

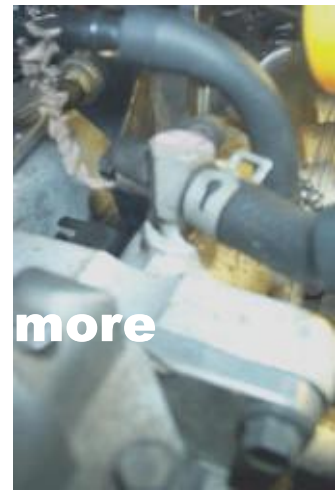
Leak Detection with Diagnostic Smoke



Vacuum leaks

- Injector O-ring
- Vacuum hoses
- Intake gaskets
- Air duct
- Turbo's

And much more



- Carburetor Base Gasket
- Mass Air Flow Meter
- Throttle Body Shaft
- Vacuum Switches
- Loose Clamps
- Diaphragms
- Air Valves
- Map Sensors
- Wind & Water
- Air Cleaner Assy.
- Exhaust Manifolds
- PCV Valve & Hoses
- Exhaust Pipes & Mufflers



EGR Valve To Wind & Water Leaks



**Dye gives
Smoke
Diagnostic Power**



**Diagnostic Smoke
Is a Visual Answer
To Leak Detection**

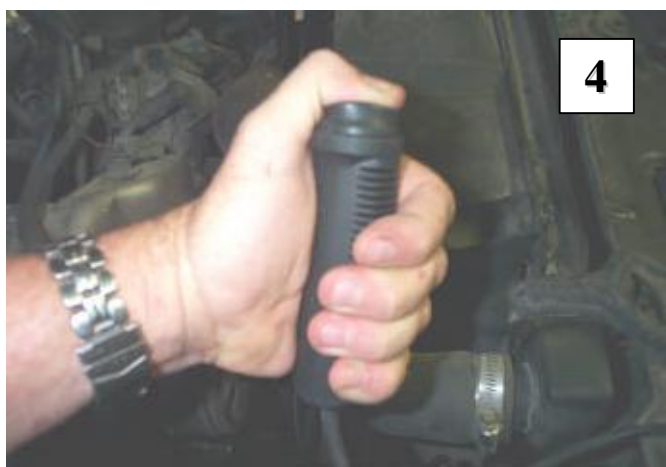


Five Steps to Find Vacuum Leaks

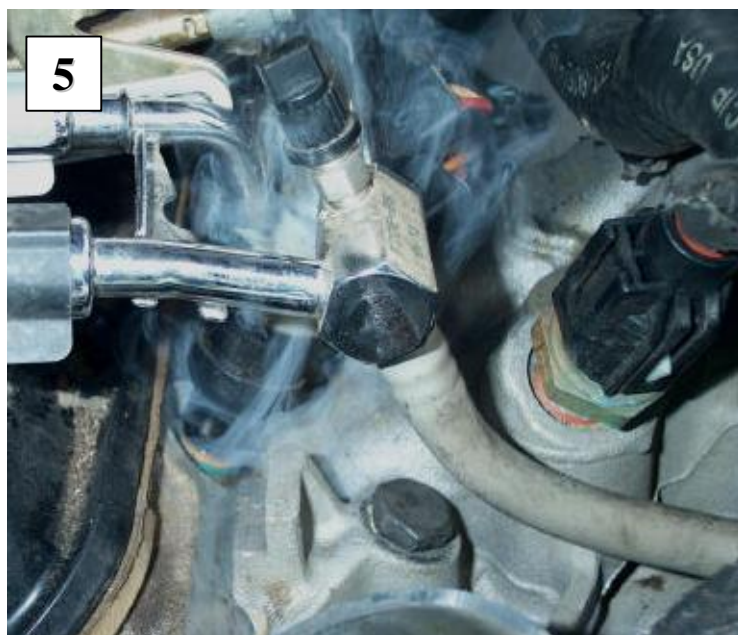
1. **Connect to the Battery.**
2. **Connect Smoke Supply Line to Direct Manifold Vacuum Source.**
3. **Block off Intake Manifold (Yellow Cap).**
4. **Push the Remote Button.**
5. **Use a Bright Light and Look for Smoke Exiting the Leak(s).**



FAST, EASY & EFFECTIVE



***It Works on ALL Years,
Makes and Models***



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.**
- 3. Push the Remote Button.**
- 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

Check 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.
3. Push the Remote Button.
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).



Purge before you block



**Using Diagnostic Smoke
for Leak Detection !**

EGR TECH TIP

Some EGR valves (Like 5.0L Ford) have what we 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 unit's 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)
- Depress and hold remote control button.

Connect the supply hose to a direct manifold source. Don't cap off any part of the engine and don't disturb anything else on the vehicle. At this time the system can't build much pressure. While depressing 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 tail pipe. Now that we have the system sealed off, depress the remote button and 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.

OBD II Mass Airflow Code Tech Tip

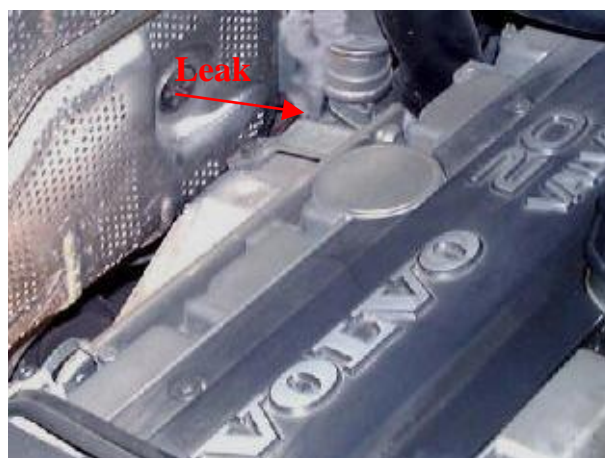
In this tech tip we will show you the FIRST thing to do on a MAF sensor code.
The test car is a 3/97 S70 2.4L turbo Volvo with only 41k on the clock.

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 and hold 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 light (spot or mag)
- At this point, shine the (spot or mag) light, in the area described below.



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 the Smoke Machine can. (In 3 minutes or less).

The story here is, before you break out your arsenal of equipment, that we all know can't pinpoint the leak, take 3min. to test it with the Smoke Machine.

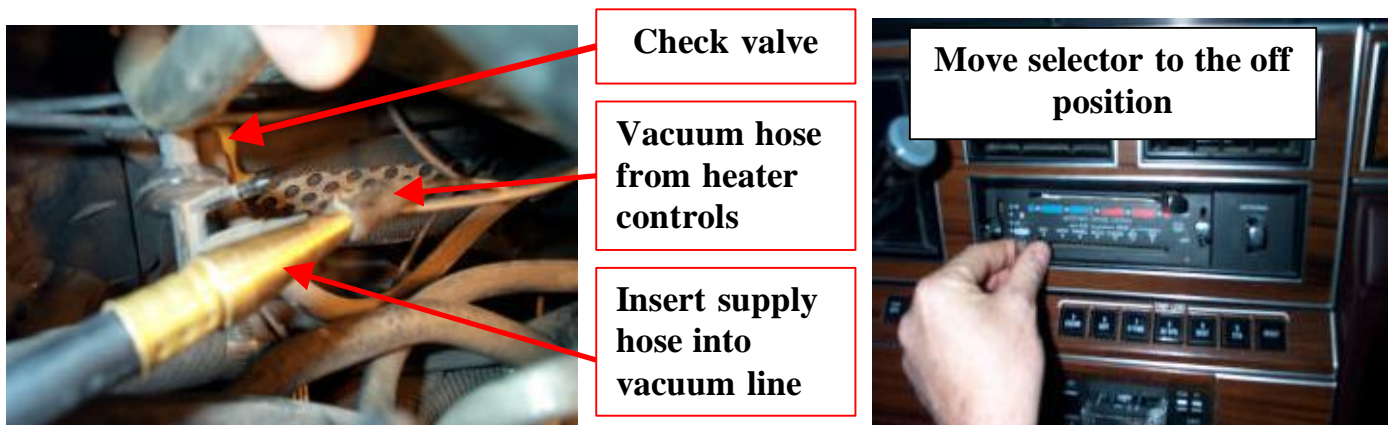
Now, what will YOU do first?

THE HEATER CONTROL TECH TIP

The unit has a very beneficial feature that is often overlooked; the flow meter. In this “Tech Tip” we will demonstrate, how use of the flow meter can save hours of diagnostic time. You cannot deny what your eyes can see.

The flow meter is used for testing controlled or closed vacuum systems. For instance, the heater controls. As you change the selector valve it routes the vacuum to a new location. Use the flow meter in this test and benefit from its accuracy and speed.

- Place the unit so that you can read the flow meter while sitting in the driver’s seat of the vehicle you will be testing.
- Attach the units power leads to the battery. Red to (+) and Black to chassis ground.
- Attach the supply hose to heater control side of check valve. (As shown in picture)



- Move heater control selector to the “off” position. (As shown in picture)
- Sitting in driver’s seat, push remote control button on the unit.
- Heater control systems, are a closed system, there should be no flow. **NO FLOW,NO LEAK**
- Move selector valve one position at a time, watching flow meter (As shown in picture below) If the ball indicates flow, (even 1 liter), there is a leak in that selection.



At the fourth selection,

**The flow meter shows
A two liter leak**

**IF THERE IS FLOW
THERE IS A LEAK**

NO FLOW NO LEAK

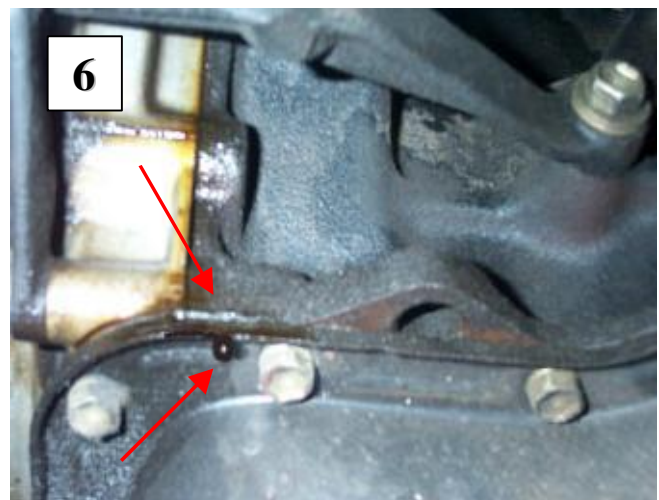
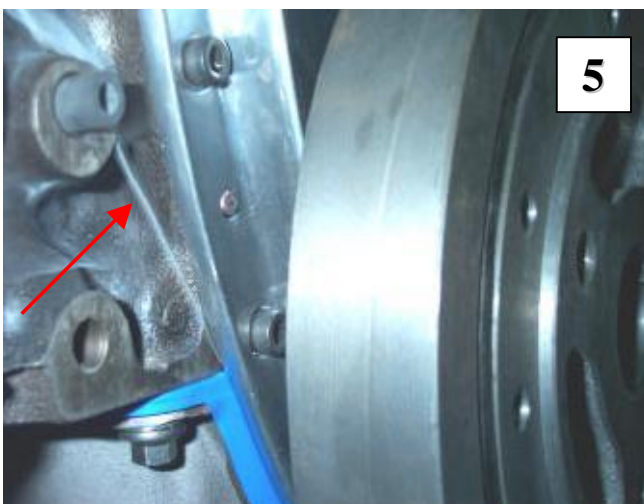


Use this basic concept to find problems on even the most advanced systems.

Find Oil Leaks in Six 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 !**

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.

***Notice smoke path disturbance
at point of leak.***

