

Leak tracing, fluorescent tracing agent / UV lamp

Regulations

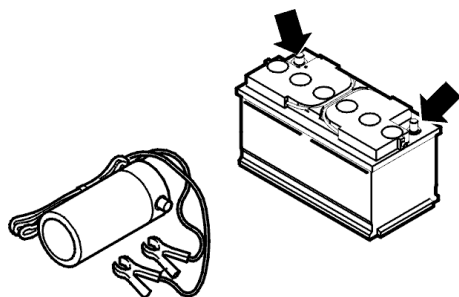
Filling and leak tracing the climate control system using fluorescent tracing agent and a UV lamp.

Note! The coloring agent may discolor the car paintwork. Therefore extreme caution must be taken when handling the tracing agent.

Note! Carefully follow the manufacturers instructions when handling the UV lamp and the tracing agent.

Note! After filling with the tracing agent, the decal supplied by the manufacturer / supplier must be applied at the point indicated.

Note! When leak tracing, always use the protective goggles supplied with the equipment. The goggles make the colour more visible.



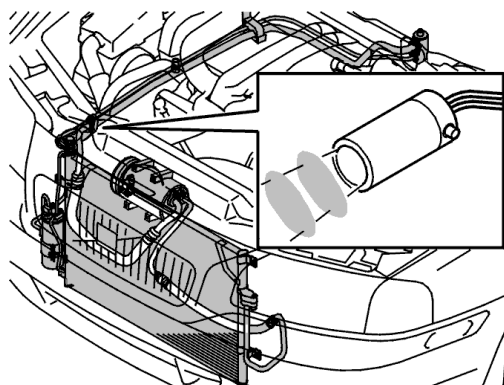
Leak tracing with a UV lamp

For information about filling with fluorescent tracing agent, see [Filling with fluorescent tracing agent with the refrigerant](#) .

- Connect the UV lamp. See the instructions
- Leak trace using the UV lamp
- The fluorescent tracing agent is green when leak tracing with a UV lamp.

Note! This light green colour may be mistaken for leaked or spilled coolant which Volvo uses in its products.

The method for leak tracing using fluorescent tracing agent is the same for both factory filled and aftermarket filled climate control systems.



Leak tracing, electronic leak tracer

Special tools: [951 1207](#)

Leak tracing with an electronic leak tracer using refrigerant as a tracing agent

When fault tracing using refrigerant as a tracing agent, we recommend that leak tracer [951 1207](#) is used.

Preparations

Note! The engine must always be switched off when leak tracing.

An electronic leak tracer can be used if there is still refrigerant in the climate control system. If the climate control system is empty and a visual or physical test has not identified the leak.

Leak tracing

- Fill the climate control system with 200 grams of refrigerant
- There must not be any strong smells or fumes in the engine compartment. These can affect the leak tracing
- Leak-trace using a leak tracer.

If no leakage is found

- Fill with the remaining amount of refrigerant
- Add fluorescent tracing agent according to [Filling with fluorescent tracing agent and refrigerant](#)
- If leakage is suspected, ask the customer to drive the car and then return for new leak tracing / repairs.

If leakage is detected

- Remedy the cause of the leak
- Vacuum pump according to [Vacuum pumping](#)
- Add fluorescent tracing agent with the refrigerant according to [Filling with fluorescent tracing agent and refrigerant](#)
- Leak trace according to [Leak tracing, fluorescent tracing agent / UV lamp](#).

Or:

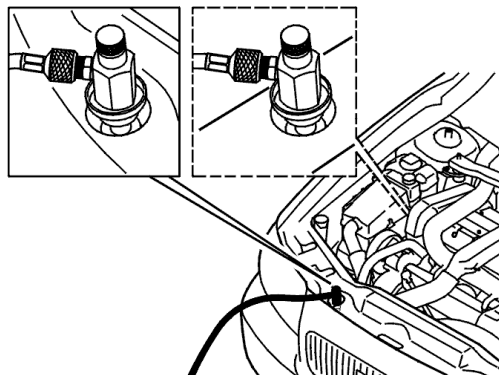
- Fill with refrigerant according to [Filling with refrigerant](#)
- Leak trace according to [Leak tracing with an electronic leak tracer using refrigerant as a tracing agent](#).

Vacuum pumping

Vacuum pumping refrigerant

Vacuum pumping

Caution! Check and if necessary top up with new



compressor oil according to [Refrigerant, safety regulations](#) before pumping up a vacuum in the climate control system.

- During vacuum pumping, the vacuum pump can be connected to both the high pressure (HP) and low pressure (LP) sides
- Operate the vacuum pump for at least 50 minutes.

Note! The vacuum pump (recycling station) must have a final pressure lower than 0.1 mbar.

Vacuum test

The vacuum must be checked after vacuum pumping.

- The value of the vacuum gauge may only increase by 0.1–0.3 mbar during an interval of 4 minutes.

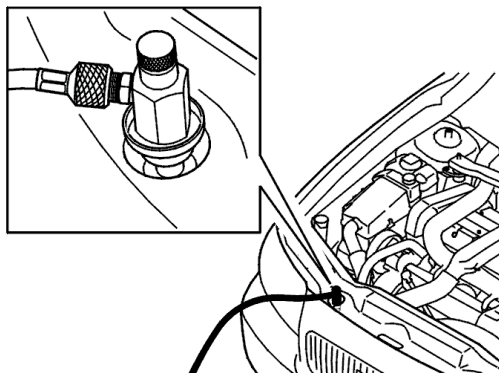
Note! The vacuum test is not a substitute for leak tracing.

Refrigerant, filling

Important information about filling with refrigerant

Note! Refrigerant must only be filled via the service valve (TXV system) on the high pressure (HP) side.

Hint: A specification decal in the engine compartment lists the refrigerant capacity of the air conditioning (A/C) system.



Note! The most common cause of failed filling on the high pressure side is incorrect vacuum pumping or because the pressure in the filling unit is not high enough, or a combination of these two.

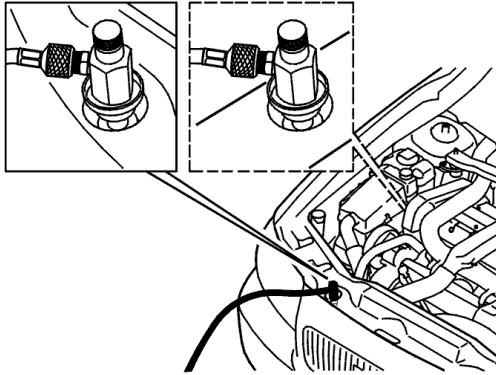
Note! The filling unit should preferably have a heating unit for refrigerant. This is so that the pressure in the filling unit is higher than in the system that is to be filled.

Note! When filling with refrigerant, compensate for the volume in the filling hoses before closing the filler valve.

Refrigerant, draining

Draining refrigerant

Information



Note! The ambient temperature must be above 20°C when draining the system

When draining refrigerant, the recycling unit can be attached to the service valve for both the high pressure side (HP) and the low pressure side (LP) at the same time. This is the quickest method.

- The engine must be switched off
- Check the amount of oil (if any) that has run out when draining the refrigerant.

Note! The recycling unit must be equipped with an oil separator. The oil separator must be of a type that allows the amount of oil in the refrigerant to be measured.

Note! Always disconnect the battery lead when working on the climate control system. Disconnect the battery lead. See [Battery, replacing](#).

Other information:

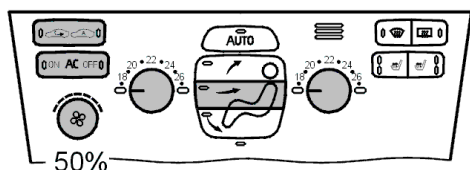
- For vacuum pumping, see [Vacuum pumping](#)
- For visual and physical checks, see [Visual and physical check](#)
- To fill with refrigerant, see [Refrigerant, filling](#)
- To fill with fluorescent tracing agent, see [Filling with fluorescent tracing agent with the refrigerant](#)
- To leak trace using an electronic leak tracer, see [Leak tracing, electronic leak tracer](#)
- To leak trace using fluorescent tracing agent and an UV torch, see [Leak tracing, fluorescent tracing agent / UV lamp](#)

Climate system, performance test

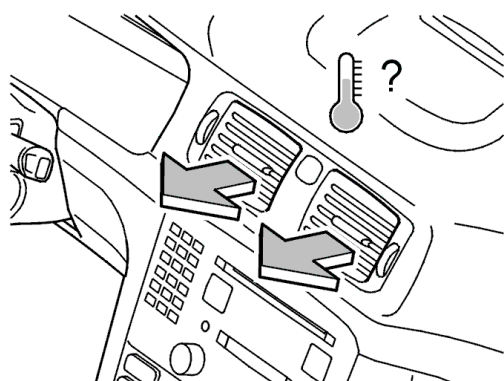
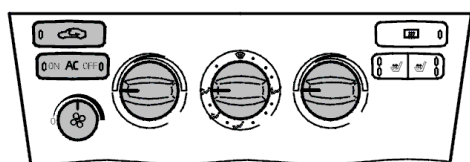
Performance test

Conditions

- Bonnet closed
- Doors and windows closed
- Start the engine



- Engine speed 1500 rpm.
- Turn the temperature selector(s) to maximum cooling
- Set the air distribution selector to the Ventilation position
- Set the recirculation switch to the On position
- Set the air conditioning (A/C) button to the On position
- Set the blower fan switch to 50%.



- Position a thermometer at the centre dashboard vents
- Allow the system to stabilize itself for at least 8 minutes.

Recorded operating conditions °C (°F)			
Ambient air temperature measured in front of the car	20°C (68°F)	30°C (86°F)	40°C (104°F)
Temperature of the expelled air measured at the centre panel vents	6-9°C (43-48°F)	6-9°C (43-48°F)	6-9°C (43-48°F)

Checking the air quality sensor

Removal

Removing the windscreen wiper and cowl

Remove:

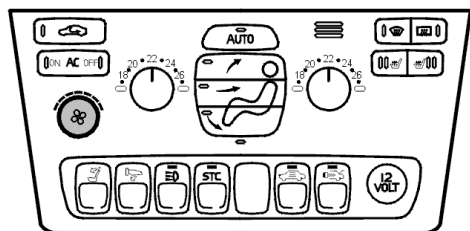
- the windscreen wipers according to [Wiper mechanism and wiper motor, windscreen, replacing](#)
- the cowl over the windscreen wiper recess

according to [Wiper mechanism and wiper motor, windscreen, replacing](#)

Check

Checking the air quality sensor

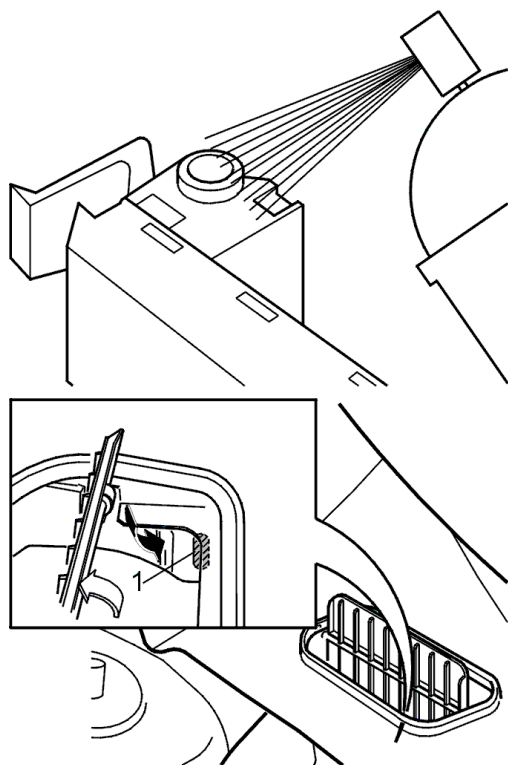
- Start the car engine with the ECC automatic button in the ON position.



- Spray quick rust penetrator [1161422-9](#) into the opening for the air quality sensor.

Note! Only spray a little.

If the air quality sensor and the other electronics are fault free, the damper for the air intake should close very soon.



If the air quality sensor is fault free, the damper for the air intake will gradually open after approximately 15 seconds.

Installation

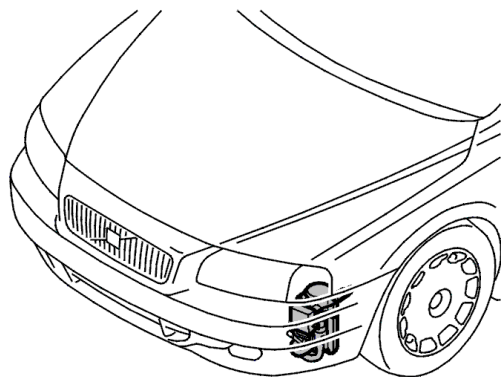
Installing the windscreen wiper and cowl

Install:

- the cowl over the windscreen wiper recess according to [Wiper mechanism and wiper motor, windscreen, replacing](#)
- the windscreen wipers according to [Wiper mechanism and wiper motor, windscreen, replacing](#)

Note! Cover the air intake to the passenger compartment when the engine compartment or the car is being treated with wax or preserving agent.

Engine coolant heater, test running



Test driving

Note! The additional heater will not start if the engine coolant temperature (ECT) is in excess of approximately 75°C.

Checking the quantity of fuel

Engine on: The heater always starts and the quantity of fuel in the tank is checked for 1 minute. If the quantity of fuel is greater than 4 litres the heater continues to run, otherwise it shuts down.

Engine off: The quantity of fuel is checked before starting.

Warning text in the driver information module

Warning text is displayed in the driver information module if:

- the quantity of fuel is too low.
- the battery voltage is too low.

Conditions for starting:

- outside temperature < +3°C
- the engine is running
- quantity of fuel > 4 litres
- no diagnostic trouble codes (DTCs) stored that would prevent starting
- airbag not deployed.

Activate the heater.

When the heater is activated, allow it to run for a few minutes and check that:

- the heater starts and runs normally
- the heater does not smoke abnormally
- there is no mechanical noise from the fuel pump (FP), water pump or combustion fan
- there is no leakage from either the fuel lines and terminals or the coolant hoses and terminals
- the coolant hoses from the heater are warm.

Stop the heater.

In warm weather (above 20°C) the heater may

run unevenly. This is due to the fuel vaporizing. The heater is not normally intended to operate in such high temperatures.

If the car is not equipped with the trip computer function the heater starts in VIDA Car communication Section 36 Engine coolant heater.