



Oil Purification Systems, Inc.

Installation Instructions

for

Peterbilt Trucks

Equipped with the

Caterpillar C-13 Engine

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Safety Precautions

- Before beginning work, ensure the engine has sufficiently cooled to prevent burn injuries.
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General Precautions

- Ensure the voltage of the system being installed matches that of the truck.
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Notes for all Hose Connections:

- Use a heat gun or soak the hose ends in hot water to expand them to ease assembling hoses over barbed fittings. Be sure to shake off any water from the hoses.
 - Apply light oil such as silicon spray or WD40 inside the hose end to ease the assembly of the adaptor into the hose end. *DO NOT* use grease or engine oil for this purpose.
 - Slide a ½" hose over each ¼" hose at those places where the hose comes close to moving or vibrating parts. This is to protect the ¼" hose from abrasion. Also add the ½" hose to the parts of the hose that bend. This will help the ¼" hose hold its shape and prevent crimping.
 - Route all hoses away from extremely hot components, such as exhaust pipes and the turbos.
 - Route all hoses away from moving parts, such as the radiator fan.
 - Use ties to secure the hoses in place.
 - Ensure the hose is the proper length before sliding them over the barbed hose fittings, as hoses must be cut to be removed from the fittings.
 - Leave a slight amount of slack in the hose to allow for engine vibration.
 - Use teflon tape on all NTP threads (used on the hose adaptors).
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Before Installing This System

It is recommended that you perform an oil change on the vehicle before installing this system.

- Be sure to handle used oil in compliance with all applicable laws. This will usually include making provisions for recycling.
 - Always wear oil resistant gloves when handling used oil.
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Technical Support Call Toll Free (866) OILPURE

Section 1 – Mounting the Evaporator

1. Near the center of the vehicle, remove the nuts that hold the horn bracket and windshield wiper motor to the firewall.
2. Replace the bolts that hold the horn bracket and wiper motor in place with 1-1/4" long ¼-20 bolts (to accommodate the added thickness of the evaporator mounting bracket).
3. On the passenger side of the vehicle, remove the two right side nuts (of the four total) that hold the hood stay in place.
4. Attach the evaporator to the supplied bracket. Insert the supplied bolts in from back of the bracket and use nuts on the front to attach the evaporator.
5. Mount the Evaporator bracket to the firewall.

Near the center of the vehicle, position the bracket over the two bolts that hold the left side of the horn bracket in place. The horn bracket goes over the evaporator bracket and the evaporator bracket goes over the wiper motor bracket.

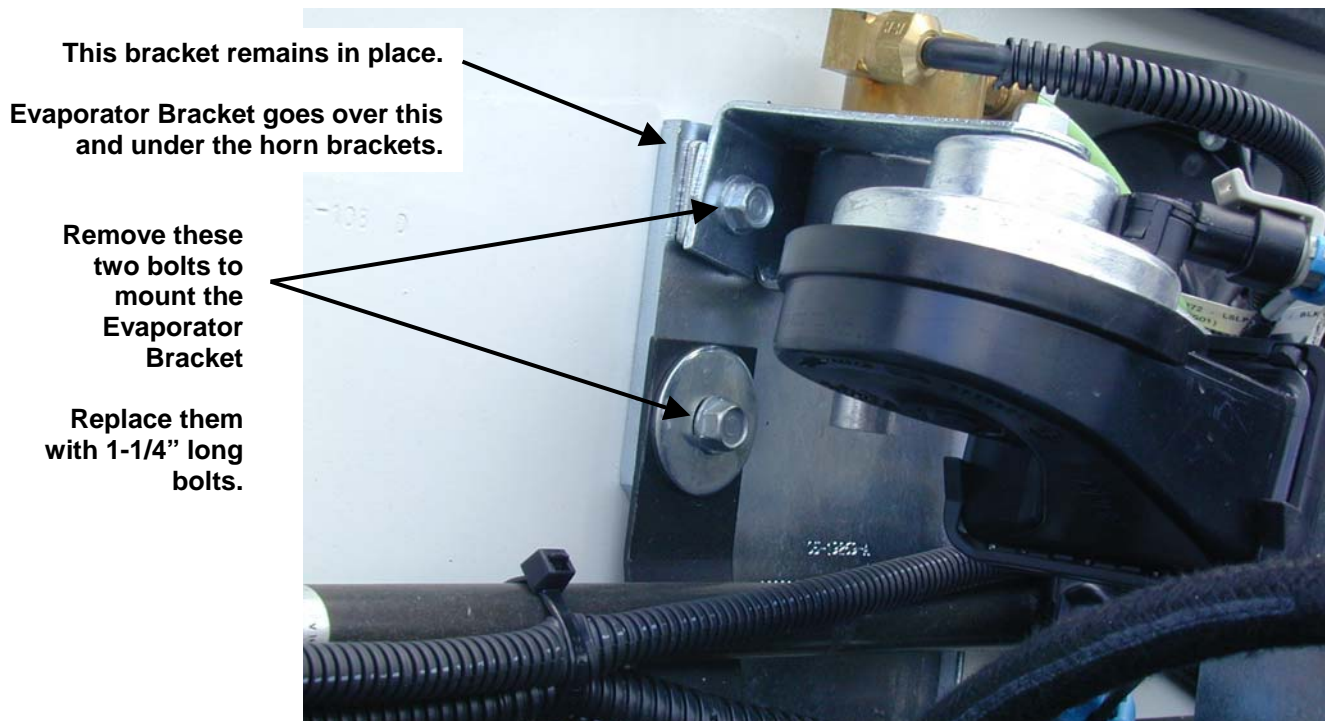


Figure 1 – The Horn Bracket Bolts

6. On the passenger side of the vehicle, position the bracket over the two hood stay bolts.



Remove these nuts from the Passenger side hood stay bracket and fit the Evaporator bracket over the hood stay bracket.

Figure 2 – The Passenger Side Hood Stay

7. Use the original hood stay nuts to tighten the bracket in place. See Figures 3 and 4.



Figure 3 – Attaching the Passenger Side of the Evaporator Mounting Bracket

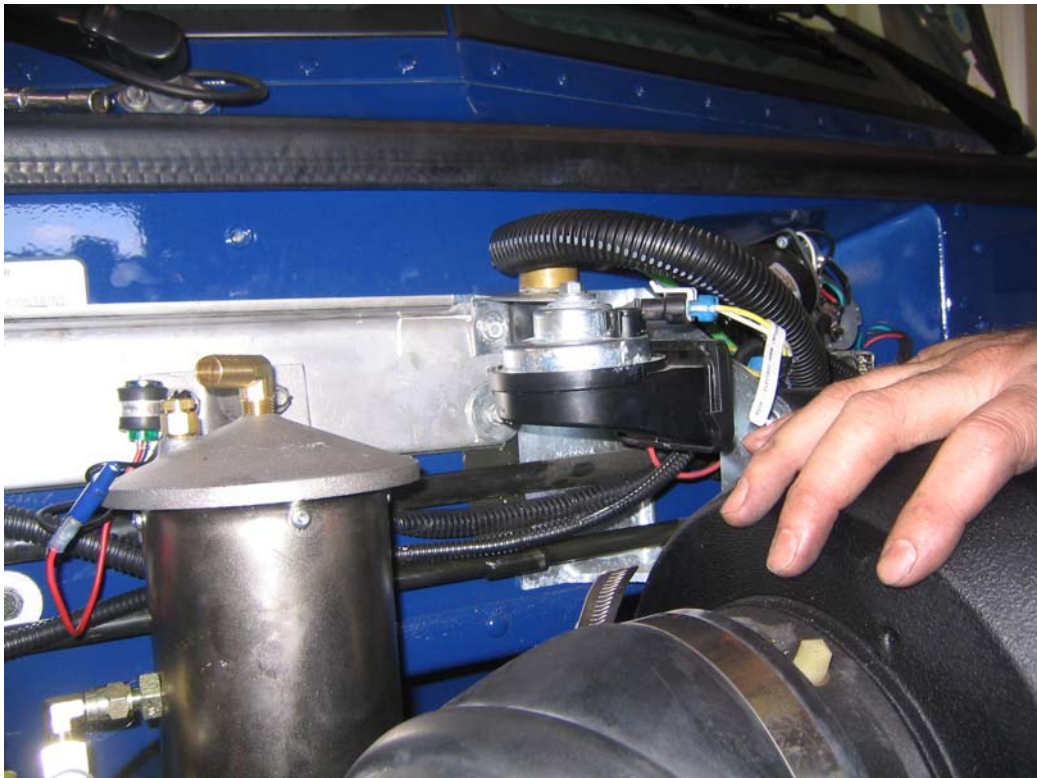


Figure 4 – Attaching the Driver Side of the Evaporator Mounting Bracket

Section 2 – Mounting the Filter

The Filter mounts to the passenger side of the frame, about ½ way between the turbo halves.

IMPORTANT NOTE: Before drilling into the frame, check inside the frame rail for hoses or wiring that may be routed there. If hoses or wiring are present, move them out of the way or select a different location on which to mount the filter.

1. Drill two 5/16” holes in the frame, about 2” from the top, using the filter bracket as a template. See Figure 5.

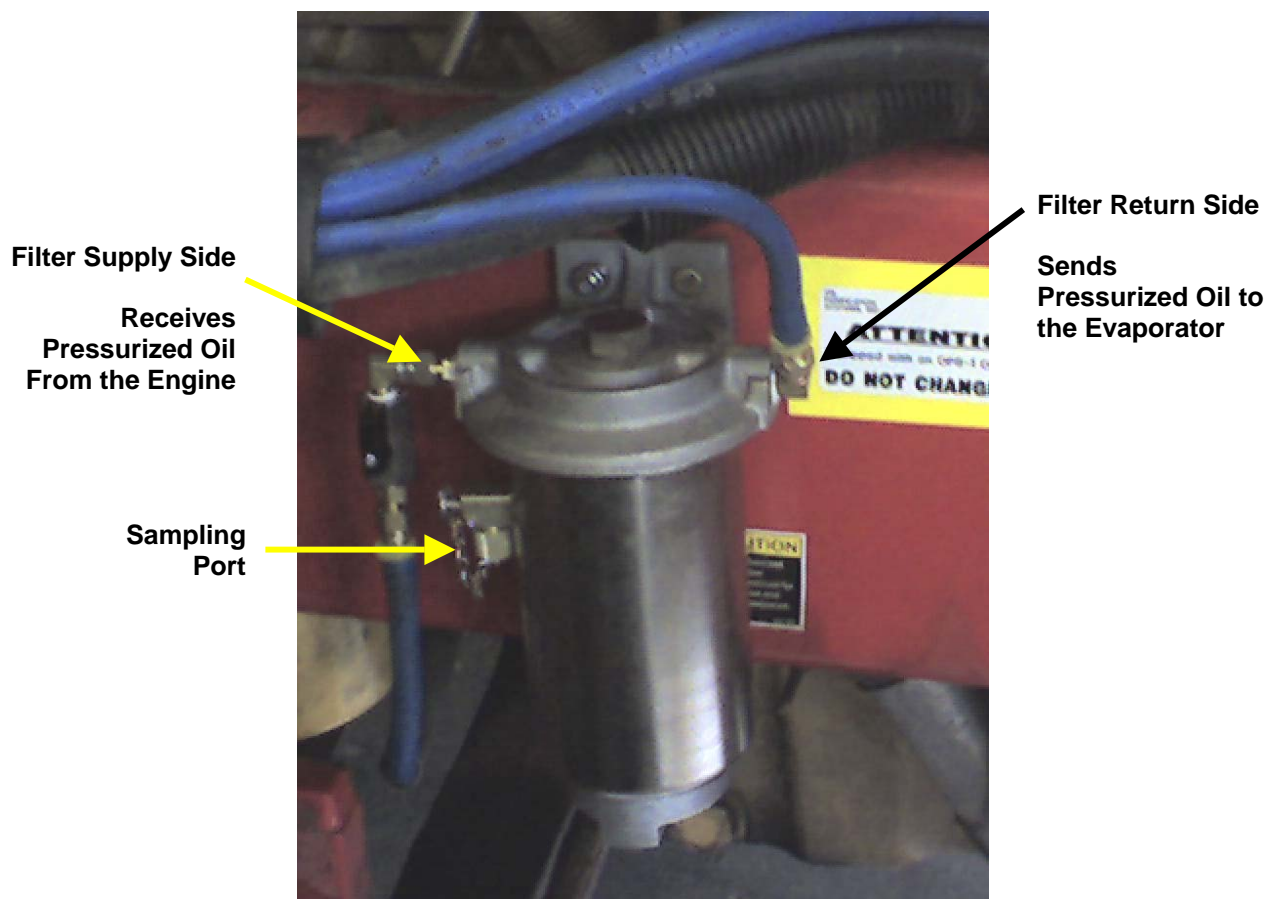


Figure 5 – Mounting the Filter

2. Bolt the filter to the frame, using the supplied nuts, bolts and lock washers.

Section 3 –Supply and Return Line Hoses

Hose Specifications

- ¼” hose, use Parker 836 high temperature, push lock hose, or the equivalent.
- ½” hose, use Parker 801 general purpose, push lock hose, or the equivalent.

Accessing the Supply Line Port:

On the passenger side of the engine, inside the frame rail, below the top of the frame, there is a plug that you will replace with a hose fitting to act as the pressurized oil supply to the filter.

1. Locate the plug. See Figure 6.

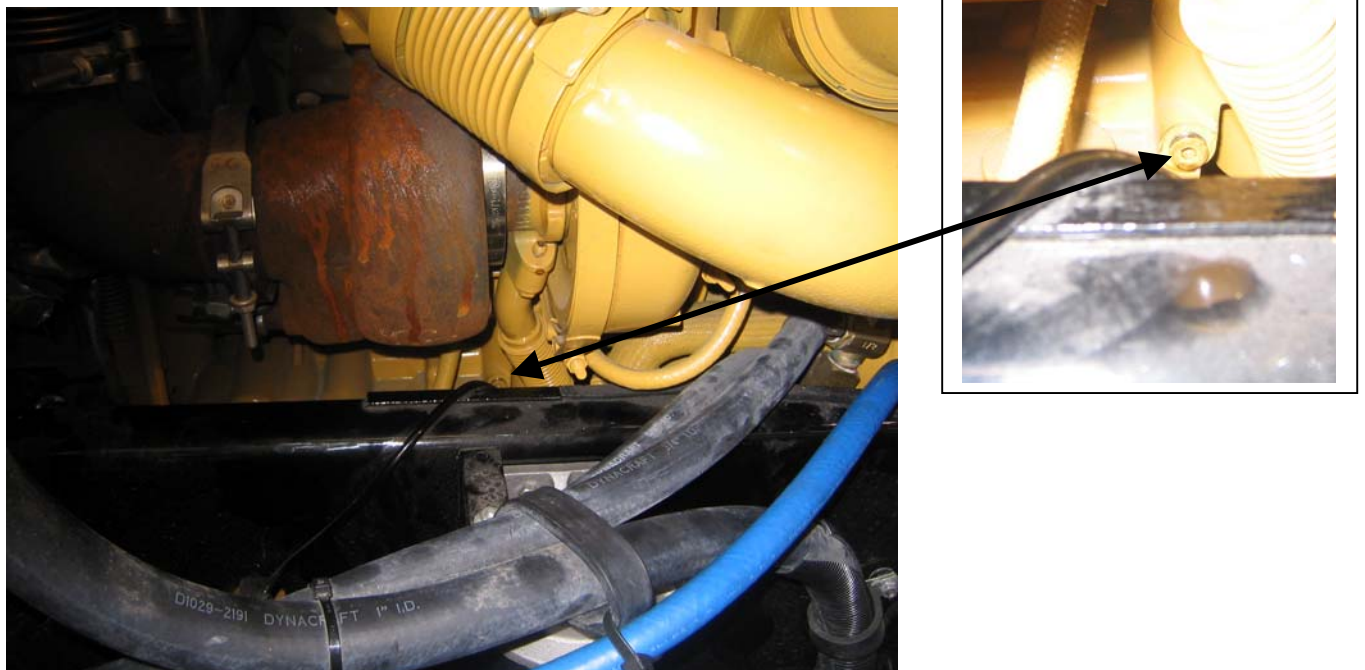


Figure 6 – The Oil Supply Line Plug

2. Remove the plug and replace it with the supplied adapter.
3. Measure the distance from this fitting to the **supply** side of the filter. Run the tape measure along the same route you will use for this hose. Add 1.5 – 2.0 inches to allow for engine vibration.
4. Cut the hose to length.
5. Slide the ¼” hose over the supplied ¼” barbed hose fitting.
6. Screw the hose fitting into the adapter already attached to the engine.
7. Slide the other end of the hose to the hose fitting that will go into the filter.
8. Attach the second hose fitting into the supply side of the filter.

Connecting the Filter to the Evaporator

1. Measure the distance from the **return** port on the filter to the **supply** port on the evaporator. Run the tape measure along the same route that the hose will follow. Add 1.5 to 2" slack to allow for engine vibration. See Figure 7 for typical routing.



Figure 7 – Routing the Hoses

2. Insert the hose fittings into each end of the hose.
3. Attach one fitting into the return side of the filter and the other to the supply side of the evaporator.

Accessing the return line port

The gravity fed return line attaches the **return** side of the evaporator to a port located on the top of the oil pan near the front of the passenger side of the engine. See the circled part of Figure 8.

1. Locate the port. See Figure 8.



Figure 8 – Locating the Port on the Oil Pan

2. Measure the distance from this flange to the **return** port on the evaporator. Run the tape measure along the same route you will use for this hose. Add 1.5 – 2.0 inches to accommodate engine vibration.
3. Cut the hose to length.
4. Remove the hose adapter from the engine.
5. Slide the ½” hose end over the hose fitting that will go into the oil pan.
6. Reattach the adapter to the engine. Remember to use teflon thread tape on the NTP threads which go into the oil pan.
7. Attach the fitting that will go into the return side of the evaporator into the other end of the hose.

8. Route the second end of the hose next to the **return** side of the evaporator, and attach it to the evaporator. See Figure 9.

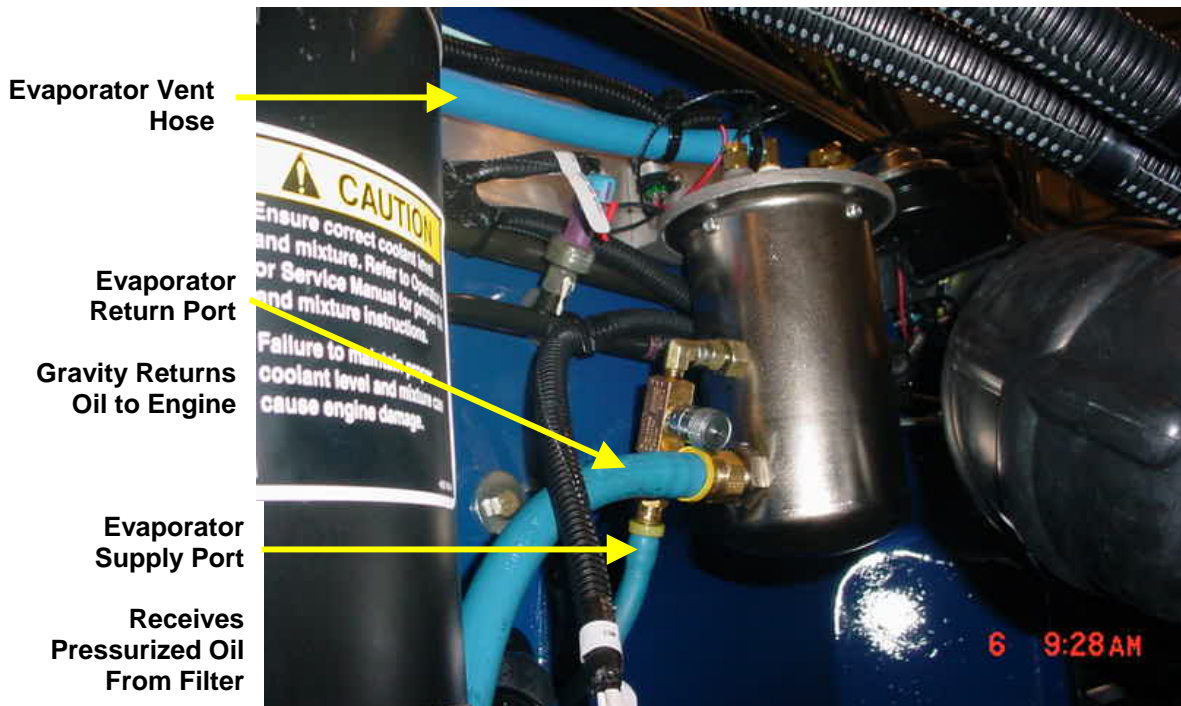


Figure 9 – Location of Evaporator Supply and Return Ports

As this connection is gravity fed, you must follow these guidelines:

- The hose must slope downward.
- Do not allow any kinks or sharp bends in this hose.
- Follow the rules applicable to all hoses.

Section 4 – Adjusting the Metering Valve

Checking and Adjusting the Flow Rate:

1. Open the Oil Shut-off Valve on the Filter. See Figure 10.

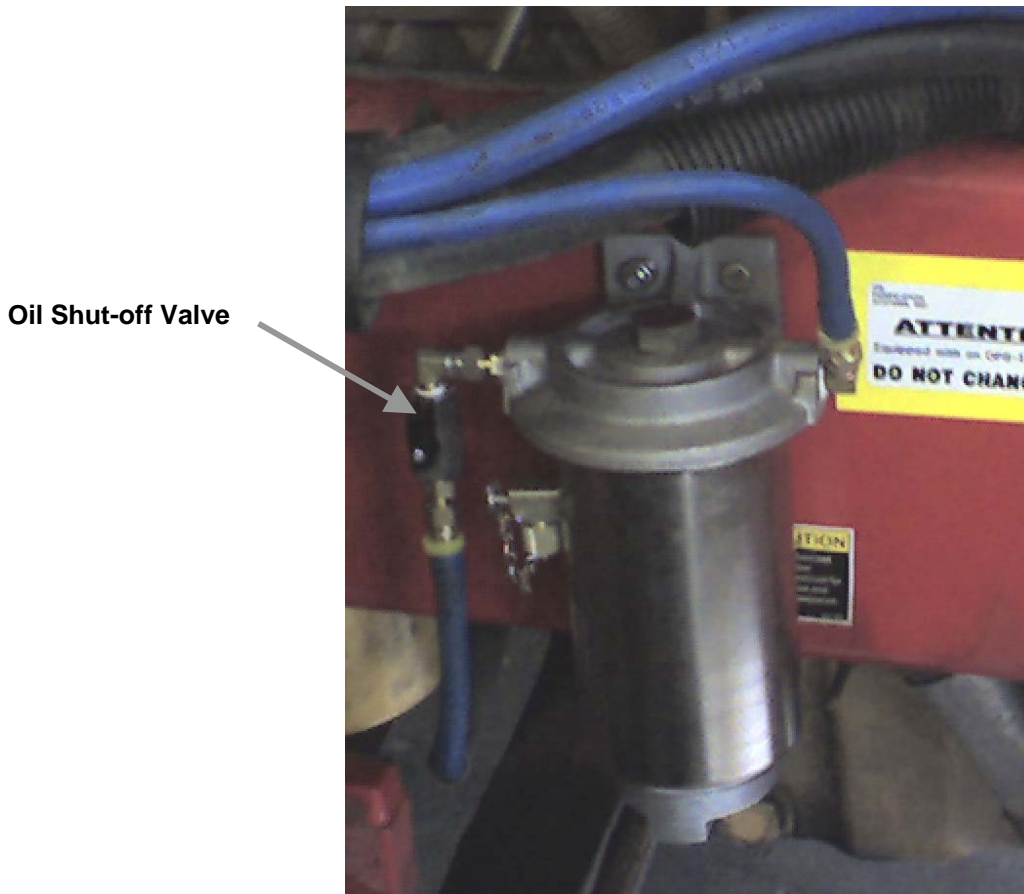


Figure 10 – Location of Shut-off Valve on the Filter

2. Start the engine and allow it to warm up to normal operating temperature. Set the engine speed to about 2,000 RPMs.
3. Check for leaks. If there are any, shut off the engine, repair the leaks, and restart the engine.
4. Close the Oil Shut-off Valve on the Filter.

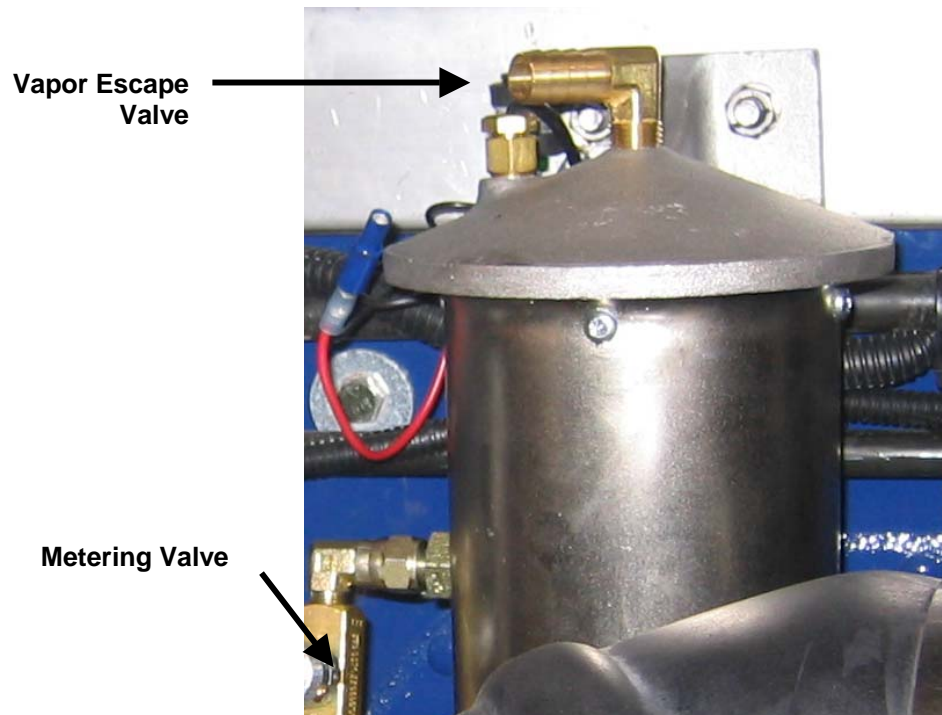


Figure 11 – Location of Vapor Escape Valve

5. Close the metering valve and remove it from the Evaporator.
6. Open the Oil Shut-off Valve on the Filter.
7. With an oil catch pan under the metering valve, open the metering valve all the way for several seconds and allow the full oil flow to flush out the oil lines.
8. Close the metering valve all the way.
9. Open the metering valve about $\frac{3}{4}$ of a turn.
10. Check the flow rate in ounces per minute.
11. Adjust the metering valve, (open to increase flow or close to decrease flow) until the rate of 3.2 ounces per minute (or 1.5 gallons per hour) is attained. Allow several minutes between each adjustment before taking the rate sample.
12. When the metering valve is correctly adjusted, use the supplied allen wrench to lock in the adjustment and then shut down the engine.
13. Close the Shut-off valve on the Filter.
14. Reattach the metering valve to the Evaporator.
15. Attach a vent hose to the vapor escape valve on the top of the evaporator.
16. Open the Shut-off valve on the Filter.
17. Restart the engine and check for leaks. Fix any leaks as necessary.

Section 5 – Electrical Connections

Notes:

- Ensure the voltage of the truck matches the voltage of the system you are installing.
- Use wire ties to secure all wires away from moving parts or extreme heat.
- Ensure the alternator has enough power to handle the additional load.

Connect the Power Source to the Evaporator

1. Remove the gauge cluster from the dash panel. See Figure 12.



Figure 12 – The Gauge Cluster

2. Locate the pigtail labeled "7". See Figure 13.

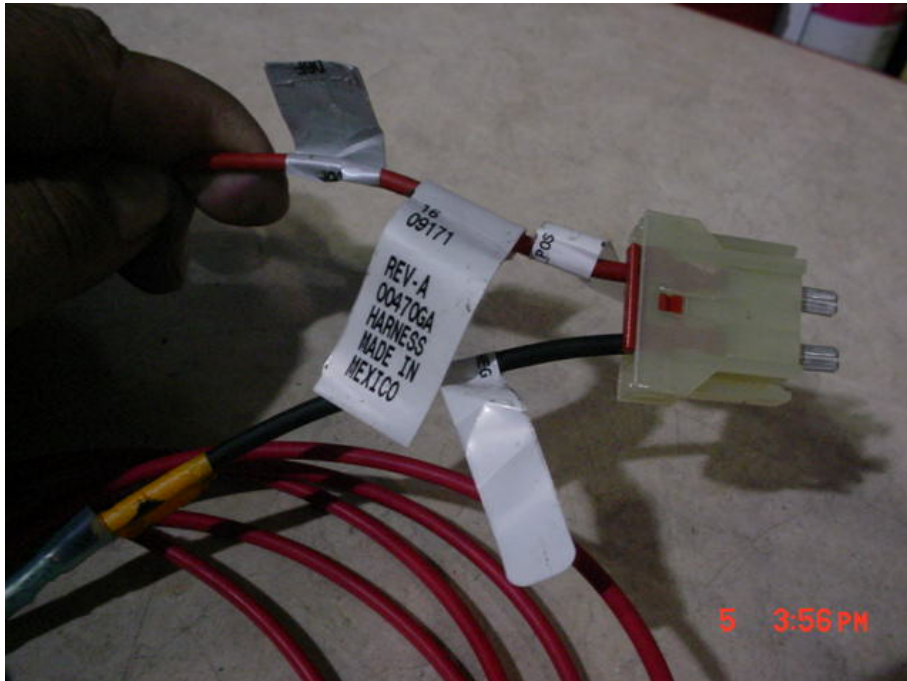


Figure 13 – Pigtail #7

3. Connect the pin for the red wire lead to the wire supplied with the kit. **NOTE:** The black wire on the pigtail is not used for this installation. See Figure 14.



Figure 14 – Connecting the Power Lead

4. Route the power lead along the top of the dash panel to the passenger side of the vehicle to the point where the factory harness goes through the firewall.
5. Route the power lead through the same hole that factory harness passes through.
6. Route the power lead back toward the center of the vehicle to the Evaporator mounting bracket.
7. Connect the power lead to the red wire on the Evaporator.
8. Connect the black lead on the Evaporator to one of the mounting studs on the Evaporator mounting bracket.
9. Reattach the gauge cluster to the dash panel.

Apply Power to the Circuit

1. Locate the fuse panel. It is on the lower driver's side of the dash panel.
2. Insert a 15 amp fuse in position 7 of the fuse panel.
3. Note on the fuse panel label that position 7 is being used for the OPS system.

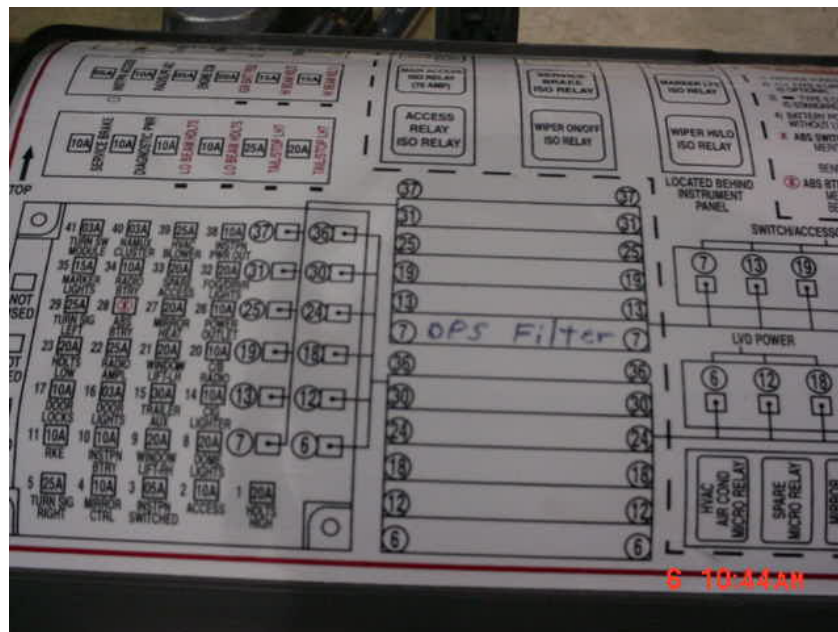


Figure 15 – Electrical Connections