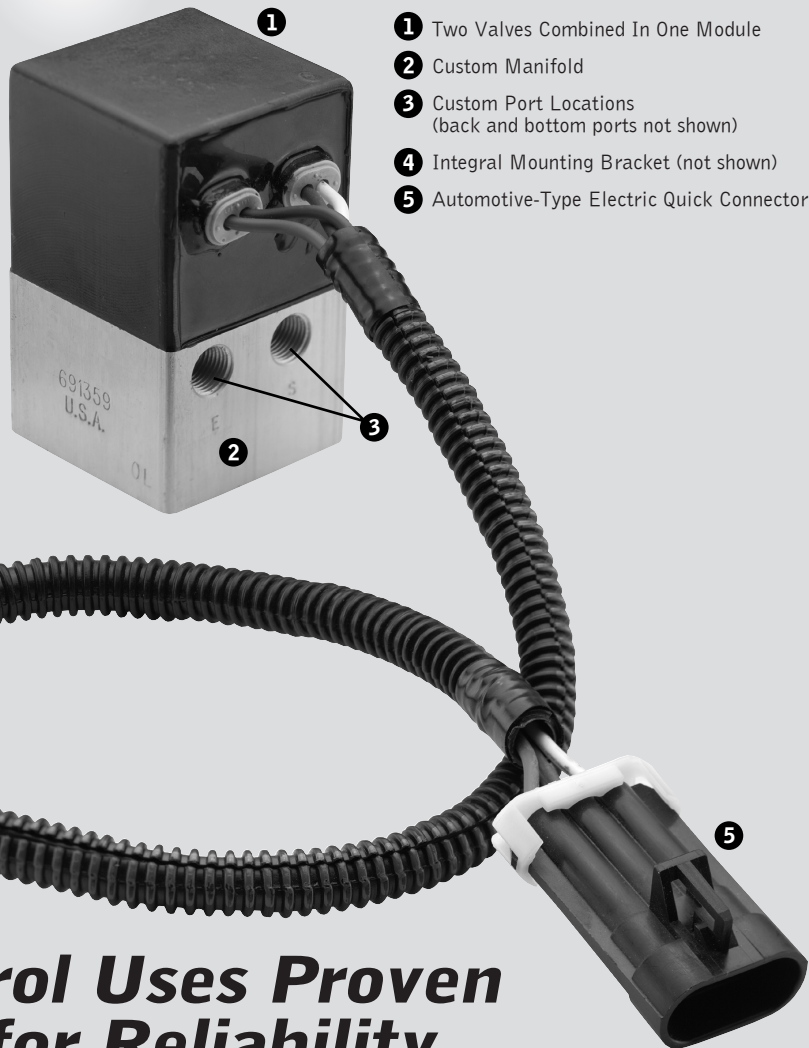
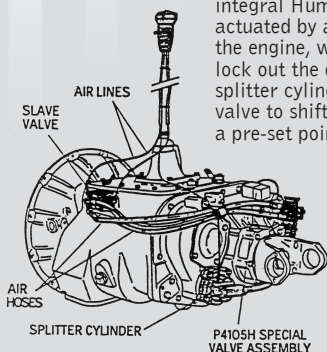


*Humphrey*

To help truck operators achieve better performance and improved fuel economy at highway cruising speeds, a major transmission manufacturer developed a way to electronically control the shift point in and out of top gear.

The new assembly consists of two integral Humphrey solenoid valves actuated by an electronic signal from the engine, which causes one valve to lock out the driver's control over the splitter cylinder, allowing the other valve to shift gears automatically at a pre-set point.



## Custom Integrated Dual Valve Assembly for a New Electronic Transmission Control Uses Proven Valve Technology for Reliability

### THE CUSTOMER'S PRODUCT:

- The customer designs and manufactures truck transmissions for a range of vehicles.
- To improve the fuel economy on Class 8 trucks, the customer designed an automatic shift control.

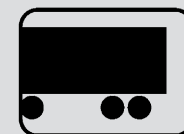
### THE REQUIREMENTS:

- Valve assembly must withstand the rigorous demands of over-the-road operation.
- Must eliminate the awkward mounting and plumbing of individual valves.

### THE HUMPHREY ENGINEERED SOLUTION:

- Created a custom valve assembly with two integral valves
- Integral mounting bracket reduced customer's assembly time
- Solenoid performance engineered to match electronic specifications of engine
- Wide Temperature Range: -40°F to +121°F
- No Lubrication Required

SIC: 3714



TRANSPORTATION

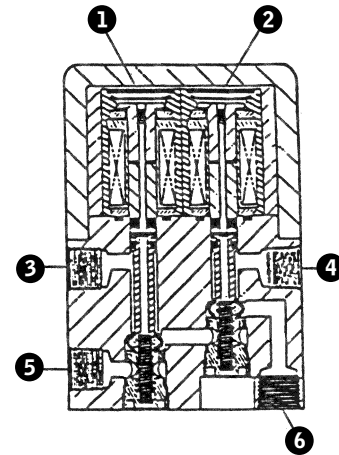
## THE SOLUTION:

Working on an engineer-to-engineer basis with the customer, the Engineered Solutions team chose Humphrey poppet-type solenoid valves for their proven reliable operation over a wide temperature range and high tolerance of any air system contamination. The valves were modified to meet specific design requirements, including changing the solenoid performance to match the electronic specifications of the engine. Custom electrical connectors and mounting hole locations were provided to simplify installation on the exterior of the transmission.

## THE PROCESS:

The customer saw an opportunity to improve performance and fuel economy by developing an automatic shift control for the top two gears. While the driver would still manually shift through the lower gears, a truck maker could set the optimum shift point for highway operation.

Working closely with the transmission manufacturer's engineering department, the Humphrey Engineered Solutions team developed a custom valve assembly that could withstand the rigorous demands of over-the-road operation plus eliminate the awkward mounting and plumbing of individual valves. The success of this project was made possible by a strong working relationship with the truck component manufacturer, plus Humphrey's preferred quality status.



Humphrey P4105H 12VDC Solenoid Valve Assembly

- 1 Lockout Coil
- 2 Automatic Shift Coil
- 3 Exhaust
- 4 Supply
- 5 To Splitter Cylinder Valve
- 6 To Top Gear Shift Valve

*Humphrey*<sup>®</sup>  
BUILD ON OUR EXPERIENCE