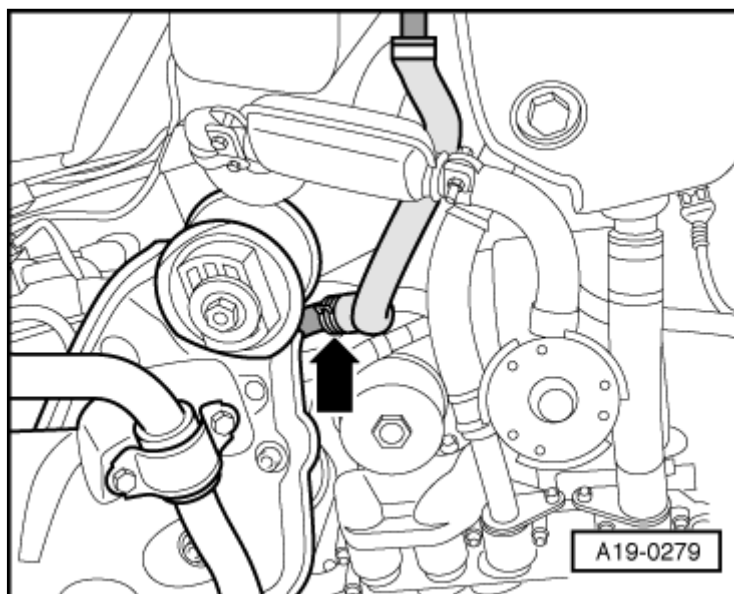


## Filling



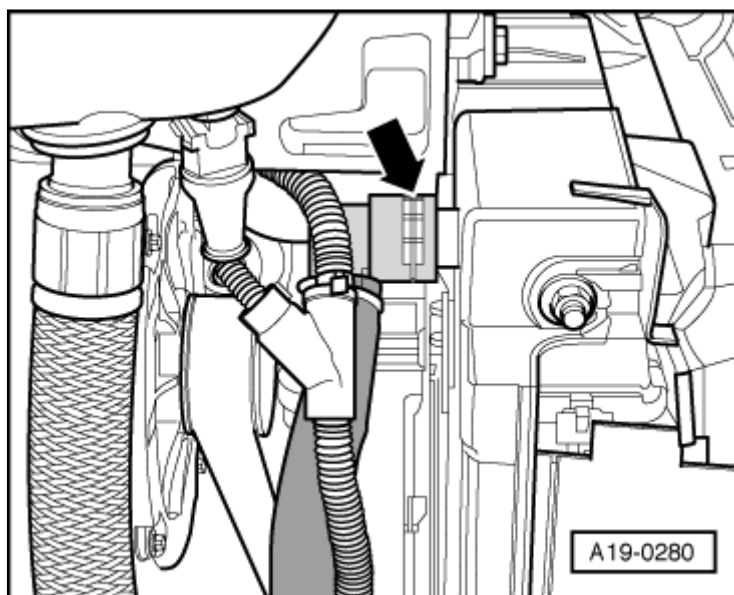
### Note

- ♦ The cooling system is filled all year round with a mixture of water and antifreeze/corrosion protection agent.
  - ♦ It is important to use only coolant additive Plus - G 012 A8F A1- (also designated as “G12+”) “meeting specification TL VW 774 F”. Other coolant additives could seriously impair in particular the anticorrosion properties. The resulting damage could lead to loss of coolant and consequently to serious engine damage.
  - ♦ Coolant additive “G12+” may be mixed with additives “G11” and “G12”.
  - ♦ “G12+” and coolant additives marked “Meets specification TL VW 774 F” prevent frost and corrosion damage and stop scale from forming. Such additives also raise the boiling point of the coolant. For these reasons the cooling system must be filled all year round with the correct antifreeze and anticorrosion additive.
  - ♦ Because of its high boiling point, the coolant improves engine reliability under heavy loads, particularly in countries with tropical climates.
  - ♦ Frost protection is required down to about -25°C (in countries with arctic climate: down to about -35°C).
  - ♦ The coolant concentration must not be reduced by adding water even in warmer seasons and in warmer countries. The antifreeze percentage must be at least 40 %.
  - ♦ If greater frost protection is required in very cold climates, the amount of “G 12+” can be increased, but only up to 60 % (this gives frost protection to about -40°C). If the antifreeze percentage exceeds 60%, frost protection decreases again and cooling efficiency is also impaired.
  - ♦ Only use clean drinking water for mixing coolant.
  - ♦ If radiator, heat exchanger, cylinder head, cylinder head gasket or cylinder block have been renewed, do not re-use old coolant.
  - ♦ Contaminated or dirty coolant must not be used again.
  - ♦ To check frost protection level of coolant additive “G12+” you must use a refractometer -T10007-.
- Attach coolant hose (right-side) -arrow- at engine.

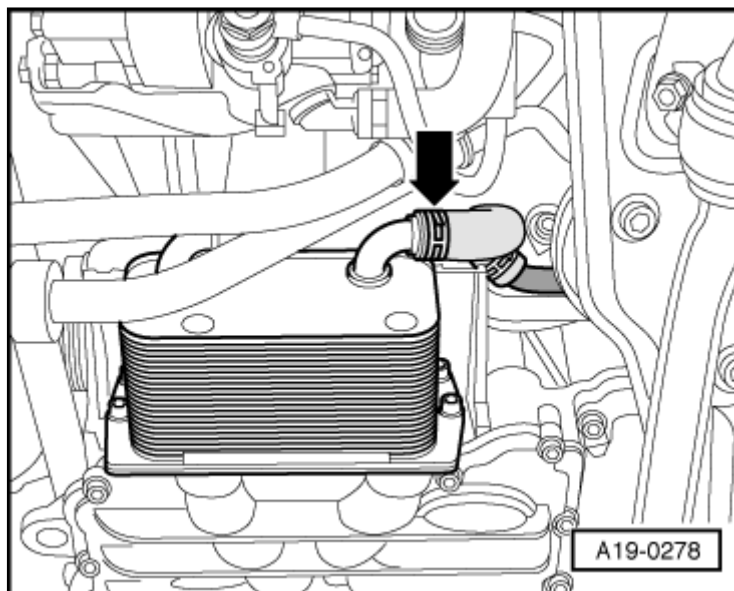




- Attach coolant hose (bottom right) at radiator -arrow-.



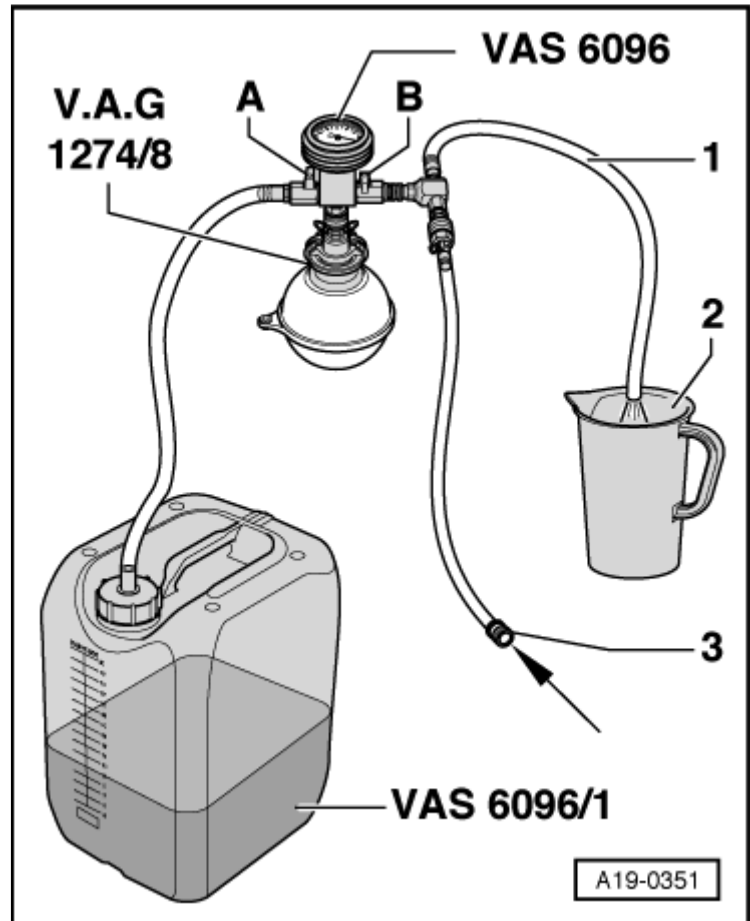
- Attach coolant hose (bottom) at oil cooler -arrow-.



- Fill reservoir -VAS 6096/1- with at least 15 litres of premixed coolant (based on recommended ratio):
  - “**G12+**” (40 %) and water (60 %) for frost protection to -25°C
  - “**G12+**” (50 %) and water (50 %) for frost protection to -35°C
  - “**G12+**” (60 %) and water (40 %) for frost protection to -40°C
- Screw adapter for cooling system tester - V.A.G 1274/8- onto coolant expansion tank.
- Fit cooling system charge unit -VAS 6096- onto adapter -V.A.G 1274/8-.
- Feed vent hose -1- into a small container - 2-. (The vented air draws along a small amount of coolant, which should be collected.)



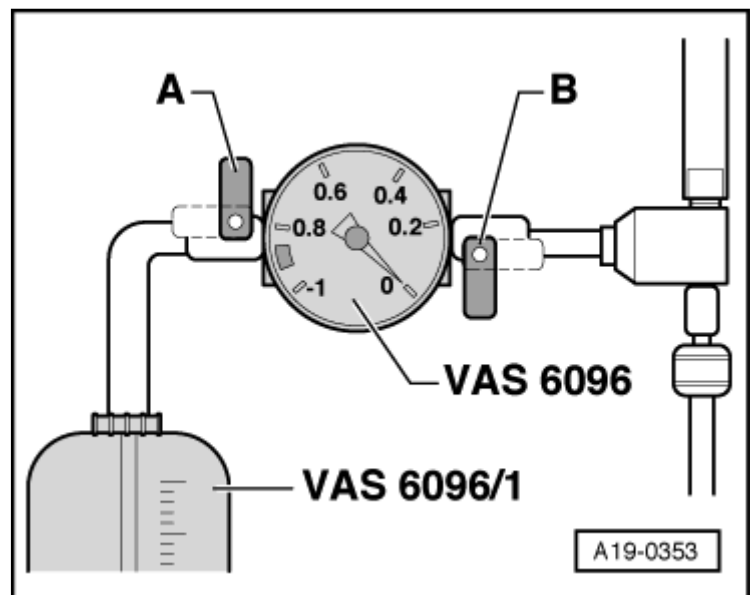
- Close both valves -A- and -B- (turn lever perpendicular to direction of flow).
- Connect hose -3- to compressed air.
- Pressure: 6 ... 10 bar.



- Open valve -B- (turn lever in direction of flow).

The suction jet pump generates a vacuum in the cooling system.

- The needle on the gauge must move into the green zone.
- Also briefly open valve -A- (turn lever in direction of flow) so that hose on charge unit -VAS 6096/1- can fill with coolant.
- Close valve -A- again.
- Leave valve -B- open for another 2 minutes.
- The suction jet pump will continue generating a vacuum in the cooling system.
- The needle on the gauge must remain in the green zone.
- Close valve -B-.
- The needle on the gauge must stop in the green zone. The vacuum level in the cooling system is then sufficient for subsequent filling.



If the needle does not reach the green area, repeat the process.

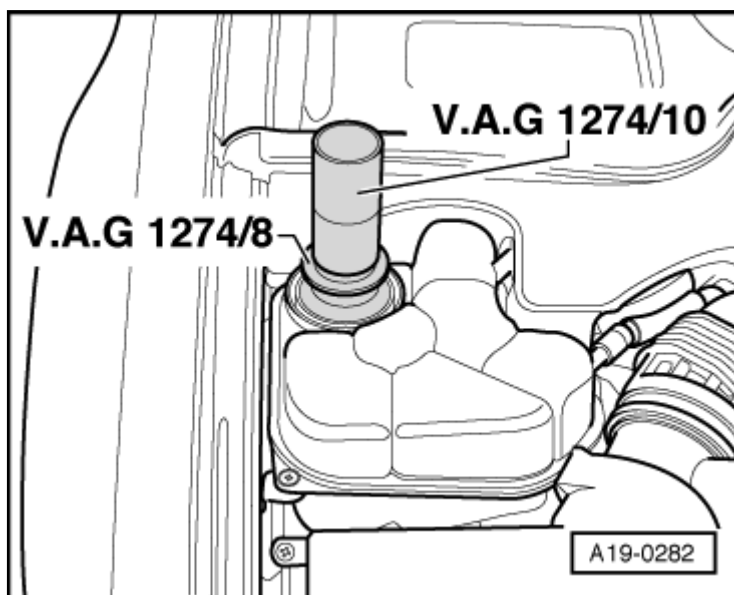


If the vacuum level drops, there is a leak in the cooling system.

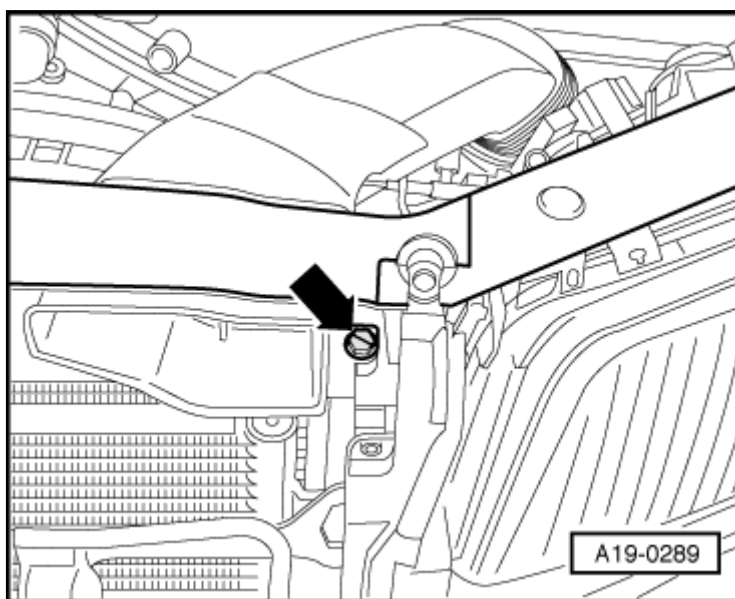
- Detach the compressed air hose.
- Open valve -A-.

The vacuum in the cooling system causes the coolant to be drawn out of the cooling system charge unit -VAS 6096/1-; the cooling system is then filled.

- Detach cooling system charge unit -VAS 6096- from expansion tank.
- Fit pipe -V.A.G 1274/10- onto adapter -V.A.G 1274/8-.

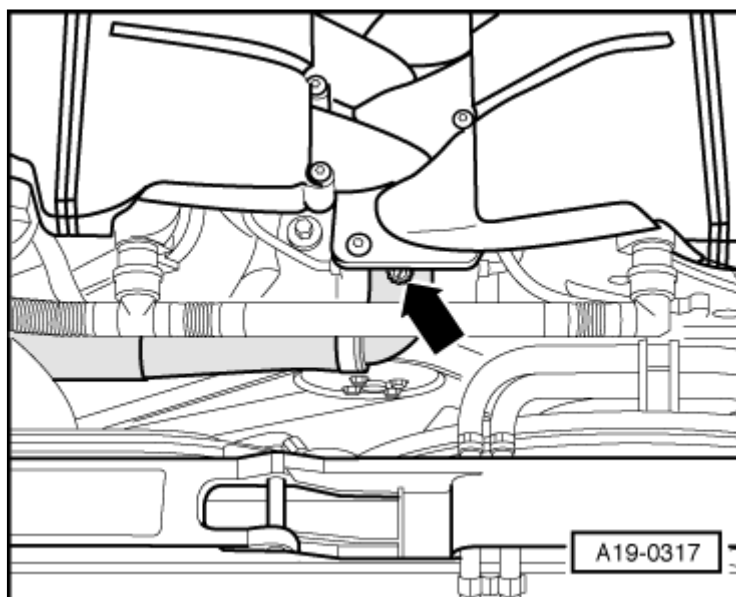


- Open bleeder screw -arrow- at top left of radiator.
- Fill up with coolant until it flows out at bleeder hole on radiator.
- Close the bleeder screw.

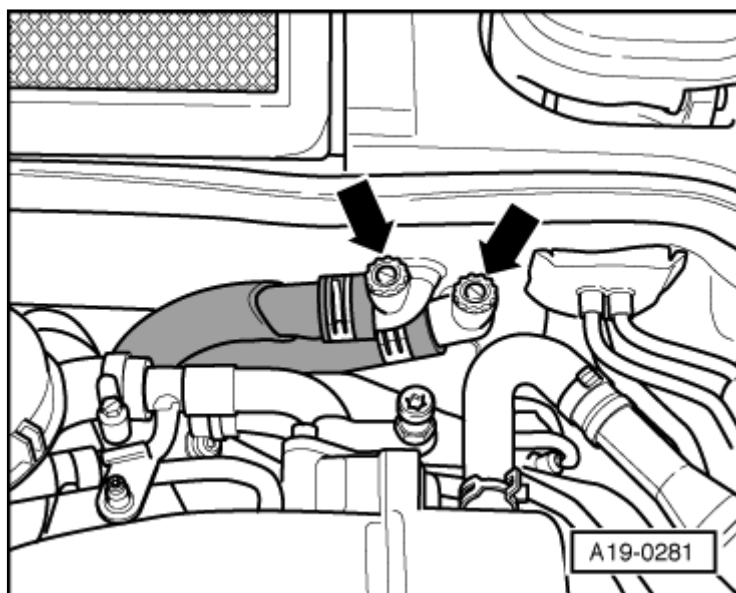


- Open bleeder screw -arrow- above thermostat.
- Fill up with coolant until it flows out at bleeder hole in coolant pipe.
- Close the bleeder screw.

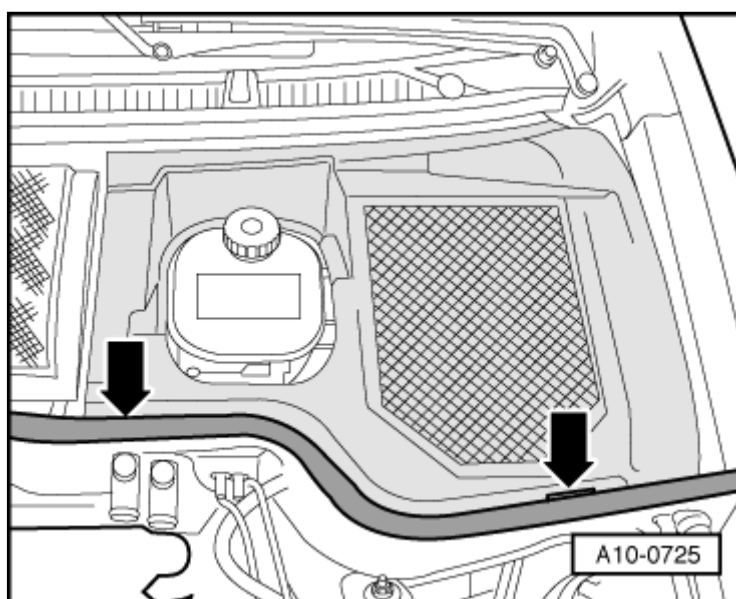




- Open bleeder screws -arrows- at heater supply and return pipes.
- Fill up with coolant until it flows out at bleeder hole in coolant hoses.
- Close the bleeder screws.



- Unclip plenum chamber cover (left-side) - arrows- and remove.



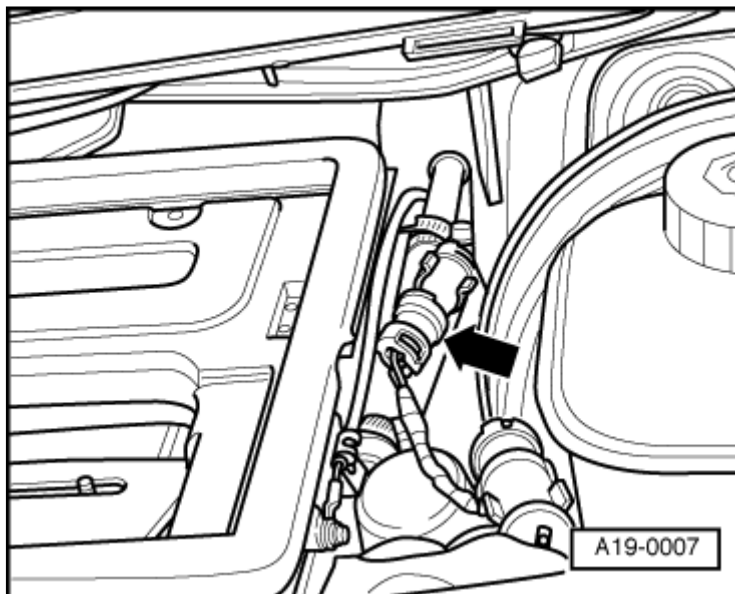
- Unplug the 2-way electrical connector - arrow- to the pump valve unit.



- Set heater/air conditioner on both sides to “LO”.

**Note**

- ♦ *The coolant circulation pump -V50- for pump valve unit must not be started until coolant circuit has been bled.*
- ♦ *The pump valve unit will be damaged if it is run dry.*
- On vehicles with auxiliary heater, switch heater briefly on and then off again.
- Connect the 2-way electrical connector - arrow- to the pump valve unit.
- Tighten filler cap on expansion tank.
- Set heater/air conditioner on both sides to “HI”.
- Start engine and maintain an engine speed of about 2,000 rpm for approx. 3 minutes.
- Switch off engine.

**WARNING**

**Hot steam/hot coolant may escape when opening expansion tank; cover filler cap with cloth and open carefully.**

- Check coolant level and top up if necessary. When the engine is at normal operating temperature, the coolant level must be on the MAX mark; when the engine is cold, between the MIN and MAX marks.
- Check that cooling system is correctly filled:
  - In setting “HI”, the heater must produce the same temperature on driver's and passenger's side.
  - The pump valve unit for heater/air conditioner must not make any noise.
- Repeat the bleeding procedure if necessary → **Anchor**.

