State of Oregon
Department of
Environmental
Quality

Equipment and Components

CARB Executive Order

VR-105-J

EMCO Wheaton Retail
Stage I Enhanced Vapor Recovery System

Exhibit 1

EMCO Wheaton Stage I Vapor Recovery System Equipment List

Equipment	Manufacturer/Model Number
Pressure/Vacuum Vent Valve	FFS PV-Zero Husky 5885 (Gas/E-85) OPW Model 723V
Spill Container[1]	EMCO Model A1004EVR-X Series Multi-port and Direct Burial Configurations Single and Double Wall Multi-Port X= 237, 242 or 248 Direct Burial (5 gallon) X= 003, 004, 005, 006, 010, 011, 012, 013, 210A, 210AB, 210S, 210SB, 211A, 211AB, 211S, 211SB, 316A, 316S, 317A, 317AS, 317S, 317SS Direct Burial (15 gallon) X= 215A, 215AB, 215S, 215SB, 216A, 216AB, 216S, 216SB
Drain Valve[2]	EMCO Model 494118
Drop Tube[3]	EMCO Model A0020EVR-X EMCO Model A0020EVRC-X X= 004, 005, 007 or 008
Straight Drop Tube with Overfill Prevention Device	EMCO Model A1100EVR-X X= 055, 056, 057 or 058 EMCO Model A1100EVR-X (anodize tube & collar) X= 055CF, 056CF, 057CF or 058CF
Riser Seal	EMCO Model 494096
Product Adaptor	EMCO Model A0030-124S
Vapor Adaptor	EMCO Model A0076-124S

[1] Drain Valves are an optional component for Product Spill Containers. Customers can install what is traditionally considered a Vapor Spill Container (Drain Valve Port Factory Plugged) in lieu of the Product Spill Container with a drain valve.

[2] For Product Spill Containers that contain a drain valve, only this component and model number specified above shall be installed or used.

[3] The A0020EVR has a sealing surface made by machine rolling the metal of the drop tube. The A0020EVRC has a machined collar that is installed on the drop tube.

Dust Caps	EMCO Model A0097-005 (product) EMCO Model A0099-X (vapor) X = 002 (no chain) or 003 (with chain) EMCO Model A0097-004LP (product) EMCO Model A0099-004LP (vapor) CompX CSP1-634LPC (product) CompX CSP3-1711LPC (vapor) CompX CSP2-634LPC (product) CompX CSP4-1711LPC (vapor) OPW 634LPC (product) OPW 1711LPC (vapor)
Tank Gauge Port Components	EMCO Model A0097-010 (Cap) EMCO Model A0030-014 (Adaptor)
Fuel Lock[4]	McGard FL1 – Stick Only Fuel Lock (125007) (Gas) McGard FL2 – Stick/Sampling Fuel Lock (125008) (Gas)
Bladder Plug	McGard PSI104 (Gas)
Emergency Vent	Exhibit 5 (for below-grade vaulted tank configuration)

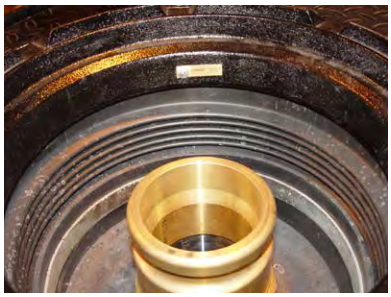
Table 1
Components Exempt from Identification Requirements

Component Name	Manufacturer	Model Number
Riser Seal	EMCO	494096
Drop Tube	EMCO	A0020EVR, A0020EVRC
Sump / Sump Lids / Spill Container Covers	Varies	Varies
Fuel Lock	McGard	FL1, FL2
Bladder Plug	McGard	PSI104

[4] If these components are installed, only those components and model numbers specified above shall be installed or used.

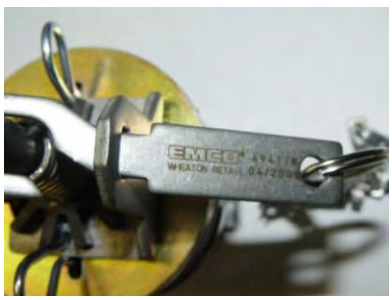
EMCO Wheaton Retail Corp.
Stage I EVR System Components
Permanent ID Information

Spill Containment



ID and Serial Number Tags for Model A1004EVR-X Series Multi-Port and Direct Burial Configurations

Drain Valve



Model 494118 Drain Valve

EMCO Wheaton Retail Corp.
Stage I EVR System Components
Permanent ID Information

Spill Containment

ID and Serial Number Tags for Model A1004EVR-X Series
Direct Burial Configuration with Stainless Steel Primary

Model A1004EVR-X Series Direct Burial Configuration with Stainless Steel Primary

EMCO Wheaton Retail Corp.
Stage I EVR System Components
Permanent ID Information

Rotatable Product Adapter

Model A0030-124S Swivel Fill Adapter

Rotatable Vapor Adapter

Model A0076-124S Swivel Vapor Adapter

Tank Gauge Port Adapter

Model A0030-014 ATG Probe Adapter

EMCO Wheaton Retail Corp.
Stage I EVR System Components
Permanent ID Information

Drop Tube w/ Overfill Prevention Valve

Model A1100EVR-X Series Overfill Prevention Valve

Upper Drop Tube and Collar Assembly

Non-Anodized

Anodized

Riser Seal

Model 494096 Riser Seal, Cast Iron

Model 494096 Real Seal, Stainless Steel

EMCO Wheaton Retail Corp.
Stage I EVR System Components
Permanent ID Information

Dust Caps

Model A0097-005 Fill Adapter Cap

Model A0099-002 and -003 Vapor Adapter Caps

Tank Gauge Port Cap

Model A0097-010 ATG Probe Adapter Cap

EMCO Wheaton Retail Corp.
Stage I EVR System Components
Permanent ID Information

Dust Caps

Model A0097-005 Fill Adapter Cap

Model A0099-002 and -003 Vapor Adapter Caps

Tank Gauge Port Cap

Model A0097-010 ATG Probe Adapter Cap

EMCO Wheaton Retail Corp.
Stage I EVR System Components
Permanent ID Information

Dust Caps

Model A0097-005 Fill Adapter Cap

Model A0099-002 and -003 Vapor Adapter Caps

Tank Gauge Port Cap

Model A0097-010 ATG Probe Adapter Cap

EMCO Wheaton Retail Corp.
Stage I EVR System Components
Permanent ID Information

Dust Caps

Model A0097-004LP Low Profile Fill Adapter Cap

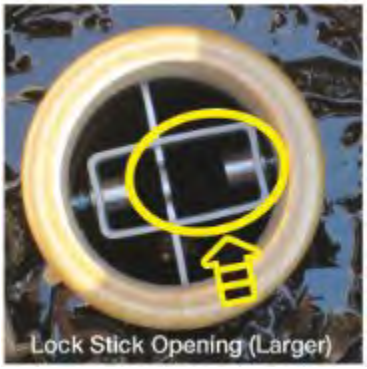
Model A0099-004LP Low Profile Vapor Adapter Caps

EMCO Wheaton Retail
Stage I EVR System Components
Permanent ID Information

OPW 634LPC Product Dust

OPW 1711LPC Vapor Dust

EMCO Wheaton Retail
Stage I EVR System Components
Permanent ID Information



McGard Fuel Lock Installation Position[5]

McGard Fuel Lock (FL1 on Left, FL2 on Right)

[5] Optional component, but if installed this picture shows the correct installation location in the pipe just below the Product Rotatable Adaptor in the drop tube.

EMCO Wheaton Retail
Stage I EVR System Components
Permanent ID Information

CompX CSP1-634LPC Product Dust Cap

CompX CSP3-1711LPC Vapor Dust Cap

CompX Tank Commander Lid
Locks onto CSP1-634LPC and CSP3-1711LPC Dust Caps

EMCO Wheaton Retail
Stage I EVR System Components
Permanent ID Information

CompX CSP2-634LPC Product Dust Cap

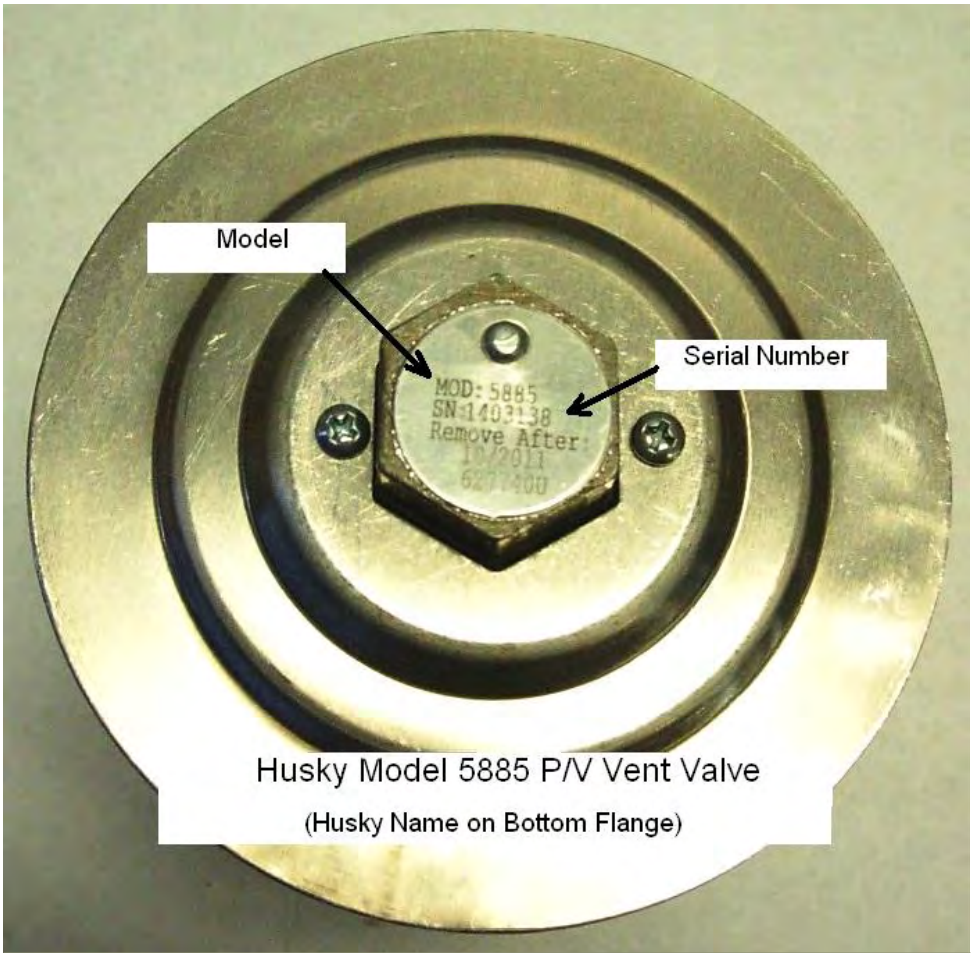
CompX CSP4-1711LPC Vapor Dust Cap

CompX Tank Commander Lid
Locks onto CSP2-634LPC and CSP4-1711LPC Dust Caps

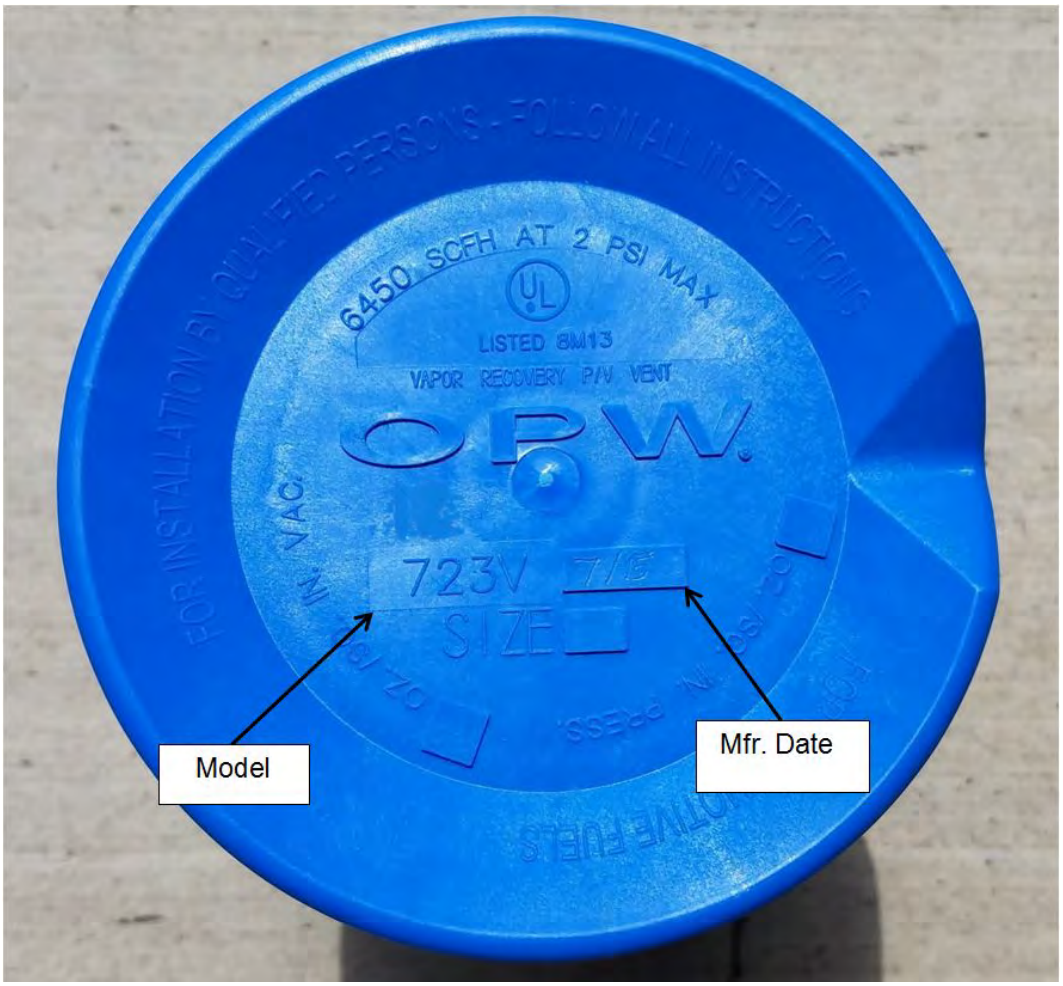
EMCO Wheaton Retail
Stage I EVR System Components
Permanent ID Information

FFS PV-Zero P/V Vent Valve
(Model and Serial Number on White Tag)

EMCO Wheaton Retail
Stage I EVR System Components
Permanent ID Information



EMCO Wheaton Retail
Stage I EVR System Components
Permanent ID Information



OPW Model 723V P/V Vent Valve

Exhibit 2

Installation, Maintenance, and Compliance Specifications

This exhibit contains the installation, maintenance and compliance standards and specifications applicable to an EMCO Wheaton Stage I Enhanced Vapor Recovery system installed in a gasoline dispensing facility (GDF).

General Specifications

1. Typical installations of the EMCO Wheaton Stage I EVR system are shown in Figures 2A, 2B, 2C and 2D of the full CARB Executive Order.

2. The EMCO Wheaton Stage I EVR system shall be installed, operated and maintained in accordance with this attachment, applicable Oregon Administrative Rules, and manufacturer's specifications.

3. Any repair or replacement of system components shall be done in accordance with this attachment, applicable Oregon Administrative Rules, and manufacturer's specifications.

4. The EMCO Wheaton Stage I EVR system shall comply with the applicable performance standards and performance specifications in CP-201.

5. Maintenance and repair of system components, including removal and installation of such components in the course of any required tests, shall be performed in accordance with this attachment, applicable Oregon Administrative Rules, and manufacturer's specifications.

Pressure/Vacuum Vent Valves For Storage Tank Vent Pipes

1. No more than three certified pressure/vacuum vent valves (P/V Valves) listed in Exhibit 1 shall be installed on any GDF underground storage tank system.

2. Compliance determination of the following P/V valve performance specifications shall be one of the following:

    a. The leak rate of each P/V valve shall not exceed 0.05 cubic feet per hour (CFH) at 2.0 inches of H_2O positive pressure and 0.21 CFH at -4.0 inches negative pressure as determined by TP-201.1E, Leak Rate and Cracking Pressure of Pressure/Vacuum Vent Valves (October 8, 2003).

    b. The positive pressure setting is 2.5 to 6.0 inches of H_2O and the negative pressure setting is 6.0 to 10.0 inches of H_2O as determined by TP-201.1E, Leak Rate and Cracking Pressure of Pressure/Vacuum Vent Valves (October 8, 2003).

3. Compliance determination of the P/V valve performance specifications in items 2a and 2b for the FFS PV-Zero P/V vent valve shall be conducted with the valve remaining in its installed position on the vent line(s). The PV-Zero section of this attachment outlines the equipment needed to test the valve in its installed position.

4. A manifold may be installed on the vent pipes to reduce the number of potential leak sources and P/V valves installed. Vent pipe manifolds shall be constructed of steel pipe or an equivalent material that has been listed for use with gasoline. If a material other than steel is used, the GDF operator shall make available information demonstrating that the material is compatible for use with gasoline. A tee may be located in a different position, or fewer vent pipes may be connected, or more than one P/V valve may be installed on the manifold.

5. Each P/V valve shall have permanently affixed to it a yellow, gold, or white colored label with black lettering stating the positive and negative cracking pressures and leak rates.

Positive pressure setting: 2.5 to 6.0 inches H_2O
Negative pressure setting: 6.0 to 10.0 inches H_2O
Positive Leak rate: 0.05 CFH at 2.0 inches H_2O
Negative Leak rate: 0.21 CFH at –4.0 inches H_2O

Rotatable Product and Vapor Recovery Adaptors

1. Rotatable product and vapor recovery adaptors shall be capable of at least 360-degree rotation and have an average static torque not to exceed 108 pound-inch (9 pound-foot). Use EMCO Wheaton Torque Test Tool Part Number 494240 or any torque test tool stated in TP-201.1B. Compliance with this requirement shall be demonstrated in accordance with TP-201.1B, Static Torque of Rotatable Stage I Adaptors (October 8, 2003).

2. The vapor adaptor poppet shall not leak when closed. Compliance with this requirement shall be verified by the use of commercial liquid leak detection solution, or by bagging, when the vapor containment space of the underground storage tank is subjected to a non-zero gauge pressure. (Note: leak detection solution will detect leaks only when positive gauge pressure exists.)

Vapor Recovery and Product Adaptor Dust Caps

Dust caps with intact gaskets shall be installed on all Stage I tank adaptors.

Product Spill Container Drain Valve

The spill container drain valve is configured to drain liquid directly into the drop tube and is isolated from the underground storage tank ullage space. The leak rate of the drain valve shall not exceed 0.17 CFH at 2.00 inches H_2O. Depending on the presence of the drop tube overfill prevention device, compliance with this requirement shall be demonstrated in accordance with either TP-201.1C, Leak Rate of Drop Tube/Drain Valve Assembly (October 8, 2003), or TP-201.1D, Leak Rate of Drop Tube Overfill Prevention Devices and Spill Container Drain Valves (October 8, 2003).

Product Spill Container Factor Installed Drain Plug (Optional)

The factory installed spill container plug in the drain valve port shall not leak. The absence of vapor leaks shall be verified with the use of commercial liquid leak detection solution (LDS) when the vapor space of the fill pipe is subjected to a positive gauge pressure.

Stage I Drop-Tubes with Overfill Prevention Devices

1. The Drop Tube Overfill Prevention Device (overfill device) is designed to restrict the flow of gasoline delivered to the underground storage when liquid levels exceed a specified capacity. The drop tube overfill device is not a required component of the vapor recovery system, but maybe installed as an optional component of the system. Other requirements may apply.

2. The leak rate of Stage I drop-tube overfill prevention devices shall not exceed 0.17 CFH at 2.0 inches H_2O). The leak rate shall be determined in accordance with TP-201.1D, Leak Rate of Drop Tube Overfill Prevention Devices and Spill Container Drain Valves (October 8, 2003).

3. The discharge opening of the fill-pipe must be entirely submerged when the liquid level is six inches above the bottom of the tank.

Stage I Drop-Tubes without Overfill Prevention Devices

1. Drop tubes that do not have an overfill prevention device shall not leak and shall be tested in accordance with TP-201.1C, Leak Rate of Drop Tube/Drain Valve Assembly (October 8, 2003).

2. The discharge opening of the fill-pipe must be entirely submerged when the liquid level is six inches above the bottom of the tank.

Vapor Recovery Riser Offset

1. The vapor recovery tank riser may be offset from the tank connection to the vapor recovery Spill Container provided that the maximum horizontal distance (offset

distance) does not exceed twenty (20) inches.

2. The vapor recovery riser may be offset up to 20 inches horizontal distance with use of commercially available, four (4) inch diameter steel pipe fittings.

Tank Gauge Port Components

The tank gauge adaptor and cap are paired. Therefore, an adaptor manufactured by one company shall be used only with a cap manufactured by the same company. Figure 2E of the full CARB Executive Order shows a typical installation of tank gauge port components.

Connections and Fittings

All connections and fittings not specifically certified with an allowable leak rate shall not leak. The absence of vapor leaks shall be verified with the use of commercial liquid leak detection solution, or by bagging, when the vapor containment space of the underground storage tank is subjected to a non-zero gauge pressure. (Note: leak detection solution will detect leaks only when positive gauge pressure exists.)

Maintenance Records

Each GDF operator/owner shall keep records of maintenance performed at the facility. Such record shall be maintained on site or otherwise readily available for review during the course of an on-site inspection. Additional information may be required in accordance with permit or OAR requirements. The records shall include the maintenance or test date, repair date to correct test failure, maintenance or test performed, affiliation, telephone number, and the name of the individual conducting maintenance or test. An example of a Stage I Maintenance Record is shown in Figure 2H.

Table 2-1
Gasoline Dispensing Facility Compliance Standards and Specifications

Component / System	Test Method	Standard or Specification
Rotatable Phase I Adaptors	TP-201.1B	Minimum, 360-degree rotation Maximum, 108 pound-inch average static torque
Overfill Prevention Device	TP-201.1D	Leak rate ≤ 0.17 CFH at 2.00 inches H_2O
Spill Container Drain Valve	TP-201.1D	Leak rate ≤ 0.17 CFH at 2.00 inches H_2O
P/V Vent Valve	TP-201.1E	Positive pressure setting: 2.5 to 6.0 inches H_2O Negative pressure setting: 6.0 to 10.0 inches H_2O Positive Leak rate: 0.05 CFH at 2.0 inches H_2O Negative Leak rate: 0.21 CFH at -4.0 inches H_2O
Vapor Recovery System	TP-201.3	As specified in TP-201.3 and/or CP-201
All connections and fittings certified without an allowable leak rate	Leak Detection Solution or bagging	No Leaks

Table 2-2
Maintenance Intervals for System Components[2]

Manufacturer	Component	Maintenance Interval
Husky	Pressure/Vacuum Vent Valve	Annual
FFS	Pressure/Vacuum Vent Valve	Annual
OPW	Pressure/Vacuum Vent Valve	Annual
EMCO Wheaton	Tank Gauge Port Components	Annual
EMCO Wheaton	Dust Caps	Annual
CompX Security Products	Dust Caps	Annual
OPW	Dust Caps	Annual
EMCO Wheaton	Overfill Prevention Device	Annual
EMCO Wheaton	Rotatable Phase I Product and Vapor Adaptors	Annual
EMCO Wheaton	Spill Container Drain Valve	Quarterly
EMCO Wheaton	Spill Container	Quarterly and After Each Delivery

[2] Maintenance must be conducted within the interval specified from the date of installation and at least within the specified interval thereafter. Maintenance requirements can be found in the CARB-Approved IOM.

Figure 2H

Example of a GDF Maintenance Record

Date of Maintenance/ Test/Inspection/Failure	Repair Date To Correct Test Failure	Maintenance/Test/Inspection Performed and Outcome	Affiliation	Name of Individual Conducting Maintenance or Test	Telephone Number

State of Oregon
Department of
Environmental
Quality

Installation, Operation and Maintenance Manual

For Executive Order

VR-105-J
EMCO Wheaton Retail
Stage I Enhanced Vapor Recovery System

NOTICE:

This Installation, Operation and Maintenance Manual for the EMCO Wheaton Retail Stage I EVR System describes the tools and methods required to install and maintain the EMCO Stage I EVR System. While Oregon DEQ does not require specific certification or training to install, maintain, or repair stage I EVR systems, owners or operators may elect to contract with certified technicians.

Note: CARB requires that only technicians trained and certified by EMCO (i.e. EMCO Certified Technicians) are able to perform installation, maintenance or repairs of components manufactured by EMCO or the warranty will be void. A list of EMCO certified technicians can be viewed on EMCO Wheaton Retail's website at www.emcoretail.com.

To schedule a training class, EMCO can be contacted at the following:

Jose E. Rodriguez
Director of Technical Services,
CARB Liaison, West Coast Sales & Marketing
EMCO Wheaton Retail Corporation
Phone: 619-846-9882
Email: jerodriguezsd@aol.com

Note: CARB requires that only technicians trained and certified by FFS (i.e. FFS Certified Technicians) are able to perform installation, maintenance or repairs of the PV-Zero, manufactured by FFS, or the warranty will be void. A list of FFS Certified Technicians can be viewed at http://www.franklinfueling.com/service/

To schedule a training class, FFS can be contacted at the following:

John Covington Allan Busch, or Steve Langlie
Enhanced Vapor Recovery Systems
Franklin Fueling Systems
Phone: 800-225-9787

Email: covington@franklinfueling.com
busch@franklinfueling.com
langlie@franklinfueling.com

Note: CARB requires that only technicians trained and certified by OPW (i.e. OPW Certified Technicians) are able to perform installation, maintenance or repairs of components manufactured by OPW or the warranty will be void. A list of OPW Certified Technicians can be viewed at http://www.opw-fc.com.

To schedule a training class, OPW can be contacted at the following:

OPW Fueling Components
Phone: 800-422-2525
Web: www.opw-fc.com

It is the responsibility of each service provider or technician to be familiar with the current requirements of state, federal and local codes for installation and repair of gasoline dispensing equipment. It is also the responsibility of the service provider or technician to be aware of all necessary safety precautions and site safety requirements to assure a safe and trouble free installation.

Any hazardous waste generated from installation, maintenance and/or cleaning activities must be disposed of properly.

Summary of Guidelines for Maintenance Activities Required of the EMCO Wheaton Retail Stage I EVR System[1]

Component — **Interval**

Pressure/Vacuum Vent Valve: Annually
FFS Model PV-Zero

1.) Visually inspect the housing, pipe, fittings and rain cap for obvious signs of damage, missing parts or fluid leaks.
2.) Visually inspect the rain cap from ground level for signs of bird's nests or insect activity.
3.) Every year drain and inspect fill fluid per the **Fluid Inspection Procedures**.

Pressure/Vacuum Vent Valve:
Husky Model 5885 Annually

1.) Remove the screws that hold the top cover on.
2.) Remove any debris that might be sitting inside the lower cover.
3.) Check the drain holes in the lower cover for blockage.
4.) The two (2) screens should not be removed.
5.) Reinstall the top cover and retaining screws.
6.) Tighten the screws firmly.

OPW Model 723V Annually

Remove and inspect filter screens – clean or replace as necessary. Test as necessary.
Upper Screen Maintenance:
See instructions on page 138 of the CARB EO IOM.
Lower Screen Maintenance:
See instructions on page 139 of the CARB EO IOM

Spill Containment: Quarterly &
EMCO A1004EVR-X Single or Double Wall After Each Delivery

1.) Quarterly verify that the inside of the A1004EVR Spill Containment bucket is free of all dirt, gravel, debris, etc. Should cleaning be required, wipe the inside wall and bottom of the A1004EVR Spill Containment bucket using soapy water and a disposable towel.
2.) After each delivery, the station operator must remove any standing gasoline from the inside of the A1004EVR Spill Containment.
    a. For spill containment buckets that do not contain a drain valve, the fuel must be removed manually. Any components that become contaminated with gasoline must be disposed of properly.
    b. For spill containment buckets that contain the #494118 Drain Valve, if the gasoline does not drain, refer to the #494118 drain valve preventive maintenance instructions.

Drain Valve Assembly (if equipped): Quarterly
EMCO 494118

1.) Quarterly test the operation of the drain valve assembly by pulling up on the chain located inside the A1004EVR Spill Containment bucket.
2.) If gasoline does not drain when actuating the drain valve assembly perform steps (a) through (d) below:
    a. Remove the filter from the drain valve. Using a pair of needle nose pliers, remove both cotter pins and disassemble the linkage from the top of the drain valve. Soak the filter in soapy water and use

[1] **These maintenance requirements shall not circumvent use of the manufacturer's maintenance instructions. Maintenance contractors or owner/operators shall refer to the manufacturers complete installation and maintenance instructions for the EMCO Wheaton Retail System to ensure that all maintenance and torque requirements are met.**

Component **Interval**

Drain Valve Assembly (if equipped): **Quarterly**
EMCO 494118 (Continued)

high pressure air to clean and remove all debris. Replace the filter #569131 only if the screen is damaged.

b. Using the Emco Wheaton Retail #493820 Drain Wrench unscrew the drain valve and remove from the bottom of the A1004EVR Spill Containment bucket. Soak the drain valve in soapy water and use high pressure air to clean and remove all debris. Replace the flat gasket #567108 before re-installing.
c. To re-install the drain valve assembly, refer to installation instruction steps 3 through 5. Verify leak tightness integrity of the drain valve assembly by performing CARB test procedure TP-201.1D.
d. If the drain valve assembly fails to pass CARB test procedure TP-201.1D, replace with new and refer to installation instructions steps 1 through 5.

Dust Caps:
EMCO A0097-005 Product
EMCO A0097-004LP Product **Annually**

1.) Annually verify that the gasket seal is installed and properly secured and is free of tears. If cap fails to comply, replace with new cap.

EMCO A0099-X Vapor: **Annually**
X=002, No Chain or 003, With Chain
EMCO A0099-004LP Vapor

1.) Annually verify that the gasket seal is installed and properly secured and is free of tears. If cap fails to comply, replace with new cap.

All "non-EMCO" Dust Caps: **Annually**

1.) Visually inspect the seal in cap and replace if damaged or missing.

Product Adaptor:
EMCO A0030-124S **Every 2 years**

Static Torque Test:

1.) Using the EMCO Wheaton Retail #494240 Swivel Adaptor Torque Wrench, every 24 months verify the static torque of the swivel adaptor by performing CARB test procedure TP-201.1B.
2.) If the swivel adaptor fails to meet the static torque test requirements, replace both O-rings with the EMCO Wheaton O-ring kit #494301.

Leak Tightness Integrity Test:

1.) Every 24 months verify leak tightness integrity of the swivel adaptor by performing CARB test procedure TP-201.1D. 2.) If the swivel adaptor fails to meet the leak tightness integrity test requirements, replace both O-rings with the EMCO Wheaton O-ring kit #494301 and/or gasket #568793.

Vapor Adaptor:
EMCO A0076-124S **Every 2 years**

Static Torque Test:

1.) Using the EMCO Wheaton Retail #494240 Swivel Adaptor Torque Wrench, every 24 months verify the static torque of the swivel adaptor by performing CARB test procedure TP-201.1B.

Component	**Interval**

Vapor Adaptor:
EMCO A0076-124S (continued) **Every 2 years**

2.) If the swivel adaptor fails to meet the static torque test requirements, replace both O-rings with the EMCO Wheaton O-ring kit #494301.

Leak Tightness Integrity Test:

1.) Every 24 months verify leak tightness integrity of the swivel adaptor by performing CARB test procedure TP-201.1D. 2.) If the swivel adaptor fails to meet the leak tightness integrity test requirements, replace both O-rings with the EMCO Wheaton O-ring kit #494301 and/or gasket #568793.

Extractor Assembly:
EMCO A0079-X **None Required**
X=043, 044, 050, 051, 052, 150 or 152

1.) No preventative maintenance is required for this product.

Extractor Cage:
EMCO A0179-002 **None Required**

1.) No preventative maintenance is required for this product.

Ball Float Valve:
EMCO A0075-X **None Required**
X=001, 002, 004, 006, 010, 013, 015 or 017

1.) No preventative maintenance is required for this product.

Riser Seal:
EMCO 494096 **Every 2 years**

1.) Every 2 years verify leak tightness integrity of the riser seal by performing CARB test procedure TP-201.1D. 2.) If the riser fails to meet the leak tightness integrity test requirements, replace the bottom O-ring with the EMCO Wheaton O-ring kit #494242.

Drop Tube Overfill Prevention Device:
EMCO A1100EVR **Annually**

1.) Annually, conduct a visual inspection of the flapper valve assembly located inside the A1100EVR Overfill Prevention Valve. Begin by removing the spill containment lid and fill adaptor cap, looking down over the fill opening, verify that the flapper valve assembly is open and free of any foreign objects that can block or restrict the flow of gasoline into the underground storage tank during a fuel delivery.

2.) Every 2 years, verify leak tightness integrity of the A1100EVR Overfill Prevention Valve by performing CARB test procedure TP-201.1D.

Straight Drop Tube:
EMCO A0020EVR Flared Collar & A0020EVRC Machined Collar **Every 2 years**

1.) Every 2 years, verify leak tightness integrity of the A0020EVR or A0020EVRC Straight Drop Tube by performing CARB test procedure TP-201.1D.

2.) If the A0020EVR or A0020EVRC Straight Drop Tube fails to meet the leak tightness integrity test requirements, replace the drop tube O-ring with the EMCO Wheaton O-ring kit #569461.

Component	**Interval**
Tank Gauge Port Components:	
EMCO A0097-010 Cap	**Annually**

1.) Annually verify that the gasket seal is installed and properly secured and is free of tears. If cap fails to comply, replace with new cap.

EMCO A0030-014 Adaptor **Every 2 years**

Leak Tightness Integrity Test:

1.) Every 2 years verify leak tightness integrity of the probe adaptor by performing CARB test procedure TP-201.3. 2.) If the probe fails to meet the leak tightness integrity test requirements, replace the gasket #568793.

Summary of Component Torque Values of the EMCO Wheaton Retail Stage I EVR System

Component	Tool Required	Torque Value
Pressure/Vacuum Vent Valve:		
Husky Model 5885, 2-inch threaded	Standard Wrench and Socket	20 to 50 ft-lbs
FFS Model PV-Zero, 3-inch threaded	Chain/Strap Wrench	See Page 4 of the PV-Zero IOM Document for Specific Instructions
OPW Model 723V, 2-inch threaded	Standard Wrench	35 to 55 ft-lbs
Spill Containment:		
EMCO A1004EVR Single or Double Wall	EMCO #494241 Spill Containment Wrench	100 to 150 ft-lbs
Drain Valve Assembly:		
EMCO 494118	EMCO #493820 Drain Wrench	13 to 15 ft-lbs
Dust Caps:		
EMCO A0097-005 Product	None Required	None Required
EMCO A0097-004LP Product	None Required	None Required
EMCO A0099-004LP Vapor	None Required	None Required
EMCO A0099-X Vapor (all models)	None Required	None Required
All Non-EMCO Dust Caps	None Required	None Required
Product Adaptor:		
EMCO A0030-124S	EMCO #A0081-001C Adaptor Wrench	60 to 75 ft-lbs
Base Screws (Part of A0030-124S)	Standard Wrench and Socket	20 in-lbs
Vapor Adaptor:		
EMCO A0076-124S	EMCO #A0081-001C Adaptor Wrench	60 to 75 ft-lbs
Base Screws (Part of A0076-124S)	Standard Wrench and Socket	20 in-lbs
Extractor Assembly:		
EMCO A0079-X (all models)	Standard Chain Wrench with a ½ inch Off-Set	100 to 150 ft-lbs
Extractor Cage:		
EMCO A0179-002	EMCO #A0560-003 Extractor Wrench	25 to 35 ft-lbs
Ball Float Valve:		
EMCO A0075-X (all models)	Strap Wrench with a ½ inch Off-Set	15 to 25 ft-lbs
Riser Seal:		
EMCO Wheaton Retail #494096	EMCO #A0081-001C Adaptor Wrench	80 ft-lbs
Center Insert (Part of #494096)	EMCO #494120 Riser Seal Wrench	35 to 45 ft-lbs
Drop Tube Overfill Prevention Device:		
EMCO A1100EVR	None Required	None Required
Straight Drop Tube:		
EMCO A0020EVR Flared Collar	None Required	None Required
EMCO A0020EVRC Machined Collar	None Required	None Required
Tank Gauge Port Components:		
EMCO A0097-010 Cap	None Required	None Required
EMCO A0030-014 Adaptor		60 to 75 ft-lbs

Base Screws (Part of A0030-014)	EMCO #A0081-001C Adaptor Wrench Standard Wrench and Socket	20 in-lbs

EMCO Wheaton Retail Stage I EVR Equipment Installation Checklist for Installing Components per CARB Executive Order VR-105

Date:_____ Signature:_____

Site Location and Name:	Installing Contractor:
Street Address:	Business Address:
City/State/Zip:	City/State/Zip:
Contact/Phone:	Contact/Phone:
Installing Technician (name):	Technician Certification Number:

Tank Number:_____ Product Grade:_____ Capacity (Gal):_____

Tank Number:_____ Product Grade:_____ Capacity (Gal):_____

Tank Number:_____ Product Grade:_____ Capacity (Gal):_____

Tank Number:_____ Product Grade:_____ Capacity (Gal):_____

Note: Because this checklist serves a dual purpose as and installation and retrofit checklist, there are some items that will be non-applicable (e.g. cut riser pipe). The technician should note "**N/A**" for Non-Applicable in the "Yes/No" box in those instances.

Yes/No	Initials	
		1. Is all the installed equipment for the Stage I EVR listed in CARB Executive Order VR-105? **Note: All Phase I EVR installed equipment must be listed in an Executive Order (E.O.) If not VR-105, specify in this checklist which component was installed. .**
Yes/No	Initials	
		2. **A1004EVR Spill Containment Single or Double Wall Configurations**
Yes/No	Initials	
		2a. Before installing the fill and vapor spill containment buckets verify that the 4 inch diameter riser pipes have been properly sized and threads cut to either NPT or BSP standards.
Yes/No	Initials	
		2b. Before installing the fill and vapor spill containment buckets verify that the top edges of the 4 inch diameter riser pipes have been filed flat and square with threads free of all debris to insure a proper sealing surface.
Yes/No	Initials	
		2c. Using a non-hardening, gasoline resistant pipe thread seal compound, manually install the fill and vapor spill containment buckets on to the 4 inch diameter riser pipes and torque between 100 – 150 ft-lbs.
Note: For installations of the EMCO A0020EVR or A0020EVRC Straight Drop Tube, proceed to Step 4.		
Yes/No	Initials	
		3. **A1100EVR Overfill Prevention Valve (OPV)** **IMPORTANT: Do not apply a 45° miter cut to the very bottom of the lower drop tube.**
Yes/No	Initials	3a. Has the A1100EVR OPV been properly sized for the required tank burial depth and tank riser

		pipe length?

EMCO Wheaton Retail Stage I EVR Equipment Installation Checklist for Installing Components per CARB Executive Order VR-105 (Continued)

Note: If the underground storage tank is also equipped with a ball float vent valve, the ball float vent valve cannot extend below the shut-off point of the EMCO A1100EVR overfill prevention valve.		
Yes/No	Initials	3b. Has the A1100EVR collar and lower drop tube been properly assembled?
Yes/No	Initials	3c. Once completely assembled, has the A1100EVR OPV sealant cured for a minimum of 24 hours before installing into the underground storage tank (UST)?
Yes/No	Initials	A1100 EVR OPV Sealant Applied Date: Time: _____
Yes/No	Initials	A1100 EVR OPV Installed into UST Date: Time: _____
Yes/No	Initials	3d. Once completely assembled, has the A1100EVR OPV passed the leak tightness integrity test (≤ 0.17 cfh @ 2.00" wc) before installing into the UST?
Yes/No	Initials	3e. Before installing the A1100EVR OPV into the tank fill riser pipe, verify that the sealing O-ring is Installed and properly secured. Proceed to step 5.
Note: When installing the EMCO A0020EVR or A0020EVRC Straight Drop Tube, a Ball Float Valve must be installed to serve as an overfill prevention device.		
Yes/No	Initials	**4. A0020EVR Flared Collar or A0020EVRC Machined Collar Straight Drop Tube IMPORTANT: Do not apply a 45° miter cut to the very bottom of the lower drop tube.**
Yes/No	Initials	4a. Has the A0020EVR or A0020EVRC been properly sized for the required tank burial depth and tank riser pipe length?
Yes/No	Initials	4b. Before installing the A0020EVR or A0020EVRC into the tank fill riser pipe, verify that the sealing O-ring is installed and properly secured.
Yes/No	Initials	**5. 494096 Riser Seal**
Yes/No	Initials	5a. Before installing the 494096 into the fill side spill containment bucket, verify that the sealing O-ring is installed and properly secured. Torque to 80 ft-lbs.
Yes/No	Initials	5b. Has the center insert of the 494096 been manually installed and torqued between 35 – 45 ft-lbs.?
Yes/No	Initials	**6. A0076-124S Vapor and A0030-124S Product Rotatable Adaptors**
Yes/No	Initials	6a. Before installing the A0076-124S, verify that the top edge of the top containment nipple has

		been filed flat and square with threads free of all debris to insure a proper sealing surface.

EMCO Wheaton Retail Stage I EVR Equipment Installation Checklist for Installing Components per CARB Executive Order VR-105 (Continued)

Yes/No	Initials	
		6b. Before installing the A0076-124S and A0030-124S onto the vapor and fill spill buckets, verify that the flat gaskets for each are installed and properly secured.
Yes/No	Initials	
		6c. **IMPORTANT: Do not use pipe thread sealant compound when installing the rotatable adaptors.**
Yes/No	Initials	
		6d. Have the A0076-124S and A0030-124S set screws been installed with lock-tite model #222MS threadlocker and torqued to 20 in-lbs?
Yes/No	Initials	
		7. A0097-004LP or A0097-005 Product and A0099-004LP or A0099-002,003 Vapor Dust Caps (if using caps from a different manufacturer, write in NO and skip to section 8).
Yes/No	Initials	
		7a. Before installing the A0097-004LP or A0097-005 and A0099-004LP or A0099-002,003 caps onto the appropriate rotatable adaptors, verify that the gasket seals are free of tears and installed and properly secured. If a cap fails to comply, replace with new cap. Proceed to step 9.
Yes/No	Initials	
		8. All "non-EMCO" Product and Vapor Dust Caps (if EMCO caps are used, write in NO and skip to section 9).
Yes/No	Initials	
		8a. Provide the manufacturer name and model number for the product and vapor dust caps used. Refer to the appropriate section of the Installation, Operation and Maintenance Manual (IOM) for proper installation instructions.
Yes/No	Initials	
		Product Cap Manufacturer:_____ Model #:_____
Yes/No	Initials	
		Vapor Cap Manufacturer:_____ Model #:_____
Yes/No	Initials	
		9. A0030-014 ATG Probe Adaptor
Yes/No	Initials	
		9a. Before installing the A0030-014, verify that the top edge of the tank riser pipe has been filed flat and square with threads free of all debris to insure a proper sealing surface.
Yes/No	Initials	
		9b. Before installing the A0030-014 onto the riser pipe, verify that the flat gasket is installed and properly secured. Torque between 60 – 75 ft-lbs.
Yes/No	Initials	
		9c. **IMPORTANT: Do not use pipe thread sealant compound when installing the ATG probe adaptor.**
Yes/No	Initials	
		9d. Has the A0030-014 set screws been installed with lock-tite model #222MS threadlocker and torqued to 20 in-lbs.?
Yes/No	Initials	
		10. A0097-010 ATG Probe Adaptor Cap

EMCO Wheaton Retail Stage I EVR Equipment Installation Checklist for Installing Components per CARB Executive Order VR-105 (Continued)

Yes/No	Initials	
		10a. Before installing the A0097-010 onto the appropriate ATG probe adaptor, verify that the gasket seal is installed and properly secured and is free of tears.
Yes/No	Initials	
		10b. Has the ATG probe signal cable been properly installed and secured by manually tightening the leak tight connector nut?
Yes/No	Initials	
		11. A0079 Extractor Assembly (optional)
Yes/No	Initials	
		11a. Has the A0079 been manually installed onto the tank bung collar using a non-hardening, gasoline resistant pipe seal compound and torqued between 100 – 150 ft-lbs.?
Yes/No	Initials	
		12. Pressure/Vacuum Vent (P/V) Valve
Yes/No	Initials	
		12a. Provide the manufacturer name, model number and quantity of the P/V valve(s) installed. Refer to the appropriate section of the full CARB IOM for proper installation instructions.
Yes/No	Initials	
		P/V Vent Manufacturer:_____ Model:_____ Quantity: _____