

Published: 11-May-2011

Accessory Drive - I6 3.2L Petrol -

Torque Specifications

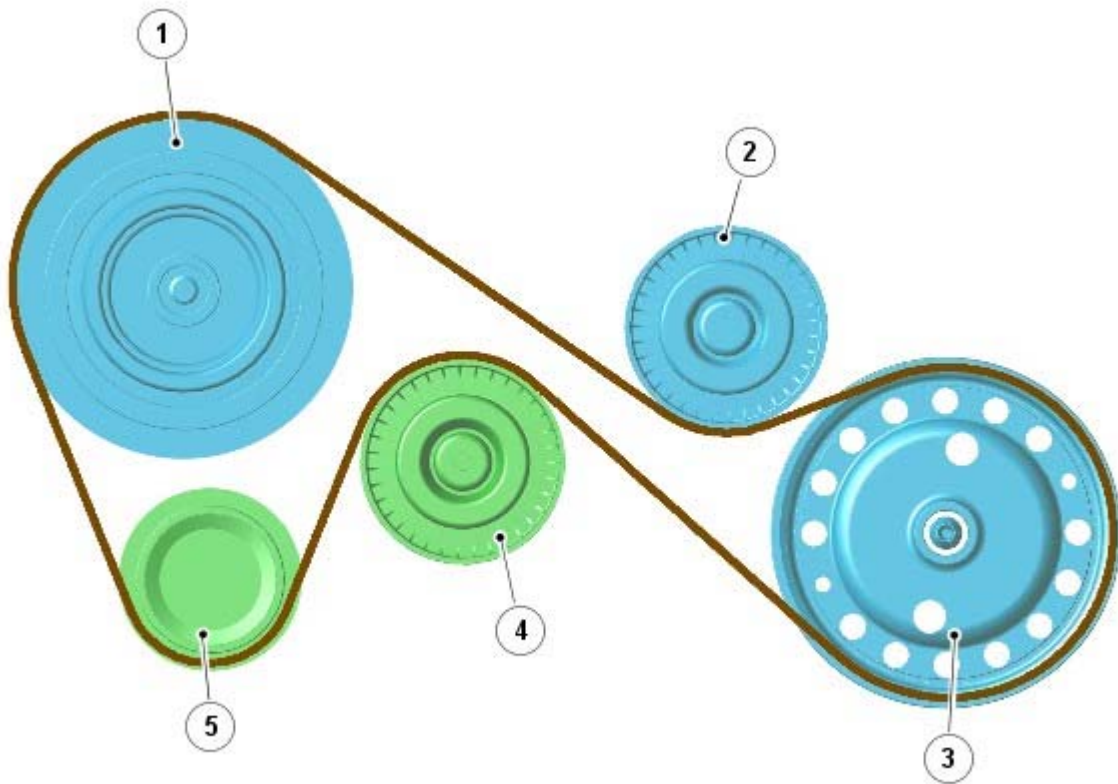
Description	Nm	lb-ft
Accessory drive belt idler pulley bolt	25	18
Accessory drive belt tensioner retaining bolt	25	18
Accessory drive component bracket:		
M10	50	36
M8	24	18
Accessory drive pulley	60	44

Part Number

Published: 11-May-2011

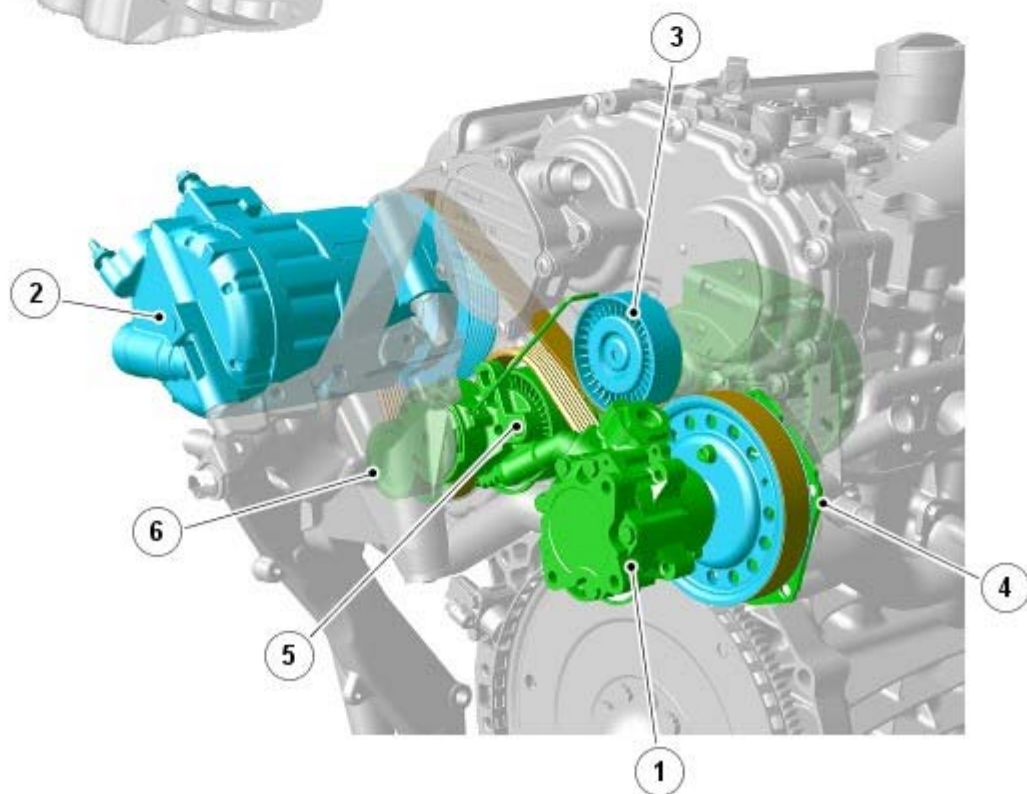
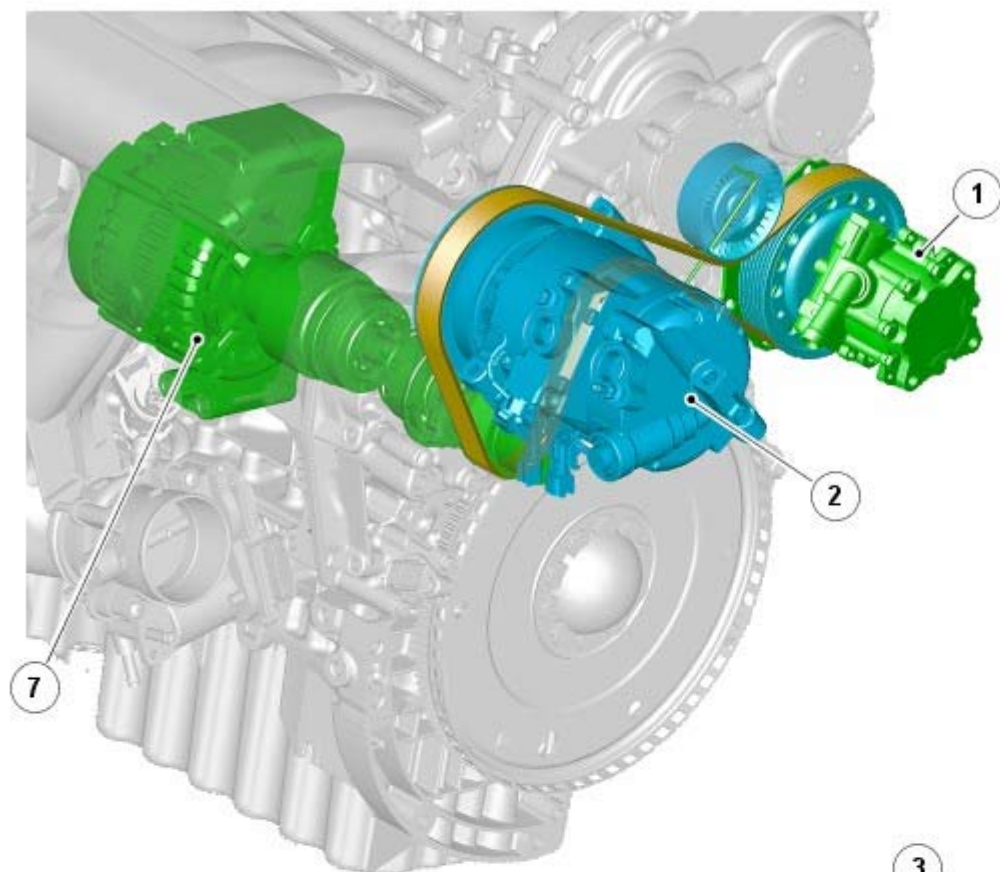
Accessory Drive - I6 3.2L Petrol - Accessory Drive

Description and Operation

COMPONENT LOCATION

E79495

Item	Part Number	Description
1	-	Air Conditioning (AC) compressor
2	-	Idler pulley
3	-	Power steering pump and coolant pump pulley
4	-	Adjuster pulley
5	-	Drive pulley



E79496

Item	Description
1	Power Steering pump
2	AC compressor
3	Idler pulley
4	Coolant pump
5	Adjuster mechanism
6	Drive pulley
7	Generator

OVERVIEW

One of the major innovations to the engine's design is the positioning of the accessory drive and its associated ancillaries at the rear of the engine. The accessory drive system overhangs the transmission, allowing the front of the engine to be free of protrusions. This unique design contributes to providing a compact and robust engine.

The polyvee accessory drive-belt obtains its drive from a shaft, powered by the crankshaft. The accessory drive-belt powers the:

- AC compressor,
- engine coolant pump, and
- power steering pump

The engine coolant pump and the power-steering pump share a common coupling.

Belt tension is maintained by an automatic tension system which provides a constant tension without belt slip.

The generator is directly attached by a coupling to the rear of the crankshaft driven shaft. This direct drive arrangement improves the generator's durability by preventing side-loadings, caused by the tension of a drive belt, acting on the generator's rotor bearing.

In addition to helping make the engine compact and robust, the novel arrangement of the accessory drive system also aids in reducing engine weight.

Accessory Drive - I6 3.2L Petrol - Accessory Drive

Diagnosis and Testing

Principles of Operation

For a detailed description of the Rear End Accessory Drive (READ), refer to the relevant Description and Operation section of the workshop manual.

REFER to: [Accessory Drive](#) (303-05A Accessory Drive - I6 3.2L Petrol, Description and Operation).

Inspection and Verification

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

Visual Inspection

Mechanical
<ul style="list-style-type: none"> ● READ belt ● READ belt tension ● READ belt tensioner ● READ belt pulleys ● READ belt pulley seals

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.

Symptom Chart

Symptom	Possible Cause	Action
READ belt noise or squeal	<ul style="list-style-type: none"> ● READ belt pulley(s) ● Lubricant or other contamination ● READ belt 	<p>Check for pulley alignment, freedom of rotation and damage. Repair or install new parts as required.</p> <p>REFER to: Accessory Drive Component Bracket Alignment (303-05A Accessory Drive - I6 3.2L Petrol, General Procedures) / Accessory Drive Belt Idler Pulley (303-05A Accessory Drive - I6 3.2L Petrol, Removal and Installation) / Accessory Drive Pulley (303-05A Accessory Drive - I6 3.2L Petrol, Removal and Installation).</p> <p>Check READ belt for contamination. If contaminated, install a new belt. REFER to: Accessory Drive Belt (303-05A Accessory Drive - I6 3.2L Petrol, Removal and Installation).</p> <p>Check READ belt for correct application</p>
READ belt does not hold tension	<ul style="list-style-type: none"> ● READ belt cracking or damaged ● Tensioner worn or damaged 	<p>Inspect READ belt for cracking or damage. Install a new belt as required.</p> <p>REFER to: Accessory Drive Belt (303-05A Accessory Drive - I6 3.2L Petrol, Removal and Installation).</p> <p>Check READ belt tensioner for damage and correct operation. Install a new READ belt tensioner as required.</p> <p>REFER to: Accessory Drive Belt Tensioner (303-05A Accessory Drive - I6 3.2L Petrol, Removal and Installation).</p>

Component Tests

READ belt tensioner

Static

The only checks required for the READ belt tensioner are for stick, grab or bind.

1. Remove the drive belt in the area of the tensioner.
2. Using the correct tool, rotate the tensioner from its relaxed position through its full stroke and back to the relaxed position to make sure there is no stick, grab or bind, and to make sure that there is tension on the tensioner spring.
3. If the tensioner meets the above criteria, proceed to the dynamic test. If the tensioner does not meet the above criteria install a new tensioner.
REFER to: [Accessory Drive Belt Tensioner](#) (303-05A Accessory Drive - I6 3.2L Petrol, Removal and Installation).

Dynamic

The READ belt tensioner can be checked dynamically as follows:

With the engine running, observe drive belt tensioner movement, the READ belt tensioner should move (respond) when the air conditioning clutch cycles (if equipped), the READ belt tensioner should move (respond) when the engine speed is increased rapidly. If the drive belt tensioner movement is erratic without air conditioning clutch cycling or engine acceleration, a pulley or shaft may be bent, or distorted. Excessive drive belt rideout (uneven depth of grooves in the drive belt) can also cause excessive drive belt tensioner movement. Check condition by installing a known good belt.

REFER to: [Accessory Drive Belt](#) (303-05A Accessory Drive - I6 3.2L Petrol, Removal and Installation).

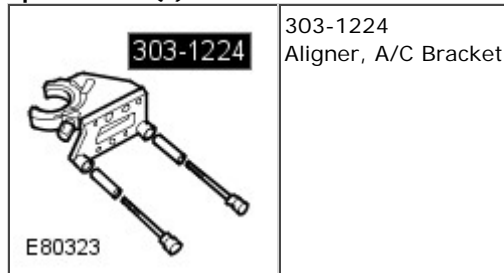
READ belt

1. With the engine off, check routing of the drive belt.
REFER to: [Accessory Drive](#) (303-05A Accessory Drive - I6 3.2L Petrol, Description and Operation).
2. Inspect the drive belt tensioner wear indicator to confirm the drive belt is within operating range. Install a new drive belt as necessary .
REFER to: [Accessory Drive Belt](#) (303-05A Accessory Drive - I6 3.2L Petrol, Removal and Installation).

Accessory Drive - I6 3.2L Petrol - Accessory Drive Component Bracket Alignment

General Procedures

Special Tool(s)



NOTE: This procedure is to be used where an accessory drive belt alignment or accessory drive component bracket alignment is required.

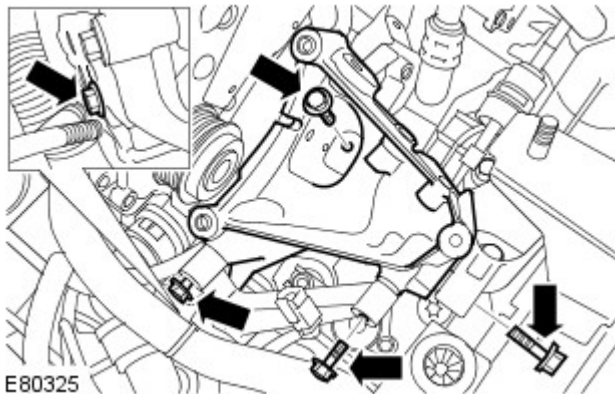
1. Drain the cooling system.

Refer to: [Cooling System Draining, Filling and Bleeding](#) (303-03A Engine Cooling - I6 3.2L Petrol, General Procedures).

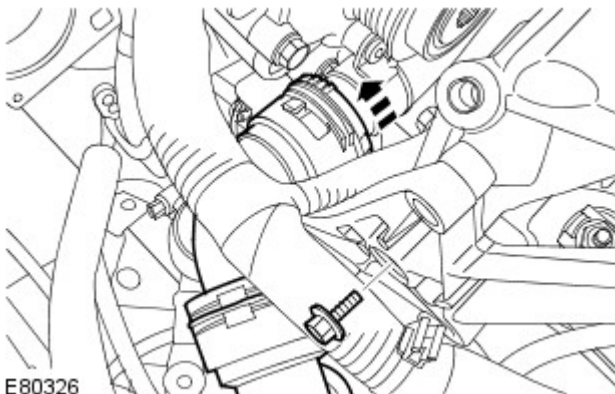
2. Remove the LH engine mount.

Refer to: [Engine Mount LH](#) (303-01A Engine - I6 3.2L Petrol, Removal and Installation).

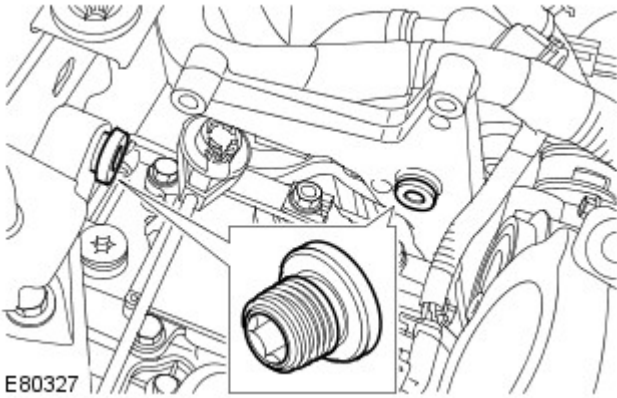
3. Raise and support the transmission to gain access to the engine mount bracket adjuster.



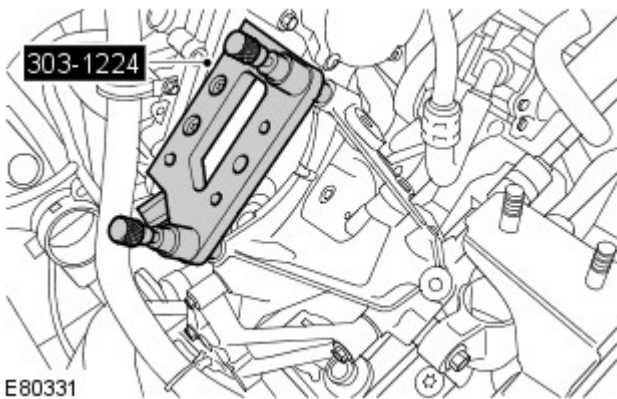
4. Release the bracket.



5. Disconnect the coolant hose, to enable removal of the bolt.

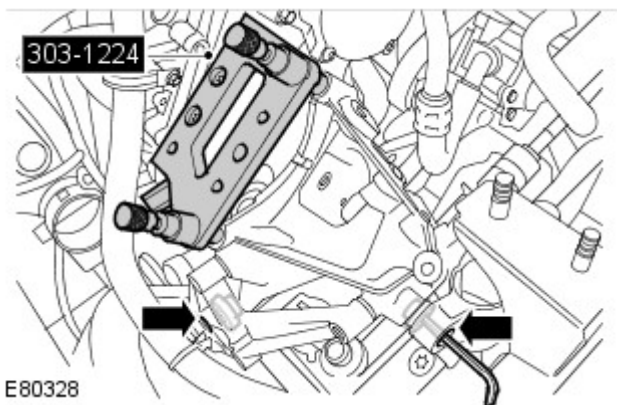


6. Back-off both adjusters.



7. Check the alignment of the bracket using the special tool.

Special Tool(s): [303-1224](#)



8. Set both adjusters as required.

9. Install the A/C compressor mounting bracket.

Torque:
M10 45 Nm
M8 25 Nm

10. Connect and secure the coolant hose.

11. Install the LH engine mount.

Refer to: [Engine Mount LH](#) (303-01A Engine - I6 3.2L Petrol, Removal and Installation).

12. Refill the cooling system.

Refer to: [Cooling System Draining, Filling and Bleeding](#) (303-03A Engine Cooling - I6 3.2L Petrol, General Procedures).

13. Remove the special tool.

Accessory Drive - I6 3.2L Petrol - Accessory Drive Belt

Removal and Installation

Removal

1. Remove the engine cover.

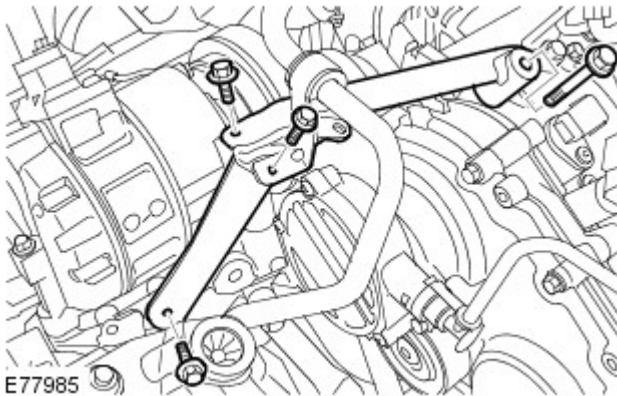
Refer to: [Engine Cover - I6 3.2L Petrol](#) (501-05 Interior Trim and Ornamentation, Removal and Installation).

2. Remove the battery tray.

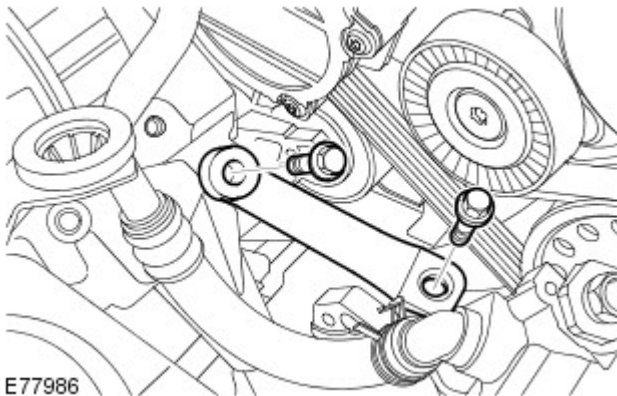
Refer to: [Battery Tray](#) (414-01 Battery, Mounting and Cables, Removal and Installation).

3. Remove the air cleaner assembly.

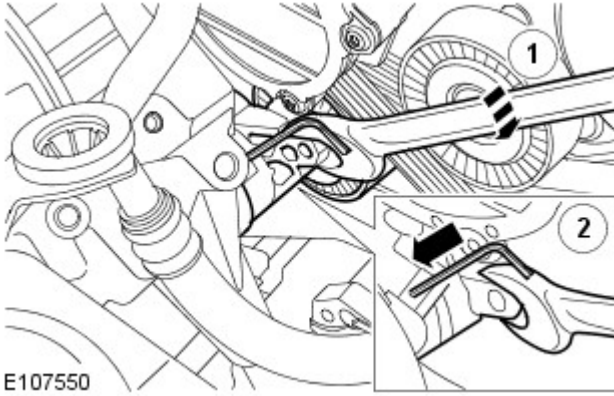
Refer to: [Air Cleaner](#) (303-12A Intake Air Distribution and Filtering - I6 3.2L Petrol, Removal and Installation).



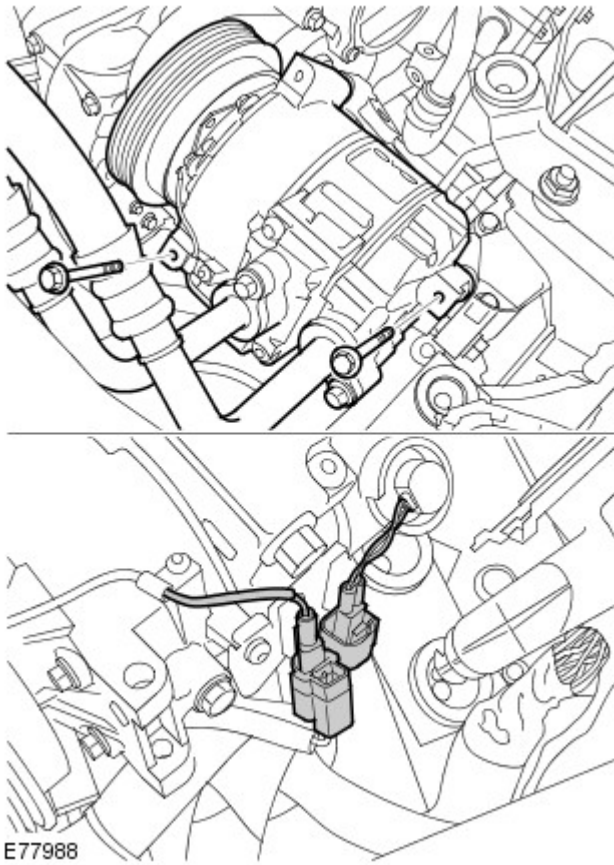
4. Remove the A/C compressor, upper support bracket.



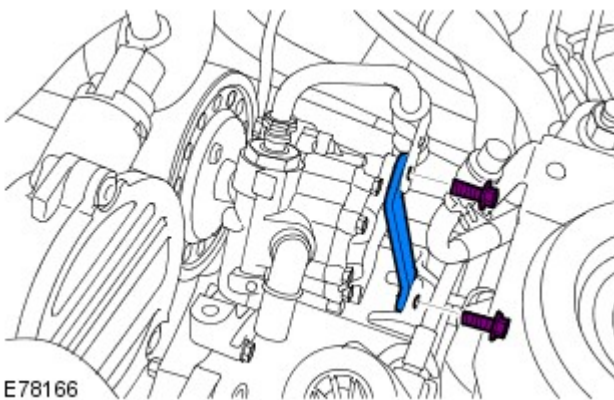
5. Remove the A/C compressor, lower support bracket.




6. Using suitable tools, release the accessory drive belt tension.



7. Release the A/C compressor and position aside.

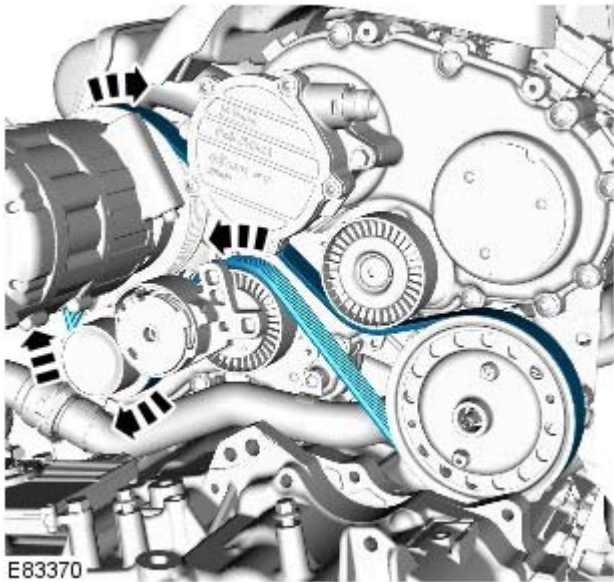


8.  **CAUTION:** Note the fitted position of the component prior to removal.

Release the PAS pump.

9. Remove the accessory drive belt.

Installation



1. Install the accessory drive belt.

2. **NOTE:** Make sure that the component is installed to the position noted on removal.

Install the PAS pump.

Torque: 25 Nm

3. Install the A/C compressor.

Torque: 25 Nm

4. Install the accessory drive belt.

5. Install the A/C compressor, lower support bracket.

Torque: 25 Nm

6. Install the A/C compressor, upper support bracket.

Torque:

M10 45 Nm

M8 25 Nm

M6 10 Nm

7. Install the air cleaner assembly.

Refer to: [Air Cleaner](#) (303-12A Intake Air Distribution and Filtering - I6 3.2L Petrol, Removal and Installation).

8. Install the battery tray.

Refer to: [Battery Tray](#) (414-01 Battery, Mounting and Cables, Removal and Installation).

9. Install the engine cover.

Refer to: [Engine Cover - I6 3.2L Petrol](#) (501-05 Interior Trim and Ornamentation, Removal and Installation).

Accessory Drive - I6 3.2L Petrol - Accessory Drive Belt Tensioner

Removal and Installation

Removal

1. Remove the cover and disconnect the battery ground cable.

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

2. Remove the engine cover.

Refer to: [Engine Cover - I6 3.2L Petrol](#) (501-05 Interior Trim and Ornamentation, Removal and Installation).

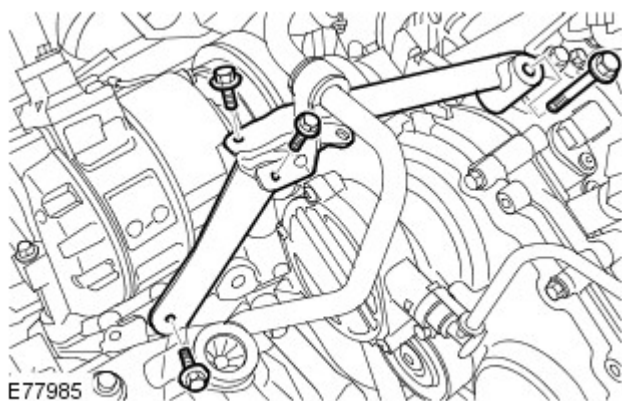
3. Remove the battery tray.

Refer to: [Battery Tray](#) (414-01 Battery, Mounting and Cables, Removal and Installation).

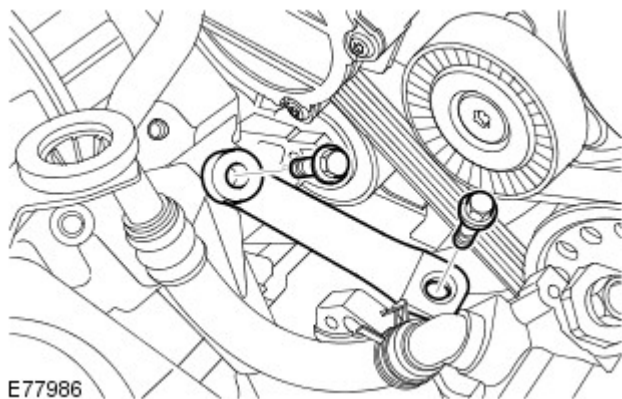
4. Remove the air cleaner assembly.

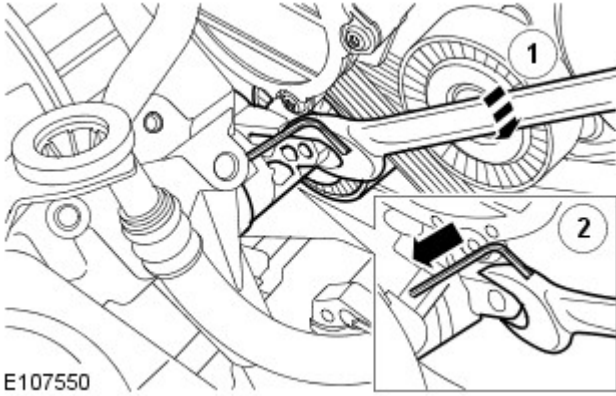
Refer to: [Air Cleaner](#) (303-12A Intake Air Distribution and Filtering - I6 3.2L Petrol, Removal and Installation).

5. Remove the A/C compressor, upper support bracket.

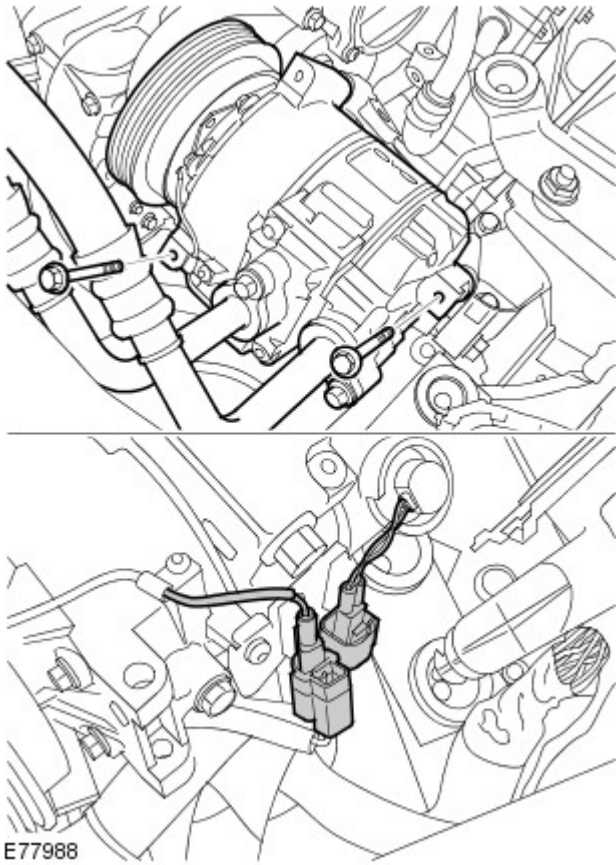


6. Remove the A/C compressor, lower support bracket.

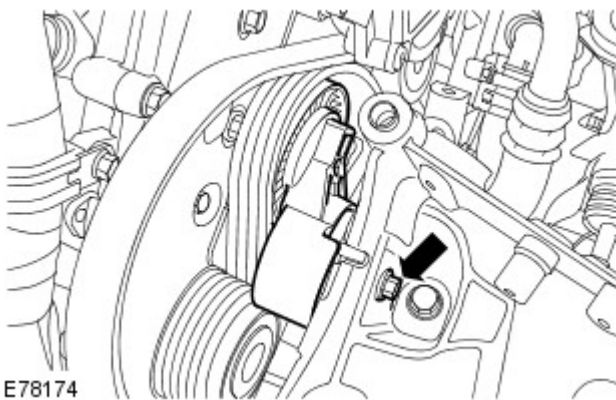




7. Using suitable tools, release the accessory drive belt tension.



8. Release the A/C compressor and position aside.



9. Remove the accessory drive belt tensioner.

Installation

1. **NOTE:** Make sure that the component is installed to the position noted

on removal.

Install the accessory drive belt tensioner.

Torque: 25 Nm

2. Install the A/C compressor.

Torque: 25 Nm

3. Install the accessory drive belt.

4. Install the A/C compressor, lower support bracket.

Torque: 25 Nm

5. Install the A/C compressor, upper support bracket.

Torque:

M10 45 Nm

M8 25 Nm

M6 10 Nm

6. Install the air cleaner assembly.

Refer to: [Air Cleaner](#) (303-12A Intake Air Distribution and Filtering - I6 3.2L Petrol, Removal and Installation).

7. Install the battery tray.

Refer to: [Battery Tray](#) (414-01 Battery, Mounting and Cables, Removal and Installation).

8. Install the engine cover.

Refer to: [Engine Cover - I6 3.2L Petrol](#) (501-05 Interior Trim and Ornamentation, Removal and Installation).

9. Connect the battery ground cable and install the cover.

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

Accessory Drive - I6 3.2L Petrol - Accessory Drive Belt Idler Pulley

Removal and Installation

Removal

1. Remove the cover and disconnect the battery ground cable.

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

2. Remove the engine cover.

Refer to: [Engine Cover - I6 3.2L Petrol](#) (501-05 Interior Trim and Ornamentation, Removal and Installation).

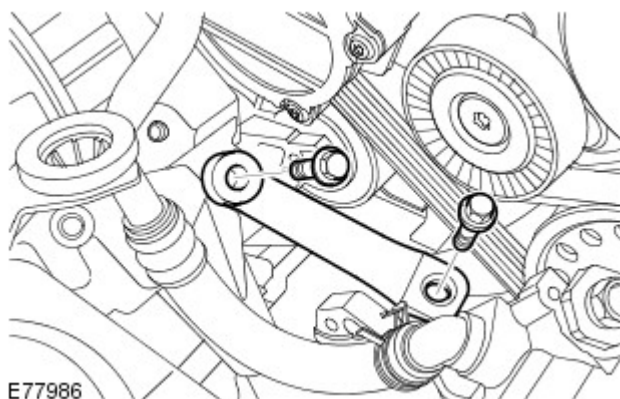
3. Remove the battery tray.

Refer to: [Battery Tray](#) (414-01 Battery, Mounting and Cables, Removal and Installation).

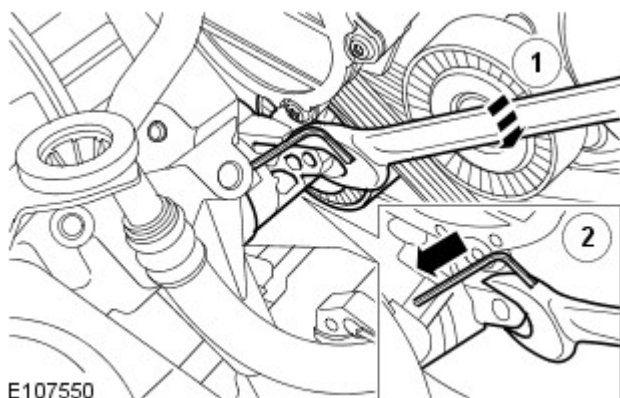
4. Remove the air cleaner assembly.

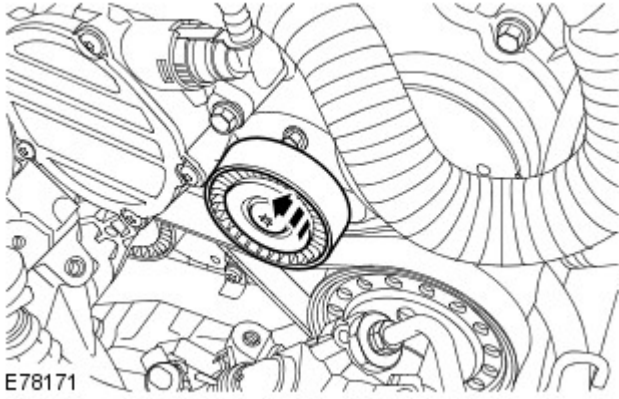
Refer to: [Air Cleaner](#) (303-12A Intake Air Distribution and Filtering - I6 3.2L Petrol, Removal and Installation).

5. Remove the A/C compressor, lower support bracket.



6. Using suitable tools, release the accessory drive belt tension.





7. Remove the accessory drive belt idler pulley.

Installation

1. Install the accessory drive belt idler pulley.

Torque: 25 Nm

2. Install the accessory drive belt.

3. Install the A/C compressor, lower support bracket.

Torque: 25 Nm

4. Install the air cleaner assembly.

Refer to: [Air Cleaner](#) (303-12A Intake Air Distribution and Filtering - I6 3.2L Petrol, Removal and Installation).

5. Install the battery tray.

Refer to: [Battery Tray](#) (414-01 Battery, Mounting and Cables, Removal and Installation).

6. Install the engine cover.

Refer to: [Engine Cover - I6 3.2L Petrol](#) (501-05 Interior Trim and Ornamentation, Removal and Installation).



7. Connect the battery ground cable and install the cover.

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

Accessory Drive - I6 3.2L Petrol - Accessory Drive Pulley

Removal and Installation

Special Tool(s)

 E83825	303-1278 Aligner, Timing Cover
 E83826	303-1284 Torx Socket, Accessory Drive Pulley

Removal

NOTE: Removal steps in this procedure may contain installation details.

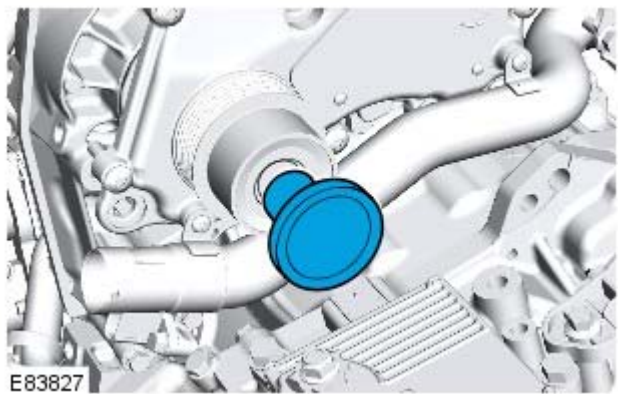
1. Remove the cover and disconnect the battery ground cable.

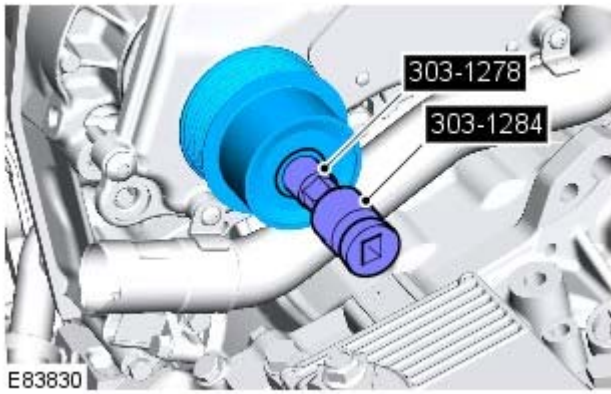
Refer to: [Specifications](#) (414-00 Battery and Charging System - General Information, Specifications).

2. Remove the A/C compressor mounting bracket.

Refer to: [Accessory Drive Component Bracket](#) (303-05A Accessory Drive - I6 3.2L Petrol, Removal and Installation).


- 3.





4. *Special Tool(s):* [303-1284](#), [303-1278](#)
Torque: 60 Nm

Installation

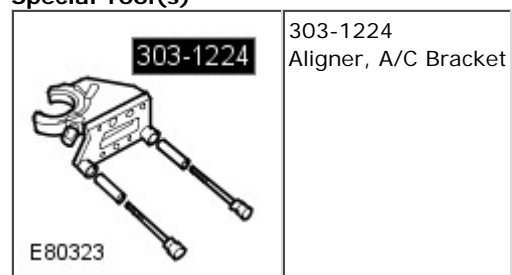
1.  **CAUTION:** Make sure that the mating faces are clean and free of foreign material.

To install, reverse the removal procedure.

Accessory Drive - I6 3.2L Petrol - Accessory Drive Component Bracket

Removal and Installation

Special Tool(s)



Removal

NOTE: It is only necessary to check the alignment of the bracket if the bracket has been replaced, or any of the components it mounts to have been adjusted or replaced.

1. Remove the cover and disconnect the battery ground cable.

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

2. Remove the engine cover.

Refer to: [Engine Cover - I6 3.2L Petrol](#) (501-05 Interior Trim and Ornamentation, Removal and Installation).

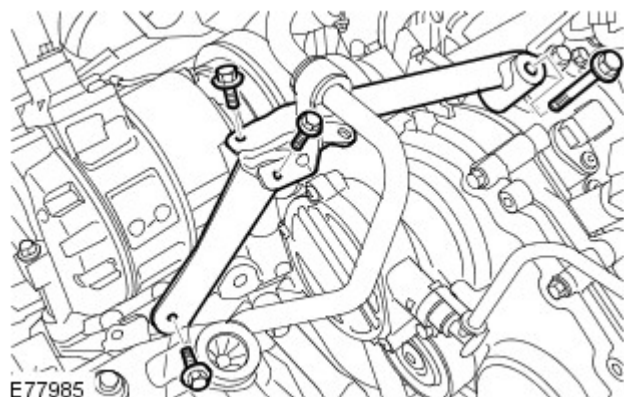
3. Remove the battery tray.

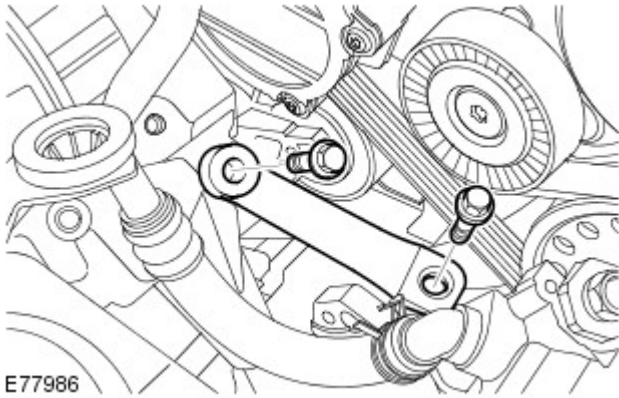
Refer to: [Battery Tray](#) (414-01 Battery, Mounting and Cables, Removal and Installation).

4. Remove the air cleaner assembly.

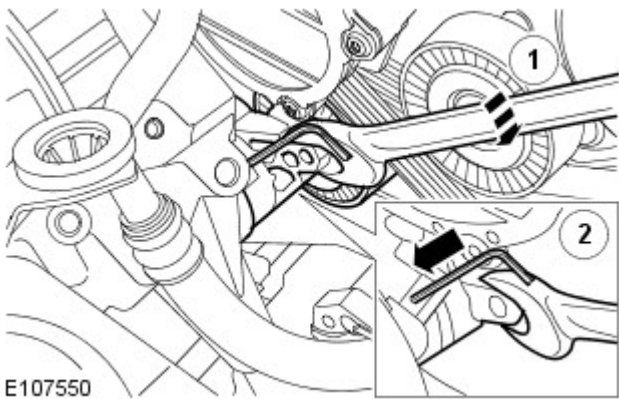
Refer to: [Air Cleaner](#) (303-12A Intake Air Distribution and Filtering - I6 3.2L Petrol, Removal and Installation).

5. Remove the A/C compressor, upper support bracket.

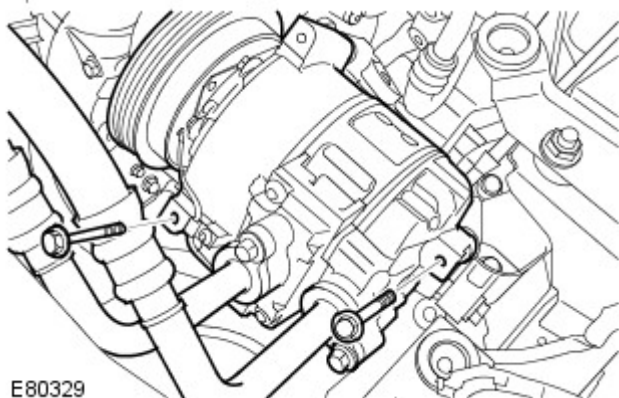




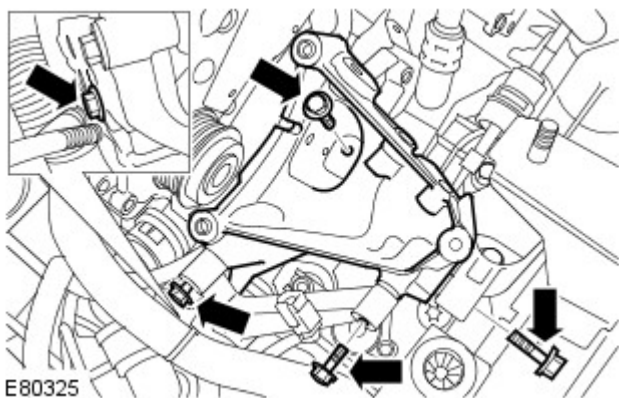
6. Remove the A/C compressor, lower support bracket.



7. Using suitable tools, release the accessory drive belt tension.



8. Release the A/C compressor and tie aside.



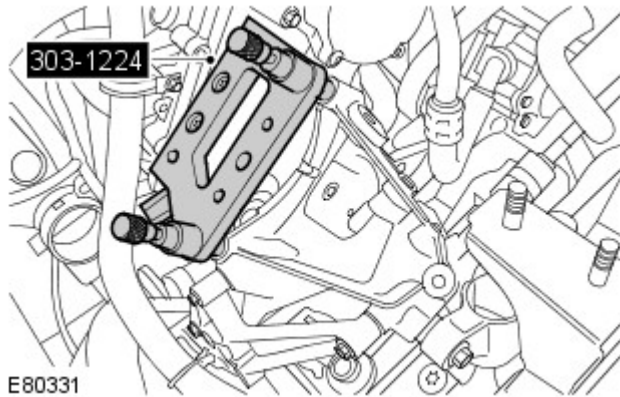
9. Remove the accessory drive component bracket.

10. **NOTE:** Do not disassemble further if the component is removed for access only.

Remove the dowels.

Installation

1. Install the dowels.



2. **NOTE:** It is only necessary to check the alignment of the bracket if the bracket has been replaced, or any of the components it mounts to have been adjusted or replaced.

Check the alignment of the bracket using the special tool.

Special Tool(s): [303-1224](#)

3. Install the accessory drive component bracket.

Torque:

M10 50 Nm

M8 24 Nm

4. Install the A/C compressor.

Torque: 25 Nm

5. Install the accessory drive belt.

6. Install the A/C compressor, lower support bracket.

Torque: 25 Nm

7. Install the A/C compressor, upper support bracket.

Torque:

M10 45 Nm

M8 25 Nm

M6 10 Nm

8. Install the air cleaner assembly.

Refer to: [Air Cleaner](#) (303-12A Intake Air Distribution and Filtering - I6 3.2L Petrol, Removal and Installation).

9. Install the battery tray.

Refer to: [Battery Tray](#) (414-01 Battery, Mounting and Cables, Removal and Installation).

10. Install the engine cover.

Refer to: [Engine Cover - I6 3.2L Petrol](#) (501-05 Interior Trim and Ornamentation, Removal and Installation).

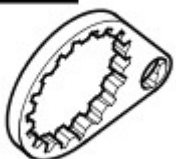
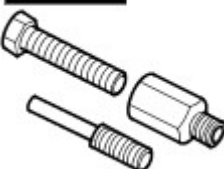

11. Connect the battery ground cable and install the cover.

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

Accessory Drive - I6 3.2L Petrol - Accessory Drive Shaft Front Seal

Removal and Installation

Special Tool(s)

 <p>303-1220 Holder, Generator Coupling</p> <p>E82420</p>	
 <p>303-1221 Puller, Generator Coupling</p> <p>E82720</p>	
 <p>303-1222 Installer, Generator Coupling Seal</p> <p>E82421</p>	

Removal

1.  **WARNING:** Make sure to support the vehicle with axle stands.

Raise and support the vehicle.

2. Remove the cover and disconnect the battery ground cable.

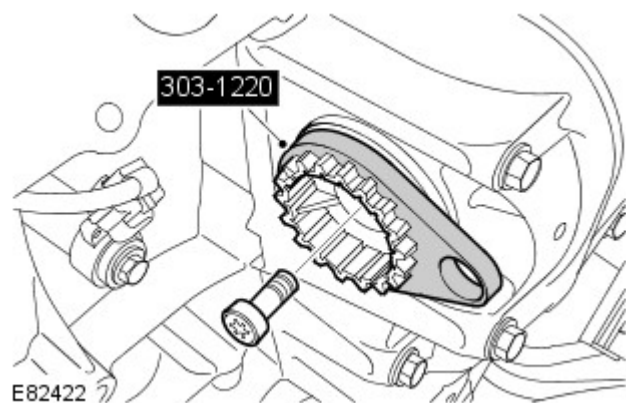
Refer to: [Specifications](#) (414-00 Battery and Charging System - General Information, Specifications).

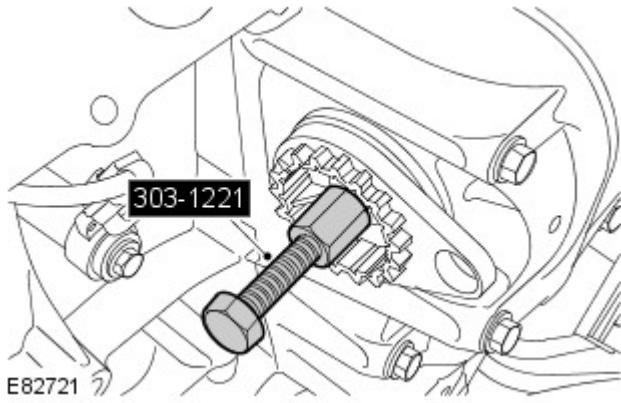
3. Remove the generator.

Refer to: [Generator - I6 3.2L Petrol](#) (414-02 Generator and Regulator, Removal and Installation).

4. Remove the generator coupling bolt.

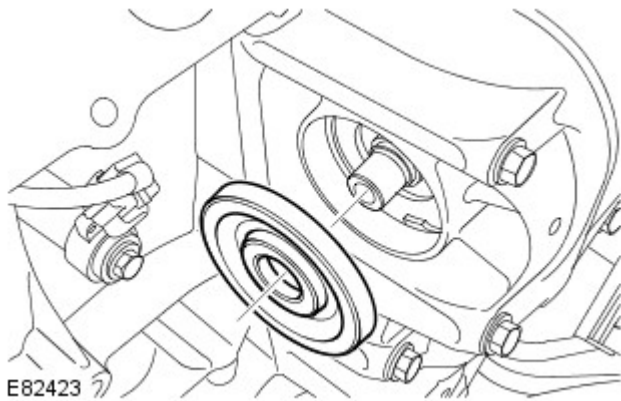
Special Tool(s): [303-1220](#)





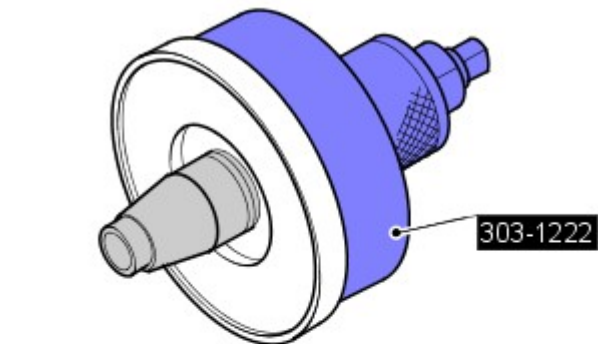
5. Remove the generator coupling.

Special Tool(s): [303-1221](#)



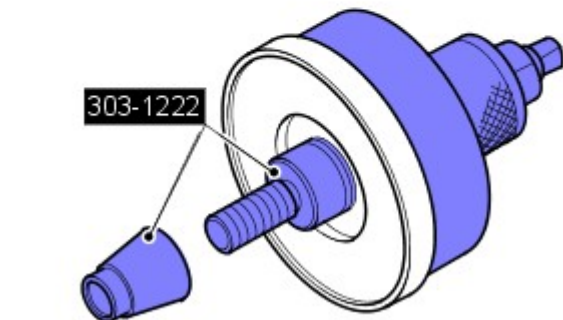
6. Remove and discard the seal.

Installation

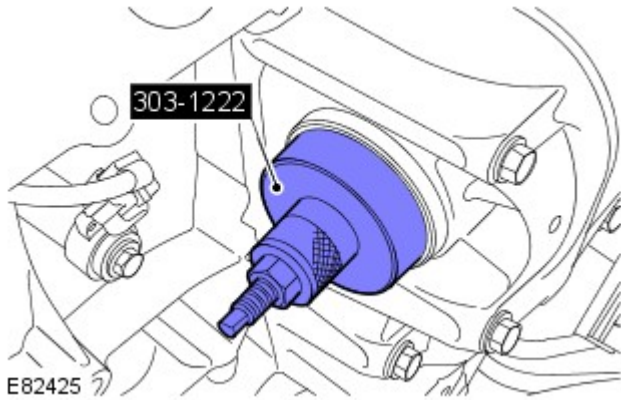


1. Install the seal onto the special tool.

Special Tool(s): [303-1222](#)

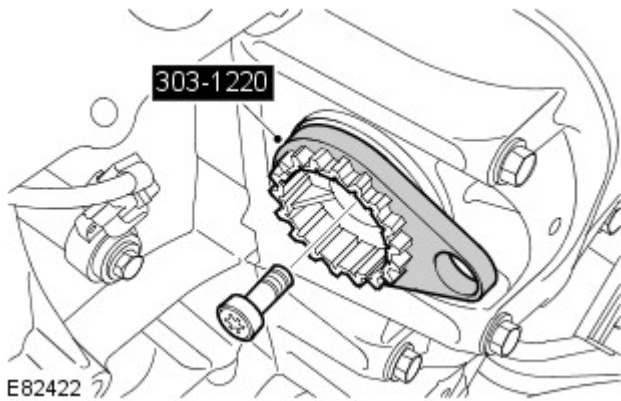


E82424



2. Install the new seal.

Special Tool(s): [303-1222](#)



3. Install the generator coupling.

Special Tool(s): [303-1220](#)

Torque: [44 Nm](#)

4. Install the generator.

Refer to: [Generator - I6 3.2L Petrol](#) (414-02 Generator and Regulator, Removal and Installation).

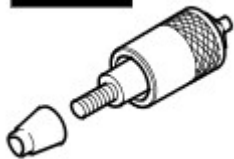
5. Connect the battery ground cable and install the cover.

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

Accessory Drive - I6 3.2L Petrol - Accessory Drive Shaft Rear Seal

Removal and Installation

Special Tool(s)

 <p>303-1227 E82074</p>	<p>303-1227 Installer, Accessory Drive Seal</p>
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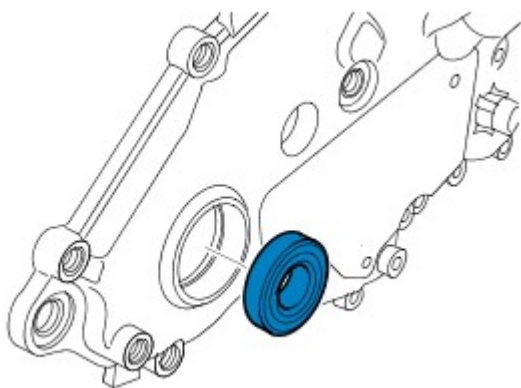
Removal

1. Remove the cover and disconnect the battery ground cable.

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

2. Remove the accessory drive pulley.

Refer to: [Accessory Drive Pulley](#) (303-05A Accessory Drive - I6 3.2L Petrol, Removal and Installation).



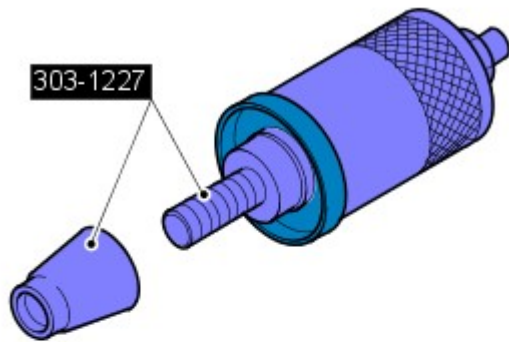
3.  **CAUTION:** Discard the seal.


Installation

1.
 - Install the seal to the special tool

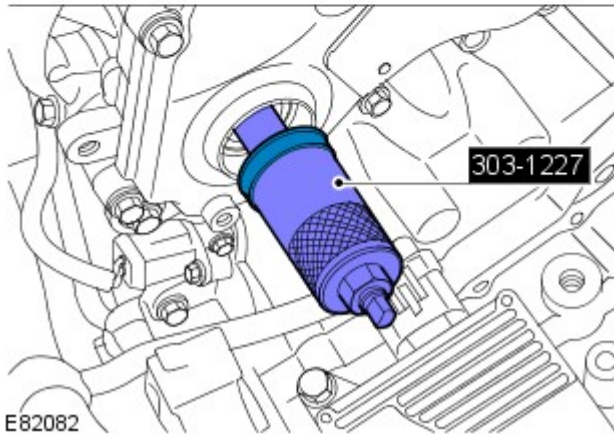
Special Tool(s): [303-1227](#)

- Remove the seal guide.



2.  **CAUTION:** Make sure that the mating faces are clean and free of corrosion and foreign material.

- Install the special tool and seal assembly into the accessory drive shaft.
- Install the seal.



3. Install the accessory drive pulley.

Refer to: [Accessory Drive Pulley](#) (303-05A Accessory Drive - I6 3.2L Petrol, Removal and Installation).


4. Connect the battery ground cable and install the cover.

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

Accessory Drive - I6 3.2L Petrol - Rear End Accessory Drive (READ)


Removal and Installation

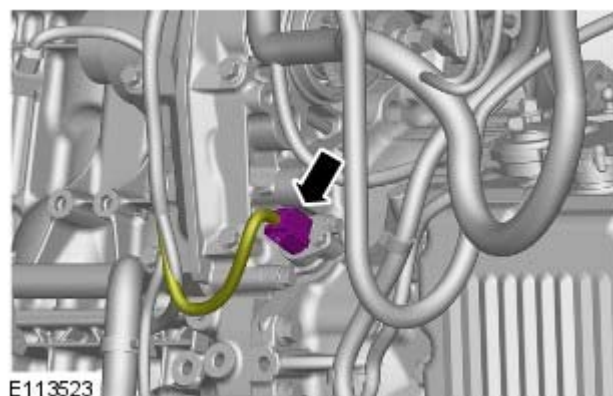
Special Tool(s)

 <p>303-1487 Cylinder Block Pry Tool</p> <p>E114385</p>	
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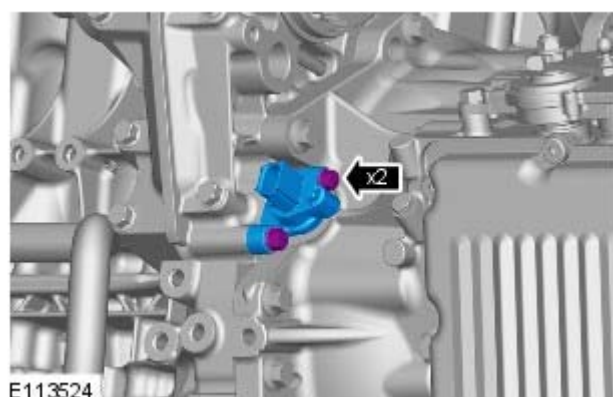
Removal

NOTE: Removal steps in this procedure may contain installation details.

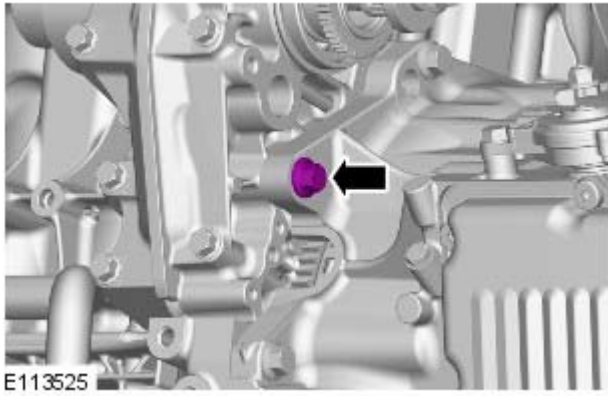
1. Refer to: [Specifications](#) (414-00 Battery and Charging System - General Information, Specifications).
2.  **WARNING:** Make sure to support the vehicle with axle stands.
Raise and support the vehicle.
3. Refer to: [Timing Components Housing](#) (303-01A Engine - I6 3.2L Petrol, Removal and Installation).
4. Refer to: [Generator - I6 3.2L Petrol](#) (414-02 Generator and Regulator, Removal and Installation).



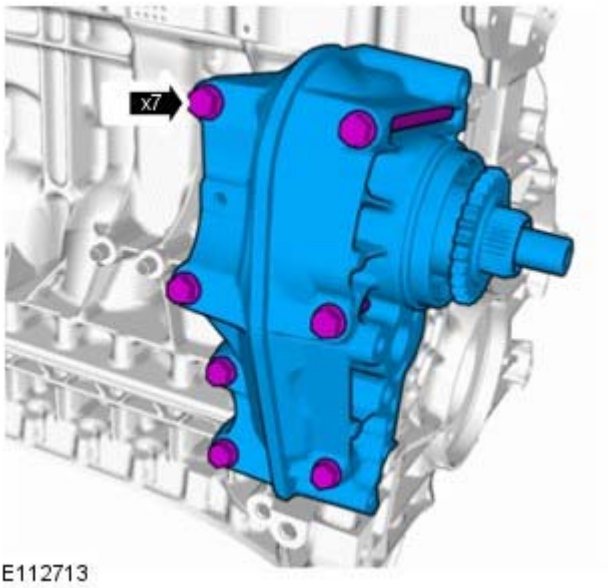
5.



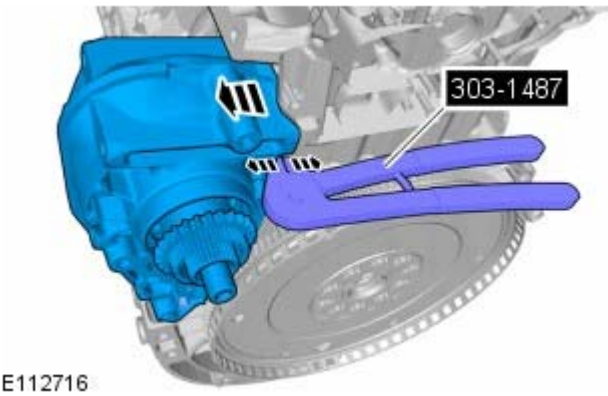
6.



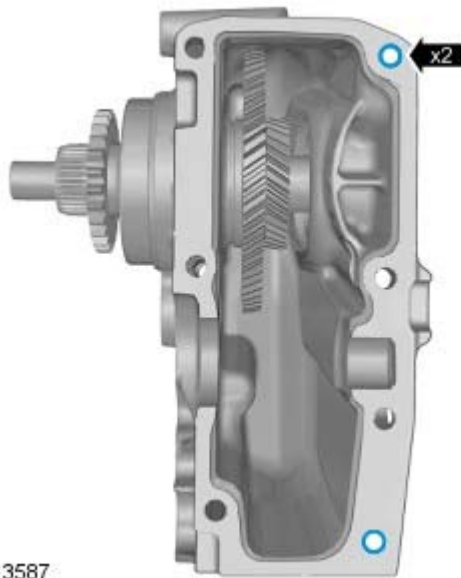
7.



8.

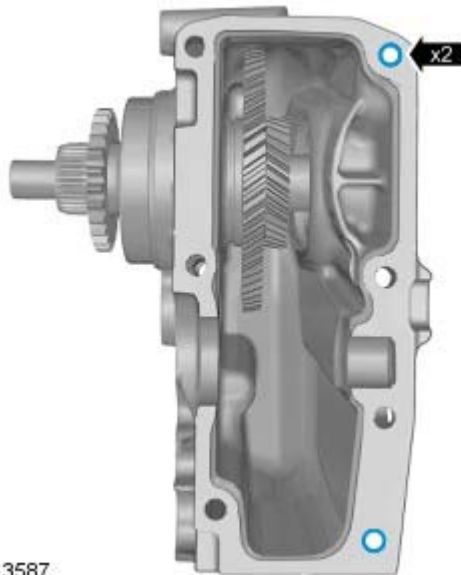


9. *Special Tool(s):* [303-1487](#)



E113587

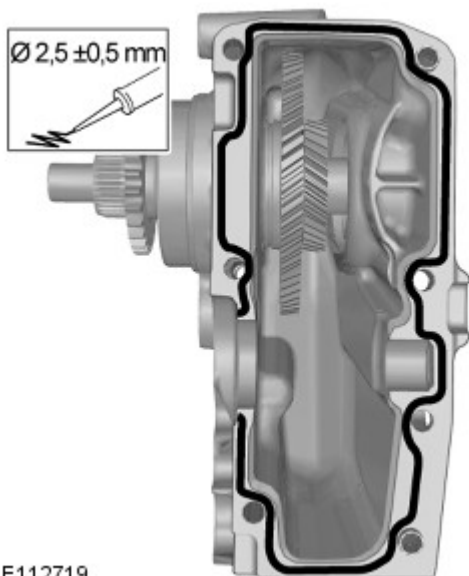
Installation



E113587

10. NOTE: Make sure that all traces of the old sealant are removed from the mating faces.

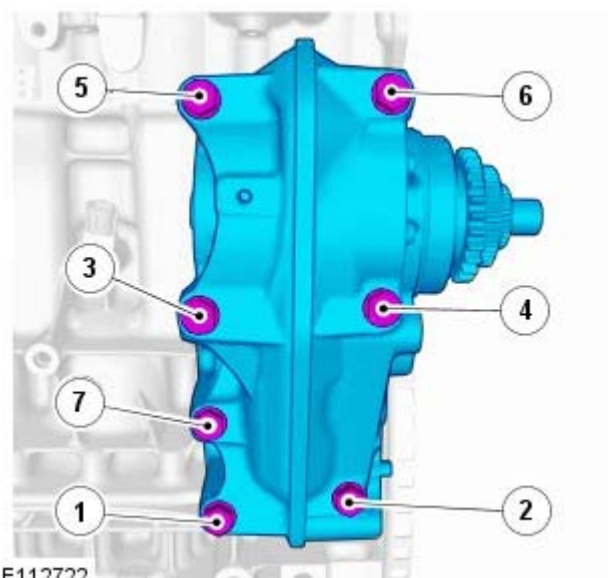
- 1.



E112719

2.

- Apply a 2.5mm bead of sealant STC50550 (Loctite 5900) to the areas shown.

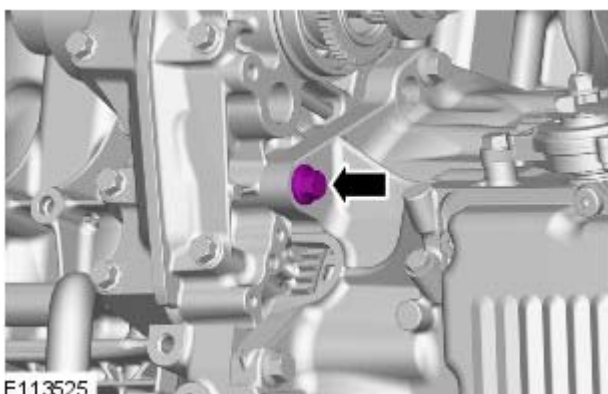


E112722

3. *Torque:*

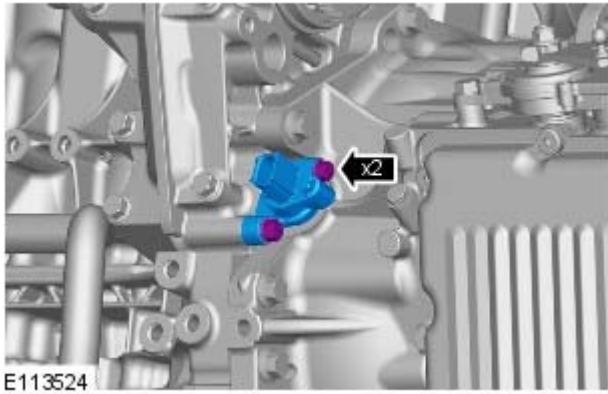
Stage 1: 10 Nm

Stage 2: 24 Nm

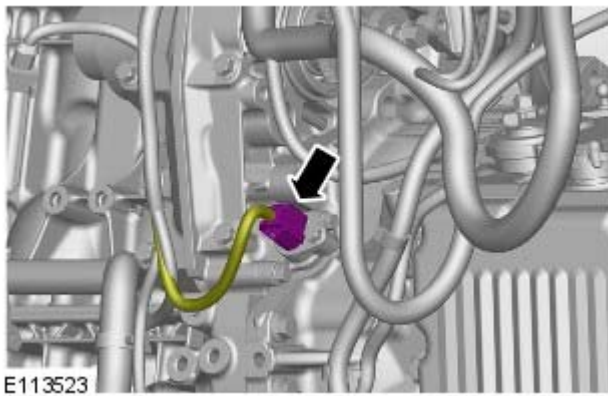


E113525

4. *Torque:* 45 Nm



5. Torque: 10 Nm



6.

7. Refer to: [Generator - I6 3.2L Petrol](#) (414-02 Generator and Regulator, Removal and Installation).
8. Refer to: [Timing Components Housing](#) (303-01A Engine - I6 3.2L Petrol, Removal and Installation).
9. Lower the vehicle.
10. Refer to: [Specifications](#) (414-00 Battery and Charging System - General Information, Specifications).