

Chapter 2

SECONDARY LOW-PRESSURE GOVERNORS, TYPE SLPG. SERIES

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Introduction

1. The secondary low pressure governor comprises a solenoid operated servo isolating valve, an overspeed control and an amplifier valve housed in one unit. The solenoid isolating valve is not included on early types of unit, but it is installed separately in the pump servo pressure line of the fuel system.

2. The installation details and calibration of the unit, which may vary according to different engine requirements, are denoted by suffix letters and numbers.

3. The unit controls the maximum speed of the engines low-speed turbine shaft and is of a static nature employing pressure variations applied to a spring loaded diaphragm and a half-ball type amplifier valve.

Description

4. The main cylindrical section of the body houses the overspeed control and the amplifier valve. The overspeed control consists of a diaphragm interposed between the housing sections, with a cover which houses a forked member carrying a spring attached at its other end to a similar forked member in the diaphragm centre. Adjustment to the spring-

loading of the diaphragm is provided by an adjusting screw in the top of the cover. The centre of the lower face of the diaphragm is provided with a hardened steel tappet screw which contacts the end of the amplifier valve rocker lever.

5. The amplifier valve is situated in the base of the housing and consists of a spring-loaded rocker lever, one end of which contacts the diaphragm tappet screw of the overspeed control assembly whilst the other end is fitted with a half-ball valve which seats on an orifice.

6. The solenoid operated isolating valve is mounted on the base of the main housing alongside the governor assembly. It consists of a cylindrical metal case, housing a winding which is completely sealed and connected to a two pin electrical plug mounted on the side of the case. A coil tube passing through the centre of the winding houses a plunger, the operating end of which is recessed to take a half-ball plate valve and seating. The plunger is spring-loaded and closes the half-ball valve against the face of an orifice which is mounted in a housing in the base of the unit.

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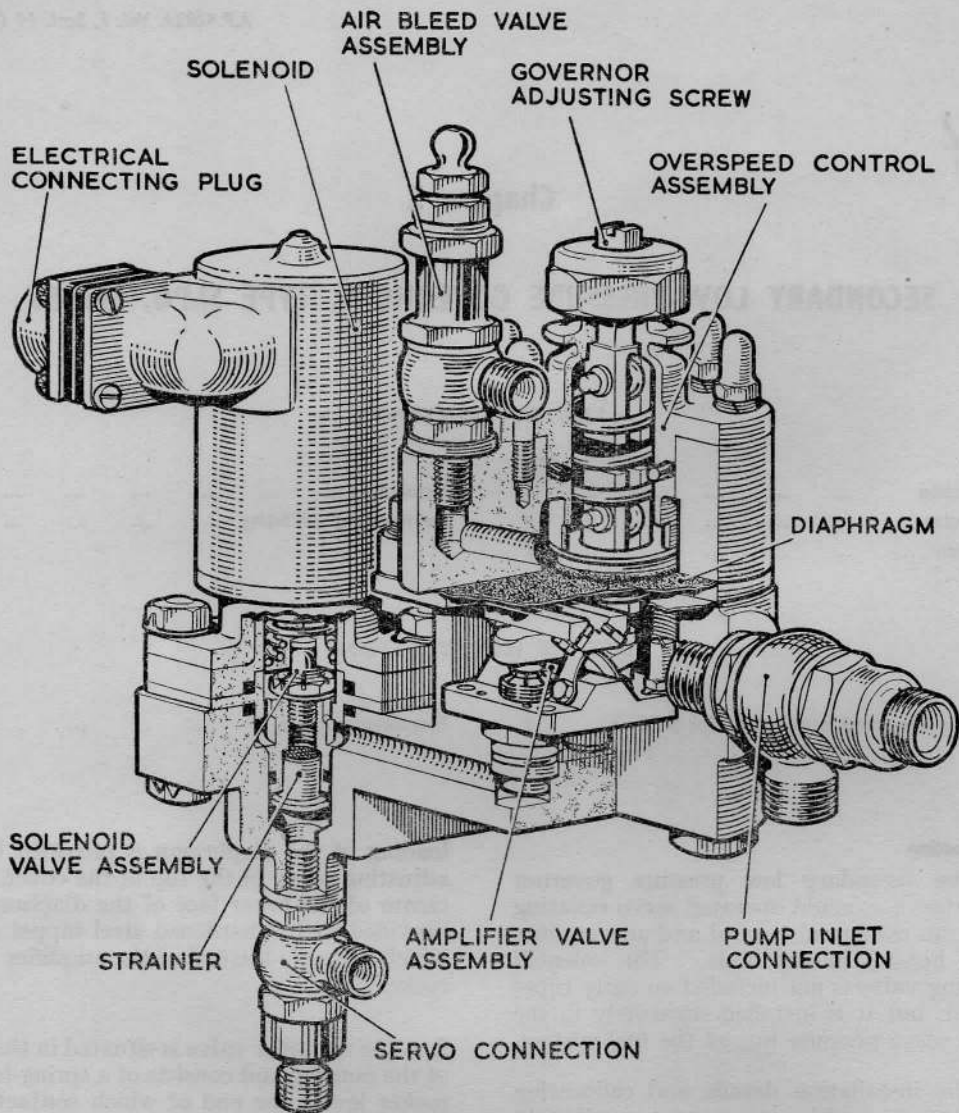


Fig. 1. Secondary low-pressure governor, type SLPG. 3

Operation

7. The servo isolating valve remains closed until the solenoid is operated, the valve then opens and establishes communication between the amplifier valve orifice and the underside of the fuel pump servo control piston.

8. Fuel at centrifugal pressure is fed to the upper side of the diaphragm on the overspeed control assembly. At a predetermined speed the centrifugal pressure from the rotor in the pump acts on the upperside of the diaphragm.

This moves the rocker lever, opens the half-ball valve and allows fuel at pump servo pressure to bleed through the orifice thereby unbalancing the pump servo piston and reducing the fuel pump delivery.

9. Any variation in pressure caused by throttle movement is transmitted to the diaphragm. This varies the bleed from the half-ball valve orifice and the resultant change in servo pressure adjusts the fuel pump stroke to restore equilibrium at the required flow.

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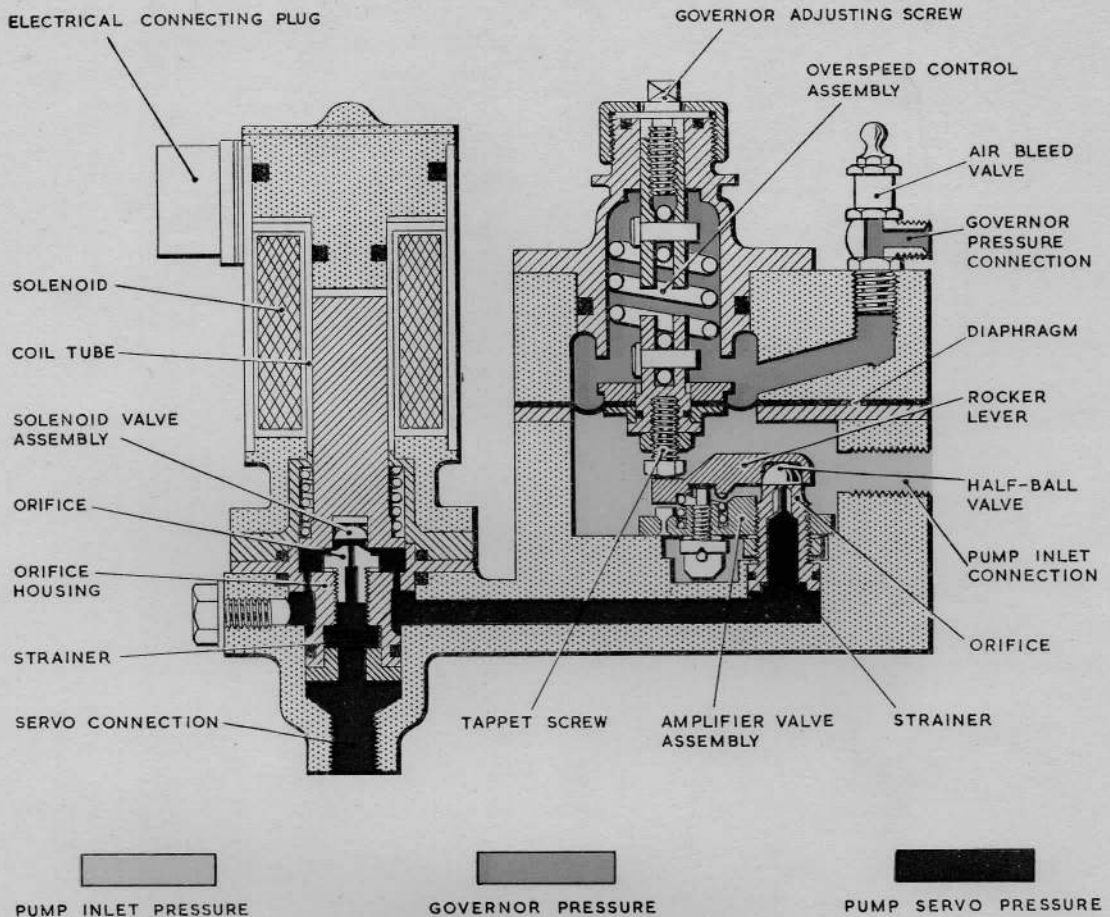


Fig. 2. Functional diagram

Installation

10. Part of the main casting is designed as a rectangular bracket for mounting the unit to the engine. Location is by the large central hole in the bracket which is then secured by bolts through the four smaller holes. Connections are made to pump servo and to pump inlet fuel lines through banjo unions screwed into the base of the unit. An alternative connection to pump inlet is blanked off on the underside of the base of the unit. Governor pressure is applied to the upperside of the diaphragm through a banjo connection which is also fitted with a bleed

valve for priming the upper chamber of the overspeed control. Electrical connections are made to the electrical connecting plug situated on the side of the solenoid case.

Servicing and inhibiting

11. Apart from checking for leakage, no servicing is required.

12. The unit must be inhibited with oil OM-11 and dust caps fitted to all union connections. The electrical connection must also be sealed either by means of a plug or by covering with insulation tape.

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