

Cooling system: Draining - Refilling

D4F, and 784

- ☐ 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 is activated.
- ☐ Note the coolant level in the expansion bottle after this first activation.
- ☐ Accelerate at a minimum of **4000 rpm** for a few seconds, until the coolant fluid level in the expansion bottle drops.

K9K

- ☐ Maintain the engine speed at **1500 rpm** rapidly varying the engine speed (until maximum speed is reached) **2 to 3** times approximately every two minutes until the fan assembly starts for a second time.

F4R or K4J or K4M

- ☐ Run the engine at **2500 rpm**, until the engine cooling fan has started to operate three times (time required for automatic degassing).

M4R

- ☐ Let the engine run at **3000 rpm**, until the engine cooling fan has been activated three times (time required for automatic degassing).

- ☐ Check that the heating is operating correctly.
- ☐ Allow the engine to cool until the coolant temperature is less than **50°C**.
- ☐ Make sure the coolant fluid level is at the « Maximum » mark.
- ☐ Refit the expansion bottle cap.

FINAL OPERATION.

- ☐ Remove the **coolant recovery tray**.
- ☐ Refit the engine undertray.

Cooling radiator: Removal - Refitting

D4F, and 740 or 742 or 764, and STANDARD HEATING

Special tooling required

Mot. 1448	Remote operation pliers for hose clips.
Car. 1363	Set of trim removal levers.

REMOVAL

I - REMOVAL PREPARATION OPERATION

- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (MR 392, 02A, Lifting equipment).
- ☐ Disconnect the battery (see **Battery: Removal - Refitting**) (MR 392, 80A, Battery).
- ☐ Remove:
 - the air filter unit (see **12A, Fuel mixture, Air filter unit: Removal - Refitting**, page 12A-17) ,
 - the front bumper (see **Front bumper: Removal - Refitting**) (MR 393, 55A, Exterior protection),
 - the expansion bottle valve,
 - the engine undertray.
- ☐ Drain the cooling system (see **19A, Cooling, Cooling system: Draining - Refilling**, page 19A-16) .
- ☐ Flush the cooling system (see **19A, Cooling, Cooling system: Draining - Refilling**, page 19A-16) .
- ☐ Attach the cooling radiator to the front end panel.
- ☐ Remove:
 - the radiator mounting cross member (see **Radiator mounting cross member: Removal - Refitting**) (MR 393, 41A, Front lower structure).
 - the engine fuse box cover,
 - the expansion bottle (see **19A, Cooling, Expansion bottle: Removal - Refitting**, page 19A-101) .
- ☐ Disconnect the fan unit connector.
- ☐ Unclip the wiring harness on the fan assembly.

II - OPERATION FOR REMOVAL OF PART CONCERNED

- ☐ Detach the cooling radiator from the front end panel.
- ☐ Remove:
 - the cooling radiator,
 - the front end panel rubber pads.

Stripping the cooling radiator

- ☐ Remove the expansion bottle hose clamps using (**Mot. 1448**).
- ☐ Using the (**Car. 1363**), remove:
 - the radiator expansion bottle bottom hose,
 - the radiator expansion bottle top hose.
- ☐ Remove the radiator fan unit.

REFITTING

I - REFITTING PREPARATION OPERATION

Rebuilding the cooling radiator

- ☐ Refit:
 - the radiator fan unit,
 - the radiator expansion bottle top hose,
 - the radiator expansion bottle bottom hose,
- ☐ Refit the expansion bottle hose clamps using (**Mot. 1448**).

II - REFITTING OPERATION FOR PART CONCERNED

- ☐ Refit:
 - the front end panel rubber pads,
 - the cooling radiator.

III - FINAL OPERATION

- ☐ Connect the fan unit connector.
- ☐ Clip the wiring harness onto the fan assembly.
- ☐ Refit:
 - the expansion bottle (see **19A, Cooling, Expansion bottle: Removal - Refitting**, page 19A-101) ,
 - the engine fuse box cover,
 - the radiator mounting cross member (see **Radiator mounting cross member: Removal - Refitting**) (MR 393, 41A, Front lower structure),
 - the air filter unit (see **12A, Fuel mixture, Air filter unit: Removal - Refitting**, page 12A-17) .
- ☐ Fill the cooling system (see **19A, Cooling, Cooling system: Draining - Refilling**, page 19A-16) .
- ☐ Refit:
 - the front bumper (see **Front bumper: Removal - Refitting**) (MR 393, 55A, Exterior protection),

Cooling radiator: Removal - Refitting

D4F, and 740 or 742 or 764, and STANDARD HEATING

- the engine undertray.

- ☐ Connect the battery (see **Battery: Removal - Refitting**) (MR 392, 80A, Battery).
- ☐ Bleed the cooling system (see **19A, Cooling, Cooling system: Draining - Refilling**, page **19A-16**) .

Cooling radiator: Removal - Refitting

D4F, and 740 or 742 or 764, and AIR CONDITIONING

Special tooling required

Mot. 1448 Remote operation pliers for hose clips.

Car. 1363 Set of trim removal levers.

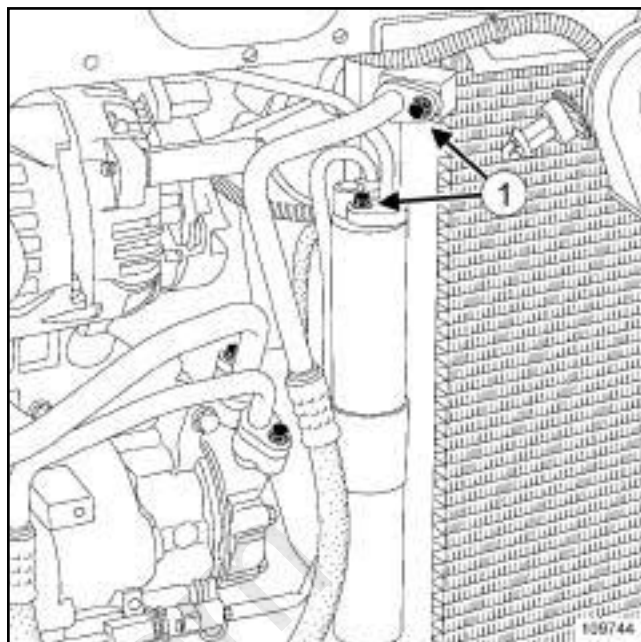
Tightening torques

air conditioning pipe union mounting bolts on the condenser **8 N.m**

REMOVAL

I - REMOVAL PREPARATION OPERATION

- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (MR 392, 02A, Lifting equipment).
- ☐ Disconnect the battery (see **Battery: Removal - Refitting**) (MR 392, 80A, Battery).
- ☐ Remove:
 - the air filter unit (see **12A, Fuel mixture, Air filter unit: Removal - Refitting**, page 12A-17) ,
 - the front bumper (see **Front bumper: Removal - Refitting**) (MR 393, 55A, Exterior protection),
 - the expansion bottle valve,
 - the engine undertray.
- ☐ Drain:
 - the cooling system (see **19A, Cooling, Cooling system: Draining - Refilling**, page 19A-16) ,
 - the refrigerant circuit (see **Refrigerant circuit: Draining - Filling**) (MR 392, 62A, Air conditioning).
- ☐ Flush the cooling system (see **19A, Cooling, Cooling system: Draining - Refilling**, page 19A-16) .
- ☐ Attach the cooling radiator to the front end panel.
- ☐ Remove:
 - the radiator mounting cross member (see **Radiator mounting cross member: Removal - Refitting**) (MR 393, 41A, Front lower structure),
 - the engine fuse box cover,
 - the expansion bottle (see **19A, Cooling, Expansion bottle: Removal - Refitting**, page 19A-101) .
- ☐ Unclip the wiring harness of the pressure switch on the condenser.



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- ☐ Remove:
 - the pressure switch from the condenser,
 - the air conditioning compressor clutch connector,
 - the mounting bolts (1) securing the air conditioning pipe unions to the condenser,
 - the fan assembly connector.
- ☐ Disconnect the air conditioning pipe unions.
- ☐ Insert plugs in the air conditioning pipe unions.
- ☐ Unclip the fan unit wiring harness.

II - OPERATION FOR REMOVAL OF PART CONCERNED

- ☐ Detach the cooling radiator from the front end panel.
- ☐ Remove:
 - the cooling radiator,
 - the front end panel rubber pads.

Stripping the cooling radiator

- ☐ Remove:
 - the dehydration canister clamp bolts,
 - the dehydrator reservoir.
- ☐ Remove the expansion bottle hose clamps using (**Mot. 1448**).
- ☐ Using the (**Car. 1363**), remove:
 - the radiator expansion bottle bottom hose,

Cooling radiator: Removal - Refitting

D4F, and 740 or 742 or 764, and AIR CONDITIONING

- the radiator expansion bottle top hose.

- ☐ Remove the radiator fan unit.

REFITTING

I - REFITTING PREPARATION OPERATION

Rebuilding the cooling radiator

- ☐ Refit:

- the radiator fan unit,
- the radiator expansion bottle top hose,
- the radiator expansion bottle bottom hose,

- ☐ Refit the expansion bottle hose clamps using (**Mot. 1448**).

- ☐ Refit:

- the dehydrator reservoir,
- the dehydration canister clamp bolts.

II - REFITTING OPERATION FOR PART CONCERNED

- ☐ Refit:

- the front end panel rubber pads,
- the cooling radiator.

III - FINAL OPERATION

- ☐ Clip the wiring harness onto the fan assembly.

- ☐ Remove the caps from the air conditioning pipe unions.

- ☐ Replace the seals on the air conditioning pipe unions.

- ☐ Refit:

- the fan unit connector,
- the air conditioning compressor clutch connector,
- the pressure switch from the condenser,
- the air conditioning pipe unions,
- the air conditioning pipe union mounting bolts on the condenser.

- ☐ Torque tighten the **air conditioning pipe union mounting bolts on the condenser (8 N.m)**.

- ☐ Clip the pressure switch wiring harness on the condenser.

- ☐ Refit:

- the expansion bottle (see **19A, Cooling, Expansion bottle: Removal - Refitting**, page 19A-101) ,
- the engine fuse box cover,
- the battery cover,
- the radiator mounting cross member (see **Radiator mounting cross member: Removal - Refitting** (MR 393, 41A, Front lower structure),
- the air filter unit (see **12A, Fuel mixture, Air filter unit: Removal - Refitting**, page 12A-17) .

- ☐ Refill:

- the refrigerant circuit (see **Refrigerant circuit: Draining - Filling**) (MR 392, 62A, Air conditioning),
- the cooling system (see **19A, Cooling, Cooling system: Draining - Refilling**, page 19A-16) .

- ☐ Refit:

- the front bumper (see **Front bumper: Removal - Refitting**) (MR 393, 55A, Exterior protection),
- the engine undertray.

- ☐ Connect the battery (see **Battery: Removal - Refitting**) (MR 392, 80A, Battery).

- ☐ Bleed the cooling system (see **19A, Cooling, Cooling system: Draining - Refilling**, page 19A-16) .

Cooling radiator: Removal - Refitting

K4J or K4M, and STANDARD HEATING

Special tooling required	
Mot. 1448	Remote operation pliers for hose clips.
Car. 1363	Set of trim removal levers.

REMOVAL

I - REMOVAL PREPARATION OPERATION

- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (MR 392, 02A, Lifting equipment).
- ☐ Remove:
 - the battery (see **Battery: Removal - Refitting**) (MR 392, 80A, Battery),
 - the engine fuse box cover,
 - the battery tray (see **Battery tray: Removal - Refitting**) (MR 392, 80A, Battery),
 - the air filter unit (see **12A, Fuel mixture, Air filter unit: Removal - Refitting**, page 12A-17) ,
 - the front bumper (see **Front bumper: Removal - Refitting**) (MR 393, 55A, Exterior protection).
- ☐ Drain the cooling system (see **19A, Cooling, Cooling system: Draining - Refilling**, page 19A-16) .
- ☐ Flush the cooling system (see **19A, Cooling, Cooling system: Draining - Refilling**, page 19A-16) .
- ☐ Attach the cooling radiator to the front end panel.
- ☐ Remove:
 - the radiator mounting cross member (see **Radiator mounting cross member: Removal - Refitting**) (MR 393, 41A, Front lower structure),
 - the expansion bottle (see **19A, Cooling, Expansion bottle: Removal - Refitting**, page 19A-101) ,
 - the air resonator (see **12A, Fuel mixture, Air resonator: Removal - Refitting**, page 12A-10) .
- ☐ Disconnect the blower assembly connector.
- ☐ Unclip the fan unit wiring harness.

II - OPERATION FOR REMOVAL OF PART CONCERNED

- ☐ Detach the cooling radiator from the front end panel.
- ☐ Remove:
 - the cooling radiator,
 - the front end panel rubber pads.

Stripping the radiator

- ☐ Using the (**Mot. 1448**), remove:
 - the radiator expansion bottle bottom hose clamps,
 - the radiator expansion bottle top hose clamp.
- ☐ Using the (**Car. 1363**), remove:
 - the expansion bottle bottom hose on the radiator,
 - the expansion bottle top hose on the radiator,
- ☐ Remove the radiator fan unit.

REFITTING

I - REFITTING PREPARATION OPERATION

Rebuilding the cooling radiator

- ☐ Refit:
 - the radiator fan unit,
 - the expansion bottle top hose on the radiator,
 - the expansion bottle bottom hose.
- ☐ Using the (**Mot. 1448**), refit:
 - the radiator expansion bottle top hose clamp.
 - the radiator expansion bottle bottom hose clamp.

II - REFITTING OPERATION FOR PART CONCERNED

- ☐ Refit:
 - the front end panel rubber pads,
 - the cooling radiator.

III - FINAL OPERATION

- ☐ Connect the fan assembly connector.
- ☐ Clip the wiring harness onto the fan assembly.
- ☐ Refit:
 - the air resonator (see **12A, Fuel mixture, Air resonator: Removal - Refitting**, page 12A-10) ,
 - the expansion bottle (see **19A, Cooling, Expansion bottle: Removal - Refitting**, page 19A-101) ,
 - the radiator mounting cross member (see **Radiator mounting cross member: Removal - Refitting**) (MR 393, 41A, Front lower structure),
 - the air filter unit (see **12A, Fuel mixture, Air filter unit: Removal - Refitting**, page 12A-17) ,

Cooling radiator: Removal - Refitting

K4J or K4M, and STANDARD HEATING

- the battery tray (see **Battery tray: Removal - Refitting**) (MR 392, 80A, Battery),
 - the engine fuse box cover,
 - the battery (see **Battery: Removal - Refitting**) (MR 392, 80A, Battery).
- ☐ Fill the cooling system (see **19A, Cooling, Cooling system: Draining - Refilling**, page **19A-16**) .
 - ☐ Bleed the cooling system (see **19A, Cooling, Cooling system: Draining - Refilling**, page **19A-16**) .
 - ☐ Refit the front bumper (see **Front bumper: Removal - Refitting**) (MR 393, 55A, Exterior protection).

Cooling radiator: Removal - Refitting

K4J or K4M, and AIR CONDITIONING

Special tooling required

Mot. 1448 Remote operation pliers for hose clips.

Car. 1363 Set of trim removal levers.

Tightening torques

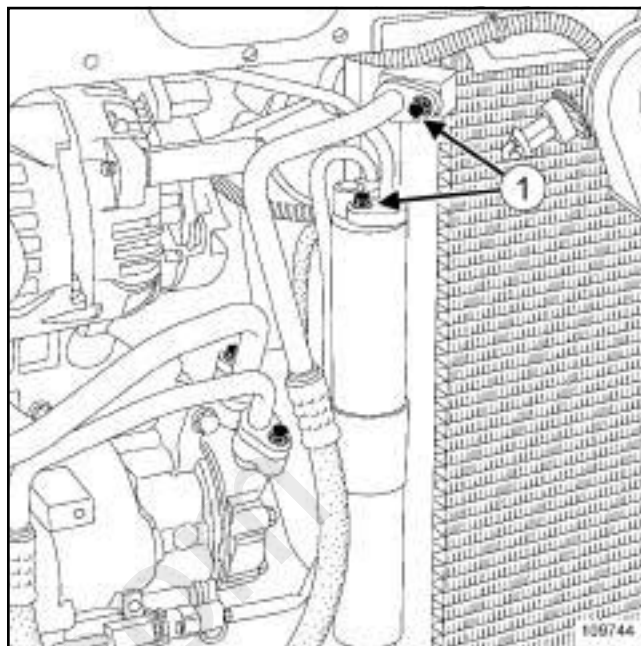
air conditioning pipe union mounting bolts on the condenser **8 N.m**

REMOVAL

I - REMOVAL PREPARATION OPERATION

- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (MR 392, 02A, Lifting equipment).
- ☐ Remove:
 - the battery (see **Battery: Removal - Refitting**) (MR 392, 80A, Battery),
 - the engine fuse box cover,
 - the battery tray (see **Battery tray: Removal - Refitting**) (MR 392, 80A, Battery),
 - the air filter unit (see **12A, Fuel mixture, Air filter unit: Removal - Refitting**, page 12A-17) ,
 - the front bumper (see **Front bumper: Removal - Refitting**) (MR 393, 55A, Exterior protection),
 - the expansion bottle valve.
- ☐ Drain:
 - the cooling system (see **19A, Cooling, Cooling system: Draining - Refilling**, page 19A-16) ,
 - the refrigerant circuit (see **Refrigerant circuit: Draining - Filling**) (MR 392, 62A, Air conditioning).
- ☐ Flush the cooling system (see **19A, Cooling, Cooling system: Draining - Refilling**, page 19A-16) .
- ☐ Attach the cooling radiator to the front end panel.
- ☐ Remove:
 - the radiator mounting cross member (see **Radiator mounting cross member: Removal - Refitting**) (MR 393, 41A, Front lower structure),
 - the expansion bottle (see **19A, Cooling, Expansion bottle: Removal - Refitting**, page 19A-101) ,
 - the air resonator (see **12A, Fuel mixture, Air resonator: Removal - Refitting**, page 12A-10) .

- ☐ Unclip the wiring harness of the pressure switch on the condenser.



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- ☐ Remove:
 - the pressure switch from the condenser,
 - the air conditioning compressor clutch connector,
 - the mounting bolts (1) securing the air conditioning pipe unions to the condenser,
 - the fan assembly connector.
- ☐ Disconnect the air conditioning pipe unions.
- ☐ Insert plugs in the air conditioning pipe unions.
- ☐ Unclip the wiring harness on the fan assembly.

II - OPERATION FOR REMOVAL OF PART CONCERNED

- ☐ Detach the cooling radiator from the front end panel.
- ☐ Remove:
 - the cooling radiator,
 - the front end panel rubber pads.

Stripping the radiator

- ☐ Using the (**Mot. 1448**), loosen:
 - the clamp of the bottom hose of the expansion bottle on the radiator,
 - the clamp of the top hose of the expansion bottle on the radiator,

Cooling radiator: Removal - Refitting

K4J or K4M, and AIR CONDITIONING

- ☐ Using the **(Car. 1363)**, remove:
 - the bottom hose of the expansion bottle on the radiator,
 - the top hose of the expansion bottle on the radiator,
- ☐ Remove:
 - the radiator fan assembly,
 - the dehydrator reservoir.

REFITTING

I - REFITTING PREPARATION OPERATION

Rebuilding the cooling radiator

- ☐ Refit:
 - the dehydrator reservoir,
 - the radiator fan unit
 - the top hose of the expansion bottle on the radiator,
 - the bottom hose of the expansion bottle on the radiator.

II - REFITTING OPERATION FOR PART CONCERNED

- ☐ Refit:
 - the front end panel rubber pads,
 - the cooling radiator.

III - FINAL OPERATION

- ☐ Clip the wiring harness onto the fan assembly.
- ☐ Remove the caps from the air conditioning pipe unions.
- ☐ Replace the seals on the air conditioning pipe unions.
- ☐ Refit:
 - the fan assembly connector,
 - the air conditioning compressor clutch connector,
 - the pressure switch from the condenser,
 - the air conditioning pipe unions,
 - the mounting bolts of the air conditioning pipe unions.
- ☐ Torque tighten the **air conditioning pipe union mounting bolts on the condenser (8 N.m)**.
- ☐ Clip the pressure switch wiring harness on the condenser.

- ☐ Refit:
 - the air resonator (see **12A, Fuel mixture, Air resonator: Removal - Refitting**, page 12A-10) ,
 - the expansion bottle (see **19A, Cooling, Expansion bottle: Removal - Refitting**, page 19A-101) ,
 - the radiator mounting cross member (see **Radiator mounting cross member: Removal - Refitting**) (MR 393, 41A, Front lower structure),
 - the air filter unit (see **12A, Fuel mixture, Air filter unit: Removal - Refitting**, page 12A-17) ,
 - the battery tray (see **Battery tray: Removal - Refitting**) (MR 392, 80A, Battery),
 - the engine fuse box cover,
 - the battery (see **Battery: Removal - Refitting**) (MR 392, 80A, Battery).
- ☐ Refill:
 - the refrigerant circuit (see **Refrigerant circuit: Draining - Filling**) (MR 392, 62A, Air conditioning),
 - the cooling system (see **19A, Cooling, Cooling system: Draining - Refilling**, page 19A-16) .
- ☐ Bleed the cooling system (see **19A, Cooling, Cooling system: Draining - Refilling**, page 19A-16) .
- ☐ Refit the front bumper (see **Front bumper: Removal - Refitting**) (MR 393, 55A, Exterior protection).

Cooling radiator: Removal - Refitting

K9K, and AIR CONDITIONING

Special tooling required

Mot. 1448 Remote operation pliers for hose clips.

Car. 1363 Set of trim removal levers.

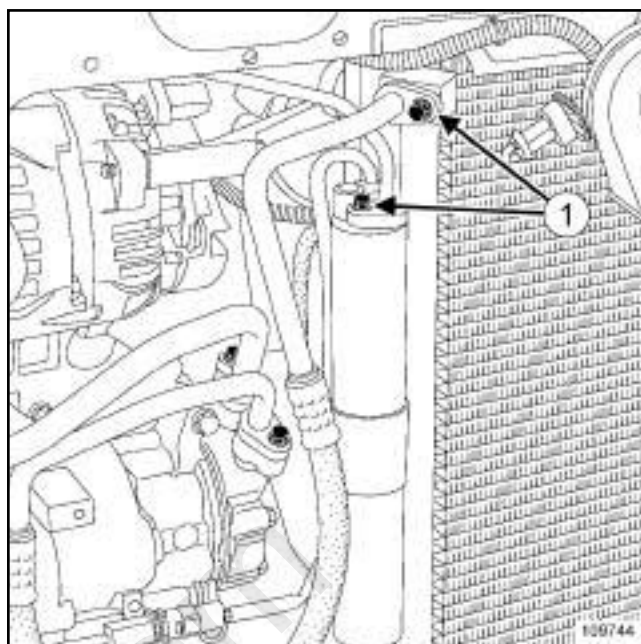
Tightening torques

air conditioning pipe union mounting bolts on the condenser **8 N.m**

REMOVAL

I - REMOVAL PREPARATION OPERATION

- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (MR 392, 02A, Lifting equipment).
- ☐ Disconnect the battery (see **Battery: Removal - Refitting**) (MR 392, 80A, Battery).
- ☐ Remove:
 - the expansion bottle valve,
 - the engine undertray,
 - the front bumper (see **Front bumper: Removal - Refitting**) (MR 393, 55A, Exterior protection).
- ☐ Drain the cooling system (see **19A, Cooling, Cooling system: Draining - Refilling**, page 19A-16) .
- ☐ Drain the refrigerant circuit (see **Refrigerant circuit: Draining - Filling**) (MR 392, 62A, Air conditioning).
- ☐ Flush the cooling system (see **19A, Cooling, Cooling system: Draining - Refilling**, page 19A-16) .
- ☐ Attach the cooling radiator to the front end panel.
- ☐ Remove:
 - the intercooler (see **12B, Turbocharging, Intercooler: Removal - Refitting**, page 12B-21) ,
 - the radiator mounting cross member (see **Radiator mounting cross member: Removal - Refitting**) (MR 393, 41A, Front lower structure),
 - the expansion bottle (see **19A, Cooling, Expansion bottle: Removal - Refitting**, page 19A-101) .
- ☐ Unclip the wiring harness of the pressure switch on the condenser.



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- ☐ Remove:
 - the pressure switch from the condenser,
 - the air conditioning compressor clutch connector,
 - the mounting bolts (1) securing the air conditioning pipe unions to the condenser,
 - the fan assembly connector.
- ☐ Disconnect the air conditioning pipe unions.
- ☐ Insert plugs in the air conditioning pipe unions.
- ☐ Unclip the fan unit wiring harness.

II - OPERATION FOR REMOVAL OF PART CONCERNED

- ☐ Detach the cooling radiator from the front end panel.
- ☐ Remove:
 - the cooling radiator,
 - the front end panel rubber pads.

Cooling radiator: Removal - Refitting

K9K, and AIR CONDITIONING

Stripping the cooling radiator

- ☐ Remove:
 - the mounting bolts of the dehydration canister clamp,
 - the dehydrator reservoir.
- ☐ Using the **(Mot. 1448)**, remove:
 - the clamp of the bottom hose of the expansion bottle on the radiator,
 - the clamp of the top hose of the expansion bottle on the radiator,
- ☐ Using the **(Car. 1363)**, remove:
 - the bottom hose of the expansion bottle on the radiator,
 - the top hose of the expansion bottle on the radiator,
- ☐ Remove the radiator fan unit.

REFITTING

I - REFITTING PREPARATION OPERATION

Rebuilding the cooling radiator

- ☐ Refit:
 - the dehydrator reservoir,
 - the dehydration canister mounting bolts,
 - the radiator fan unit,
 - the top hose of the expansion bottle on the radiator,
 - the bottom hose of the expansion bottle on the radiator.
- ☐ Using the **(Mot. 1448)**, refit:
 - the clamp of the top hose of the expansion bottle on the radiator,
 - the clamp of the bottom hose of the expansion bottle on the radiator.

II - REFITTING OPERATION FOR PART CONCERNED

- ☐ Refit:
 - the rubber pads on the front end panel,
 - the cooling radiator.

III - FINAL OPERATION

- ☐ Clip the wiring harness onto the fan assembly.
- ☐ Remove the plugs from the air conditioning pipe unions.
- ☐ Replace the seals on the air conditioning pipe unions.
- ☐ Refit:
 - the fan assembly connector,
 - the air conditioning compressor clutch connector,
 - the pressure switch from the condenser,
 - the air conditioning pipe unions,
 - the intercooler (see **12B, Turbocharging, Intercooler: Removal - Refitting**, page 12B-21) ,
 - the air conditioning pipe union mounting bolts on the condenser.
- ☐ Torque tighten the **air conditioning pipe union mounting bolts on the condenser (8 N.m)**.
- ☐ Clip the pressure switch wiring harness on the condenser.
- ☐ Refit:
 - the expansion bottle (see **19A, Cooling, Expansion bottle: Removal - Refitting**, page 19A-101) ,
 - the radiator mounting cross member (see **Radiator mounting cross member: Removal - Refitting**) (MR 393, 41A, Front lower structure).
- ☐ Refill:
 - the refrigerant circuit (see **Refrigerant circuit: Draining - Filling**) (MR 392, 62A, Air conditioning),
 - the cooling system (see **19A, Cooling, Cooling system: Draining - Refilling**, page 19A-16) .
- ☐ Refit:
 - the front bumper (see **Front bumper: Removal - Refitting**) (MR 393, 55A, Exterior protection).
 - the engine undertray,
- ☐ Connect the battery (see **Battery: Removal - Refitting**) (MR 392, 80A, Battery).
- ☐ Bleed the cooling system (see **19A, Cooling, Cooling system: Draining - Refilling**, page 19A-16) .

Cooling radiator: Removal - Refitting

K9K, and STANDARD HEATING

Special tooling required	
Mot. 1448	Remote operation pliers for hose clips.
Car. 1363	Set of trim removal levers.

REMOVAL

I - REMOVAL PREPARATION OPERATION

- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (MR 392, 02A, Lifting equipment).
- ☐ Disconnect the battery (see **Battery: Removal - Refitting**) (MR 392, 80A, Battery).
- ☐ Remove:
 - the expansion bottle valve,
 - the engine undertray,
 - the front bumper (see **Front bumper: Removal - Refitting**) (MR 393, 55A, Exterior protection).
- ☐ Drain the cooling system (see **19A, Cooling, Cooling system: Draining - Refilling**, page 19A-16) .
- ☐ Flush the cooling system (see **19A, Cooling, Cooling system: Draining - Refilling**, page 19A-16) .
- ☐ Attach the cooling radiator to the front end panel.
- ☐ Remove:
 - the intercooler (see **12B, Turbocharging, Intercooler: Removal - Refitting**, page 12B-21) ,
 - the radiator mounting cross member (see **Radiator mounting cross member: Removal - Refitting**) (MR 393, 41A, Front lower structure),
 - the expansion bottle (see **19A, Cooling, Expansion bottle: Removal - Refitting**, page 19A-101) .
- ☐ Disconnect the fan unit connector.
- ☐ Unclip the wiring harness on the fan assembly.

II - OPERATION FOR REMOVAL OF PART CONCERNED

- ☐ Detach the cooling radiator from the front end panel.
- ☐ Remove:
 - the cooling radiator,
 - the front end panel rubber pads.

Stripping the cooling radiator

- ☐ Using the (**Mot. 1448**), remove:
 - the clamp of the bottom hose of the expansion bottle on the radiator,
 - the clamp of the top hose of the expansion bottle on the radiator,
- ☐ Using the (**Car. 1363**), remove:
 - the bottom hose of the expansion bottle on the radiator,
 - the top hose of the expansion bottle on the radiator.
- ☐ Remove the fan assembly of the radiator.

REFITTING

I - REFITTING PREPARATION OPERATION

Rebuilding the cooling radiator

- ☐ Refit:
 - the radiator fan unit,
 - the top hose of the expansion bottle on the radiator,
 - the bottom hose of the expansion bottle on the radiator.
- ☐ Using the (**Mot. 1448**), refit:
 - the clamp of the top hose of the expansion bottle on the radiator,
 - the clamp of the bottom hose of the expansion bottle on the radiator.

II - REFITTING OPERATION FOR PART CONCERNED

- ☐ Refit:
 - the front end panel rubber pads,
 - the cooling radiator.

III - FINAL OPERATION

- ☐ Connect the fan unit connector.
- ☐ Clip the wiring harness onto the fan assembly.
- ☐ Refit:
 - the expansion bottle (see **19A, Cooling, Expansion bottle: Removal - Refitting**, page 19A-101) ,
 - the radiator mounting cross member (see **Radiator mounting cross member: Removal - Refitting**) (MR 393, 41A, Front lower structure),

Cooling radiator: Removal - Refitting

K9K, and STANDARD HEATING

- the intercooler (see **12B, Turbocharging, Intercooler: Removal - Refitting**, page **12B-21**) .
- ☐ Fill the cooling system (see **19A, Cooling, Cooling system: Draining - Refilling**, page **19A-16**) .
- ☐ Refit:
 - the front bumper (see **Front bumper: Removal - Refitting**) (MR 393, 55A, Exterior protection),
 - the engine undertray.
- ☐ Connect the battery (see **Battery: Removal - Refitting**) (MR 392, 80A, Battery).
- ☐ Bleed the cooling system (see **19A, Cooling, Cooling system: Draining - Refilling**, page **19A-16**) .

M4R

Special tooling required

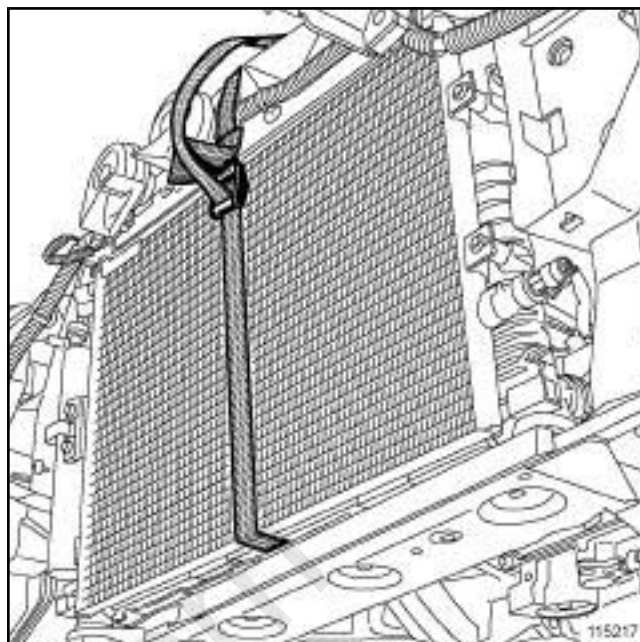
Mot. 1448 Remote operation pliers for hose clips.

Tightening torques

air conditioning pipe union mounting bolts on the condenser **8 N.m**

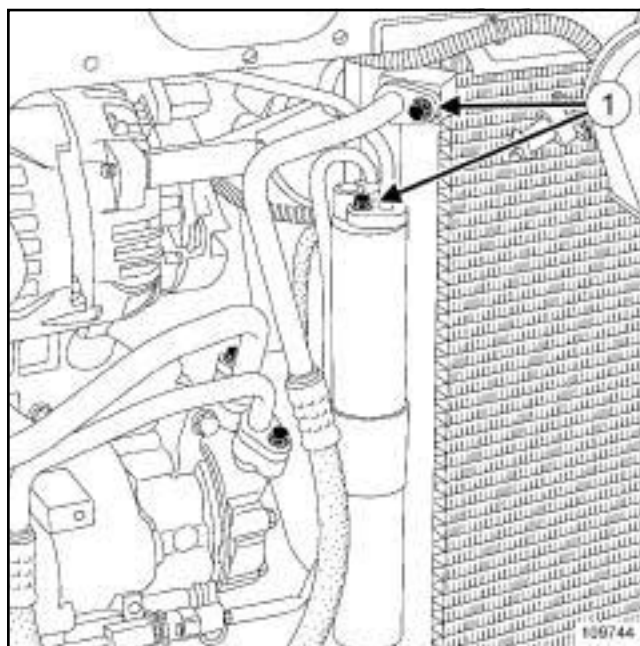
REMOVAL**I - REMOVAL PREPARATION OPERATION**

- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (MR 392, 02A, Lifting equipment).
- ☐ Disconnect the battery (see **Battery: Removal - Refitting**) (MR 392, 80A, Battery).
- ☐ Remove:
 - the engine undertray,
 - the front bumper (see **Front bumper: Removal - Refitting**) (MR 393, 55A, Exterior protection).
- ☐ Drain:
 - the cooling system (see **19A, Cooling, Cooling system: Draining - Refilling**, page 19A-16) ,
 - the refrigerant circuit (see **Refrigerant circuit: Draining - Filling**) (MR 392, 62A, Air conditioning).



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- ☐ Attach the radiator to the front end panel.
- ☐ Remove:
 - the front end panel air resonator (see **12A, Fuel mixture, Air resonator: Removal - Refitting**, page 12A-10) ,
 - the radiator mounting cross member (see **Radiator mounting cross member: Removal - Refitting**) (MR 393, 41A, Front lower structure).

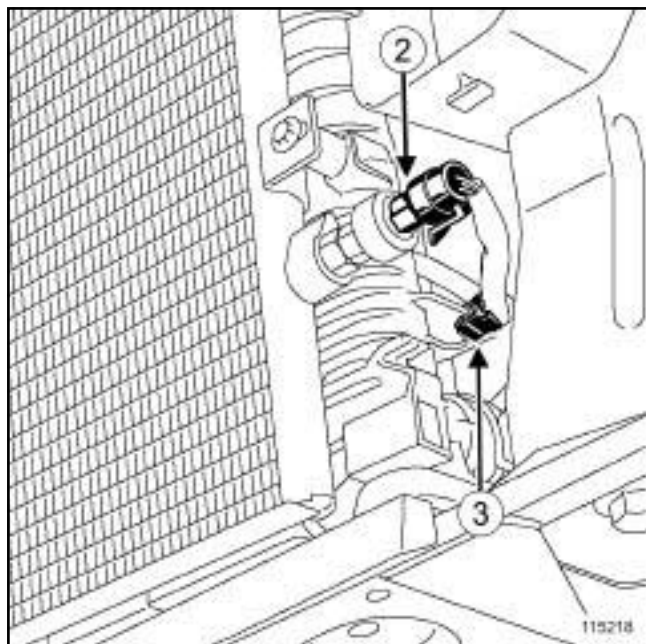


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- ☐ Remove the bolts (1) mounting the air conditioning pipe unions on the condenser.

Cooling radiator: Removal - Refitting

M4R



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☐ Disconnect:

- the pressostat connector (2) on the condenser,
- the radiator top hose, using the (Mot. 1448),
- the fan unit connectors.

☐ Unclip:

- the pressostat wiring harness from the condenser (3) ,
- the wiring harness from the fan unit.

☐ Disconnect the air conditioning pipe unions.

☐ Insert protective plugs in the air conditioning pipe unions.

II - OPERATION FOR REMOVAL OF PART CONCERNED
☐ Detach the cooling radiator from the front end panel.

☐ Remove:

- the cooling radiator,
- the front end panel rubber pads.

Stripping the cooling radiator
☐ Remove:

- the mounting bolts of the dehydration canister clamp,
- the dehydrator reservoir.

☐ Remove the radiator fan unit.

REFITTING
I - REFITTING PREPARATION OPERATION
Rebuilding the cooling radiator
☐ Refit:

- the dehydrator reservoir,
- the dehydration canister mounting bolts,
- the radiator fan unit.

II - REFITTING OPERATION FOR PART CONCERNED
☐ Refit:

- the rubber pads on the front end panel,
- the cooling radiator.

Cooling radiator: Removal - Refitting

M4R

III - FINAL OPERATION

- ☐ Clip the harness onto the fan unit.
- ☐ Remove the plugs from the air conditioning pipe unions.
- ☐ The air conditioning pipe union seals must be replaced.
- ☐ Refit:
 - the fan assembly connector,
 - the air conditioning compressor clutch connector,
 - the pressure switch from the condenser,
 - the air conditioning pipe unions,
 - the bolts mounting the air conditioning pipe unions on the condenser,
 - the radiator hoses using the **(Mot. 1448)**.
- ☐ Torque tighten the **air conditioning pipe union mounting bolts on the condenser (8 N.m)**.
- ☐ Clip the pressostat wiring harness to the condenser.
- ☐ Refit:
 - the front end panel air resonator (see **12A, Fuel mixture, Air resonator: Removal - Refitting, page 12A-10**),
 - the radiator mounting cross member (see **Radiator mounting cross member: Removal - Refitting**) (MR 393, 41A, Front lower structure),
 - the front bumper (see **Front bumper: Removal - Refitting**) (MR 393, 55A, Exterior protection).
 - the engine undertray,
- ☐ Refill:
 - the refrigerant circuit (see **Refrigerant circuit: Draining - Filling**) (MR 392, 62A, Air conditioning),
 - the cooling system (see **19A, Cooling, Cooling system: Draining - Refilling, page 19A-16**).
- ☐ Connect the battery (see **Battery: Removal - Refitting**) (MR 392, 80A, Battery).
- ☐ Bleed the cooling system (see **19A, Cooling, Cooling system: Draining - Refilling, page 19A-16**).

Cooling radiator: Removal - Refitting

F4R

Special tooling required

Mot. 1448 Remote operation pliers for hose clips.

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

When carrying out a repair that requires a complete change, it is essential to flush the circuit with clean water, blast compressed air through the circuit to drive out the water, fill and bleed the circuit and then measure the effective protection.

The criteria to be met are:

- protection down to **-25°C ± 2** for cold and temperate countries,
- protection down to **-40°C ± 2** for "extreme cold" countries.

WARNING

Drain with the engine warm.

Flush and refill with the engine cold or warm.

Never flush a hot engine (risk of major thermal shock).

REMOVAL

I - REMOVAL PREPARATION OPERATION

- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (MR 392, 02A, Lifting equipment).
- ☐ Disconnect the battery (see **Battery: Removal - Refitting**) (MR 392, 80A, Battery).
- ☐ Remove the engine undertray.

☐ Perform the following operations:

- drain the cooling system (see **19A, Cooling, Cooling system: Draining - Refilling**, page 19A-16) ,
- clean the cooling system (see **19A, Cooling, Cooling system: Draining - Refilling**, page 19A-16) .

☐ Remove:

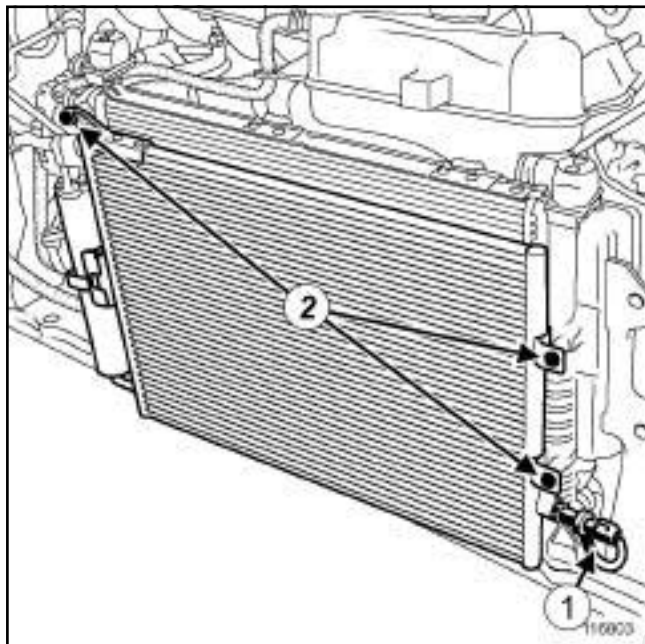
- the front bumper (see **Front bumper: Removal - Refitting**) (MR 393, 55A, Exterior protection),
- the front end panel (see **Front end panel: Removal - Refitting**) (MR 393, 42A, Upper front structure).

Cooling radiator: Removal - Refitting

F4R

II - OPERATION FOR REMOVAL OF PART CONCERNED

1 - Removing the « motor-driven fan assembly - radiator » assembly



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- ☐ Disconnect:
 - the engine cooling fan assembly connectors,
 - the pressure sensor connector (1) ,
 - the cooling radiator hoses using the (Mot. 1448).
- ☐ Remove the mounting bolts (2) from the air conditioning condenser.
- ☐ Move the air conditioning condenser slightly to one side.

WARNING

Do not deform the air conditioning pipes.

WARNING

Do not damage the cooling unit vanes (radiator, condenser, etc) during handling.

- ☐ Remove the « expansion bottle - radiator - motor-driven fan assembly » assembly.

2 - Stripping the radiator

- ☐ Separate the motor-driven fan assembly from the cooling radiator (see 19A, Cooling, Engine cooling fan assembly: Removal - Refitting, page 19A-85) .

WARNING

Do not damage the cooling unit vanes (radiator, condenser, etc) during handling.

- ☐ Disconnect the expansion bottle hoses on the cooling radiator using the (Mot. 1448).

REFITTING

I - REFITTING PREPARATION OPERATION

- ☐ Connect the expansion bottle hoses to the cooling radiator.
- ☐ Refit the engine cooling fan assembly to the cooling radiator.

WARNING

Do not damage the cooling unit vanes (radiator, condenser, etc) during handling.

II - REFITTING OPERATION FOR PART CONCERNED

- ☐ Fit:
 - the « expansion bottle - radiator - motor-driven fan assembly » assembly to the radiator mounting cross member,
 - the air conditioning condenser to the cooling radiator.

WARNING

Do not damage the cooling unit vanes (radiator, condenser, etc) during handling.

- ☐ Refit the air conditioning condenser mounting bolts to the cooling radiator.
- ☐ Connect:
 - the cooling radiator hoses using the (Mot. 1448).
 - the pressure sensor connector,
 - the fan assembly connectors.

Cooling radiator: Removal - Refitting

F4R

III - FINAL OPERATION

☐ Refit:

- the front bumper (see **Front bumper: Removal - Refitting**) (MR 393, 55A, Exterior protection),
- the front end panel (see **Front end panel: Removal - Refitting**) (MR 393, 42A, Upper front structure).

☐ Connect the battery (see **Battery: Removal - Refitting**) (MR 392, 80A, Battery).☐ Perform the following operations:

- fill the cooling system (see **19A, Cooling, Cooling system: Draining - Refilling**, page **19A-16**) ,
- bleed the cooling system (see **19A, Cooling, Cooling system: Draining - Refilling**, page **19A-16**) .

☐ Check that there are no coolant leaks.☐ Refit the engine undertray.

D4F, and 784

Special tooling required

Mot. 1448 Remote operation pliers for hose clips.

Equipment required

safety strap(s)

refrigerant charging station

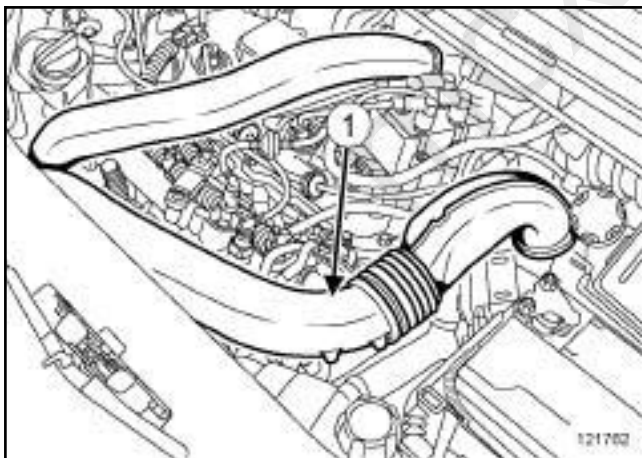
Tightening torques

air conditioning pipe bolt **8 Nm**

air conditioning pipe bolts **8 Nm**

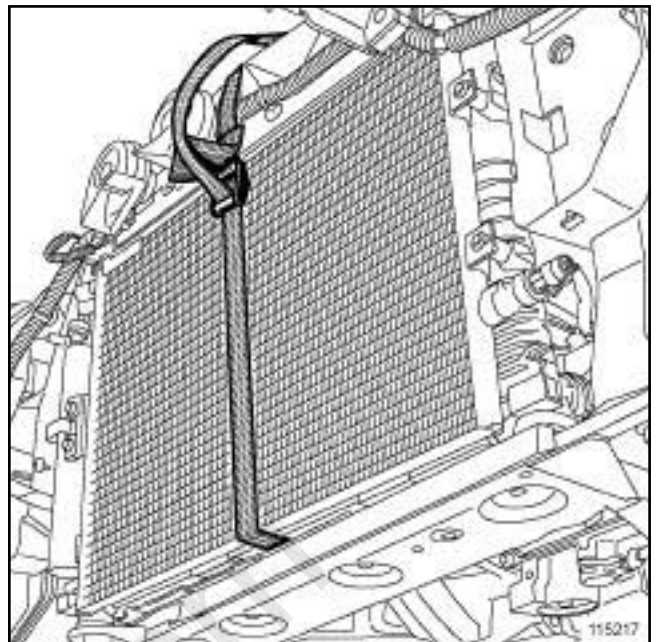
REMOVAL**I - REMOVAL PREPARATION OPERATION**

- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (MR 392, 02A, Lifting equipment).
- ☐ Disconnect the battery (see **Battery: Removal - Refitting**) (MR 392, 80A, Battery).



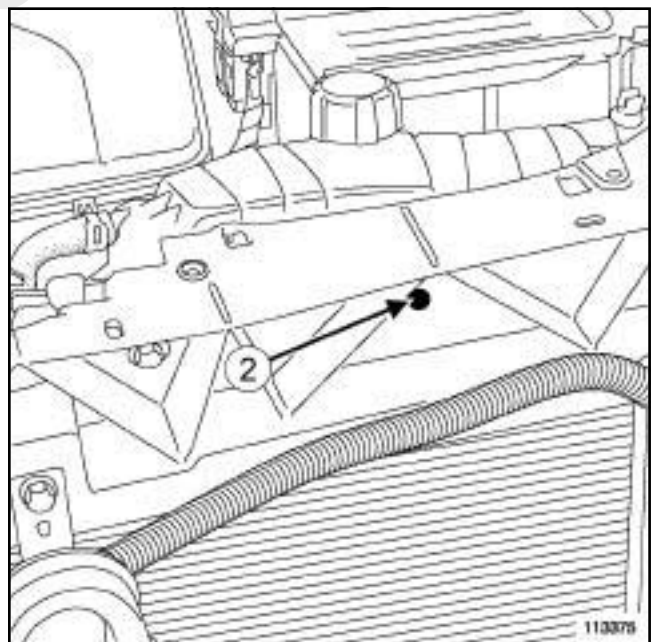
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- ☐ Remove the air filter unit air inlet pipe (1) .
- ☐ Remove:
 - the front bumper (see **Front bumper: Removal - Refitting**) (MR 393, 55A, Exterior protection),
 - the engine undertray.
- ☐ Drain the cooling system (see **19A, Cooling, Cooling system: Draining - Refilling**, page 19A-16) .



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- ☐ Attach the « radiator - condenser - cooling fan » assembly using a **safety strap(s)**.
- ☐ Remove the radiator mounting cross member (see **Radiator mounting cross member: Removal - Refitting**) (MR 393, 41A, Front lower structure).



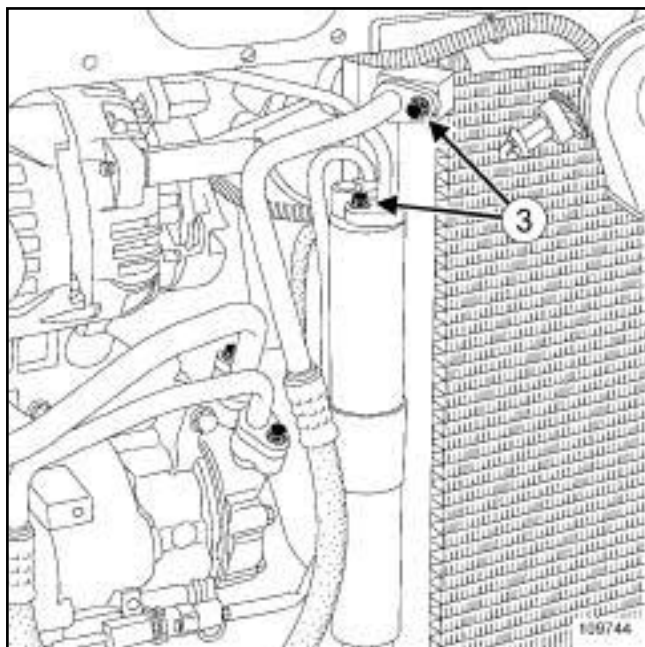
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- ☐ Remove the clip (2) from the expansion bottle.
- ☐ Remove the expansion bottle.

Cooling radiator: Removal - Refitting

D4F, and 784

AIR CONDITIONING



- ☐ Drain the air conditioning circuit using **refrigerant charging station**.
- ☐ Remove the bolts (3) from the air conditioning pipes on the dehydrator reservoir and on the condenser.
- ☐ Uncouple the air conditioning pipes on the dehydrator reservoir and on the condenser.
- ☐ Plug the openings.
- ☐ Disconnect the pressostat connector.

- ☐ Disconnect the motor-driven fan assembly connectors.
- ☐ Unclip the wiring harness on the fan assembly.

II - OPERATION FOR REMOVAL OF PART CONCERNED

- ☐ Detach the « radiator - condenser - cooling fan » assembly from the front end panel.
- ☐ Remove:
 - the « radiator - condenser - motor-driven fan » assembly,
 - the front end panel rubber pads.

Stripping the cooling radiator

- ☐ Remove:
 - the dehydration canister clamp bolts,
 - the air conditioning pipe bolt,
 - the dehydration canister.
- ☐ Move the hose clips away from the expansion bottle using (**Mot. 1448**).
- ☐ Disconnect:
 - the bottom hose of the expansion bottle on the radiator,
 - the top hose of the expansion bottle on the radiator.
- ☐ Unclip the cooling fan assembly.

REFITTING**I - REFITTING PREPARATIONS OPERATION****Rebuilding the cooling radiator**

- ☐ Clip on the cooling fan assembly.
- ☐ Connect:
 - the bottom hose of the expansion bottle on the radiator,
 - the top hose of the expansion bottle on the radiator.
- ☐ Fit the clips on the expansion bottle hoses using the (**Mot. 1448**).
- ☐ Refit:
 - the dehydrator reservoir.
 - the air conditioning pipe bolt,
 - the dehydration canister clamp bolts.
- ☐ Torque tighten the **air conditioning pipe bolt (8 Nm)**.

II - REFITTING OPERATION FOR PART CONCERNED

- ☐ Refit:
 - the front end panel rubber pads,
 - the « radiator - condenser - engine motor-driven fan » assembly.

III - FINAL OPERATION.

- ☐ Refit the radiator mounting cross member (see **Radiator mounting cross member: Removal - Refitting**) (MR 393, 41A, Front lower structure).