

Automatic Tank Gauge Checklist for Magnetostrictive and Ultrasonic Probes

From the National Work Group on Leak Detection Evaluations List, April, 1997

ATG MAINTENANCE CHECKLIST		
Magnetostrictive and Ultrasonic Probes		
Minimum procedures to be conducted by a <i>qualified service technician</i>.		
Has all input wiring been inspected for proper entry and termination, including testing for ground faults?	Yes	No
Have the probe and sensors been checked for visible damage such as residue buildup, cracks, or breaks? ^{1,2}	Yes	No
Has the accuracy of the level sensor been tested? ³	Yes	No
Has the accuracy of the water sensor been tested? ⁴	Yes	No
Has the appropriateness of the high water level alarm setting been verified? ⁵	Yes	No
Are all alarms activated and functioning properly?	Yes	No
Comments:		

1. Damaged probes must be cleaned or replaced as appropriate. Probes used in heavier products such as waste oil should be checked more frequently. Heavier products can leave deposits on the probe shaft and float assemblies that may restrict the measurement capacity of the probe.
2. Because the magnetostrictive probe consists of moving parts, its sensors can be damaged by excessive frictional wear as well as residue build-up. Residue build-up can affect the weight of the sensor as well as inhibit its ability to slide freely along the guide tube. Inaccuracies in the product level measurements could indicate a problem with the probe sensors. For additional testing of the probe sensors, perform the following test:
 - a. Remove the probe from the tank and place it carefully on the ground.
 - b. Place the water sensor flush with the bottom of the probe shaft and place the product float near the middle of the probe shaft.
 - c. Check the height reading on the tank gauge monitor (after allowing sufficient time for the monitor to respond).
 - d. Measure the distance from the bottom of the probe to the bottom of the product float and compare it with the reading on the monitor.
3. To test the accuracy of the product sensor:
 - a. Using the tank console monitor, take an initial fuel level reading.
 - b. Dispense one gallon of product into a calibrated container.
 - c. Using the tank console monitor, take a second fuel level reading.
 - d. Verify that the change in tank volume is one gallon.
4. To test the accuracy of the water sensor:
 - a. Remove probe from the tank.
 - b. By hand, move the water float up the probe to a point higher than the high-water alarm set point.
 - c. The monitor should respond with a high water alarm report. (The water height may also appear on the tank monitor display console.
 - d. Check this height against its actual location.
5. The high water level alarm should not be set so high that water ingress into the tank goes undetected for long periods of time.

Disclaimer: This checklist is not intended to tell the technician how to perform the maintenance and system check. Technicians should follow manufacturers' detailed instructions while making sure that all of the items on this checklist have been covered.