Mercedes-Benz

Service

Maintenance Manual

Model Year 1981 – 1993

Mercedes-Benz of North America, Inc.

S-2388-CS1

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This manual provides detailed descriptions of maintenance jobs, testing and adjustment data, filling capacities, torque specifications, and special tools.

Each individual maintenance job is identified by a job number located at right or left heading of each page. The job numbers in the Maintenance Manual are identical with those on the Maintenance System Sheets and the Maintenance Booklets, so that the respective texts and data can be quickly located when performing maintenance work.

The first two digits of the 4-digit job number are the group numbers as used in the workshop literature. In this manner, each maintenance job is associated with the appropriate group.

The models and/or engines to which the jobs apply are listed below the job numbers.

Particularly extensive job numbers are subdivided according to models or engines.

Mercedes Benz of North America
Service and Parts Literature

March 1993

Preface

This Maintenance Manual applies to vehicles starting model year 1981 and covers all maintenance jobs for the following models:

Sales Designation	Model	Engine	1981	1982/83	1984/85	1986	1987	1988	1989	1990	1991	1992	1993
107													
380 SL	107.045	116.960	●										
380 SL	107.045	116.962		●	●								
380SLC	107.025	116.960	●										
560 SL	107.048	117.967				●	●	●	●				
123													
240 D	123.123	616.912	●	●									
300 D	123.130	617.912	●										
300 D Turbo	123.133	617.952		●	●								
300 CD	123.150	617.912	●										
300 CD Turbo	123.153	617.952		●	●								
300 TD Turbo	123.193	617.952	●	●	●								
280 E	123.033	110.984	●										
280 CE	123.053	110.984	●										
124													
300 D 2.5 Turbo	124.128	602.962								●	●	●	●
300 D Turbo	124.133	603.960				●	●						
300 TD Turbo	124.193	603.960				●	●						
260 E	124.026	103.940					●	●	●				
300 E 2.6	124.026	103.940								●	●	●	
300 E 2.8	124.028	104.942											●
300 E	124.030	103.980				●	●	●	●	●	●	●	
300 E	124.032	104.992											●
300 E 4MATIC	124.230	103.980								●	●	●	●

Sales Designation	Model	Engine	1981	1982/83	1984/85	1986	1987	1988	1989	1990	1991	1992	1993
124 continued													
300 CE	124.050	103.980						●	●				
300 CE	124.051	104.980								●	●	●	
300 CE	124.052	104.992											●
300 CE Cabriolet	124.066	104.992											●
300 TE	124.090	103.983						●	●	●	●	●	
300 TE	124.092	104.992											●
300 TE 4MATIC	124.290	103.983								●	●	●	●
400 E	124.034	119.975										●	●
500 E	124.036	119.974										●	●
126													
300 SD Turbo	126.120	617.951	●	●	●								
300 SDL Turbo	126.125	603.961				●	●						
350 SD Turbo	126.134	603.970									●		
350 SDL Turbo	126.135	603.970								●	●		
300 SE	126.024	103.981						●	●	●	●		
300 SEL	126.025	103.981						●	●	●	●		
380 SE	126.032	116.963			●								
380 SEL	126.033	116.961	●	●									
380 SEC	126.043	116.963		●									
420 SEL	126.035	116.965				●	●	●	●	●	●		
500 SEL	126.037	117.963			●								
500 SEC	126.044	117.963			●								
560 SEL	126.039	117.968				●	●	●	●	●	●		
560 SEC	126.045	117.968				●	●	●	●	●	●		

Sales Designation	Model	Engine	1981	1982/83	1984/85	1986	1987	1988	1989	1990	1991	1992	1993
129													
300 SL	129.061	104.981								●	●	●	●
500 SL	129.066	119.960								●	●	●	
500 SL	129.067	119.972											●
600 SL	129.076	119.960											●
140													
300 SD	140.134	603.971										●	●
300 SE	104.032	104.990										●	●
400 SE	140.042	119.971										●	
400 SEL	140.043	119.971											●
500 SEL	140.051	119.970										●	●
600 SEL	140.057	120.980										●	●
500 SEC	140.070	119.970											●
600 SEC	140.076	120.980											●
201													
190 D 2.2	201.122	601.921			●								
190 D 2.5	201.126	602.911				●	●	●	●				
190 D 2.5 Turbo	201.128	602.961					●						
190 E 2.3	201.024	102.961/ 985			●	●							
190 E 2.3	201.028	102.985					●	●			●	●	●
190 E 2.6	201.029	103.942					●	●	●	●	●	●	●
190 E 2.3-16	201.034	102.983				●	●						

We want you to enjoy your MERCEDES-BENZ car for a long time to come. Vehicle safety and operational reliability are two very important factors, and in order to maintain them, a certain amount of maintenance and service work is necessary.
The MERCEDES-BENZ maintenance system includes all the necessary maintenance work which should be carried out at regular intervals if the vehicle is used under normal operating conditions.

Routine Maintenance

- Inspection service
  Up through model year 1991,
  once at 800-1000 miles/1300-1600 km
  As of model year 1992,
  once at 800-3000 miles/1300-5000 km
- Lubrication service
  All Diesel models except 140.134
  every 5,000 miles/8,000 km
  All Gasoline models and model 140.134
  every 7,500 miles/12,000 km
- Maintenance service
  every 15,000 miles/24,000 km
- Additional work
  every 30,000 miles/48,000 km

In the case of **low mileage operation** (vehicle is driven infrequently), the maintenance service must be carried out at least once every 2 years.

Engine oil and filter change

Required at specified mileage interval, or at least once a year when using year-round multigrade oil; otherwise twice a year (spring and fall). A detailed list of maintenance jobs is contained in the maintenance booklet following the maintenance vouchers.
Vehicle and engine models are indicated on the vehicle data card.

Severe operating conditions

Starting model year 1992

As a result of technical product enhancements, improved engine management systems, upgraded fuels and lubrication products, true cases of severe operating conditions will rarely exist in non-commercial passenger car applications. For a vehicle to qualify for severe operating conditions the following criteria must be met:

1. More than 50% short distance driving (less than 5 miles per trip) combined with engine operating at a temperature of less than 80°C (176°F), especially at low outside temperatures.

2. More than 50% operation in lower gears combined with high engine load (mountain driving, poor roads, etc.)

If these requirements are met, it is recommended that an additional oil change (without oil filter change) be performed between the scheduled engine oil change intervals, i. e. engine oil change every 2,500 miles or every 3,750 miles , depending upon model *(Vehicles occasionally exposed to severe operating conditions do not require an additional oil change.)*

Model year 1981 through 1991

In case of **severe operating conditions** or heavy use mainly in city traffic or over short distances, frequent mountain driving, poor roads, dusty and muddy conditions, trailer towing, hard driving, etc., it may be necessary to carry out maintenance work at shorter intervals, i. e.:
Oil and filter change: half the normally recommended interval.
Automatic transmission: Fluid change (without filter change) every 15,000 miles/24,000 km
Inspect tires.
Air cleaner, clean or replace element.

Non-scheduled MB Maintenance Service

Every 15,000 miles/24,000 km, the maintenance service consists of 3 parts:

- General and Lubrication Service
- Engine Maintenance
- Safety Inspection

These parts can be performed individually on request, if particular driving conditions so require, or on a precautionary basis before leaving on a long trip, etc.

Special Maintenance Measures

Brake fluid should be replaced annually, preferably in the spring, on all models except models 129 and 140 which should have a brake fluid change every 2 years.
Engine coolant should be checked for sufficient protection before the start of and during the cold season. Have the coolant (water/antifreeze mixture) replaced no later than after 3 years.

It is necessary to have all regularly scheduled maintenance work performed to maintain your vehicle in good operating condition and to keep your warranty valid. While it is not required that such work be performed by factory-authorized dealers, it is strongly recommended to have an authorized MERCEDES-BENZ dealer do such work because he is equipped with tools, instruments, literature, and trained personnel necessary for correct and systematic completion of these jobs.

Spare parts

It is recommended that only MERCEDES-BENZ parts be used for service and repairs, since they have been made according to the manufacturer's specifications. It is also important to use only fuels and lubricants that meet factory specifications. See a MERCEDES-BENZ dealer for more information.

Routine Checks

In addition to the lubrication and maintenance services, it is recommended that the following items be checked regularly and prior to any long trip:

Engine oil level - during the break-in period not later than after 300 miles/500 km.

Automatic transmission fluid level

Brake (and clutch) fluid level

If brake fluid needs to be added, see a MERCEDES-BENZ dealer to determine the cause, i.e. leaks or worn brake pads.

Battery - add distilled water only.

Windshield washer system - add water mixed with MERCEDES-BENZ windshield detergent, check operation and wiper blades.

Tire pressure - check at least every other week.

Lubrication
Lubricate engine throttle control linkage rods and shafts and check for free movement and for wear every Lubrication Service, at least twice a year, and also after the use of engine cleaning solvent.
Use only Automatic Tranmsission Fluid. Refer to MBNA Factory Approved Service Products list for listing of approved ATF's.

Maintenance Vouchers

The MERCEDES-BENZ dealer will certify in the maintenance booklet that all lubrication and maintenance services have been carried out at the correct intervals.

Stickers that indicate when the next lubrication service or maintenance service is necessary, or when the brake fluid must be changed, are provided in the middle of the maintenance booklet.

Sticker attachment locations:
In driver's door frame:
- Lubrication service and maintenance service
In the engine compartment:
- Brake fluid change

Lubrication service

Maintenance service

On maintenance booklet with window:
If required, enter next date for next scheduled service or brake fluid replacement.
Maintenance work does not include repair jobs.
For information concerning warranty, see Warranty Policy Booklet.

Model 107 up to 07.1985
123
126 up to 08.1985
201 up to 12.1984

- Inspect all components - engine, transmission, shock absorbers, steering, power steering pump, rear axle, checking condition and for leakage. Remove lower engine compartment cover (6190) or noise encapsulation panel (9490).

Note:
Install the lower engine compartment cover or noise encapsulation panel only after all the other maintenance jobs have been completed.

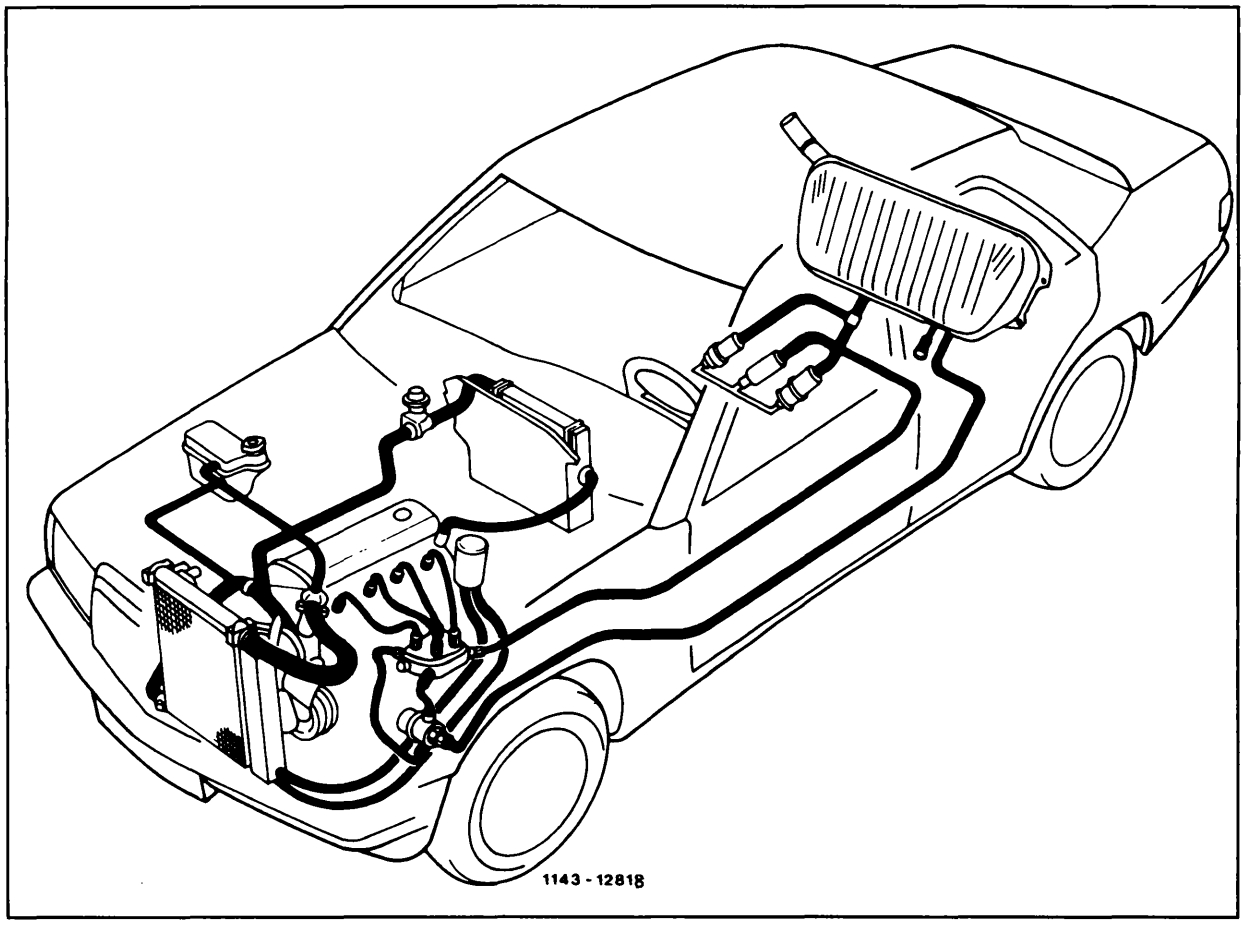
Model 107 through 07.1985
123
126 through 08.1985
201 through 12.1984

- Inspect lines and hoses on engine, automatic transmission, and power steering pump checking condition and for leakage.

Model 107 starting 08.1985
124
126 starting 09.1985
129
201 starting 01.1985
140

Note: To perform this job number, the engine compartment lower panels or the lower noise encapsulation panels must be removed and then reinstalled after completion of all maintenance work (see jobs 6190 or 9490, respectively)

Inspect engine and fuel system, including lines and hoses, for leaks. Check for chafe marks and proper routing.



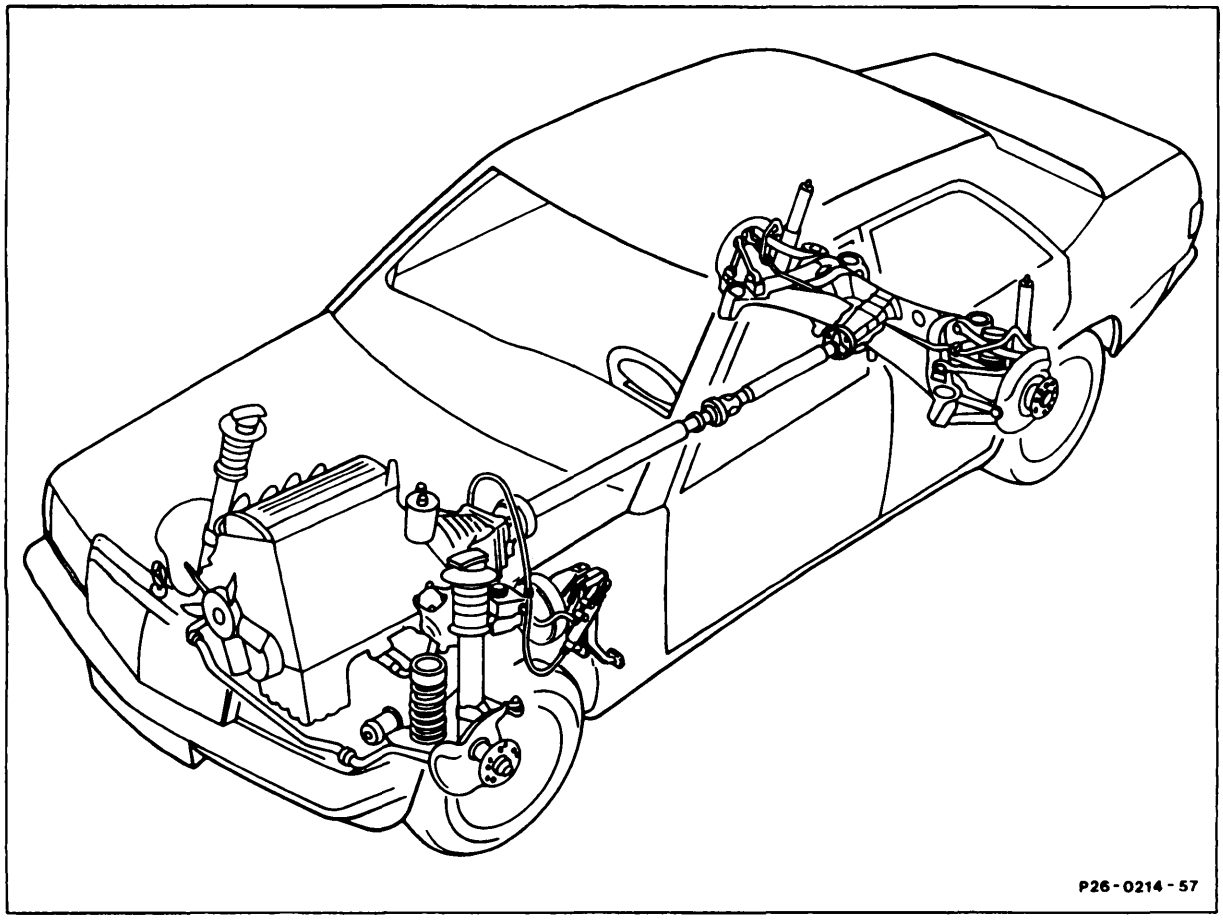
Engine

Crankcase	Crankcase seal, front	Cylinder head cover
Coolant pump and housing	Timing housing cover	Radiator
Oil pan	Coolant and heating hoses	Oil filter
Air-oil cooler with hoses		

Fuel system

Fuel tank	Fuel filters	Fuel pump assembly
Injection pump	Prefilter	Injection system
Fuel pump	Fuel cooler starting 1986	Fuel preheating

Check condition of manual transmission. hydraulic clutch system, damper struts, shock absorbers, and rear axle.
If traces of oil are found on lower engine compartment panels, determine source.



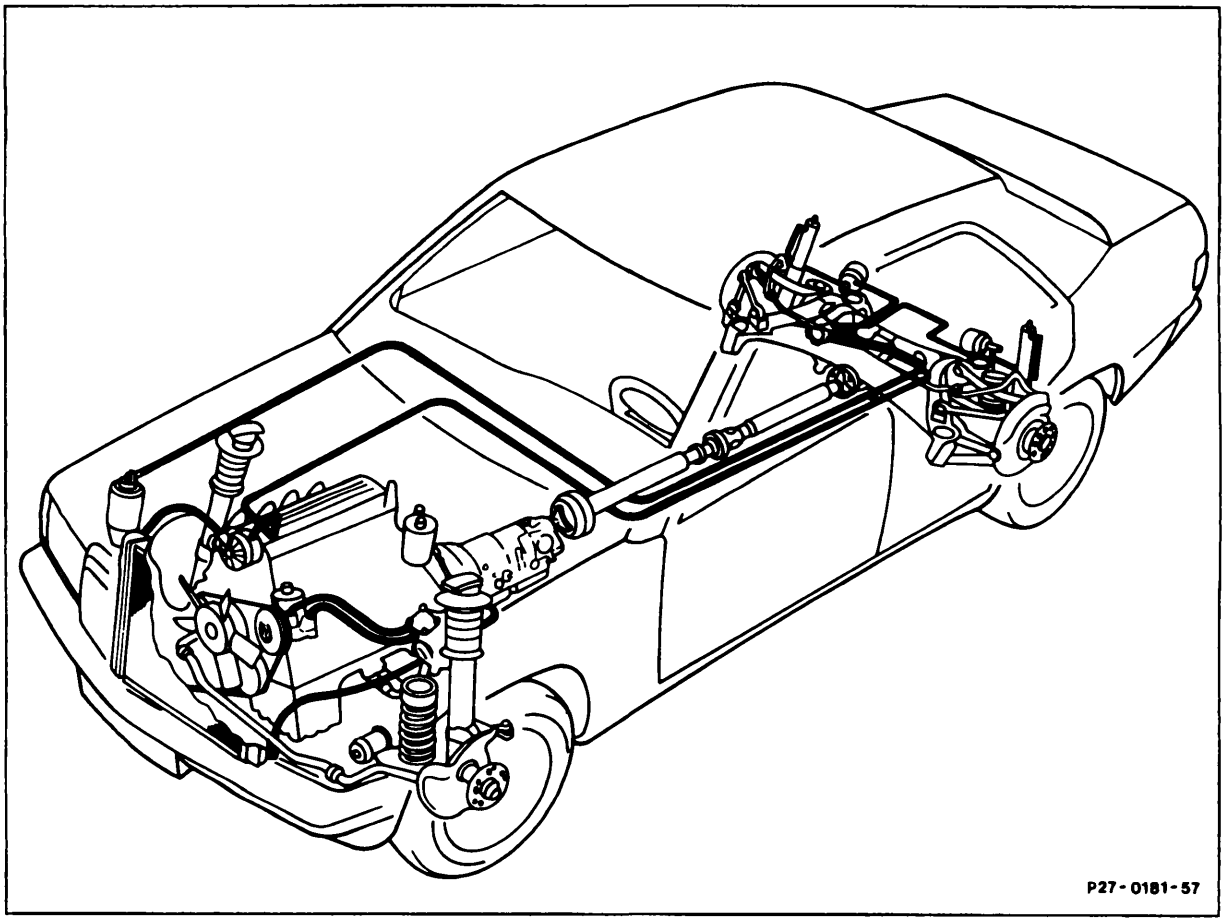
Manual transmission, clutch hydraulic system, and rear axle

Sealing rings
Fill and drain plugs
Housing cover
Clutch line and hose

Damper struts or shock absorbers

Leaks
Mounting

Check condition of automatic transmission, level control and power steering, including lines and hoses. Check for chafe marks and proper routing.



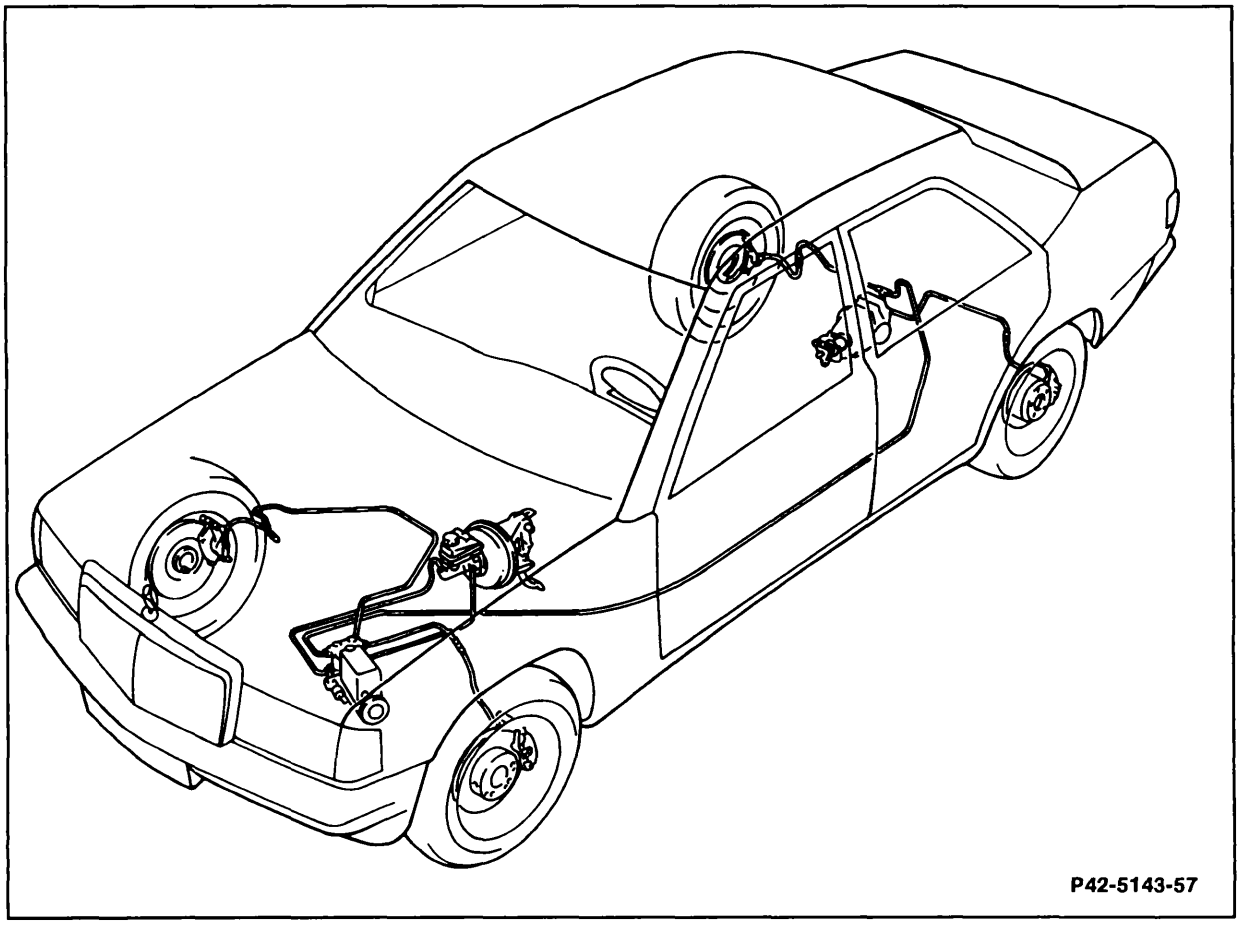
Automatic transmission, power steering

Torque converter
Sealing rings and gasket
Housing plugs
Line connections
Hoses
Oil pan

Level control/ADS

Suspension struts
Line connections
Hoses
Leveling valves
Hydraulic oil reservoir
Hydraulic oil pump
Suspension pressure reservoirs
Distribution valve
Control valve
Damping valve units

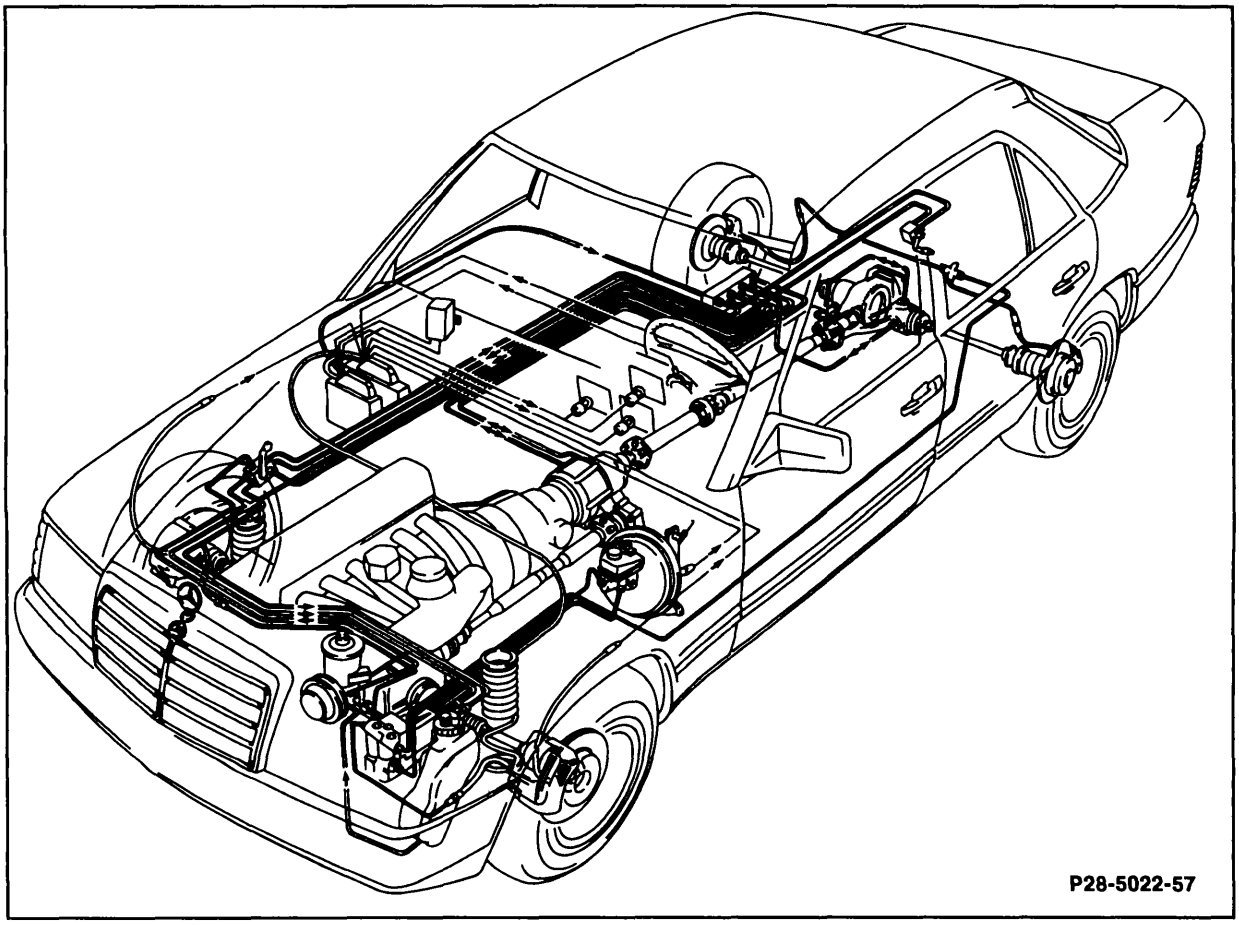
Check condition of brake system including lines and hose . Check for chafe marks and proper routing.



Brake system

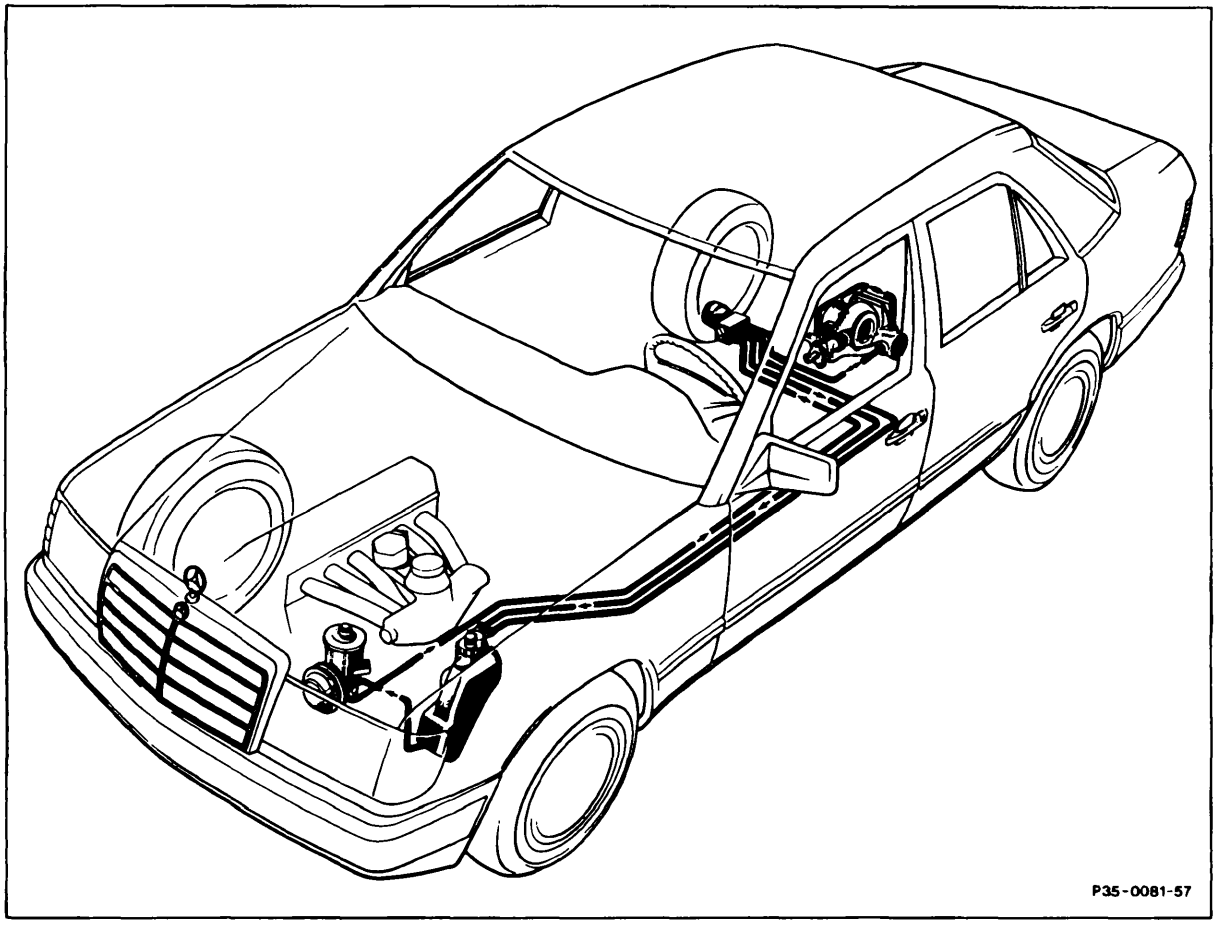
Lines
Hoses
Master cylinder
Fluid reservoir
Brake calipers
ABS hydraulic unit

Check condition of all lines and hoses. Check for chafe marks and proper routing.



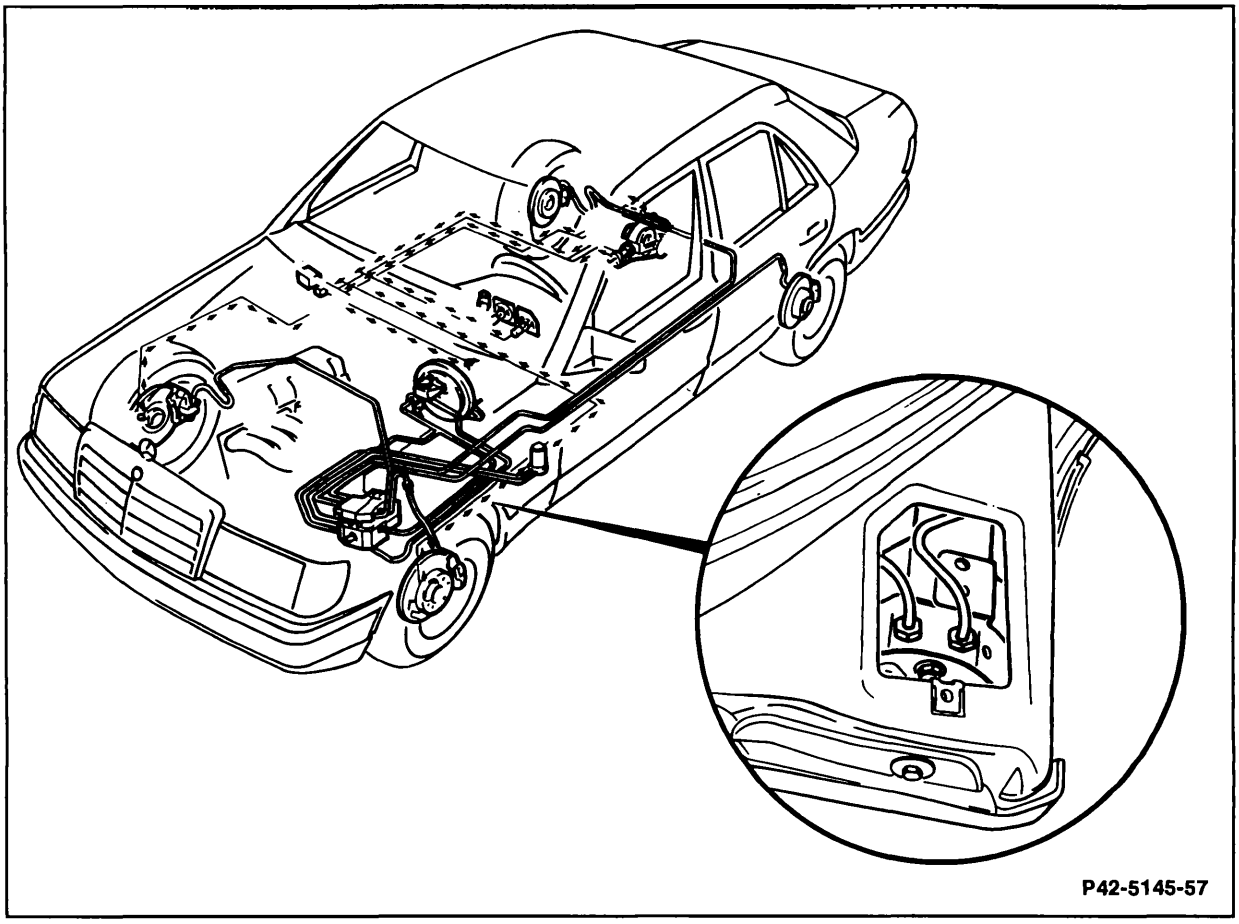
Vehicles with 4MATIC

Check condition of all lines and hoses. Check for chafe marks and proper routing.



Vehicles with ASD

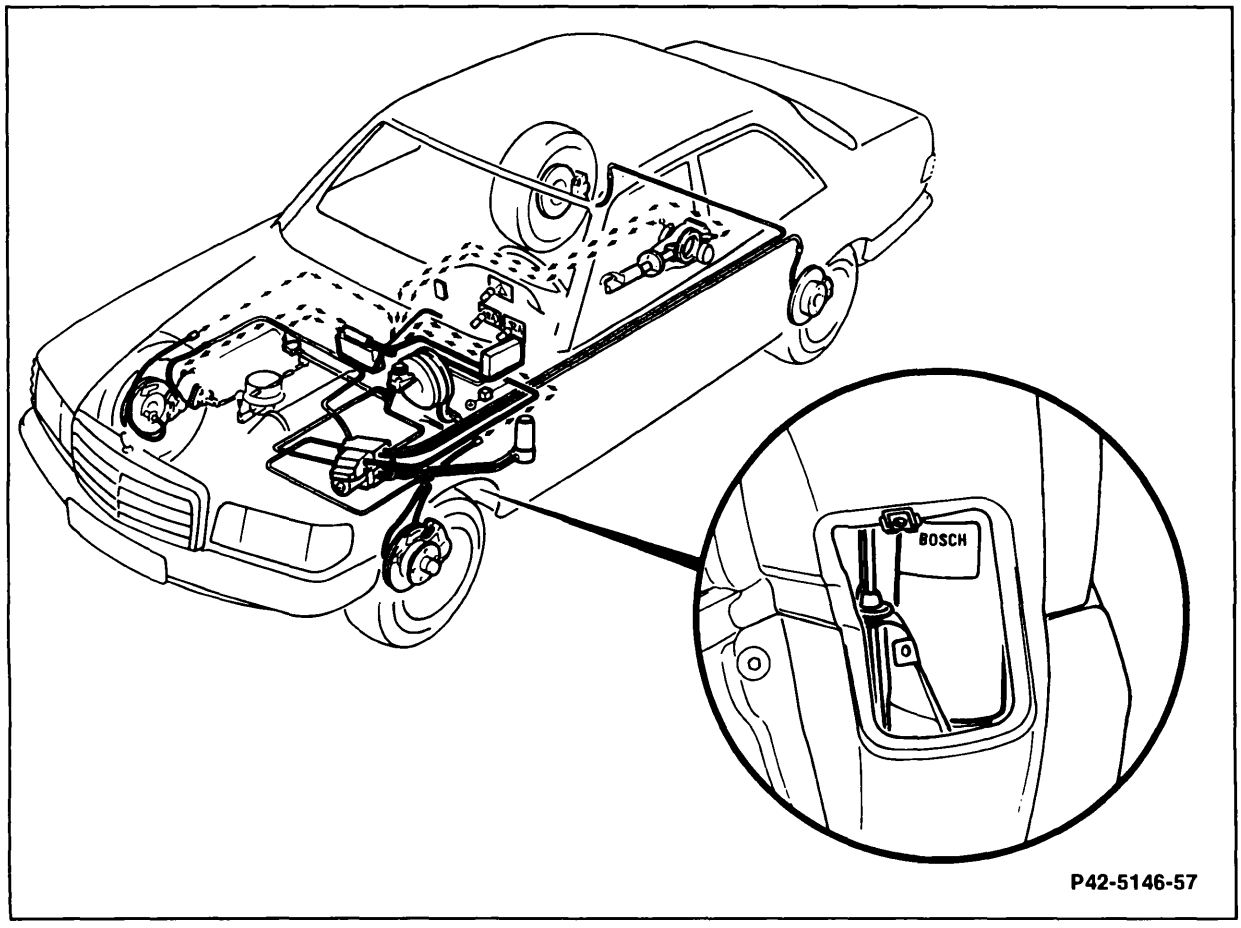
Check condition of all lines and hoses. Check for chafe marks and proper routing.



Vehicles with ASRII
Models 124, 201
Vehicles with ASRIII
Models 124.034/036

- Inspect lines and charging pump. Inspect pressure reservoir through opening in plastic cover under left front fender.

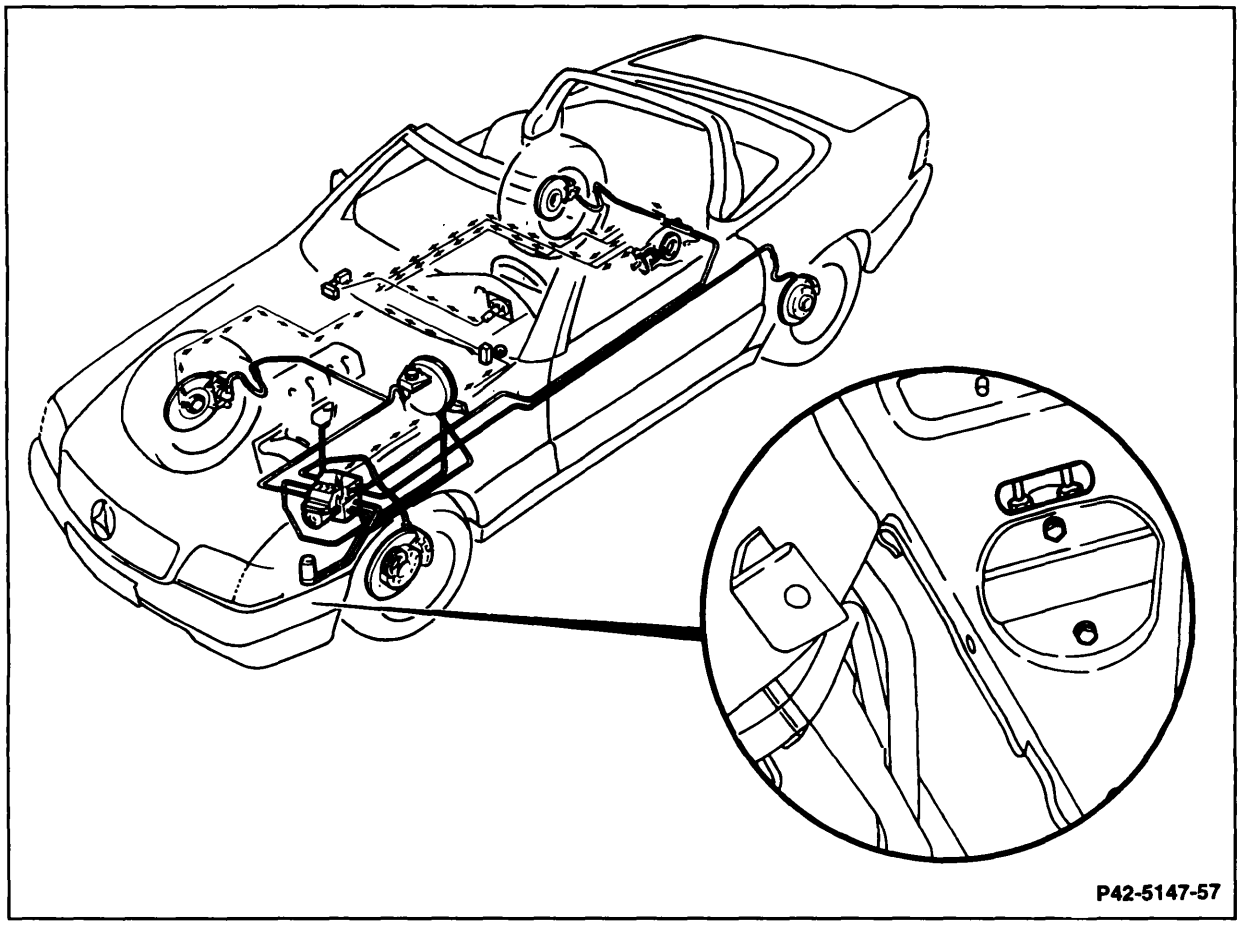
Check condition of all lines and hoses. Check for chafe marks and proper routing.



Vehicles with ASRII
Model 126

- Inspect lines and charging pump. Inspect pressure reservoir through opening in plastic cover under left front fender.

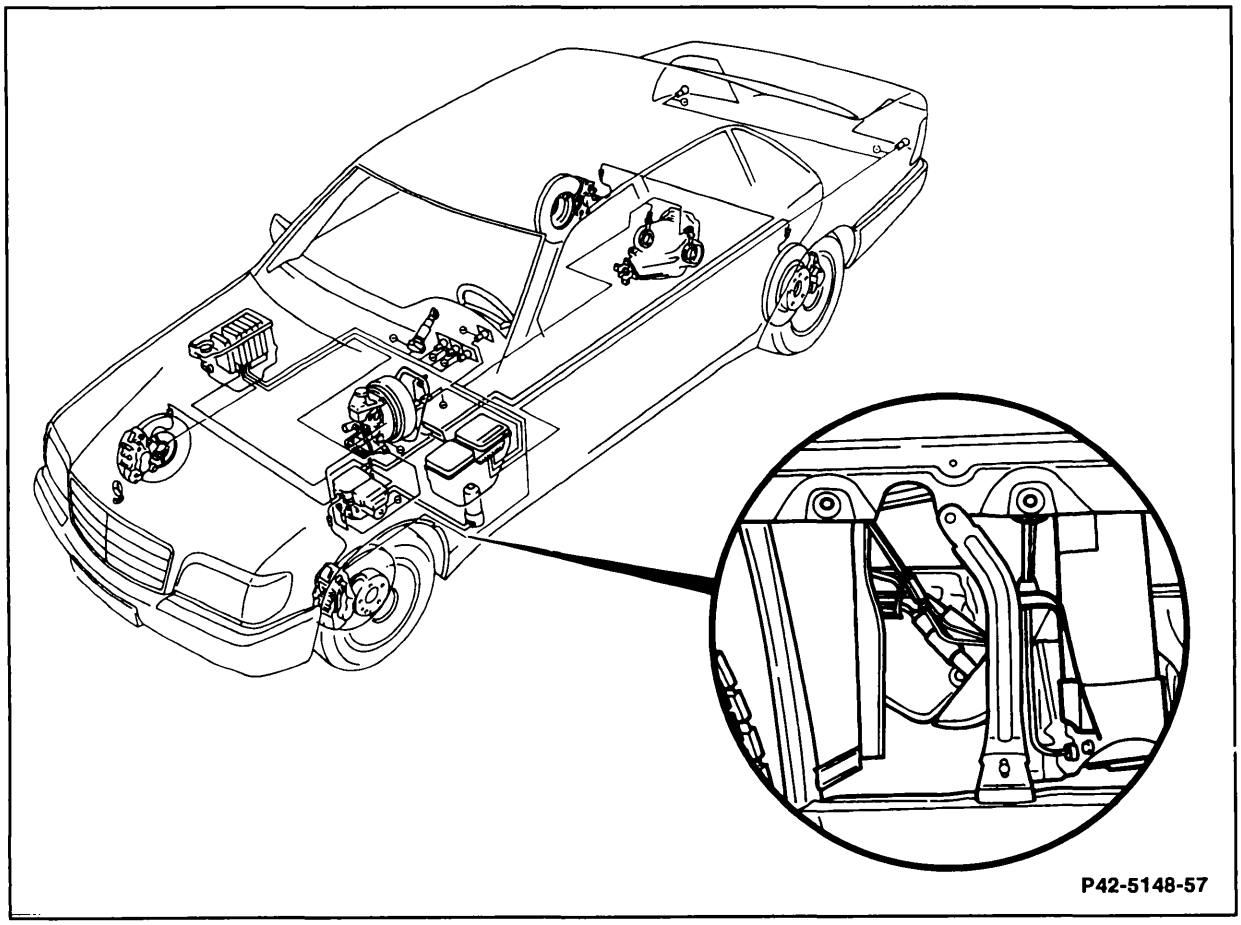
Check condition of all lines and hoses. Check for chafe marks and proper routing.



Vehicles with ASRII
Model 129

- Inspect the pressure reservoir connections from underneath the vehicle through opening in engine compartment left side wall.

Check condition of all lines and hoses. Check for chafe marks and proper routing.

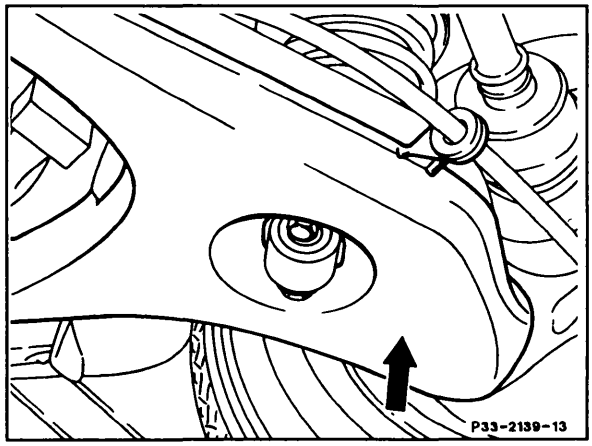


Vehicles with ASRIII
Model 140

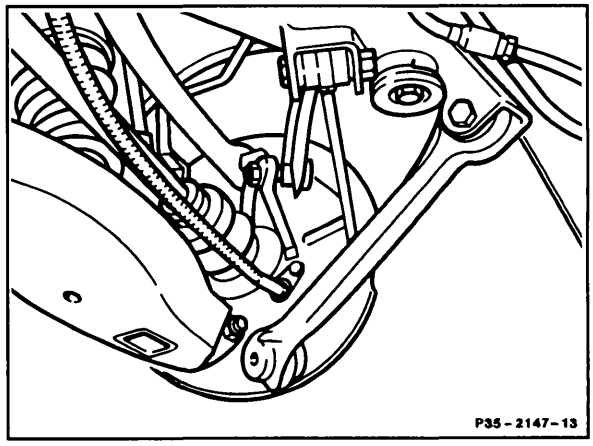
- Inspect the pressure reservoir connections by removing left front fender lower side panel.

Check the following for damage and corrosion:

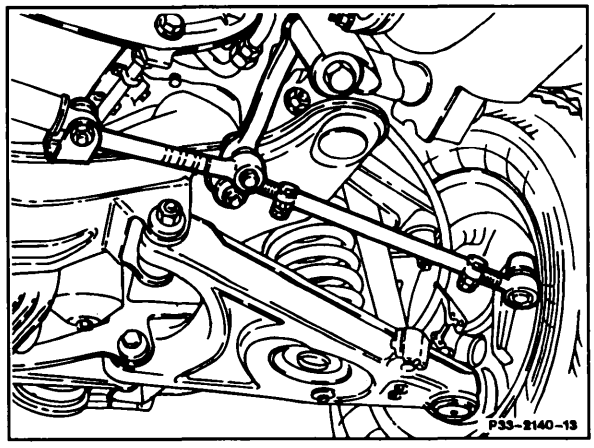
- Rear suspension control arms (semi-trailing arm suspension).



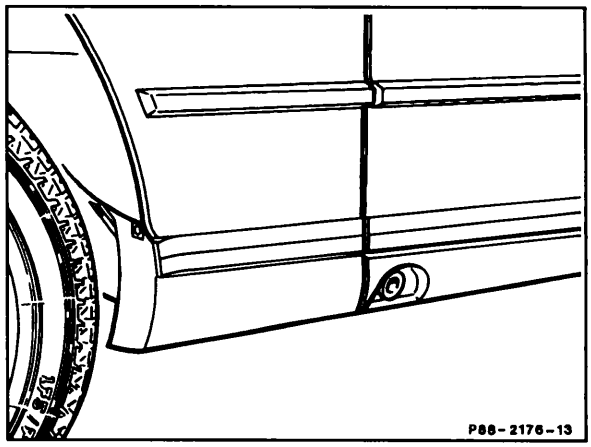
- Rear suspension links (multi-link suspension).



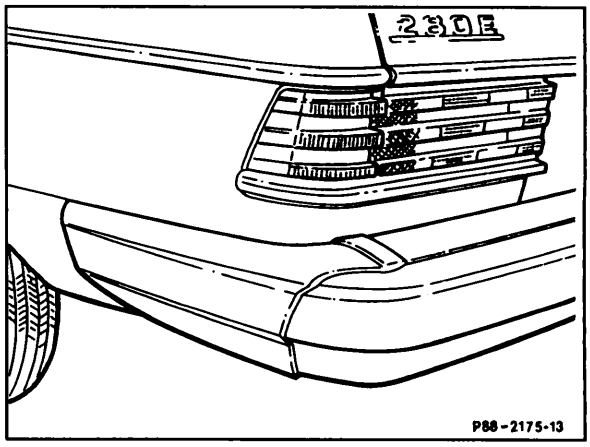
- A-arms and bushings.



- Rocker panel.



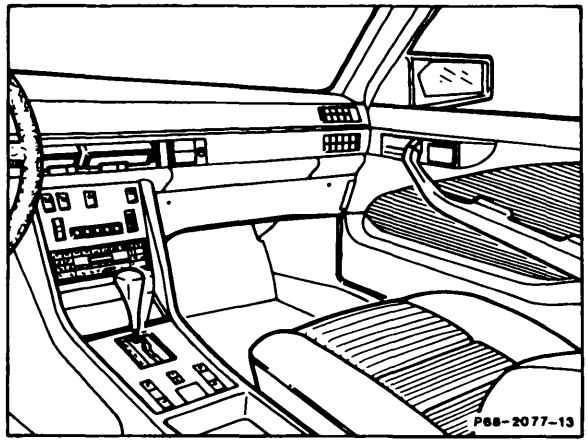
- Bumper and mounting on body.



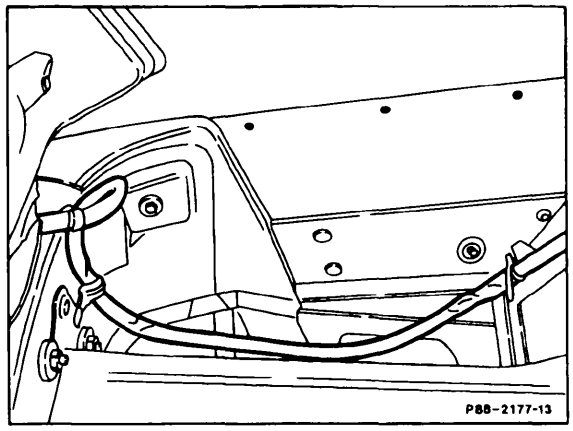
Model 107 through 07.1985
123
126 through 08.1985
201 through 12.1984

Check the following for water entry and corrosion:

- Foot wells front and rear.



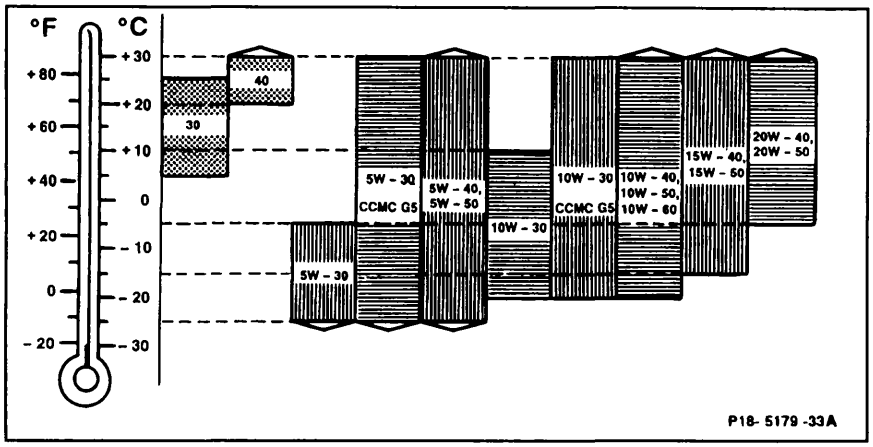
- Lateral trunk recesses.



Engine 102.961/983

Specified SAE viscosity classes during continuous ambient temperatures

Following the SAE grades exactly according to the ambient air temperatures would result in frequent engine oil changes. The temperature ranges for the SAE grades should therefore be regarded as a guideline which may be exceeded for brief periods.



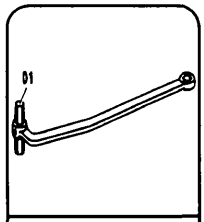
Oil capacity in liters

Engine	102.961	102.983
Total capacity during oil and filter change	4.5	5.0
Oil pan	4.3	4.8
Oil dipstick color code	light blue	gray

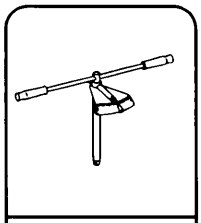
Torque specifications (Nm)

Oil pan drain plug	30	25
Center bolt, oil filter cover	25	25

Special tools



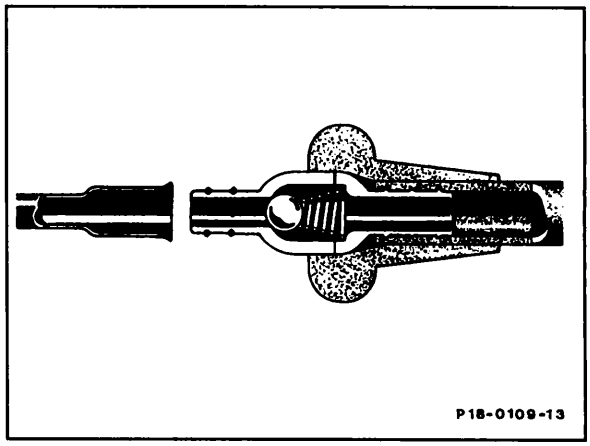
117 589 02 07 00



000 589 27 21 00

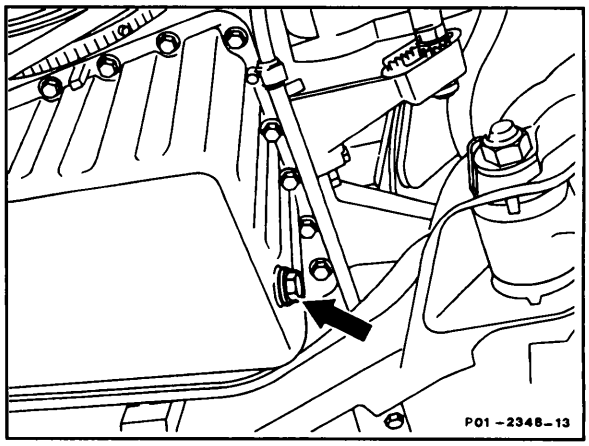
- Before suctioning or draining engine oil, drain oil filter, by unscrewing center bolt and removing together with oil filter cover.

- Suction engine oil via oil dipstick tube with engine at operating temperature.

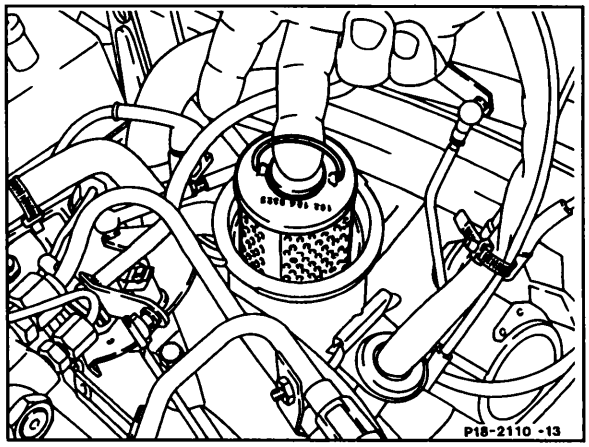


If no suction unit is available:

- Drain engine oil from oil pan (arrow).



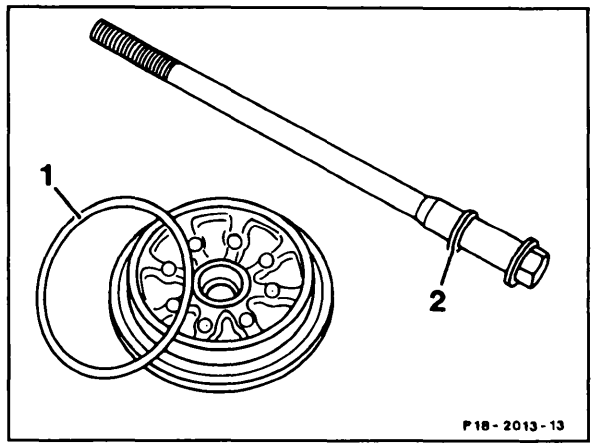
- Replace filter element.



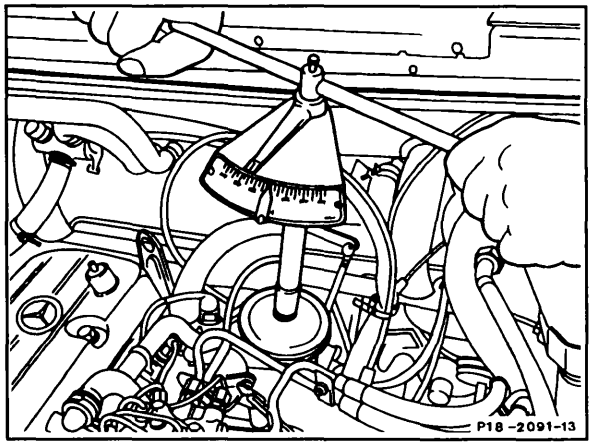
- Replace rubber seal ring (1) on cover.
- Check seal ring (2) on center bolt and replace as appropriate.

NOTE: There are two oil filter versions which differ in cover and rubber seal ring diameter and in thickness of rubber seal ring.

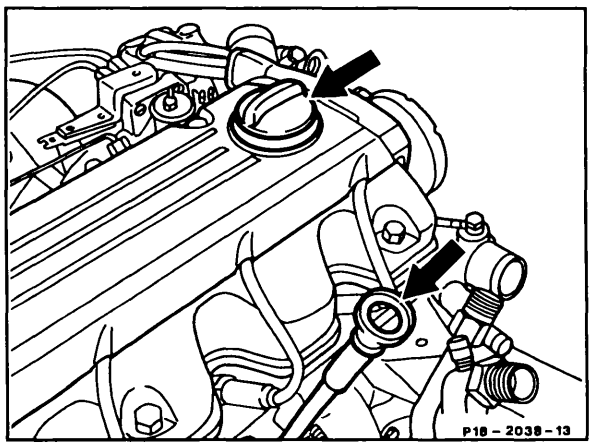
Use care not to use the incorrect rubber seal ring (1).



- Torque center bolt to 25 Nm with torque wrench.



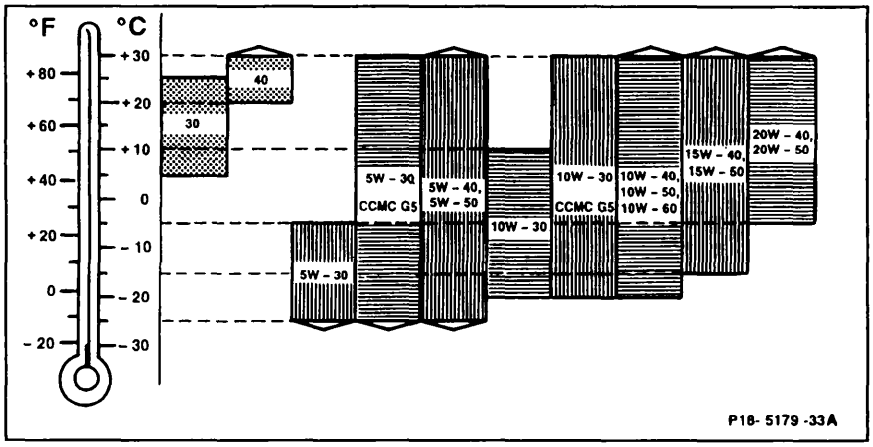
- If oil has been drained from oil pan, replace seal ring on drain plug.
- Tighten oil drain plug to 30 Nm, or for engine 102.983 to 25 Nm.
- Add engine oil.
- Run engine and check for leaks.
- Check oil level approx. 2 min. after stopping engine at operating temperature.



Engine 102.985 103 104

Specified SAE viscosity classes during continuous ambient temperatures

Following the SAE grades exactly according to the ambient air temperatures would result in frequent engine oil changes. The temperature ranges for the SAE grades should therefore be regarded as a guideline which may be exceeded for brief periods.



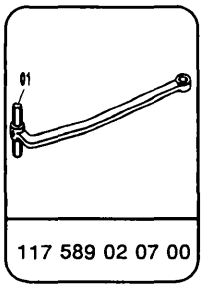
Oil capacity in liters

Engine	Model	Total capacity during oil and filter change	Oil dipstick identification	
			Oil dipstick color code	Identification on dipstick handle
102	201	5.0	gray	–
103	124, 126, 201	6.0	red	–
103	124 4MATIC	6.5	red	–
104	124, 129	7.5	–	10407
104	140	7.5	–	60322

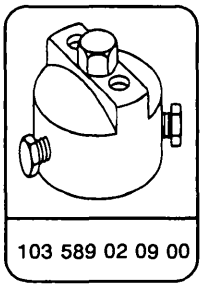
Torque specifications (Nm)

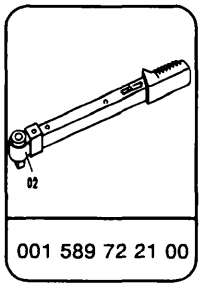
	Engine	Nm
Oil pan drain plug	all	25
Spin on oil filter	102, 103	20
Threaded cover	104	20

Special tools



117 589 02 07 00


103 589 02 09 00



001 589 72 21 00

NOTE: Change engine oil only with engine at operating temperature.

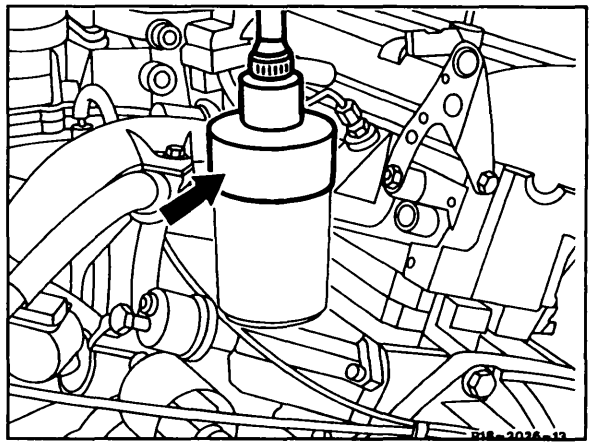
Removing old oil filter

Engine 102 and 103

- Before suctioning or draining engine oil, unscrew spin-on filter with socket wrench insert 74 mm (arrow). Apply a light seating blow against socket wrench insert, so that it is tightly seated on filter.

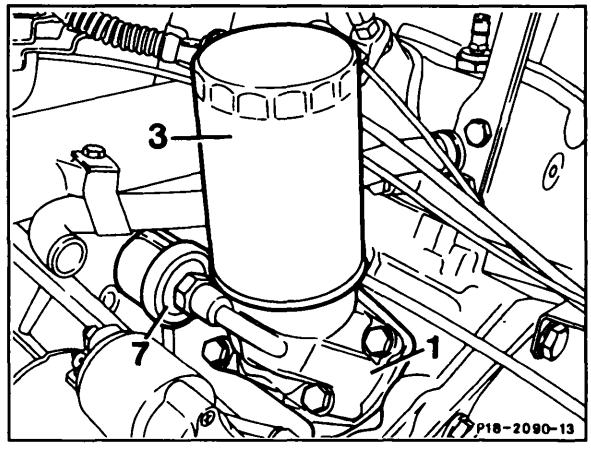
While unscrewing, some oil may run out until the check valves in oil filter cartridge close.

For this reason, hold or place a suitable rag under mounting surface at bottom of oil filter.



Engine 102

Note: If the spin on oil filter cannot be loosened with the socket wrench element, remove the air cleaner and drive in a screwdriver or other suitable tool to provide leverage to remove the oil filter.



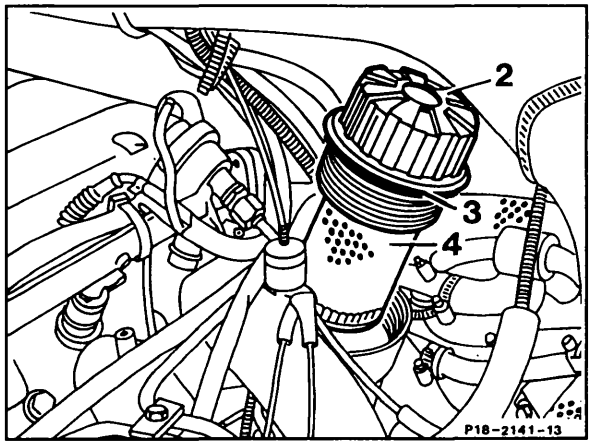
Engine 103

Engine 104

- Prior to suctioning or draining of engine oil, unscrew screw cover (2) with socket wrench element 74 mm.

- Remove threaded cover (2) with oil filter element (4).

On Model 140, remove air filter and replace after installing oil filter cartridge.

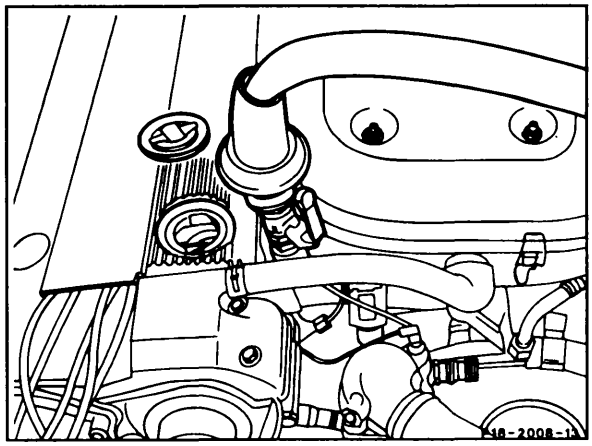


Engine 104

Removing old oil

Engine 102, 103, 104

- Suction engine oil via dipstick tube with engine at operating temperature.

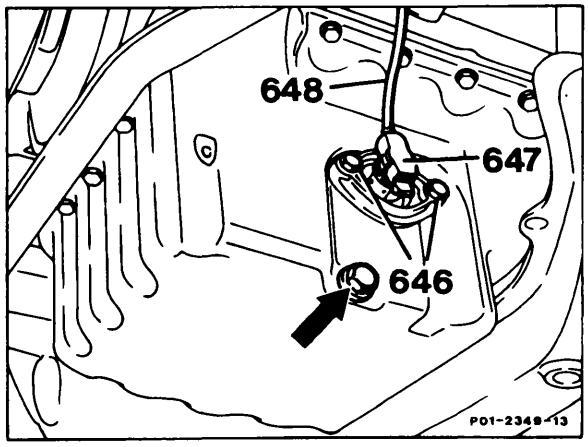


Engine 104

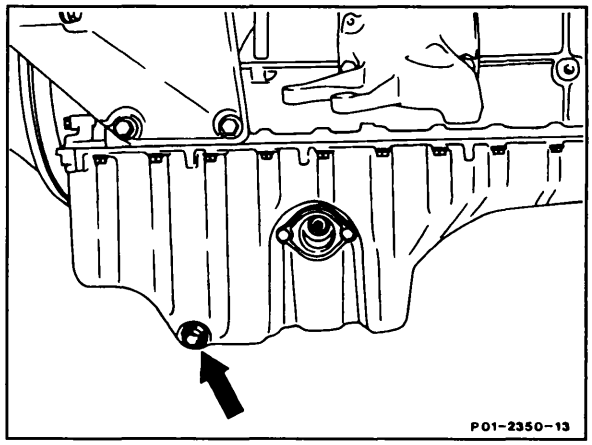
If no suction unit is available:

- Drain engine oil from oil pan (arrow).

First remove engine compartment lower panel and reinstall upon completion of maintenance jobs.



Engine 102

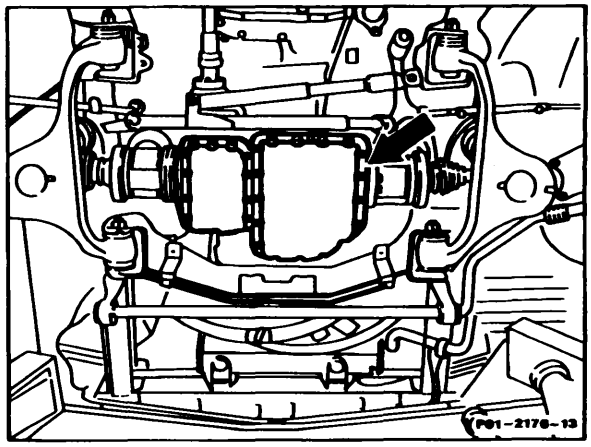


Engine 103,104

- On 4MATIC vehicles open drain plug (5) on large oil pan (4) only.

- If the oil has been drained out of oil pan, replace seal ring on oil drain plug.

- Tighten oil drain plug to 25 Nm.

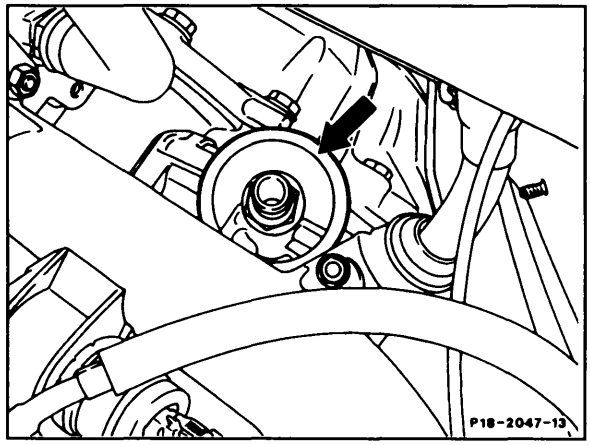


Engine 103 4MATIC

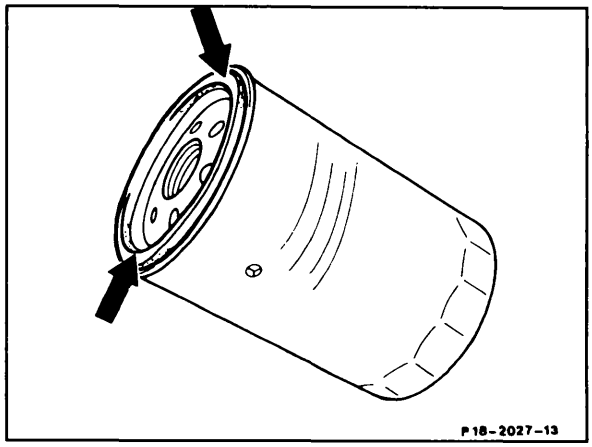
Installing new oil filter

Engine 102 and 103

- Clean mating surface (arrow) on oil filter mounting flange.

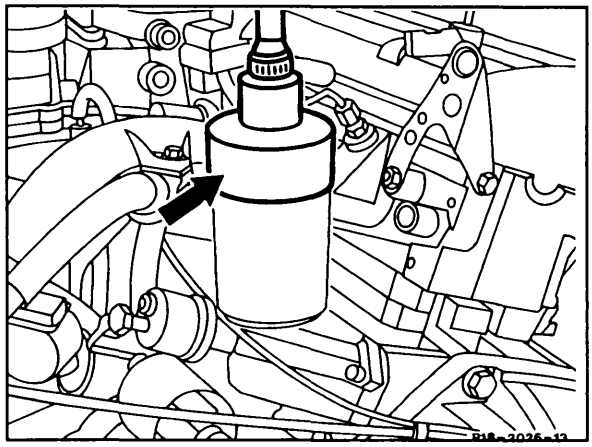


- Slightly lubricate gasket (arrows) on new spin-on filter.



- Screw on filter and tighten by hand.

Then turn filter with 74 mm socket wrench element (arrow) an additional 1/4 turn (90°) (20Nm).

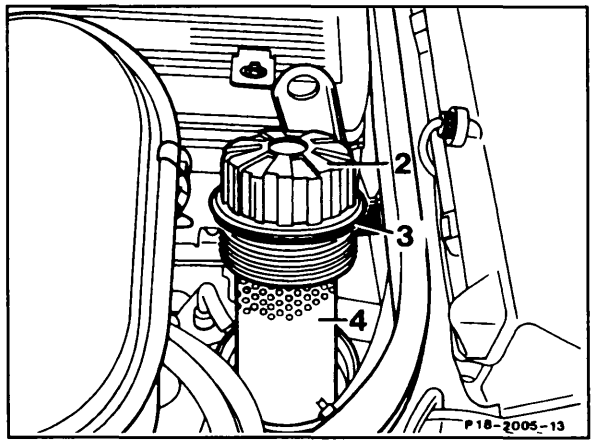


Engine 104

- Replace seal ring (3).

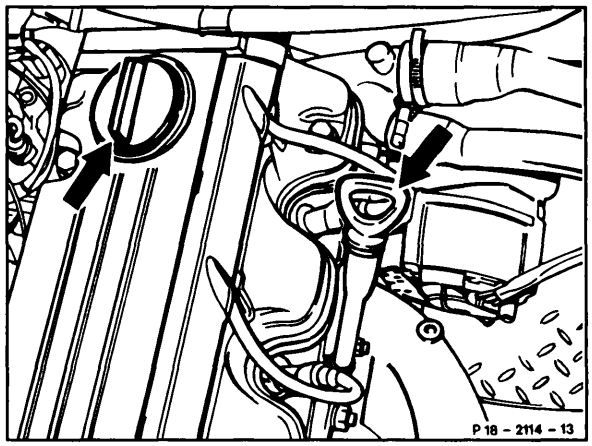
- Insert oil filter element (4) into threaded cover (2).

- Insert threaded cover with oil filter element and tighten to 20 Nm.

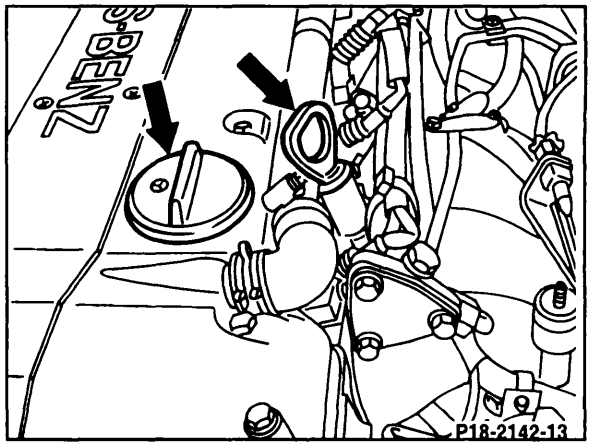


Filling engine oil

- Add engine oil (arrow).
- Run engine and check for leaks.
- Check oil level (arrow) approx. 2 minutes after shutting off engine at operating temperature.



Engine 102

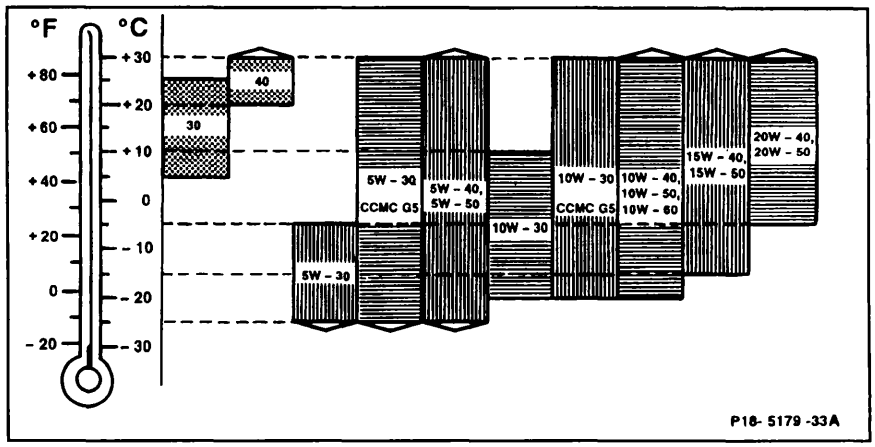


Engine 103 and 104

Engine 110

Specified SAE viscosity classes during continuous ambient temperatures

Following the SAE grades exactly according to the ambient air temperatures would result in frequent engine oil changes. The temperature ranges for the SAE grades should therefore be regarded as a guideline which may be exceeded for brief periods.



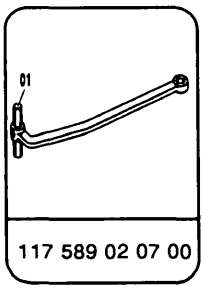
Oil capacity in liters

Oil dipstick color code	pink burgundy	yellow/green
Total capacity during oil and filter change	6.5	6.0
Oil pan	6.0	5.5

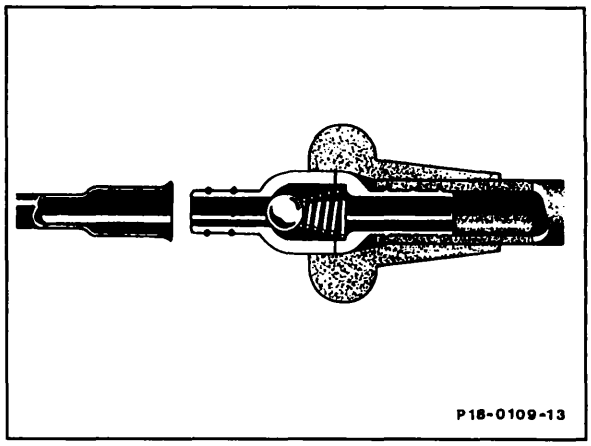
Torque specifications (Nm)

Oil pan drain plug	40
Center bolt, oil filter cover	35

Special tools

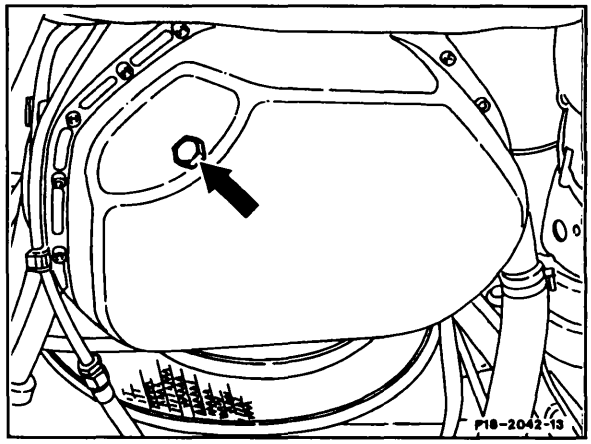


- Suction engine oil via oil dipstick tube with engine at operating temperature.



If no suction unit is available:

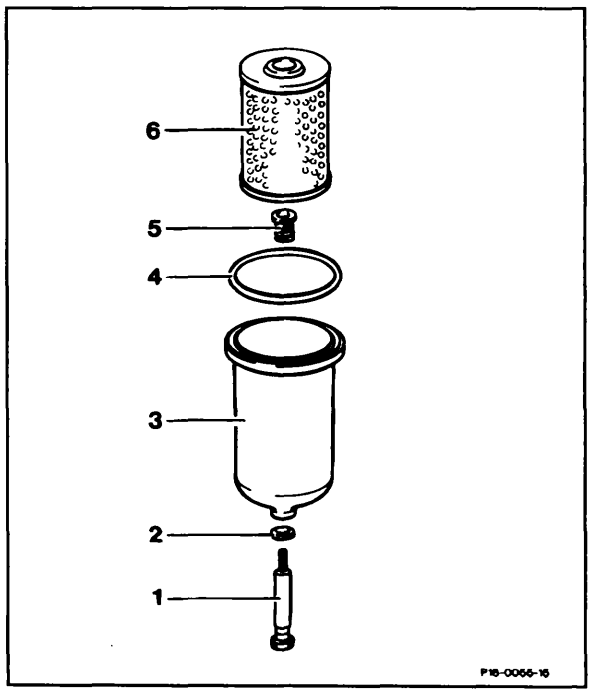
- Drain engine oil from oil pan (arrow).



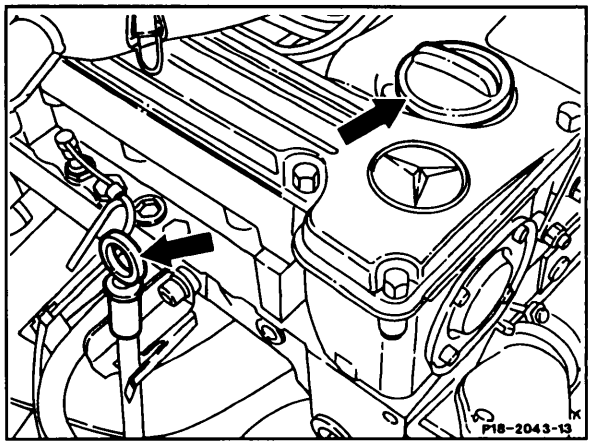
- Unscrew and empty oil filter lower half (3).
- Wash and blow out oil filter lower half.
- Check sealing ring (2) and replace as necessary.

For this purpose, pull compression spring together with spring retainer (5) off fastening screw (1). Make sure that the compression spring and retainer is correctly installed during assembly.

- Replace rubber sealing ring (4).
- Install oil filter lower half with a new filter element (6) and torque fastening screw (1) to 35 Nm.



- If oil has been drained from oil pan, replace sealing ring on drain plug.
- Torque oil drain plug to 40 Nm.
- Add engine oil.
- Run engine and check for leaks.
- Check oil level approx. 2 min. after stopping engine at operating temperature.

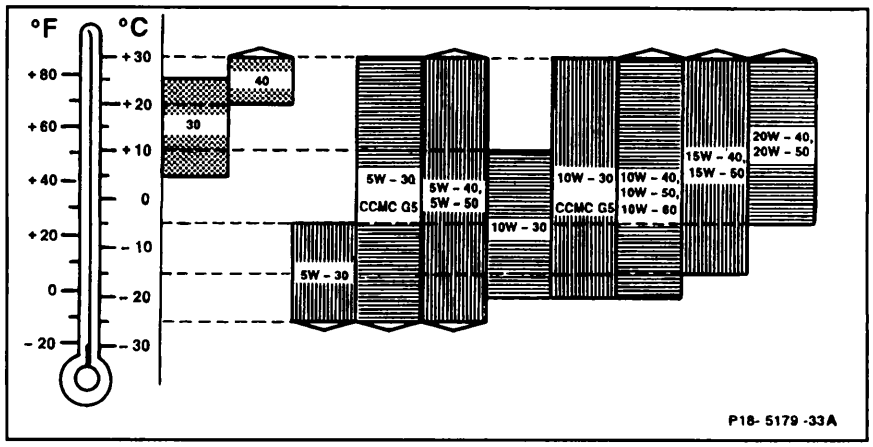


Engine 110

Engine 116 117 119 120

Specified SAE viscosity classes during continuous ambient temperatures

Following the SAE grades exactly according to the ambient air temperatures would result in frequent engine oil changes. The temperature ranges for the SAE grades should therefore be regarded as a guideline which may be exceeded for brief periods.



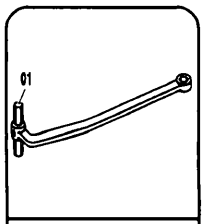
Oil capacity in liters

Engine	Model	Total capacity during oil and filter change	Dipstick identification		
			color code	color code	identification number (red color)
			round handle	bottle opener shaped handle	
116, 117	107	8	blue	–	–
116, 117	126	8	light blue gray	gray	–
119	124, 129, 140	8	–	gray	–
120	140	10	–	–	12010

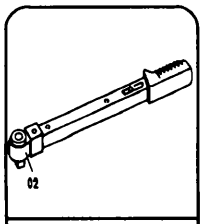
Torque specifications (Nm)

Model	107	126	124, 129, 140
Oil pan drain plug	50	40	40
Center bolt, oil filter cover	–	25	20
Center bolt, oil filter lower housing	25	–	–
Threaded cover (Engine 120)	–	–	20

Special tools



117 589 02 07 00

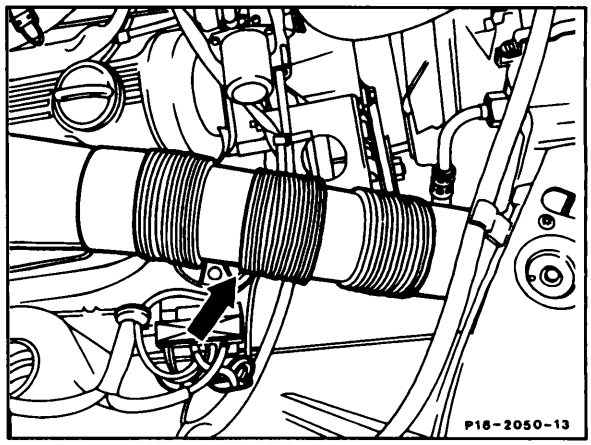


001 589 72 21 00

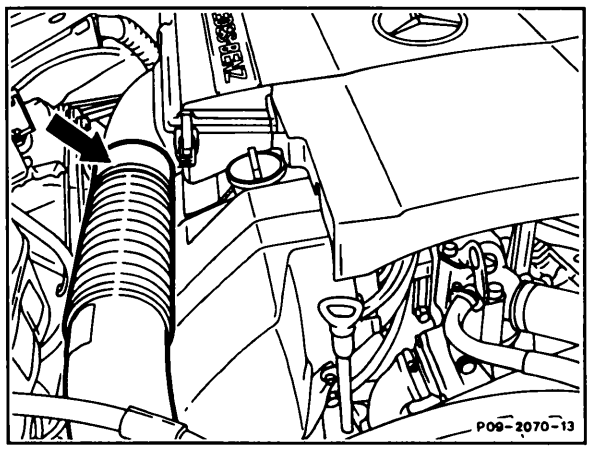
Removing old oil filter

Engine 116, 117 in model 126
Engine 119 in model 124, 129, 140

- Remove flexible air duct (arrow).



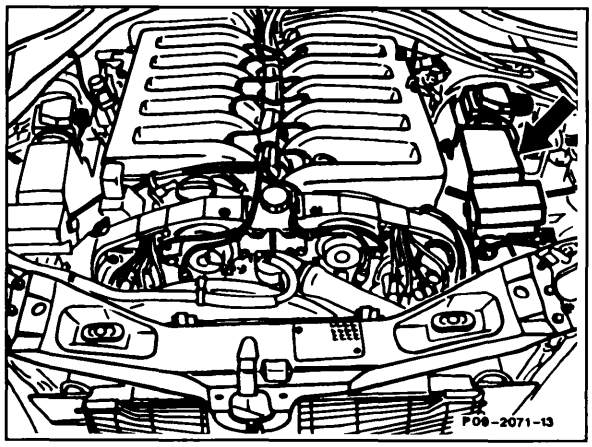
Engine 116, 117



Engine 119

Engine 120

- Remove left air filter housing and mass air flow sensor as an assembly (job no. 09-0015).



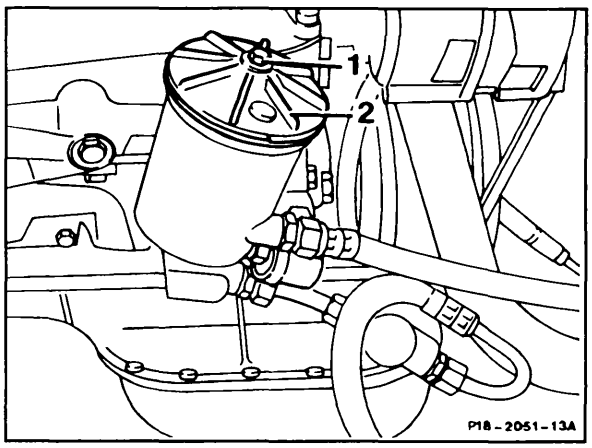
Engine 120

Removing old oil

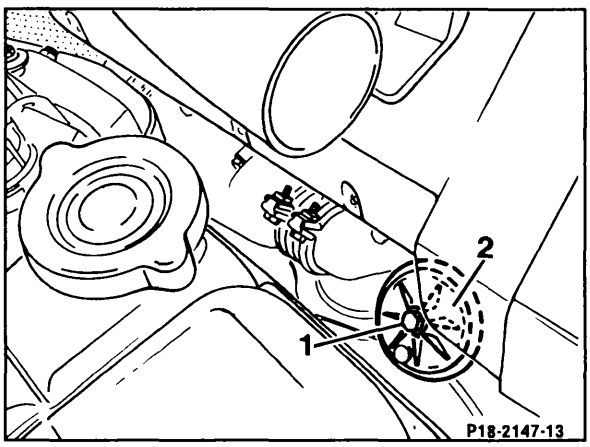
NOTE: Change engine oil only with engine at operating temperature.

Engine 116, 117 in model 126
Engine 119 in model 124, 129, 140

- Drain oil filter prior to suctioning or draining engine oil. For this purpose, loosen center screw (1) and remove together with oil filter cover.



Engine 116, 117 in model 126

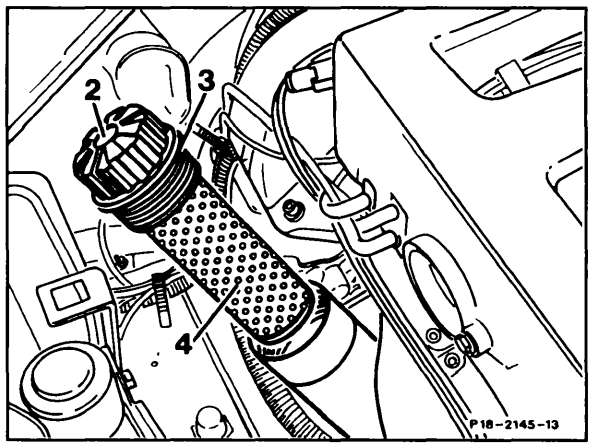


Engine 119

Engine 120 in model 140

- Before suctioning or draining engine oil, remove threaded cover (2) using 74 mm insert.

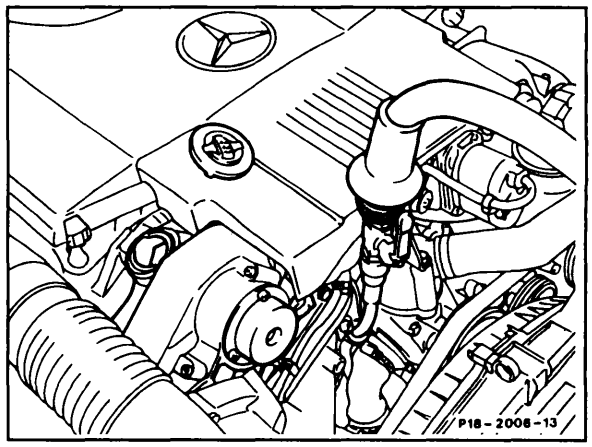
- Remove threaded cover (2) and oil filter cartridge (4).



Engine 120

All Engines

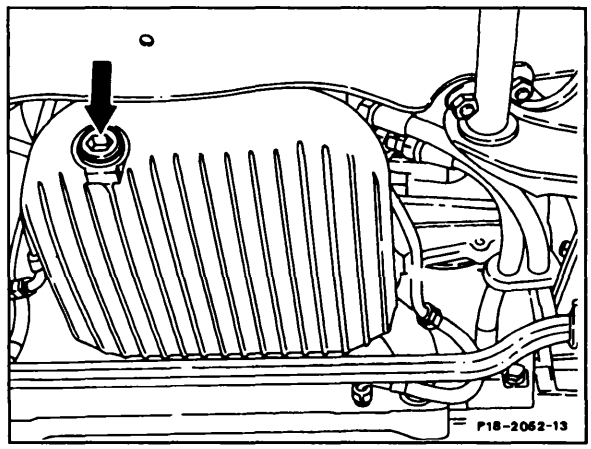
- Suction engine oil via oil dipstick tube with engine at operating temperature.



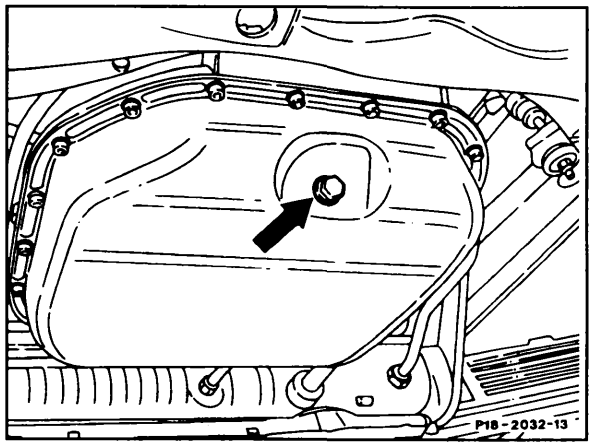
Engine 119 in model 129

If no suction unit is available:

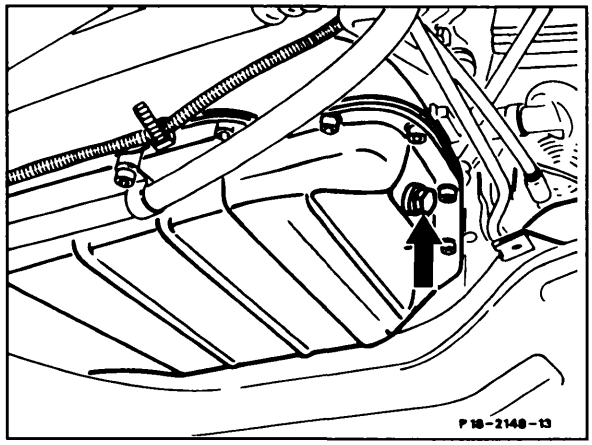
- Drain engine oil from oil pan (arrow).



Model 107



Model 126, 129



Model 140

- On model 129 and 140, remove engine compartment lower panel first and reinstall after completing maintenance jobs (refer to job item 6190).

- If the oil has been drained from oil pan, replace seal ring on oil drain plug.

- Tighten oil drain plug. Refer to table for correct torque.

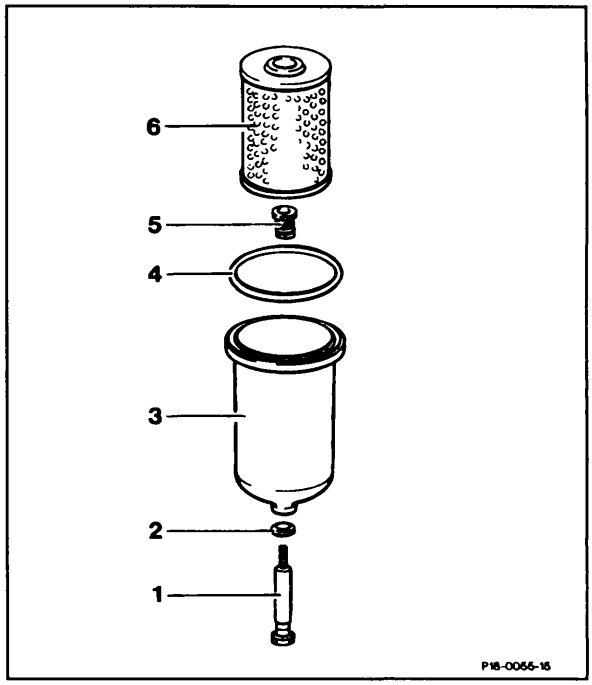
Installing new oil filter

Engine 116, 117 in model 107

- Unscrew oil filter housing (3) and drain.
- Wash out oil filter housing and blow out.
- Check seal ring (2) and replace as necessary.

For this purpose, pull compression spring with spring washer (5) from fastening screw (1). **Be sure to properly install compression spring with spring washer during assembly.**

- Replace rubber seal ring (4).
- Install oil filter lower part with a **new** filter element (6) and tighten fastening screw (1) to 25 Nm.



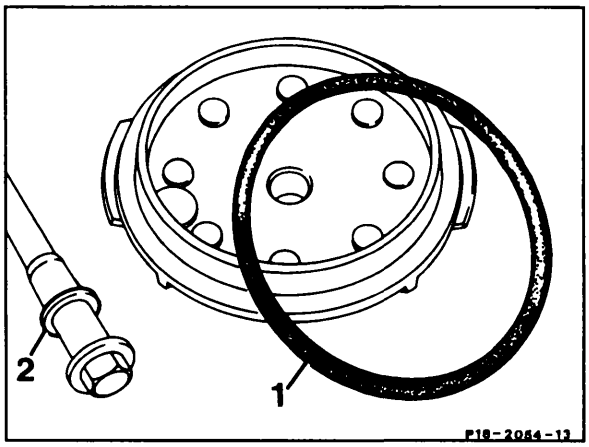
Engine 116, 117 in model 107

Engine 116, 117 in model 126
Engine 119 in model 124, 129, 140

- Replace filter element while making sure that the large rubber seal (24 mm ID) points in downward direction.

Engine 116, 117 in model 126

- Replace rubber seal ring (1) on cover.
- Check seal ring (2) on center screw and replace as necessary.
- Tighten center screw to 25 Nm.

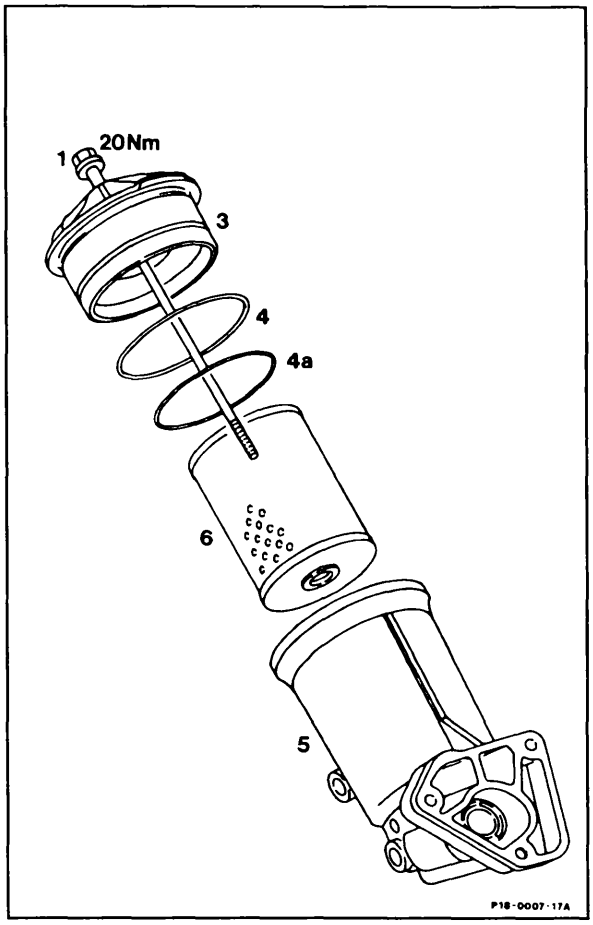


Engine 116, 117 in model 126

Engine 119 in model 124, 129, 140

Replace rubber seal rings (4 and 4a) on cover.

- Tighten center screw to 20 Nm.



Engine 119

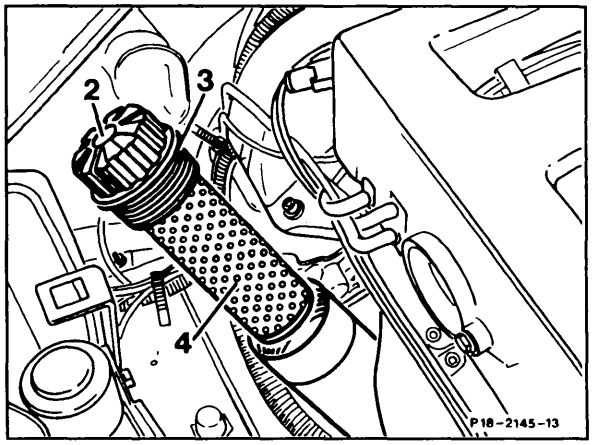
Engine 120 in model 140

- Replace seal (3).

- Insert oil filter cartridge (4) in threaded cover (2).

- Insert cartridge with cover and tighten.

- Install left air filter housing and mass air flow sensor assembly.



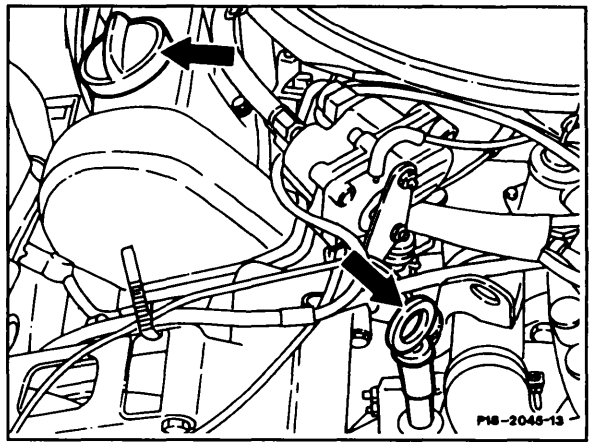
Engine 120

Filling engine oil
All engines

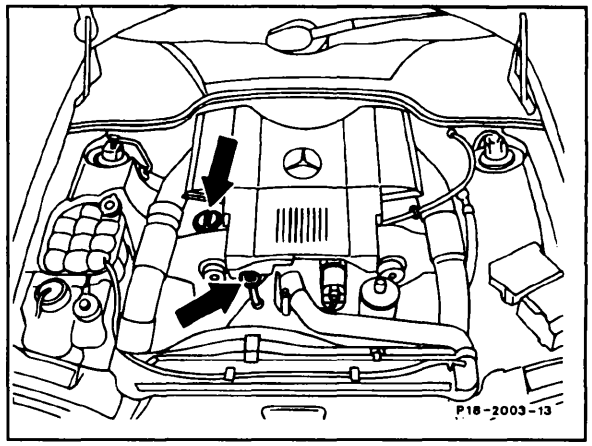
- Add engine oil (arrow).

- Run engine and check for leaks.

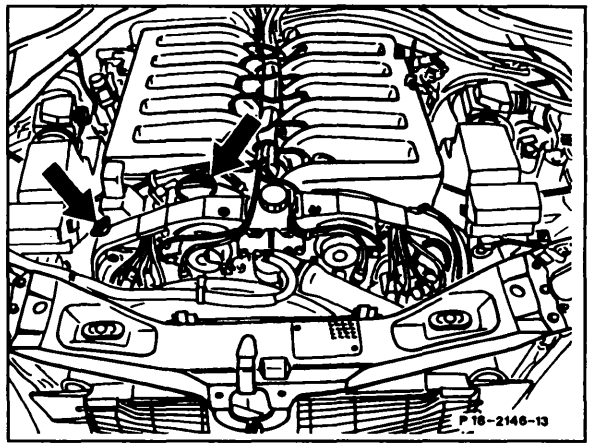
- Check oil level with engine at operating temperature approx. 2 minutes after stopping engine (arrow).



Engine 116, 117 in model 107, 126



Engine 119 in model 129



Engine 120 in model 140

- Install air duct (engine 116, 117 in model 126, engine 119 in models 124, 129, 140).

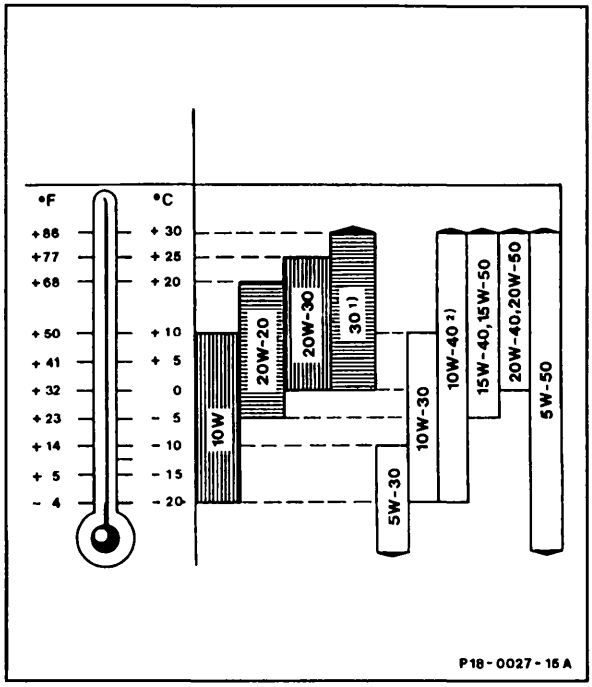
Engine 616 617

Specified SAE viscosity classes during continuous ambient temperatures

Following the SAE grades exactly according to the ambient air temperatures would result in frequent engine oil changes. The temperature ranges for the SAE grades should therefore be regarded as a guideline which may be exceeded for brief periods.

⚠ CAUTION!

SAE 10W single grade oils must not be used in engine 617.95.



1) For continuous ambient temperatures above +30 °C (86 °F), SAE 40 can be used.

2) Except Turbodiesel engine 617.95

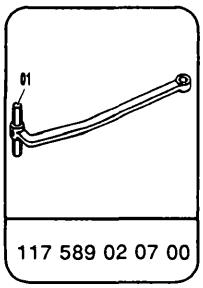
Oil capacity in liters

Engine	616, 617.91	617.95	617.95 (04/84)
Oil dipstick color code	red	white	ocher brown
Total capacity during oil and filter change	6.5	7.5	8.0
Oil pan	4.3	4.8	4.8

Torque specifications (Nm)

Oil pan drain plug	40
Mounting nuts, oil filter cover	25

Special tools



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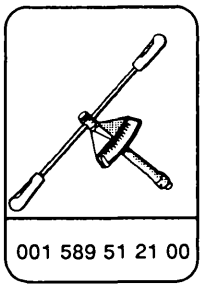

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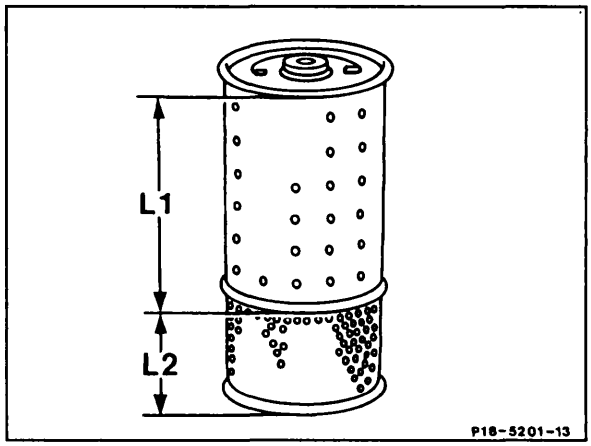
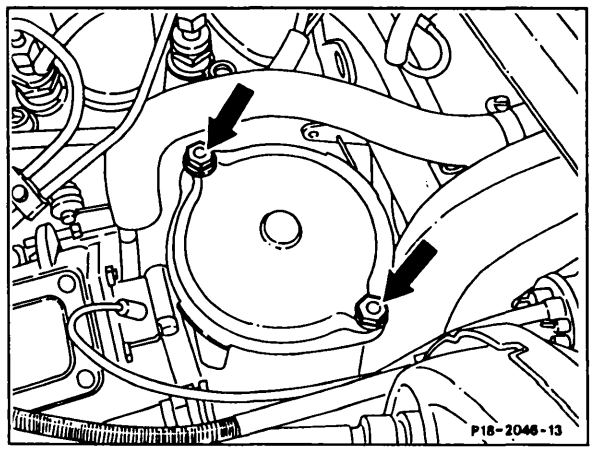
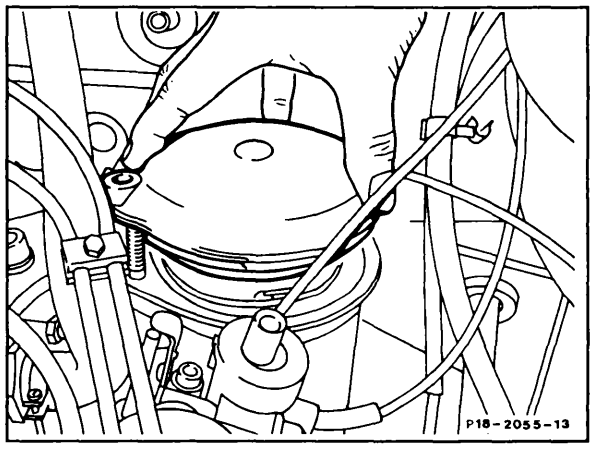
Due to the different sizes, the filter element and the rubber seal ring on the cap should not be exchanged with those on engines 601, 602 and 603.



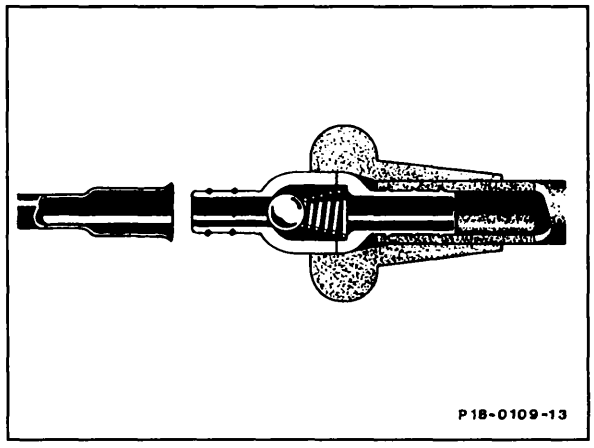
Engine 601,602,603		Engine 616,617	
Dimension	L1 113 mm	Dimension	L1 131 mm
	L2 49 mm		L2 55 mm

Prior to suctioning or draining engine oil, empty oil filter. For this purpose, loosen nuts (arrows) and remove cover.



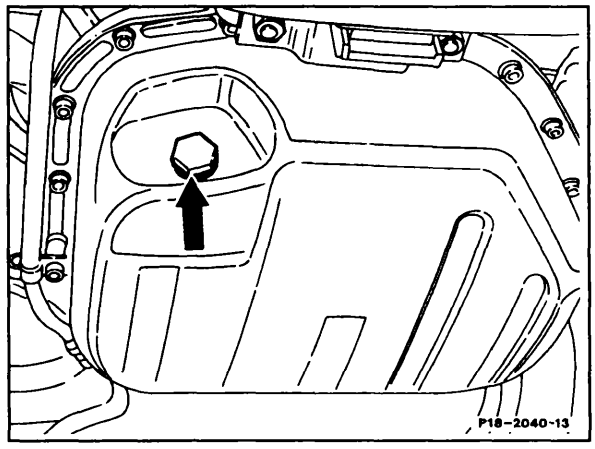


Suction engine oil via oil dipstick tube with engine at operating temperature.

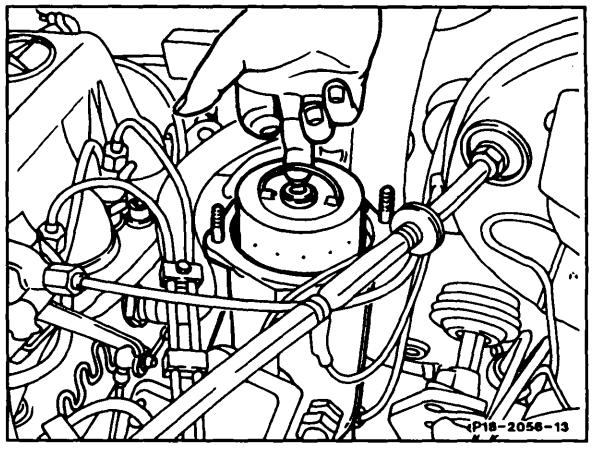


If no suction unit is available:

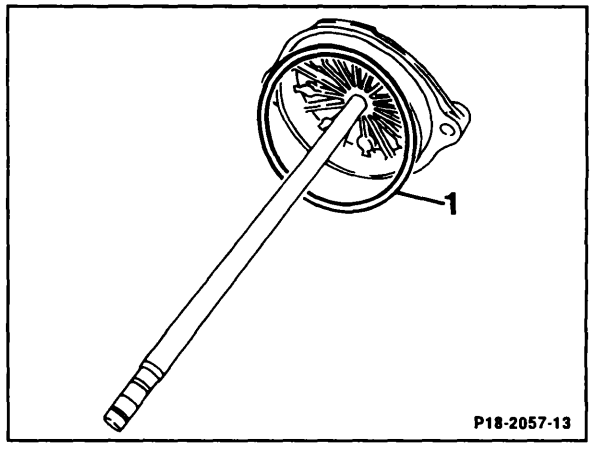
Drain engine oil from oil pan (arrow).



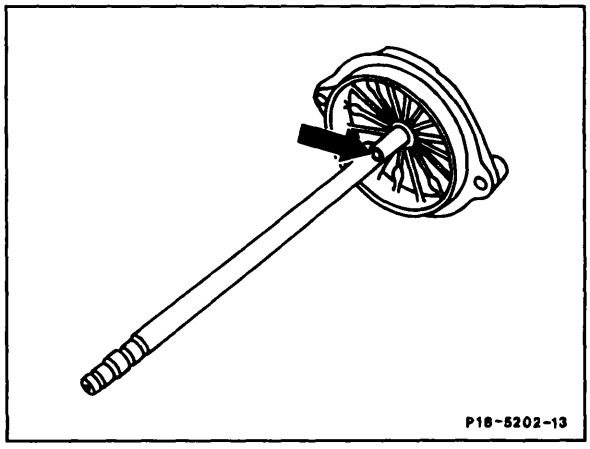
Replace filter element.



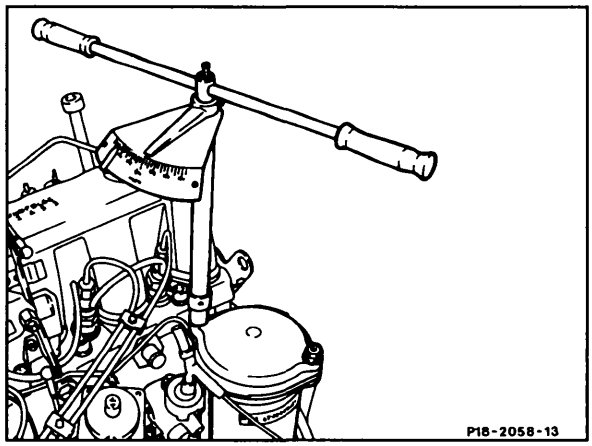
Replace rubber seal ring (1) on cover.



Check the oil port on the oil tube for foreign matter (arrow). If it is blocked, remove the foreign matter by hand. Then blow through the oil port with compressed air; air must noticeably come out of the bottom of the oil tube. If the oil port is not open or if no air comes out, replace oil filter cap and oil tube.



Tighten nuts to 25 Nm with torque wrench.



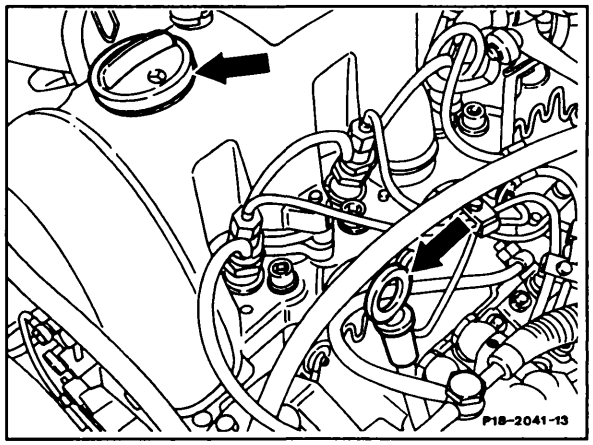
If oil has been drained from oil pan, replace seal ring on drain plug.

Tighten oil drain plug to 40 Nm.

Add engine oil.

Run engine and check for leaks.

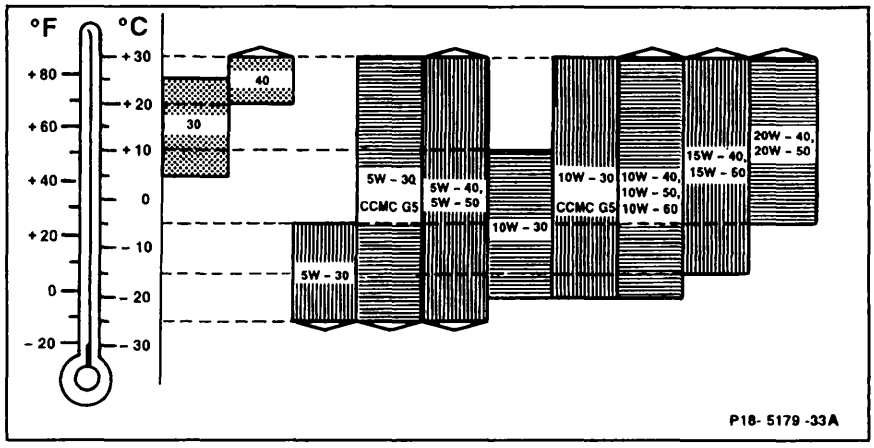
Check oil approx. 2 min. after stopping engine at operating temperature.



Engine 601 602 603

Specified SAE viscosity classes during continuous ambient temperatures

Following the SAE grades exactly according to the ambient air temperatures would result in frequent engine oil changes. The temperature ranges for the SAE grades should therefore be regarded as a guideline which may be exceeded for brief periods.



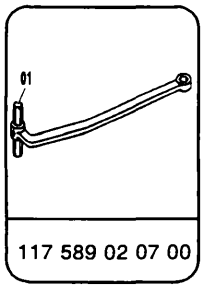
Oil capacity in liters

Engine	Model	Total capacity during oil and filter change	Oil dipstick identification		
			round handle	bottle opener shaped handle	Identification no.
601	201	6	black	-	-
602.91	201 (1986-88)	6.5	-	red black brown	60214
602.91	201 (1989)	7	-	green	-
602.96	124, 201	7	-	black green	-
603.96	124, 126	7.5	-	black	-
603.97	126	7.5	-	-	60316

Torque specifications (Nm)

Mounting nuts, oil filter cap	25
Oil pan drain plug 12 x 1.5 x 13	30
Oil pan drain plug 14 x 1.5 x 13	25
Return pipe in oil filter cover	25 (model 124 only)

Special tools



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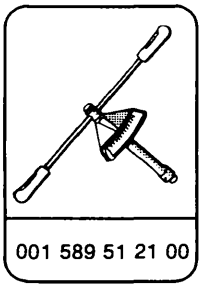

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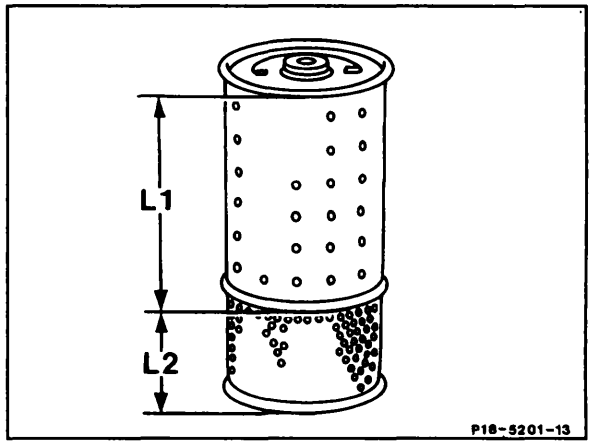
Due to the different sizes, the filter element and the rubber seal ring on the cap should not be exchanged with those on engines 615, 616 and 617.

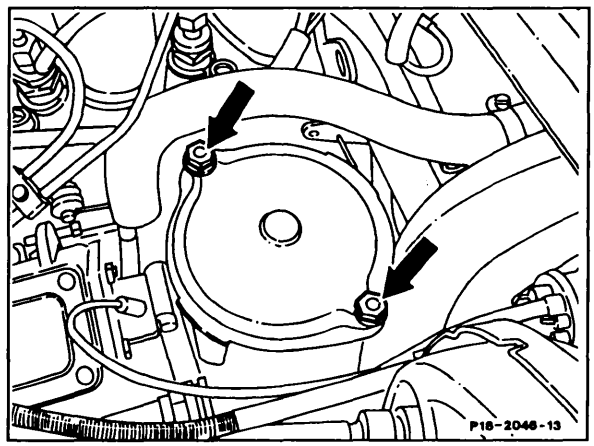
On vehicles with air oil cooler (turbocharged engines) the oil need not be drained from the air oil cooler.

NOTE: Change engine oil only with engine at operating temperature.



Engine 601,602,603		Engine 616,617	
Dimension	L1 113 mm	Dimension	L1 131 mm
	L2 49 mm		L2 55 mm

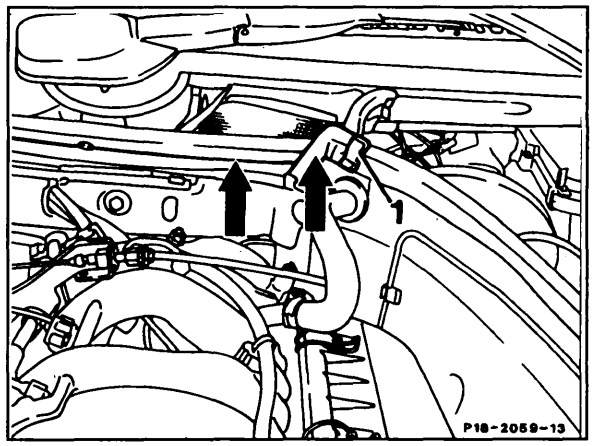
Empty oil filter prior to drawing off or draining engine oil. For this purpose, unscrew nuts (arrows) and remove cover.



For this purpose, for reasons of available space, on engine 603 in model 124 (up to January 1986) loosen rubber gasket or sealing strip on unit partition as follows and pull slightly in upward direction.

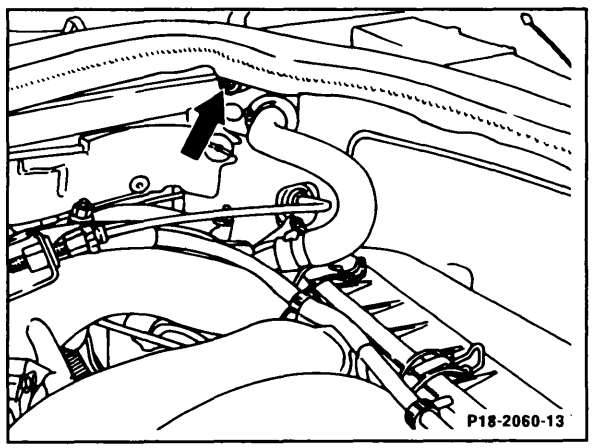
With split rubber gasket

Pull off holding clamp (1).



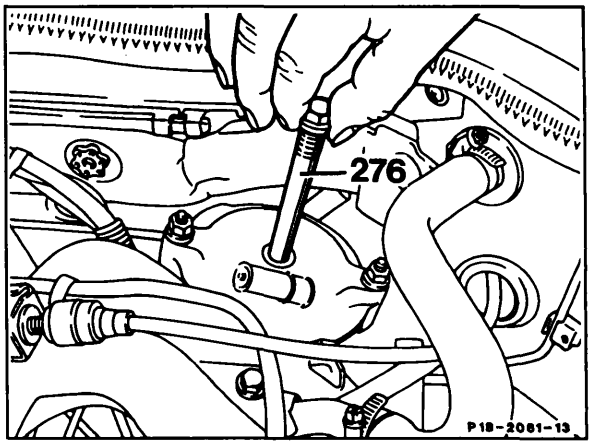
With one-piece rubber gasket

Unscrew screw (arrow).

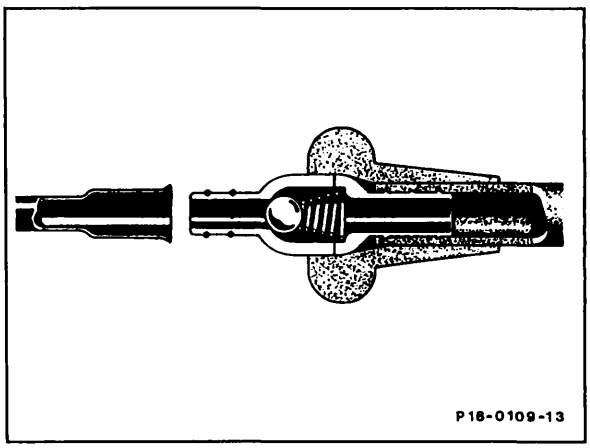


With two-piece oil filter cover
(starting February 1986, engine 603 in model 124)

Unscrew return pipe (276) and remove. Unscrew oil filter cover retaining nuts and remove cover.



Suction engine oil via oil dipstick tube with engine at operating temperature.

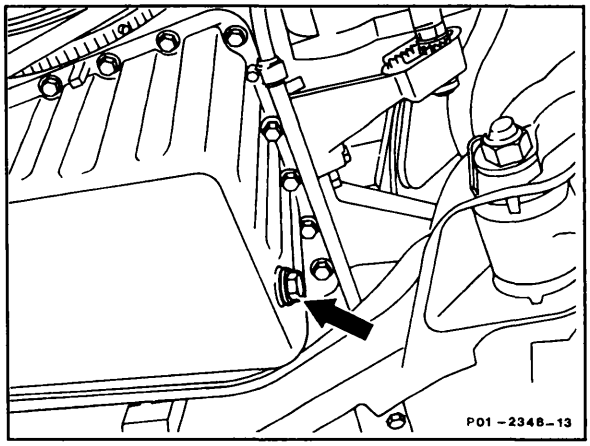


If no suction unit is available:

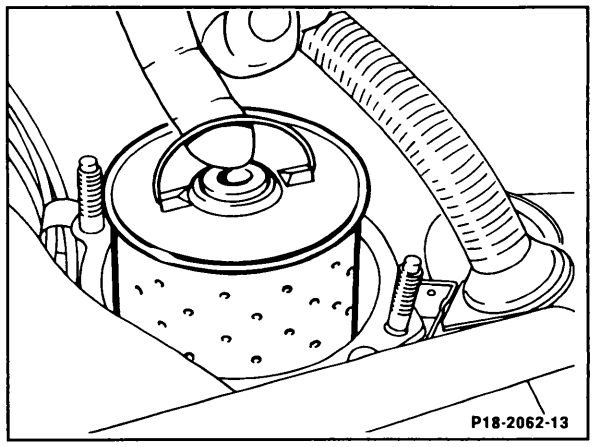
Remove lower noise encapsulation panel and install after finishing all maintenance work.

Drain engine oil from oil pan (arrow).

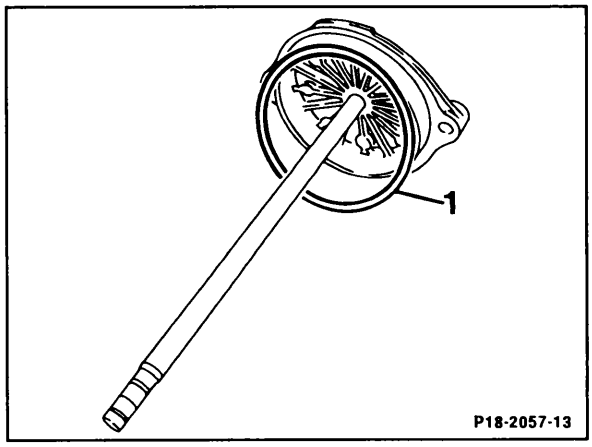
Note: The oil in air-oil cooler need not be drained.



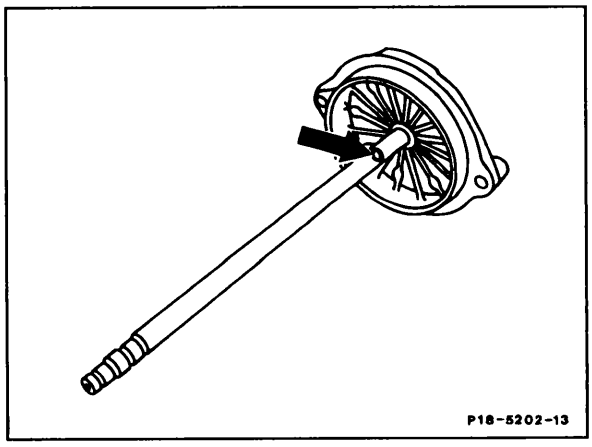
Replace filter element.



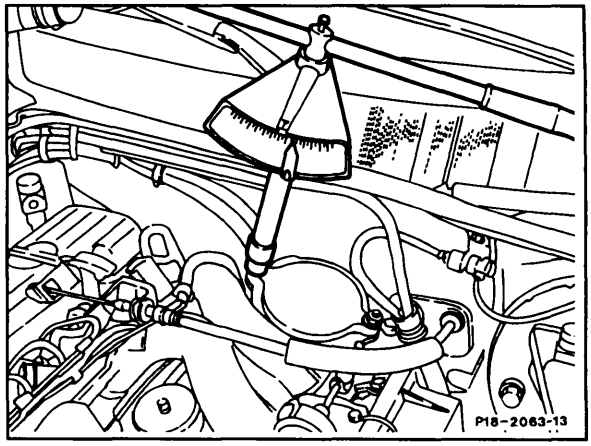
Replace rubber seal ring (1) on cover.



Check the oil port on the oil tube for foreign matter (arrow). If it is blocked, remove the foreign matter by hand. Then blow through the oil port with compressed air; air must noticeably come out of the bottom of oil tube. If the oil port is not open or if no air comes out, replace oil filter cap and oil tube.



Tighten nuts to 25 Nm with a torque wrench.



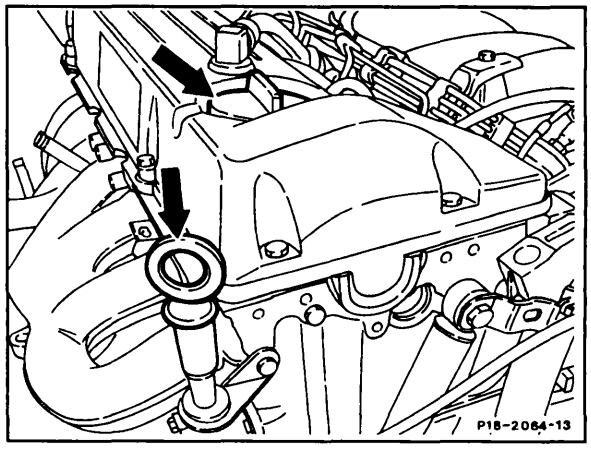
If the oil has been drained from oil pan, replace seal ring on oil drain plug.

Tighten oil drain plug to 30 or 25 Nm.

Add engine oil.

Run engine and check for leaks.

Check oil level approx. w minutes after stopping engine at operating temperature.



Engine 110

Adjusting specifications in mm

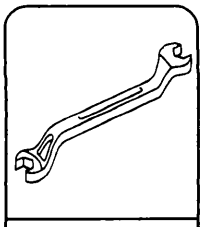
	Cold engine (approx. 20°C)	Warm engine (60°C ± 15°C)
Intake	0.10 [1]	0.15 [1]
Exhaust	0.25	0.30

[1] 0.05 mm more during extended ambient temperatures below -20°C.

Torque specifications (Nm)

Cylinder head cover cap nuts and bolts	5
Valve adjusting screws	20-40

Special tools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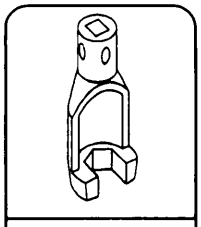
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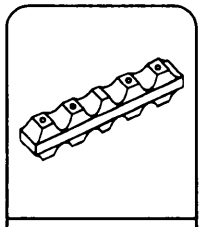
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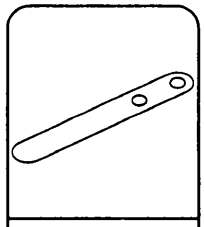
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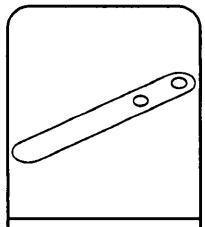
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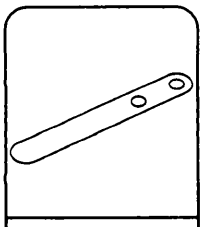
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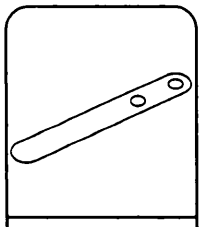
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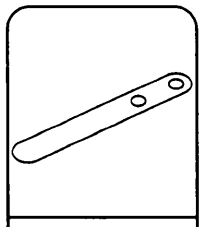
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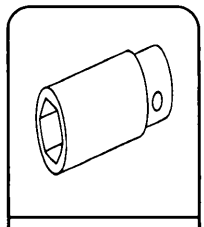
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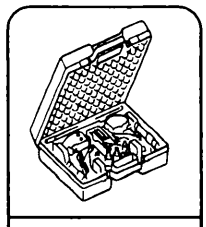
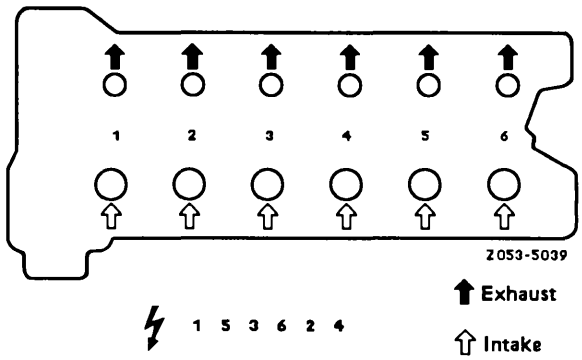

001 589 46 21 08

NOTE:

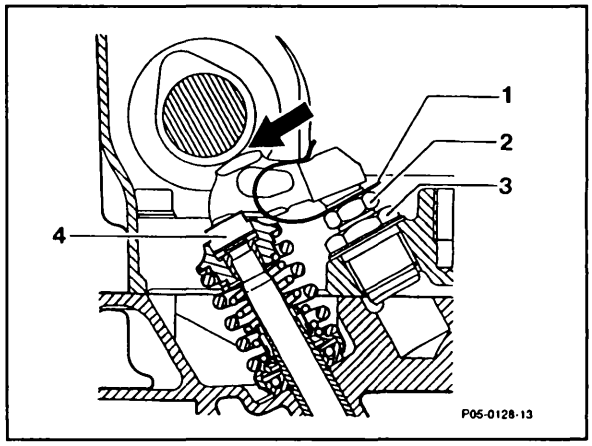
Check or adjust valve clearance with engine cold or warm.

Note layout of intake and exhaust valves.



Checking

- Remove rubber gaskets.
- Measure valve clearance between slide surface of rocker arm and cam base circle of camshaft (arrow).

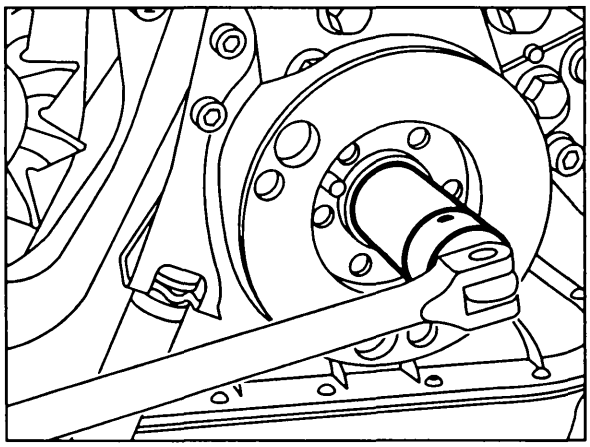


Rotating engine:

(a) With socket wrench on crankshaft balancer hex bolt.

⚠**CAUTION!**
Do not use **camshaft sprocket** mounting bolt to turn engine.

Do not rotate crankshaft **in reverse.**



(b) With starter:

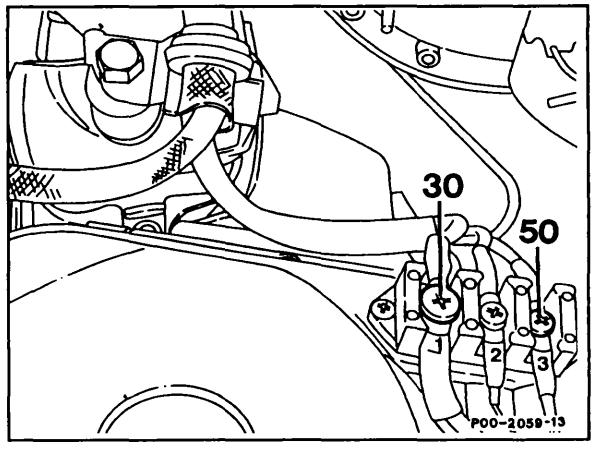
Switch off ignition and connect terminals as indicated.

Model 123

On cable connector to engine harness, disconnect cable terminal 16 (cable color red/purple), so that the ignition coil and the fuel pump are not activated.

Connect terminal 30 and terminal 50 on cable connector.

Instead of terminal 30, connection can also be made to battery +.



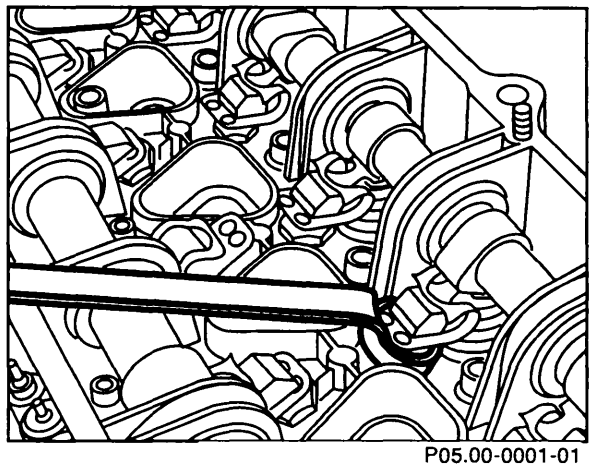
Adjusting

Adjust valve clearance by turning valve adjusting screw (2) with valve adjusting wrench.

The valve clearance is correctly adjusted if slip gauge requires tight pull.

NOTE: If adjustment is inadequate, replace plunger (4). Plungers are available in various sizes (refer to spare part documentation).

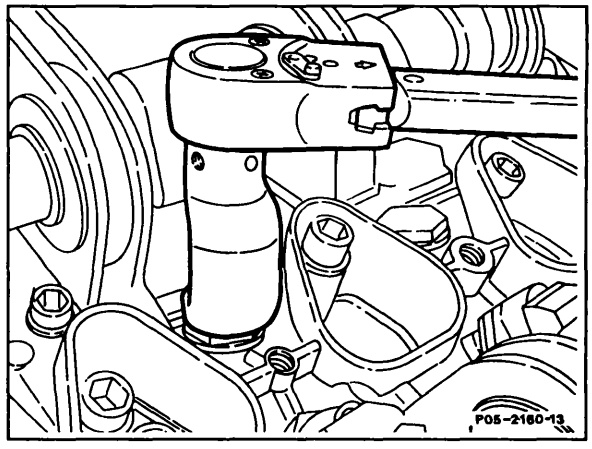
At end of adjusting jobs, check tension springs (1) for perfect seat.



P05.00-0001-01

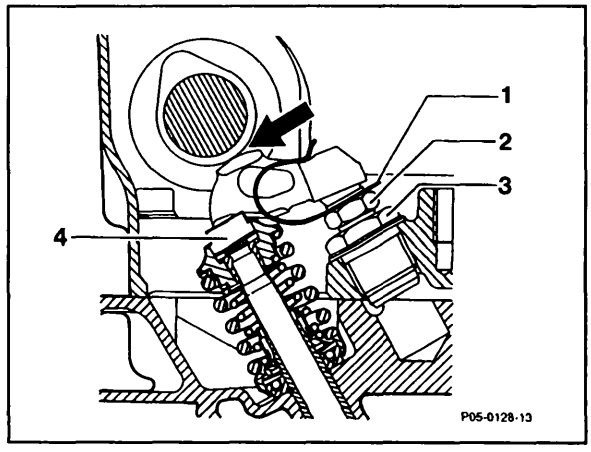
1 Valve adjusting wrench 100 589 01 01 00

NOTE: A torque check is required on loose valve adjusting screws. For this purpose, remove tensioning springs by means of a screwdriver and measure torque with valve adjusting wrench, part no. 110 589 00 01 00 and a torque wrench (e.g. part no. 000 589 27 21 00).



1 Valve adjusting wrench 110 589 00 01 00

If the torque of the valve adjusting screw is below 20 Nm, replace valve adjusting screw (2) or valve adjusting screw (2) together with threaded bushing (3).



Engine 616 617

Adjusting specifications in mm

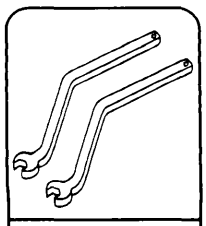
Engine		Cold engine (approx. 20°C)	Warm engine (60°C ± 15°C)
616, 617	**Intake**	0.10 [1]	0.15 [1]
616, 617.91	**Exhaust**	0.30	0.35
617.95	**Exhaust**	0.35	0.40

[1] 0.05 mm more during extended ambient temperatures below -20°C.

Torque specifications (Nm)

Cylinder head cover cap nuts	15

Special tools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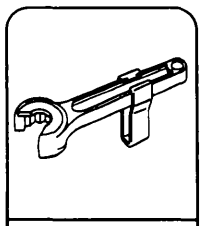
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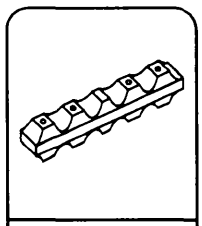
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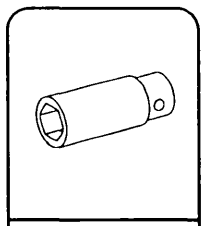
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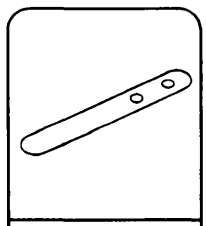
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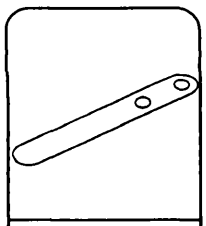
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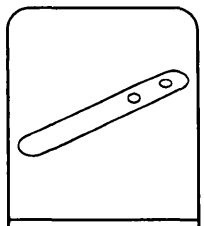
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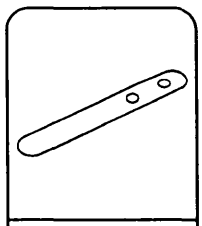
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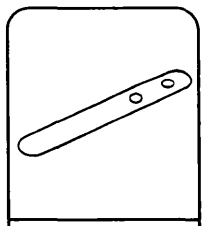
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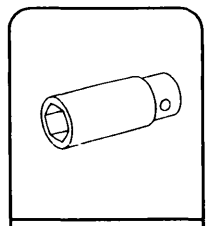
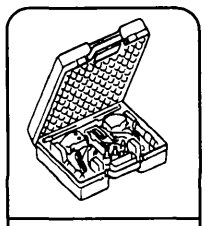
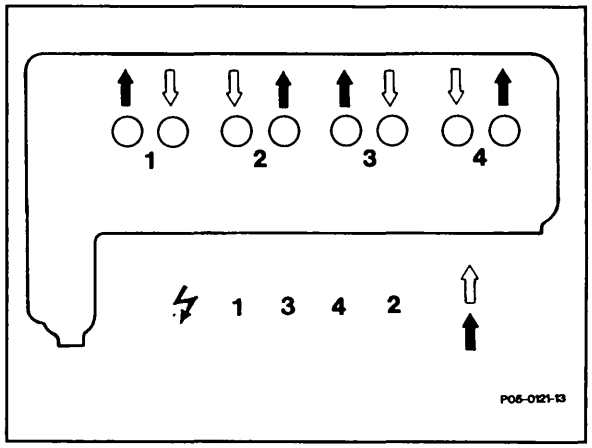

001 589 65 09 00

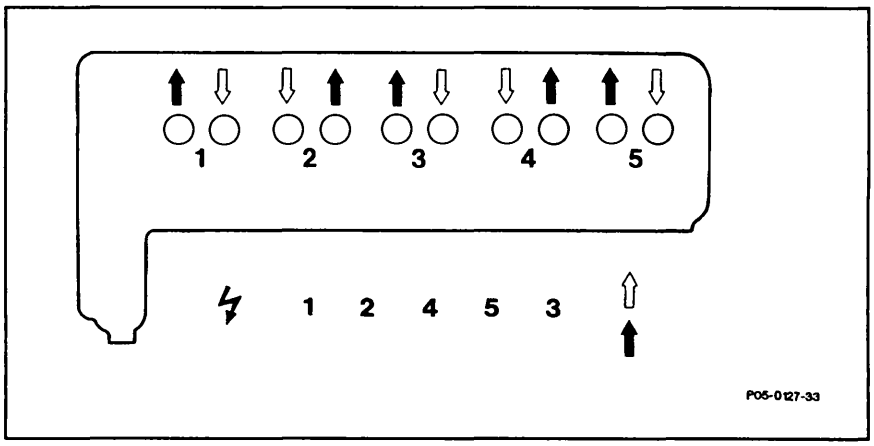

001 589 76 21 00

NOTE:

Check or adjust valve clearance with engine cold or warm.

Note layout of intake and exhaust valves.



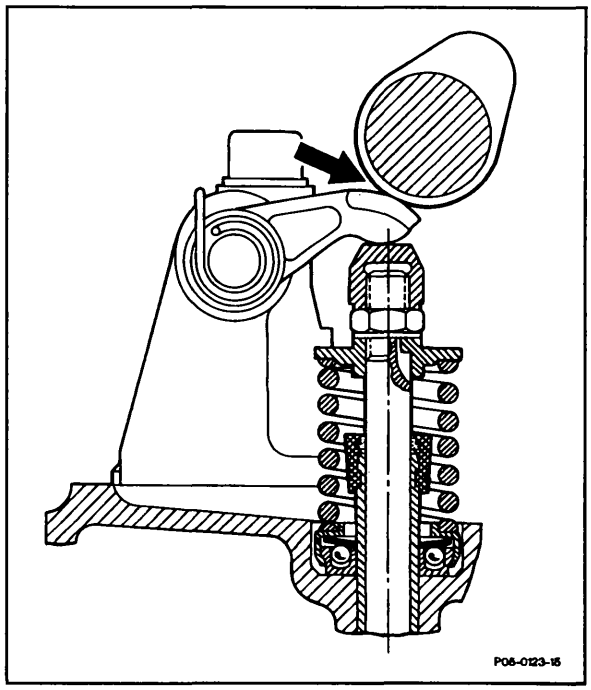


Adjusting

- Measuring valve clearance between sliding surface of rocker arm and cam base circle of camshaft (arrow), by positioning camshaft so that **tip of cam is vertical** relative to rocker arm.

Valve clearance is correctly adjusted if feeler gauge can be pulled through with some resistance.

- Position start and stop cable to "Stop" or turn starter key to "O".

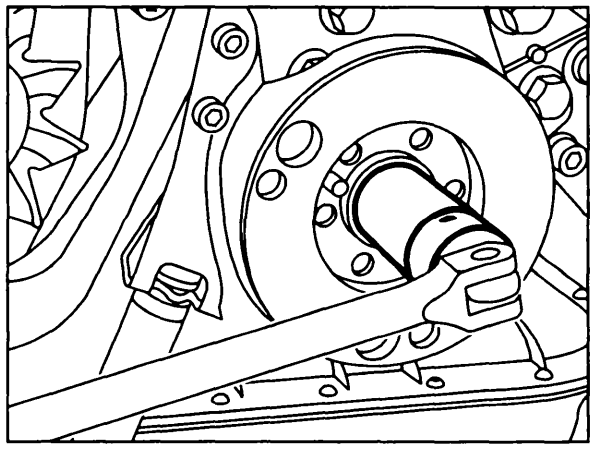


The engine can be cranked as follows:

a) With socket wrench on crankshaft balancer hex bolt.

⚠**CAUTION: Do not** use **camshaft sprocket** mounting bolt to turn engine.

Do not rotate crankshaft **in reverse.**

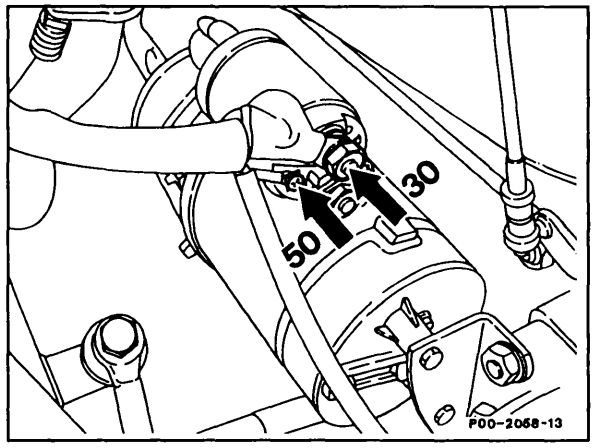


b) With starter

Model 123 with engine 616 and 617.912

Connect remote starter switch to terminal 30 and 50 at starter.

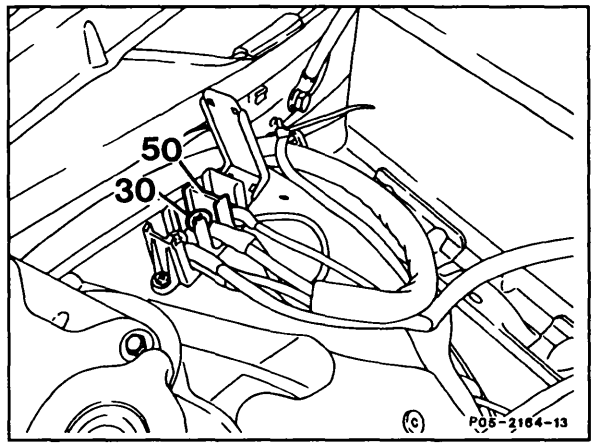
Remote starter switch may also be connected to battery + instead of terminal 30.



Model 123 with engine 617.952 (turbodiesel)

Connect contact handle to terminal 30 and 50 at cable connector.

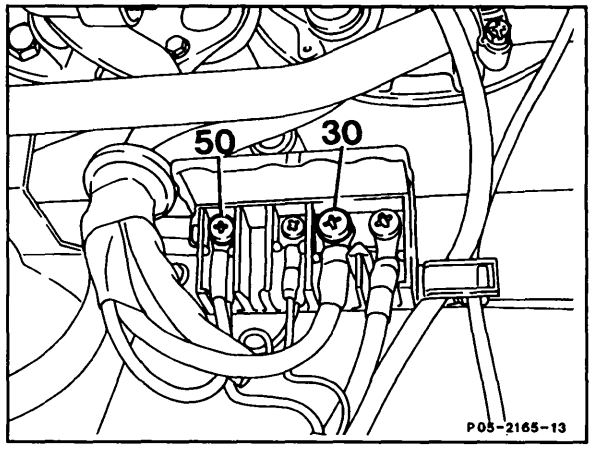
The cable connector is fitted in the right hand wheel housing.



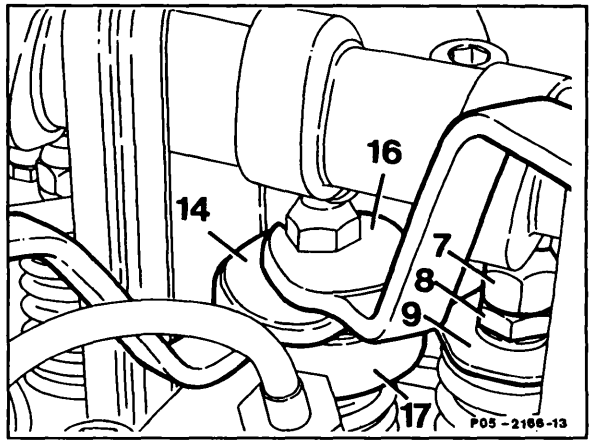
Model 126 with engine 617.951 (turbodiesel)

Connect contact handle to terminal 30 and 50 at cable connector.

The cable connector is fitted to the right hand side member.



- Place retaining wrench (17) to hexagon of valve spring plate.
- Loosen hex nut (7), by holding locknut (8) at valve with valve adjusting wrench (14).
- Set valve clearance by turning cap nut.
- After adjusting, secure cap nut with locknut.



Also check that cap and locknuts of valves which were not adjusted are tight.

- Re-check valve clearance.

Engine 102.983
Adjust valve clearance on separate order only

Adjusting specifications in mm

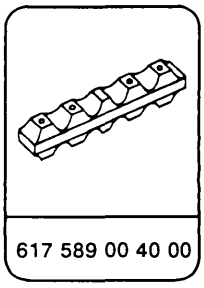
	Cold engine (up to 50°C coolant temperature)	Warm engine (60-80°C)
Intake	0.10-0.20	0.15-0.25
Exhaust	0.25-0.35	0.30-0.40

[1]) 0.05 mm more during extended ambient temperatures below -20°C.

Torque specifications (Nm)

Cylinder head cover cap nuts	9
Screws, ignition cable cover	20-40

Special tools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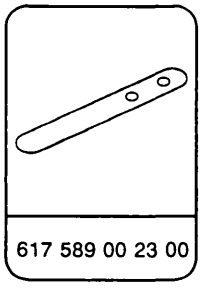
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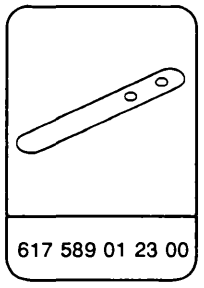
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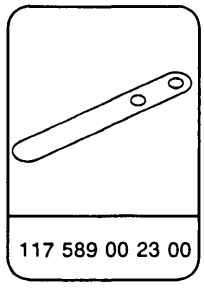
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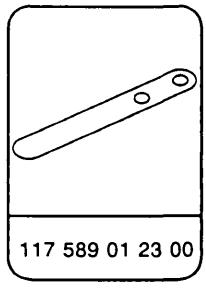
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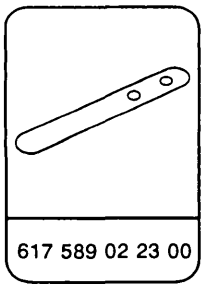
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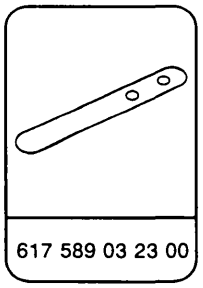
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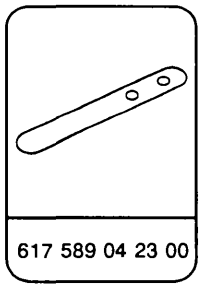
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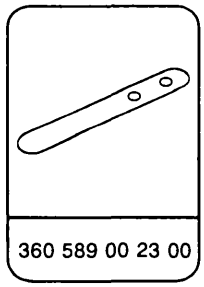
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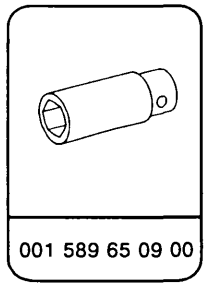
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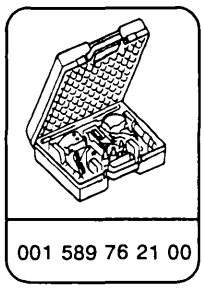
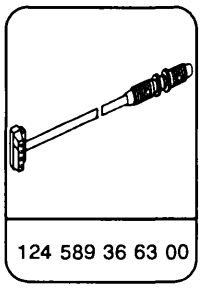
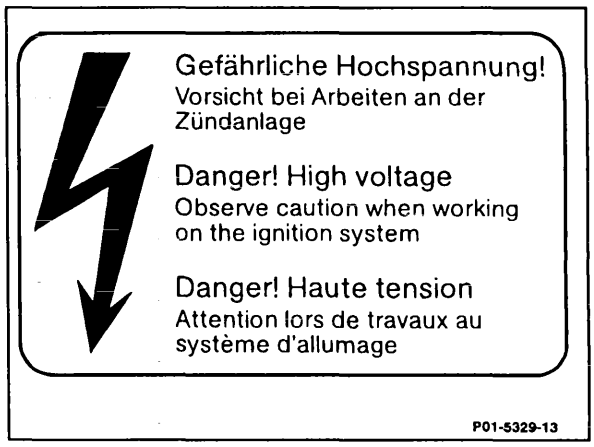

001 589 76 21 00


124 589 36 63 00

⚠ WARNING!

Because of the high ignition voltage, it is dangerous to touch ignition components (ignition coil, ignition cables, spark plug connector, module push connectors) when

- the engine is running,
- the engine is being started,
- the key in in position 2 while the engine is being turned manually.

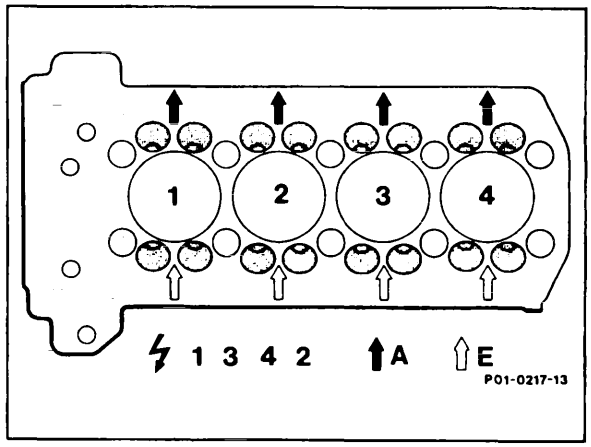


NOTE:

Check valve clearance with engine cold or warm.

Note layout of intake and exhaust valves.

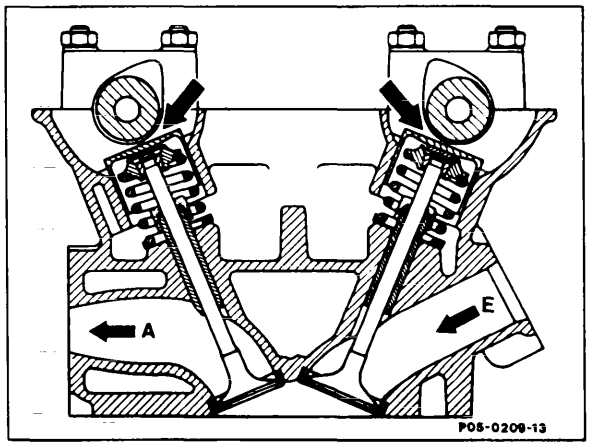
E = Intake
A = Exhaust



Measure valve clearance between bucket tappet and cam base circle (arrows).

Turn the camshaft in such a way that the cam points up (base circle on bucket tappet).

Valve clearance is set correctly if the feeler gauge blades, minimum or maximum thickness, can be pulled through with some resistance (e.g., intake with cold engine, feeler gauge blade 0.10 or 0.20 mm).



Turning the engine crankshaft:

a) By hand
Use socket wrench adaptor (27 mm, 1/2" drive) and ratchet, on the vibration damper bolt.

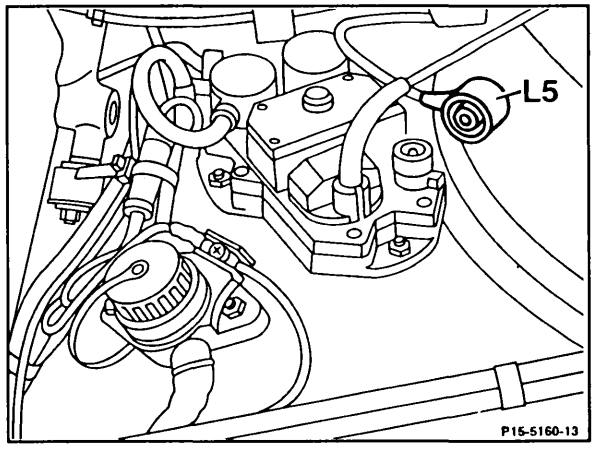
⚠ **CAUTION!**
The engine must **not** be turned via the camshaft.

Do not turn crankshaft backwards.

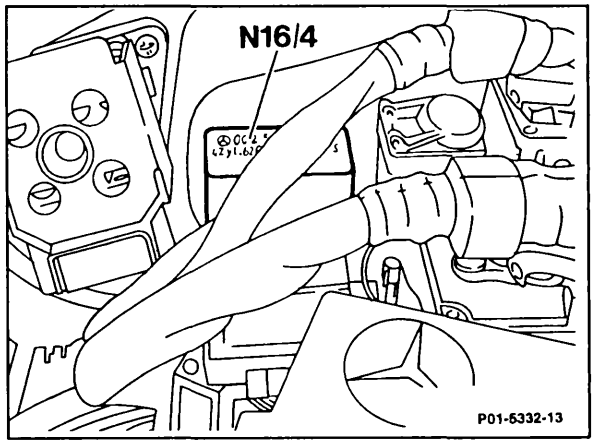
After turning off ignition, disconnect crankshaft position sensor (L5, green cable) from ignition control module.

b) With starter:

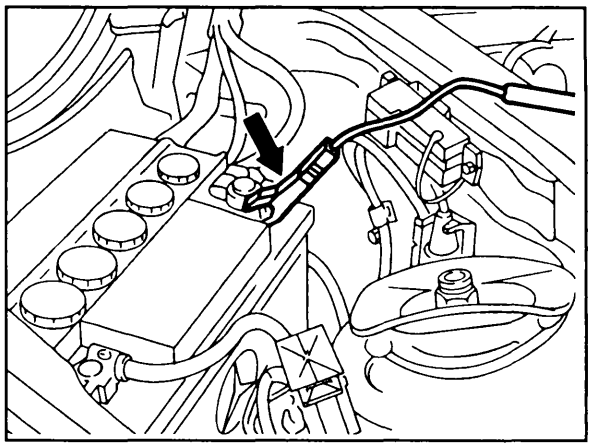
Disconnect crankshaft position sensor (L5, green cable) from ignition control module.



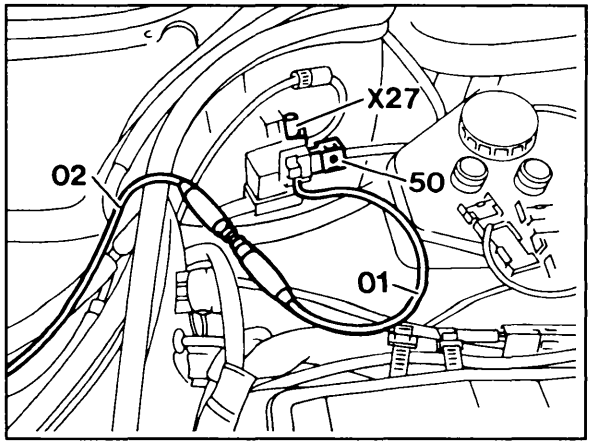
⚠ **CAUTION!**
Before turning engine, pull out fuel pump relay module (N16/4), to prevent fuel from being injected.



Connect once clamp of remote starter switch to the battery positive terminal.



Disconnect connector (X27) from plug connector 50. Connect plug from adapter cable (01) 124 589 36 63 00.

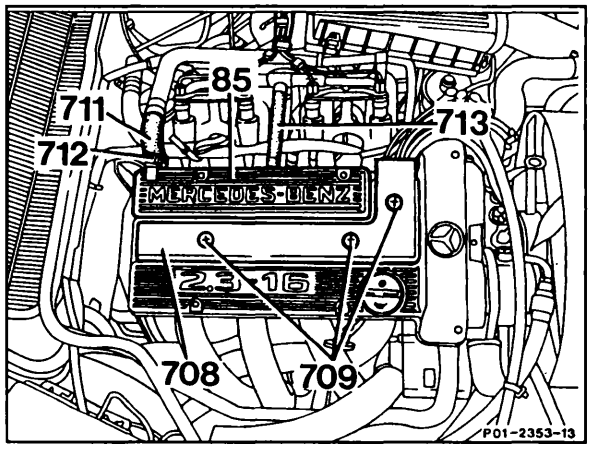


Checking

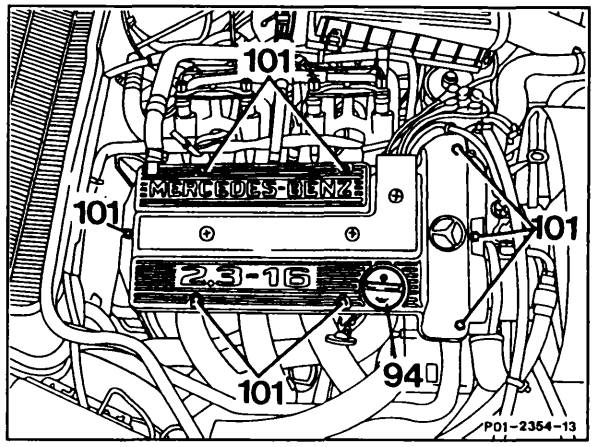
- Remove cylinder head cover.

Remove securing screws (709), remove ignition cable valley cover (708), pull off the spark plug connectors and lay the ignition cable to the side.

Loosen hose clamp (712) and pull off the hoses (711 and 713) on the cylinder head cover (85).



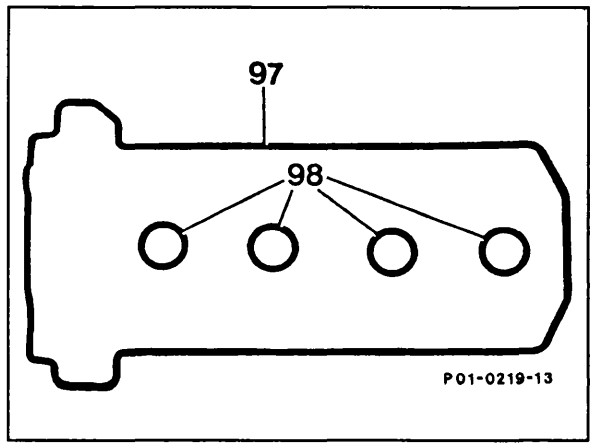
- Remove cap nuts (101) and remove cylinder head cover.



- According to engine temperature and valve (intake or exhaust), try to pull the corresponding feeler gauge blade (minimum and maximum thickness) between the bucket tappet and the cam base circle.

  If the feeler gauge with the minimum thickness cannot be pulled through, or if the feeler gauge blade with the maximum thickness can be pulled through lightly, adjust the valve clearance (on separate order).

- Check cylinder head cover gasket (97) and sealing rings (98) for damage and replace if necessary.

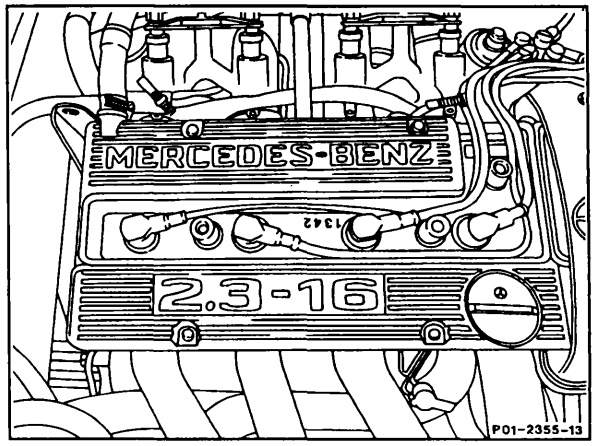


- Replace cylinder head cover in reverse order of its removal. Gradually tighten cap nuts in steps to 9 Nm.

- Route ignition cable according to the symbols and guide ribs in the ignition cable valley.

Note: Check the valleys for foreign matter before the spark plug connectors are reattached.

- Check for leaks with engine running.

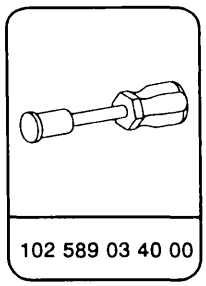


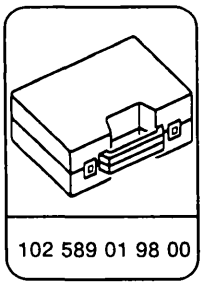
Note the following when adjusting valve clearance

Torque specifications (Nm)

Nuts, camshaft bearing brackets	21
Bolts, timing gear to camshaft	12

Special tools

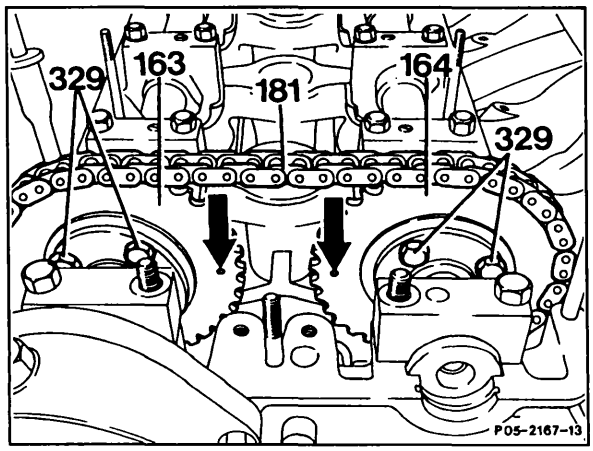

102 589 03 40 00


102 589 01 98 00

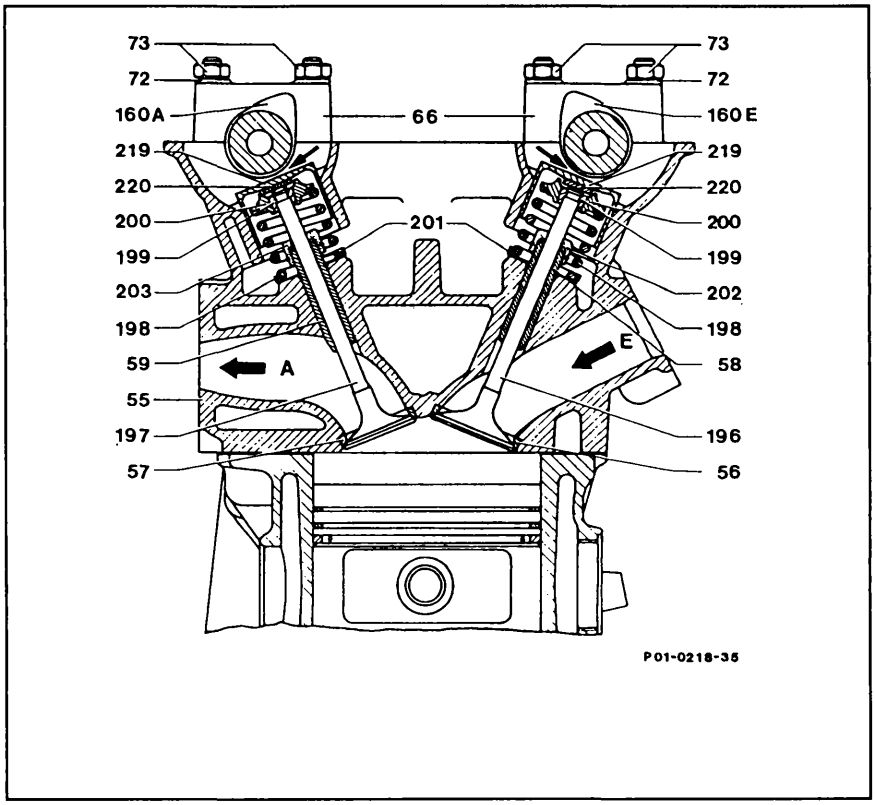
Adjusting

- Remove appropriate camshaft.

Turn the engine to the TDC position of the first cylinder; the holes (2 mm, arrows) in the timing gears must be opposite each other. Mark the camshaft and timing gear for alignment. Remove retaining screws (329, four for each timing gear). Using a plastic mallet, carefully tap the camshaft toward the rear to separate it from the timing gear center collar.



NOTE: If both camshafts are taken out at the same time, mark each for later identification because they are identical.



- Unscrew fastening nuts (73) and take off bearing brackets (66).
- Pull out the corresponding bucket tappet (219) with the magnetic lifter.
- Take out disk (220).
- Position new disk.

Example (intake, engine cold)

Measured value Desired average value	0.25 0.15
Difference [1] Thickness of removed disk	0.10 2.8
Thickness of disk to be installed	**2.9**

[1]) If valve clearance is excessive, add the difference to the thickness of the removed disk; if valve clearance is too small, subtract the difference.

With an intake valve clearance of less than 0.10 mm always put in a 0.10 mm thinner disk.

- Set disks in the valve spring retainer.
- Oil and install bucket tappets.
- Oil and install camshaft.

Before tightening the camshaft on the timing gear, carefully tap the camshaft toward the front on the center collar of the timing gear with a plastic hammer. Observe previously inscribed alignment marks.

NOTE: The camshaft can be secured to the timing gear in only one position.

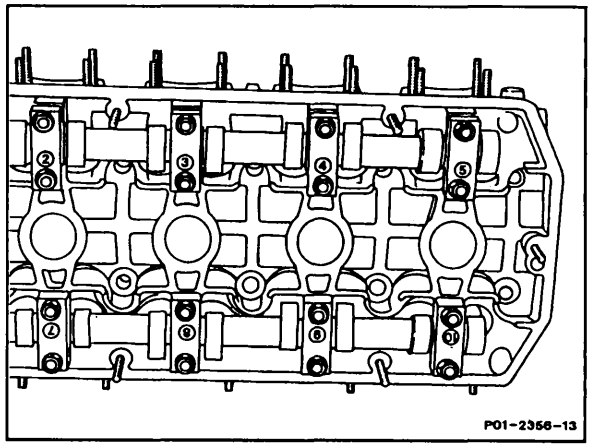
The camshaft bearing brackets are numbered for identification:

Intake camshaft identification numbers 7-10.
Exhaust camshaft identification numbers 2-5.

The stamped identification numbers must be adjacent to the inside stud bolts.

Tighten all nuts equally, in steps.

- Check the valve clearance again (check measurement).

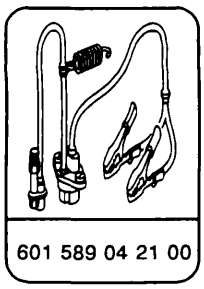


Engine 601
1984

Test values

Idle speed rpm	750 ± 50

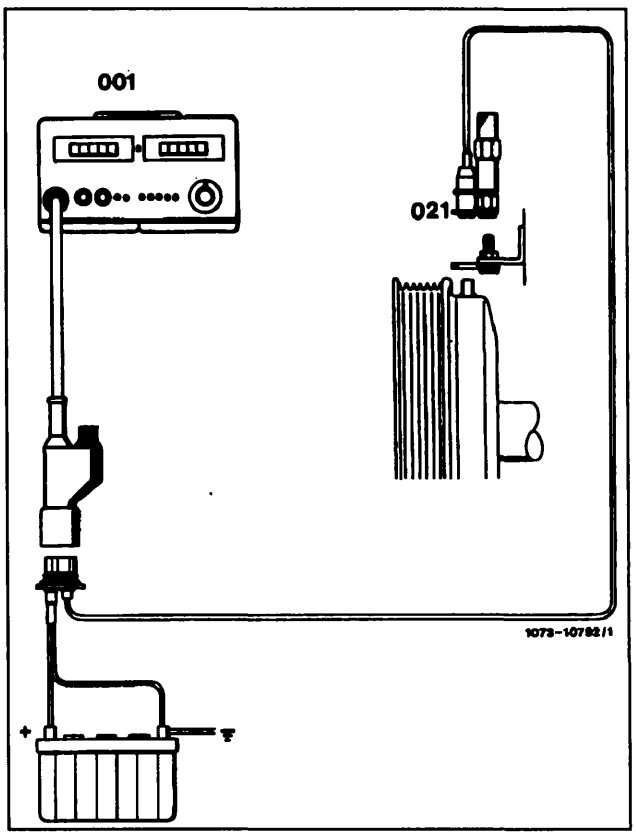
Special tool



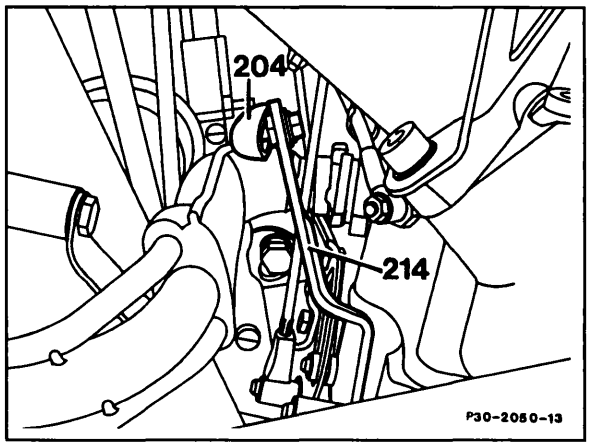
Equipment

Digital tester	Bosch MOT 001.03

- Connect digital tester (001) and impulse transmitter (021).

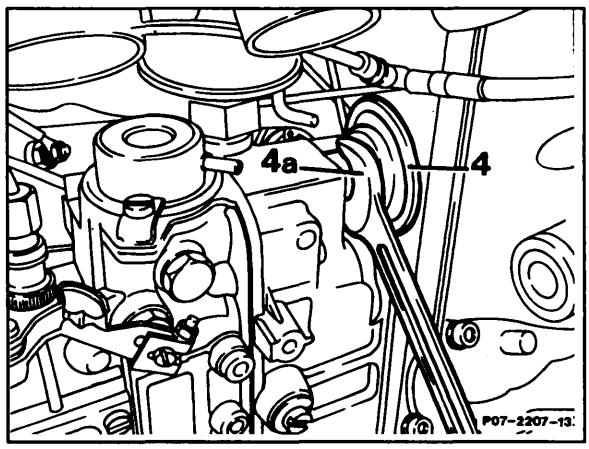


- Disengage connecting rod (204) on guide lever (214).



- Run engine to approx. 80°C coolant temperature.

- Check idle speed 750 ± 50 rpm, adjust by turning vacuum control unit (4), if required, loosen counter nut (4a) for this purpose.
- Engage connecting rod (204) free of tension.
- Switch on all additional units and check engine for smooth running.

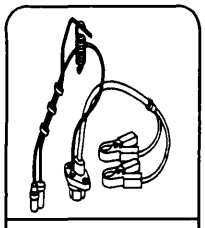


Engine 616 617.912
1981

Test values

Engine		Idle speed rpm
616.912	1981	750 ± 50
617.912	1981	750 ± 50

Special tool

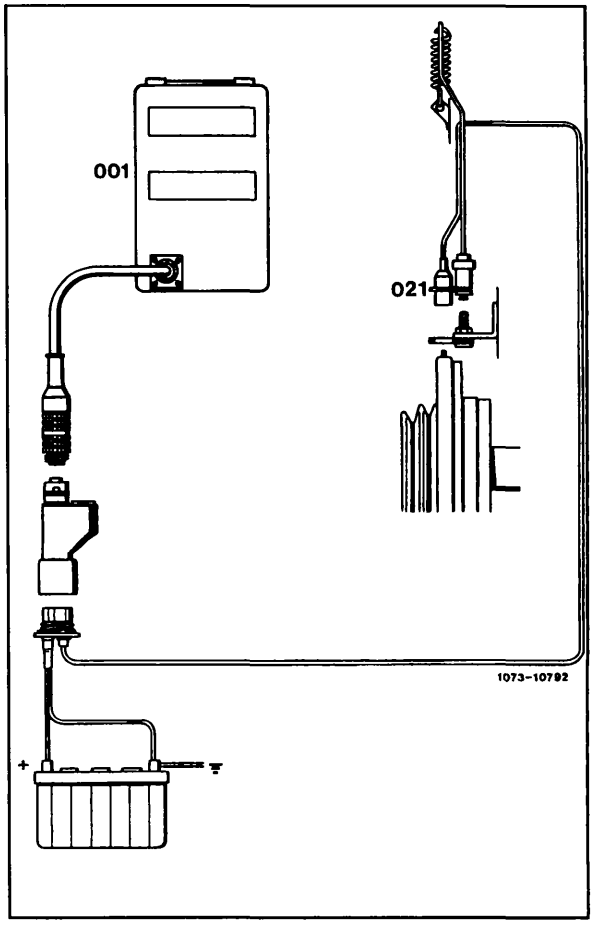


616 589 00 21 00

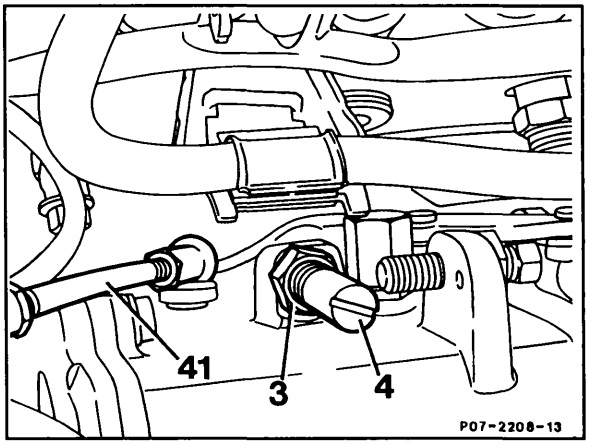
Equipment

Digital tester	Bosch MOT 001.03

- Connect impulse transmitter (021) and digital tester (001).
- Run engine to approx. 80°C coolant temperature.
- Turn button for idle adjuster on instrument panel fully to the right.



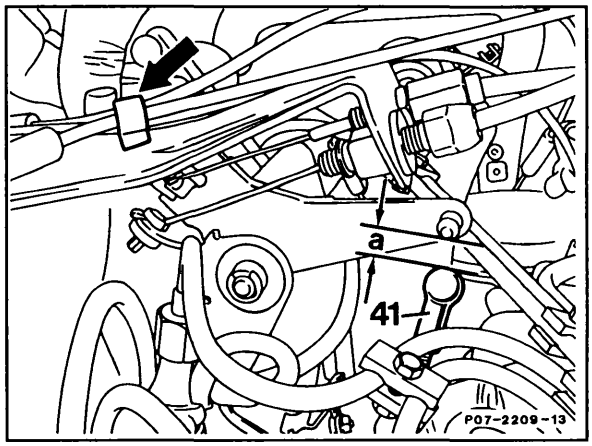
- Disconnect push rod (41) at angle lever.
- Check idle speed. If necessary, loosen lock nut (3) and adjust idle speed to specified speed of 750 ± 50 rpm with idle speed adjusting screw (4).



- Checking adjustment of regulating linkage.

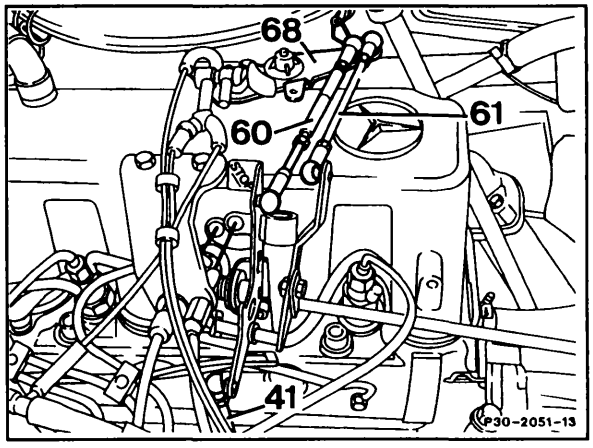
a) Vehicles with manual transmission

Adjust push rod (41) by pressing shutoff lever (arrow) against stop. Adjust push rod so that play between lower edge of ball head and upper edge of ball socket is 5-6 mm (distance "a"). Connect push rod.

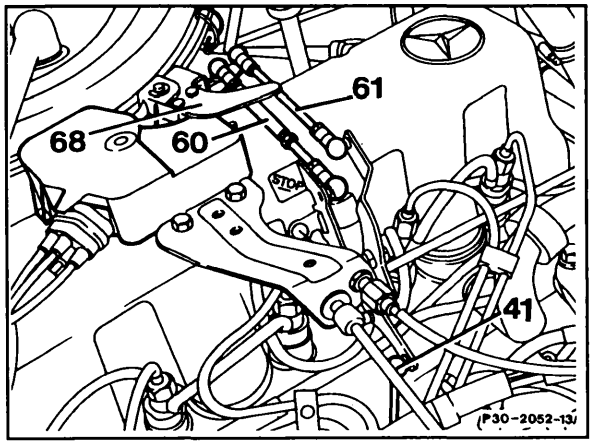


b) Vehicles with automatic transmission

Adjust push rod (41) so that reversing lever (68) just rests on perceptible selector cam leading edge. The regulating lever must also rest against the idle speed stop of the injection pump.



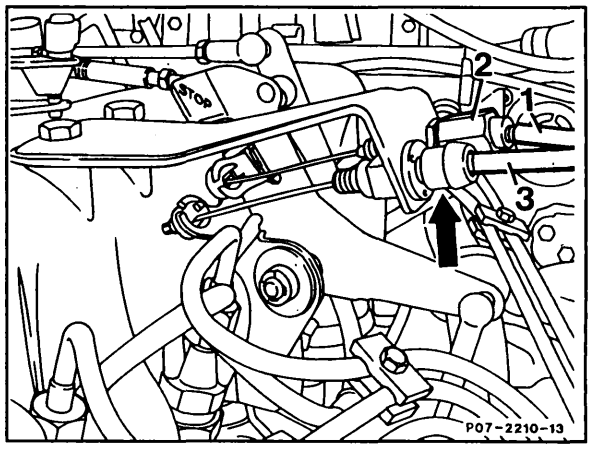
Engine 616



Engine 617.912

- Check Bowden cable for cruise control and adjust as necessary. Press throttle valve lever against the stop; the Bowden cable must rest free of tension against regulating lever. Adjust Bowden cable with adjusting screw if required, Release throttle valve lever (idle setting). In this position the Bowden cable must have play.

- Move selector lever to drive, switch on climate control, turn power steering to full lock. Engine should still run smoothly. Readjust speed if necessary.



⚠ **CAUTION:**
If speed is set higher, the engine will leave the idle speed control range and may accelerate up to maximum engine speed (at no load).

Engine 617.95

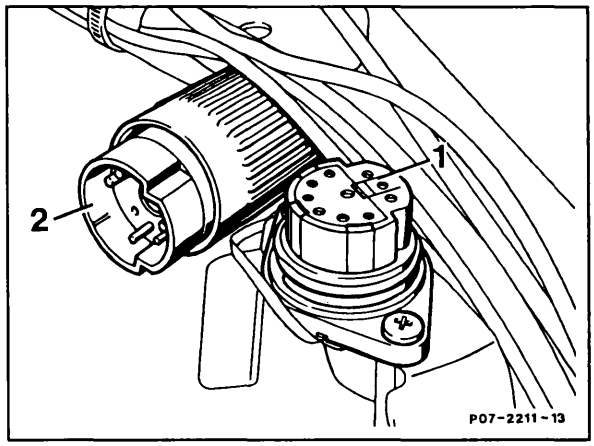
Test values

Idle speed /rpm	700 -800

Equipment

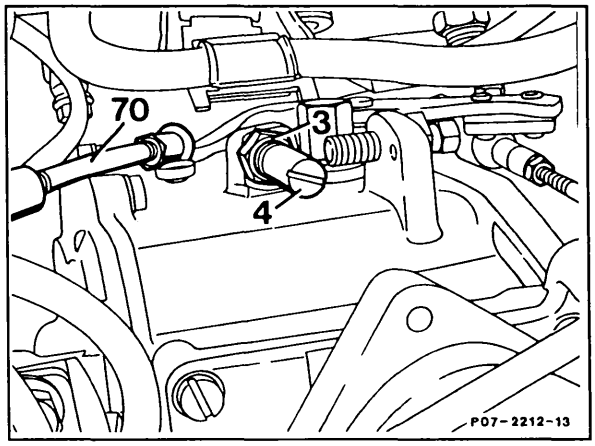
Digital tester	e.g. Bosch, MOT 011.03

- Connect digital tester to diagnosis socket.
- Run engine to approx. 80°C coolant temperature.

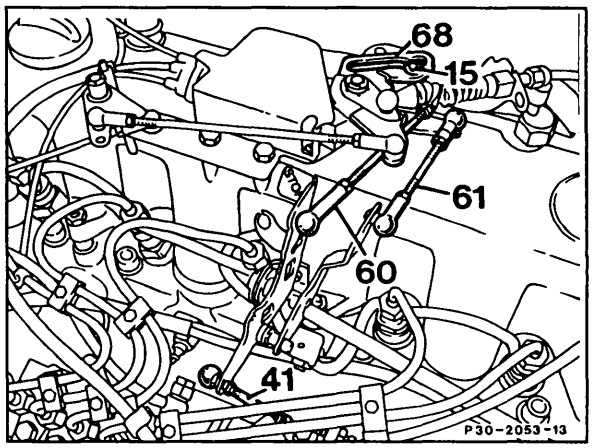


- Detach push rod (70) at angle lever.
- Check idle speed. If necessary, loosen lock nut (3) and adjust idle speed with adjusting screw (4) to a speed of 700-800 rpm.

Note: The idle speed can also be adjusted using the tachometer in the vehicle.

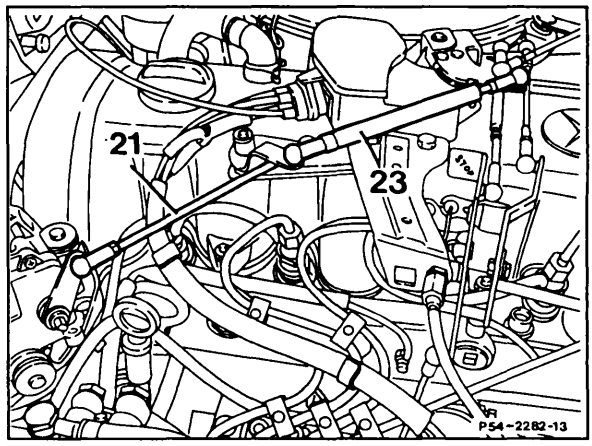


- Adjust push rod (60) so that roller (15) in reversing lever (68) rests at final stop free of tension.



- Adjust cruise control. For this purpose, detach pull rod (21) and push lever of actuating element clockwise against idle speed stop.

When connecting pull rod (21), make sure that the lever of the actuating element is pushed away from idle speed stop by approx. 1 mm. Readjust pull rod, if required.



- Move selector lever to drive, switch on automatic climate control. When power steering is turned to full lock, engine must still run smoothly. Readjust speed, if required.

⚠ **CAUTION:**
If speed is set higher, engine will leave idle speed control range and may increase to maximum engine speed (at no load).

Engine 616.912
1982/1983

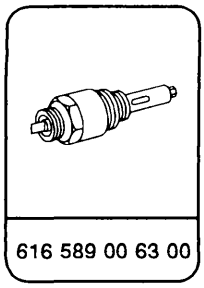
Adjust engines according to data of respective exhaust gas information plate.

Identification: Information plate on cross member in front of radiator.

Test values

Idle speed rpm	750 ± 50

Special tool



616 589 00 63 00

Commercial tools

Tachometer

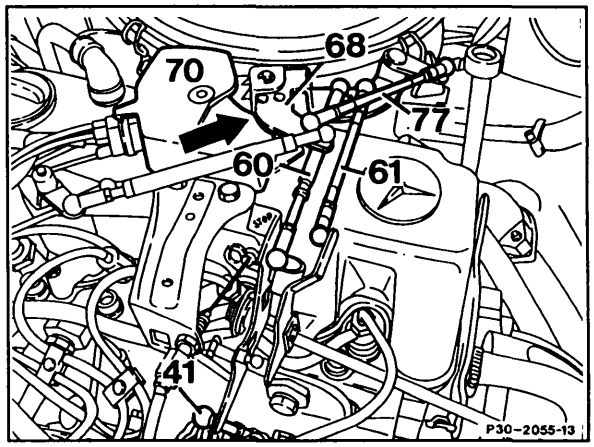
Connect tachometer and adapter.

Run engine until coolant temperature is approx. 80°C.

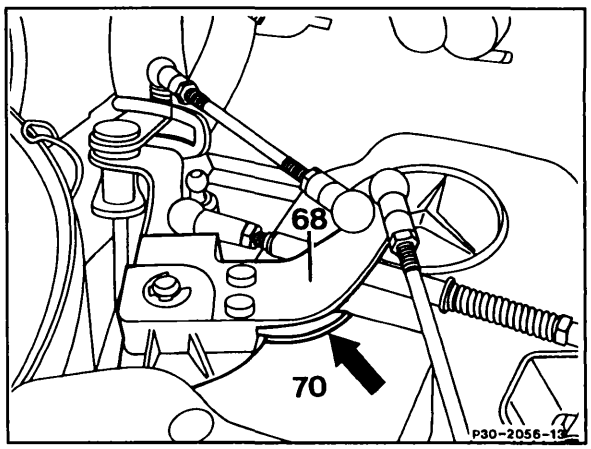
Turn knob for idle speed adjuster on instrument panel completely to the right.

Detach pushrod (41) at angle lever.

Move guide lever (68) into idle speed position. Set edge of lever arm of guide lever (68) to mark (arrow) of cap (70) (seen from above).



Engine 616.912 with automatic transmission

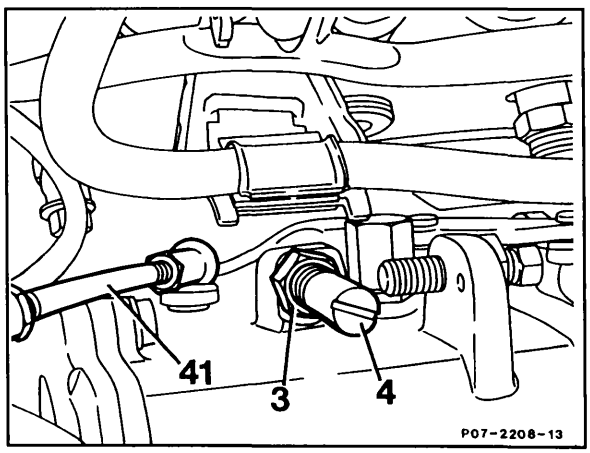


Engine 616.912 with manual transmission

If necessary, check idle speed. Loosen locknut (3) and set idle speed adjusting screw (4) to specified speed 750 ± 50 rpm.

Check adjustment of regulating linkage.

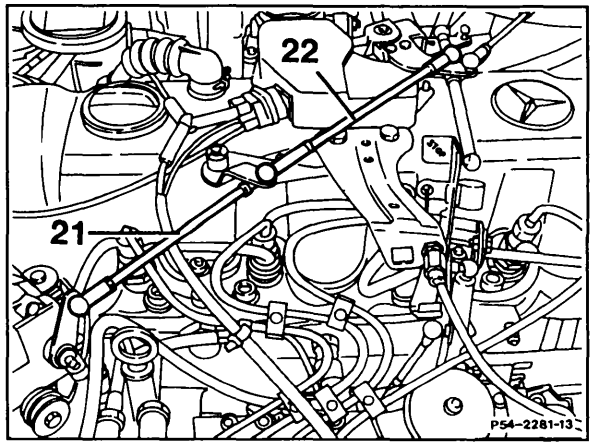
Adjust pushrod (41) and attach free of tension. Regulating lever of injection pump should rest against idle speed stop.



Adjusting cruise control/Tempomat:

a) With manual transmission

Check connecting rod (22) for specified length of 178 mm. Detach connecting rod (21) on actuator, check whether regulation is in idle speed position. Push lever of actuator clockwise to idle speed position. Check whether connecting rod (21) is 1 mm longer than lever of actuator and adjust, if required. Attach connecting rod (21).



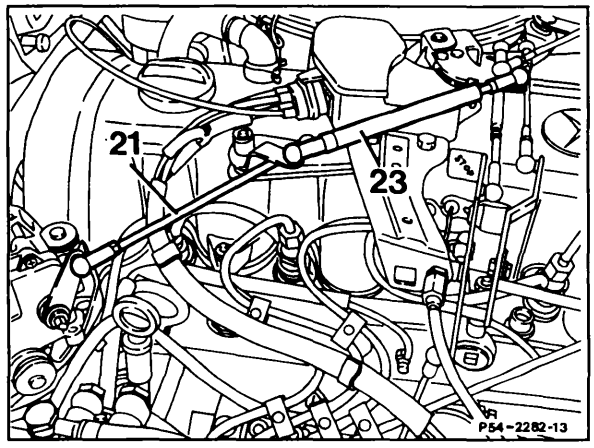
Manual transmission

b) With automatic transmission

Check pull rod (23) for specified length of 178 mm. Detach connecting rod (21) on actuator.

Check whether regulation is in idle speed position. Push lever of actuator clockwise into idle speed position.

Check whether connecting rod (21) is 1 mm longer than lever of actuator and adjust, if required. Attach connecting rod (21).



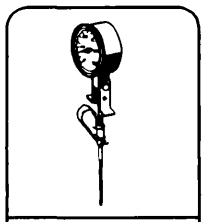
Automatic transmission

Engine 110
1981

Test values

Idle speed rpm	750 ± 50

Special tools



116 589 27 21 00

Commercial tool

Tachometer

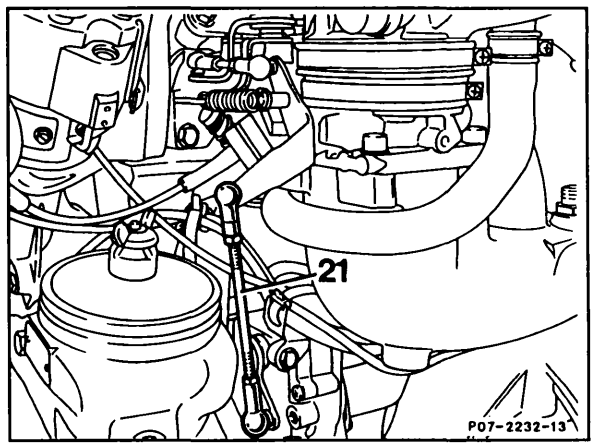
Connect tachometer and oil telethermometer.

Switch off climate control, move selector lever to "P".

Check whether throttle valve lever rests against idle speed stop.

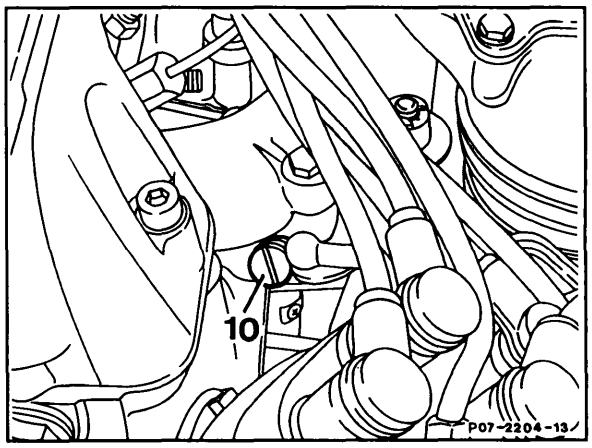
Adjust cruise control (tempomat). Check whether actuating element rests against idle speed stop of cruise control (tempomat). To check, disconnect pull rod (21) and push lever of actuating element clockwise against idle speed stop.

When engaging pull rod (21), make sure that the lever of the actuating element is pushed away from idle speed stop by approx. 1 mm. Readjust pull rod, if required.



Run engine to 75-85°C oil temperature.

Check idle speed and set to specified speed, if required, by means of idle speed air screw (10).



Engine 616 617

Test values

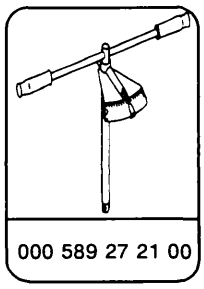
Engine	616,617
Start of delivery BTDC[1)]	24° ± 1°

1)**Note:Pull** regulating lever of injection pump **to full load** stop during measurement and disconnect vacuum hose at vacuum unit.

Torque specifications (Nm)

Pipe connection	40

Special tools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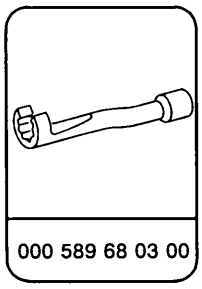
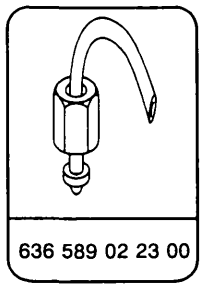
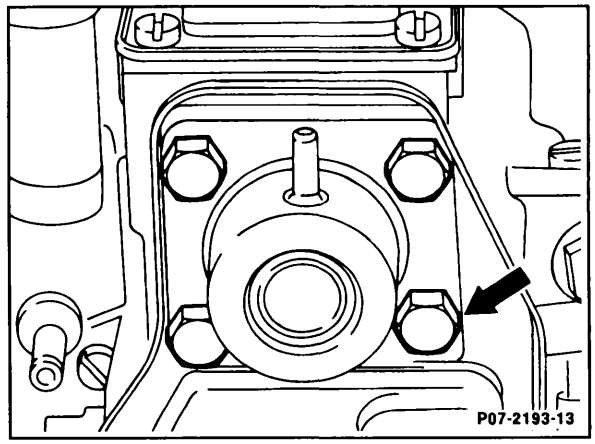

000 589 68 03 00


636 589 02 23 00

Disconnect vacuum hose at vacuum unit.



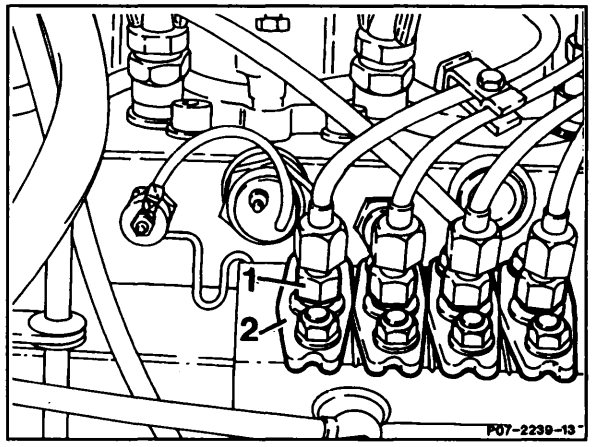
Unscrew pipe connection (1) of first injection pump element, remove compression spring and delivery valve.

Install pipe connection (1) without compression spring and delivery valve.

Attention! Do not slacken barrel-and-valve assembly (2).

Screw on overflow pipe.

Pull regulating lever of injection pump **to full load stop during measurement.**



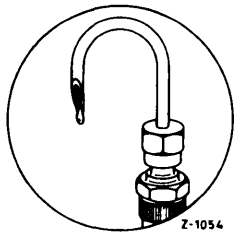
1 Pipe connection 2 Barrel-and-valve assembly

Turn crankshaft in direction of rotation until fuel just stops dripping.

This position represents start of delivery.

If injection timing has to be adjusted, refer to adjustment instructions

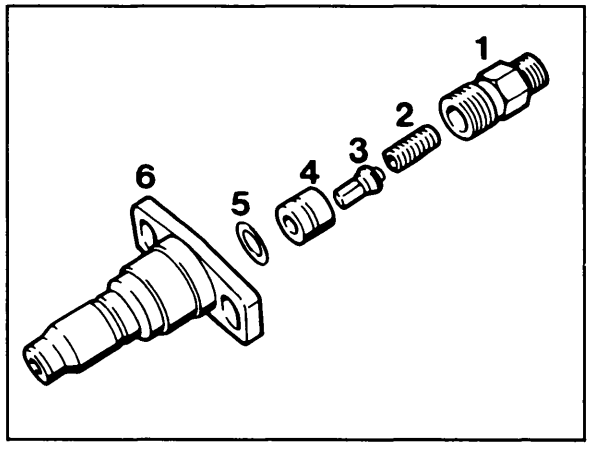
Remove overflow pipe and unscrew pipe connection.



Fit delivery valve, compression spring and pipe connection.

Torque pipe connection in one movement to 40-50 Nm.

Run engine and check for leaks. If a pipe connection leaks, it must be replaced. When fitting a new pipe connection, use **new** copper sealing ring under delivery valve holder.



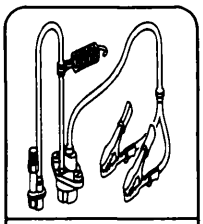
Engine 601 602 603

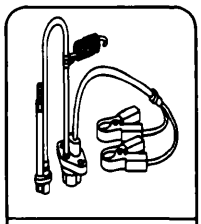
Test values

Model year	Indirect injection timing (after TDC)	
	RI (reference impulse) checking value	RI (reference impulse) adjusting value
1984-89	15° ± 1°	15°
starting 1990	14° + 0.5°	14° + 0.5°

Tightening torques (reference values)	Nm
Closing plug to regulator (measuring point)	30-35
Injection pump flange	20-25

Special tools


601 589 04 21 00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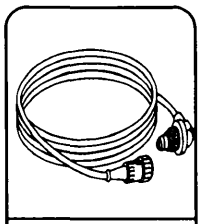
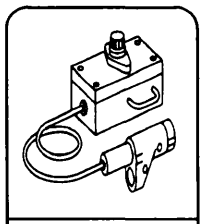
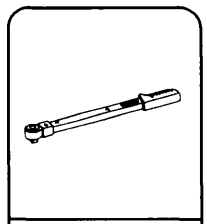

617 589 10 21 00


617 589 09 21 00


001 589 66 21 00

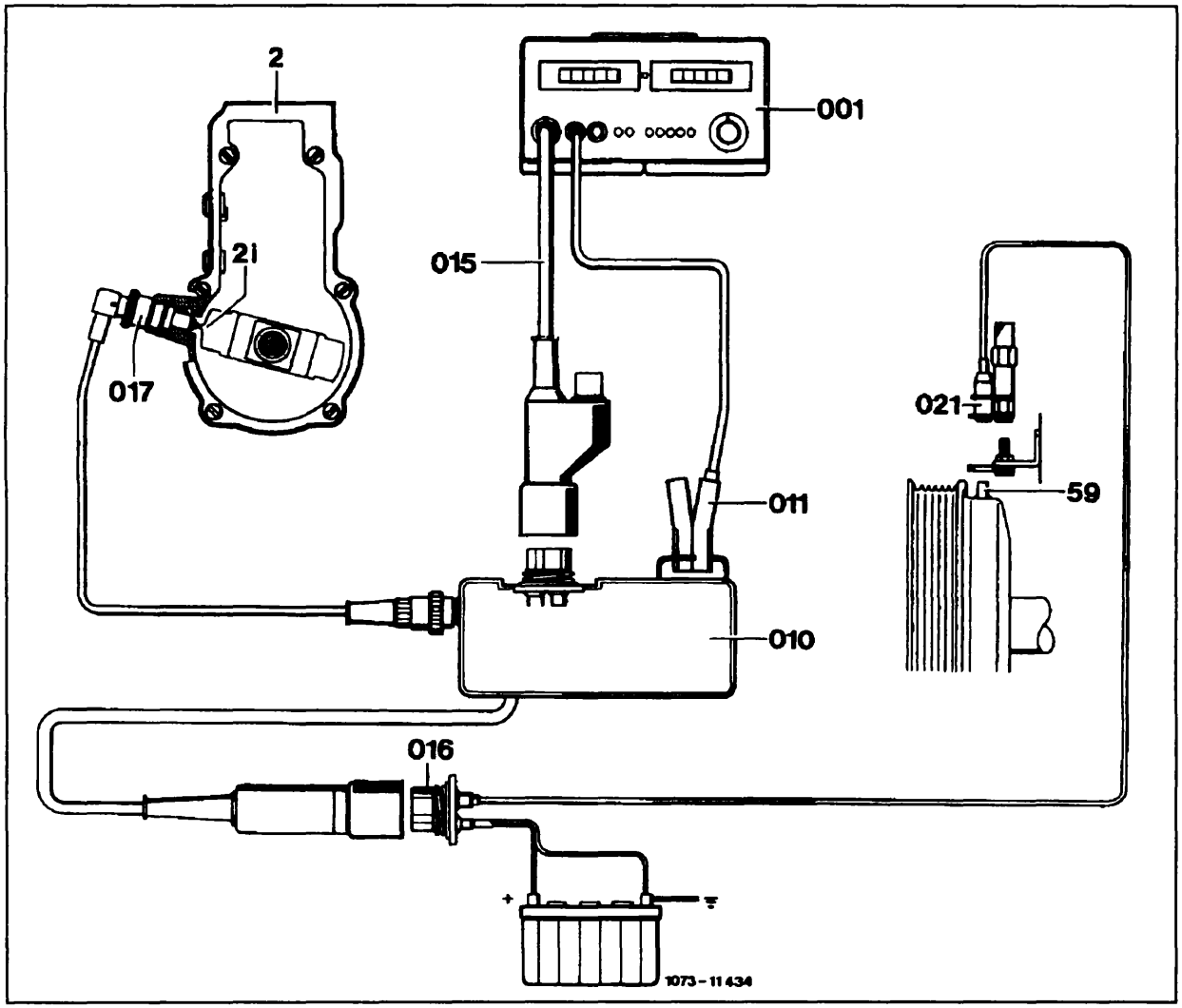
Equipment
For use with adapter

Digital testers	e.g. Bosch, ETD 019.00
	e.g. Hartmann & Braun, EOMT 3

Equipment
For use without adapter

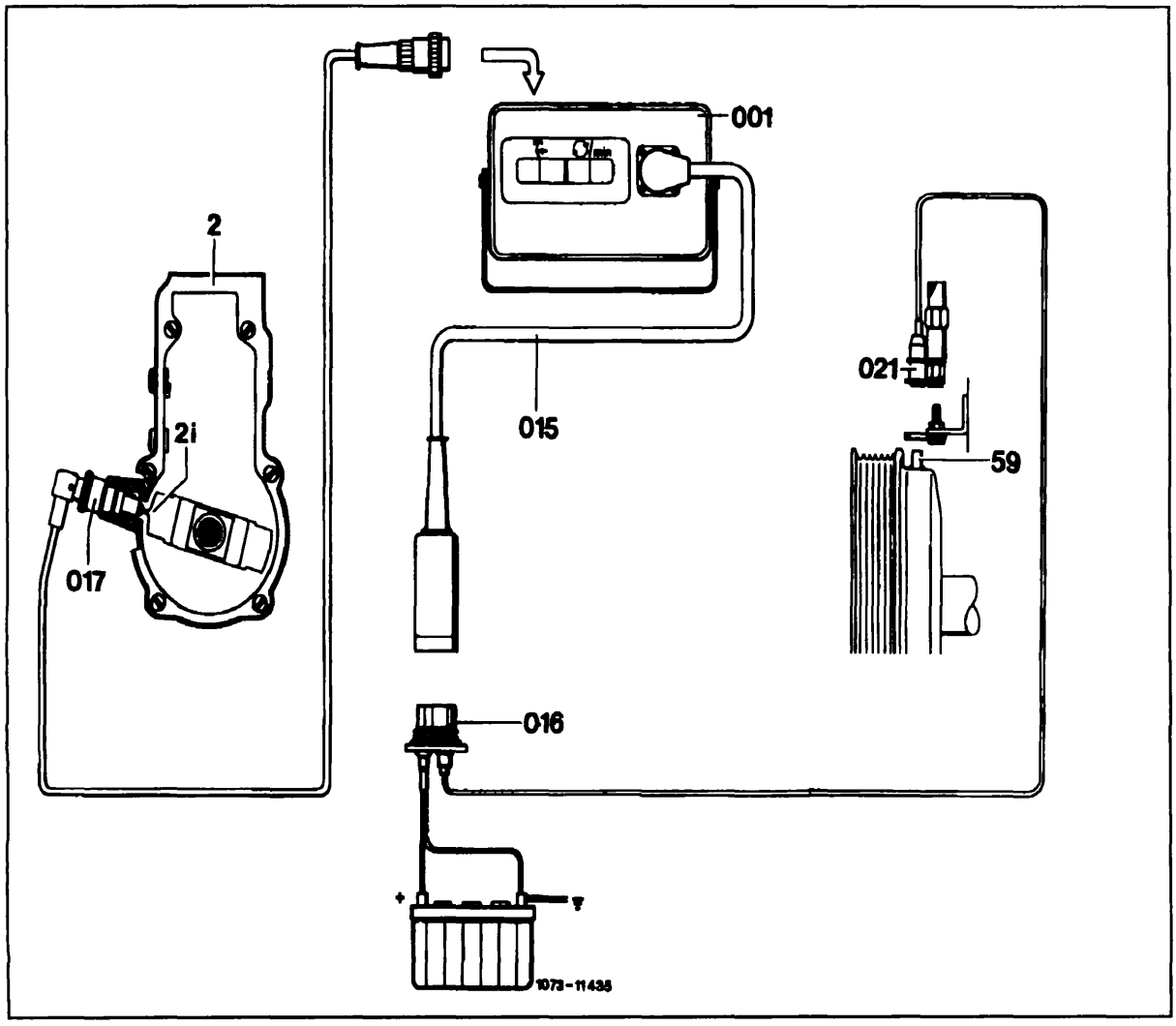
Digital testers (Diesel tester)	e.g. Bosch, ETD 019.00
	e.g. Sun, DIT 9000
	e.g. AVL, Diesel Tester 875

Connection diagram for available testers for use with adapter, e.g. Bosch MOT 001.03, Hartmann & Braun, EOMT 3



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

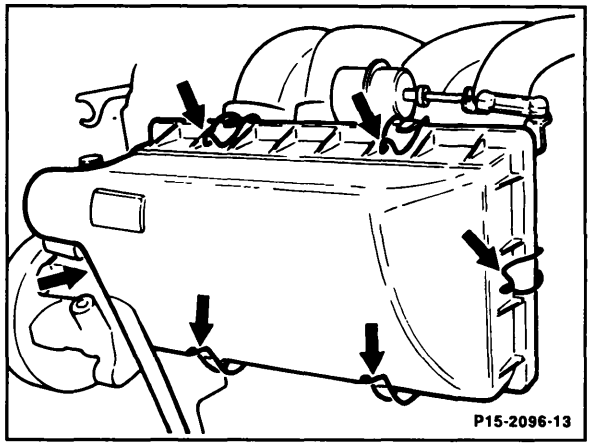
Connection diagram for testers for use without adapter,
e.g. Bosch ETD 019.00, SUN DIT 9000, AVL Diesel-Tester 875



001	Digital tester	2	Governor
015	Test cable with connector	2i	RI-transmitter pin
016	Diagnostic socket	59	TDC-transmitter
017	RI-transmitter		
021	TDC-impulse transmitter		

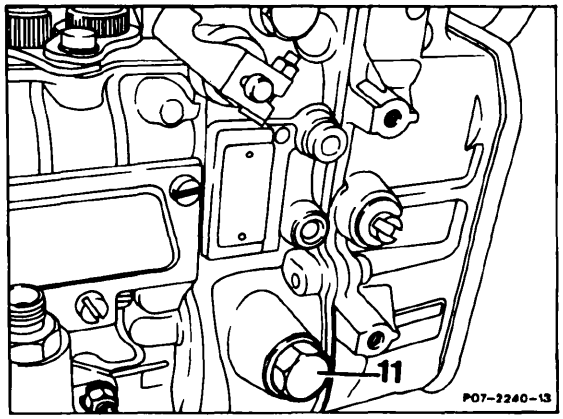
Checking

Remove air cleaner cover (arrows).

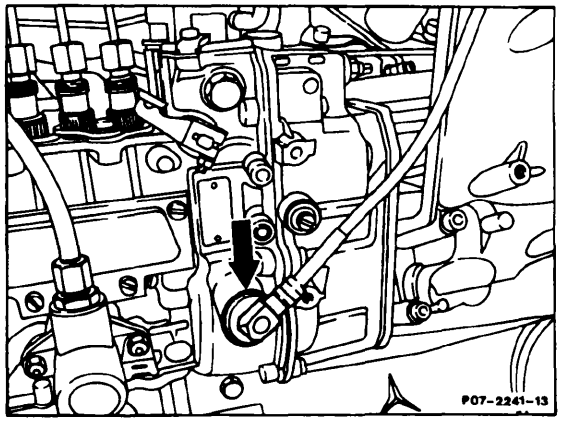


Remove plug (11) on governor.

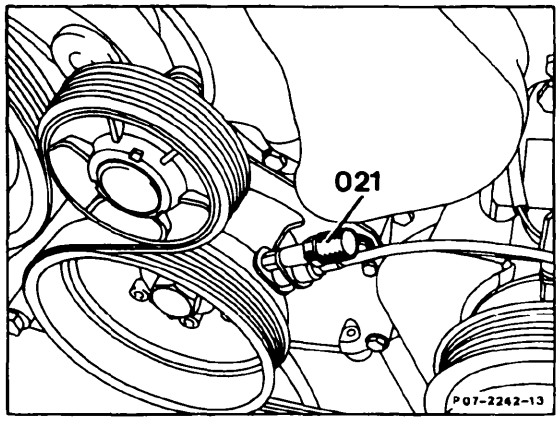
Note: Catch escaping oil.



Connect digital tester according to connection diagram.



017 RI-transmitter on governor (arrow) (injection pump)



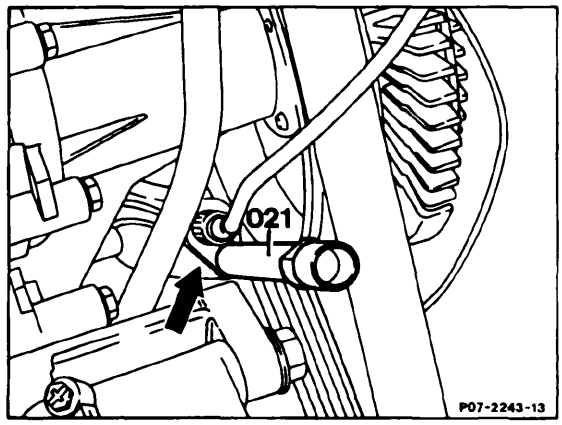
021 TDC-impulse transmitter on holder
Engine 601

Read RI-value (indirect injection timing) at idle speed on digital tester.

RI-nominal value:
15° ATDC on 1984-89 models;
14° + 0.5° ATDC on 1990 and later models.

Perform leak test with engine running.

Check engine oil level and correct, if required.



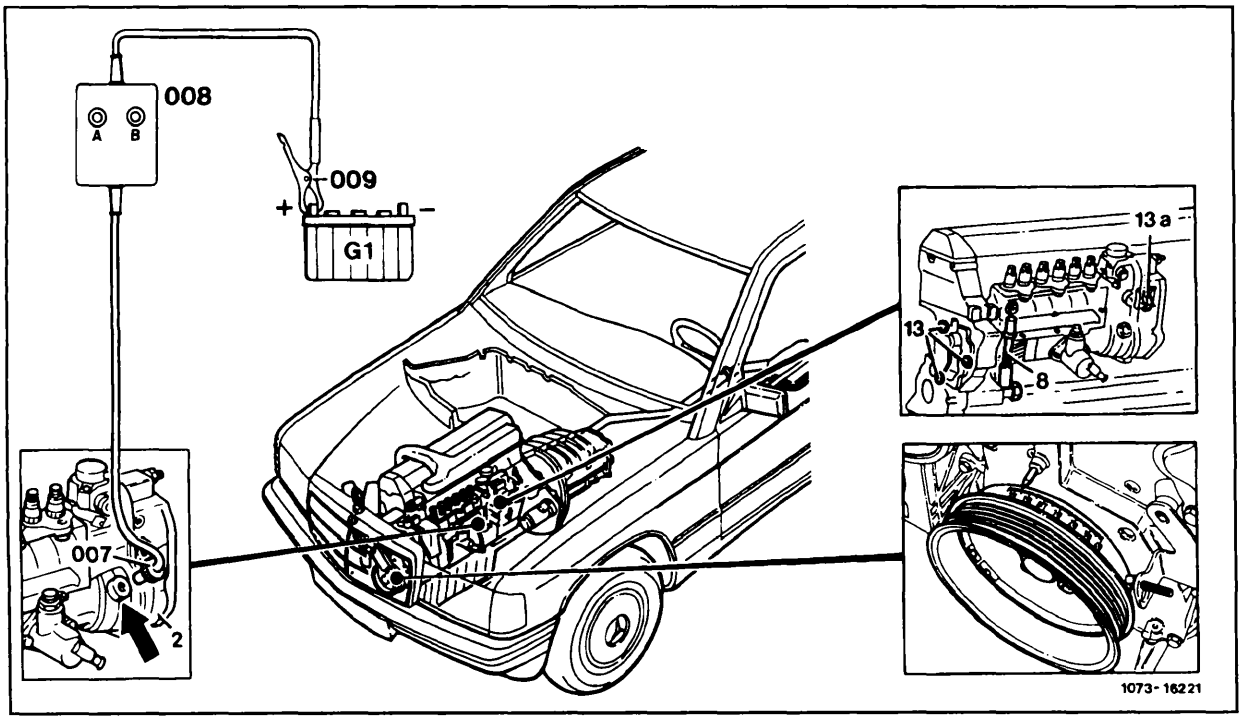
021 TDC-impulse transmitter on holder (arrow)
Engines 602, 603

Engine 601 602 603

Test values

Model year	Indirect injection timing (after TDC)	
	RI (reference impulse) checking value	RI (reference impulse) adjusting value
1984-89	15° ± 1°	15°
starting 1990	14° + 0.5°	14° + 0.5°

Adjusting injection timing (position sensor RIV method) - after checking (0760.2)



Turn crankshaft in direction of rotation to ..... value in chart

Injection pump mounting bolts (13 and 13A) at flange and bracket ..... loosen, 20-25 Nm.

Indicator (008) and clamp (009) ..... connect to B +

Pivot injection pump by turning injection timing adjustment screw (8) ..... both lamps, A and B, must light up in indicator (008)

Adjustment screw direction
Right = Retard injection timing
Left = Advance injection timing

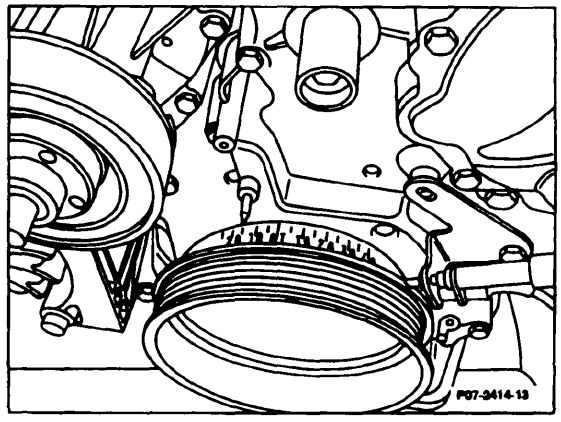
RI (reference impulse) adjusting value: refer to chart

Position sensor (007)	remove
Plug (arrow)	screw in
Regulating linkage	check, adjust if necessary (repair instruction 30-300)
Leak check with running engine	perform
Engine oil level	check, correct if necessary

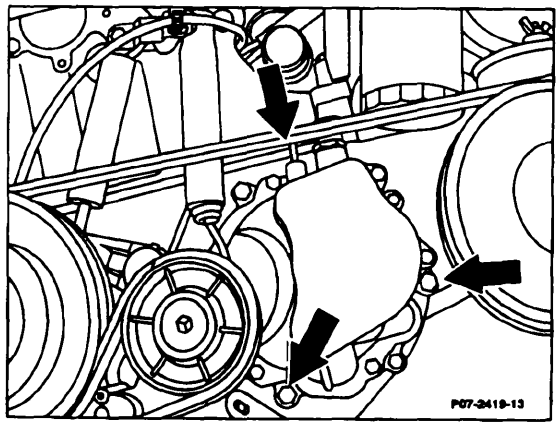
Note:
Check injection timing before adjusting (0760.2)

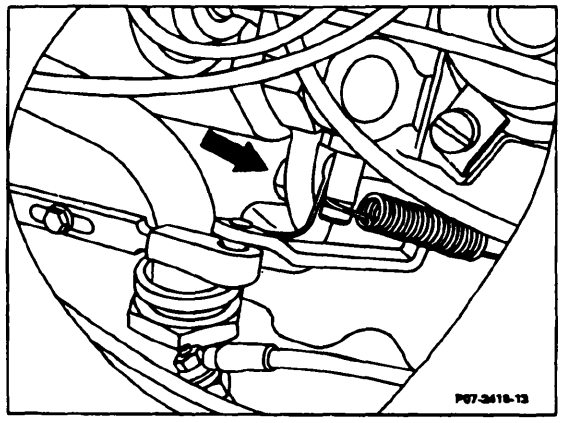
Adjusting

1. Turn crankshaft in direction of rotation to 15° ATDC on 1984-89 models; 14° ATDC on 1990 and later models.



2. Loosen mounting bolts (arrows) at injection pump flange and bracket (arrow).

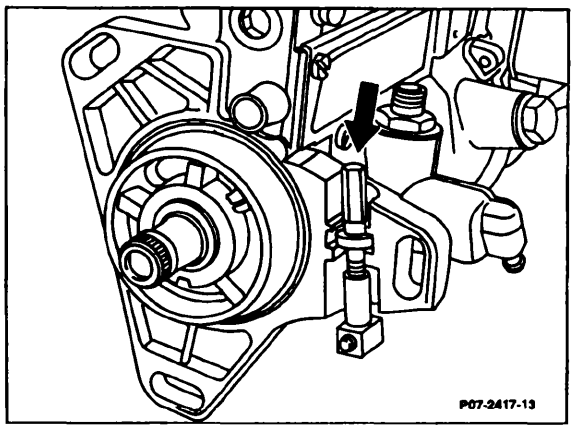




Bracket mounting bolt

3. Connect indicator (008) and clamp (009)to battery positive terminal.

4. Pivot injection pump by turning adjusting screw until both lamps A and B light.



Adjustment screw direction

Right = Retard injection timing
Left = Advance injection timing

RI nominal value:
15° ATDC on 1984-89 models;
14° + 0.5° ATDC on 1990 and later models.

Note:
If the adjustment range is inadequate, the pump must be repositioned. Refer to SMS, Job No. 07.1-200, Injection pump removal and installation.

5. Torque mounting bolts on injection pump flange and bracket to 20-25 Nm.

6. Remove position transmitter.

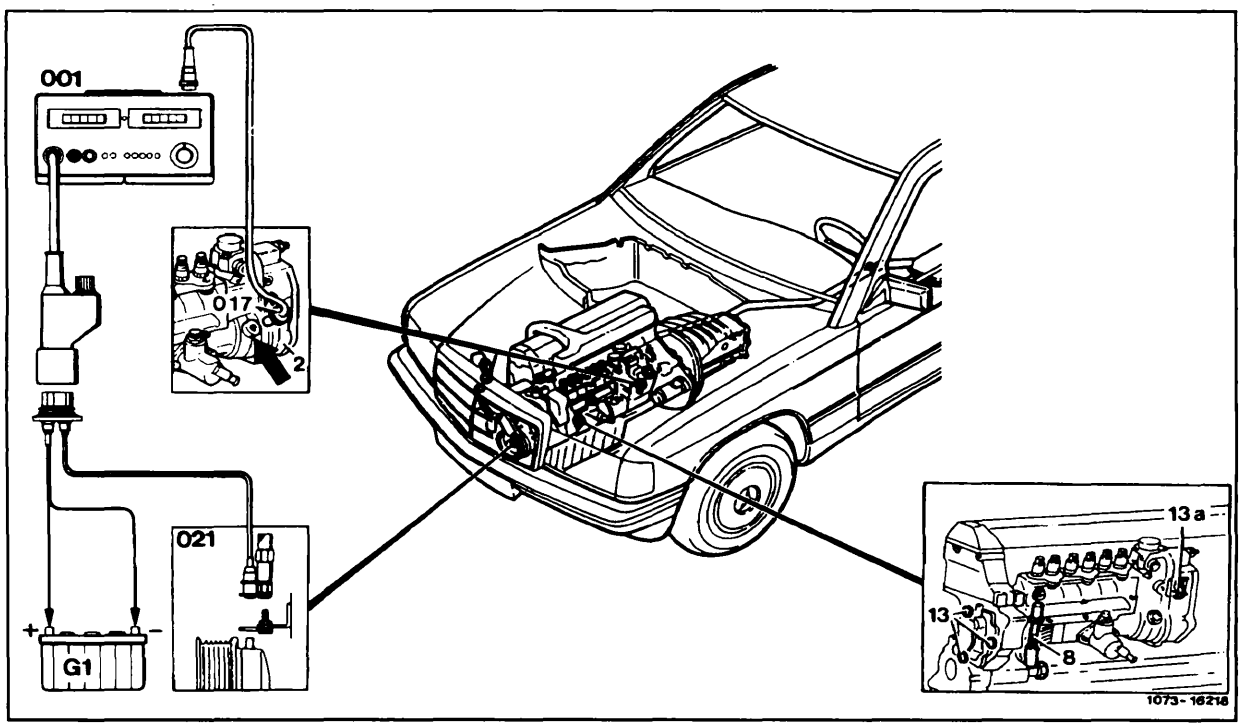
7. Install screw in plug, torque to 30-35 Nm.

8. Check regulating linkage, and adjust if necessary (SMS, Job No. 30-300).

9. Check for leaks with engine running.

10. Check engine oil level, and correct if necessary.

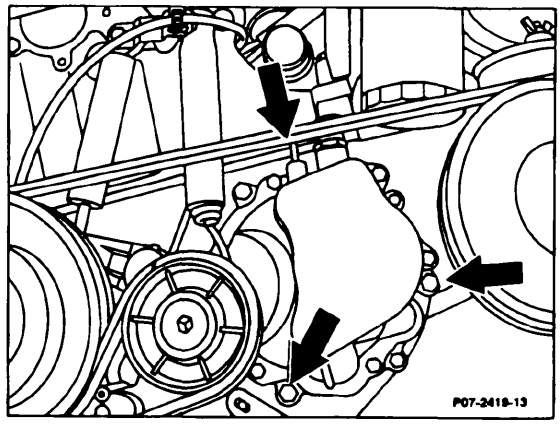
Adjusting injection timing using digital tester (RIV method) - after checking (0760.2)

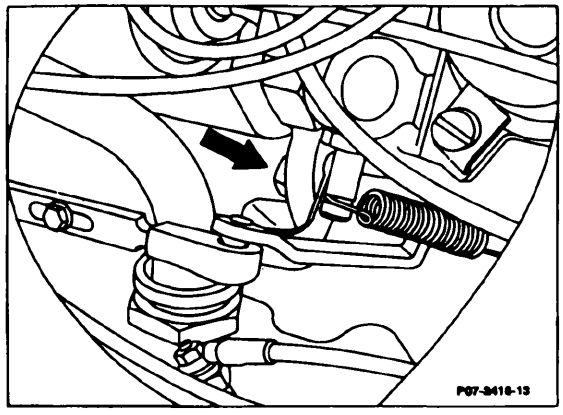


Injection pump mounting bolts (13 and 13A) at flange and bracket	loosen
Engine	run at idle speed
RI value (indirect injection timing)	adjust by turning injection timing adjustment screw (8)
Adjustment screw (8) direction Right = Retard injection timing Left = Advance injection timing	RI (reference impulse) adjusting value: refer to chart
Engine	shut off
Injection pump mounting bolts (13 and 13A) at flange and bracket	torque to 20-25 Nm.
Tester	disconnect
Plug (arrow) on governor	screw in and torque to 30-35 Nm
Regulating linkage	check, adjust if necessary (repair instruction SMS, Job No. 30-300)
Leak check with running engine	perform
Engine oil level	check, correct if necessary

Note:
Check injection timing before adjusting (0760.2)

1. Loosen mounting bolts (arrows) at injection pump flange and bracket (arrow)

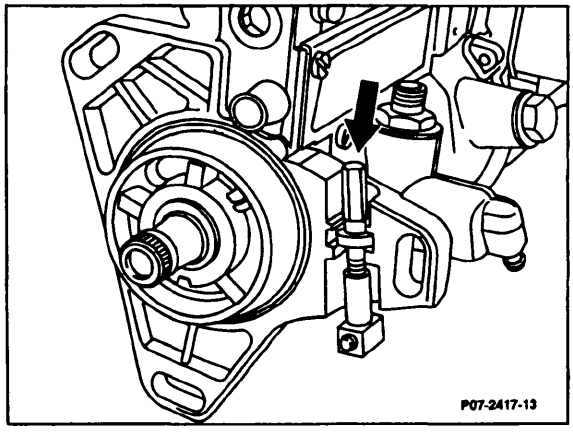




Bracket mounting bolt

2. Run engine at idle speed.

3. Adjust RI value (indirect injection timing) by turning adjusting screw.



RI nominal value:
15° ATDC on 1984-89 models;
14° + 0.5° ATDC on 1990 and later models.

Adjustment screw direction
Right = Retard injection timing
Left = Advance injection timing

Note:
If the adjustment range is inadequate, the pump must be repositioned. Refer to SMS, Job No. 07.1-200, Injection pump removal and installation.

4. Turn engine off.

5. Disconnect tester.

6. Install screw in plug on governor and torque to 30-35 Nm.

7. Torque mounting bolts on injection pump flange and bracket to 20-25 Nm.

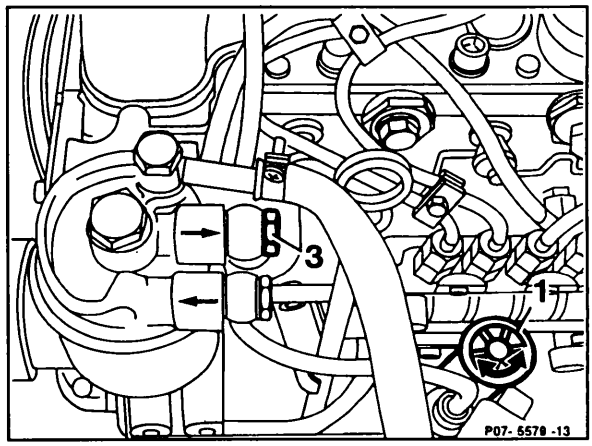
8. Check regulating linkage, and adjust if necessary (SMS, Job No. 30-300).

9. Check for leaks with engine running.

10. Check engine oil level, and correct if necessary.

Diesel engines

Loosen mounting screw (1) and remove housing with filter element in downward direction.



Engine 616, 617

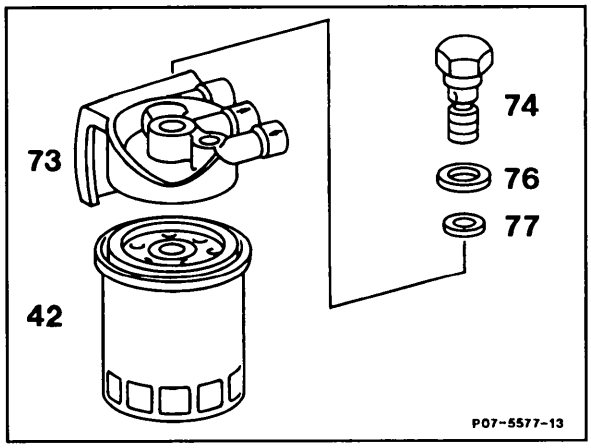
Install new filter element with housing (3) and gasket (4).

Bleeding fuel system

Engines 616, 617

Fuel filter

Loosen hollow bolt (3, upper illustration) and using hand pump, pump manually until fuel flows out free of bubbles. Retighten hollow bolt.



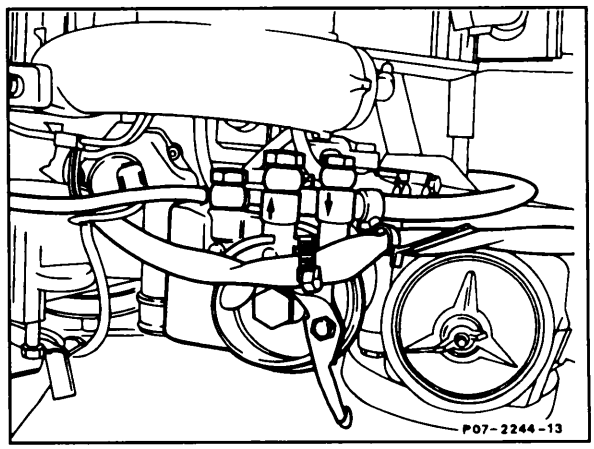
Bleeding injection pump

Pump manually until overflow valve on injection pump opens with an audible buzzing sound.

Engines 601, 602, 603

When starting, injection system will bleed automatically.

Run engine and check for leaks.

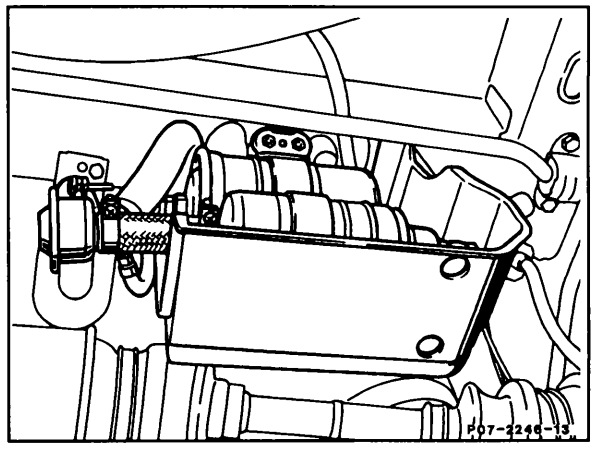


Engine 601, 602, 603

Engine 102 110 116 117
with CIS

Remove protective cover.

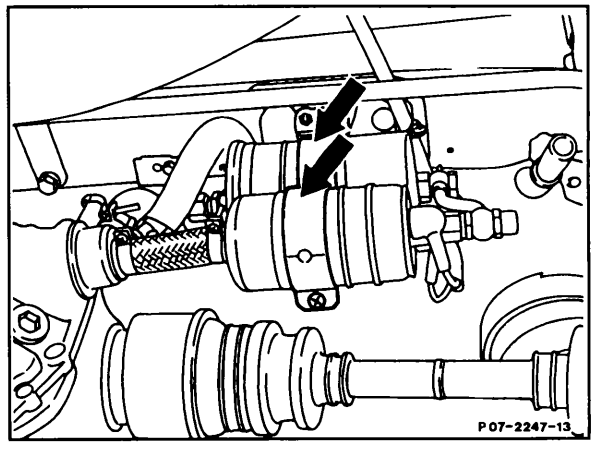
Disconnect fuel lines.



Loosen mounting screws (arrows) and remove filter.

Unscrew fitting from old filter and attach to new filter with new seal ring.

Install new fuel filter in flow direction.with plastic sleeve. Sleeve should project on both sides of the holder since contact corrosion may occur if there is direct contact with the holder. Replace plastic sleeve, if necessary.



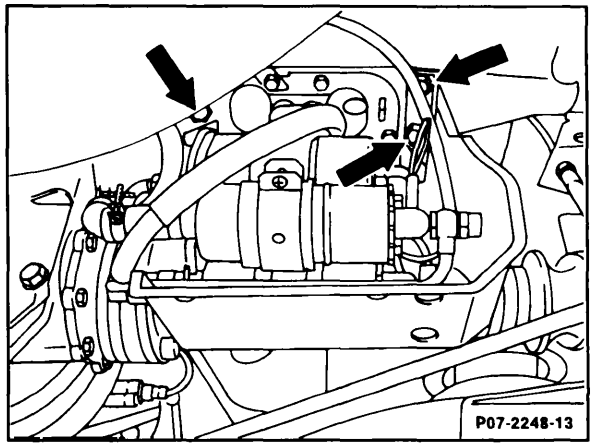
Connect steel line to filter.

Retighten mounting screws.

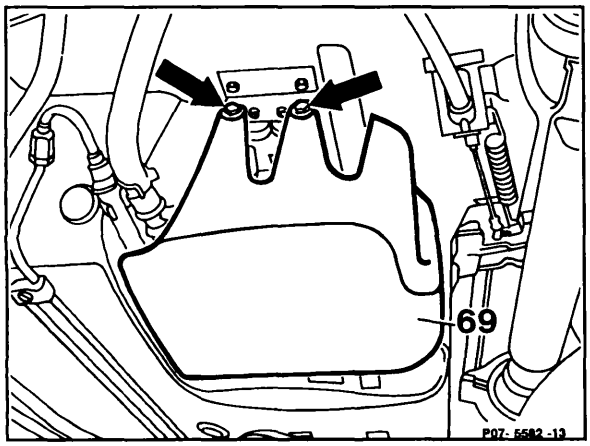
Check for leaks.

Engine 102 103 104 116 117 119 with CIS-E

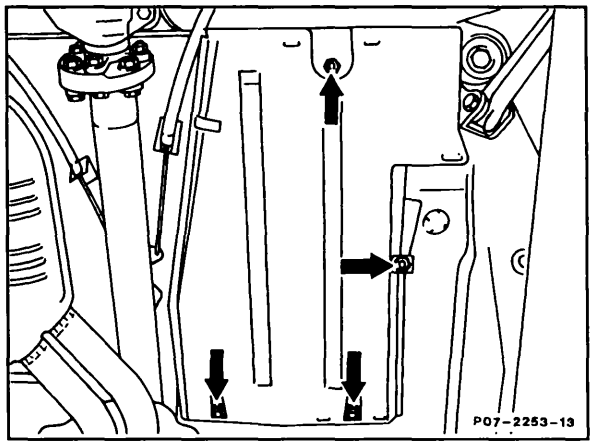
Remove protective cover by removing mounting bolts (arrows). On model 201 (2nd version) pull out expanding rivets.



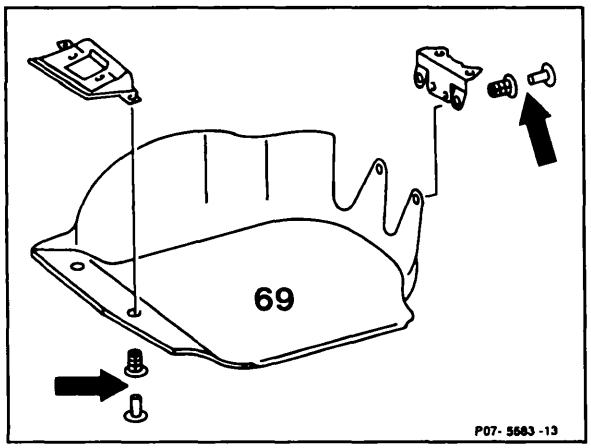
Model 107 , 126



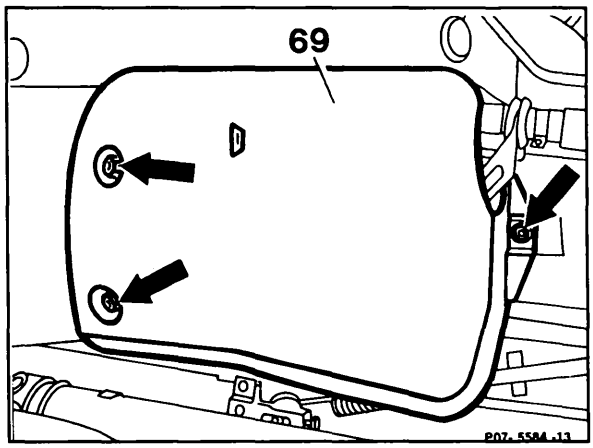
Model 201 1st version



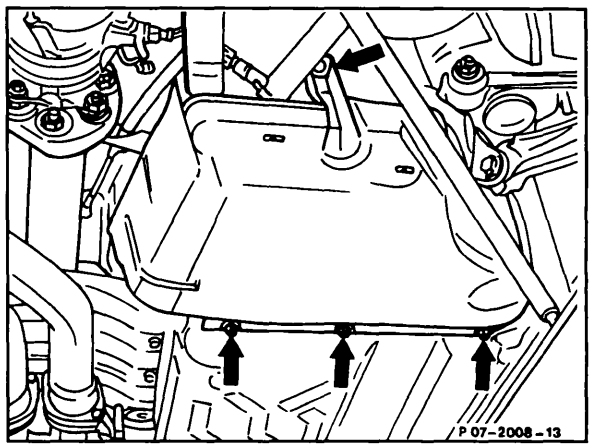
Model 124



Model 201 2nd version



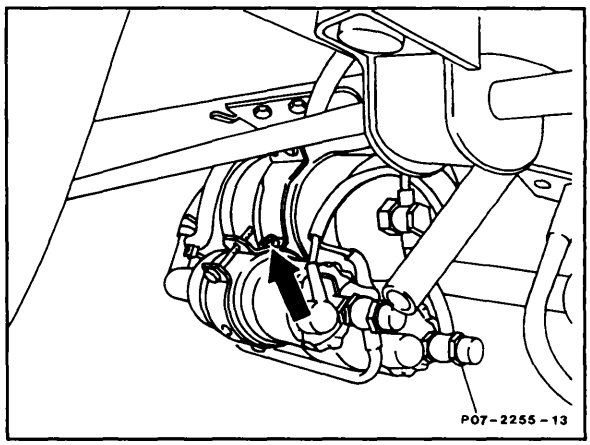
Model 201 (3rd version as of 08.1985)



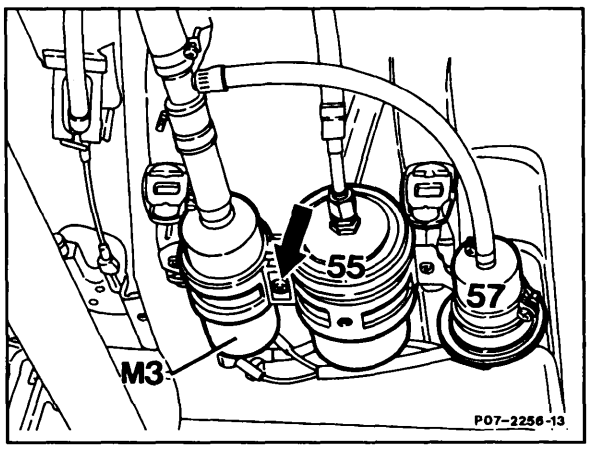
Model 129

Disconnect fuel line and fuel hose.
Loosen mounting screws (arrow) pivot holder down and remove filter.

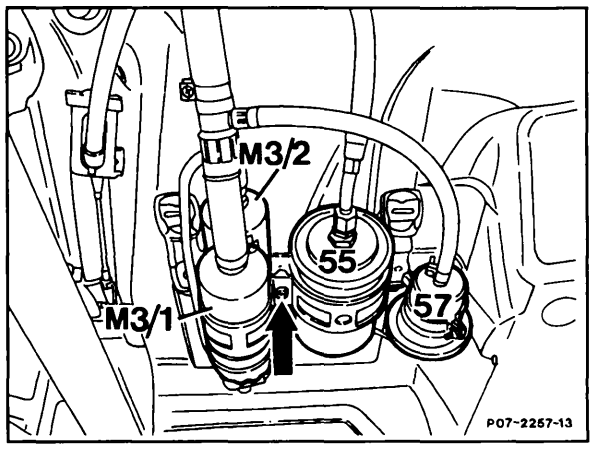
Install new fuel filter and plastic sleeve in flow direction. Sleeve should project on both sides of the holder since contact corrosion may occur if there is direct contact with the holder. Replace plastic sleeve, if necessary.
On model 124, an additional plastic sleeve is required.
Install protective cover.



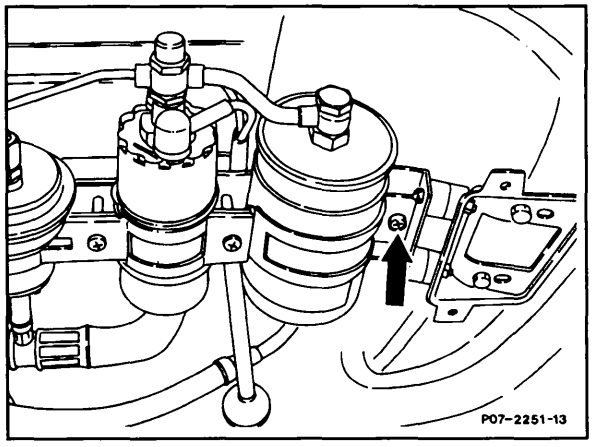
Model 107, 126



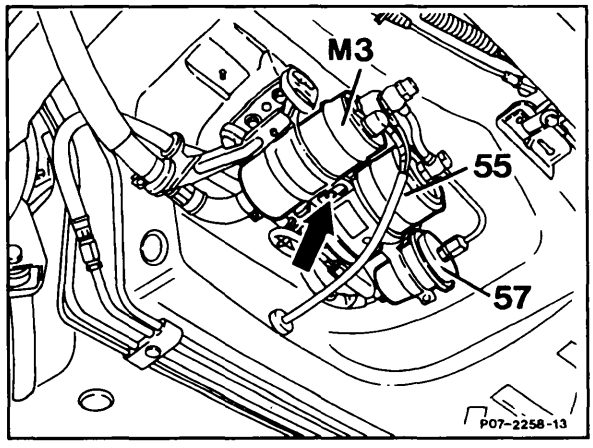
Model 124



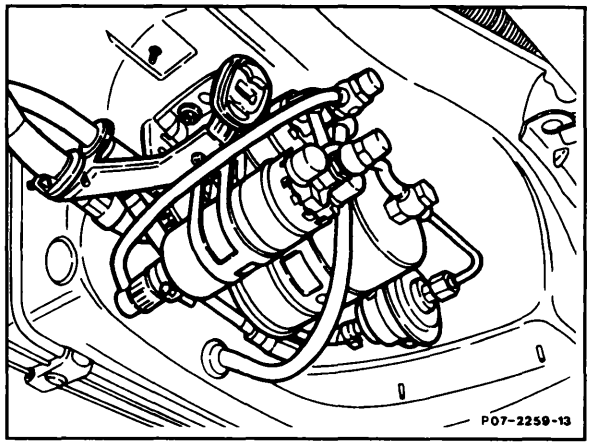
Model 124.026/030/050 as of 11. 1986, and 124.230
Model 129



Model 201 1st version



Model 201 2nd version



Model 201.029/034 starting 10.1986

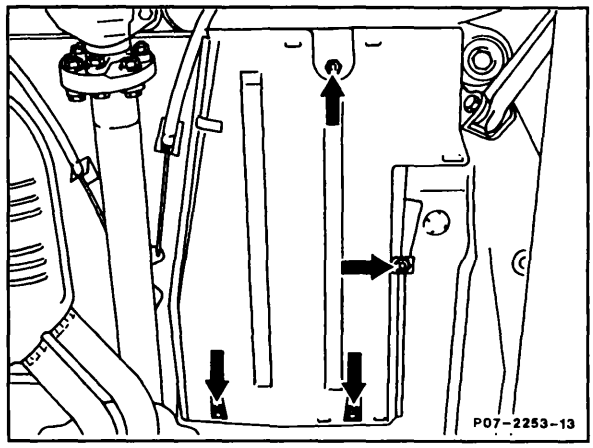
Engine 104 119 120
with LH

- Remove protective cover by removing screws (arrows).

- Disconnect fuel lines and fuel hose from fuel filter (55).

- Loosen clamping screw (arrow) and remove fuel filter towards rear.

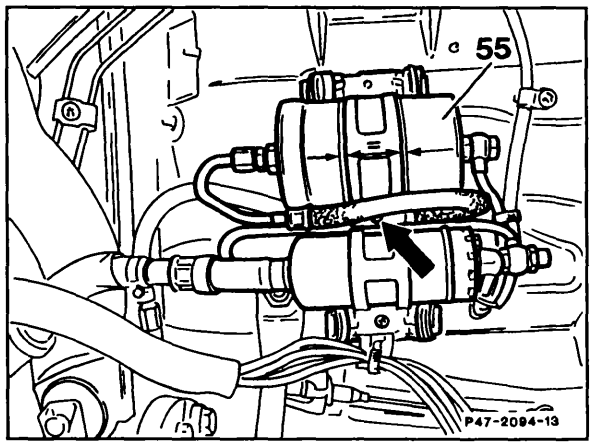
- Install new fuel filter with plastic sleeve so that sleeve extends on both sides of holder since contact corrosion may occur if there is direct contact with the holder.



Model 124

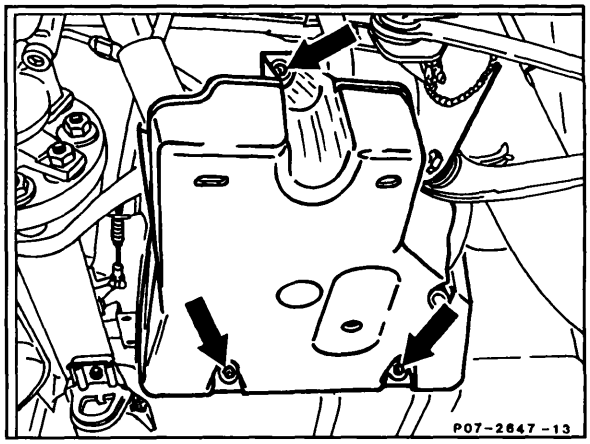
- Run engine briefly to check connections for leakage.

- Reinstall protective cover.

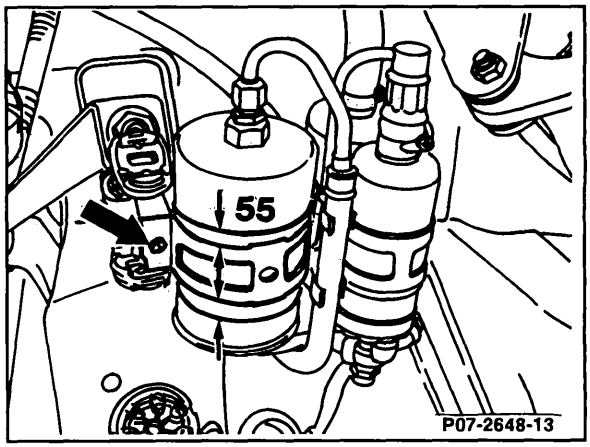


Model 124

Model 140

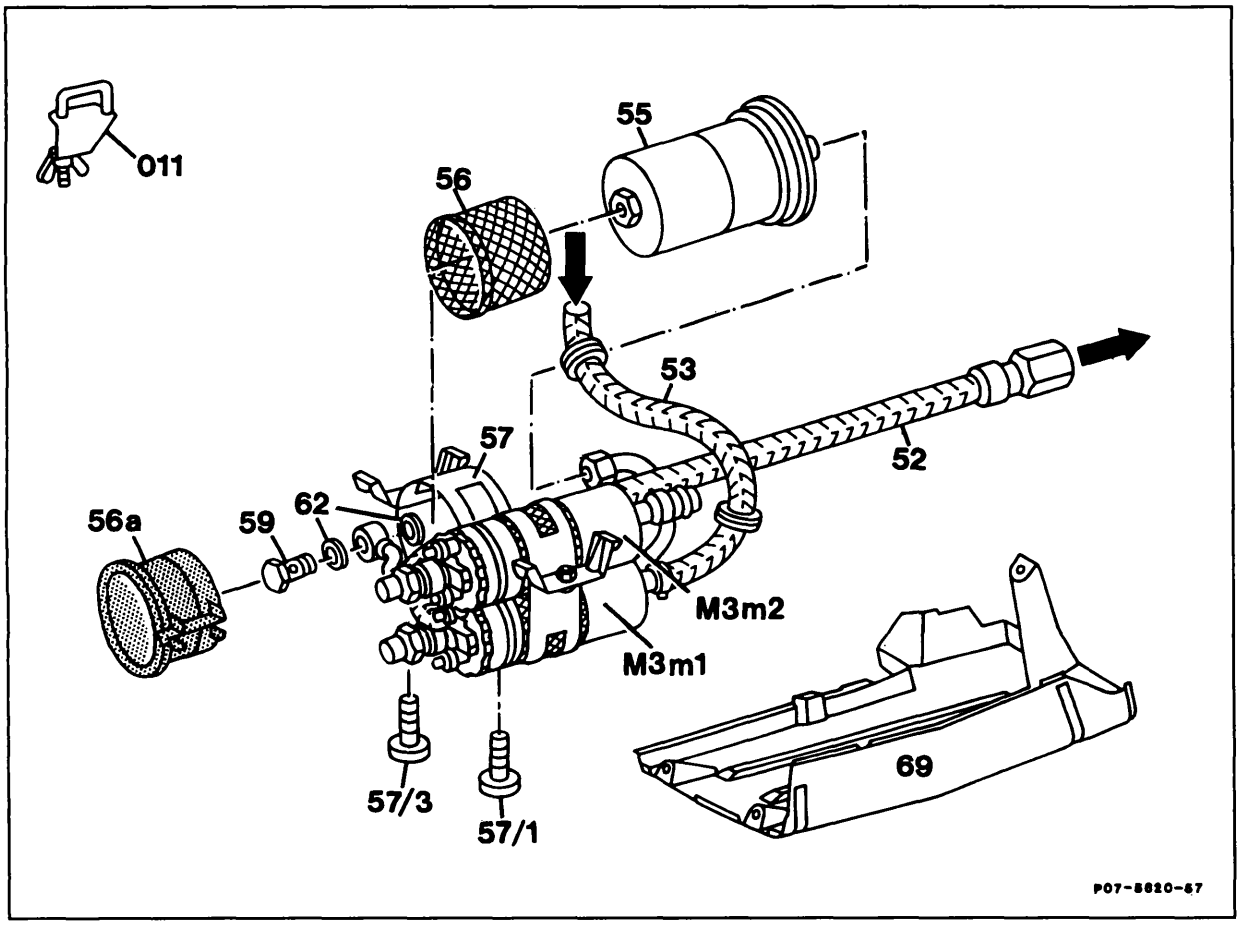


Model 140



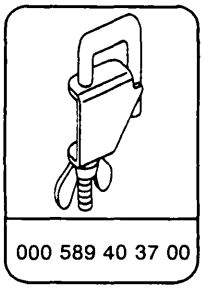
Engine 104
with HFM-SFI

> ⚠ **WARNING!**
> Apply parking brake before performing work with engine running.
> Place automatic transmission selector lever in Park position.



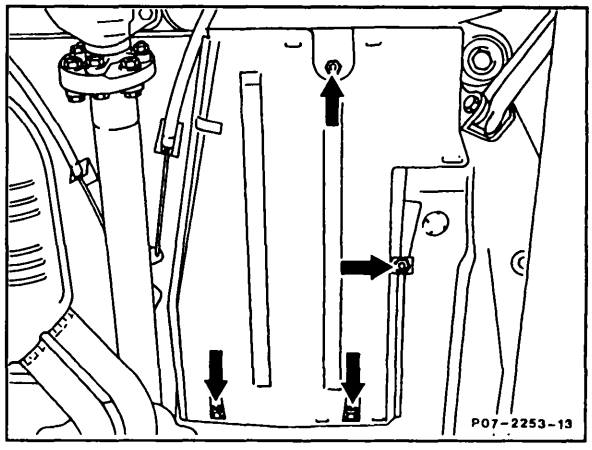
Shown on fuel pump assembly with two fuel pumps.

Special tools



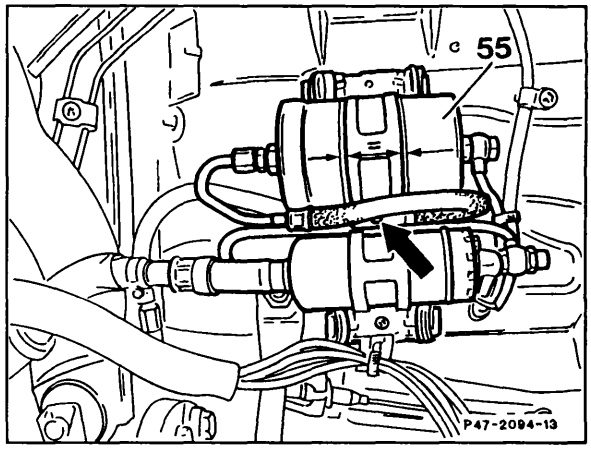
⚠ **WARNING!**
Observe fuel-related safety precautions.

- Release fuel tank pressure by opening filler cap.
- Disconnect battery negative cable and cover battery negative terminal.
- Remove protective cover by removing screws (arrows).
- Disconnect fuel lines and fuel hose from fuel filter (55).



Model 124

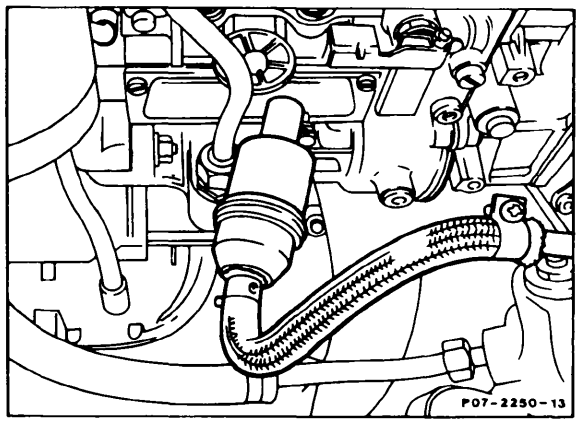
- Loosen clamping screw (arrow) and remove fuel filter towards rear.
- Install new fuel filter with plastic sleeve so that sleeve extends on both sides of holder since contact corrosion may occur if there is direct contact with the holder.
- Run engine briefly to check connections for leakage.
- Reinstall protective cover.



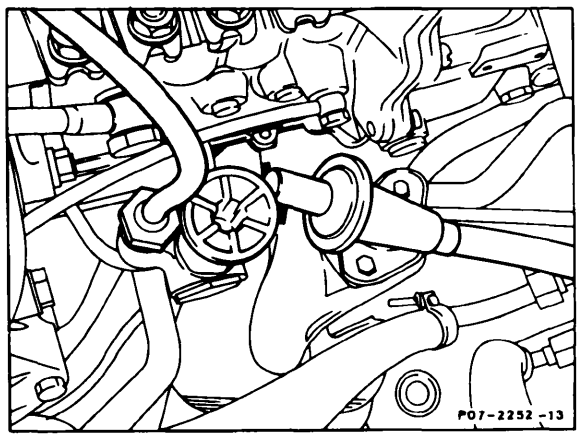
Model 124

Diesel engines

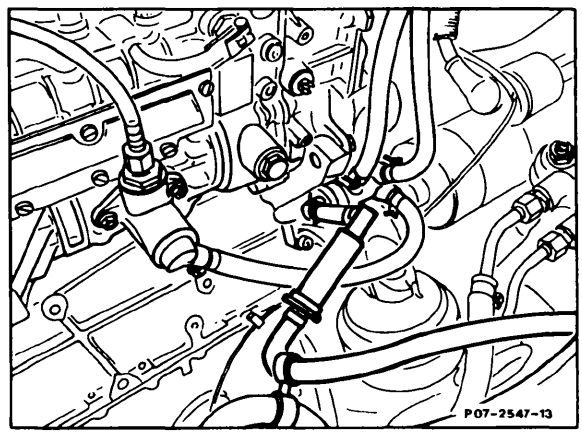
Replace fuel prefilter. Run engine and check for leaks.



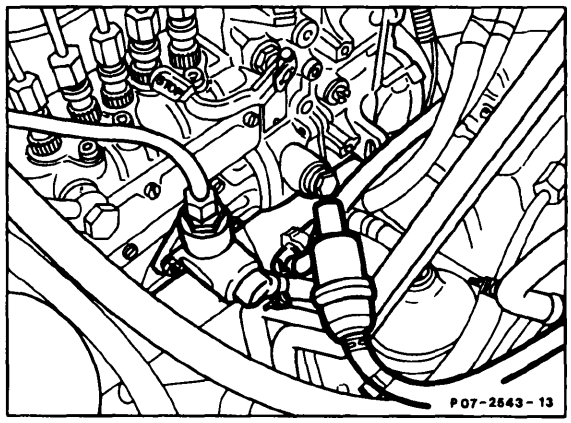
Engine 616, 617



Engine 616, 617



Engine 601.91, 602.91



Engine 602.96, 603.96, 603.97

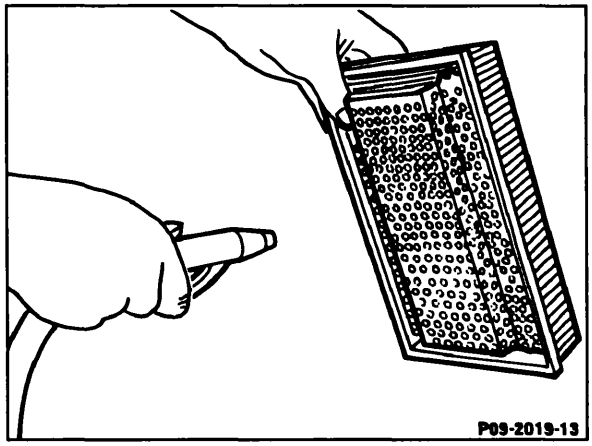
Cleaning metal-reinforced air filter element

Diesel engines

Note: Under severe operating conditions, such as poor road conditions resulting in substantial dust deposits in the air cleaner, the air filter element is to be cleaned at every maintenance service. **This applies only to filter elements reinforced with perforated metal.** Filters without the perforated metal reinforcement should be **replaced, not cleaned.**

Cleaning

Using no more than 5 bar pressure, blow compressed air through the element from the reinforced side, holding the nozzle about 20 cm away from the perforated metal.



Caution! Never blow directly into the folds of the filter since this can tear the element resulting in unfiltered air entering the engine. Do not wash, beat out, or oil the filter element.

Clean the air filter housing and cover.

Check whether filter element sealing compound is damaged and replace element, if necessary.

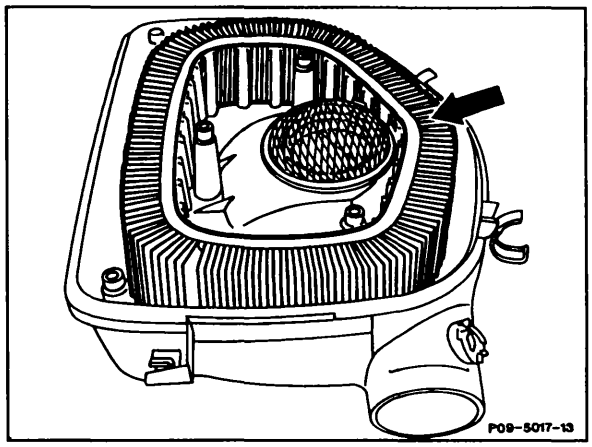
Check whether air filter cover seal is damaged and replace, if required.

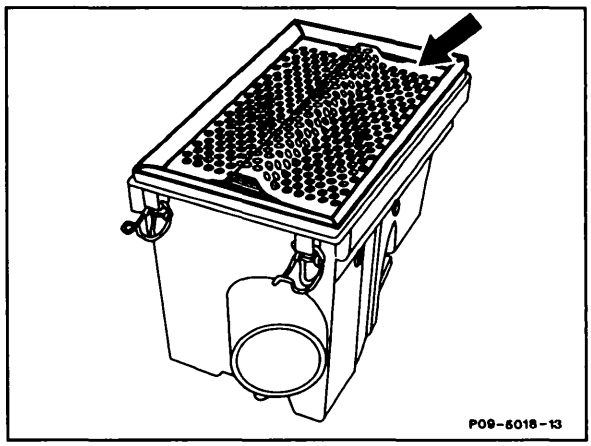
Carefully install air filter element and note that the rubber seals are installed correctly.

All engines
except engines 116 117 with secondary air injection pump

All engines except engine 120

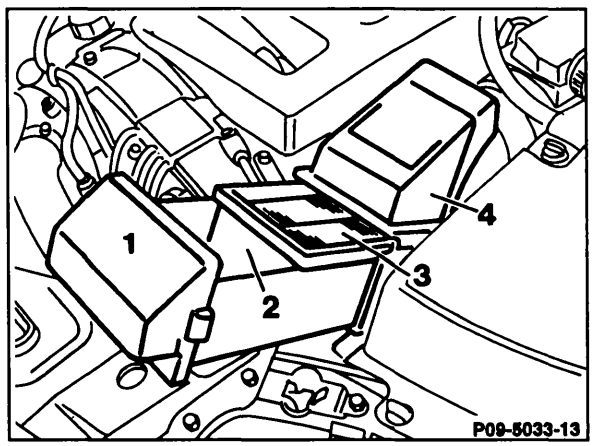
- Remove air filter element.
- Clean out air cleaner housing and cover.
- Inspect air cleaner cover seal and replace if damaged.
- Carefully insert new air filter element and note correct location of rubber seals.





Engine 120

- Pull out slide (1). Remove air cleaner (2).and remove air filter element (3).
- Clean air cleaner housing (2).
- Press filter element into air cleaner (2).
- Push air cleaner in until it contacts stop.
- Push slide (1) in.



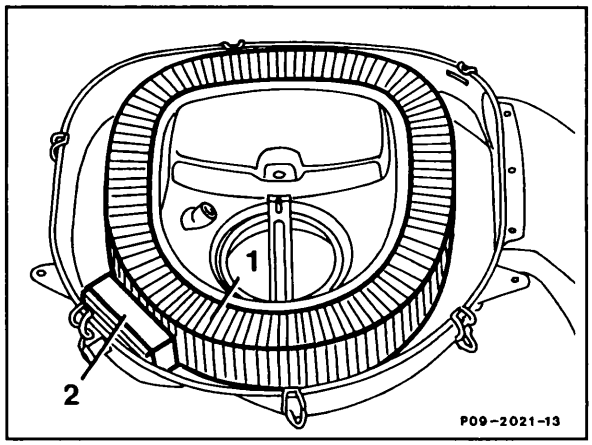
Engine 116 117 with air pump

Remove air filter element (1) and (2)..

Clean out air filter housing and air filter cover.

Inspect filter cover seal and replace if damaged.

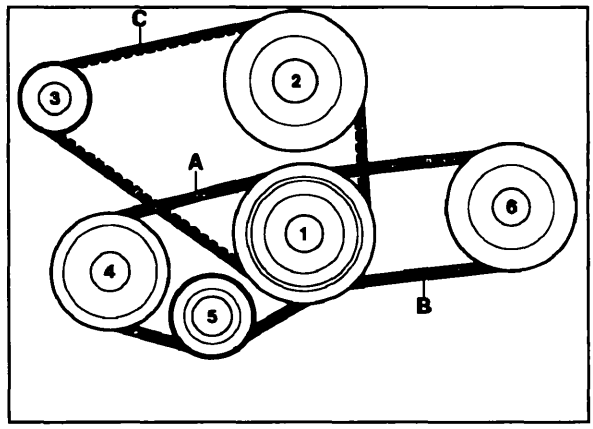
Carefully insert new air filter element and note correct location of rubber seals.



1 Engine filter element
2 Air pump filter element

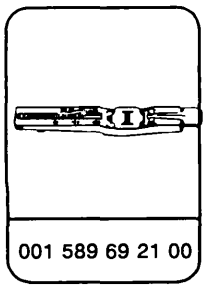
Engine 102
with multiple belt drive

V-belt	Location	Tension (KG) New V-belt	Tension (KG) Used V-belt
A	Air conditioning compressor	50	40-45
B	Power steering pump	50	40-45
C	Generator--coolant pump	30	20-25



1 Crankshaft
2 Coolant pump
3 Generator
4 A/C compressor
5 Tensioning pulley
6 Power steering pump
Belt A A/C compressor
Belt B Power steering pump
Belt C Coolant pump - generator

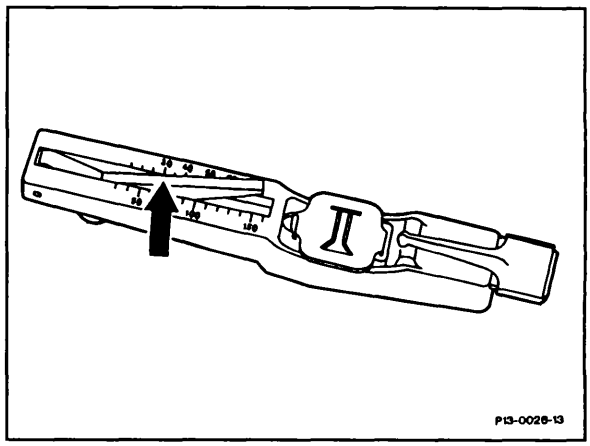
Special tools



Note

Refer to operating instructions for use of measuring instrument.

The specified tensioning values refer to the KG scales on the instrument (arrow).



Checking condition of V-belt

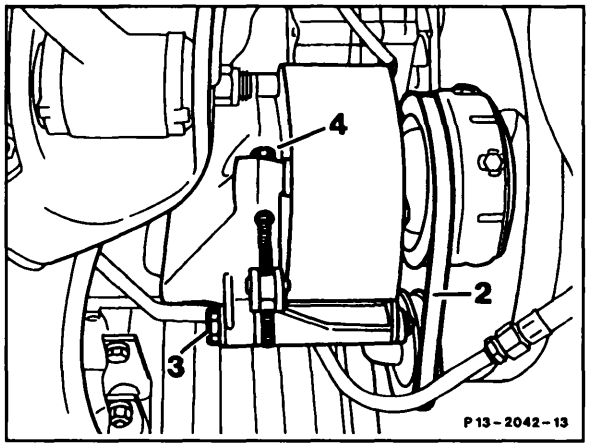
- Replace cracked or worn V-belts.

Tensioning

- Before tensioning, remove lower engine compartment panel.

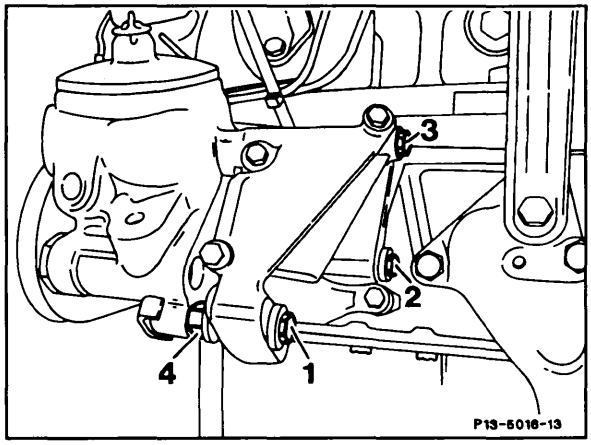
V-belt A Air conditioning compressor

- Loosen bolt (3).
- Tension V-belt with adjusting screw (4).
- Tighten bolt (3).



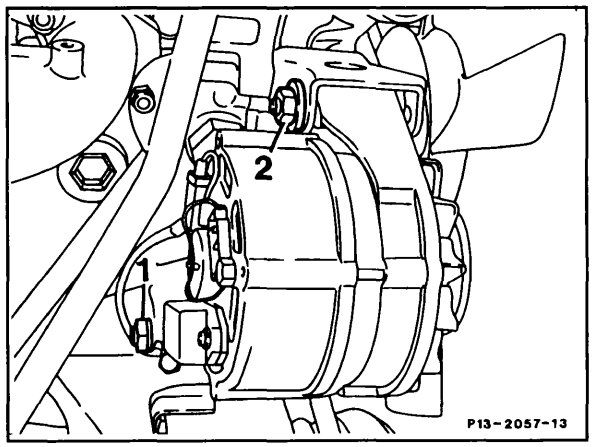
V-belt B Power steering pump

- Loosen bolts (1, 2, and 3).
- Tension V-belt with adjustment gear (4).
- Tighten bolts (1, 2, and 3).

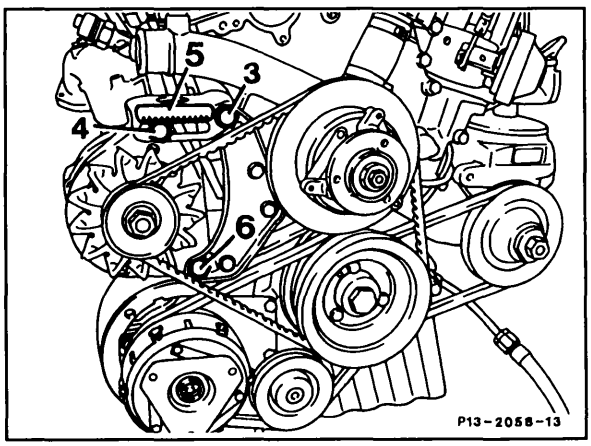


V-belt C Generator--Coolant pump

- Loosen nuts (1 and 2) as well as bolt (3).



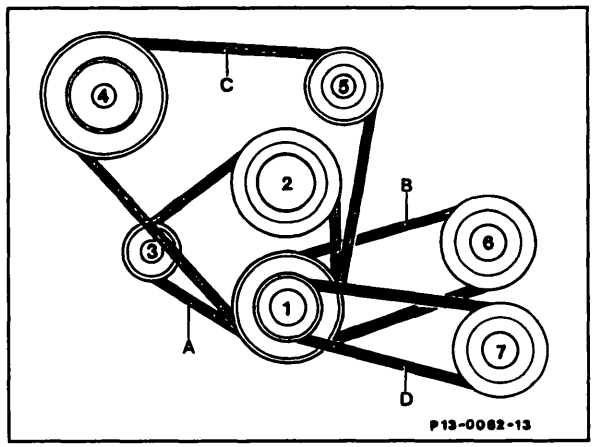
- Tension V-belt with adjusting screw (4).
- Tighten nuts (1 and 2), as well bolt (3).
- Install lower engine compartment panel.



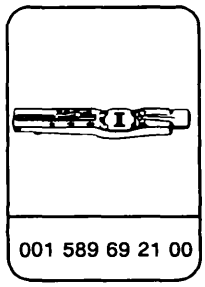
Engine 110

V-belt	Location	Tension (KG) New V-belt	Tension (KG) Used V-belt
A	Generator--coolant pump	30	20-25
B	Power steering pump	50	40-45
C	Air conditioning compressor	50	40-45
D	Secondary air injection pump	30	20-25

1 Crankshaft
2 Coolant pump
3 Generator
4 A/C compressor
5 Tensioning pulley
6 Power steering pump
7 Secondary air injection pump



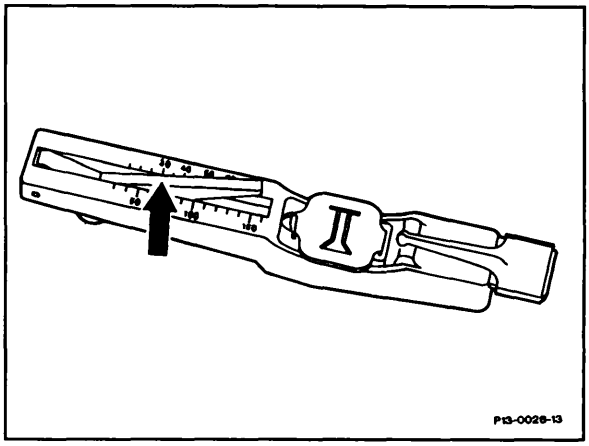
Special tools



Note

Refer to operating instructions for use of measuring instrument.

The specified tensioning values refer to the KG scales on the instrument (arrow).



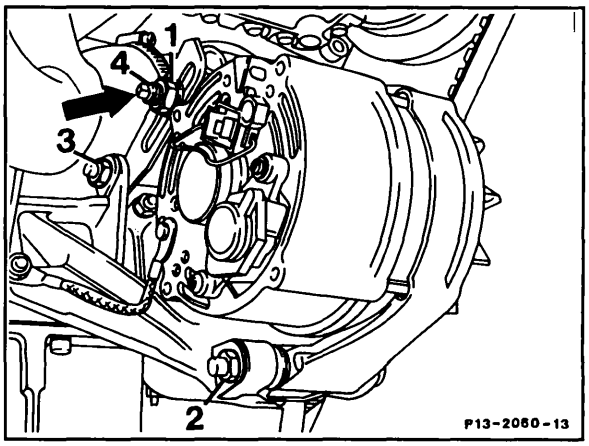
Checking condition of V-belt

- Replace cracked or worn V-belts.

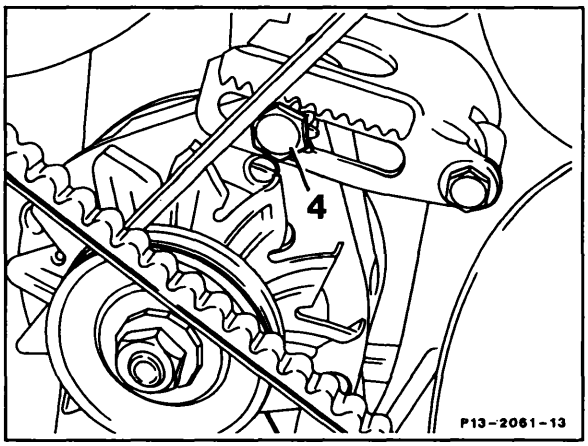
Tensioning

V-belt A Generator--coolant pump

- Loosen nuts (1, 2 and 3).



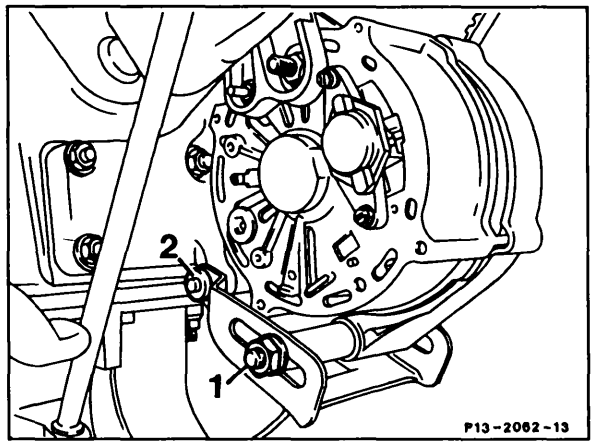
- Tension V-belt at hexagon or on engines with air conditioning compressor at 6 mm square of adjustment bolt (4).
- Tighten nuts (1, 2 and 3).



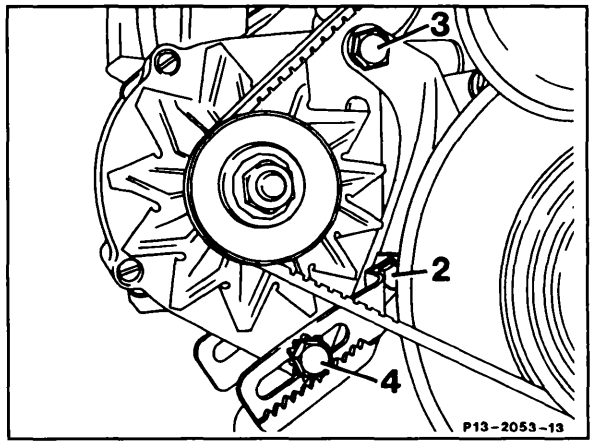
V-belt A Generator 80 A--coolant pump

- Loosen nut (1).

Note:
Bolt (2) is installed from the rear of the generator on vehicles built starting July 1984.

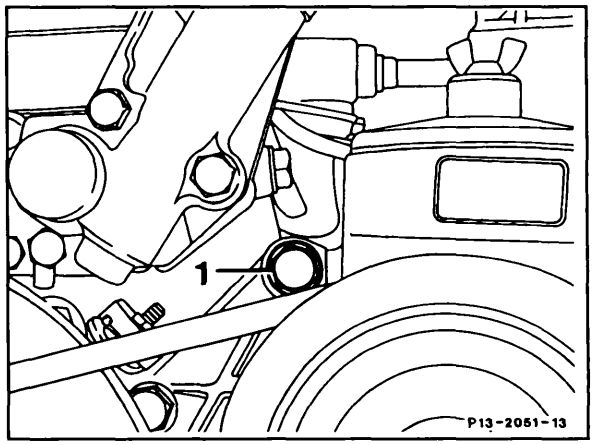


- On vehicle built up to July 1984, loosen bolt (2) from underneath the engine.
- On vehicle built starting July 1984, loosen bolt (2) from back of generator.
- Loosen bolt (3).
- Tension V-belt on hex of adjusting screw (4).
- Tighten nut (1) and bolt (3).
- Tighten bolt (2).

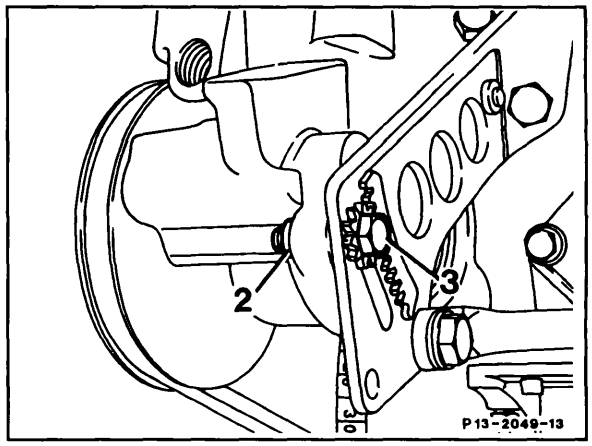


V-belt B Power steering pump

- Loosen bolt (1) on face of power steering pump.

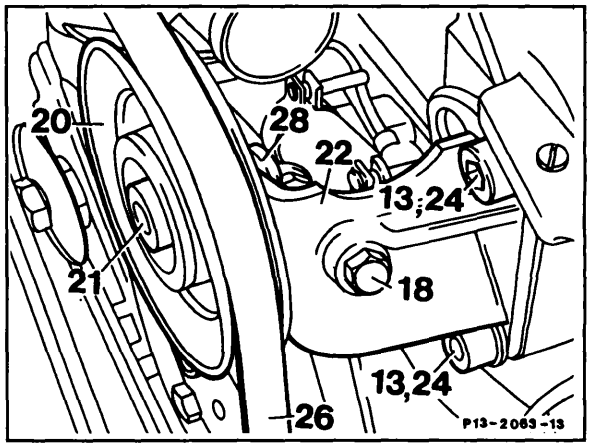


- Loosen nut (2).
- Adjust V-belt with adjustment bolt (3).
- Tighten nut (2) and bolt (1).



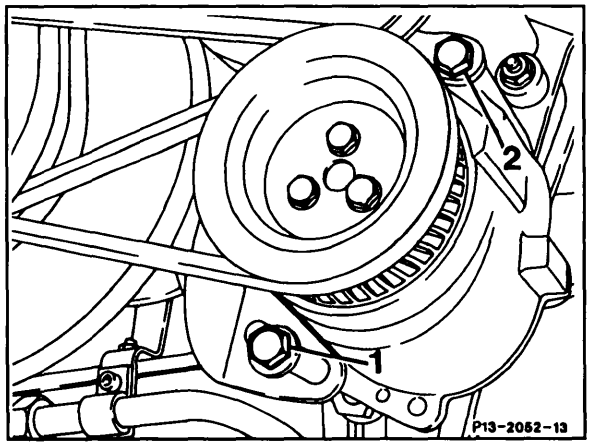
V-belt C Air conditioning compressor

- Loosen necked down bolt (21).
- Adjust V-belt with adjusting bolt (18).
- Tighten necked down bolt (21) to 25 Nm.



V-belt D Secondary air injection pump

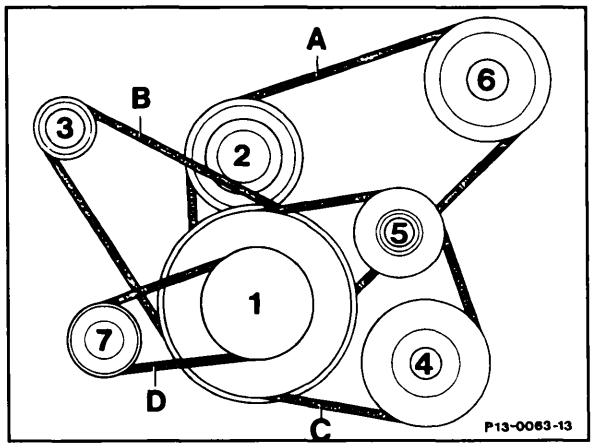
- Loosen mounting bolts (1 and 2).
- Adjust V-belt by swiveling secondary air injection pump outward.
- Tighten fastening bolts (1 and 2).



Engine 116 117

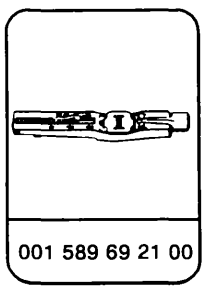
V-belt	Location	Tension (KG) New V-belt	Tension (KG) Used V-belt
A	Coolant pump - power steering pump[1)]	30	20-25
B	Generator	35	30-35
C	Air conditioning compressor	50	40-45
D	Secondary air injection pump	30	20-25

1) Double V-belt

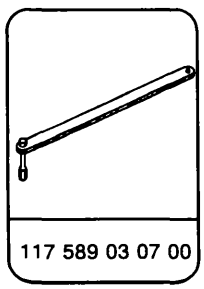


1 Crankshaft
2 Coolant pump
3 Generator
4 A/C compressor
5 Tensioning pulley
6 Power steering pump
7 Secondary air injection pump

Special tools



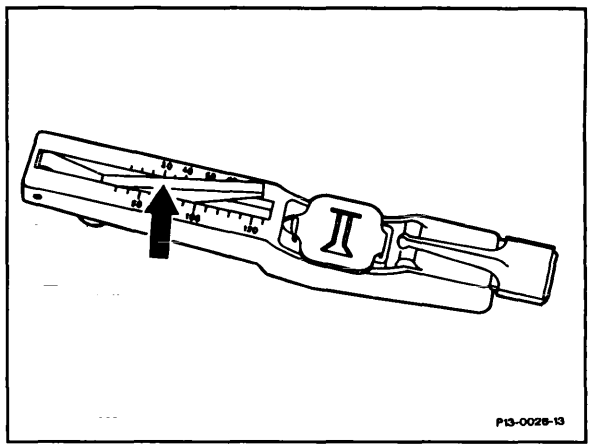
001 589 69 21 00



117 589 03 07 00

Note
Refer to operating instructions for handling of measuring instrument.

The specified tensioning values refer to KG scale of measuring instrument (arrow).



Checking condition of V-belts

Replace cracked, scorched or worn V-belts.

Note: If one of the two V-belts of the double belt drive has to be replaced due to wear, both V-belts must always be replaced.

Only belts from one manufacturer may be installed together.

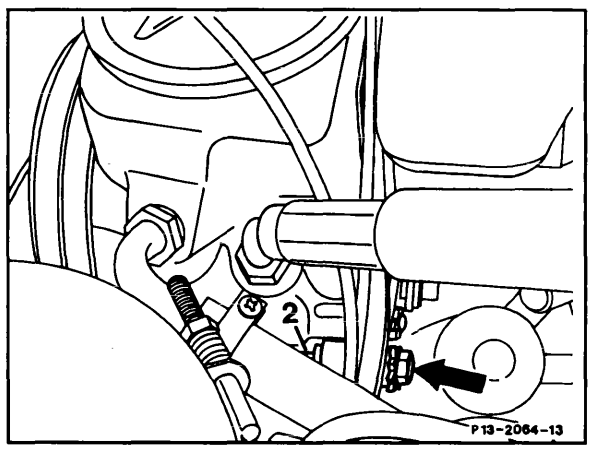
V-belts are supplied only in sets as spare parts.

Adjusting

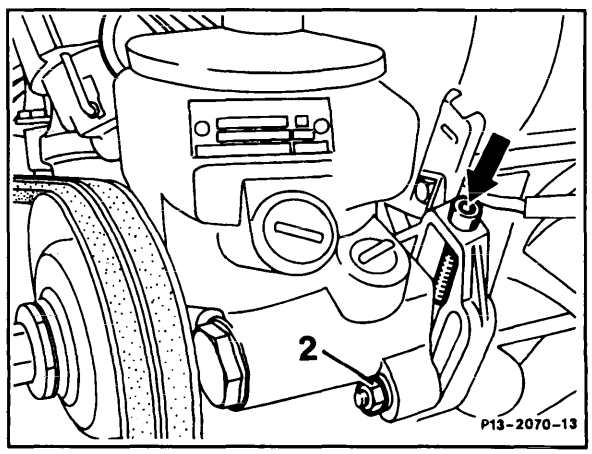
V-belt A Coolant pump - Power steering pump

Loosen nuts (1,2 and 3 [fulcrum]).

Adjust V-belt with adjustment screw (arrow).

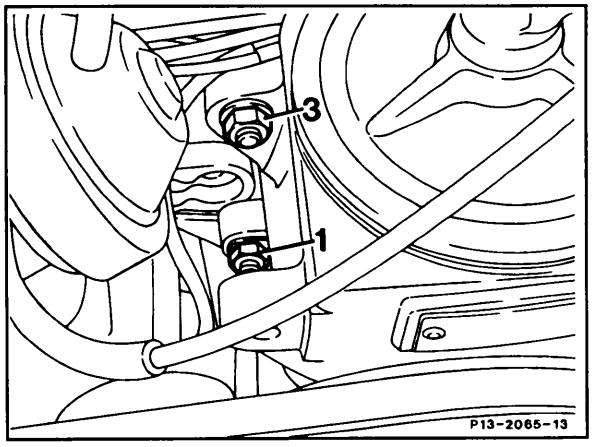


Power steering pump carrier (1st version)



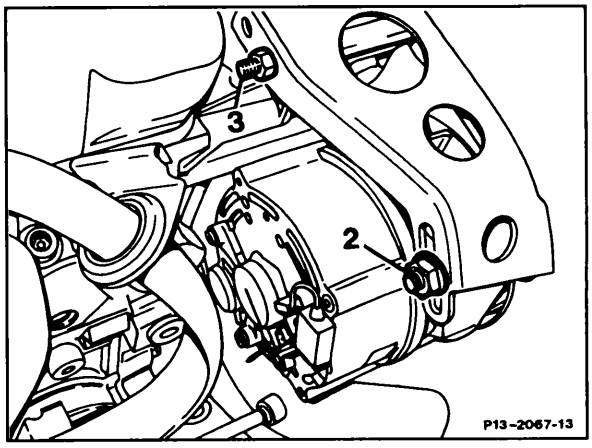
Power steering pump carrier (2nd version)

- Tighten nuts (1, 2 and 3).

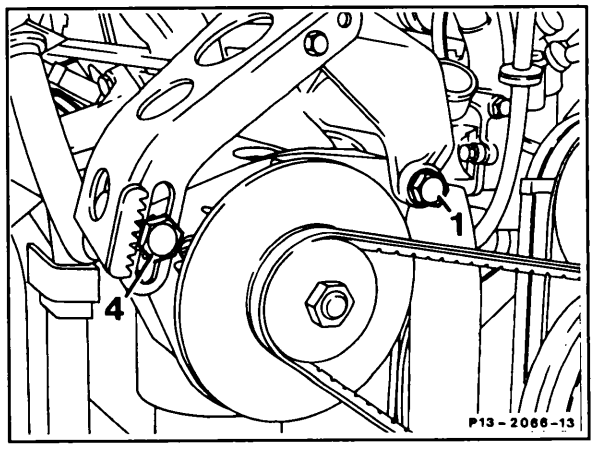


V-belt B Generator

- Loosen fastening bolt (1) and nuts (2 and 3).



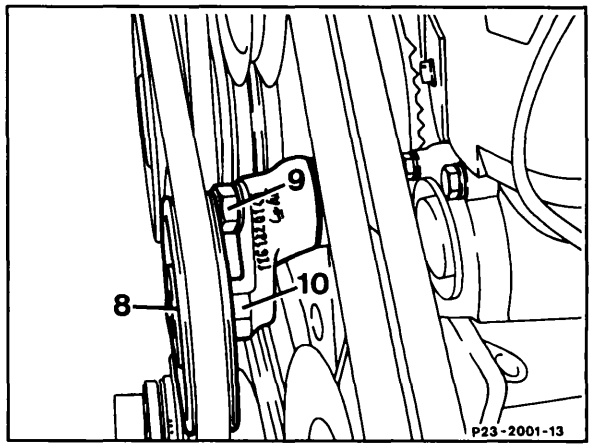
- Adjust V-belt with adjustment bolt (4).
- Tighten fastening bolt (1) and nuts (2 and 3).



V-belt C Air conditioning compressor

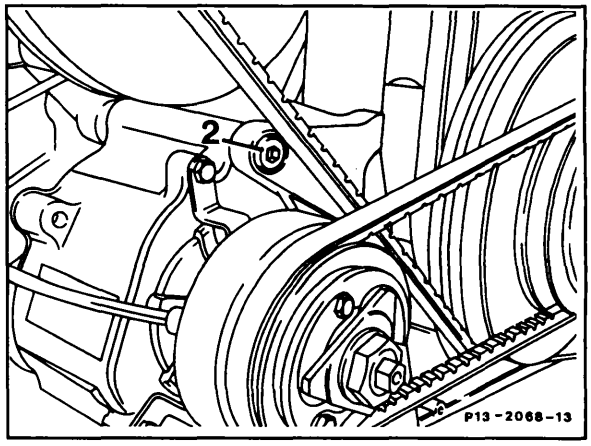
- Loosen fastening bolt (9).
- Adjust the V-belt by turning the tensioning pulley (8). To do this place a right angle open end wrench (22 mm) on the flat surface (10).
- Tighten fastening bolt (9).

Note: As of November 1985 the mounting screw (9) is designed as a hex. socket screw. Use special tool 117 589 03 07 00.

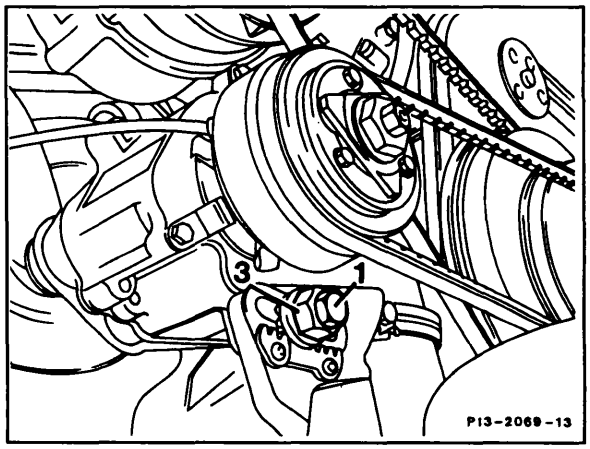


V-belt D Secondary air injection pump

- Loosen fastening bolts (1 and 2).



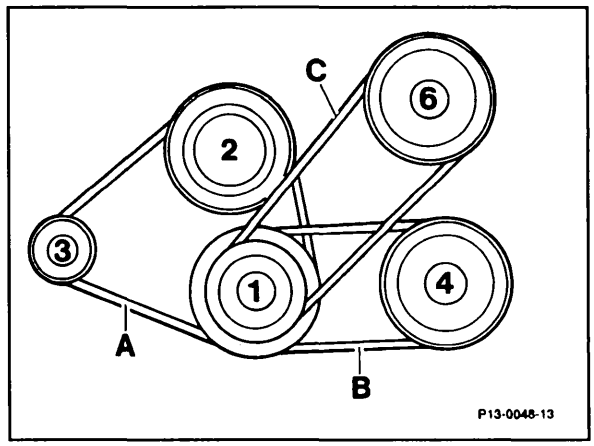
- Adjust V-belt with adjustment wheel (3).
- Tighten fastening bolts (1 and 2).



Engine 616 617

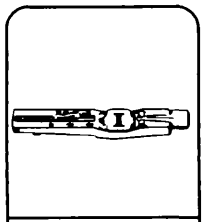
Engine		616, 617.91	617.95	616, 617.91	617.95
V-belt	Location	Tension (KG) New V-belt	Tension (KG) New V-belt	Tension (KG) Used V-belt	Tension (KG) Used V-belt
A	Generator - coolant pump	50	30[1)]	40-45	20-25[1)]
B	Air conditioning compressor	50	50	40-45	40-45
C	Power steering pump	50	50	40-45	40-45

1) Double V-belt



1 Crankshaft
2 Coolant pump
3 Generator
4 A/C compressor
6 Power steering pump

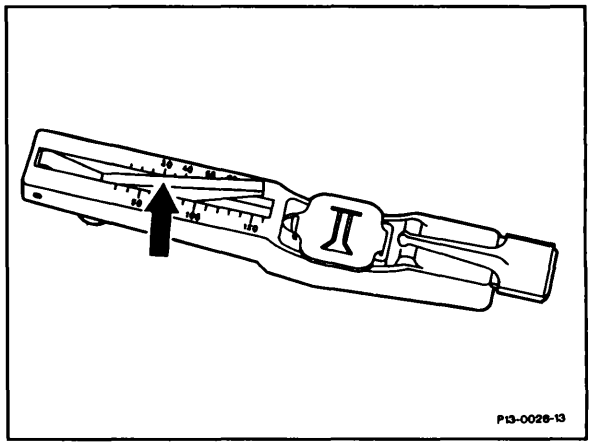
Special tools



001 589 69 21 00

Note:
Refer to operating instructions for handling of measuring instrument.

The special tension data refer to KG scale of the measuring instrument (arrow).



Checking condition of V-belt

Replace cracked, scorched or worn V-belts.

Note: If one of the two V-belts of the double belt drive (engine 617.95) has to be replaced due to wear, both V-belts must be replaced.

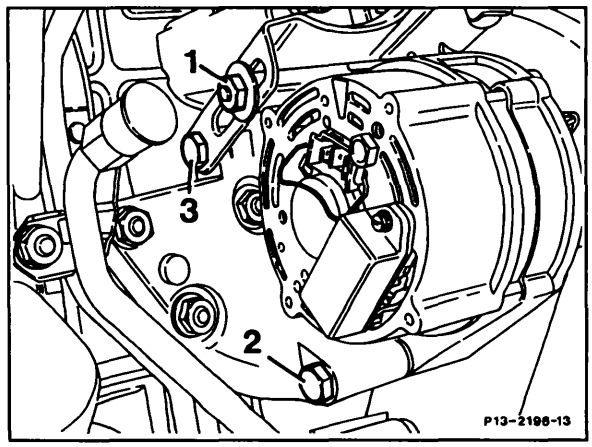
Only belts from one manufacturer may be installed together.

V-belts are supplied only in sets as spare parts.

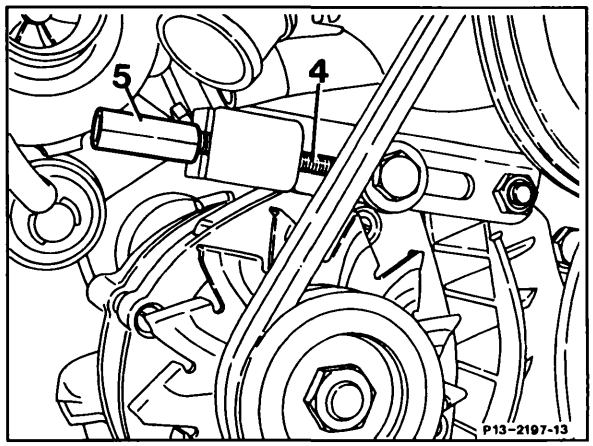
Adjusting

V-belt A Generator - Coolant pump

- Loosen nut (1) and bolts (2 and 3).

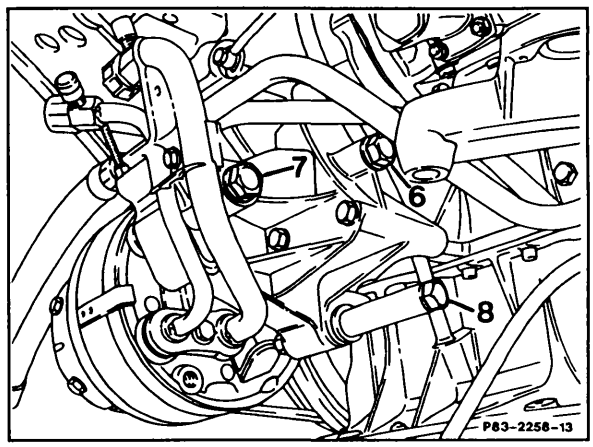


- Adjust V-belt with nut (5).
- Tighten nut (1) and bolts (2 and 3).
- Then keep turning nut (5) for approx. 1/4 to 1/2 turn (until tight).

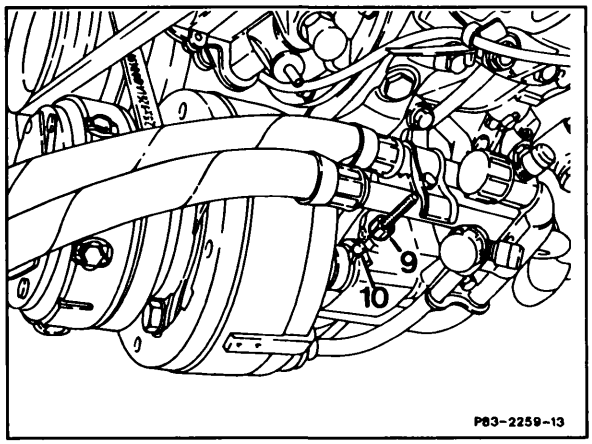


V-belt B Air conditioning compressor

- Loosen bolts (6, 7 and 8).

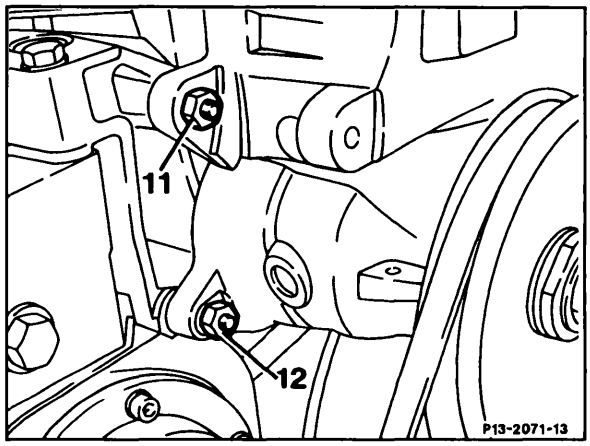


- Adjust V-belt with nut (9) of tensioning bolt (10).
- Tighten bolts (6, 7 and 8).

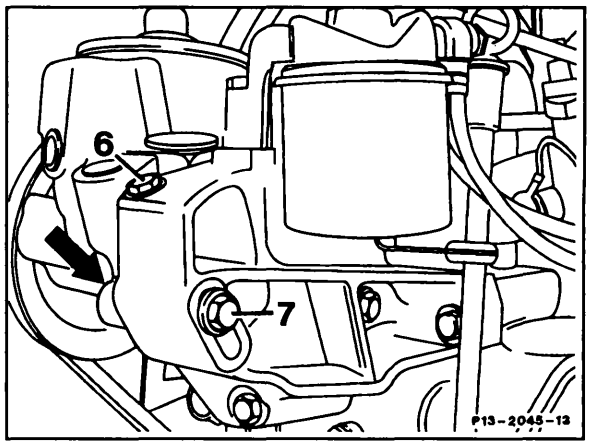


V-belt C Power steering pump

- Loosen nuts (11, 12 and 13).

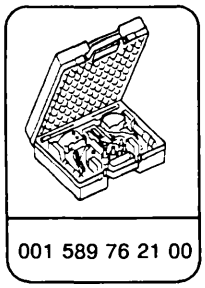


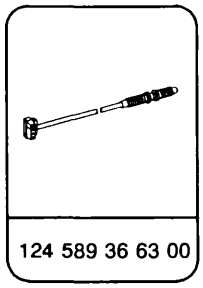
- Adjust V-belt with clamping bolt (14).
- Tighten nuts (11, 12 and 13).



Engines 102 103 104 119 120 601 602 603

Special tools


001 589 76 21 00


124 589 36 63 00

Note: Turn crankshaft using starter and compression test recorder on all models except 140. Use ignition switch on model 140.

⚠

IMPORTANT NOTE!

Model 124.034/036, 129, 140

Certain connectors must be disconnected when turning the crankshaft. This results in the setting of Diagnostic Trouble Codes which must then be erased from the following control modules:

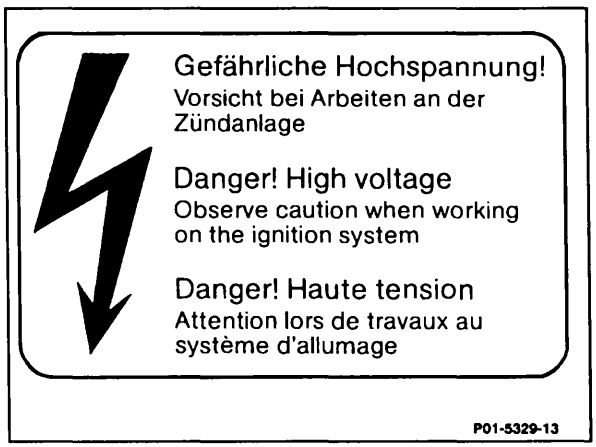
- LH-SFI control module.
- Ignition control module.
- Diagnostic module, if equipped.

(Refer to Diagnostic Manual, Engines, Vol. 2, 3).

⚠ **WARNING!**

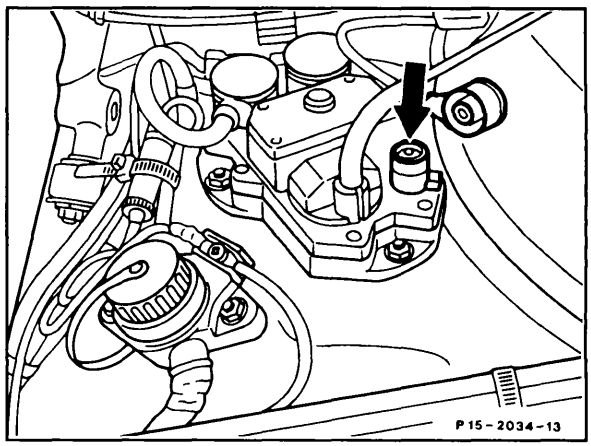
Because of the high ignition voltage on gasoline engines, it is dangerous to touch ignition components (ignition coil, ignition cables, spark plug connector, module push connectors) when

- the engine is running,
- the engine is being started,
- the key is in position 2 while the engine is being turned manually.

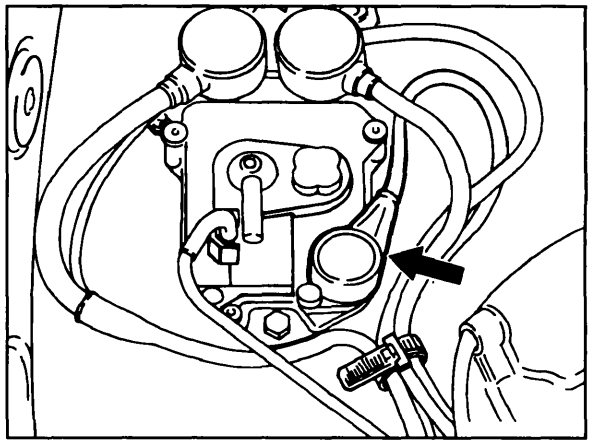


Disabling ignition

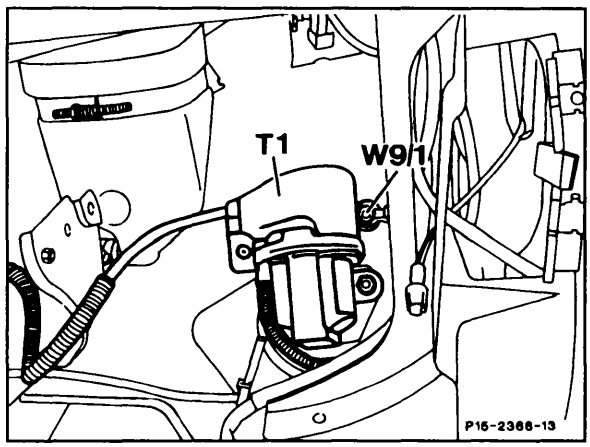
- Switch off ignition on gasoline engines. Pull off plug from crankshaft position sensor (green or black cable) on control module (arrow).



Model 201 with TSZ ignition control module



Models 124, 126, 129 and 201
with EZL ignition control module

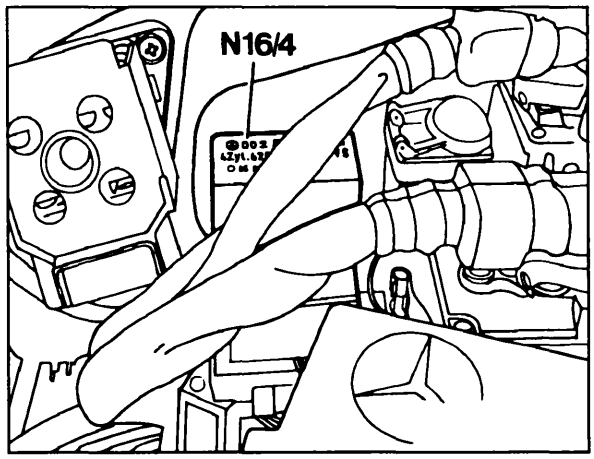


Disconnect connector on model 140

Disabling fuel supply and connecting remote starter switch

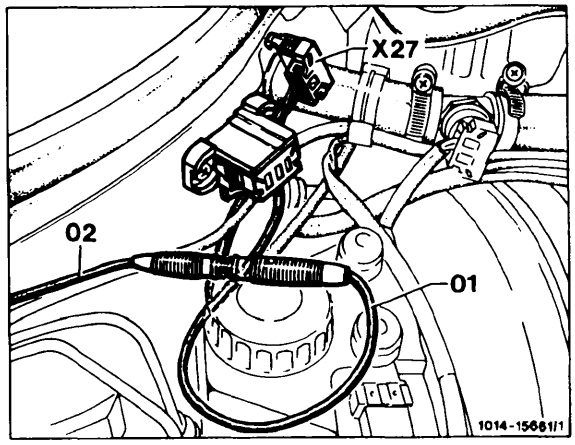
Model 124, 126, 201 except model 124 starting model year 1990 and model 201.029 starting model year 1990

- Before turning the engine, the fuel pump relay module (N16/4) should be pulled out, so that no fuel is injected into the engine.

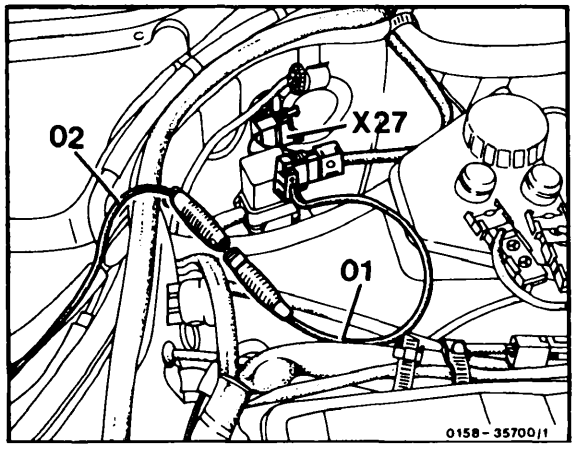


Shown on model 201

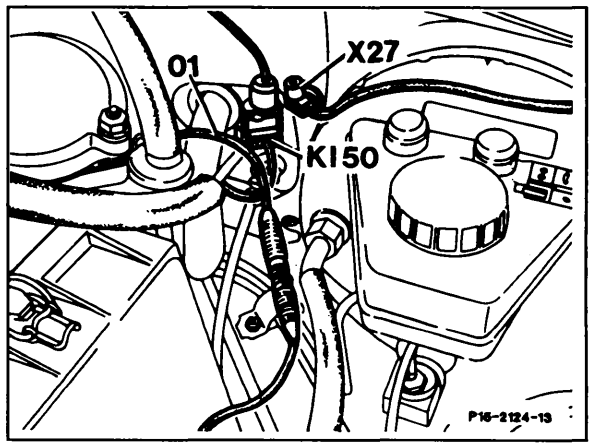
- Connect compression test recorder to battery positive (circuit 30) and to the plug (circuit 50) of the connector (X27). Insert adapter cable 124 589 36 63 00 (01) in the cable (02) of the compression test recorder.



Model 124, left side component compartment wall



Model 126, left side of fire wall

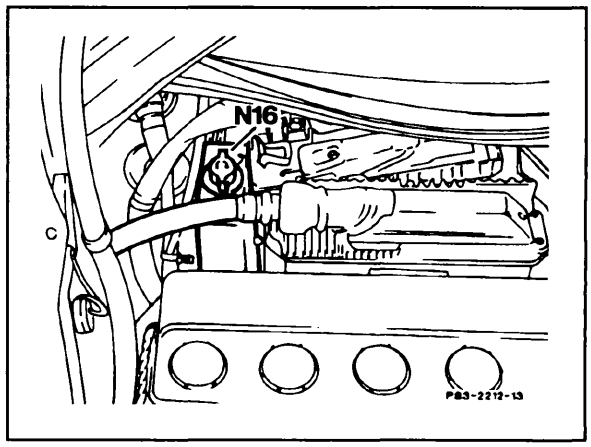


Model 201, left side component compartment wall

Model 124 with Engine 103, 104 starting model year 1990,
Model 201.029 starting model year 1990

- Remove component compartment cover.

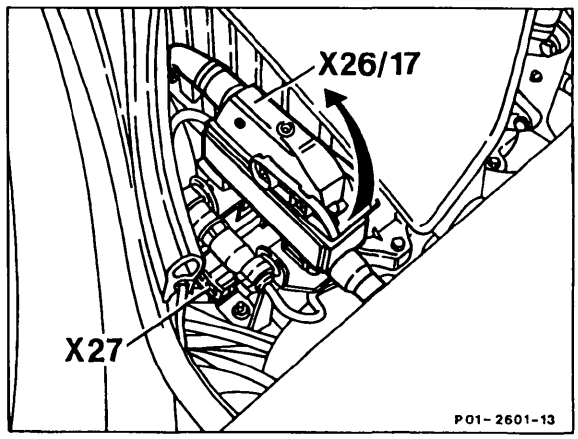
- To interrupt fuel supply, remove engine systems control module (MAS) (N16) by turning locking knob from position 1 to position 0. Pull unit up.



Shown on model 124

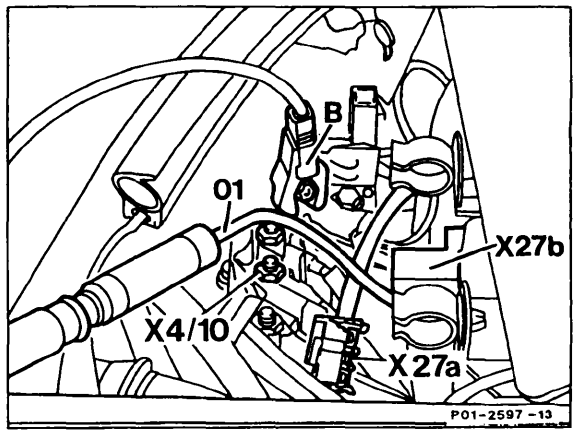
Model 124 with engine 119

- In order to interrupt the fuel supply, disconnect engine plug connection (X26/17) of engine wiring harness on right side of vehicle.



- Remove component compartment cover.

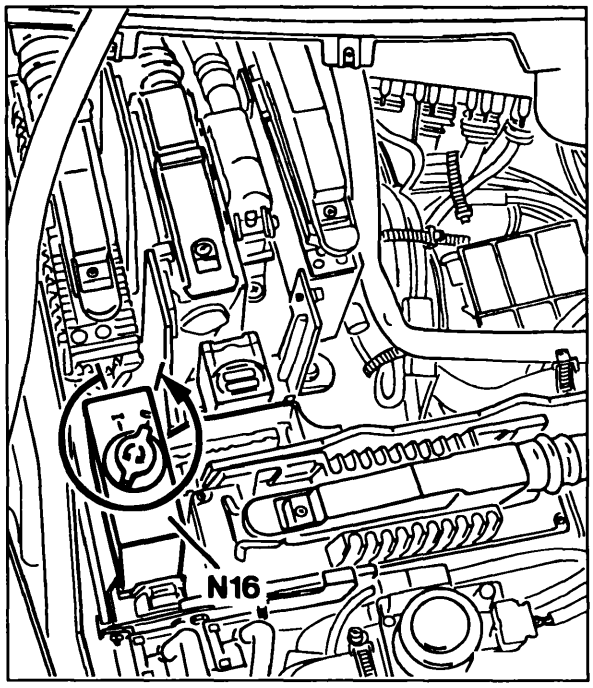
Connect remote starter switch to starter harness connector (X27) (circuit 50) and to terminal block (X4/10) (circuit 30) position B located behind Module box.



Model 129

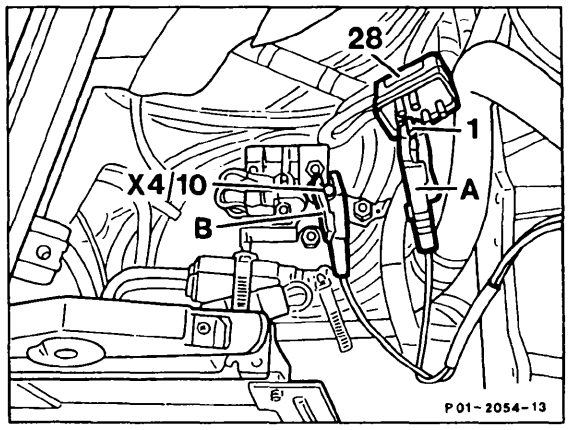
- Remove component compartment cover

- To interrupt fuel supply, remove engine systems control module (MAS) (N16) by turning locking knob from position 1 to position 0. Pull unit up.



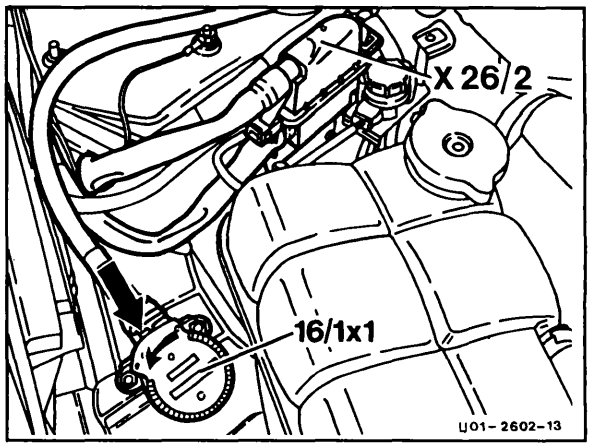
Model 129

- Disconnect plug (28) from starter harness connector (X27). Connect remote compression tester clamp (A) to plug (28) pin 1 (circuit 50) and clamp (B) to terminal block (X4/10) (Circuit 30).



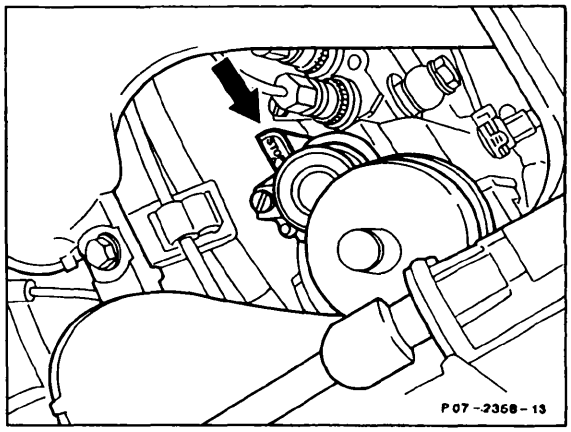
Model 140

- To interrupt the fuel supply disconnect engine plug connector (X26/2) on right side of vehicle.



Note for Diesel engines

- While cranking, press shut off lever (arrow) to prevent the engine from starting.



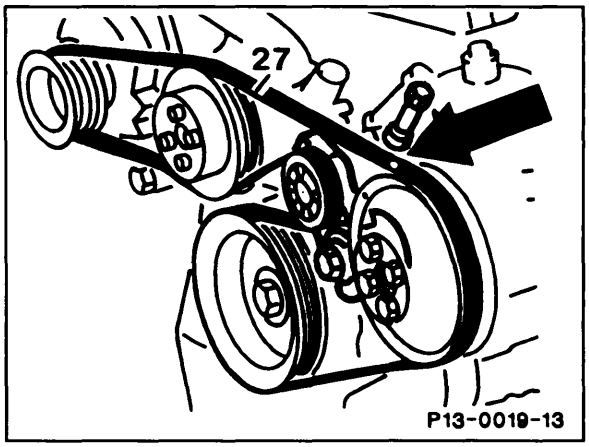
Checking poly-V-belt

- Mark poly-V-belt clearly using chalk.

- Crank engine in steps while checking the poly-V-belt for damage.

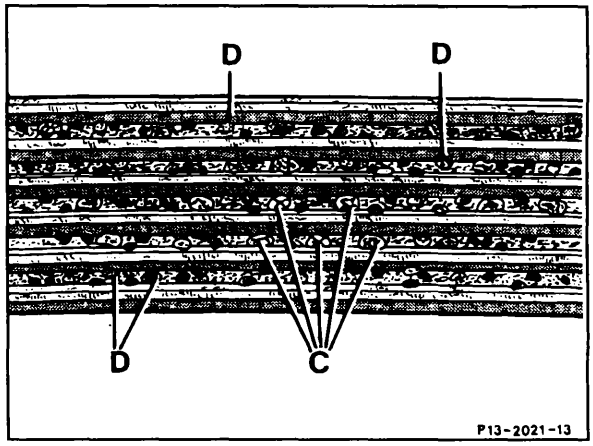
- End the process when the mark is visible again (one full turn of the belt).

- The poly-V-belt must be replaced according to SMS Job No. 13-342 (on separate order) if the damage patterns on the following pages are evident:

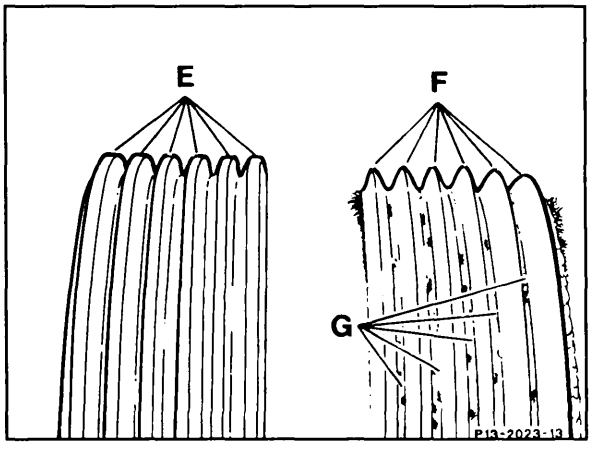


Damage patterns

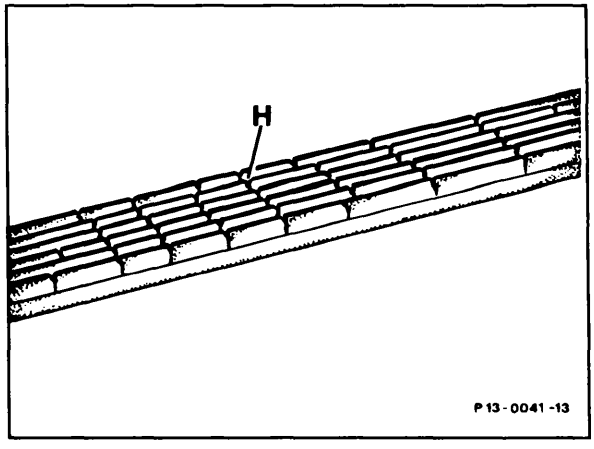
- Rubber lumps in rib base (C).
- Dirt or stone deposits (D).



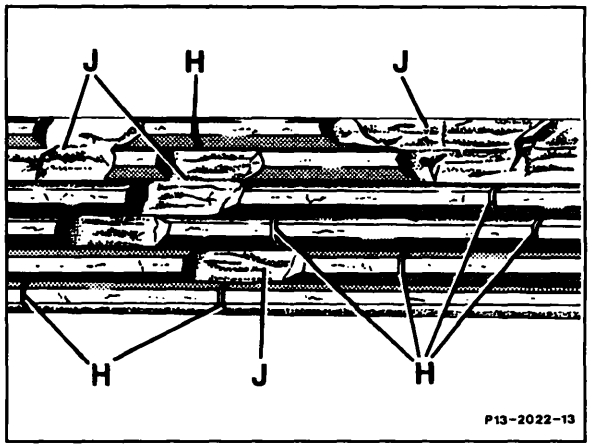
- Flank wear (F, ribs are pointed - trapezoidal when new, E).
- Strand showing through rib base (G, brighter spots).



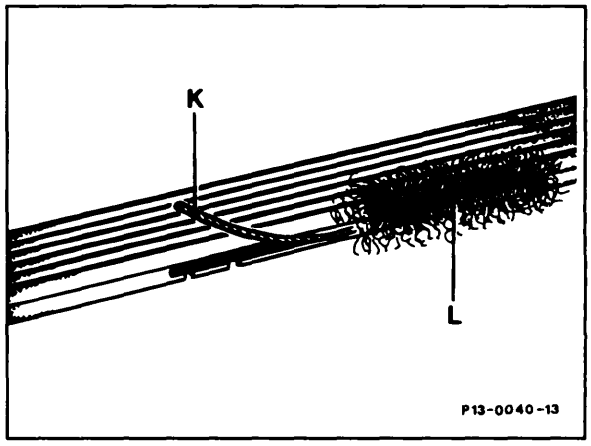
- Transverse cracks (H) in several ribs.



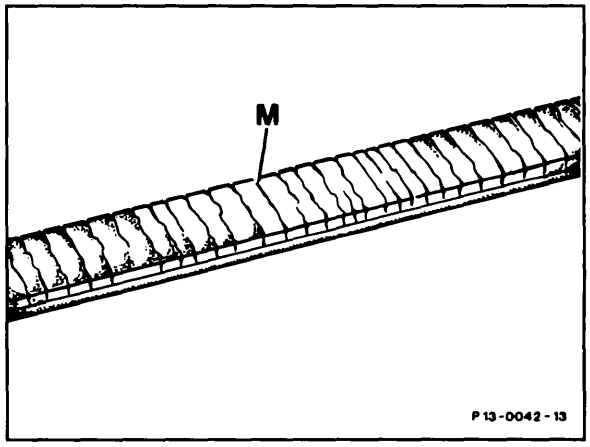
- Transverse cracks in ribs (H) and/or rib chunking (J).



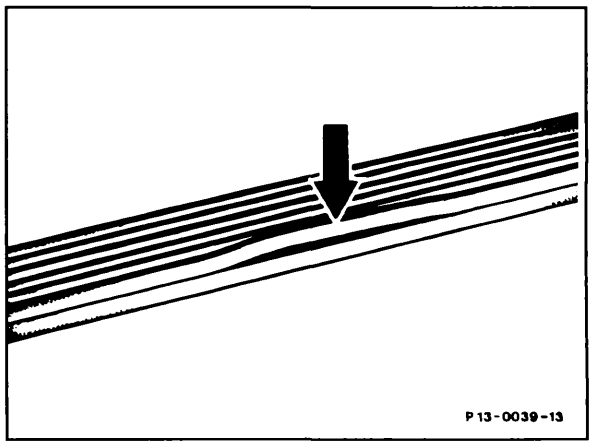
- Strand (K) pulled out laterally or outer strands frayed (L).



- Transverse cracks (M) on back.



- Rib separated from belt (arrow).



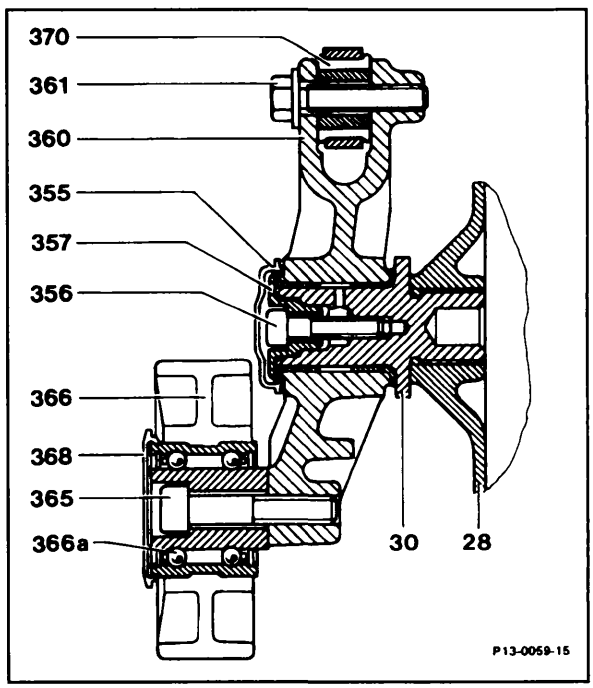
- On diesel engines, with 1st version tensioning lever bearing, check the following parts:

Check pivot shaft (30) of tensioning lever (360) for tight seat (visual inspection)

- When the pivot shaft is loose, the shaft collar no longer rests against the timing housing cover (28). This is also recognized by misalignment of tensioning pulley.

Check tensioning lever bearing for wear (visual inspection)

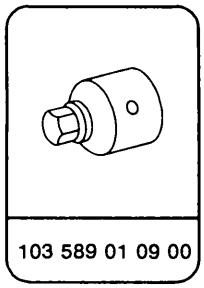
- Tensioning lever bearing bushings are worn out, resulting in considerable play between pivot shaft (30) and tensioning lever (360). Recognized by tilted position of tensioning pulley.

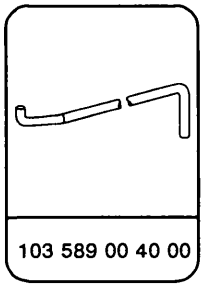


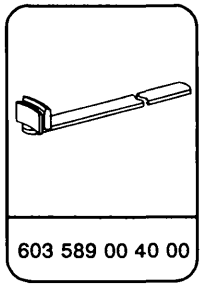
Replacing poly-V-belt

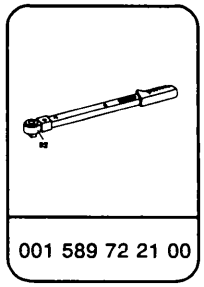
Torque specifications (Nm)		Engine	
Viscofan clutch on coolant pump or bearing body		103, 104, 602, 603	45
Tensioning device mounting bolt (M 12)	19 mm	102, 103	75
	17 mm	102	80
Fan to viscofan clutch		103, 104	10

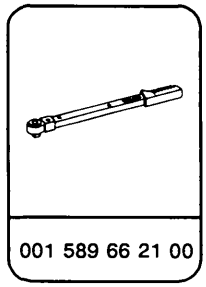
Special tools

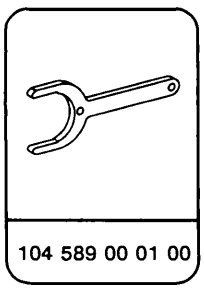

103 589 01 09 00


103 589 00 40 00


603 589 00 40 00


001 589 72 21 00


001 589 66 21 00

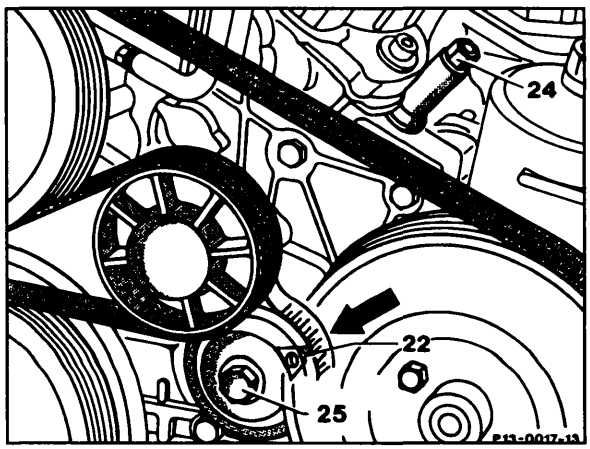

104 589 00 01 00

Engine 102

- Loosen screw (25) by 1/4-1/2 turn.

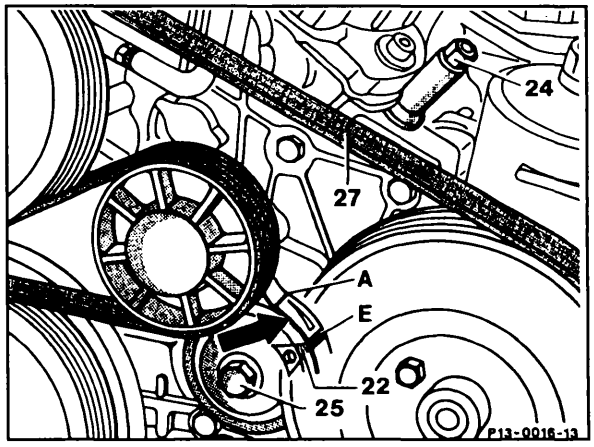
- Loosen tensioning device with tensioning nut (24) (turn counterclockwise) until poly-V-belt (27) can be removed.

- Check the pulley profiles and the tensioning device for damage and dirt and replace if required (e.g. worn out tensioning device bearing bushing, dents in the pulleys, etc.).



- On vehicles produced up to the middle of October 1986, slide adjusting pointer (22) to the left until the tip of the pointer is above the first dividing line of the adjusting scale (arrow).

- On vehicles produced as of the middle of October 1986, slide adjusting pointer to the left until the tip of the pointer is above the thin line (A) of the adjusting scale.



Installing poly-V-belt:

- Start in numerical sequence of belt routing diagrams at tensioning pulley (1) (for illustrations, refer to following pages).

Note:
Do not use belt wax or similar products.

- Check the seating of the poly-V-belt on the belt pulleys.

- On vehicles produced up to the middle of October 1986, turn the tensioning nut (24) to the right until the tip of the adjusting pointer (22) is positioned between the 8th and 9th index mark.

- On vehicles produced as of the middle of October 1986, keep turning tensioning nut to the right until the tip of the adjusting pointer is centered above the thick line (E) of the adjusting scale.

- Tighten bolt (25) as follows:

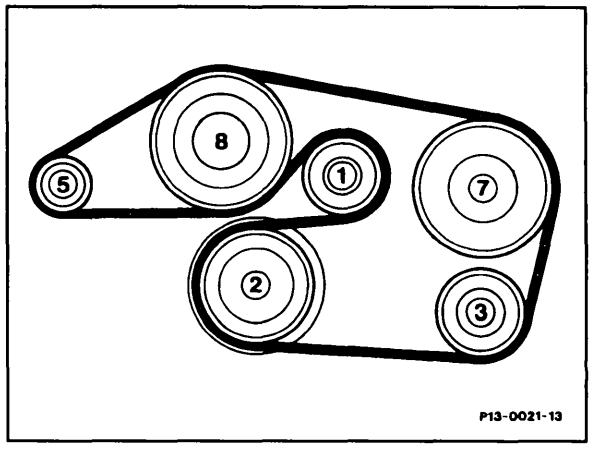
Width between flats 19 mm	75 Nm
Width between flats 17 mm (shouldered bolt)	80 Nm

Engine 102

Belt routing diagram on vehicles with power steering and A/C compressor

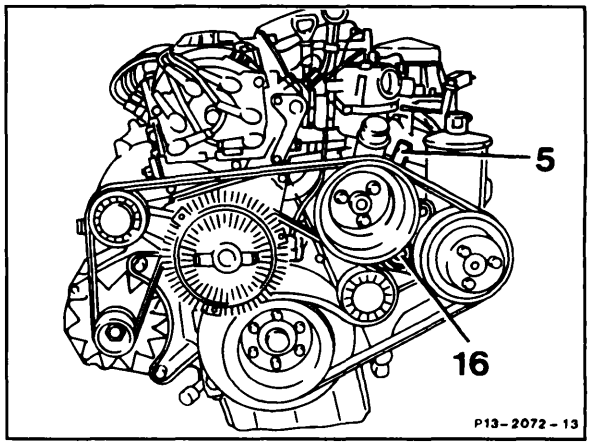
Belt length: 1980 mm

1 Tensioning pulley
2 Crankshaft
3 A/C compressor
5 Generator
7 Power steering pump
8 Coolant pump

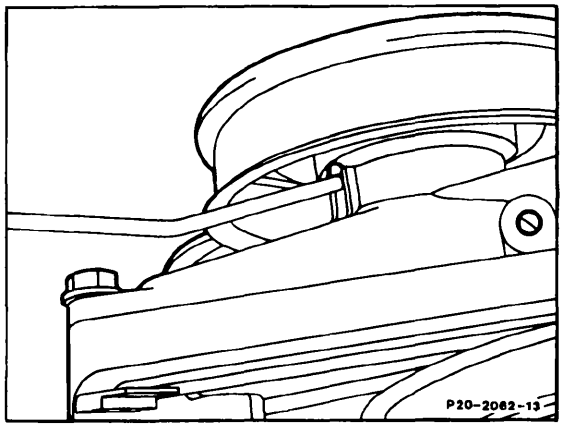


Engine 103

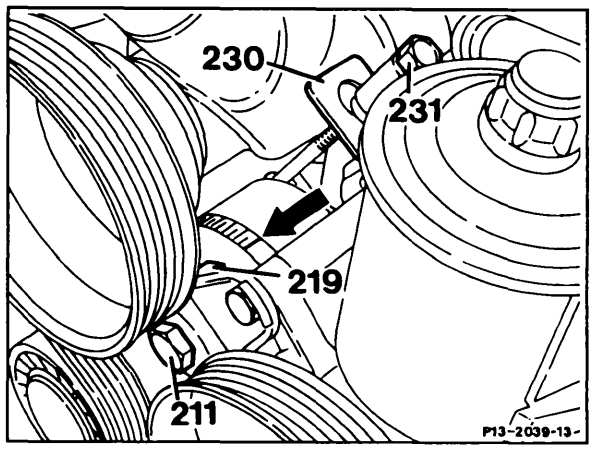
- Loosen fan cover and place on fan.
- On Model 201: remove radiator.
- On all models unscrew viscofan clutch with fan. Remove fan cover.
- For loosening and tightening of hex. socket screw, use special tool 103 589 01 09 00 and torque wrench 001 589 72 21 00.



- Lock pulley by simultaneously engaging counterhold 103 589 00 40 00 in bearing bracket notch and in hub bore.
- Loosen screw (16) by about 1/4 to 1/2 turn.
- Release tensioning device with tensioning nut (5) (turning counterclockwise) until belt can be removed.
- Check pulley profiles and tensioning device for damage and contamination, replace if required (e.g. worn out bearing points of tensioning device, dents in pulleys etc.).



- Turn adjusting pointer (219) to the right (seen from the front) and set adjacent to the 1st index mark (arrow), on vehicles as of 02,1988, set on the cast mark on the right (seen from the front).

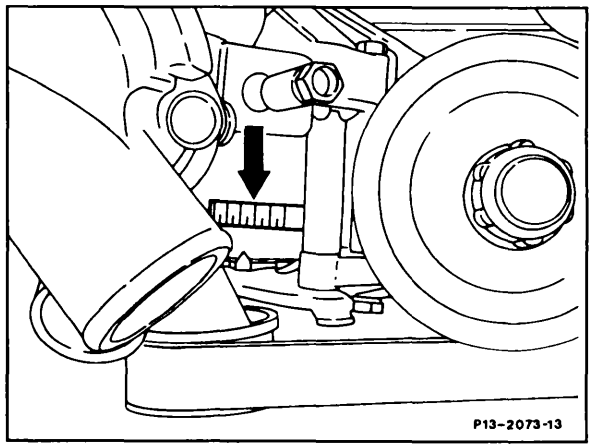


Installing poly-V-belt:

- Start in numbering sequence of belt routing diagrams, start with tensioning pulley (1).

- Do not use belt wax or similar products.

- Turn clamping nut (231) to the right until the adjusting pointer is positioned over the 7th index mark (arrow), on vehicles as of 2/88 over the left mark accordingly (seen from the front).



- Tighten bolt (211) to 75 Nm (reference value).

Note: Starting November 1986 the generator is installed with a lower collar screw 13 mm. When this collar screw is removed, the poly-V-belt can be loosened by swiveling the generator and can be tensioned to its original condition without loosening bolt (211).

- Check if belt is correctly seated on pulleys.

- Insert and install viscofan clutch with fan cover.

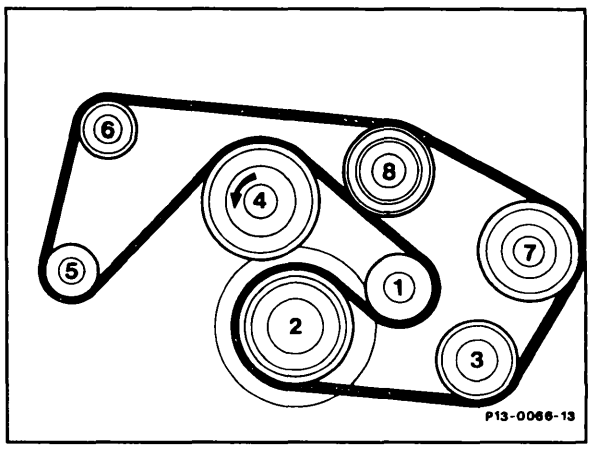
- When tightening hex. socket screw (tightening torque 45 Nm) apply counterhold to pulley.

- To do this, insert counterhold at back of hub and engage simultaneously into holding groove of bearing bracket.

Then remove counterhold.

Engine 103

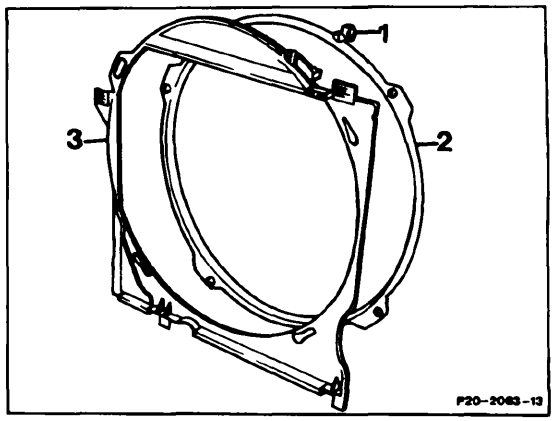
Belt routing diagram on vehicles with air conditioning compressor
Belt length: 2255 mm



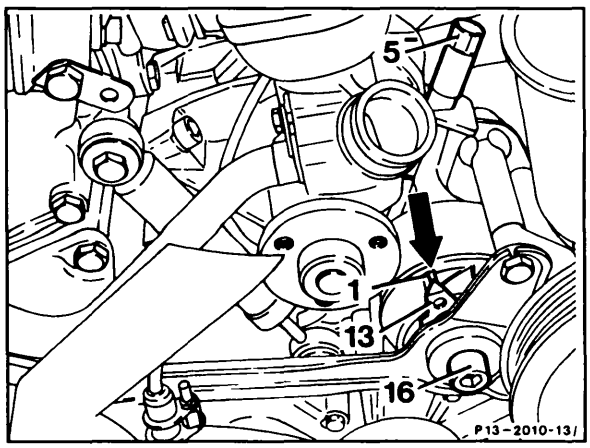
1 Tensioning pulley
2 Crankshaft
3 Compressor
4 Fan
5 Generator
6 Deflector pulley
7 Power steering pump
8 Coolant pump

Engine 104

- Pull out locking pin (1) on fan cover.
- Turn ring (2) to the left and remove.



- Loosen screw (16) for approx. 1/4 to 1/2 turn.
- Loosen tensioning unit with tensioning nut (5) (**turn counterclockwise**) until the belt can be removed.
- Check pulley profiles and tensioning device for damage and contamination and replace, if required (e.g. worn out bearing points of tensioning device, dents in pulley etc.).

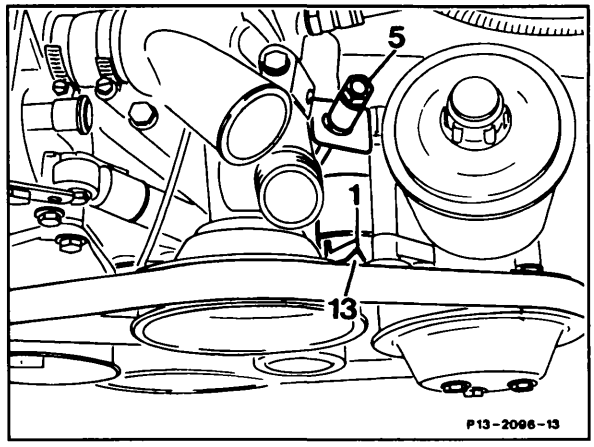


Install poly-V-belt:

- Starting in numerical sequence of belt routing diagrams at tensioning pulley (1).

Note: Do not use belt wax or similar products.

- Set pointer (13) of tensioning unit to mark 2.
- Turn tensioning nut (5) downwards until adjusting pointer (13) is in alignment with mark 1 (arrow).
- Check seat of belt on pulleys.
- Tighten screw (16) to 75 Nm.
- Install ring of fan cover in reverse sequence.

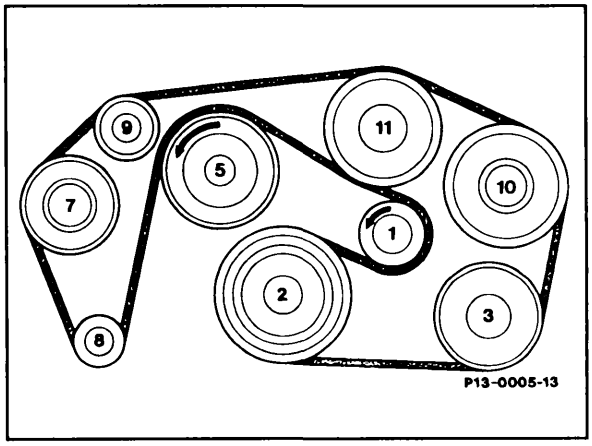


Engine 104 models 124, 129 up to 01/91

Belt routing diagram vehicles with air pump and with air conditioning compressor,

Belt length: 2445 mm; 6 ribs

1 Tensioning pulley
2 Crankshaft
3 Air conditioning compressor
5 Fan
7 Air pump
8 Generator
9 Guide pulley, upper
10 Power steering pump
11 Coolant pump

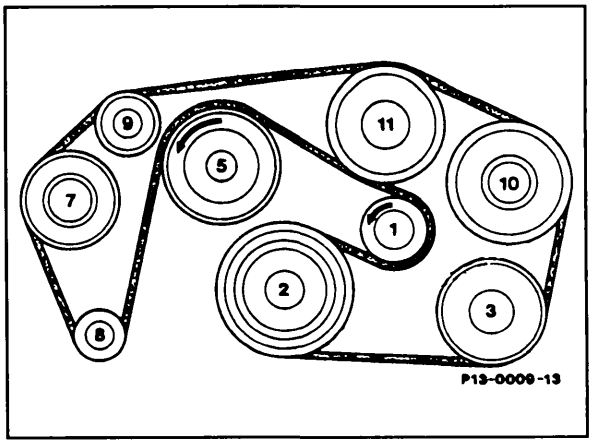


Engine 104 models 124, 129 starting 01/91, model 140

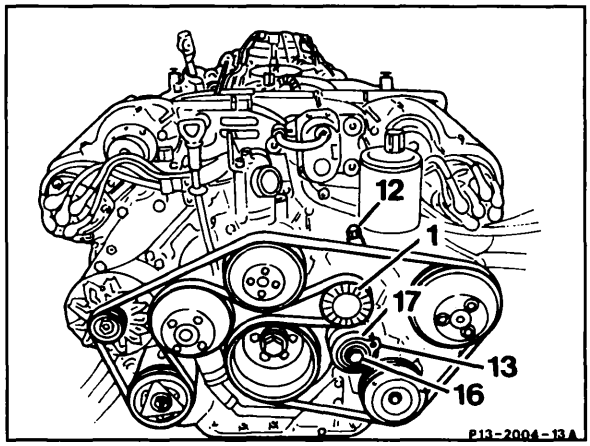
Belt routing diagram vehicles with air pump and with air conditioning compressor,

Belt length: 2440 mm
models 124, 129, 6 ribs; model 140 8 ribs

1 Tensioning pulley
2 Crankshaft
3 Air conditioning compressor
5 Fan
7 Air pump
8 Generator
9 Guide pulley, upper
10 Power steering pump
11 Coolant pump



Engine 119

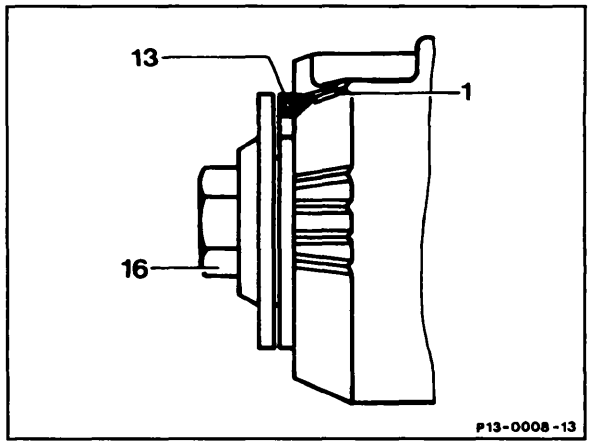


- Pull locking pin from fan cover.
- Turn ring to the left and remove.
- Loosen screw (16) approx. 1/4 to 1/2 turn.
- Loosen tensioning device with tensioning nut (12) (**turning counterclockwise**) until the belt can be removed.
- Check pulley profiles and tensioning device for damage and contamination and replace, if required (e.g. worn out bearing points of tensioning device, dents in pulleys etc.).

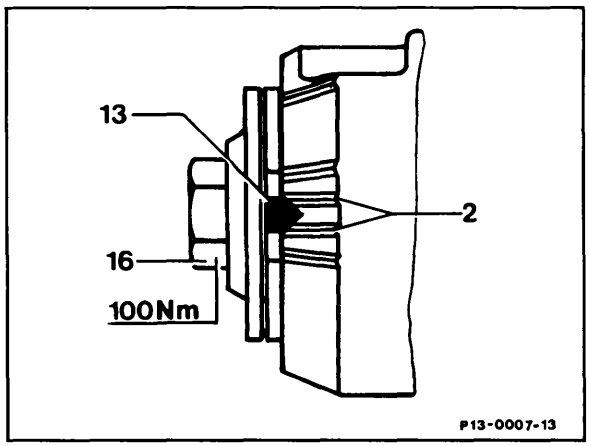
Installing poly-V-belt:

- In numerical sequence of belt routing diagrams, start with tensioning pulley (1).

Note:
Do not use belt wax or similar products.



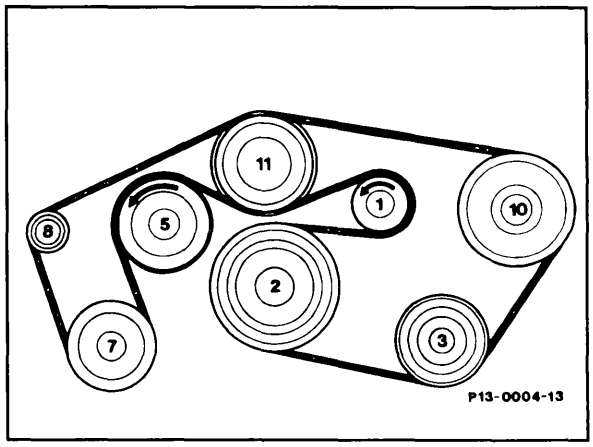
- Set pointer (13) of tensioning device to mark 1.
- Turn tensioning nut (12) clockwise until pointer (13) is in position 2.
- Check that belt is seated correctly on pulleys.
- Torque screw (16) to 100 Nm.
- Install fan cover in reverse order.



Engine 119 model 129

Belt routing diagram
Belt length: 2523 mm; 6 ribs

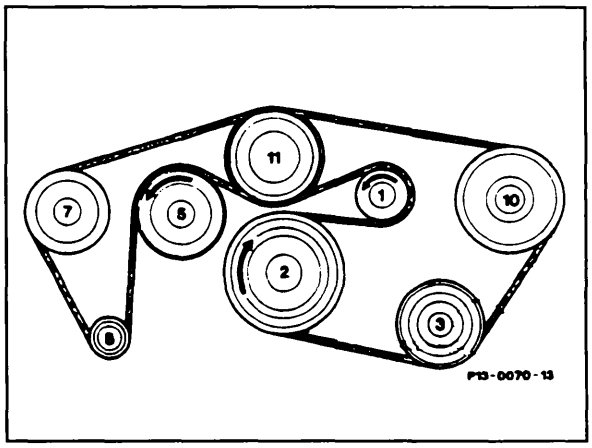
1. Tensioning pulley
2. Crankshaft
3. A/C compressor
5. Fan
7. Air pump
8. Generator
10. Power steering pump
11. Coolant pump



Engine 119.970 model 140.051
119.971 model 140.042
119.974 model 124.036
119.975 model 124.034

Belt routing diagram
Belt length: 2460 mm; 8 ribs

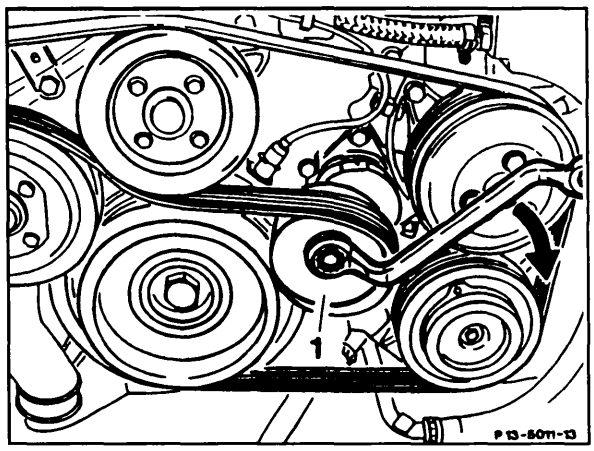
1. Tensioning pulley
2. Crankshaft
3. A/C compressor
5. Fan
7. Air pump
8. Generator
10. Power steering pump
11. Coolant pump



Engine 120

- Remove cooling fan (job no. 20-3129)

- Using 15 mm wrench, swing tensioning roller (1) aside in direction of arrow up to stop and no further so that belt can be removed. Check pulley profiles and tensioning device for damage and contamination and replace, if required (e.g. worn out bearing points of tensioning device, dents in pulleys etc.)

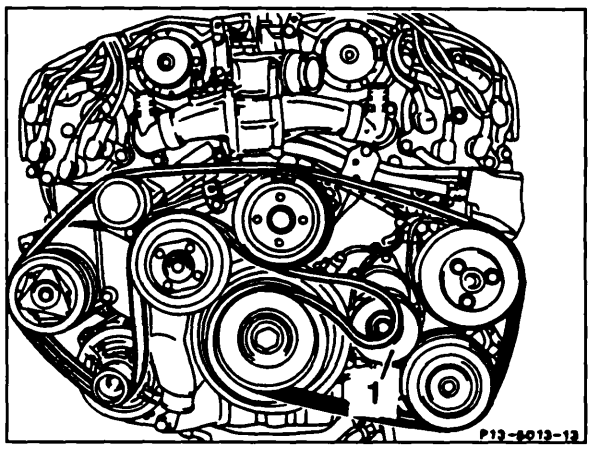


Installing poly-V-belt:

- In numerical sequence of belt routing diagrams, start with tensioning pulley (1).

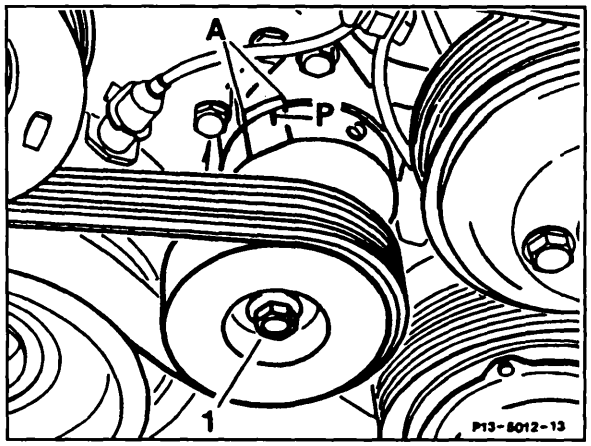
Note:
Do not use belt wax or similar products.

- Pretension tensioning pulley (1) and install belt over pulley (1). Check that belt is seated correctly.



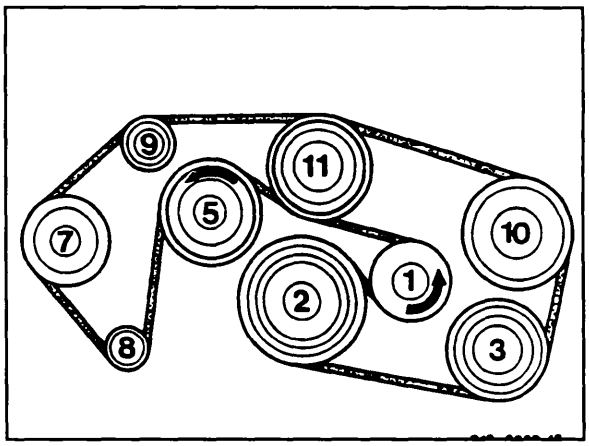
Note:
When the belt length and tension are correct the positioning mark (P) will be within range (A).

- Reverse procedure to install.

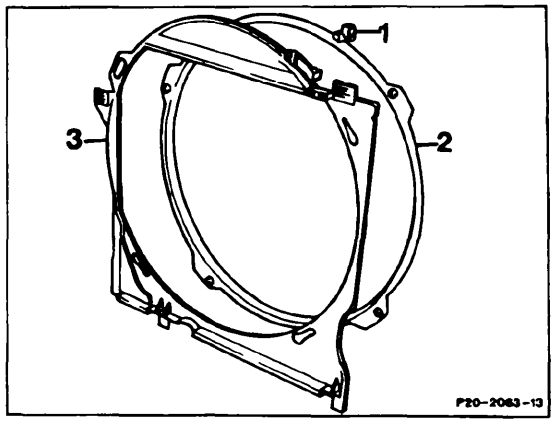


Engine 120.980 Model 140.056/57
Belt routing diagram
Belt length 2585 mm 8 ribs

1. Tensioning pulley
2. Crankshaft
3. A/C compressor
5. Fan
7. Air pump
8. Generator
9. Guide pulley, upper
10. Power steering pump
11. Coolant pump



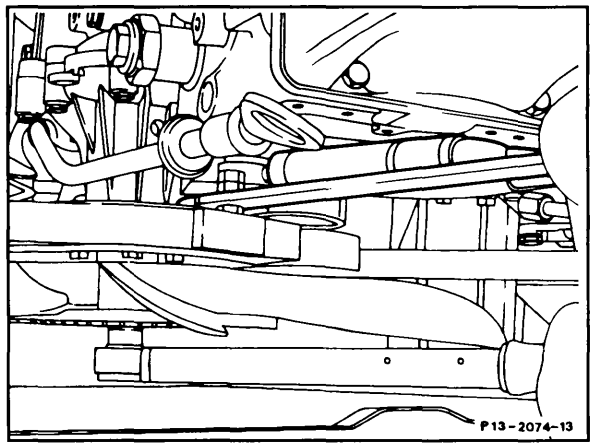
Engine 601, 602 and 603



On engine 601, loosen fan cover and place on fan. Unscrew fan and remove with fan cover.

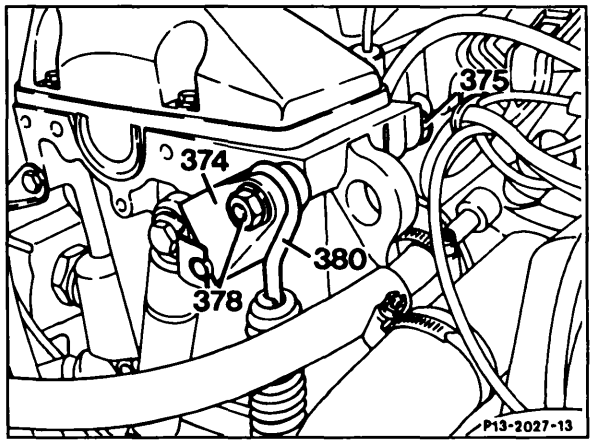
On engine 602.911 in model 201 with one piece fan cover, remove radiator.

On engine 602 in model 201 with two piece fan shroud, pull locking pin (1) and turn ring (2) to the left. to open shroud and remove. Place ring on fan. Pull out shroud body (3) and remove ring.



On engine 602 in model 124, loosen fan cover and place on fan. Unscrew viscofan clutch with fan and remove with fan cover.
To loosen and tighten hex. socket screw of viscofan clutch, use screwdriver insert 103 589 01 09 00 and counterhold 603 589 00 40 00.

On engine 603.96 (TURBO), the viscofan clutch cannot be removed without removing the radiator.



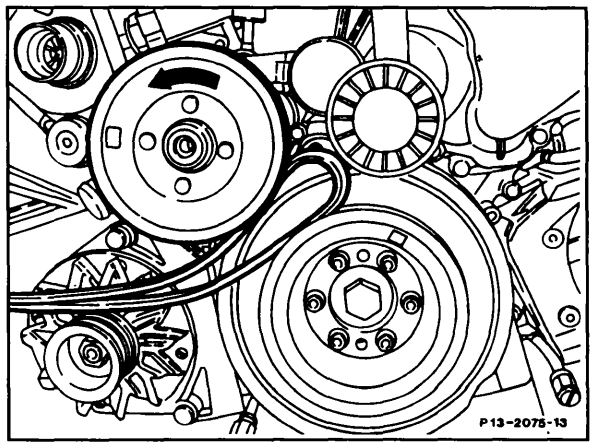
- Loosen tensioning device (vehicle tool or conventional tool):

- Unscrew nut (378).
- Insert a lever (12 - 13 mm dia., approx. 300 mm long) or wheel nut wrench from vehicle tool set into hole on spring tensioning lever (374). Push lever slightly to the left until screw (375) can be pushed back in direction of intake manifold.
- Loosen draw spring (380) by swiveling lever to the right.
- Push back tensioning pulley and remove poly-V-belt.
- Check belt pulley profiles and tensioning device for damage (such as worn out pivot points of tensioning device, dents in pulleys, etc.) and contamination and replace, if necessary.

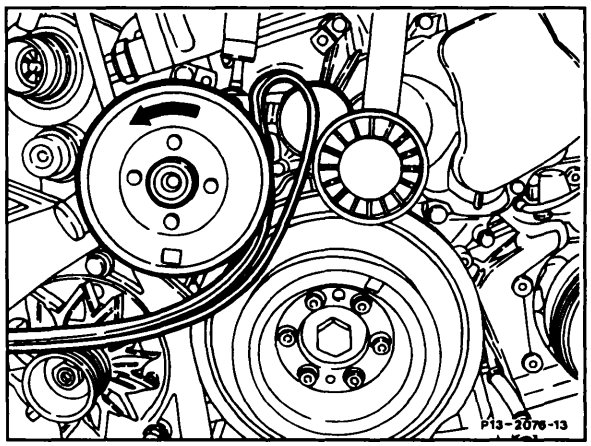
Installing poly-V-belt:

- Do not use belt wax or similar products.

- Slightly pull up tensioning pulley. Make a loop in the poly-V-belt with the V-grooves facing outwards, and slip between coolant pump pulley and crankshaft pulley.

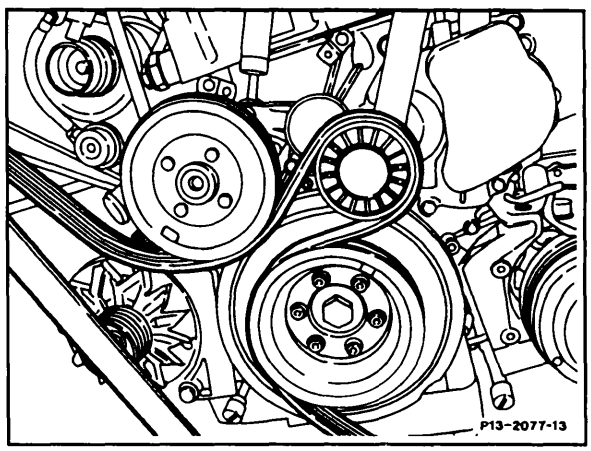


- Push poly-V-belt firmly against coolant pump pulley and turn pulley counterclockwise (arrow) until the poly-V-belt is adjacent to tensioning pulley.



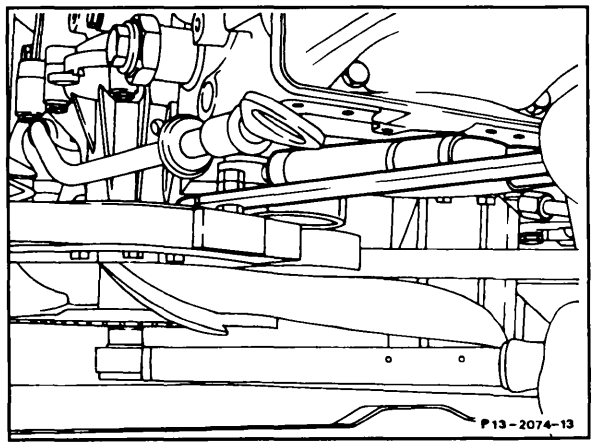
- Position poly-V-belt on tensioning pulley and on crankshaft pulley. Then turn free portion of poly-V-belt around and position on air conditioning compressor, power steering pump, coolant pump and generator pulleys.

- Tension poly-V-belt and screw on tensioning device.



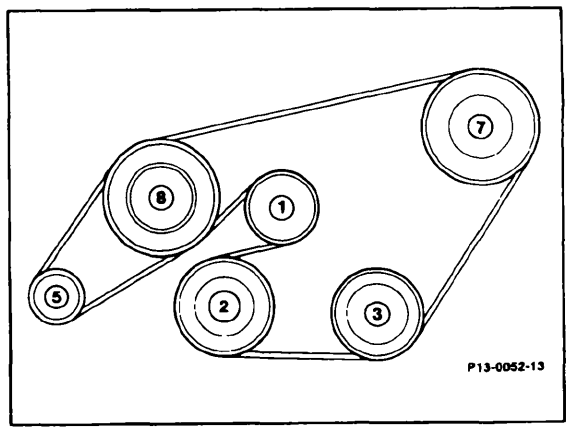
- Check seat of poly-V-belt on belt pulleys.

- On engines 601, 602, 603.91 in model 124, install fan or viscofan clutch with fan and fan cover.
- On engine 601, torque fan mounting screw to 28 Nm.
- Torque viscofan clutch mounting screw to 45 Nm. When tightening use counter hold 603 589 00 40 00.
- On engine 602.911 in model 201 without two piece fan shroud, install radiator.



Belt routing diagram for vehicles with power steering and automatic climate control
Belt lengths:
Engine 601: 2120 mm
Engine 602: 2100 mm
Engine 603.96: 2145 mm
Engine 603.970: 2120 mm

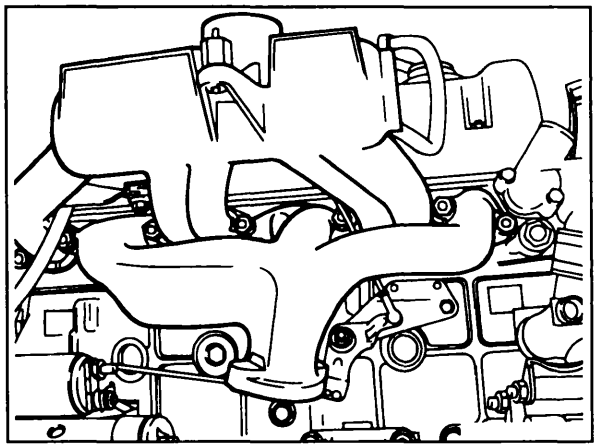
1. Tensioning pulley
2. Crankshaft
3. A/C compressor
5. Generator
7. Power steering pump
8. Coolant pump

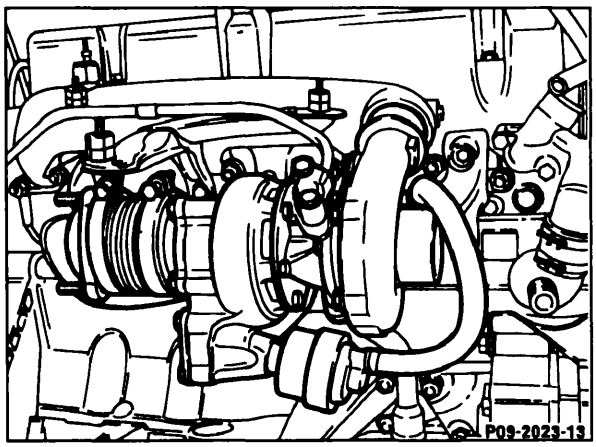


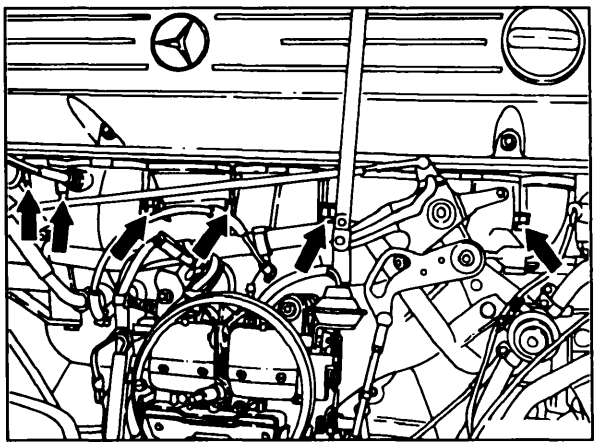
Engine 616 617

Check that all fasteners on intake manifold, boost air pipe, and exhaust manifold are tightened securely, and retighten, if necessary.

On vehicles with turbocharger, remove air filter for access.



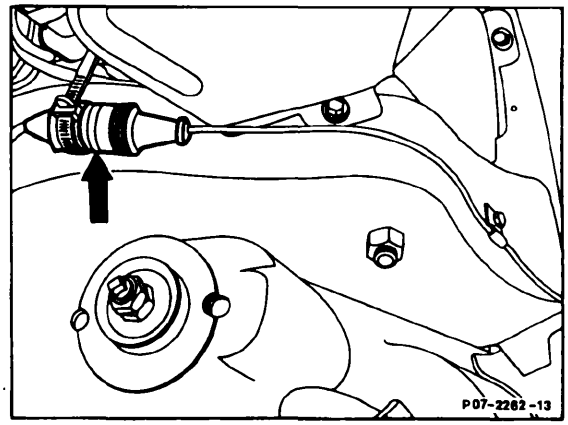




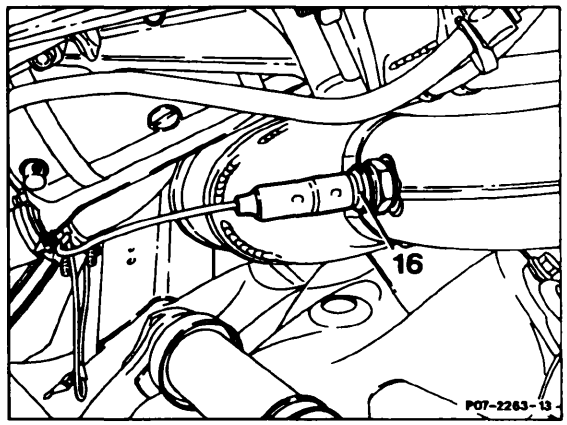
Engine 102 103 110 116 117 119

Model 123

- Disconnect oxygen sensor connector (arrow).
- Loosen oxygen sensor wire retaining clips.

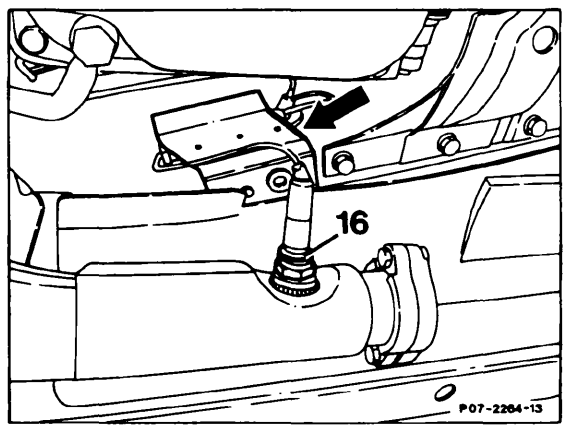


- Unscrew oxygen sensor (16).
- Apply lubricating paste Part no. 000 989 88 51 to threads of new oxygen sensor.
- Install oxygen sensor and torque to approx. 50-60 Nm.
- Remove oxygen sensor warning lamp bulb.



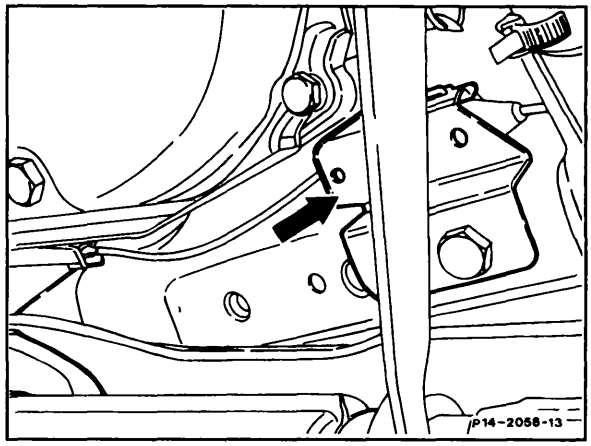
Model 107, 126

- On model 107, push connector upward out of bracket (arrow) and disconnect.



- On model 126, remove bracket (arrow) and push coupling upward, then disconnect. Remove oxygen sensor wire from retaining bracket.

- Unscrew oxygen sensor.

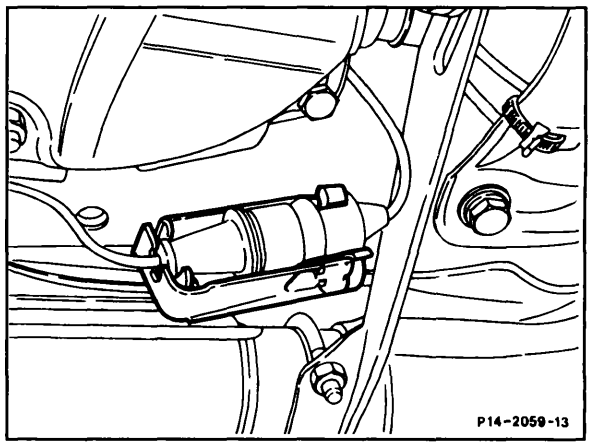


- Apply lubricating paste, part no. 000 989 88 51, to threads of new oxygen sensor.

- Install oxygen sensor and torque to approx. 50-60 Nm.

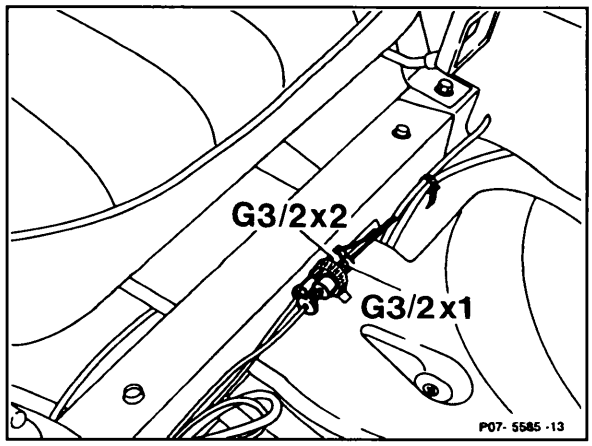
- Install bracket on model 126, and press wire into retaining strip.

- On 1981-85 models only, remove oxygen sensor warning lamp bulb.

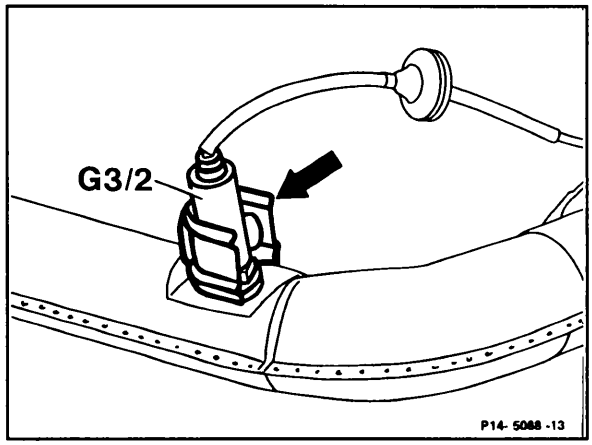


Model 124, 201

- Separate oxygen sensor connector (arrow) and sensor heater connector on right side of vehicle interior.
- Push wire and grommet out through floor pan from inside.



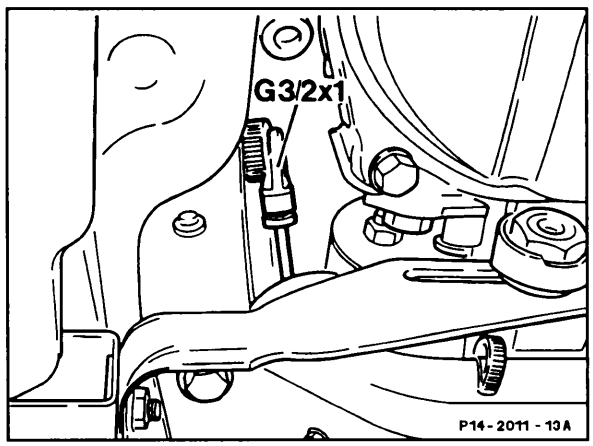
- Remove shield (arrow).
- Unscrew oxygen sensor.
- Apply lubricating paste, part no. 000 989 88 51, to threads of new oxygen sensor.
- Install oxygen sensor and torque to approx. 50-60 Nm.



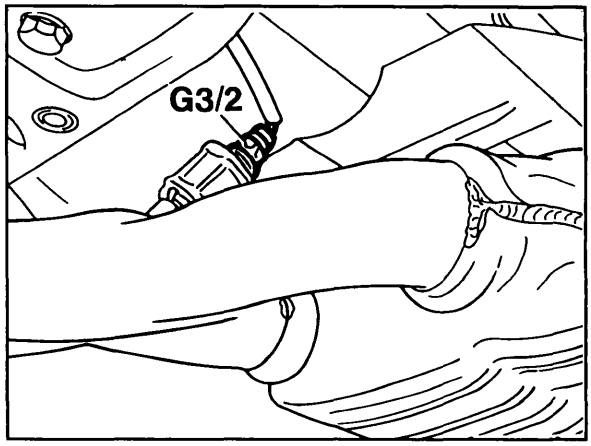
On 1984-86 model 201 only (except 201.034), remove oxygen sensor warning lamp bulb.

Model 129

- The oxygen sensor connector (G3/2x1) is secured to the right side of the transmission tunnel.
- Turn connector nut counterclockwise and separate connector.

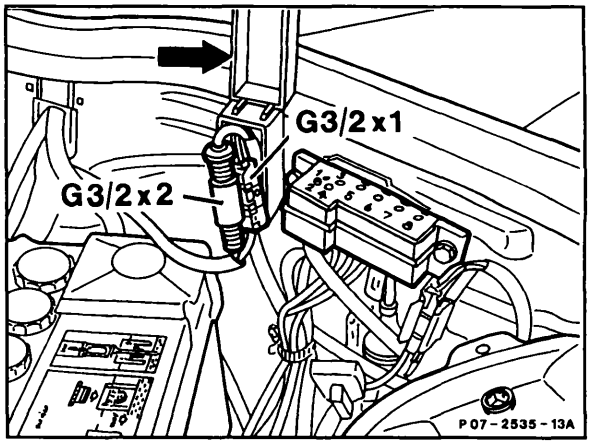


- Unscrew oxygen sensor.
- Apply lubricating paste, part no. 000 989 88 51, to threads of new oxygen sensor.
- Install oxygen sensor and torque to approx. 50-60 Nm.

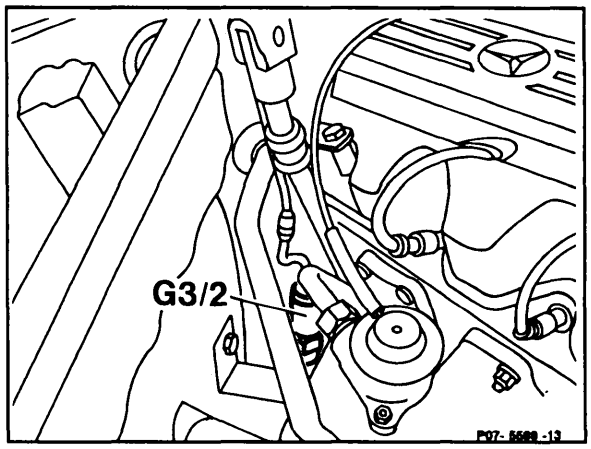


Model 201 with engine 102 California starting model year 1992

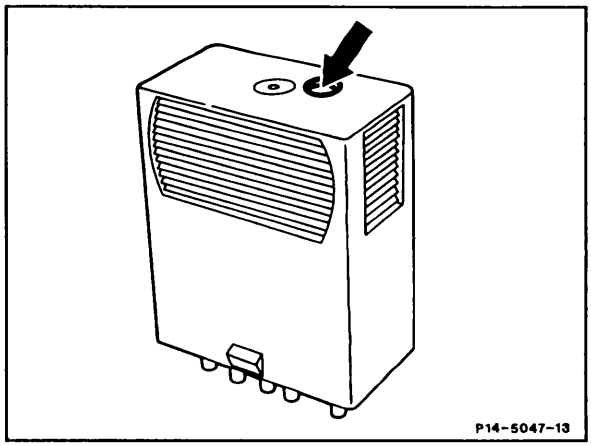
- Disconnect oxygen sensor heater coil connector (G3/2x1) and oxygen sensor signal connector (G3/2x2).



- Unscrew oxygen sensor.
- Apply lubricating paste, part no. 000 989 88 51, to threads of new oxygen sensor.
- Install oxygen sensor and torque to approx. 50-60 Nm.



Maintenance note:
The oxygen sensor must be replaced when the warning lamp illuminates for the first time at 60,000 ± 250 miles. After replacing the sensor, the warning lamp may be switched off via the button (arrow) on the oxygen sensor replacement indicator control module (N44/1). The button must be pressed for longer than 2 seconds to turn off the lamp. In ignition/starter position "2", the lamp remains lit even after resetting the control module. The lamp will only go out after the engine is started (circuit 61 recognition). The previously recorded mileage remains stored. The warning lamp will illuminate for a second time at 120,000 miles.



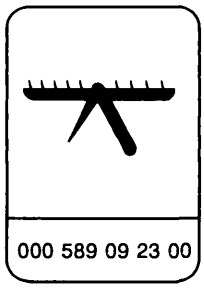
Note:

After the 120,000 mile indication, the on-off ratio should be checked, and the oxygen sensor only replaced if necessary.

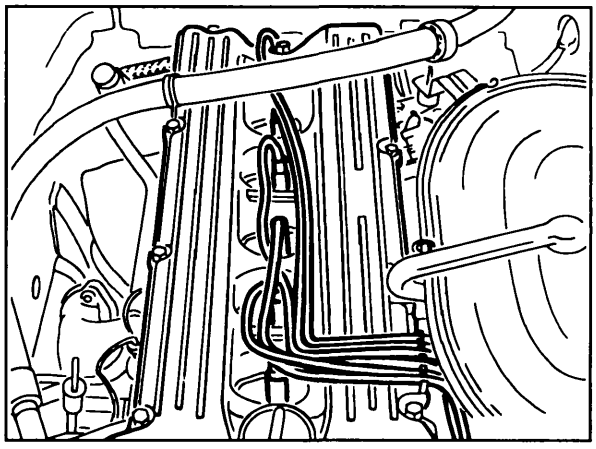
If the oxygen sensor is replaced outside of the interval limit, the oxygen sensor replacement indicator control module (N44/1) must be replaced.
Starting model year 1993, the control module can be reset as often as needed.

All gasoline engines

Special tools



On engine 110 (illustration), blow out spark plug wells in cylinder head before removing spark plugs.



Remove spark plugs and check for deposits on electrodes. If deposits are present, replace spark plugs.

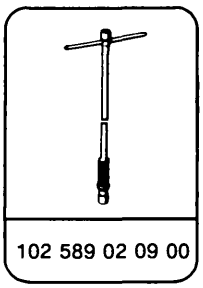
If no deposits are present, regap spark plugs to specification.

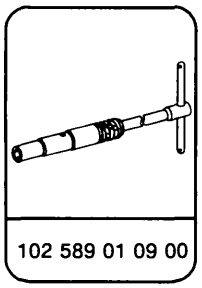
Install spark plugs and torque to 25-30 Nm.

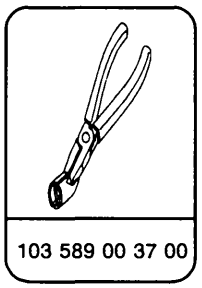
Gasoline engines

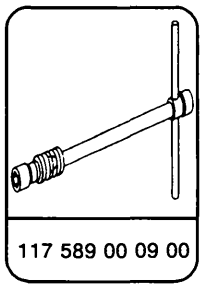
Torque specifications	Nm
Spark plugs with taper seat	10-20
Spark plugs with gasket	25-30

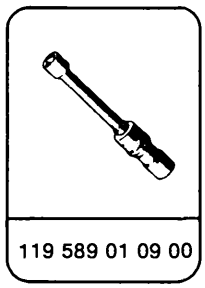
Special tools


102 589 02 09 00


102 589 01 09 00


103 589 00 37 00


117 589 00 09 00


119 589 01 09 00

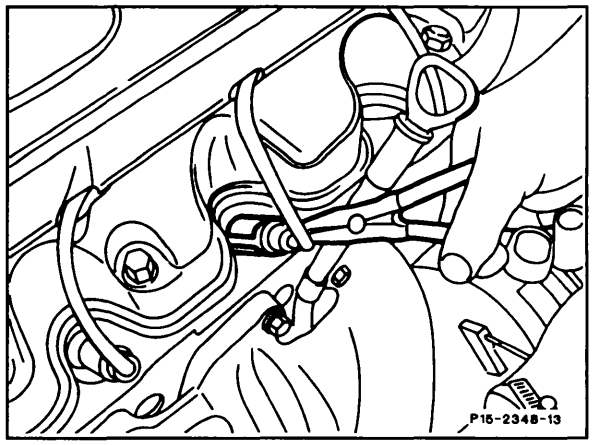
Engines 102.983, 104, 119

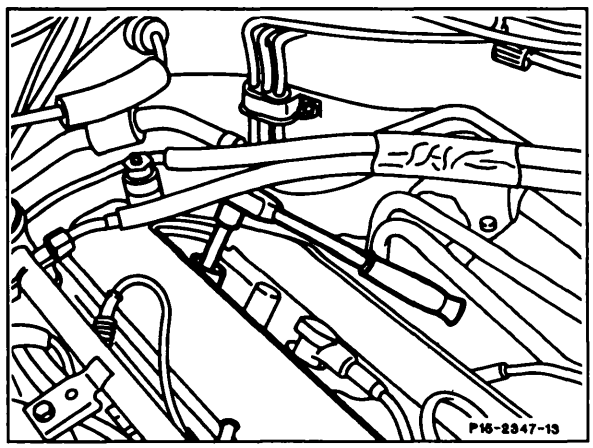
- Remove spark plug valley cover.

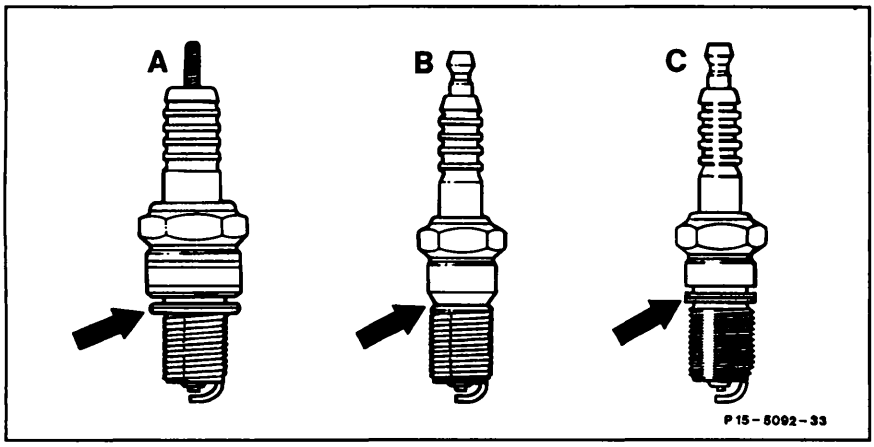
All engines

- Twist spark plug connector slightly and pull off using special tool 103 589 00 37 00.

- Blow out recesses with compressed air.







A flat seat (A)
B tapered seat (B)
C flat seat (C)

CFI fuel injection

Motor	Spark plug seal	Spark plug wrench
102, 103	Tapered seat (B)	102 589 01 09 00
104, 119	Flat seat (C)	120 589 02 09 00 1)
116, 117	Flat seat (A)	117 589 00 09 00

1) Insert commercially available torque wrench

LH-SFI fuel injection

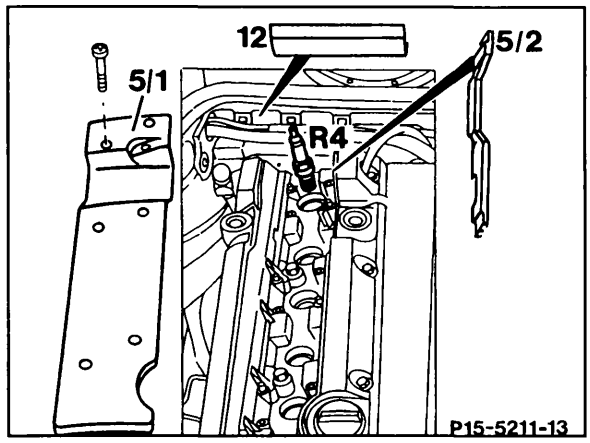
Motor	Spark plug seal	Cylinder	Spark plug wrench
104	Flat seat (C)	all	119 589 01 09 00
119	Flat seat (C)	1–3 and 5–7	120 589 02 09 00 1)
		4 and 8	119 589 01 09 00
120	Flat seat (C)	1–5 and 7–12	120 589 02 09 00 1)
		6	119 589 01 09 00

1) Insert commercially available torque wrench

Spark plug cover, removal and installation

Engine 104 HFM-SFI
Remove air cleaner crossover duct, wiring cover, ignition cable cover (5/1), and guide rail (5/2).

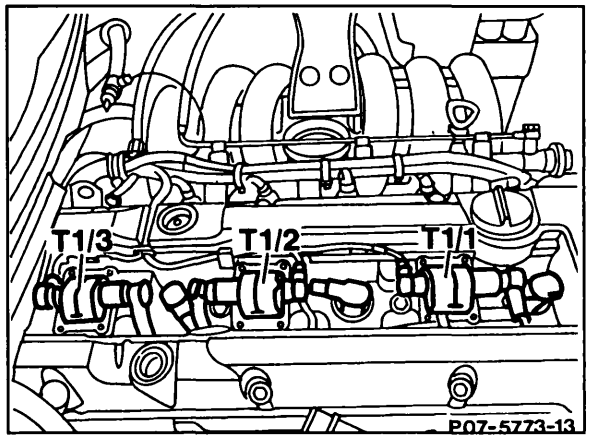
Installation is in the reverse order of removal.



Ignition coils, removal and installation

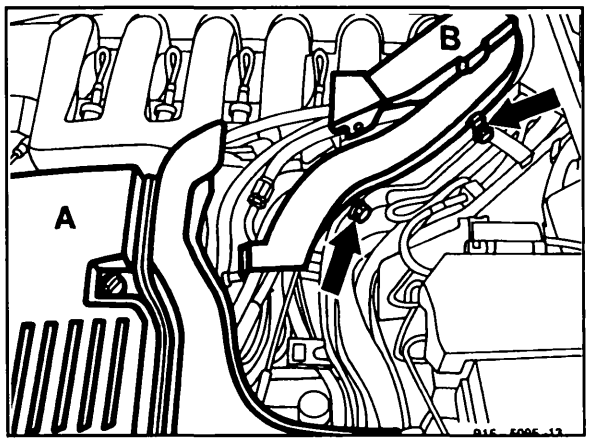
Engine 104 HFM-SFI
Remove ignition coils and cables with associated wiring.

Installation is in the reverse order of removal.



Partial removal of wiring conduit

Engine 120
Pull weatherstripping off partially. Remove covers for ignition control module (A) and for wiring harness (B).
Remove screws for wiring conduit.
Disengage wiring conduit and push forwards.



All models

> ⚠ **WARNING!**
> Open expansion tank/radiator cap **only** at coolant temperatures **below 90°C.**

Specified coolant mixture:

(Antifreeze protection to approx. -37°C)
50% water
50% antifreeze and anti-corrosion protection.
Do not use additives.

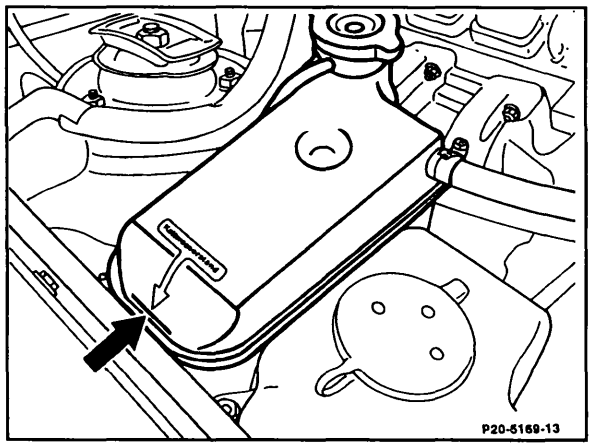
Check concentration of antifreeze/anti-corrosion protection. Top up only on separate order.

The corrosion protection/antifreeze protection should not drop below 40% by volume (corresponding to antifreeze protection to approx. -25°C), since with too low a proportion, corrosion protection becomes inadequate.
Use only approved antifreeze. Refer to Factory Approved Service Products list.

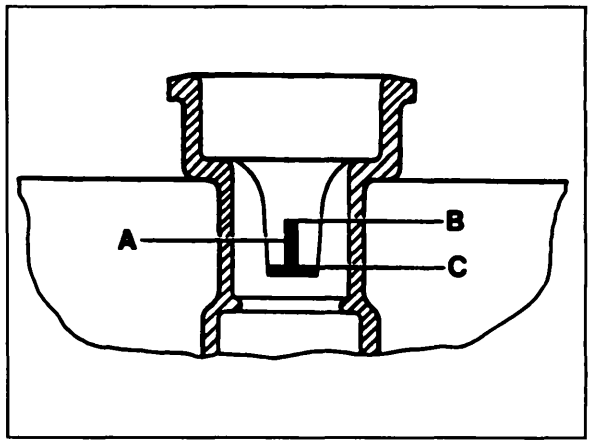
- With coolant loss not caused by normal use determine the cause and repair on separate order.
- Opening: Turn cap only to first detent to release excess pressure.
- Turn cap to second detent and remove cap from expansion tank /radiator.

Coolant level should be as follows:

- With cold coolant, up to mark on tank (arrow).
- With warm coolant approx. 1 cm above mark.



- On vehicles without separate expansion tank, up to marks as illustrated.



Vehicles without coolant reservoir

A Filling mark
B Coolant warm
C Coolant cold

Model 107 starting 08.1985
124
126 starting 09.1985
129
140
201 starting 01.1985

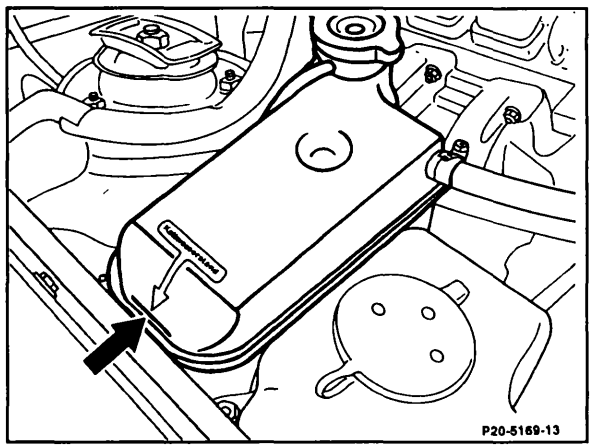
⚠ **Warning!**

Open the expansion tank/radiator cap **only** at coolant temperatures **below 90°C**.

- Opening: Turn cap only to first detent to release pressure.
- Turn cap to second detent and remove cap from expansion tank/radiator.

Coolant level should be as follows:

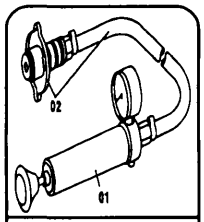
- Up to mark printed on tank (arrow).
- With warm coolant approx. 1 cm above this mark.



- If coolant loss is excessive, determine the cause and repair on separate order.

Model 107 up through 07.1985
123
126 up through 08.1985
201 up through 12.1984

Special tools



124 589 15 21 00

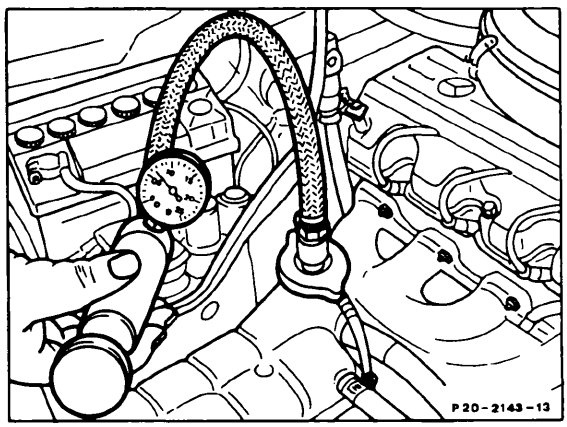
Commercial tools

7 mm hex. socket wrench on flexible drive for worm drive hose clamps.	obtain locally

Warning! Perform leak test on **cold engine only!**

Check hoses for porosity, hardening, swelling, cracks or chafing marks and correct routing. Replace defective hoses.

- Apply pressure of 1.0 to 1.3 bar gauge to cooling system.
- Check all hoses and connections for leakage.
- Retighten hose clamps, if required.
- Replace corroded hose clamps.
- Replace a corroded radiator/expansion tank cap.



All models

On separate order

Total capacity of cooling system and ratio of antifreeze to water in liters

Model	Engine	Total capacity of cooling system incl. heater	Antifreeze protection to -37°C (50 Vol. -%)	Antifreeze protection to -45°C (55 Vol. -%)
107	116.96	12.5	6.25	7
	117.96	13.5	6.75	7.5
123	110, 616	10	5	5.5
	617.91	11	5.5	6
	617.95	12.5	6.25	7
124	103, 104, 602.96	9.5	4.75	5.25
	119	15.5	7.75	8.5
	603.96	10	5	5.5
126	103	8	4	4.4
	116.96	12.5	6.25	7.5
	117.96	13.5	6.75	7.5
	603.96/97	10	5	5.5
	617.95	12	6	6.5
129	104	11.5	5.75	6.3
	119	15	7.5	8.25
	120	15.5	7.75	8.5

Model	Engine	Total capacity of cooling system incl. heater	Antifreeze protection to -37°C (50 Vol. -%)	Antifreeze protection to -45°C (55 Vol. -%)
140	104	14.5	7.25	8
	119.970/971	16.5	8.25	9
	120	18.5	7.75	10.25
	603.96	10	5	5.5
201	102.961/985 601.921	8.5	4.25	4.75
	103.942	9.5	4.75	5.25
	102.983 602.911/961	8	4	4.5

Torque specifications (Nm)

Radiator drain plug, model 107 (w/o light alloy radiator)	6-10
Radiator drain plug, model 107 (w/ light alloy radiator), model 123, 124, 126, 129, 201	1.5-2 [1]

[1]) This torque can be achieved using a washer or coin.

Coolant

Coolant composition

50% by volume of water
50% by volume of corrosion protection/antifreeze agent.

Water

Use clean water that is not too hard. Usually, though not always, tap water meets these requirements. The dissolved substances in the water can contribute to corrosion. If in doubt, have the water analyzed.

Corrosion protection/antifreeze

Corrosion protection/antifreeze must provide the following:

- Adequate corrosion and cavitation protection for all components
- Antifreeze protection
- Higher boiling point.

Approx. 50% by volume of antifreeze must be added to the water. This concentration provides antifreeze protection down to approx. -37°C.

A higher concentration is only practical with even lower ambient temperatures.

Exceeding 55% by volume of corrosion protection/antifreeze agent reduces the antifreeze protection as well as the heat dissipating ability of the coolant.

55% by volume of corrosion protection/antifreeze agent proves antifreeze protection down to approx. -45°C.

Corrosion protection/antifreeze increases the boiling point, i.e. the coolant does not vaporize as rapidly. At high coolant temperatures, coolant boil over is avoided.

Use only approved corrosion protection/antifreeze.

Checking coolant in service

Before the start of the cold season, check the coolant for antifreeze protection.

In countries with high ambient temperatures, check corrosion protection/antifreeze concentration in coolant once a year.

When refilling (after coolant loss), ensure that the coolant contains 50% by volume of corrosion protection/antifreeze (protection down to -37°C).

The corrosion protection in the coolant diminishes during operation. The coolant then has a corrosive effect.

Thee coolant should be used for a maximum of **3 years.**

Before adding in new coolant, flush the old coolant from the cooling system.

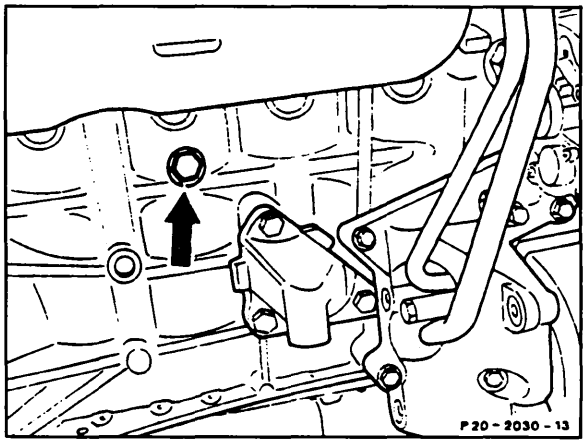
For draining and filling of coolant, see repair instruction 20-010.

Disposal of coolant

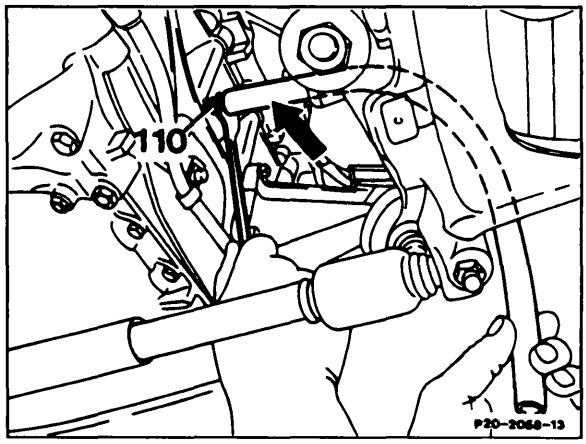
Old coolant must be disposed of according to local laws and waste water or environmental regulations.

Engine block coolant drain locations

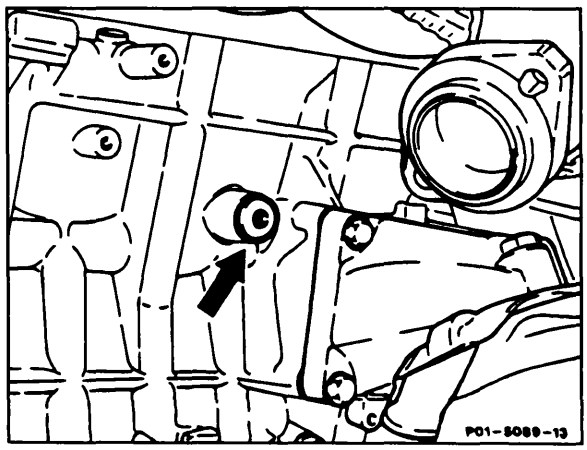
Engine 110	Right side of engine block to rear of engine mount bracket.
Engine 116, 117, 119	Right plug is forward of RH engine mount; left plug is forward of LH engine mount.
Engine 616, 617	Right side of engine block to rear of engine mount bracket, forward of starter.



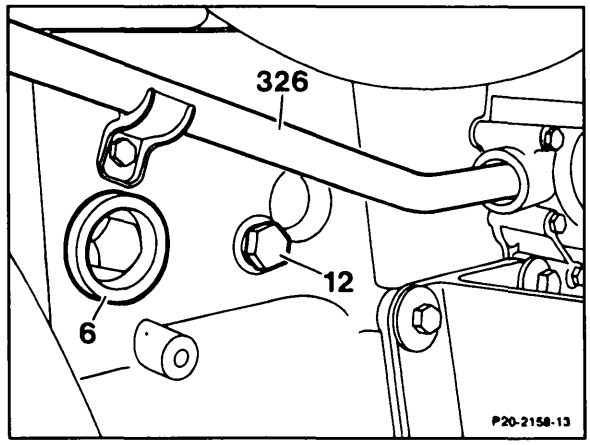
Engine block coolant drain, engine 102



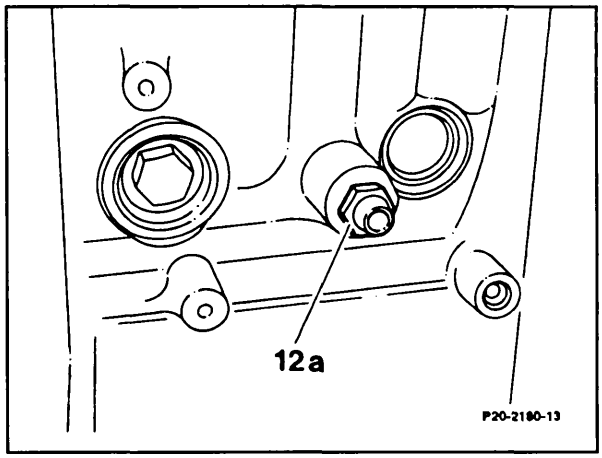
Engine block coolant drain (110) with drain hose attached, engine 103, 104



Engine block coolant drain, engine 120



Engine block coolant drain (12), engine 601

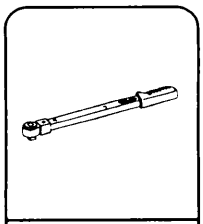


Engine block coolant drain (12a), engine 602, 603

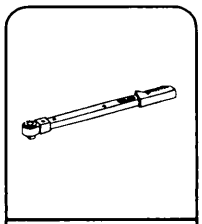
Engine 616 617

Torque specifications	Nm
Nuts (4) and bolts (6) of front engine stop	30
Adjusting bolt (2) of front engine stop	130
Nut (1) at rear of engine stop (ref. value)	70
Bolts (14) on rear engine mount	20
Adjusting bolt (11) on rear engine mount	30

Special tools



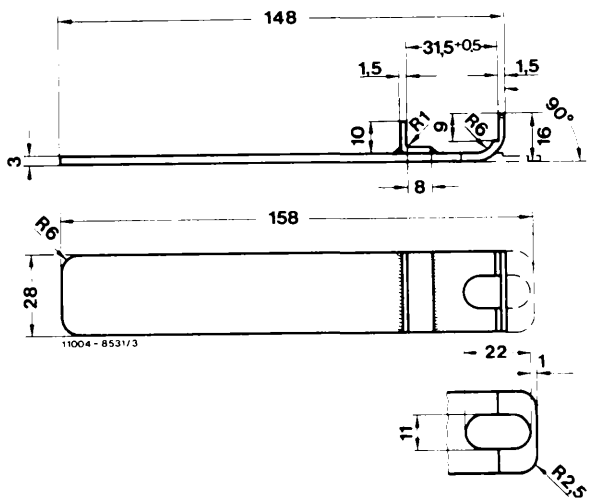
001 589 66 21 00



001 589 67 21 00

Locally fabricated tools

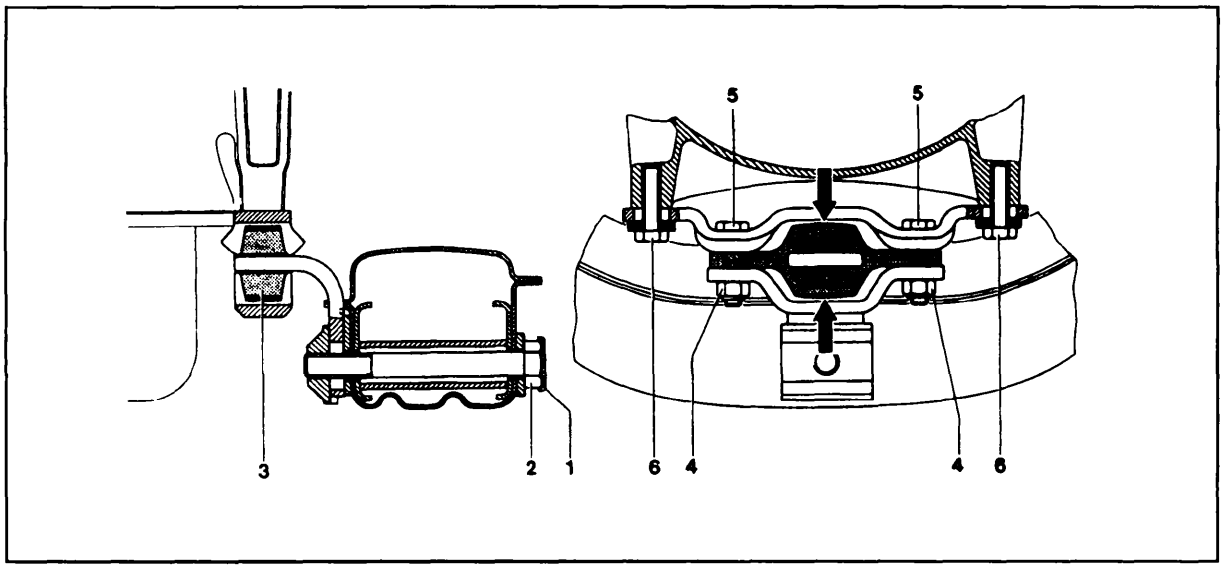
Gauge for adjusting front engine stop



Note: The vehicle weight must rest on the wheels.

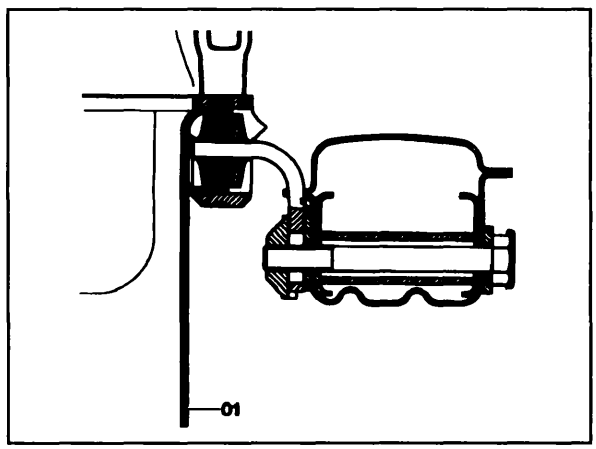
Torque or retorque all bolts and nuts to the specified torque with torque wrench except nut (1) on rear engine mount.

On engine 617.91 loosening and retightening of bolts on front engine stop is not required.



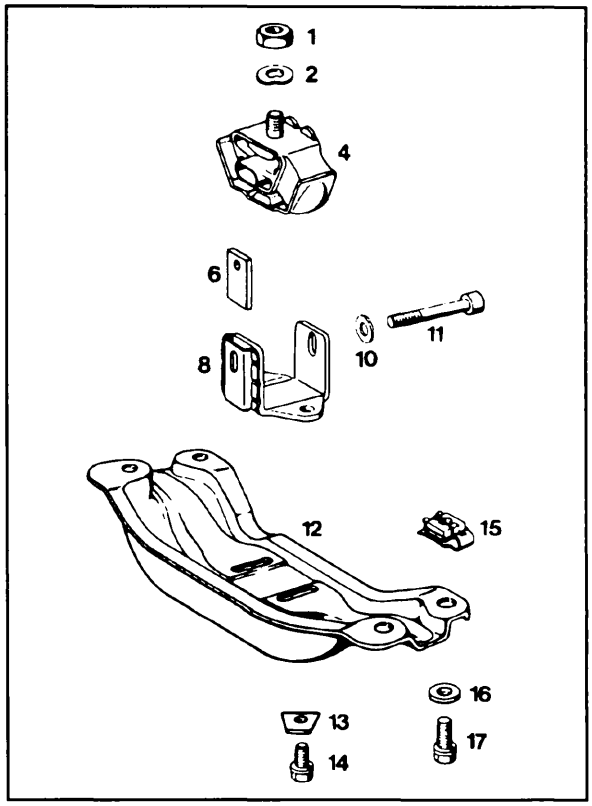
Front engine stop

- Turn steering wheel to full lock either right or left.
- Tighten bolts (6) and nuts) at front engine stop. When tightening nuts (4) hold bolts (5) in position.
- Tighten nut (1) and bolts (14) on rear engine mount.
- Lift lock (1) on front engine stop and move aside. Completely loosen adjusting bolt (2). Make sure that engine stop is not stuck to frame crossmember due to wax or paint.



- Completely loosen adjusting bolt (11) on rear engine mount.
- Place fabricated gauge (01) on front engine stop.
- Shake engine from side to side by hand.
- Tighten adjusting bolt (11) on rear engine mount.

- Tighten adjusting bolt (2) on front engine stop and secure with lock (1).
- Remove fabricated gauge.

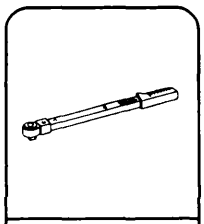


Rear engine mount with engine stop
Version: 4 & 5 cylinder models with automatic transmission

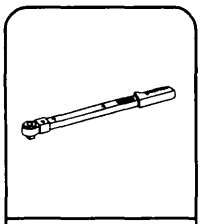
Engine 616 617.91

Torque specifications	Nm
Adjusting bolt (2) on front engine stop	130
Adjusting bolt (11) on rear engine mount	30

Special tools



001 589 66 21 00



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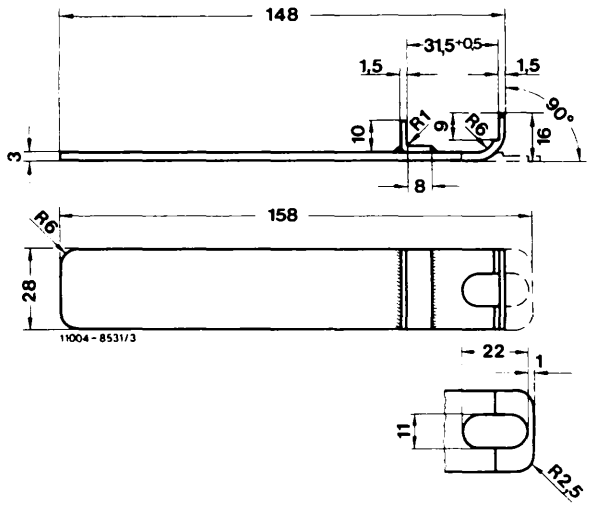
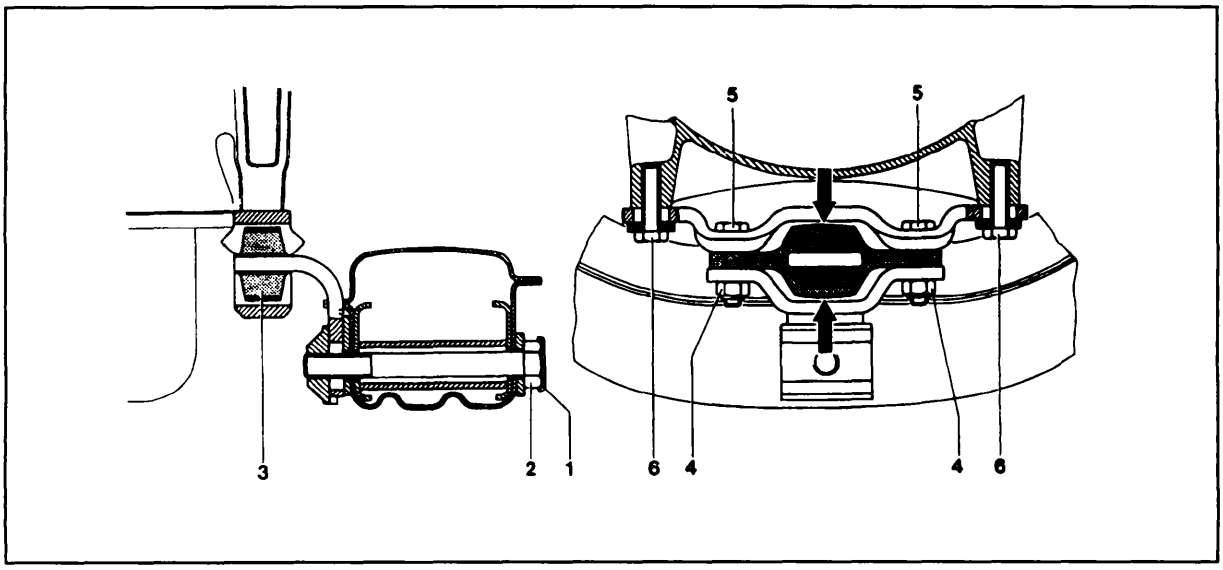
Locally fabricated tools

Gauge for adjusting front engine stop





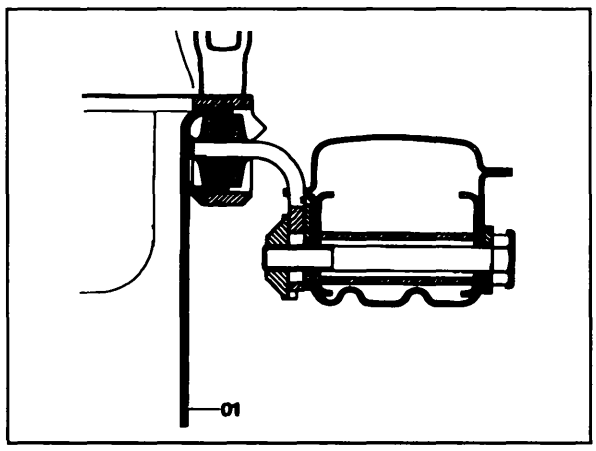
Front engine stop

Note: The vehicle weight must rest on the suspension.

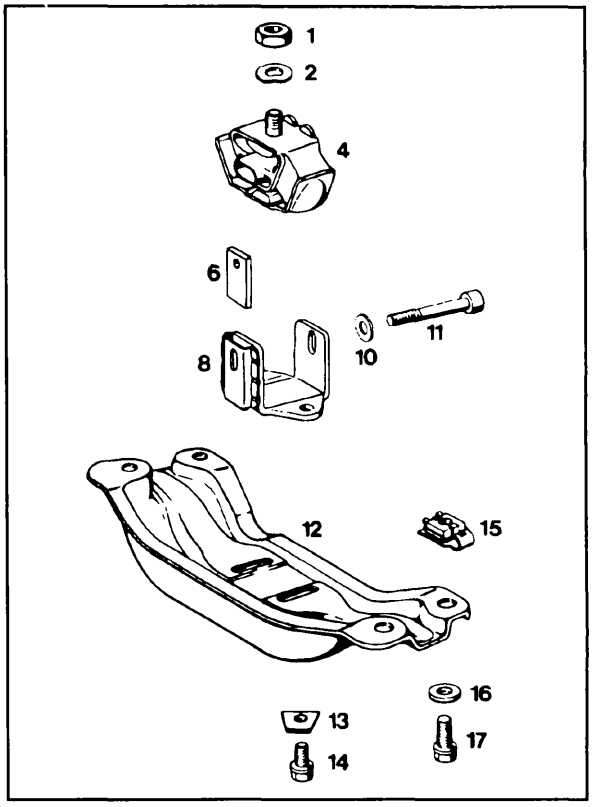
On engine 617.91 loosening and retightening of bolts on front engine stop is not required.

- Turn steering wheel to full lock, either right or left.
- Lift lock (1) on front engine stop and move aside. Completely loosen adjusting bolt (2). Make sure that engine stop is not stuck to frame crossmember due to wax or paint.

- Completely loosen adjusting bolt (11) on rear engine mount.
- Place fabricated gauge (01) on front engine stop.
- Shake engine from side to side by hand.



- Tighten adjusting bolt (11) on rear engine mount.
- Tighten adjusting bolt (2) on front engine stop and secure with lock (1).
- Remove fabricated gauge.

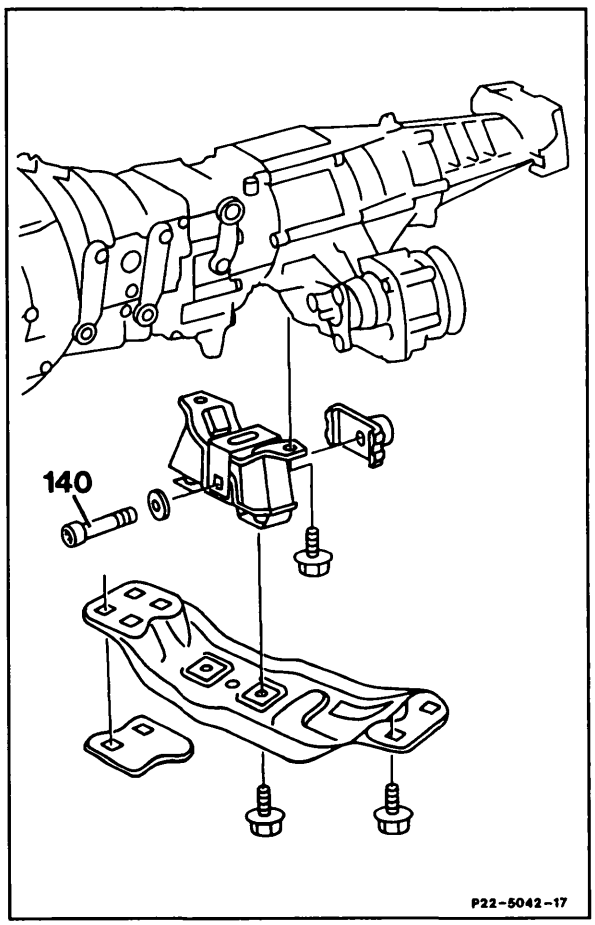


Rear engine mount with engine stop
Version: 4 & 5 cylinder models with automatic transmission

Engine 103 in model 124 with 4MATIC

Torque specifications (Nm)

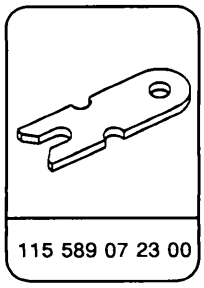
Adjusting screw (140) on rear mount (reference value)	45



- Completely loosen adjusting bolt (140) on rear engine mount.
- Start engine and depress gas pedal several times to rock engine to adjust engine stop.
- Tighten adjusting bolt (140) on rear engine mount to 45 Nm.

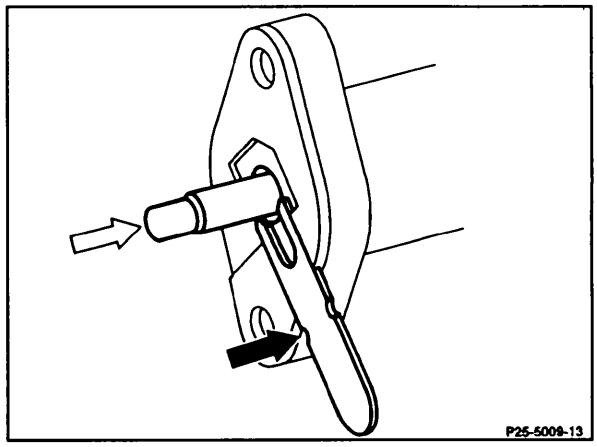
Models 123 124 129 201

Special tools



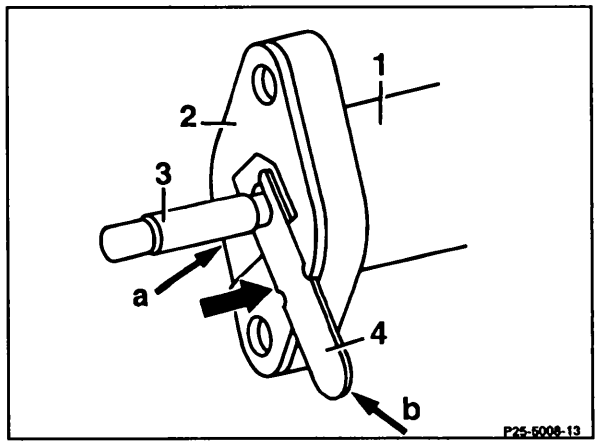
Insert slip gauge as far as possible between clutch housing and slave cylinder and note position of notches (arrow) in gauge.

If notches are not visible:
Clutch disk wear is acceptable.



If notches are visible:
Wear limit of disk **has been reached.**

Replace clutch disk.



1 Slave cylinder
2 Shim between slave cylinder and clutch housing
3 Actuating rod
4 Slip gauge

Model 123 124 129 201

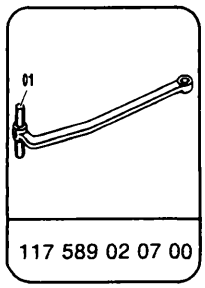
Oil grades

approved oil	Refer to MBNA Factory Approved Service Products list

Capacities in liters

Transmission type		Capacity
4-speed transmission	716.0	1.6
	716.21	1.3
5-speed transmission	717.40	1.6
	717.41	1.5
	717.43	1.5
	717.45	1.7

Special tools



Commercial tools

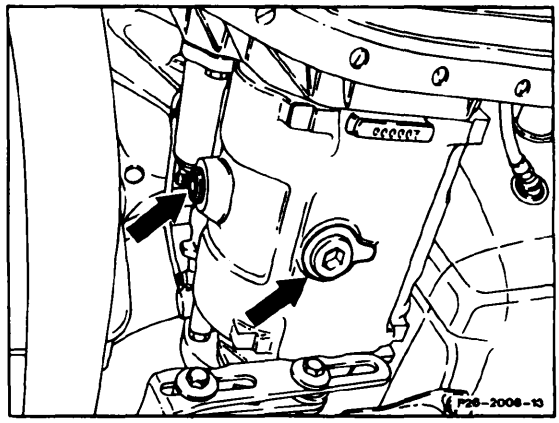
14 mm hex. driver insert, 1/2" square drive	obtain locally

Note: When performing this job number, the engine compartment lower panel or the noise encapsulation panel must be removed, and replaced after completing all maintenance work (refer to job number 6190 or 9400).

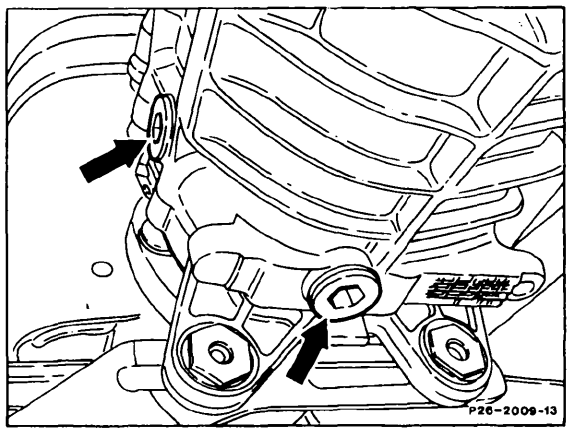
Warning! To help prevent risk of injury when opening filler plug on model 201, wear leather gloves; place an extension on wrench; or open filler plug by striking wrench.

- Drain oil only with transmission at operating temperature; remove both oil filler plug and drain plug. Clean drain plug with magnet.

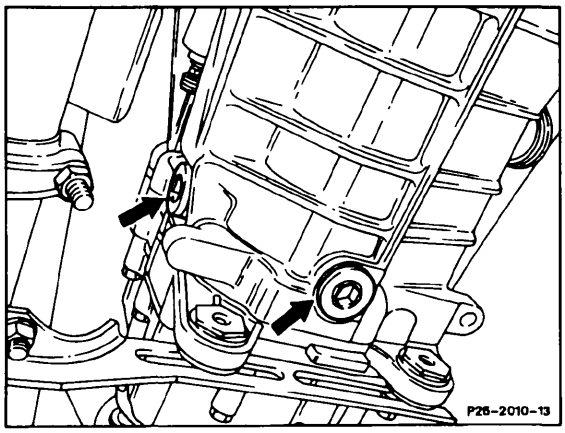
- Install oil drain plug and torque to max. 60 Nm.
- Fill oil up to over flow (upper arrow). Install oil filler plug and torque to max. 60 Nm.
- Check transmission for leaks at operating temperature.



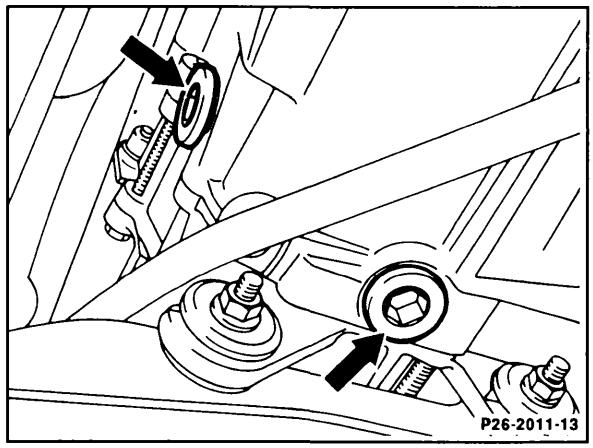
Transmission 716.0



Transmission 716.21



Transmission 717.40

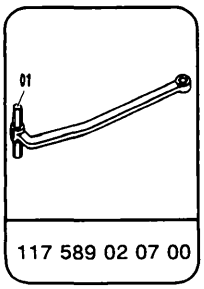


Transmission 717.41, 717.43, 717.45

Oil grades

ATF approved oil	Refer to MBNA Factory Approved Service Products list

Special tools



Commercial tools

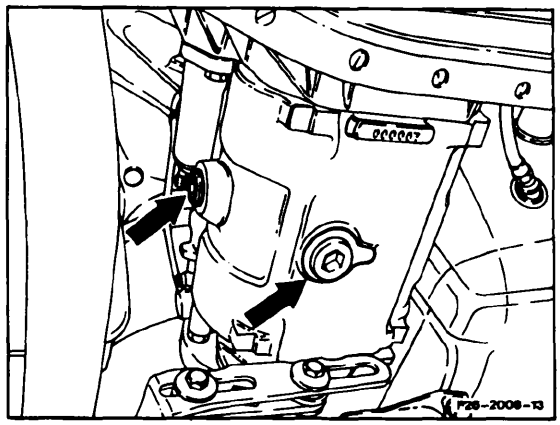
14 mm hex. driver insert, 1/2" square drive	obtain locally

Note: When performing this job number, the engine compartment lower panel or the noise encapsulation panel must be removed, and replaced after completing all maintenance work (refer to job number 6190 or 9400).

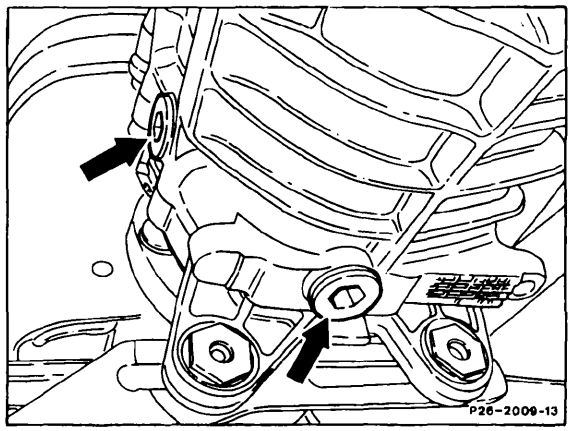
Warning! To help prevent risk of injury when opening filler plug on model 201, wear leather gloves; place an extension on wrench; or open filler plug by striking wrench.

- Remove oil filler plug (upper arrow in figure).
- If a minimal amount of oil runs out or if the oil level is at lower edge of opening, oil level is correct.
  If not, add oil.

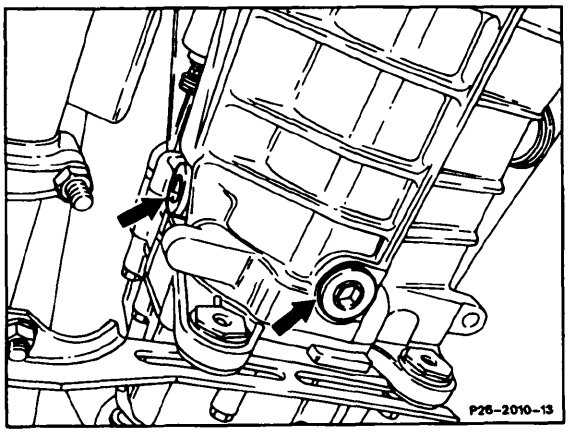
- Install oil filler plug and torque to max. 60 Nm.
- If oil loss is excessive, determine cause and repair on separate order.



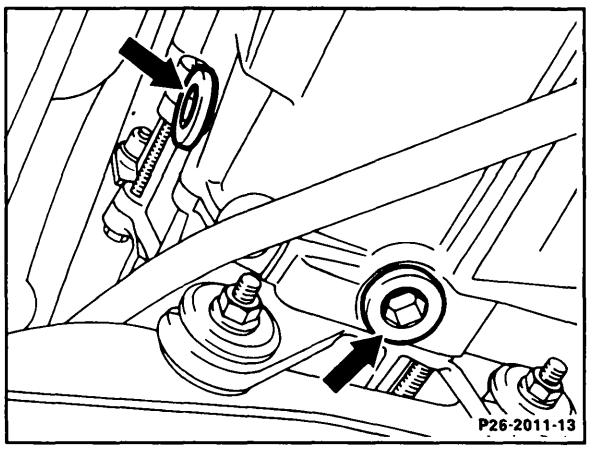
Transmission 716.0



Transmission 716.21



Transmission 717.40



Transmission 717.41, 717.43, 717.45

All models

Oil grades

ATF	Refer to MBNA Factory Approved Service Products list

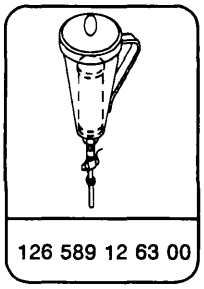
Capacities in liters

Models with		Transmission	Full capacity	Oil change
4- and 5-cylinder engines		722.1	6.1	4.8
		722.3	7.3	6.2
	(exc. 102.98, 602.96)	722.4	6.6	5.5
	(102.98, 602.96)		7.1	6.0
6-cylinder engines		722.1	6.6	5.3
		722.3	7.3	6.2
		722.4	7.1	6.0
		722.5	7.3	6.2
8-cylinder engines	3.8, 1981-82	722.3	7.3	6.2
	3.8, 1983-85		8.6	7.7
	4.2, 5.0, 5.6	722.0	8.9	7.9
		722.3	8.6	7.7
12-cylinder engines		722.3	8.6	7.7

Torque specifications		Nm
Drain plug, torque converter		14
Drain plug, oil pan (transmission 722.3, 722.4, 722.5)		14
Bolts, oil pan	Transmission 722.0, 722.1	7
Bolts, oil pan	Transmission 722.3, 722.4, 722.5	8
Bolts, front axle crossmember (model 126)		45

Note: On vehicles operating under severe conditions (e.g. taxi operation, primarily city operation, trailer operation, or operation in mountainous regions), perform additional oil change (without filter change) in between normal interval.

Special tools

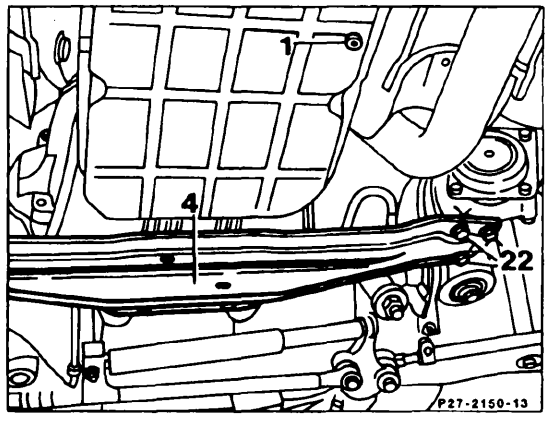


Note: When performing this job number, the engine compartment lower panel or the noise encapsulation panel must be removed, and replaced after completing all maintenance work (refer to job number 6190 or 9400).

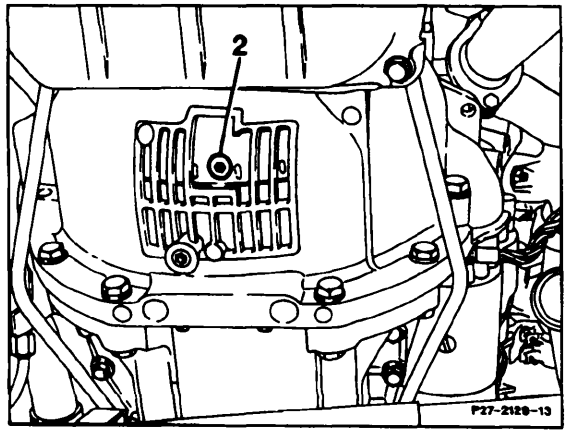
Caution! Perform fluid change with engine stopped and selector lever in P position.

On model 126, remove front axle crossmember (4), to gain access to torque converter drain plug.
Bolts (22) are self-locking (micro-encapsulated) and should be replaced.

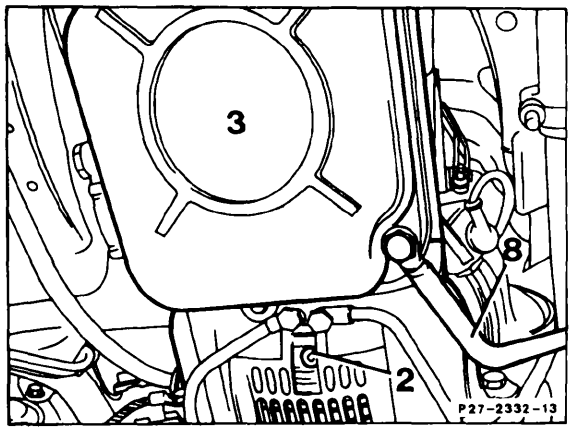
- Remove oil pan drain plug (1) on transmission 722.3, 722.4, and 722.5 and drain fluid.



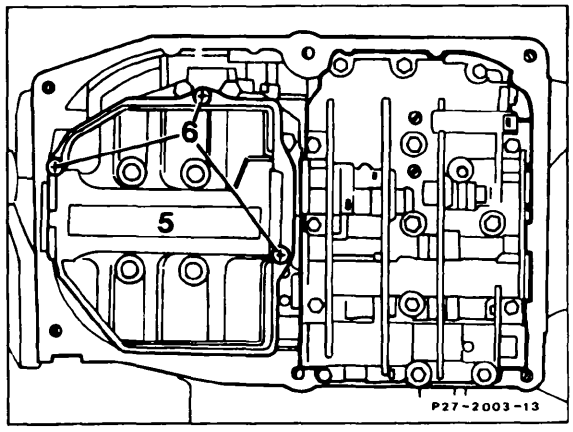
- Turn crankshaft until drain plug (2) of torque converter is accessible through opening in vent grille. Remove drain plug and allow fluid to drain.



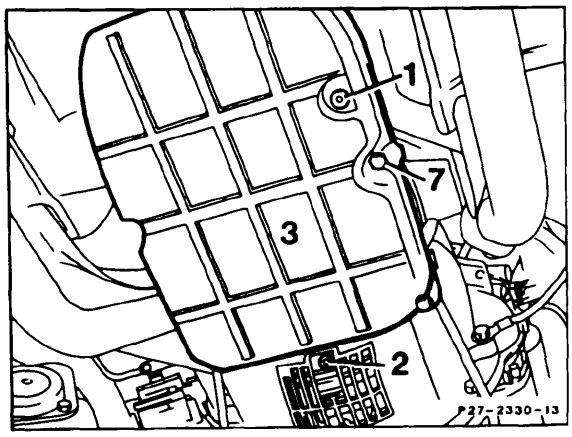
- Disconnect filler pipe (8) (transmission 722.0 and 722.1) and drain fluid.
- Remove pan (3).



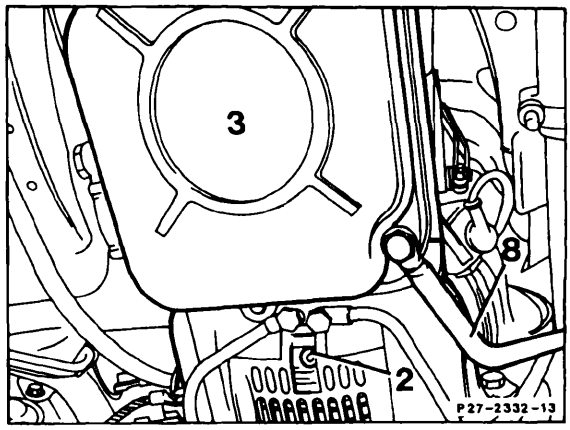
- Replace filter (5).



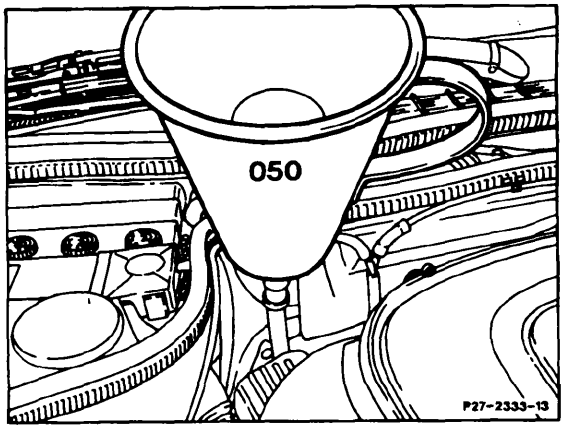
- Clean pan (3) and install, torque bolts (7) on transmission 722.0, 722.1, to 7 Nm and transmission 722.3, 722.4, 722.5 to 8 Nm.
- Install pan drain plug (1) and torque converter drain plug (2) and torque to 14 Nm.
- Model 126: Install front axle crossmember, torque bolts to 45 Nm.



- Install oil filler pipe (8) (transmission 722.0, 722.1).



- Actuate parking brake.
- Insert funnel (050) into dipstick opening and, with engine stopped, fill in approx. 4 liters of fluid. Start engine and run in selector lever position P at idle. Gradually add remaining fluid. Move selector lever through positions R-N-D-N-R, pausing in each position for several seconds, then return to position P.



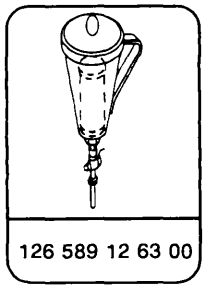
- Correct fluid level (refer to job no. 2710).

All models

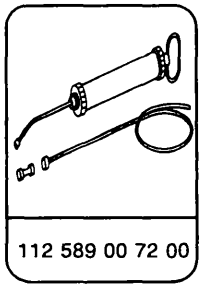
Oil grades

ATF	Refer to MBNA Factory Approved Service Products list

Special tools



126 589 12 63 00



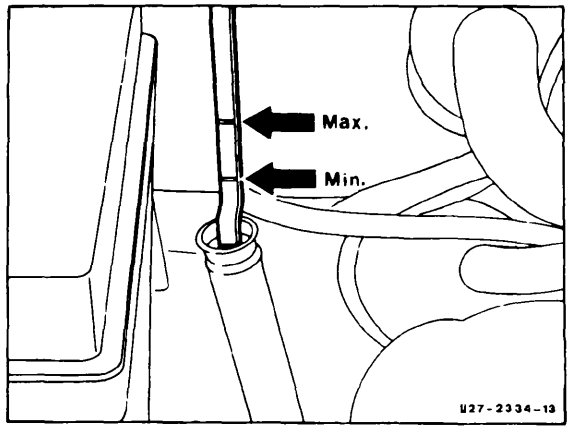
112 589 00 72 00

Note: Too low or too high a fluid level will affect the operation of the transmission. The fluid level should be checked regularly with the dipstick from the engine compartment. When checking fluid level, vehicle should be parked on level surface.

The fluid level varies with fluid temperature. The min. and max. marks on the dipstick are based on a **fluid temperature of 80°C** (transmission at normal operating temperature).

However, at a fluid temperature of 20-30°C the max. oil level will read below the min. mark as follows:

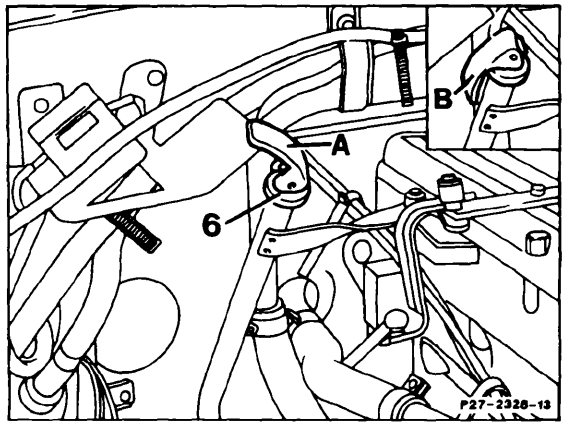
Transmission	722.0	30 mm
	722.1	30 mm
	722.3	10 mm
	722.4	12 mm
	722.5	10 mm



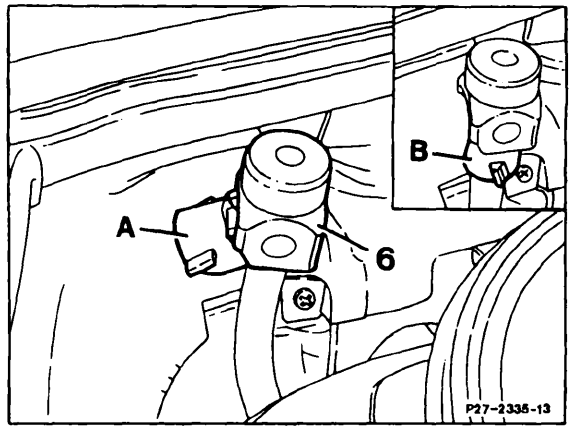
Check

- Apply parking brake.
- Place selector lever in position P.
- Run engine for 1 to 2 minutes.

- Open latch (position A), pull out dipstick (6), wipe with lint free rag (leather is best).
- Insert dipstick fully with latch open, and read fluid level.
- After measuring or correcting fluid level, close latch (position B).

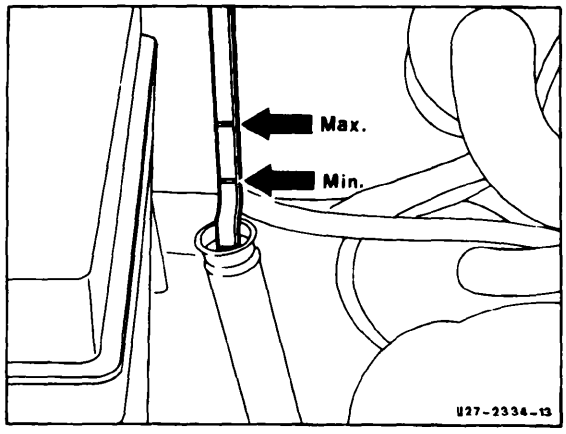


Dipstick latch, transmission 722.0, 722.1



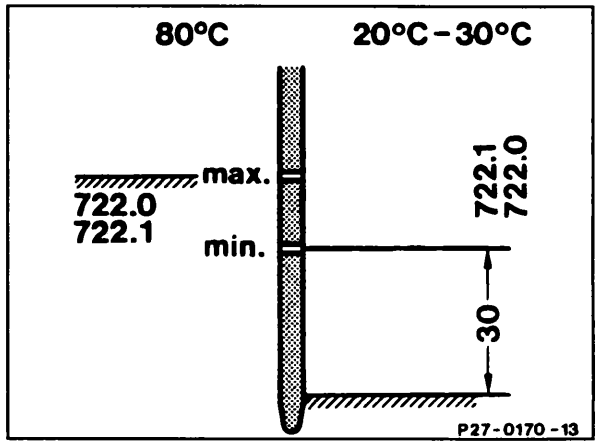
Dipstick latch, transmission 722.3, 722.4, 722.5

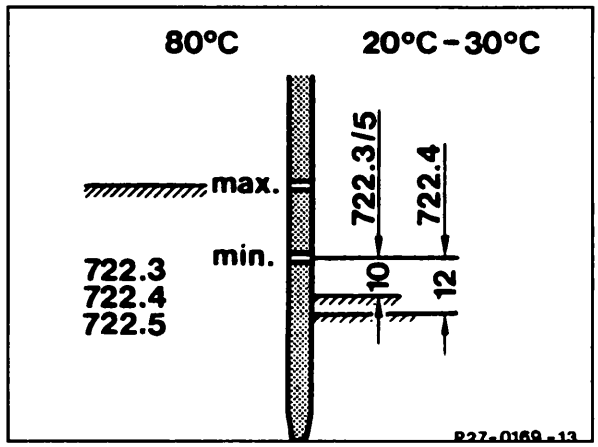
- With the transmission at operating temperature, the oil level should be at the max. mark.



- At a transmission fluid temperature of approx. 20-30°C, the fluid level should be below min. mark, depending on type of transmission (as shown).

If fluid loss is excessive, determine cause and repair on separate order.



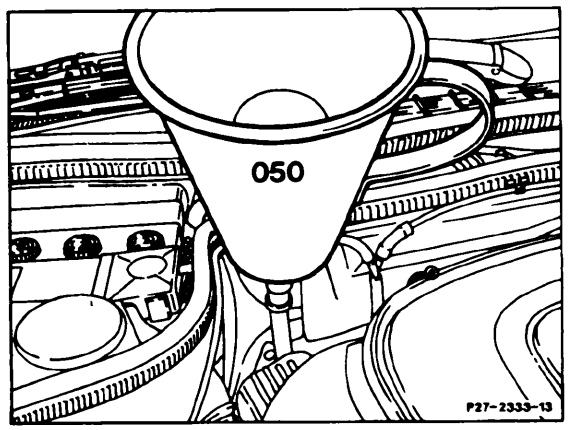


Correcting fluid level

Add necessary amount of fluid through funnel (050) into dipstick tube with engine running.

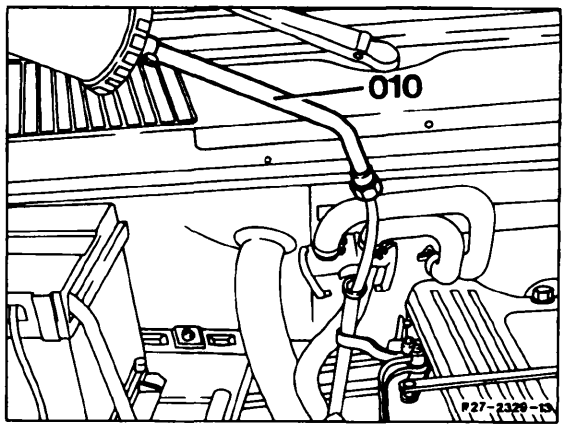
Note: The distance between min. and max. mark on dipstick is approx. 0.3 liter of transmission fluid.

After filling fluid to specified level, apply parking brake. Move selector lever through positions R-N-D-N-R, pausing for a few seconds in each position, and return to P position, to ensure that the operating pistons of the servo members are filled with fluid. Recheck fluid level and correct, if necessary.



If fluid **level is too low**, the pump will draw in air, (which can be heard), causing **foaming** and leading to an **incorrect** fluid level reading. Stop engine and wait until fluid is no longer foaming (approx. 2 minutes). Add fluid and check level.

Be sure to drain or draw off excessive fluid, to avoid excessive churning of the fluid by the gears. This results in excessive temperature increase causing the foaming fluid to be forced out through the breather. Extended operation in this condition will cause transmission damage. The oil cooler flushing syringe (010) with the attached hose can be use to remove excessive transmission fluid.



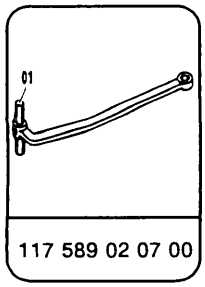
Model 124 with 4MATIC

Oil grades	
ATF	Refer to MBNA Factory Approved Service Products list

Capacity during fluid change	Liters
All models	approx. 0.6

Torque specifications	Nm
Oil filler and drain plug	50

Special tools



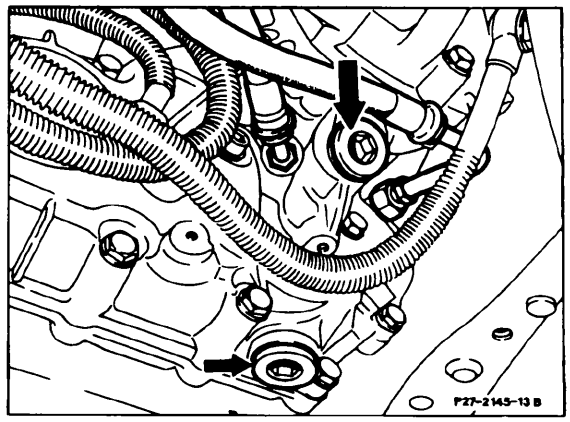
Commercial tools

14 mm hex. driver insert, 1/2" square drive	obtain locally

Note: When checking fluid level and changing fluid, the vehicle should be level.

Before fluid change, check transfer case for leaks

- Remove shielding plate under transfer case.
- Drain fluid with transfer case at operating temperature.
- Fill specified fluid quantity.
- Check fluid level. Fluid level should be up to filler hole.



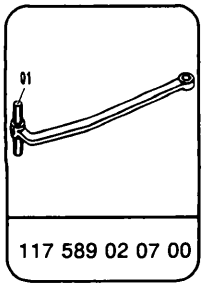
Model 124 with 4MATIC

Oil grades

ATF	Refer to MBNA Factory Approved Service Products list

Torque specifications	Nm
Oil filler and drain plug	50

Special tools



Commercial tools

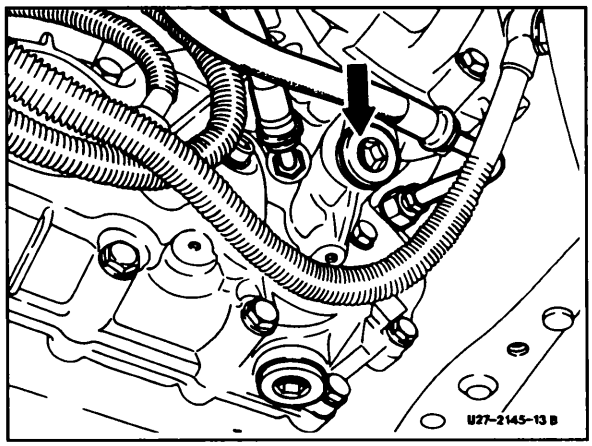
14 mm hex. driver insert, 1/2" square drive	obtain locally

Note: When checking fluid level, the vehicle should be level.

- Remove filler plug.

Note: If more than approx. 50 cc of fluid flows out of filler hole, the multi-disc clutches AV or ZS are leaking. Check oil level in hydraulic oil reservoir in engine compartment.

Repair or replace transfer case.



- The fluid level is correct, if a small amount of fluid flows out or if fluid level extends up to lower edge of opening.

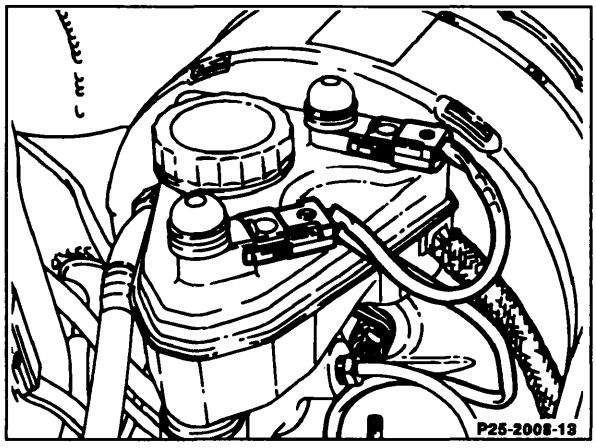
If not, add fluid.

- Install filler plug and torque to 50 Nm.

Model 123
201 up through 12.1984

Hydraulic clutch fluid

Use specified brake fluid only	DOT 4



Check fluid level in reservoir and add fluid up to max. mark, if necessary.
Clean vent opening in reservoir cover (refer to job no. 4210).

Handle brake fluid with care.

Store brake fluid only in containers, which make accidental consumption of fluid impossible **(Fatal dosage 100 cc).**

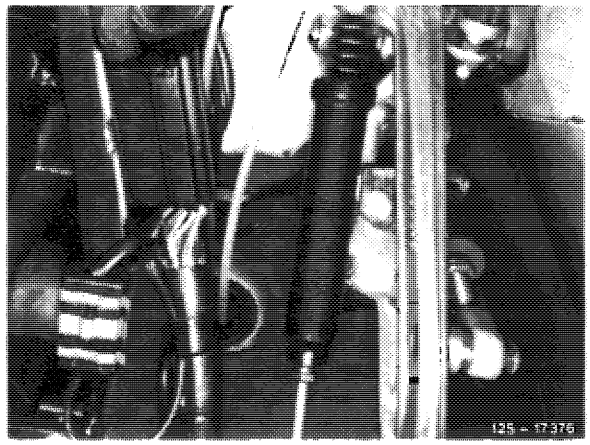
Make sure that brake fluid does not contact painted surfaces of vehicle, since the fluid acts as a paint solvent.

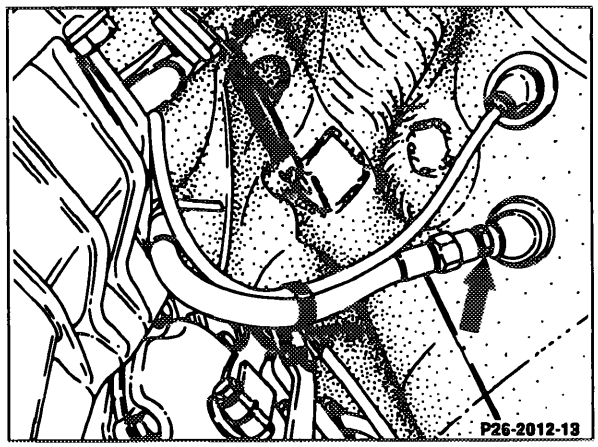
Brake fluid is highly hygroscopic, meaning it will absorb moisture from the air, as a result of which the fluid's boiling point is lowered. Brake fluid should only be stored in well sealed containers.

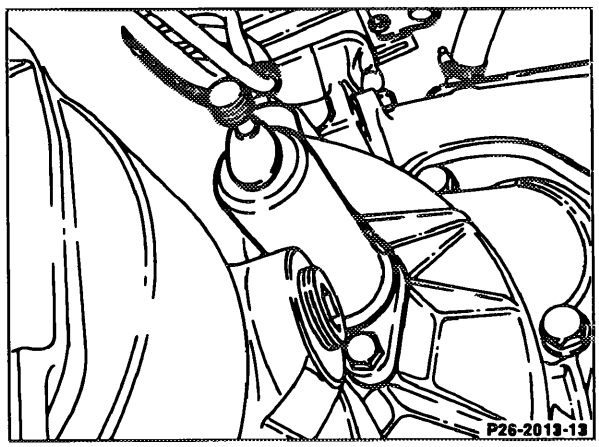
Even minute quantities of mineral oil will result in failure of clutch and brake systems. Special care should be taken with brake fluid that is colorless or dyed yellow, since here the risk of confusion is the greatest. Whenever mineral oil is found in the clutch and brake system, or if the presence of mineral oil is suspected, the entire clutch and brake system should be thoroughly flushed. At the same time, replace the master cylinders and all rubber components, including hoses, in hydraulic system.

Model 123
201 up through 12.1984

- Check master and slave cylinder for leaks (visual inspection).
- Check lines and hoses for leaks, chafe marks, and damage.

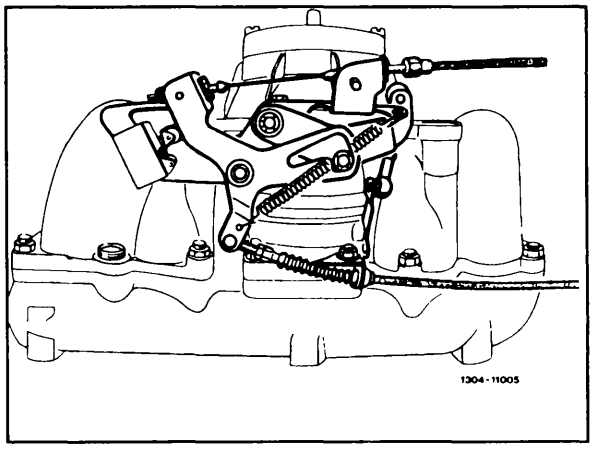






All engines

- Remove air cleaner.
- Lubricate pivots of control shafts, control levers, throttle linkage joints and control cables using only ATF. Refer to MBNA Factory Approved Service Products list.
- Check control shafts, control levers, guide levers, ball sockets, bowden cable, and throttle linkage for smooth operation and possible wear.

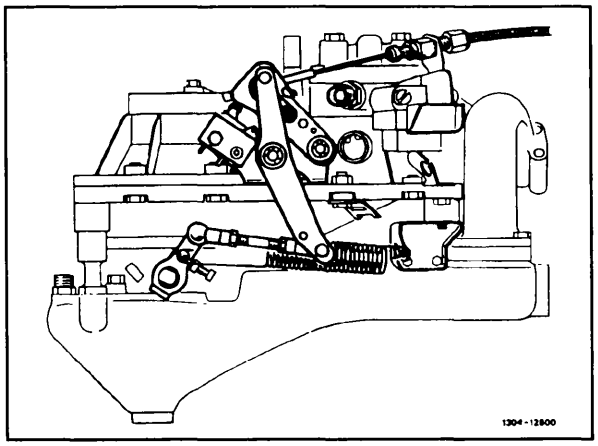


Engine 102.96/98 (except 102.983)

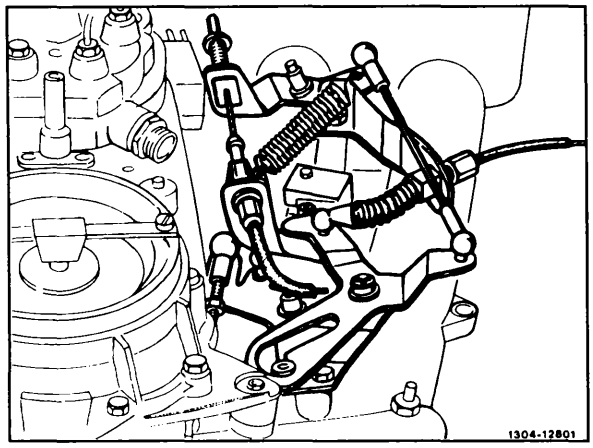
- During assembly jobs use corrosion protection grease, part no. 000 989 87 51 10.

Note: On model 126 with engine 603.961 as of 1986, note 2nd version control linkage.

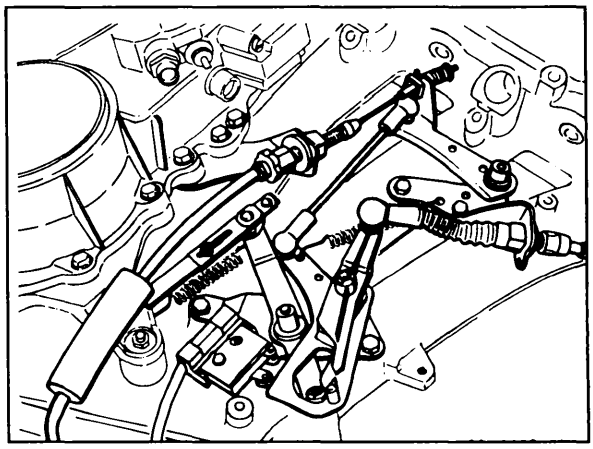
On vehicles with electronic accelerator, the linkage should only be moved when the ignition is off to avoid setting a Diagnostic Trouble Code in the control module memory.



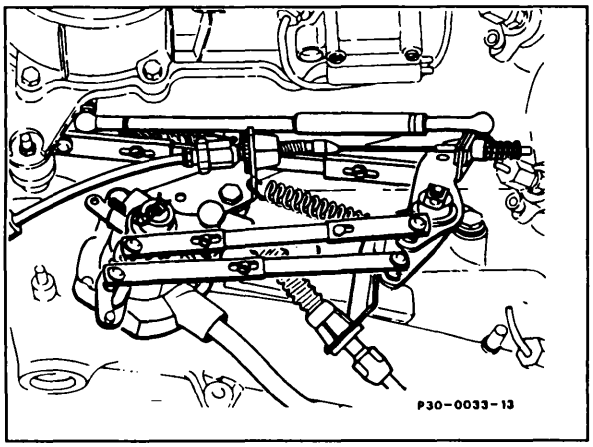
Engine 102.983



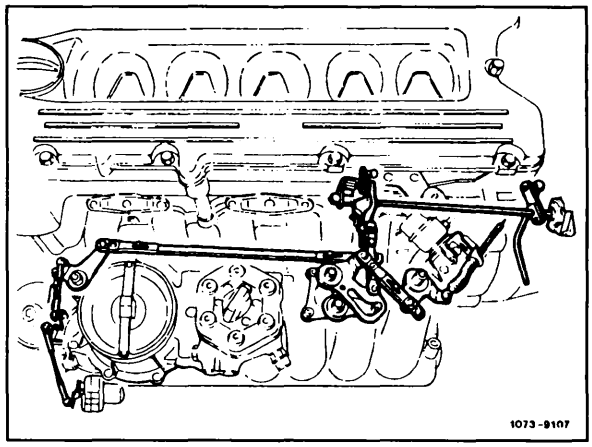
Engine 103



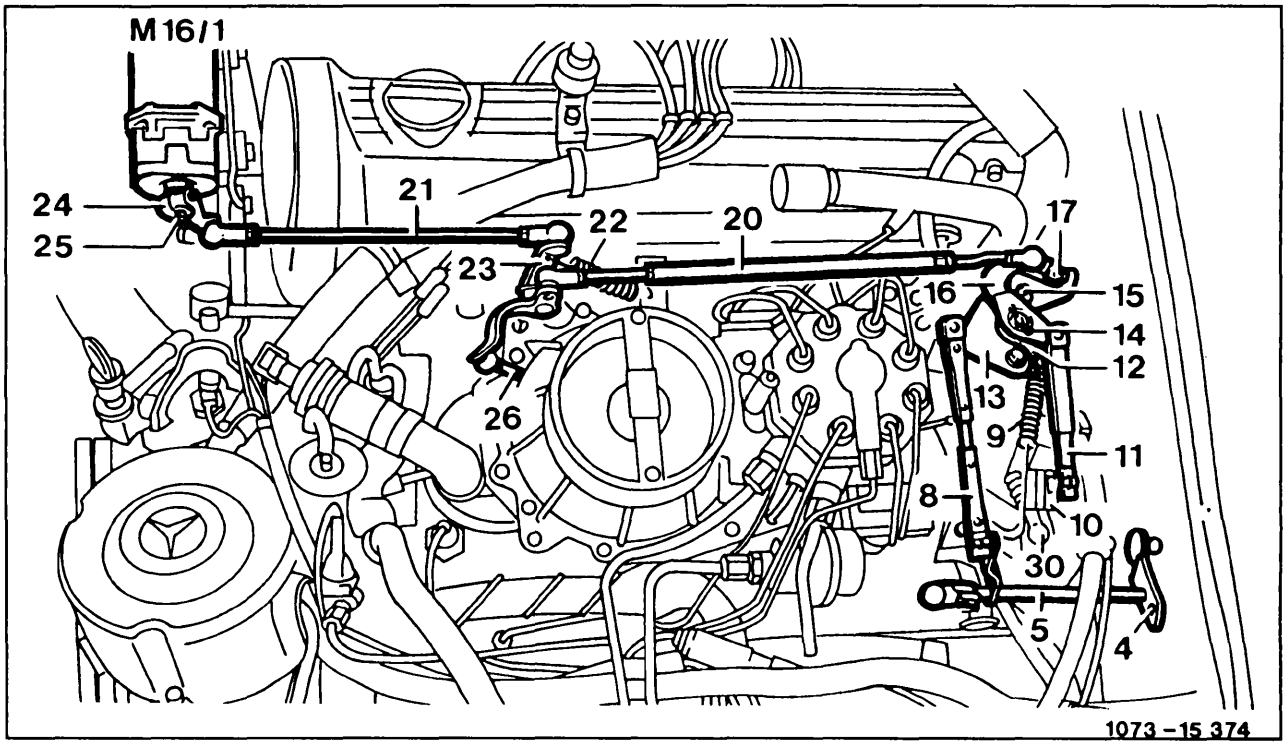
Engine 104 CFI



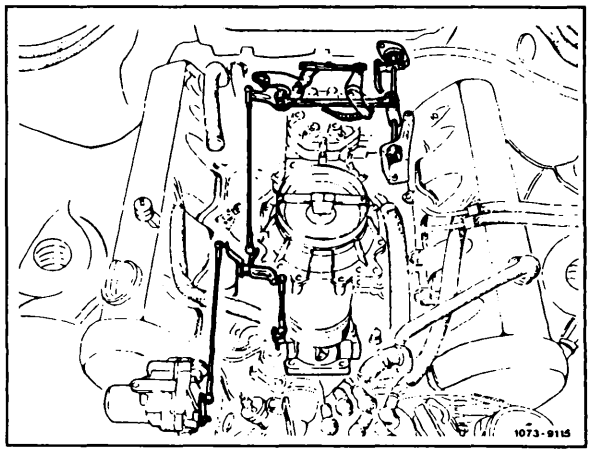
Engine 103, 104 CFI with ASRII



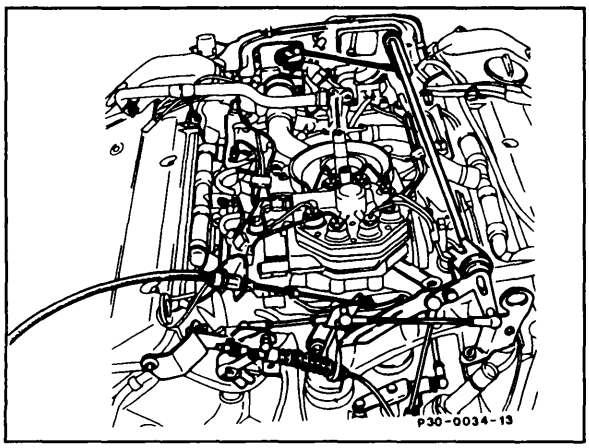
Engine 110



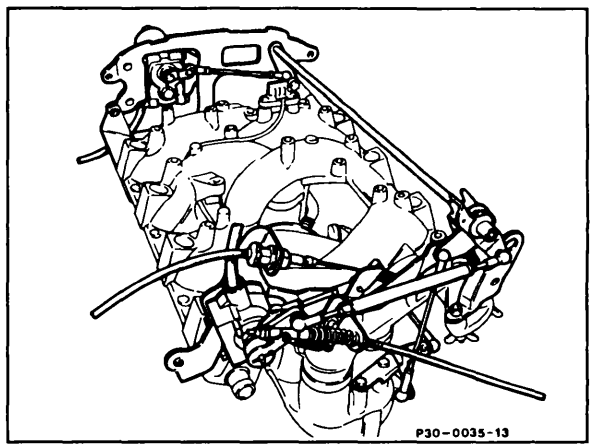
Engine 116, 117 with ASR II



Engine 116, 117

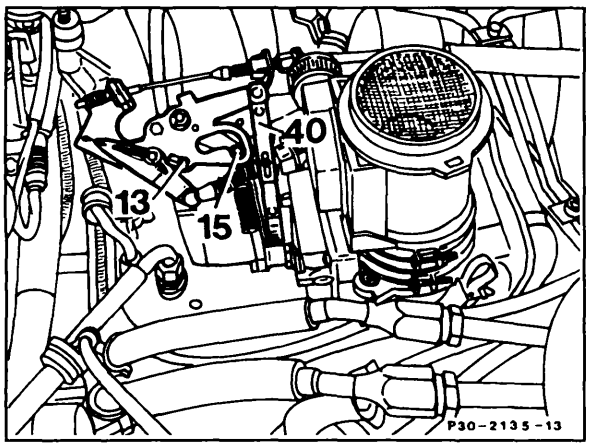


Engine 119 CFI

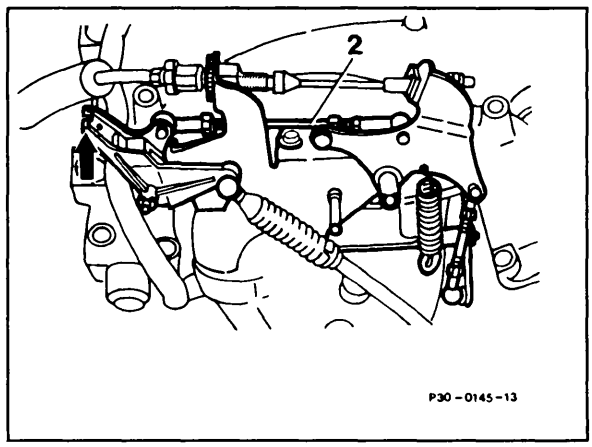


Engine 119 CFI with ASR II

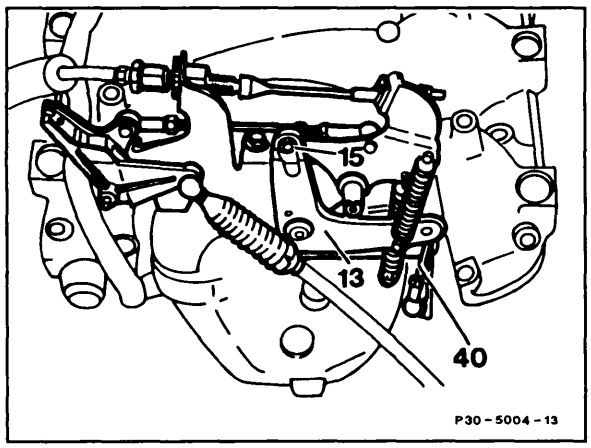
Engines with LH-SFI-injection



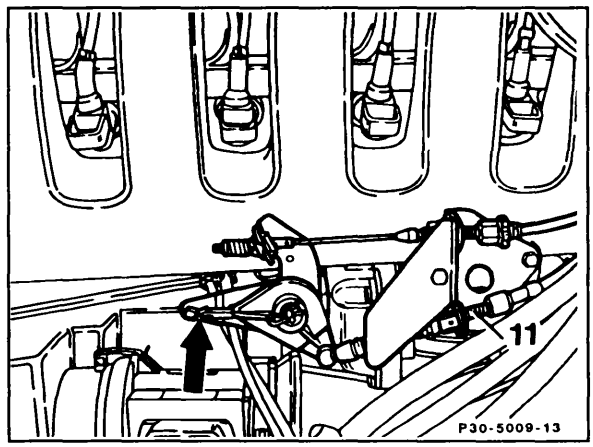
Engine 104 LH-SFI



Engine 119 LH-SFI without slotted lever

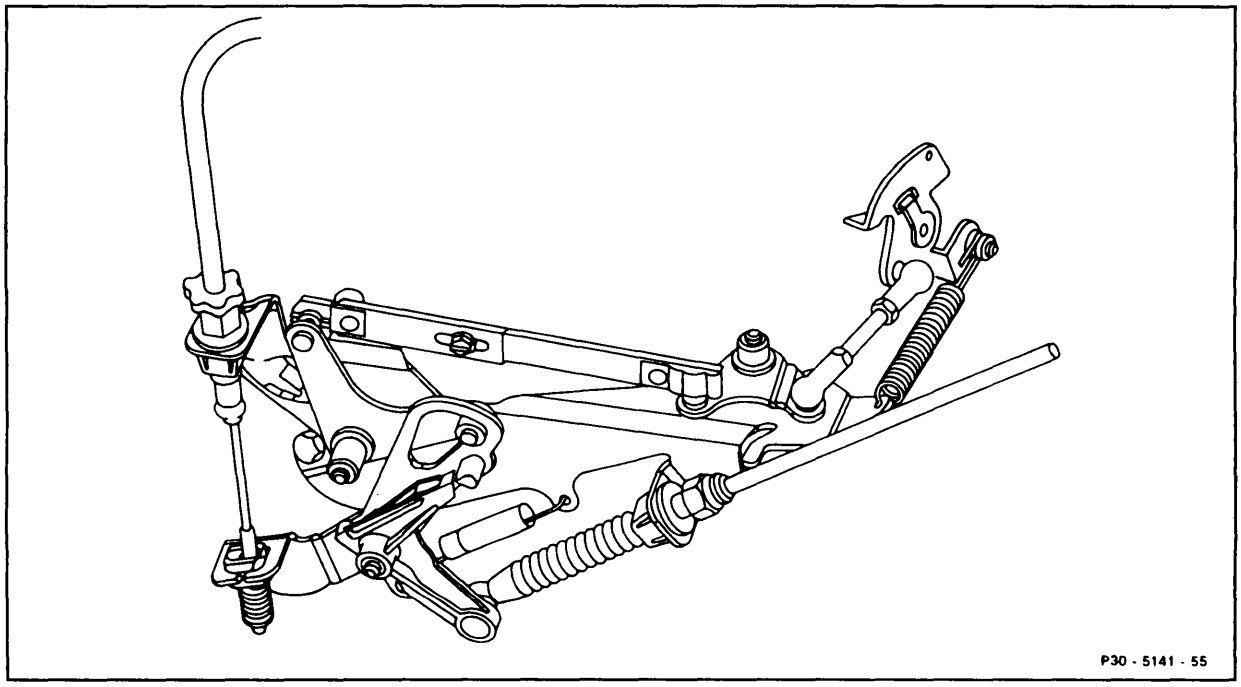


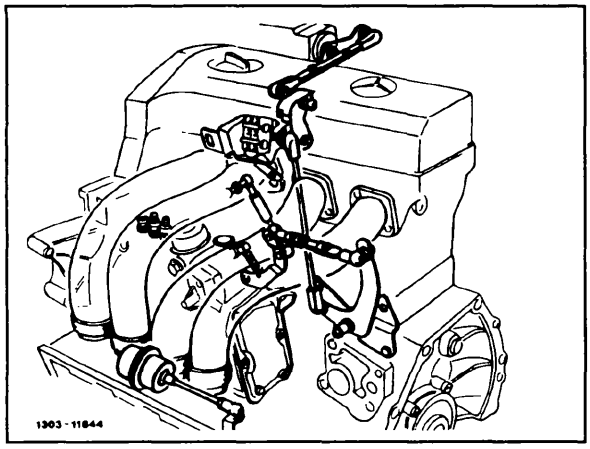
Engine 119 LH-SFI with slotted lever



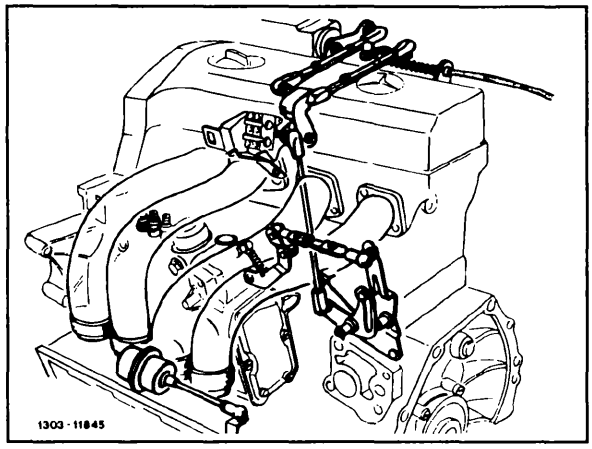
Engine 120

Engine 104 HFM-SFI



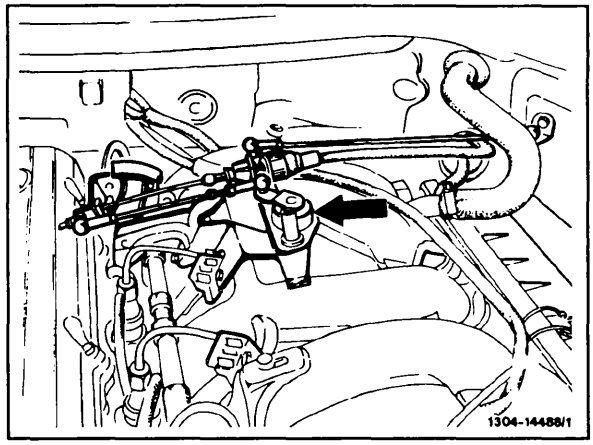


Engines 601, 602 with manual transmission

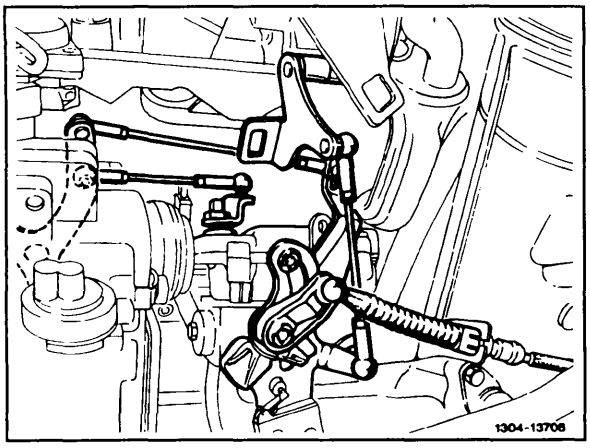


Engines 601, 602 with automatic transmission

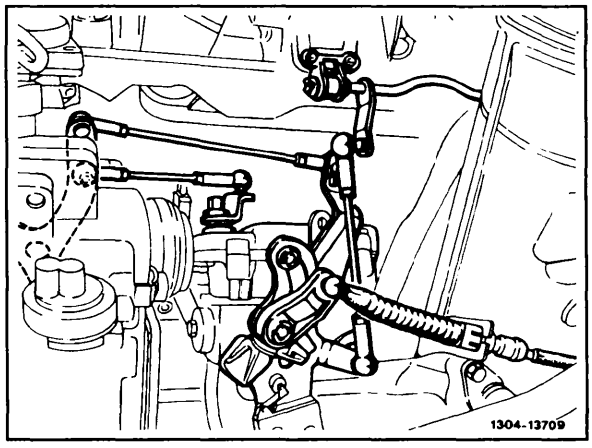
Do not lubricate friction damper (arrow).



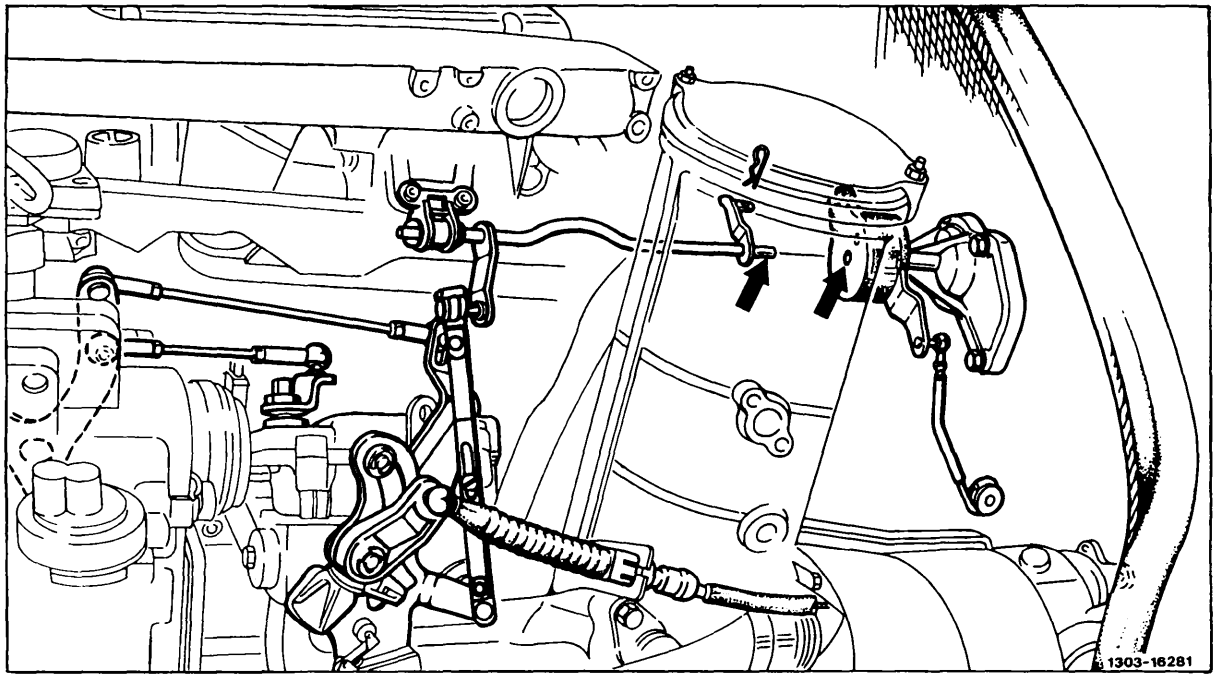
Engines 601, 602 with manual transmission , configuration with support and friction damper.



Model 124 Engine 603.960 1987

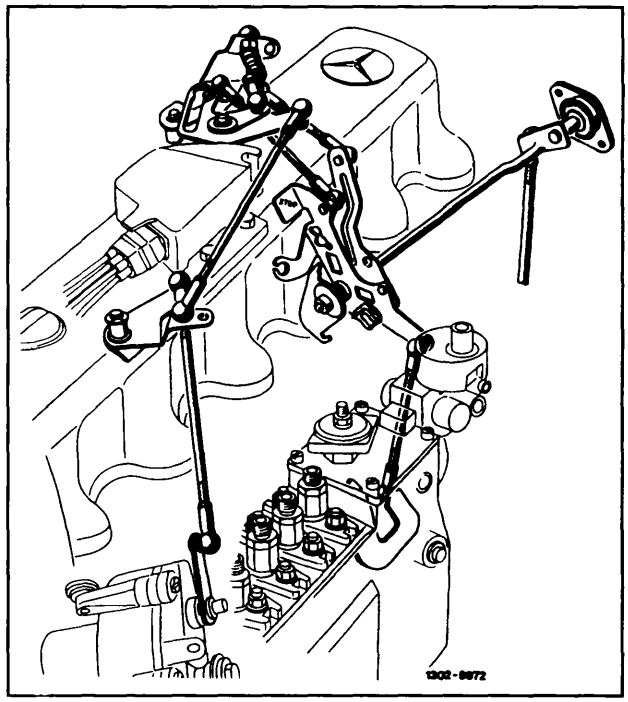


Model 126 Engine 603.961 starting 1st version

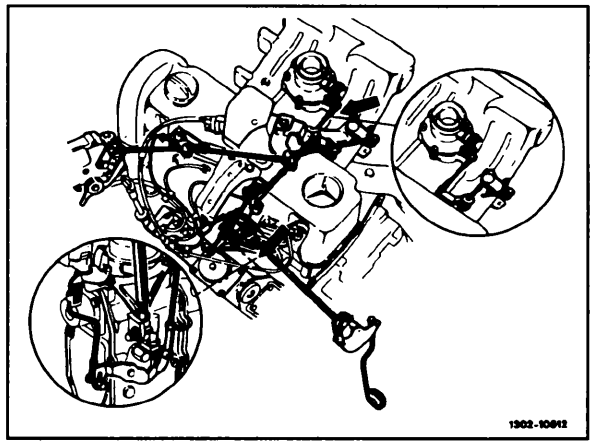


Model 126 Engine 603.961 starting 1986
2nd version, Engine 603.970

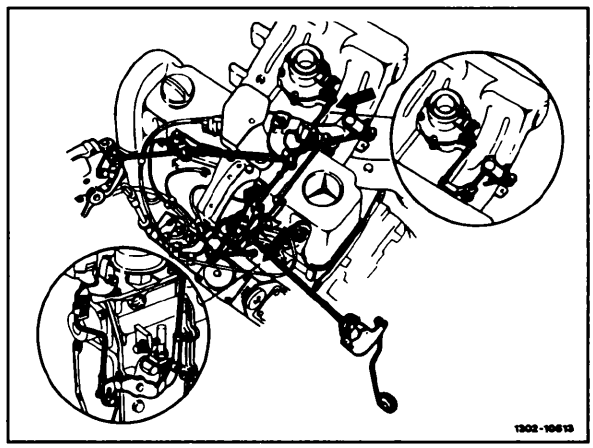
Do not lubricate bearings indicated by arrows



Engine 617



Engine 616.912 starting 1982
with manual transmission



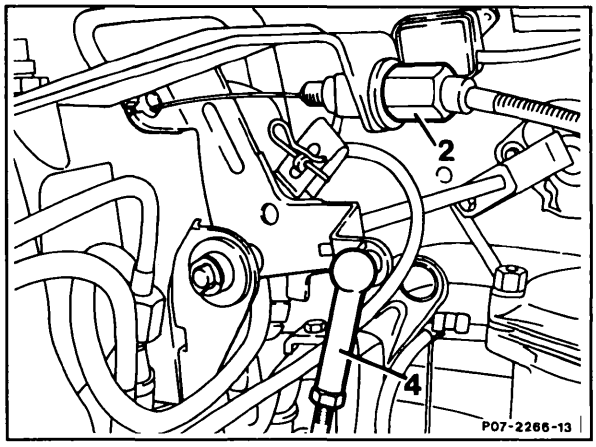
Engine 616.912 starting 1982
with automatic transmission

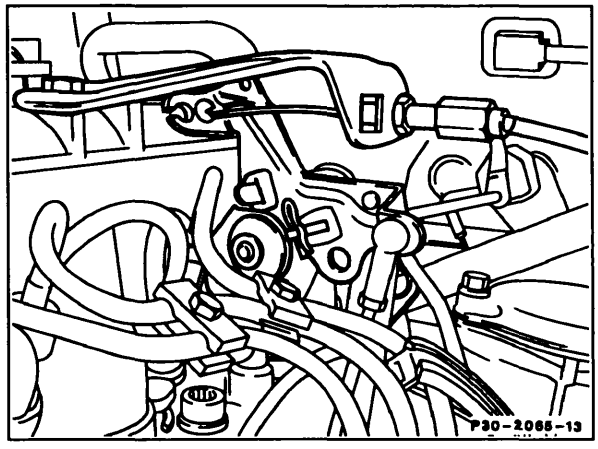
Engine 616 617.912

- Turn idle speed adjuster knob on instrument panel fully to the right and check distance between adjusting ring/nipple and shaped spring, adjust, if necessary. Distance should be approx. 1.0 mm.

- With engine off, depress accelerator and turn idle speed adjuster knob to the left.

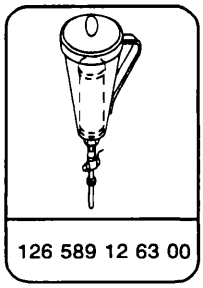
- With engine running, idle speed should now be approx. 1100 rpm. Adjust with screw (2) if necessary.





All models

Special tools



Oil

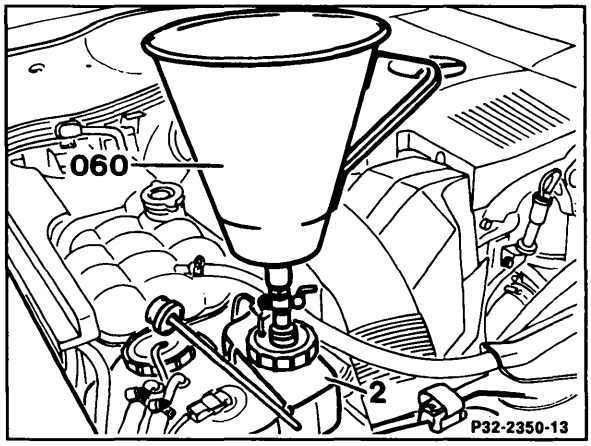
Hydraulic fluid	MB part no. 000 989 91 03/10 Refer to Factory Approved Service Products list

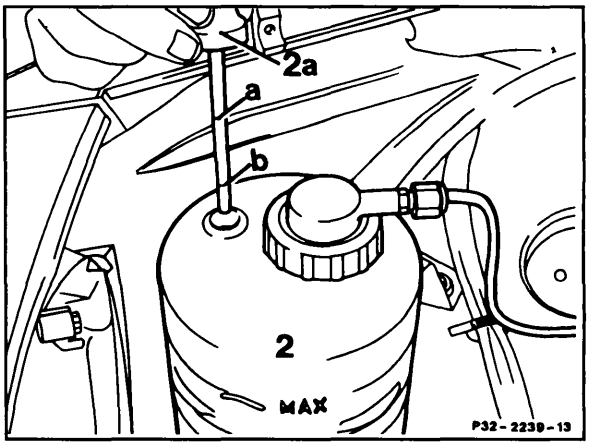
Note: Check fluid level with engine off. Correct if necessary.
With system in operating condition, the oil level should be between the MAX. and MIN. marks.

With vehicle loaded the resulting oil level will be near the MIN. mark (or below on vehicles with small reservoirs.)

Remove cap with integral dipstick front fluid reservoir. Read fluid level after wiping and reinserting dipstick.

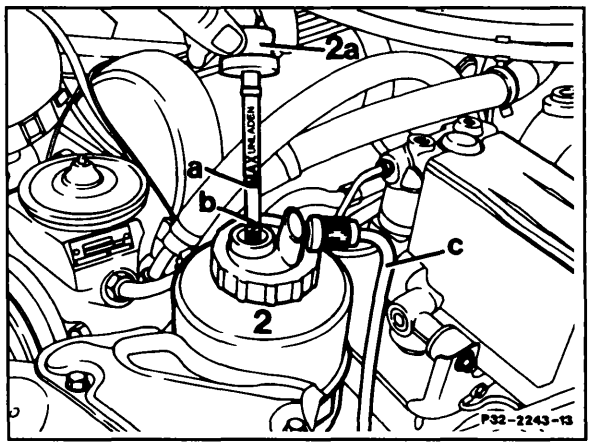
Use filter funnel (060) to add fluid.





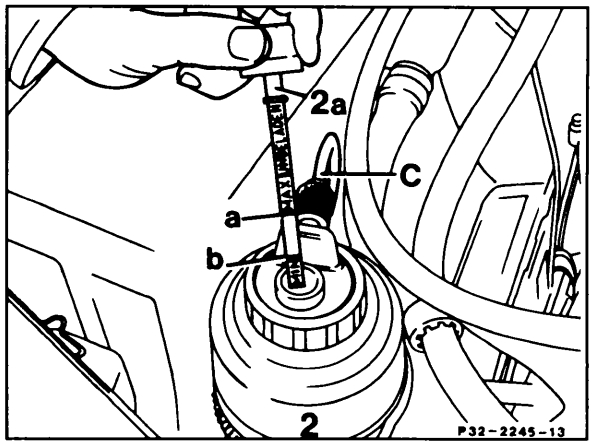
Model 123, 126 (1st version up through 08.1985)
Plastic fluid reservoir

2 Fluid reservoir
2a Cap with integral dipstick.
a Max. mark
b Min. mark
C Return line, level control - reservoir.

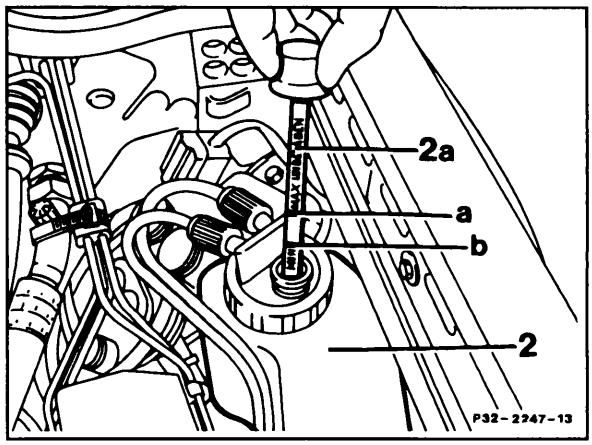


Model 126 (2nd version as of 09.1985)
Plastic fluid reservoir

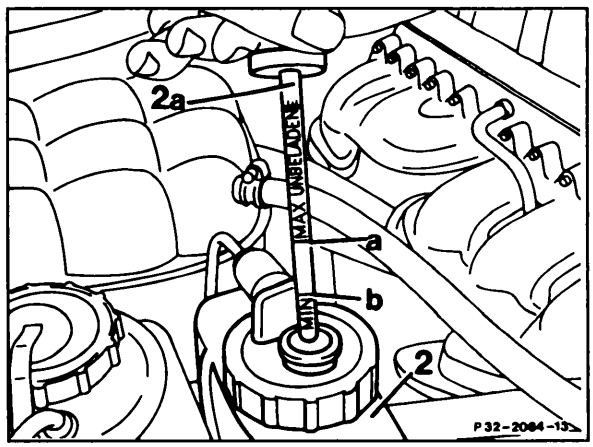
2 Fluid reservoir
2a Cap with integral dipstick.
a Max. mark
b Min. mark
C Return line, level control - reservoir.



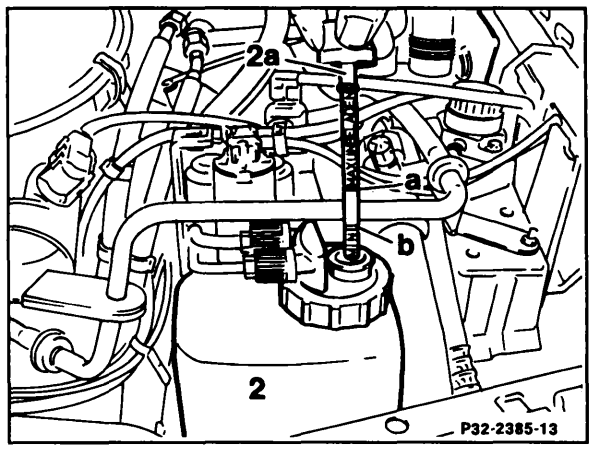
Model 124, 201
Plastic fluid reservoir
2 Fluid reservoir
2a Cap with integral dipstick.
a Max. mark
b Min. mark
C Return line, level control - reservoir.



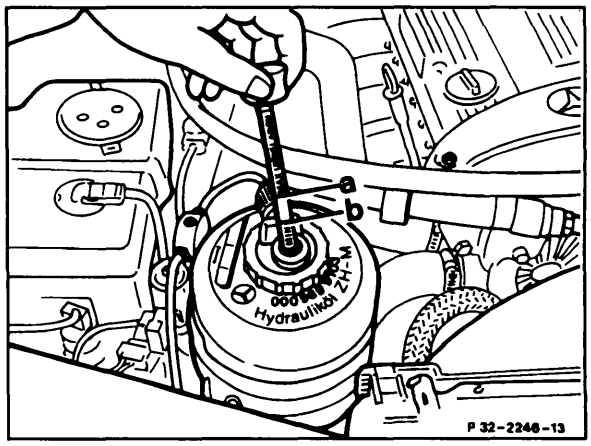
Model 124 with 4MATIC or ASD
2 Fluid reservoir
2a Cap with integral dipstick.
a Max. mark
b Min. mark
E1 Return line, hydraulic unit (connection T) -fluid reservoir
E2 Without level control:
Return line, hydraulic unit (connection N) -fluid reservoir
With level control:
Return line level control - fluid reservoir



Model 129 with with ADS and/or ASD
2 Fluid reservoir
2a Cap with integral dipstick.
a. Max. mark
b Min. mark

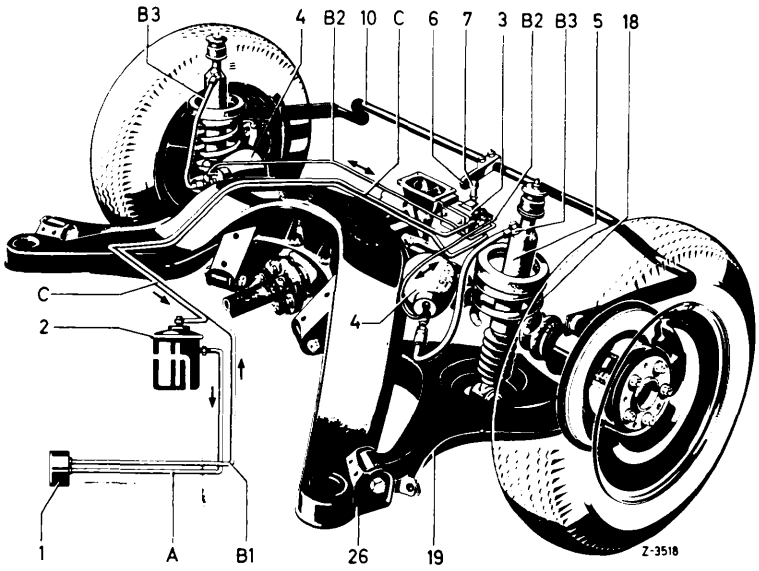


Model 140
2 Fluid reservoir
2a Cap with integral dipstick.
a. Max. mark
b Min. mark



Model 201.034
Light alloy reservoir
2 Fluid reservoir
2a Cap with integral dipstick.
a. Max. mark
b Min. mark

Model 123
126 up through 08.1985



Visual inspection

Hydraulic fluid pump
Fluid reservoir
Level controller
Pressure reservoir
Spring struts
Line connections

Check hoses and lines for chafing, dents, cracks, corrosion, and leaks (with engine running).

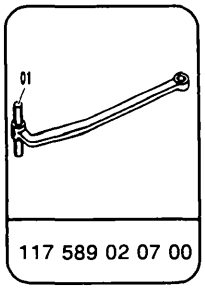
Note: To check for leaks that may only occur when the vehicle is loaded, check vehicle with the engine running and with vehicle rear loaded with approx. 150 kg (or 2 persons).

Model 124 with 4MATIC

Oil grades

Hypoid gear oil SAE 90	Refer to Factory Approved Service Products list

Special tools

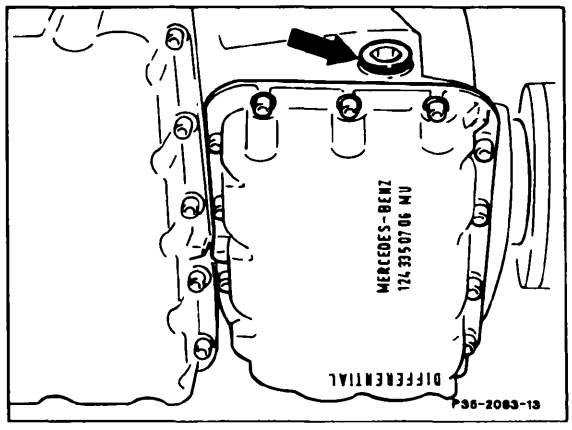


Commercial tools

14 mm hex. driver insert, 1/2" square drive	obtain locally

Note: When checking oil level and changing oil, the vehicle should be in horizontal position.

When performing this job number, remove engine compartment lower panel or lower half of noise encapsulation, and reinstall after completing all maintenance jobs (refer to job number 6190 or 9490).

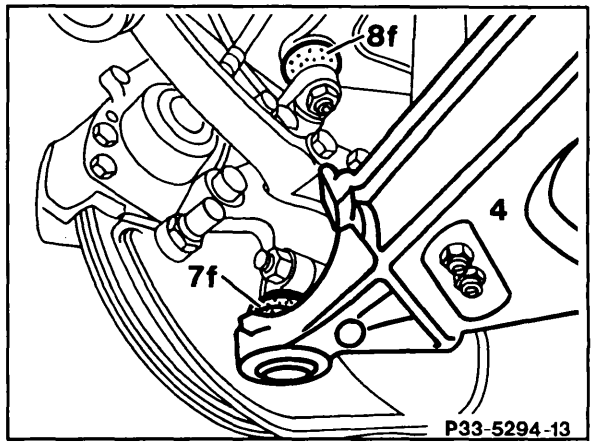


Remove oil filler plug.
If a minimal amount of oil runs out or if the oil level is at lower edge of opening, oil level is correct.
If not, add oil.
Install filler plug, and torque to 50 Nm.
If oil loss is excessive, determine cause and repair on separate order.

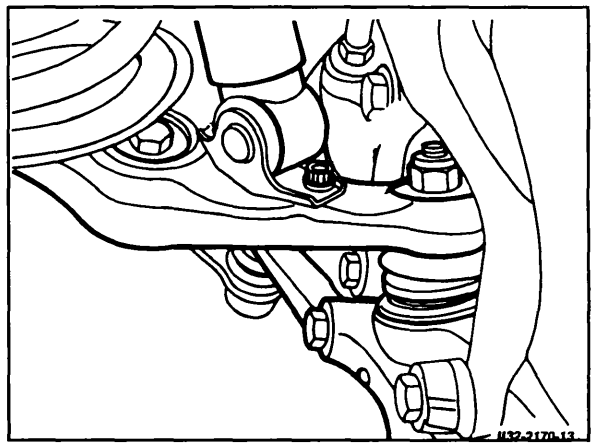
All models

Carefully check condition of ball joint rubber boots.

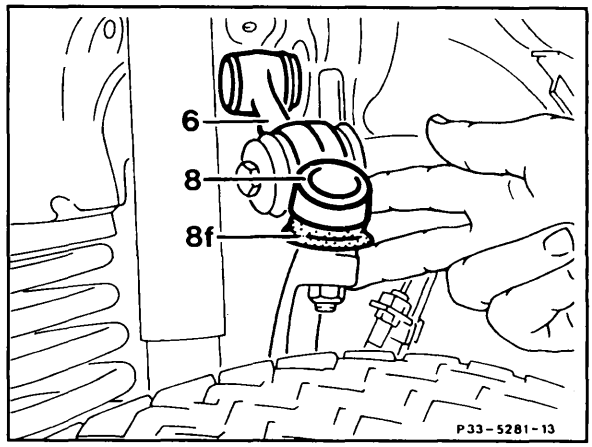
Note: In the event of a leaking rubber boot, replace respective joint or control arm immediately, since any dirt that enters will destroy the joint within a short period. Replacement of a rubber boot is permitted only if it is certain that no dirt has as yet entered the joint.



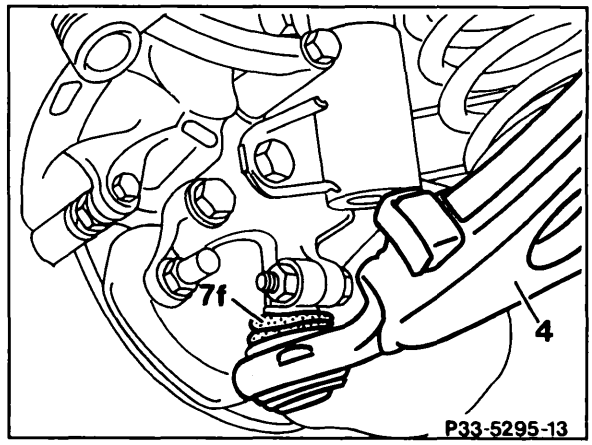
Model 107
7f Supporting ball joint (lower)
8f Guide ball joint (upper)



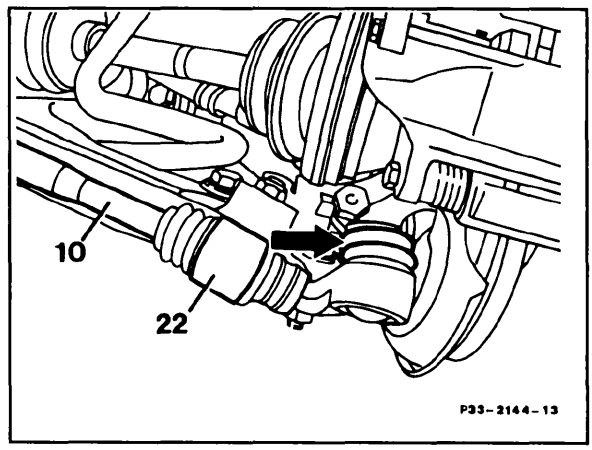
Model 123 and 126 Supporting (lower) ball joint



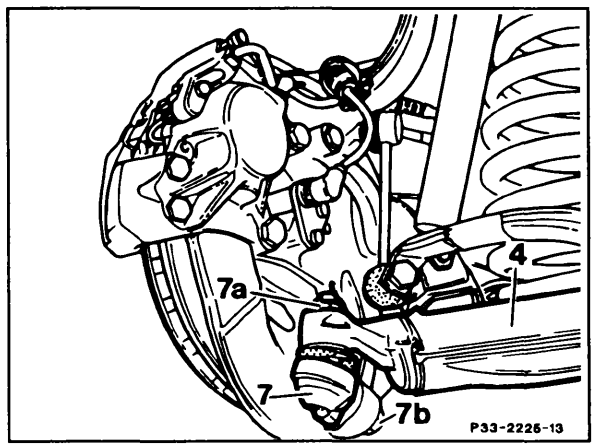
Model 123 and 126 Guide (upper) ball joint



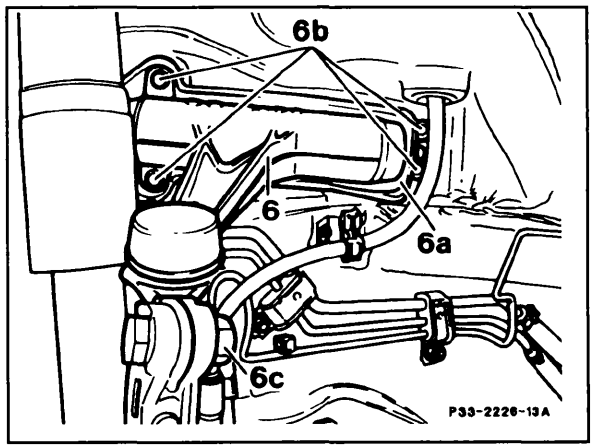
Models 124, 129 and 201 Supporting ball joint



Model 124 4MATIC Supporting ball joint



Model 140 Supporting (lower) ball joint

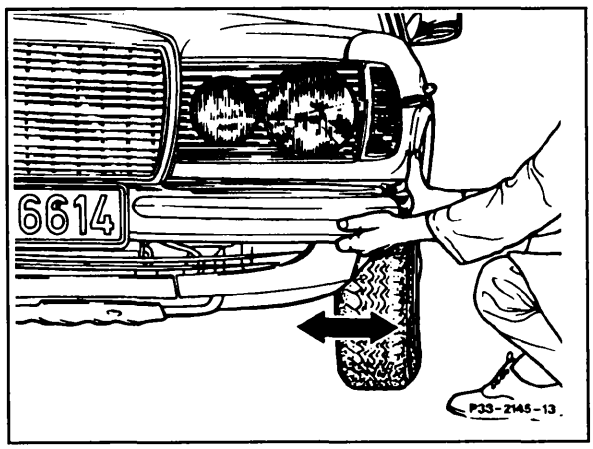


Model 140 Guide (upper) ball joint

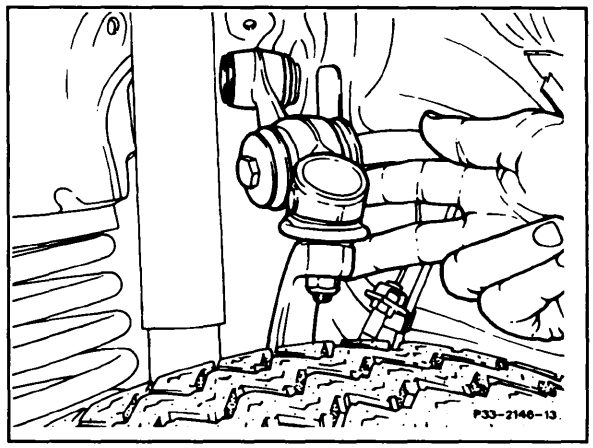
In addition, on models 107, 123, 126 and 140, thoroughly check the guide (upper) ball joint for play.

Models 107, 123, and 126

- Holding the bumper, vigorously shake the vehicle from side to side.

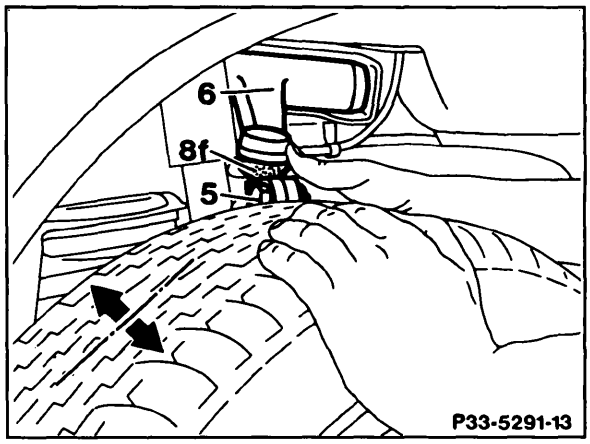


- Have an assistant check for play in ball joint by feeling the ball joint and steering knuckle.
- Repeat procedure on opposite side.
- If ball joint has play, replace upper control arm.



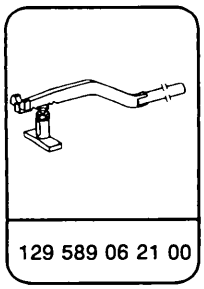
Model 140

- Raise vehicle to unload ball joints.
- Check play by touching upper ball joint (8f) while vigorously pushing and pulling front wheel in and out (arrows).
- Repeat procedure on opposite side.
- If ball joint has play, replace upper control arm.

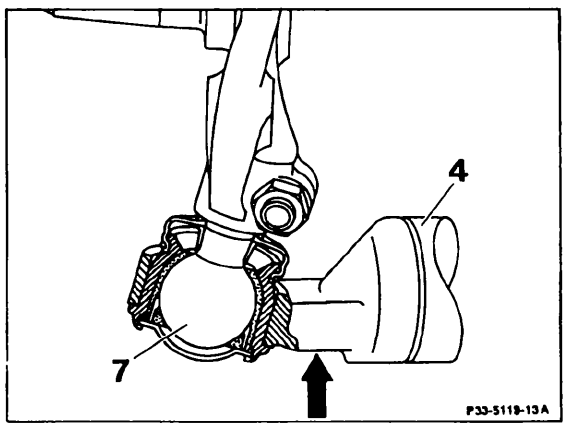


All models except 140

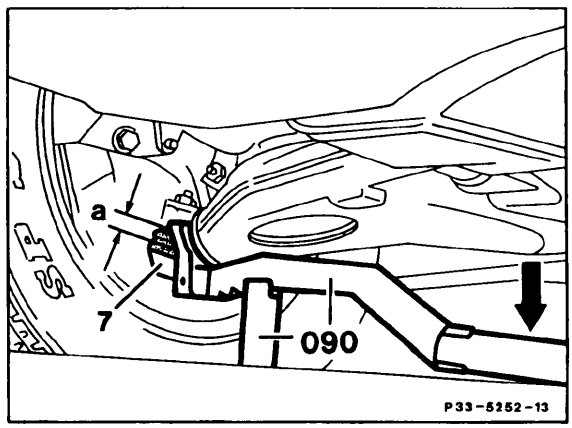
Special tools



- Position special tool (090) 129 589 06 21 00 under ball joint (arrow).



- By lifting/lowering - loading/unloading wheel at the control arm (4), an assistant can determine if any play (a) exists between the standing and lifted positions of the wheel.
- If play is found in the control arm, ball joint or control arm (on versions with integral ball joints) must be replaced on separate order.



All models

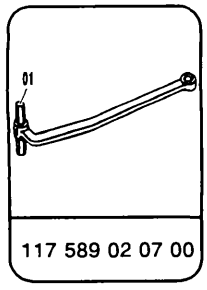
Oil grades

Differential **without** limited slip approved oil grades	Hypoid gear oil SAE 90, 85W/90 Refer to MBNA Factory Approved Service Products list
Differential **with** limited slip and vehicles with 4MATIC approved oil grades (note information plate on rear axle housing)	Special hypoid gear oil SAE 90 Refer to MBNA Factory Approved Service Products list

Capacities

Model	Liters
107.025/045/048, 124.034/036/051, 126.03/04, 129.061/066, 140.03/04	1.3
123, 126.02, 126.1	1.0
201.024/122/126	0.7
124.026/03/050/09/13/19/2, 201.028/029/03 124 with 4MATIC	1.1
140.05/134	1.4

Special tools

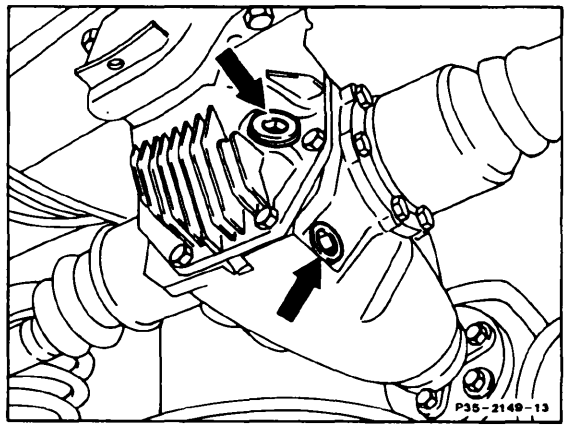


Commercial tools

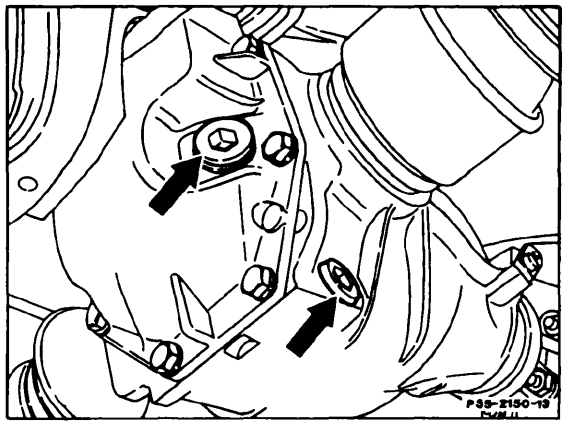
14 mm hex. driver insert, 1/2" square drive	obtain locally

Note: Vehicle should be horizontal when checking oil level and when changing oil.

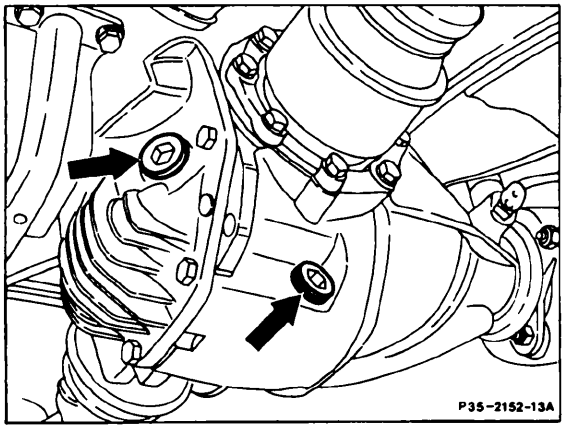
- Prior to oil change, check rear axle for leaks.
- Drain oil only with rear axle at operating temperature.
- Add specified quantity of oil.
- Check oil level. Oil level should be up to filler opening.
- Torque oil filler plug and drain plug to 50 Nm.



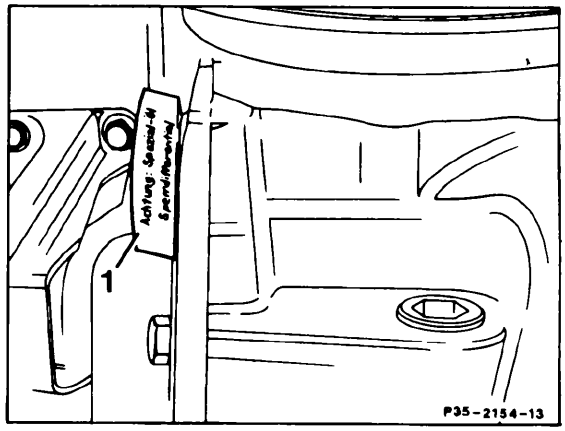
Rear axle centerpiece **with** side bearing covers model 123 (up through 01.1981)



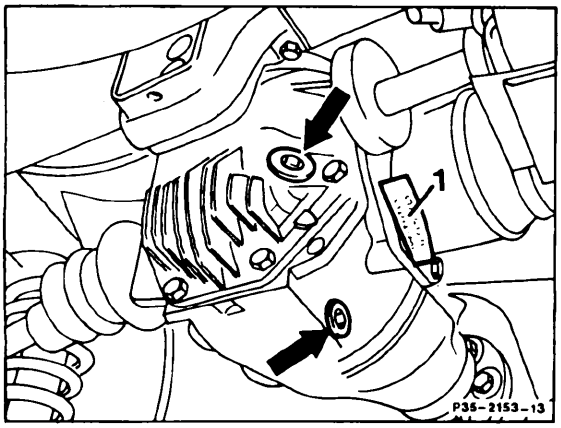
Rear axle centerpiece **without** side bearing covers model 123 (from 02.1981) model 126.02/1 (from start of production)



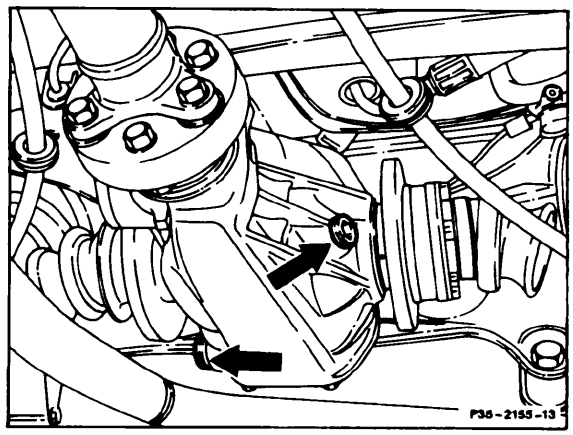
Model 107.025/045/048, 126.03/04
Differential **without** limited slip



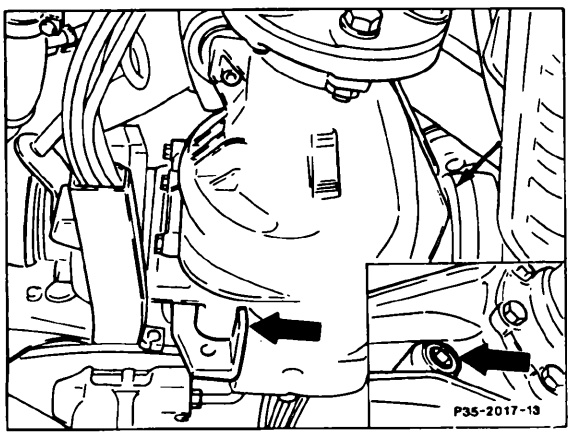
Model 126.04
Differential **with** limited slip
1 Information plate for limited slip differential



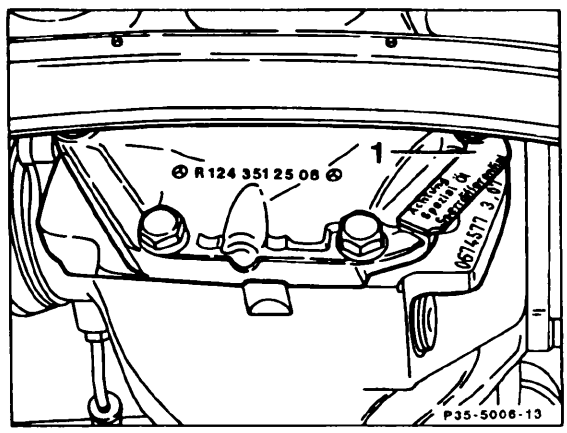
Model 107.025/045/048, 126.03
Differential **with** limited slip
1 Information plate for limited slip differential



Model 124, 201



Model 129, 140



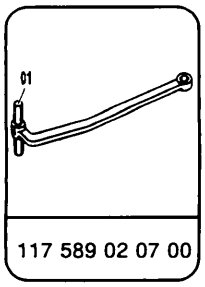
Vehicles with 4MATIC or ASD
1 Information plate for limited slip differential

All models

Oil grades

Differential **without** limited slip approved oil grades	Hypoid gear oil SAE 90, 85W/90 Refer to MBNA Factory Approved Service Products list
Differential **with** limited slip and vehicles with 4MATIC approved oil grades (note information plate on rear axle housing)	Special hypoid gear oil SAE 90 Refer to MBNA Factory Approved Service Products list

Special tools



Commercial tools

Screwdriver insert 14 mm, 1/2 " square	obtain locally

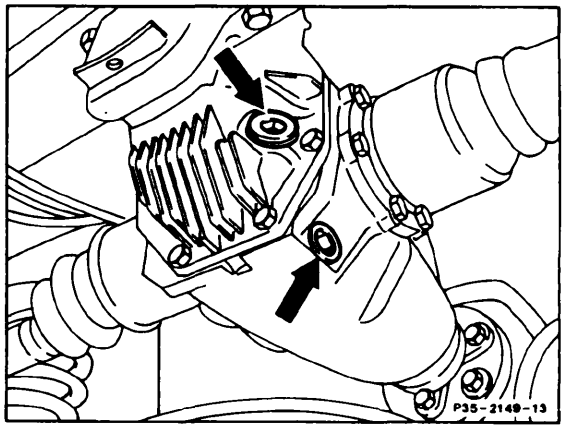
Note: Vehicle should be horizontal when checking oil level.

- Remove oil filler plug.

- If a minimal amount of oil runs out or if the oil level is at lower edge of opening, oil level is correct.

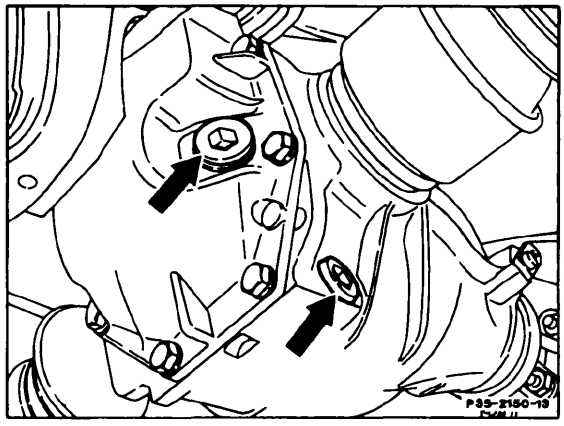
- If not, add oil.

Install filler plug, and torque to 50 Nm.

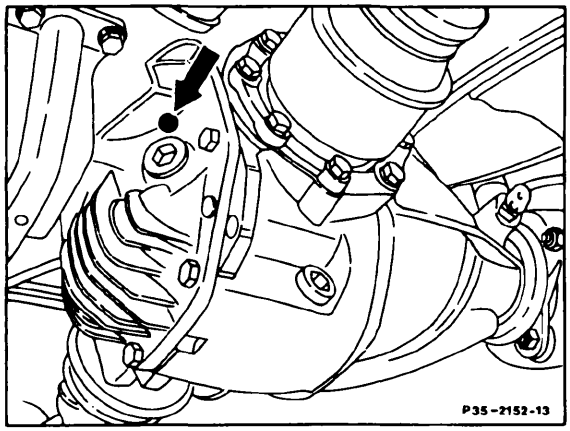


Rear axle centerpiece **with** side bearing covers
model 123 (up through 01.1981)

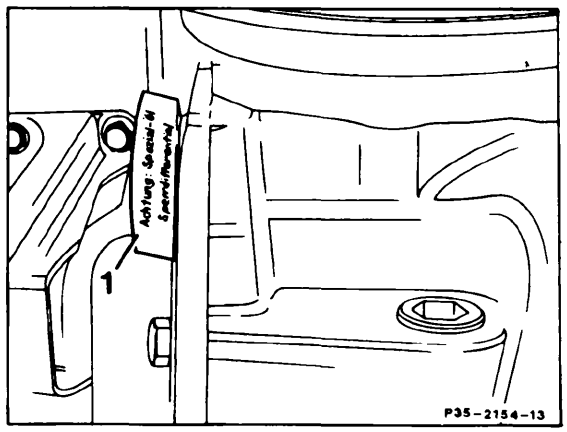
- If oil loss is excessive, determine cause and repair on separate order



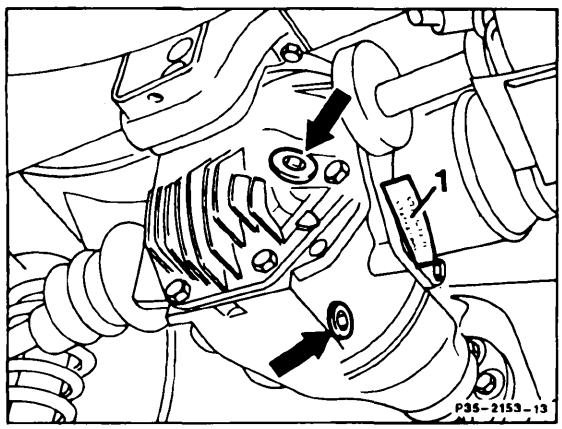
Rear axle centerpiece **without** side bearing covers
model 123 (from 02.1981) model 126.02/1 (from start of production)



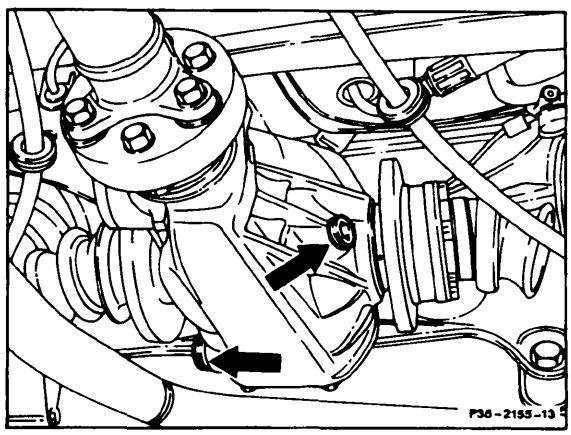
Model 107.025/045/048, 126.03/04
Differential **without** limited slip



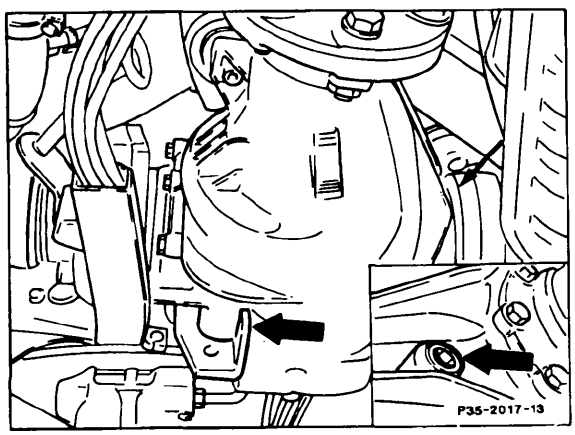
Model 126.04
Differential **with** limited slip
1 Information plate for limited slip differential



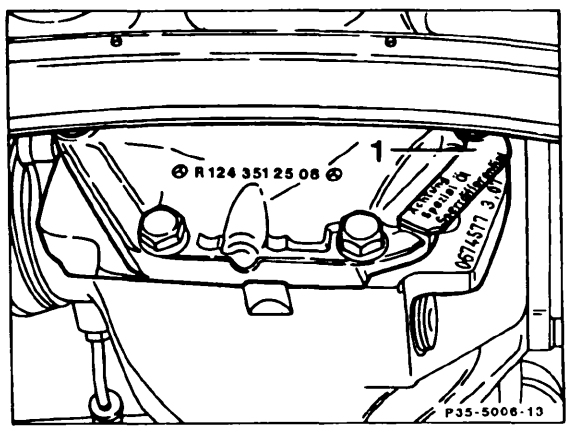
Model 107.025/045/048, 126.03
Differential **with** limited slip
1 Information plate for limited slip differential



Model 124, 201



Model 129, 140



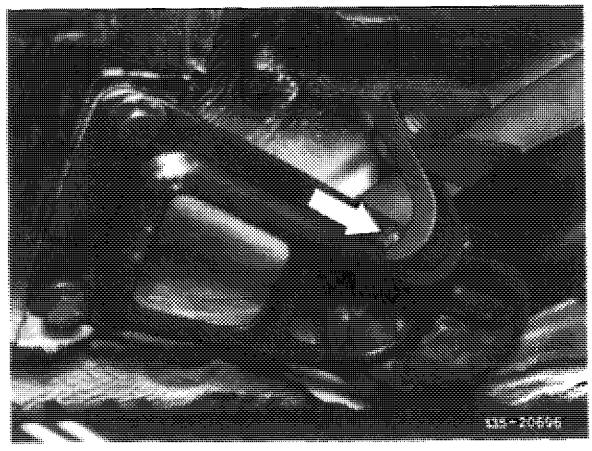
Vehicles with 4MATIC or ASD
1 Information plate for limited slip differential

Model 123 with engine 616 617

Adjustment specifications	
Clearance between deflection limiting rubber stop and front mount supporting plate	2-3 mm

Torque specifications	Nm
Bolt with self-locking nut for securing limiting stop	40-50

Note: When checking and adjusting the rear axle mount limiting stops, the vehicle's weight must be on the wheels.



Adjusting

Loosen bolt.

Insert adjustment gauge between rubber buffer and supporting plate (arrow).

Note: The gauge should be locally fabricated to the following dimensions:

Length:	60 mm
Height	20 mm.
Width	10 mm.
Thickness	2.5 mm.

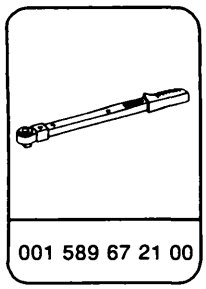
Press limiting stop slightly upward and torque bolt to 40-50 Nm.

Remove adjustment gauge.

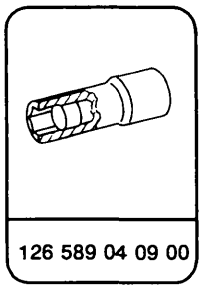
All Models

Torque specifications	Nm
Wheel bolts M12 x 1.5 (All models except 140)	110
Wheel bolts M14 x 1.5 (Model 140 only)	150

Special tools



001 589 67 21 00



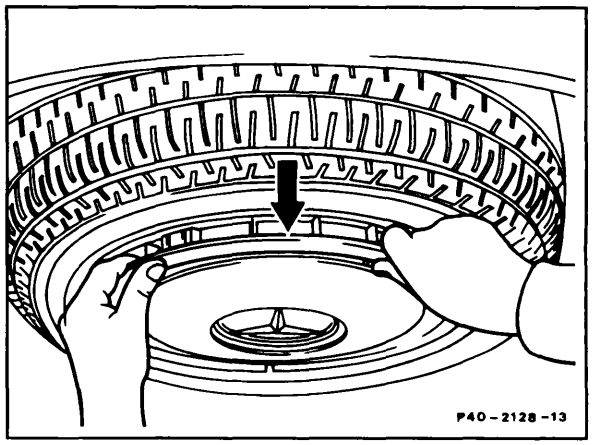
126 589 04 09 00

Commercial tools

Electric or pneumatic impact wrench, torque limited to 100 Nm	obtain locally
Hex. socket 17 mm for impact wrench, OD max. 26.5 mm	obtain locally

- Remove metal wheel cover by hand or with combination wrench.

- Grasp edge of plastic wheel cover with both hands and pull off.



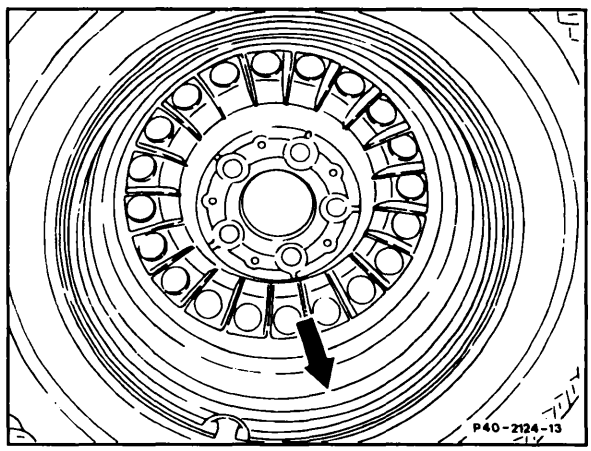
- Loosen wheel bolts and remove.

- When removing last wheel bolt on light alloy wheels, make sure that the wheel does not tilt, since this can damage the paint.

- Check inside of wheel (arrow) for dirt. Clean wheels, if required.

- Check centering opening and bolt hole seats and rim flanges for damage.

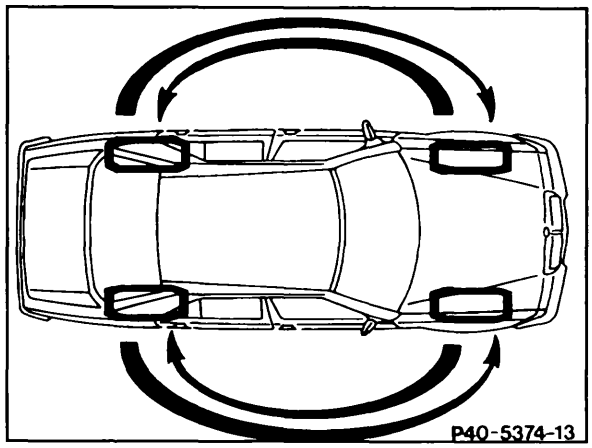
- Check related components (wheel, as well as front wheel hub or brake disk bowl) for corrosion, clean corroded surfaces with wire brush or emery cloth, if necessary.



Rotating wheels

Maximum tire mileage and good handling characteristics require rotating tires before a heavy wear pattern is visible. Tires should be inspected during routine service visits for wear patterns (refer to Job No. 4051), and if necessary, rotated from front to rear while maintaining direction of rotation.

To avoid deterioration of the handling characteristics, rotate the wheels before the tires show a distinct wear pattern.



Rotating the wheels

If the tires show even sawtooth wear, the wheels can also be rotated diagonally, provided the tires do not have a directional tread pattern.

- Depending on driving style, wear pattern and condition of tires, the wheels may require rebalancing.

- After rotating wheels, correct tire inflation pressure (refer to Job No. 4060).

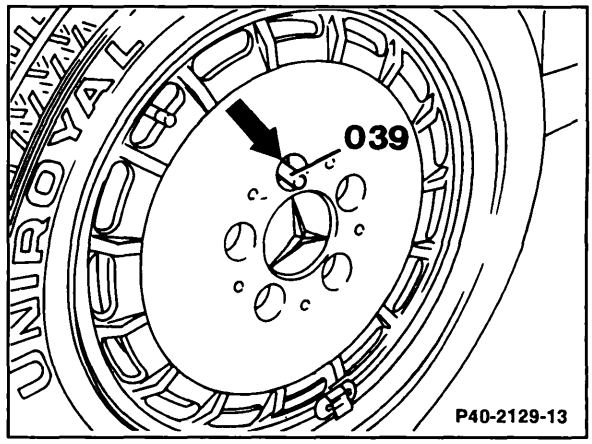
- Make sure that the correct wheel bolts are used for the type of wheel.

- Check that wheel bolts thread in smoothly. Replace bolts that are hard to turn or that are corroded at the spherical collar (e.g. from road salt).

- Inspect threads in front wheel hubs and rear axle flanges and repair, if necessary.

- Use only original equipment Mercedes Benz wheel bolts. Identification: Mercedes star stamped on face of bolt shaft or on head of bolt.

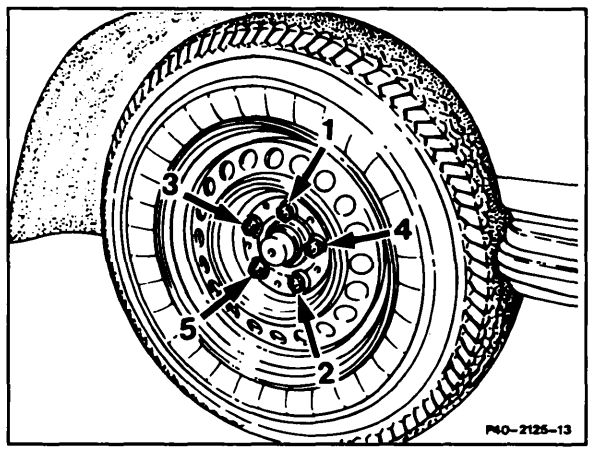
- On light alloy wheels with recessed mounting holes, screw centering bolt (039) into the uppermost hole (arrow) prior to positioning wheel.
The centering bolt is included in the vehicle tool kit or with the spare wheel in a rubber sleeve.



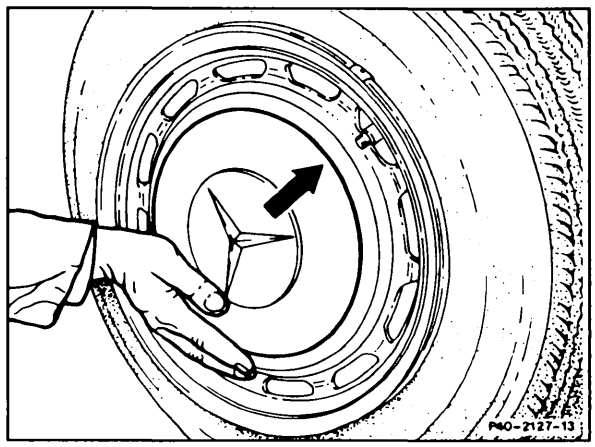
- Install wheels. The wheel bolts can also be tightened with an impact wrench up to 3/4 of the specified torque. Then, final tighten bolts with torque wrench.

- Note torque sequence and specification (refer to job no. 4070).

Note: When using power wrench on light alloy wheels, the OD of the socket should not exceed 26.5 mm, since otherwise the socket will damage the wheel. When screwing in the first wheel bolt on light alloy wheels, make sure that the wheel does not tilt, since the paint can be damaged.



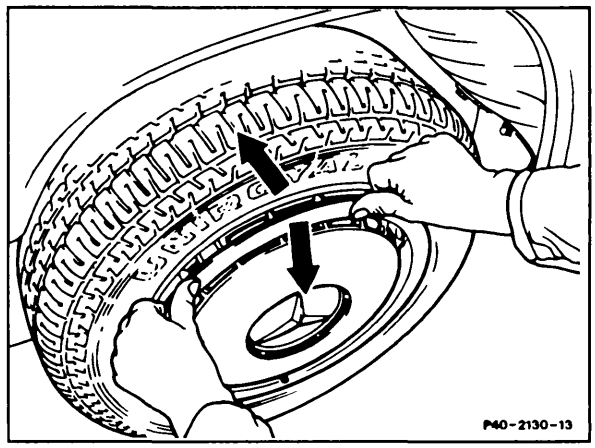
- Insert metal wheel cover on rim in such a manner that the valve is located between two retaining springs. Push on wheel cover first toward valve (arrow) and then push in at side opposite from valve.



- Position wheel so valve is at 6 o'clock position. Position plastic wheel cover with valve recess at bottom, push in downward direction and press on by exerting pressure against upper edge of wheel cover (arrows).

Caution! Use care to correctly insert retaining clips into rim. This is especially important where the retaining clip aligns with a balance weight.

Do not apply pressure to, or strike, the center of plastic wheel cover to avoid damaging cover.



All models

Check tires for cuts and other damage as well as for objects penetrating the inside walls of tread (outside and inside).

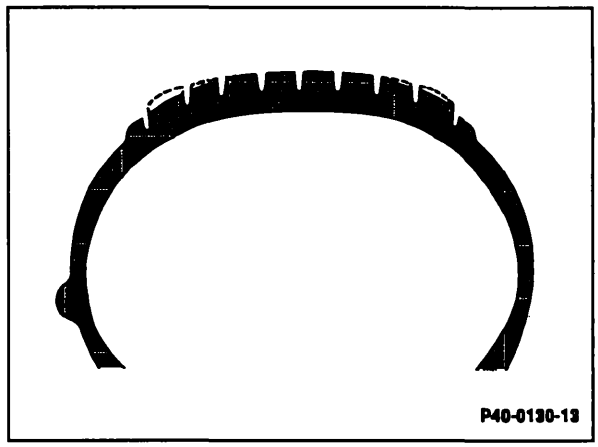
Check tire tread depth and enter in table.

Check wear pattern of tires noting the following points:

Tread depth	Front left	Front right
Outside		
Center		
Inside		
Tread depth	Rear left	Rear right
Outside		
Center		
Inside		

Front axle

It is normal to have somewhat greater wear on both shoulders of the front tires compared to the center tread. This wear pattern is caused by low tire pressure, fast cornering, releasing the accelerator abruptly in fast turns, or by a high proportion of city driving.

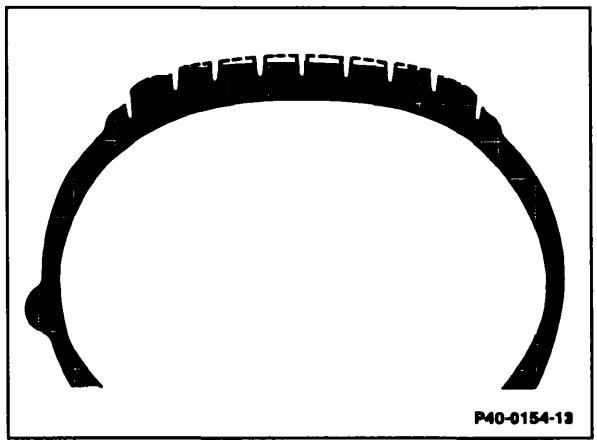


Shoulder wear on front tire

Rear axle

Wear is normally distributed over the entire tread are of the rear wheels, although it is usually somewhat higher at the center of the tread than on the shoulder. Depending on the rear vehicle load (increased negative camber with high load) the wear on the inner side of the tread area can be somewhat higher than on the outer side.

Rotate wheels, if required (refer to job no 4050).



Center tread wear on rear tire

All models

Note: When correcting tire pressure, also check spare tire.

The label on the tank filler flap lists the correct inflation pressures for the respective tires (summer and winter tires) as well as for various operating conditions.

Tire pressures listed for light loads are a minimum and afford optimum driving comfort. The higher tire pressure listed for heavy loads is also permissible for lightly loaded vehicles and has a positive effect on driving characteristics. However, the ride will be somewhat firmer.

Tire temperature and therefore tire pressure increase with vehicle speed and load. Tire pressure should normally only be adjusted with cold tires. Correct tire pressure of warm tires only if pressure has dropped below the pressures listed on the label and the operating conditions are taken into consideration. Never reduce tire pressure when warm.

Note: Tire pressure changes by approx. 0.1 bar per 10°C change in air temperature. This should be considered when checking/adjusting tire pressure in workshops, particularly in winter.

Example:

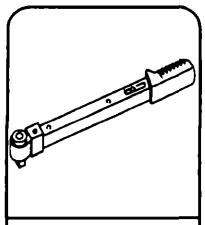
Ambient temperature = approx. +20°C
Outside temperature = approx. 0°C

Tire pressure to be set to specified pressure + 0.2 bar.

All models

Torque specifications	Nm
Wheel bolts M12 x 1.5 (All models except 140)	110
Wheel bolts M14 x 1.5 (Model 140 only)	150

Special tools



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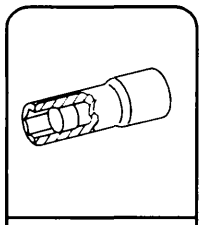
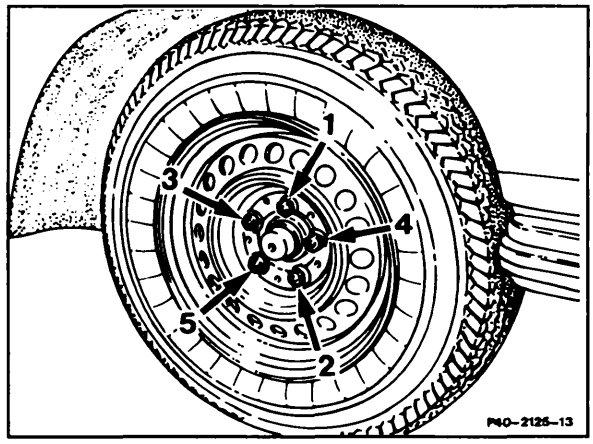


126 589 04 09 00

- Remove wheel covers from steel wheels, if so equipped.
- Always tighten wheel bolts with torque wrench.
- **Torque in correct sequence (arrows).**
- Replace wheel covers on steel wheels.

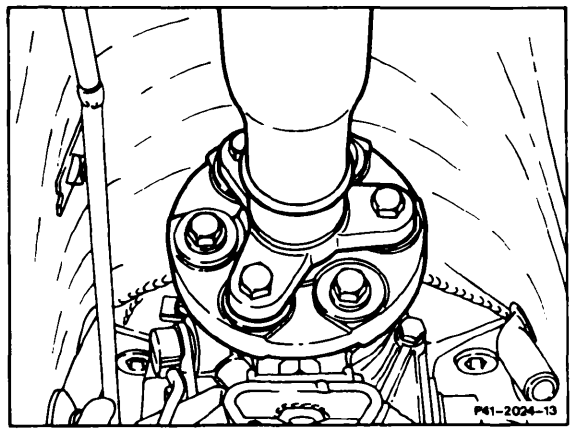


All models

Note: When performing this job number, the engine compartment lower panel or the noise encapsulation panel must be removed on models 124.1/3 and 201.1, and replaced after completing all maintenance work (refer to job number 6190 or 9490).

- Check flexible coupling for wear and damage, as well as for distortion (visual inspection).

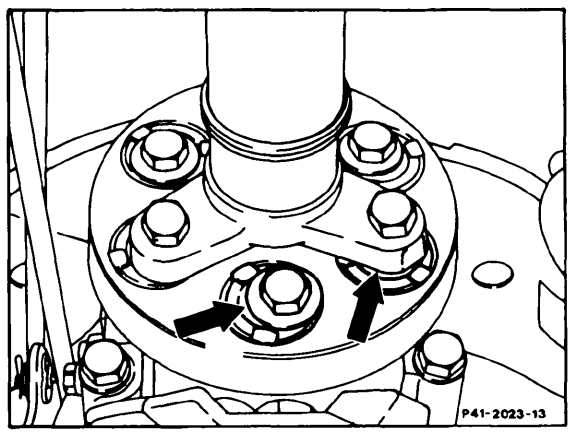
- On those flexible coupling mounted at the transmission end, that are radially soft (soft in thrust) and tangentially soft (soft in thrust and tension), check the lands in the area of the dowel sleeves (arrows) for cracks (visual inspection).



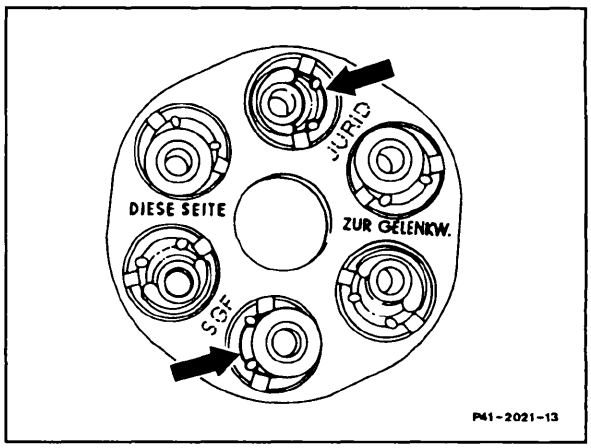
Model 107, 123, 126.03/04
Model 123 1st version through 09.1980 on vehicles with 6 cylinder engine

- Replace flexible coupling if damaged or worn.

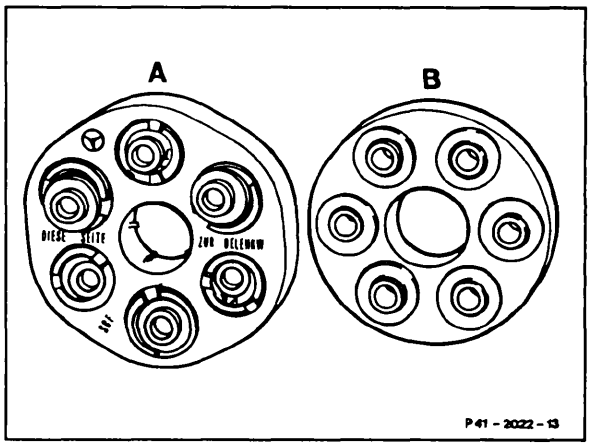
- If distortion is found, loosen and retighten drive shaft. If distortion remains, replace flexible coupling.



Model 126.02 with radially softer flexible coupling (transmission end only)
Model 123 2nd version starting 10.1980 on vehicle with 6 cylinder engine



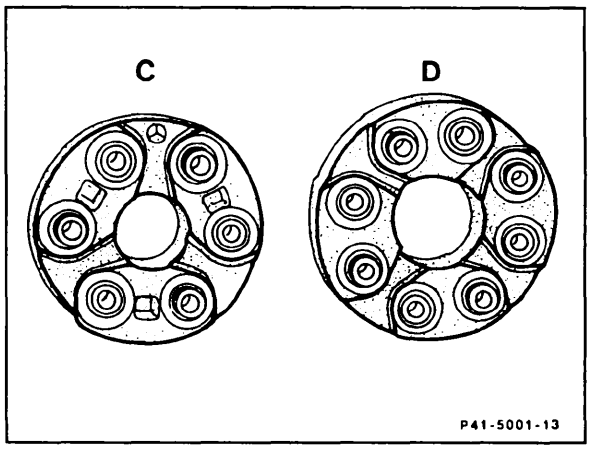
Tangentially softer flexible coupling, front and rear, on model 123 with 5-speed manual transmission
Starting 10.1985 model 126.02 at transmission end only



Models 107, 124, 129, 201

A Model 124, 201.02/1 front flexible coupling (tangentially softer)

B Model 107, 124, 126, 201.02/1 rear flexible coupling and model 129.06, 201.03 front and rear



Models,124.036, 129, 140

C Model 129.060 (90mm bolt circle), 129.061, 140.03 (100 mm bolt circle) torsionally rigid

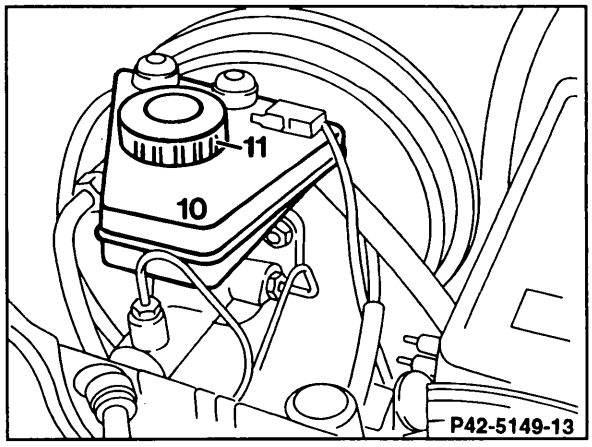
D Model 124.036, 129.066, 140.04/05 (110 mm bolt circle) 4 arm flange and torsionally rigid

All models

Brake fluid

Use specified brake fluid only	Refer to Factory Approved Service Products list

Note: During its service life, the boiling point of brake fluid will decrease as a result of the moisture absorbed from the atmosphere. When the braking system is under extreme stress, this moisture can vaporize. For this reason, the **brake fluid must be changed once a year,** preferably in spring on models 124 and 201 through 03/91 production as well as models 107, 123, 126. On models 124 and 201 starting 04/91 production, and models 129 and 140 the **brake fluid must be changed once every two years.**



10 Fluid reservoir
11 Cap

Checking fluid level

The brake fluid level should be between the MAX and MIN marks on the reservoir.
When brake fluid level is extremely low, determine cause (leaks, worn brake pads).

Correcting fluid level

Note: If brake pads are about to be replaced, correct the fluid level following installation of pads.

Remove cover from reservoir and add in new brake fluid up to "MAX." mark on fluid reservoir.

Remove cap. Check that vent hole is cap is not clogged.

Handle brake fluid with care.

a) Store brake fluid only in containers, which make accidental consumption of fluid impossible. **(Fatal dosage 100 cc.)**

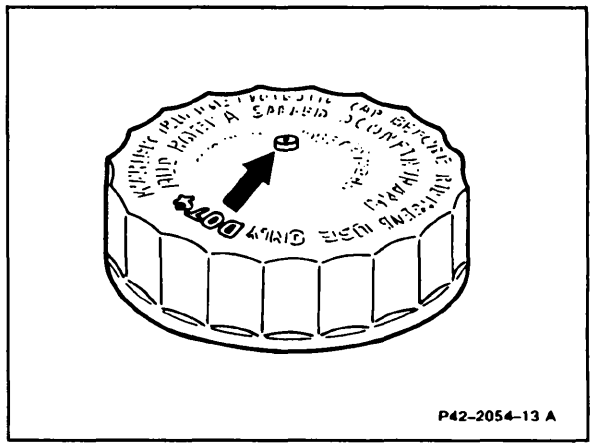
b) Even minute quantities of mineral oil will result in failure of clutch and brake systems Special care should be taken with brake fluid that is colorless or dyed yellow, since here the risk of mix up is the greatest. Whenever mineral oil is found in the brake system, or if the presence of mineral oil is suspected, proceed as follows:

1. Replace master cylinder and brake fluid reservoir.
2. Flush entire brake system with new brake fluid.
3. Any components containing rubber parts that came into contact with mineral oil, such as brake calipers, brake hoses, ABS or ASR hydraulic unit, ASR pressure reservoir must be replaced.
4. Bleed brake system.

c) Make sure that brake fluid does not contact painted surfaces of vehicle, since the fluid acts as a paint solvent.

d) Brake fluid is highly hygroscopic, meaning it will absorb moisture from the air, as a result of which the fluid's boiling point is reduced. Brake fluid should only be stored in well sealed containers.

e) Brake fluid that has been bled out of the system can not be reused, since it may contain foreign matter or water which could re-enter the brake system in this manner.

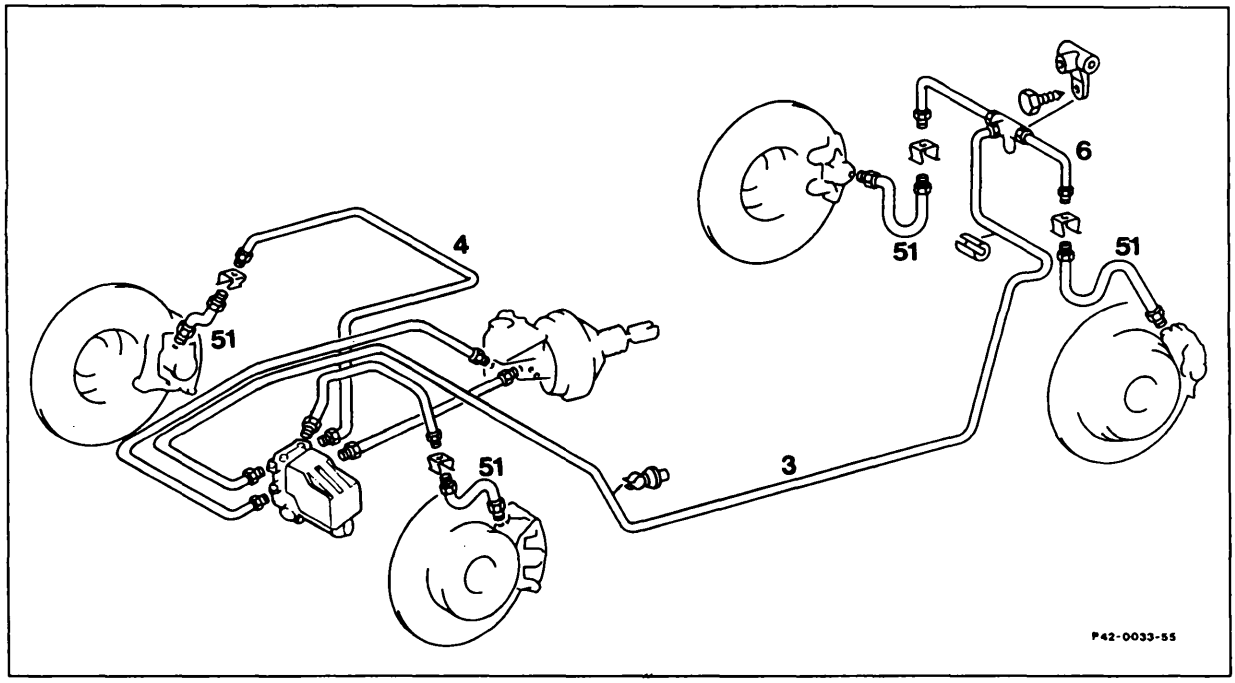


P42-2054-13 A

a Vent opening

Model **107 up through 07.1985**
123
126 up through 08.1985
201 up through 12.1984

Check all brake lines and hoses for damage from external causes, such as road debris.



Model 107 starting 08. 1985
124
126 starting 09. 1985
129
140
201

Front brake pad specifications in mm

Model	107 [1] 124.034 [2]/ 036/051 126 129	124 (except 124.034/036/ 051 201.034	124.032/ 034 [3] / 052/066/ 092	140.03 2 piston caliper	140.04/05 4 piston caliper	201.01 201.02 201.1
Thickness of brake pad (pad and backing plate)	17.5	19.3	16	18.5	19.3	17.9
Wear limit at maintenance service (pad and backing plate)	12	14	11	13	13	13
Allowable wear of lining to a thickness of	2	2	2	2	2	2

1) The backing plate is modified to fit the 4 piston fixed caliper starting 09/85. As a result, pads from models 123 and 126 can no longer be installed.
2) through 09/92.
3) starting 10/92.

Rear brake pad specifications in mm

Model	107 124 [1] 126 129.06 201.03	124.036 129.07 140	201.01 201.02
Thickness of brake pad (pad and backing plate)	15.5	16	13.5
Wear limit at maintenance service (pad and backing plate)	11	13	10
Allowable wear of lining to a thickness of	2	2	2

1) Installed on model 124.036 through 11/92.
2) starting 12/92.

Front brake disk specifications in mm

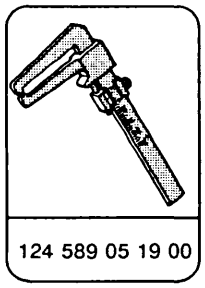
Model			Brake pad thickness	Wear limit	Limit at maintenance service
107 124.030 124.090 201.028 201.128	124.026 124.050 124.128 201.029	124.028 124.051 124.2 201.034	22	19.4	20
124.034 129.06	124.036 140.03	126 140.1	28	25.4	26
124.032 124.066	124.034 124.092	124.052	25	22.4	23
124.036	140		30	27.4	28
129.07			30	28	28.5
201.024	201.122	201.126	11	9	29.5

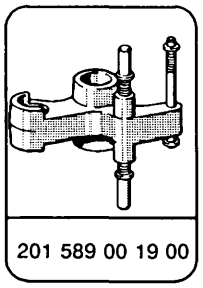
1) Installed on model 124.036 through 11/92.
2) starting 12/92.

Rear brake disk specifications in mm

Model			Brake disk thickness	Wear limit	Limit at maintenance service
107	126		10	8.3	8.6
124.030 124.06 124.2	124.032 124.090 129.06	124.05 124.1 201	9	7.3	7.6
124.092			20	17.4	18
124.034	124.036		24	21.4	22
129.07	140.04	140.05	22	19.4	20
140.03	140.1		12	9.8	10.5

Special tools


124 589 05 19 00

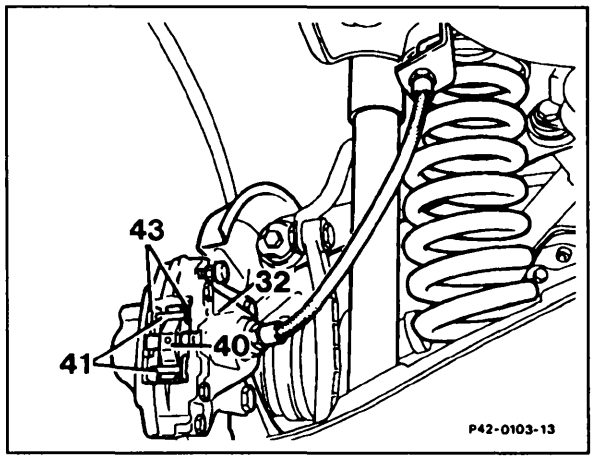

201 589 00 19 00

Checking brake pads

- Check pad thickness on front and rear axle (pads installed). If necessary, replace pads on separate order.

Note:
To make sure that the wear limit is not exceeded before the next maintenance job, refer to the recommended limits in the chart at beginning of the chapter.

⚠ IMPORTANT NOTE!
On vehicles that are driven fewer than 6,000 miles per year, remove, clean, and reinstall brake pads on separate order. In addition, check that dust boots and pistons move freely.

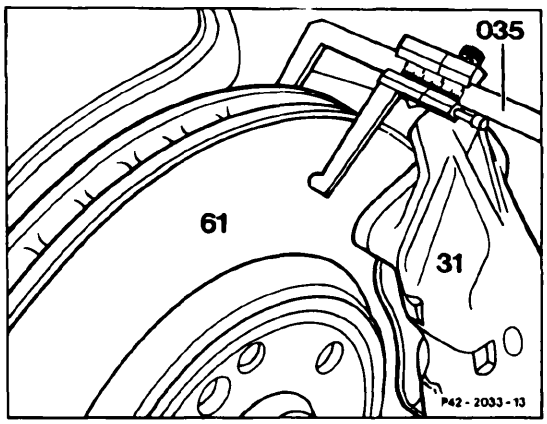


Checking brake disks

- Check brake disks for score marks and cracks. Cracks in a circumferential direction up to 0.5 mm in depth are permitted.

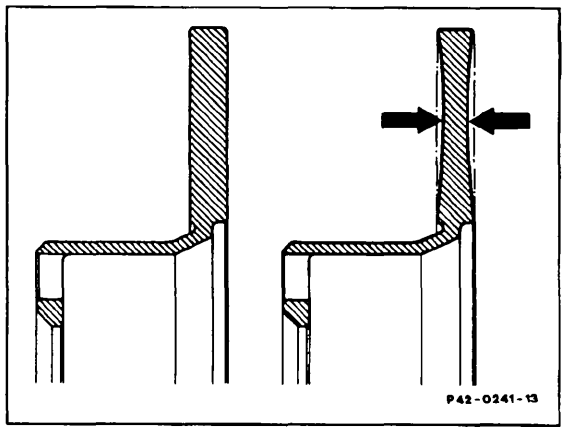
Note: Brake disks which are badly discolored - gray or blue discoloration should be cleaned with cleaning pads (at extra cost).

- Measure thickness of brake disk using special tool (035).



Note: Wear limits for brake disks must be strictly observed.
To ensure that brake disk does not exceed wear limit before next maintenance service, observe wear limits in chart at beginning of chapter.

Ventilated brake disks with hairline cracks up to 25 mm in length, which may show up under high loads, need not be replaced. Replace disks with open cracks and score marks deeper than 0.5 mm immediately.

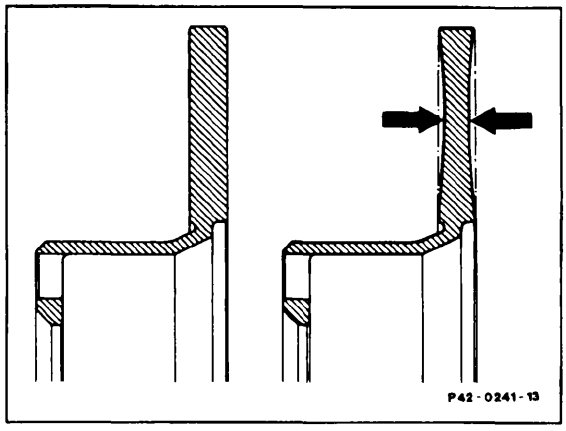


Note: If measuring the front brake pads shows that they must be replaced, perform the following additional jobs on separate order:

a) Check all brake disks for wear.
Wear limit:

Ventilated front brake disks	19.4 mm
Solid front brake discs	9 or 10 mm
Rear brake disks	7.3 mm

Note: To make sure that the wear limit is not exceeded before the next maintenance job, the smallest dimension on the ventilated front disk, should be greater than 20.0 mm, on the solid front disk greater than 9.5 mm or 10.5 mm, and on the rear brake disk greater than 7.6.



b) Check brake pads or rear wheel brake for wear. Brake pads must be replaced when the distance between the eye of the lining back plate and the cross spring is approx. 3 mm.

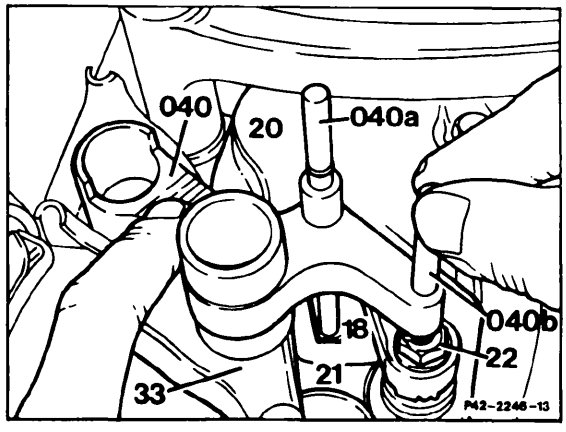
c) Check dust caps and that pistons move freely in brake calipers.

Measuring procedure

Model 201 through 12/84

Position measuring device on hex. head bolts of spring strut and brake caliper mounting of steering knuckle. Supporting surfaces must be clean.

Press measuring device against steering knuckle.



Slip long pin against backing plate of inner pad and short pin against head of caliper to brake carrier mounting bolt.

Remove measuring device and read brake pad wear on measuring pins. If less than 6 measuring rings can be seen, more than approx. 6 mm of the total pad thickness of 12 mm on models 201.02, 201.1, and of 13 mm on model and 201.03 are worn out. In this case it is recommended that the brake pads be replaced, provided the customer does not want to use up the remaining pad thickness until the wear indicator lights up.

Note: The short pin measures outer pad wear, the long pin measure inner pad wear.

Model 107 through 07. 1985
123
126 through 08. 1985

Brake pad specifications

Model		107 123 126.02/03 126.1	126.04
Front caliper type		Fixed caliper	Floating caliper
Thickness of brake pad (pad and backing plate)	front rear	17.5 15.5	18.5 15.5
Thickness of pad backing plate	front rear	4.5 5.0	5.5 5.0
Permissible wear[1]) of brake pad down to thickness of	front rear	2.0 2.0	3.5 2.0

[1]) Replace brake pad during maintenance service if the distance between eye of pad backing plate and cross spring/pad retaining spring on fixed caliper equals approx. 3 mm.

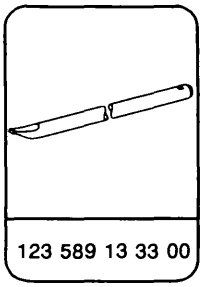
Brake disk specifications

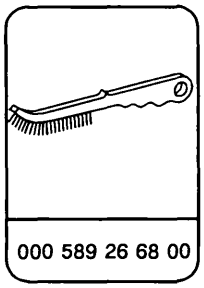
Model		107 126	123
Thickness of brake disk	front rear	22 10	12.6 10
Wear limit	front rear	19.4 8.3	10.6 8.3
Limit at maintenance service	front rear	20 8.6	11.1 8.6

Lubricant

MB brake pad paste	000 989 10 51

Special tools


123 589 13 33 00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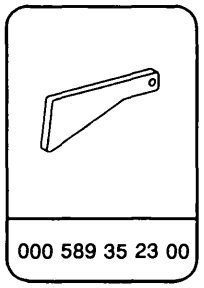
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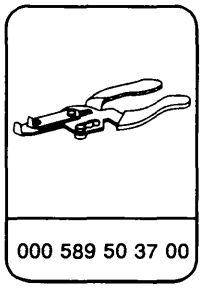
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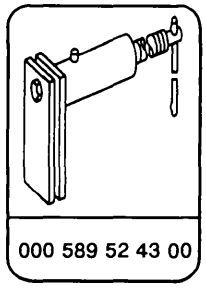
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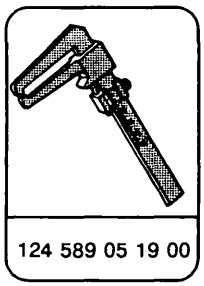
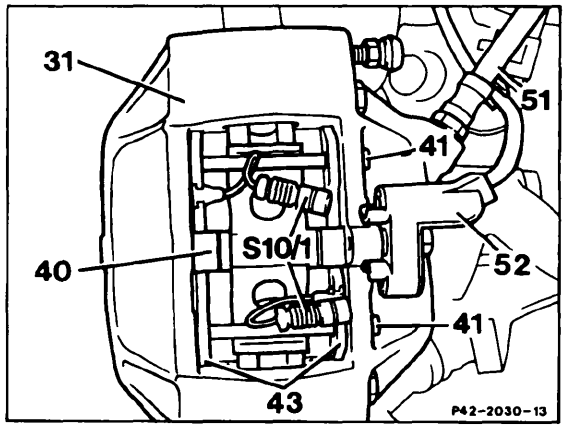

124 589 05 19 00

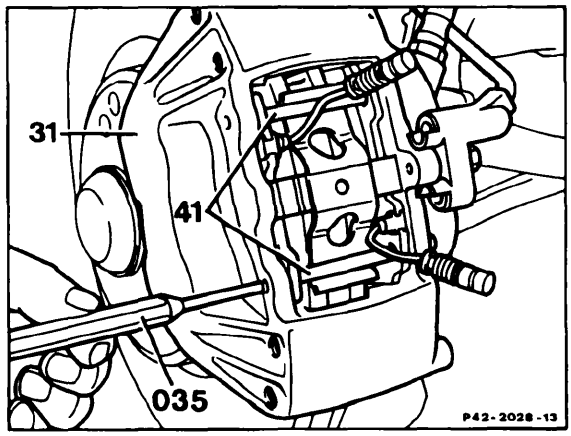
Brake pad replacement

A. Fixed caliper

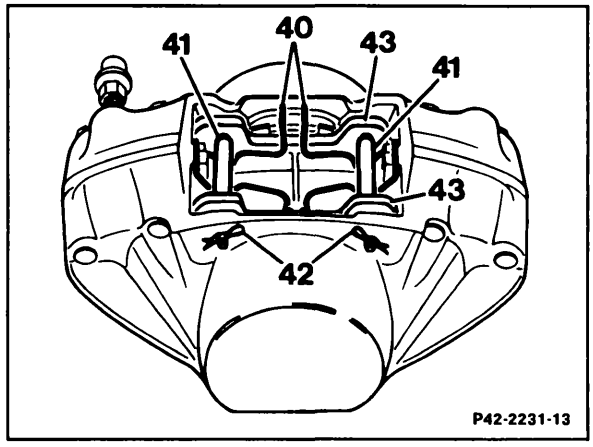
- On fixed caliper with brake pad wear indicator, pull sensor wire (S10/1) out of plug connection (52) on fixed caliper.



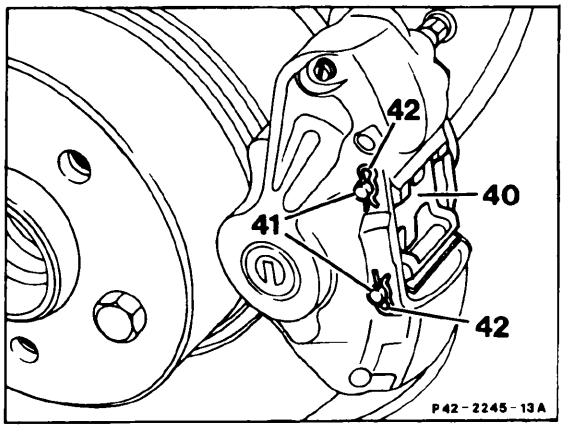
- On Teves (ATE) fixed caliper, knock retaining pins (41) out of fixed caliper by means of punch (035) and remove cross spring/pad retaining spring.



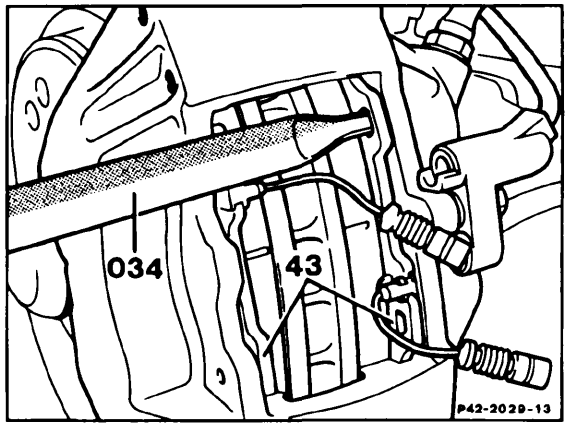
- On Bendix (BX) fixed caliper, remove securing clips (42), retaining pins (41) and springs (40).



- On Girling caliper, remove securing clips (42) on rear axle, remove retaining pins (41) and plate (40).



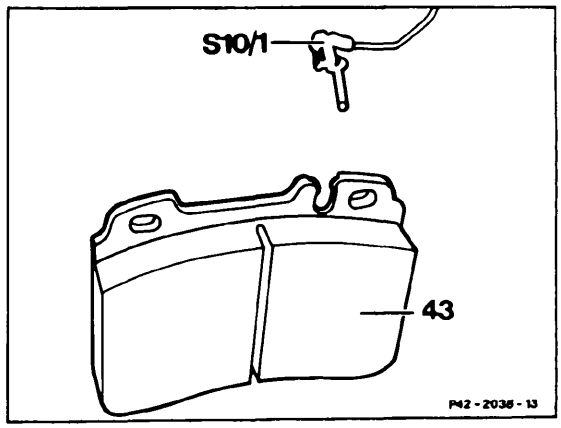
- Remove brake pads (43) from fixed caliper using removing tool (034).



- Pull clip sensors (S10/1) out of pad or backing plate.

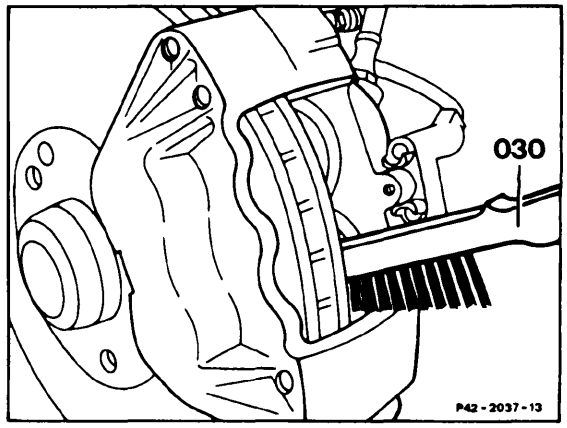
On vehicles with ASR, remove sensors from rear pads in addition.

⚠CAUTION!
Replace clip sensors in which the insulating layer of the contact pin has been worn through or where part of the sensor including the wiring insulation is damaged.



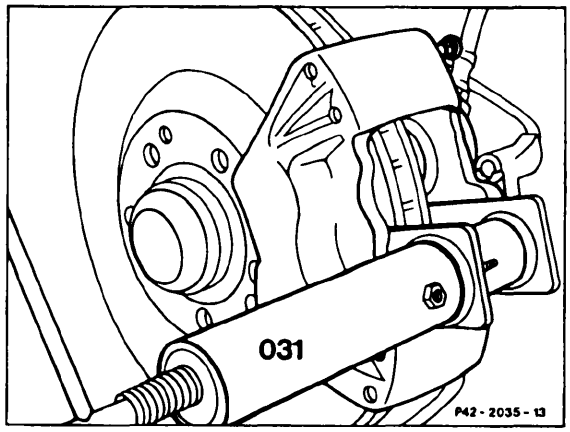
- Clean brake pad guide in fixed caliper using of brake caliper brush (030)

- Visual inspection of dust boots for cracks and piston leaks. If a dust boot is damaged, remove fixed caliper and recondition.

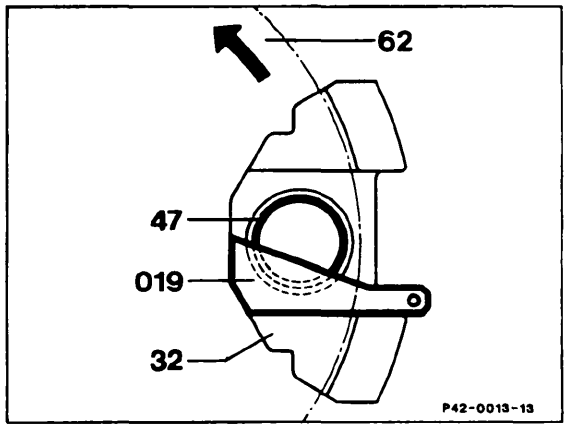


- Push piston back using resetting tool (031), while checking that piston moves freely.

⚠CAUTION!
Use **only** piston resetting tool 000 589 52 43 00. Using other tools may result in damage to the pistons or the dust boots.

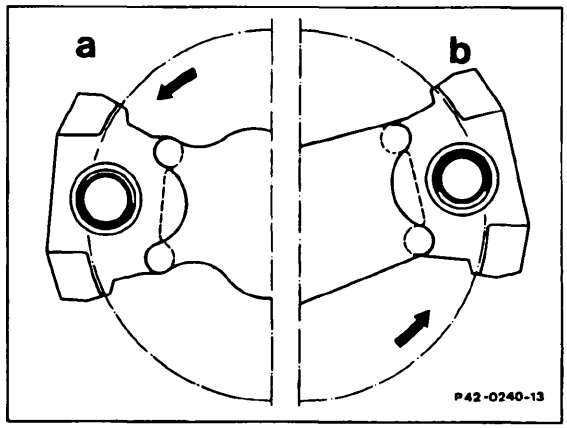


- On rear axle fixed calipers, check the position of the piston (47) in the caliper using the special tool (019).

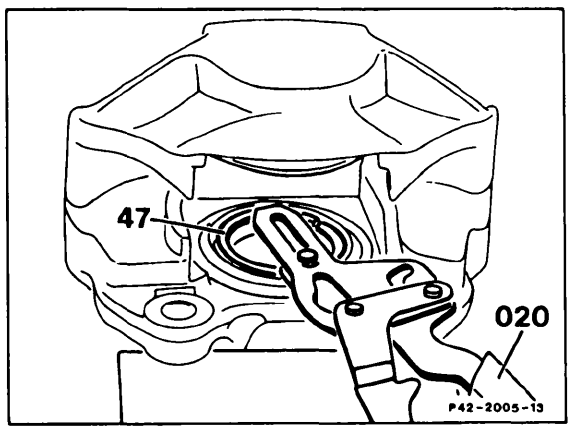


Note:
The raised portion of the piston must be positioned at the top on calipers located behind the axle center line (b) on semi-trailing arms suspensions.

However, the raised portion of the piston must be positioned at the bottom on calipers located in front of the axle center line (a) on semi-trailing arms suspensions with torque compensation.



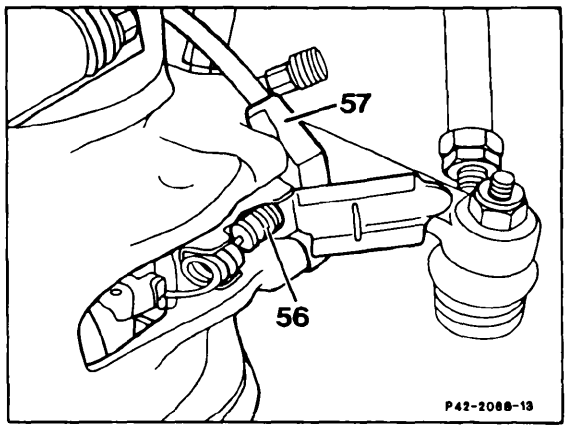
- If necessary, turn piston (47) using special tool (020).
- Clean rain groove in brake pad, measure lining thickness.



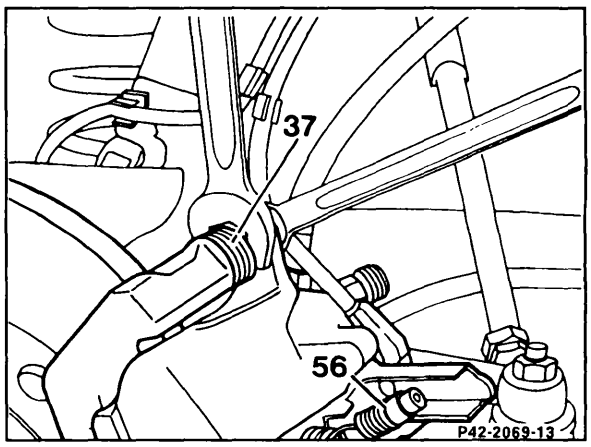
B. Floating caliper (Model 126.04 up through 08/85 only)

- Lift the two holding lugs located laterally on cover of plug connector using a screwdriver and open cover. Do not use force.

- Remove cable of clip sensor (56) from plug connection (57) on floating caliper. Do not pull on cable.

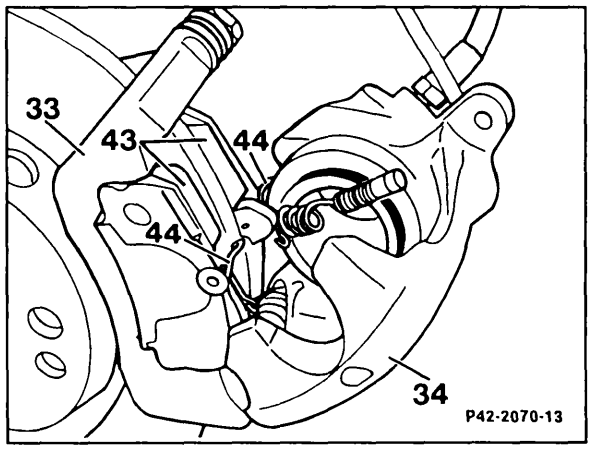


- Unscrew upper hex. bolt while applying counterhold at slide bolt (37).



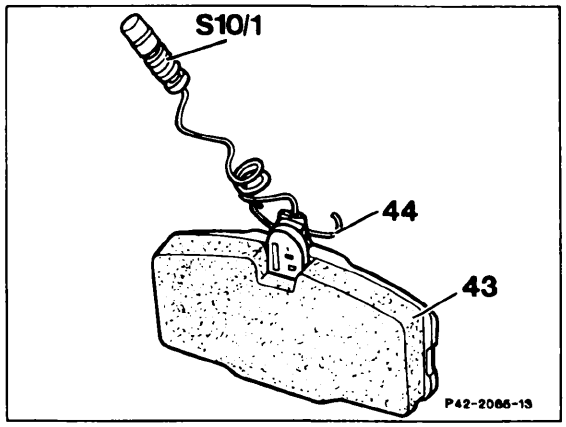
- Swing caliper (34) down and attach to stabilizer bar with suitable hook. Remove both brake pads (43) from brake carrier (33).

⚠**CAUTION!**
When the caliper housing is swung open, make sure that the guide bolts do not get bent. **Never** use the caliper housing to change the steering angle.



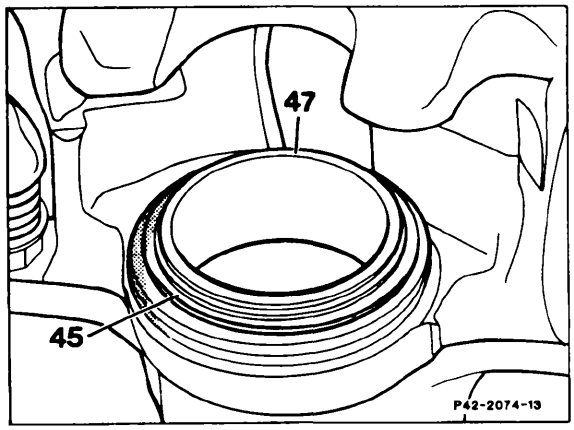
- Pull clip sensor (S10/1) out of pad backing plate.

Note: On floating calipers only the inner brake pad has a wear indicator.



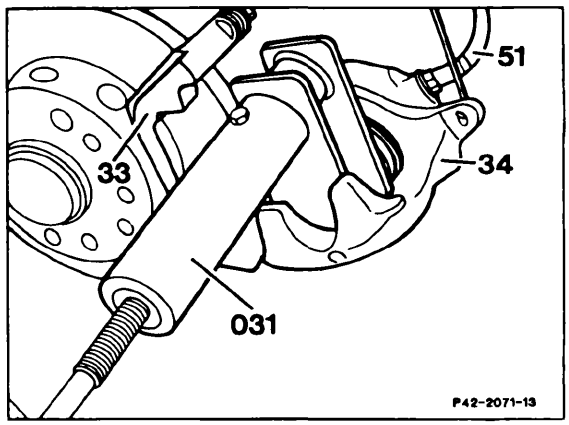
⚠CAUTION!
Replace clip sensors on which the insulation layer of the contact plate is worn through or where part of the sensor including the wiring insulation is damaged.

- Clean brake pad supporting surface of brake carrier.
- Check dust boot (45) for cracks and piston for leakage. If dust boot is damaged, remove and repair caliper, since the entrance of dirt will quickly lead to caliper leakage.



- Push piston back using resetting tool (031).

⚠CAUTION!
Use **only** piston resetting tool 000 589 52 43 00. Using other tools may result in damage to the pistons or the dust boots.

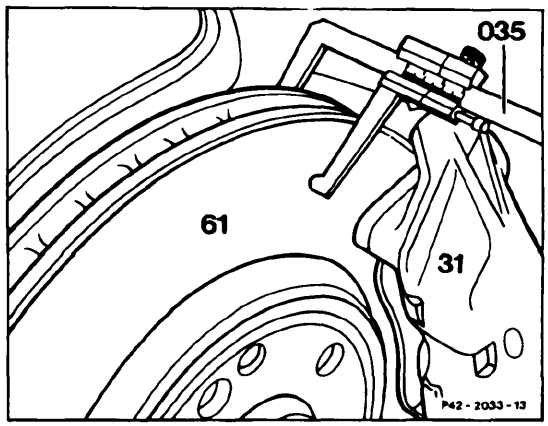


Checking brake disks

- Check brake disks for score marks and cracks. Cracks in a circumferential direction up to 0.5 mm in depth are permitted.

Note:
Brake disks which are badly discolored - grey or blue discoloration should be cleaned with cleaning pads (at extra cost).

Measure thickness of brake disk using special tool (035).

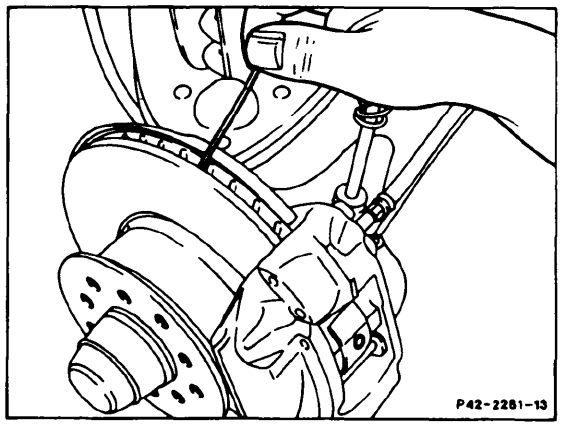


Note:
Wear limits for brake disks must be strictly observed.
To ensure that brake disk does not exceed wear limit before next maintenance service, observe wear limits in chart at beginning of chapter.

Ventilated brake disks with hairline cracks up to 25 mm in length, which may show up under high loads, need not be replaced. Replace disks with open cracks and score marks deeper than 0.5 mm immediately.

- Clean air passages of vented brake disks with a thin wire, taking care not to dislodge any balancing weights. Blow loosened dirt out of passages with compressed air.

Note:
Badly clogged air passages can be cleaned only by removing brake disks and placing them in a washing unit.

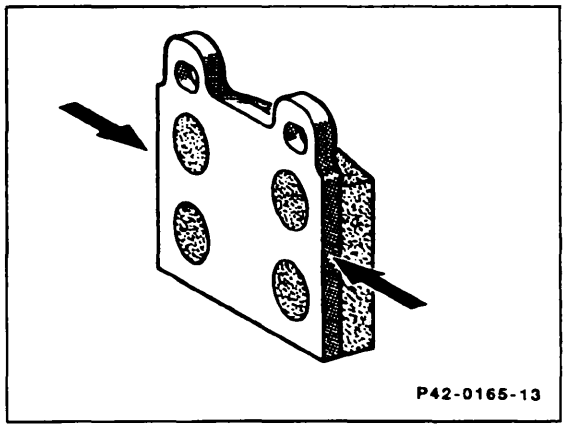


Brake pad installation

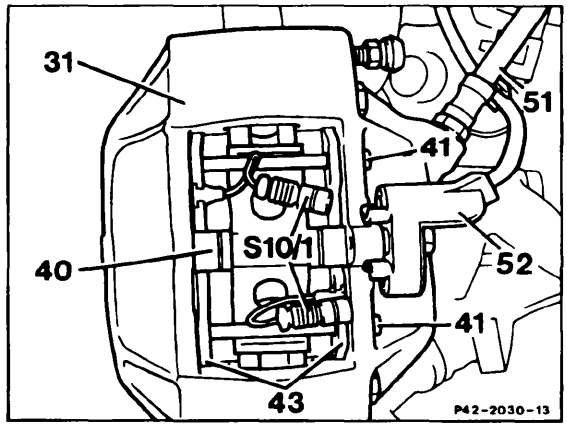
A. Fixed caliper

- On fixed caliper, apply heat resistant long term lubricant to brake pads at spots indicated by arrows. Then install brake pads.

- Install cross spring/pad retaining springs, holding plate for pads, retaining pins, and locking clips, as required.



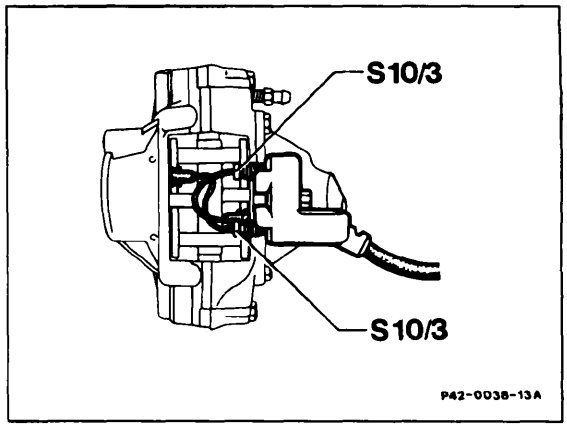
- On fixed caliper with brake pad wear indicator, insert clip sensors (S10/1) into brake pad (43) and into plug connector (52).



Note:
The rear brakes on vehicles equipped with ASR II have wear sensors as on the front brakes.

The same wear sensors (S10/3) are used on the rear wheels as are used on the front wheels.

The wires must be routed as shown in the illustration



- **Apply brakes vigorously several times** until strong resistance is felt. Then check brake fluid level in reservoir and add, as necessary.

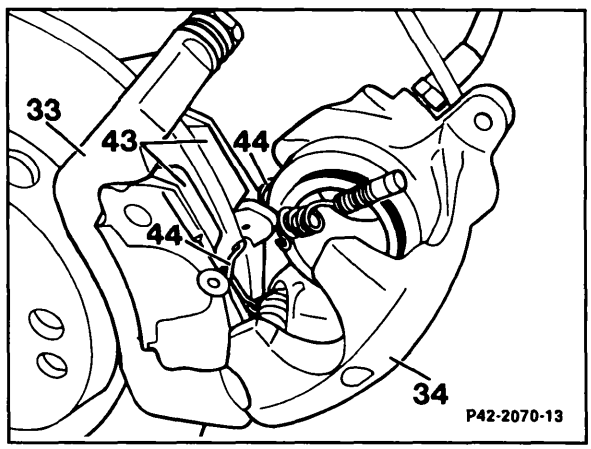
  If new brake pads are installed, they must be broken-in carefully by stopping several times from 80 to 40 km/h with light pedal pressure.

  Allow brakes to cool between each application. Hard braking should only be done with pads that have been broken-in.

B. Floating caliper (Model 126.04 up through 08/85 only)

- On floating caliper, insert both brake pads (43) into brake carrier (33), making sure that the spring clip (44) is located parallel with upper edge of pad.

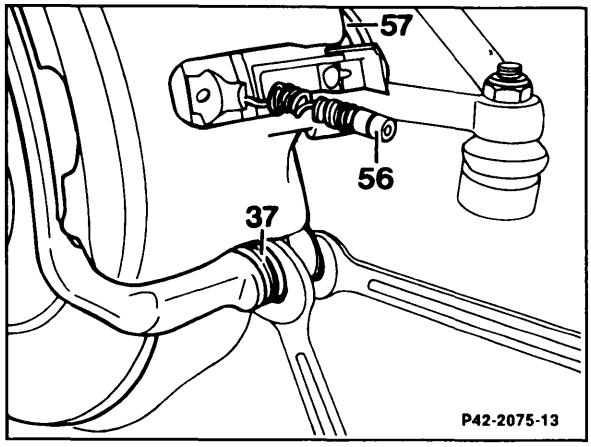
- Plug clip sensor into inner brake pad.



- Secure caliper (34) with new self locking bolt to brake carrier (33) while applying counterhold to slide bolts (37). Torque to 35 Nm.

Note: Do not re-use self locking bolts.

- Coil cable of clip sensor (56) and insert into plug connector (57) on floating caliper. Close cover of plug connector.



- Apply brakes vigorously several times until strong resistance is felt. Then check brake fluid level in reservoir and add, as necessary.

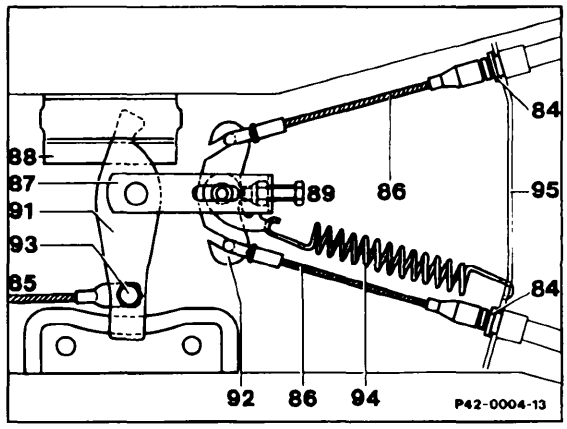
  If new brake pads are installed, they must be broken-in carefully by stopping several times from 80 to 40 km/h with light pedal pressure.

  Allow brakes to cool between each application. Hard braking should only be done with pads that have been broken-in.

All models

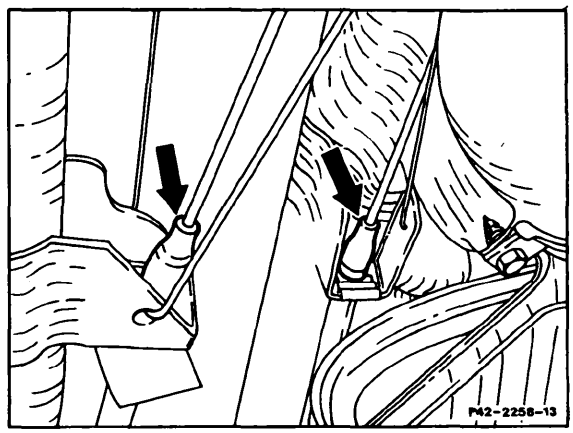
- Apply parking brake several times, while an assistant checks the operation of the rear cables, the intermediate and compensating lever, and the front cable.

85 Front brake cable
86 Rear brake cable
89 Adjustment screw
91 Intermediate lever
92 Compensating lever

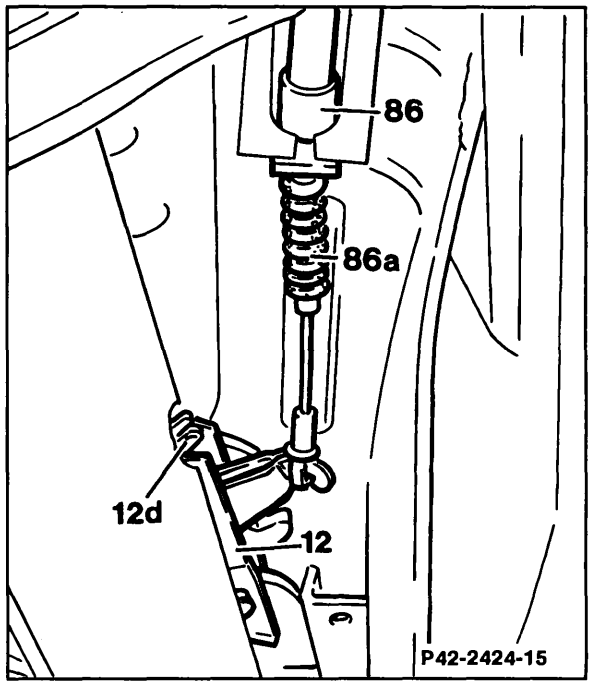


Models 124, 129, 201

- Visually check brake cables, paying particular attention to the rubber sleeves (arrows) that seal cable to guide.



Models 124, 129, 201



Model 140

12 Automatic cable length compensator
86 Rear brake cable
86a Rubber boots

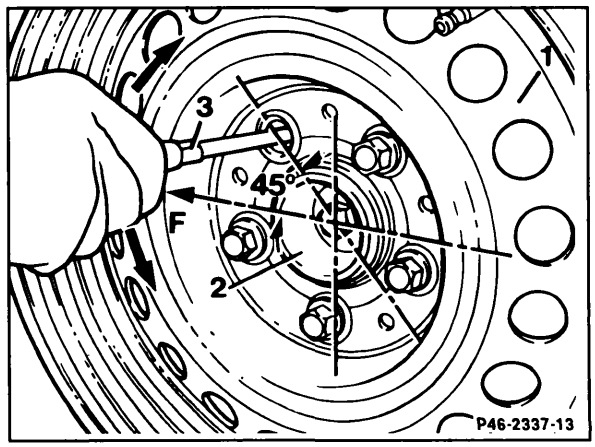
Model **107 up through 07/1985**
123
126 up through 08/1985

Adjusting specifications (except model 140)

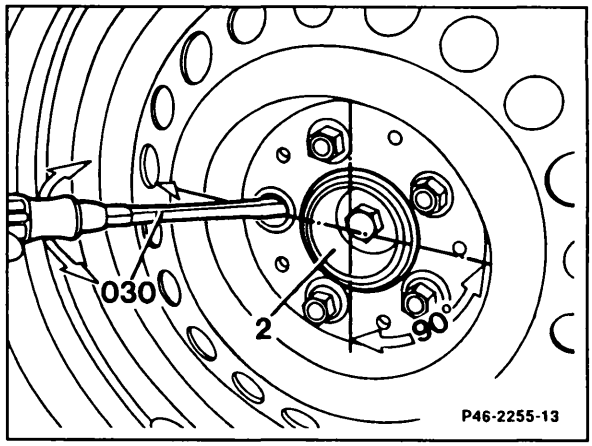
Model	107	123, 126
Parking brake reduction ratio	22	35.6
Number of notches on quadrant	6	12
Force required to pull or push parking brake lever from rest position to first notch	150 – 180 N	120 – 150 N
Number of notches until parking brake becomes effective.	1 – 2	1 – 2

Note: The parking brake should be adjusted if the pedal (on vehicles with **foot operated parking brake**) can be depressed more than 2 notches (model 107) or 4 notches (models 123, 126), without any noticeable braking effect.

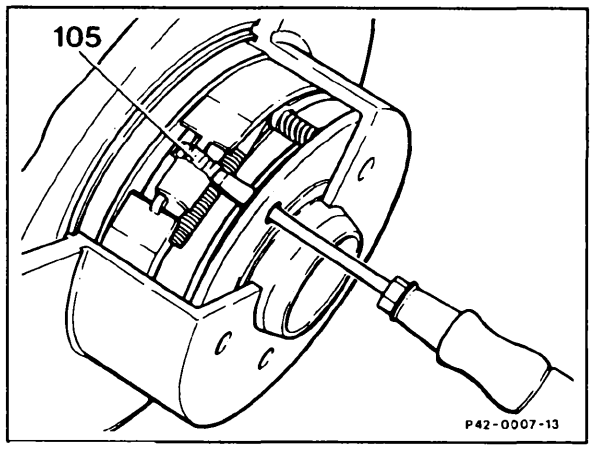
- Remove one wheel bolt from both sides on rear axle.
- Jack up rear of vehicle.
- On vehicles with **semi-trailing arm suspension**, turn each rear wheel so that the bolt hole points 45° up in a forward direction.



- On vehicles with **semi-trailing arm suspension with torque compensation,** turn each rear wheel so that the bolt hole is pointing forward.



- Using screwdriver inserted through bolt hole of wheel, brake disk, and axle flange, turn adjuster until it can no longer be rotated. Then back adjuster off 2-3 teeth , until wheel turns freely.



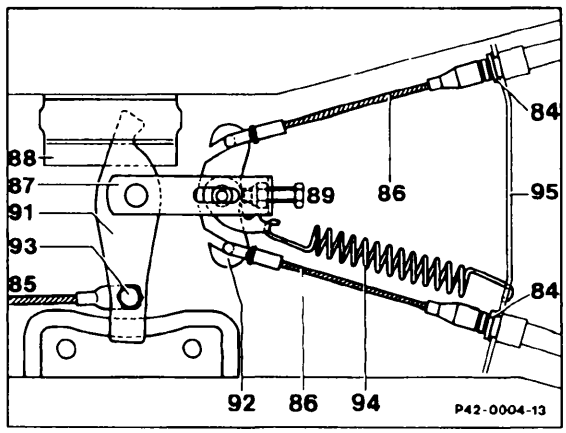
105 Adjuster

Note: To tighten brake shoes, adjust as follows:

Vehicles with **semi-trailing arm suspension:**
Left hand side: from bottom in upward direction.
Right hand side: from top in downward direction.

Vehicles with **semi-trailing arm suspension with torque compensation:**
Left hand side: from bottom in upward direction.
Right hand side: from top in downward direction.

Note:
When adjusting the parkig brake, do not adjust the adjusting screw on the intermediate lever. this is used only to compensate for the length of the cables.



Model **107 starting 08/1985**
124
126 starting 09/1985
129
140
201

Adjusting specifications (except model 140)

Model	107	124 129 through 09/89	124 129 starting 10/89	126	201 through 01/87	201 starting 02/87
Parking brake reduction ratio	21.32	28.4	28.4	33.44	25.2	25.2
Number of notches on quadrant	6	11	15	12	8	12
Force required to pull or push parking brake lever from rest position to first notch	150- 180 N	150- 180 N	150- 180 N	120- 150 N	90- 120 N	90- 120 N
Number of notches until parking brake becomes effective.	1	1	1	1	1	1
Number of notches at which parking brake should be adjusted if no adequate braking effect is felt	2	4	5	4	2	3
Number of teeth through 03/84 on adjuster starting 04/84	10 10	- 15	- 15	10 10	8 15	- 15

All models except 140

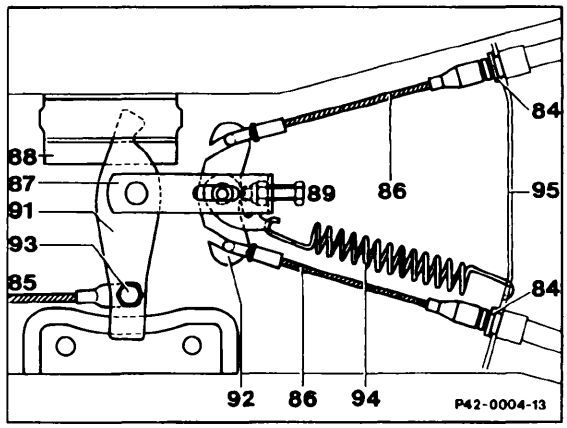
Note: The parking brake should be adjusted if the pedal (on vehicles with **foot operated parking brake**) can be depressed more than 2 notches (model 107) or 4 notches (models 124, 126, 129), without any noticeable braking effect. On vehicles with **lever operated parking brake**, the parking brake should be adjusted if the lever can be pulled more than 2 notches without any noticeable braking effect.

- Loosen adjusting screw (89) completely. The expanding locks should not be preloaded.

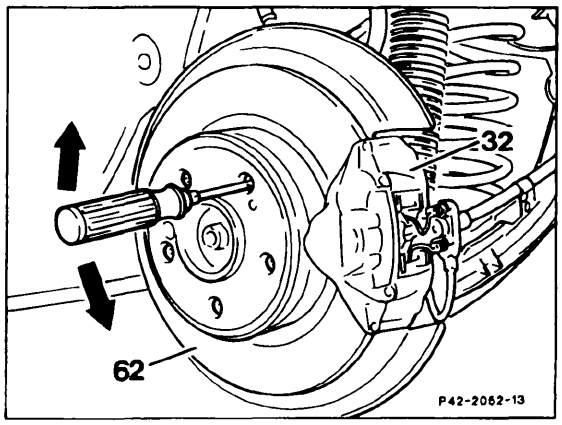
Note:
Light alloy wheels must be removed.

- Remove one wheel bolt from both sides on rear axle.

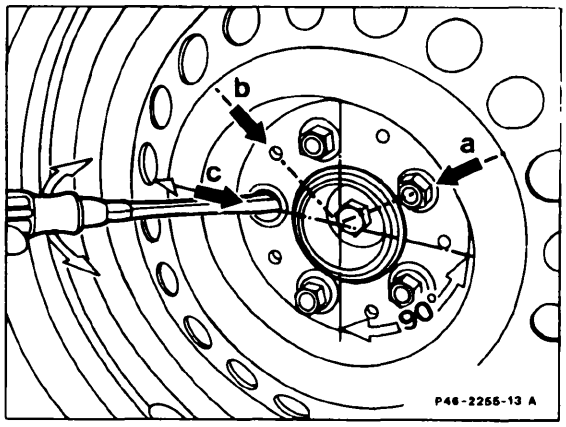
- Jack up rear of vehicle.



- Turn brake disk so the adjuster can be turned by using a screwdriver inserted through a bolt hole.



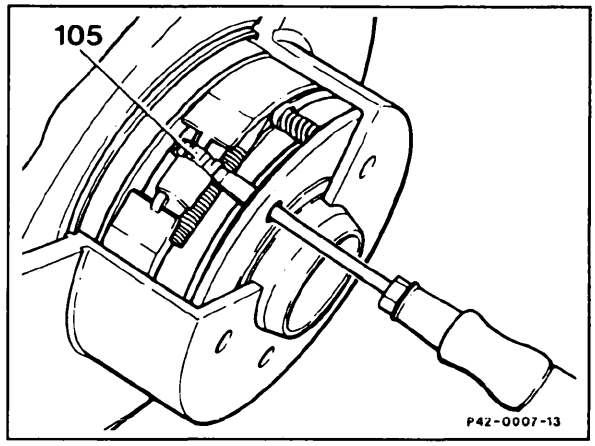
Note:
Location of adjuster shown on left rear wheel; right side is mirror image.



a) Multi-link suspension (Models 124, 129, 201)
b) Semi-trailing arm suspension (Models 107, 126)
c) Semi-trailing arm suspension with torque compensation (Models 107, 126)

- Using screwdriver inserted through bolt hole of wheel, brake disk, and axle flange, turn adjuster until it can no longer be rotated. Then back adjuster off 2-3 teeth on adjuster with 8-10 teeth; 5-6 teeth on 15 tooth adjusters, until wheel turns freely.

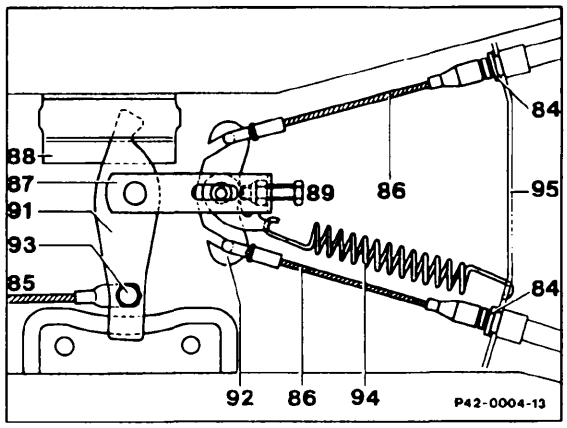
Note: To tighten brake shoes, adjust as follows:
Left hand side: from bottom in upward direction.
Right hand side: from top in downward direction.



105 Adjuster

- Tighten adjusting bolt (89) until brake cables no longer sag.

- Apply parking brake vigorously several times at approx. 400 N.



Pedal operated parking brake:

- Turn adjusting bolt (89) in bracket (87) until pedal is depressed by 1 tooth when the following forces are applied:

Models 107, 124, 129:	150-180 N
Model 126:	120-150 N

Lever operated parking brake:

- Turn adjusting bolt (89) in adjusting bracket (87) until lever can be tightened by one tooth at a force of approx. 90-120 N.

Model 140

- Jack up rear of vehicle.

- Remove one wheel bolt from left and right sides. Do not remove wheel.

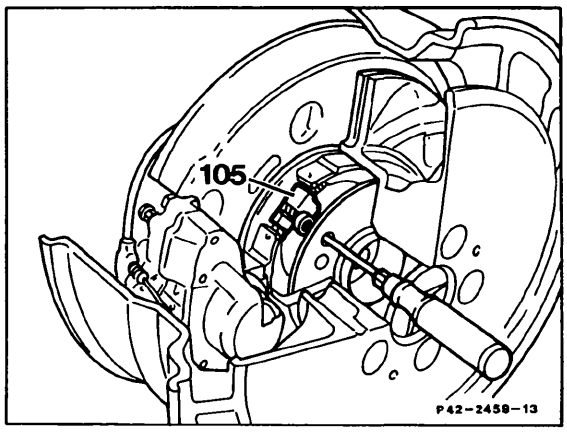
- Turn wheel so that bolt hole is positioned at a 45° angle from the top, towards the rear.

- Using a phillips head screwdriver, turn the adjuster (105) to the right until the rear wheel can not be turned. Then loosen adjuster 5 1/2 turns (mark screwdriver) until wheel turns freely.

- Apply parking brake vigorously several times.

- Release parking brake and check that rear wheels turn freely.

- Install wheel bolt and torque to 150 Nm.



105 Adjuster

All models

Brake fluid

Use specified brake fluid only	Refer to Factory Approved Service Products list

Note: During its service life, the boiling point of brake fluid will decrease as a result of the moisture absorbed from the atmosphere. When the braking system is under extreme stress, this moisture can vaporize. For this reason, the **brake fluid must be changed once a year**, preferably in spring on models 124 and 201 through 03/91 production as well as models 107, 123, 126. On models 124 and 201 starting 04/91 production, and models 129 and 140 the **brake fluid must be changed once every two years.**

⚠

When correcting the brake fluid level be sure not to exceed the original level to avoid having the reservoir overflow when the brake pads are replaced.

Handle brake fluid with care.

a) Store brake fluid only in containers, which make accidental consumption of fluid impossible. **(Fatal dosage 100 cc.)**

b) Even minute quantities of mineral oil will result in failure of clutch and brake systems Special care should be taken with brake fluid that is colorless or dyed yellow, since here the risk of mix up is the greatest.

Whenever mineral oil is found in the brake system, or if the presence of mineral oil is suspected, proceed as follows:

1. Replace master cylinder and brake fluid reservoir.
2. Flush entire brake system with new brake fluid.
3. Any components containing rubber parts that came into contact with mineral oil, such as brake calipers, brake hoses, ABS or ASR hydraulic unit, ASR pressure reservoir must be replaced.
4. Bleed brake system.

c) Make sure that brake fluid does not contact painted surfaces of vehicle, since the fluid acts as a paint solvent.

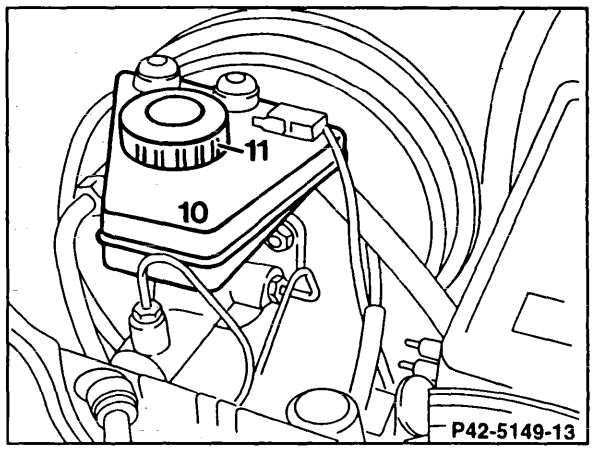
d) Brake fluid is highly hygroscopic, meaning it will absorb moisture from the air, as a result of which the fluid's boiling point is reduced. Brake fluid should only be stored in well sealed containers.

e) Brake fluid that has been bled out of the system can not be reused, since it may contain foreign matter or water which could re-enter the brake system in this manner.

Vehicles without ASR

- Unscrew cap (11) and drain reservoir down to fluid level of approx. 10 mm.

Note: If reservoir is completely drained, entire brake system must be bled (refer to repair instructions)..



- **Using brake bleeder:**

Connect bleeder unit according to manufacturers instructions. Let approx. 80 cc brake fluid flow out a each caliper, so that lines and calipers are filled with new brake fluid.

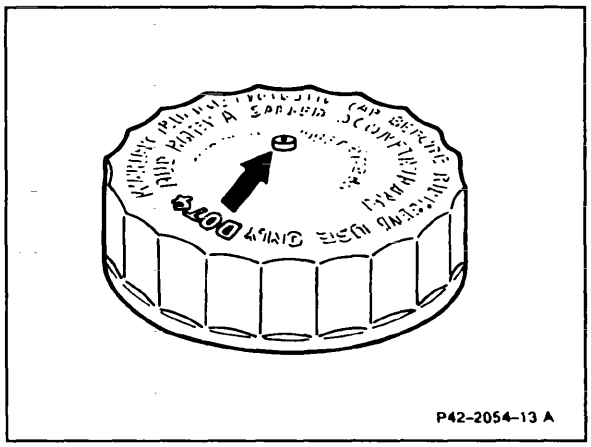
- **Without brake bleeder:**

Fill reservoir up to "MAX" mark with brake fluid. Pump old brake fluid out of each caliper by applying 10 pump strokes each. Add in new brake fluid.

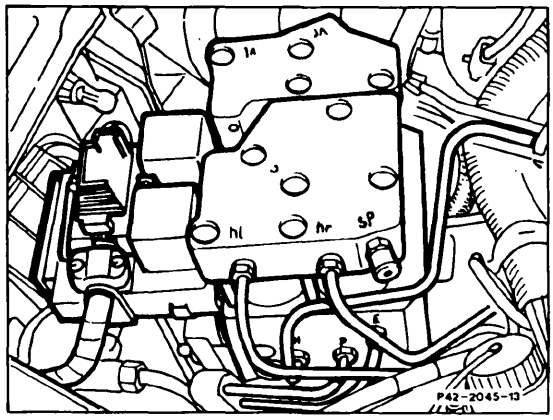
Note: With either method, clear brake fluid without bubbles should come out of the bleeder hose.

- Disconnect bleeder unit and correct fluid level in brake reservoir.

- Screw on cap. Check that vent opening (a) in cap is not blocked.



Vehicles with ASR II and ASR III



- With ignition switched off, empty pressure reservoir at bleeder valve SP

- Remove reservoir cover and empty the reservoir compartments down to a fluid level of approx. 10 mm.

Note:
If the reservoir is completely emptied, the **entire** brake system must be bled (500 cc brake fluid per wheel).

- Connect bleeder unit according to manufacturer's instructions.

Allow approx. **80 cc** of brake fluid to flow from each wheel brake to ensure that lines and caliper cylinders are filled with new brake fluid.

- Start engine.

- Keep bleeder valve SP open until clear brake fluid, free of bubbles, flows out.

- Close bleeder valve SP. Allow charging process of pressure reservoir to complete. (Charging pump will run audibly for approx. 30 seconds.)

- Switch engine off.

- Disconnect bleeder unit and correct fluid level in brake fluid reservoir.

All models

Parking brake adjusting specifications

Model	107	124 129 through 09/89	124 129 starting 10/89	126	140	201 through 01/87	201 starting 02/87
Number of notches at which parking brake should be adjusted if no adequate braking effect is felt	2	4	5	4	5	2	3

If parking brake does not apply as specified, adjust (refer to SMS Job No. 42-540) on separate order.

Measure effectiveness of the parking brake on dynamometer.

Note: Before measuring effectiveness, break in parking brake. Observe the following:
When actuating the parking brake, the ratchet of the pedal or lever should not be allowed to engage.

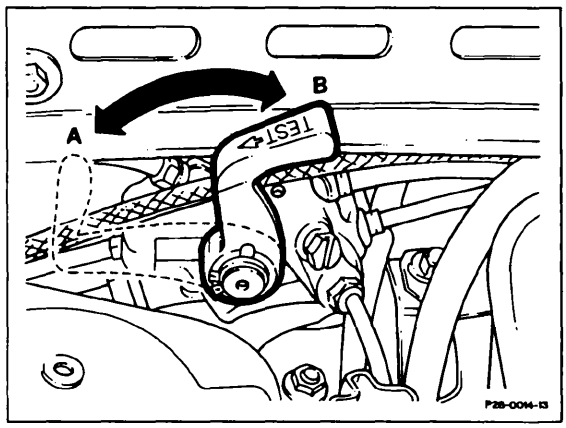
The parking brake can be broken in using the following methods:

- During a test drive on a dry road at a speed of approx. 50 km/h, apply parking brake 2 to 3 times with a force of 100-200 N for pedal operated parking brake and 80-160 N for lever operated parking brake. Brake vehicle to a stop while observing any traffic behind vehicle since stop lamps do not light.

- At a constant speed of approx. 50 km/h on a dynamometer, apply parking brake for 10 seconds at a max. of 100 N for pedal operated parking brake and at 80 N for lever operated parking brake.

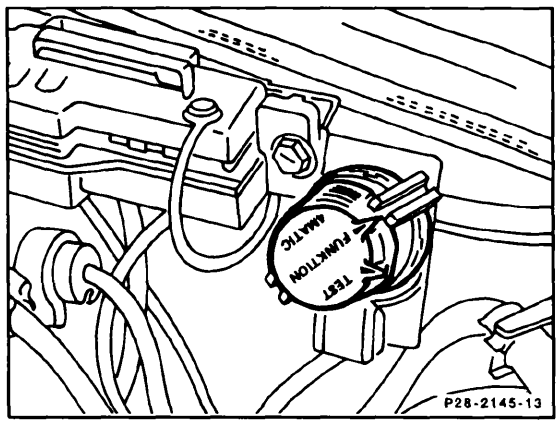
⚠**WARNING!**
On vehicles with **4MATIC,** the system must be shut off before operating vehicle on dynamometer.

On vehicles with **4MATIC** up through 04/91 production, set service switch located on right side in engine compartment to test position (A) when operating vehicle on dynamometer.



up through 04/91

On vehicles with **4MATIC** starting 05/91 production, the switch (located on the right inner side of the component compartment wall) must be switched from the FUNKTION position to the TEST position. Pull the round cover out, turn and reinsert in the TEST position.
The ignition must be off when setting the switch back to the FUNKTION position, otherwise the 4MATIC warning lamp will not go out.



starting 05/91

- On chassis dynamometer, operate vehicle at a constant speed of 50 km/h (3rd gear). Apply parking brake for 10 seconds at a constant force of 100 N for pedal operated parking brake and 80 N for lever operated parking brake. Do not exceed specified force.

The break in procedure can be repeated after the brakes have been allowed to cool off.

Service brakes
Check free travel of brake pedal. At a force of approx. 200 N, the brake pedal should be halfway through the total travel. Perform test with vacuum assist from running engine.

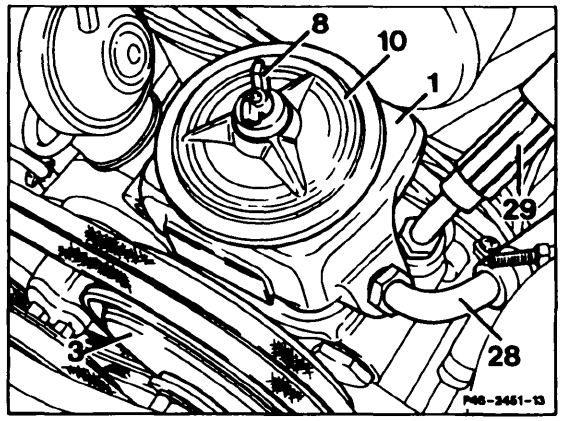
All models

Oil grade

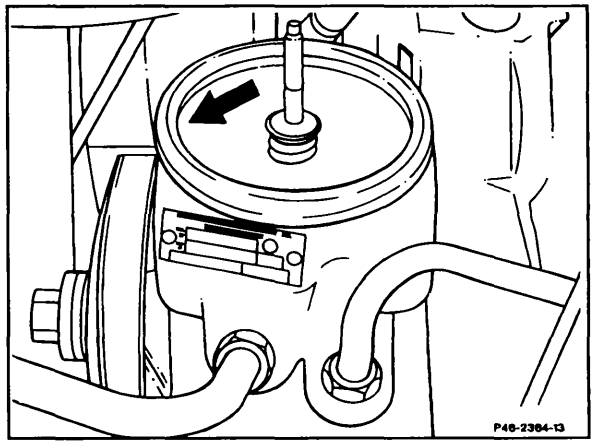
MB steering gear oil p/n 000 989 88 03	Refer to MBNA Factory Approved Service Products list

VT 27, VT 49 and ZL 49

- Unscrew wing nut or knurled nut (8) from reservoir and remove cover (10)



- Warm fluid level (operating temperature, approx. 80°C) up to stamped or cast in mark (approx. 20 mm below reservoir edge).
- Cold fluid level (room temperature 20°C) 6-8 mm below mark.

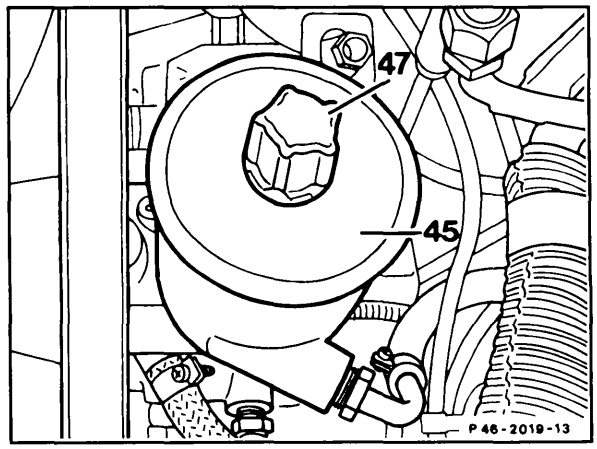


⚠CAUTION!
Do not overfill reservoir. During maintenance work, the oil is often only at room temperature.

- Install cover, making sure that gasket seats properly. Screw on wing nut, or knurled nut.

VT 61, VT 161, VTP 62, VTP 162, ZL 61 and ZL 161

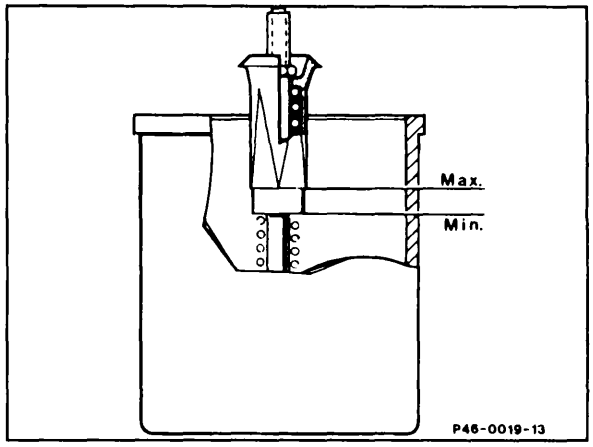
- Unscrew vent cap (47), wing nut or knurled nut from reservoir and remove cover (45)



45 Cover
47 Vent cap

Version through 12/90

Warm fluid level (operating temperature, approx. 80°C) 18-26 mm below upper reservoir edge. Cold fluid level (room temperature 20-50°C) between minimum and maximum marks.



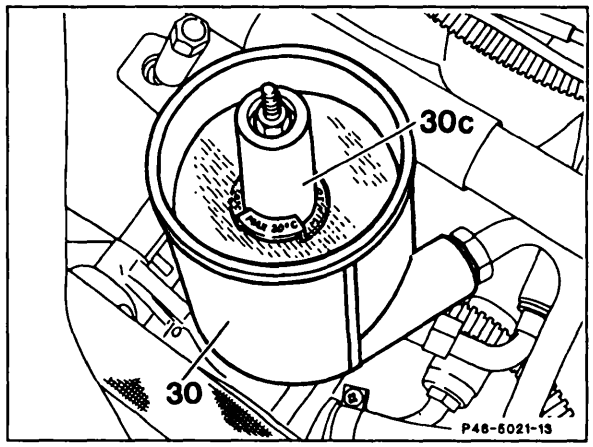
Version starting 1/91

Cold fluid level (room temperature 20°C) between minimum and maximum marks on plastic sleeve (30c).

- Add fluid, if necessary.

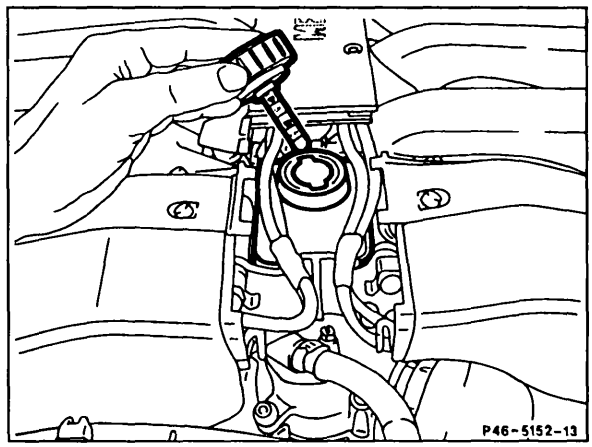
⚠**CAUTION!**
Do not overfill reservoir.

- Install cover, making sure that gasket seats properly. Screw on vent cap, wing nut, or knurled nut.



Engine 120

- Remove cover between cylinder head covers.
- Remove filler cap. The integral dipstick shows the correct minimum and maximum markings and the respective temperature ranges.



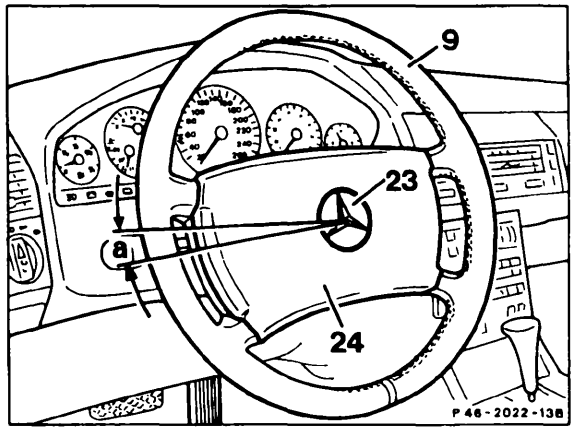
All models

Note:
When performing this job number, the engine compartment lower panel or the noise encapsulation panel must be removed, and replaced after completing all maintenance work (refer to Job No. 6190 or 9490).

- In steering center position, maximum allowable play (a) at steering wheel is 25 mm.

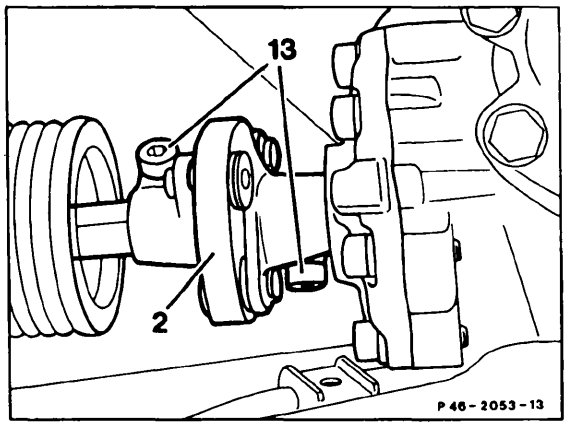
Note:
The steering gear may be adjusted in car if adjusting specifications are carefully observed (on separate order only).

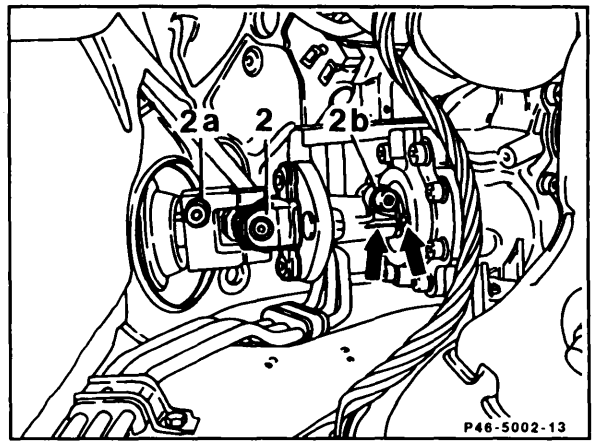
a = max. 25 mm



- On all models starting 04/1984, check play of steering coupling or of both flexible couplings (2).

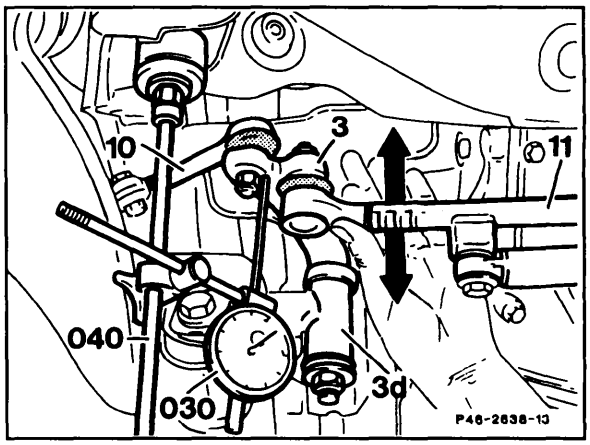
Models 124 (except 124.034/036), 129, 201
2 Flexible coupling



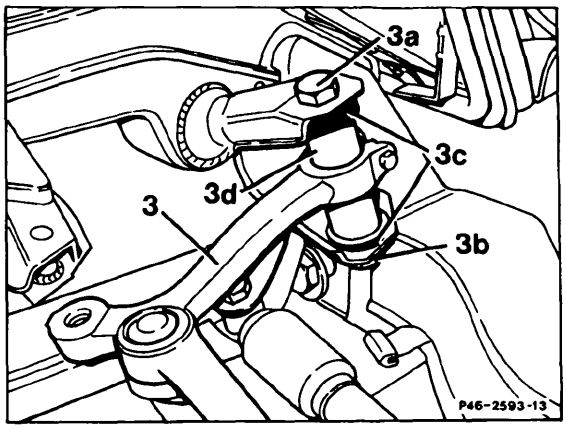


Models 124.034/036, 140

- Check mounting of idler arm (3) in rubber bushings, using dial indicator as necessary (SMS Job No. 46-0110). If play is greater than 0.5 mm, replace rubber bushing (SMS Job No. 46-0520) on separate order.

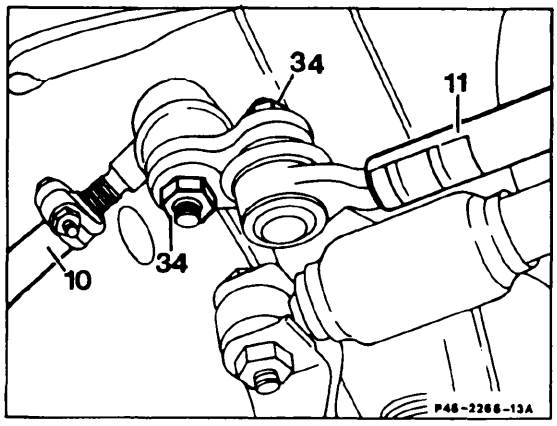


All models except 140

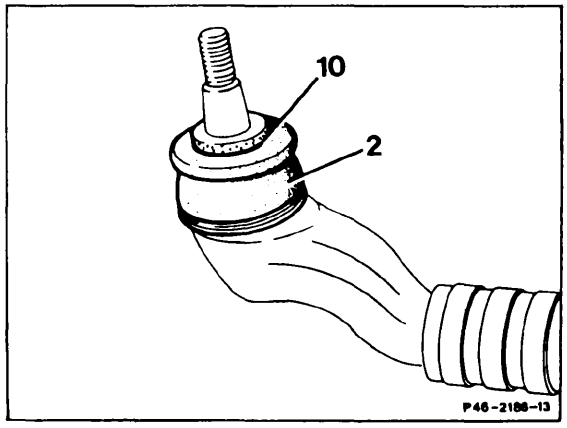


Model 140

- With vehicle resting on wheels, move steering left and right approx. 100 mm while checking the following ball joints:
- Tie rod end (10) ball joints.
- Tie rod (11) ball joints.
- If play is found, replace the appropriate ball joint.
- Check condition of rubber boots.



⚠ **CAUTION!**
If a damaged rubber or plastic boot is found, replace affected joint immediately, since penetrating dirt will destroy joint in a short time. **Replacement of only the boot is permitted only if no dirt whatsoever has entered the joint.**



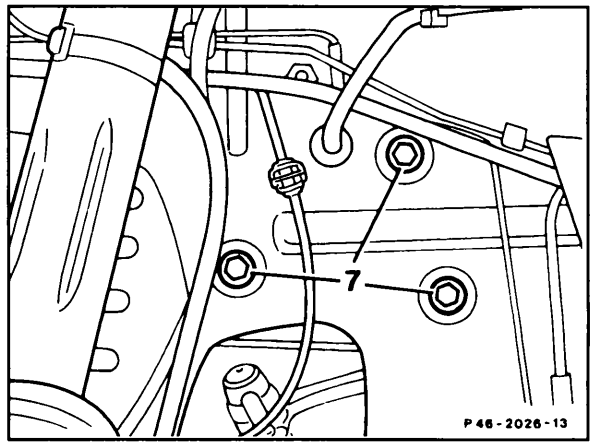
2 Rubber boot

All models except 140

Torque specifications	Nm
Steering gear mounting bolts	70-80

Check that steering gear bolts are tight, retighten, if necessary.

Note: Do not loosen bolts to check torque. If the torque required to turn the bolt **further** is less than specified, tighten bolt accordingly.



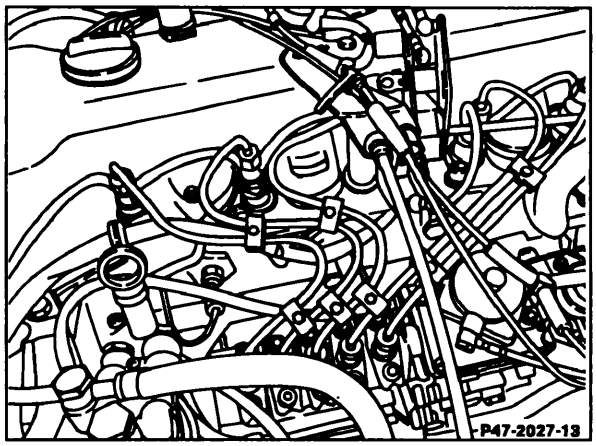
7 Steering gear bolts

Model 107 up through 07.1985
123
126 up through 08.1985
201 up through 12.1984

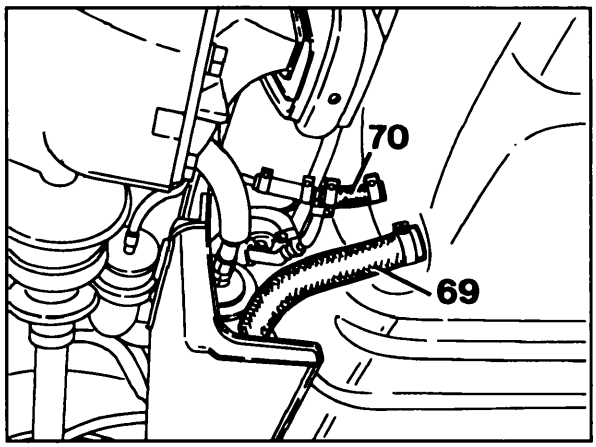
Visual check

Check all fuel system components for leaks.

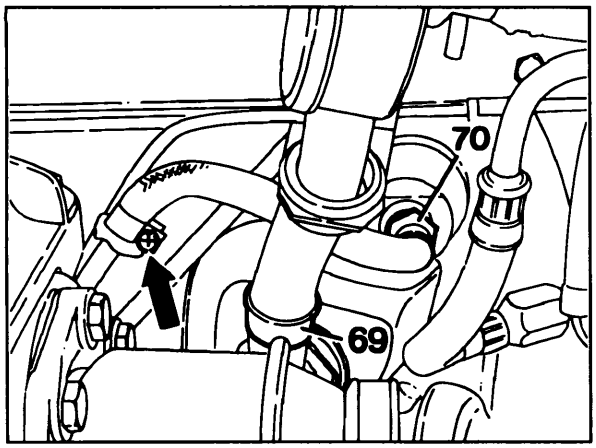
Check condition of fuel lines and hoses and for correct routing.



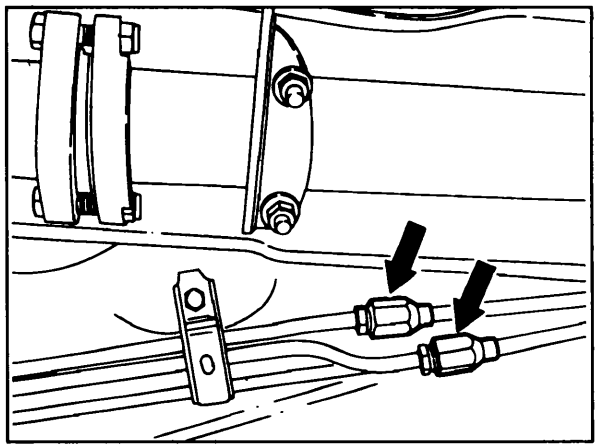
All diesel engines



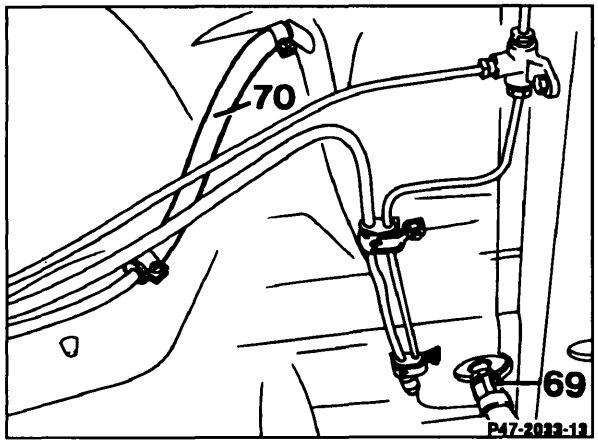
Model 123 station wagon
69 Supply line
70 return line



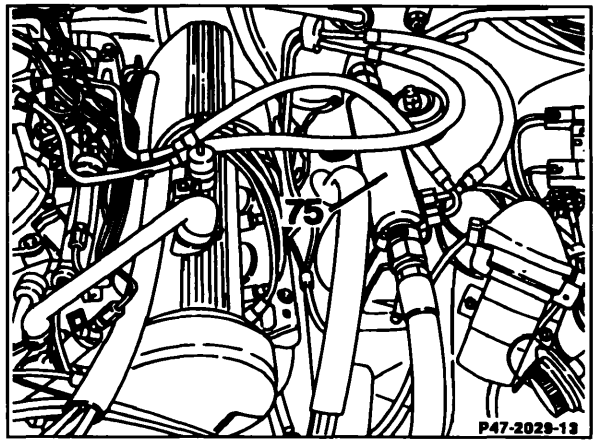
Model 126
69 Supply line
70 Return line



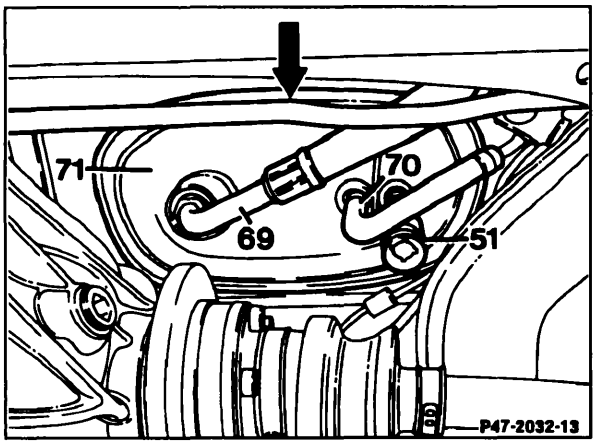
Model 126



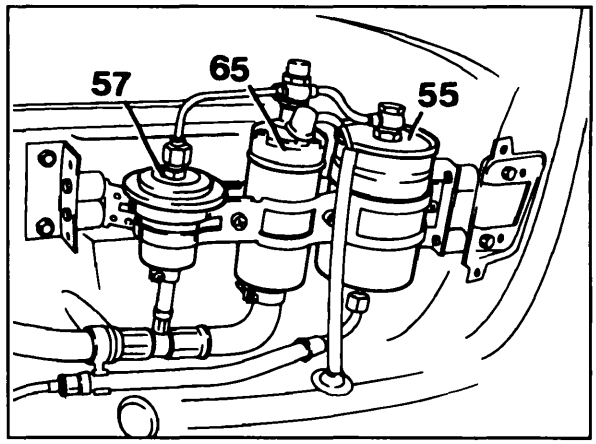
Model 107
69 Supply line
70 Retrun line



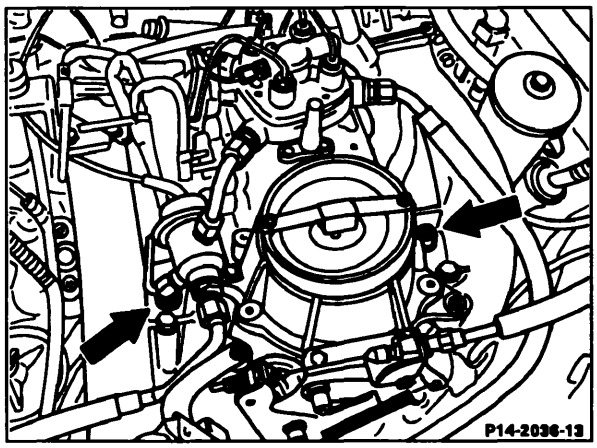
Fuel cooler (75)



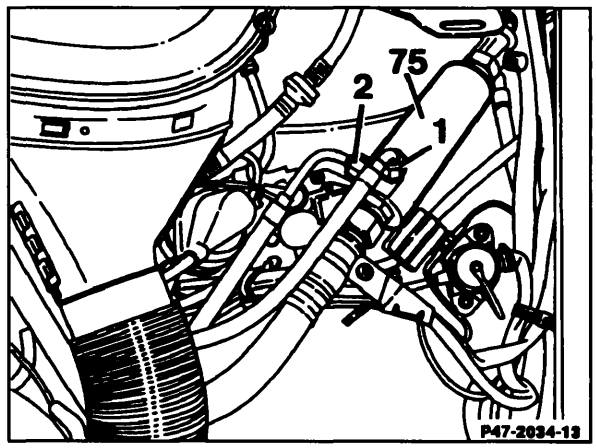
Model 201
51 Vent valve
69 Supply line
70 Retrun line



Model 201 Fuel pump assembly



Model 201



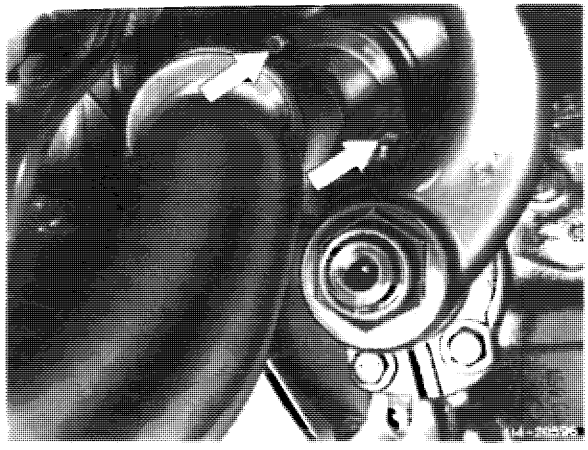
Model 201 Fuel cooler (75)

All models

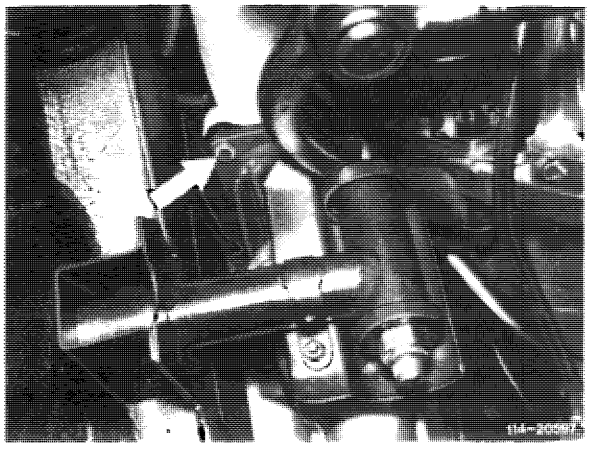
Note: When performing this job number, the engine compartment lower panel or the noise encapsulation panel must be removed, and replaced after completing all maintenance work (refer to job number 6190 or 9400).

Retighten bolts/self-locking nuts of exhaust flange connections. Torque to 20 Nm.

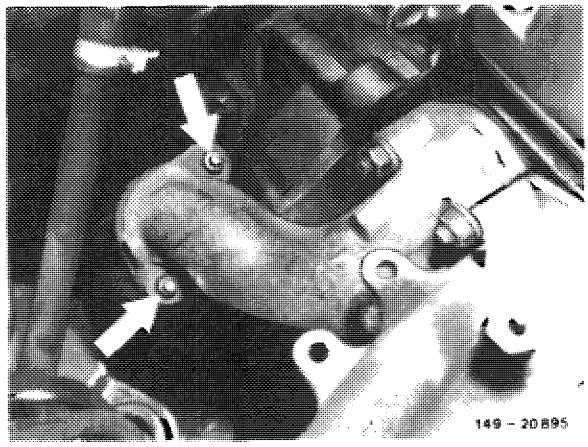
On vehicles with V-engines, retighten exhaust flange connections on left and right sides.



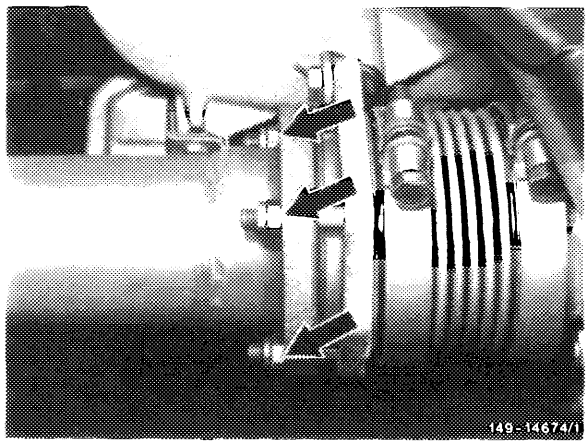
Model 107.025.045 048 (left hand side)



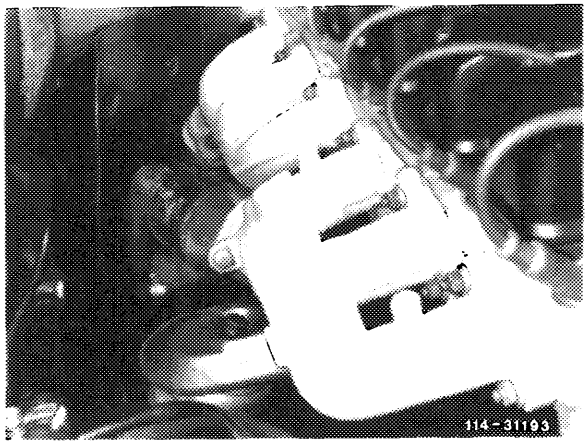
Model 107.025/045/048 (right hand side)



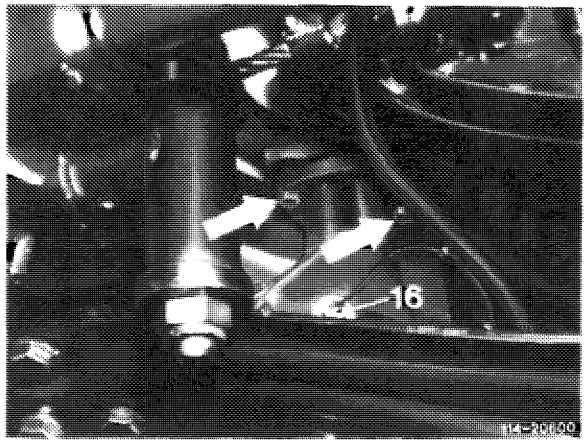
Model 123.123/130/150/190



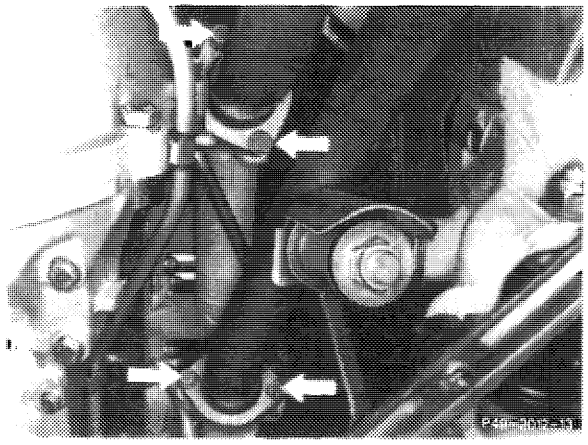
Model 123.133/153/193, 126.1



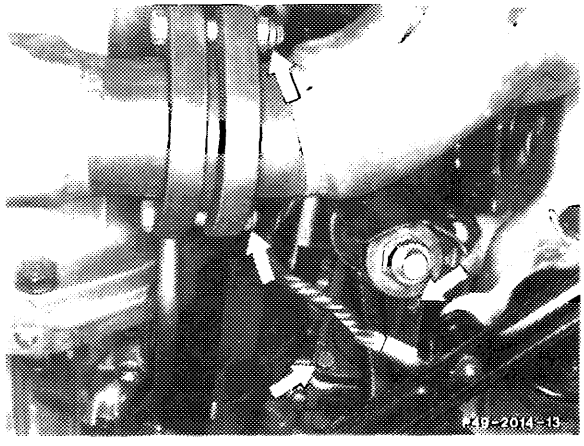
Model 124.026/030/05/090, 126.024/025, 201.029



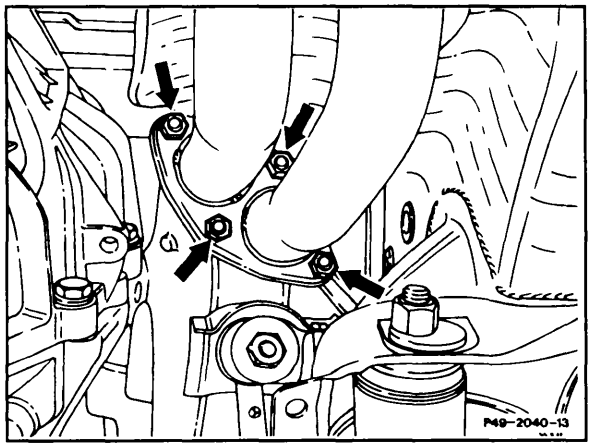
Model 126.03/04



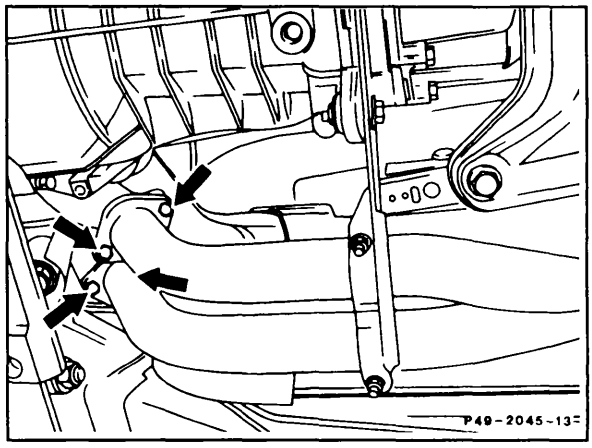
Model 129.061



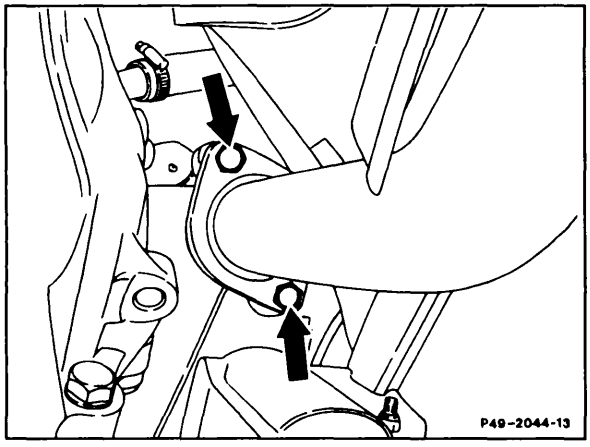
Model 129.066



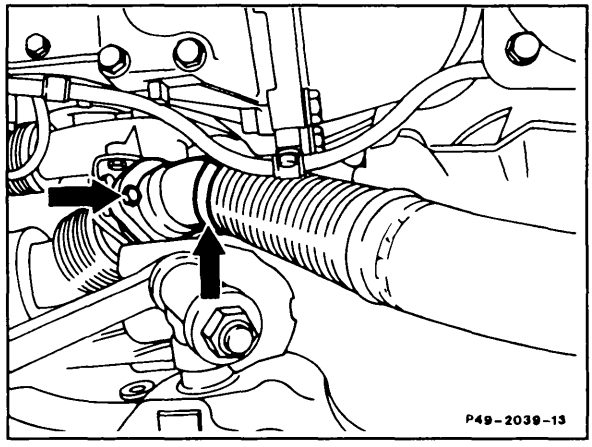
Model 201.02 up through 09.1984
(Non-catalyst model shown for location of bolts.)



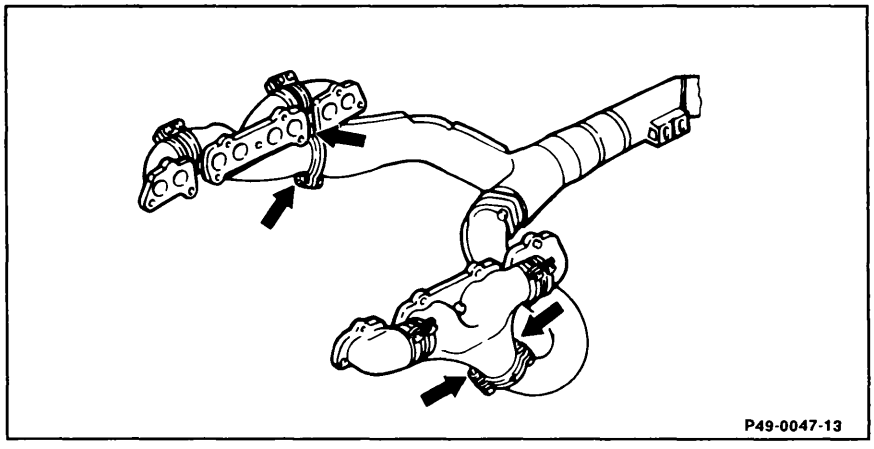
Model 201.02 as of 10.1984 and 201.03
(Non-catalyst model shown for location of bolts.)



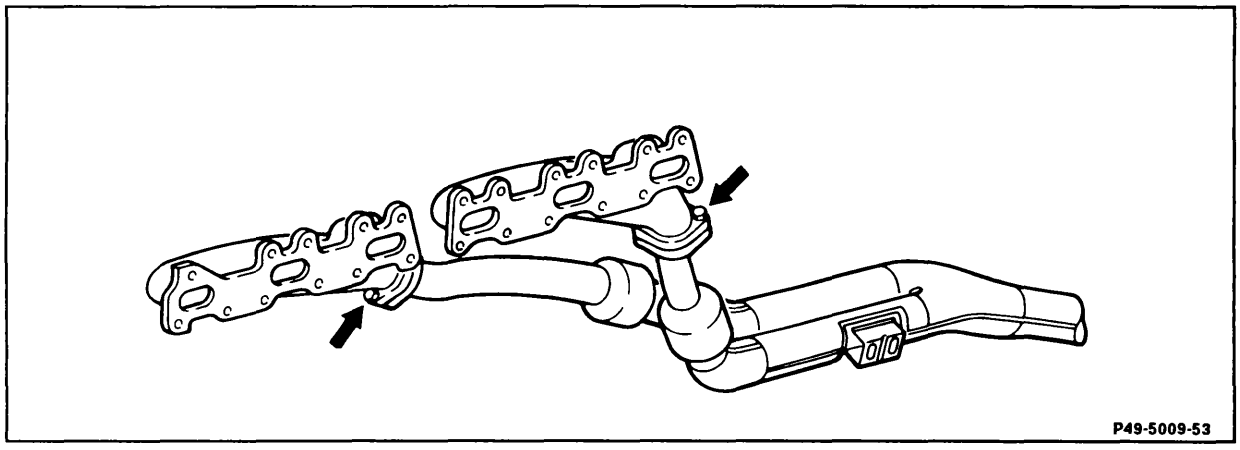
Model 201.122/126



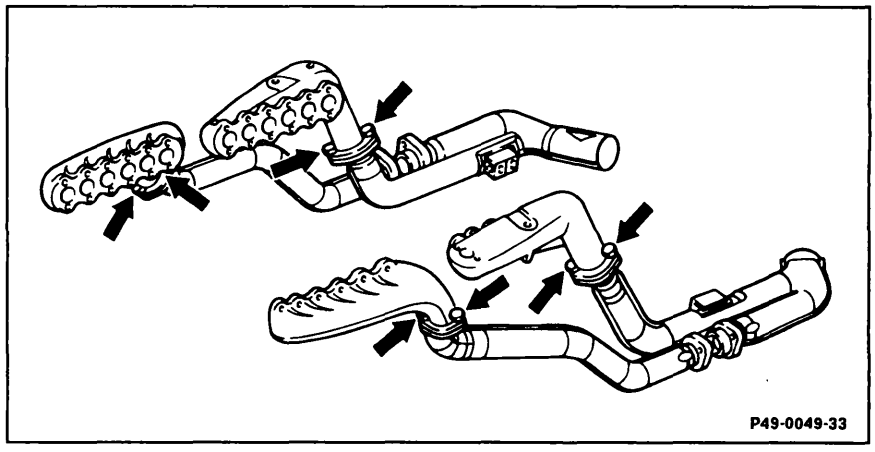
Model 124.133/193, 201.128



Model 124.034/036



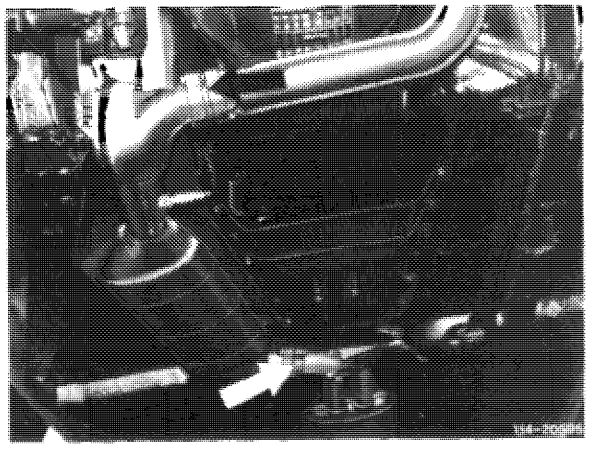
Model 140.03



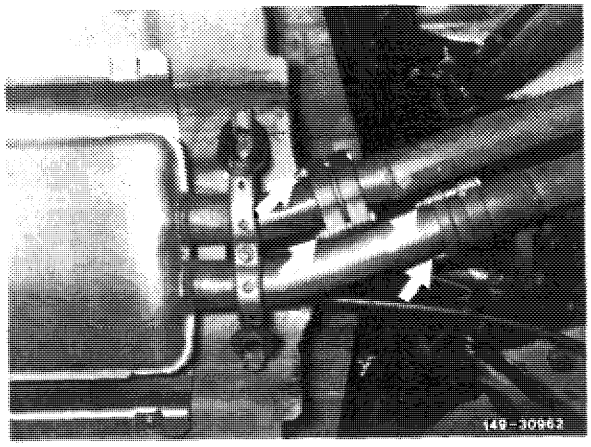
Model 140.057

All models

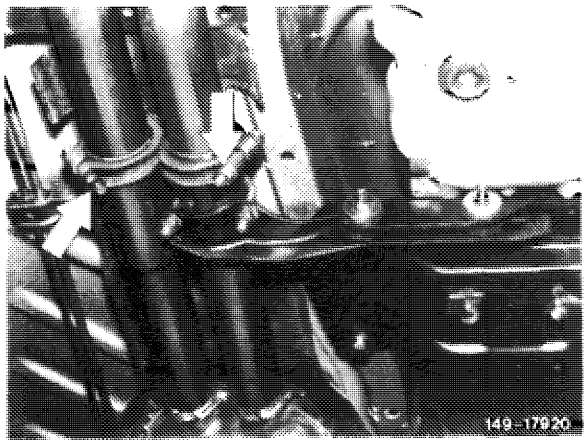
Retighten bolts on slip joints or flanged connections. Torque to 20 Nm.



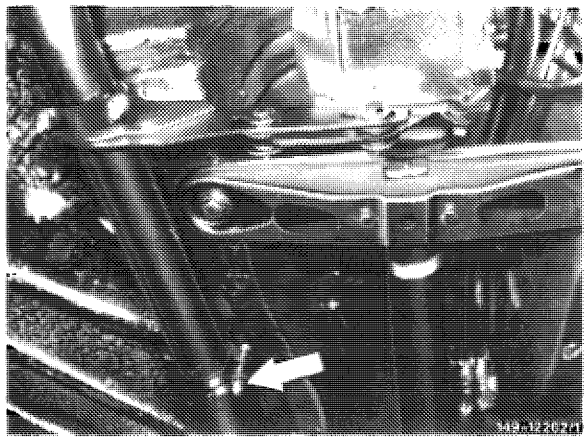
Model 107.025/045; 107.048 similar (no rear flange)



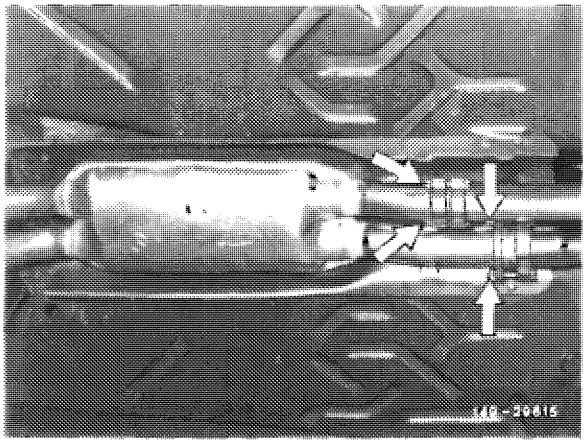
Model 107.048



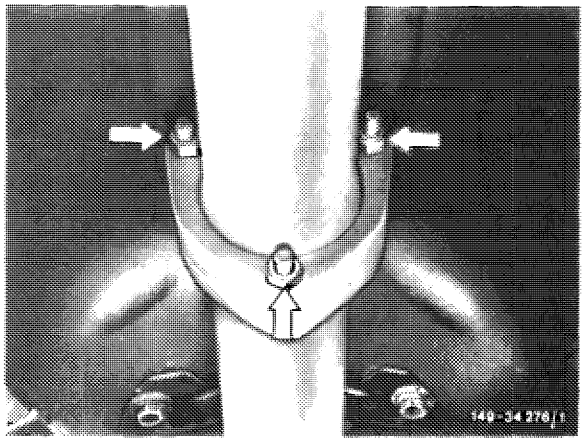
Model 123.03/05



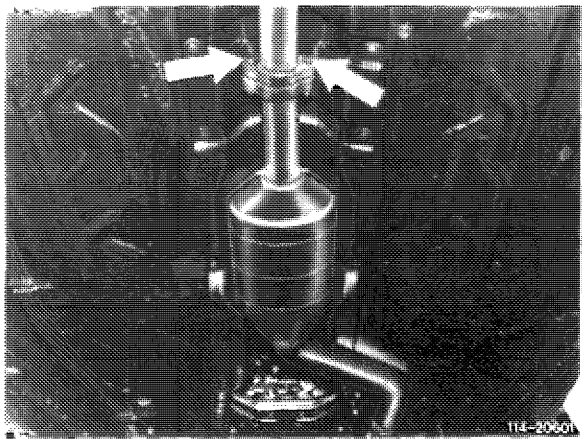
Model 123.123/130/150/190



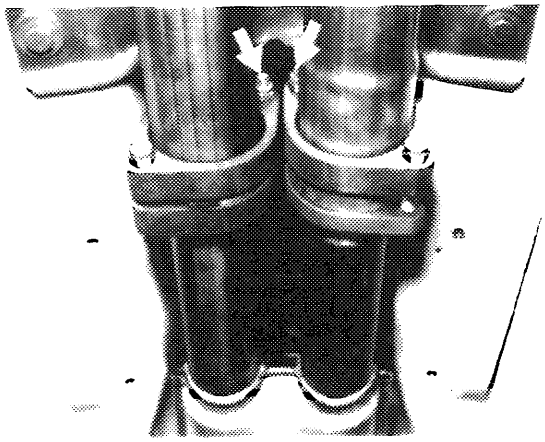
Model 124.026/030/05/09/2, 126.02, 201.029/034



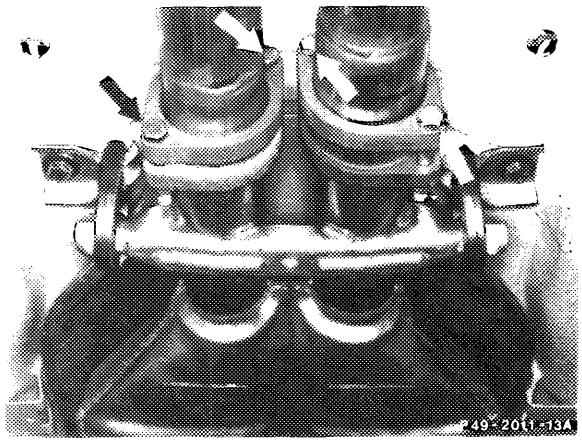
Model 124.133/193, 126.1, 201.128



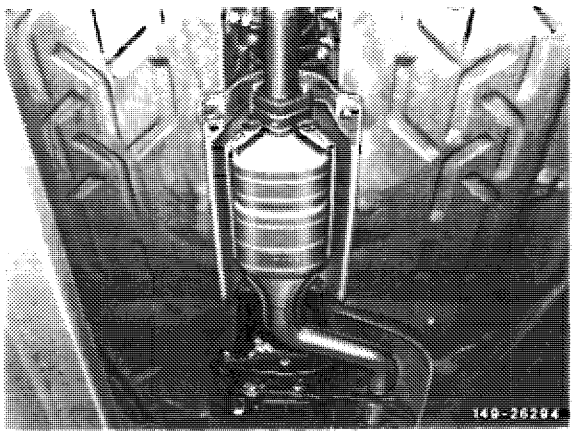
Model 126.03/04 up through 09.1985



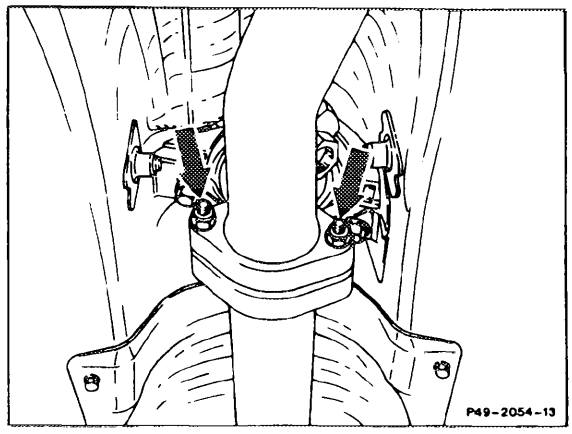
Model 126.03/04 as of 09.1985



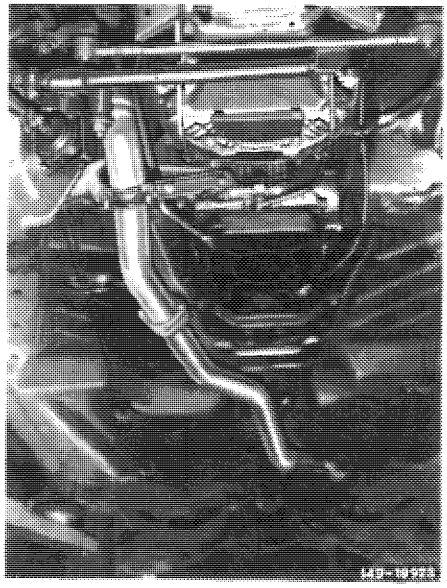
Model 129



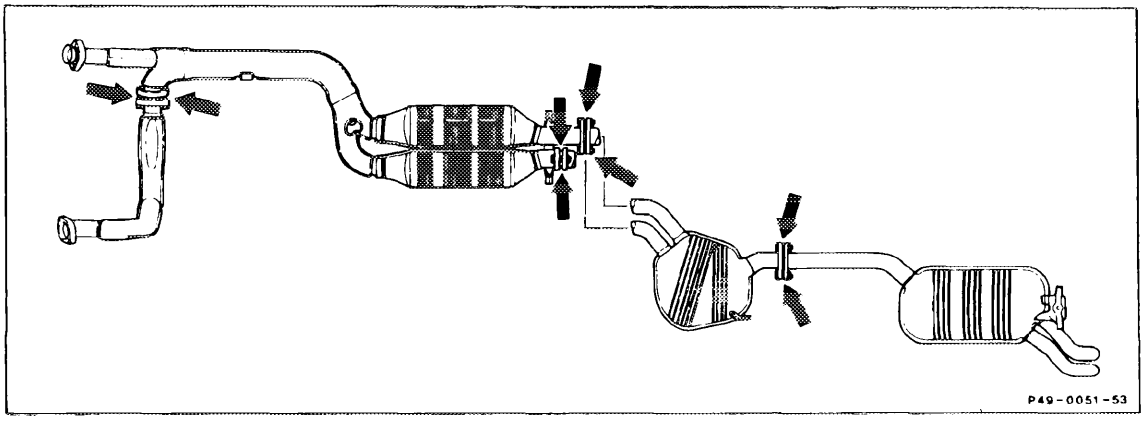
Model 201.024/028



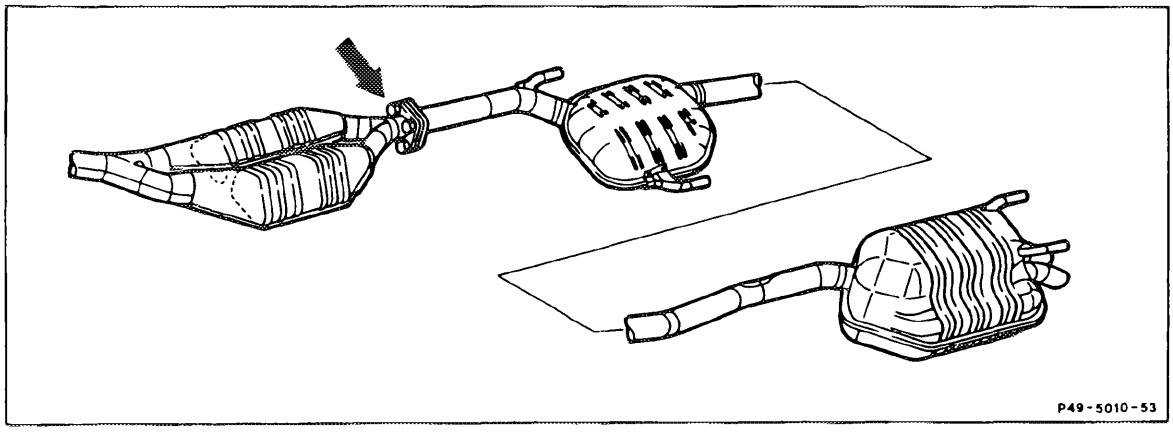
Model 201.122/126



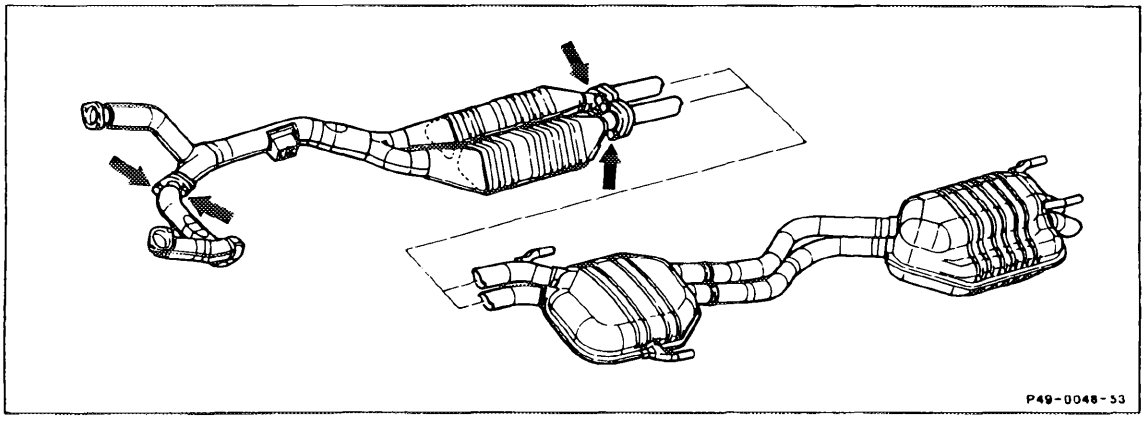
Model 123.133/153/193



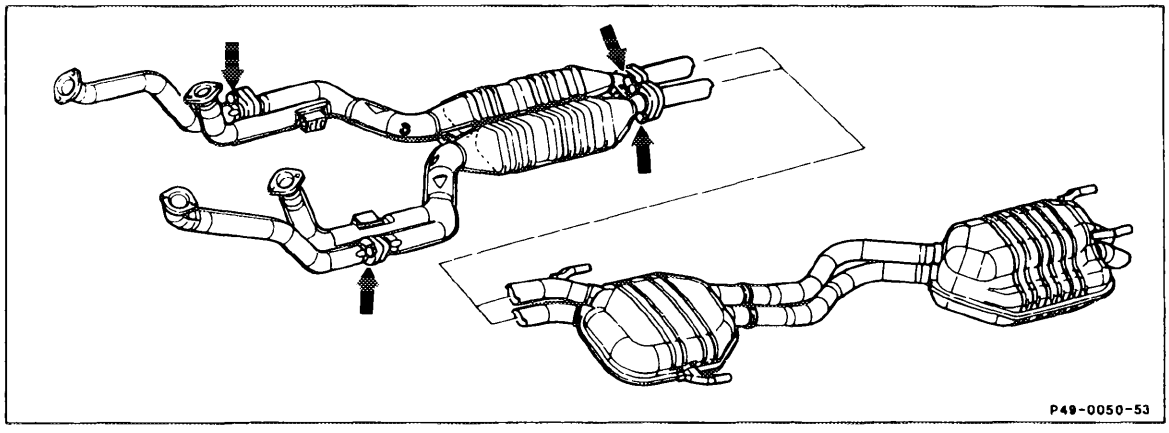
Model 124.034/036



Model 140.03



Model 140.042/051



Model 140.057

All models except 129

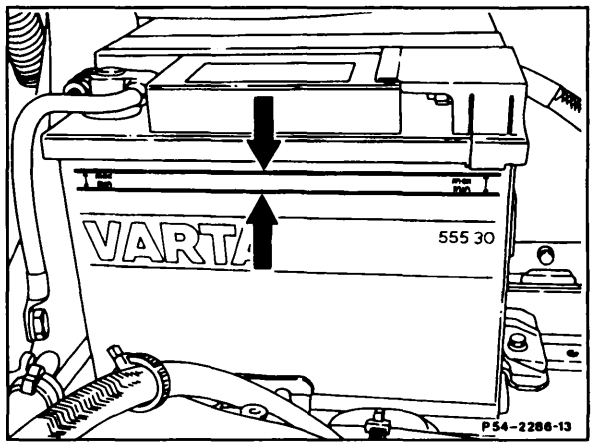
Fluid	distilled water only
Quantity	as required

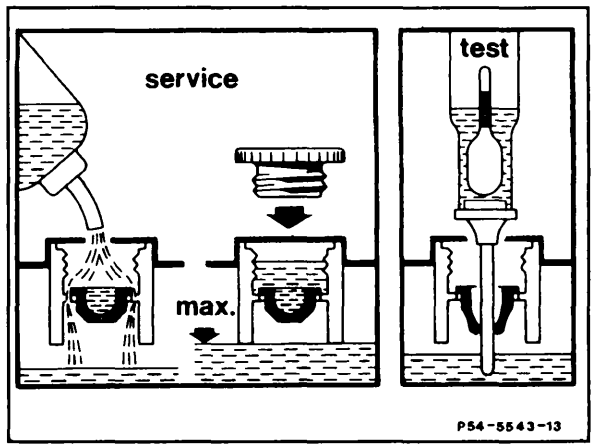
Note:
Check fluid level more often when outside temperatures are high.

Batteries with overfill protection feature

- Check fluid level against markings on case.
- If distilled water must be added or the fluid level is not visible from outside unscrew all caps and add distilled water until the water no longer drains from the overfill protection.

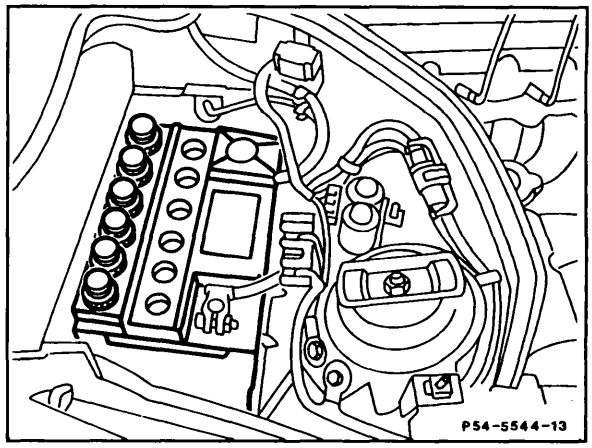
Note:
When adding water do not push through the overfill protection membrane.



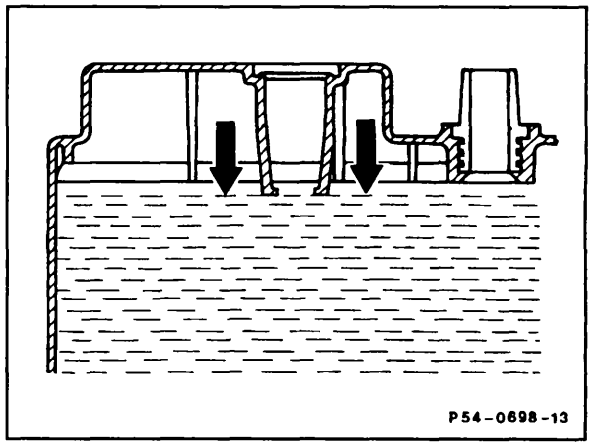


Batteries without overfill protection feature

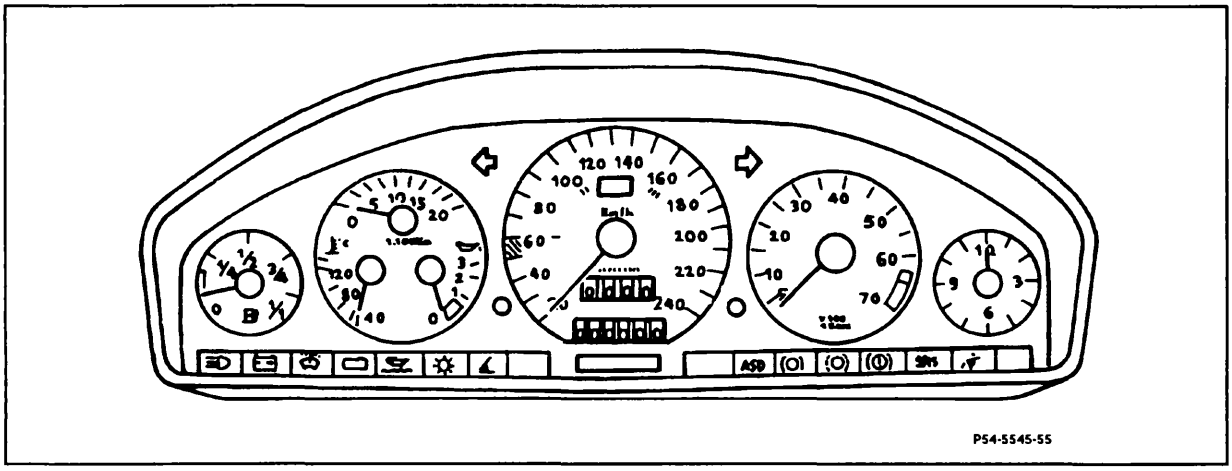
- Unscrew or pull out all caps according to design.



- Check fluid level in filler opening of cells and, if necessary, add fluid up to the inner marking.



All models



Functional check - ignition key in position 2.

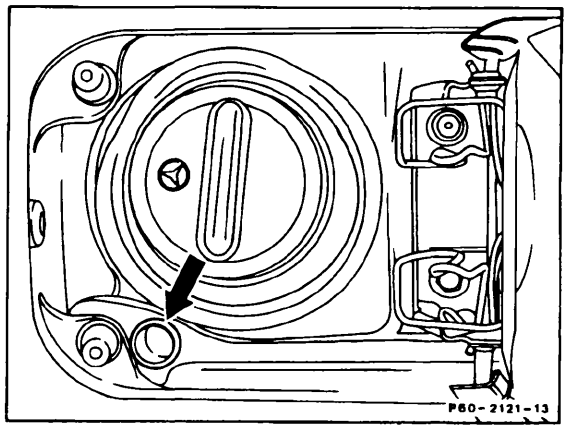
- Check warning lamps:

- Check indicator lamps:

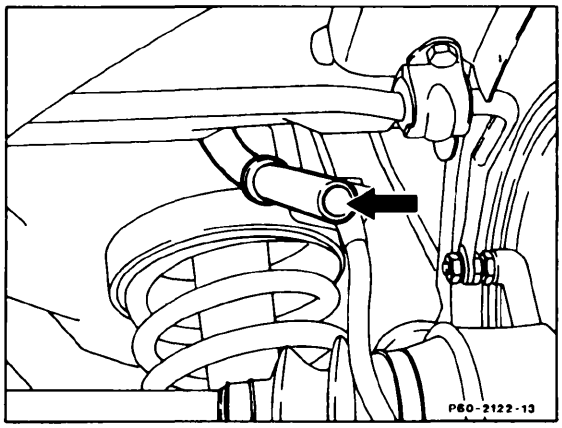
Fuel reserve (starting 09.1982).
charge indicator lamp
Brake pad wear indicator
ABS
Pre-glow
ETR, SRS Airbag - restraint system - should go out after approx. 10 s.
O_2 sensor replacement up thru model year 1985
O_2 sensor failure indicator starting model year 1986 (except 201.024) lights up briefly when switching ignition on.
Turn signal lamp left and right
Headlamp flasher
Parking brake and brake fluid level
Engine oil level indicator
Coolant level indicator
Washer fluid level indicator
Bulb failure warning unit.
Seat belt/backrest lock warning lamp
4MATIC function indicator
4MATIC warning lamp
Roll bar indicator lamp
Oil pressure waning lamp
CHECK ENGINE lamp

All models

- Fuel filler well drain

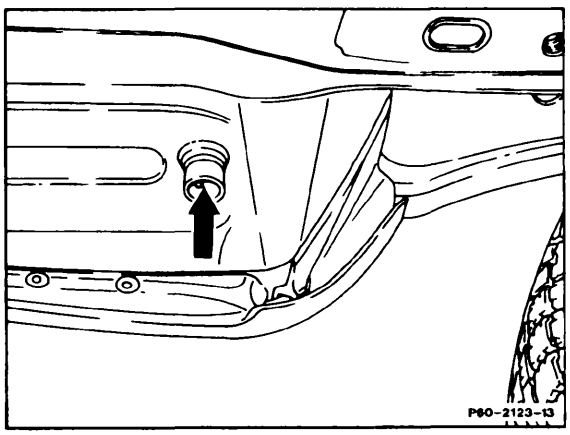


- Fuel filler well, drain outlet



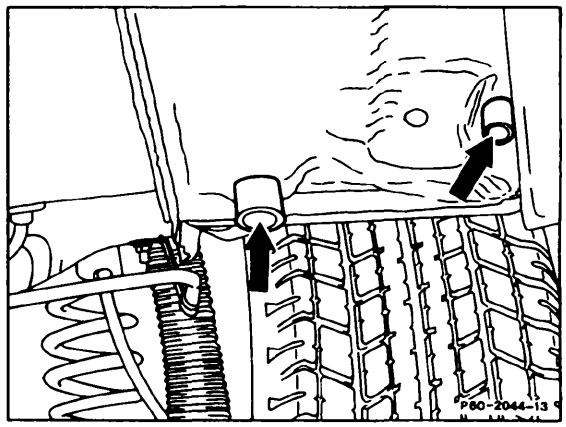
Model 107, 123, 124, 126, 201

- Rear fender



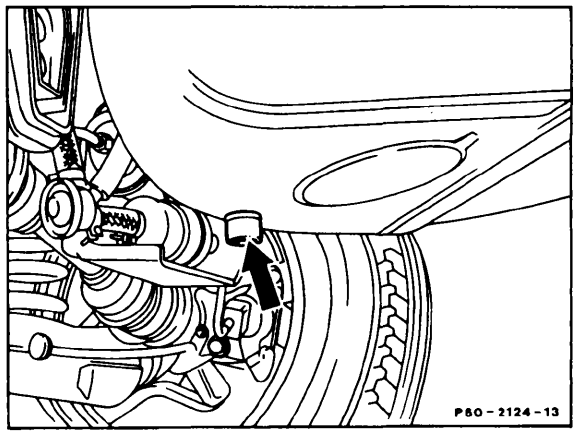
Model 107, 123, 124, 126, 140, 201

- Rear fender
- Fuel filler well, drain outlet

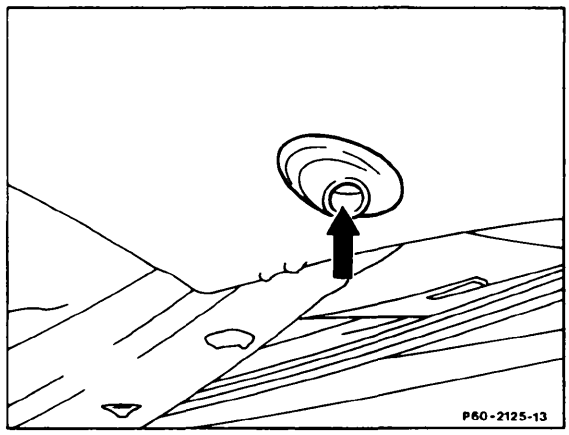


Model 129

- Spare tire well

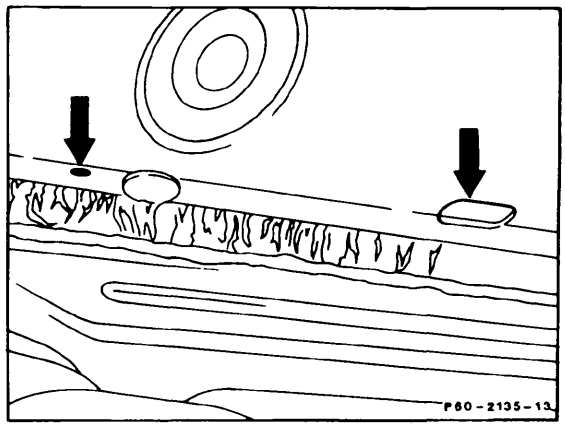


- Side member



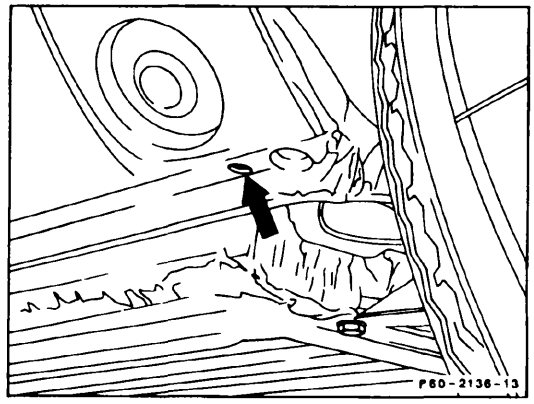
Models 123, 124, 126, 129, 140, 201

- Front of side member



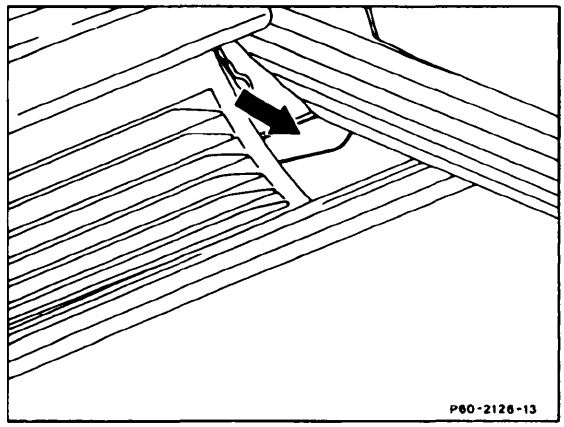
Model 107

- Rear of side member



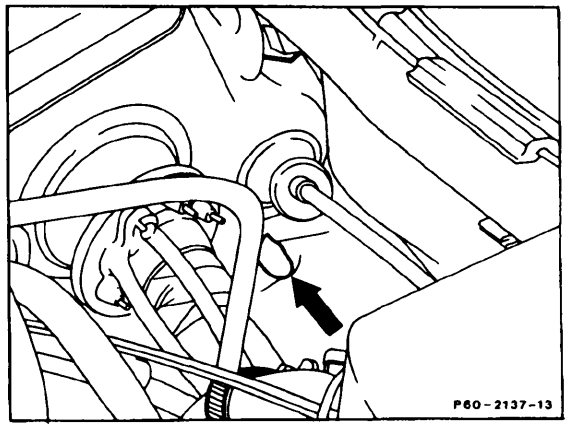
Model 107

- Side member to A-pillar transition joint



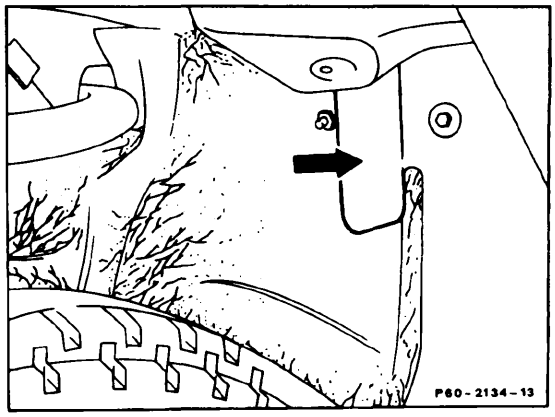
Model 107

- Upper engine compartment



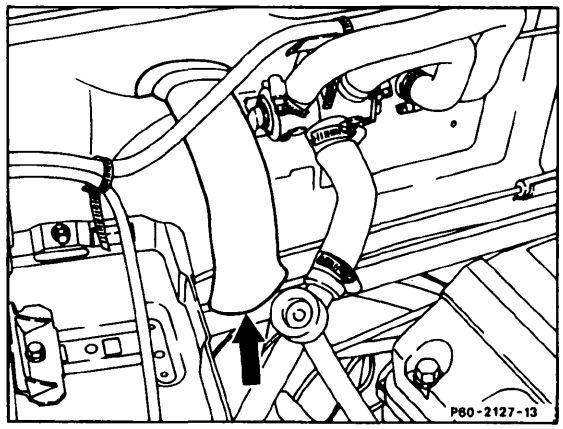
Model 123

- Lower engine compartment



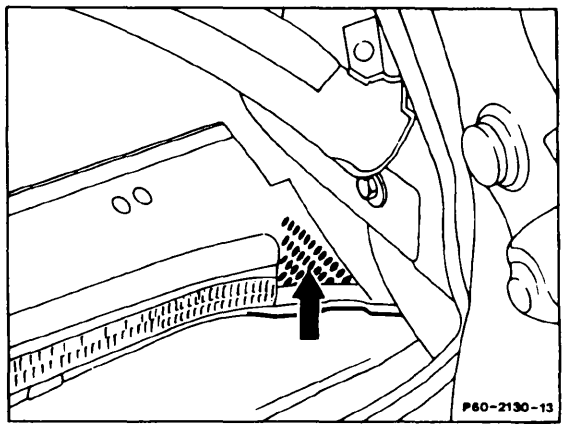
Model 123

- Air plenum (cowl) drain



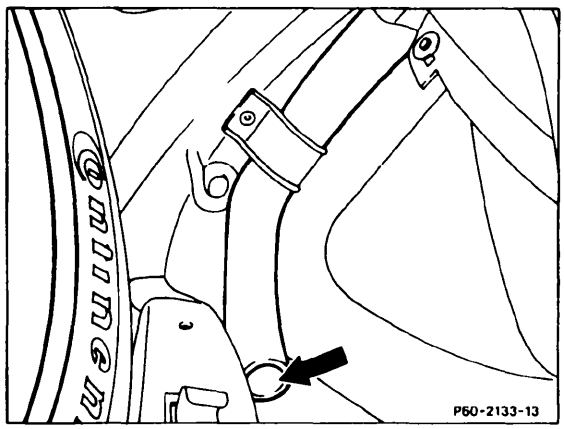
Model 123

- Drain holes in air plenum cover



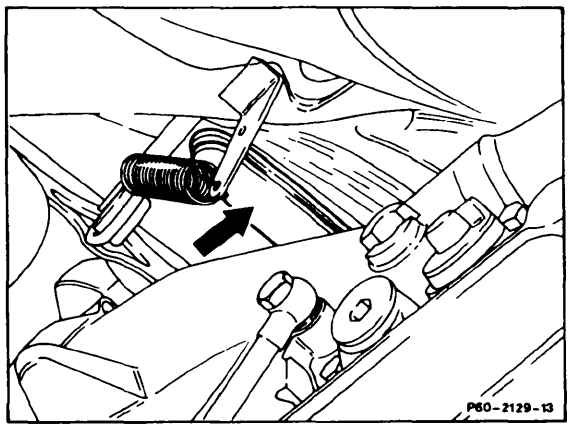
Model 126

- Air plenum (cowl), outer drain hoses



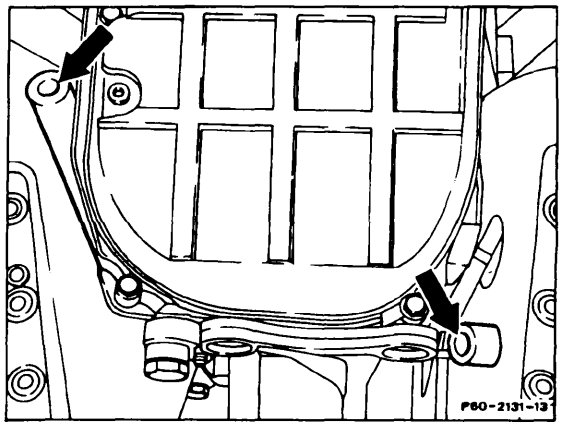
Model 126

- Air plenum (cowl), center drain



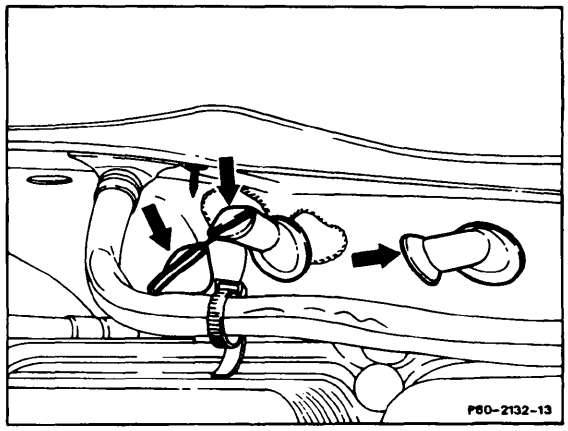
Model 126

- Air conditioning condensation drain



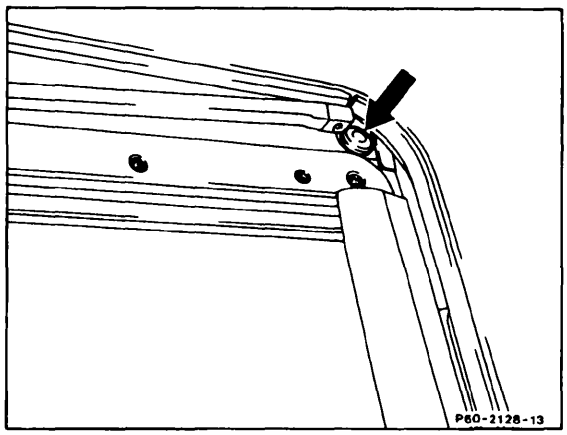
Model 124, 126, 129, 140

- Heating and air conditioning drains (in transmission tunnel)



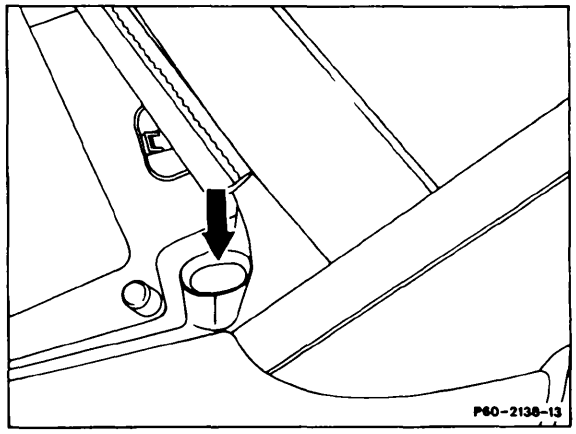
Model 107, 123

- Sunroof front



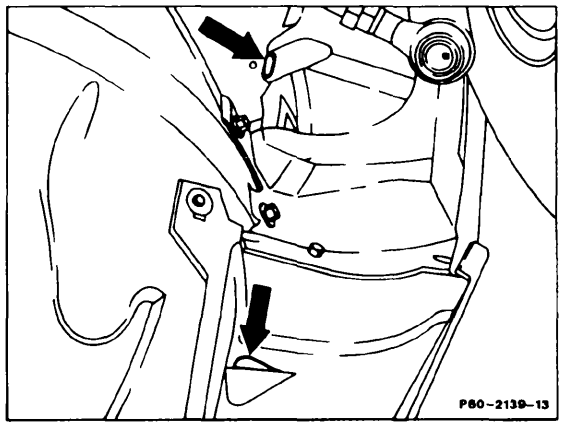
All models

- Upper A-pillar



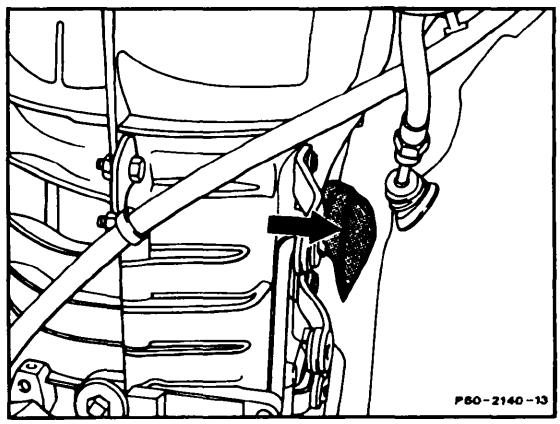
Model 124, 129, 140, 201

- A-pillar drain outlet (top arrow)
- Component compartment (lower arrow)



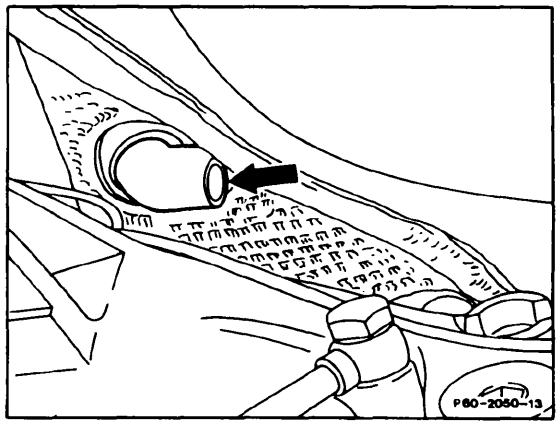
Model 124, 201

- Air plenum (cowl) drain outlet



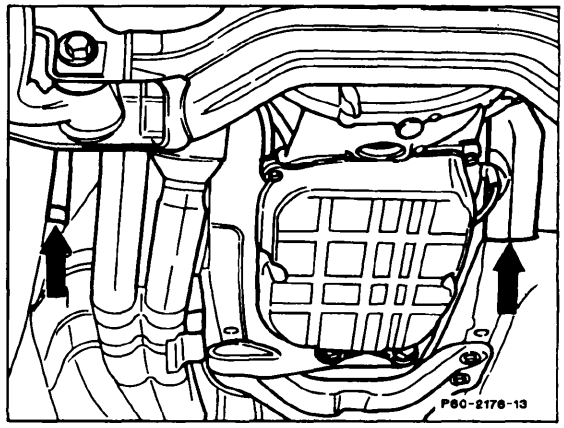
Model 124, 201

- Air plenum (cowl)



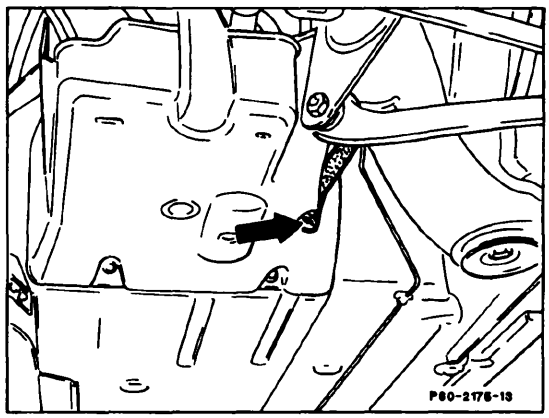
Model 129

- Air plenum (cowl)



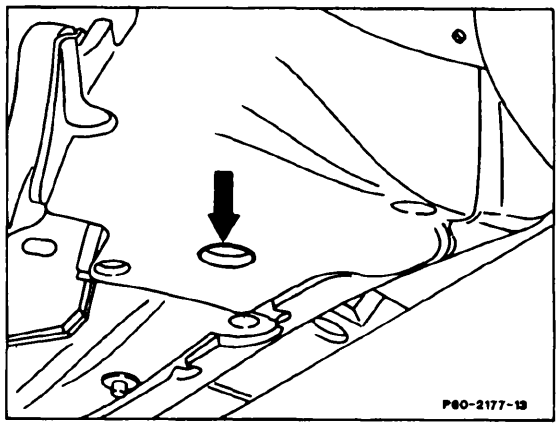
Model 140

- Fuel filler well drain outlet



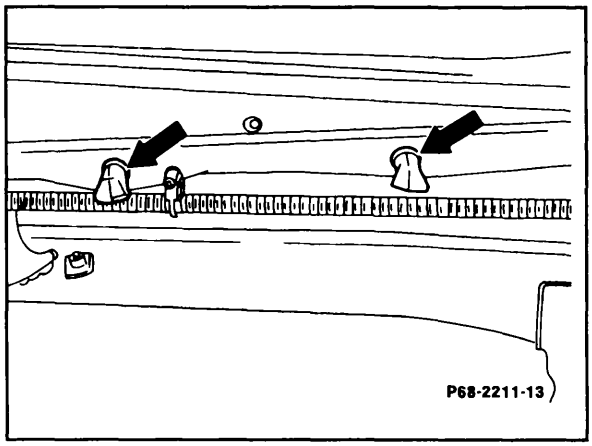
Model 140

- Lower A-pillar



Model 129, 140

- Rear air conditioner



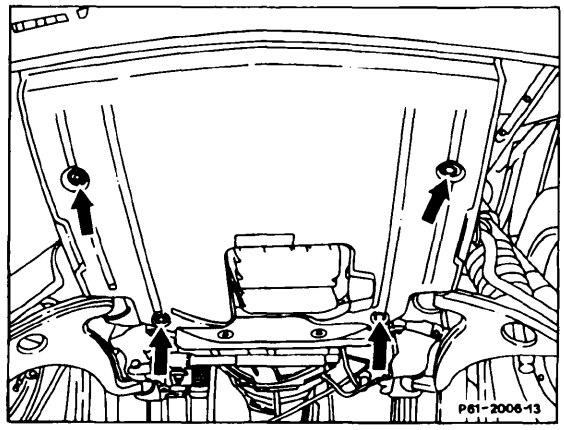
Model 140

Model 124.0/2 129 140 201.0

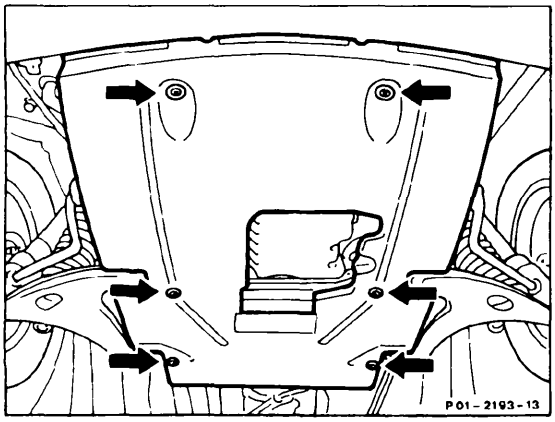
Unscrew small bolts (arrows) and remove engine compartment lower panel.

Install in reverse sequence.

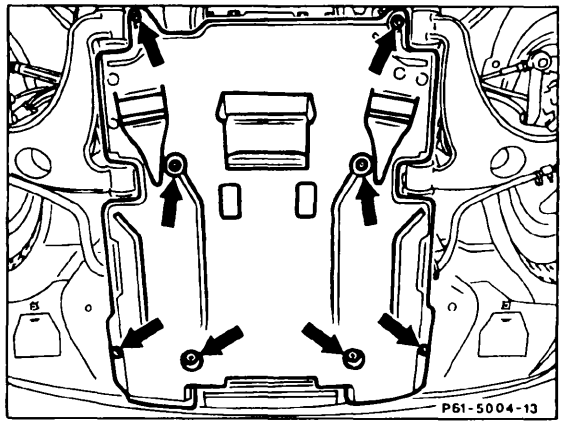
Note: On model 129 and 201.028/029 install engine compartment lower panel so that the edges of the side panels overlap the lower panel.



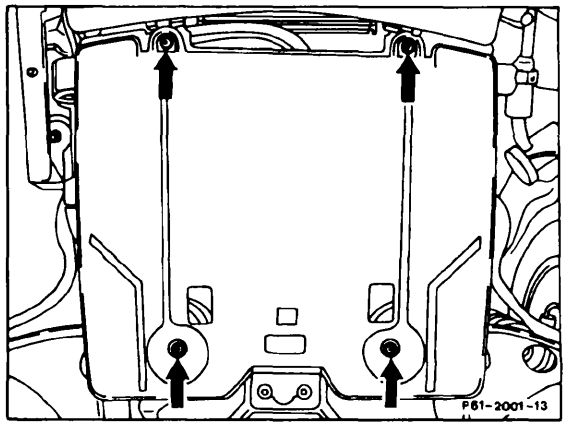
Model 124 Engine compartment lower panel, short version



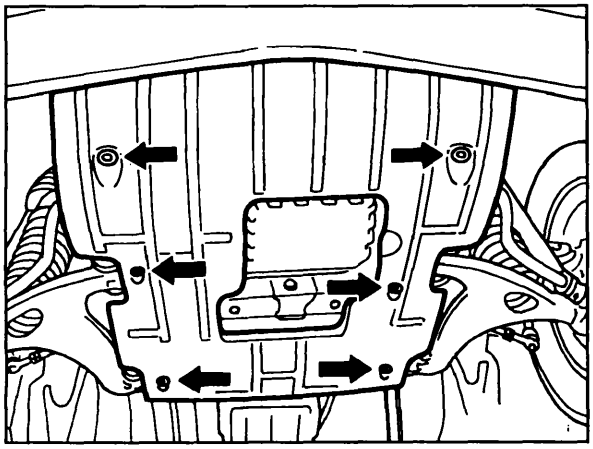
Model 124 Engine compartment lower panel, long version



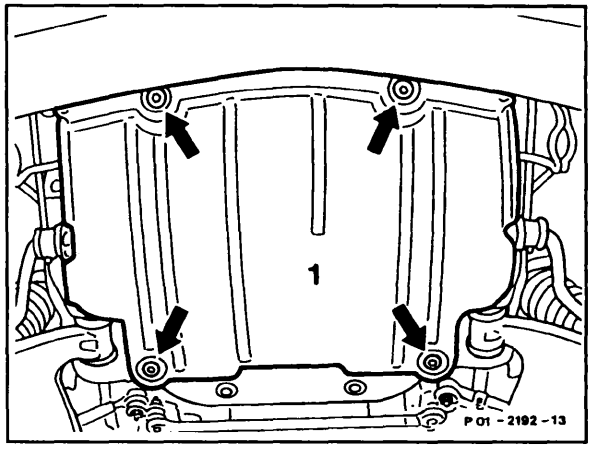
Model 124.036



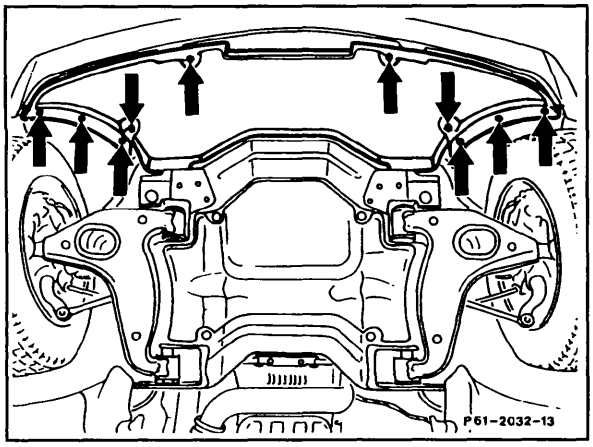
Model 129



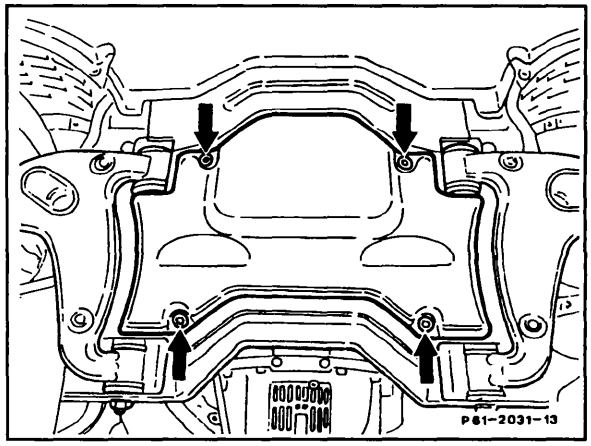
Model 201.024/028/034



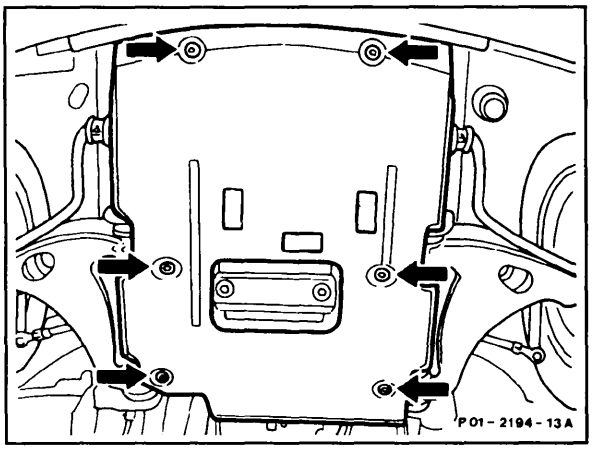
Model 201.028



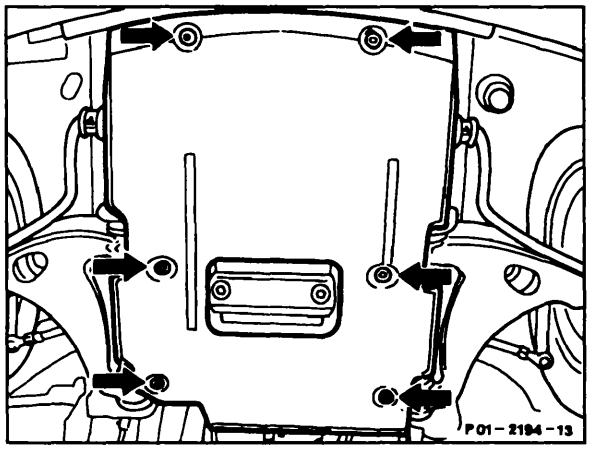
Model 140 front section



Model 140 rear section



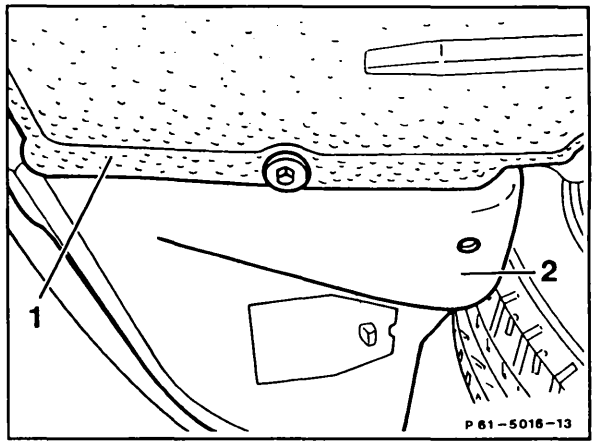
Model 201.029 with cooling openings



Model 201.029 without cooling openings

Models 124.036, 140

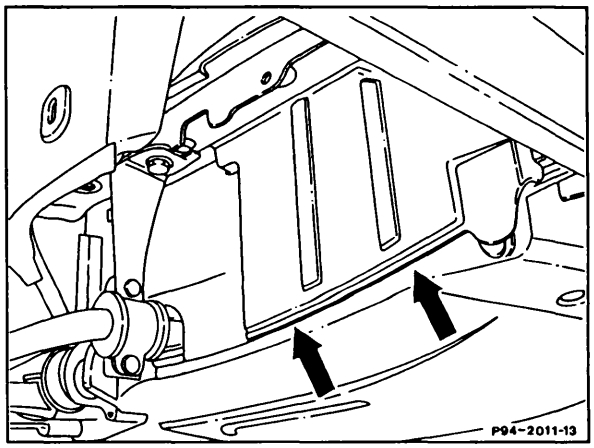
Install lower engine compartment cover (1) so that it overlaps the wheel well covers (2).



Model 124.036

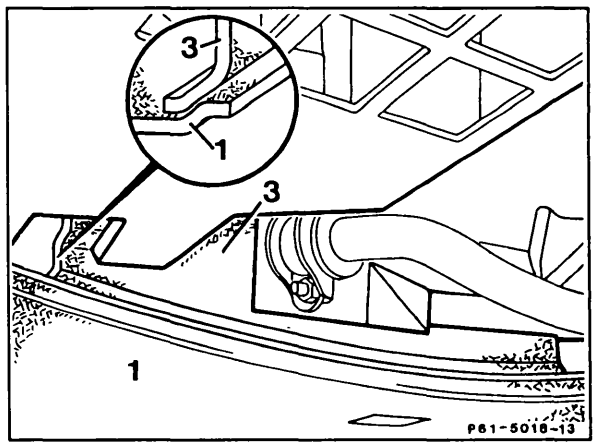
Models 124 (except 124.036), 201

Install the side panels so that the edges overlap the engine compartment cover.



Model 129

Install lower engine compartment cover (1) so that the side panels (3) are positioned inside the lower engine compartment cover.



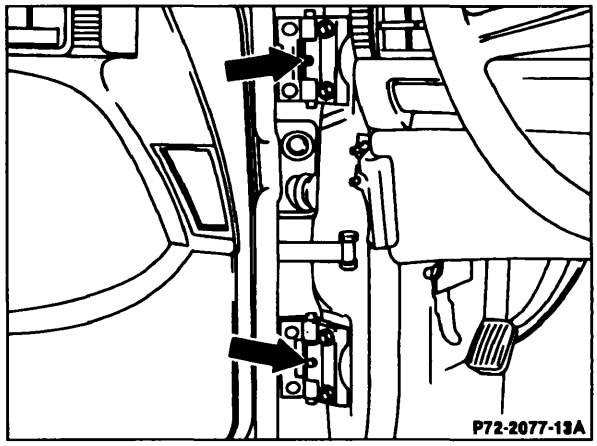
Lubricating door hinges

Model 107 123 126

Grease type	
Lubricating grease	Multipurpose grease

Commercial tools	
Grease gun with pointed tip	obtain locally

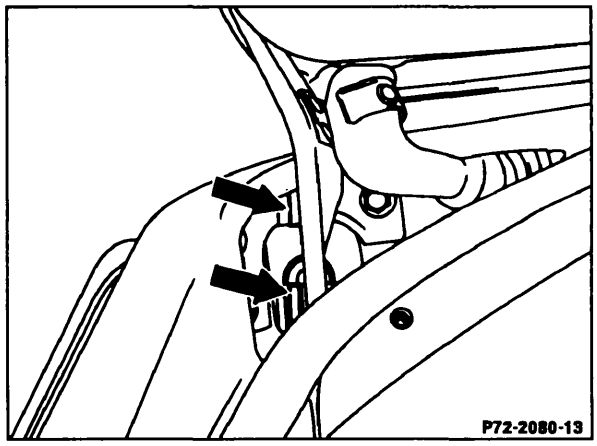
Door hinges (arrows).



Oil can T-models only

Tailgate hinge

Tailgate gas pressure spring pivo (arrows).



Lubricating door locks

7221

Model 107, 123, 126

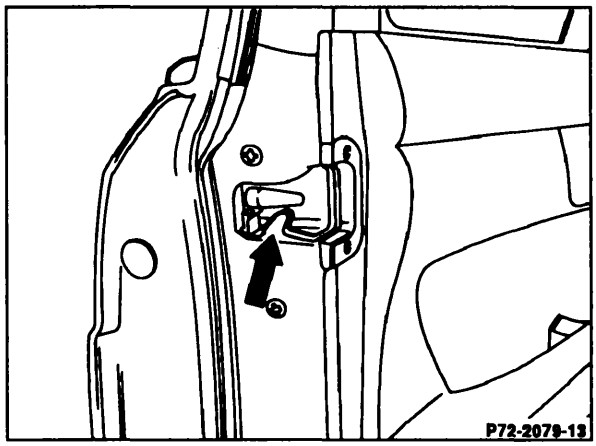
Type of lubricant

Fluid grease (NLGI Class 00)	Refer to MBNA Factory Approved Service products list

Door lock: Driver's and rear door.

Striker pin and striker eye

Contact surfaces of latch.



Models 124.066 129

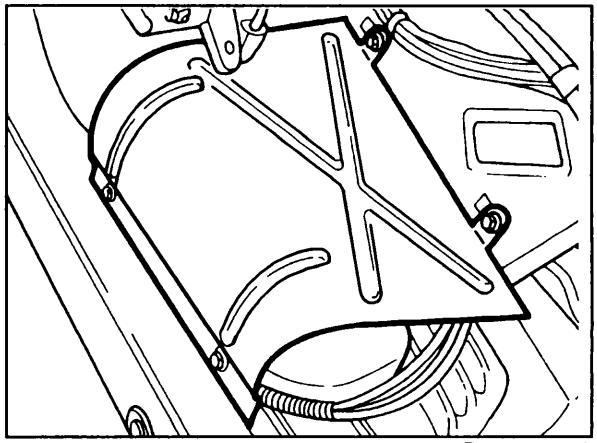
Oil grade/quantity

Oil grade	MB hydraulic fluid P/N 000 989 91 03 Refer to MBNA Factory Approved Service Products list
Quantity	1.25 liter

- Lower soft top and retract roll bar.

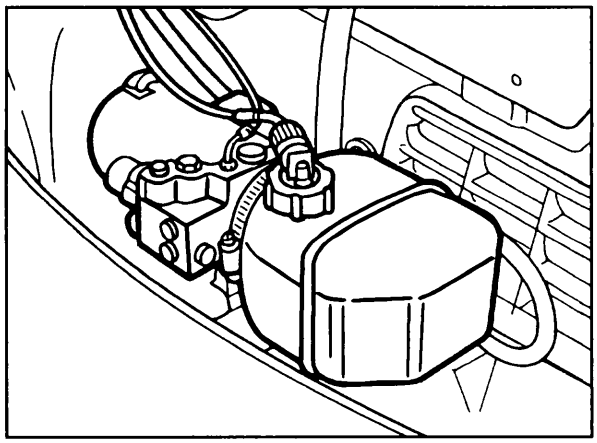
Model 124.066

- Remove cover from right side trunk well.



P77-5094-13

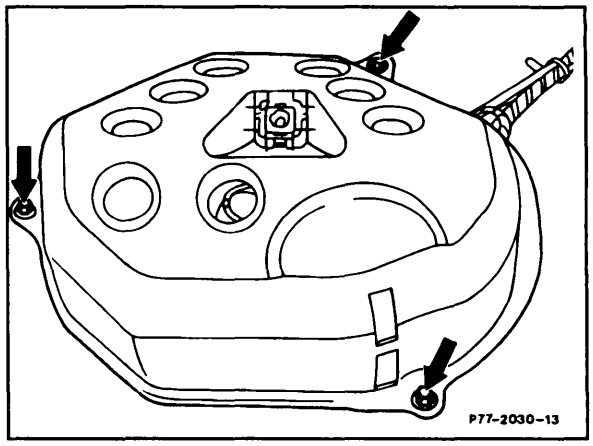
- Fluid level should be between max. and min. marks.



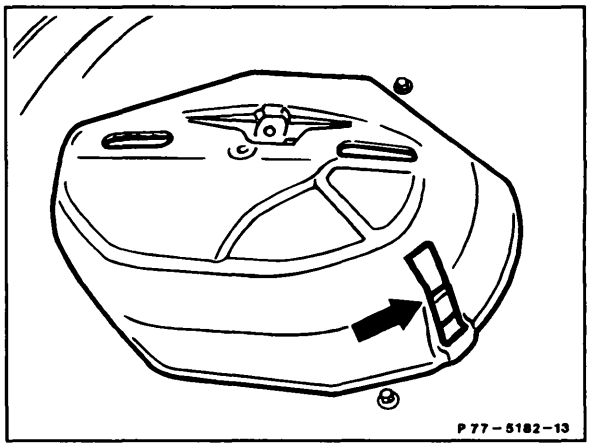
P77-5093-13

Model 129

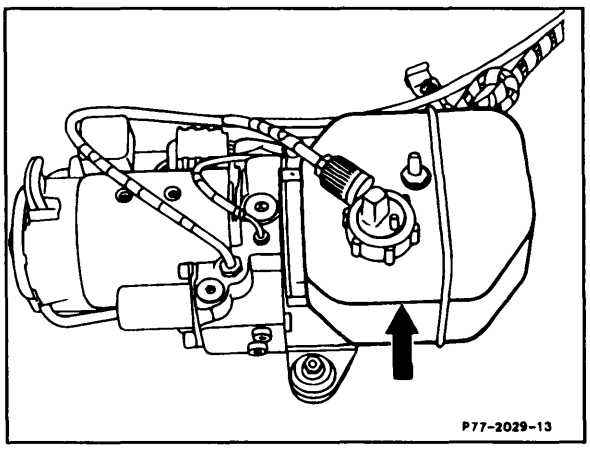
- Remove spare tire.
- Remove cover.



- Starting with chassis end number 029941, the cover has an opening for checking the fluid level (arrow).



- Fluid level should be between max. and min. marks.



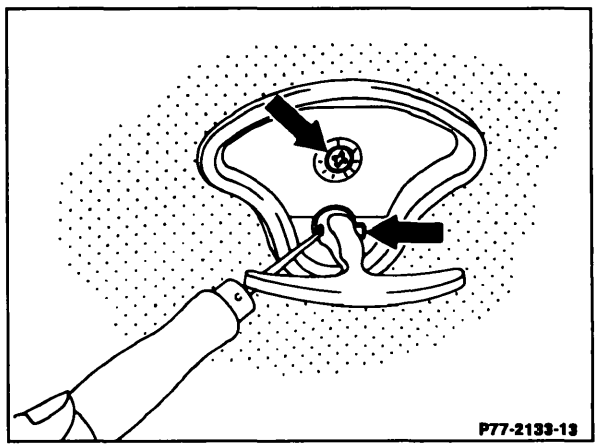
Mechanical sunroof

Type of lubricant

MB slide paste	001 989 14 51

Unlock sunroof and remove locking handle as well as bezel.

Open sunroof 3/4 and unclip roof headlining at front and remove from above.



Open sunroof completely and remove sliding rails on left and right side.

Remove sunroof from above.

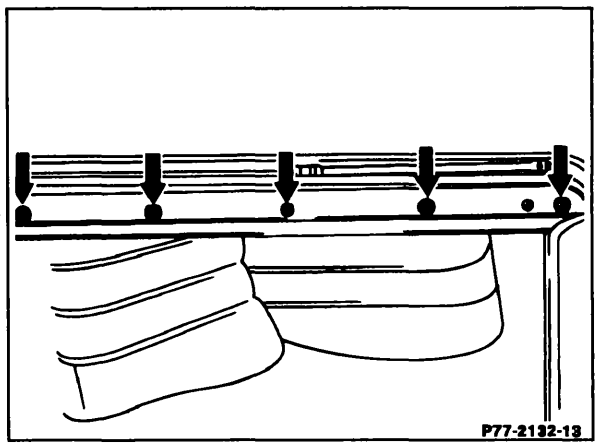
Clean out water drains at right front and left front from above with compressed air.

Replace damaged sliding jaws.

Clean rubber and plastic sliding jaws and thoroughly grease.

Clean sliding rails and thoroughly grease in area of contact surface.

Install sunroof and adjust.



Electrical sunroof

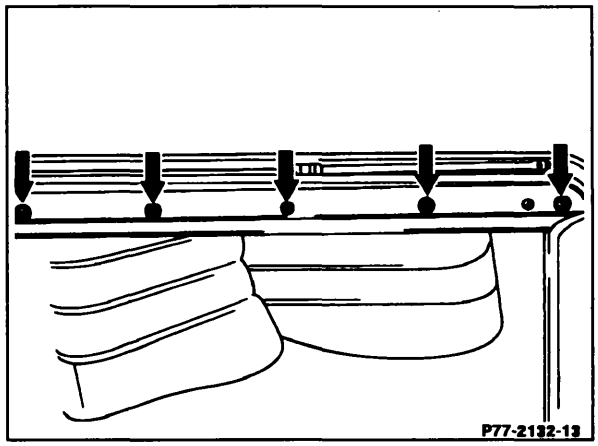
Type of lubricant

MB slide paste	001 989 14 51

Open sunroof 3/4 and unclip roof headlining at front and remove from above.

Open sunroof completely and remove sliding rails on left and right side.

Clean out water drains at right front and left front from above with compressed air.

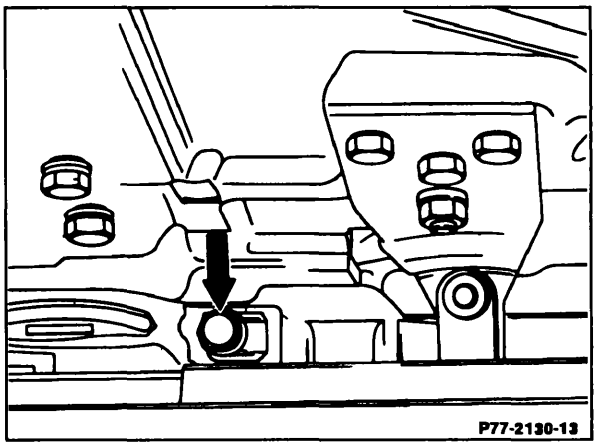


Close sunroof and unscrew locking bolt on left and right side.

Unscrew guide plate on roof frame at front and press out connecting clamp at cable (arrows).

Run control cable back.

Remove sunroof cover from above.

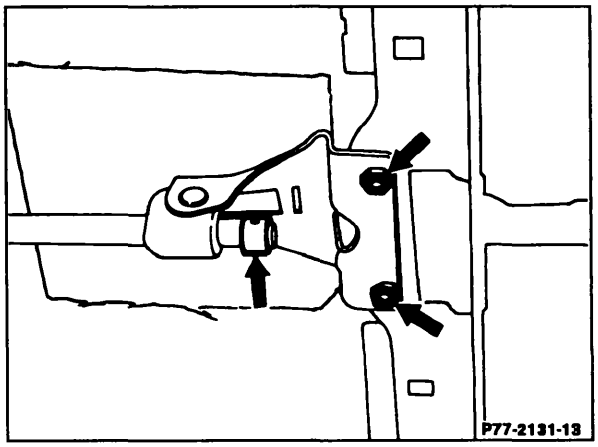


Replace damaged sliding jaws.

Clean and thoroughly grease rubber and plastic sliding jaws.

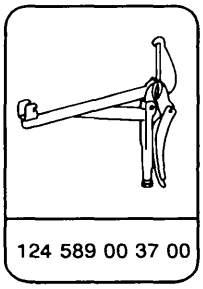
Clean sliding rails and thoroughly grease in area of contact surface.

Install sunroof and adjust.



Sliding lifting sunroof

Special tools



Type of lubricant

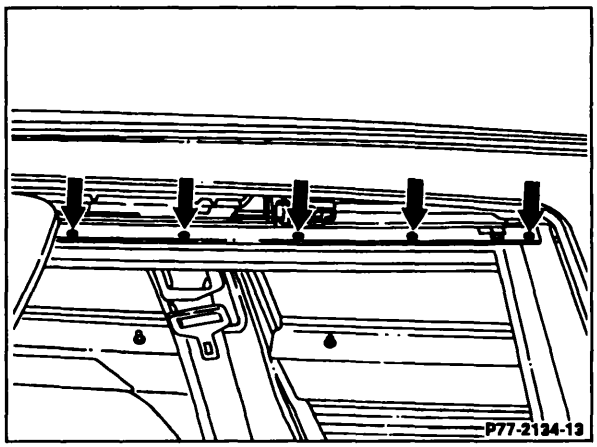
MB slide paste	001 989 14 51

Open sunroof 3/4 and unclip roof headlining at front, fully open sunroof and remove headlining from above.

Remove sliding rails on left and right side.

Close sunroof.

Unscrew nuts on right and left.



Unscrew nuts on right and left.

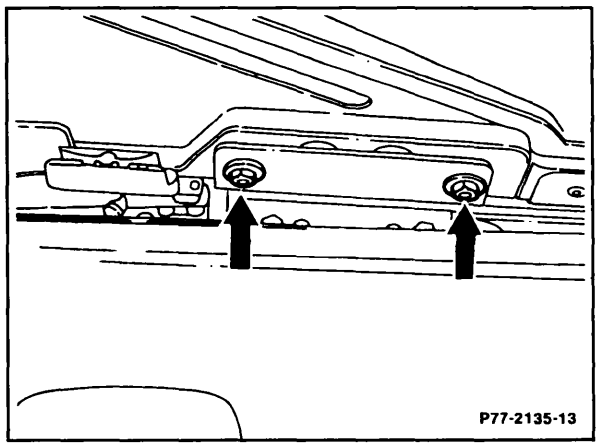
Remove sunroof panel from above.

Clean out water drains at right front and left front from above with compressed air.

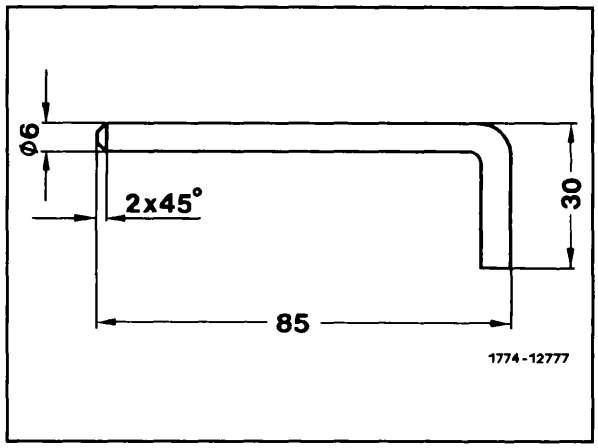
Replace damaged sliding jaws.

Clean and thoroughly grease rubber and plastic sliding jaws.

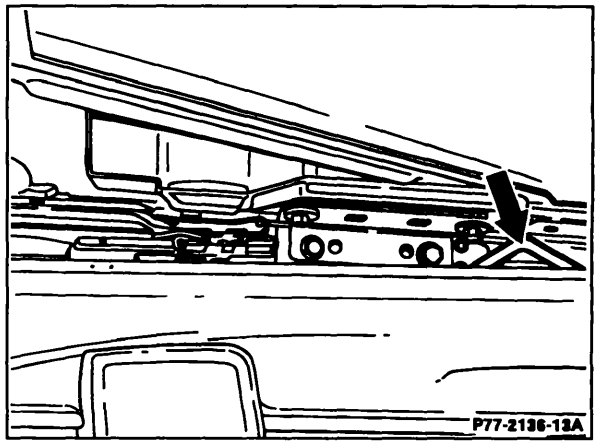
Clean sliding rails and thoroughly grease in area of contact surface.



Make 2 centering pins (if not already available).

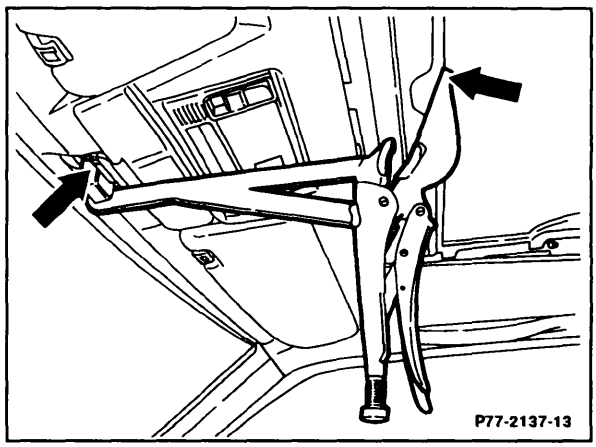


Insert centering pins in centering bores on left and right side.



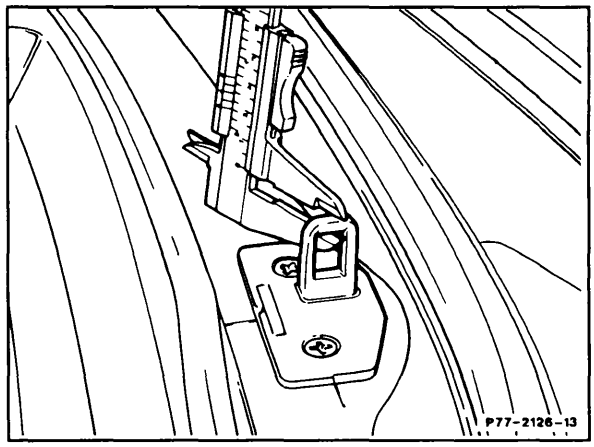
Insert sunroof panel from above, start nuts, preload sunroof panel using tool 124 589 00 37 00 and tighten nuts.

Complete assembly in reverse order of disassembly.



Model 129

- Open soft top.
- Using caliper, measure locking tab at worn area and at unworn area.
- If the measured wear difference between the worn and unworn areas is 0.5 mm or greater, replace the locking tab.



All models

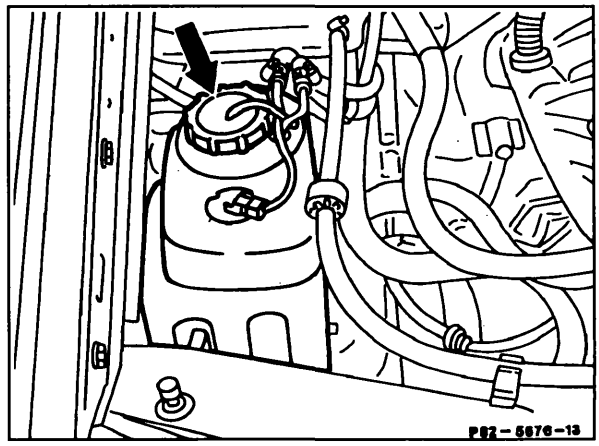
Washer fluid

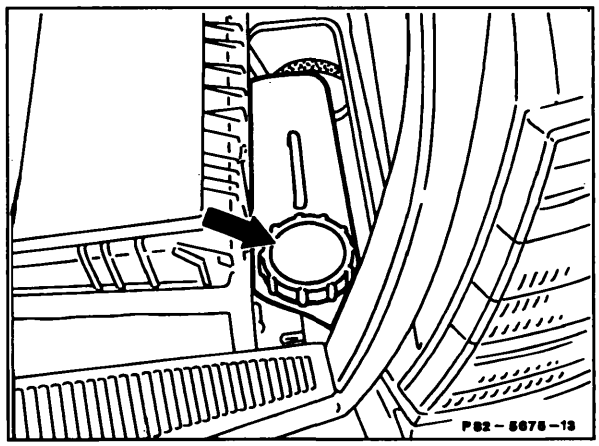
Water and approved MB concentrate

Fill washer reservoir with water. Add specified quantity of MB windshield washer concentrate.

Refer to table on package for mixing ratio.

Note the differing concentrations for summer and winter usage.

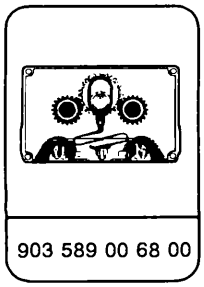




Cleaning cassette deck tone head

All models

Special tools



903 589 00 68 00

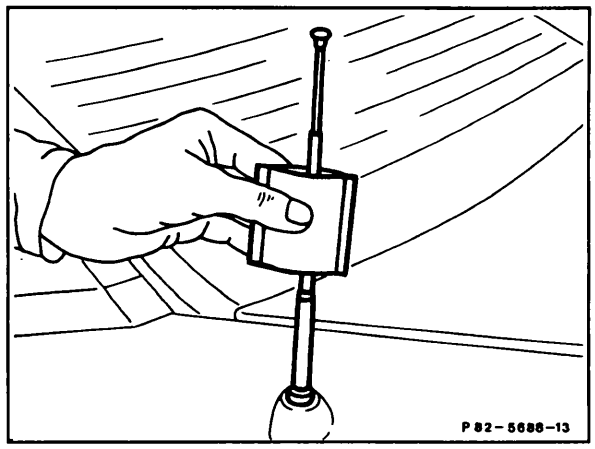
Soak felt parts of cleaning cassette with cleaning solution.

Insert cleaning cassette and play for about 30 seconds.

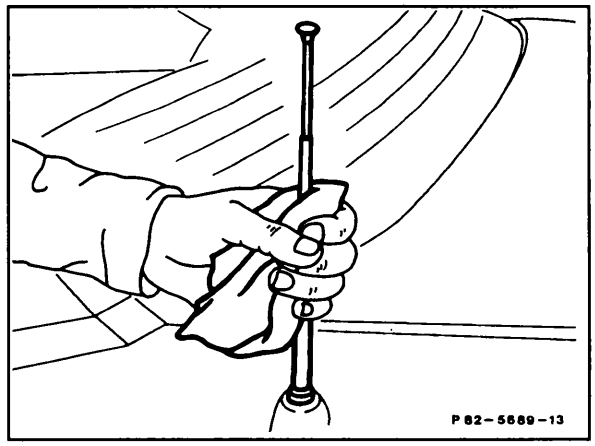
On units with auto reverse, turn cassette over and play for another 30 seconds.

All models

- Switch radio on.
- Clean antenna mast with cleaning pad.
- Switch radio off.
- Repeat procedure several times.



- Wipe mast dry with a clean rag.

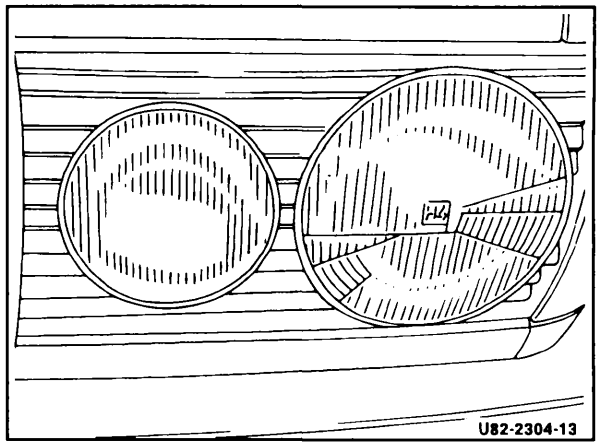


All models

Note: A mirror can be used instead of an assistant when checking external lamps.

The following operations can be checked by turning the rotary lamp switch:

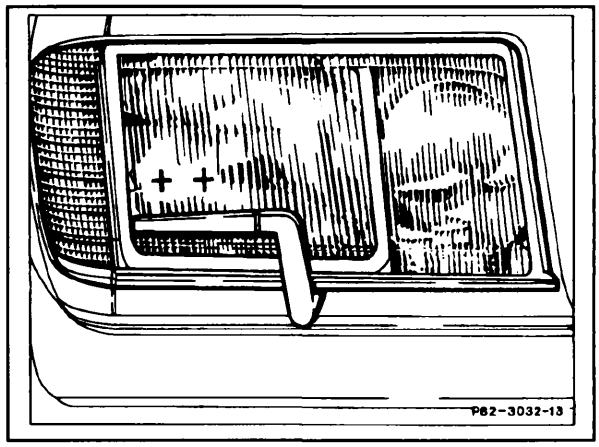
Right and left side standing lamp
Parking lamps/tail lamps/instrument lamps
Low beam headlamps
High beam headlamps and high beam indicator lamps
Fog lamps/rear fog lamps and indicator lamp



Key in ignition in position 0

Operational check of:

Warning flashers and indicator lamp

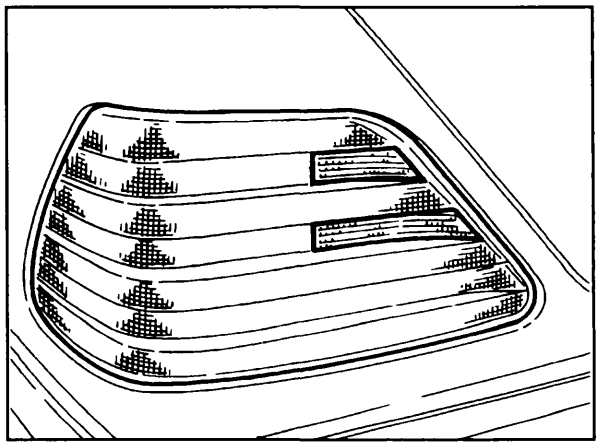


Key in position 2

Engine switched off, parking brake engaged.

Operational checkup of:

Stop lamp (including center high mounted stop lamp[as of model year 1986]) by depressing brake pedal.
Backup lamps by selecting reverse gear.



All models

Windshield wiper

Check edge of wiper blade for signs of hardening or cracks.

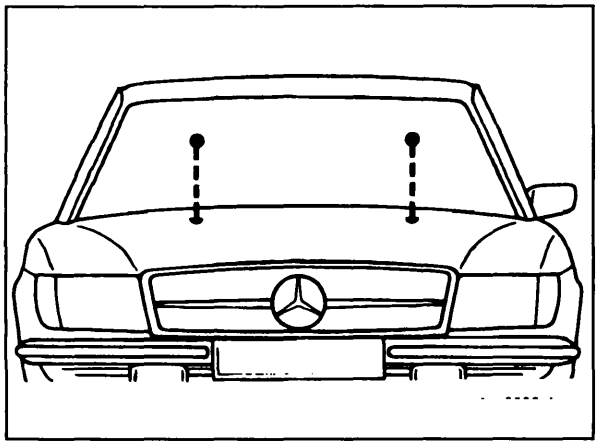
Also check that the edge of the wipe blade turns over when changing direction. If necessary, correct wiper arm offset so that end of wiper arm is parallel with wiping field. This can be easily checked by making a wooden gauge.

Operate windshield wiper and washer briefly. Wiping field should be wiped clean.

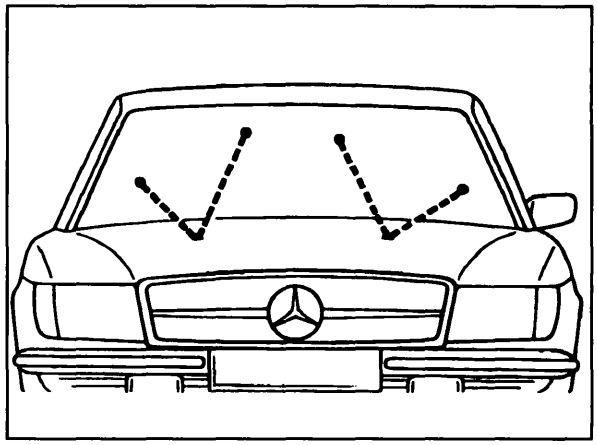
Windshield washer

Clean nozzles with suitable needle.

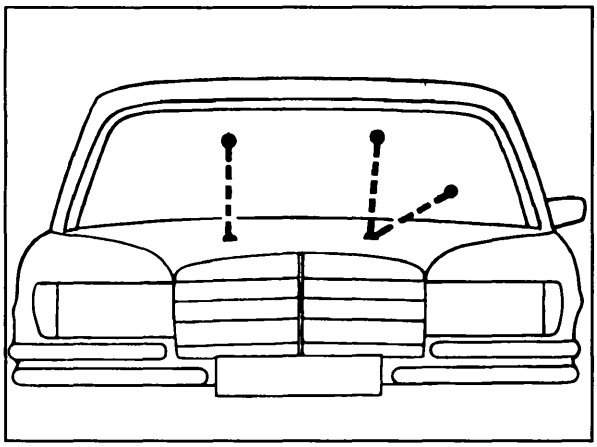
Check adjustment of nozzles.



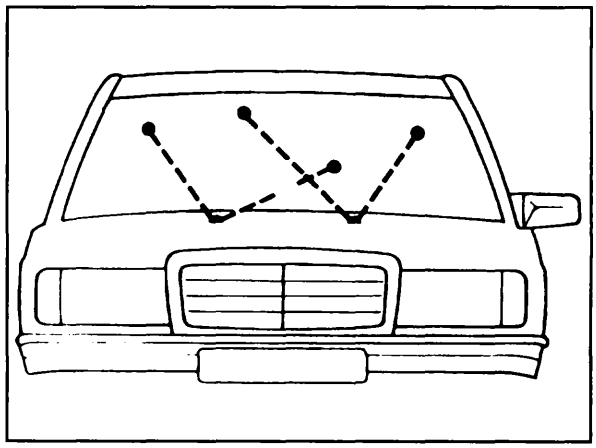
Model 107 1st version



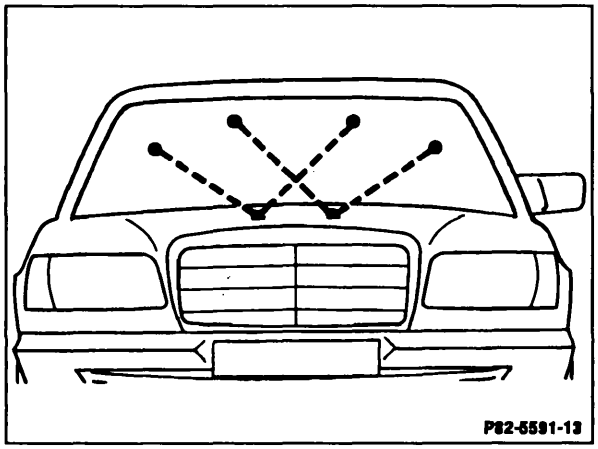
Model 107 2nd version



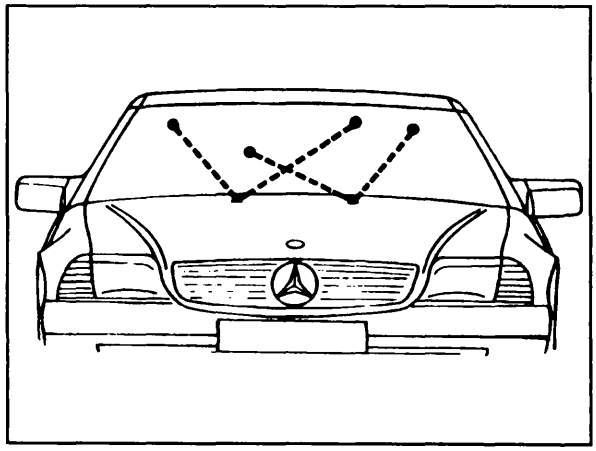
Model 123



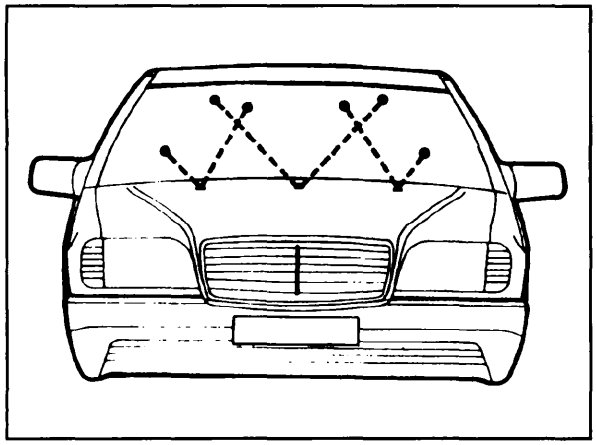
Model 124



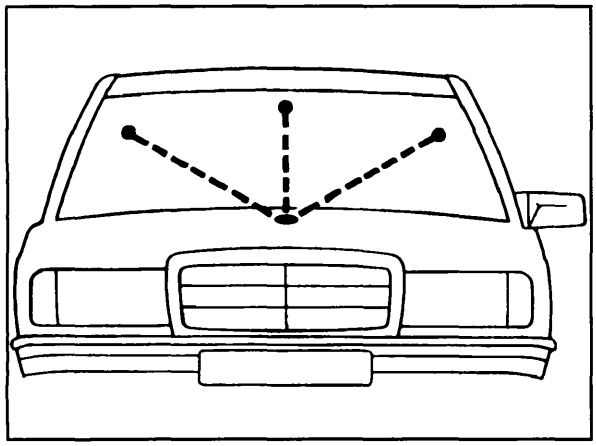
Model 126



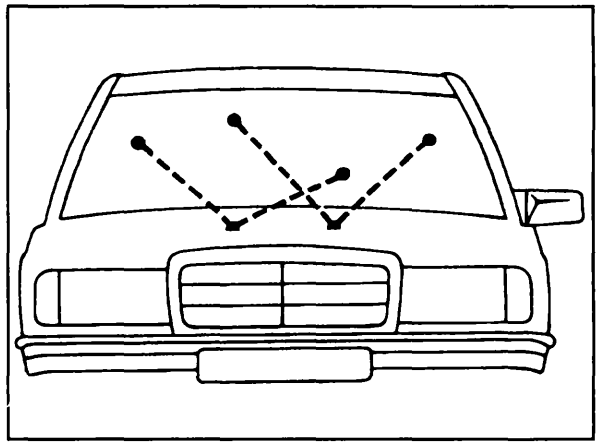
Model 129



Model 140



Model 201 1st version



Model 201 2nd version

Headlamp cleaning system

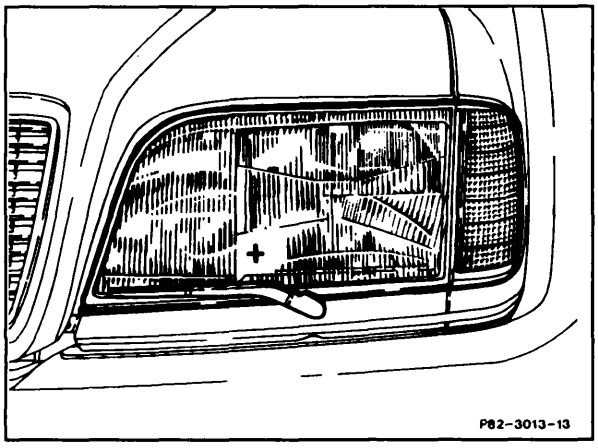
Check edge of wiper blade for signs of hardening and cracks.

Check adjustment of wiper blades.

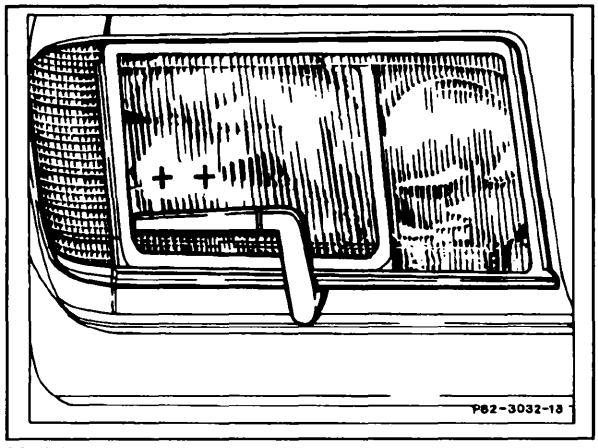
Switch on parking lamp and operate headlamp cleaning system.

The water spray should hit the area just above the parked wiper blade (crosses) on the headlamps.

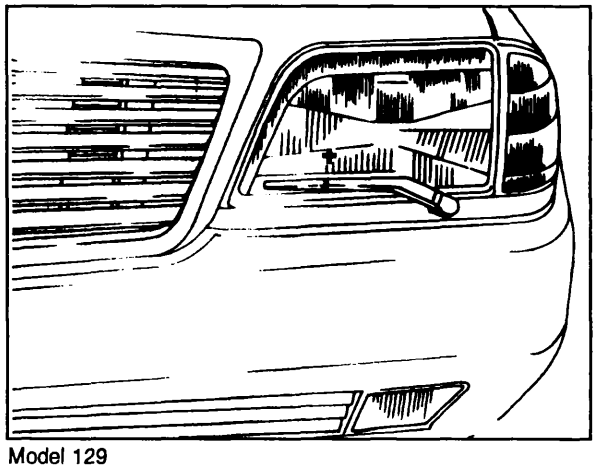
Clean jets with suitable needle or adjust as necessary.



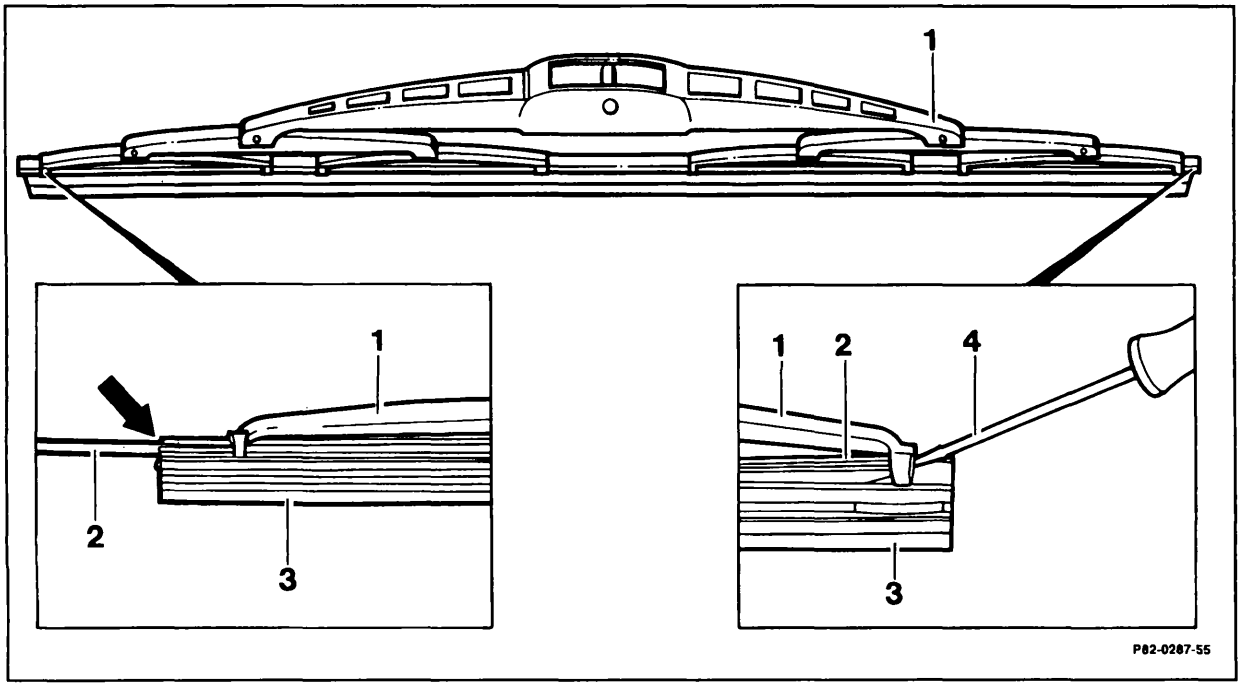
Model 140



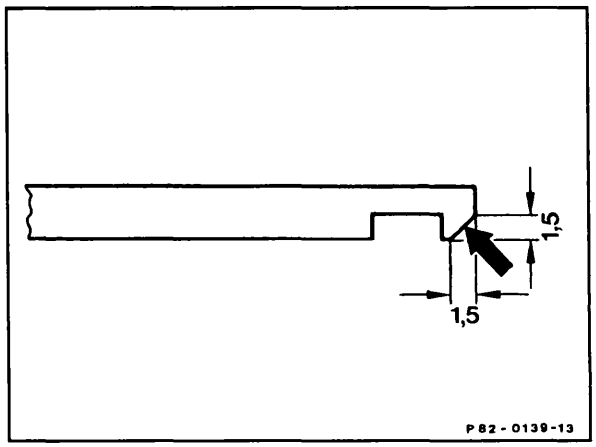
Models 124, 126, 201


Model 129

All models



- Remove wiper assembly (1) from arm.
- Pull retaining springs (2) out from the open profile end of the wiper blade (3).
- Disengage wiper blade (3) from wiper assembly brackets.
- Engage new wiper blade into wiper assembly brackets.
- Slide retaining springs into wiper blade from open profile end with curvature facing toward windshield. The retaining springs will engage more easily if the front corners are angled off (arrow) and coated with soapy water. Position retaining springs against solid surface and press into wiper assembly (1).
- Operate windshield wiper(s) and washer system. The wiped area should be cleared. Extremely dirty windshields should be cleaned on separate order.



All models

R 12 Refrigerant capacity

Models	107 129 201.02 201.1	123 126	124	201.034
Capacity	1000 g	1300 g	1100 g	950 g

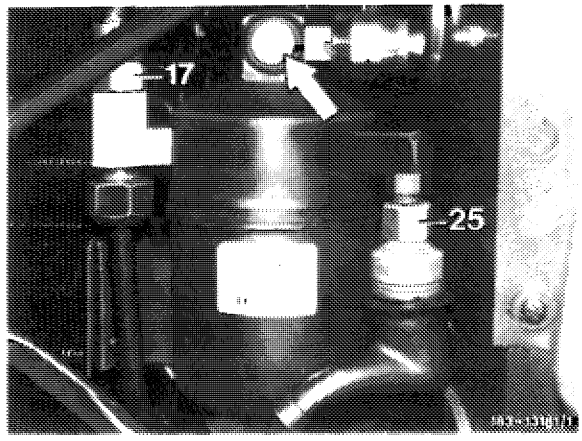
R 134a Refrigerant capacity

Models	124	129	140 w/o rear A/C	140 w/ rear A/C
Capacity	1000 g	950 g	1200 g	1400 g

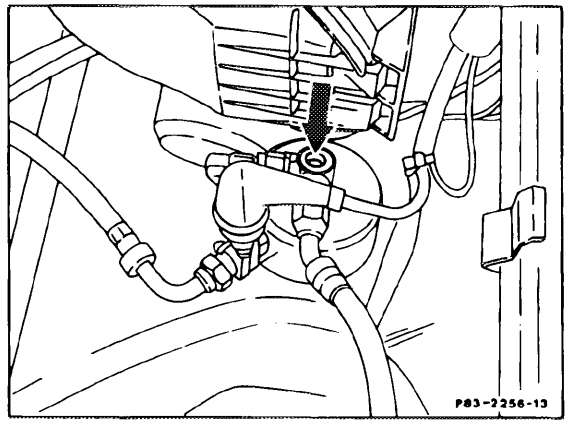
All models except model 140

- Clean sight glass (arrow) on receiver/drier.
- Disconnect wire from pressure switch (25).
- With engine idling, turn on air conditioning or automatic climate control ("DEF")
- Observe sight glass (arrow) and at the same time reconnect wire to pressure switch (25). Refrigerant should rise shortly after the electromagnetic clutch engages. Flow should be free of bubbles or foam (refrigerant is clear).

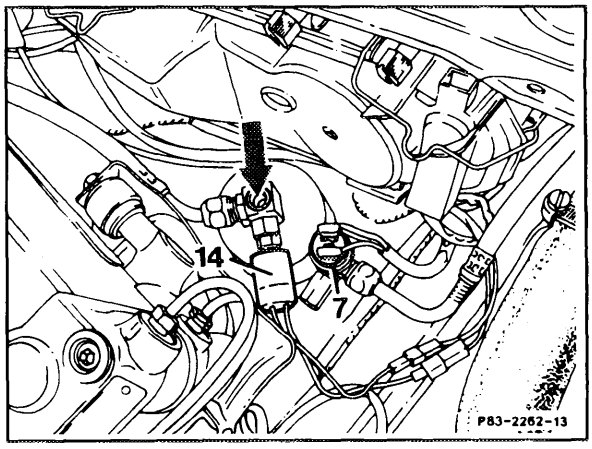
Note: An accurate check of the charge is not possible using the sight glass. At higher ambient temperatures (greater than 35°C) some bubbles may be visible with correct filling quantity.



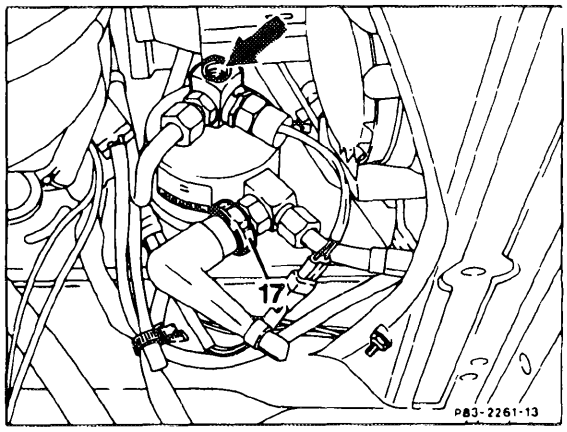
Model 107



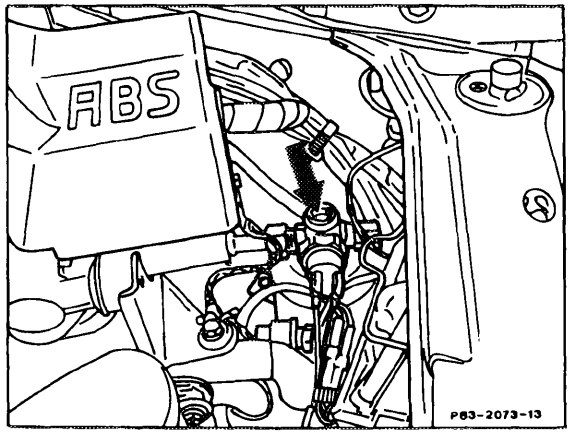
Model 123



Model 124, 201



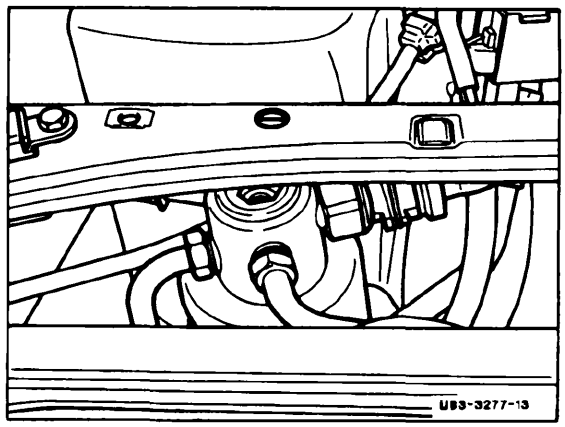
Model 126



Model 129

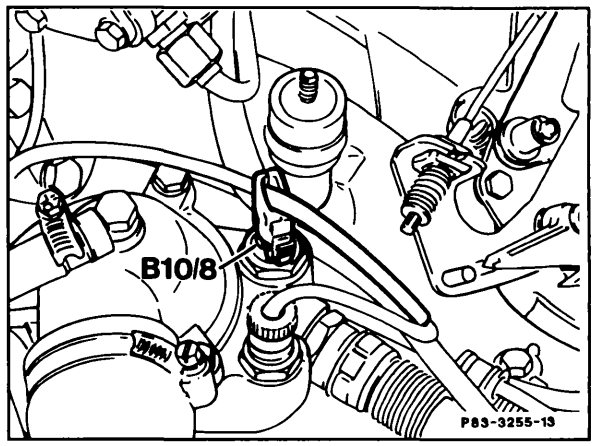
Model 140

- Clean sight glass on receiver/drier. Additonal access can be obtained by removing the left headlight bulb access cover.

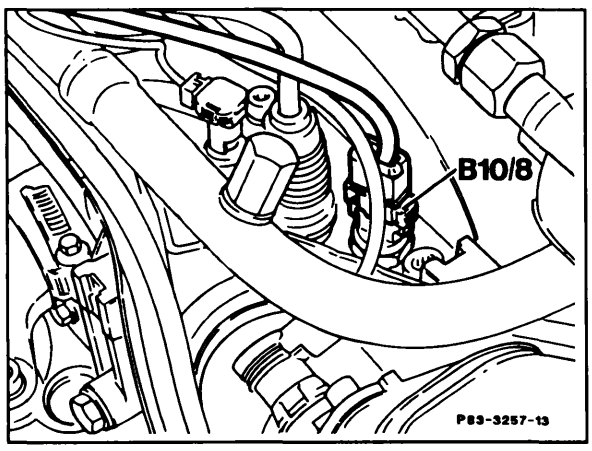


Model 140

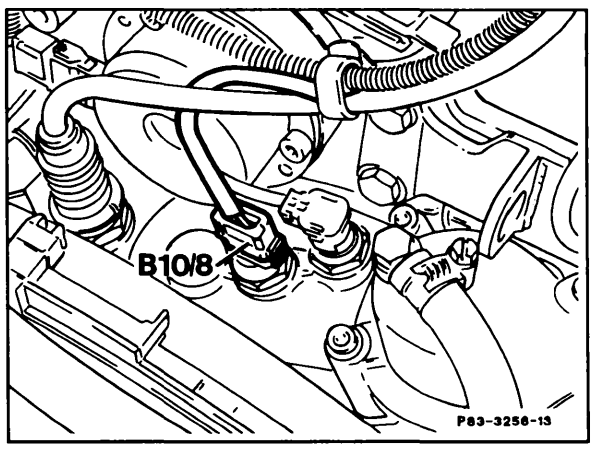
- Disconnect connector from coolant temperature sensor B10/8 and bridge connector terminals with jumper wire.



Location of coolant temperature sensor B10/8, M104 engine



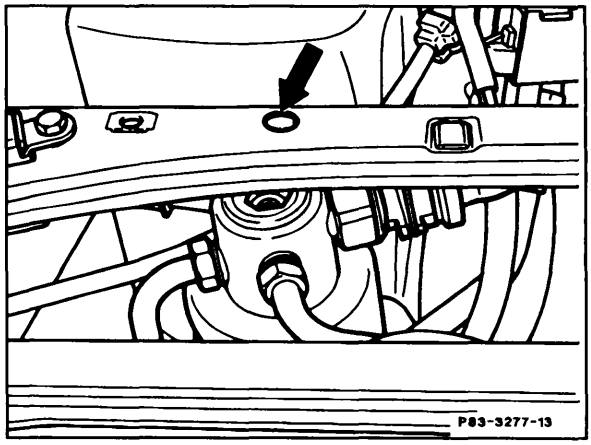
Location of coolant temperature sensor B10/8, M119 engine



Location of coolant temperature sensor B10/8, M120 engine

- With engine idling, switch on automatic climate control (DEF).

- Observe sight glass and simultaneously remove jumper wire from connector.



Location of sight glass observation opening (headlamp bulb access cover shown removed)

Refrigerant should rise shortly after the electromagnetic clutch engages. Flow should be free of bubbles or foam (i.e., refrigerant is clear).

Note: An accurate check of the charge is not always possible using the sight glass. At higher ambient temperatures (greater than 35°C) some bubbles may be visible with correct filling quantity.

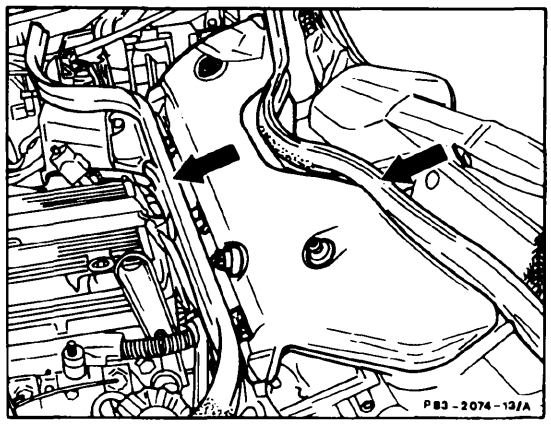
With refrigerant loss or suspected system leaks , the correct charge can only be ensured by completely evacuating (recycling) and refilling system. System should first be checked for leaks. The correct charge can only be established by weighing the refrigerant or by using a recharging cylinder or automatic air conditioning recharging station.

Refer to the latest information concerning correct charge for each model in the introduction manuals and repair instructions.

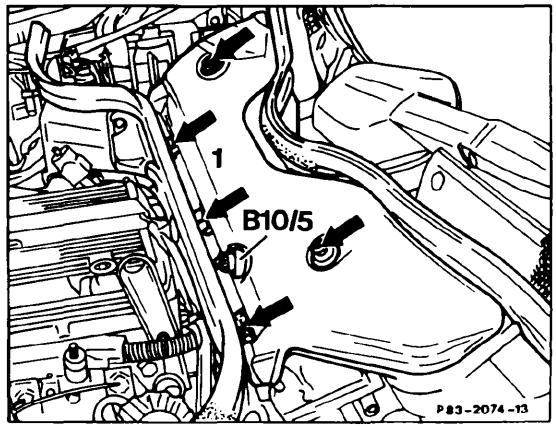
Model 129 140

Model 129

- Pull out lip seals (arrows).

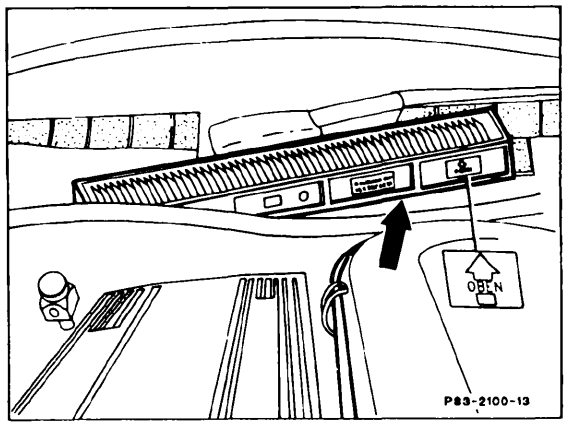


- Unscrew both screws and unclip 3 clips (arrows).
- Pull out temperature sensor B10/5.
- Remove cover (1) and filter box from above.
- Clean filter housing and filter cover.



Note:
Do not attempt clean dust filters, they should only be replaced.

- Insert dust filter as shown.

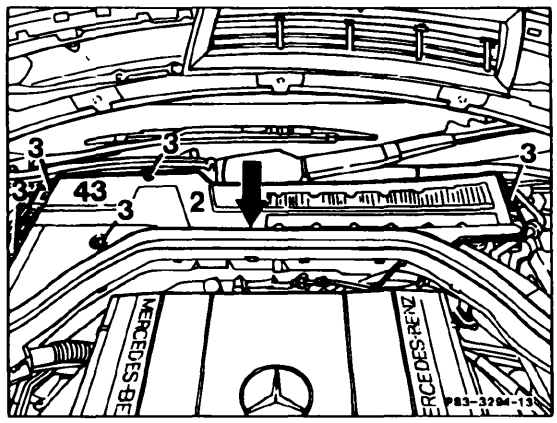


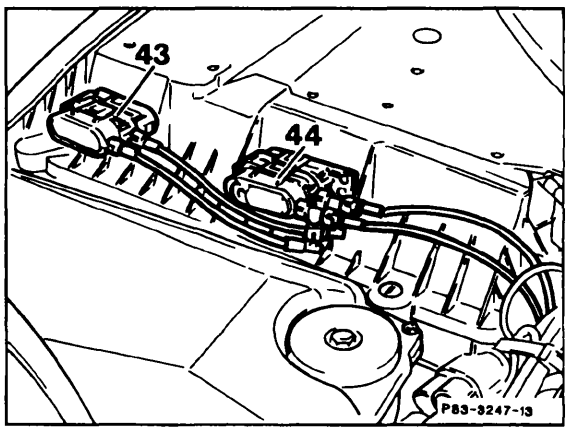
Model 140

- Pull out rubber lip seal (arrow).

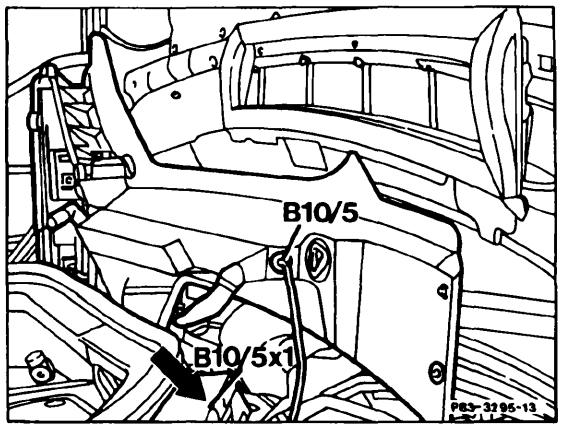
- Disconnect pneumatic lines from main air flap actuators (43, 44).

- Remove 6 screws (3) and lift air plenum (2).





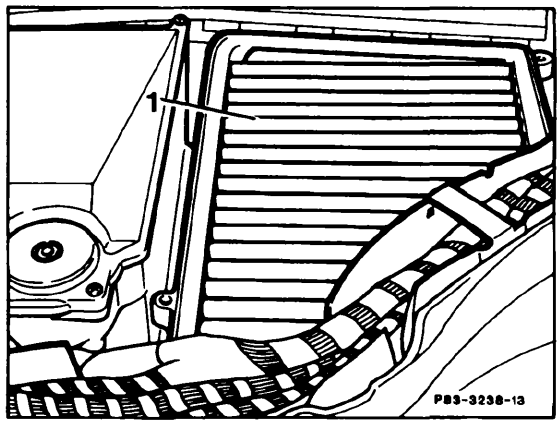
- Pull out temperature sensor (B10/5).



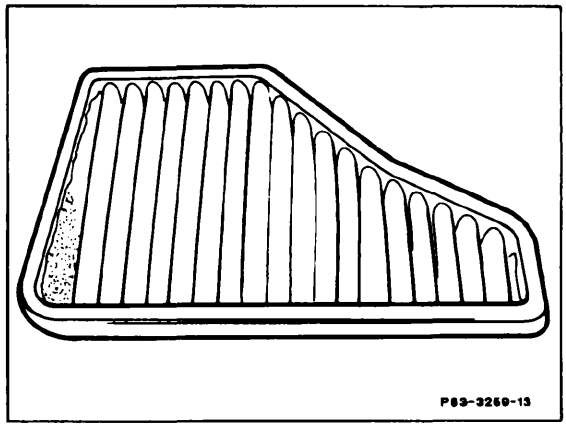
- Lift cover and lift filter cartridge out.
- Clean filter housing and cover.

Note:
Do not attempt clean dust filters, they should only be replaced.

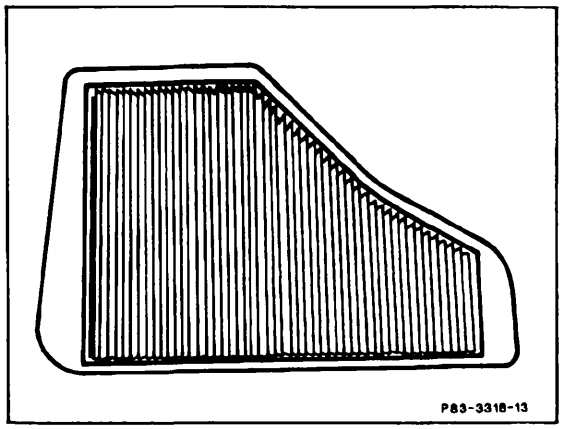
- Install new dust filter (1) according to illustration.



Note:
On vehicles equipped with active charcoal filter, the dust filter is designed as a active charcoal pre-filter. The underside of the filter has a layer of active charcoal. Do not install the simple dust filter intended for vehicles without the active charcoal filter.



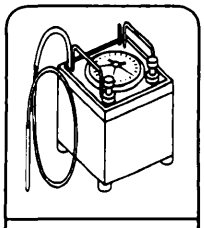
Dust filter for vehicles equipped with active charcoal filter system

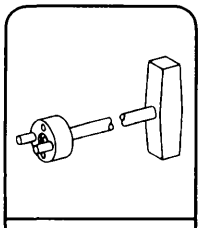


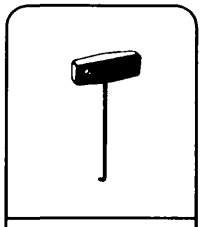
Dust filter for vehicles not equipped with active charcoal filter system

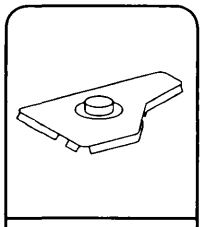
Model 140

Special tools

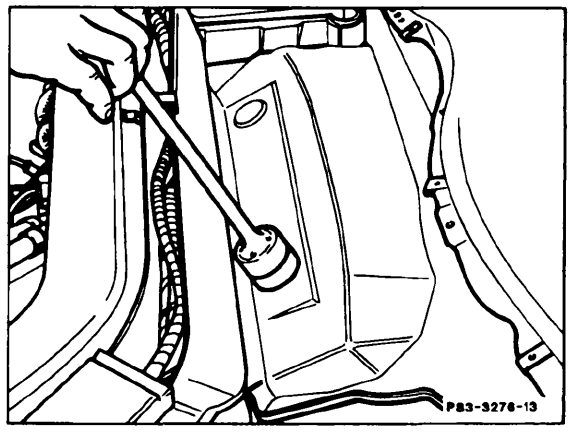

201 589 13 21 00


140 589 00 07 00

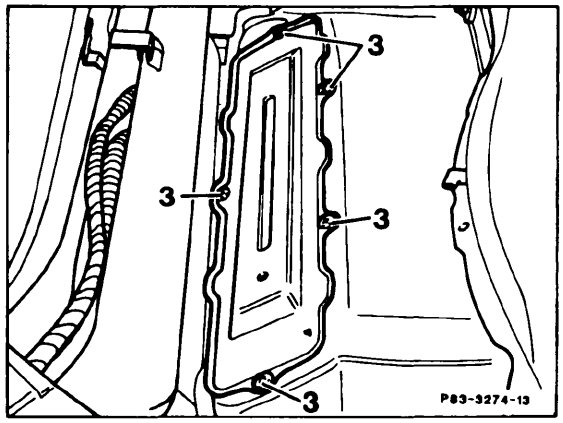

126 589 03 33 00


140 589 00 98 00

- Remove windshield wiper assembly (job no. 82-680).
- Remove water collector (4 screws).
- Cover dust filter with protective cover 140 589 00 98 00.



- Remove 5 screws (3) and lid.
- Remove lid inside heater box (5 screws).

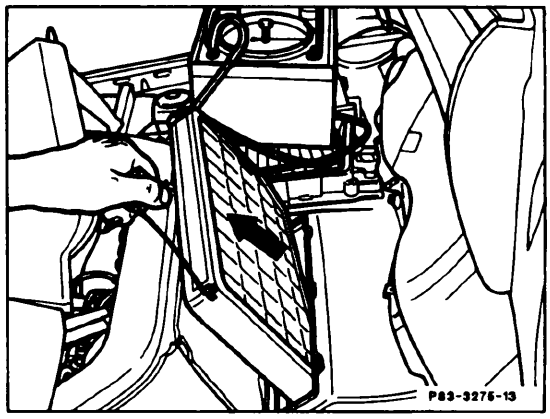


- Using vacuum/pressure tester, apply vacuum to pneumatic seal of active charcoal filter.

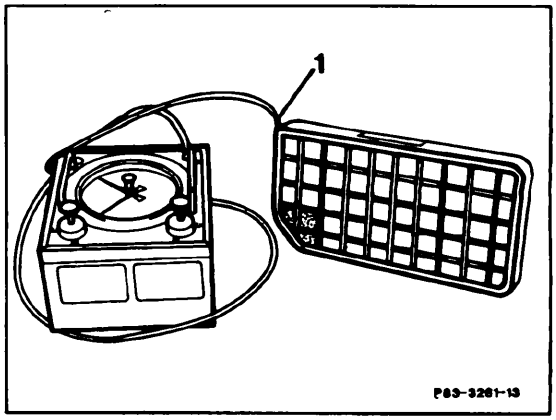
- Pull active charcoal filter up (tester remains connected)

- To install, apply vacuum to seal on new filter and insert in opening with pneumatic seal facing toward front of vehicle.

- Remaining components are installed in reverse order of removal.



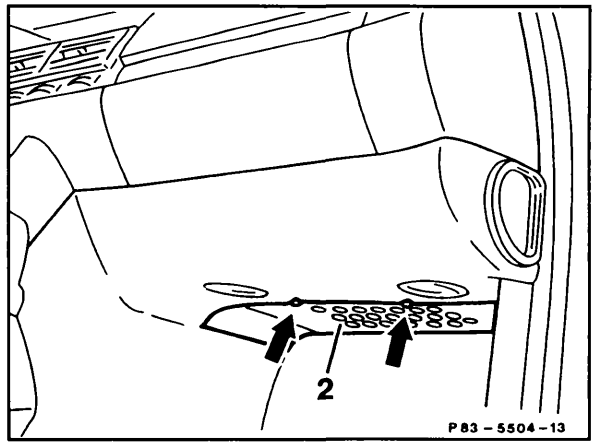
Note:
The active charcoal filter can not be cleaned.



Vacuum connection (1)

Model 140

- Using screwdriver, turn latches (arrows) 90° to left.
- Lower cover with recirculating air filter (2).
- Unclip recirculating air filter from cover.
- Open recirculating air filter housing and remove filter.



Note:
Recirculating air filters can not be cleaned, they must be replaced.

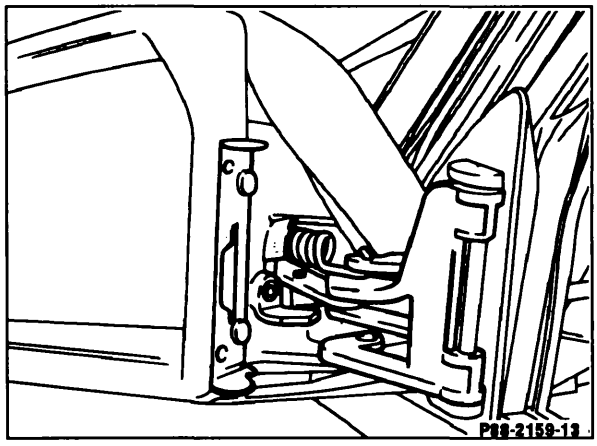
Model 107 123
except maintenance-free side mirrors

Grease type

Lubricating grease	Multipurpose grease

Note: Maintenance free mirrors can be recognized by the revised mount.

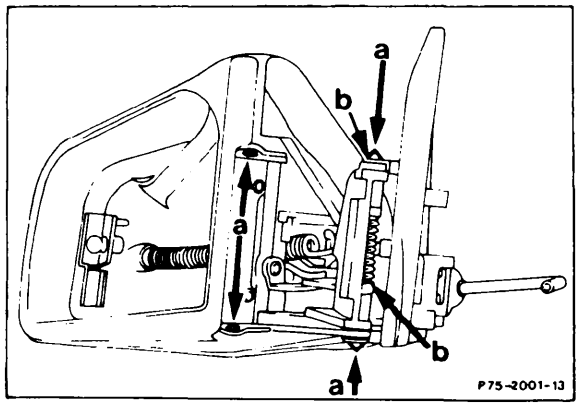
Standard on model 107 and 123, starting January 1984.



Disengage mirror from rear in forward direction by means of a light blow with the ball of the hand.

Lubricate bearings of both locking pins (arrows b) and move mirror back and forth several times.

Grease holding bracket and locking pin (arrows a) at both bearing points.

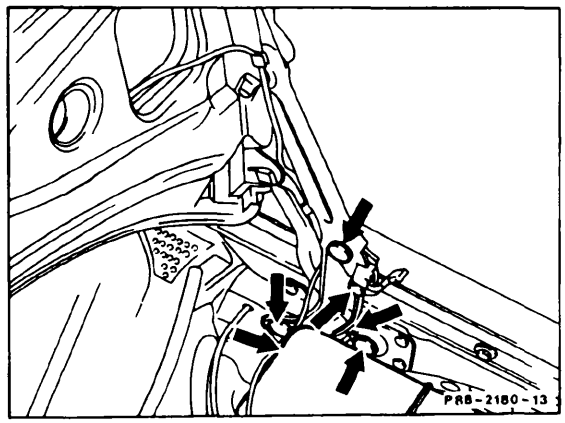


All models

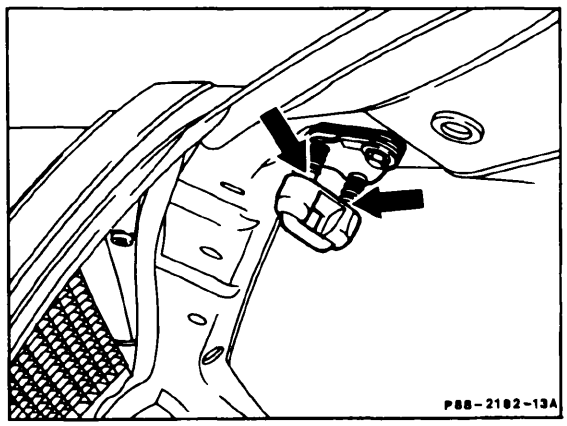
Grease type	
Lubricating grease	Multipurpose grease Refer to Factory Approved Service Products list

Oil (can)

- Hood support (except models 124, 129, 140).
- Hinge bearings (except models 124, 129, 140).

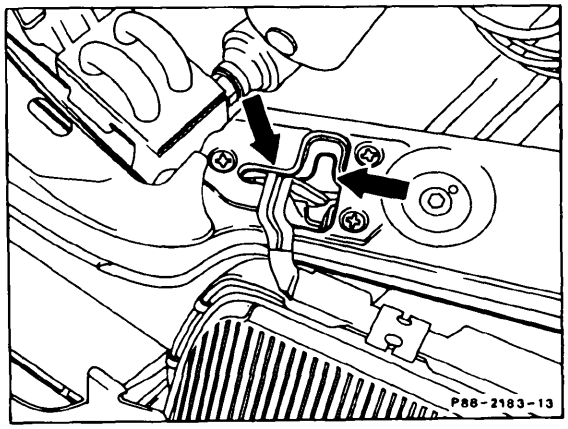


- Hood latch.



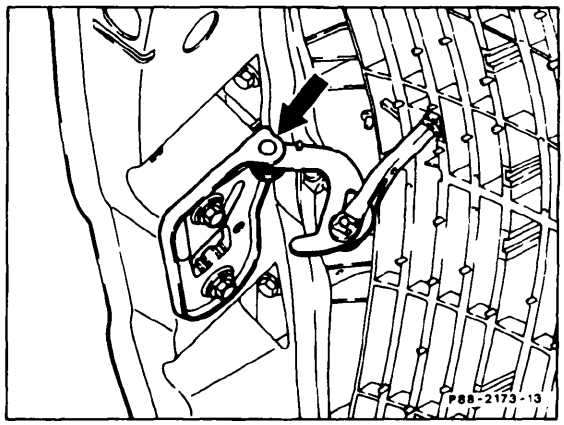
Grease

- Hood lock.



Oil (can)

- Safety catch.



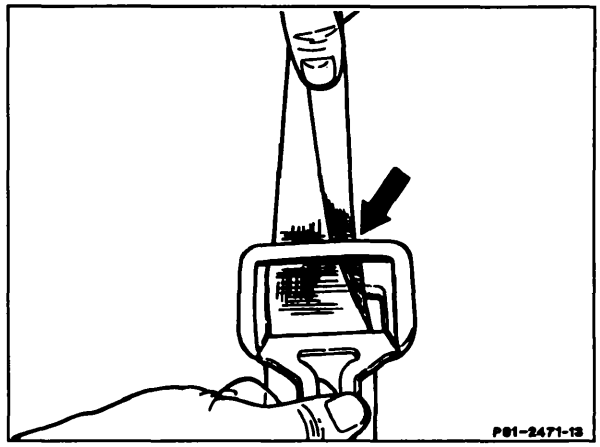
All models

Pull belt out completely and check for cut fibers and other damage such as burnt spots caused by cigarettes.

Check that automatic reel functions correctly.

Check locking function by pulling belt out quickly.

Check belt strap for twisting.

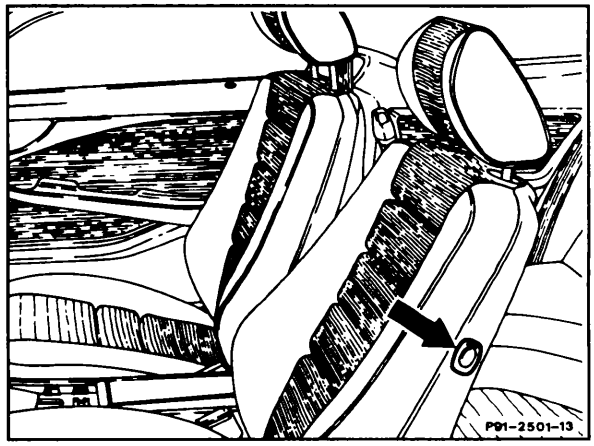


Note: If customer complains that belt does not roll up neatly, check whether belt is guided back manually as specified or whether it is twisted 180° behind panel caused by improper handling. Remove panel for this purpose.

If customer refuses replacement of damaged belt, this should be noted on repair order.

All cabriolet and coupes

- With engine idling and doors open, check that backrests are free to move forward.
- Close doors. Backrests should now be locked.
- With doors closed, backrest lock should release when pushing button (arrow) on side of backrest.

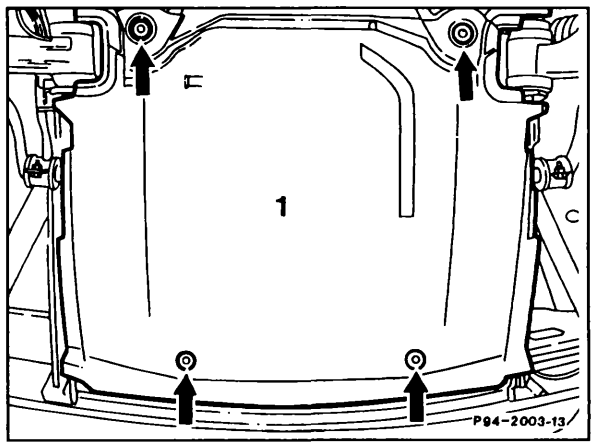


Model 124.1
126.1 starting 1986
201.1
140.1

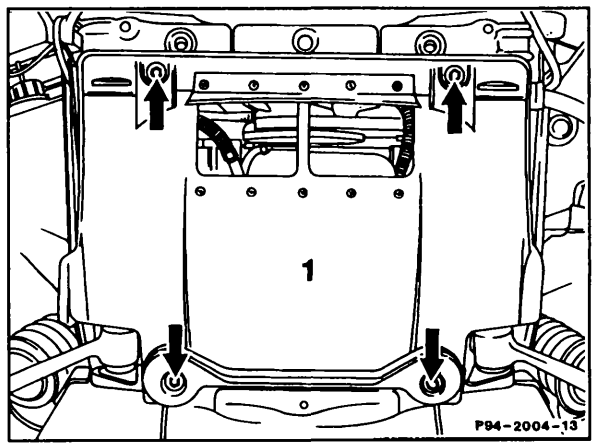
Front noise encapsulation panel

Removal

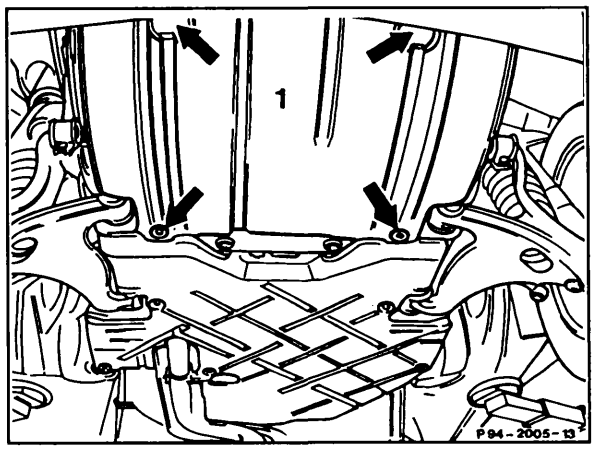
- Unscrew small bolts (arrows) and remove front noise encapsulation panel.



Models 124.1, 140.1



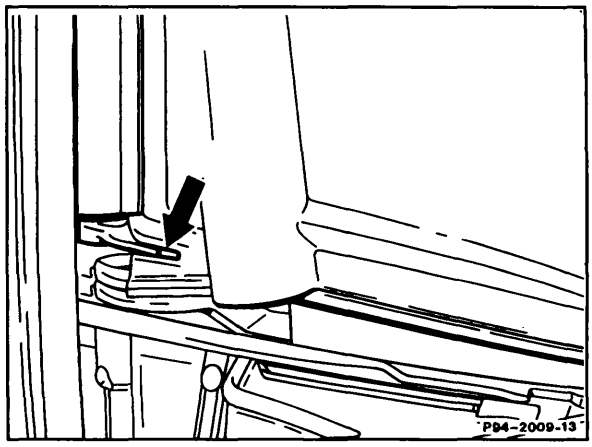
Model 126.1



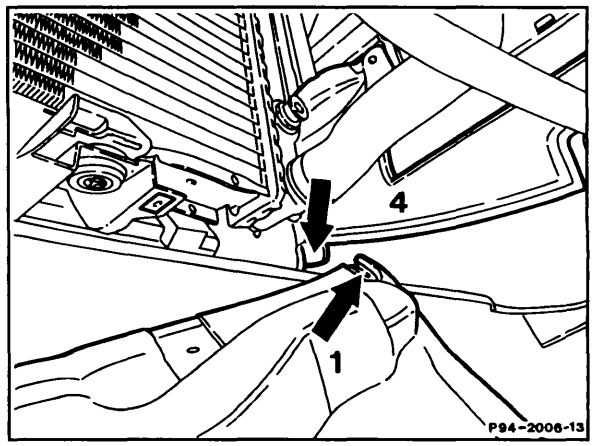
Model 201.1

Installation

- On model 124 and 201 engage the slots on the lower noise encapsulation panel (1) with the tabs of the side panels (4).

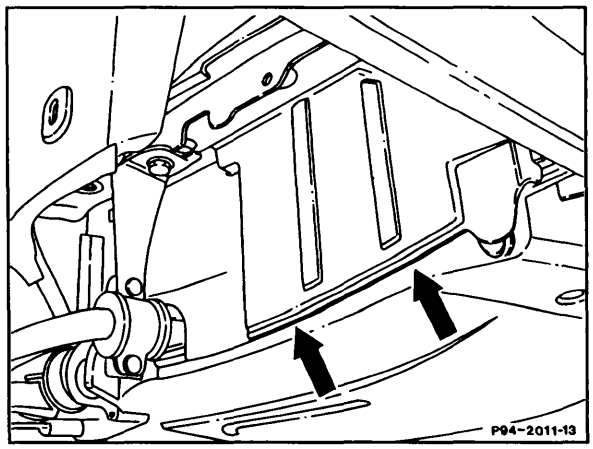


Model 124.1

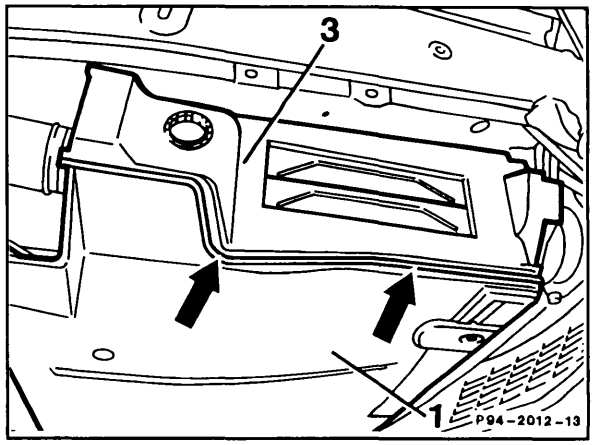


Model 201.1

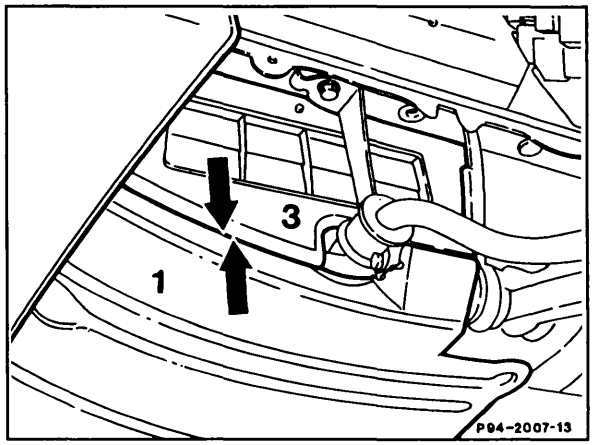
- Push lower noise encapsulation panel (1) up; edges of side panels (3) must engage over lower panel (1).
- Bolt lower noise encapsulation panel (1) in place.



Models 124.1, 140.1



Model 126.1



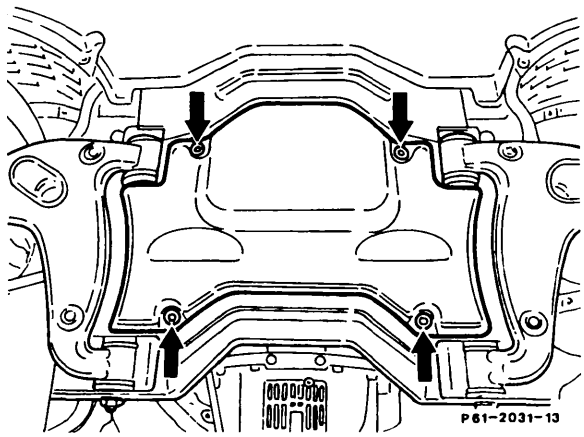
Model 201.1

Center noise encapsulation panel
Model 140.1 only

Removal/Installation

- Screw out small bolts (arrows) and remove noise encapsulation panel (2).

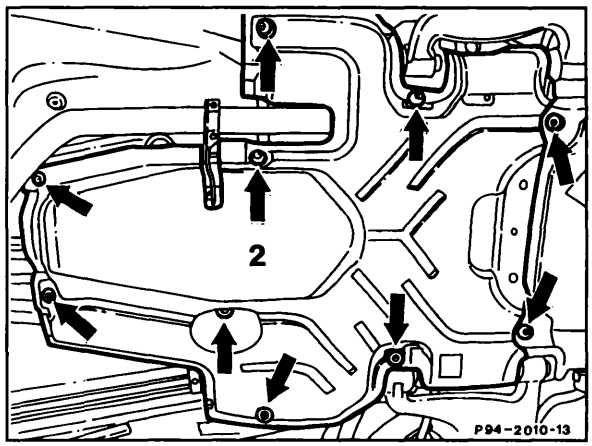
' Install in reverse oder.



Rear noise encapsulation panel

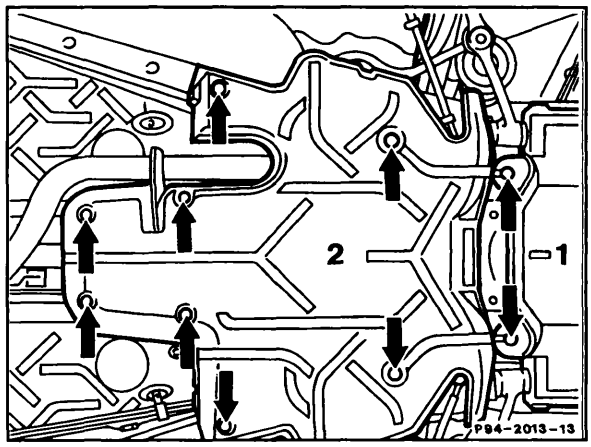
Removal

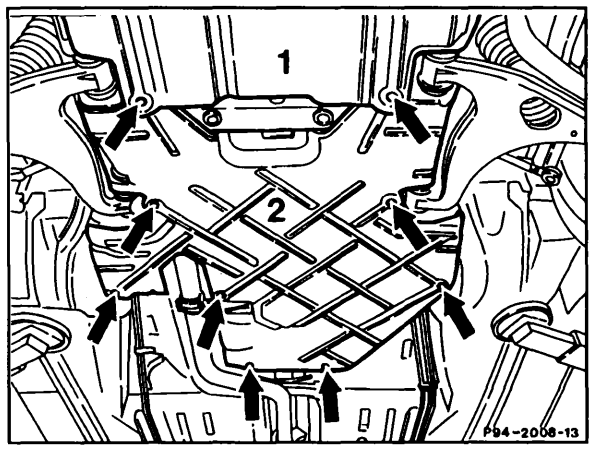
- Screw out small bolts (arrows) and remove noise encapsulation panel (2) toward rear.



Installation

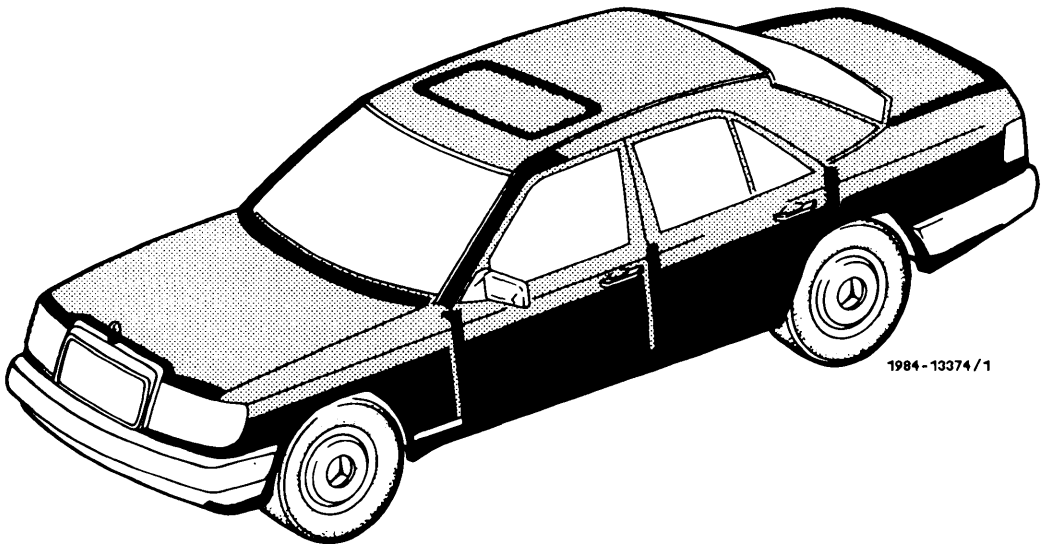
- Insert rear noise encapsulation panel (2) between front axle cross member and front noise encapsulation panel (1).
- Bolt lower noise encapsulation panel (1) in place.





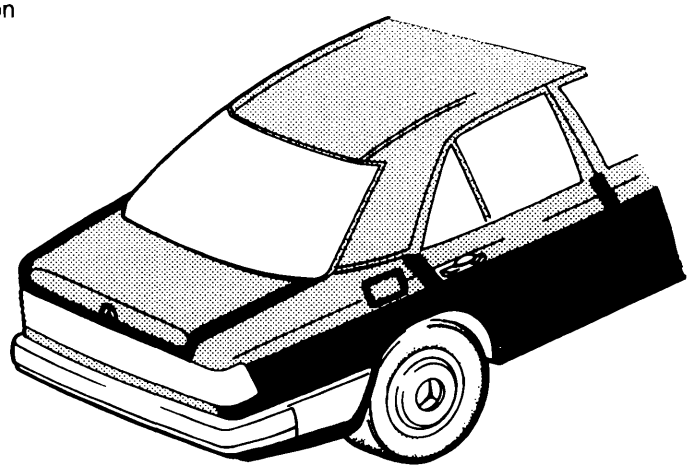
Model 201.1

All models



Condition of corrosion protection

- Painted outer surface
- Edges and folded lips
- Area exposed to stone damage

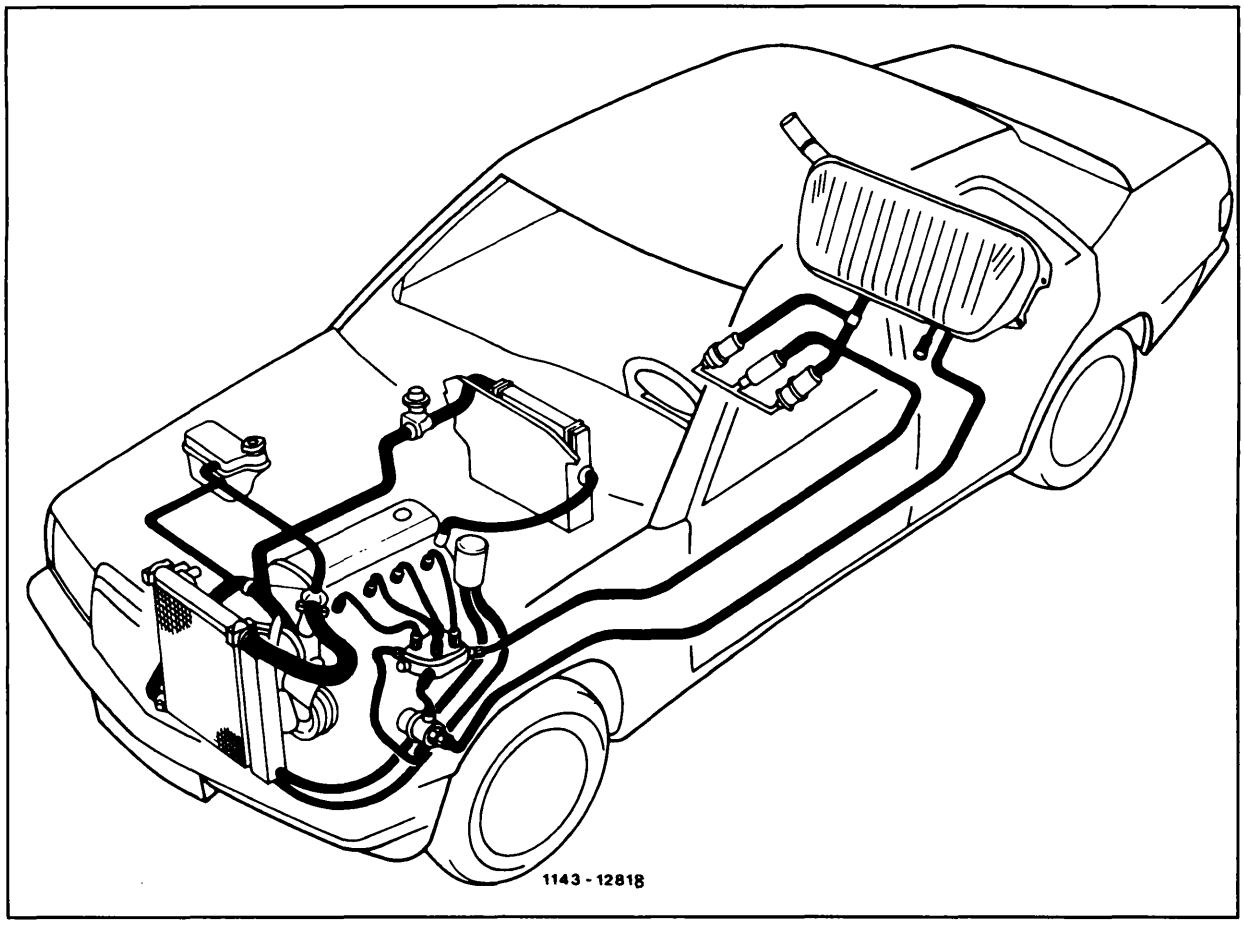


Righthand side mirror image

Model 107 starting 08.1985
124
126 starting 09.1985
129
201 starting 01.1985
140

Note: To perform this job number, the engine compartment lower panels or the lower noise encapsulation panels must be removed and then reinstalled after completion of all maintenance work (see jobs 6190 or 9490, respectively)

Inspect engine and fuel system, including lines and hoses, for leaks. Check for chafe marks and proper routing.



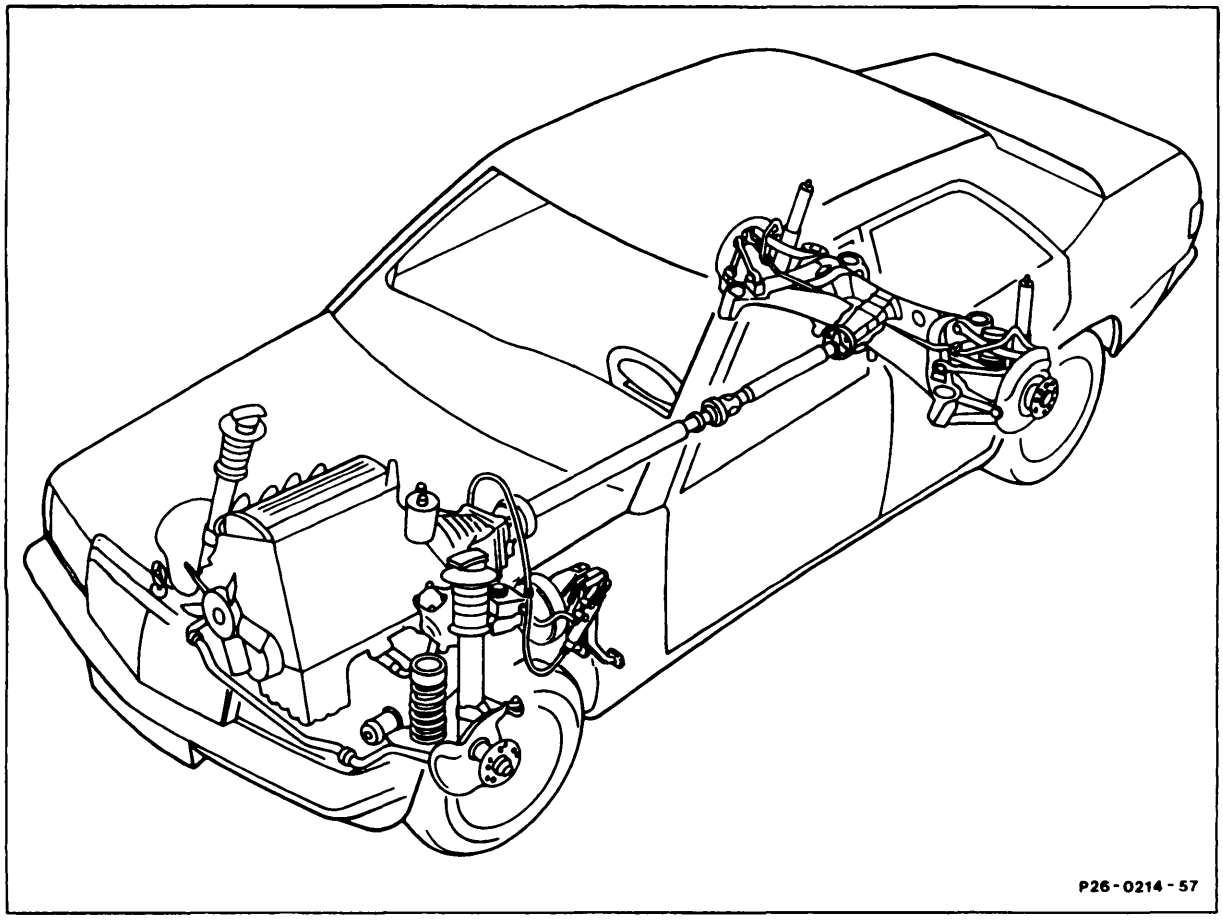
Engine

Crankcase	Crankcase seal, front	Cylinder head cover
Coolant pump and housing	Timing housing cover	Radiator
Oil pan	Coolant and heating hoses	Oil filter
Air-oil cooler with hoses		

Fuel system

Fuel tank	Fuel filters	Fuel pump assembly
Injection pump	Prefilter	Injection system
Fuel pump	Fuel cooler starting 1986	Fuel preheating

Check condition of manual transmission. hydraulic clutch system, damper struts, shock absorbers, and rear axle.
If traces of oil are found on lower engine compartment panels, determine source.



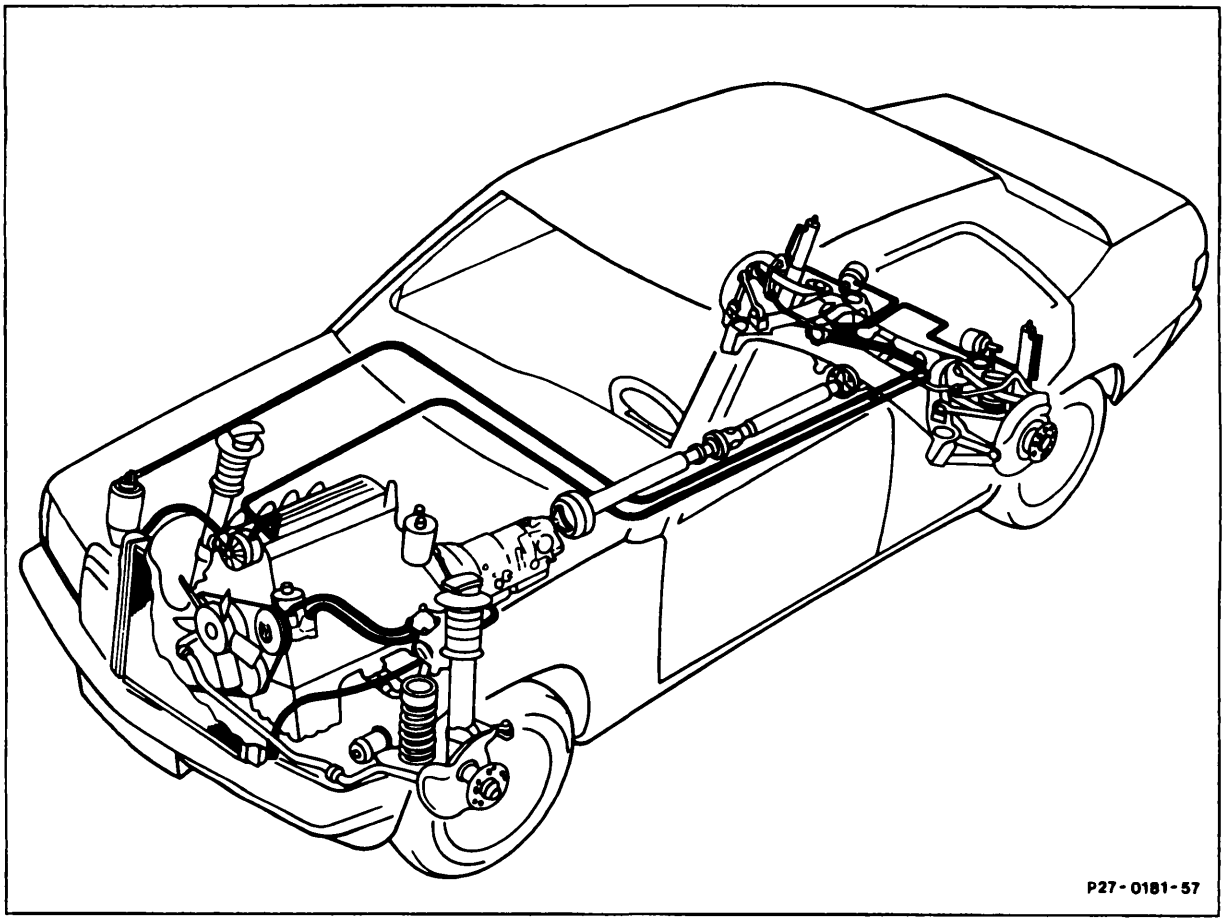
Manual transmission, clutch hydraulic system, and rear axle

Sealing rings
Fill and drain plugs
Housing cover
Clutch line and hose

Damper struts or shock absorbers

Leaks
Mounting

Check condition of automatic transmission, level control and power steering, including lines and hoses. Check for chafe marks and proper routing.



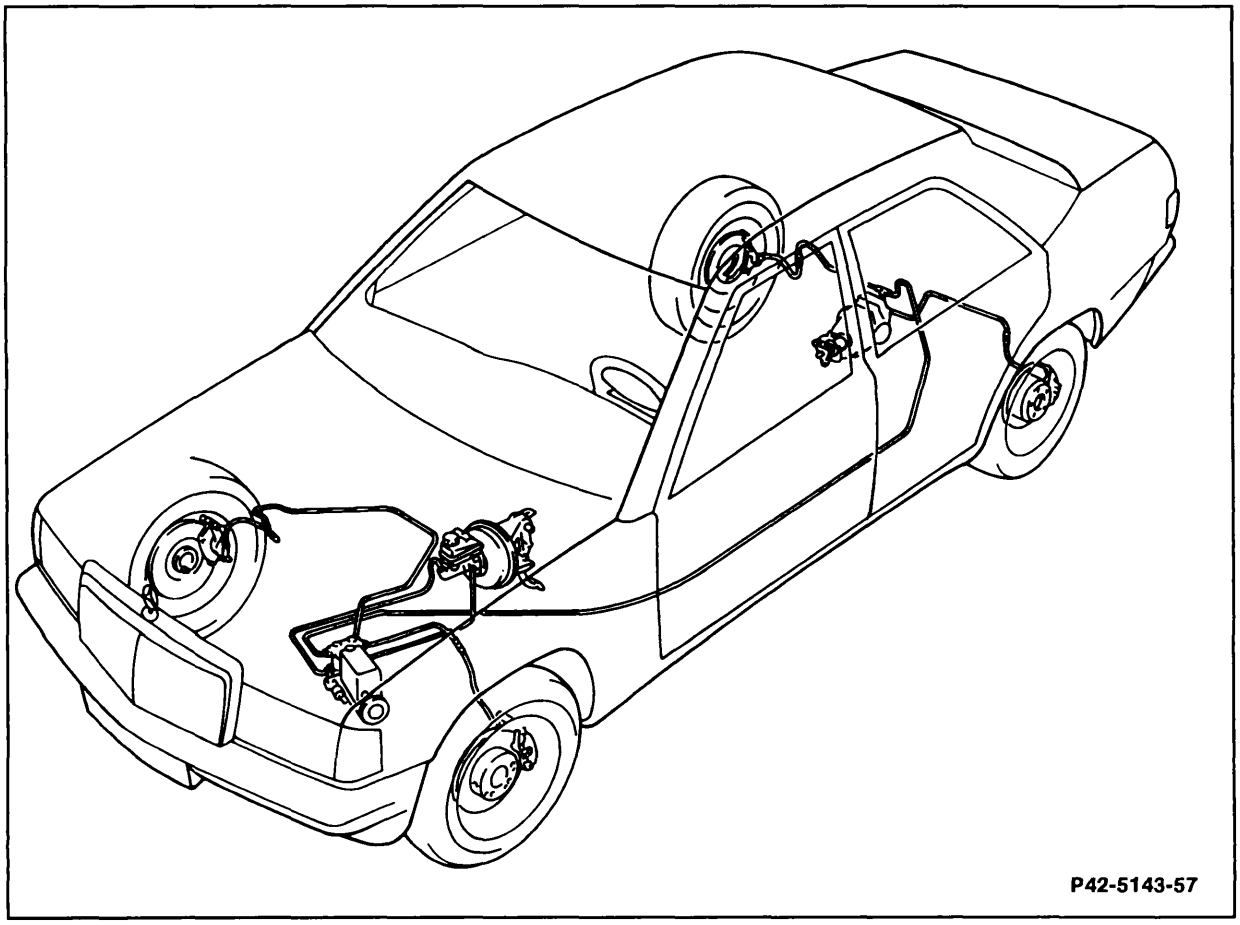
Automatic transmission, power steering

Torque converter
Sealing rings and gasket
Housing plugs
Line connections
Hoses
Oil pan

Level control/ADS

Suspension struts
Line connections
Hoses
Leveling valves
Hydraulic oil reservoir
Hydraulic oil pump
Suspension pressure reservoirs
Distribution valve
Control valve
Damping valve units

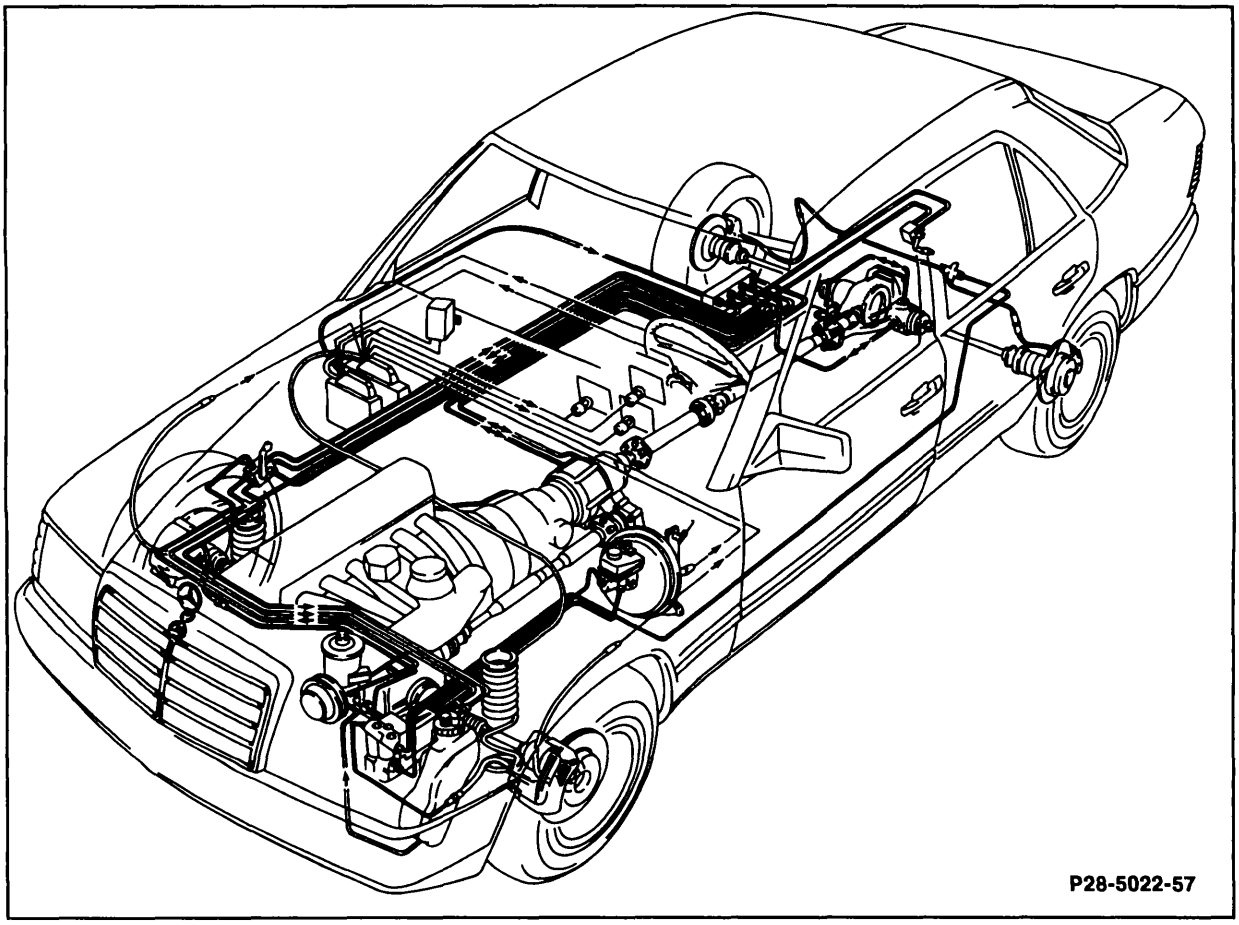
Check condition of brake system including lines and hose . Check for chafe marks and proper routing.



Brake system

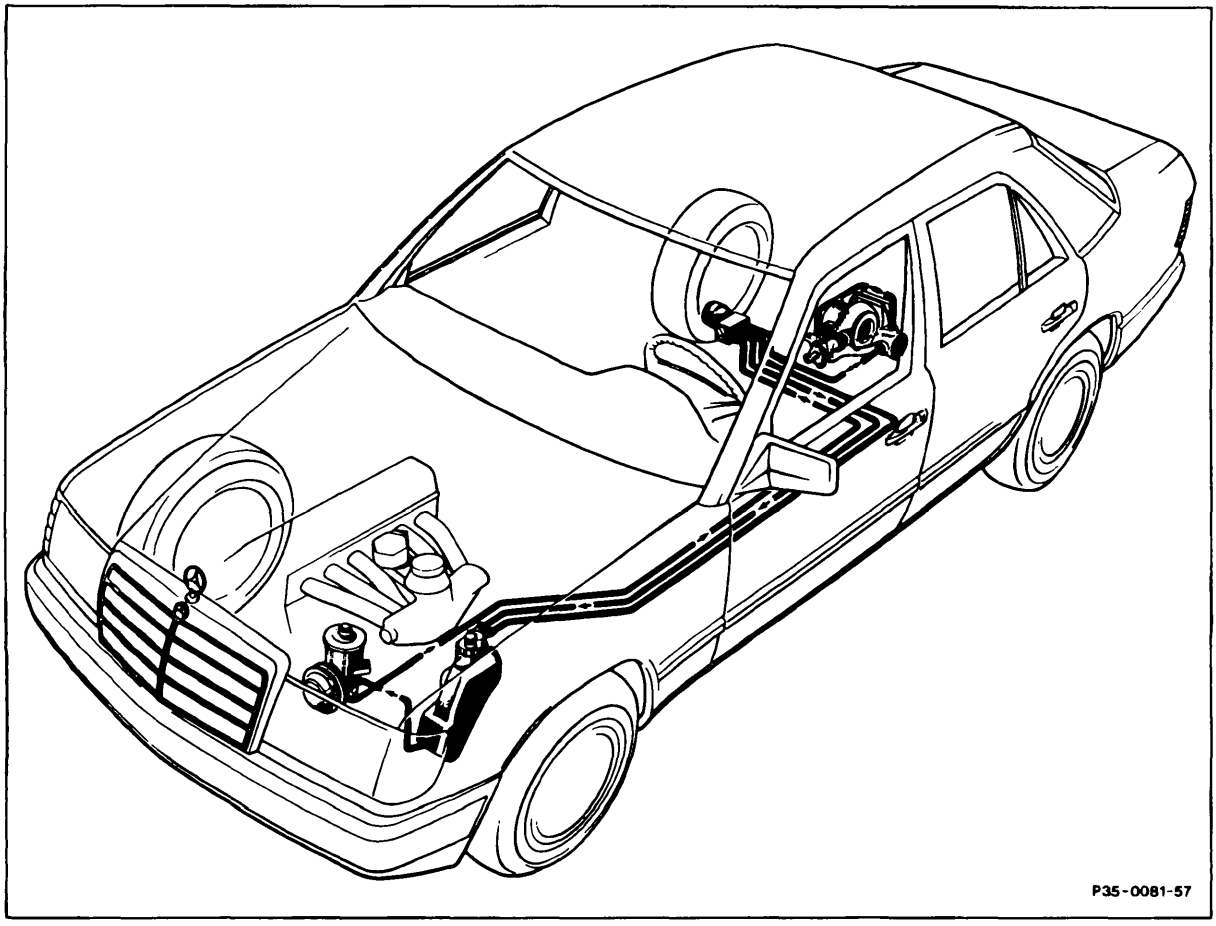
Lines
Hoses
Master cylinder
Fluid reservoir
Brake calipers
ABS hydraulic unit

Check condition of all lines and hoses. Check for chafe marks and proper routing.



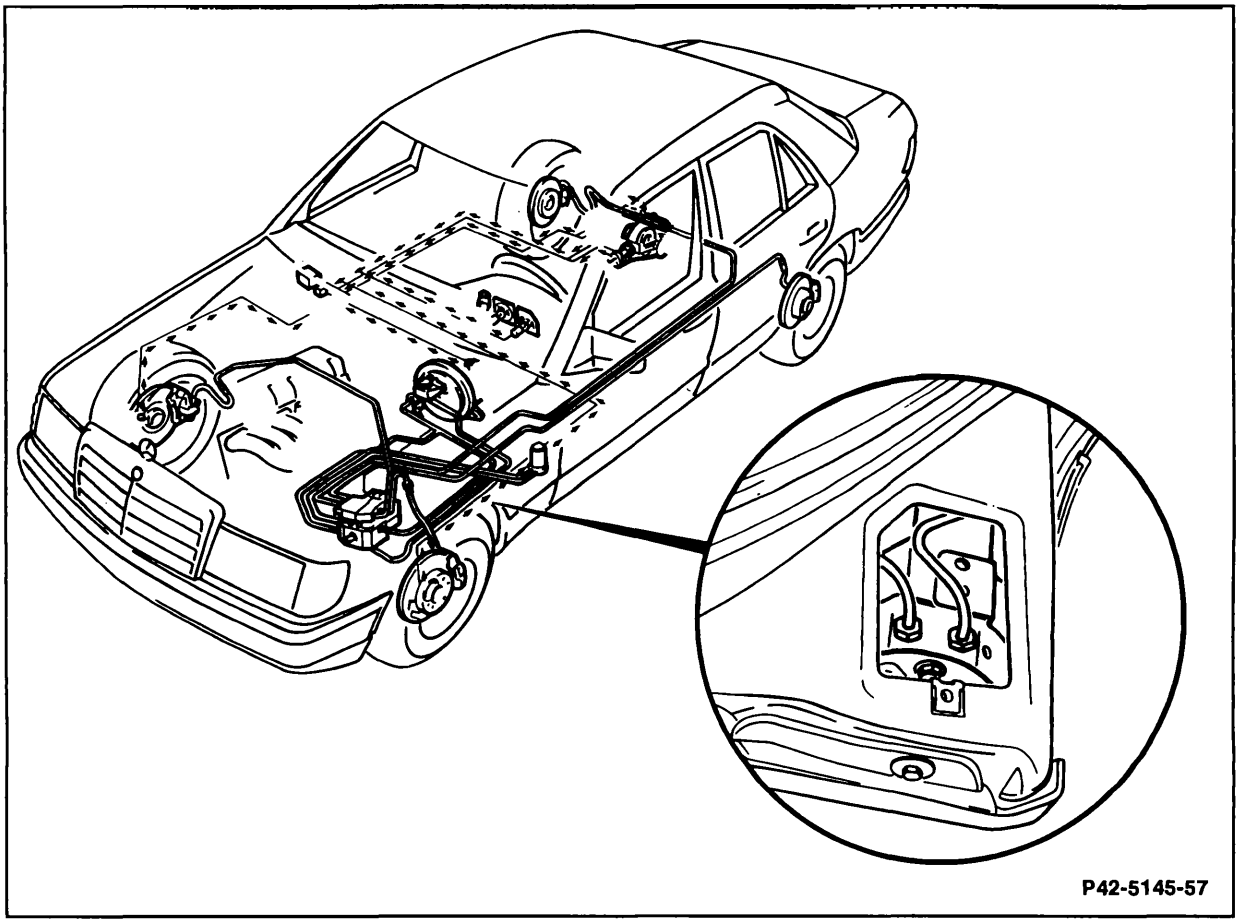
Vehicles with 4MATIC

Check condition of all lines and hoses. Check for chafe marks and proper routing.



Vehicles with ASD

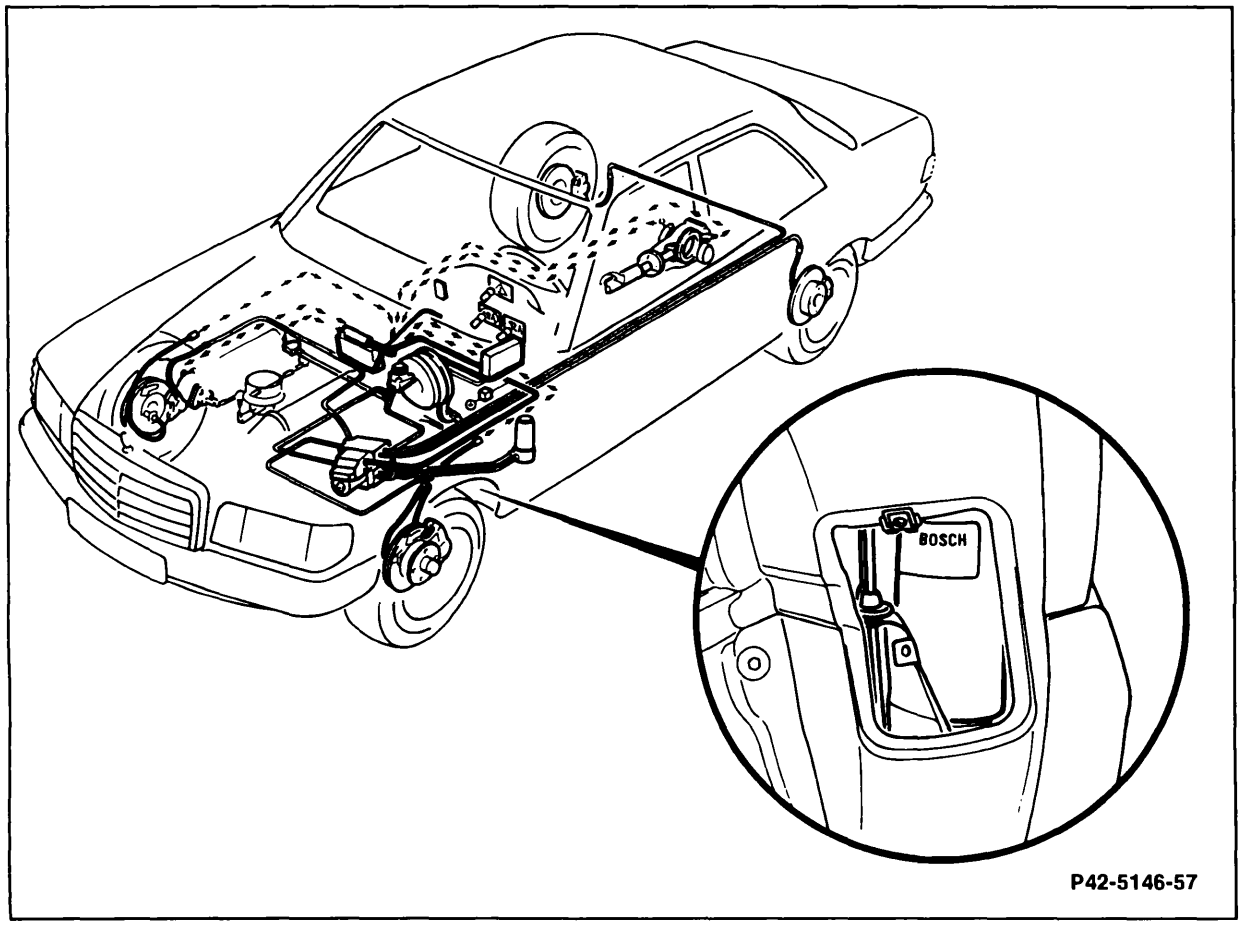
Check condition of all lines and hoses. Check for chafe marks and proper routing.



Vehicles with ASRII
Models 124, 201
Vehicles with ASRIII
Models 124.034/036

- Inspect lines and charging pump. Inspect pressure reservoir through opening in plastic cover under left front fender.

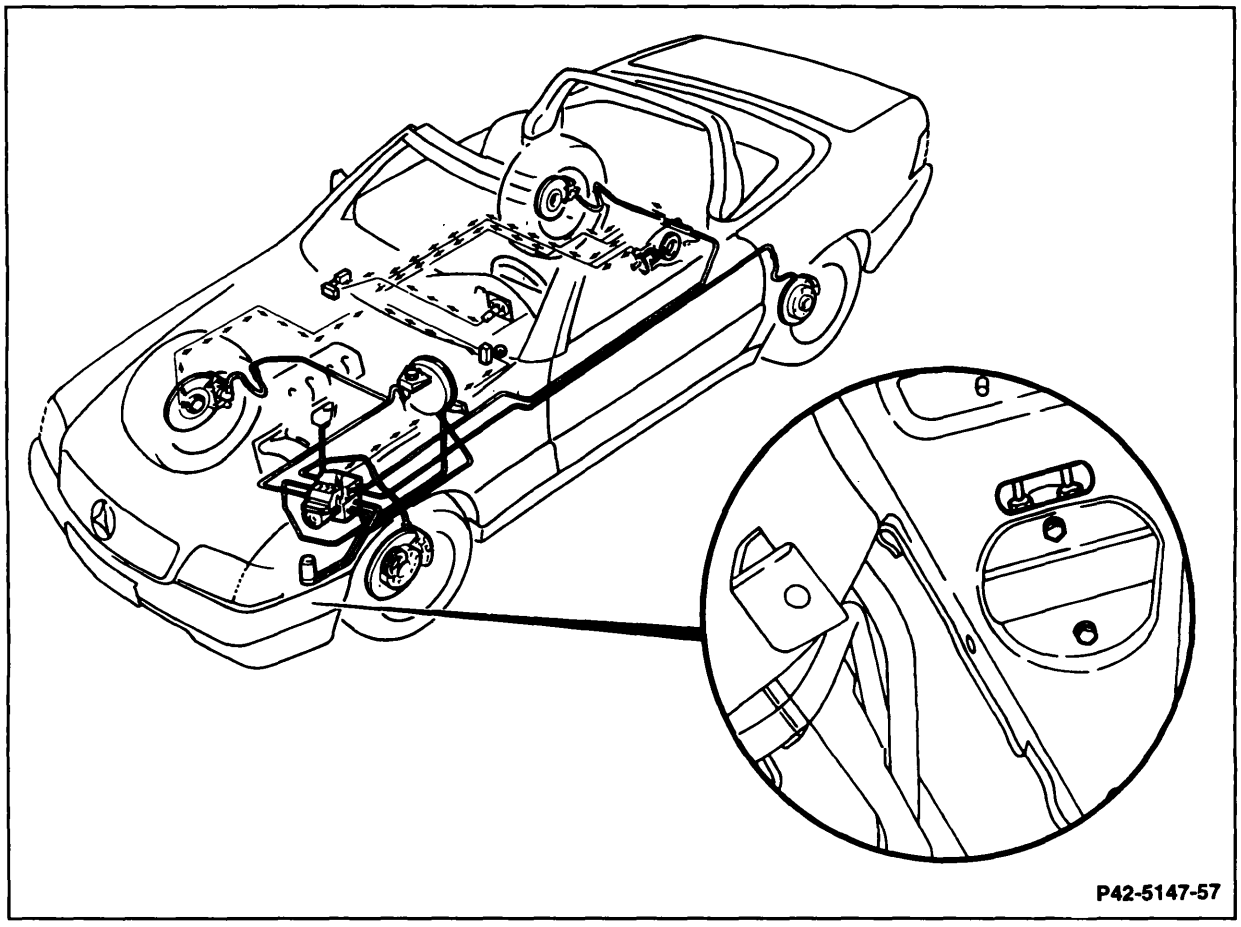
Check condition of all lines and hoses. Check for chafe marks and proper routing.



Vehicles with ASRII
Model 126

- Inspect lines and charging pump. Inspect pressure reservoir through opening in plastic cover under left front fender.

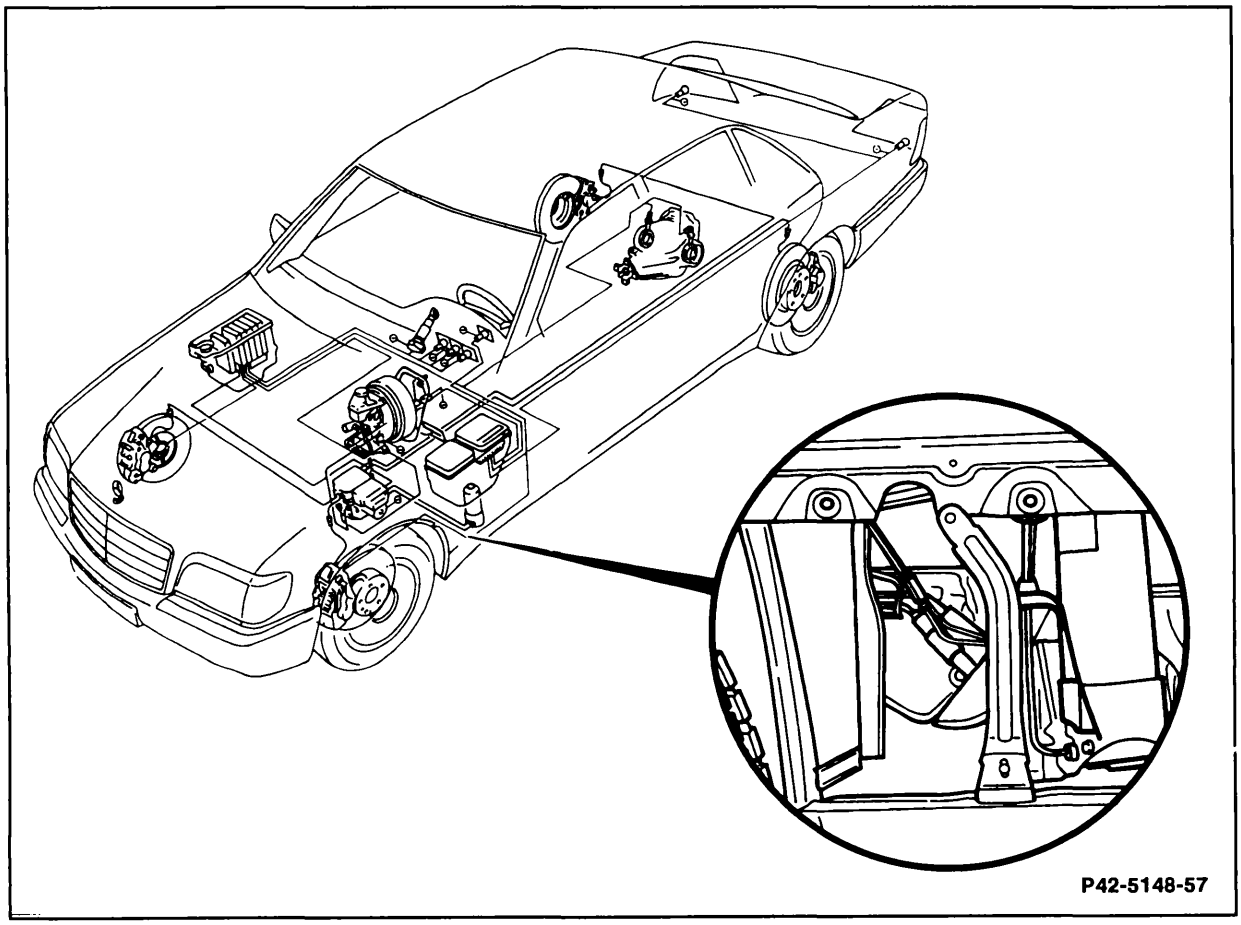
Check condition of all lines and hoses. Check for chafe marks and proper routing.



Vehicles with ASRII
Model 129

- Inspect the pressure reservoir connections from underneath the vehicle through opening in engine compartment left side wall.

Check condition of all lines and hoses. Check for chafe marks and proper routing.

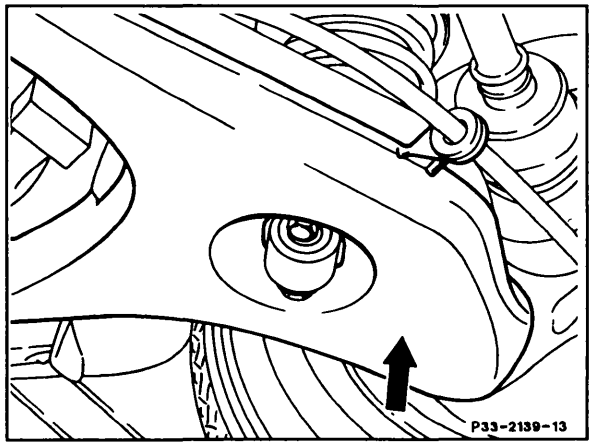


Vehicles with ASRIII
Model 140

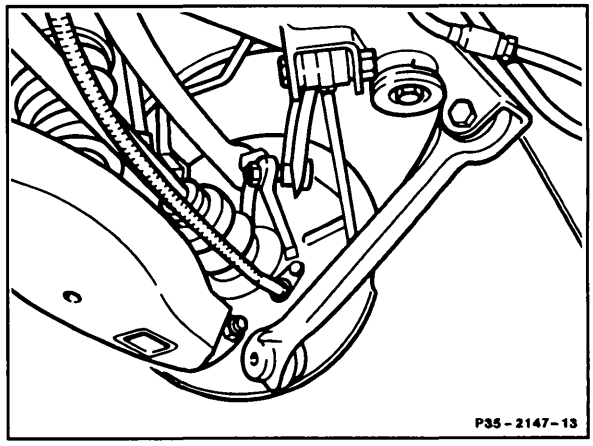
- Inspect the pressure reservoir connections by removing left front fender lower side panel.

Check the following for damage and corrosion:

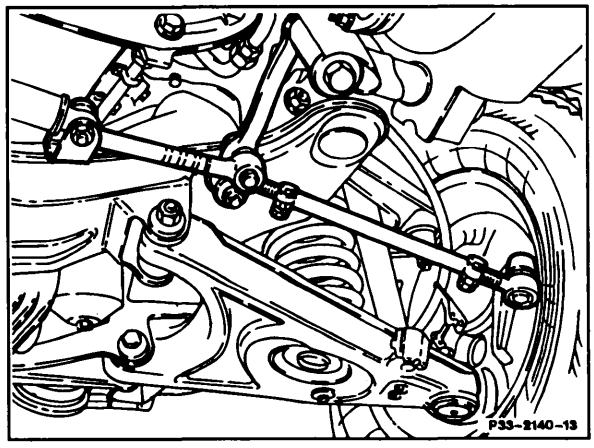
- Rear suspension control arms (semi-trailing arm suspension).



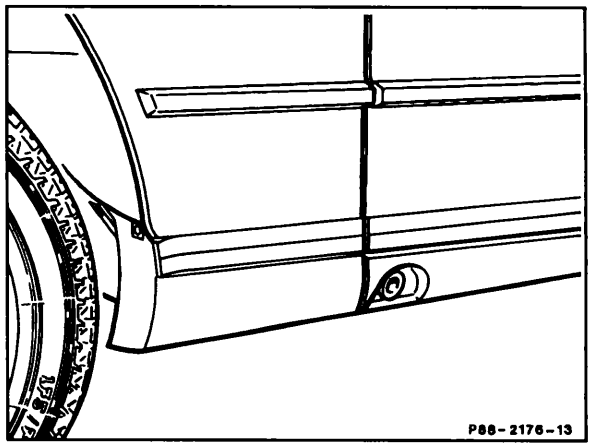
- Rear suspension links (multi-link suspension).



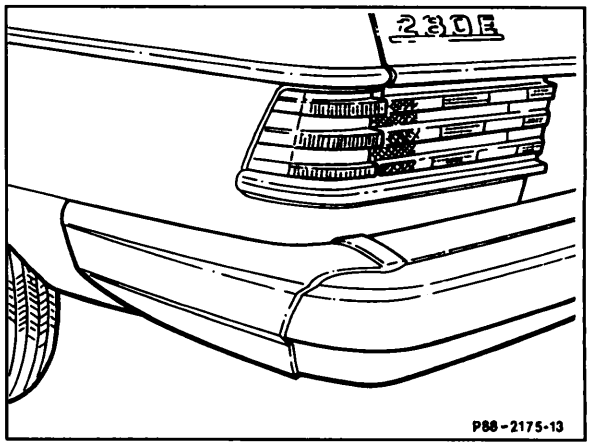
- A-arms and bushings.



- Rocker panel.



- Bumper and mounting on body.



Engine 102.983
Adjust valve clearance on separate order only

Adjusting specifications in mm

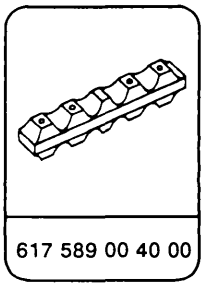
	Cold engine (up to 50°C coolant temperature)	Warm engine (60-80°C)
Intake	0.10-0.20	0.15-0.25
Exhaust	0.25-0.35	0.30-0.40

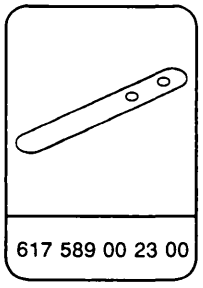
[1]) 0.05 mm more during extended ambient temperatures below -20°C.

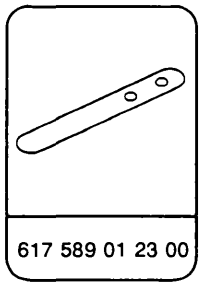
Torque specifications (Nm)

Cylinder head cover cap nuts	9
Screws, ignition cable cover	20-40

Special tools


617 589 00 40 00


617 589 00 23 00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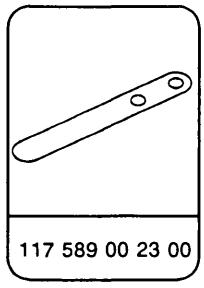
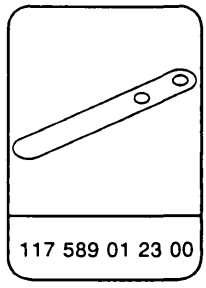

117 589 00 23 00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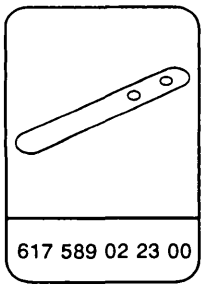
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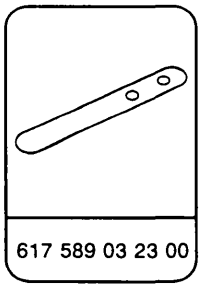
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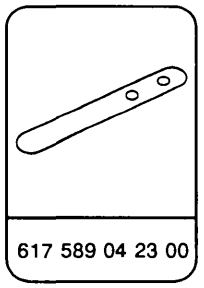
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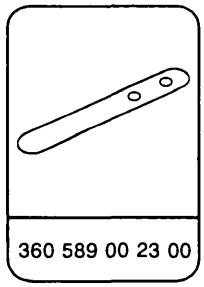
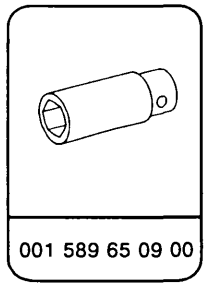
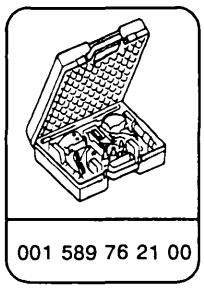
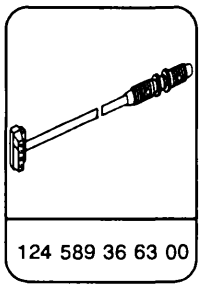

360 589 00 23 00


001 589 65 09 00

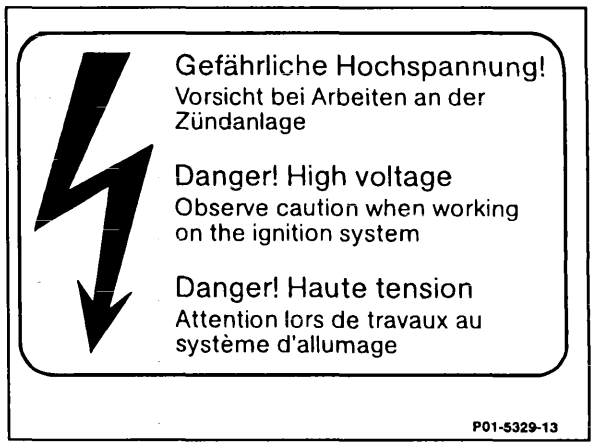

001 589 76 21 00


124 589 36 63 00

⚠ WARNING!

Because of the high ignition voltage, it is dangerous to touch ignition components (ignition coil, ignition cables, spark plug connector, module push connectors) when

- the engine is running,
- the engine is being started,
- the key in in position 2 while the engine is being turned manually.

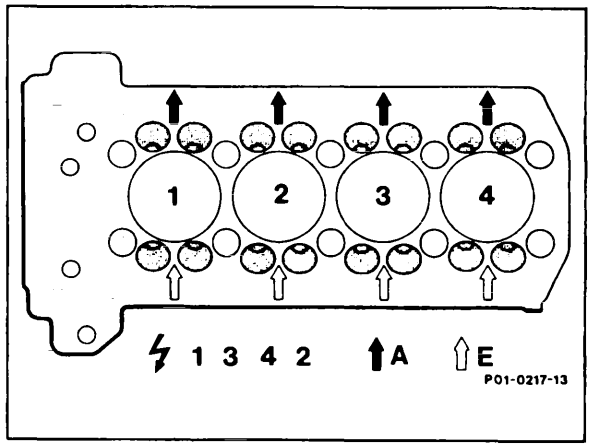


NOTE:

Check valve clearance with engine cold or warm.

Note layout of intake and exhaust valves.

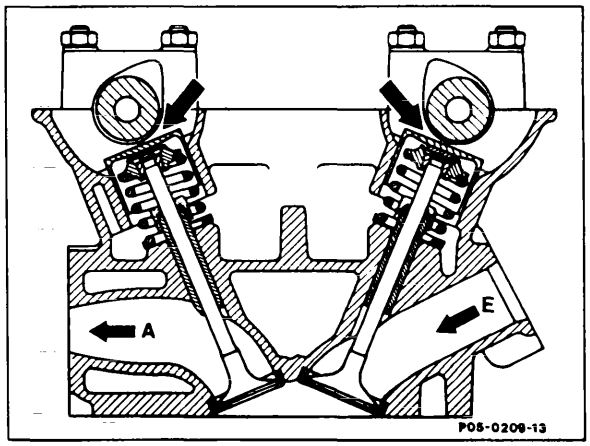
E = Intake
A = Exhaust



Measure valve clearance between bucket tappet and cam base circle (arrows).

Turn the camshaft in such a way that the cam points up (base circle on bucket tappet).

Valve clearance is set correctly if the feeler gauge blades, minimum or maximum thickness, can be pulled through with some resistance (e.g., intake with cold engine, feeler gauge blade 0.10 or 0.20 mm).



Turning the engine crankshaft:

a) By hand
Use socket wrench adaptor (27 mm, 1/2" drive) and ratchet, on the vibration damper bolt.

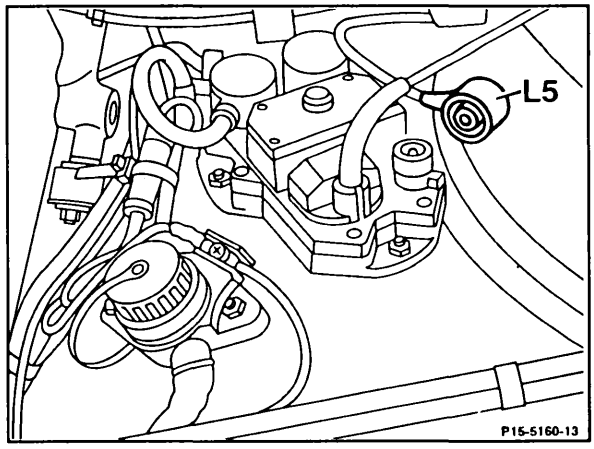
⚠ **CAUTION!**
The engine must **not** be turned via the camshaft.

Do not turn crankshaft backwards.

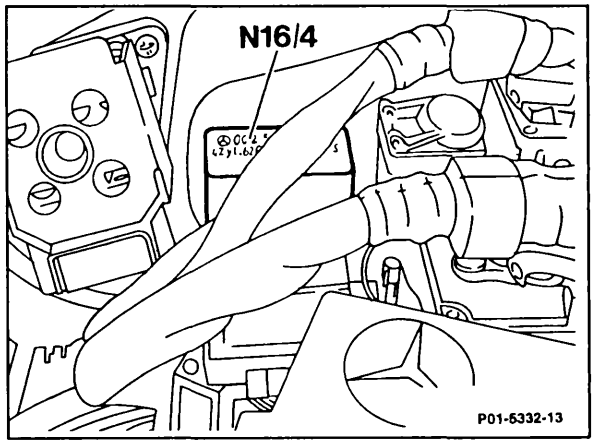
After turning off ignition, disconnect crankshaft position sensor (L5, green cable) from ignition control module.

b) With starter:

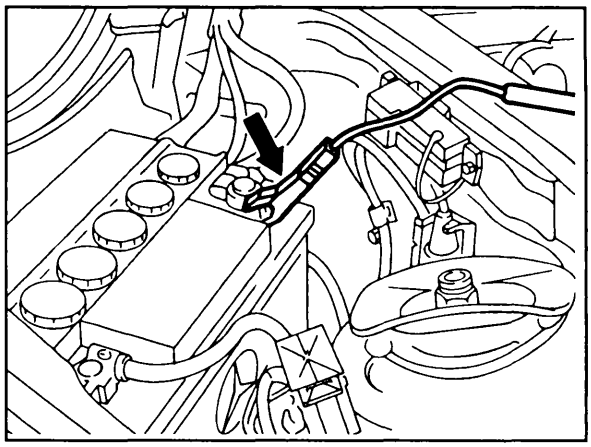
Disconnect crankshaft position sensor (L5, green cable) from ignition control module.



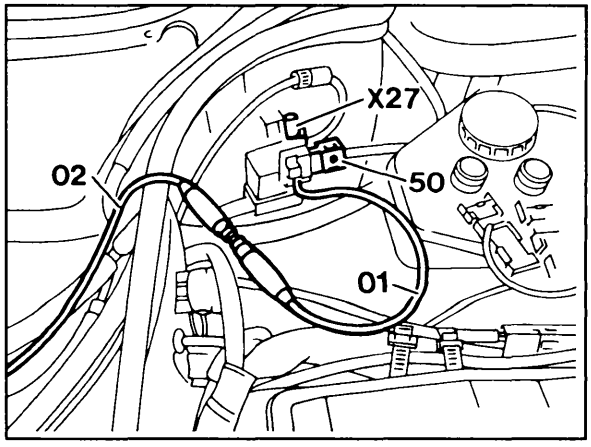
⚠ **CAUTION!**
Before turning engine, pull out fuel pump relay module (N16/4), to prevent fuel from being injected.



Connect once clamp of remote starter switch to the battery positive terminal.



Disconnect connector (X27) from plug connector 50. Connect plug from adapter cable (01) 124 589 36 63 00.

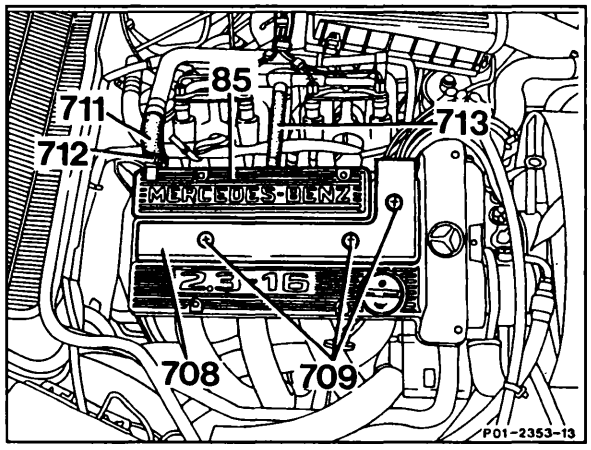


Checking

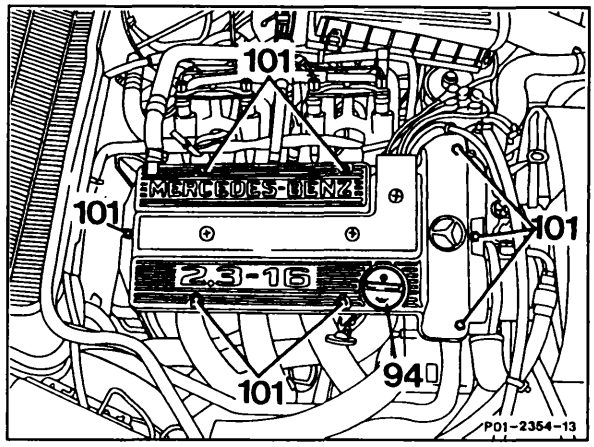
- Remove cylinder head cover.

Remove securing screws (709), remove ignition cable valley cover (708), pull off the spark plug connectors and lay the ignition cable to the side.

Loosen hose clamp (712) and pull off the hoses (711 and 713) on the cylinder head cover (85).



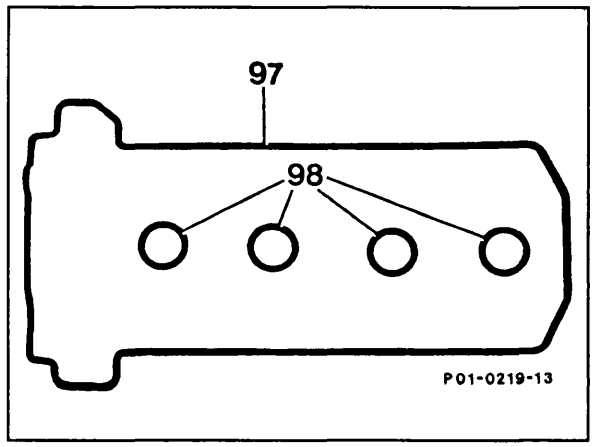
- Remove cap nuts (101) and remove cylinder head cover.



- According to engine temperature and valve (intake or exhaust), try to pull the corresponding feeler gauge blade (minimum and maximum thickness) between the bucket tappet and the cam base circle.

  If the feeler gauge with the minimum thickness cannot be pulled through, or if the feeler gauge blade with the maximum thickness can be pulled through lightly, adjust the valve clearance (on separate order).

- Check cylinder head cover gasket (97) and sealing rings (98) for damage and replace if necessary.

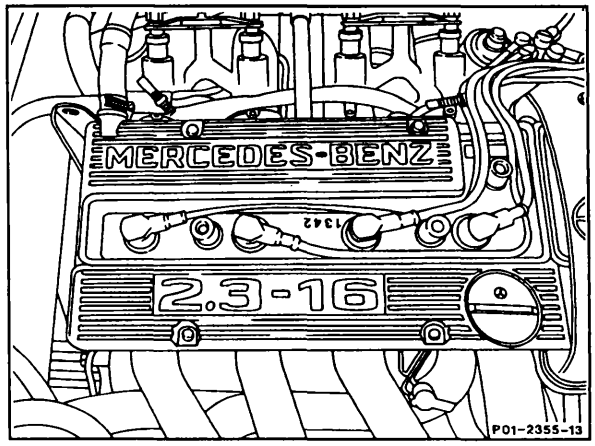


- Replace cylinder head cover in reverse order of its removal. Gradually tighten cap nuts in steps to 9 Nm.

- Route ignition cable according to the symbols and guide ribs in the ignition cable valley.

Note: Check the valleys for foreign matter before the spark plug connectors are reattached.

- Check for leaks with engine running.

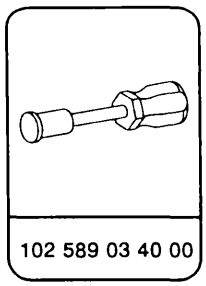


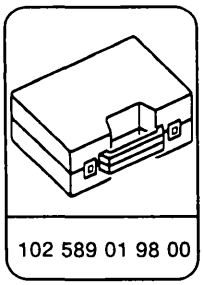
Note the following when adjusting valve clearance

Torque specifications (Nm)

Nuts, camshaft bearing brackets	21
Bolts, timing gear to camshaft	12

Special tools

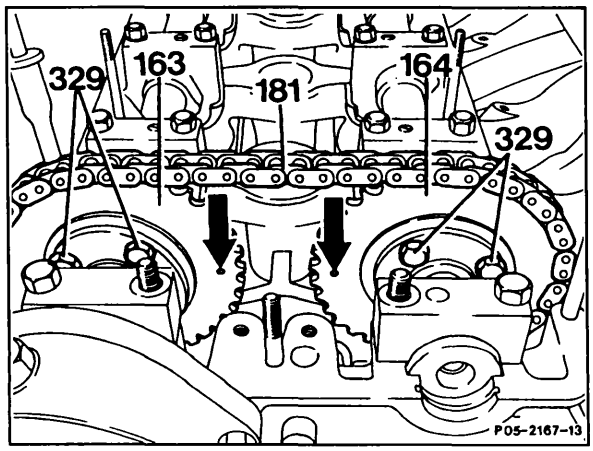

102 589 03 40 00


102 589 01 98 00

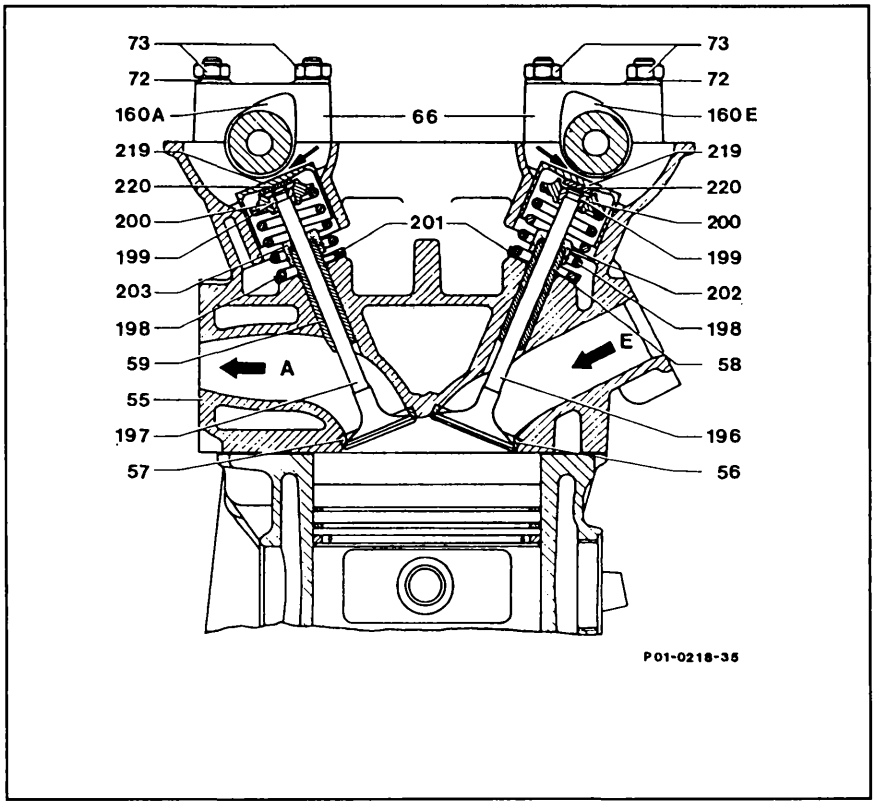
Adjusting

- Remove appropriate camshaft.

Turn the engine to the TDC position of the first cylinder; the holes (2 mm, arrows) in the timing gears must be opposite each other. Mark the camshaft and timing gear for alignment. Remove retaining screws (329, four for each timing gear). Using a plastic mallet, carefully tap the camshaft toward the rear to separate it from the timing gear center collar.



NOTE: If both camshafts are taken out at the same time, mark each for later identification because they are identical.



- Unscrew fastening nuts (73) and take off bearing brackets (66).
- Pull out the corresponding bucket tappet (219) with the magnetic lifter.
- Take out disk (220).
- Position new disk.

Example (intake, engine cold)

Measured value Desired average value	0.25 0.15
Difference [1] Thickness of removed disk	0.10 2.8
Thickness of disk to be installed	**2.9**

[1]) If valve clearance is excessive, add the difference to the thickness of the removed disk; if valve clearance is too small, subtract the difference.

With an intake valve clearance of less than 0.10 mm always put in a 0.10 mm thinner disk.

- Set disks in the valve spring retainer.
- Oil and install bucket tappets.
- Oil and install camshaft.

Before tightening the camshaft on the timing gear, carefully tap the camshaft toward the front on the center collar of the timing gear with a plastic hammer. Observe previously inscribed alignment marks.

NOTE: The camshaft can be secured to the timing gear in only one position.

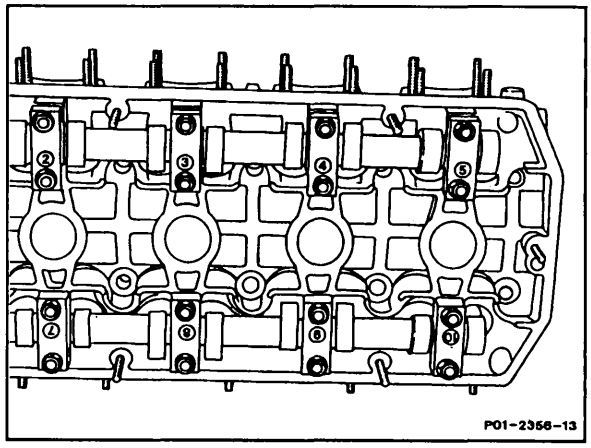
The camshaft bearing brackets are numbered for identification:

Intake camshaft identification numbers 7-10.
Exhaust camshaft identification numbers 2-5.

The stamped identification numbers must be adjacent to the inside stud bolts.

Tighten all nuts equally, in steps.

- Check the valve clearance again (check measurement).



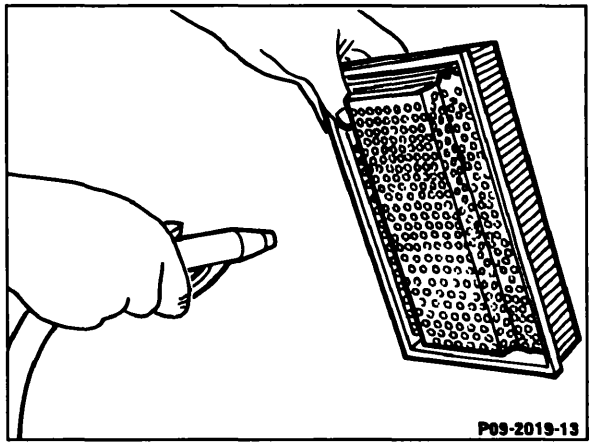
Cleaning metal-reinforced air filter element

Diesel engines

Note: Under severe operating conditions, such as poor road conditions resulting in substantial dust deposits in the air cleaner, the air filter element is to be cleaned at every maintenance service. **This applies only to filter elements reinforced with perforated metal.** Filters without the perforated metal reinforcement should be **replaced, not cleaned.**

Cleaning

Using no more than 5 bar pressure, blow compressed air through the element from the reinforced side, holding the nozzle about 20 cm away from the perforated metal.



Caution! Never blow directly into the folds of the filter since this can tear the element resulting in unfiltered air entering the engine. Do not wash, beat out, or oil the filter element.

Clean the air filter housing and cover.

Check whether filter element sealing compound is damaged and replace element, if necessary.

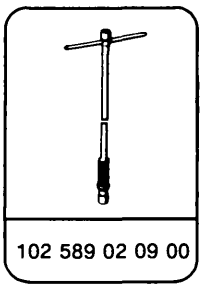
Check whether air filter cover seal is damaged and replace, if required.

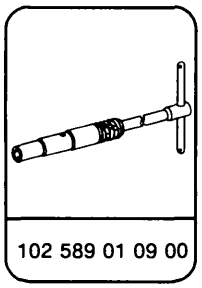
Carefully install air filter element and note that the rubber seals are installed correctly.

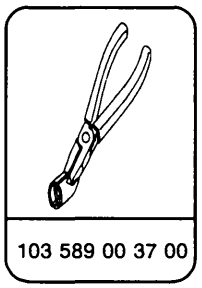
Gasoline engines

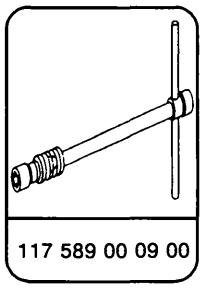
Torque specifications	Nm
Spark plugs with taper seat	10-20
Spark plugs with gasket	25-30

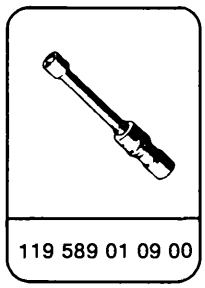
Special tools


102 589 02 09 00


102 589 01 09 00


103 589 00 37 00


117 589 00 09 00


119 589 01 09 00

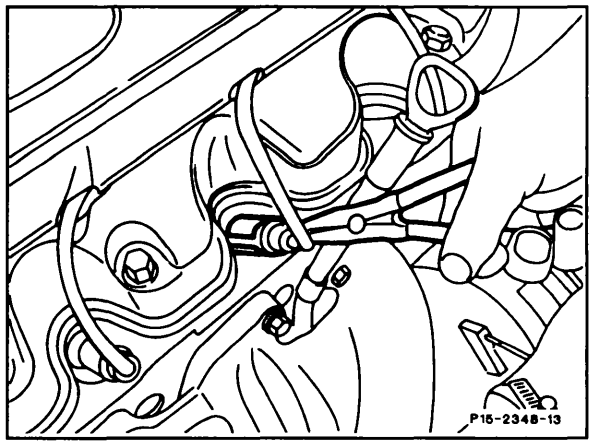
Engines 102.983, 104, 119

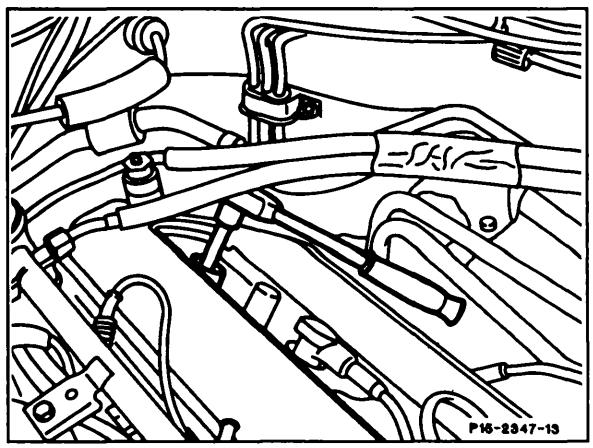
- Remove spark plug valley cover.

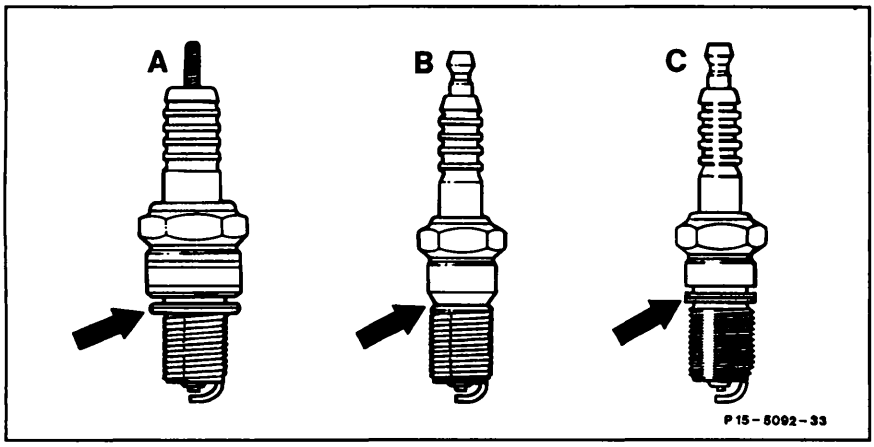
All engines

- Twist spark plug connector slightly and pull off using special tool 103 589 00 37 00.

- Blow out recesses with compressed air.







A flat seat (A)
B tapered seat (B)
C flat seat (C)

CFI fuel injection

Motor	Spark plug seal	Spark plug wrench
102, 103	Tapered seat (B)	102 589 01 09 00
104, 119	Flat seat (C)	120 589 02 09 00 1)
116, 117	Flat seat (A)	117 589 00 09 00

1) Insert commercially available torque wrench

LH-SFI fuel injection

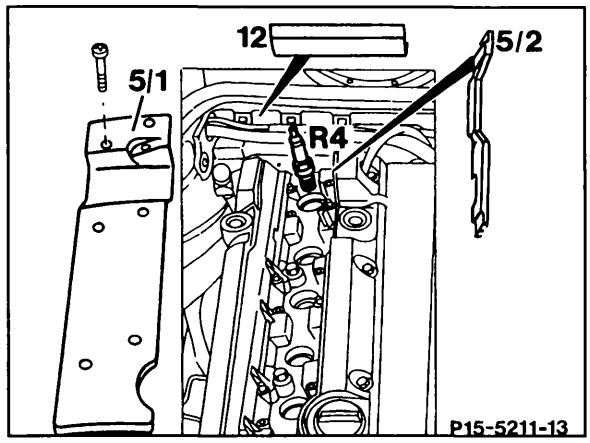
Motor	Spark plug seal	Cylinder	Spark plug wrench
104	Flat seat (C)	all	119 589 01 09 00
119	Flat seat (C)	1–3 and 5–7	120 589 02 09 00 1)
		4 and 8	119 589 01 09 00
120	Flat seat (C)	1–5 and 7–12	120 589 02 09 00 1)
		6	119 589 01 09 00

1) Insert commercially available torque wrench

Spark plug cover, removal and installation

Engine 104 HFM-SFI
Remove air cleaner crossover duct, wiring cover, ignition cable cover (5/1), and guide rail (5/2).

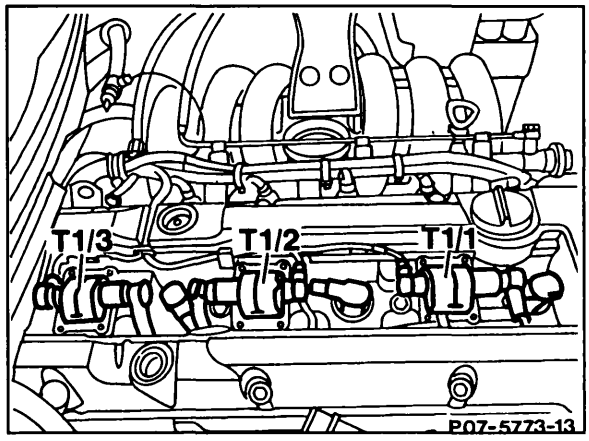
Installation is in the reverse order of removal.



Ignition coils, removal and installation

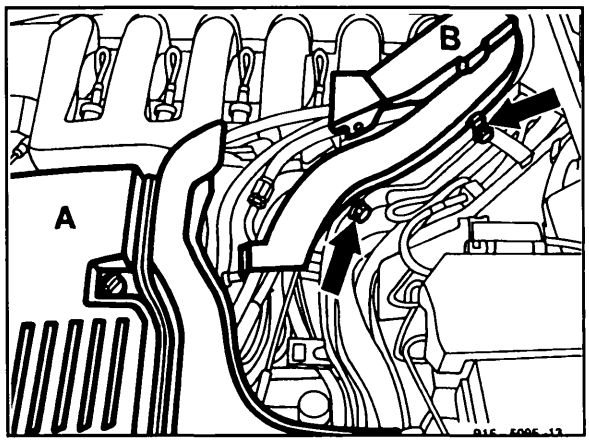
Engine 104 HFM-SFI
Remove ignition coils and cables with associated wiring.

Installation is in the reverse order of removal.



Partial removal of wiring conduit

Engine 120
Pull weatherstripping off partially. Remove covers for ignition control module (A) and for wiring harness (B).
Remove screws for wiring conduit.
Disengage wiring conduit and push forwards.



All models

> ⚠ **WARNING!**
> Open expansion tank/radiator cap **only** at coolant temperatures **below 90°C.**

Specified coolant mixture:

(Antifreeze protection to approx. -37°C)
50% water
50% antifreeze and anti-corrosion protection.
Do not use additives.

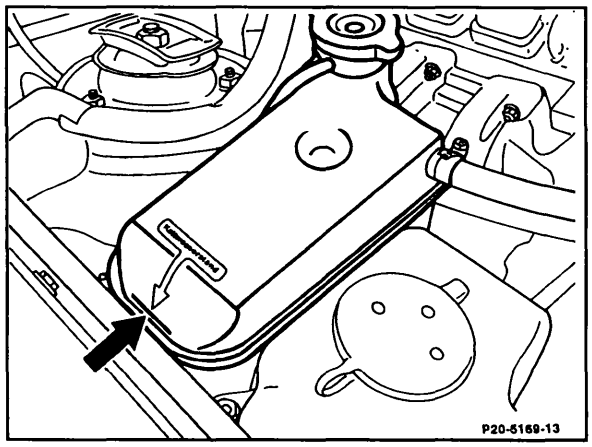
Check concentration of antifreeze/anti-corrosion protection. Top up only on separate order.

The corrosion protection/antifreeze protection should not drop below 40% by volume (corresponding to antifreeze protection to approx. -25°C), since with too low a proportion, corrosion protection becomes inadequate.
Use only approved antifreeze. Refer to Factory Approved Service Products list.

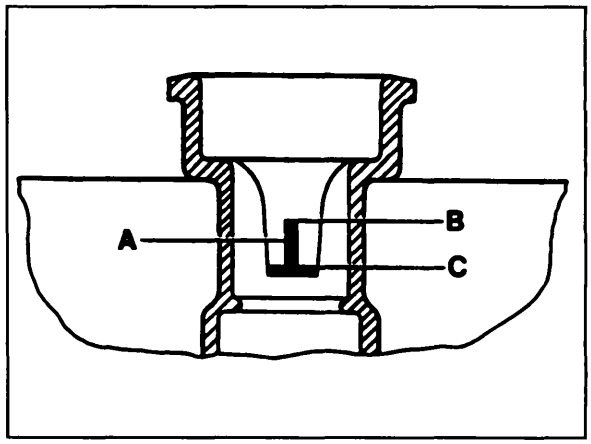
- With coolant loss not caused by normal use determine the cause and repair on separate order.
- Opening: Turn cap only to first detent to release excess pressure.
- Turn cap to second detent and remove cap from expansion tank /radiator.

Coolant level should be as follows:

- With cold coolant, up to mark on tank (arrow).
- With warm coolant approx. 1 cm above mark.



- On vehicles without separate expansion tank, up to marks as illustrated.



Vehicles without coolant reservoir

A Filling mark
B Coolant warm
C Coolant cold

Model 107 starting 08.1985
124
126 starting 09.1985
129
140
201 starting 01.1985

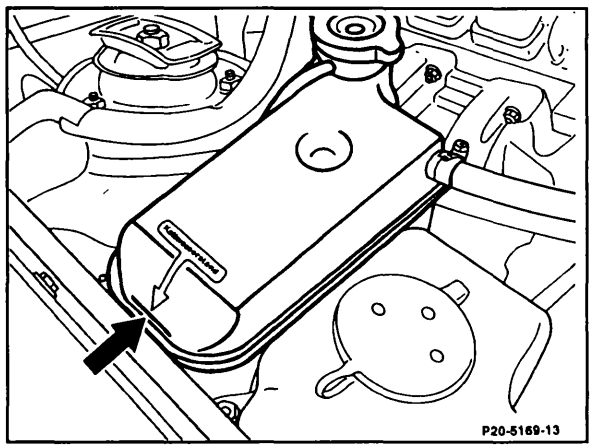
⚠ **Warning!**

Open the expansion tank/radiator cap **only** at coolant temperatures **below 90°C**.

- Opening: Turn cap only to first detent to release pressure.
- Turn cap to second detent and remove cap from expansion tank/radiator.

Coolant level should be as follows:

- Up to mark printed on tank (arrow).
- With warm coolant approx. 1 cm above this mark.



- If coolant loss is excessive, determine the cause and repair on separate order.

All models

On separate order

Total capacity of cooling system and ratio of antifreeze to water in liters

Model	Engine	Total capacity of cooling system incl. heater	Antifreeze protection to -37°C (50 Vol. -%)	Antifreeze protection to -45°C (55 Vol. -%)
107	116.96	12.5	6.25	7
	117.96	13.5	6.75	7.5
123	110, 616	10	5	5.5
	617.91	11	5.5	6
	617.95	12.5	6.25	7
124	103, 104, 602.96	9.5	4.75	5.25
	119	15.5	7.75	8.5
	603.96	10	5	5.5
126	103	8	4	4.4
	116.96	12.5	6.25	7.5
	117.96	13.5	6.75	7.5
	603.96/97	10	5	5.5
	617.95	12	6	6.5
129	104	11.5	5.75	6.3
	119	15	7.5	8.25
	120	15.5	7.75	8.5

Model	Engine	Total capacity of cooling system incl. heater	Antifreeze protection to -37°C (50 Vol. -%)	Antifreeze protection to -45°C (55 Vol. -%)
140	104	14.5	7.25	8
	119.970/971	16.5	8.25	9
	120	18.5	7.75	10.25
	603.96	10	5	5.5
201	102.961/985 601.921	8.5	4.25	4.75
	103.942	9.5	4.75	5.25
	102.983 602.911/961	8	4	4.5

Torque specifications (Nm)

Radiator drain plug, model 107 (w/o light alloy radiator)	6-10
Radiator drain plug, model 107 (w/ light alloy radiator), model 123, 124, 126, 129, 201	1.5-2 [1]

[1]) This torque can be achieved using a washer or coin.

Coolant

Coolant composition

50% by volume of water
50% by volume of corrosion protection/antifreeze agent.

Water

Use clean water that is not too hard. Usually, though not always, tap water meets these requirements. The dissolved substances in the water can contribute to corrosion. If in doubt, have the water analyzed.

Corrosion protection/antifreeze

Corrosion protection/antifreeze must provide the following:

- Adequate corrosion and cavitation protection for all components
- Antifreeze protection
- Higher boiling point.

Approx. 50% by volume of antifreeze must be added to the water. This concentration provides antifreeze protection down to approx. -37°C.

A higher concentration is only practical with even lower ambient temperatures.

Exceeding 55% by volume of corrosion protection/antifreeze agent reduces the antifreeze protection as well as the heat dissipating ability of the coolant.

55% by volume of corrosion protection/antifreeze agent proves antifreeze protection down to approx. -45°C.

Corrosion protection/antifreeze increases the boiling point, i.e. the coolant does not vaporize as rapidly. At high coolant temperatures, coolant boil over is avoided.

Use only approved corrosion protection/antifreeze.

Checking coolant in service

Before the start of the cold season, check the coolant for antifreeze protection.

In countries with high ambient temperatures, check corrosion protection/antifreeze concentration in coolant once a year.

When refilling (after coolant loss), ensure that the coolant contains 50% by volume of corrosion protection/antifreeze (protection down to -37°C).

The corrosion protection in the coolant diminishes during operation. The coolant then has a corrosive effect.

Thee coolant should be used for a maximum of **3 years.**

Before adding in new coolant, flush the old coolant from the cooling system.

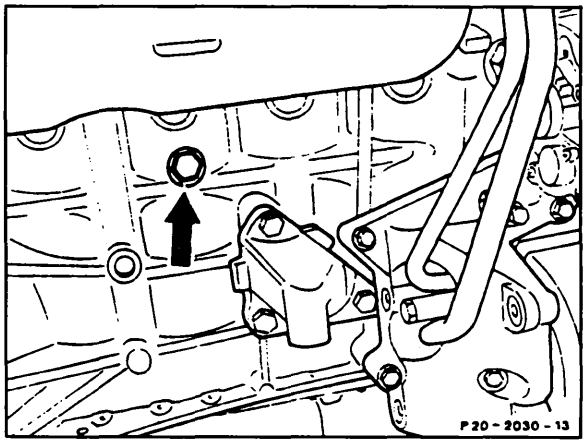
For draining and filling of coolant, see repair instruction 20-010.

Disposal of coolant

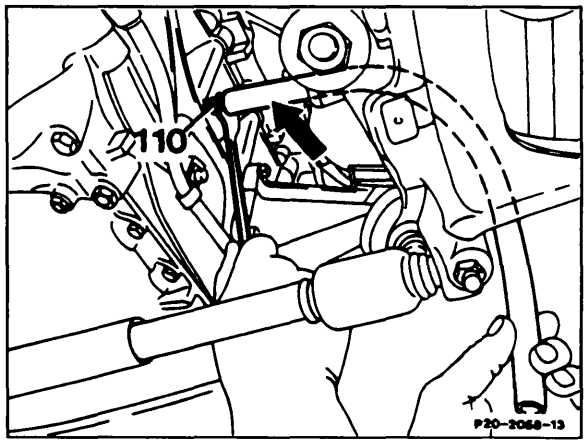
Old coolant must be disposed of according to local laws and waste water or environmental regulations.

Engine block coolant drain locations

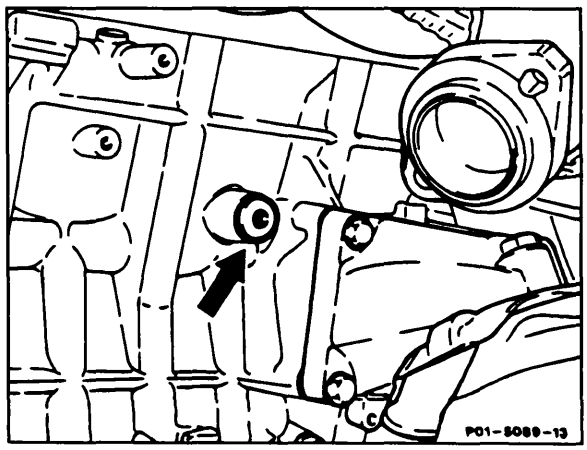
Engine 110	Right side of engine block to rear of engine mount bracket.
Engine 116, 117, 119	Right plug is forward of RH engine mount; left plug is forward of LH engine mount.
Engine 616, 617	Right side of engine block to rear of engine mount bracket, forward of starter.



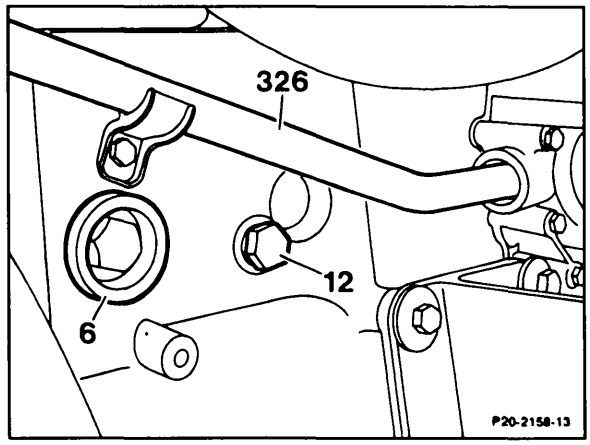
Engine block coolant drain, engine 102



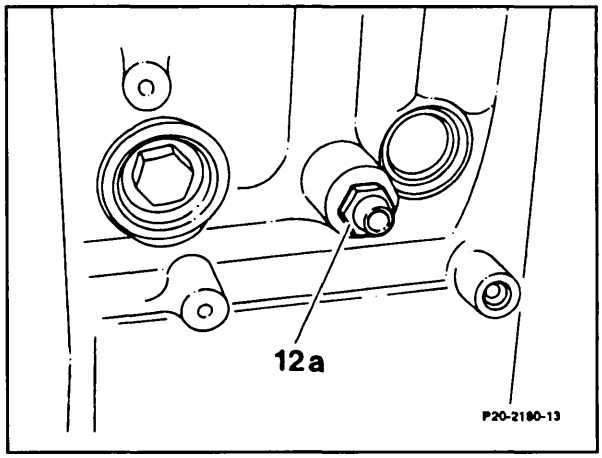
Engine block coolant drain (110) with drain hose attached, engine 103, 104



Engine block coolant drain, engine 120



Engine block coolant drain (12), engine 601

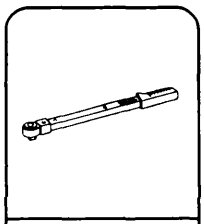


Engine block coolant drain (12a), engine 602, 603

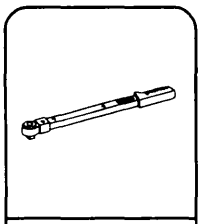
Engine 616 617.91

Torque specifications	Nm
Adjusting bolt (2) on front engine stop	130
Adjusting bolt (11) on rear engine mount	30

Special tools



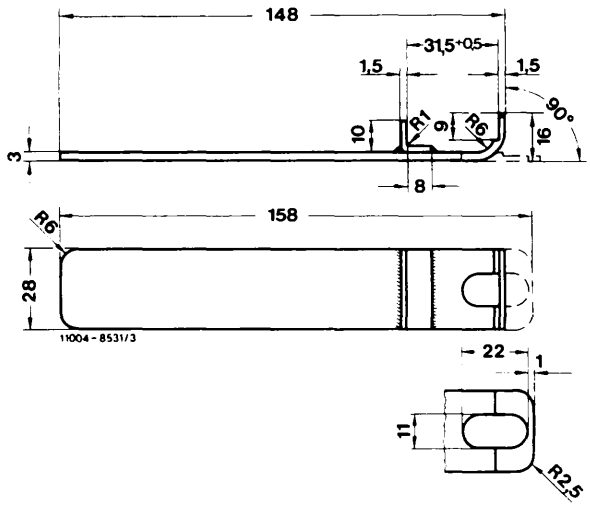
001 589 66 21 00

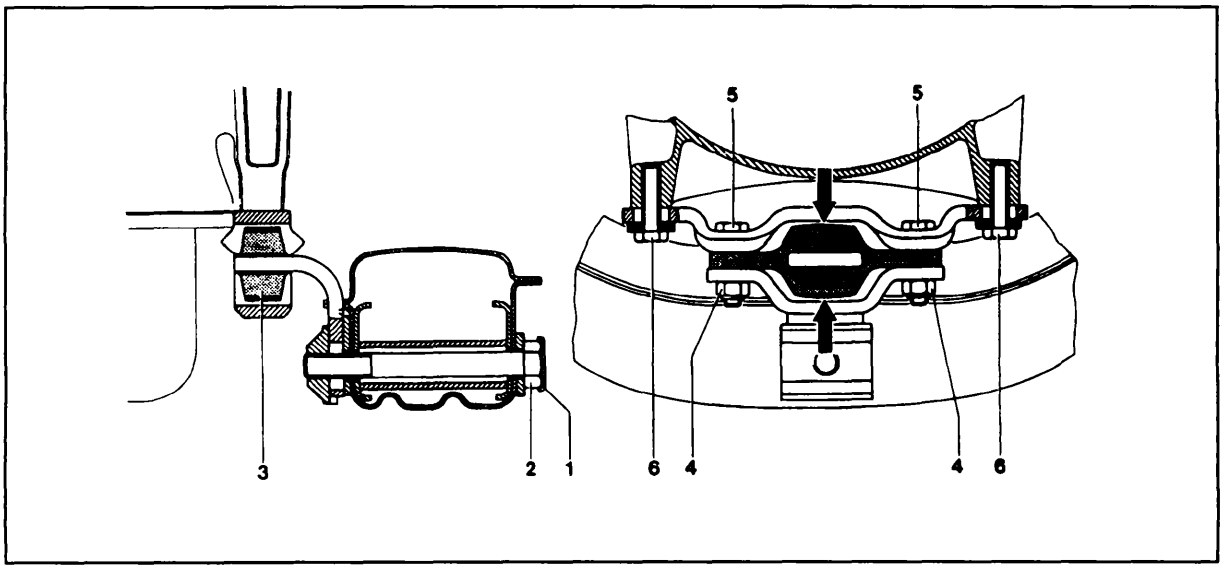


001 589 67 21 00

Locally fabricated tools

Gauge for adjusting front engine stop





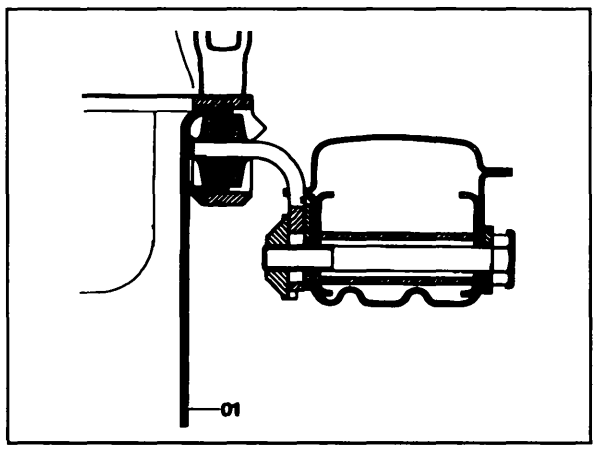
Front engine stop

Note: The vehicle weight must rest on the suspension.

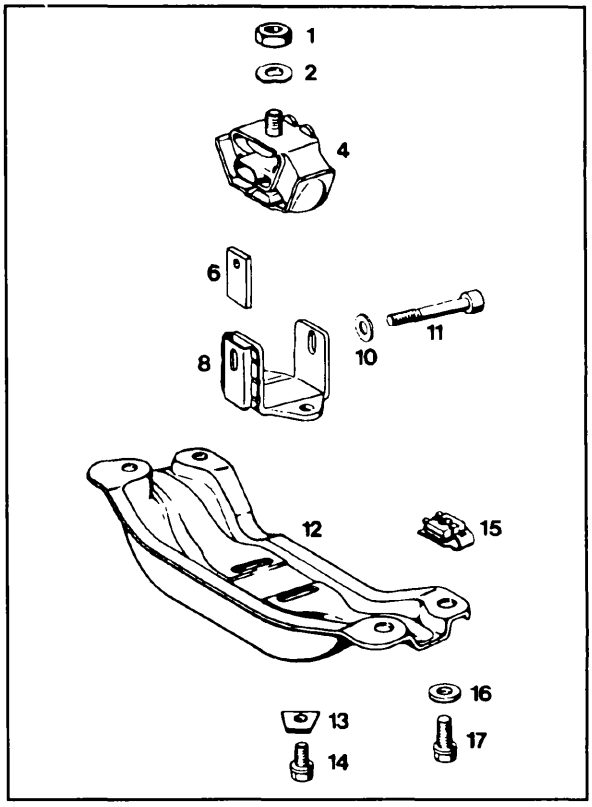
On engine 617.91 loosening and retightening of bolts on front engine stop is not required.

- Turn steering wheel to full lock, either right or left.
- Lift lock (1) on front engine stop and move aside. Completely loosen adjusting bolt (2). Make sure that engine stop is not stuck to frame crossmember due to wax or paint.

- Completely loosen adjusting bolt (11) on rear engine mount.
- Place fabricated gauge (01) on front engine stop.
- Shake engine from side to side by hand.



- Tighten adjusting bolt (11) on rear engine mount.
- Tighten adjusting bolt (2) on front engine stop and secure with lock (1).
- Remove fabricated gauge.

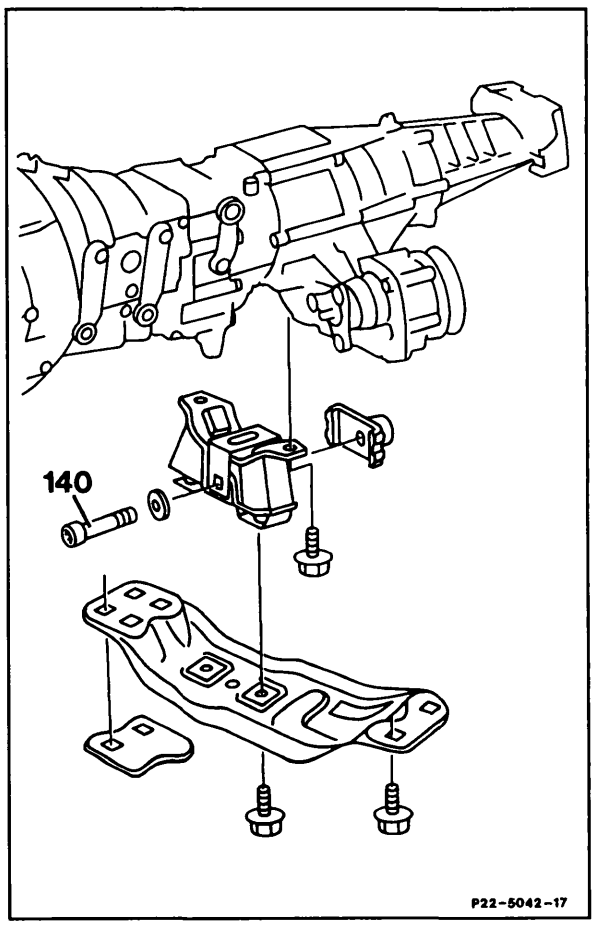


Rear engine mount with engine stop
Version: 4 & 5 cylinder models with automatic transmission

Engine 103 in model 124 with 4MATIC

Torque specifications (Nm)

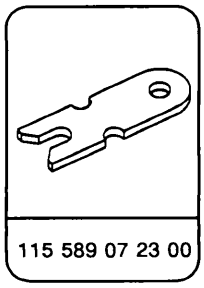
Adjusting screw (140) on rear mount (reference value)	45



- Completely loosen adjusting bolt (140) on rear engine mount.
- Start engine and depress gas pedal several times to rock engine to adjust engine stop.
- Tighten adjusting bolt (140) on rear engine mount to 45 Nm.

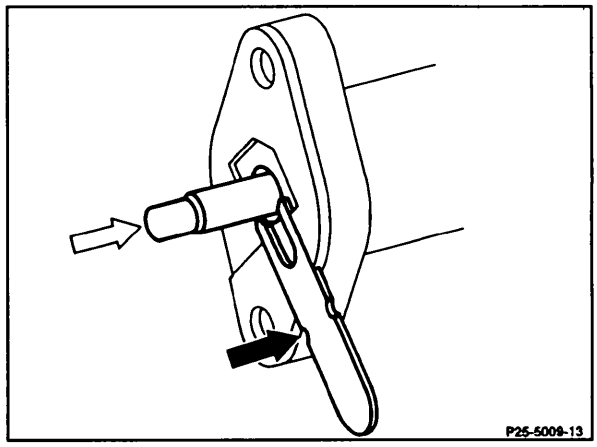
Models 123 124 129 201

Special tools



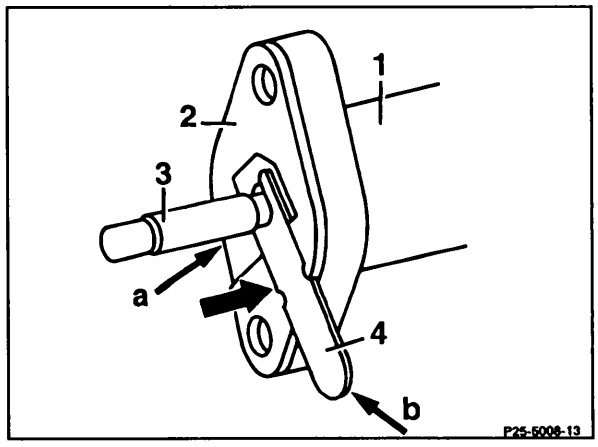
Insert slip gauge as far as possible between clutch housing and slave cylinder and note position of notches (arrow) in gauge.

If notches are not visible:
Clutch disk wear is acceptable.



If notches are visible:
Wear limit of disk **has been reached.**

Replace clutch disk.



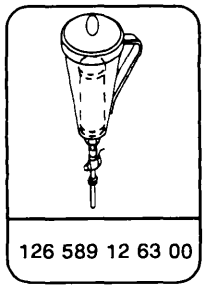
1 Slave cylinder
2 Shim between slave cylinder and clutch housing
3 Actuating rod
4 Slip gauge

All models

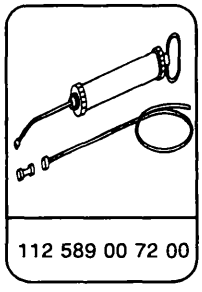
Oil grades

ATF	Refer to MBNA Factory Approved Service Products list

Special tools



126 589 12 63 00



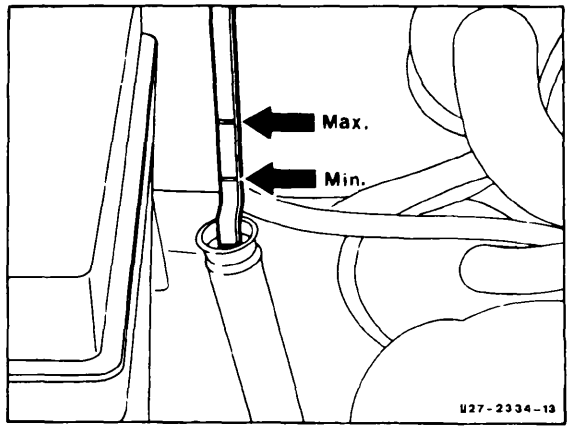
112 589 00 72 00

Note: Too low or too high a fluid level will affect the operation of the transmission. The fluid level should be checked regularly with the dipstick from the engine compartment. When checking fluid level, vehicle should be parked on level surface.

The fluid level varies with fluid temperature. The min. and max. marks on the dipstick are based on a **fluid temperature of 80°C** (transmission at normal operating temperature).

However, at a fluid temperature of 20-30°C the max. oil level will read below the min. mark as follows:

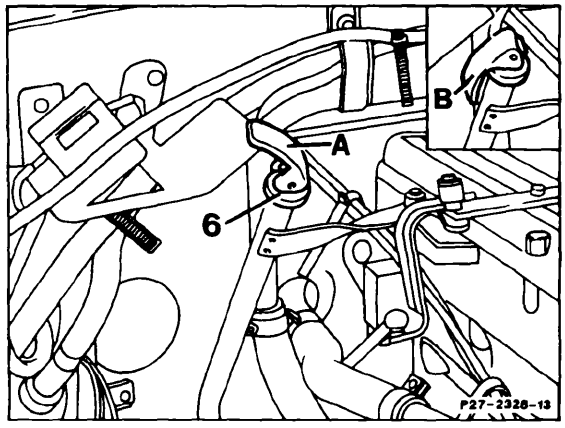
Transmission	722.0	30 mm
	722.1	30 mm
	722.3	10 mm
	722.4	12 mm
	722.5	10 mm



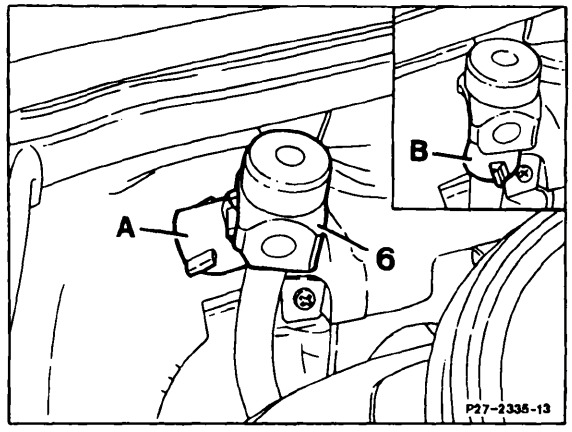
Check

- Apply parking brake.
- Place selector lever in position P.
- Run engine for 1 to 2 minutes.

- Open latch (position A), pull out dipstick (6), wipe with lint free rag (leather is best).
- Insert dipstick fully with latch open, and read fluid level.
- After measuring or correcting fluid level, close latch (position B).

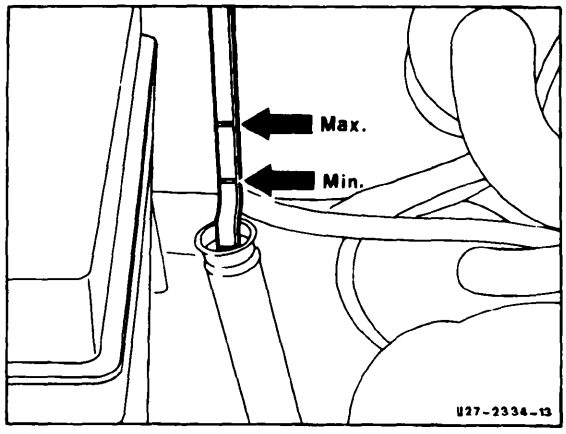


Dipstick latch, transmission 722.0, 722.1



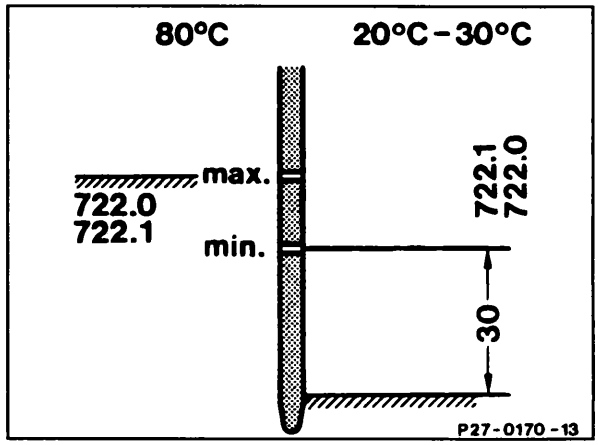
Dipstick latch, transmission 722.3, 722.4, 722.5

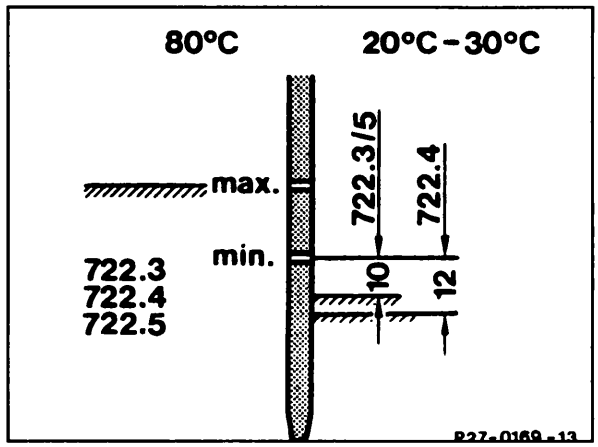
- With the transmission at operating temperature, the oil level should be at the max. mark.



- At a transmission fluid temperature of approx. 20-30°C, the fluid level should be below min. mark, depending on type of transmission (as shown).

If fluid loss is excessive, determine cause and repair on separate order.



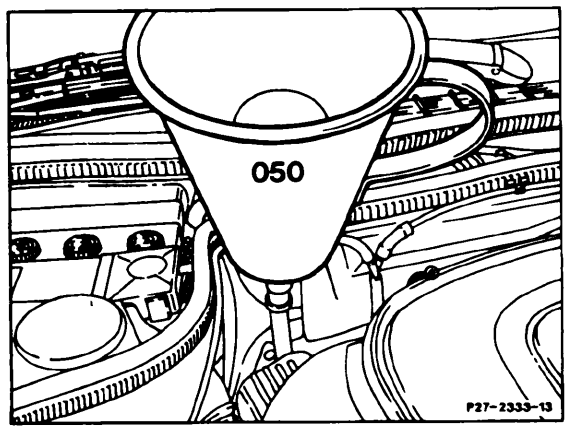


Correcting fluid level

Add necessary amount of fluid through funnel (050) into dipstick tube with engine running.

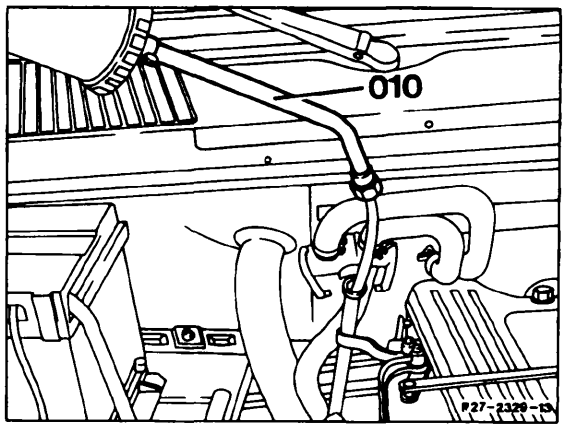
Note: The distance between min. and max. mark on dipstick is approx. 0.3 liter of transmission fluid.

After filling fluid to specified level, apply parking brake. Move selector lever through positions R-N-D-N-R, pausing for a few seconds in each position, and return to P position, to ensure that the operating pistons of the servo members are filled with fluid. Recheck fluid level and correct, if necessary.



If fluid **level is too low**, the pump will draw in air, (which can be heard), causing **foaming** and leading to an **incorrect** fluid level reading. Stop engine and wait until fluid is no longer foaming (approx. 2 minutes). Add fluid and check level.

Be sure to drain or draw off excessive fluid, to avoid excessive churning of the fluid by the gears. This results in excessive temperature increase causing the foaming fluid to be forced out through the breather. Extended operation in this condition will cause transmission damage. The oil cooler flushing syringe (010) with the attached hose can be use to remove excessive transmission fluid.



All models

Check tires for cuts and other damage as well as for objects penetrating the inside walls of tread (outside and inside).

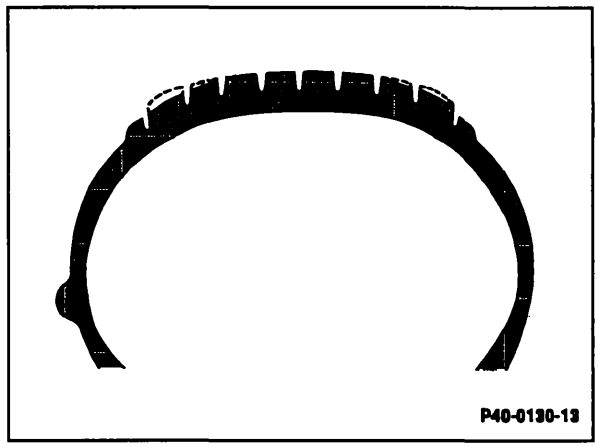
Check tire tread depth and enter in table.

Check wear pattern of tires noting the following points:

Tread depth	Front left	Front right
Outside		
Center		
Inside		
Tread depth	Rear left	Rear right
Outside		
Center		
Inside		

Front axle

It is normal to have somewhat greater wear on both shoulders of the front tires compared to the center tread. This wear pattern is caused by low tire pressure, fast cornering, releasing the accelerator abruptly in fast turns, or by a high proportion of city driving.

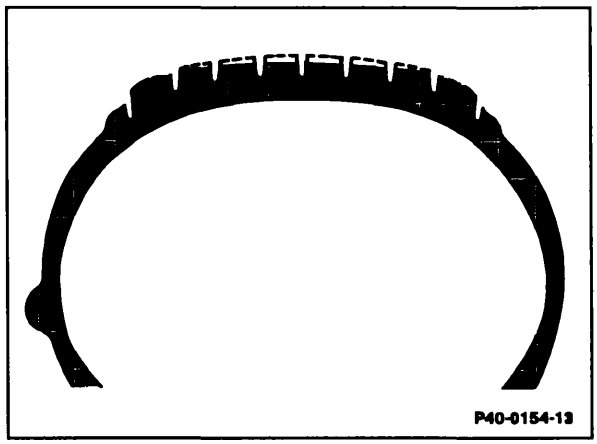


Shoulder wear on front tire

Rear axle

Wear is normally distributed over the entire tread are of the rear wheels, although it is usually somewhat higher at the center of the tread than on the shoulder. Depending on the rear vehicle load (increased negative camber with high load) the wear on the inner side of the tread area can be somewhat higher than on the outer side.

Rotate wheels, if required (refer to job no 4050).



Center tread wear on rear tire

Model 107 starting 08. 1985
124
126 starting 09. 1985
129
140
201

Front brake pad specifications in mm

Model	107 [1] 124.034 [2]/ 036/051 126 129	124 (except 124.034/036/ 051 201.034	124.032/ 034 [3] / 052/066/ 092	140.03 2 piston caliper	140.04/05 4 piston caliper	201.01 201.02 201.1
Thickness of brake pad (pad and backing plate)	17.5	19.3	16	18.5	19.3	17.9
Wear limit at maintenance service (pad and backing plate)	12	14	11	13	13	13
Allowable wear of lining to a thickness of	2	2	2	2	2	2

1) The backing plate is modified to fit the 4 piston fixed caliper starting 09/85. As a result, pads from models 123 and 126 can no longer be installed.
2) through 09/92.
3) starting 10/92.

Rear brake pad specifications in mm

Model	107 124 [1] 126 129.06 201.03	124.036 129.07 140	201.01 201.02
Thickness of brake pad (pad and backing plate)	15.5	16	13.5
Wear limit at maintenance service (pad and backing plate)	11	13	10
Allowable wear of lining to a thickness of	2	2	2

1) Installed on model 124.036 through 11/92.
2) starting 12/92.

Front brake disk specifications in mm

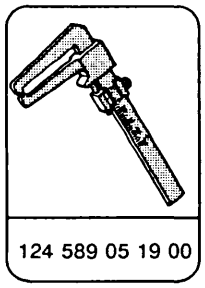
Model			Brake pad thickness	Wear limit	Limit at maintenance service
107 124.030 124.090 201.028 201.128	124.026 124.050 124.128 201.029	124.028 124.051 124.2 201.034	22	19.4	20
124.034 129.06	124.036 140.03	126 140.1	28	25.4	26
124.032 124.066	124.034 124.092	124.052	25	22.4	23
124.036	140		30	27.4	28
129.07			30	28	28.5
201.024	201.122	201.126	11	9	29.5

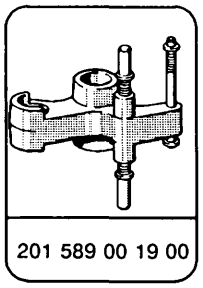
1) Installed on model 124.036 through 11/92.
2) starting 12/92.

Rear brake disk specifications in mm

Model			Brake disk thickness	Wear limit	Limit at maintenance service
107	126		10	8.3	8.6
124.030 124.06 124.2	124.032 124.090 129.06	124.05 124.1 201	9	7.3	7.6
124.092			20	17.4	18
124.034	124.036		24	21.4	22
129.07	140.04	140.05	22	19.4	20
140.03	140.1		12	9.8	10.5

Special tools


124 589 05 19 00

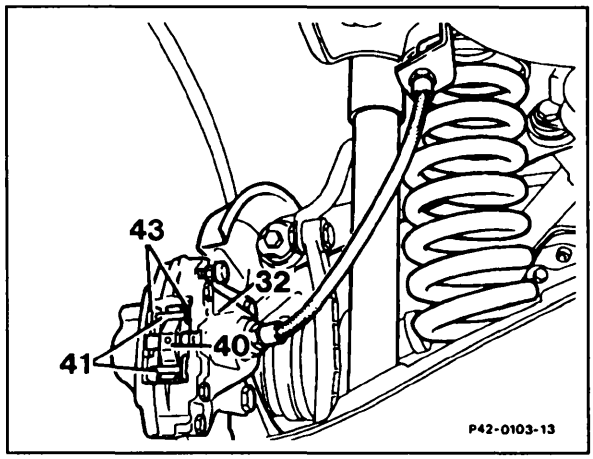

201 589 00 19 00

Checking brake pads

- Check pad thickness on front and rear axle (pads installed). If necessary, replace pads on separate order.

Note:
To make sure that the wear limit is not exceeded before the next maintenance job, refer to the recommended limits in the chart at beginning of the chapter.

⚠ IMPORTANT NOTE!
On vehicles that are driven fewer than 6,000 miles per year, remove, clean, and reinstall brake pads on separate order. In addition, check that dust boots and pistons move freely.

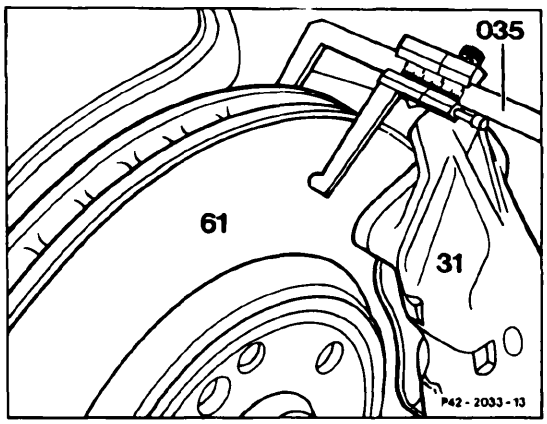


Checking brake disks

- Check brake disks for score marks and cracks. Cracks in a circumferential direction up to 0.5 mm in depth are permitted.

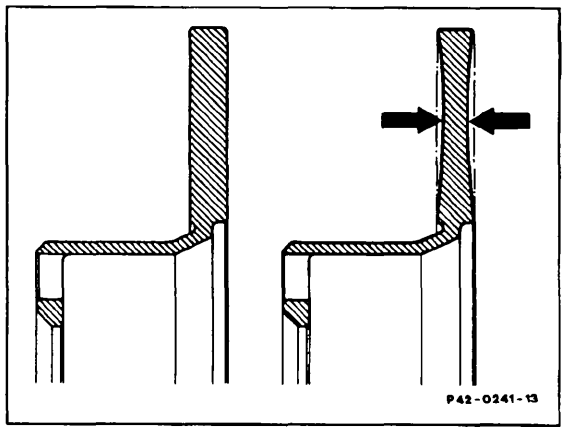
Note: Brake disks which are badly discolored - gray or blue discoloration should be cleaned with cleaning pads (at extra cost).

- Measure thickness of brake disk using special tool (035).



Note: Wear limits for brake disks must be strictly observed.
To ensure that brake disk does not exceed wear limit before next maintenance service, observe wear limits in chart at beginning of chapter.

Ventilated brake disks with hairline cracks up to 25 mm in length, which may show up under high loads, need not be replaced. Replace disks with open cracks and score marks deeper than 0.5 mm immediately.

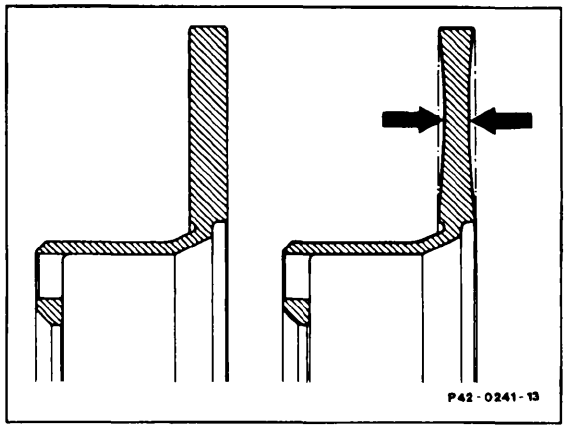


Note: If measuring the front brake pads shows that they must be replaced, perform the following additional jobs on separate order:

a) Check all brake disks for wear.
Wear limit:

Ventilated front brake disks	19.4 mm
Solid front brake discs	9 or 10 mm
Rear brake disks	7.3 mm

Note: To make sure that the wear limit is not exceeded before the next maintenance job, the smallest dimension on the ventilated front disk, should be greater than 20.0 mm, on the solid front disk greater than 9.5 mm or 10.5 mm, and on the rear brake disk greater than 7.6.



b) Check brake pads or rear wheel brake for wear. Brake pads must be replaced when the distance between the eye of the lining back plate and the cross spring is approx. 3 mm.

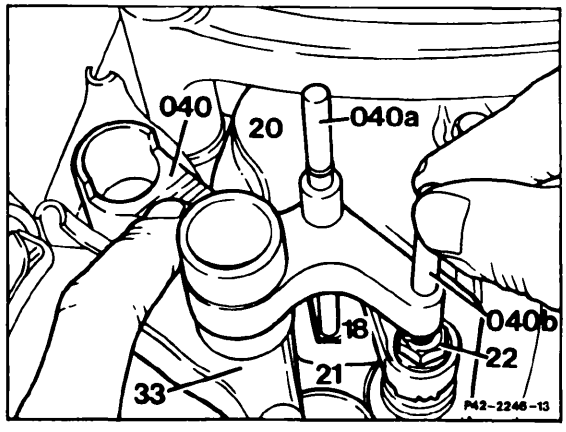
c) Check dust caps and that pistons move freely in brake calipers.

Measuring procedure

Model 201 through 12/84

Position measuring device on hex. head bolts of spring strut and brake caliper mounting of steering knuckle. Supporting surfaces must be clean.

Press measuring device against steering knuckle.



Slip long pin against backing plate of inner pad and short pin against head of caliper to brake carrier mounting bolt.

Remove measuring device and read brake pad wear on measuring pins. If less than 6 measuring rings can be seen, more than approx. 6 mm of the total pad thickness of 12 mm on models 201.02, 201.1, and of 13 mm on model and 201.03 are worn out. In this case it is recommended that the brake pads be replaced, provided the customer does not want to use up the remaining pad thickness until the wear indicator lights up.

Note: The short pin measures outer pad wear, the long pin measure inner pad wear.

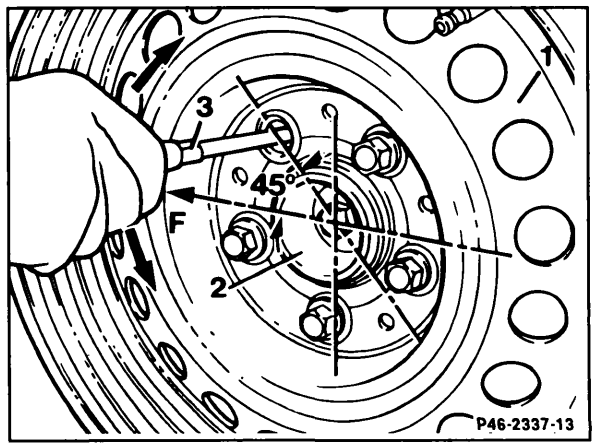
Model **107 up through 07/1985**
123
126 up through 08/1985

Adjusting specifications (except model 140)

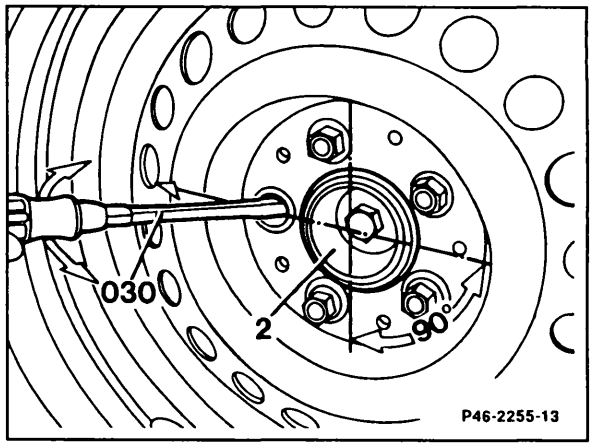
Model	107	123, 126
Parking brake reduction ratio	22	35.6
Number of notches on quadrant	6	12
Force required to pull or push parking brake lever from rest position to first notch	150 – 180 N	120 – 150 N
Number of notches until parking brake becomes effective.	1 – 2	1 – 2

Note: The parking brake should be adjusted if the pedal (on vehicles with **foot operated parking brake**) can be depressed more than 2 notches (model 107) or 4 notches (models 123, 126), without any noticeable braking effect.

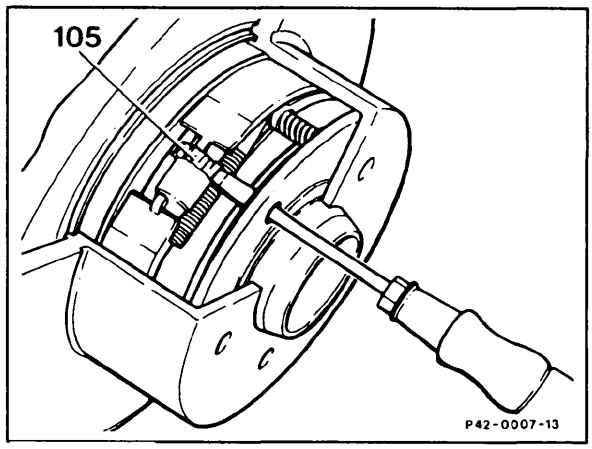
- Remove one wheel bolt from both sides on rear axle.
- Jack up rear of vehicle.
- On vehicles with **semi-trailing arm suspension**, turn each rear wheel so that the bolt hole points 45° up in a forward direction.



- On vehicles with **semi-trailing arm suspension with torque compensation,** turn each rear wheel so that the bolt hole is pointing forward.



- Using screwdriver inserted through bolt hole of wheel, brake disk, and axle flange, turn adjuster until it can no longer be rotated. Then back adjuster off 2-3 teeth , until wheel turns freely.



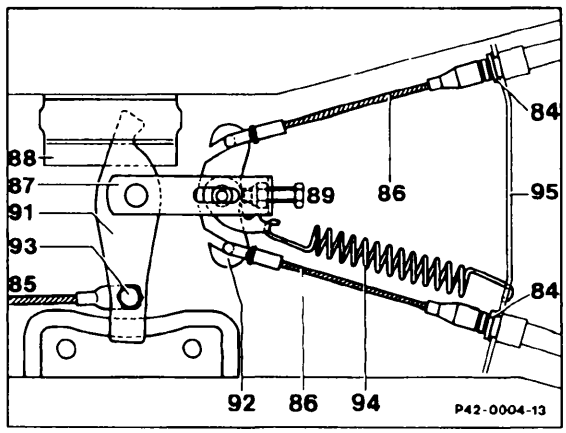
105 Adjuster

Note: To tighten brake shoes, adjust as follows:

Vehicles with **semi-trailing arm suspension:**
Left hand side: from bottom in upward direction.
Right hand side: from top in downward direction.

Vehicles with **semi-trailing arm suspension with torque compensation:**
Left hand side: from bottom in upward direction.
Right hand side: from top in downward direction.

Note:
When adjusting the parkig brake, do not adjust the adjusting screw on the intermediate lever. this is used only to compensate for the length of the cables.



Model **107 starting 08/1985**
124
126 starting 09/1985
129
140
201

Adjusting specifications (except model 140)

Model	107	124 129 through 09/89	124 129 starting 10/89	126	201 through 01/87	201 starting 02/87
Parking brake reduction ratio	21.32	28.4	28.4	33.44	25.2	25.2
Number of notches on quadrant	6	11	15	12	8	12
Force required to pull or push parking brake lever from rest position to first notch	150- 180 N	150- 180 N	150- 180 N	120- 150 N	90- 120 N	90- 120 N
Number of notches until parking brake becomes effective.	1	1	1	1	1	1
Number of notches at which parking brake should be adjusted if no adequate braking effect is felt	2	4	5	4	2	3
Number of teeth through 03/84 on adjuster starting 04/84	10 10	- 15	- 15	10 10	8 15	- 15

All models except 140

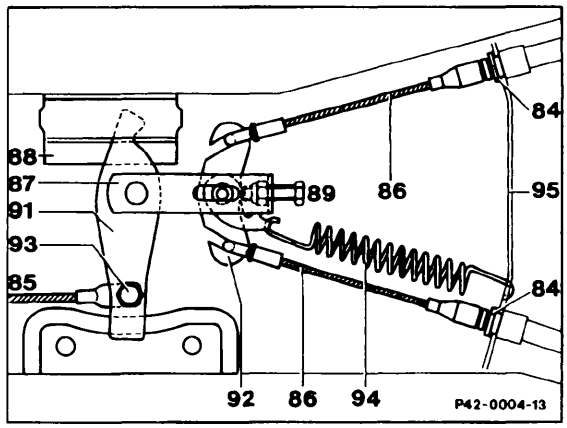
Note: The parking brake should be adjusted if the pedal (on vehicles with **foot operated parking brake**) can be depressed more than 2 notches (model 107) or 4 notches (models 124, 126, 129), without any noticeable braking effect. On vehicles with **lever operated parking brake**, the parking brake should be adjusted if the lever can be pulled more than 2 notches without any noticeable braking effect.

- Loosen adjusting screw (89) completely. The expanding locks should not be preloaded.

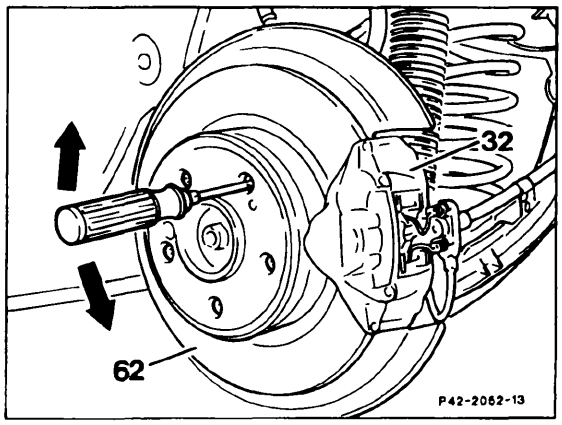
Note:
Light alloy wheels must be removed.

- Remove one wheel bolt from both sides on rear axle.

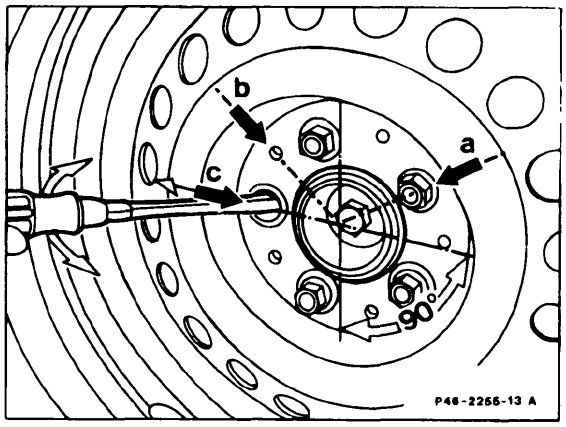
- Jack up rear of vehicle.



- Turn brake disk so the adjuster can be turned by using a screwdriver inserted through a bolt hole.



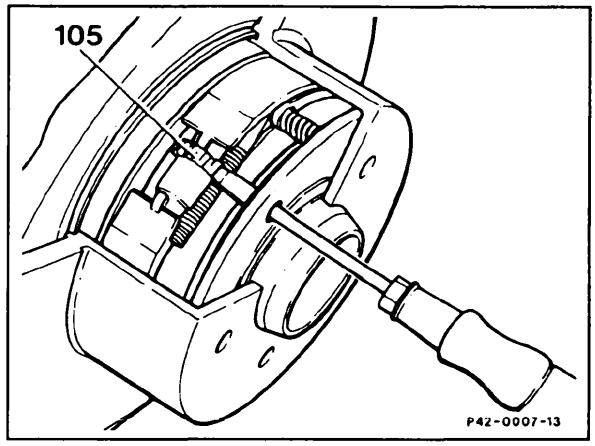
Note:
Location of adjuster shown on left rear wheel; right side is mirror image.



a) Multi-link suspension (Models 124, 129, 201)
b) Semi-trailing arm suspension (Models 107, 126)
c) Semi-trailing arm suspension with torque compensation (Models 107, 126)

- Using screwdriver inserted through bolt hole of wheel, brake disk, and axle flange, turn adjuster until it can no longer be rotated. Then back adjuster off 2-3 teeth on adjuster with 8-10 teeth; 5-6 teeth on 15 tooth adjusters, until wheel turns freely.

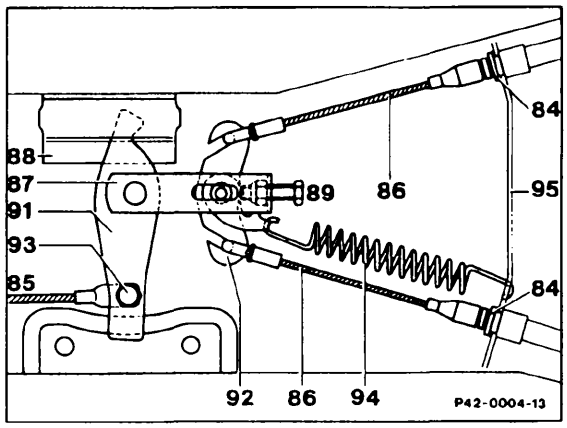
Note: To tighten brake shoes, adjust as follows:
Left hand side: from bottom in upward direction.
Right hand side: from top in downward direction.



105 Adjuster

- Tighten adjusting bolt (89) until brake cables no longer sag.

- Apply parking brake vigorously several times at approx. 400 N.



Pedal operated parking brake:

- Turn adjusting bolt (89) in bracket (87) until pedal is depressed by 1 tooth when the following forces are applied:

Models 107, 124, 129:	150-180 N
Model 126:	120-150 N

Lever operated parking brake:

- Turn adjusting bolt (89) in adjusting bracket (87) until lever can be tightened by one tooth at a force of approx. 90-120 N.

Model 140

- Jack up rear of vehicle.

- Remove one wheel bolt from left and right sides. Do not remove wheel.

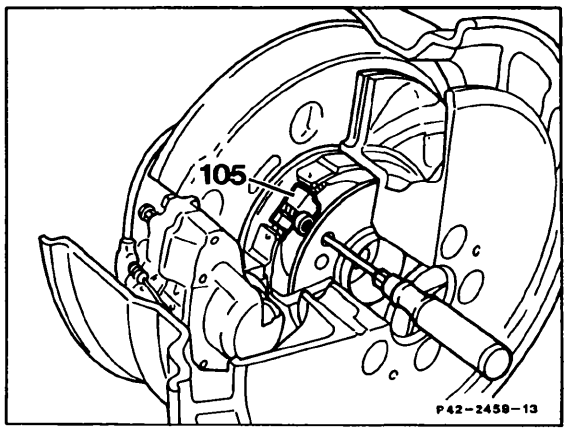
- Turn wheel so that bolt hole is positioned at a 45° angle from the top, towards the rear.

- Using a phillips head screwdriver, turn the adjuster (105) to the right until the rear wheel can not be turned. Then loosen adjuster 5 1/2 turns (mark screwdriver) until wheel turns freely.

- Apply parking brake vigorously several times.

- Release parking brake and check that rear wheels turn freely.

- Install wheel bolt and torque to 150 Nm.



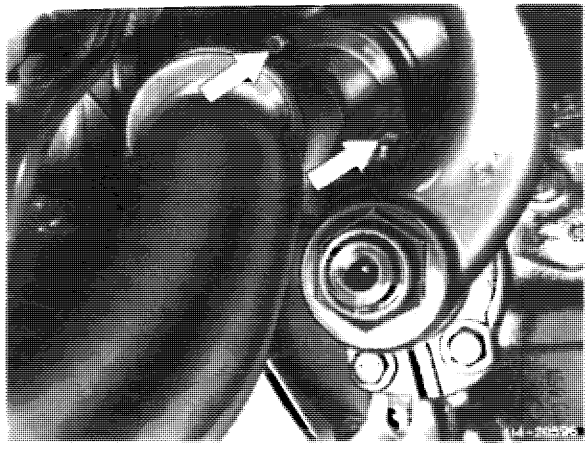
105 Adjuster

All models

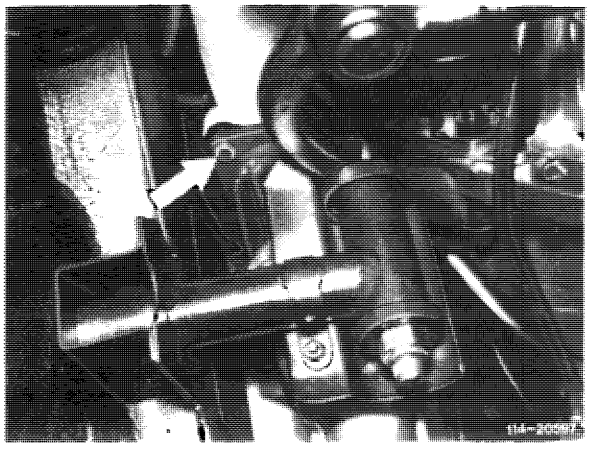
Note: When performing this job number, the engine compartment lower panel or the noise encapsulation panel must be removed, and replaced after completing all maintenance work (refer to job number 6190 or 9400).

Retighten bolts/self-locking nuts of exhaust flange connections. Torque to 20 Nm.

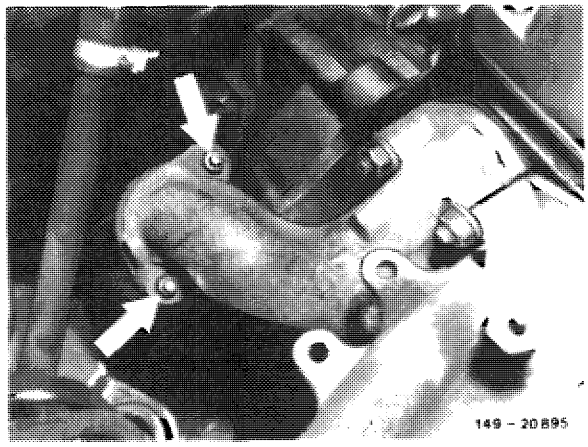
On vehicles with V-engines, retighten exhaust flange connections on left and right sides.



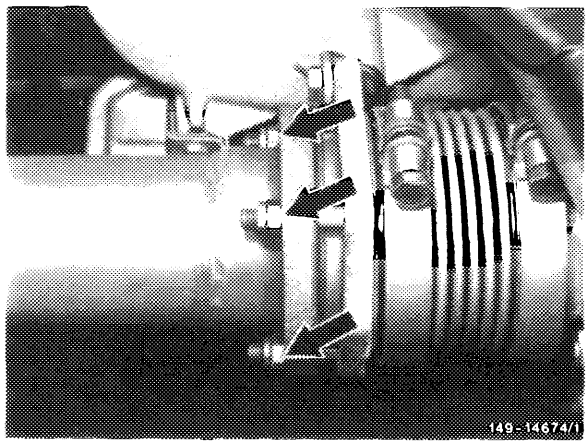
Model 107.025.045 048 (left hand side)



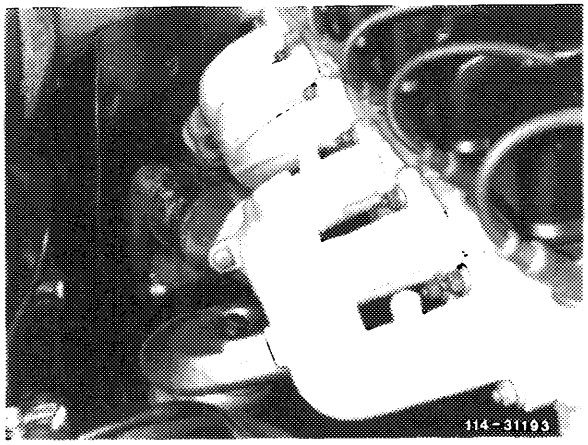
Model 107.025/045/048 (right hand side)



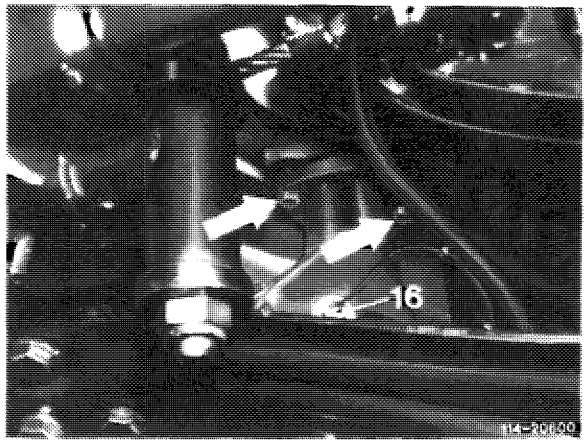
Model 123.123/130/150/190



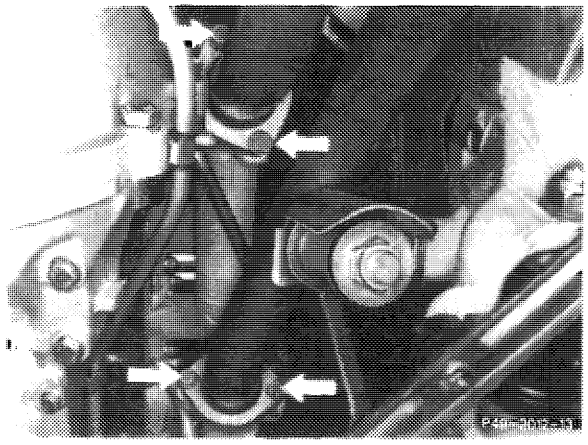
Model 123.133/153/193, 126.1



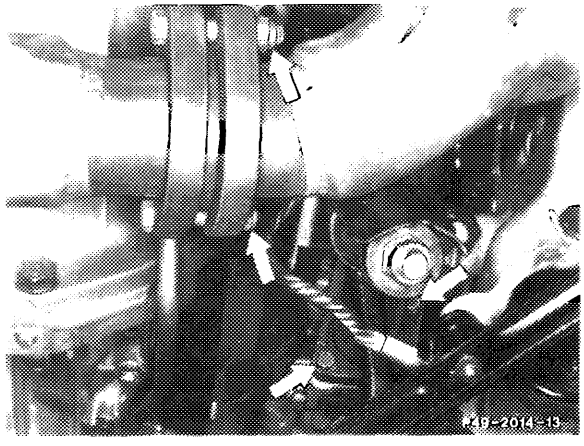
Model 124.026/030/05/090, 126.024/025, 201.029



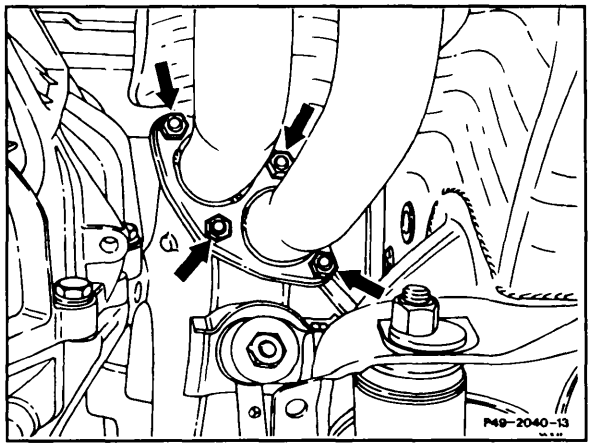
Model 126.03/04



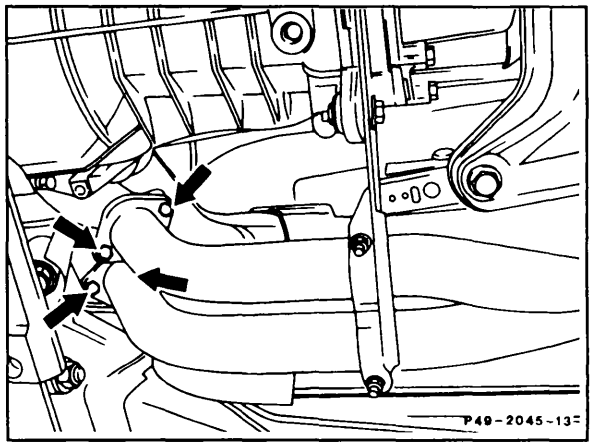
Model 129.061



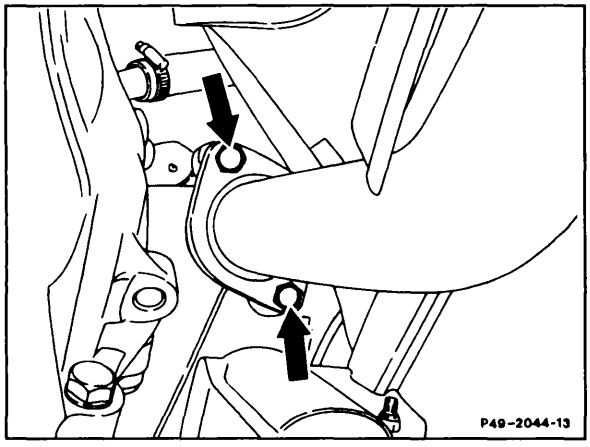
Model 129.066



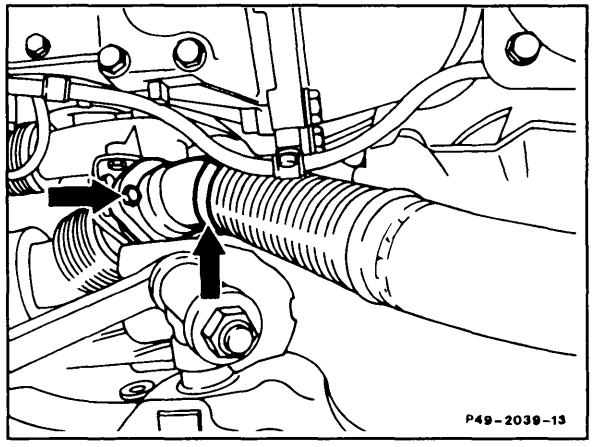
Model 201.02 up through 09.1984
(Non-catalyst model shown for location of bolts.)



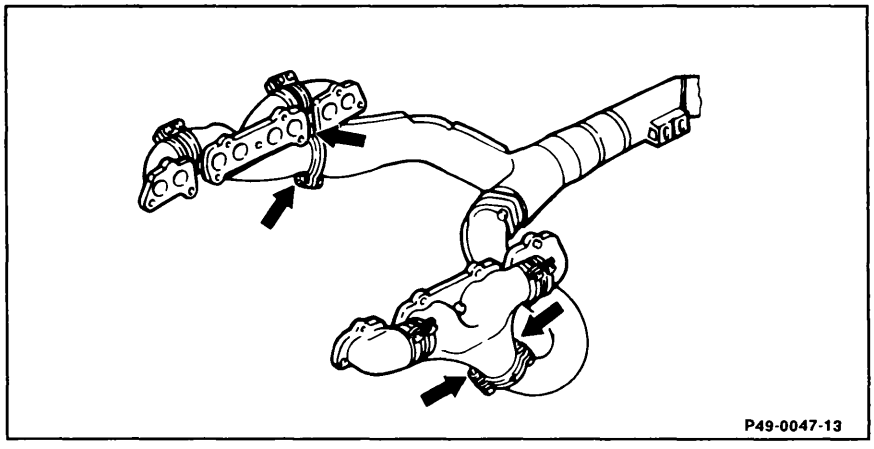
Model 201.02 as of 10.1984 and 201.03
(Non-catalyst model shown for location of bolts.)



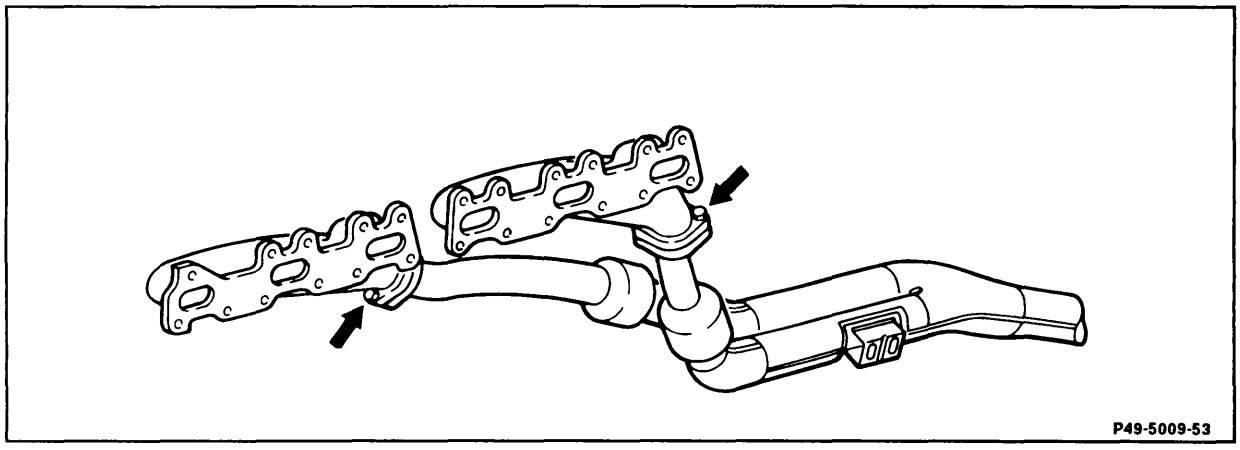
Model 201.122/126



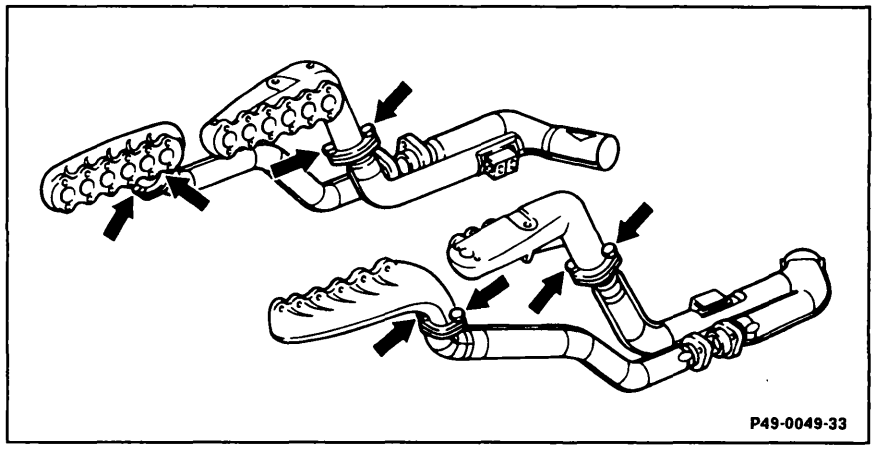
Model 124.133/193, 201.128



Model 124.034/036

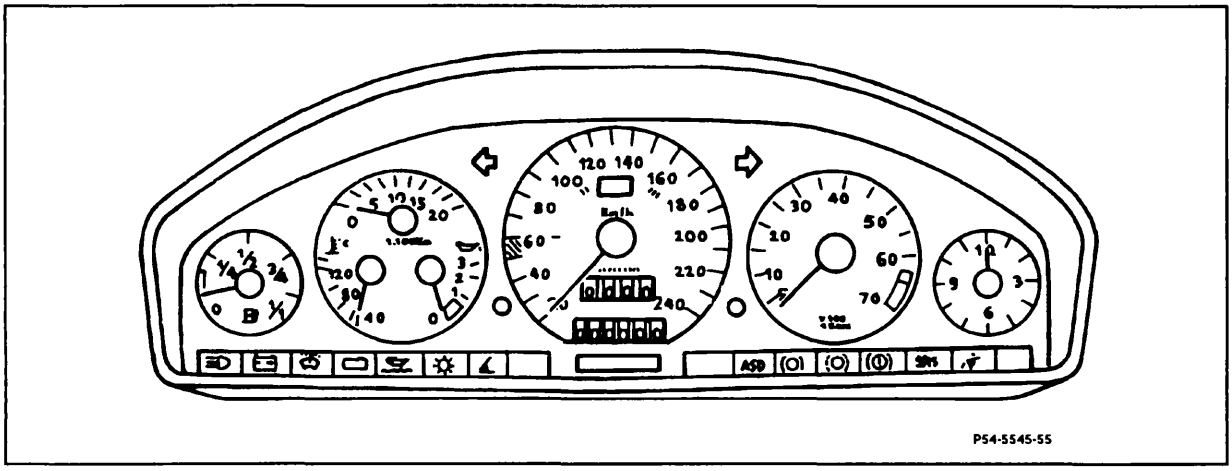


Model 140.03



Model 140.057

All models



Functional check - ignition key in position 2.

- Check warning lamps:

- Check indicator lamps:

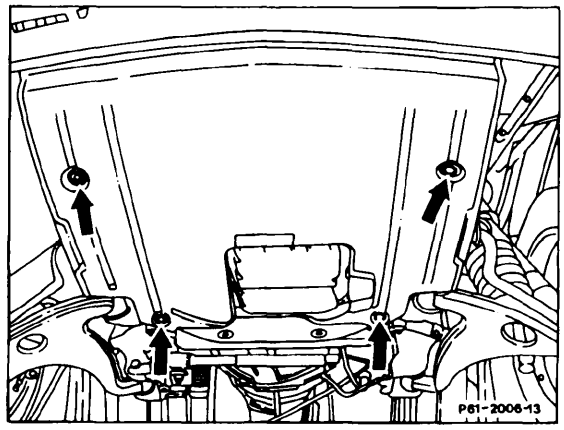
Fuel reserve (starting 09.1982).
charge indicator lamp
Brake pad wear indicator
ABS
Pre-glow
ETR, SRS Airbag - restraint system - should go out after approx. 10 s.
O_2 sensor replacement up thru model year 1985
O_2 sensor failure indicator starting model year 1986 (except 201.024) lights up briefly when switching ignition on.
Turn signal lamp left and right
Headlamp flasher
Parking brake and brake fluid level
Engine oil level indicator
Coolant level indicator
Washer fluid level indicator
Bulb failure warning unit.
Seat belt/backrest lock warning lamp
4MATIC function indicator
4MATIC warning lamp
Roll bar indicator lamp
Oil pressure waning lamp
CHECK ENGINE lamp

Model 124.0/2 129 140 201.0

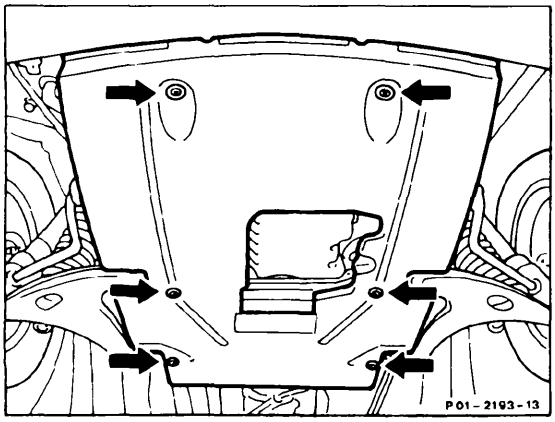
Unscrew small bolts (arrows) and remove engine compartment lower panel.

Install in reverse sequence.

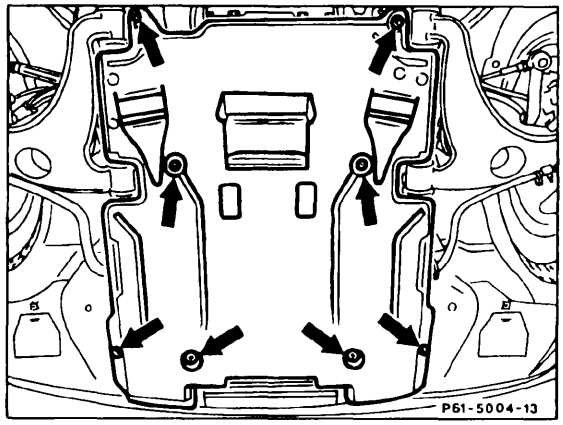
Note: On model 129 and 201.028/029 install engine compartment lower panel so that the edges of the side panels overlap the lower panel.



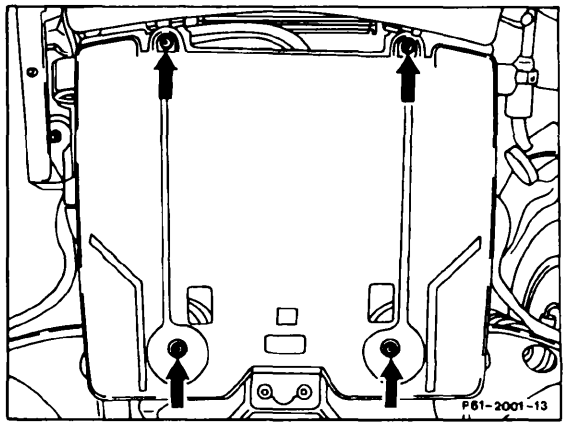
Model 124 Engine compartment lower panel, short version



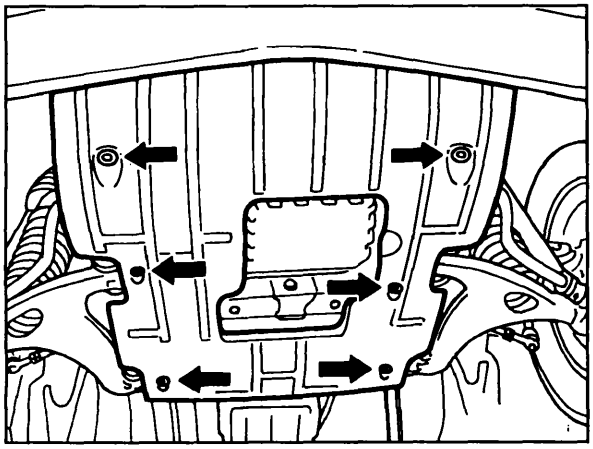
Model 124 Engine compartment lower panel, long version



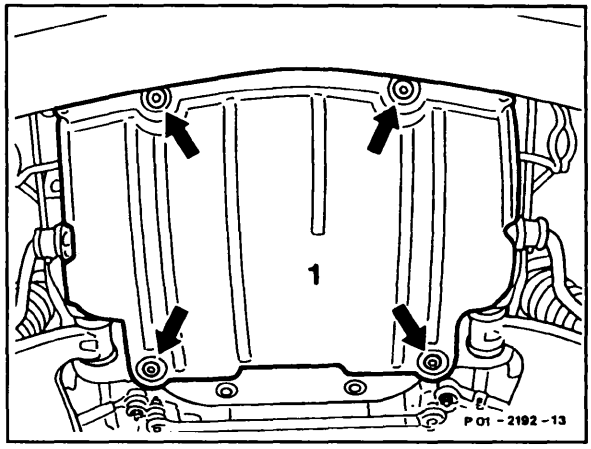
Model 124.036



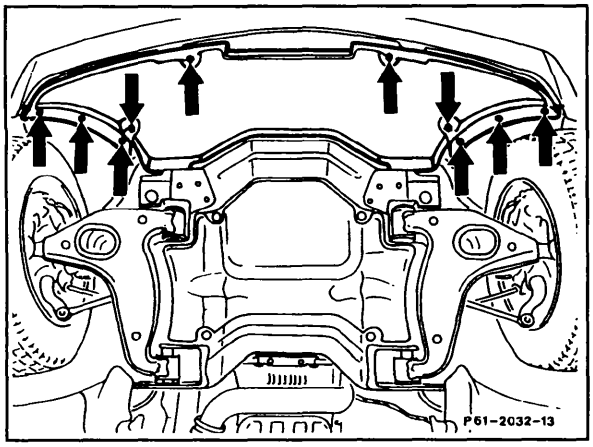
Model 129



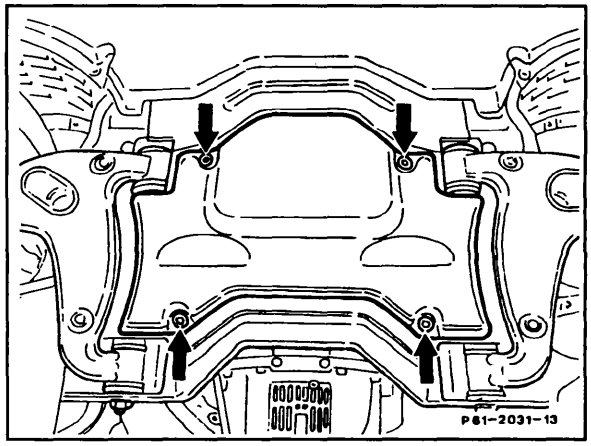
Model 201.024/028/034



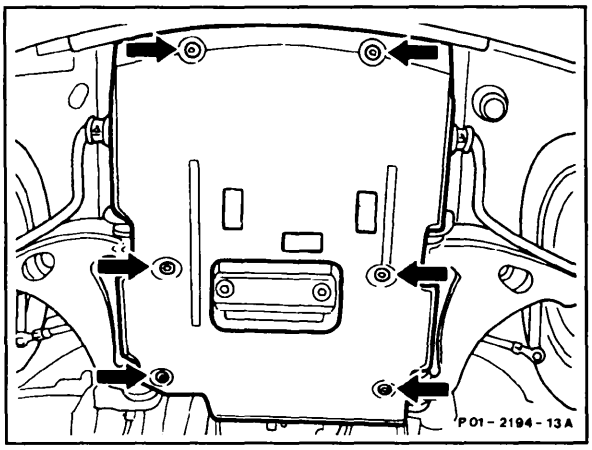
Model 201.028



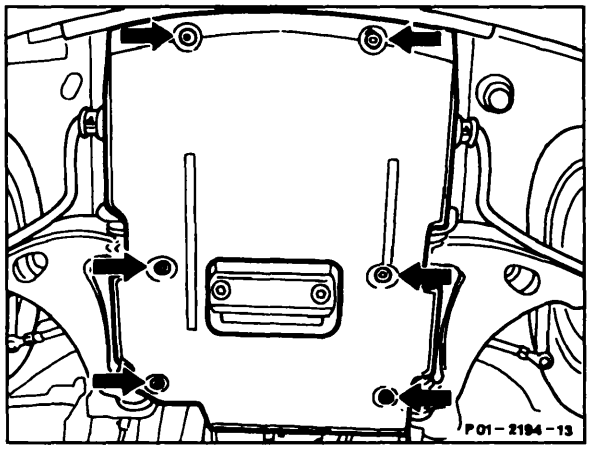
Model 140 front section



Model 140 rear section



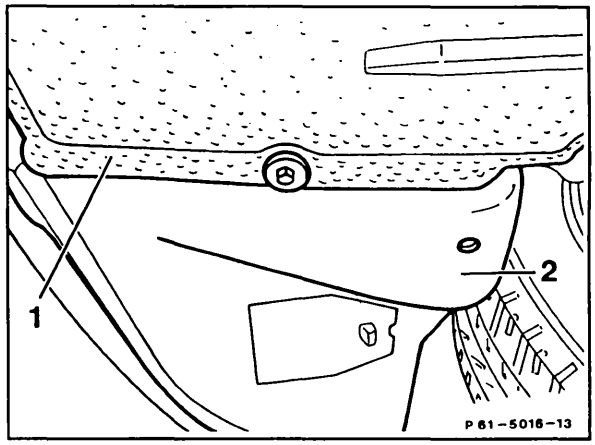
Model 201.029 with cooling openings



Model 201.029 without cooling openings

Models 124.036, 140

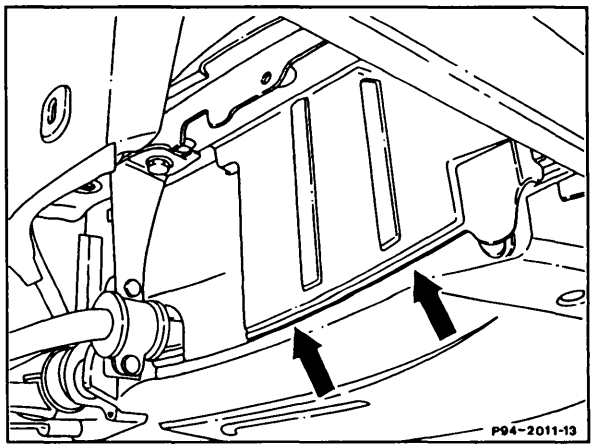
Install lower engine compartment cover (1) so that it overlaps the wheel well covers (2).



Model 124.036

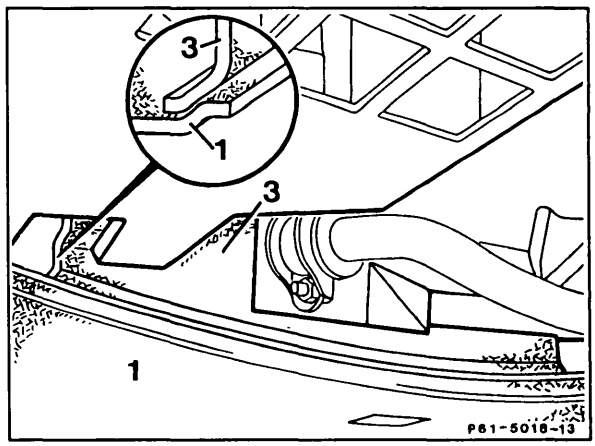
Models 124 (except 124.036), 201

Install the side panels so that the edges overlap the engine compartment cover.



Model 129

Install lower engine compartment cover (1) so that the side panels (3) are positioned inside the lower engine compartment cover.



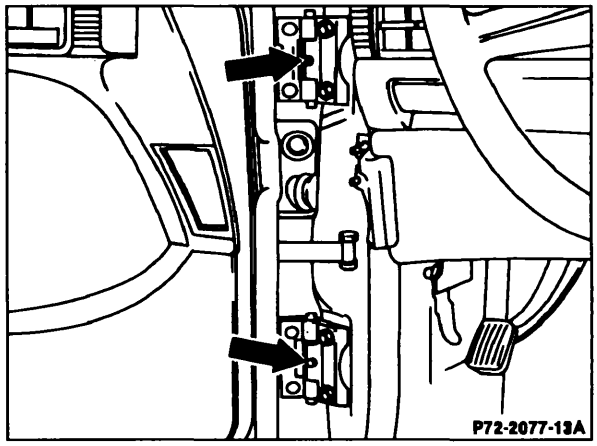
Lubricating door hinges

Model 107 123 126

Grease type	
Lubricating grease	Multipurpose grease

Commercial tools	
Grease gun with pointed tip	obtain locally

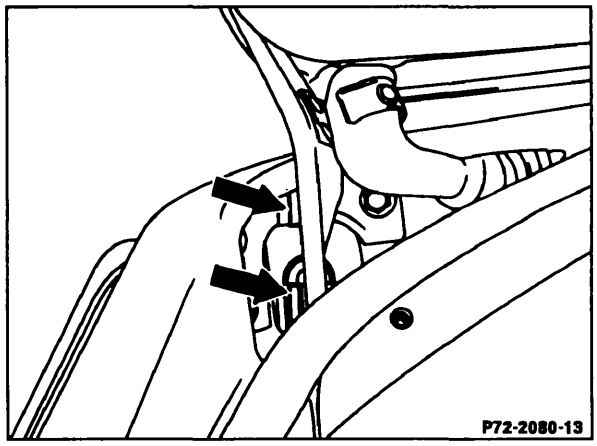
Door hinges (arrows).



Oil can T-models only

Tailgate hinge

Tailgate gas pressure spring pivo (arrows).



Lubricating door locks

7221

Model 107, 123, 126

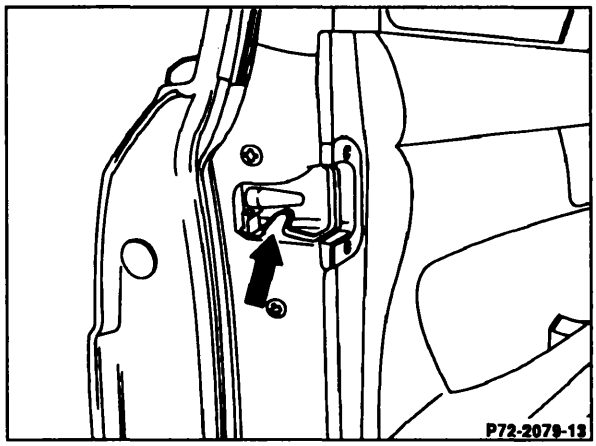
Type of lubricant

Fluid grease (NLGI Class 00)	Refer to MBNA Factory Approved Service products list

Door lock: Driver's and rear door.

Striker pin and striker eye

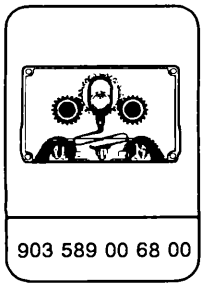
Contact surfaces of latch.



Cleaning cassette deck tone head

All models

Special tools



903 589 00 68 00

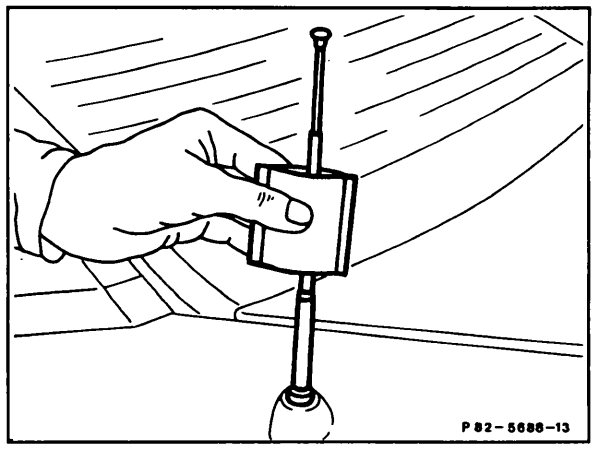
Soak felt parts of cleaning cassette with cleaning solution.

Insert cleaning cassette and play for about 30 seconds.

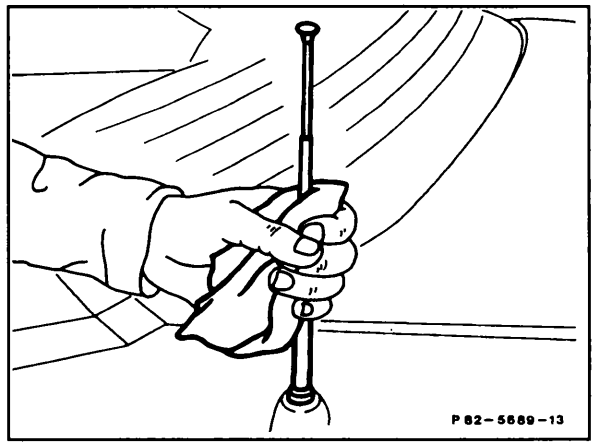
On units with auto reverse, turn cassette over and play for another 30 seconds.

All models

- Switch radio on.
- Clean antenna mast with cleaning pad.
- Switch radio off.
- Repeat procedure several times.

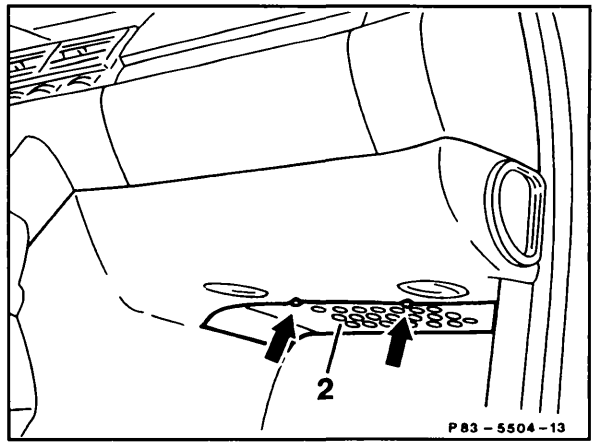


- Wipe mast dry with a clean rag.



Model 140

- Using screwdriver, turn latches (arrows) 90° to left.
- Lower cover with recirculating air filter (2).
- Unclip recirculating air filter from cover.
- Open recirculating air filter housing and remove filter.



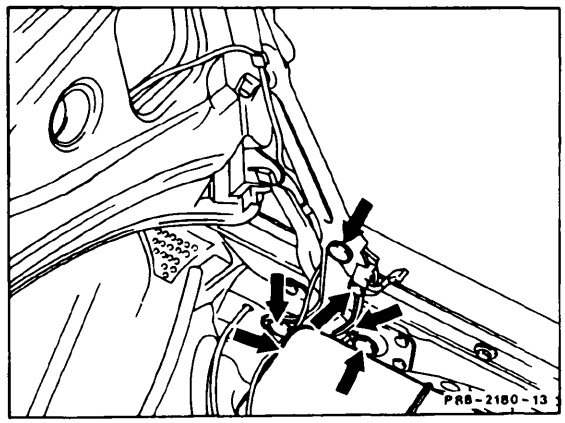
Note:
Recirculating air filters can not be cleaned, they must be replaced.

All models

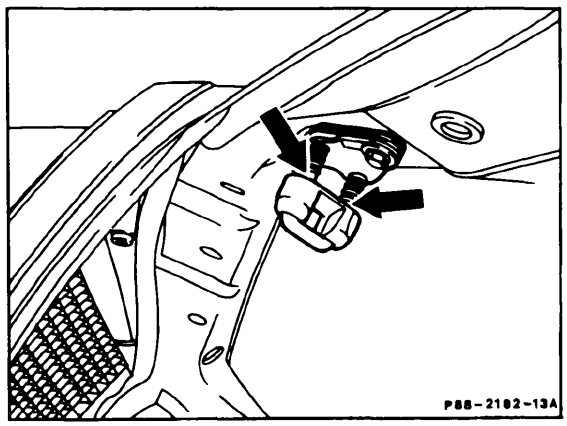
Grease type	
Lubricating grease	Multipurpose grease Refer to Factory Approved Service Products list

Oil (can)

- Hood support (except models 124, 129, 140).
- Hinge bearings (except models 124, 129, 140).

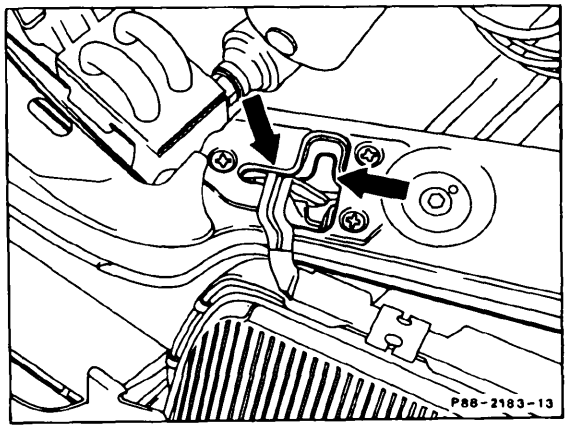


- Hood latch.



Grease

- Hood lock.



Oil (can)

- Safety catch.