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Chapter 19

CONTROL PANEL, TYPE 38

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LEADING PARTICULARS

Control panel, Type 38	Stores Ref. 5UC/6164
Used with inverter Type 206	Stores Ref. SUB/6442
Controlled voltage in conjunction with inverter Type 206	115 V, a.c. $\pm 2\frac{1}{2}$ per cent
Contents:—	
Regulator unit, Type 1008	Stores Ref. 5UC/543
Trimmer resistor (R1), 100 ohms	Stores Ref. SUB/5267
Ballast-resistor (R2) (2 off), 300 ohms	Stores Ref. 5UC/306
Capacitor, 3 μ F	Stores Ref. 5UC/6432
Rectifier	Stores Ref. 5UC/305
Contactors, Type LDA30-B4/1	Stores Ref. SUB/6047
Overall length	9 $\frac{1}{8}$ in.
Overall width	7 in.
Overall height	5 $\frac{1}{8}$ in.
Fixing centres	3 $\frac{3}{8}$ in. \times 9 $\frac{1}{8}$ in.
Fixing holes	4, each $\frac{3}{8}$ in. dia.
Weight	8 lb. (approx.)

Introduction

1. The control panel Type 38 (fig. 1) is used to control the output of the Type 206 inverter at 115 V, a.c. $\pm 2\frac{1}{2}$ per cent. The control panel is, in fact, electrically identical to the control box on the Type 200 inverter and the Type 206 inverter is electrically the same in all respects to the Type 200 inverter. The separation of the control box from the inverter has occurred purely through installation difficulties in certain aircraft.

DESCRIPTION

2. The control panel (fig. 2) is housed in a sheet metal box. The d.c. positive supply enters through one side and is connected to a terminal marked + on a small

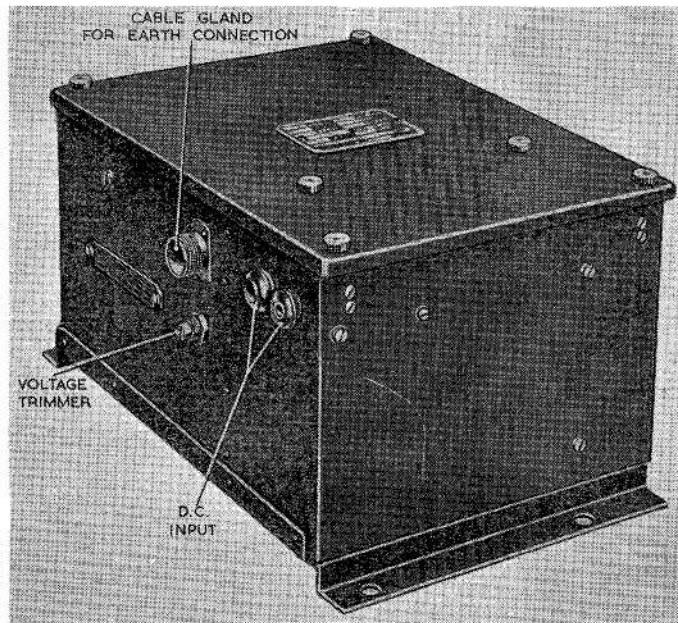


Fig. 1. General view, control panel Type 38

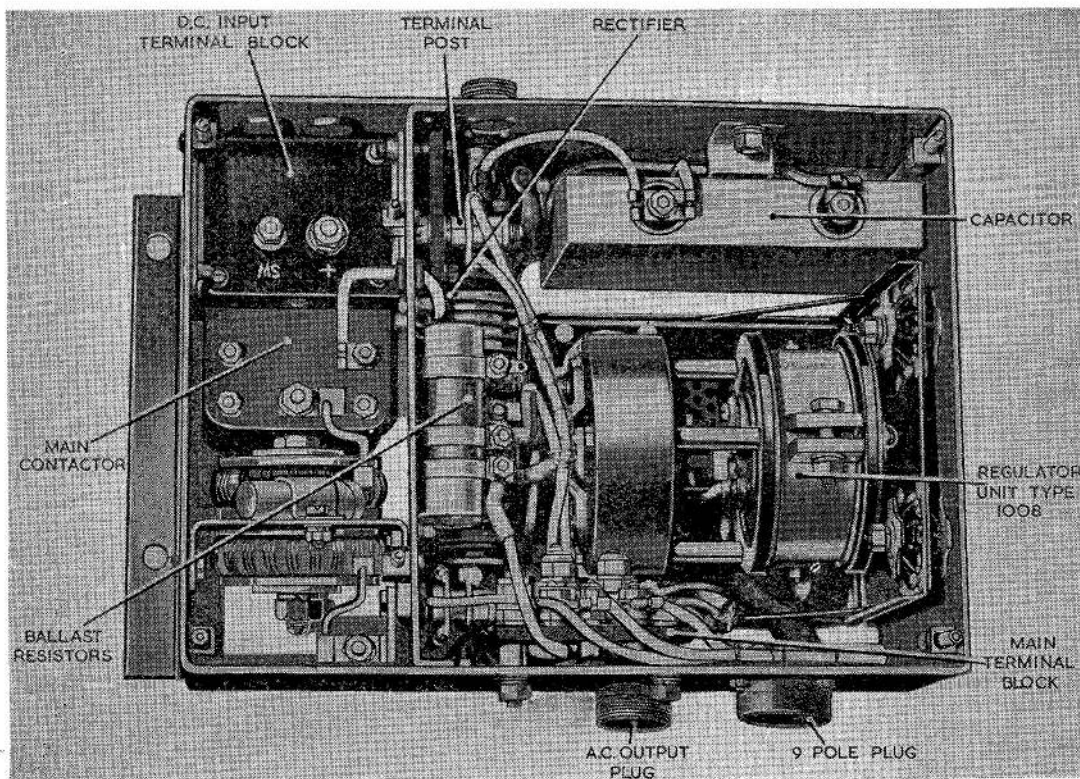


Fig. 2. Control panel with cover removed

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terminal block on top of the main contactor. A separate switched positive supply also comes in at this point and is connected to the terminal marked sw. The negative supply enters through a separate cable gland, is connected to a special terminal post, and thence to the main terminal board on the opposite side of the unit. On this main terminal board will be seen a link. When the inverter is being used in an earthed system the link must be left in position as shown in fig. 3, but in a fully insulated system the link is to be removed. In an earthed system the earth cable is taken through the cable gland normally used by the negative supply.

3. When the switched positive supply is on, the main contactor is energized, and the main d.c. positive supply flows through a suppressor to feed the main driving motor, and also the exciting winding of the a.c. generator. The portion exciting the a.c. generator passes through a regulator unit Type 1008. This regulator unit is flexibly mounted on coil type springs and is similar to the voltage regulator, Type ES, described in Book 1, Sect. 1, Chap. 12. Briefly, a tapping from the a.c. output is fed through a

bridge rectifier and used to control the carbon pile regulator. Thus the a.c. output is used to control the d.c. excitation and in turn the output is kept at 115V, a.c. $\pm 2\frac{1}{2}$ per cent.

4. The resistor R1 is variable and is used for controlling the output voltage externally. The resistor R2 is really two ballast resistors in series. The resistors are all in series with the a.c. side of the rectifier, whilst the carbon pile regulator coil is connected direct to the d.c. side of the rectifier.

5. The a.c. output is brought out to a 2-pole plug whilst the various other connections to the inverter are brought out to a 9-pole plug.

Installation

6. The control panel may be fitted in any position, or attitude, provided always that sufficient space is left for connecting plugs, cables, etc. The circuit diagram is given in Fig. 3.

Servicing

7. Little servicing can be done on these units except to see that all cable connections

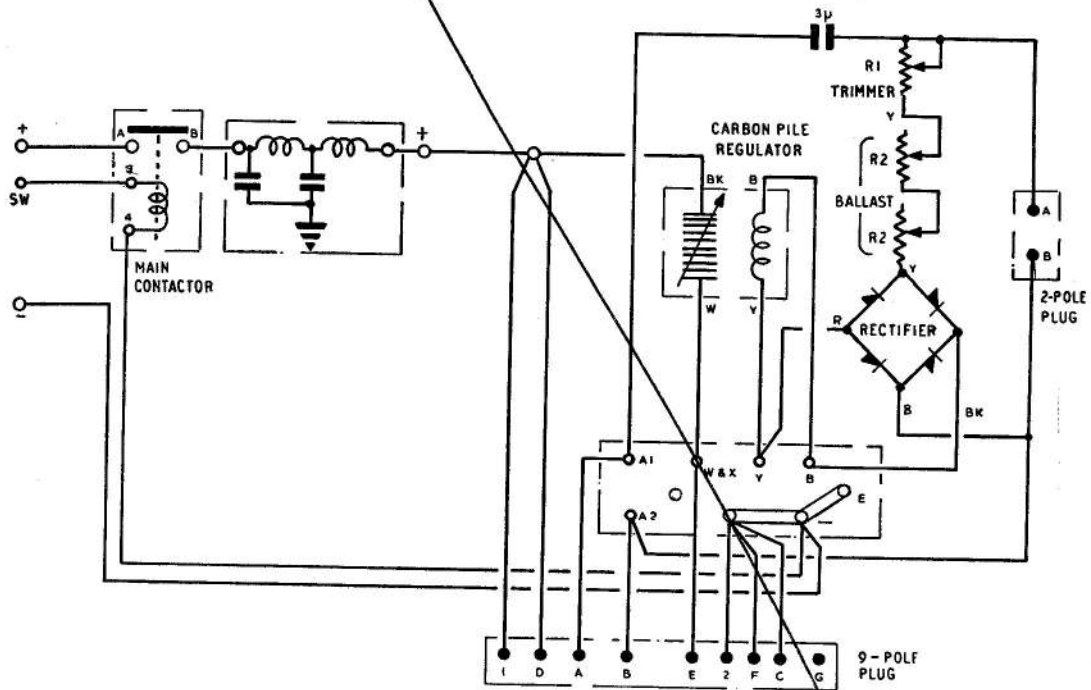


Fig. 3. Circuit diagram

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(A.L.8, July 58)

and fixing devices are tight and free from corrosion.

Note . . .

Attention is drawn to the danger of internal short-circuiting, caused by chafing of the cables within the control panel. Maintenance personnel are advised to take adequate precautions during servicing periods against defects of this nature occurring.

Testing

8. The control panel can only be tested in conjunction with an inverter Type 206 (Stores Ref. 5UB/6442). Run the inverter for 15 minutes on full load with an input of 25 V, d.c. With the machine warm, check that

the output voltage is within the limits of 112.1 and 117.9 volts:—

- (1) With an input of 28 V, d.c. when the full load is switched from no load to full load, and back to no load.
- (2) At three quarters full load when the applied voltage is varied from 25 to 28 V, d.c. and back to 25V.

9. Check that with an input of 25V, d.c. and full load applied, the input current does not exceed 30 amp.

10. The a.c. output voltage is adjusted externally by means of the voltage trimmer R1.

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