918 Gallon Gauge or Liter Gauge

Installation, Operation, and Maintenance Instructions

The 918 Clock Gauge is designed to measure liquid volume in an aboveground storage tank. The gauge mounts on top of the tank and is activated by a float connected to a cable. The 918 is designed to connect to an alarm box that can provide a high level audible alarm at a desired volume that is set during installation.

Failure to follow any or all of the warnings and instructions in this document could result in a hazardous liquid spill, which could result in property damage, environmental contamination, fire, explosion, serious injury or death.

NOTE: The most accurate method to calibrate the tank is with fluid in it. This will take into account variables associated with the float position, the mechanism, and the fluid density.

NOTE: Switch contact rating: 125V AC/30V DC, 1 Amp maximums

WARNINGS

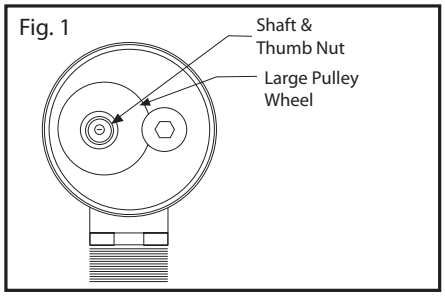
- **Fire Hazard** – Death or serious injury could result from spilled liquids.
- You must be trained to install or maintain this alarm. Stop now if you have not been trained.
- Any modification to this gauge other than those stated in these installation instructions will void the product warranty.
- This device is intended to be used as an auxiliary warning to the operator of a possible overfill situation and should not be the only system in place to prevent a tank from overfilling. It is the sole responsibility of the operator to continuously prevent any spillage regardless of the situation or status of the gauge.
- Install in accordance with all applicable local, state, and federal laws.
- For your safety, it is important to follow local, state, federal and/or OSHA rules that apply to working inside, above, or around the storage tank and piping area. Use all personal protective equipment required for working in the specific environment.
- Tanks could be under pressure. Vapors could be expelled from tank vents, piping, valves or fittings while performing installation. Vapors could catch fire or cause an explosion. Avoid sparks, open flame, or hot tools when working on gauge.
- Use a dampened cloth when cleaning the clear front cover of the gauge or 918 alarm box to prevent static buildup and discharge.
- In the event of malfunction, contact Morrison Bros. Customer Service.

Gauge Installation & Calibration

Steps

1. Verify contents of box. You should have received the gauge, float, installation instructions, re-order/overfill labels, warning tag, cable tie, and optionally the alarm box. Inspect the items for shipping damage. **DO NOT** use if damage is found. **DO NOT** pull and release the cable uncontrollably. This can cause damage to the internal mechanism and render the gauge inoperable. **ALWAYS** hold onto cable and allow it to move in a slow steady motion.
2. Locate the opening, on the top of the tank, where the gauge is to be installed. If possible, select a location away from the fill port to avoid excessive turbulence that could affect the float. Also make certain that there are no objects inside the tank, near the selected opening, upon which the float and cable could get tangled. 3.
3. Once an opening is selected, measure to the bottom to determine the current liquid level height in the tank. Use the tank manufacturer's cross reference chart to correlate the fluid height to gallons (or Liters). Record this volume as you will need it to set the gauge once it is installed.
4. Apply pipe dope or Teflon tape to the male threads on the gauge. If you have a gauge with female threads, apply the pipe dope or Teflon tape to the male threads of the pipe on the tank. **DO NOT** get pipe dope on the cable of the gauge.
5. Open the float clip and attach the float clip to the swivel end of the cable. Latch the float clip making sure the float clip is securely closed.

6. Slowly lower the float into the tank. Guide the cable through your fingers letting the cable slide through slowly. DO NOT allow the float to free fall into the tank as this will cause the cable to come off of the pulley mechanism and render the gauge inoperable.
7. Once the float is resting on the liquid level (or tank bottom if the tank is empty) thread the gauge into, or onto, the tank fitting. Use a pipe wrench or strap wrench, on the large hex at the bottom of the gauge, to tighten the gauge into, or onto, the tank fitting.
8. Remove the back plate retaining ring and back metal cover from the gauge. Hold the large pulley wheel in place and loosen the thumb nut (Figure 1). Insert a small flat blade screwdriver into the slot on the end of the shaft. Rotate the shaft with the screwdriver, which will move the gauge hand, until the gauge hand indicates the volume that you recorded in Step 3.



9. Once you have the hand in the correct position, hold the screwdriver firmly in position and tighten the thumb nut
10. Remove the front face retaining ring and remove the clear front cover.
11. To calibrate the alarm setting, rotate the thumb nut counterclockwise (when facing rear of gauge, see Figure 2) to the desired alarm set point (see Figure 3). This will raise the float assembly out of the liquid. Be careful to maintain a firm grasp of the thumb nut to prevent free fall of the float. While holding the thumb nut steady, adjust the Alarm hand by pulling the alarm pointer out and rotating it to the point of the triangle (see Figure 4). Once set, carefully allow the float to drop by turning the thumb nut clockwise (when facing the rear of the gauge).

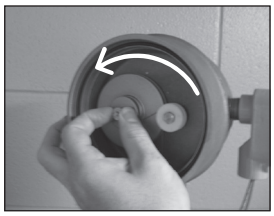


Figure 2: Raising the float with thumb nut.

Figure 3: Alarm set point.

Figure 4: Setting Alarm pointer.

12. If installing the alarm box, leave the gauge front and rear covers removed. If the alarm box will not be installed, or will be installed at a later date, replace the front and rear covers of the gauge.

Alarm Installation and Testing

Refer to 918S, 918D, 918Q Series Alarm Installation, Operation and Maintenance Instructions.

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Operation

Steps

1. To determine the volume of fluid in the tank, read the position of the gauge hand. Interpolate if necessary.
2. Multiply the reading made in the previous step by the multiplier shown on the gauge face. Example: If 12.6 is read and the multiplier is 100, so the reading is 1260.
3. The red area indicates the 90 – 100% volume band. If the hand extends into this area, then the tank has 10% or less ullage.
4. Before a tank fill is initiated, the alarm should be checked for proper operation and sufficient loudness by pressing the Test/Cancel button. When the button is released, the alarm should cease.
   Refer to 918S, 918D, 918Q Series Alarm Installation, Operation and Maintenance Instructions.
5. If the alarm sounds while the tank is being filled, immediately halt filling operations.

Refer to 918S, 918D, 918Q Series Alarm Installation, Operation and Maintenance Instructions.

Maintenance

This gauge should be maintained per applicable codes, or at least once each year.

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Steps

1. Visually inspect the gauge and alarm for damage or excessive wear. If either is found replace the gauge or alarm.
2. If necessary, clean the clear front cover of the gauge or alarm box with a damp cloth.
3. Measure the fluid height and correlate it to the tank manufacturer's volume chart to verify the gauge volume reading. If readings do not match adjust the gauge setting according to the installation instructions.
4. Test the battery level and overall operation of the 918 Alarm Box. Refer to 918S, 918D, 918Q Series Alarm Installation, Operation and Maintenance Instructions.
5. Check alarm points to an alarming device to verify alarm settings. **The tank fluid level must be several inches lower than the alarm level setting.**
6. Inspect the warning tag located near the tank fill and off-loading area. If the tag is damaged or difficult to read, contact Morrison Bros. at (800) 553-4840 for a free replacement tag.

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Optional Overfill and Reorder Label Installation

NOTE: If an overfill volume other than 90% is desired, the overfill label can be used. Otherwise, it is not needed since the 90% volume is indicated by the start of the red area on the gauge face.

NOTE: The template (see Figure 5) is intentionally reversed (mirror image) so the labels may be placed on the inside surface of the clear front cover. Therefore, the lettering of the labels is on the adhesive side and will read correctly once placed.

Steps

1. Template units are shown in feet (or cm). It will be necessary to determine the desired overfill and reorder points and convert those into feet (or cm) in order to use this template. 2. Remove the front face retaining ring and remove the clear front cover.
2. Place the clear cover onto the template aligning the outside edge to the outside circle.
3. Remove indicator label backing and place label on the clear cover as shown on template. Align wider end against inside circle and narrower end pointing toward the level you want to indicate.
4. If both overfill and reorder labels are used, make sure each is pointing to the correct foot (or cm) reading that provides the volumes you desire.
5. Reinstall the clear front cover with the labels on the inside. Make sure indicators are in correct location and wording is readable before putting gauge in service. Replace the front face retaining ring making certain the ring snaps all the way down into the groove. You will need to use pliers to squeeze the ring into the groove. The retaining ring is correctly squeezed into place if the ends of the retaining ring do not overlap.

Fig. 5: Overfill and Reorder Label Template