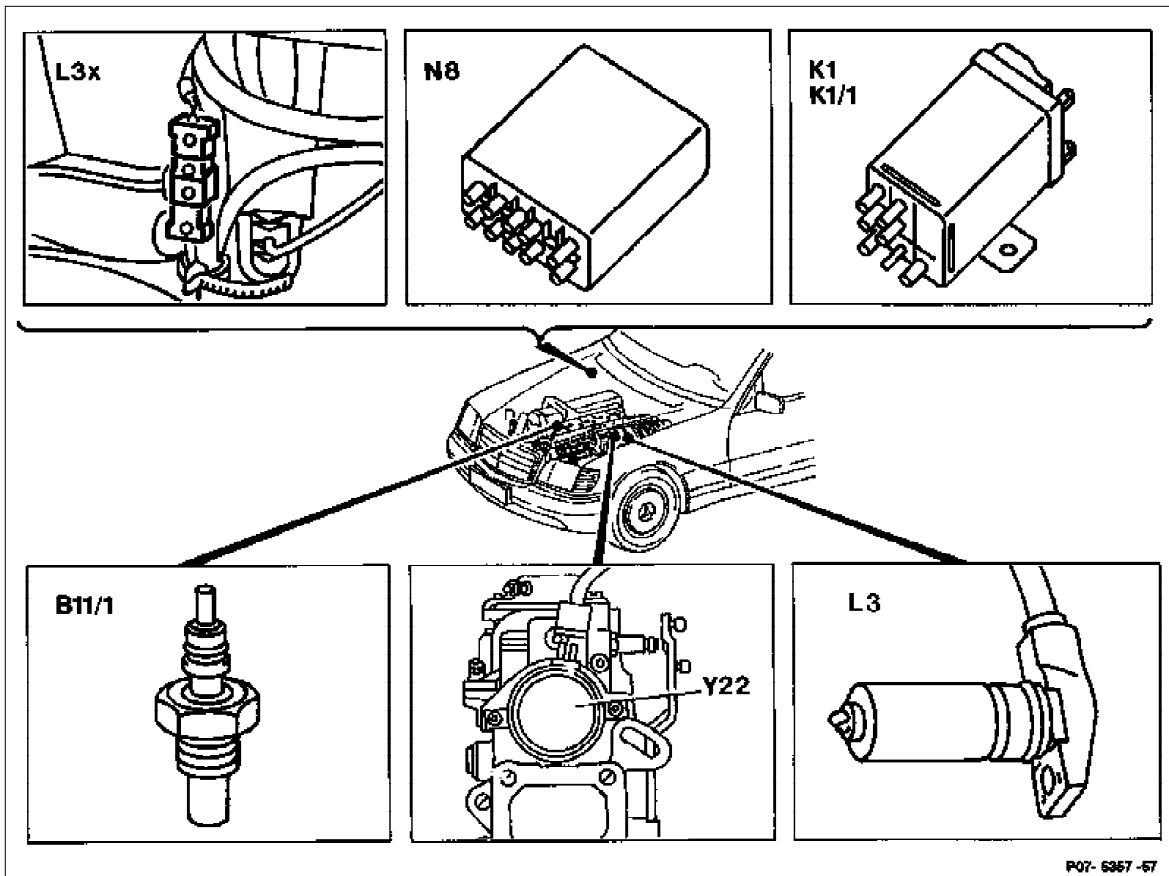


07.1-2006 Testing electronic idle speed control

Preceding work:
Testing, adjusting idle speed (07-2053).

Operation no. of operation texts and work units or standard texts
and flat rates: 07-2006

Engine 603.96 Standard without test coupling (X92 or X11/4)



Overvoltage protection relay (K1 or K1/1) and fuse

test. Measure voltage between contacts 9 and 11 of control unit coupling. Specification approx. 12 V.

Double coupling of actuator (Y22)

unplug and plug in again (at least for 3 s), engine speed increases briefly.

Engine speed sensor (L3) at coupling (L3x)

test. Resistance 0.4-2.5 kW, engine idling voltage >4 VX.

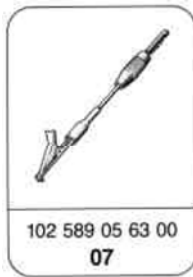
Coolant temperature sensor (B11/1)

test. Specification: +20° C, 2.2-2.8 kW.

Electrical operation of actuator (Y22)

test. Engine idling. Specification approx. 12 V.

Special tools



Commercially available testers

Designation	e. g. make, order no.
Multimeter	Sun, DMM-5
Digital tester	Bosch, MOT 002.01 Sun, DIT 9000

Note

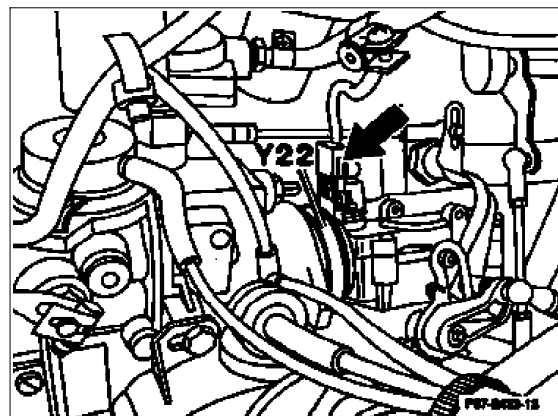
For wiring diagrams see Op. No.
07.1-0400

Function test

Engine idling. Unplug 2-pin coupling (arrow) from ELR actuator (Y22) for at least 3 seconds and plug in again. Engine speed increases briefly.

Yes

No



Briefly apply battery voltage (approx. 12 V) to ELR actuator (Y22). Idle speed increases.

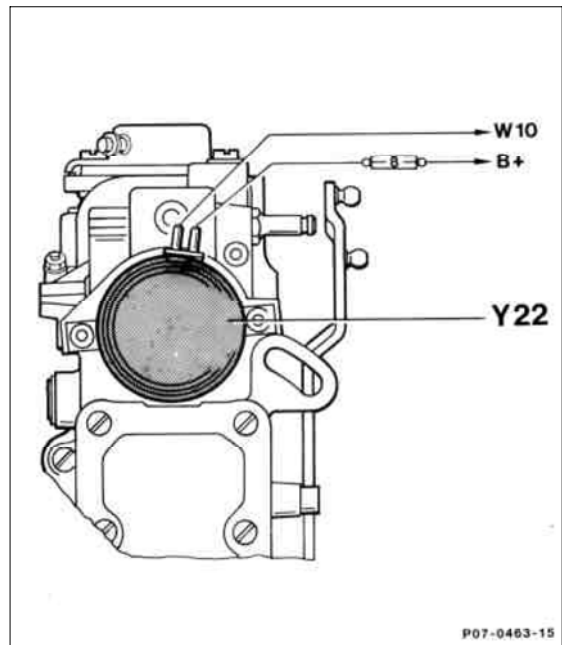


If battery voltage applied for longer than 3 seconds, ELR actuator (Y22) will be damaged.

Yes	No
-----	----

Test components

Replace ELR actuator (Y22).



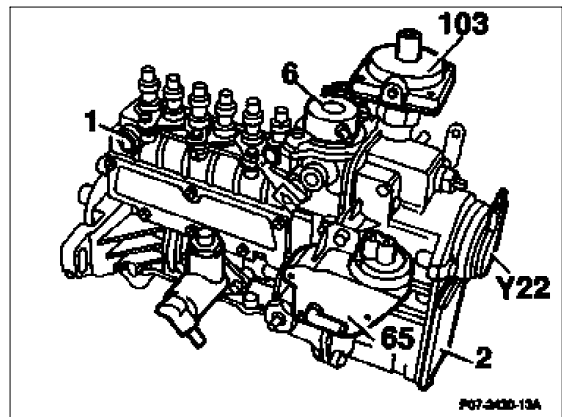
P07-0463-15

Engine idling. Unplug 2-pin coupling at ELR actuator (Y22). Test idle speed.

Specification: 570F40/min.

Yes	No
-----	----

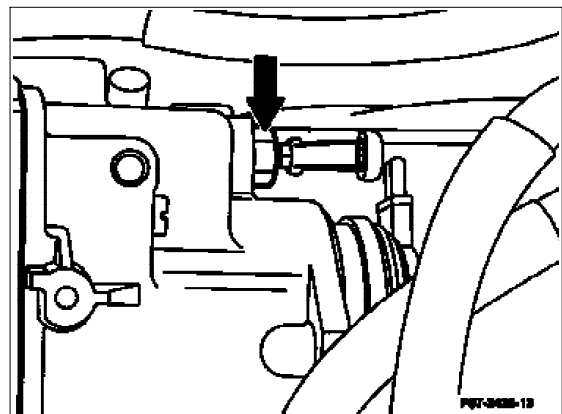
End of test



P07-000-13A

Set idle speed by slackening locking nut (arrow).

to the left = higher
to the right = lower



P07-000-13

End of test

Testing components

Testing overvoltage protection relay (K1/1)

Switch on ignition. Unplug control unit (N8) and test voltage between contacts 9 and 11.

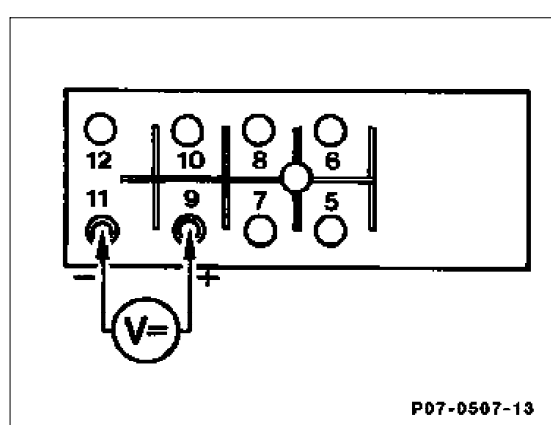
Readout: approx. 12 V.

Yes

No

Test fuse at overvoltage protection.
Actuation in accordance with wiring diagram.

End of test



Testing engine speed signal

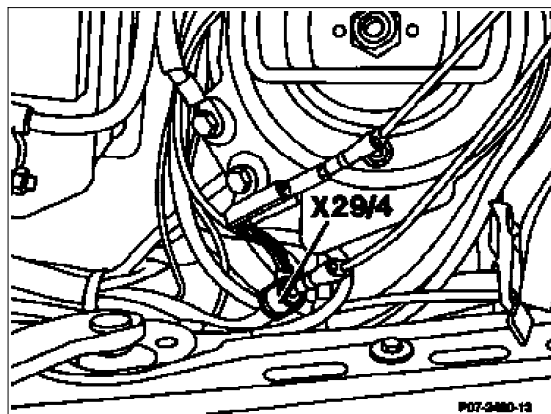
Connect multimeter to test coupling (X29/4). Set multimeter to VX. Run engine at idling speed.

Specification: >2.8 VX

Yes

No

End of test



Engine switched off. Unplug connector (L3x). Connect multimeter to speed sensor plug connection (L3x) and press "W" button. Test resistance.

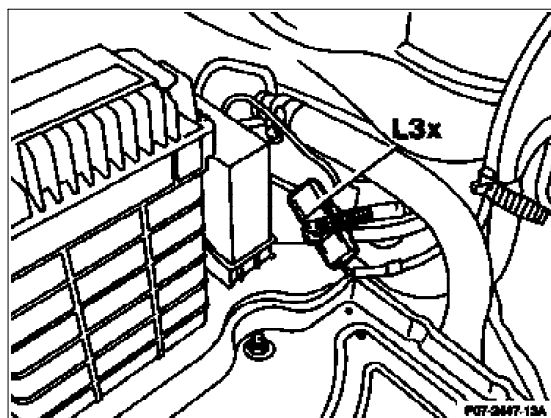
Readout: 0.4-2.5 kW

Yes

No

Replace starter ring gear speed sensor (L3).

End of test



Multimeter connected as above. Press "VX" button. Run engine at idling speed.

Readout: >4 VX
Voltage rises as engine speed rises.

Yes | No

Check starter ring gear speed sensor for fouling and metal swarf. Clean if necessary.

End of test

Testing coolant temperature sensor (B11/1)

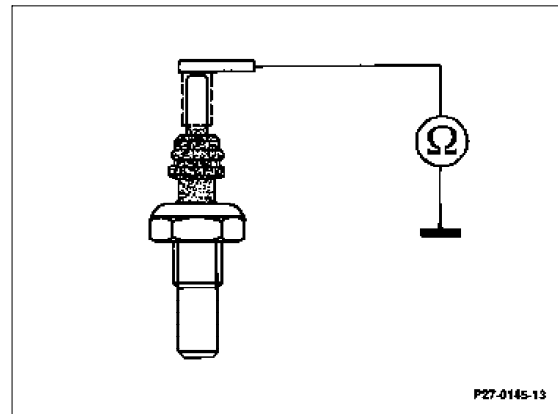
Engine switched off. Unplug connector at coolant temperature sensor and test resistance to ground. For specifications see diagram. Measure resistance at two temperature measuring points.

Example:
+20 °C = 2.2-2.8 kW
+80 °C = 290-370 W

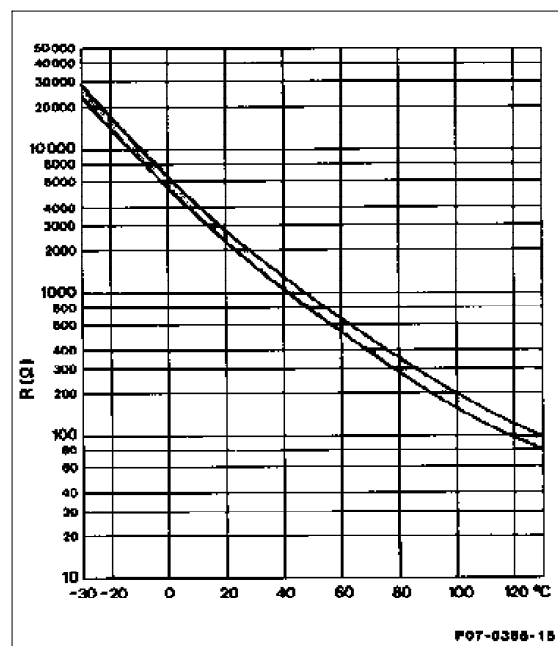
Yes | No

Replace coolant temperature sensor.

End of test



P27-0145-13



F07-0388-15

Test voltage at 1-pin coupling (arrow). Ignition: **ON**

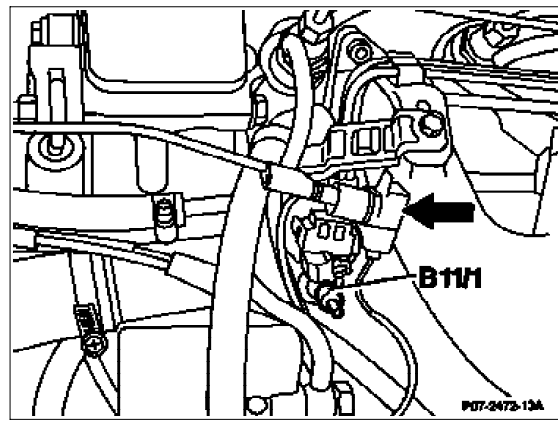
Readout: approx. 5 volts

Yes

No

Rectify open circuit in wiring. Replace control unit (N8).

End of test



Testing electrical operation of actuator

Engine idling. Unplug 2-pin coupling (arrow) at actuator (Y22) and measure voltage with multimeter with "V=" button pressed.

Readout: approx. 12 V.

Yes

No

Test operation according to wiring diagram; replace control unit (N8), if necessary.

End of test

