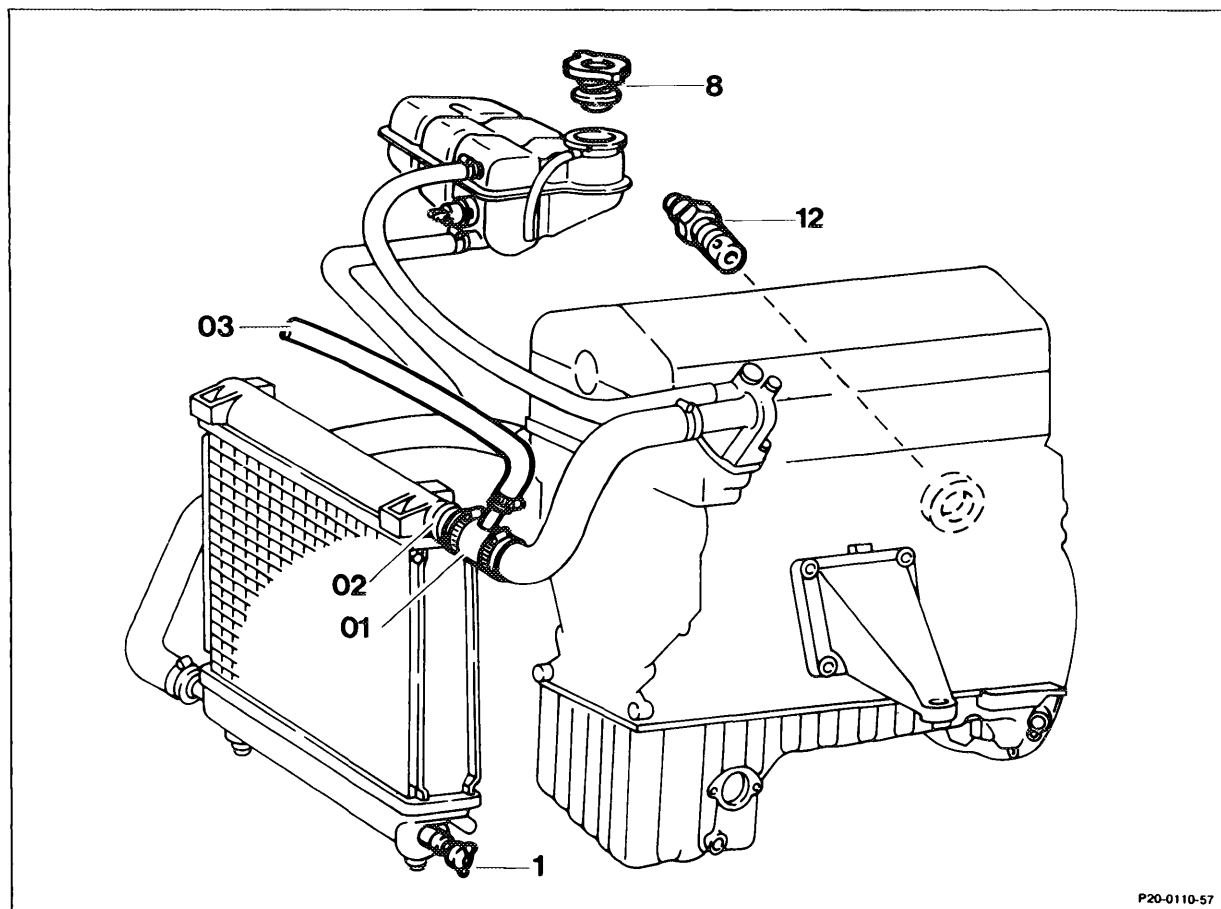


## 20-015 Cleaning and flushing cooling and heating system

Preceding work:

Engine compartment covering bottom removed (01-006).

Coolant drained (20-010).



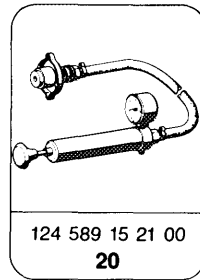
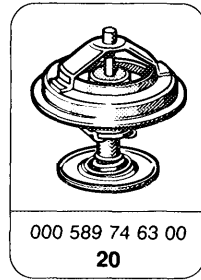
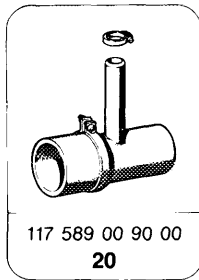
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Coolant thermostat	remove and install forcibly-opened thermostat Part No. 000 589 74 63 00 (step 1).
Flushing connection pipe (01)	install and connect tap water hose (03) (steps 2 and 3).
Cooling system	flush (step 4 – 20, 22).
Cooling system expansion tank	remove and install, flush out (step 21).
Cooling system	check for leaks (20-017).

### Service products

Anti-corrosion/antifreeze agent	000 989 08 25
Citric acid powder (0.5 kg)	000 989 10 25

## Special tools



## Notes

High coolant temperatures and low heating capacity may also be caused by deposits of corrosion products in the radiator and in the heat exchanger.

The deposits are recognizable as a jelly-like mass or, when the radiator is empty and dry, from a grey layer on the cooler connection pipes.

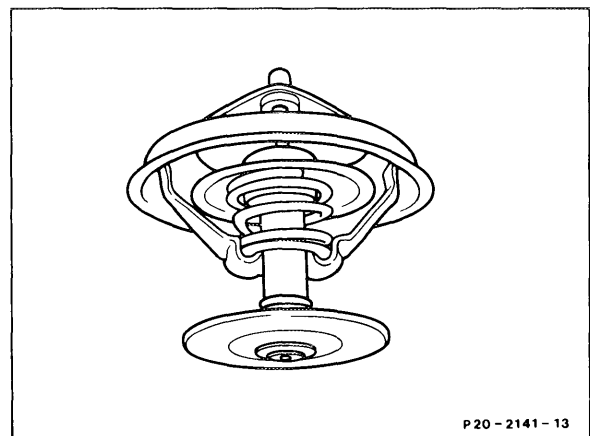
In this case, the cooling and heating system can be cleaned with a 10% citric acid solution.

Radiators which have cooling pipes which are fully or partially clogged, must be replaced.

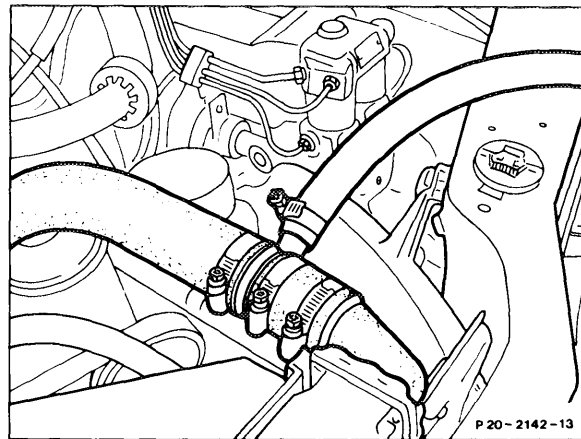
## Scope of flushing operation

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- 1 Remove coolant thermostat and install forcibly-opened thermostat 000 589 74 63 00 with sealing ring.



- 2 Connect flushing connection pipe Part No. 117 589 00 90 00 with connection hose between radiator and coolant hose.
- 3 Connect a tap water hose to the flushing connection pipe.
- 4 Open cap of expansion tank.
- 5 Set heater to "warm".



### **Models with auxiliary heater**

- 6 If automatic heating control is fitted, set the temperature selectors to "Max" or, if automatic climate control is fitted, press the "Defrost" button so that the circulation pump is switched on when the engine is running.
- 7 Open bleeder valve of the auxiliary heater.
- 8 Flush cooling and heating system with flowing water for approx. 5 minutes with the engine running (approx. 2500 rpm) so that the remaining coolant is flushed out.

### **Caution!**

During the flushing operation, the cooling system must always be completely filled. Adjust feed quantity accordingly.

- 9 Allow flushing water in the radiator and crankcase to completely drain out. Screw in drain plugs at radiator and crankcase.
- 10 Dissolve 15 kg citric acid powder (0.5 kg, Part No. 000 989 16 25) in 5 liters of water in a suitable vessel.
- 11 Pour cleaning solution into the coolant expansion tank and top off with water as far as the marking on the expansion tank.
- 12 Close bleeder screw of auxiliary heater.
- 13 Close cap of expansion tank.

14 Run engine for 15 minutes at approx. 2500 rpm. The solution must flow through the heat exchanger (step 5).

15 Following this, drain cleaning solution.

**Caution!**

Empty the cleaning solution (citric acid mixture) into a standard workshop oil and water separator.

16 Open the bleeder screw of the auxiliary heater.

17 Flush cooling and heating system for approx. 10 minutes with flowing water with engine running (2500 rpm). The water must flow through the heat exchanger (see steps 5 and 8).

18 Remove flushing connection pipe and connect coolant hose to the radiator.

19 Install normal coolant thermostat with new seal.

20 Screw coolant drain plugs into radiator and crankcase.

21 Remove coolant expansion tank, flush out once again separately, and install.

**Note**

The cleaning solution is not completely removed when drained because of pockets or recesses in the coolant expansion tank.

22 If car fitted with auxiliary heater, connect plastic hose to bleeder valve and open valve.

23 Add fresh coolant (20-010).

24 Check cooling system for leaks (20-017).

