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

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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**

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AMENDMENT RECORD

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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	
				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	722	*	*
3 FIELD MAINTENANCE	*	*	302	*	*	512	522	532	*	*	*	*	*	*
4 BASE MAINTENANCE	*	*	*	*	*	*	*	*	*	*	*	*	*	*

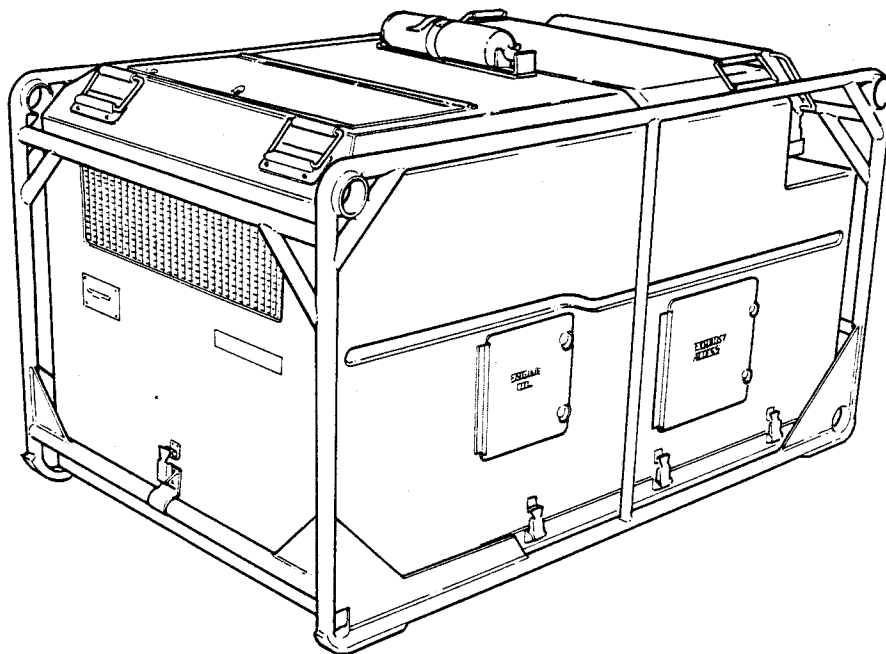
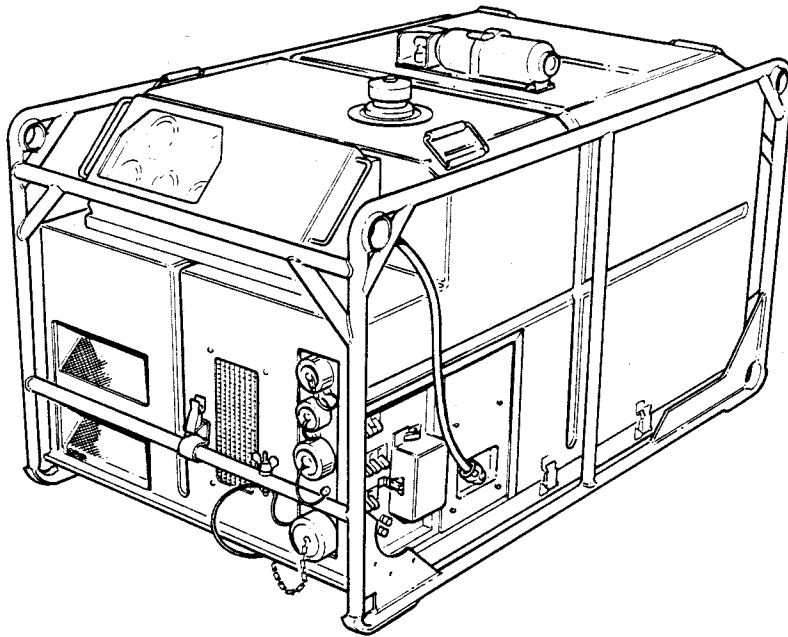
1.0 Purpose & Planning Information
 2.0 Operating Information
 3.0 Technical Description
 4.1 Installation Instructions
 4.2 Prep for Special Environments
 5.1 Failure Diagnosis
 5.2 Repair Instructions

5.3 Inspection Standards
 5.4 Calibration Procedures
 6.0 Maintenance Schedules
 7.1 Illustrated Parts Catalogue
 7.2 Commercial Parts List
 8.1 Modification Instructions
 8.2 General Instructions

* Not Published

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. 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 -7/-17/-23		Engine Governing System (Air-Log)	1
4	0-4169-1/104		Output Panel Control Box (Air-Log)	1
5	0-4169-1/3		Acoustic Cover (Air-Log)	1
6	1-4169-1/138		Cable Assembly 3/4 metre for Item 4 (Air-Log)	1
7	1-4169-1/53		10 metre Extension Cable for Item 4 (Air-Log)	1
8	2-4169-1/97		Extension Exhaust (flexible) (Air-Log)	2
9	2-4169-1/99		Extension Exhaust (rigid) (Air-Log)	3
10	0-4169-1/103		Fixed Box (Air-Log)	1
11	1-4169-1/56		Protection Circuit Board (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 (flexible) (Air-Log)	2
2	2-4169-1/99		Extension Exhaust (rigid) (Air-Log)	3
3	1-4169-1/53		10 metre Extension Cable (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 $+44^{\circ}\text{C}$ 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.