Chapter 16

IGNITION SWITCH, CK 11765

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LIST OF ILLUSTRATIONS

LEADING PARTICULARS

Operating voltage (25 d.c. nominal)	18–29 volts d.c.
Operating pressure	40–45 lb. per sq. in. closing
For use with:—	Turbo-starters L.T.S.A. 70 and 150

Introduction

1. This is an electro-mechanical device used in Plessey type liquid fuel turbo-starters and this chapter covers the electrical aspects. The mechanical parts and the operational sequence of the system, in which it is installed, are given respectively in Sect. 3, Chap. 1 and Sect. 1, Chap. 3 of A.P.1181B, Vol. 1 and Vol. 6, Part 1.

DESCRIPTION

2. The essential electrical part of this ignition switch is the change-over micro switch which is operated by the upper end of a spring-loaded actuating rod. The base of this rod seats on a diaphragm, which is composed of rubber and terylene layers, and presses it into the fuel line chamber at the base of the ignition switch. The pressure at which the switch will operate is governed by the adjusting ring, which is secured by the locking shim.

3. Electrical connections to the micro switch are made by a Plessey three-pin plug which is bolted to the sealing cap by the switch holder studs.

OPERATION

4. As the fuel flows through the fuel line to the atomizer head on the combustion chamber it exerts a pressure on the diaphragm and eventually overcomes the loading of the spring. This allows the actuating rod to be pressed upwards against the plunger of the micro switch and actuates the spring of the central blade to bring the lower contact against the lower pad of the micro switch. The slugged relay is thus de-energized and the ignition circuit is brought into operation.

INSTALLATION

5. Detailed instructions for installing the complete starter system are given in A.P. 4481, Vol. 1.

SERVICING

6. In the event of the ignition switch proving faulty it must be returned to a Base Repair Unit.

Inspection

7. Inspect the housing for traces of fuel or moisture, and if there are signs of either the switch should be returned for overhaul.

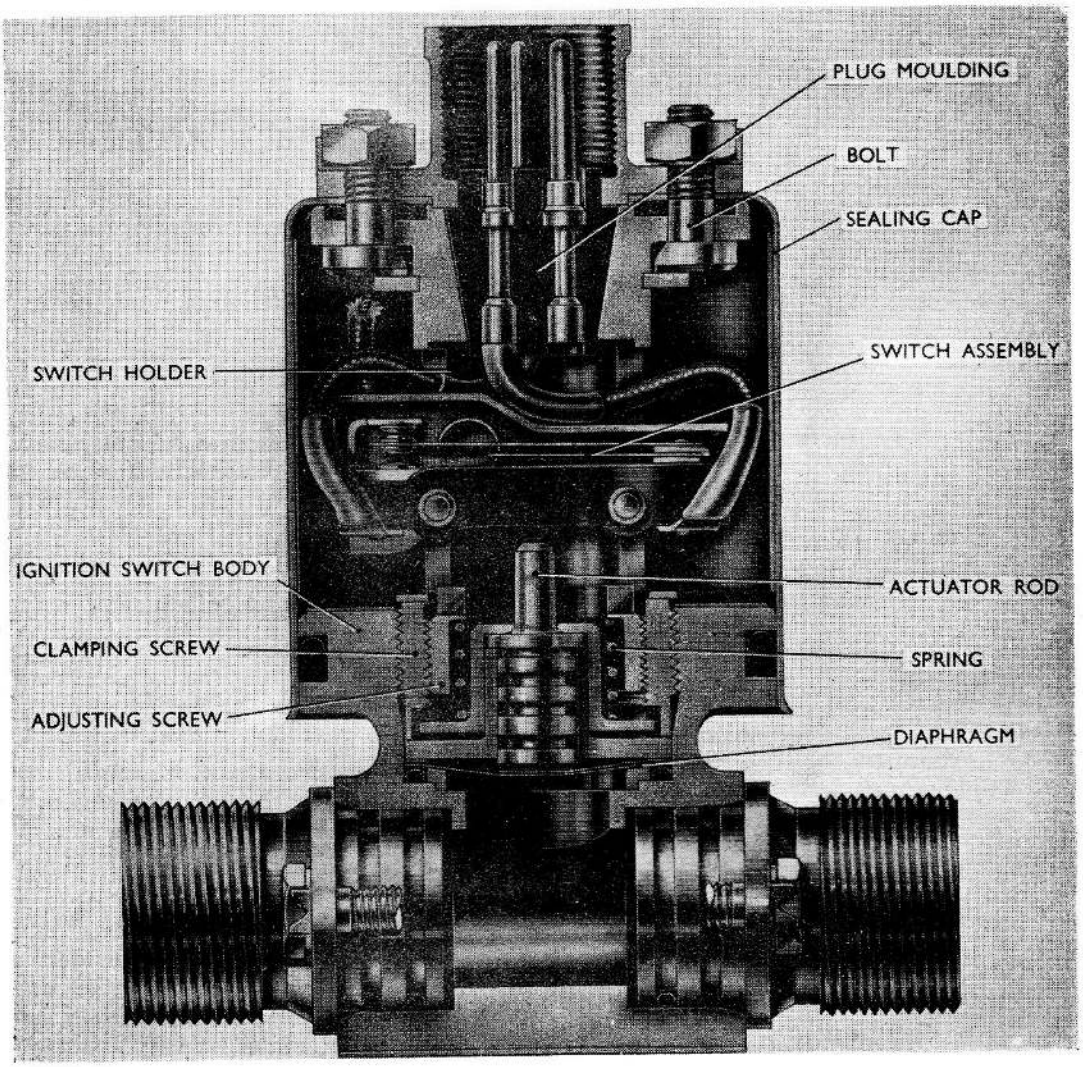

Fig. 1. Sectional view of ignition switch

8. Inspect the plug for burned or damaged pins and for cracked or damaged inserts. Inspect the wiring for bad joints, worn or damaged insulation, etc.

Testing

9. Test the switch by disconnecting the fuel unions and coupling up a test rig, capable of a pressure of 100 lb. per sq. in., to the two ports of the switch. Test the continuity from the plug connector 'A' to the connector 'B'

10. Slowly increase the pressure to between 40 and 45 lb. per sq. in., at which pressure the micro switch should operate. If the switch functions correctly, test the continuity from the pin 'A' to pin 'C'. If the micro switch will only operate at a higher or lower pressure then it must be returned for adjustment.

Insulation resistance test

11. Using a 250-volt insulation resistance tester, measure the resistance between pins 'A' and 'C' on the plug and between each pin and the body of the switch. Repeat this test, with the micro switch operated, between pins 'A' and 'B'. In each case the resistance must not be less than 2 megohms. After installation in an aircraft for operational service the insulation resistance must not be less than 50,000 ohms.

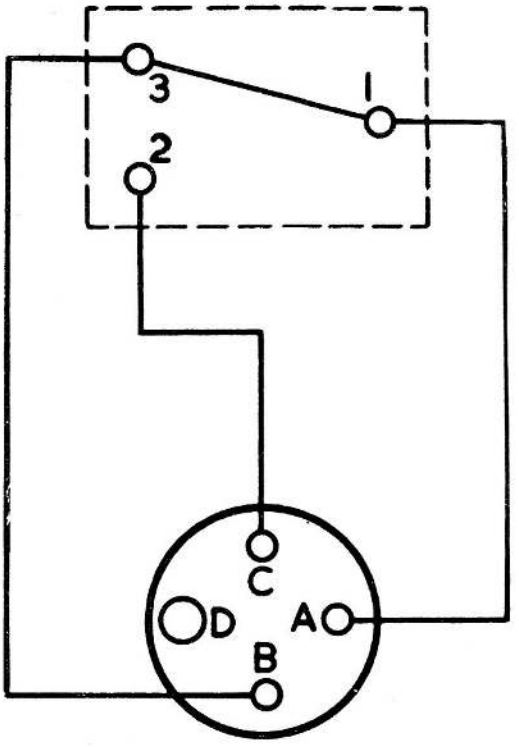

Fig. 2. Circuit diagram