Chapter 17

SWITCH, MAGNETIC, TYPE 9A, No. 4 (ROTAX D9104)

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LIST OF ILLUSTRATIONS

LEADING PARTICULARS

Switch, magnetic, Type 9A, No. 4	Stores Ref. 5CW/4388
Voltage, main contacts	... 112 V, d.c.
Voltage, auxiliary contacts	... 28 V, d.c.
Voltage, operating coil	... 28 V, d.c.
Current rating, main contacts	60 amperes
Current rating, auxiliary contacts	... 5 amperes
Rating	... Continuous
Operational ceiling	... 50,000 ft.
Temperature range	+ 50 deg. C to — 70 deg. C
Weight	... 2 lb. 6 oz.

Introduction

1. This unit is included in the series of magnetically operated single pole contactors described in A.P.4343, Vol. 1, Sect. 11, and is designed for the remote switching of circuits whose current ratings do not exceed 60 amperes. It may be energized for any period.

DESCRIPTION

2. This unit is generally similar to others in the D.9100 series (*A.P.4343, Vol. 1, Sect. 11, Chap. 11*) but, in order to permit the operating coil to be continuously energized, an economy resistance (consisting of two 68 ohm resistors in parallel) is connected in series with the operating coil. The resistors are mounted on the outside of the main body between the two auxiliary terminal blocks and are enclosed by a metal cover.

3. One of the pairs of auxiliary contacts in the basic model is replaced by an economy switch which is closed in the normal, i.e., de-energised position, shorting out the economy resistance. The remaining auxiliary contacts are open in the normal position.

Operation

4. When the coil is energised and the main contact arms move to the closed position, the economy switch operating cam lifts a catch lever (which normally latches the economy contacts in their closed position against the pressure of a spring). At the moment when the main contacts are fully closed, the catch lever has lifted sufficiently to allow the economy switch to spring open. The economy resistors are no longer by-passed and, being in series with the operating coil, allow only sufficient hold-on current to pass.

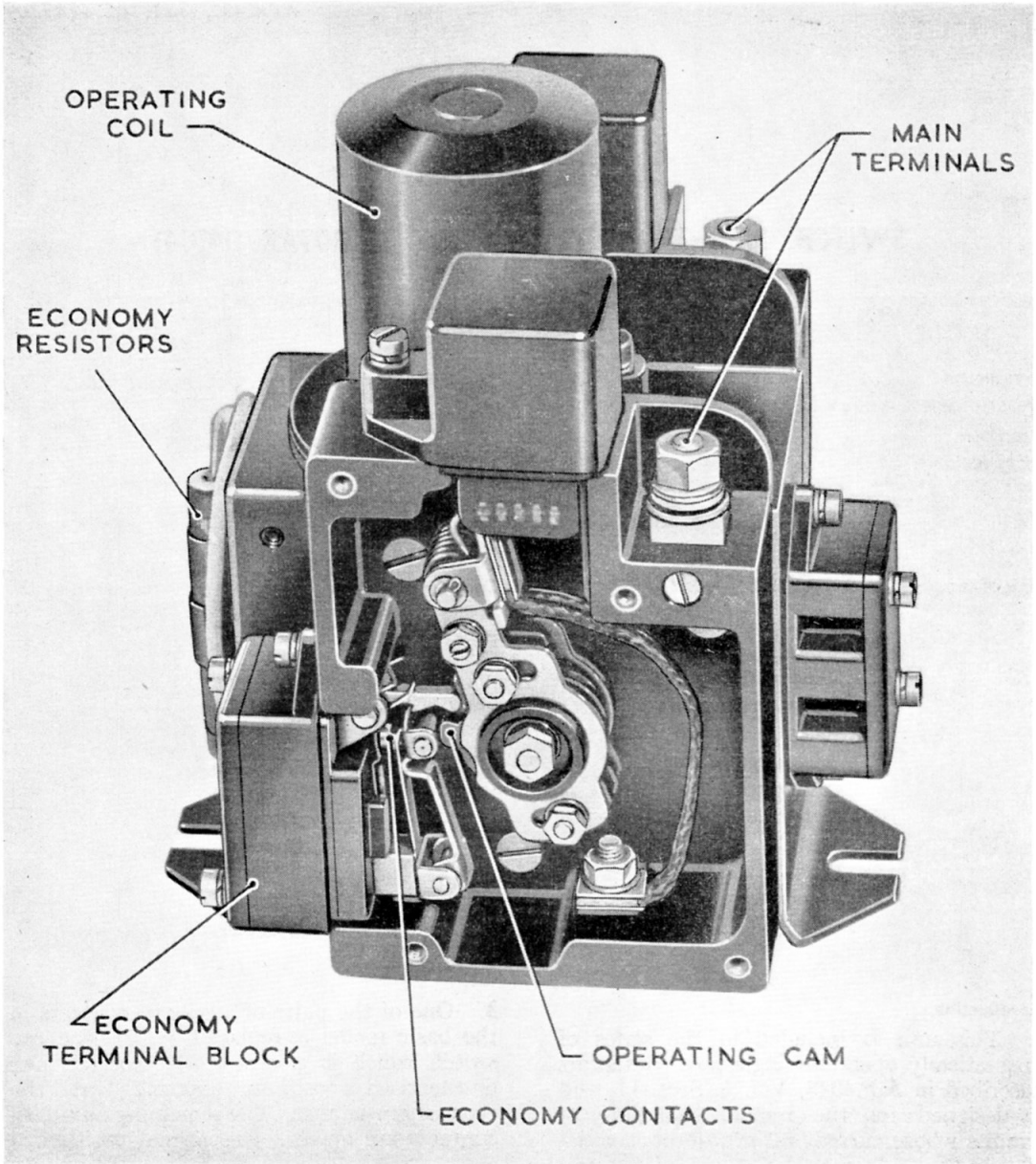

Fig. 1. View of switch (with covers removed)

5. When the coil is de-energised, the economy switch is closed by the cam, and the catch lever returns to its latching position under the action of the small spring.

INSTALLATION

6. For details of installation reference should be made to A.P.4343, Vol. 1, Sect. 11, Chap. 11.

SERVICING

7. The servicing procedure for this unit is the same as that described in A.P.4343, Vol. 1, Sect. 11, Chap. 11, except that the coil resistance test is modified and insulation resistance tests are added.

Resistance of coil

8. The value of 15 ohm $\pm$ 10 per cent is to be obtained by measuring the coil resistance

between the terminals with the economy contacts closed. This resistance must also be measured with the economy contacts open, when a value of 49 ohm $\pm$ 10 per cent (corrected to 20 deg. C.) should be obtained.

Insulation resistance tests

9. Using a 250 volt insulation resistance tester, measure the insulation resistance between the following:

(1) Terminal 1 and terminals 2, 3, 4, C1 and frame (contacts open).

(2) Terminal 1 and terminals 3, C1 and frame (contacts closed).

(3) Terminal 2 and terminals 3, 4, C1 and frame (contacts open).

(4) Terminal 3 and terminals 4, C1 and frame (contacts open).

(5) Terminal 4 and terminal C.1 and frame (contacts open).

(6) Terminal C1 and frame (contacts open).

A reading of not less than 2 megohm must be obtained in each test.

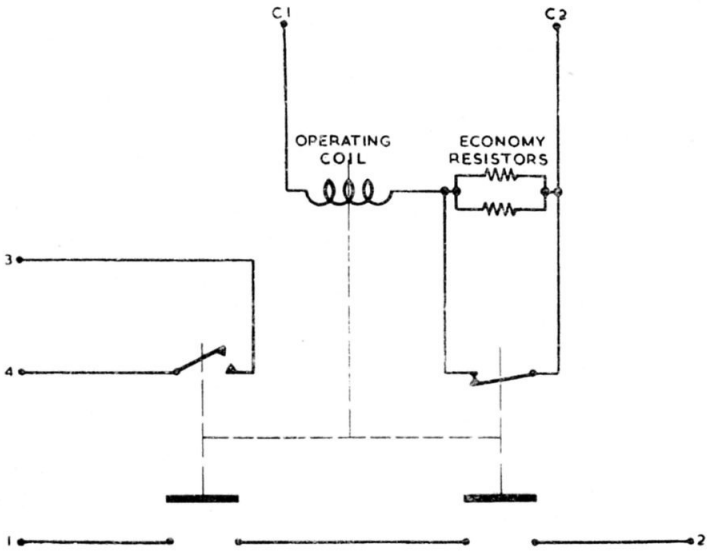

Fig. 2. Diagram of internal connections