AUTOOL SDT103

AUTOOL SDT103 Smoke Machine Automotive Leak Detector User Manual

Model: SDT103
Brand: AUTOOL

1. Introduction and Overview

The AUTOOL SDT103 Smoke Machine Automotive Leak Detector is a professional tool designed for quickly and accurately diagnosing leaks in various automotive piping systems. This device helps identify issues such as vacuum hose ruptures, idle drift, and air leaks that can lead to poor engine performance, increased fuel consumption, and other operational problems.
The SDT103 is compatible with a wide range of vehicles, including cars, motorcycles, snowmobiles, off-road vehicles, ATVs, light trucks, and speedboats.

Figure 1: AUTOOL SDT103 Smoke Machine with included accessories.

2. Product Features

- **Wide Testing Range:** Capable of performing smoke tests on multiple systems, including EVAP systems, intake systems, cooling/EGR/exhaust systems, crankcase systems, engine sealing, vacuum leaks, and low-pressure turbo leaks.
- **External Air Source Required:** The SDT103 does not have an internal air pump. It requires connection to an external workshop air source and a 12V vehicle power supply to generate smoke.
- **External Flow Meter:** Equipped with an external flow meter, allowing for easy control and monitoring of air pressure. This is crucial for preventing pipe damage from excessive pressure and ensuring effective leak detection.
- **EVAP System Detection:** Specifically designed to work with EVAP service ports found on American cars produced since 1996.
- **Overheat & Anti-frost Protection:** The device features intelligent protection mechanisms. If the

temperature exceeds 75°C, power protection will activate to turn it off. It can also operate normally in temperatures as low as -20°C.

Figure 2: Common leak types detectable by the SDT103, including crankcase air leakage, oil seal leaks, intercooler air leaks, throttle leaks, intake air duct gasket leaks, exhaust pipe leakage, leaking fuel tanks, poorly closed valves, and air & water leaking.

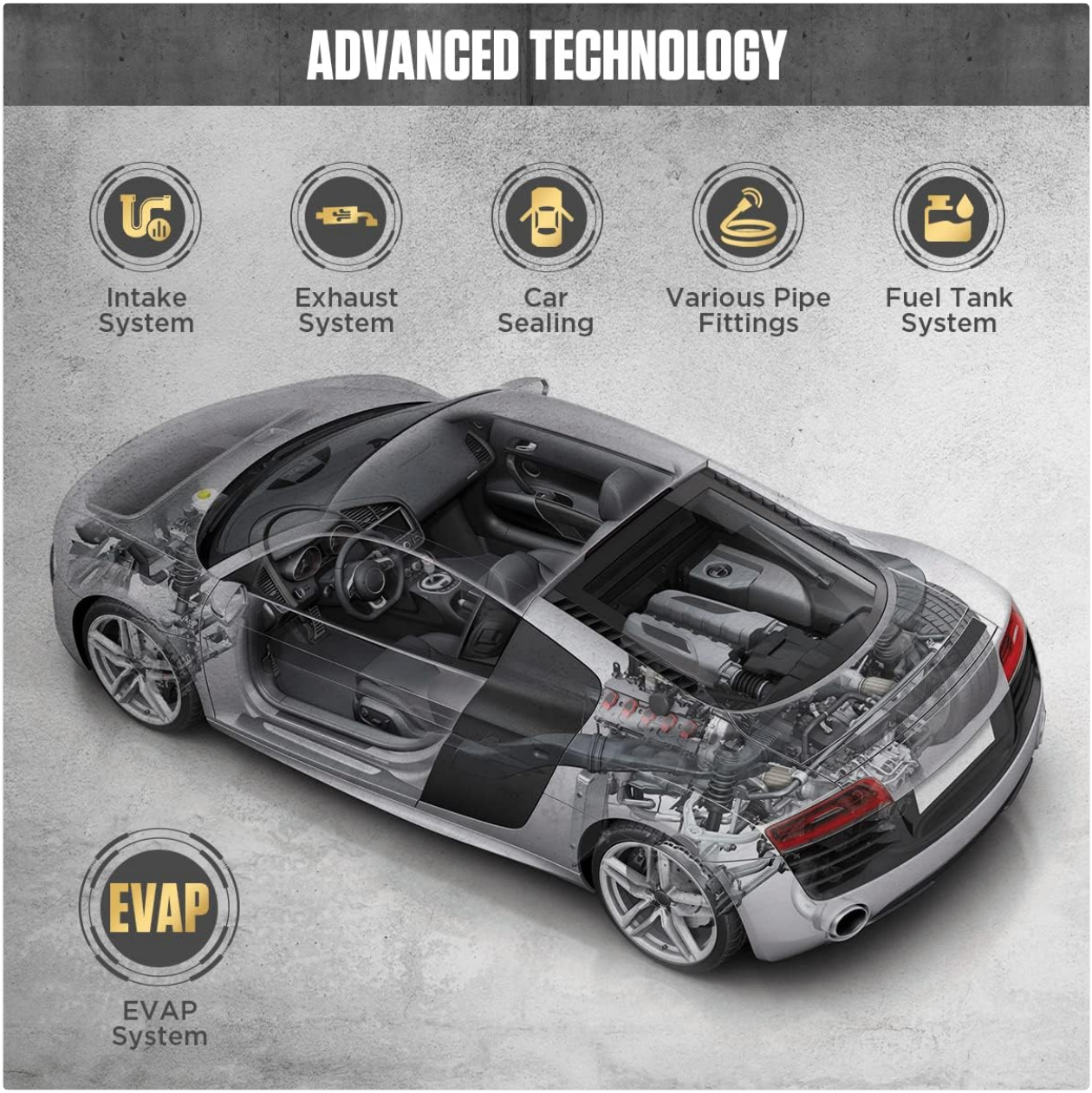

Figure 3: Advanced technology allows the SDT103 to test Intake System, Exhaust System, Car Sealing, Various Pipe Fittings, Fuel Tank System, and EVAP System.

3. Specifications

Specification	Value
Model Number	SDT103
Package Dimensions	26.2 x 20.3 x 18.6 cm
Item Weight	2.07 kilograms
Operating Voltage	12V DC
Operating Current	Approx. 3A
Output Pressure	3.2 kPa (0.46 psi)
Smoke Flow Rate	Up to 10 L/min

Specification	Value
Operating Temperature Range	-20°C to 75°C
Internal Air Pump	No (requires external air source)

4. Setup

1. **Prepare the Device:** Ensure the SDT103 is on a stable, flat surface.
2. **Add Smoke Oil:** Open the small cap on top of the device and add approximately 20 ml of baby oil (e.g., Johnson's Baby Oil) or dedicated smoke machine fluid. A small measuring bottle is usually provided for this purpose. Do not overfill.
3. **Connect Air Source:** Connect the output hose from your external air compressor (workshop air source) to the air inlet port on the SDT103.
4. **Connect Power:** Connect the 12V power clamps to a 12V vehicle battery. Ensure correct polarity (red to positive, black to negative). A green light on the device will indicate power is supplied.

Figure 4: Proper connection of the SDT103 to a 12V vehicle battery and an external air compressor.

5. Operation

1. **Activate Airflow:** Turn the flow adjustment knob on the SDT103 counter-clockwise to open the airflow.
2. **Power On:** Switch on the device using the power button located on the rear or control panel.
3. **Generate Smoke:** Press the smoke button. A red light will illuminate, indicating that smoke generation is in progress. Allow approximately 2 minutes for the device to reach its nominal smoke output.
4. **Adjust Smoke Flow:** Use the flow adjustment knob to regulate the smoke output. The visual flow meter (ball in tube) will indicate the current flow rate (e.g., 1 to 5 L/min). Adjust as needed for the specific test.
5. **Perform Leak Detection:** Connect the appropriate adapter (e.g., funnel, inflatable bladder) to the system you wish to test (e.g., exhaust, intake, EVAP). Introduce the smoke into the system. Observe for smoke escaping from any cracks, holes, or loose connections, indicating a leak.
6. **EVAP System Testing:** For EVAP systems, locate the service port (often in the engine compartment). Open its plastic cover, remove the check valve clockwise with a wrench, then install the EVAP service port adapter and introduce smoke.

Figure 5: The adjustable smoke flow feature and the visual flow meter for precise control.

Figure 6: Visual guide on how to perform a leak detection, including adding oil, connecting power, and observing smoke.

6. Maintenance

- **Refilling Smoke Oil:** When the smoke density decreases or small oil droplets are ejected from the

nozzle instead of smoke, it indicates the oil reservoir is low. To refill, always disconnect the air supply first before adding more oil (approx. 20 ml). This prevents oil from gushing out.

- **Cleaning:** Regularly wipe down the exterior of the device with a clean, dry cloth. Ensure all connections are free from dust and debris.
- **Storage:** Store the device in a cool, dry place away from direct sunlight and extreme temperatures when not in use.

7. Troubleshooting

- **No Smoke Output:**
  - Check if the 12V power supply is correctly connected and providing sufficient current (approx. 3A).
  - Ensure the external air compressor is connected and providing air.
  - Verify that smoke oil has been added to the reservoir.
  - Confirm the flow adjustment knob is open.
- **Smoke Output is Weak or Inconsistent:**
  - The smoke oil level may be low; refill as per maintenance instructions.
  - Check the air pressure from the external compressor.
- **Bubble Remains Blocked (Internal Issue):** If the internal bubble (flow indicator) appears stuck after some use, gently tap the machine. This may help dislodge any internal blockages. If the issue persists, contact customer support.
- **Device Shuts Off Unexpectedly:** The device may have activated its overheat protection. Allow it to cool down before attempting to restart. Ensure adequate ventilation during operation.

8. Warranty and Support

AUTOOL provides a **Three-Year Free Warranty** for damages caused by non-human factors. During this period, AUTOOL promises to replace parts free of charge.
The product also comes with **Lifetime Maintenance** support.
For any questions or assistance, please do not hesitate to contact AUTOOL customer support. They are available **24 hours a day** to answer your inquiries.

Figure 7: AUTOOL's commitment to customer support and product quality, including 24/7 support, 3-year warranty, and CE RoHS FCC certifications.