

## Chapter II

### SWITCH, MAGNETIC, ROTAX D902I

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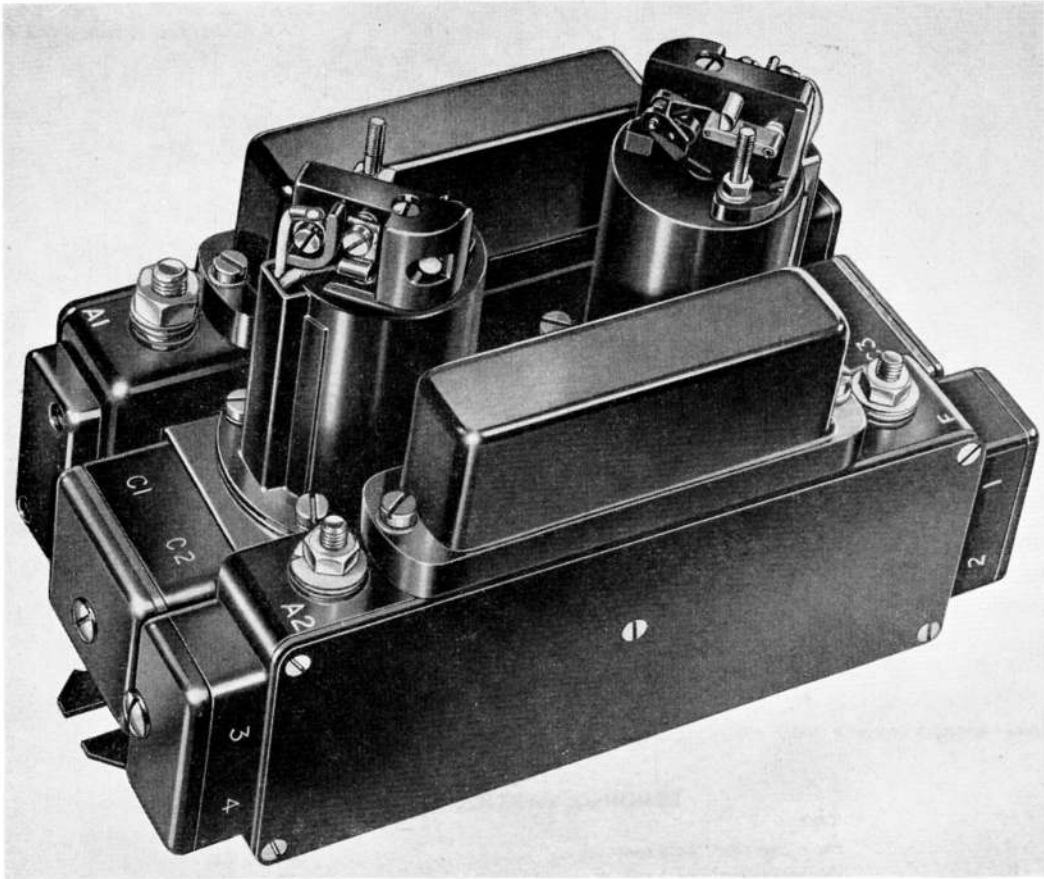
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#### LEADING PARTICULARS

<i>Voltage</i>			
Main and shunt field contacts	...	...	112 V., d.c.
Operating contacts	...	...	29 V., d.c.
<i>Current rating</i>			
Main contacts	...	...	60 amp.
Shunt field contacts	...	...	2.5 amp.
Auxiliary contacts (at 29 V.)	...	...	5.0 amp.
Rating	...	...	Continuous
Pull-in coil resistance	...	7 ohm $\pm$ 5 per cent.	} Calculated
Overall coil resistance	...	102 ohm $\pm$ 10 per cent.	
<i>Overall dimensions</i>			
Height	...	...	4.45 in.
Base	...	...	6.88 in. by 3.52 in.
Weight	...	...	4 lb. 4 oz.



**Fig. 1. General view with economy switch covers removed**

#### **Introduction**

1. This magnetic switch, in common with others in the D 9000 series, is designed for use in 112-V. d.c. installations where a double pole reversing contactor is required, e.g. to reverse the direction of rotation of an actuator motor.

#### **DESCRIPTION**

2. The D 9021 switch (*Fig. 1*) is similar to that described in A.P.4343, Vol. 1, Sect. 11, Chap. 12, with certain exceptions affecting its operation.

3. The two solenoid operating coils are a type designed to permit continuous operation. This is achieved by the use of an economy winding. The latter is brought into operation by an economy switch, one of which is mounted above each solenoid (*Fig. 1*) and connected in the operating coil circuit as shown in *Fig. 2*.

#### **Operation**

4. The switch operates in a similar manner to those described in A.P.4343, Vol. 1, Sect. 11, Chap. 12. The plunger movement, in addition to operating the contacts, actuates the economy switch.

5. When the unit is not in operation, each economy switch is normally closed and short circuits a section of the operating coil. On application of the appropriate voltage to the operating coil terminals, the energizing current passes through the remaining, i.e. pull-in, section of the operating coil (*Fig. 2*). The plunger movement opens the economy switch and the energizing voltage is applied across the whole of the operating coil.

6. The resultant current value is sufficiently high to hold the plunger in position, yet sufficiently low to permit continuous use without overheating.

**RESTRICTED**

**SERVICING**

7. Assuming that the unit has been correctly installed and operated, servicing will be restricted to visual inspection; if the unit is functioning satisfactory, it should be assumed to be serviceable for continued use.

**Inspection**

8. Remove the covers and inspect the contact surfaces for signs of excessive pitting due to arcing. The unit must be removed from service and a new one fitted if the degree of pitting warrants it.

9. Inspect all the terminal points and ensure that the cables are securely connected and show no signs of damage due to vibration.

10. Inspect the mouldings and castings for signs of physical damage or distortion and ensure that the mounting bolts are securely locked.

**Operational test**

11. After installing the unit in the aircraft a test must be carried out to ensure that it

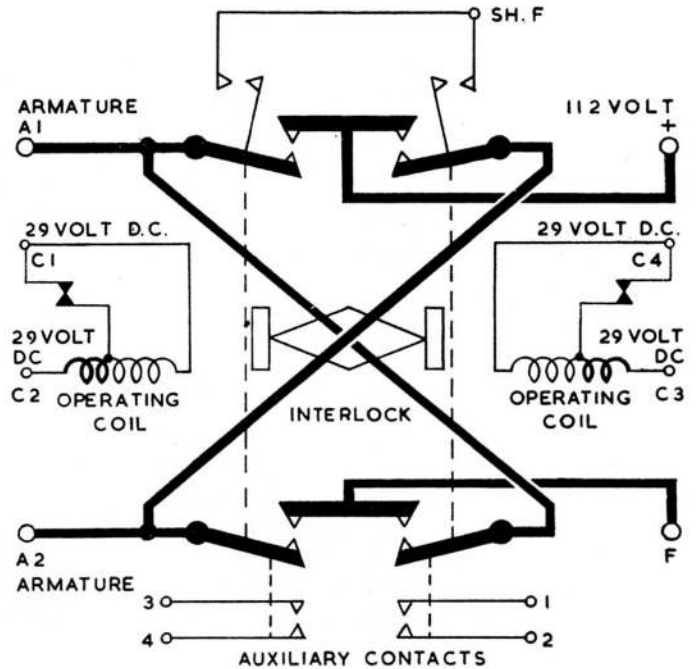


Fig. 2. Diagram of internal connections

functions correctly. The equipment controlled by the unit should be operated to ensure that a complete cycle of operations is not restricted and that the current consumption is within the stated limits.

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CONNECTIONS

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