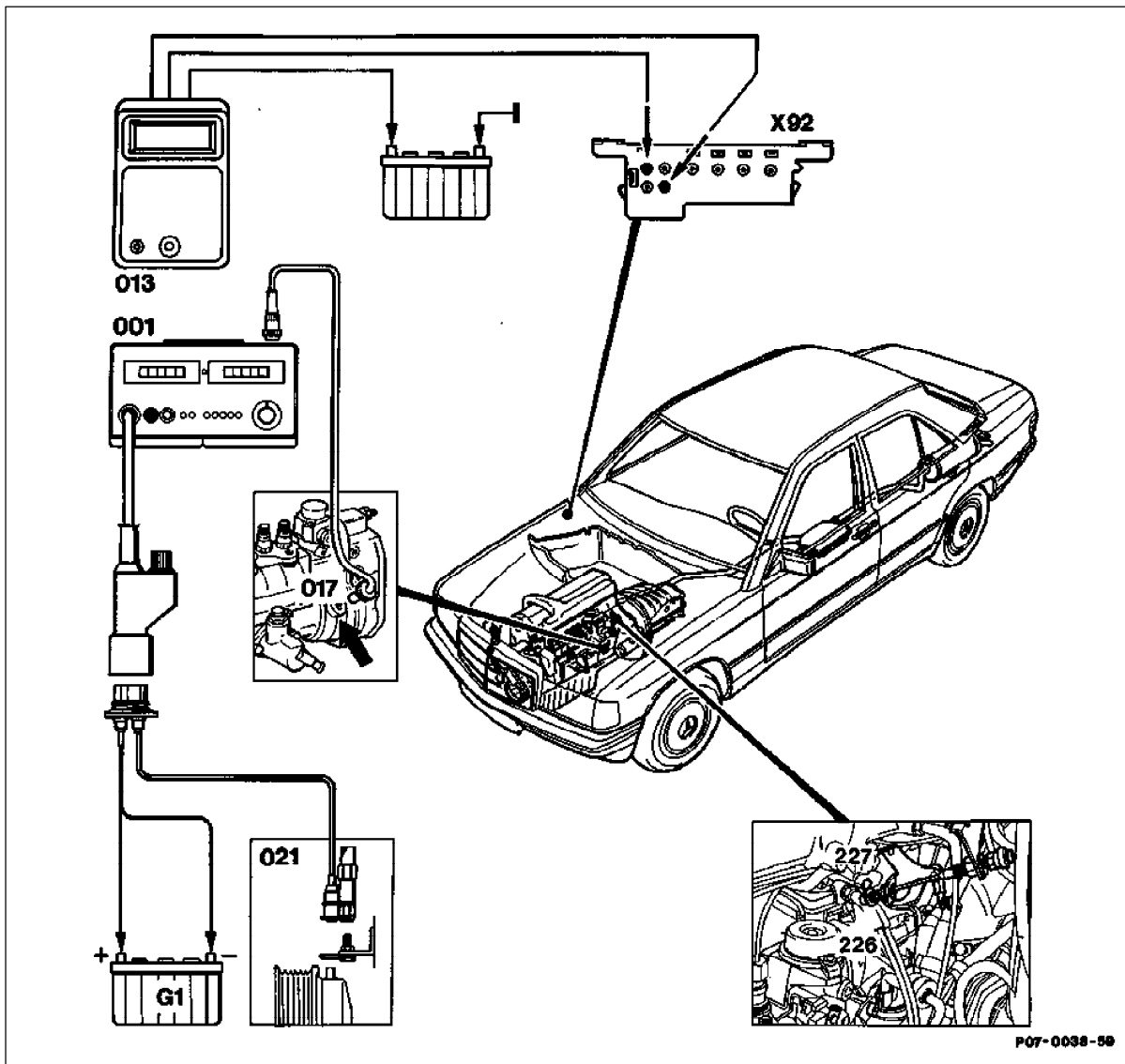


## 07.1-1100 Testing, adjusting engine

Preceding work:

Operation no. of operation texts and work units or standard texts and flat rates: 07-1100



Coolant level _____	check, correct.
Engine oil level _____	check; pay attention to condition of oil (visual inspection).
Air filter element _____	remove, install (visual inspection).
Testers (001, 013, 017) _____	connect.
Pulse generator (021) _____	connect.
Accelerator control linkage _____	check ease of movement, condition. Lubricate bearing points, relay levers, ball sockets.
Full throttle stop _____	check from accelerator pedal, adjust Bowden cable if necessary.
Idle stop _____	check; adjust at Bowden cable if necessary.

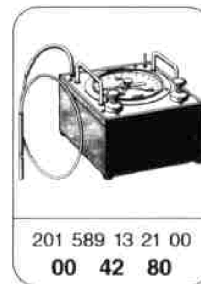
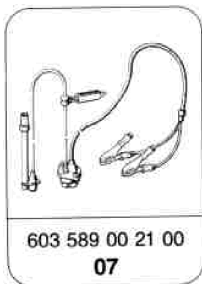
Voltage at battery _____	test. Specification min. 11.5 volts.
Engine _____	warm up to operating temperature (coolant temperature approx. 80 °C).
Air conditioner or automatic climate control _____	switch off.
Idle speed _____	check, adjust if necessary. Unplug connector from actuator, plug in.
Start of delivery _____	test with digital tester.
Max. speed at no load _____	test.
Injection timer _____	test.
Electronic diesel system (EDS) _____	test with pulse counter (013), see (07.1-1120).
Anti-jerk control (ARA) _____	test with pulse counter (013), see (07.1-1841).

### Test and setting data

Engine	Idling speed in rpm with control	Idling speed in rpm without control connector at servomagnet unplugged	Start of delivery with digital tester RI specification	Max. speed without load or end of governed speed in rpm	Timing device w/o load or end of governed speed RIV meth. in°
602.96 1)	740 ± 20	690 ± 40	15 ± 1° after TDC. I as of 09/89, Base version Code 62/0 as of 06/91, K √	5150 ± 150	+3° to+5°
602.96 2)	680 ± 20	620 ± 40	B √ as of model year 1991: 14 ± 0.5° after TDC.		
603.96	630 ± 20 680 ± 20 3)	570 ± 40 620 ± 40 3)	15 ± 1° after TDC. Base version Code 62/0 as of 06/91, K √ as of model year 1991: 14 ± 0.5° after TDC.		
603.970	630 ± 20	570 ± 40	15 ± 1° after TDC. I as of 09/89: 14 ± 0.5° after TDC.	4650 ± 150	
603.971	610 ± 20	560 ± 40	14 ± 0.5°	4750 ± 150	

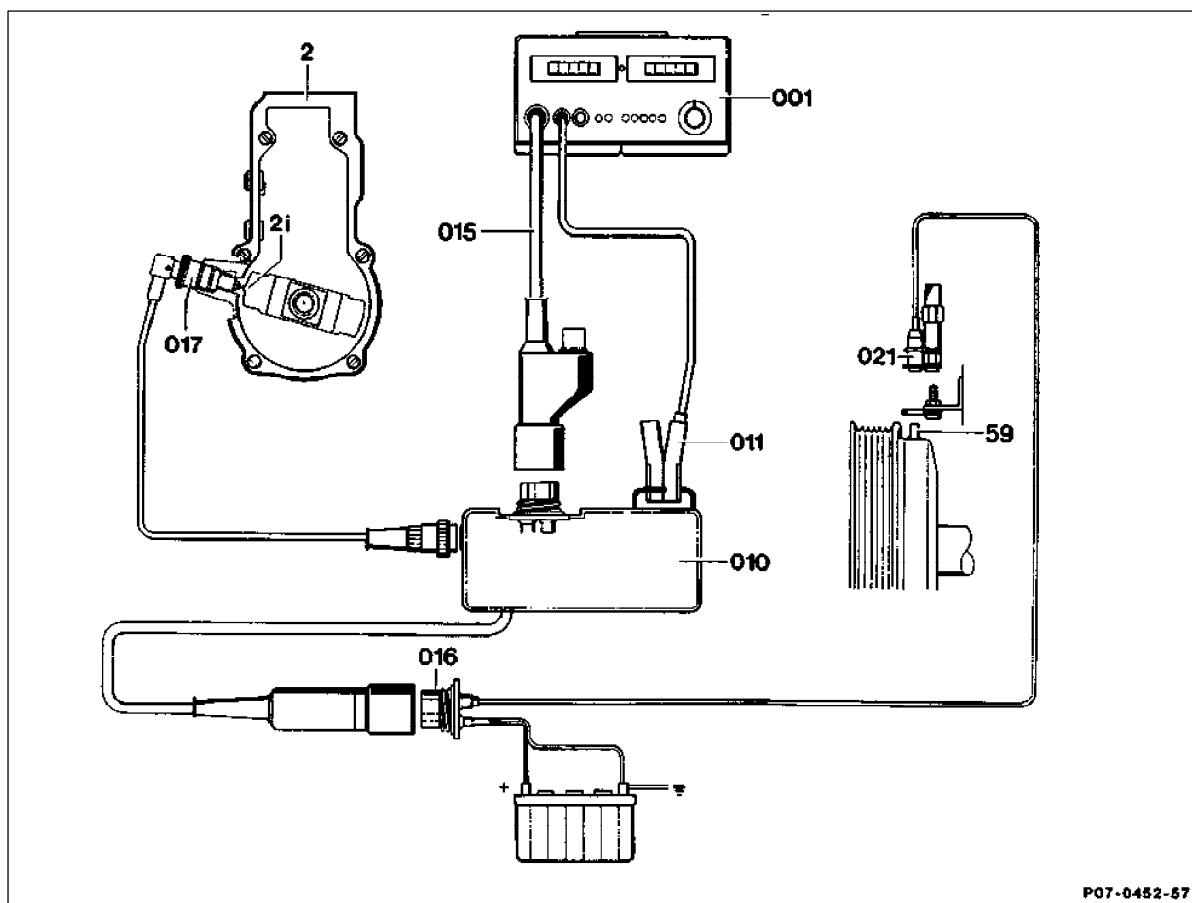
- 1) Manual transmission.
- 2) Automatic transmission
- 3) 4MATIC with manual transmission.

## Special tools



## Commercially available testers

Designation	e. g. make, order no.
<b>Used without adapter</b>	
Digital testers	Bosch, ETD 019.02 or MOT 350/500/501 Sun, DIT 9100 AVL, Diesel-Tester 873
<b>Used with adapter</b>	
Digital testers	Bosch, MOT 001.03
Lambda tester (only for EDS)	Bosch, KDJE-P 600 Hermann, L 115



Connection diagram for testers with adapter

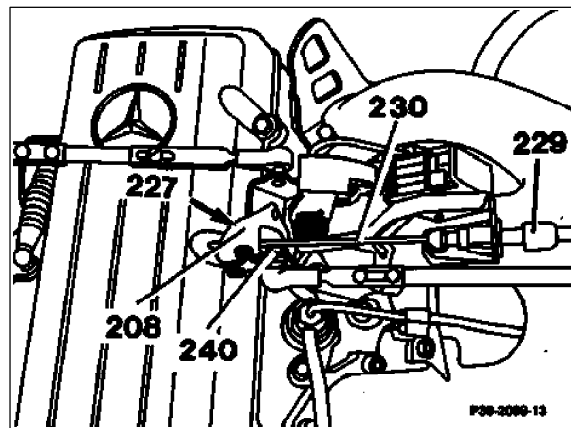
001	Digital tester	017	RI generator
010	Adapter	021	TDC pulse generator
011	Trigger clamp	2	Governor
015	Test cable with connector	2i	RI generator pin
016	Diagnostic socket	59	TDC generator pin

### Testing, adjusting engine

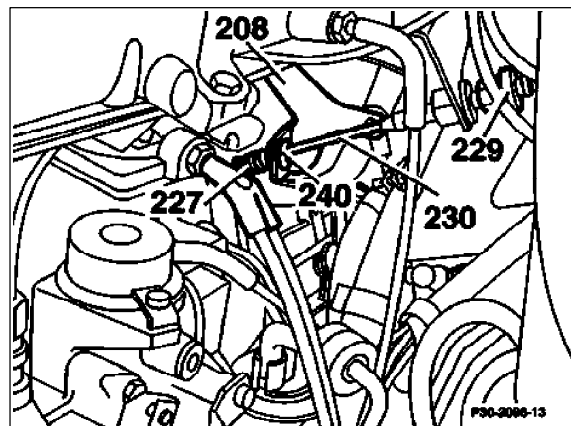
- 1 Check coolant level, correct if necessary.
- 2 Check engine oil level, paying attention to condition of oil (visual inspection).
- 3 Remove air filter element (visual inspection), and install.
- 4 Connect testers (013, 001, 017) according to connection diagram.
- 5 Connect pulse generator (021).
- 6 Check accelerator control for ease of movement and condition. Lubricate bearing points, relay levers and ball sockets.

- 7 Check full throttle stop from accelerator pedal; adjust at adjusting screw (229) if necessary.

Engine 602.96

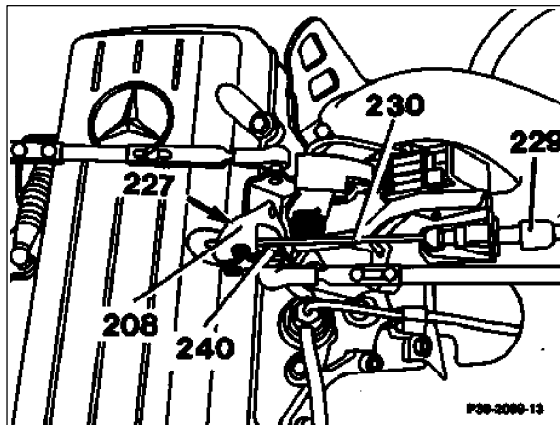


Engine 603.96

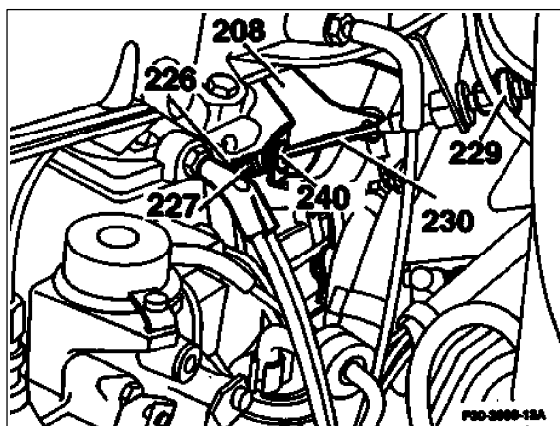


8 Check idle stop.  
The spring plate (226) of the Bowden cable (230)  
must be resting against the compression spring (227)  
free of tension.

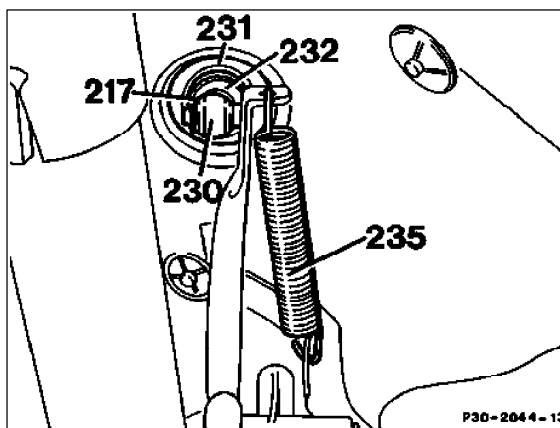
Engine 602.96



Engine 603.96



Adjust Bowden cable (230) with adjusting nut (232)  
from the car interior, if necessary.

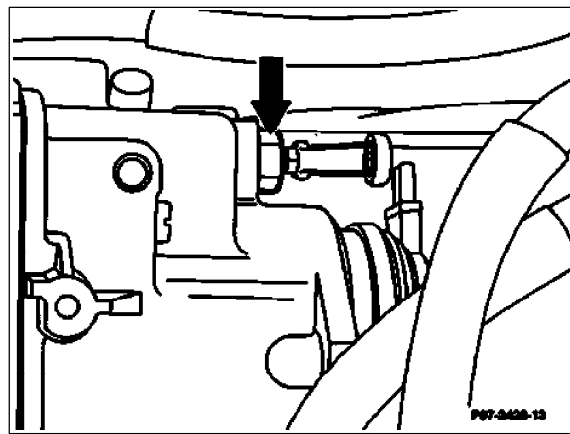


9 Test voltage at battery.  
Specification: at least 11.5 V.

10 Raise engine to operating temperature (coolant  
temperature approx. 80 °C).

11 Switch off air conditioner or automatic climate  
control.

Test idling speed.  
 Unplug 2-pin coupling at actuator, plug in. Set idling speed by slackening locking nut (arrow).



Engine	Idle speed in rpm <b>with control</b>	Idle speed rpm connector at actuator unplugged <b>without control</b>
602.96 manual transm.	740 ± 20	690 ± 40
602.96 automatic transm.	680 ± 20	620 ± 40
603.96	630 ± 20 680 ± 20 1)	570 ± 40 620 ± 40 1)
603.970	630 ± 20	570 ± 40
603.971	610 ± 20	560 ± 40

1) 4MATIC with manual transmission.

Test start of delivery dynamically, read off on digital tester (07-8244).

- 12 Test "max. speed" without engine load.
- 13 Test injection timing device without load.
- 14 Test electronic diesel system, see (07.1-1120).