

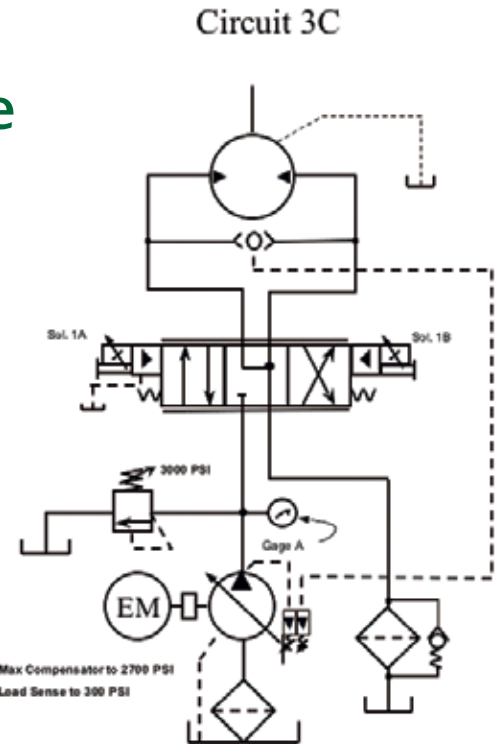
# Problem: Pump Stand-By Pressure

A conveyor for moving steel castings to a de-burring station is driven by a hydraulic motor. The hydraulic system was designed to be as efficient as possible, so a pressure-compensated, load sense, piston pump circuit was used. As you can see from the circuit, when the motor was told to stop, all pressure was removed from both motor ports and the horizontal conveyor would stop. It worked well for several years.

The proportional valve developed an oil leak. Maintenance found the model number in the service manual supplied with the machine and ordered a new valve from a

local supply house. After commissioning the replacement, they had a problem with the pump pressure slowly dropping down and then leveling off at 600 PSI after three to four minutes. Before the valve was changed, pump pressure would drop to 300 PSI stand-by pressure quickly any time the motor was stopped.

They unplugged the proportional valve coils to see if the lack of an electrical signal would correct the problem, but it didn't. They then replaced the compensator assembly on the pump and the problem still persisted.



Any idea what was causing the problem?

## Don't Just Measure | Take Control

**NEW**

### ELS-950 Series

Overmolded electronics, TPE insulated wires, and fluoro-silicone o-ring seals create a water-tight, environmentally-resistant assembly.

## with Gems Electro-Optic Liquid Level Sensors

- Compact
- Economically priced
- Integrated, solid-state electronics
- No moving parts
- Monitor coolants, lubricants, hydraulic fluids, and overflow reservoirs

OHV | Medical | Oil & Gas | Water | HVAC | Marine | Transport | Food & Beverage



High Temperature and Pressure Versions

Actual Size

OUR EXPERIENCE

YOUR SOLUTION



Liquid Level Sensors | electro-optic

take control today **800-378-1600** ■ **GemsSensors.com**

# Previous Solution: Directional Valve Shifting

The foundry called an outside hydraulic service shop for help. They had replaced everything except the motor and felt their test results eliminated the hydraulic motor. The technician asked the usual questions: What was the original problem, what did they try, and what changes did they make? After explaining all the details to the technician, he suspected the pilot valve did not have the minimum pilot pressure needed to shift the main stage spool. The pressure is usually 75 to 85 PSI for most valves to overcome the centering spring force.

He examined the existing plumbing and confirmed it was plumbed as the circuit had called for, but the gage pressure was only reading 50 PSI. It seemed strange that

it worked in the past but now needed additional back pressure in the system.

The tank was an "L" shaped style with a hinged lid. He thought there might have been a check valve added to the discharge line and it may have fallen off or was stuck open. The fire-resistant fluid was milky in color, so he had to reach down, feeling around, but found nothing unusual. He decided to add a restriction to the outlet by removing the stand pipe and installing a reducer bushing with a smaller diameter stand pipe. The smaller pipe would cause additional back pressure.

Shift change was also taking place, and the operators inquired about the problem. They said it was working when

they left and the only thing they had to do was add water to the invert emulsion since the low level indicator was on. They had to use water since they could not find any drums of the proper fluid. The unit was running when they added the water and did not stop until their shift was over. The conveyor was idle until the first shift tried to start it up.

Since the system worked well before they added the water, it was decided to drain and replace the watered-down fluid. When started up with the new fluid, the gage pressure was reading 85 PSI, the valve shifted and the conveyor would now run.

**P**  
PENINSULAR  
CYLINDER CO.®

**Configure Your Way  
To Fast, Simplified  
Cylinder Ordering!**

The Cylinder People!  
This is who we are  
This is what we do  
& We do it best!

Access Our Cylinder Configurator  
Via Our Website at  
[www.peninsularcylinders.com](http://www.peninsularcylinders.com)

**1-800-526-7968**

ISO 9001-2001 Registered

27650 Groesbeck Highway \* Roseville, Michigan 48066-2759  
586-775-7211 \* 586-775-4545 fax \* email: [sales@peninsularcylinders.com](mailto:sales@peninsularcylinders.com)

Including 2D Drawings & Solid Model Downloads!

Technical dimensions shown in drawings: 1.75, 3.13, 1.50, .75, 1.52, .91, .61, 1.22, 1.52.