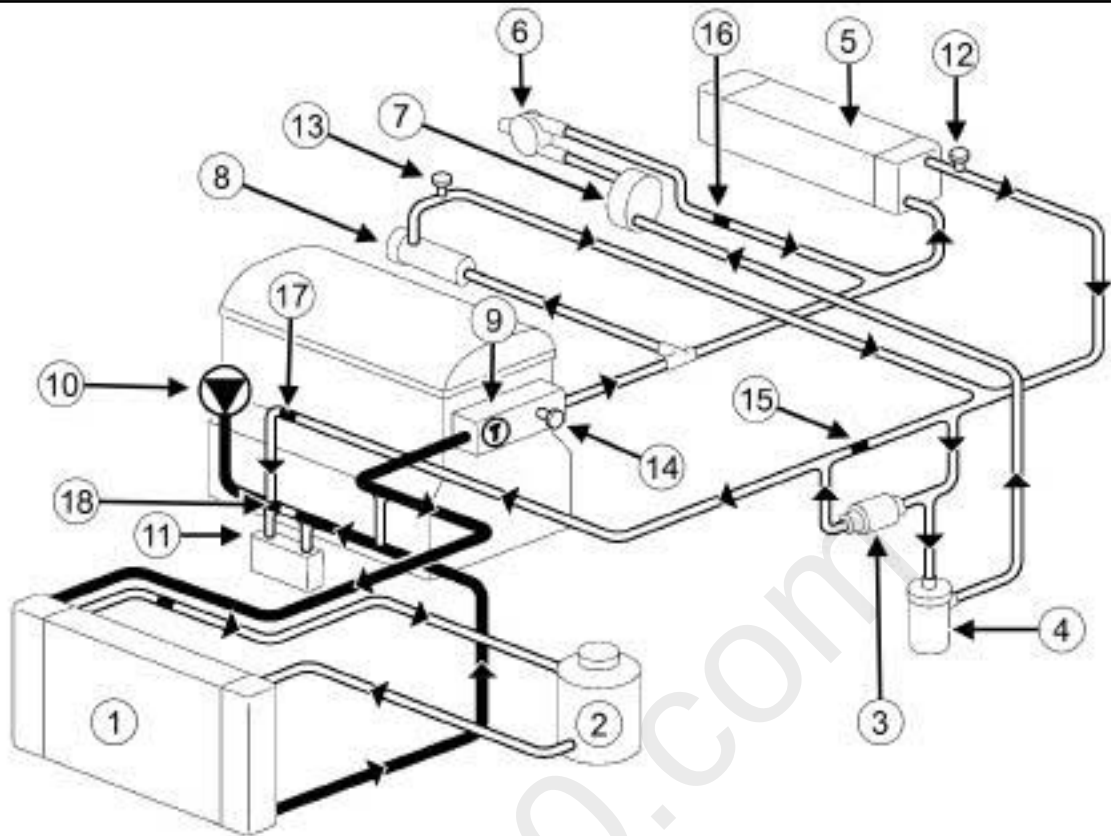


Engine cooling system: Operating diagram

K9K, and 772



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- | | |
|------|--|
| (1) | Radiator |
| (2) | Expansion bottle |
| (3) | Heating elements |
| (4) | Electric coolant pump |
| (5) | Heater matrix |
| (6) | Turbocharger |
| (7) | Diesel fuel injector cooler on the catalytic pre-converter |
| (8) | Exhaust gas cooler |
| (9) | Thermostat |
| (10) | Coolant pump |
| (11) | Water-oil heat exchanger |
| (12) | Bleed screw |
| (13) | Bleed screw |
| (14) | Bleed screw |
| (15) | Choke |
| (16) | Choke |
| (17) | Choke |
| (18) | Choke |

Cooling system: Draining - Refilling

Special tooling required

Mot. 1202-01	Clip pliers for hose clips (large size).
Mot. 1202-02	Clip pliers for hose clips (small size)
Mot. 1448	Remote operation pliers for hose clips.
Mot. 1700	Fault finding and filling - bleeding the cooling circuit.
Ms. 554-07	Instrument for testing the cooling circuit and the expansion bottle valve. Contains caps 554-01, 554-04, 554-06

Equipment required

coolant recovery tray
compressed air nozzle
pedal press

IMPORTANT

The circuits are designed to be pressurised, so be careful at high temperatures (risk of serious burns).

Do not remove the cap from the expansion bottle while the engine is hot.

Take care when carrying out a repair under the bonnet, as the radiator fan(s) may start to operate without warning.

Do not open the bleed screw(s) with the engine running.

WARNING

Before the operation, protect the electrical accessories to prevent any risk of short circuiting and protect the belts to avoid damaging them.

DRAINING

- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (MR 392, 02A, Lifting equipment).
- ☐ Remove:
 - the expansion bottle cap,
 - the engine undertray.

- ☐ Position the **coolant recovery tray** under the vehicle.
- ☐ Remove the cooling radiator bottom hose clip using the **(Mot. 1202-01)** or **(Mot. 1202-02)** or **(Mot. 1448)**.
- ☐ Open the cooling system by disconnecting the bottom hose from the cooling radiator.
- ☐ Use a **compressed air nozzle** to blow air into the system through the expansion bottle opening to remove as much coolant as possible.

CLEANING

- ☐ Fill the cooling system with water through the expansion bottle.
- ☐ Let the water run until the water collected from the cooling radiator bottom hose becomes clear.
- ☐ Use a **compressed air nozzle** to blow air into the circuit through the expansion bottle opening to remove as much water as possible.
- ☐ Refit:
 - the cooling radiator bottom hose,
 - the cooling radiator bottom hose clip with the **(Mot. 1202-01)** or **(Mot. 1202-02)** or **(Mot. 1448)**.

FILLING



Note:

There are two procedures for filling the cooling system:

- the procedure using the **(Mot. 1700)** recommended by Renault which saves a considerable amount of time as the cooling system bleed screws do not need to be opened,
- the procedure without a special tool.

I - FILLING PROCEDURE USING THE TOOL (MOT. 1700)

- ☐ Fill the cooling system with engine coolant recommended by the manufacturer (see **Vehicle: Parts and consumables for the repair**) (MR 392, 04B, Consumables - Products) using the **(Mot. 1700)** (see **Cooling system: Filling**) (Technical Note 3857A, 19A, Cooling).

Cooling system: Draining - Refilling

II - FILLING PROCEDURE WITHOUT A SPECIAL TOOL

□

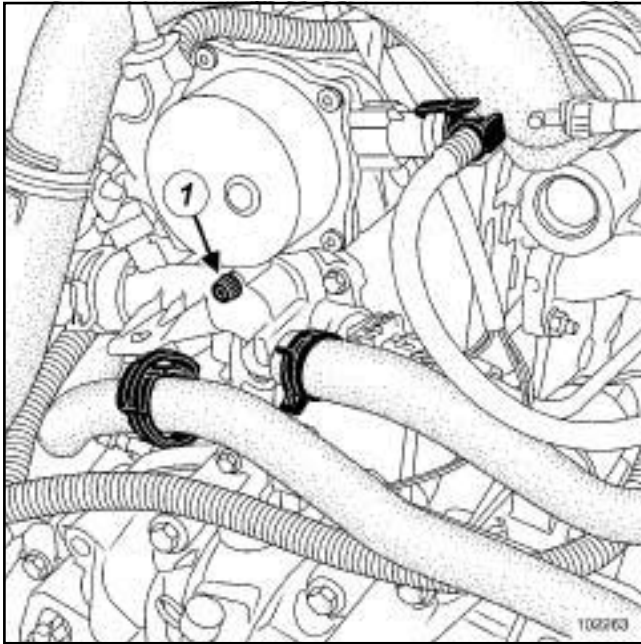
WARNING

It is essential to open all of the bleed screws to remove as much as air as possible in the cooling system. Failure to perform this procedure may prevent the cooling system from filling properly and may damage the engine.

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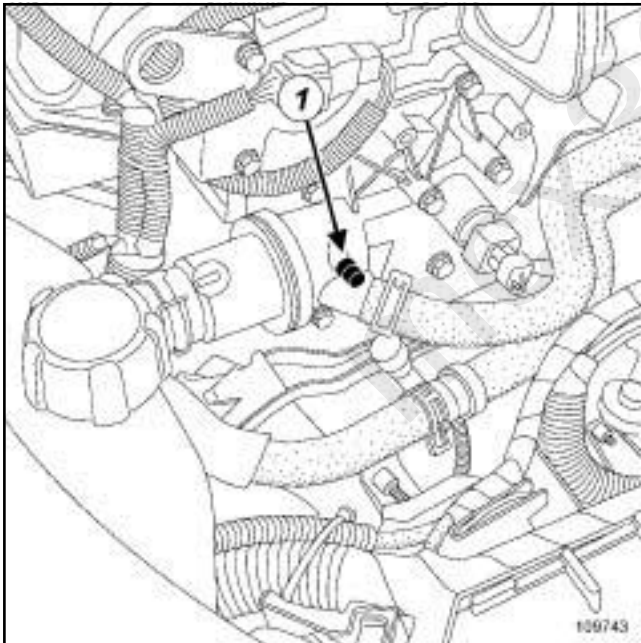
Cooling system: Draining - Refilling

Location of the bleed screw on the K9K water chamber



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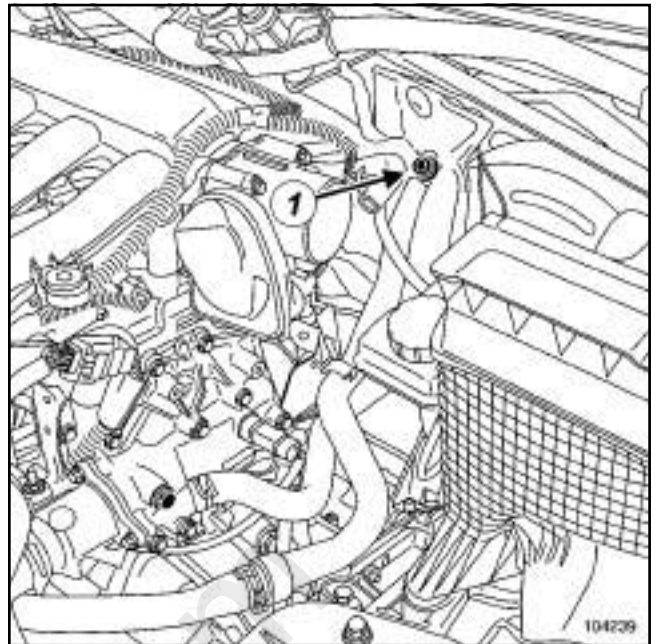
Location of the bleed screw on the D4F, K4J, K4M water chamber



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Location of the bleed screw on the D4F, K4M, K4J,

K9K heater radiator hose



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- ☐ Open the bleed screws (1) .
- ☐ Fill the cooling system with the engine coolant recommended by the manufacturer (see **Vehicle: Parts and consumables for the repair**) (MR 392, 04B, Consumables - Products) via the expansion bottle until it overflows.
- ☐ Close all the bleed screws as soon as the coolant starts to flow in a continuous stream.
- ☐ Pressurise the system using the (**Ms. 554-07**) to check that there are no leaks (see **19A, Cooling, Engine cooling system: Check**, page 19A-5) .
- ☐ Refit the expansion bottle cap.
- ☐ Clean any surfaces soiled by the coolant.

BLEEDING☐**WARNING**

Do not open the bleed screw whilst the engine is running; this would damage the engine.

- ☐ Start the engine.

D4F, and 740 or 742 or 764

- ☐ Maintain the engine speed at **2500 rpm**, using the **pedal press** for **5 minutes**.
- ☐ Stabilise the engine speed at **2000 rpm** until the fan assembly has been activated twice.