

Assist and EVR Balance Nozzle

Troubleshooting Manual

**THIS MANUAL MUST BE GIVEN TO THE OPERATIONS MANAGER
AND KEPT ON THE PREMISES.**

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, the related manuals described on page 1, and any other labels or related materials supplied with this equipment. If you do not understand a procedure, call (800) 323-1799 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 Fuel 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.

FUEL SPILL! Do **NOT** install unlisted ads/billboards, and do **NOT** install any other unlisted after-market device on any automatic nozzle. Doing so may change the sensitivity of the shut-off mechanism, which may cause the nozzle not to shut off, resulting in a fuel spill. Please see sensitivity test in Underwriters Laboratory Specification UL842.

REQUIREMENTS FOR USE

- The nozzle is designed for use only at facilities dispensing motor fuels.
- Application of nozzles must be consistent with NFPA Code 30A, OSHA regulations, and federal, state and local fire codes, and other applicable local regulations.
- Injury or damage may result from splash-back or spillage if the nozzle is operated in excess of the applicable regulatory high-flow rates.
- 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. See Warranty below.
- All Veeder-Root products should be used in accordance with applicable federal, state and local laws, ordinances and regulations.

OPERATING PRECAUTIONS

Post the warning signs required by the current edition of NFPA 30-A, Section 9.2.5.4 in a conspicuous location. We recommend that you post the following warnings in a conspicuous location visible to those using the equipment. Contact authorities having local jurisdiction for additional required warnings.



- **TURN OFF** your engine before refueling, and **DO NOT RESTART** your engine until fueling is completed.
- **DISCHARGE YOUR STATIC ELECTRICITY** before fueling by touching with your bare hand grounded metal on your car or on dispenser away from nozzle
 - Failure to discharge static electricity could cause a spark which could ignite fuel vapors.
 - **DO NOT** reenter your vehicle during fueling, because this could recharge your body with static electricity. If you must re-enter your vehicle, be sure to discharge your static electricity again before you touch the nozzle.
- **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.

- **DO NOT** leave nozzle unattended. Nozzle performance and the automatic shut-off are influenced by many factors. **STOP THE PUMP IMMEDIATELY** if the nozzle does not shut off after refueling.
- **WARNING! DO NOT REMOVE NOZZLE FROM FUEL PIPE IF FIRE STARTS.** Move back from dispenser and inform the attendant. Use the emergency shut-off button to stop the pump if the attendant is not available at the site.
- **DO NOT ALLOW CHILDREN** to pump gasoline. The equipment should be used only by persons of legal driving age.
- **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
- **USE ONLY APPROVED PORTABLE CONTAINERS.** Dispense gasoline into approved portable containers placed on the ground. **NEVER FILL PORTABLE CONTAINERS IN OR ON THE VEHICLE.** If you do, static electricity generated in dispensing fuel can create a spark that ignites fuel vapors causing a fire.
 - **WHILE FILLING AN APPROVED PORTABLE CONTAINER,** manually hold the trigger on the nozzle for a low flow rate, and **DO NOT** engage the nozzle's hold-open clip in high position.
 - **KEEP THE NOZZLE TOUCHING THE PORTABLE CONTAINER WHEN FILLING THE PORTABLE CONTAINER** to discharge any static electricity generated in filling the container. If you do not do so, static electricity generated in dispensing fuel can create a spark that ignites fuel vapors causing a fire.

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.

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

DAMAGE CLAIMS / 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.

Veeder-Root 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. Contact Veeder-Root Customer Service at 800-873-3313 with the specific part numbers and quantities that were missing or received damaged.
2. Fax signed Bill of Lading (BOL) to Veeder-Root Customer Service at 800-234-5350.
3. Veeder-Root 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. It is the customer's responsibility to file a claim with their carrier.
2. Customer may submit a replacement purchase order. Customer is responsible for all charges and freight associated with replacement 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, Veeder-Root will allow a Return to Stock without a restocking fee.
4. Veeder-Root will NOT be responsible for any compensation when a customer chooses their own carrier.

RETURN SHIPPING

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

WARRANTY

Please see page v.

Warranty

For Veeder-Root Assist and EVR Balance Nozzles, the following warranty applies:

We warrant that this product shall be free from defects in material and workmanship for a period of fifteen (15) months from the date of invoice thereof. We will repair or replace at our option the product if the product is returned to us transportation charges prepaid by user within the warranty period, and is determined by us to be defective. This warranty will not apply: (1) to any product which has been subject to misuse, abuse, negligence, accident, or drive-offs; (2) to systems that are misapplied or are not installed per Veeder-Root's specifications, or which have been modified, rebuilt or repaired by unauthorized persons; or (3) to damage resulting from acts of God. Repair or replacement of the defective part or component under the terms of this warranty is the EXCLUSIVE REMEDY. Veeder-Root is not liable for incidental, consequential, or indirect damages or loss, including, without limitation, personal injury, death, property damage, environmental damages, cost of labor, clean-up, downtime, installation and removal, product damages, loss of product, or loss of revenue or profits. THE WARRANTY CONTAINED HEREIN IS EXCLUSIVE AND THERE ARE NO OTHER EXPRESS, IMPLIED, OR STATUTORY WARRANTIES. WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY EXCLUDED.

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Introduction

This manual describes how to troubleshoot the Veeder-Root Assist and EVR Balance nozzle.

The fuel section of the nozzle uses an automatic shutoff sensing port near the end of the spout. When the level of fuel reaches this sensing port, the nozzle automatically shuts off. A two-position, hold-open latch is located beneath the lever to control the flow. The vapor collection section of the nozzle has a valve to prevent loss of vapor when the nozzle is not being used.

The interlock device causes the EVR Balance nozzle to disable flow whenever the vapor collection sleeve is not fully compressed. The no pressure / no flow device causes the Assist nozzle to shut off whenever the dispenser shuts off fuel flow. These features meet the NFPA Code 30A requirement regarding self-service nozzles with a hold-open latch.

This work should only be done by a knowledgeable and experienced individual. If further assistance for technical support is required, please visit www.veeder.com or call (800) 323-1799 to locate a qualified technician.

Certification

Veeder-Root requires that technicians satisfactorily complete the Veeder-Root Assist and EVR Balance certification course before performing installation, maintenance, servicing, testing or troubleshooting of Veeder-Root nozzles.












Warranty claims may only be submitted by authorized V-R Distributors and Contractors.

Related Manuals

| | |
|------------|--|
| 577013-967 | EVR Balance Nozzle Installation and Maintenance Manual |
| 577013-938 | Vacuum Assist Nozzle Installation and Maintenance Manual |

Safety Precautions

The following safety symbols may be 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>ELECTRICITY High voltage exists in, and is supplied to, the device. A potential shock hazard exists.</p> |  <p>TURN OFF CELL PHONE Turn off cell phone or other device until fueling is complete and nozzle is returned to cradle.</p> |
|  <p>TURN ELECTRICAL POWER OFF Live power to a device creates a potential shock hazard. Turn Off electrical power to the device and associated accessories when servicing the unit.</p> |  <p>WARNING Heed the adjacent instructions to avoid damage to equipment, property, environment or personal injury.</p> |  <p>DISCHARGE STATIC ELECTRICITY Failure to discharge static electricity before fueling may ignite gasoline vapors.</p> |
|  <p>FLAMMABLE Fuels and their vapors are extremely flammable.</p> |  <p>INJURY TO EYES AND SKIN Careless or improper handling of gasoline can result in bodily injury. If in eyes, irrigate with water for at least 15 minutes. On skin wash area thoroughly with clear water. Seek medical advice immediately.</p> |  <p>FILL CONTAINERS ON GROUND DO NOT fill containers in or on the vehicle. Put approved container on ground to fill.</p> |
|  <p>CLEAN WORK AREA Dispose of fuel soaked materials properly and not into trash barrels that may be used by customers.</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> |  <p>DO NOT REENTER VEHICLE WHILE FUELING If you reentered your vehicle while fueling, touch grounded metal on dispenser before touching nozzle.</p> |
|  <p>APPROVED CONTAINERS Use nonbreakable, clearly marked containers, suitable for collecting and transporting hazardous fuels during service.</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>UNATTENDED VEHICLE Do not leave nozzle unattended while dispensing fuel.</p> |
|  <p>NO POWER TOOLS Sparks from power tools (such as drills) can ignite fuels and their vapors.</p> |  <p>NO VEHICLES Moving vehicles in the area during service can create a potential for personal injury to you or others. Sparks from starting vehicles can ignite fuels and their vapors.</p> |  <p>DO NOT ALLOW CHILDREN TO DISPENSE FUEL Keep kids away from fueling area. Only licensed operators should refuel vehicles.</p> |
|  <p>LUBRICATE Lubricate o-rings using mineral oil or other suitable lubricant.</p> |  <p>DIRECTION OF FLOW An arrow on a component of the ORVR hose assembly indicates direction of flow through the device. Install component with arrow pointing in direction of nozzle.</p> |  <p>AVOID BREATHING GASOLINE VAPORS Gasoline inhaled may cause unconsciousness and burns to lips, mouth and lungs. Keep airway open. Seek medical advice immediately.</p> |
|  <p>NO SMOKING Sparks and embers from burning cigarettes or pipes can ignite fuels and their vapors.</p> |  <p>NO OPEN FLAMES Open flames from matches, lighters, welding torches, etc. can ignite fuels and their vapors.</p> |  <p>DO NOT SWALLOW GASOLINE Gasoline ingested may cause unconsciousness and burns to internal organs. Do not induce vomiting. Keep airway open. Oxygen may be needed at scene. Seek medical advice immediately.</p> |

System Components

Figure 1 illustrates a complete Veeder-Root EVR Balance hanging hardware assembly:

1. EVR Balance Whip Hose
2. EVR Balance Safety Breakaway
3. EVR Balance Primary Hose
4. EVR Balance Nozzle

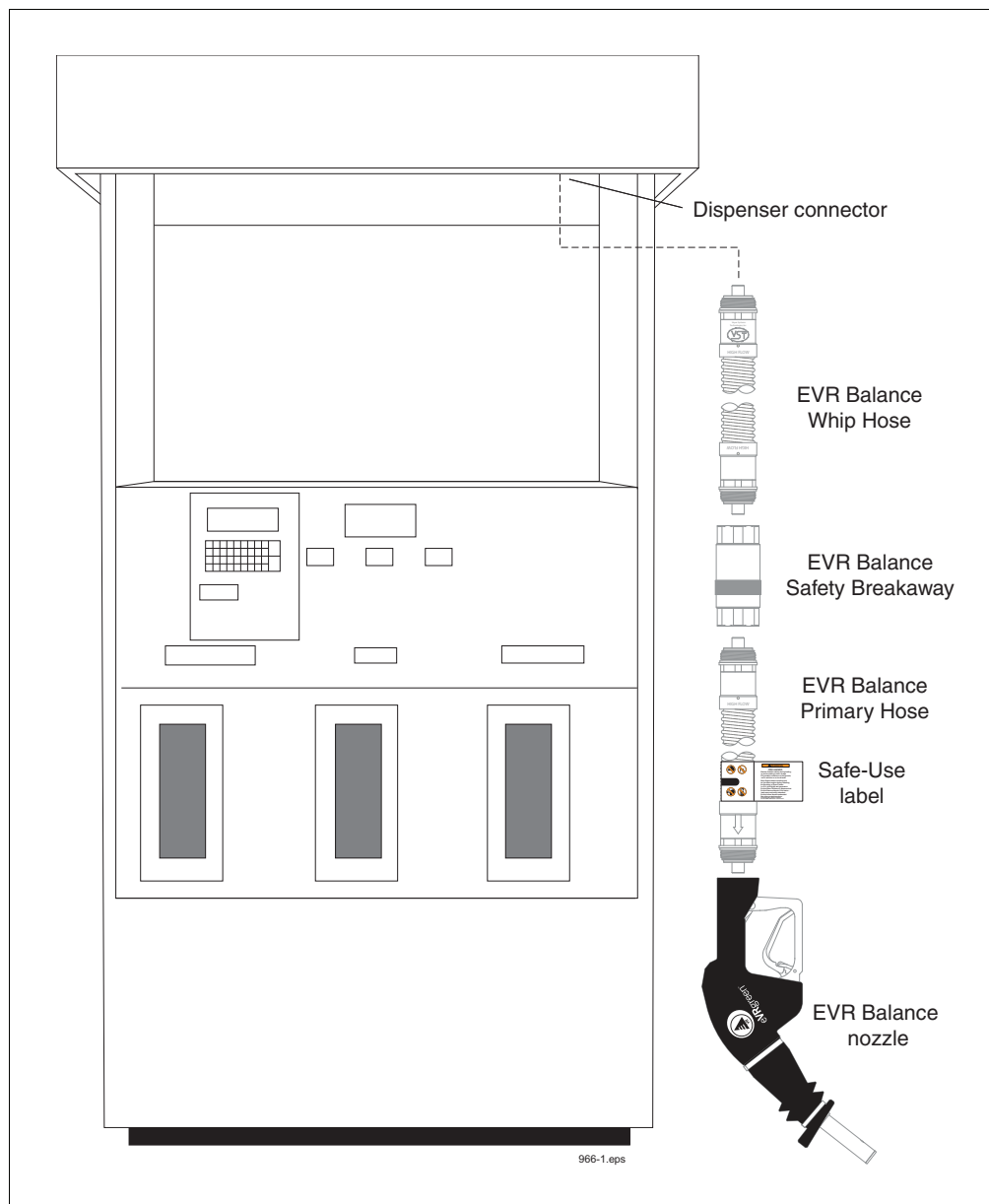


Figure 1. Complete V-R EVR Balance Hanging Hardware Assembly

Figure 2 illustrates the V-R Assist Hanging Hardware assembly.

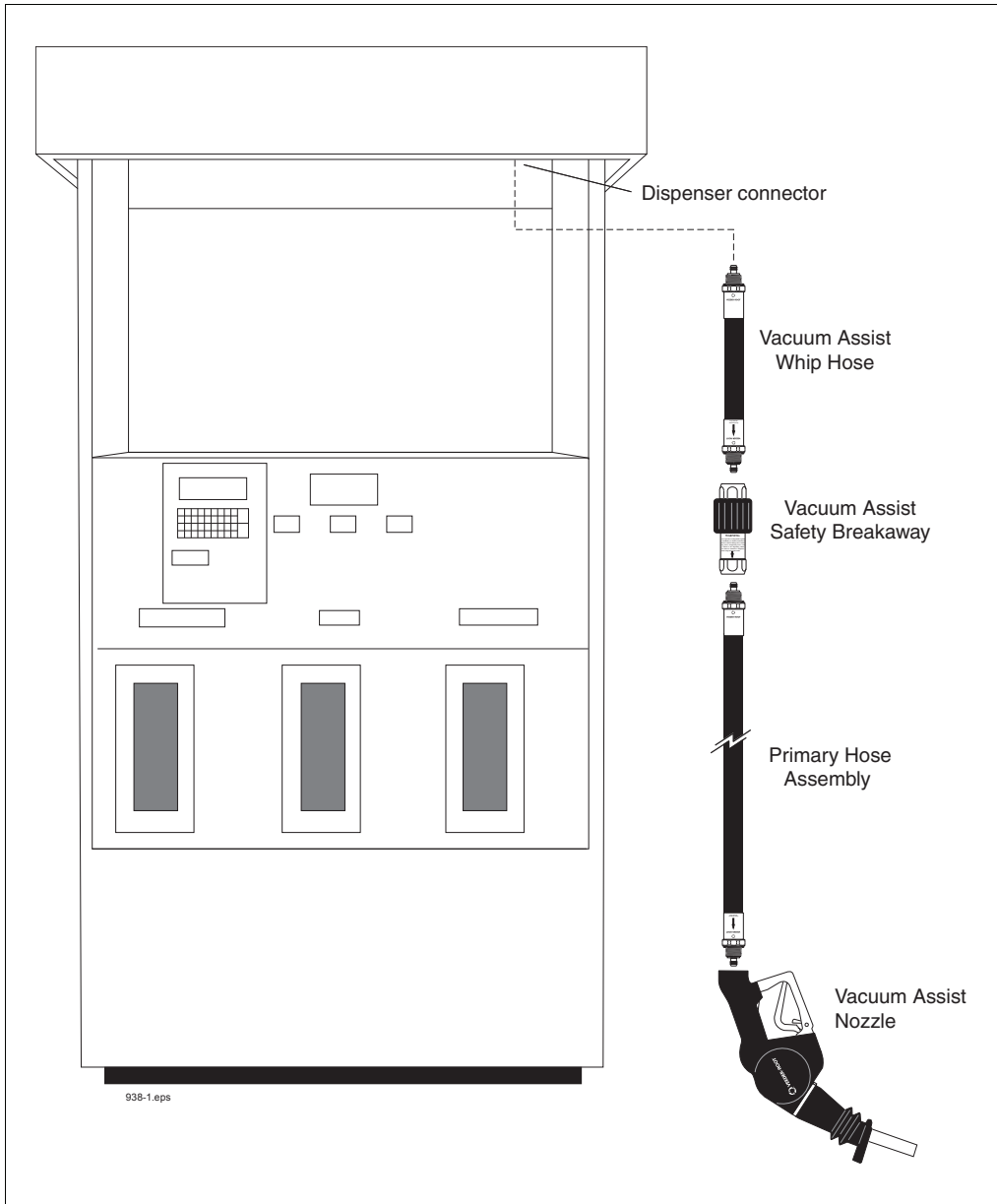


Figure 2. Complete V-R Assist Hanging Hardware Assembly

Figure 3 illustrates typical nozzle features.

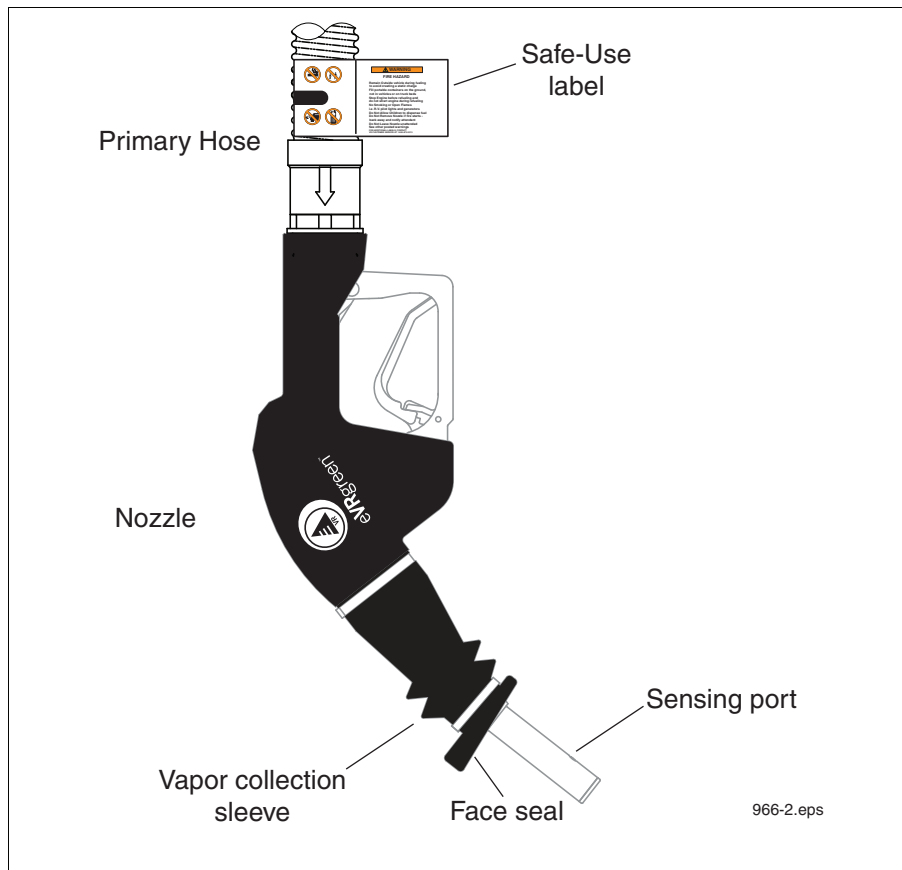


Figure 3. Typical Nozzle Features

Troubleshooting

Every Veeder-Root Assist and EVR Balance nozzle is tested and is guaranteed to be in proper working condition when shipped. Its continued proper operation is dependent upon reasonable care in handling. Nozzles should not be dragged or thrown on the ground or paved surfaces. The automatic shutoff elements are subject to damage by such handling, which can result in the nozzle failing to shut off properly.

Table 1. Assist and EVR Balance Nozzle Troubleshooting QuickHelp

| If Nozzle: | Nozzle Type | Possible Causes | Solution |
|------------------------------------|-------------|--|--|
| Keeps Shutting Off | Both | Full vehicle fuel tank | Do not top off. |
| | | Splash back | Reduce fuel rate by fuelling at low clip. Reposition or rotate the nozzle. |
| | | Vehicle fill neck configuration | Reduce fuel rate by fuelling at low clip. Reposition or rotate the nozzle. |
| | EVR Balance | Interlock not fully engaged | Push spout deeper into fill neck to properly compress vapor collection sleeve. |
| | Assist | No Pressure, no flow | Verify that the dispenser is authorized. |
| | | Fuel in vapor side | Verify vacuum pump is operating. |
| | Both | Bent or damaged spout | Replace spout if replacement is available; otherwise replace nozzle. |
| | | Debris or foreign material in sensing port | Clean the sensing port. |
| | | Damaged lever or hold-open clip | Manually actuate and hold lever without using hold-open clip. |
| | | Damaged/defective components within the nozzle | Replace nozzle. |
| Does Not Shut Off | Both | Flow rate too low (less than required 3 gpm min.) | Replace dispenser fuel filter, verify that mechanical line leak detector is not restricting flow, verify that pump is sized and configured correctly for number of fueling positions being supplied. |
| | | Nozzle spout not inserted deep enough in fill neck | Reposition nozzle deeper into fill pipe. |
| | | Damaged/defective internal components within the nozzle. | Replace nozzle. |
| Leaks from Vapor Collection Sleeve | Both | Loose Spout nut | Remove vapor collection sleeve and tighten spout nut. |
| | | Splash back | Reduce fuel rate by fuelling at low clip. Reposition or rotate the nozzle. |
| | | Topping off tanks during fueling | Do not top off. |
| | | Damaged/defective internal components within the nozzle | Replace nozzle |
| Leaks at Inlet Area | Both | Damaged primary hose or nozzle inlet o-rings | Replace o-rings as necessary using kit P/Ns: for EVR Balance P/N 900322-001; for Assist P/N 900306-201 |
| | | Defective primary hose | Replace primary hose. |

Table 1. Assist and EVR Balance Nozzle Troubleshooting QuickHelp

| If Nozzle: | Nozzle Type | Possible Causes | Solution |
|------------------------------------|-------------|---|--|
| Leaks at Lever Guard or Valve Stem | Both | Worn seals | Replace nozzle. |
| Does Not Dispense Fuel | Both | Dispenser not ON | Turn ON dispenser. Lift dispenser nozzle cradle and/or lower dispenser nozzle flapper. |
| | EVR Balance | Interlock not engaged | Push spout deeper into fill neck to properly compress vapor collection sleeve. |
| | Assist | Low dispenser pressure | Check dispenser pressure. |
| Flow Rate Is Very Slow | Both | Clogged fuel filters | Replace dispenser filters. |
| | | Low dispenser pressure | Check dispenser pressure. |
| | | Leak triggering the mechanical line leak detector | Investigate and repair line leak as necessary. |
| | | Incorrect pump sizing and/or configuration. | Upgrade pump size and/or properly configure variable speed pump for number of fueling positions being supplied. |
| Fails Pressure Decay Test | Both | Leaking vapor valve | Replace nozzle if leak is greater than 3 cubic inches per minute (49cc per minute). |
| Has Fuel in Vapor Side | Both | Topping off tanks during fueling | Do not top off. If needed, remove nozzle from primary hose assembly. Completely drain hose assembly and nozzle into an approved container. |
| | | Damaged nozzle inlet o-rings | Check for meter creep. Check and replace o-rings in nozzle inlet as needed using kit p/n: EVR Balance: 900322-001 and Assist: 900306-201. |
| | | Damaged hose, breakaway, or associated seals | Check for meter creep. Check and replace leaking hanging hardware component(s) as needed. |
| Excessive Drips From Spout | Both | Topping off tanks during fueling | Do not top off. |
| | EVR Balance | Damaged dripless feature | Replace spout if replacement is available; otherwise replace nozzle. |

