

Chapter 89

TIME DELAY SWITCH, VENNER, TYPE TDS/HP/3A

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LEADING PARTICULARS

Time delay switch, Type TDS/HP/3A

Operating voltage ...	16 to 29 volts d.c.
Current consumption ...	2.5 amp. at 28.5 volts d.c.
Coil resistance at 20 deg. C ...	14.6 to 17.8 ohms
Contact rating...	5 amp. at 28.5 volts non-inductive
Overall dimensions—	
Length ...	4.37 in.
Width ...	3.78 in.
Depth ...	2.25 in.
Weight ...	1.25 lb.

Introduction

1. The time delay switch, Type TDS/HP/3A, is used in aircraft fire extinguisher systems. It maintains a supply of current for 3 seconds after the crash switches have operated to ensure the operation of the extinguisher bottles.

DESCRIPTION

2. The switch (*fig. 1*) incorporates two sets of contacts which are operated by cams driven by a clockwork mechanism. A relay coil is fitted, which, when energized, attracts an armature to release the mechanism. The spring actuating the mechanism is reset by

depressing a push-button on the side of the switch.

3. *Fig. 2* illustrates the internal circuit, and shows the position of the cams at the end of the run and with the coil de-energized. The 3-second cam operates a set of change-over contacts, of which only the normally-closed pair (A and B) are used to maintain a supply via terminals 3 and 4 for 3 seconds ± 0.5 seconds. After contacts A and B have opened, the mechanism will continue to run for a further 11 seconds until the 14-second cam opens contacts E and F, thus breaking the supply to the coil.

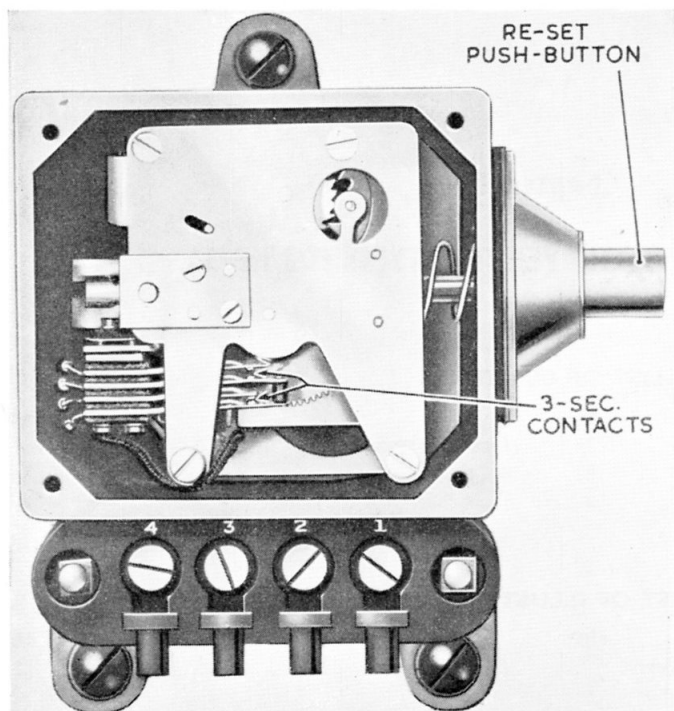


Fig. 1. Time delay switch, Type TDS/HP/3A, with cover removed

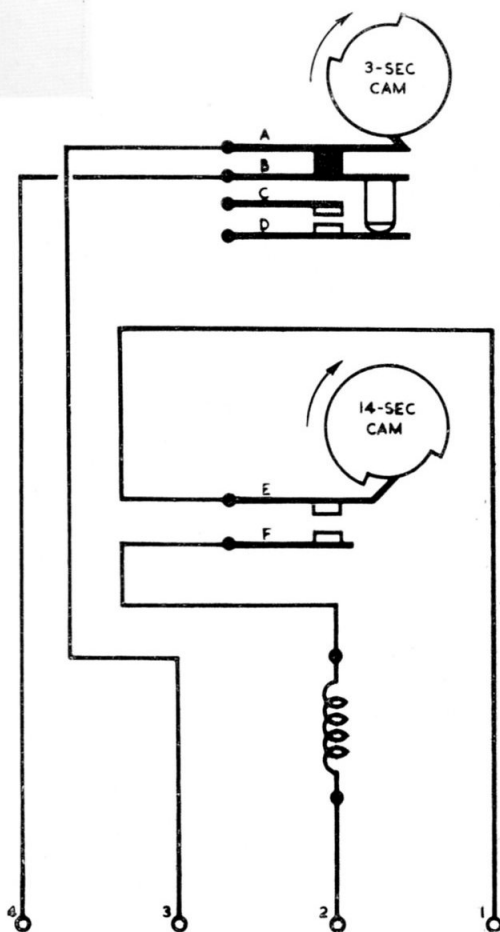


Fig. 2. Circuit diagram

RESTRICTED

SERVICING

4. The switch should be inspected at intervals for freedom from damage, security of attachment and electrical connections, and correct functioning. Check that the switch is reset, by depressing the reset push-button fully. Freedom of movement of the button indicates that the switch is set.

5. It is preferable for switches to be stored in the unwound condition. If a switch has been in storage for some time, the mechanism should be removed from the outer casing and inspected to ensure that the lubricant has not tended to congeal, which would adversely affect the performance of the switch. If such congealing has occurred, the old lubricant should be removed, and the parts be re-lubricated with oil OX-14 (Stores Ref. 34B/9100589).

6. To remove the mechanism from the outer casing, unscrew the top cover, back plate and push-button cover. Note that with the removal of the push-button cover, the

push-button return spring, collar and shims are loose on the shaft and should be removed to prevent loss. Unsolder the leads from the terminals and unscrew the unit fixing screws, which are in the back of the case and secure the unit to the internal lugs.

Functional tests

7. The switch should operate when 16 volts is applied across terminals 1 and 2. Check that contacts A and B open after 3 seconds \pm 0.5 seconds.

Insulation resistance

8. The insulation resistance between the following points should be checked with a 250-volt insulation resistance tester; in each instance the readings should not be less than 20 megohms.

- (1) With switch not set, test between terminals 1 and 2.
- (2) With switch set, test between terminals 3 and 4, also between terminals 1, 3 and 4 to case.