

## Quick Troubleshooting Guide

### NOTICE

- Veeder-Root makes no representation or warranty about the information in this publication. A qualified professional is required for service of the components addressed in this publication.
- The information in this publication cannot be used as a substitution for the knowledge and experience of a qualified professional.
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- Contact TLS Systems Technical Support for additional troubleshooting information at 800-323-1799.

## Contractor Certification Requirements

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Veeder-Root requires the following minimum training certifications for contractors who will troubleshoot the equipment discussed in this manual:

**Installer Certification:** Contractors holding valid Installer Certification are approved to perform wiring and conduit routing, equipment mounting, probe and sensor installation, tank and line preparation, and line leak detector installation.

## Safety Warnings

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**FAILURE TO COMPLY WITH THE FOLLOWING WARNINGS AND SAFETY PRECAUTIONS COULD RESULT IN SERIOUS INJURY OR DEATH, AND COULD CAUSE DAMAGE TO PROPERTY AND THE ENVIRONMENT.**

**EXPLOSIVE:** Fuels and their vapors are extremely explosive if ignited.

**FLAMMABLE:** Fuels and their vapors are extremely flammable.

**ELECTRICITY:** High voltage exists in, and is supplied to, the device. A potential shock hazard exists.

**TURN POWER OFF:** Live power to a device creates a potential shock hazard. Turn Off power to the device and associated accessories when servicing the unit.

**WARNING:** Indicates a hazardous situation which, if not avoided, could result in death or serious injury.

**READ ALL RELATED MANUALS:** Knowledge of all related procedures before you begin work is important. Read and understand all manuals thoroughly. If you do not understand a procedure, ask someone who does.

***This system operates near highly combustible fuel storage tanks.***










To ensure proper installation, operation, and continued safe use of this product:

1. Read and follow all instructions in this manual, including all safety warnings.
2. Have equipment installed by a contractor trained in its proper installation and in compliance with all applicable codes including: National Electrical Codes 70 and 30A; federal, state, and local codes; and other applicable safety codes.
3. Before installing pipe threads apply an adequate amount of fresh, UL classified for petroleum, non-setting thread sealant. For E85AG applications, Loctite 564 is recommended for all field serviceable pipe threads.
4. When servicing unit, use non-sparking tools and use caution when removing or installing equipment to avoid generating a spark.
5. Substitution of components may impair intrinsic safety.
6. Do not modify or use service parts other than those provided by Veeder-Root.

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### Safety Precautions

The following safety symbols are used throughout this manual to alert you to important safety hazards and precautions.

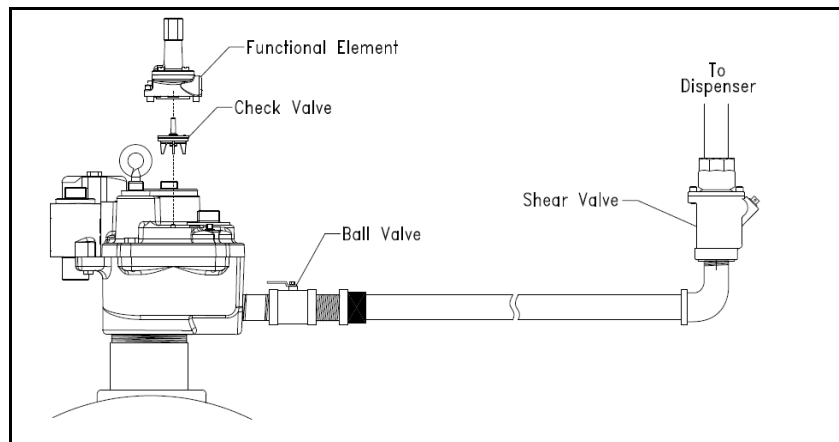
 <p><b>EXPLOSIVE</b> Fuels and their vapors are extremely explosive if ignited.</p>	 <p><b>FLAMMABLE</b> Fuels and their vapors are extremely flammable.</p>
 <p><b>ELECTRICITY</b> High voltage exists in, and is supplied to, the device. A potential shock hazard exists.</p>	 <p><b>TURN POWER OFF</b> Live power to a device creates a potential shock hazard. Turn Off power to the device and associated accessories when servicing the unit.</p>
 <p><b>WARNING</b> Indicates a hazardous situation which, if not avoided, could result in death or serious injury.</p>	 <p><b>WEAR EYE PROTECTION</b> Wear eye protection when working with pressurized fuel lines to avoid possible eye injury.</p>
 <p><b>USE SAFETY BARRICADES</b> Unauthorized people or vehicles in the work area are dangerous. Always use safety cones or barricades, safety tape, and your vehicle to block the work area.</p>	 <p><b>APPROVED CONTAINERS</b> Use nonbreakable, clearly marked containers, suitable for collecting and transporting hazardous fuels during service.</p>
 <p><b>READ ALL RELATED MANUALS</b> Knowledge of all related procedures before you begin work is important. Read and understand all manuals thoroughly. If you do not understand a procedure, ask someone who does.</p>	

### Problem - System Pressure Loss (PSI)

**On-Site Information:** Determine the reason for the service call. If equipped with FX Mechanical Leak Detectors, determine the frequency and time of day that the slow flow condition occurs. If site is equipped with PLLD, retrieve and review Line Leak History report to determine frequency, timing, and type of line leak alarms. This information will be required for discussion with Technical Support.

**Reference Documents:** This procedure references the following manuals 042-153-1, 042-106-1, 577014-345.

**Safety Precautions:** Review The 4" Submersible Petroleum and AG Pump Installation, Operation & Service Manual (042-153-1) for Safety Precautions, Warnings, and detailed procedures.



See Installation Manual (042-153-1) for all part replacement numbers.

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### Troubleshooting Steps:

1. Conduct visual site inspection for any external leakage (dispenser pans/sumps, STP sumps, etc.).
2. If a FX Mechanical Leak Detector is installed, disconnect the vent tube inspect for signs of liquid. Reconnect the vent tube if evidence of liquid is not discovered. If liquid is present, determine if leak detector is operating properly (see Installation manual 042-153-1 and FX Leak Detector Manual 042-106-1).
3. Install a Pressure Gauge at the shear/impact valve of a dispenser (reference shear/impact owner's manual).
4. Energize the pump for 15 seconds, then de-energize pump.
5. Upon de-energizing the pump, monitor the pressure loss for 60 seconds. (Please be careful to document pressure readings for reference later).
  - Note: the pressure change can vary site to site. The relief valve is factory set to relieve at 11-16 PSI and the pressure relief is also adjustable.
  - If site has a Pressurized Line Leak Detector (PLLD), verify that the Pressure Gauge readings match the PLLD transducer readings.
6. If the pressure has decreased by more than 2 PSI in the 60 seconds, proceed to Step 7 below. If the pressure has decreased by less than 2 PSI in the 60 seconds, thermal contraction could be a contributing factor. For testing of thermal contraction, please see the Thermal Contraction Testing Guide (reference number 577014-345).
7. Proceed to isolate the line to determine the source of the issue by following the procedure below.
  - Energize the pump and close the Ball Valve in the discharge piping after 15 seconds.
  - De-energize Pump.
  - Upon de-energizing the pump, monitor the pressure loss for 60 seconds and document the reading on the pressure gauge.
  - If the pressure has decreased by less than 2 PSI in the 60 seconds, then the line is not the source of the pressure loss and proceed to Step 8.
  - If the pressure has decreased by more than 2 PSI in the 60 seconds, isolate the dispensers by closing the shear valves of the dispensers.
  - Open the ball valve.
  - Energize the pump and close the Ball Valve in the discharge piping after 15 seconds.
  - De-energize Pump.
  - Upon de-energizing the pump, monitor pressure loss for 60 seconds and document the pressure reading.
  - If the pressure has decreased by less than 2 PSI in the 60 seconds, then the line is not the source of the pressure loss. Investigate dispenser(s) per the dispenser owner's manual. Proceed to Step 8.
  - If the pressure has decreased by more than 2 PSI in the 60 seconds, then the line should be tested. Call for a 3rd party line test. Following the 3rd party line test, if the line is confirmed tight, please see the Thermal Contraction Testing Guide (reference number 577014-345).
  - Open the Ball Valve.
8. The pump should still be off. Confirm ball valve is open.
9. Energize the pump and lock down the check valve per the Installation Manual (042-153-1).
10. De-energize the pump.
11. If the pressure has decreased by more than 2 PSI in the 60 seconds, replace the check valve per the Installation Manual (042-153-1).
12. Return the check valve to the normal position.
13. Energize the pump for 60 seconds.
14. De-energize the pump.

## 4" Petroleum and AG STP - Pressure Loss



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15. If the pressure has decreased by more than 2 PSI in the 60 seconds, replace the Functional Element Assembly per the Installation Manual (042-153-1) and repeat Step 13-14.
16. If the pressure has decreased by more than 2 PSI in the 60 seconds, replace the Pac-Man Seal (discharge o-ring seal) per the Installation Manual (042-153-1) and repeat Steps 13-14.
17. If the pressure has decreased by more than 2 PSI in the 60 seconds, contact Technical Support (U.S. only: 800.323.1799).
  - Note, you will need to have available the pressure reading data from steps above.