

15-710 Testing preglow system without afterglow function - Turbodiesel

Models 124, 126 with Engine 603.96

Commercial Tool

Multimeter

e.g. Sun, DMM-5

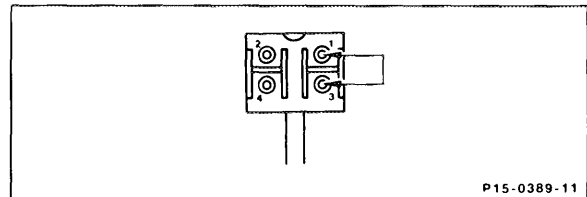
Testing

Testing Glow Lamp and Its Wiring

If the following problem occurs:

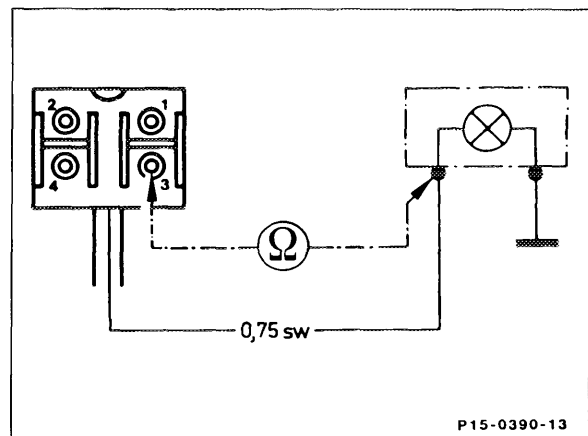
Preglow indicator lamp does not light up when preglow system switched on, despite it being possible to start engine.

Detach 4-pin connector from preglow time relay, turn key into position "2", bridge contacts 1 and 3 of the connector. If the preglow indicator lamp does not light up, test glow lamp or replace if necessary.



If the glow lamp is in order, test the black cable from connector contact 3 of the preglow time relay to the preglow indicator lamp for open circuit. Rectify open circuit.

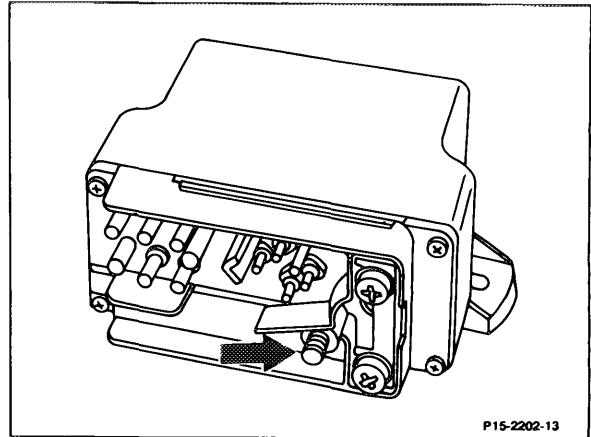
If the preglow indicator lamp lights up, the preglow time relay is defective. Replace preglow time relay.



Testing main circuit of preglow system for open circuit

If the following complaint is received:
Preglow indicator lamp does not light up, engine does not start.

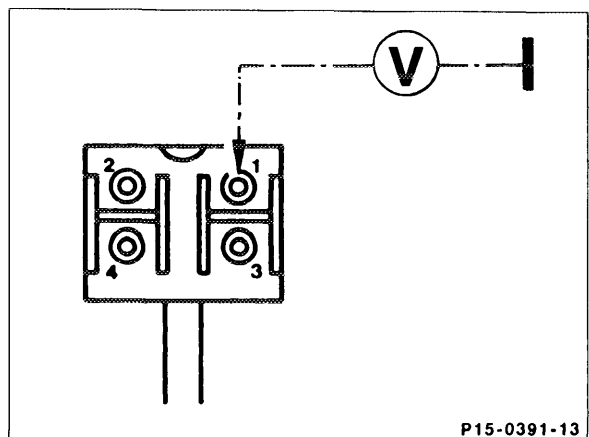
Use the multimeter set to the Volts range to test the voltage at terminal 30 of the preglow time relay to ground.



If no voltage is indicated, test red cable from starter, terminal 30, to the preglow time relay, terminal 30, for open circuit. Rectify open circuit.

If voltage is indicated (approx. 12 Volts), test 80 ampere fuse for tight fit or open circuit; replace if necessary.

If no fault has been found to this point, test voltage at contact 1 of the 4-pin connector of the preglow time relay to ground.

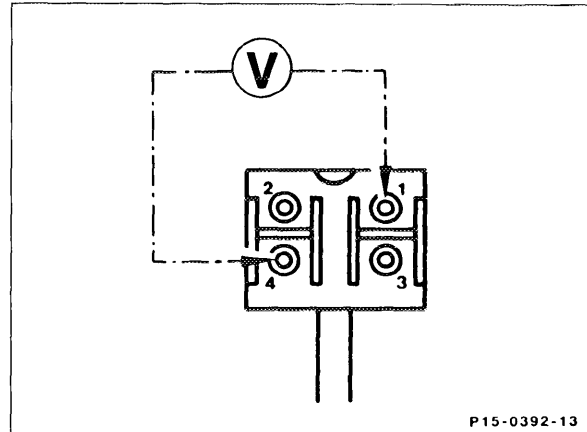


If voltage is indicated when preglow system is switched on, test pink/red cable from fuse 7 (unprotected side) through plug connection of engine wiring harness to contact 1 of the connector of the preglow time relay for open circuit. Rectify open circuit.

If voltage is indicated, connect contact 1 (terminal 15) and contact 4 (terminal 31) and test voltage.

If no voltage is indicated, test brown cable from contact 4 to ground for open circuit. Rectify open circuit.

If no fault has been detected so far, the preglow time relay is defective. Replace preglow time relay.



Testing glow plugs and wiring

If the following complaint is received:

Preglow indicator lamp does not light up, engine does not start easily, there may be an open circuit in one or more glow plugs or of the cables to the glow plugs.

If the following problem arises:

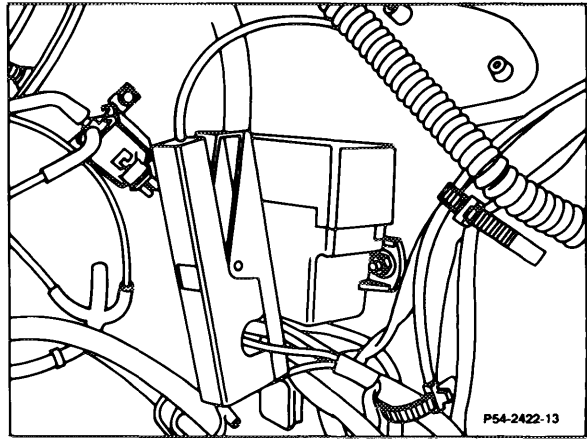
Preglow indicator lamp lights up when ready to start condition is reached; however, engine does not start easily. There may be an open circuit in a glow plug or in one of the cables to the glow plugs of cylinders 2-5, or the cause may be incorrect current consumption of the glow plugs in cylinders 1-6.

Using the multimeter Ampere range and the D.C. clamp, test the current consumption of the glow plugs. This is done by placing the clamp over the individual cables at the preglow time relay.

- Cylinder 1 = 2.5 black/blue
- Cylinder 2 = 2.5 black/violet
- Cylinder 3 = 2.5 black/red
- Cylinder 4 = 2.5 black/yellow
- Cylinder 5 = 2.5 black/green
- Cylinder 6 = 2.5 black/white

Turn the key in the steering lock to position "2"; the current consumption of each glow plug must be 8-15 A after 10-20 seconds.

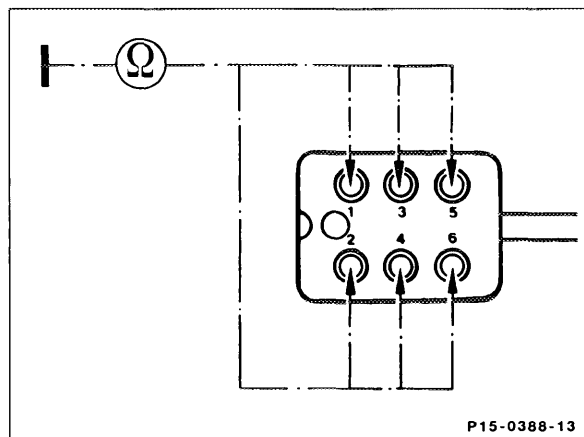
If the reading is higher than 15 A, replace the glow plug. If the reading is less than 8 A, test electric cable or plug for open circuit.



Detach the 6-pin connector from the preglow time relay for testing for open circuit.

With the multimeter set to the Ohms range, measure in turn the resistance to ground (engine block) as follows:

- ↪ 1 Connector = glow plug cylinder 1
- ↪ 2 Connector = glow plug cylinder 2
- ↪ 3 Connector = glow plug cylinder 3
- ↪ 4 Connector = glow plug cylinder 4
- ↪ 5 Connector = glow plug cylinder 5
- ↪ 6 Connector = glow plug cylinder 6



If infinite resistance is measured, there is an open circuit in the respective glow plug or at the lead or connection. Rectify open circuit in the lead or replace glow plug.

Note

It is possible that the indicator lamp does not indicate a fault (because of unfavorable tolerances) until 2 glow plugs in cylinders 2-5 have failed.

To check that the fault indication in the preglow time relay is not defective, 2 glow plugs of cylinders 2-6 should be terminated in this case and the preglow operation repeated.

Additionally, on Engine 603, test the fault indication of No. 6 cylinder. This is done by terminating only the glow plug of No. 6 cylinder. If the indicator lamp now shows a fault (does not light up), the preglow time relay is in working order.