



## Engine (12.41.01.99)

### Special Service Tools



Engine lifting cradle - 4.0L  
303-1147



Engine lifting bracket  
303-940 (LRT-12-138)



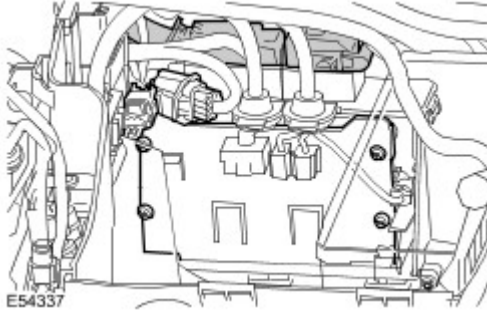
Lifting chains  
303-940/1

### Removal

- 1 . Disconnect the battery ground cable. For additional information, refer to [Specifications](#) (Section 414-00)
- 2 . Secure the hood in the service position.
- 3 . Raise and support the vehicle.
- 4 . Drain the cooling system. For additional information, refer to [Cooling System Draining, Filling and Bleeding \(26.10.01\)](#) (Section 303-03)
- 5 . Drain the engine oil. For additional information, refer to [Engine Oil Draining and Filling \(12.60.05\)](#) (Section 303-01)
- 6 . **NOTE :**  
Early vehicles will require the partial release of the fuel rail, to allow the intake manifold to be removed.

Remove the intake manifold. For additional information, refer to [Intake Manifold \(30.15.02\)](#) (Section 303-01)

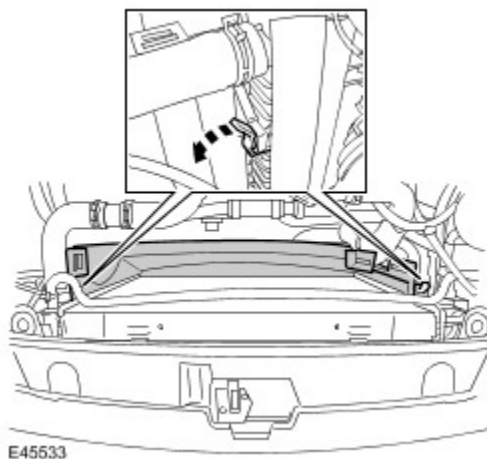
- 7 . Remove the battery tray. For additional information, refer to [Battery Tray \(76.10.30\)](#) (Section 414-01)
- 8 . Disconnect the 2 ECM electrical connectors.



- 9 . Release the wiring harness from the plenum.
  - Release the 2 clips.
  - Position the wiring harness aside.



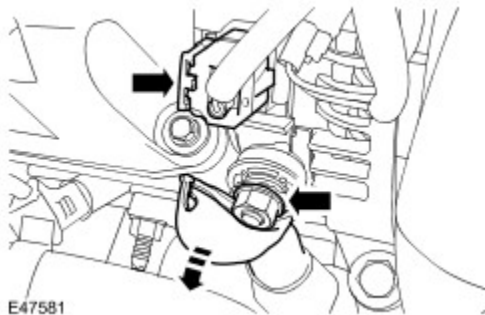
- 10 . Remove the accessory drive belt. For additional information, refer to [Accessory Drive Belt \(86.10.03\)](#) (Section 303-05)
- 11 . Remove the lower fan shroud.
  - Release 2 clips from the cooling fan lower shroud.



12. Install a shield to protect the radiator core from damage.

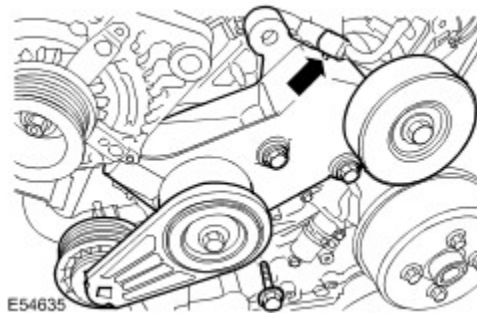
13. Disconnect the generator electrical connectors.

▶ Disconnect the electrical connector.



14. Position the generator mounting bracket aside.

▶ Remove the 3 bolts.  
▶ Release the wiring harness clip.  
▶ Remove and discard the cable tie.



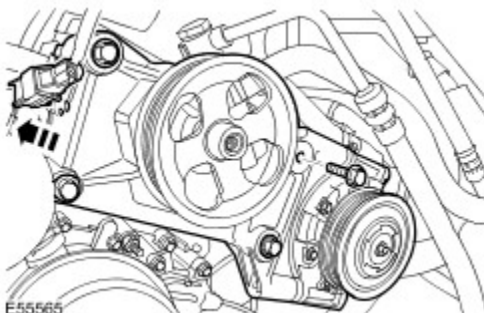
- 15.



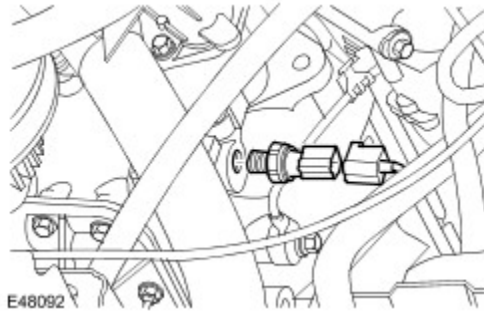
**CAUTION: The A/C system will remain fully charged during this procedure, care must be taken when positioning the assembly aside.**

Position the A/C compressor mounting bracket assembly aside.

▶ Disconnect the A/C compressor electrical connector.  
▶ Release the LH KS electrical connector retaining clip.  
▶ Remove the 4 bolts.

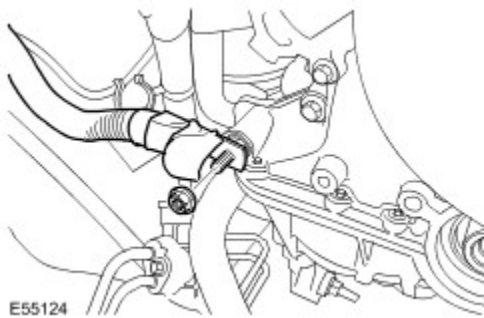


16. Disconnect the engine oil pressure (EOP) sensor electrical connector.



17. Disconnect the engine ground cable.

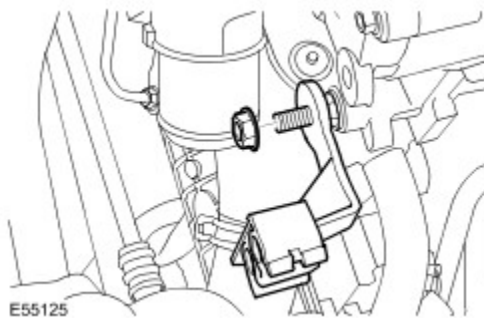
➤ Remove the nut.



18. Release the transmission cooler pipes.

➤ Remove the nut.

➤ Position aside.

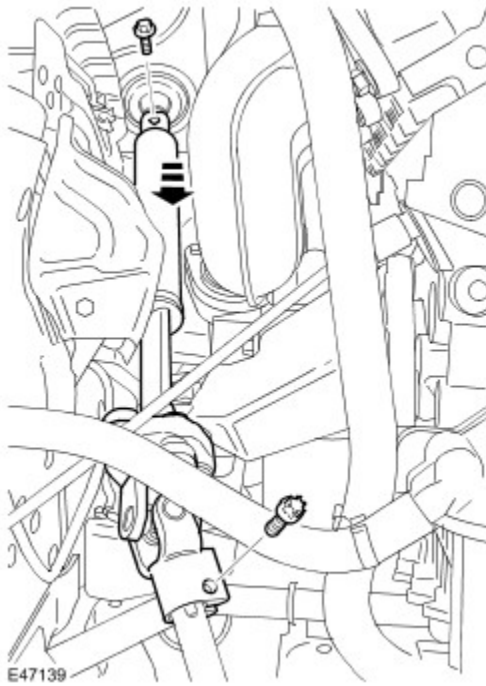


19. Remove the EGR pipe.

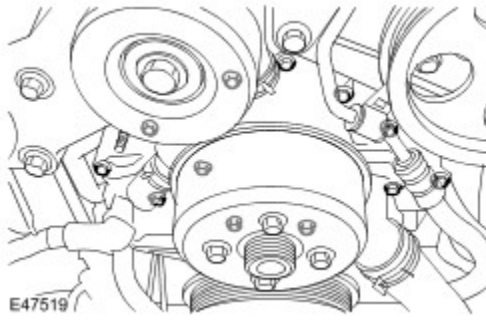
➤ Loosen the EGR union nut and release the pipe.



- 20 . Check the road wheels are in the straight ahead position, then remove the upper clamp bolt.
  - Discard the retaining bolt.
- 21 . Remove the steering gear universal joint clamp bolt.
  - Discard the retaining bolt.
- 22 . Release the upper steering column shaft.
- 23 . Release and remove the shaft and joint assembly.

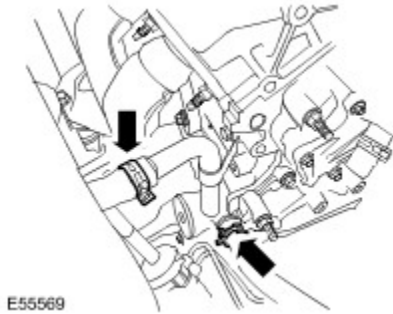


- 24 . Release the coolant pump hose.
  - Position aside.
  - Release from the clip.



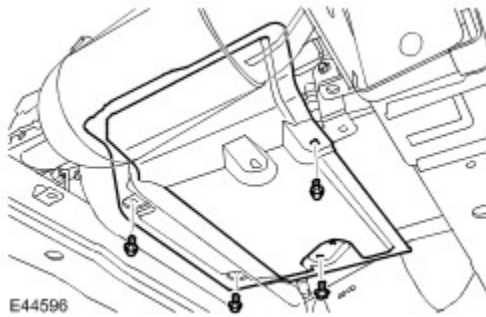
- 25 . Disconnect the 2 engine oil cooler, coolant hoses.

▶ Release the 2 clips.



- 26 . Remove the transmission heat shield.

▶ Remove the 4 bolts.

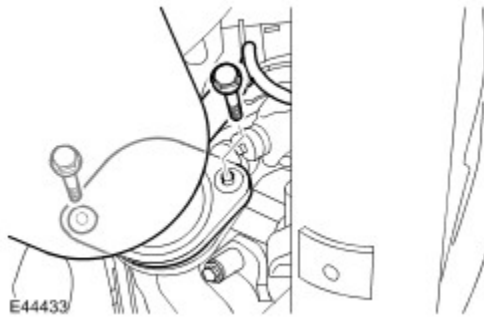


- 27 . Disconnect the LH catalyst monitor sensor electrical connector.

▶ Release HO2S harness from bracket.

- 28 . Disconnect the LH catalytic converter from the exhaust manifold.

▶ Remove the 2 bolts.



- 29 . Disconnect the RH catalyst monitor sensor electrical connector.

➤ Release HO2S harness from bracket.

- 30 . Disconnect the RH catalytic converter from the exhaust manifold.

➤ Remove the 2 bolts.

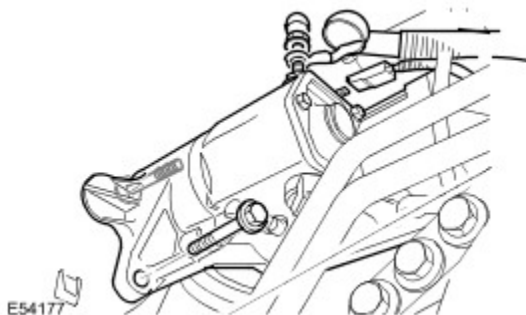


- 31 . Disconnect the engine oil temperature sensor electrical connector.



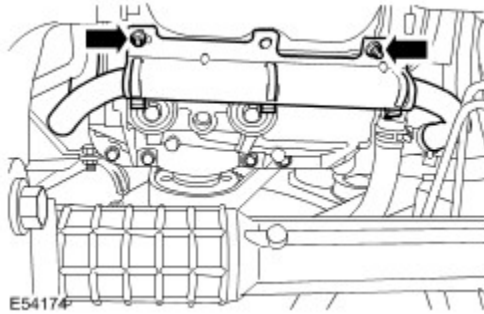
- 32 . Release the starter motor.

➤ Remove the 2 bolts.

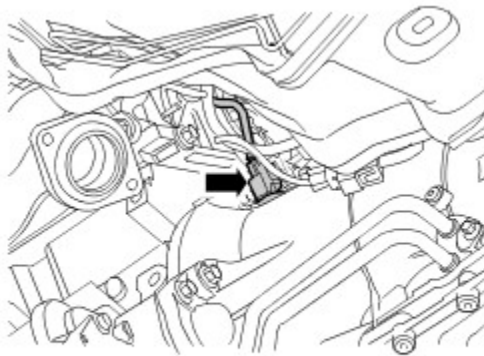




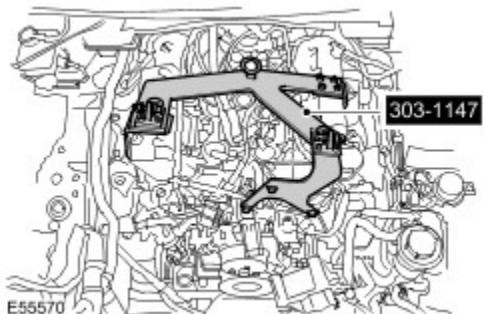
- 33 . Release the harness bracket.  
▶ Remove the 2 nuts.



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

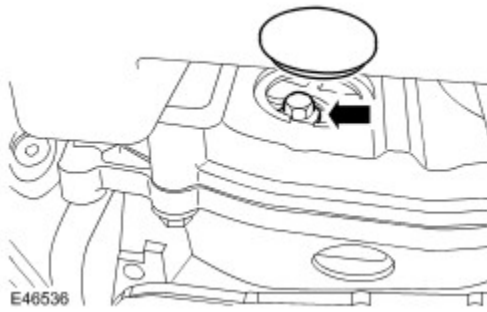


- 35 . Install the engine lifting bracket.  
▶ Tighten the bolts to 45 Nm (33 lb.ft).  
▶ Evenly and progressively, tighten the nuts to 25 Nm (18 lb.ft).



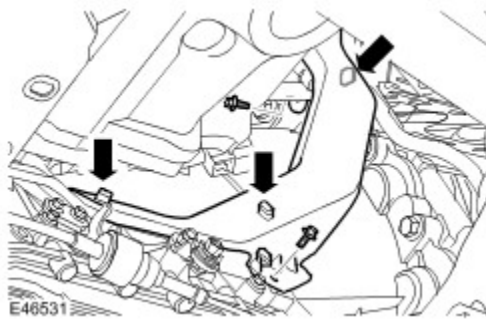
- 36 . Release the flexplate.  
▶ Rotate the crankshaft to access the retaining bolts.  
▶ Remove the 4 bolts.






37. Release the fuel pipe and purge line heat shield.

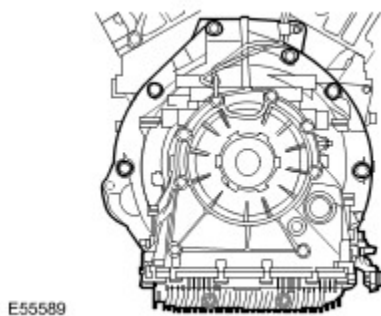
- Remove the 2 bolts.
- Position the fuel line shield aside for access.



38.  **WARNING: Support the engine. The engine will fall forward when the transmission is removed.**

Remove the transmission bolts.

- Connect the lifting chains.
- Support the transmission.
- Remove the 8 bolts.

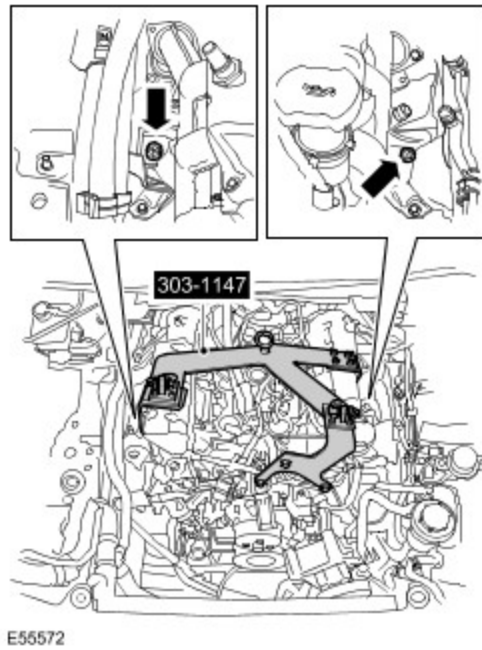


39.  **WARNING: Make sure the torque converter remains with the transmission.**

Remove the engine.

- Remove the 2 engine mount nuts.

- ▶ Remove the engine RH mount.
- ▶ Raise the engine.
- ▶ With assistance, carefully remove the engine.



40 . Install the torque converter retainer.