Chapter 25

SWITCH, MAGNETIC, TYPE 16A, No. 1 (ROTAX D9601)

LIST OF CONTENTS

LIST OF ILLUSTRATIONS

LEADING PARTICULARS

Voltage

Main contacts	112-V, d.c.
Auxiliary contacts	28-V, d.c.
Operating coil	28-V, d.c.
Tripping coil	28-V, d.c.
Resistance of operating coil at 20 deg. C. ...	3·7 ohm ± 5 per cent
Resistance of tripping coil at 20 deg. C. ...	36 ohm ± 5 per cent
Current rating	
Main contacts	120 amperes
Auxiliary contacts	5 amperes
Length	5·500 in.
Width	5·437 in.
Height	5·312 in.
Operational temperature range ...	−65 deg. C. to +50 deg. C.
Operational ceiling	50,000 ft.
Weight	5 lb. 8 oz.

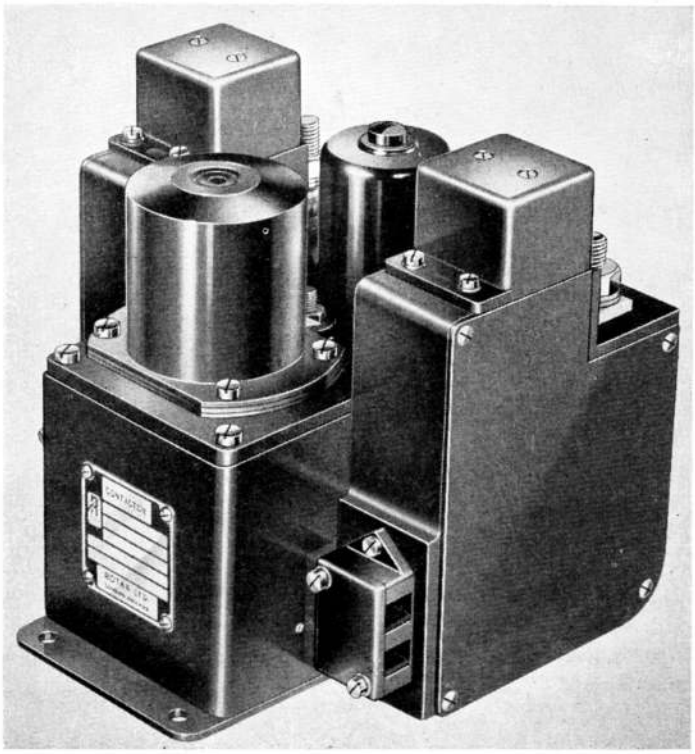

Fig. 1. General view of Type 16A, No. 1 switch

Introduction

1. This unit is one of the series of magnetically operated single pole contactors described in A.P.4343, Vol. 1, Sect. 11, Chap. 18, and is designed for the remote switching of 112 volt circuits whose current ratings do not exceed 120 amperes. The switch is mechanically latched and therefore suitable for applications where continuous rating is required.

DESCRIPTION

2. This unit is generally similar to others in the D.9600 series (*A.P.4343, Vol. 1, Sect. 11, Chap. 18*), with the exception that neither a bi-metal element nor an economy resistance is fitted. The switch may, therefore, only be tripped manually or magnetically.

3. For details of operation and installation, reference should be made to the chapter mentioned in para. 2.

SERVICING

4. In addition to the servicing detailed in A.P.4343, Vol. 1, Sect. 11, Chap. 18, the following tests should be applied.

Coil resistance tests

5. Measure the resistance of each coil between the appropriate terminals on the four-way terminal block (*fig.* 3). When corrected to an ambient temperature of 20 deg. C, the resistance of the operating coil should be 3·7 ohm $\pm$ 5 per cent and the resistance of the tripping coil should be 36 ohm $\pm$ 5 per cent.

Millivolt drop tests

6. Allow the rated current of 120 amperes to flow through the 112 volt circuit and test the following potential drops; they should not exceed the values given.

(1) across each pair of contacts	20 millivolt

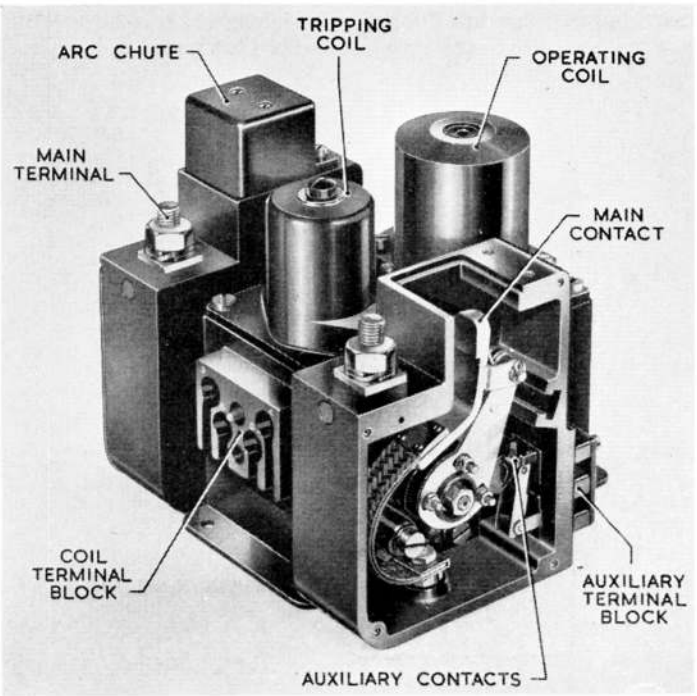

Fig. 2. View of switch, with covers removed

(2) across each flexible braid	25 millivolt
(3) across each joint	5 millivolt
(4) across the main terminals	110 millivolt

7. With 5 amperes flowing, the potential drop between the terminals of each auxiliary switch should not exceed 20 millivolt. With 7·5 amperes flowing, the potential drop between the tags of the coil safety switch should not exceed 80 millivolt.

Insulation resistance tests

8. Measure the insulation resistance between the following points, using a 250 volt insulation resistance tester.

(1) Terminal 1 and terminal 2 (contacts open)

(2) Terminal 1 and terminals 3, 5, 6, 7, 9, 10 and frame (contacts closed)

(3) Terminal 3 and terminals 5, 7, 8 and 9 (contacts open)

(4) Terminal 5 and terminals 7, 8 and 9 (contacts open)

(5) Terminal 7 and terminals 8, 9 and frame (contacts open)

(6) Terminal 8 and terminal 9 and frame (contacts open)

(7) Terminal 9 and terminal 10 (contacts closed)

(8) Terminal 9 and frame (contacts open)

(9) Terminal 5 and terminal 6 (contacts closed)

(10) Terminal 3 and frame (contacts open)

(11) Terminal 5 and frame (contacts open)

A reading of at least 2 megohm should be obtained in each test.

Note . . .

The values given in these insulation tests apply 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 where the tests are being conducted. In particularly damp climates, the readings will be low enough to give apparently sufficient reason for rejection and in these instances discretion should be exercised.

(A.L.55, Jan. 56)

Resetting interlock mechanism

9. In the event of the main contacts welding as a result of excessive arcing, the interlock mechanism of the unit will operate to prevent further operation. Remedial action should be taken, in accordance with A.P.4343, Vol. 1, Sect. 11, Chap. 18.

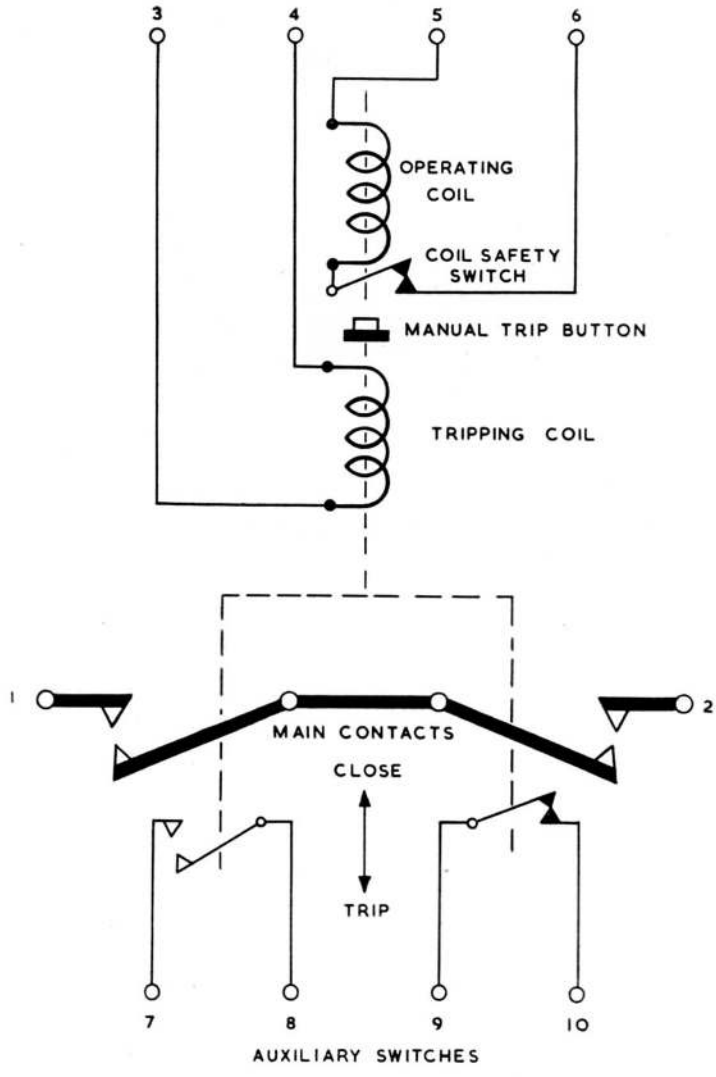

Fig. 3. Diagram of internal connections