

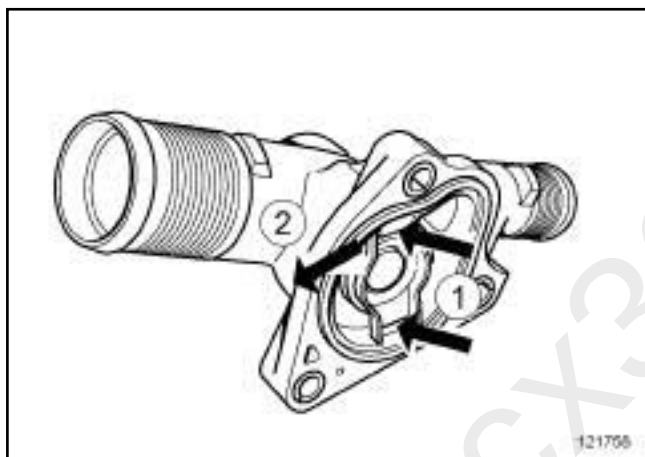
D4F, and 784

REMOVAL

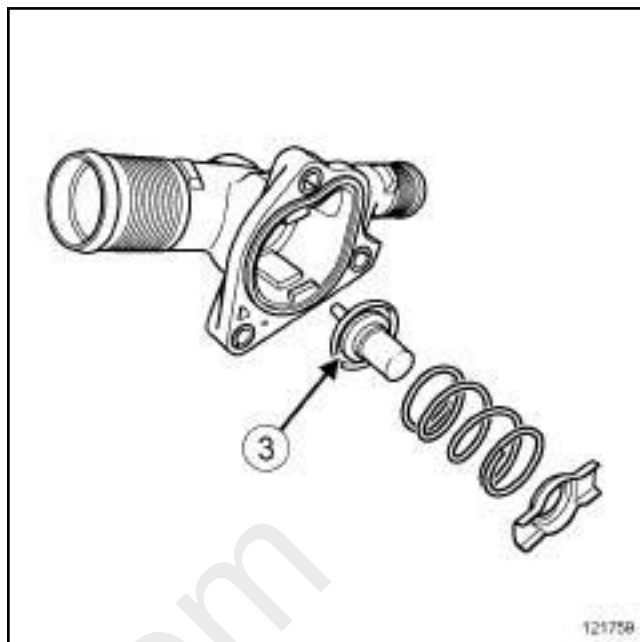
I - REMOVAL PREPARATION OPERATION

- ☐ 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 cover,
 - the water chamber (see **19A, Cooling, Water chamber: Removal - Refitting**, page 19A-63) .

II - OPERATION FOR REMOVAL OF PART CONCERNED



- ☐ Press on the spring mounting at (1) .
- ☐ Turn the spring mounting at (2) .



- ☐ Remove the thermostat (3) .

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED

- ☐ Refit the thermostat.
- ☐ Fit:
 - the spring,
 - the spring mounting.
- ☐ Press on the spring mounting.
- ☐ Turn the spring mounting.

II - FINAL OPERATION.

- ☐ Refit:
 - the water chamber (see **19A, Cooling, Water chamber: Removal - Refitting**, page 19A-63) ,
 - the engine cover.
- ☐ Connect the battery (see **Battery: Removal - Refitting**) (MR 392, 80A, Battery).

Water chamber: Removal - Refitting

D4F, and 740 or 742 or 784

Special tooling required

Mot. 1448 Remote operation pliers for hose clips.

Tightening torques

water chamber bolts **9 N.m**

REMOVAL

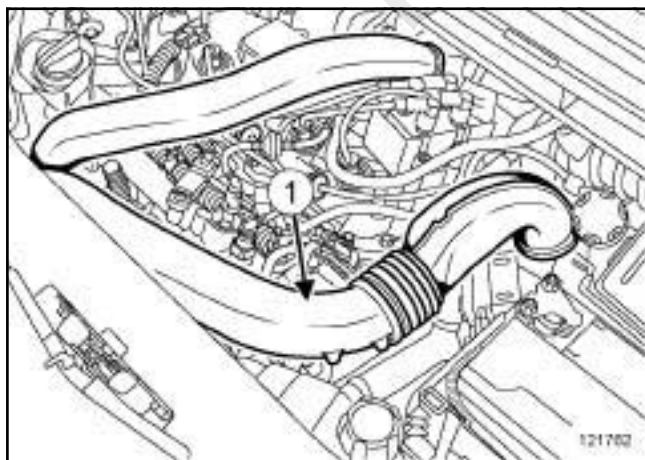
I - REMOVAL PREPARATION OPERATION

- ☐ 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).

D4F, and 740 or 742

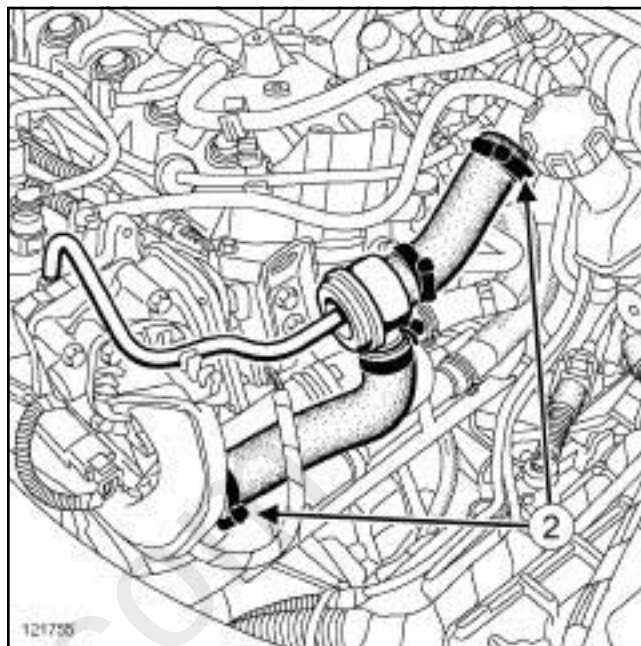
- ☐ Remove the air filter unit (see **12A, Fuel mixture, Air filter unit: Removal - Refitting**, page 12A-17) (MR 392, 12A, Fuel mixture).

D4F, and 784



- ☐ Remove the air filter unit air inlet pipe (1).

D4F, and 784



121755

- ☐ Undo the compressor discharge valve pipe clips (2).
- ☐ Disconnect the compressor discharge valve pipe.
- ☐ Remove the compressor discharge valve pipe.

- ☐ Remove the engine undertray.
- ☐ Drain the cooling system (see **19A, Cooling, Cooling system: Draining - Refilling**, page 19A-16) (MR 392, 19A, Cooling).

II - OPERATION FOR REMOVAL OF PART CONCERNED

- ☐ Remove the water chamber hose clips using the (**Mot. 1448**).

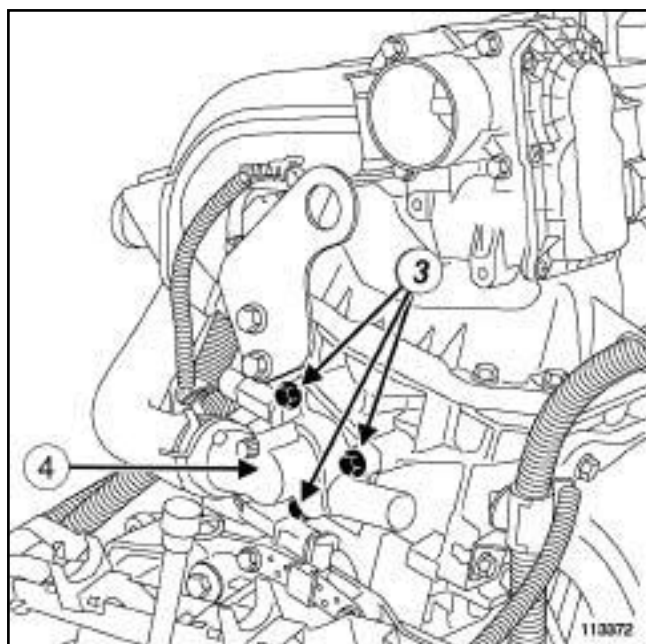
Note:

Protect the TDC sensor with a cloth to prevent coolant entering the gearbox aperture.

- ☐ Disconnect the water chamber hoses.

Water chamber: Removal - Refitting

D4F, and 740 or 742 or 784



113372

☐ Remove:

- the water chamber bolts (3) ,
- the water chamber (4) ,
- the water chamber seal.

REFITTING

I - REFITTING PREPARATION OPERATION

☐
WARNING

Do not scrape the joint faces of the aluminium, any damage caused to the joint face will result in a risk of leaks.

IMPORTANT

Wear protective gloves during the operation.

IMPORTANT

Wear goggles with side protectors for this operation.

WARNING

The joint faces must be clean, dry and free from grease (avoid finger marks).

- ☐
- The water chamber seal must be replaced.

II - REFITTING OPERATION FOR PART CONCERNED

- ☐ Position the water chamber with a new seal.
- ☐ Screw on the water chamber bolts without tightening them.
- ☐ Torque tighten the **water chamber bolts (9 N.m)**.
- ☐ Connect the water chamber hoses.
- ☐ Refit the water chamber hose clips using the **(Mot. 1448)**.

III - FINAL OPERATION

D4F, and 784

- ☐ Refit the compressor discharge valve pipe.
- ☐ Connect the compressor discharge valve pipe.
- ☐ Tighten the compressor discharge valve pipe clips.
- ☐ Refit the air filter unit air inlet pipe.

D4F, and 740 or 742

- ☐ Refit the air filter unit (see **12A, Fuel mixture, Air filter unit: Removal - Refitting**, page **12A-17**) (MR 392, 12A, Fuel mixture).

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

- ☐ Fill and bleed the cooling system (see **19A, Cooling, Cooling system: Draining - Refilling**, page **19A-16**) (MR 392, 19A, Cooling).

- ☐ Refit the engine undertray.

Water chamber: Removal - Refitting

K9K

Special tooling required

Mot. 1448	Remote operation pliers for hose clips.
Mot. 1202-01	Clip pliers for hose clips (large size).
Mot. 1202-02	Clip pliers for hose clips (small size)

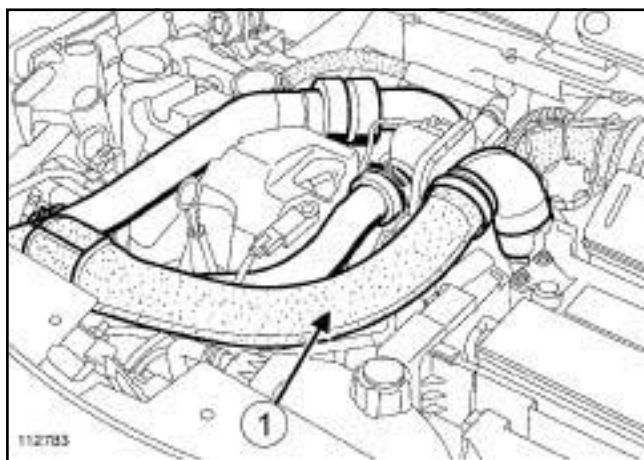
Tightening torques

water chamber bolts	12 N.m
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REMOVAL

I - REMOVAL PREPARATION OPERATION

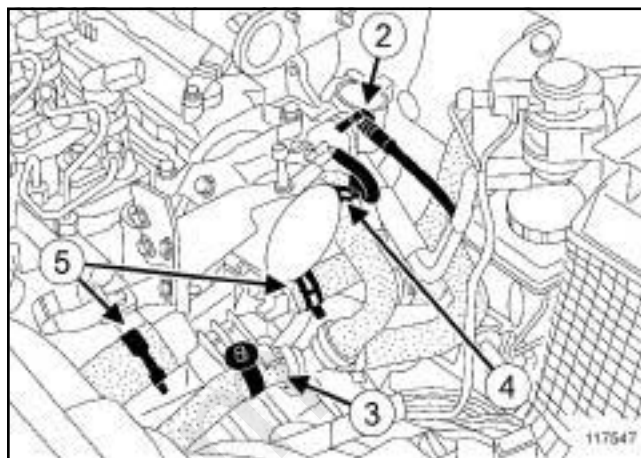
- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (MR 392, 02A, Lifting equipment).
- ☐ Remove:
 - the battery (see **Battery: Removal - Refitting**) (MR 392, 80A, Battery),
 - the engine cover,
 - the engine undertray.
- ☐ Drain the cooling system (see **19A, Cooling, Cooling system: Draining - Refilling**, page 19A-16) (MR 392, 19A, Cooling).
- ☐ Clean the cooling system (see **19A, Cooling, Cooling system: Draining - Refilling**, page 19A-16) (MR 392, 19A, Cooling).



112783

- ☐ Remove:
 - the air filter unit air inlet pipe (1) ,

- 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) (MR 392, 12A, Fuel mixture).



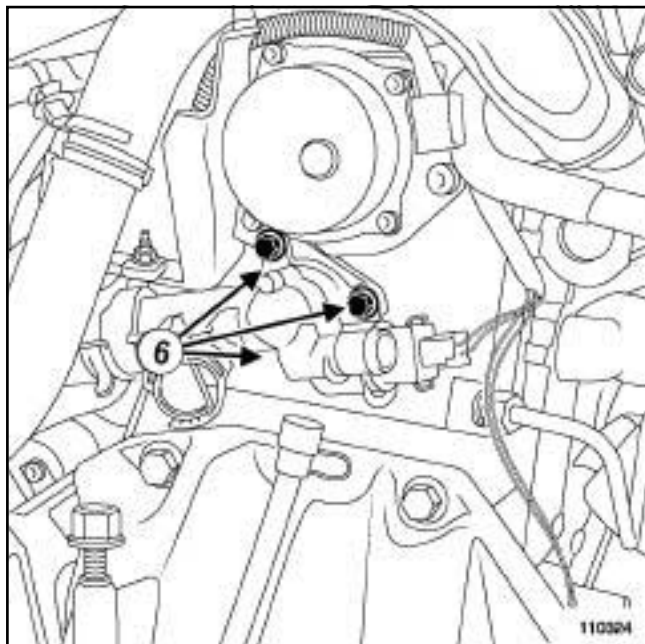
117547

- ☐ Disconnect the vacuum pipe (2) from the vacuum pump.
- ☐ Unclip the coolant hose (3) .
- ☐ Remove the clip (4) from the coolant hose using the (Mot. 1448) or (Mot. 1202-01) or (Mot. 1202-02).
- ☐ Disconnect the coolant hose.
- ☐ Move the water chamber hose clips (5) to one side using the (Mot. 1448) or (Mot. 1202-01) or (Mot. 1202-02).
- ☐ Disconnect:
 - the water chamber hoses,
 - the coolant temperature sensor connector.

Water chamber: Removal - Refitting

K9K

II - REMOVAL OF THE PART CONCERNED



110324

☐ Remove:

- the water chamber bolts (6) ,
- the water chamber.

REFITTING

I - REFITTING PREPARATION OPERATION

☐
WARNING

The joint faces must be clean, dry and free from grease (avoid finger marks).

- ☐
- Replace the seal of the water chamber.

II - REFITTING OPERATION FOR PART CONCERNED

- ☐ Refit the water chamber.
- ☐ Screw on the water chamber bolts without tightening them.
- ☐ Torque tighten the **water chamber bolts (12 N.m)**.

III - FINAL OPERATION

☐ Connect:

- the coolant temperature sensor connector,
- the water chamber hoses.

- ☐
- Fit the water chamber hose clips using the
- (Mot. 1448)**
- or
- (Mot. 1202-01)**
- or
- (Mot. 1202-02)**
- .

- ☐
- Disconnect the coolant hose.

- ☐
- Fit the coolant hose clip using the
- (Mot. 1448)**
- or
- (Mot. 1202-01)**
- or
- (Mot. 1202-02)**
- .

- ☐
- Clip the coolant hose.

- ☐
- Connect the vacuum pipe to the vacuum pump.

☐ Refit:

- the engine undertray,
- the air filter unit (see **12A, Fuel mixture, Air filter unit: Removal - Refitting**, page **12A-17**) (MR 392, 12A, Fuel mixture),
- the battery tray (see **Battery tray: Removal - Refitting**) (MR 392, 80A, Battery),
- the air filter inlet air pipe,
- the battery (see **Battery: Removal - Refitting**) (MR 392, 80A, Battery).

☐ Perform the following operations:

- fill the engine cooling system (see **19A, Cooling, Cooling system: Draining - Refilling**, page **19A-16**) (MR 392, 19A, Cooling),
- bleed the cooling system (see **19A, Cooling, Cooling system: Draining - Refilling**, page **19A-16**) (MR 392, 19A, Cooling).

- ☐
- Refit the engine cover.

Water chamber: Removal - Refitting

K4J or K4M

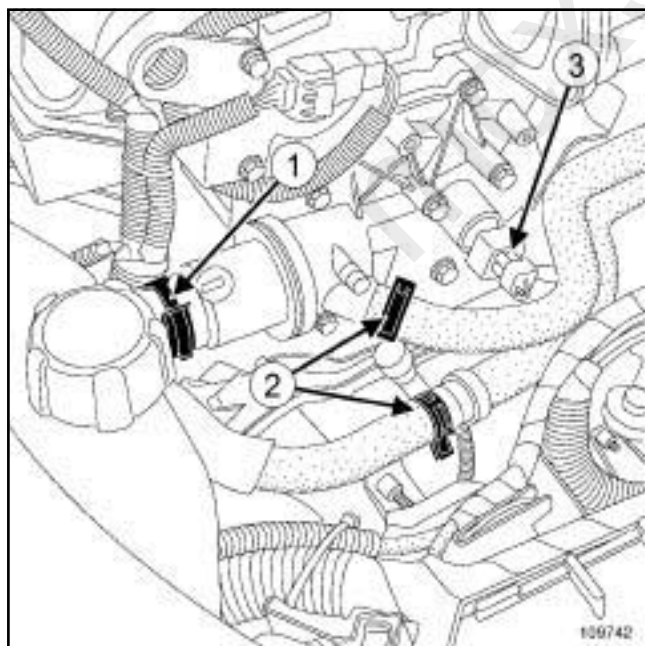
Tightening torques

mounting bolts no. 9, 2, 8, 1, 4, 5, 6, 7, 3, 1	11 N.m
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REMOVAL

I - REMOVAL PREPARATION OPERATION

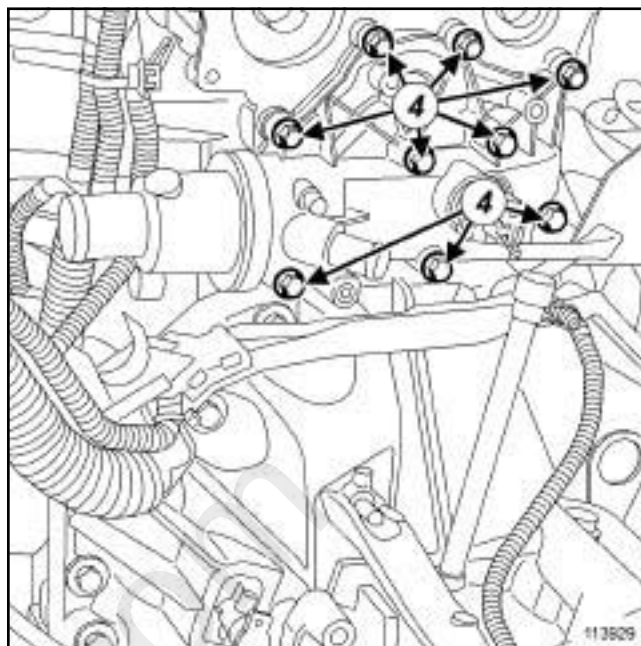
- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (MR 392, 02A, Lifting equipment).
- ☐ Remove:
 - the battery (see **Battery: Removal - Refitting**) (MR 392, 80A, Battery),
 - the air intake ducts,
 - the battery tray (see **Battery tray: Removal - Refitting**) (MR 392, 80A, Battery),
 - the air filter unit (see **12A, Fuel mixture, Air filter unit: Removal - Refitting**, page 12A-17) .
- ☐ Drain the cooling system (see **19A, Cooling, Cooling system: Draining - Refilling**, page 19A-16) (MR 392, 19A, Cooling).



109742

- ☐ Disconnect:
 - the top hose (1) on the water chamber,
 - the passenger compartment heating hoses (2) ,
 - the coolant temperature sensor (3) .

II - OPERATION FOR REMOVAL OF PART CONCERNED



113929

- ☐ Remove
 - the mounting bolts (4) from the water chamber,
 - the water chamber.

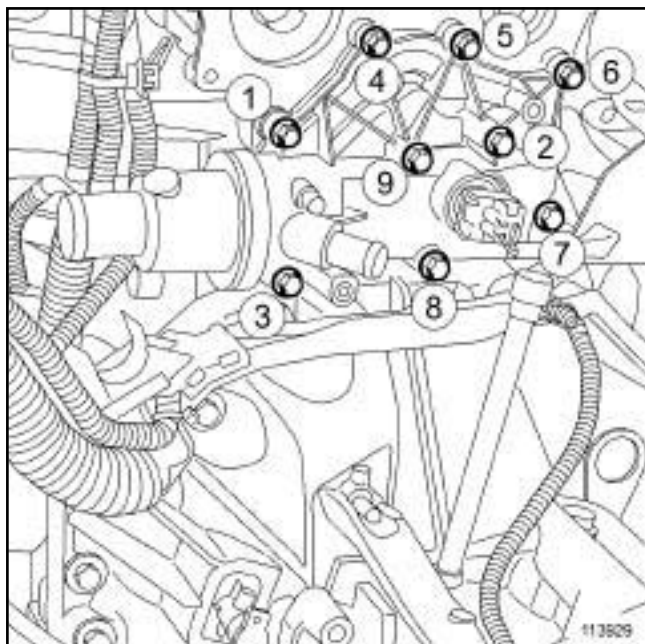
REFITTING

I - REFITTING OPERATION FOR PART CONCERNED

- ☐ Refit the water chamber.

Water chamber: Removal - Refitting

K4J or K4M



113929

- ☐ Tighten the water chamber mounting bolts,
- ☐ Pre-tighten the following mounting bolts in order and to torque: **mounting bolts no. 9, 2, 8, 1, 4, 5, 6, 7, 3, 1 (4 N.m).**
- ☐ Tighten to torque and in order **mounting bolts no. 9, 2, 8, 1, 4, 5, 6, 7, 3, 1 (11 N.m).**

II - FINAL OPERATION

- ☐ Connect:
 - the coolant temperature sensor,
 - the passenger compartment heating hoses,
 - the top hose to the water chamber.
- ☐ Fill the cooling system (see **19A, Cooling, Cooling system: Draining - Refilling**, page **19A-16**).
- ☐ Refit:
 - 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 air intake ducts,
 - the battery (see **Battery: Removal - Refitting**) (MR 392, 80A, Battery).
- ☐ Bleed the cooling system (see **19A, Cooling, Cooling system: Draining - Refilling**, page **19A-16**) (MR 392, 19A, Cooling).

Water chamber: Removal - Refitting

M4R

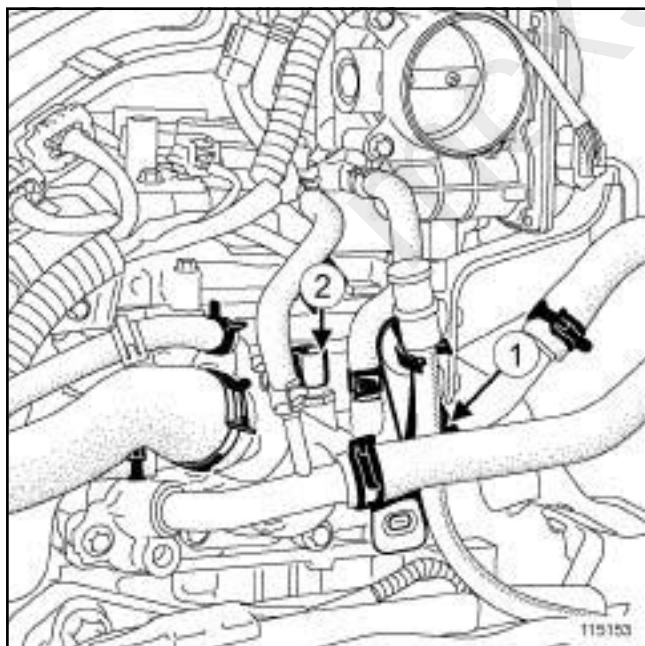
Tightening torques

water chamber mounting bolts	25 N.m
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REMOVAL

I - REMOVAL PREPARATION OPERATION

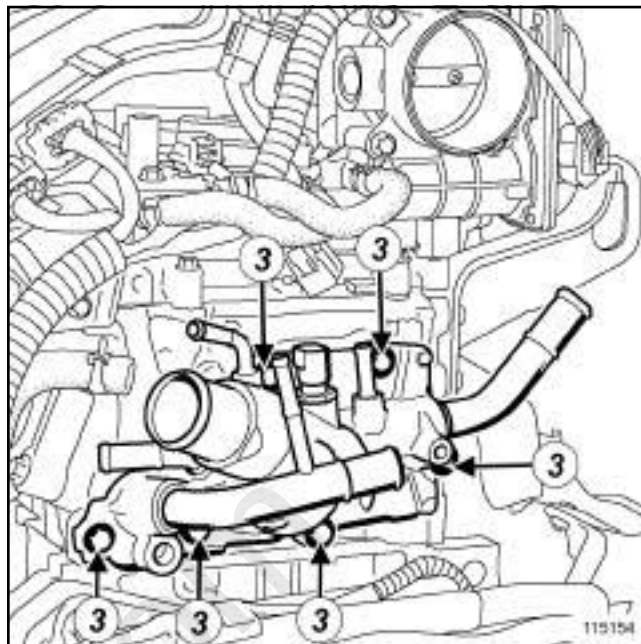
- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (MR 392, 02A, Lifting equipment).
- ☐ Remove the engine cover.
- ☐ Disconnect the battery (see **Battery: Removal - Refitting**) (MR 392, 80A, Battery).
- ☐ Remove:
 - the battery tray (see **Battery tray: Removal - Refitting**) (MR 392, 80A, Battery),
 - the engine undertray.
- ☐ Drain the cooling system (see **19A, Cooling, Cooling system: Draining - Refilling**, page 19A-16) (MR 392, 19A, Cooling).



115153

- ☐ Remove the gearbox breather mounting bracket (1) .
- ☐ Disconnect:
 - the coolant temperature sensor connector (2) ,
 - the hoses from the plenum chamber.

II - REMOVAL OF PART CONCERNED



115154

- ☐ Remove:
 - the mounting bolts (3) from the water chamber,
 - the water chamber,
 - the water chamber seal.

REFITTING

I - REFITTING PREPARATION OPERATION

- ☐ The water chamber seal must be replaced.

II - REFITTING PART CONCERNED

- ☐ Torque tighten the **water chamber mounting bolts** (25 N.m).

III - FINAL OPERATION

- ☐ Connect:
 - the coolant temperature sensor connector,
 - the hoses from the plenum chamber.
- ☐ Refit:
 - the battery tray (see **Battery tray: Removal - Refitting**) (MR 392, 80A, Battery),
 - the engine undertray.
- ☐ Connect the battery (see **Battery: Removal - Refitting**) (MR 392, 80A, Battery).

Water chamber: Removal - Refitting

M4R

- ☐ Fill the cooling system (see **19A, Cooling, Cooling system: Draining - Refilling**, page **19A-16**) (MR 392, 19A, Cooling).
- ☐ Refit the engine cover.

Water chamber: Removal - Refitting

F4R

Special tooling required

Mot. 1448 Remote operation pliers for hose clips.

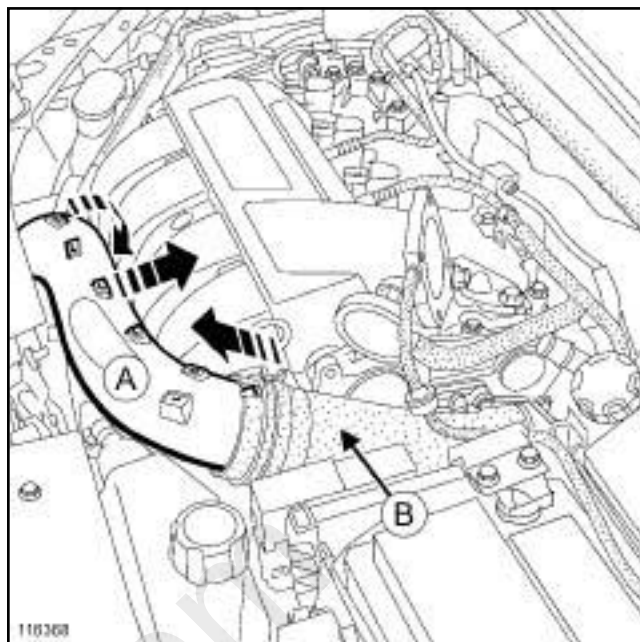
Tightening torques

coolant outlet unit mounting bolts **13 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.
- ☐ Perform the following operations:
 - drain the cooling system (see **19A, Cooling, Cooling system: Draining - Refilling**, page **19A-16**) (MR 392, 19A, Cooling),
 - flush the cooling system (see **19A, Cooling, Cooling system: Draining - Refilling**, page **19A-16**) (MR 392, 19A, Cooling).



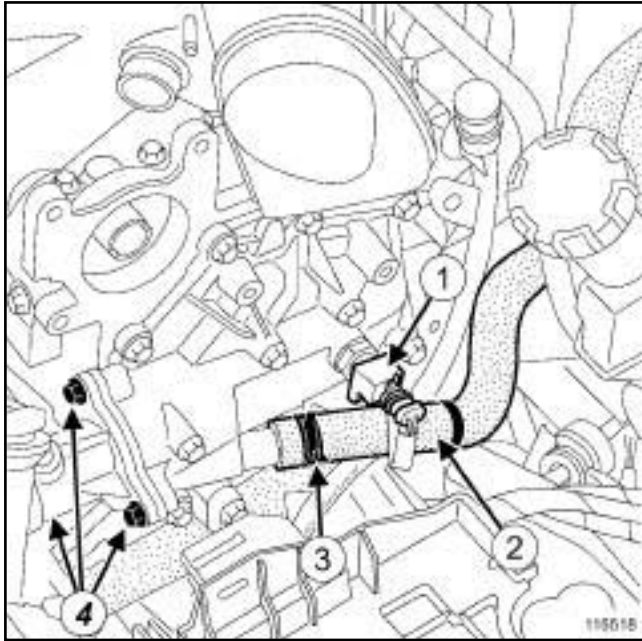
116368

- ☐ Remove the air inlet duct (A) :
 - unclip it from the front end panel,
 - turn it and disconnect it.
- ☐ Disconnect the duct (B) :
 - air resonator side,
 - air filter unit side.
- ☐ Remove:
 - the battery (see **Battery: Removal - Refitting**) (MR 392, 80A, Battery),
 - the battery tray (see **Battery tray: Removal - Refitting**) (MR 392, 80A, Battery).
- ☐ Unclip the breather pipe from the gearbox.

Water chamber: Removal - Refitting

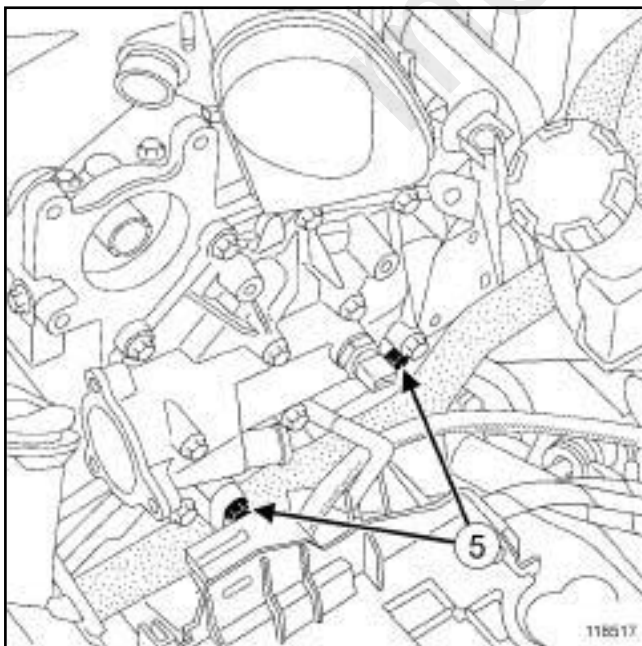
F4R

II - OPERATION FOR REMOVAL OF PART CONCERNED



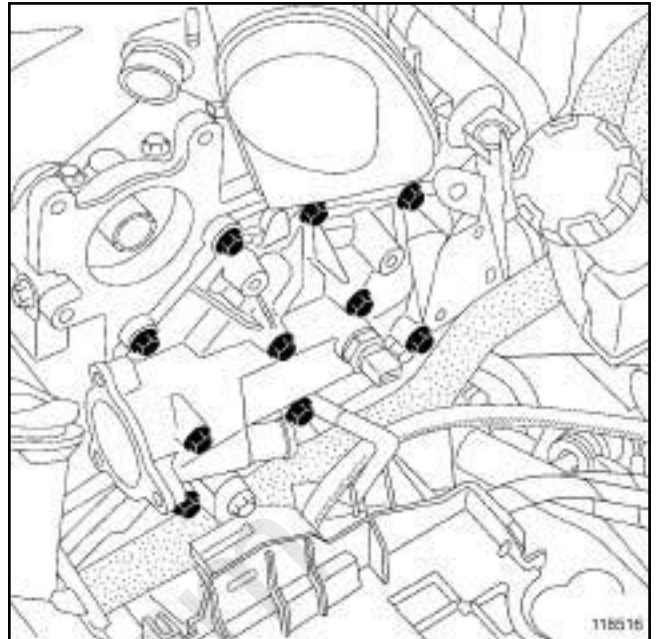
116518

- ☐ Disconnect:
 - the coolant temperature sensor connector (1) ,
 - the cooling hose (2) on the unit, separating the clip (3) using the **(Mot. 1448)**.
- ☐ Remove the thermostat cover mounting bolts (4) .
- ☐ Move the thermostat cover to one side.
- ☐ Remove the thermostat.



116517

- ☐ Remove the wiring harness channel mounting bolts (5) .



116516

- ☐ Remove:
 - the coolant outlet unit mounting bolts,
 - the water chamber.

REFITTING

I - REFITTING PREPARATION OPERATION

- ☐ Clean the joint faces.

II - REFITTING OPERATION FOR PART CONCERNED

- ☐ Refit:
 - the water chamber fitted with a new seal,
 - the plenum chamber mounting bolts.
- ☐ Torque tighten the **coolant outlet unit mounting bolts (13 N.m)**.
- ☐ Refit:
 - the thermostat fitted with a new seal,
 - the thermostat cover,
 - the thermostat cover mounting bolts,
 - the coolant hose mounting bolts.
- ☐ Connect the coolant hose to the coolant outlet unit.
- ☐ Fit the hose clip using the **(Mot. 1448)**.
- ☐ Connect the coolant temperature sensor connector.

Water chamber: Removal - Refitting

F4R

III - FINAL OPERATION

- ☐ Clip the breather pipe to the gearbox.
- ☐ Refit:
 - the battery tray (see **Battery tray: Removal - Refitting**) (MR 392, 80A, Battery),
 - the battery (see **Battery: Removal - Refitting**) (MR 392, 80A, Battery).
- ☐ Connect the duct **(B)** :
 - to air filter unit,
 - to the air resonator.
- ☐ Refit the air inlet duct **(A)** :
 - rotate it and connect it,
 - clip it to the front end panel.
- ☐ 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**) (MR 392, 19A, Cooling),
 - bleed the cooling system (see **19A, Cooling, Cooling system: Draining - Refilling**, page **19A-16**) (MR 392, 19A, Cooling).
- ☐ Check that there are no leaks.
- ☐ Refit the engine undertray.

Water chamber: Removal - Refitting

D4F, and 764

Special tooling required

Mot. 1448 Remote operation pliers for hose clips.

Tightening torques

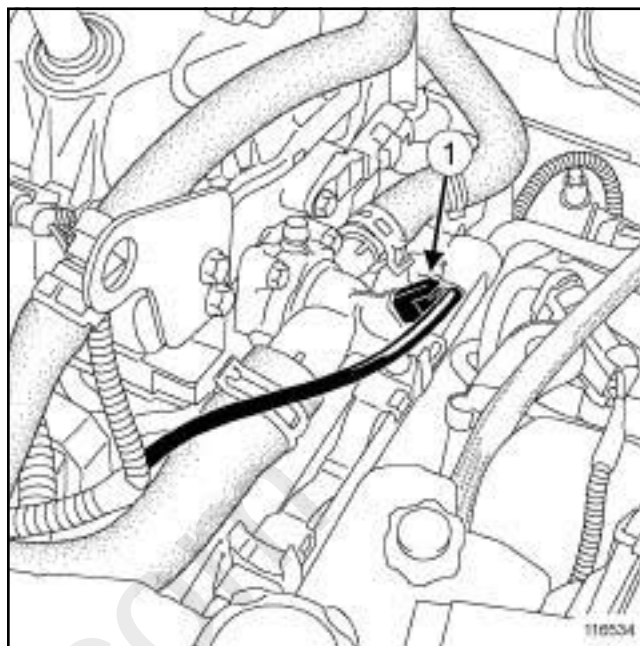
cylinder head water chamber bolts **10 N.m**

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 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 engine undertray.
- ☐ Drain the cooling system (see **19A, Cooling, Cooling system: Draining - Refilling**, page 19A-16) (MR 392, 19A, Cooling).

II - OPERATION FOR REMOVAL OF PART CONCERNED



116534

☐

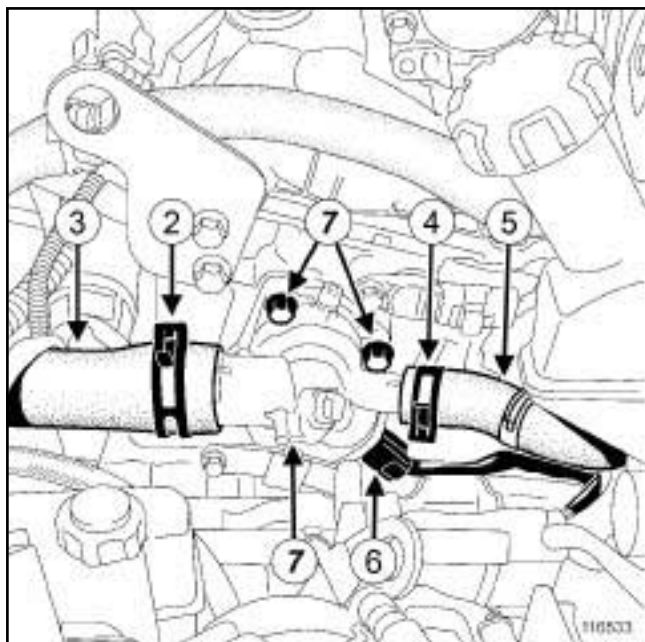
Note:

Protect the TDC sensor with a cloth to prevent coolant entering the gearbox aperture.

- ☐ Disconnect the thermostat control connector (1) .

Water chamber: Removal - Refitting

D4F, and 764



116533

- ☐ Remove using the **(Mot. 1448)** :
 - the engine cooling radiator hose clip (2) ,
 - the heater matrix hose clip (4) .
- ☐ Disconnect:
 - the engine cooling radiator hose (3) ,
 - the heater matrix hose (5) .
- ☐ Disconnect the coolant temperature sensor connector (6) .
- ☐ Remove:
 - the water chamber bolts (7) ,
 - the water chamber.

REFITTING

I - REFITTING PREPARATION OPERATION

**WARNING**

Do not scrape the joint faces of the aluminium, any damage caused to the joint face will result in a risk of leaks.

IMPORTANT

Wear protective gloves during the operation.

IMPORTANT

Wear goggles with side protectors for this operation.

WARNING

The joint faces must be clean, dry and free from grease (avoid finger marks).

- ☐ The water chamber seal must be replaced.

II - REFITTING OPERATION FOR PART CONCERNED

- ☐ Position the water chamber with a new seal.
- ☐ Screw on the water chamber bolts without tightening them.
- ☐ Torque tighten the **cylinder head water chamber bolts (10 N.m)**.
- ☐ Connect:
 - the coolant temperature sensor connector,
 - the heater matrix hose,
 - the cooling radiator hose.
- ☐ Using the **(Mot. 1448)**, fit:
 - the heater matrix hose clip,
 - the engine cooling radiator hose clip.
- ☐ Connect the thermostat control connector.

III - FINAL OPERATION

- ☐ Fill the cooling system (see **19A, Cooling, Cooling system: Draining - Refilling**, page **19A-16**) (MR 392, 19A, Cooling).
- ☐ Refit:
 - the engine undertray,