J.L. WINGERT CO.

GLYCOL FEED SYSTEMS
OPERATION & MAINTENANCE MANUAL

PLEASE RECORD THE FOLLOWING DATA
(Information is located on the product label or packing slip)

Model Number: _____

Service: _____

Serial Number: _____

Installation Date: _____

Installation Location / Application: _____

The above information will help when ordering replacement parts and accessories for your Wingert Glycol Feed System.

J.L. WINGERT CO. MANUFACTURED PRODUCTS

Mixers, Bypass Feeders, Filter Feeders, Bromine Feeders, Sample Coolers, Sludge Traps, Separators, Separator Systems, Tank Stands, Tank Package Systems, Glycol Feed Systems, Coupon Racks,Control Stations, Boiler Chemical Feed Systems, NEMA Enclosures, Custom Packaged Systems and Specialty Welding

P.O. Box 6207 • Garden Grove, CA 92846-6207 / 11800 Monarch St. • Garden Grove, CA 92841-2113 • Phone (714) 379-5519 • Fax (714) 379-5549
Northern California Region • Phone (510) 487-5310 • Southwest Region • Phone (602) 470-1015 • Email: customerservice@jlwingert.com
www.jlwingert.com

OM161000.D 03/18

1.0 INTRODUCTION

These heavy duty automated systems deliver a comprehensive package at a modest cost. With four standard models and a long list of custom options, Wingert Glycol Feed Systems offer the flexibility of varying pressure control ranges, tank and pump sizes, instrumentation and much more.

2.0 WARRANTY

Wingert Glycol Feed Systems are warranted against manufacturing defects in material and workmanship for one year from the date of shipment. Applications outside the service for which the product is designed will automatically void any warranty. J.L. Wingert Co. will repair or replace a defective unit when returned to the factory with transportation prepaid. Final determination will be made upon inspection. J.L. Wingert Co. assumes no liability for labor and/or other expenses in making repairs or adjustments. All replacements will be F.O.B. factory. There are no other implied or expressed warranties.

Motors, pumps or other items not manufactured by J.L. Wingert Co., are warranted by the original manufacturer. Repair or replacement is contingent upon inspection and determination by the original manufacturer. Their findings are final and beyond our control.

3.0 UNPACKING

Do not store outdoors unless the model has been purchased as an outdoor system. Wingert Glycol Feed Systems are assembled and ready for installation. Inspect packaging upon receipt for any damage. Unpack and inspect the product for physical damage and verify that goods received correlate with packing list. The factory must be notified within 3 days after receipt of any discrepancies. If any product is damaged due to freight handling, contact the freight carrier to register a claim and contact the factory immediately for further assistance.

NOTE: Most freight carriers only allow 3-5 days after receipt of goods to file a freight claim.

3.1 CHECKLIST

Please verify receipt of your product by using the following table and model numbers to identify the contents.

GL 50 - _ E 1 - 1 / B - C - HTM

OPTIONS	
B	95 Decibel audible alarm and silence switch
C	Remote dry contact on low level, (PLC interface, control room alarm)
ET	Expansion tank, 4.5 gallon with adjustable pressure reducing valve (70 PSI Max. Pressure)
HC	High level float switch with remote dry contact (PLC interface)
HN	1/3 hinged cover using stainless steel piano hinge with stainless steel hardware
HTM	High temperature steel discharge manifold with high temperature hoses
LPA	Low pressure dry-contact alarm
MXR	TEFC tank stand mounted mixer with on/off switch (1/20 HP for ≤50 gallons, 1/4 HP for 100 gallon)
TEFC	TEFC (Totally Enclosed Fan Cooled) pump motor in place of standard motor
(OUTDOOR)	Outdoor rated glycol system, (TEFC pump, solid cover, cover is bolted to the tank)

PRESSURE CODE			
OPTIONS	**CUT-IN RANGE (PSI)**	**CUT-OUT RANGE (PSI)**	**PRESSURE DIFFERENTIAL (PSID)**
1*	10 - 45	20 - 60	10 - 30
2	40 - 80	65 - 100	20 - 40
3	3 - 10	9 - 30	6 - 20
D**	0 - 149	1 - 150	1 - 149
X	No Pressure Switch		

PUMP HORSEPOWER/OUTPUT	
X	No Pump
1	1/3 HP pump, 1.7 GPM @ 50 PSI
2	1/2 HP pump, 3.6 GPM @ 50 PSI

TANK / DISCHARGE MATERIAL	
E	Economy (PE tank, PVC plumbing)
H	High Temp (Carbon steel tank and plumbing)

NUMBER OF PUMPS	
BLANK	1 Pump
2	2 Pumps

TANK VOLUME	
15	15 Gallons
30	30 Gallons
50	50 Gallons
100	100 Gallons

BASE MODEL	
GL	Standard Glycol Feed System
TGL	Tri-Leg Glycol Feed System

*Pressure code which is the factory standard. Other settings available upon request.

**D Represents Digital Glycol Feed System

NOTE: Custom systems are offered when your needs are not met by the standard model numbers. Check inside the control panel for the design pressure settings on a custom system or consult the factory for assistance at customerservice@jlwingert.com or (714) 379-5519.

4.0 SAFETY

J.L. Wingert Co. manufactured equipment is designed and built with safety in mind. However, proper installation and operation is necessary for your overall safety.

DO NOT INSTALL, OPERATE OR REPAIR THIS EQUIPMENT WITHOUT READING THIS MANUAL AND THE SAFETY PRECAUTIONS CONTAINED THROUGHOUT.

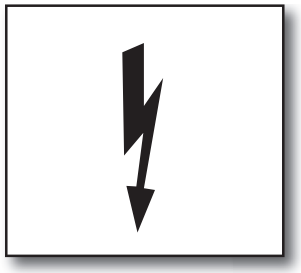
BE SURE THAT ALL INSTALLATION, OPERATION, MAINTENANCE AND REPAIR PROCEDURES ARE PERFORMED ONLY BY QUALIFIED INDIVIDUALS.

4.1 SAFETY HIGHLIGHTS

Read and understand the following safety highlights.

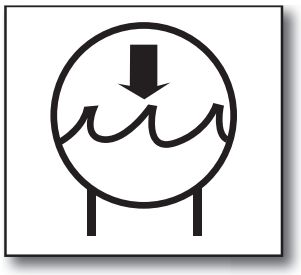
ELECTRICAL SHOCK CAN KILL

Do not perform any services without first disconnecting electrical service to all equipment. Electrical power is present at the motor, pressure switch and inside the electrical enclosure.



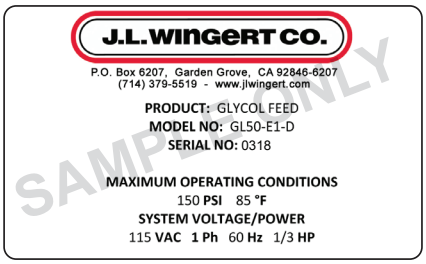
ELECTRICAL SERVICE CONNECTION

Install and ground equipment in accordance with the U.S. National Electrical Code, all local codes and the manufacturer's recommendations. Electrical installation and repair should be performed by a qualified individual.



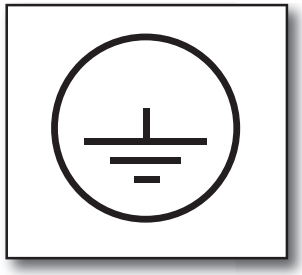
PRESSURE INSIDE THE UNIT

See design specification for maximum operating pressure. Do not perform maintenance or repair without first releasing all pressure and draining any fluid from the unit.



EQUIPMENT IDENTIFICATION LABEL

Equipment Identification Label provides equipment information. Be sure the voltage, phase and frequency of the input power are as specified on the Equipment Identification Label and conform with your requirements.



GROUND CONNECTION

Input power and ground system for safe operation of the equipment. See your local and National Electrical Codes for proper grounding methods. Electrical installation and repair should be performed by a qualified individual.

5.0 LOCATION AND ENVIRONMENT

Although the control box is NEMA 4X, the pump motor is an open motor, unless the TEFC option is ordered. **Wingert Glycol Feed Systems should be installed indoors in a dry, covered location and should not be exposed to direct weather conditions, unless the model has been purchased as an outdoor system.**

6.0 INSTALLATION

6.1 MOUNTING

Utilizing the four 25/64" bolt holes located at the base of each vertical support leg, firmly secure the Glycol Feed System to a level concrete pad. Be sure that the pad and anchors complies with local codes.

6.2 PLUMBING

1) On the discharge of the Glycol Feed System, install a union and an isolation valve.

2) Plumb the discharge of the Glycol Feed System per the recommendations of the Project's Design Engineer.

3) Plumb the Glycol Feed System within 10 feet of the injection point. Failure to do so can result in a drop in the Glycol Feed System's pump performance, and the pump's output pressure might have to be adjusted (see Section 10.2 on how to adjust the pump's output pressure.)

6.3 WIRING

J.L. Wingert Co. Glycol Feed Systems are supplied with an 8 foot, 14 gauge, 115 VAC power cord. Plug the Glycol Feed System into a 115 VAC, 15 amp minimum receptacle.

6.4 HARDWIRING

1) Install a disconnect box.

2) Connect power from the Disconnect to the Glycol Feed System's control panel.

3) Connect the wires to the following terminals:

   Terminal 1: Ground (Green wire)

   Terminal 2: Hot (Black wire)

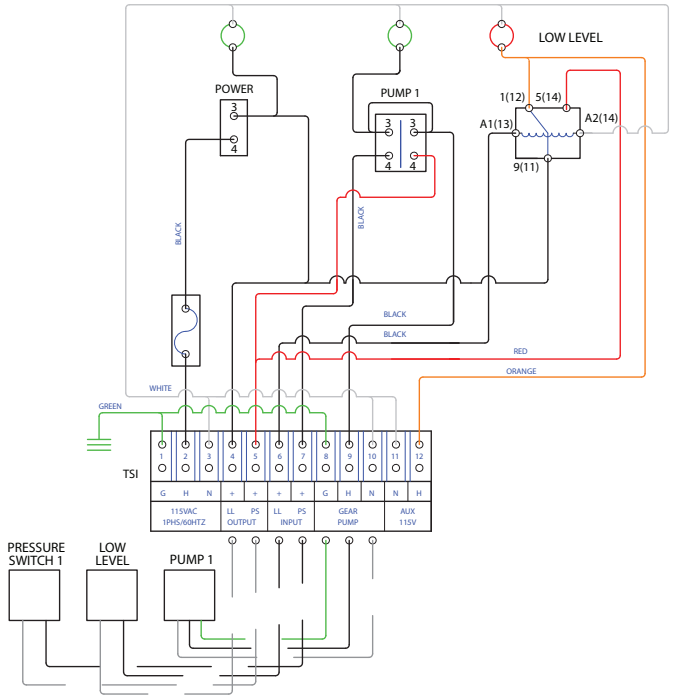
   Terminal 3: Neutral (White wire)

4) OPTIONAL: The Glycol Feed System is supplied with a 115VAC powered remote low level indicator. To utilize this, connect to the following terminals:

   Terminal 1: Ground (Green wire)

   Terminal 11: Low Level Alarm Output Neutral (White wire)

   Terminal 12: Low Level Alarm Output Hot (Black Wire)



7.0 OPERATION OF A [T]GL[ ]-[ ]-[1,2,3 or D]

1) With the system installed and connected to the hydronic system, and the power connected, fill the tank with the desired amount of required chemical solution.

2) Turn the MAIN POWER switch to the ON position.

3) Turn the PUMP switch to the HAND "H" position to manually feed glycol in the system.

4) Verify that there are no leaks, and turn the PUMP switch to the OFF "O" position.

5) Turn the PUMP switch to the AUTO "A" position to operate in automatic mode. In automatic mode the system will turn on based on a loss of pressure. To adjust the pressure switch refer to Section 10.1.

7.1 OPERATION OF A [T]GL[ ]-[ ]-X

NOTE: The GL[ ]-[ ]-X does not come with a pressure switch.

1) With the system installed and connected to the hydronic system, and the power connected, fill the tank with the desired amount of required chemical solution.

2) Turn the MAIN POWER switch to the ON position.

3) Turn the PUMP switch to the HAND “H” position to manually feed glycol in the system.

4) Verify that there are no leaks, and turn the PUMP switch to the OFF “O” position.

5) To feed glycol into the system, turn the PUMP switch to the HAND “H” position.

6) Once the desired amount is fed, turn the Pump switch to the OFF “O” position.

7.2 OPERATION OF A [T]GL[ ]-[ ]-X BY AN EXTERNAL CONTROL

NOTE: The GL[ ]-[ ]-X does not come with a pressure switch.

1) Open the control panel and connect the external switch to Terminals # 5 and 7. **NOTE:** The external control switch needs to be rated for a 10 AMP inductive load. See the wiring diagram to the right.

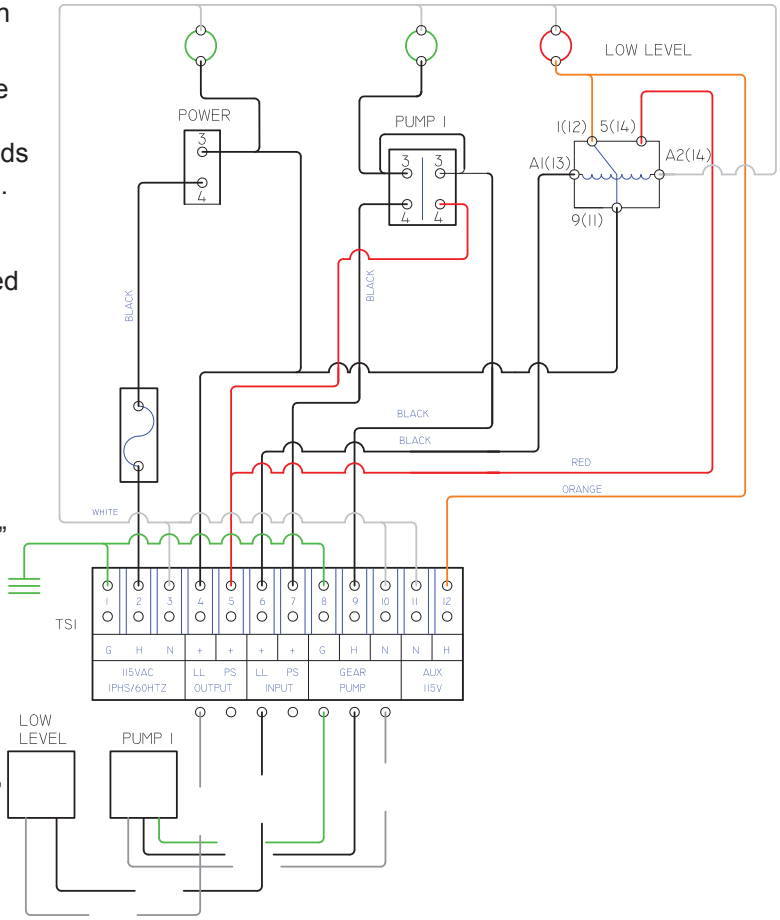
2) With the system installed and connected to the hydronic system, and the power connected, fill the tank with the desired amount of required chemical solution.

3) Turn the MAIN POWER switch to the ON position.

4) Turn the PUMP switch to the HAND “H” position to manually feed glycol in the system.

5) Verify that there are no leaks, and turn the PUMP switch to the OFF “O” position.

6) Turn the PUMP switch to the AUTO “A” position to operate in automatic mode. In automatic mode the system will turn on based on the external control.



8.0 PRESSURE SWITCH SETTINGS / FACTORY STANDARD SETTINGS

PRESSURE CODE	CUT-IN RANGE (PSI)	CUT-OUT RANGE (PSI)	PRESSURE DIFFERENTIAL (PSID)	DEFAULT SETTING CUT-IN (PSI)	DEFAULT SETTING CUT-OUT (PSI)
1	10 - 45	20 - 60	10 - 30	10	40
2	40 - 80	65 - 100	20 - 40	40	80
3	3 - 10	9 - 30	6 - 20	3	10
D	0 - 49	1 - 150	1 - 149	10	40
X	NO PRESSURE SWITCH				

9.0 PRESSURE AND TEMPERATURE LIMITATIONS

TEMPERATURE (ºF / ºC)	NON-SHOCK PRESSURE RATING			
	PVC MANIFOLD GL[ ]-E[ ]-[ ]		CARBON STEEL MANIFOLD GL[ ]-E[ ]-[ ]/HTM, GL[ ]-H[ ]-[ ]	
	PSI	BAR	PSI	BAR
73º / 23º	150.0	10.3	300.0	20.6
90º / 32º	100.0	6.9	300.0	20.6
110º / 43º	75.0	5.2	300.0	20.6
130º / 54º	45.0	3.1	300.0	20.6
150º / 66º	N/A	N/A	300.0	20.6
200º / 93º	N/A	N/A	265.0	18.2
250º / 121º	N/A	N/A	185.0	12.7

MAXIMUM OPERATING TEMPERATURE	ºF	ºC
PUMP	150º	65.5º
LOW LEVEL SWITCH	221º	105º
CHECK VALVE	250º	121.1º
PRESSURE RELIEF VALVE	200º	93.3º
POLYETHYLENE TANK	104º	40º
CARBON STEEL TANK	250º	121.1º

NOTE: 1) Maximum ambient temperature should not exceed 100ºF (37.7ºC), unless otherwise specified.
2) Minimum fluid temperature 50ºF (10ºC), unless otherwise specified.

10.0 PRESSURE ADJUSTMENTS

10.1 HOW TO ADJUST THE PRESSURE SWITCH (FOR NON-DIGITAL MODELS)

(See page 10 for the Pressure Switch parts locations)

***Note:** For instructions on changing the Cut-In and Cut-Out values for a Digital Glycol, please see the Digital Glycol System Programming Guide. The factory typically sets the pump discharge pressure 20PSI above the Cut-Out pressure. To adjust the pump output pressure, see Section 10.2. If the Glycol Feed System has the OPTION ET, the pressure switch does not need to be changed, only the pressure reducing valve. See Section 10.3 on how to adjust the pressure reducing valve.

1) In order to field adjust the pressure switch part # 1640-669, Glycol Adjustment Kit, must be ordered.
2) Turn off the Main Power switch on the Glycol Feed System control panel.
3) Disconnect the Glycol Feed System from the closed loop system it is to feed into.
4) Install the ball valve and hose assembly from part # 1640-669 on the discharge of the Glycol Feed System.
5) Route the free end of the hose from part # 1640-669 into the Glycol Feed System Tank.
6) Remove the cover to the Pressure Switch.
7) Turn the Cut-In adjustment nut (#4) clockwise a couple of turns.
8) Turn the Main Power switch to the ON position, and then turn the Pump H-O-A switch to the hand “H” position.

10.1 HOW TO ADJUST THE PRESSURE SWITCH (FOR NON-DIGITAL MODELS) Continued

9) With the pump on, adjust the ball valve until the Glycol Feed System's pressure gauge displays the desired Cut-In pressure.

10) Adjust the pressure switch Cut-In adjustment nut (#4) until the contacts on the pressure switch close. This will make an audible "click."

11) Open the ball valve to drop the pressure back down to 0.

12) Close the ball valve until the Glycol Feed System's pressure gauge displays the desired Cut-Out pressure.

13) Adjust the Cut-Out adjustment nut (#5) until the contacts on the pressure switch open. This will make an audible "click."

14) Turn the Pump H-O-A switch to the OFF position "O", and turn the Main Power switch to the OFF position.

15) Replace the pressure switch cover.

16) Remove the Pressure Adjustment Kit and connect the Glycol Feed System to the closed loop system.

17) Turn the Main Power switch to the ON position and the Pump H-O-A to the auto "A" position. The Glycol Feed System will now feed glycol once the pressure drops to the desired Cut-In pressure and will stop at the desired Cut-Out pressure.

10.2 HOW TO ADJUST THE PUMP'S OUTPUT PRESSURE

(See page 10 for the pump parts locations) *Note: The factory typically sets the pump discharge pressure 20 PSI above the Cut-Out pressure.

1) To adjust the pump's output pressure, the Glycol Feed System can remain connected to the closed loop system.

2) Close the system isolation valve.

3) Remove the acorn nut (#5) from the side of the pump.

4) Turn the pump on by turning the pump switch to the "H" hand position, and adjust the screw clockwise to increase the pressure and counter clockwise to decrease the pressure.

5) Verify the desired pump's output pressure by looking at the Glycol Feed System's pressure gauge.

6) Once the desired pressure is reached turn the adjustment screw counter clockwise 1/8 turn.

7) Turn the pump off and install the acorn nut (#5).

8) Open the isolation valve and turn the Pump H-O-A switch to the auto "A" position to resume the automatic feed.

10.3 HOW TO ADJUST THE PRESSURE REDUCING VALVE (OPTION ET)

1) To adjust the pressure reducing valve, the Glycol Feed System can remain connected to the closed loop system.

2) Loosen the jam nut on the pressure reducing valve's adjustment screw.

3) To increase the discharge pressure of the pressure reducing valve; turn the adjustment screw clockwise, and to reduce the discharge pressure of the pressure reducing valve; turn the adjustment screw counter clockwise. **Note:** The pressure reducing valve is preset to 16 PSI and has a minimum discharge pressure of 10 PSI and a maximum discharge pressure of 70 PSI.

4) Once the desired discharge pressure is shown on the top pressure gauge, tighten the jam nut. The discharge pressure is now set and this should match the system pressure.

10.4 HOW TO REPLACE THE PUMP HEAD AND/OR HOSES

1) Turn off the Main Power switch on the Glycol Feed System Control Panel.

2) Close the suction valve and the system isolation valve.

3) With a pair of channel locks or vise grips; securely hold the crimped portion of the hose, and then use a wrench on the hex portion to unthread the hose. NOTE: For an E1, the lower fitting on the hose use an 11/16" wrench and the upper fitting use a 7/8" wrench. For an E2, the upper and lower fittings both use a 7/8" wrench.

4) Using a 5/16" or 8mm socket or nut driver, loosen the V-Band clamp (#2 on page 10).

5) Once the V-Band clamp is sufficiently loosened, the pump head can be removed.

6) Follow the reverse directions to install the new pump head.

11.0 MAINTENANCE

Maintenance and care will depend upon the usage and environment in which the Glycol Feed System is subjected to. The following is the suggested regular maintenance required to keep the Glycol Feed System operating properly.

11.1 TANK AND PLUMBING

Routine Maintenance: Periodic checking of the piping and tubing is required to insure proper discharge of the glycol solution. The Y-Strainer and check valve should be periodically checked for clogging and wear.

11.2 PUMP AND MOTOR

Routine Maintenance: The pump should be checked for proper operation. If any noises, leaks or changes in operation are detected, the pump should be removed and examined by a certified technician.

11.3 LUBRICATION

The motors are permanently lubricated and do not require any additional lubrication. If the Glycol Feed System has a totally enclosed fan cooled (TEFC) motor, or is an outdoor rated unit that has a grease fitting, lubricate every 12,000 hours with EXXON Polyrex EM grease using .08 ounces per grease fitting. The following instructions are for regreasing the motors that have grease fittings. **Caution: Over lubricating can cause excessive bearing temperatures, premature lubrication can cause breakdown and bearing failure.**

1) With the motor stopped, clean all grease fittings with a clean cloth.

2) Remove grease outlet plug.

3) Add the recommended amount of grease.

4) Operate the motor for 15 minutes with grease plug removed. This allows excess grease to purge.

5) Re-install grease outlet plug.

11.4 PRESSURE SWITCH

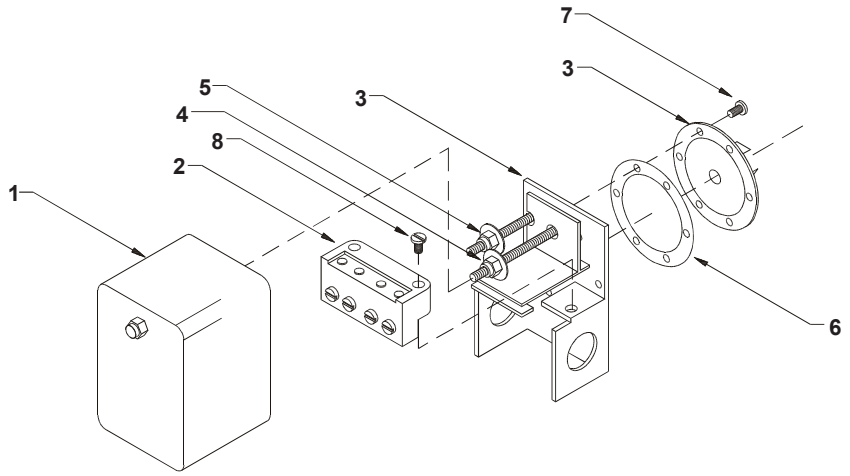
Routine Maintenance: The only maintenance required is a periodic check for wear on the contacts. The pressure switch should be replaced if damaged or worn.

11.5 PRESSURE RELIEF VALVE

Routine Maintenance: Periodic checking of the seat is the only maintenance required. The brass pressure relief valve must be removed from the line for servicing.

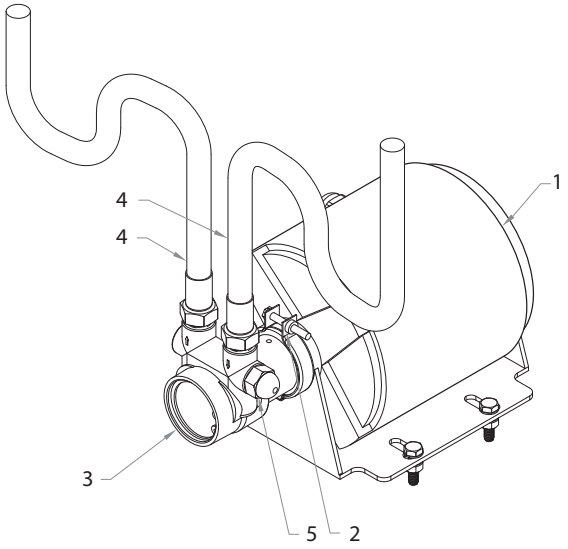
12.0 PARTS LISTING

12.1 PRESSURE SWITCH



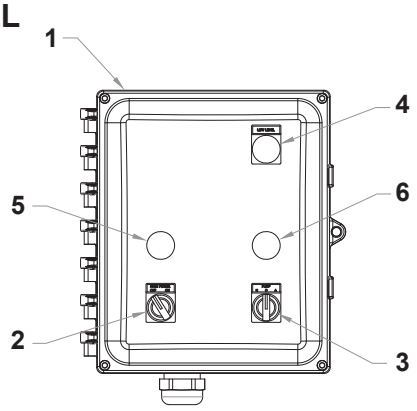
KEY	DESCRIPTION
1	Plastic Cover, Glass Filled Polycarbonate
2	Contact Block
3	Pressure Switch and Back Plate, 1/4” FNPT, Zinc Plated Gauge Steel
4	Cut-In (or On Setting) Adjustment Nut
5	Cut-Out (or Off Setting) Adjustment Nut
6	Pressure Bladder, Nitrile (Butadiene) Rubber
7	Diaphragm Screw
8	Contact Block Screw

12.2 GLYCOL FEED PUMP



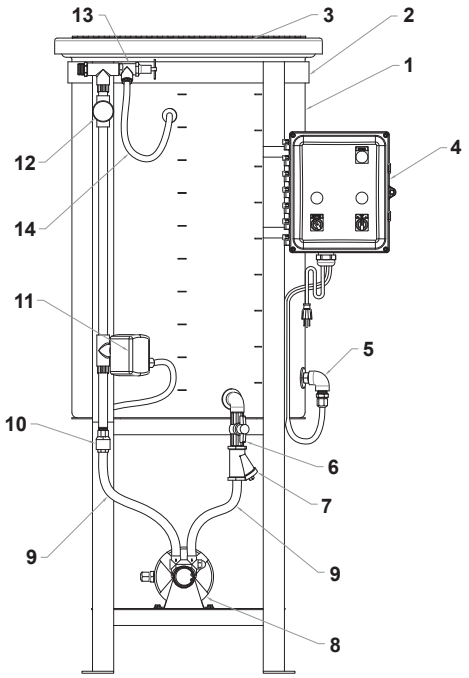
KEY	DESCRIPTION
1	Motor
2	V-Band clamp
3	Brass Rotary Vane Pump Head
4	Suction and Discharge hose
5	Acorn nut, pump pressure adjustment

12.3 NEMA CONTROL PANEL



KEY	PART #	DESCRIPTION
1	N/A	NEMA 4x polycarbonate enclosure
2	1640-510	Main power switch
3	1640-704	Pump H-O-A switch (two for dual unit)
4	1640-685	Red low level indicator light
5	1640-713	Green main power indicator light
6	1640-713	Pump power indicator light (two for dual unit)
*	1640-534	15 Amp slow blow fuse (located inside control panel)

12.4 GLYCOL FEED SYSTEM



NOTE: Part list is not intended for Custom Glycol Feed Systems. Please consult factory for replacement parts.

*Double for Dual Models

**Two hoses are required for each pump.

MODEL	GL[ ]-E[ ]-[ ]	GL[ ]-2E[ ]-[ ]	GL[ ]-H[ ]-[ ]	DESCRIPTION
KEY	PART #	PART #	PART #	
1	Consult Factory	Consult Factory	Consult Factory	Polyethylene tank (carbon steel for H[ ] model)
2	Consult Factory	Consult Factory	Consult Factory	Bottom mount carbon steel tank stand
3	Consult Factory	Consult Factory	Consult Factory	Cover
4	1640-67	1640-68	1640-67	NEMA 4X control panel, polycarbonate
5	1640-62	1640-62	1640-62	1/2” MNPT Polypropylene level switch
6*	1625-005-PVC	1625-005-PVC	1625-005-BR	1/2” ball valve
7*	1640-659	1640-659	1640-659	1/2” Cast iron Y-Strainer
8*	1640-529	1640-529	1640-529	1/3HP 1.7 GPM @ 50 PSI pump and motor
	1640-684	1640-684	1640-684	1/3HP 1.7 GPM @ 50 PSI pump only
	1640-557	1640-557	1640-557	1/3HP ODP motor only
	1640-682	1640-682	1640-682	1/2HP 3.6 GPM @ 50 PSI pump and motor
	1640-697	1640-697	1640-697	1/2HP 3.6 GPM @ 50 PSI pump only
	1640-530	1640-530	1640-530	1/2HP ODP motor only
9**	1640-654	1640-654	N/A	3/8" MNPT x 1/2" MNPT x 20” braided hose (for use with E1 pump)
	1640-715	1640-715	1640-715	3/8" MNPT x 1/2" MNPT x 20” high temp hose (for use with E1 pump and HTM option)
	1640-687	1640-687	N/A	1/2" MNPT x 1/2" MNPT x 20” braided hose (for use with E2 pump)
	1640-714	1640-714	1640-714	1/2" MNPT x 1/2" MNPT x 20” high temp hose (for use with E2 pump and HTM option)
10*	1640-709	1640-709	1640-709	1/2” bronze check valve
11*	1640-649	1640-649	1640-649	Pressure Code # 1 pressure switch
	1640-54	1640-54	1640-54	Pressure Code # 2 pressure switch
	1640-55	1640-55	1640-55	Pressure Code # 3 pressure switch
12*	1640-58	1640-58	1640-58	2” 0-30 PSI pressure gauge 1/4" MNPT
	1640-56	1640-56	1640-56	2” 0-60 PSI pressure gauge 1/4" MNPT
	1640-57	1640-57	1640-57	2” 0-200 PSI pressure gauge 1/4" MNPT
13*	1640-675	1640-675	1640-675	1/2” brass adjustable pressure relief valve
14*	1640-716	1640-716	N/A	1/4" MNPT x 1/4" MNPT X15” braided pressure relief hose
	1640-688	1640-688	1640-688	1/4" MNPT x 1/4" MNPT X15” high temp pressure relief hose (for use with HTM option)

13.0 TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	POSSIBLE SOLUTION
Low Flow Rate	Piping and/or equipment is dirty or fouled	Verify that all piping is clear from obstructions and the Y-Strainer is clean.
	Suction or discharge is restricted	Verify that all valves are fully open and the Y-Strainer is clean.
	Pump may be worn out	Consult factory.
Pump runs but no fluid is pumped	Pump suction valve may be closed	Verify that all valves are fully open.
	Y-Strainer may be clogged	Clean the Y-Strainer.
	Pump may be worn out	Consult factory
Low pressure	Unit was ordered with a pressure settings below closed loop system pressure	Refer to Sections 10.1 and 10.2 to adjust the pressure settings.
	Pump may be worn out	Consult factory.
Pump does not turn off at low level	Level switch is stuck or defective	With the power off and using a multimeter, check continuity between terminals #4 and #6. In the low level state there should not be continuity.
	Low level relay is burnt out or defective	Perform test described above, if there is no continuity then replace the relay.
Tank is over flowing	Check valve is not seating	Close pump suction isolation valve and turn the Pump H-O-A Switch to Off “O”, if tank continues to overflow then the pressure relief valve is the problem. If it does not continue to overflow then remove and inspect the check valve. Replace if necessary.
	Pressure relief valve is relieving pressure into Glycol Feed Tank	To increase the pressure relief valve setting by first loosening the knurled jam nut and turning the T-bolt clockwise. Then tighten the knurled jam nut.
Pump cycles on and off repetitively	Leak in discharge or system piping	Inspect piping for leaks and repair.
	Pressure settings are not adequate	Refer to Sections 10.1 and 10.2 to adjust the pressure settings. Replace the pressure switch to the correct model if desired pressure settings are outside of the existing pressure switches capabilities.

14.0 NOTES