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2020.0 DEFENDER (LE), 303-04F

FUEL CHARGING AND CONTROLS - TURBOCHARGER - INGENIUM I6 3.0L PETROL

TURBOCHARGER (G2300869)

mcx30.com

mcx30.com

SPECIAL TOOL(S)

mcx30.com



E115267

303-1449-01

Supercharger Installation Guide Pins - Threaded



E115267

303-1449-02

Supercharger Installation Guide Pins - Unthreaded



E237508

JLR-303-1683

Exhaust Manifold Bolt Socket

PART(S)

STEP	PART NAME	QUANTITY
Installation Step 1	Exhaust manifold gasket	1
Installation Step 2	Exhaust manifold bolts	2
Installation Step 4	Exhaust manifold bolts	11
Installation Step 6	Oil return pipe O-ring seal	2
Installation Step 11	Turbocharger coolant pipe O-ring seal	2

REMOVAL



NOTE:

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

1. Raise and support the vehicle on a suitable 2 post lift.
Refer to: [Jacking and Lifting](#) (100-02 Jacking and Lifting, Description and Operation).
2. Remove the charge air cooler inlet pipe.

Refer to: [Charge Air Cooler Inlet Pipe](#) (303-12C Intake Air Distribution and Filtering - INGENIUM I6 3.0L Petrol, Removal and Installation).

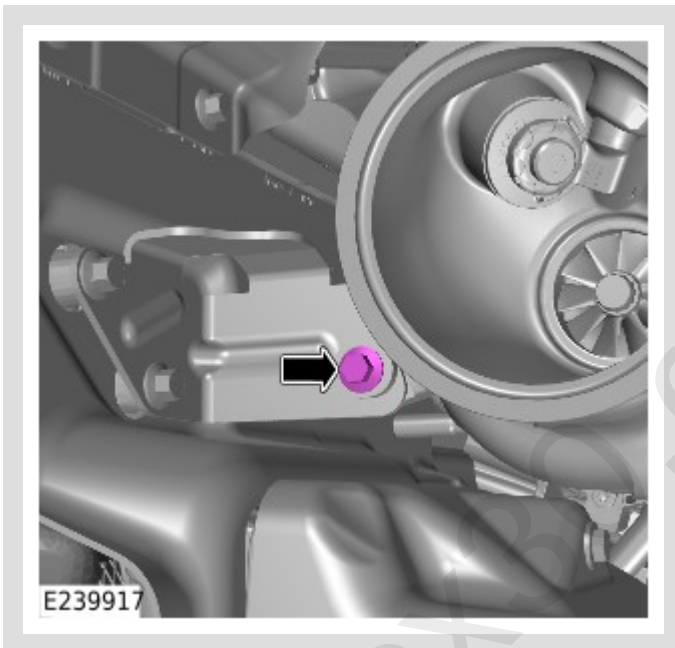
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3. Remove the electric supercharger.

Refer to: [Electric Supercharger](#) (303-12C Intake Air Distribution and Filtering - INGENIUM I6 3.0L Petrol, Removal and Installation).

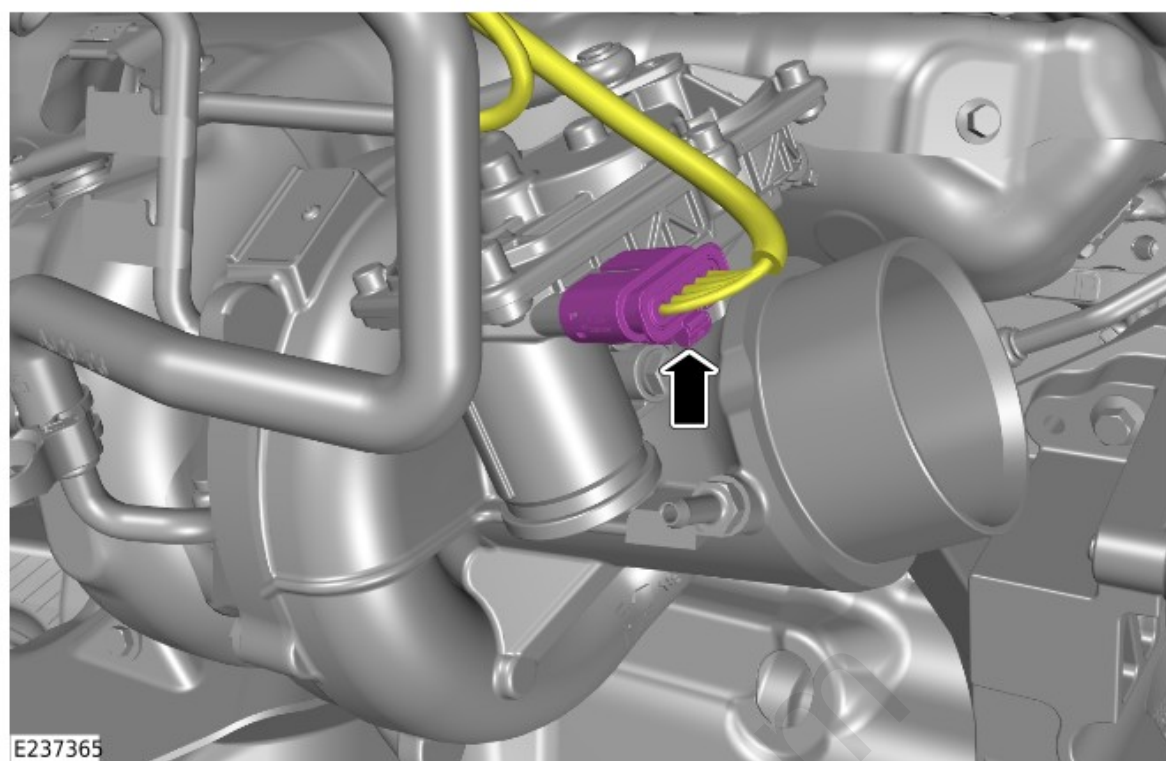
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4. Remove the catalytic converter.

Refer to: [Catalytic Converter](#) (309-00C Exhaust System - INGENIUM I6 3.0L Petrol, Removal and Installation).

-
- 5.



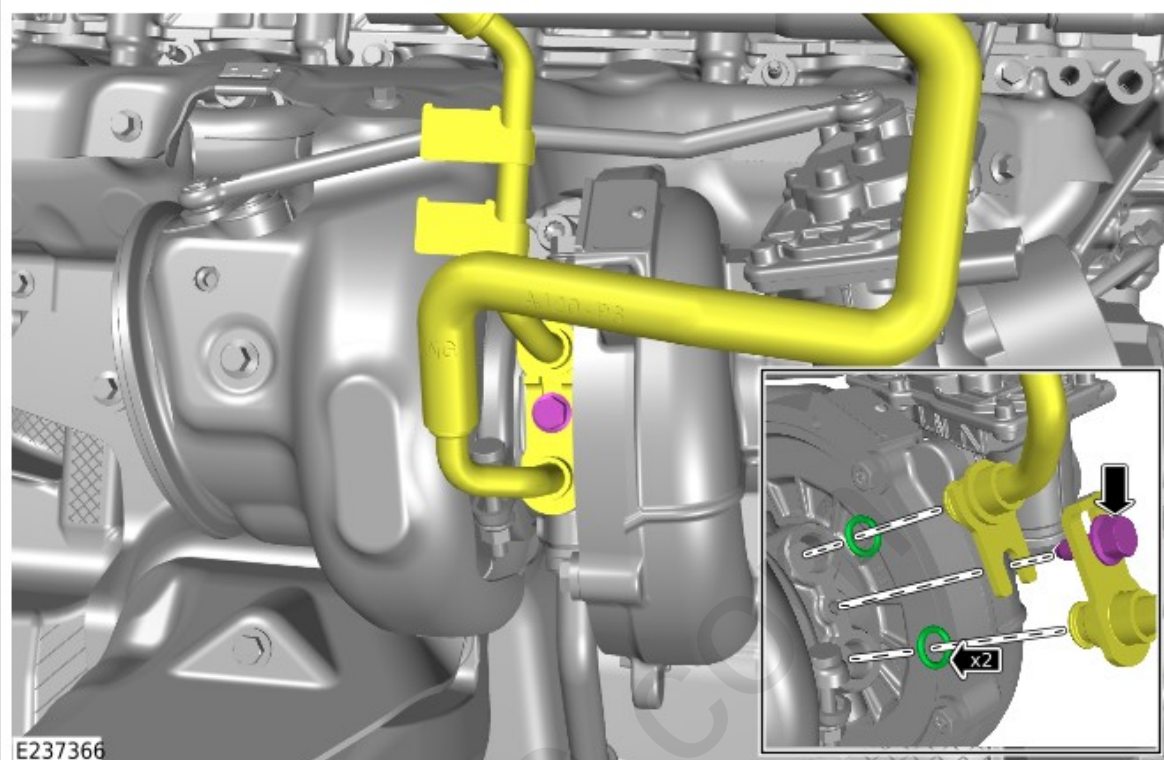
Remove the turbocharger mounting bolt.



Disconnect the turbocharger actuator electrical connector.

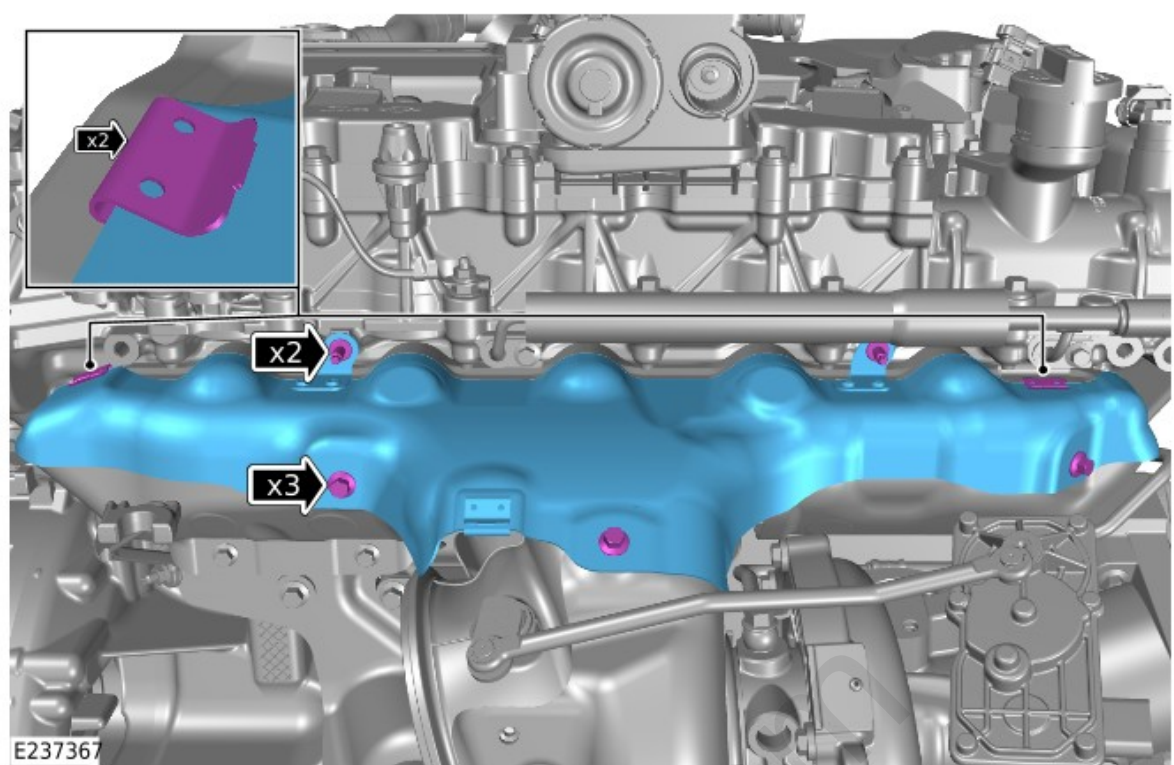
⚠ WARNING:

Be prepared to collect escaping coolant.



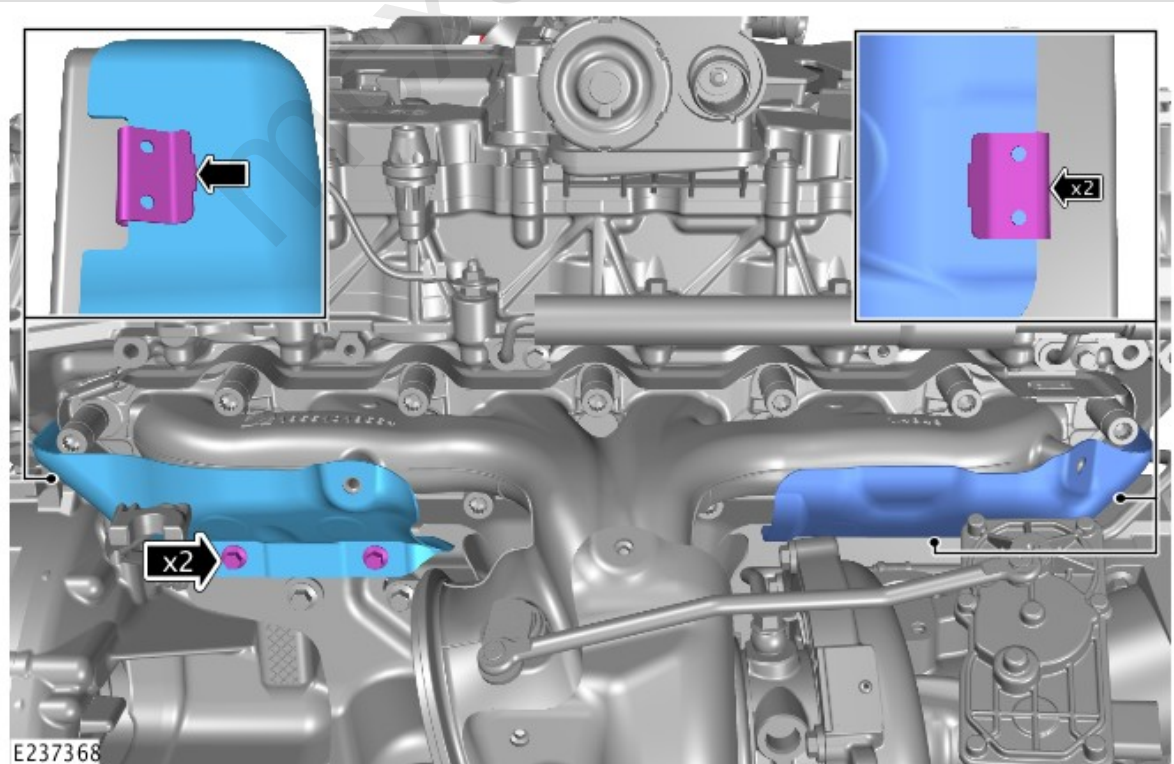
- Remove the bolt.
- Disconnect the 2 coolant pipes from the turbocharger.
- Remove and discard the 2 O-ring seals.

8.



- Remove the 5 bolts from the turbocharger upper heatshield.
- Release the turbocharger upper heatshield from the 2 clips.
- Remove the turbocharger upper heatshield.

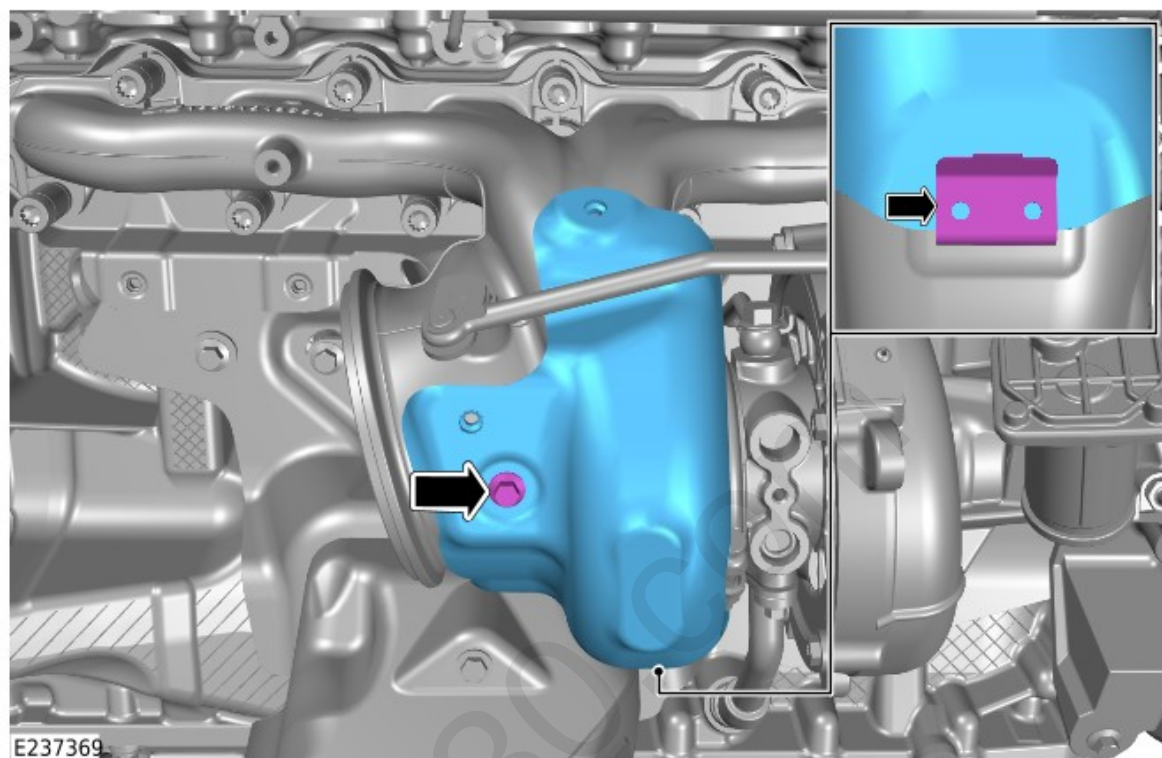
9.



- Remove the 2 bolts from the turbocharger rear heatshield.

- Release the turbocharger rear heatshield from the clip.
- Remove the turbocharger rear heatshield.
- Release the turbocharger front heatshield from the 2 clips.
- Remove the turbocharger front heatshield.

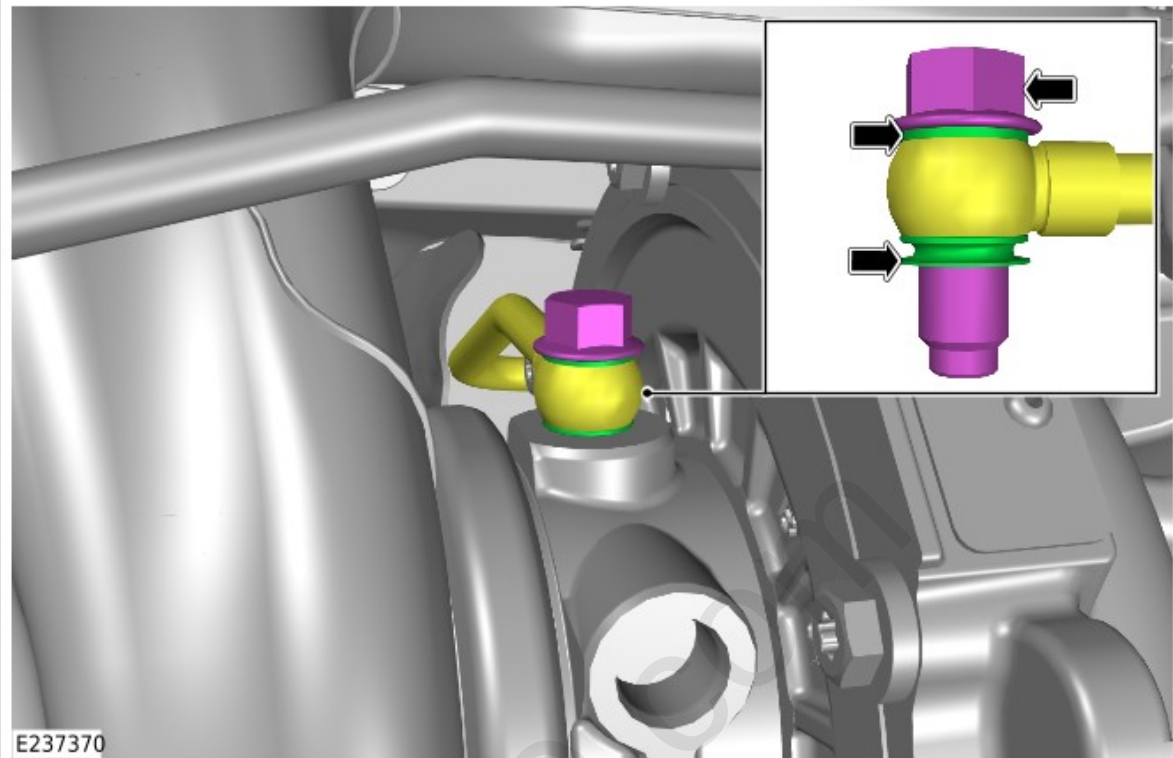
10.



- Remove the bolt from the turbocharger inner heatshield.
- Remove the turbocharger inner heatshield.

⚠ WARNING:

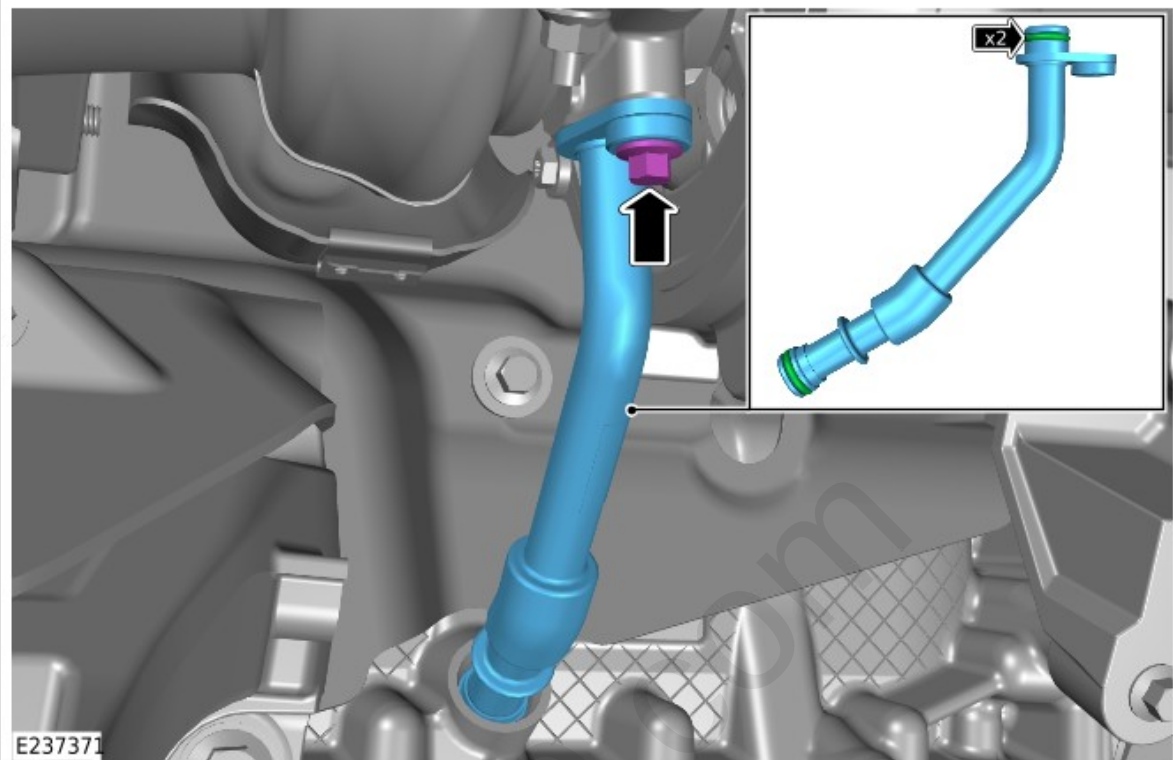
Be prepared to collect escaping oil.



- Remove and discard the bolt from the oil supply pipe.
- Remove and discard the 2 sealing washers.

⚠ WARNING:

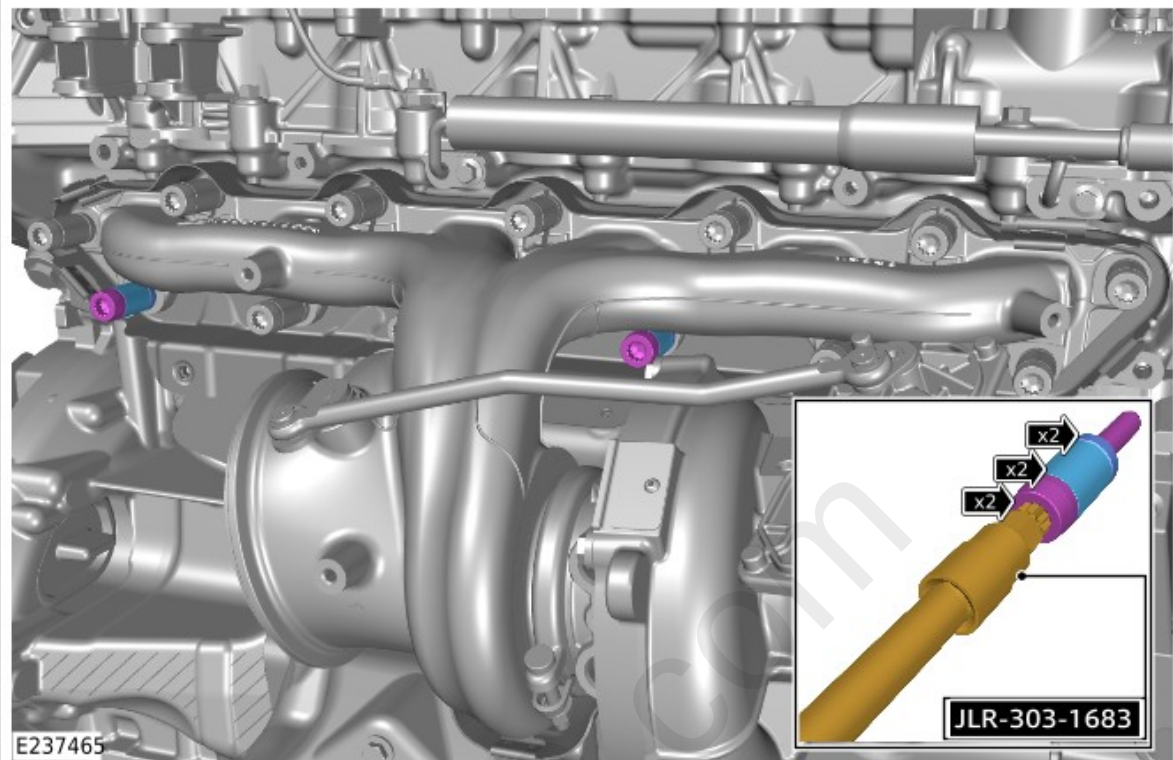
Be prepared to collect escaping oil.



- Remove the bolt.
- Remove the oil return pipe.
- Remove and discard the 2 O-ring seals.

 NOTE:

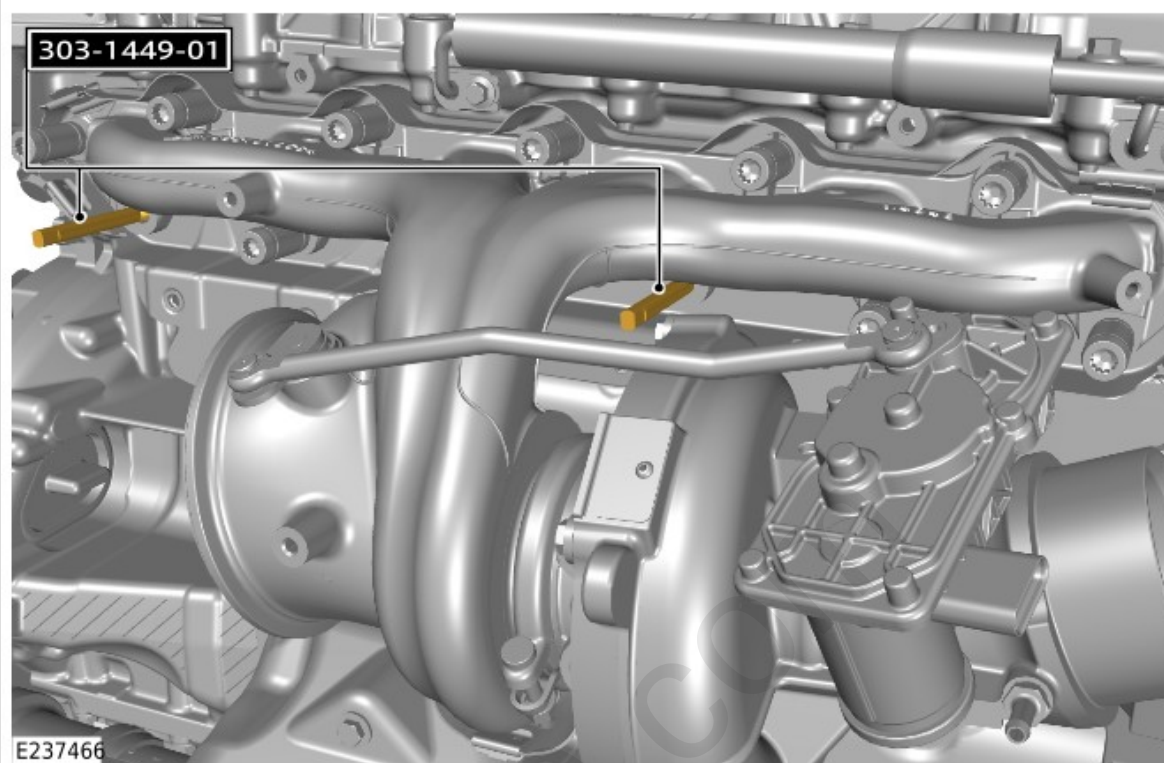
The spacers and washers will remain captive on the bolts.



- Use the special tool to remove the 2 bolts, spacers and washers.
Special Tool(s): [JLR-303-1683](#)
- Discard the 2 bolts, spacers and washers.

 NOTE:

If a new cylinder head is installed 303-1449-02 must be used.

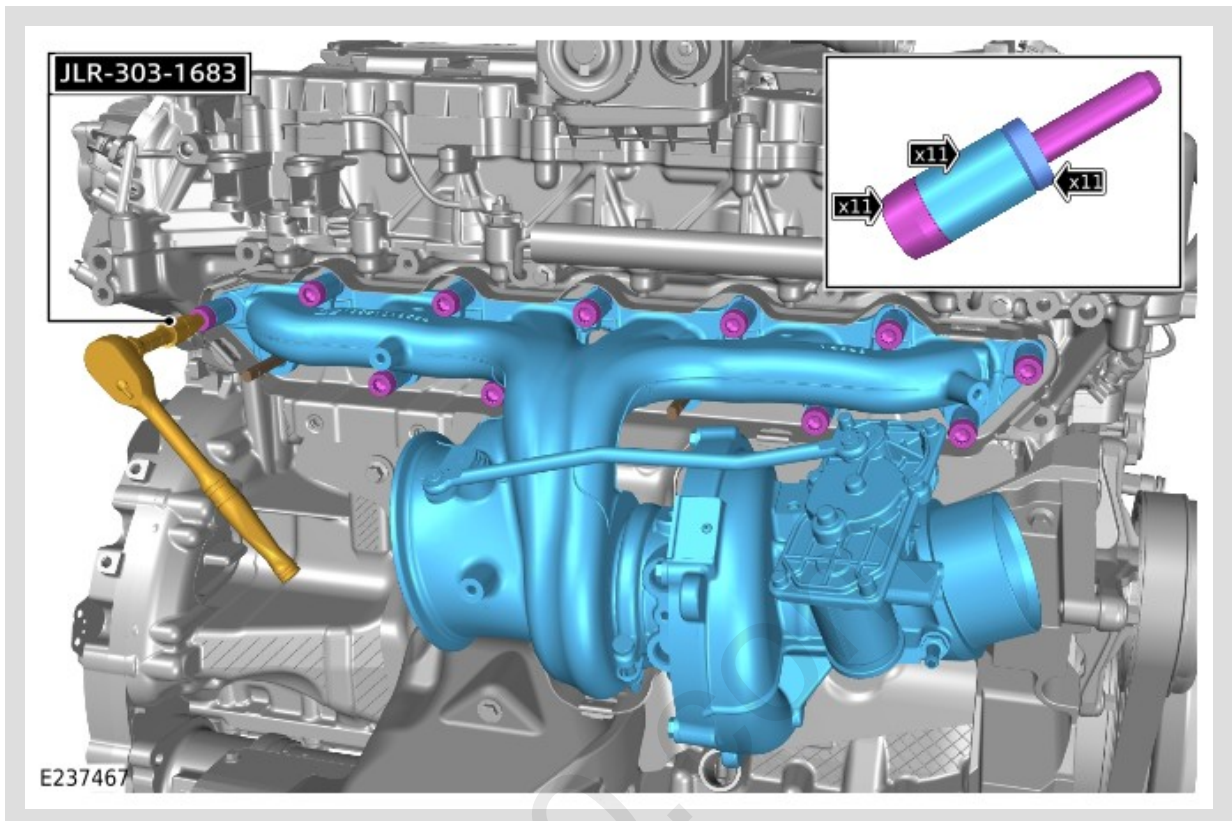


Install the special tools.

Special Tool(s): 303-1449-01, 303-1449-02

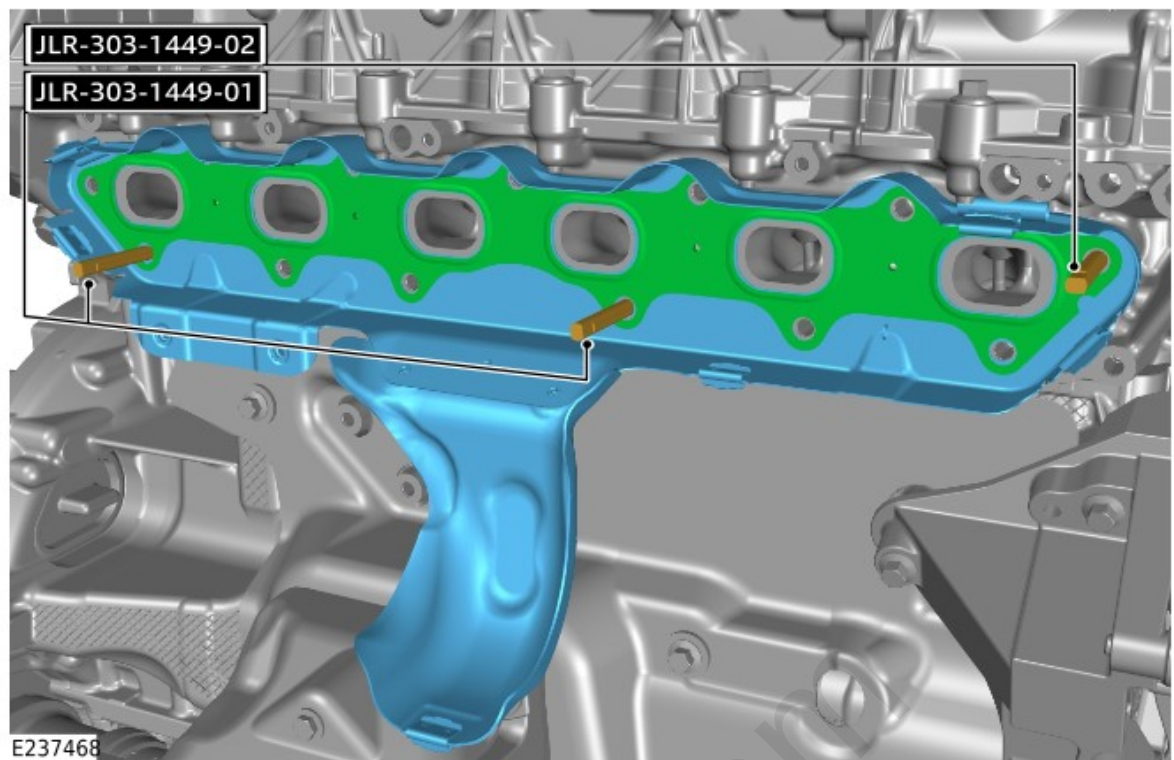
 NOTE:

The spacers and washers will remain captive on the bolts.



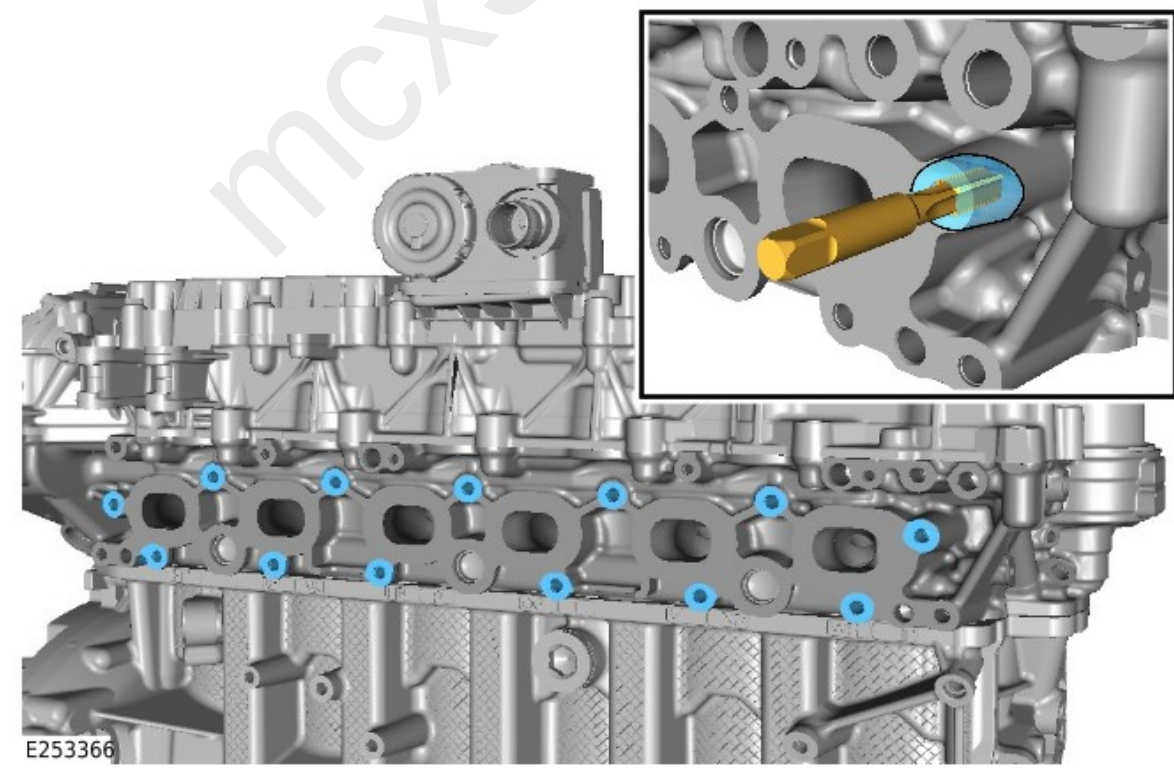
- Use the special tool to remove the 11 bolts, spacers and washers.
Special Tool(s): [JLR-303-1683](#)
- Discard the 11 bolts, spacers and washers.
- Remove the turbocharger.

16.



- Remove the special tools.
Special Tool(s): [303-1449-01](#), [303-1449-02](#)
- Remove and discard the exhaust manifold gasket.

17.



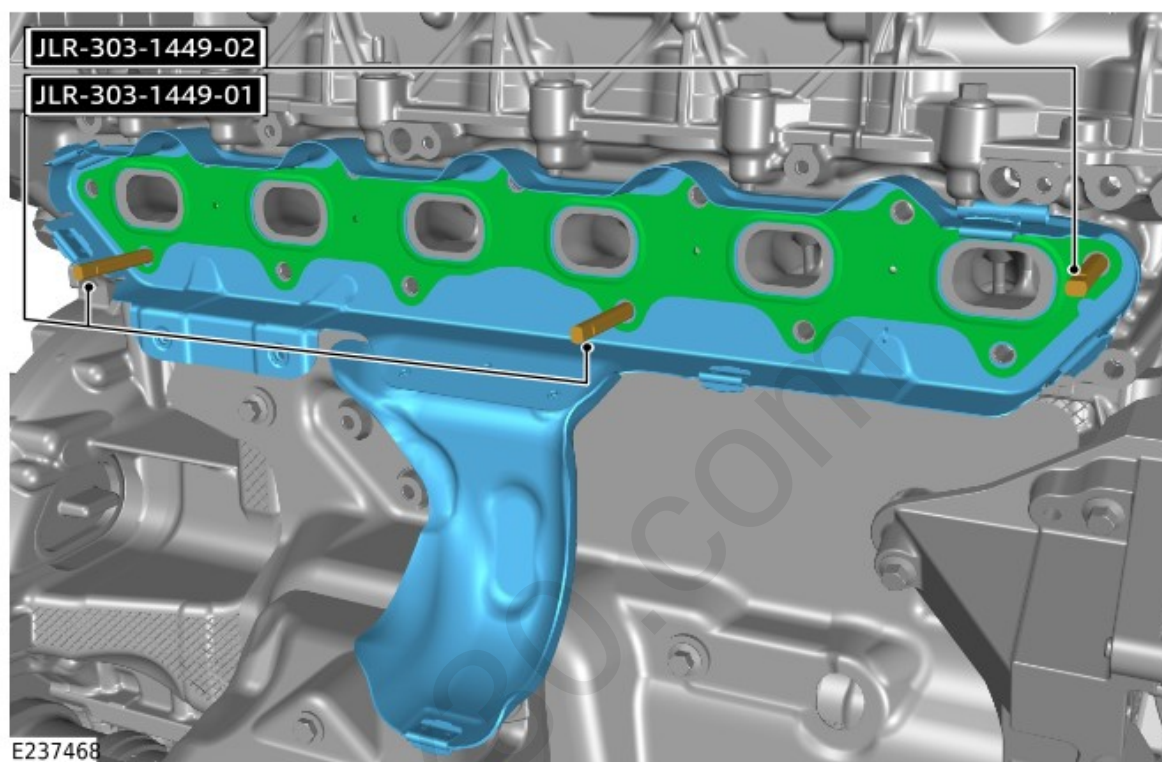
Use an M8 x 1.5 bottoming tap to clean the threads.

INSTALLATION

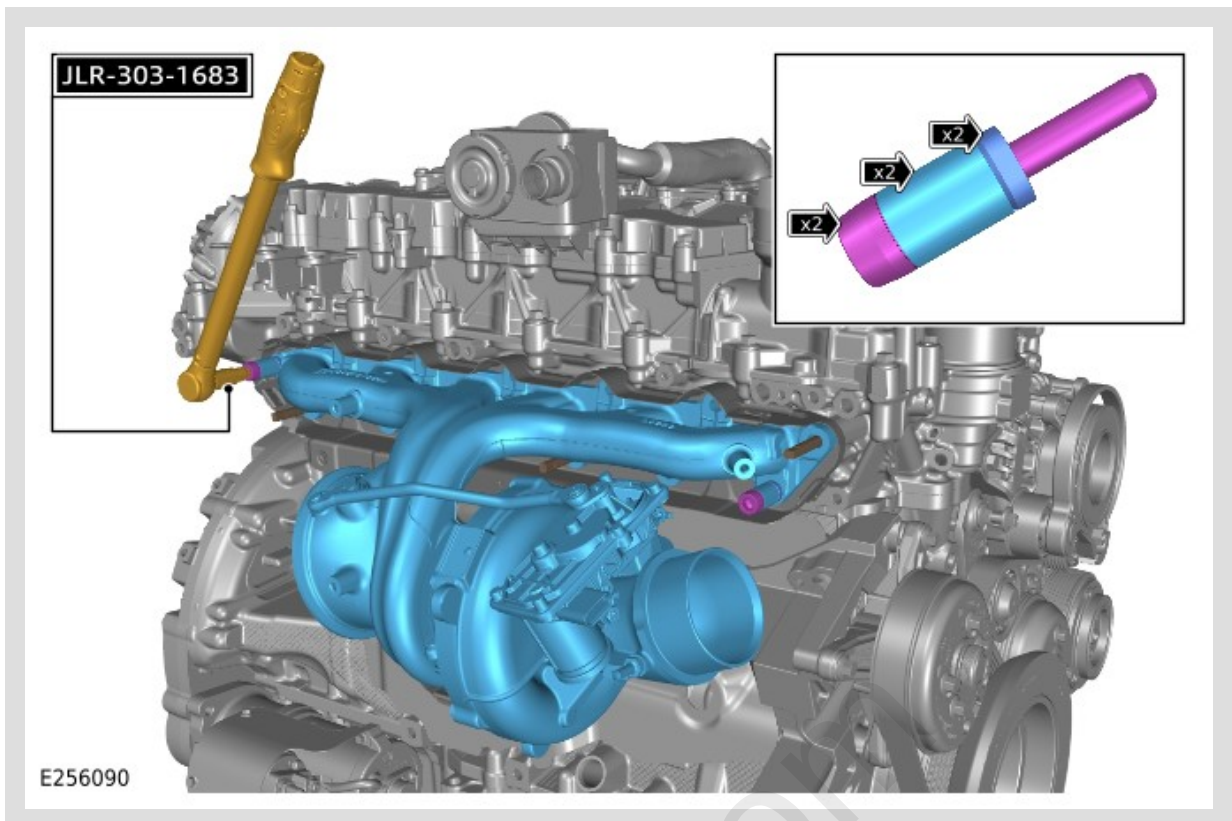
1.

NOTE:

If a new cylinder head is installed only 303-1449-02 must be used.

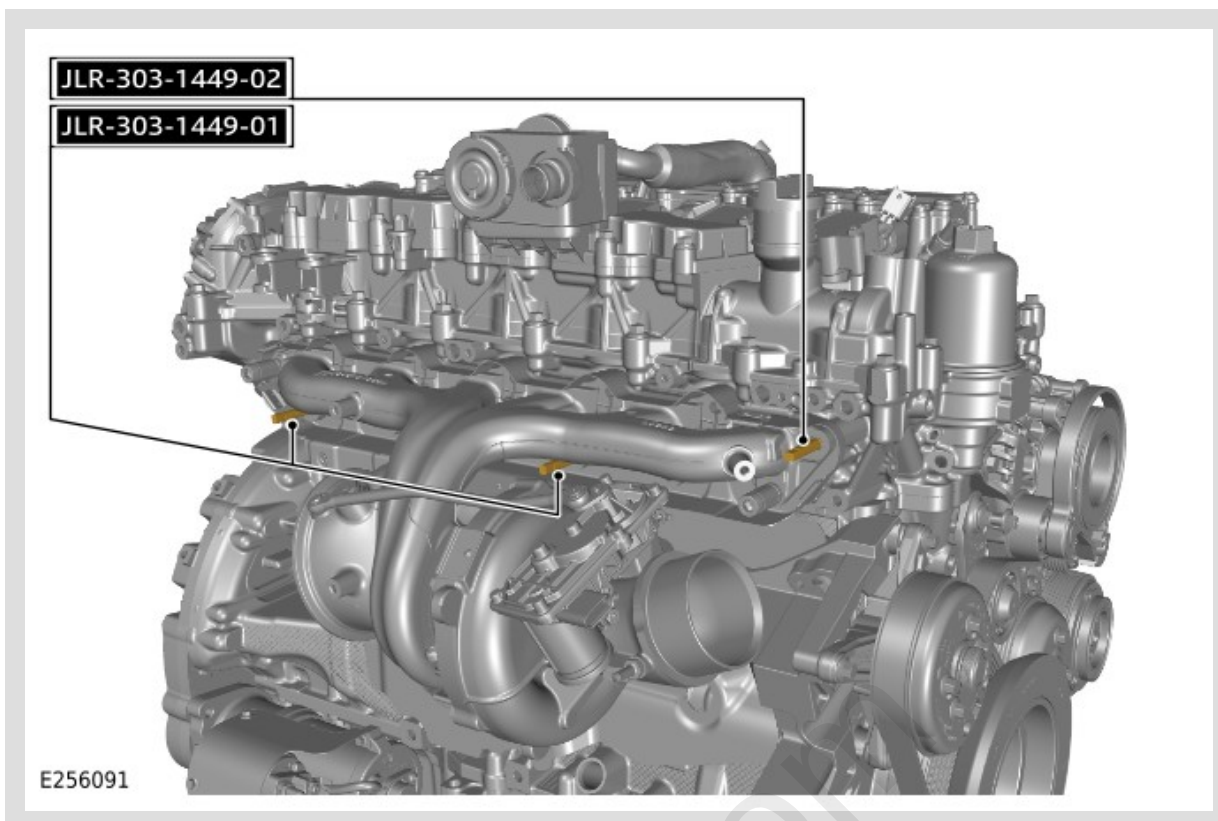


- Install the special tools.
Special Tool(s): [303-1449-01](#), [303-1449-02](#)
- Install the exhaust manifold gasket.
Renew Part: [Exhaust manifold gasket](#) *Quantity:* 1.



- Install the turbocharger.
- Install 2 new bolts, spacers and washers in the illustrated positions.
Renew Part: [Exhaust manifold bolts](#) Quantity: 2.
- Use the special tool to tighten the 2 bolts, spacers and washers.
Special Tool(s): [JLR-303-1683](#)
Torque: 5Nm

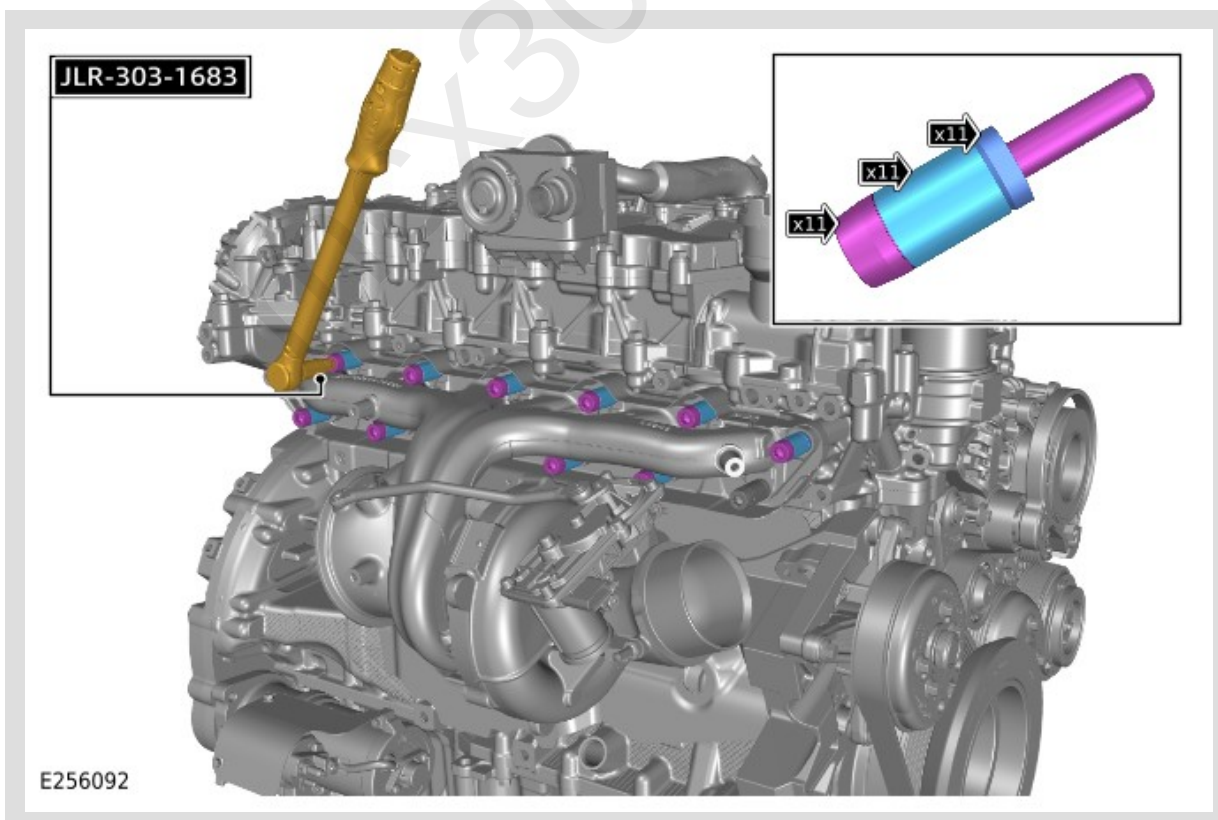
3.



Remove the special tools.

Special Tool(s): [303-1449-01](#), [303-1449-02](#)

4.



- Install 11 new bolts, spacers and washers in the illustrated positions.

Renew Part: [Exhaust manifold bolts](#) Quantity: 11.

- Use the special tool to tighten the 11 bolts, spacers and washers.

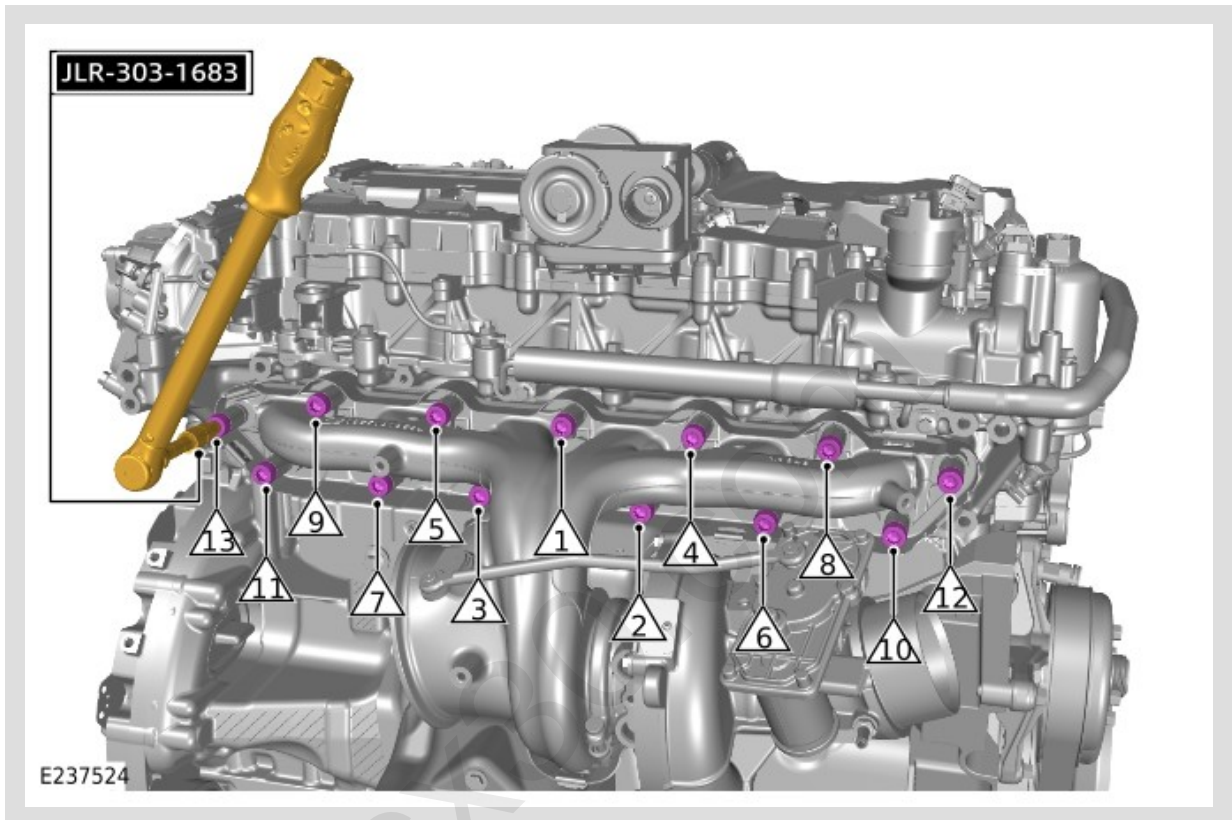
Special Tool(s): [JLR-303-1683](#)

Torque: 720°

5.

⚠ CAUTION:

Allow 4 hours for the thread locking compound to cure.



- Use the special tool to tighten the 13 bolts in the illustrated sequence.

Special Tool(s): [JLR-303-1683](#)

Torque

Stage1: **8Nm**

Stage2: **12Nm**

Stage3: **15Nm**

Stage4: **135°**

6.

- Install 2 new O-ring seals.

Renew Part: [Oil return pipe O-ring seal](#) Quantity: 2.

- Install the oil return pipe.

- Install and tighten the bolt.

Torque: **10Nm**

7.

- Install the 2 new oil supply pipe sealing washers.
- Install a new banjo bolt.
- Reposition the oil supply pipe in the correct location.
- Tighten the bolt.

Torque: 18Nm

8.

- Install the turbocharger inner heatshield to the clip.
- Install and tighten the bolt.

Torque: 9Nm

9.

- Install the turbocharger rear heatshield to the clip.
- Install and tighten the 2 bolts.
- Install the turbocharger front heatshield to the 2 clips.

Torque: 9Nm

10.

- Install the turbocharger upper heatshield to the 2 clips.
- Install and tighten the 2 bolts.
- Install and tighten the 3 bolts.

Torque: 6.5Nm

Torque: 9Nm

11.

- Install 2 new O-ring seals.
Renew Part: [Turbocharger coolant pipe O-ring seal](#) Quantity: 2.
- Connect the 2 coolant pipes to the turbocharger.
- Install and tighten the bolt.

Torque: 11Nm

12.

Connect the turbocharger actuator electrical connector.

13.

Install and tighten the turbocharger mounting bolt.

Torque: 26Nm

14.

Install the catalytic converter.

Refer to: [Catalytic Converter](#) (309-00C Exhaust System - INGENIUM I6 3.0L Petrol, Removal and Installation).

15.

Install the electric supercharger.

Refer to: [Electric Supercharger](#) (303-12C Intake Air Distribution and Filtering - INGENIUM I6 3.0L Petrol, Removal and Installation).

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16. Install the charge air cooler inlet pipe.

Refer to: [Charge Air Cooler Inlet Pipe](#) (303-12C Intake Air Distribution and Filtering - INGENIUM I6 3.0L Petrol, Removal and Installation).