Chapter 31

SWITCH, MAGNETIC, TYPE 14A, No. 3, (ROTAX D 9241/1)

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LIST OF ILLUSTRATIONS

LEADING PARTICULARS

Switch, magnetic, Type 14A, No. 3	Stores Ref. 5CW/5028
Voltage	
Main contacts	112 volts
Closing coil	75 volts
Tripping coil	28 volts
Current rating...	40 ampere
Resistance	
Closing coil	53 ohms.
Tripping coil	36 ohms.
Overall dimensions	
Length	5·937 in.
Width	... 4 in.
Height	4·750 in.
Operational temperature range ...	−65 deg. C. to + 50 deg. C.
Mounting	4 holes ·196 in. dia.
Weight	3 lb. 7 oz.

Introduction

1. This switch, in common with others in the D 9200 series is designed for use as a contactor on aircraft electrical systems where it is desired to make and break a 112 volt d.c. circuit using 75 and 28 volt d.c. control circuits.

DESCRIPTION

2. The type 14A, No. 3 magnetic switch (*fig.* 1) is similar in construction to those described in A.P.4343, Vol. 1, Sect. 11, Chapter 16. The unit provides two pairs of auxiliary contacts in addition to the main 112 volt contacts and is operated either by impulsed or continuously fed current, but the closing coil, unlike most units in the series, is operated by a 75 volt d.c. supply. It is fitted with economy resistors and a trip coil. The unit is not fitted with a bi-metal element.

SERVICING

3. When the unit has been correctly installed and operated, it requires little attention in service. If a unit operates satisfactorily it may be assumed serviceable for continued use.

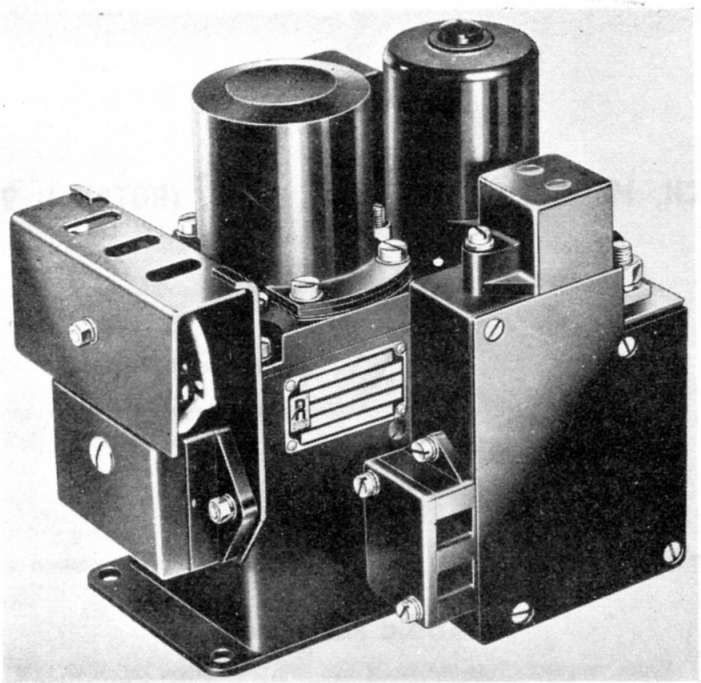

Fig. 1. General view of Type 14A, No. 3 switch

4. A visual inspection should be made from time to time to ensure that the unit is not damaged physically. If the unit is accessible, the covers of the insulated side cases should be removed and the contacts examined to ensure that they are not excessively pitted or burnt. If there is any sign of damage, the unit should be removed and a new unit fitted in its place.

Insulation resistance tests

5. Insulation resistance tests should be applied to the unit if it is accessible and can be isolated readily from its circuit.

Note . . .

It is important that the leads to the suppressor condensers are disconnected before carrying out the tests in para. 6 in order to prevent them being damaged by the high voltage supply.

6. Using a 250 volt insulation resistance tester, the insulation resistance must be at least 2 megohms between the following points:—

(1) Terminal 1 and terminal 2 with contacts in the normal position (*fig.* 2).

(2) Terminal 1 and terminals 5, 7, 9 and 10 with the contacts in the operated position.

(3) Terminal 1 and the frame with the contacts in the operated position.

(4) Terminal 5 and the frame of the unit with the contacts in the operated position.

(5) Terminal 9 and terminal 10 with contacts in the operated position.

(6) Terminal 5 and terminals 6, 7, 8 and 9 with the contact in the normal position (*fig.* 2).

(7) Terminal 6 and terminals 7, 8 and 9 with the contacts in the normal position (*fig.* 2).

(8) Terminal 7 and terminal 8 and 9 with the contacts in the normal position (*fig.* 2).

(9) Terminal 8 and terminal 9 with the contacts in the normal position (*fig.* 2).

(10) The frame of the unit and terminal 5 with the contacts in the normal position (*fig.* 2).

Note . . .

After completion of the foregoing tests the suppressor capacitors must be re-connected.

7. It should be noted that the values of insulation resistances quoted in para. 6 is applicable to units being tested under normal workshop conditions. Due allowance should be made for the climatic conditions of the locality and those of the aircraft servicing area or dispersal point. In damp or humid climates, insulation resistance readings will be low and discretion should be exercised when considering the serviceability of switches.

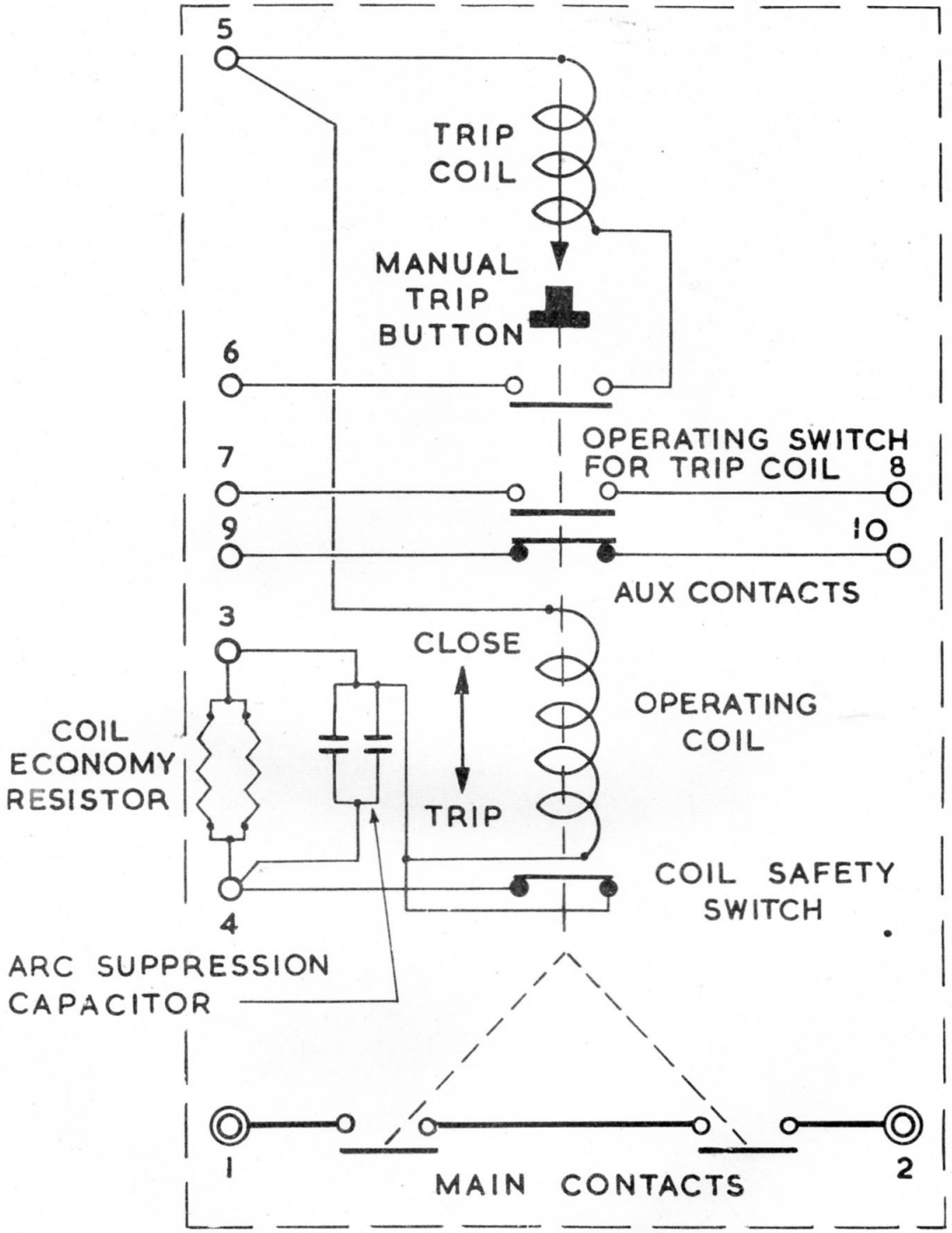

Fig. 2. Diagram of internal connections

Resetting the interlock mechanism

8. If, as a result of excessive arcing, welding of the main contacts has occurred, remedial action should be taken in accordance with A.P.4343, Vol. 1, Sect. 11, Chap. 16.

(A.L.62, Mar. 56)