

07.2–128 Testing starting device (choke) for function (cold start)

Testing and adjusting values

Voltages measured at battery

Rest potential	min. 12.2 volts
Starting voltage	min. 10 volts
Regulating voltage alternator	13.0–14.5 volts

Voltages measured at ignition coil

Terminal 15	Breaker contact "closed"	3.6–4.6
Terminal 1		0.7–1.5
Terminal 15	Breaker contact "open"	battery voltage
Terminal 1		battery voltage

Voltage at pre-resistor

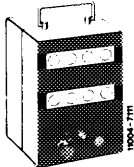
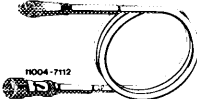
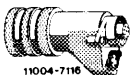
Pre-resistor output 0.4 ohm Cable: red/black (Pre-resistor bridge-over)	min. 9.6 volts
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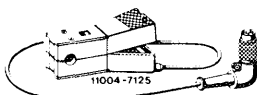
Carburetor

TN control window opening at + 20 °C	approx. 2.5 mm
CO value after starting cold engine	7–8 % ¹⁾

¹⁾ If the CO value is essentially above upper tolerance, spark plugs have a tendency for sooting, engine starts misfiring.
If it is considerably below lower tolerance, starting faults and bypass faults may occur.

Special tools

Digital tester		001 589 54 21 00
Connecting cable 3 m long		000 589 04 90 00
Intermediate plug (adaptor)		000 589 72 63 00



Conventional test instruments

Voltmeter, revolution counter and CO measuring instrument

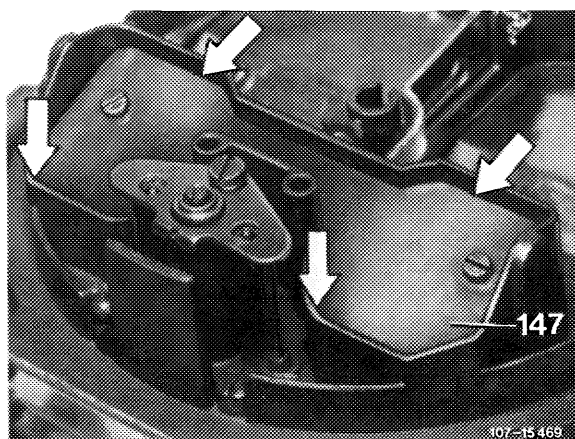
Testing

1 Let engine cool down to below + 20 °C. Check whether choke valve (147) is completely closed and has lateral clearance. (**Below + 20 °C the choke valve should be completely closed**).

2 Remove air filter, pull cable from choke cover heater so that choke valve is not completely opening during the following voltage measurements.

3 Check battery for external condition (visual checkup). Check battery poles for oxidation.

4 Test voltages on battery.



a) Rest potential

Connect voltmeter to battery plus and minus pole, read voltage.

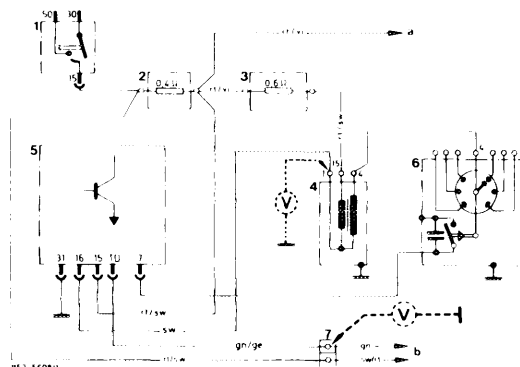
Nominal value: min. 12.2 volts

b) Starting voltage

Pull high-voltage ignition cable 4 out of distributor cover and connect to ground. Operate starting motor while reading voltage.

Nominal value: min. 10 volts

- 1 Ignition starter switch
- 2 Pre-resistor 0.4 ohm
- 3 Pre-resistor 0.6 ohm
- 4 Ignition coil
- 5 Standard switchgear
- 6 Ignition distributor
- 7 Diagnosis plug
- a To starter terminal 16
- b To diagnosis socket



5 Test voltages at ignition coil.

a) With breaker contact **closed** at terminal 15 and terminal 1:

Nominal values: Terminal 15, 3.6–4.6 volts
Terminal 1, 0.7–1.5 volts

b) With breaker contact **opened** at terminal 15 and terminal 1:

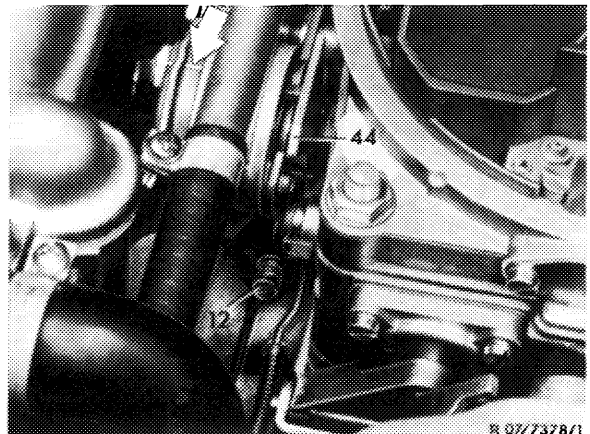
Nominal values: Terminal 15 and terminal 1 should be energized by battery voltage.

6 Measure voltage at pre-resistor 0.4 ohm while starting (pre-resistor bridge-over).

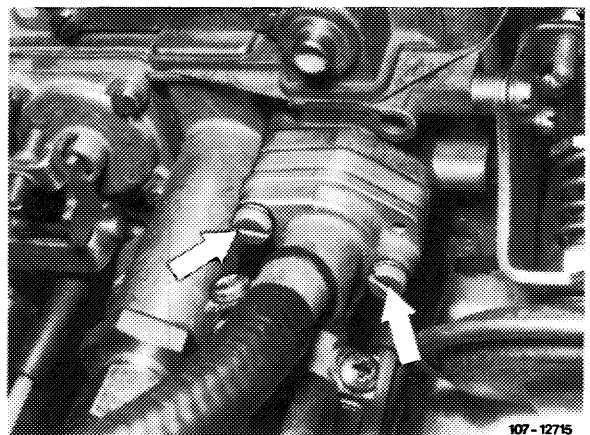
Nominal value: min. 9.6 volts

7 Insert high-voltage ignition cable 4 again into distributor cover.

8 Check choke cover preload. Markings (arrow) should be opposite each other.



9 Remove TN choke after loosening fastening screws (arrow) together with coolant hoses.

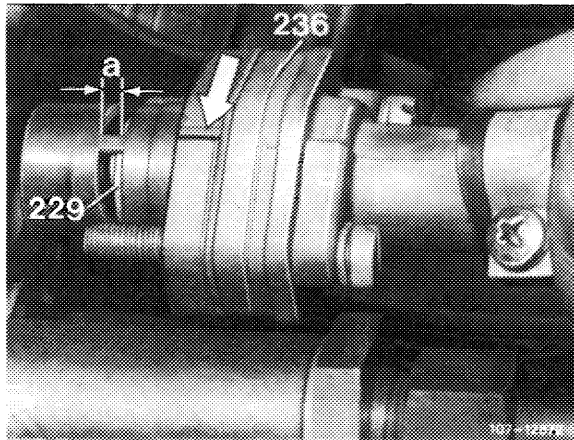


10 Measure control window opening "a" exposed by control piston with slide gauge.

Nominal values: At + 20 °C approx. 2.5 mm.
At approx. 0 °C control window should be completely open.

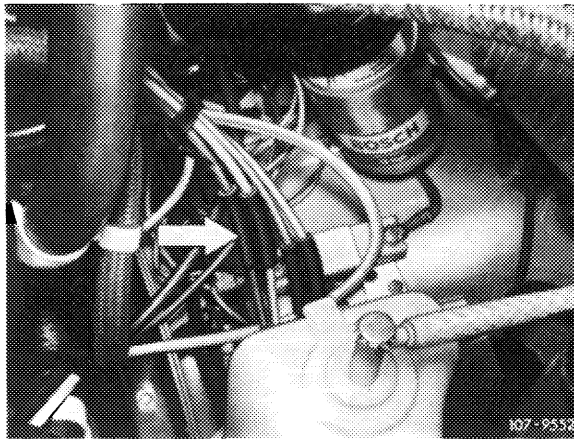
11 Install TN choke and air filter.

12 Check warming-up total mixture without air injection and EGR, adjust. For this purpose, connect CO measuring instrument and make air injection inoperative as described below (for **USA** 1973/74 nothing need be made inoperative):



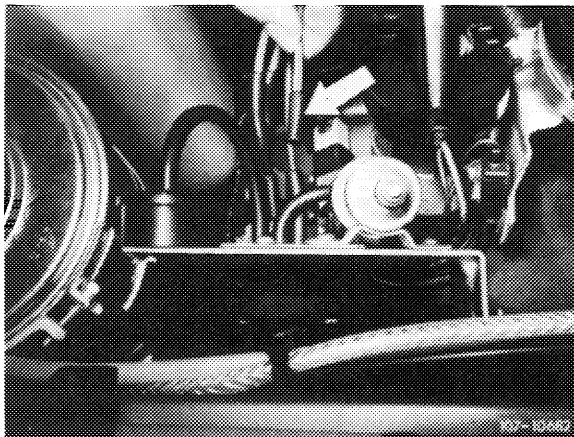
J 1976

Pull off **blue/purple** vacuum line at connecting point (arrow).



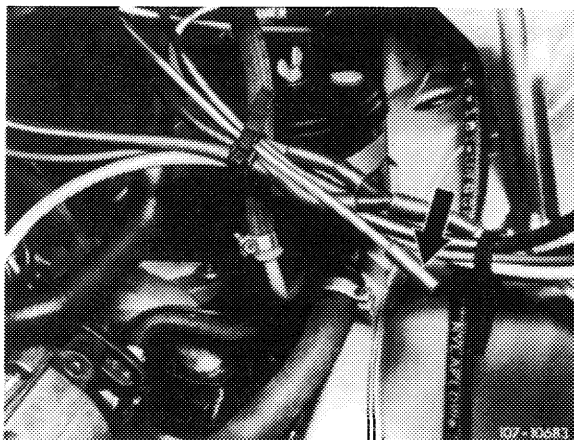
S 1976, model 114

Pull rubber cap (arrow) from **blue/purple** vacuum line.



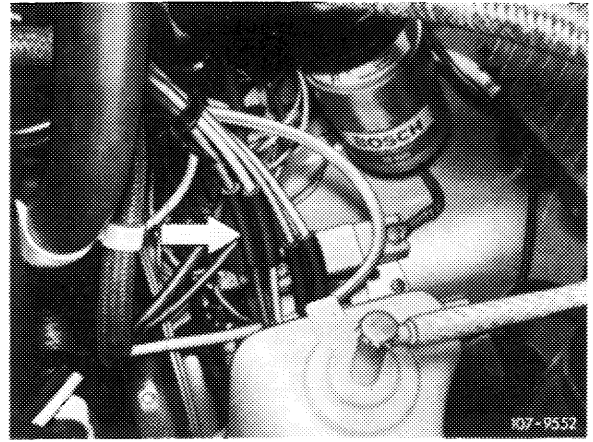
S 1976, model 116

Pull rubber cap (arrow) from **blue/purple** vacuum line.



USA California 1974

Pull off red vacuum line at connecting point (arrow).



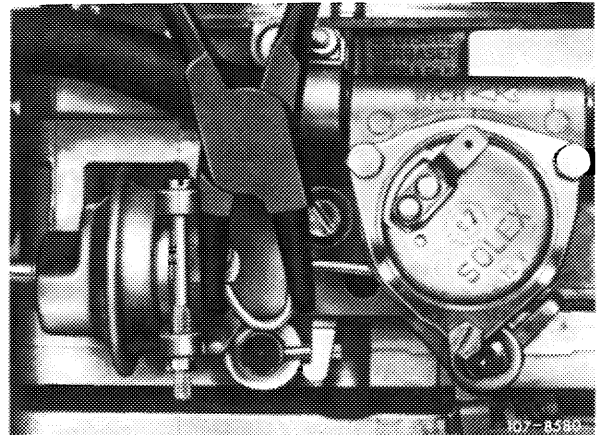
USA 1975/76

Pull off blue/purple vacuum line at connecting point (arrow).

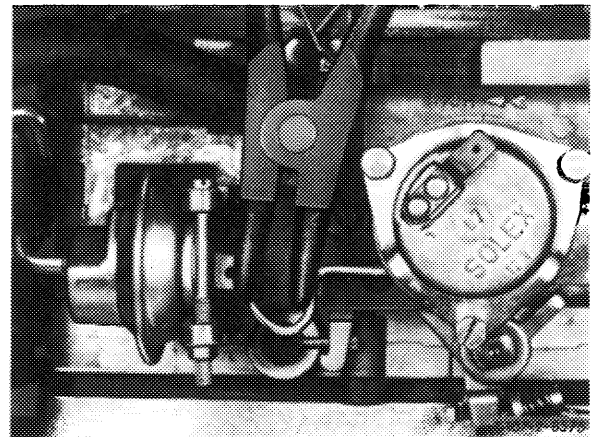
Start engine and rapidly depress accelerator upon firing.

Engage driving position for automatic transmission, permit CO value to come to rest and read. (If deviations from tolerance value are high, stop engine immediately, change choke valve gap accordingly and repeat CO test).

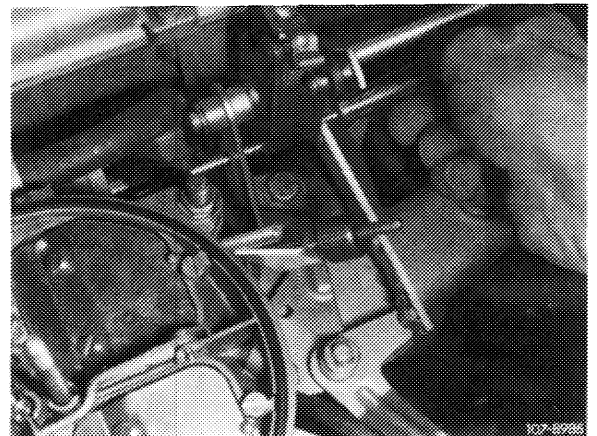
Nominal value: 7–8 % CO



Pushing together = leaner



Pushing apart = richer



Screwing out = leaner
Screwing in = richer

Again plug-on vacuum hoses for air injection and EGR (air injection with EGR operative).

13 Again plug-on cable for choke cover heater.

14 Test regulating voltage of alternator.

Note: Prior to testing regulating voltage, check acid density of battery. If acid density (state of charge) of battery is lower than 1.24 kg/dm^3 in tropical countries, a defective transistor regulator (full regulation) is no longer recognized.

Checkup

Engine speed: 3000/min

Battery load: Compulsory consumer only (ignition)

Regulating voltage measured after approx. two minutes: 13.0–14.5 volts.