

NOTICE

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- Contact TLS Systems Technical Support for additional troubleshooting information at 800-323-1799.

Contractor Certification Requirements

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

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.










The 4HP Red Jacket UMP



Quick Troubleshooting Guide

Safety Precautions

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

 <p>EXPLOSIVE Fuels and their vapors are extremely explosive if ignited.</p>	 <p>FLAMMABLE Fuels and their vapors are extremely flammable.</p>
 <p>ELECTRICITY High voltage exists in, and is supplied to, the device. A potential shock hazard exists.</p>	 <p>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.</p>
 <p>WARNING Indicates a hazardous situation which, if not avoided, could result in death or serious injury.</p>	 <p>WEAR EYE PROTECTION Wear eye protection when working with pressurized fuel lines to avoid possible eye injury.</p>
 <p>USE SAFETY BARRICADES 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>APPROVED CONTAINERS Use nonbreakable, clearly marked containers, suitable for collecting and transporting hazardous fuels during service.</p>
 <p>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.</p>	

Reference Documents: Review the installation manual 577013-830 for Safety Precautions, Warnings, and detailed procedures. This Quick Help also references these additional manuals 577014-053, 042-153, 051-329, 577014-340.

Tools Required: Multi Meter / Amp Meter, Pressure Gauge

On-Site Information: Verify exact problem with store personnel: No Flow / Slow Flow / Intermittent / Low Pressure.

Intermittent Flow	No Flow	Slow Flow	Low Pressure
Hot fuel	No fuel in the tank / run dry	Mechanical leak detector	Incorrectly wired (pump running backwards)
POS issue	Hot fuel	Restricted inlet	Mechanical leak detector
Over & under voltage	POS issue	Discharge head gasket	Discharge head gasket
STP circuit breaker	Circuit breaker off/tripped	Dispenser filters	Restricted inlet
Over current	Tank Gauge power	Clogged RJ Trapper	Loose UMP
Plugged inlet	Electronic Line Leak	Broken nozzles	Clogged RJ Trapper
STP Control relay	E-Stop	Bad UMP	Bad wiring
Electronic Line Leak alarm	STP control relay		Bad UMP
Bad UMP	Tripped shear valve – if individual fueling position		
	Plugged inlet		
	Bad wiring (field or pigtail)		
	Bad UMP		

What is the exact problem (what is happening): Is the tank gauge showing any line leak alarms? Is there fuel in the tank and what is the fuel temp? Did this problem occur during installation? If not, were the leads disconnected/reconnected for any reason?

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Problem - No Fuel Pumping, No Flow

Troubleshooting Steps:

1. Is there fuel in the tank?
2. Is the site utilizing Electronic Line Leak.
 - a. Yes - are there any line leak alarms disabling STP operations?
 - b. No - go to Step 3.
3. Check relay
 - a. Do you have power on L1, L2 and L3?
 - i. No - Check circuit breaker
 - ii. Yes - go to Step 'b'
 - b. Is hook signal present from ALL dispensers?
 - i. No – repair dispenser switch board.
 - ii. Yes - go to Step 'c'.
 - c. Check voltage on output side of the control box relay (T1, T2, T3 connection) 208-230Vac (60Hz) or 380-415 Vac (50Hz).
 - i. No - reset starter and retest; If still No:
 - Confirm all wiring is correct and that none of the heaters are creating an open circuit.
 - If bad heater(s), replace & retest.
 - If wiring is incorrect fix & retest.
 - If bad starter, replace & retest.
 - ii. Yes - go to Step 'd'.
 - d. Check current on each leg of output to STP (reference 577014-053, Table 4 – Electrical Service Information for proper current readings depending on STP size).
 - i. Normal current – go to Step 'e'.
 - ii. No current – de-energize relay and check resistance between Black-Orange, Red-Orange and Black-Red wires (to STP). Refer to 577014-053, Table 4 – Electrical Service Information for proper resistance readings.
 1. If correct, motor overload may have reset so reconnect and test current again. Then let it run and see if it trips again.
 2. If infinite the motor overload has tripped or you have an open circuit.
 - a. Attach leads together, inside or out, and move to sump to ohm out.
 - i. If wire tests okay from contractor's box back to building, field wire is okay. Move to Step 'ii'.
 - ii. If resistance from contractor's box to motor is still infinite then either bad pig tail, or bad UMP.
 1. Pull Motor
 - a. Test pigtail – if it fails replace pigtail.
 - b. Test windings.
 - c. Remove inlet plug and test pump shaft.
 - i. Should spin freely.
 - ii. Loose bearings?
 2. If 'b' or 'c' fails then replace the UMP.
 3. If low resistance could be a short circuit OR a defective UMP.
 - iii. Incorrect current reading – Reference 577014-053, Table 4 – Electrical Service Information for proper current readings depending on STP size.
 1. Verify all wires in control box are tight.
 2. Repeat Steps 2a and 3 above.

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- e. If current and voltage are good and ball valve is open, pull motor. If ball valve is closed, open valve and retest.
 - i. Ensure inlet isn't clogged or picking up debris.
 - ii. Test windings.
 - iii. Remove inlet plug and test pump shaft.
 1. Should spin freely.
 2. Loose bearings?
 - iv. If no sign of debris, Replace UMP.

Problem - Slow Flow

Troubleshooting Steps:

1. Is the site using mechanical leak detectors?
 - a. YES – troubleshoot MLD (refer to 577014-340 for FX Leak Detector troubleshooting).
 - b. NO - go to Step '2'.
2. Install pressure gauge in line port and verify line pressure (reference 577013-053, Table 6 for approximate pump shut-off pressure).
3. When was the last time site filters were changed on dispensers? Determine if filter should be replaced.
4. Pull pump for further troubleshooting.
 - a. Is debris clogging inlet? Verify there is nothing on the bottom of tank that can be sucked up against inlet.
 - b. Verify the locking nut for adjustable column pipe is not loose.
 - c. Verify that the UMP is installed correctly and bolts are tight on the discharge head flange.
 - i. If not the gasket could be damaged causing slow flow.
 - d. If the previous steps are okay, Replace UMP.

Problem - Intermittent Flow

Troubleshooting Steps:

1. Check relay.
 - a. Is hook signal coming in consistently from ALL dispensers (try several times from each)?
 - i. NO - repair dispenser switch board.
 - ii. YES - go to Step 'b'.
 - b. Check voltage on output side of the control box relay (T1, T2, T3 connection) 208-230 Vac (60Hz) or 380-415 Vac (50Hz).
 - i. No - reset starter and retest; If still No:
 - Confirm all wiring is correct and that none of the heaters are creating an open circuit.
 - If bad heater(s), replace & retest.
 - If wiring is incorrect fix & retest.
 - If bad starter, replace & retest.
 - ii. YES - go to Step 'c'.
 - c. Check current on each leg of output to STP (reference 577014-053, Table 4 – Electrical Service Information for proper current readings depending on STP size).
 - i. Normal current – go to Step 'd'.
 - ii. No current – de-energize relay and check resistance between Black-Orange, Red-Orange and Black-Red wires (to STP). Refer to 577014-053, Table 4 – Electrical Service Information for proper resistance readings.
 1. If correct, motor overload may have reset so reconnect and test current again. Then let it run and see if it trips again.

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2. If infinite the motor overload has tripped or you have an open circuit.
 - a. Attach leads together, inside or out, and move to sump to ohm out.
 - i. If wire tests okay from contractor's box back to building, field wire is okay. Move to Step 'ii'.
 - ii. If resistance from contractor's box to motor is still infinite then either bad pig tail or bad UMP.
 1. Pull motor.
 - a. Test pigtail – if fails replace pigtail.
 - b. Test windings.
 - c. Remove inlet plug and test pump shaft.
 - i. Should spin freely.
 - ii. Loose bearings?
 2. If 'b' or 'c' fails then replace the UMP.
 3. If low resistance could be a short circuit OR a defective UMP.
 - iii. Incorrect current reading – Reference 577014-053, Table 4 – Electrical Service Information for proper current readings depending on STP size.
 1. Verify all wires in control box are tight.
 2. Repeat Steps 2a and 3 above.
 - d. If current and voltage are good and ball valve is open, pull motor. If ball valve is closed, open valve and retest.
 - i. Ensure inlet isn't clogged or picking up debris.
 - ii. Test windings.
 - iii. Remove inlet plug and test pump shaft.
 1. Should spin freely.
 2. Loose bearings?
 - iv. If no sign of debris, Replace UMP.

Problem - Low Pressure

Troubleshooting Steps:

1. Ensure the leads are not reversed. Reference the Installation manual 577013-830 (Figures 28 to 30) for correct positioning of leads.
2. If no sign of leakage/loss and/or incorrect/bad wiring, switch leads per 577013-830 manual "Initial Start Up of Pump".
 - a. If switching leads didn't fix problem, replace UMP..