

2015.0 F-TYPE (X152), 303-04

## FUEL CHARGING AND CONTROLS - V6 S/C 3.0L PETROL

# FUEL INJECTORS (G1584466)

### REMOVAL AND INSTALLATION

19.60.01	INJECTOR - RIGHT HAND BANK SET - RENEW	3000 CC, AJ V6 (AJ126)	3.6	USED WITHINS
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### REMOVAL

1. Refer to: [Fuel Rail RH](#) (303-04A Fuel Charging and Controls - V6 S/C 3.0L Petrol, Removal and Installation).  
Refer to: [Fuel Rail RH](#) (303-04B Fuel Charging and Controls - V8 S/C 5.0L Petrol, Removal and Installation).

### INSTALLATION

1. Refer to: [Fuel Rail RH](#) (303-04A Fuel Charging and Controls - V6 S/C 3.0L Petrol, Removal and Installation).  
Refer to: [Fuel Rail RH](#) (303-04B Fuel Charging and Controls - V8 S/C 5.0L Petrol, Removal and Installation).

2015.0 F-TYPE (X152), 303-04

## FUEL CHARGING AND CONTROLS - V6 S/C 3.0L PETROL

### FUEL RAIL RH (G1584468)

#### REMOVAL AND INSTALLATION

19.60.04	FUEL RAIL - RIGHT HAND - RENEW	3000 CC, AJ V6 (AJ126)	3.6	USED WITHINS
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#### SPECIAL TOOL(S)

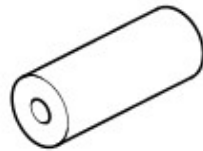




E107680

### **310-198**

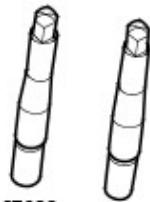
Installer, Teflon Seal



E107681

### **310-199**

Re-shape Tool, Teflon Seal



E107682

### **310-200-01**

Fuel Rail Installation  
Guide Pins - Threaded

## REMOVAL

### ⚠ CAUTION:

Make sure that tools and equipment are clean and free of foreign material and lubricant.

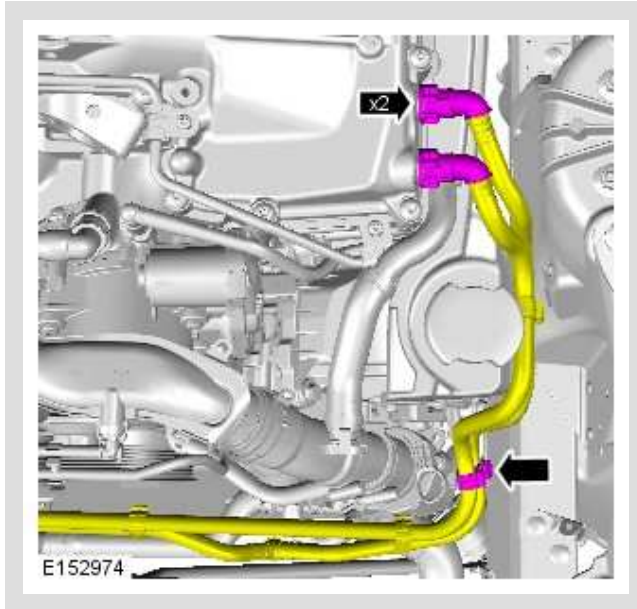
### △ NOTE:

Removal steps in this procedure may contain installation details.

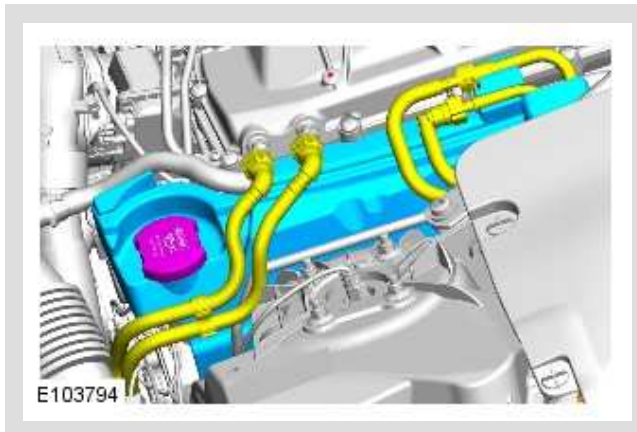
1. Refer to: [Fuel System Pressure Release](#) (310-00 Fuel System - General Information, General Procedures).
2. Refer to: [Battery Disconnect and Connect](#) (414-01 Battery, Mounting and Cables, General Procedures).
3. Refer to: [Secondary Bulkhead Panel RH](#) (501-02 Front End Body Panels, Removal and Installation).
4. Refer to: [Fuel Injection Component Cleaning](#) (303-04B Fuel Charging and Controls - V8 S/C 5.0L Petrol, General Procedures).

### 5. ⚠ CAUTION:

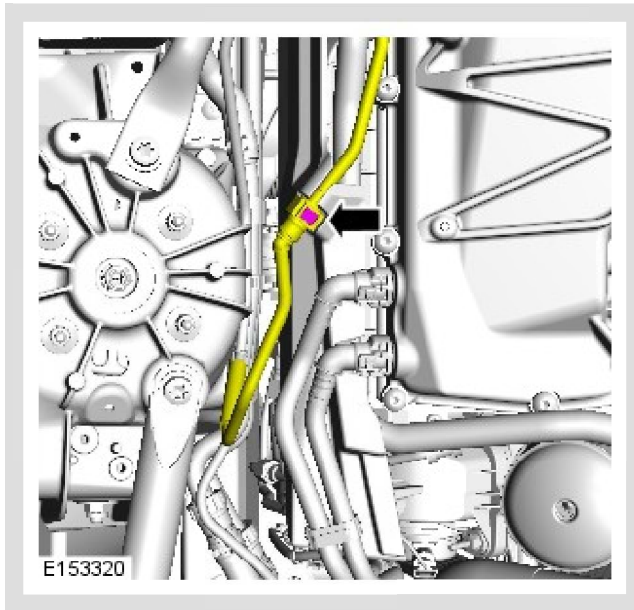
Be prepared to collect escaping fluids.



6.



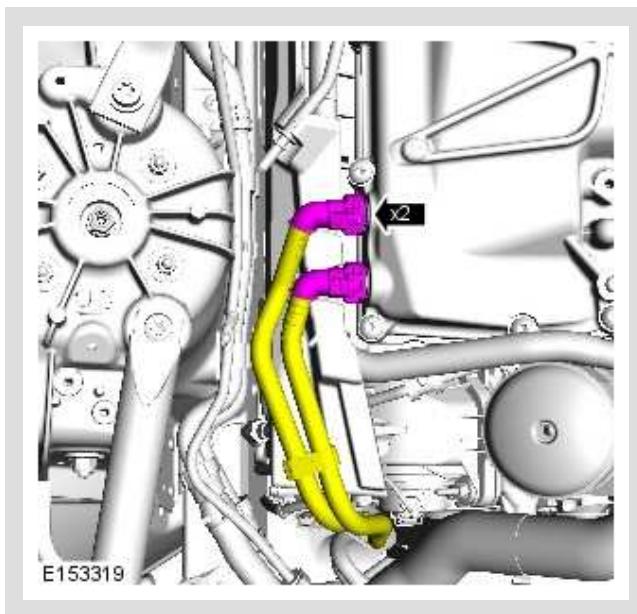
7.



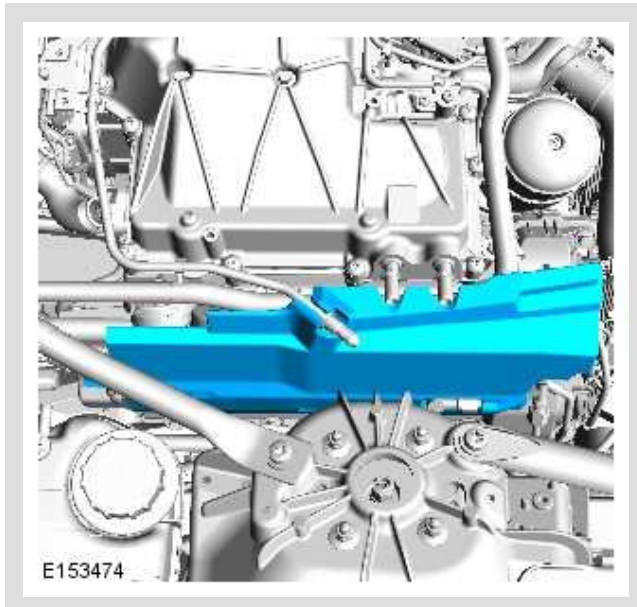
8.

ⓘ CAUTION:

Be prepared to collect escaping fluids.



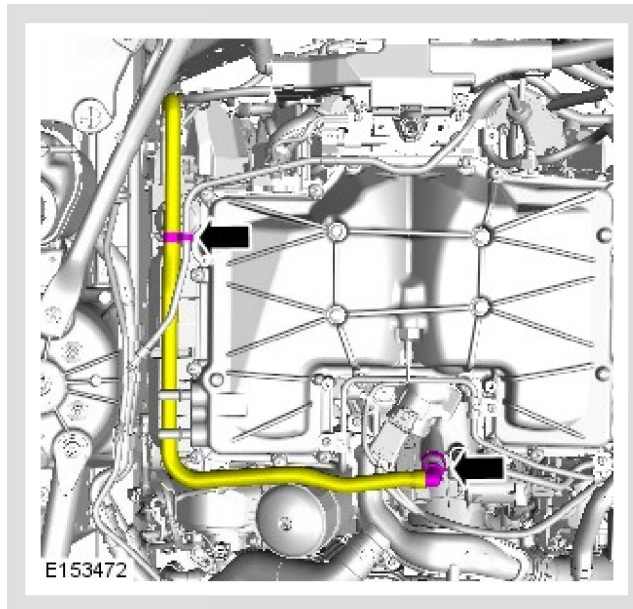
9.



10. Refer to: [Air Cleaner Outlet Intermediate Pipe RH \(303-12B Intake Air Distribution and Filtering - V8 S/C 5.0L Petrol, Removal and Installation\)](#)).

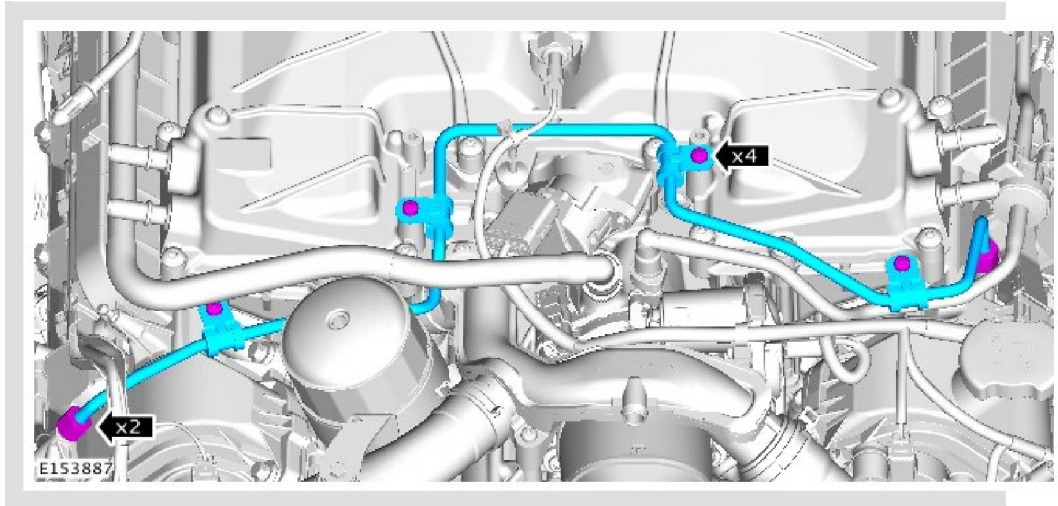
11. **ⓘ CAUTION:**

Be prepared to collect escaping fluids.

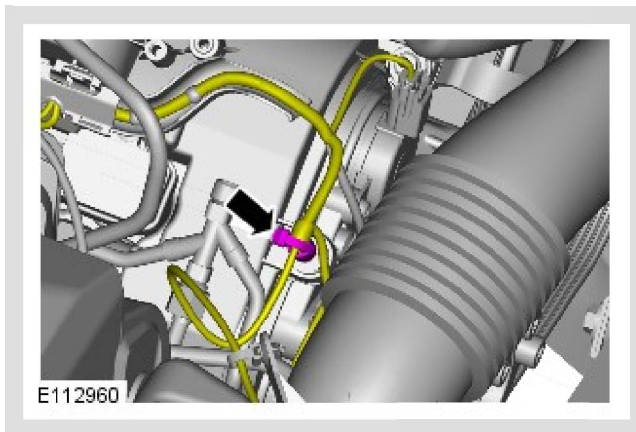


12. **ⓘ CAUTIONS:**

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



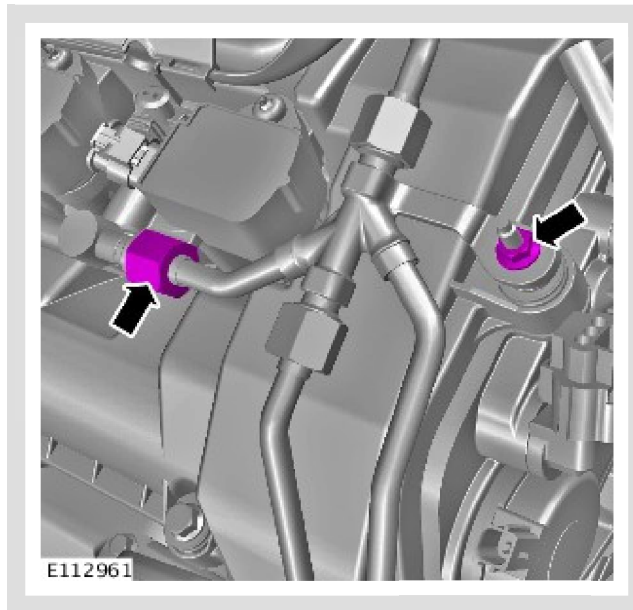
13.



14.

ⓘ CAUTIONS:

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



15.



**WARNING:**

Do not work on or under a vehicle supported only by a jack. Always support the vehicle on safety stands.

Raise and support the vehicle.

16.

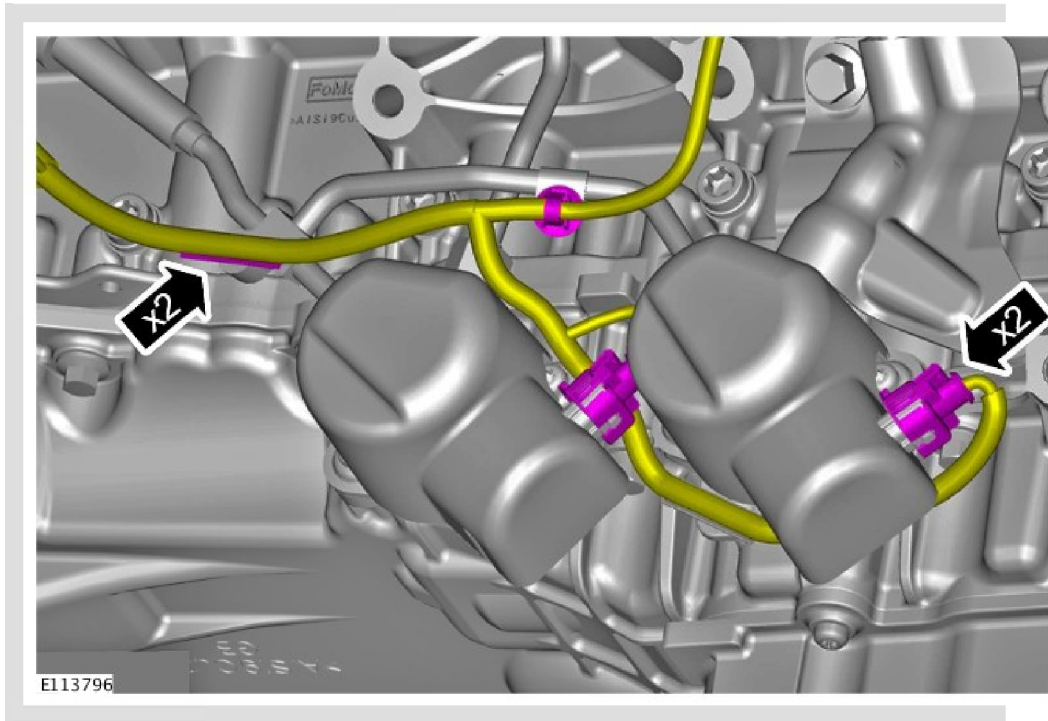
Refer to: [Air Deflector](#) (501-02 Front End Body Panels, Removal and Installation).

17.



**NOTE:**

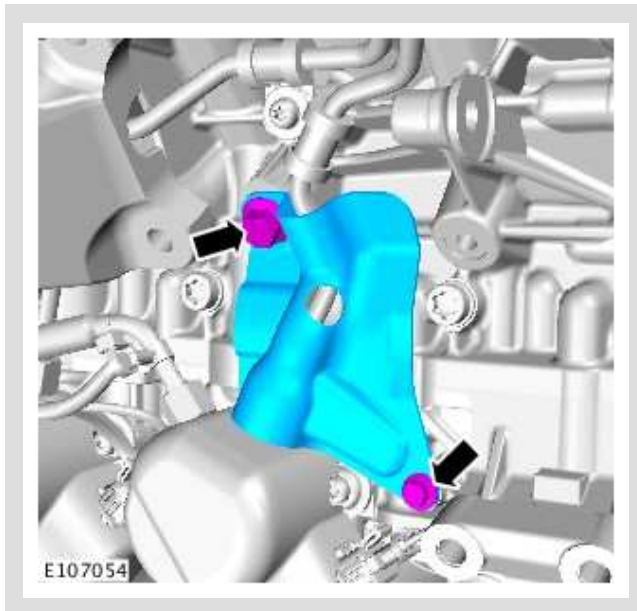
Engine shown removed for clarity.



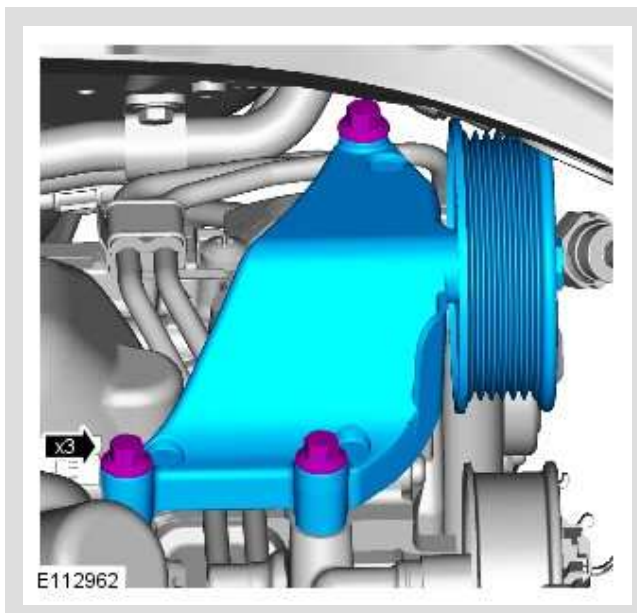
18.

 **NOTE:**

Engine shown removed for clarity.



19.



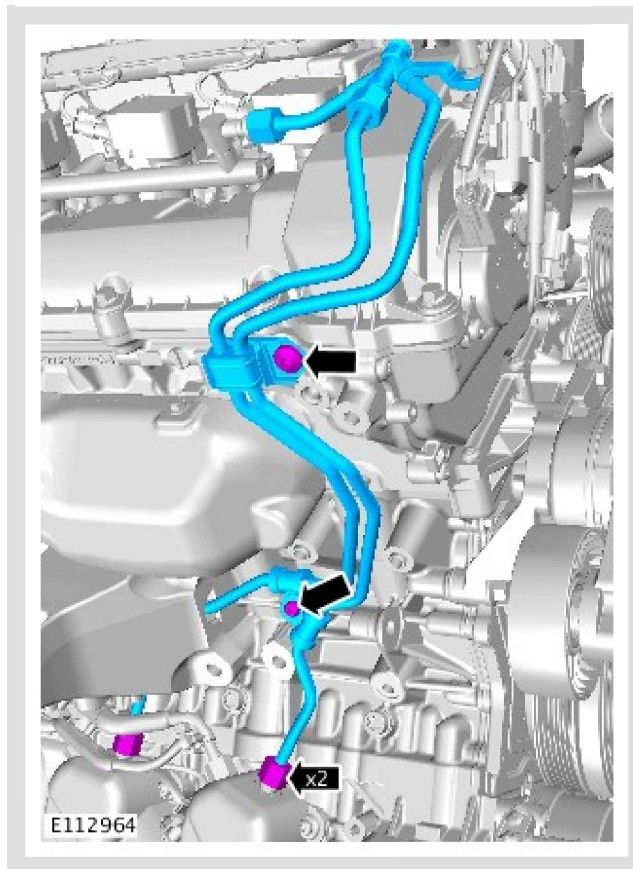
20.

**ⓘ CAUTIONS:**

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

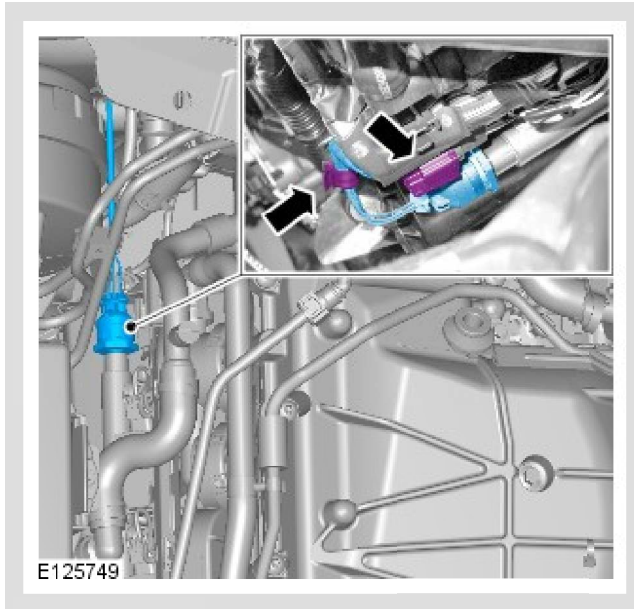
**⚠ NOTE:**

Engine shown removed for clarity.



21. Lower the vehicle.

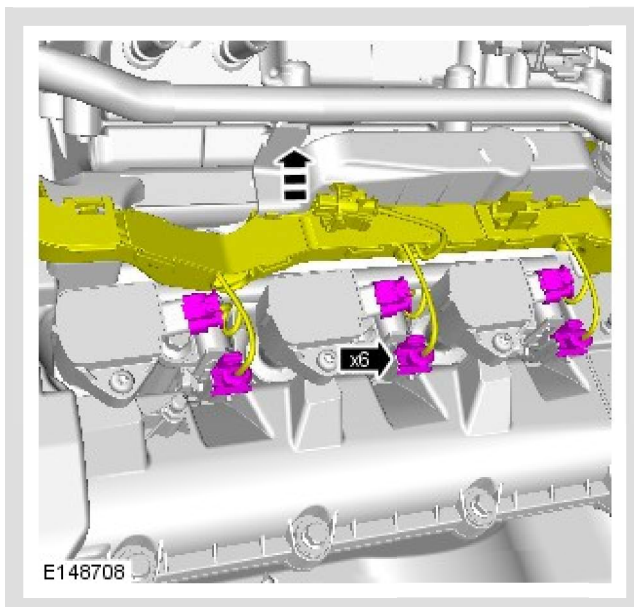
22.



23.

 **NOTE:**

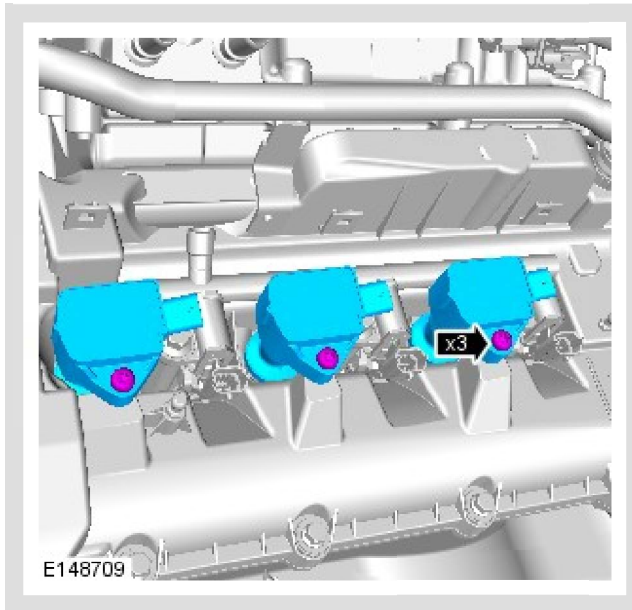
LH illustration shown, RH is similar.



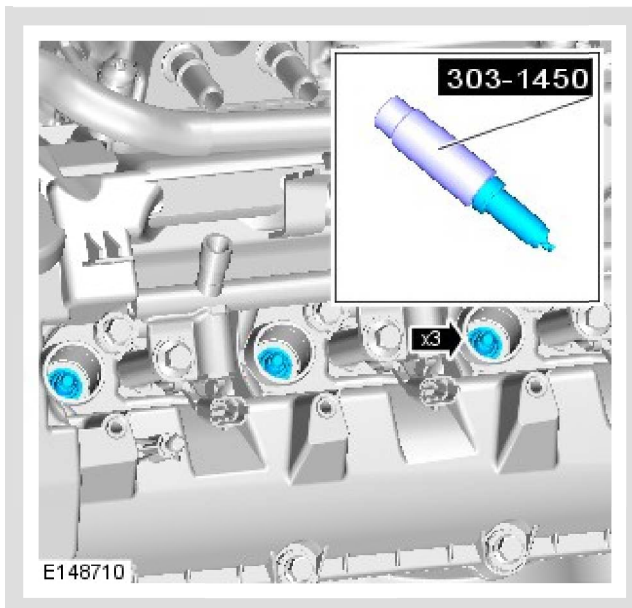
24.

 **NOTE:**

LH illustration shown, RH is similar.



25.



*Special Tool(s):* 303-1450

*Torque:* **22 Nm**

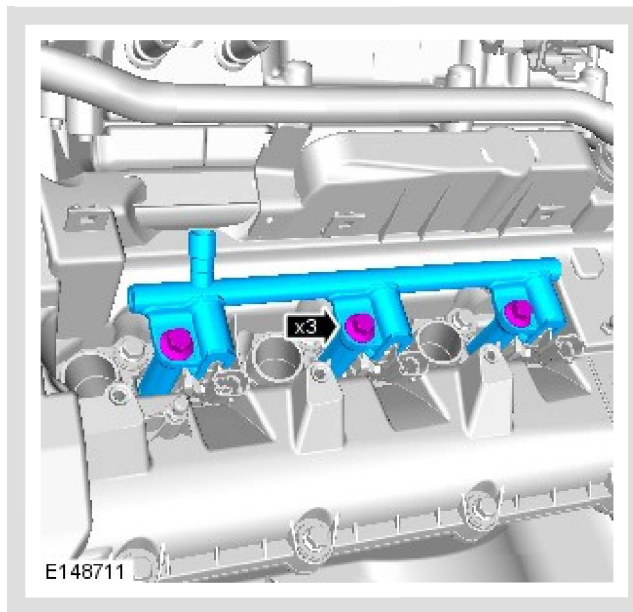
26.

**ⓘ CAUTION:**

Make a note of the fuel injector clamp alignment to the fuel rail prior to removal.

**△ NOTE:**

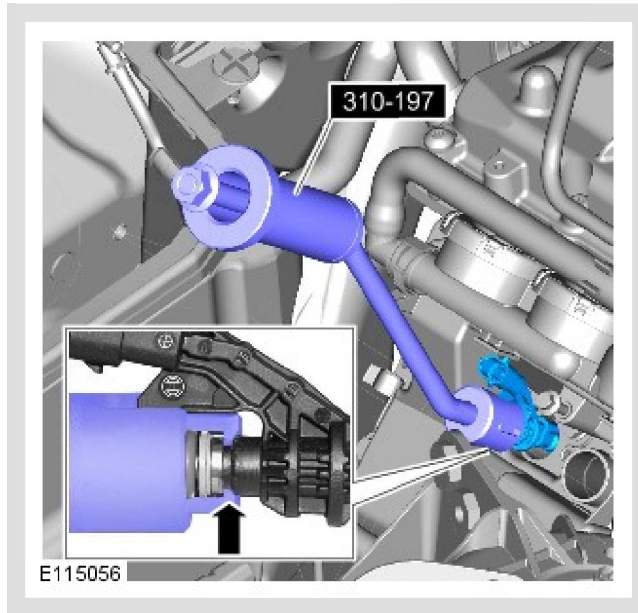
LH illustration shown, RH is similar.



27.

**ⓘ CAUTIONS:**

- Make sure that the special tool is located correctly to the fuel injector prior to removing the fuel injector.
- Make sure that the special tool is held square to the fuel injector during removal.
- Make sure that all open ports are covered to prevent any foreign material ingress.

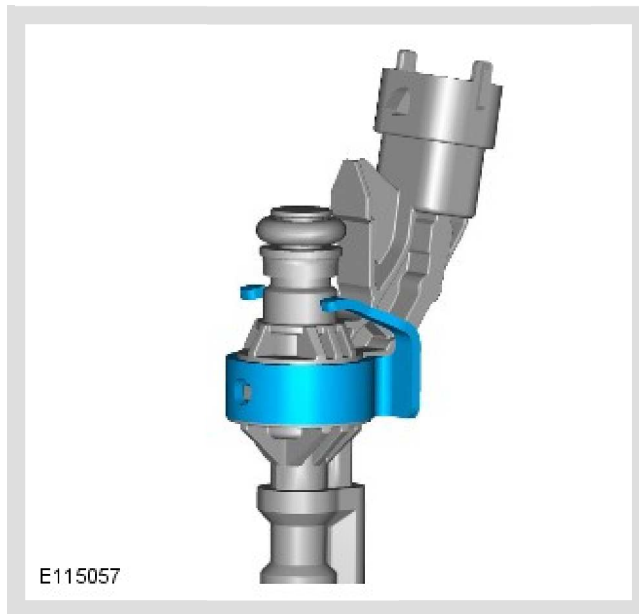


*Special Tool(s):* [310-197](#)

28.

**ⓘ CAUTIONS:**

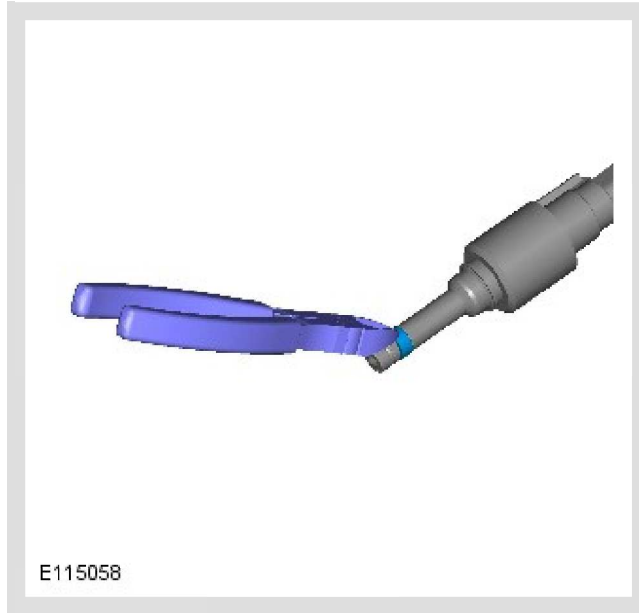
- If the fuel injector is being removed without a new component being installed, the fuel injector clamp must remain with the fuel injector it is removed with.
- If new fuel injectors are installed, a new injector clamp must be installed.



29.

ⓘ **CAUTIONS:**

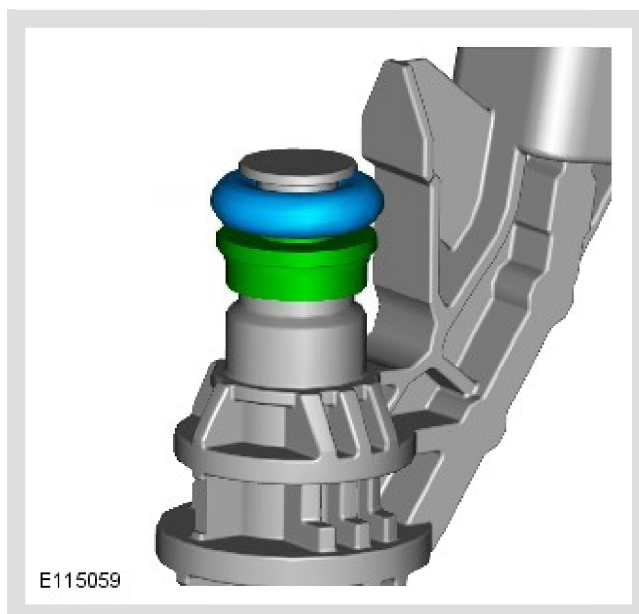
- Do not use a knife to remove the Teflon seal as damage could occur to the fuel injector.
- Do not cut the Teflon seal too deep as damage could occur to the fuel injector.
- Pinch the Teflon seal to allow the tool to cut the Teflon seal without damaging the fuel injector.



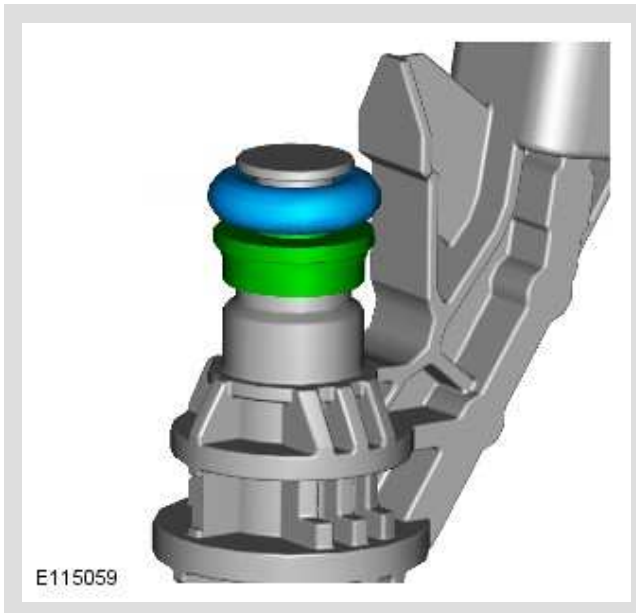
30.

⚠ **CAUTION:**

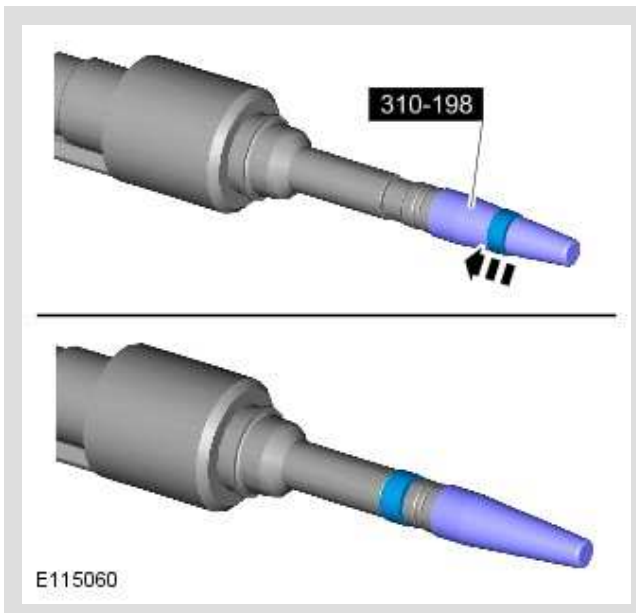
Do not use any sharp tools to remove the O-ring seal as damage could occur to the fuel injector.



1.

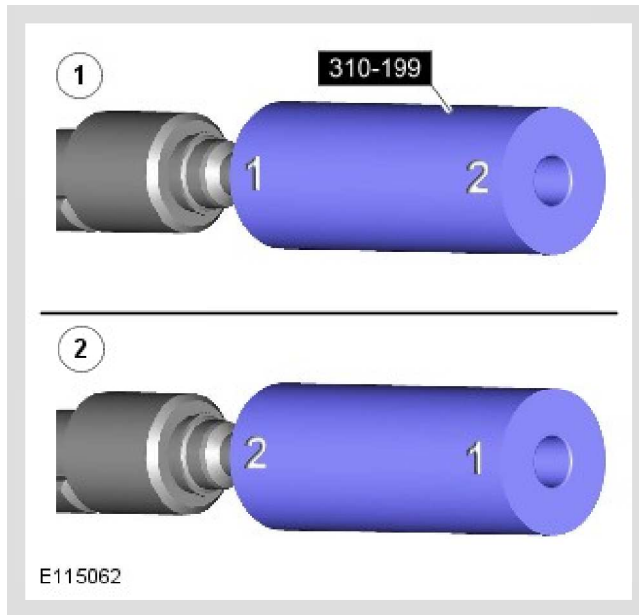


2.



*Special Tool(s):* 310-198

3.

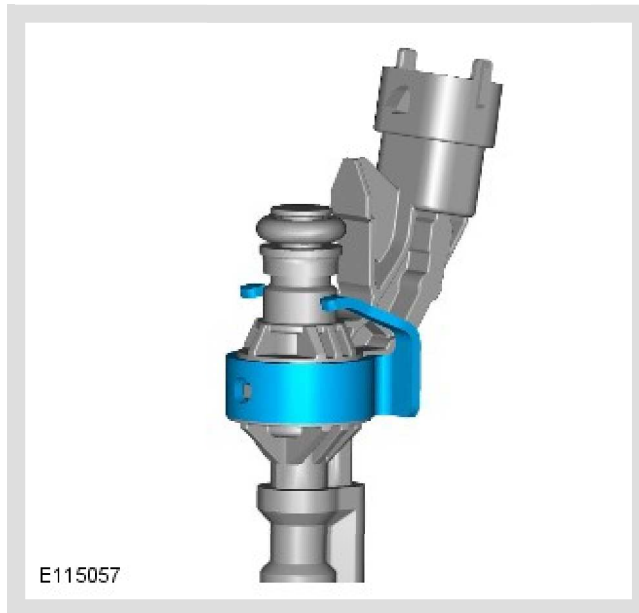


*Special Tool(s):* [310-199](#)

4.

**ⓘ CAUTION:**

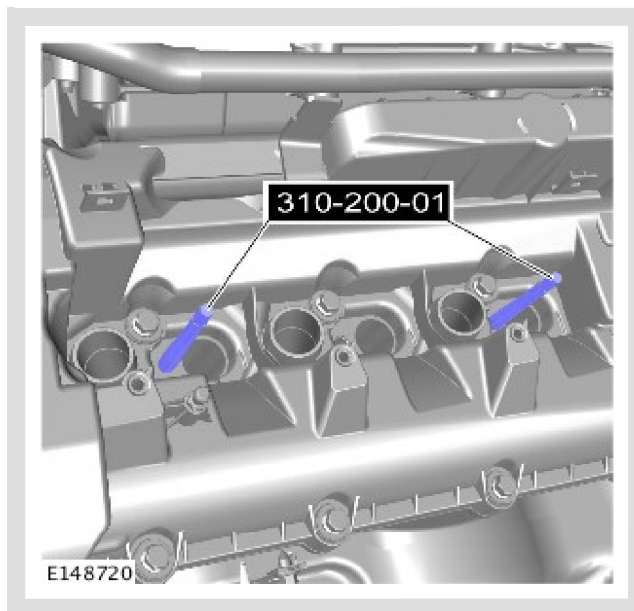
If the original fuel injector is being installed, the original fuel injector clamp must be installed with the fuel injector it was removed with.



5.

**⚠ CAUTION:**

If a new cylinder head has been installed then the special tool 310-200-02 without the thread must be used to install the fuel rail.

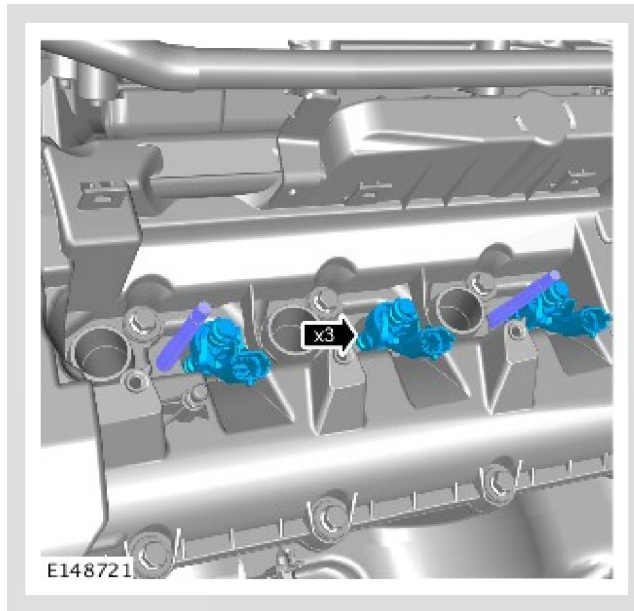


*Special Tool(s):* [310-200-01](#)

6.

**ⓘ CAUTIONS:**

- Make sure that the area around the open fuel injector ports are clean and free of foreign material and lubricant prior to installing the fuel injector.
- When installing the fuel injector(s), make sure that the Teflon seal is clean and free of foreign material and lubricant.



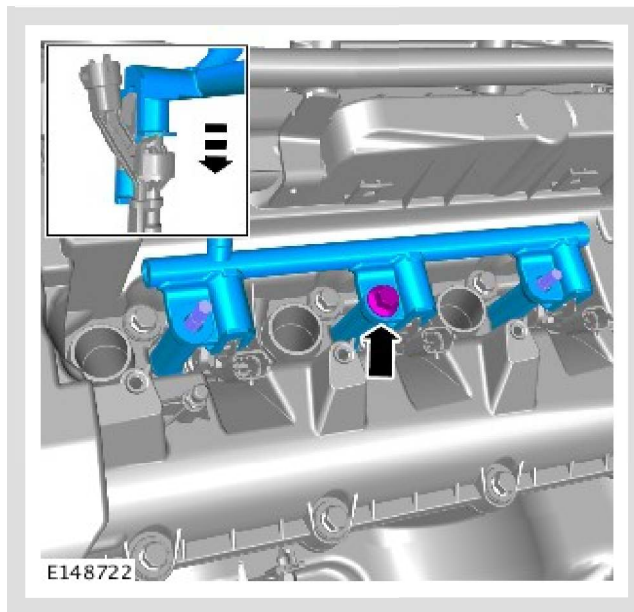
7.

#### ⚠ CAUTIONS:

- If new fuel injectors are installed, a new injector clamp must be installed.
- Make sure that the fuel injector is aligned and installed into the fuel rail correctly, as noted in the removal step.
- Tighten the fuel rail retaining bolts a turn at a time until the correct torque is achieved.

#### ⚠ NOTE:

Lubricate the fuel injector O-ring seals with clean engine oil.

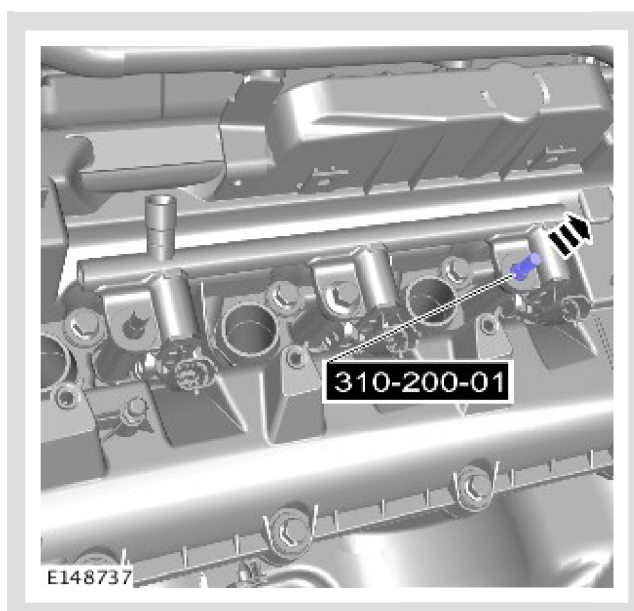


*Torque: 20 Nm*

8.

 **NOTE:**

LH illustration shown, RH is similar.

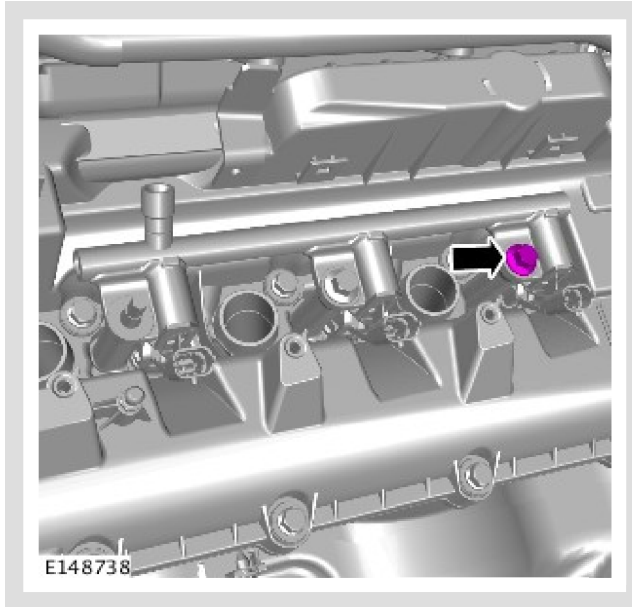


*Special Tool(s): 310-200-01*

9.

 NOTE:

LH illustration shown, RH is similar.

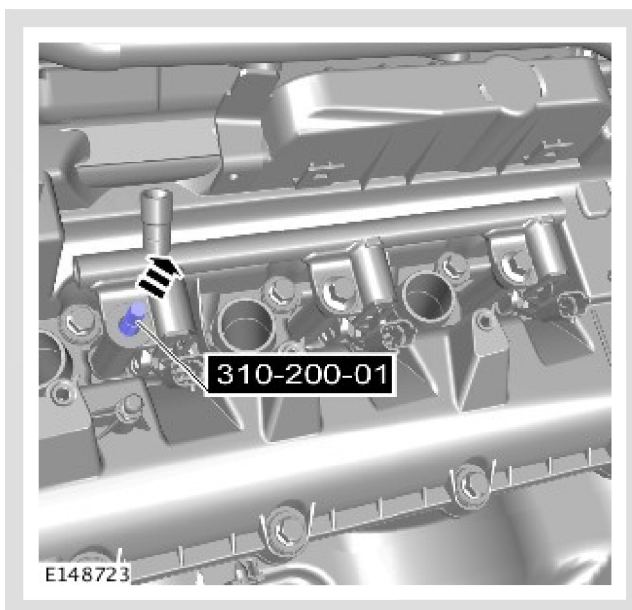


*Torque: 20 Nm*

10.

 NOTE:

LH illustration shown, RH is similar.

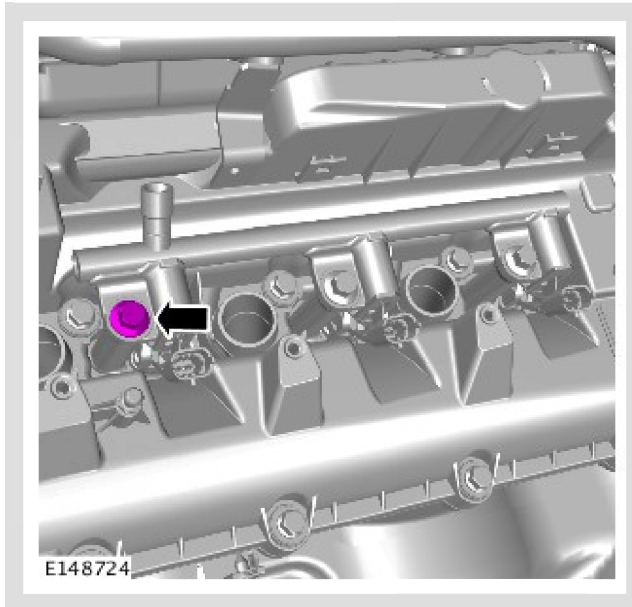


Special Tool(s): [310-200-01](#)

11.

△ NOTE:

LH illustration shown, RH is similar.

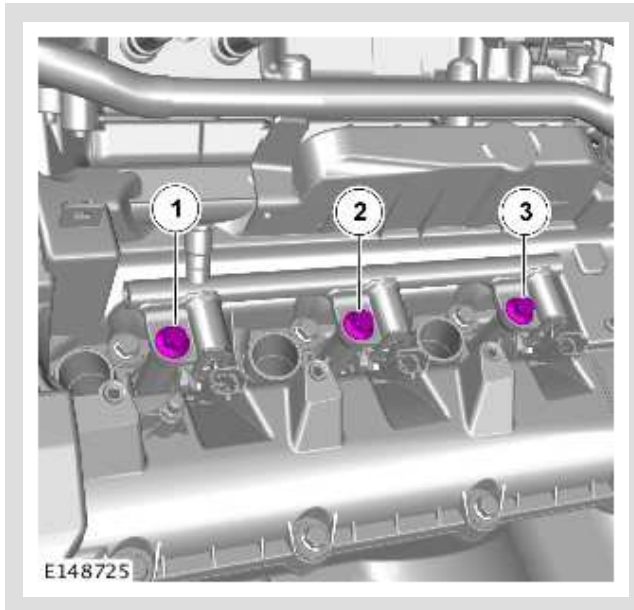


Torque: **20 Nm**

12.

△ NOTES:

Tighten the bolts in the indicated sequence.  
LH illustration shown, RH is similar.

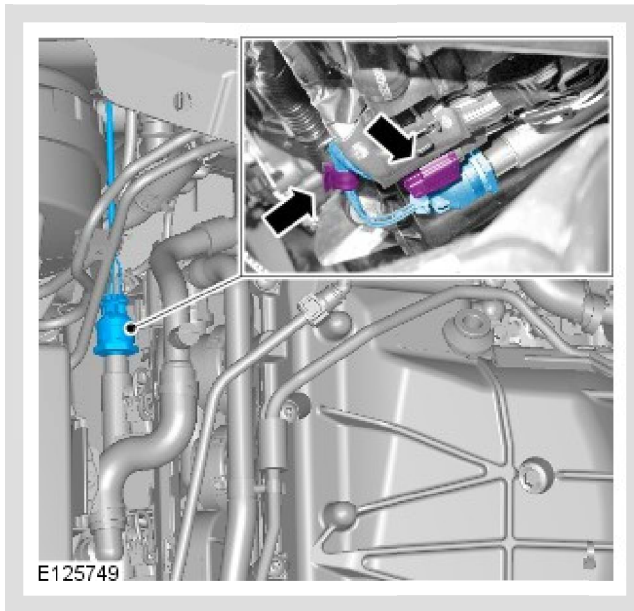


*Torque:*

Bolt 2 **30 Nm**

Bolt 3 **30 Nm**

Bolt 1 **30 Nm**

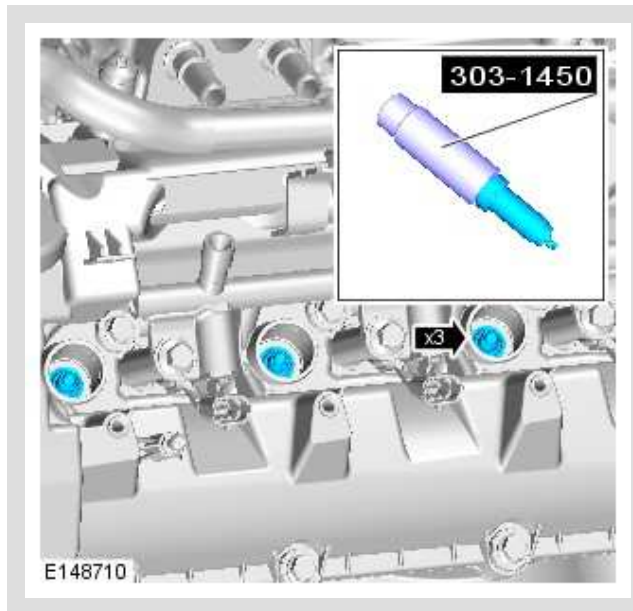


14.



**NOTE:**

RH illustration shown, LH is similar.

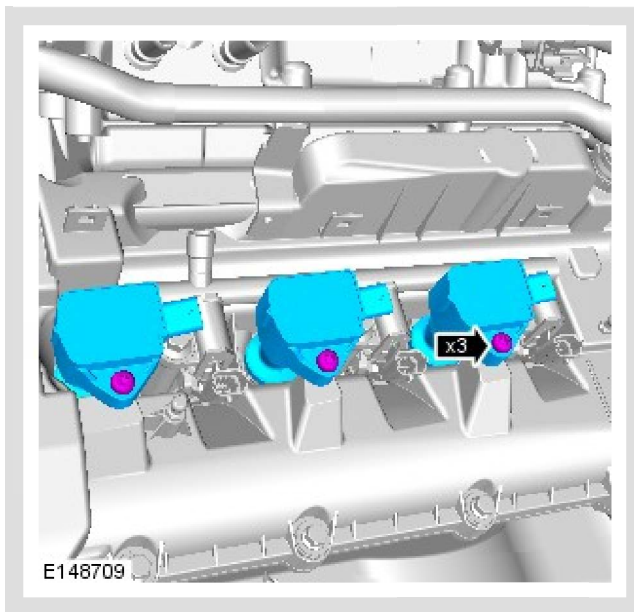


*Special Tool(s):* [303-1450](#)

15.

 **NOTE:**

LH illustration shown, RH is similar.

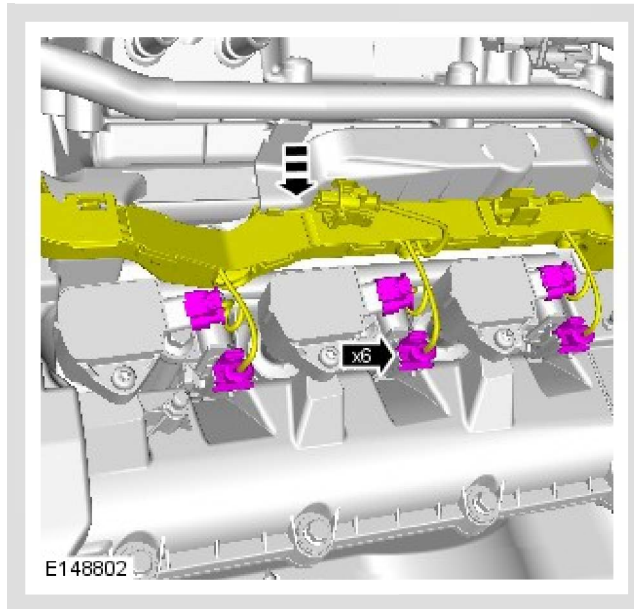


*Torque: 7 Nm*

16.

 NOTE:

LH illustration shown, RH is similar.



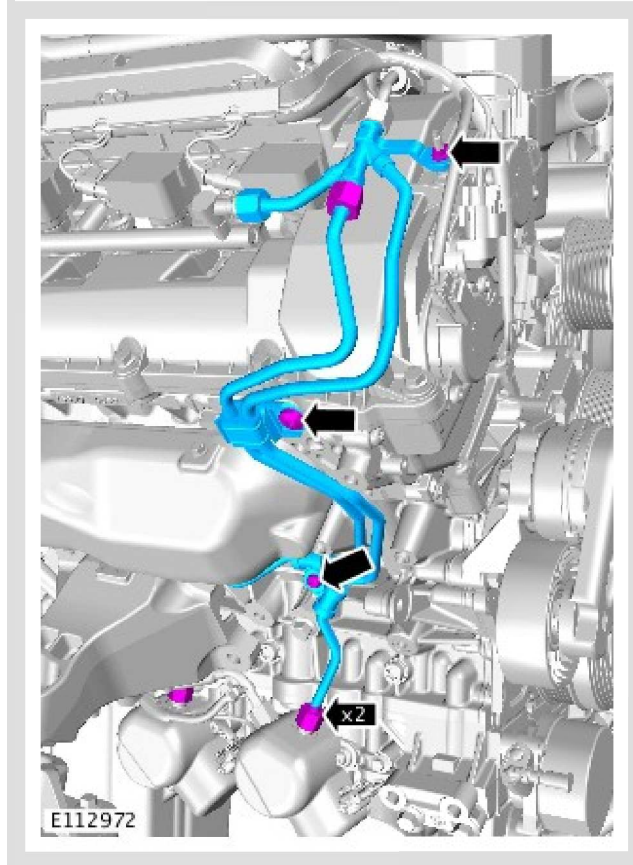
17.

⚠ CAUTION:

Lubricate only the union threads with clean engine oil.

△ NOTES:

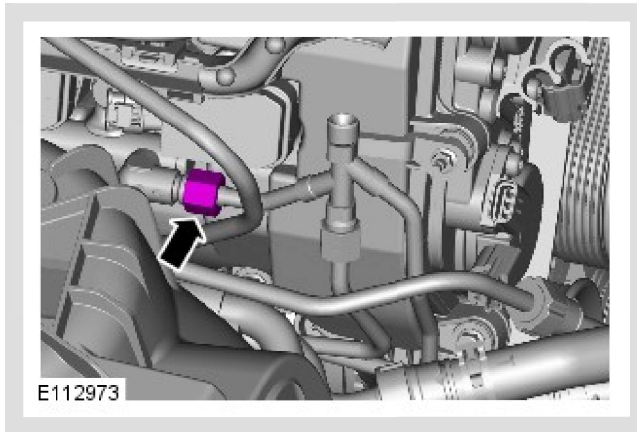
- Engine shown removed for clarity.
- Install the bolt and unions finger tight before final tightening.
- Remove and discard the blanking caps.



18. Lower the vehicle.

19.  NOTES:

- Do not tighten at this stage.
- Remove and discard the blanking caps.



20.

 **WARNING:**

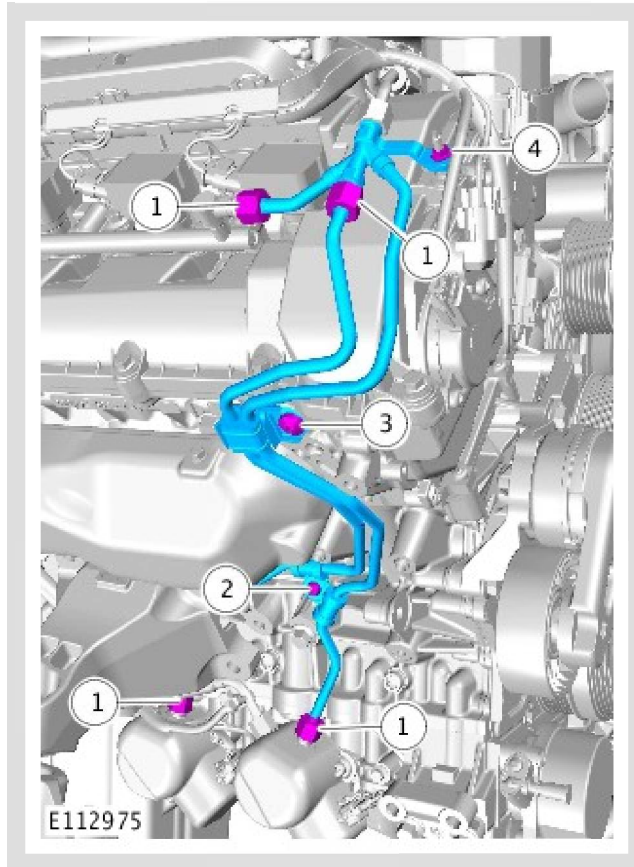
Do not work on or under a vehicle supported only by a jack. Always support the vehicle on safety stands.

Raise and support the vehicle.

21.

 **NOTE:**

Engine shown removed for clarity.



*Torque:*

Unions (1) **21 Nm**

M6 (2) **11 Nm**

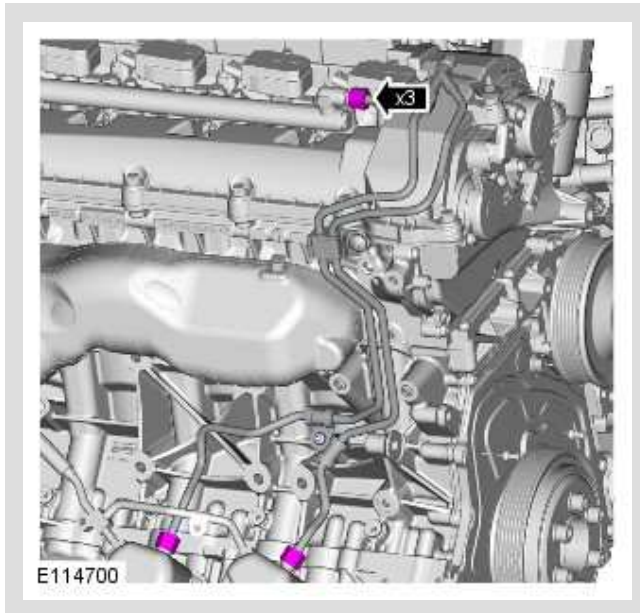
M8 (3) **25 Nm**

M5 nut (4) **6 Nm**

22.

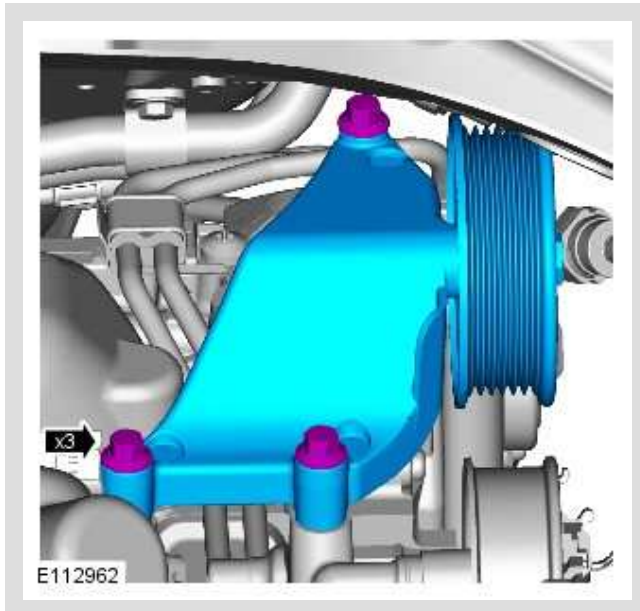
 **NOTE:**

Engine shown removed for clarity.




*Torque: 21 Nm*

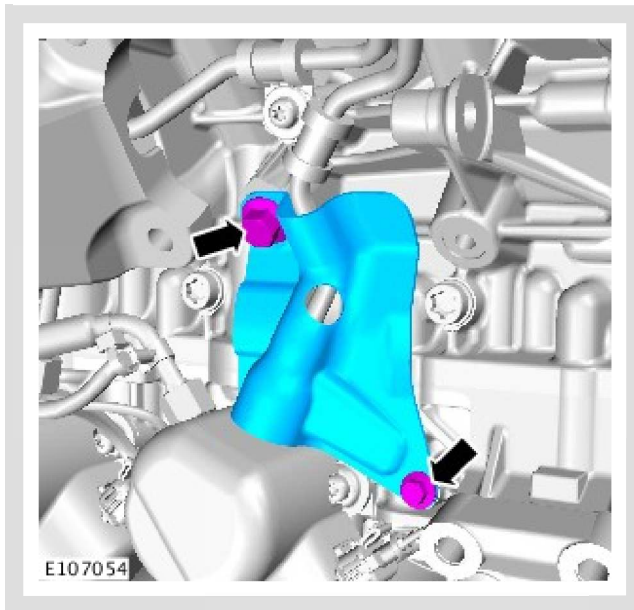
23.



24.

 **NOTE:**

Engine shown removed for clarity.



*Torque:*

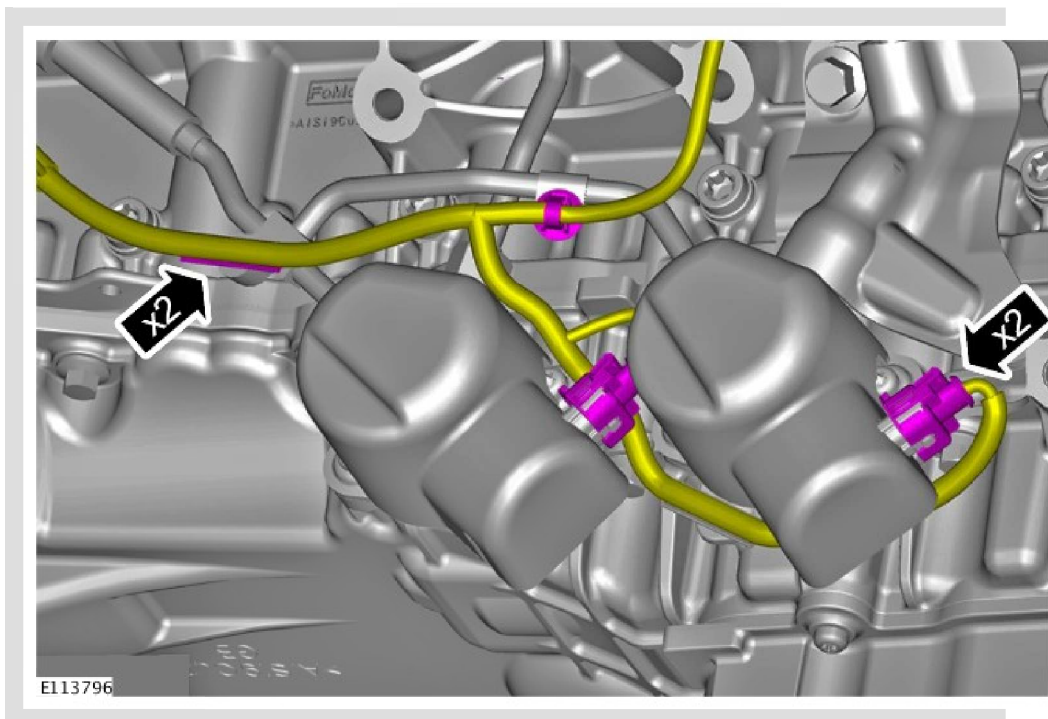
M10 **29 Nm**

M6 **11 Nm**

25.

 **NOTE:**

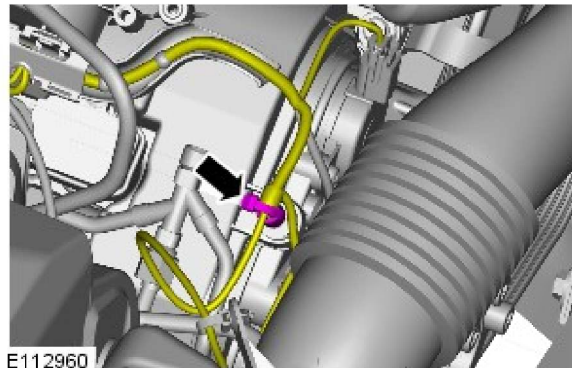
Engine shown removed for clarity.



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

27. Lower the vehicle.

28.



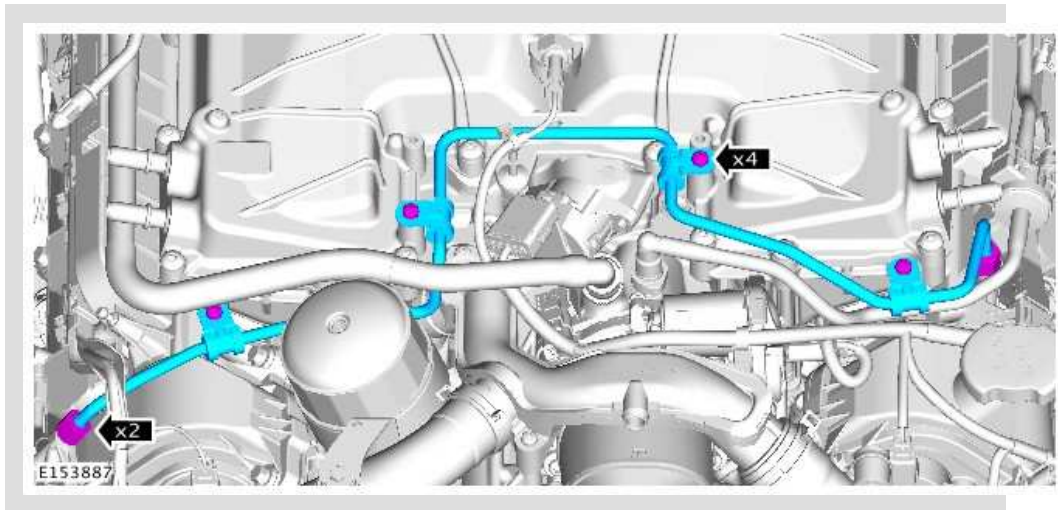
29.

⚠ **CAUTION:**

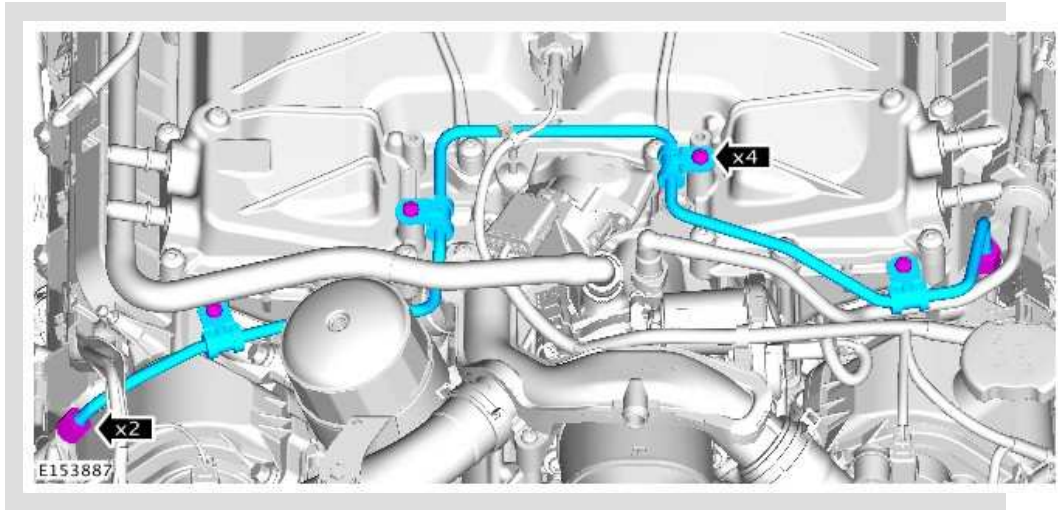
Lubricate only the union threads with clean engine oil.

△ **NOTES:**

- Do not tighten at this stage.
- Remove and discard the blanking caps.

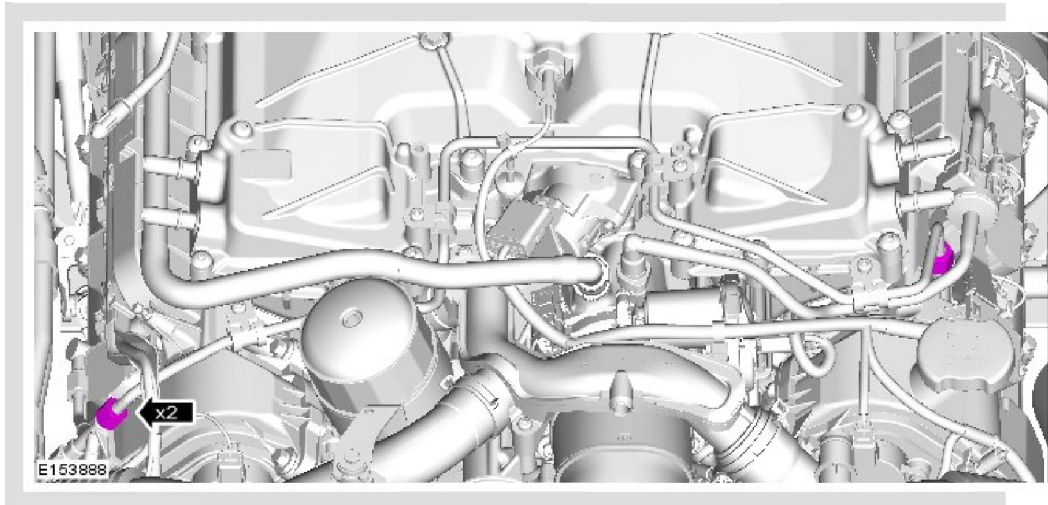


30.



*Torque:*  
Unions **21 Nm**  
Bolts **8 Nm**

31.

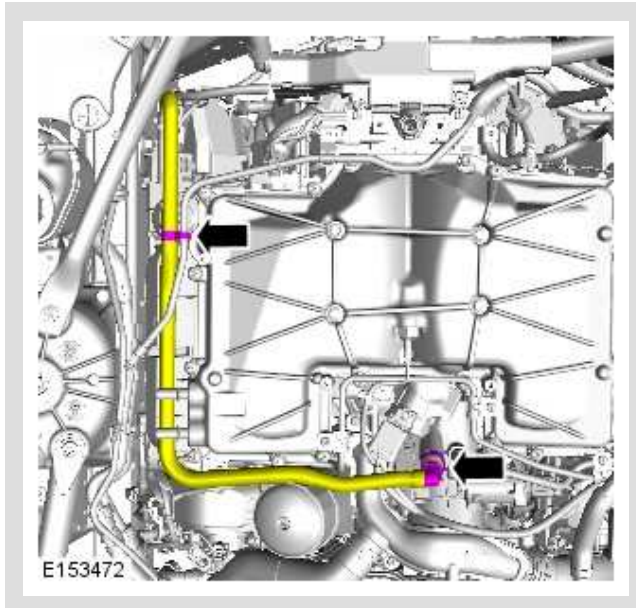


*Torque: 21 Nm*

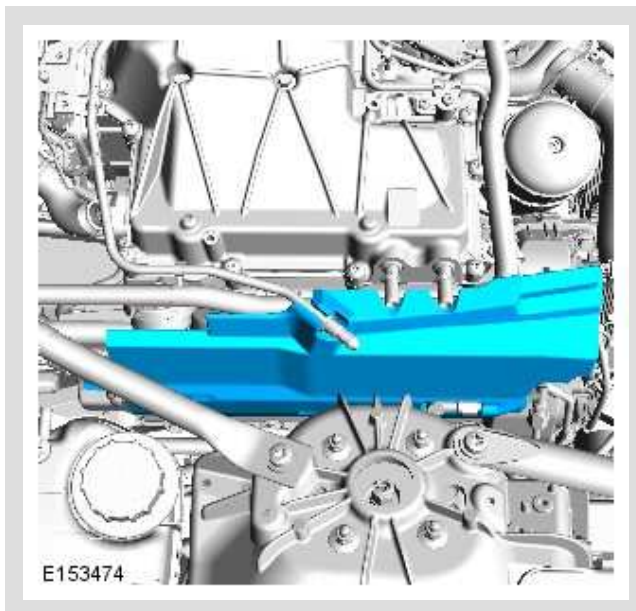
32. Refer to: [Air Cleaner Outlet Intermediate Pipe RH \(303-12B Intake Air Distribution and Filtering - V8 S/C 5.0L Petrol, Removal and Installation\)](#).

33. **ⓘ CAUTION:**

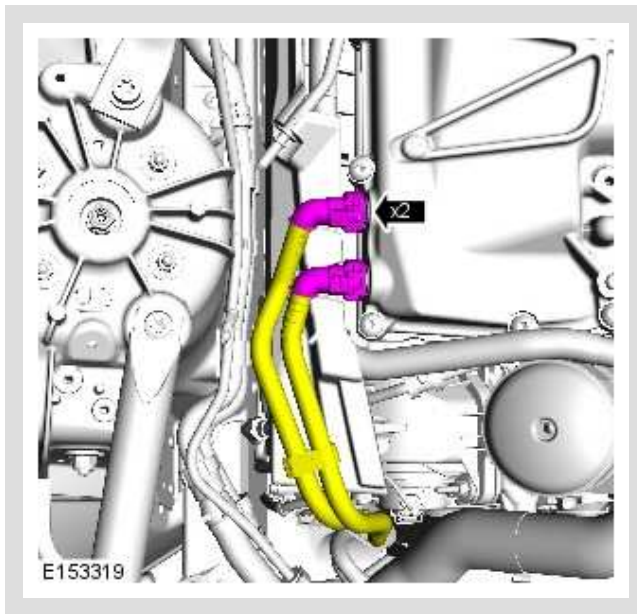
Be prepared to collect escaping fluids.



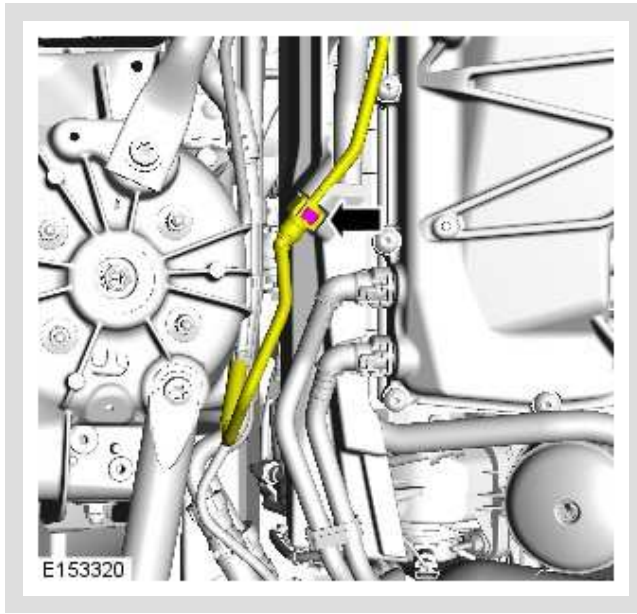
34.



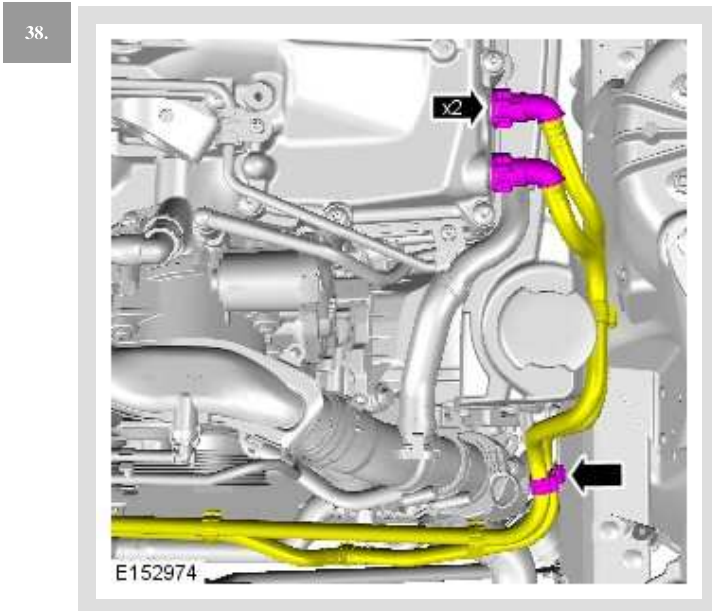
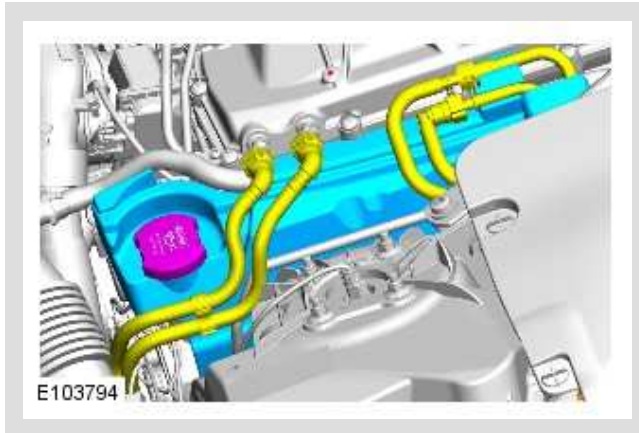
35.



36.



37.



39. Refer to: [Secondary Bulkhead Panel RH](#) (501-02 Front End Body Panels, Removal and Installation).
40. Refer to: [Battery Disconnect and Connect](#) (414-01 Battery, Mounting and Cables, General Procedures).

2015.0 F-TYPE (X152), 303-04

FUEL CHARGING AND CONTROLS - V8 S/C 5.0L PETROL

## FUEL RAIL RH (G1584481)

### REMOVAL AND INSTALLATION

19.60.04	FUEL RAIL - RIGHT HAND - RENEW	3000 CC, AJ V6 (AJ126)	3.6	USED WITHINS
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### SPECIAL TOOL(S)





E114526

### 310-197

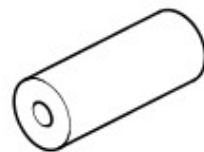
Remover, Fuel Injector



E107680

### 310-198

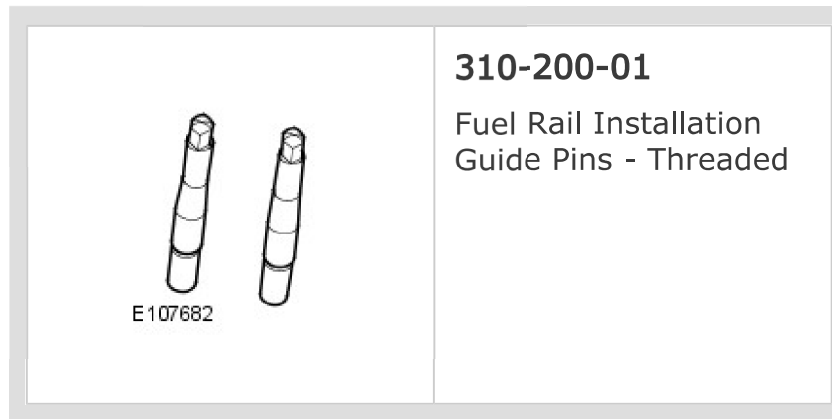
Installer, Teflon Seal



E107681

### 310-199

Re-shape Tool, Teflon Seal



## REMOVAL

### ⚠ CAUTION:

Make sure that the tools and equipment are clean, free of foreign material and lubricant.

### ⚠ NOTE:

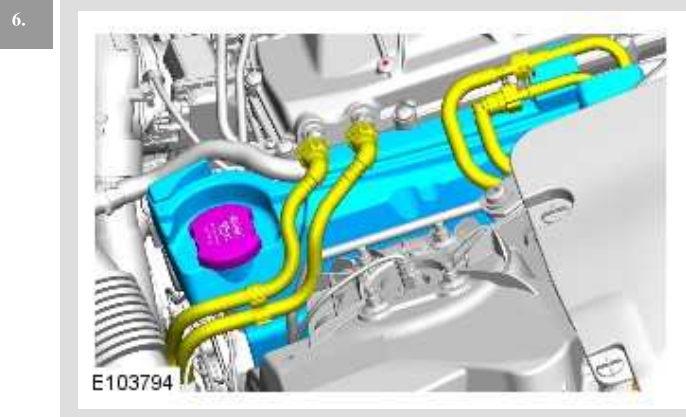
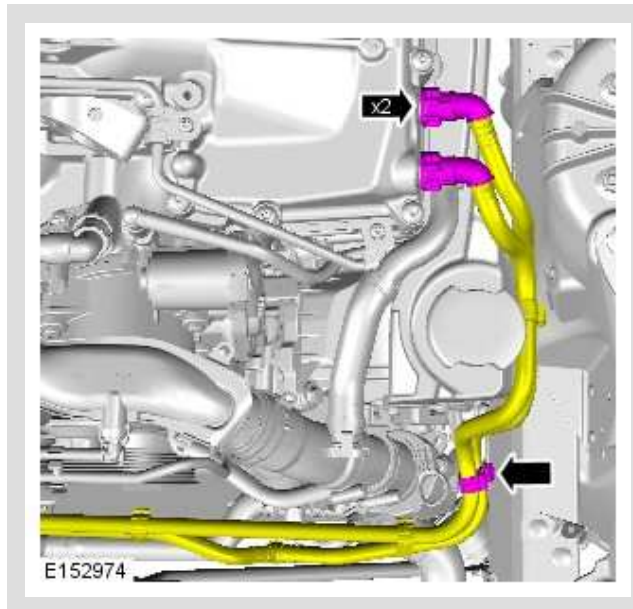
Some variation in the illustrations may occur, but the essential information is always correct.

1. Refer to: [Fuel System Pressure Release](#) (310-00 Fuel System - General Information, General Procedures).
2. Refer to: [Battery Disconnect and Connect](#) (414-01 Battery, Mounting and Cables, General Procedures).
3. Refer to: [Secondary Bulkhead Panel RH](#) (501-02 Front End Body Panels, Removal and Installation).

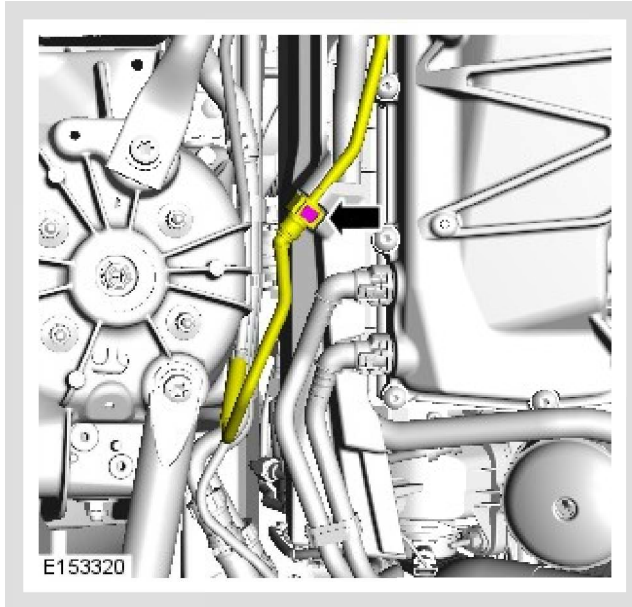
4. Refer to: [Fuel Injection Component Cleaning](#) (303-04B Fuel Charging and Controls - V8 S/C 5.0L Petrol, General Procedures).

5. **ⓘ CAUTION:**

Be prepared to collect escaping fluids.



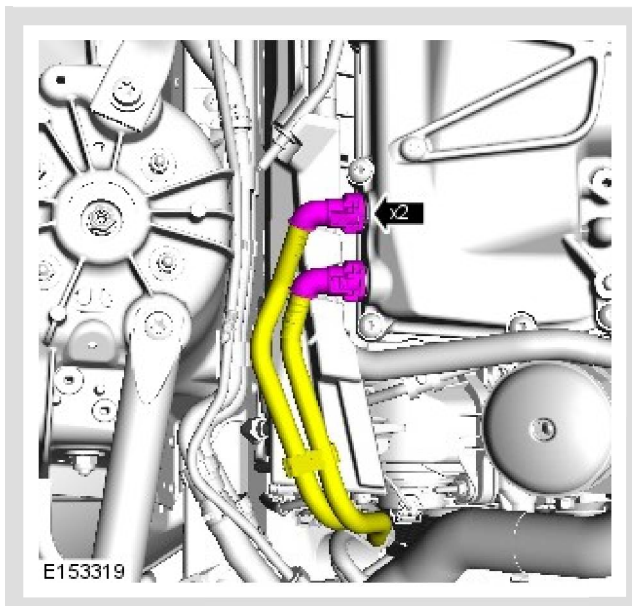
- 7.



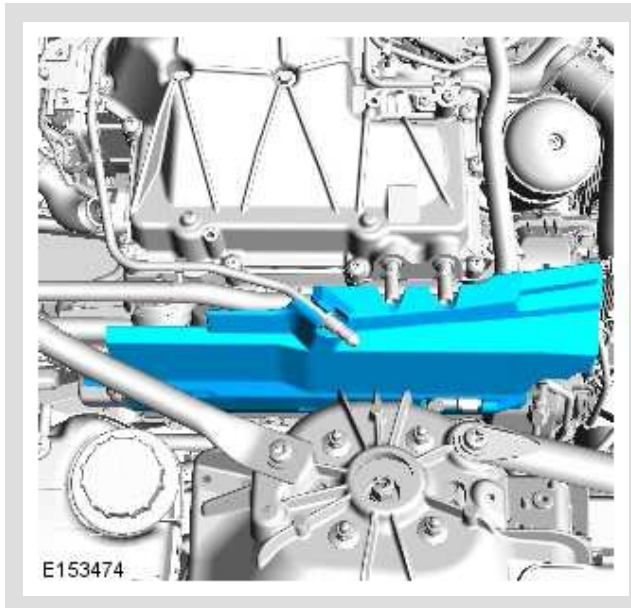
8.

ⓘ CAUTION:

Be prepared to collect escaping fluids.



9.

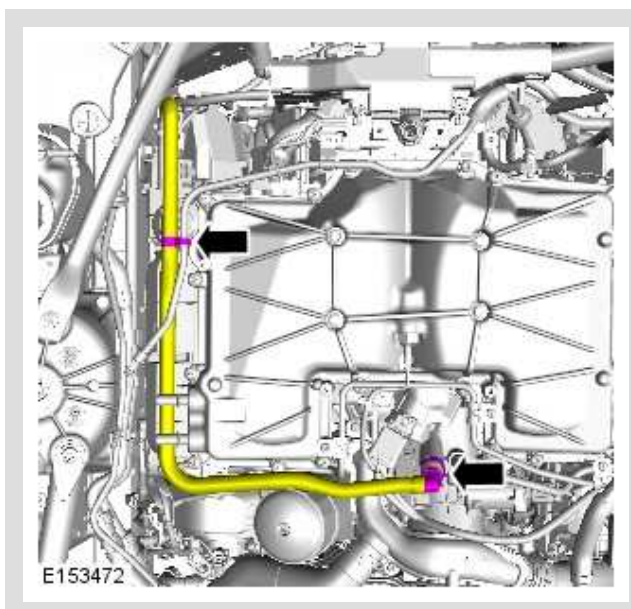


10. Refer to: [Air Cleaner Outlet Intermediate Pipe RH \(303-12B Intake Air Distribution and Filtering - V8 S/C 5.0L Petrol, Removal and Installation\)](#).

11.

**ⓘ CAUTION:**

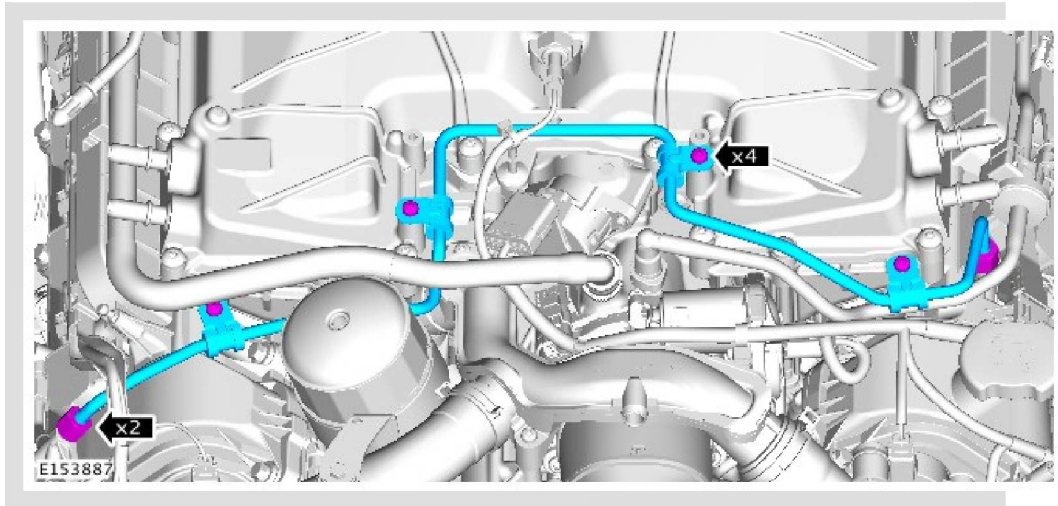
Be prepared to collect escaping fluids.



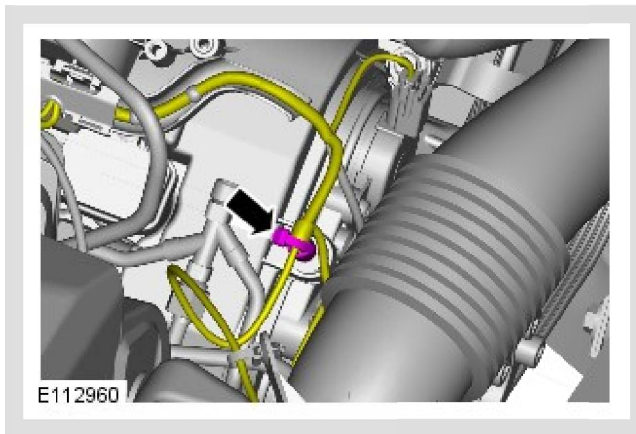
12.

**ⓘ CAUTIONS:**

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



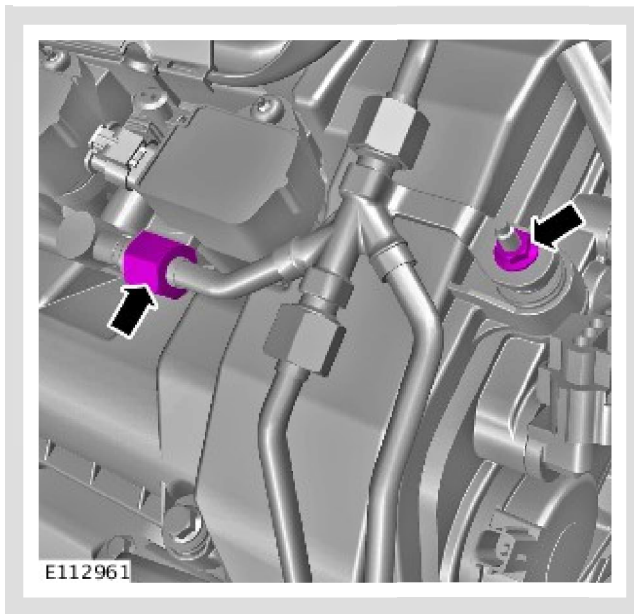
13.



14.

**ⓘ CAUTIONS:**

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



15.



**WARNING:**

Do not work on or under a vehicle supported only by a jack. Always support the vehicle on safety stands.

Raise and support the vehicle.

16.

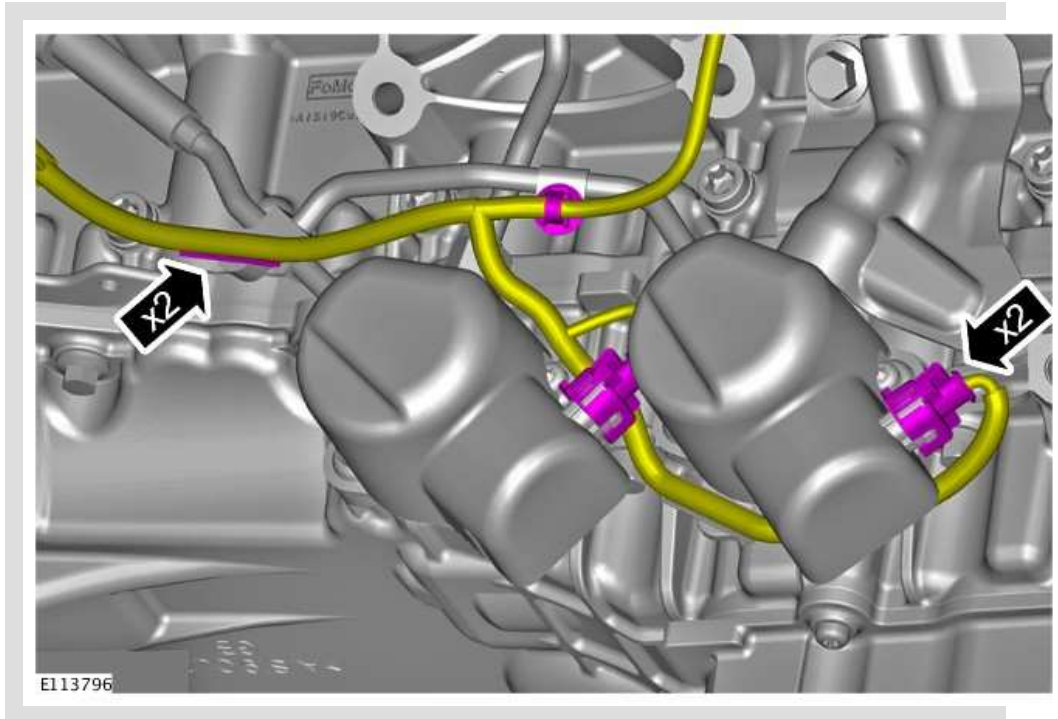
Refer to: [Air Deflector](#) (501-02 Front End Body Panels, Removal and Installation).

17.



**NOTE:**

Engine shown removed for clarity.

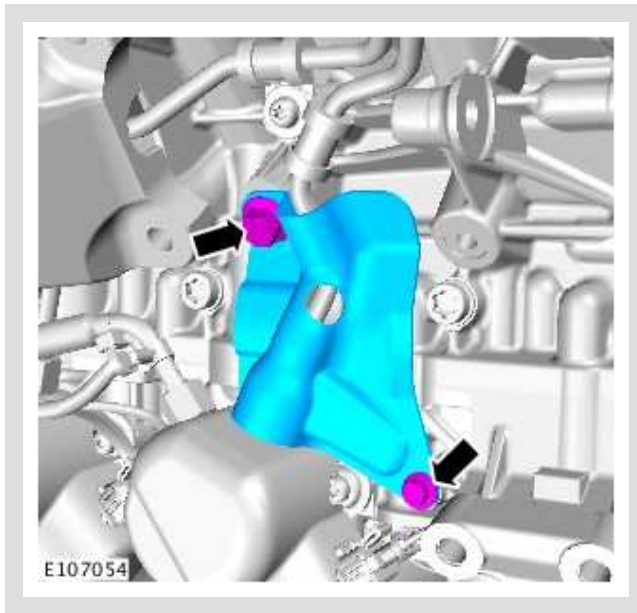


18.

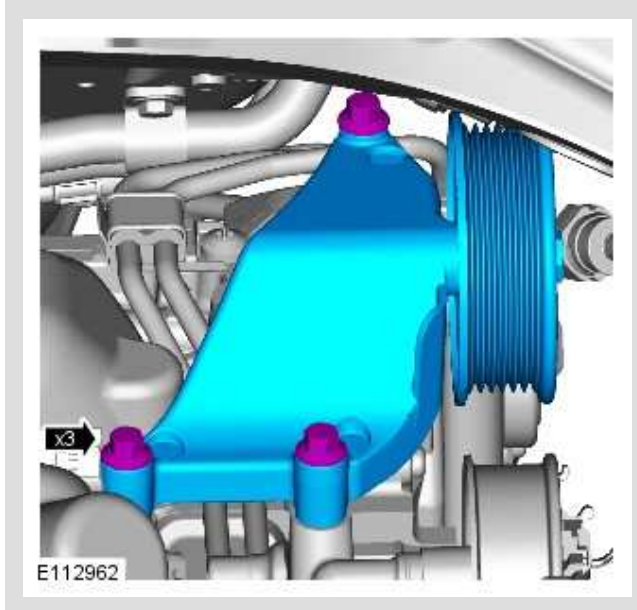


NOTE:

Engine shown removed for clarity.



19.



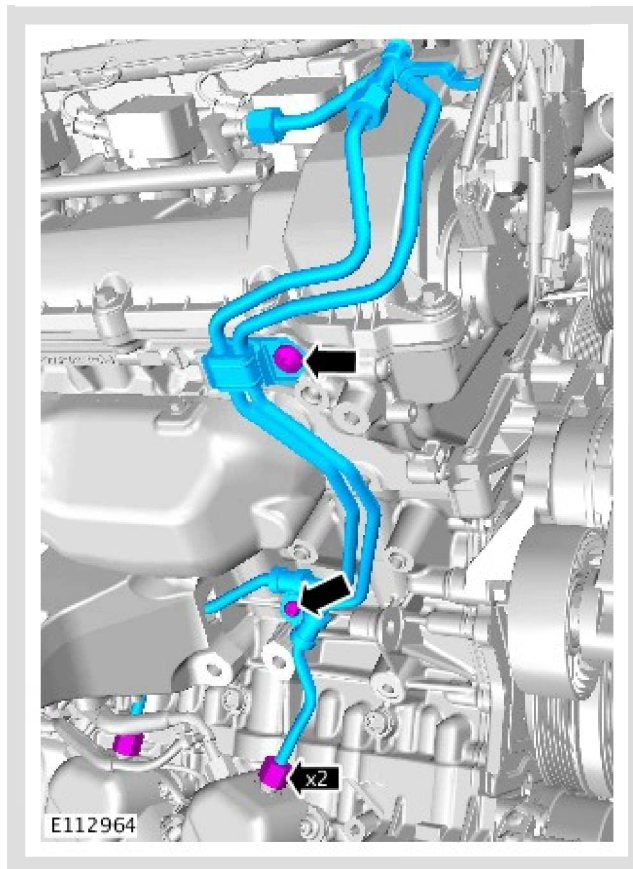
20.

**ⓘ CAUTIONS:**

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

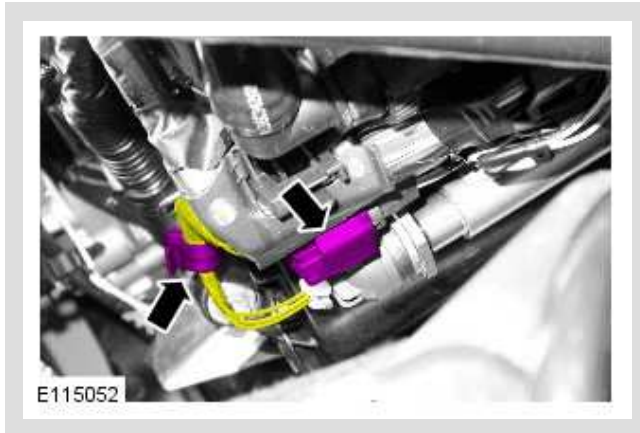
**⚠ NOTE:**

Engine shown removed for clarity.

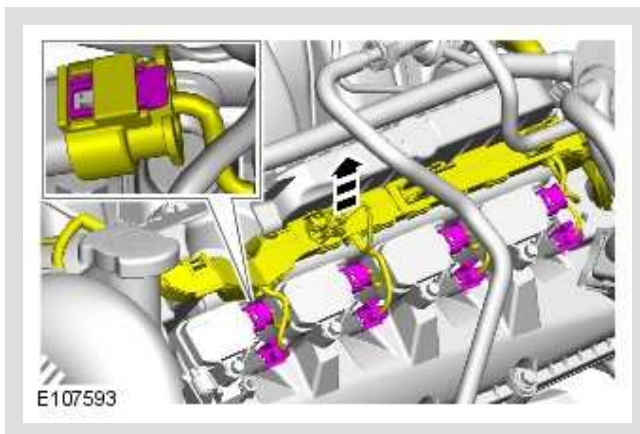


21. Lower the vehicle.

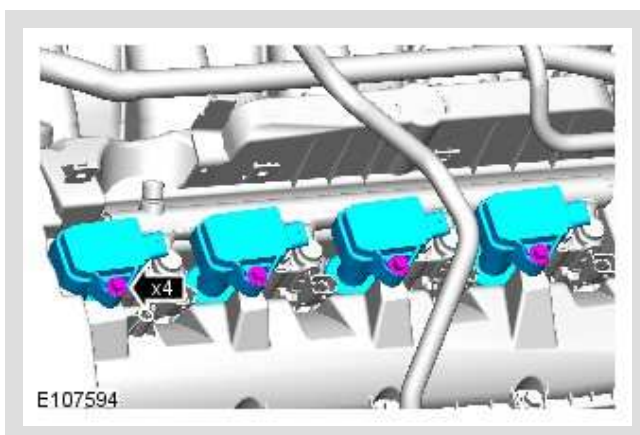
22.



23.



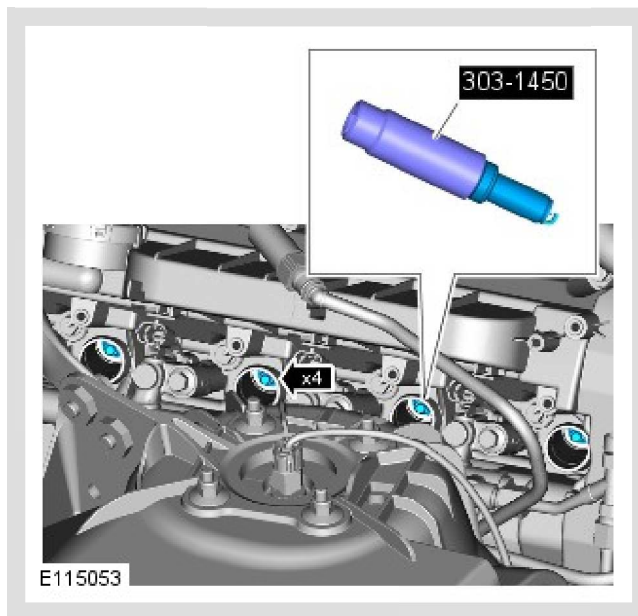
24.



25.

**NOTE:**

RH illustration shown, LH is similar.

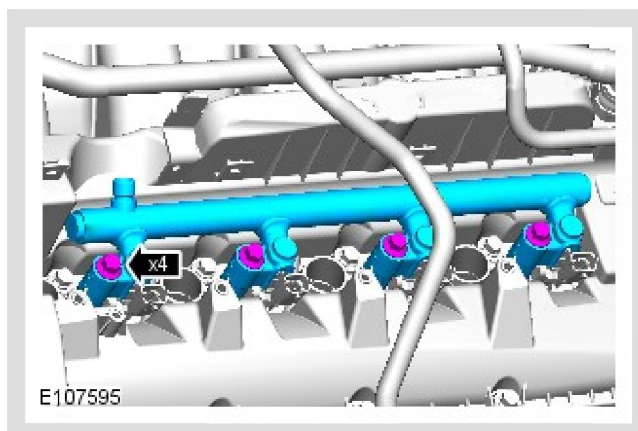


*Special Tool(s):* 303-1450

26.

**CAUTION:**

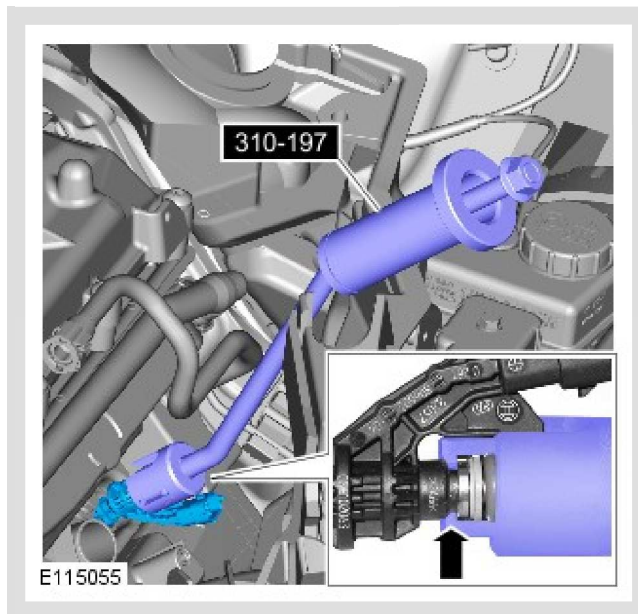
Make a note of the fuel injector clamp alignment to the fuel rail prior to removal.



27.

**ⓘ CAUTIONS:**

- Make sure that the special tool is located correctly to the fuel injector prior to removing the fuel injector.
- Make sure that the special tool is held square to the fuel injector during removal.
- Make sure that all open ports are covered to prevent any foreign material ingress.

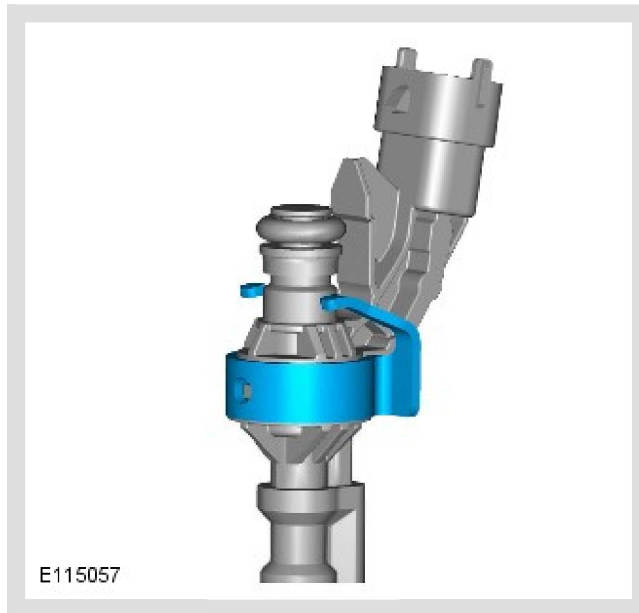


*Special Tool(s):* [310-197](#)

28.

**ⓘ CAUTION:**

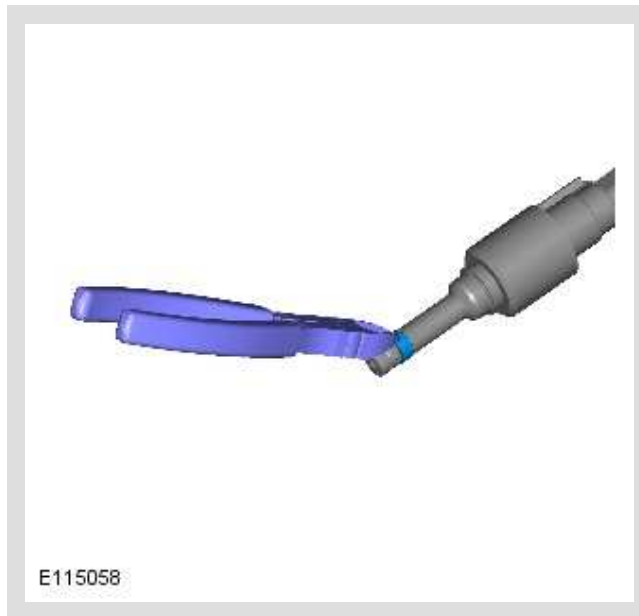
If the fuel injector is being removed without a new component being installed, the fuel injector clamp must remain with the fuel injector it is removed with.



29.

#### ⓘ CAUTIONS:

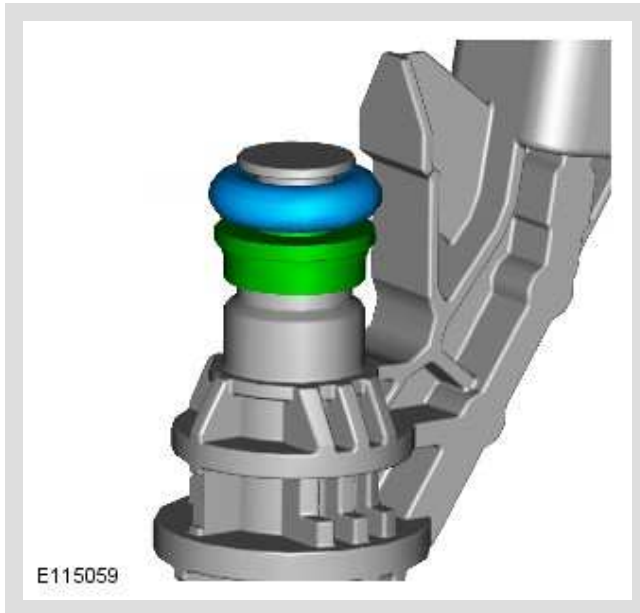
- Do not use a knife to remove the Teflon seal as damage could occur to the fuel injector.
- Do not cut the Teflon seal too deep as damage could occur to the fuel injector.
- Pinch the Teflon seal to allow the tool to cut the Teflon seal without damaging the fuel injector.



30.

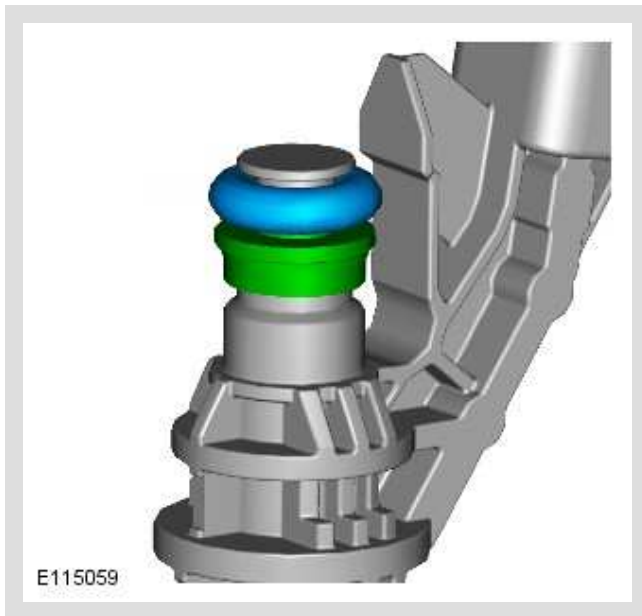
**ⓘ CAUTION:**

Do not use any sharp tools to remove the O-ring seal as damage could occur to the fuel injector.

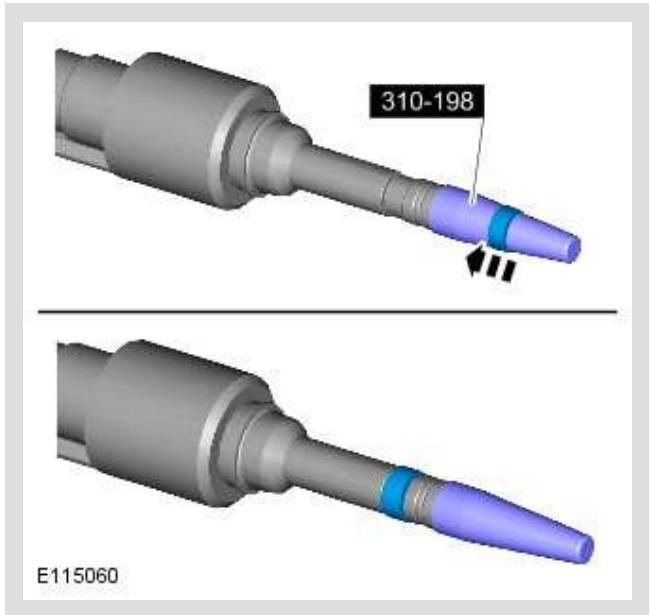


## INSTALLATION

1.

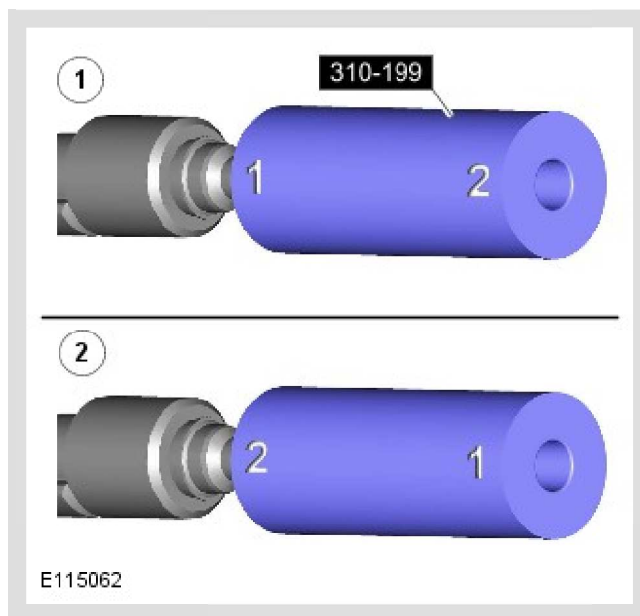


2.



*Special Tool(s):* 310-198

3.

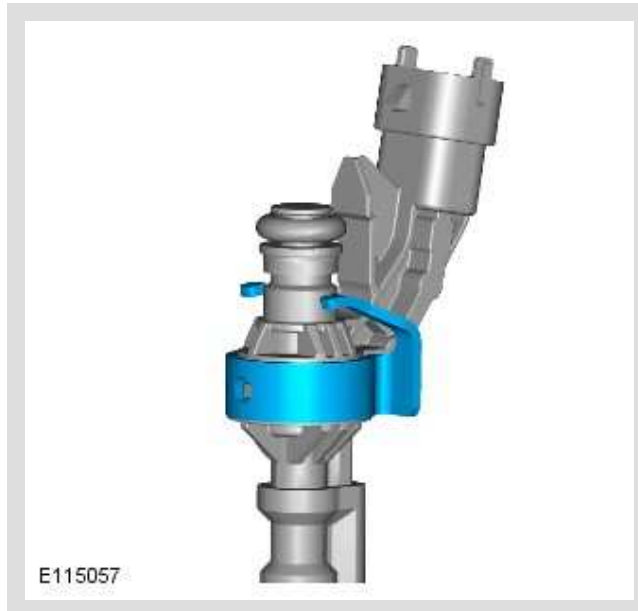


*Special Tool(s):* [310-199](#)

4.

**ⓘ CAUTION:**

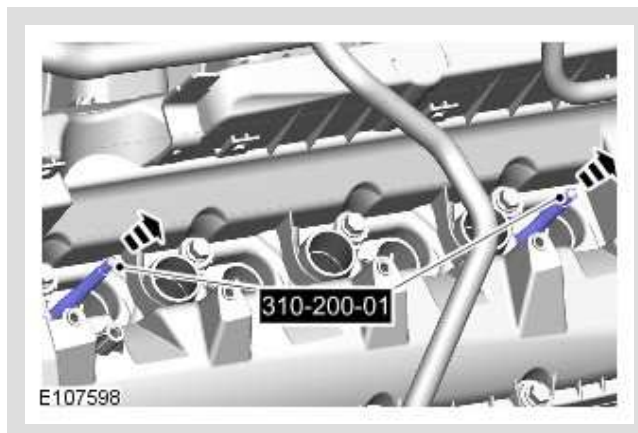
If the original fuel injector is being installed, the original fuel injector clamp must be installed with the fuel injector it was removed with.



5.

**⚠ CAUTION:**

If a new cylinder head has been installed then the special tool 310-200-02 without the thread must be used to install the fuel rail.

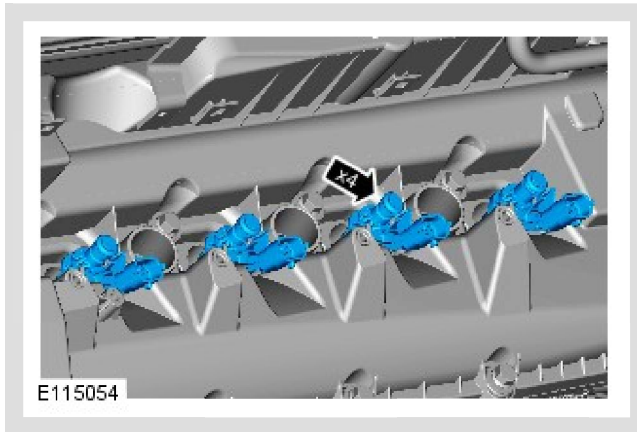


*Special Tool(s):* [310-200-01](#)

6.

### ⓘ CAUTIONS:

- Make sure that the area around the open fuel injector ports are clean and free of foreign material and lubricant prior to installing the fuel injector.
- When installing the fuel injector(s), make sure that the Teflon seal is clean and free of foreign material and lubricant.



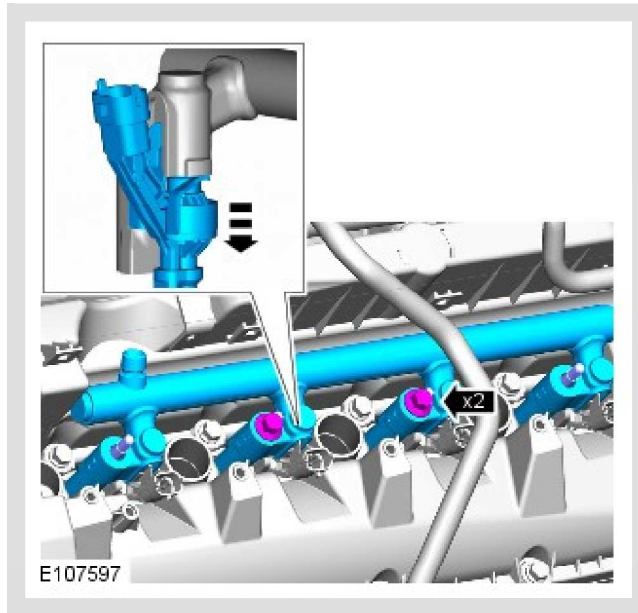
7.

### ⓘ CAUTIONS:

- If new fuel injectors are installed, a new injector clamp must be installed.
- Make sure that the fuel injector is aligned and installed into the fuel rail correctly, as noted in the removal step.
- Tighten the fuel rail retaining bolts a turn at a time until the correct torque is achieved.

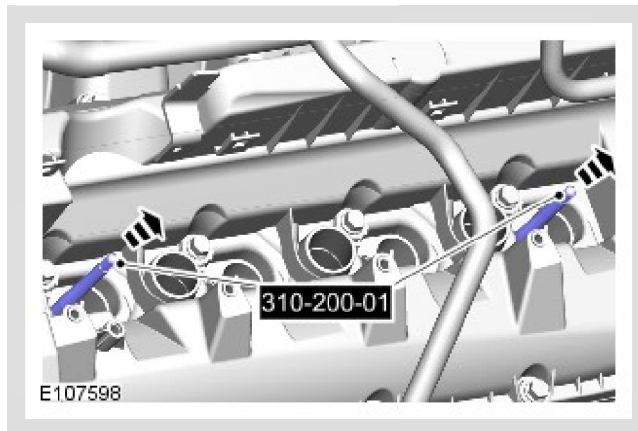
 **NOTE:**

Lubricate the fuel injector O-ring seals with clean engine oil.



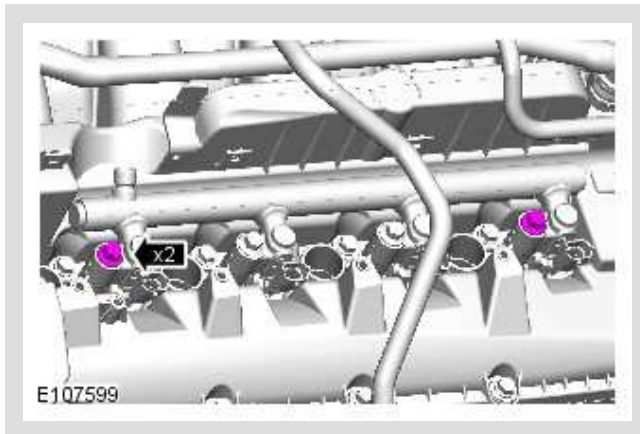
*Torque: 20 Nm*

8.



*Special Tool(s): 310-200-01*

9.

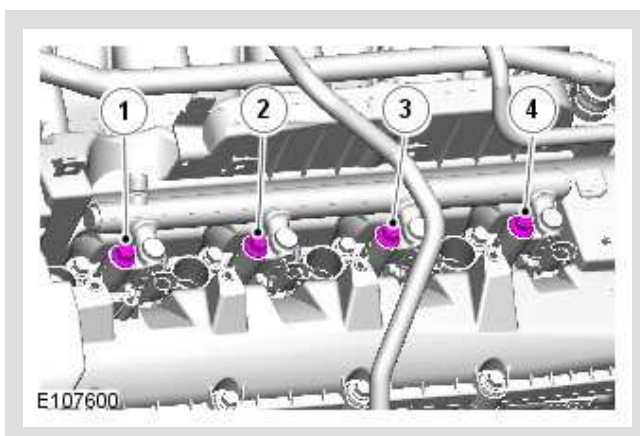


*Torque:* **20 Nm**

10.

 **NOTE:**

Tighten the bolts in the indicated sequence.



*Torque:*

Bolt 2 **30 Nm**

Bolt 3 **30 Nm**

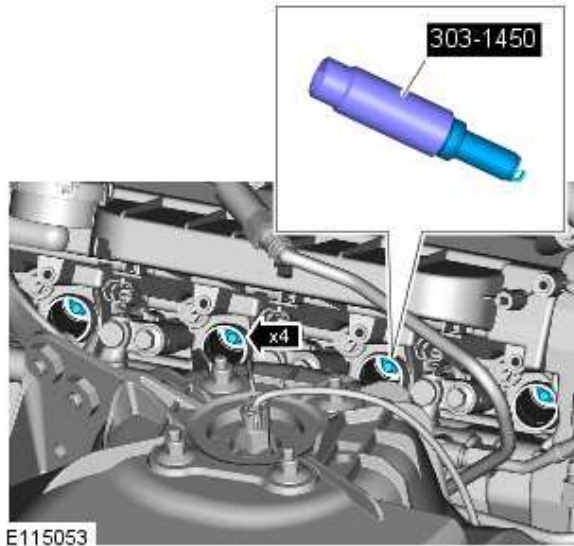
Bolt 1 **30 Nm**

**Bolt 4 30 Nm**

11.



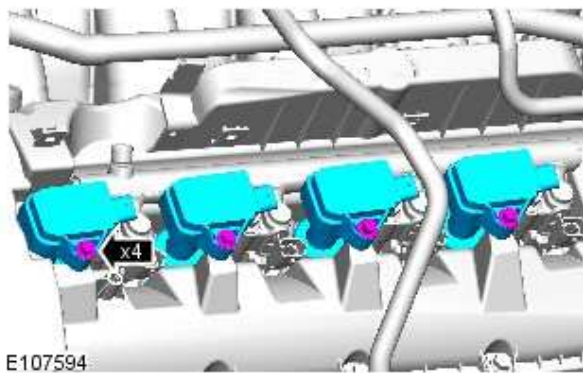
12.



*Special Tool(s):* 303-1450

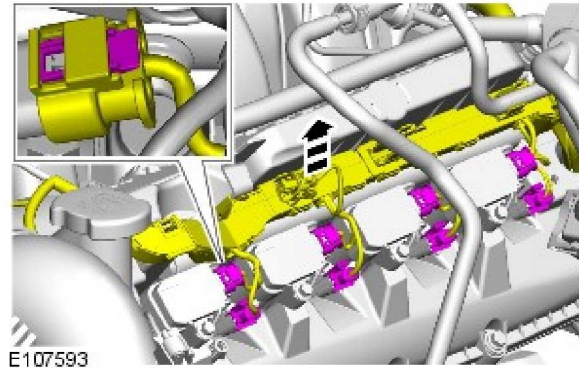
*Torque:* 22 Nm

13.



*Torque: 7 Nm*

14.



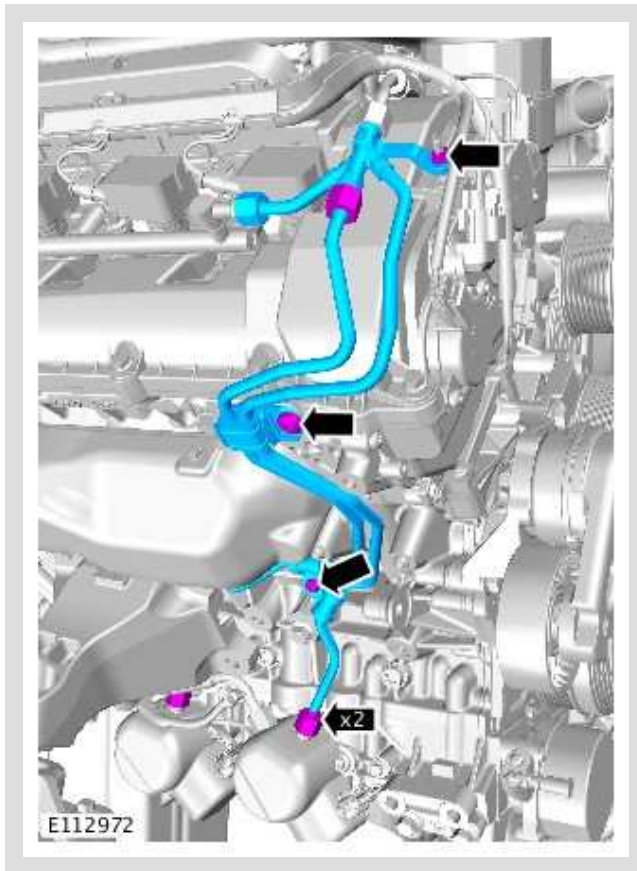
15.

⚠ CAUTION:

Lubricate only the union threads with clean engine oil.

△ NOTES:

- Engine shown removed for clarity.
- Install the bolt and unions finger tight before final tightening.
- Remove and discard the blanking caps.

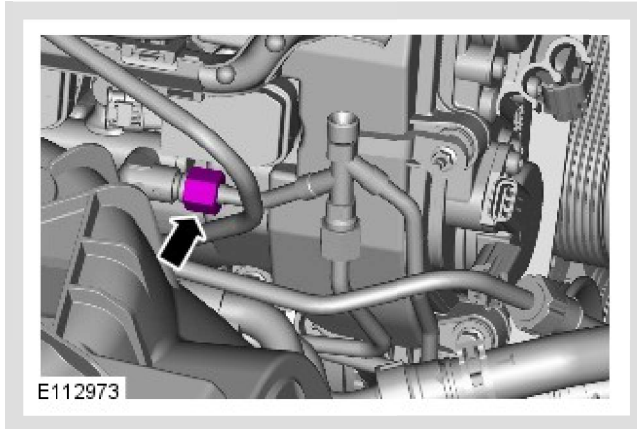


16. Lower the vehicle.

17.

 **NOTES:**

- Do not tighten at this stage.
- Remove and discard the blanking caps.



18.

 **WARNING:**

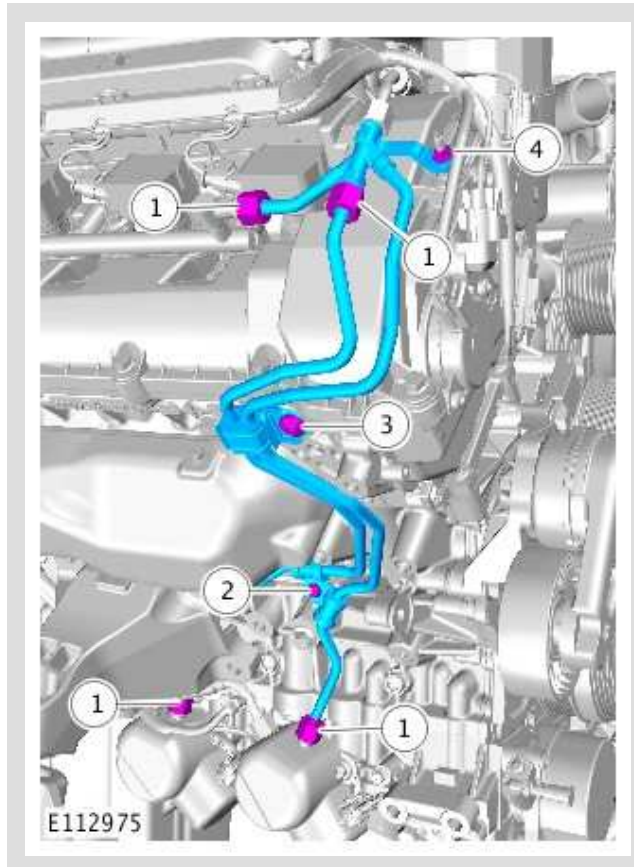
Do not work on or under a vehicle supported only by a jack. Always support the vehicle on safety stands.

Raise and support the vehicle.

19.

 **NOTE:**

Engine shown removed for clarity.



*Torque:*

Unions (1) **21 Nm**

M6 (2) **11 Nm**

M8 (3) **25 Nm**

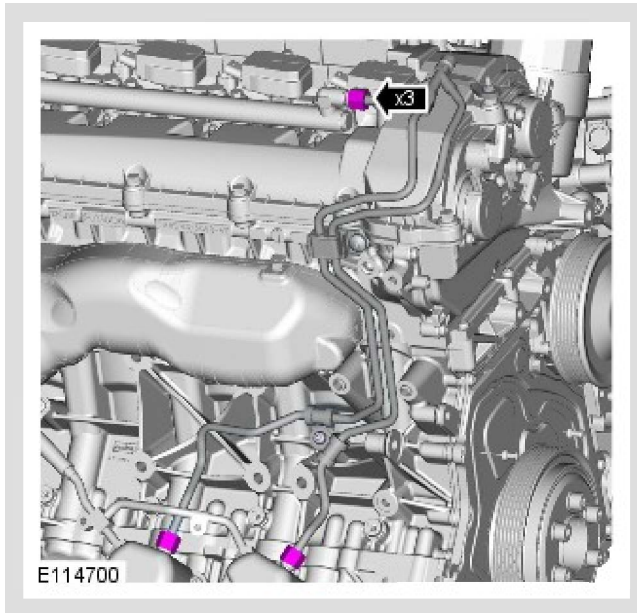
M5 nut (4) **6 Nm**

20.



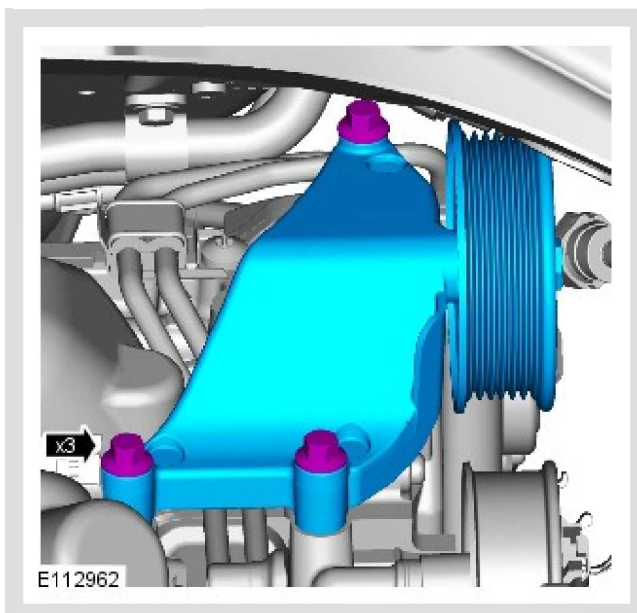
**NOTE:**

Engine shown removed for clarity.



*Torque: 21 Nm*

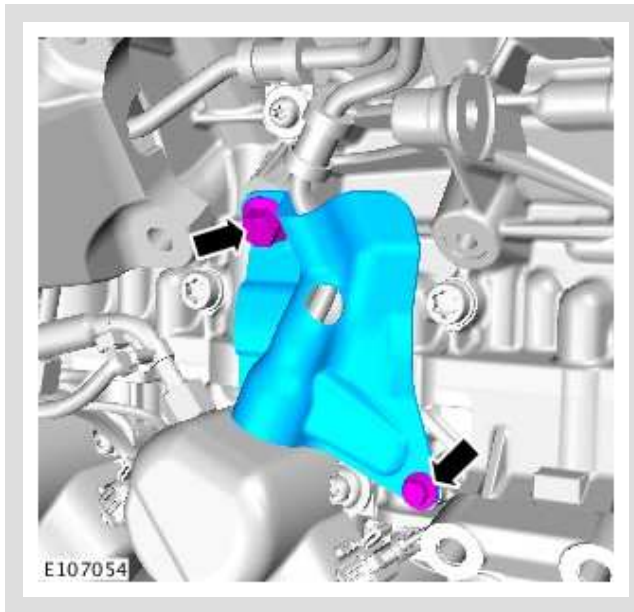
21.



22.

 **NOTE:**

Engine shown removed for clarity.

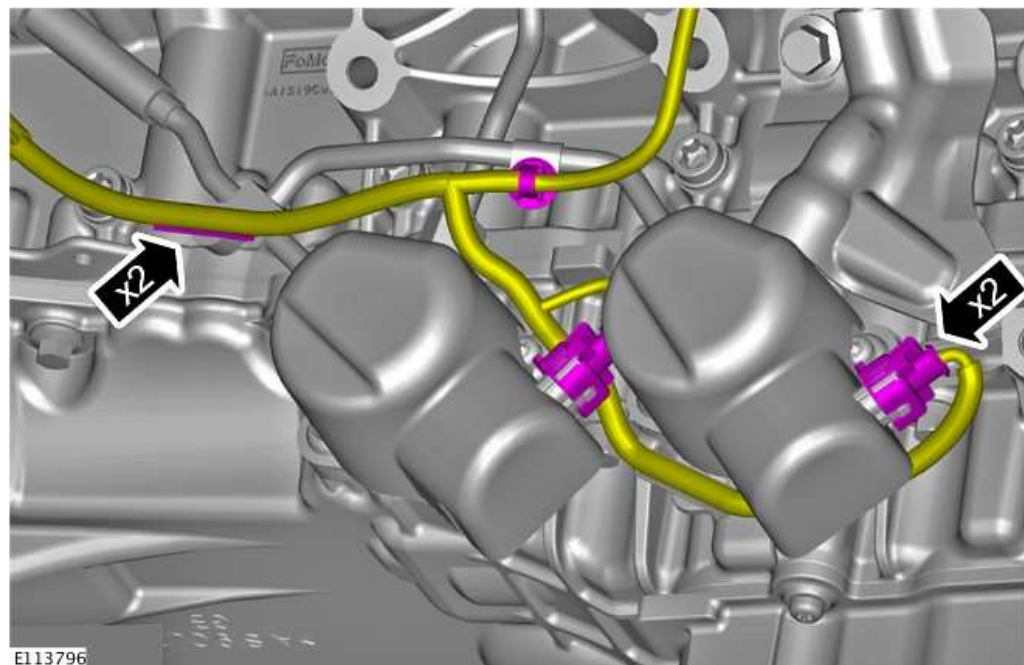


*Torque:*

M10 **29 Nm**

M6 **11 Nm**

23.

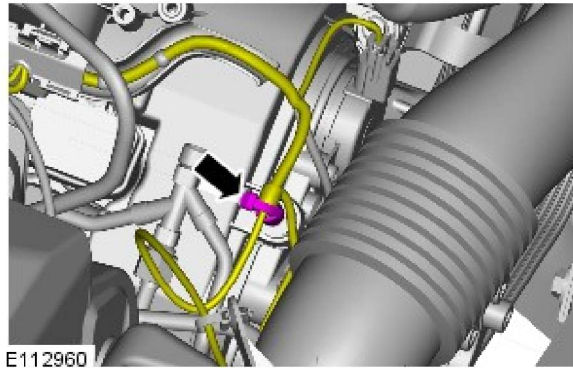


24.

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

25. Lower the vehicle.

26.



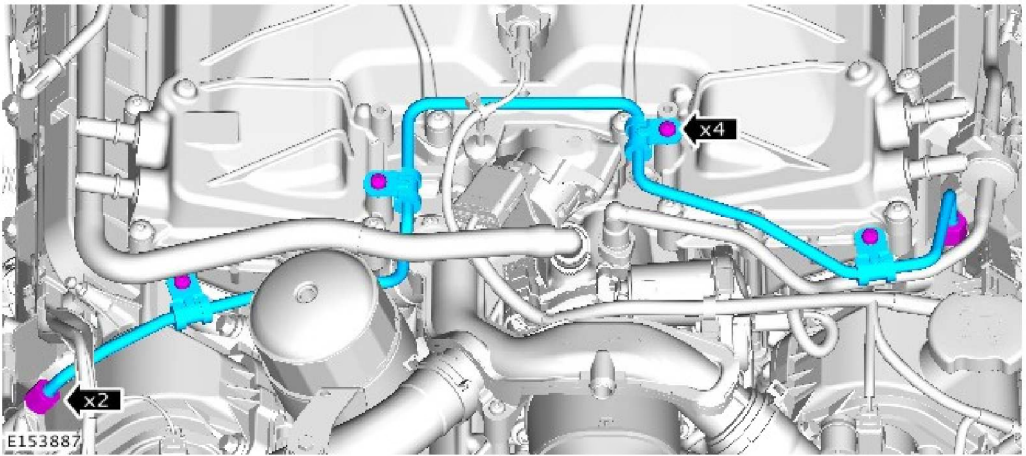
27.

**⚠ CAUTION:**

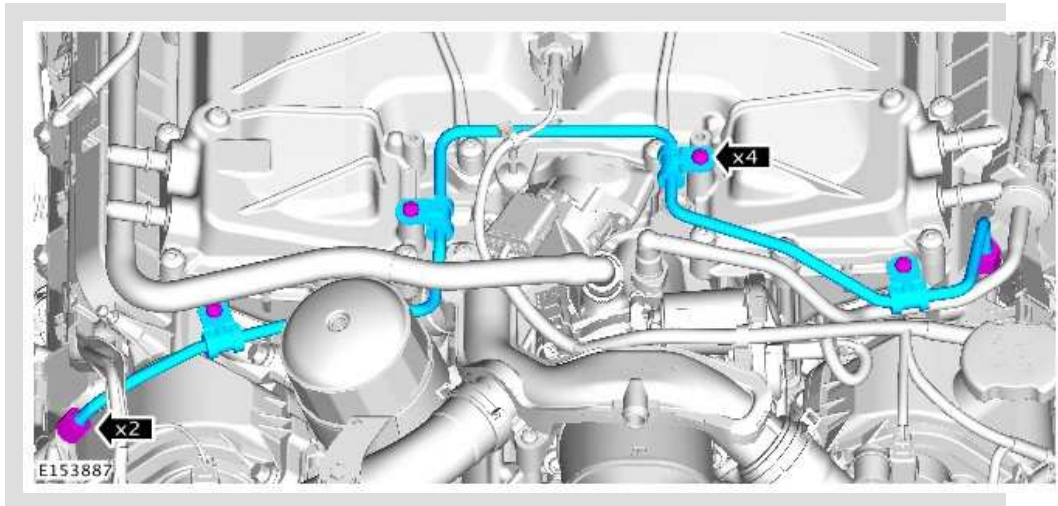
Lubricate only the union threads with clean engine oil.

**⚠ NOTES:**

- Do not tighten at this stage.
- Remove and discard the blanking caps.



28.

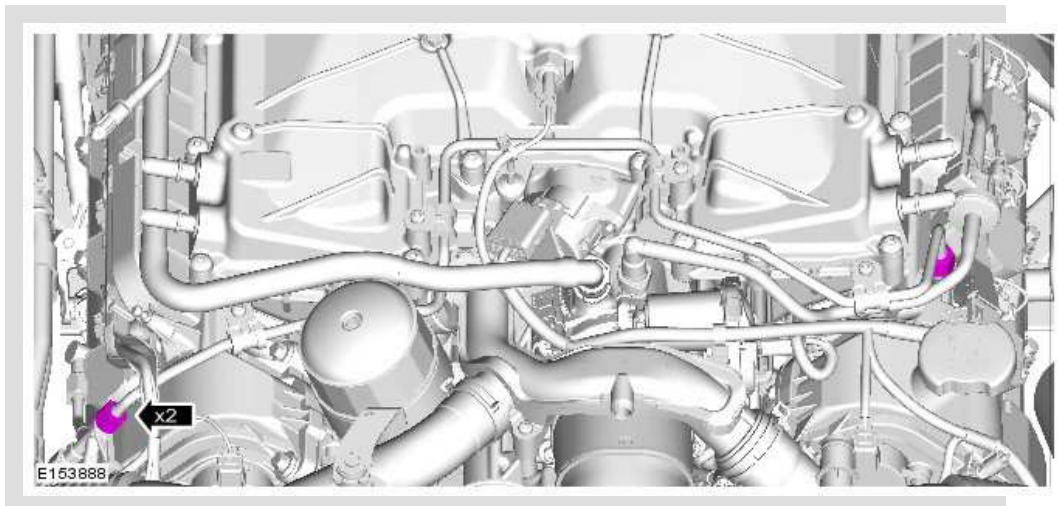


*Torque:*

Unions **21 Nm**

Bolts **8 Nm**

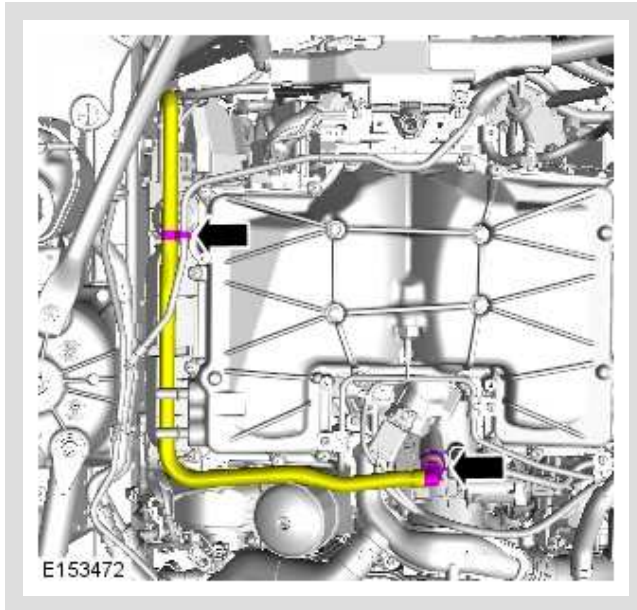
29.



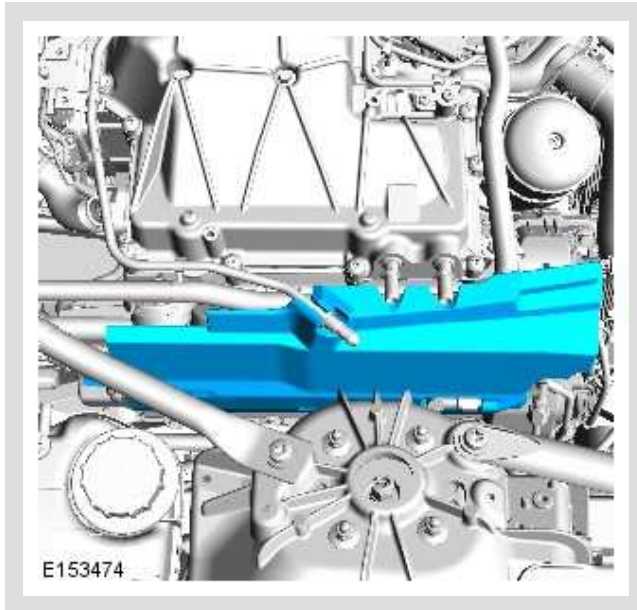
*Torque:* **21 Nm**

30. Refer to: [Air Cleaner Outlet Intermediate Pipe RH \(303-12B Intake Air Distribution and Filtering - V8 S/C 5.0L Petrol, Removal and Installation\)](#).

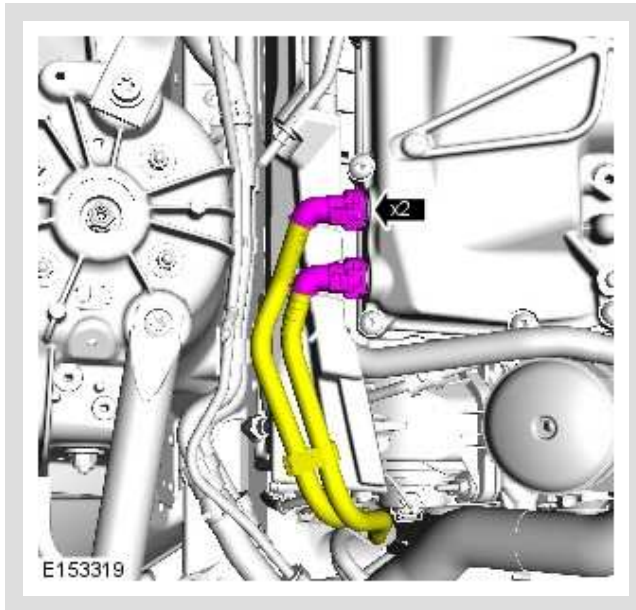
31.



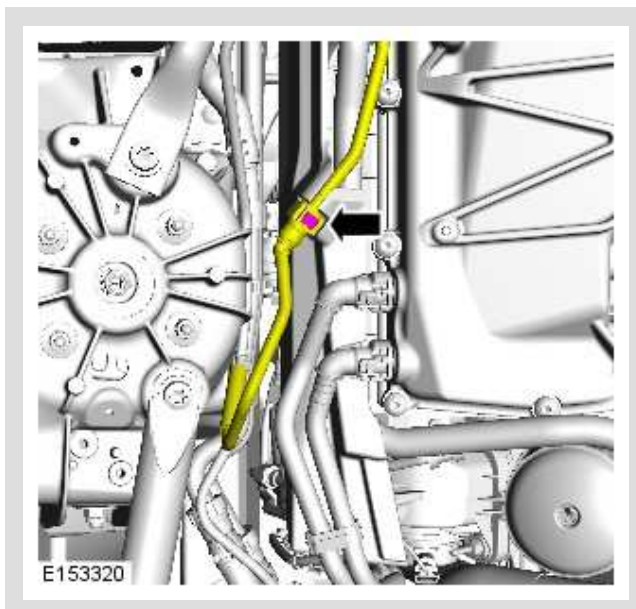
32.



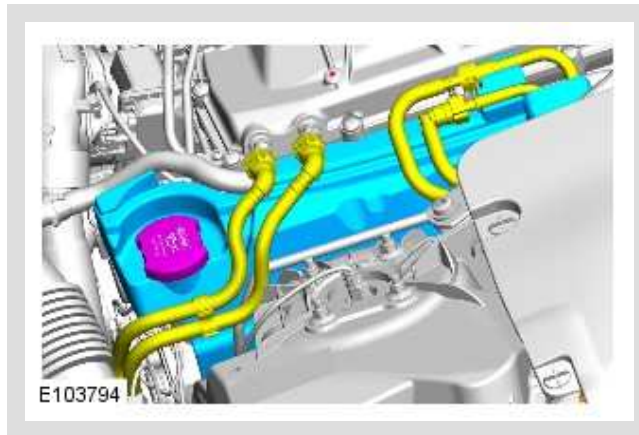
33.



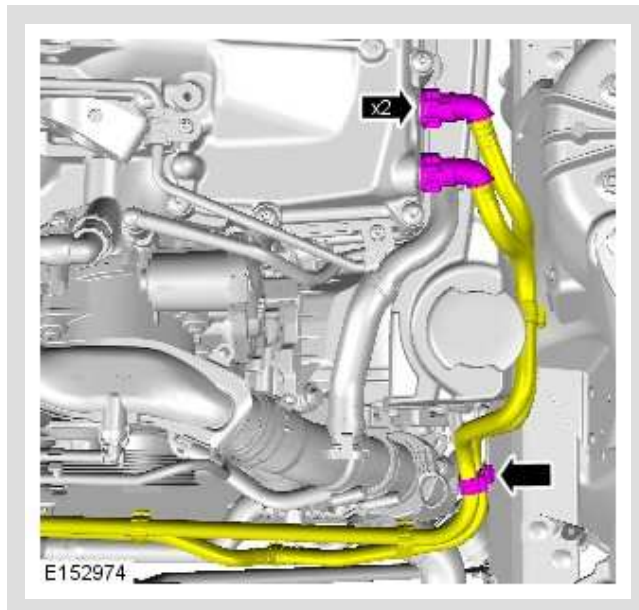
34.



35.



36.



37. Refer to: [Secondary Bulkhead Panel RH](#) (501-02 Front End Body Panels, Removal and Installation).

38. Refer to: [Battery Disconnect and Connect](#) (414-01 Battery, Mounting and Cables, General Procedures).