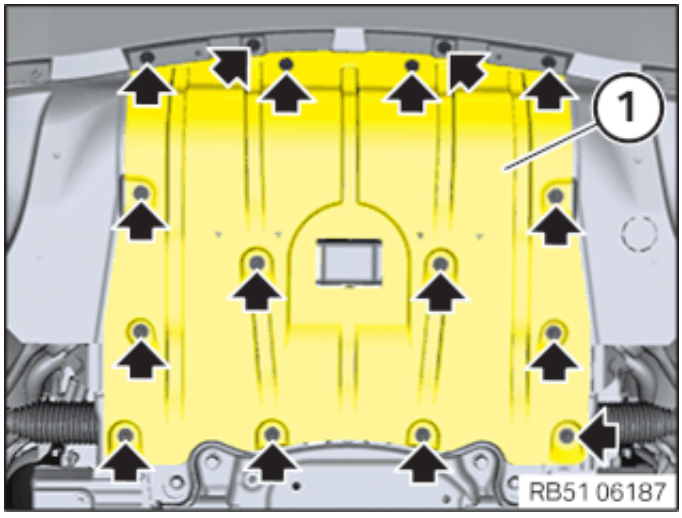
Draining and topping up coolant for high-temperature circuit »

Removing the front underbody protection

REP-TAT-P-5147-01-G05_6

TECHNICAL INFORMATION

Different variants may be installed depending on the vehicle equipment.

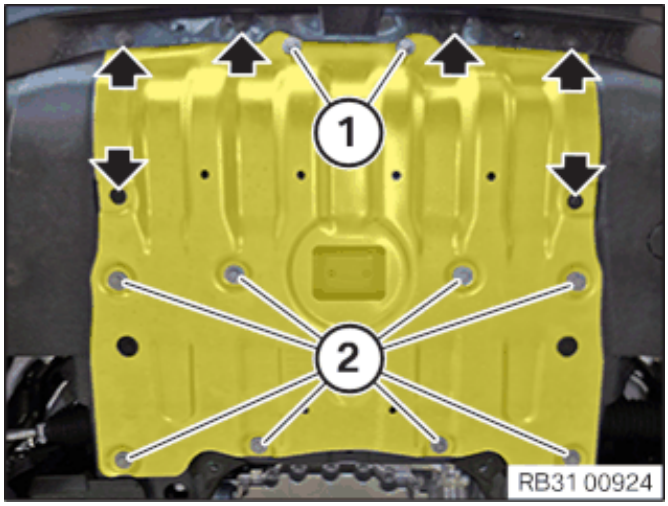


- Remove screws (arrows).
- Feed out and remove the front underbody protection (1).

▶ Removing the front skid plate

NOTE

The following step(s) must be performed if the listed component(s) is/are installed.



TECHNICAL INFORMATION

Secure component against falling.

- Remove screws (arrows).
- Loosen screws (1) and (2).
- Feed out and remove the front skid plate.

Draining and topping up coolant for high-temperature circuit »

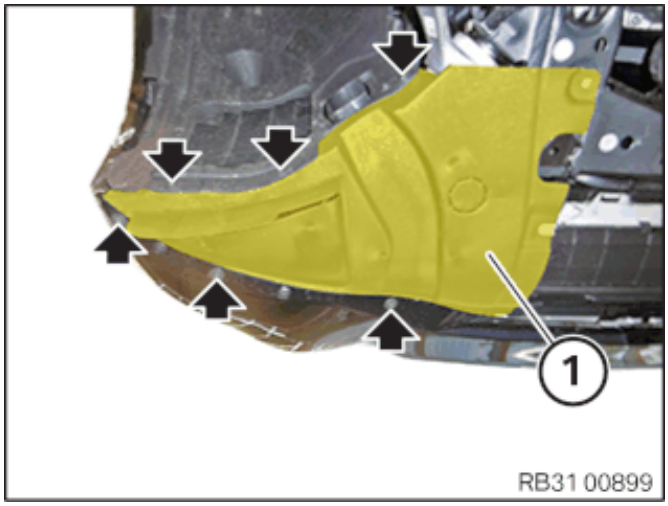
Removing the front right lower wheel arch cover

REP-TAT-P-5147-01-G05_42

NOTE

Description is for left component only. Procedure on the right side is identical.

▶ Removing the front lower wheel arch cover



- Remove screws (arrows).
- Guide out the front bottom wheel arch cover (1).

◀

Draining and topping up coolant for high-temperature circuit »

Removing the acoustic cover

REP-TAT-P-1112-01-G05_B58

WARNING

Hot surfaces.

Risk of burning!

- Perform all work only on components that have cooled down.

RISK OF DAMAGE

Damage to the acoustic cover / design cover.

Jerky movements during disassembly and application of excessive force during installation may result in breakage of the acoustic cover / design cover.

- Disassemble or mount the acoustic cover / design cover carefully.
- Disassemble or mount snap-lock couplings of the ball pivots one after the other.
- Disassemble or mount the acoustic cover / design cover only at temperatures > 20 °C.
- Use only distilled water as an auxiliary material during installation, no lubricants.

- Release the acoustic cover (1) upwards out of the rubber mounts (markings).

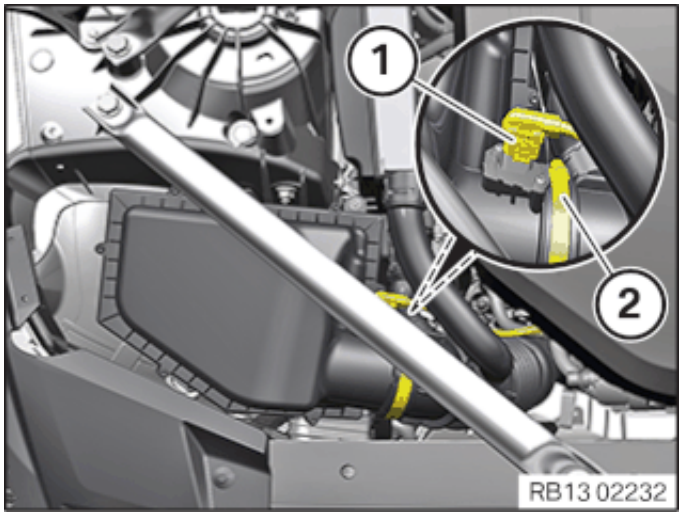
Draining and topping up coolant for high-temperature circuit »

Removing intake silencer housing

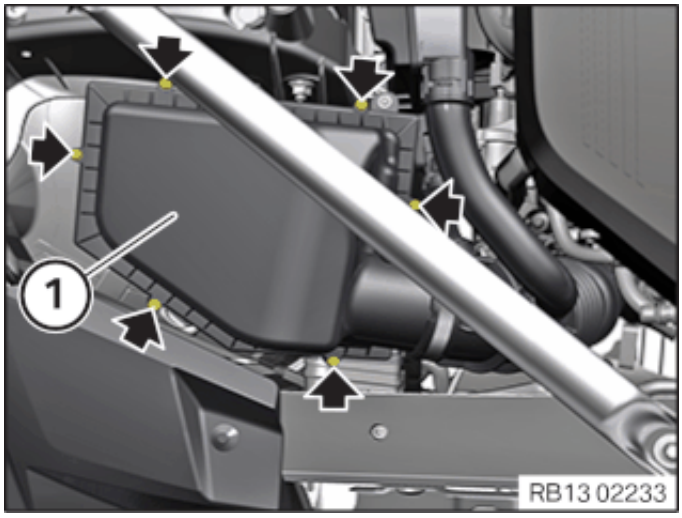
REP-TAT-P-1371-01-G05_B58_1

Precondition

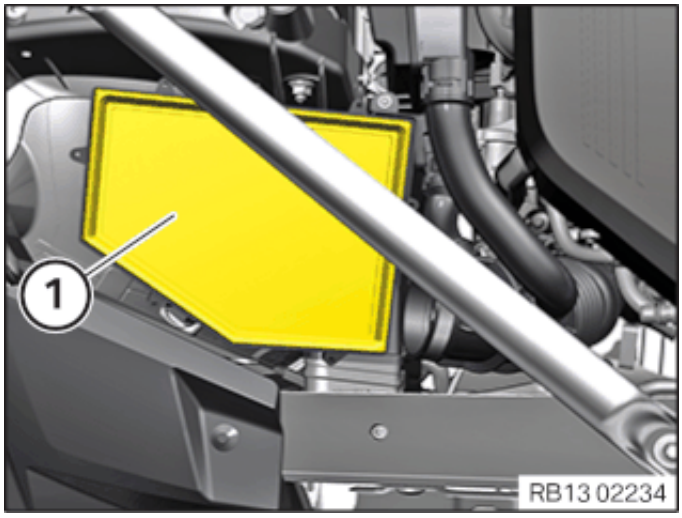
Ignition is switched off.



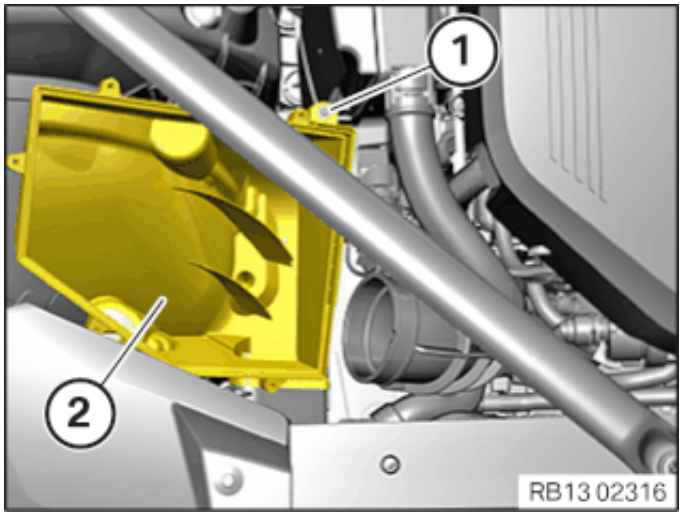
- Unlock and loosen connector (1).
- Unfasten clamp (2).



- Remove screws (arrows).
- Remove the upper section of the intake filter housing (1).



- Feed out air filter insert (1) and remove.



- Loosen screw (1).
- Pull lower section of intake filter housing (2) upwards out of rubber mounts, feed out, and remove.

Draining and topping up coolant for high-temperature circuit »

Drain the coolant from the high-temperature cooling system

REP-TAT-P-1700-01-G05_B58_1

WARNING

Hot fluids.

Risk of scalding!

- Conduct all work in the vehicle wearing appropriate personal protective equipment only.

CAUTION

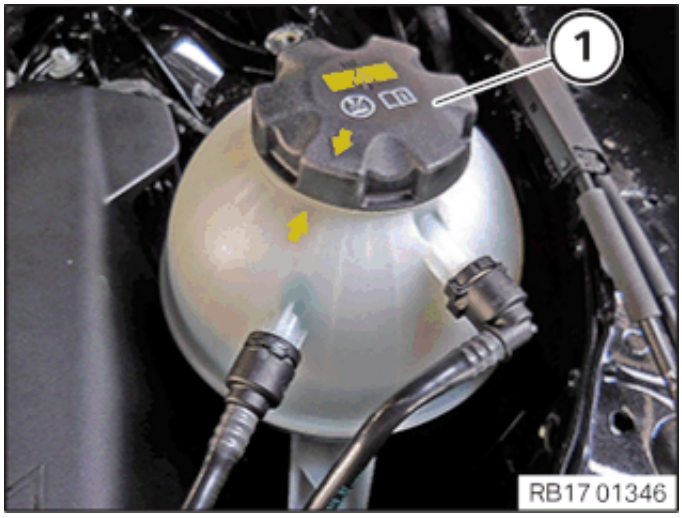
Materials harmful to health.

Contact with fluids harmful to health!

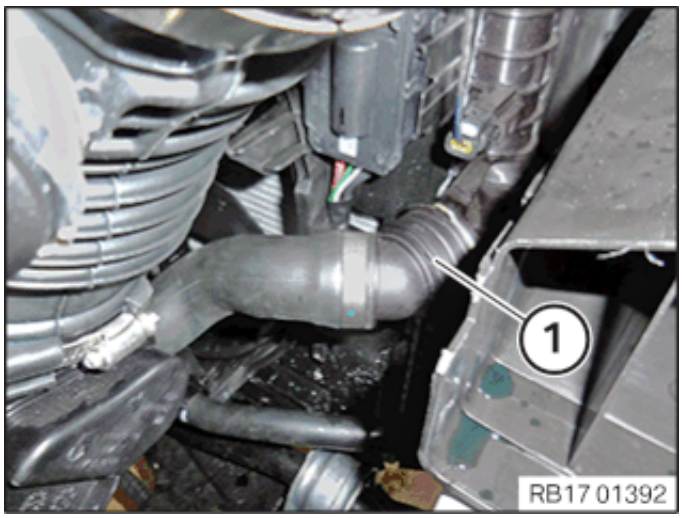
- Note and follow safety instructions on containers.
- Conduct all work in appropriate personal protective equipment only.

TECHNICAL INFORMATION

Collect and dispose of emerging fluids. Observe country-specific waste disposal regulations.



- Open the lid (1) on the coolant expansion tank.



- Unlock the coolant hose (1) at the bottom right at the high-temperature coolant radiator and remove.
- Catch and dispose of leakage coolant.

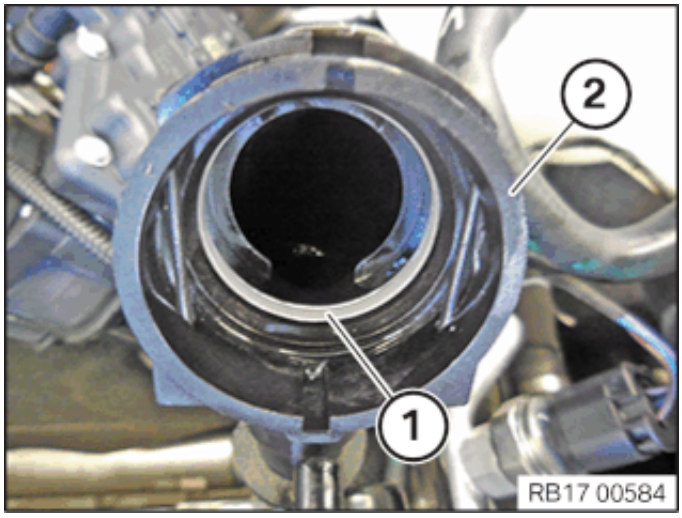
Draining and topping up coolant for high-temperature circuit »

Connecting the coolant line to the high-temperature coolant radiator

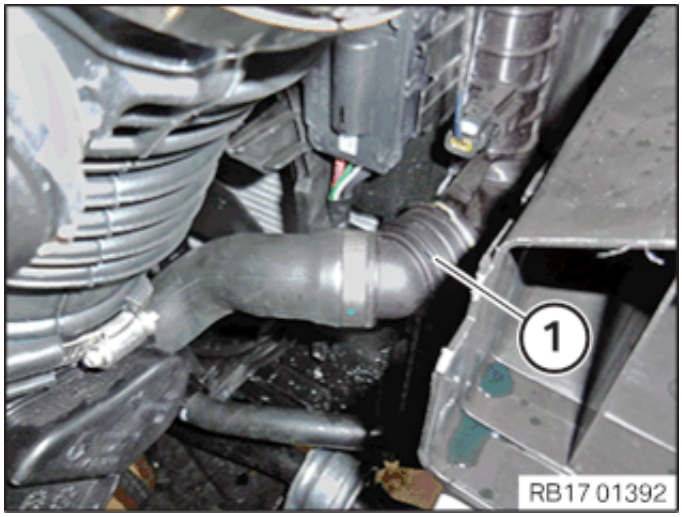
REP-TAT-P-1710-07-G05_B58_1

TECHNICAL INFORMATION

Make sure that the connections are locked correctly. The locks must engage audibly.



- Check the sealing rings (1) of the coolant lines (2) for damage and renew them if necessary.

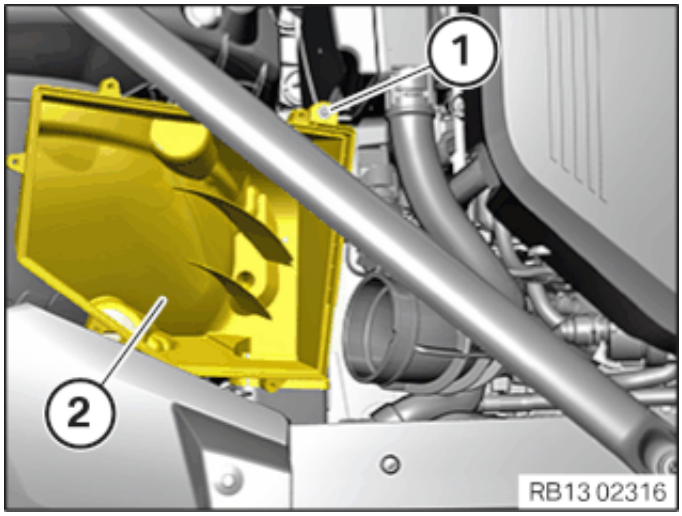


- Connect the bottom right coolant hose (1) to the high-temperature coolant radiator and audibly lock it into position.

Draining and topping up coolant for high-temperature circuit »

Installing intake filter housing

REP-TAT-P-1371-02-G05_B58_1

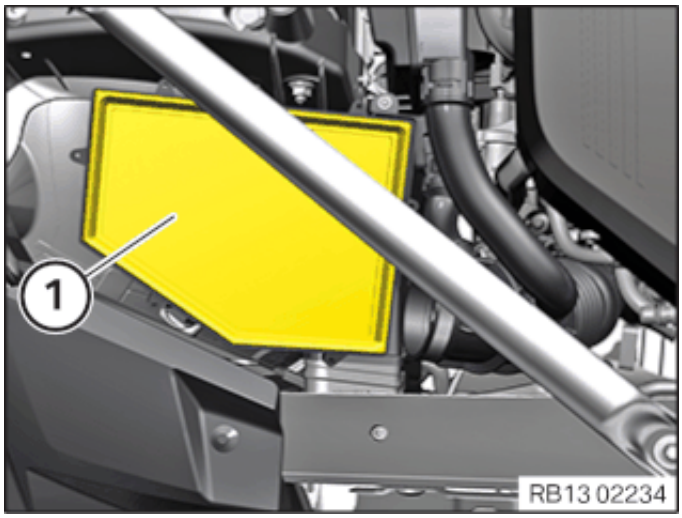


- Insert and install the lower section of the intake filter housing (1).
- Tighten down screw (1).

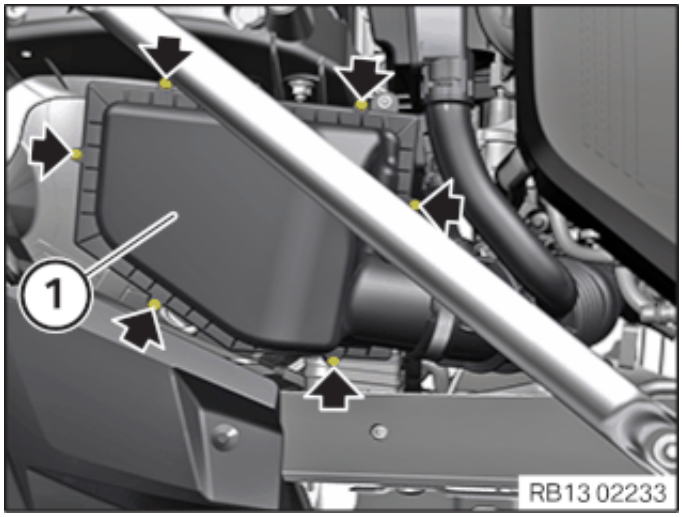
Tightening torques

Intake silencer housing to resonator

TS5x20	**Tightening torque** 2,5Nm



- Install the air filter insert (1).

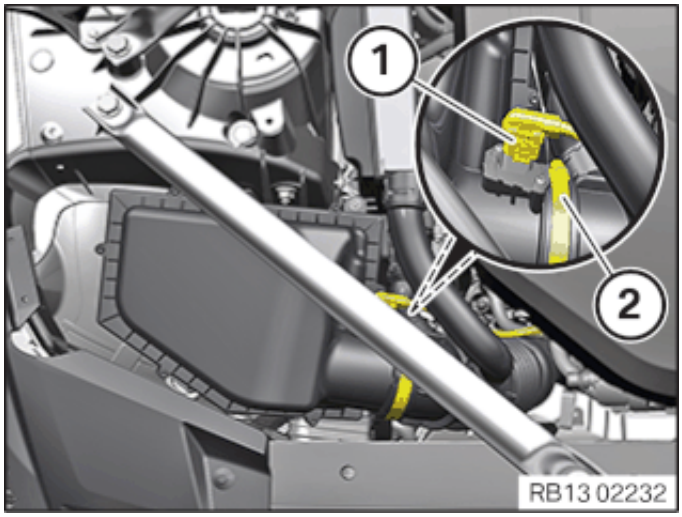


- Insert and install the upper part of the intake filter housing (1).
- Tighten screws (arrows).

Tightening torques

Intake filter housing upper section to intake filter housing lower section

Oval-head screw	**Tightening torque** 2.5Nm



- Tighten clamp (2).

Tightening torques

Clean air pipe to upper section of intake filter housing

cl.	**Tightening torque** 3Nm

- Connect and lock the connector (1).

  The connector (1) must engage audibly.

Draining and topping up coolant for high-temperature circuit »

Installing acoustic cover

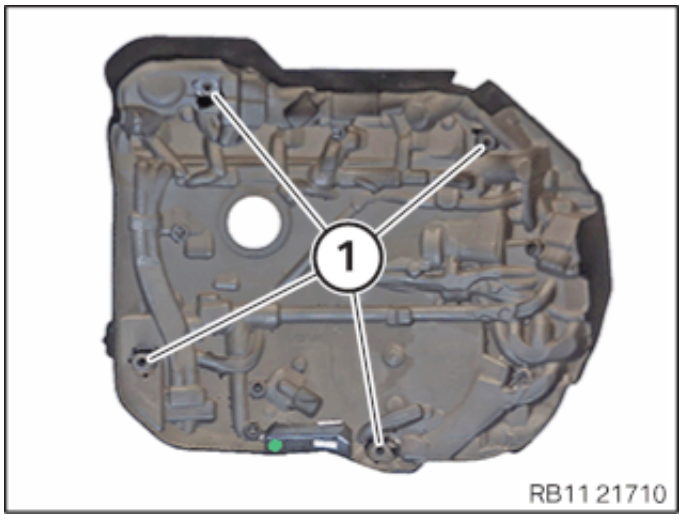
REP-TAT-P-1112-02-G05_B58

RISK OF DAMAGE

Damage to the acoustic cover / design cover.

Jerky movements during disassembly and application of excessive force during installation may result in breakage of the acoustic cover / design cover.

- Disassemble or mount the acoustic cover / design cover carefully.
- Disassemble or mount snap-lock couplings of the ball pivots one after the other.
- Disassemble or mount the acoustic cover / design cover only at temperatures > 20 °C.
- Use only distilled water as an auxiliary material during installation, no lubricants.



- Check the rubber mount (1) for a correct seat of the acoustic cover.

- Install the acoustic cover (1) and fasten it in the rubber mounts (marks).

Draining and topping up coolant for high-temperature circuit »

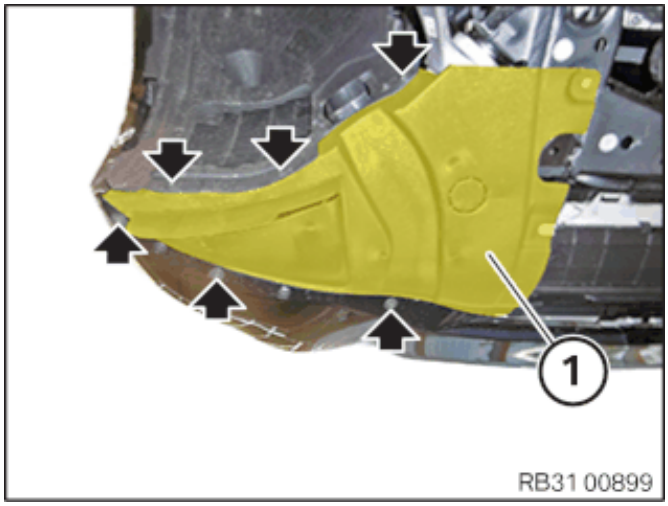
Installing the front bottom right wheel arch cover

REP-TAT-P-5147-01-G05_43

NOTE

Description is for left component only. Procedure on the right side is identical.

▶ Installing the front bottom wheel arch cover



- Feed in the front bottom wheel arch cover (1).
- Tighten all bolts (arrows).

Tightening torques

Lower front wheel arch cover

Thermoplastic hexagon screw	**tightening torque** 2.6Nm

◀

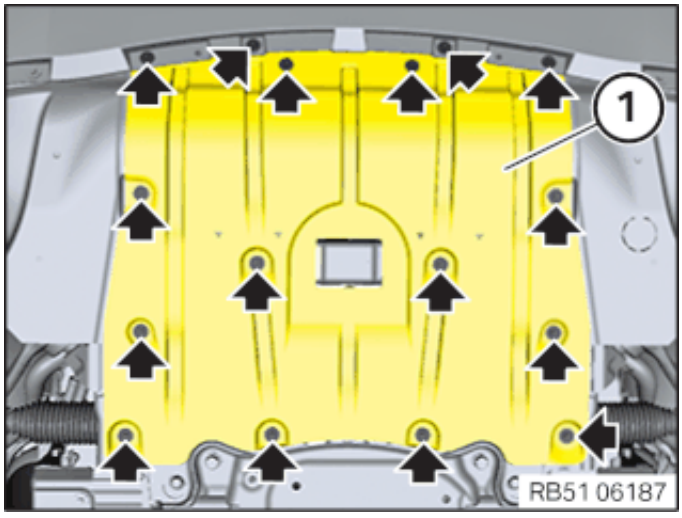
Draining and topping up coolant for high-temperature circuit »

Install front underbody protection

REP-TAT-P-5147-02-G05_6

TECHNICAL INFORMATION

Different variants may be installed depending on the vehicle equipment.



- Insert front underbody protection (1) and position correctly.
- Tighten screws (arrows).

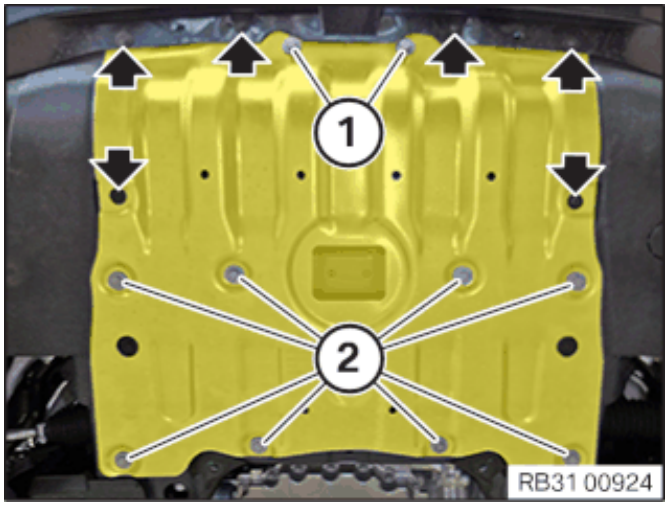
Tightening torques

Undershield/frame	
Hexagon screw	**tightening torque** 3Nm

▶ Installing the front skid plate

NOTE

The following step(s) must be performed if the listed component(s) is/are installed.



- Feed in and position the front skid plate.
- Tighten down screws (2) and (1).

Tightening torques

Skid plate at the front to front subframe

M8	
	Tightening torque
	19Nm

- Tighten screws (arrows).

Tightening torques

Undershield/frame

Hexagon screw	
	tightening torque
	3Nm

◀

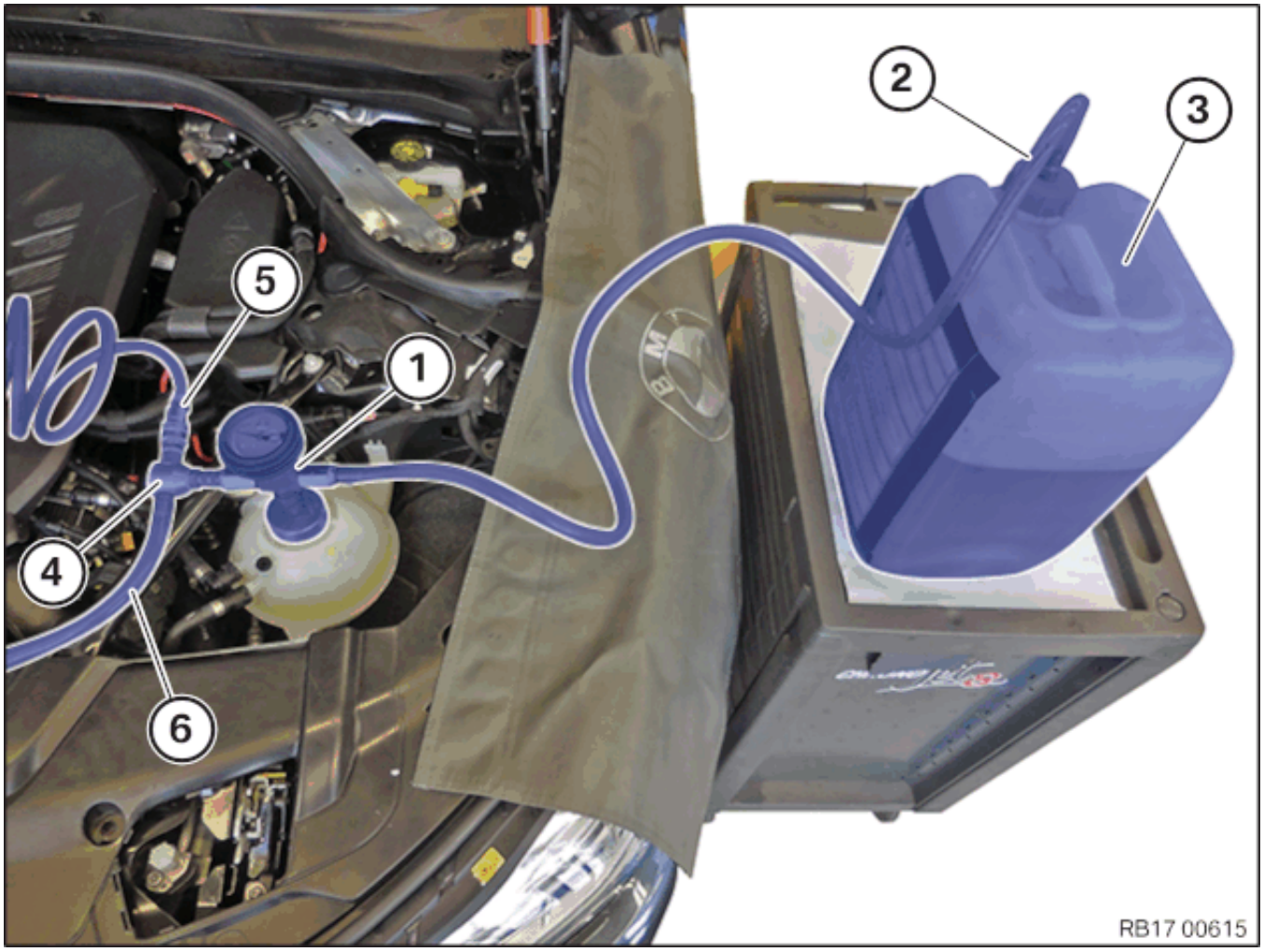
Draining and topping up coolant for high-temperature circuit »

Fill the cooling system with the vacuum filling unit

REP-TAT-P-1700-04-G05_B57

Further information is available.

Vacuum filling equipment



Vacuum filling equipment - connected to the coolant expansion tank

1 Vacuum filling equipment with pressure gauge and shutoff valves

2 **Filling hose**

3 **Fluid tank with coolant**

4 **Venturi nozzle**

5 **Compressed air connection (7 bar)**

6 **Exhaust hose (route exhaust hose into a collecting vessel)**

Precondition

Sufficient premixed coolant must be present in the fluid tank of the vacuum filling equipment, 1 l to 2 l more than the filling capacity prescribed for the vehicle. The fluid tank of the vacuum filling equipment must be positioned at the same height as the coolant expansion tank.

The vacuum filling equipment must be functional and free of dirt.

i TECHNICAL INFORMATION

Immobilization period-long fill of coolant!

Do not reuse used coolant.

When replacing and removing components which rely on the corrosion protection effect of the coolant, it is essential to change the coolant. The cooling system must therefore be emptied and refilled.

In the case of other removal work involving the draining of part quantities of coolant, the coolant level must be topped up with new coolant.

i TECHNICAL INFORMATION

Follow notes for repair work on the cooling system.

For additional information see:

Main group 17

17 00 Notes for repair work on the cooling system

i TECHNICAL INFORMATION

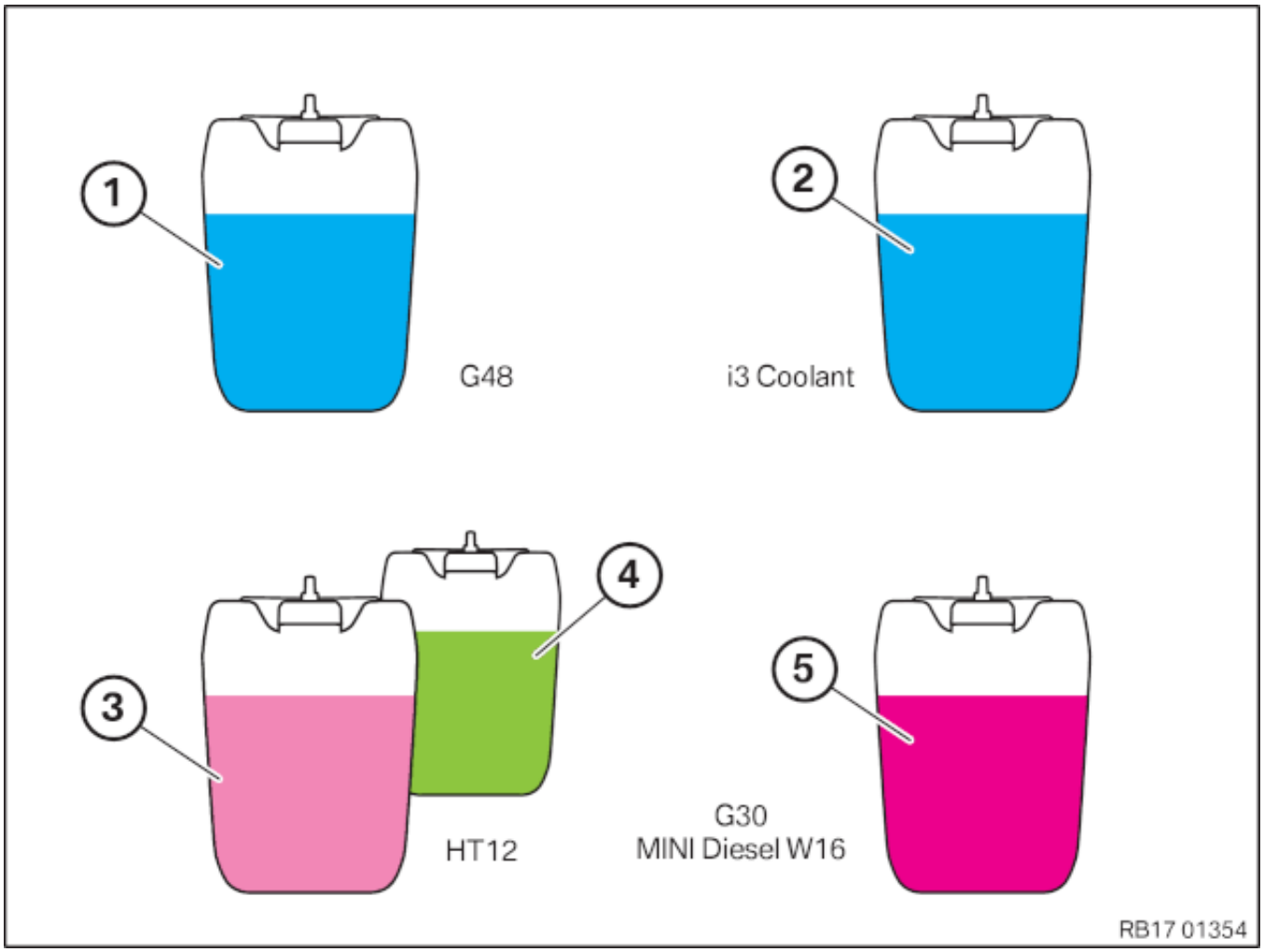
Make sure that the ignition (terminal 15) is switched off prior to creating the vacuum with the vacuum filling equipment.

TECHNICAL INFORMATION

G07 with S4NNA: The air conditioning control panel must be switched off.

▶ Not the type of coolant

Coolant in the collecting vessel of vacuum filler device



Choose the correct coolant for filling.

In general, a vehicle has to be filled with the coolant with which it is delivered from the factory.

1 G48 (Blue) (BMW LC-87)

Must **not** be mixed with i3 Coolant or G30 MINI Diesel W16.

2 i3 Coolant (Blue) (BMW LC-13)

Is used only for heater circuit i3. i3 Coolant must **not** be added to other coolant circuits or mixed with other coolants.

3 HT12 (Pink) (BMW LC-18)

Must **not** be mixed with i3 Coolant or G30 MINI Diesel W16.

4 HT12 (Green) (BMW LC-18)

Must **not** be mixed with i3 Coolant or G30 MINI Diesel W16.

5 G30 (Pink) (BMW LC-07)

May be W16 used exclusively for the **MINI Diesel**. G30 must **not** be filled in the other coolant circuits or mixed with the other coolants.

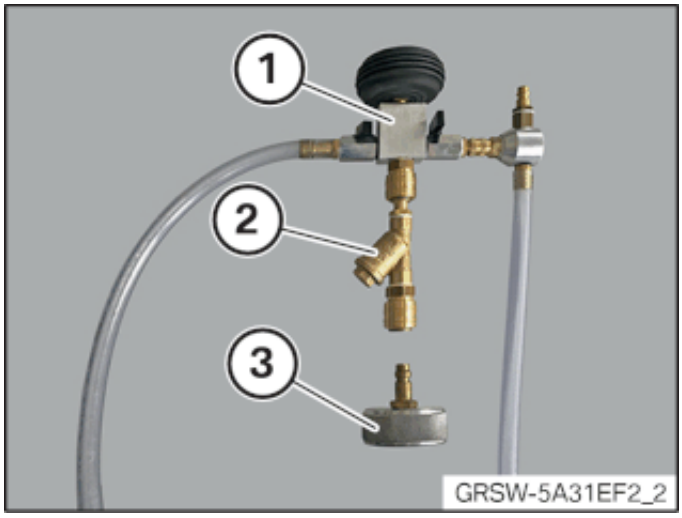
RISK OF DAMAGE

Damage to the engine or components in high-voltage vehicles

Using the incorrect coolant may lead to corrosion or gel formation in the coolant circuit.

- Only use coolant that has been approved for the specific vehicle.
- Only fill the vehicle with the coolant with which it was delivered ex works.
- Only mix compatible coolants. The color does not allow any statement about coolant compatibility.
- Selection of the correct coolant exclusively via the part number.

◀



TECHNICAL INFORMATION

When using vacuum filling equipment to fill the coolant circuit, you must use **special tool 5 A31 EF2** (strainer) to protect the inside of the coolant circuit from contaminants.

- Connect special tool (2) **5 A31 EF2** to the vacuum filling equipment (1).
- Connect the special tool (2) with the appropriate adapter (3) from the set of special tools **0 494 417 (17 0 100)**.
- Fill the cooling system with special tool **2 152 473** .
- Select a suitable adapter (Y) from the set of special tools **0 494 417 (17 0 100)**:

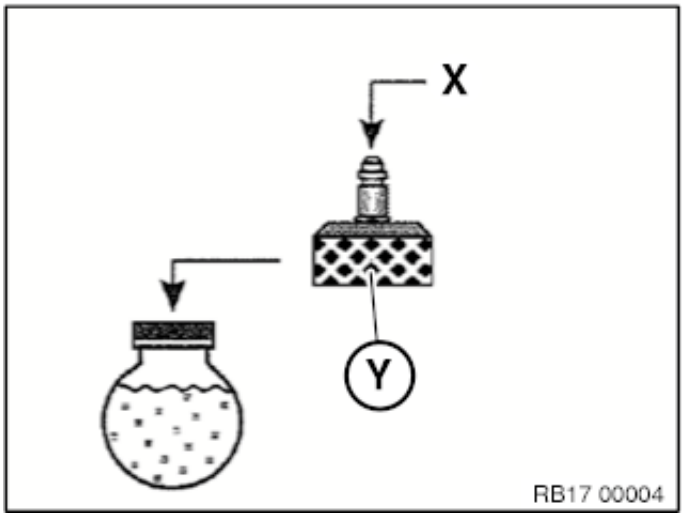
Type	Engine	Adapter (Y) from 17

		0 100
G05 / G06 / G07	B47 / B57 / B48 / B58	17 0 105

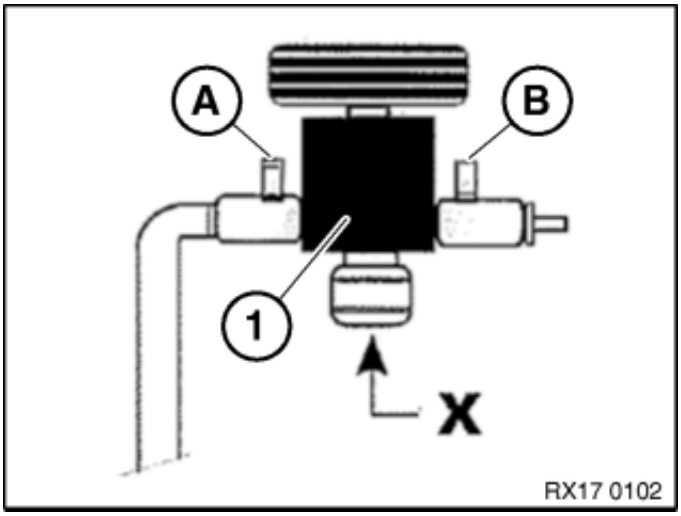
Technical data

Filling capacity of high-temperature coolant circuit G05/G06/G07/G18

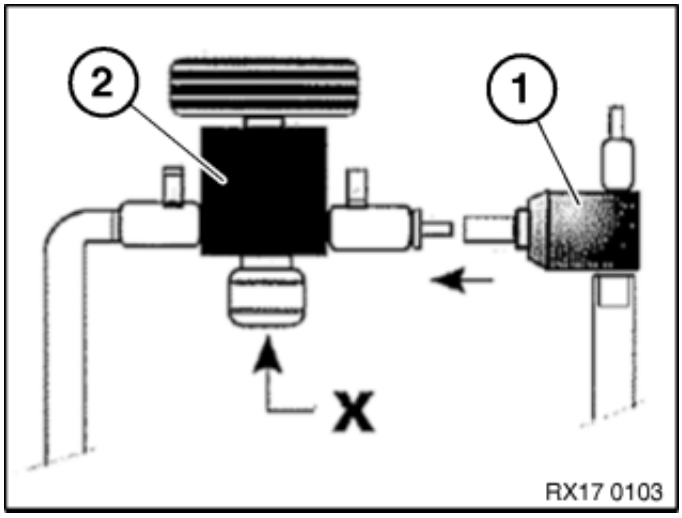
B58B30M1	12.6 l
B58B30M1 (OE 823)	13.6 l



- Connect the selected adapter (Y) to the coolant expansion tank.
- Connect the vacuum filling equipment to the connection (X) of the adapter.

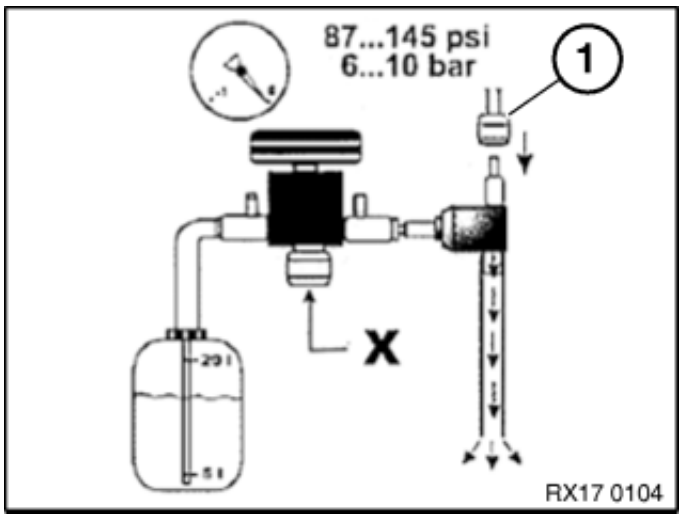


- Check whether shutoff valves (A) and (B) of vacuum filling equipment (1) are closed.
- Connect and lock connection (X) to the coolant expansion tank.



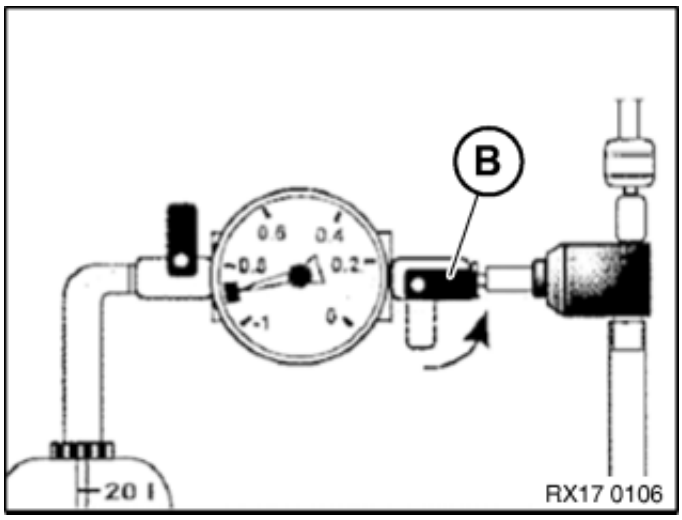
- Connect Venturi nozzle (1) to the vacuum filling equipment (2).

  (X) is the connection on the coolant expansion tank.



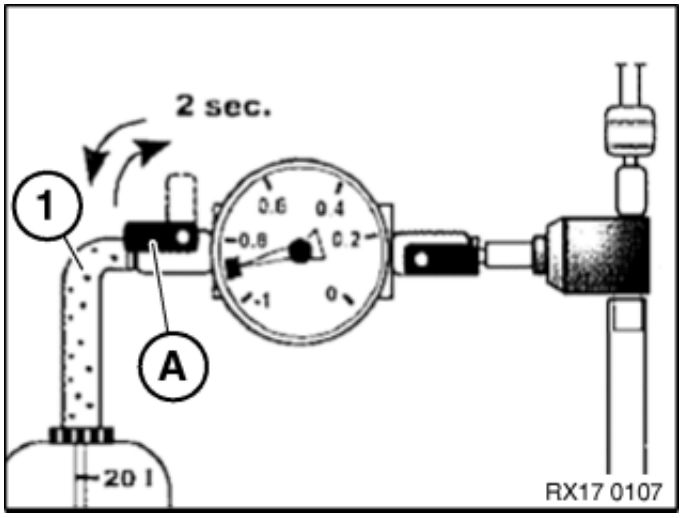
- Connect compressed air (1).

  (X) is the connection on the coolant expansion tank.



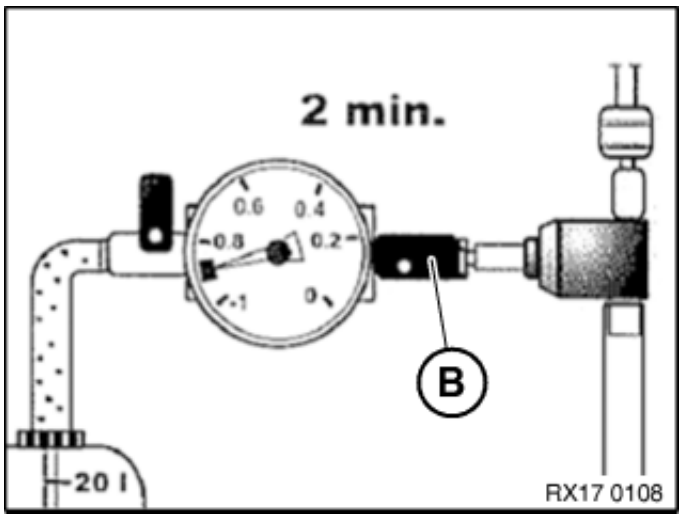
- Open shutoff valve (B).

  The venturi nozzle generates a flow noise.



- Open shutoff valve (A) until the filling hose (1) is full without bubbles.
- Close the shutoff valve (A) again.

» The filling hose (1) has now been bled.

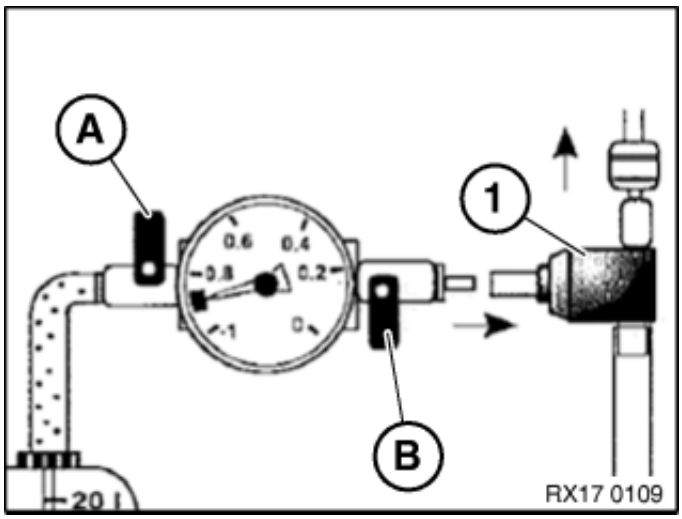


- Check the coolant hoses for porosity and, if necessary, renew them.

i TECHNICAL INFORMATION

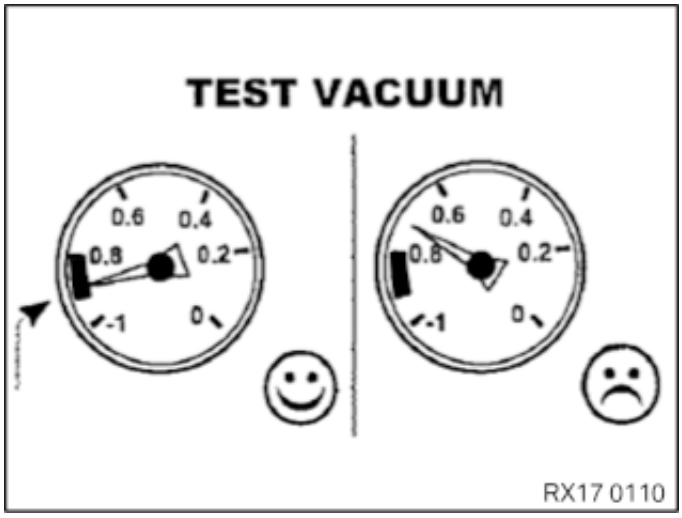
The coolant hoses contract during vacuum build-up.

- After a vacuum of -0.8 to -0.95 bar is reached in the coolant circuit (approx. 2 min), close shutoff valve (B).



- Check whether shutoff valves (A) and (B) are closed.
- Disconnect the Venturi nozzle (1).

Check



- The vacuum in the coolant circuit must be maintained for at least 2 min.

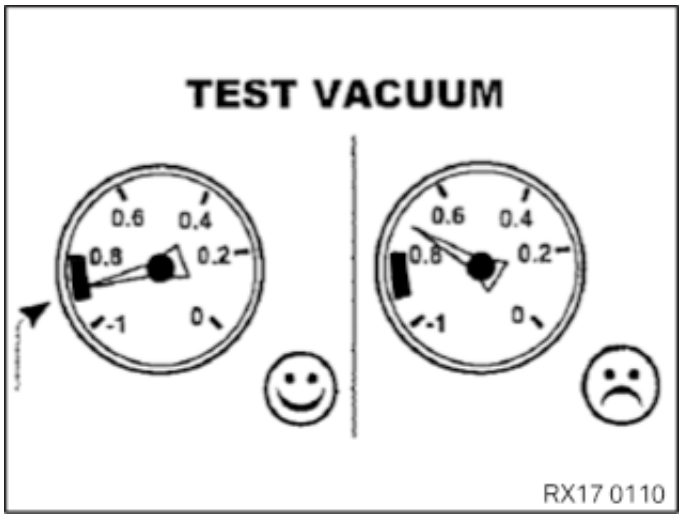
Result

» Vacuum drops.

Measure

- Search for leaks, repair them, and start the filling procedure from the beginning.

Check



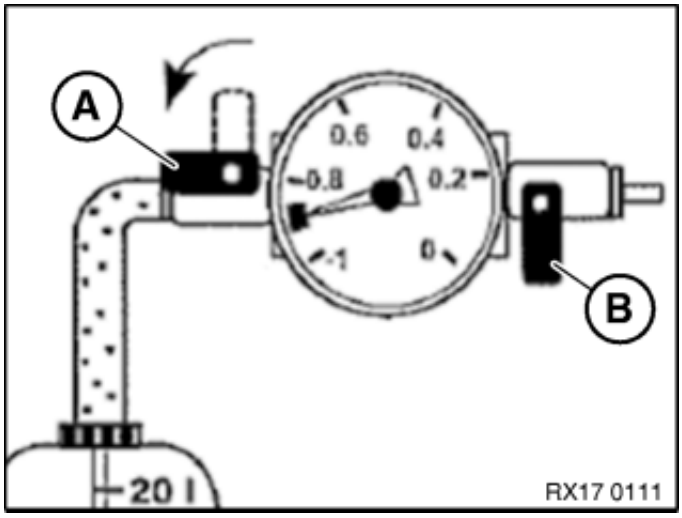
- The vacuum in the coolant circuit must be maintained for at least 2 min.

Result

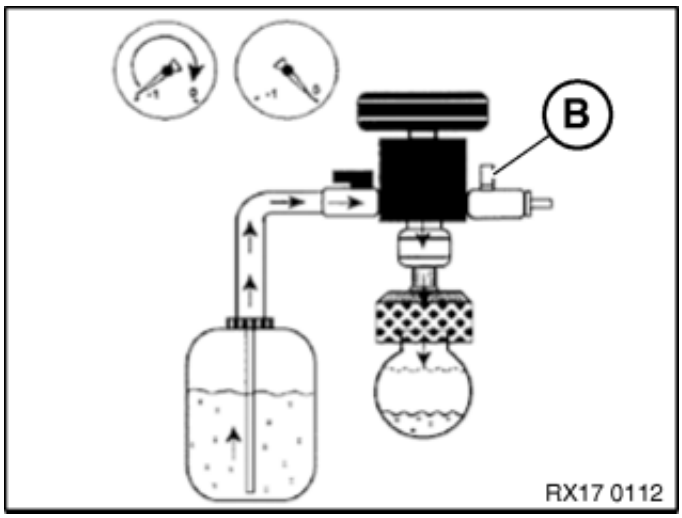
» Vacuum remains constant.

Measure

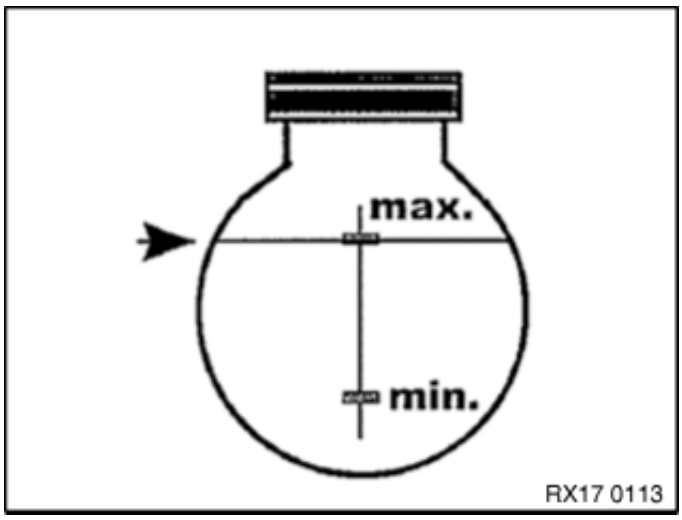
- Continue with filling.



- Keep shutoff valve (B) closed during the filling process.
- To fill the cooling system, open shutoff valve (A) to the fluid tank of the vacuum filling equipment.



- Stop the filling procedure when the needle in the pressure tester is on 0 bar or it no longer drops.
- If necessary, reduce remaining vacuum. Open the shutoff valve (B).



- Remove the vacuum filling equipment with the adapter from the coolant expansion tank.
- Adjust the coolant level to the maximum mark.
- After filling the engine cooling system with the vacuum filling equipment, also carry out the cooling system bleeding procedure.

Draining and topping up coolant for high-temperature circuit »

Vent the high-temperature coolant system

REP-TAT-P-1700-12-G05_B58_1

i TECHNICAL INFORMATION

Immobilization period-long fill of coolant!

Do not reuse used coolant.

When replacing and removing components which rely on the corrosion protection effect of the coolant, it is essential to change the coolant. The cooling system must therefore be emptied and refilled.

In the case of other removal work involving the draining of part quantities of coolant, the coolant level must be topped up with new coolant.

i TECHNICAL INFORMATION

Filling **without** the vacuum filling equipment (watering can filling) is **not permitted**.

If this is not observed, there is a risk of component damage or engine damage.

The filling specification **must** be observed.

It is essential to visually check the **vacuum filling equipment before use** to check that it is functioning correctly and clean.

It is not permissible to operate the vehicle if the filling procedure has not been fully completed. Otherwise there may be functional limitations (degradation) or overheating.

A bleeding procedure is required after a part has been exchanged in the cooling system and/or after refilling the cooling system.

TECHNICAL INFORMATION

Before starting the automatic cooling system bleeding procedure, make sure that **all coolant circuits** are **filled**. If the cooling system bleeding procedure is started while one of the coolant circuits is empty, there is a risk of damage to the electric coolant pump when running it dry.

Make sure that terminal 15 is not disconnected for the bleeding procedure. Switch on low-beam headlights and hazard warning lights. If the low-beam headlights and hazard warning lights are not switched on, the ignition (terminal 15) will switch off automatically after a certain period of time and interrupt the bleeding procedure.

TECHNICAL INFORMATION

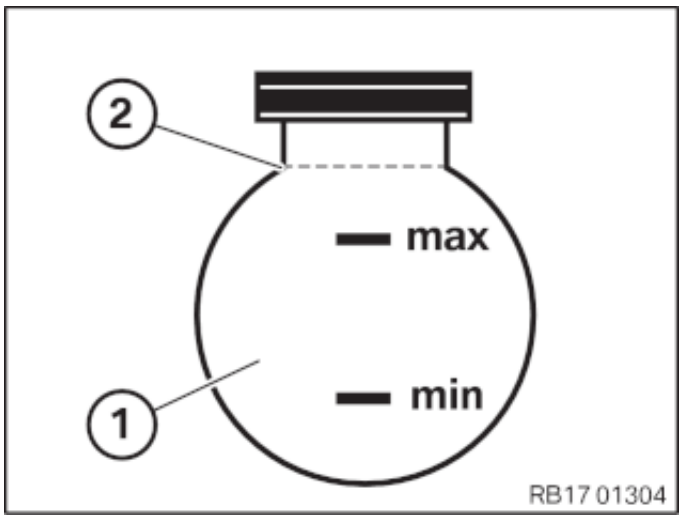
G07 with S4NNA: The air conditioning control panel must be switched off.

TECHNICAL INFORMATION

The electrical fan is activated during the entire cooling system bleeding procedure.

TECHNICAL INFORMATION

The driving dynamics control must not be set to the ECO PRO switch position.



- Adjust the coolant level in the high temperature coolant expansion tank (1) to the lower edge (2) of the coolant filler neck of the high temperature coolant expansion tank (1).
- Close the sealing cap on the coolant expansion tank of the high--temperature cooling circuit.
- Ensure that the hood is **closed**.
- Make sure that all the wheels have ground contact.
- Engage the parking brake.
- On a manual transmission, do not engage a gear, and on an automatic transmission, put it in "P" or "N".
- Connect battery charger.

- **Activate** testing-analysis-diagnosis (PAD) by quickly pressing the START-STOP button three times.
- Activate the low beams and the hazard-warning lights **at the same time** .

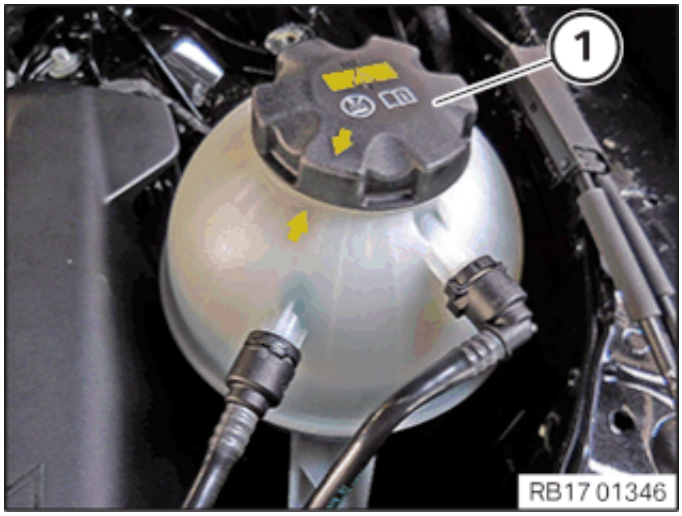
  If the low beams and the hazard-warning lights are **not** turned on, the ignition (**terminal 15**) turns off automatically after a while and interrupts the bleeding procedure.
- Ensure that Driving Dynamics Control is **not** in the **"ECO PRO"** switch position.
- **G07 with S4NNA:** 3rd seat row must be locked (seat not folded down)
- Set the heating to the **maximum** temperature and the blower to the **lowest** level.
- **G07 with S4NNA:** Set the rear heating to maximum temperature (“HIGH”) via Sync mode.
- Press the accelerator pedal up to the stop for at least **10 s** and do **not** press the brake pedal while doing this.
- Start engine.
- The cooling system bleeding procedure starts, note the display on the instrument cluster (KOMBI). ("service function started")

  The engine speed (up to 3500 rpm) and the actuators in the engine cooling system are activated **automatically** according to a cooling system bleeding procedure for 11 min.

  The cooling system bleeding procedure ends approx. 11 min **after** the engine start.

  The engine speed **reduces** to idle speed.
- Note the display on the instrument cluster (KOMBI) (“Service function ended”).

  If the service function is canceled, the cooling system bleeding procedure **must** be repeated (“Service function canceled”).
- **G07 with S4NNA:** Run the engine at idling speed for about 5 min.. Set the heating to maximum temperature (“HIGH”) via Sync mode.



- Switch off engine.
- Let the coolant temperature cool down to **< 50°C**.
- Loosen sealing cap (1).

TECHNICAL INFORMATION

After the cooling system bleeding procedure, the cooling system is topped up via the maximum mark.

Overfilling the cooling system serves to balance the remaining air in the cooling system.

The normal fill level of the coolant is reached during driving.

- Adjust fill level in coolant expansion tank of high-temperature coolant circuit to **200 ml** over **maximum mark**.
- Close sealing cap (1).
- Close the sealing cap (1) until the **arrows** align.