

# VST Installation Procedure for ENVIRO-LOC™ ECO Nozzle Repair Kit



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Part Number Series:

VST-FEK-400 (Front End Kit)

## USE ONLY ON VST NOZZLES:

**VST-NV-ND(CC) AND VST-NV-ND(CC)R**

**(CC) = COLOR CODE – SEE LIST PRICE SCHEDULE**

## TOOLS

- VST-BPT-100 Nozzle Band Clamp Pincers
- VST-SRT-200 Spout Nut Torque Wrench Attachment
- Wide Mouth Funnel
- Petroleum Jelly (or suitable lubricant)
- Approved Fuel Container
- Tin snips
- Torque Wrench
- LOCTITE® 271

## 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 ensure leak-proof installation and operation of these nozzles.

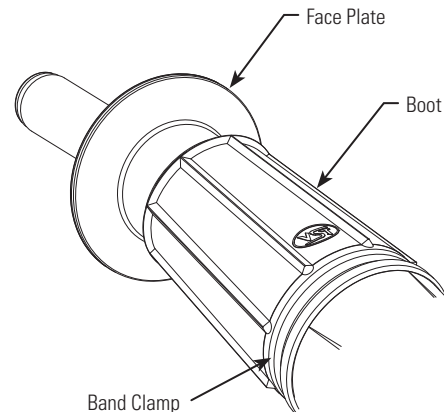
1. Turn off and tag the power to the dispenser. Dispenser must be de-energized prior to service to avoid personal injury.
2. Barricade work area to block vehicle access to the dispenser.
3. Close the dispenser shear valve prior to removing hanging hardware (hoses, safety breakaways, and nozzles).
4. Visually inspect and assess the extent of the damage to all hanging hardware components. If the spout is loose at all, replace the entire front end assembly with VST-FEK-400.
5. Drain liquid product from the hanging hardware set into an approved container prior to replacing any hanging hardware assembly.
6. 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.
7. To drain nozzle, engage nozzle interlock:
  - a. Push in face plate on nozzle
  - b. Hold the backend of the nozzle over an approved container
  - c. Pull nozzle lever to fully drain the nozzle

## BOOT REMOVAL

(See Figure 1)

1. Remove band clamp from the boot with nozzle band clamp pincers (VST-BPT-100).
2. Pull the boot off of the clamping groove of the nozzle body.
3. Pinch the back end of the boot to allow space to place tin snips between the nozzle body and the boot.
4. Cut the boot completely from back to front and remove from the nozzle.

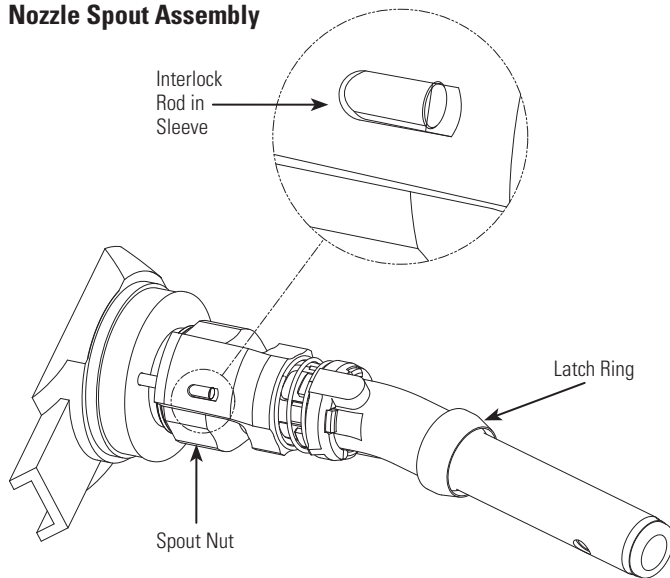
**Figure 1**  
**Front End Assembly**



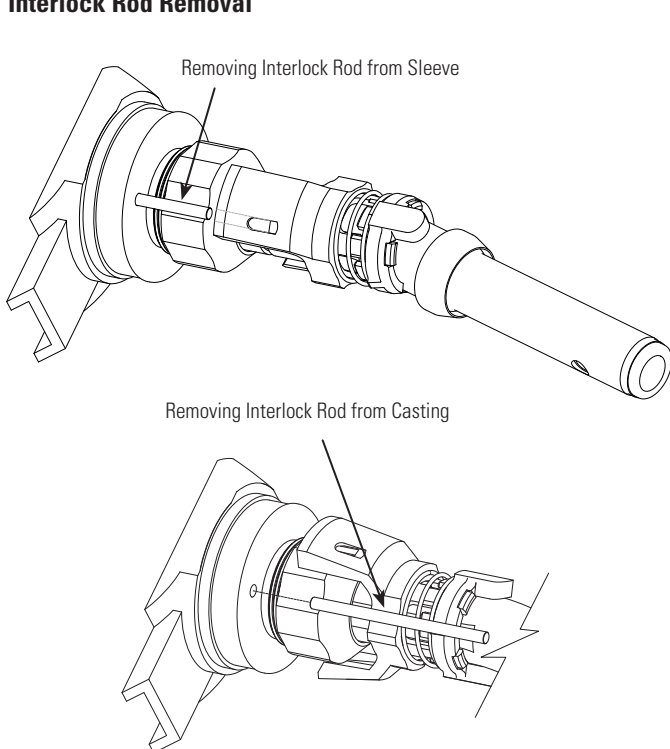
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**Figure 2**  
**Nozzle Spout Assembly**



**Figure 3**  
**Interlock Rod Removal**

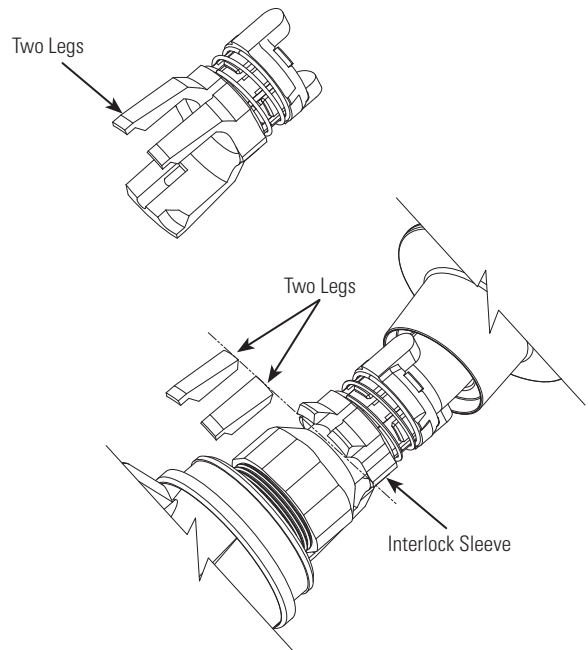


## **NOZZLE SPOUT ASSEMBLY REMOVAL**

(See Figures 3-5)

1. Hold the interlock rod in place to allow the rod to be disengaged from the hole of the sleeve that is located around the spout nut. (See Figure 3)
  2. Slide and rotate the sleeve away from the spout nut and remove the interlock rod. (See Figure 3)
  3. Remove the two legs from the Interlock Sleeve by cutting them with the tin snips or other suitable instrument. (See Figure 4)
  4. Loosen spout nut with the VST-SRT-200 Spout Nut Torque Wrench Attachment. (See Figure 5)
- NOTE:** Do not use pipe wrench or locking-type pliers.
5. Once threads are completely disengaged, pull the spout straight out.

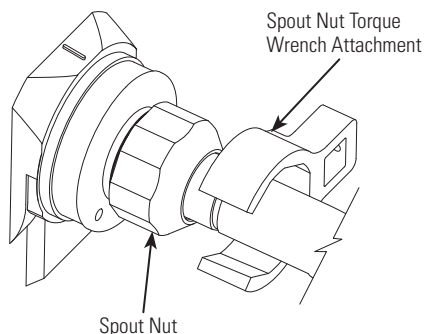
**Figure 4**  
**Remove 2 legs of the Interlock Sleeve**



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**Figure 5**  
**Torque Wrench Attachment**



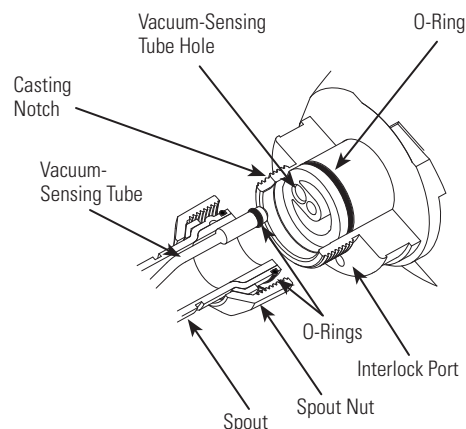
## NOZZLE SPOUT ASSEMBLY REPLACEMENT

(See Figures 5-6)

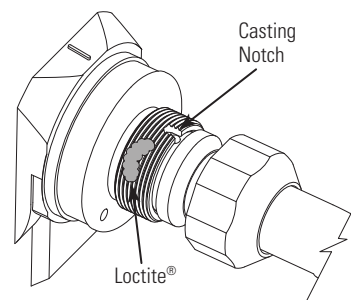
1. Fuel chamber should remain in the nozzle casting with the vacuum sensing tube hole oriented at the top.
2. If the fuel chamber is pulled out of the nozzle casting:
  - a. Check O-ring for damage.
  - b. Replace O-ring if damaged (check for cuts, nicks, etc.).
  - c. Lubricate O-ring prior to re-assembly.
3. Insert fuel chamber into nozzle casting:
  - a. Poppet stem with spring goes through poppet hole in the fuel chamber (center hole).
  - b. Push fuel chamber until it is flush with casting.
  - c. Vacuum sensing tube hole in the fuel chamber should be oriented at the top.
4. Lightly lubricate **ALL** O-rings on the spout assembly.
 

**NOTE:** Do not block vacuum sensing-tube hole with lubricant.
5. Align vacuum sensing tube with mating hole in the fuel chamber. (See Figure 6)
6. Align the anti-rotation bump on the spout with the casting notch. Be careful not to damage the spout O-ring. (See Figure 6)
7. Firmly insert spout assembly into the nozzle casting.
8. Apply a dab of Loctite®271 to the male thread of the nozzle casting. Be careful not to apply the Loctite® so that it would enter into the casting notch. (See Figure 7)
9. Thread spout nut onto the nozzle casting and tighten firmly. Torque to 34 foot-pounds.

**Figure 6**  
**Spout Assembly**



**Figure 7**  
**Application of Loctite®**



Use VST-SRT-200 Spout Nut Torque Wrench Attachment in order to apply the appropriate torque. Spout should be tight and not able to rotate. Do not over-tighten the spout nut.

10. After tightening the spout nut, remove the zip tie from the spout and then place the interlock rod into the hole of the nozzle casting. Move the sleeve in place so the interlock rod is inserted into the recessed hole on the end of the sleeve. The interlock rod may be compressed into the nozzle to ease the insertion. The interlock rod should be visible through the side hole of the sleeve. (See Figure 2)
11. Re-install the boot per the boot replacement instructions.

## BOOT REPLACEMENT

1. Place the band clamp on the boot. (See Figure 1)

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- Slide the boot over the spout until it snaps over the groove on the nozzle body.
- Slide the faceplate onto the spout with the smaller outer diameter facing the boot.
- Engage and disengage the interlock a few times to check for correct functionality. (See Functional Test 3)
- Tighten band clamp until boot will not rotate. (See Figure 1)
- Prior to installing the latch ring, verify all previous steps were followed properly. Once the latch ring is attached it cannot be removed.
- Verify the retaining rings are inside the inner groove of the latch ring. Place latch ring onto spout so the tapered end of the latch ring faces the open end of spout. Push back against face plate until it snaps into the groove on the spout. Pull on latch ring to verify it will not come off the spout.

## FUNCTIONAL TESTS

- Follow the VST Installation Procedure for each hanging hardware component.
- 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 the hose connection if necessary.
- 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 face plate is decompressed (eg. 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 face plate is fully decompressed.

- 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 the hose. Example: The measured resistance of a 12 foot hose must not exceed 840,000 ohms (840 kilohms).

## MAINTENANCE

Inspect nozzles regularly for damaged component parts: boot, face plate, spout, lever, lever lock, interlock rod functionality.

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.
- 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 the 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" (5 mm) drill bit, drill out the rivet securing the hold-open clip, and discard the clip, spring, and all other rivet debris.