

918 Clock Gauge Alarm

Installation, Maintenance & Operating Instructions

The 918 Clock Gauge Alarm is designed to be used to measure liquid level 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 includes an alarm box that can be used to provide a high level audible alarm at a desired level 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.

Installation



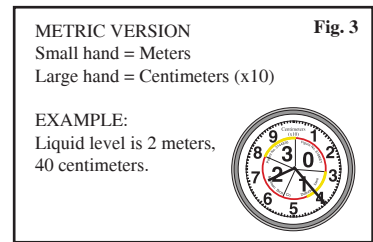
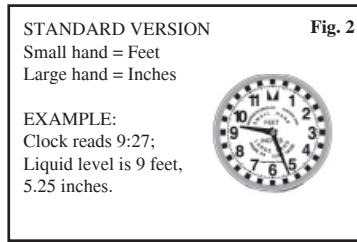
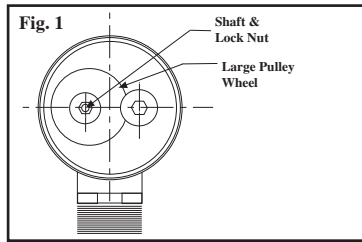
Warnings

- **Fire Hazard – Death or serious injury could result from spilled liquids.**
- **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.**

Steps

1. Verify contents of box. You should have received the gauge, float, alarm box, installation instructions, warning tag, cable tie, and re-order/overfill stickers. Inspect the items for shipping damage. Do not use if damage is found.
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 from affecting 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. Once an opening is selected, stick the tank to determine the actual level of liquid in the tank. Record this level 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 gauge cable.
5. Attach the float to the snap on the end of the cable. Make sure the snap 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 useless.
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 retaining ring and back metal cover from the gauge. Hold the large pulley wheel in place and loosen the nut. Insert a small screwdriver into the slot in the end of the shaft. Rotate the shaft with the screwdriver, which will move the gauge hands, until the gauge hands on the clock read the level that you recorded earlier.



9. Once you have the hands in the correct position, hold the screwdriver firmly in position and tighten the nut on the shaft.

10. Reinstall the metal back plate making certain the side with the date label is positioned to the inside. Replace the retaining ring making certain the ring snaps all the way down into the groove. You may need to use pliers to squeeze the ring into the groove. You will know that the retaining ring is correctly squeezed into place if the ends of the retaining ring do not overlap.

11. Rotate the entire gauge so the face can be read by the operator on the ground.

12. Set the alarm hand by following Option A or Option B shown below. Gauge **MUST** be installed upright on tank prior to setting alarm hand.

Note: High level alarm requirements may differ from one location to the next. Be certain to follow all Federal, State, and Local code requirements governing this installation.

Setting The Alarm Dial OPTION A

Labels: 10'-0" - Tank Ht, 9'0" - 90% High Level Alarm, 3'-0" Difference, 90% Full, Alarm set to go off at this level, Liquid level, 6'0" - Existing Liquid Level, TANK, ALARM DIAL, ALARM

Compute the difference between the required high level alarm limit and actual liquid level in the tank.
(Example shown 9Ft. - 6 Ft. = 3Ft.)

Remove lens plate on the Gauge Unit and set the Alarm Dial to the mark. (Example set to numeral (3).)

Set Alarm Dial by pulling it out, rotating it to desired setting, and letting it "snap back in gear." The gear spread allows settings to the nearest 4 inches.

Do not disrupt the position of the clock hands. If the clock hands are in the way with this option, use OPTION B for setting dial.

Setting The Alarm Dial OPTION B

Labels: 10'-0" - Tank Ht, 9'0" - 90% High Level Alarm, 90% Full, Alarm set to go off at this level, Liquid level, 6'0" - Existing Liquid Level, TANK, ALARM DIAL, ALARM

Remove lens plate and back plate off of the Clock Gauge. Clock Gauge should be set for current liquid level in tank. If not, do so. Using thumb tips rotate large pulley wheel counter-clockwise lifting float off of the liquid as if filling the tank.

When clock reaches point of high level alarm, hold it on that mark. (In this example, it would be 9:00.)

Set Alarm Dial by pulling it out, rotating it to the arrow (pointing directly down) as shown, and letting it "snap back in gear." Slowly lower float back to tank level.

Take care not to disrupt the position of the clock hands. If the clock hands are in the way with this option, use OPTION A.

13. Run two oil and gas resistant wires from the gauge to the location where the alarm box will be mounted. Do **NOT** attach the wires to the wires in the junction box on the gauge. You will do this later in these instructions. Although not required, it is recommended to run the wires in some type of conduit in order to protect them against possible damage and environmental conditions.

Note: As defined in article 501 – Class 1 Locations of the National Electric Code, this apparatus and its connected wiring are intrinsically safe. Under normal conditions this apparatus and its wiring cannot release sufficient energy to ignite a specific ignitable atmospheric mixture by opening, shorting, or grounding.

Warning: Interconnect wiring between the gauge and the alarm unit must be kept totally isolated and separate from any other wiring. This wiring must not share any junction box, conduit, raceway, or fixtures with circuits other than those defined by NEC as being intrinsically safe for all Class 1 locations.

Location: NEC ARTICLE 501-3-CLASS 1 Locations exempt intrinsically safe enclosures in paragraph 501-3(b)(1)(c), and therefore may be placed in the most convenient location but must be within reach of the operator and within audible range.

Mounting: Since a general purpose NEMA 4X enclosure is used to protect the alarm circuits and batteries, any mounting holes, conduit, or fasteners must be sealed in order to maintain the waterproof integrity of the enclosure. All penetrations into the enclosure must be made at the bottom of the alarm box.

14. Separate the two halves of the Alarm Unit box. Attach the rear half of the box to a suitable fixture.
15. Connect the two wires from the Clock Gauge to the two screw terminals located on the alarm circuit board on the front half of the box.
16. Install the two supplied 9V batteries into the battery terminals on the circuit board.
17. Test the alarm by pressing the Test/Cancel button on the front of the alarm box.
18. Test the connection by shorting the two wires together at the gauge end. This should cause the alarm to sound until the Test/Cancel button is pushed. If the alarm fails to sound, check the connections and the batteries and retest until results are satisfactory.
19. Remove the cover of the junction box on the gauge and connect the wires from the alarm box to the wires in the junction box. Replace the junction box cover.
20. Reassemble the two halves of the alarm box.
21. If desired you can simulate a tank fill to trigger the alarm by removing the back cover of the gauge and rotating the large pulley in a counter-clockwise direction to lift the float thus simulating a fill. Keep constant control of the pulley to avoid having the pulley free spin and the cable unwind. Observe the hands and the alarm dial hand to verify that they are moving with the pulley movement. Allow the alarm dial hand to pass over the “Point of Alarm.” The alarm should sound. If alarm fails to sound at the desired level, adjust the dial until operation is satisfactory. Once satisfied, let the float down slowly to the liquid level and replace the back cover on the gauge.
22. **Important:** Install the included **warning tag** where it will be visible to the operator filling or unloading the tank that is fitted with this gauge and alarm.



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.

Maintenance

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



WARNINGS

- **Fire Hazard** – Death or serious injury could result from spilled liquids.
- You must be trained to maintain this gauge. **Stop** now if you have not been trained.
- 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 maintenance. Vapors could catch fire or cause an explosion. **Avoid** sparks, open flame, or hot tools when working on gauge.

Steps

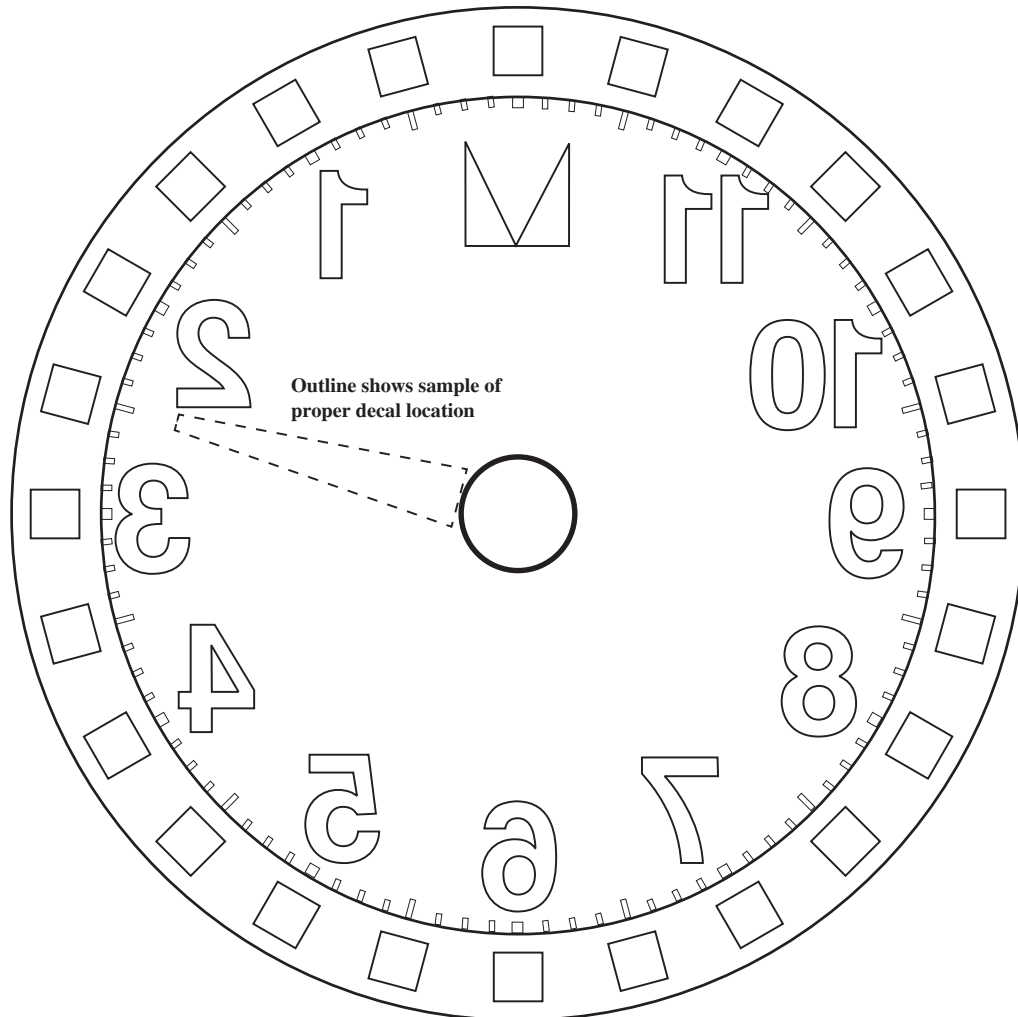
1. Visually inspect the gauge and alarm for damage or excessive wear. If either is found replace the gauge or alarm.
2. If necessary clean the clear front cover with a damp cloth.
3. Manually stick the tank to verify gauge readout. If readings do not match adjust the gauge setting according to the installation instructions.
4. Test the alarm by pushing the Test/Cancel button. If alarm does not sound, replace the 9V batteries found on the circuit board inside the alarm box. Acceptable replacement battery part numbers are listed on the red tag on the side of the alarm box. Press the Test/Cancel button after replacing the batteries. If the alarm still does not sound replace the alarm box with a new one.
5. 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. Co. at (800) 553-4840 for a free replacement tag.



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WARRANTY: If you believe this valve has a defect due to material or workmanship, please contact Morrison for a return authorization. All products are thoroughly tested before shipment. Material found to be defective in manufacture will be replaced or repaired at our discretion. Claims must be made within one year from the date of installation. Morrison will not allow claims for labor or consequential damage resulting from purchase, installation, or misapplication of the product.

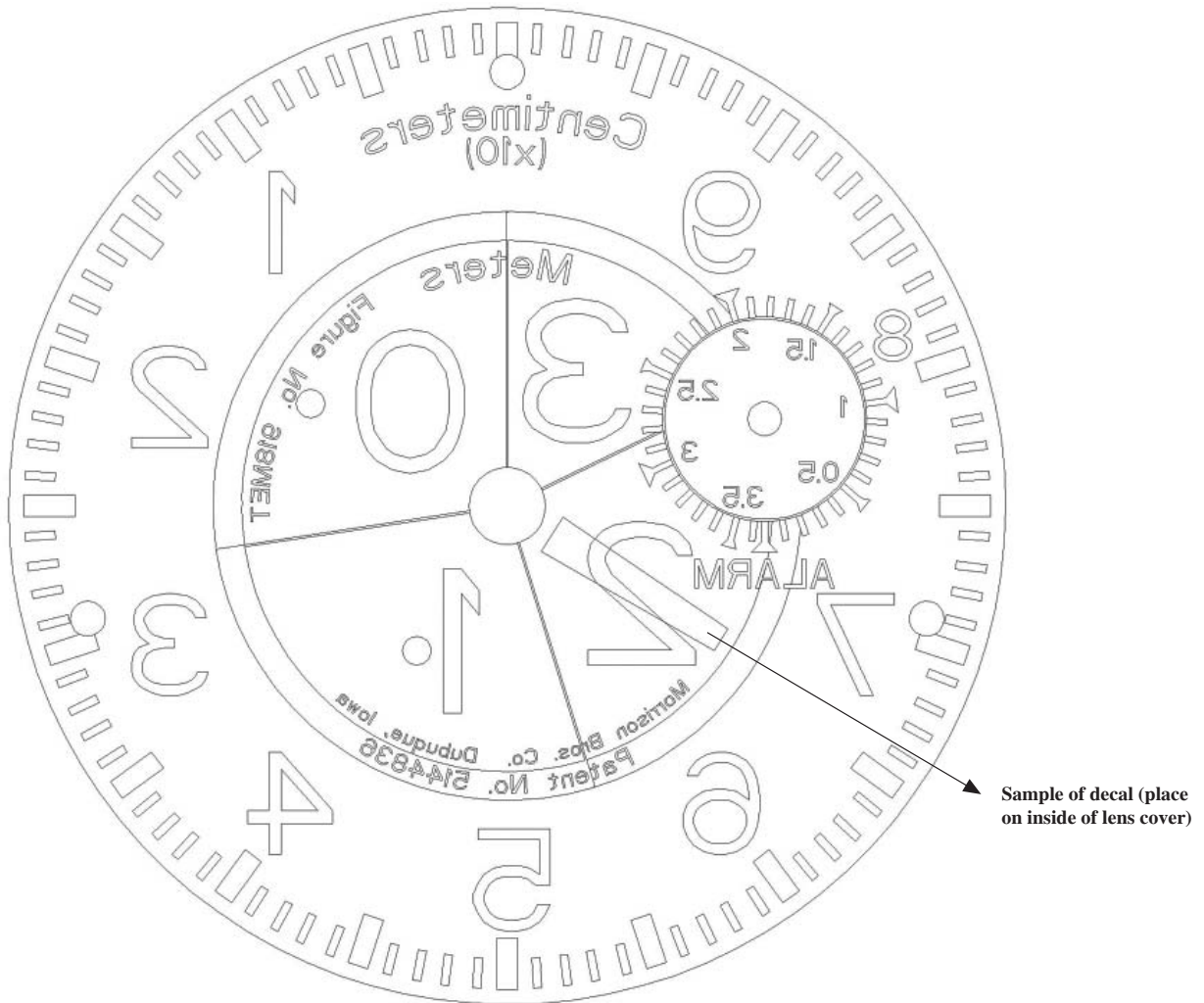
Optional Over-fill and Re-order Sticker Installation (Standard)



Steps

1. Remove front (clear) lens cover.
2. Place lens onto template aligning outside edge to outside circle.
3. Remove decal backing and place decal on lens as shown on template. Align wide end against inside circle and narrow end pointing toward level you want to indicate. (NOTE: template is set for inside reading out and lettering on decal will read backwards.)
4. Decals represent small hand on clock which indicates feet. If both high level and low level decals are used, make sure each points to the correct level you want to indicate.
5. Reinstall lens cover with decals on the inside. Make sure indicators are in correct location and wording is readable before putting gauge in service.

Optional Over-fill and Re-order Sticker Installation (Metric)



Steps

1. Remove front (clear) lens cover.
2. Place lens onto template aligning outside edge to outside circle.
3. Remove decal backing and place decal on lens as shown on template. Align wide end against inside circle and narrow end pointing toward level you want to indicate. (NOTE: template is set for inside reading out and lettering on decal will read backwards.)
4. Decals represent small hand on clock which indicates feet. If both high level and low level decals are used, make sure each points to the correct level you want to indicate.
5. Reinstall lens cover with decals on the inside. Make sure indicators are in correct location and wording is readable before putting gauge in service.