

# VST Installation Procedure for Phase II Coaxial EVR Balance Dripless Nozzles

Part Number Series: VST-EVR-NBcc, VST-EVR-NBccR  
cc = Scuff Guard Color Code and R = rebuilt



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## For VST Model #'s:

**VST-EVR-NB, VST-EVR-NB (Rebuilt),**

**VST-EVR-NB (G2), and VST-EVR-NB (G2 Rebuilt)**

## GENERAL INFORMATION

If hanging hardware components are involved in a drive-off or incur other customer abuse, each individual component must be functionally tested prior to customer dispensing activities.

## INSTALLATION PREPARATION

This procedure must be followed to insure leak-proof installation and operation of these nozzles.

1. Turn off and tag the power to the dispenser. Dispenser must be de-energized prior to service to avoid personal injury.
2. Barricade work area to block vehicle access to the dispenser.
3. Close the dispenser shear valve prior to removing hanging hardware (hoses, safety breakaways, and nozzles).
4. Drain liquid product from the hanging hardware set into an approved container prior to replacing any hanging hardware components.
5. Remove hanging hardware from the dispenser prior to making replacement component assembly connections. VST recommends connecting the whip hose to the dispenser as the last connection during the hanging hardware assembly.

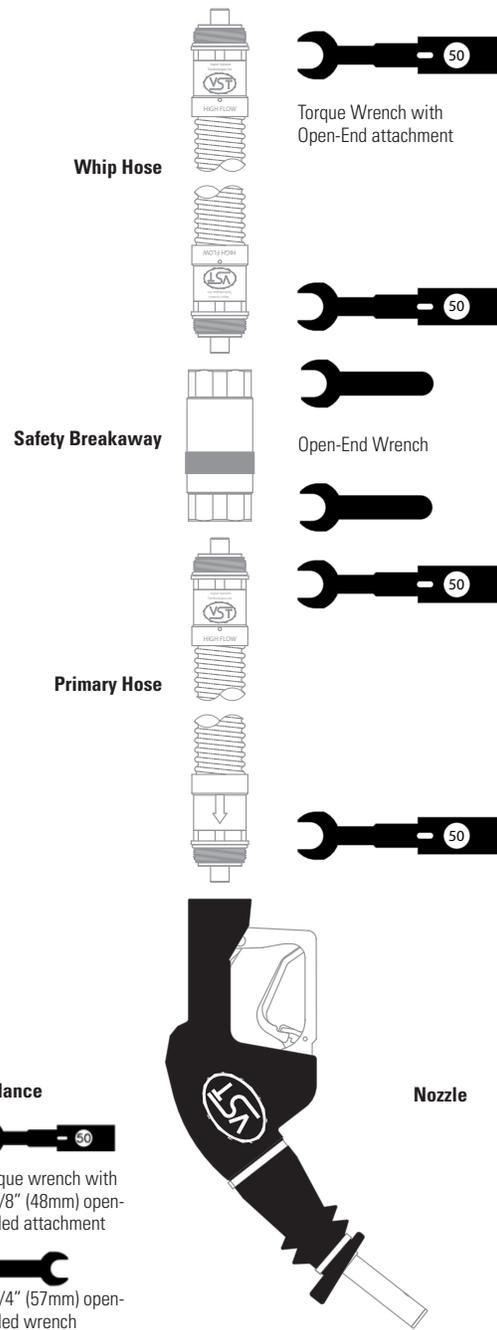
## INSTALLATION AND FUNCTION TESTS

**STOP!** If this is a new facility installation, the fueling point must be flushed into an approved container before installing the nozzle. Using this nozzle to flush the system could result in foreign material becoming lodged in the nozzle's valve and cause it not to shut off.

1. Initial inspection and function tests:
  - a. Carefully unpack nozzle from shipping carton.
  - b. Inspect nozzle exterior for any damage.
  - c. Inspect threads, lever, lever lock, spout, collection sleeve, band clamps, and face seal to determine that they are present and undamaged.
  - d. Verify interlock rod alignment. Check interlock for engagement and release. Proper function of interlock rod requires the nozzle collection sleeve to be compressed  $\frac{1}{4}$ " to  $\frac{1}{2}$ " and the lever to be engaged into the dispensing position. Nozzle will not function without interlock rod properly engaged.
  - e. Inspect spout vent hole. It should be clear of debris.

**Figure 1.**

EVR Hanging Hardware Assembly



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2. Lightly lubricate ALL O-Rings on mating connections with petroleum jelly or other suitable lubricant. DO NOT USE pipe dope or thread sealant.
3. Attach nozzle onto mating hose connection and tighten by hand.
4. Tighten the nozzle connection to 50 ft-lbs of torque. DO NOT OVER TIGHTEN. Use a torque wrench with an open-end attachment to fit the hose couplings and an open-end wrench to properly tighten coupling connections. DO NOT USE channellocks or pliers to tighten hose joints. Proper ft./lb. torque may not be achieved with these tools.
5. Purge air from the system by pumping one-tenth (1/10) to two-tenths (2/10) of a gallon of fuel into an approved container. Inspect the nozzle connection for liquid leaks and make proper adjustments at hose connection if necessary.
6. Check the nozzle shut-off action by dispensing fuel into an approved container at least three times to assure the proper automatic operation of the interlock rod. The fuel flow-rate must be greater than 3 gpm for the automatic shut-off mechanism to operate.

To test, operate the nozzle and submerge the spout tip in fuel until the fuel level covers the vent hole. The main valve of the nozzle automatically shuts off when the liquid covers the vent hole at the end of the spout. The nozzle is not designed to operate on gravity flow. The hold-open latch will disengage automatically when liquid covers the vent hole in the spout. Verify that the fuel flow stops when the nozzle collection sleeve is decompressed (e.g. interlock rod is disengaged). To test that the fuel flow stops, dispense some fuel into an approved container. Slowly remove the nozzle from the container while dispensing fuel. Fuel flow should stop when the nozzle collection sleeve is fully decompressed.

7. Measure the resistance between the dispenser outlet casting and the tip of the nozzle spout. Use an electronic multimeter set on the high range of the ohmmeter function. Resistance should not indicate more than 70,000 ohms per foot of hose. Example: The measured resistance for a 12-foot hose must not exceed 840,000 ohms (840 kilohms).

## MAINTENANCE

Inspect nozzles daily for damaged component parts: vapor collection sleeve, face seal, interlock rod, spout, lever, lever lock, etc. Damaged components must be replaced. Vent hole at the end of

the spout should be clear of debris. The nozzle will not operate properly if vent hole becomes clogged. The nozzle will not function properly without the interlock rod properly engaged. Keep the hose connections tight.

Should there be a drive-off or incidence of customer abuse, follow the initial inspection instructions found in the INSTALLATION section. The nozzle should be replaced when damaged. The nozzle is designed and constructed to give lasting service if properly handled and maintained. If for any reason it should need attention, contact your VST distributor for proper disposition.

## NOTE

Due to abuse, misuse, changing gasoline formulas, variation in maintenance practices, environmental conditions, and/or conditions beyond the manufacturer's control, dispensing equipment may need replacement before five (5) years. Inspections and proper maintenance procedures should be followed by the station manager to determine if replacement is required before five (5) years.

## WARNING

Unauthorized rebuilding or modifying of nozzles voids ALL approvals and warranties.

VST products must be used in compliance with applicable federal, state, and local laws and regulations.

If local regulatory codes prohibit use of the nozzle's hold-open clip, it must be removed prior to nozzle installation. Remove the nozzle to a safe work area.

Place the nozzle on a flat surface.

Locate the alloy rivet securing the hold-open clip and spring in the nozzle's handle. Use a drill with a 3/16" (5mm) drill bit, drill out the rivet securing the hold-open clip, and discard the clip, spring, and all other rivet debris.



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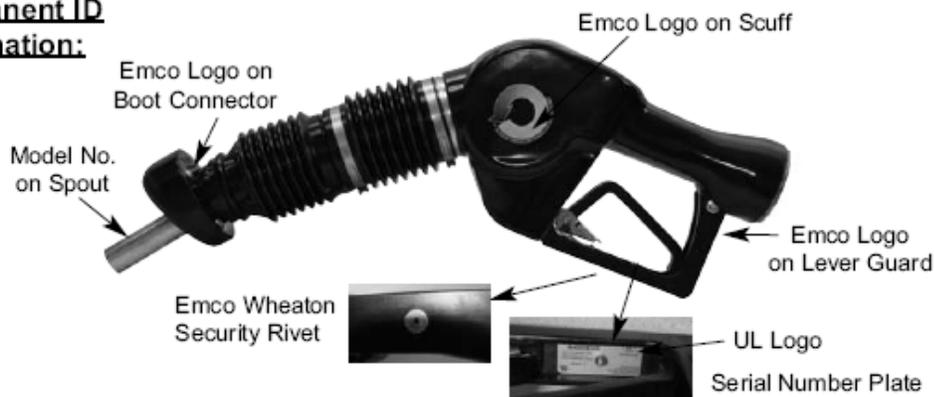
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**EMCO**®  
WHEATON RETAIL

**A4005EVR**  
Balance Vapor Recovery Nozzle  
RA4005EVR = Rebuilt  
XXX = Scuff Guard Color

For use with the Vapor  
Systems Technologies VST  
Coaxial Curb and Whip Hoses

**Permanent ID  
Information:**



**INSTALLATION INSTRUCTIONS**

**Service Tools Required:**

- 1 7/8" Crows Foot
- Torque Wrench w/ 50 ft-lbs Setting
- Pipe Wrench w/ Flat Jaws
- Gasoline Approved Container
- Petroleum Jelly or Other Suitable Lubricant

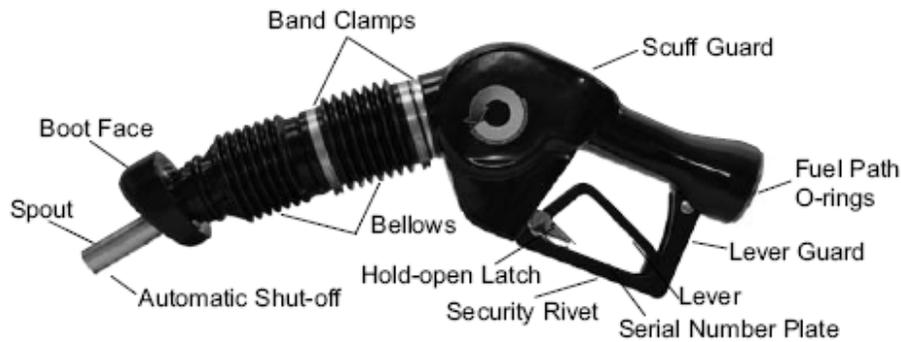
**CAUTION:**

1. Always barricade work area to keep pedestrians and vehicles from accessing the dispenser.
2. Always use a gasoline approved container or test can when performing any type of preventive maintenance.
3. Before attempting to install, remove or service the A4005EVR nozzle, turn off and tag out power to the corresponding dispenser.
4. Before attempting to install, remove or service the A4005EVR nozzle, close the emergency impact valves located inside the base of the dispenser. Relieve the line pressure and standing fuel through the nozzle spout into a gasoline approved container by compressing the bellows and squeezing the lever.

**IMPORTANT:** Failure to perform cautions 3 and 4 may result in a hazardous gasoline spill, damage to equipment, personal injury and/or death.

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### Pre-Inspection:



1. Carefully unpack and remove the A4005EVR nozzle from the shipping container. Evaluate the following components for damage: scuff guard, lever guard, lever, hold open latch, serial number plate, security rivet, bellows, band clamps, boot face and spout.
2. Verify the automatic shutoff located at the end of the spout. The vent hole must be free and clear of all debris.
3. Verify the fuel path o-rings located at the hose end of the A4005EVR nozzle. Both o-rings must be properly secured inside the factory machined grooves.

### Pre-Functional Test:



4. Functional test the insertion interlock of the A4005EVR nozzle by compressing the bellows and then squeezing the lever. The A4005EVR nozzle will not function unless the insertion interlock is properly engaged.

### Pre-Installation:



5. Lightly lubricate both fuel path o-rings using petroleum jelly or other suitable lubricant.



6. Before attempting to install the A4005EVR nozzle onto the curb hose, verify the vapor path o-ring is properly secured onto the connector, and in good working condition. Lightly lubricate the o-ring using petroleum jelly or other suitable lubricant.

**IMPORTANT:** Do not use pipe thread sealant compound or Teflon tape when installing the A4005EVR nozzle. Failure to comply will void warranty.

**Installation:**

**IMPORTANT:** If this is a new facility installation, the fueling point must be flushed into a gasoline approved container before installing the A4005EVR nozzle. Failure to perform this procedure could result in foreign material becoming lodged inside the nozzle's fuel path causing it not to shut off or a reduction in fuel flow.



7. Attach the A4005EVR nozzle onto the curb hose connector. Tighten by hand to avoid cross threading. Take caution to avoid pinching the vapor path o-ring.



8. Using a 1 7/8" crows foot and torque wrench tighten the curb hose connector to 50 ft-lbs of torque.

**Post Functional Tests:**

9. Carefully purge the trapped air from the fueling point. Begin dispensing by compressing the bellows and then squeezing the lever. Dispense one gallon of fuel into a gasoline approved container.
10. Functional test the automatic shutoff of the A4005EVR nozzle. Begin dispensing by compressing the bellows and then squeezing the lever. Place the hold-open latch in "high" clip position to secure the lever. Dispense one gallon of fuel into a gasoline approved container. At the same time, lower the spout tip into the standing fuel until the vent hole is completely submersed. The main valve of the A4005EVR nozzle will automatically close causing fuel flow to stop.

**IMPORTANT: Perform step 10 a minimum of three times to assure the insertion interlock, hold open latch and the automatic shutoff of the A4005EVR nozzle are operating properly.**

**According to UL requirement 842, the fuel flow rate must be greater than 3 gallons per minute for the automatic shutoff to operate properly. A common cause of low flow rates are dirty or clogged dispenser filters.**

**Post Inspection:**

11. Before placing the A4005EVR nozzle onto the dispenser cradle, inspect all hanging hardware connections for potential fuel leaks. Make proper adjustments if necessary.

**PREVENTIVE MAINTENANCE**

1. Weekly inspect the A4005EVR nozzle, evaluate the following components for damage: scuff guard, lever guard, lever, hold open latch, serial number plate, security rivet, bellows, band clamps, boot face and spout. Damage components must be replaced with factory authorized service kits.

<u>Part Number</u>	<u>Description</u>
492775EVR	Bellows & Boot Face Kit
492776EVR	Boot Face Kit
492834EVR	Spout Kit
494150EVR	Latch Kit
494748EVR	Fuel Path O-ring Kit
494750EVR	Bellows Band Clamps Kit
A0557EVR-XXX	Scuff Guard Kit

**IMPORTANT: Do not remove the serial number plate and security rivet from the A4005EVR nozzle. Failure to comply will void warranty.**

2. Weekly inspect the automatic shutoff located at the end of the spout. The vent hole must be free and clear of all debris.
3. Weekly inspect all hanging hardware connections for potential fuel leaks.

**IMPORTANT: Should a drive-off or incidence of customer abuse occur, follow the initial inspection and function instructions found in the installation section.**

## **PERFORMANCE STANDARDS & SPECIFICATIONS**

This component was factory tested to, and met the following specifications:

1. Meets ARB Material Compatibility with Fuel Blends as per Section 3.8 of CP-201.
2. Meets ARB Capable of Refueling Any Vehicle Standards as per Section 4.7.1 of CP-201.
3. Meets ARB Spout Dimension Standards as per Section 4.7.3 of CP-201.
4. Meets ARB Nozzle and Dispenser Compatibility Standards as per Section 4.9 of CP-201.
5. Meets ARB Balance Nozzle Criteria Standards as per Section 5.1 of CP-201.
6. TP-201.2B – Complies with the maximum allowable leak rate of 0.07 CFH @ 2.00 inches of water column pressure.
7. TP-201.2C – Complies with the maximum allowable spillage factor of 0.24 pounds/ 1,000 gallons.
8. TP-201.2D – Complies with the maximum allowable average of 3 post fuel drips.
9. TP-201.2E – Complies with the maximum allowable average of 100mL liquid retention and 1mL liquid spit-back.
10. TP-201.2J – Complies with the maximum allowable component pressure drop of 0.08 inches of water column @ 60 CFH.

**IMPORTANT: Leave these installation instructions with the station owner and/or operator.**