Chapter 1

FLOW DISTRIBUTOR, Type FD.12 Series

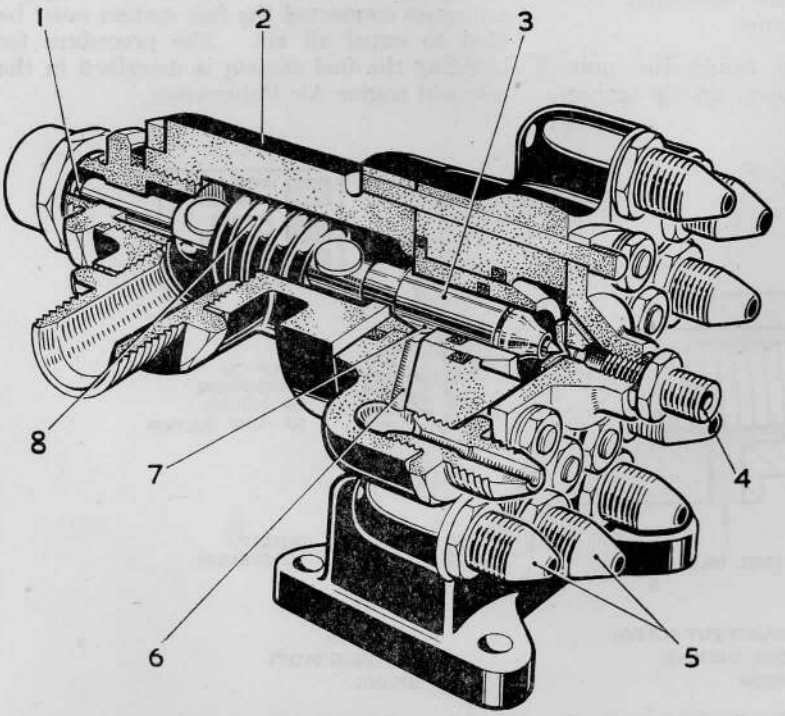
LIST OF CONTENTS

LIST OF ILLUSTRATIONS

Introduction

1. The flow distributor is designed to meter the fuel evenly to individual burners on any engine employing multiple burners and can be used advantageously with any type of burner. It functions essentially as a flow equaliser on "Duplex 2" and Simplex type burners, the effects of manifold head on Simplex type burners being overcome by the fact that each burner is connected directly to the unit. With "Duplex 1" type burners the unit operates as a splitter or pressurizing valve and corrects recovery pressure variations as all main flow passages are separate, the primary flow being tapped off the inlet supply.

2. On systems employing fuel/air ratio controls it can be arranged to produce a flow to any burner which is very nearly proportional to pressure.



1 ADJUSTMENT SCREW
2 BODY CASTING
3 PISTON
4 RETURN TO PUMP SUCTION OR DUMP TO ATMOSPHERE
5 BURNER CONNECTIONS
6 DRILLINGS
7 METERING SLOTS
8 SPRING

Fig. 1. Cut-away sectioned view of flow distributor

DESCRIPTION

General

3. The flow distributor (*fig.* 1) consists essentially of a spring loaded piston (3) which operates in a closely fitting cylinder in the body casting (2). Accurately shaped metering slots (7) in the base of the cylinder terminate in drillings (6) in the walls of the cylinder. These drillings radiate to their appropriate burner connections (5) spaced around the unit.

4. The loading of the piston spring (8) may be altered by means of the adjustment screw (1) while an outlet (4) above the piston may be connected either to pump inlet or to atmospheric dump.

OPERATION

5. With the engine stationary the piston is at the bottom of its stroke and the metering slots are completely blanked off (*fig.* 2). When the engine is started fuel is fed into the flow distributor body casting and when the pressure is built up to a sufficient pressure (of the order of 100 lb. per sq. in.) the piston moves to uncover the metering slots, thereby allowing fuel to be passed to each individual burner via the radial drillings.

6. At low flows the pressure drop across these metering slots is sufficient to overcome all other effects thus equalising the flow to each individual burner.

7. As the fuel pressure inside the unit increases the piston will move, against spring pressure, further up the cylinder until the slots become fully uncovered. The pressure drop across the slots will thus be less and equalisation of flow will depend upon the accuracy with which burner sets are matched.

INSTALLATION

8. The unit is bolted through its mounting flange on to the port side of the engine forming a junction between the main fuel delivery pipe from the control box via the high pressure filter and the individual pipes leading to the burners. For complete installation details refer to the relevant engine Air Publication.

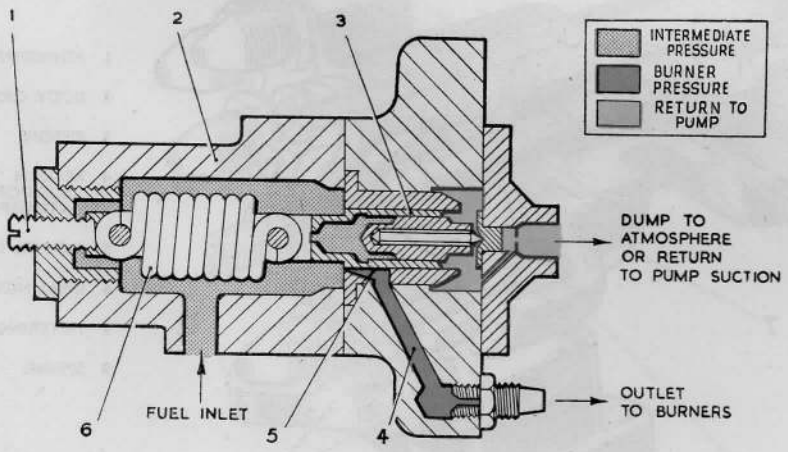
INHIBITING AND PACKING

9. Thoroughly flush the unit by injecting oil (Specification DTD.587) into the inlet connection. Fit dust caps to all connections and pack in a suitable container.

SERVICING

10. Once the unit is installed on the engine, no servicing is normally necessary except for regular inspection of the pipes and connections for signs of leakage. No leakage is permissible.

11. In the event of leakage, disconnection of the pipes will be necessary for tracing and rectifying, and at all times when the pipes are again connected the fuel system must be bled to expel all air. The procedure for bleeding the fuel system is described in the relevant engine Air Publication.



1 ADJUSTMENT SCREW
2 BODY CASTING
3 PISTON
4 DRILLINGS
5 METERING SLOTS
6 SPRING

Fig. 2. Schematic diagram of flow distributor

P18996 M31992/G835 8/51 950 C & P Gp. 1