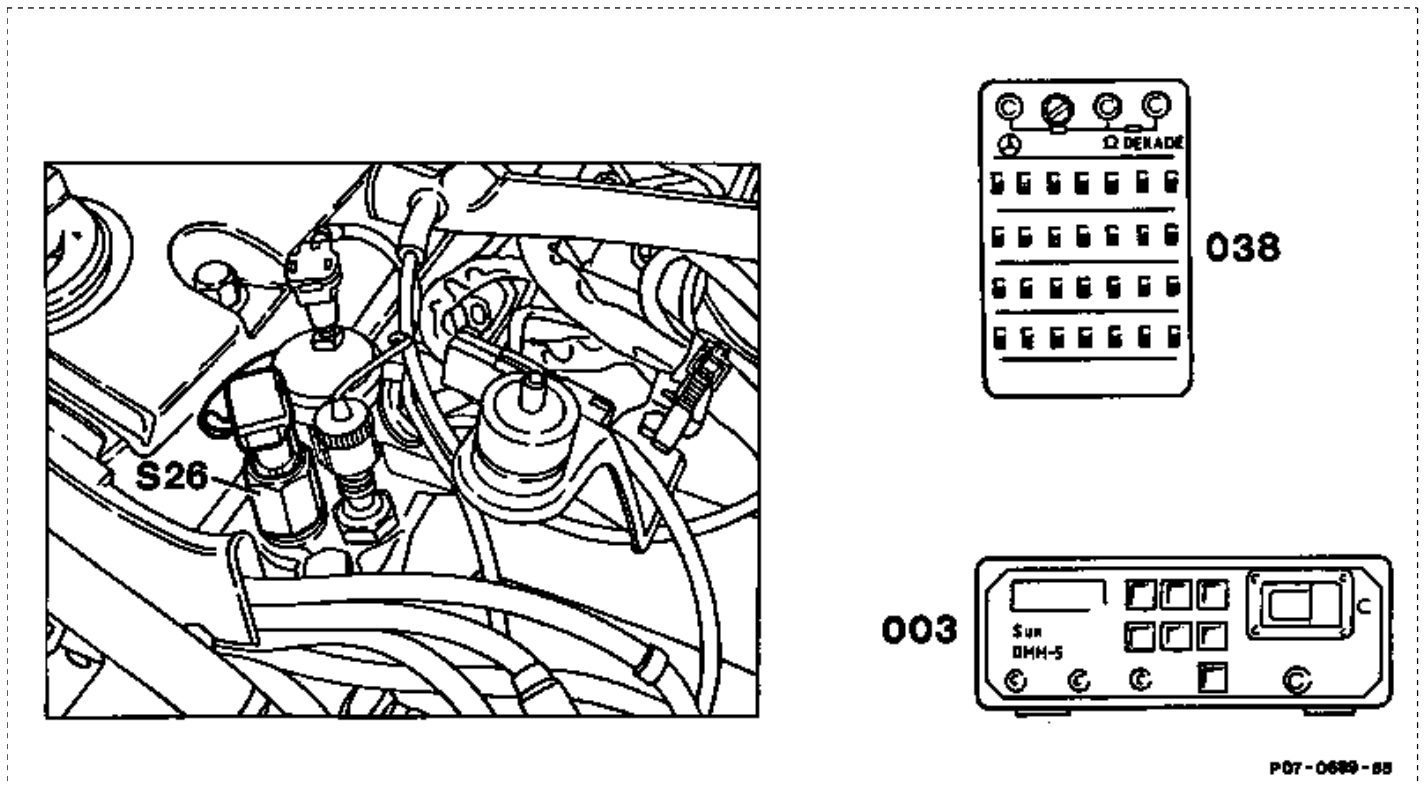


07.3-126 Testing starting valve actuation

Preceding work:
Testing starting device (07.3-124)

Operation No. of operation texts and work units or standard
texts and flat rates:07-1607

Basic and national versions



Testers.....

Starting voltage.....

Electric wiring between starting valve and
fuel pump relay.....

**a) Vehicles with actuation via
thermo-time switch (S26)**

Thermo-time switch (S26).....

**b) Vehicles with actuation via
fuel pump relay**

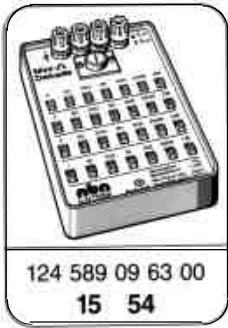
Voltage at fuel pump relay.....

connect:
multimeter (003)
ohms decade (038) 124 589 09 63 00.
test. At least 10 V in approx. 5 seconds.
test for continuity. Resistance approx. 0 Ω.
test (only 102.961 Std. (CH) (S) (USA)).

test. Contact 12 (terminal 50) at least 10 V,
contact 2 (terminal TF).

P07-0689-85

Special tools



Commercially available tester

Multimeter

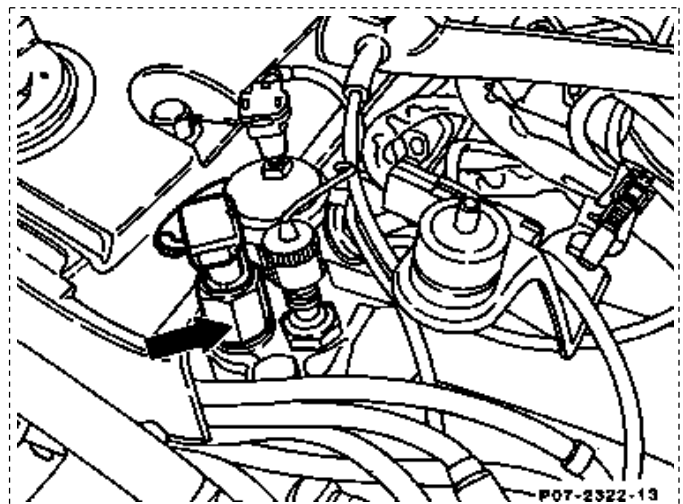
e. g. Sun, DMM-5

Note

Wiring diagrams (07.3-128).

a) Vehicles with actuation via thermo-time switch

The starting valve is operated by the closed thermo-time switch (arrow) only when the coolant temperature is below +5 °C. The actuation time increases as the temperature drops and reaches approx. 12 seconds at -20 °C.



Test below +5°C coolant temperature

Remove thermo-time switch and cool with commercially available refrigerant.

Connect voltmeter to terminal of starting valve (Y8).

Operate starter. Depending on the coolant temperature, the voltmeter must then indicate \geq 10 volts over a certain period.

The switching time increases as the temperature drops by approx. 1.5 seconds per 5°C.

e. g. +5°C = 0 seconds
 0°C = 1.5 seconds

It is recommended to still test the thermo-time switch (S26) with an ohmmeter for this test.

Test value below +5°C:

Terminal W-G approx. 93 Ω

(contacts in switch closed).

Test above +5°C coolant temperature

Above a coolant temperature of +5°C the test of the thermo-time switch (S26) can only be performed with an ohmmeter. Unplug the connector at the thermo-time switch for this step.

Test value above +5°C:

Terminal W-G $\infty\Omega$

(contacts in switch open).

b) Vehicles with actuation via fuel pump relay





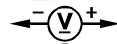
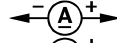

Depending on the coolant temperature the starting valve is actuated by the coolant pump relay.

Example:

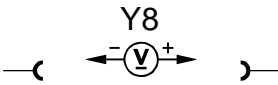
-20°C=10 seconds.

No further actuation occurs above +60°C or +15°C, respectively (see 07.3-004).

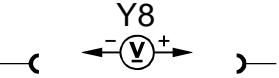
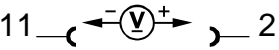
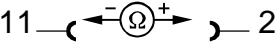
Key to symbols

-  Battery
-  Multimeter
-  Contact
-  Connector
-  Voltage measurement (volts, direct voltage)
-  Current measurement (amperes, direct current)
-  Resistance measurement (ohms)

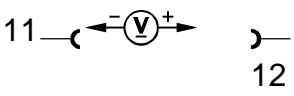
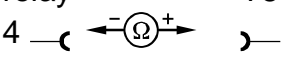
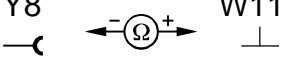
On/off ratio readout	Test step/ Test scope	Tester/ Test connection	Operation/ Requirement	Specifi- cation/ Function	Possible cause/Remedy

-	1.0 Test starting valve actuation		Feed in 10 k Ω at coolant temperature sensor coupling with Ω decade (approx. -15°C). Pay attention to Ω decade terminal! 1-pin tempera ture sensor (B11/3): Ω decade to ground and detached cable. 2-pin tempera ture sensor (B11/2) and TSZ ignition system (KE I and KE II): Ω decade to ground and detached cable (gn/sw) to fuel pump relay (terminal TF).		
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On/off ratio readout	Test step/ Test scope	Tester/ Test connection	Operation/ Requirement	Specifi- cation/ Function	Possible cause/ Remedy
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-	1.0 Test starting valve actuation	 <p style="text-align: center;">Y8</p>	2-pin temperature sensor (B11/2) and EZL ignition system (KE III): Ω decade to ground and detached cable (gn/rt) to KE control unit (connector 21) 4-pin temperature sensor (B11/2): Ω decade diagonally to contacts 2 and 4 Plug protective connector Part No. 102 589 02 21 00 into diagnosis socket. Start engine	>10 V approx. 5 s	Fuel pump relay (07.3-165). TF signal. Voltage from terminal 50. Wiring.
-	2.0 1) Test TF signal	Fuel pump relay 	Fuel pump relay disconnected. Contacts 7 and 8 jumpered. Engine idling.	3-5 V	Coolant temperature sensor (07.3-121). Open circuit KE control unit (contact 9) → fuel pump relay (contact 2). KE control unit
-	3.0 2) Test TF signal	Fuel pump relay 	Fuel pump relay disconnected.	Ohms value e.g. +80 °C approx. 320 ohms +20 °C other values see diagram	Coolant temperature sensor. Open circuit coolant temperature sensor → fuel pump relay (contact 2).

- 1) Vehicles with cable connection from KE control unit (contact 9) to fuel pump relay (contact 2).
 2) Vehicles with cable connection from coolant temperature sensor (B11/2) to fuel pump relay (contact 2).

On/off ratio readout	Test step/ Test scope	Tester/ Test connection	Operation/ Requirement	Specifi- cation/ Function	Possible cause/Remedy
-	4.0 Voltage of terminal 50	Fuel pump relay 11 —  — 12	Fuel pump relay disconnected. Starter: ON	>9 V	Open circuit starter (M1) → fuel pump relay.
-	5.0 Wiring	Fuel pump relay 4 —  — Y8 Y8 —  — W11	Fuel pump relay and starting valve coupling (Y8) disconnected. Coupling at starting valve (Y8) disconnected.	<1 Ω <1 Ω	Cable has open circuit. Cable has open circuit.

Diagram

Resistances of EZL/KE coolant temperature sensor (B11/2).

