FOXWELL ST203

FOXWELL ST203 Automotive Smoke Machine User Manual

Model: ST203

1. Introduction

The FOXWELL ST203 Automotive Smoke Machine is a professional diagnostic tool designed to quickly and accurately detect leaks in various vehicle systems, including EVAP, vacuum, intake, and exhaust systems. Its built-in air pump eliminates the need for an external compressor, making it a convenient and efficient solution for both professional technicians and DIY enthusiasts. This manual provides detailed instructions for the proper use and maintenance of your ST203 smoke machine.



Figure 1: FOXWELL ST203 Smoke Machine and Included Accessories

2. Key Features

- **Dual Test Modes:** Offers both Air Mode for quick detection of large leaks and Smoke Mode for precise identification of smaller, hidden leaks.
- **Integrated Air Pump:** Features a built-in air pump, eliminating the need for an external air compressor and providing dense smoke output within 10 seconds.
- **Real-time Pressure Gauge & Flowmeter:** Equipped with a pressure gauge and adjustable flowmeter to provide live readings, indicating the severity of leaks.
- **Extended Runtime:** Designed for a 10-minute continuous runtime with smart thermal control for quick restarts, ideal for longer diagnostic sessions.
- **Wide Vehicle Compatibility:** Includes 23 adapters, a cone adapter, and an inflatable bladder to fit most 12V vehicles, including cars, SUVs, vans, and light-duty trucks.
- **User-Friendly Operation:** Simple one-button operation and clear fluid level indicators ensure safe and easy use.

3. What's in the Box

Verify that all items listed below are included in your package:

- 1 x ST203 Automotive Smoke Machine
- 1 x Hook
- 1 x Funnel
- 1 x Power Cords
- 1 x Inflatable Adapter
- 1 x Intake Adapter Cone
- 1 x Cap Stoppers (23pcs)
- 1 x Air Drum Rubber
- 1 x User Manual



Figure 2: Package Contents Overview

4. Setup

1. **Connect Smoke Tube:** Attach the smoke tube to the designated port on the back of the main unit.
2. **Add Smoke Fluid:** Using the provided funnel, carefully add smoke fluid (not included) into the fill port on top of the machine. Do not overfill; observe the liquid level indicator on the side.
3. **Connect Power:** Connect the power cords to a 12V DC power source (e.g., vehicle battery). Ensure correct polarity (red to positive, black to negative).

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Video 1: Demonstrates the initial setup steps for the FOXWELL ST203, including connecting the smoke tube, adding fluid, and powering on the device.



Figure 3: Connecting Power Cords



Figure 4: Liquid Level Indicator

5. Operating Instructions

5.1 Selecting Test Mode

The ST203 offers two modes: Air Mode and Smoke Mode. Use the 'Smoke/Air' switch to toggle between them.

- **Air Mode:** Ideal for quickly identifying large leaks. The machine will produce air pressure without smoke.
- **Smoke Mode:** Generates dense smoke to pinpoint smaller, hard-to-find leaks.



Figure 5: Smoke/Air Mode Switch

5.2 Performing a Leak Test

1. **Prepare the System:** Ensure the vehicle system you intend to test (e.g., EVAP, intake, exhaust) is sealed. Use the appropriate cap stoppers, cone adapter, or inflatable bladder from the accessory kit to block off openings.
2. **Connect Smoke Output:** Insert the smoke output nozzle into the system being tested.
3. **Start Test:** Press the 'Start/Stop' button to begin the test. The machine will start generating air or smoke depending on the selected mode.
4. **Monitor Pressure and Flow:** Observe the pressure gauge and flowmeter. A stable pressure indicates no leak, a slow

drop suggests a minor leak, and a rapid drop points to a large leak.

5. **Locate Leaks:** Look for escaping smoke to visually identify the leak source. For air mode, listen for hissing sounds.
6. **Adjust Smoke Output (Smoke Mode):** Use the adjustable knob to control the density of the smoke for optimal visibility of leaks.
7. **Stop Test:** Press the 'Start/Stop' button again to end the test.



Figure 6: All Systems & Various Pipe Leak Detection



Figure 7: Assessing Extent Of Leakage

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Video 2: Provides a more in-depth look at the features and operational aspects of FOXWELL Smoke Machines, including leak detection principles.

6. Maintenance

Regular maintenance ensures the longevity and optimal performance of your FOXWELL ST203 smoke machine.

- **Fluid Level:** Always ensure the smoke fluid level is within the MIN/MAX indicators. Refill as needed with approved smoke fluid.
- **Cleaning:** After use, wipe down the exterior of the unit with a clean, dry cloth. Avoid using abrasive cleaners or solvents.
- **Storage:** Store the unit in a cool, dry place away from direct sunlight and extreme temperatures. Ensure all accessories are neatly stored to prevent damage.
- **Filter Replacement:** Periodically check the internal filter (if accessible, refer to the full user manual for details) and replace if it appears clogged or dirty to maintain smoke quality.

7. Troubleshooting

Problem	Possible Cause	Solution
No smoke output	Low smoke fluid level Power connection issue Unit overheated	Refill smoke fluid Check power cables and 12V source Allow unit to cool down (thermal protection)
Weak smoke output	Insufficient fluid Clogged smoke tube/nozzle Air filter dirty	Add more smoke fluid Clean or replace smoke tube/nozzle Clean or replace air filter
Pressure gauge not stable	Leak in the system being tested Loose connections	Identify and seal the leak Ensure all connections are tight
Unit shuts off unexpectedly	Overheating protection activated Low voltage from power source	Allow unit to cool down Check 12V power source voltage

8. Specifications

Attribute	Value
Brand	FOXWELL
Model	ST203
Item Weight	3.7 pounds
Product Dimensions	4.72 x 4.72 x 7.95 inches
Voltage	12 Volts (DC)
Country of Origin	China

9. Warranty and Support

This product is covered by a standard return policy. For specific warranty details and technical support, please refer to the official FOXWELL website or contact their customer service directly. Keep your purchase receipt for warranty claims.

Most new, unopened items can be returned within 30 days of delivery for a full refund. For more information, please visit the retailer's return policy page.

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