        |     |              | M6 hex hd screw x 12 lg, steel.          | (2)          |
| 6        |     |              | M6 full nut, steel.                      | (2)          |
| 7        |     |              | M8 hex hd screw x 18 lg, steel.          | (2)          |
| 8        |     |              | M8 plain washer, steel.                  | (2)          |
| 9        |     |              | M8 single coil spring washer, steel.     | (2)          |
| 10       |     |              | M8 full nut, steel.                      | (2)          |
| 11       |     |              | M6 hex hd screw x 16 lg, steel.          | (4)          |
| 12       |     |              | M6 seloc washer, rubber covered (Dowty). | (4)          |

**Sequence of operations**

9 Carry out this instruction as follows:

**NOTE**

The item numbers AESP 6115-G-350-711, Chap 2-5, Fig 3, are used as reference throughout this instruction.

- 9.1 Disable generator by disconnecting negative and positive battery leads.
- 9.2 Remove new transformer and fittings from packaging, taking note of white label indicating terminal identification.
- 9.3 Remove the 16 counter sunk screws securing the front cover of the fixed box assembly to gain access to the existing transformer.
- 9.4 Remove two screws holding relay DC (see Fig 1) and pull it down and out of the way to give easier access to existing transformer.
- 9.5 Remove four bolts holding existing transformer (item 6).
- 9.6 Disconnect secondary terminals S1 and S2, cut wires as close as possible to existing terminal crimps and discard.
- 9.7 Bare wires back and crimp new M6 rings provided.
- 9.8 Secure to secondary terminals using new fittings in the order S1 then S2, ensure that fittings are used in such a way that maximum clearance is achieved between them and the back of the fixed box assembly.
- 9.9 Offer up new transformer in mounting position indicated in Fig 1.
- 9.10 Use four bolts and dowty washers provided to secure new transformer in place.
- 9.11 Remove the primary wires from the existing transformer and discard transformer.
- 9.12 Connect primary wires to new transformer.

- 9.13 Check clearance around all of the newly connected terminals.
- 9.14 Replace relay DC.
- 9.15 Replace the fixed box assembly front cover with existing fittings.
- 9.16 Reconnect battery.

**TESTING AFTER EMBODIMENT**

10 Nil.

**EFFECT ON WEIGHT**

11 Negligible.

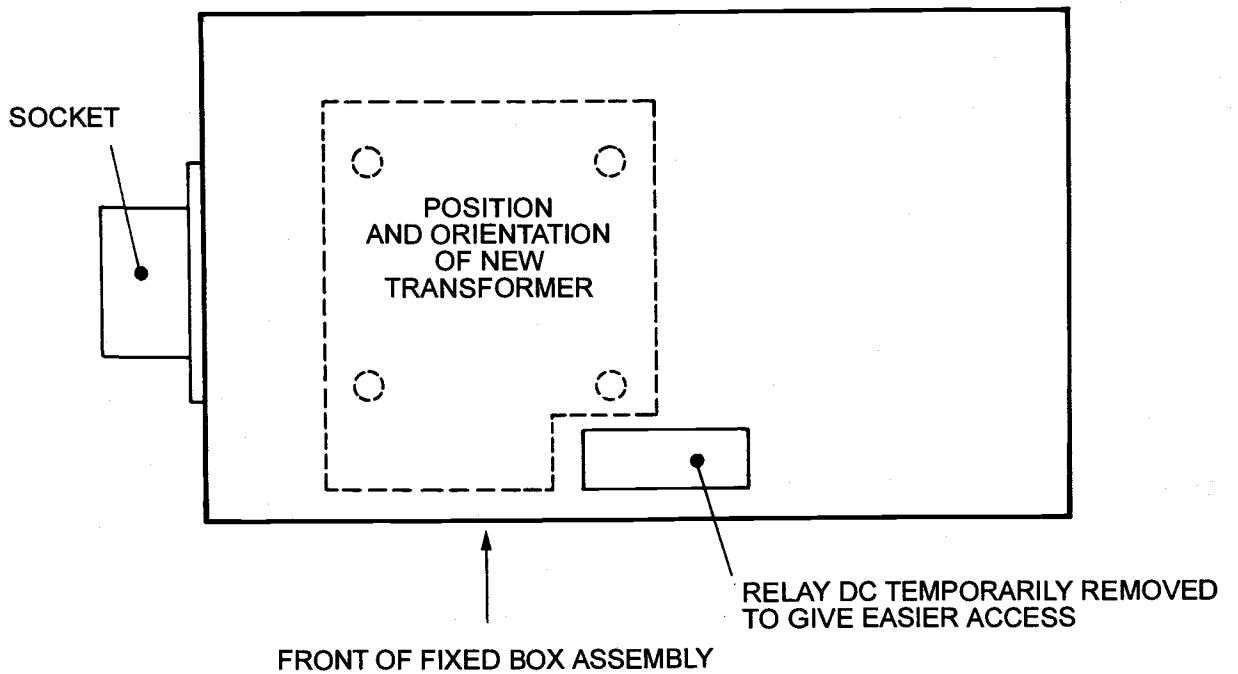
**PUBLICATION AMENDMENTS**

**NOTE**

Necessary amendments will be issued separately.

12 Nil.





V14813/1

Fig 1 Position and orientation of new transformer viewed from above fixed box assembly

**GENERATOR SET DIESEL ENGINE DRIVEN 4.5 KW (5.6 KVA) 240V AC  
SINGLE PHASE, 50 HZ (AIR-LOG 4169A)**

**MODIFICATION INSTRUCTION NO. 9**

Sponsor:  
DGES(L)

Publication Agency:  
DLO Chertsey  
Project No: S01024(148)  
File ref: FF&MEE 20

**AMENDMENT RECORD**

| Amdt No. | Incorporated By (Signature) | Date |
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| Amdt No. | Incorporated By (Signature) | Date |
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**SUBJECT: Replacement of mounts resilient**

**INTRODUCTION**

1 The mounts resilient fitted to the generator are not very effective and a replacement has been found that will replace the old style. The new mount resilient is different. On failure of one mount, all four are replaced. This instruction details the fitting of the new mounts resilient upon failure of the existing mounts.

1.1 Limitations on use of equipment. Nil.

**APPLICABILITY**

2 Current mount resilient NSN X2 5340-99-255-2665 superseded by new vibration mount NSN 6MT1 5340-99-660-7800, reference AESP 6115-G-350-711, Chap 2-1, Fig 1, Item 11, fitted to Air-Log 4.5 kW Generator Set, all variants.

**REASON FOR MODIFICATION**

3 Code 3 - to improve reliability.

**PRIORITY**

4 All Users: Routine on failure of subject mounts.

**ESTIMATED TIME REQUIRED**

5

- 5.1 Dismantling: 0.25 man-hours.
- 5.2 Embodiment: 0.25 man-hours.
- 5.3 Assembling: 0.25 man-hours.
- 5.4 Testing: 0,2 man-hours.

**MODIFICATION IMPLEMENTATION PLAN**

6

- 6.1 This instruction is to be implemented by:
  - 6.1.1 ARMY - Units authorized to carry out levels 2, 3 or 4 maintenance.
  - 6.1.2 RAF - Units as appropriate.
- 6.2 Associated instructions. Nil
- 6.3 Strike plate action: N/A

**Action required by**

7

- 7.1 Units and establishments holding equipment:
  - 7.1.1 Examine equipment documents to see if instruction is applicable.
  - 7.1.2 Examine equipment to see if modification is embodied and where necessary Units with 1st Line REME Support demand the stores required.
  - 7.1.3 ARMY - On receipt of stores, request REME to modify equipment.
  - 7.1.4 ARMY - Record the AESP and instruction number in equipment documents.
  - 7.1.5 RAF - Record modification details.
- 7.2 Army units authorized to carry out levels 2, 3 and 4 maintenance and RAF units:
  - 7.2.1 ARMY - When requested by units or during overhaul of equipment on charge without REME 1st Line Support, obtain the items listed in Para 8 and carry out this instruction.
  - 7.2.2 Record completion details of modification against appropriate entry in vehicle documents.
- 7.3 All recipients of this instruction. Add particulars to AESP 6115-G-350-811 Instr Index.

**Stores, tools and equipment**

8

8.1 Stores to be demanded:

| Item No. | DMC | NSN/Part No.           | Designation                                    | Qty per eqpt |
|----------|-----|------------------------|--|--------------|
|          | X2  | 6115-99-414-9141       | Mod set: AV mounts comprising:                 | 1            |
| 1        |     | Stopchoc EIE 11 S38 AC | Miniature isolator (AV mount).                 | (4)          |
| 2        |     | GKN                    | Screw, M5 x 12 lg, hex hd, steel, zinc plated. | (4)          |
| 3        |     | BS 4463                | Washer, M5, crinkle, beryllium copper.         | (4)          |
| 4        |     | BS 4320                | Washer, M4, plain, zinc plated.                | (16)         |
| 5        |     | AGS 2050/540           | Pop rivet, 5/32 in. dia, dome head.,           | (16)         |
| 6        |     | 3-4169-1/504           | Warning label (lift only).                     | (1)          |

**Sequence of operations**

9 Carry out this instruction as follows:

- 9.1 Remove remote box from mounting tray by releasing two toggle clamps.
- 9.2 Undo the seven quick release fasteners that secure acoustic cover to frame. Using a minimum of two persons, remove the acoustic cover.
- 9.3 Unscrew four M4 hex head screws retaining mounting tray to gain access to resilient mounts.
- 9.4 Pull back the acoustic lining on the opposite side to the 'HOT AIR' outlet as required. This allows access to fit washers to the underside of the pop rivets. No fitting of washers or removal of acoustic lining is necessary when pop riveting the mounts on the 'HOT AIR' side as an aluminium under plate is fitted.
- 9.5 Drill through the rivets retaining the existing mounts using a 4 mm drill.
- 9.6 Discard old resilient mounts.
- 9.7 Open up the four holes in the new mounts using 4 mm drill to accommodate the pop rivets supplied.

Refer to Fig 1

- 9.8 Fit the new resilient mounts (utilizing the two existing drilled holes) using the pop rivets and washers supplied. Use washers on opposite side of cover to the resilient mount to prevent rivet from pulling through fibreglass.
- 9.9 With new mount held in place with two pop rivets, drill through remaining holes.
- 9.10 Use remaining pop rivets and washers to complete fitting.
- 9.11 Open up the holes in the mounting tray using a 5.5 mm drill to accept new resilient mount screws.

9.12 Secure mounting tray to acoustic frame using screws and washers provided.

9.13 Replace acoustic cover.

9.14 Replace remote control box.

**TESTING AFTER EMBODIMENT**

10 Nil.

**EFFECT ON WEIGHT**

11 Negligible.

**PUBLICATION AMENDMENTS**

**NOTE**

Necessary amendments will be issued separately.

12 Nil.

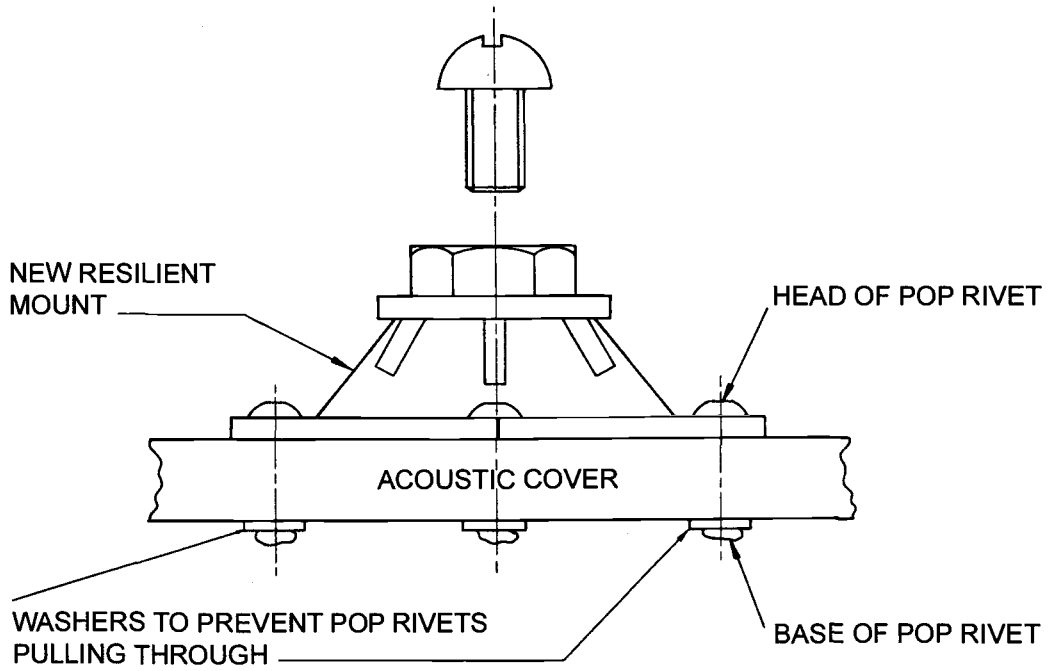


Fig 1 Resilient mount

V14834/1

**GENERATOR SET, DIESEL ENGINE DRIVEN, 4.5 KW (5.6 KVA), 240 V AC,**

**SINGLE PHASE, 50 HZ, (AIR-LOG 4169A)**

**MODIFICATION INSTRUCTION NO. 10**

Sponsor:  
DGES(L)

Publication Agency:  
DLO Chertsey  
Project No: S01024(182)  
File ref: BI 20

**AMENDMENT RECORD**

| Amdt No. | Incorporated By (Signature) | Date |
|----------|-----------------------------|------|
| 1        |                             |      |
| 2        |                             |      |
| 3        |                             |      |

| Amdt No. | Incorporated By (Signature) | Date |
|----------|-----------------------------|------|
| 4        |                             |      |
| 5        |                             |      |
| 6        |                             |      |

**SUBJECT: Stud terminal cover**

**INTRODUCTION**

1 To comply with safety legislation this modification is designed to prevent access to the stud terminals whilst live.

1.1 Limitations on use of equipment. Nil.

**APPLICABILITY**

2 Air-Log 4.5 kW Generator sets all variants.

2.1 Fitted to subject equipment held by user units.

2.2 Unmodified stock, held at all levels of technical storage.

**REASON FOR MODIFICATION**

3 Code 1 - to improve safety.

**PRIORITY**

4

4.1 ARMY: Immediate.

4.2 RAF: Class 1.

**ESTIMATED TIME REQUIRED**

5

- 5.1 Dismantling: 0.5 man-hours.
- 5.2 Embodiment: 0.5 man-hours.
- 5.3 Assembling: 0.5 man-hours.
- 5.4 Testing: 0.25 man-hours.

**MODIFICATION IMPLEMENTATION PLAN**

6

- 6.1 This instruction is to be implemented by:
  - 6.1.1 ARMY - Units authorized to carry out levels 2, 3 or 4 maintenance.
  - 6.1.2 RAF - Units as appropriate.
  - 6.1.3 Storage depots before issue of equipment.
- 6.2 Associated instructions. Nil.
- 6.3 Strike plate action: N/A.

**Action required by**

7

- 7.1 Units and establishments holding equipment:
  - 7.1.1 Examine equipment documents to see if instruction is applicable.
  - 7.1.2 Examine equipment or modification record plate to see if modification is embodied and where necessary Units with 1st Line REME Support demand the stores required.
  - 7.1.3 ARMY - On receipt of stores, request REME to modify equipment.
  - 7.1.4 ARMY - Record the AESP and instruction number in equipment documents.
  - 7.1.5 RAF - Demand stores and carry out this modification.
- 7.2 Army units authorized to carry out levels 2, 3 and 4 maintenance:
  - 7.2.1 ARMY - When requested by units or during overhaul of equipment on charge without REME 1st Line Support, obtain the items listed in Para 8 and carry out this modification.
  - 7.2.2 Record completion details of modification against appropriate entry in vehicle documents.
- 7.3 All recipients of this instruction. Add particulars to AESP 6115-G-350-811 Instr Index.



**Stores, tools and equipment**

8

8.1 Stores to be demanded:

8.1.1 The following modification kit is to be demanded quoting this instruction as the authority.

| Item No. | DMC | NSN/Part No.     | Designation                       | Qty per eqpt |
|----------|-----|------------------|-----------------------------------|--------------|
|          | X2  | 6115-99-299-0168 | Mod set:<br>comprising            | 1            |
| 1        |     |                  | Cover assembly.                   | (1)          |
| 2        |     |                  | Spacer.                           | (1)          |
| 3        | G1  | 5305-99-977-3332 | Screw, pan HD, M3, 12 mm lg.      | (1)          |
| 4        | G1  | 5310-99-643-0703 | Washer, lock, single coil, M3.    | (3)          |
| 5        | G1  | 5305-99-914-9806 | Screw, pan HD, 6-32 UNC, 5/16 lg. | (2)          |
| 6        | G1  | 5340-99-628-3347 | Latch, steel, zinc.               | (2)          |
| 7        |     |                  | Rivet, dome HD.                   | (2)          |
| 8        | X2  | 6115-99-671-5117 | Label, instruction.               | (1)          |

8.2 Special tools and test equipment required:

|    |  |  |                    |   |
|----|--|--|--------------------|---|
| 9  |  |  | Drill, 4.1 mm HSS. | 1 |
| 10 |  |  | Pop rivet gun.     | 1 |

8.3 Stores or equivalent to be obtained locally:

|    |  |         |                    |     |
|----|--|---------|--------------------|-----|
| 11 |  | DTD 369 | Jointing compound. | A/R |
|----|--|---------|--------------------|-----|

8.4 Stores to be removed and reduced to scrap:

12

**Sequence of operations**

NOTE

- (1) The item numbers of Para 8 are used as reference throughout this instruction.
- (2) The warning stated below is to be applied to all equipments employing voltages of greater than 50 volts.

**WARNING**

**LETHAL VOLTAGES. THE VOLTAGES IN THIS EQUIPMENT CAN ENDANGER HUMAN LIFE. REPAIRS AND MODIFICATIONS ARE TO BE CARRIED OUT BY QUALIFIED TRADESPERSONS ONLY, USING AUTHORIZED TOOLS AND TEST EQUIPMENT.**

9 Carry out this instruction as follows:

- 9.1 Ensure the generator is not running.
- 9.2 Disconnect the interconnecting cable between generator and control box.
- 9.3 Undo the quick release fasteners that secure acoustic cover. Using a minimum of two people remove cover.
- 9.4 Disconnect generator battery.
- 9.5 On the stud cover assembly release the catch on the left hand side.
- 9.6 On the right hand side of the cover remove the hinge pin, remove old cover and discard.
- 9.7 On the front panel remove the two screws holding the emergency output 30A isolator, taking care not to disturb the isolator. Discard the two screws.
- 9.8 Place the new cover (item 1) in position over the stud terminals such that the holes in the two hinges align with the two holes left by removing the two screws in Sub-Para 9.7. Temporarily attach the cover using the two screws (item 5) to enable the positioning of the new latch (item 6).
- 9.9 To ascertain the vertical position of the new latch, place it onto the cover so it engages the existing clip, refer to Fig 1 for the correct distance from cover edge to ensure latch locks down firmly. Mark cover using a marker pen.
- 9.10 Remove cover and using a 4.1 mm drill, drill two holes in the cover. Using a rivet gun and rivets supplied (item 7) attach new latch.
- 9.11 Remove old spacer on emergency output 30A isolator lever and attach new spacer (item 2) using screw (item 3) and locking washer (item 4).
- 9.12 Refit the cover using screws (item 5) and locking washers (item 4).
- 9.13 Reconnect batteries, replace acoustic cover and reconnect cable between generator and control box.

#### TESTING AFTER EMBODIMENT

10 With the emergency output 30A isolator set to the **on** position release cove assembly latch. Lift cover and ensure the emergency output 30A isolator moves to the **off** position.

#### EFFECT ON WEIGHT

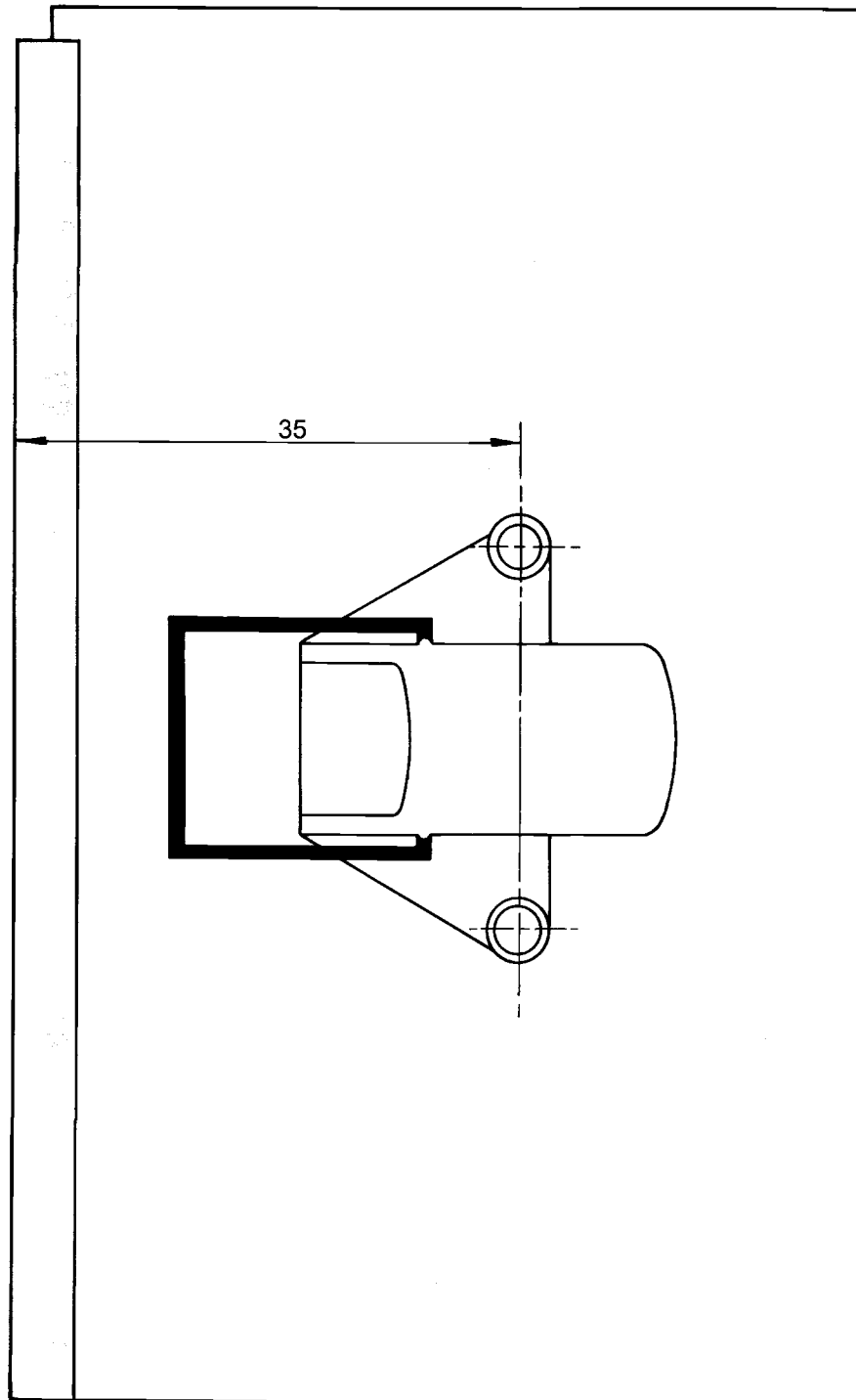
11 Negligible.

#### PUBLICATION AMENDMENTS

#### NOTE

Necessary amendments will be issued separately.

12 Nil.



SIDE VIEW

Dimensions in mm

V14835/1

Fig 1 Latch position