Vacuum Breaker Part, No. 123-039-5
Mechanical Leak Detection Accessory Available For:
The Standard 4” STP Pump
The Red Jacket STP Pump

Installation Guide

RED JACKET™

Notice

Veeder-Root makes no warranty of any kind with regard to this publication, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose.

Veeder-Root shall not be liable for errors contained herein or for incidental or consequential damages in connection with the furnishing, performance, or use of this publication.

Veeder-Root reserves the right to change system options or features, or the information contained in this publication.

Contact Red Jacket Technical Support for additional troubleshooting information at 800-323-1799.

DAMAGE GOODS/LOST EQUIPMENT

Thoroughly examine all components and units as soon as they are received. If any cartons are damaged or missing, write a complete and detailed description of the damage or shortage on the face of the freight bill. The carrier's agent must verify the inspection and sign the description. Refuse only the damaged product, not the entire shipment.

VR must be notified of any damages and/or shortages within 30 days of receipt of the shipment, as stated in our Terms and Conditions.

VEEDER-ROOT'S PREFERRED CARRIER

1. Fax Bill of Lading to V/R Customer Service at 800-234-5350.
2. Call V/R Customer Service at 800-873-3313 with the specific part numbers and quantities that were received damaged or lost.
3. VR will file the claim with the carrier and replace the damaged/missing product at no charge to the customer. Customer Service will work with production facility to have the replacement product shipped as soon as possible.

CUSTOMER'S PREFERRED CARRIER

1. Customer files claim with carrier.
2. Customer may submit a replacement purchase order. Customer Service will work with production facility to have the replacement product shipped as soon as possible.
3. If "lost" equipment is delivered at a later date and is not needed, VR will allow a Return to Stock without a restocking fee.
4. VR will NOT be responsible for any compensation when a customer chooses their own carrier.

RETURN SHIPPING

For the parts return procedure, please follow the instructions in the "General Returned Goods Policy" pages of the "Policies and Literature" section of the Veeder-Root North American Red Jacket Mechanical Products Price Book. Veeder-Root will not accept any return product without a Return Goods Authorization (RGA) number clearly printed on the outside of the package.

Figures

Introduction

The Vacuum Breaker was designed to eliminate a vacuum from occurring in a product line. Red Jacket discovered a vacuum was being created in the product lines during extreme thermal contraction periods. When a mechanical leak detector has been exposed to a vacuum its opening time is increased dramatically.

WHEN TO USE: If a station is experiencing restricted flow due to the mechanical leak detector tripping, in the mornings or between product dispensing, installing a Vacuum Breaker may solve the problem.

Related Manuals

Reference the appropriate pump installation manual below on our website (*www.veeder.com*) for additional pump information as needed:

D042-153	4" Submersible Petroleum and AG Pump Install, Operate and Service
577013-830	The Red Jacket Submersible Turbine Pump Install, Service, & Parts

Safety Precautions

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

	**EXPLOSIVE** Fuels and their vapors are extremely explosive if ignited.		**FLAMMABLE** Fuels and their vapors are extremely flammable.
	**WARNING** Warning Alert - read message and follow instructions to avoid serious injury, death, or substantial property damage.		**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.
	**ELECTRICITY** High voltage exists in, and is supplied to, the device. A potential shock hazard exists.		**FENCE OFF WORK AREA** Fuels and their vapors are extremely explosive if ignited. Keep hazardous zone free of unauthorized personnel and vehicles. Put up fencing and/or barricades to safeguard work area.
	**WEAR EYE PROTECTION** Wear eye protection when working with pressurized fuel lines or epoxy sealant to avoid possible eye injury.		**GLOVES** Wear gloves to protect hands from irritation or 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.		

⚠ WARNING

This product operates in the highly combustible atmosphere of a gasoline storage tank.

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

1. **All installation work must comply with the latest issue of the National Electrical Code (NFPA 70), the Code for Motor Fuel Dispensing Facilities and Repair Garages (NFPA30A), and any European, national, state, and local code requirements that apply.**
2. **Turn off, tag, and lockout power to the STP before connecting or servicing the STP.**
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[1].**
4. **When servicing unit, use non-sparking tools and use caution when removing or installing equipment to avoid generating a spark.**
5. **To protect yourself and others from serious injury, death, or substantial property damage, carefully read and follow all warnings and instructions in this manual.**

In addition to the specified torque values noted in this manual, when properly tightened, all flanged fittings should have metal-to-metal contact.

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1. *For the E85 AG Product, the interface connection to the 2" NPT Discharge Port on the manifold was evaluated with steel piping during the UL Listing evaluation and therefore, this material should be used when installing this product. All materials must be fully compatible with the products being stored.*

Warnings and Instructions

IMPORTANT SAFETY INFORMATION

This section introduces the hazards and safety precautions associated with installing, inspecting, maintaining or servicing this product. Before performing any task on this product, read this safety information and the applicable sections in this manual, where additional hazards and safety precautions for your task will be found. Fire, explosion, electrical shock or pressure release could occur and cause death or serious injury, if these safe service procedures are not followed.

PRELIMINARY PRECAUTIONS

You are working in a potentially dangerous environment of flammable fuels, vapors, and high voltage or pressures. Only trained or authorized individuals knowledgeable in the related procedures should install, inspect, maintain or service this equipment.

Read the Manual

Read, understand and follow this manual and any other labels or related materials supplied with this equipment. If you do not understand a procedure, call 1-800-323-1719 to locate a qualified technician. It is imperative to your safety and the safety of others to understand the procedures before beginning work. **Make sure your employees and any service contractors read and follow the instructions.**

Follow the Regulations

Applicable information is available in National Fire Protection Association (NFPA) 30A; *Code for Motor Field Dispensing Facilities and Repair Garages*, NFPA 70; *National Electrical Code* (NEC), Occupational Safety and Hazard Association (OSHA) regulations and federal, state, and local codes. All these regulations must be followed. Failure to install, inspect, maintain or service this equipment in accordance with these codes, regulations and standards may lead to legal citations with penalties or affect the safe use and operation of the equipment.

Prevent Explosions and Fires

Fuels and their vapors will explode or burn, if ignited. Spilled or leaking fuels cause vapors. Even filling customer tanks will cause potentially dangerous vapors in the vicinity of the dispenser or island.

Working Alone

It is highly recommended that someone who is capable of rendering first aid be present during servicing. Familiarize yourself with Cardiopulmonary Resuscitation (CPR) methods, if you work with or around high voltages. This information is available from the American Red Cross. Always advise the station personnel about where you will be working, and caution them not to activate power while you are working on the equipment. Use the OSHA Lockout/Tagout procedures. If you are not familiar with this requirement, refer to OSHA documentation.

Working With Electricity Safely

Ensure that you use safe and established practices in working with electrical devices. Poorly wired devices may cause a fire, explosion or electrical shock. Ensure that grounding connections are properly made. Ensure that you do not pinch wires when replacing covers. Follow OSHA Lockout/Tagout requirements. Station employees and service contractors need to understand and comply with this program completely to ensure safety while the equipment is down. Before you start work, know the location of the Emergency Power Cutoff Switch (the E-STOP). This switch cuts off power to all fueling equipment and submerged turbine pumps and is to be used in the event of an emergency. The buttons on the console at the cashier's station WILL NOT shut off electrical power to the pump/dispenser. This means that even if you press a button on the console labeled EMERGENCY STOP, ALL STOP, PUMP STOP, or something similar, fuel may continue to flow uncontrolled.

Hazardous Materials

Some materials may present a health hazard if not handled correctly. Ensure that you clean hands after handling equipment. Do not place any equipment in the mouth.

WARNING! FAILURE TO COMPLY WITH THE FOLLOWING WARNINGS AND SAFETY PRECAUTIONS COULD RESULT IN PROPERTY DAMAGE, INJURY OR DEATH.

FIRE HAZARD! Do **NOT** use **power tools** (Class I Division I and Class I Division II) during the installation or maintenance of equipment. Sparking could ignite fuel or vapors, resulting in fire.

CHEMICAL EXPOSURE HAZARD! Wear appropriate **safety equipment** during installation or maintenance of equipment. Avoid exposure to fuel and vapors. Prolonged exposure to fuel may cause severe skin irritations and possible burns.

REQUIREMENTS FOR USE

- The Red Jacket is designed for use only at facilities dispensing motor fuels.
- Application of The Red Jacket must be consistent with NFPA Code 30A, OSHA regulations, and federal, state and local fire codes, and other applicable local regulations.
- The selection of any Veeder-Root product must be based upon physical specifications and limitations and the product's compatibility with the materials to be handled. Veeder-Root makes no warranty of fitness for a particular purpose.
- All Veeder-Root products should be used in accordance with applicable federal, state and local laws, ordinances and regulations.

OPERATING PRECAUTIONS

- **NO SMOKING.** Extinguish all open flames and pilot lights, such as on RV appliances.
- **TURN OFF** cell phones and other electronic devices to avoid distractions while fueling.
- **GASOLINE CAN BE HARMFUL OR FATAL IF SWALLOWED.** Long-term exposure may cause cancer. Keep eyes and skin away from liquid gasoline and gasoline vapors. Avoid prolonged breathing of gasoline vapors.

Vacuum Breaker Installation

Installation Procedure - Standard Pump

WARNING! Always disconnect, lock out, and tag the power at the panel before starting to service the pump.

Verify that the pump pressure has been relieved.

Loosen the line test 1/4-inch NPT pipe plug located on the top of the packer assembly to relieve any pressure in the line.

Remove the 1/2 inch hex head cap screw (pac/man lockdown bolt) adjacent to the manifold tank 1/4 inch NPT pipe plug. Refer to Figure 1.

Remove the line test plug and tank 1/4 inch NPT pipe plug located on top of the packer.

If using in conjunction with an FX1V, FX1DV, FX2V or FX2DV apply U.L. classified non-toxic pipe thread sealant to the threads on one straight tube fitting and one 45 degree street elbow. Install straight fitting to 1/4 inch line test opening in Packer and install 45 degree street elbow to 1/4 inch tank test opening in the Packer. Apply U.L. classified non-toxic pipe thread sealant to both ends of 1/4 inch hex nipple. Install hex nipple into 45-degree street elbow. Install female tee on hex nipple. To proceed with installation, find paragraph referring to the leak detector model that applies to your situation.

FX1V or FX1DV

Apply U.L. classified non-toxic pipe thread sealant to the threads on two 90-degree elbows. Install elbows into remaining openings of female tee, see Figure 2.

FX2V or FX2DV

Apply U.L. classified non-toxic pipe thread sealant to the 1/4-inch NPT threads on second hex nipple. Install second hex nipple into top opening of the previously installed female tee. Install second female tee on second hex nipple. Apply U.L. classified non-toxic pipe thread sealant to the threads on two 90-degree elbows. Install elbows into sides of the female tees. Apply U.L. classified non-toxic pipe thread sealant to the 1/4-inch NPT threads of one Snap Tap and install into remaining opening of second female tee, see Figure 3.

Mount the vacuum breaker (eliminator) using the 1/2 inch, 13 x 1-3/4 hex head cap screw supplied with the assembly to 50 ft-lbs. Reference Figure 1.

To install tubing if using in conjunction with an FX1V, FX1DV, FX2V or FX2DV:

Apply U.L. classified non-toxic pipe thread sealant to the threads on two straight tube fittings and install into the two tapped openings in the Vacuum Breaker cap.

If using in conjunction with a FX1V or FX1DV leak detector, install tubing as shown in Figure 2.

If using in conjunction with a FX2V or FX2DV leak detector, install tubing as shown in Figure 3.

Tighten as shown in instructions supplied with the fittings. **Do not over tighten the fittings yet do make sure all fittings are tight enough to prevent possible leaks into the ground and/or water seepage inside the leak detector and tank. Check tubing and fitting joints for kinks and damage after installation and periodically thereafter. This should be done at least annually and can be performed with the annual leak detector functionality check.**

Connect power to the pump at the load center.

Clear remaining air from system as follows:

Turn on dispenser that is farthest from the leak detector but do not open nozzle. Wait 4 or 5 minutes or more. Look for leaks on parts worked on.

Shut off the pump allow it to stand four or five minutes. Restart the pump again and open the nozzle farthest from the leak detector.

Continue to dispense enough gasoline, about 20 to 30 gallons (76 to 114 litres), to pump ALL air from the system.

Inspect all threaded joints to insure they are tight and not leaking.

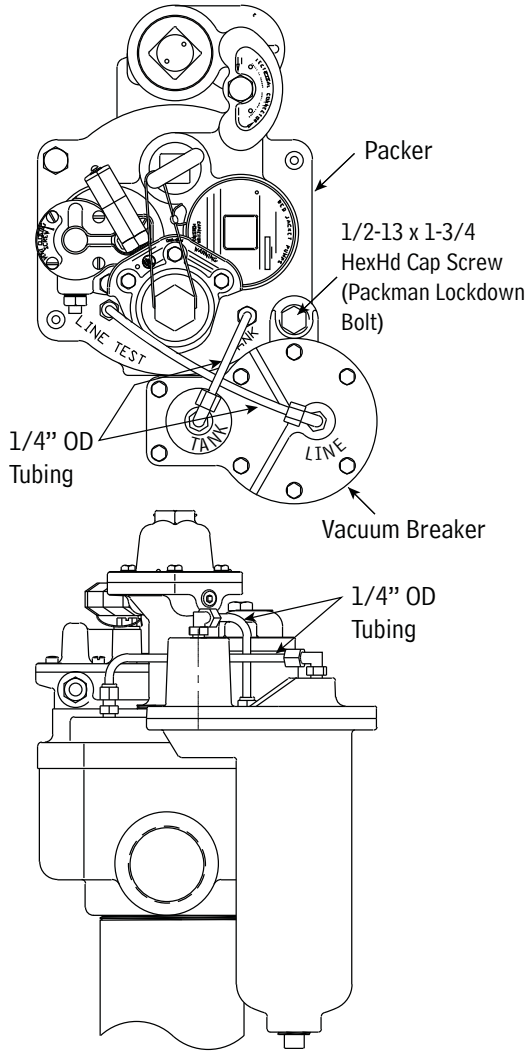

Figure 1.

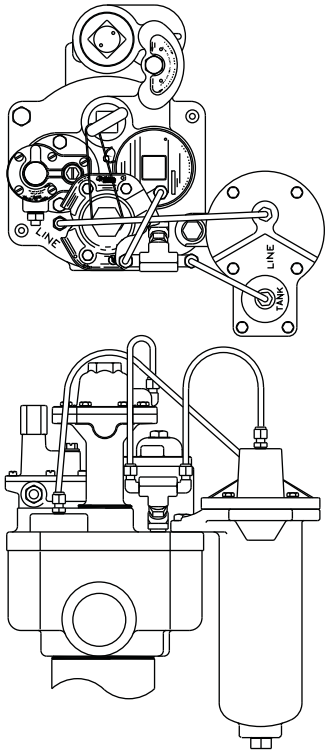

Figure 2.

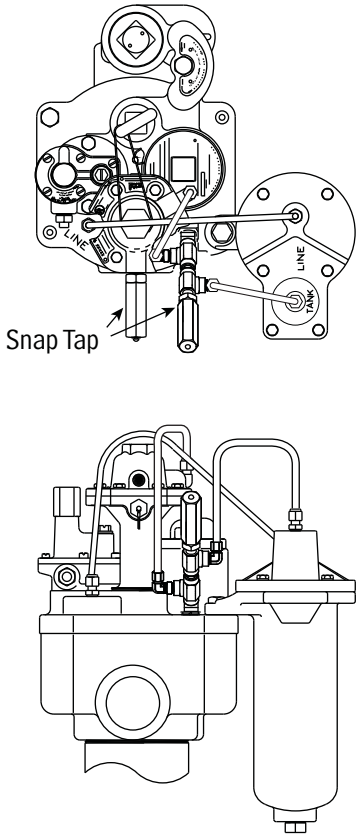

Figure 3.

Installation Procedure - The Red Jacket Pump

WARNING! Always disconnect, lock out, and tag the power at the panel before starting to service the pump.

Verify that the pump pressure has been relieved.

Remove the M12 flanged nut, refer to Figure 4.

Remove the Line Test 1/4" NPT plug located on the top of the manifold.

Remove the Tank Test 1/4" NPT plug located on the side of the manifold.

Mount the Vacuum Breaker, using the M12 flanged nut, bracket, 1/2-13 x 1-3/4 hex head cap screw and the 1/2-13 nut supplied with the unit. Torque the nuts to 50 ft-lbs.

If using in conjunction with an FX1V, FX1DV, FX2V or FX2DV apply U.L. classified non-toxic pipe thread sealant to the threads on one straight tube fitting and one 45 degree street elbow. Install straight fitting to 1/4 inch Line Test opening in manifold and install 45 degree street elbow to 1/4 inch Tank Test opening in the manifold. Apply U.L. classified non-toxic pipe thread sealant to both ends of 1/4 inch hex nipple. Install hex nipple into 45-degree street elbow. Install female tee on hex nipple. To proceed with installation, find paragraph referring to the leak detector model that applies to your situation.

FX1V or FX1DV

Apply U.L. classified non-toxic pipe thread sealant to the threads on two 90-degree elbows. Install elbows into remaining openings of female tee, see Figure 4.

FX2V or FX2DV

Apply U.L. classified non-toxic pipe thread sealant to the 1/4-inch NPT threads on second hex nipple. Install second hex nipple into top opening of the previously installed female tee. Install second female tee on second hex nipple. Apply U.L. classified non-toxic pipe thread sealant to the threads on two 90-degree elbows. Install elbows into sides of the female tees. Apply U.L. classified non-toxic pipe thread sealant to the 1/4-inch NPT threads of one Snap Tap and install into remaining opening of second female tee, see Figure 5.

To install tubing if using in conjunction with an FX1V, FX1DV, FX2V or FX2DV:

Apply U.L. classified non-toxic pipe thread sealant to the threads on two straight tube fittings and install into the two tapped openings in the Vacuum Breaker cap.

Install tubing as shown in Figure 5.

Tighten as shown in instructions supplied with the fittings. **Do not over tighten the fittings yet do make sure all fittings are tight enough to prevent possible leaks into the ground and/or water seepage inside the leak detector and tank. Check tubing and fitting joints for kinks and damage after installation and periodically thereafter. This should be done at least annually and can be performed with the annual leak detector functionality check.**

Connect power to the pump at the load center.

Clear remaining air from system as follows:

Turn on dispenser that is farthest from the leak detector but do not open nozzle. Wait 4 or 5 minutes or more. Look for leaks on parts worked on.

Shut off the pump allow it to stand four or five minutes. Restart the pump again and open the nozzle farthest from the leak detector.

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Inspect all threaded joints to insure they are tight and not leaking.

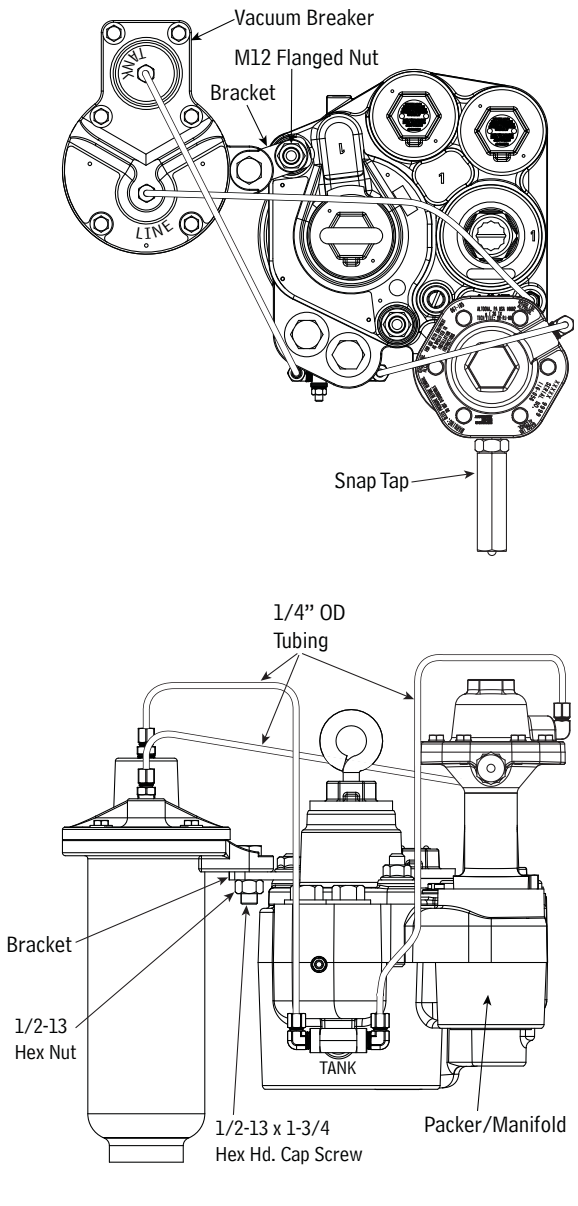

Figure 4.

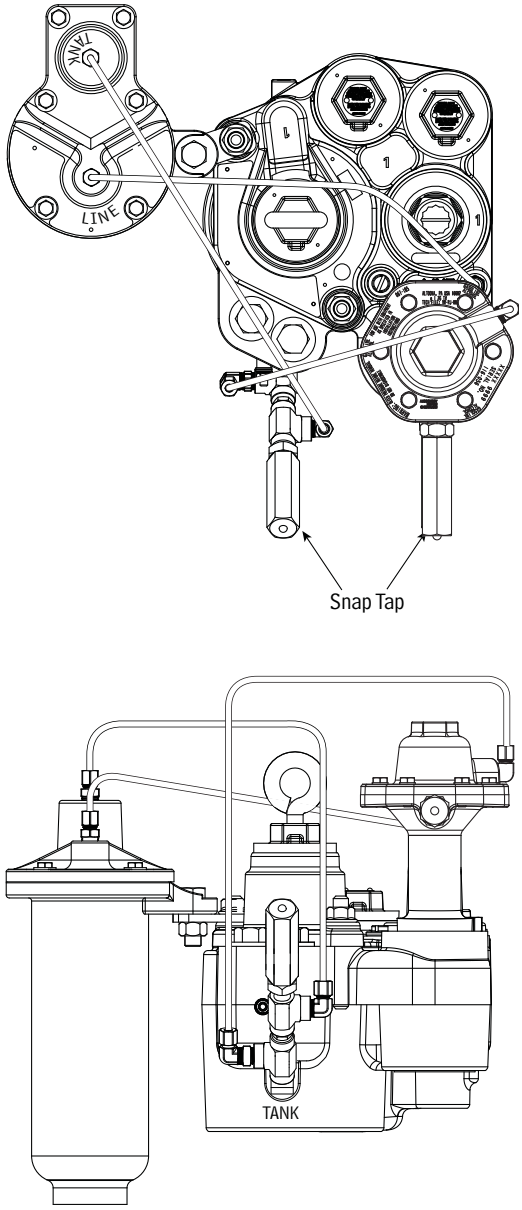

Figure 5.

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For technical support, sales or other assistance, please visit:
www.veeder.com