Chapter 12

ENGINE PRIMING SWITCH, TYPE C1820Y

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LEADING PARTICULARS

Engine priming switch, Type C1820Y ... Stores Ref. 5CW/4207

Dimensions of mounting panel ... ... $2\frac{3}{8}$ in. × $2\frac{3}{8}$ in.

Weight ... ... 10·7 oz.

Contact rating

Heavy-duty pump contacts ... ... 8 amp.

Signalling contacts ... ... 2 amp.

Filament lamp (2 off)—

Type B, 6V, 0·36-watt, M.E.S. (tubular) Stores Ref. 5L/X.951114

Introduction

1. The Dowty engine priming switch, Type C1820Y, can be used on either two-engined or four-engined aircraft to control two electrically driven priming pumps, so that the pumps may be started and each engine primed in turn. A separate lamp signal, for port and starboard, is given as each priming line becomes charged. The switch is contained in a miniature S.A.E. case, and is fully weatherproof.

DESCRIPTION

2. A general view of the switch is shown in fig. 1. The dial shown is that for use on four-

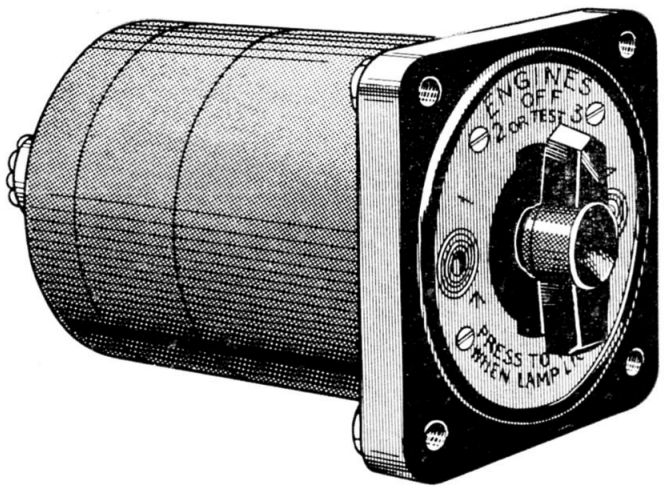

Fig. 1. Engine priming switch, Type C1820Y

(A.L.5, Dec. 54)

engined aircraft; when required for use on twin-engined aircraft, the dial may be reversed by unscrewing the four screws on the front of the instrument. In the centre of the dial is a combined turn knob and push-button arrangement, and at the sides two indicating lamps, one for port and one for starboard indication. A detent action both for turning and pushing gives positive operation so that there can be no doubt that the correct position has been reached.

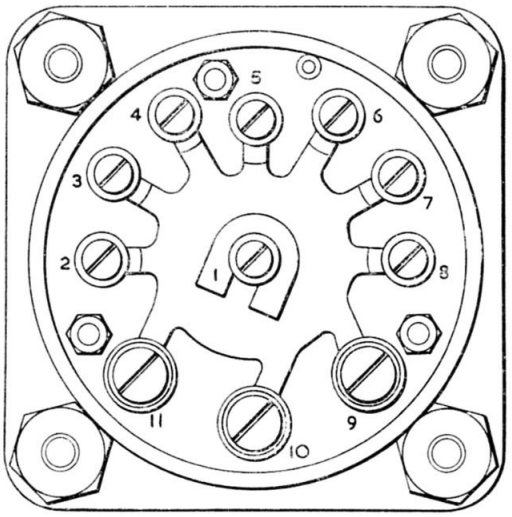

Fig. 2. Terminal arrangement

3. At the other end of the switch is the terminal block, shown in fig. 2, and accessible by removing the terminal cover. There are three heavy-duty contacts rated at 8 amp. which control the pump motors, and the remaining signalling contacts are rated at 2 amp. The electrical connections to the switch are taken through a rubber grommet with individual nipples; on installation, the required nipples are sheared off to allow the cables to pass through, and the grommet may be pushed inside out for access to the leads.

4. There is accommodation for two 6-volt, 0·36-watt tubular filament lamps in the switch, but these are not supplied with the unit. With the dial removed, each lamp is pushed into a recess in the casing, where the tip of the lamp makes contact with a spring-loaded plunger, and side contact is made by leaf-springs. The lamps are held in position by the windows on the dial, but are pushed out by the plungers when the dial is removed.

Operation

5. The switch is first turned to position 1, causing a heavy-duty contact to close and start the port priming pump. A pressure switch in the port priming line operates when the pressure has reached the appropriate value, causing the port signal lamp at the engine priming switch to light. The button is then pressed, operating a solenoid valve, to prime the engine.

Note . . .

On no account must the knob be turned whilst it is depressed.

6. The switch is then turned to position 2 and again pressed, thus priming engine No. 2. The process is repeated for engines 3 and 4 (positions 3 and 4), the starboard priming pump being started, and the starboard lamp signal being received at the indicator. The OFF position is used for testing the lamps, and when the button is pressed, both lamps should light.

SERVICING

7. Little servicing is possible on this switch. The following paragraphs give test details, and a switch which is faulty should be returned to Stores.

Testing

8. With the switch in the OFF position, with the lamps removed, and with no pressure on the knob, the resistance between any pair of terminals should be not less than 20 megohms when measured on a standard insulation resistance tester.

9. With the lamps removed, and the switch in the positions indicated in Table 1, and the knob depressed where necessary, the millivolt drop between contacts, measured on the terminal screw heads (with the screws tightened down) should be not more than 25 mV at 1 amp. between terminal 1 and terminal 2, 3, 4, 6, 7 or 8, and not more than 25 mV at 5 amp. between terminals 10 and 9 or 11.

10. With the switch in the various positions shown in Table 1, the circuit should be made between the terminals indicated.

11. With two 6-volt lamps fitted in the switch and a 6-volt supply across terminals 1 and 5, the lamps should light simultaneously when the knob is depressed with the switch in the OFF position.

TABLE 1

Sequence for switch testing

Switch position	Knob position	Circuit between terminals
Off	Up	None
Off	Down	1 to 2, 1 to 8
No. 1 engine	Up	10 to 11
No. 1 engine	Down	10 to 11, 1 to 7
No. 2 engine	Up	10 to 11
No. 2 engine	Down	10 to 11, 1 to 6
No. 3 engine	Up	10 to 9
No. 3 engine	Down	10 to 9, 1 to 4
No. 4 engine	Up	10 to 9
No. 4 engine	Down	10 to 9, 1 to 3