

# Carbon Canister Vapor Polisher

## Installation and Maintenance Guide



# Notice

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Contact TLS Systems 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.

## **FOR INSTALLATIONS IN THE STATE OF CALIFORNIA**

Please refer to the California Air Resources Board Vapor Recovery Certification Phase II EVR Executive Order web site ([www.arb.ca.gov/vapor/leo-evrphaseII.htm](http://www.arb.ca.gov/vapor/leo-evrphaseII.htm)) for the latest manual revisions pertaining to Executive Order VR 203 (VST Phase II EVR System) and VR 204 (VST Phase II EVR System Including ISD System).

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## Introduction

This manual contains instructions to install a Veeder-Root Carbon Canister Vapor Polisher (CCVP) into a gasoline tank vent pipe.

### Contractor Certification Requirements

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Veeder-Root requires the following minimum training certifications for contractors who will install and setup the equipment discussed in this manual:

**Installer (Level 1) Certification:** Contractors holding valid Installer Certification are approved to perform wiring and conduit routing; equipment mounting; probe, sensor and carbon canister vapor polisher installation; tank and line preparation; and line leak detector installation.

**TLS-350 Technician (Level 2/3 or 4) Certification:** Contractors holding valid TLS-350 Technician Certifications are approved to perform installation checkout, startup, programming and operations training, troubleshooting and servicing for all Veeder-Root TLS-300 or TLS-350 Series Tank Monitoring Systems, including Line Leak Detection and associated accessories.

**In-Station Diagnostics (ISD-PMC) Technician Certification:** ISD PMC Contractors holding a valid ISD/PMC Certification are approved to perform (ISD/PMC) installation checkout, startup, programming, and operations training. This training also includes troubleshooting and service techniques for the Veeder-Root In-Station Diagnostics system. A current Veeder-Root Technician Certification is a prerequisite for the ISD/PMC course.

**Veeder-Root ISD/PMC Including Carbon Canister Vapor Polisher Contractor Certification:** This Certification includes Executive Orders 203, 204 and the Veeder-Root Vapor Polisher. This certification is required for setup and service of the Veeder-Root Vapor Polisher.

**Warranty Registrations** may only be submitted by selected Distributors.

### Related Manuals

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- 576013-879 TLS-3XX Series Consoles Site Prep Manual
- 577013-949 In-Station Diagnostics Install, Setup & Operation Manual
- 577013-948 Pressure Management Control Install, Setup and Operation Manual
- 576013-858 Direct Burial Cable Installation Guide

### Safety Precautions

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The following safety symbols may be used throughout this manual to alert you to important safety hazards and precautions.



**EXPLOSIVE**  
Fuels and their vapors are extremely explosive if ignited.



**FLAMMABLE**  
Fuels and their vapors are extremely flammable.

 <p><b>ELECTRICITY</b> High voltage exists in, and is supplied to, the device. A potential shock hazard exists.</p>	 <p><b>TURN POWER OFF</b> Live power to a device creates a potential shock hazard. Turn Off power to the device and associated accessories when servicing the unit.</p>
 <p><b>READ ALL RELATED MANUALS</b> 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><b>USE SAFETY BARRICADES</b> 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><b>WARNING</b> Heed the adjacent instructions to avoid damage to equipment, property, environment or personal injury.</p>	 <p><b>WEAR EYE PROTECTION</b> Wear eye protection when working with pressurized fuel lines or epoxy sealant to avoid possible eye injury.</p>
 <p><b>INJURY</b> Careless or improper handling of materials can result in bodily injury.</p>	 <p><b>GLOVES</b> Wear gloves to protect hands from irritation or injury.</p>

**⚠ WARNING**





This product is to be installed and operated in the highly combustible environment of a gasoline station where flammable liquids and explosive vapors may be present. **ATTEMPTING TO SERVICE TANK MONITORS AND EQUIPMENT WITHOUT PROPER TRAINING CAN CAUSE DAMAGE TO PROPERTY, ENVIRONMENT, RESULTING IN PERSONAL INJURY OR DEATH.**

The following hazards exist:

1. Electrical shock resulting in serious injury or death may result if power is on during installation and the device is improperly installed.
2. Product leakage could cause severe environmental damage or explosion resulting in death, serious personal injury, property loss and equipment damage.

Observe the following precautions:

1. Read and follow all instructions in this manual, including all safety warnings.
2. Comply with all applicable codes including: the National Electrical Code; federal, state, and local codes; and other applicable safety codes.
3. Before installing this device, turn Off, tag/lock out power to the system, including console and submersible pumps.
4. To protect yourself and others from being struck by vehicles, block off your work area during installation or service.
5. Substitution of components may impair intrinsic safety.

## Before You Begin

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- Comply with all recommended safety practices identified by OSHA (Occupational Safety and Health Administration) and your employer.
- Follow all installation requirements as per NFPA (National Fire Protection Association) 30, 30A, and 70.
- Where separate intrinsically safe circuits are installed in the same raceway they must be segregated in accordance with Article 504 of the NEC.
- Review and comply with all the safety warnings in the installation manuals and any other National, State or Local requirements.
- If the Carbon Canister is being wired directly to a TLS console, a 2-conductor, 18 AWG shielded cable must be installed in intrinsically safe conduit from the intrinsically safe wiring compartment of the TLS console to the carbon canister. If direct burial cable is used, it must comply with all requirements of the local authority having jurisdiction. Reference manual 576013-879 which describes special requirements regarding direct burial installations. Also, see manual 576013-858 for a complete listing of required materials and an overview of direct burial installations.
- Use only UL certified Gas/TFE yellow Teflon tape on all fittings. Do not use pipe dope to seal pipe threads or fittings in and out of the CCVP.
- Customer supplied vent riser and vent riser fittings shall be standard full weight (ASTM Schedule 40) wrought iron or steel.
- Vent riser threads shall be in accordance with the standard for pipe threads, general purpose (inch) ANSI/ANSE B1.20.1-1983.



### IMPORTANT!

- CCVP outlet shall be not less than 12 feet from grade.
- CCVP outlet shall be located at least 15 feet from powered ventilation air intake devices.
- CCVP outlet shall be located not less than 5 feet above the highest projection of a roof or canopy.
- CCVP must be mounted vertically.
- The structure to which the CCVP is mounted must be plumb and perpendicular to grade and independently supported and comply with all applicable codes.
- Offset piping and inlet piping to the CCVP shall be installed without sags or liquid traps NFPA 30, 30A applies.

## Veeder-Root Parts

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- Veeder-Root Carbon Canister Vapor Polisher, Form No. 861290-002.

**Table 1. CCVP 2" Installation Kit**

Item	Qty.	Description	P/N
1	1	Carbon Canister	332761-002
2	1	Inlet Piping Kit	330020-638
3	1	2" Mounting Bracket Kit	330020-647
4	1	Group - 2" Pipe and Tee	332954-002
5	1	CCVP Installation Instructions	577013-920

- Veeder-Root Carbon Canister Vapor Polisher, Form No. 861290-003.

**Table 2. CCVP 3" Installation Kit**

Item	Qty.	Description	P/N
1	1	Carbon Canister	332761-002
2	1	Inlet Piping Kit	330020-638
3	1	3" Mounting Bracket Kit	330020-648
4	1	Group - 3" Pipe and Tee	332954-003
5	1	CCVP Installation Instructions	577013-920

- Veeder-Root CCVP spare parts kits.

**Table 3. CCVP Spare Parts Kits**

Item	Qty.	Description	P/N
1	1	Valve Enclosure Assembly Kit	330020-643
2	1	Sensor Housing Kit	330020-644
3	1	Filter Kit	330020-645
4	1	Temperature Probe Kit	330020-653

## Installation Procedure

### Vent Pipe Mounting

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1. Figure 4 of the TLS-3XX Site Prep Manual, P/N 576013-879, must be consulted for proper installation of the Carbon Canister into hazardous locations with direct wiring.
2. During the installation, all required National, State and local safety codes must be followed.
3. The CCVP contains an integral vapor valve that operates in parallel with the site pressure/vacuum (P/V) vent. Location of the vapor valve outlet must conform to Article 514 of the National Electrical Code (NEC) and NFPA 30/30A.
4. Do not install the CCVP on unsupported vent pipes. If the vents are not attached to a support structure or a wall, a support structure must be installed prior to mounting the CCVP.
5. A straight coupling or union is required at the base of the vent pipe installation. For new or rebuilt sites, it is recommended that the installation design specify a threaded fitting for joining the vent pipes to the underground piping system.



6. **IMPORTANT! To ensure that the canister outlet is 12 feet (minimum) above grade, the CCVP mounting bracket must be positioned according to dimensions shown in Figure 1 and the U-bolts tightly clamped to the support structure before mounting the canister. The mounting bracket must be centered in line with the outlet of the tee before installing the CCVP.**
7. Following all required national, state, local and site safety precautions, carefully hang the CCVP's notched support tabs onto the top two side studs of its mounting bracket (Step 1 in Figure 2), swing the canister down until all of the slots in the canister's side mounting tabs seat against the studs in the bracket (Step 2 in Figure 2), then tighten the six side nuts to secure the canister onto its bracket (Step 3 in Figure 2).
8. Figure 3 shows important Class I Div 1, Group D and Class I Div 2, Group D radius spheres and operability test valve handle positions of the installed canister.
9. Install weather tight junction box, seal off and conduit per all NEC, State and local codes (see example installation in Figure 1).
10. Connect the two-pin connector of the 6-foot cable provided in the installation kit to the CCVP vapor valve, observing plug polarities (see Figure 4). The other end of this cable is passed through a kit supplied cord grip in the upper junction box.
11. Connect the white wire of the two conductor cable from the vapor valve to the positive sensor wire from the TLS Console Smart Sensor Interface module (see Figure 5). Connect the black wire on the two conductor cable to the negative sensor wire from the TLS Console Smart Sensor Interface module.
12. Following the instructions in Figure 6, seal the wire nuts of each of the two cable connections in the epoxy pack provided.
13. Attach CCVP vapor valve field wiring to the Smart Sensor Interface Module in the TLS console as shown in Figure 7.
14. Connect all lower fittings, valve and tubing between the vent pipe and the lower manifold on the CCVP.
15. Confirm ball valve is in the open, canister to vent pipe position (per Figure 3), then insert the clevis pin and secure with the hitch pin.
16. A passing pressure decay test, in accordance with CARB TP-201.3, must be completed after the CCVP is installed (see Exhibit 4 of VR 203 / VR 204).
17. A passing operability test must be completed in accordance with the procedures defined in VR 203 / VR 204 Exhibit 11 & 12.

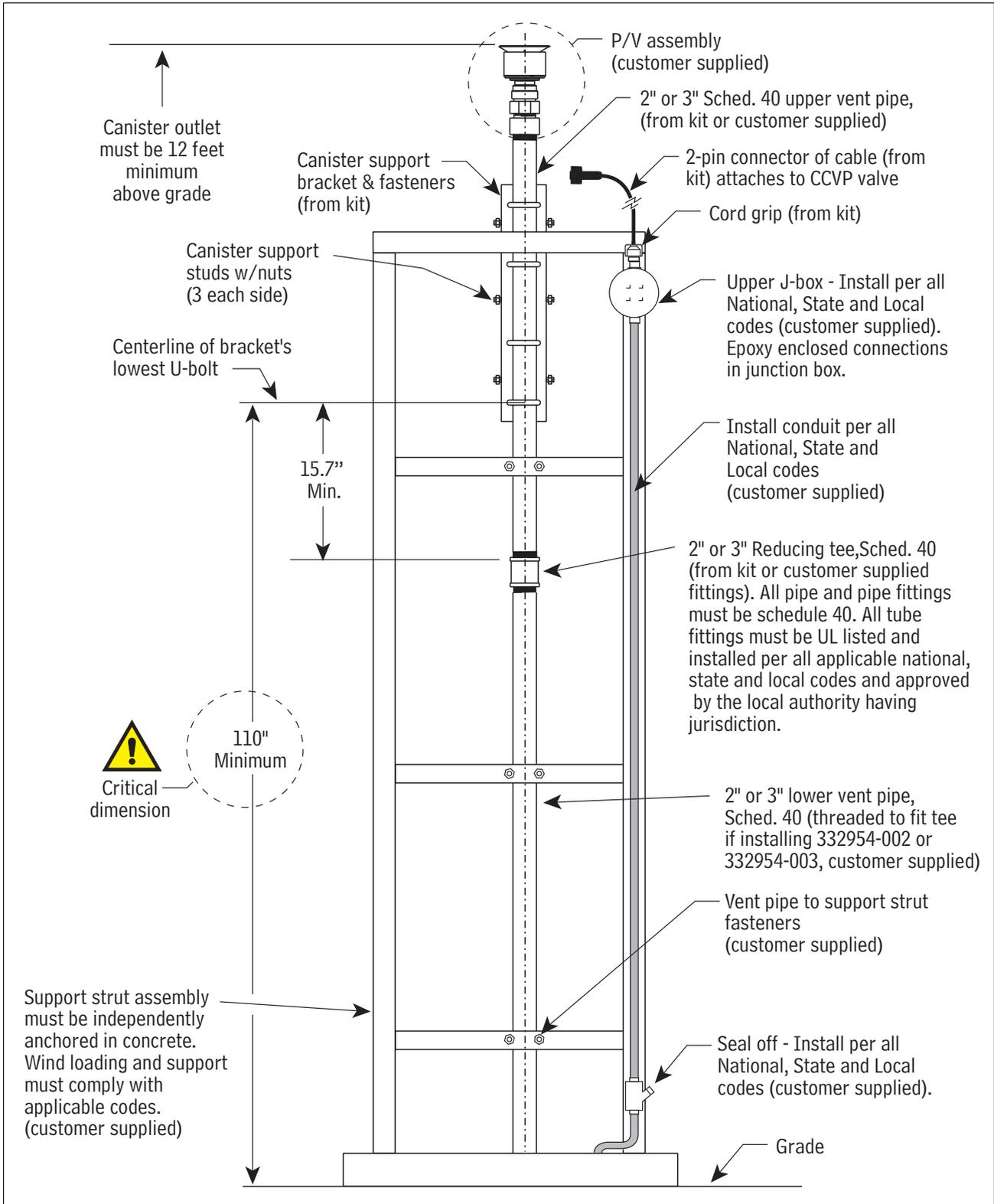


Figure 1. Typical direct wired installation example

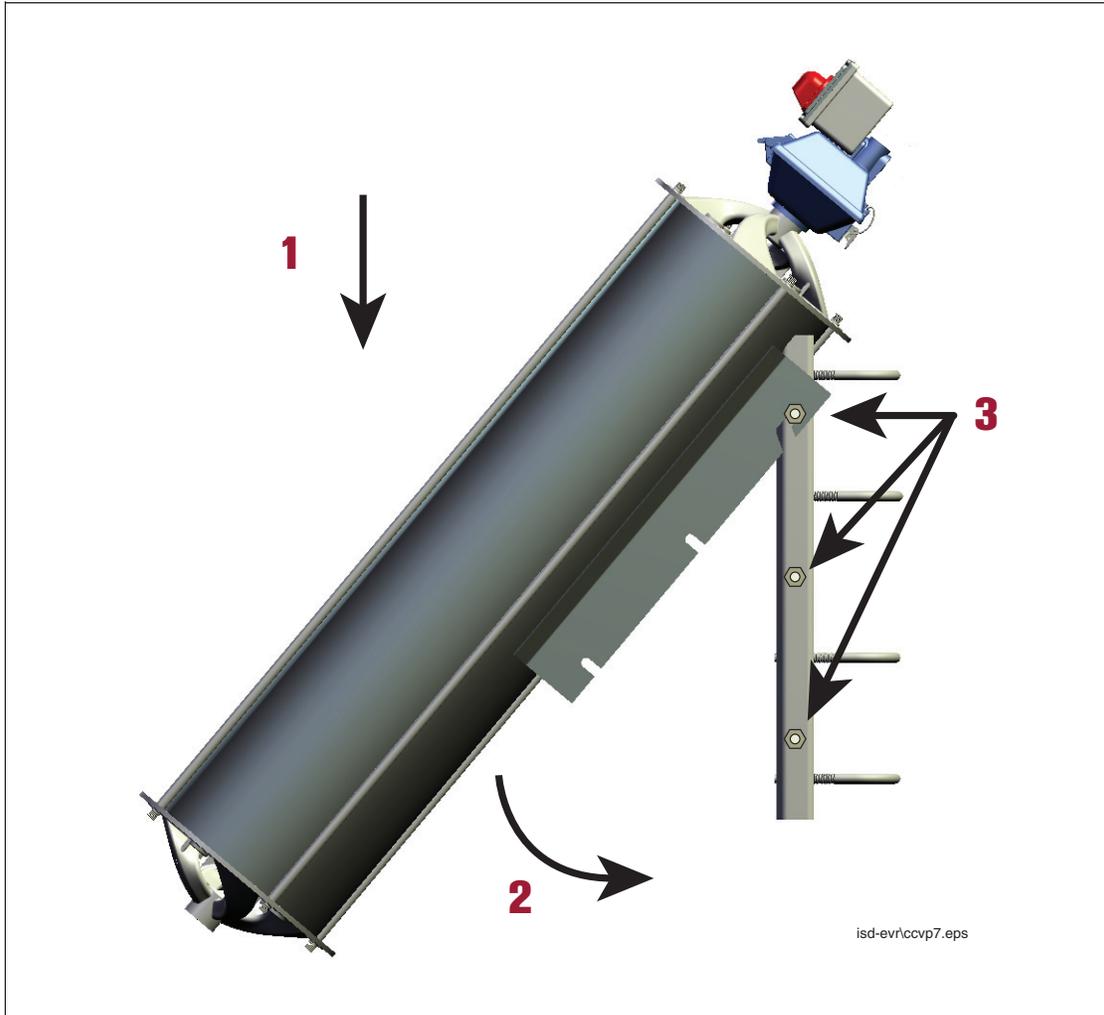


Figure 2. Installing CCVP onto bracket

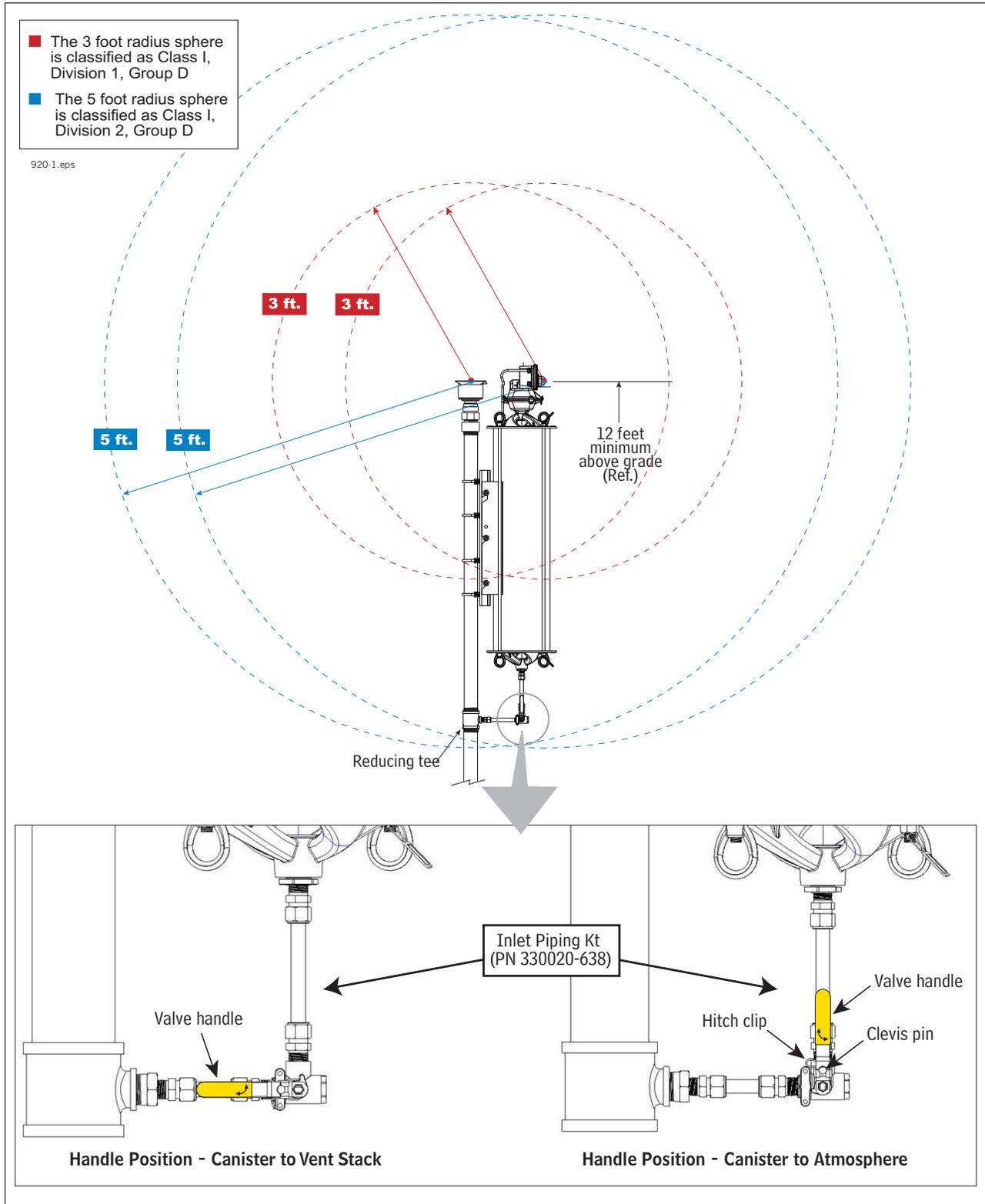


Figure 3. Inlet plumbing detail and classified area definition

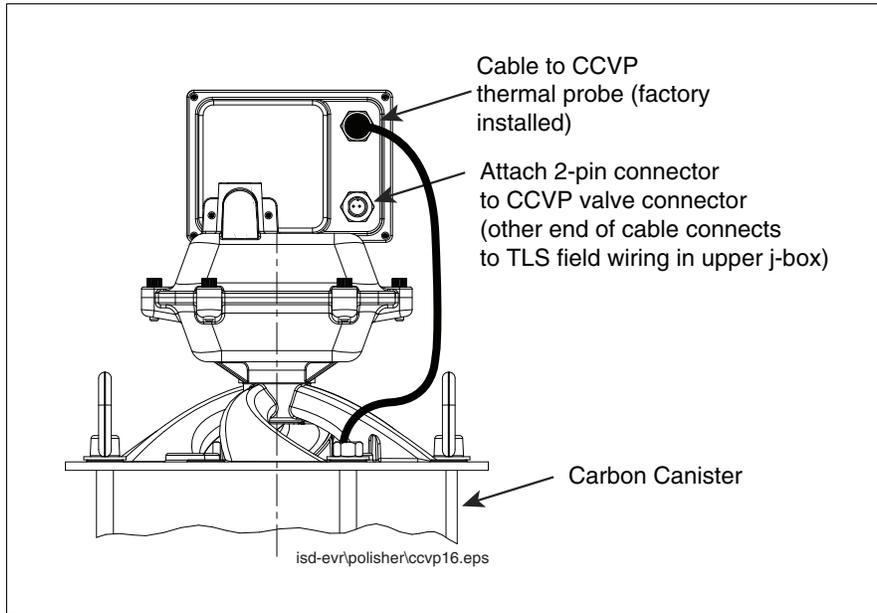


Figure 4. Locating the CCVP vapor valve connector

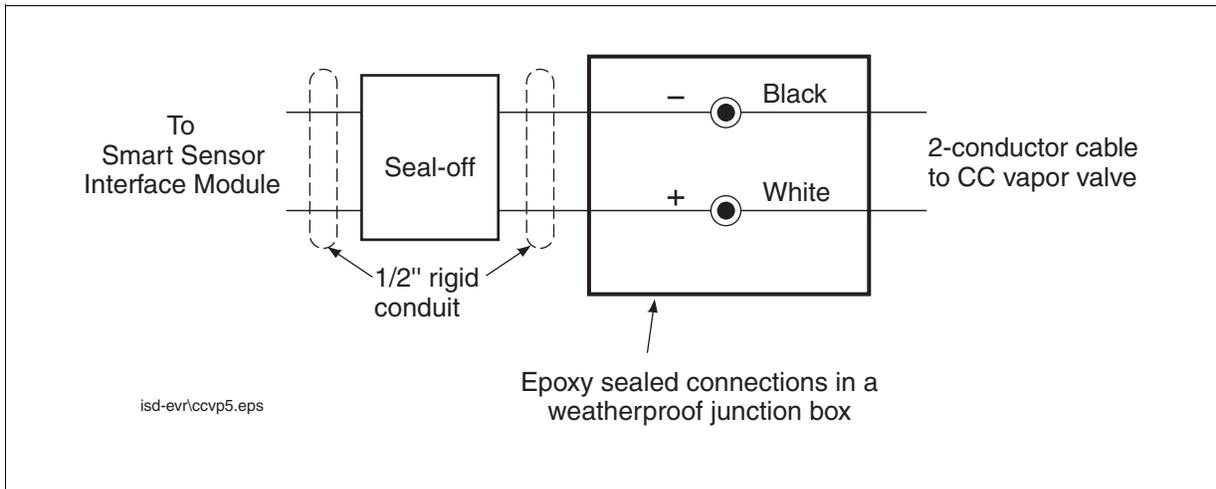


Figure 5. Field wiring CCVP vapor valve

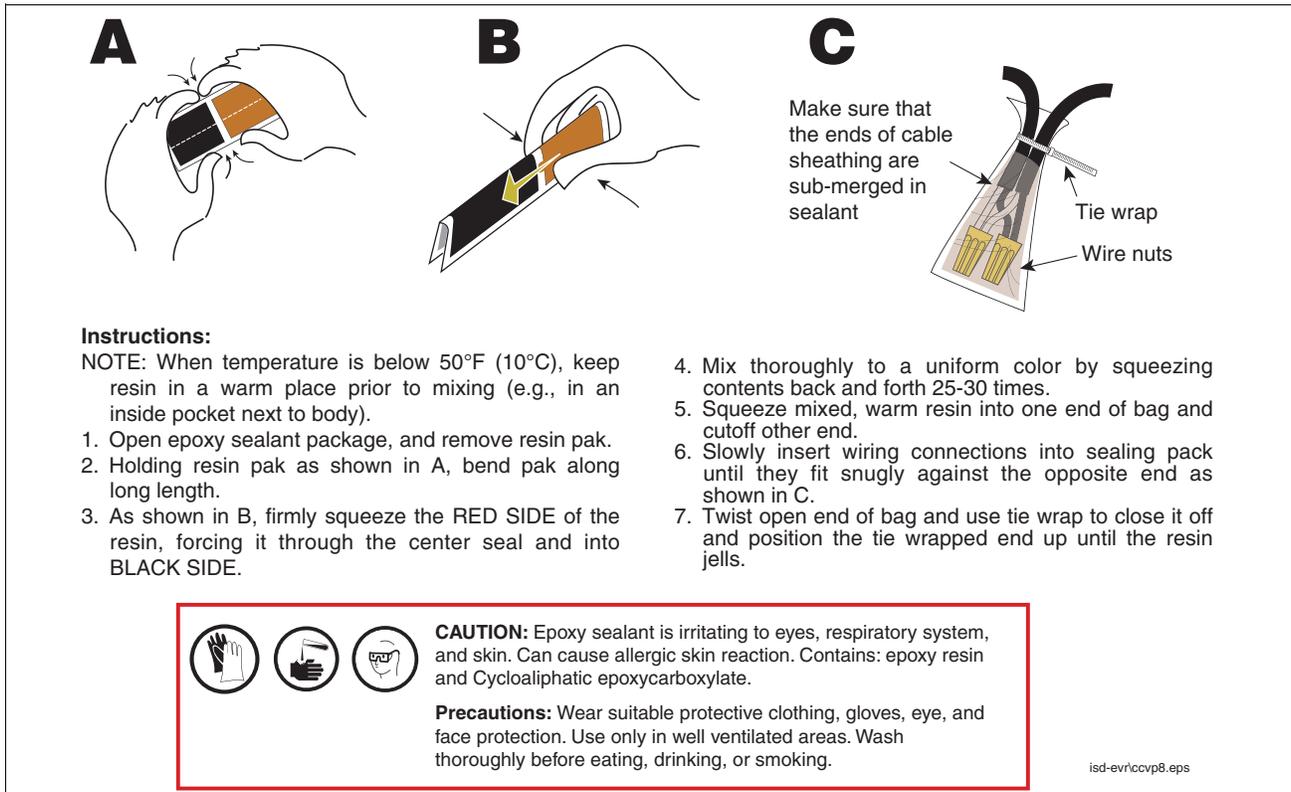


Figure 6. Epoxy sealing CCVP vapor valve field wiring connections

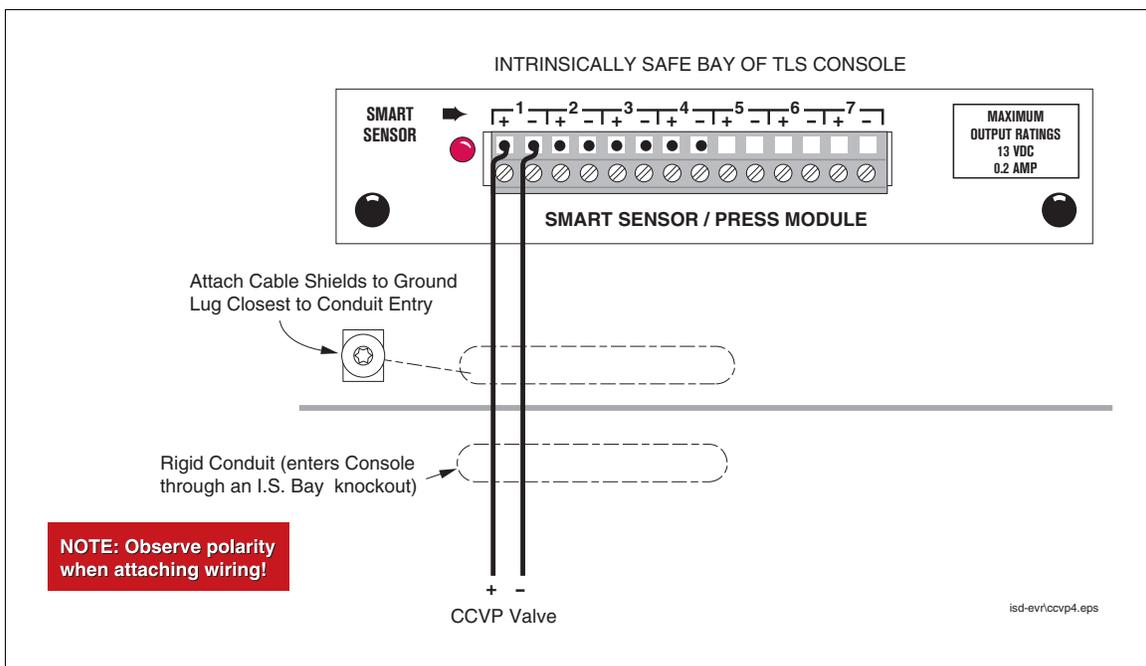


Figure 7. Attaching CCVP vapor valve wiring to TLS-350 Console

## Offset Mounting

### INSTALLATION NOTES

The Vapor Polisher can be mounted adjacent to the vent riser by plumbing from the vent riser to the Vapor polisher (see Figure 8).

The manifold pipe between the vent riser and canister must not exceed 100 feet in length and must be at least 2-inches with no liquid traps present and slope 1/8" per foot back to the vent riser to drain. To prevent the CCVP inlet piping from supporting the offset piping weight, provide additional support as required. Offset piping must comply with applicable local codes and must be capped.

Flexible Connections may be required by local jurisdiction having authority when offset mounting.

Flexible connections between the CCVP's offset piping and the vent riser are allowable if required by the local authority having jurisdiction to meet seismic requirements.

- Should the flex connection be installed such that it is not supported, the slope of the flex connection from the CCVP back to the vent riser shall be greater than the 1/8" per foot slope required for the rest of the piping.
- The flexible connector must be UL approved for a service station above-ground application.
- The local contractor is responsible to provide all necessary Schedule 40 piping, pipe fittings and cap.

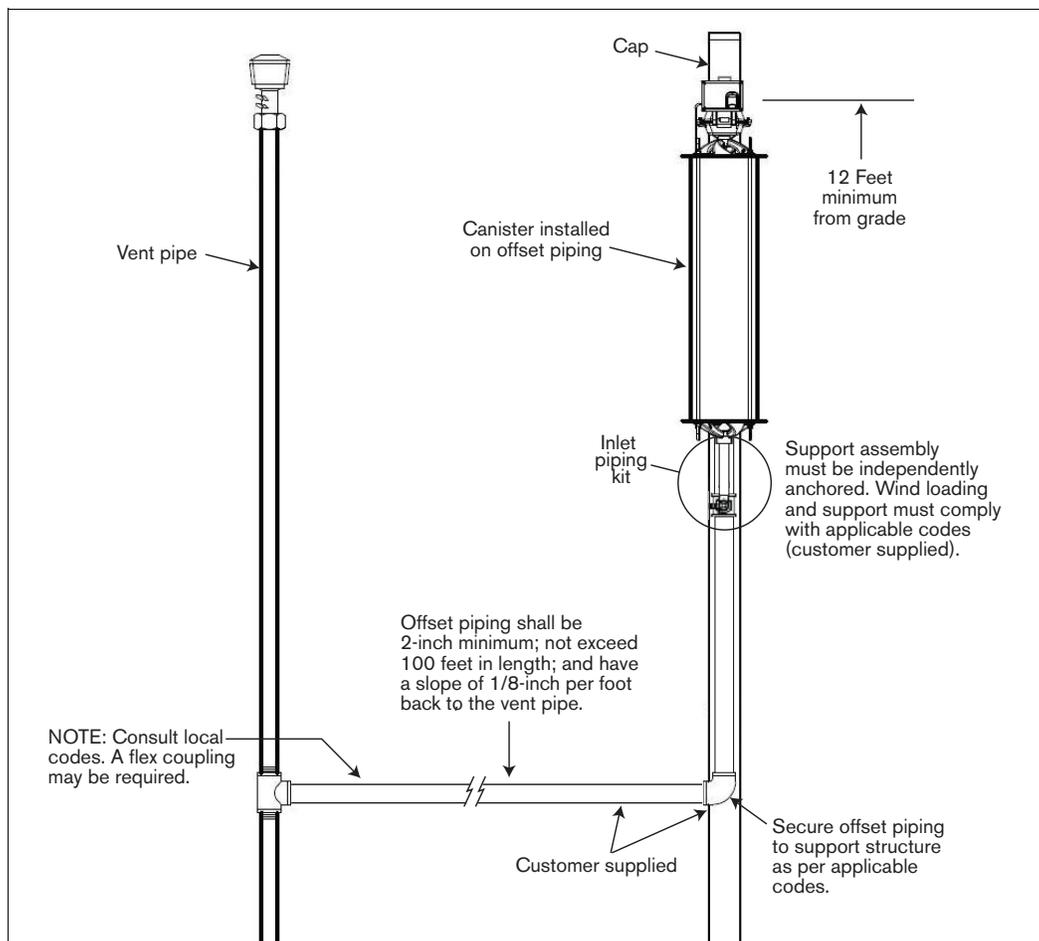


Figure 8. Offset mounting

## Maintenance

### Sensor Housing Kit (P/N 330020-644)

1. Remove the three #25 Torx screws holding the Sensor Housing assembly to the Vapor Valve assembly (see Figure 9).
2. Pull the sensor assembly straight out (unplugging it).
3. Align the replacement Sensor Housing assembly's connector with the connector in the Vapor Valve assembly and push in the assembly until it seats against the Vapor Valve assembly (see Figure 10).
4. Replace the three #25 Torx screws in the Sensor Housing assembly cover until tight.

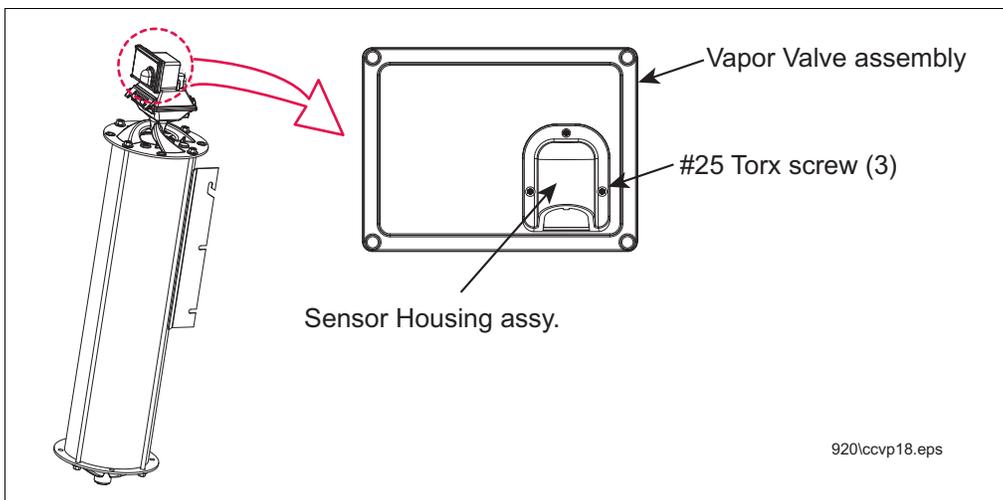


Figure 9. Remove Sensor Housing assembly

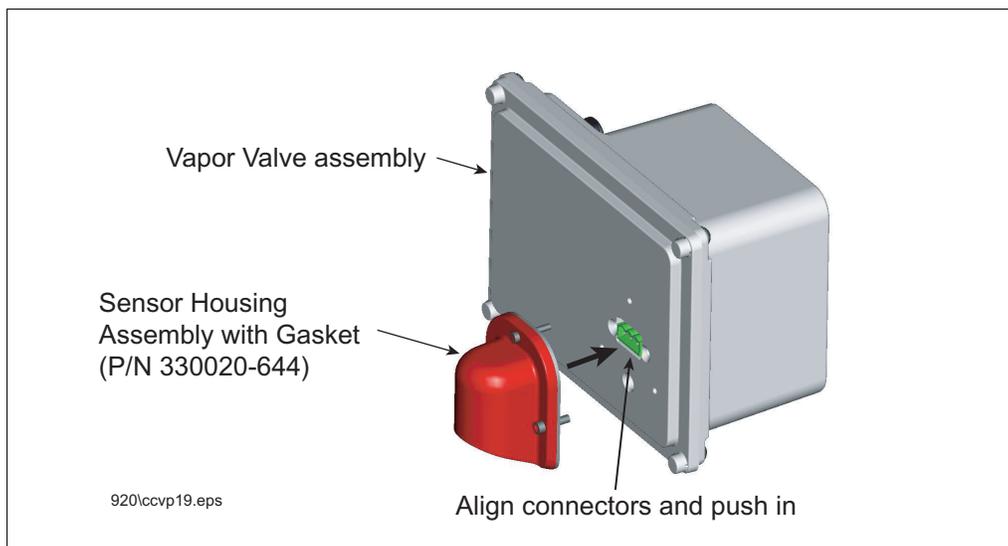


Figure 10. Replacing Sensor Housing Assembly

## Filter Kit (P/N 330020-645)

1. Remove the four 1/4 -20 x 1" hex key bolts from the top of the Vapor Valve Filter housing (see Figure 11).
2. Swing the housing top back and remove the filter plate from its seat and the o-ring from its groove in the Vapor Valve Filter housing's lower half (see Figure 12).
3. Install a new o-ring (P/N 512700-275) in the groove and insert a new filter plate (P/N 332901-001) into its seat in the lower half of the housing, close the cover and screw in the four 1/4-20 hex key bolts until tight.
4. Perform the CCVP integrity and Flow test.

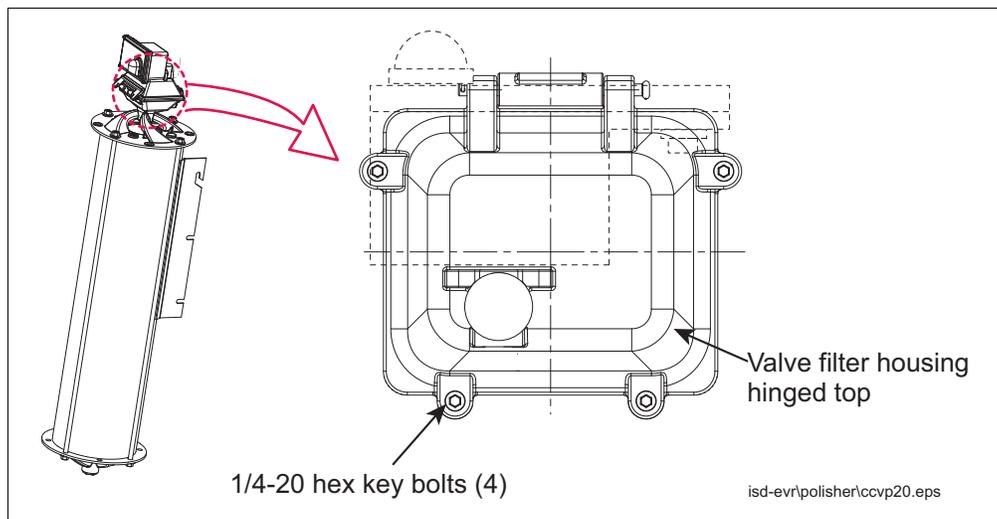


Figure 11. Accessing the valve filter and o-ring

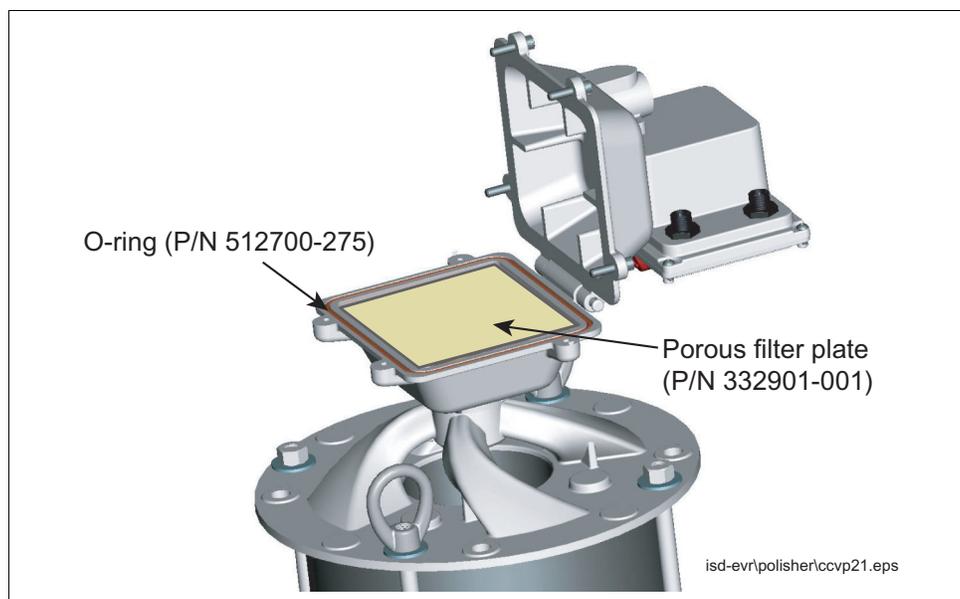


Figure 12. Replacing the valve filter and o-ring

## Valve Enclosure Assembly Kit (P/N 330020-643)

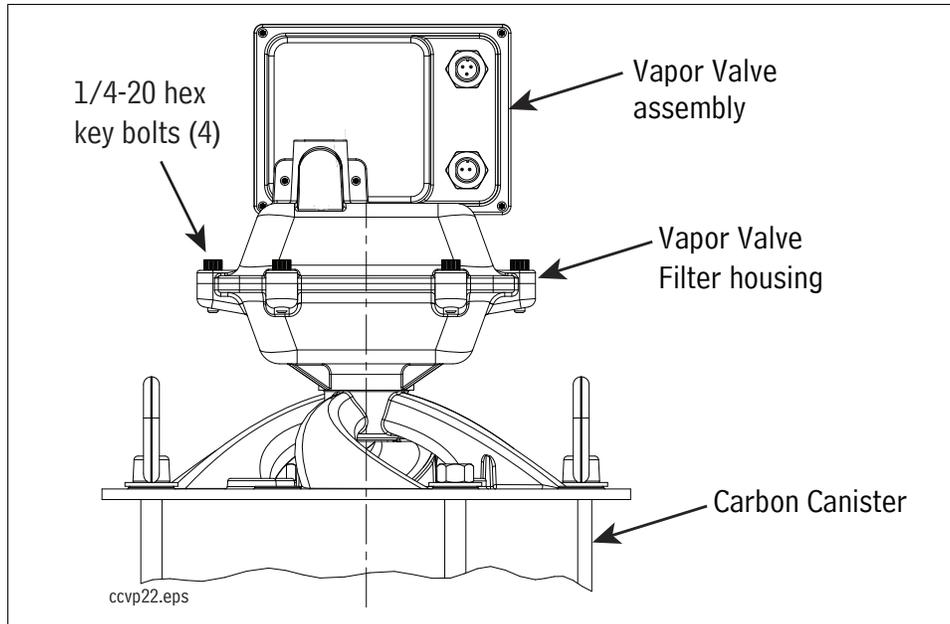


Figure 13. Removing Vapor Valve assembly

1. Remove the cables from the two connectors on the rear of the Vapor Valve assembly.
2. Remove the four 1/4 -20 x 1" hex key bolts from the top of the Vapor Valve Filter housing (see Figure 13)
3. Remove the hitch clip from the long clevis pin in the front hinge of the Vapor Valve Assembly and Vapor Valve Filter housing (see Figure 14).
4. Push the long clevis pin out and free of the hinge bores and lift up the Vapor Valve Assembly. Be careful not to damage the filter in the Vapor Valve Filter housing.
5. Place the new Vapor Valve Assembly onto the Vapor Valve Filter Housing and push the long clevis pin through the hinge bores. Insert the hitch pin in the hole in the end of the clevis pin.
6. Screw in the four 1/4-20 hex key bolts until tight.
7. Reconnect the two cables to the two connectors on the Vapor Valve assembly.
8. Perform the CCVP integrity and Flow test.

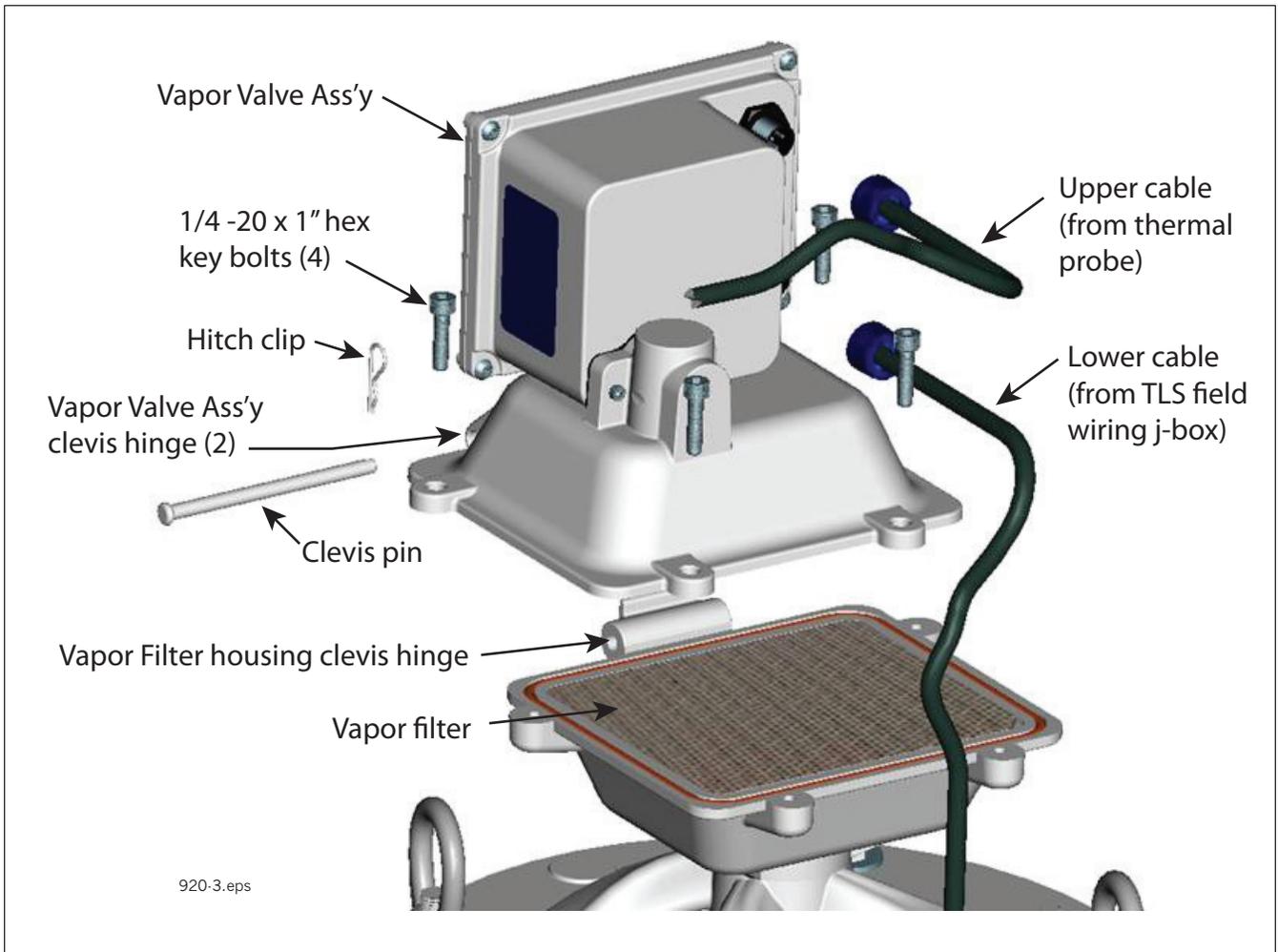


Figure 14. Replacing Vapor Valve assembly

## Thermal Probe Kit (P/N 330020-653)

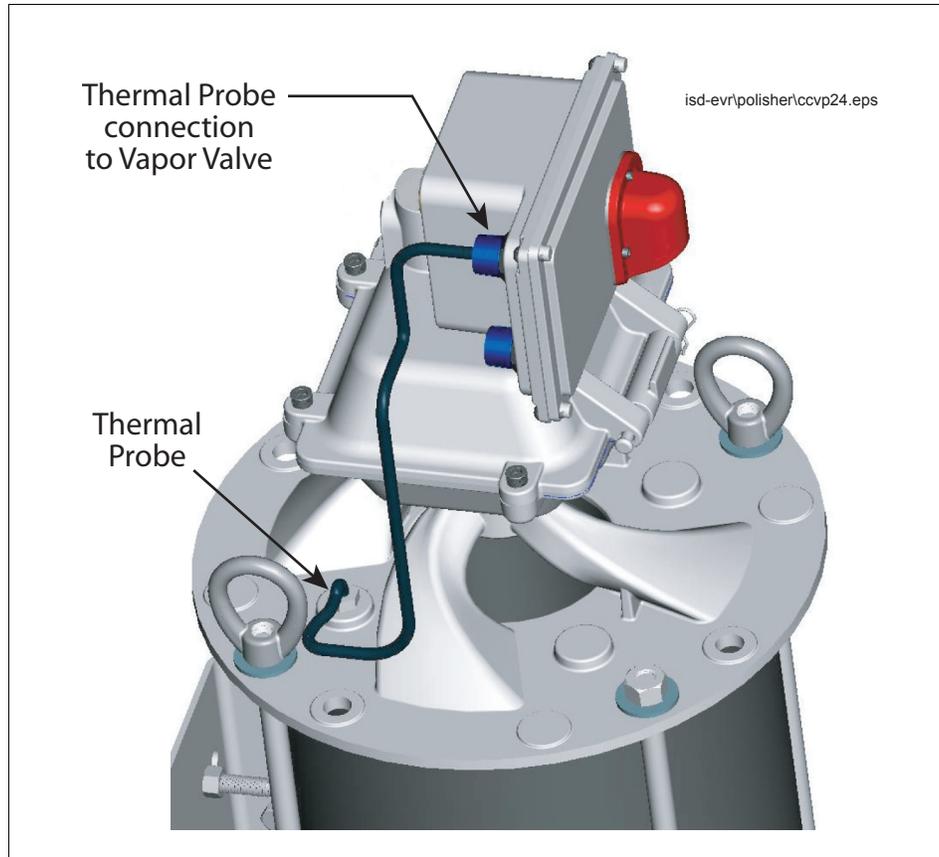


Figure 15. CCVP Thermal Probe

1. Remove the thermal probe cable connector from the back of the Vapor Valve assembly (see Figure 15).
2. Using a 9/16" open-end wrench, remove the thermal probe from the top of the CCVP.
3. Install and tighten the replacement Thermal Probe into its port in the CCVP and reconnect the cable to the Vapor Valve connector.
4. Run the CCVP integrity and Flow test.

