Chapter 76

MAGNETIC SWITCH, TYPE 15B (B.T.H. LDA400-B3/4)

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LIST OF ILLUSTRATIONS

LEADING PARTICULARS

Magnetic switch, Type 15B	*Stores Ref. 5CW/4840*
Rated voltage (main contacts) ...	*24 volts d.c. (30 volts max.)*
Rated current	*400 amp.*
Rating of auxiliary contacts	*24 volts d.c., 10 amp.*
Voltage drop across contacts at rated current —	
Main contacts	*75 mV (max.)*
Auxiliary contacts	*60 mV (max.)*
Control voltage	*16–29 volts d.c.*
Pull-in current at 24 volts d.c.	*3·5 amp. (approx.)*
Hold-in current at 24 volts d.c.	*0·3 amp. (approx.)*
Weight	*4 lb. 8 oz.*
Dimensions of case	$4\frac{3}{16}$ *in.* × $4\frac{1}{8}$ *in.* × $4\frac{23}{32}$ *in.*

Introduction

1. The magnetic switch, Type 15B (*fig.* 1) is a single-pole, single-throw contactor for the remote control of circuits c rrying up to 400 amp. at a nominal voltage of 24 volts d.c. It incorporates an economy winding to give a reduced holding current.

DESCRIPTION

2. The switch consists essentially of an electro-magnetic relay, with its armature axis in a vertical plane. When the coil is energized by the application of a voltage across terminals 12 and 13 or 14, the armature moves upwards, closing the main contacts (terminals 1 and 2), and operating four sets of auxiliary contacts. Three of these are change-over contacts for external control or indicating purposes, and the fourth are normally-closed contacts which open to bring the economy winding into circuit. Overtravel is allowed for on both main and auxiliary contacts, to compensate for contact wear.

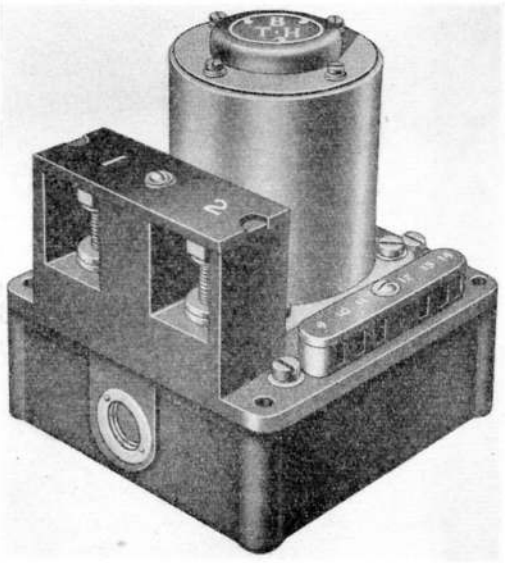

Fig. 1. Magnetic switch, Type 15B
(A.L.96, Feb. 57)

3. A circuit diagram of the switch is given in fig. 2. The main terminals are suitable for use with Pren cable lugs, and the auxiliary and operating terminals for bared Pren leads. Insulation barriers and covers protect the terminals from accidental short-circuit; the terminals are so arranged that the contactor can be installed and connected without the removal of the main cover.

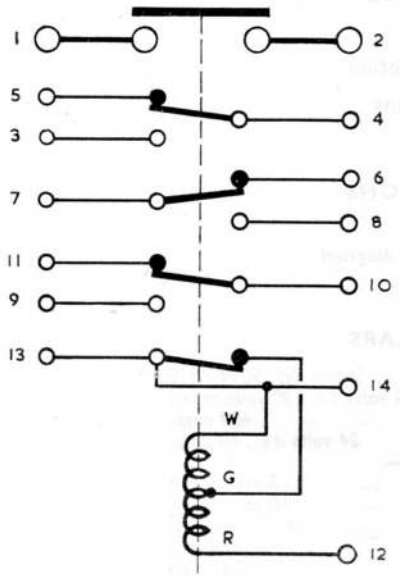

Fig. 2. Circuit diagram

INSTALLATION

4. The switch will operate in any position. It is weatherproof and flameproof, but it is recommended that it be kept away from any position where it would come into contact with excessive moisture of any kind. In positions subject to heavy vibration it should be mounted on rubber, or some other resilient mounting.

5. The terminal connections are as follows:—

1 and 2	Main circuit
3, 4 and 5 6, 7 and 8 9, 10 and 11	External control or indicating circuits
12 and 13 or 14	Closing and tripping circuit

SERVICING

6. Remove the main cover, and wipe off any metallic deposits from the insulated parts adjacent to the main contacts. See that the mouldings are not cracked in any way, and that there are no loose parts or loose terminal connections. The ventilation gauzes in the cover must be clean and unobstructed.

7. Operate the switch by hand and see that the main and auxiliary contacts open and close satisfactorily. There should be at least 0·020 in. overtravel on the main contacts and 0·025 in. on the auxiliary contacts. All contacts should be clean, and not badly pitted.