

Chapter 1
(Completely Revised)
ELECTRICAL INSTALLATION - DESCRIPTION

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Introduction

1. This chapter contains general information on the aircraft electrical system and equipment; for further details, reference should be made to the appropriate associated Air Publication, as listed at the beginning of this book. Polyvinyl cables are used for the various electrical services, the negative return leads being taken to framed earth terminals. To facilitate testing and dismantling, terminal blocks are fitted at convenient positions. The terminal block numbers shown on the diagrams in this section are included to facilitate reference to the location diagram and are not so marked on the aircraft.

POWER SUPPLIES - GA(fig. 1)

Generator

2. Power is supplied by a two-pole shunt wound engine driven generator, Type 500 (Ref. No. 5UA/4945). It is designed for anti-clockwise rotation and has an output of 17 amps at 28 volts over a speed range of 4,300 - 7,000 r. p. m. For further

information refer to A. P. 4343A, Vol. 1, Sect. 3. A suppressor, Type H2, connected in the supply and field lines from the generator, together with metal braided cables, are used for the elimination of radio interference.

Voltage regulation

3. Voltage regulation is effected by means of a carbon pile regulator and cut-out unit, Type C. The cut-out, contained within the same housing as the regulator, affords protection to the generator and prevents reverse feed when the engine is stationary, or running at low speeds. Should either the cut-out or the regulator fail, the complete unit must be renewed. For further details refer to A. P. 4343B, Vol. 1, Sect. 1.

Batteries

4. Two 12 volt, 15 ampere hour batteries are located aft of the rear cockpit. The positive terminal is connected to the ground/flight switch, and the negative terminal is earthed. When Mod. H242 is embodied, acid drainage and ventilation

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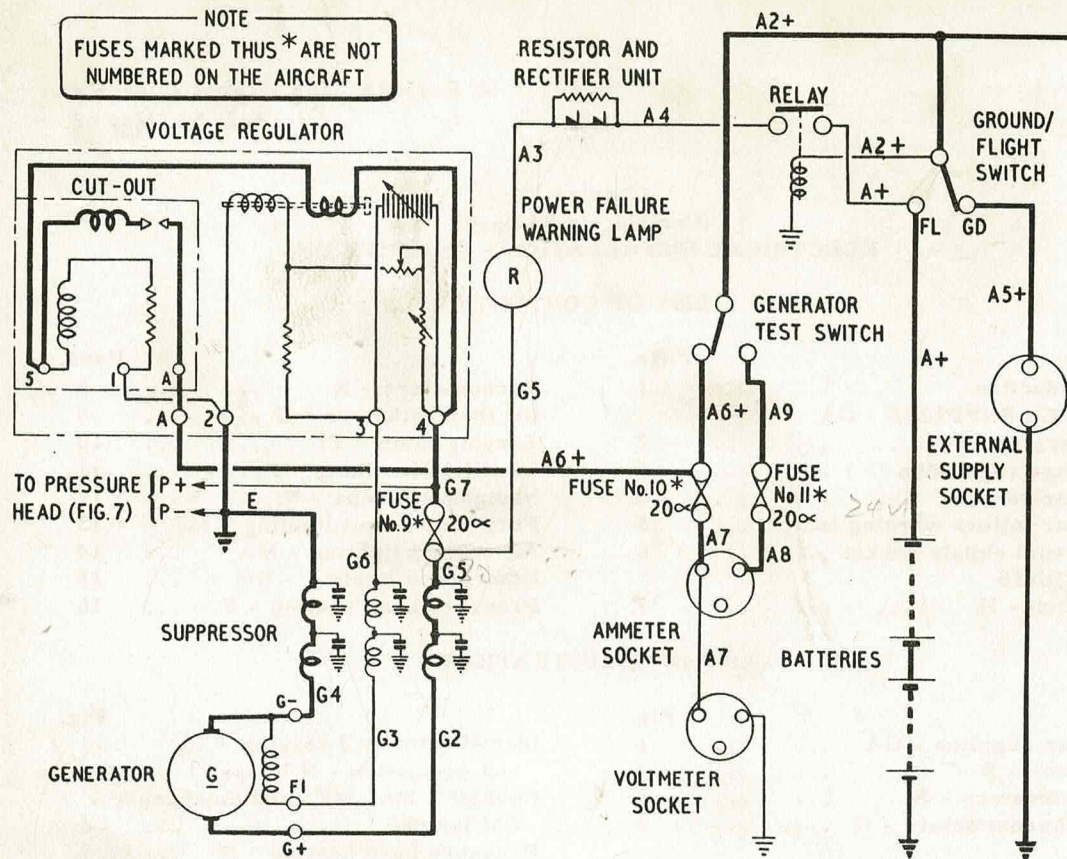


Fig.1. Power supplies - GA

of the battery compartment is by two polythene tubes which extend internally around the fuselage to protrude below the fuselage outer skin. The tubes are held in position by spring clips which, in turn, are bolted to the adjacent fuselage formers. The exposed ends of the tubes are tapered so that the open ends face fore and aft, thus air entering the forward facing orifice circulates the battery compartment and is drawn out by the depression created behind the aft facing orifice.

Power failure warning lamp

5. The circuit for this system comprises the following :-

- (1) A warning lamp, on the left hand side of the front instrument panel.
- (2) A resistor and rectifier unit,

mounted just forward of the front instrument panel.

- (3) A magnetic relay, Type Q1.

The lamp illuminates, as described in A. P. 4343, Vol. 1, Sect. 23, when the main fuse blows, the cut-out fails to close or the generator is not giving an output. The type Q1 relay isolates the circuit from the batteries when the ground/flight switch is at GROUND... It should be noted that the lamp will not light with the ground/flight switch at ground unless a supply is con-

External supply socket

6. The external supply socket is mounted on the port side of the fuselage just forward of the wing leading edge, thus facilitating the use of an external supply for testing the electrical services.

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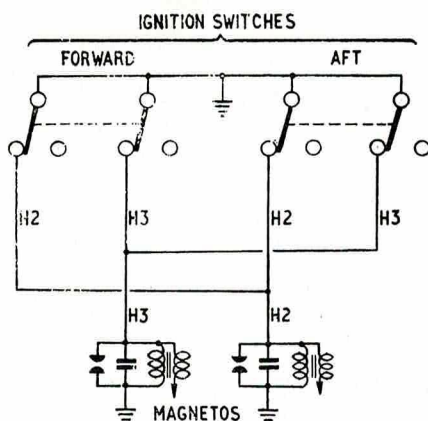


Fig. 2. Ignition — H

CIRCUITS

Ignition — H (fig. 2)

7. Two magnetos, fitted one on each side of the engine, are controlled by switches in each cockpit.

Note . . .

Switches in both cockpits must be at ON before the engine can be started.

Tachometers — R (fig. 3)

8. Two indicators, one in each cockpit, are located on the left hand side of the instrument panels. A generator fitted on and driven by the aircraft engine, supplies a

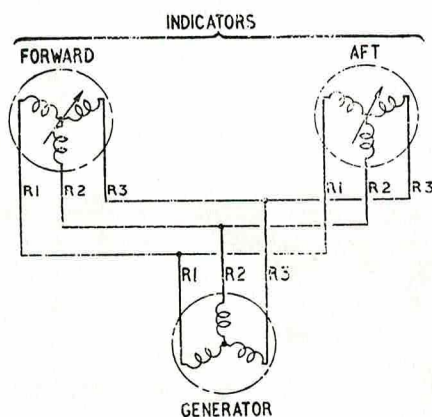


Fig. 3. Tachometers — R

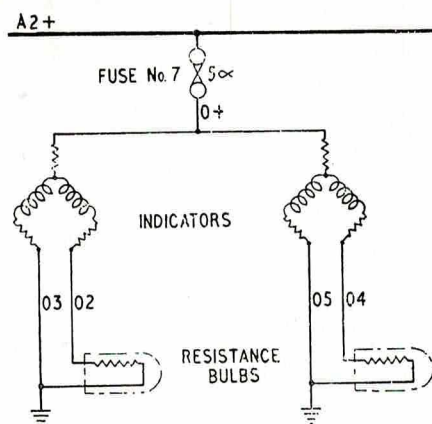


Fig. 4. Oil thermometers — O

3-phase supply to the synchronous motors in the indicators. A magnetic drag element co-axial with the motor moves the pointer over the dial, which is calibrated in r.p.m., thus providing continuous indication of engine speed. This circuit and the radio supply circuit both bear the same code reference, "R".

Oil thermometers — O (fig. 4)

9. Two oil temperature bulbs on the left hand side of the engine are connected to variometer-type indicators, one on the front and one on the rear instrument panels. The supply is taken from fuse No. 7 in the fuse box, on the switch panel.

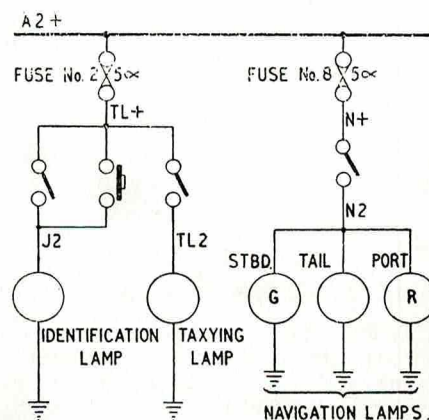


Fig. 5. Identification — J, taxiing — TL and navigation — N lamps

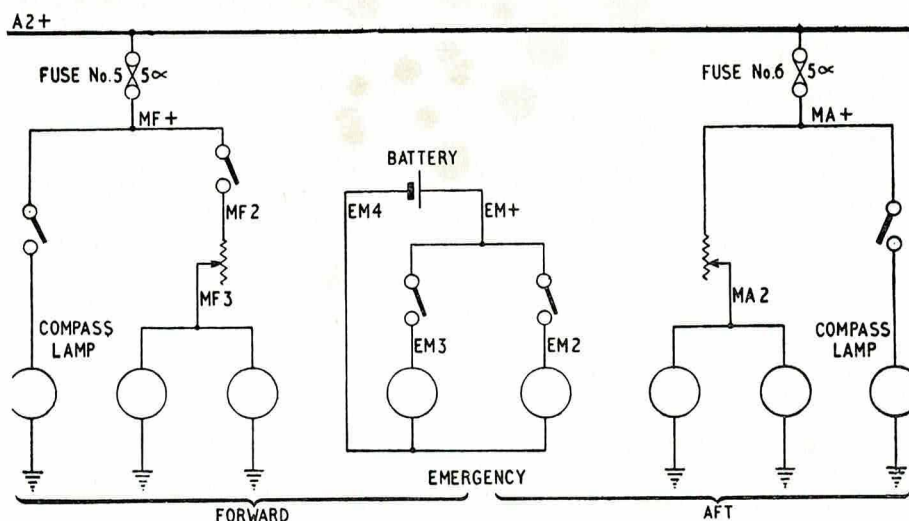


Fig. 6. Cockpit — MA, MF, and emergency — EM lamps

Taxying lamp — TL (fig. 5)

10. The taxying lamp, mounted on the port alighting gear leg fairing, is controlled by an on-off switch on the switch panel in the front cockpit. The supply, together with that for the identification lamp, is taken from fuse No. 2.

Identification lamp — J (fig. 5)

11. An identification lamp is fitted in the starboard wing. The lamp is controlled by an on-off switch and an alternative push-switch, both mounted on the switch panel in the front cockpit.

Navigation lamps — N (fig. 5)

12. Three navigation lamps, located one in each wing tip and one at the rear of the fuselage tail cone, are controlled by a switch on the switch panel in the front cockpit. The supply is taken from fuse No. 8.

Forward cockpit lighting — MF (fig. 6)

13. The compass lamp and its associated switch are located on the compass mounting. The left and right-hand instrument panel lamps are controlled by a dimmer switch on the switch panel. A further switch situated on the left-hand side of the rear cockpit over-rides the dimmer switch and renders the

circuit inoperative. The supply is taken from fuse No. 5.

Aft cockpit lighting — MA (fig. 6)

14. The compass lamp and its associated switch are located on the compass mounting. The dimmer switch controlling the left and right-hand instrument panel lamps is mounted on the left-hand side of the cockpit. The supply is taken from fuse No. 6.

Emergency lighting — EM (fig. 6)

15. Two emergency lamps are fitted, one over the front and one over the rear cockpit instrument panel. The switch controlling the front lamp is mounted on the switch panel in the front cockpit, and that

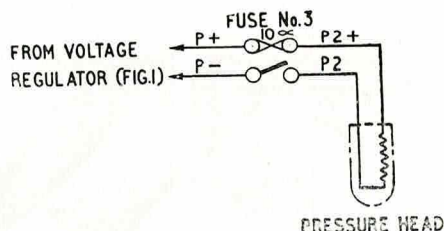


Fig. 7. Pressure head heating — P

for the rear lamp on the left-hand side of the fuselage in the rear cockpit. The supply is taken from an alkaline battery located on the port side of the front cockpit near the switch panel.

Pressure head heating - P (fig. 7)

16. The Mk. 8D pressure head, on the

underside of the port wing, embodies a heater element which, when Mod. H. 109 is incorporated, is connected to terminals No. 2 and 4 of the voltage regulator via fuse No. 3 and an on-off switch on the switch panel in the front cockpit. This circuit will only function when the engine is running.

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