

## 15-710 Checking preglow system without afterglow function

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### Commercially available tool

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Engines 602/603

Multimeter

e.g. Sun, DMM 5

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### Checking

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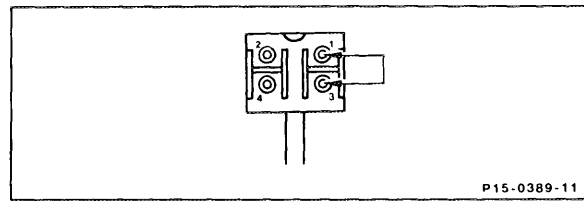
Electrical wiring diagrams (see 15-705).

#### 1 Checking glow bulb and wiring

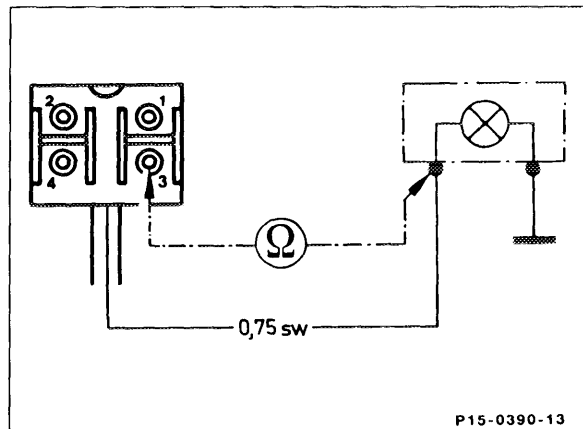
If preglow indicator lamp fails to light up when switching on the preglow system despite opportunity to start.

Pull 4 or 5-pin coupling off preglow time relay, turn key to position "2", bridge jacks 1 and 3 of the coupling.

If the preglow indicator lamp fails to light up, check or replace glow bulb.



If the glow bulb is OK, check the black cable from the coupling jack 3 of the preglow time relay up to the preglow indicator lamp for open circuit. Eliminate open circuit.



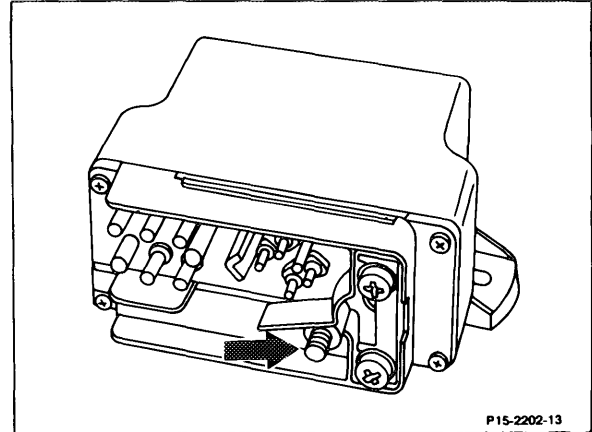
If the preglow indicator lamp lights up, the preglow time relay is defective. Replace preglow time relay.

## 2 Checking the main power circuit of the preglow system for open circuit

Problem:

Preglow indicator lamp fails to light up, engine cannot be started.

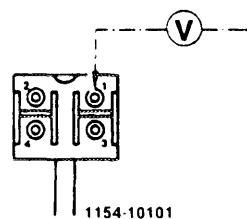
With the multimeter in the volt measuring range, check voltage on terminal 30 of the preglow time relay against ground.



If no voltage is present, check red 4 mm wire from the terminal block X35 terminal 30 to the preglow time relay terminal 30 for open circuit and eliminate open circuit if necessary.

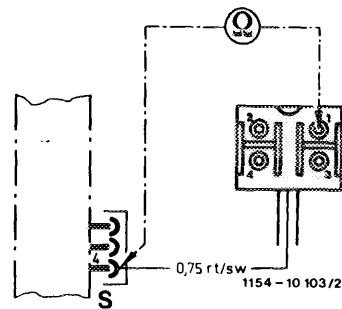
If voltage is present (approx. 12 V), check 80-A fuse for tight seat or an open circuit, replace if required.

If no fault was found so far, check voltage on jack 1 of the 4-pin coupling of the preglow time relay against ground.



If no voltage is present with preglow system switched on (model 201), check red/black wire from the central electrical coupling S jack 4 to the coupling jack 1 of the preglow time relay for an open circuit and eliminate open circuit.

On model 124, check pink/red wire from fuse 7 (**unprotected side**) via connector engine/interior 12-pole X 26 to coupling jack 1 of the preglow time relay for open circuit and eliminate open circuit.

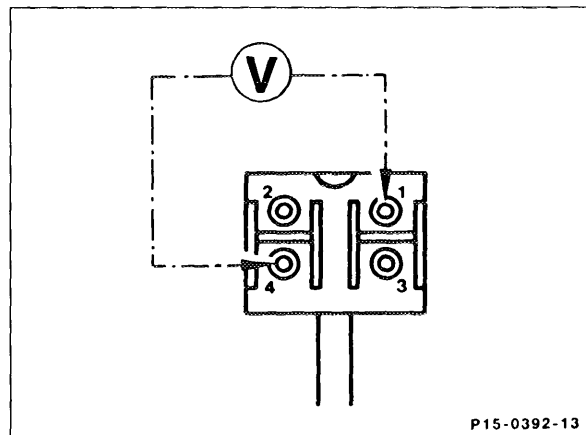


Model 201.1

If voltage is present (approx. 12 V), connect multimeter in volt measuring range to jack 1 (terminal 15) and jack 4 (terminal 31) and measure voltage (set value approx. 12 V).

If no voltage is indicated, check brown wire from jack 4 to ground for open circuit and eliminate open circuit.

If no fault was established to this point, the preglow time relay is defective, replace preglow time relay.



### 3 Checking pencil-type glow plugs and their lines

Problem:

Preglow indicator lamp fails to light up, engine is hard to start; an open circuit in one or more pencil-type glow plugs or in the lines leading to the pencil-type glow plugs is possible.

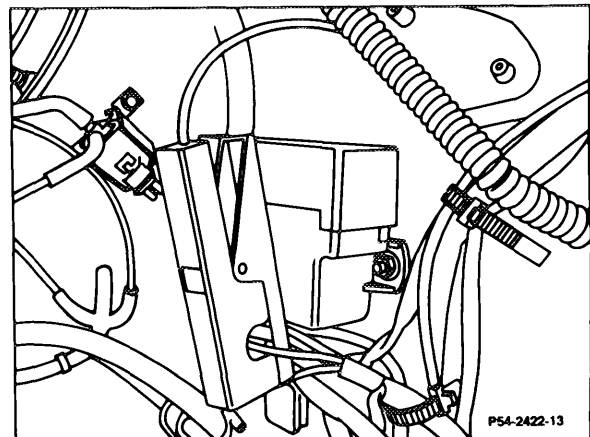
Problem:

Preglow indicator lamp lights up, engine is hard to start after reaching start readiness; an open circuit of a pencil-type glow plug or a line to the pencil-type glow plugs of cylinders no. 2 to 5 is possible or incorrect power may be consumed by the pencil-type glow plugs in cylinders 1 through 6.

Measuring power consumption of the pencil-type glow plugs with the DC current probe.

For this purpose place the current probe over the individual lines on the preglow time relay.

- Cylinder 1 = 2.5 black/blue
- Cylinder 2 = 2.5 black/purple
- 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 key in steering lock to position "2", the power consumption of each glow plug should be 8-15 A after 10-20 seconds.

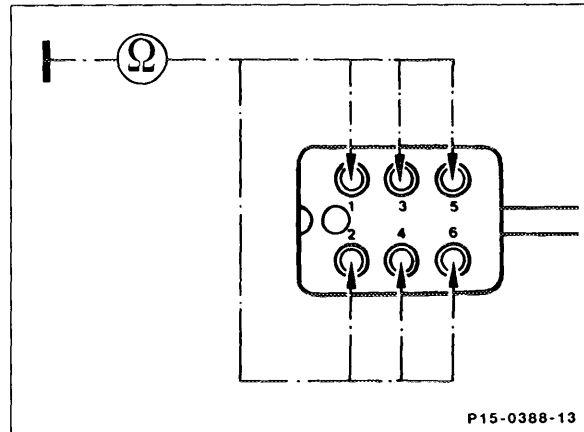
If the value is above 15 A, replace glow plug.

At a value below 8 A, check electric lines or glow plug with multimeter ohm measuring range for open circuit.

In order to test for an open circuit pull 6-pin coupling off preglow time relay.

Using the multimeter ohm measuring range measure the resistance to ground (engine block) of one after the other as follows:

Jack 1 of coupling	= Pencil-type glow plug cylinder 1
Jack 2 of coupling	= Pencil-type glow plug cylinder 2
Jack 3 of coupling	= Pencil-type glow plug cylinder 3
Jack 4 of coupling	= Pencil-type glow plug cylinder 4
Jack 5 of coupling	= Pencil-type glow plug cylinder 5
Jack 6 of coupling	= Pencil-type glow plug cylinder 6



If infinite resistance is measured, an open circuit in the respective pencil-type glow plug or the feed line or the connection is the problem.

Eliminate open circuit in the feed line or replace glow plug.

#### Note

It may be possible that the indicator lamp (due to unfavorable tolerances) indicates a fault only upon failure of 2 pencil-type glow plugs in the cylinders 2-5.

In order to ensure that the fault indication in the preglow time relay is accurate, 2 pencil-type glow plugs of the cylinders 2 to 5 have to be disconnected in this case and the preglow process repeated.