



GM POWER SMOKE™ DIAGNOSTIC LEAK DETECTOR

OPERATION MANUAL

P/N RLD950103GM

REDLINE
DETECTION.COM

CONTENTS

Specifications	1
Reference Guide	2
Safety	3
Accessories	4
GM Power Smoke™ Set up	5
Adaptor Installation	6
Testing for Leaks	7 - 8
Trouble Shooting	8
Warranty	9
Replacement Parts	9

Technical Support: 1-866-55-SMOKE
+1 714-451-1411

GM Technical Support: 1-800-GM-TOOLS

Email Support: info@RedlineDetection.com
You will receive a call or email response
within six (6) hours

Shop Online: www.RedlineDetection.com

SPECIFICATIONS

Dimensions	9 in. x 9 in. x 15 in. (23 cm x 23 cm x 38 cm)
Weight - GM Power Smoke™	19 lbs. (9 kg)
Weight - Accessory Kit Only	16 lbs. (8 kg)
Weight - Shipping	41 lbs. (18.5 kg)
Power Supply	110-240V AC or 12V DC
Pressure Supply	Compressed Air
Output Pressure	2 to 20+ PSI (0.14 to 1.4+ BAR)
Operating Temperature	0°F to 140°F (-17°C to 60°C)
Operating Humidity	No Restrictions
Operating Altitude	No Restrictions
Smoke Output Hose	15 ft. (5 m)
12V Power Cable	15 ft. (5 m)
Operating Modes	Smoke Cycle / Air Only Cycle
Housing Material	Steel
Smoke Chamber Material	Billet Aluminum
Smoke Chamber Assembly	Bolted
Smoke Chamber Warranty	Lifetime
GM Power Smoke™ Warranty	1 Year



REFERENCE GUIDE

1. FLOW CONTROL KNOB (VARIABLE)

RELEASES VAPOR / PRESSURE INTO THE SYSTEM

CLOSE FLOW CONTROL VALVE TO LOCK OUT SYSTEM FOR PRESSURE DECAY TESTING

2. SYSTEM PRESSURE GAUGE

DISPLAYS THE BACK PRESSURE OF SYSTEM UNDER TEST

3. FLOW METER

MEASURES FLOW RATE INTO SYSTEM UNDER TEST

4. POWER INDICATOR

GREEN LIGHT INDICATES PROPER CONNECTION TO ELECTRICAL POWER

5. VAPOR TEST SWITCH

BEGINS TEN-MINUTE VAPOR CYCLE. RED LIGHT INDICATES VAPOR CYCLE. PUSH AGAIN TO STOP TESTING

6. AIR ONLY TEST SWITCH

BEGINS TEN-MINUTE AIR ONLY CYCLE. BLUE LIGHT INDICATES AIR ONLY CYCLE. PUSH AGAIN TO STOP TESTING

7. RESET SWITCH

CLEARs STORED LOGIC

8. ADJUSTABLE PRESSURE REGULATOR

ADJUST TEST PRESSURE FROM 2 TO 20+ PSI (0.14 TO 1.4+ BAR)

9. TEST PRESSURE GAUGE

INDICATES TEST PRESSURE SET BY REGULATOR

10. FLUID FILL PORT

REMOVE FLUID FILL PLUG TO FILL MACHINE WITH OEM-APPROVED VAPOR PRODUCING FLUID

11. COMPRESSED AIR INLET

REPLACE COUPLER FITTING IF NECESSARY. FEMALE 1/4 IN. NPT FITTING

12. VAPOR OUTPUT HOSE

13. 12 VOLT DC POWER CABLES

14. INTERNATIONAL AC POWER INLET (110-240V)

AC-OFF-DC

16. FUSE HOLDER

10A 250V FUSE PLUS ONE SPARE FUSE

FRONT VIEW



BACK VIEW



GM Power Smoke™ is designed to be used in conjunction with the supplied GM Graduated Adaptors, PowerSmoke™ Adaptors, or threaded sensor port adaptors to test the intake and exhaust systems of boosted engines.



DO NOT USE IN EVAP SYSTEM

GM Power Smoke™ utilizes higher test pressure that may damage components in evaporative emission systems. Redline Detection manufactures OEM approved EVAP leak detectors such as, Smoke Pro® Total-Tech® [95-0003/C] and Smoke Pro Air Complete™ [95-0051] which are specifically designed for EVAP system and general repair diagnostics.

SAFETY TIPS

- All diagnostic work should be performed with the engine off
- For use only by professional technicians
- Ensure that the vehicle is secure and stable
- Exercise caution when connecting and disconnecting compressed shop air supply
- Do not leave a vehicle unattended while equipment is operating
- Always wear proper safety protection
- This safety guide is not intended to take the place of common sense and good judgment

PowerSmoke™ Adaptor Safety:

- The maximum test pressure a PowerSmoke™ Adaptor may restrain can only be estimated.
- Slippage of a PowerSmoke™ Adaptor is influenced by many factors including debris / residue in the Intake / Exhaust system, coefficient of friction, internal pressure of the PowerSmoke™ Adaptor, and the accuracy of inflation instruments.
- Generally, a PowerSmoke™ Adaptor properly inserted into an Intake / Exhaust system may begin slipping when test pressure exceeds 50% of the internal inflation pressure. Inflation pressure and back pressure limitations are subject to temperature / humidity change.
- PowerSmoke™ Adaptor should NEVER be inflated over 1.6 times its deflated outside diameter.
- Debris, protrusions and residue in the Intake/Exhaust system could weaken and / or rupture the bladder of the PowerSmoke™ Adaptor. Bladder failures due to misuse or abuse are not covered by warranty. Redline Detection shall not be responsible for any incidental or consequential damages.
- PowerSmoke™ Adaptor must be mechanically anchored with the provided chain/cable to a secure anchor before use.
- PowerSmoke™ Adaptor slippage under test pressures™ may cause property damage or injury.
- NEVER use inflation pressure with PowerSmoke™ Adaptor or a test pressure that is greater than the capacity of the weakest component in the system under test.
- NEVER use Powersmoke™ Adaptor when its failure could cause injury or catastrophic damage.
- Before use: Refer to PowerSmoke™ Adaptor Installation & Inflation procedures, back pressure limitations and tether restraint installation instructions.

ACCESSORIES

1. Accessory Storage Case [RLD910006]

Store all included accessories.

2. GM Graduated Adaptor (4 tier) [RLD960202]

Quad diameter adaptor to test induction system.

3. GM Graduated Adaptor (5 tier) [RLD960203]

Triple diameter adaptor to test induction system.

4. PowerSmoke™ Adaptor 2.9 in. (7.4 cm) Diameter [RLD950081/B]

Inflatable block off bladder with a pressurized vapor pass-through

5. PowerSmoke™ Adaptor 1.9 in. (4.8 cm) Diameter [RLD950086]

Inflatable block off bladder with a pressurized vapor pass-through

6. Block Off Coupler [RLD960084]

Caps off vapor pass through to convert above adaptors to block off adaptors

7. Halogen Inspection Light [RLD960011]

12V DC with 20 ft. (6.1 m) cable. Always use to pinpoint leaks

8. AC Power Cable [RLD200010]

Use when selecting AC Power. Make sure cable is rated to match input voltage and plug configuration

9. GM-Approved Smoke Producing Fluid 8 fl. oz. (237 ml) [RLD960039GM]

Smoke Producing Fluid will perform over 500+ typical tests per bottle Important: Contains NO Dye / Contaminants

10. Hex Key [RLD800009]

To remove / replace fluid fill port plug

11. Oxygen Sensor Port Adaptor [RLD150059]

Use to access exhaust system through oxygen sensor port

12. Temperature Sensor Port Adaptor [RLD150056]

Use to access intake or exhaust system through temperature-sensor port

13. Pressure Sensor Port Adaptor [RLD150055]

Use to access intake or exhaust system through pressure sensor port

14. Cooling System Adaptor [RLD960086]

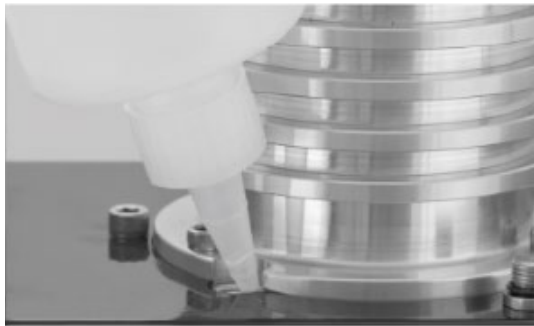
15. SmokeMeister™ Wand Adaptor [RLD960088]

Tube delivers vapor to find wind and water leaks in cabin or trunk

16. Power Intake™ Adaptor 1.5 in. (4.8 cm) [RLD950080]

Inflatable block-off bladder with vapor pass-through

	QUANTITY
	1
	1
	1
	1
	1
	2
	1
	1
	2
	1
	1
	1
	1
	1
	1
	1



1. FILL / ADD APPROVED VAPOR PRODUCING FLUID

- a. Remove vapor producing fluid fill plug with hex key
- b. Pour GM-Approved Vapor Producing Fluid into vapor producing fluid fill port

Note: Use only GM-Approved Vapor Producing Fluid part number : RLD960036

- c. Fill vapor fluid fill port until fluid level is near top of port

⚠️ 2 fl. oz. (60 ml) maximum to refill when empty

- d. Replace vapor producing fluid fill plug

⚠️ Never use dye / UV dye in GM intake or exhaust systems because it may coat or harm critical sensors

2. CONNECT TO ELECTRICAL POWER SOURCE

- Use the power selector switch on rear of machine to select input power, AC or DC
- If 12 Volt DC is preferred, connect the battery cables to a fully charged 12 Volt battery. RED to positive, BLACK to chassis ground
- If AC power is preferred, connect a properly rated power cord into the AC Power Port

- a. **● GREEN LIGHT** indicates power is ON

⚠️ DO NOT connect GM POWERSMOKE™ Diagnostic Leak Detector to a battery charger or jumper box

⚠️ NEVER connect GM POWERSMOKE™ Diagnostic Leak Detector to a vehicle with engine running

3. CONNECT TO PRESSURIZED AIR SUPPLY

- a. Connect compressed air supply to Air Inlet
*Replace quick coupler fitting if necessary. 1/4 in. NPT male

4. ADJUST GM POWERSMOKE™ DIAGNOSTIC LEAK DETECTOR FOR TESTING

- a. Close flow control valve
- b. Pull pressure regulator knob to unlock
- c. Push Vapor or Air Only Test to begin 10 minute cycle. Push again to stop

● RED LIGHT indicates Vapor Test

● BLUE LIGHT indicates Air Only Test

- d. Turn pressure regulator knob to desired test pressure. To adjust, turn clockwise to increase, counter clockwise to decrease.

- e. Push pressure regulator knob to lock.

5. OPEN FLOW CONTROL VALVE TO RELEASE VAPOR / PRESSURE

6. USE INSPECTION LIGHT TO LOCATE LEAKS

7. PERFORM REPAIR

8. REPEAT TEST TO CONFIRM REPAIRS

PowerSmoke™ ADAPTOR INSTALLATION

Read all safety instructions in the Safety Information section of the Engine Service Manual or Engine Diagnostic Manual. Failure to comply may result in personal injury and / or death.

Safety Warnings:

- The maximum test pressure a PowerSmoke™ Adaptor may restrain can only be estimated
 - Slippage of a PowerSmoke™ Adaptor is influenced by many factors including debris / residue in the Intake / Exhaust system, coefficient of friction, internal pressure of the PowerSmoke™ Adaptor, and the accuracy of inflation instruments
 - Generally, a PowerSmoke™ Adaptor properly inserted into an Intake / Exhaust system may begin slipping when test pressure exceeds 50% of the internal inflation pressure. Inflation pressure and back pressure limitations are subject to temperature / humidity change
 - PowerSmoke™ Adaptor should NEVER be inflated over 1.6 times its outside diameter
 - Debris, protrusions and residue in the Intake / Exhaust system could weaken and / or rupture the bladder of the PowerSmoke™ Adaptor. Bladder failures due to misuse or abuse are not covered by warranty. Redline Detection shall not be responsible for any incidental or consequential damages
 - PowerSmoke™ Adaptor must be mechanically anchored with the provided chain / cable to a secure location before use.
 - PowerSmoke™ Adaptor slippage under test pressures may cause property damage or injury
 - NEVER use inflation pressure with PowerSmoke™ Adaptor or a test pressure that is greater than the capacity of the weakest component in the system under test
 - NEVER use PowerSmoke™ Adaptor when its failure could cause injury or catastrophic damage
 - Before use: Refer to PowerSmoke™ Adaptor Installation and Inflation procedures, back pressure limitations and tether restraint installation instructions
1. Install PowerSmoke™ Adaptor fully into intake system ductwork or exhaust tubing. Make sure there are no obstructions or sharp edges that might puncture bladder when inflated. PowerSmoke™ Adaptor must insert completely inside ducting / tubing
 2. Install safety chain / cable to a secure location
 3. Inflate PowerSmoke™ Adaptor to 30 PSI (2 BAR) maximum. If over inflated, pop off safety valve may release. If release occurs, reinflate to 30 PSI (2 BAR)
 4. Firmly tug on safety chain to insure PowerSmoke™ Adaptor is firmly installed and properly secure
 5. Attach vapor hose for testing

SAFETY TIPS

- All diagnostic work should be performed with the engine off
- Do NOT use in EVAP system
- Ensure that the vehicle is secure and stable
- Exercise caution when connecting and disconnecting compressed shop air supply
- Do NOT leave a vehicle unattended while equipment is operating
- Always wear proper safety protection
- This safety guide is not intended to take the place of common sense and good judgment



Proper Installation



Improper Installation

Removal of PowerSmoke™ Adaptor:

1. Remove vapor hose (or block-off coupler) at quick coupler to deflate tested system
2. ONLY AFTER system under test is fully depressurized, release internal pressure of PowerSmoke™ slowly by depressing Schrader valve
3. Detach safety chain / cable
4. Remove PowerSmoke™ Adaptor from ductwork, making sure not to rub across sharp edges

Intake System Leak Testing

This test will find any leaks in ducting, charged air cooler, turbocharger, intake manifold, throttle body, seals, gaskets, hoses, etc.

Seal off intake system by installing GM Graduated Adaptor or PowerSmoke™ Adaptor (see instructions) into intake ducting after air cleaner box. Begin a 10-minute smoke cycle and pressurize entire system with smoke at 5 PSI (0.35 BAR) while inspecting for leaks using provided Halogen inspection light. If no leaks are present, increase pressure to 10 PSI (0.7 BAR) to observe leaks. Retest after repairs are performed to confirm proper repair and seal.

Exhaust System Leak Testing

This test will find any leaks in exhaust tubing, clamps, flex pipe, muffler, diesel particulate filter, turbocharger, exhaust manifold, etc.

Seal off exhaust system by installing PowerSmoke™ Adaptor (see instructions) into exhaust pipe. If using inside exhaust stack use the exhaust retention hoop to keep PowerSmoke™ Adaptor from falling inside exhaust stack. Exhaust Particulate Filter or Catalytic Converter may not allow visible vapor to pass through because the particulates get trapped. In that case you may use block off coupler to convert PowerSmoke™ Adaptor into a block off adaptor while injecting smoke into the system using the Temperature Sensor Port Adaptor, Pressure Sensor Port Adaptor or Oxygen Sensor Port Adaptor. These adaptors give you a great amount of flexibility in testing all areas of the exhaust system. Retest after repairs are performed to confirm proper repair and seal.

Combination Intake / Exhaust Testing

Some vehicles allow for a single procedure to test the entire intake and exhaust system at one time.

Many engine systems can be tested from the air box to the tip of the exhaust completely in a single test. To do so, install PowerSmoke™ Adaptor (see instructions) into intake ducting after air cleaner box AND install PowerSmoke™ Adaptor (see instructions) into exhaust pipe. Convert PowerSmoke™ Adaptor in exhaust system into a block off by installing block off coupler. Inject smoke into the intake system through the PowerSmoke™ Adaptor. Pressurize entire system inspecting for leaks. Note: Complete system testing can will occur when valve overlap is present or EGR valve is in open position. In cases where valve overlap cannot occur or EGR may not be opened either manually or computer controlled, separate system testing must be performed. Retest after repairs are performed to confirm proper repair and seal.

Cabin Leak Testing

Test for driver cabin exhaust / carbon monoxide infiltration, wind & water leaks.

Key on / Engine off, turn circulation fan to its highest speed making sure that the fresh air option is used (NOT recirculate). If vehicle has dual air option, also initiate fan, selecting highest fan speed setting. The circulation fan produces a positive cabin pressure. Make sure all windows and doors are completely closed. Install SmokeMeister Wand (optional) to end of Smoke hose. Set test pressure to 3 PSI (0.2 BAR). Make sure test is performed in a "still air" environment such as in a closed building. Using SmokeMeister Wand (optional) proceed around vehicle cabin laying down fluffy smoke on all seams, seals and joints looking for smoke vapor deflection from escaping air (leaks). Where smoke vapor is deflected is a visual conformation of a leak. Seal leak and retest entire cabin for further leaks. To check for doghouse engine cover leaks, turn off fans, install wand tip adaptor into wand, and inject smoke underside of doghouse while someone inside cabin looks for leaks. Retest after repairs are performed to confirm proper repair and seal.

TESTING FOR LEAKS CONTINUED

Coolant System Leak Testing

Cooling system leak testing can be performed two ways

Use GM Power Smoke™ to quickly and easily find cooling system leaks either with decay testing or using visible vapor. First, attach (optional) cooling system adaptor to pressurized coolant bottle or radiator at cap. For decay testing, simply pressurize coolant system with air-only to manufacturers recommended test pressure, typically 15 PSI (1 BAR). Turn off flow control valve to lock out system and watch for decay. Inspect visually for leaking fluid. Alternatively, to perform leak test using smoke vapor, first drain the cooling system of all fluid. Introduce pressurized vapor in to cooling system at no more than the manufacturers recommended test pressure and use inspection light to find leaks. Retest after repairs are performed to confirm proper repair and seal.

IMPORTANT NOTE



Many leaks in systems are considered “normal” or “within tolerance.” For example, a weep hole in a muffler is acceptable. DO NOT assume every wisp of smoke represents a failing component. Check with vehicle manufacturer before replacing suspected failed part.

TROUBLESHOOTING

PROBLEM

SOLUTION

No Green Light

- Check for proper battery voltage
- Align power supply switch with input (AC or DC)
- Check polarity if 12V DC is selected
- Check fuse if AC Power is selected

Red Light Flashing

- Open circuit / internal component
- Contact Redline Technical Support
866-55-SMOKE or +1 714-451-1411
Email: info@RedlineDetection.com

No Air Flow

- Check connection to compressed air
- Open the flow control valve
- Check hoses are not kinked or pushed into machine

Poor Smoke Density or Volume

- Insufficient Smoke Producing Fluid: Refill
- Flow Control Valve is partially closed
- Smoke Output Hose is kinked

High Test Pressure Reading

- Smoke Output Hose is kinked

The manufacturer, Redline Detection, LLC ("Redline") warrants this product to be free from defects in workmanship and material under normal use and service for a period of one-year from the date of purchase. Redline's liability under this warranty is limited to: (1) repair or replacement of any parts or product which are determined to be defective; or at Redline's sole option (2) refund of the purchase price. In either event, product to be returned shipping prepaid within the one year warranty period. Additionally, the smoke chamber in any Redline product has a lifetime warranty as to its structural integrity: Any Redline-manufactured smoke chamber that leaks, cracks, or separates in any way shall be repaired or replaced by Redline at no charge. Products are only to be used by persons having skill and knowledge in the motor vehicle repair field, and improper use or maintenance may cause serious injury. In no event shall Redline be liable beyond replacement of product or refund of the purchase price. This warranty shall void if a product is improperly maintained, altered, abused or otherwise misused in any way.

THE AFORESAID WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, AND THERE ARE NO OTHER WARRANTIES OR REPRESENTATIONS OF ANY KIND WHATSOEVER MADE BY REDLINE, EITHER EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR APPLICATION.

THE PURCHASER'S SOLE REMEDY FOR ANY DEFECTIVE PRODUCT SHALL BE REPAIR, REPLACEMENT OR REFUND AS STATED ABOVE AND REDLINE SHALL NOT BE LIABLE TO ANYONE FOR ANY SPECIAL, CONSEQUENTIAL, INCIDENTAL, INDIRECT OR PUNITIVE DAMAGES ON ACCOUNT OF DEFECTIVE PRODUCTS, HOWEVER CAUSED, UNDER ANY THEORY OF LIABILITY.

REPLACEMENT PARTS

For replacement parts, please call:

GM Technical Support: **1-800-GM-TOOLS**

1. **GM Smoke Producing Fluid [RLD960036]**
2. **Flowmeter [RLD300023]**
3. **System Pressure Gauge [RLD300020]**
4. **Test Pressure Gauge [RLD300018]**
5. **Replacement Bladder 1.9 in. (4.8 cm) [RLD100031]**
6. **Replacement Bladder 2.9 in. (7.4 cm) [RLD100035]**
7. **Replacement Halogen Bulb [RLD200002]**



ADDITIONAL ACCESSORIES

1. **PowerSmoke™ Adaptor 3.9 in. (10 cm) [RLD950080]**
2. **Wand / Tip Adapter [RLD150080]**





* with global components

Manufactured By
Redline Detection, LLC



US & INT'L PATENTS PENDING

REDLINE
DETECTION.COM

Technical Support +1 714-451-1411
Shop Online: www.RedlineDetection.com