

1518 Mechanical Gauge

Installation, Operation, and Maintenance Instructions

The 1518 Mechanical Gauge 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.



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.

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 a liquid level indicator to the operator and should not be the only system in place to prevent a tank from overflowing. 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 to prevent static buildup and discharge.
- In the event of malfunction, contact Morrison Bros. Customer Service.

Steps

1. Verify contents of box. You should have received the gauge, float, and a small tube of adhesive (See Figure 1). Inspect the items for shipping damage. **DO NOT** use if damage is found.
2. Remove the front cover of gauge and remove foam under cover. **NOTE:** The Philips screws in the front cover are captive fasteners that aren't meant to be removed. Place the front cover back on gauge. Place the front cover back on gauge. The gauge should be reading approximately 11'1". If not, the gauge could be damaged or dysfunctional. Inspect the internals for any damage. **DO NOT** use if damage is found. Find the cable sticking out of the end of the gauge connection pipe. Slowly pull on cable to ensure gauge is functioning properly. **DO NOT** pull and release 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.
3. Locate the opening on the top of the tank where the gauge is to be installed (minimum opening size is 2" schedule 40 pipe). 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 and that the gauge location will not interfere with normal operation of the tank.

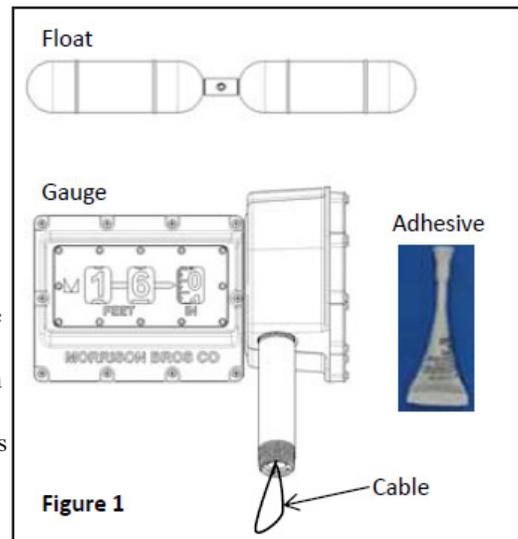


Figure 1

4. **NOTE:** Once an opening is selected, use a tank stick or gauging tape to determine the current liquid level height in the tank. Record this liquid level as you need it to set the gauge once it is installed.
5. Carefully lay the gauge on the top of the tank, near your selected tank opening.
6. Attach the necessary pipe bushing to adapt the 1" gauge connection pipe to the connection on the tank opening. Apply PTFE tape to the male threads on the gauge connection pipe and thread into your pipe bushing. **DO NOT use any pipe dope as this may get on the gauge cable and cause a malfunction.**



Figure 2

7. Next you need to attach the float to the cable screw on the end of the gauge cable. Unscrew the cable bullet exposing the cable screw threads. Using the small tube of adhesive provided, place a drop or two of the adhesive onto the male threads, of the cable screw. Thread the float onto the cable screw and, while using pliers to carefully hold the float connector, snug the float onto the cable screw (See Figure 2). **NOTE: Make sure to do not damage the cable with the pliers.**
8. **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. **NOTE: make certain that when lowering the float, that the cable DOES NOT rub on the edge of the tank opening.**
9. Once the float is resting on the liquid level (or tank bottom if the tank is empty) apply PTFE tape to the pipe bushing on the bottom of the gauge connection pipe. **DO NOT use pipe dope as this may get on the gauge cable and cause a malfunction.**
10. Lift the gauge to the vertical position and thread the pipe bushing into your tank opening. **Make certain that you do not allow any excess slack in the cable or kink the cable in any way.** Once you have threaded the gauge into the tank opening hand tight, use a pipe wrench or strap wrench, on the 1" gauge connection pipe, to complete tightening. Torque threads to 75-85 ft-lbs.
11. Now the gauge can be calibrated to the liquid level you found in step 4. Calibration is done one indicator wheel at a time (See Figure 3). Start with the inch indicator wheel. Grab the indicator wheel and push it to the left to clear the drive gear. The inch indicator wheel must be fully disengaged from the drive gear. The indicator wheel should now freely spin. Spin the wheel UPWARDS so that the numbers are counting up. Once at the correct setting, slowly let indicator wheel seat back into the drive gear. Failure to follow this procedure can cause damage to the internal mechanism and render the gauge inoperable. **Note: desired level reading needs to be in the center of the viewing window.**

12. Calibration for the foot readings is done in a similar manner pushing the indicator wheels to the left so they clear the gears that are offset below the indicator wheels (See Figure 3.) Calibrate the ones' foot indicator wheel and then the tens' foot indicator wheel. **Note: desired level readings need to be in the center of the viewing window.**
13. Reinstall the front cover, the correct settings should be clearly centered in viewing windows. If needed, adjust the indicator wheels.
14. The tank manufacturer's chart will be required to translate fluid height into fluid volume.

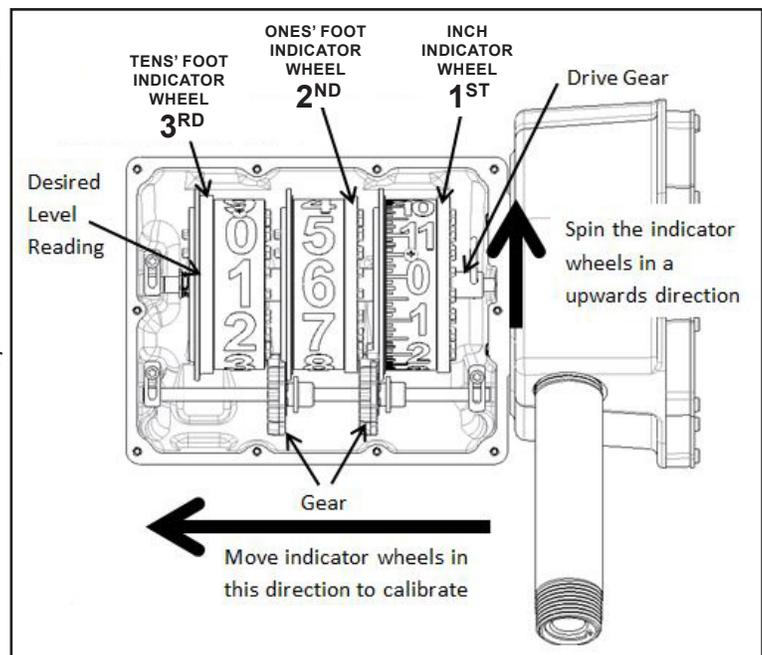


Figure 3

Maintenance

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



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- 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.
- Use a dampened cloth when cleaning the clear front cover to prevent static buildup and discharge.
- In the event of malfunction, contact Morrison Bros. Customer Service.

Steps

1. Visually inspect the gauge for damage or excessive wear. If either is found replace the gauge.
2. If necessary, clean the clear front lens with a damp cloth.
3. Measure the fluid height and verify the gauge reading. If readings do not match adjust the gauge setting according to the installation instructions.



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