Chapter I

MAGNETIC RELAY SWITCH, TYPE J

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LIST OF ILLUSTRATIONS

LEADING PARTICULARS

Type J	Stores Ref. 5CW/1937
Operating voltage	24
Intermittent rating	600 amp.
Coil resistance	6·5 ohms
Dimensions	3 in. × 2·8 in. × 4 in.
Weight	1 lb. 13 oz.
Type J	Stores Ref. 5CW/1936
Operating voltage	12
Coil resistance	1·51 ohms
Other details as 24-volt unit	

Introduction

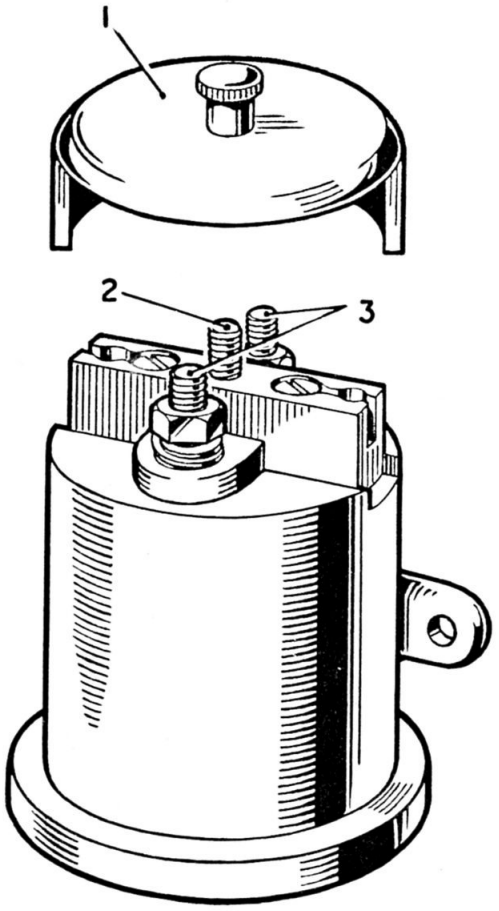
1. The magnetic relay switch, Type J, is suitable for remote control for engine starting and other short-rated heavy duties, and is intermittently rated for currents up to 600 amp.

DESCRIPTION

2. The relay (*fig.* 1) comprises a single-pole, double break switch, operated by an electro-magnet. The closing of a control switch energizes a moving copper contact plate to bridge the two main terminals and energize the load to which the relay is connected. A sectional view is given in fig. 2.

INSTALLATION

3. The control switch can be placed in any convenient position, enabling the relay to be placed in or near the main run of the heavy cables. Due to a heavy drain of current in the main circuit, when the relay contacts close, the voltage across the coil will drop. To minimize this drop in voltage, the coil circuit should be connected to the supply as near to the battery terminals as possible. The relay should be so mounted that the cable entry comes uppermost, as, when in this position, the action of the return spring is assisted by gravity when the relay is de-energized. The relay should not be energized



1 TERMINAL COVER
2 COVER SCREW
3 MAIN TERMINALS

Fig. 1. Magnetic relay switch, Type J

continuously for periods exceeding two minutes since the coil is short rated, and when operated at the rated voltage for two minutes will rise to a temperature of 80 deg. C.

SERVICING

4. The relay normally requires very little attention. The switch contacts and contact plate should be kept clean, and the operation of the unit should be checked.

Testing

Closing voltage

5. With the relay standing on its base, terminals uppermost, the coil voltage should be gradually increased until the relay closes and the closing voltage noted. The relay must close with a snap, and under no circumstances should the armature move slowly or the closing voltage exceed 14 volts (7 volts for the 12-volt unit).

Drop-out voltage

6. With the relay standing on its base, terminals uppermost, the coil voltage is to be gradually decreased until the relay opens; the opening voltage must not exceed 5 volts (2·5 volts for the 12-volt unit).

Contact resistance

7. With the coil energized from a supply of 16 volts (8 volts for the 12-volt unit), and with a current of 100 amp. flowing in the main circuit, the voltage drop across the main terminals must not exceed 50 millivolts.

Insulation resistance

8. The insulation resistance is to be measured between the following points with a standard insulation resistance tester, and should not be less than 20 megohms.

(1) Between one coil terminal and the case.

(2) Between one coil terminal and both main terminals.

(3) Between the main terminals.

(4) Between one main terminal and the case with relay closed.

(5) Between one main terminal and one coil terminal with the relay closed.

9. Before assembly of the coil and magnet pot on the relay, the magnetic air gap should be checked with a feeler gauge; the settings are 0·162 in. with the switch contacts open, and 0·023 to 0·010 in. with the switch contacts closed.

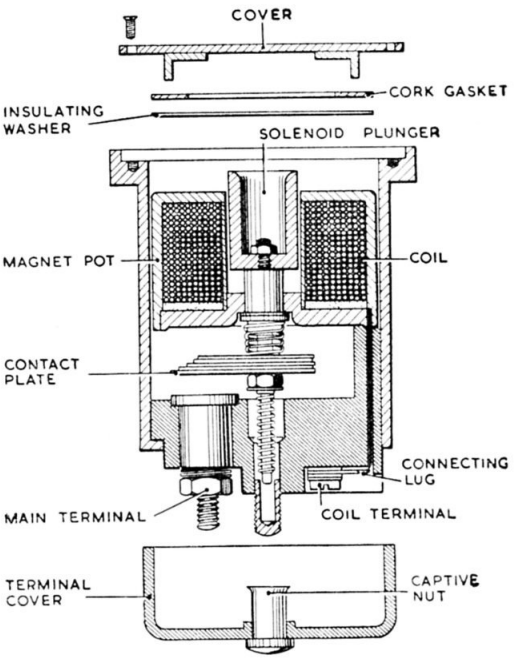


Fig. 2. Sectional view of switch