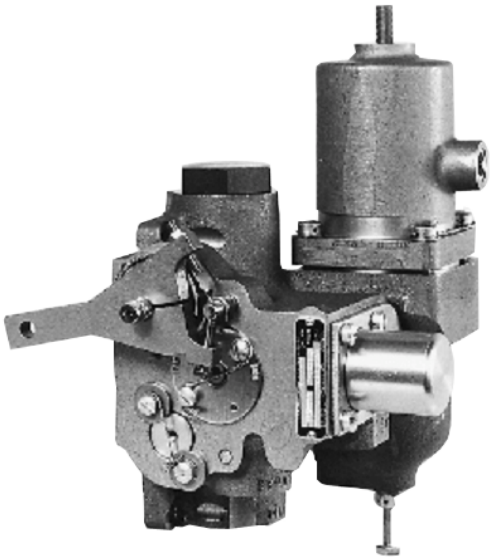
1907

Small Liquid Fuel Valve / Limiter

Applications

For use with electrical actuators or mechanical governors, including Woodward's EG-R, EG-3C, EG-3P actuators, and PSG mechanical-hydraulic governor. Provides accurate fuel metering and limiting during acceleration, deceleration, and steady-state operation. Can be used for any liquid-fueled industrial gas turbine application within its range of fuel flow up to its maximum fuel flow.



Standard Features

The liquid fuel valve/limiter contains a fuel bypass valve which maintains a constant pressure drop across the metering port to provide accurate fuel metering. A safety feature prevents excessive fuel flow to the turbine should the bypass valve diaphragm rupture.

The liquid fuel valve/limiter does not require an oil supply. It is available with or without the acceleration limiter.

The liquid fuel valve/limiter has a minimum of adjustments.

- Minimum and maximum fuel flow adjustments
- Acceleration schedule
- Limiter minimum fuel (start flow adjustment)
- Level adjustment
- Slope adjustment

Optional Features

An Auxiliary Flow feature is available to provide a separate fuel supply to the turbine if required for starting. A torsion spring is available to force the input shaft to the minimum fuel stop if a connecting link breaks or becomes disconnected. Fuel supply pump protection from over-pressure is available using an optional internal pressure relief valve shown in Figure 3.

- Handles most liquid fuels
- Adjustable for various fuel specific gravities
- Accurate flow metering

Specifications

Fuel Types
Aviation gasoline, JP-4, JP-5, diesel fuel, or alcohol

Specific Gravity
0.70 to 0.85

Fuel Flow
45 to 1415 kg/h (100 to 3120 lb/h)

Fuel Pressures:

Inlet
8450 kPa (950 psig) maximum

Outlet
8005 kPa (900 psig) maximum

CDP
1379 kPa (155 psig) maximum

Static Test
12 453 kPa (1400 psig)

Operating Temperature
–18 to +121 °C (0 to +250 °F)

Fuel Valve Tolerance on Acceleration Fuel Schedule
Use whichever is greater

±5% of fuel flow or
±3.4 kPa (±0.5 psi) on CDP or
±0.5% of maximum CDP

Hysteresis
Use whichever is greater

10.3 kPa (1.5 psi) on CDP or
1.5% of maximum CDP

CONSTRUCTION

Weight
Approximately 2.9 kg (6.3 lb)

MOUNTING

Attitude
Any attitude

Ordering Information

The following information is required when ordering liquid fuel valve/limiters. Flow is in pounds per hour (PPH). Pressure is gage (psig).

Fuel specific gravity: _____ at _____ °F.

Acceleration schedule (Wf) in PPH versus compressor discharge pressure (CDP).

Maximum fuel flow: _____ PPH

Minimum fuel flow: _____ PPH

Start fuel flow: _____ PPH

Relief valve pressure setting (if required): _____ PPH

Pump discharge flow versus CDP: [graph]

Fuel flow versus valve discharge pressure P2): [graph]

Standard lever, 2" centers (optional): Yes_____ No_____

Torsion return spring: Yes_____ No_____

Temperature:
°F = (°C x 1.8) +32

Fuel Flow:
PPH (lb/h) = 2.2 x kg/h

References

Manual 40053—1907 Liquid Fuel Valve/Limiter

NOTE
The graph in Figure 1 must intersect the horizontal start fuel flow line at a minimum of 1.5 psi CDP.

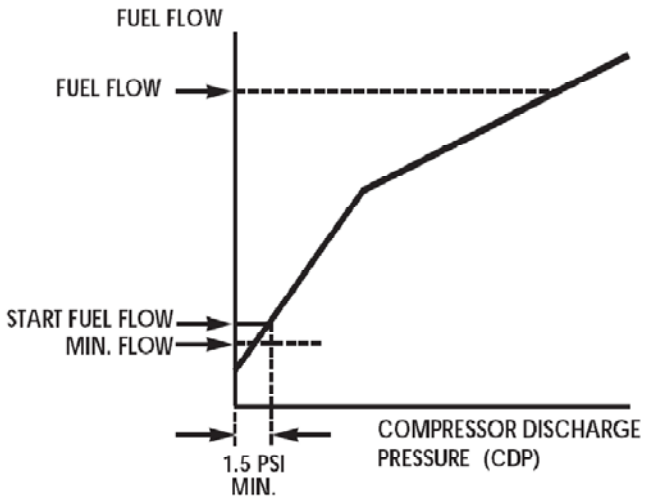


Figure 1. Fuel Flow vs Compressor Discharge Pressure (CDP)

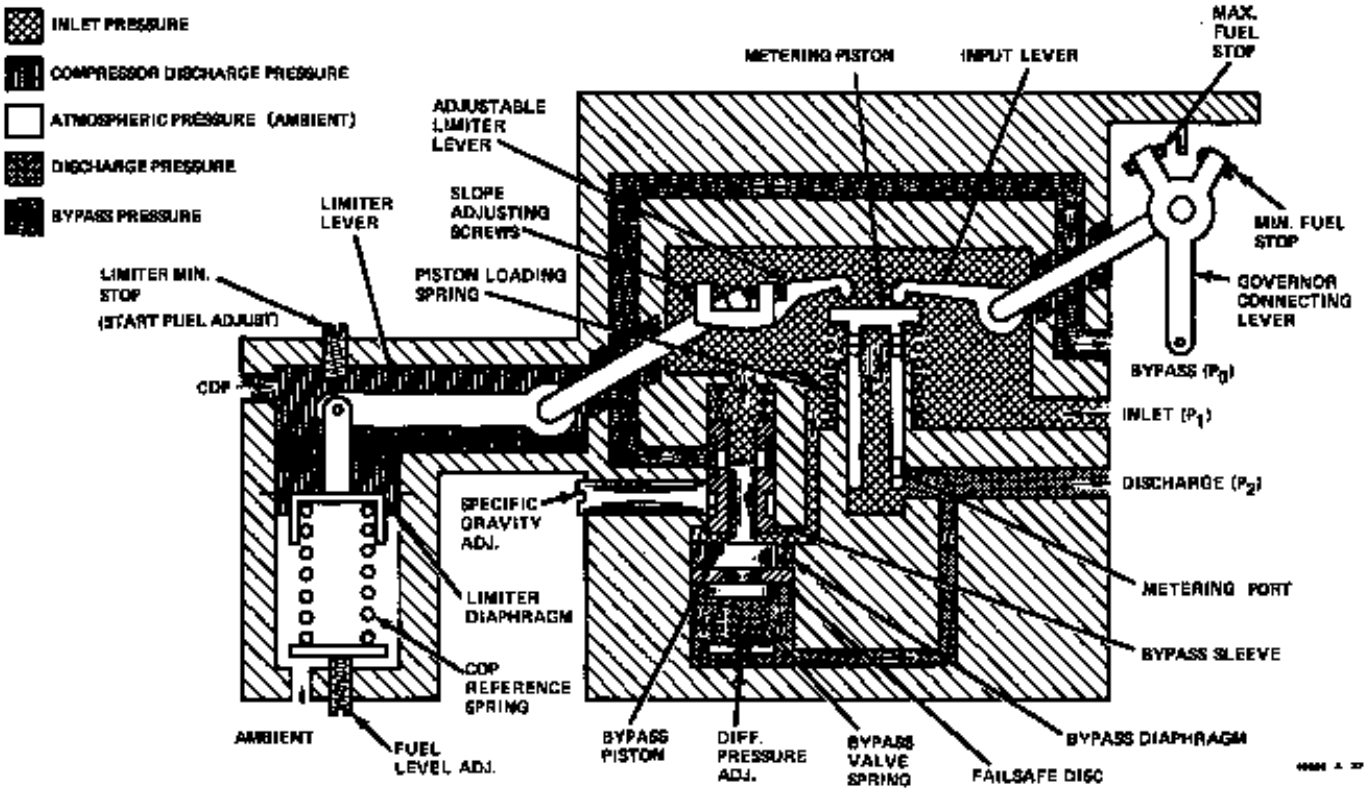


Figure 2. 1907 Liquid Fuel Valve/Limiter

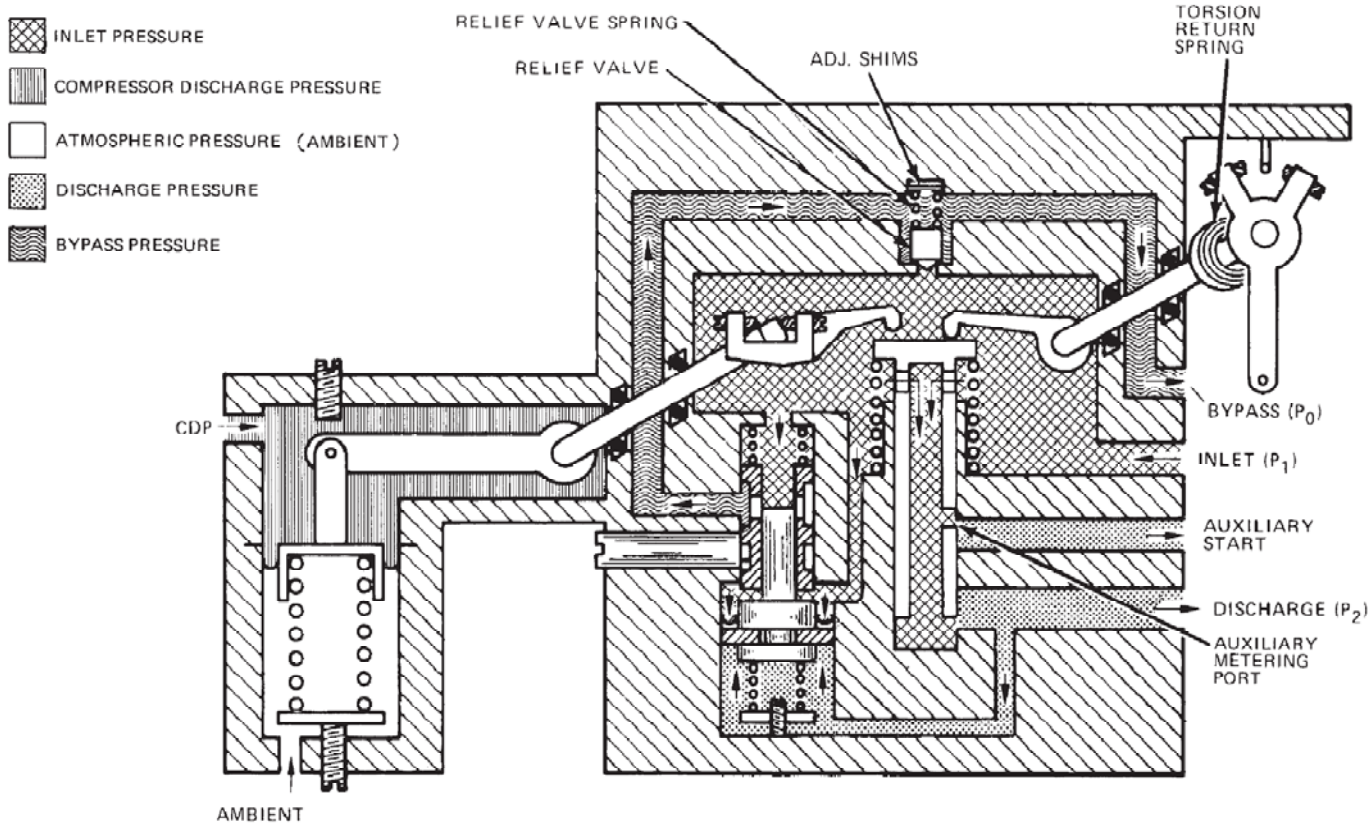


Figure 3. 1907 Liquid Fuel Valve/Limiter with Auxiliary Features

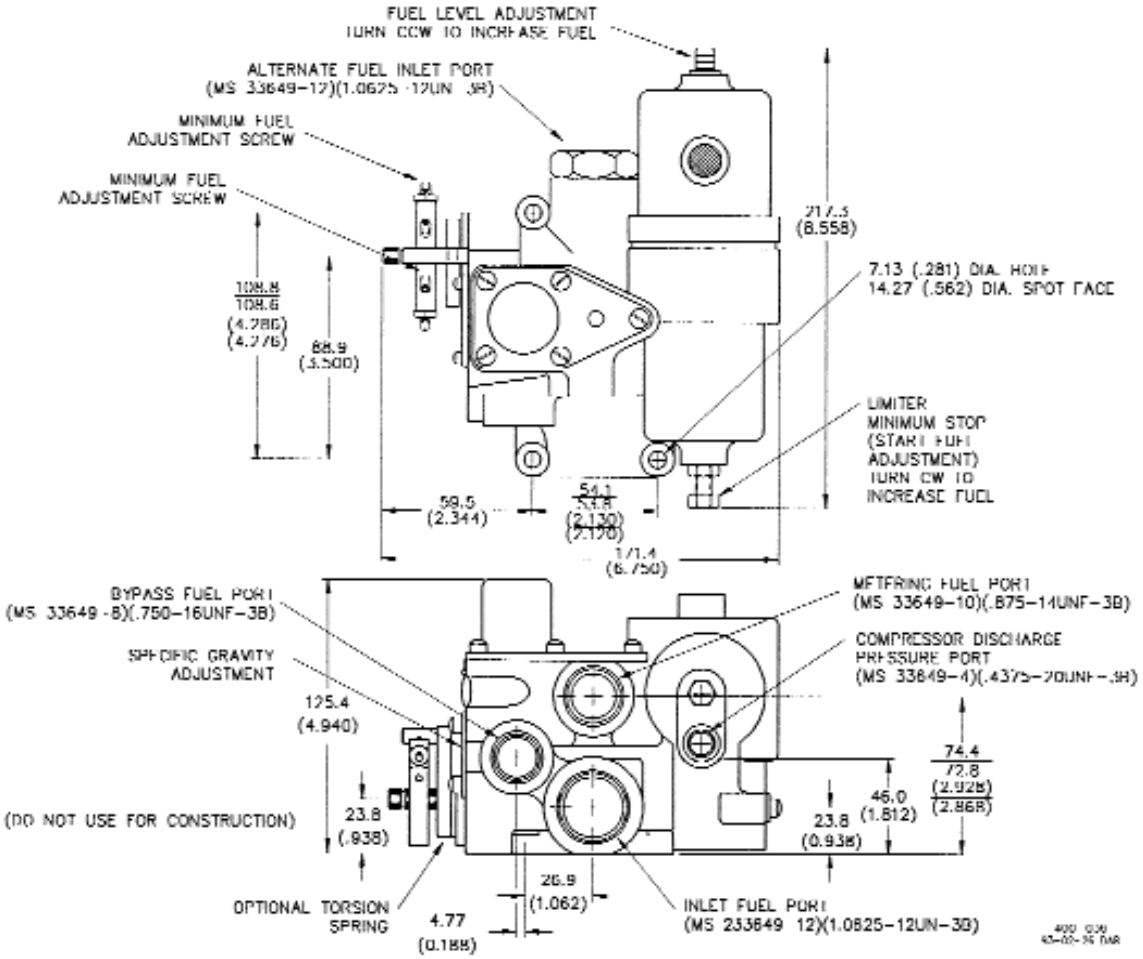


Figure 4. Outline Diagram and Adjustment Locations

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