

Chapter 3

COMBINED CONTROL UNITS, TYPE CCU.19, 38 AND 42 SERIES

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Description and operation

1. The CCU.19, 38 and 42 series units are similar to the CCU.11 and 20 series, described in Chap. 2, but include the following components:—

- (1) Solenoid operated starting valve
 - (2) Throttle by-pass idling trimmer
 - (3) Electric pressure control
2. As the CCU.19, 38 and 42 are alike except for the throttle quadrant stops and the types of solenoid fitted, these changes being made to suit the particular installation requirements, it is only necessary to describe the above additional components.

3. A solenoid-operated valve for starting purposes is provided and although this is combined with the control unit it operates independently. When the solenoid is energized automatically during the starting cycle it assists a plunger, against its spring loading, to open a half-ball valve and allows fuel from a separate starting pump (if fitted) to pass to the starting atomizers in the combustion chambers. At the same time a small flow of fuel is passed from the starting pump through a drilling into the control unit main flow line to prime the burners. When the engine starts, the solenoid is de-energized, the valve closes and the fuel supply to the starting atomizers is cut off.

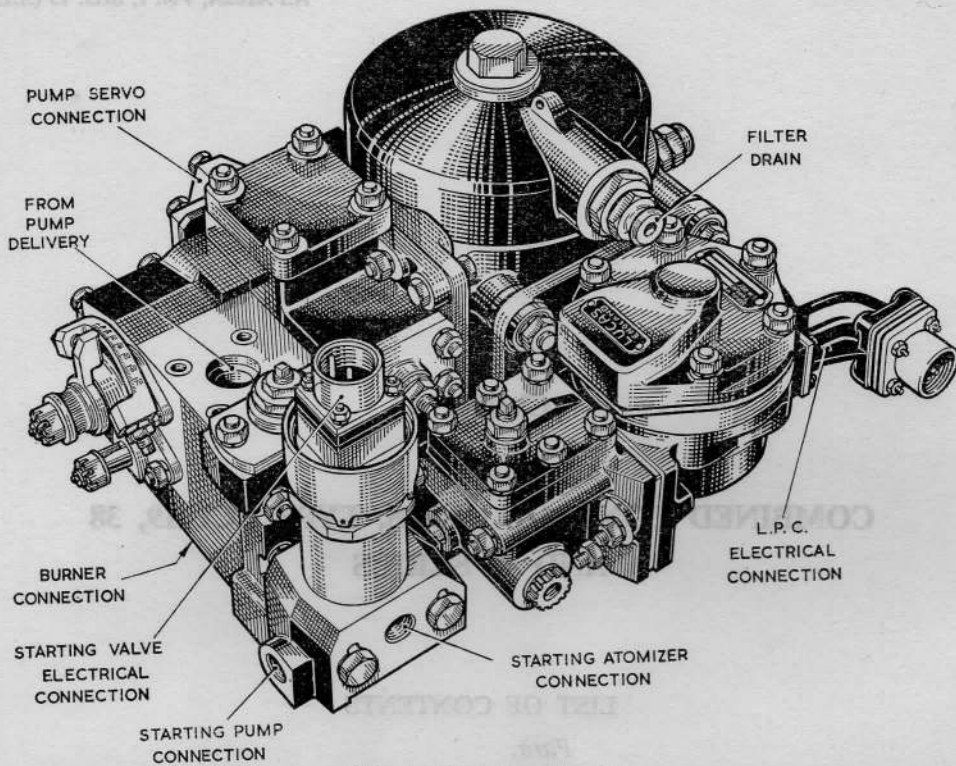


Fig. 1. Exterior of unit

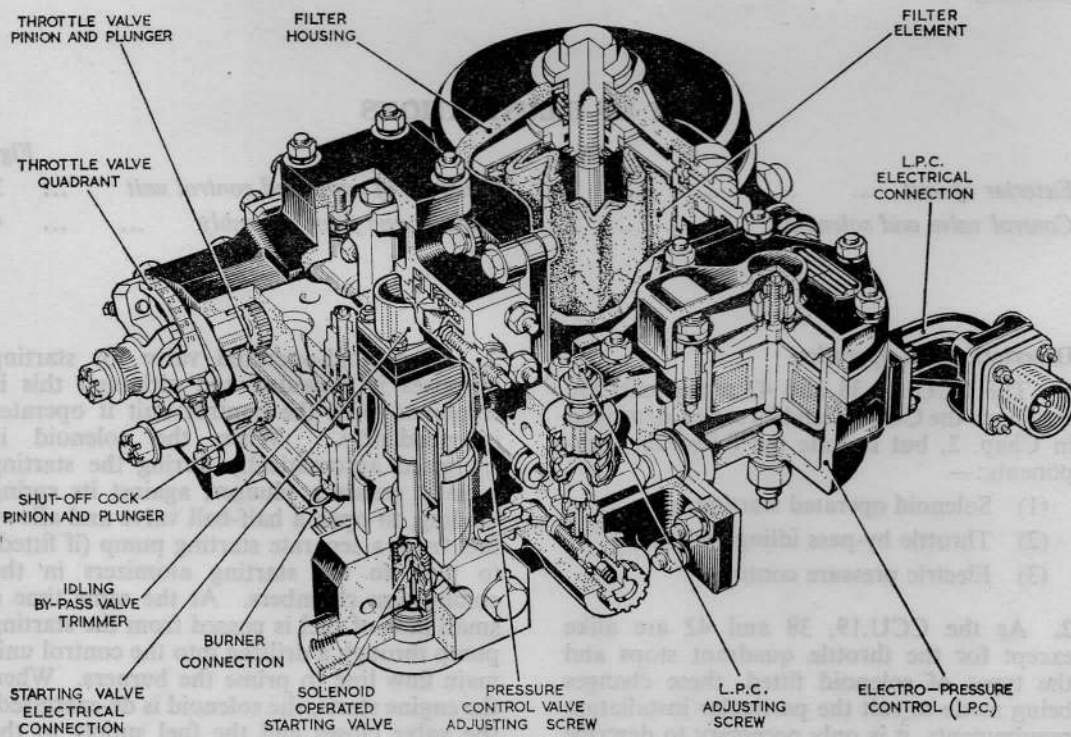


Fig. 2. Control valve and solenoids

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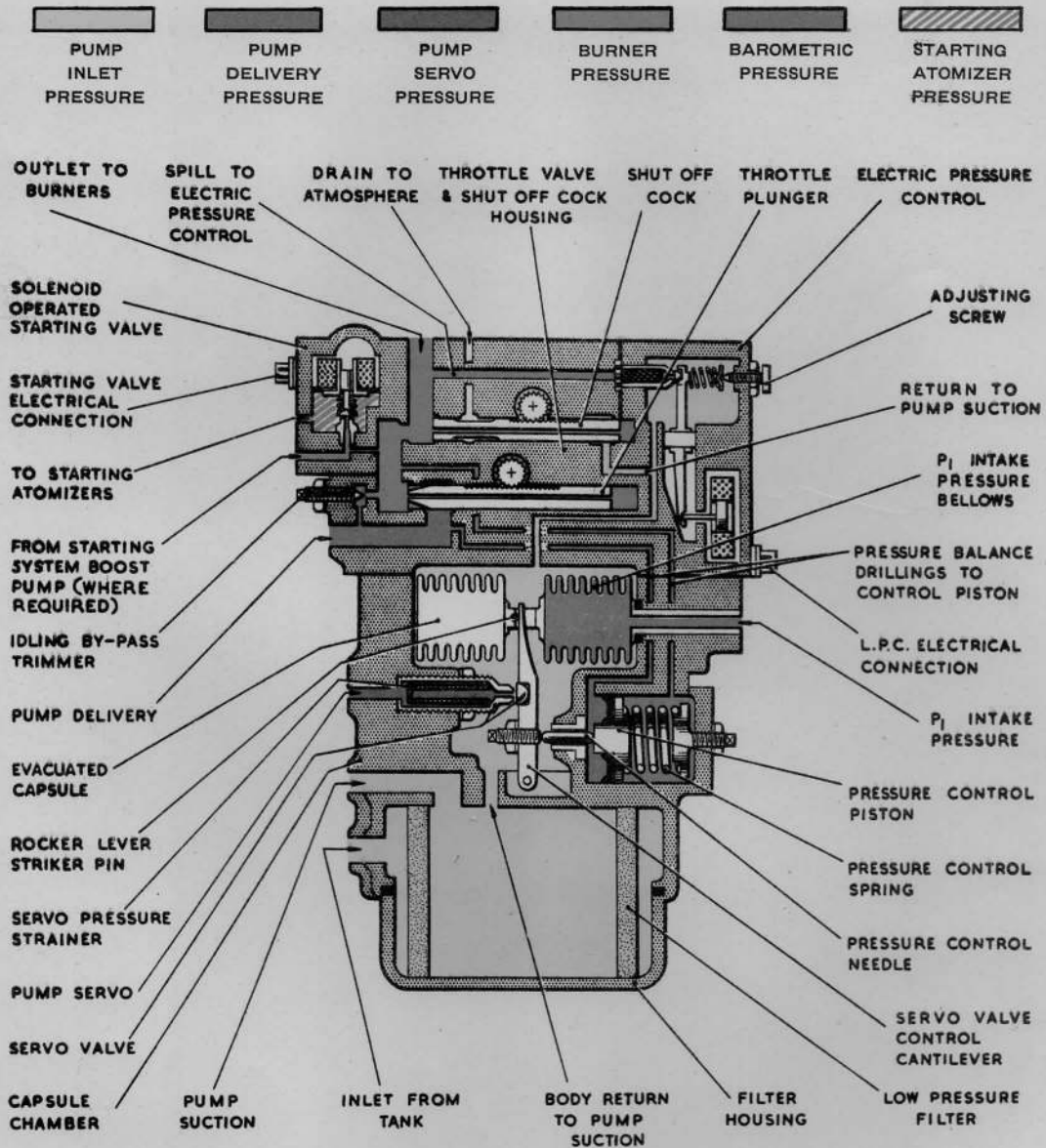


Fig.3 Diagram of combined control unit

4. When the starting pump is not fitted, this connection is blanked off, sufficient fuel passing from the tapping off the burner supply line via the open solenoid to the atomizers for starting purposes, the burners being primed by the main line fuel. After the engine starts the fuel flow to the starting atomizers is again cut off by the solenoid valve being de-energized.

5. A throttle by-pass or trimmer is fitted to enable the idling flow to be trimmed to suit particular engine characteristics.

6. An electric pressure control is employed as a spill valve in the burner supply line to regulate the flow relative to jet pipe temperature. An electrical signal from thermocouples in the jet pipe is amplified and then applied to the control solenoid. As the temperature rises, the orifice in the electric pressure control is opened and the resultant fuel spill through the valve effects a reduction in fuel supply to the burners thus providing a progressive limitation on jet pipe temperature.

7. The spill passage is taken from the downstream side of the shut-off cock and therefore

has an almost negligible effect on the pressure characteristics of the control unit.

Installing

8. Remove the blanking plugs and drain the inhibiting fluid. Using the flanged adapters, make the following fuel connections:—

- (1) Inlet from tank to low-pressure fuel filter
- (2) Filter outlet to pump inlet
- (3) Pump servo system to servo valve
- (4) Pump delivery to throttle valve
- (5) To solenoid starter valve from starting pump (if fitted)
- (6) Solenoid starter valve delivery to starting atomizers
- (7) High-pressure shut-off cock to burner manifold
- (8) Burner manifold drain from shut-off cock.

9. The electrical connections are made by pin adapters to the appropriate circuit.

Servicing and inhibiting

10. Servicing instructions are given in the relevant engine Air Publication. For details of inhibiting refer to A.P.4471A.

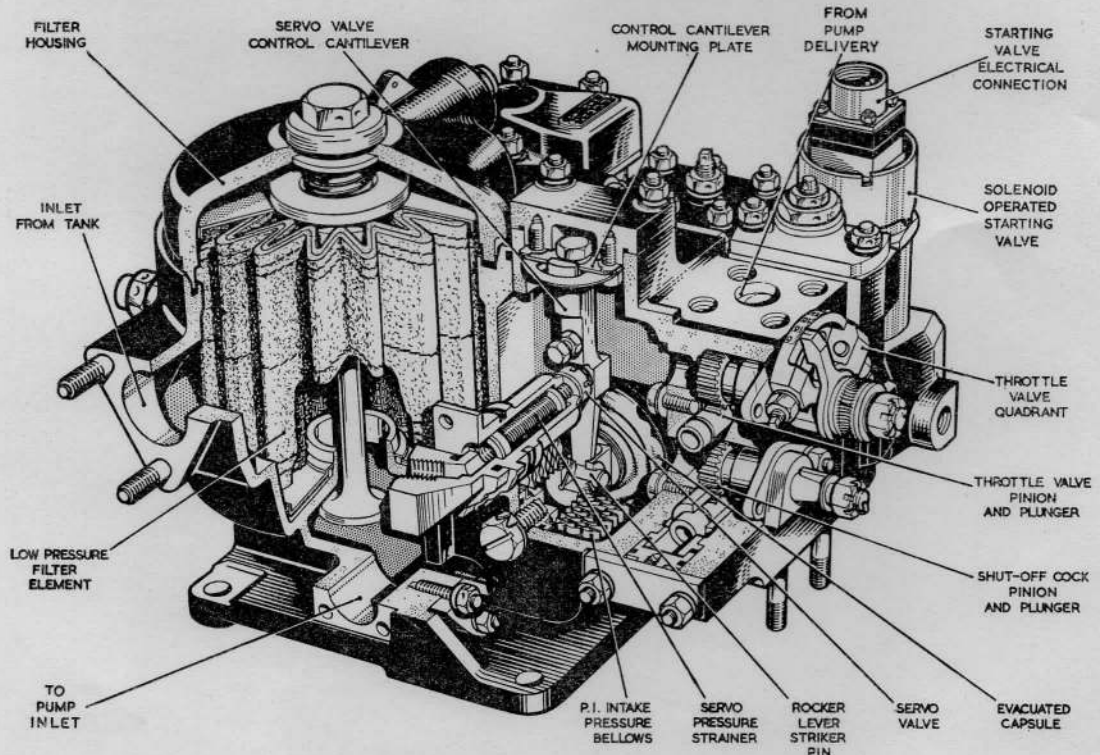



Fig. 4. Capsule and filter assembly



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