

VST Installation Procedure for Phase II Coaxial EVR Balance Safety Breakaway Devices

Reattachable Breakaway Part Number Series: VSTA-EVR-SBKA



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APPLICATION

These VST Safety Breakaway devices are intended to prevent damage to the dispenser and hose in the event of a vehicle drive off. These devices separate at pull forces up to 350 lbs. Prior to installation, (see Installation Preparation) you will need to determine that 350 lbs. pull force will not damage the dispenser. After verifying that the dispenser is securely bolted to the island, it can be tested by using a spring scale and a length of rope. The rope must be connected at the dispenser outlet casting, which may require a threaded bushing with a hole for attaching the rope. Attach the scale to the rope and pull to 350 lbs. in several directions. Be sure to avoid damaging the dispenser.

NOTE:

- The whip hose **ALWAYS** attaches to the dispenser. If a retractor is being used, the retractor clamp **MUST** be between the breakaway and dispenser.
- VST hoses are made to withstand 350 pounds tensile pull without damage. If another brand of hose is present at the dispenser, VST recommends that you contact the hose manufacturer regarding the compatibility with this breakaway device.

GENERAL INFORMATION

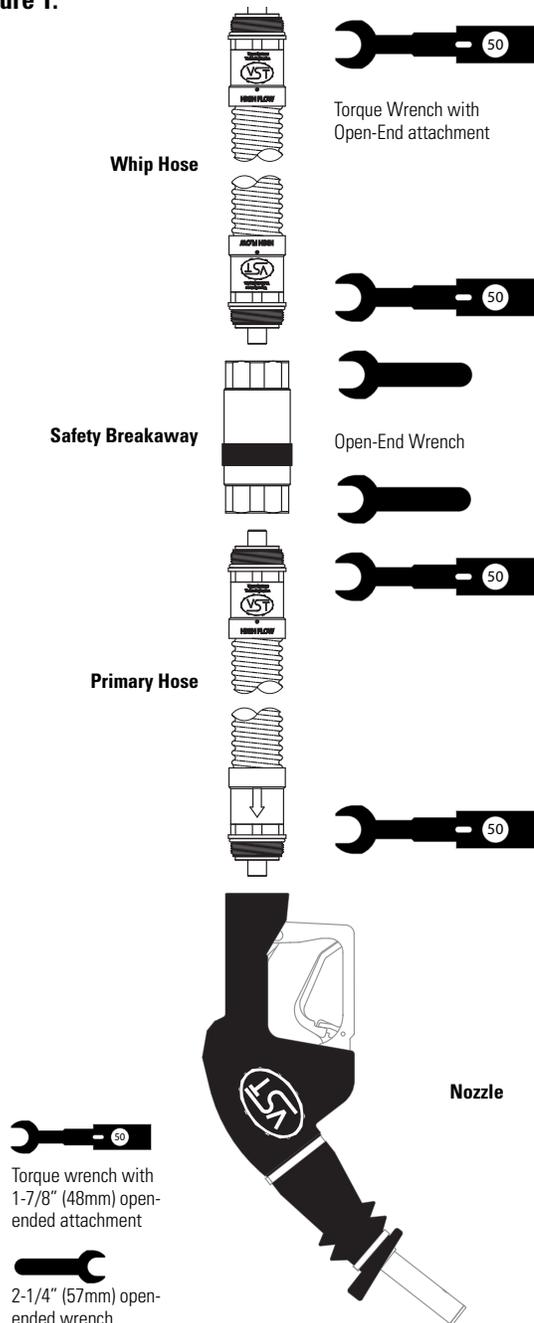
If hanging hardware components are involved in a drive-off or incur other customer abuse, each individual component must be functionally tested prior to customer dispensing activities.

INSTALLATION PREPARATION

These procedures must be followed to ensure leak-proof installation and operation of these safety breakaway products.

- Turn off and tag the power to the dispenser. Dispenser must be de-energized prior to service to avoid personal injury.
- Barricade work area to block vehicle access to the dispenser.
- Close dispenser shear valve prior to performing any service work with the hanging hardware (hoses, safety breakaways, and nozzles).
- Drain liquid product from the hanging hardware set into an approved container prior to replacing any hanging hardware component.

Figure 1.



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5. For the installation of a new breakaway, remove hanging hardware from the dispenser prior to making replacement component assembly connections. VST recommends connecting the whip hose to dispenser as the last connection during hanging hardware assembly.

INSTALLATION AND FUNCTION TESTS

1. Initial inspection:
 - a. Carefully unpack safety breakaway from shipping carton.
 - b. Inspect safety breakaway for any damage to threads, O-rings, exterior, etc.
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 breakaway on mating connection and tighten by hand. **NOTE FLOW DIRECTION ARROW** (where applicable). Use the hex on the breakaway body closest to the connection to tighten. **DO NOT USE** the breakaway body to tighten the unit.
4. Tighten breakaway connection to 50 foot-pounds of torque. **DO NOT OVER TIGHTEN**. Use the hex on the breakaway body closest to the connection to tighten. Use a torque wrench with an open-end attachment to fit the hose couplings and an open-end wrench to properly tighten breakaway connections. **DO NOT USE** channel-locks or pliers to tighten connections. 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 each breakaway joint connection for liquid leaks and meter creep. Make proper adjustments if necessary. Checking for meter creep will verify the integrity of the connections. After dispensing the fuel, release the lever and move components around and/or gently shake the hose and verify if the displaced amount on the dispenser changes. If meter creep is experienced, check all components and replace as necessary.
6. Check the nozzle shut-off action by dispensing fuel into an approved container at least three times to assure proper automatic operation of the interlock rod. According to UL requirement 842, the fuel flow-rate must be greater than 3 gpm for the automatic shut-off mechanism to operate.

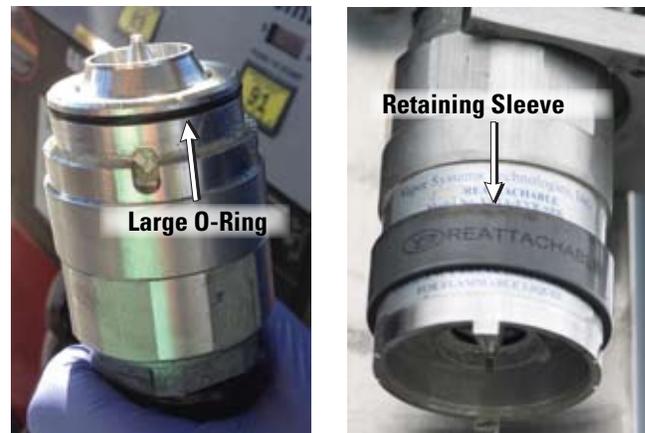


Figure 2: Check each half for damage

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 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). 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).

BREAKAWAY REATTACHMENT PROCEDURE

The VSTA-EVR-SBKA Safety Breakaway may be reconnected with the use of the VST Breakaway Assembly Tool (VST-BAT-100).

BREAKAWAY REATTACHMENT PROCEDURE

1. Follow **INSTALLATION PREPARATION** steps 1-4.
2. Inspect both safety breakaway halves for damage that may have occurred during separation. Include looking for external damage to the product and missing alignment pin, etc. See **Figures 2 and 3. If damage or missing parts are detected, replace with new product.** Ensure that the retaining sleeve

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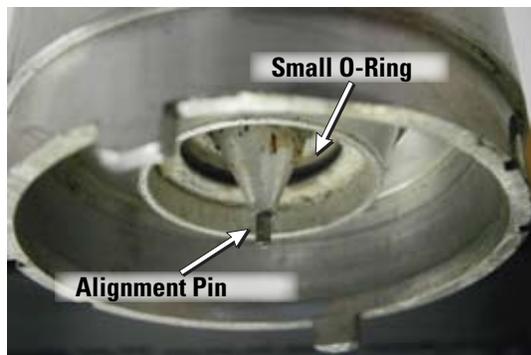


Figure 3: Check for Alignment Pin

is placed on the breakaway half connected to the whip hose before reassembly.

3. Prior to reassembling, be sure the mating parts are undamaged and clean.
4. Replace all O-rings with those provided in the repair kit (VST-BRK-100).
 - a. Lightly lubricate the O-rings on mating connections with petroleum jelly or other suitable lubricant. **DO NOT USE** pipe dope or thread sealant.
 - b. Use the large O-ring provided in the repair kit to replace the outer O-ring on the curb hose side of the breakaway. See **Figure 5**.
 - c. Use the small O-ring provided in the repair kit to replace the inner O-ring on the whip side of the breakaway. Use a plastic pick provided in the kit to remove the old O-ring. See **Figure 3**.
5. Apply a liberal amount of lithium grease provided in the repair kit (VST-BRK-100) completely around the mating diameter surface of the curb hose side of the breakaway. The grease will need to cover the entire surface that will slide into the mating end of the breakaway. See **Figure 5**. **DO NOT USE** pipe dope or thread sealant.
6. Utilize the VST Breakaway Assembly Tool (VST-BAT-100) with the appropriate reassembly plates to reassemble the breakaway. The tool is used to provide appropriate leverage for the ease of reassembly of the breakaway and to secure the breakaway during replacement of the shear washers. This can be done without disassembling the hoses from the breakaway halves.
7. Press the button on the Breakaway Assembly Tool to spread

the end clamps apart to allow the two separated breakaway halves to fit between the top and bottom clamps. Slide the top clamp of the VST Breakaway Assembly Tool behind the hex on the breakaway half connected to the whip hose. See **Figure 4**.

8. Slide the separated bottom half of the breakaway (with curb hose and nozzle attached) onto the bottom clamp of the VST Breakaway Assembly Tool. Align the shear ring grooves away from the reassembly tool for ease of insertion of the shear washers. See **Figure 4**.
9. Slowly squeeze the VST Breakaway Assembly Tool trigger to bring the breakaway halves together.



Figure 4: Attach Reassembly Tool

CAUTION: Reconnection can cause a small amount of gasoline to leak out of the breakaway. A towel wrapped loosely around the breakaway can help to minimize spills.

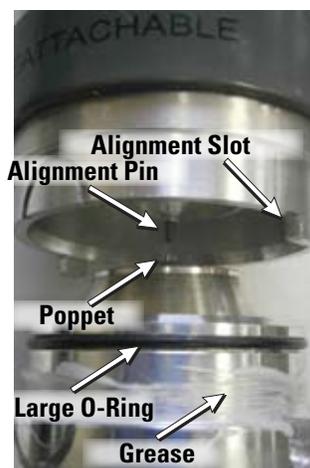


Figure 5: Align Poppet Pin from upper to lower half of breakaway and finish alignment

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Figure 6: Add Shear Washer **Figure 7: Remove Grease**



**Figure 8: Reposition
Retaining Sleeve**

**Figure 9: Verify
Connection Integrity**

10. Carefully align the two breakaway halves. Place the alignment pin from the breakaway upper half into the hole of the inner poppet on the lower half of the breakaway that is connected to the nozzle end. Continue squeezing the trigger of the VST Breakaway Assembly Tool while guiding the alignment slots together to finish reassembly. See **Figure 5**.

NOTE: Once the two breakaway halves come together close enough for placement of the shear washers, do not squeeze the tool trigger any further. Unnecessary pressure on the tool could damage or break the tool.

11. Once the two aligned halves are together place one shear washer into each of the shear washer grooves (2 total) from the repair kit (VST-BRK-100). See **Figure 6**. Ensure that the shear washer is completely seated into the groove before moving the retaining sleeve into place. See **Figure 7**. Wipe off excess grease after installation of the shear rings.

12. After the two breakaway halves are reattached, remove the Breakaway Assembly Tool (press the button on the tool to allow the plates to release). Reposition the retaining sleeve to the groove between the two halves of the breakaway. See **Figure 8**. Give the reassembled breakaway a strong pull to verify that it is properly connected. See **Figure 9**.

13. If successful, follow the **Installation and Functional Tests** steps 5 – 7 in this document.

14. Reference Section 5 procedures – Drive-off and Other Customer Abuse, of the Balance Systems Executive Orders VR-203 and/or VR-204.

MAINTENANCE

Inspect safety breakaways regularly for damage, loose connections or leaks. Replace as necessary. Subject to customer abuse, safety breakaway should be replaced when damaged.

The safety breakaway 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 safety breakaways voids ALL approvals and warranties.

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