

TURBOCHARGING

Turbocharger: Removal - Refitting

12B

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- ☐ Use an open wrench to fit the new turbocharger nuts without tightening them (the turbocharger must be in contact with the manifold and the wrench should no longer turn without effort).
- ☐ Torque tighten the **turbocharger nuts (28 N.m)**.

III - FINAL OPERATION

- ☐ Refit (see **12B, Turbocharging, Turbocharger oil pipe: Removal - Refitting**, page **12B-4**) :
 - the turbocharger oil return pipe,
 - the turbocharger oil supply pipe.
- ☐ Refit:
 - the catalytic converter (see **19B, Exhaust, Catalytic converter: Removal - Refitting**, page **19B-10**)
 - the engine undertray,
 - the air duct between the turbocharger and the air filter unit,
 - the exhaust gas recirculation solenoid valve (see **14A, Antipollution, Exhaust gas recirculation solenoid valve: Removal - Refitting**, page **14A-4**)
- ☐ Connect:
 - the duct between the turbocharger and the inter-cooler onto the turbocharger,
 - the oil vapour rebreathing pipe .
- ☐ Refit:
 - the air filter unit (see **12A, Fuel mixture, Air filter unit: Removal - Refitting**, page **12A-6**) ,
 - the engine cover.
- ☐ Connect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

Check

- ☐ Disconnect the flow actuator connector (engine starting inhibition).
- ☐ Run the starter motor until the oil pressure warning light goes out (wait for a few seconds).
- ☐ Switch off the ignition.
- ☐ Reconnect the fuel flow actuator connector.
- ☐ Make sure that there are no oil leaks.
- ☐ Connect the **Diagnostic tool** and clear the stored faults.

TURBOCHARGING

Turbocharger oil pipe: Removal - Refitting

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Equipment required

self-contained starter

Diagnostic tool

Tightening torques

new turbocharger oil supply pipe hollow bolt to the turbocharger

Torx bolt 18 N.m or Hexagonal bolt 14 N.m

turbocharger oil supply pipe nut on the cylinder head

shouldered nut 35 N.m or non-shouldered nut 23 N.m

turbocharger oil return pipe bolts

12 N.m

IMPORTANT

Wear leaktight gloves (Nitrile type) for this operation.

IMPORTANT

Wear cut-resistant gloves during the operation.

WARNING

Ensure that no foreign bodies enter the turbine or compressor during the refitting operation.

Check that the turbocharger oil return pipe is not partially or completely blocked by scale. Check that there are no leaks. If there are, replace the part.

WARNING

Metal objects may enter the oil and air circuits as a result of a broken turbocharger.

Failure to observe the following instructions will lead to the turbocharger breaking again.

Note:

This procedure deals with removing and refitting the turbocharger oil return pipe and the turbocharger oil supply pipe.

REMOVING THE TURBOCHARGER OIL SUPPLY PIPE

I - REMOVAL PREPARATION OPERATION

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

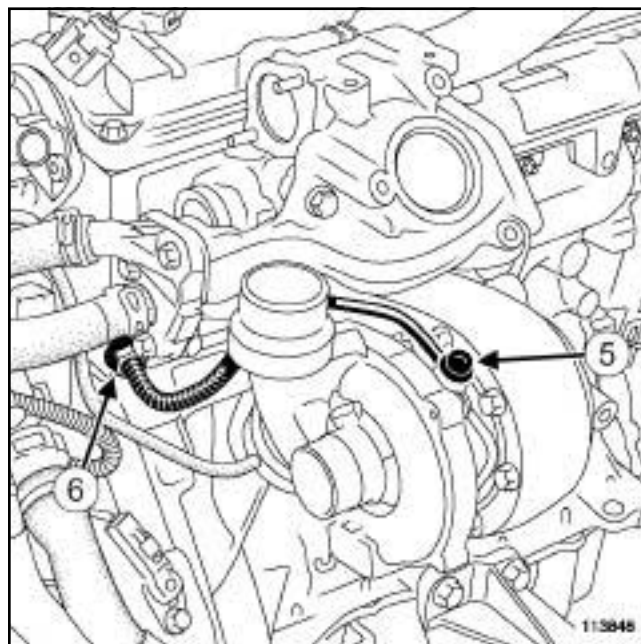
☐ Remove:

- the engine cover,
- the air filter unit (see **12A, Fuel mixture, Air filter unit: Removal - Refitting**, page 12A-6) .

☐ Remove:

- the engine undertray,
- the catalytic converter (see **19B, Exhaust, Catalytic converter: Removal - Refitting**, page 19B-10) .

II - REMOVAL OPERATION



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☐ Loosen the nut (6) for the turbocharger oil supply pipe on the cylinder head, using the tool.

Turbocharger oil pipe: Removal - Refitting

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Remove:

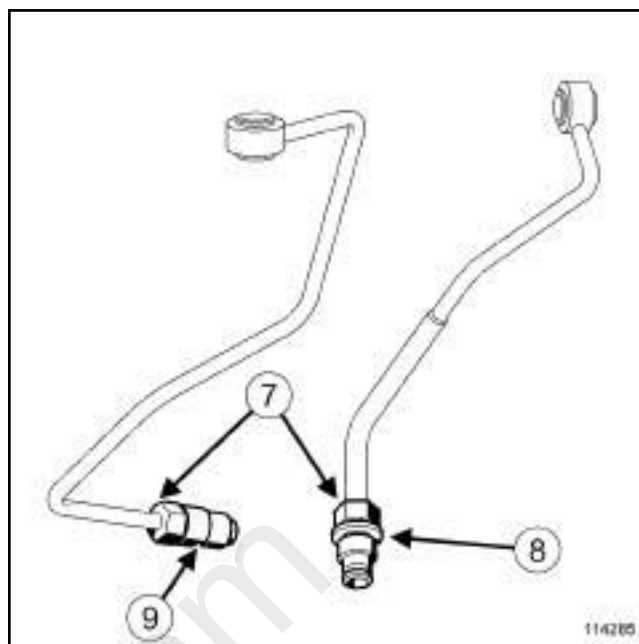
- the turbocharger oil supply pipe hollow bolt from the turbocharger,
- the turbocharger oil supply pipe.

Wipe away any oil run-off.

REFITTING THE TURBOCHARGER OIL SUPPLY PIPE

I - REFITTING PREPARATION OPERATION

- ☐ parts always to be replaced: turbocharger oil supply pipe
- ☐ parts always to be replaced: turbocharger oil pipe seal
- ☐ parts always to be replaced: Turbocharger oil supply pipe bolt



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Note:

These two turbocharger oil supply pipes may be used on the same engine. The tightening torque of the end pieces (7) on the cylinder head is different, depending on the following:

- if the end piece is **shouldered (8)** ; in this case, there is no need to apply **HIGH RESISTANCE THREADLOCK** (see **Vehicle: Parts and consumables for the repair**) (04B, Consumables - Products) to the thread of the end piece,
- if the end piece is **not shouldered (9)** ; in this case, it is essential to apply **HIGH RESISTANCE THREADLOCK** (see **Vehicle: Parts and consumables for the repair**) (04B, Consumables - Products) to the thread of the end piece.

II - REFITTING OPERATION

- ☐ Refit a new turbocharger oil supply pipe.
- ☐ Fit the turbocharger oil supply pipe nut on the cylinder head, without tightening it.
- ☐ Refit a new hollow bolt for the turbocharger oil supply pipe on the turbocharger.
- ☐ Torque tighten:
 - a new turbocharger oil supply pipe hollow bolt to the turbocharger (Torx bolt 18 N.m or Hexagonal bolt 14 N.m),

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- the turbocharger oil supply pipe nut on the cylinder head (shouldered nut 35 N.m or non-shouldered nut 23 N.m) using toolor tool.

III - FINAL OPERATION

❑ Refit:

- the catalytic converter (see **19B, Exhaust, Catalytic converter: Removal - Refitting**, page 19B-10) ,
- the engine undertray.

❑ Refit:

- the air filter unit (see **12A, Fuel mixture, Air filter unit: Removal - Refitting**, page 12A-6) ,
- the engine cover.

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

❑ Disconnect the high pressure pump flow actuator connector and the connector for each diesel fuel injector in order to prevent the engine from starting.

❑ Connect a **self-contained starter**.

❑ Run the starter until the oil pressure warning light goes out on the instrument panel (wait for a few seconds).

❑ Switch off the ignition.

❑ Disconnect the **self-contained starter**.

❑ Connect the high pressure pump flow actuator connector and the connector for each diesel fuel injector.

❑ Start the engine.

❑ Let the engine idle then depress the accelerator several times with no load.

❑ Switch off the ignition.

❑ Check:

- that the turbocharger is operating correctly,
- that there are no oil leaks from the turbocharger.

❑ Use the **Diagnostic tool** to check for an absence of stored faults; deal with these and clear them as necessary.

REMOVING THE TURBOCHARGER OIL RETURN PIPE

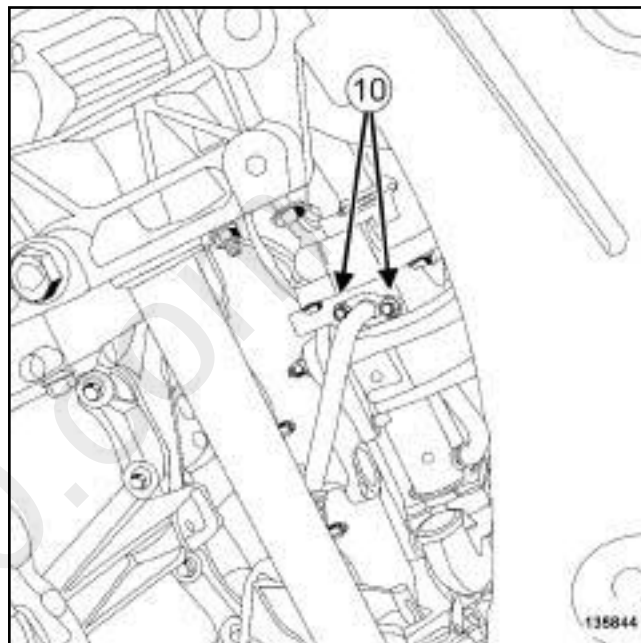
❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

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

❑ Remove:

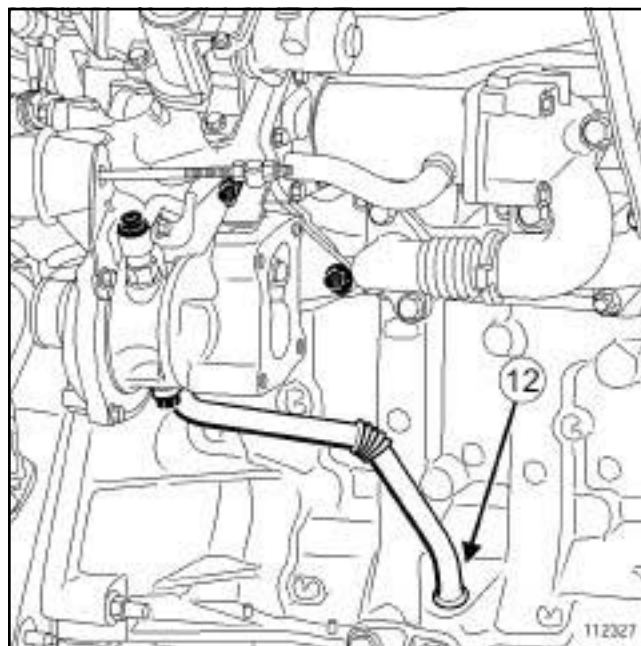
- the engine undertray bolts,
- the engine undertray,
- the catalytic converter (see **19B, Exhaust, Catalytic converter: Removal - Refitting**, page 19B-10) .

REMOVAL OPERATION



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❑ Remove the turbocharger oil return pipe bolts (10) .



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❑ Rotate the turbocharger oil return pipe (12) to facilitate its removal.