

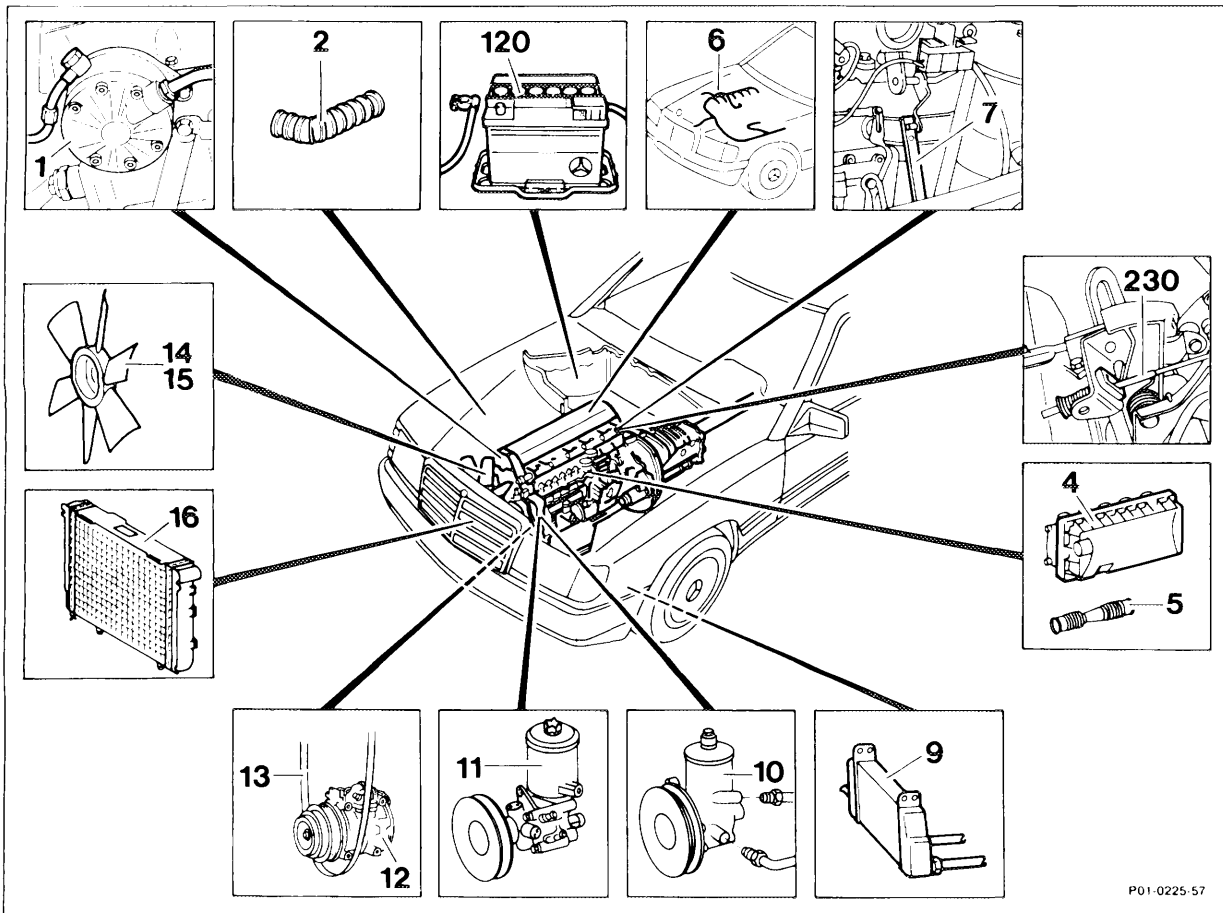
01-030 Removal and installation of engine (oil capacity)

Preliminary operations:

Noise capsule part at bottom of engine compartment removed (01-006).

Exhaust system removed (49-100).

A. Removal, installation, models 124, 126 and 201



P01-0225-57

Battery (120) disconnect positive and negative terminals, reconnect (items 1 – 4).

Naturally aspirated engines:

Air intake hose (5) remove, attach (item 5).

Air cleaner cover (4) remove together with filter cartridge, attach (item 5.1).

Turbo-engines:

Intake hose (2) to exhaust gas turbocharger, remove, attach (item 6).

Radiator (16) remove, install (20-420).

Transmission oil lines on vehicles with automatic transmission, unbolt, install and plug with clamps 000 589 40 37 00 (item 7).

Air conditioner:

- Condenser
- Coolant hoses
- Fan (14, 15)

Caution!
Attach protective plate immediately after removing radiator.
disconnect between engine and chassis, pull off, install (item 9).
remove, install, 25 Nm and 45 Nm (items 10 – 11).

Note
On vehicles with viscodrive fan clutch
Use screwdriver socket 103 589 01 09 99, torque wrench 001 589 72 21 00 and holding tool 603 589 00 40 00.

Air conditioner:

- Poly-V-belts (13)
- Refrigerant compressor (12)

remove, install (13-342).
remove, install, 25 Nm (item 12).

Note
Do not unbolt the refrigerant lines on the compressor. Fasten compressor to chassis at side.

- Vacuum hoses and fuel lines

remove between engine and chassis, disconnect, reinstall (item 13).

Models 124 and 126:

- Control cable (230)

for engine control, unhook, hook in (item 14).

Model 201:

- Engine control linkage (7)

unhook, hook in (item 15).

Note
Adjust control linkage (30-300).

- Electrical connection lines

between engine and chassis, disconnect plug connectors and connections, reconnect (item 16).

- Oil pressure switch and oil level sensor

disconnect plug connectors, reconnect (item 17).

- Starter

unbolt connection lines, connect (item 18).

- Alternator

disconnect plug connectors, reconnect (item 19).

- Engine electrical harness (5)

remove, reattach (item 20).

- Power steering pump (10)

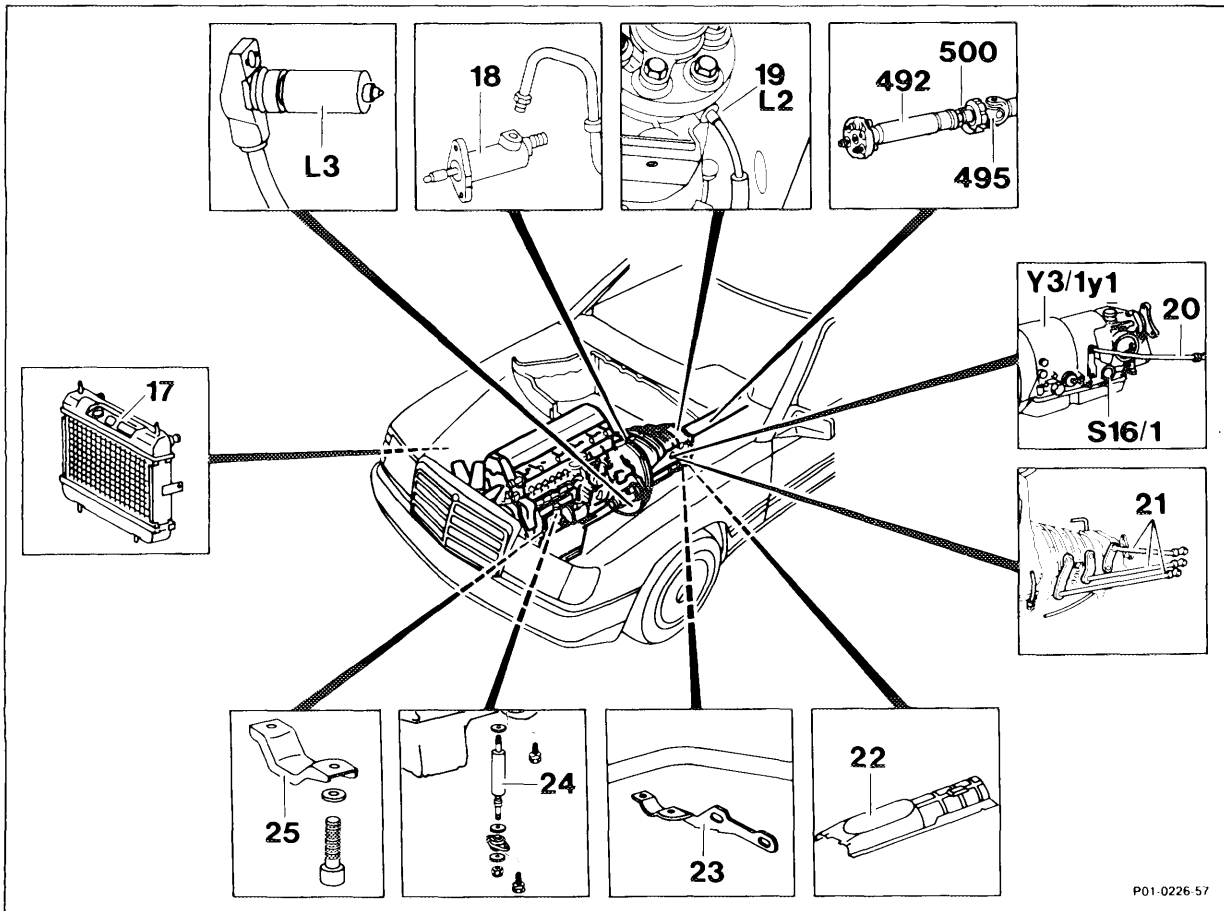
evacuate oil out of power steering supply reservoir, use hand pump 112 589 00 72 00 and remove oil lines, reinstall, 30 Nm (items 21 – 22).

Vehicles with level control and/or ASD:

Oil pump (1) or tandem pump (11) unbolt oil lines and hoses between engine and chassis, reinstall (item 23).

Turbo-engines or naturally aspirated engines with exhaust gas recirculation:

Air/oil cooler (9) unbolt oil lines between cooler and engine, reinstall (item 24).



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Turbo-engine with automatic transmission and trailer hitch in combination with air conditioner:

Transmission oil/air cooler (17) oil lines and hoses between cooler and engine, remove, replace (item 25).

Model 201 (up to 03/85):

Mount for engine stop (25) remove, install, 25 Nm (item 26).

Note

Check engine stop, adjust, 130 Nm (22-220), adjustment gauge 201 589 04 23 00.

Model 201 (up to 03/85):

Engine shock absorber (24), left remove, install, 10 Nm (item 27).

Model 126:

Engine shock absorbers (24), left and right remove, install, 10 Nm (item 28).

Manual transmissions:

Shift linkage (20) unhook, hook in (item 29).

Clutch master cylinder (18) remove hydraulic line, replace and bleed master cylinder (item 29.1).

Automatic transmissions:

Shift linkage (20) unhook, hook in (30).

Starter lockout, back-up light switch (S16/1) disconnect wires, reconnect (item 30).

Kickdown solenoid valve (Y3/1y1) disconnect wire, reconnect (item 30.1).

Speedometer shaft (19) or inductive
speedometer sensor (L2) remove, reinstall (item 31).

Engine speed sensor (L3) and starter
ground strap remove, reinstall (item 32).

Lateral exhaust support (23) remove, reinstall (item 33).

Heat baffle plates (22) on center tunnel, remove, install (item 34).

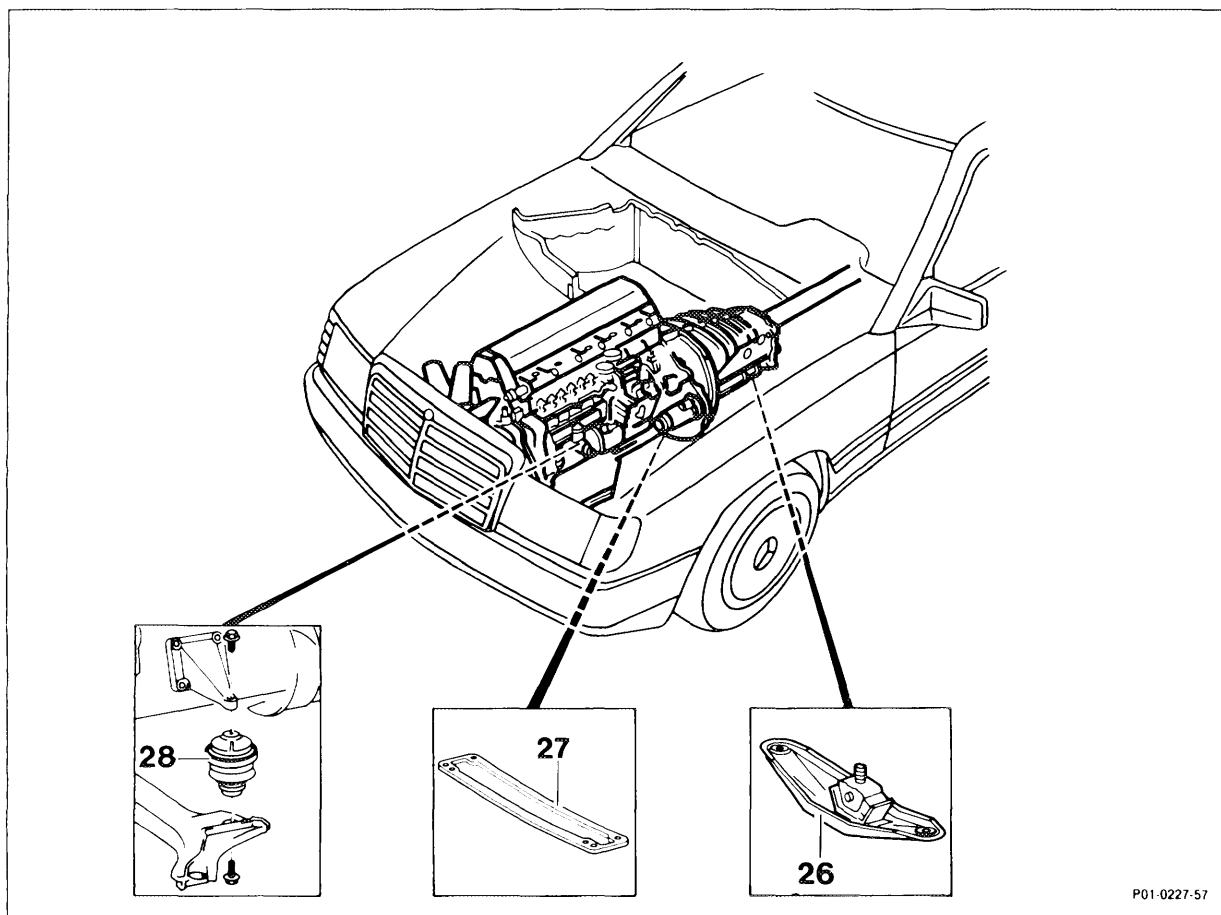
Drive shaft (492) remove, reinstall, 40 Nm and 60 Nm
(item 35).

Note

Replace self-locking hex. nuts.

Drive shaft intermediate bearing (495) loosen, tighten, 25 Nm (item 36).

Clamping nut (500) on intermediate bearing, loosen, tighten,
30 – 40 Nm, open-end wrench
126 589 00 01 00 or 201 589 00 01 00 and
torque wrench 001 589 66 21 00 (item 37).



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Model 126

Cross member center piece (27)	remove, reinstall, 45 Nm (item 38).
	Note
	Use new self-locking hex. nuts.
Engine compartment wall	Caution!
	Attach guard plate.
Engine	fasten engine to engine hoist and align horizontally (item 39).
Engine mount, rear (26)	remove, reinstall, 45 Nm and 70 Nm (item 40).
	Note
	Check adjustment bolt on rubber mounts, 30 Nm.
Front engine mounts (28), left and right	remove Allen bolts, install, 40 Nm and 70 Nm (item 41).
Engine	pull out of engine compartment with engine hoist, install (item 42).

Following installation:

- Engine check engine oil, add, if required or fill engine with new oil.
- Cooling system fill up and perform pressure test (20-017), pressure tester 124 589 15 21 00.
- Engine start and check engine oil and cooling system for leakage.

Engine oil capacities with oil dipstick code

(see "Service Product Specifications" for approved engine oils)

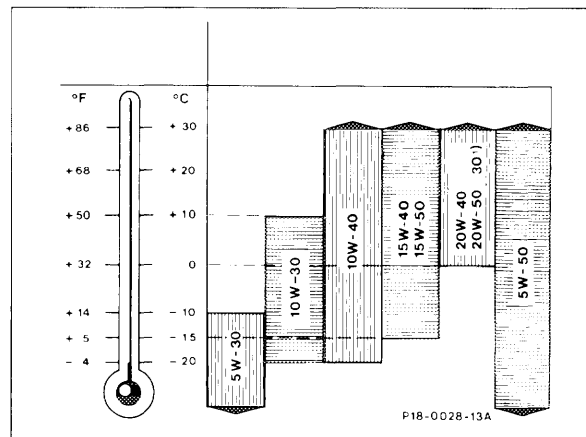
Engine	Model	Capacity for oil and filter change in liters	Color code, round handle	Color code, handle with bottle opener shape	Number code on handle
602.91	201	6.5 (6.9 U.S. qt.) 7 ²⁾ (7.4 U.S. qt.)	- -	- green ²⁾	60214 ¹⁾ -
602.96	124, 201	7.0 (7.4 U.S. qt.)	-	green ³⁾	-
603.96	124	7.5 (8.0 U.S. qt.)	-	black	-
603.97	126	7.5 (8.0 U.S. qt.)	-	-	60316

1) 1st version, color code "red"
 2nd version, color code "black"
 3rd version, color code "brown"
 2) Only for engines with exhaust gas recirculation and side part on oil pan
 3) 1st version, color code "black"

Specified viscosity classes for engine oil according to SAE for continuous ambient temperatures

Exact adherence to the SAE class specified for the various ambient temperatures would result in frequent oil changes. The temperature limits for the SAE classes should therefore be regarded as guidelines which may be exceeded for short periods.

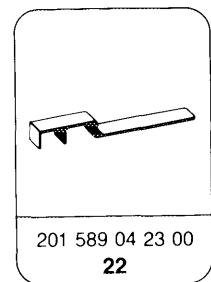
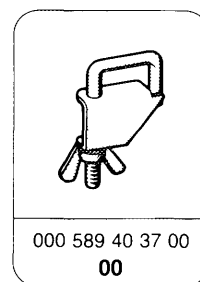
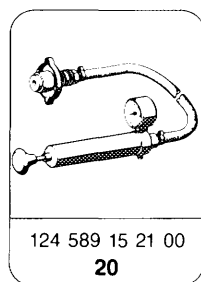
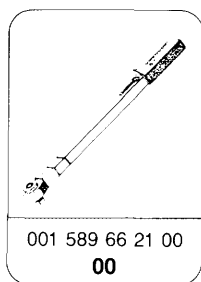
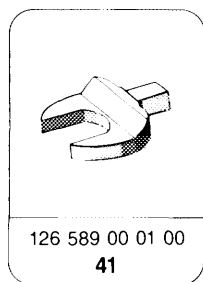
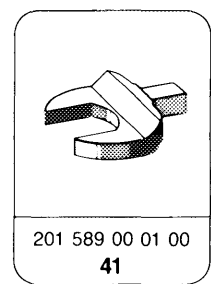
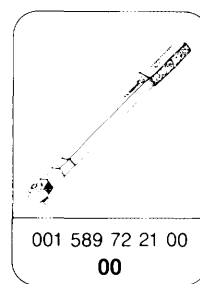
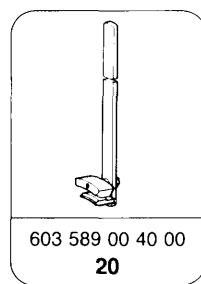
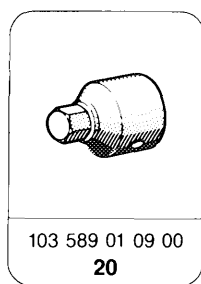
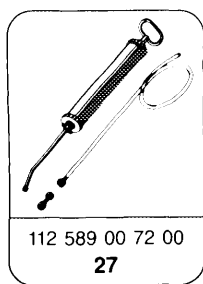
See "Service Product Specifications" for further information regarding specified viscosity classes and approved engine oils.



Tightening torques

		Nm
Oil drain plug in oil pan	M 12 × 1.5 × 13	30
	M 14 × 1.5 × 22	25
Hex. head bolt, magnetic fan clutch		25
Allen bolt, viscodrive fan clutch		45
Hex. head bolts, refrigerant compressor		25
Oil lines, power steering pump		30
Allen bolts, mount, engine stop, front		10
Adjustment bolt, engine stop, front		130
Hex. nuts, engine shock absorber		10
Hex. head bolts, engine shock absorber mount		10
Hex. nuts, drive shaft on transmission flange		40
Hex. nuts, drive shaft on transmission flange, engine 603.96		60
Hex. head bolts, drive shaft intermediate bearing		25
Clamping nut, drive shaft intermediate bearing		30 – 40
Hex. head bolts, cross member center piece		45
Hex. head bolts, engine support, rear		45
Hex. head bolts, engine mount, rear		25
Hex. nut, engine mount, rear		70
Adjustment bolt, engine mount (rubber) rear		30
Allen bolt, engine mount, front		40
Allen bolt, engine mount, front, model 126		70

Special tools



Commercially available tools

7 mm socket on flexible shaft for hose clamps with worm drive

e. g. Hazet,
D-5630 Remscheid
Order no. 426-7

Engine hoist no. 3188
(self-braking)

e. g. Bäcker,
D-5630 Remscheid,
Herderstraße

Self-made tools

Guard plate for air conditioner condenser

Dimensions: approx. 480 × 600 × 1

Guard plate for unit compartment firewall

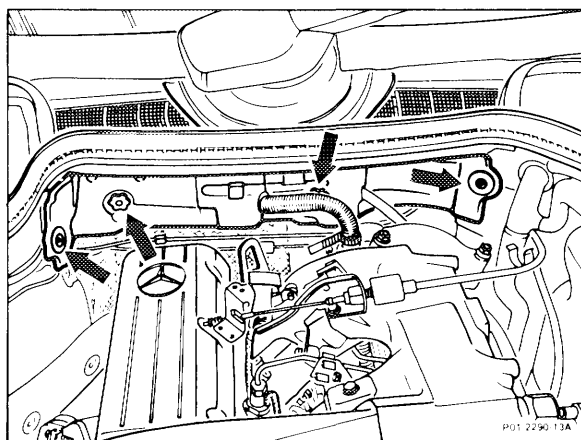
Dimensions: approx. 320 × 380 × 1

Removal, installation

1 Disconnect positive and negative cables on battery.

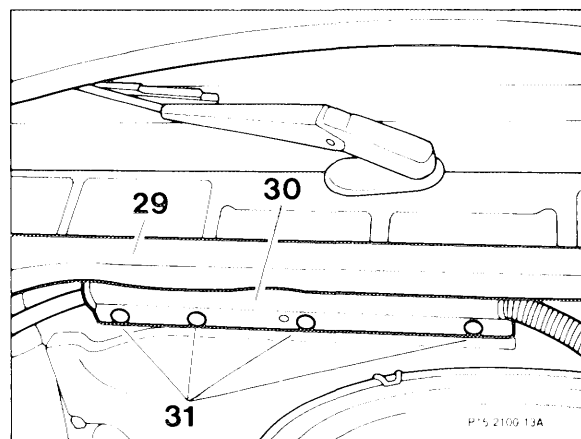
Models 124 and 126:

2 Remove cable cover on unit compartment firewall, for this purpose remove plastic screws (arrows) and remove cover.



Model 201:

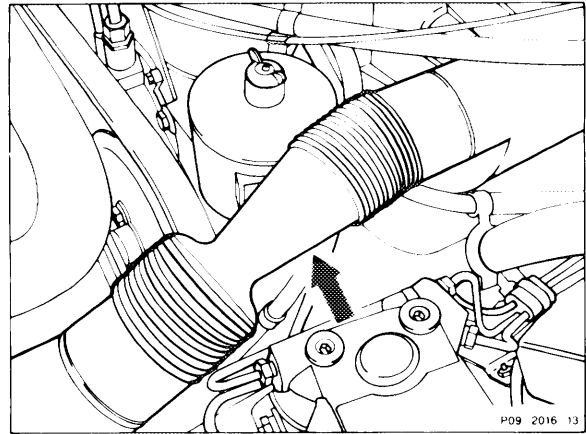
3 Remove cable cover on unit compartment firewall, for this purpose remove rubber sealing strip (29) over cable cover (30), disconnect clips (31) and fold cover upward.



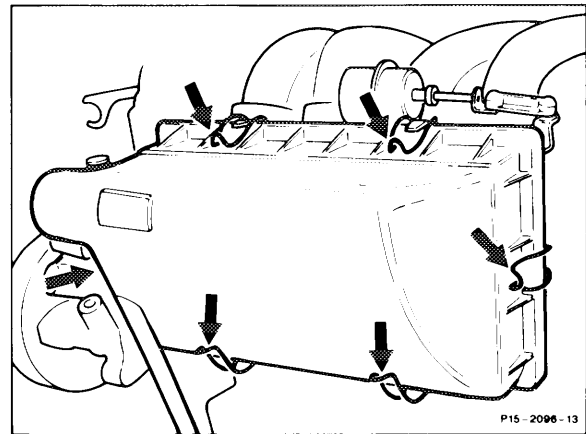
4 Lay battery positive cable across engine.

Naturally aspirated engines:

5 Remove air intake hose (arrow).



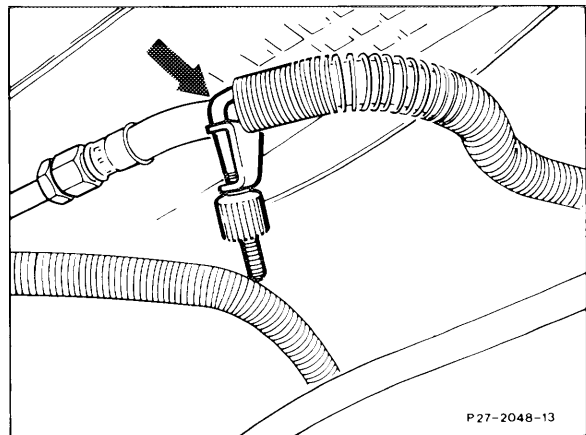
5.1 Open retaining clips on air cleaner cover and remove cleaner cover and filter cartridge.



Turbo-engines:

6 Remove intake hose to exhaust gas turbocharger.

7 On vehicles with automatic transmission plug oil cooler lines with clamps 000 589 40 37 00 (arrow).

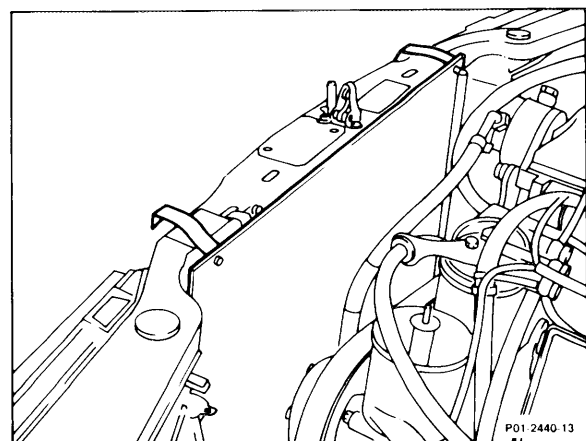


8 Remove radiator (20-420).

Caution!

On vehicles with air conditioner attach guard plate to condenser immediately after removing radiator.

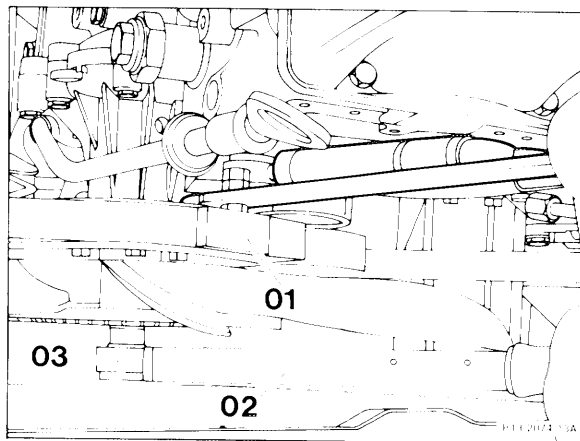
9 Loosen and remove all coolant hoses between engine and chassis.



10 Remove fan with viscodrive fan clutch; hold V-belt pulley with counterholder (01) 603 589 00 40 00 and remove Allen bolt with socket (03) 103 589 01 09 00 and torque wrench (02) 001 589 72 21 00. Remove fan.

Installation note

Tightening torque 45 Nm.

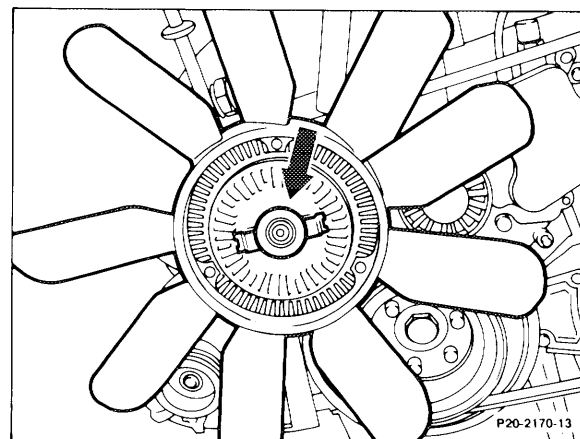


Fans with magnetic fan clutch:

11 Remove fan; remove Allen bolt (arrow). Remove fan.

Installation note

Tightening torque 25 Nm.



Vehicles with air conditioning:

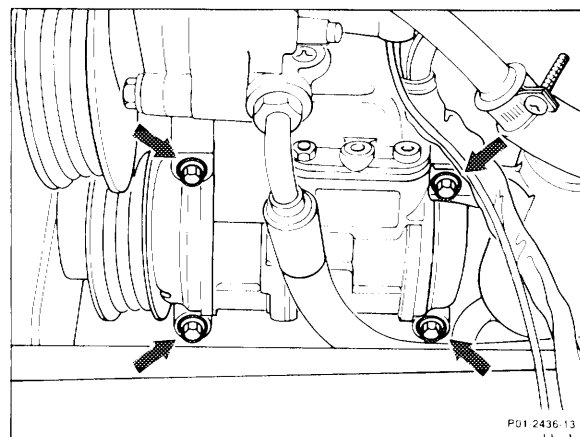
12 Remove poly V-belts (13-342), remove hex. head bolts (arrows) for refrigerant compressor and attach refrigerant compressor at side on chassis.

Note

Do not unbolt refrigerant lines on refrigerant compressor.

Installation note

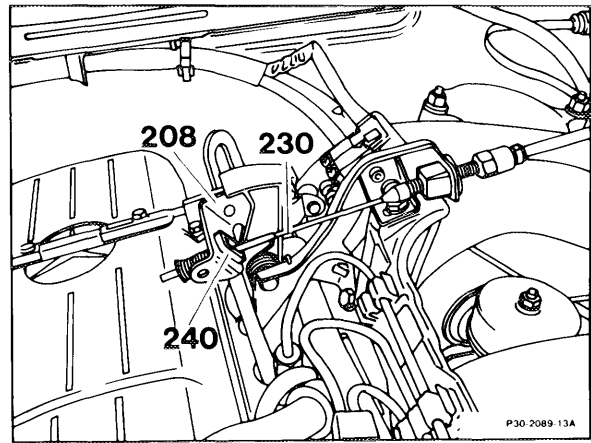
Tightening torque for hex. head bolts on refrigerant compressor 25 Nm.



13 Loosen and disconnect all vacuum hoses and fuel lines between engine and chassis.

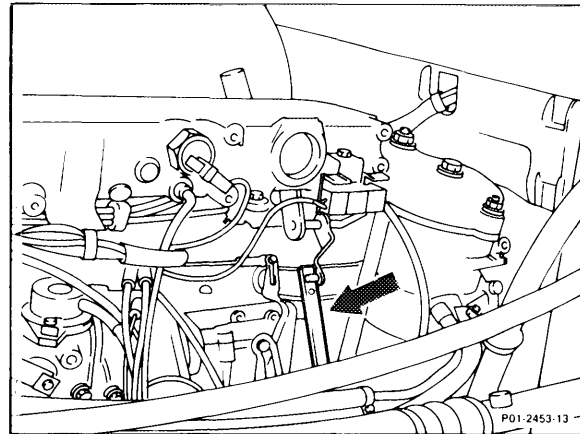
Models 124 and 201:

14 Unhook engine control; press out guide piece (240) on control lever (208) and remove control cable (230).



Model 126:

15 Unhook engine control linkage; unhook connecting rod (arrow) on control shaft.



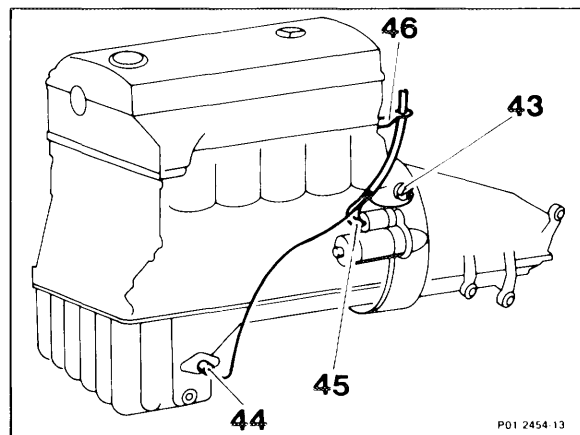
Installation note

Adjust control cable (30-300).

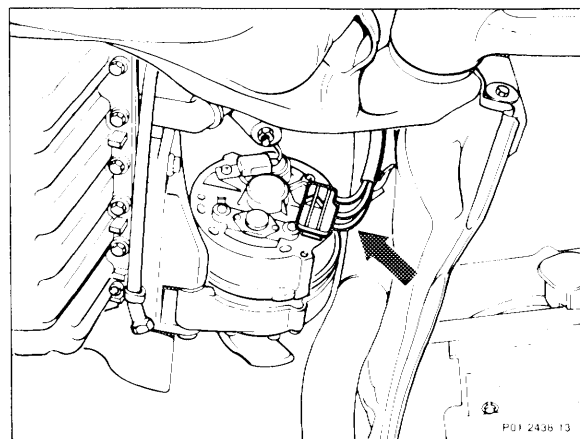
16 Disconnect all electrical lines between engine and chassis; for this purpose disconnect plug connectors and connections.

17 Disconnect plugs on oil pressure switch (43) and oil level sensor (44).

18 Remove connection cables on starter (45) and remove harness from holder (46) above starter.



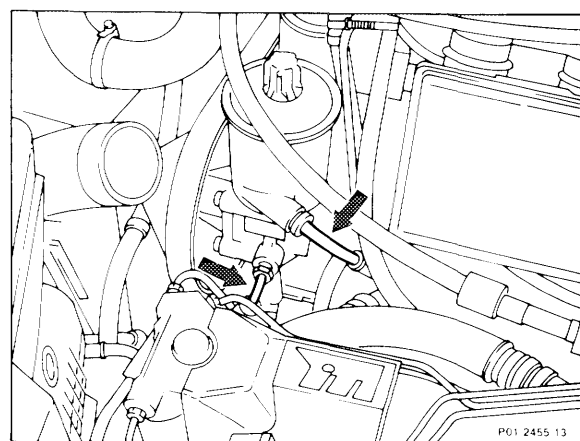
19 Disconnect plug connector (arrow) on alternator.



20 Completely remove engine wiring harness, for this purpose disconnect all clips and cable connectors.

21 Evacuate oil from supply reservoir for power steering pump or tandem pump using hand pump 112 589 00 72 00.

22 Unscrew oil lines for power steering on power steering pump (arrows) or on tandem pump.



Installation note

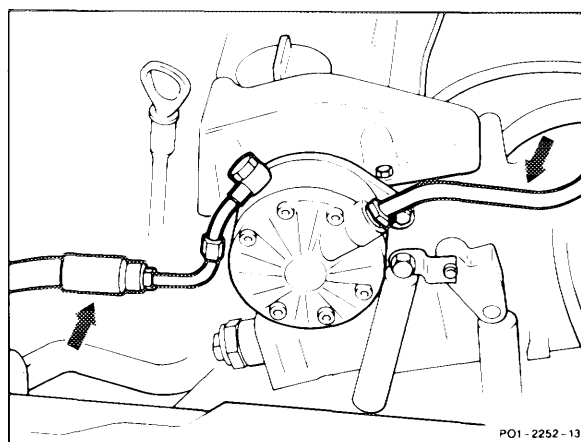
Tightening torque 30 Nm.

Replace oil which has leaked out.

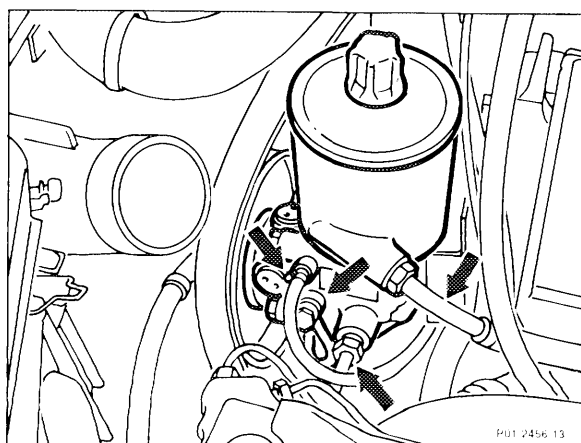
Power steering pump

Vehicles with level control and/or ASD:

23 Remove oil lines and hoses (arrows) for hydraulic pump or tandem pump between engine and chassis.



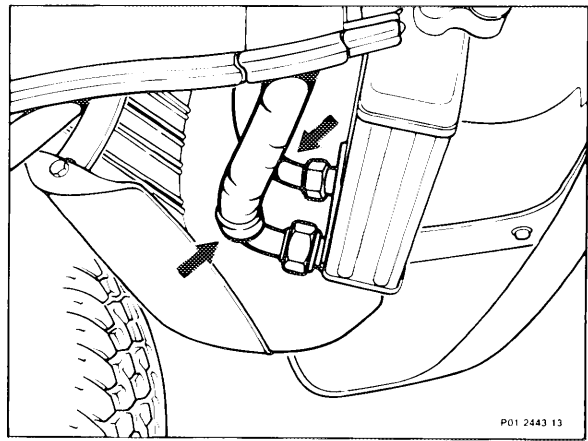
Hydraulic pump



Tandem pump

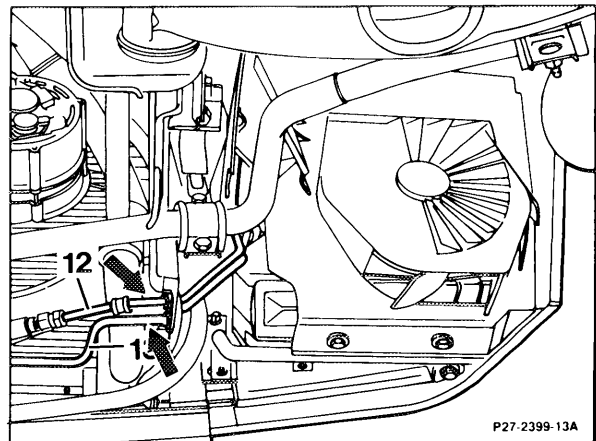
Turbo-engines or naturally aspirated engines with exhaust gas recirculation:

24 Unbolt oil lines and hoses (arrows) for air oil cooler in left wheelhouse between radiator and engine.



Turbo-engines with automatic transmission and trailer hitch in combination with air conditioning:

25 Unbolt oil lines and hoses (arrows) for transmission air oil cooler in right wheelhouse between radiator and engine.

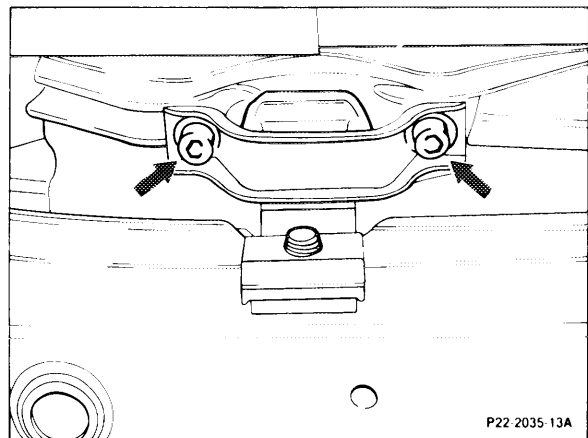


Model 201 (up to 03/85):

26 Remove Allen bolts (arrows) on mount for engine stop and remove mount.

Installation note

Tightening torque 25 Nm. Check engine stop with adjustment gauge 201 589 04 23 00 and adjust (22-220). Tightening torque for adjustment bolt 130 Nm.

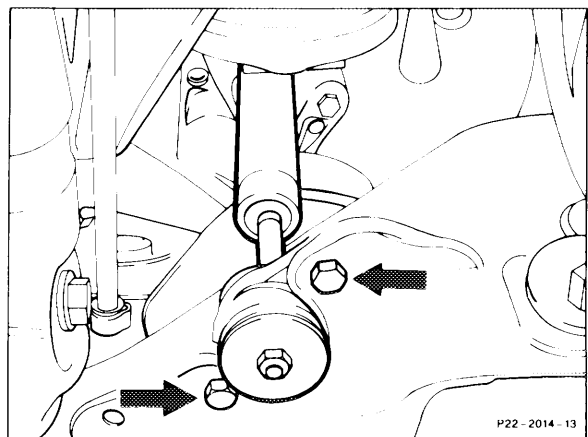


Model 201 (up to 03/85):

27 Remove engine shock absorber, left, for this purpose remove hex. head bolts (arrows) on mount and remove engine shock absorber from frame cross member.

Installation note

Tightening torque 10 Nm.

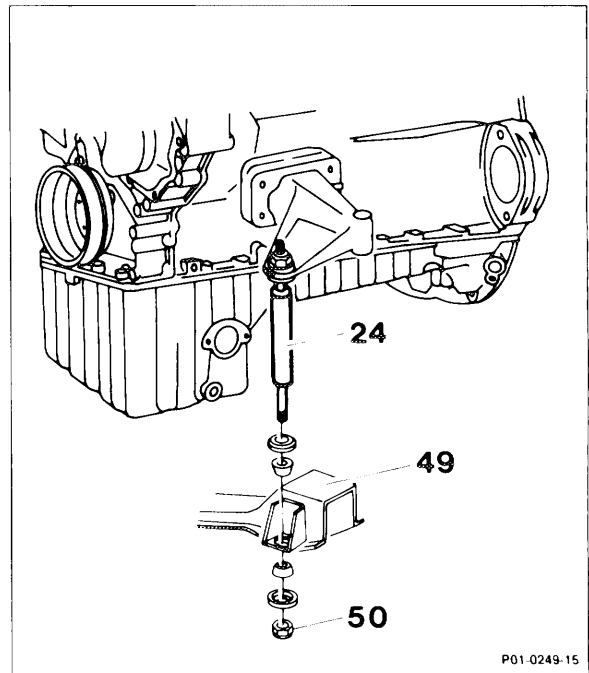


Model 126:

28 Unbolt engine shock absorbers (24) on left and right; for this purpose unscrew hex. nut (50) and press shock absorber upward out of mount on frame cross member (49).

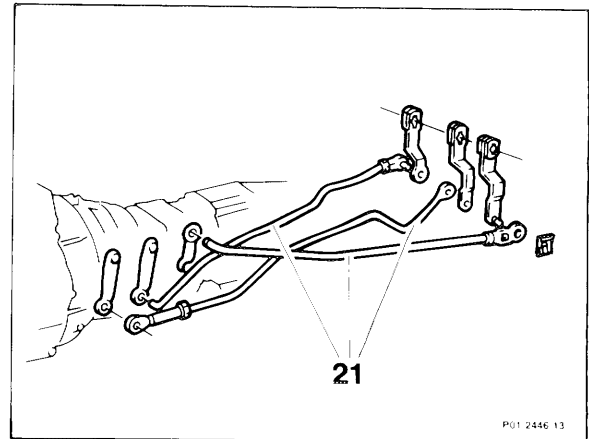
Installation note

Tightening torque 10 Nm.



Vehicles with manual transmission:

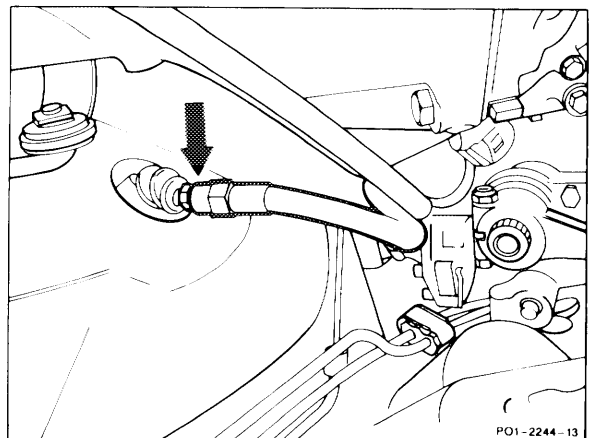
29 Unhook shift linkage (21) on transmission.



29.1 Unbolt hydraulic lines on clutch master cylinder (arrow).

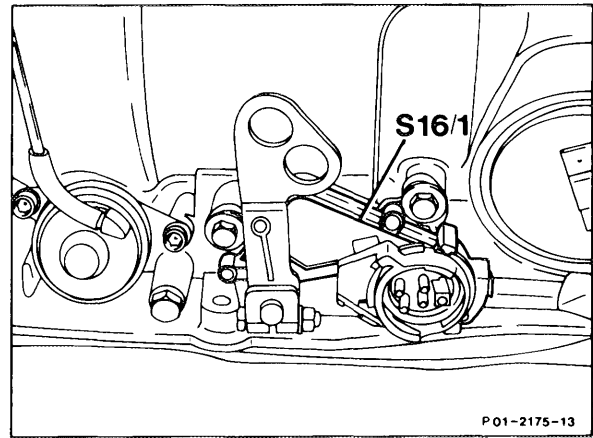
Installation note

Bleed clutch master cylinder.



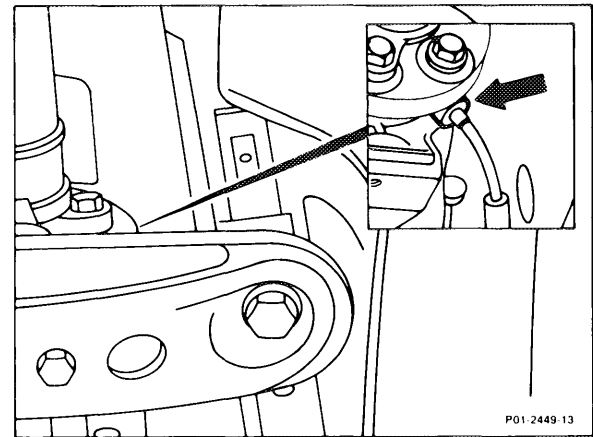
Vehicles with automatic transmission:

30 Unhook shift linkage on transmission and disconnect connector for starter lockout, back-up light switch (S16/1).

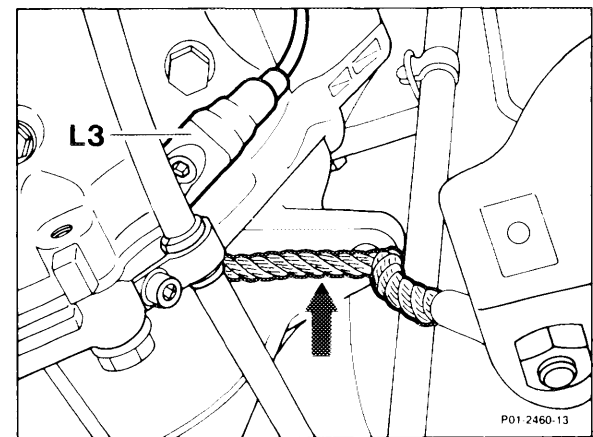


30.1 Disconnect connector for kickdown solenoid valve on right side of transmission.

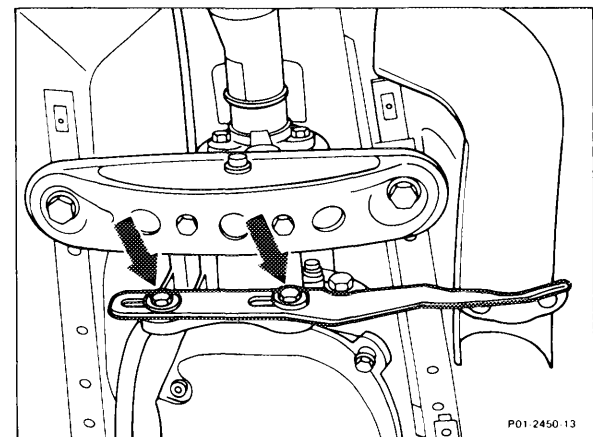
31 Unbolt speedometer shaft or speedometer inductive sensor (arrow) and remove the two bottom hex. head bolts for the starter. Position speedometer shaft or connection wire to side.



32 Unbolt engine speed sensor (L3) and starter ground strap (arrow) on chassis.



33 Remove hex. head bolts (arrows) for lateral exhaust support on transmission and remove support.



34 Unbolt heat baffle plates on center tunnel.

35 Remove hex. head bolts (arrows) for drive shaft on transmission flange and press drive shaft off of transmission flange.

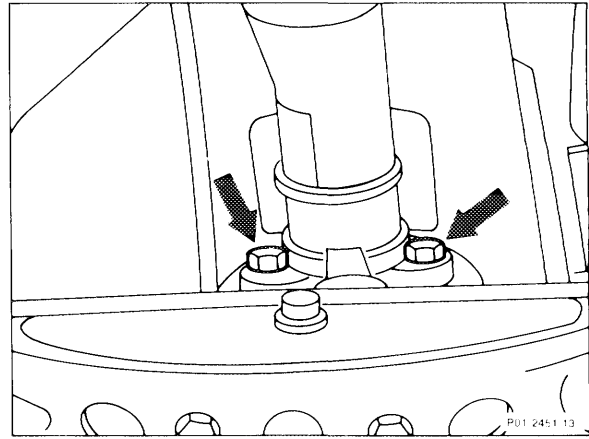
Installation note

Replace self-locking hex. nuts.

Tightening torque

Engine 602, 603.91 40 Nm

Engine 603.96 60 Nm.



36 Loosen hex. head bolts (494) on drive shaft intermediate flange.

Installation note

Tightening torque 25 Nm.

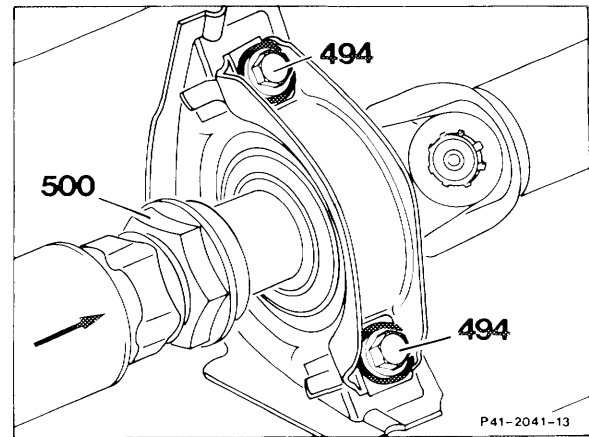
37 Loosen clamping nut (500) with open-end wrench

126 589 00 01 00 (SW46) or

201 589 00 01 00 (SW41) and

torque wrench 001 589 66 21 00.

Push drive shaft back as far as possible (in direction of arrow).



Installation note

Tightening torque 30 – 40 Nm.

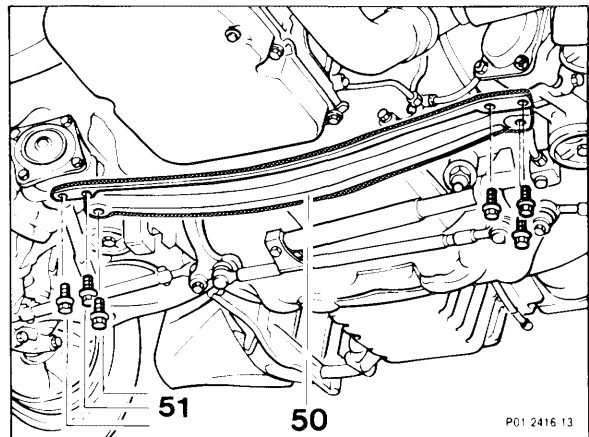
Model 126:

38 Unbolt hex. head bolts (51) on cross member center piece (50) and remove cross member center piece.

Installation note

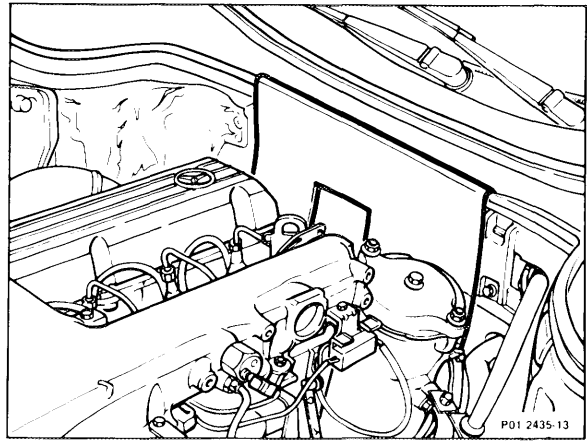
Replace self-locking hex. head bolts.

Tightening torque 45 Nm.

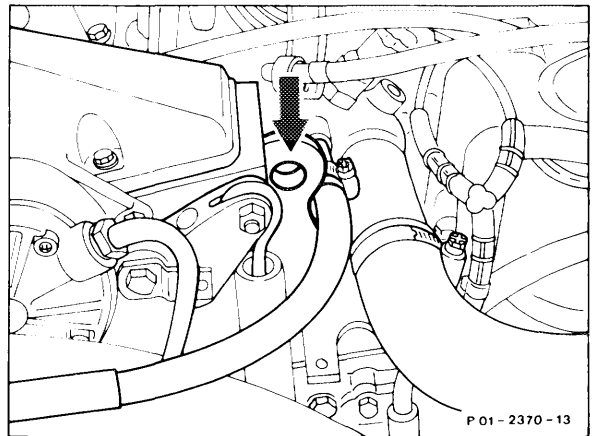


Caution!

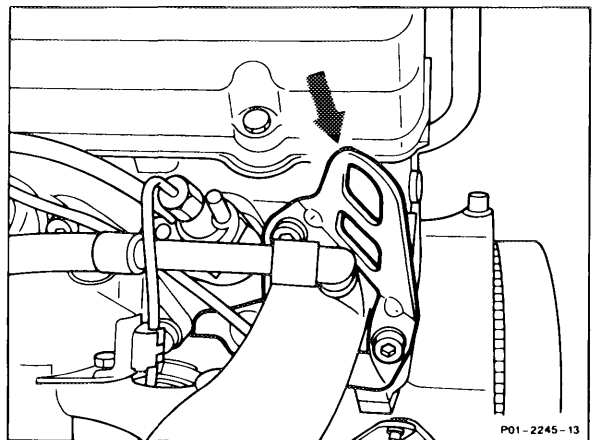
Attach guard plate on unit compartment firewall.



39 Fasten engine hoist cables to front and rear suspension eyes on engine. Align engine hoist so that engine is positioned horizontally.



Suspension eye, front



Suspension eye, rear

40 Remove hex. head nuts (47) on mount for rear engine support. Remove hex. head bolts (48) and remove engine support with mount.

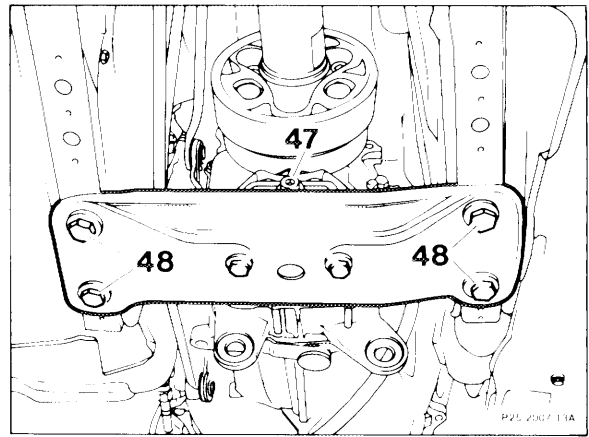
Installation note

Tightening torque

Hex. nuts 70 Nm

Hex. head bolts 45 Nm.

Check adjustment bolt on rubber mounts, tightening torque 30 Nm.



41 Remove Allen bolts for front engine mounts from frame cross member from bottom.

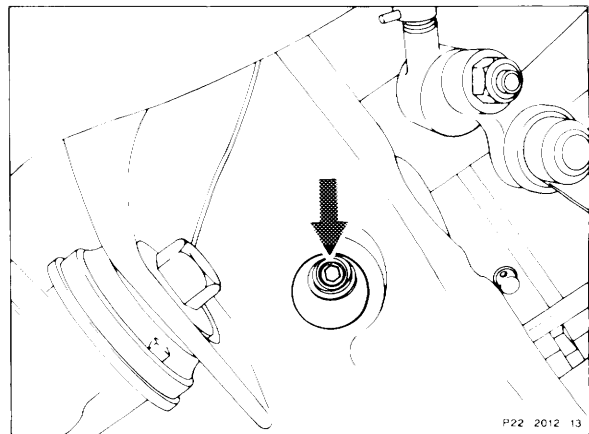
Installation note

Tightening torque

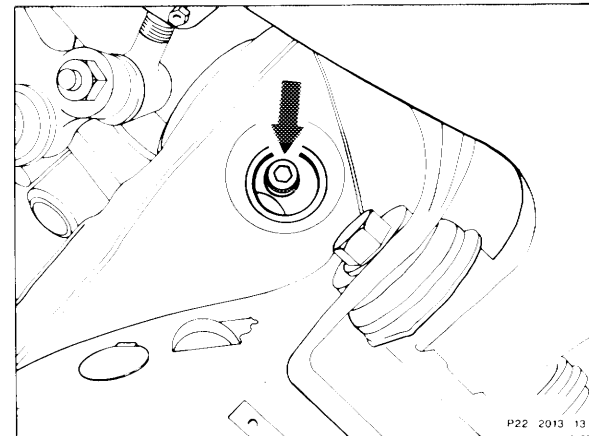
Model 124 and 201 40 Nm

Model 126 70 Nm.

Allen bolt, engine mount, left



Allen bolt, engine mount, right



42 Lift engine with transmission at angle out of engine compartment, continuously correct angle with engine hoist, maximum angle approx. 45°.

⚠ Warning

When lifting engine pay attention to rear suspension eye on engine and engine oil filter.

43 Install in opposite order.

After installation:

44 Check engine oil, add, if required or refill engine oil and fill up cooling system.

44.1 Perform pressure test on cooling system (20-017), pressure tester 124 589 15 21 00.

44.2 Start engine and check engine oil and cooling systems for leakage.

