

MAGNETIC GAUGING DEVICE MGD1000 INSTALLATION INSTRUCTIONS FLANGED VERSION

1. Do not remove the individual gauge device components from their packaging until it is time to install each component. This will keep them clean and undamaged.
2. Insure that the hole through the pressure plate is at least 1 1/8" in diameter. This is required to allow the gauge rod to fit through the pressure plate. For a typical approved mounting, refer to the AAR Tank Car Manual, Appendix E, Figure E19.12.
3. The guide tube must be installed 90 degrees to the pressure plate. First insert the guide tube to the maximum depth of the socket in the plate, then withdraw the tube approximately 1/16" away from contact between the end of the tube and the shoulder of the socket. Then, tack weld the guide tube to the pressure plate and check the alignment with a square. If the socket is oversized for the pipe, be sure the guide tube is centered on the hole. A 3/8" fillet weld using a stainless steel rod such as AWS E-309 or equal is recommended. The weld must not be undercut. If the guide tube is threaded into the pressure plate, tighten the tube without using tools that mar the surface of the tube. Seal weld the connection.
4. Install the upper spring collar with the spring facing down (see Figure 1). Next, install the float on the guide tube. The float has Teflon guide bushings, which are the interface between the float and the guide tube. One bushing is red and the other bushing is white. The float must be installed on the guide tube with the red bushing pointing toward the pressure plate, and the white bushing pointing toward the bottom of the tank. The end of the float with the red bushing is also etched with the letters "TOP." Once the float is installed on the guide tube, it must be protected at all times from heat and weld splatter. Always slide the float on the guide tube away from the area being welded. Install the lower spring collar with the spring facing up (see Figure 1).
5. It is the installer's responsibility to insure that the float cannot come in contact with the tank shell, pressure plate, or other structural members at any time especially while in transit. The top spring should be placed so that when compressed, the float is kept from contacting anything but the spring. The top spring must also allow the highest desired outage to be read. The bottom spring should be placed low enough to ensure that the lowest desired outage can be read. Tack weld the collars to the guide tube to keep them in place.

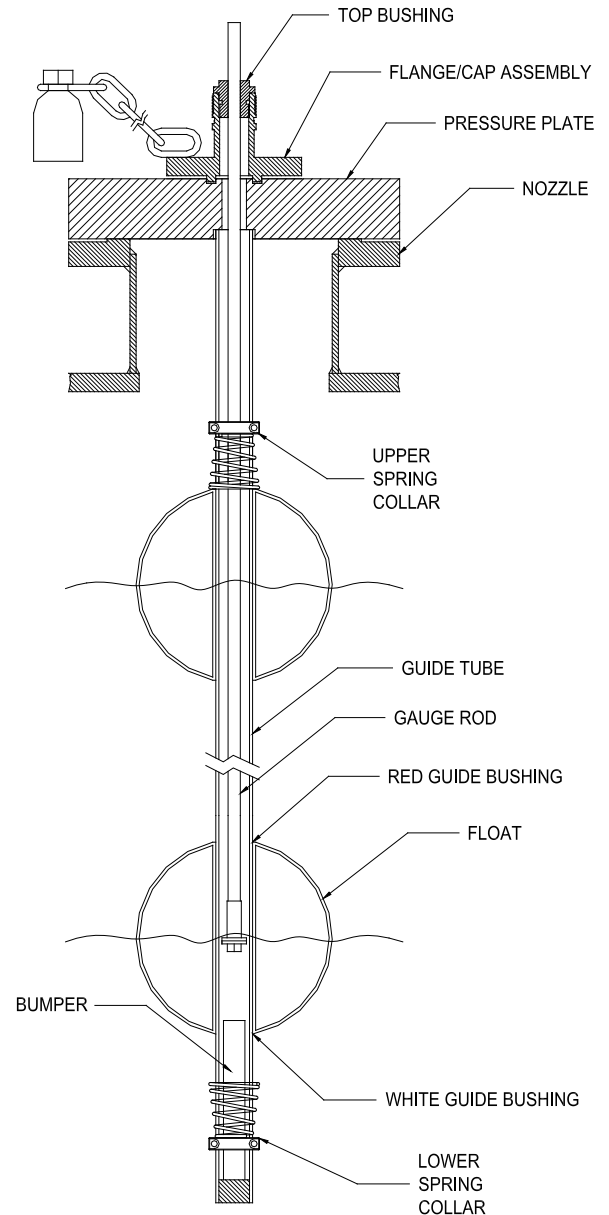


FIGURE 1

6. A brace or support should be installed at the bottom of the guide tube as well as one near the top if possible. It is very important to properly brace and support the guide tube. When bracing the gauge device, be sure **NOT** to pull any other lines out of alignment.
7. Once welding is complete, inspect the guide tube carefully to insure that the surface is free from any weld splatter or gouges. Weld splatter must be removed and gouges must be smoothed out. Once the guide tube is clean, cycle the float up and down the full length of the tube to verify that the float does not contact any structural elements.
8. Remove the flange/cap assembly from its packaging. Install your gasket on the pressure plate and bolt the flange to the pressure plate. (Gasket, studs, and nuts are not provided.) Remove the cap from the flange/cap assembly. Push the top bushing into the top opening of the flanged piece.
9. To check that the bolted and welded connections are air-tight, the unit must be pressure tested. Secure Salco's test cap (sold separately) to the flange threads. (You must modify the test cap to accommodate your air fitting type.) Introduce between 50 and 150 psig air to the unit. Use soap suds (or equal) to identify leak points. Report leaks to the supervisor. After testing is complete, remove the test cap and top bushing.
10. Install the bumper by dropping it in the guide tube. Ensure that the spring is facing up toward the pressure plate.
11. Add to the guide tube, three (3) ounces of 50/50 glycol and water to prevent condensation from freezing in cold weather.
12. Remove the gauge rod from its packaging. Insure that there are no metal filings on the magnet. Insert the gauge rod, magnet end first, into the guide tube.
13. The adjustable top bushing is shipped to the installer with the set screw lightly tightened at the neutral position. If during the construction of the tank car tank, the diameter of the tank is off by as much as $\pm \frac{1}{4}$ ", the set screw can be loosened and the adjustable nut/washer moved up or down to accommodate the difference. After the difference (if any) is set, tighten the set screw. Place the adjustable top bushing over the gauge rod and into the flange opening.
14. Resecure the cap from the flange/cap assembly to the flange before shipping the car hand tight.
15. Install the instruction placard on the underside of the protective housing cover so that the instructions are visible when the device is being operated. Mask the instruction placard whenever repainting the protective housing cover.
16. If the pressure plate assembly with all the piping, gauging device, and other fittings is placed on the ground, be sure that the gauging device is not on the underside of the assembly. The float cannot support the weight of the assembly and the magnets will attract filings.
17. When the pressure plate assembly is lowered into the tank car, take great care to make sure that the float does not contact anything as it is going into the tank. It should be guided very carefully because a normal vertical drop installation will most likely result in the float hitting the nozzle.