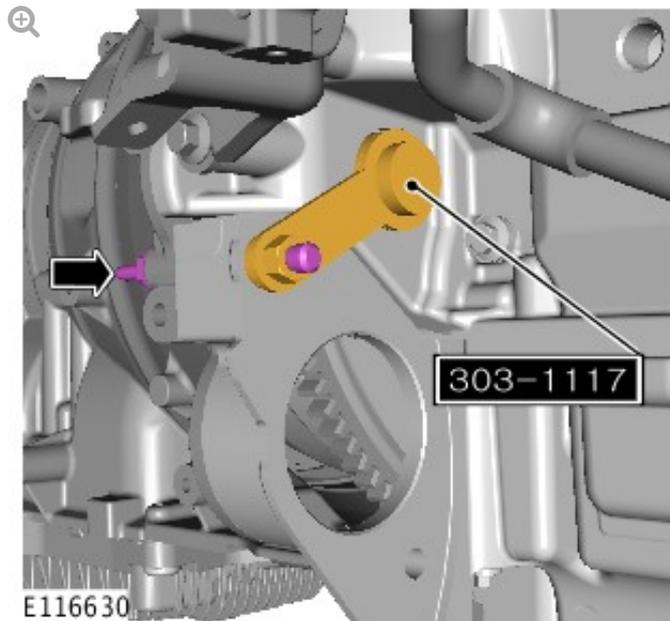


3.



- Install the special tool.
  - *Special Tool(s):* [303-1117](#)
4. Refer to: [Cooling Fan Motor and Shroud](#) (303-03A Engine Cooling - TDV6 3.0L Diesel, Removal and Installation).
5. Refer to: [Timing Belt](#) (303-01A Engine - TDV6 3.0L Diesel, Removal and Installation).

# ENGINE - TDV6 3.0L DIESEL

## CRANKSHAFT REAR SEAL

[G127204-1]

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### REMOVAL

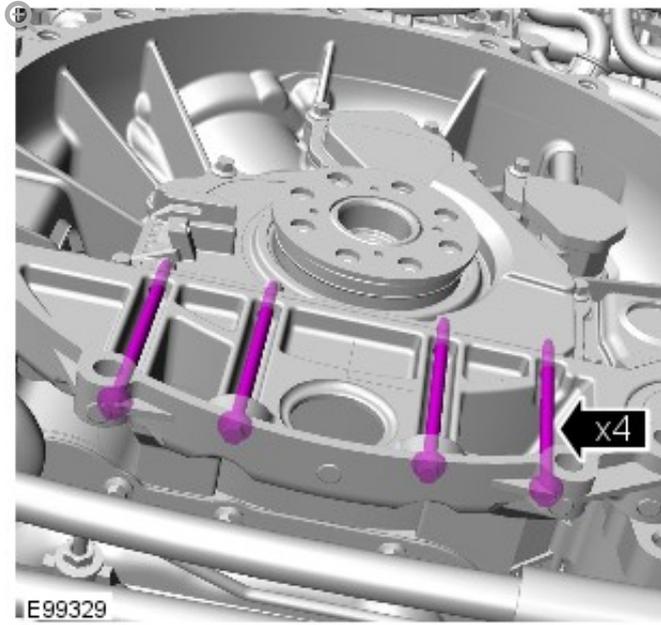
1.

Make sure to support the vehicle with axle stands.

Raise and support the vehicle.

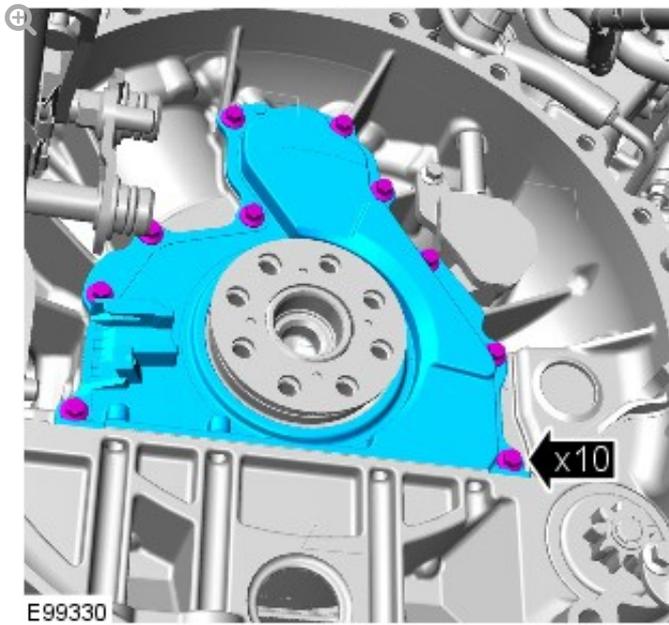
2. Refer to: [Crankshaft Position Sensor Ring](#) (303-14A Electronic Engine Controls - TDV6 3.0L Diesel, Removal and Installation).

3.



4.

Discard the seal.

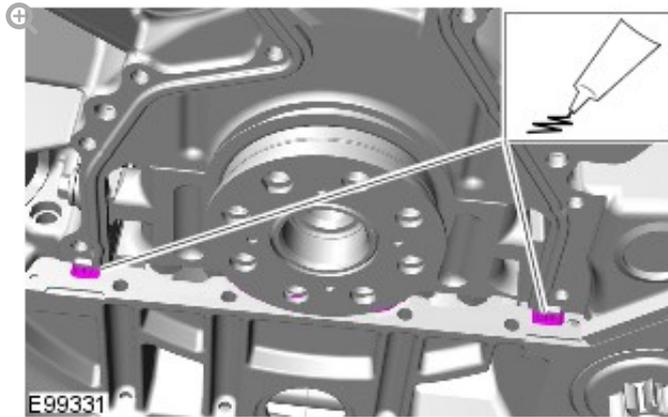


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INSTALLATION

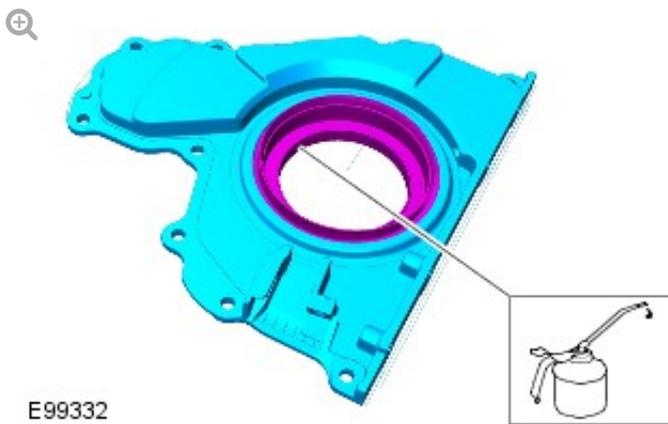
1.

- Make sure that the crankshaft rear oil seal is correctly located.
- Make sure the crankshaft seal mating faces are clean and dry.



Apply an 8 mm bead of sealant to the cylinder block in the areas shown.

2.



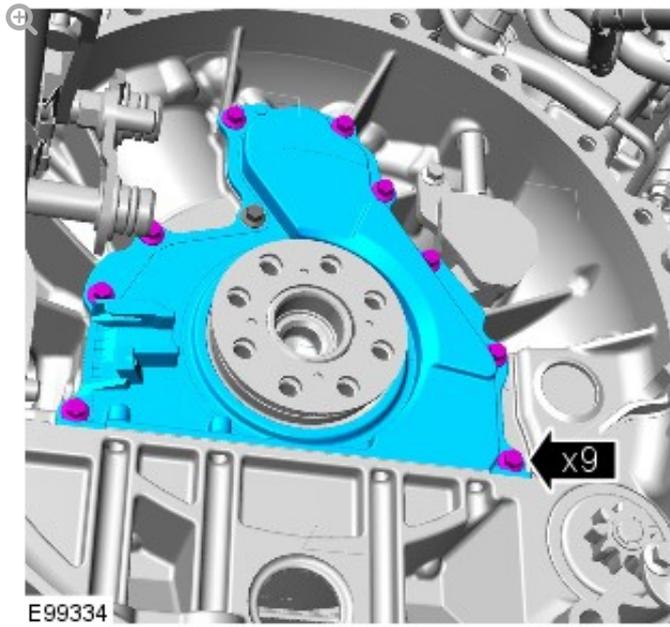
- Lubricate the oil seal.

3.



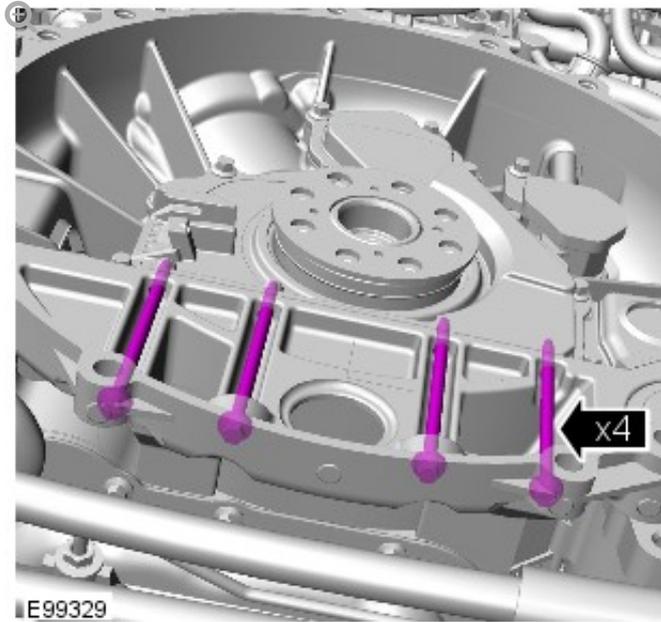
*Torque: 10 Nm*

4.



*Torque: 10 Nm*

5.



*Torque: 10 Nm*

6. Refer to: [Crankshaft Position Sensor Ring](#) (303-14A Electronic Engine Controls - TDV6 3.0L Diesel, Removal and Installation).

# ENGINE - TDV6 3.0L DIESEL

## CRANKSHAFT VIBRATION DAMPER [G1272042]

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### REMOVAL

- Removal steps in this procedure may contain installation details.
- Some variation in the illustrations may occur, but the essential information is always correct.

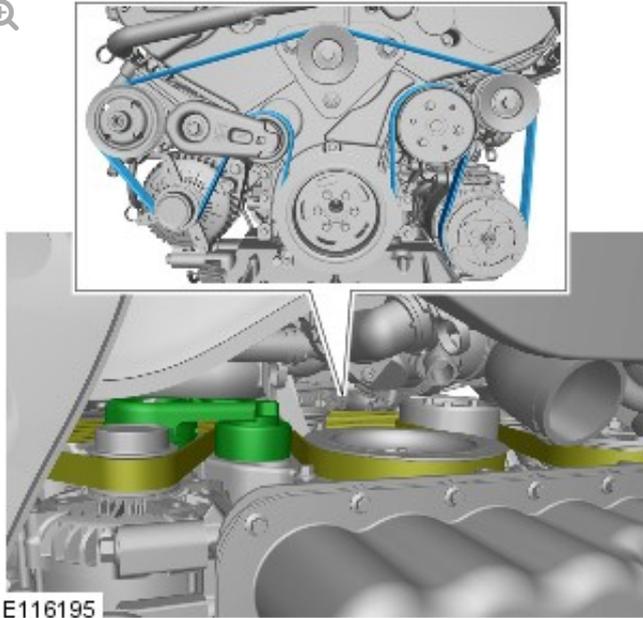
1.

Make sure to support the vehicle with axle stands.

Raise and support the vehicle.

2. Refer to: [Turbocharger Bypass Valve](#) (303-04B Fuel Charging and Controls - Turbocharger - TDV6 3.0L Diesel, Removal and Installation).

3.

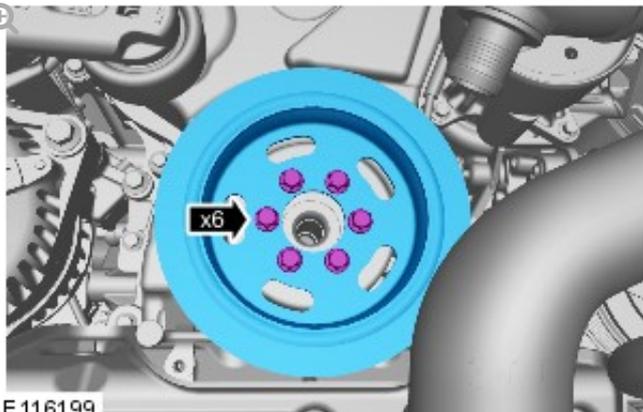


E116195

4.

- Discard the bolts.
- Make sure that new bolts are installed.
- Tighten the bolts in a diagonal sequence.

Install the bolt finger tight before final tightening.



E116199

*Torque:* **25 Nm**

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## INSTALLATION

1. To install reverse the removal procedure.

# ENGINE - TDV6 3.0L DIESEL

## ENGINE [G1272054]

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### REMOVAL

### SPECIAL TOOL(S)



**303-021**

Engine support  
bracket



**303-1129**

Engine Lifting  
Brackets

Diesel fuel injection equipment is manufactured to very precise tolerances and fine clearances. It is therefore essential that absolute cleanliness is observed when working with these components. Always install blanking plugs to any open orifices or lines. Failure to follow this instruction may result in foreign matter ingress to the fuel injection system.

1. Refer to: [Battery Disconnect and Connect](#) (414-01 Battery, Mounting and Cables, General Procedures).
2. Refer to: [Hood](#) (501-02 Front End Body Panels, Removal and Installation).
3. Refer to: [Air Conditioning System Recovery, Evacuation and Charging](#) (412-00 Climate Control System - General Information, General Procedures).
4. Refer to: [Secondary Bulkhead Right Panel](#) (501-02 Front End Body Panels, Removal and Installation).
- 5.

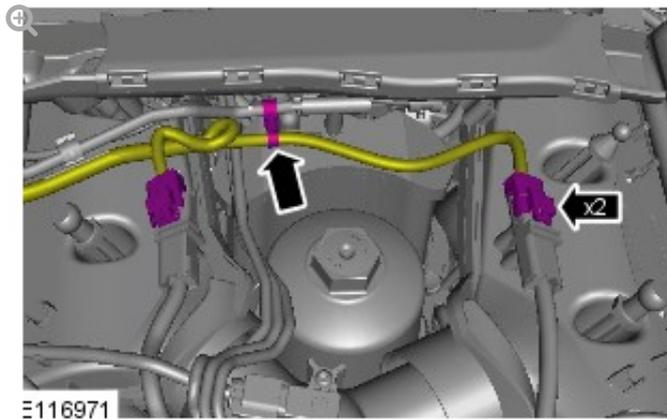
Make sure to support the vehicle with axle stands.

Raise and support the vehicle.

6. Refer to: [Transmission - TDV6 3.0L Diesel](#) (307-01 Automatic Transmission/Transaxle, Removal).

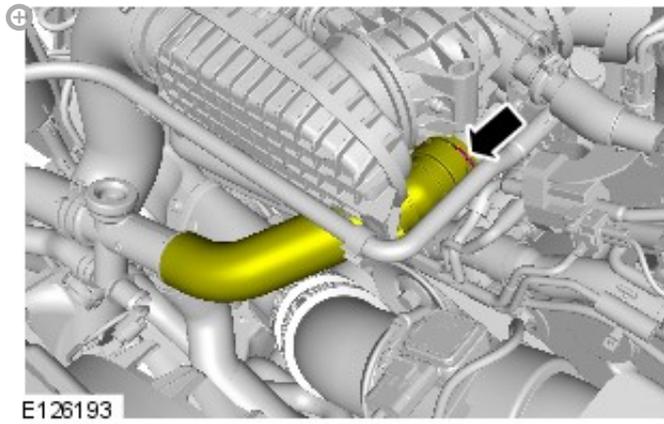
7. Refer to: [Turbocharger Bypass Valve](#) (303-04B Fuel Charging and Controls - Turbocharger - TDV6 3.0L Diesel, Removal and Installation).
8. Refer to: [Cooling System Partial Draining, Filling and Bleeding](#) (303-03A Engine Cooling - TDV6 3.0L Diesel, General Procedures).
9. Refer to: [Power Steering System Filling](#) (211-00 Steering System - General Information, General Procedures).
10. Refer to: [Coolant Expansion Tank](#) (303-03A Engine Cooling - TDV6 3.0L Diesel, Removal and Installation).
11. Refer to: [Air Cleaner](#) (303-12A Intake Air Distribution and Filtering - TDV6 3.0L Diesel, Removal and Installation).

12.



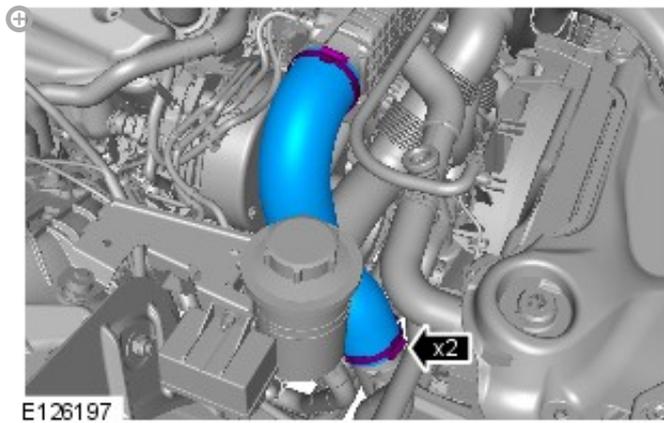
13.

- Be prepared to collect escaping coolant.
- Make sure that all openings are sealed. Use new blanking caps.



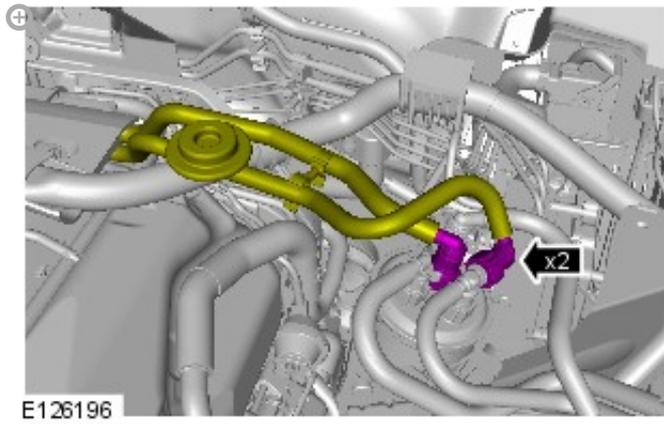
14.

Make sure that all openings are sealed. Use new blanking caps.

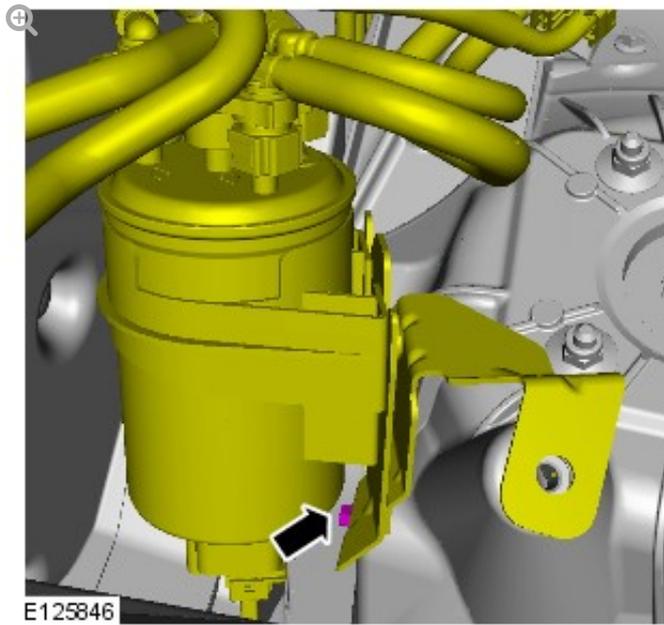


15.

- Be prepared to collect escaping fuel.
- Make sure that all openings are sealed. Use new blanking caps.



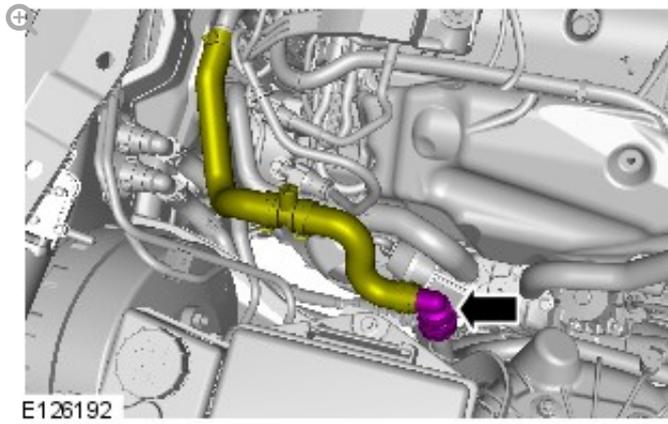
16.



17.

Be prepared to collect escaping coolant.

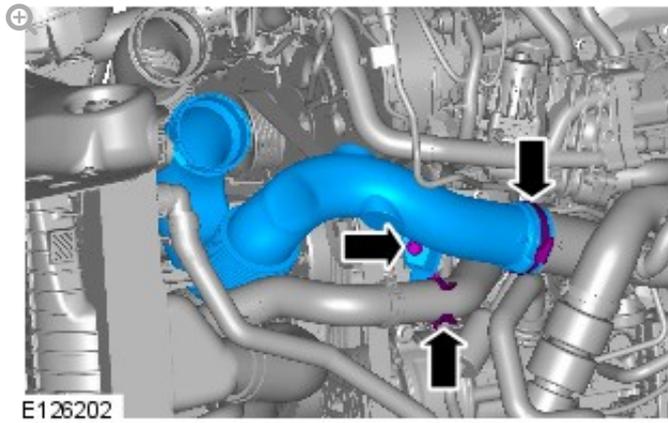
Make sure that all openings are sealed. Use new blanking caps.



18.

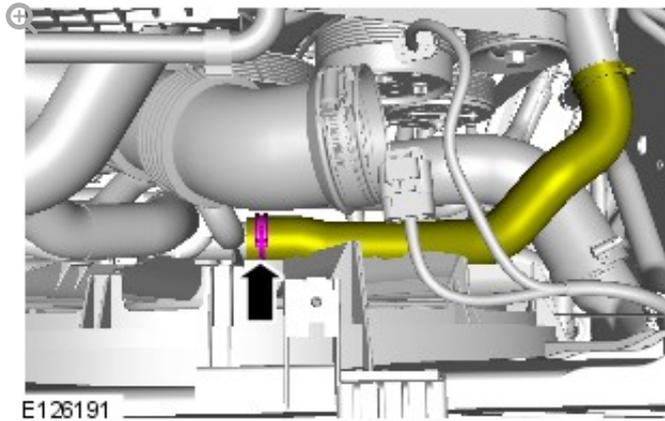
Make sure that all openings are sealed. Use new blanking caps.

Engine shown removed for clarity.



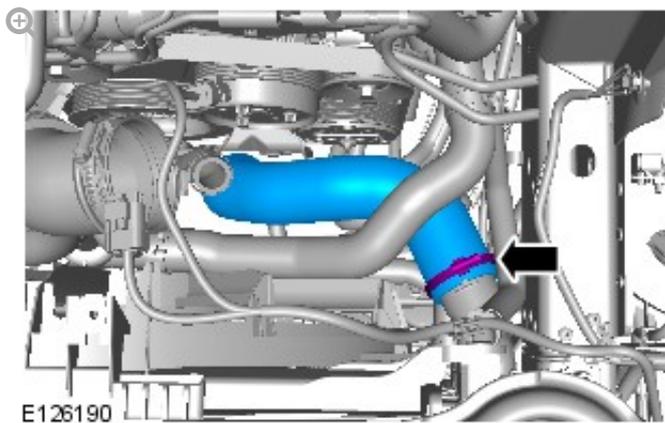
19.

- Be prepared to collect escaping coolant.
- Make sure that all openings are sealed. Use new blanking caps.



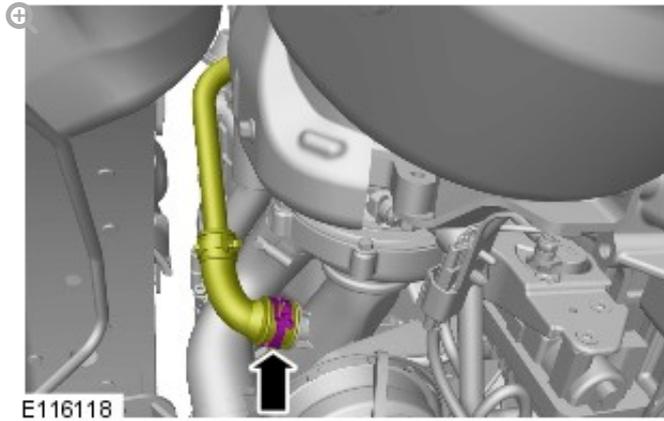
20.

Make sure that all openings are sealed. Use new blanking caps.



21.

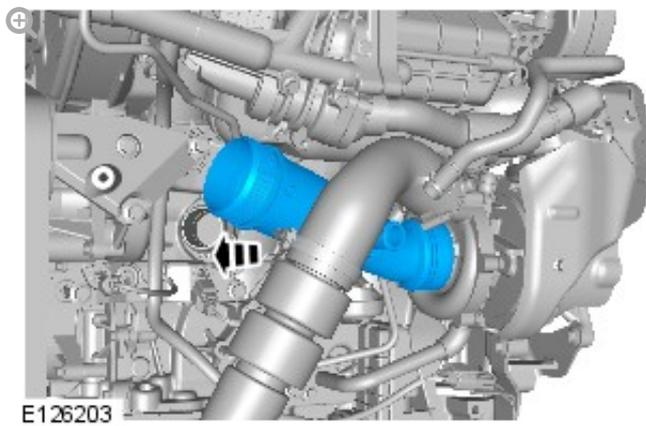
Make sure that all openings are sealed. Use new blanking caps.



22.

Make sure that all openings are sealed. Use new blanking caps.

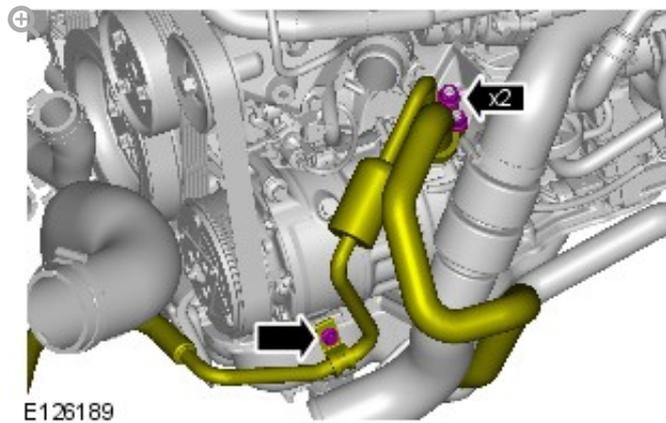
Engine shown removed for clarity.



23.

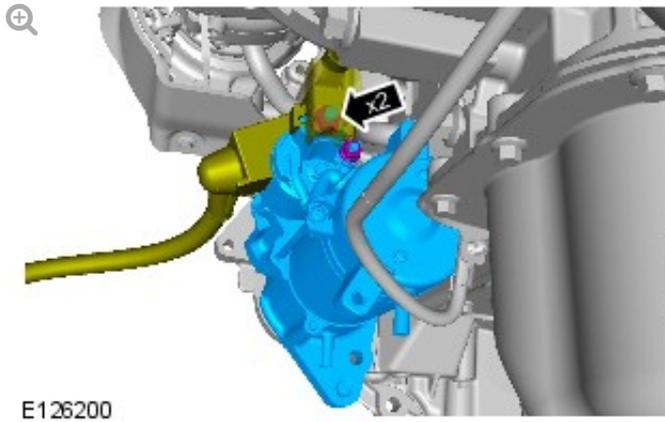
- Note the routing of the lines and hoses.
- Make sure that all openings are sealed. Use new blanking caps.

- Remove and discard the O-ring seals.
- Engine shown removed for clarity.



24.

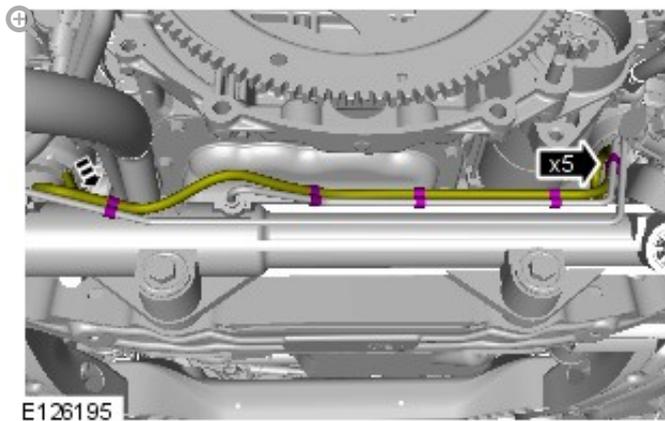
Engine shown removed for clarity.



E126200

25.

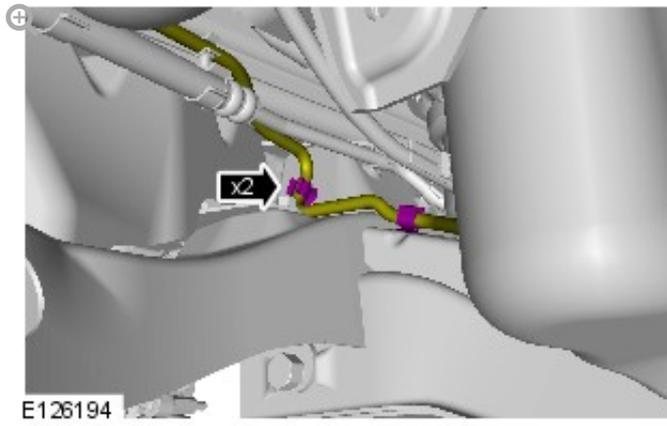
Take note of the routing.



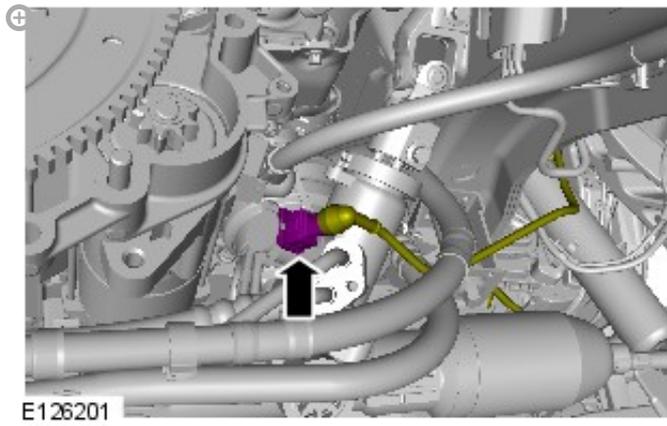
E126195

26.

Take note of the routing.

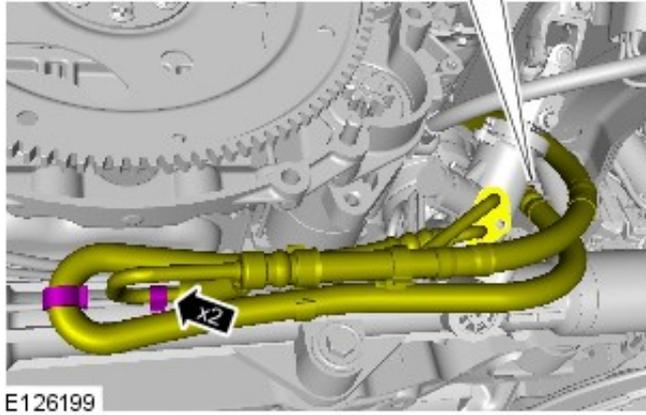
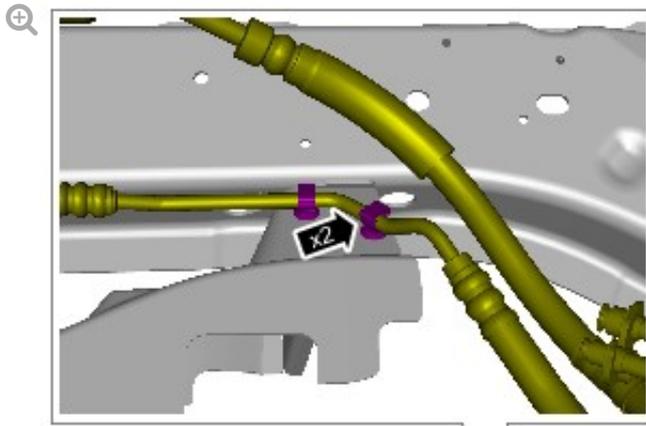


27.

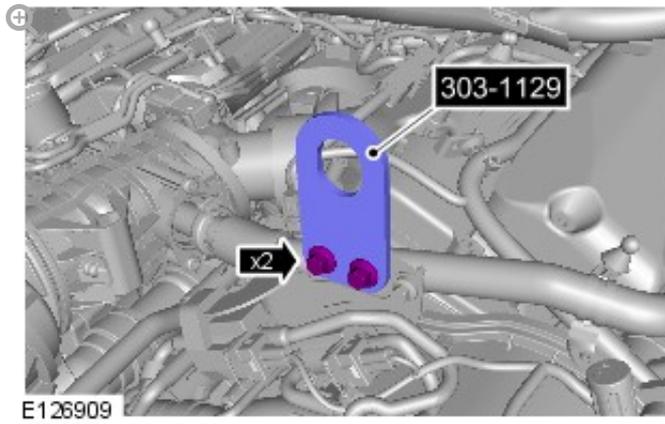


28.

Take note of the routing.



29.

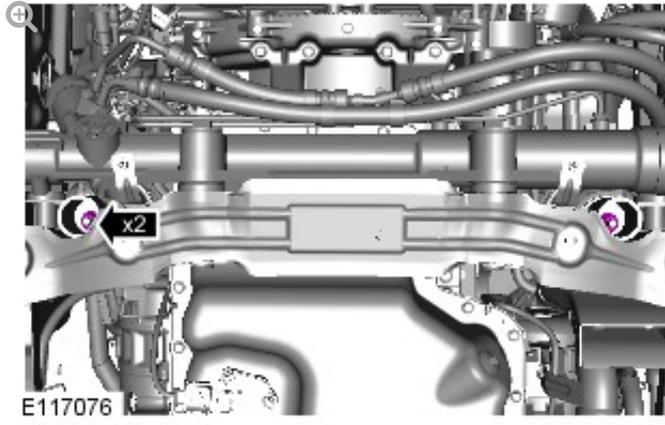


Install the special tool.

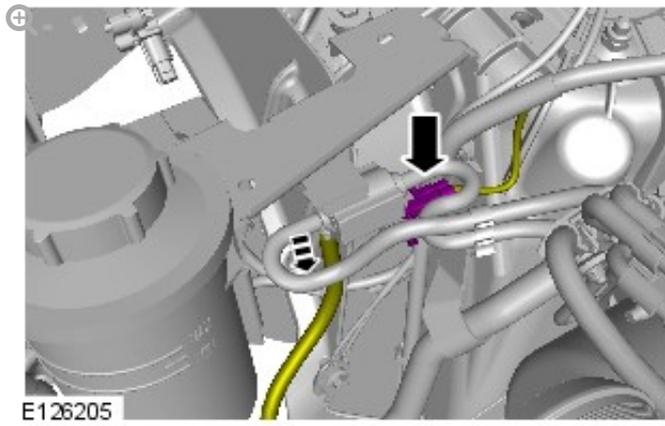
*Special Tool(s):* [303-1129](#)

*Torque:* **22 Nm**

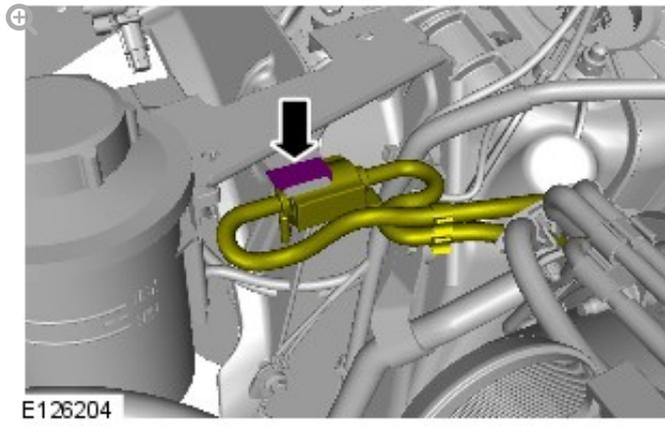
30.



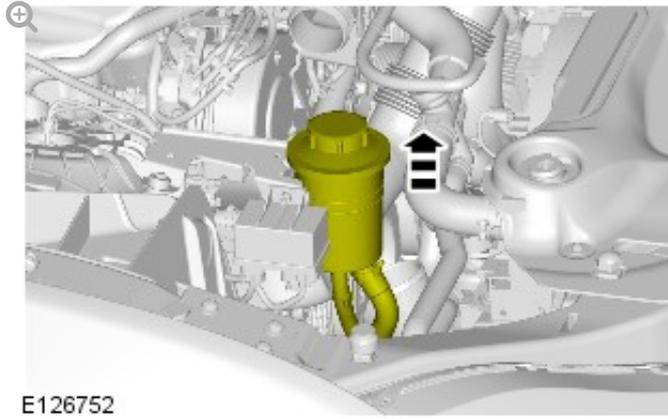
31.



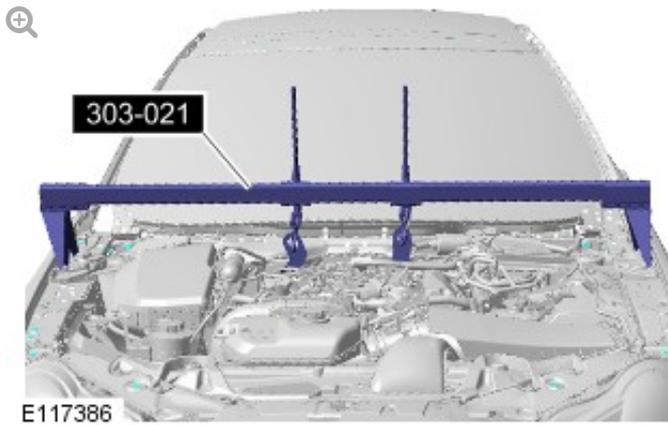
32.



33.



34.



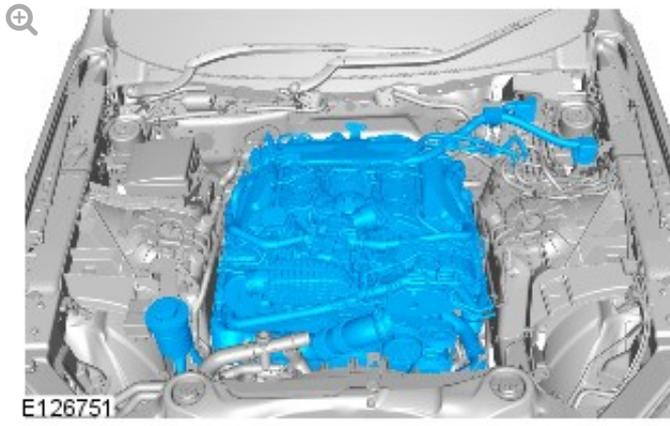
Remove the special tool supporting the engine.

*Special Tool(s):* [303-021](#)

35. Install the lifting chains.

36.

This step requires the aid of another technician.



Using a suitable tool, remove the engine.

# ENGINE - TDV6 3.0L DIESEL

## ENGINE (G1272055)

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### INSTALLATION

### SPECIAL TOOL(S)



**303-021**

Engine support bracket



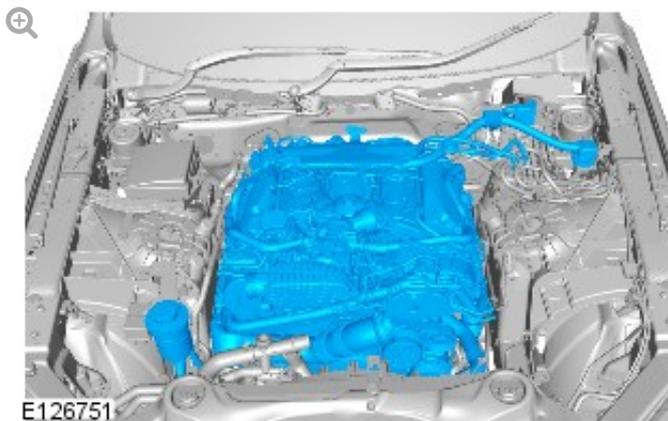
**303-1129**

Engine Lifting Brackets

Diesel fuel injection equipment is manufactured to very precise tolerances and fine clearances. It is therefore essential that absolute cleanliness is observed when working with these components. Always install blanking plugs to any open orifices or lines. Failure to follow this instruction may result in foreign matter ingress to the fuel injection system.

1.

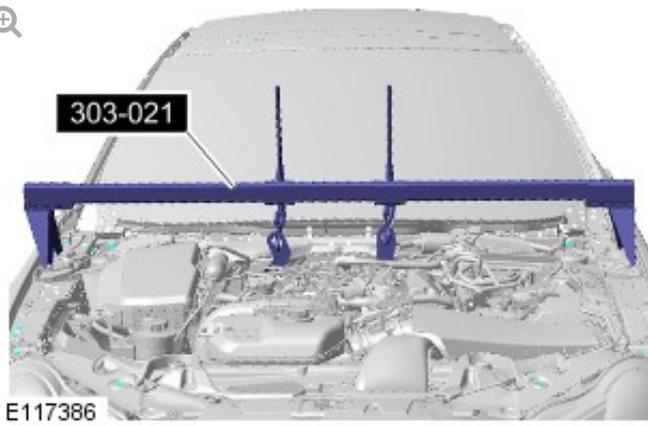
This step requires the aid of another technician.



Using a suitable tool, install the engine.

2. Remove the lifting chains.

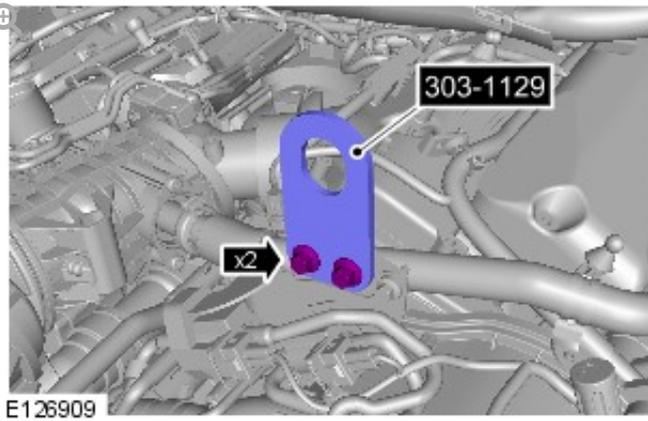
3.



Install the engine support tool.

*Special Tool(s):* [303-021](#)

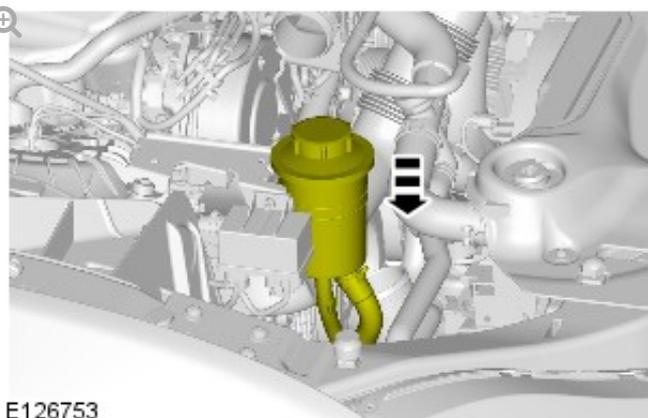
4.



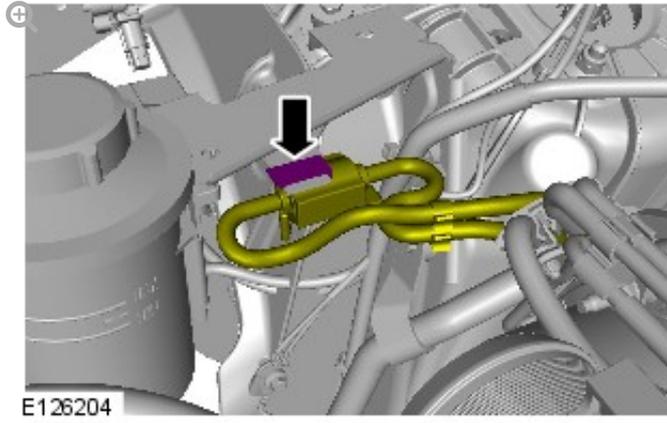
Remove the special tool.

*Special Tool(s):* [303-1129](#)

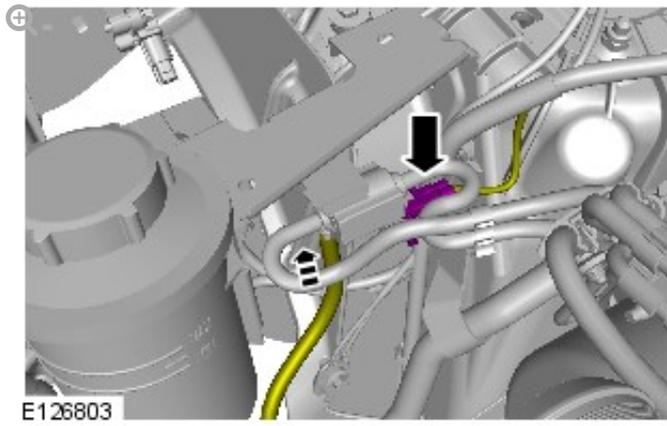
5.



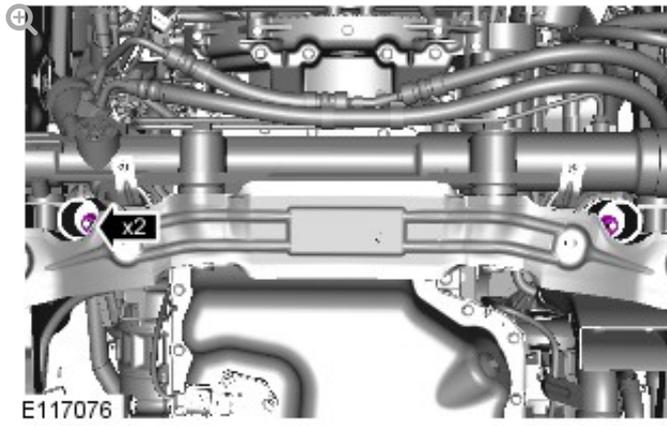
6.



7.

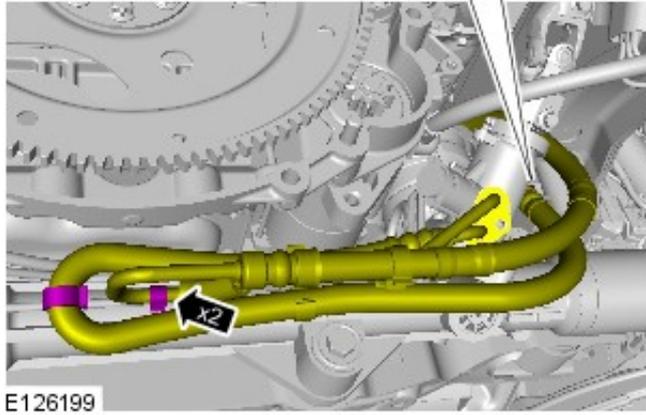
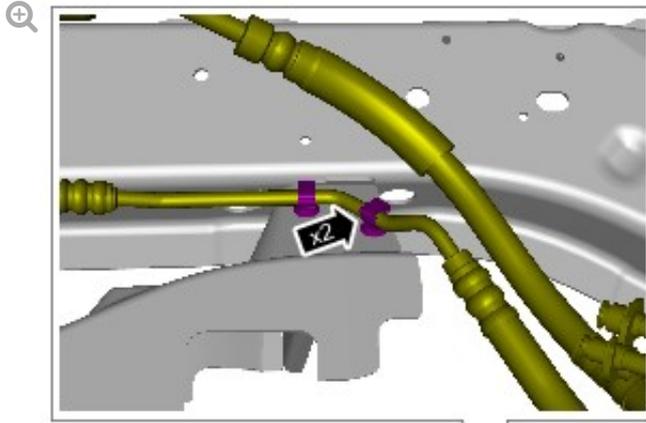


8.

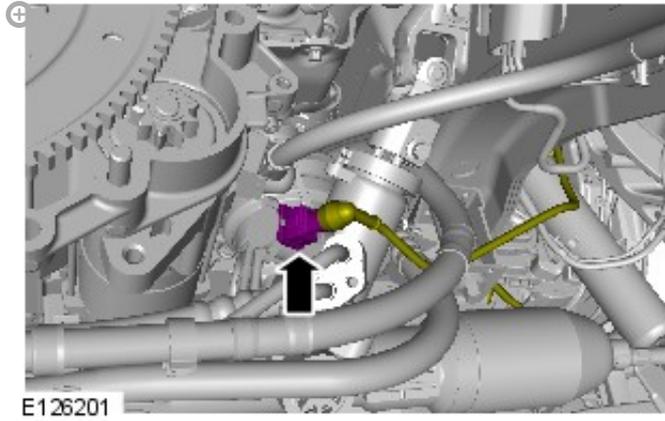


*Torque:* **63 Nm**

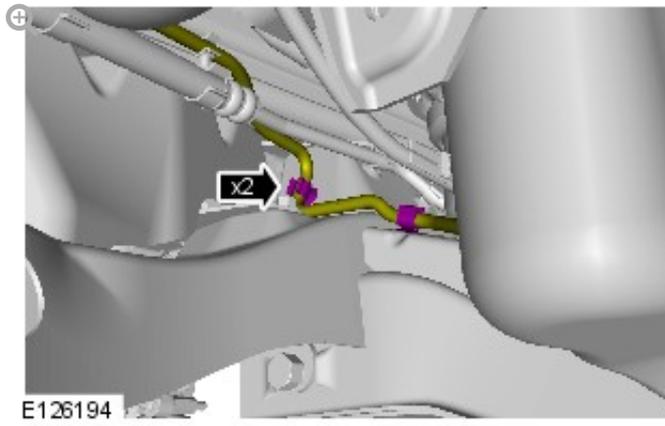
9.



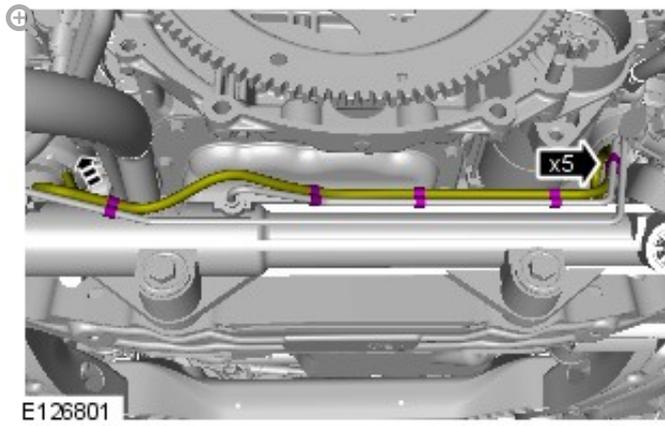
10.



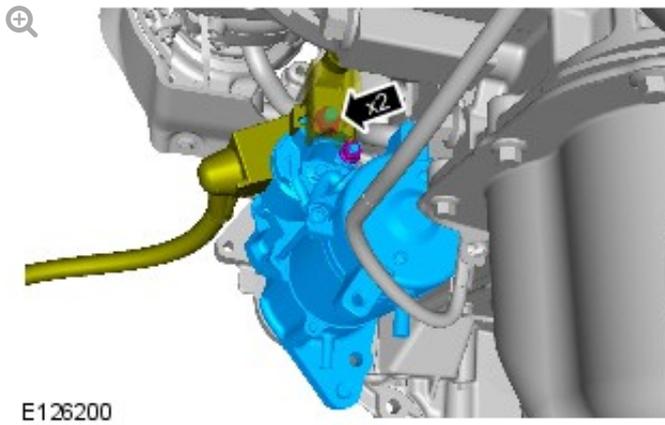
11.



12.



13.



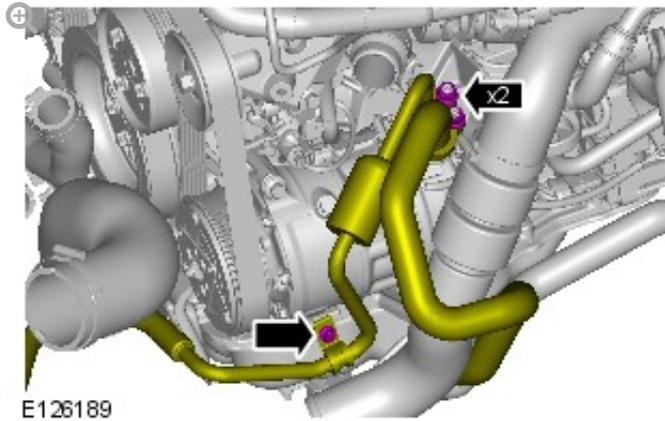
*Torque:*

**M8 10 Nm**

**M6 7 Nm**

14.

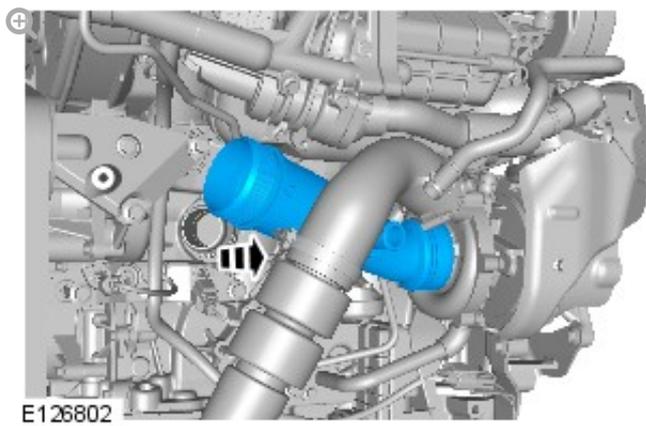
Install new o-ring seals



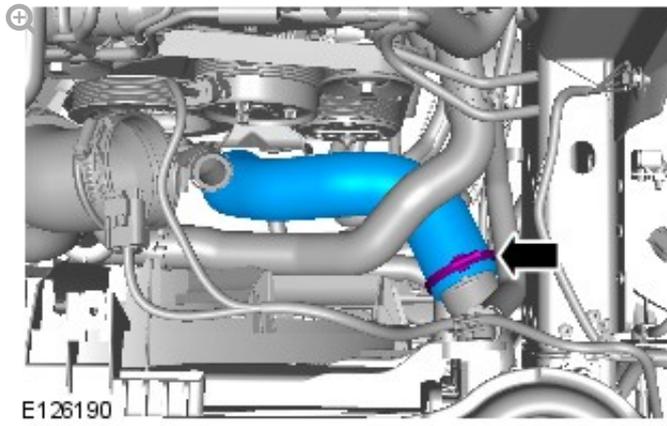
*Torque: 10 Nm*

15.

Engine shown removed for clarity.

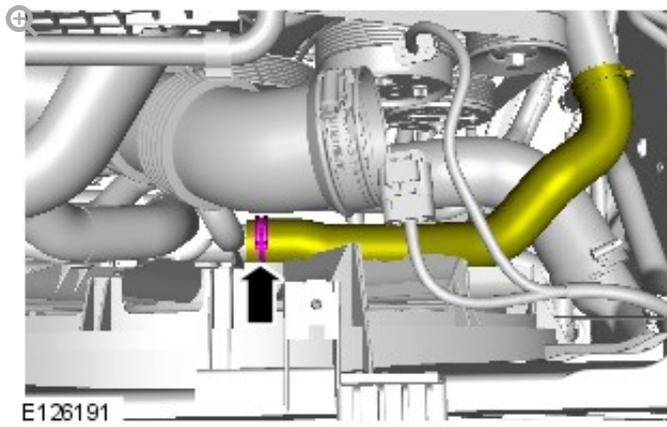


16.



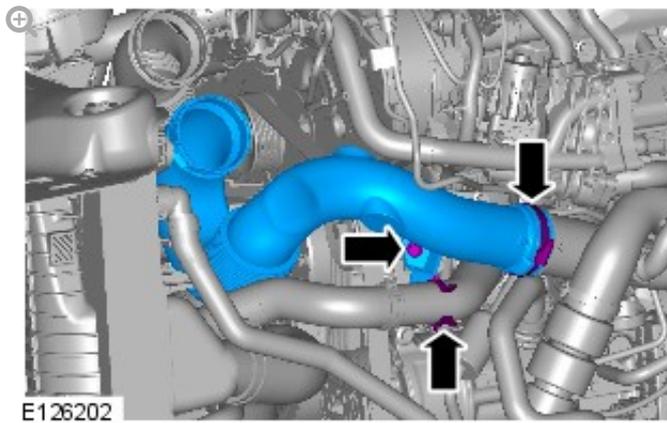
*Torque: 7 Nm*

17.



18.

Engine shown removed for clarity.

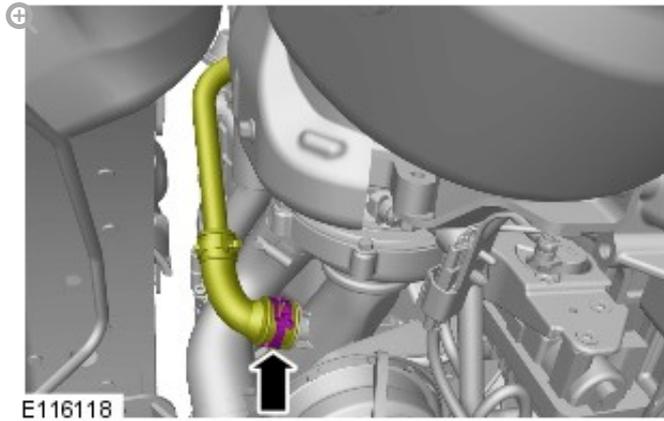


*Torque:*

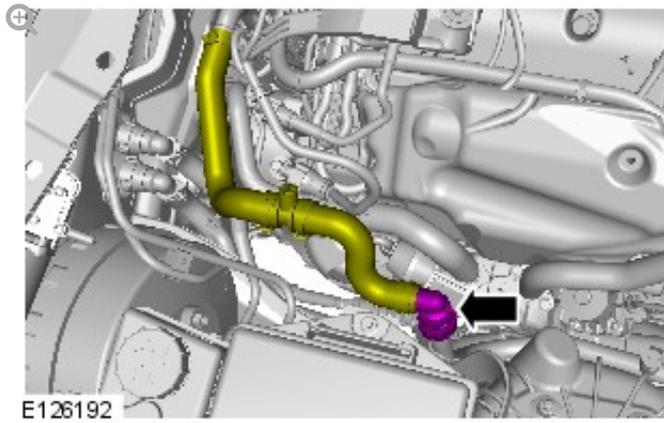
**M6 10 Nm**

**Clip 7 Nm**

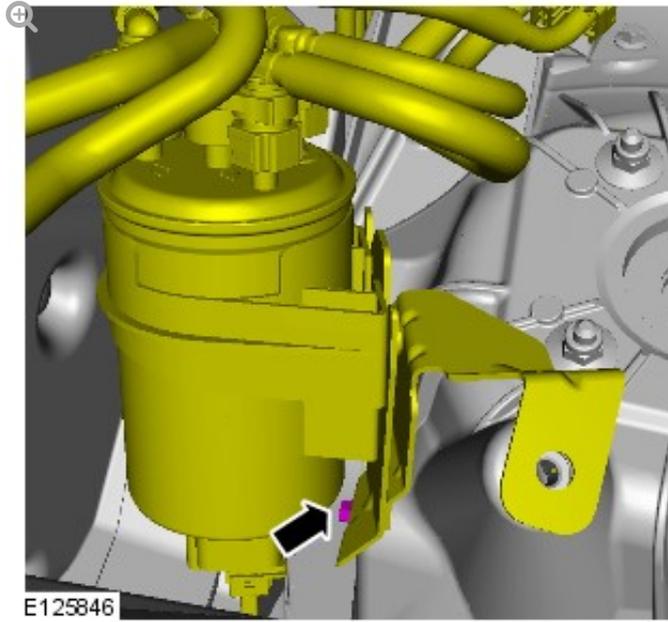
19.



20.

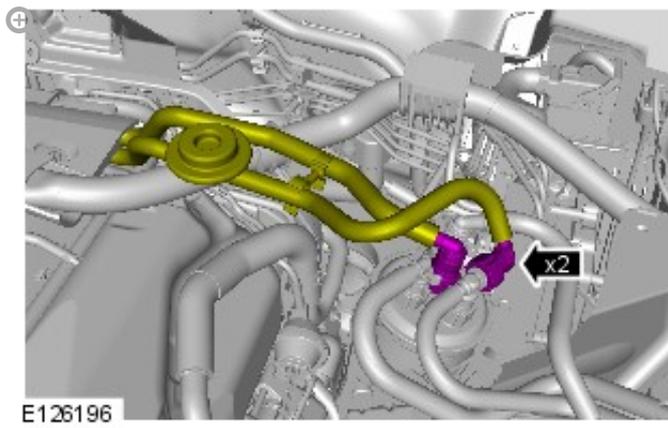


21.

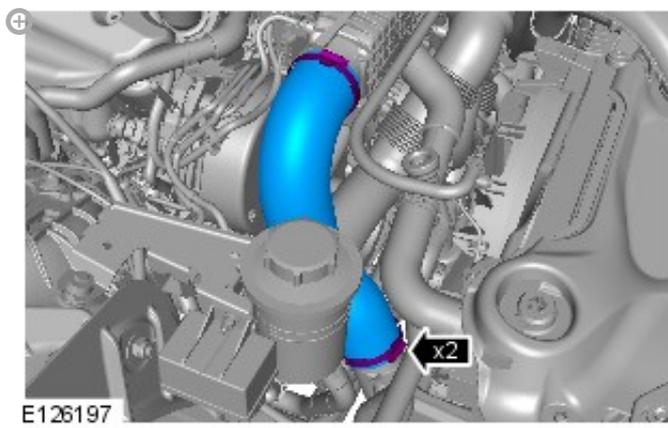


*Torque: 27 Nm*

22.

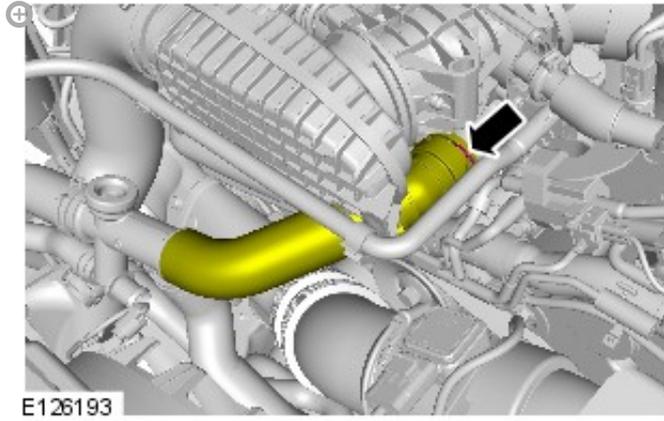


23.

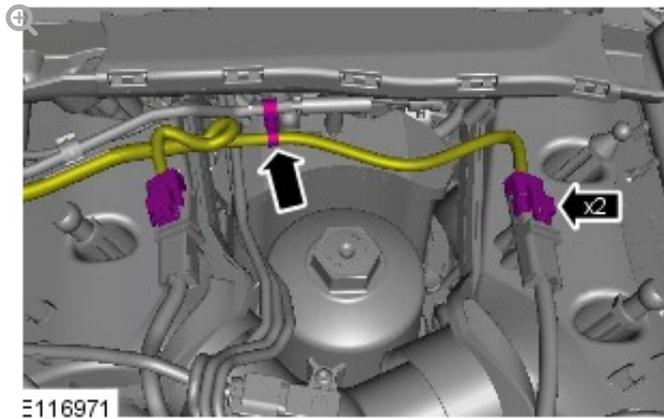


*Torque: 7 Nm*

24.



25.



- 26. Refer to: [Air Cleaner](#) (303-12A Intake Air Distribution and Filtering - TDV6 3.0L Diesel, Removal and Installation).
- 27. Refer to: [Coolant Expansion Tank](#) (303-03A Engine Cooling - TDV6 3.0L Diesel, Removal and Installation).
- 28. Refer to: [Turbocharger Bypass Valve](#) (303-04B Fuel Charging and Controls - Turbocharger - TDV6 3.0L Diesel, Removal and Installation).
- 29. Refer to: [Transmission - TDV6 3.0L Diesel](#) (307-01 Automatic Transmission/Transaxle, Installation).
- 30. Refer to: [Secondary Bulkhead Right Panel](#) (501-02 Front End Body Panels, Removal and Installation).
- 31. Refer to: [Air Conditioning System Recovery, Evacuation and Charging](#)

(412-00 Climate Control System - General Information, General Procedures).

32. Refer to: [Cooling System Partial Draining and Vacuum Filling](#) (303-03A Engine Cooling - TDV6 3.0L Diesel, General Procedures).
33. Refer to: [Hood](#) (501-02 Front End Body Panels, Removal and Installation).
34. Refer to: [Battery Disconnect and Connect](#) (414-01 Battery, Mounting and Cables, General Procedures).
35. Refer to: [Power Steering System Filling](#) (211-00 Steering System - General Information, General Procedures).

# ENGINE - TDV6 3.0L DIESEL

## ENGINE OIL DRAINING AND FILLING [G1280229]

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### DRAINING

The spilling of hot engine oil is unavoidable during this procedure, care must be taken to prevent scalding.

Make sure the engine is warm.

**Some variation in the illustrations may occur, but the essential information is always correct.**

1. Refer to: [Oil Filter Element](#) (303-01A Engine - TDV6 3.0L Diesel,

Removal and Installation).

2.

Make sure to support the vehicle with axle stands.

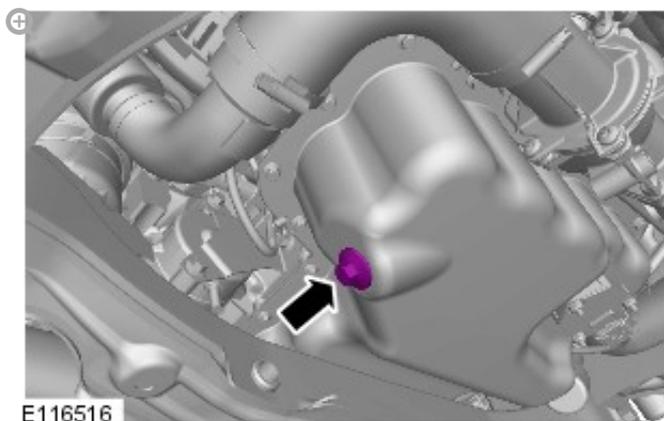
Raise and support the vehicle.

3. Refer to: [Air Deflector](#) (501-02 Front End Body Panels, Removal and Installation).

4.

Observe due care when draining engine oil as the oil can be very hot.

- Be prepared to collect escaping oil.
- Discard the bolt.
- Allow at least 10 minutes for the engine oil to drain.

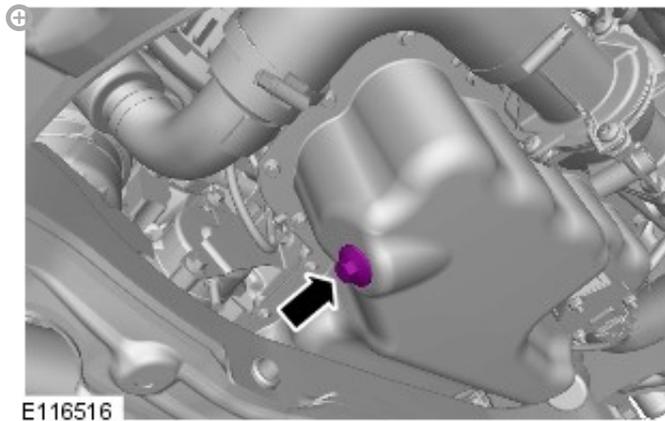


Drain the engine oil.

## FILLING

5.

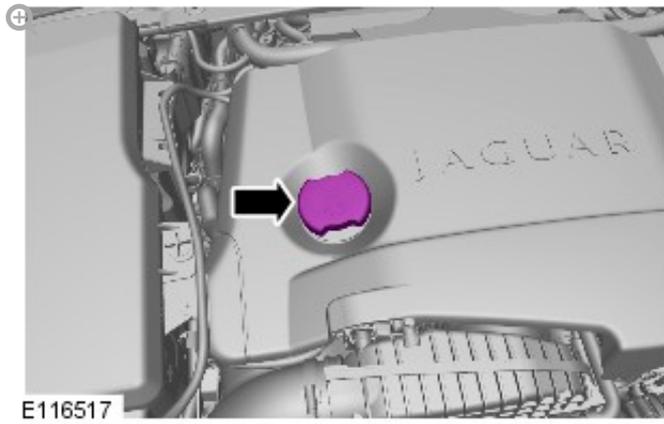
- Make sure that the component is clean, free of foreign material and lubricant.
- Make sure that a new bolt is installed.



*Torque: 23 Nm*

6. Refer to: [Air Deflector](#) (501-02 Front End Body Panels, Removal and Installation).
7. Lower the vehicle.
8. Refer to: [Oil Filter Element](#) (303-01A Engine - TDV6 3.0L Diesel, Removal and Installation).

9.



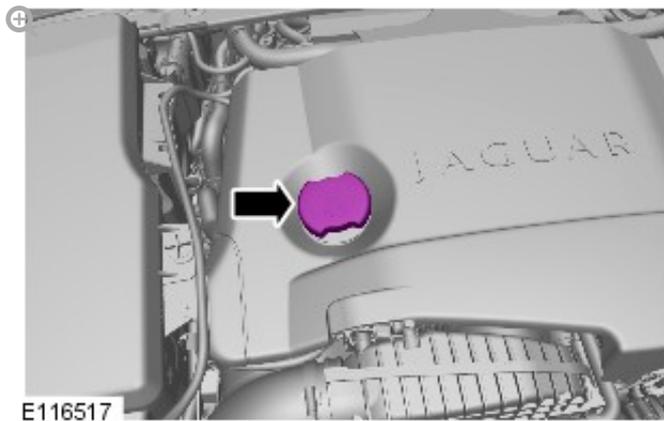
Fill the engine with oil.

10.

Make sure that the vehicle is left for 5 minutes from filling with oil and that the engine oil level is reading at least minimum, before starting the engine. To check engine oil level follow steps 9-16.

Clean any residual engine oil from the oil filler cap area.

11.



- 12.
- Start the engine and allow to run for 20 minutes, stop the engine.
  - Check for leaks.

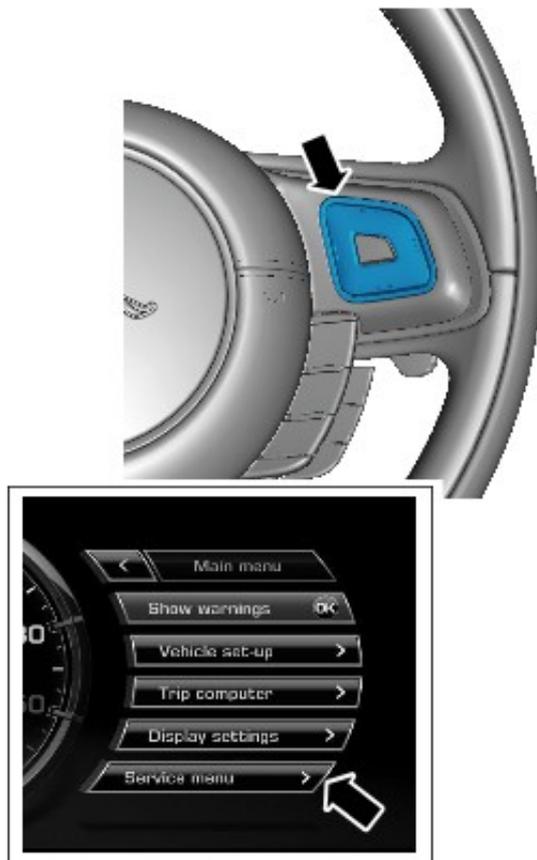
13.

- Make sure that the vehicle is parked on level ground.
- Make sure that the selector lever and the gearshift mechanism are in the park (P) position.
- Make sure that the hood is open.

Allow 10 minutes from the engine switch off for the engine oil level to stabilize.

- Turn the ignition on.

14.

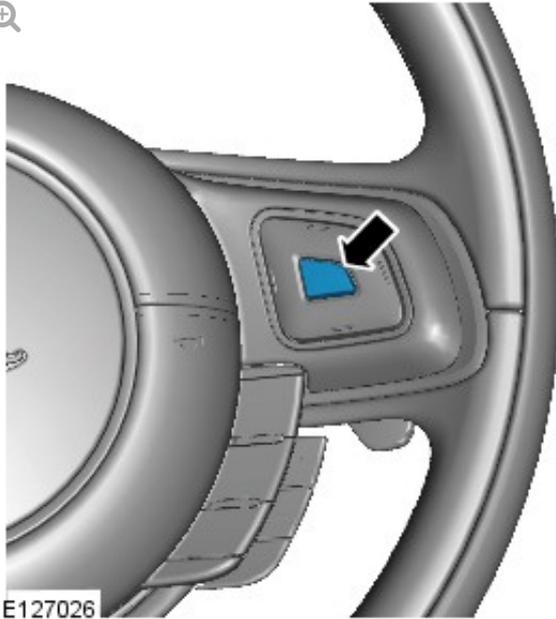


E127027

- Press the right-hand directional button to access the instrument

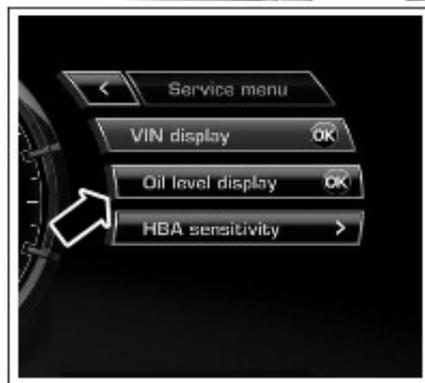
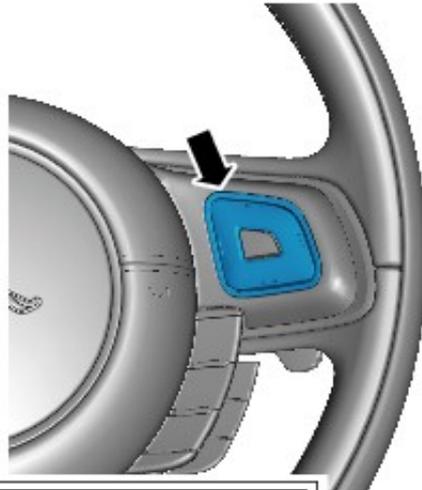
cluster menu.

15.



- Press the right-hand OK button.

16.

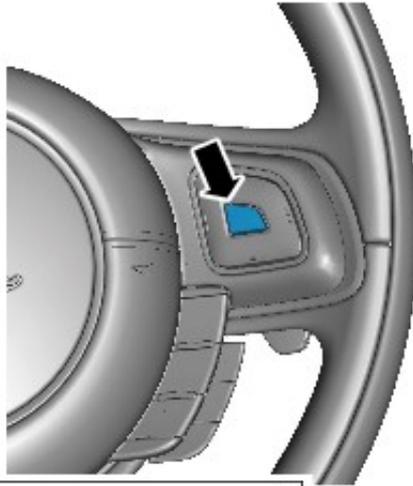


E127028

- Press the right-hand directional button to access the Oil Level

Display.

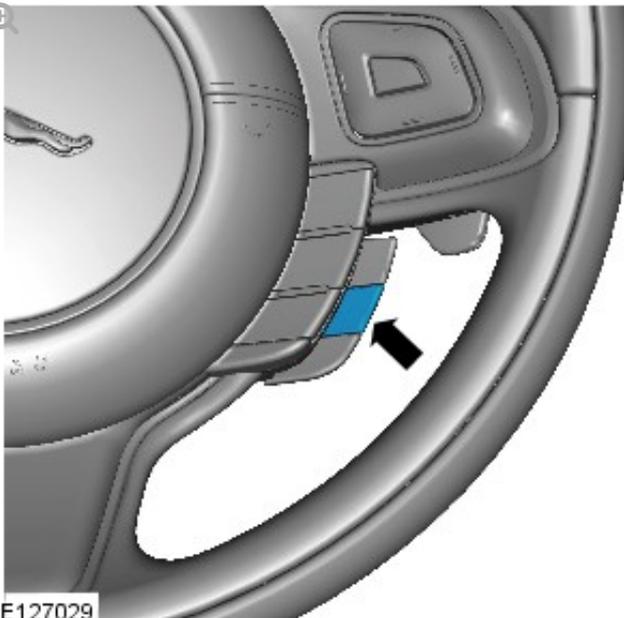
17.



E127030

- Press the right-hand OK button and follow the instructions.

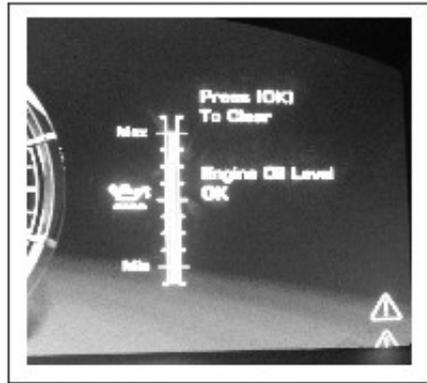
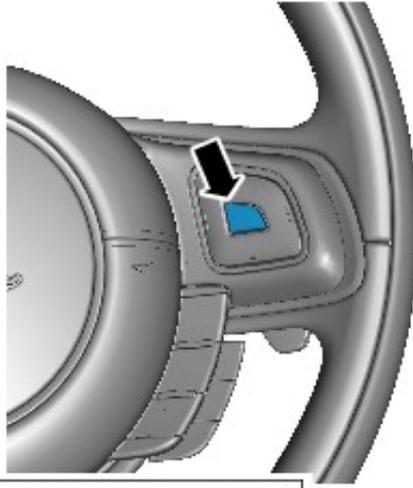
18.



E127029

- Press the cruise control cancel button twice within 2 seconds.

19.



E127031

- The message center display will revert to the normal display in the trip computer.
- Scroll through the trip menu to access the engine oil level display.
- This display is now the live reading of the engine oil level.
- Take a reading from the level display and, if necessary, top up with oil as instructed.

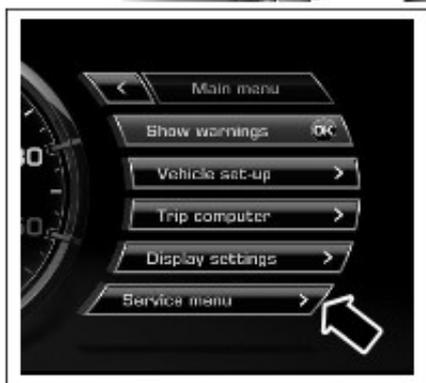
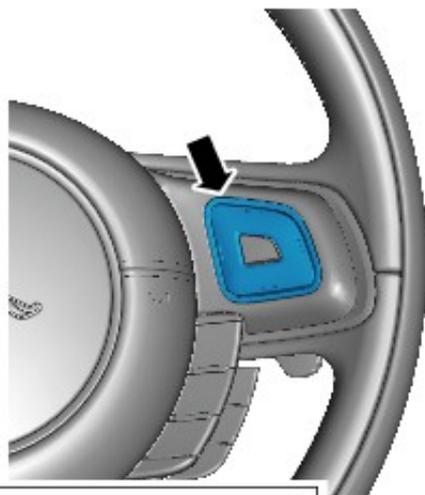
20. Turn the ignition off.

21.

Allow 10 minutes for the engine oil level to stabilize if there has been additional oil top up.

- Turn the ignition on.

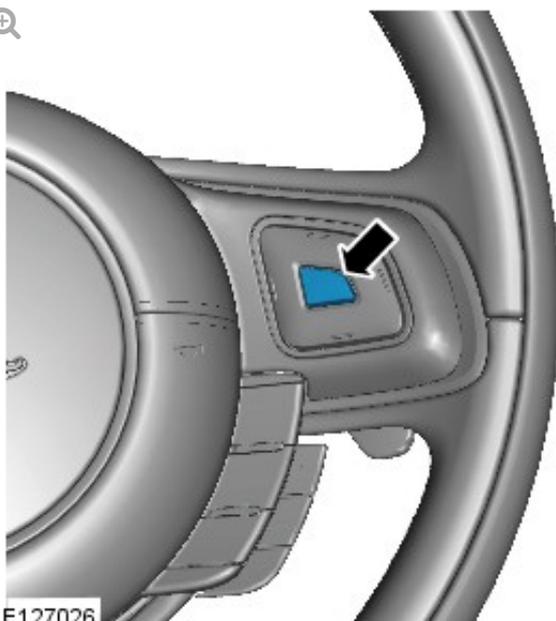
22.



E127027

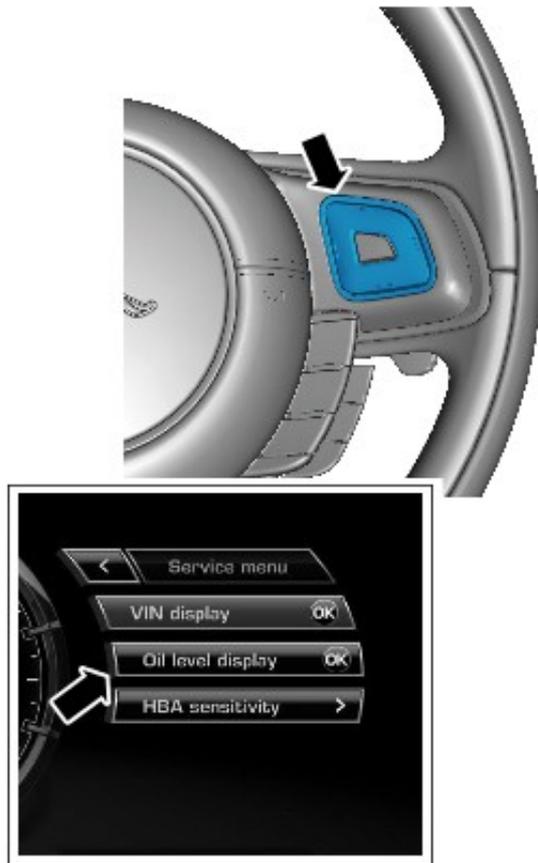
- Press the right-hand directional button to access the instrument cluster menu.

23.



E127026

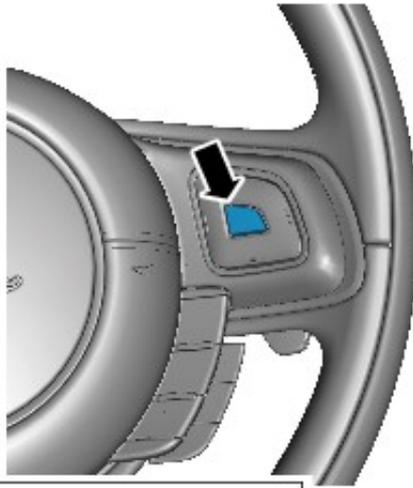
- Press the right-hand OK button.



E127028

- Press the right-hand directional button to access the Oil Level Display.

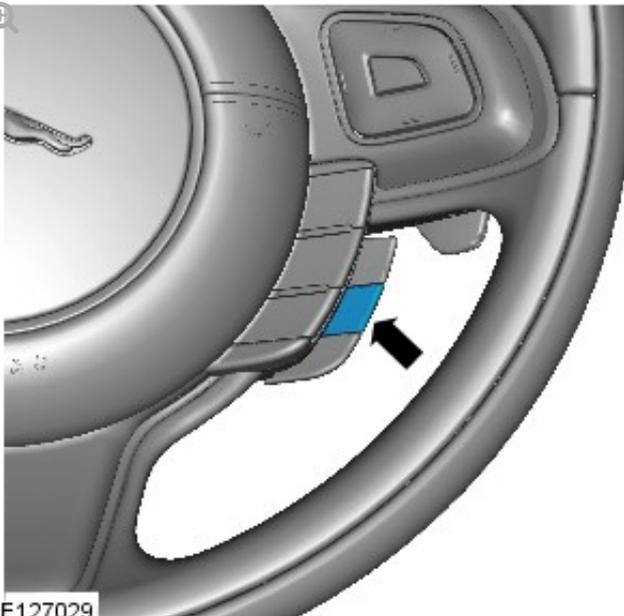
25.



E127030

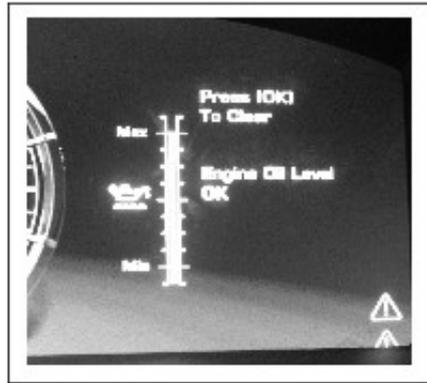
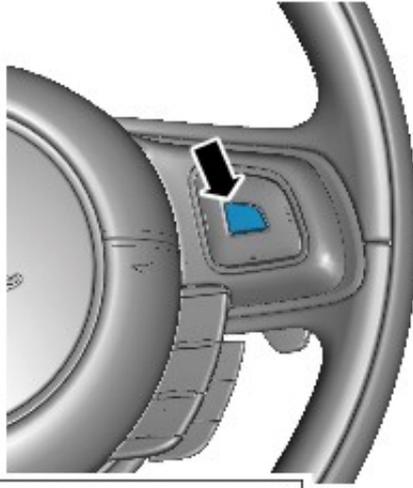
- Press the right-hand OK button and follow the instructions.

26.



E127029

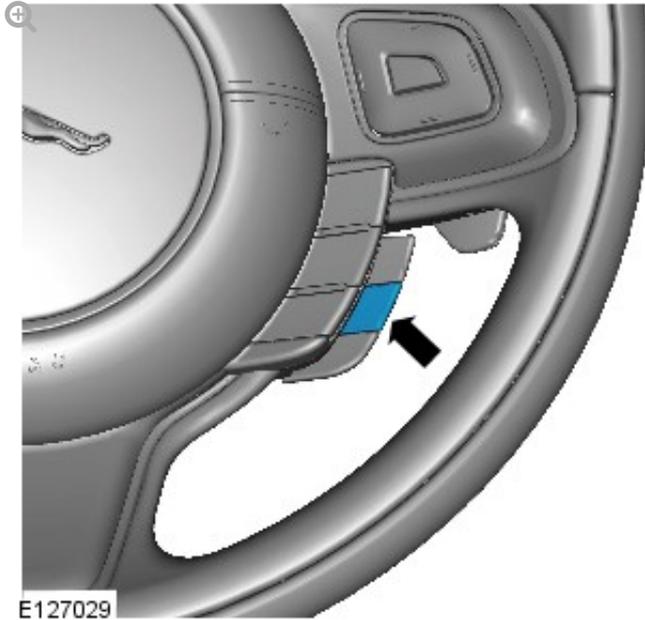
- Press the cruise control cancel button twice within 2 seconds.



E127031

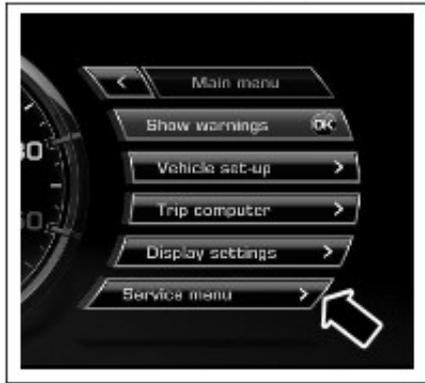
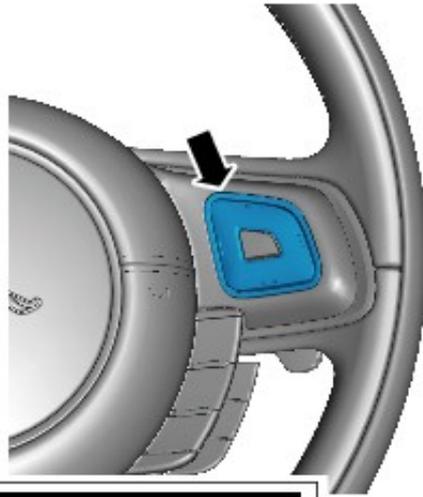
- The message center display will revert to the normal display in the trip computer.
- Scroll through the trip menu to access the engine oil level display.
- This display is now the live reading of the engine oil level.
- Take a reading from the level display and, if necessary, top up with oil as instructed.

28.



- Press and hold the cruise control cancel button for more than 2 seconds.
29.   ▪ The message center display will revert to the normal display in the trip computer.
30. Turn the ignition off.
31. Turn the ignition on.

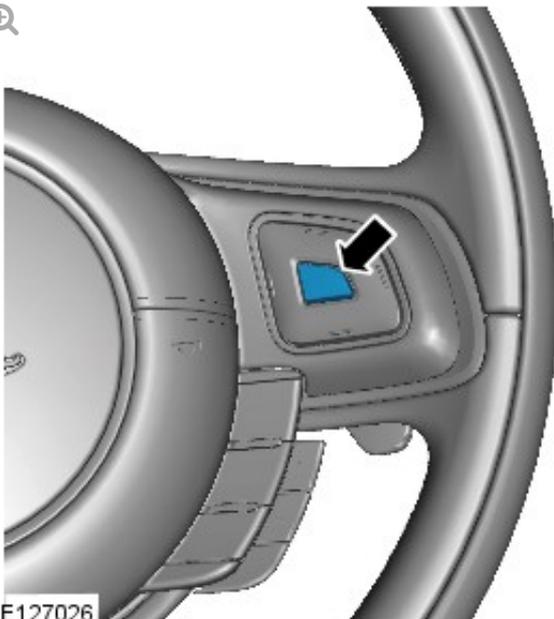
32.



E127027

- Press the right-hand directional button to access the instrument cluster menu.

33.



E127026

- Press the right-hand OK button.