

Removal

Engine (12.41.01)

Special Service Tools



Engine Lifting Bracket
303-661



Engine Support Bracket
303-021



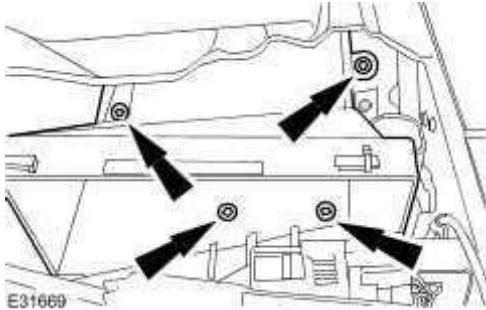
5 point security torx bit
418-535

Removal

- 1 . Remove the automatic transmission assembly. <<307-01>>
- 2 . Lower the vehicle.
- 3 . Remove the hood assembly. <<501-03>>

4 . Remove the air cleaner assembly. <<303-12A>>

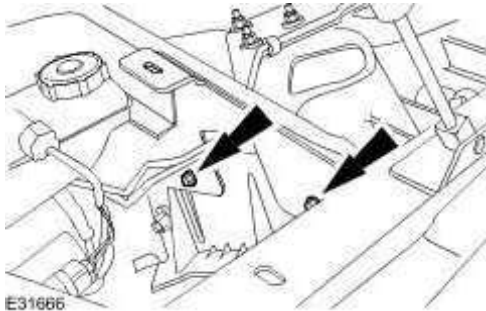
5 . Remove the cabin air filter housing.



6 . **NOTE:**

Left-hand shown, right-hand similar.

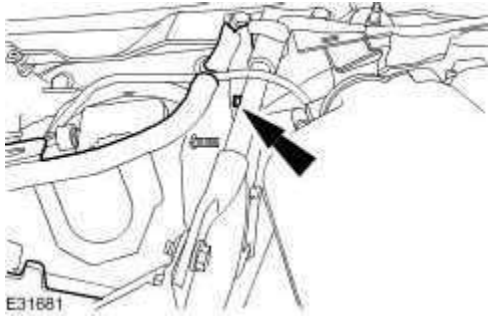
Remove the engine compartment panel retaining bolts.



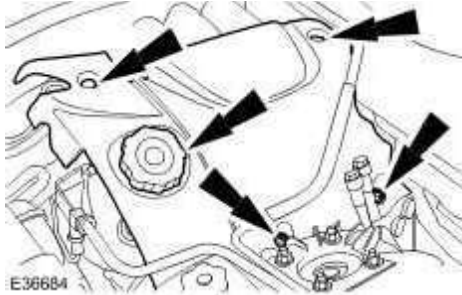
7 . **NOTE:**

Left-hand shown, right-hand similar.

Remove the engine compartment panel.



8 . Remove the engine cover.



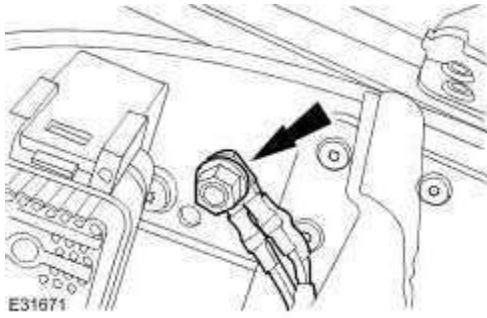
9 . Raise the vehicle.

10 . Remove the passenger side front wheel and tire assembly. <<204-04>>



11 . Lower the vehicle.

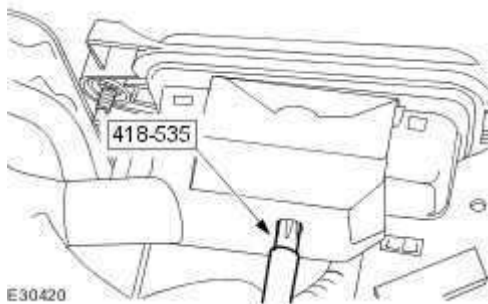
12 . Disconnect the engine harness ground strap.



13 NOTE:

The engine control module (ECM) electrical connector retaining bolt remains captive in the electrical connector

Disconnect the ECM electrical connector.

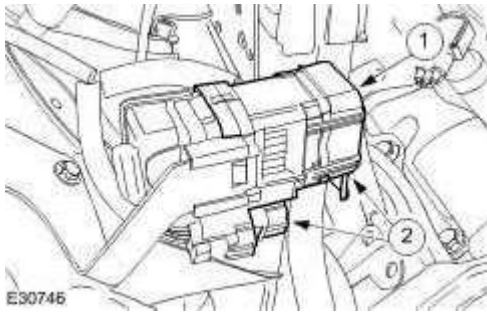


14 NOTE:

The main engine harness electrical connector retaining bolt remains captive in the electrical connector.

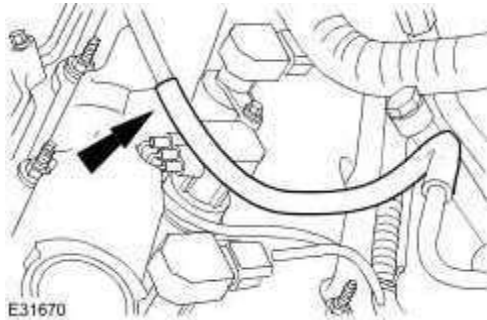
Disconnect the engine wiring harness electrical connectors.

- 1) Loosen the engine harness main electrical connector retaining bolt.
- 2) Disconnect the engine wiring harness electrical connectors.

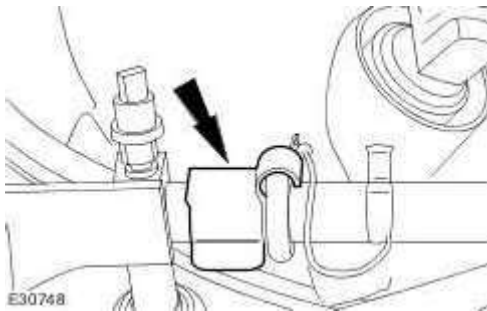


15 . Reposition the engine wiring harness from the vehicle body.

16 . Disconnect the evaporative emission canister purge valve to intake manifold hose.

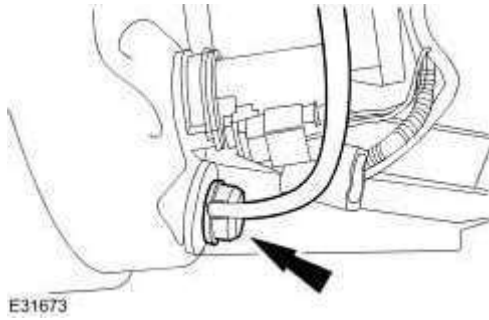


17 . Disconnect the fuel supply manifold spring lock coupling. <<310-00>>




18 . Remove the cooling module. <<303-03A>>

19 . Detach the brake booster vacuum hose from the brake booster.



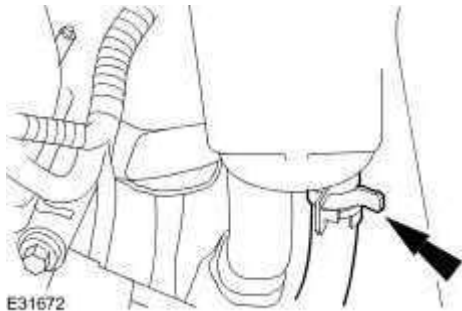
- 20
-  **CAUTION: Cap the power steering line to prevent loses of fluid and dirt ingress.**

 **CAUTION: If power steering fluid comes into contact with the paintwork, the affected area must be immediatly washed down with cold water.**


NOTE:

Drain the fluid into a suitable container.

Disconnect the power steering reservoir to power steering pump supply line.



- 21
-  **CAUTION: Cap the power steering lines to prevent loses of fluid and dirt ingress.**

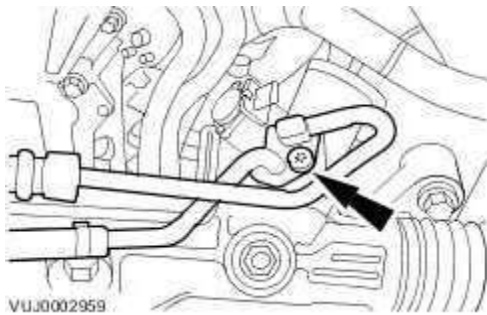
 **CAUTION: If power steering fluid comes into contact with the paintwork, the affected area must be immediatly washed down with cold water.**

NOTE:

Drain the fluid into a suitable container.

Disconnect the power steering pump to steering gear supply line.

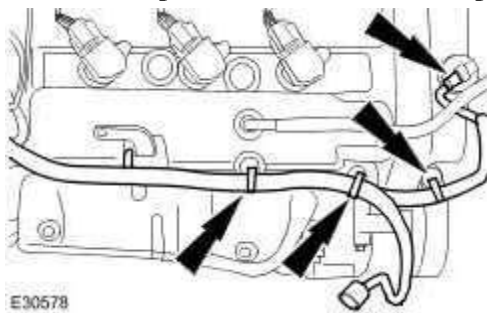
▶ Remove and discard the O-ring seal.



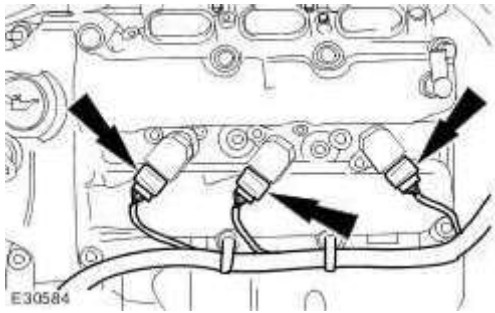
22 . NOTE:

Inlet manifold shown removed for clarity.

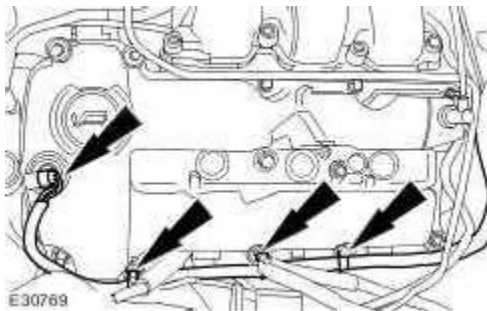
Detach the right-hand valve cover wiring harness.



23 . Disconnect the left-hand ignition coils electrical connectors.

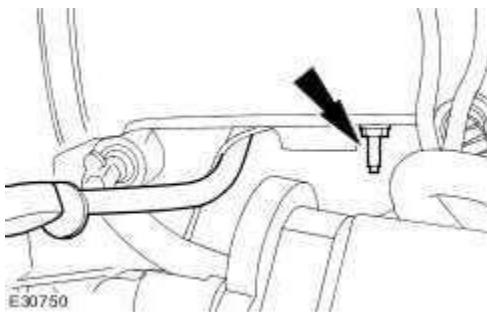


24 . Detach the left-hand valve cover wiring harness.



25 . Remove the dipstick tube retaining bolt.

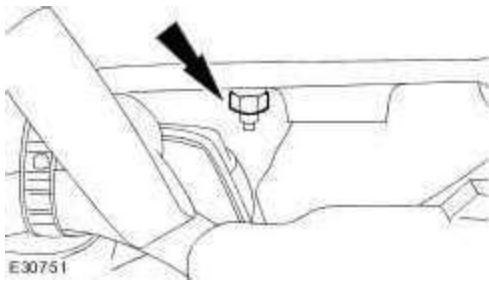
▶ Reposition the dipstick tube.



26 . **NOTE:**

Left-hand shown, right-hand similar.

Loosen the exhaust manifold retaining nut.

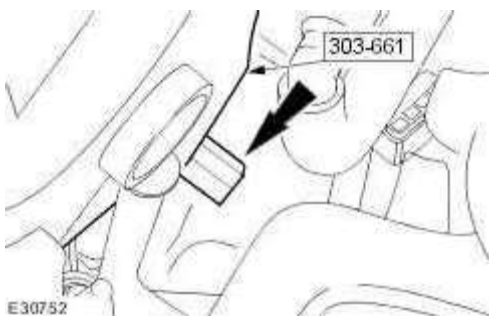


27 . NOTE:

Left-hand shown, right-hand similar.

Install the special tool to the exhaust manifold.

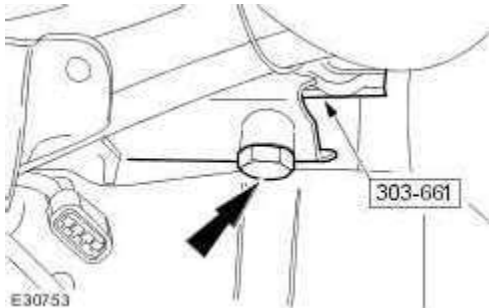
▶ Install the retaining bolt.



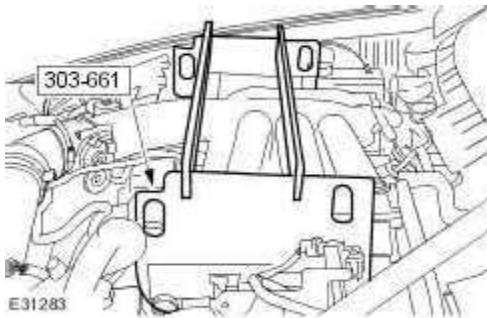
28 . NOTE:

Left-hand shown, right-hand similar.

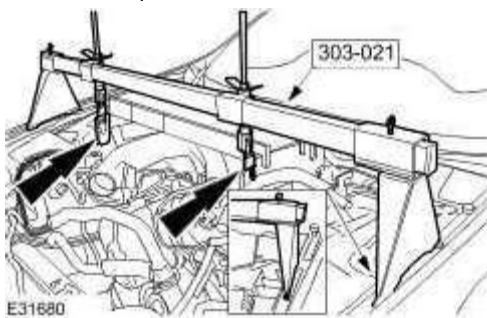
Install the retaining bolt.



29 . Install the special tool support bars to the special tool.



30 . Install the special tool.



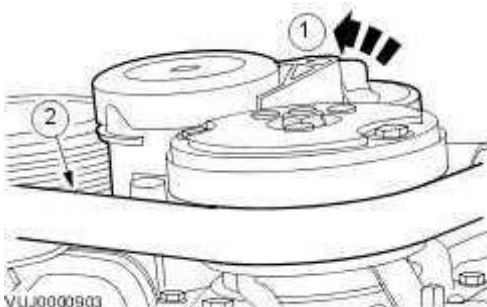
31 . Raise the vehicle.

32 Detach the accessory drive belt.

1) Rotate the accessory drive belt tensioner counter-clockwise.

▶ Use a 3/8 inch square drive bar to rotate the accessory drive belt tensioner.

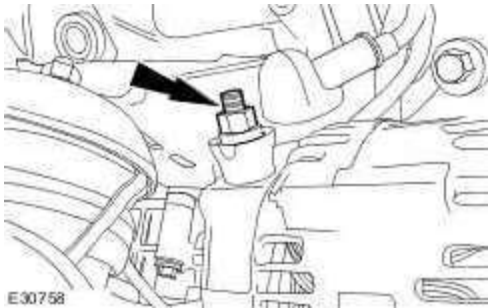
2) Detach the accessory drive belt.



33 . Detach the generator battery positive cable protective cover.

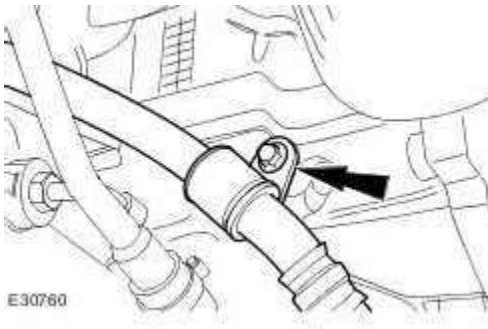


34 . Remove the generator battery positive cable retaining nut.



35 . Remove the air conditioning compressor. <<412-03>>

36 . Detach the power steering hose.

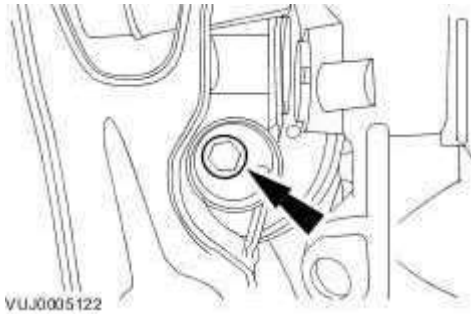


37 . Reposition the power steering hose away from the engine.

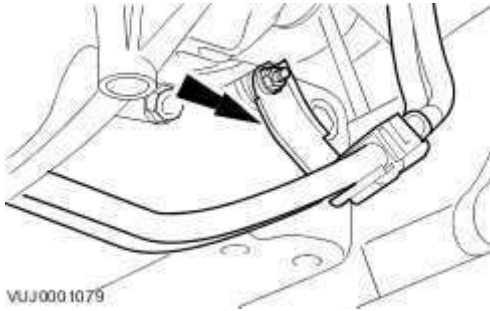
38 . **NOTE:**

Left-hand shown, right-hand similar.

Remove the engine mounts lower retaining bolts.



39 . Detach the automatic transmission oil cooler tubes bracket.

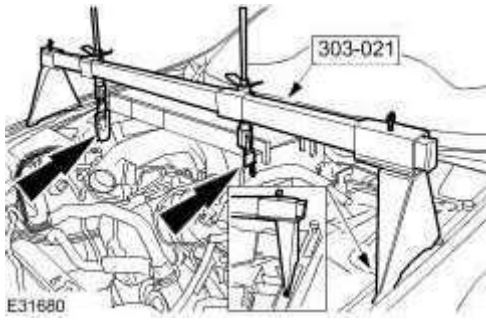


40 . Reposition the automatic transmission oil cooler tubes away from the engine.

41 . Reposition the automatic transmission wiring harness away from the engine.

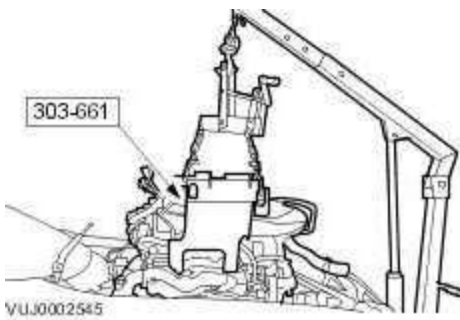
42 . Lower the vehicle.

43 . Remove the special tool.



44 . Remove the engine assembly.

► Using the special tools, install a suitable floor crane.



Engine (12.41.01)

Special Service Tools



Engine Lifting Bracket
303-661



Engine Support Bracket
303-021



5 point security torx bit
418-535

Installation

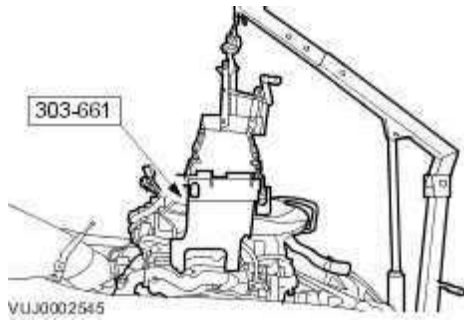
1 NOTE:

Make sure all wiring harnesses and oil pipes are suitably positioned for engine installation.

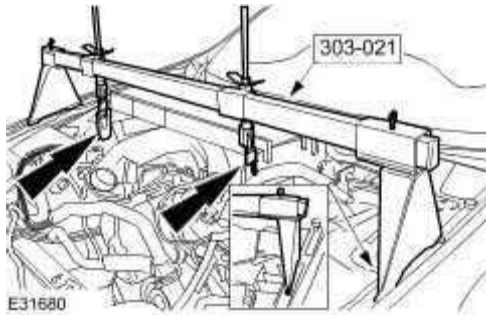
Install the engine assembly.

▶ Make sure engine mounts are correctly located

▶ Remove the floor Crane.



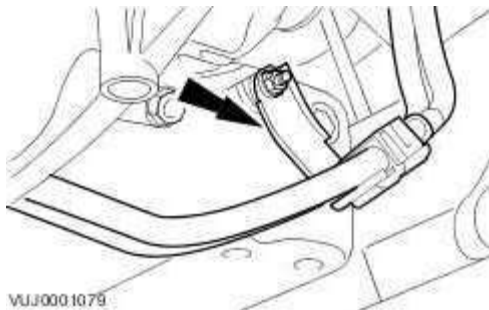
2 . Install the special tool.



3 . Raise the vehicle.

4 . Attach the automatic transmission oil cooler tubes bracket.

▶ Tighten to 10 Nm.

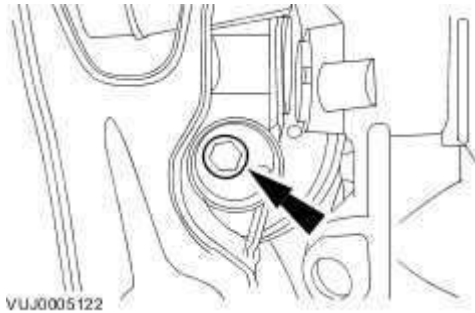


5 . **NOTE:**

Left-hand shown, right hand similar.

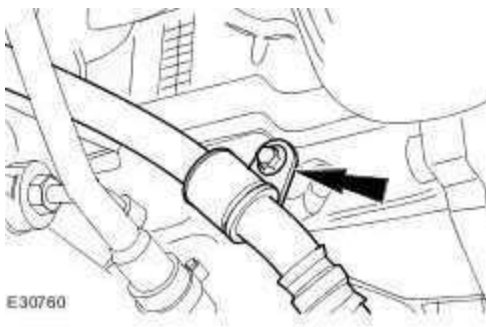
Install the engine mounts lower retaining bolts.

▶ Tighten to 63 Nm.



6 . Attach the power steering hose.

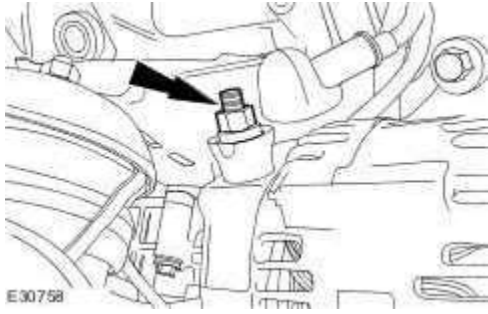
▶ Tighten to 10 Nm.



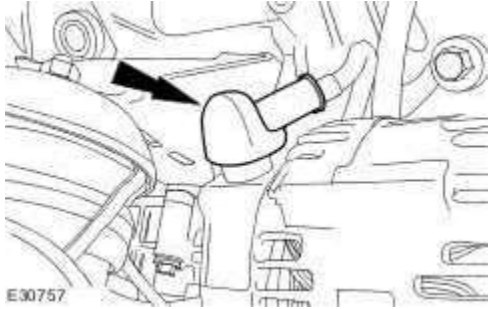
7 . Install the air conditioning compressor. <<412-03>>

8 . Install the generator battery positive cable retaining nut.

▶ Tighten to 12 Nm.



9 . Attach the generator battery positive cable protective cover.

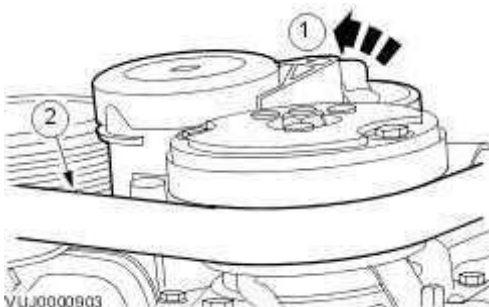


10 Attach the accessory drive belt.

1) Rotate the accessory drive belt tensioner counter-clockwise.

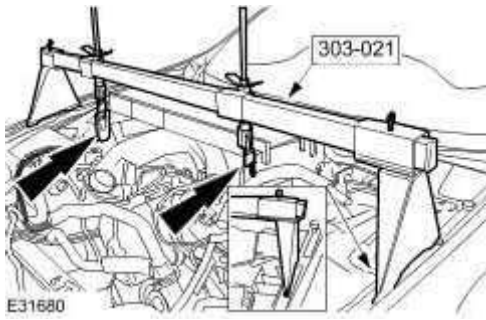
▶ Use a 3/8 inch square drive bar to rotate the accessory drive belt tensioner.

2) Attach the accessory drive belt.

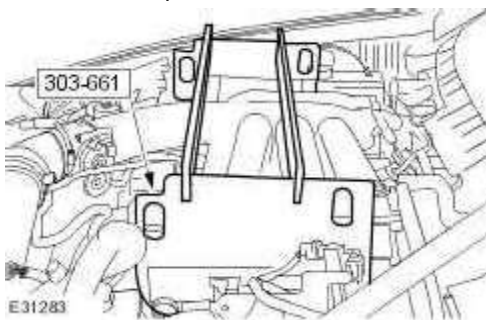


11 . Lower the vehicle.

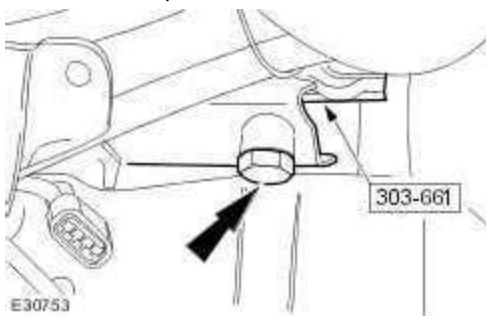
12 . Remove the special tool.



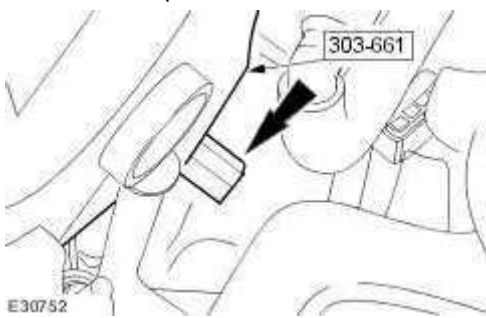
13 . Remove the special tool.



14 . Remove the special tool.



15 . Remove the special tool.

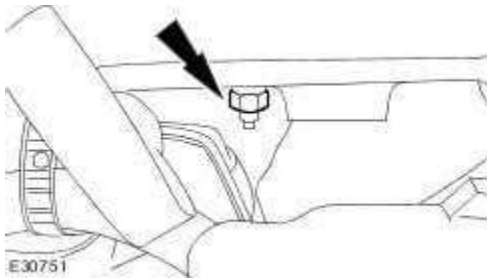


16 . **NOTE:**

Left-hand shown, right-hand similar.

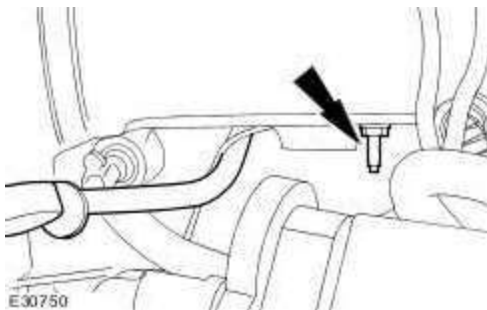
Tighten the exhaust manifold retaining nut.

▶ Tighten to 25 Nm.

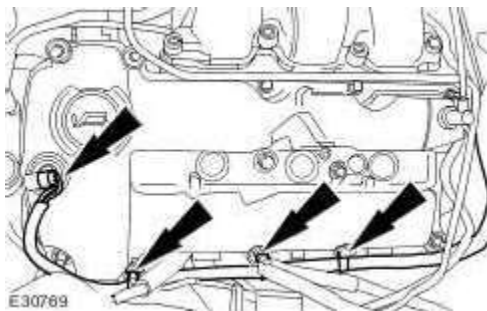


17 . Install the dipstick tube retaining bolt.

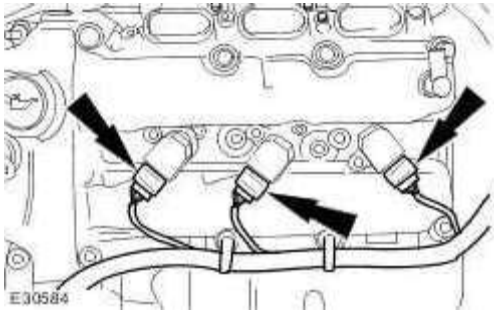
▶ Tighten to 10 Nm.



18 . Attach the left-hand valve cover wiring harness.



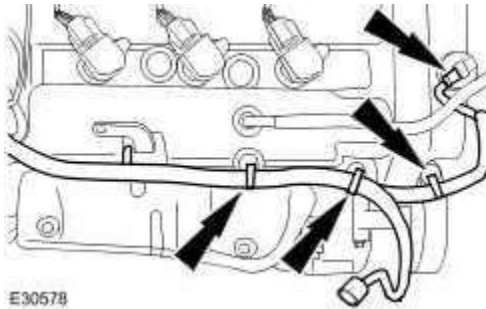
19 . Connect the left-hand ignition coils electrical connectors.



20 . **NOTE:**

Intake manifold shown removed for clarity.

Attach the right-hand valve cover wiring harness.



21 . **NOTE:**

Un-cap the power steering pump exposed ports.

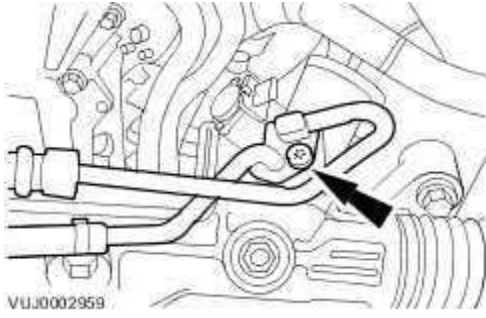
Install new power steering pump supply line O-ring seal.

22



CAUTION: If power steering fluid comes into contact with the paintwork, the affected area must be immediately washed down with cold water.

Connect the power steering pump to steering gear supply line.

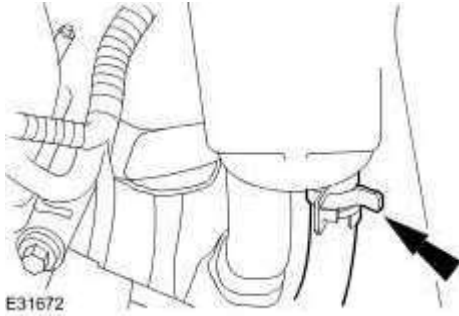


23

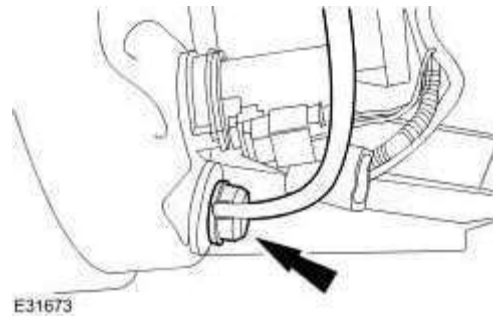


CAUTION: If power steering fluid comes into contact with the paintwork, the affected area must be immediately washed down with cold water.

Connect the power steering reservoir to power steering pump supply line.



24 . Attach the brake booster vacuum hose from the brake booster.

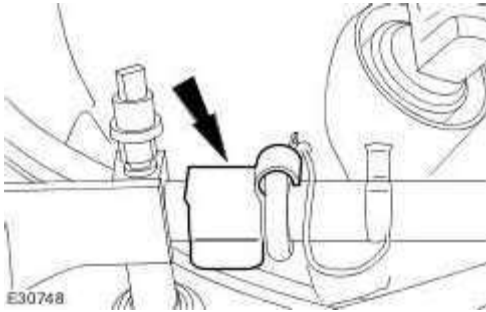


25 . Install the cooling module. <<303-03A>>

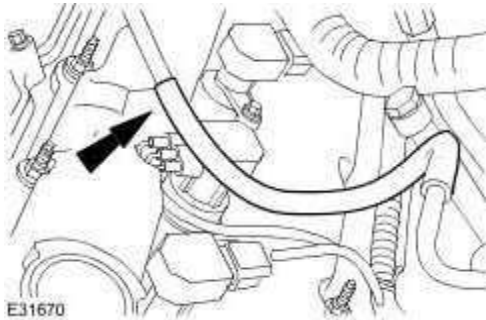
26 . **NOTE:**

Install new O-ring seals.

Connect the fuel supply manifold spring lock coupling. <<310-00>>

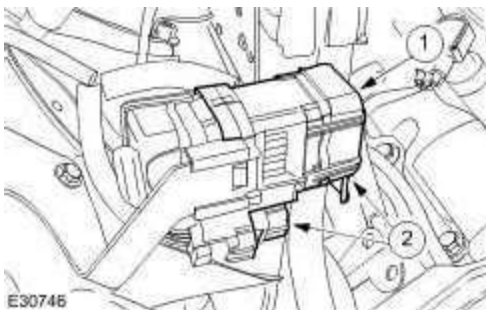


27 . Connect the evaporative emission canister purge valve to intake manifold hose.



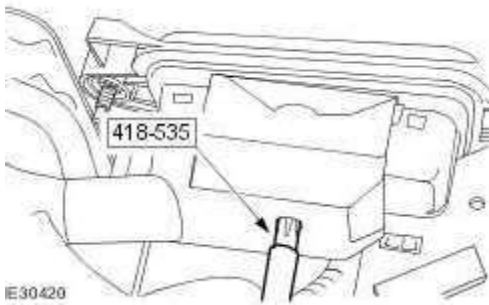
28 . Connect the engine wiring harness electrical connectors.

- 1) Align the engine harness main electrical connector retaining bolt.
- 2) Connect the engine wiring harness electrical connectors.

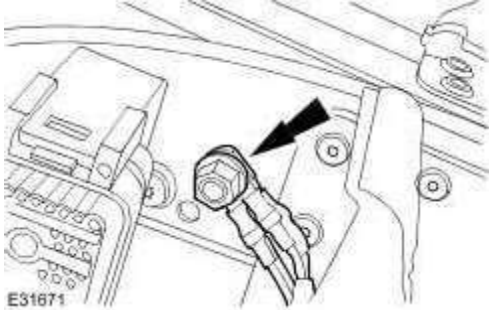


29 . Connect the engine control module (ECM) electrical connector.

▶ Tighten to 6 Nm.



30 . Connect the engine harness ground strap.



31 . Raise the vehicle.

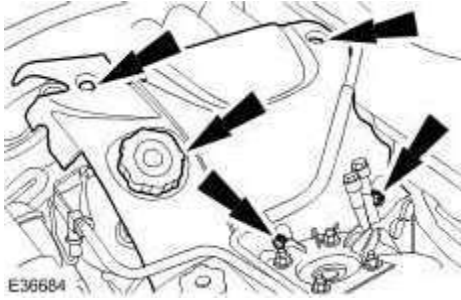
32 . Install the passenger side front wheel and tire assembly.

▶ Tighten to 128 Nm.



33 . Lower the vehicle.

34 . Install the engine cover.

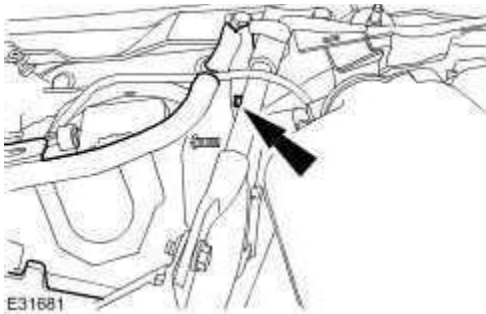


35 . **NOTE:**

Left-hand shown, right-hand similar.

Install the engine compartment panels.

▶ Tighten to 10 Nm.

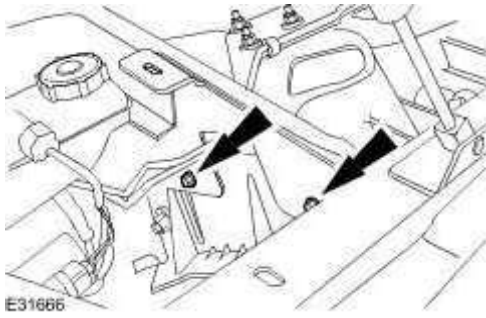


36 . **NOTE:**

Left-hand shown, right-hand similar.

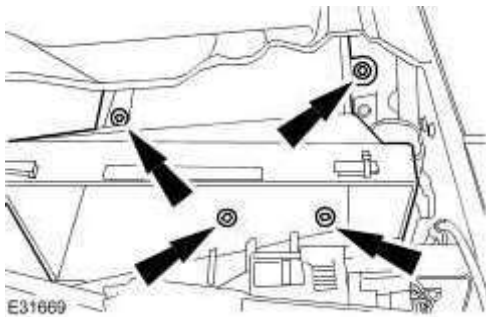
Install the engine compartment panels retaining bolts.

▶ Tighten to 10 Nm.



37 . Install the cabin air filter housing.

▶ Tighten to 10 Nm.



38 . Install the air cleaner assembly. <<303-12A>>

39 . Install the hood assembly. <<501-03>>

40 . Raise the vehicle.

41 . Install the automatic transmission assembly. <<307-01>>