

# Operator's Manual



Diagnostic Smoke<sup>®</sup> Vapor Machine  
*with UltraTraceUV<sup>®</sup> Dye Solution*

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Smoke Wizard<sup>®</sup> Leak Detection System Model GLD-50



USA | Canada Patents • 6,392,227 • 6,526,808 | 2,279,147 | Int'l Patents Pending



**TO PREVENT PERSONAL INJURY  
AND / OR DAMAGE TO VEHICLE OR EQUIPMENT**



- Use this equipment in the manner specified by the manufacturer.
- Understand operating procedures / Follow all safety precautions.
- Connect Smoke Wizard® black cable to chassis ground.
- Always use hood support if hanging Smoke Wizard® from hood of car.
- Connect to workshop airline for general purpose leak detection applications.
- Connect to an inert gas, such as nitrogen or CO<sub>2</sub>, when testing fuel evaporative (EVAP) system.
- Use UltraTraceUV® Smoke Solution No. GLD0708UV in the Smoke Wizard®. Using a non-approved solution may cause damage to vehicles being tested and may cause personal injury.
- ALWAYS use on vehicle with engine turned <OFF>.
- Never leave the Smoke Wizard's hose or power cables connected to the vehicle for extended periods of time when tests are not being performed.
- Do not perform test near source of spark or ignition.
- Wear eye protection that meets OSHA standards.
- Follow safety precautions when using ultraviolet light source.
- Air pressure (or gas pressure) supplied to Smoke Wizard® can be between 50-175 PSI (3.4 to 12 bar).



- Use the white light supplied to highlight the smoke exiting a leak.
- Smoke exiting a leak is sometimes even easier to see if after filling the system with smoke you reduce the smoke flow by turning the flow control knob to a lower flow setting, which slows the exiting smoke velocity and helps you see the leak even better.
- Use the Ultraviolet (UV) light and yellow glasses provided to look for the fluorescent deposit at the exact location of a leak. When using alternate source of UV light, be sure it is one that covers the 400 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 its optimum operating temperature.
- When testing an engine's intake or exhaust system for leaks, it is recommended that the engine be cold. Small leaks may be sealed due to thermal expansion.

**Technical Specifications**

Height (less hanger)	10 in. (25.4 cm)	Solution Max. Volume	8 oz. (236 ml)
Length	5 in. (12.7 cm)	Supply pressure	13.0 in. H <sub>2</sub> O (0.032 bar)
Width	8.5 in. (22 cm)	Supply volume	10 liters per minute
Weight	7 lb. (3.2 kg)	Smoke supply line	10 feet (3m)
Shipping weight	11 lb. (5 kg)	Power supply line	10 feet (3m)
Power supply	12 volts DC	Power consumption	15 amps.

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Visit [www.smokewizard.com](http://www.smokewizard.com) for:

- Instructional Videos • Additional Product Details
- Frequently Asked Questions • Tech Tips • Downloads

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**Thank You and Congratulations!** You have purchased the finest brand portable leak detection smoke machine available today. The patented STAR Technology *inside* your Smoke Wizard® was designed in collaboration with major automakers; was designed specifically to be safe for leak testing a vehicle's fuel evaporative (EVAP) system as well as many other vehicle systems; is the only smoke vapor technology in the world approved by any automaker; and is the only smoke technology that meets SAE INTERNATIONAL published papers recommendation to use a smoke machine designed to function with an inert gas (such as Nitrogen, Argon or CO<sub>2</sub>) when testing a vehicle's EVAP system [SAE: 2007-01-1235 & 2008-01-0554].

Global Leak Detection Corp. and our Authorized Dealers **thank you** for the purchase of your new **Smoke Wizard®!**

## Included with the Smoke Wizard®

**UltraTraceUV®:** (GLD0708UV) this patented solution is the only Automaker-approved smoke-producing solution in the world. The solution's chemistry contains a special dye that deposits at the exact location of a leak. Will not harm automotive systems and will perform more than 200 cycle tests (8 oz. / 236 ml). Two bottles are supplied with the Smoke Wizard®. Part number is for one bottle.



**Cap Plugs Kit:** (GLD005) can be used for sealing systems under test.



**Smoke Diffuser:** (GLD006) adapter designed to locate leaks around doors, windows, sunroofs and trunk compartment.



**Adapter Cone:** (GLD007) for introducing smoke into the intake system, exhaust system or into any orifice that accommodates the cone's size.



**Combination Light:** (GLD032) delivers a white light for easier smoke location and an ultraviolet (UV) light that highlights the fluorescent dye deposited at the exact location of a leak.



**EVAP Service Port Adapter – standard size:** (GLD003)



**EVAP Service Port Schrader Valve Removal/Install Tool:** (GLD004)

The Schrader valve has a *left-hand* thread. **Turn clockwise to remove.**



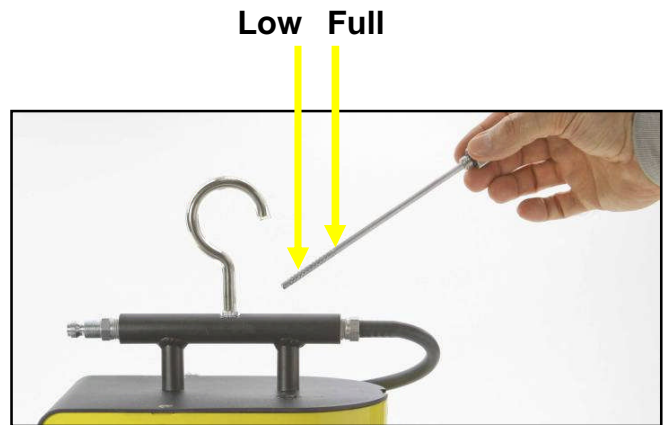
**Air fitting:** (GLD014) two fittings are supplied. The automotive style fitting (GLD013) is installed on the tester. The spare fitting is an industrial fitting, also popular in auto facilities.



Visit [www.SmokeWizard.com](http://www.SmokeWizard.com) for additional accessories

## Before Using Smoke Wizard® for the First Time:

1.



> Pour entire contents of one 8 oz. UltraTraceUV® solution bottle into the smoke chamber, through the dipstick tube opening. One bottle will perform more than 200 cycle tests.

2.



> Install correct air fitting onto the Smoke Wizard®, if it is not already installed.

**NOTE: Your Smoke Wizard® is now ready for operation.**

> Read manual in its entirety before operating the Smoke Wizard®.

## Caution Tips

**NOTE: A common question asked is if one can use a basic generic mineral oil, such as 'Baby Oil', in the Tester to create the smoke.**

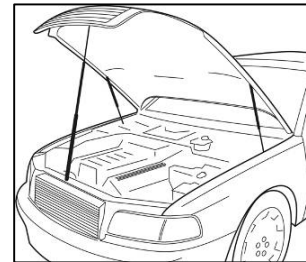


**You can if you want to, but we don't recommend it.** The patented UltraTraceUV® OEM-Approved smoke solution supplied with the Smoke Wizard®; will perform hundreds of tests that only cost pennies per test; is the only solution in the world approved by the auto manufacturers; and will not void any vehicle factory warranties. Plus you have the added benefit of the trace dye that marks the exact location of a leak, increasing diagnostic accuracy unlike any other.

This special solution is not a "*generic*" mineral oil, like 'baby oil'. In fact, baby oils are not intended for this type industrial use. Baby oils break down, evidenced by their foul odor and could damage vehicle systems and are NOT approved by any OEM in the world.



Factory vehicle hood supports are not designed to support more than the weight of the hood. A supplemental prop rod (or similar device) such as the one shown in this caption should always be used when hanging the Smoke Wizard® from the hood, in order to avoid hazard and possible injury due to a hood falling unexpectedly.

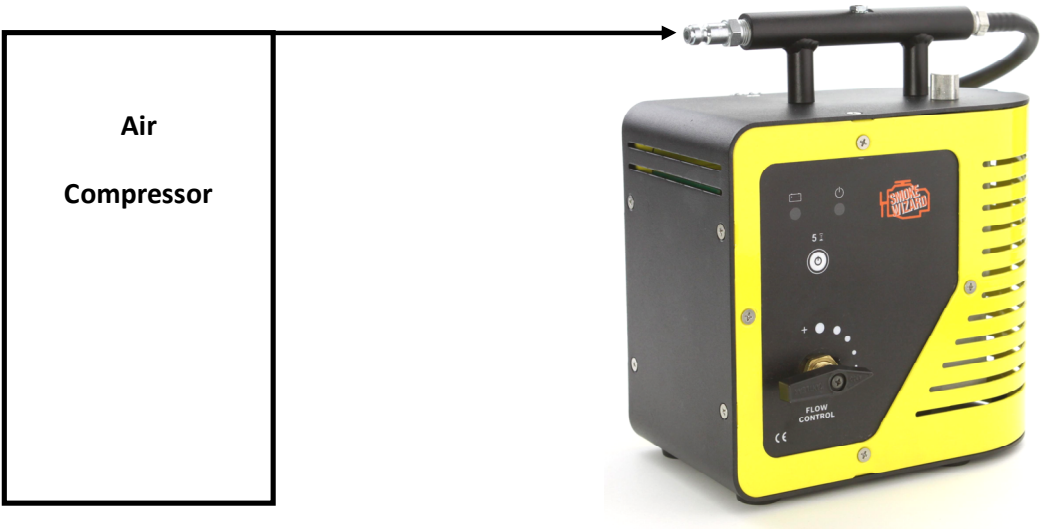


# Quick Start Guide

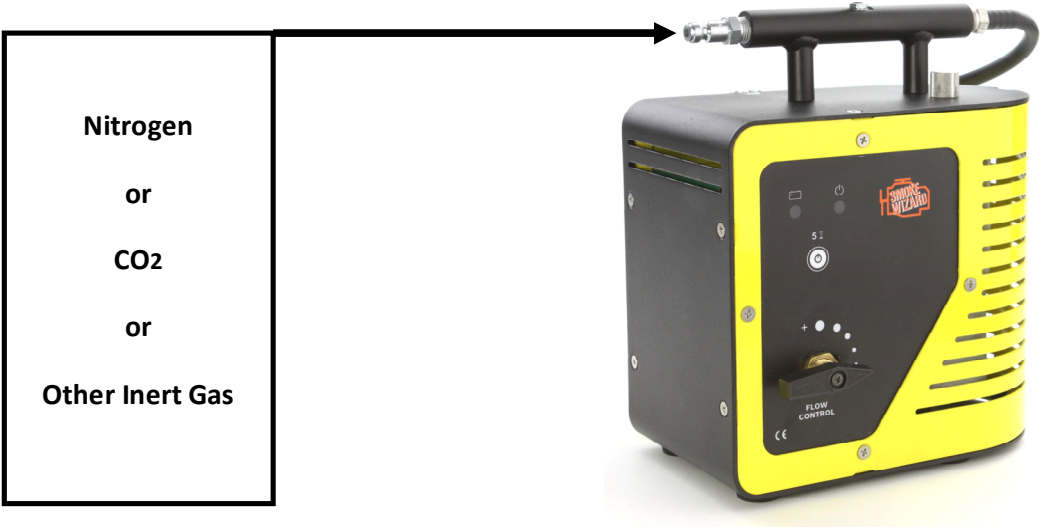
The Smoke Wizard® can be used in virtually any vehicle low pressure system suspected of having a leak, such as: EVAP system, intake/induction system, intercooler and turbocharger system, vacuum system, exhaust system, wind/water leaks and can also be used to verify air solenoid functions and leak test components prior to assembly.

Do one of the following:

**1a. Connect Smoke Wizard® to shop air, for general purpose leak testing.**



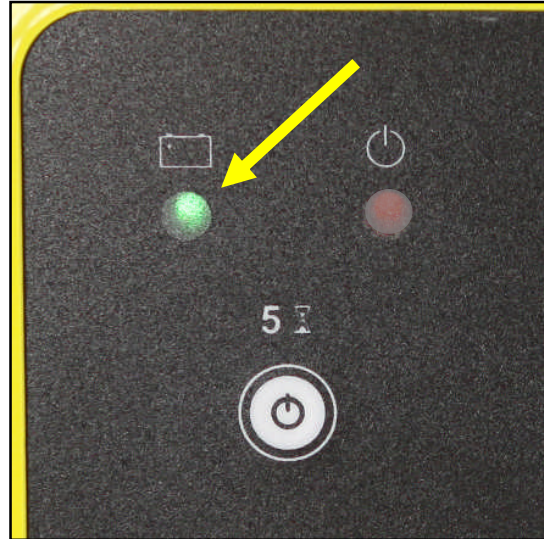
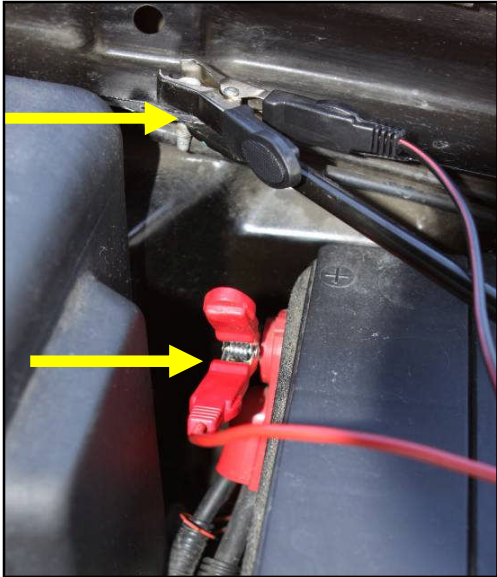
**1b. For safer fuel evaporative (EVAP) system testing; connect Smoke Wizard® to inert gas, such as nitrogen or CO2.**





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

- > Smoke Wizard's green battery light will turn ON.
- > A blinking green light indicates a weak battery.



**Do one of the following:**

**3a. Engine Vacuum / Induction Leaks.**

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



**3b. Exhaust Leaks.**

- > Use cone to introduce smoke into exhaust system.



### 3c. EVAP Leaks.

> Use supplied adapter GLD003 on vehicles with factory EVAP service port.

**Note:** For best performance, remove Schrader Valve from EVAP Service Port prior to connecting adapter. The Schrader Valve has a *left-hand* thread. Turn *clockwise* to remove!



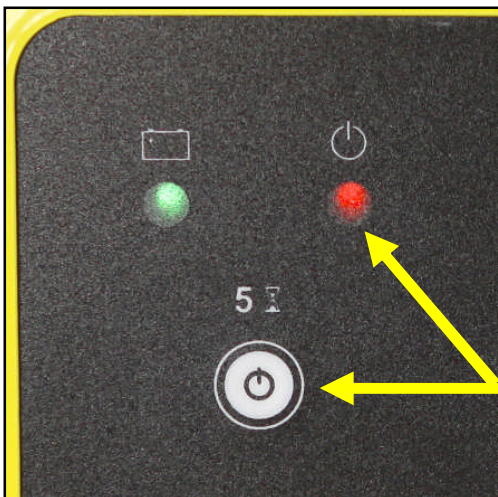
### 3d. EVAP Leaks.

> Use Smoke Wizard's **Pop-it**® fuel cap adapter GLD034 or GLD036 (not supplied) on vehicles with no factory EVAP service port.



### 4a. Press <ON> Button.

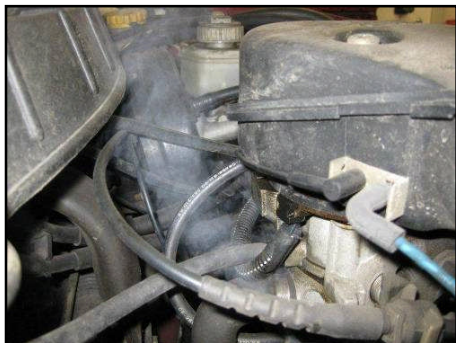
> Red light turns ON, indicating smoke production for 5 minutes.



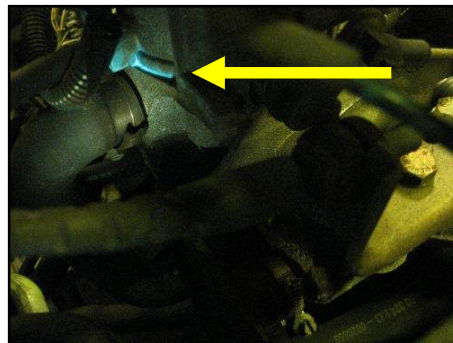
**4b.** Flow control valve must be in full open position, in order to deliver maximum smoke.



**5a. Use white light to find the smoke.**  
(Here is an example of a leak which is difficult to pin-point using smoke alone).



**5b. Use UV light and yellow glasses to find the dye.** (This is the same leak with the dye marking the exact location of the leak).



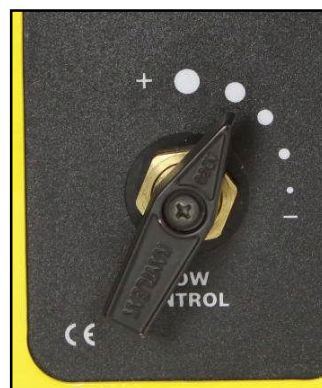
**NOTE: Use testing principals 1-5 for most leak-detection applications.**

 **Helpful Tips:**

- > It is best to 'purge' the 'non-smoke' air out of the system being leak-tested in order to quickly fill that system with smoke. When possible; leave an opening in the system when introducing smoke, then close that opening once smoke is seen exiting that system.
- > The longer the smoke is allowed to exit a leak, the more dye will be deposited at the exact location of that leak.
- > The smoke flow-control valve controls the flow volume that exits a leak (it does not affect delivery pressure). Locating the source of a leak is sometimes even easier with less smoke volume exiting that leak. First, fill system with smoke at full smoke volume (Figure 1), then reduce smoke volume once smoke is seen exiting leak(s) (Figure 2).



**Figure 1**



**Figure 2**

## Wind and Water Leaks:

1. Set vehicle's climate control to 'Fresh Air' (not to re-circulate) and set blower on full speed.

> *This creates positive cabin pressure.*

2. Connect Tester's supply hose nozzle to Smoke Diffuser supplied.

3. Lay smoke path along seals.

4. Look for smoke disturbance indicating a leak.

**No air disturbance means 'No Leak' >**



**< Smoke disturbance pinpoints the leak**

## Troubleshooting Guide

Your Smoke Wizard® has two indicator lights on the control panel that double as diagnostic lights, indicating if it is working properly. The following table describes the indicator lights function codes.

Green	Red	Interval	Cause
✓		Constant <ON>	Sufficient battery power
✓		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 will shut down; Power must be disconnected then reconnected)	Bad ground. Can also mean circuit board failure *

\* If circuit board failure occurs, first try disconnecting power to your Smoke Wizard for 10 seconds and reconnect. If failure code occurs a second time, disconnect Smoke Wizard® and contact Smoke Wizard® Tech Support at TechSupport@SmokeWizard.com or (866) 670-7734.

Symptom	Likely Cause	Solution
<b>The green power indicator lamp on the Tester does not turn &lt;ON&gt;.</b>	<ol style="list-style-type: none"> <li>1. The power cables are reversed.</li> <li>2. Poor power-supply cable connection.</li> <li>3. Battery providing power is too weak.</li> </ol>	<ol style="list-style-type: none"> <li>1. <i>Correctly position the power cables.</i></li> <li>2. <i>Secure the connection at the positive terminal and chassis ground.</i></li> <li>3. <i>Verify the battery is in good condition and fully charged.</i></li> </ol>
<b>I turn the Tester ON but there is no air or smoke coming out of the supply hose.</b>	<ol style="list-style-type: none"> <li>1. Flow Control valve is closed.</li> <li>2. Poor power-supply cable connection.</li> <li>3. Battery providing power is too weak.</li> <li>4. Air supply to tester is insufficient.</li> </ol>	<ol style="list-style-type: none"> <li>1. <i>Open flow control.</i></li> <li>2. <i>Secure the connection at the positive terminal and chassis ground.</i></li> <li>3. <i>Verify the battery is in good condition and fully charged.</i></li> <li>4. <i>Be sure air supply is sufficient.</i></li> </ol>
<b>Very little smoke coming out of the smoke hose or oil dripping from the smoke hose.</b>	<ol style="list-style-type: none"> <li>1. There is too much smoke condensation inside the smoke supply hose. &gt; This usually does <u>not</u> indicate a failure.</li> </ol>	<ol style="list-style-type: none"> <li>1. <i>Position the hose lower than the Tester. Set Flow Control valve to full open position and turn Tester &lt;ON&gt; for one minute or until condensation has drained from hose.</i></li> </ol>

# Warranty

## LIMITED ONE (1) YEAR WARRANTY



**Global Leak Detection warrants the Smoke Wizard® to the Original Purchaser that under normal use, care and service, the Equipment (except as otherwise provided herein) shall be free from defects in material and workmanship for ONE YEAR from the date of original invoice.**

Seller's obligations under this warranty are limited solely to the repair or, at Seller's option, replacement of or refund of the original purchase price for, Equipment or parts which to Seller's satisfaction are determined to be defective and which are necessary, in Seller's judgment, to return the equipment to good operating condition.

Repairs or replacements qualifying under this Warranty will be performed or made on regular business days during Seller's normal working hours within a reasonable time following Buyer's request. All requests for warranty service must be made during the stated warranty period.

## For Technical Support

**(866) 670-7734**

Mon.-Fri. 8:30am to 4pm Pacific Time

**TechSupport@SmokeWizard.com**

[www.SmokeWizard.com](http://www.SmokeWizard.com)

