

General Description and Principles of Operation

General Description

The governor (**Fig. 1**), operating in conjunction with the compressor unloading mechanism, automatically controls the air pressure in the air brake or air supply system between the desired, predetermined maximum and minimum pressures. Normal air pressure in all Freightliner vehicles is 95 to 125 psi (655 to 862 kPa). The compressor runs continuously while the engine runs, but the actual compression of air is controlled by the governor actuating the compressor unloading mechanism, which stops or starts compression when the maximum or minimum reservoir pressures are reached. The D-2 governor has a piston upon which air pressure acts to overcome the pressure setting spring, and control the inlet and exhaust valve to either admit or exhaust air to or from the compressor unloading mechanism.

D-2 governors have mounting holes, which allow for direct mounting to the compressor.

Porting consists of 3 reservoir ports (1/8-inch NPT), 3 unloader ports (1/8-inch NPT), and 1 exhaust port (1/8-inch NPT).

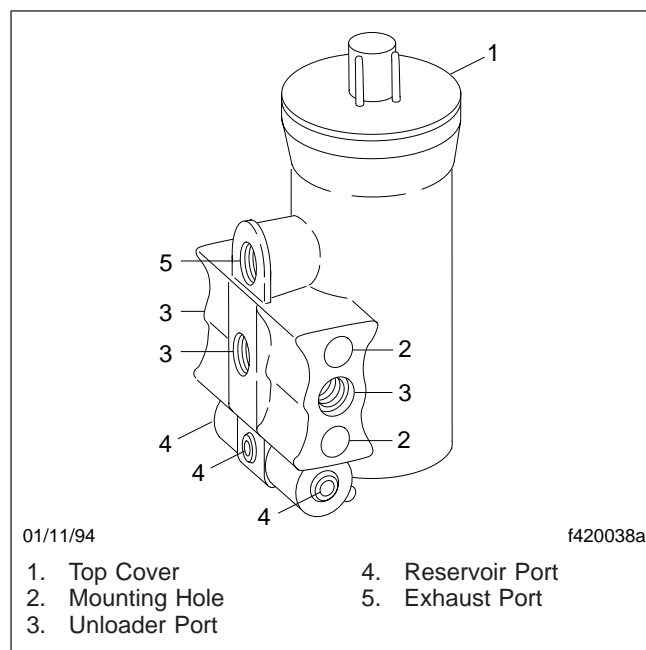


Fig. 1

Principles of Operation

Pressurized air enters the D-2 governor at one of its reservoir ports, and acts on the area of the piston and beneath the inlet and exhaust valve. See **Fig. 2**. As air pressure builds up, the piston moves against the resistance of the pressure-setting spring. The piston and inlet and exhaust valve move up when the reservoir air pressure reaches the cut-out setting of the governor. The exhaust stem seats on the inlet and exhaust valve, and then the inlet passage opens. Reservoir air then flows by the open inlet valve, through the passage in the piston, and out the unloader port to the compressor unloading mechanism. Air also flows around the piston, and acts upon the additional area of the piston. This added force, which results from a larger area on the piston, ensures a positive action and fully opens the inlet valve.

As the system reservoir air pressure drops to the cut-in setting of the governor, the force exerted by the air pressure on the piston will be reduced so that the pressure-setting spring will move the piston down. The inlet valve will close and the exhaust will open. With the exhaust open, the air in the unloader line will escape back through the piston, through the exhaust stem and out the exhaust port.

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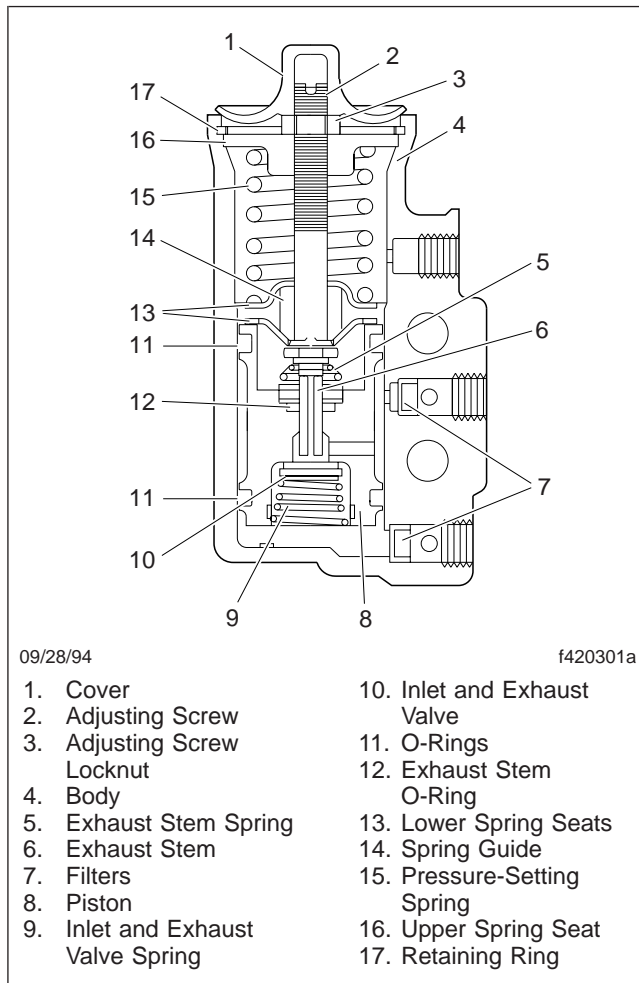


Fig. 2