Chapter 52

SWITCH, MAGNETIC, TYPE 9B, No. 1

LIST OF CONTENTS

	Para.		Para.
Introduction	1	*Testing*	6
Description	2	*Weatherproofing*	7
Servicing	5		

LIST OF ILLUSTRATIONS

	Fig.		Fig.
Magnetic switch, Type 9B, No. 1	1	*Terminal arrangement*	3
Switch with covers removed	2	*Circuit diagram*	4

LEADING PARTICULARS

Switch, magnetic, Type 9B, No. 1 ...	*Stores Ref. 5CW/5014*
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. 1, is a double-pole, normally-open switch for use in circuits where the load does not exceed 10 amp. It is generally similar to the Type Q1, which it supersedes, and with which it is physically interchangeable.

DESCRIPTION

2. The switch (*fig.* 1) incorporates an electro-magnet operating two pairs of normally-open contacts. As can be seen in fig. 2, the two moving contacts are secured to an insulating bar fixed to the armature; when the electro-magnet is energized, the armature is attracted to the core, and pulls down with it the moving contact arms. This closes the contacts and completes the operating circuit.

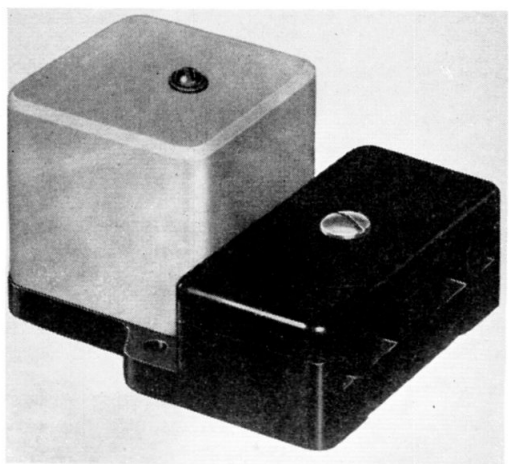

Fig. 1. Magnetic switch, Type 9B, No. 1
(A.L.78, Sep. 56)

RESTRICTED

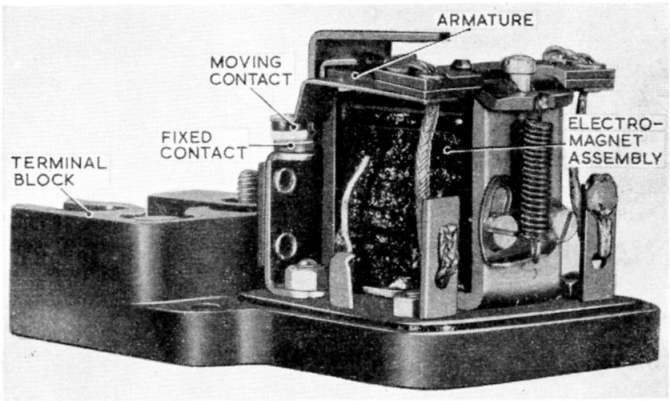

Fig. 2. Switch with covers removed

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.

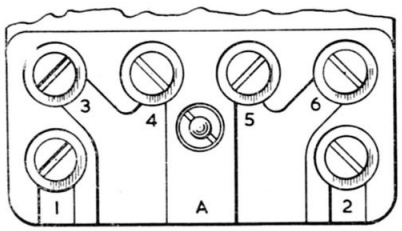

Fig. 3. Terminal arrangement

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.

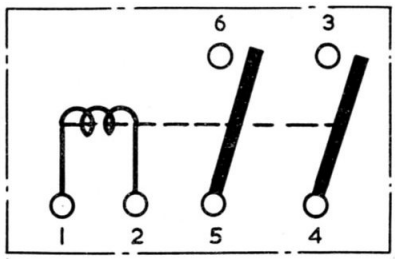

Fig. 4. Circuit diagram

Testing

6. The following figures are applicable to the magnetic switch, Type 9B, No. 1:—

No.	Test	Value
1	Operating voltage limits at 20 deg. C. ± 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. ± 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 ± 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

Weatherproofing

7. These switches are not supplied fully waterproofed, 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.