



Engine (12.41.01.99)

Special Service Tools



Engine lifting cradle -
303-1144



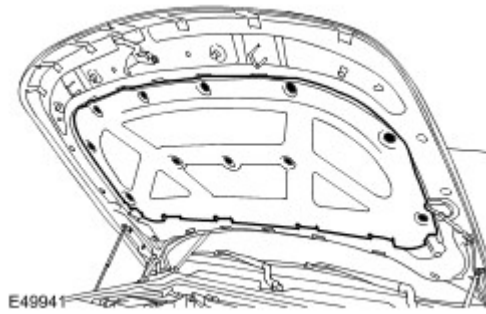
Fuel spring lock decoupling tool
310-005



Ball joint separator
205-754 (LRT-54-027)

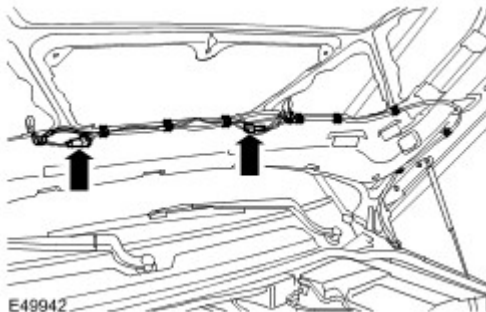
Removal

- 1 . Position the vehicle on a lift.
- 2 . Disconnect the battery ground cable. For additional information, refer to [Specifications](#) (Section 414-00)
- 3 . Remove the under hood pad.
 - ▶ Remove the 11 clips.



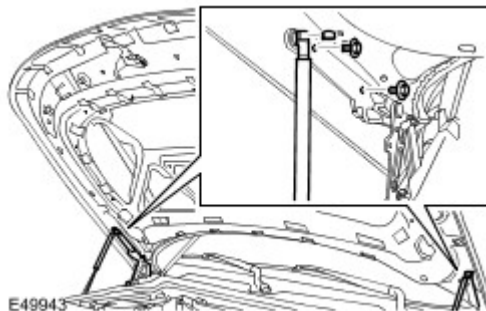
4. Release the heated washer jet hose and wiring harness assembly.

- Disconnect the hose.
- Disconnect the 2 electrical connectors.
- Release the 8 clips.



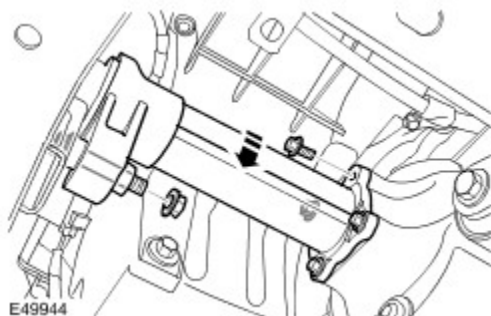
5. Remove the hood.

- Release the clips and disconnect the struts.
- With assistance remove the 4 bolts.

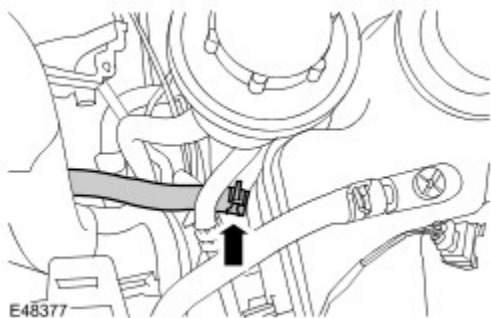


6. Remove the battery tray. For additional information, refer to [Battery Tray \(76.10.30\)](#) (Section 414-01)
7. Remove the auxiliary battery tray. For additional information, refer to [Auxiliary Battery Tray \(76.10.31\)](#) (Section 414-01)
8. Remove the air cleaner assembly. For additional information, refer to [Air Cleaner \(19.10.01\)](#) (Section 303-12)
9. Remove the accessory drive belt. For additional information, refer to [Accessory Drive Belt \(86.10.03\)](#) (Section 303-05)

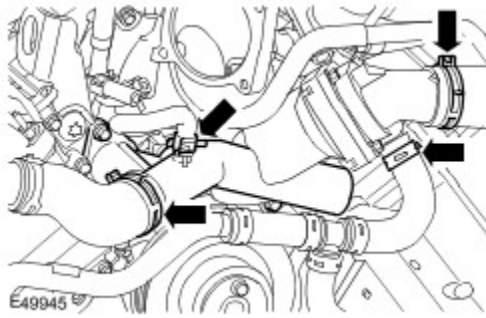
- 10 . Remove the fender splash shields. For additional information, refer to [Fender Splash Shield \(76.10.48\)](#) (Section 501-02)
- 11 . Remove the RH halfshaft. For additional information, refer to [Halfshaft RH \(47.10.02\)](#) (Section 205-04)
- 12 . Remove the axle tube.
 - Remove the front differential extension bolts.
 - Remove the bolt from the bushing.
 - Rotate and remove the axle tube.
 - Remove and discard the O-ring seal.



- 13 . Remove the exhaust system. For additional information, refer to [Exhaust System \(30.10.08\)](#) (Section 309-00)
- 14 . Drain the engine oil. For additional information, refer to [Engine Oil Draining and Filling \(12.60.05\)](#) (Section 303-01)
- 15 . Remove the radiator. For additional information, refer to [Radiator \(26.40.01\)](#) (Section 303-03)
- 16 . Disconnect the coolant expansion tank lower hose.
 - Release the clip.

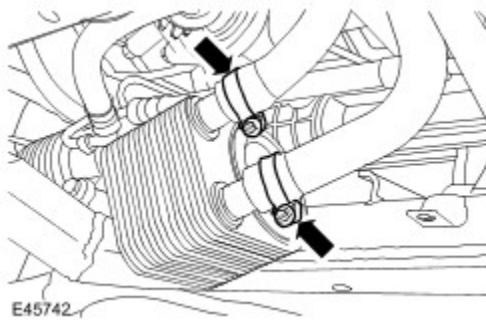


- 17 . Disconnect the thermostat housing coolant hoses.
 - Release the 2 clips.
- 18 . Disconnect the upper coolant hose assembly.
 - Release the 2 clips.



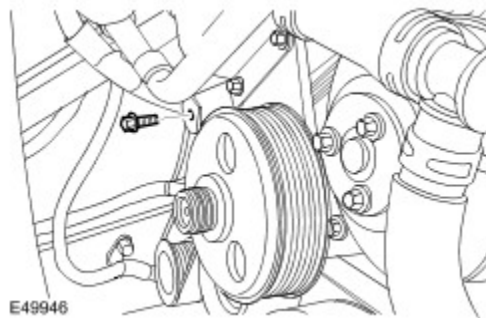
19. Disconnect the engine oil cooler coolant hoses.

- Release the 2 clips.
- Remove the hose assembly.



20. Tie the hose assembly aside for access.

- Remove the bolt.



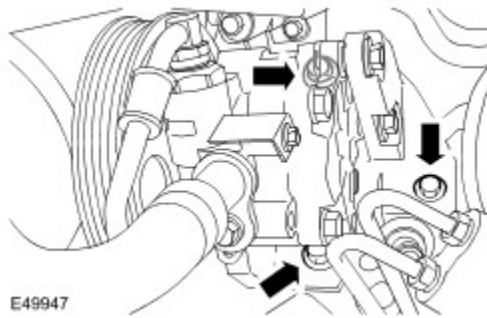
21. Remove the accessory drive belt tensioner.

- Remove the bolt.



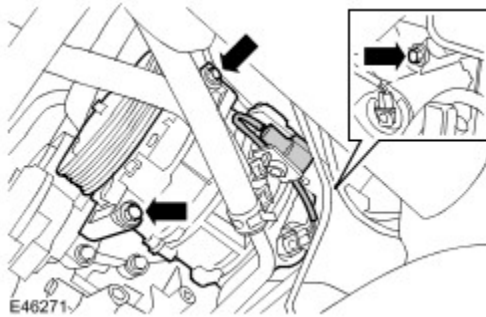
- 22 . Release the power steering pump and tie aside

➤ Remove the 3 bolts.



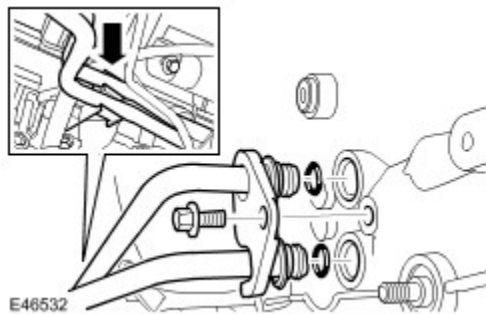
- 23 . Release the A/C compressor and tie aside.

➤ Remove the 3 bolts.



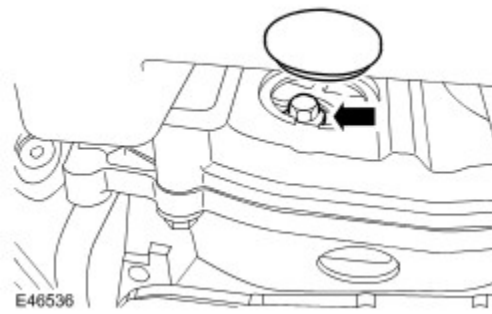
- 24 . Release the transmission cooler pipes.

- Position a container to collect the fluid.
- Remove the bolt.
- Release the 2 clips.
- Move the transmission pipes aside.



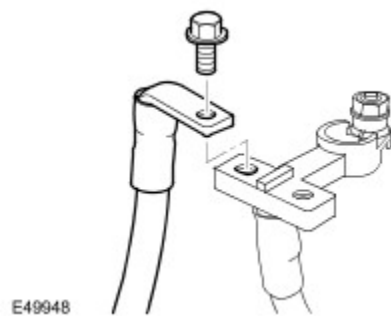
- 25 . Release the flexplate.

- Remove the grommet.
- Rotate the crankshaft to access the retaining bolts.
- Remove the 3 bolts.



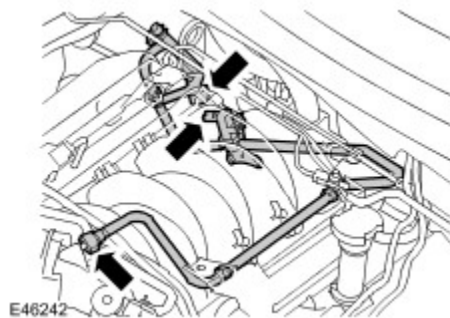
- 26 . Disconnect the battery positive cable from the BJB.

- Remove the bolt.
- Position the positive cable aside.



- 27 . Disconnect the evaporative emission hose from the intake manifold assembly.

- Position the hose aside for access.



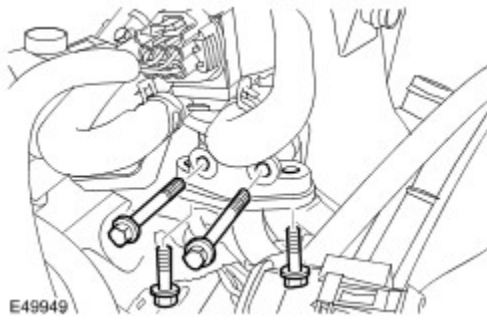
- 28 .



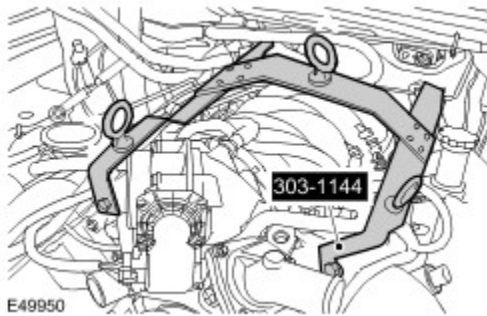
CAUTION: Before the disconnection or removal of any components, ensure the area around joint faces and connections are clean. Plug any open connections to prevent contamination.

Position the EGR valve aside.

- Remove the 4 bolts.
- Remove and discard the gasket.

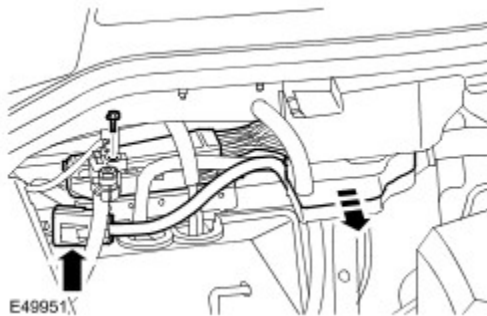


- 29 . Install the special tool.



- 30 . Disconnect the engine wiring harness.

- Release the cassette.
- Release and disconnect the 2 electrical connectors.
- Remove the ground cable bolt.

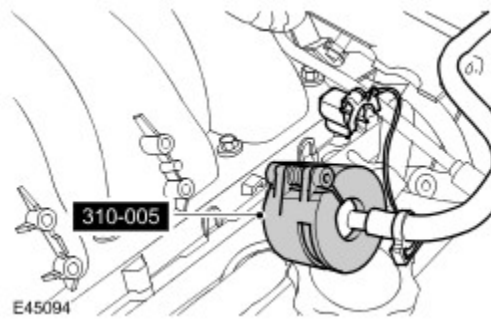


- 31 . Depressurize the fuel rail.

- Position an absorbent cloth to collect fluid spillage.

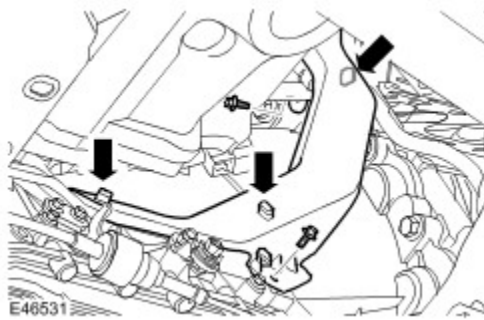
- 32 . Using the special tool, disconnect the fuel line.

- Position the supply line aside.



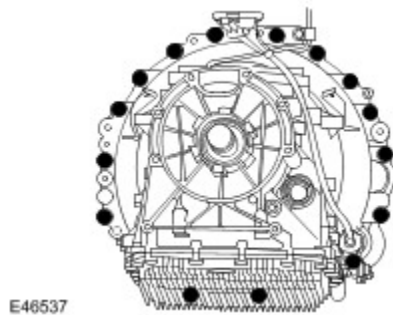
- 33 . Release the heat shield for access to the transmission bolts.

- Remove the 2 bolts.
- Move the shield aside.



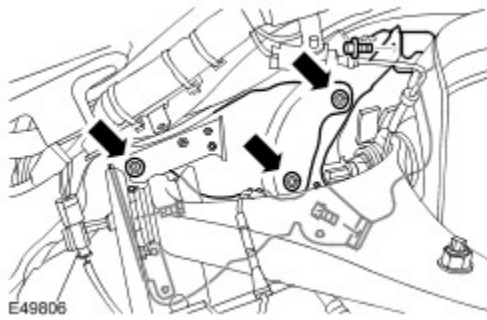
- 34 . Remove the transmission bolts.

- Support the transmission.
- Remove the 16 bolts.

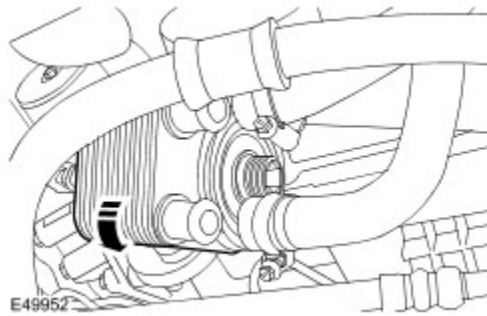


- 35 . Remove the upper suspension arm and brake line heat shields for access.

- Remove the 3 bolts.
- Remove the 3 nuts.



36. Loosen the Allen bolt and rotate the engine oil cooler aside for access.



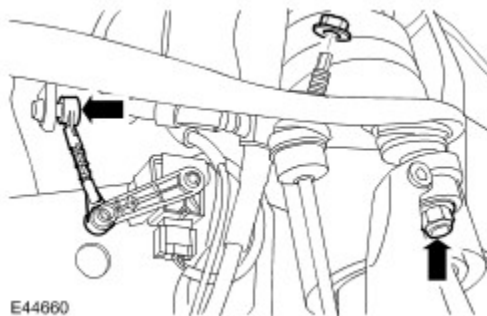
37. Disconnect the height sensor link arm.

38.  **CAUTION:** Use a wrench on the hexagon provided to prevent the ball joint rotating.

Remove the stabilizer bar link nut.

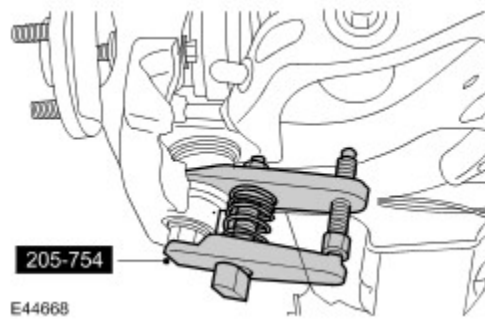
39.  **CAUTION:** To prevent the wheel knuckle falling outwards and disconnection of the halfshaft inner joint, support the wheel knuckle.

Loosen the upper arm retaining nut.

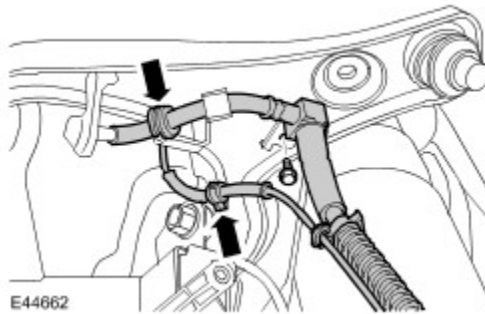


40. Using the special tool, release the upper arm ball joint.

 Remove and discard the retaining nut.



- 41 . Release the brake hose from the upper arm.



- 42 . Disconnect the starter motor electrical connections.

➤ Remove the nut.

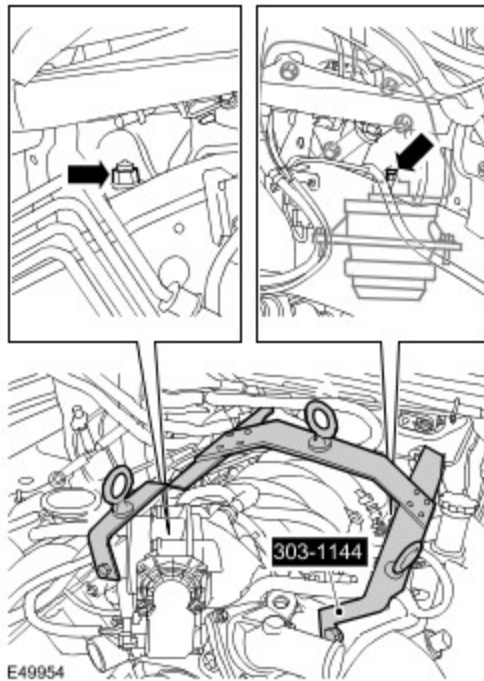


- 43 . Remove the starter motor.

➤ Remove the 2 bolts.

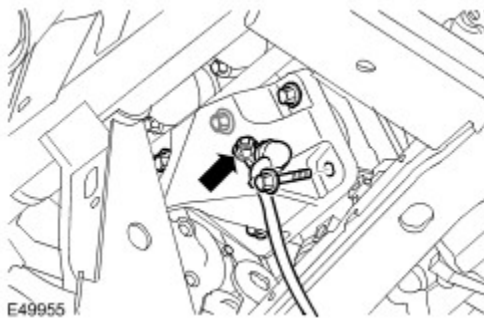


- 44 . Remove the 2 engine mount nuts.



- 45 . Release the engine from both the mounts and the transmission.
- Install the lifting chains.
 - Raise the RH side of the engine by approximately 35 mm.

- 46 . Remove the engine RH mount bracket.
- Remove 4 bolts securing the engine mount bracket to the cylinder block.
 - Disconnect the engine ground cable from the RH mounting bracket.



- 47 .  **CAUTION: Make sure the torque converter remains connected to the transmission.**

-  **CAUTION: Care must be taken to avoid damaging the steering rack and differential.**

Carefully and progressively raise and remove the engine.

- 48 . Disconnect the lifting chains.