

# TANK GAUGING SYSTEMS

TGS SIDE MOUNTED SOUR SERVICE  
MECHANICAL LEVEL GAUGE

[www.tankgaugingsys.com](http://www.tankgaugingsys.com)

TGS - 5014

## Dry Sealed Gauging System

Magnetic gauge board for  
"tank-in-service" installations  
(No welding required)

No external gears or pulleys to  
jam or freeze

Field adjustable, CSA Class 1,  
Div. 1, Proximity switches can  
be added for high/low level  
alarms (optional)

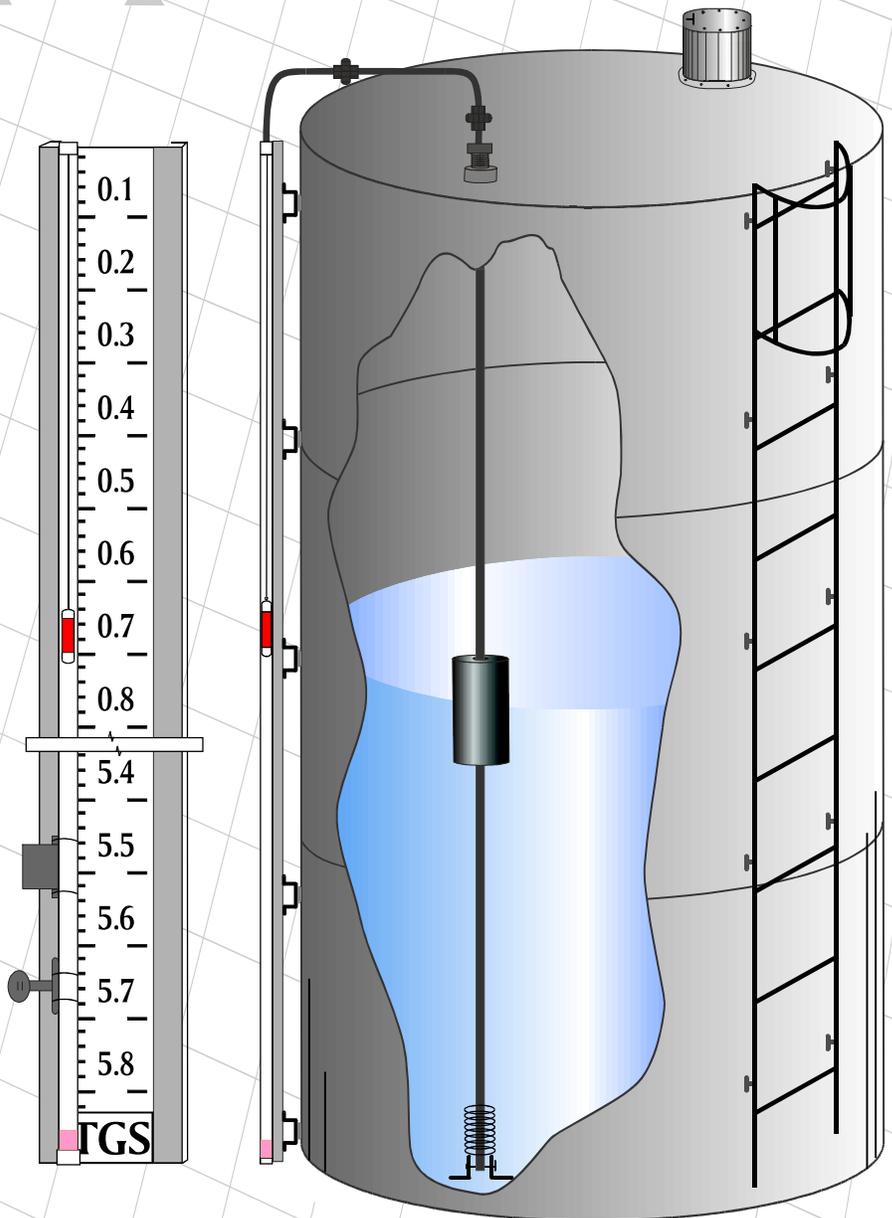
Large easy to read gauge board  
with reflective, long-life 3M  
decal

Corrosion resistant materials

Pneumatic output (optional)

4-20mA output (optional)

Magnetic Stainless Steel float  
and PVC guide tube internal



Edmonton 780-474-2365

Calgary 403-685-8867

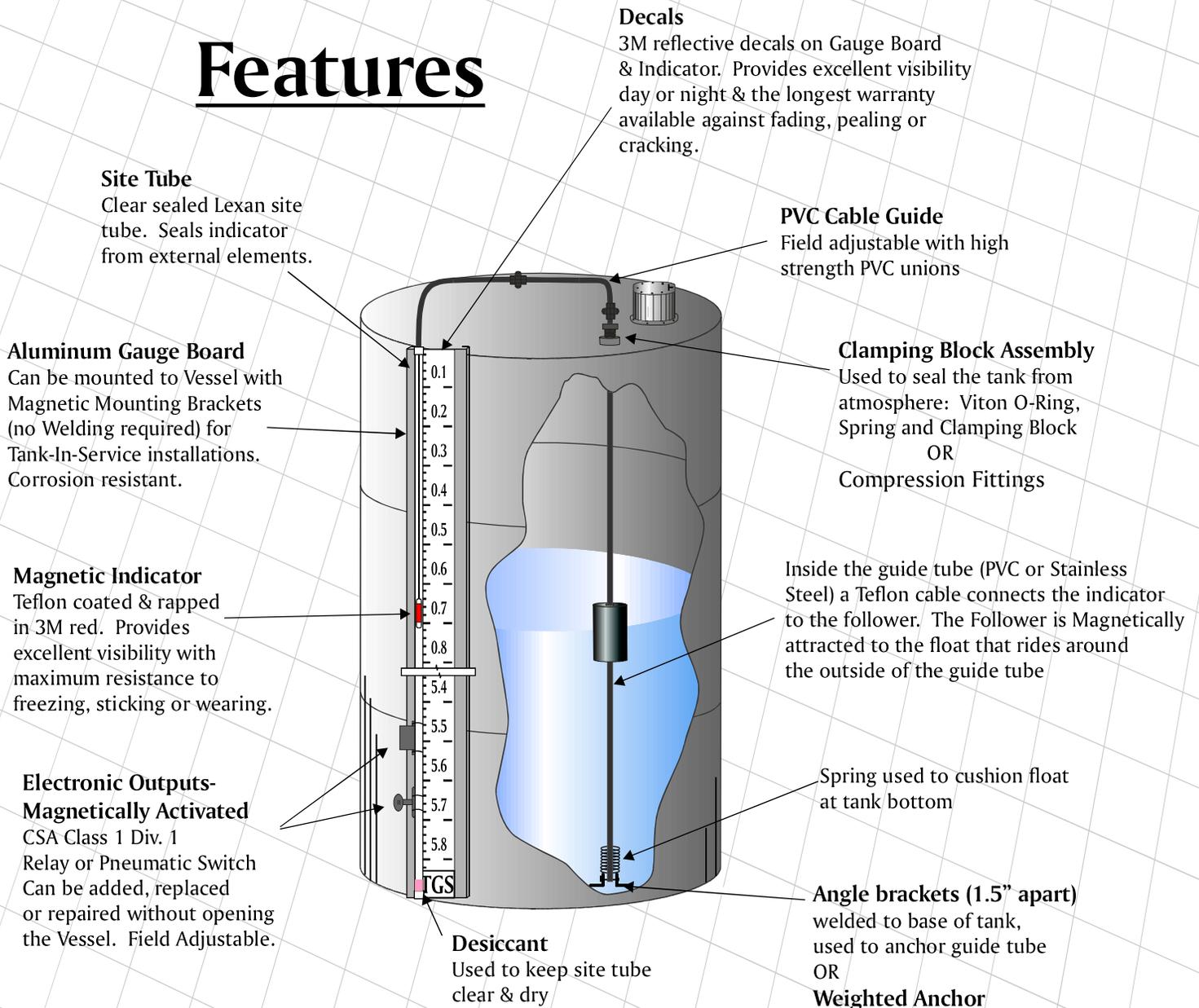


Head Office: 12532 - 124St. Edmonton, AB, T5L 0N5

# TANK GAUGING SYSTEMS

## DRY SEAL SOUR SERVICE (MECHANICAL LEVEL GAUGE)

### Features



Riding inside the PVC or Stainless Steel Guide tube is a Magnetic Follower. The follower is Magnetically linked to the float that rides up and down on the fluid. The follower then moves the indicator inside the clear site tube via a Teflon cable connecting the indicator-follower. The tank is sealed from atmosphere via the clamping block assembly or compression fittings.

### Technical Specifications

Tank Gauging Systems, Edmonton - Calgary

Edm: 780-474-2365

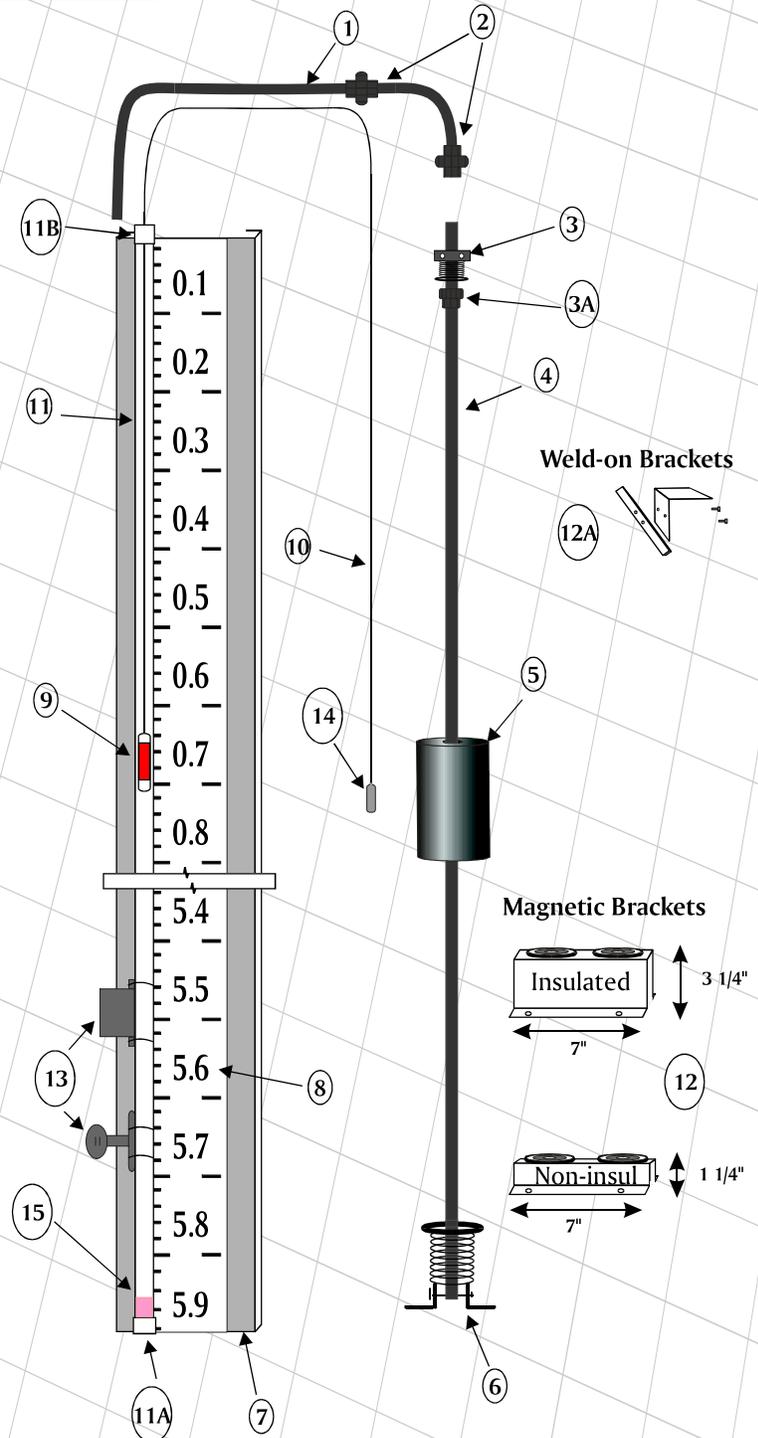
Calgary: 403-685-8867

# TANK GAUGING SYSTEMS

## DRY SEAL SOUR SERVICE

(MECHANICAL LEVEL GAUGE)

ITEM	DESCRIPTION / MATERIAL
1.)	PVC External Cable Guide Tube • 3/4" Schedule 80 PVC, two 90° pieces • Approximately 3' length, cut to size
2.)	PVC Compression Union - 3/4" Sch 80 • Excellent chemical and pressure ratings
3.)	Clamping Block Assembly • PVC block, spring, viton gasket, washer
3A)	1" PVC Reducer - Drilled out for PVC Tube
4.)	PVC Guide Tube (optional Stainless Steel) • 3/4" Schedule 40 PVC, plug on bottom end
5.)	Magnetic Stainless Steel Float • 7" dia x 12" long
6.)	Weld-on Anchor - 1.5" apart (optional weighted) • c/w SS Washer & Spring Cushion
7.)	Gauge Board - 14 Gauge Aluminum; 6" wide
8.)	Decal - Highly reflective 3M decal, 4" width
9.)	Teflon Coated Indicator - Bright Red • Magnetic (standard) or Non-Magnetic
10.)	Teflon Cable (tubing)
11.)	Lexan Tube - 1.315" O.D., 1.190" I.D.
11A)	PVC Cap (1")
11B)	PVC Adapter(1" to 3/4")
12.)	Magnetic Mounting Bracket
12A)	Weld-on Mounting Bracket
13.)	Magnetically Activated Switches (optional) • Field adjustable; Relay or Pneumatic
14.)	Magnetic Coupler - Teflon Coated
15.)	Desiccant
<b>OPERATING</b>	
• Temperature - 60°C max. (standard)	
• Pressure - Up to 10PSI (standard)	
• Measurement Range - up to 24ft(standard)	



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# TANK GAUGING SYSTEMS

## TGS - 5014 Technical Order Guide

Model TGS 5014 provides local indication of tank fluid level using the highest quality mechanical components to insure long lasting, reliable fluid monitoring. Standard Gauging packages includes Magnetic Stainless Steel Float, Aluminum Gauge Board, Teflon Coated Indicator & Coupler, Decals manufactured from highly reflective 3M material, PVC Cable Guide with Compression Fit Couplings, Internal Guide Tube, Desiccant, Lexan Site Tube and TGS's unique friction fit Weld-on Mounting System or High Strength Magnetic Mounting Brackets.

ORDERING CODE: TGS 5014 - A / B / C / D / E / F / G / H .

CODE	TANK SIZE / HEIGHT (A)
X	Tank Height Example - 20ft

CODE	DECAL CALIBRATION (B)
M	Metric - 1cm Increments - Standard
C	Cubic Meters
BBL	Barrels
FT	Standard - Ft & Inch
X	Other - Specify

CODE	INTERNAL GUIDE TUBE (C)
PVC	PVC
SS	Stainless Steel

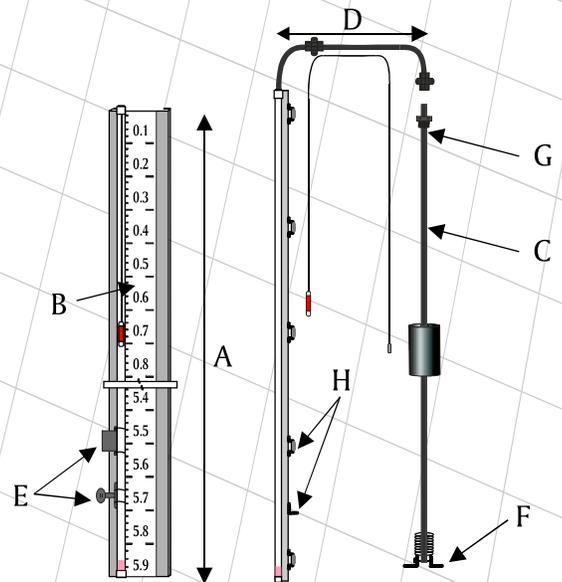
CODE	CABLE GUIDE (D)
30"	30" - Standard
X	Longer - Specify

CODE	OUTPUTS (E)
N	No Outputs
R	Relay
P	Pneumatic

CODE	TUBE ANCHOR (F)
N	Weldon Anchor
Y	Weighted Anchor

CODE	TANK CONNECTION (G)
N	No Coupling
X	Specify Coupling Size - 1" standard

CODE	BRACKETS (H)
W	Weld-on Mounting Brackets Non-Ins. Tank
WI	Weld-on Mounting Brackets Insulated Tank
NIM	Magnetic Bracket Non-Insulated Tank
IM	Magnetic Bracket Insulated Tank



TANK SPECIFICATIONS:	
Tank Heated:	Yes/No
Temperature:	Ambient Other:
Fluid:	SG:

### Customer Information

Company Name: \_\_\_\_\_ Contact Name: \_\_\_\_\_  
 Phone Number: \_\_\_\_\_ Fax Number: \_\_\_\_\_  
 Date Required: \_\_\_\_\_ PO / Ref Number: \_\_\_\_\_ Ship Via: \_\_\_\_\_  
 Invoicing: \_\_\_\_\_  
 Shipping: \_\_\_\_\_

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## TGS 5014 SIDE MOUNTED SOUR SERVICE INSTALLATION INSTRUCTIONS DRY SEALED SYSTEM

Please read the complete installation instructions prior to installation. Follow the steps in order to ensure trouble free installation and operation. CAUTION: Working with any toxic or flammable substance is very dangerous. Be extremely careful when drilling the hole in the top of the tank.

### INSTALLATION:

- 1. Assemble Gauge Board:** Assemble board sections, bolt magnetic or weld brackets on the Gauge Board. Clamp the Lexan tube to the Gauge Board via aluminum U-Bolts. The tube should be snug but not over tightened. Mount board on the side of tank (close to thief hatch as the interior assembly is inserted through the thief hatch). If magnetic brackets are being used, be sure all of the magnets are contacting the tank. The gauge has been designed to be installed and serviced while the tank is in-service. Always try to mount the gauge board so that the top of the gauge board is level with the roof of the tank (the point at which the roof begins to slope) and is close to the thief hatch so the float can be reached through the thief hatch.
- 2. Hot Tapping (no coupling in tank):** Use extreme caution and plenty of cutting oil to drill a 1 1/16" hole in the top of the tank. Select a spot at least 12" from the tank wall and away from the fluid inlet. File the edge of the hole smooth.
- 3. Installing Tube, Anchor & Float (weighted anchor):** Place float with washer and cushion spring at base of tube. Attached weighted anchor to anchor fitting on the end of the 3/4" PVC tube. Gently lower the anchor plate through thief hatch to bottom of tank. From inside the tank feed the tube through the previously drilled hole or reducer adapter. Pull up on the tube to center the anchor plate below the hole
- 4. Installing Tube, Anchor & Float (welded anchor):** Using a plum line weld angle brackets to bottom of tank directly below the 1" coupler or drilled hole in the top of the tank. From the top of tank slide PVC tube through the 1" coupler or drilled hole. Inside the vessel slide float, washer and cushion spring to base of tube. Bolt anchor fitting on the end of PVC tube to the brackets.
- 5. Clamping Block Installation:** Slide the O-ring over tube down to tank roof. The O-Ring fits very tight around the tubing to provide a seal, using a touch of grease or teflon sealant will help slide the O-Ring. Slide on large flat washer and spring. Loosen bolts on clamping block and slide over pipe. While maintaining tension on the interior tube, compress the spring to 1/2 of its relaxed height with the clamping block and tighten the bolts. Cut tube approximately 3-4" above clamping block and smooth edges with the file. Always be sure to ream the inner edges of all PVC or Stainless Steel couplings. A rough or -jagged edge will wear the Teflon gauging cable and cause sticking or hanging up of the indicator.



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- 6. Attach Cable Guide:** One end of the cable guide will connect to PVC tube extending from the tank and the other side connects to the Lexan tube on the gauge board. Level and adjust the length of the cable guide assembly by cutting and coupling the PVC tubing together. Try to make the cable guide as level as possible and ALWAYS ream the inside of the cable guide (PVC tubing) after cutting. This ensures all burrs and rough edges do not interfere with the cable that runs inside the cable guide. The cable guide should be completely fitted and all couplings could be siliconed together at this time. Silicone is supplied with the gauge kit, we do not recommend using PVC glue because it does not allow future maintenance / service.
- 7. Installing Cable:** Lower cable follower into interior tube until follower enters the magnetic field of the float. (NOTE: do not kink cable) Feed the other end of cable through the cable guide assembly. Attach cable guide assembly to interior tube. Leave the other end to hang next to the exterior tube.
- 8. Desiccant:** Included in the gauge package is a small bag of Desiccant. Empty the package into the clear Lexan site tube. There is enough Desiccant to fill the site tube 3-4".
- 9. Calibration:** Slide crimping sleeve onto end of cable; loop the cable through the eyehook in the top of indicator and back through crimping sleeve. Hang the indicator down the OUTSIDE of the exterior tube and adjust the length of cable to the correct level on the calibrated board (as measured with the gauging tape). Be sure the cable guide assembly is level. Pull down gently on the cable to be sure the follower is in the float's magnetic field. Crimp sleeve and cut off excess cable. Lower indicator down the exterior tube. Reattach the cable guide assembly to the top of the tube. If necessary, the exterior tube can be adjusted slightly to align the indicator. Tighten the hose clamps to hold the exterior tube in place.

SEAL ALL COUPLINGS IN THE CABLE GUIDE ASSEMBLY WITH SILICONE SEALANT. THIS IS NECESSARY TO PREVENT MOISTURE FROM ENTERING THE TUBES. ANY MOISTURE INSIDE THE TUBES WILL CAUSE FREEZING & STICKING OF THE GAUGE



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## MAINTENANCE MANUAL

**CAUTION:** Working with any toxic or flammable substance is very dangerous. Be extremely careful when working around storage tanks.

This manual outlines some recommended maintenance procedures and basic service work. All of the tasks outlined here can be done without taking the tank out of service. With the exception of replacing the O-ring, none of the work done here involves opening the tank.

### 1. Removing Condensation from the PVC or S.S.(inside) and Lexan(outside) Tubes:

If moisture is allowed to build up inside the tubes it is possible that the indicator or follower may freeze to the inside wall of the tube. This will cause the magnetic float to break away from the follower inside the tank. In this case the indicator will drop down to the bottom of the tube or not move at all.

A small amount of blue or orange silica desiccant is placed in the bottom of the clear tube. This will absorb a small amount of moisture that may be present in the system when the gauge is installed. It also serves as a telltale. If it turns pink or white the desiccant is saturated and should be changed.

Remove the end cap from the bottom of the clear tube and shake out desiccant. Remove the cable guide from the top of the vessel and place aside. Pull the indicator and cable assembly out of the tube and place aside. Using a small rag rapped around the end of a fish tape and dipped in a small amount of de-icer (ex. methanol) swab, both tubes to remove any unwanted moisture. To finish, use clean dry rags to assure that both tubes are dry and clean. Glue the end cap back on the clear tube with silicone. Pour about 4" of fresh desiccant down clear the tube. Gently lower the indicator and cable assembly down the tubes and return the cable guide assembly back to original position. Seal joints with silicone. Be sure that all of the other connections in the systems are sealed.

### 2. Changing the Clamping Block Assembly and O-Ring:

Remove the cable guide and set aside. Gently remove the cable and follower from inside tube. Do not kink or tangle cable. Loosen bolts on clamping block and remove clamping block, spring, washer and O-ring. Be sure to hold on to PVC tube. Slide new O-ring, flat washer and spring over tube down to tank roof. Loosen bolts on clamping block and slide over tube. While maintaining tension on the interior tube, compress the spring to 1/4 of its relaxed height and tighten bolts on clamping block

### 3. Renewing the Indicator:

Pull the cable guide away from the top of the outside tube. Pull the indicator out of the tube and cut the cable directly above the indicator. Re-calibrate the gauge with the new indicator.



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#### 4. Renewing the Cable and Follower:

To renew the cable and follower remove the cable guide and set aside. If the indicator is to be reused cut off the old cable at eyehook. Gently lower the new follower and cable the inside tube until it enters the magnetic force field. (Note: Do not kink the cable). Pull it back up and allow the follower to drop a couple of feet to ensure it is in the force field. Feed the other end of the cable through the cable guide. Do not twist or kink cable. Attach cable guide assembly to interior tube. Leave the other end to hang next to the exterior tube. Recalibrate the gauge.

#### 5. Recalibrating the Gauge:

Slide crimping sleeve onto end of cable, loop the cable through the eyehook in the top of indicator and back through crimping sleeve.

Hang the indicator down the outside of the exterior tube and adjust the length of the cable to the correct level on the calibrated board (as measured with the gauging tape). Be sure the cable guide assembly is level. Pull down gently on the cable to be sure the follower is in the float's magnetic field.

Crimp sleeve and cut off excess cable. Lower indicator down the exterior tube. Reattach the cable guide assembly to top of the tube. If necessary, the clamps holding the exterior tube can be loosened to move the tube to align the indicator.

SEAL ALL COUPLINGS WITH SILICONE SEALANT

