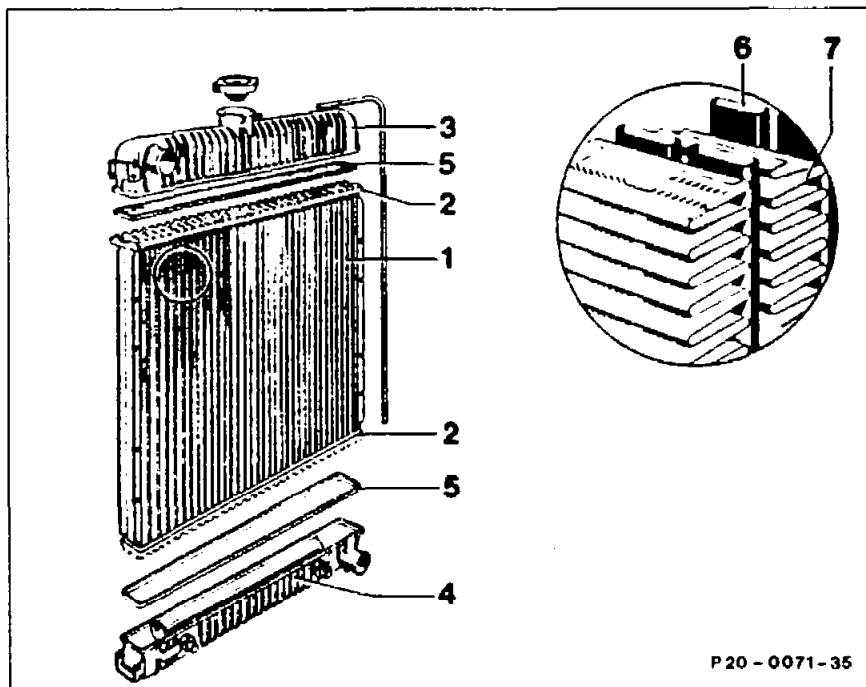


20-425 Repairing radiator

Preceding work:
Radiator removed (20-420)

Operation no. of operation texts and operation values or standard
texts and flat rates 20-3992



Radiator honeycomb (1)	check for signs of damage.
Radiator	clean and seal hose connections and oil cooler line (steps 1 - 4).
Radiator	pressure-test with tester 124 589 15 21 00 and 605 589 00 25 00 in water bath, mark leak point, reduce pressure and blow-dry radiator with compressed air (steps 5 - 10).
Top and bottom water tanks (3, 4)	check for leaks.
Gasket (5)	check for leaks.
Radiator	seal leak point with repair kit radiator sealant 123 989 00 20 (steps 11 - 15).



Pay attention to safety instructions!

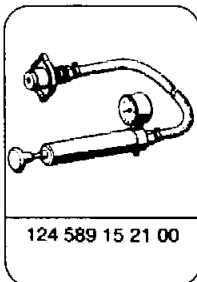
Radiator	pressure-test at 1.4 bar gauge pressure in water bath, check for leaks (steps 16 – 17).
Radiator	install (20–420).
Cooling system	check for leaks (20–017).

Sealant

Repair kit radiator sealing

123 989 00 20

Special tool



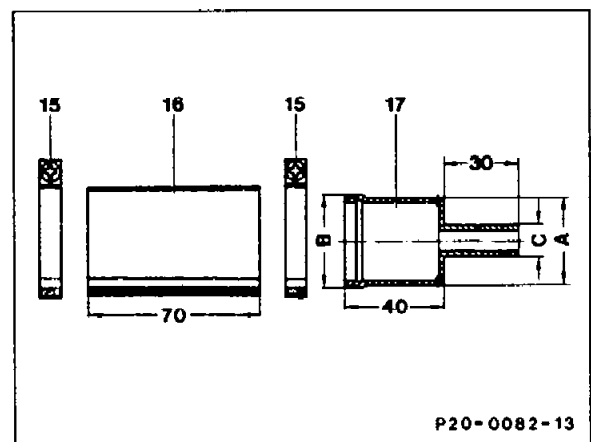
Commercially available tools and testers

Designation	e. g. make,	order no.
Hexagon bit for wrench on flexible shaft with worm drive	Hazet 42853 Remscheid	∅ 6 mm 426-6 ∅ 7 mm 426-7

Shop-made tool

Cap for top hose connection:

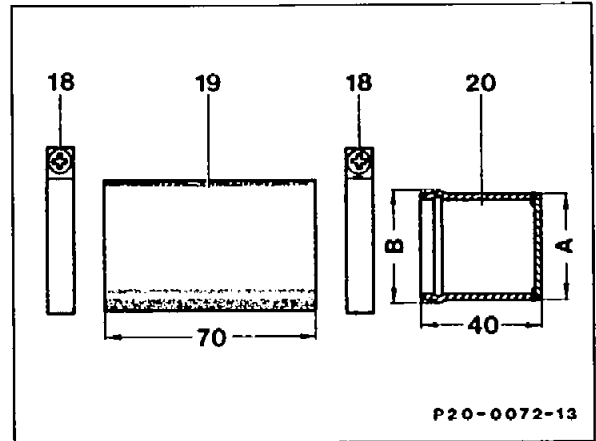
- 15 2 clips L 36–46, part no. 916026 036000
- 16 Piece of hose, part no. 201 501 38 82
- 17 Reducer made from two tubes
- A 35 mm ∅
- B 39 mm ∅
- C 12 mm ∅



Shop-made tool

Cap for bottom hose connection:

- 18 2 clips L 36-46, part no. 916026 036000
- 19 Piece of hose, part no. 201 501 38 82
- 20 Cap from a tube
- A 35 mm \varnothing
- B 39 mm \varnothing



Designation	Use
Priming liquid	Preparation of base
Undiluted sealant	For properly sealing accessible points
Diluted sealant	For sealing difficult-to-reach points (e. g. sides of cooling tubes)

Sealant and priming liquid have a storage life of approx. 1 year provided they are always sealed airtight after use.

Priming liquid which has become cloudy should no longer be used.

The following parts or points in the coolant circuit can be sealed with the sealant:

- a) Plastic water tanks (3 and 4).
- b) Heavy metal water tanks (holes up to 1.5 mm \varnothing).
- c) Light and heavy metal cooling tubes (6).
- d) Tube plate (2).
- e) Beaded collar (connecting point between radiator honeycomb and water tank).
- f) Heat exchanger of heating system.

Fractured or cracked fastening straps, cracks at the connection fittings or spalling cannot be repaired.

Brazing or soldering on heavy metal radiators with plastic water tanks may only be performed on the honeycomb (1) if a distance of at least 20 mm is maintained to the water tank otherwise the high brazing/soldering temperature will damage the gasket (5) and the water tank (3 and 4). Leaks which are located closer to the water tank should be sealed only with sealant.

The radiator does not to be removed for sealing. In this case, it is sufficient to drain the coolant and to pressure-test the cooling system with the tester (approx. 1.4 bar gauge pressure) after sealing.



Light alloy radiators with plastic water tanks cannot be repaired by brazing/soldering.

Sealant is available in diluted and undiluted form because of the different accessibility at the radiator (e. g. more difficult in the honeycomb than at the water tank).

The different sealant versions and the priming liquid are combined in a repair kit part no. 123 989 00 20.

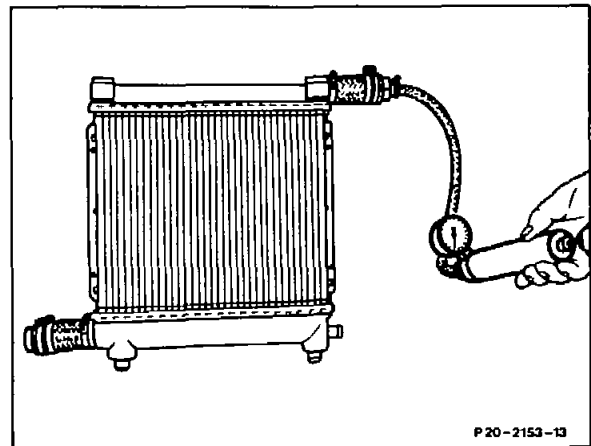


The priming liquid is easily combustible (pay attention to Safety Instructions, Hazards Class A 1).

Acetic acid is released until the sealant has completely cross-linked (cured). For this reason, avoid contact with skin. Clean affected parts immediately with water and soap. Rinse out eyes with water. Consult a doctor if necessary.

Sealing

- 1 If the leakage point cannot be properly located with the radiator installed, remove radiator (20-420).
- 2 Clean radiator.
- 3 Seal hose connections with the shop-made caps.
- 4 Seal connections of the transmission oil cooler with plastic caps or plugs from old oil cooler lines. Cut off the oil cooler lines just behind the nipple and solder on, to perform this step.
- 5 Connect testers 124 589 15 21 00, 605 589 00 25 00 to the radiator.
- 6 Place radiator in a water bath.
- 7 Pressurize radiator with the tester and check where air bubbles rise up.
- 8 Mark leakage points.
- 9 Remove radiator and reduce pressure.



10 Blow-dry radiator with compressed air.

11 Clean point to be sealed and area around it with a commercial cleaning agent (e. g. tri or white spirit).

It is not necessary to remove the paint. The radiator should then be blown-dry at the affected point with compressed air.

There must not be any dust or grease residues left.

12 Apply a very thin and even coat of priming liquid with a brush.

Apply the priming liquid not only at but also around the point to be sealed. Pour the quantity of priming liquid required for the repair in a separate vessel to avoid the priming liquid in the can being polluted.



Pay attention to safety instructions!

13 Allow priming liquid to dry for approx. 10 minutes at room temperature.

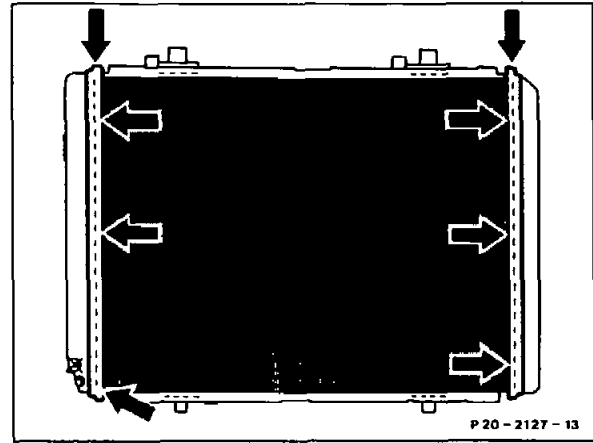
14 Apply diluted or undiluted sealant according to accessibility. Use brush, spatula or similar for spreading the sealant.



When applying and spreading sealant, ensure that no air is entrapped.

In the same way as for cleaning and priming, apply the sealant not only at the point to be sealed but also around it. If there are several leak points at the beaded collar (arrows) it is recommended to seal the beaded collar all round.

Seal leaks in the honeycomb from both sides.



After completing the sealing procedure, close tube immediately. Acetic acid is released until the sealant has completely cross-linked. Avoid contact with skin. Clean affected points immediately with water and soap. Rinse out eyes with water. Contact a doctor if necessary.

15 Leave radiator upright or placed down for at least 3 hours for the sealant to dry. Depending on the quantity of sealant applied and the size of the point treated, it may take up to 24 hours for the sealant to cure to form a permanent elastic joint at room temperature.

16 Pressure-test radiator for approx. 5 minutes in a water bath at 1.4 bar gauge pressure.

Should there still be leaks, repeat sealing operation as from step 8.

17 Remove testers and plugs.

18 Install radiator (20-420).

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