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Engine Front Cover (12.65.01)

Removal

1. Disconnect the battery ground cable. For additional information, refer to [Specifications](#) (Section 414-00)

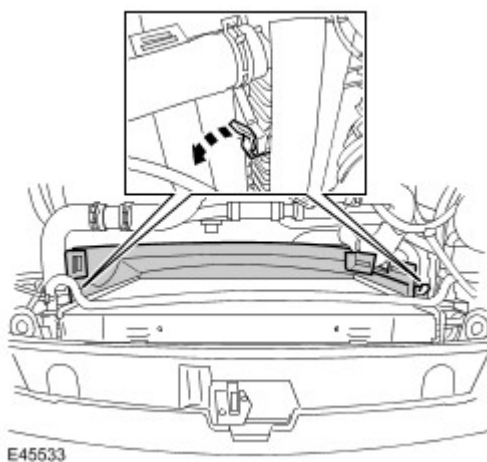
- 2.



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

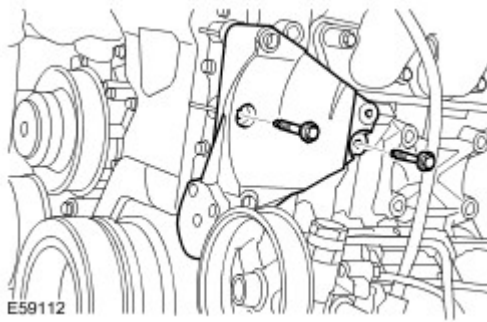
Raise and support the vehicle.

3. Drain the cooling system. For additional information, refer to [Cooling System Draining, Filling and Bleeding \(26.10.01\)](#) (Section 303-03)
4. Remove the throttle body gasket. For additional information, refer to [Throttle Body Gasket](#) (Section 303-04)
5. Remove the crankshaft front oil seal. For additional information, refer to [Crankshaft Front Seal \(12.21.14\)](#) (Section 303-01)
6. Remove the cooling fan lower shroud.
 - Release 2 clips from the cooling fan lower shroud.
 - Release and remove the cooling fan lower shroud from the cooling pack.



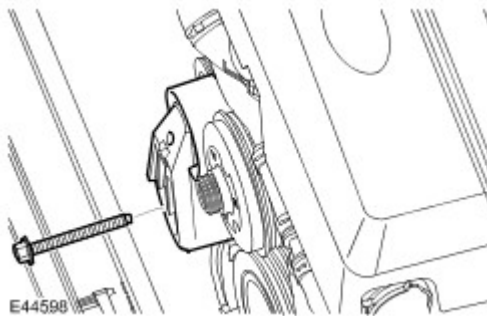
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7. Remove the air conditioning (A/C) compressor. For additional information, refer to [Air Conditioning \(A/C\) Compressor \(82.10.20\)](#) (Section 412-03B)
8. Remove the A/C compressor mounting bracket.
 - Remove the 2 bolts.



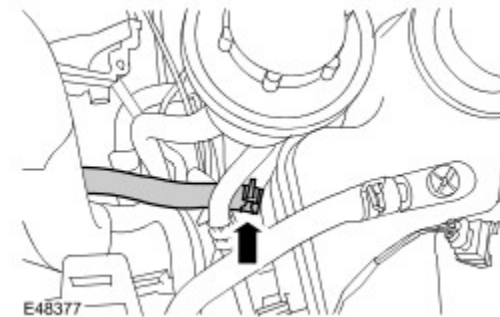
9. Remove the cooling fan drive belt tensioner.

➤ Remove the bolt.



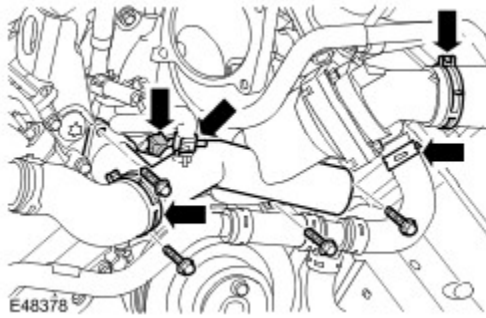
10. Disconnect the coolant expansion tank hose.

➤ Release the clip.



11. Remove the coolant manifold.

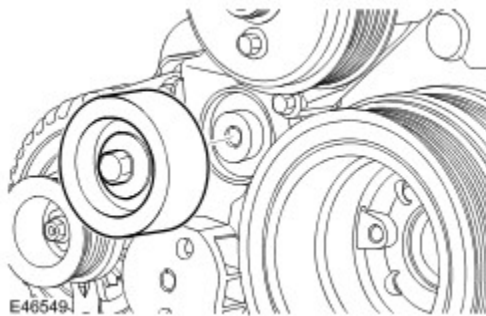
- Release the clips and disconnect the 4 coolant hoses.
- Remove the 4 bolts.
- Disconnect the electrical connector.
- Position the coolant hoses aside for access.



12. Release the engine wiring harness clips.

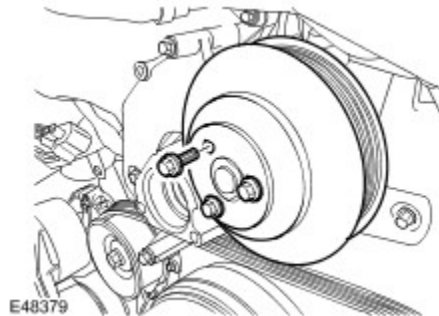
13. Remove the accessory drive belt idler pulley.

▶ Remove the bolt.



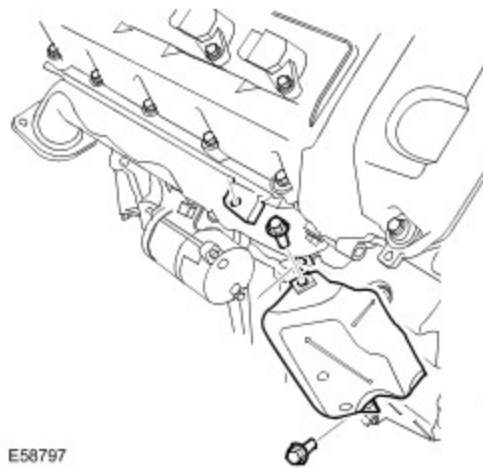
14. Remove the coolant pump pulley.

▶ Remove the 3 bolts.

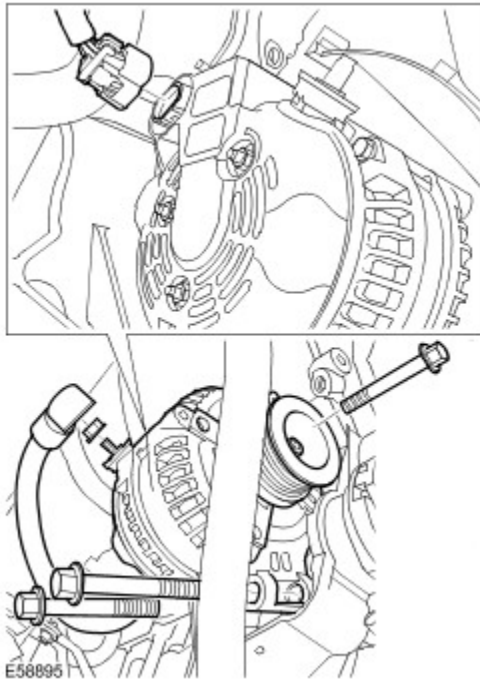


15. Remove the RH exhaust manifold heat shield.

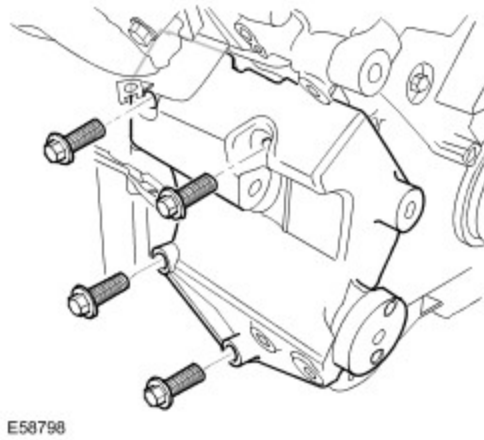
▶ Remove the 2 screws.



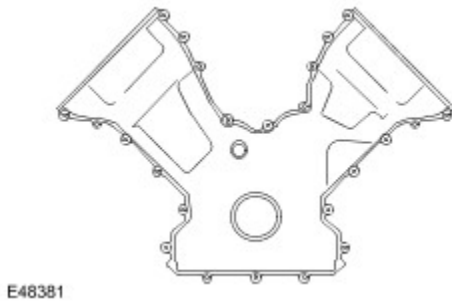
- 16 . Disconnect the battery positive cable.
- ▶ Release the cover.
 - ▶ Remove the nut.
 - ▶ Disconnect the electrical connector.
- 17 . Remove the generator.
- ▶ Remove the 3 bolts.



- 18 . Remove the generator mounting bracket.
- ▶ Remove the 4 bolts.

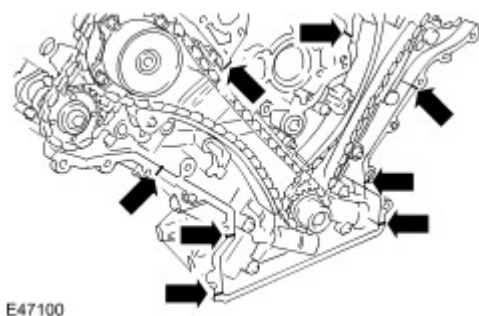


- 19 . Remove the RH valve cover. For additional information, refer to [Valve Cover RH \(12.29.44\)](#) (Section 303-01)
- 20 . Remove the LH valve cover. For additional information, refer to [Valve Cover LH \(12.29.43\)](#) (Section 303-01)
- 21 . Remove the engine front cover.
 - Release the engine wiring harness clips.
 - Remove the 24 bolts.
 - Remove and discard the gasket.

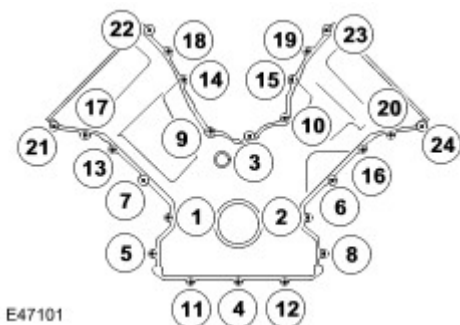


Installation

- 1 . Install the engine front cover.
 - Clean the component mating faces.
 - Apply a bead of sealant 3 mm diameter, by 12 mm long, to the 8 places indicated.



2. Evenly and progressively tighten the bolts in the sequence shown to 12 Nm (9 lb.ft).



3. Install the crankshaft front oil seal. For additional information, refer to [Crankshaft Front Seal \(12.21.14\)](#) (Section 303-01)
4. Install the LH valve cover. For additional information, refer to [Valve Cover LH \(12.29.43\)](#) (Section 303-01)
5. Install the RH valve cover. For additional information, refer to [Valve Cover RH \(12.29.44\)](#) (Section 303-01)
6. Install the generator mounting bracket.
- Clean the locating dowels.
 - Clean the component mating faces.
 - Tighten the bolts to 45 Nm (33 lb.ft).
7. Install the generator.
- Clean the component mating faces.
 - Tighten the bolts to 48 Nm (35 lb.ft).
8. Connect the battery positive cable.
- Tighten the nut to 10 Nm (7 lb.ft).
 - Secure the cover.
9. Install the RH exhaust manifold heat shield.
- Tighten the screws.

- 10 . Install the coolant manifold.
 - Tighten the bolts to 6 Nm (4 lb.ft).
 - Install the coolant hoses.
 - Secure with the clips.
- 11 . Install the coolant expansion tank hose.
 - Connect the clip.
- 12 . Install the coolant pump pulley.
 - Tighten the bolts to 10 Nm (7 lb.ft).
- 13 . Install the accessory drive belt idler pulley.
 - Tighten the bolt to 25 Nm (18 lb.ft).
- 14 . **NOTE :**

Care must be taken when installing the plug top coil ground connections. The engine will fail to start on either or both banks if the ground is poor.

Secure the engine wiring harness clips.
- 15 . Install the cooling fan drive belt tensioner.
 - Tighten the pulley bolt to 25 Nm (18 lb.ft).
 - Tighten the tensioner bolt to 40 Nm (30 lb.ft).
- 16 . Install the A/C mounting bracket.
- 17 . Install the A/C compressor. For additional information, refer to [Air Conditioning \(A/C\) Compressor \(82.10.20\)](#) (Section 412-03B)
- 18 . Install the cooling fan shroud.
- 19 . Install the throttle body gasket. For additional information, refer to [Throttle Body Gasket](#) (Section 303-04)
- 20 . Refill and bleed the cooling system. For additional information, refer to [Cooling System Draining, Filling and Bleeding \(26.10.01\)](#) (Section 303-03)