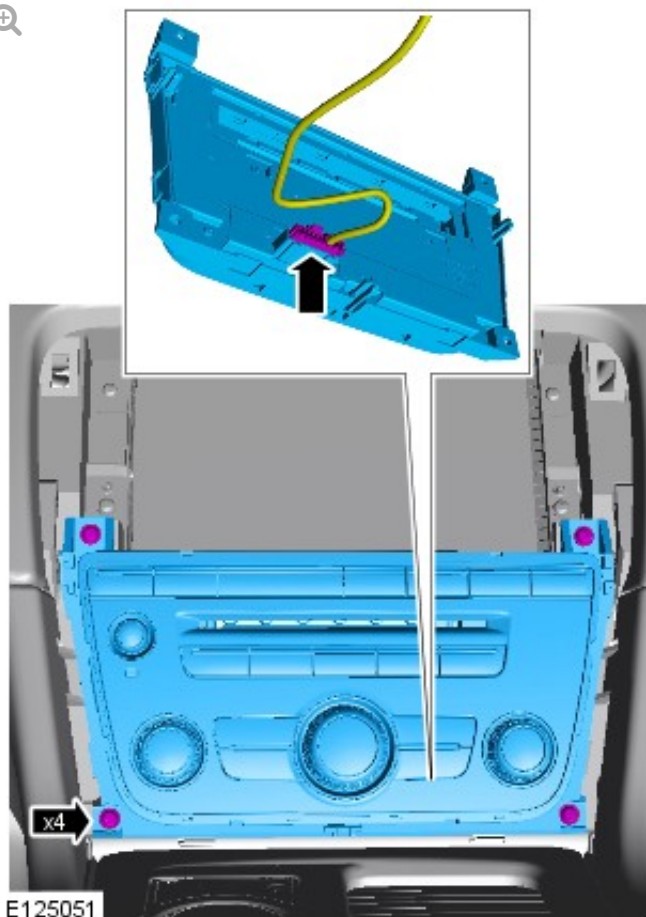


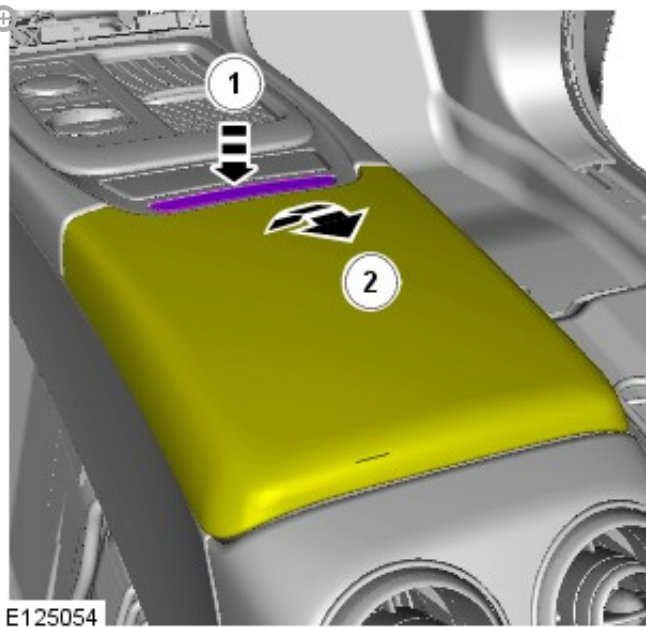
E125056

2.

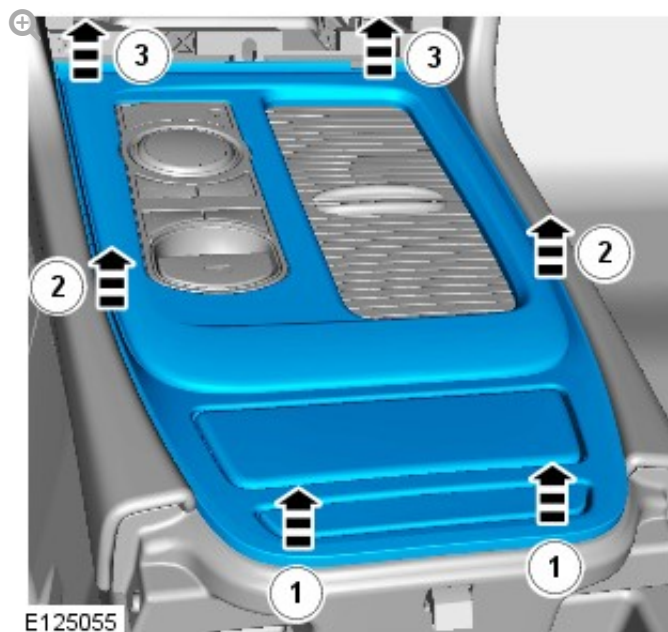


Torque: 2 Nm

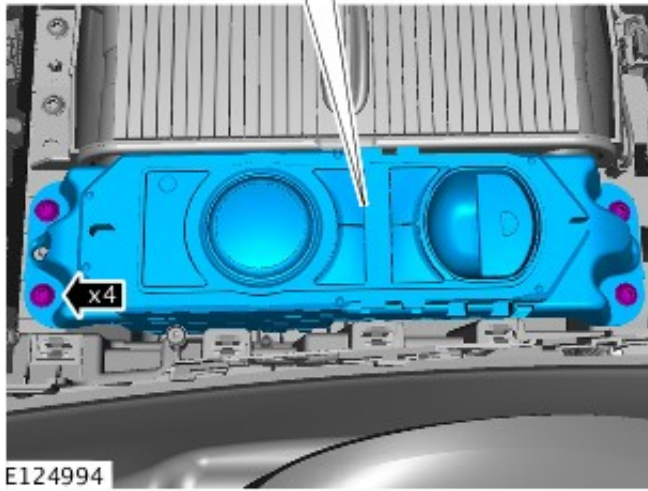
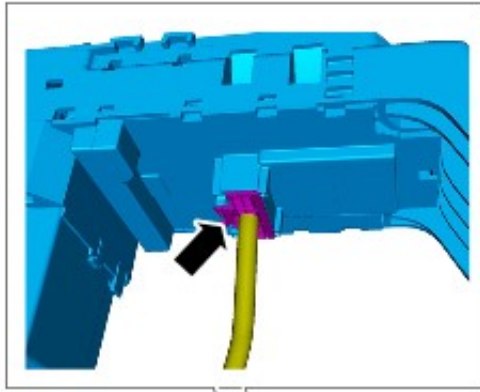
3.



Take extra care not to damage the edges of the component.



5.



Torque: 4 Nm

INSTALLATION

1. To install, reverse the removal procedure.

AUTOMATIC TRANSMISSION/TRANSAXLE EXTERNAL CONTROLS

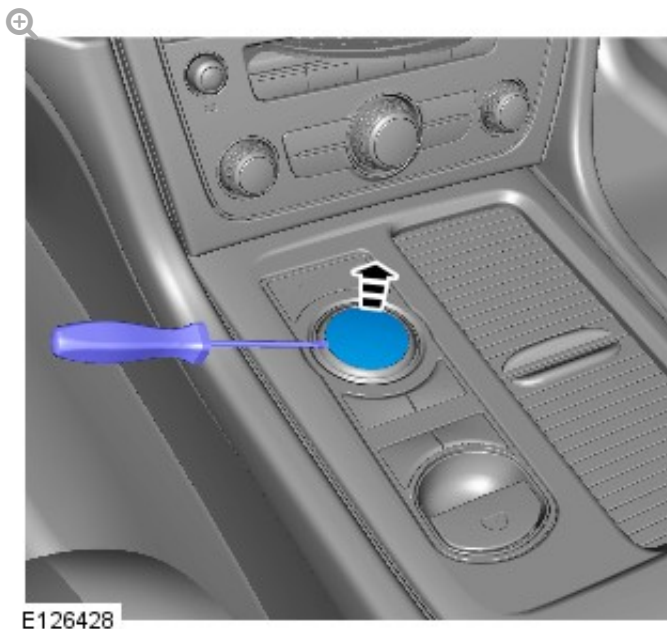
TRANSMISSION CONTROL SWITCH KNOB [G1268351]

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.

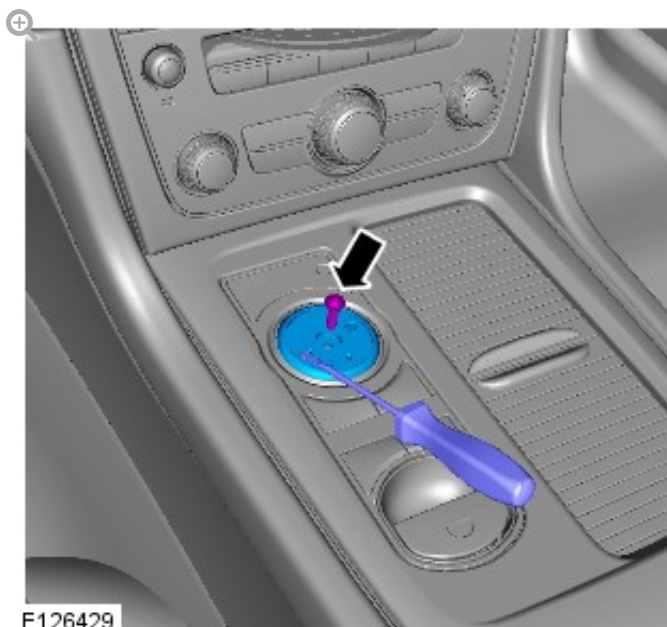
- Do not start the engine.
- Take extra care not to damage the edges of the component.



E126428

2.

Take extra care not to damage the edges of the component.



E126429

Torque: **2 Nm**

1. To install, reverse the removal procedure.

AUTOMATIC TRANSMISSION/TRANSAXLE EXTERNAL CONTROLS

UPSHIFT PADDLE SWITCH

[G1268353]

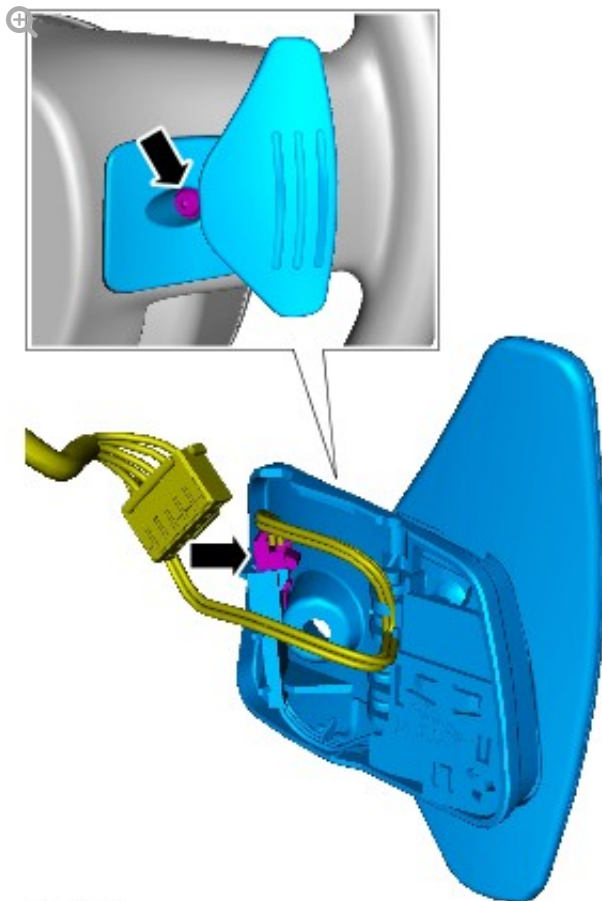


REMOVAL

- 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 that the harness is routed to the position noted on removal.
- LH illustration shown, RH is similar.



E127936

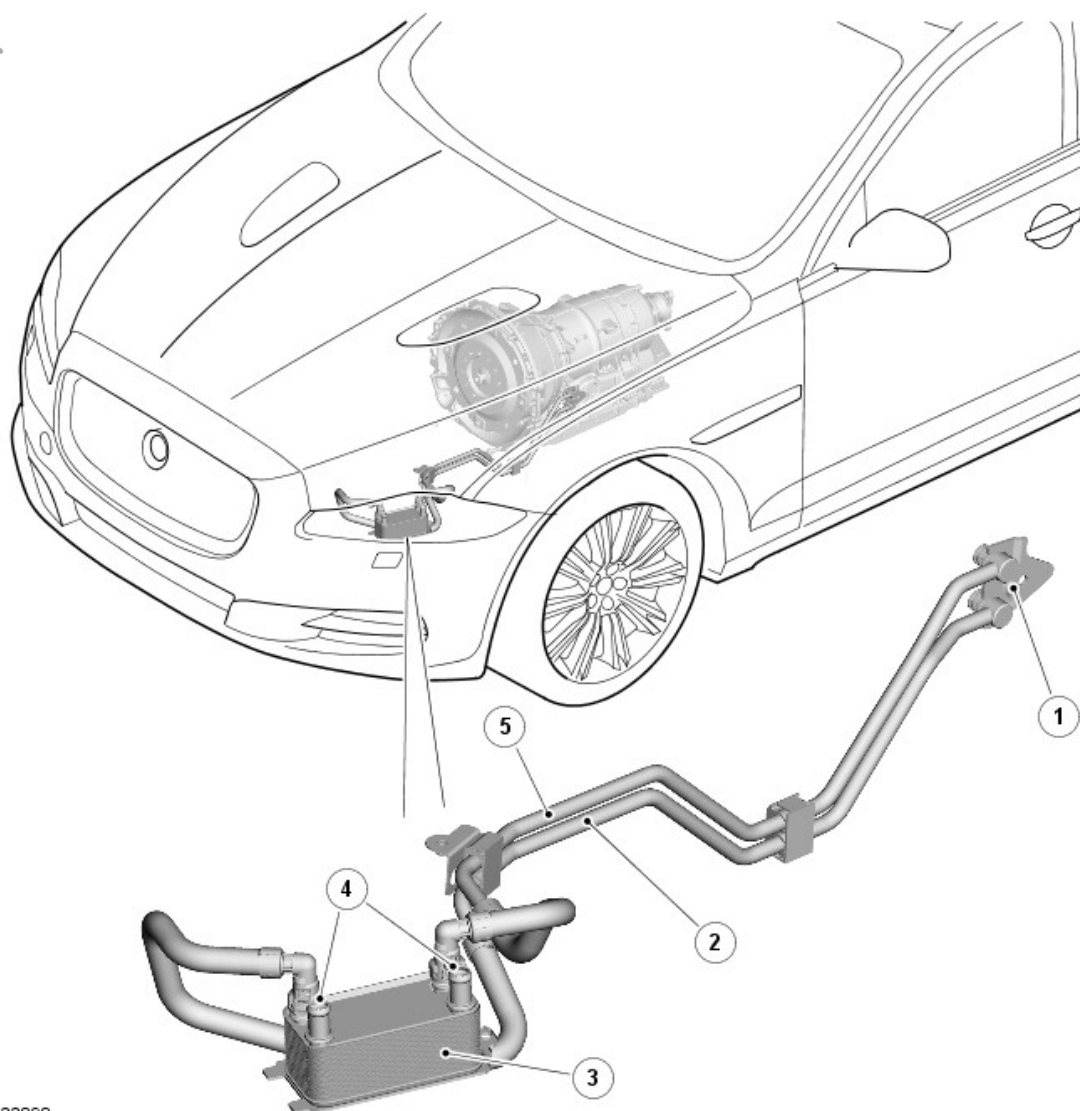
Torque: 3 Nm

INSTALLATION

1. To install, reverse the removal procedure.

TRANSMISSION/TRANSAXLE COOLING TRANSMISSION COOLING - COMPONENT LOCATION [G1245453]

Installation for 5.0L engines shown; installation for 3.0L diesel similar.



E123898

1	Latch-plate
2	Feed hose and pipe (from transmission)
3	Transmission fluid cooler
4	Engine coolant hose connections
5	Return hose and pipe (to transmission)

TRANSMISSION/TRANSAXLE COOLING

TRANSMISSION COOLING - OVERVIEW [G1245454]

OVERVIEW

Transmission cooling is provided by a transmission fluid cooler, which transfers heat from the transmission to the engine cooling system. The transmission fluid cooler is attached to a mounting bracket on the front subframe, in the front left corner of the engine compartment.

Two hose and pipe assemblies connect the transmission fluid cooler to the automatic transmission. Two engine coolant hose connections are incorporated into the top of the transmission fluid cooler for the supply and return of coolant from the engine cooling system. For additional information, refer to:

[Engine Cooling](#) (303-03A Engine Cooling - TDV6 3.0L Diesel, Description and Operation),

[Engine Cooling](#) (303-03B Engine Cooling - V8 N/A 5.0L Petrol/V8 S/C 5.0L Petrol, Description and Operation).

TRANSMISSION/TRANSAXLE COOLING TRANSMISSION COOLING - SYSTEM OPERATION AND COMPONENT DESCRIPTION

[G1245455]

SYSTEM OPERATION

Fluid from the pump in the automatic transmission flows through the feed hose and pipe to the transmission fluid cooler. The fluid then flows through the transmission fluid cooler, and the return hose and pipe, to the sump of the automatic transmission.

TRANSMISSION/TRANSAXLE COOLING TRANSMISSION FLUID COOLER - TDV6 3.0L DIESEL

[G1269286]



REMOVAL

Removal steps in this procedure may contain installation details.

1.

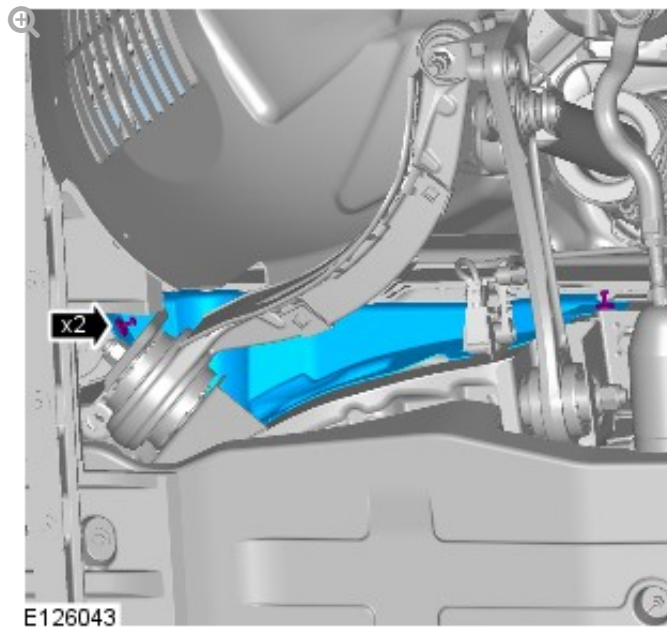
Make sure to support the vehicle with axle stands.

Raise and support the vehicle.

2. Refer to: [Transmission Fluid Drain and Refill](#) (307-01 Automatic Transmission/Transaxle, General Procedures).
3. Refer to: [Cooling System Partial Draining and Vacuum Filling](#) (303-03A Engine Cooling - TDV6 3.0L Diesel, General Procedures).

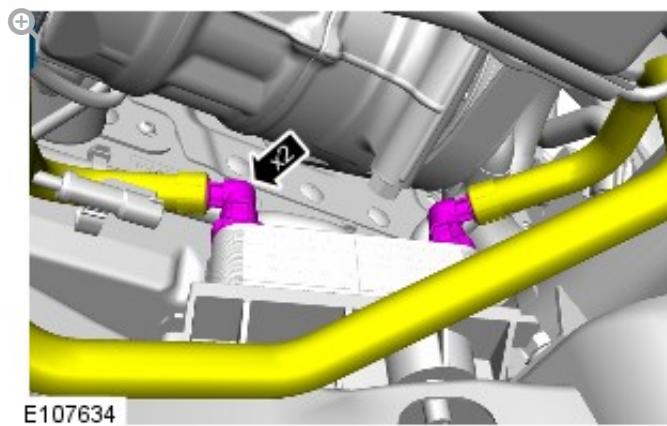
4. Refer to: [Air Cleaner](#) (303-12A Intake Air Distribution and Filtering - TDV6 3.0L Diesel, Removal and Installation).

5.



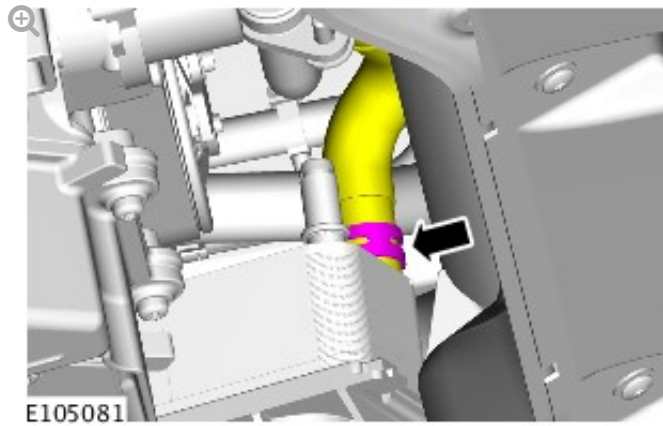
6.

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



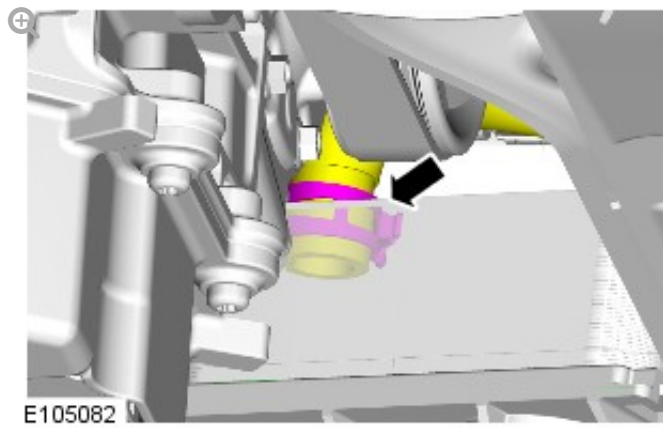
7.

Be prepared to collect escaping coolant.



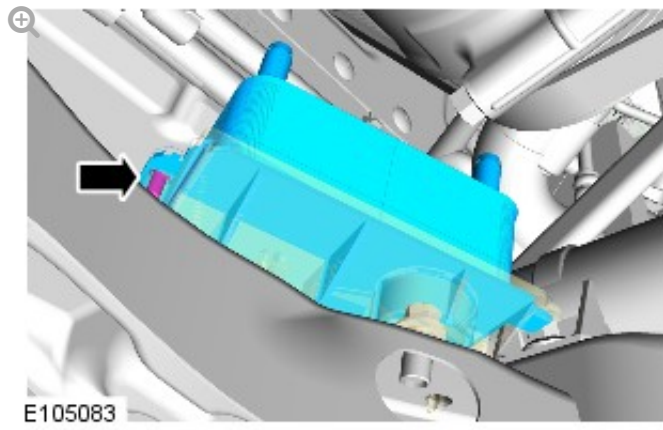
8.

Be prepared to collect escaping coolant.



9.

Be prepared to collect escaping fluids.



Torque: **5 Nm**

INSTALLATION

1. To install, reverse the removal procedure.

TRANSMISSION/TRANSAXLE COOLING TRANSMISSION FLUID COOLER TUBES - TDV6 3.0L DIESEL [G1269288]

+

+

REMOVAL

Removal steps in this procedure may contain installation details.

1. Refer to: [Air Cleaner](#) (303-12A Intake Air Distribution and Filtering - TDV6 3.0L Diesel, Removal and Installation).

2.

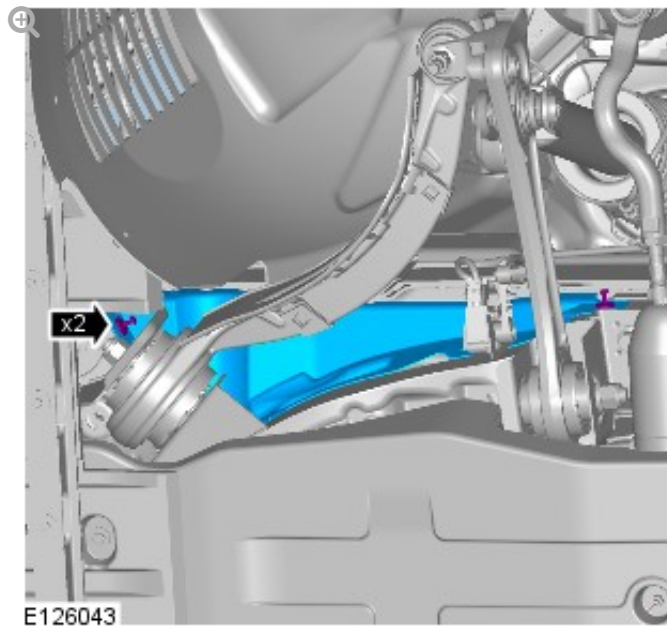
Make sure to support the vehicle with axle stands.

Raise and support the vehicle.

3. Refer to: [Catalytic Converter](#) (309-00A Exhaust System - TDV6 3.0L Diesel, Removal and Installation).

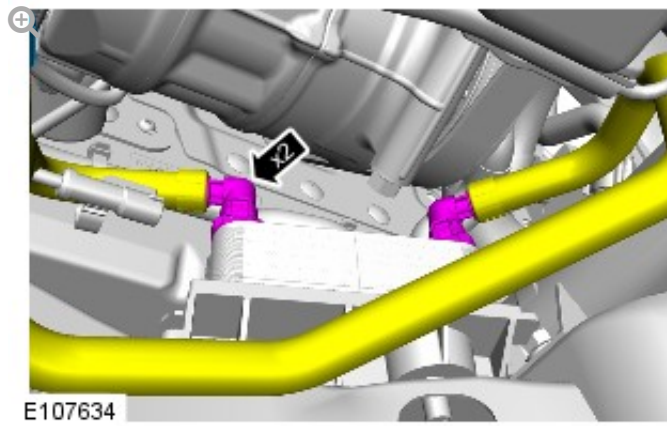
4. Refer to: [Transmission Fluid Drain and Refill](#) (307-01 Automatic Transmission/Transaxle, General Procedures).

5.

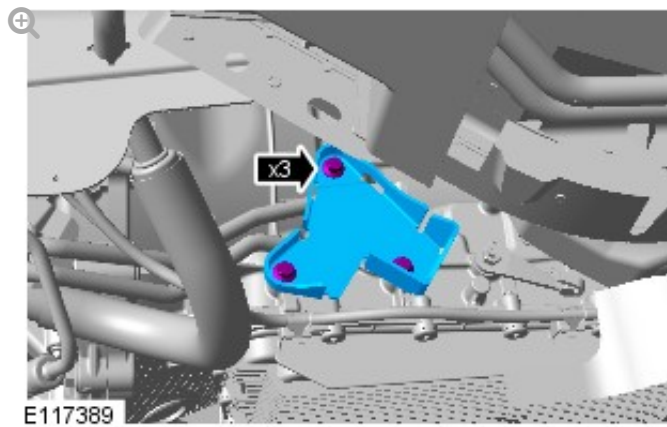


6.

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



7.

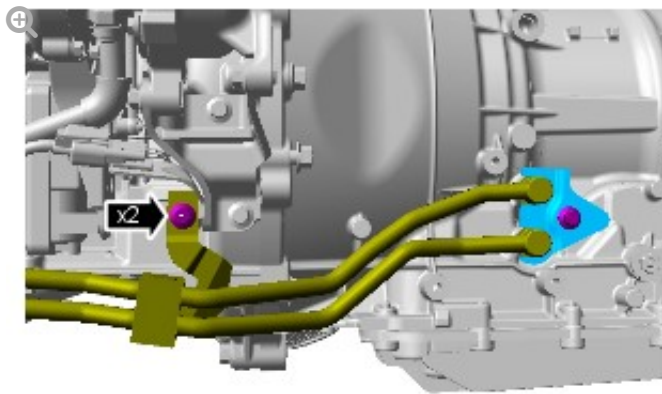


Torque: **23 Nm**

8.

Be prepared to catch escaping fluid.

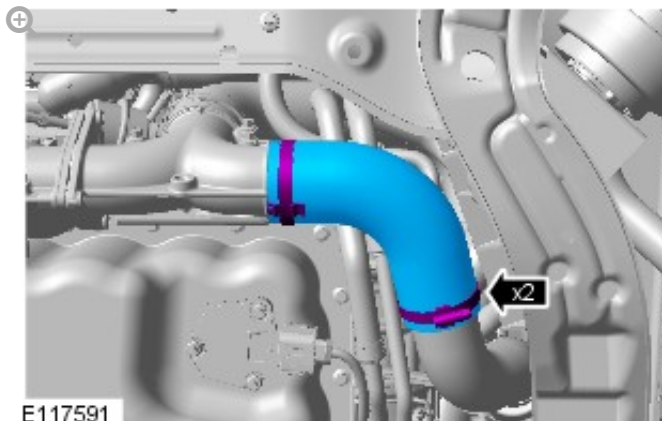
Remove and discard the O-ring seals.



E117390

Torque: **23 Nm**

9.

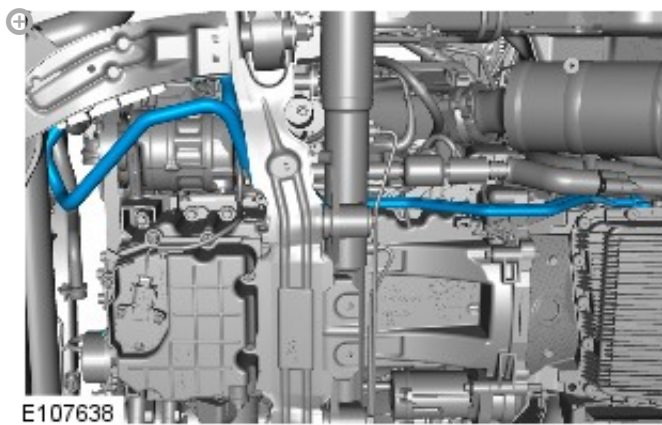


E117591

Torque: **5 Nm**

10.

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



INSTALLATION

1. To install, reverse the removal procedure.

TRANSMISSION/TRANSAXLE COOLING

PRINCIPLE OF OPERATION

For a detailed description of the automatic transmission cooling system and operation, refer to the relevant Description and Operation sections in the workshop manual. REFER to: (307-02 Transmission/Transaxle Cooling)

[Transmission Cooling](#) (Description and Operation),
[Transmission Cooling](#) (Description and Operation),
[Transmission Cooling](#) (Description and Operation).

INSPECTION AND VERIFICATION

Verify the customer concern by operating the system.

Visually inspect for obvious signs of damage and system integrity.

- | |
|--|
| |
| <ul style="list-style-type: none">▪ Feed and return tubes▪ Connections to the automatic transmission and the automatic transmission fluid cooler▪ Automatic transmission fluid level |

If an obvious cause for an observed or reported concern is found,

correct the cause (if possible) before proceeding to the next step.

If the cause is not visually evident, verify the symptom and refer to the Symptom Chart, alternatively check for Diagnostic Trouble Codes (DTCs) and refer to the DTC Index.

SYMPTOM CHART

Over heating of the automatic transmission	Obstruction in the automatic transmission fluid cooler	Flush out the automatic transmission fluid cooler with new automatic transmission fluid. If the flushing is unsuccessful, install a new transmission fluid cooler.
Over heating of the automatic transmission	Obstruction in the automatic transmission fluid tubes	Flush out the automatic transmission fluid cooler tubes with new automatic transmission fluid. If the flushing is unsuccessful install new automatic transmission fluid cooler tubes.
Loss of automatic transmission fluid	Connections to the automatic transmission and the automatic transmission fluid cooler	Check the integrity of the tubes, connections and seals. Check the torque of the tube fixings.
Loss of automatic transmission fluid	Leak at oil cooler	Check the integrity of tubes, connections and seals. Check the torque of the tube fixings.

DTC INDEX

For a list of Diagnostic Trouble Codes (DTCs) that could be logged on this vehicle, please refer to Section 100-00.

REFER to: [Diagnostic Trouble Code Index - DTC: Transmission Control Module \(TCM\)](#) (100-00 General Information, Description and Operation).

TRANSMISSION/TRANSAXLE COOLING

Transmission fluid	ATF Shell M 1375.4

Transmission fluid cooler tube to transmission housing bolt	23	17	-
Transmission fluid cooler tube bracket to engine oil pan retaining bolt	23	17	-
Transmission fluid cooler retaining bolt	5	-	44

Transmission fluid cooler tube to transmission housing bolt	23	17	-
Transmission fluid cooler tube bracket to engine oil pan retaining nut	11	8	-
Transmission fluid cooler retaining bolt	5	-	44

Transmission fluid cooler tube to transmission housing bolt	22	16
Transmission fluid cooler tube bracket to engine oil pan retaining nut	8	6

Transmission fluid cooler tube to cooler unions

20

15

Transmission fluid cooler tube to transmission housing bolt

23

17

-

Transmission fluid cooler tube bracket to engine oil pan retaining nut
--

11

8

-

Transmission fluid cooler retaining bolt
--

5

-

44

AUTOMATIC TRANSMISSION/TRANSAXLE TRANSMISSION AND TRANSMISSION FLUID COOLER - TDV6 3.0L DIESEL

[G1452832]

SPECIAL TOOL[S]



**303-
021**

Engine support
bracket



**303-
1129**

Engine Lifting
Brackets



**303-
1497**

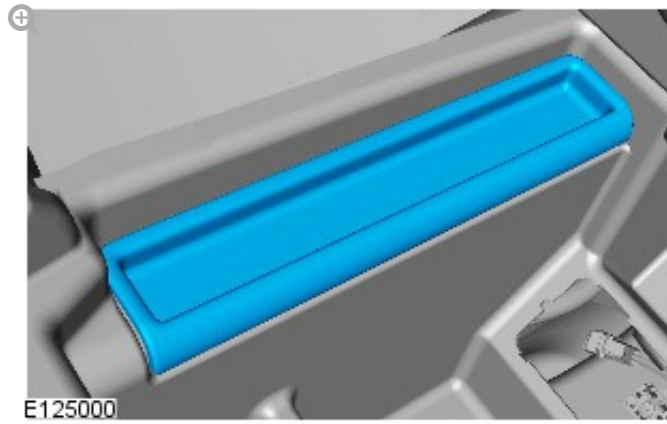
Left-Hand Rear
Engine Lifting
Bracket

REMOVAL

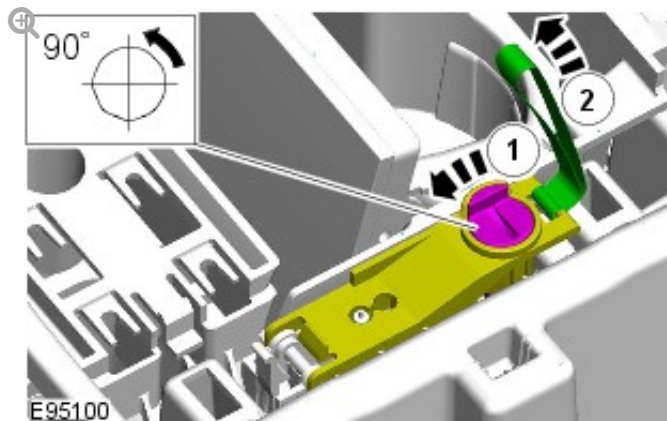
Make sure that all openings are sealed. Use new blanking caps.

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

1.



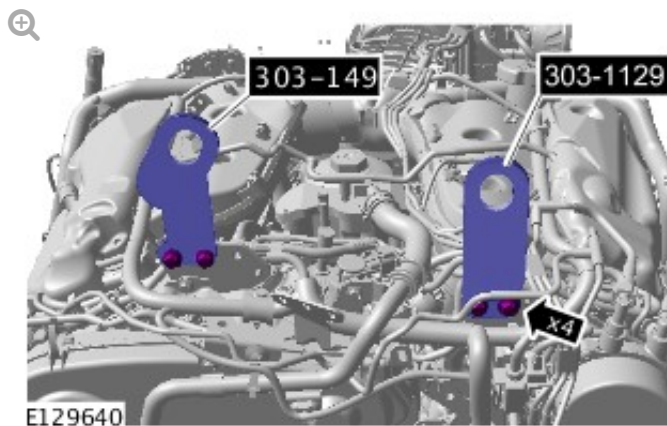
2.



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

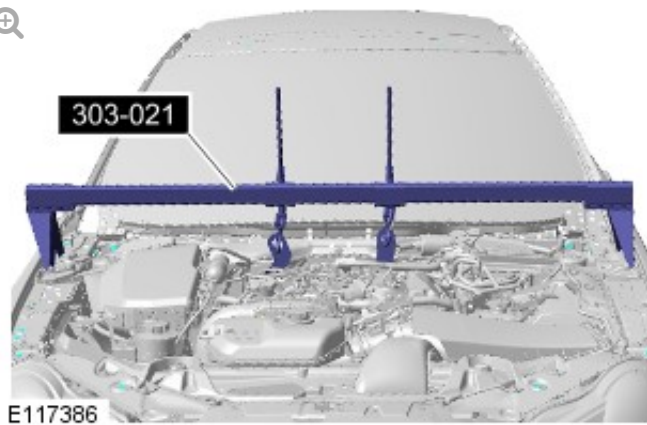
4. Refer to: [Engine Cover - TDV6 3.0L Diesel](#) (501-05 Interior Trim and Ornamentation, Removal and Installation).

5.



Special Tool(s): [303-1129](#), [303-1497](#)

6.



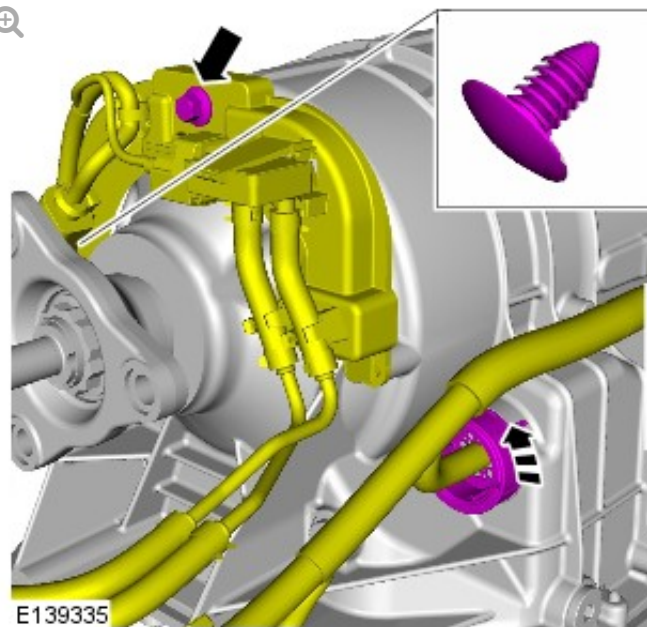
Special Tool(s): [303-021](#)

7.

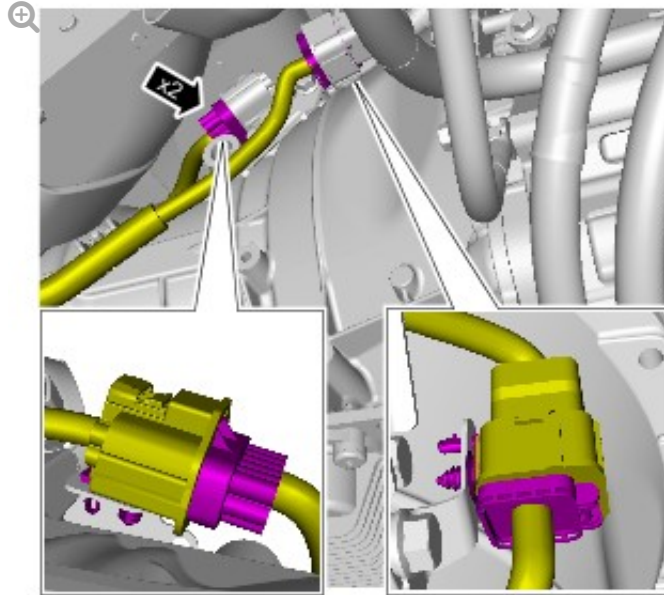
Make sure to support the vehicle with axle stands.

Raise and support the vehicle.

8.



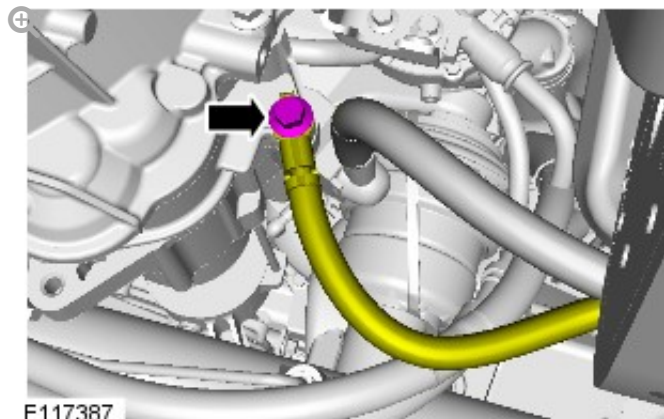
9.



E117393

10. Refer to: [Exhaust Manifold Cross-over Pipe \(303-01A Engine - TDV6 3.0L Diesel, Removal and Installation\)](#).

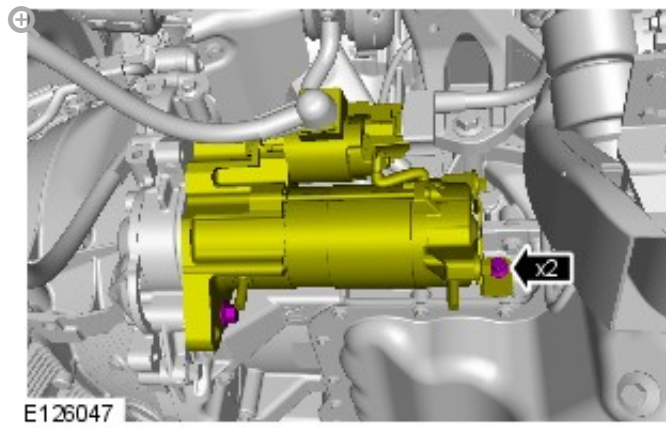
11.



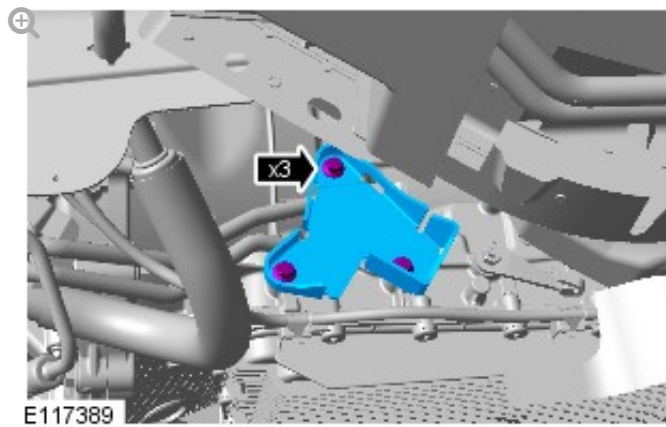
E117387

12.

Secure with cable ties.

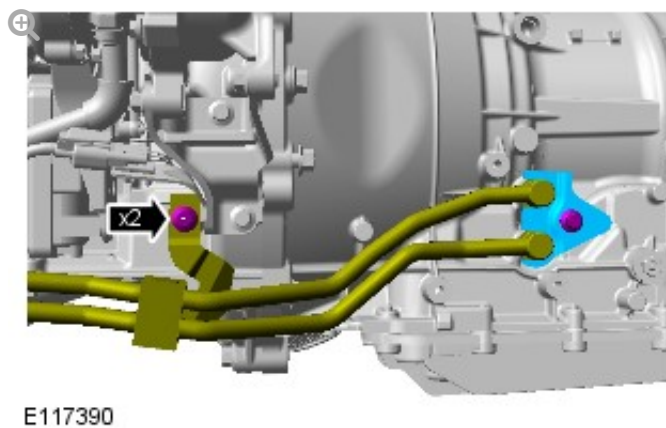


13.



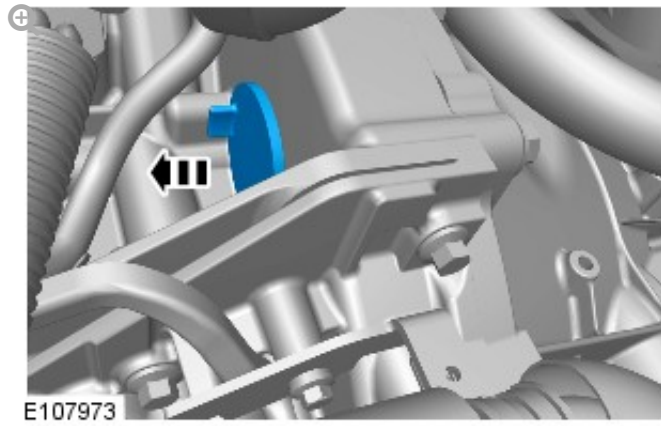
14.

Remove and discard the O-ring seals.



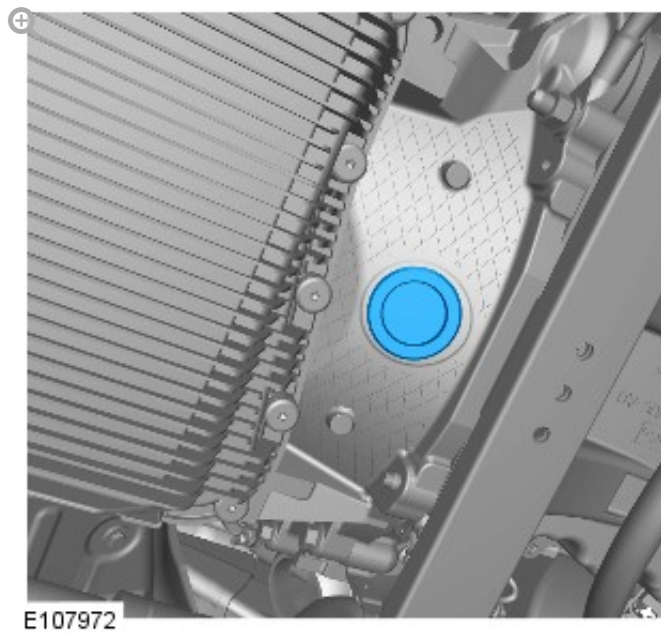
- Install blanking caps to the exposed ports.

15.



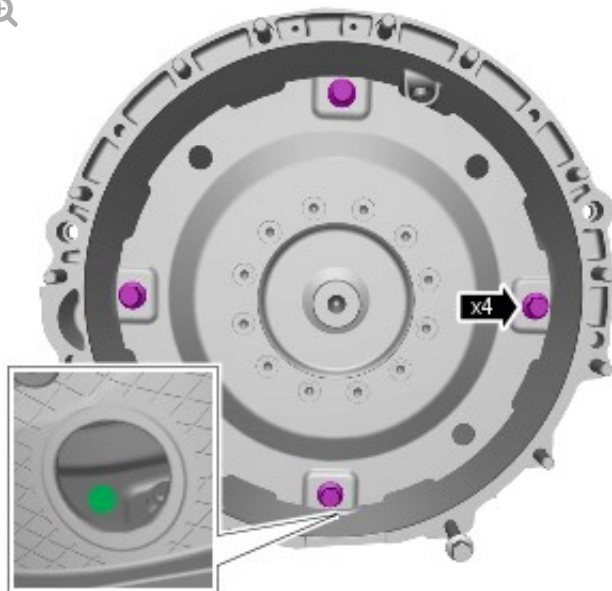
Remove the rubber access cover.

16.



17.

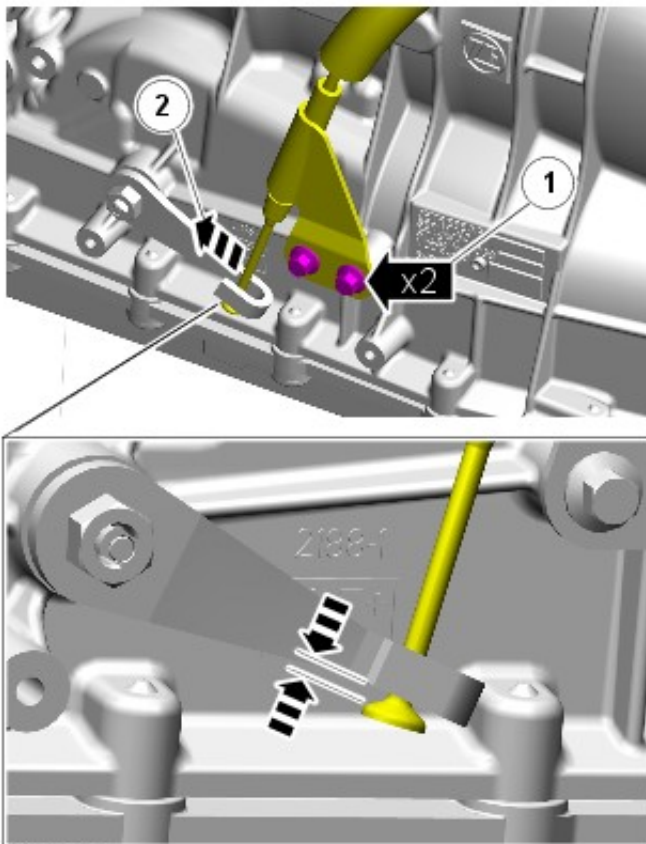
Only rotate the crankshaft clockwise.



E107974

- Make sure that the alignment mark is visible through the inspection hole on removal of the last torque converter bolt.

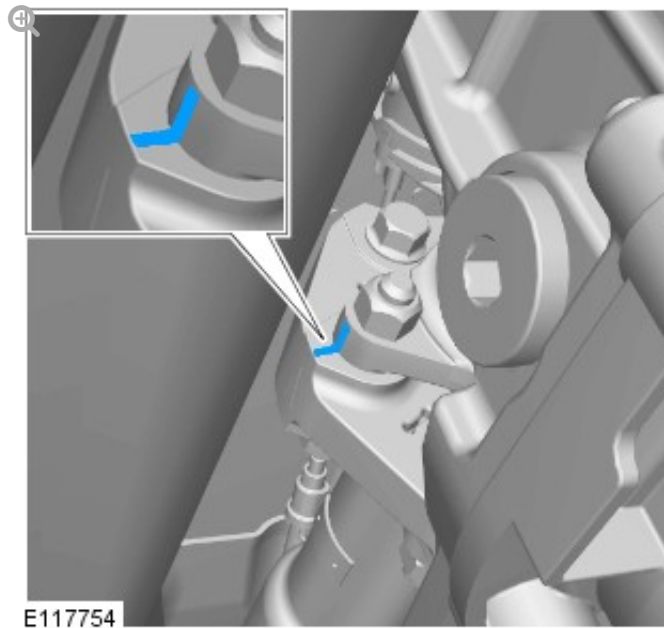
18.



E100350

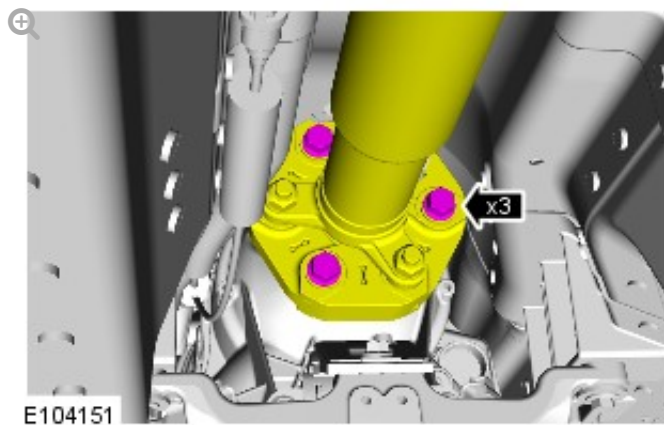
19.

Mark the position of the driveshaft on the transmission flange.



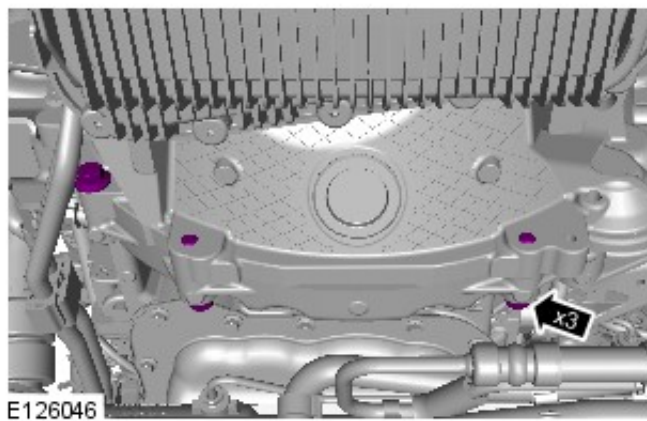
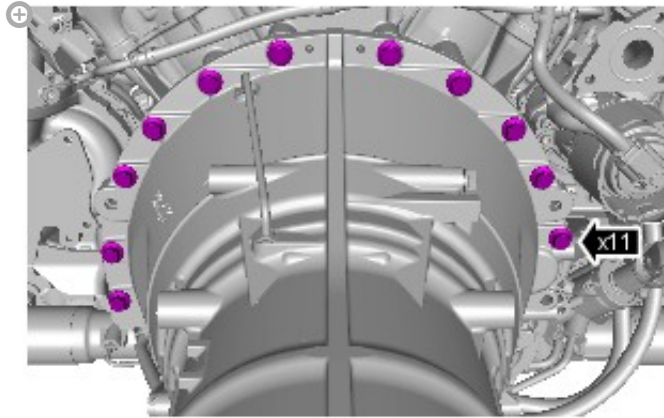
20.

Under no circumstances must the flexible coupling (or it's fixings) be loosened or removed from the driveshaft.



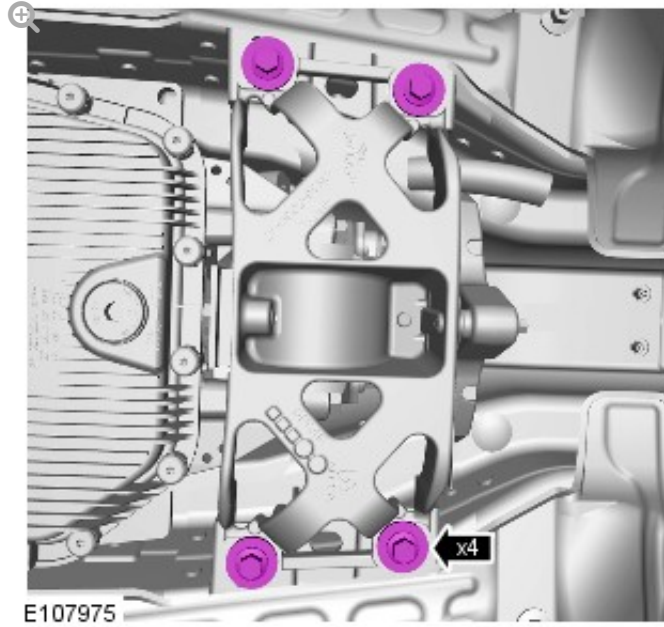
21.

Make sure that the transmission is secured with suitable retaining straps.



Align the powertrain assembly jack to the transmission.

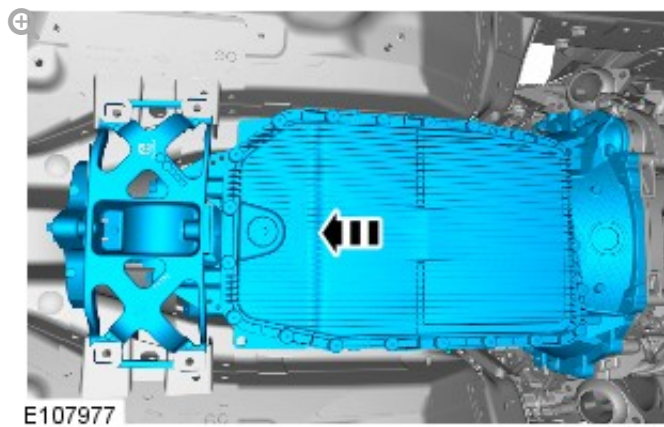
22.



23.

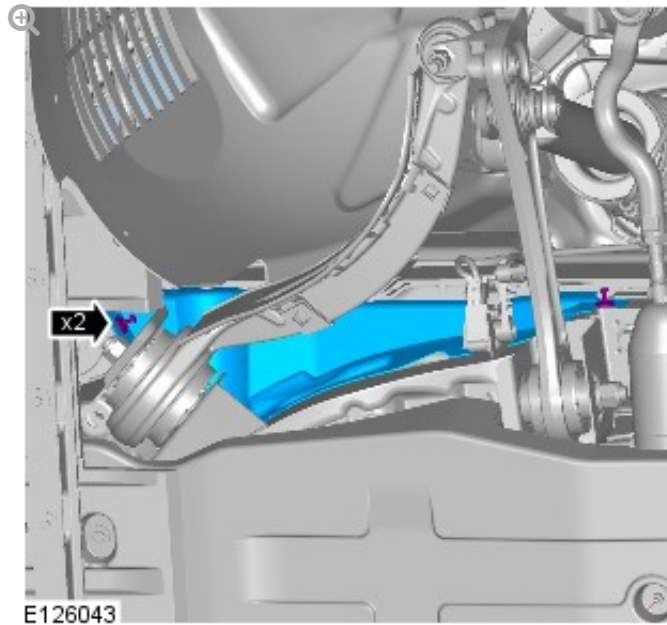
Make sure that the torque converter remains in the transmission.

This step requires the aid of another technician.

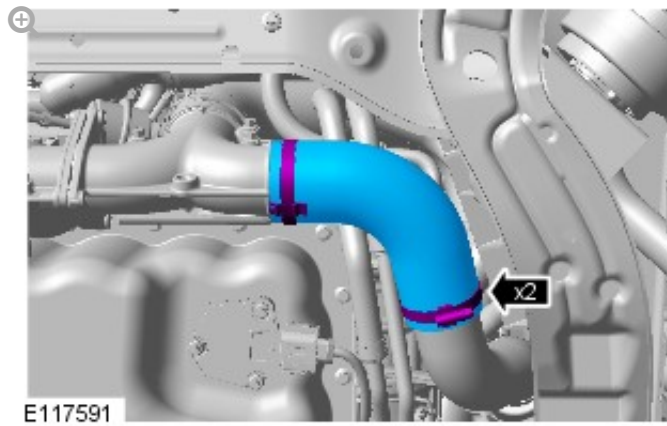


- Install the torque converter retainer.

24.

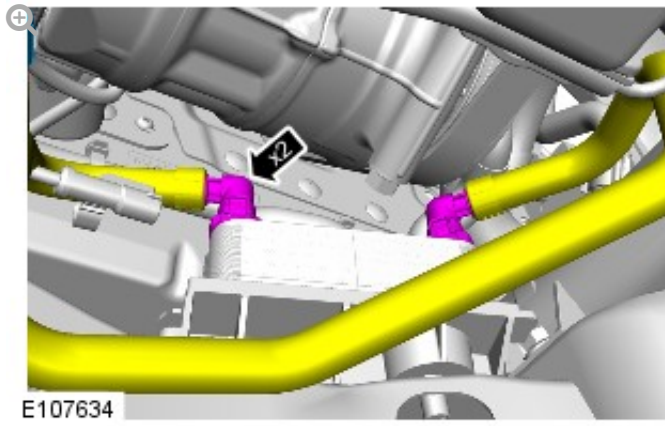


25.



26.

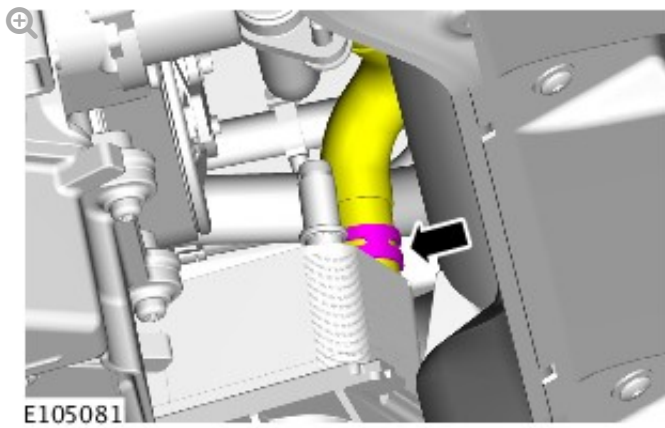
- Be prepared to collect escaping fluids.
- Make sure that all openings are sealed. Use new blanking caps.



27.

Be prepared to collect escaping coolant.

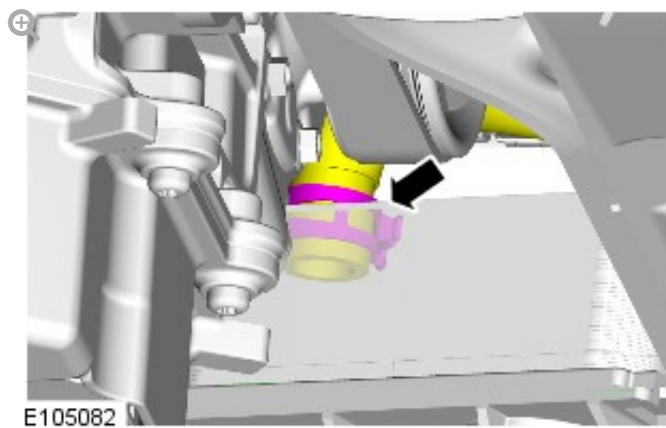
Clamp the hoses to minimize coolant loss.



28.

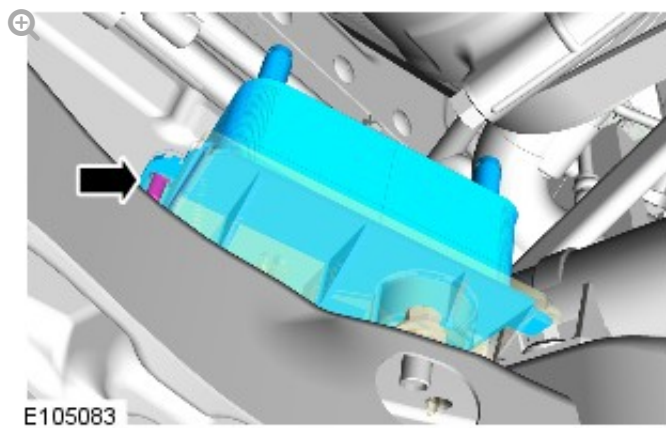
Be prepared to collect escaping coolant.

Clamp the hoses to minimize coolant loss.



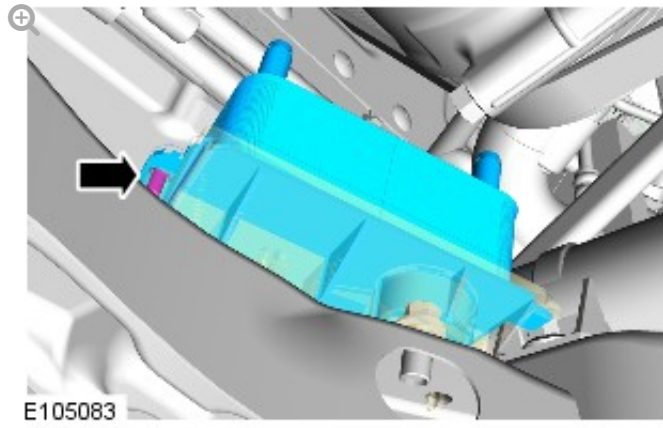
29.

Be prepared to collect escaping fluids.



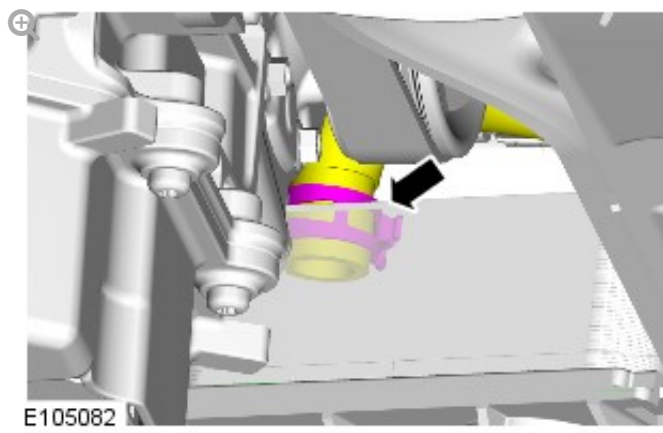
INSTALLATION

1.

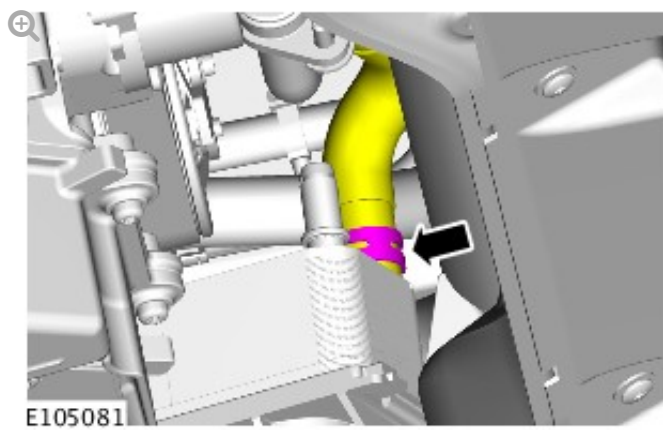


Torque: 5 Nm

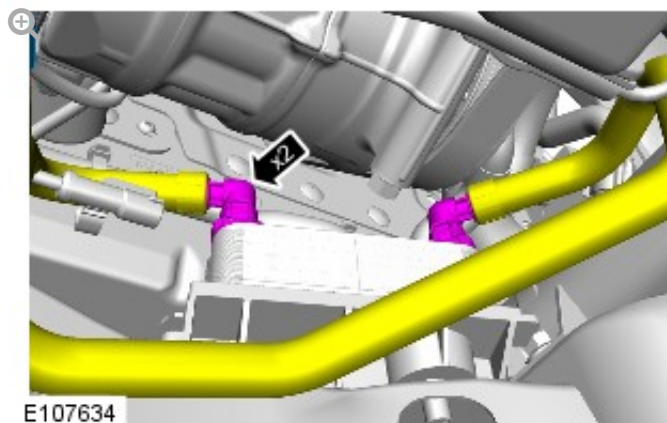
2.



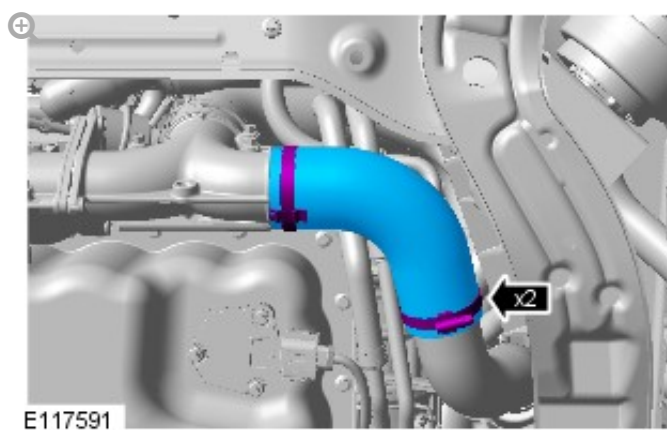
3.



4.

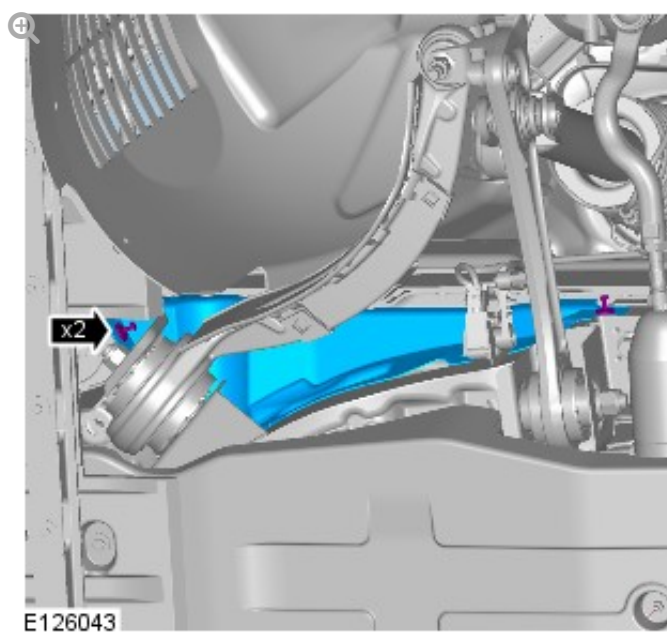


5.

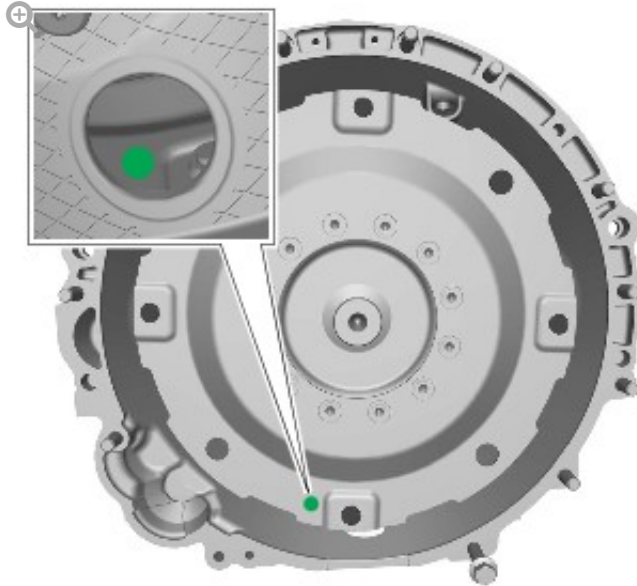


Torque: 5 Nm

6.



7.

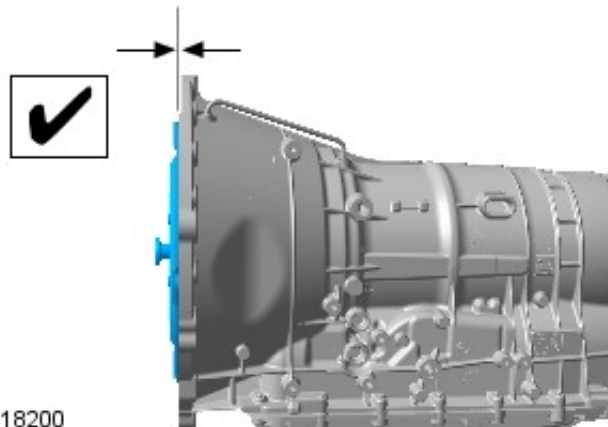
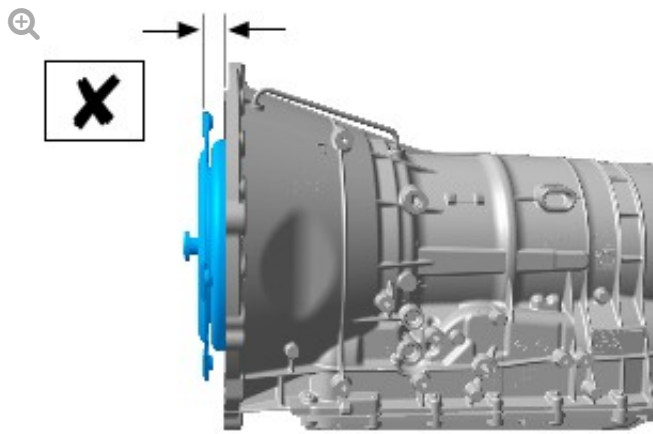


E117455

Make sure that the alignment mark is visible through the inspection hole on installation of the first torque converter bolt.

8.

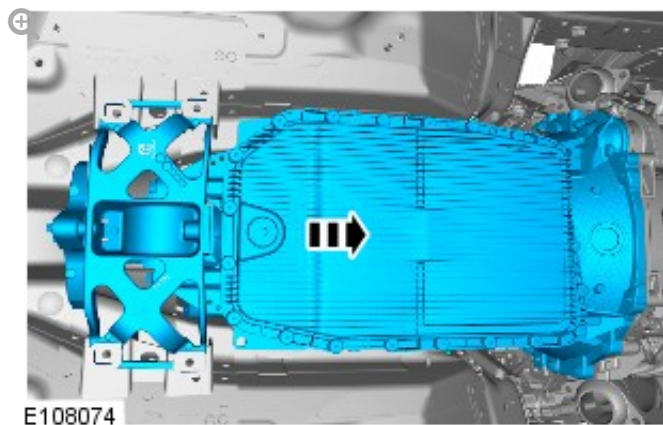
Make sure the torque converter is fully located into the oil pump drive.



E118200

9.

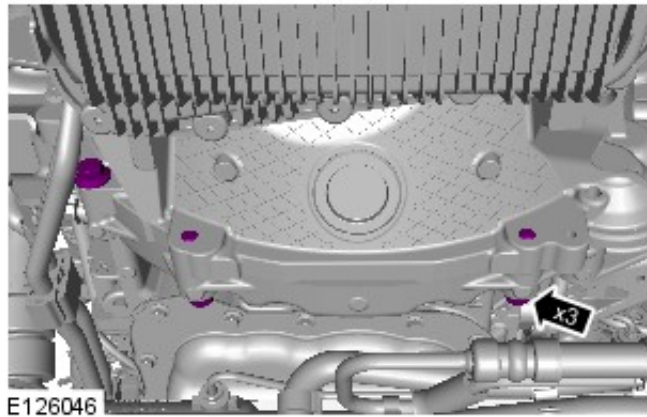
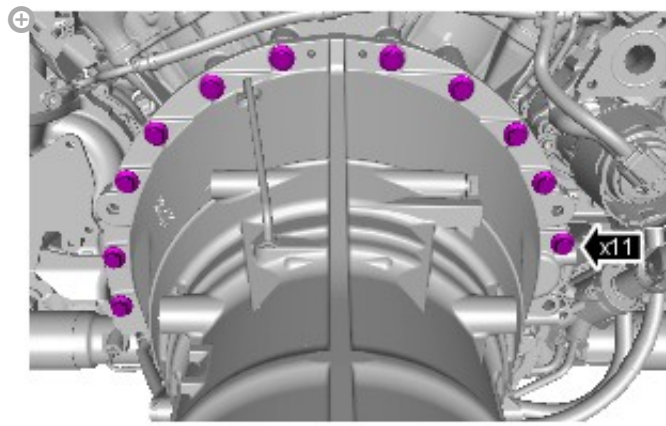
Make sure that the torque converter remains in the transmission.



E108074

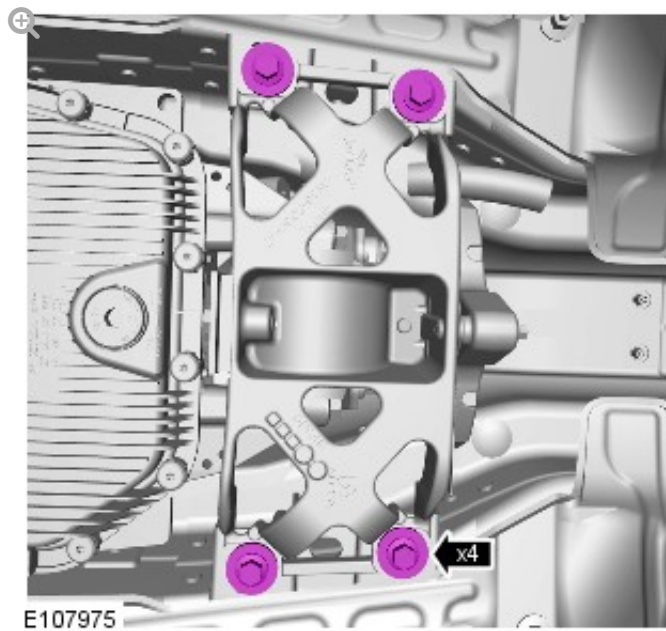
Raise the powertrain assembly jack and transmission assembly.

10.



Torque: 48 Nm

11.

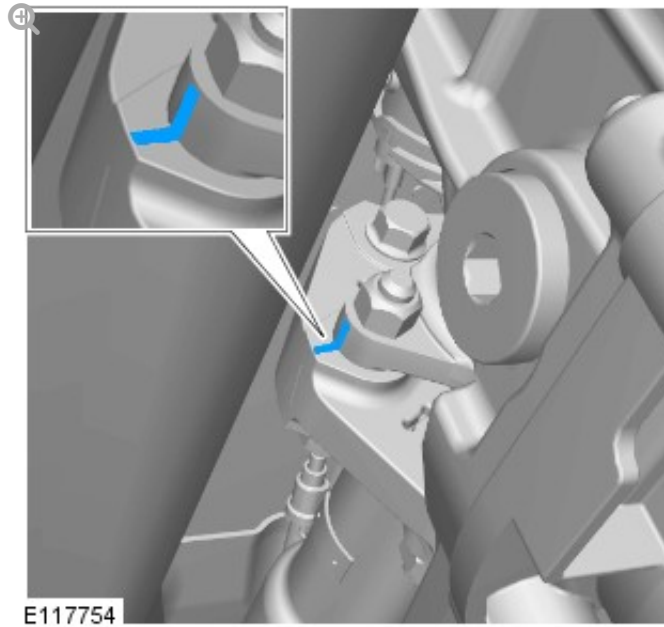


Torque: 48 Nm

12. Remove the transmission jack.

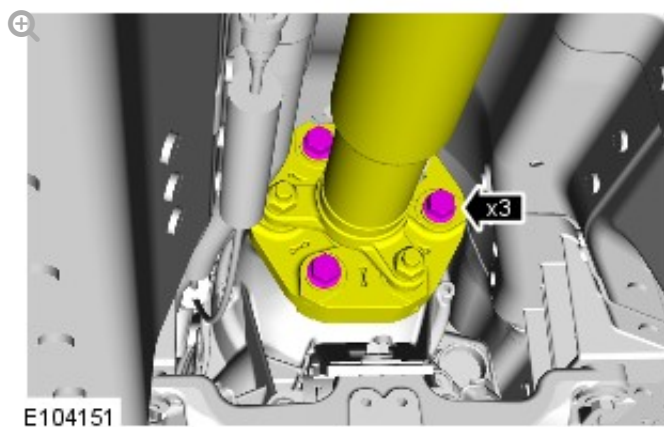
13.

Make sure that you re-align the driveshaft to the transmission flange using the alignment mark.



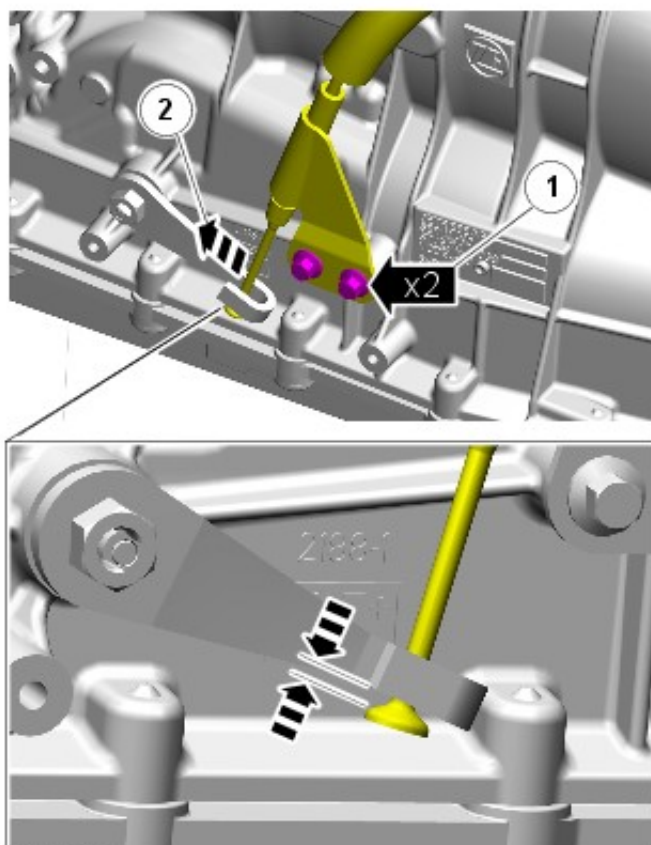
14.

Under no circumstances must the flexible coupling (or it's fixings) be loosened or removed from the driveshaft.



Torque: 127 Nm

15.

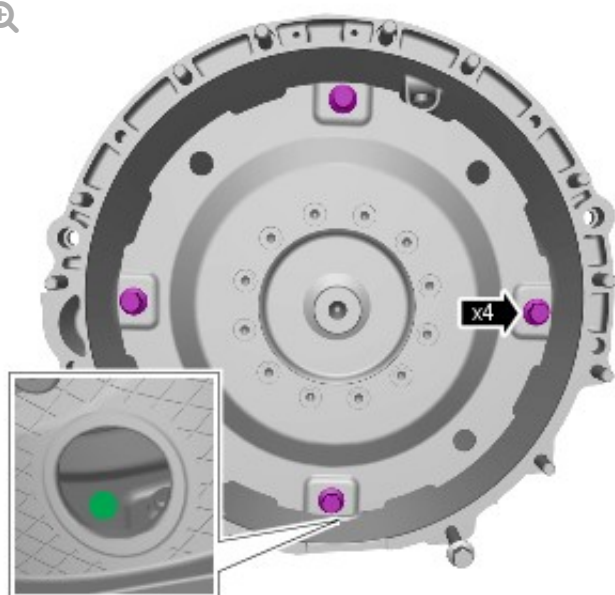


E100350

Torque: 10 Nm

16.

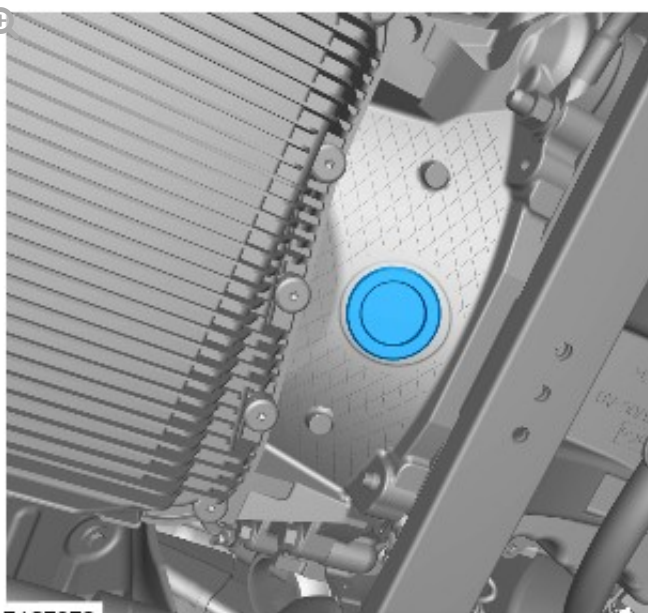
Only rotate the crankshaft clockwise.



E107974

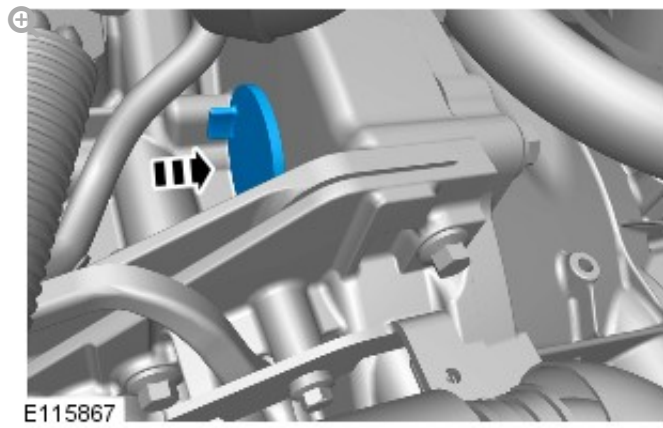
Torque: 63 Nm

17.



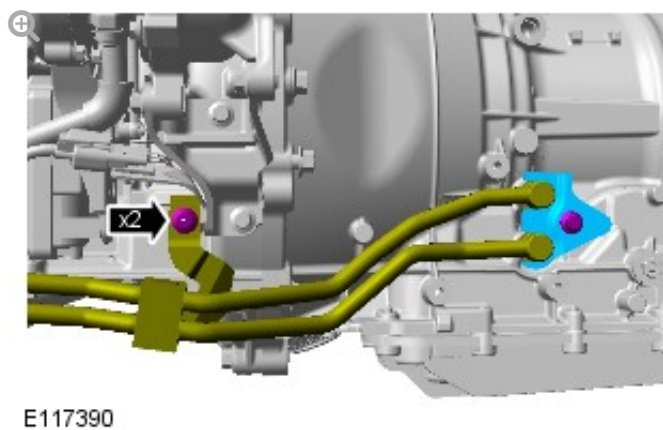
E107972

18.



19.

Install new o-ring seals



Torque: 10 Nm

20.

