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A.P.4343C, Vol. 1, Book 3, Sect. 10, Chap. 8
A.L.41, Sep. 62

Chapter 8

OVERVOLTAGE UNIT, ROTAX, TYPE U3611

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LEADING PARTICULARS

Overvoltage unit, Type U3611	Ref. No. 5UC/7296
Operating voltage	28V d.c.
Trip voltage	...	...	...	31V d.c.
Temperature range	...	...	...	-40 deg.C to +50 deg.C
Trip relay coil resistance	...	...	...	60 ohms
Overall dimensions —				
Length (including mounting feet)	5.250 in.
Width	4.875 in.
Height	3.406 in.
Weight	2 lb. 4 oz.

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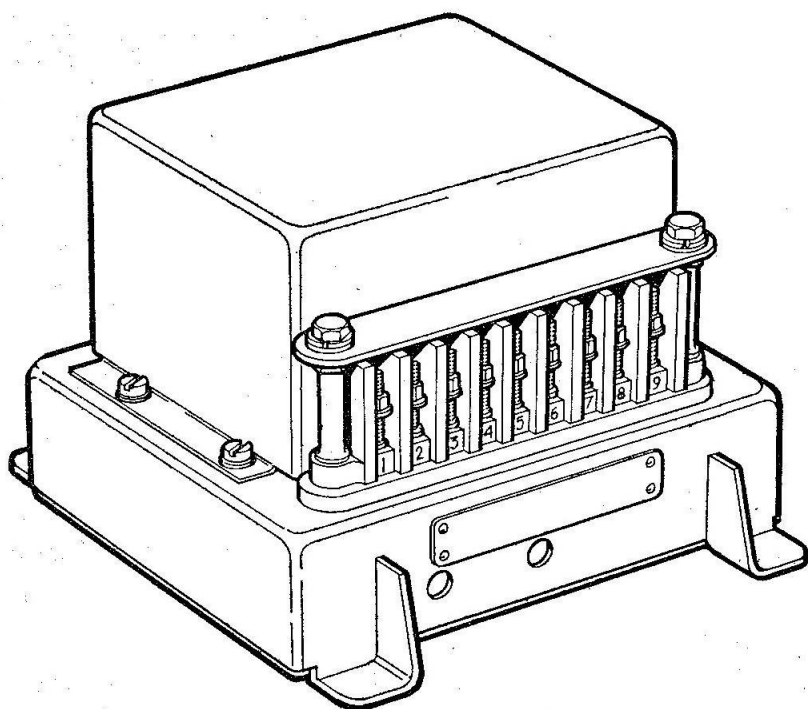


Fig. 1. General view of Type U3611

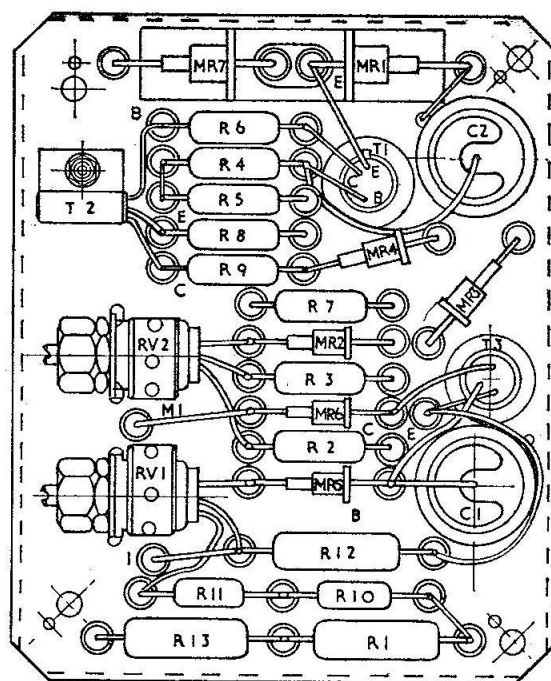


Fig. 2. View with base cover removed

Introduction

1. The U3611 overvoltage unit is designed for use in conjunction with the 6 kw generator, Type B4101. Two generators, each with a Type U3611 unit, are employed in the system. The units provide overvoltage protection for an input of 28 volts d.c. from the busbar.

DESCRIPTION

2. The unit (fig. 1) consists of a discriminating circuit incorporating a transistor, a zener diode and two silicon diodes; a switching circuit incorporating two transistors, a zener diode and three silicon diodes, and a latched relay, Type F8502. The discriminating circuit selects the faulty generator which is disconnected from line by the switching circuit and latched relay. External facilities are provided for both tripping and resetting the unit.

3. The arrangement of the components is shown in fig. 2. The two potentiometers, which are adjusted to control the operating voltage level of the discriminating and switching circuits, can be reached by removing the base cover plate. The components are mounted in a pressed metal case with the nine-way terminal block fitted to one side. The four fixing holes are drilled through mounting feet which are secured to the base of the unit.

Operation

4. Reference should be made to the circuit diagram shown in fig. 3. With a busbar voltage of 28V, the potentiometer RV1 is adjusted to just bias the transistor T3 to a cut-off condition. Assuming that an overvoltage condition is present and that the unit is associated with the serviceable generator, a current will flow along the equalizing line towards the faulty generator. The current produces a voltage drop across resistor R12 and this, by increasing the base/emitter potential, causes the transistor T3 to conduct. The transistor draws current from the busbar positive line, producing a voltage drop across resistor R1 which is in opposition to the rising busbar voltage. Thus the switching circuit does not sense the true voltage from the busbar and the unit remains inoperative.

5. Assuming that the unit is associated with the faulty generator, a current flows to it through the equalizing line from the serviceable generator. The reversed direction of the current causes the voltage drop across R12 to hold T3 in the OFF condition, and the true busbar voltage is therefore passed to the switching circuit where it is sensed by the network R1, R2, RV2. The potentiometer RV2 is adjusted to a position such that the transistor T1 conducts with a busbar voltage of 31 volts. When T1 conducts, a current is

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