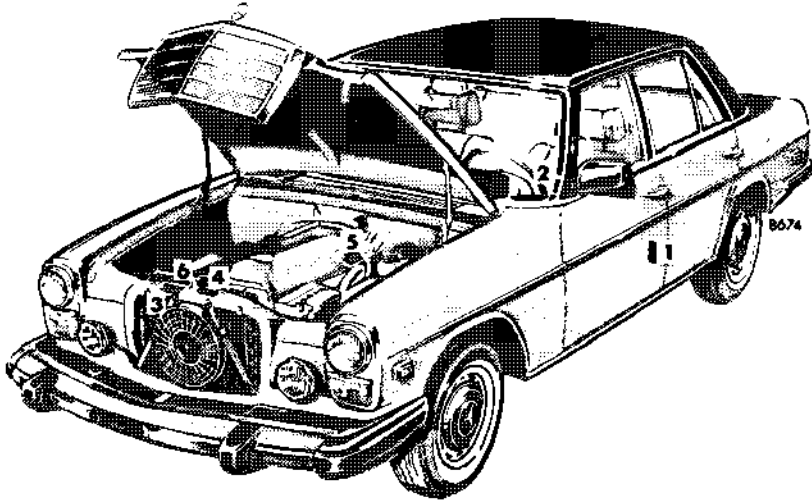




- 1 Certification Tag (left door pillar)
- 2 Identification Tag (left windshield post)
- 3 Chassis No.
- 4 Engine No.
- 5 Body No. and Paintwork No.
- 6 Emission Control Tag
(Model year 1970 and later only)

Oil reserve in shock absorber

The oil reserve in the shock absorber is determined by the length of exposed piston rod „a“.

The temperature of the shock absorber should be approx. 20 °C when the oil reserve is measured.

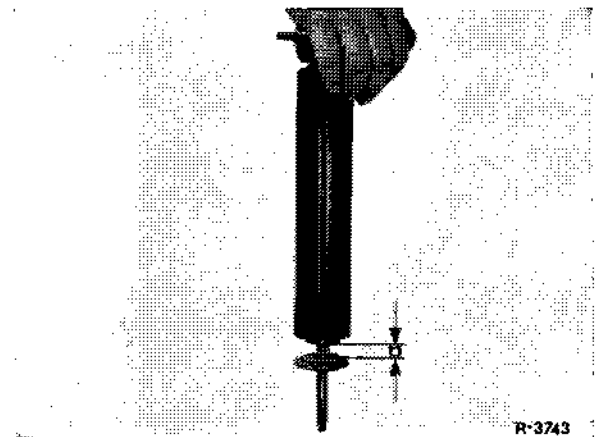
In the event of an oil loss, the length of the exposed piston rod increases on shock absorber with separating piston; the length decreases on shock absorbers without separating piston.

If the permissible length are exceeded or not met, replace shock absorber because it has lost its effectiveness.

Shock absorber with separating piston

Push-in piston rod up to stop of operating piston on separating piston. Now measure exposed length "a".

a Length of exposed piston rod

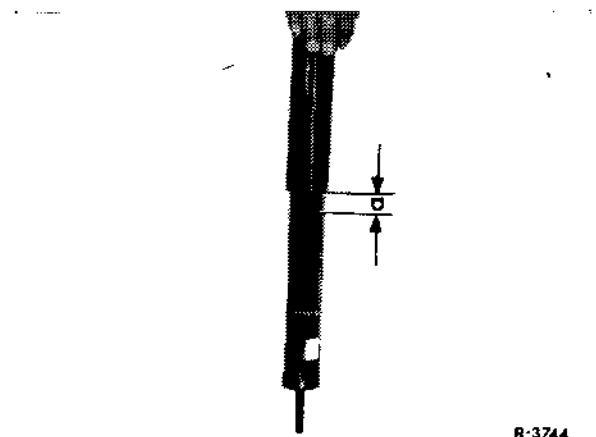


Shock absorber without separating piston

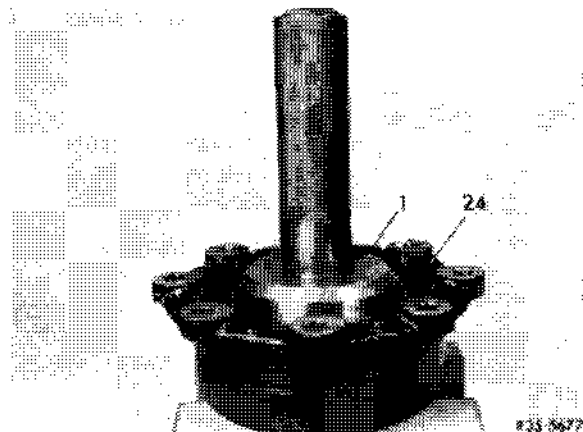
Compress shock absorber — with piston rod in upward direction — until a clearly noticeable, additional resistance begins, that is until the piston makes contact with oil column. Now measure length of exposed piston "a".

Note: When checking oil reserve in shock absorbers without separating piston, any occurring intermediate noises are without significance.

a Length of exposed piston rod



55 Coat new radial sealing ring with sheet-metal jacket on OD with sealing compound, radial sealing ring with rubber-coated jacket with hypoid gear oil or rubber sliding compound "naphtalene H" and press into bearing cap (24) up to stop by means of installer (1).



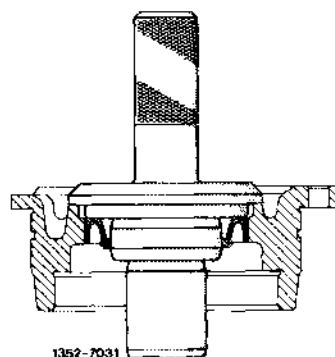
Attention!

Three bearing cap versions are available for vehicles with large rear axle center piece.

1st and 2nd version with 65 mm dia. radial sealing ring

3rd version with 81 mm dia. radial sealing ring.

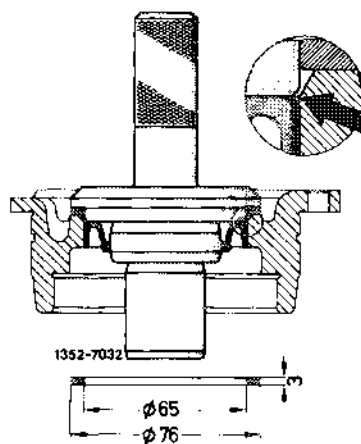
On 1st version, push radial sealing ring in until the installation mandrel rests against lug for dirt labyrinth of bearing cap.



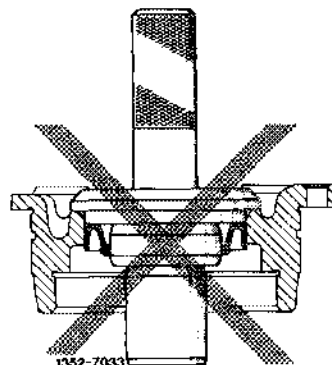
Radial sealing ring correctly inserted

On 2nd version, insert radial sealing ring until the insertion mandrel is flush with bottom edge of chamfer (lug for dirt labyrinth is shortened) of bearing cap.

To avoid overpressure against radial sealing ring, make a spacing ring according to drawing and use.



Radial sealing ring correctly inserted



On 2nd version radial sealing ring wrongly inserted

1 Make test line harness yourself with the following parts:

1 Coupling, comprising:

- 1 body 008 545 08 28
- 1 cover 008 545 11 28
- 2 bushings 001 545 26 26

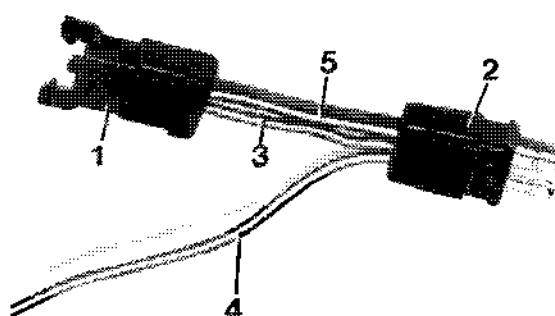
2 Plugs, comprising:

- 1 body 008 545 09 28
- 1 cover 008 545 11 28
- 2 pins 008 545 18 28

3 Line brown/black 1.0 mm²

4 Line brown/black 1.0 mm² (3 m long)

5 Line black 1.0 mm²

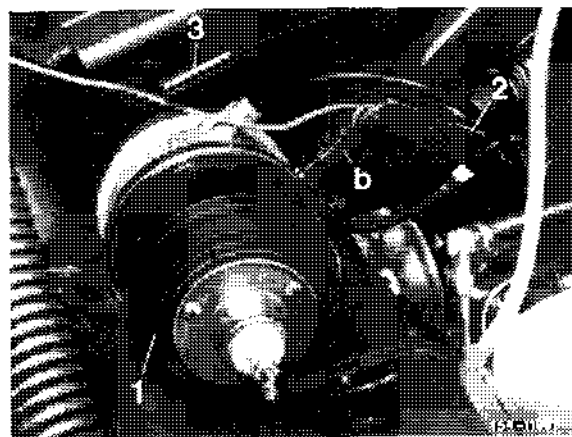


154—11980

2 Install test line harness (6) between actuator and line harness (2).

3 Connect voltmeter, while clamping + connection to test line (4) and — connection to seat rail.

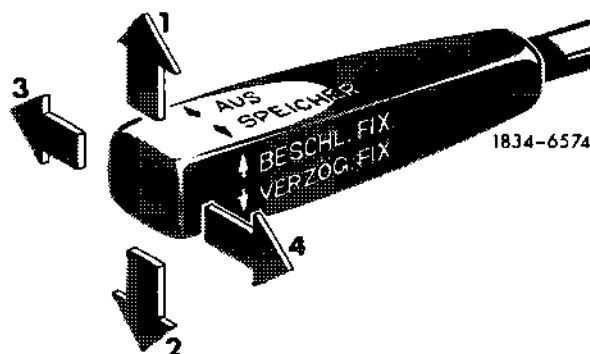
4 Switch on ignition and check stop light for function.



5 Actuate switch, brake and ignition key as follows:

Position	Nominal value
Off	0 V
Accelerate	> 11 V
Actuate brake pedal	0 V
Memory	> 11 V
Ignition off/on	0 V
Decelerate	> 11 V
Actuate clutch pedal	0 V

6 With negative indication, check connection of line harness on stop light switch (refer to wiring diagramm 54—580). If connection is correct, check switch. If switch is in order, connect new control unit on trial.

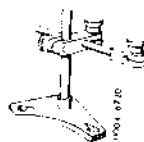


Data

Mean roughness of camshaft bearing journal		0.005					
Deviation of camshaft bearing journal from true when mounted at camshaft sprocket seat and rear camshaft bearing journal		0.030					
Deviation of camshaft bearing journal from true		0.010					
Bearing points (fig., refer to note)		1, 9	2	3, 10, 11	4, 5, 12, 13	6, 7, 14, 15	8
Standard dimension	bearing dia.	<u>38.016</u> 38.000	<u>50.066</u> 50.050	<u>50.016</u> 50.000	<u>51.519</u> 51.500	<u>53.019</u> 53.000	<u>54.019</u> 54.000
	journal dia.	<u>23.993</u> 23.980	<u>49.950</u> 49.934	<u>49.950</u> 49.934	<u>51.440</u> 51.421	<u>52.940</u> 52.921	<u>53.940</u> 53.921
Intermediate stage -0.1 mm (exchange engines)	bearing dia.		<u>49.966</u> 49.950	<u>49.916</u> 49.900	<u>51.419</u> 51.400	<u>52.919</u> 52.900	<u>53.919</u> 53.900
	journal dia.		<u>49.850</u> 49.834	<u>49.850</u> 49.834	<u>51.340</u> 51.321	<u>52.840</u> 52.821	<u>53.840</u> 53.821
1st repair stage -0.25 mm	bearing dia.		<u>49.816</u> 49.800	<u>49.765</u> 49.750	<u>51.269</u> 51.250	<u>52.769</u> 52.750	<u>53.769</u> 53.750
	journal dia.		<u>49.700</u> 49.684	<u>49.700</u> 49.684	<u>51.190</u> 51.171	<u>52.690</u> 52.671	<u>53.690</u> 53.671
2nd repair stage -0.5 mm	bearing dia.		<u>49.566</u> 49.550	<u>49.516</u> 49.500	<u>51.019</u> 51.000	<u>52.519</u> 52.500	<u>53.519</u> 53.500
	journal dia.		<u>49.450</u> 49.434	<u>49.450</u> 49.434	<u>50.940</u> 50.921	<u>52.440</u> 52.421	<u>53.440</u> 53.421
Camshaft bearing play	radial	<u>0.057</u> 0.124	<u>0.100</u> 0.132	<u>0.050</u> 0.082	<u>0.060</u> 0.098	<u>0.060</u> 0.098	<u>0.060</u> 0.098
	axial	<u>0.050</u> 0.120					
Sleeve for bearing a	OD	<u>37.950</u> 37.925	ID	<u>24.013</u> 24.000			

Special tool

Dial gauge holder for camshaft
axial play



136 589 04 21 00

Voltage test

Note: With the ignition switched on and the engine stopped a primary current of approx. 8 amps will flow continuously through system.

1 Input voltage at series resistor 0.4

Cable color black/red:

Rated value approx. 12 volts

2 Voltage at ignition coil at approx. 20 °C:

Terminal 15 and ground = approx. 4.5 volts

Terminal 1 and ground = 0.5–2.0 volts

- a) If value at terminal 1 is exceeded, the switching unit is defective and should be replaced.
- b) If value at terminal 1 is attained, but no ignition voltage (ignition spark) is induced, check transmitter section in ignition distributor and secondary winding of ignition coil.

Resistance values of ignition coil:

Primary winding terminal 15 and terminal 1 =
0.33–0.46 Ω

Secondary winding terminal 1 and terminal 4 =
7–12 k Ω

Testing dwell angle

Note: The dwell angle cannot be adjusted. Testing is a functional inspection of switching unit (dwell angle control).

Connect dwell angle measuring unit (connection similar to SI standard switching unit).

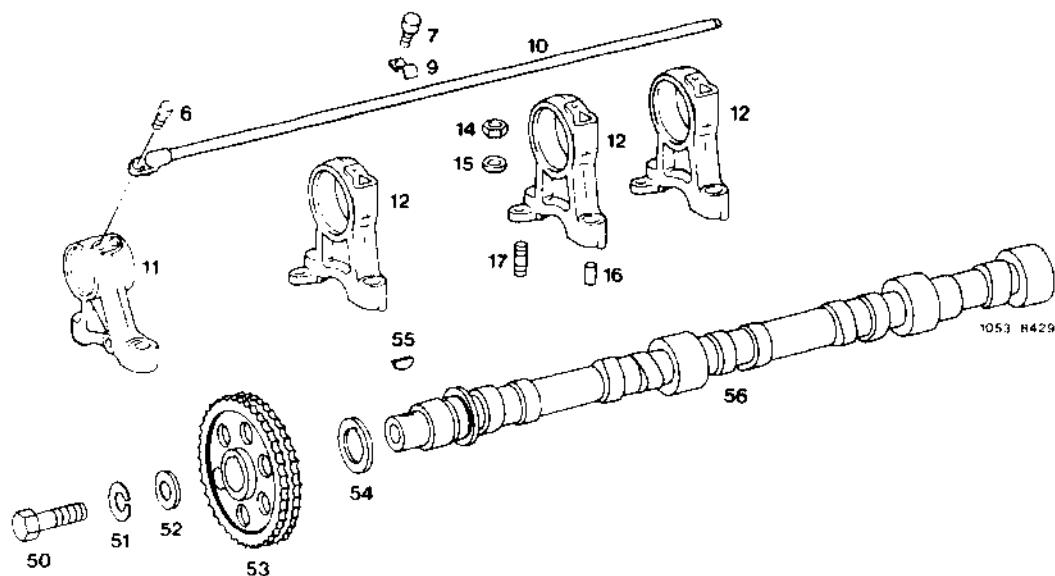
Rated value at

Engine speed	Dwell angle
1500 $\pm$ 50/min	33–51 °
5000 $\pm$ 50/min ¹⁾	45–55 °

¹⁾ Test at 5000/min only in the event of complaints about misfiring at high speeds.

If this value is not attained when measuring dwell angle, check ignition distributor transmitter section first. If transmitter section is in order, replace switching unit.

Camshaft and camshaft bearings



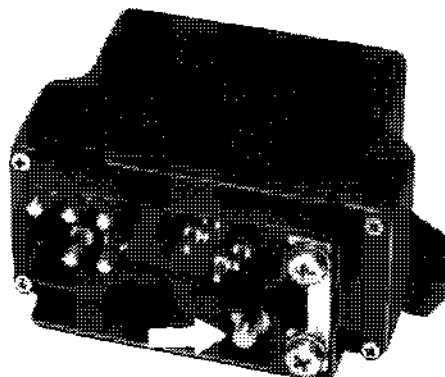
Layout of engine 617

Engines 615 and 616 have one bearing less

6	Screw assembly M 6 x 12	14	4 nuts	52	Washer
7	3 screw assemblies M 5 x 10	15	4 washers 8.4	53	Camshaft sprocket
9	3 clips	16	8 straight pins 8 x 8	54	Shim
10	Oil pipe	17	4 studs M 8 x 18	55	Woodruff key
11	Camshaft bearing, cranking end	50	Waisted bolt M 14 x 1.5 x 40	56	Camshaft
12	Camshaft bearing	51	Lock washer B 14		

Remedy:

Measure voltage at terminal 30 of preglow time relay against ground by means of voltmeter.

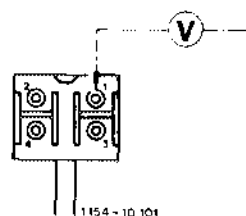


115-20011/1

If no voltage is indicated, check red line from starter terminal 30 up to preglow time relay terminal 30 for interruption, and, repair interruption, if required.

If voltage is indicated (approx. 12 volts), test 80-amp fuse for tight seat or interruption and renew, if required.

If so far no fault has been found, test voltage at jack 1 of 4-point coupler of preglow time relay against ground.



05—260 Checking valve springs

Valve spring data

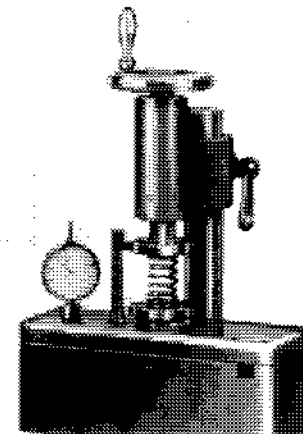
Part No. (optional)	Color code	OD mm	Wire dia. mm	Length unloaded mm	Spring force at preloaded length mm	Spring force at preloaded when new N	limit value N
Inner spring 108 053 00 20 (114 053 00 22)	white	22.2	2.5	45	21	228—252	205
Outer spring 129 053 02 20 ¹⁾ 129 053 03 20 ²⁾	red red	33.2—33.7 33.1—33.4	4.3 4.25	50 50	30 31	677—763 635—705	609 571
Outer spring 110 053 01 20 ²⁾	yellow/red violet/red	34.1—34.5	4.75	49	30.5	860—920	775

¹⁾ Only together with inner spring.

²⁾ Without inner spring.

Checking

- 1 Check valve springs with a valve spring tester or a spring testing scale.
- 2 Check spring force at specified length.
- 3 Renew valve springs if below limit value.



W 6355

General Data, Dimensions and Tolerances

Flywheel

Model	200/8, 200 D/8 220/8, 220 D/8	230/8, 250/8
Clearance "a" ¹⁾	22.5 + 0.1	19.4 + 0.1
Distance "b"	new	18.5
	when repaired down to	17.5
Permissible radial deflection	0.05	

¹⁾ When the clutch face "A" is re-turned or re-ground, make sure that clearance "a" is maintained under all circumstances. For this reason the surface "B" must in any case be re-turned in accordance with the stock removal on the clutch face.

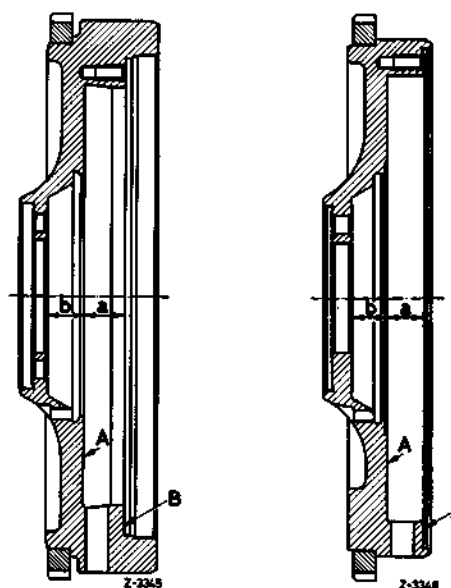


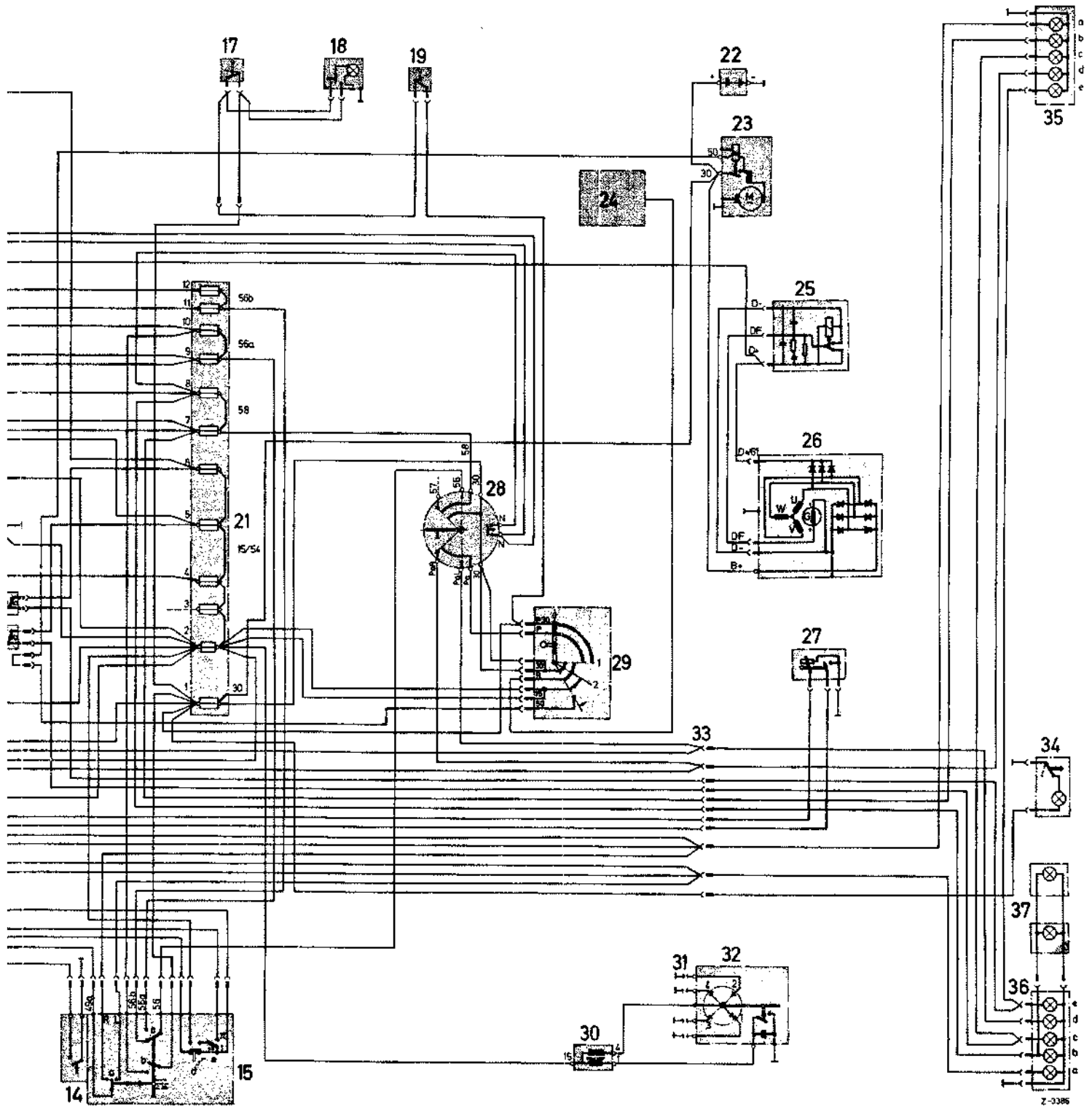
Fig. 03-0/1

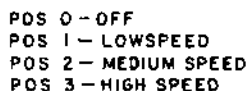
Tightening Torques for Flywheel or Driven Plate and Crankshaft Screws

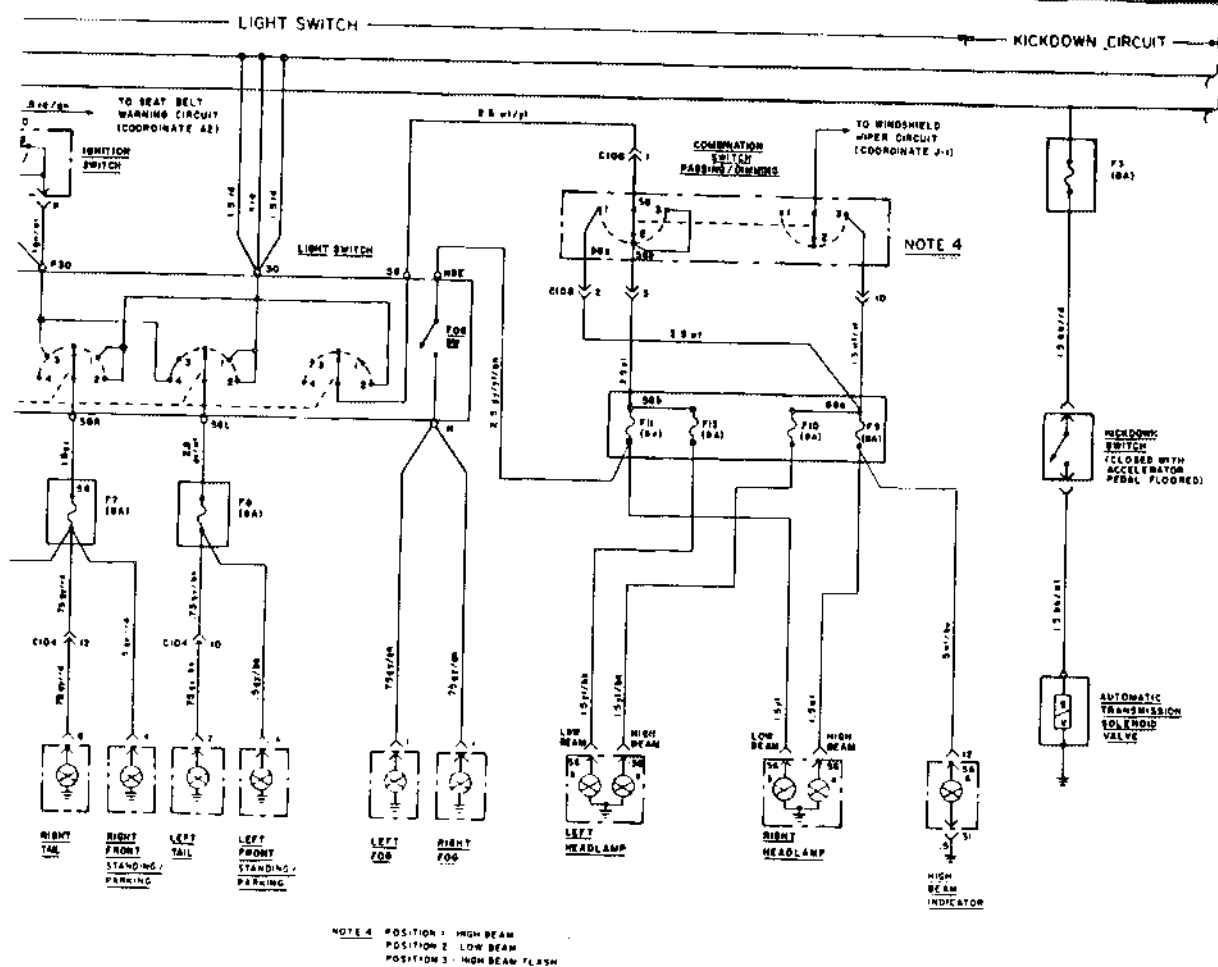
Model	200/8, 200 D/8 220/8, 220 D/8	230/8	250/8
Initial tightening torque	3 + 1 mkp		
Degree of tightening angle (see Job No. 03-1)	60° + 10°		90° + 10°

Circuit Diagram

Models 200/8 and 220/8







A
B
C
D

20 21 22 23 24

LOCATION FIGURES



Fig 4



1 - C112 Fig 7



Fig 10
1 - Kickdown switch



Fig 5
ature switch, refrigerant



Fig 8
1 - RPM test plug
2 - Ignition coil
3 - 0.4 ohm pre-resistor
4 - 0.6 ohm pre-resistor
5 - Time delay relay



Fig 6
nity
control amplifier
wipe relay
11 - C 119
12 - C 120



Fig 9
Fuel tank sensor

1975 280/280C

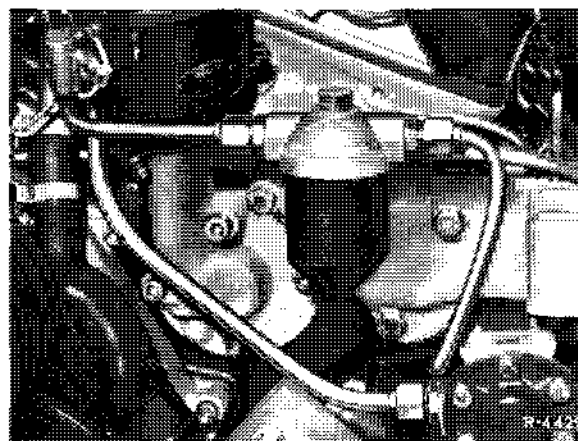
AIR CONDITIONING CONTROL	L6
AUXILIARY FAN	L10
BLOWER MOTOR CONTROL	K6
CHARGE	B8
CIGAR LIGHTER	C6
CLOCK	F12
COOLANT TEMPERATURE GAUGE	F12
ENGINE EMISSION CONTROL	L13
FUEL GAUGE	F11
HEATED REAR WINDOW	R5
HEATER CONTROL	L6
HORNS	L11
IGNITION SYSTEM	B11
KICKDOWN	B23
LIGHT CIRCUITS	
AIR CONDITIONING THERMOSTAT	D18
BACKUP	R6
BRAKE	R2
BRAKE SYSTEM WARNING	F11
CIGAR LIGHTER	D17
FOG	D21
GLOVE BOX	R1
HEAD	D22
INSTRUMENT CLUSTER	D16
INTERIOR	F7
LOW FUEL WARNING	F11
MARKER	D17/D18
PARKING	D20
STANDING	D20
TAIL	D20
TRUNK	F9
RADIO	B5
ANTENNA	B5
SEAT BELT WARNING	D2
SLIDING ROOF	F1
START	D4/B9
TURN SIGNAL/FLASHER	B13
WINDOWS	F4
WINDSHIELD WIPER/WASHER	L3
POWER BUS DETAILS	L20
SPECIAL GROUNDING CIRCUITS	L22

Tightening torque

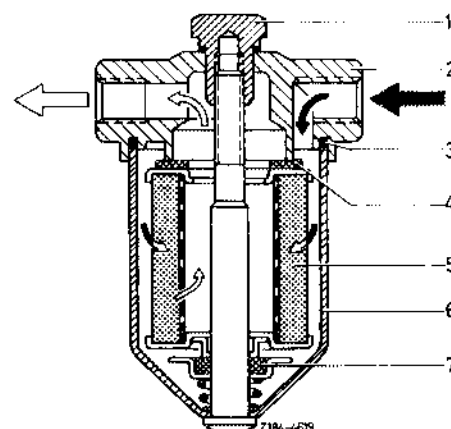
	Nm	(kpm)
Version A	Requires only slight tightening	
Version B	10 + 5	(1 + 0.5)

Fixing bolt for filter bowl

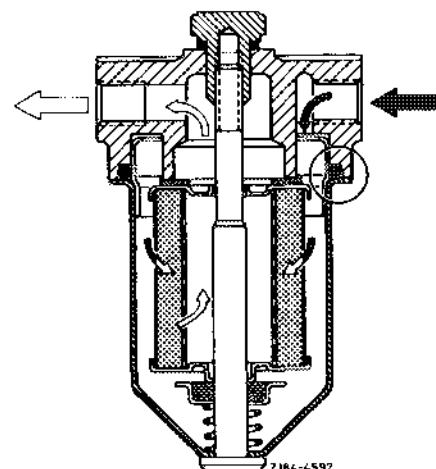
- Loosen fastening screw (1), take off filter bowl (6) and remove fine mesh element.
- Empty bowl, wash out and blow out.



- Clean fine mesh element (5) in cleaning gasoline with both openings closed and blow out with a weak air current from inside to outside.
- Renew rubber seal (3).
- Fit fine mesh element **with the attached felt facing upwards** into bowl and reassemble.



Version A



Version B

Revision: Measuring devices and new adjusting values included. Text revised.

All engines

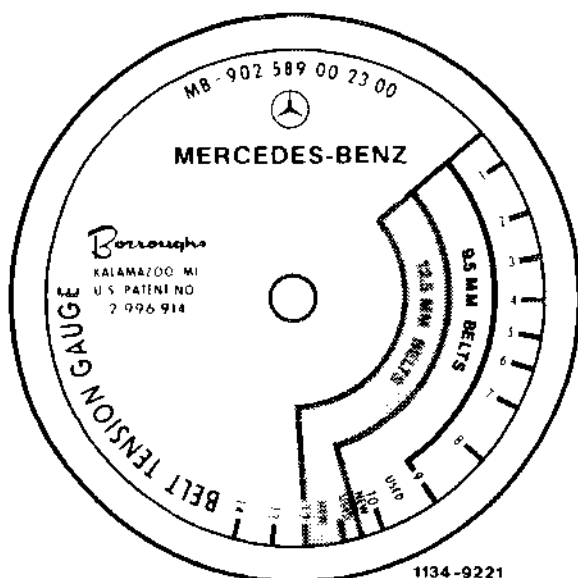
Adjusting values with Borroughs measuring device

V-belt (Profile in mm/in.)	Gauge dial number for new V-belts tension ¹⁾	Gauge dial number for used V-belts tension
9,5 mm (0,374")	10,0 to 10,5 (green zone on dial)	9 to 10 (green zone on dial)
12,5 mm (0,492")	11 to 12 (red zone on dial)	10,5 to 11 (red zone on dial)
Two-belt drive (each individual belt)	10 (green zone on dial)	9,5 (green zone on dial)

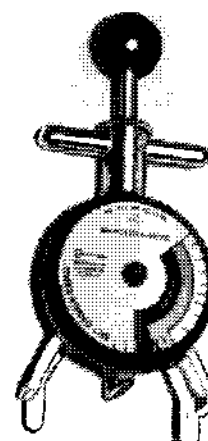
¹⁾ These values are only valid for new V-belts installed for the first time.

Conventional tool

Description	Part No.
V-belt tension gauge	902 589 00 23 00



- 1 Green zone for 9,5 mm (3/8") V-belt
- 2 Red zone for 12,5 mm (1/2") V-belt



Arrow = indicator marking for reading gauge

