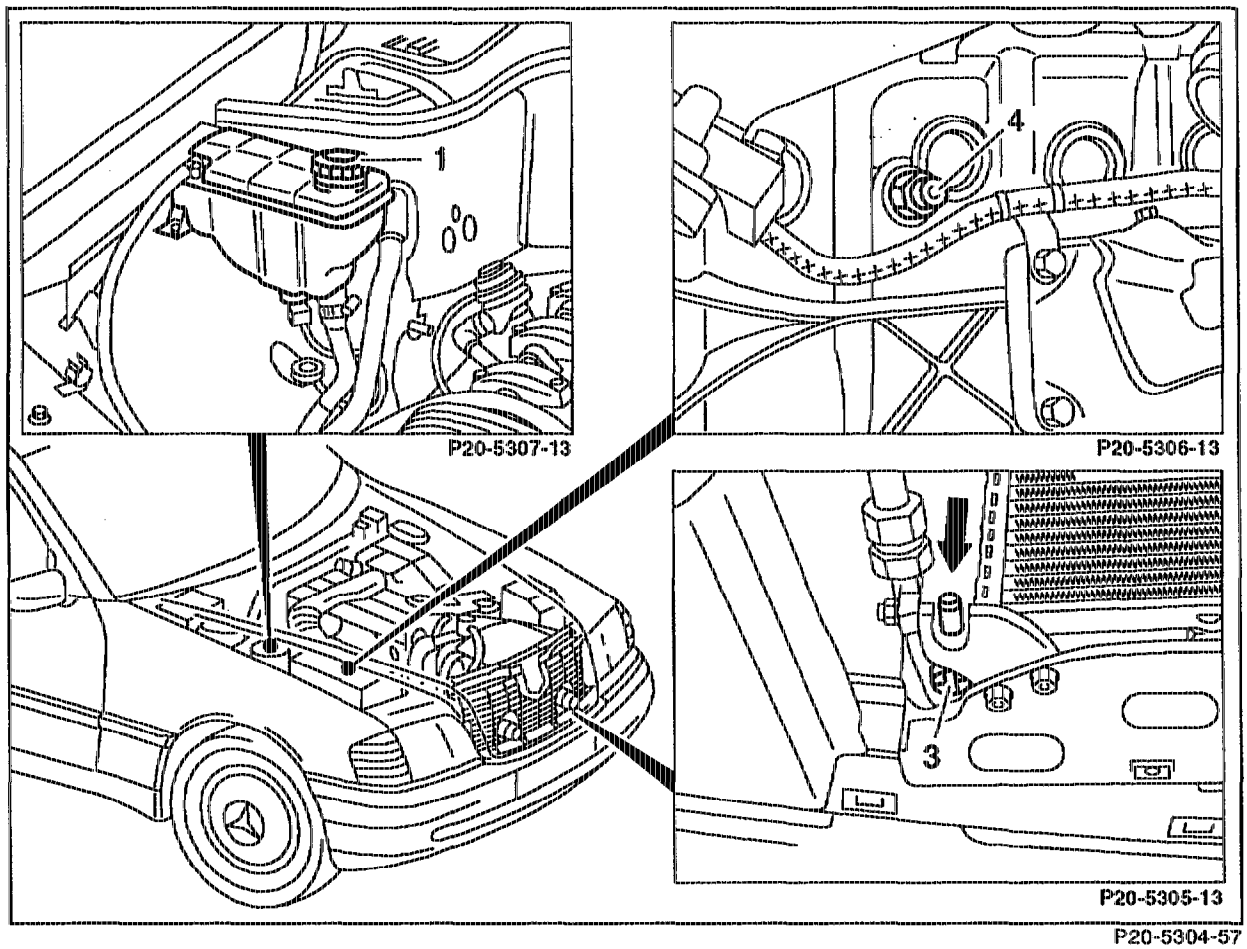
20–0100 Draining, pouring in coolant – anti-freeze protection table

Preceding work:
Bottom engine compartment panel removed
(Maintenance Manual 6190).

Operation no. of operation texts and work units or standard texts and flat rates:
20–1142–1151



Shown on model 202

Cap (1)	turn anti-clockwise as far as detent 1, turn 2-stage cap in model 210 half a turn, to release pressure.
	⚠ Cap (1) must not be opened unless coolant temperature below 90 °C. Risk of scalding!
Cap (1)	turn further to detent 2, turn 2-stage cap in model 210 further, and remove.

Draining coolant at radiator

Hose (inner dia. 12 mm)	fit onto connection (arrow).
Drain plug (3)	open, close.
Coolant	drain into suitable vessel.

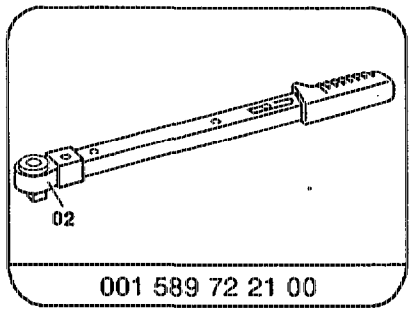
Draining coolant at crankcase

Hose (inner dia. 14 mm)	fit onto drain plug (4).
Drain plug (4)	open, close (30 Nm).
Coolant	drain into a suitable vessel.

Pouring in coolant, bleeding system

Model 124:	pour in coolant up to marking (arrow) on expansion reservoir (2).
Models 129, 140, 202:	pour in coolant up to separation between top part of expansion reservoir (black) and bottom part (transparent).
Model 210:	pour in coolant up to marking (cast lug, visible when cap open) on the floor of expansion reservoir.
Heater	switch on.
Model 210:	unscrew temperature sensor at coolant thermostat housing, screw in as soon as coolant flows out.
Engine	warm up at moderate revs until coolant thermostat opens.
Models with auxiliary heater:	bleed auxiliary heater (83–1165).
Coolant level	top up to marking or to separation line on expansion reservoir.
Filler neck on expansion reservoir	close from a coolant temperature of about 60 – 80 °C; model 210: pay attention to note.
Coolant	test for resistance to low temperatures.
Cooling system	check for leaks (20–0170).

Special tool



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Tightening torques in Nm

Drain plug of radiator (reference value)	1.5
Drain plug of crankcase	30

Commercially available tool

Anticorrosion/antifreeze tester FT 2020	e. g.	Leitenberger Bahnhofstraße 23 72138 Kirchentellinsfurt

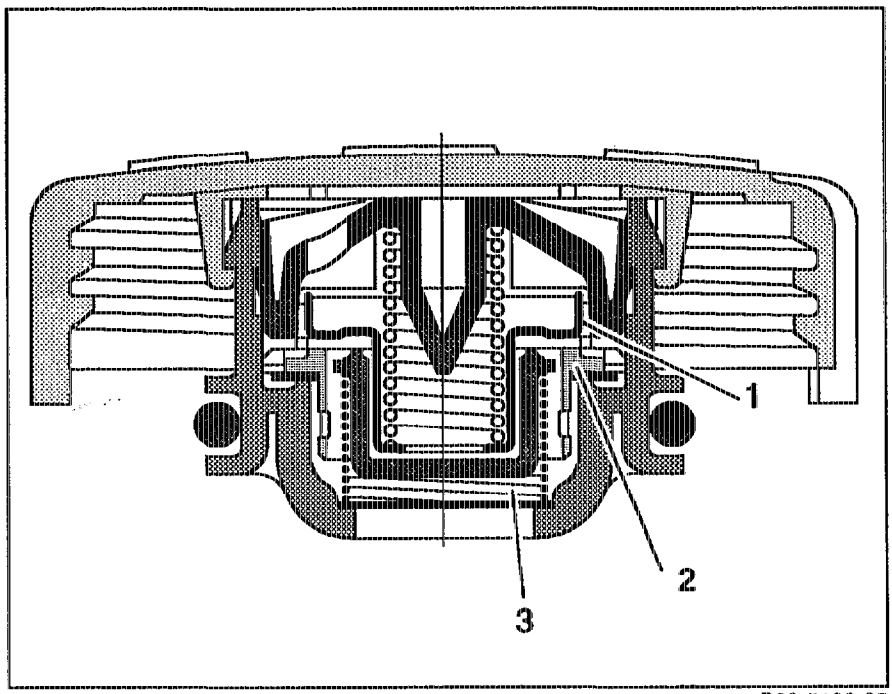
Note

A 2-stage cap is fitted to model 210.

⚠

The 2-stage cap must be screwed in far enough until the lug engages in the notch on the coolant expansion reservoir.

The cap has an additional pressure stage to enable the system pressure to rise by up to 2 bar in the engine off heating phase without coolant flowing out.



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Capacities in liters

Model	Engine	Cooling system with heater	Anticorrosion	Antifreeze
			–37 °C (50 % by vol.)	–45 °C (55 % by vol.)
124	104 [3]	9	4.5	5
		9.5 [4]	4.75	5.25
129	104	11.5	5.75	6.25
140	104	14.5	7.25	8.0
202	104	10	5.0	5.5
		10.5[4]	5.25	5.75
210	104	8.0	4.0	4.5
		8.5[4]	4.25	4.75

[3] approx. 0.25 ltr. additional quantity with oil-to-water heat exchanger
[4] with air conditioning/air conditioning (automatic)

Note

Coolant composition for anti-freeze protection down to –37 °C
50 % by vol. water (Mercedes-Benz Specifications for Service Products).
50 % by vol. anti-corrosion/anti-freeze agent (Mercedes-Benz Specifications for Service Products).
A higher concentration is only of practical use at lower ambient temperatures.

55 % by vol. anti-corrosion/anti-freeze agent offers anti-freeze protection down to approx. –45 °C.
More than 55 % by vol. anti-corrosion/anti-freeze agent reduces the anti-freeze protection and impairs heat dissipation.

⚠
Disposal of coolants
The anti-corrosion/anti-freeze agents approved in the Mercedes-Benz Specifications for Service Products are biodegradable substances.

Observe national legislation and local waste water regulations.

For workshop locations in Germany refer to Environmental Protection Catalogue of MBVD/PWU.

Operational monitoring of coolant
Check the coolant for its resistance to cold temperatures before the start of the cold season.

In countries with high outside temperatures, check anti-corrosion/anti-freeze agent concentration once a year.

The corrosion protection of the coolant is degraded during operation. Such coolants have a severely corrosive effect.

The maximum period of use of a specified coolant in car engines is **3 years.**

When topping up (after loss of coolant), it must be ensured that an anti-corrosion/anti-freeze agent concentration of 50 % by vol. exists in the coolant to provide anti-freeze protection down to –37 °C.

⚠
Before pouring in fresh coolant, the cooling and heating system must be free of used coolant and of corrosion residues; for this reason, clean cooling and heating system.

Anti-corrosion/anti-freeze agent
Anti-corrosion/anti-freeze agent performs the following tasks:

- ensuring adequate corrosion and cavitation protection for all components
- providing anti-freeze protection
- increasing the boiling point

Use only approved anti-corrosion/anti-freeze agents (see Mercedes-Benz Specifications for Service Products).

Water
Use water which is clean and not too hard. Drinking water frequently, but not always, satisfies requirements. The content of dissolved substances in the water may be of significance for the occurrence of corrosion. If the water quality is not known, distilled or fully desalinated water should be used. For water quality see Mercedes-Benz Specifications for Service Products.