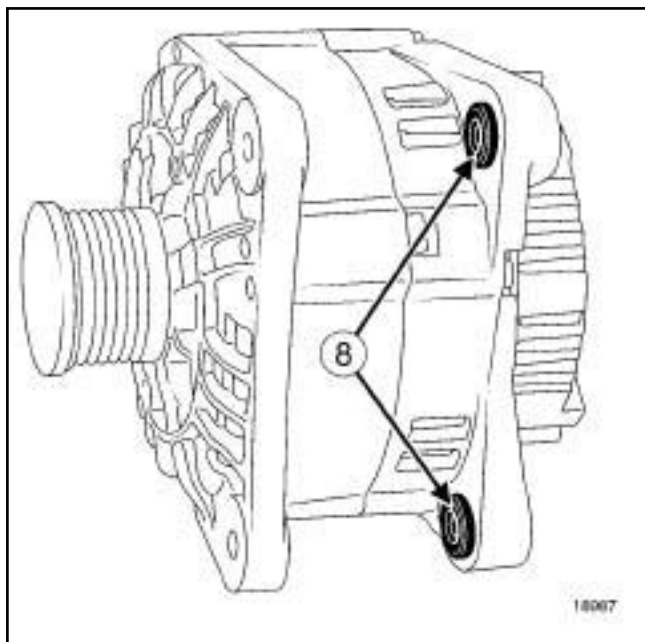


STARTING - CHARGING

Alternator: Removal - Refitting

16A

D4F, and 784



18987

- ☐ Press in the rings (8) using pliers or a vice to make the fitting operation easier.

II - REFITTING OPERATION FOR PART CONCERNED

- ☐ Refit:
 - the alternator,
 - the alternator bolts.
- ☐ Torque tighten the **alternator bolts (25 N.m)**.
- ☐ Refit the alternator wiring nut.
- ☐ Connect the alternator wiring connector.

III - FINAL OPERATION

AIR CONDITIONING

- ☐ Refit:
 - the air conditioning compressor ,
 - the air conditioning compressor bolts.
- ☐ Torque tighten the **air conditioning compressor bolts (25 N.m)**.
- ☐ Attach the air conditioning pipe to the body between the compressor and expansion valve.
- ☐ Connect the air conditioning compressor clutch connector.

☐ Refit:

- the turbocharger air outlet pipe,
 - the clip of the turbocharger air outlet pipe,
 - the turbocharger air outlet pipe bolt on the inlet manifold,
 - the front impact cross member (see **Front impact cross member: Removal - Refitting**) (41A, Front lower structure),
 - the intercooler (see **12B, Turbocharging, Inter-cooler: Removal - Refitting**, page 12B-21) ,
 - the accessories belt (see **11A, Top and front of engine, Accessories belt: Removal - Refitting**, page 11A-5) ,
 - the front bumper (see **Front bumper: Removal - Refitting**) (55A, Exterior protection),
 - the front wheel arch liners (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection).
- ☐ Connect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

STARTING - CHARGING

Starter: Removal - Refitting

16A

D4F, and 740 or 742 or 764

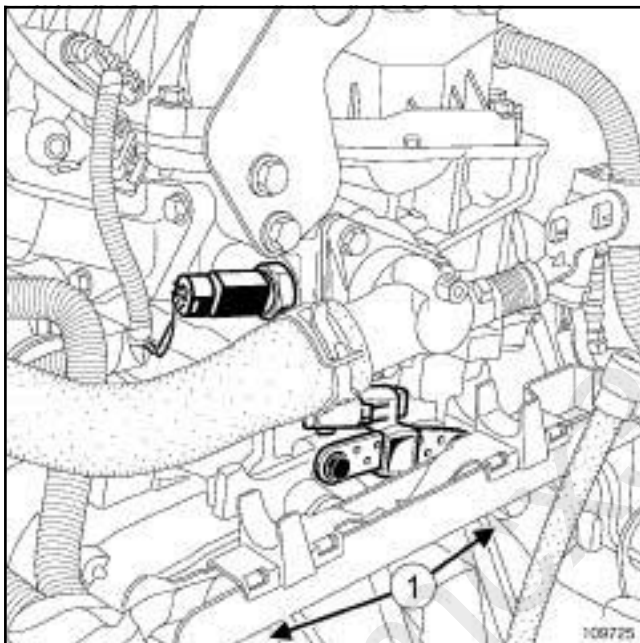
Tightening torques

starter mounting bolts	44 N.m
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REMOVAL

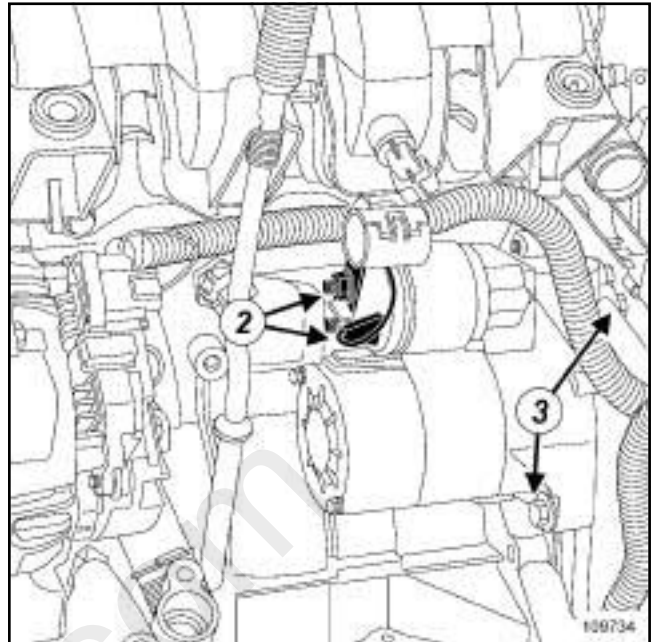
I - REMOVAL PREPARATION OPERATION

- ☐ 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) .



- ☐ Remove the engine's electrical wiring channel mounting bolts (1) and move it out of the way to gain access to the starter mounting bolt.

II - OPERATION FOR REMOVAL OF PART CONCERNED



- ☐ Disconnect the starter motor connectors (2) .
- ☐ Remove:
 - the mounting bolts (3) from the starter,
 - the starter motor from above the vehicle.

REFITTING

I - REFITTING PREPARATION OPERATION

- ☐ Check that the starter centring dowel is in place.

II - REFITTING OPERATION FOR PART CONCERNED

- ☐ Refit the starter.
- ☐ Tighten to torque the **starter mounting bolts (44 N.m)**.
- ☐ Connect the starter motor connectors.

III - FINAL OPERATION.

- ☐ Refit the engine wiring harness duct mounting bolts.
- ☐ Refit the air filter box (see **12A, Fuel mixture, Air filter unit: Removal - Refitting**, page 12A-17) .
- ☐ Connect the battery (see **Battery: Removal - Refitting**) (MR 392, 80A, Battery).

STARTING - CHARGING

Starter: Removal - Refitting

16A

K4J, and 780 – K4M, and 800 or 801

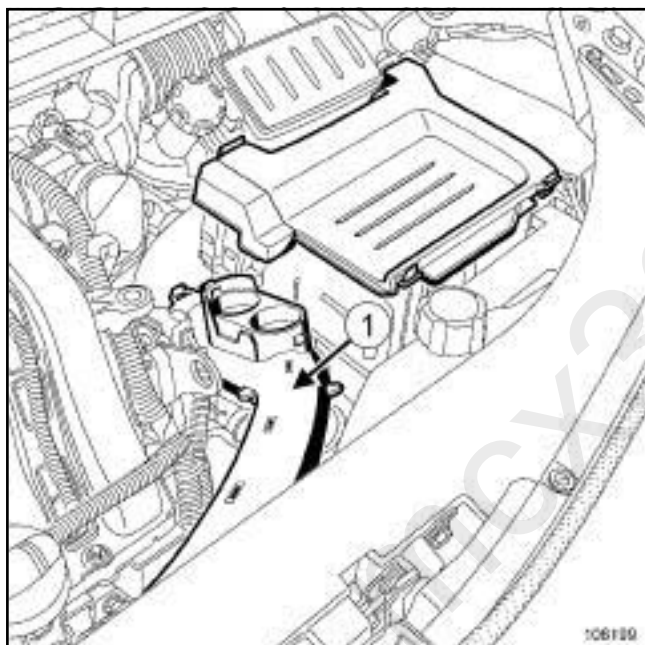
Tightening torques

starter mounting bolts	44 Nm
------------------------	-------

REMOVAL

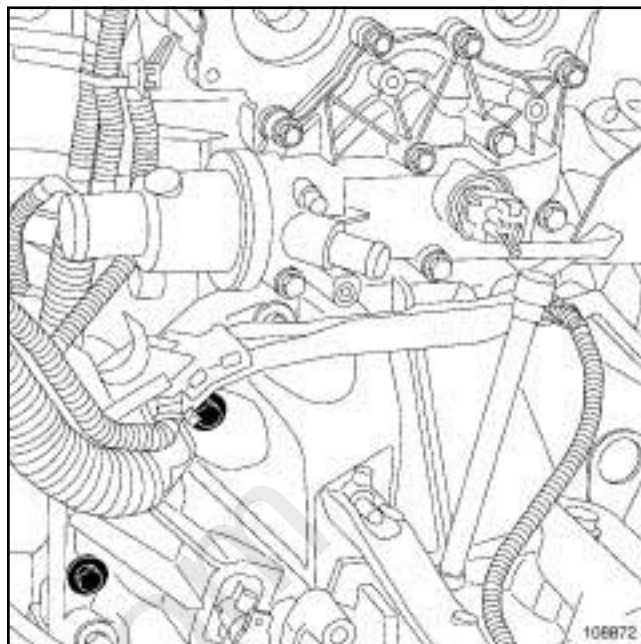
I - REMOVAL PREPARATION OPERATION

- ☐ 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).
- ☐ Remove the engine protector.



- ☐ Remove the air inlet duct (1) .
- ☐ Disconnect:
 - the starter motor connectors,
 - the oil level sensor.

II - REMOVAL OF PART CONCERNED



- ☐ Remove:
 - the starter mounting bolts from below,
 - the starter motor from underneath.

REFITTING

I - REFITTING PREPARATION OPERATION

- ☐ Check that the centring dowel is in place.

II - REFITTING PART CONCERNED

- ☐ Refit:
 - the starter,
 - the starter mounting bolts.
- ☐ Tighten to torque the **starter mounting bolts (44 Nm)**.

III - FINAL OPERATION.

- ☐ Connect:
 - the oil level sensor,
 - the starter connectors.
- ☐ Refit the air inlet duct.
- ☐ Connect the battery (see **Battery: Removal - Refitting**) (MR 392, 80A, Battery).

STARTING - CHARGING

Starter: Removal - Refitting

16A

K9K, and 764 or 766 or 768

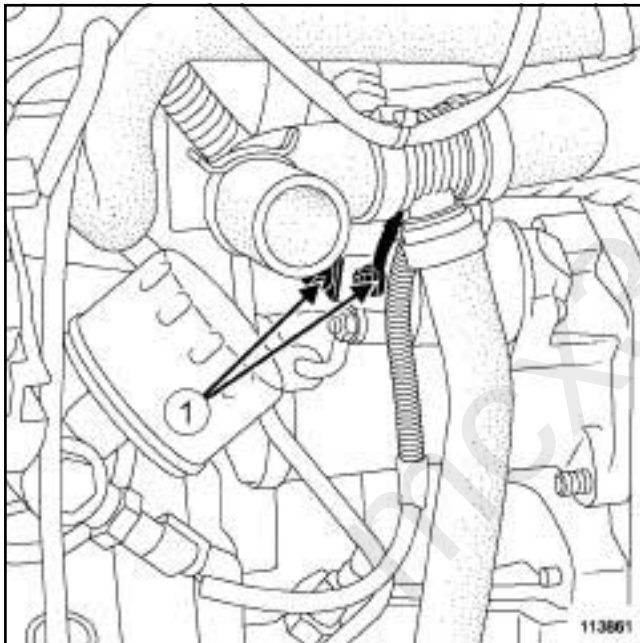
Tightening torques

starter motor mounting bolts	44 Nm
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REMOVAL

I - REMOVAL PREPARATION OPERATION

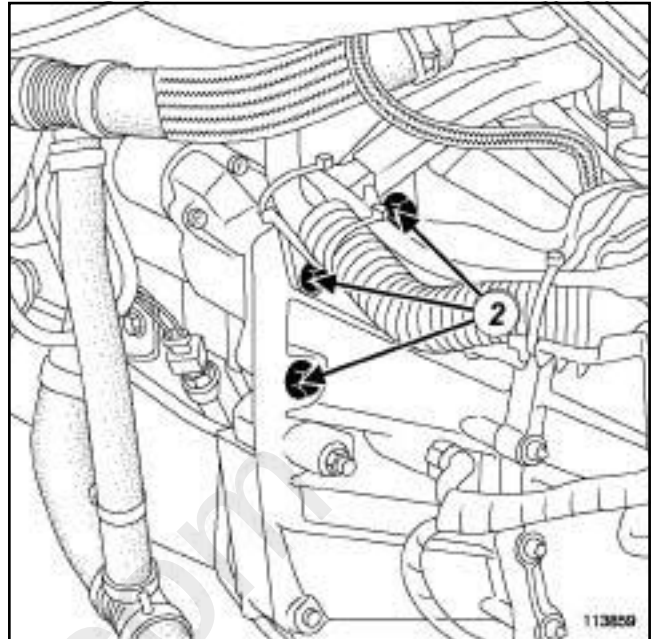
- ☐ Put the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) .
- ☐ Remove the air inlet duct.
- ☐ Disconnect the battery (see **Battery: Removal - Refitting**) .
- ☐ Remove the engine undertray.



113861

- ☐ Disconnect the starter motor connectors (1) .

II - OPERATION FOR REMOVAL OF PART CONCERNED



113859

- ☐ Remove:
 - the starter motor mounting bolts (2) .
 - the starter motor from below.

REFITTING

I - REFITTING PREPARATION OPERATION

- ☐ Check that the centring dowel is in place.

II - OPERATION FOR REFITTING PART CONCERNED

- ☐ Refit:
 - the starter,
 - the starter motor mounting bolts.
- Tighten to torque the **starter motor mounting bolts (44 Nm)**.

III - FINAL OPERATION

- ☐ Connect the starter motor connectors.
- ☐ Connect the battery (see **Battery: Removal - Refitting**) .
- ☐ Refit:
 - the air inlet duct,
 - the engine undertray.

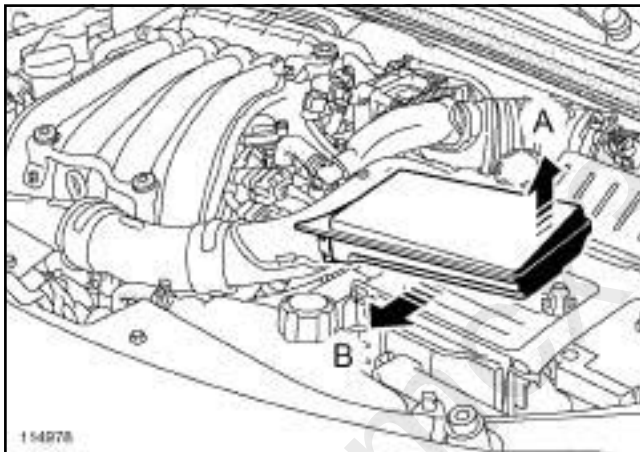
M4R

Tightening torques 	
starter mounting bolts	62 Nm
starter excitation connector bolt	5 Nm
starter power supply connector bolt	9 Nm

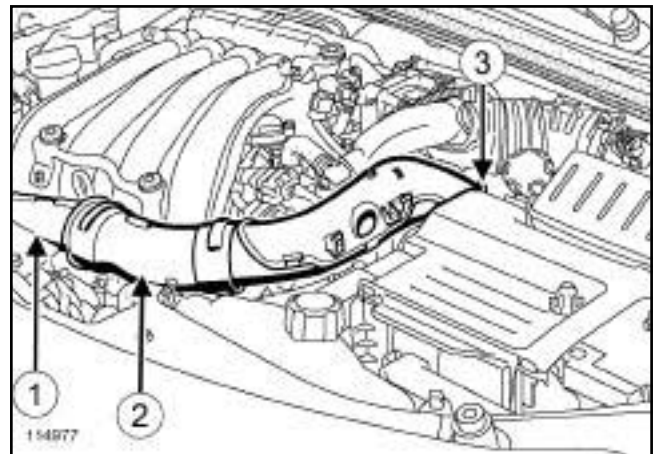
REMOVAL

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).



- ☐ Lift the air resonator (A) to remove it from the battery cover.
- ☐ Pull the air resonator towards the front of the vehicle (B) to remove it.



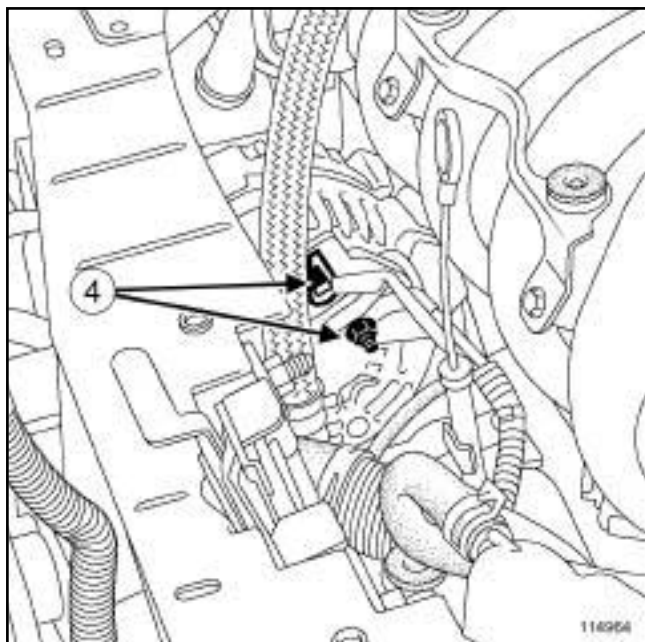
- ☐ Detach the air intake sleeve:
 - from the front end panel at (1) ,
 - from the air resonator on the front end panel at (2) ,
 - from the air filter unit at (3) .
- ☐ Remove the air intake sleeve.
- ☐ Remove:
 - the engine undertray,
 - the front bumper (see **Front bumper: Removal - Refitting**) (MR 393, 55A, Exterior protection),
 - the frontal impact cross member (see **Front impact cross member: Removal - Refitting**) (MR 393, 41A, Front lower structure),
 - the front end panel air resonator (see **12A, Fuel mixture, Air resonator: Removal - Refitting**, page 12A-10) .

STARTING - CHARGING

Starter: Removal - Refitting

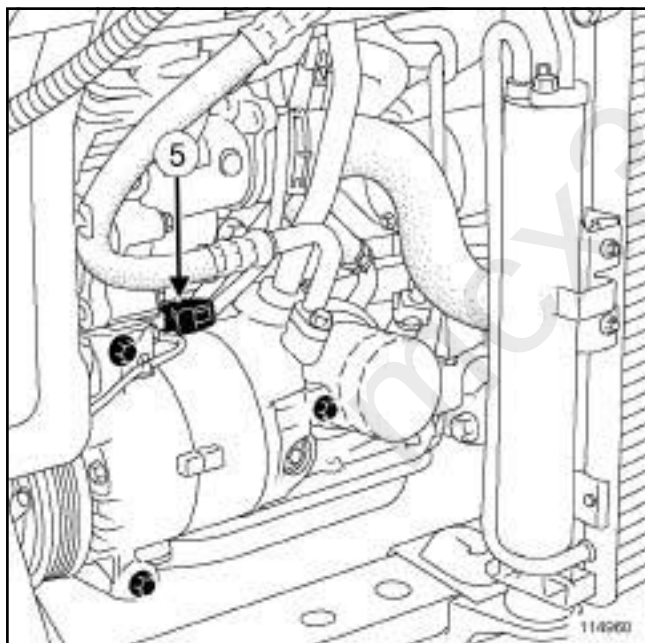
16A

M4R



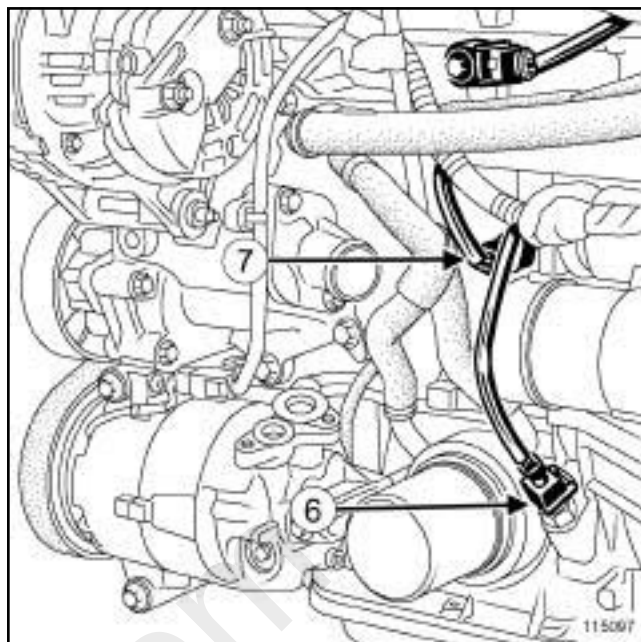
114964

- ❑ Disconnect the alternator connectors (4) .



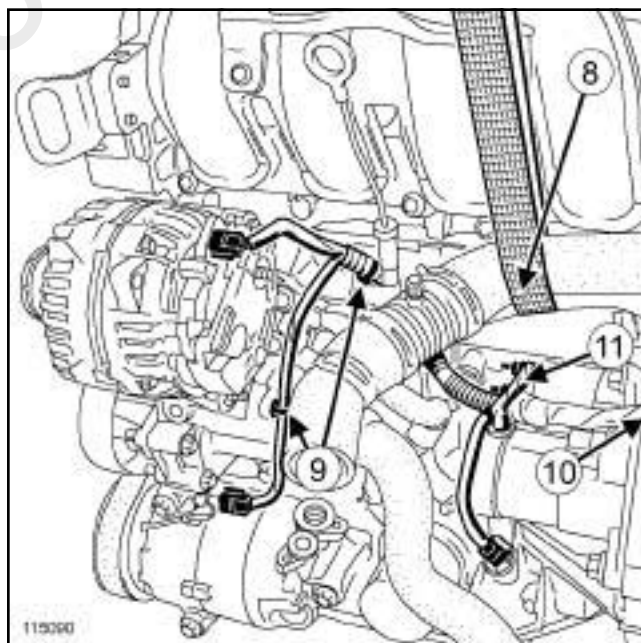
114960

- ❑ Disconnect the connector (5) from the air conditioning compressor.



115097

- ❑ Disconnect:
 - the oil level sensor connector (6) ,
 - the oil pressure sensor (7) .



115090

- ❑ Strap the hoses (8) to the front end panel in order to access the starter.
- ❑ Unclip the wiring harness at (9) .
- ❑ Cut the wiring harness retaining clip on the neck at (10) .
- ❑ Disconnect the starter connector (11) .
- ❑ Move the wiring harness to one side.

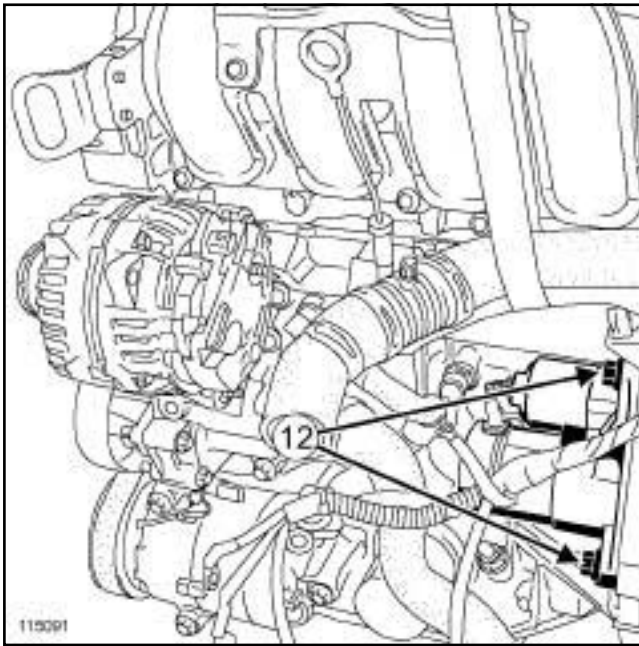
STARTING - CHARGING

Starter: Removal - Refitting

16A

M4R

II - OPERATION FOR REMOVAL OF PART CONCERNED



❑ Remove:

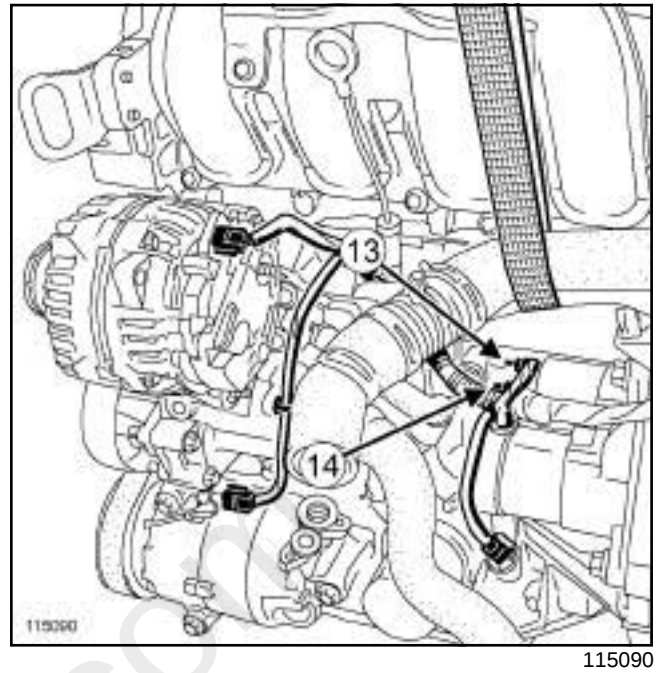
- the mounting bolts (12) from the starter,
- the starter through the space left by the air resonator in the front end panel.

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED

- ❑ Refit the starter.
- ❑ Torque tighten the **starter mounting bolts (62 Nm)**.

II - FINAL OPERATION.



❑ Connect:

- the starter motor connectors,
- the oil pressure sensor connector,
- the oil level sensor connector,
- the alternator connectors.
- the air conditioning compressor connector.

❑ Torque tighten:

- the **starter excitation connector bolt (5 Nm)** at (13) ,
- the **starter power supply connector bolt (9 Nm)** at (14) .

❑ Clip on the wiring harness.

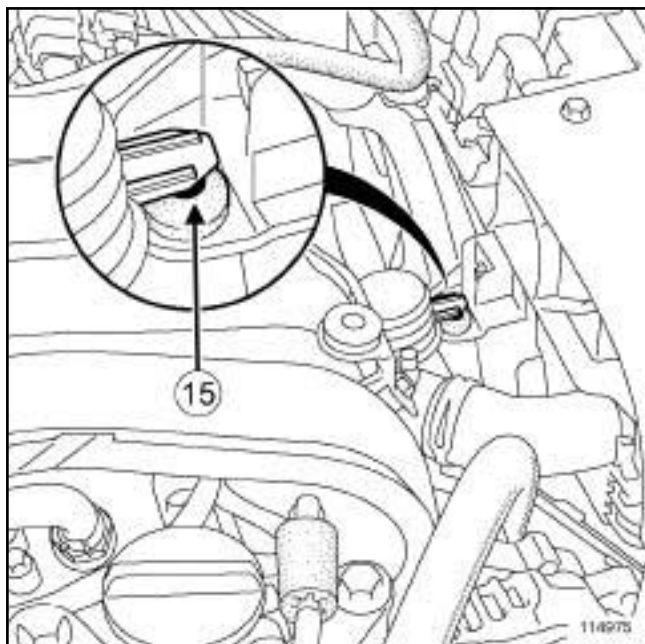
❑ Refit a wiring harness retaining clip to the neck.

❑ Remove the retaining belt from the hoses.

❑ Refit:

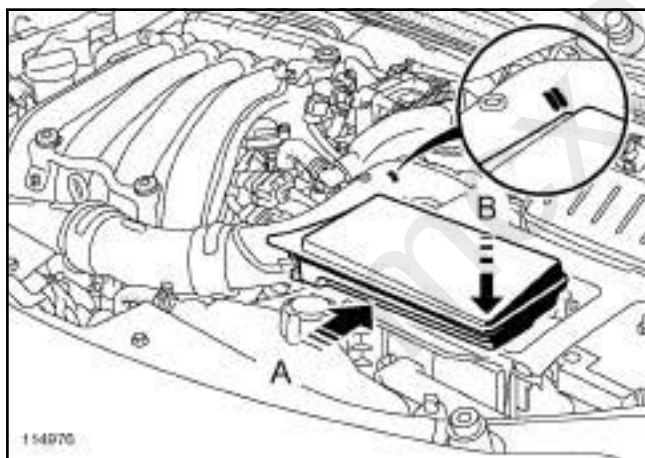
- the front end panel air resonator (see **12A, Fuel mixture, Air resonator: Removal - Refitting, page 12A-10**) ,
- the frontal impact cross member (see **Front impact cross member: Removal - Refitting**) (MR 393, 41A, Front lower structure),
- the front bumper (see **Front bumper: Removal - Refitting**) (MR 393, 55A, Exterior protection),
- the engine undertray.

M4R



114975

- ☐ Before refitting the air intake sleeve, check that the air resonator's upper mounting in the front end panel is correctly clipped at (15) .
- ☐ Refit the air intake sleeve.



114976

- ☐ Push the air resonator towards the rear of the vehicle (A) until the corner of the air resonator is between the two lines marked on the air intake sleeve.
- ☐ Push the air resonator (B) to fit it onto the battery cover.
- ☐ Connect the battery (see **Battery: Removal - Refitting**) (MR 392, 80A, Battery).

STARTING - CHARGING

Starter: Removal - Refitting

16A

F4R

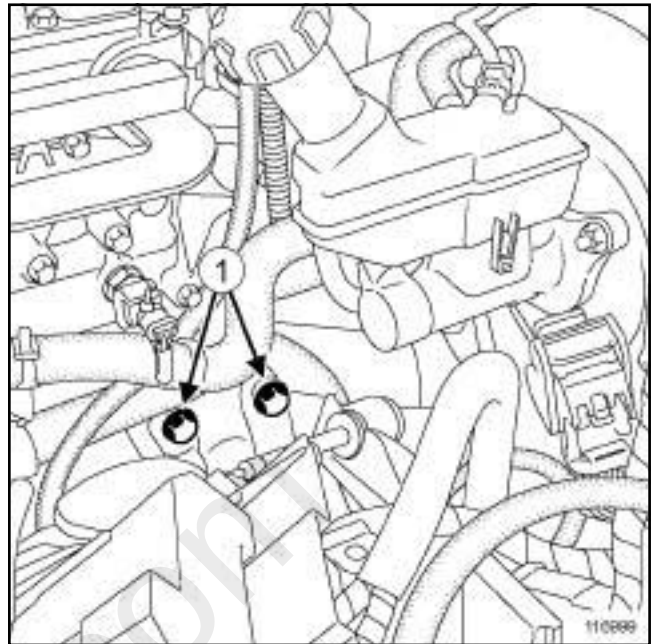
Tightening torques 	
starter lower bolt	38 N.m
starter upper bolts	38 N.m
bolts of the lower cross member	62 N.m

REMOVAL

I - REMOVAL PREPARATION OPERATION

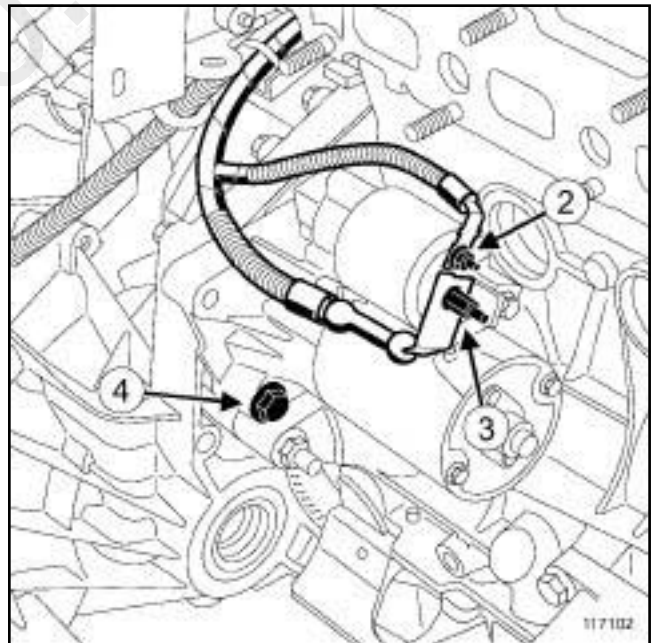
- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).
- ☐ Remove:
 - the battery (see **Battery: Removal - Refitting**) (80A, Battery),
 - the air filter unit (see **12A, Fuel mixture, Air filter unit: Removal - Refitting**, page 12A-17) ,
 - the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery),
 - the front right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
 - the engine undertray,
 - the lower cross member.

II - OPERATION FOR REMOVAL OF PART CONCERNED



116999

- ☐ Remove the upper bolts (1) from the starter.



117102

- ☐ Remove:
 - the excitation wiring terminal (2) on the starter,
 - the power wiring terminal (3) on the starter.

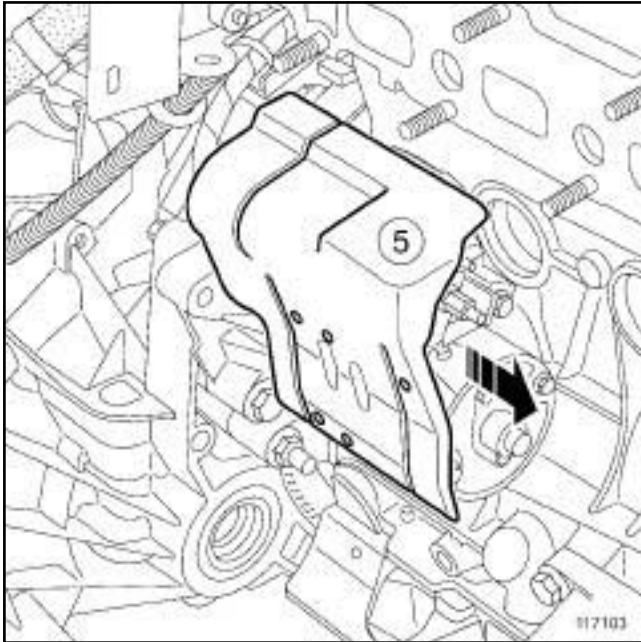
STARTING - CHARGING

Starter: Removal - Refitting

16A

F4R

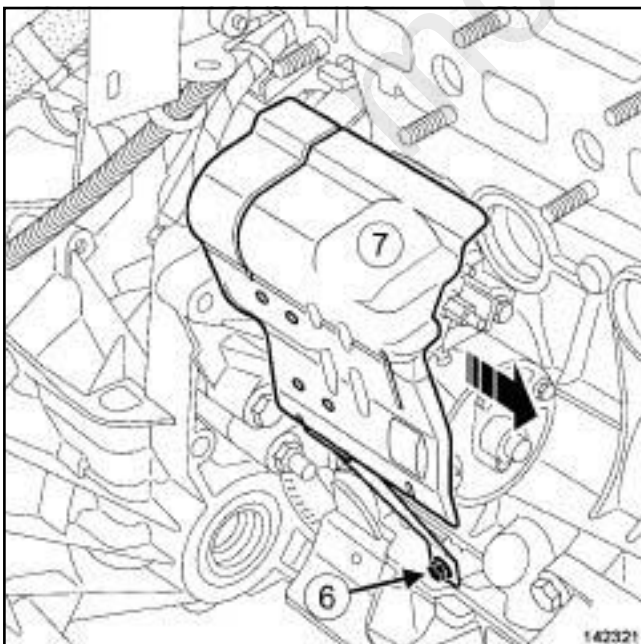
F4R, and 830



117103

- ☐ Remove the starter heat shield (5) by sliding it along the starter on the timing end.

F4R, and 832



142321

- ☐ Remove:
 - the starter heat shield bolt (6) ,

- the starter heat shield (7) by sliding it along the starter on the timing end.

- ☐ Remove the starter lower bolt (4) .
- ☐ Remove the starter motor.

REFITTING

I - REFITTING PREPARATION OPERATION

- ☐ Check the presence and condition of the centring device on the starter.

II - OPERATION FOR REMOVAL OF PART CONCERNED

- ☐ Fit the starter.
- ☐ Refit the starter lower bolt.
- ☐ Torque tighten the **starter lower bolt (38 N.m)**.
- ☐ Refit the starter heat shield by sliding it along the starter on the timing end.

F4R, and 832

- ☐ Refit the starter heat shield bolt.

- ☐ Refit:
 - the excitation wiring terminal on the starter,
 - the power wiring terminal on the starter.
- ☐ Refit the upper bolts on the starter.
- ☐ Torque tighten the **starter upper bolts (38 N.m)**.

III - FINAL OPERATION

- ☐ Refit the lower cross member.
- ☐ Torque tighten the **bolts of the lower cross member (62 N.m)**.
- ☐ Refit:
 - the engine undertray,
 - the front right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
 - the air filter unit (see **12A, Fuel mixture, Air filter unit: Removal - Refitting**, page 12A-17) ,
 - the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery),

STARTING - CHARGING

Starter: Removal - Refitting

16A

F4R

- the battery (see **Battery: Removal - Refitting**)
(80A, Battery).

mcx30.com

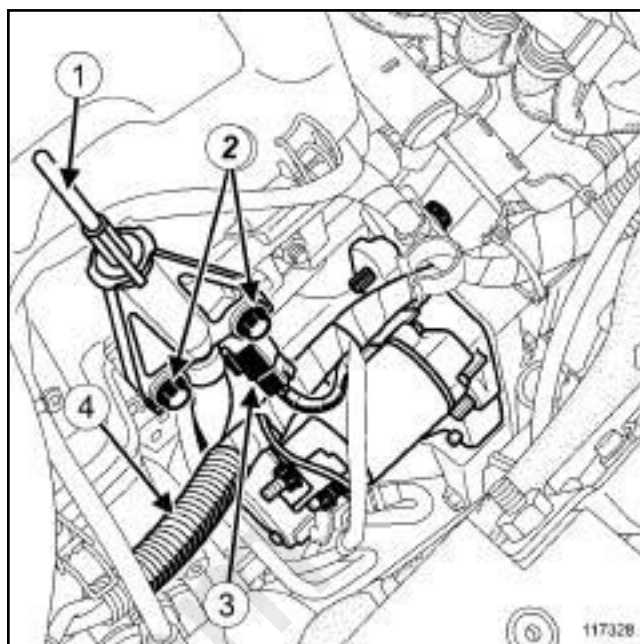
K9K, and 772

Tightening torques 	
starter lower mounting bolt	44 Nm
starter upper bolt	44 Nm
clip for the air inlet duct between the intercooler and the air inlet box on the air inlet box	5.5 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).
- ☐ Remove the front engine cover.
- ☐ Remove:
 - the air duct at the air filter box inlet,
 - the nut from the air inlet pipes on the alternator.
- ☐ Loosen the air inlet duct clip between the intercooler and the air box unit on the air inlet box.
- ☐ Move the air inlet duct between the intercooler and the air inlet box to one side.
- ☐ Detach the relay box from the battery tray.



117328

- ☐ Remove:
 - the dipstick (1) ,
 - the dipstick duct bolts (2) .
- ☐ Disconnect the injector rail pressure sensor connector (3) .
- ☐ Detach the emission control cover wiring harness (4) .

II - OPERATION FOR REMOVAL OF PART CONCERNED

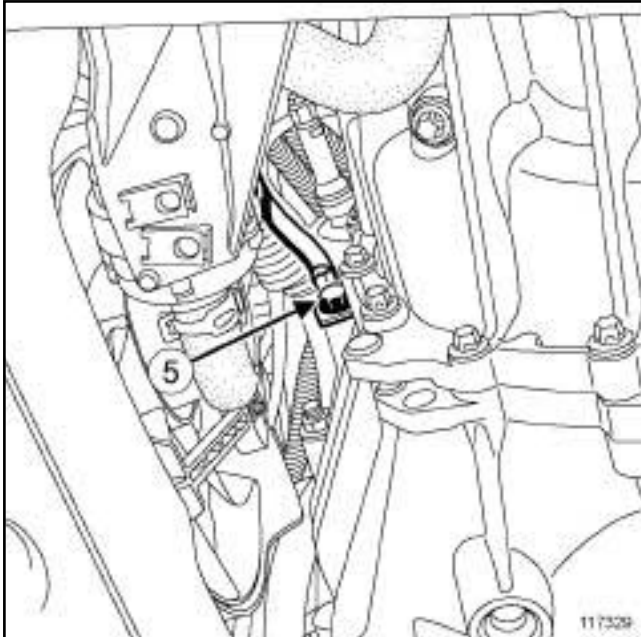
- ☐ Remove:
 - the starter excitation lead,
 - the starter power lead,
 - the starter upper bolt,
 - the front left-hand wheel (see **Wheel: Removal - Refitting**) (MR 392, 35A, Wheels and tyres),
 - the front section of the front left-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (MR 393, 57A, Interior equipment),
 - the engine undertray.

STARTING - CHARGING

Starter: Removal - Refitting

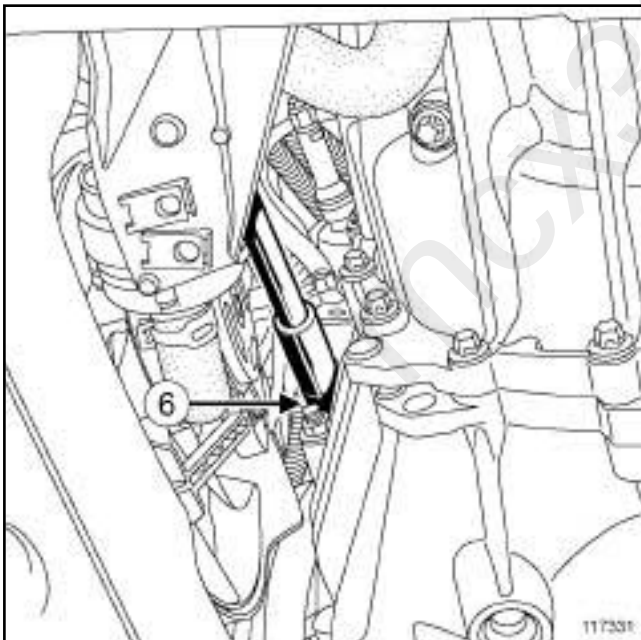
16A

K9K, and 772



117329

- ☐ Remove the bolt (5) from the earth wiring on the gearbox.
- ☐ Unclip the diesel runoff pipe from the sump.



117331

- ☐ Remove:
 - the starter lower bolt (6) ,
 - the starter from underneath, placing the starter solenoid on timing end.

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED

- ☐ Refit:
 - the starter,
 - the starter lower mounting bolt.
- ☐ Torque tighten the **starter lower mounting bolt (44 Nm)**.
- ☐ Refit the earth wiring bolt on the gearbox.
- ☐ Clip the diesel runoff pipe onto the sump.
- ☐ Refit:
 - the engine undertray,
 - the front left-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (MR 393, 57A, Interior equipment),
 - the front left-hand wheel (see **Wheel: Removal - Refitting**) (MR 392, 35A, Wheels and tyres),
 - the starter upper mounting bolt.
- ☐ Torque tighten the **starter upper bolt (44 Nm)**.
- ☐ Refit:
 - the starter power lead,
 - the starter excitation lead.

II - FINAL OPERATION.

- ☐ Attach the emission control cover wiring harness.
- ☐ Connect the injector rail pressure sensor connector.
- ☐ Refit:
 - the dipstick duct bolts,
 - the dipstick.
- ☐ Attach the relay box onto the battery tray.
- ☐ Position the air inlet duct between the intercooler and the air inlet box.
- ☐ Torque tighten the **clip for the air inlet duct between the intercooler and the air inlet box on the air inlet box (5.5 Nm)**.
- ☐ Refit:
 - the air inlet pipe nut on the alternator,
 - the air duct at the air filter unit inlet.
- ☐ Refit the engine cover.
- ☐ Connect the battery (see **80A, Battery, Battery: Removal - Refitting**).

STARTING - CHARGING

Starter: Removal - Refitting

16A

K9K, and 750 or 752

Tightening torques 	
starter bolts	44 Nm
solenoid feed wire nut	5 Nm
starter feed wire nut	8 Nm

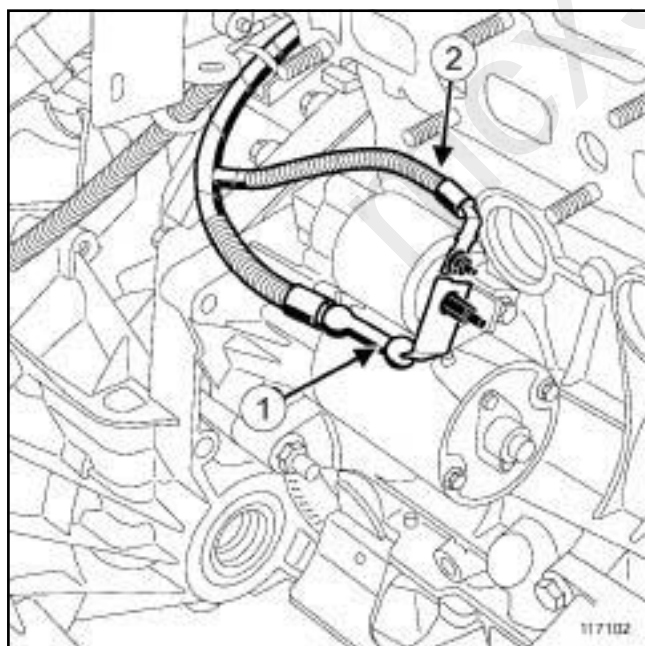
REMOVAL

I - REMOVAL PREPARATION OPERATION

☐ Remove:

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

II - OPERATION FOR REMOVAL OF PART CONCERNED

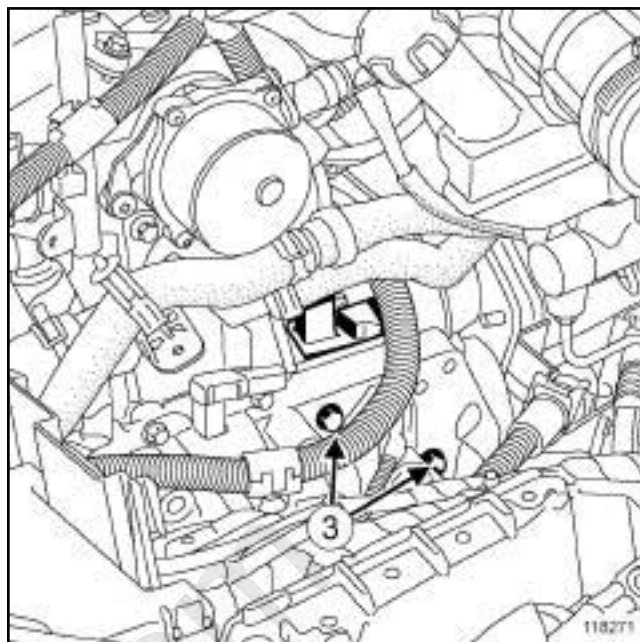


117102

☐ Remove:

- the nut (1) from the starter feed wire,
- the nut (2) from the solenoid feed wire.

☐ Move the starter wiring harness to one side.



118271

☐ Remove:

- the starter bolts (3) ,
- the starter from above.

REFITTING

I - REFITTING PREPARATION OPERATION

☐ Check that the centring dowel is in place

II - REFITTING OPERATION FOR PART CONCERNED

☐ Refit:

- the starter,
- the starter bolts.

☐ Torque tighten the **starter bolts (44 Nm)**.

☐ Fit the starter wiring harness.

☐ Refit:

- the solenoid feed wire nut,
- the starter feed wire nut.

☐ Torque tighten:

- the **solenoid feed wire nut (5 Nm)**,
- the **starter feed wire nut (8 Nm)**.

STARTING - CHARGING

Starter: Removal - Refitting

16A

K9K, and 750 or 752

III - FINAL OPERATION.

☐ Refit:

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

STARTING - CHARGING

Starter: Removal - Refitting

16A

D4F, and 784

Equipment required

safety strap(s)

Tightening torques

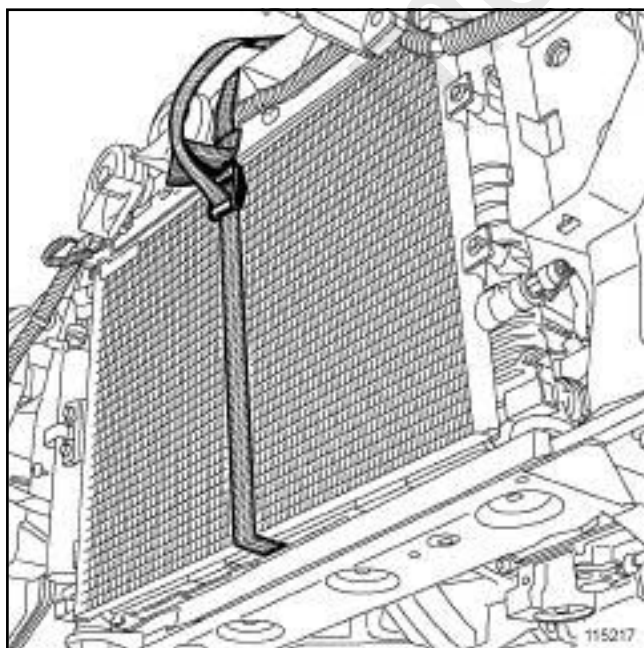
starter bolts

44 Nm

REMOVAL

I - REMOVAL PREPARATION OPERATION

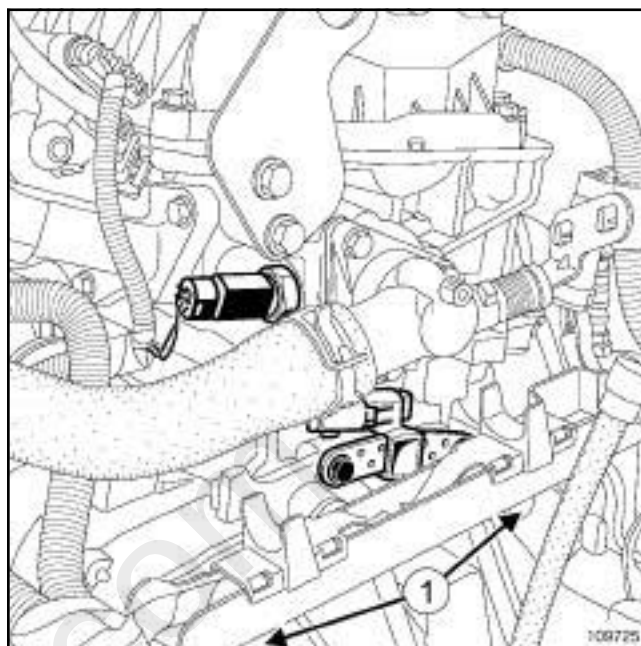
- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (MR 392, 02A, Lifting equipment).
- ☐ Disconnect the battery (see **Battery: Removal - Refitting**) (MR 392, 80A, Battery).
- ☐ Remove:
 - the air filter box air inlet pipe,
 - the front wheels (see **Wheel: Removal - Refitting**) (MR 392, 35A, Wheels and tyres),
 - the engine undertray,
 - the front section of the left and right-hand wheel arch liners (see **Front wheel arch liner: Removal - Refitting**) (MR 393, 55A, Exterior protection),
 - the front bumper (see **Front bumper: Removal - Refitting**) (MR 393, 55A, Exterior protection).



115217

- ☐ Attach the cooling 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 engine wiring harness neck bolts (1) .
- ☐ Move the wiring harness away from the engine.