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## Industrial Glycol Feed Units 55/100 Gallons Installation, Operation and Maintenance Manual



Pictured: 55 Gallon Simplex, No Options

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## UNIT DESCRIPTION

This form contains information necessary to install, operate and maintain Glycol Feed Units manufactured by Skidmore®. The information is assembled in order, from receiving the product to its proper maintenance, to enable you to follow the product through the various steps necessary to implement.

The Skidmore® Industrial Glycol Feed Unit is designed to bring an automatic supply of water-glycol mix to any heating or cooling closed-loop system. Factory engineered and assembled, Glycol Feed units are available in 55- and 100-gallon capacities. These compact and self-contained units make for an easy install and no-hassle operation. Easy plug 'n play run capability also allows for immediate usage.

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## INSTALLATION AND OPERATION

### Installation:

1. Locate the unit in an area that provides ample room for maintenance personnel to service and maintain the unit. Suitable electrical service should also be available at site.
2. Secure unit to level floor using anchor bolts that are sized to the units mounting feet.
3. Unit comes with a standard male ½” NPT discharge connection. Plumb discharge into the make-up line on the closed loop system. It is not recommended to install a check valve between the glycol feeder and the system; rather, there must be an isolation valve separating the feeder from the system.  
**NOTE:** Only use pressure rated and approved pipe fittings (Min. pressure rating - 100 psi). Do not over-tighten fittings. Support discharge line with proper pipe hangers.
4. Unit is supplied with a 9-foot, 110 VAC, single phase power cord. Unit is to be plugged into a 110 VAC ground fault interrupt receptacle with appropriate circuit breaker protection (see label inside of panel for electrical ratings).

Standard Flow Pump (1/3 HP)		
Number of Pumps	MCA	MOP
Simplex Unit	9.0 Amps	16.0 Amps
Duplex Unit	19.0 Amps	25.0 Amps
High Flow Pump Option (1/2 HP)		
Simplex Unit	13.0 Amps	22.0 Amps

### First Time Set Up:

1. Ensure that the suction gate valve is closed, the discharge isolation valve is closed, the power is disconnected, and all power switches on the panel are in the “off” position.
2. Remove the lid and fill the unit with glycol mixture (50/50 glycol/water mixture recommended)
3. Visually confirm that the float switch is freely floating, and there are no leaks in the system.
4. Plug in the power cord.
5. Open the suction gate valve and the discharge isolation valve.

6. Turn the power switch to the “on” position and note that the power light turns on.
7. Turn the pump switch to the “Hand” position to prime the pump, after two to three seconds, turn the pump switch to “Auto”. If a duplex unit, do this for each pump individually. The system will run until the cut-off pressure is reached.

### Standard System Operation:

When the system pressure falls below the cut-in set point (Standard factory setting of 10 psi), the Glycol Feed Pump will activate and re-pressurize the system until the target cut-out pressure is reached (Standard factory setting of 40 psi). Both values may be adjusted in the field (see page 4), though this is not recommended due to the difficulty of verifying pressure changes. Once the glycol mixture level reaches the low-level set point, the alarm will activate, and the pump(s) will be deactivated until the mixture level is restored.

### Options Operation:

- **Steel or Stainless-Steel Expansion tank:** Expansion tank will pressurize along with the system and will help to maintain pressure on the system for up to two gallons of capacity, reducing pump cycles per hour. Tank is pre-charged by the factory to 2 psi lower than the cut-in pressure (8 psi standard). Tank may be charged in the field as shown on page 4.
- **Timed Alternation:** The timed alternation option equalizes the runtime between pumps on a duplex system. Unlike a standard electric alternator which alternates based on starts-stops, the timed alternation switches the primary pump based on a pre-set runtime. (Standard System – 10 min.)
- **Automatic Mixing Timer:** Periodically, the pump(s) will activate, and a solenoid valve controlled mixing loop will open, agitating the glycol mixture for a pre-determined time frame (Standard interval – 3 min. every 100 hrs.). Adjustment may be completed as indicated on page 5.
- **High Level Alarm:** The high-level float activates the alarm when the tank enters a high-level state, until the tank level is lowered.
- **Pressure Regulating Valve:** The pressure regulating valve is placed at the discharge and reduces the output pressure as desired. May be adjusted as indicated on page 5.

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## MAINTENANCE

### General:

- a) The glycol tank must be monitored and filled on a regular basis. Glycol mix is to be added by removing the lid and pouring the mixture into the tank. The low-level float will prevent the tank from fully emptying.
- b) Periodic maintenance will also be required on the pump suction strainer. Unit is to be shut down, close the suction gate valve, and remove the strainer cap built into the pump. The screen can now be removed and cleaned.

**WARNING:** Failure to keep the screen clean will result in a pump dry-run condition resulting in pump failure.

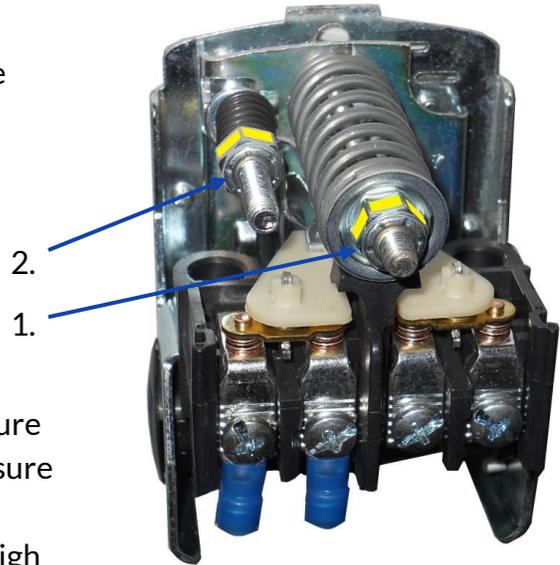
## MAINTENANCE (CONT.)

### Adjusting the Pressure Switch:

NOTE: As adjusting the pressure in the field can be difficult, it is recommended that the customer determine the pressure requirements before ordering, and the factory will send out the unit pre-adjusted.

To adjust the pressure switch:

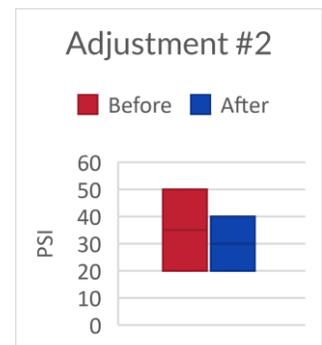
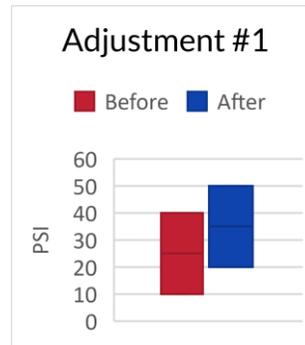
1. Determine the cut-in/-off positions of the pressure switch.
2. Calculate the range of the pressure switch.  
(Range = Cut off pressure - Cut-in Pressure)
3. Turn the power switch to the "off" position and disconnect the power cord.
4. Close the discharge isolation valve.
5. Adjust the screws as below:
  - a. Turn #1 nut to adjust both cut-in/-off pressure simultaneously. Clockwise to increase pressure (1 complete turn = ~2 PSI)
  - b. If necessary, turn #2 nut to adjust cut-off (high range value). Clockwise to increase pressure (1 complete turn = ~2 PSI)
6. Reverse steps 4-3 to restore system to operation.



### Example:

Cut-in/-off of 10/40 psi to 20/40 psi

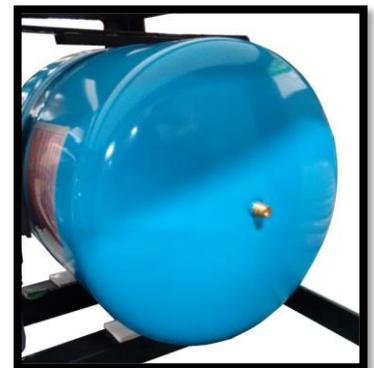
1. Turn #1 nut completely 5 times clockwise.
2. Turn #2 nut completely 5 times counterclockwise.



### Adjusting the Expansion Tank (Option – ET/SET):

Tank pre-charge valve is located on the back side of the expansion tank. A standard tire inflator chuck may be used when adjusting the pressure.

1. De-pressurize the system prior to tank adjustment.
2. Pre-charge to 2 psi below cut-in value.  
(Standard system – 8 psi)



## MAINTENANCE (CONT.)

### Adjusting the Automatic Mixing Loop (Option - AMT):

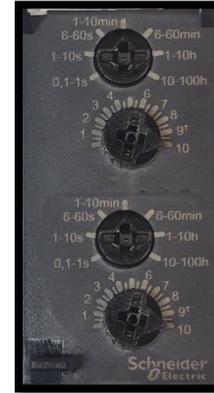
The unique timed mixing loop utilizes the standard glycol pump to recirculate the fluid in the tank, keeping the glycol at an even mix.

The cycles are end-user programmable for duration of the mix run time and the off cycles.

The system also has a built-in override relay that automatically interrupts the mix cycle when the system has a demand for makeup.

#### EX:

Factory Setting: 3 min. every 100 hrs. (Pictured)	
Top Dial	"1-10min"
Top-Middle Dial	"3"
Bottom-Middle Dial	"10-100h"
Bottom Dial	"10"



### Adjusting the Alternating Timer (Option - ALT):

The Alternating Timer equalizes runtime between the pumps, extending the life of the whole system. The alternating time is end-user programmable.

#### EX:

Factory Setting: 10 min/pump (Pictured)	
Top Dial	"1-10min"
Top-Middle Dial	"10"
Bottom-Middle Dial	"Di"
Bottom Dial	Full Counter-clockwise



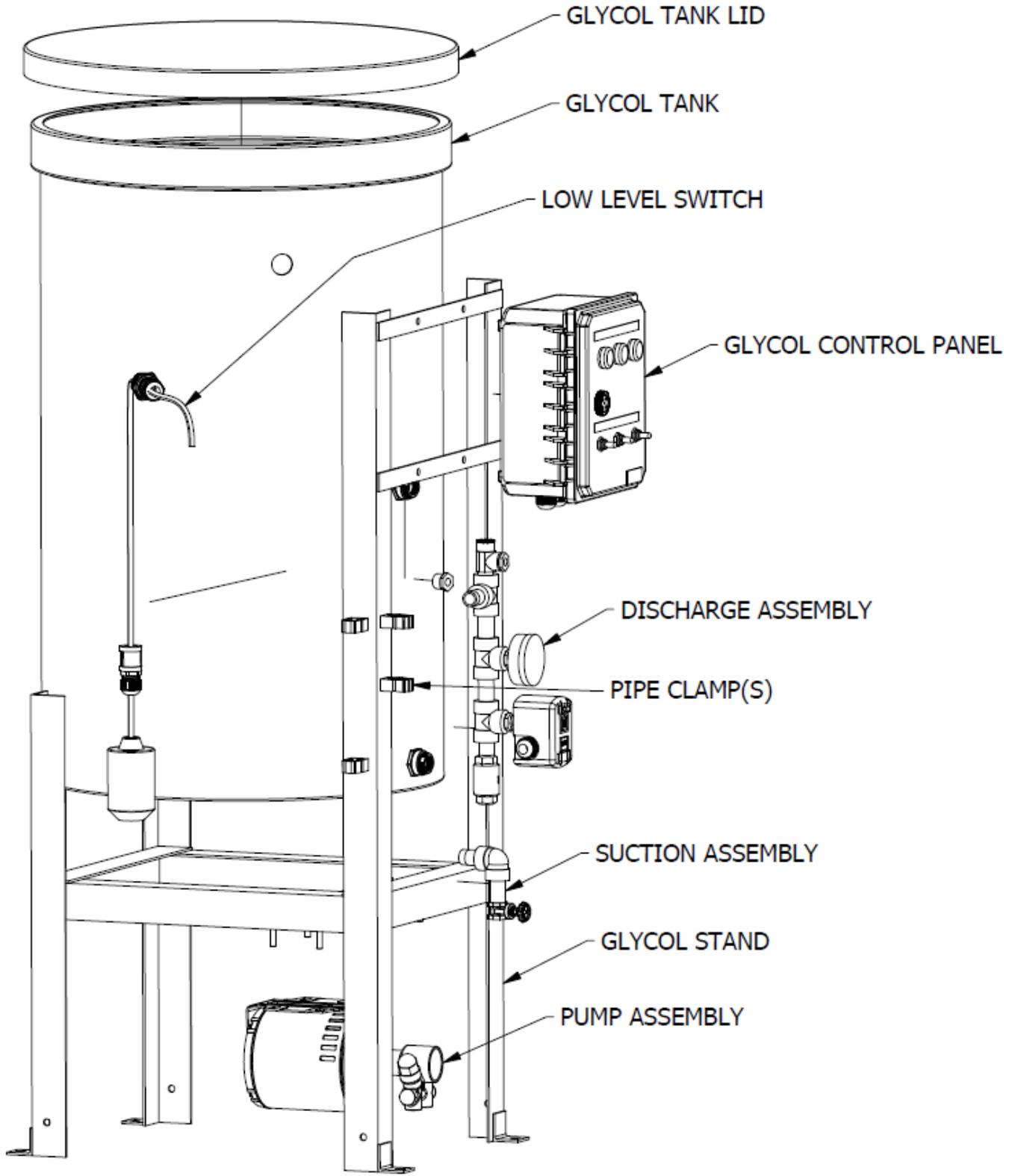
### Adjusting the Pressure Regulating Valve (Option - PRV):

**Note:** PRV must be set to at least 15 psi below the cut-off pressure to function properly. (Standard Cut-off - 40 psi)

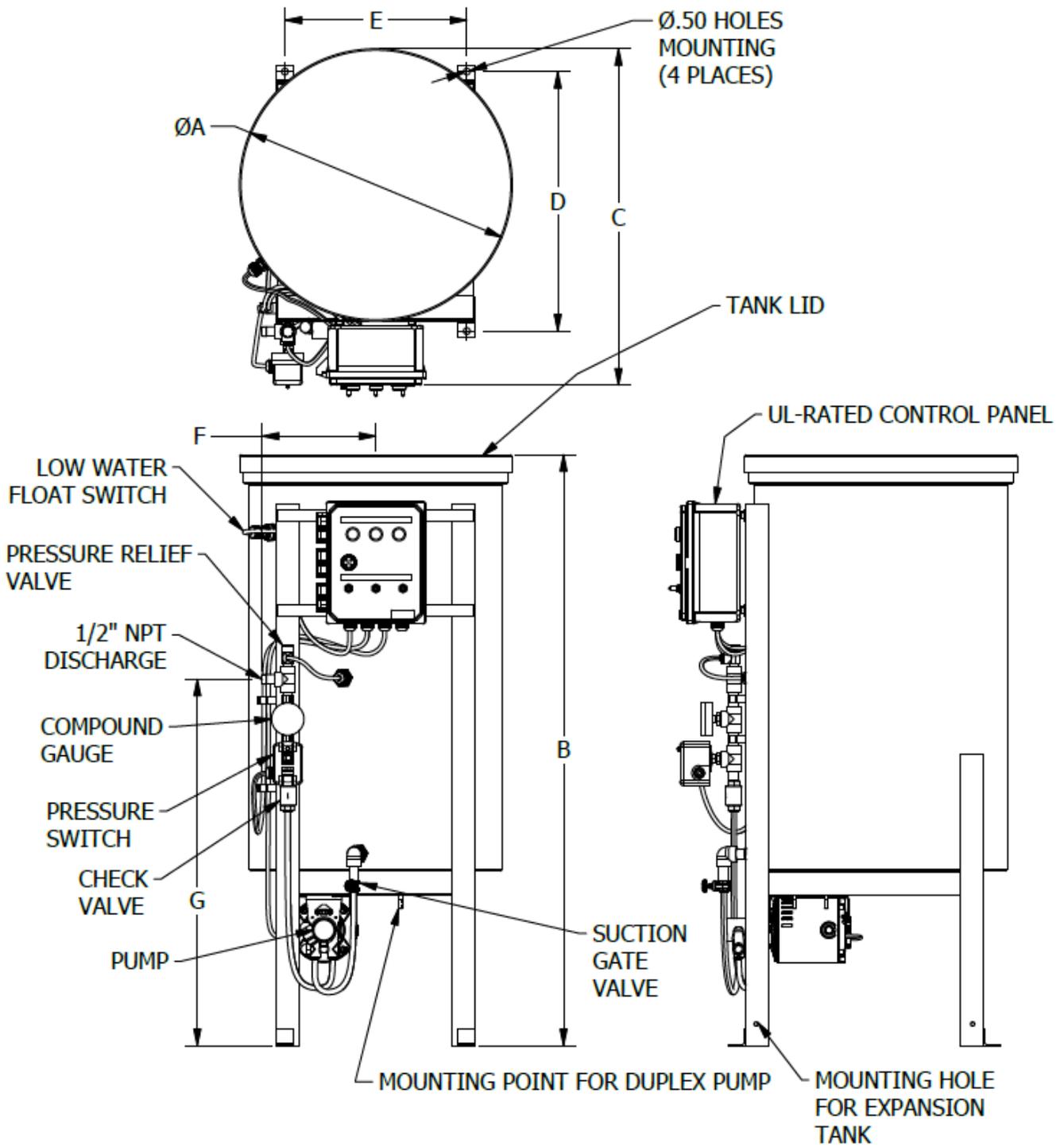
To adjust the PRV:

1. Disconnect Discharge line from system, allowing the loop to depressurize.
2. Loosen locking screw.
3. Turn the dial to the desired set pressure.
4. Tighten the locking screw.
5. Reconnect the discharge line.

## EXPLODED VIEW



# DIMENSIONAL MODEL



ALL DIMENSIONS ARE APPROXIMATE AND GIVEN IN INCHES

TANK CAPACITY (GAL)	A	B	C	D	E	F	G
55	23 5/8	51 1/4	37 3/4	22 1/2	15 3/4	9 7/8	30 7/8
100	33	51 1/2	29 3/16	30 1/8	19	11 7/8	30 7/8

## TROUBLESHOOTING GUIDE

A troubleshooting chart is shown below to enable you to isolate any problems you may encounter when operating the Skidmore® Industrial Glycol Feed Unit.

SYMPTOM	POSSIBLE CAUSE	REMEDY
1. Substantial pressure difference between feeder discharge and system.	1a. Discharge isolation valve is closed. 1b. Check valve is installed between system and feeder. 1c. Faulty pressure gauge.	1a. Open isolation valve. 1b. Remove check valve and replace with isolation valve if none is present. 1c. Replace pressure gauge.
2. Pump does not start at low system pressure.	2a. See 1b. 2b. Glycol mixture level is too low. 2c. Blown fuse. 2d. Pressure switch is improperly set or faulty. 2e. Faulty Pump.	2a. See 1b. 2b. Inspect system for leaks and replace glycol mixture, see 3c-3e of the start-up guide (Pg. 2). 2c. Check system fuse and replace if necessary. 2d. Adjust the pressure switch (page 4), if pressure switch is faulty, replace the pressure switch. 2e. Replace Pump
3. Pump cycles continuously.	3a. Air is being purged from the system, and pump is replacing empty space with mixture. 3b. See 1b. 3c. Leak in system	3a. No additional action required; pump should stop after short time. 3b. See 1b. 3c. Inspect system for leaks.



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 MANUFACTURING AND DESIGN OF QUALITY HVAC SYSTEMS SINCE 1921

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