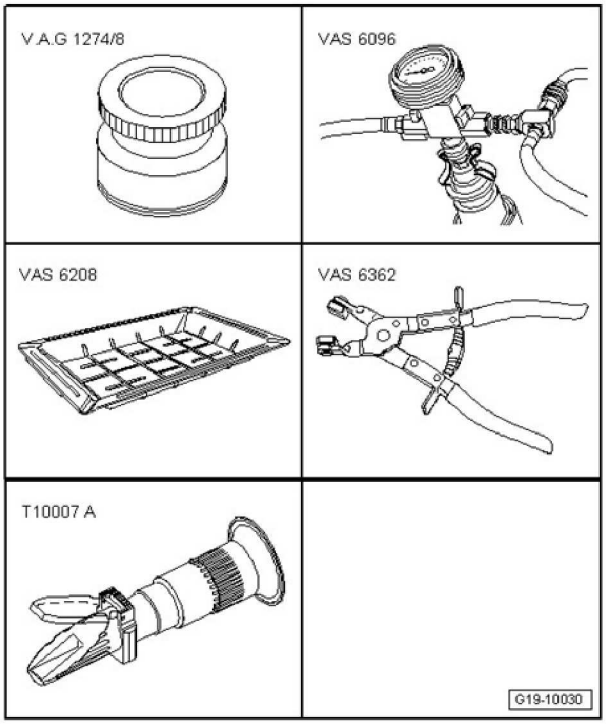
Draining and filling cooling system



Special tools and workshop equipment required

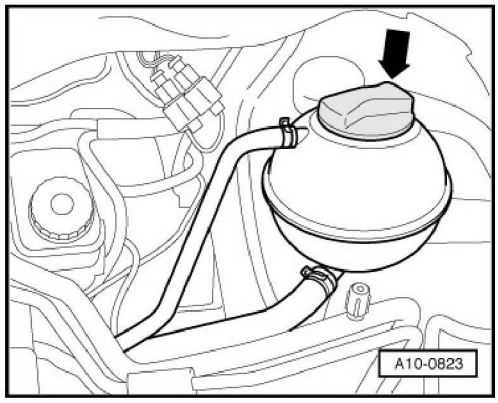
- Adapter for cooling system tester -V.A.G 1274/8-
- Hose clip pliers -VAS 6362-
- Cooling system charge unit -VAS 6096-
- Drip tray for workshop hoist -VAS 6208-
- Refractometer -T10007 A-

Draining

Note

Collect drained coolant in a container for disposal.

– Detach bonnet → Chapter „Detaching bonnet".



Risk of scalding as hot coolant can escape

The cooling system is under pressure when the engine is hot. Hot steam/hot coolant can escape - risk of scalding.

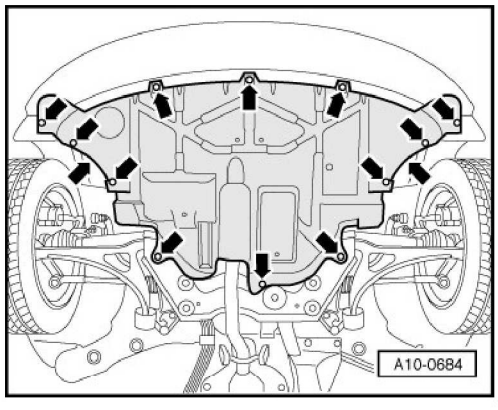
– Wear protective gloves.

– Wear safety goggles.

– Release pressure (cover filler cap on coolant expansion tank with a cloth and open carefully).

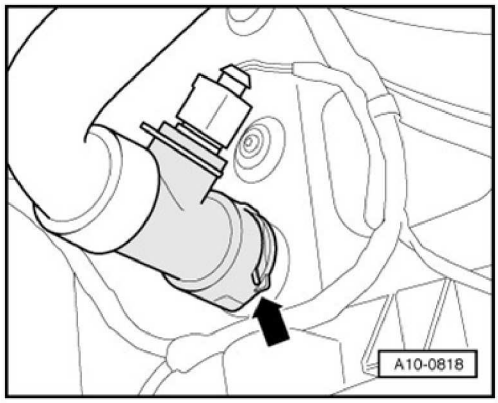
– Open filler cap -arrow- on coolant expansion tank.

– Release fasteners -arrows- and remove noise insulation.



– Place drip tray for workshop hoist -VAS 6208- beneath engine.

– Lift retaining clip, disconnect coolant hose -arrow- from radiator (bottom) and drain off coolant.

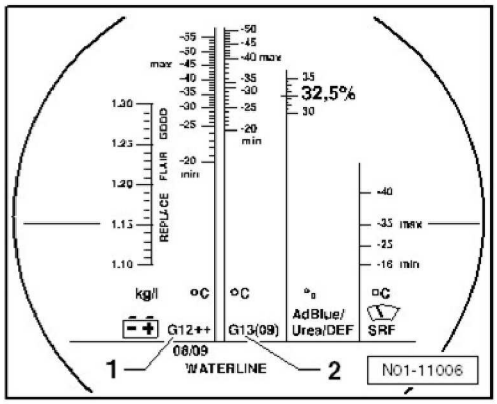


Filling

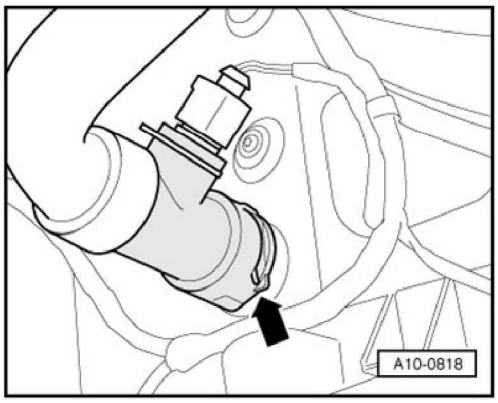
> ***Caution***
>
> ***Always use distilled water for mixing coolant additives as this ensures optimum corrosion protection.***

Note

- *The effectiveness of the coolant is greatly influenced by the quality of the water with which it is mixed. Because water may contain different substances depending on the country or even the region, the water quality to be used for cooling systems has been specified. Distilled water meets all the requirements and is therefore recommended for use when topping up or filling up with coolant.*
- *Use only coolant additives listed in the → Electronic parts catalogue (ETKA). Other coolant additives could seriously impair in particular the anti-corrosion properties. The resulting damage could lead to loss of coolant and consequently to serious engine damage.*
- *Coolant with the recommended mixture ratio prevents frost and corrosion damage and stops scaling. At the same time it raises the boiling point of the fluid in the system. For this reason the cooling system must be filled all year round with the correct coolant additive.*
- *Because of its high boiling point, the coolant improves engine reliability under heavy loads, particularly in countries with tropical climates.*
- *The refractometer -T10007A- MUST be used to determine the current level of frost protection.*
- *The mixture must guarantee frost protection down to at least -25 □ (in countries with arctic climate: down to -36 □). The amount of antifreeze should only be increased if greater frost protection is required in very cold climates. This must only be down to -48 □, however, as otherwise the cooling efficiency of the coolant is impaired.*
- *The coolant concentration must not be reduced by adding water even in warmer seasons and in warmer countries. Frost protection must be provided to at least -25 □.*
- *Read off the level of frost protection on the scale for the relevant coolant additive.*
- *The temperature indicated on the refractometer -T10007A- corresponds to the temperature at which the first ice crystals can form in the coolant.*
- *Do not reuse coolant.*
- *Only use water/coolant additive as a lubricant for coolant hoses.*



– Connect coolant hose -arrow- with plug-in connector to radiator → Anchor.



– Fill reservoir of cooling system charge unit -VAS 6096- with at least 8 litres of premixed coolant (according to recommended ratio):

- Coolant (40 %) and water (60 %) for frost protection to -25 □
- Coolant (50 %) and water (50 %) for frost protection to -36 □
- Coolant: → Electronic parts catalogue (ETKA)

– Fit adapter for cooling system tester -V.A.G 1274/8- onto coolant expansion tank.

– Attach cooling system charge unit -VAS 6096- to adapter for cooling system tester -V.A.G 1274/8-.

– Run vent hose -1- into a small container -2-.

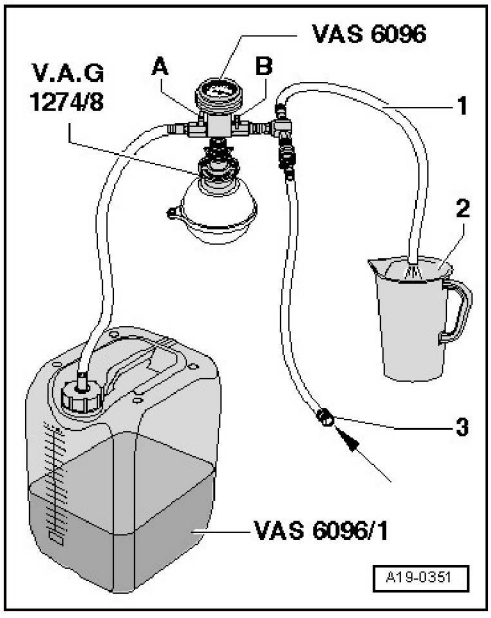
Note

The vented air draws along a small amount of coolant, which should be collected.

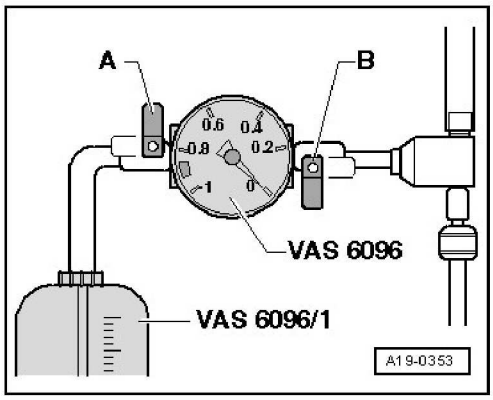
– Close both valves -A- and -B- (turn lever at right angles to direction of flow).

– Connect hose -3- to compressed air.

- Pressure: 6 ... 10 bar.



– Open valve -B- by setting lever in direction of flow.



- The suction jet pump generates a partial vacuum in the cooling system; the needle on the gauge should move into the green zone.

– Also briefly open valve -A- (turn lever in direction of flow) so that hose on reservoir of cooling system charge unit -VAS 6096- can fill with coolant.

– Close valve -A- again.

– Leave valve -B- open for another 2 minutes.

- The suction jet pump continues to generate a partial vacuum in the cooling system; the needle on the gauge should remain in the green zone.

– Close valve -B-.

- The needle on the gauge should stop in the green zone. The vacuum level in the cooling system is then sufficient for subsequent filling.

Note

- *If the needle does not reach the green zone, repeat the process.*
- *Check cooling system for leaks if the vacuum is not maintained.*

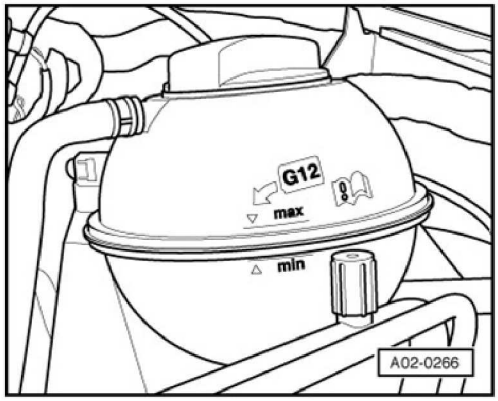
– Detach compressed air hose.

– Open valve -A-.

- The vacuum in the cooling system causes the coolant to be drawn out of the reservoir of the cooling system charge unit -VAS 6096-; the cooling system is then filled.

– Detach cooling system charge unit -VAS 6096- from coolant expansion tank.

– Top up coolant to “max” mark.



– Start engine and run for 2 minutes (maximum) at approx. 1500 rpm.

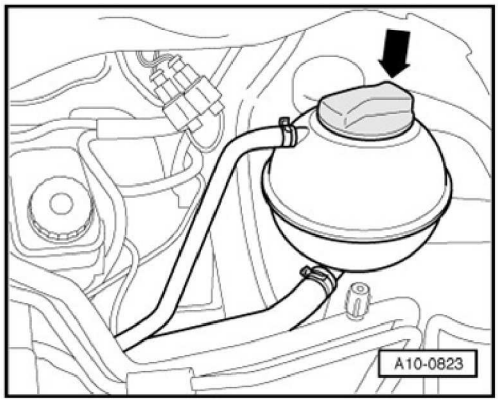
– Top up coolant to overflow hole on expansion tank with engine running.

– On vehicles with auxiliary heater, switch heater on (for about 30 seconds) and then off again.

– Start engine and run for 2 minutes (maximum) at approx. 1500 rpm.

– Top up coolant to overflow hole on expansion tank with engine running.

– Close filler cap -arrow- on coolant expansion tank.



– Allow engine to run at idling speed until both large coolant hoses at radiator become warm.

– Switch off ignition and allow engine to cool down.

– Install noise insulation →Rep. gr.50.

– Check coolant level.

- The coolant level must be between the “min” and “max” markings when the engine is cold.
- The coolant level can be at the “max” marking when the engine is warm.

– Top up with coolant again if necessary.