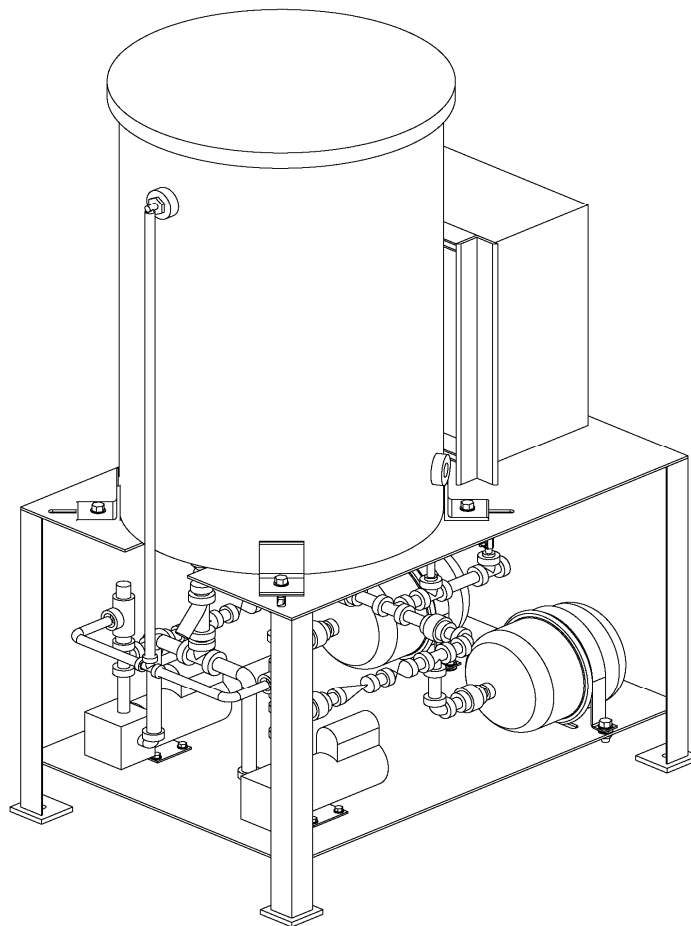


Installation, Operation, and Maintenance Manual
30/55/100 Gallon Redundant Glycol Feed System
JWRP-53-030/055/100



Type - John Wood 30/55/100 Gallon Redundant Glycol Feed System

Size – 27” Wide x 39” Long x 60” Tall Approximate

Capacity – 30/55/100 Gallons

Service – Glycol/Water Feed

Design Pressure - 100 PSIG

Design Temperature - 120°F

Theory of Operation

The Redundant Glycol Feed System keeps the heating / cooling system at or above its minimum operating pressure by the use of the simple logic of the control panel and the pressure switch.

The unit can be set to pump in one of two modes as selected by the H – O – A switch located on the panel face. In “H” or hand mode, all automatic control switches are by-passed. In this mode, control is solely the responsibility of the operator.

In “A” or automatic mode, the system will operate based on the pressure switch settings. As the pressures of the heating / cooling system drops below its minimum operating pressure, the pressure switch of the glycol feed system closes, bring the unit’s pump on-line (as indicated by a green panel mounted indicator light). The pump will continue to supply the glycol mixture to heating / cooling system until the glycol feed system’s pressure switch is satisfied (maximum system operating pressure).

The glycol feed system is equipped with a low level switch. The 20% low level switch will activate an alarm and red warning light, and will stop the pumps from running.

The glycol feed system has two pumps, operating in redundant (lead-lag) fashion. In automatic mode, “lead” pumping duties will alternate between pumps. If the lead pump fails to activate, pumping duties will switch to the lag pump. A warning light and alarm will activate during pump failure.

The glycol feed system control panel has auxiliary contacts. These contacts can provide remote indication of pump failure, pump activation, and low level.

Installation

Fluid Connection – The Redundant Glycol Feed System is equipped with a single 1/2” female NPT threaded outlet connection.

Plumbing – The piping connected to the Glycol Feed System must be supported to minimize mechanical and thermal force on the vessel nozzles. Make every effort to keep the lines as short as possible between the piping support and the Glycol Feed System connection. Be sure all joints are tight. Flush out all lines prior to installation.

Alignment – Proper alignment is key to preventing leakage at the connections and to alleviate undue stress on the system.

Electrical – 120 Volt, single phase, 60 hertz power is required to operate the glycol feed system (refer to schematic for interconnection points). It is the responsibility of the owner / installer to ensure all local and governmental regulations are met.

Operation

Pre-Startup – Recheck installation as described above. Fill glycol / water storage tank with the glycol / water mixture. Verify the pump rotation by jogging the motors, correct if necessary. Before initial startup, make sure the pumps are adequately primed. Make sure that suction and discharge valves are open.

Start-up –Start unit and check for proper operation. If necessary, adjust the pressure switch using the set point adjustment knob and the dead band adjustment knob. The pressure switch was adjusted at the factory to cut-in when pressure falls below 40 psig and cut-out when pressure rises above 60 psig. The pressure switch can be adjusted; the cut in pressure range is 10 to 40 psig, the cut-out pressure range is 20 to 65 psig, and the differential pressure range is 10 to 35 psig. It is recommended that the line mounted pressure relief setting should be 34 kPa (5 psig) above the operating pressure in the discharge line. Check for leakage once the system is in operation.

Maintenance

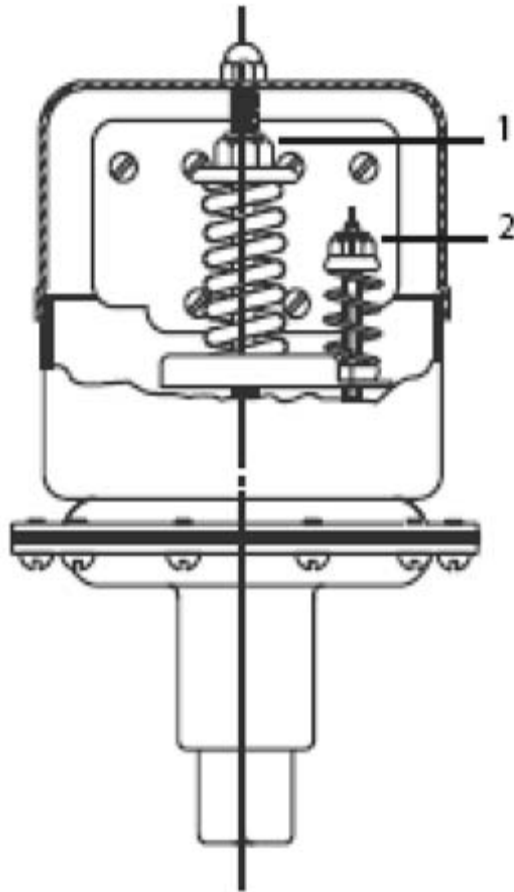
Frequency – The frequency and extent of system maintenance is best established based upon past performance. Keeping detailed maintenance records of past performance aids in determining future preventative maintenance intervals. During routine operating inspections, pay attention to seal and bearing areas of the pump.

Inspection – If unit exhibits reduced flow, an inability to maintain pressure, is noisy or performs otherwise abnormally, first refer to the Troubleshooting Matrix below. If the problem persists, the pump should be inspected for wear or damage. Field inspect by removing the cover nuts (or cap screws) to pull the rear cover. Replace pump if worn or damaged.

Troubleshooting Matrix

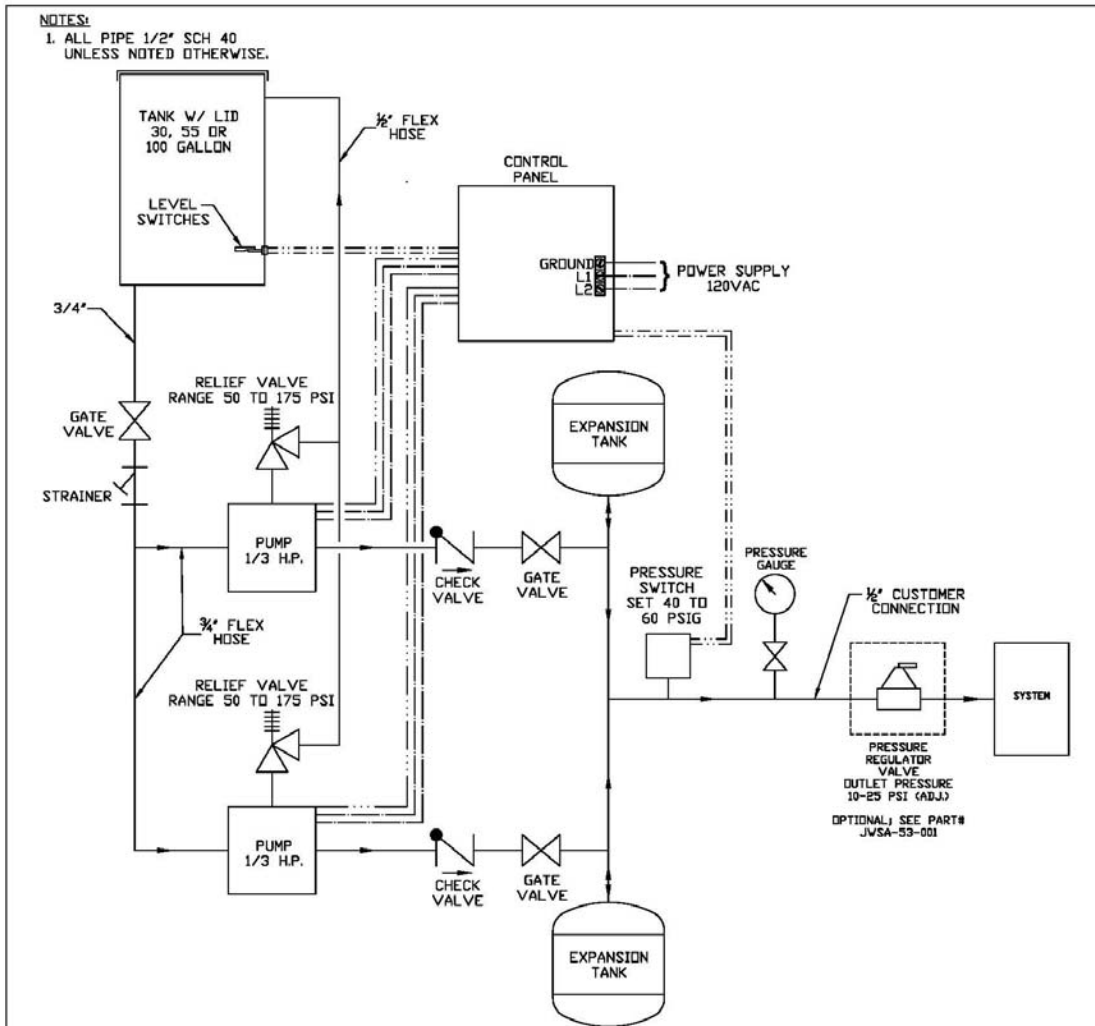
Difficulty	Probable Cause	Remedy
No liquid delivery	<ol style="list-style-type: none"> 1. Closed valves 2. Plugged suction strainer 3. Air leak at suction 	<ol style="list-style-type: none"> 1. Open valve 2. Eliminate restriction 3. Locate and repair leak
Low liquid delivery	<ol style="list-style-type: none"> 1. Discharge pressure too high 2. Air leak at suction 3. Worn or damaged pump 4. Low viscosity 	<ol style="list-style-type: none"> 1. Reduce downstream pressure 2. Locate and repair leak 3. Inspect and repair as required 4. Verify original application
Gradually loses prime	<ol style="list-style-type: none"> 1. Air leak at suction 2. Worn or damaged pump 	<ol style="list-style-type: none"> 1. Locate and repair leak 2. Inspect and repair as required
Noisy	<ol style="list-style-type: none"> 1. Cavitating 2. Worn or damaged pump 	<ol style="list-style-type: none"> 1. Eliminate restriction 2. Inspect and repair as required
Motor runs hot or overloads	<ol style="list-style-type: none"> 1. Discharge pressure too high 2. High viscosity 3. Incorrectly wired motor 4. Binding internal pump parts 	<ol style="list-style-type: none"> 1. Reduce down stream pressure 2. Verify original application 3. Check wiring 4. Inspect and repair as required
Seal leaks	<ol style="list-style-type: none"> 1. Dry running 2. Seal material incompatible with fluid 	<ol style="list-style-type: none"> 1. Open valve, prime pump 2. Verify original application

Setting the Pressure Switch



1. When setting the pressure switch, adjust the switching point on rising pressure (cutout) first and then adjust the point on falling pressure (cut-in).
2. Switching point on falling pressure: set the cut-in pressure by adjusting screw-nut 1.
3. Switching point on rising pressure: set the cut-out pressure by adjusting screw-nut 2.

Redundant Glycol Feed System P&ID



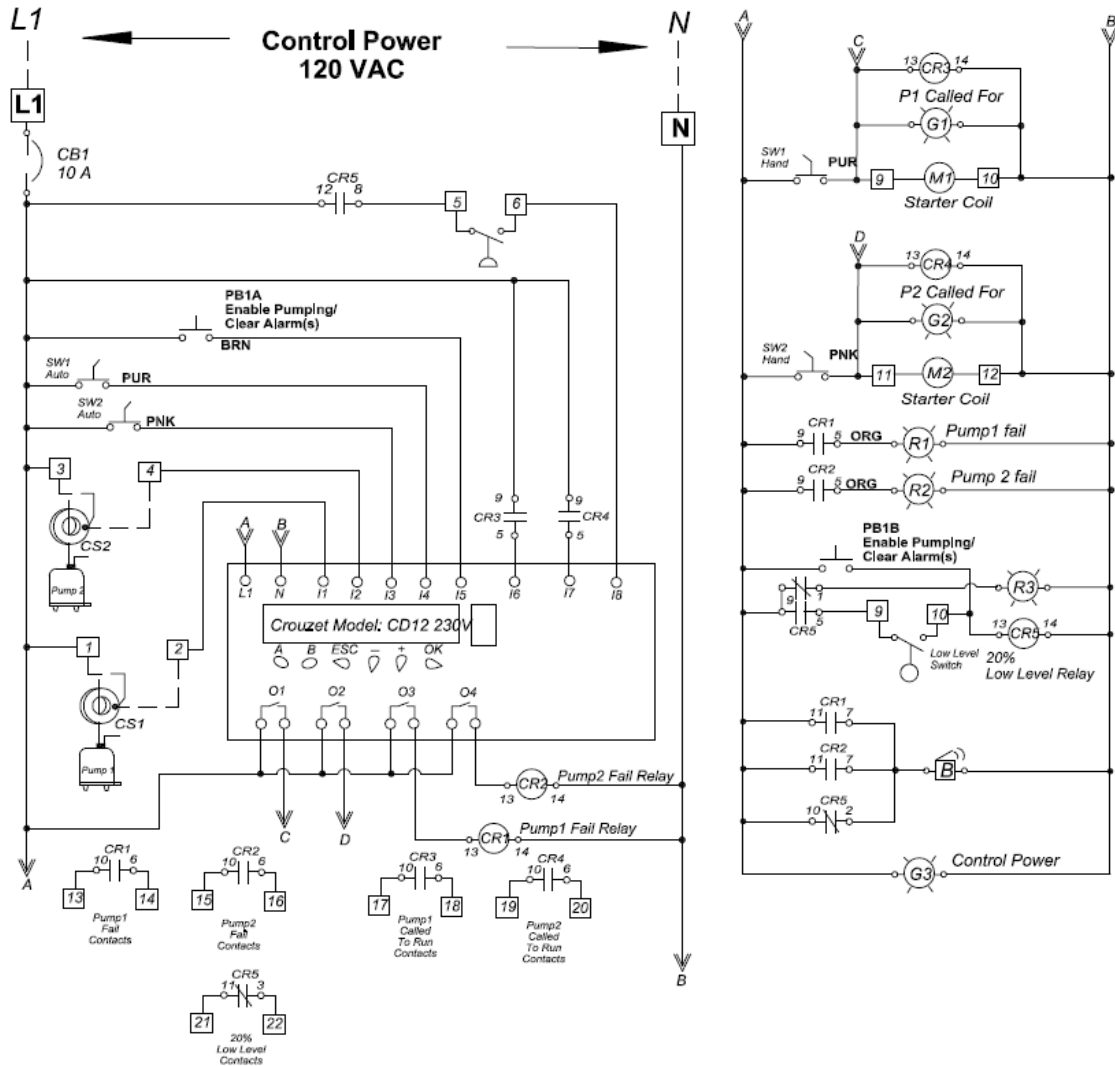
NOTES:
 1. ALL PIPE 1/2" SCH 40
 UNLESS NOTED OTHERWISE.

ALL UNITS ARE INCHES.
 SCALE: NONE

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REDUNDANT GLYCOL SYSTEM P&ID		JWRP-53-030/055/100	
REVISION	DATE	BY	
SIZE A	DR. DCM 4/4/11	THE JOHN WOOD COMPANY VALLEY FORGE, PA.	
	CH. _____	JWRP-53 PID	
	APP. _____	REV	

Electrical Panel Diagram



Spare Parts

The following replacement part(s) are available:

- | | |
|--------------------|--------------|
| 1. Level Switch | #100099130 |
| 2. Relief Valve | #100099125 |
| 3. Expansion Tank | #JNER-14-008 |
| 4. Pressure Switch | #100099121 |
| 5. Pump | #100099115 |
| 6. Pressure Gauge | #060563006 |