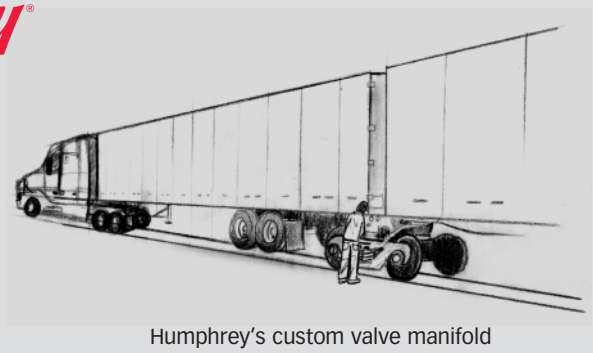
Humphrey®



Humphrey's custom valve manifold reduced the cost and time it took to convert truck trailers into a train, and at their destination, convert them back to individual trailers for highway travel.

1. Single module incorporating Humphrey's cartridge insert valves eliminated plumbing and potential leak points.
2. Humphrey redesigned system eliminated one valve, reducing costs.
3. Unit delivers higher flow for faster train assembly and breakup.
4. Totally enclosed module is more robust and better able to withstand harsh environmental conditions.

Valve Module

Reduced Cost and Time to Convert Truck Trailers Into and From Train Sets

TRANSPORTATION

SIC:3715

THE CUSTOMER'S PRODUCT

- Customer manufactures trailers designed to operate on the highway, or be coupled together on wheelsets to make up a train.
- Each trailer has a collection of valves and other components to control the inflation/deflation of the bladders in the trailer's suspension system, plus engage/disengage locking pins that hold the trailers onto the wheelsets.

THE REQUIREMENTS

- Improve trailer productivity by decreasing the amount of time it took to inflate/deflate the air suspension system.
- Make the unit more robust and reliable.
- Reduce connections to make unit easier to plumb.

THE HUMPHREY ENGINEERED SOLUTION

- Valve module utilized Humphrey's proven cartridge insert poppet valves to lower unit cost.
- Humphrey redesigned the system to simplify it by eliminating one valve.
- The valve module increased air flow, speeding up the process of inflation/deflation. This reduced the time to assemble or break up a typical trailer/train set by about 25 minutes.
- The enclosed module with internal valves was far more robust, more resistant to environmental conditions and was easier to plumb.

THE SOLUTION

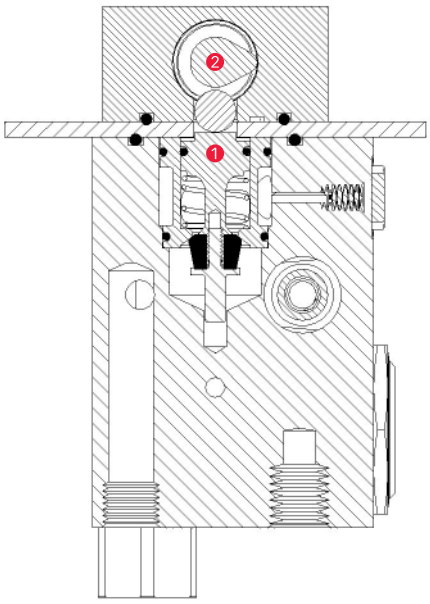
The Engineered Solutions team, working directly with the customer's engineering department, identified the requirements and explored the opportunities to improve the product. To achieve optimal product design, the customer provided a test trailer for use at the Humphrey facility.

Humphrey was able to simplify the customer's circuit by eliminating one valve and redesigning another valve to provide higher flow. Besides lowering the cost, it sped up the process of inflating or deflating the trailer's air suspension system by 10–15 seconds. Given an average train length of 100–120 trailers, the entire operation now take about 25 minutes less to accomplish. By incorporating all the valves into one module Humphrey was able to deliver a robust unit that was simple to plumb, resulting in additional savings.

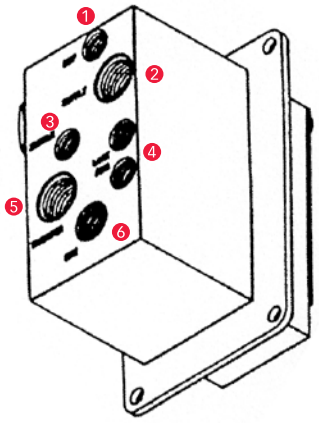
THE PROCESS

The Engineered Solutions team began by working with the customer's engineering department to analyze the customer's circuit. Humphrey engineers saw an opportunity to eliminate one valve and make the original pressure protection valve a high-flow pressure protection valve. This reduced the time it takes to make up or break up a train, improving the trailer's productivity.

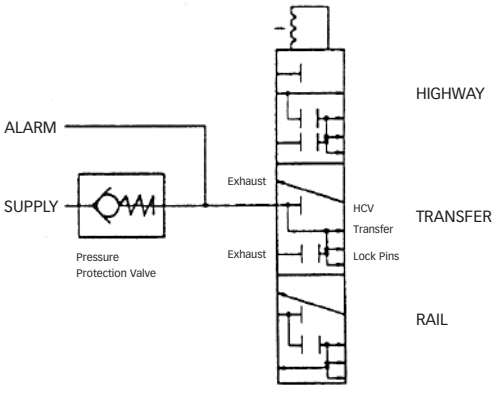
Eliminating one valve and incorporating Humphrey's proven cartridge insert valves reduced the unit cost, simplified the customer's connection requirements and resulted in a more reliable system.



1. Humphrey cartridge insert valve
2. 90º rotating activation lever with special tamper-resistant handle



1. Height Control Valve (HCV)
2. Supply
3. Alarm (Alert)
4. To lock pins
5. Transfer
6. Exhaust



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Humphrey Products Company • P.O. Box 2008 • Kalamazoo, MI 49003 USA • T.269.381.5500 • F.269.381.4113 • www.humphrey-products.com