



Glow Plug Test OTI2285

Users Manual

Read this manual thoroughly before use

INTRODUCTION


This tester is designed to test diesel engine glow plugs. It can measure the resistance of a diesel engine glow plug which is not hot and indicate whether the glow plug is good or damaged. It is equipped with a monolithic processor, which is the core part of the circuit. The screen shows the test results directly.

This tester is easy to use and is a very useful test tool for diesel vehicle servicemen.

WARNING

To avoid possible electric shock or personal injury, follow these guidelines:

- Do not use the tester if it is damaged. Before you use the tester, inspect the case. Pay particular attention to the insulation surrounding the connectors.
- Inspect the test leads for damaged insulation or exposed metal. Check the test leads for continuity. Replace damaged test leads before you use the tester.
- Do not use the tester if it operates abnormally. Protection may be impaired. When in doubt, have the tester serviced.

- Do not operate the tester where explosive gas, vapor, or dust is present.
- When servicing the tester, use only specified replacement parts.
- Before test, make sure that all power to the glow plug to be tested has been disconnected; otherwise the tester's internal circuit may be damaged.
- When using the probes, keep your fingers behind the finger guards on the probes.
- Turn off the tester and remove the test leads from the tester before you open the battery cover or the case.
- Do not operate the tester with the battery cover or portion of the case removed or loosened.
- To avoid false test result, replace the battery as soon as the low battery indicator () appears.
- Never tamper with the tester's circuit.
- During test, the tester outputs a current of about 30mA through the test leads. Never connect a component whose current withstanding capability is less than 30mA to the test leads; otherwise the component will probably be damaged.
- Ensure that the vehicle ignition is OFF, before connecting or disconnecting the glow plug.
- To avoid personal injury, make sure that the glow plug has cooled down before you disconnect the glow plug.
- To avoid shorting the terminals of vehicle battery, never lay tools on vehicle battery; otherwise the vehicle

battery may be damaged and personal injury may result.

- When the tester is not in use, do not short the two test leads or connect the two test leads to a same conductor; otherwise the tester's internal constant current source will turn on and the battery power will be wasted.
- Store the tester in a dry place when not in use. Always keep the tester out of reach of infants and children.
- To avoid personal injury, keep yourself away from any turning or moving part on the vehicle; and do not touch any naked live conductor on the vehicle with hand or skin, directly or indirectly.
- Always follow the relevant requirements or instructions on the service manual and user's manual from the vehicle manufacturer.

FRONT PANEL

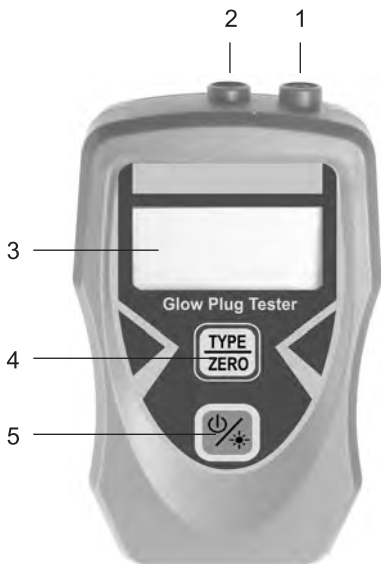


Figure 1

1. Input terminal for red test lead
2. Input terminal for black test lead
3. Screen

4. "  " Key
5. "  " Key

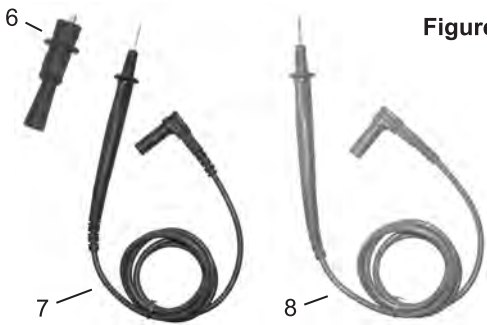


Figure 2

6. Black alligator clip 7. Black test lead 8. Red test lead

UNDERSTANDING THE DISPLAY

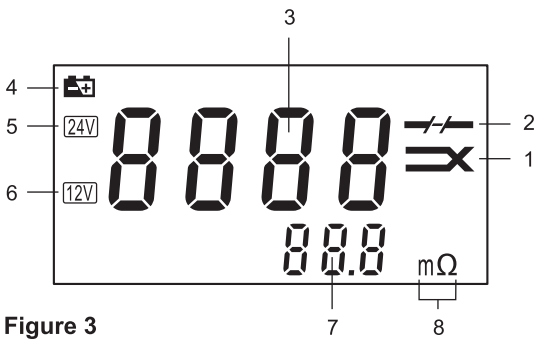






Figure 3

Table 1

	Indicator	Description
1		Short circuit is detected.
2		The connection between the glow plug and the tester is unsteady or discontinuous.
		Open circuit is detected.
3	8888	Primary display
4		The battery is low and must be replaced immediately. Warning To avoid false readings, replace the battery as soon as this low battery indicator appears.
5	24V	24V glow plug test is selected.
6	12V	12V glow plug test is selected.
7	88.8	Secondary display
8	mΩ	Unit of resistance, milliohm
	Ω	Unit of resistance, ohm

GENERAL SPECIFICATION

Display: 3-digit LCD, with a max. reading of 999

Overrange indication: " OL " shown on the primary display

Low Battery Indication: "  " shown on the screen

Battery: 9V battery, 6F22 or equivalent, 1 piece

IP Degree: IP20

Operating Environment: Temperature: 0°C to 40°C,
Relative Humidity: < 75%

Storage Environment: Temperature: 0°C to 50°C
Relative Humidity: < 85%

Size: 143mm × 84mm × 36mm

Weight: About 177g (including battery)

SPECIFICATIONS

Accuracy is specified for a period of one year after calibration and at 18°C to 28°C, with relative humidity < 75%.

Accuracy specifications take the form of:

± ([% of Reading] + [number of Least Significant Digits])

Measurement Range: $0.0\Omega - 32.0\Omega$


Resolution: $1\text{m}\Omega$


Accuracy: $\pm (3\% + 12\text{m}\Omega)$

Max. Open Circuit Voltage: 3.2V


OPERATING INSTRUCTION

1. Turning on/off the Tester

Press the " " key to turn on the tester. The screen shows all the segments briefly. Then the tester changes to normal measurement mode.

To turn off the tester, press and hold down the " " key until the tester sounds a beep.

2. Turning on/off the Backlight

After the tester is turned on, you can press the " " key to turn on the backlight. To turn off the backlight, just press this key again.

3. Selecting Desired Measurement Mode

You can press the " " key to select a desired

measurement mode, the screen will show the corresponding symbol.

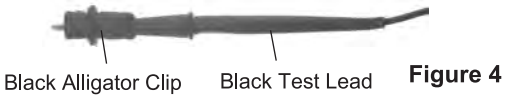
When the symbol " $\boxed{12V}$ " is shown on the screen, the tester is in 12V glow plug measurement mode; in this mode, you can test 12V glow plugs.

When the symbol " $\boxed{24V}$ " is shown on the screen, the tester is in 24V glow plug measurement mode; in this mode, you can test 24V glow plugs.

4. Testing Glow Plug

1. According to the rated voltage of the glow plug to be tested, set the tester in the corresponding measurement mode (12V or 24V glow plug measurement mode) by pressing the " $\boxed{\text{TYPE ZERO}}$ " key, the screen will show the corresponding symbol.
2. Refer to Figure 1, connect the black test lead to the left input terminal on the top of the tester, and the red test lead to the right input terminal.

Refer to Figure 3, connect the the black alligator clip to the black test lead by inserting the black test lead probe into the shrouded connector of the black alligator clip, make sure that the connection between the probe and the black alligator clip is good and steady.



3. Refer to Figure 5, connect the black alligator clip to the red test lead probe. If the secondary display show a reading other than zero, press and hold down the " **TYPE** / **ZERO** " key for about 7 secs until the built-in buzzer sounds two beeps. The secondary display reads zero.

Note:

Make sure that the contact between red test lead probe and the black alligator clip is good. The total contact resistance of the connections must be less than 5Ω ; otherwise the zero calibration mentioned above will not succeed.

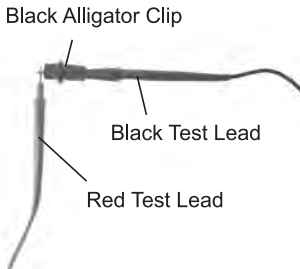


Figure 5

4. Disconnect the positive power supply to the terminal of the glow plug to be tested, then remove the glow plug from the vehicle.
5. Refer to Figure 6, connect the black alligator clip to the terminal of the glow plug and red test lead probe to the metal shell of the glow plug.

The secondary display shows the resistance value of the glow plug. The primary display will show "**YES**" (YES) if the glow plug is good or "**NO**" if the glow plug is damaged. By using the resistance reading on the secondary display along with Table 2, you can know the condition of the glow plug.

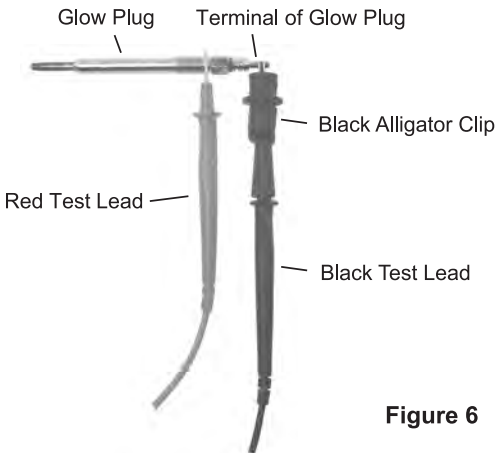



Figure 6

Table 2

Resistance (R) of Glow Plug		Test Result
12V Glow Plug	24V Glow Plug	
$R < (95 \pm 12\text{m}\Omega)$	$R < (205\text{m}\Omega \pm 12\text{m}\Omega)$	Short Circuit
$(95\text{m}\Omega \pm 12\text{m}\Omega) \leq R \leq (3\Omega \pm 0.1\Omega)$	$(205\Omega \pm 12\text{m}\Omega) \leq R \leq (4\Omega \pm 0.1\Omega)$	Good
$(3\Omega \pm 0.1\Omega) \leq R \leq (29\Omega \pm 0.1\Omega)$	$(4\Omega \pm 0.1\Omega) < R \leq (29\Omega \pm 0.1\Omega)$	Bad Contact
$R > (29\Omega \pm 0.1\Omega)$	$R > (29\Omega \pm 0.1\Omega)$	Open Circuit

Tip: During test, if the symbol " " appears on the screen, the connection between the glow plug and the tester is unsteady or discontinuous; in this condition, the test results shown on the primary display and the secondary display are probably wrong and must not be used, and you should check the connections.

- After the test is finished, remove the black alligator clip and the red test lead from the glow plug. Then reinstall the glow plug to the vehicle and reconnect the positive power supply to the terminal of the glow plug, make sure that all the connections are good and firm.

MAINTENANCE

Warning

Except replacing battery, never attempt to repair or service the tester unless you are qualified to do so and have the relevant calibration, performance test, and service instructions.

Store the tester in a dry place when not in use. Don't store it in an environment with intense electromagnetic field.

General Maintenance


Periodically wipe the case with a damp cloth and a little mild detergent. Do not use abrasives or solvents.

Dirt or moisture in the terminals can affect readings. Clean the terminals as follows:

1. Turn off the tester and remove all the test leads from the tester.
2. Shake out any dirt which may exist in the terminals.
3. Soak a new swab with alcohol.
4. Work the swab around in each terminal.

If the tester does not seem to work properly, check and replace (as needed) the battery; and/or review this manual to verify correct operation.

BATTERY REPLACEMENT

When the low battery indicator " " is shown on the screen steadily, the battery is low and must be replaced immediately.

To replace the battery, turn off the tester and remove the test leads. Remove the screw on the battery cover and remove the battery cover. Replace the exhausted battery with a new one of the same type. Reinstall the battery cover and the screw.

ACCESSORIES

Manual: 1 piece

Test Lead: 1 pair

Balck Alligator Clip: 1 pair

NOTE

1. This manual is subject to change without notice.
2. Our company will not take the other responsibilities for any loss.
3. The contents of this manual can not be used as the reason to use the tester for any special application.

DISPOSAL OF THIS ARTICLE

Dear Customer,

If you at some point intend to dispose of this article, then please keep in mind that many of its components consist of valuable materials, which can be recycled.

Please do not discharge it in the garbage bin, but check with your local council for recycling facilities in your area.



