

FXV Leak Detectors

Installation Instructions

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.

This publication contains proprietary information which is protected by copyright. All rights reserved. No part of this publication may be photocopied, reproduced, or translated to another language without the prior written consent of Veeder-Root.

DAMAGE CLAIMS

Thoroughly examine all components and units as soon as they are received. If damaged, write a complete and detailed description of the damage on the face of the freight bill. The carrier's agent must verify the inspection and sign the description.

Immediately notify the delivering carrier of damage or loss. This notification may be given either in person or by telephone. Written confirmation must be mailed within 48 hours. Railroads and motor carriers are reluctant to make adjustments for damaged merchandise unless inspected and reported promptly.

Risk of loss, or damage to merchandise remains with the buyer. It is the buyer's responsibility to file a claim with the carrier involved.

RETURN SHIPPING

For the parts return procedure, please follow the appropriate instructions in the "General Returned Goods Policy" and "Parts Return" pages in the "Policies and Literature" section of the Veeder-Root North American Environmental Products price list.

Notice 2

 DAMAGE CLAIMS 2

 RETURN SHIPPING 2

FXV Leak Detectors - Installation Instructions..... 1

 Safety Precautions 1

 Installation Procedure 2

 Test of the Leak Detector 6

 Special Installation Instructions..... 7

 Conditions of Approval for City of New York Certificate of Approval #4942..... 8

 Statement of Third Party Certification 9

FXV Leak Detectors - Installation Instructions

FX1V Part No. 116-056-5, FX2V Part No. 116-057-5

Fx1DV Part No. 116-058-5, FX2DV Part No. 116-059-5

Safety Precautions

The following defined terms are used throughout this literature to bring attention to the presence of hazards of various risk levels, or to important information concerning the life of the product.

DANGER	Indicates presence of a hazard which <i>will</i> cause <i>severe</i> personal injury, death or substantial property damage if ignored.	CAUTION	Indicates presence of a hazard which <i>will</i> or <i>can</i> cause <i>minor</i> personal injury, death or substantial property damage if ignored.
WARNING	Indicates presence of a hazard which <i>can</i> cause <i>severe</i> personal injury, death or substantial property damage if ignored.	NOTICE	Indicates special instructions on installations, operation, or maintenance which are important but not related to personal injury hazards.

WARNING

Before installing leak detector, review the application section in leak detector manual #5191 for limitations or restrictions on usage.

NOTICE

This instruction sheet should be kept with the end user of the leak detector for reference.

When using 117-182 Big-Flo Diaphragm Valve, refer to installation instructions #042-108-1 included with the valve. When using an FXV model leak detector with adapter housing #038-072-5, refer to installation instructions #041-415-1 included with the housing. FXV Leak Detectors are for use with all UL-listed 4-inch Red Jacket models containing a "P" or "AG" prefix; FE Petro UL-listed 4-inch "STP" models; Tokheim UL-listed 4-inch models – 585A-34 and 585A-150.

WARNING

Tampering with the screws or seals on this leak detector may inhibit operation and will void warranty.

This Red Jacket leak detector is to be installed into the two-inch threaded tapping on top of the Red Jacket submersible pump. The FXDV models are specially designed for use with diesel fuel and should be used in diesel applications to provide the appropriate operating characteristics. For proper installation, the following steps should be followed in sequence.

WARNING

DO NOT wire submersible pumps to run continuously. Red Jacket line leak detectors will not perform leak tests on pumping systems that run continuously.

NOTICE

ALL AIR MUST BE OUT OF THE SYSTEM FOR THE LEAK DETECTOR TO WORK PROPERLY. Before installing leak detector in the pump, fill the system with product by running the pump and delivering product from each dispenser (starting with the farthest from the pump and working to the pump) until all air is removed from system.

Certain regulatory bodies require that leak detectors remain in the system after the lines have been installed. The lines may be purged of air by back-pressuring the lines with an inert gas, such as helium or nitrogen, to a pressure of 25 psi (172 kPa). This may be done at the impact valve under the dispenser. When this pressure has been reached, the leak detector will be in the open position. By turning on the pump and gradually bleeding the gas from the line through a valve at the impact valve of the farthest dispenser, the line may be purged of air.

Installation Procedure

DANGER

Disconnect power to the submersible pump and relieve pressure before installing or removing petroleum equipment.

1. Disconnect power to pump at the load center. Tag or lock out the breaker to avoid the pump being turned on accidentally.
2. Remove the two-inch plug from the top of the Standard pump (see Figure 1 for The Red Jacket leak detector installation ports). If the two-inch plug is found to be so tight that cannot be removed, the submersible should be removed from the tank and placed in a vise. Remove the functional element assembly next to the pipe plug. The plug should then come out readily if a large pipe wrench is used. Replace functional element assembly securely and replace the pump in the tank. (See Step 3 before replacing pump).

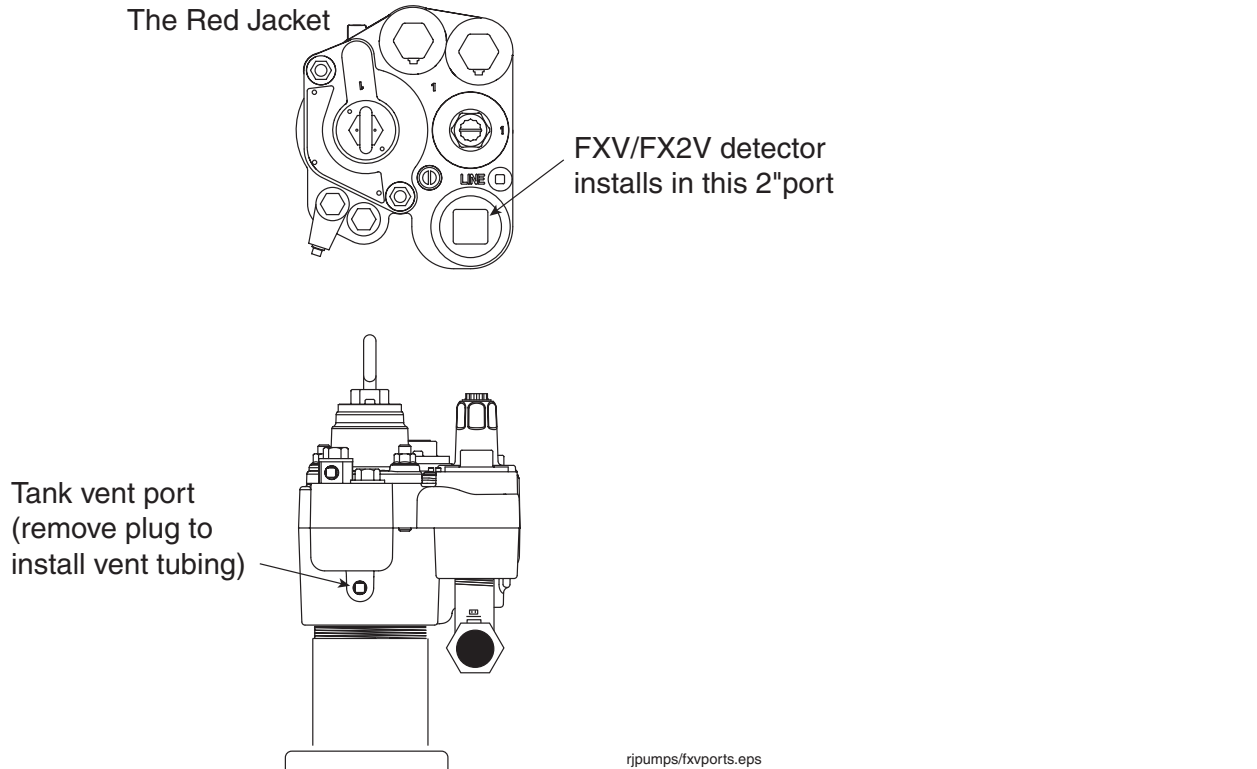


Figure 1. FXV installation ports in The Red Jacket

3. Examine straight bore below two-inch thread for corrosion roughness. If found to be rough, smooth with fine emery paper.
4. Apply UL-classified non-toxic pipe thread sealant to the two-inch threads on the detector. Lubricate o-ring on the leak detector.
5. Screw the leak detector into the pump. Tighten with a wrench (top hex is 1-1/4 inch).
6. Installation of vent tube and snap tap connectors.

For FX1V models

- a. Remove 1/4-inch pipe plug from tank test port in the Packer (on 6-inch Big-Flo applications, remove the 1/4-inch pipe plug from the riser/flange assembly, for The Red Jacket pumps, see Figure 2).
- b. Apply a UL-classified non-toxic pipe thread sealant to the threads of the 1/4-inch NPT straight vent tube fitting and install in tank test port of the packer. On 6-inch Big-Flo applications, the 1/4-inch NPT straight vent tube fitting may be installed into the riser/flange assembly.
- c. Apply a UL-classified non-toxic pipe thread sealant to the threads of the 1/4-inch NPT 90-degree vent tube fitting and install in the leak detector vent opening in the cap of the leak detector.
- d. Install the vent tubing into both fittings and tighten per instructions on package.

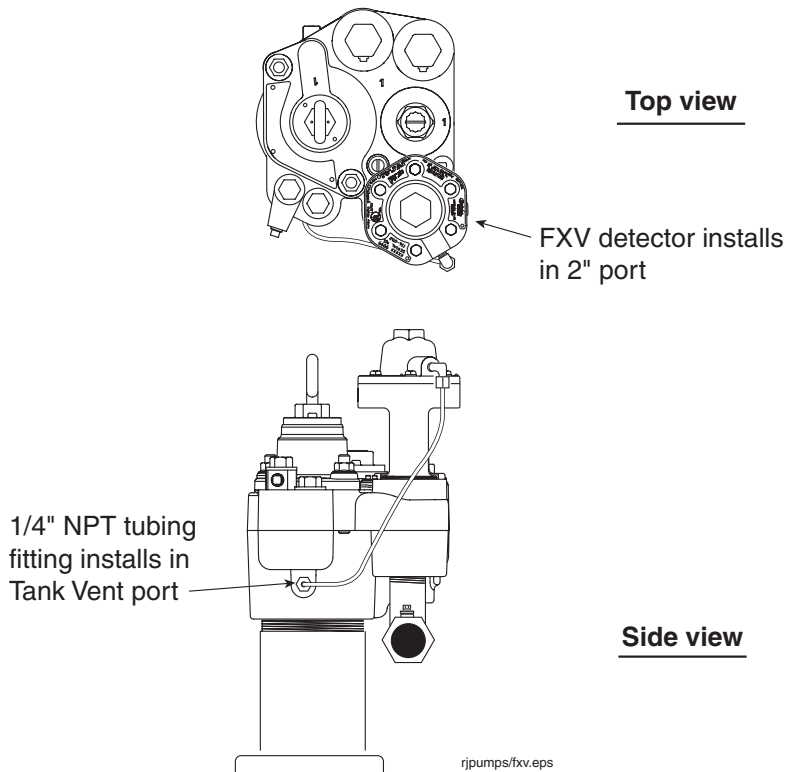


Figure 2. Installing FXV in The Red Jacket pump

For FX2V models

- a. Remove 1/4-inch pipe plug from tank test port (on 6-inch Big-Flo applications, remove the 1/4-inch pipe plug from the riser/flange assembly, for The Red Jacket pumps see Figure 3).
- b. Apply a UL-classified non-toxic pipe thread sealant to the 1/4-inch NPT 45-degree elbow and install in tank test port (on 6-inch Big-Flo applications, the 1/4-inch NPT 45-degree elbow may be installed into the riser/flange assembly).
- c. Apply UL-classified non-toxic pipe thread sealant to the 1/4-inch NPT hex nipple and install on 45-degree elbow that is in the tank test port (or on 6-inch Big-Flo riser/flange assembly).
- d. Apply a UL-classified non-toxic pipe thread sealant to the 1/4-inch NPT tee and install on the hex nipple to accommodate both the vent tube and the snap tap.
- e. Apply a UL-classified non-toxic pipe thread sealant to the threads of the 1/4-inch NPT 90-degree elbow vent tube fitting and install in the tee.
- f. Apply a UL-classified non-toxic pipe thread sealant to the threads of the 1/4-inch NPT straight vent tube fitting and install in the leak detector vent opening in the cap of the leak detector.
- g. Install the vent tubing into both fittings and tighten per instructions on package.
- h. To install snap tap connectors in FX2V/FX2DV models, apply a UL-classified non-toxic pipe thread sealant to the snap tap connectors and install one in the body of the FXV leak detector and the other in the tee attached to the hex nipple attached to the 45-degree elbow installed in the tank test port. On 6-inch Big-Flo applications, install the two snap tap connectors – one in the body of the FXV leak detector and one in the riser/flange assembly.

- i. Attach and crimp loop of the retaining tether around the Snap Tap threads.
- j. Replace the caps over the quick-connect couplings and tighten snugly.

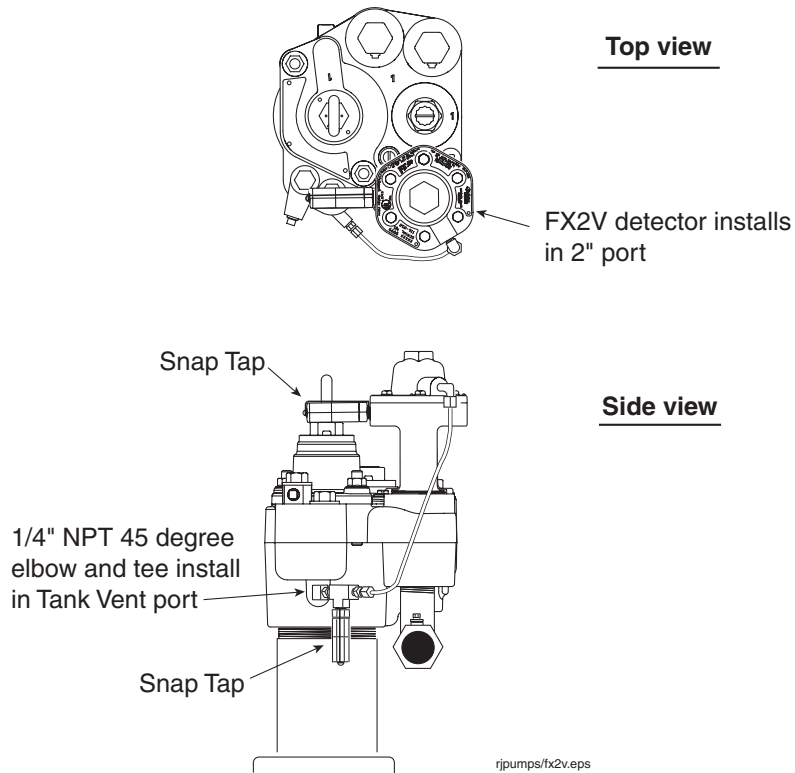


Figure 3. Installing FX2V in The Red Jacket pump

WARNING

DO NOT overtighten.

NOTICE

See technical bulletin #042-111-1 for use of Snap Tap Connector assembly.

7. Connect power to pump at the load center.
8. Clear remaining air from system as follows:
 - a. 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.
 - b. Shut off the pump and allow it to stand four or five minutes. Then start the pump again and open the nozzle farthest from the leak detector.
 - c. Continue to dispense enough gasoline, about 20 to 30 gallons (76 to 114 liters), to pump ALL air from the system.

NOTICE

If flow is restricted to about 3 gpm (11 lpm) or less with the nozzle open, the leak detector has not opened. Repeat Step 8a with increased running time of pump to insure the purging of all air. All air must be purged from the system or the leak detector will restrict flow to about 3 gpm.

9. Affix the enclosed decals to the dispenser dial glass on grade of gasoline upon which the leak detector is being installed. Additional decals are available; call customer service at 1-800-873-3313 and request P/N 046-200-1.
10. Inspect all threaded joints to assure they are tight and not leaking.

Test of the Leak Detector

U.S. Environmental Protection Agency (EPA) regulations require annual verification of operation of leak detector. To assure maintenance of leak detection capability. Red Jacket requires that operation of the mechanical leak detector be verified by testing upon start-up and that testing of the leak detector be performed routinely, at least annually.

NOTICE

Test procedure options for mechanical leak detectors are explained in Red Jacket Engineering Reports, RJ20 and RJ21. The Red Jacket Snap Tap Connectors allow the FX2V/FX2DV leak detector to be tested with the FXV Snap Tap Tester as an option to the above test methods. See Red Jacket literature #042-111-1 for test instructions using Snap Tap Connectors.

11. The top cover on the Red Jacket leak detector is designed to accommodate a sealing wire which can be used to discourage tampering of the unauthorized removal of leak detector. (see Figure 4).

NOTICE

If the dispensing system (the solenoid valve and the nozzle) is opened previous to the completion of the line test, the FXV Series will detect this opening as a leak and restricted flow will result. Closing of the nozzle(s) for a period of time adequate to allow completion of the line test will allow the leak detector to open. Once opened, full pump flow can be provided.

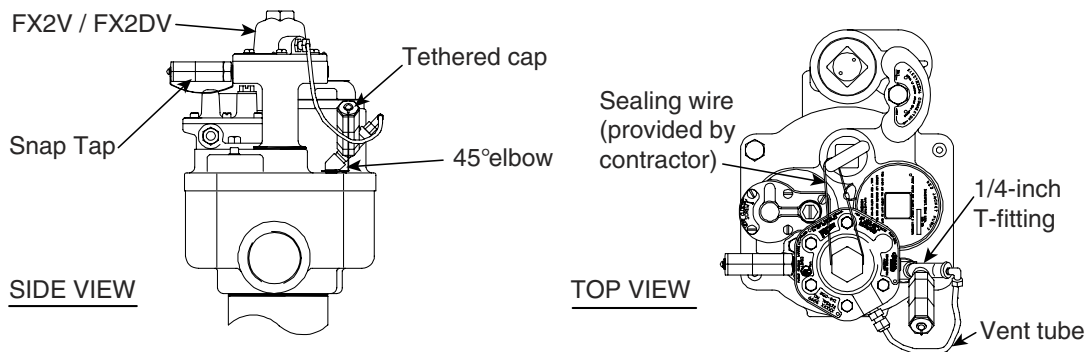


Figure 4. Installing FXV in the Standard pump

Special Installation Instructions

NOTICE

To minimize the chance of experiencing any disruption in the dispensing operation and maximize the benefits of this Red Jacket leak detector, please read this appendix.

It is very important that all of the dispenser solenoid valves in the system in which this leak detector will operate remain closed for approximately four seconds every time the submersible pump is activated. The leak detector can only perform a line test during this four-second window.

This test requires approximately two to four seconds, depending upon conditions present in the system. The dispenser solenoid valve must stay closed until the test is completed. This may be accomplished by utilizing delays integral to electronic dispensing equipment or by installing a retrofit delay in the junction box.

Past experience has shown that without this delay the leak detector has insufficient time to complete its line test and provide uninterrupted service.

Contact Red Jacket technical service at 1-800-323-1799 with any questions concerning this procedure.

Conditions of Approval for City of New York Certificate of Approval #4942

1. The mechanical line leak detector shall be installed on the discharge piping at the submersible pump head or as close as possible to the submersible pump head as per manufacturer's recommendations and the UL listings.
2. The installation and maintenance of this leak detection device shall be conducted under the supervision of a NYC Certificate of License holder and shall comply with applicable New York City Administrative Code, rules and regulations including Section 27-4062 New York City Administrative Code, 3RCNY § 21-20 and /or 3RCNY § 21-21. Manufacturer's and Underwriters Laboratories Inc. safety requirements and limitations shall be complied with.
3. Leak detection device shall be Underwriters Laboratories Inc. listed and the leak detection device manufacturer shall retain follow up service requirements of Underwriters Laboratories Inc.
4. Certificate of Approval number shall be plainly and permanently stamped or otherwise fixed upon each product by the manufacturer.
5. The use of the above referenced product(s) shall be limited to the indicated intent and has not been acceptable for other uses or applications.
6. This Certificate of Approval will be issued upon condition that the material or equipment's technology does not violate any patent, trade name, trade secret or other intellectual right.
7. The Fire Department Certificate of Approval does not constitute an endorsement or recommendation of your product by the Fire Department, but is a certification that your product, as represented, meets the standards as of the date of issuance.
8. The Fire Department's conditions of approval shall be enumerated in the installation manuals and brochures which will be provided to buyers, users and installers.
9. The Fire Department reserves the right to withdraw this approval at any time in the event there is a reasonable doubt that the product does not operate or perform as required by code, the conditions of this resolution or as represented in your application.
10. As the manufacturer of this equipment/material, you should be aware that any end users who fail to comply with the condition as outlined in this certificate will be subject to enforcement action which may include fines and imprisonment.

Statement of Third Party Certification

The following listed Red Jacket equipment has been Third Party tested and certified per the appropriate EPA test protocols.

NOTICE

To assist owners and operators with the maintenance of records in accordance with EPA regulation 280.45, Red Jacket has copies of the below listed Third Party Evaluations available.

To obtain copies of a particular report, just call 1-800-873-3313 and request the Evaluation No. associated with the evaluation you require.

Red Jacket Equipment	Evaluation No.	Description of Evaluation
FX1, FX2, FX1V and FX2V	E 13	Evaluation of the Red Jacket FX1, FX1V and FX2V Line Leak Detectors for Hourly Monitoring on Rigid Pipelines
	E 14 Addendum	Evaluation of the Red Jacket FX1, FX1V and FX2V Line Leak Detectors (installed in the Big-Flo) for Hourly Testing on Bulk Lines Containing Unleaded Gasoline
	E 16	Evaluation of the Red Jacket FX1, FX1V and FX2V Line Leak Detectors for Hourly Monitoring on Flexible Pipeline
FX1D, FX2D, FX1DV and FX2DV	E 14	Evaluation of the Red Jacket FX1D, FX2D, FX1DV and FX2DV Line Leak Detectors (installed in the Big-Flo) for Hourly Testing on Bulk Lines Containing Diesel Fuel
XLP	E 2	XLP Line Leak Detector for Hourly Monitoring
	E 12	XLP Line Leak Detector for Hourly Monitoring on Flexible Pipelines
Big Flo / Diaphragm Line Leak Detector	E 17	XLD Line Leak Detector for Hourly Monitoring
OLDS Sensor	E 8	Red Jacket Optical Liquid Discrimination Sensor
PPM 4000	E 3	PPM 4000 and RLM 9000 Automatic Line Leak Detectors for Hourly Monitoring
	E 4	PPM 4000 and RLM 9000 Automatic Line Leak Detectors for Line Tightness Testing

PPM 4000	E 5	PPM 4000 and RLM 9000 Automatic Line Leak Detectors for Monthly Monitoring
	E 15	Automatic Line Leak Detector for Hourly, Monthly and Line Tightness Testing
RLM 5000/5001	E 6	RLM 5000/5001 and 9000 Automatic Tank Gauging Systems for Monthly Monitoring
	E 7	RLM 5000/5001 and 9000 Automatic Tank Gauging Systems for Annual Tank Tightness Testing
RLM 9000	E 3	PPM 4000 and RLM 9000 Automatic Line Leak Detectors for Hourly Monitoring
	E 4	PPM 4000 and RLM 9000 Automatic Line Leak Detectors for Line Tightness Testing
	E 5	PPM 4000 and RLM 9000 Automatic Line Leak Detectors for Monthly Monitoring
	E 15	Automatic Line Leak Detectors for Hourly, Monthly and Line Tightness Testing
	E 6	RLM 5000/5001 and 9000 Automatic Tank Gauging Systems for Monthly Monitoring
	E 7	RLM 5000/5001 and 9000 Automatic Tank Gauging Systems for Annual Tank Tightness Testing
ST 1400/1800/1401/1801	E 9	ST Series Automatic Product Level Monitoring Systems
	E 10	ST Series Tank Monitoring Systems (Annual)
	E 11	ST Series Tank Monitoring Systems for Continuous Leak Detection
ST 1401L/1801L	E 9	ST Series Automatic Product Level Monitoring Systems
	E 10	ST Series Tank Monitoring Systems (Annual)
	E 11	ST Series Tank Monitoring Systems for Continuous Leak Detection
	E 15	Automatic Line Leak Detector for Hourly, Monthly and Line Tightness Testing

ST 1401L/1801L	E 16	Evaluation of the Red Jacket FX1/FX2; FX1V/FX2V Line Leak Detectors for Hourly Monitoring on Flexible Pipelines
	E 17	Evaluation of the Red Jacket Big-Flo/Diaphragm Line Leak Detector for Hourly Monitoring in Gasoline
	E 18	Evaluation of the Red Jacket Electronics Leak Detector Sensors
	E 19	Evaluation of the Red Jacket PPM4000, RLM 000, RLM10,000, ST1401L,& STS1801L on Enviroflex Flexible Pipelines for .2 & .1 Tests
	E 20	Large Tank Certification of Red Jacket ST Series, FMS, ATG & LLM Series. Shut Down Test Only

**Veeder-Root has
sales offices
around the world
to serve you**



Accu-Flo
Meter Service Ltd.

www.accuflo.com
1-800-921-ACCU