

PUBLISHED: 22-JUL-2020
2020.0 DEFENDER (LE), 303-01C

ENGINE – INGENIUM I6 3.0L PETROL

ENGINE ASSEMBLY REMOVE FOR ACCESS (G2422567)

INSTALLATION

12.41.06

ENGINE
ASSEMBLY –
REMOVE FOR
ACCESS

2000 CC,
INGENIUM
DIESEL

8.30

USED WITHINS

INSTALLATION

mcx30.com

SPECIAL TOOL(S)



E136268

JLR-303-1591

Lifting Bracket, Engine - Rear



E218674

JLR-303-1673

Engine stand adaptor



E238238

JLR-303-1676

Engine lifting eyes

mcx30.com



JLR-303-1680

Engine Lifting Kit



E243070

JLR-303-1692

Engine Support

GENERAL EQUIPMENT

EQUIPMENT NAME	
Engine stand	
Hydraulic jib crane	

PART(S)

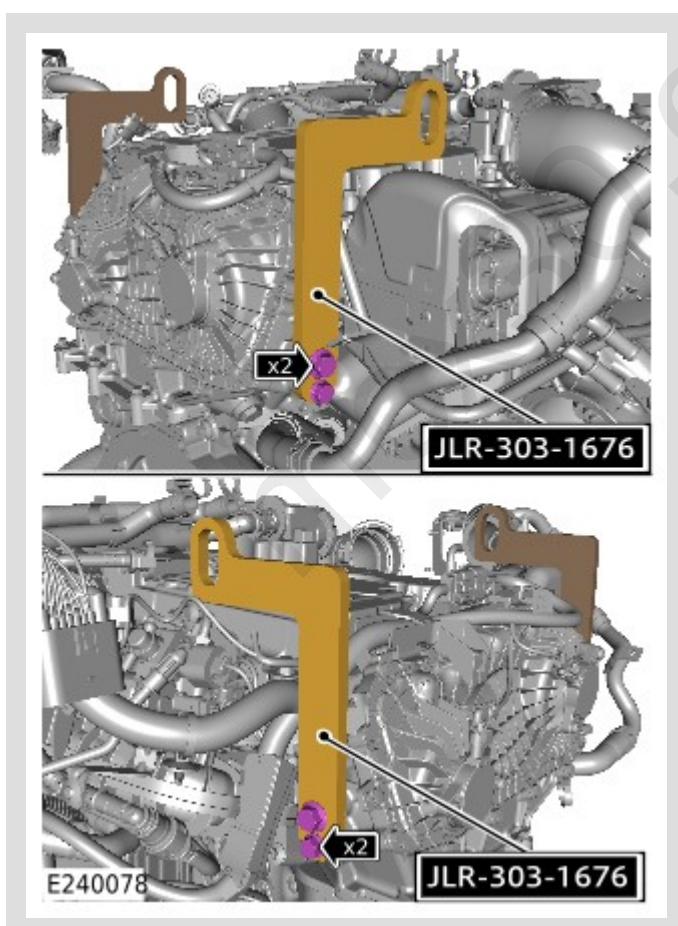
STEP	PART NAME	QUANTITY
Step 13	Oil level gauge O-ring seal	1

STEP	PART NAME	QUANTITY
Step 17	Engine mount to engine mount bracket nut	1
Step 18	Engine mount to engine mount bracket nut	1
Step 19	Oil fill pipe O-ring seal	1
Step 52	Air conditioning pipe O-ring seal(s)	2
Step 53	Air conditioning pipes to condenser O-ring seals	2

NOTE:

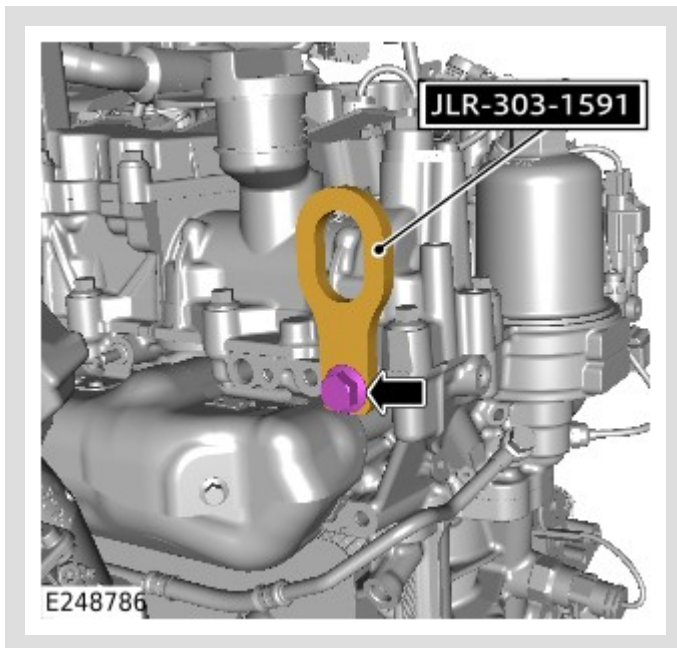
- This procedure contains illustrations showing certain components removed to provide extra clarity.
- This procedure contains some variation in the illustrations depending on the vehicle specification, but the essential information is always correct.

1.



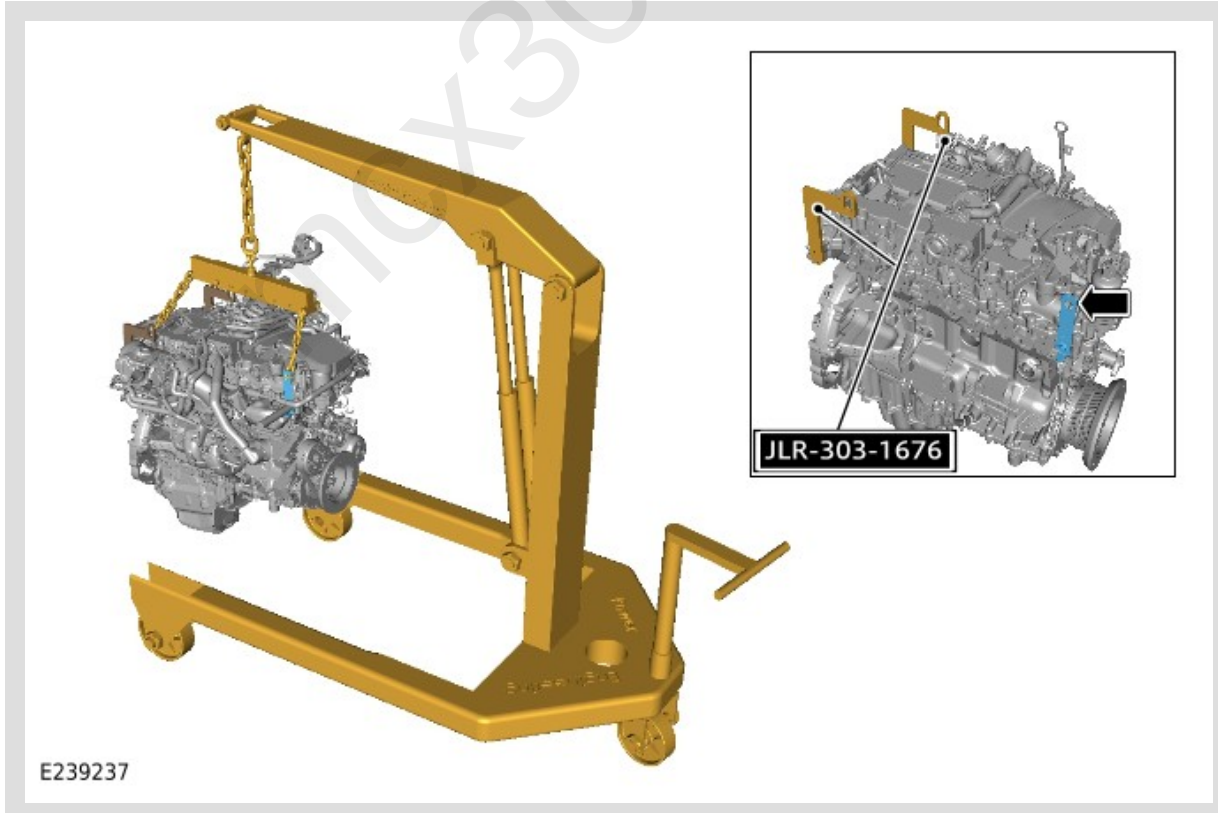
- Install the special tools.
Special Tool(s): [JLR-303-1676](#)
- Install and tighten the 4 bolts.
Torque
M10: **47Nm**

2.



- Install the special tool.
Special Tool(s): [JLR-303-1591](#)
- Install, but do not fully tighten the bolt.

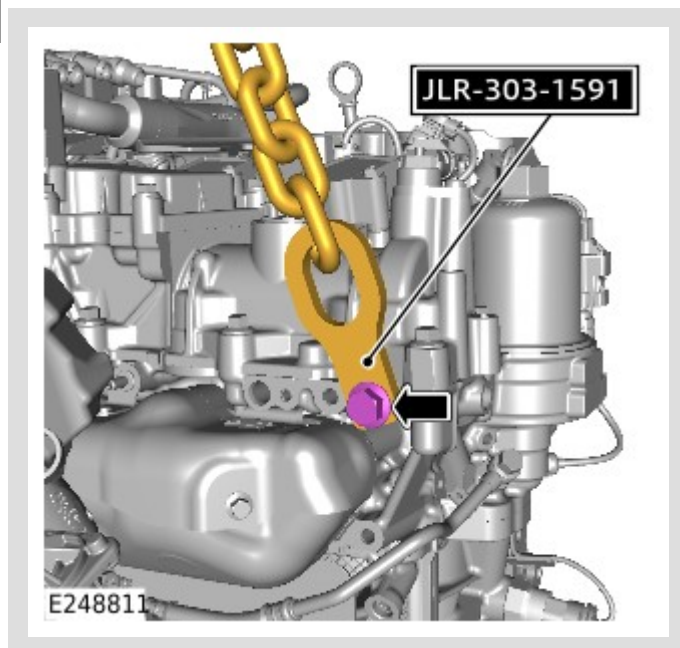
3.



- Install a suitable hydraulic jib crane to the special tools and lifting bracket as illustrated.
Special Tool(s): [JLR-303-1676](#), [JLR-303-1680](#), [JLR-303-1591](#)
General Equipment: [Hydraulic jib crane](#)

- Operate the crane to align the special tool JLR-303-1591.

4.

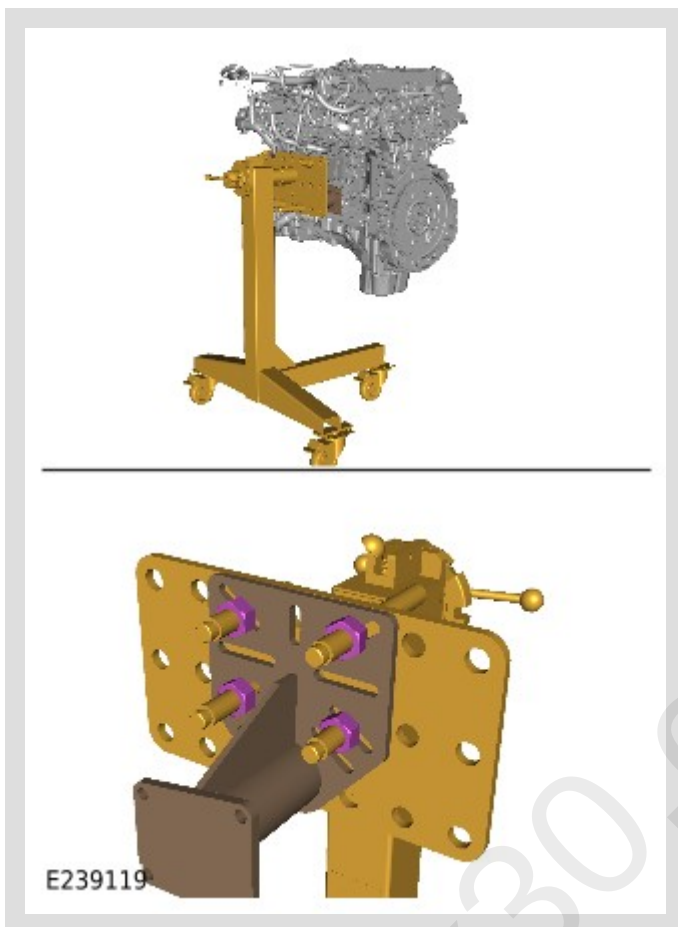


Fully tighten the bolt.

Torque: 50Nm

**WARNING:**

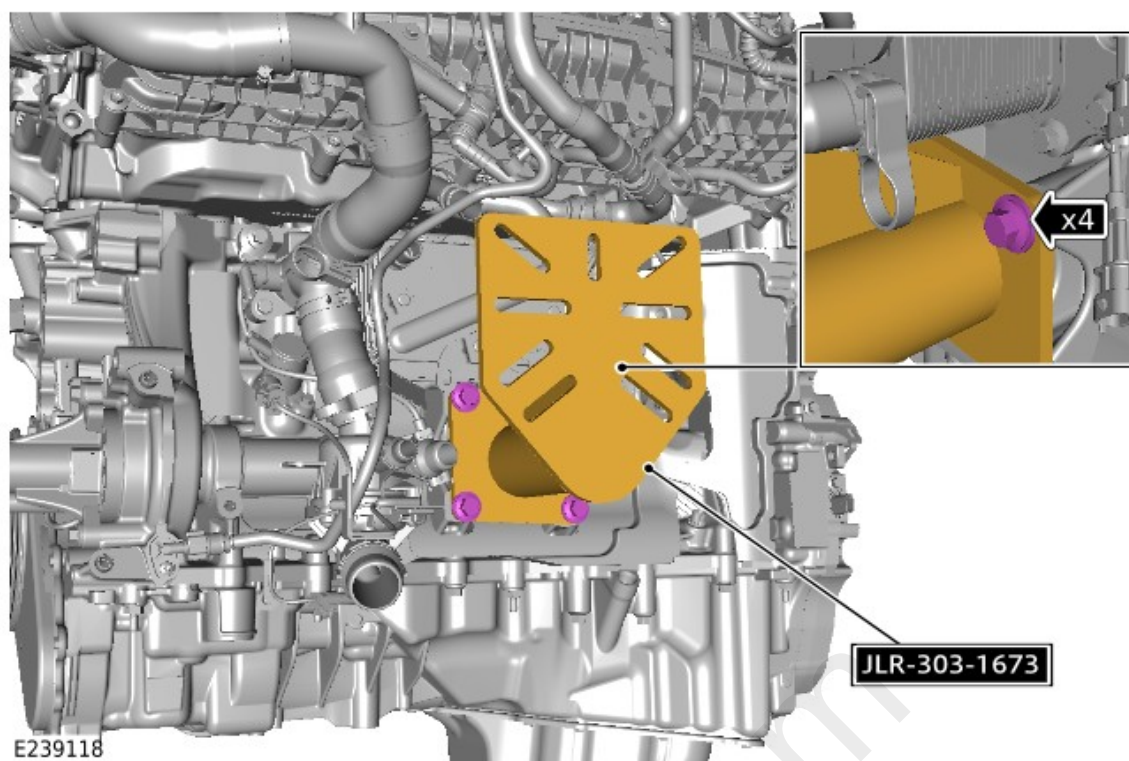
Always follow the engine stand manufacturer's instructions.



Remove the engine from the engine stand.

General Equipment: [Engine stand](#)

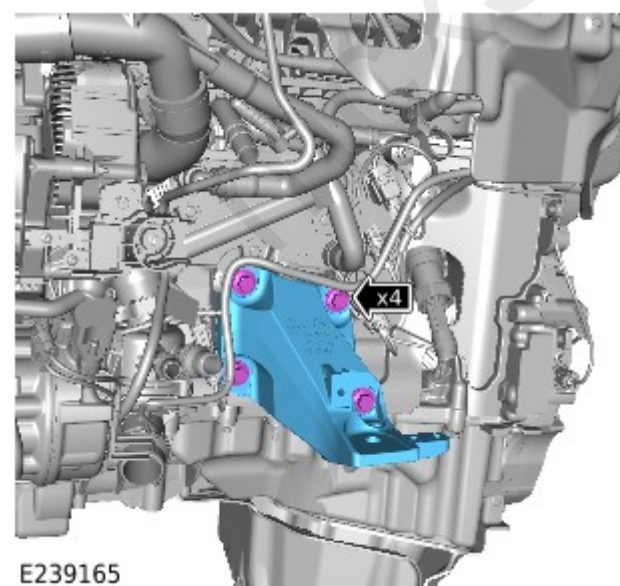
6.



- Remove the 4 bolts.
- Remove the special tool.

Special Tool(s): [JLR-303-1673](#)

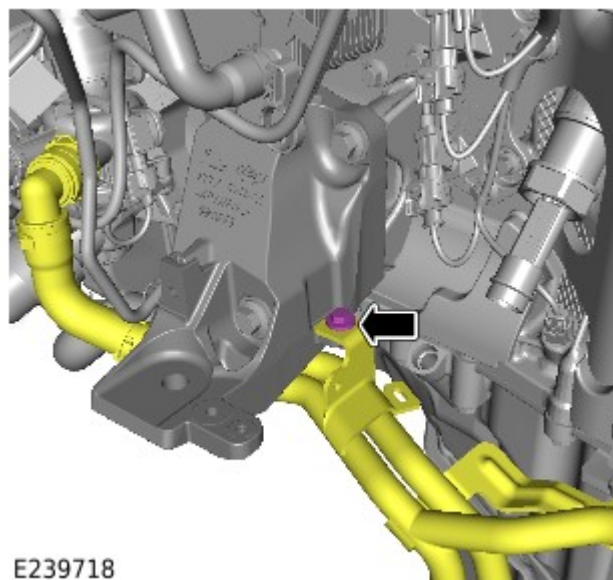
7.



- Install the bracket.
- Install and tighten the 4 bolts.

Torque: **60Nm**

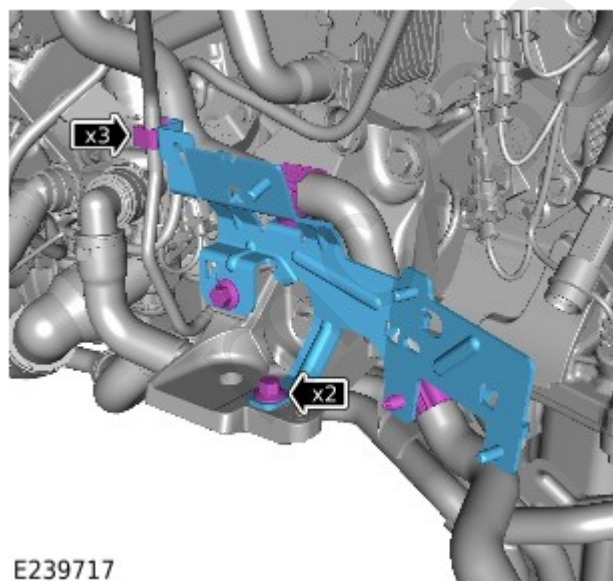
8.



- Reposition the coolant pipes.
- Install and tighten the bolt.

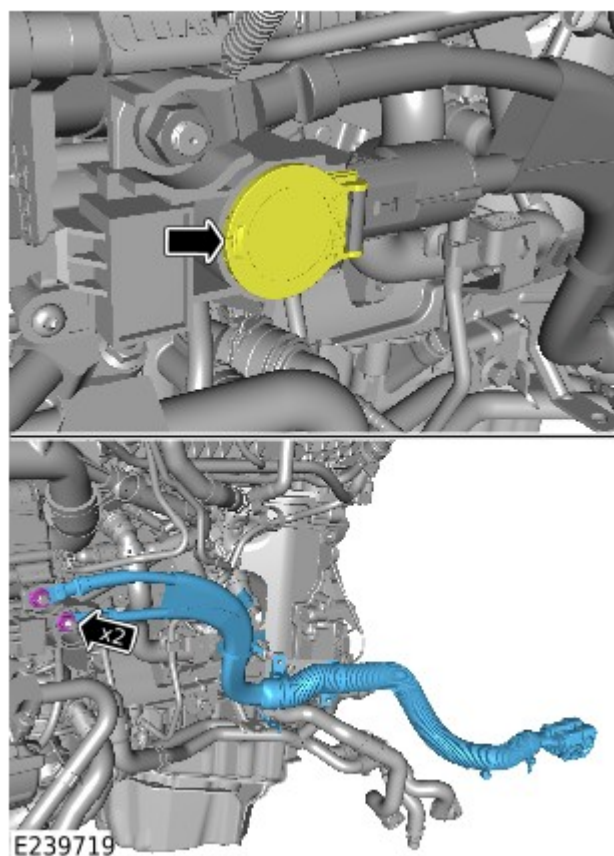
Torque: 10Nm

9.



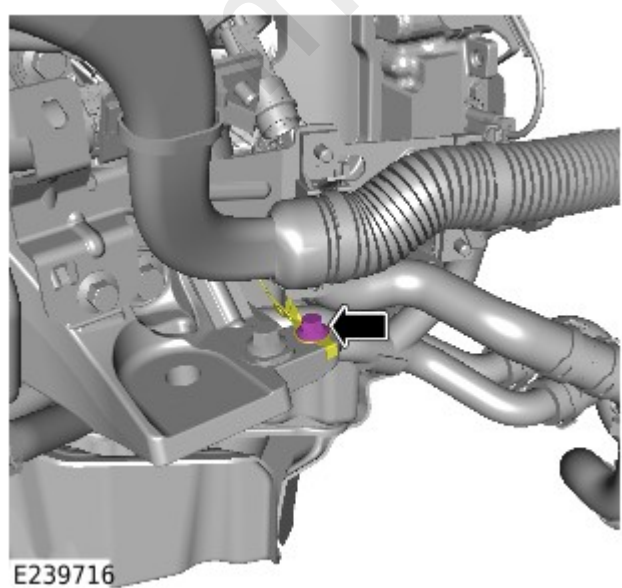
- Install the bracket.
 - Install and tighten the 2 bolts.
- Torque: 10Nm*
- Install the 3 clips.

10.



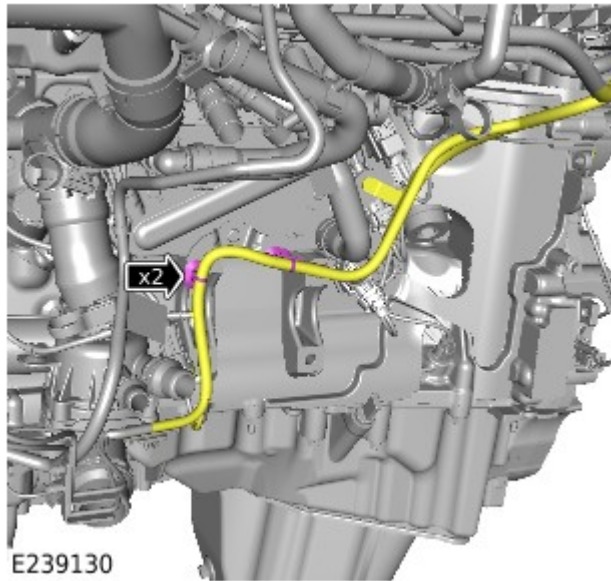
- Install the wiring harness.
- Install and tighten the 2 nuts.
Torque: 12Nm
- Install the cover.

11.



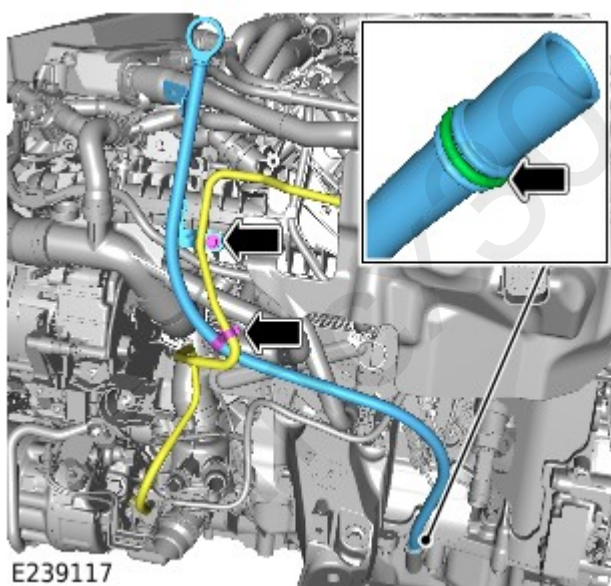
Install and tighten the bolt.
Torque: 10Nm

12.



Install the 2 clips.

13.

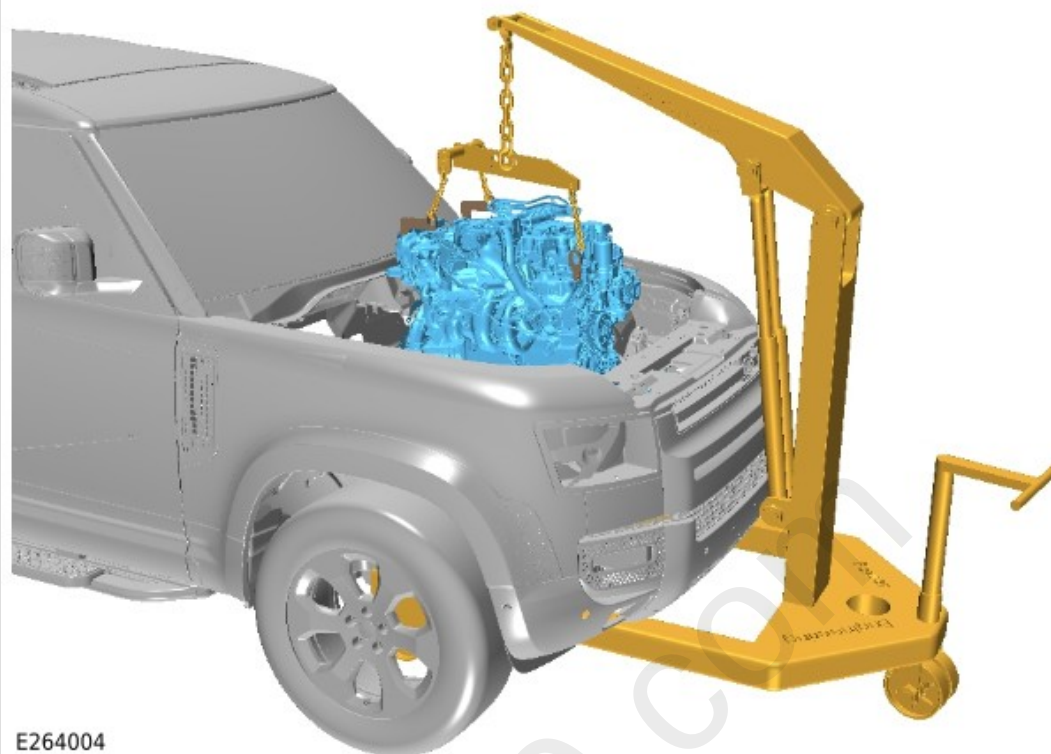


- Install a new O-ring seal.
Renew Part: [Oil level gauge O-ring seal](#) Quantity: 1.
- Lubricate the O-ring seal with clean engine oil.
- Install the oil level gauge.
- Install and tighten the bolt.
Torque: 7Nm
- Install the clip.

14.

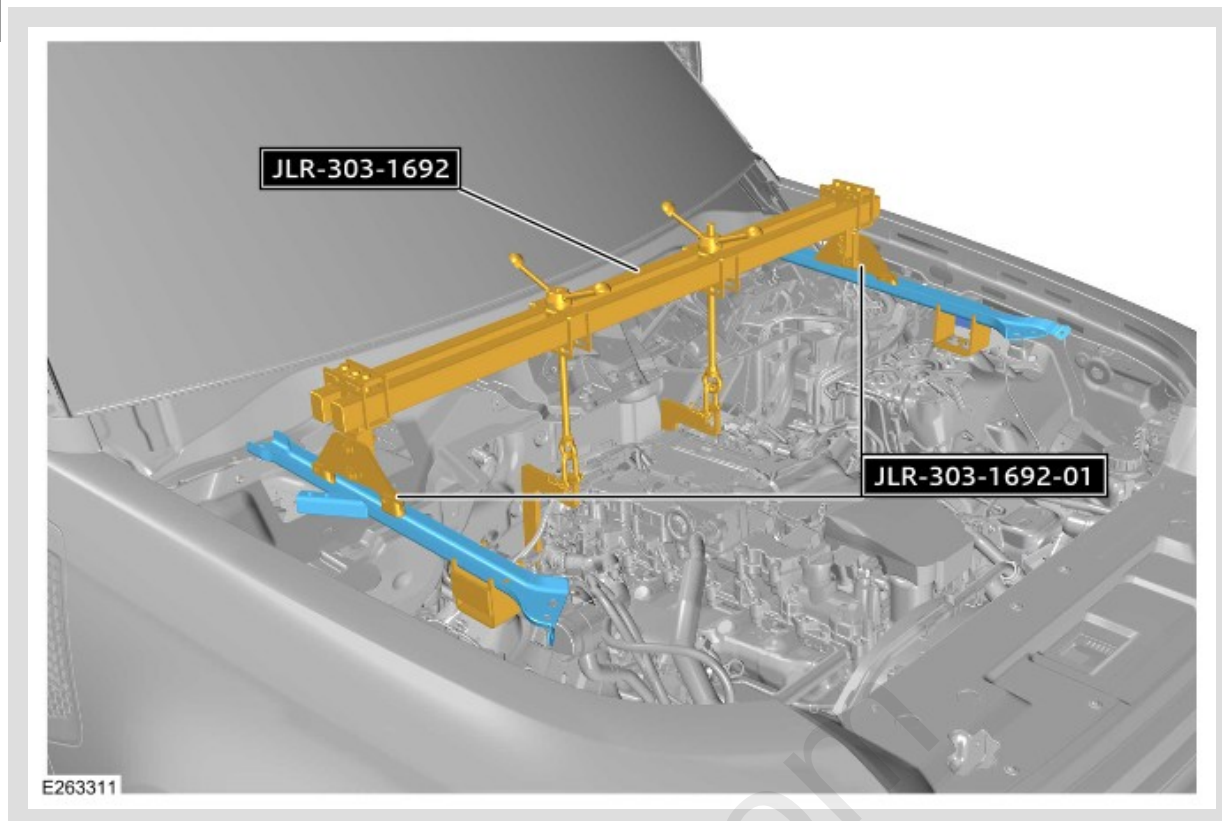
⚠ WARNING:

This step requires the aid of another technician.



Carefully install the engine assembly.

15.



Install the special tool to the position illustrated.

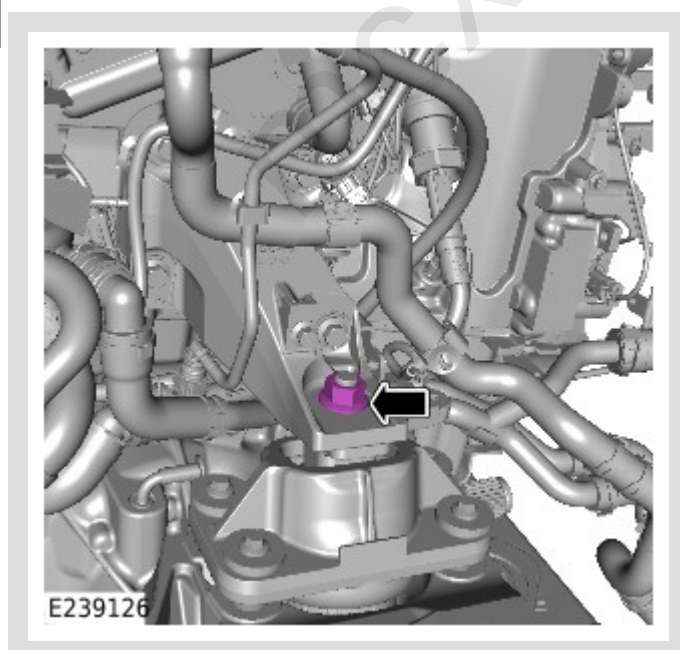
Special Tool(s): [JLR-303-1692](#)

16.

Remove the hydraulic jib crane.

General Equipment: [Hydraulic jib crane](#)

17.

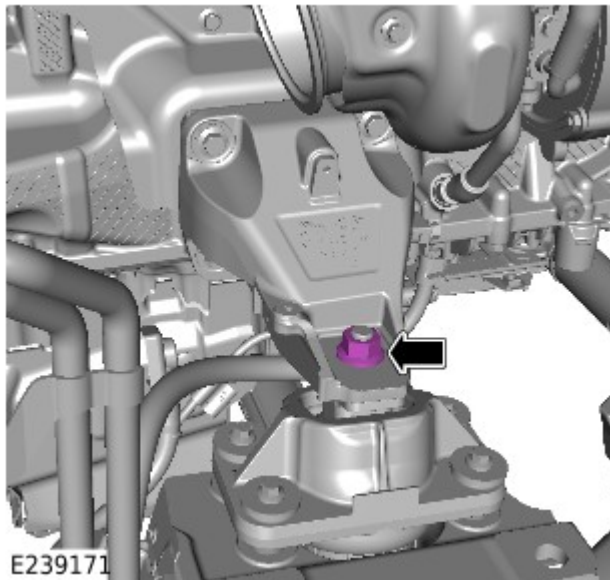


Install and tighten the nut.

Renew Part: [Engine mount to engine mount bracket nut](#) Quantity: 1.

Torque: 110Nm

18.

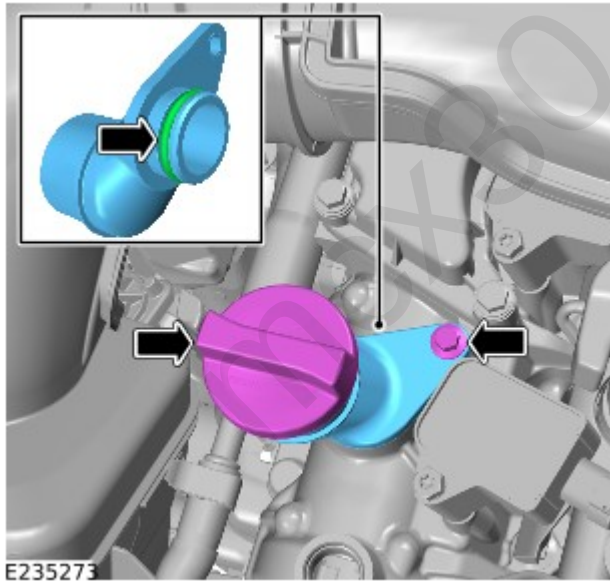


Install and tighten the nut.

Renew Part: [Engine mount to engine mount bracket nut](#) Quantity: 1.

Torque: 110Nm

19.



- Install a new O-ring seal.

Renew Part: [Oil fill pipe O-ring seal](#) Quantity: 1.

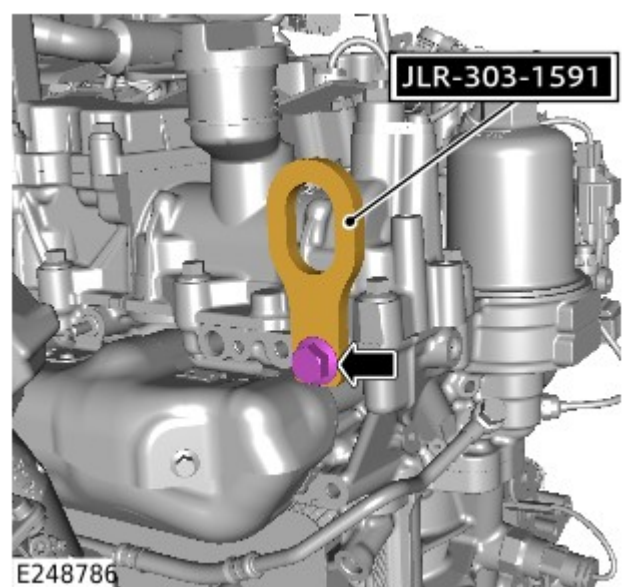
- Lubricate the O-ring seal with clean engine oil.

- Install the oil filler neck.

- Install and tighten the bolt.

Torque: 9Nm

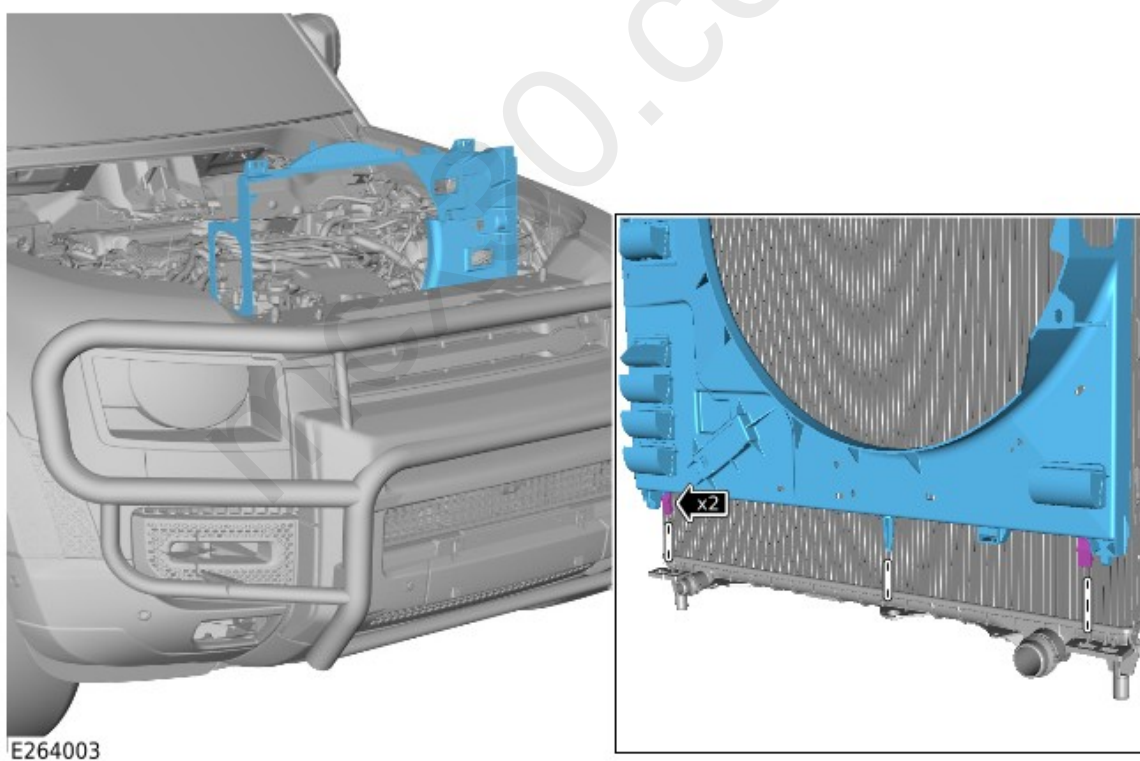
20.



Remove the special tool.

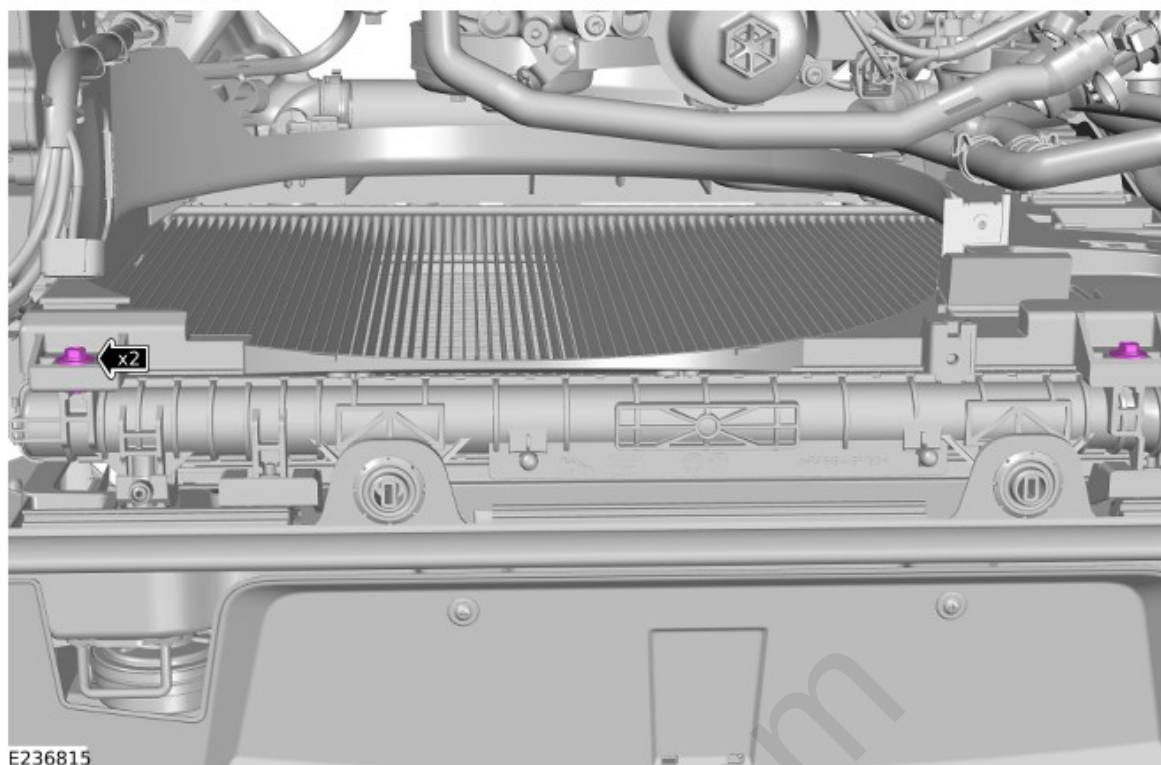
Special Tool(s): [JLR-303-1591](#)

21.



Install the cooling fan shroud.

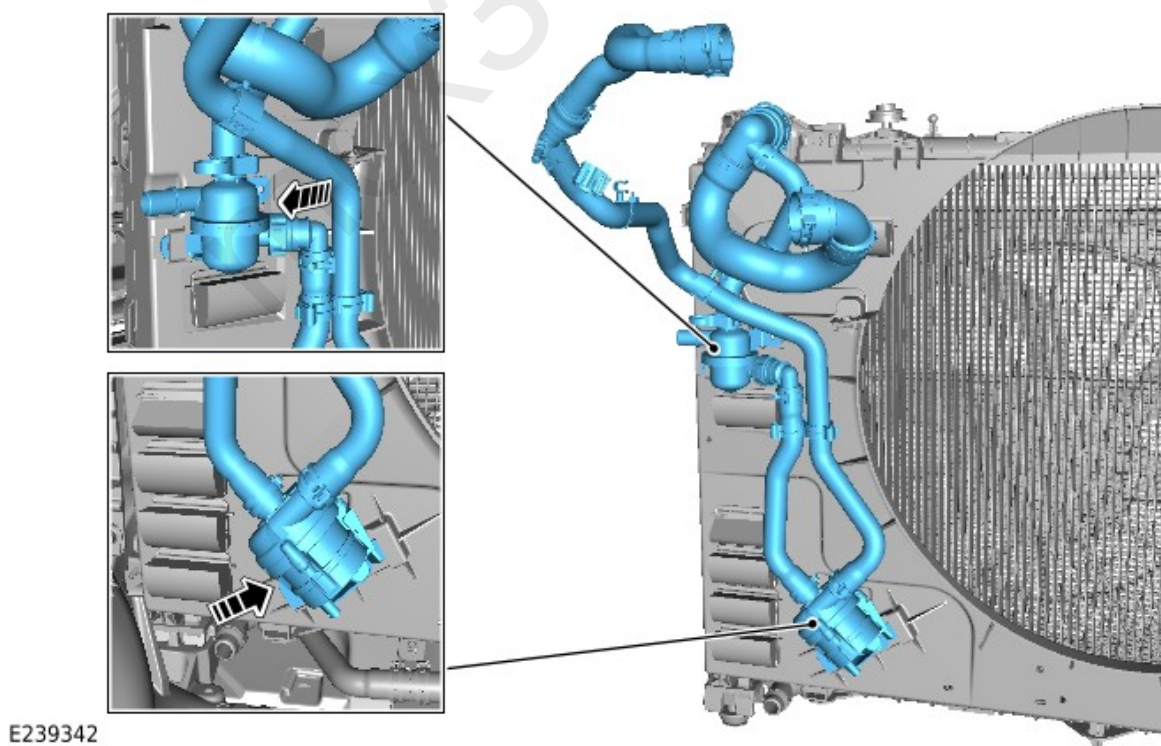
22.



Install and tighten the 2 bolts.

Torque: 7Nm

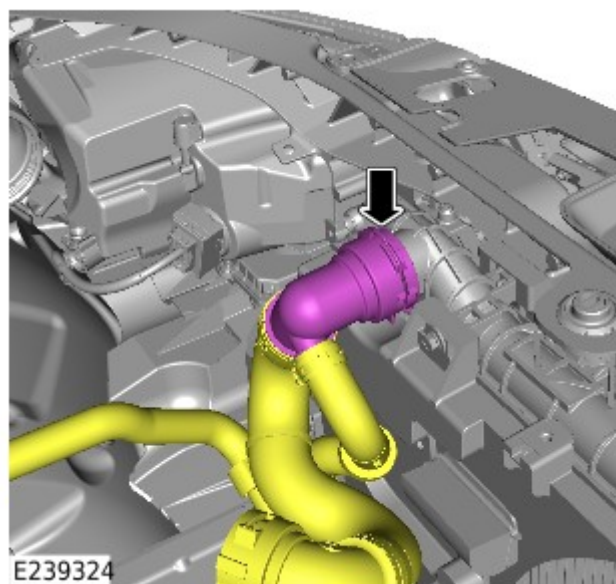
23.



- Install the coolant hose assembly.
- Install the coolant pump.

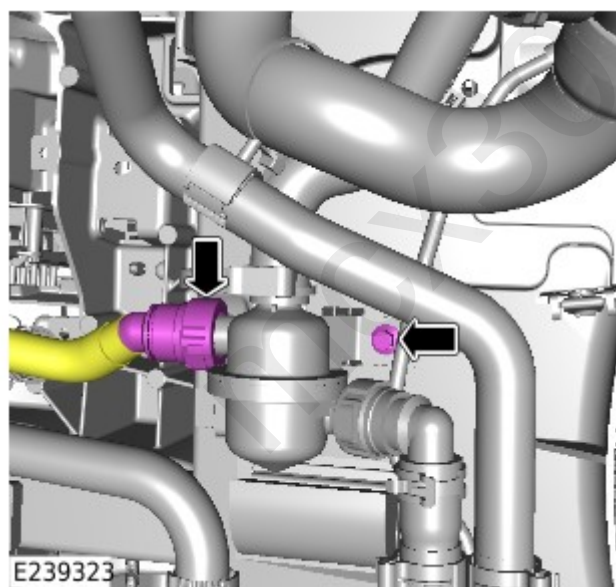
- Install the coolant reservoir.

24.



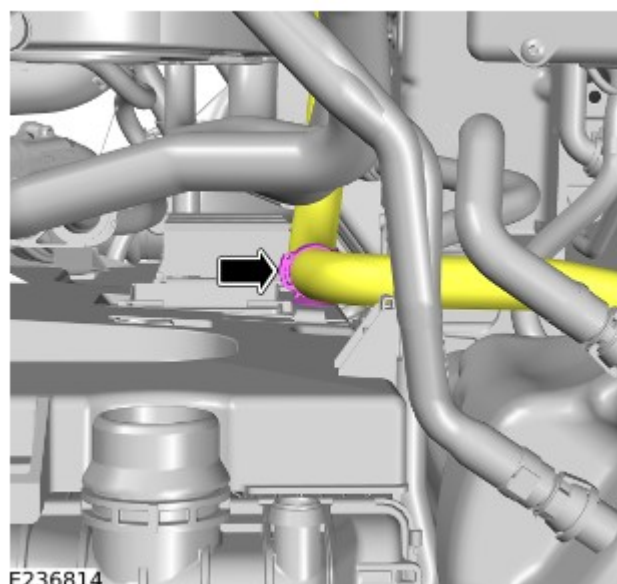
Connect the coolant hose.

25.



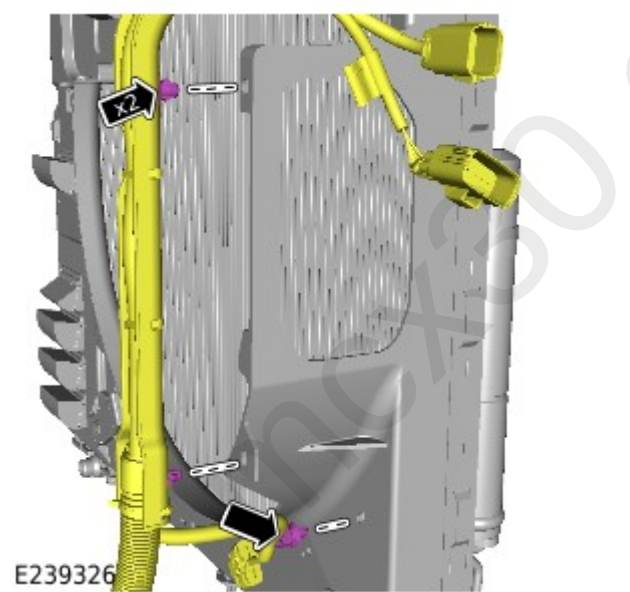
- Install and tighten the bolt.
Torque: 10Nm
- Connect the coolant hose.

26.



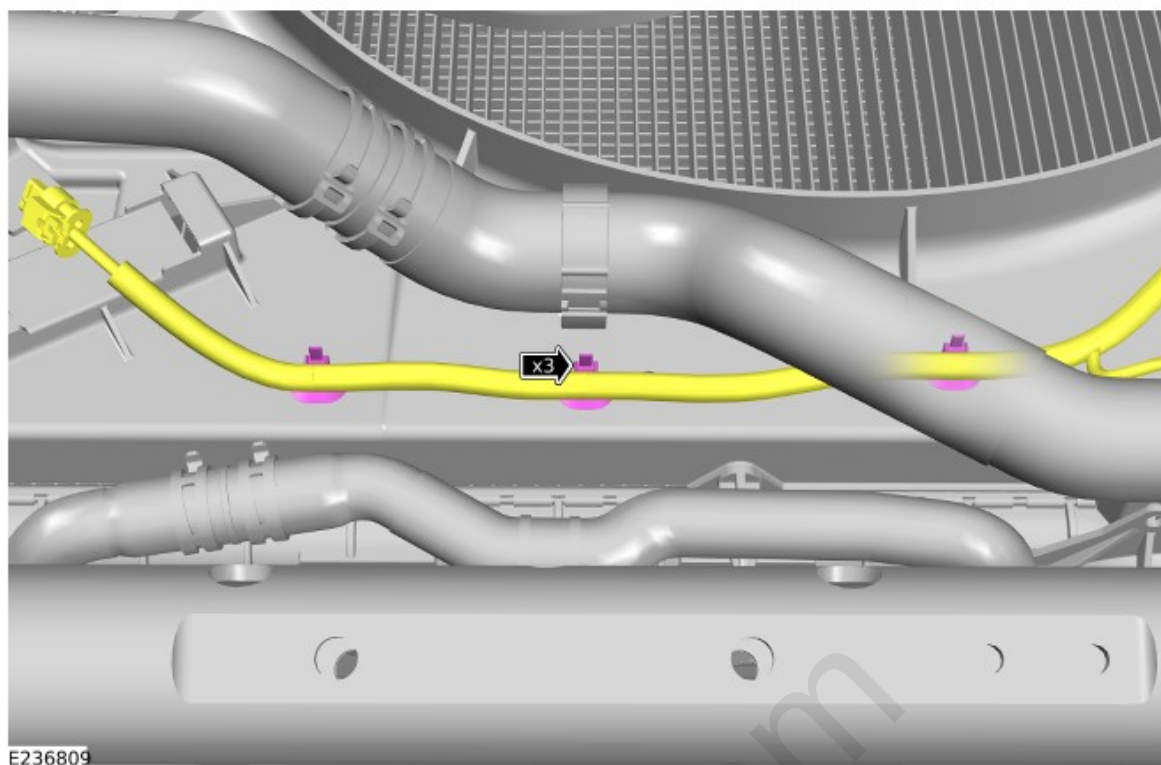
Install the clip.

27.



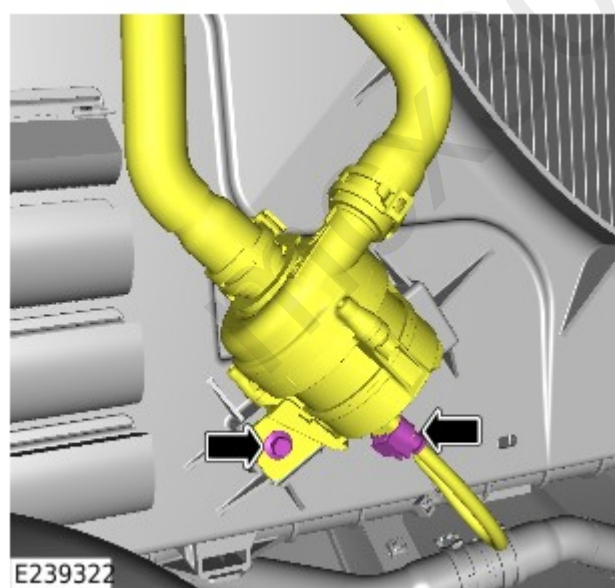
- Reposition the wiring harness.
- Install the 3 clips.

28.



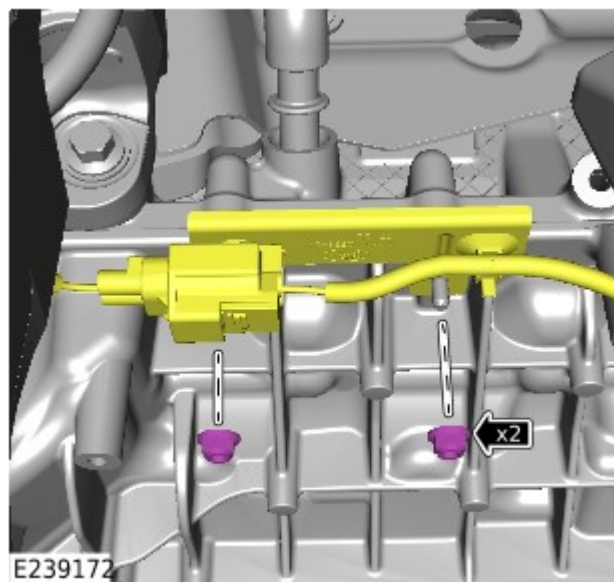
Install the 3 clips.

29.



- Install and tighten the bolt.
Torque: 10Nm
- Connect the electrical connector.

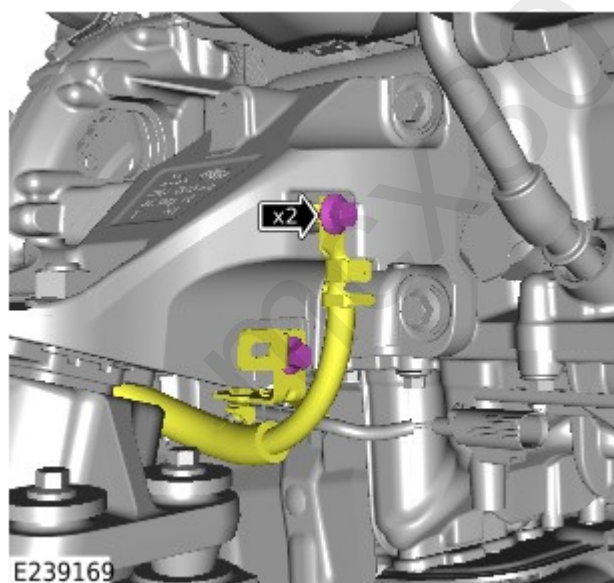
30.



- Reposition the wiring harness.
- Install and tighten the 2 nuts.

Torque: 9Nm

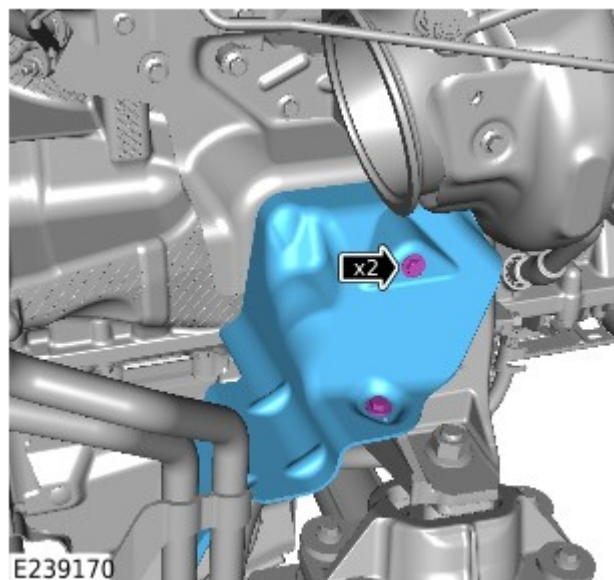
31.



- Reposition the wiring harness.
- Install and tighten the 2 bolts.

Torque: 12Nm

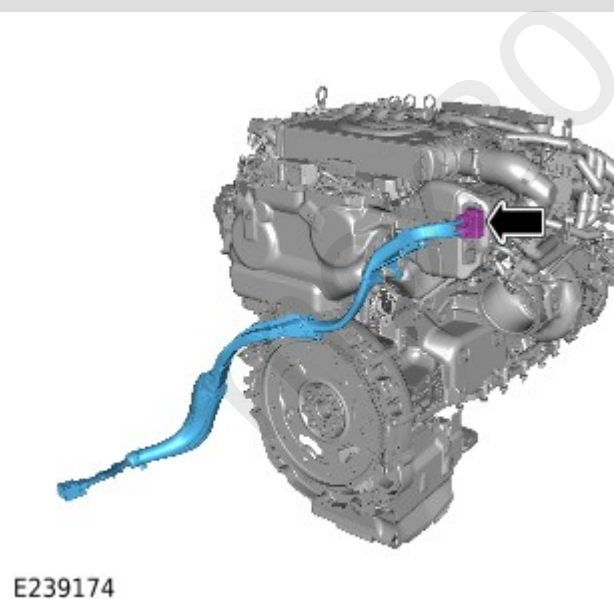
32.



- Install the heatshield.
- Install and tighten the 2 bolts.

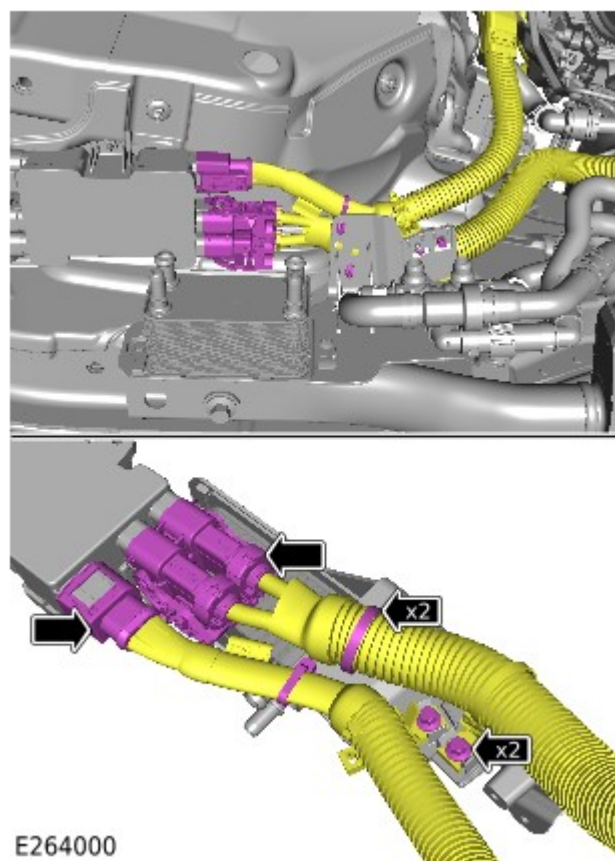
Torque: 9Nm

33.



- Install the wiring harness.
- Connect the electrical connector.

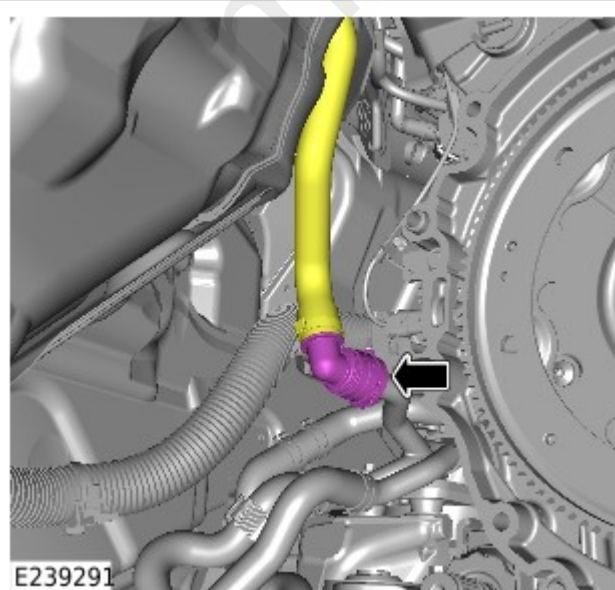
34.



- Connect the 2 electrical connectors.
- Install the 2 clips.
- Install and tighten the 2 bolts.

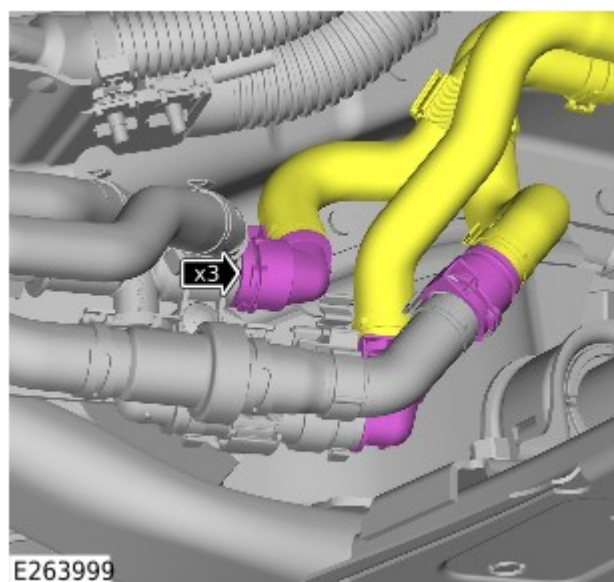
Torque: 9Nm

35.



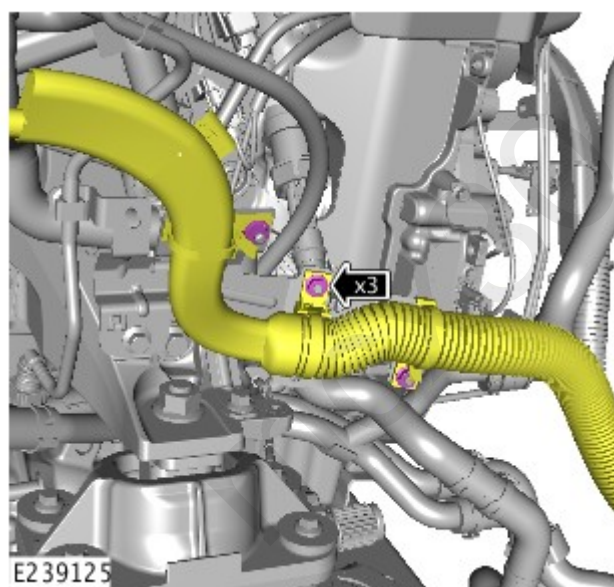
Connect the coolant hose.

36.



Connect the 3 coolant hoses.

37.

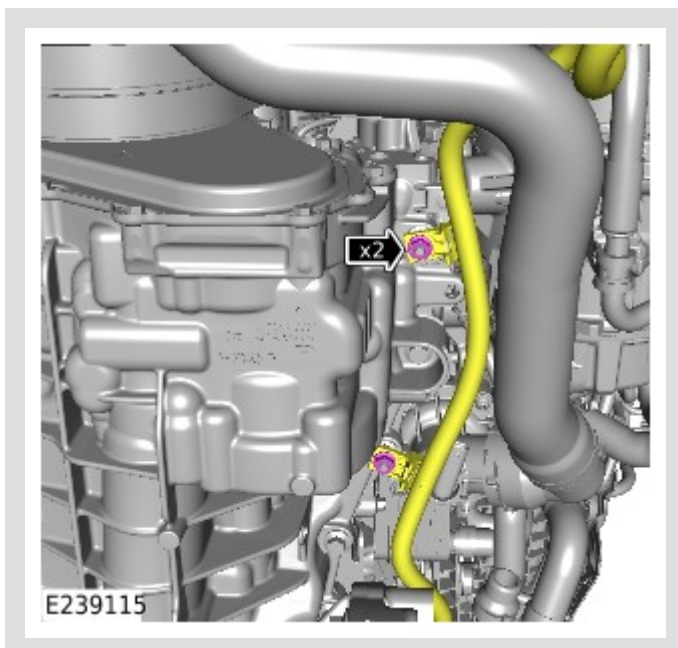


- Reposition the wiring harness.
- Install and tighten the 3 nuts.

Torque: 9Nm

 NOTE:

If equipped.



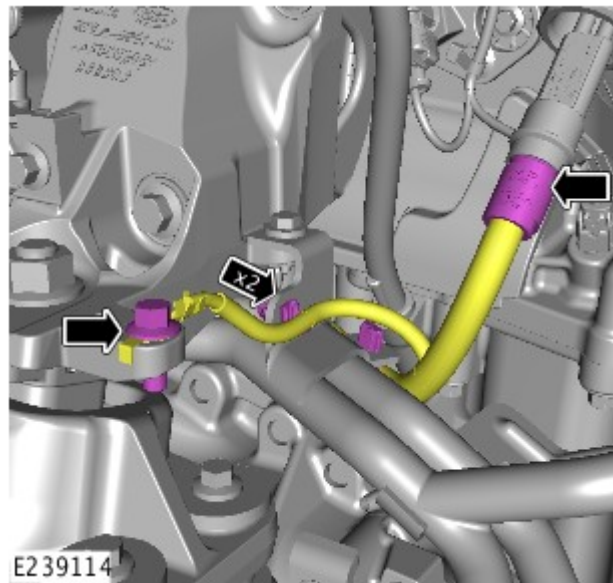
- Reposition the wiring harness.
- Install and tighten the 2 nuts.

Torque: 9Nm

39.

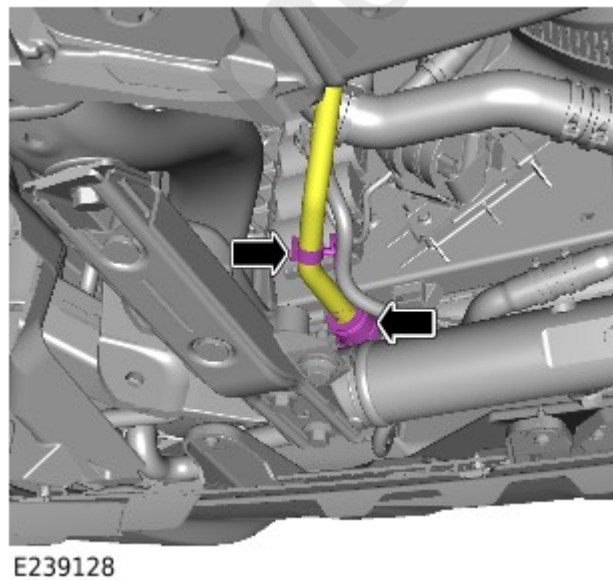
 NOTE:

If equipped.



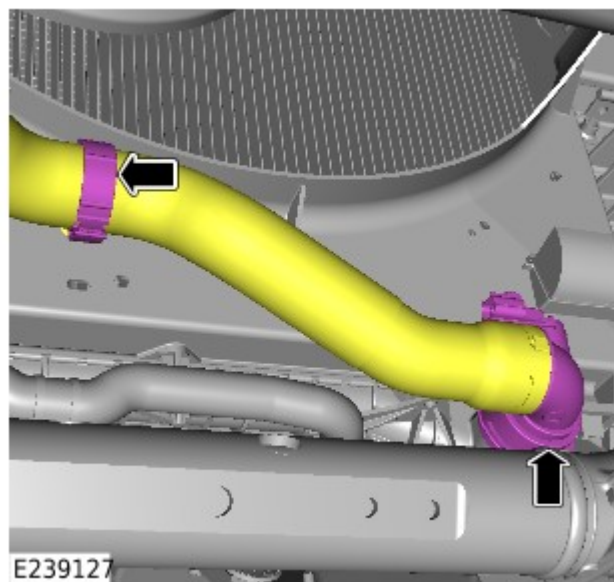
- Reposition the wiring harness.
- Connect the electrical connector.
- Install and tighten the bolt.
Torque: 9Nm
- Install the 2 clips.

40.



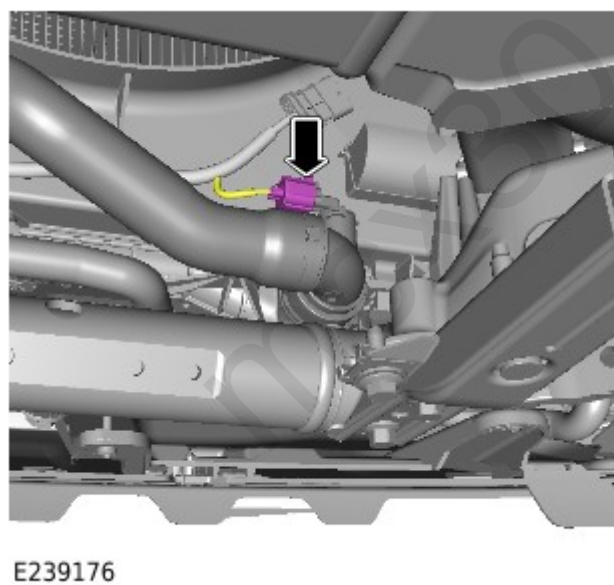
- Connect the coolant pipe.
- Install the clip.

41.



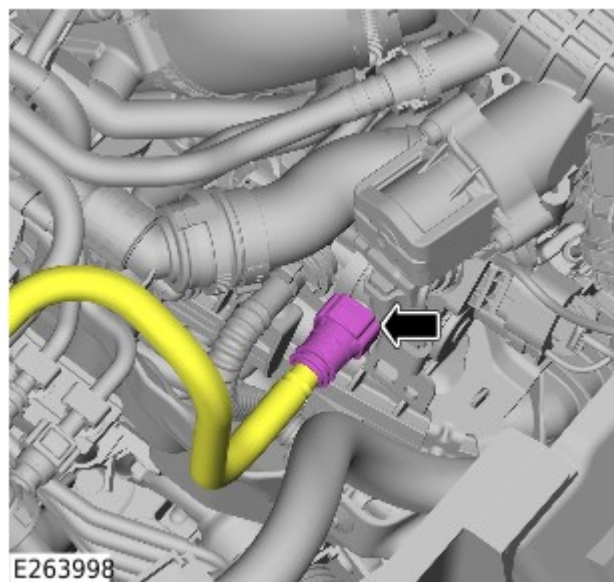
- Install the clip.
- Connect the coolant hose.

42.



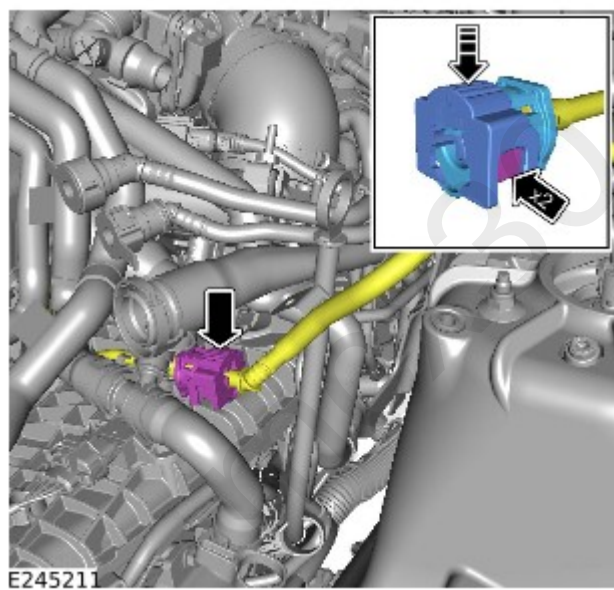
Connect the electrical connector.

43.



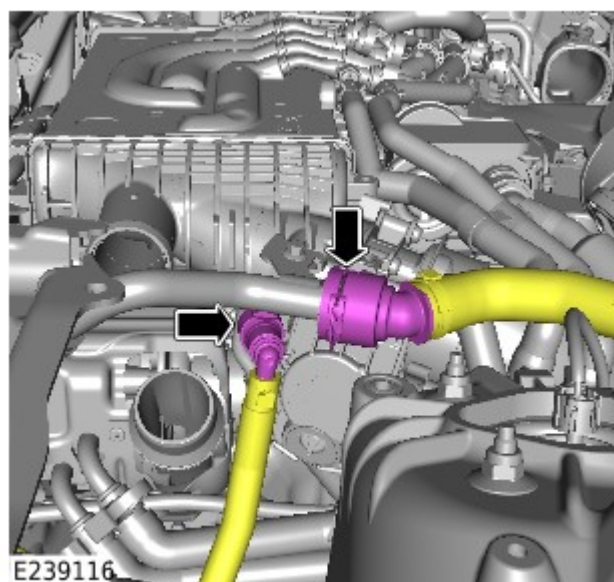
Connect the breather pipe.

44.



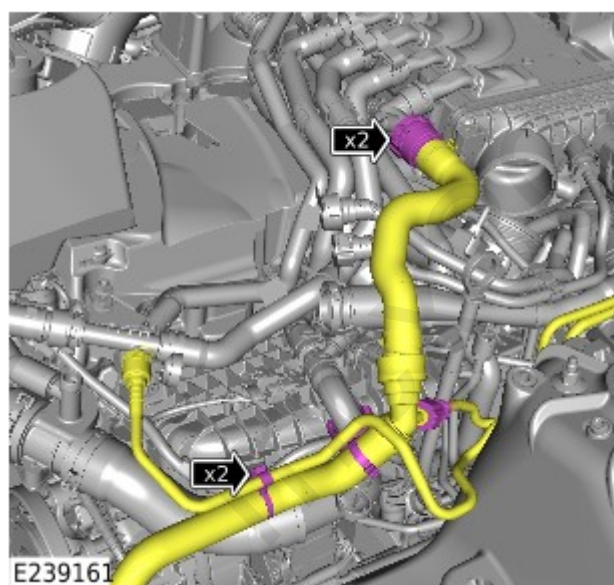
Connect the fuel line.

45.



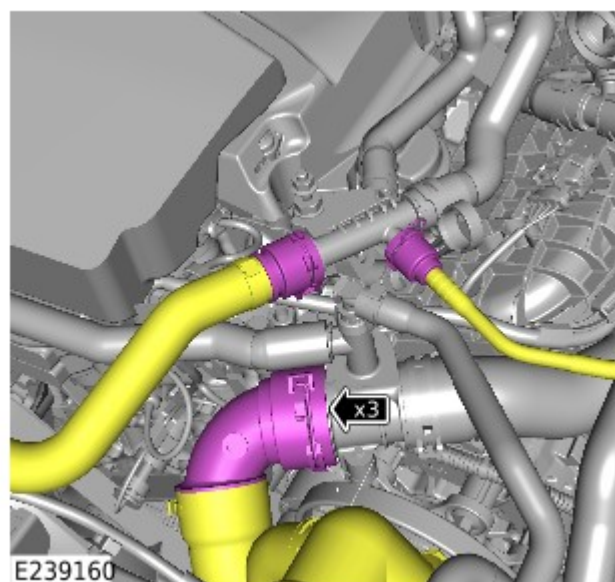
Connect the 2 coolant hoses.

46.



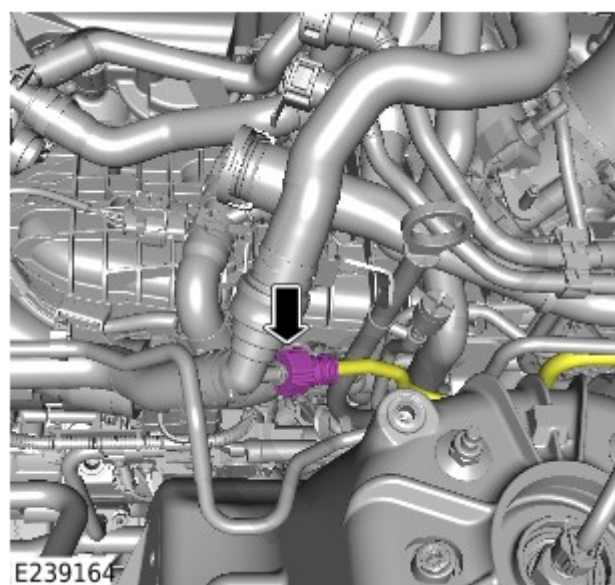
- Connect the 2 coolant pipes.
- Install the 2 clips.

47.



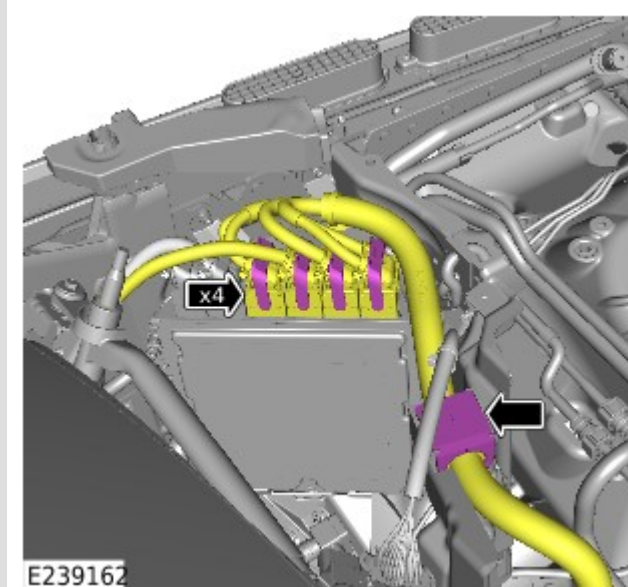
Connect the 3 coolant pipes.

48.



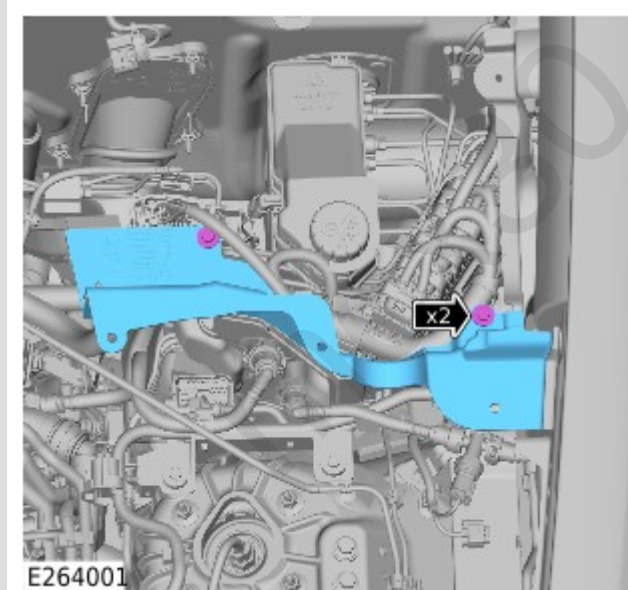
Connect the coolant pipe.

49.



- Reposition the wiring harness.
- Connect the 4 electrical connectors.

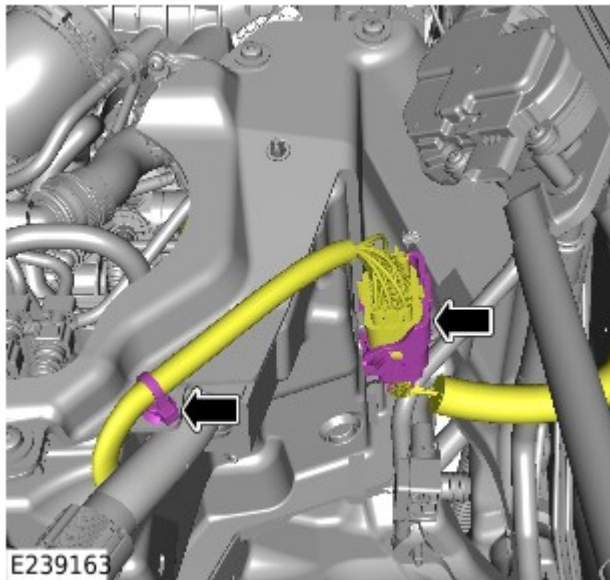
50.



- Install the closing panel.
- Install and tighten the 2 bolts.

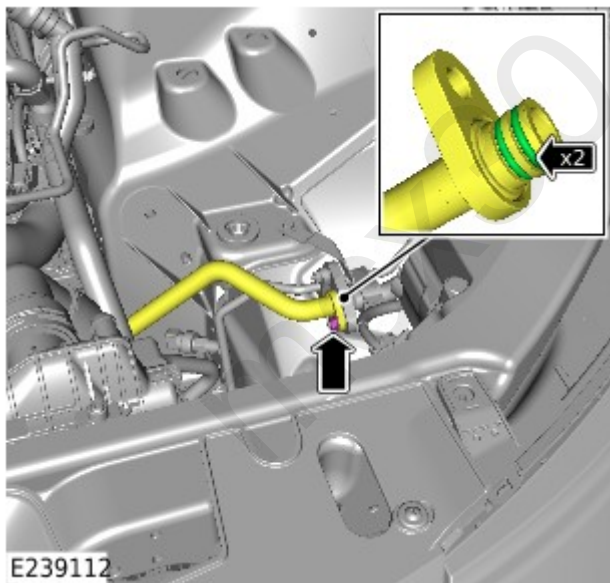
Torque: 7Nm

51.



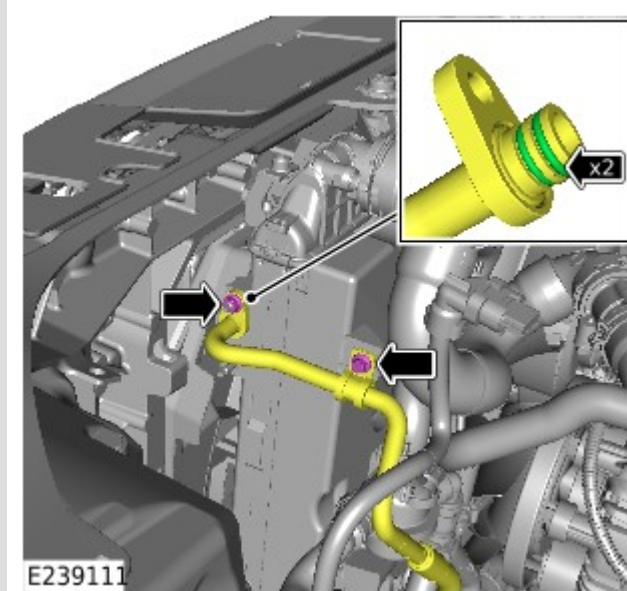
- Connect the electrical connector.
- Install the clip.

52.



- Install 2 new O-ring seals.
Renew Part: [Air conditioning pipe O-ring seal\(s\)](#) Quantity: 2.
- Install the Air Conditioning (A/C) pipe.
- Install and tighten the nut.
Torque: 8Nm

53.

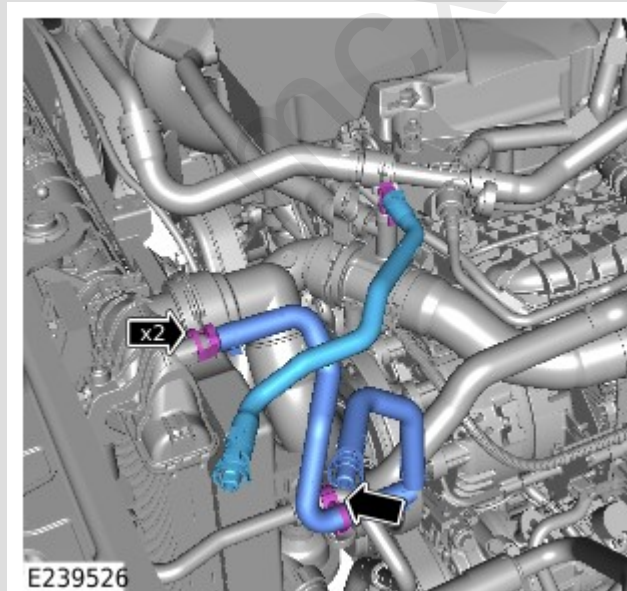


- Install 2 new O-ring seals.

Renew Part: *Air conditioning pipes to condenser O-ring seals* Quantity: 2.

- Install the A/C pipe.
- Install and tighten the nut.
Torque: **8Nm**
- Install and tighten the bolt.
Torque: **8Nm**

54.



- Install the 2 coolant hoses.
- Install the clip.
- Connect the 2 coolant hoses.

55. Charge the A/C system.

Refer to: [Air Conditioning System Recovery, Evacuation and Charging](#) (412-00 Climate Control System - General Information, General Procedures).

56. Install the transmission.

Refer to: [Transmission - INGENIUM I6 3.0L Petrol](#) (311-01 Automatic Transmission, Installation).

57. Vacuum fill the cooling system.

Refer to: [Cooling System Partial Draining and Vacuum Filling](#) (303-03C Engine Cooling - INGENIUM I6 3.0 L Petrol, General Procedures).

58. Install the viscous cooling fan.

Refer to: [Viscous Cooling Fan](#) (303-03C Engine Cooling - INGENIUM I6 3.0L Petrol, Removal and Installation).

59. Install the coolant expansion tank.

Refer to: [Coolant Expansion Tank](#) (303-03C Engine Cooling - INGENIUM I6 3.0L Petrol, Removal and Installation).

60. Install the hood.

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

61. Power up the Mild Hybrid Electric Vehicle (MHEV) system.

Refer to: MHEV Power Down/Up (414-01 Battery, Mounting and Cables - Vehicles With: MHEV, General Procedures).