VEVOR Diesel Fuel Injector Tester

VEVOR Diesel Fuel Injector Tester User Manual

Model: Diesel Fuel Injector Tester

1. Product Overview

The VEVOR Diesel Fuel Injector Tester is a robust tool designed for testing and calibrating diesel fuel injectors. It features a dual-scale pressure gauge for precise measurements and is constructed from durable cast iron. This tester is essential for diagnosing injector performance, including opening pressure, leakage, chattering, and spray pattern.

Figure 1: Main unit of the VEVOR Diesel Fuel Injector Tester.

2. Package Contents

Verify that all components are present upon unpacking:

- Diesel Fuel Injector Tester Main Unit
- Pressure Gauge (60MPa / 8000 PSI)
- Handle
- High-Pressure Pipes (A and B type with M12x1.5 and M14x1.5 nuts)
- 0.8L Fuel Cup with 5-micron filter
- Piston/Element
- Delivery Valve

- Two extra oil pipes
- O-rings and seals

Figure 2: Included high-pressure adapter pipes and O-rings.

3. Safety Instructions

Always adhere to safety precautions when operating this equipment:

- Wear appropriate personal protective equipment, including safety glasses and gloves.
- Ensure the work area is well-ventilated and free from ignition sources.
- Handle diesel fuel with care; it is flammable and can cause skin irritation.
- Do not exceed the maximum operating pressure of 60MPa (8000 PSI).
- Ensure all connections are tight before applying pressure to prevent leaks.
- Keep hands and clothing clear of moving parts and high-pressure spray.
- This tool is not suitable for Common Rail Diesel Injectors (CRDI).

4. Product Features

- **Premium Cast Iron Construction:** Ensures durability and rigidity for long-term use.
- **Dual Scale Pressure Gauge:** Provides precise readings from 0-600 bar / 0-8000 psi, with a maximum test

pressure of 60 MPa.

- **Transparent Fuel Measuring Cup:** Holds 0.8L of fuel and includes a 5-micron filter for clean testing.
- **Multifunctional Testing Capabilities:** Performs opening pressure tests, leakage tests, chattering tests, spray pattern inspections, and atomization tests.
- **Wide Compatibility:** Suitable for most types of diesel injectors, excluding CRDI systems.

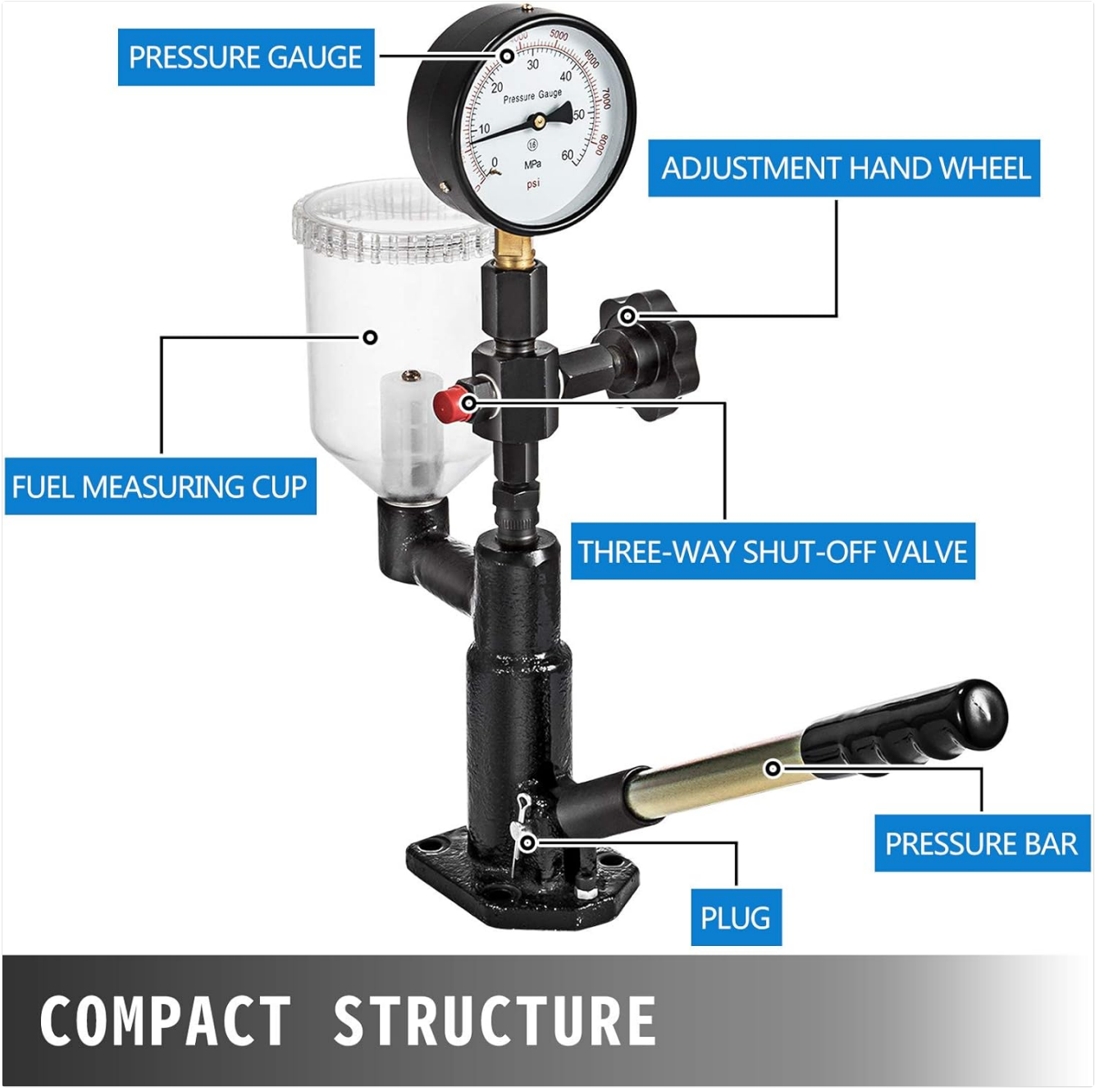

Figure 3: Compact structure and key components of the tester.

5. Setup and Assembly

1. **Mounting:** Secure the tester to a stable workbench using the mounting holes on its base.
2. **Handle Installation:** Attach the pump handle to the main unit.
3. **Fuel Cup:** Ensure the transparent fuel measuring cup is securely attached and the filter is in place.
4. **Pressure Gauge:** Confirm the pressure gauge is tightly screwed into its port.
5. **Injector Connection:** Select the appropriate high-pressure pipe (A or B type) for your injector. Connect one

end to the tester's outlet and the other end to the diesel injector. Ensure all connections are leak-free.

6. **Fill with Fuel:** Fill the fuel cup with clean, filtered diesel fuel or calibration fluid.

6. Operating Instructions

Before testing, ensure the injector is clean and free from external debris.

6.1. Opening Pressure Test

1. Connect the injector to the tester.
2. Close the three-way shut-off valve.
3. Slowly pump the handle to gradually increase pressure. Observe the pressure gauge.
4. Note the pressure reading at which the injector begins to spray. This is the opening pressure.
5. Compare this reading to the manufacturer's specifications for the injector.

6.2. Leakage Test

1. After the opening pressure test, reduce the pressure slightly below the opening pressure.
2. Observe the injector nozzle tip for any fuel drips. A healthy injector should not drip.
3. Monitor the pressure gauge for any rapid pressure drops, which could indicate internal leakage.

6.3. Spray Pattern and Atomization Test

1. Rapidly pump the handle to achieve a quick, sharp spray from the injector.
2. Observe the spray pattern. It should be finely atomized and symmetrical, without streaks or uneven distribution.
3. A poor spray pattern (e.g., a solid stream, uneven spray) indicates a faulty injector.

6.4. Chattering Test

1. Slowly increase pressure until the injector opens, then quickly release the pressure.
2. Listen for a distinct 'chatter' sound from the injector. This indicates proper needle valve operation.
3. Absence of chattering may suggest a problem with the injector's internal components.

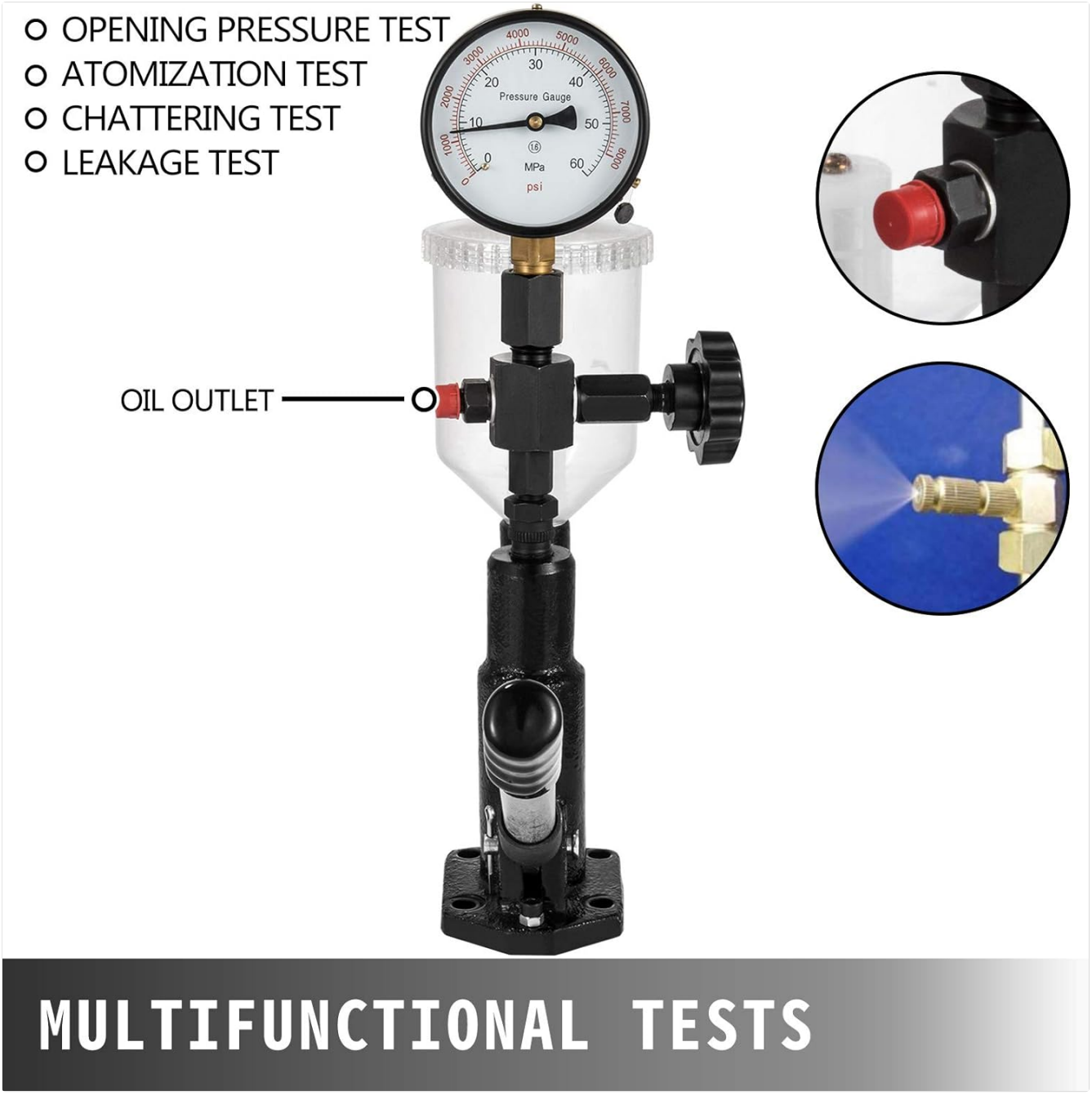

Figure 4: Visual representation of multifunctional tests.

7. Maintenance

- **Cleaning:** After each use, drain any remaining fuel from the cup and clean the exterior of the tester.
- **Filter Replacement:** Regularly inspect and replace the 5-micron fuel filter in the measuring cup to ensure clean fuel supply.
- **Storage:** Store the tester in a clean, dry environment, away from direct sunlight and extreme temperatures.
- **Seals and O-rings:** Periodically check all seals and O-rings for wear and tear. Replace as necessary to prevent leaks.
- **Flushing:** It is recommended to flush the unit with clean calibration fluid before initial use and periodically thereafter to remove any manufacturing debris or contaminants.

8. Troubleshooting

- **Leaks:** If fuel leaks are observed, check all connections for tightness. Inspect O-rings and seals for damage and replace if necessary.
- **Inaccurate Pressure Readings:** Ensure the pressure gauge is securely connected. If readings remain inconsistent, the gauge may require calibration or replacement.
- **No Pressure Build-up:** Verify that the three-way shut-off valve is correctly closed. Check for blockages in the fuel lines or a faulty pump mechanism.
- **Poor Spray Pattern:** This typically indicates an issue with the injector itself, such as a clogged nozzle or worn components. The tester is designed to diagnose this, not repair it.

9. Specifications

Feature	Specification
Material	Cast Iron
Maximum Operating Pressure	60 MPa (600 Bar / 8000 PSI)
Fuel Cup Capacity	0.8 Liters
Filter Micron Rating	5 Micron (Bosch original)
Gauge Dial Diameter	100 mm
Inlet Connection Type	BSPT
Outlet Connection Type	BSPT
Dimensions (L x W x H)	16.54 x 5 x 4.5 inches
Item Weight	12 pounds

Figure 5: Product dimensions.

10. Warranty and Support

For warranty information, technical support, or replacement parts, please contact VEVOR customer service through their official website or the retailer where the product was purchased. Please have your model number and purchase date available when contacting support.