

PUBLISHED: 02-FEB-2018
2011.0 RANGE ROVER SPORT (LS), 303-01A

ENGINE - TDV6 3.0L DIESEL

OIL PUMP (G1349628)

REMOVAL AND INSTALLATION

12.60.26 OIL PUMP - RENEW 3000 CC, TDV6 4.80 USED WITHINS +

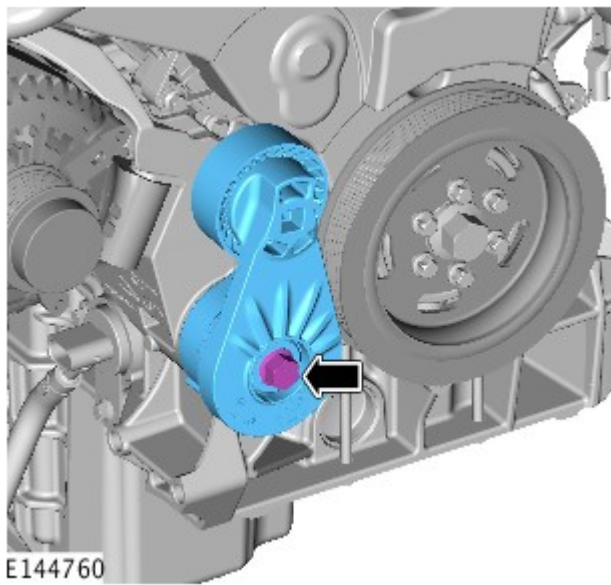
PART(S)

STEP	PART NAME	QUANTITY
Installation Step 9	Crankshaft front oil seal	1
Installation Step 17	Crankshaft pulley bolt	1
Installation Step 1	Oil pump gasket	1

REMOVAL

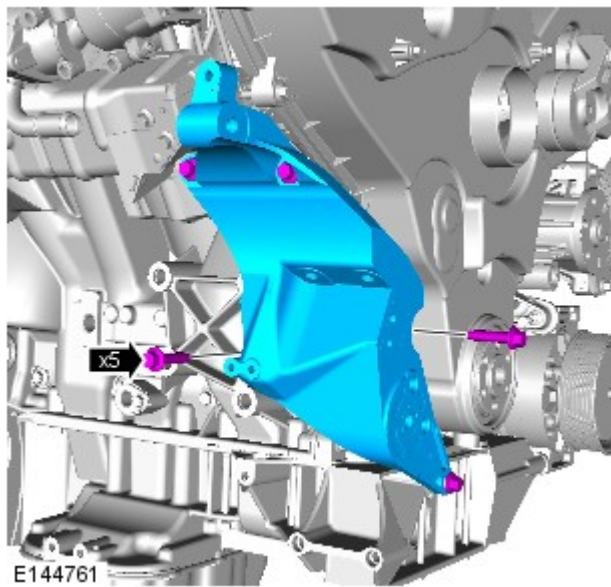
1. Disconnect the battery ground cable.
Refer to: [Specifications](#) (414-00 Battery and Charging System - General Information, Specifications).
2. Remove the generator.
Refer to: [Generator](#) (414-02A Generator and Regulator - TDV6 3.0L Diesel, Removal and Installation).

3.



Remove the accessory drive belt tensioner.

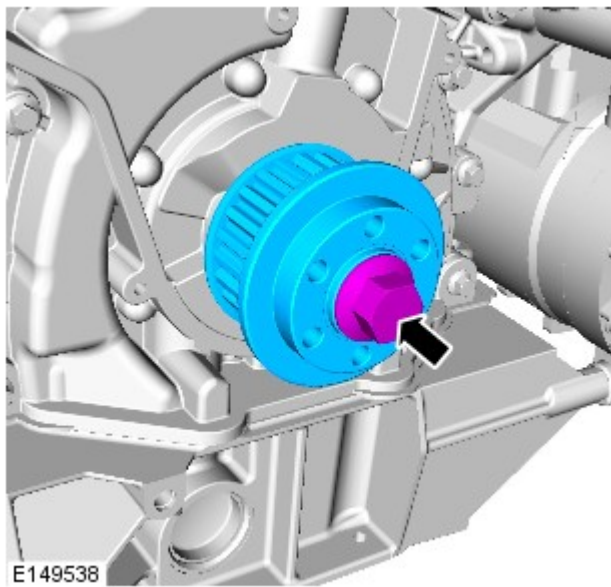
4.



Remove the generator mounting bracket.

5. Refer to: [Timing Belt](#) (303-01A Engine - TDV6 3.0L Diesel, Removal and Installation).

6.



Remove the crankshaft pulley.

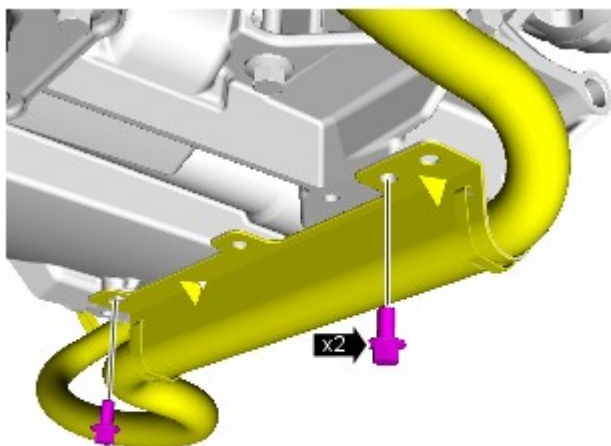
7.

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.

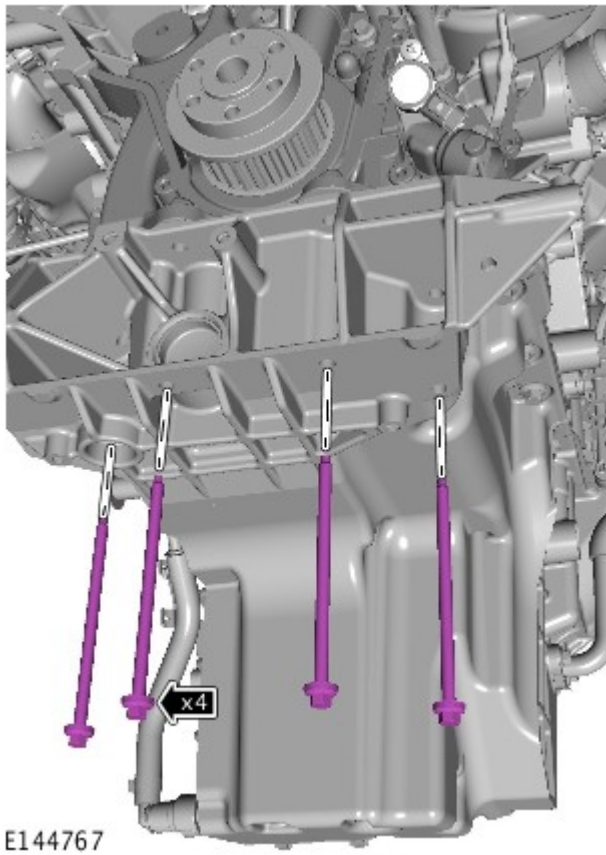
8.



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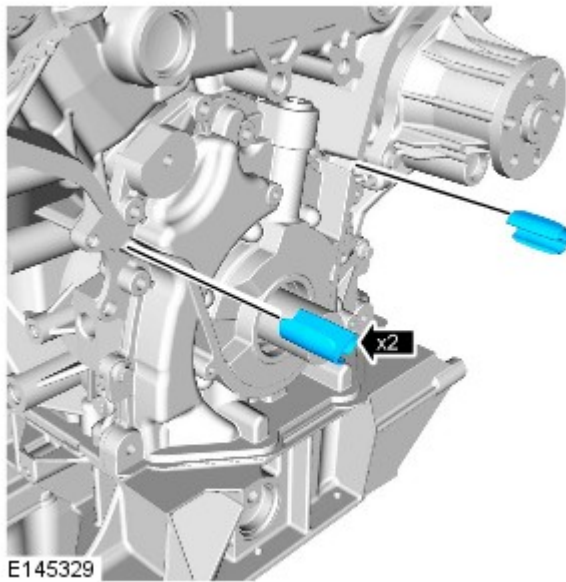
Release the battery positive cable.

9.



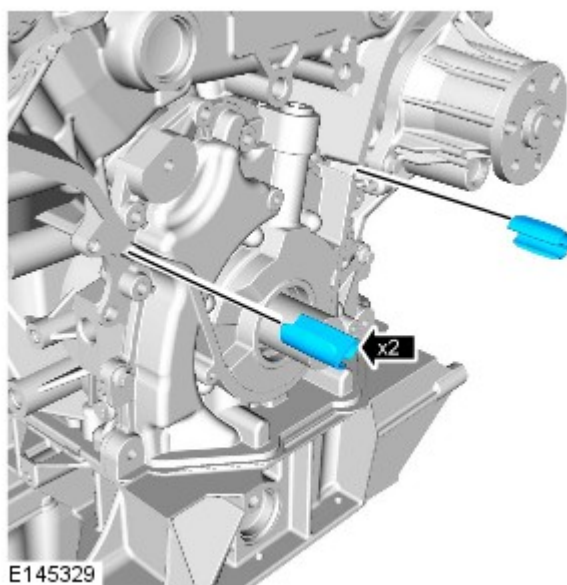
Remove the oil pump lower retaining bolts.

10.



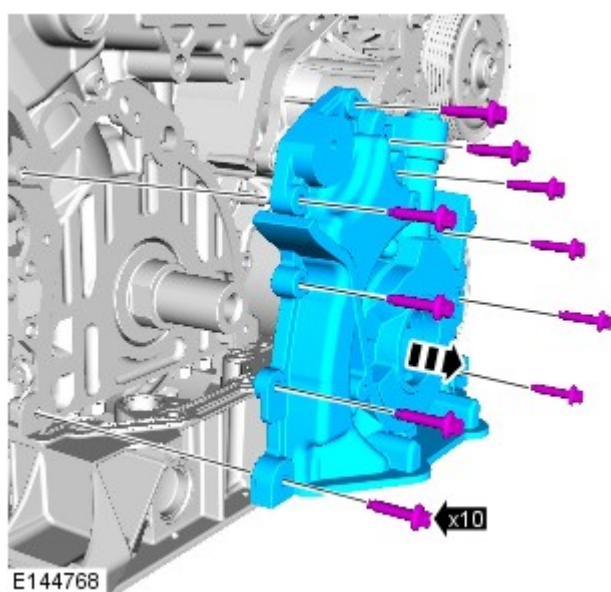
Remove the timing belt cover sealing strips.

11.



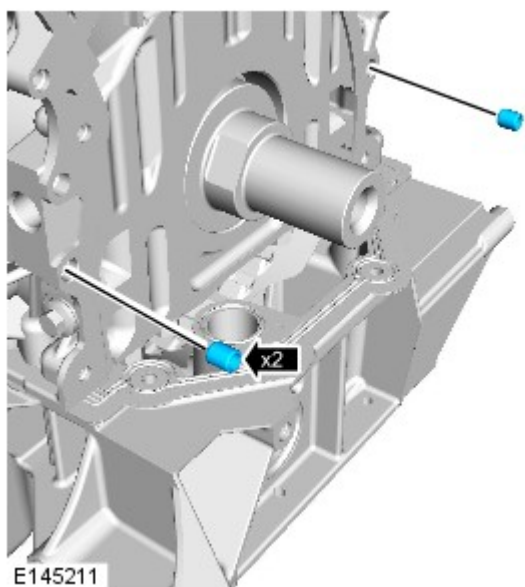
Remove the timing belt cover sealing strips.

12.



Remove the oil pump.

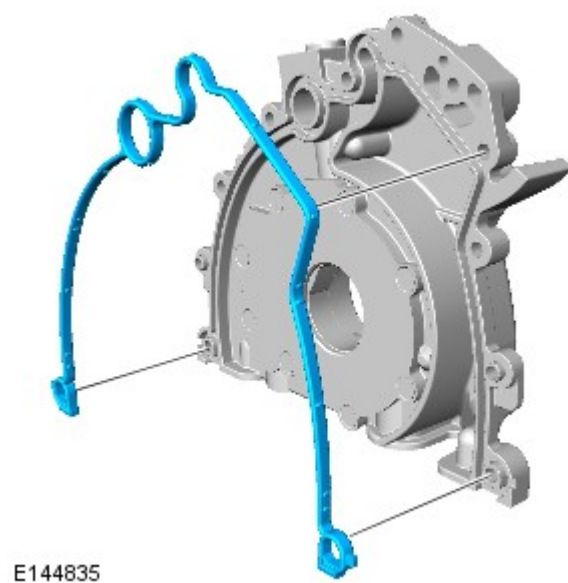
13.



Remove the alignment dowels (if equipped).

INSTALLATION

1.



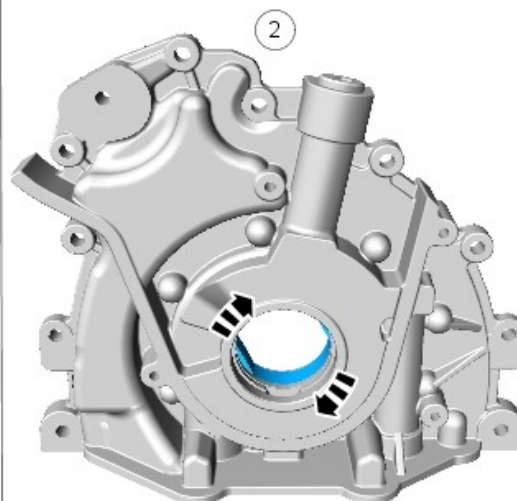
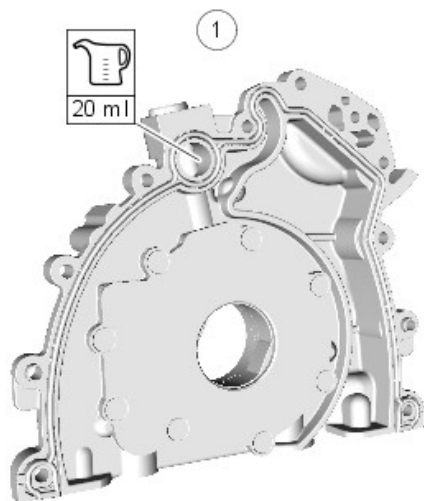
Install a new oil pump gasket.

Renew Part: *Oil pump gasket* Quantity: 1.

2.

NOTE:

Prime the oil pump.



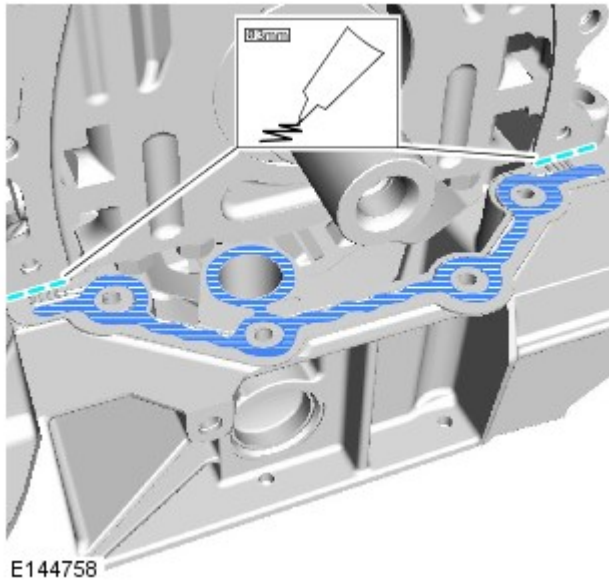
E144763

- Fill the orifice shown with 20 ml of engine oil.
- Rotate the oil pump drive 2 complete turns.

3.

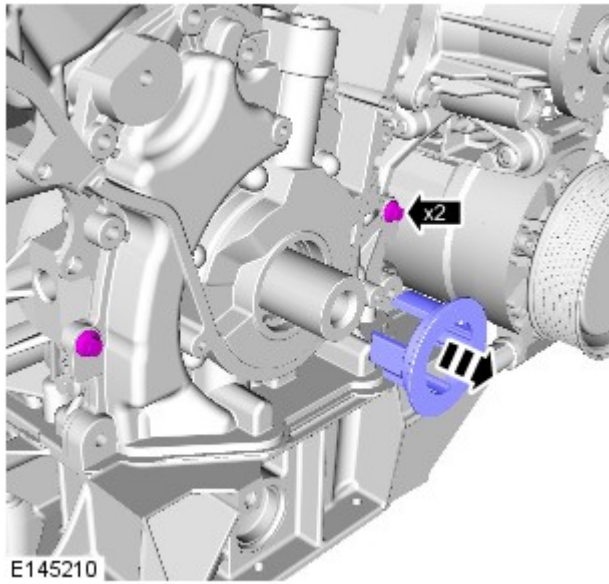
CAUTION:

Make sure that the mating faces are clean and free of foreign material.



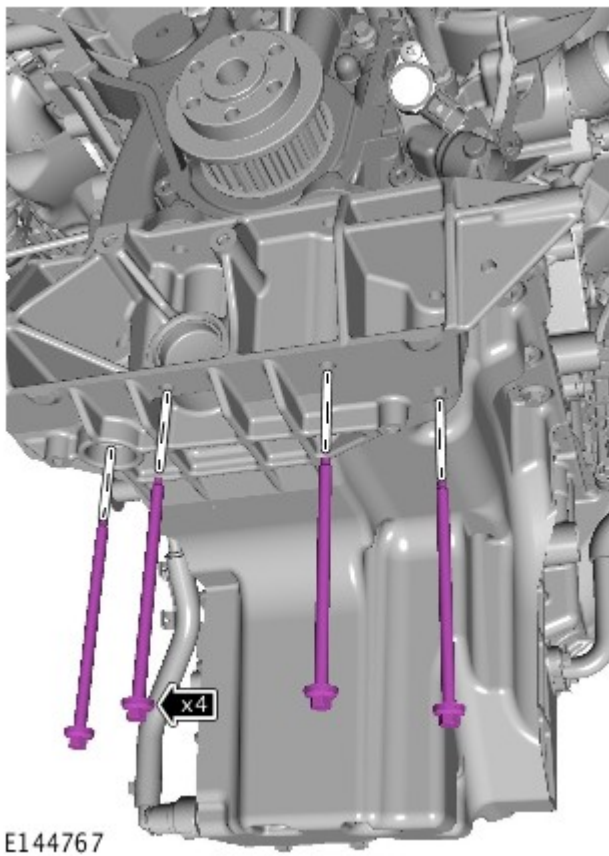
Apply sealant WSE-M4G323-A5 in an 3mm bead to the two areas shown, also apply a smear of sealant to the gasket face as illustrated.

5.



Install two bolts to the oil pump, only finger tighten at this stage.

6.

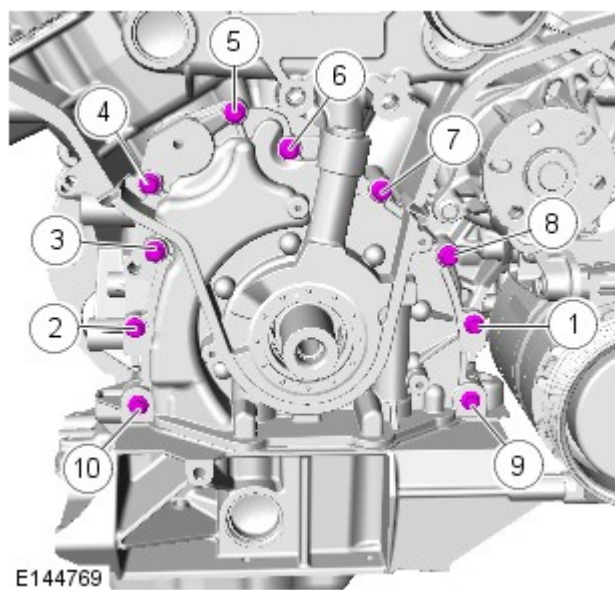


Install the oil pump lower retaining bolts.

7.

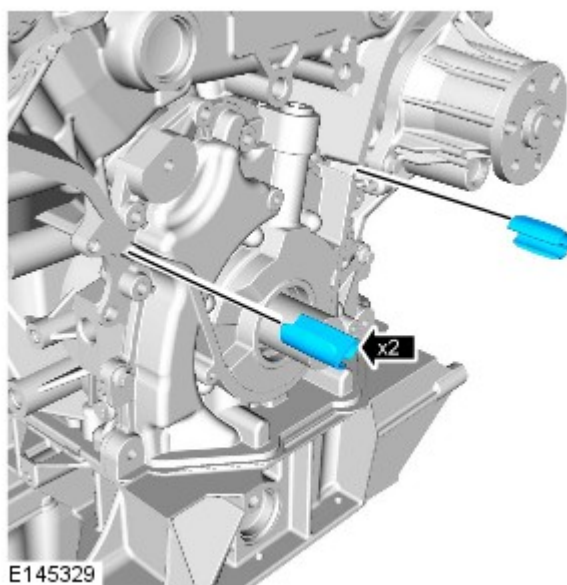
NOTE:

Tighten the bolts in the sequence shown to 10 Nm .



Secure the oil pump.

8.



Install the timing belt cover sealing strips.

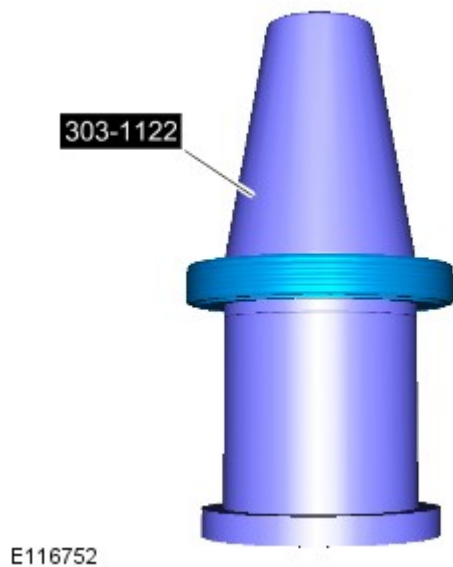
9.

CAUTION:

Do not use any lubricant on the crankshaft front seal, special tools or the crankshaft.
Failure to follow this instruction may result in damage to the vehicle.

NOTE:

Make sure all component mating faces are clean.



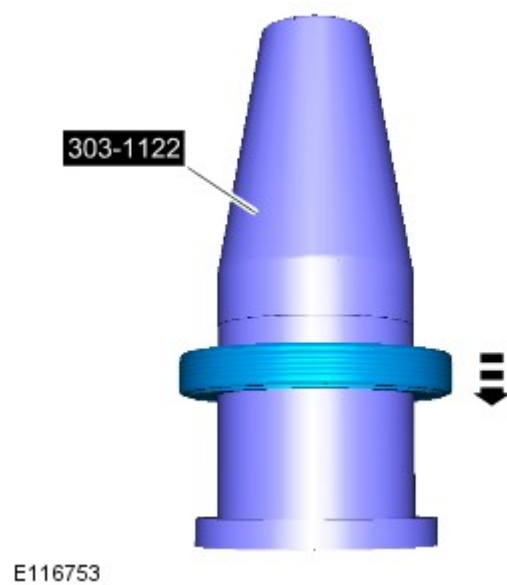
Install a new crankshaft front seal to the special tool.

Renew Part: *Crankshaft front oil seal* Quantity: 1.

10.

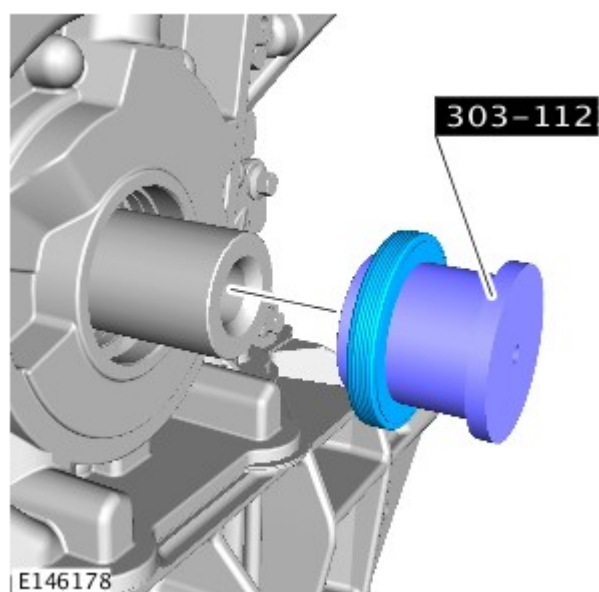
NOTE:

Remove the sleeve from the special tool.



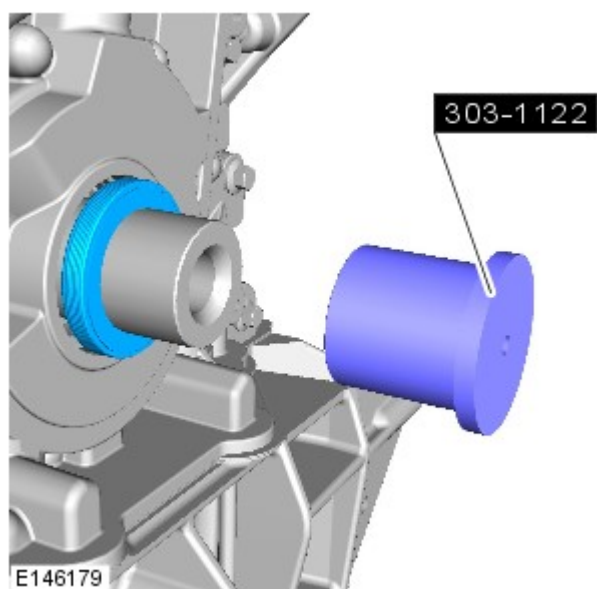
Reposition the crankshaft front seal along the special tool.

11.



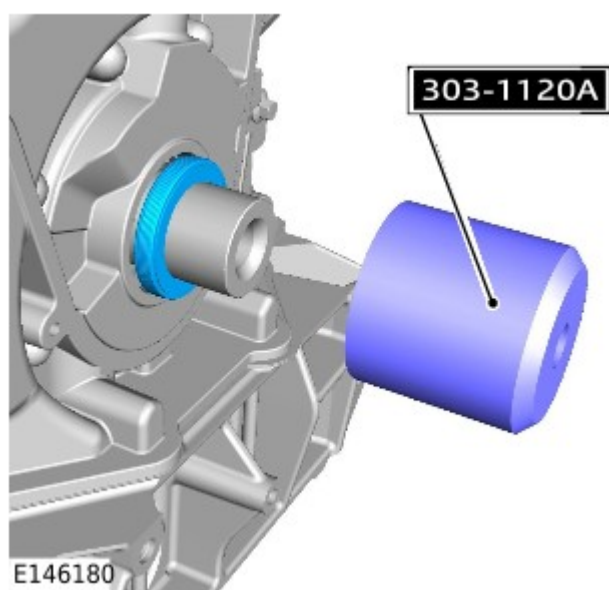
Install the special tool to the crankshaft.

12.



Remove the special tool from the crankshaft.

13.

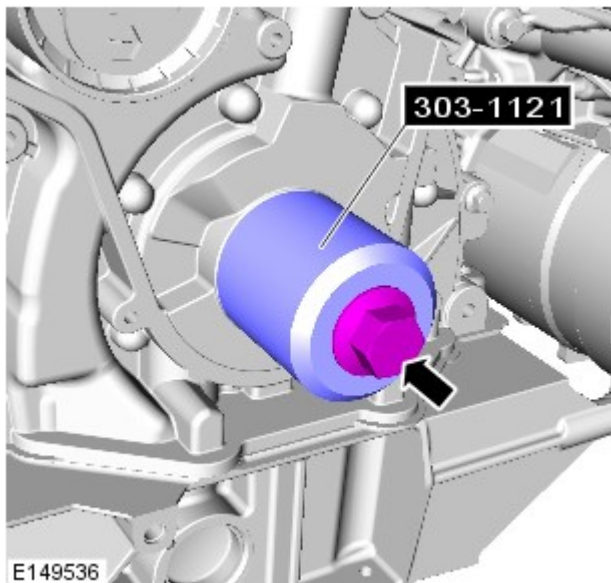


Install the special tool to the crankshaft.

14.

NOTES:

- Make sure the seal is installed correctly.
- Use the crankshaft bolt with the service tool.

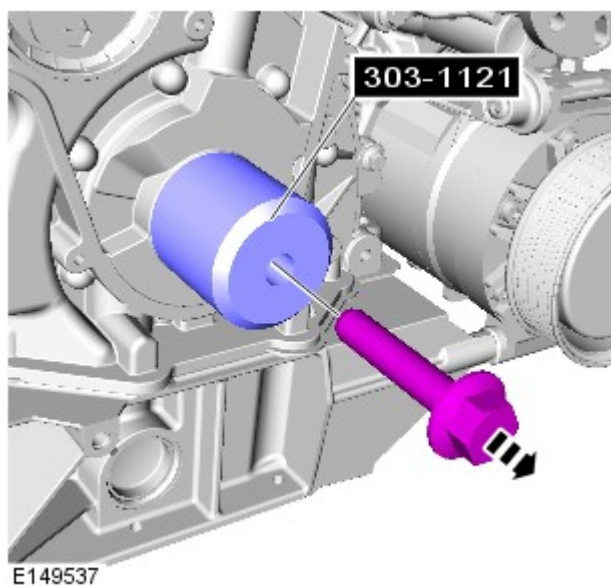


Install the special tool to the crankshaft.

15.

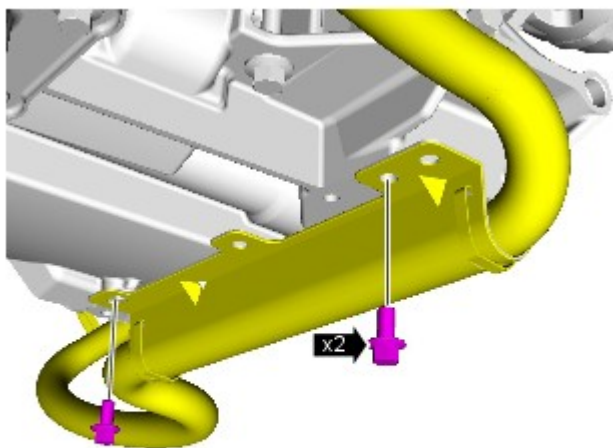
NOTES:

- Make sure the seal is installed correctly.
- Wait 10 seconds before removing the crankshaft seal installation tool.



Remove and discard the crankshaft pulley retaining bolt.

16.



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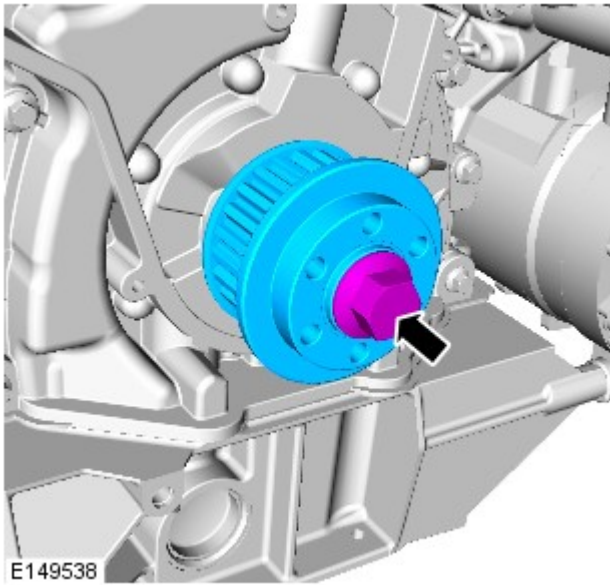
Install the battery positive cable.

Torque: 10Nm

17.

CAUTIONS:

- Make sure that the pulley washer is correctly seated before installing the pulley.
- Do not lubricate the components.
- Make sure that a new bolt is installed.



Install the crankshaft pulley.

Renew Part: [Crankshaft pulley bolt](#) Quantity: **1**.

Torque

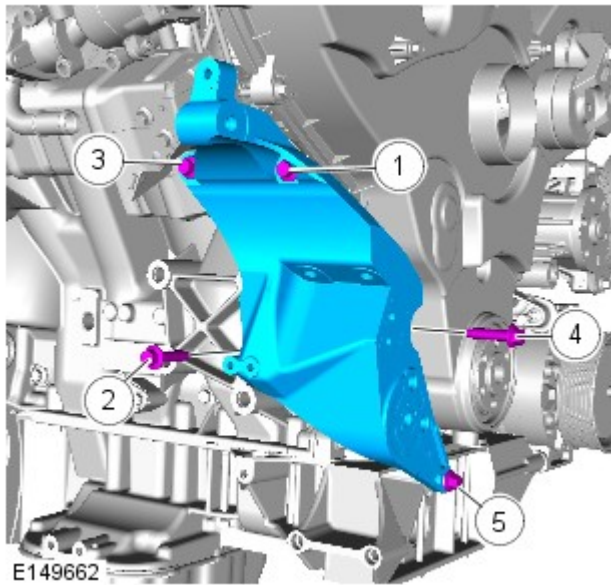
Stage 1: **150Nm**

Stage 2: **300Nm**

Stage 3: **90°**

18. Refer to: [Timing Belt](#) (303-01A Engine - TDV6 3.0L Diesel, Removal and Installation).

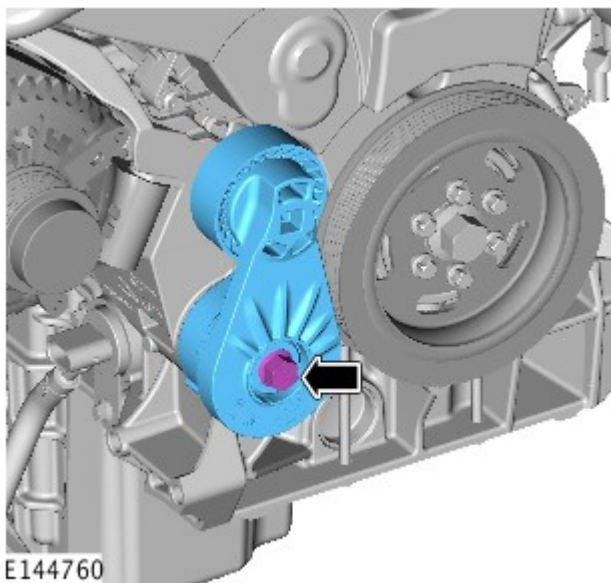
19.



Tighten the bolts in the sequence shown.

Torque: 22Nm

20.



Torque: 45Nm

21. Remove the generator.

Refer to: [Generator](#) (414-02A Generator and Regulator - TDV6 3.0L Diesel, Removal and Installation).

22. Connect the battery ground cable.

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

BATTERY AND CHARGING SYSTEM – GENERAL INFORMATION

(G1447635)

SPECIFICATIONS

Battery

ITEM	SPECIFICATIONS
All Gasoline (Petrol) Models:	
Type	Maintenance free lead-calcium
Capacity	690 amps - 75 amp/hour
Reserve capacity	150 minutes @ 25 amps
Diesel Models:	
Type	Maintenance free lead-calcium
Capacity	825 amps - 90 amp/hour
Reserve capacity	190 minutes @ 25 amps

Battery Disconnect/Connect**CAUTION:**

The vehicle status and battery condition must be established before attempting battery disconnect/connect. Reference must be then made to the following table to establish the relevant procedure to be followed.

NOTE:

If a new battery is installed, the battery monitoring system (BMS) must be reset using Land Rover approved diagnostic equipment.

Vehicle status	Battery charged	Battery discharged
	Procedure	Procedure
Engine running	1	
Vehicle powered down, locked and alarmed	2	3
Vehicle unlocked	4	5

Procedure 1

Disconnect battery	Connect battery
1. If possible, apply parking brake or alternatively, chock wheels	1. Ensure that all electrical loads are switched OFF
2. Switch off ignition	2. Connect battery leads - GROUND lead last
3. Wait 2 minutes for engine management system to 'power down'	3. Switch on ignition
4. Open the hood	4. Operate parking brake switch several times until parking brake warning lamp is extinguished
5. Disconnect battery - GROUND lead first	5. Reset electric window one-touch facility. Power window up to hard stop, release switch, reapply and hold for 1 second (relay in door will click). One touch should now work

Procedure 2

Disconnect battery	Connect battery
1. Unlock the vehicle and disarm the alarm using the 'plip' button	1. Ensure that all electrical loads are switched OFF
2. Enter the vehicle, turn the ignition key to position II, apply the parking brake or chock the wheels and then turn the ignition key to position 0. Remove the key to 'power down' the ICE system	2. Connect battery leads - GROUND lead last
3. Wait 2 minutes for engine management system to 'power down'	3. Switch on ignition
4. Open the hood	4. Operate parking brake switch several times until parking brake warning lamp is extinguished
5. Disconnect battery - GROUND lead first	5. Reset electric window one-touch facility. Power window up to hard stop, release switch, reapply and hold for 1 second (relay in door will click). One touch should now work

NOTE:

1. **Disconnect battery** - The door unlock process initialises the ICE system.

Procedure 3

Disconnect battery	Connect battery
1. Unlock the vehicle from the left hand front door using the key	1. Ensure that all electrical loads are switched OFF
2. Enter the vehicle, turn the ignition key to position II, apply the parking brake or chock the wheels and then turn the ignition key to position 0. Remove the key to 'power down' the ICE system	2. Connect battery leads - GROUND lead last

3. Wait 2 minutes for engine management system to 'power down'	3. Switch on ignition
4. Open the hood	4. Operate parking brake switch several times until parking brake warning lamp is extinguished
5. Disconnect battery - GROUND lead first	5. Reset electric window one-touch facility. Power window up to hard stop, release switch, reapply and hold for 1 second (relay in door will click). One touch should now work

NOTES:

- **1. - Disconnect battery** - The door unlock process initialises the ICE system
- **1. Connect battery** - If there is insufficient capacity in the battery to disarm the alarm, the alarm may sound on reconnection of the battery - Step 3 will disarm the alarm

Procedure 4

Disconnect battery	Connect battery
1. Enter the vehicle, turn the ignition key to position II, apply the parking brake or chock the wheels and then turn the ignition key to position 0. Remove the key to 'power down' the ICE system	1. Ensure that all electrical loads are switched OFF
2. Wait 2 minutes for engine management system to 'power down'	2. Connect battery leads - GROUND lead last
3. Open the hood	3. Switch on ignition
4. Disconnect battery - GROUND lead first	4. Operate parking brake switch several times until parking brake warning lamp is extinguished
	5. Reset electric window one-touch facility. Power window up to hard stop, release switch, reapply and hold for 1 second (relay in door will click). One touch should now work

Procedure 5

Disconnect battery	Connect battery
1. Enter the vehicle, turn the ignition key to position II, apply the parking brake or chock the wheels and then turn the ignition key to position 0. Remove the key to 'power down' the ICE system	1. Ensure that all electrical loads are switched OFF
2. Wait 2 minutes for engine management system to 'power down'	2. Connect battery leads - GROUND lead last
3. Open the hood	3. Switch on ignition
4. Disconnect battery - GROUND lead first	4. Operate parking brake switch several times until parking brake warning lamp is extinguished
	5. Reset electric window one-touch facility. Power window up to hard stop, release switch, reapply and hold for 1 second (relay in door will click). One touch should now work

NOTE:

1. **Disconnect battery** - If the remote control module (RCM) is not functioning, it will be necessary to manually unlock the vehicle using the key.

Vehicle Jump (Emergency) Starting - Using Another Vehicle

CARRY OUT THE FOLLOWING OPERATIONS IN THE SEQUENCE GIVEN
1. Connect one end of the BLACK (-) booster cable to the GROUND (-) battery terminal of the DONOR vehicle
2. Connect the other end of the BLACK (-) booster cable to a good earth point e.g. unpainted metal surface or engine mounting at least 0.5 m (20.0 in) from the battery or fuel lines on the DISABLED vehicle
3. Connect one end of the RED (+) booster cable to the positive (+) battery terminal of the DONOR vehicle
4. Connect the other end of the RED (+) booster cable to the positive (+) battery terminal of the DISABLED vehicle
5. Start the engine of the DONOR vehicle and allow it to idle for a few minutes
6. Start the engine of the DISABLED vehicle
7. Allow engines of both vehicles to idle for a few minutes then switch off the engine of the DONOR vehicle
8. Disconnect the RED (+) booster cable from the battery of the PREVIOUSLY DISABLED vehicle
9. Disconnect the RED (+) booster cable from the battery of the DONOR vehicle
10. Disconnect the BLACK (-) booster cable from the earth point of the PREVIOUSLY DISABLED vehicle

CARRY OUT THE FOLLOWING OPERATIONS IN THE SEQUENCE GIVEN

11. Disconnect the BLACK (-) booster cable from the battery of the **DONOR** vehicle

WARNINGS:

- During normal use, batteries emit explosive hydrogen gas sufficient to cause severe explosions and capable of causing serious injury - keep sparks and naked lights away from the engine compartment.
- DO NOT attempt to start the disabled vehicle if it is suspected that the electrolyte in the battery is frozen.
- Suitable eye protection must be worn when working in the vicinity of the battery.
- Take care when working near rotating parts of the engine.
- Prior to attempting to start the disabled vehicle, ensure that the parking brake is applied or suitably chock the wheels. Ensure that 'P' - PARK - Automatic Gearbox or NEUTRAL - Manual Gearbox is selected.

CAUTIONS:

- Ensure that all electrical loads are switched OFF prior to connecting booster cables and disconnect booster cables prior to using any electrical equipment.
- Ensure that the battery of the DONOR vehicle is of 12 volt capacity and that all electrical loads on the disabled vehicle are switched OFF prior to connecting booster cables.
- Ensure that there is no physical contact between the donor and disabled vehicles other than the booster cables.

Vehicle Jump (Emergency) Starting - Using a Slave Battery/Starting Aid

CARRY OUT THE FOLLOWING OPERATIONS IN THE SEQUENCE GIVEN

1. Connect the end of the BLACK (-) booster cable to the ground (-) battery terminal of the vehicle
2. Connect the end of the RED (+) booster cable to the positive (+) battery terminal of the vehicle
3. Start the engine of the vehicle and allow it to idle
4. Disconnect the RED (+) booster cable from the battery terminal of the vehicle

5. Disconnect the BLACK (-) booster cable from the battery terminal of the vehicle

WARNINGS:

- During normal use, batteries emit explosive hydrogen gas sufficient to cause severe explosions and capable of causing serious injury - keep sparks and naked lights away from the engine compartment.
- DO NOT attempt to start the disabled vehicle if it is suspected that the electrolyte in the battery is frozen.
- Suitable eye protection must be worn when working in the vicinity of the battery.
- Take care when working near rotating parts of the engine.
- Prior to attempting to start the disabled vehicle, ensure that the parking brake is applied or suitably chock the wheels. Ensure that 'P' - PARK - Automatic Gearbox or NEUTRAL - Manual Gearbox is selected.

CAUTIONS:

- Ensure that all electrical loads are switched OFF prior to connecting booster cables and disconnect booster cables prior to using any electrical equipment.
- Ensure that the slave battery/starting aid are of 12 volt capacity and that all electrical loads on the disabled vehicle are switched OFF prior to connecting booster cables.

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PUBLISHED: 10-OCT-2017
2011.0 RANGE ROVER SPORT (LS), 303-01A


ENGINE - TDV6 3.0L DIESEL

TIMING BELT (G1240495)

REMOVAL AND INSTALLATION

12.65.18	TIMING BELT - CAMSHAFT - RENEW	3000 CC, TDV6	3.50	USED WITHINS	+
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SPECIAL TOOL(S)




303-1117

E54540

303-1117

Timing Peg, Automatic Transmission



303-1126

E54551

303-1126

Timing Peg, Camshaft Pulley

PART(S)

STEP	PART NAME	QUANTITY
Installation Step 2	Timing belt and tensioner kit	1

REMOVAL

1.

WARNING:

Make sure to support the vehicle with axle stands.

Raise and support the vehicle.

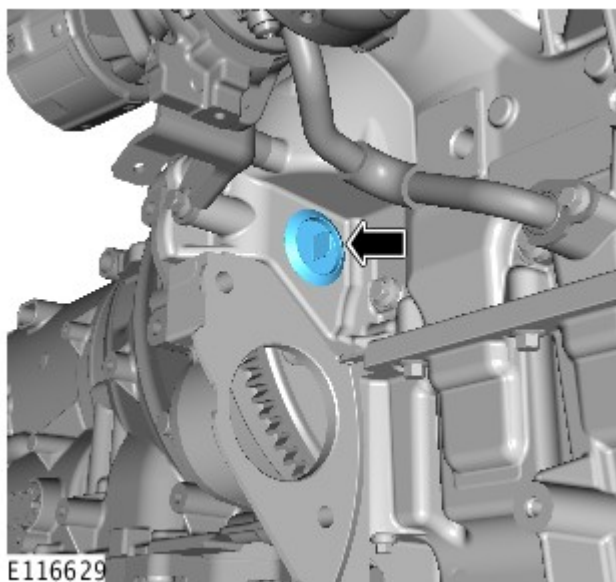
2.

Refer to: [Timing Cover](#) (303-01A Engine - TDV6 3.0L Diesel, Removal and Installation).

3.

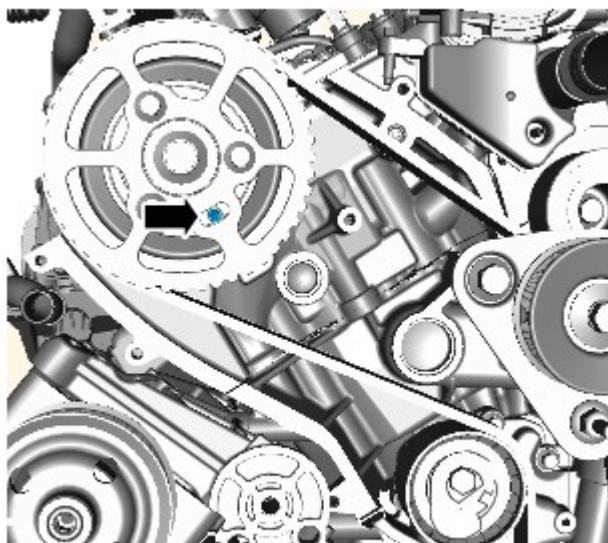
Refer to: [Starter Motor](#) (303-06A Starting System - TDV6 3.0L Diesel, Removal and Installation).

4.



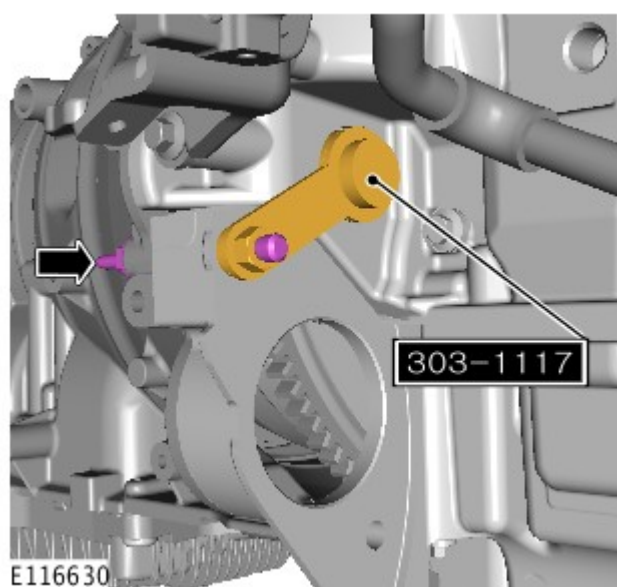
5. Rotate the crankshaft clockwise to align the crankshaft alignment hole in the flywheel or flexplate with the block aperture.

6.



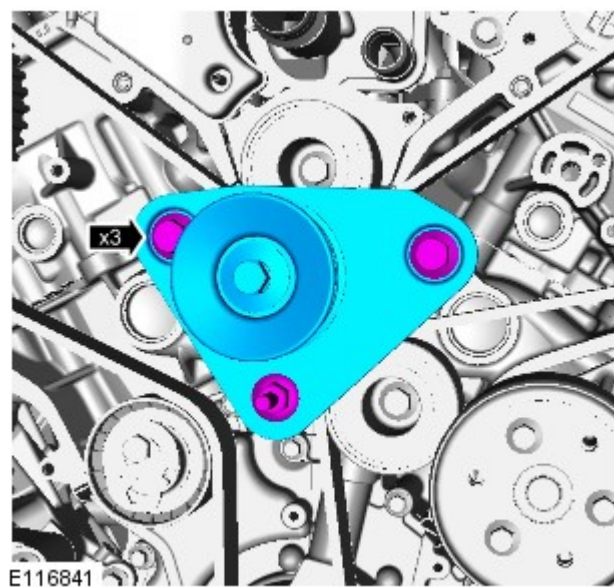
Check the camshaft pulley alignment holes are correctly aligned. If the alignment holes are not aligned, rotate the crankshaft one full turn clockwise.

7.

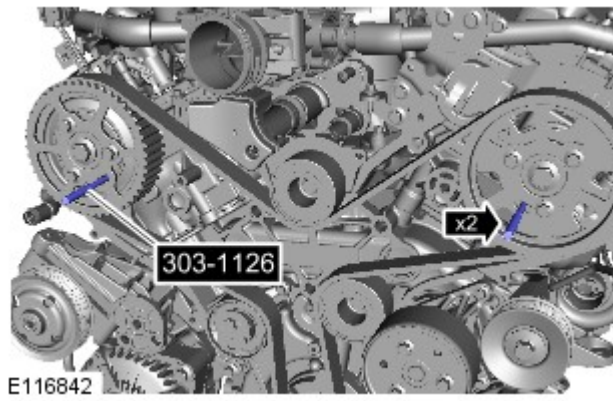


Special Tool(s): [303-1117](#)

8.



9.



Special Tool(s): [303-1126](#)

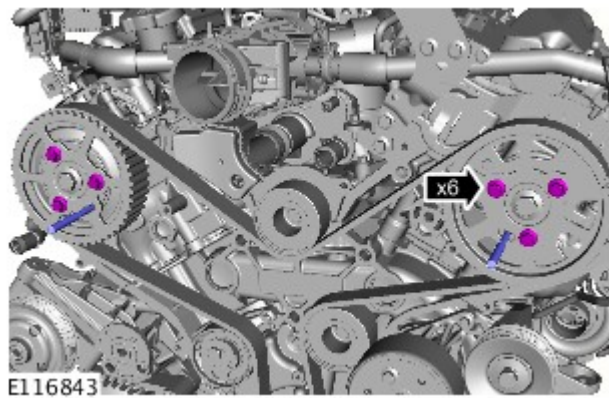
10.

CAUTION:

Do not use the special tools to lock the camshafts. Failure to follow this instruction may result in damage to the engine or the special tools.

NOTE:

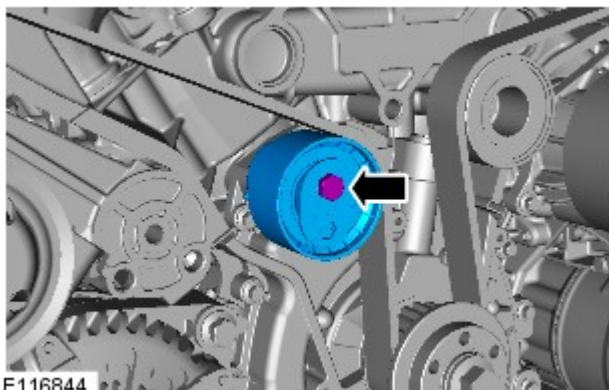
Do not loosen the bolts more than 2 turns.



11.

CAUTIONS:

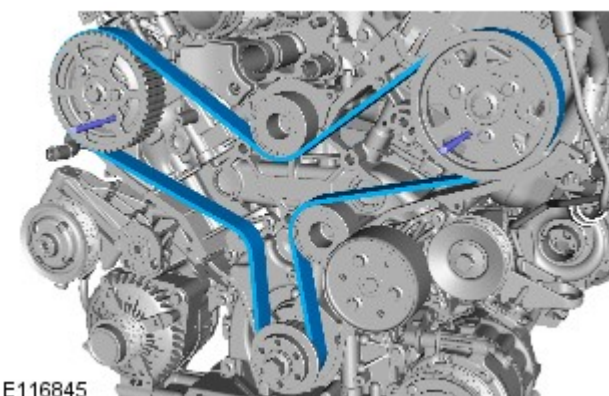
- Discard the component.
- Discard the bolt.



12.

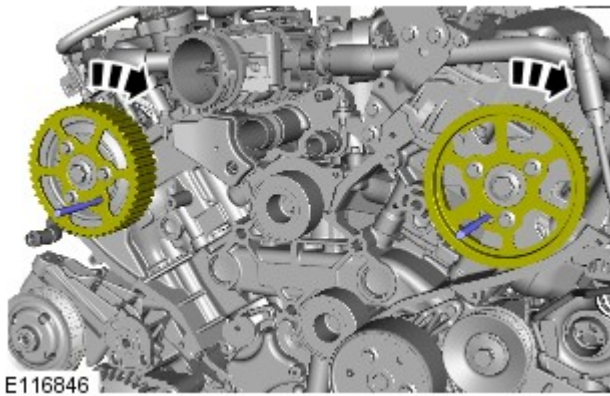
CAUTION:

Discard the component.



INSTALLATION

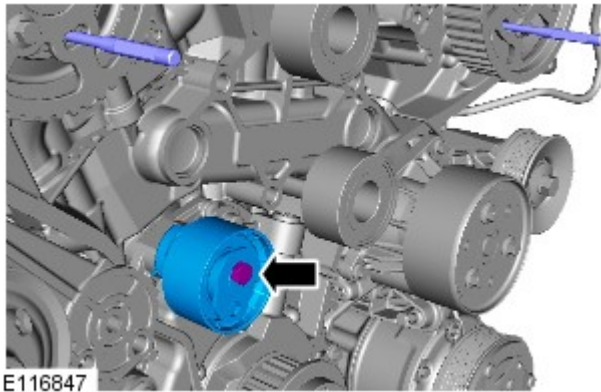
1.



2.

CAUTIONS:

- Make sure that a new bolt is installed.
- Only tighten the bolts finger-tight at this stage.

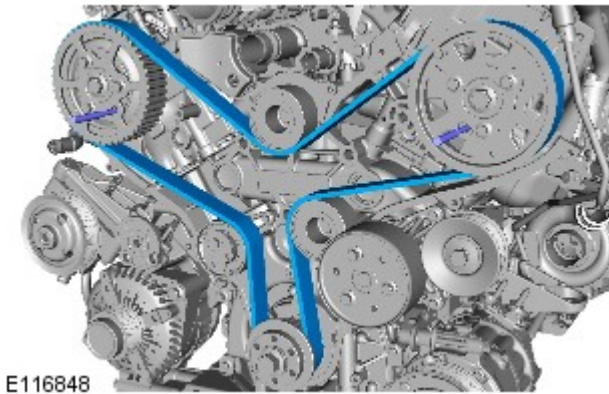


Renew Part: *Timing belt and tensioner kit* Quantity: 1.

3.

CAUTION:

Make sure the camshaft pulleys remain in the clockwise position.

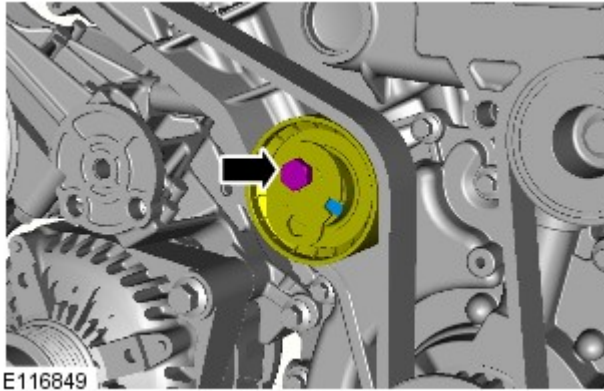


- Install the new timing belt.
- Starting at the crankshaft pulley, install the timing belt in a counter-clockwise direction, in the sequence shown.
- Stage one: Attach the timing belt to the crankshaft pulley.
- Stage two: Attach the timing belt to the idler pulley.
- Stage three: Attach the timing belt to the left-hand camshaft pulley.
- Stage four: Attach the timing belt to the idler pulley.
- Stage five: Attach the timing belt to the RH camshaft pulley.
- Stage six: Attach the timing belt to the timing belt tensioner.

4.

CAUTION:

Make sure the timing belt tensioner window is aligned with the groove as illustrated.

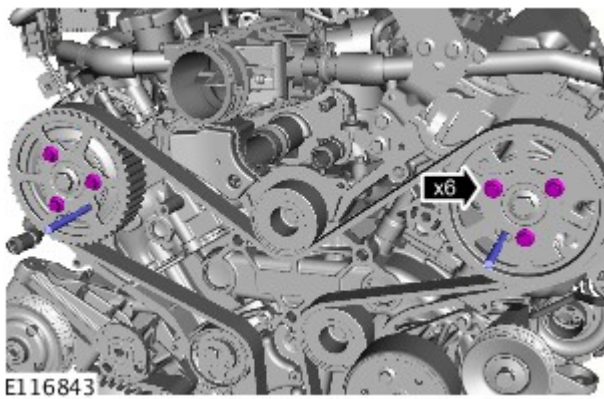


- Tension the timing belt.
- Rotate the tensioner assembly counter-clockwise.
- **Torque: 26Nm**

5.

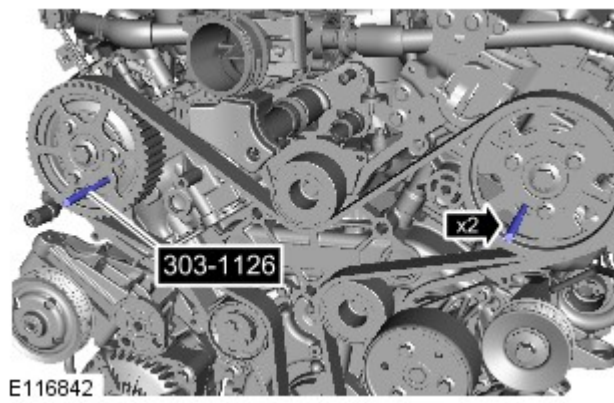
CAUTION:

Do not use the special tools to lock the camshafts. Failure to follow this instruction may result in damage to the engine or the special tools.



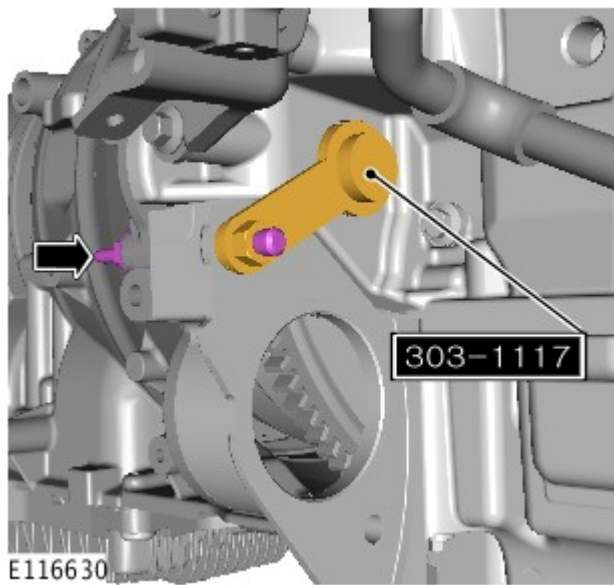
- Using a suitable tool, counterhold the camshaft pulley center retaining bolts.
- **Torque: 23Nm**

6.



Special Tool(s): [303-1126](#)

7.



Special Tool(s): [303-1117](#)

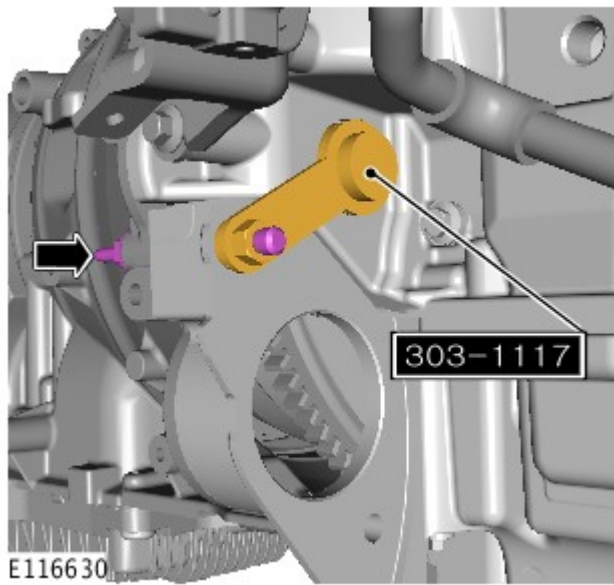
8.

CAUTION:

Only rotate the crankshaft clockwise.

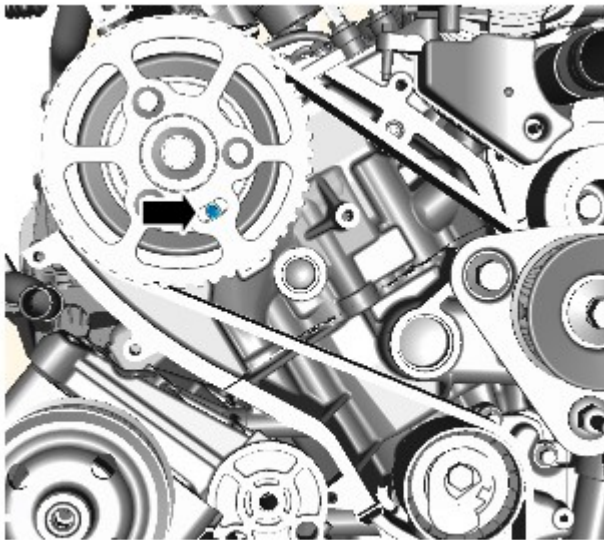
Rotate the engine two complete turns clockwise.

9.



Special Tool(s): [303-1117](#)

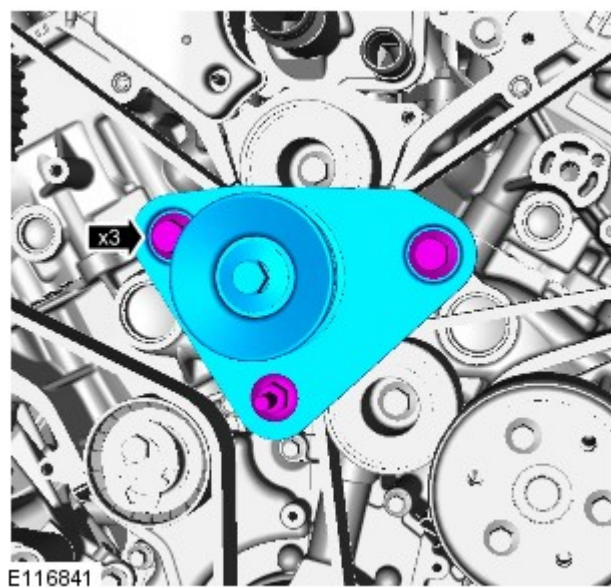
10.



E116840

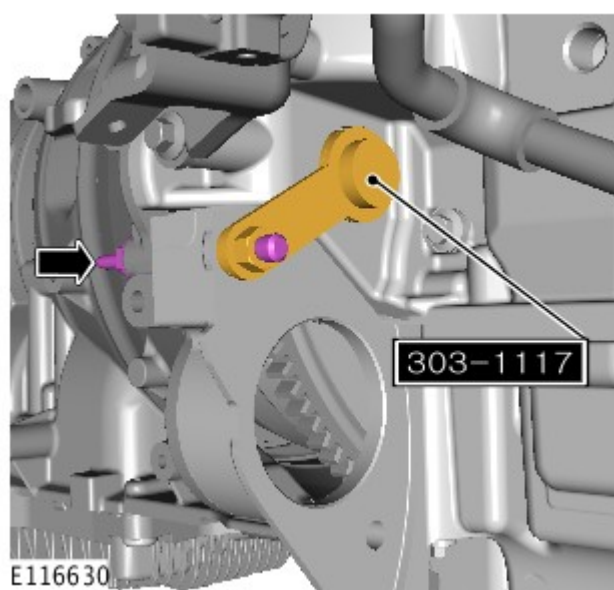
- Install the special tools to the exhaust camshaft pulleys.
- If the special tool does not fit correctly, repeat the timing belt installation procedure.
- Remove the special tools from the camshaft pulleys.

11.



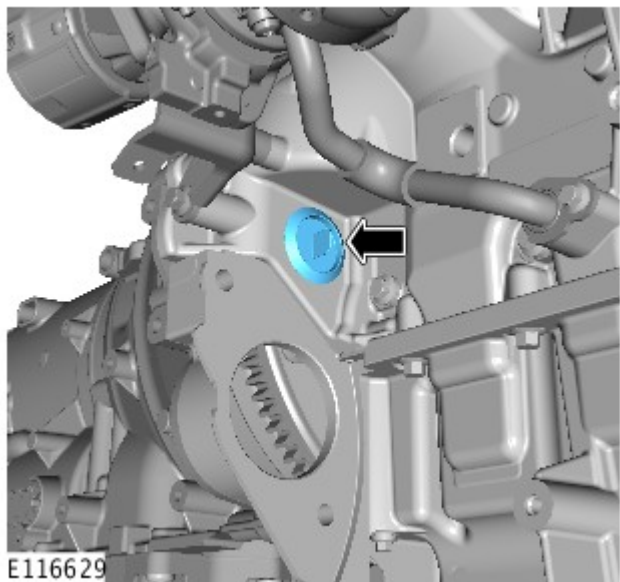
Torque: 80Nm

12.



Special Tool(s): 303-1117

13.



14. Refer to: [Starter Motor](#) (303-06A Starting System - TDV6 3.0L Diesel, Removal and Installation).

15. Refer to: [Timing Cover](#) (303-01A Engine - TDV6 3.0L Diesel, Removal and Installation).

cy11b3djbzE7MjAyNC0wNi0xNDoyNDowM54wOTZaQzg3Ljc1LjEwNy43MTs=

PUBLISHED: 28-FEB-2012
2011.0 RANGE ROVER SPORT (LS), 414-02A

GENERATOR AND REGULATOR - TDV6 3.0L DIESEL

GENERATOR (G1520892)

REMOVAL AND INSTALLATION

86.10.02	GENERATOR - RENEW	3000 CC, TDV6	1.60	USED WITHINS	+
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REMOVAL

NOTE:

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



The following step(s) applies to:

All vehicles

1. Disconnect the battery ground cable.

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

- 2.

WARNING:

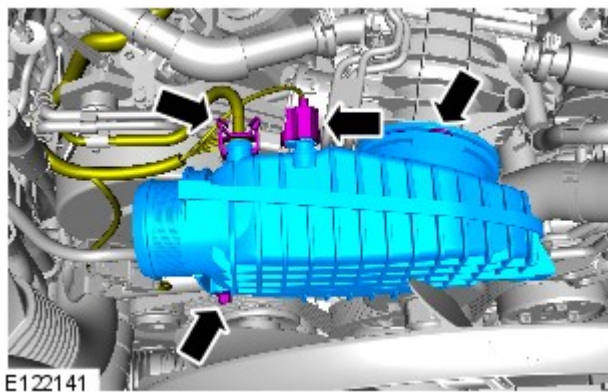
Make sure to support the vehicle with axle stands.

Raise and support the vehicle.

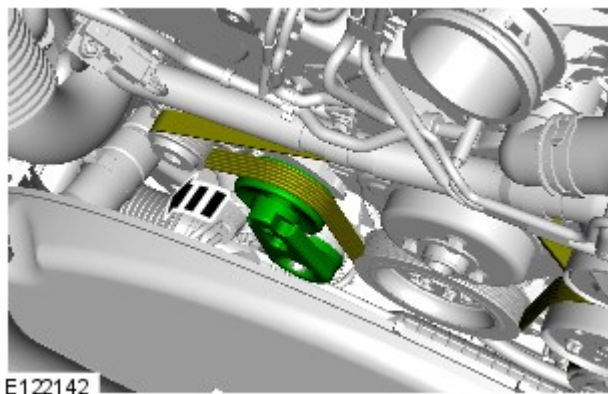
3. Refer to: [Engine Cover - TDV6 3.0L Diesel](#) (501-05 Interior Trim and Ornamentation, Removal and Installation).

4. Refer to: [Cooling Fan](#) (303-03A Engine Cooling - TDV6 3.0L Diesel, Removal and Installation).

- 5.



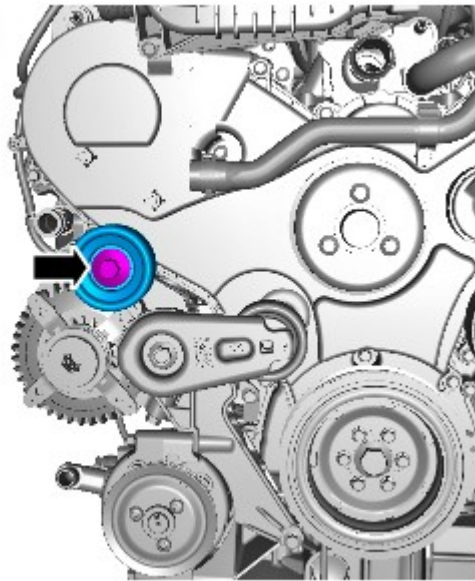
- 6.





The following step(s) applies to:
Vehicles with dynamic suspension

7.



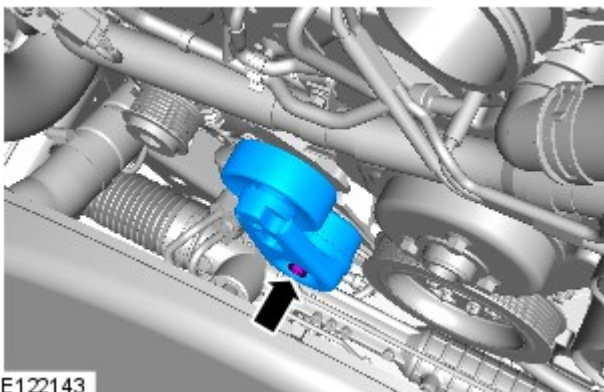
E131852

Torque: 47Nm



The following step(s) applies to:
All vehicles

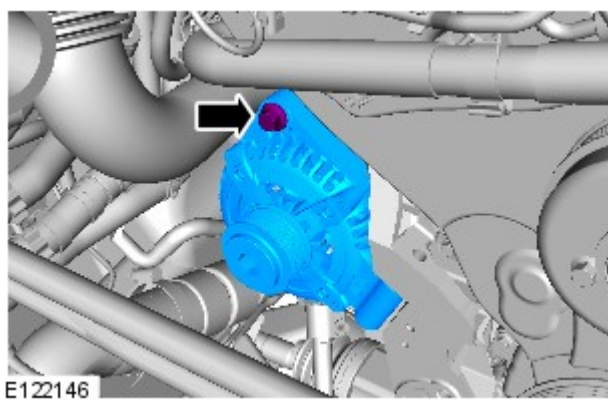
8.



E122143

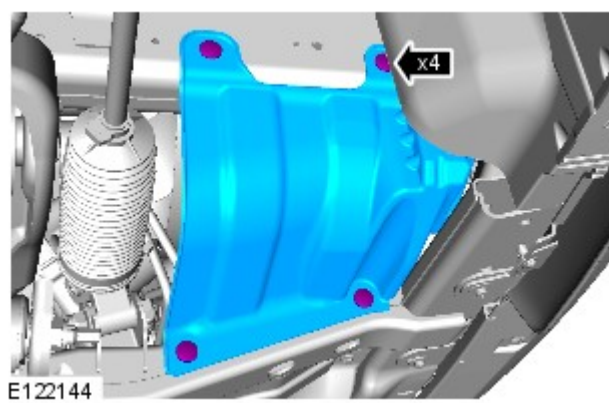
Torque: 47Nm

9.

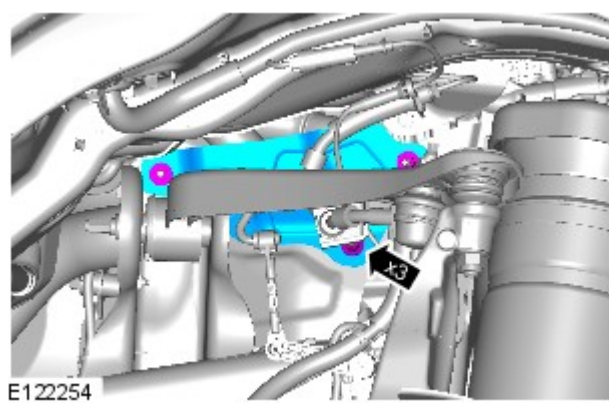


Torque: 47Nm

10.



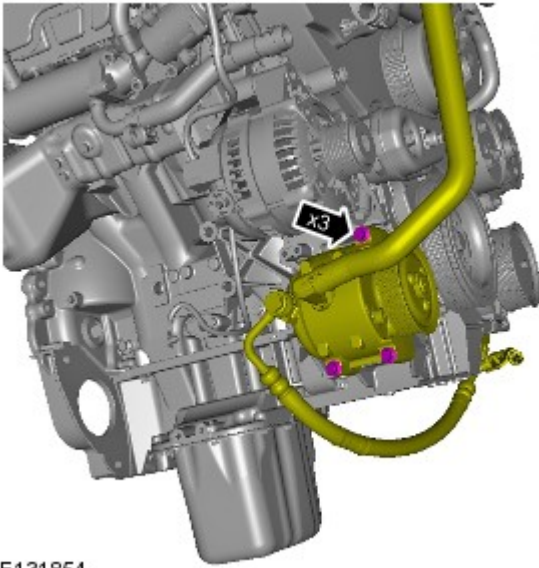
11.





The following step(s) applies to:
Vehicles with dynamic suspension

12.



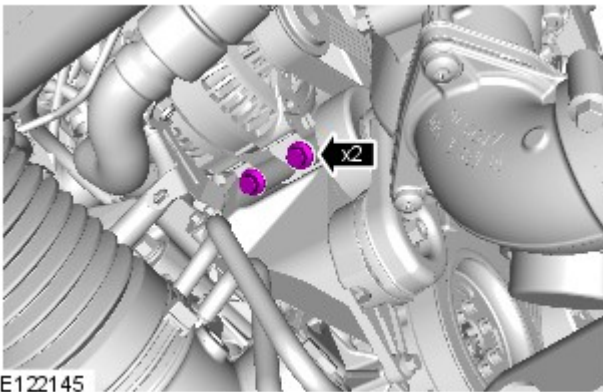
E131854

Torque: 22Nm



The following step(s) applies to:
All vehicles

13.



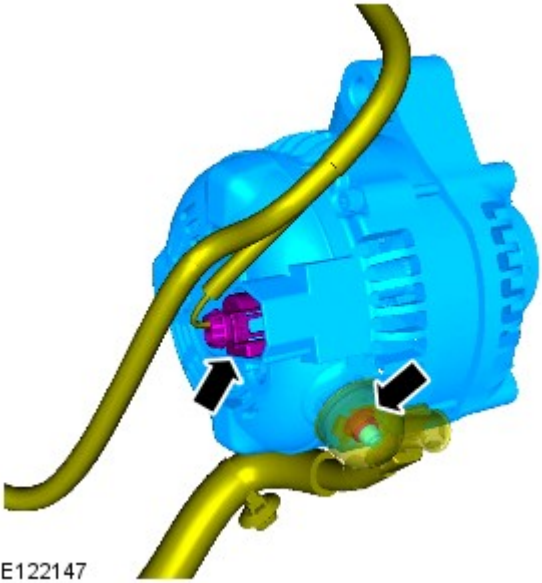
E122145

Torque: 47Nm

14.

NOTE:

Access to the electrical connectors via the heat shield aperture.



Torque: 12Nm

INSTALLATION

- 1. To install, reverse the removal procedure.

cy1ib3djbzE7MjAyNC0wMj0wNTcyNDowM540NzNaOzg3Ljc1LjEwNy43MTs=

PUBLISHED: 08-DEC-2014
2011.0 RANGE ROVER SPORT (LS), 303-03A

ENGINE COOLING - TDV6 3.0L DIESEL

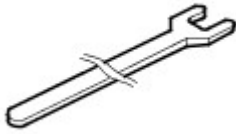
COOLING FAN (G1260854)

REMOVAL AND INSTALLATION

26.25.19	COUPLING	3000 CC, TDV6	1.10	USED WITHINS	+
	UNIT - VISCIOUS FAN - RENEW				

SPECIAL TOOL(S)

303-114



E46076

303-1142

Viscous Coupling Wrench

303-1143



E55382

303-1143

Viscous Coupling Holding Tool

REMOVAL

NOTE:

Removal steps in this procedure may contain installation details.

1.

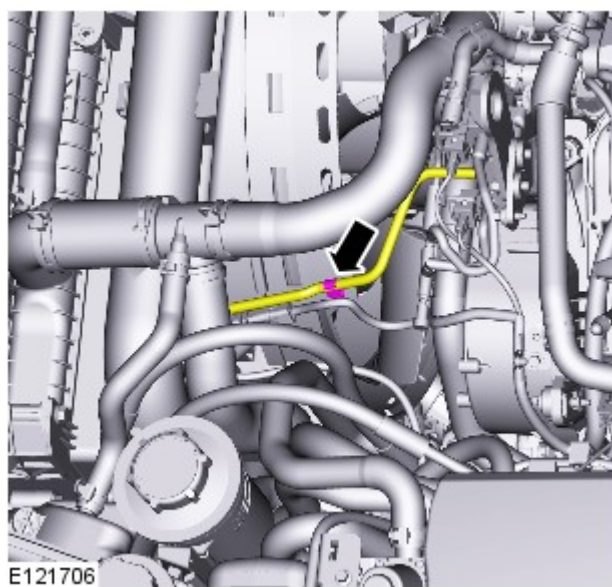
WARNING:

Make sure to support the vehicle with axle stands.

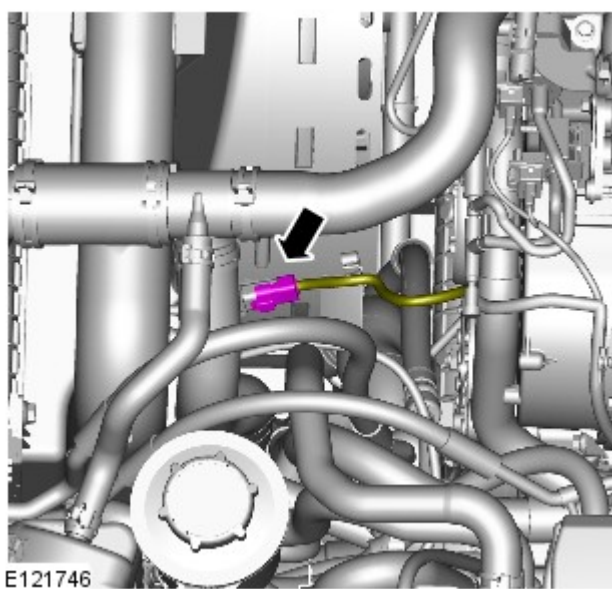
Raise and support the vehicle.

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

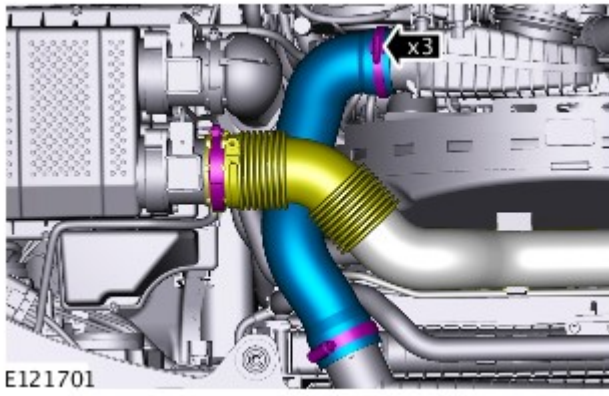
3.



4.

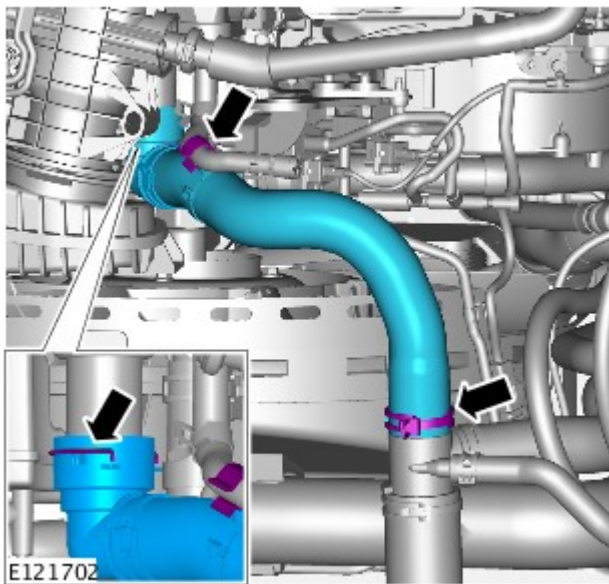


5.

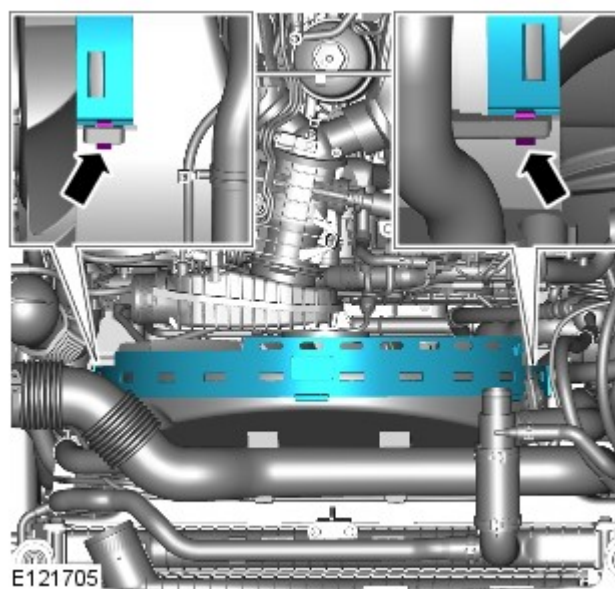


Torque: 3.5Nm

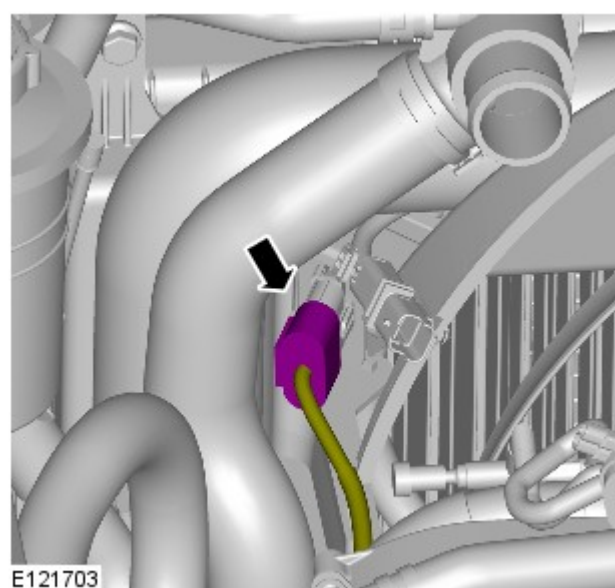
6.



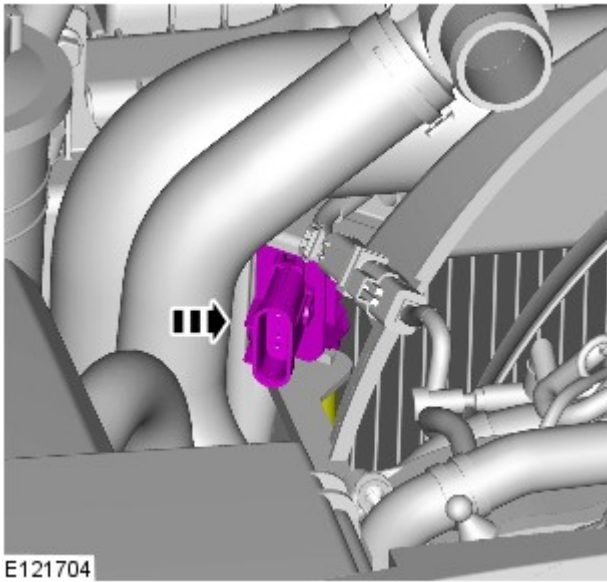
7.



8.



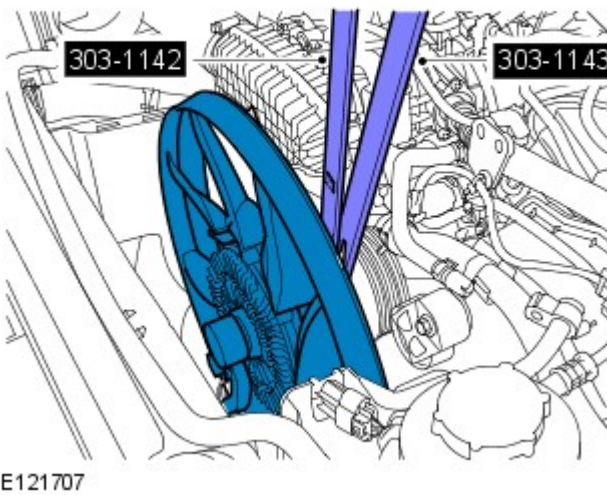
9.



10.

NOTE:

The thread is left handed.



Special Tool(s): 303-1142, 303-1143

Torque: 65Nm

INSTALLATION

1. To install, reverse the removal procedure.

INTERIOR TRIM AND ORNAMENTATION

ENGINE COVER - TDV6 3.0L DIESEL

[G1240851]

REMOVAL AND INSTALLATION

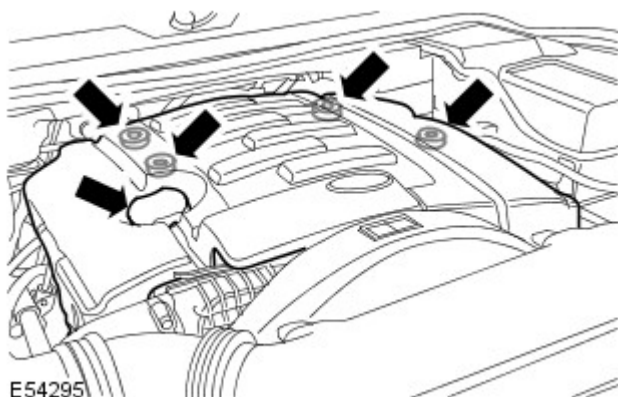
12.30.50	ENGINE COVER - RENEW	3000 CC, TDV6	0.10	USED WITHINS	+
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REMOVAL

NOTE:

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

1.



- Remove the oil filler cap.
- Release the 4 clips.

INSTALLATION

1. To install, reverse the removal procedure.