

LASER[®]

Part No. 8831

Diagnostic Smoke Leak Detector Kit

Instructions



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Introduction

The Laser 8831 smoke machine kit is specially designed for controlled smoke generation, facilitating the detection of elusive leaks in various systems. It's a valuable tool for pinpointing leaks in inlet manifold pipe work, plenum tubes, turbo pipes, intercoolers, exhaust systems, EVAP systems, engine breather pipes, and even vehicle door seals (for door seals, the kit is used outside of the vehicle with heater fans set to maximum inside the car). The kit comes with expandable bungs and rubber cones for convenient sealing and can also be utilised in conjunction with the Laser Turbo-system tester set (Part No. 7981).

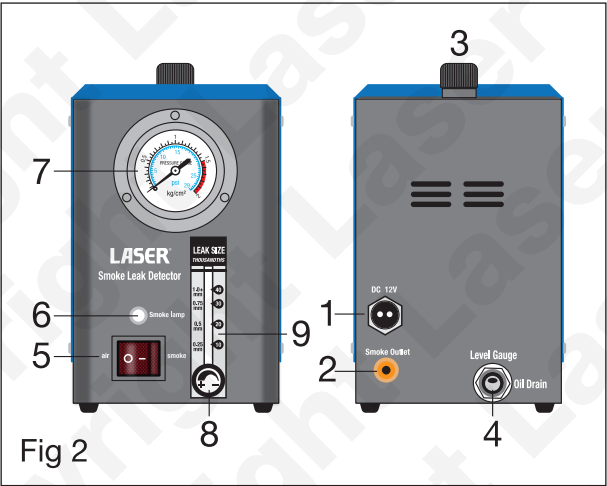
Designed to be powered by 12V vehicle battery, the instrument features a built-in pressure gauge, adjustable pressure regulator and flow gauge to allow the system being tested to be pressurised where required. Uses commercially-available baby oil.

Components



Ref.	Description
A	Smoke-generator
B	Locating hook
C	Smoke oil container
D	12V DC power lead & connectors
E	Smoke outlet tube & plug
F	Sealing plug & bung assortment
G	Cooling system adaptor
H	Inflatable, expandable adaptor
I	Spare inflatable sheath + clip
J	Valve core removal tool

Instrument Controls



Ref.	Description
1	12V DC inlet socket
2	Smoke outlet
3	Smoke oil filler cap
4	Combined level sight-glass & oil-drain
5	Smoke generator switch
6	Smoke-active lamp
7	Pressure gauge
8	Flow-level adjustment knob
9	Flow meter

Instructions

Before use — Filling with smoke oil fluid:

The first fill of the machine will require approximately 20-30ml of smoke oil fluid. When filling or draining the machine ensure that it is switched off and disconnected from the 12V power supply.

Refer to Figure 2: remove smoke oil filler cap (3), and carefully pour in the required amount of smoke oil fluid (supplied). DO NOT overfill, as this will cause malfunction.

If, when in use, the smoke is getting thin and difficult to see, it could indicate that the smoke oil level is getting low. Add only 5ml at a time, checking the level sight-glass (4) to avoid overfilling.

The oil should be replaced every three months if left in machine. To drain, unscrew the combined level sight-glass & oil-drain (4) — dispose of the oil as per your local authority guidelines.

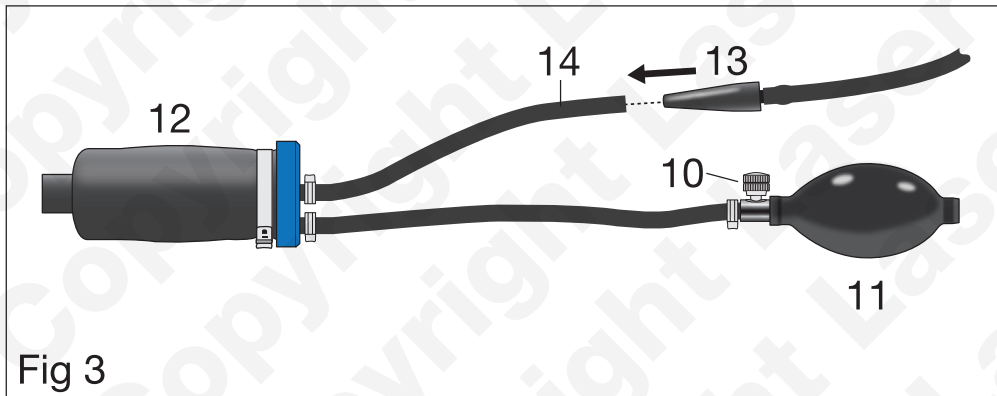
Instructions

Operation:

1. Place the machine in a suitable, secure position; if working over a vehicle engine bay, it can be conveniently placed by using the supplied hook (B in Figure 1), to hang off the underside of bonnet/hood.
2. Seal the system to be tested by using a suitable adaptor or bung supplied with the kit. If necessary, fit an additional adaptor to allow the smoke outlet plug (13 in Figure 3) to be fitted.
3. Connect the machine to a suitable 12V DC power source (car battery or under bonnet charge points). Red clamp to + positive and black clamp to – negative (ground). NOTE: DO NOT reverse the connections to avoid damage to the machine. The pump in the machine will start as soon as the 12V power is connected.
4. Switch on the smoke generator function (5 in Figure 2); the smoke-active lamp (6 in Figure 2) will illuminate. There will be a small delay as the machine warms up and starts to produce smoke. Now fit the smoke outlet plug (13 in Figure 3) to the sealing adaptor/bung.
5. Adjust flow level as required by turning the flow-level adjustment knob (8 in Figure 2). Watch the pressure gauge (7 in Figure 2) to ideally keep the pressure in the 5-10 psi range. Wait for a few minutes to allow the smoke to fill the system. Carefully check around joints and connections for evidence of smoke leakage (the use of a bright LED lamp or the addition of UV dye in the smoke oil fluid can assist with locating leaks).
6. If the system pressurises quickly and the flow meter (9 in Figure 2) is showing zero flow, then there are no leaks in the system as tested. If the flow meter is registering flow, then there is a leak (or leaks) in the system.
7. When finished, allow the machine to cool down before storage. Clean and purge all hoses, bungs and adaptors before storage.

Instructions

Use of inflatable, expandable adaptor:



The inflatable, expandable adaptor (12 in Figure 3) is a useful method of sealing larger hoses or engine inlet systems:

1. Fit the adaptor to the required hose or inlet.
2. Seal the expandable adaptor by closing the pressure-sealing one-way valve (10 in Figure 3) fully clockwise.
3. Pump the inflator bulb by hand (11 in Figure 3) to expand the rubber sheath and fully seal the system to be tested.
4. Now fit the smoke outlet plug (13 in Figure 3) to the expandable adaptor smoke inlet tube (14 in Figure 3).
5. Continue from Point 3 of **Operation** section above.
6. When finished, release the pressure of the rubber sheath by turning the one-way valve counter-clockwise.

NOTE: The machine has a duty-cycle; it is equipped with a safety cut-out device to protect the internal systems. If the duty-cycle limit is reached, the machine will cut out. It will not restart and continue to generate smoke until it has been switched off, disconnected from the power supply and left to cool down for approximately 10-15 minutes. The duty cycle is normally 15 to 20 minutes before cut out occurs, but in some instances this may be shorter (high ambient temperature for example).

Precautions



- The supplied instructions are for guidance only. For manufacture-recommended methods of leak-detection, refer to OEM-derived data such as the vehicle manufacturer's data or Autodata.
- To ensure operator safety, use the instrument in accordance with these written instructions.
- Use in a well-ventilated area.
- 12V DC power source connections: red clamp to + positive and black clamp to – negative (ground). DO NOT reverse the connections to avoid damage to the machine.
- Smoke oil fluid: DO NOT overfill the machine as this will cause malfunction.
- When filling or draining the machine ensure that it is switched off and disconnected from the 12V power supply.
- Do not shake or drop the instrument. Avoid areas of severe vibration.
- Do not store or operate the instrument at high temperatures or in conditions of high humidity, dampness or condensation.
- Keep the instrument clean and in good condition; do not use organic solvents (such as alcohol or paint thinners) to clean.
- No liability is accepted for incorrect use of this product — do not use the product for tasks it is not designed for. Use the product correctly and with care. Failure to do so may cause damage and/or personal injury and will invalidate the warranty.
- Dispose of old or unused smoke oil fluid according the local authority guidelines.

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If applicable, the applications database and any instructional information provided has been designed to offer general guidance for a particular tool's use and while all attention is given to the accuracy of the data no project should be attempted without referring first to the manufacturer's technical documentation (workshop or instruction manual) or the use of a recognised authority such as Autodata.

It is our policy to continually improve our products and thus we reserve the right to alter specifications and components without prior notice. It is the responsibility of the user to ensure the suitability of the tools and information prior to their use.



Safety First. Be Protected.



When you have finished with
this product please recycle it

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