Ministry of Defence

GENERATOR SET, DIESEL ENGINE DRIVEN, 2 kW, 230 V/110 V AC/28 V DC (Drumgrange Ltd)

6115-G-710-302 TECHNICAL DESCRIPTION

Issue No. 002

Amendment No. 003

June 2018

Sponsored for use in the
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PREFACE

Sponsor: Operational Infrastructure (OI)
Project No.:
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INTRODUCTION

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RELATED AND ASSOCIATED PUBLICATIONS

Related publications

4 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 on TDOL.

Category/Sub-category			Information Level			
			1 User/ Operator	2 Unit Maintenance	3 Field Maintenance	4 Base Maintenance
1	0	Purpose and Planning Information	101	*	*	*
	1	Equipment Support Policy Directive	111	*	*	*
2	0	Operating Information	201	*	*	*
	1	Aide-Mémoire	211	*	*	*
	2	Training Aids	*	*	*	*
3		Technical Description	201	302	*	*
4	1	Installation Instructions	*	*	*	*
	2	Preparation for Special Environments	*	*	*	*
5	1	Failure Diagnosis	201	522	*	*
	2	Maintenance Instructions	201	522	523	*
	3	Inspection Standards	*	522	*	*
	4	Calibration Procedures	*	*	*	*
6		Maintenance Schedule	601	*	*	*
7	1	Illustrated Parts Catalogue	711	*	*	*
	2	Commercial Parts List	*	*	*	*
	3	Complete Equipment Schedule, Production	*	*	*	*
	4	Complete Equipment Schedule, Service Edition (Simple Equipment)	741	*	*	*
	5	Complete Equipment Schedule, Service Edition (Complex Equipment)	*	*	*	*
8	1	Modification Instructions	*	812	*	*
	2	General Instructions, Special Technical Instructions and Servicing Instructions	*	*	*	*
	3	Service Engineered Modification Instructions (RAF only)	*	*	*	*

* Category/sub-category not published

Associated publications

5 The following associated publications should be read in conjunction with this category:

Reference	Title
AESP 6150-A-100-201	Earthing and Earthing Protection
SEI 14411	Safety Precautions for Electrical Equipment

WARNINGS AND CAUTIONS

WARNINGS

6 There are no WARNINGS applicable to this category.

CAUTIONS

7 There are no CAUTIONS applicable to this category.

ABBREVIATIONS AND SYMBOLS

ABBREVIATIONS

8 The following abbreviations are used in this category:

A	Ampere
AC	Alternating Current
AESP	Army Equipment Support Publication
Amdt	Amendment
BFPO	British Forces Post Office
C	Celsius
Chap	Chapter
DC	Direct Current
DE&S	Defence Equipment & Support
dia	diameter
DIN	Defence Instructions and Notices
EMER	Electrical and Mechanical Engineering Regulations
FRACAS	Failure Reporting Analysis and Corrective Action System
Hz	Hertz
JAMES	Joint Asset Management and Engineering Solutions
kW	kiloWatt
LE	Land Equipment
LED	Light Emitting Diode
LFG	Lightweight Field Generator
m	metre
mA	milliAmpere
MCB	Miniature Circuit Breaker
mm	millimetre
MoD	Ministry of Defence
nF	nanoFarad
No.	Number
OI	Operational Infrastructure
OSP	Operational Support Programme
Para	Paragraph
PMG	Permanent Magnet Generator
PT	Project Team

RAF	Royal Air Force
SME	Subject Matter Expert
SOP	Standard Operating Procedures
TDOL	Technical Documents On-Line
UK	United Kingdom
V	Volt

SYMBOLS

9 The following symbols are used in this category:

°	Degrees
-	minus
%	percent

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CHAPTER 1

GENERAL INFORMATION

CONTENTS

INTRODUCTION

Purpose and facilities

1 The Lightweight Field Generator (LFG) provides a portable source of 230/110VAC and 28VDC power with a 2kW continuous output. A general view of the LFG, ready to operate with jerrycan connected, is shown in Figure 1. More detailed views, showing component locations, are provided later within this Chapter. These detailed views should be referred to when explanations of component layouts are given.

2 The LFG is powered by a single cylinder, four stroke diesel engine capable of running on either Dieso (F54) or AVTUR (F34) supplied to the engine externally from a jerrycan.

3 The outputs are produced from a Permanent Magnet Generator, with an Inverter and Regulator. All outputs feature MCB over-current protection, and the AC outputs feature 30mA earth leakage protection. The AC and DC Control Panels, with associated outlet points, are mounted on opposite sides of the LFG frame.

4 Instrumentation is provided for AC Voltage, DC Voltage, Total Percentage Load and Hours Run.

5 A warning lamp is provided for low oil pressure.

6 Starting is by either a recoil (rope) starter or by an integral electric starter motor powered from an external source.

7 A removable bag containing all necessary LFG accessories is attached to the tubular frame.

Figure 1 General view of LFG - ready to operate

Construction

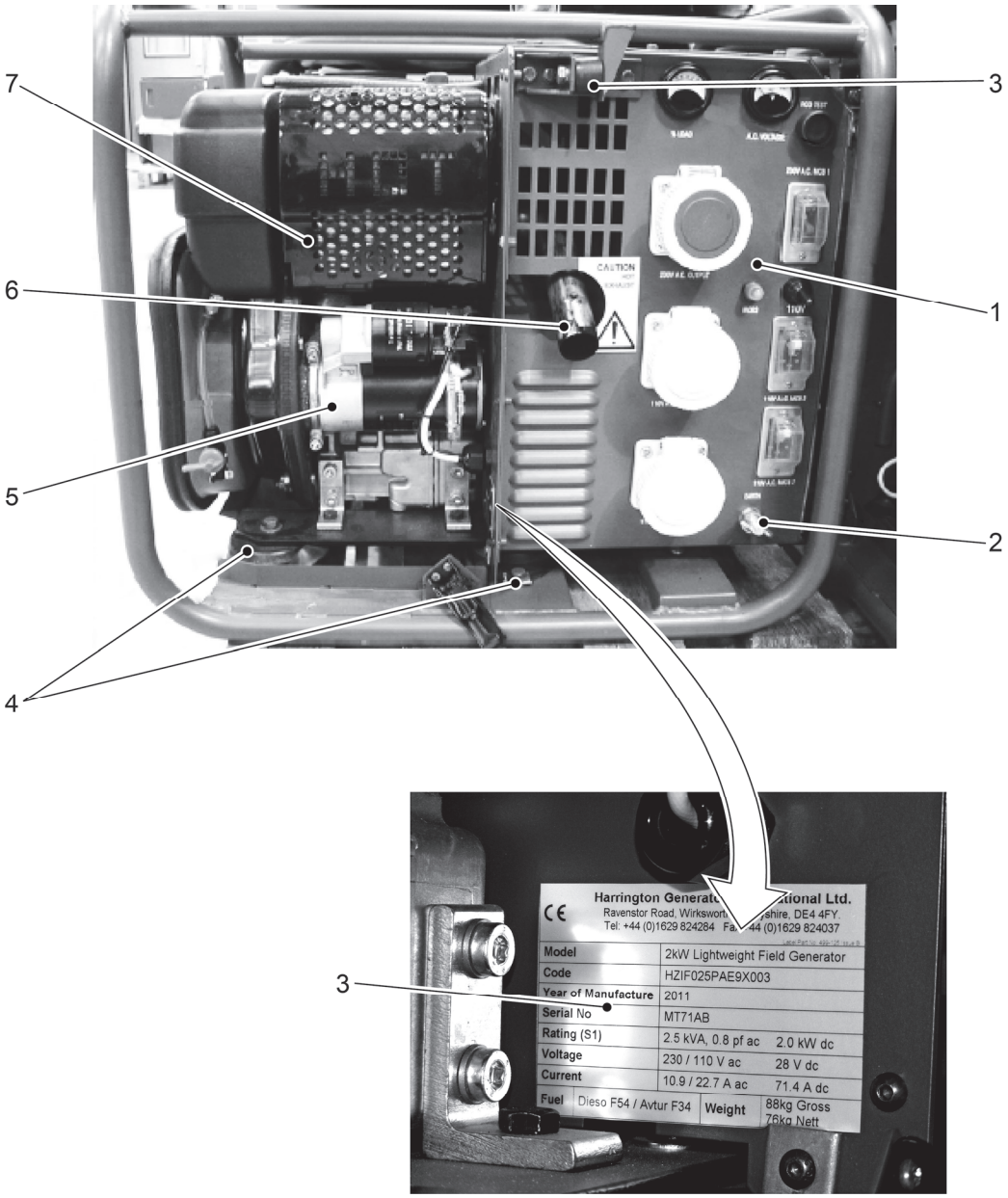
8 The LFG is housed in a tubular steel frame, with a sound attenuating cover covering the engine, and a sheet aluminium box housing the inverters, rectifiers and control system.

9 The main items of the LFG are a single cylinder, four stroke, air cooled engine which drives a Permanent Magnet Generator (PMG). The output of the PMG is fed into an Inverter/DC Regulator whose outputs are fed to the AC and DC Output Control Panels. The Engine and Control Panels are mounted to the frame via anti-vibration mountings.

10 Figure 2 and Figure 3 show views of the LFG, with the Acoustic Cover removed, and indicate the locations of the main items that make up the LFG. The Accessories Bag is not shown.

Acoustic cover

11 The engine is covered by a one piece sound attenuating Acoustic Cover (Figure 1) which provides environmental protection and noise attenuation when the LFG is operating. It is constructed from moulded polyethylene and is secured to the tubular frame by two clips located on the lower edge of the cover. Cooling air is drawn in through vents on the end of the cover.

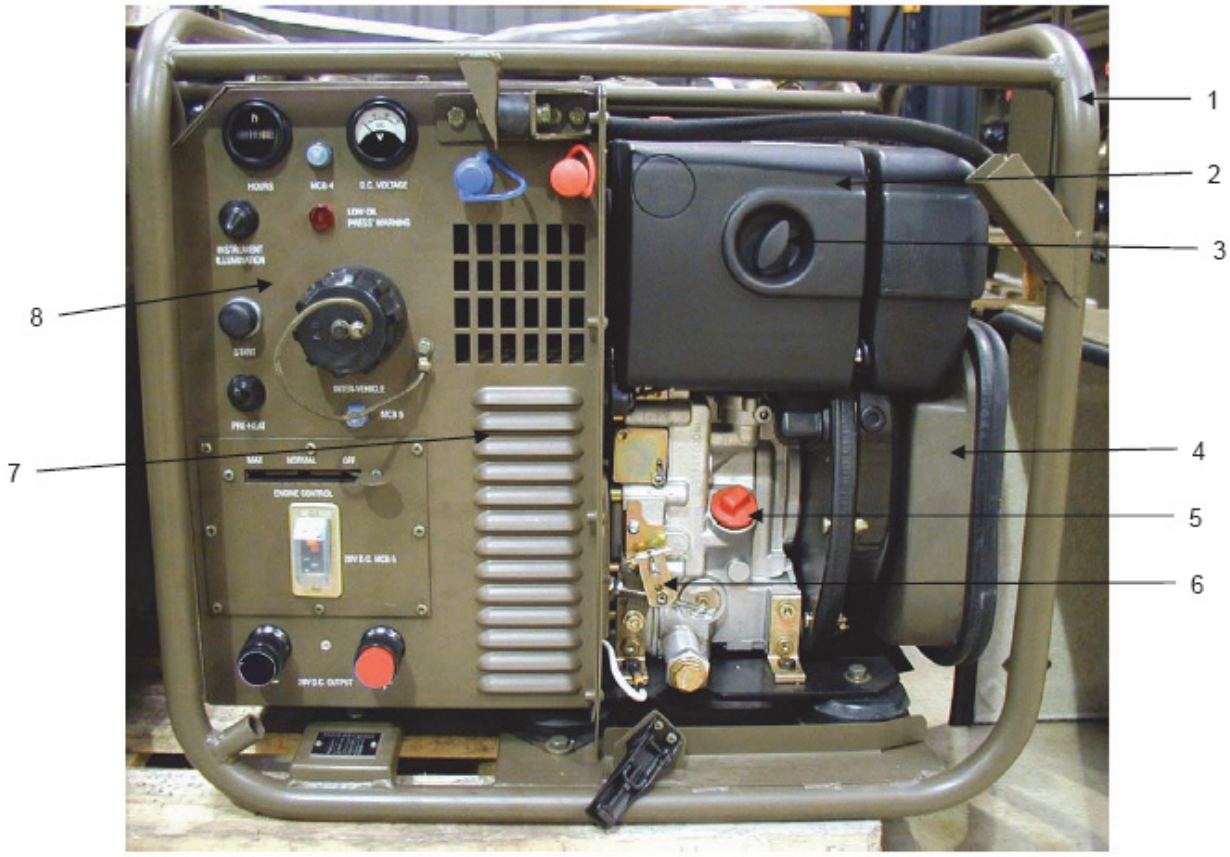


1 AC Control Panel
2 Earth Stud
3 Equipment Data Plate
4 Anti Vibration Mounts
5 Electric Starter Motor
6 Exhaust Pipe
7 Silencer Heat Shield

Figure 2 Component location - AC panel side (acoustic cover removed)

Equipment data plate

12 An equipment data plate is located beneath the electric starter motor, attached to the control panel casing. The plate details the manufacturer, model, and code, year of manufacture, serial number, power, voltage and current ratings, usable fuel types and weight.

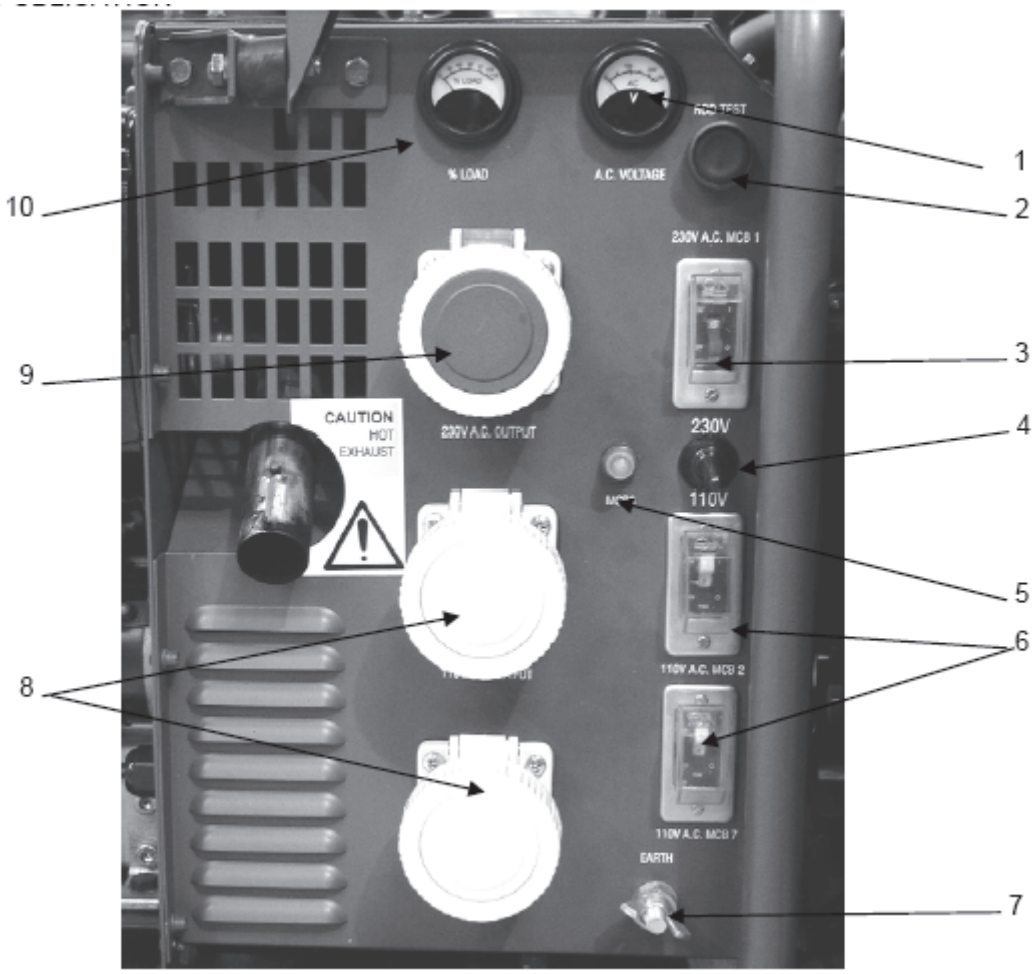


1	Tubular Frame	5	Oil Dipstick
2	Air Filter Cover	6	Engine Speed Control Assembly
3	Air Filter Cover Securing Knob	7	Air Vents
4	Air Duct/Recoil Starter Shroud	8	DC Control Panel

Figure 3 Component location - DC panel side (acoustic cover removed)

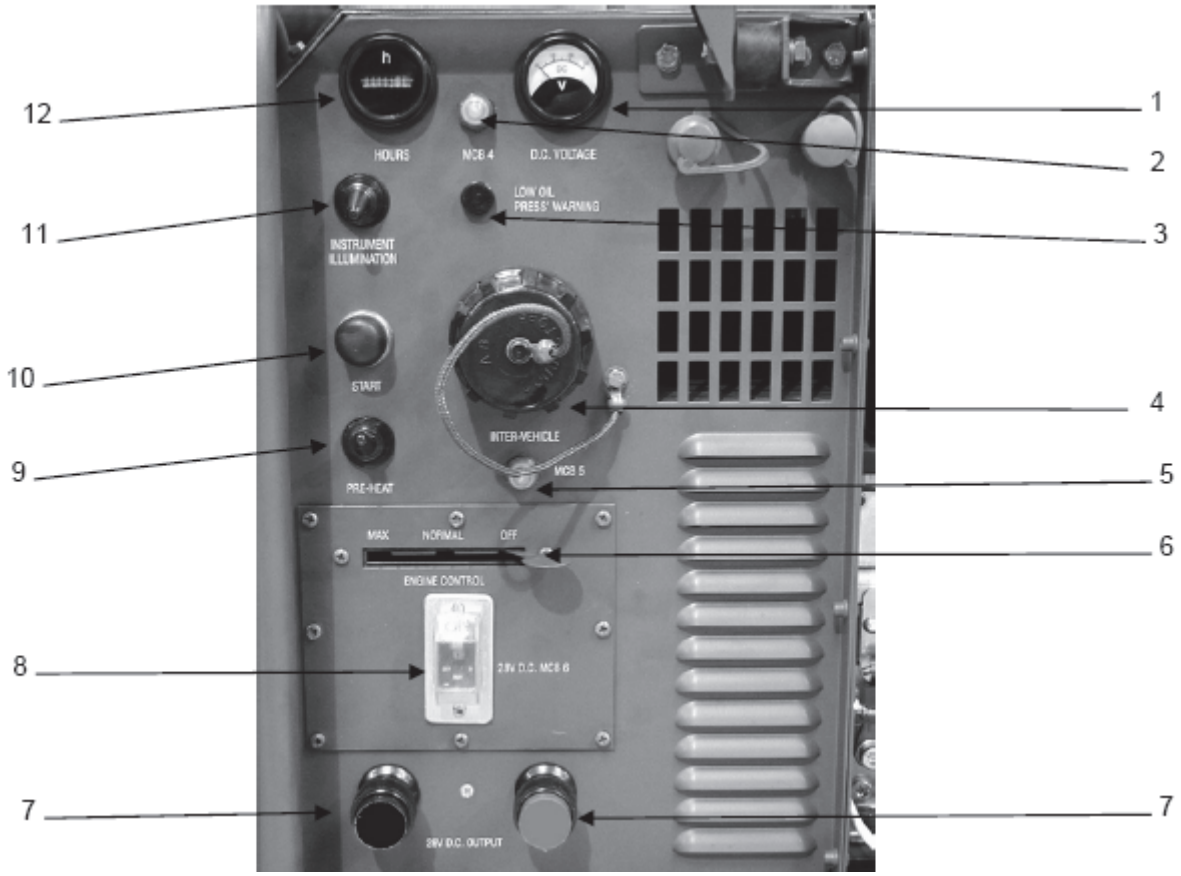
Control panels

13 Two Control Panels (AC and DC) are mounted one on either side of the LFG. They provide the operator controls, the necessary indications for monitoring performance and the output connectors for the AC and DC supplies produced by the LFG. The Engine Speed Control Lever is mounted on the DC Panel. Figure 4 and Figure 5 show component locations for both panels.



1	AC Voltage Meter	6	110V AC Output Circuit Breakers
2	RCD (Earth Leakage) Test Button	7	Earth Stud
3	230V AC Output Circuit Breaker	8	110V AC Output Sockets
4	Voltage Selector Switch	9	230V AC Output Socket
5	MCB 3 10 Percentage (%) Load Meter		

Figure 4 Component location - AC control panel



1	DC Voltage Meter	7	DC Output Terminals
2	MCB 4	8	DC Output Circuit Breaker
3	Low Oil Pressure Warning LED	9	Pre-Heat Switch
4	Intervehicle Connector Socket	10	Start Push Button
5	MCB 5	11	Instrument Illumination Switch
6	Engine Speed Control Lever	12	Hours Run Meter

Figure 5 Component location - DC control panel

ENGINE

14 The LFG is driven by a Hatz-Diesel 1B20, single cylinder, four stroke air cooled engine which is capable of operating on either Diesel (F54) or AVTUR (F34). There are two types of Hatz Diesel engines in service; Engine type 1B20-S-204C and Engine type 1B20-S-204D. The engine type is identified by a data plate which is glued to the air filter housing. It is important to note the following when undertaking any maintenance:

14.1 To ensure that the correct Fuel Injector Assembly is fitted to the correct engine type. Engine type 1B20-S-204C, Fuel Injector Assembly identified by white paint dot on top of the item. Engine type 1B20-S-204D, Fuel Injector Assembly identified by yellow paint dot on top of the item.

14.2 To ensure that the correct Fuel Injection Pump Assembly is fitted to the correct engine type. Engine type 1B20-S-204C, Fuel Injection Pump Assembly is identified by the Engine number which should start with 10028 or 10029. Engine type 1B20-S-204D, Fuel Injection Pump Assembly is identified by the Engine number which should start with 30030.

15 The engine can be started by a conventional recoil (rope) type starter or by an electric starter motor. The electric starter motor is powered from an external power source via an interconnecting cable.

16 Lubrication of the engine moving parts is achieved by the pressurised circulation of oil. Oil filtering is achieved by a re-usable fine screen filter in the main oil flow. The oil filler plug/dipstick and drain plug are situated on the lower left side of the engine (as viewed from the recoil starter end).

17 For engine cooling, a cooling fan is incorporated in the flywheel and draws air in through the Recoil Starter and air vents in the Acoustic Cover.

18 Engine speed is regulated by the Engine Speed Control Lever located on the DC Control Panel. This is connected, via a cable link, to the engine mounted Engine Speed Control assembly. Internal to the engine is a mechanical governor which maintains a constant engine speed under varying loads.

ALTERNATOR

19 The alternator is a High Frequency Permanent Magnet Generator (Figure 6) producing 400 V at 400 Hz. The alternator is of the rotating field type with a permanent magnet rotor attached directly to the engine output shaft. The stator is fixed to the bulkhead which separates the engine from the electronics compartment.

20 The alternator output is connected, via a cable harness, to an electronic Control Unit incorporating an AC Inverter and DC Regulator to give 230 V AC, 110 V AC and 28 V DC outputs respectively.

21 Cooling air for the Inverter/Regulator Assembly and the PMG is provided by a fan mounted on the engine output shaft which draws air in through the Louvre Panel vents.

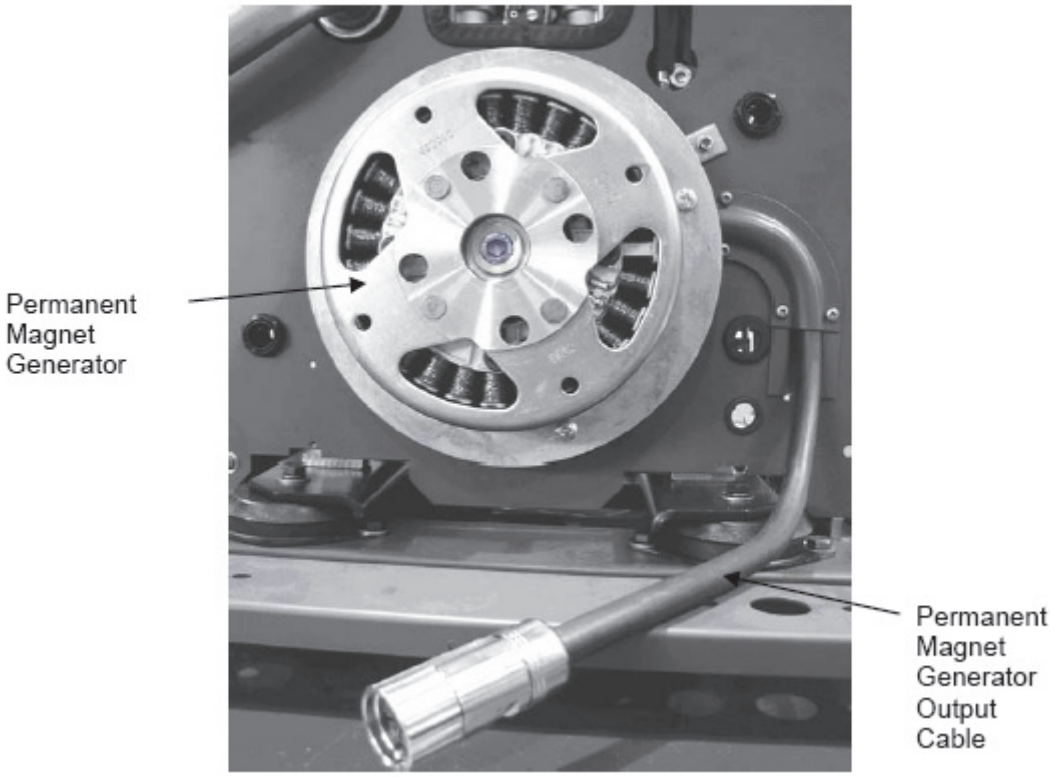


Figure 6 Permanent magnet generator

BRIEF FUNCTIONAL DESCRIPTION

22 The main functional areas of the LFG are shown in Figure 7, which indicates the functional locations of these areas in the generating system in a simplified block schematic form.

23 The engine speed is controlled by an Engine Speed Control Lever situated on the DC Control Panel. It has two settings; "Normal" and "Max". "Normal" is used for the continuous 2 kW output and "Max" is used for the 2.2 kW Overload output condition.

24 The 400 V 400 Hz output of the Permanent Magnet Generator is conditioned by the AC Inverter/DC Regulator Assembly to provide the required AC and DC outputs via overload protection Circuit Breakers. An input socket for the external DC power required for the electric starter is provided.

25 Instrumentation is provided on both Control Panels for displaying output voltages, Percentage (%) Load and Hours Run. Instrument panel lighting is selectable by an ON/OFF switch. Earth Leakage Monitoring/Testing and Low Oil Pressure Warnings are provided.

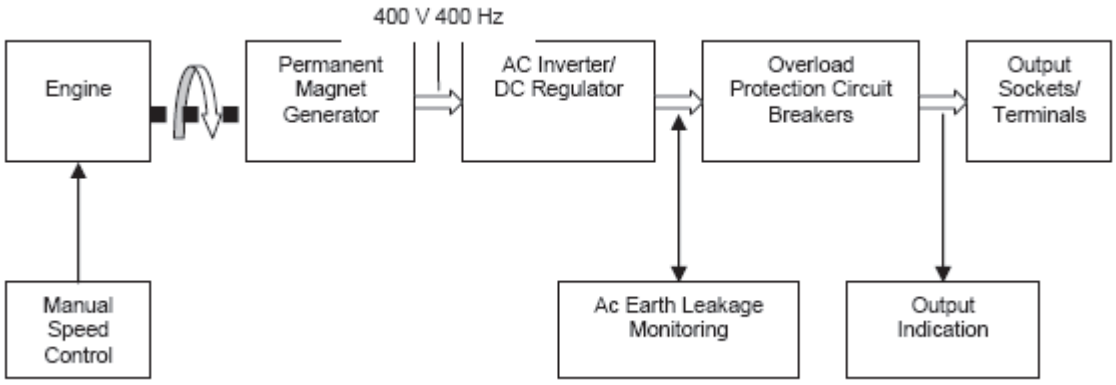


Figure 7 LFG simplified block diagram

CHAPTER 2

POWER UNIT

CONTENTS

INTRODUCTION

1 The Power Unit consists of an engine, engine mounted accessories and engine support systems. Equipment locations are shown in Chapter 1, Figure 2 and Figure 3. The engine is a Hatz-Diesel 1B20, single cylinder, four stroke air cooled engine which is capable of operating on either Diesel (F54) or the AVTUR (F34). There are two types of Hatz Diesel engines in service; Engine type 1B20-S-204C and Engine type 1B20-S-204D. The engine type is identified by a data plate which is glued to the air filter housing. It is important to note that following when undertaking any maintenance:

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1.2 To ensure that the correct Fuel Injection Pump Assembly is fitted to the correct engine type. Engine type 1B20-S-204C, Fuel Injection Pump Assembly is identified by the Engine number which should start with 10028 or 10029. Engine type 1B20-S-204D, Fuel Injection Pump Assembly is identified by the Engine number which should start with 30030.

AIR FILTERING

2 Air drawn in from the atmosphere passes through an air cleaning system (Figure 1), which is a dry type air cleaner assembly incorporating a disposable paper filter element and integrated pre-cleaner.

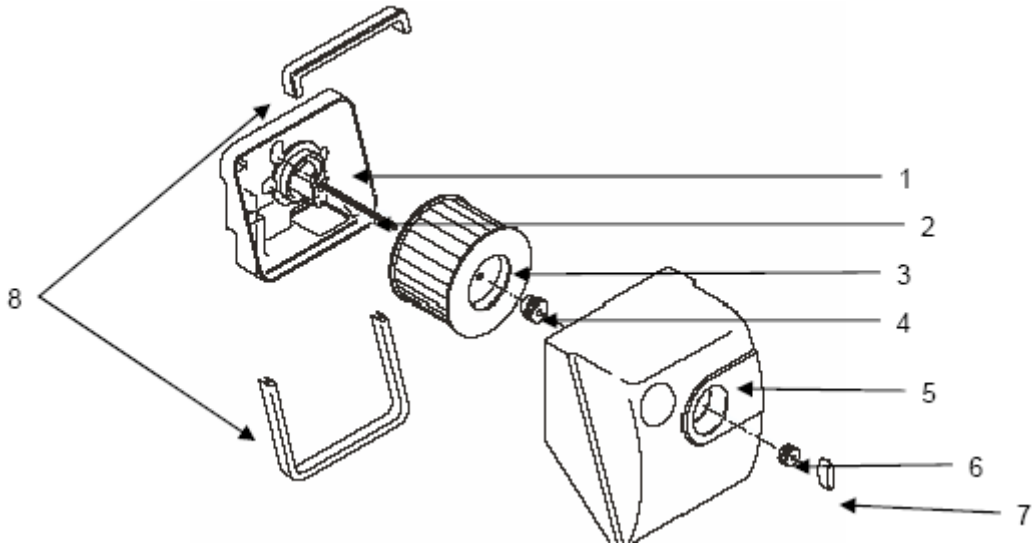

Figure 1 Air cleaner system

TABLE 1 AIR CLEANER SYSTEM - COMPONENT INDEX

1	Air Cleaner Base	5	Cover
2	Cartridge Support Stud Incorporating Cold Start Glow Plug	6	Rubber Grommet
3	Filter Element	7	Cover Securing Nut
4	Filter Element Securing Nut	8	Seals

EXHAUST SYSTEM

3 Exhaust gas expelled from the engine passes directly into a silencer unit located on the AC Control Panel side of the engine. To minimise the possibility of burn injuries through accidental contact with a hot silencer, the silencer is covered by a heat shield. The hot gases are then routed through a short exhaust pipe to vent to atmosphere (see Chap 1,). A flexible Exhaust Extension can be fitted to the exhaust pipe to enable the exhaust gas to be vented clear of occupied areas. Attachment is by a push and twist, bayonet lock, fastening (Figure 2).

Figure 2 Exhaust pipe

LUBRICATING SYSTEM

4 Lubrication of the engine moving parts is achieved by the pressurised circulation of oil. The type of oil to be used is dependent on the temperature of the intended operating environment. Refer to Cat 601.

5 The oil filler cap is located on the Rocker Cover and the Oil Dipstick is on the DC Control Panel side of the engine. The oil drain plug is also situated on the DC Control Panel side of the engine (Figure 3). An Oil Drain Extension pipe is fitted to the crank case oil drain to allow oil to drain clear of the LFG frame.

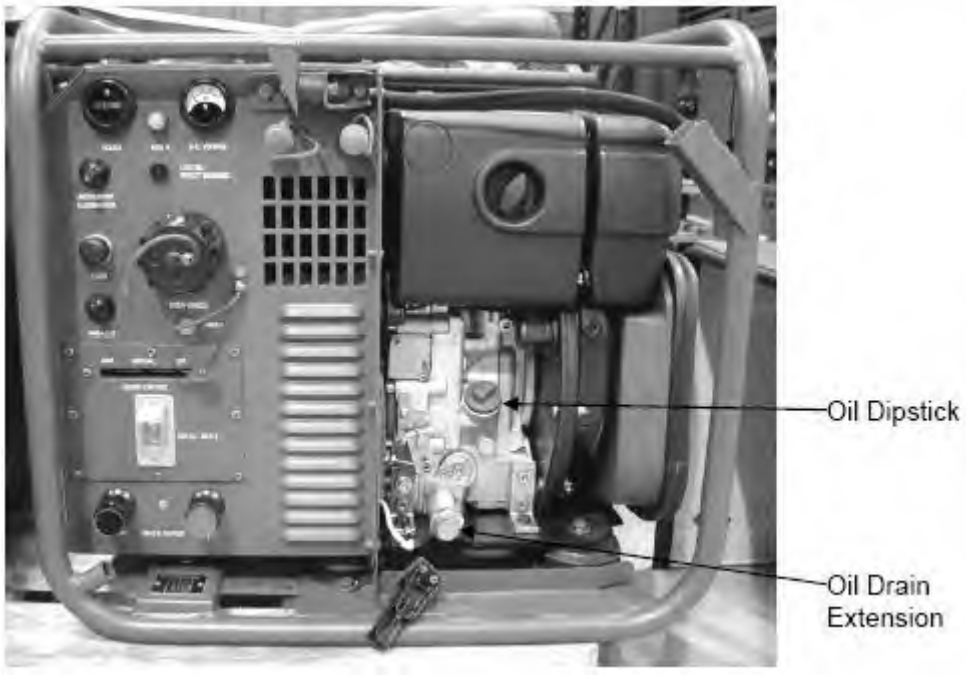

Figure 3 Oil dipstick and oil drain extension

6 Low oil pressure is indicated to the operator by the illumination of the Low Oil Press' Warning LED. The LED is activated by the operation of the Low Oil Pressure Switch which is fitted to the engine. When the switch operates, it energises the Low Oil Pressure Relay (RL1) which, as well as illuminating the LED, will trip any output circuit breakers which are set.

FUEL SYSTEM

7 Fuel is supplied from a jerrycan via the jerrycan Adapter assembly which is normally stowed in the Accessories Bag. The adapter assembly comprises two flexible fuel hoses terminated in male and female quick release couplings, a jerrycan Filler Neck Adapter and a Dip Tube fitted with a Fuel Filter (Figure 4). The Quick Release Couplings are connected to their respective points on the LFG, DC Control Panel side (Figure 5). Whenever the quick release couplings are not connected to the LFG then they should be connected together to provide protection against contamination and ingress of dirt, sand or grit etc.

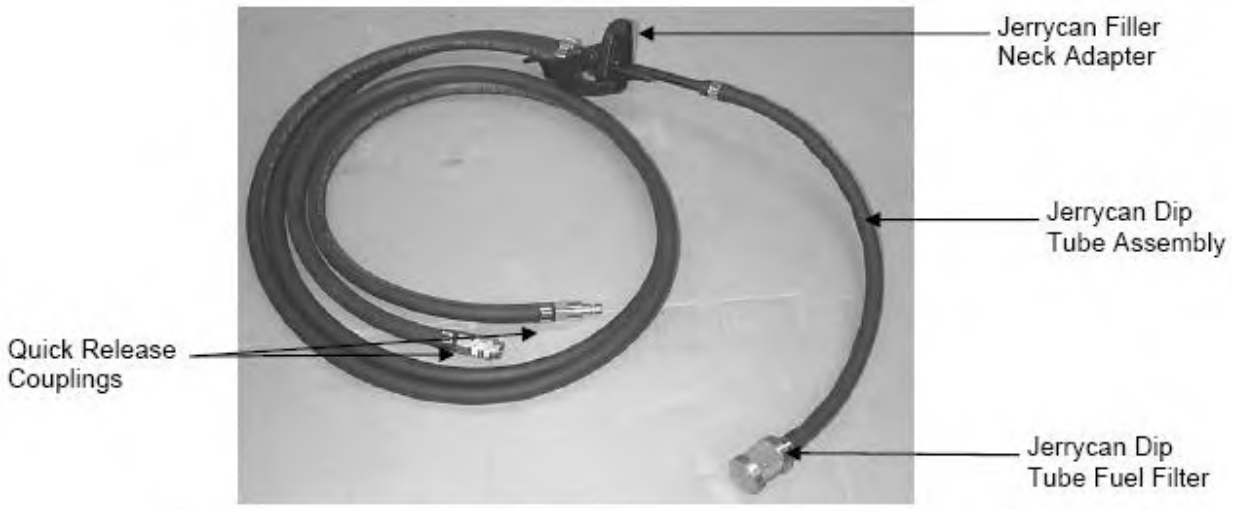

Figure 4 Jerrycan adapter assembly

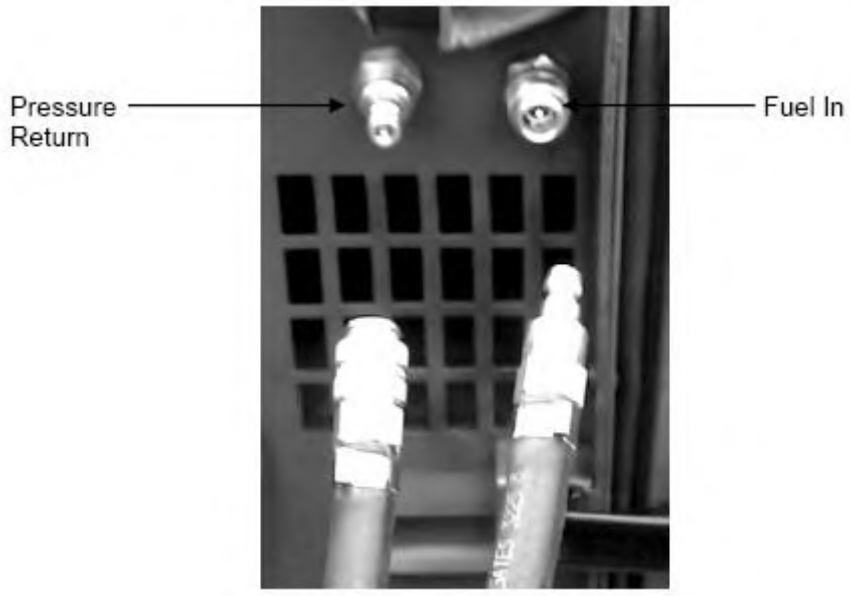

Figure 5 Fuel quick release points

8 The Fuel In Quick Release Point is connected to the fuel Pulse Pump via a short length of hose. The Pulse Pump (Figure 6) is mounted near the top of the Bulkhead, on the Control Panel side, and is actuated by crank case bleed air which is fed via the Crank Case Pressure Hose. The Pulse Pump then feeds fuel to the engine fuel tank. From the engine fuel tank, the fuel is fed to the Fuel Injector Pump, via the Engine Fuel Tank Fuel Filter (Figure 7), and then to the Fuel Injector via a rigid pipe (Figure 8).

NOTES

(1) If undertaking maintenance, ensure that the correct Fuel Injector Assembly is fitted to the correct engine type. The engine type is identified by a data plate which is glued to the air filter housing. Engine type 1B20-S-204C, Fuel Injector Assembly identified by white paint dot on top of the item. Engine type 1B20-S-204D, Fuel Injector Assembly identified by yellow paint dot on top of the item.

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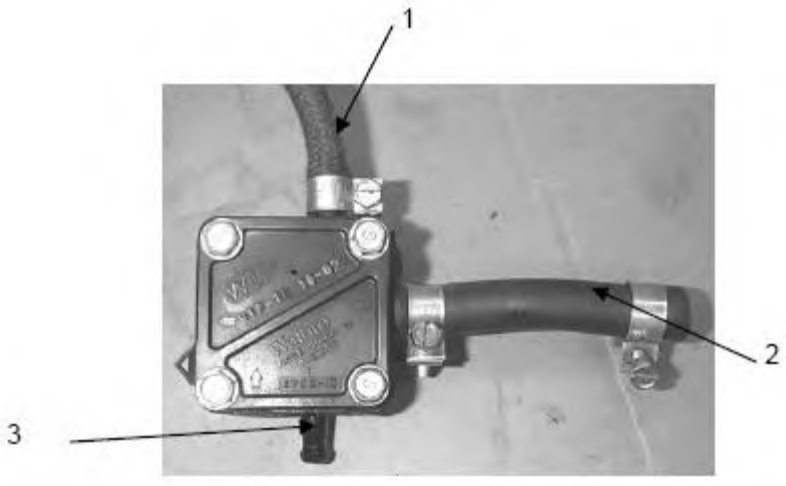

Figure 6 Fuel pulse pump

TABLE 2 FUEL PULSE PUMP - COMPONENT INDEX

1	Fuel Out to Engine Tank	3	Crank Case Pressure Hose
2	Fuel In from Jerrycan		

Figure 7 Engine fuel tank fuel filter

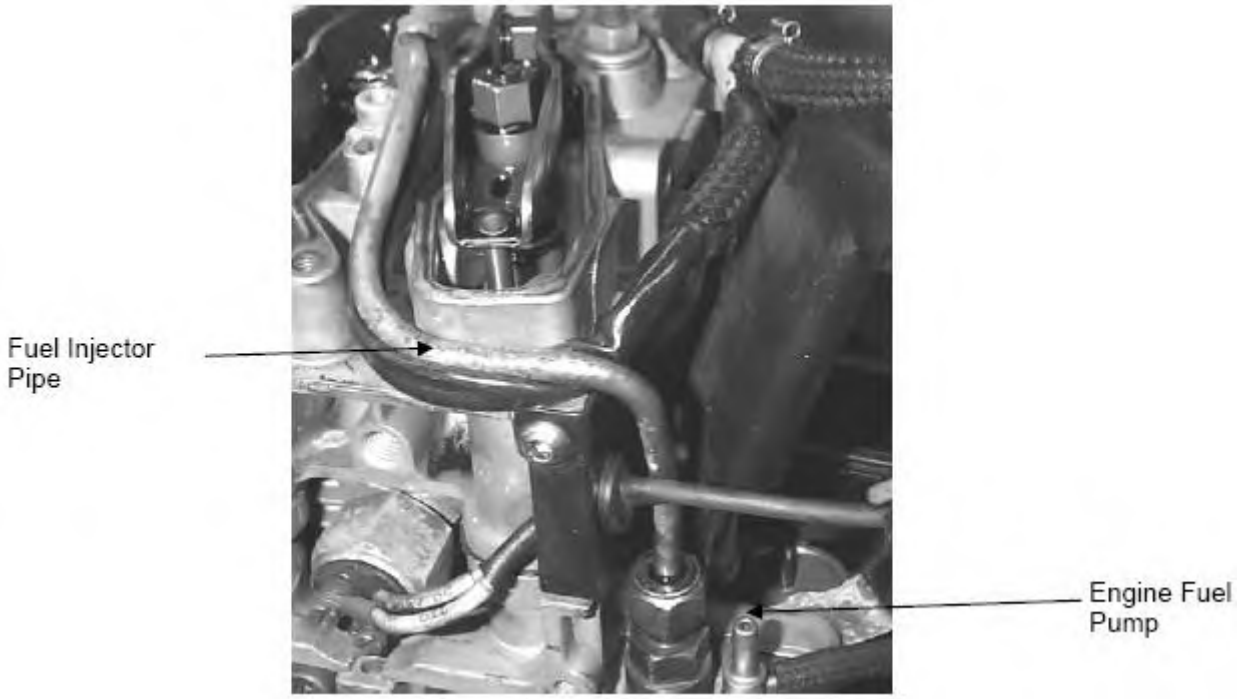

Figure 8 Fuel injector pipe and engine fuel pump

9 The fuel system is a sealed, pressurised and self priming system. The engine fuel tank filler cap must be securely fastened for the system to operate correctly. To complete the pressure circuit, a return hose is connected from the engine fuel tank to the jerrycan via the pressure return Quick Release Coupling.

ENGINE COOLING

10 Cooling air enters the engine compartment via air vents in the Acoustic Cover and grills on the Recoil Starter. A forced airflow around the engine is maintained by the engine flywheel fan which draws air in through the Acoustic Cover vents. This is then channelled via the Recoil Starter Shroud and Engine Cooling Air Intake, through the recoil starter vents, onto the engine. It exits from the slotted vents on the sides of the LFG.

SPEED GOVERNING

11 Engine speed is set by the use of the Engine Speed Control Lever fitted to the DC Control Panel which actuates, via a cable, the engine mounted speed control. The limits of the engine mounted speed control are set on construction and should not require adjustment during normal operation. When engine speed changes due to load variations, the speed governing system restores the set engine speed by adjusting the engine mounted speed control to increase or decrease fuel flow to the injector

STARTING SYSTEM

12 The engine can be started by a conventional recoil (rope) type starter or by an electric starter motor. The electric starter motor is powered from an external power source via an interconnecting cable.

Recoil starter

13 A conventional Recoil (rope) Starting system is incorporated at the non-drive end of the engine (Figure 9). When the starting rope is pulled, the pawl engages with the drive cup and turns the engine. On releasing the rope, the return spring acts to rewind the rope onto the reel.

Figure 9 Recoil starting assembly

Electric starter

14 The electric starter motor is attached to the engine (see Chap 1) and engages the flywheel via a toothed drive. It is powered by an external 24 V DC supply via an interconnecting cable which connects to the Intervehicle Connector on the DC Control Panel. Pressing the Start button (see Chap 1) on the DC Control Panel causes the starter motor to turn the engine.

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CHAPTER 3

DETAILED ELECTRICAL DESCRIPTION

CONTENTS

INTRODUCTION

1 This chapter provides detailed descriptions of the electrical system assemblies and sub-assemblies that make up the LFG. The main items of the system are the Permanent Magnet Generator (PMG), the Inverter/Regulator assembly and the Control Panel assemblies.

Electrical system functional overview

Engine

2 The engine has the facility to be started electrically using an external 24 V DC supply. The connector and controls for the electric start system are located on the DC Control Panel. An external 24 V DC power source is connected to the Intervehicle Connector and engine start is initiated by pressing the Start pushbutton. In cold conditions, there is the facility to pre-heat the engine by holding down the Pre-Heat switch for a short time. Protection for the start and pre-heat circuits is provided by the 15 A Circuit Breaker MCB 5.

PMG control and distribution

3 The 400 V, 400 Hz output of the PMG is fed into the Inverter/Regulator assembly where it is conditioned to provide the required AC and DC outputs. The AC and DC outputs of the Inverter/Regulator are fed via relay contacts and circuit breakers to their respective output sockets or terminals.

4 The AC outputs are further protected by the Earth Leakage Monitor unit which will trip all output circuit breakers if an earth fault is detected.

PERMANENT MAGNET GENERATOR

5 The Permanent Magnet Generator is a High Frequency device producing 400 V at 400 Hz. It is of the rotating field type with a permanent magnet rotor attached directly to the engine output shaft. The stator is fixed to the bulkhead which separates the engine from the electronics compartment. Connection to the Inverter/Regulator assembly is via a cable harness (see Chapter 1).

6 The PMG Cable and connector as shown in Figure 1. The power plug and stator connections for the PMG Cable are detailed in Table 1.

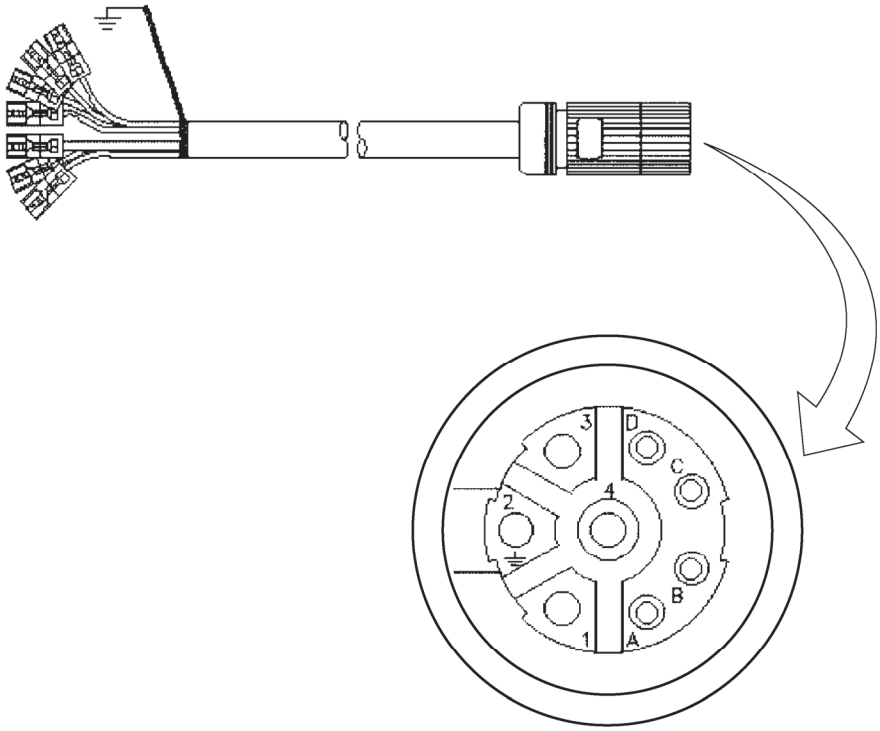


Figure 1 PMG cable and connector

TABLE 1 PMG CABLE - POWER PLUG AND STATOR CONNECTIONS

Serial (1)	POS (2)	Terminal (3)	Wire Colour (4)	Stator Position (5)
1	1	Female, 2 mm dia	Black	Phase 3
2	2	Female, 2 mm dia	Shield	To Earth
3	3	Female, 2 mm dia	Black	Phase 2
4	4	Female, 2 mm dia	Black	Phase 1
5	A	Female, 1 mm dia	Blue	Start Aux 2
6	B	Female, 1 mm dia	Blue	End Aux 2
7	C	Female, 1 mm dia	Brown	Start Aux 1
8	D	Female, 1 mm dia	Brown	End Aux 1

7 Cooling air for the Inverter/Regulator Assembly and the PMG is provided by a fan mounted on the engine output shaft which draws air in through the Louvre Panel vents, which is exhausted through the louvres on the side panels.

Power output

8 The generator will provide either 110 V AC or 230 V AC output simultaneously with 28 V DC output. The maximum power available is 2 kW continuously and it is capable of sustaining an overload up to 2.2 kW for a maximum duration of 1 hour in every 10 hours operation.

9 The required AC output (110 V or 230 V) is selected using the AC Output Voltage Selector Switch (SW1), which should not be operated whilst the generator is running. The 28 V DC output is available simultaneously with either AC output.

NOTE

If the AC Output Voltage Selector Switch (SW1) is inadvertently operated during running, the Inverter may trip off line. If this occurs, shut down and re-start the LFG to clear the trip condition.

10 To ensure the correct engine speed for the load selected, it can be adjusted to either "Normal" (suitable for total loads up to 2 kW) or "Max" (for overload conditions, up to 2.2 kW). The speed is adjusted using the Engine Speed Control Lever, on the DC Control Panel, to the positions as marked.

NOTE

The engine speed must be set to "Max" if the total load exceeds 2 kW, or if it is used at high altitude (above 1500 m). Use of the "Max" (Overload) setting is restricted to a maximum duration of 1 hour in every 10 hours operation.

11 The total LFG output (AC and DC combined) is indicated by the Load Meter (calibrated 0% -110%).

INVERTER/REGULATOR ASSEMBLY

12 The Inverter/Regulator Assembly is a sealed unit which is mounted in the electronics half of the LFG between the two Control Panels. To assist in cooling, as well as cooling air being ducted over it, it is fitted with a large heat sink (Figure 2).

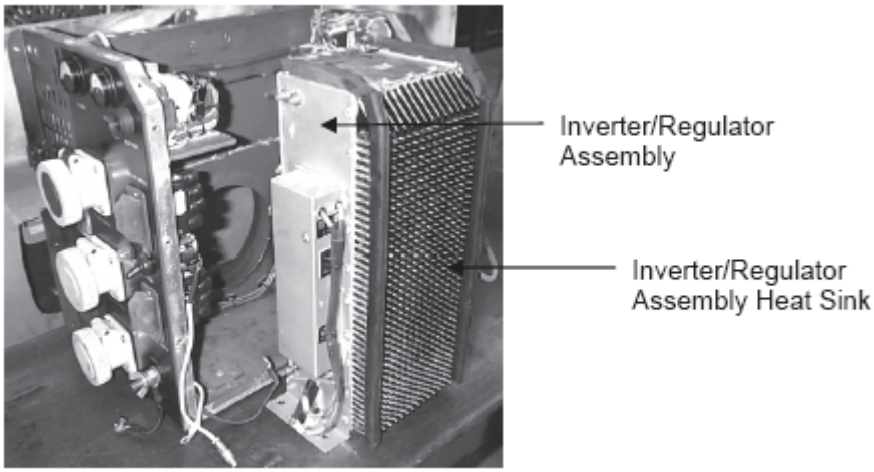


Figure 2 Inverter/regulator assembly - removed from the electronics frame

13 The output of the PMG is fed into the Inverter/Regulator where it is converted and rectified to provide the 110/230 V AC and 28 V DC.

CONTROL PANEL ASSEMBLIES

14 Control of the AC and DC outputs is split between two control panels, one for AC and one for DC. Both panels provide instrumentation to monitor output voltage, circuit breakers to provide output protection and either sockets or terminals to connect loads to.

AC Panel

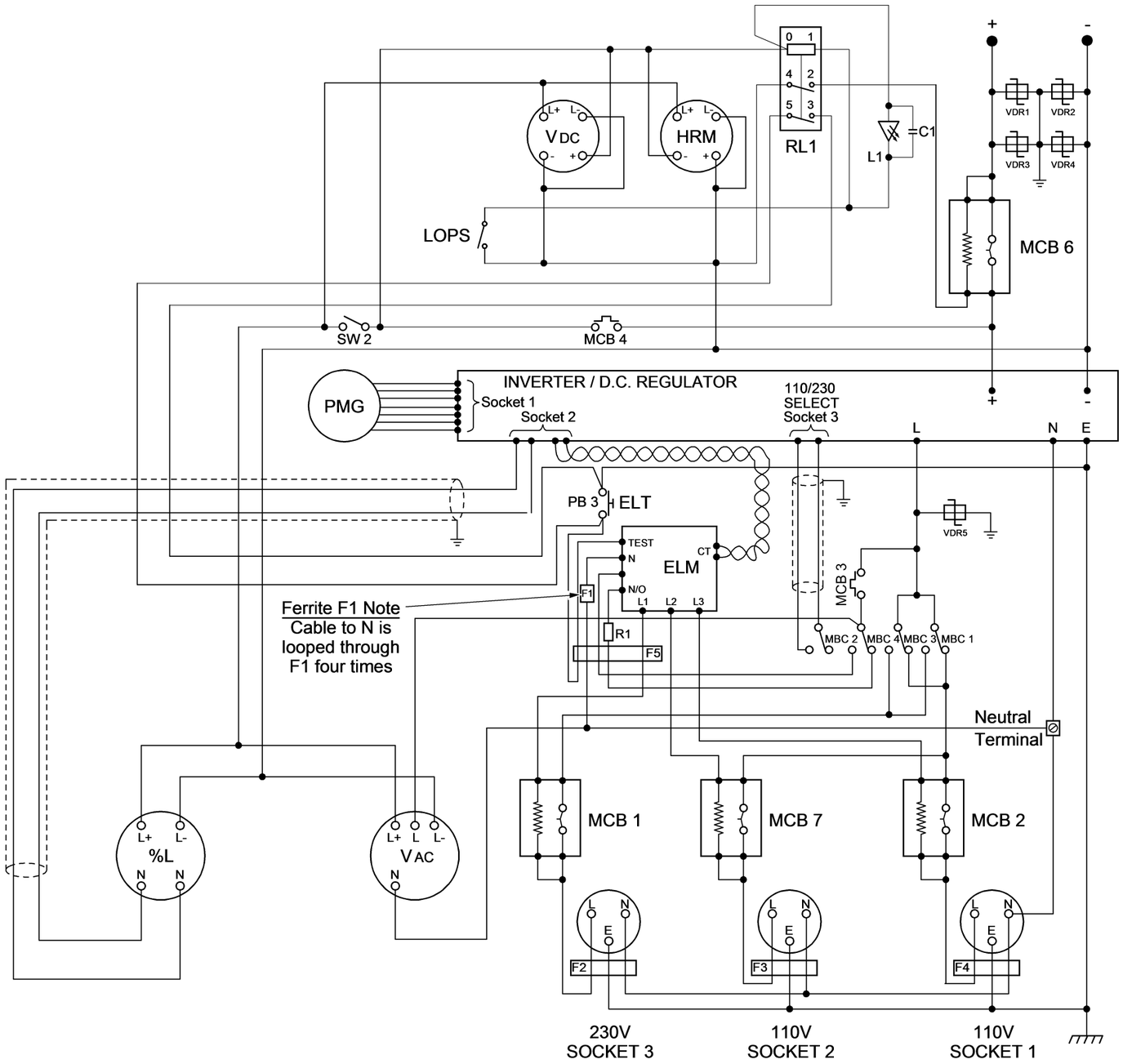
15 Mounted on the AC Panel are three output sockets (2 x 110 V and 1 x 230 V) and their associated circuit breakers, the Percentage (%) Load Meter, the RCD Test (Earth leakage) push button, the Voltage Selector switch and its associated circuit breaker, and the Earth Point.

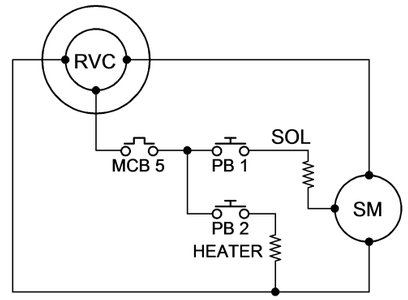
DC Panel

16 Mounted on the DC Panel are the Output Terminals and their associated circuit breaker, the Hours Run meter, the Low Oil Pressure Warning LED, the Instrument Illumination switch and the Intervehicle connector. The Start push button, Pre-heat switch and their associated circuit breaker plus the Engine Speed Control Lever are also mounted on the DC Panel.

LFG CIRCUIT DIAGRAM

17 A circuit diagram of the LFG, including the Starting/Pre-heat circuit, is provided as Figure 3.





Engine Starting Circuit-24V DC

%L	Percentage Load Meter
C1	Suppression Capacitor 10nF 100V
ELM	Earth Leakage Monitor
F1	Ferrite Bead
F2 to F5	Ferrite Bead
HRM	Hours Run Meter
L1	Low Oil Pressure Warning LED
LOPS	Low Oil Pressure Switch (Fitted To Engine)
MCB1	Circuit Breaker - 230V AC output - 11A
MCB2	Circuit Breaker - 110V AC output - 16A
MCB3	Circuit Breaker - AC control circuits - 2A
MCB4	Circuit Breaker - DC control circuits - 2A
MCB5	Circuit Breaker - 24V DC starter & heater circuits - 15A
MCB6	Circuit Breaker - 28V DC output - 80A
MCB7	Circuit Breaker - 110V AC output - 16A
PB1	Starter Push Button
PB2	Heater Push Button
PB3	Earth Leakage Test Push Button
PMG	Permanent Magnet Generator
R1	Resistor - 100 ohm
RL1	Low Oil Pressure Warning Relay
RVC	Remote Vehicle Connector
SM	Starter Motor
SW1	Voltage Selector Switch (Output)
SW2	Panel Light Switch
V AC	DC Voltmeter
V DC	DC Voltmeter
VDR1 to 5	Voltage Dependent Resistor

Figure 3 LFG circuit diagram

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*AESP/EMER NUMBER:		*IS THIS SAFETY RELATED?	Yes ☐	No ☐

Send Form 10 via the Email or Post address. However email is preferred.	Tel	[redacted]
Email: [redacted] (To email this form send as a copy to the email address above)	Post to	Form 10 Cell FRACAS BFPO 794

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*Edition	*Amendment	*Chapter	*Page	*Paragraph	Figure	Instruction	Other

*Comments: If additional information is to be supplied, please e-mail with the Form 10 as separate attachments.

FORM 10 CELL USE			
*Date Received		*Form 10 Reference	
*Date Sent to PT / SME		Problem Report	

PROJECT TEAM / SME RESPONSE TO COMMENTS:			
Project Team (PT) / SME		*Sponsors Name	
*Phone		Rank / Grade	
*Email		*Date Received	

*The following action is to be carried out:	Mark:		Mark:
Issue a revised/amended AESP/EMER:		Under investigation:	
Incorporate comment(s) in future amendments:		No action required:	

Remarks:

SPONSOR/PT FINAL CLOSURE STEPS	Mark:	Form 10 Cell notified of Date action taken	Date:
Form 10 Originator notified of the action taken:			

* Mandatory Fields for Originator

* Mandatory Fields for Sponsor.

ARMY EQUIPMENT AND SUPPORT PUBLICATION (AESP) AND ELECTRICAL AND MECHANICAL ENGINEERING REGULATIONS (EMER) - FORM 10

Form 10 Guidance

Form 10 can be found within the AESP or, as a template, from the JAMES Portal (Hot Topic – Forms) & TDOL (FORM10).

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- In the **AESP/EMER Number:** cell enter the full document number e.g. AESP 1256-l-400-711.
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- Originator Details:
  - Full address Inc Post Code or BFPO NO.
  - Originator email address
  - Senders Reference – that must be unique.
- AESP Details shall enter the following details:
  - The Full Title of AESP/EMER should not include the AESP/EMER Number
  - Enter details in all other mandatory fields marked *.
  - Additional information relating to the Comments (AESP copies, additional text details or photographs) should be attached to the Email at the same time.
- Originator makes up the Form 10 & Sends to Form 10 cell via
  - Post to **Form 10 Cell, FRACAS, BFPO 794** address.
  - Email to [redacted]
  - **Any AESP that holds a Security marking higher than 'Restricted' should be securely circulated.**

FORM 10 CELL responsibilities:

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- Date sent to Sponsor
- Register all Form 10 details in the MOSS Form 10 Tracker.

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The Sponsor will:

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- Enter Date Received
- Enter Details in the non-mandatory field as & when required.
- Acknowledge receipt of Form 10, within 5 working days, by email to Form 10 Cell.
- Assess the contents of comments and details received.
- Mark the relevant Action box and fill out the Remarks field.
- Enter date when the Form 10 is returned to Form 10 Cell.
- Email copy of completed Form 10, within 6 weeks, to the Form 10 Cell and Originator.

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* Mandatory Fields for Sponsor.