

07.3—165 Checking fuel pump relay with electronic rpm control (breakaway speed)

Job No. of flat rates or standard texts and flat rates data 07—5792.

Versions and regulating (breakaway) speeds

Engine	MB part No.	Breakaway speed 1/min	Kickdown 1/min	Remarks
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Standard version

116.960 116.961	001 545 04 05 001 545 16 05	6600 ± 50	—	—
117.960 117.961	001 545 05 05 001 545 17 05	5950 ± 50		
116.962 116.963 117.962 117.963	001 545 34 05	5950 ± 50	5750 ± 50	with kickdown shutoff
116.963 NV KAT (closed-loop)	001 545 53 05	5500 ± 50	5300 ± 50	with kickdown shutoff

1981

116.960 116.961	001 545 05 05 001 545 17 05	5950 ± 50	—	—
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1982—1985

1983—1985

116.962 116.963	001 545 49 05	5950 ± 50	5750 ± 50	with kickdown shutoff
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1981

116.960 116.961	001 545 06 05 001 545 15 05	5300 ± 50	—	—
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1982

116.962 116.963	001 545 36 05	5300 ± 50	5100 ± 50	with kickdown shutoff
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1983—1985

116	001 545 53 05	5500 ± 50	5300 ± 50	with kickdown shutoff
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Conventional testers

Voltmeter, revolution counter

Note

The fuel pump relay is controlled via ignition impulses.
The impulse number is computed as follows:

$$\frac{\text{Rpm} \times \text{number of cylinders}}{2}$$

Example:

Breakaway of pump relay 001 545 07 05 for engine 110.98 (6650 ± 50/min) starts at approx. 19 950 impulses per minute; breakaway of relay 001 545 04 05 (6600 ± 50/min) for engine 116.96 will not start before 26 400 impulses. If these relays are mixed up, the engine 110 may rev up and breakaway for engine 116.96 would start too soon, even though the relay shows almost similar breakaway speeds.

Layout of fuel pump relay

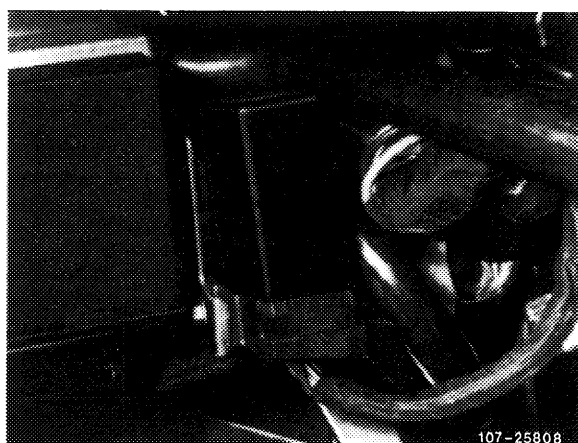
Model 107

Lefthand steering

At the right inside vehicle behind glove box. For repair jobs, remove glove box and lining.

Righthand steering

At the right inside vehicle above pedals. For repairs, remove lining.



Checking activation of fuel pump relay

Remove fuel pump relay.
Connect negative cable of voltmeter to vehicle ground. Measure voltage with positive cable of voltmeter on jack 2 of coupling.

approx. 12 volts

0 volt

Check line (terminal 30, red) to cable connector of engine harness for interruption.

Repair interruption.

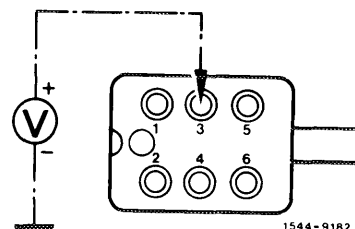
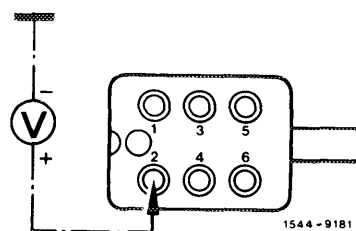
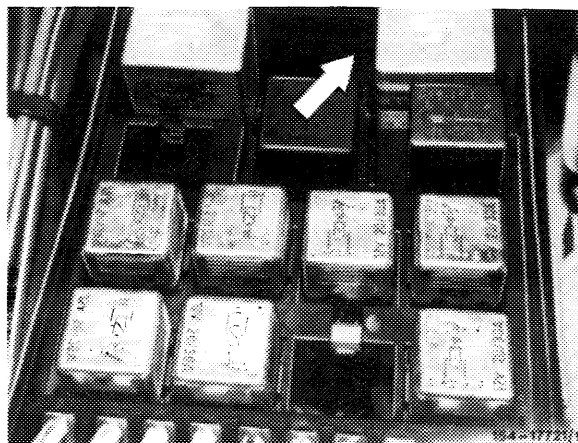
Switch on ignition.
Measure voltage on jack 3 of coupling with positive cable of voltmeter.

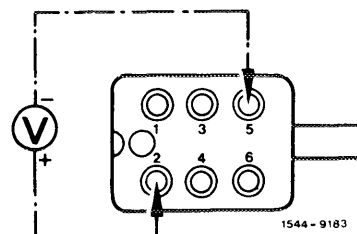
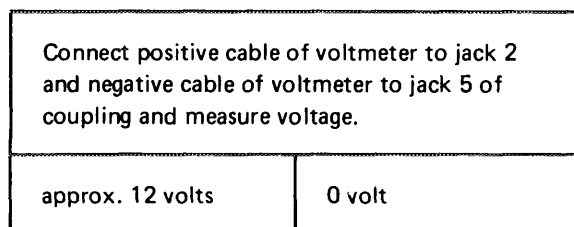
approx. 12 volts

0 volt

Test line (terminal 15, black/red) to ignition starter switch for interruption.

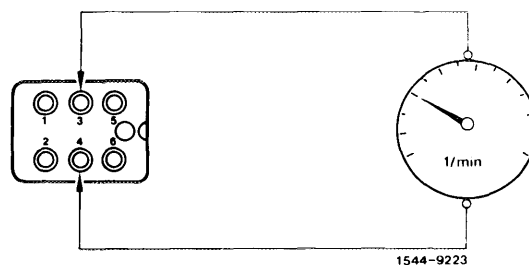
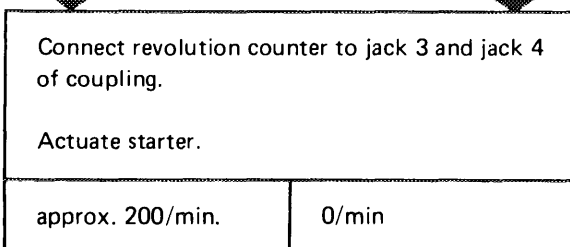
Repair interruption.





Test line (terminal 31, brown) to grounding point for interruption.

Repair interruption.



Test line (terminal TD, green/yellow) to TCI switching unit for interruption.

If line is in order, renew switching unit.

Checking function of fuel pump relay

Connect negative cable of voltmeter to vehicle ground. Plug fuel pump relay on coupling in such a manner that the voltage can be measured with positive cable of voltmeter. Actuate starter for this purpose.

approx. 12 volts

0 volt

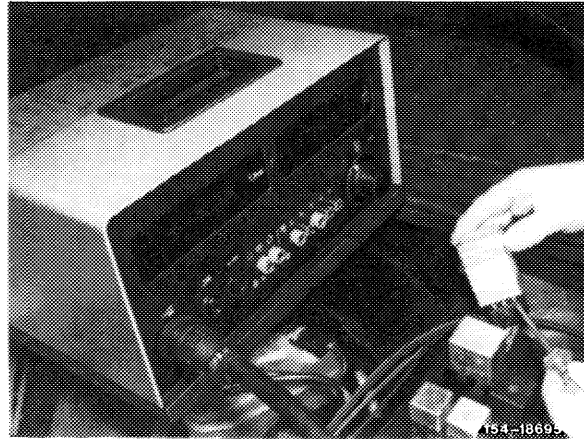
Renew fuel pump relay.

Run engine at idle.

Engine running.

Engine not running.

Renew fuel pump relay.



If the engine is not regulated (breakaway speed) after attaining engine max. speed, renew fuel pump relay.

The respective breakaway speed is punched into fuel pump relay.

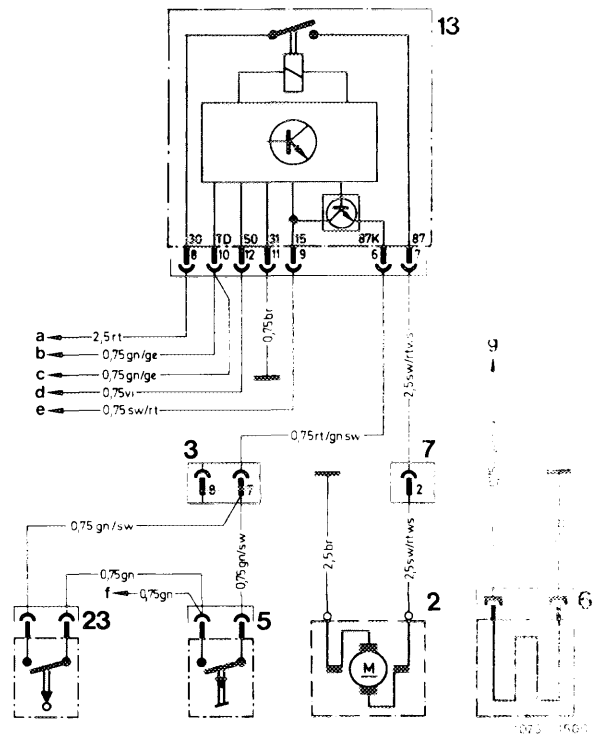
End of test

B. Starting September 1981

Wiring diagram starting September 1981

- 2 Fuel pump
- 3 Coupling, 8-pole
- 5 Kickdown switch
- 6 Warm-up regulator
- 7 Coupling, tail lamp wiring harness
- 13 Fuel pump relay
- 23 Switch selector lever position "B"
- a Lug terminal 30
- b Cable connector terminal TD
- c Control unit of electronic idle speed control
- d Cable connector engine terminal 50
- e Fuse capsule terminal 15
- f Access fuse 14
- g Magnetic valve automatic transmission
- Model 107: Coupling, tail lamp wiring harness (7)
- 14-pole, jack 2
- Model 126: fuel pump relay (13)
- Terminal 87, jack 7

Line colors
br = brown
ge = yellow
gn = green
rt = red
sw = black
vi = purple
ws = white



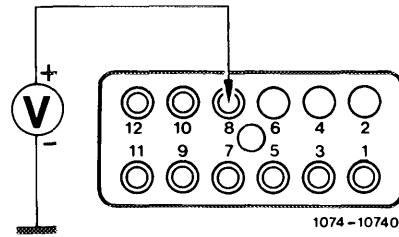
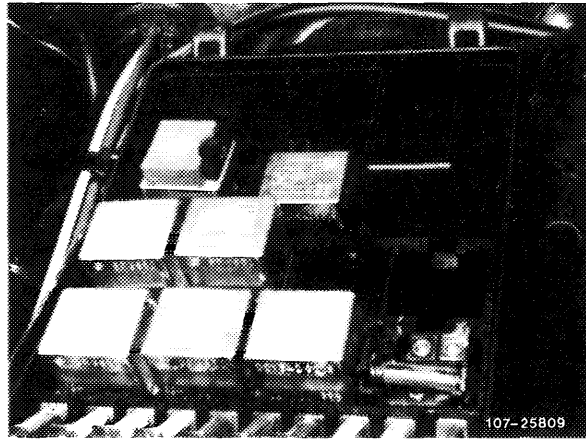
Testing activation of fuel pump relay

Remove fuel pump relay.

Connect negative cable (black) of voltmeter to vehicle ground. Measure voltage with positive cable (red) of voltmeter on jack 8 (terminal 30) of coupling.

approx. 12 volts

0 volt

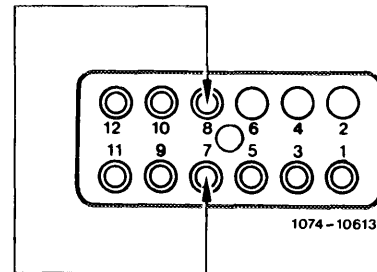


With jack 7 and 8 bridged, the fuel pump should run.

Repair interruption according to wiring diagram.

If not

End of test

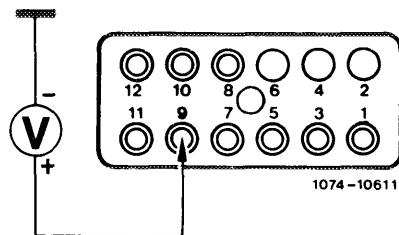


Switch on ignition.

Measure voltage with positive cable (red) of voltmeter on jack 9 (terminal 15) of coupling.

approx. 12 volts

0 volt



Repair interruption according to wiring diagram.

End of test

Connect positive cable (red) of voltmeter to jack 8 (terminal 30) and negative cable (black) of voltmeter to jack 11 (terminal 31) of coupling and measure voltage.

approx. 12 volts

0 volt

Repair interruption according to wiring diagram.

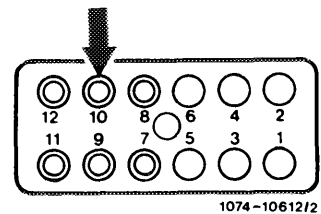
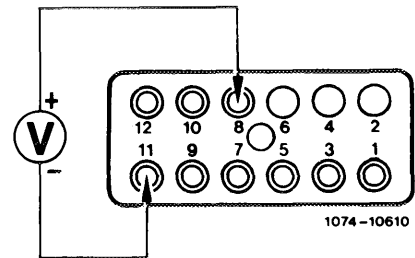
End of test

Connect engine tester. Connect dwell angle measuring cable to jack 10 (terminal TD).

Operate starter. Dwell angle 7–34°.

Yes

No



Test line (terminal TD, green/yellow) to TCI switching unit for interruption.

Test ignition system, if required.

End of test

Connect positive cable (red) of voltmeter to jack 12 (terminal 50) and negative cable (black) of voltmeter to jack 11 (terminal 31) of coupling and measure voltage. Operate starter for this purpose.

approx. 12 volts

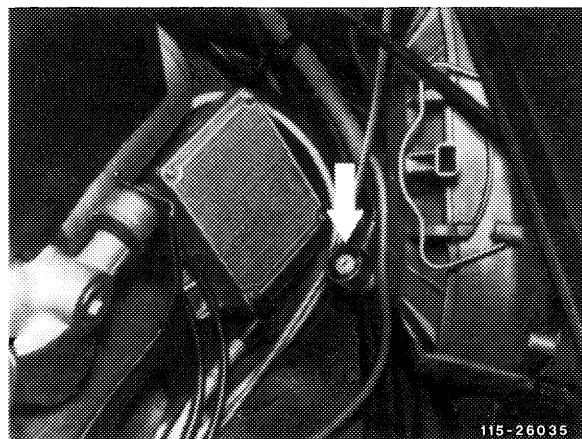
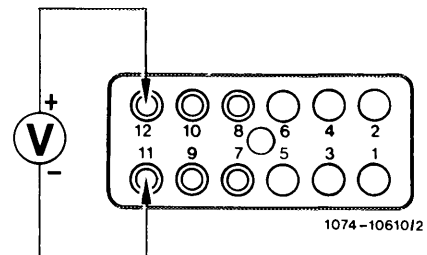
0 volt

Repair interruption according to wiring diagram.

End of test

Check kickdown shutoff. With engine running, the 8-pole coupling (arrow) terminal 7 is energized. Voltage should drop at 200/min prior to breakaway speed.

No



Renew relay.

End of test



If all tests are in order and the fuel pump activation is still at fault, renew relay.

If there is no breakaway after the engine max. speed has been attained, renew fuel pump relay.

The respective breakaway speed is punched into fuel pump relay.

End of test