Diagnostic Smoke™ Technology

DTC's Found

P0442-EVAP
Small Leak Detected

mySCANNER
Find EVAP Leaks in 6 Easy Steps

1. Connect to the Battery.
2. Connect to vehicle’s EVAP system.
3. Close vent solenoid.
5. Verify if EVAP system has a leak.
6. Find leaks by viewing exiting smoke &/or viewing the ultraviolet-activated fluorescent dye deposited at the leak(s).

Look for the exiting smoke or UltraTraceUV® dye deposited at the exact location of the leak(s).
What do you do if there is NO service port?

1. Find the Vapor Management Valve.

2. Locate and identify the line going to the charcoal canister from the Vapor Management Valve.

3. Insert the supply line into the line that you just removed from the Vapor Management Valve as shown below.

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Vapor Management Valve
Purge Valve
“Front Door”

To Charcoal Canister /
Have you ever had your scan tool NOT be able to close an EVAP vent solenoid?

First of all, it’s NOT a fault of the scan tool. Some car companies don’t even have the ability to do this task! We are going to use a voltmeter to handle this new way of closing the vent solenoid. (Can be applied to most models*)

1. Disconnect the plug-in on the EVAP vent solenoid.
2. Turn Ignition key ON with engine NOT running.
3. Use a voltmeter to test which one is (pos) & (neg)
4. **REMEMBER WHICH ONE IS WHICH!**
5. Reconnect the connector to the solenoid.
6. Rotate the selector to the mA position.
7. Move the “RED” lead to the mA position.

Now the voltmeter is an amp meter and will be a direct current path to ground the vent solenoid.

8. Back probe the **negative** side of the vent solenoid with the red lead.
9. With the Ignition key ON, engine NOT running, touch the black lead to the **negative** post of the vehicles battery. When you touch the black lead to the battery (with key On) it will energize the solenoid -“Closing it”.

*Additional procedures may be required on some models*
Testing the LDP system

1. Go to your information system to get positive I-D on the three wires going to the LDP. (Leak Detection Pump)

2. Energize LDP solenoid. With a hand vacuum pump, apply vacuum to the “Vacuum Port” on LDP.

3. Monitor the “Sense Wire” with voltmeter. With the LDP powered up, the “Sense Wire” will have BAT voltage available. While the LDP solenoid is energized, apply vacuum until the “Sense Wire” BAT voltage is gone.

(Once voltage is gone the vent valve is closed)

* Apply vacuum to hose at intake manifold if system has a 3-way valve. LDP must be able to hold vacuum above 5” or vent valve will not stay closed.

Closing just the LDP vent valve only

1. Remove vacuum hose from the LDP solenoid next to three wire connector.

2. Connect a hand vacuum pump to the vacuum port next to the 3-wire connector.

3. Apply 12” of vacuum and vent valve will close. If vacuum bleeds down to or below 5” in 60 seconds, the LDP pump will be unable to hold the vent valve closed. Go back to the LDP test above.
Climate Control Leaks in 6 Easy Steps

1. Connect to the battery.
2. Insert smoke supply hose into vacuum line after check valve.
3. Press remote button.
4. Change position on selector.
5. Check flow meter (No Flow – No Leak)
6. Look for smoke or UltraTraceUV® dye.

If there is flow there is a leak

Seeing Is Believing
5 Easy Steps to Find Vacuum Leaks

1. Connect to the Battery.
2. Connect Smoke Supply Line to Direct Manifold Vacuum Source.
3. Block off Intake Manifold (Yellow Cap).
5. Use a Bright Halogen Light and Look for Smoke Exiting the Leak(s), or use a UV light and look for the dye deposit.

Seeing Is Believing

It Works on ALL Years, Makes and Models
√ Vent Valve, Rear Cover, Axle & Pinion Seals In 5 Easy Steps

1. Connect to the Battery.
2. Insert Exhaust Cone into Differential & Insert Smoke Supply into Exhaust Cone.
4. After Smoke Comes Out of the Vent, Pinch off the Vent Hose to Allow Pressure to Build.
5. Use a Bright Light and Look for Smoke Exiting the Leak(s).

Using Diagnostic Smoke™ for Leak Detection!
Find Exhaust Leaks in 4 Easy Steps

1. Connect to the Battery.
2. Insert Exhaust Cone into Tail Pipe & Then Insert Smoke Supply Hose into Exhaust Cone.
4. Use a Bright Light and Look for Smoke Exiting the Leak(s), or use UV light and look for dye deposits at the leak(s).

Seeing Is Believing
**WIND & WATER LEAKS**

1. Turn on vehicle’s HVAC blower (set to ‘Fresh Air’).  
   (This creates positive cabin pressure)
2. Connect unit’s ‘smoke diffuser’ to supply hose.
3. Lay smoke path along seals.

(Note: The UltraTraceUV® dye in the smoke will not be deposited on components when used in this manner and is not harmful in any way)

*Notice smoke path disturbance at point of leak.*

Same car in area with no leak
Find Oil Leaks in 6 Easy Steps

1. Connect to the Battery.
2. Insert Smoke Supply Hose into Dipstick Tube Securely
3. Remove Oil Filler cap to Purge System & Re-install.
4. Block off ALL Exits (PCV Etc.) to allow Pressure to Build.
5. Use a Bright Light and Look for Smoke Exiting the Leak(s).
6. Look for Bubbling and/or Dripping.

Using Diagnostic Smoke™ for Leak Detection!
**OIL LEAK TECH TIP**

This unit can identify oil leaks in 3 different ways:

(1) Smoke  
(2) Bubbling of oil with little or no smoke  
(3) Dripping of oil, no smoke at all.

**THIS TEST CAN ONLY BE DONE AS DESCRIBED IN THIS TECH TIP**

- Attach the power leads to the battery. Red to (+) and Black to chassis ground.
- Remove oil dipstick, put a short piece of hose over the tube and insert smoke supply hose.
- Block or plug PCV, Air breather and Intake

**YOU MUST BE ABLE TO BUILD PRESSURE IN SYSTEM BEING TESTED**

The unit only builds ½ psi, which will not be high enough to cause any damage to the system being tested.

Remove the oil filler cap. Push the button on the remote starter cable. Wait until the fresh air is purged and the smoke is coming out like shown in picture. Next, reinstall oil filler cap. This will allow pressure to build. If pressure is not allowed to build the test will **NOT** work. If you skip this step, you risk not finding the small leaks, which could result in misdiagnosis.

Now that you have reached max pressure, start looking for the three different ways that leaks appear.

(1) Smoke  
(2) Bubbling of oil with little or no smoke  
(3) Dripping of oil, no smoke at all

**Using Diagnostic Smoke™ for Leak Detection!**
OBD II Mass Airflow Code Tech Tip

In this tech tip we will show you the FIRST thing to do on a MAF sensor code. The test car is a 3/97 S70 2.4L turbo Volvo with only 41k on the clock.

Symptoms: Tip-in hesitation, Surge, Rolling idle, and best of all, the famous Yellow Light.

- Attach the units power leads to the battery. Red to (+) and Black to Chassis Ground.
- Attach the supply hose to a direct vacuum manifold source.
- Insert the proper yellow cap plug into the air induction inlet hose. Place the cap between mass airflow sensor and the air induction hose shown in the picture. Remember it is important to block the intake so it can build pressure.
- Push the remote control button. Don’t forget that leaks can be found in areas that you least expect. Take the time to look.
- Get any bright white halogen light.
- At this point, shine the halogen light, in the area described below. Also don’t forget about using your UV light and looking for the UltraTraceUV® dye.

Drivers side rear of engine, down by the turbo, under the waist gate actuator, where it is almost impossible to see or to get to. You may find a number of leaks but any one can cause the problem. You can see a small puff of smoke in the picture to the right (red arrow). This leak is big enough to cause that all famous yellow light to come on.

There is no Scan tool, Gas or Engine Analyzer, Lab Scope, or Voltmeter on the planet that can pinpoint this leak like this unit can. (In 3 minutes or less). Smoke is the visual answer!

The story here is, before you break out your arsenal of equipment, that we all know can’t pinpoint the leak, take the 3min. to test it with diagnostic smoke to find the leak(s) and repair.

Now, what will YOU do first?
Some EGR valves (Like 5.0L Ford) have what I call a metered leak. In this EGR tech tip we will show you how to tell the difference between a good or bad EGR valve. Perform this test before making any changes to the system (Don’t block intake with yellow cap plugs)

- Attach the power leads to the battery. Red to (+) and Black to chassis ground.
- Insert the supply hose into a direct vacuum manifold source. (Brake booster hose or PCV)
- Push and hold remote control button.

Connect the supply hose to a direct manifold source. Don’t cap off any part of the engine, leave it the way that it came in. At this time the system can’t build much pressure. While pushing the remote button, watch for smoke to escape the EGR valve. If an abundance of smoke is present, the valve is suspect. No smoke, move on.

Now that we have tested the EGR valve with little pressure in the engine, cap off the intake with one of our cap plugs. Insert the exhaust cone in the tale pipe. Now that we have the system sealed off, pushing the remote button watch for smoke exiting. If a small amount of smoke is present don’t be alarmed this is to be expected.

- EGR SMOKES WITHOUT BLOCKING OFF ENGINE (SUSPECT)
- EGR SMOKES ONLY WITH ENGINE BLOCKED OFF (NOT SUSPECTED)

Remember that you are only testing the EGR pintle shaft NOT the diaphragm
You can also use this technique to find other metered leaks, like – throttle shafts.

*Using Diagnostic Smoke™ for Leak Detection!*
“OEM EVAP–Approved”
Diagnostic Smoke™ Technology

✓ The only smoke technology meeting ALL OEM test requirements for all makes and models.

✓ A universally-accepted EVAP leak detection standard developed in collaboration with Ford Motor Co., G.M., & DaimlerChrysler (Big-3 U.S. automakers) for EVAP testing.

✓ The only smoke solution approved by the Big-3 U.S. automakers to be safe to use without harming the activated charcoal canister or other EVAP components and maintain OEM factory warranty.

✓ Patented UltraTraceUV® is the only dye solution that is OEM-approved.

✓ Auto-Correct EVAP pressure is not adjustable to avoid possible risk of pressure damage to vehicle.

✓ No manual flow control valve to worry about turning off. Features electronic safety valve that automatically shuts off air flow into the vehicle’s EVAP system every time the tester shuts off. This eliminates the need to remember to turn off a manual flow control valve (or to disconnect the air source from the tester) in order to stop gasoline fumes from possibly continually exiting the EVAP system and filling your work bay.