



# Power Drive Systems

## Generator Control Specialists

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## ADB120E4 ELECTRIC ACTUATOR with FUEL METERING VALVE

### INTRODUCTION

The ADB120E4 from GAC is a linear, proportional, electric fuel-metering servo for use on Cummins engines with PT fuel systems. The actuator is energized by signals from a speed control unit and is capable of delivering fuel at rates up to 1700 lbs/hr.

### INSTALLATION

The actuator must be rigidly mounted as close as possible to the outlet of the PT pump. GAC bracket BK114 is designed to fit the ADB120E4 to all Cummins engines.

Attach the actuator bracket to the engine.

Attach the actuator to the bracket with 1/4-20 1" screws washers and nuts.

The actuator to valve linkage is set at the factory and requires no adjustment.

Connect the valve to the fuel system as shown in Diagram 1.

All fuel line connections can be made using either steel tubing or wire braided rubber hose. All engines require 5/16" ID tubing except 12 and 16 cylinder engines, which require 3/8" ID tubing.

The outlet of the PT fuel pump is connected to the inlet of the valve. The outlet of the valve is connected to the fuel rail that leads to the injectors. The valve inlet and outlet are 1/4" NPTF thread.

The drain on the valve must be connected to the fuel injector return line through the check valve supplied. A maximum of 2 PSI back pressure on the valve is acceptable. Higher back pressure may cause fuel leakage from the valve stem.

All fittings to the fuel valve should be hand tightened then tightened an additional 1-1/2 turns with a wrench. Avoid over tightening. A liquid sealant may be used if desired. Do not use Teflon tape on these connections. Avoid right angle bends in both the fittings and the inlet and outlet lines.

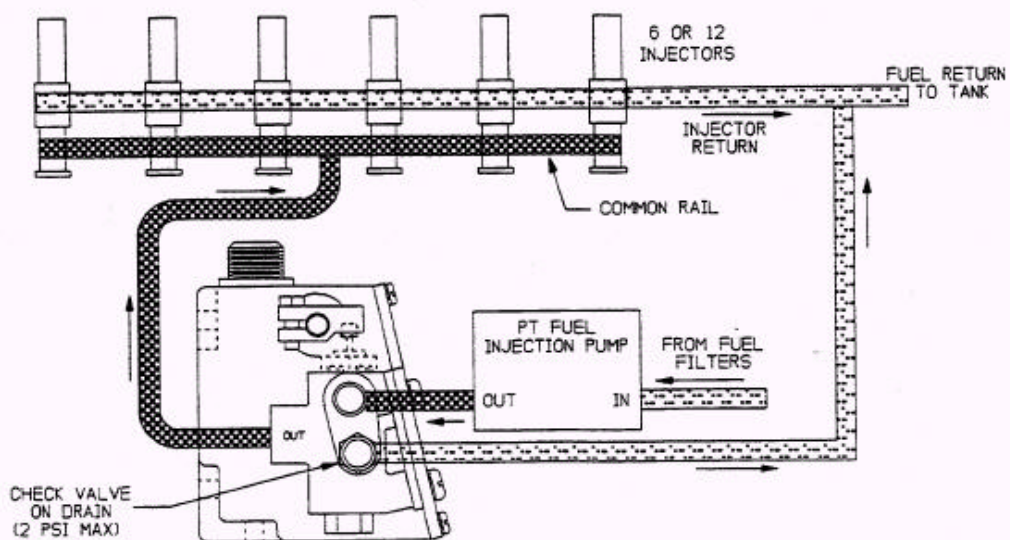
Fabricate a cable harness to connect the speed control unit to the actuator. The recommended wire size for the cable harness is at least #16 gauge (1.5mm<sup>2</sup>) for 12V systems and #18 gauge (1.0mm<sup>2</sup>) for 24V systems. Larger gauge wire is necessary for cable lengths greater than 12ft (4m). Cable harness CH1203 is available from GAC.

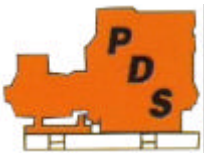
The EC1000 electrical connector must be wired in a configuration to match the system voltage supply. See Diagram 2.

For 32V operation, wire the connector as shown for 24V operation and add a 1.5 ohm, 25W resistor in series with pin A of the actuator connector and the corresponding output terminal of the speed control unit. For 76V operation, use a 15 ohm, 150W resistor.

Connect the wires from pin A and D of the actuator connector to the speed control unit. Refer to the specific speed control unit literature for wiring information.

**DIAGRAM 1 VALVE PLUMBING CONNECTIONS**

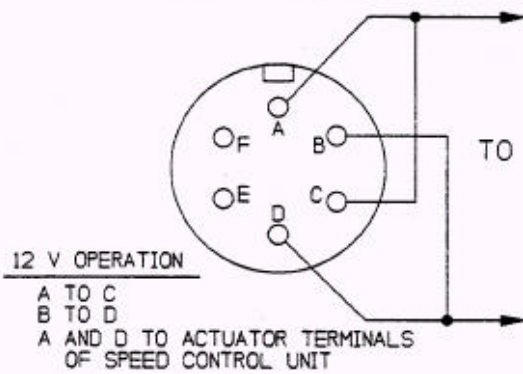




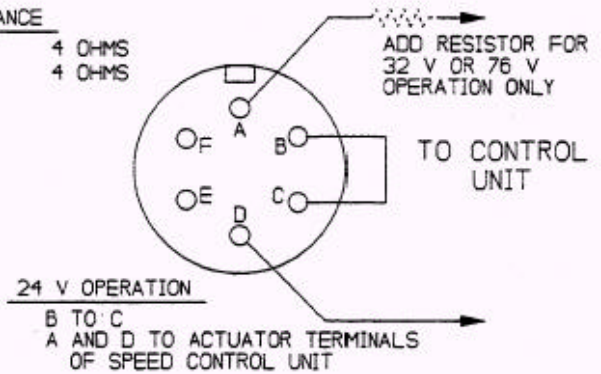
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**DIAGRAM 2 CONNECTOR WIRING**



RESISTANCE	
A TO B	4 OHMS
C TO D	4 OHMS



**DIAGRAM 3 OUTLINE**

**Service Parts**

KT6724  
VA100  
VA675A

Cap Nut Kit  
Check Valve  
Replacement Valve

ADB120E4

