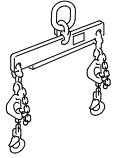


Engine Assembly – Remove and Install (21 134 0)

Special Tools

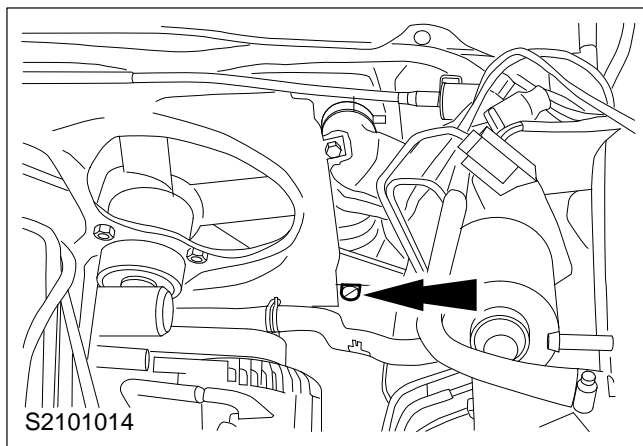
	21-068A Engine lifting tackle
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Materials

Thread locking compound	SDM-M4G9107-A
-------------------------	---------------

Workshop Equipment

Transmission jack
Trolley jack



Remove

1. Preparatory measures.

- Disconnect the battery earth lead.
- Withdraw the transmission fluid dipstick.

2. Drain off the coolant.

Remove the engine undershield (front).

3. Detach the hood.

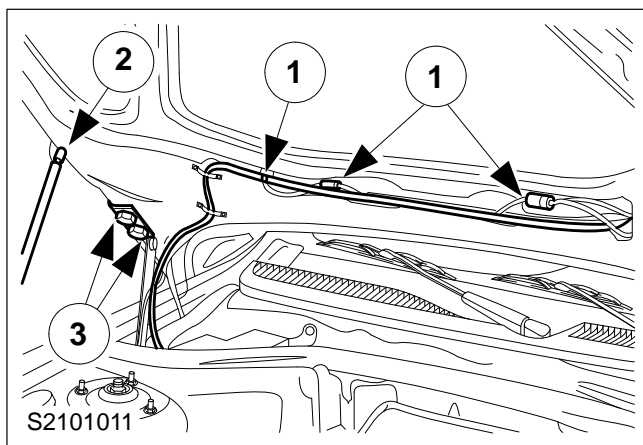
- Detach the hood sound-damping matting.

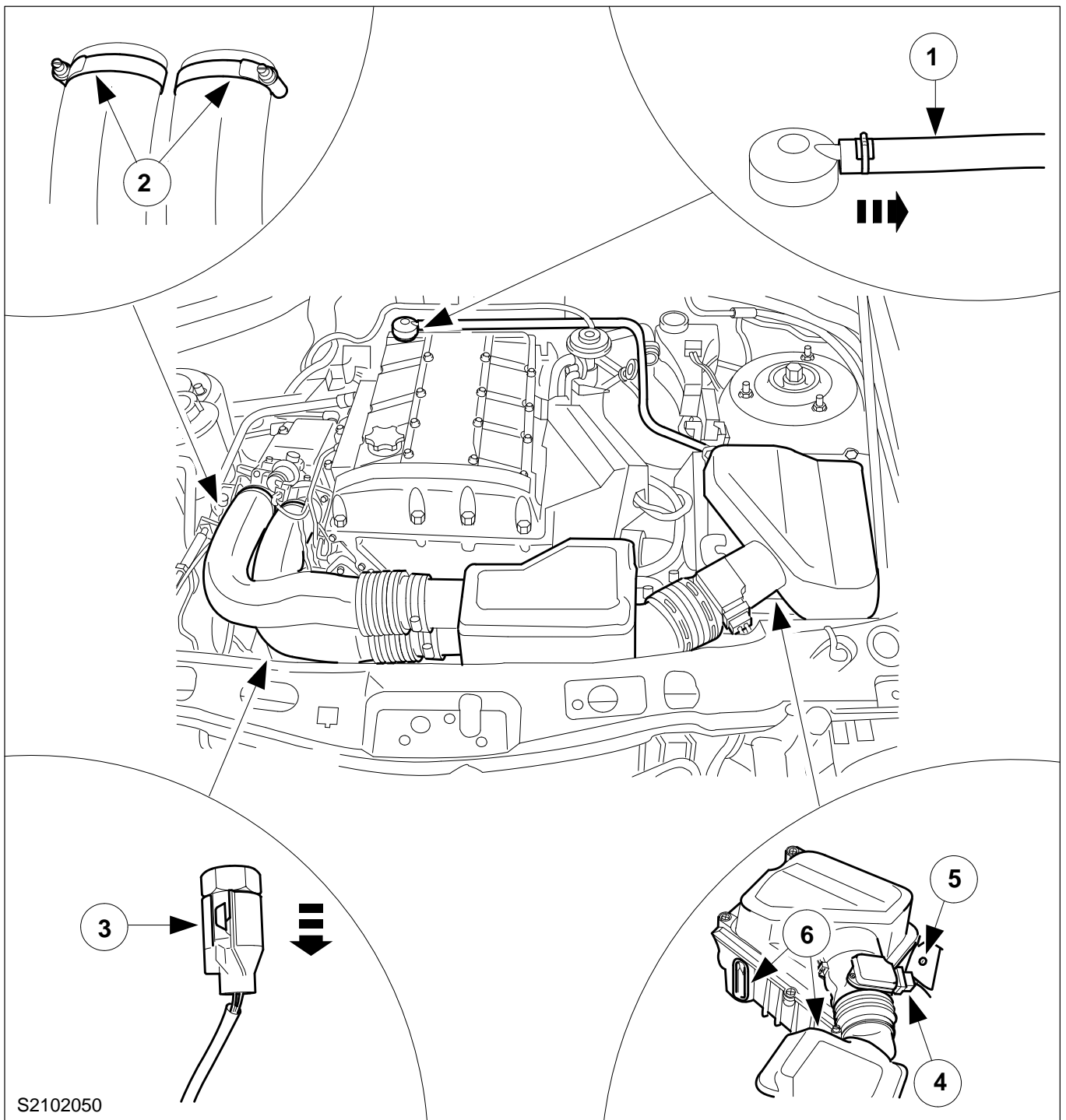
1 Disconnect and unclip the windscreen washing system hose and plug.

2 Unclip the hood damping strut.

- Unclip the retaining ring.

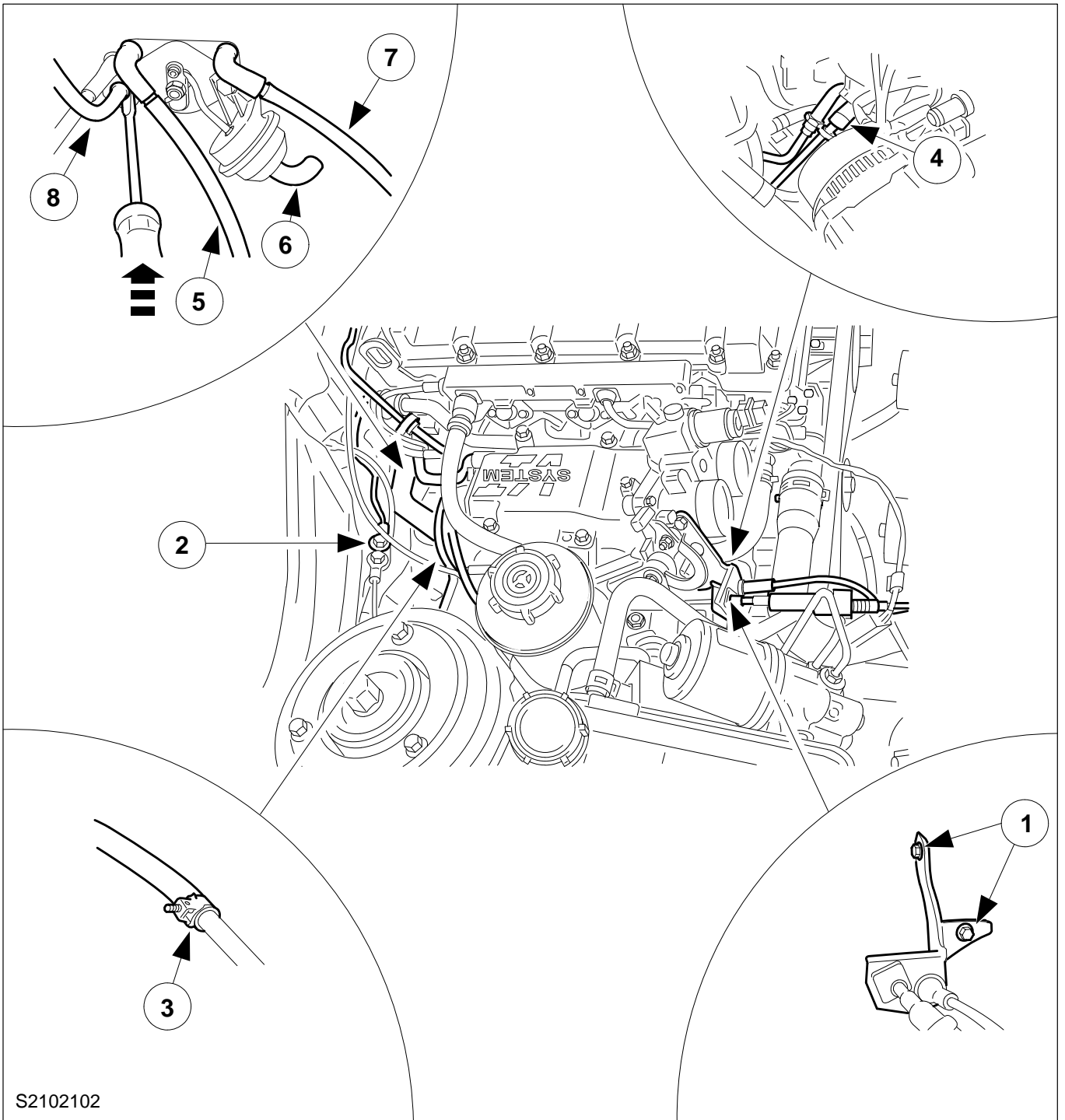
3 Remove the hood retaining bolts.





4. Remove the air cleaner complete.

- 1 Detach the crankcase ventilation hose.
- 2 Release the two hose clips.
- 3 Disconnect the multiplug from the air charge temperature sensor.
- 4 Disconnect the multiplug from the mass air flow (MAF) sensor.
- 5 Detach the intake connector.
- 6 Unhook the two rubber insulators.



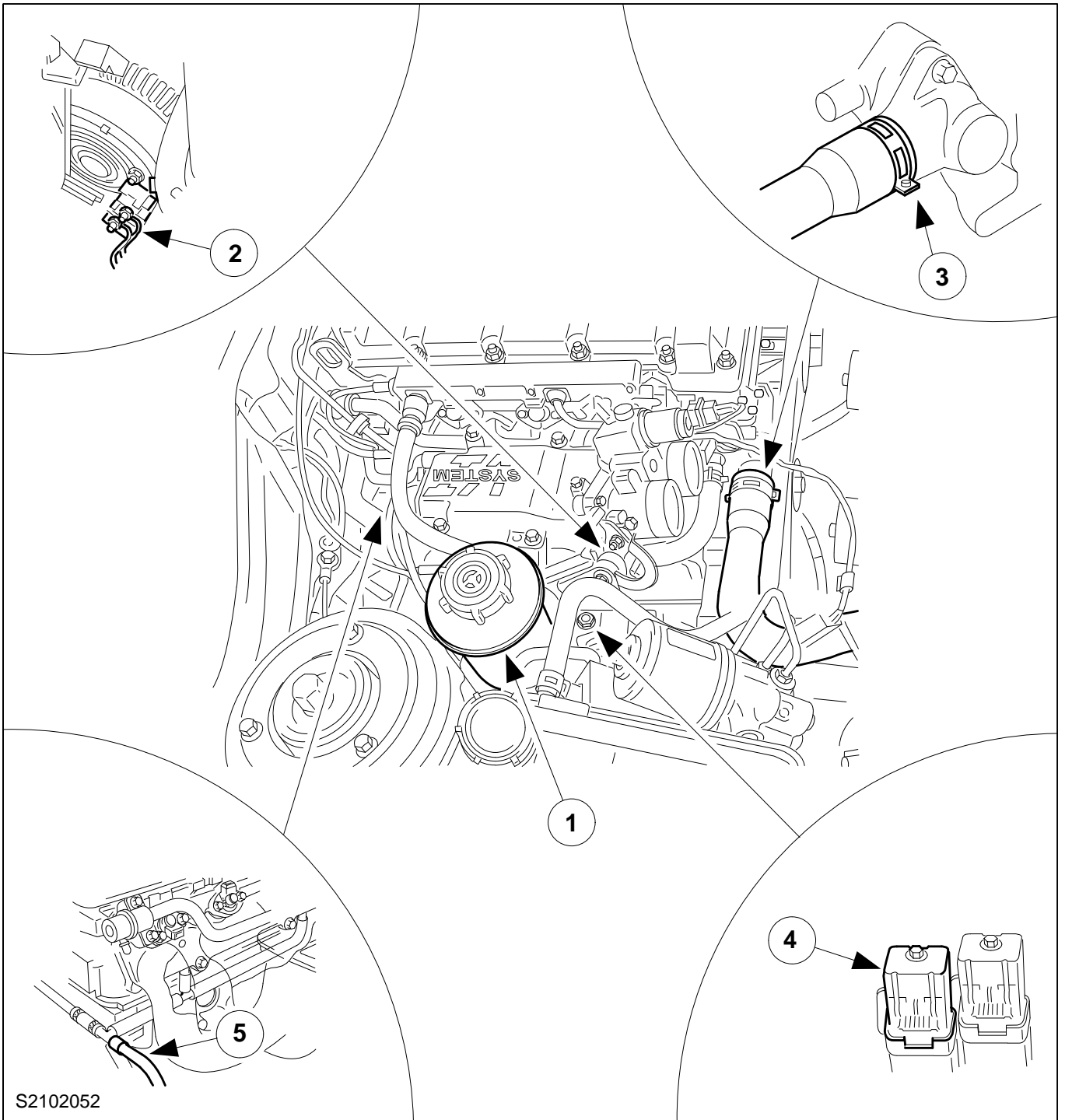
S2102102

5. Detach the components on the right-hand side of the engine compartment.

- 1 Unhook and detach the accelerator cable and the speed control system cable.
- 2 Ground lead.
- 3 Disconnect the coolant hose running to the heater.
- 4 Disconnect the fuel pipes.

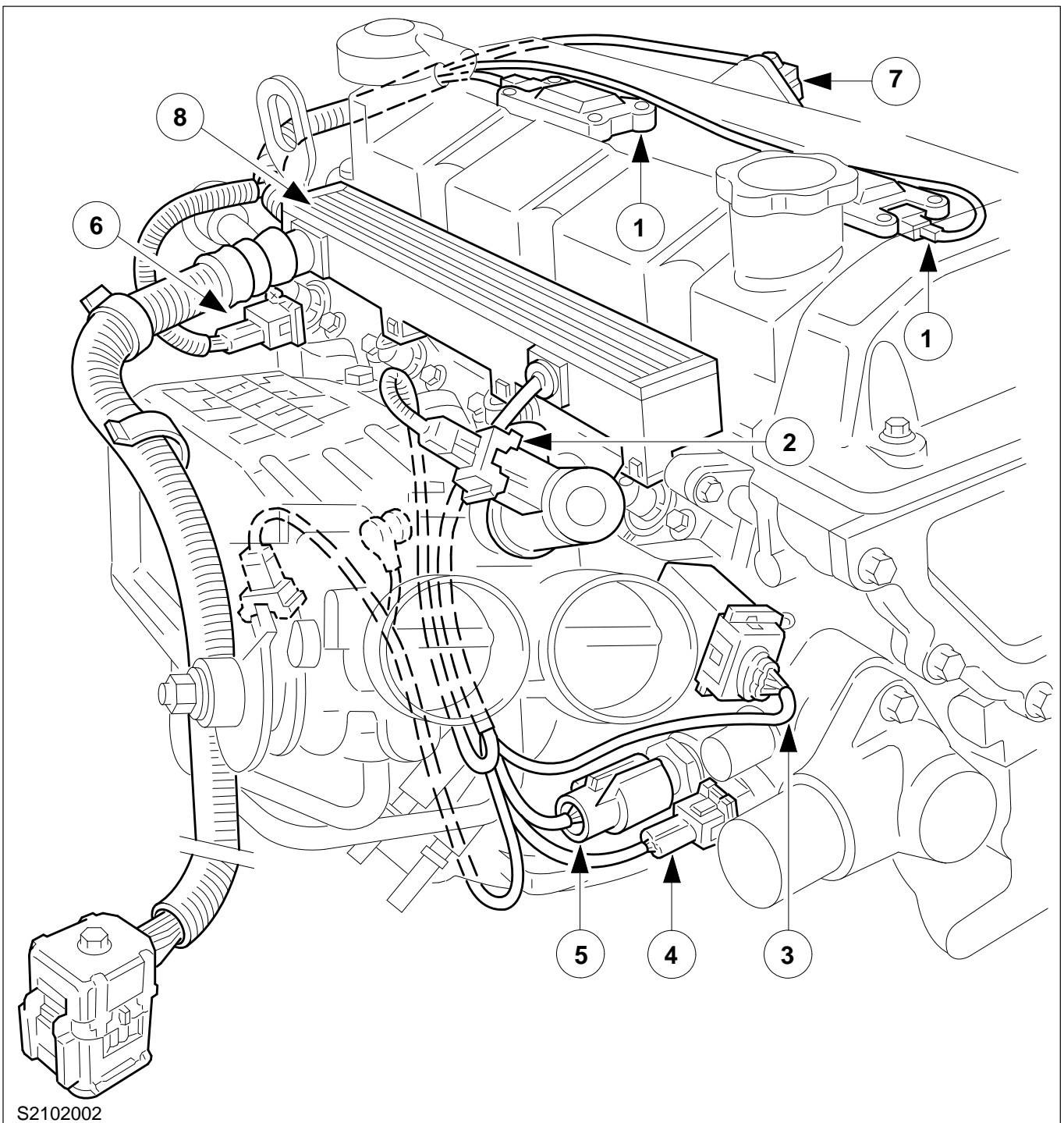
Vacuum lines:

- 5 To the evaporative emission system valve (EVAP).
- 6 From the variable intake system (VIS) servo motor.
- 7 To the solenoid (VIS+EGR).
- 8 To the brake servo.



6. Detach the components on the right-hand side of the engine compartment (continued).

- 1 Pull the power-assisted steering reservoir out upwards.
- 2 Disconnect the alternator.
- 3 Coolant hose from the thermostat housing.
- 4 Separate the transmission main wiring loom central multiplug.
- 5 Engine breather vacuum line.



S2102002

7. Disconnect the multiplug.

- Remove the ignition coil cover.

1 Ignition coils (DIS)

2 Idle speed control valve (ISC)

3 Throttle position sensor

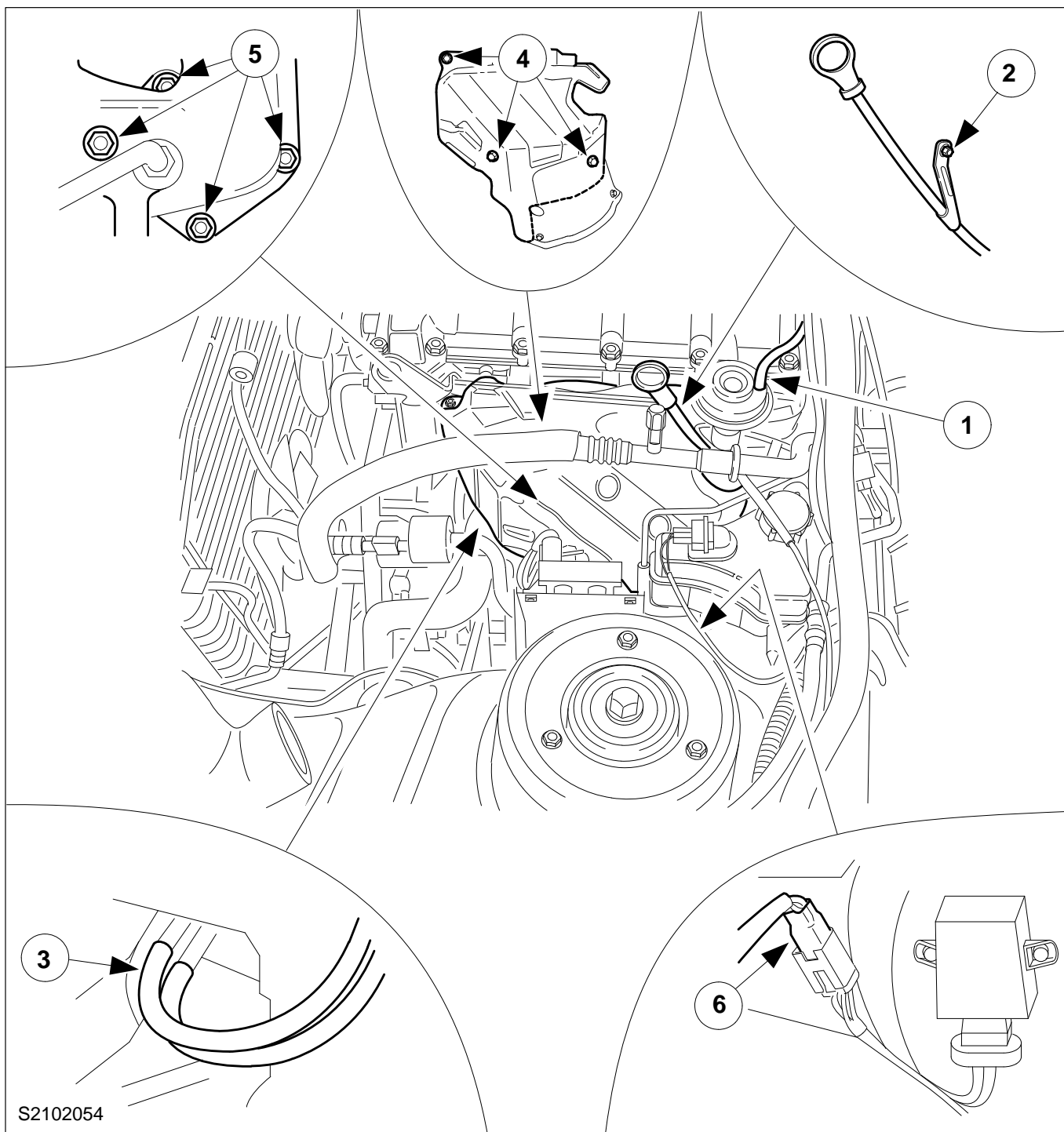
4 Coolant temperature display sender

5 Engine coolant temperature (ECT) sensor

6 Injectors

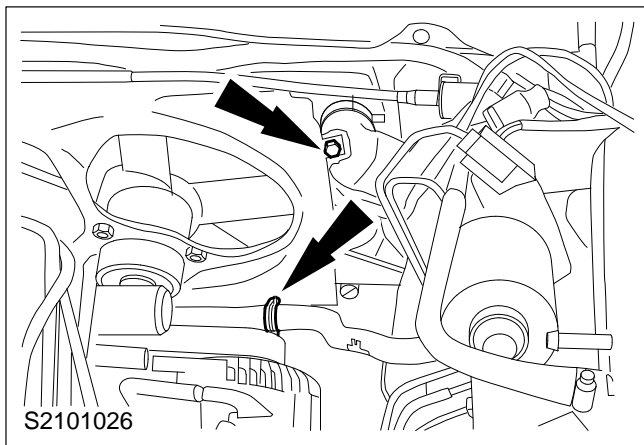
7 Remove the injector wiring rail.

8 Camshaft position sensor

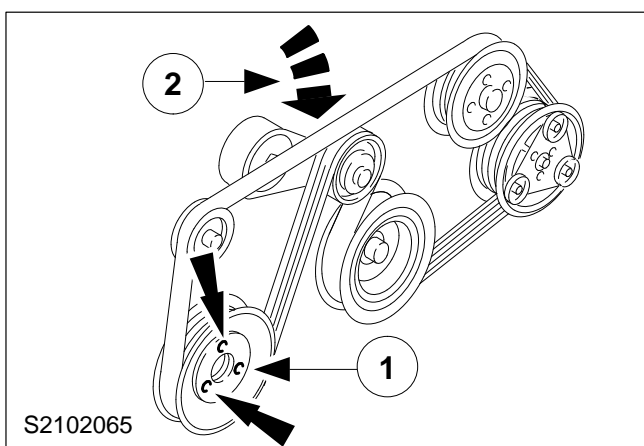


8. Detach the ancillary components on the left-hand side of the engine.

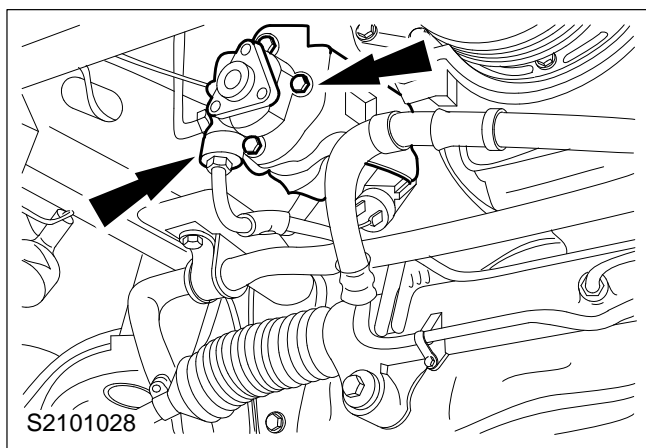
- 1 Pull off the vacuum hose from the exhaust gas recirculation valve (ERG valve).
- 2 Detach the oil dipstick tube.
- 3 Pull off the vacuum hoses from the EGR tubes.
- 4 Detach the heat shield.
- 5 Detach the catalytic converter from the exhaust manifold.
- 6 Pull off the heated oxygen sensor (HO2S) multiplug.

**9. Detach the air baffle and fan motors from the radiator.**

- Unhook the coolant hose.
- Pull off the two fan motor plugs.
- Remove the two retaining nuts.

**10. Remove the power-assisted steering pump plug.**

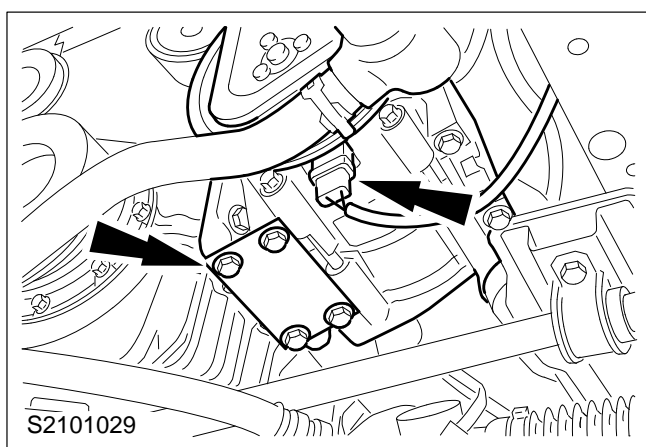
- 1 Slacken the bolts of the belt pulley.
 - 2 Slacken and remove the drive belt.
- Detach the belt pulley.



NOTE: Hydraulic lines should not be disconnected.

11. Remove the power-assisted steering pump.

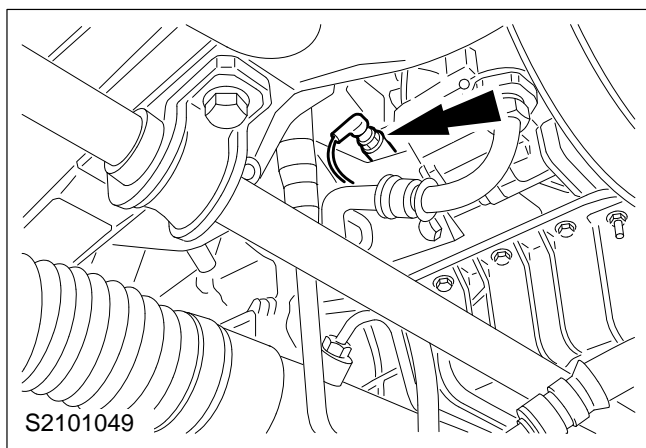
Remove the three bolts from the front and one bolt from the rear.



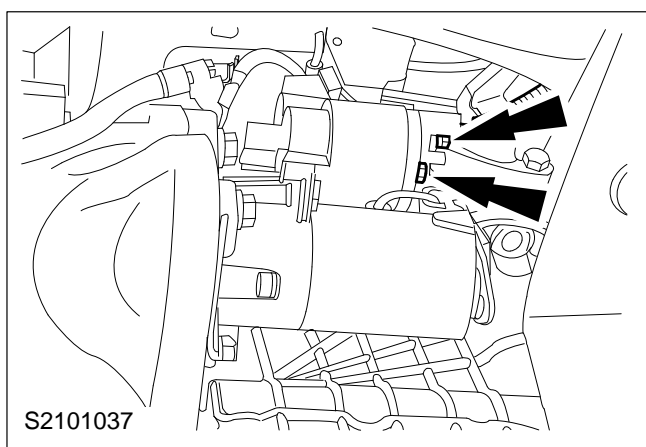
NOTE: The air conditioning system should not be opened.

12. Detach the air conditioning compressor and tie it up to one side.

Pull off the magnetic clutch plug.

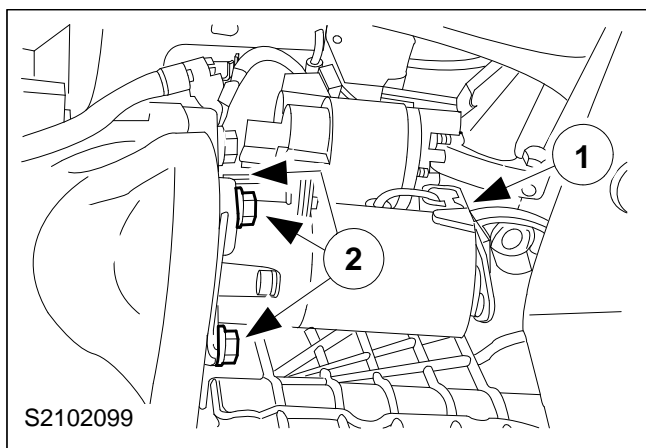


13. Disconnect the oil pressure switch multiplug.



14. Disconnect the starter motor.

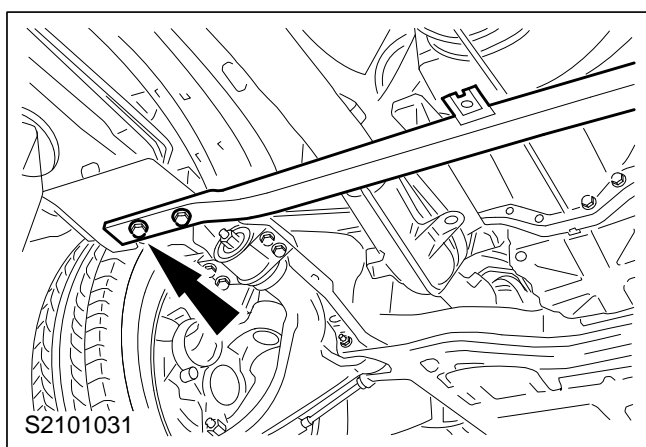
Detach the wiring from the solenoid.



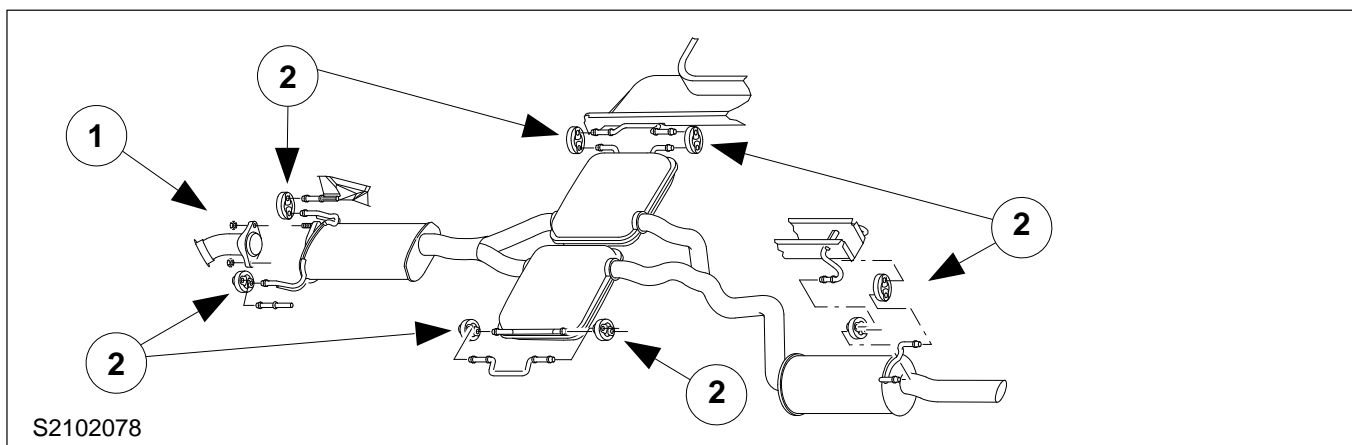
15. Remove the starter motor.

NOTE: Only when the engine is being removed without the transmission.

- 1 Remove the bracket from the cylinder block.
- 2 Remove the bolts.

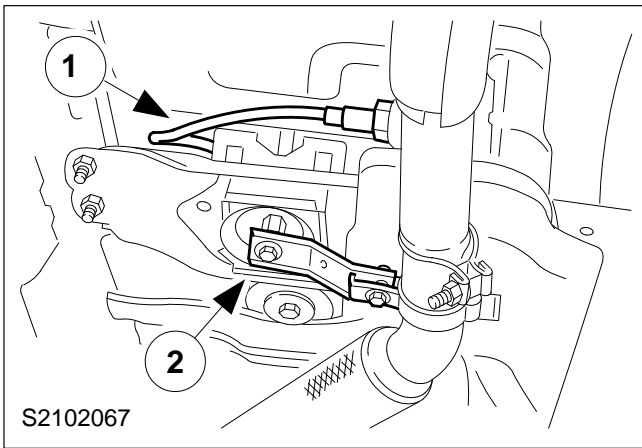


16. Detach the front axle transverse brace (left-hand side shown).



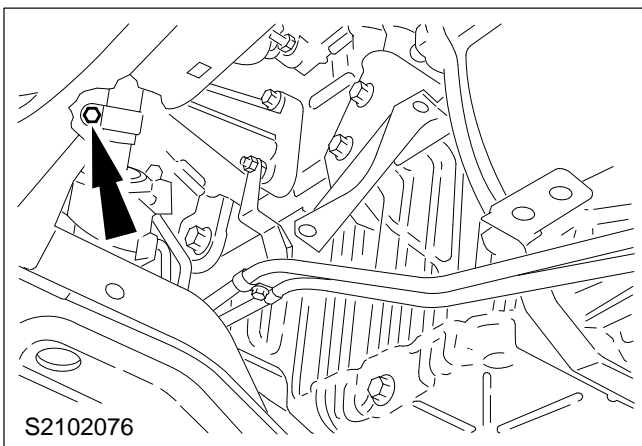
17. Remove the rear part of the exhaust system.

- 1 Detach the exhaust flange.
- 2 Unhook the rubber insulators.



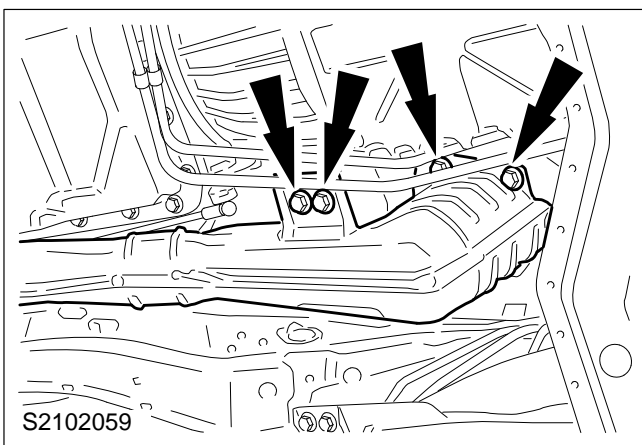
18. Remove the catalytic converter.

- 1 Separate the heated oxygen sensor (HO2S) multiplug.
- 2 Detach the bracket.



NOTE: So that the heated oxygen sensor (HO2S) will not be damaged when the catalytic converter is removed.

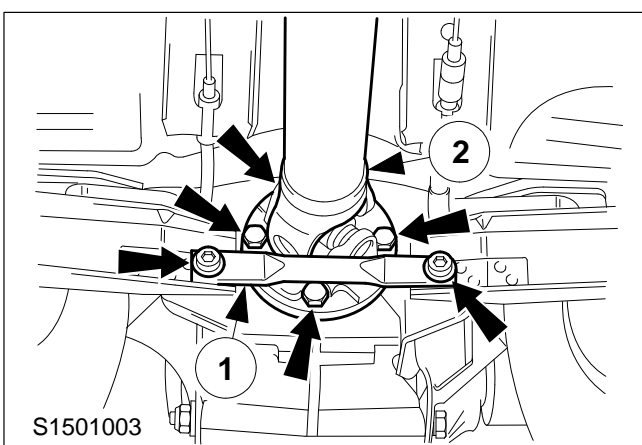
19. Turn the steering intermediate shaft.



20. Remove the catalytic converter (continued).

21. Detach the heat shields.

Unscrew the nine panel nuts and remove the heat shields.

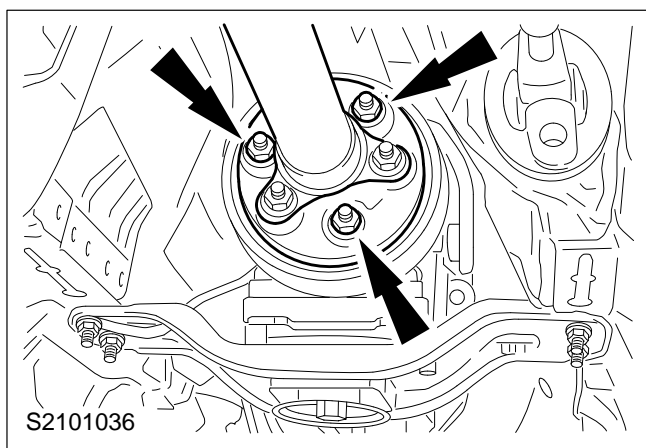


CAUTION: The driveshaft is finely balanced using bolts of different lengths. Mark the installed position of the driveshaft and the bolts.

22. Detach the driveshaft from the rear axle.

NOTE: Vehicles from Jan. '96 are not fitted with the transverse brace.

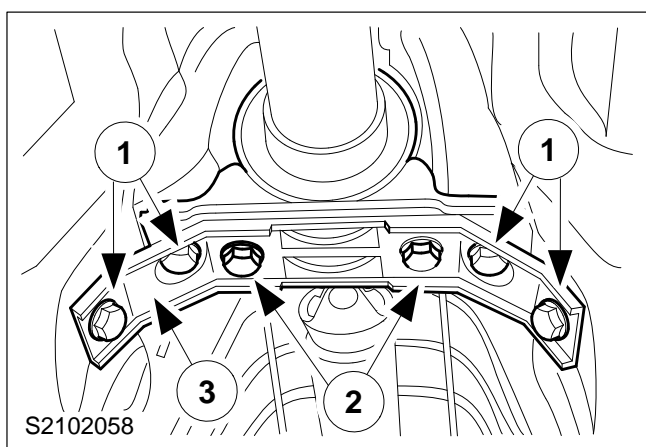
- 1 Detach the rear axle transverse brace.
- 2 Detach it from the rear differential.



Only vehicles with MT 75 manual transmission

⚠ CAUTION: Do not disconnect the driveshaft from the rubber coupling.

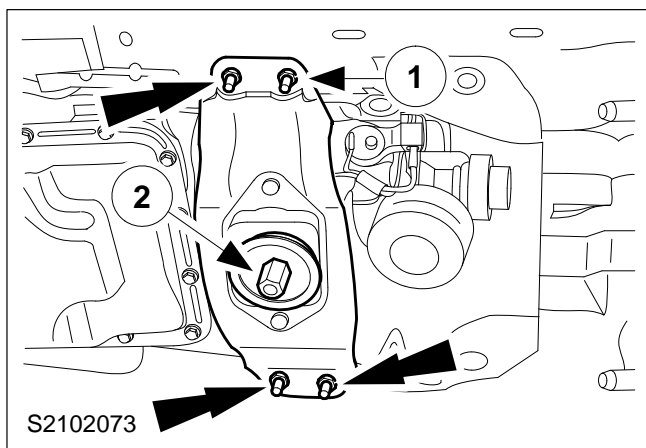
23. Detach the driveshaft from the vibration damper.



24. Remove the driveshaft.

NOTE: Only when the engine is being removed with the transmission.

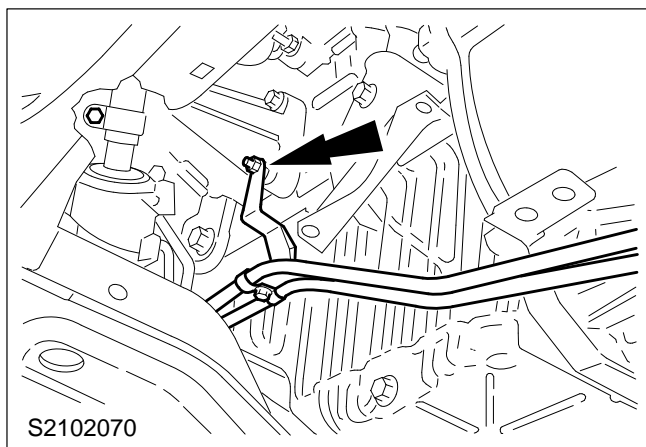
- 1 Remove the bolts.
 - 2 Slacken the bolts.
 - 3 Turn the two brackets 90° .
- Withdraw the driveshaft from the transmission.
 - Seal the transmission with an assembly plug.



25. Lower the transmission at the rear.

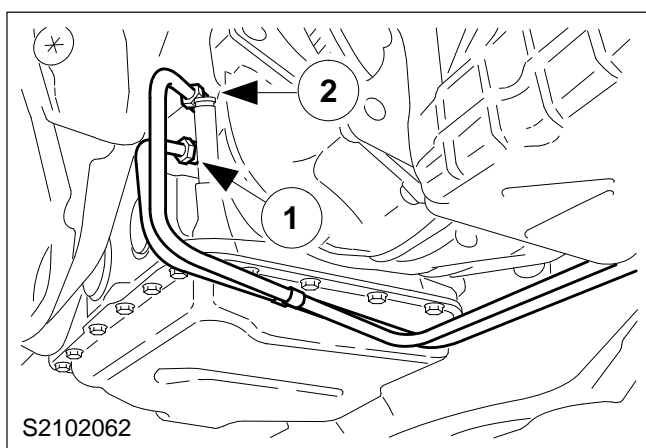
NOTE: Only when the engine is being removed with the transmission.

- Place a transmission jack under the transmission.
- 1 Detach the crossmember from the body.
 - 2 Detach the crossmember from the transmission.
- Detach the selector rod from the selector lever.
 - Lower the transmission.



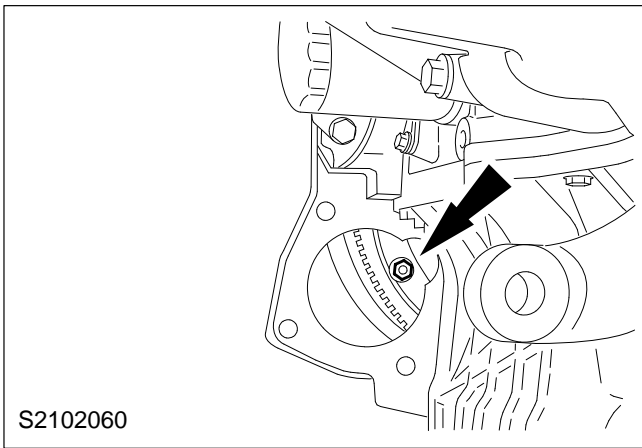
26. Detach the fluid pipes to the transmission fluid cooler.

Detach the bracket from the engine mounting.



27. Detach the fluid pipes to the transmission fluid cooler.

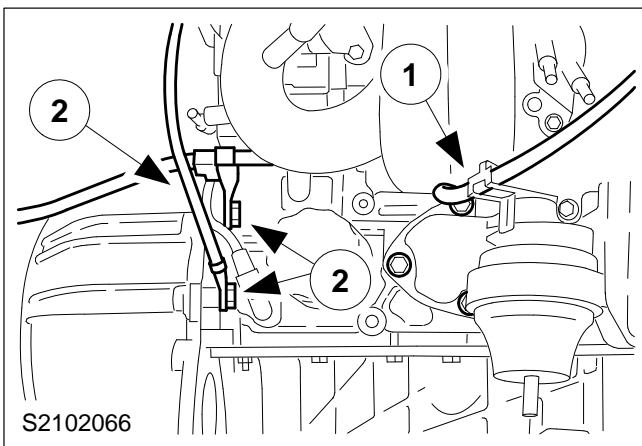
- 1 Unscrew the return pipe from the transmission and place it to one side.
- 2 Remove the delivery pipe.



28. Release the torque converter.

NOTE: Only when the engine is being removed without the transmission.

Remove the four nuts.



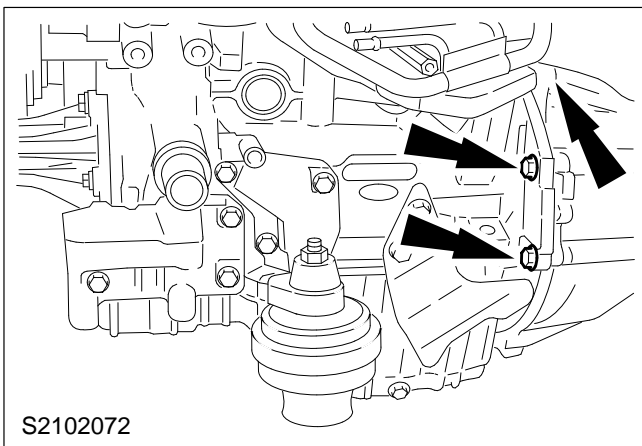
29. Detach the automatic transmission wiring harness and remove the flange bolts.

NOTE: Only remove the flange bolts when the engine is being removed without the transmission.

1 Unclip it at the engine mounting.

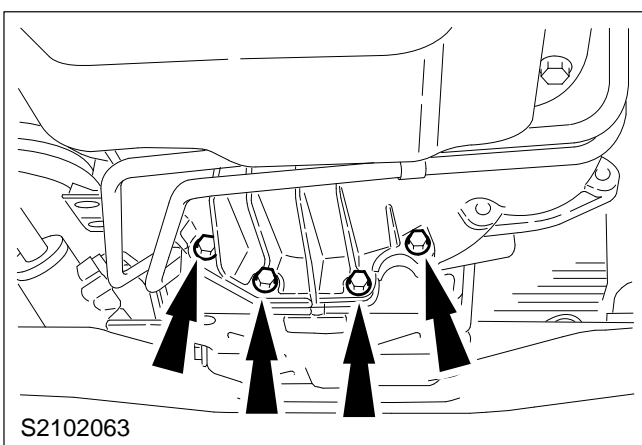
2 Remove the flange bolts.

- Remove the transmission fluid dipstick tube.



NOTE: Only when the engine is being removed without the transmission.

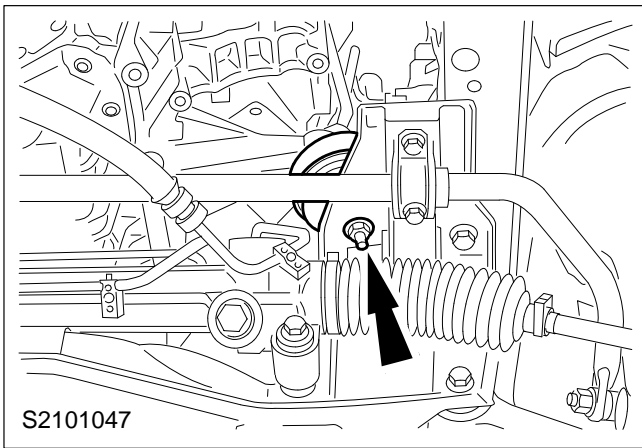
30. Remove the flange bolts.



31. Unscrew the flange bolts.

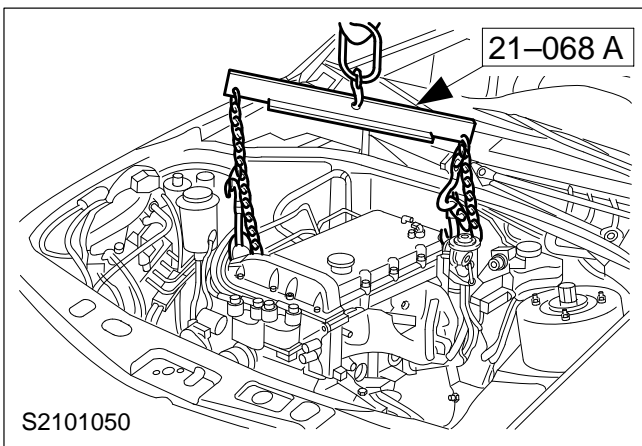
NOTE: Only when the engine is being removed without the transmission.

Release the engine from the transmission.



32. Detach the right and left-hand engine mountings from the axle housing.

- Remove the transmission jack.
- Lower the vehicle.



NOTE: If the engine is being removed without the transmission, the transmission must be supported with a trolley jack.

33. Remove the engine.

Attach the engine lifting bracket.

Install

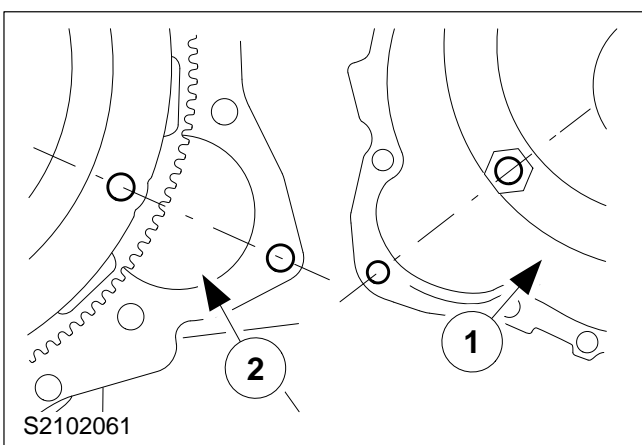
34. General note.

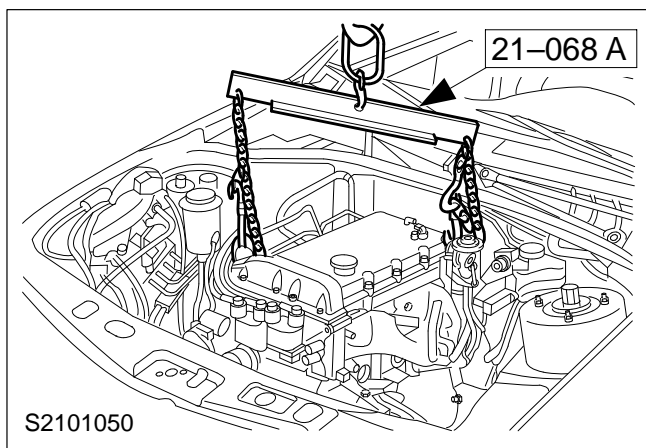
NOTE: Renew the circlips and self-locking nuts.

35. Bring the torque converter on the transmission and the drive plate on the engine into the correct position for installation.

NOTE: Only when the engine is being installed without the transmission.

- 1 Torque converter
- 2 Drive plate





36. Install the engine (with the transmission).

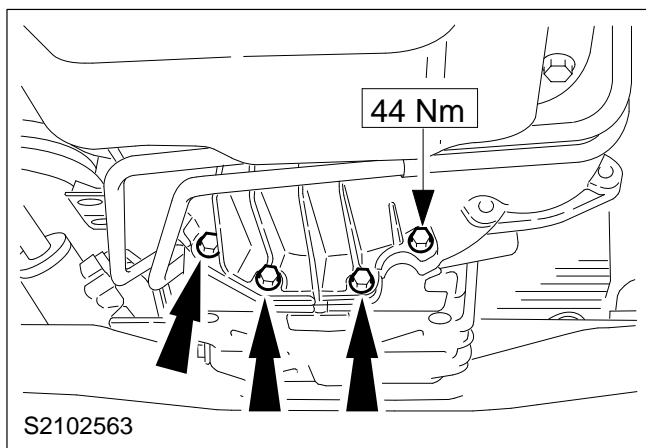
NOTE: Correct insertion of the torque converter in the drive plate.

- Make sure the engine mounting is sitting correctly in relation to the axle housing.
- Attach the engine and transmission with two flange bolts.

37. Remove the trolley jack.

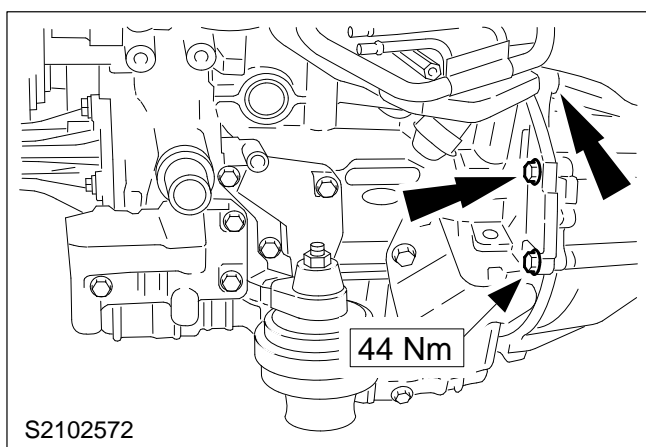
NOTE: Only when the engine is being installed without the transmission.

38. Detach the engine lifting bracket.



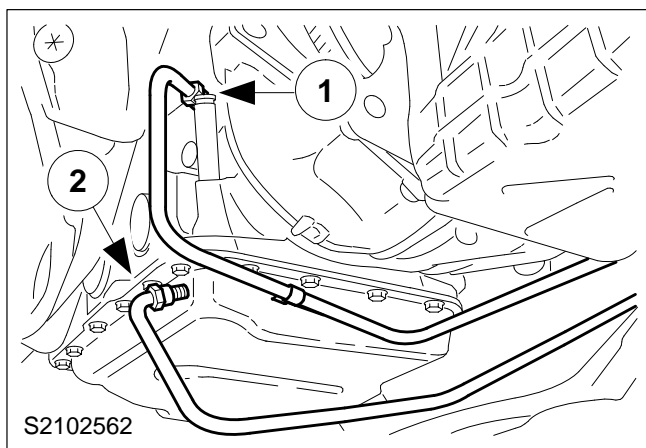
NOTE: Only when the engine is being installed without the transmission.

39. Attach the engine to the transmission.

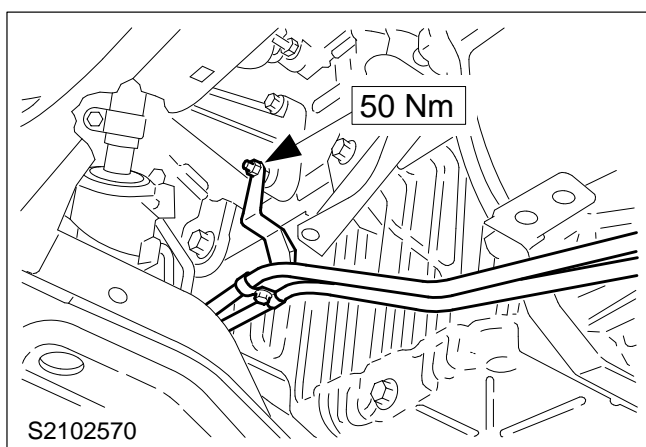


NOTE: Only when the engine is being installed without the transmission.

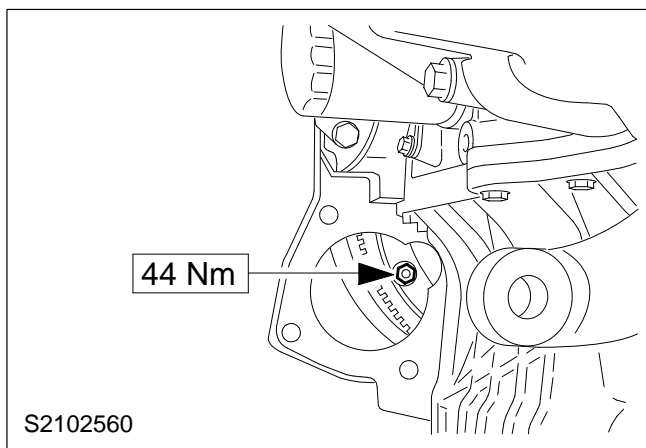
40. Connect the engine and the transmission.

**41. Connect the oil pipes to the oil cooler.**

- 1 Connect the feed pipe.
- 2 Connect the return pipe.

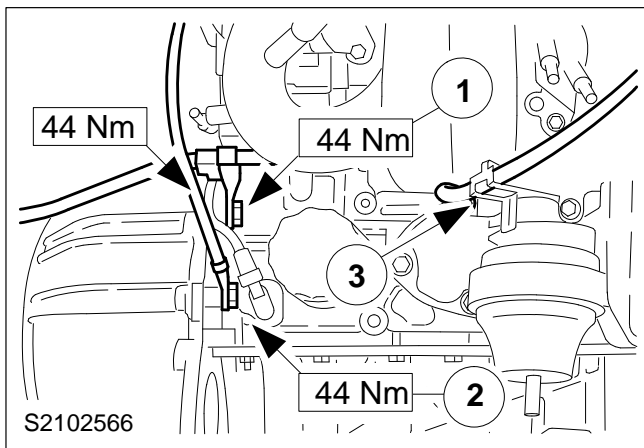
**42. Attach the fluid pipes to the transmission fluid cooler.**

Attach the bracket to the engine mounting.

**43. Secure the torque converter.**

NOTE: Only when the engine is being installed without the transmission.

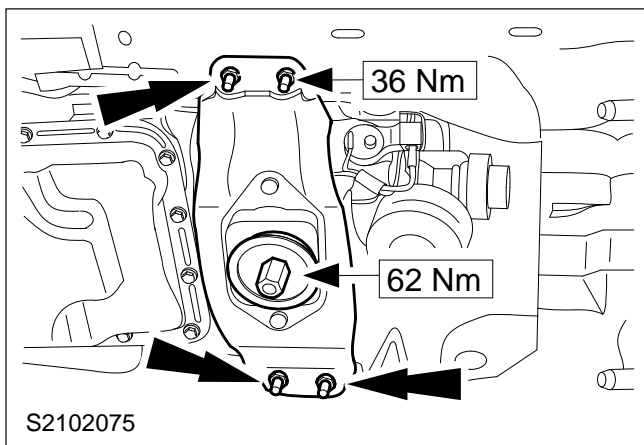
Four nuts



44. Install the automatic transmission wiring harness and tighten the flange bolts.

NOTE: Only when the engine is being installed without the transmission.

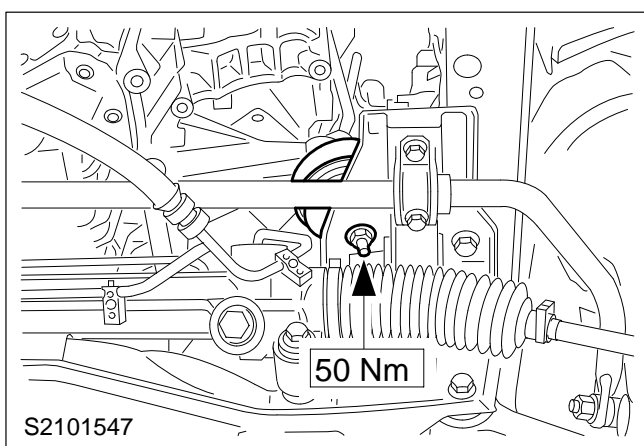
- 1 Tighten the flange bolt for the wiring loom bracket.
 - 2 Tighten the flange bolt for the earth lead.
 - 3 Clip the wiring loom on to the engine mounting.
- Tighten the flange bolt at the top of the transmission fluid dipstick tube bracket.



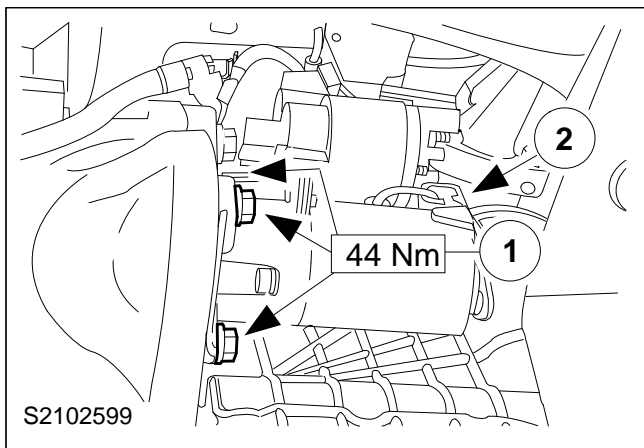
45. Attach the transmission crossmember.

NOTE: Only when the engine is being installed with the transmission.

- Place a transmission jack under the transmission.
- Raise the transmission.
- Attach the crossmember.
- Attach the selector rod to the selector lever.



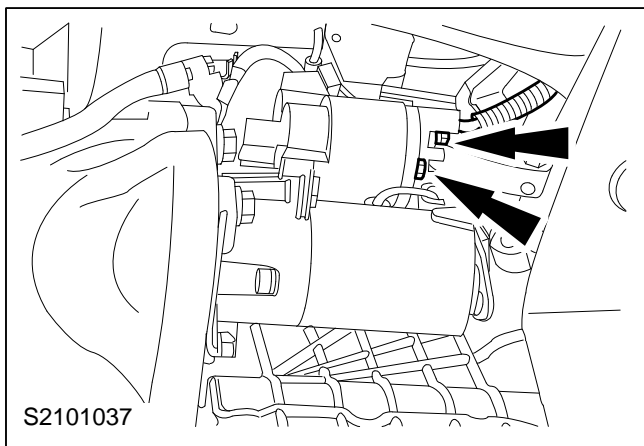
46. Tighten the engine mounting.



47. Install the starter motor.

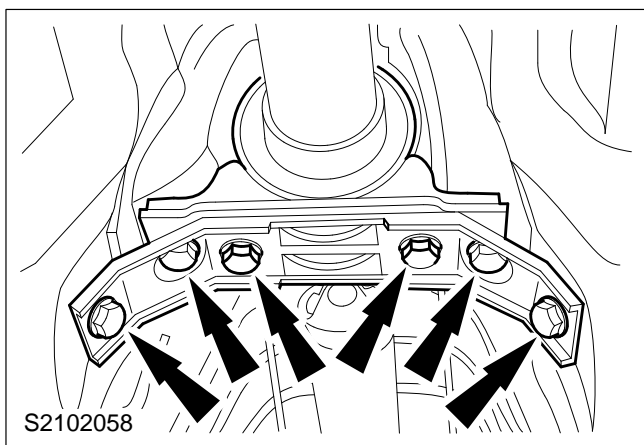
NOTE: Only when the engine is being installed without the transmission.

- 1 Tighten the three bolts.
- 2 Install the starter bracket on the cylinder block.



48. Connect the starter motor.

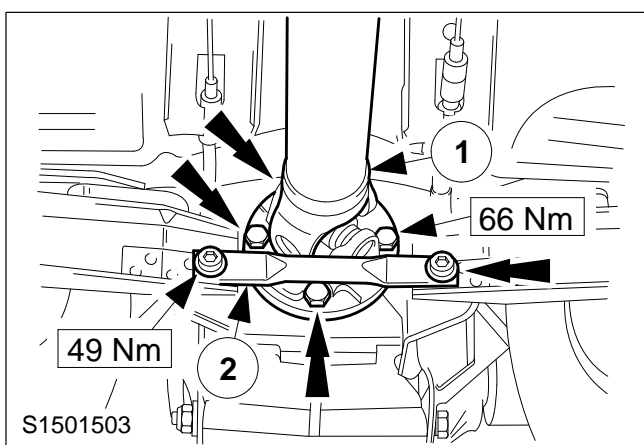
Tighten the two nuts.



49. Fit the driveshaft.

NOTE: Only when the engine is being installed with the transmission.

- Remove the assembly plug from the transmission.
- Insert the driveshaft in the transmission.
- Attach the centre bearing loosely.



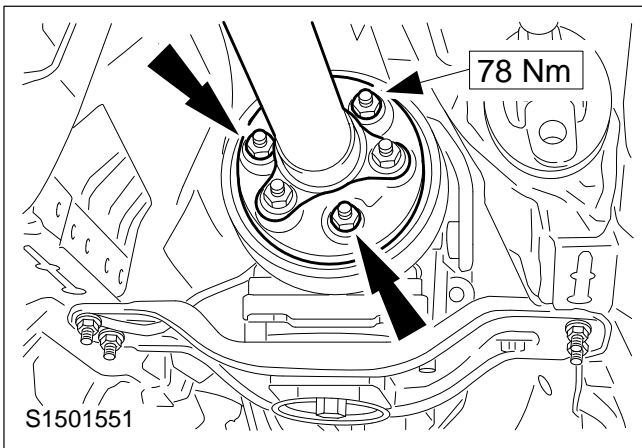
CAUTION: The driveshaft is finely balanced using bolts of different length. Pay attention to the installed position marks on the driveshaft and the bolts.

50. Install the driveshaft (continued).

- 1 Attach the driveshaft to the rear axle flange.

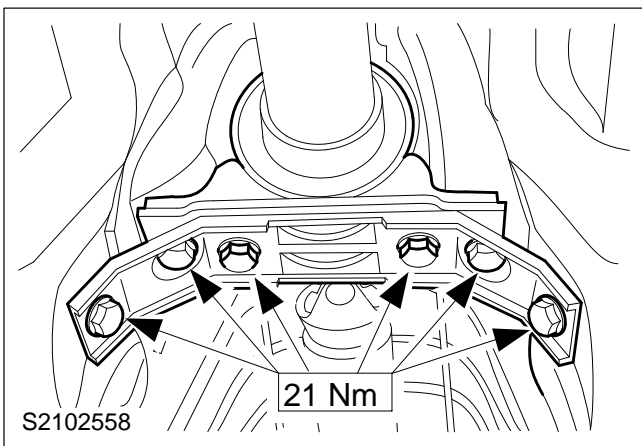
NOTE: Vehicles from Jan. '96 are not fitted with the transverse brace.

- 2 Attach the transverse brace.



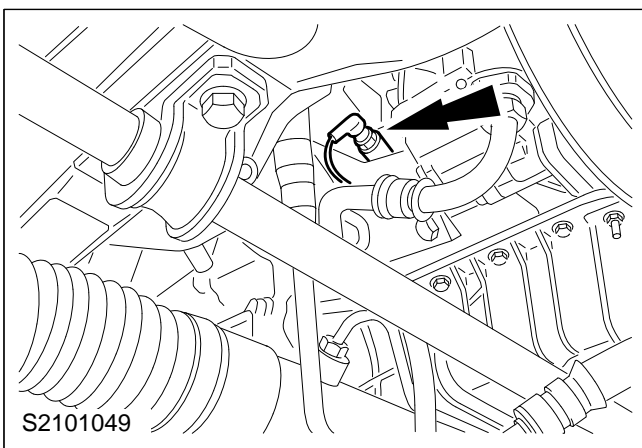
Only vehicles with MT 75 manual transmission

51. Install the driveshaft on the vibration damper.

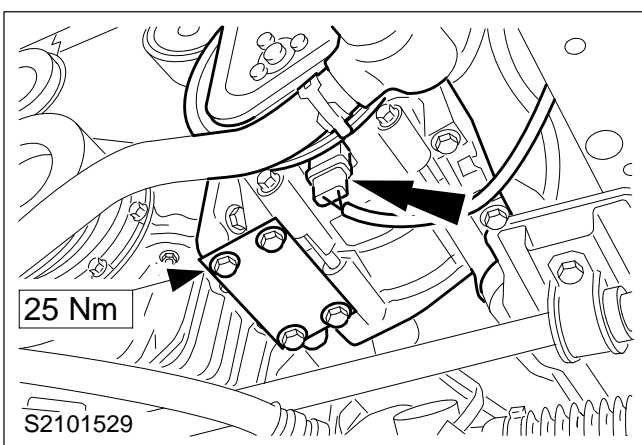


NOTE: Only when the engine is being installed with the transmission.

52. Align the centre bearing free of stress and secure it.

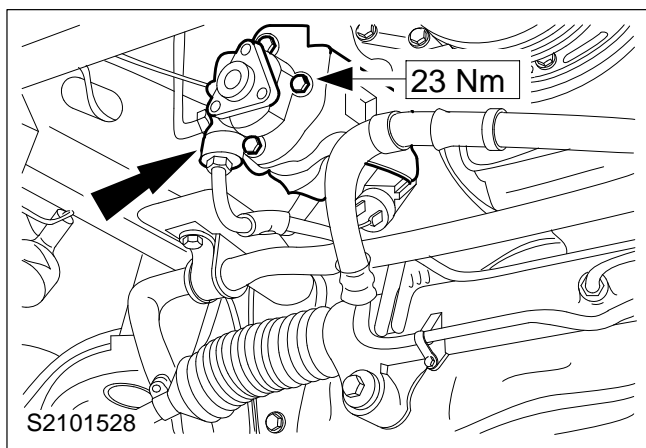


53. Connect the oil pressure switch multiplug.



54. Fit the air conditioning compressor.

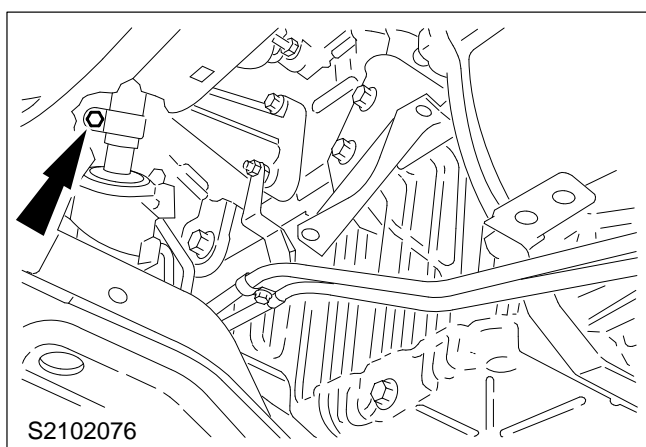
Connect the magnetic clutch plug.



NOTE: Insert the bolts using thread locking compound (SDM-M4G9107-A).

55. Install the power-assisted steering pump.

Tighten the three bolts from the front and one bolt from the rear.

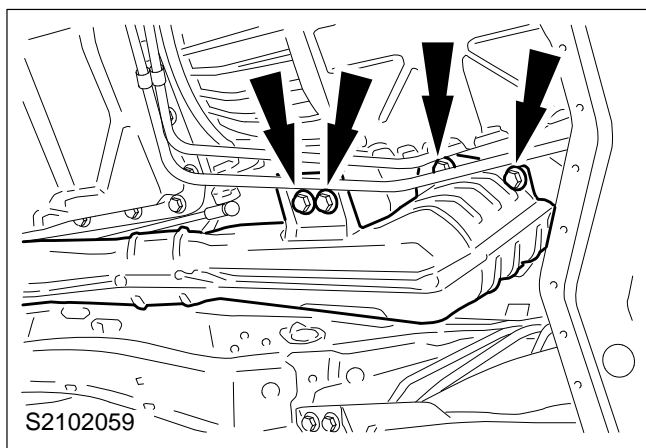


56. Turn the steering intermediate shaft to the position shown.

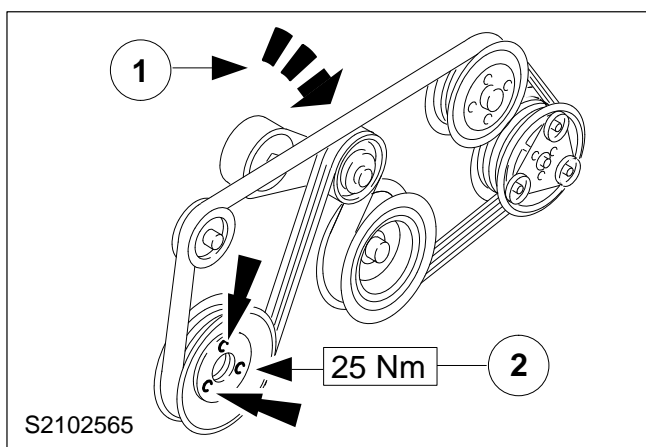
NOTE: Necessary so that the heated oxygen sensor (HO2S) will not be damaged when the catalytic converter is installed.

57. Fit the heat shields.

Nine panel nuts.

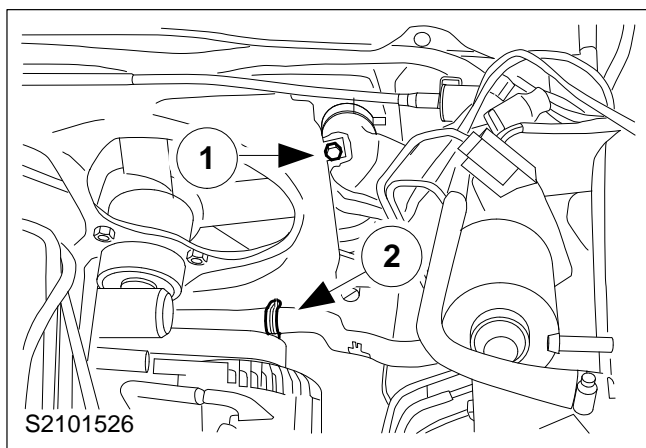


58. Fit the catalytic converter loosely.



59. Install the power-assisted steering pump pulley.

- 1 Put on the drive belt.
- 2 Tighten the belt pulley.

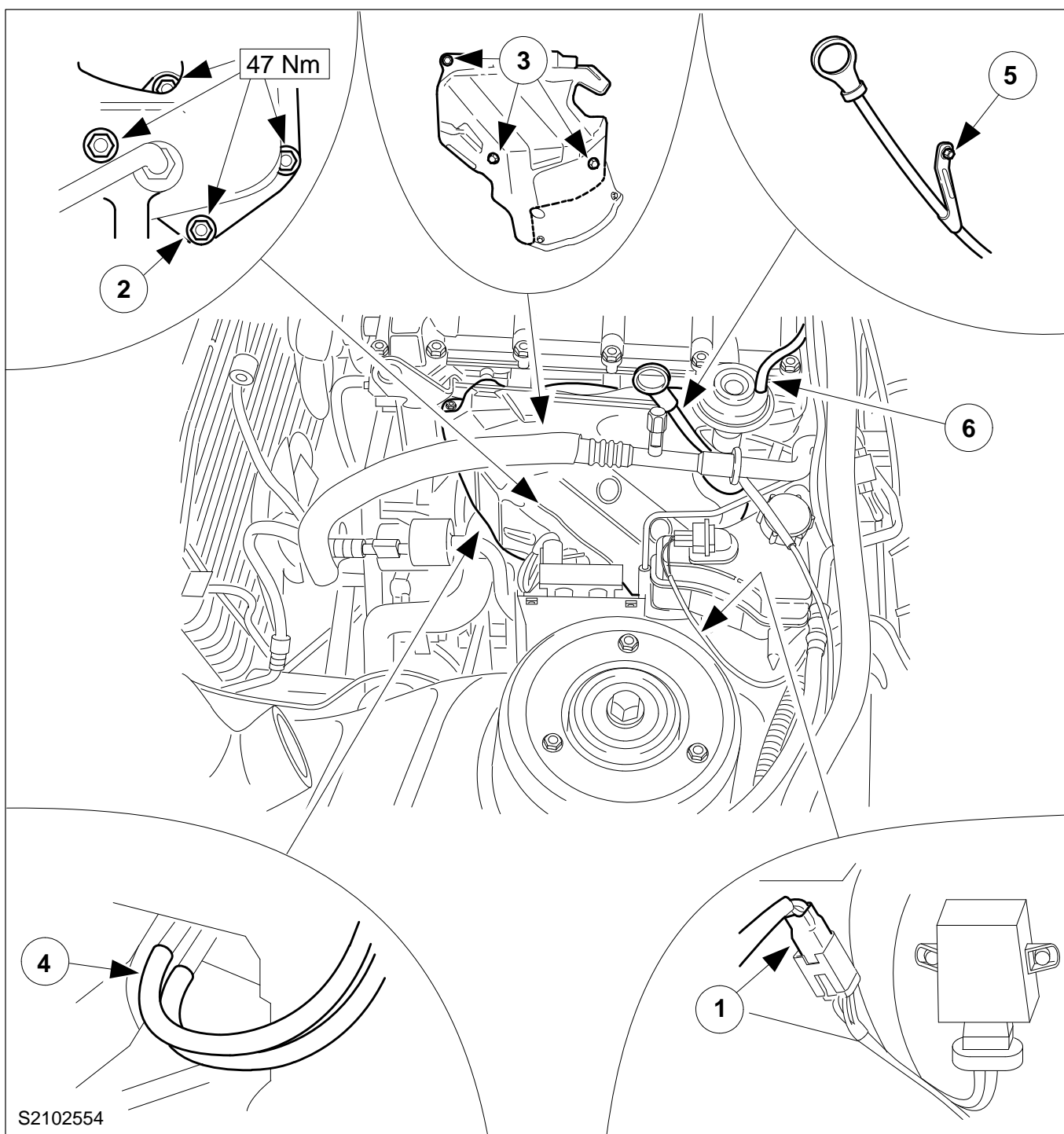


60. Fit the air baffle with the fan motors to the radiator.

- Connect the two fan motor plugs.

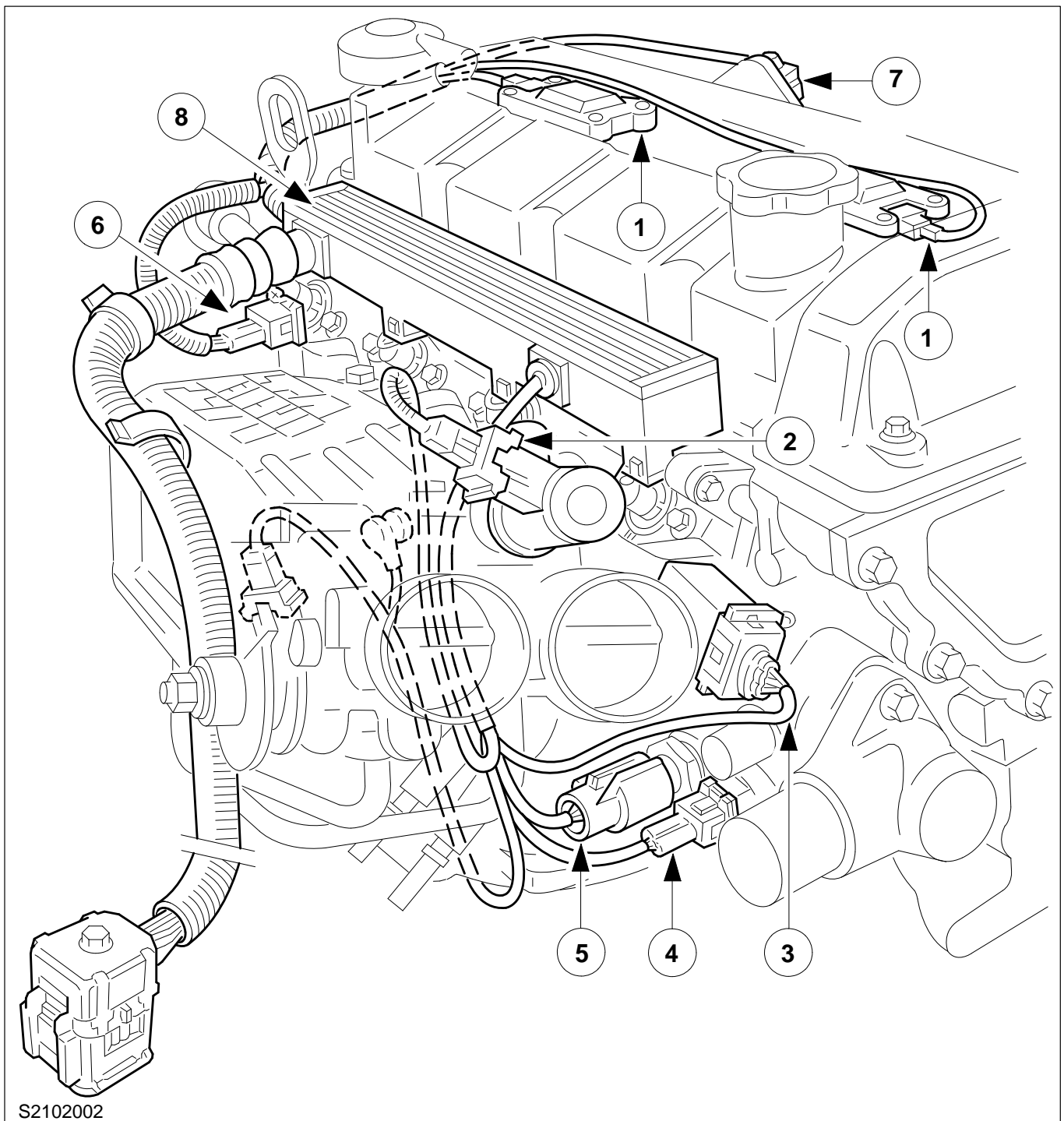
1 Screw on the two nuts.

2 Hook the coolant hose in place.



61. Attach the ancillary components on the left-hand side of the engine.

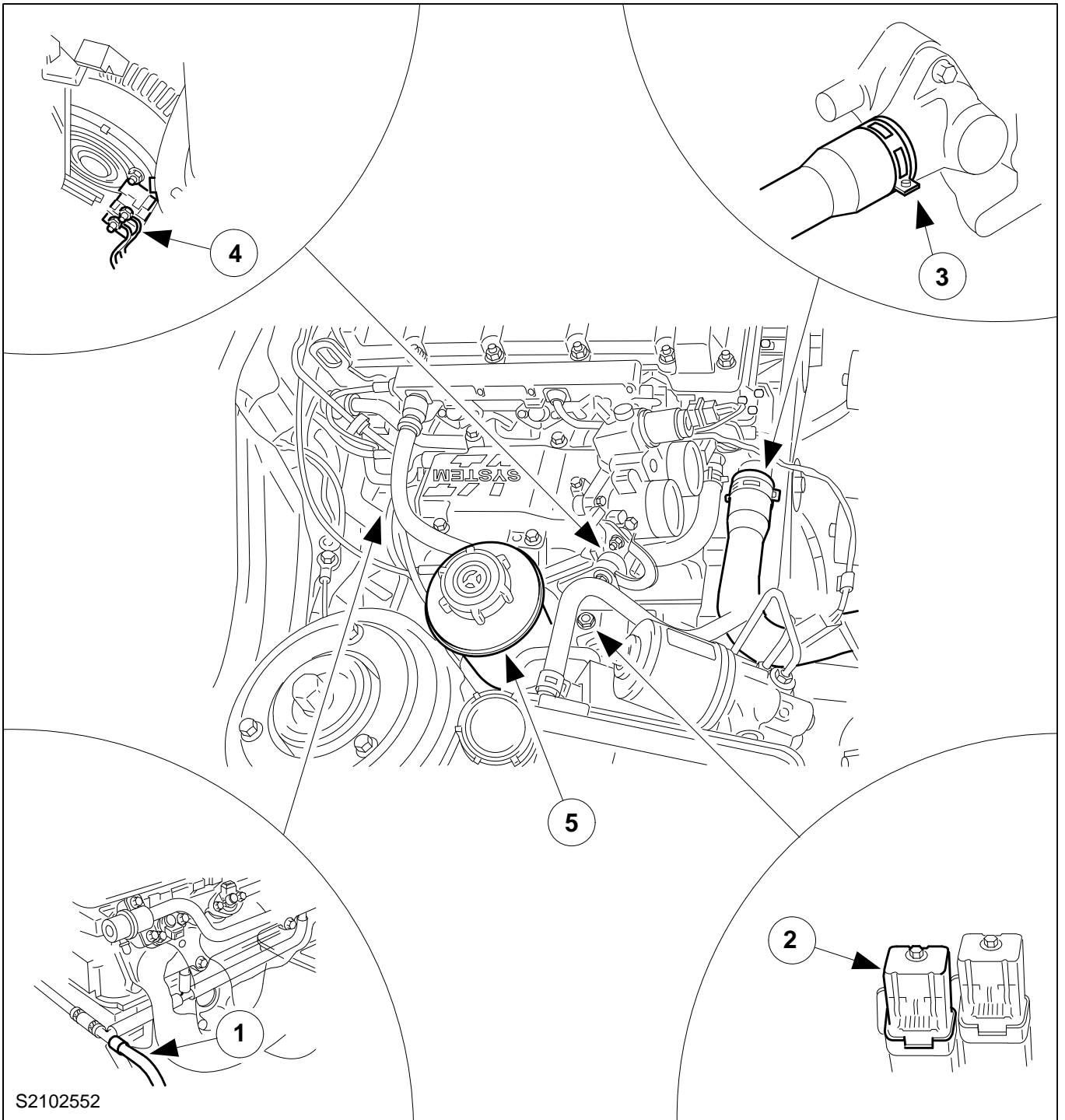
- 1 Connect the HO2S multiplug.
- 2 Attach the catalytic converter to the exhaust manifold.
- 3 Fit the heat shield.
- 4 Connect the vacuum line to the exhaust gas recirculation (EGR) valve.
- 5 Fit the oil dipstick tube.
- 6 Push on the vacuum hoses.



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62. Connect the multiplugs.

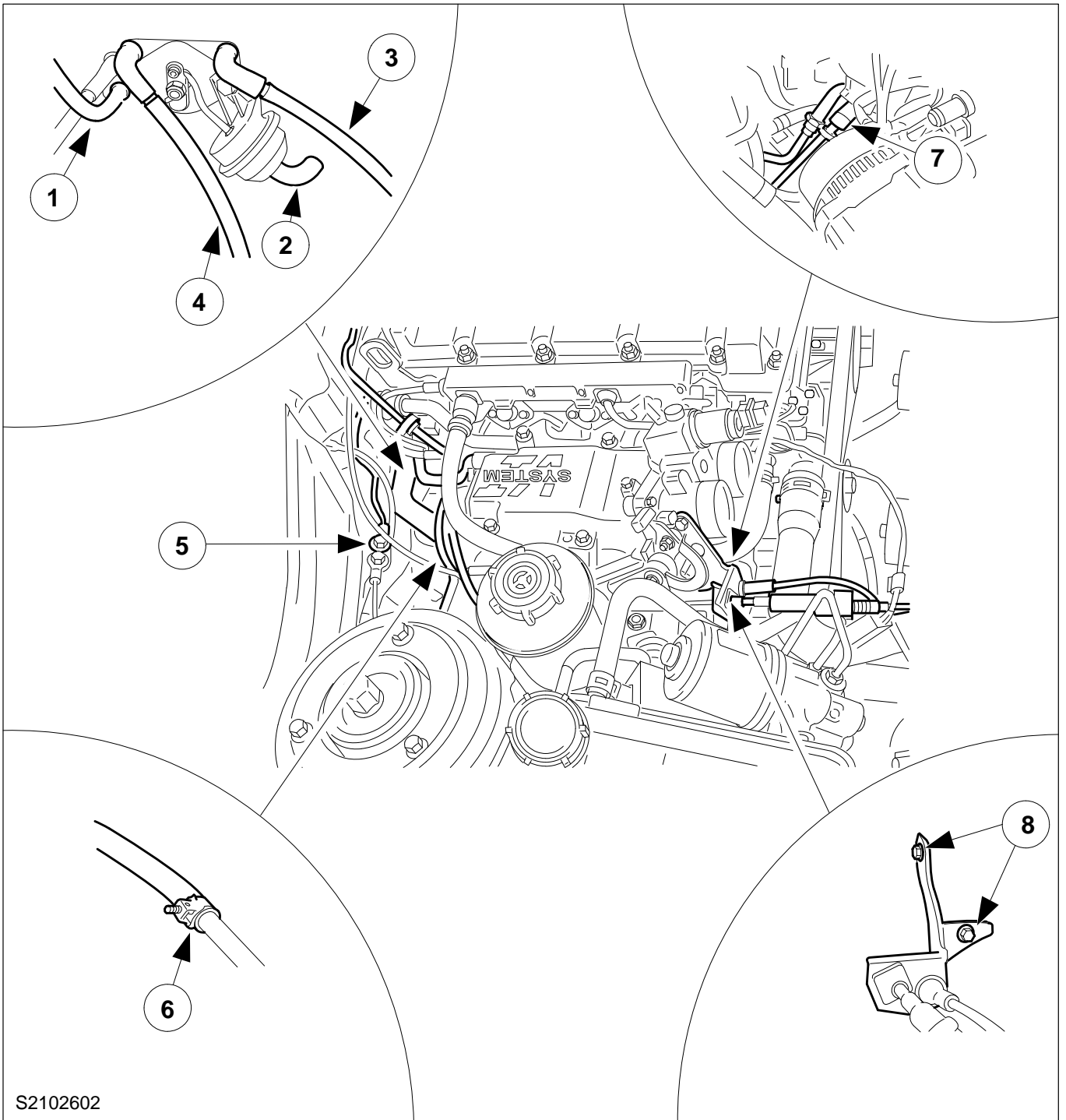
- 1 Ignition coils (DIS)
 - 2 ISC valve
 - 3 TPS
 - 4 Coolant temperature display sender
 - 5 ECT sensor
 - 6 Injectors
 - 7 CMP sensor
 - 8 Injector wiring rail
- Fit the ignition coil cover.



S2102552

63. Install the components on the right-hand side of the engine compartment.

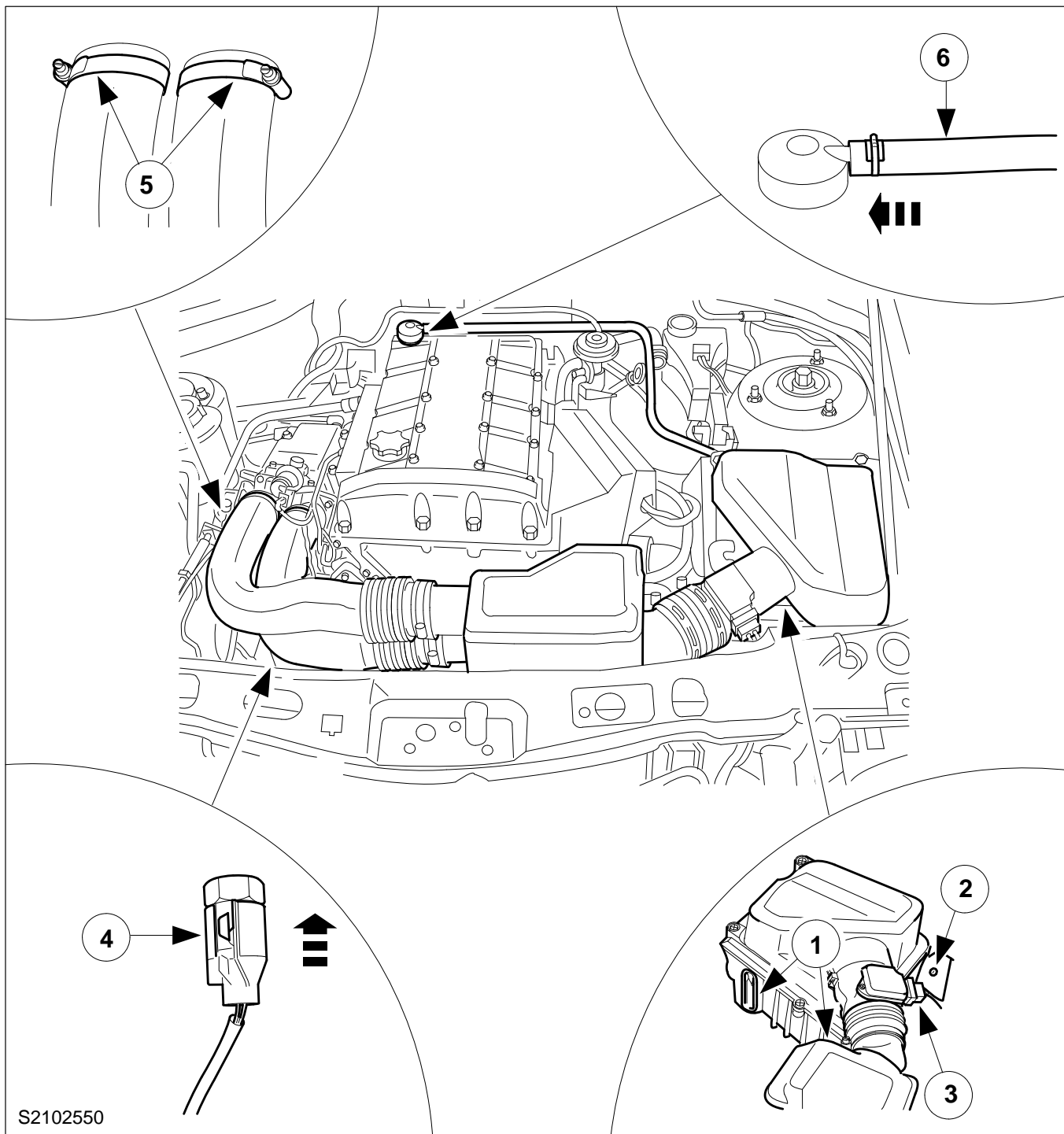
- 1 Engine breather vacuum line.
- 2 Connect the transmission main wiring harness central multiplug.
- 3 Coolant hose to thermostat housing.
- 4 Connect the alternator wiring.
- 5 Power-assisted steering reservoir.



64. Install the components on the right-hand side of the engine compartment (cont.).

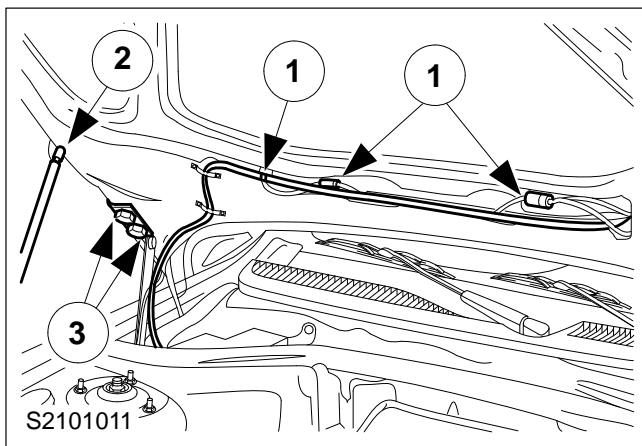
Vacuum lines:

- 1 To the brake servo.
- 2 From the variable intake air system (VIS) servo motor.
- 3 To the solenoid (VIS+EGR).
- 4 To evaporative emission system valve (EVAP).
- 5 Ground lead.
- 6 Heater coolant hose.
- 7 Connect the fuel pipes.
- 8 Install the accelerator and speed control system cables and connect them.

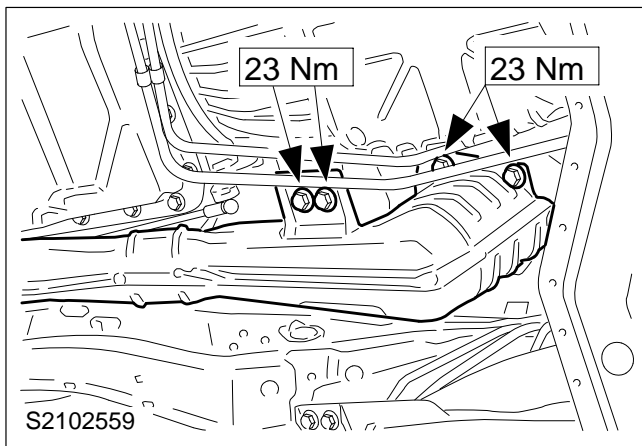
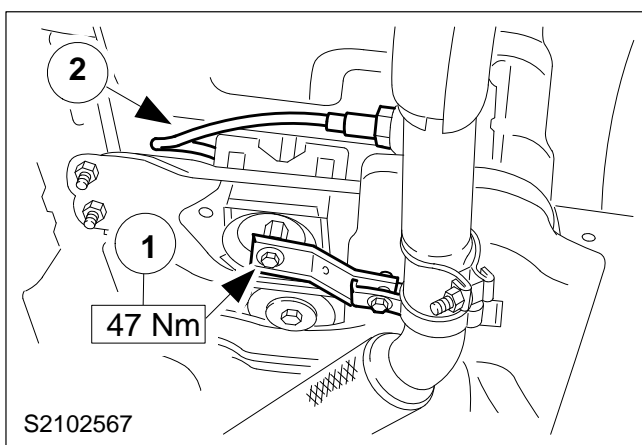


65. Fit the air filter complete.

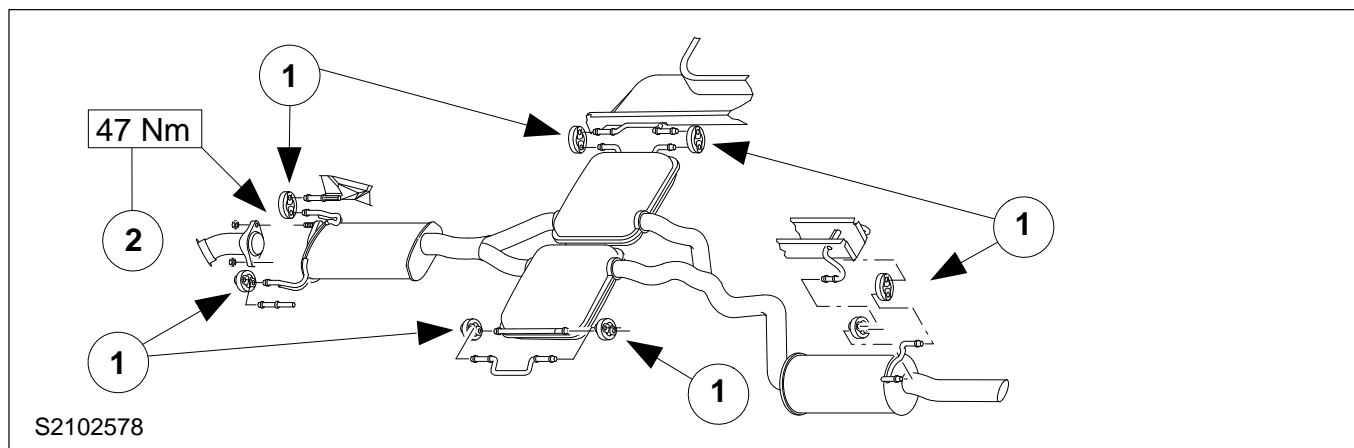
- 1 Fit the two rubber insulators.
- 2 Fit the intake connector.
- 3 Push on the MAF multiplug.
- 4 Push on the IAT sensor multiplug.
- 5 Tighten the two hose clips.
- 6 Install the crankcase ventilation hose.

**66. Fit the hood.**

- 1 Fit the engine cover bolts.
- 2 Clip the hood damping strut in place.
 - Clip the retaining ring in place.
- 3 Join the windscreen washer system hoses, connect the plug and fix them in place.
 - Attach the hood noise-damping matting.

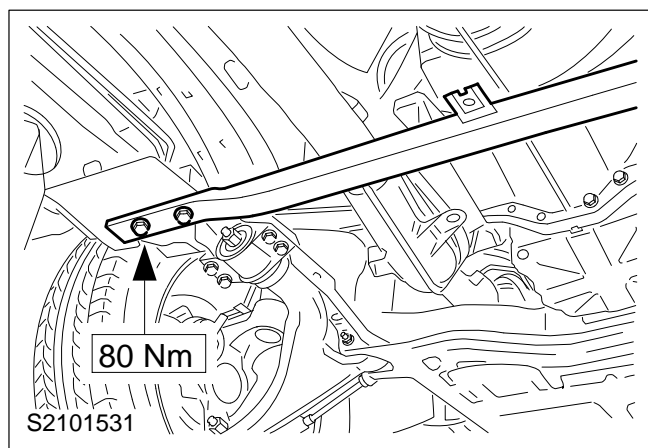
**67. Tighten the catalytic converter bolts.****68. Attach the exhaust system to the transmission crossmember.**

- 1 Install the bracket on the transmission crossmember.
- 2 Connect the HO2S multiplug.



69. Fit the rear part of the exhaust system.

- 1 Hook the exhaust into the rubber insulators.
- 2 Attach the exhaust flange.



70. Attach the front axle transverse brace (left-hand side shown).

71. Fit the rear engine undershield (if present).

72. Finishing operations.

- Fill up with coolant.
- Check that the vacuum hoses and wires are routed correctly and secure them with cable ties.
- Connect the battery earth lead.
- Enter the radio keycode and reprogramme the preset radio stations.
- Reset the clock.
- Carry out a road test to allow the PCM (EEC IV) to re-learn values.
- Check the fluid levels after the road test and correct them as necessary.