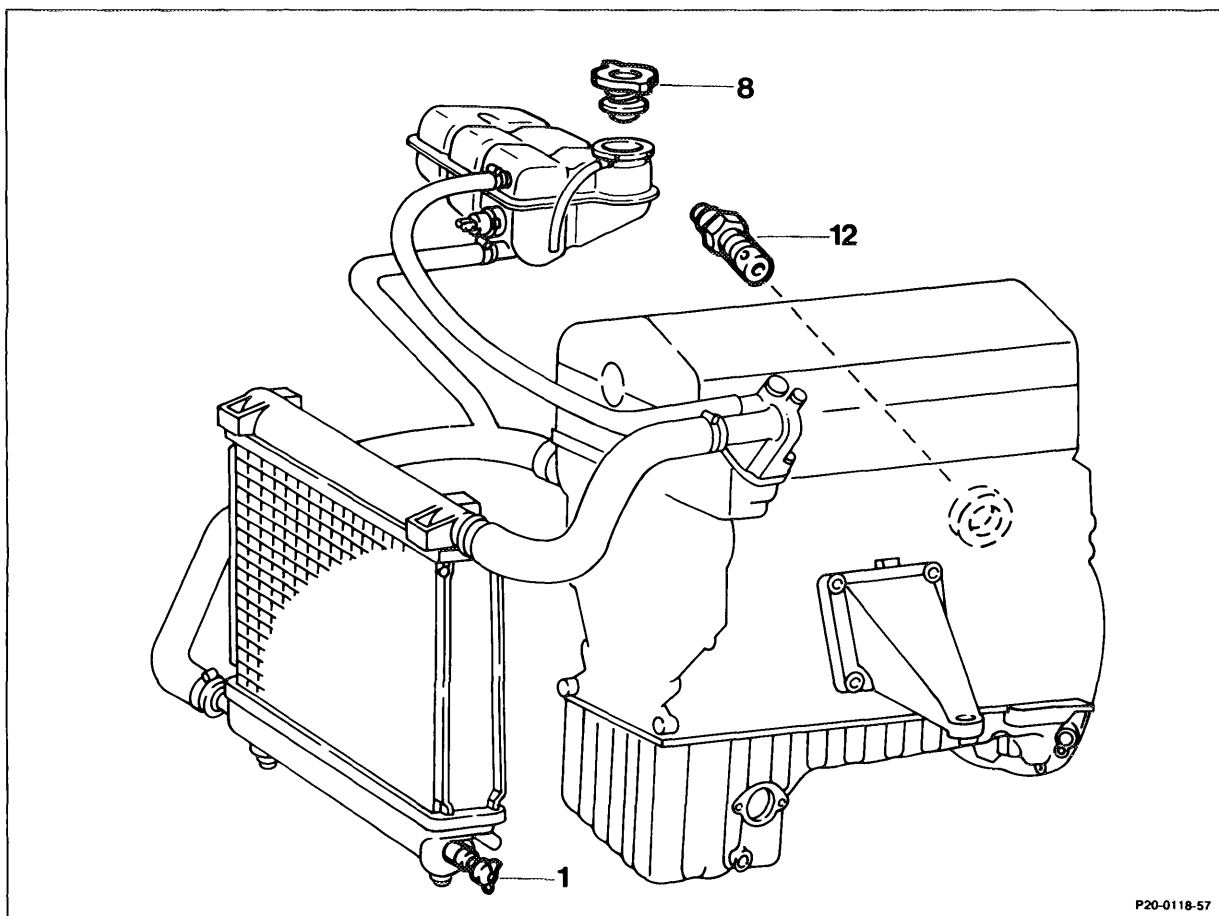


20-010 Engine coolant replacement - Antifreeze table

Preceding work:
 Engine compartment covering bottom removed (01-006).



P20-0118-57

Heater switch	set to maximum heating capacity.
Cap (8)	remove, refit.
⚠ Warning	
Open cap only when coolant temperature is below 90 °C.	
Drain plug (1)	open, close, 1.5 - 2 Nm, drain coolant (step 2).
Drain plug (12) and drain connection	open, close, 30 Nm, drain coolant (steps 3, 4).
Old coolant	flush out.
Coolant	pour in up to marking on expansion tank (10) (step 6).
Engine	run until coolant thermostat opens, approx. 90 - 100 °C (step 7).
Coolant level	check (step 8).
Cooling system	check for leaks (20-017).

Total capacities of cooling system with heating system and mixing ratio of anti-corrosion/antifreeze agent¹⁾ and water²⁾ in liters

Model	Engine	Total capacity of cooling system with heating system	Mixing ratio anti-corrosion/antifreeze agent/water for antifreeze prot. down to	
			-30 °C	-45 °C
124	602.96	8	3.5/4.5	4.5/3.5
124, 126	603.96/97	10	4.5/5.5	5.5/4.5
201	602.911, 602.96	8	3.5/4.5	4.5/3.5

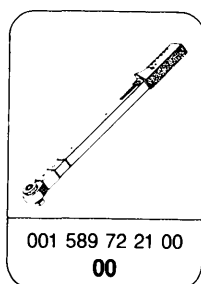
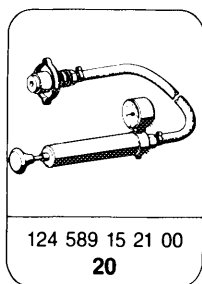
1) See Service Product Specifications sheet 325.1 and 325.2

2) See Service Product Specifications sheet 310

Tightening torques

	Nm
Radiator drain plug	1.5 – 2
Crankcase drain plug	30
Drain connection (engine 602 and 603 only)	30

Special tools



Commercial tool

Antifreeze protection tester
Prestone-VV-Check (Union Carbide)

e.g. Ph. Gather,
4020 Mettmann

Notes, see VOI Environmental Protection Catalog

Water

Use water which is clean and not too hard. Usually drinking water satisfies these requirements. The content of dissolved substances in the water may result in corrosion.

Anti-corrosion/antifreeze protection

The anti-corrosion/antifreeze agent must perform the following tasks:

- Adequate corrosion and cavitation protection for all components
- Antifreeze protection
- Provides increased boiling point

50% by vol. anti-corrosion/antifreeze agent must be added to the water. This concentration offers antifreeze protection down to approx. -37°C . A higher concentration is only recommended for very low ambient temperatures.

More than 55% by vol. anti-corrosion/antifreeze agent reduces the antifreeze protection and reduces the heating capacity.

55% by vol. anti-corrosion/antifreeze agent offers antifreeze protection down to approx. -45°C . Anti-corrosion/antifreeze agent increases the boiling point, in other words the coolant does not evaporate so rapidly. This avoids coolant being lost at high coolant temperatures.

Use only approved anti-corrosion/antifreeze agents (see Service Product Specifications sheets 325.1 and 325.2).

Operational monitoring of coolant

Check the coolant for resistance to low temperatures at the start of the cold season of the year. Check anti-corrosion/antifreeze agent concentration once a year in areas with high outside temperatures.

When adding coolant (after loss of coolant), it must be assured that there is an anti-corrosion/antifreeze agent portion of 50% by vol. in the coolant to provide antifreeze protection down to $-37\text{ }^{\circ}\text{C}$.

The anti-corrosion protection in the coolant is reduced over the period of operation. The coolant then has a sharply corrosive effect. The maximum permissible period of use of the specified coolant in car engines is 3 years. Before adding fresh coolant, the used coolant should be first flushed out of the system.

Draining

- 1 Set heating switch to maximum heating capacity.
- 2 Open cap on expansion tank in stages, allow system pressure to escape and remove cap.

Warning

Open cap only when coolant temperature is below $90\text{ }^{\circ}\text{C}$.

- 3 Open drain plug on the radiator.

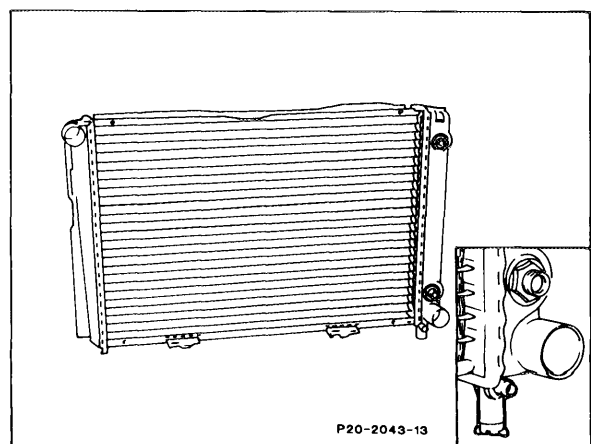
Note

An extension hose can be fitted to the drain connection for collecting coolant.

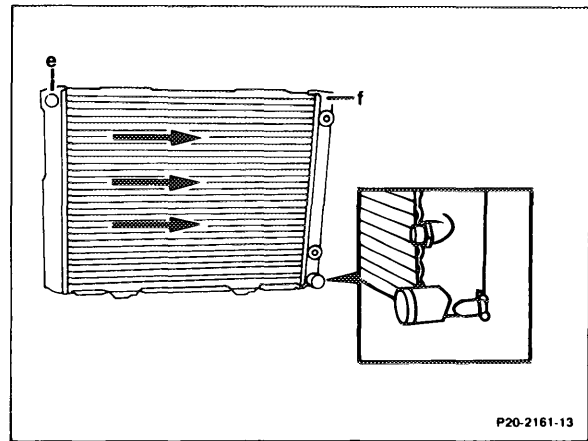
Installation instruction

Tightening torque 1.5 – 2 Nm.

Drain plug on models without air conditioning

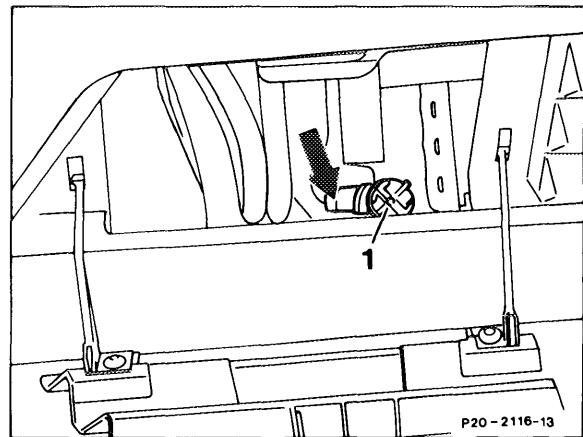


Drain plug on models with air conditioning



On models with air conditioning, open flap for towing lug at front right of lower bumper molding.

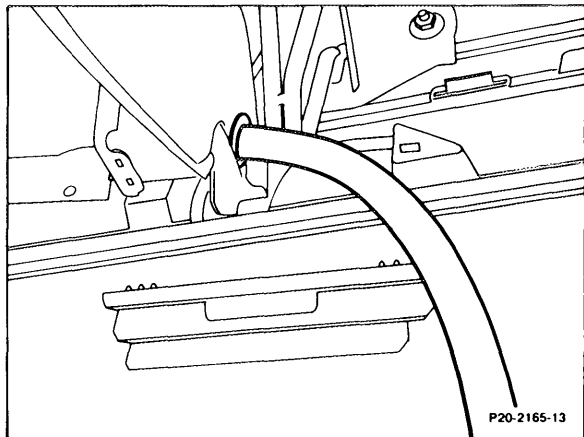
- 1 Drain plug on models with air conditioning



Note

On models with air conditioning, the plug below the right side wheelhouse at the noise encapsulation should be removed. An extension hose can be fitted onto the drain connection of the radiator through this opening.

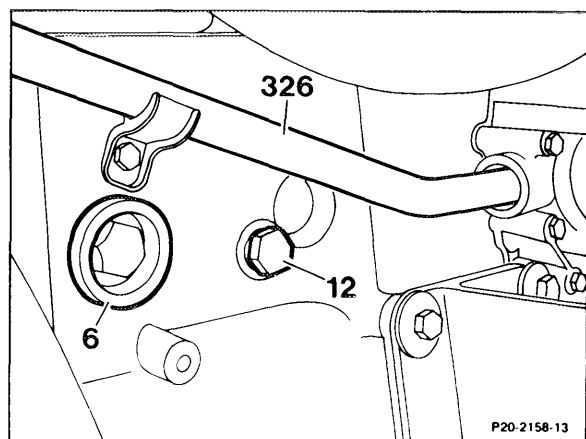
Extension hose fitted on (with air conditioning)



- 4 Unscrew drain plug (12) on crankcase.

Installation instruction

Tightening torque 30 Nm.

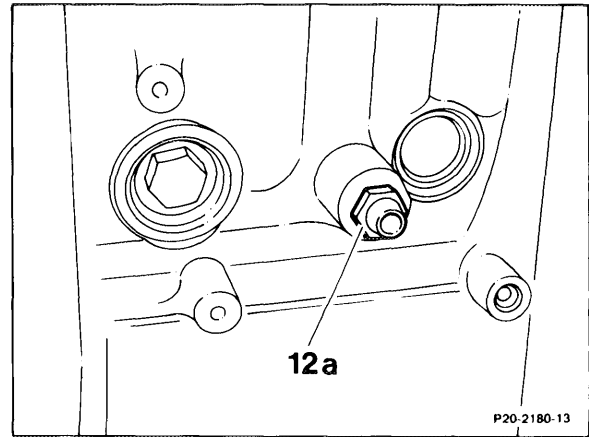


Note

Engines 602 and 603 have a drain connection (12a) in place of the drain plug. A hose can be fitted onto this drain connection for draining.

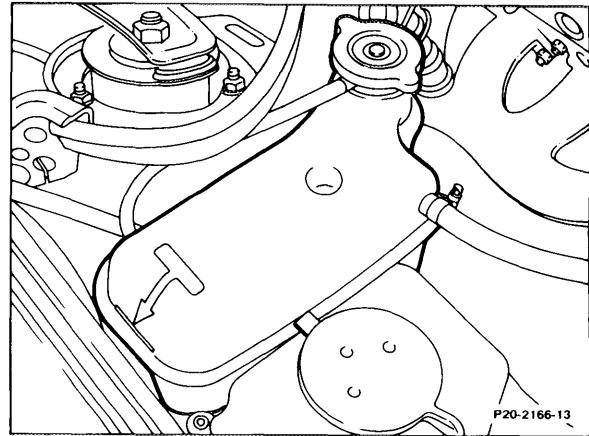
Installation instruction

Tightening torque 30 Nm.

**Filling in coolant**

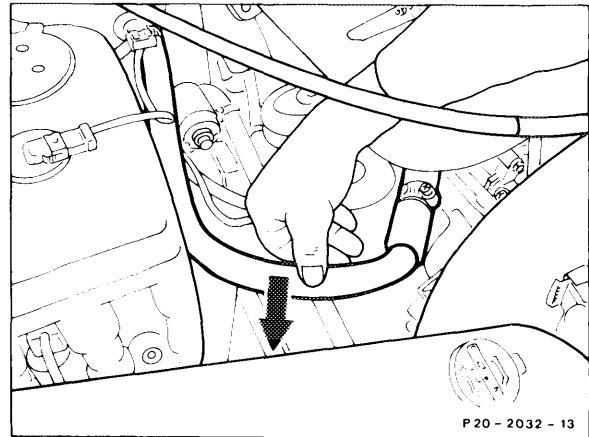
- 5 Flush out old coolant.
- 6 Slowly pour in coolant up to the marking (arrow) on the expansion tank.

Marking on expansion tank

**Note**

The filler hose can be pressed down (arrow) when adding coolant to ensure that it flows more quickly from the expansion tank into the radiator and engine.

- 7 Run engine until the coolant thermostat opens (coolant temperature approx. 90 – 100 °C).

**Note**

Close filler connection at expansion tank from a coolant temperature of approx. 60 – 70 °C.

- 8 Check coolant level; top off to specified marking, if necessary.
- 9 Check cooling system for leaks (20-017).