

DIAGNOSTIC LEAK DETECTOR

Version B

OPERATION MANUAL



Manufactured in California, USA*

CONGRATULATIONS

Thank you for purchasing the Diagnostic Leak Detector that 100,000+ technicians use to work smarter every day. We have manufactured a very rugged tool that works as hard as you do.

I appreciate how challenging your job can be: I promise your Diagnostic Leak Detector will make your job easier by drastically reducing diagnostic time and help you to make more money.

The versatile Diagnostic Leak Detector is not just for EVAP testing. You will find it indispensable in diagnosing vehicles with complex drivability issues. This tool will find more repairs and help you to sell the repair jobs to your customers. Don't tell your customers about leaks and faults, show them!

If you smoke test the intake system of most every vehicle that comes through your service center, your Diagnostic Leak Detector will pay for itself in less than 30 days. More importantly, your customers will enjoy better performance and increased fuel economy in their vehicles.

Thank you. I appreciate you.

Zachary Parker
President
Redline Detection, LLC

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SPECIFICATIONS

| | |
|------------------------|-------------------------------------|
| L x W x H | 5.5 x 6 x 11 in. (14 x 15 x 28 cm) |
| Weight | 6.5 lbs. (3 kg) |
| Shipping Weight | 13 lbs. (6 kg) |
| Power Supply | 12 Volts DC |
| Power Consumption | 7 amps |
| Output Pressure | 0.47 PSI / 13.0 in. H2O / 0.032 bar |
| Operating Temperature | 0°F to 140°F (-17°C to 60°C) |
| Operating Humidity | No Restrictions |
| Operating Altitude | No Restrictions |
| Smoke Output Hose | 10 ft. (3.05 m) |
| Power Supply Cables | 10 ft. (3.05 m) |
| Operating Modes | Smoke Cycle/ Air Only Cycle |
| Pressure Supply | Compressed Air |
| Housing Material | Steel |
| Smoke Chamber Material | Billet Aluminum |
| Smoke Chamber Assembly | Bolted |
| Smoke Chamber Warranty | Lifetime |

APPLICATION GUIDE

LEAKS



| | Car | Pickup | Box Truck | Truck | Aircraft |
|--|-----|--------|-----------|-------|----------|
| <input type="checkbox"/> EVAP | ● | ● | ● | ○ | ○ |
| <input type="checkbox"/> VACUUM | ● | ● | ● | ○ | ○ |
| <input type="checkbox"/> OIL | ● | ● | ● | ○ | ○ |
| <input type="checkbox"/> EXHAUST | ● | ● | ● | ○ | ○ |
| <input type="checkbox"/> INTAKE | ● | ● | ● | ○ | ○ |
| <input type="checkbox"/> WIND & WATER | ● | ● | ● | ● | ● |
| MANIFOLDS | ● | ● | ● | ○ | ○ |
| TURBOCHARGERS | ○ | ○ | ○ | ○ | ○ |
| SENSORS | ● | ● | ● | ○ | ○ |
| <input type="checkbox"/> SEALS & HOSES | ● | ● | ● | ○ | ○ |

KEY

● EXCELLENT
Designed for this purpose

○ SUITABLE
But not specifically designed for this purpose

○ NOT APPLICABLE
Does not apply for this purpose

FEATURED LEAK
Check out how to test for this leak on our DVD

SAFETY

The procedures in this operation manual are intended to be basic guidelines for users to practice using this diagnostic leak detector

This operation manual is not intended to be used in place of common sense:

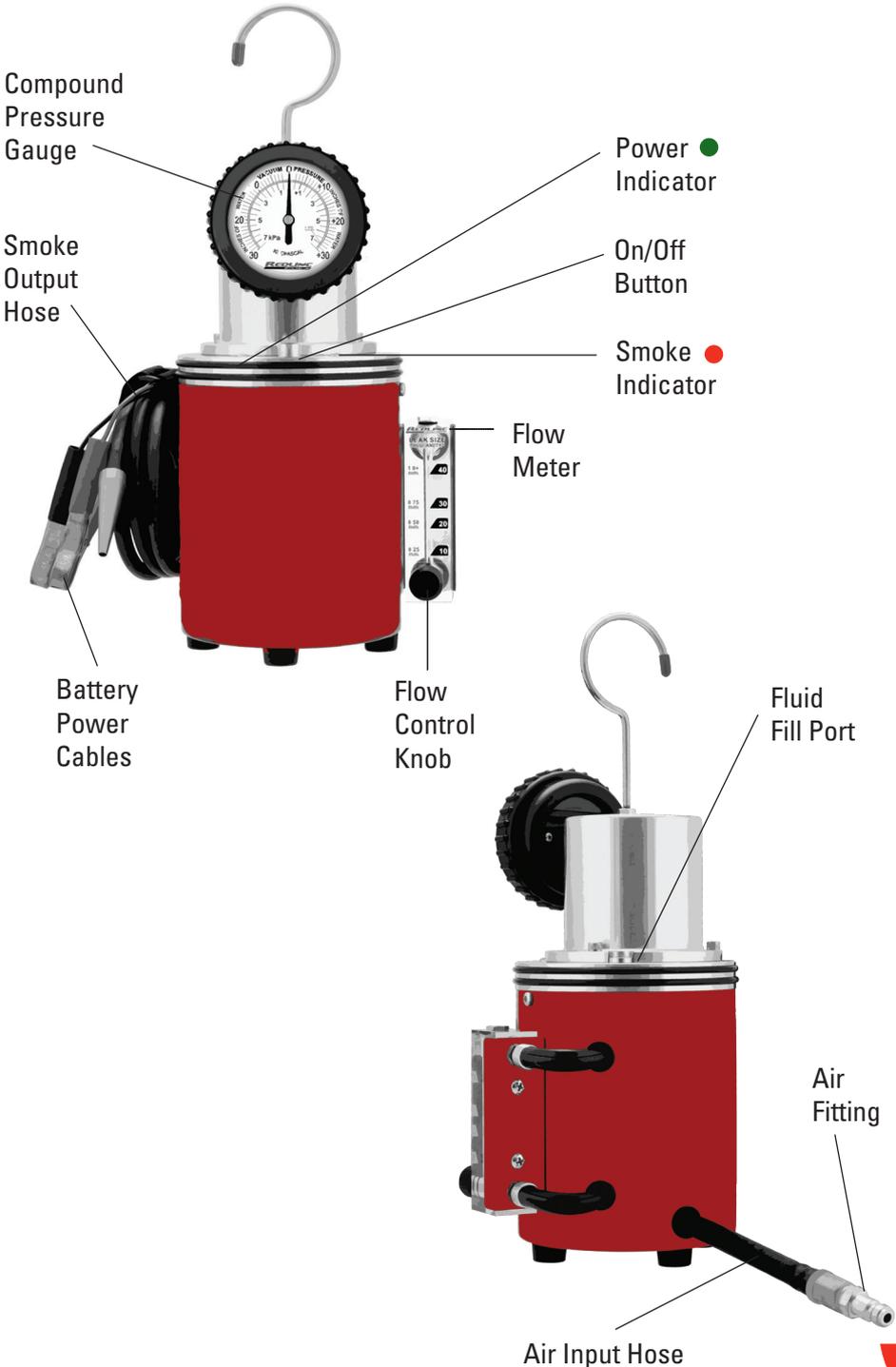
- Use this equipment in the manner specified by the manufacturer
 - Understand operating procedures
- Follow all safety precautions

SAFETY PRECAUTIONS

- All diagnostic work should be performed with the engine off
- Do not leave a vehicle unattended while equipment is connected or operating
- Equipment operates on a 12 Volt battery
Connect machine to battery (+) and chassis ground (-)
- Do not perform tests near a source of spark of ignition
- When working with the fuel system, work in a well-ventilated area
- Always wear the appropriate safety protection
Wear OSHA standard eyewear and protective gloves when using this equipment

 Always use a supplemental hood support or prop rod whenever hanging unit under a hood

COMPONENTS



ACCESSORIES INCLUDED

Hook [PN 96-0005]

To hang Diagnostic Leak Detector under hood or chassis



Hex Key [PN 80-0009]

To remove/replace fluid fill plug



OEM-Approved Smoke Agent [PN 96-0039]

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



EVAP Service Tool Kit [PN 96-0003]

Schrader Valve Removal Tool
EVAP Service Port Adapter



Halogen Inspection Light [PN 96-0011]

Bright white beam finds even the tiniest wisps of smoke under the hood or chassis



Cap Plug Kit [PN 96-0007]

Seals a variety of openings in order to pressurize system for testing



Standard Cone Adapter [PN 96-0004]

To introduce smoke into exhaust and induction systems



Accessory Storage Case [PN 91-0011]



ADDITIONAL ACCESSORIES

EasyEVAP™ [PN 95-0030]

This universal Fuel Filler Neck Connector system fits 100% of vehicles to simplify EVAP testing

Universal Filler Neck Connector [PN 95-0011]

Made in USA of billet aluminum

Sealing Disks [PN 96-0017]

Creates an air-tight seal with any filler neck

CapAdapt™ Capless Adapter [PN 96-0054]

Opens throat of capless filler necks

XL Cone Adaptor [PN 96-0055]

For use with large vehicles and trucks with large openings

Extended Accessory Kit [PN 95-0005]

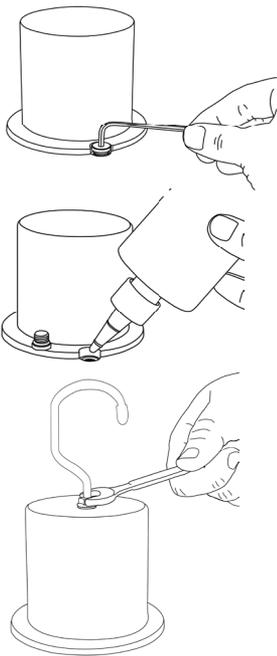
Standard Cone Adaptor for dual exhaust
Smoke Output Hose extension allows operator to test 20' from unit
Additional OEM-Approved smoke producing fluid for 500+ typical tests

Replacement Bulb [PN 20-0002]

MR-16 bulb, replacement for Inspection Light



SET UP



1. FILL/ ADD SMOKE PRODUCING FLUID

Remove Fluid Fill Plug with hex key

Pour OEM-Approved Smoke Agent into Fluid Fill Port until fluid level is near top of the fill port
Replace Fill Plug



Do not overfill

Only takes 2 fluid ounces to refill when empty

2. INSTALL HOOK

Use a wrench to tighten jam nut

HOOK UP

3. CONNECT TO POWER

This machine runs on a fully-charged 12-Volt battery

Connect red lead (+) to battery's positive terminal

Connect black lead (-) to chassis ground



Do not connect to battery charger

POWER INDICATOR:

- Green Light: Machine has adequate power
- No Light: No Power, See Troubleshooting (Pg 11)

4. CONNECT TO AIR SUPPLY

Connect Air Input Hose to a compressed air supply

If necessary, replace Air Fitting to match your air supply

TESTING FOR LEAKS

5. PUSH ON/ OFF BUTTON

Begins 5-minute smoke cycle

SMOKE INDICATOR:

- Red Light: Smoke is Generating
- ◻ Flashing Red Light: Open Circuit, See Troubleshooting (Pg 11)
- No Red Light: No Smoke Generating

Turn Flow Control Knob counter-clockwise to release smoke/ pressure

Flow Meter indicates flow and measures leak size

Use provided Halogen Inspection Light to locate leaks

Perform repair(s) as needed

VERIFY REPAIRS

5. PERFORM DECAY/ LEAK DOWN TEST

Pressurize the sealed system

Lock out system by turning Flow Control Knob clockwise to the fully closed position

OBSERVE PRESSURE GAUGE FOR DECAY:



Pressure Holds: No leaks, Repair is complete



Pressure Decreases:

Leak(s) exist, Repair Steps 5 & 6 until all repairs are complete

NOTE: Not all systems are designed to be 100% sealed

HOW TO DIAGNOSE INTAKE SYSTEM & VACUUM LEAKS

This procedure will locate leaks in vacuum lines as well as manifolds, EGR valves, oil seals, gaskets, solenoids, o-rings, ducting, throttle shafts, diaphragms, canisters, and more

For best results, test in a draft-free area

1. Remove the air filter housing from ducting
2. If the vehicle has a round inlet tube from the air filter, place the Cone Adapter into the duct toward the engine
3. Put Smoke Supply Hose into Cone Adapter to introduce smoke vapor into the system
4. Use provided Halogen Inspection Light to locate leaks

ALTERNATIVE METHOD

1. Select an appropriate vacuum line to access the vacuum system (i.e. a brake booster supply line before the check valve)
2. Seal all system openings
 - a. Air Intake must be sealed to prevent smoke vapor from leaking back through the intake
 - b. To seal the intake, use Cap Plugs, a latex glove, or plastic wrap around the filter
3. Put Smoke Output Hose into Cone Adapter to introduce smoke vapor into the system
4. Use provided Halogen Inspection Light to locate leaks

HOW TO DIAGNOSE EVAP LEAKS

Leaks in the EVAP system, or fuel vapor recovery system, are frequently the cause for check engine lights. Using a diagnostic leak detector, these leaks can now be quickly diagnosed and repaired, making them profitable services for repair facilities

1. To access the EVAP service port, remove the green cap
Remove Schrader valve using the provided Schrader Valve Removal Tool (Schrader valve has left-handed threads, turn clockwise to remove)
2. Connect the provided EVAP Service Port Adapter to the service port
3. Using a scan tool, close the vent solenoid to close EVAP system from atmosphere (If vent solenoid does not close, intermittent solenoid may have failed)
4. Input smoke vapor into the system through adapter
5. Remove the fuel cap until dense smoke is seen exiting the filler neck
6. Replace the fuel cap and continue pumping smoke into the system

As the system fills with smoke vapor and the system pressure equalizes, observe the Flow Meter and Pressure Gauge

When pressure gauge reaches its maximum pressure, Flow Meter will indicate leak size (Flow Meter will drop to zero if there are no leaks)

7. Using the provided Halogen Inspection Light, inspect under the hood and trace the route of the EVAP system on the underside of the vehicle for leaks
8. Repair the system as needed

PRESSURE DECAY/ LEAK DOWN TEST

9. After all repairs have been made, retest the system using the Decay or Leak Down testing method with air only
 - a. Input air into EVAP system until fully pressurized
 - b. Lock out system by turning the Flow Control Knob to the fully closed position
 - c. If leaks are repaired properly, system will hold pressure
 - d. If pressure decays or leaks down, leaks existRepeat above procedures until all repairs are complete

HOW TO DIAGNOSE EXHAUST LEAKS

This test is most effective when exhaust system is cold
Thermal expansion may cause small leaks to seal

1. Insert appropriate Cone Adapter into the end of the tailpipe
If the vehicle has dual exhaust with cross over system, plug the other tailpipe to seal the system
2. Put Smoke Output Hose into Cone Adapter to introduce smoke vapor into the system

A hot catalytic converter may consume some of the smoke

 All testing is performed with the engine off

HOW TO DIAGNOSE UNDER DASHBOARD LEAKS

Many vehicles have a common vacuum line, leading from the engine compartment through the firewall, under the dashboard

This line supplies vacuum to climate control functions and other vacuum-operated systems

1. Disconnect the vacuum line under the hood at its source
2. Input smoke vapor into the vacuum line
3. Observe the Flow Meter and Pressure Gauge while changing the climate controls from heat to vent, to defrost, etc.
4. Change in the Flow Meter or Pressure Gauge's reading will indicate which system is leaking
5. Set the climate control to the leaking system
6. Use provided Halogen Inspection Light to locate under dash leaks

Central locking system leak inspection is performed in the same manner
Activate control solenoids while introducing smoke vapor into the system

TROUBLESHOOTING

| PROBLEM | SOLUTION |
|---------------------------------------|--|
| No Green Light | Check polarity Ensure 12-Volt battery is fully-charged Reconnect power cables |
| Red Light Flashing | Ensure 12-Volt battery is fully-charged Open circuit/ internal component Contact Redline Technical Support |
| No Air Flow | Check connection to compressed air Open the flow control valve Check hoses are not kinked or pushed into machine |
| Not Enough Smoke | Check Fluid Level ▶ Open the flow control valve Check hoses are not kinked or pushed into machine |
| Flow Meter Ball Sticking | Clean Flow Meter ▶ |
| Gauge Bouncing Flow Meter Bouncing | Drain Smoke Hose ▶ |

REDLINE TECHNICAL SUPPORT



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Monday - Friday: 7:00 AM to 5:00 PM PST

MAINTENANCE

CHECK FLUID LEVEL

Remove fill plug from fluid fill port with hex key

Pour OEM-Approved Smoke Agent into Fluid Fill Port until fluid level is near top of the fill port

Replace fill plug

Check fluid level every 50 - 100 tests

CLEAN FLOW METER

Disconnect air supply and power from the machine

Remove the flow meter's top plug with a wrench

Invert the machine to remove flow meter ball

Apply isopropyl/rubbing alcohol to a long cotton swab to clean flow meter tube

Use a dry cotton swab to dry flow meter tube

Wipe flow meter ball clean with dry cloth

 Do not use alcohol/ cleaners on flow meter ball

Reinstall flow meter ball and replace the top plug

DRAIN SMOKE HOSE

Elevate the machine

Allow the entire smoke hose to hang downward

Place a container beneath the nozzle to capture fluid

Process takes approximately 5 minutes

WARRANTY

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 / replaced by Redline at no charge. Products are only to be used by persons having skill and knowledge in the automotive 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.

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Redline Detection, LLC

MADE IN USA*

*With global components

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