

2016.0 RANGE ROVER (LG), 307-02

# TRANSMISSION/TRANSAXLE COOLING - VEHICLES WITH: 8HP70 8-SPEED AUTOMATIC TRANSMISSION AWD

## SPECIFICATIONS

ITEM	SPECIFICATION
Transmission fluid	Shell L12108

## Torque Specifications

DESCRIPTION	NM	LB- FT	LB- IN
Transmission fluid cooler bolt	6	4	-
Transmission fluid cooler tubes to transmission housing bolt	25	19	-
Transmission fluid cooler tube bracket to engine oil pan retaining nut	9	7	-
Turbocharger bypass valve bracket bolts 3.0 TD V6	9	7	-
Turbocharger bypass valve clamp 3.0 TD V6	3.5	-	31
Transmission fluid level check bolt	35	26	-

2016.0 RANGE ROVER (LG), 307-02

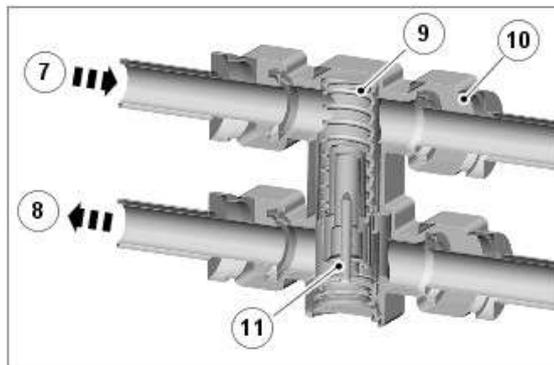
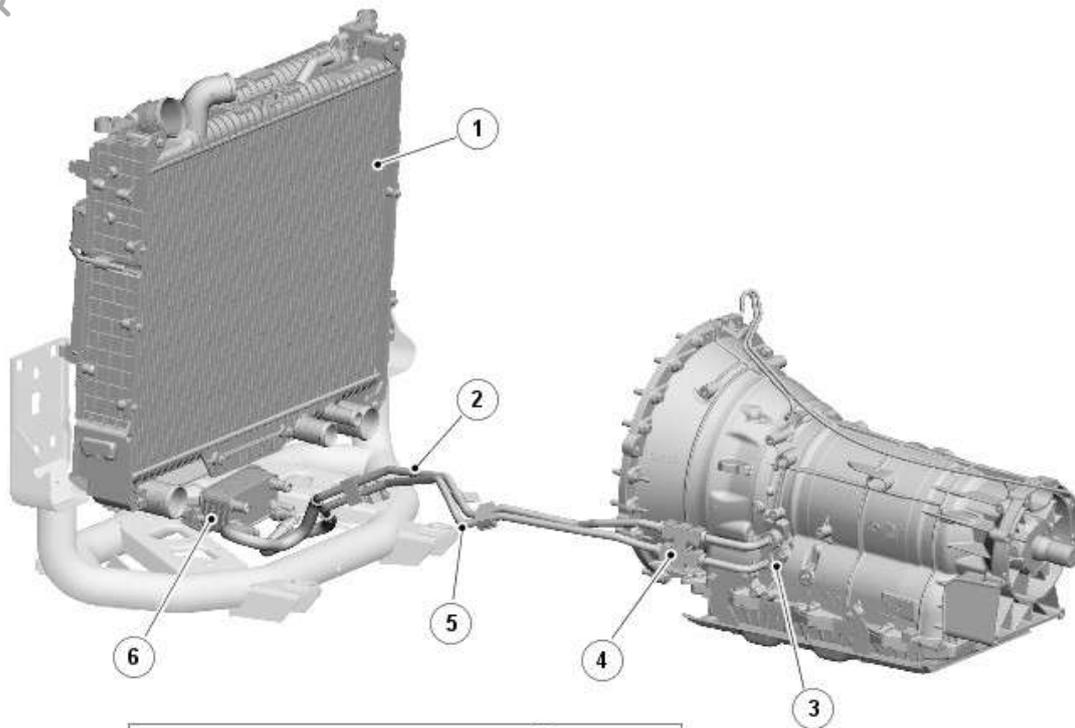
# TRANSMISSION/TRANSAXLE COOLING - VEHICLES WITH: 8HP70 8-SPEED AUTOMATIC TRANSMISSION AWD

DESCRIPTION AND OPERATION

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4.4L TDV8 FLUID COOLING COMPONENT  
LOCATION



E131022

ITEM	DESCRIPTION
1	Engine cooling radiator
2	Return pipe (To transmission)
3	Transmission cooling pipe connection
4	Thermostatic valve
5	Supply pipe (From transmission)
6	Transmission fluid cooler
7	Fluid return flow
8	Fluid supply flow
9	Spring
10	Thermostatic valve body

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## INTRODUCTION

The transmission fluid cooler is a separate cooling unit located behind the engine cooling radiator. The unit is attached, via a bracket, to the cooling pack protection subframe. The transmission is connected to the fluid cooler via flexible hoses and metal pipes.

The transmission fluid cooler is a dedicated cooler which is connected into the engine cooling system circuit. The transmission fluid is cooled by the temperature differential between the transmission fluid and the engine coolant flowing through the cooler.

Fluid is supplied from the transmission fluid pump, through the thermostatic valve (if open) into the cooler. After passing through the cooler, the fluid passes out of the cooler and is returned to the transmission fluid pan.

The thermostatic valve is located in the transmission cooler fluid supply and return lines. The valve contains a bi-metallic spring and valve which is closed when transmission fluid temperatures are below 69 °C (156.2 °F). At temperatures of 69 °C (156.2 °F) and above, the valve begins to open allowing the fluid to flow around the cooler. The valve is fully open at temperatures of 79 °C (174.2 °F)

2016.0 RANGE ROVER (LG), 307-02

# TRANSMISSION/TRANSAXLE COOLING - VEHICLES WITH: 8HP70 8-SPEED AUTOMATIC TRANSMISSION AWD

DIAGNOSIS AND TESTING

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## PRINCIPLE OF OPERATION

For a detailed description of the automatic transmission cooling system, refer to the relevant Description and Operation sections in the workshop manual. REFER to: [Transmission Cooling](#) (307-02A Transmission/Transaxle Cooling - Vehicles With: 8HP45 8-Speed Automatic Transmission AWD, Description and Operation).

## INSPECTION AND VERIFICATION

1. Verify the customer concern by operating the system.
2. Visually inspect for obvious signs of damage and system integrity.

### Visual Inspection

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

3. If an obvious cause for an observed or reported concern is found, correct the cause (if possible) before proceeding to the next step.
4. 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.

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## SYMPTOM CHART

CONDITION	POSSIBLE CAUSES	ACTION
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.

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## 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).



2016.0 RANGE ROVER (LG), 307-02

TRANSMISSION/TRANSAXLE COOLING - VEHICLES WITH: 8HP70 8-SPEED AUTOMATIC TRANSMISSION AWD

# TRANSMISSION FLUID COOLER - TDV6 3.0L DIESEL

[G1509724]

REMOVAL AND INSTALLATION

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44.24.10	COOLER - OIL/FLUID - RENEW	3000 CC, TDV6	1.8	USED WITHINS	+
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## REMOVAL

### CAUTIONS:

- Make sure that all openings are sealed. Use new blanking caps.
- Before disconnecting or removing the components, make sure the area around the joint faces and connections are clean. Plug open connections to prevent contamination.
- Be prepared to collect escaping fluids.

### NOTE:

Removal steps in this procedure may contain installation details.

1.

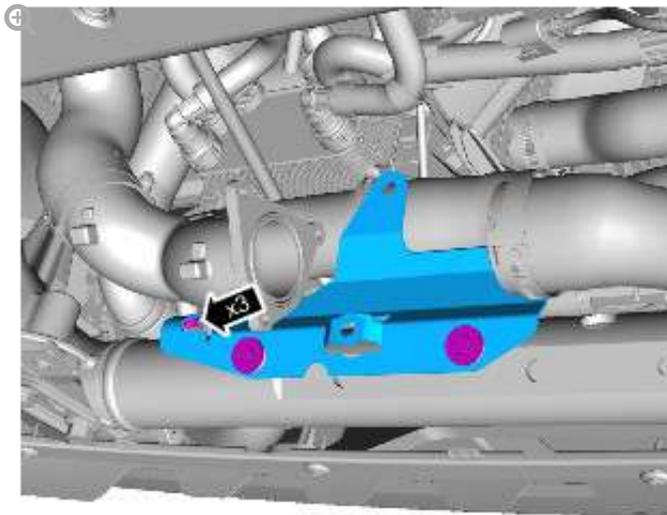
**WARNING:**

Make sure to support the vehicle with axle stands.

Raise and support the vehicle.

2. Refer to: [Cooling System Partial Draining and Vacuum Filling](#) (303-03F Engine Cooling - TDV8 4.4L Diesel, General Procedures).
3. Refer to: [Transmission Fluid Level Check - TDV6 3.0L Diesel /TDV8 4.4L Diesel](#) (307-01B Automatic Transmission/Transaxle - Vehicles With: 8HP70 8-Speed Automatic Transmission AWD, General Procedures).
4. Refer to: [Turbocharger Bypass Valve](#) (303-04B Fuel Charging and Controls - Turbocharger - TDV6 3.0L Diesel, Removal and Installation).

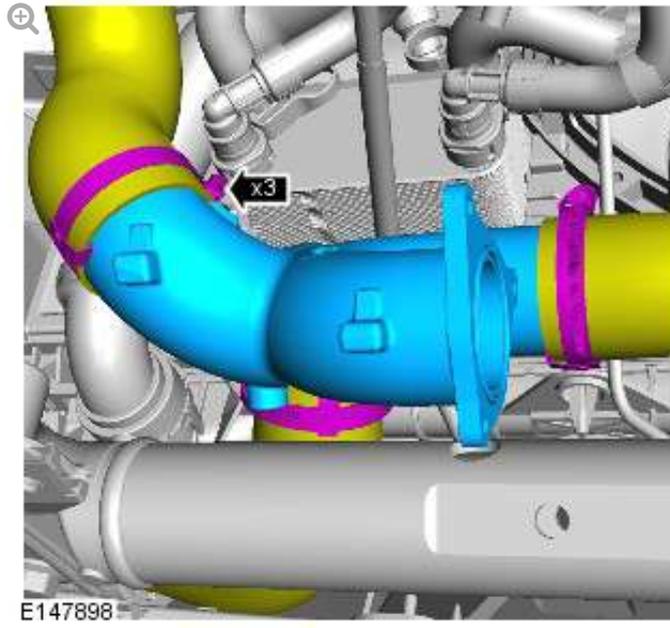
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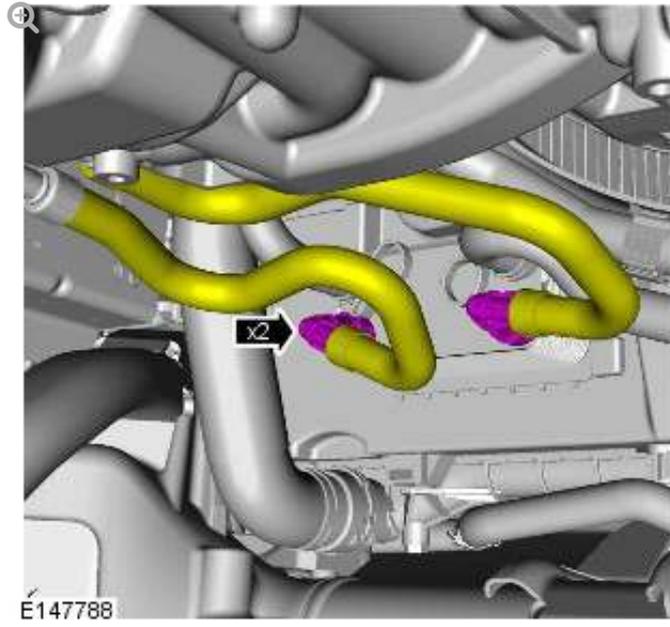
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**Torque: 9 Nm**

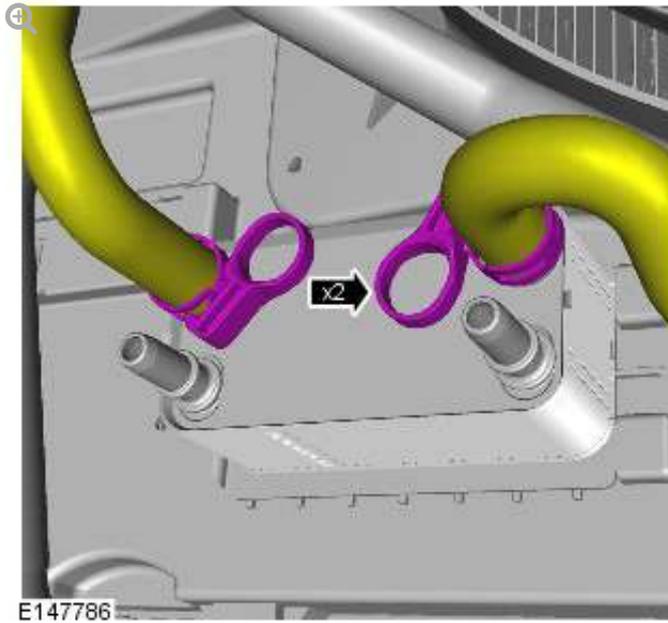
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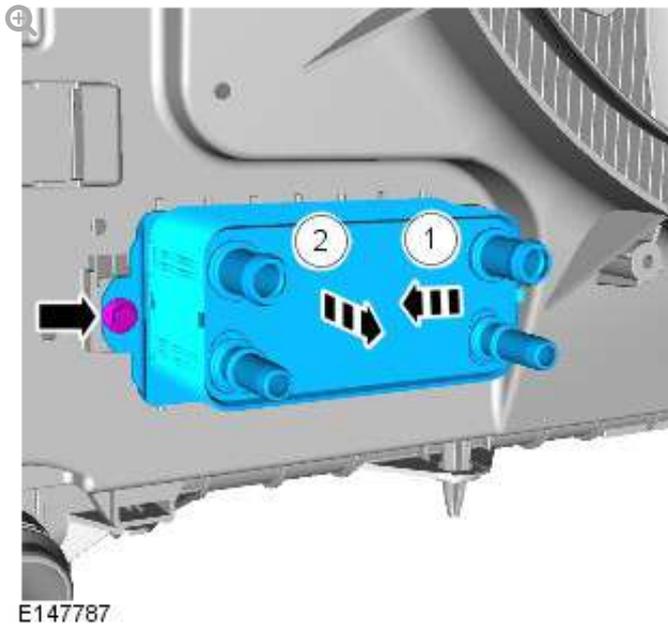
7.



8.



9.



*Torque: 6 Nm*

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## INSTALLATION

1. To install reverse the removal procedure.



2016.0 RANGE ROVER (LG), 307-02

TRANSMISSION/TRANSAXLE COOLING - VEHICLES WITH: 8HP70 8-SPEED AUTOMATIC TRANSMISSION AWD

# TRANSMISSION FLUID COOLER TUBES - TDV6 3.0L DIESEL (G1509727)

REMOVAL AND INSTALLATION

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44.24.15	HOSES/PIPES - OIL/FLUID COOLER - SET - RENEW	3000 CC, TDV6	1.9	USED WITHINS	+
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## PART(S)

STEP	REPLACE PART / RENEW PART	PART NAME
Removal Step 8	Renew Part	Transmission fluid cooler tubes to transmission O-ring seals

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## REMOVAL

## NOTES:

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

1. Disconnect the battery ground cable.

Refer to: [Specifications](#) (414-00 Battery and Charging System - General Information, Specifications).

- 2.

### **WARNING:**

Make sure to support the vehicle with axle stands.

Raise and support the vehicle.

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

4. Refer to: [Front Driveshaft - TDV6 3.0L Diesel](#) (205-01 Driveshaft, Removal and Installation).

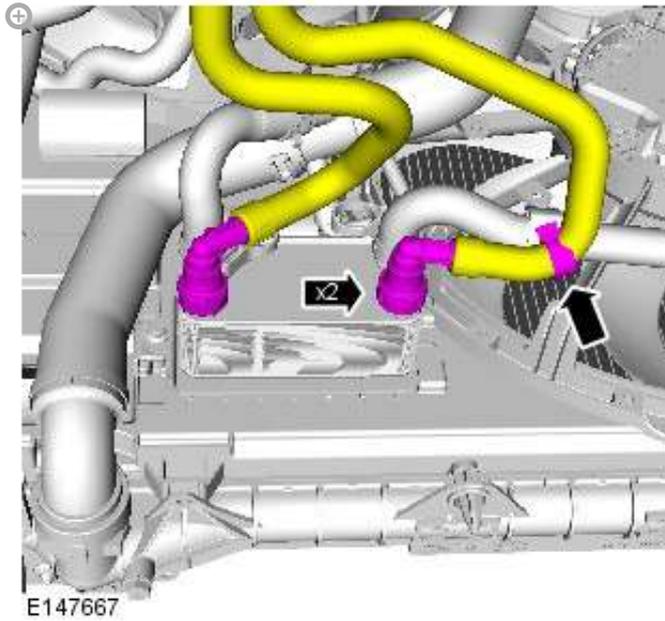
- 5.

### **WARNING:**

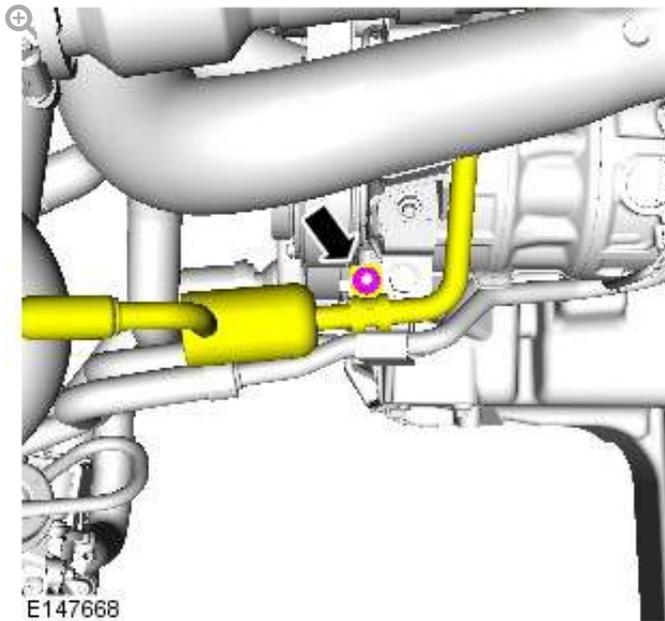
Be prepared to collect escaping fluids.

## CAUTION:

Before disconnecting or removing the components, make sure the area around the joint faces and connections are clean and dry. Plug open connections to prevent contamination.

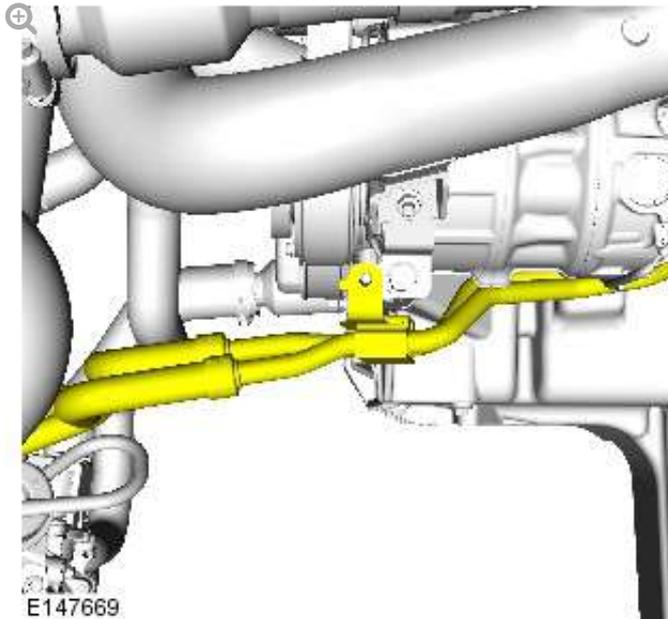


6.



*Torque: 9 Nm*

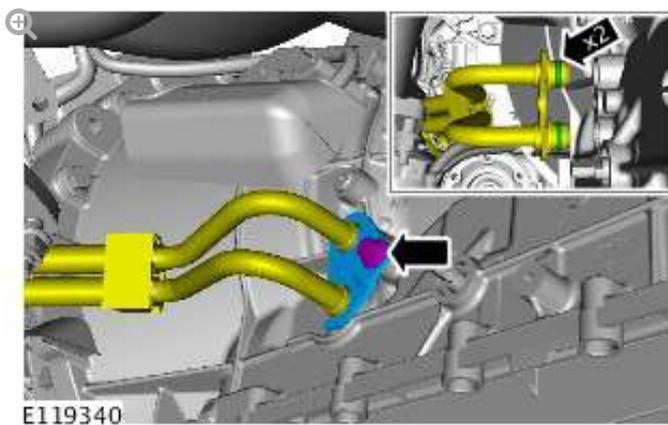
7.



8.

### CAUTIONS:

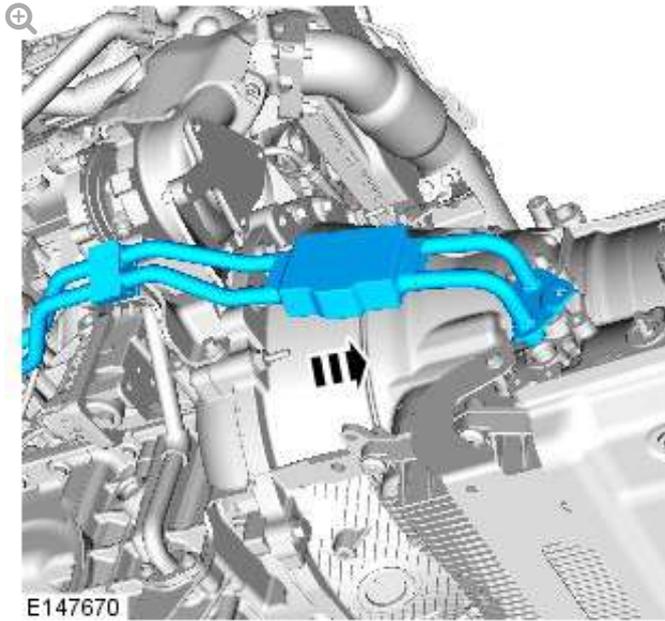
- Be prepared to collect escaping fluids.
- Make sure that all openings are sealed. Use new blanking caps.
- Remove and discard the O-ring seals.



Renew Part: *Transmission fluid cooler tubes to transmission O-ring seals.*

Torque: 25 Nm

9.

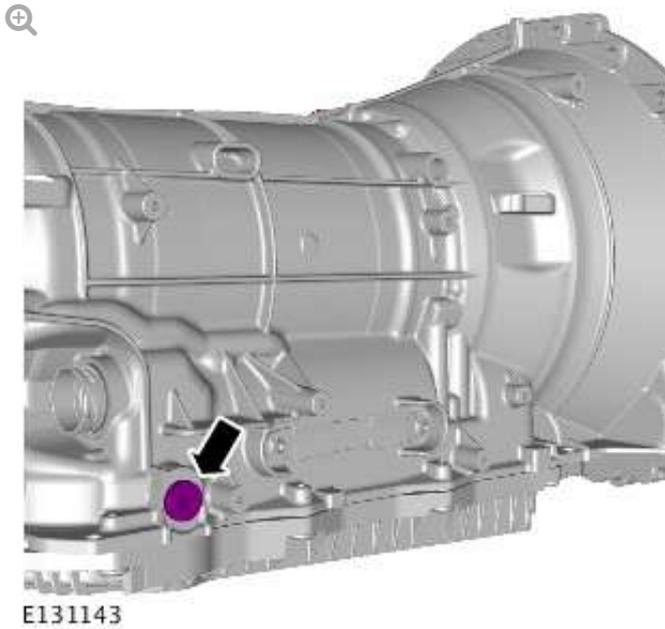


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## INSTALLATION

1. To install, reverse the removal procedure.

2.



- Check and top-up the transmission fluid level.
- **Torque: 35 Nm**



PUBLISHED: 09-DEC-2014  
2015.0 RANGE ROVER (LG), 307-02

TRANSMISSION/TRANSAXLE COOLING - VEHICLES WITH: 8HP70 8-SPEED AUTOMATIC  
TRANSMISSION AWD

# **TRANSMISSION FLUID COOLER - TDV8 4.4L DIESEL** (G1509725)

## REMOVAL AND INSTALLATION

44.24.10	COOLER - OIL/FLUID - RENEW	4400 CC, TDV8	1.9	USED WITHINS
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## REMOVAL

### ⚠ CAUTIONS:

- Make sure that all openings are sealed. Use new blanking caps.
- Before disconnecting or removing the components, make sure the area around the joint faces and connections are clean and dry. Plug open connections to prevent contamination.
- Be prepared to collect escaping fluids.

### ⚠ NOTE:

Removal steps in this procedure may contain installation details.

1.

### ⚠ WARNING:

Make sure to support the vehicle with axle stands.

Raise and support the vehicle.

2.

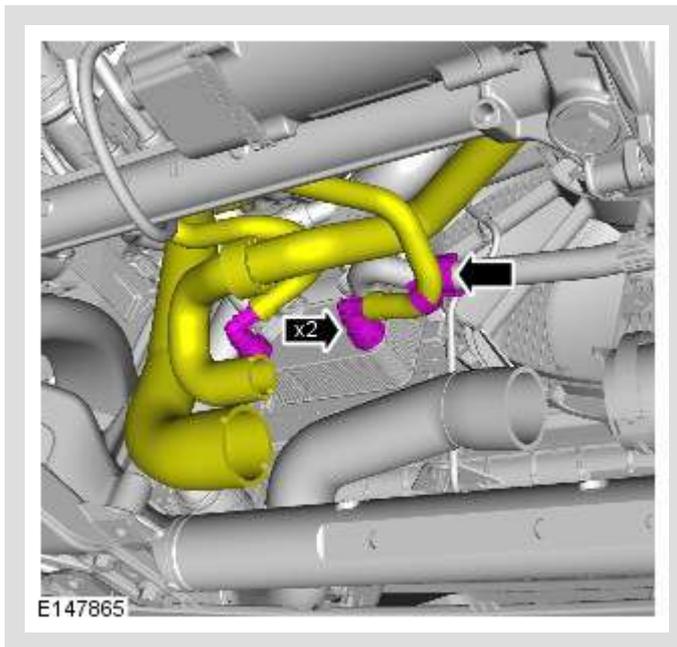
Refer to: [Cooling System Partial Draining and Vacuum Filling](#) (303-03A Engine Cooling - TDV6 3.0L Diesel - Gen 2/TDV6 3.0L Diesel - Gen 1.5, General Procedures).

3.

Refer to: [Transmission Fluid Level Check - TDV6 3.0L Diesel - Gen 2/TDV6 3.0 L Diesel - Gen 1.5/TDV8 4.4L Diesel](#) (307-01B Automatic Transmission /Transaxle - Vehicles With: 8HP70 8-Speed Automatic Transmission AWD, General Procedures).

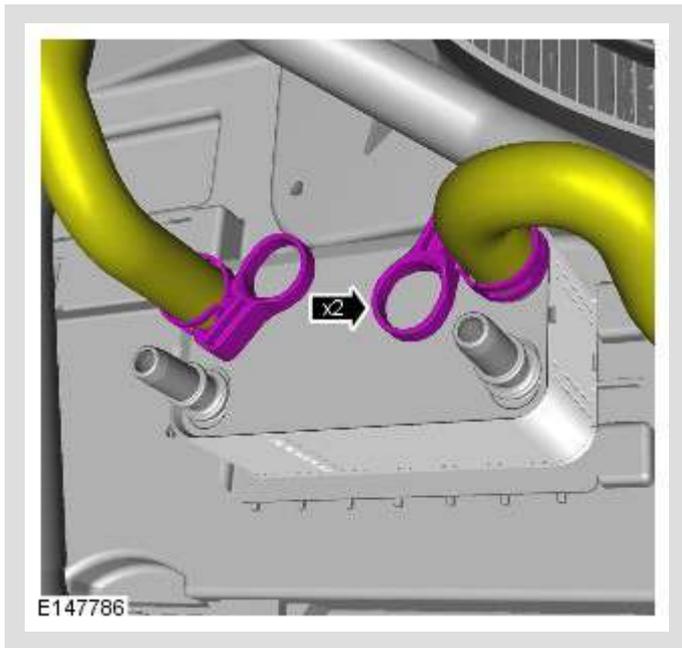
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4. Refer to: [Turbocharger Bypass Valve](#) (303-04G Fuel Charging and Controls - Turbocharger - TDV8 4.4L Diesel, Removal and Installation).
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5.

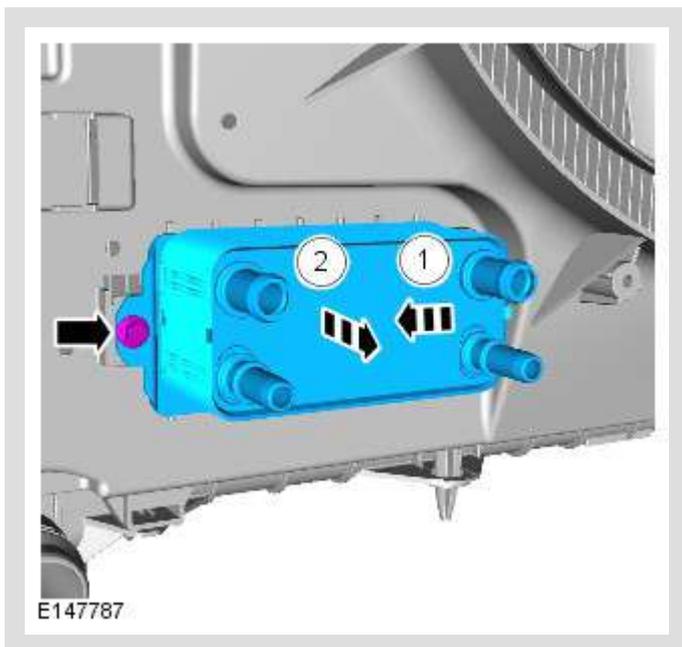


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6.



7.



Torque: 6 Nm

## INSTALLATION

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1. To install reverse the removal procedure.

PUBLISHED: 07-JUN-2017  
2015.0 RANGE ROVER (LG), 307-02

TRANSMISSION/TRANSAXLE COOLING - VEHICLES WITH: 8HP70 8-SPEED AUTOMATIC  
TRANSMISSION AWD

# **TRANSMISSION FLUID COOLER TUBES - TDV8 4.4L DIESEL** (G1509728)

## REMOVAL AND INSTALLATION

44.24.15	HOSES /PIPES - OIL/FLUID COOLER - SET - RENEW	4400 CC, TDV8	1.7	USED WITHINS
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### PART(S)

STEP	REPLACE PART / RENEW PART	PART NAME	
Removal Step 8	Renew Part	Transmission fluid cooler tubes to transmission O-ring seals	1

## REMOVAL

### NOTES:

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

1. Disconnect the battery ground cable.  
Refer to: [Specifications](#) (414-00 Battery and Charging System - General Information, Specifications).

2.



### WARNING:

Make sure to support the vehicle with axle stands.

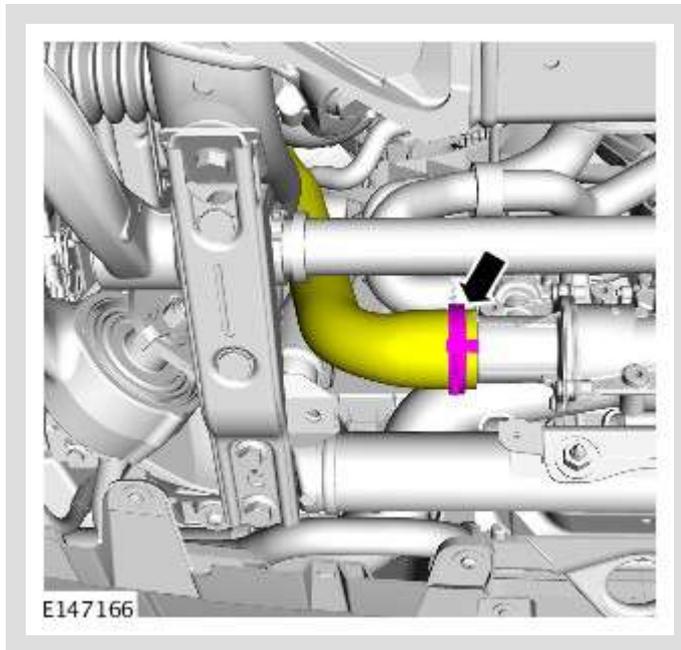
Raise and support the vehicle.

3.

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

4. Refer to: [Front Driveshaft - TDV8 4.4L Diesel](#) (205-01 Driveshaft, Removal and Installation).

5.



*Torque: 3.5 Nm*

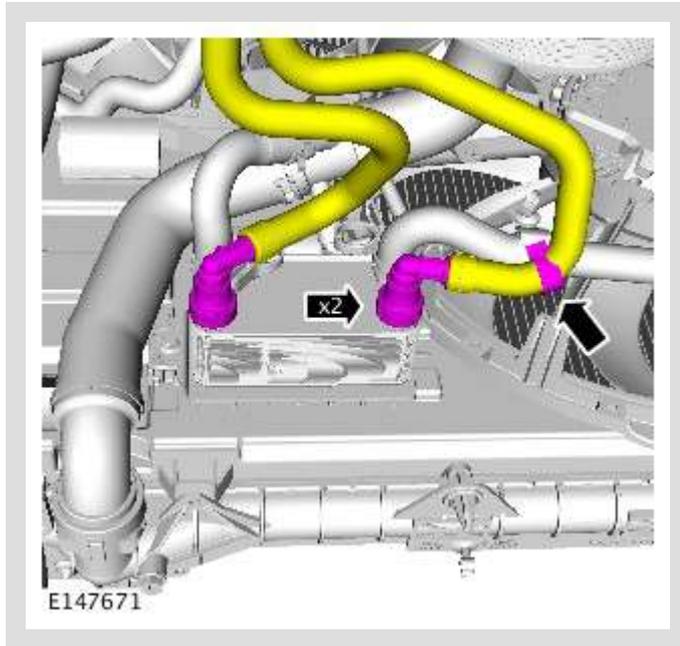
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**⚠ WARNING:**

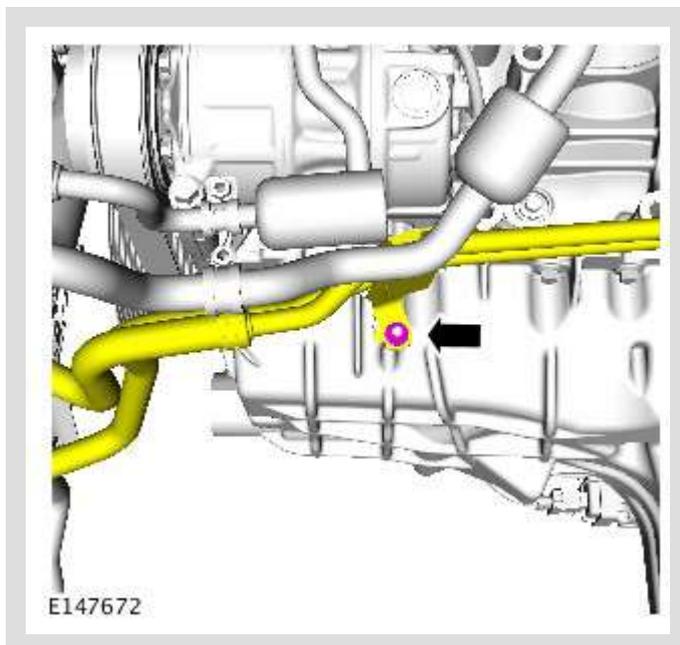
Be prepared to collect escaping fluids.

**⚠ CAUTION:**

Before disconnecting or removing the components, make sure the area around the joint faces and connections are clean and dry. Plug open connections to prevent contamination.



7.



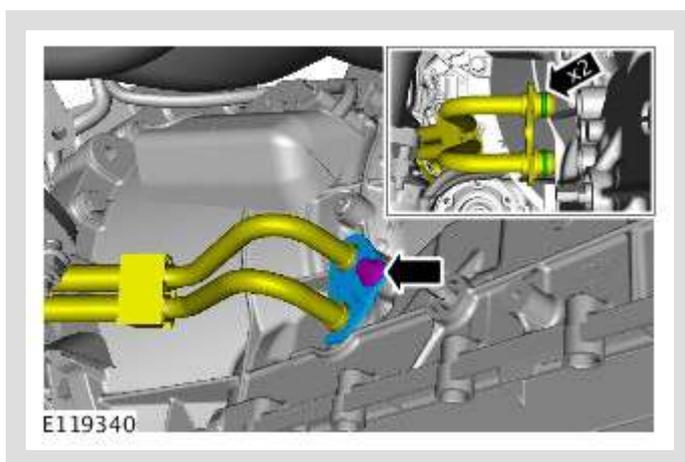
*Torque: 9 Nm*

8.

⚠ CAUTIONS:

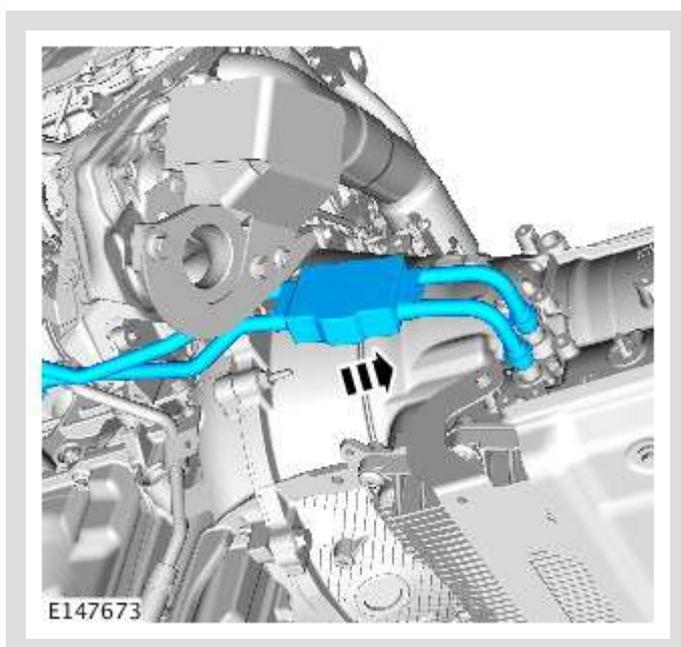
- Be prepared to collect escaping fluids.

- Before disconnecting any components, make sure the area is clean and free from foreign material. When disconnected all openings must be sealed.
- Remove and discard the O-ring seals.



Renew Part: *Transmission fluid cooler tubes to transmission O-ring seals* : 1 .  
Torque: 25 Nm

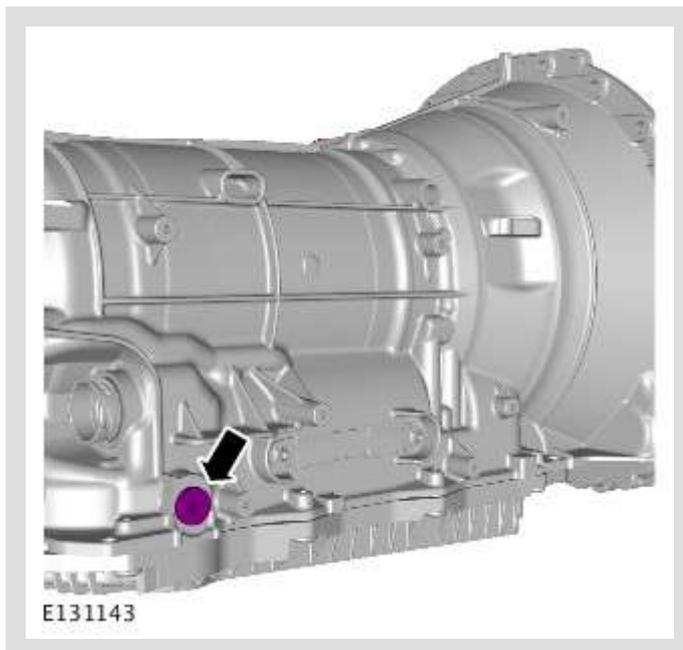
9.



## INSTALLATION

1. To install, reverse the removal procedure.

2.



- Check and top-up the transmission fluid level.
- *Torque: 35 Nm*