# Chapter 31

# MANUALLY OPERATED SWITCH, TYPE 2B

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## LIST OF ILLUSTRATIONS



## LEADING PARTICULARS

| | |
|---|---|
| Switch, manually operated, Type 2B ... ... | Stores Ref. 5CW/4403 |
| Coil voltage ... ... ... ... | 28V. d.c. intermittent |
| Normal coil current ... ... ... ... ... | 1 ampere |
| Coil resistance ... ... ... ... ... ... | 22 to 27 ohm. |
| Contact rating ... ... ... ... ... ... ... | 5 amp. |
| Weight ... ... ... ... ... ... ... ... | 10 oz. |

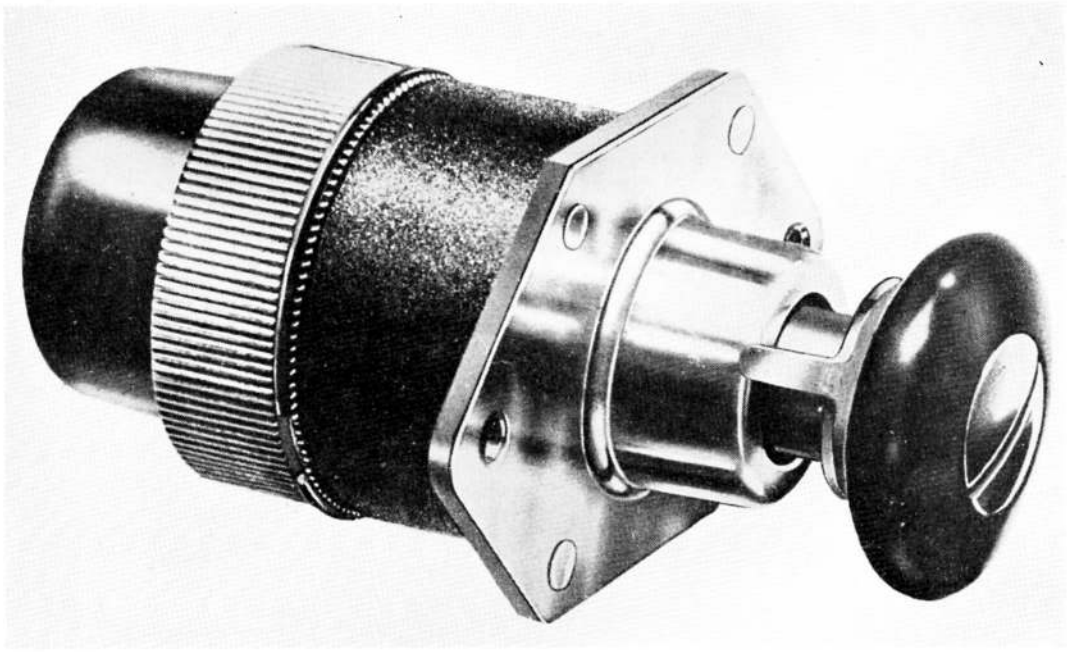

**Fig. 1. Type 2B manually operated switch**

### Introduction

**1.** The Type 2B manually operated solenoid switch is intended for use in aircraft starter circuits. The contacts are "made" by manual operation and are held on by a solenoid energized from an outside source; it will break the circuit only when the solenoid is de-energized or when the current passing through it drops below 0·32 ampere.

## DESCRIPTION

**2.** The switch consists of an aluminium main housing machined integral with a mounting flange, a soft iron bobbin and a coil with a spring loaded plunger passing through the longitudinal axis of the coil. At the end of the plunger is a circular sprung contact plate which, when the plunger is pressed, mates with two contacts carried in a combined contact and terminal block.

**3.** Butting against the terminal block is a terminal cover, held in place by a large circular knurled nut locked by a circlip. Four terminals in the terminal block are marked, "+" and "S1" being the contact terminals and "C" and "C1" being the coil terminals.

### Operation

**4.** The switch is operated by pressing the plunger to make contact between "+" and "S", and initiates the operation by which the switch is interlocked. The external control circuits, when operated, cause the switch to be held in the ON position by applying (by means of relays) a voltage across "C" and "C1" and hence energizing the coil. When the sequence is completed the coil is de-energized again by the control system, and the return spring restores the plunger to the OFF position.

## INSTALLATION

**5.** The switch is mounted behind the panel by two 0·193 in. diameter holes, spaced 2·187 in. at centres. The plunger projects through the panel through a hole of 0·937 in. diameter with a slot 0·218 in. wide cut back 0·593 in. from the centre of the hole to take the locking tongue.

**6.** Electrical connections are made to the four terminals through a grommet in the end of the terminal cover.

## SERVICING

**7.** Servicing of these switches should normally be restricted to a visual inspection of the leads for cleanliness and wear. In addition, where the terminal block is easily accessible, an insulation resistance test should be applied (*para.* 8).

### Insulation resistance test

**8.** The insulation resistance, with the leads to the unit disconnected, should not be less than 2 megohms, measured with a 250 volt insulation resistance tester across the following parts:—

(1) With the switch released.

(*a*) Between the "C" terminal and the frame.

(2) With the switch held closed.

(*a*) Between the "+" terminal and the frame.

(*b*) Between the "+" terminal and the "C" terminal.

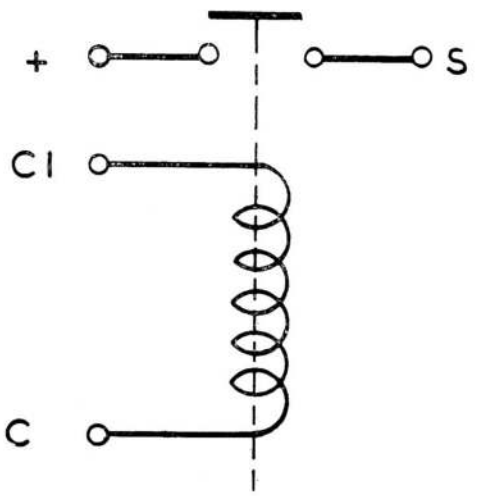


**Fig. 2. Diagram of connections**