

Chapter II

VALVE OPERATING SOLENOID, TYPE D.7203 AND D.7204

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Introduction

1. The function of the solenoid described in this chapter is to operate a valve forming part of an aircraft fuel system. By this means, electrical control of the fuel system is obtained. The solenoid is continuously rated at 28 volts.

2. Solenoids, Type D.7203 and Type D.7204, differ only in the direction of the terminal plug. When viewed from the end cap, the plug points in an anti-clockwise direction for Type D.7203, and in a clockwise direction for Type D.7204 (this type being illustrated in Fig. 1).



Fig. 1. General view of solenoid

DESCRIPTION

3. The construction of the solenoid is shown in fig. 2. The plunger or armature is free to slide in a sleeve which surrounds both the plunger and the spigot of the end frame. The base of the end frame is flanged to allow the solenoid assembly to be bolted to a fuel valve, and its spigot is drilled to serve as a guide for the phosphor-bronze plunger pin, which later operates the valve mechanism. The outer end of the plunger pin has a shoulder to limit its travel, while the inner end protrudes slightly beyond the face of the end frame spigot.

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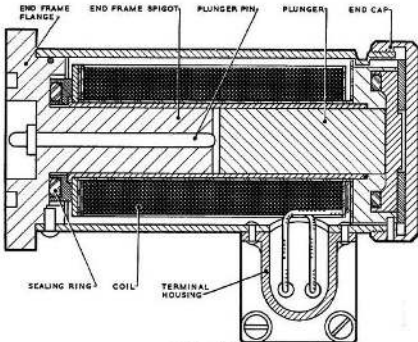


Fig. 2. Sectional view

4. The operating coil surrounds the sleeve, and the whole assembly is encased by an outer tube, riveted to the end frame at one end, and threaded at the other end to take a knurled end cap. Sealing rings at each end of the sleeve prevent leakage of lubricant from the interior of the assembly. Pressure on these sealing rings is applied by screwing up the end cap, which is secured by a pin.

5. When the coil is energized, the plunger is attracted towards the end frame spigot, and so operates the fuel valve via the plunger pin. On de-energizing the coil, the spring loaded spindle of the fuel valve presses on the plunger pin, which moves the plunger back to its unoperated position.

SERVICING

6. The pressure on the sealing rings is adjusted during manufacture and the coil leads are sealed in position to prevent ingress

of moisture. No dismantling is therefore permissible, and servicing is restricted to ensuring that correct operation of the fuel valve is obtained under working conditions, and that the solenoid is physically undamaged. If the solenoid is faulty, it must be renewed.

NOTE . . .

If the solenoid has been unbolled from the fuel valve for any reason, care must be taken that the plunger pin does not fall out during handling. Ensure that a plunger pin is always put back into its own solenoid, and that it is clean and undamaged. Check that the plunger pin moves freely in its guide.

7. Measure the insulation resistance between one lead terminal and the frame, using a standard 250-volt insulation resistance tester (Stores Ref. 5G/152). Ensure that the insulation resistance is not less than 10 megohms.

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