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Vapour Check V Flow

Vapour Check Instruction Manual

The Vapour Check instruction manual gives you all the information you need to use your Vapour Check successfully and accurately.

The Vapour Check is a Leak Detection System for the Professional Technician.
Users are advised to read this manual fully prior to first use.

Version 1.001

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Caution and Usage Tips

- ALWAYS use Tester with vehicle engine turned <OFF>.
- Use this equipment in the manner specified by the manufacturer.
- Follow common sense safety precautions.
- Connect Tester's black cable to chassis ground.

- Use UltraTraceUV® Smoke Solution No. 1442-9001 in Tester. Using a non-approved solution can cause damage to vehicles being tested and may cause personal injury.
- Do not leave Tester's hose or power cables connected to the vehicle if tests are not being performed.
- Do not perform test near source of spark or ignition.

- Wear appropriate eye protection.
- Wear yellow glasses supplied when using ultraviolet light.
- Air or gas pressure supplied to Tester can be between 3.4 to 10.3 bar (50 ~ 150 PSI).
- Connect Tester to workshop compressed air for general purpose leak detection applications.

- Connect Tester to inert gas, such as nitrogen, when testing fuel vapor (EVAP) system. Note: DO NOT use workshop air for EVAP testing. Adding oxygen to the fuel vapor space can create a flammable mixture in the fuel tank.
- When using alternate source of UV light, use light that includes 405 nanometer (nm) UV light range.
- When operating the Tester in near freezing temperatures, cycle the operation of the Tester 15 seconds <ON> and 15 seconds <OFF> for approximately the first minute or two of operation. This will allow the Tester to reach optimum operating temperature.
- When testing an engine's intake or exhaust system for leaks, it is best if the engine is cold. Small leaks may be sealed due to thermal expansion.

Contents

Thank You and Congratulations! Your Vapour Check vFlow, is the simplest and quickest way to find many vehicle system leaks. Smoke vapor-generating leak detectors containing this technology are the only leak detectors in the world approved by automakers (OEMs).

The patented technology *inside* your Vapour Check vFlow including the vapor-producing solution (UltraTraceUV®), was designed in collaboration with major OEMs, in order to establish a standard for leak detection. It is designed to be safe for vehicle systems and will not void factory warranties.

It is also the only smoke technology in the world that meets SAE INTERNATIONAL Published Papers' safety standards recommendation to use a smoke machine designed to function with an inert gas (such as Nitrogen, Argon or CO_2) when testing a vehicle's fuel evaporative (EVAP) system [SAE: 2007-01-1235 & 2008-01-0554].

Accessories Included

UltraTraceUV®: *(1442-9001) this patented solution is the only Automaker-approved smoke-producing solution in the world. The solution's chemistry is specially formulated to withstand vapourization temperatures, is designed not to damage vehicle components and contains a special dye that deposits at the exact location of a leak. Will not harm automotive systems and each bottle will perform approximately 300 tests. (12 oz. / 355 ml). (Part No. is for one bottle, two bottles included with Tester).*

Combination Light: *(1442-9002) white light, for easier smoke location and ultraviolet (UV) light, to highlight the fluorescent dye deposited at the exact location of a leak. Also has laser pointer.*

Standard Size Service Port Adapter: *(1442-9003) connects to factory service port on many OBD-II vehicles.*

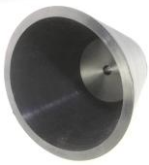
Schrader Removal / Installation Tool: *(1442-9004) fits both sizes of Schrader valves in vehicles with factory OBD-II service port fittings.*

Cap Plugs Kit: *(1442-9005) used for sealing some systems during leak testing.*

Smoke Diffuser: *(1442-9006) locates leaks around doors, windows, sunroofs and trunk compartment seals.*

Adapter Cone (standard): *(1442-9007) for introducing smoke into the exhaust system or the induction system. Cone is 1" x 3.5" and 6" long (25.4 mm x 89 mm x 152 mm).*

Adapter Cone (large): *(1442-9008) Cone is 3.5" x 6" and 4.5" long (89 mm x 152 mm x 144 mm).*

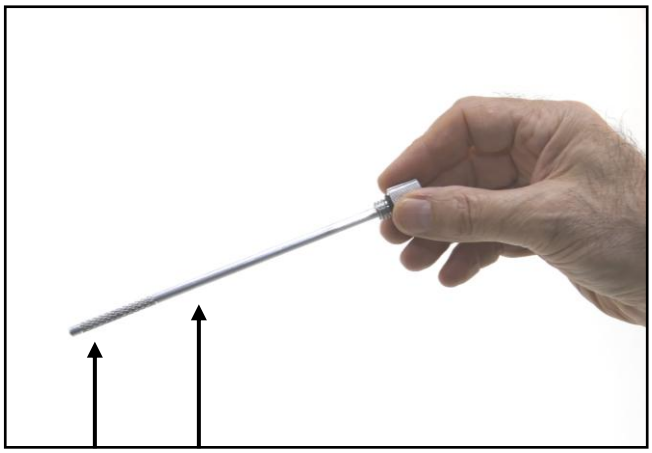


Air fitting: *Three are supplied. The automotive style fitting is already installed on the tester. The second fitting is an industrial fitting but also a popular one in auto facilities. The addional fitting is a ¼" BSP male air fitting end which is the PCL standard Air Line adapter.*

See website for more available accessories: www.VapourCheck.co.uk

Initial Setup

1.



Pour entire contents of <u>one</u> 12 oz. UltraTraceUV® solution bottle into the smoke chamber.

NOTE: Use second bottle supplied to regularly maintain at or near FULL mark.

2.

If not supplied; install correct air fitting onto the Vapour Check vFlow.

NOTE: Your Vapour Check vFlow is now ready for operation.

Quick Start Guide

Do One of the Following:

1.

Connect to workshop air for general purpose leak testing.

Or

1.

Regulate nitrogen from 50 to 150 PSI (3.4 bar ~ 10.3 bar)

Connect to Nitrogen, or other inert gas, when testing fuel evaporative (EVAP) system.

Or

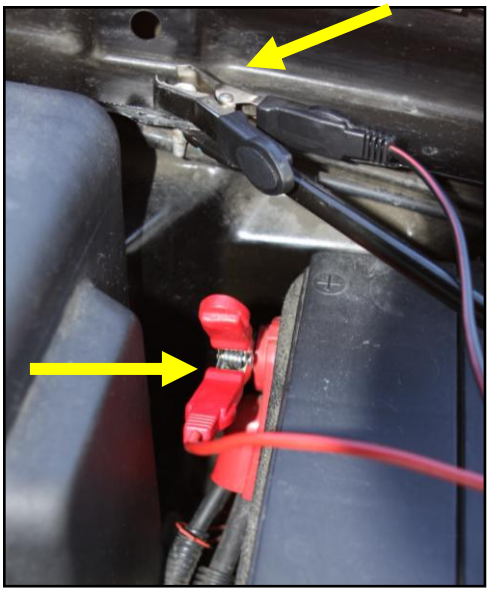
1.

Inert Gas Pack

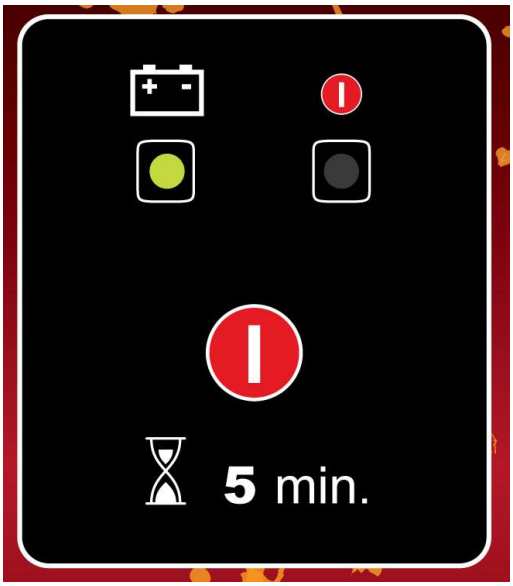
Optional accessory;

Inert Gas Pack Kit (1442-9009). When filled with *liquid* CO_2 will perform approximately 50 EVAP tests.

2.



Connect red clip to 12V-DC power.
Connect black clip to chassis ground.

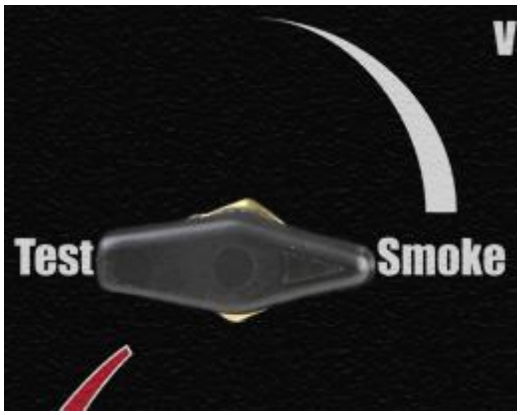


Green light will turn <ON>.
A blinking green light indicates a weak battery.

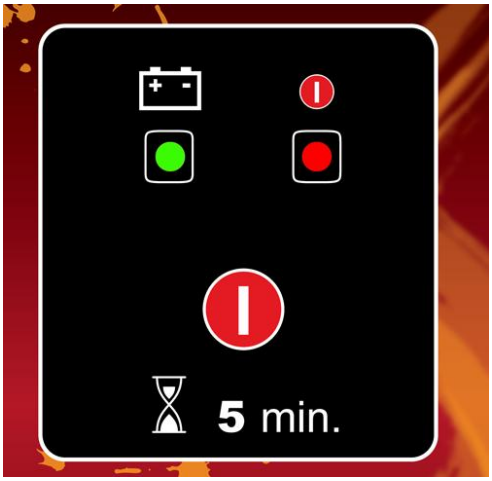
3.

Use cone to access intake system and connect smoke supply hose to cone.

4.

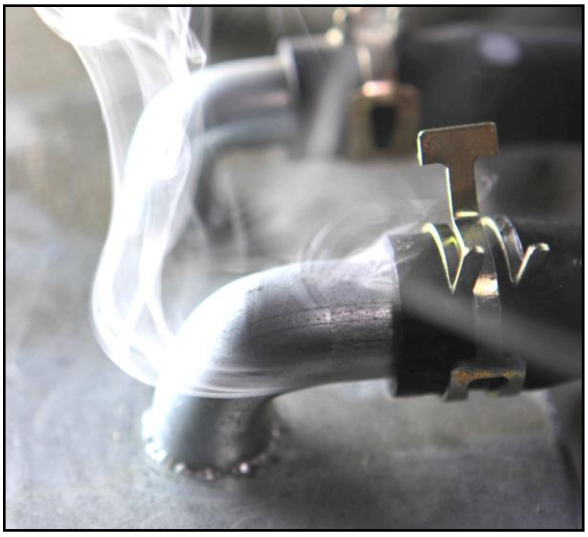


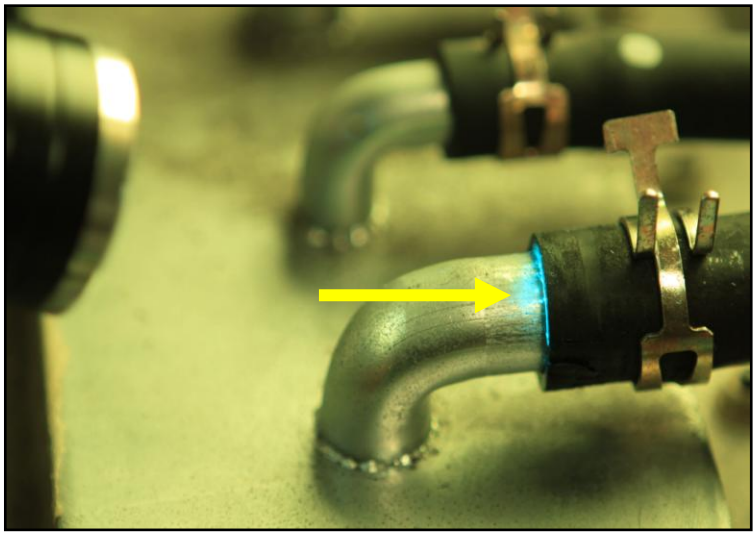
Position to SMOKE (full flow).



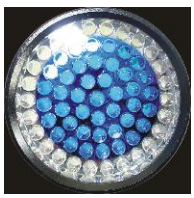
Press START button.
Green and red lights are <ON>.
5-minute timer.

5.





Use white light to find the smoke.

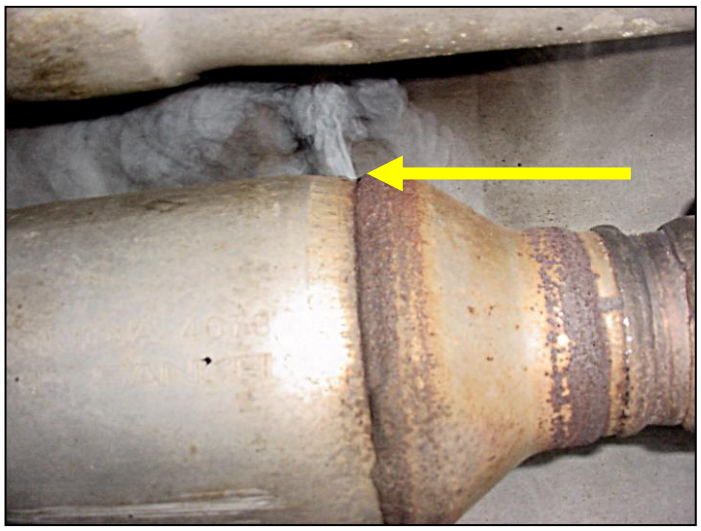


Use UV light and yellow glasses to find the dye.

Other Leak Samples

Your Vapour Check vFlow can be used in virtually any vehicle low pressure system suspected of having a leak, such as; intake / induction, intercooler and turbocharger, vacuum, exhaust, EVAP and even wind/water leaks. Can also be used to verify air solenoid functions and test components prior to assembly.

Exhaust

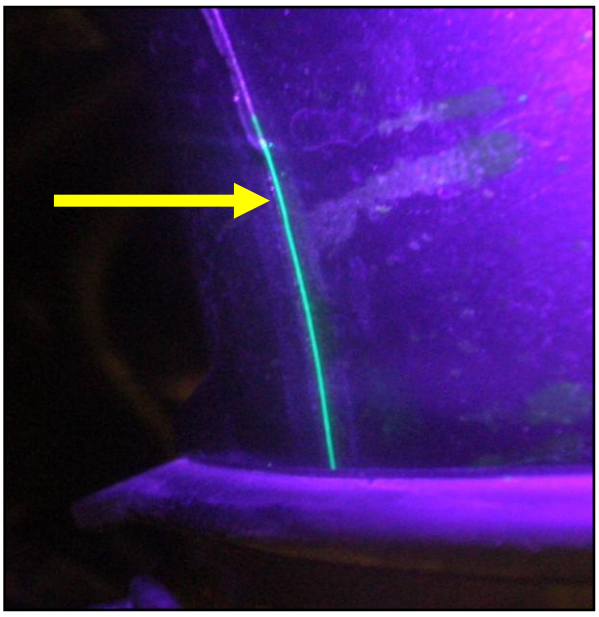


Fluorescent Dye Deposit

The UltraTraceUV® smoke solution contains a special ultraviolet-activated fluorescent dye that deposits at the exact location of a leak. Use the UV light provided to highlight the dye.

The longer the smoke is allowed to exit a leak, the more dye will be deposited.

This technology has been designed so that the dye deposits only if there is pressure-differential. So for instance; the dye will deposit when exiting a leak but will not deposit during a wind and water leak test.



Wind and Water Leaks

1. Set vehicle's climate control to 'Fresh Air' (not to re-circulate). Set blower on full speed. This creates positive cabin pressure.

2. Connect supply hose nozzle to Smoke Diffuser.

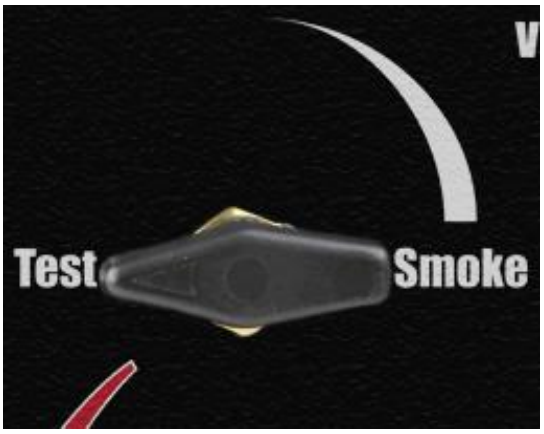
3. Lay smoke path along seals.

4. Look for smoke disturbance indicating a leak.

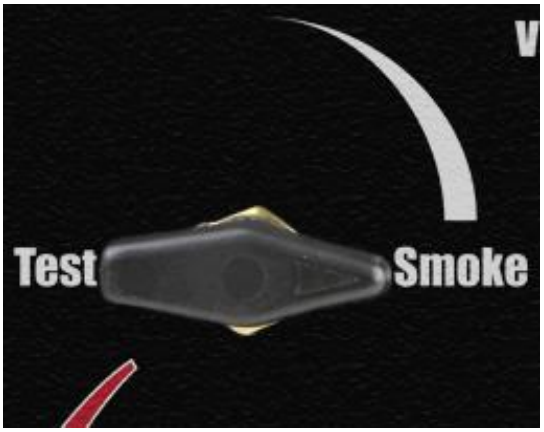
No smoke distrurbance means 'No Leak' >

< Smoke distrubance pinpoints the leak

Control Valve Overview

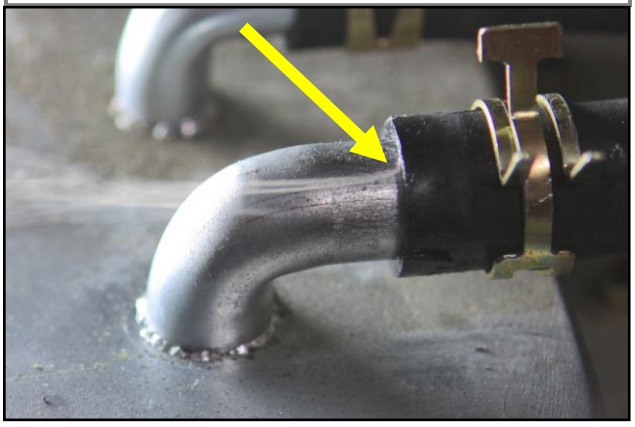


TEST: Delivers non-smoke air and a very accurate flow meter reading. This setting is for determining if a leak exists and how large it is.



SMOKE: Delivers maximum smoke volume.

FLOW CONTROL: Controls smoke volume.
>*Locating the leak source is sometimes easier with less smoke volume. First, fill system with smoke then reduce volume.*



Note: Flow Control does not affect delivery pressure; it only affects flow volume.

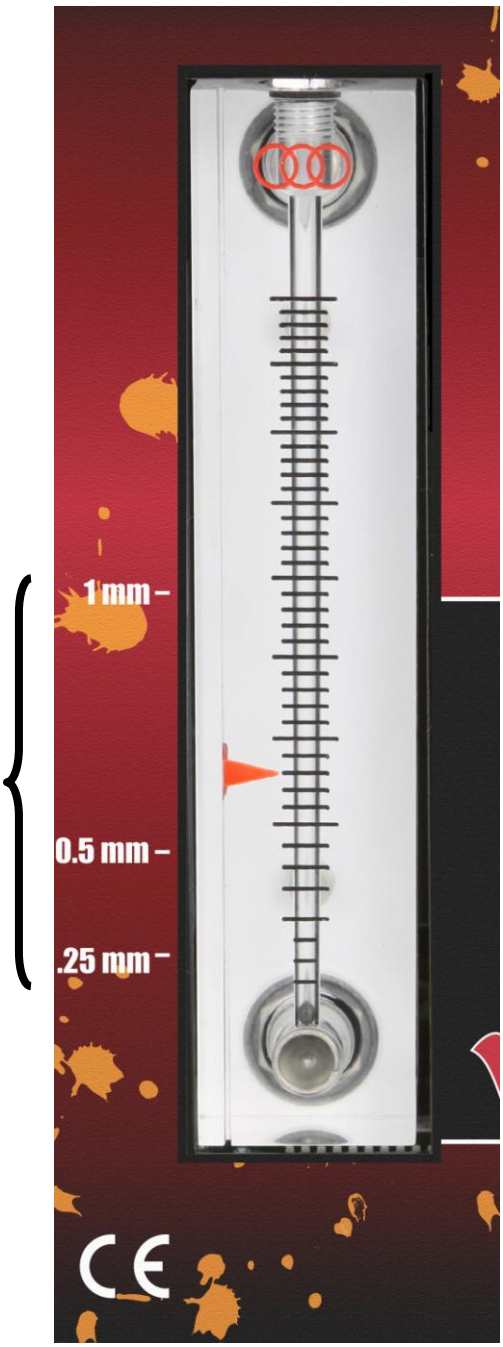
Flow Meter Overview

A flow meter ball indicating flow means there is flow going into (or through) the system being leak-tested. This is normal while the system is being filled. If flow meter indicates flow after the system is filled, this indicates a leak. The higher the ball is in the flow meter, the larger the leak size. No flow indicates no flow through the system, or no leak.

Leak Size Reference Points:
The flow meter has leak size reference points which quantifies the leak size in the system being leak tested. The 0.25mm, 0.5mm and 1mm reference points are equivalent to leaks of those sizes in the EVAP system being tested.

Once the system is filled (either in TEST or SMOKE setting) and the flow meter ball stops descending, compare the level of the ball with the reference points in order to determine a leak size or pass/fail.
Above reference point = FAIL.
Below reference point = PASS.

The flow meter is most accurate in TEST setting.



EVAP Tech Tip

<u>ALL</u> TESTS WITH THIS TESTER ARE PERFORMED WITH THE VEHICLE'S ENGINE TURNED <u>OFF</u>!

Do One of the Following:

1. The flow meter is active in the SMOKE and TEST positions of the Flow Control Valve. However, for the most precise quantifying of a leak size use the **TEST** position in either of these two methods.

A. Fill system in TEST (no smoke) setting until flow meter ball stops descending. Position the flow meter's red flag so that it aligns with the flow meter ball position. Compare flow meter ball position with flow meter's Leak Size Reference Points. If the leak size is unacceptable and leak testing is required; set control valve to SMOKE setting, introduce smoke and look for smoke or dye to find the leak(s).

Or

B. To save time; fill system in SMOKE (full open) setting until flow meter ball stops descending. Be sure the Vapour Check vFlow is still <ON> and immediately position control valve to TEST, for a more accurate flow meter reading. Be sure ball has stopped descending and compare flow meter ball position with flow meter's Leak Size Reference Points.
   > Above reference point = FAIL.
   > Below reference point = PASS.

   If the leak size is unacceptable and leak testing is required, then time will have been saved because you will have already filled the EVAP system with smoke. Now position the control valve again to SMOKE and continue to introduce smoke while looking for smoke or dye at exit points.

NOTE: When testing a closed system, such as the EVAP system, it is best to purge the 'non-smoke' air out of the system by leaving an opening in the system being filled (e.g. EVAP vent). Close the system once smoke exits that opening and continue to fill with smoke. This quickly fills the system with smoke.

Technical Specifications

Height	13.5 in. (34 cm)	Solution Max. Volume	12 oz. (355 ml)
Length	13 in. (33 cm)	Supply pressure	13.0 in. H_2O (0.032 bar)
Width	9 in. (23 cm)	Supply volume	10 liters per minute
Weight	10.5 lb. (4.8 kg)	Smoke supply line	8 feet (2.4m)
Shipping weight	13.5 lb. (6.1 kg)	Power supply line	8 feet (2.4m)
Power supply	12 volts DC	Power consumption	15 amps.

NOTE: A common question asked is if one can use a very basic generic mineral oil, such as 'baby oil', in the Vapour Check vFlow to create the smoke vapor.

Your Vapour Check vFlow will create smoke vapor with baby oil, but we do not recommend it. The patented UltraTraceUV® smoke solution supplied with your Vapour Check vFlow; will perform hundreds of tests (is very economical to use); is the only solution in the world approved by the OEMs; and will not void any vehicle factory warranties. Plus you have the added benefit of the trace dye that marks the exact location of a leak, increasing diagnostic accuracy. UltraTraceUV® solution is not a "*generic"* mineral oil. In fact, generic mineral oils are not intended for this type industrial use. The generic mineral oils break down, evidenced by its foul odor and they could damage vehicle components and void factory warranty.

Troubleshooting Guide

Two lights on the control panel double as diagnostic lights.

Green	Red	Interval	Cause
✓		Blinks: 1 per second	Insufficient battery power
✓	✓	Blink simultaneously: 1 per second	Bad ground or power connection at smoke canister or short in circuit
✓	✓	Blink simultaneously: 4 times per second	Bad ground at smoke canister or open heating circuit
✓	✓	Blink alternately: 1 per second (System shuts down)	Bad ground or circuit board failure *****

***** If circuit board failure occurs, first disconnect power to your Tester for 10 seconds and reconnect. If failure code occurs a second time, disconnect Tester and contact Authorized Dealer.

Symptom	Likely Cause	Solution
The green power indicator lamp on the Tester does not turn ON.	1. The power cables are reversed. 2. Poor power-supply cable connection. 3. Battery providing power is too weak.	*1. Correctly position power cables.* *2. Secure the connection at the positive terminal and chassis ground.* *3. Verify the battery is in good condition and fully charged.*
There is no air or smoke coming out of the supply hose.	1. Flow Control valve is closed. 2. Bad power-supply cable connection. 3. Battery providing power is too weak. 4. Air supply to tester is insufficient.	*1. Open flow control.* *2. Secure the connection at the positive terminal and chassis ground.* *3. Verify the battery is in good condition and fully charged.* *4. Check for sufficient air supply.*
Very little smoke coming out of the smoke hose or oil dripping from the smoke hose.	1. There is too much smoke condensation inside the smoke supply hose. > This usually does <u>not</u> indicate a failure.	*1. Position the hose lower than the Tester. Set control valve to TEST and turn Tester <ON> for one cycle, or until oil has drained from hose.*

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