



Engine Wiring Harness - 4.4L (86.70.17)

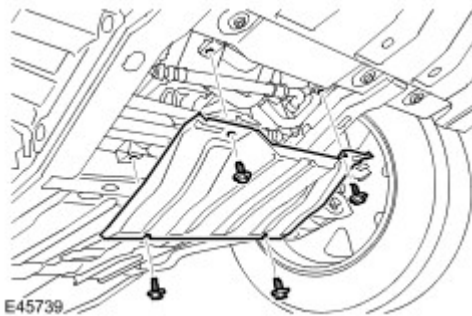
Removal

1.  **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.


2. Remove the engine undershield. For additional information, refer to [Engine Undershield \(76.10.50\)](#) (Section 501-02)
3. Remove the radiator access panel.

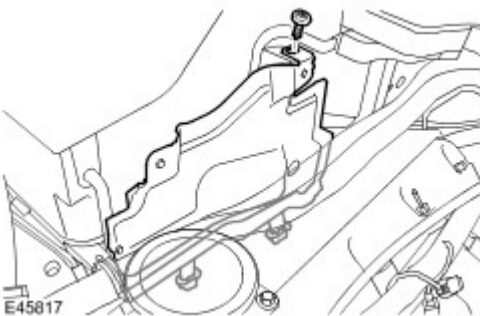
 Remove the 4 bolts.



4. Remove the engine cover. For additional information, refer to [Engine Cover - 4.4L \(12.30.50\)](#) (Section 501-05)
5. Remove the battery. For additional information, refer to [Battery \(86.15.01\)](#) (Section 414-01)
6. Remove the engine compartment upper heat shield.

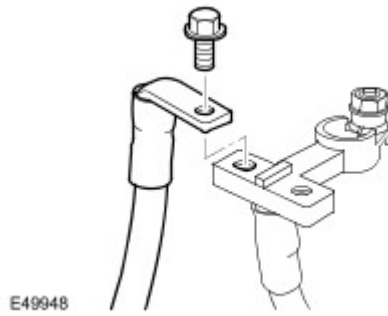
 Remove the screw.

 Release the 2 mounting clips.

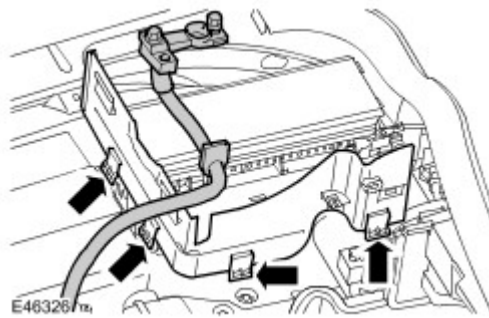


7. Remove the engine compartment fuse box main feed cable.

 Remove the bolt.



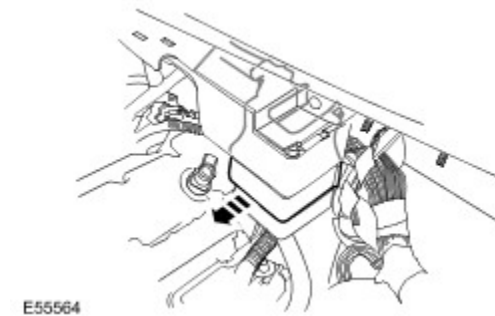
- 8 . Remove the battery compartment side wall.
- Release the battery positive cable and grommet.
 - Release the 4 clips.



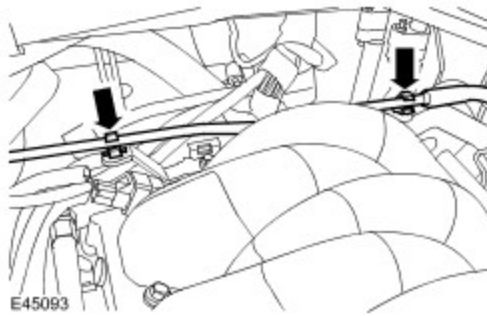
- 9 . Release the engine harness from the battery compartment.
- Disconnect the 2 engine harness electrical connectors.



- 10 . Release the 2 clips on the harness protective cover.

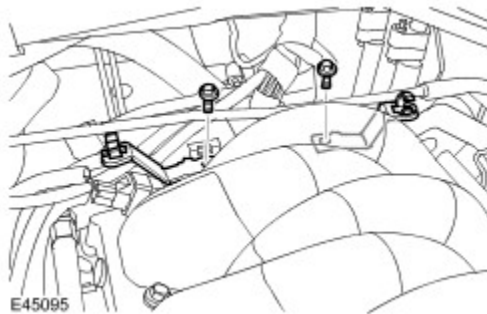


- 11 . Release the fuel supply line.

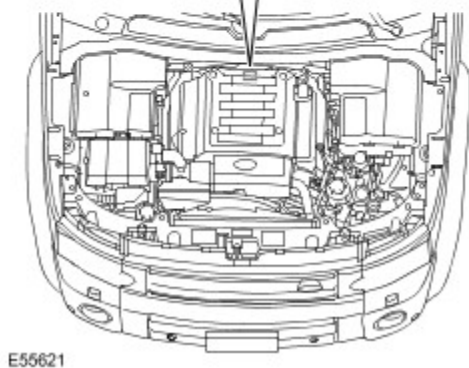
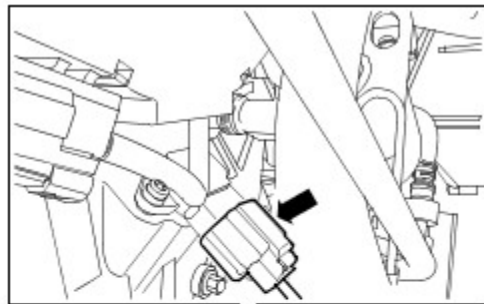


12. Release the engine wiring harness from the retaining bracket.

➤ Remove the 2 bolts.



13. Disconnect the manifold absolute pressure (MAP) sensor electrical connector.



14. Disconnect the throttle body electrical connector.

➤ Release the 3 clips.



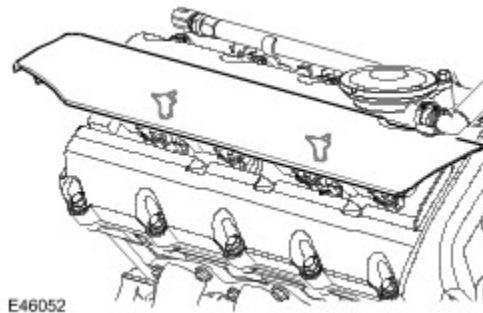
15. Disconnect the knock sensors (KS) electrical connector.

16. Disconnect the mass air flow (MAF) sensor electrical connector.



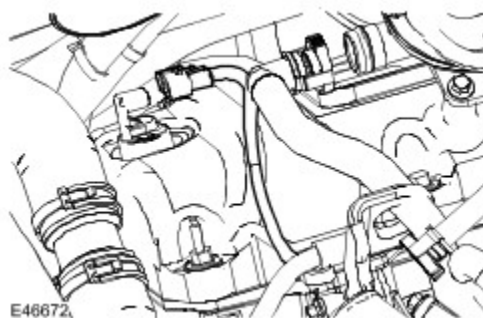
17. Remove the ignition coil-on-plug cover.

- Release the 2 clips.
- Repeat the above procedure for the other side.

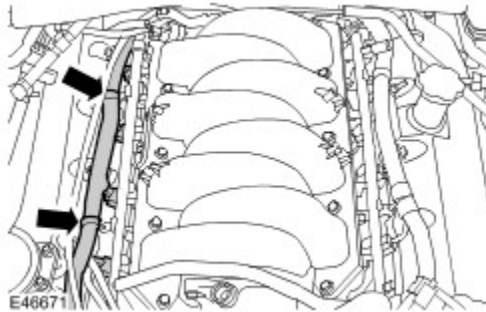


18. Disconnect the variable camshaft timing (VCT) oil solenoid electrical connector.

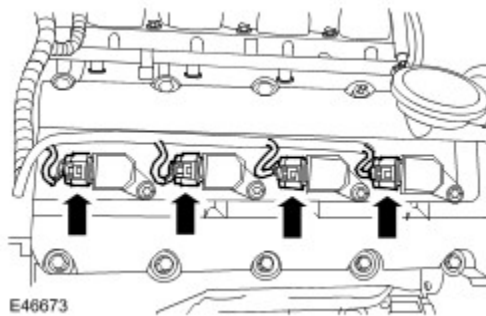
- Repeat the above procedure for the RH side.



- 19 . Disconnect the 4 electrical connectors on the LH injectors.
- Release the 2 clips.
 - Repeat the above procedure for the RH side.



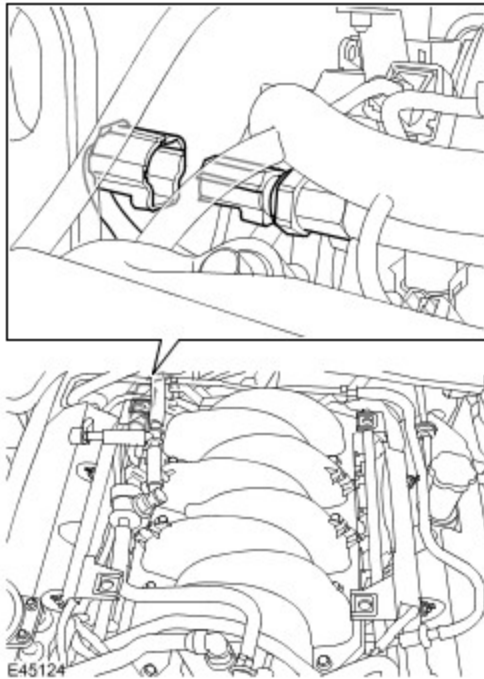
- 20 . Disconnect the 4 LH ignition coil-on-plug connectors.
- Release the 2 clips.
 - Repeat the above procedure for the RH side.



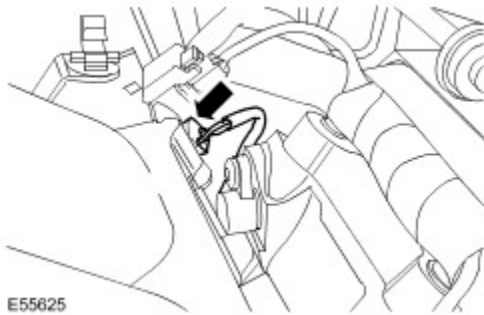
- 21 . Disconnect the engine coolant temperature (ECT) sensor electrical connector.



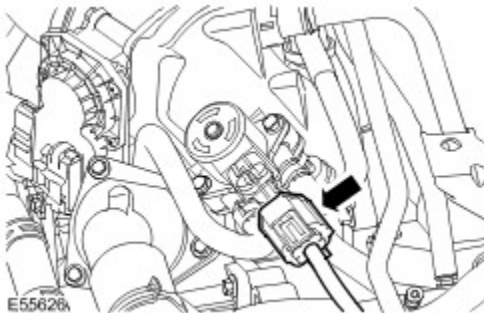
- 22 . Disconnect the fuel temperature sensor electrical connector.



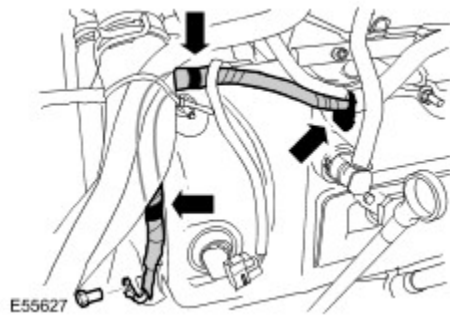
- 23 . Disconnect the camshaft position (CMP) sensor electrical connector.
▶ Repeat the above procedure for the RH side.



- 24 . Disconnect the EGR valve electrical connector.



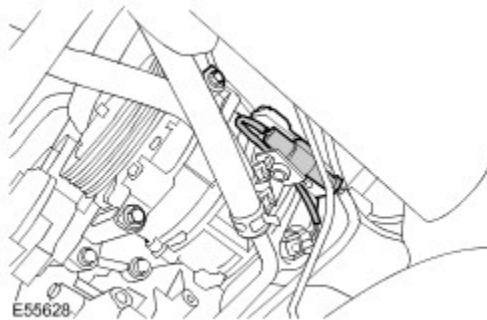
- 25 . Disconnect the cylinder head earth connector.
▶ Release the 3 clips.



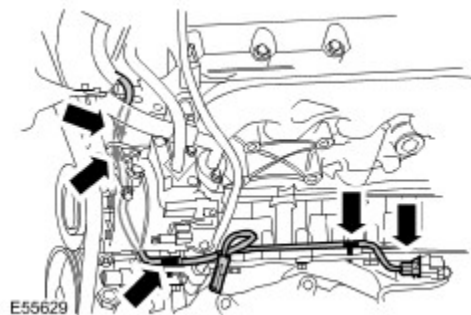
- 26 . Disconnect the cooling fan control electrical connector.



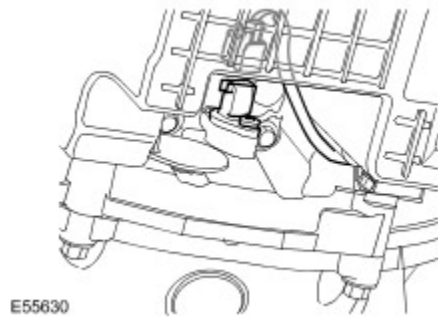
- 27 . Disconnect the A/C compressor electrical connector.



- 28 . Release the 4 A/C harness retaining clips.



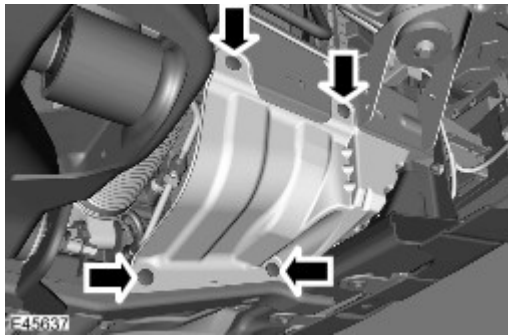
- 29 . Disconnect the crankshaft position (CKP) sensor electrical connector.



30 . Remove the front wheel.

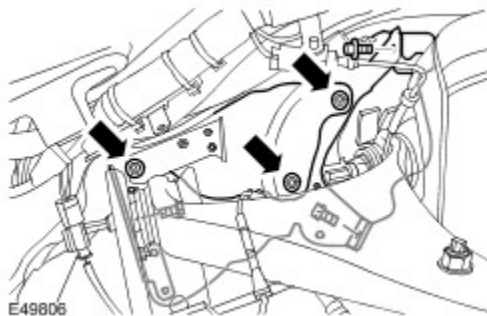
31 . Remove the LH fender splash shield. For additional information, refer to [Fender Splash Shield \(76.10.48\)](#) (Section 501-02)

32 . Remove the front LH splash shield.



33 . Remove the upper suspension arm and brake line heat shields for access.

- Remove the 3 bolts.
- Remove the 3 nuts.
- Repeat the above procedure for the other side.



34 . Release the accessory drive belt.

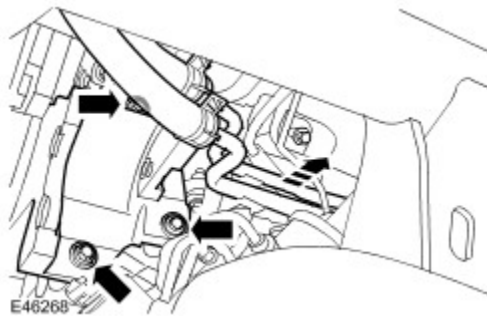
- Rotate the tensioner assembly counterclockwise.



35 . Release the transmission cooler pipe clips.

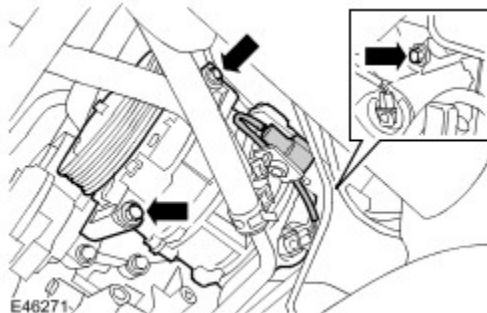
36 . Release the power steering pump and mounting bracket.

➤ Remove the 3 bolts.



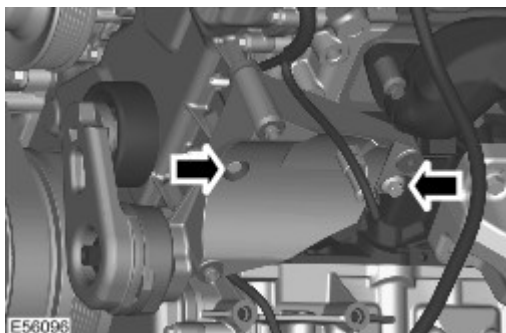
37 . Release the A/C compressor and tie aside.

➤ Remove the 3 bolts.

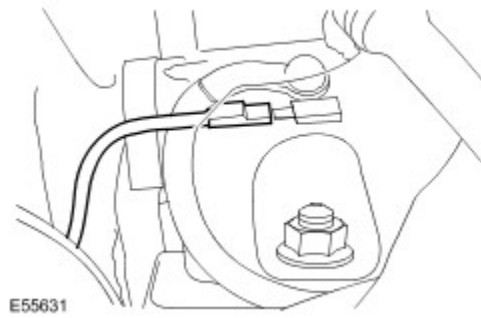


38 . Remove the A/C compressor mounting bracket.

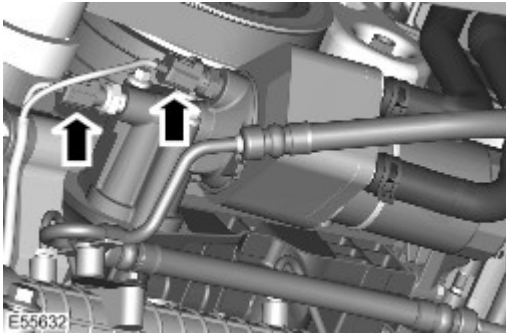
➤ Remove the 2 bolts.



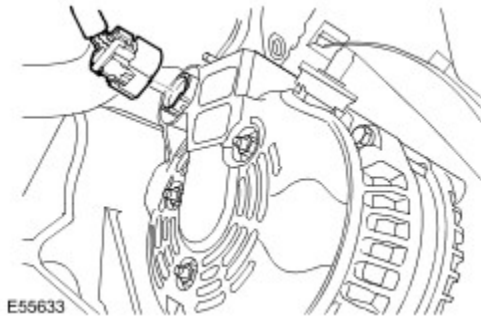
- 39 . Disconnect the starter motor connector.



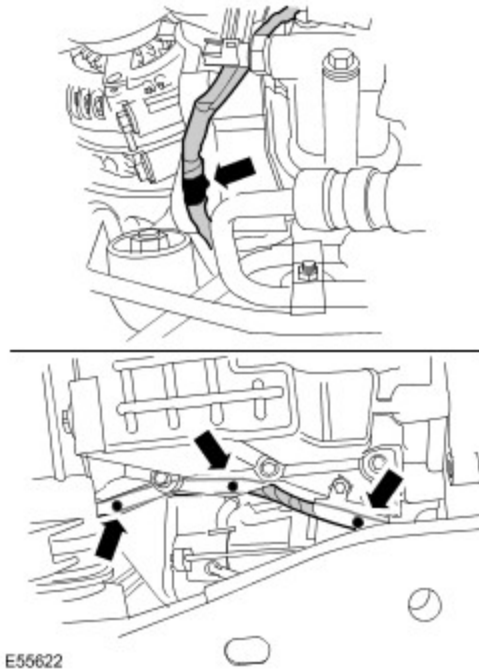
- 40 . Disconnect the oil temperature and oil pressure sensors.



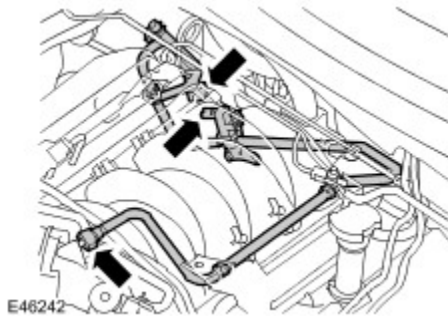
- 41 . Disconnect the generator connector.



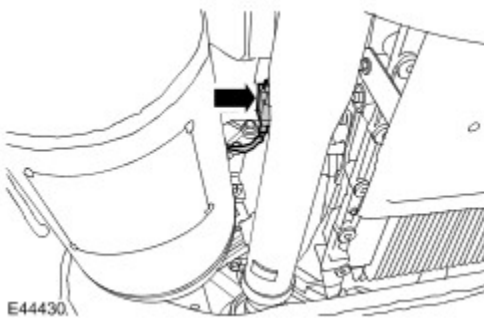
- 42 . Release the 4 clips securing the generator harness.



- 43 . Release the purge valve from the mounting bracket.
- Disconnect the electrical connector.
 - Remove the bolt.



- 44 . Disconnect the front LH HO2S and release the clip.












- 45 . Disconnect the RH HO2S and release the clip.



46. Remove the engine wiring harness.

Installation

1. Install the engine wiring harness.
2. Connect the HO2S electrical connectors.
 - ▶ Carefully secure the clips.
3. Install the purge valve.
 - ▶ Secure the electrical harness with the clip.
 - ▶ Tighten the bolt to 6 Nm (4 lb.ft).
 - ▶ Connect and secure the electrical connector.
4. Connect the starter motor.
5. Connect the oil temperature and oil pressure sensors.
6. Connect the generator electrical connector.
 - ▶ Secure the clips.
7. Connect the CKP sensor electrical connector.
8. Secure the air compressor electrical connector.
9. Install the A/C mounting bracket.
 - ▶ Tighten the bolts to 25 Nm (18 lb.ft).
10. Install the power steering pump and mounting bracket.
 - ▶ Clean the component mating faces.
 - ▶ Tighten the bolts to 25 Nm (18 lb.ft).
11. Secure the transmission cooler pipes into clips.
12. Install the A/C compressor.

-  Tighten the bolts to 25 Nm (18 lb.ft).
- 13 . Install the accessory drive belt.
- 14 . Install the upper suspension arm and brake line heat shields.
 -  Tighten the nuts and bolts to 10 Nm (7 lb.ft).
- 15 . Install the fender splash shield. For additional information, refer to [Fender Splash Shield \(76.10.48\)](#) (Section 501-02)
- 16 . Install the splash shield.
- 17 . Install the front wheel.
 -  Tighten the nuts to 115 Nm (85 lb.ft).
- 18 . Connect the cooling fan electrical connector.
- 19 . Connect the cylinder head earth ground connector.
 -  Tighten the bolt to 10 Nm (7 lb.ft).
- 20 . Connect the EGR valve electrical connector.
- 21 . Install both CMP sensors.
- 22 . Connect the fuel temperature sensor electrical connector.
- 23 . Connect the MAP sensor electrical connector.
- 24 . Connect the KS.
- 25 . Connect the ECT sensor electrical connector.
- 26 . Connect the ignition coil-on-plug electrical connections.
 -  Install the clips.
 -  Repeat the above procedure for the other side.
- 27 . Connect the fuel injector electrical connectors.
 -  Install the clips.
 -  Repeat the above procedure for the other side.
- 28 . Connect the VCT oil solenoid electrical connector.
 -  Repeat the above procedure for the other side.
- 29 . Install the ignition coil-on-plug cover.

- Secure the clips.
 - Repeat the above procedure for the other side.
- 30 . Connect the MAF sensor electrical connector.
- 31 . Connect the throttle body electrical connector.
 - Secure the clips.
- 32 . Connect the MAP sensor electrical connector.
- 33 . Install the wiring harness support bracket.
 - Tighten the bolts to 10 Nm (7 lb.ft).
- 34 . Connect the engine wiring harness.
 - Install the clips on the harness protective cover.
 - Connect and secure the electrical connectors.
- 35 . Install the battery compartment side wall.
 - Secure the clips.
 - Install the battery positive cable and grommet.
- 36 . Install the fusebox main feed cable.
 - Install the bolt and tighten to 10 Nm (7 lb.ft).
- 37 . Install the engine compartment upper heat shield.
 - Secure the clips.
 - Tighten the screw.
- 38 . Install the battery. For additional information, refer to [Battery \(86.15.01\)](#) (Section 414-01)
- 39 . Install the engine cover. For additional information, refer to [Engine Cover - 4.4L \(12.30.50\)](#) (Section 501-05)
- 40 . Install the radiator access panel.
 - Tighten the bolts to 10 Nm (7 lb.ft).
- 41 . Install the engine undershield. For additional information, refer to [Engine Undershield \(76.10.50\)](#) (Section 501-02)