

Chapter 21

TIME SWITCH, TEDDINGTON, TYPE FHM/A/1

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LEADING PARTICULARS

Time switch, Type FHM/A/1	Stores Ref. 5CW/
Voltage	12 to 29 d.c.
Governed speed of motor	6,000 r.p.m.
Reduction gearing	6,000:1
Current consumption at 24 V (nominal)	0.5 amp.
Weight	1 lb. 14 oz. (approx.)
Overall dimensions	4.2 in. × 4.3 in. × 3.6 in.

Introduction

1. The time switch, Type FHM/A/1, is used as a propeller turbine relight switch, and provides an automatically timed sequence for the necessary procedure.

2. The switch is similar to that described in A.P.4343, Vol. 1, Sect. 11, Chap. 19, but is of the non-resetting type, with no clutch, and only one bank of contacts operated by a single cam.

DESCRIPTION

3. The switch (*fig. 1*) is encased within a cast aluminium housing, the cover plate of which provides a base for the mechanism. The cover is secured by four 4 B.A. hex/hd. bolts, and has bolted to one corner of it a 9-pole Breeze plug. A rubber gasket between

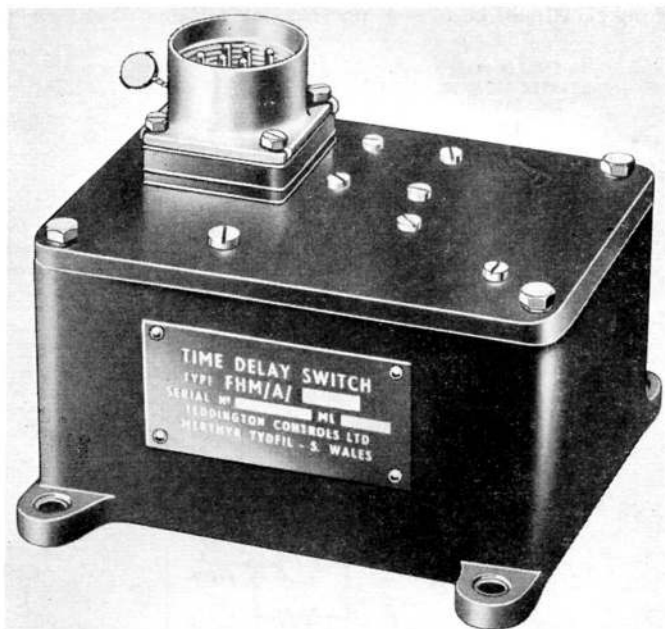


Fig. 1. Time switch, Type FHM/A/1

(A.L.79, Sep. 56)

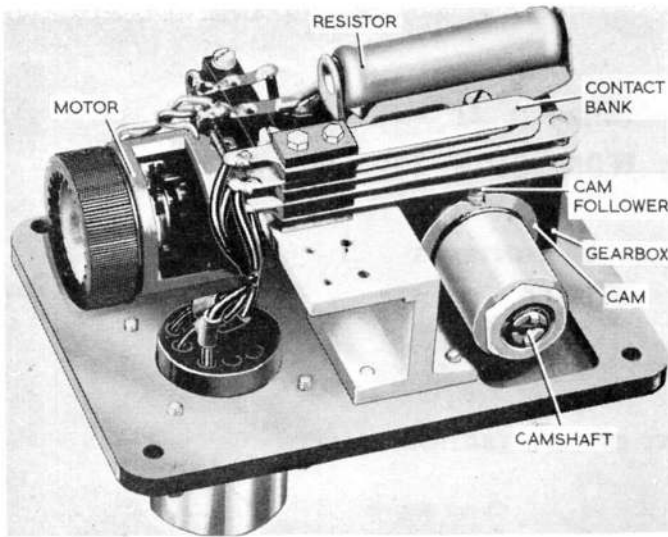


Fig. 2. Internal view of switch

the housing and the plate, together with varnish treatment of the plug, ensure effective sealing of the unit.

4. The mechanism of the switch (*fig. 2*) consists of a governor, series wound electric motor, coupled to reduction gearing, which drives a cam arranged to operate a bank of leaf-spring contacts.

5. Mounted on the top of the gearbox is a bracket which carries a resistor, of either

80 or 90 ohms, which is shunted across the motor governor contacts to prevent undue arcing and heating.

OPERATION

6. A circuit diagram of a typical installation is shown in *fig. 3*. The operating cycle for this switch is 30 seconds.

7. When the relight push-switch is depressed, the motor is energised. After 0.8 seconds, the cam follower on the lower leaf-spring closes contacts 1 and 2 (*fig. 4*). After 1.5 seconds contacts 4 and 5 are closed, which breaks the circuit through pins 1 and 2 and operates the priming pump and torch ignition.

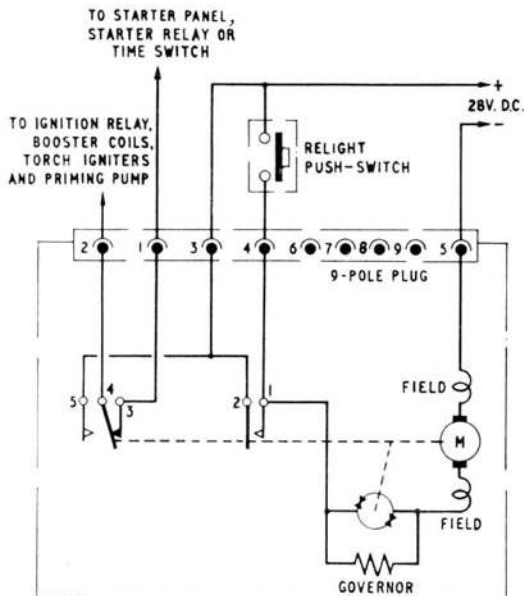
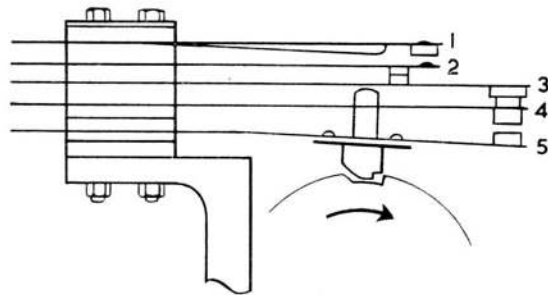
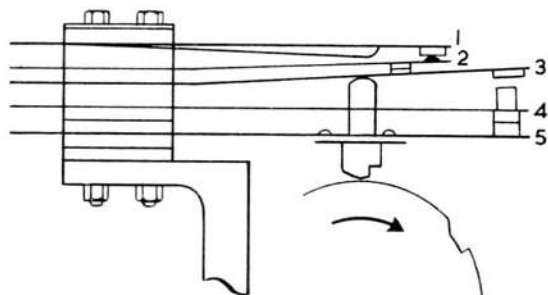


Fig. 3. Circuit diagram



CIRCUIT IN "BREAK" POSITION

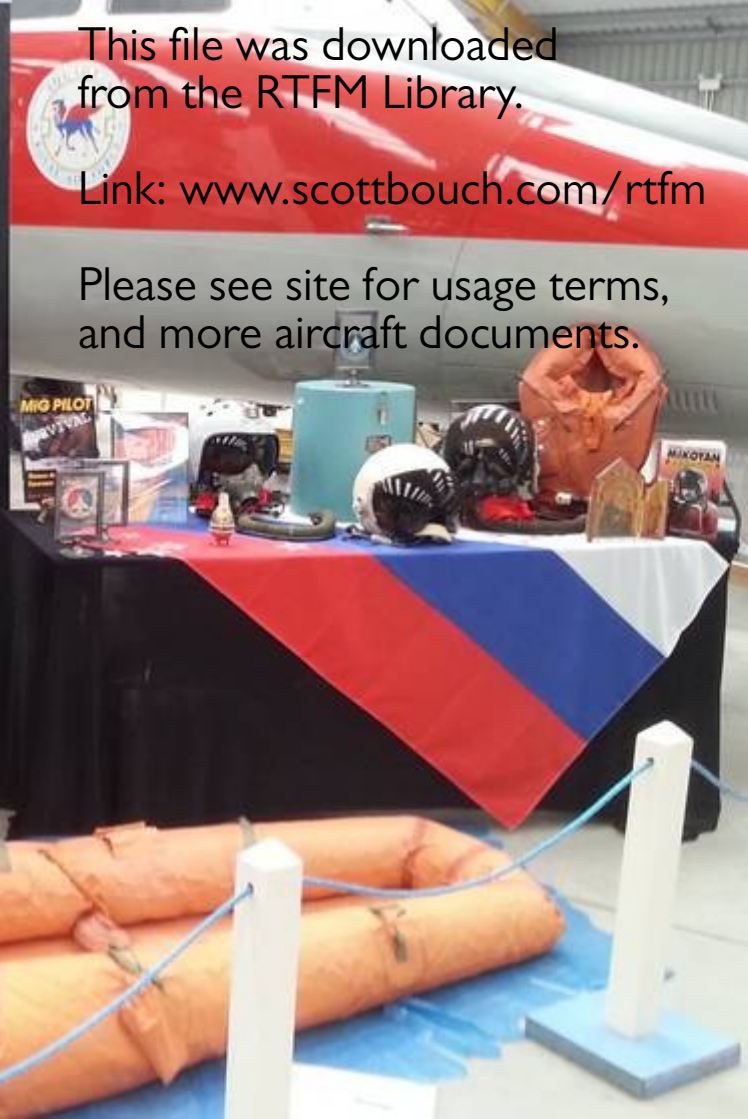


CIRCUIT IN "MADE" POSITION

Fig. 4. Contact operation

8. After 30 seconds, at the end of the cycle, contacts 1 and 2 are opened, thus de-energizing the motor; contacts 4 and 5 are opened to break the circuit to the priming pump and torch igniter, and contacts 4 and 3 are again closed.

9. Should the power supply fail during the operating cycle, the camshaft will remain where it is at the moment of supply failure, and will continue running from this point when the power is restored.



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