

## PMMIC Line Leak Detection Requirements

At fueling facilities today, there is a demand for moving more product to the dispensing units faster. To meet this demand, pressurized fuel delivery systems are installed. Unfortunately, with this increased demand for pressurized systems came the increased severity of piping leaks.

Pressurized fuel delivery systems are required to have some form of automatic line leak detection (ALLD) which must be used in conjunction with line tightness testing. Adequate methods of ALLD include mechanical line leak detection (MLLD), electronic line leak detection (ELLD), and electronic sump sensors.

ALLD was designed to detect a “catastrophic” loss or a line leak that exceeds 3.0 gallons per hour (gph) at 10 pounds per square inch line pressure within 1 hour. All pressurized lines must have this, and state and federal regulation require that they be tested annually in accordance with manufacturer’s specifications. Each manufacturer may have their own procedures to adequately test the leak detector for proper operation, or in the case of some electronic line leak detectors, no 3<sup>rd</sup> party testing may be required at all.

MLLD will only accomplish 3.0 gph leak detection. That is why an annual line tightness test at 0.1 gph or monthly monitoring is required on the pressurized lines in addition to the annual MLLD test. In the event of a leak, the MLLD will go into slow flow and allow less than 3 gallons per minute through the dispenser. This will usually prompt the next customer to complain about the dispenser pumping so slowly. At that time you should contact your service company to figure out what is causing the slow flow of fuel to the dispenser, and make any necessary repairs. **Pressurized lines must never operate without some form of automatic line leak detection.**

There are several incidents that can trip the MLLD, even though there isn’t a leak, such as a malfunctioning check valve, thermal contraction, and air in the lines. If the leak detector is operating properly, but you are still not getting adequate flow through the dispenser, it is possible that the fuel filter is plugged and needs to be changed. There are also several instances that can cause MLLDs to miss leaks, such as continuously running submersible pumps, piping with excessive head pressure, malfunctioning MLLDs that trip above 3 gph, and satellite dispensers with improperly placed solenoid valves.

ELLD is usually wired through the automatic tank monitor, but some do offer stand-alone monitoring. Most ELLDs have the capability to run 3.0 gph, 0.2 gph, and 0.1 gph line tightness testing. Also, some of the newer software offers continuous leak detection, which will run all three tests daily if given enough idle time between dispensing. In the event of a leak, the ELLD will shut the system down, and in most cases you will have to contact the service company to make necessary repairs and reset the system. Obviously, these monitors can be programmed to test however you want, but it is recommended that you use every function the ELLD offers, which would include all three levels of testing.

Although not a favorable method, electronic sump sensors can be a form of line leak detection. In order to accomplish this, they must be wired for positive shutdown once the sensor goes into alarm status. Water infiltration and sensor failure keep this from being a reliable method.

If the ALLD is not tested properly, how would you know that it will shut the system down, or restricting flow at 3.0 gph leak rate? Testing the ALLD properly requires certified and calibrated equipment that will indicate whether or not the leak detector is “seeing” a leak at 3.0 gph. In addition to adequate testing equipment, the leak detectors must be tested by an Iowa licensed tester or installer or individual with manufacturer certification.

As stated earlier, the leak detector must detect a leak exceeding 3.0 gph, but anything less than that may go undetected, so any slow seeps or drips will not trip the leak detector. Also, the leak detector does not monitor most of the dispensing unit. For example, the leak detector would not identify a leaking meter, fuel filter, or hose. This is one more reason to routinely look inside your dispensers and sumps.

If you have a pressurized fuel delivery system, remember these 3 items:

- ALLD must be able to detect a leak of 3 gph at 10 psi line pressure within one hour. Tests confirming proper operation of line leak detector must be conducted in accordance with the manufacturer’s requirements.
- MLLDs must be tested annually.
- PMMIC requires that annual re-certification/testing of mechanical line leak detectors (MLLDs) must meet the following criteria after February 1<sup>st</sup>, 2005:
  1. Individual must be a licensed installer/tester and/or trained in a protocol approved by PMMIC.
  2. Metered equipment must be used to perform the re-certification testing of the MLLD, to confirm 3-gal/hr detection.
  3. Tester must meet manufacturer certification pertaining to the metered equipment performing the test.