

# DIAGNOSTIC LEAK DETECTOR

## 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 vapor 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 in. x 6 in. x 11 in. (14 cm x 15 cm 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        | 0.5 PSI / 13.0 in. H <sub>2</sub> O / 0.032 BAR  |
| Operating Temperature  | 0°F to 140°F (-17°C to 60°C)                     |
| Operating Humidity     | No Restrictions                                  |
| Operating Altitude     | No Restrictions                                  |
| Vapor Output Hose      | 10 ft. (3.1 m)                                   |
| Power Supply Cables    | 10 ft. (3.1 m)                                   |
| Operating Modes        | Vapor Cycle / Air Only Cycle                     |
| Pressure Supply        | Compressed Air                                   |
| Housing Material       | Steel  |
| Vapor Chamber Material | Billet Aluminum                                  |
| Vapor Chamber Assembly | Bolted   |
| Vapor Chamber Warranty | Lifetime   |

# APPLICATION GUIDE

## LEAKS

|                |  |  |  |  |  |
|----------------|--|--|--|--|---|
| EVAP           | ●  | ●  | ●  | ○  | ●   |
| VACUUM         | ●  | ●  | ●  | ○  | ●   |
| OIL            | ●  | ●  | ●  | ○  | ●   |
| EXHAUST        | ●  | ●  | ●  | ●  | ●   |
| INTAKE         | ●  | ●  | ●  | ●  | ●   |
| WIND & WATER   | ●  | ●  | ●  | ●  | ●   |
| MANIFOLDS      | ●  | ●  | ●  | ●  | ●   |
| TURBOCHARGERS* | ○  | ○  | ○  | ○  | ○   |
| SENSORS        | ●  | ●  | ●  | ●  | ●   |
| SEALS & HOSES  | ●  | ●  | ●  | ●  | ●   |

\*Redline PowerSmoke Pro or HD PowerSmoke best suited for this application

## KEY

● EXCELLENT  
Designed for  
this purpose

○ SUITABLE  
But not specifically  
designed for this purpose

○ NOT APPLICABLE  
Does not apply for  
this purpose

# 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:

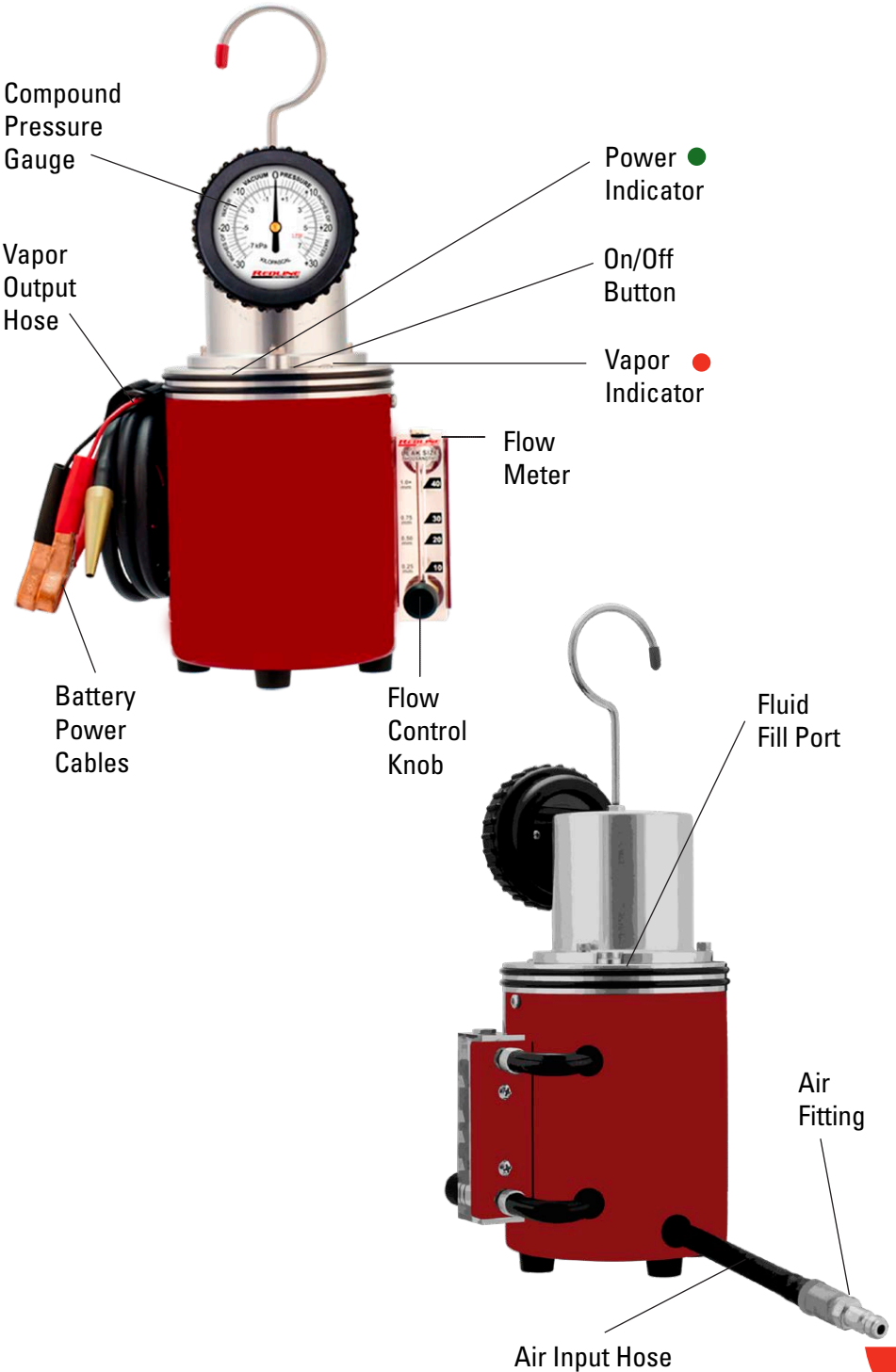
- Use this equipment in the manner specified by the manufacturer
- Understand operating procedures
- Follow all safety precautions

## 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 or ignition
- When working with the fuel system, work in a well-ventilated area
- Always wear the appropriate safety protection  
Wear OSHA standard eye wear 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 Vapor Producing Fluid [PN 96-0039]

Vapor 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 Adaptor

## Halogen Inspection Light [PN 96-0011]

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

## Cap Plug Kit [PN 96-0007]

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

## Easy INTAKE™ [PN 95-0082/B]

Award-winning Easy INTAKE™ is an inflatable block off bladder with a pressurized vapor pass-through that allows technicians to test an entire intake or exhaust system quickly and easily.

## Accessory Storage Case [PN 91-0011]



## ADDITIONAL ACCESSORIES

### Easy EVAP™ [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 Adaptor [PN 96-0054]

Opens throat of capless filler necks

### Standard Cone Adaptor [PN 96-0004]

For use to seal openings from 1 in. (2.5 cm) to 3.4 in. (8.6 cm) to introduce vapor into exhaust and induction systems

### Extended Accessory Kit [PN 95-0005]

Standard Cone Adaptor for dual exhaust  
For use to seal openings between 1 in. (2.5 cm) to 3 in. (7.6 cm)

Vapor Output Hose extension allows operator to test 20 ft. (6.1 m) from unit

Additional OEM-Approved vapor producing fluid for 500+ typical tests

### XL Cone Adaptor [PN 16-0003]

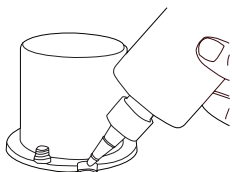
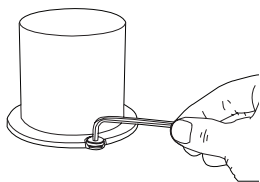
For use to seal openings from 3.4 in. (8.6 cm) to 5.25 in. (13.3 cm) to introduce vapor into exhaust and induction systems

### Replacement Bulb [PN 20-0002]

MR-16 bulb, replacement for Inspection Light



## SET UP



### 1. FILL / ADD VAPOR PRODUCING FLUID

Remove Fluid Fill Plug with hex key

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



Do not overfill  
Only takes 2 fl. oz. (60 ml)  
to refill when empty



Never use dyes, solvents or other contaminants in intake or exhaust systems because they may coat and/or harm critical sensors, catalysts or filters

### 2. INSTALL HOOK

Use a wrench to tighten jam nut

## HOOK UP CONNECTIONS

### 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 or jumper box

### 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

In U.S., inert gas connection kits are available as optional accessory and either compressed air or inert gas may be used

Contact Redline Detection for proper fitment applications



## TESTING FOR LEAKS

### 5. PUSH ON / OFF BUTTON

Begins 5-minute vapor cycle

#### VAPOR INDICATOR:

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

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

Flow Meter indicates flow and measures leak size

Use provided Halogen Inspection Light to locate leaks

Perform repair(s) as needed

## VERIFY REPAIRS

### 6. 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, Repeat 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 Adaptor into the duct toward the engine
3. Put Vapor Supply Hose into Cone Adaptor to introduce 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 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 Vapor Output Hose into Cone Adaptor to introduce 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 of check engine lights. Using a diagnostic leak detector, these leaks can be quickly diagnosed and repaired, making them profitable services for repair facilities

## PRESSURE DECAY / LEAK DOWN TEST

1. Verify if a leak is currently present, test the EVAP system using the Decay or Leak Down testing method with air only
  - a. 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)
  - b. 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)
  - c. Input air into EVAP system until fully pressurized. When pressure gauge reaches its maximum pressure (12-14 inches of water column), Flow Meter will indicate leak size (if leak is present)
  - d. Lock out system by turning the Flow Control Knob to the fully closed position.  
Observe pressure gauge for decay
  - e. If no leaks are present, system will hold pressure
  - f. If pressure decays or leaks down, leaks exist. Proceed to step 2 to find leaks
2. Push ON / OFF button to begin 5 minute vapor cycle
3. Remove the fuel cap
4. Open Flow Control Valve to input vapor into the system through adaptor
5. Replace fuel cap when dense vapor is seen exiting the filler neck
6. Continue pumping vapor into the system
7. Using the provided Halogen Inspection Light, inspect for leaks (under the hood and tracing the route of the EVAP system on the underside of the vehicle)
8. Repair the system as needed
9. Repeat procedures in steps above until all repairs are complete and final quality test is performed, indicating no leaks

## 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 Adaptor 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 Vapor Output Hose into Cone Adaptor to introduce vapor into the system

A hot catalytic converter may consume some of the vapor

 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 fire wall, 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 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 vapor into the system

# TROUBLESHOOTING

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

## REDLINE TECHNICAL SUPPORT



[RedlineDetection.com/support](https://RedlineDetection.com/support)



[TechSupport@RedlineDetection.com](mailto:TechSupport@RedlineDetection.com)

+1 714-451-1411



Monday - Friday: 7:00 to 17:00 PACIFIC TIME

**Stay Connected**

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# MAINTENANCE

## **CHECK FLUID LEVEL** See Set Up (pg 6)

Remove fill plug from fluid fill port with hex key

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

Replace fluid fill plug

Check fluid level every 50 - 100 tests

## **CLEAN FLOW METER**

Disconnect air supply and power from the machine


Remove the top plug of flow meter 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 VAPOR HOSE**

Elevate the machine

Allow the entire vapor 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 2 years 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 vapor chamber in any Redline product has a lifetime warranty as to its structural integrity: Any Redline-manufactured vapor 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.

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.



Manufactured By  
Redline Detection, LLC

Made in the USA

\*with globally sourced components

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