

## Chapter 53

### SWITCH, MAGNETIC, TYPE 9B, No. 2

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#### LEADING PARTICULARS

<b>Switch, magnetic, Type 9B, No. 2</b>	...	Stores Ref. 5CW/5015
Operating voltage	...	24 d.c.
Continuous rating	...	10 amp.
Overall dimensions	2.75 in. × 2.25 in. × 1.69 in.	
Weight	...	6 oz.

#### Introduction

1. The magnetic switch, Type 9B, No. 2, is a single-pole, make and break switch for use in circuits where the load does not exceed 10 amp. It is generally similar to the Type Q3, which it supersedes, and with which it is physically interchangeable.

#### DESCRIPTION

2. The switch (*fig. 1*) incorporates an electro-magnet operating two pairs of contacts. These contacts, one pair of which is normally closed and the other normally open, are secured to an insulating bar fixed to the armature, as shown in *fig. 2*. When the electro-magnet is energized, the armature is attracted to the core; this opens the closed contacts and closes the open contacts.

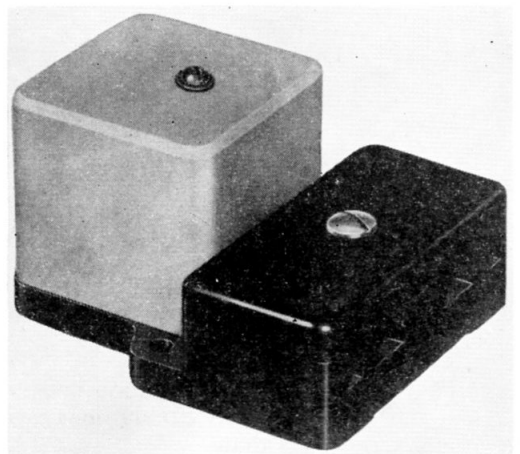


Fig. 1. Magnetic switch, Type 9B, No. 2

(A.L.78, Sep. 56)

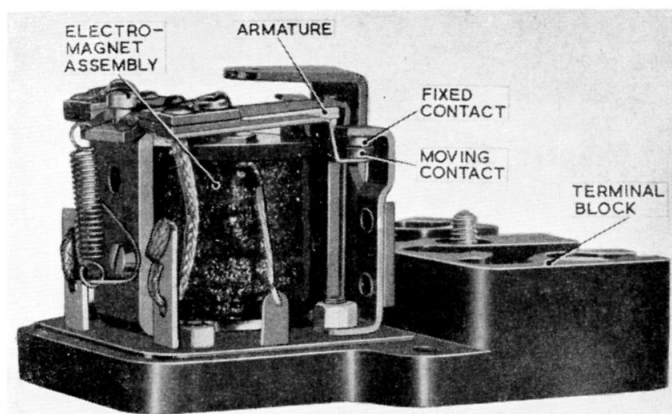


Fig. 2. Switch with covers removed

3. The mechanism is mounted on a base plate of moulded insulating material, with separate covers for the terminals and the electro-magnet assembly. The terminal arrangement is shown in fig. 3, and a circuit diagram in fig. 4.

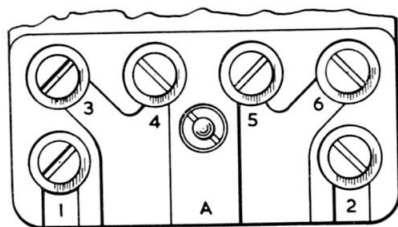


Fig. 3. Terminal arrangement

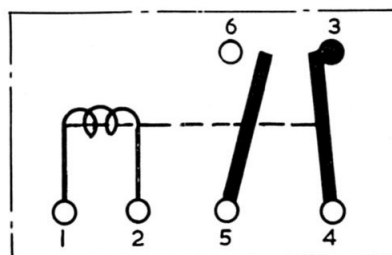


Fig. 4. Circuit diagram

4. The armature in this switch is balanced on a knife-edged pivot, with a spring connecting the armature to a slotted adjustment plate on the U-shaped supporting frame.

#### SERVICING

5. The switch should be inspected at regular intervals to ensure that it is undamaged and that it operates correctly. The contacts should be kept clean, and it should be tested periodically for compliance with the test figures given in para. 6.

#### Testing

6. The following figures are applicable to the magnetic switch, Type 9B, No. 2:—

No.	Test	Value
1	Operating voltage limits at 20 deg. C. $\pm$ 5 deg. C.— Switch should not be closed at ... .. 14 volts Switch should be fully closed at ... .. 17 volts	
2	Drop-out voltage at 20 deg. C. $\pm$ 5 deg. C. to be not less than	3 volts
3	Voltage drop between terminals 3 and 4, or between terminals 5 and 6, with a current of 10 amp., to be not greater than ... ..	150 mV
4	Resistance of coil (cold) between terminals 1 and 2 ...	390 ohms $\pm$ 5 per cent
5	Insulation resistance between coil and frame, and any separated circuits measured at 250 volts d.c. to be not less than ... ..	50 megohms

RESTRICTED

**Weatherproofing**

7. These switches are not supplied fully weatherproofed, but the coil cover is sealed to the base with Bakelite varnish. When it becomes necessary to weatherproof completely, proceed as follows:—

- (1) Fill the terminal block with P.I.C. No. 2 (Stores Ref. 33C/887), and press down well around the terminal screws and into the cable channels.

- (2) Re-fit the terminal cover, and build up more P.I.C. round the cable entry.

8. If the coil cover should be removed for any reason, it must be re-sealed with insulating varnish (Stores Ref. 33B/484), and the cover-securing screw and washer be similarly treated.