

This air valve Part No. 3003716, can be used on any Cummins turbocharged engine. It protects the vehicle drive components from high torque when operating in first or "creeper" gear.

An electric switch, actuated by the first gear shift mechanism, closes the two way valve solenoid. This prevents the intake manifold pressure from activating the AFC. This limits the engine to the "no air" fuel rate and horsepower. In all other gears, the AFC will operate normally.

Multiple Unit Throttle Control

The multiple unit throttle control system was designed for use with the PT (type G) AFC fuel pump. The system is a replacement for mechanical linkages and/or hydraulic controls normally used on locomotives, railcars or other such applications with multiple engine power requirements. To use the system, the engine is to operate at distinct power settings (such as 35, 65, 80, or 100% of rated power) rather than variable throttle positions manually controlled by an operator.

The unit is a manifold-type block that has orifices which are opened or closed to fuel flow by electric solenoid valves as horsepower output requirements change. The valves open in various combinations, calibrated and timed to produce changes in the fuel pressure, hence horsepower output from the engine. The control unit can be either engine or remote mounted.

The fuel flows from the tank through the filter and to the fuel pump. After the governor (bottom of fuel pump), the fuel goes to the multiple unit throttle control. From the control unit it goes back to the fuel pump throttle shaft, through the AFC and the fuel pump shutoff valve to the injectors. As the fuel flow (horsepower) requirements change, orifices in the throttle control unit are opened by solenoid valves. This will let more or less fuel to the fuel pump as required. The unit has four throttle power valves. The shutoff control is by the standard fuel pump shutoff valve.

The multiple unit throttle control assembly valves are activated based on horsepower requirements, one example is as follows:

Horsepower Requirement	Solenoid Opening
25%	1
50%	1-2
70%	1-3
80%	1-2-3

Horsepower Requirement	Solenoid Opening
94%	1-4
97%	1-2-4
100%	1-2-3-4

The fuel flow value for each valve is set by selecting the orifices from the fuel pump code data to match the fuel pump calibration. Each installation requires a different fuel pump calibration; therefore, the pump code is different for each application.

Mounting of Throttle Control Unit

The throttle control has four solenoids, and orifices. The closer to the pump it is mounted the better the results will be, Fig. 15-12. Throttle control solenoid valves are available at 24, 32 and 64-volts.



Fig. 15-12 (F5404). Fuel pump and throttle control on an NT-855 engine.