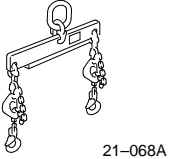
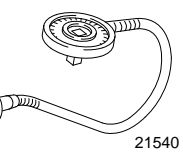
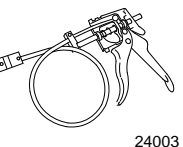


Engine – Remove and Install (21 134 0)

Special Tools

 21-068A	21-068A Engine lifting bracket
 21540	21-540 Bolt tightening angle gauge
 24003	24-003 Remover/installer, cooling hose clamps

Workshop Equipment

Trolley jack	
Workshop crane	

Materials

High-temperature grease	ESDM-1C220-A
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Remove

1. Preparatory measures:

- Make a note of the radio keycode.
- Make a note of the preset radio stations.
- Detach the battery cover

CAUTION: Disconnect the battery earth lead.

Withdraw the automatic transmission dipstick.

WARNING: There is a risk of scalding when the engine is hot.

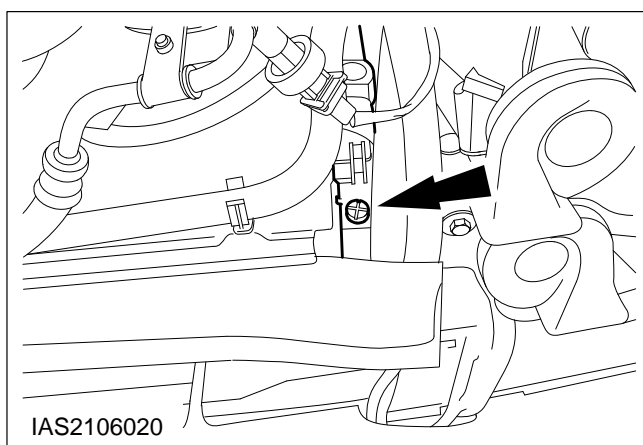
Unscrew the coolant expansion tank lid.

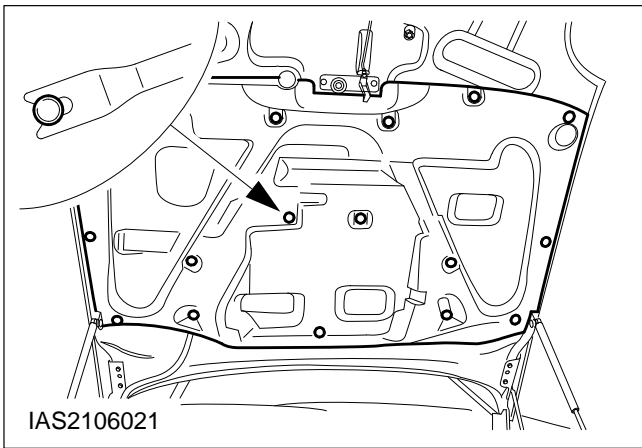
2. Raise the vehicle.

3. Detach the engine undershield.

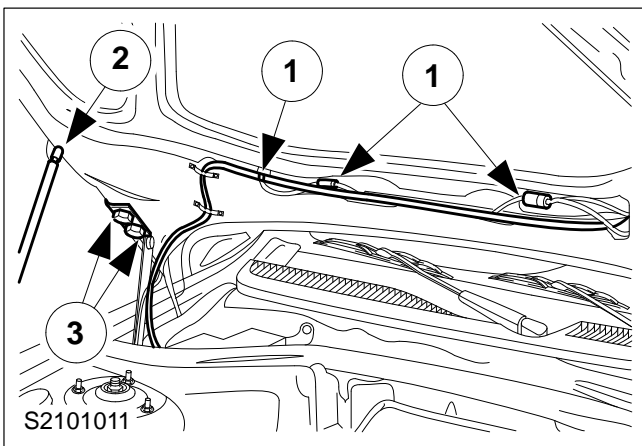
4. Drain off the coolant.

5. Lower the vehicle.



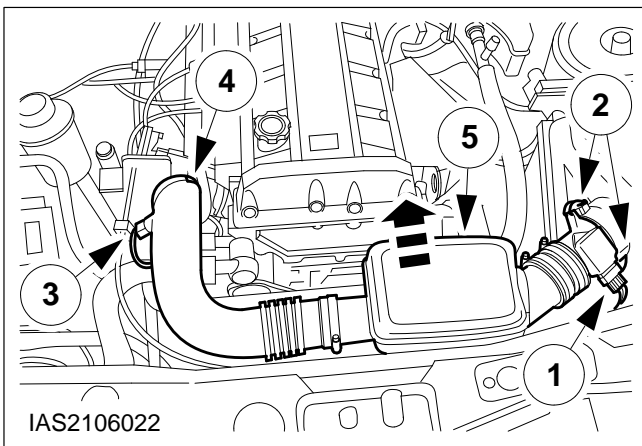


6. Detach the hood insulation panel (17 expanding pins).



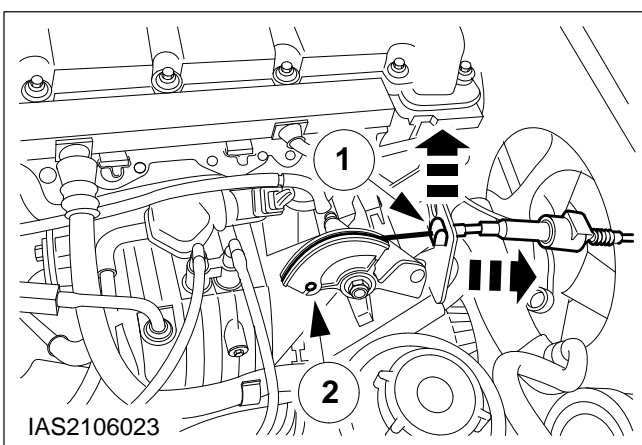
7. Detach the hood.

- 1 Disconnect the hose and plug of the windscreen wash system and unclip them.
- 2 Detach the two hydraulic struts from the hood.
- 3 Detach the two hood hinges.



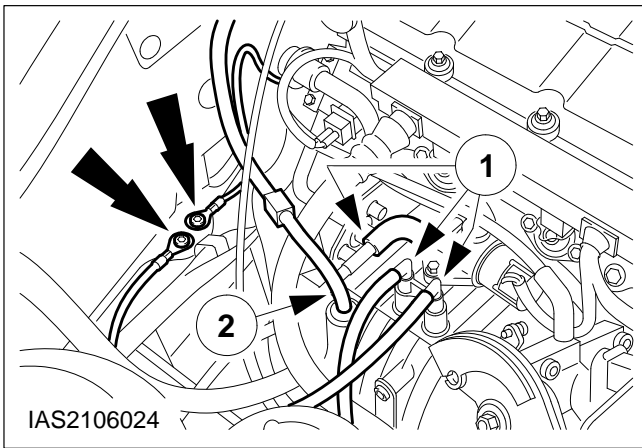
8. Remove the intake pipe.

- 1 Disconnect the multiplug from the air charge temperature sensor.
- 2 Detach the intake pipe from the air cleaner housing (two clips).
- 3 Disconnect the multiplug from the mass air flow (MAF) sensor.
- 4 Detach the intake pipe.
- 5 Lift the resonator (push-fit) and remove the intake pipe complete.



9. Detach the accelerator cable.

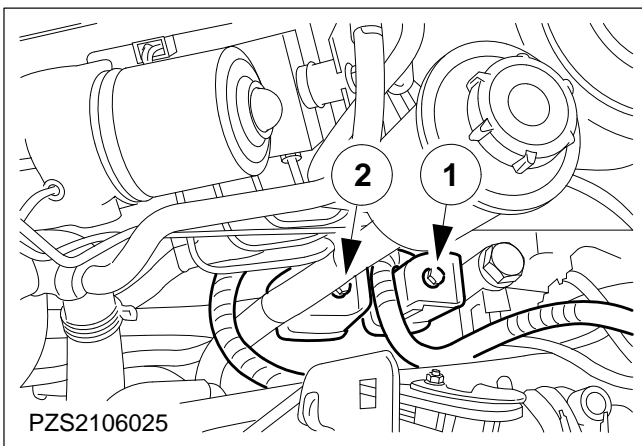
- 1 Pull off the retaining clip from above.
- 2 Unhook the cable.



10. Disconnect the vacuum hoses and the vacuum line.

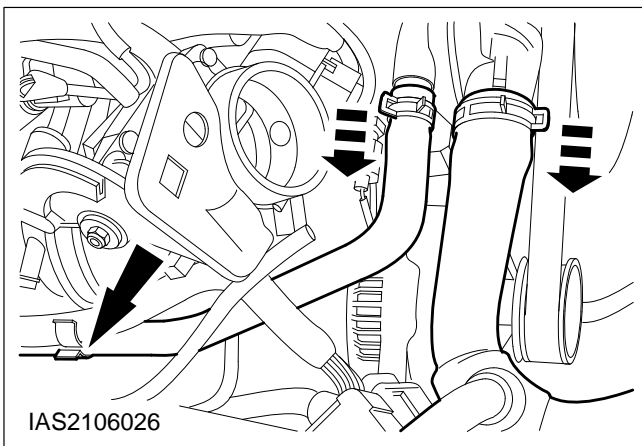
- 1 Vacuum hoses
- 2 Vacuum line to the brake servo.

11. Detach the earth lead from the bulkhead.



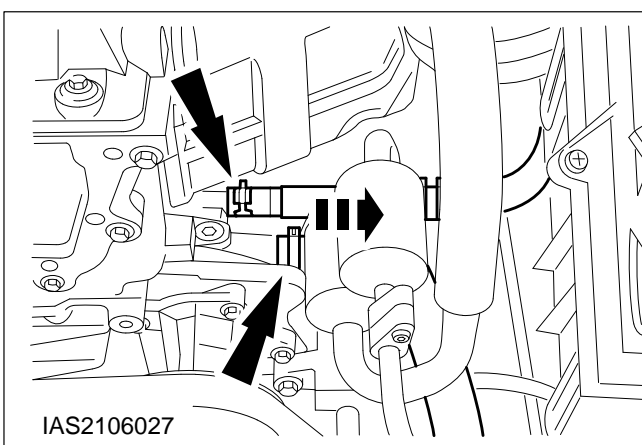
12. Detach the wiring loom plugs.

- 1 Main wiring loom plug
- 2 Automatic transmission wiring loom plug



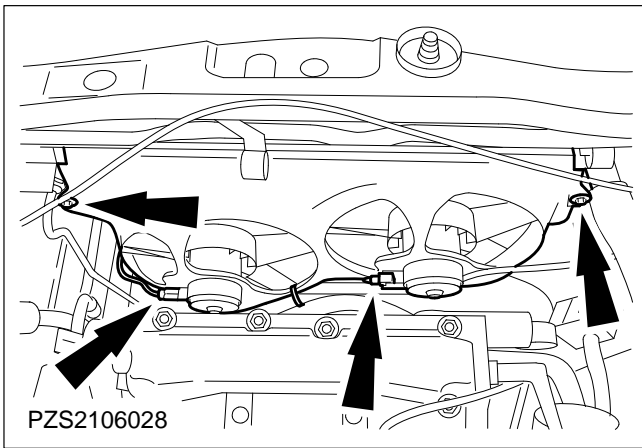
13. Detach the coolant hoses from the thermostat housing.

Unclip the coolant hose.



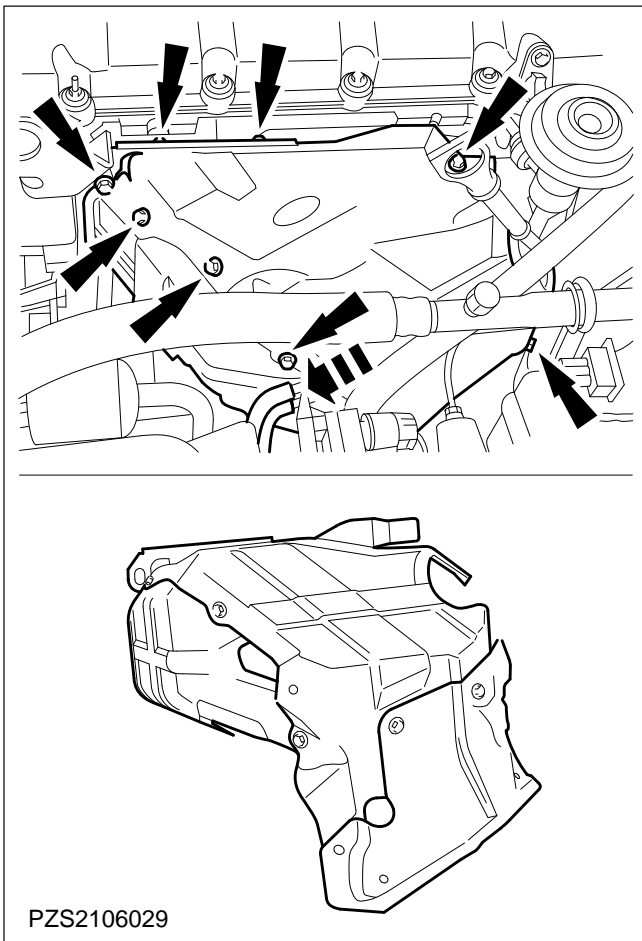
14. Detach the coolant hoses from the coolant pump.

Use Special Tool 24-003.



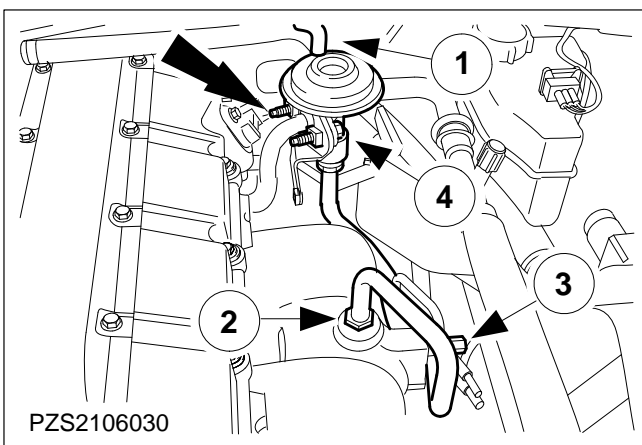
15. Remove the fan motors and air baffle complete.

- Disconnect the plugs of the fan motors.
- Unscrew the nuts.



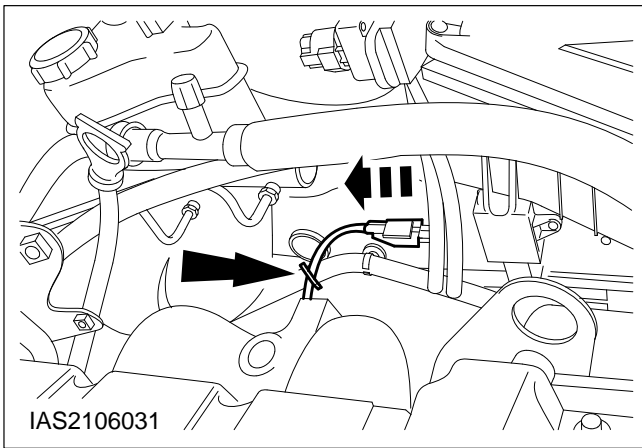
16. Remove the three-part exhaust manifold heatshield.

17. Pull off the two vacuum hoses.



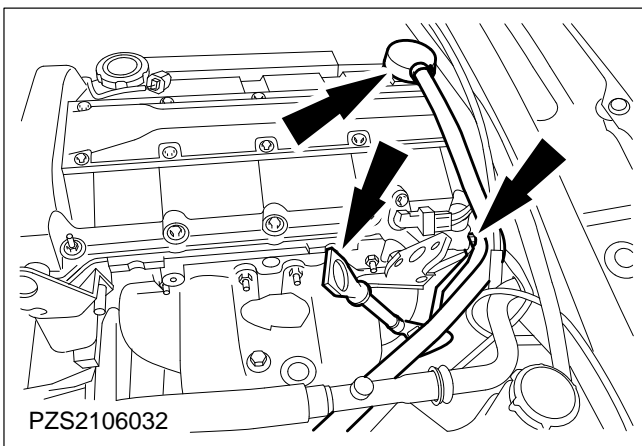
18. Detach the exhaust gas recirculation valve (EGR valve) and the EGR pipe.

- 1 Disconnect the vacuum hose.
- 2 Detach the EGR pipe.
- 3 Detach the EGR pipe bracket.
- 4 Detach the EGR valve from its bracket.



19. Disconnect the heated oxygen sensor (HO2S) plug.

Cut the cable tie.

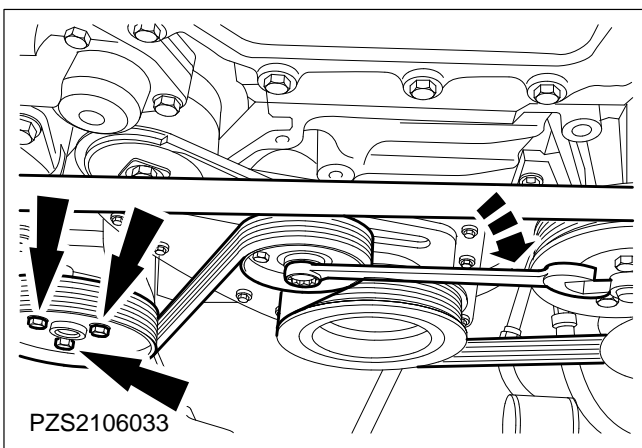


20. Disconnect the valve with the crankcase breather hose and unclip it.

NOTE: Only loosen the bolt.

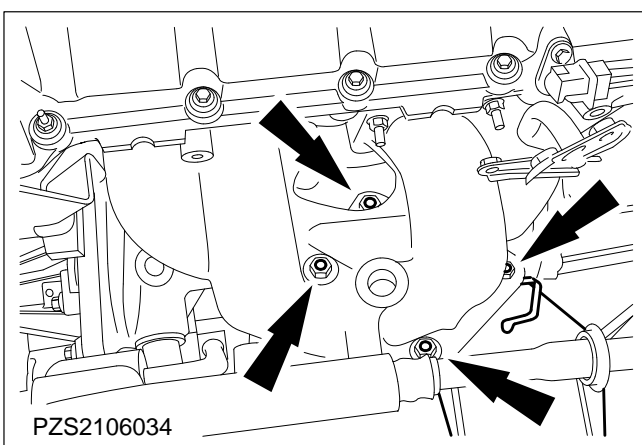
21. Detach the oil dipstick tube bracket.

Withdraw the oil dipstick.

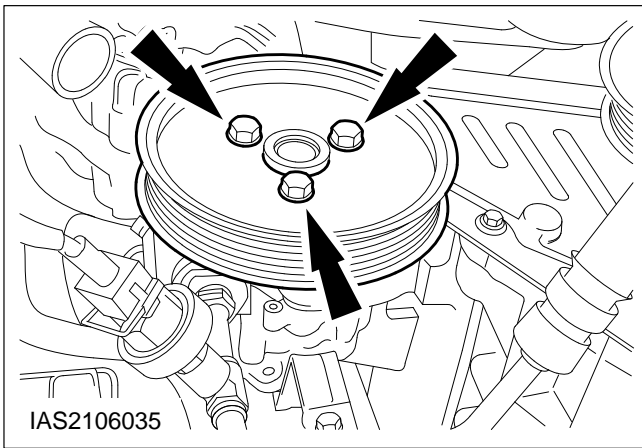


22. Slacken the power steering pump pulley.

23. Relax the drive belt and remove it.

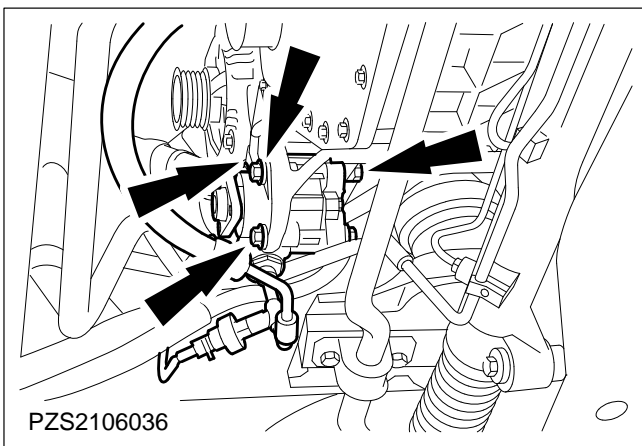


24. Detach the catalytic converter from the exhaust manifold.

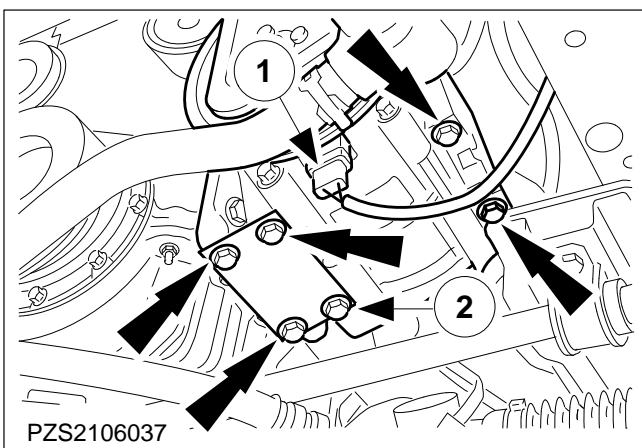


25. Raise the vehicle.

26. Detach the pulley from the power steering pump.



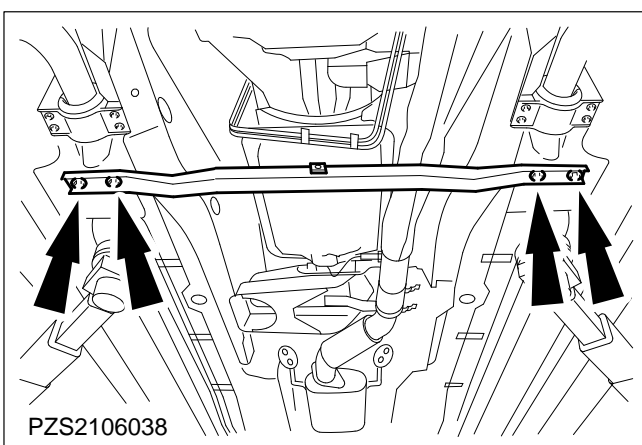
27. Detach the power steering pump and tie it up.



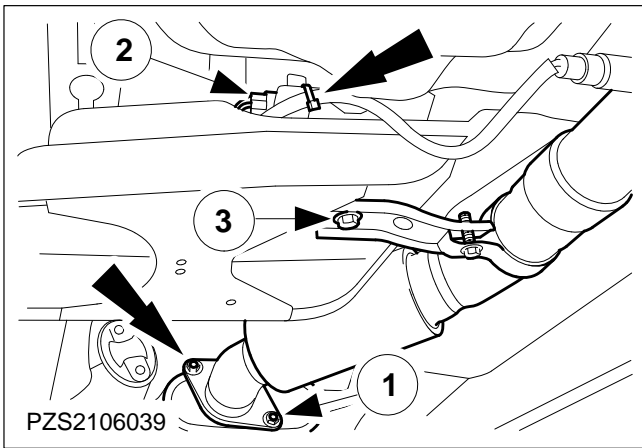
NOTE: The air conditioning system should not be opened.

28. Remove the air conditioning compressor.

- 1 Disconnect the plug of the magnetic clutch.
Cut the wiring loom cable ties.
- 2 Remove the bolts.
Tie up the air conditioning compressor.

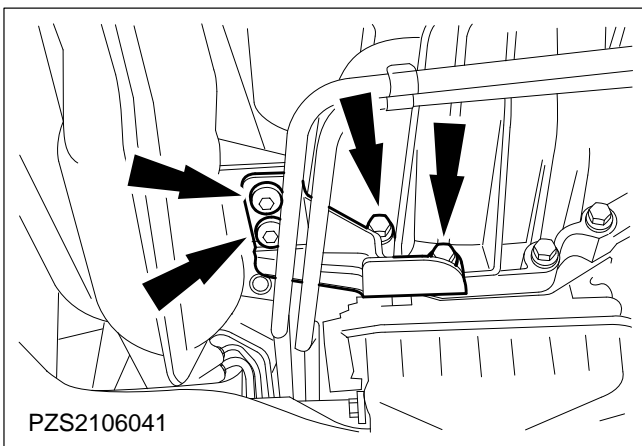


29. Detach the front axle transverse brace.

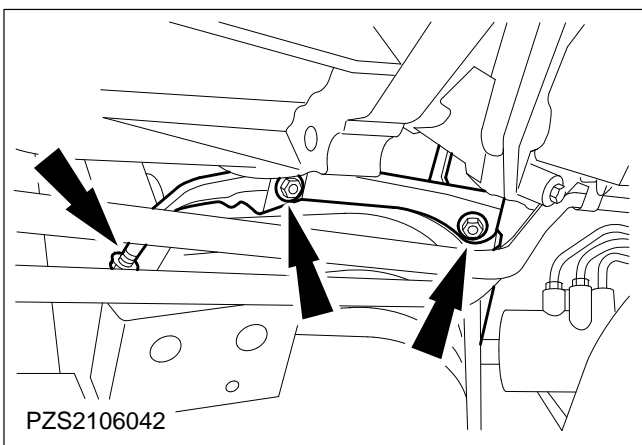


30. Remove the catalytic converter with the front exhaust pipe.

- 1 Disconnect the exhaust system.
Remove the gasket.
- 2 Disconnect the HO2S plug.
Cut the cable tie.
- 3 Detach the front exhaust pipe bracket from the transmission crossmember.

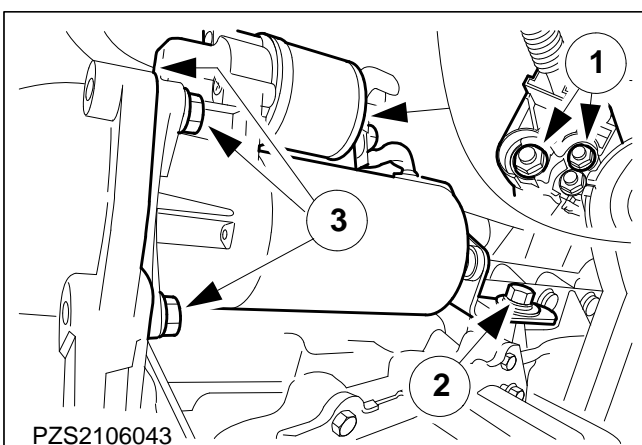


31. Detach the bracket from the catalytic converter and the automatic transmission.



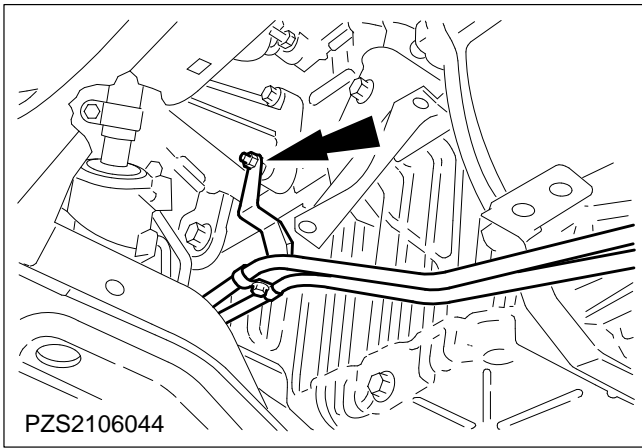
32. Remove the catalytic converter with the front exhaust pipe.

- Open the front catalytic converter bracket and detach it.
- Remove the catalytic converter with the front exhaust pipe.

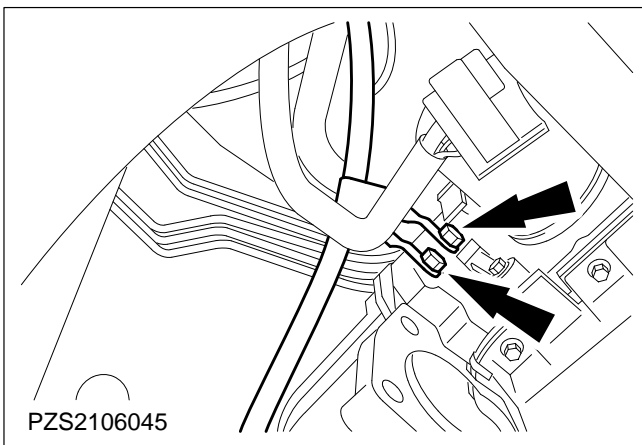


33. Remove the starter motor.

- 1 Disconnect the lead.
- 2 Detach the bracket from the cylinder block.
- 3 Remove the bolts.

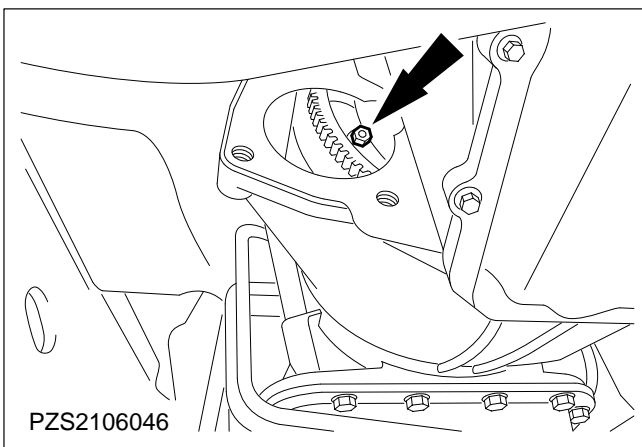


34. Detach the bracket for the oil pipes.

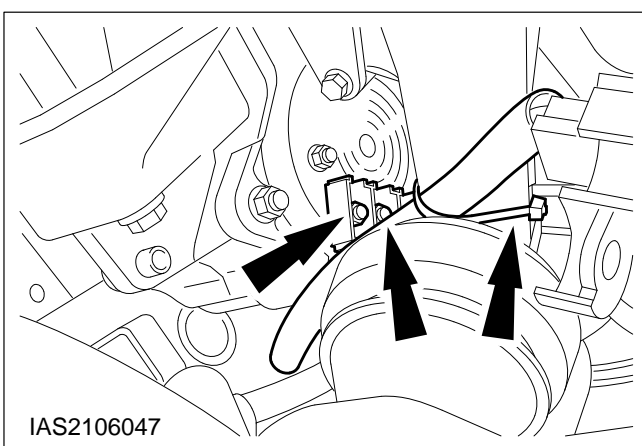


35. Detach the oil dipstick tube and the earth lead.

Unclip the automatic transmission wiring loom.

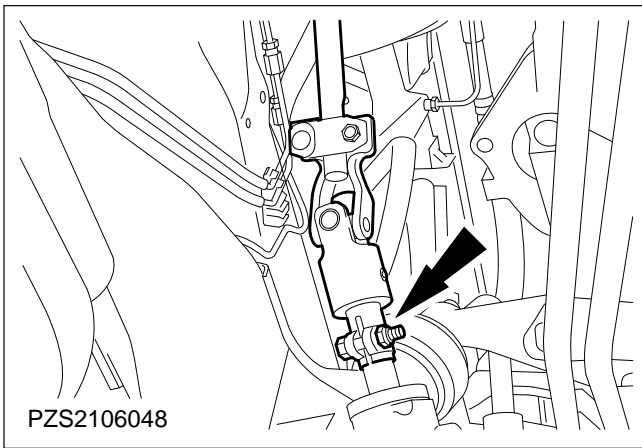


36. Detach the torque converter from the engine drive plate (four nuts).

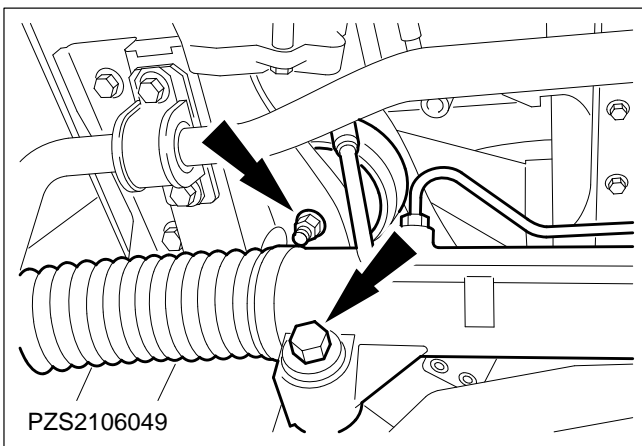


37. Disconnect the alternator lead.

Cut the cable ties.

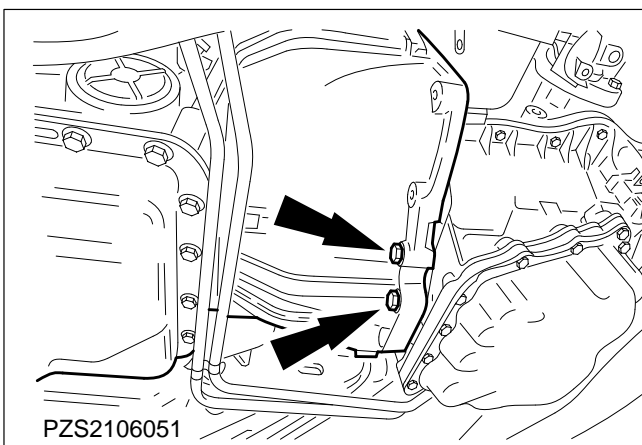


38. Detach the steering intermediate shaft.

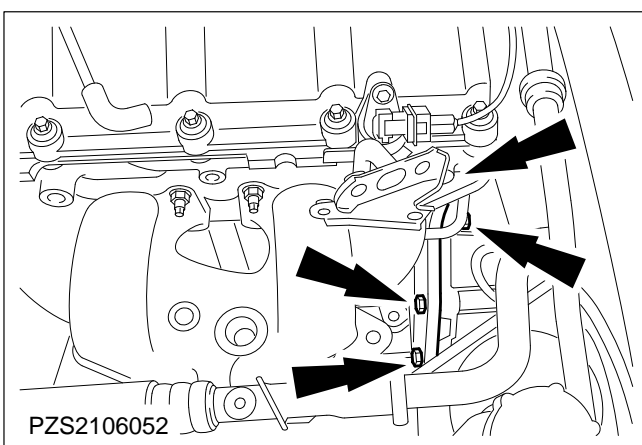


39. Detach the steering gear (one bolt on either side) and lower it.

40. Detach both engine mountings (one nut for each mounting).

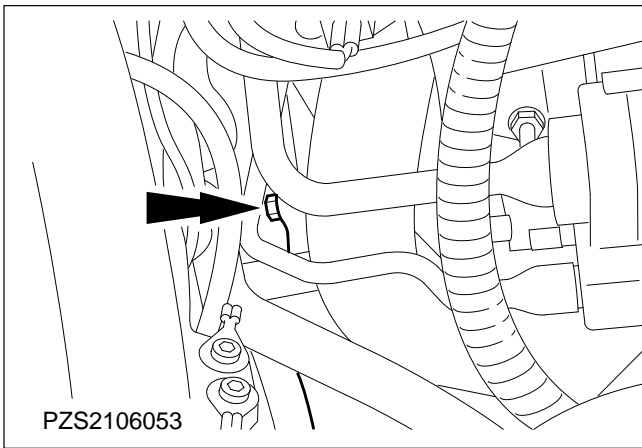


41. Unscrew the lower flange bolts.

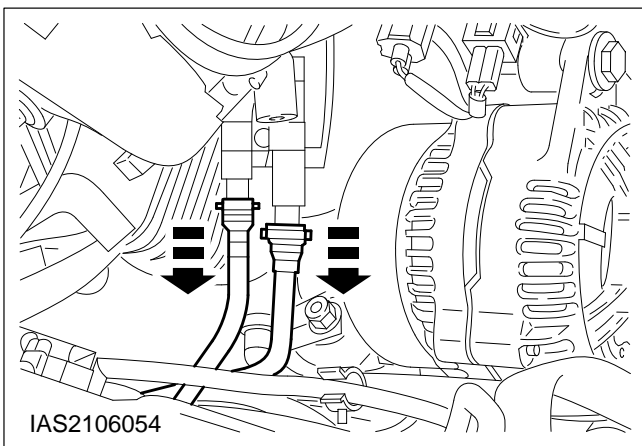


42. Lower the vehicle.

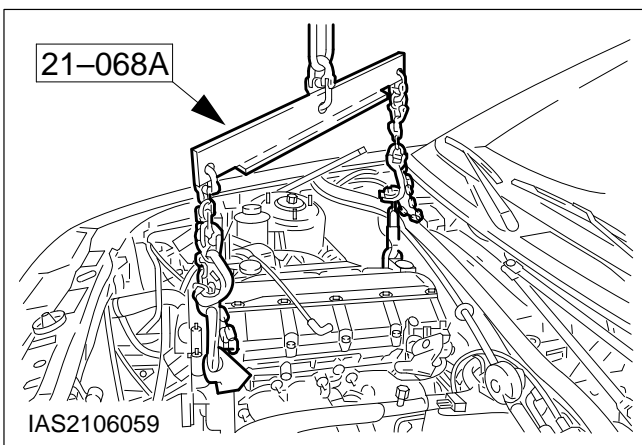
43. Remove the flange bolts.



44. Undo the top right-hand flange bolt.



45. Disconnect the fuel lines.



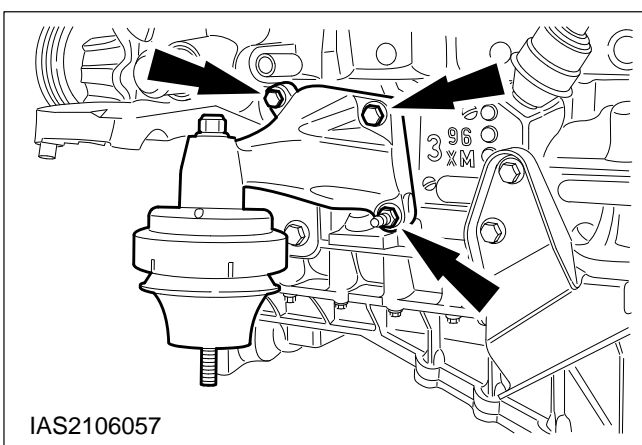
NOTE: Support the automatic transmission with the trolley jack.

46. Attach the engine lifting bracket.

NOTE: The front chain must be shorter.

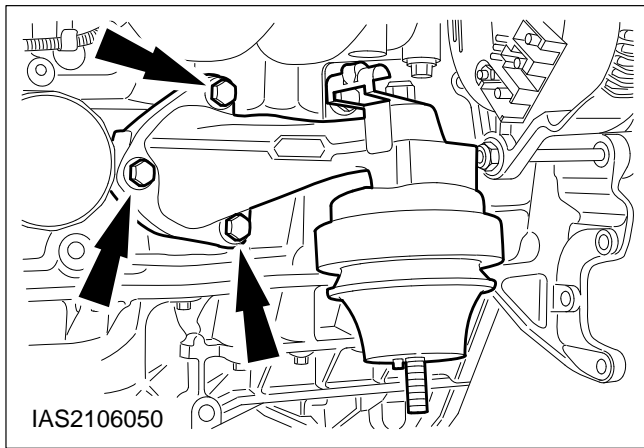
⚠ CAUTION: Do not damage the radiator.

47. Separate the engine from the automatic transmission and lift it out using the workshop hoist.

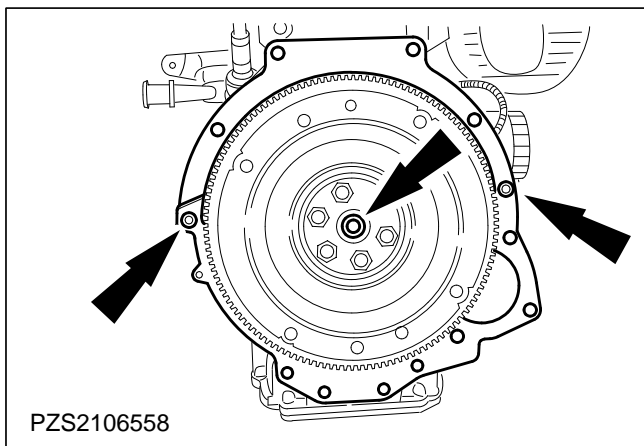


Install

48. Detach the left-hand engine mounting bracket.



49. Detach the right-hand engine mounting bracket.

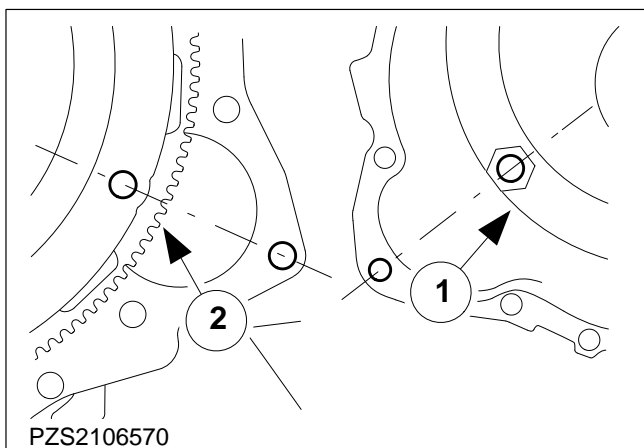


50. If necessary move the locating sleeves from the automatic transmission flange to the engine flange.

51. Align the adaptor plate on the two locating sleeves.

Fix the adaptor plate in position using a little grease.

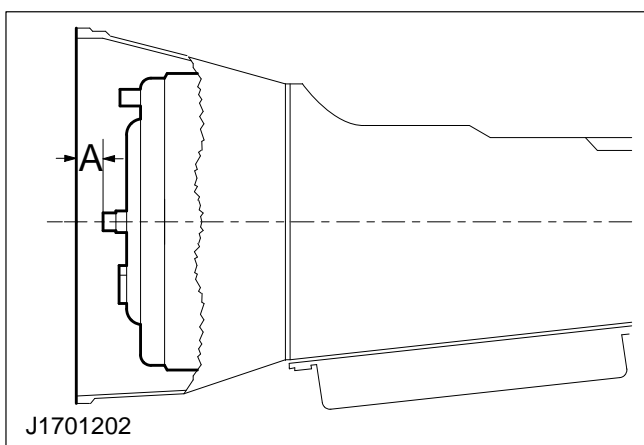
52. Apply a thin coating of high temperature grease (ESDM-1C220-A) to the torque converter guide bore.



53. Move the torque converter into the installation position on the automatic transmission and the engine drive plate into the installation position.

1 Torque converter

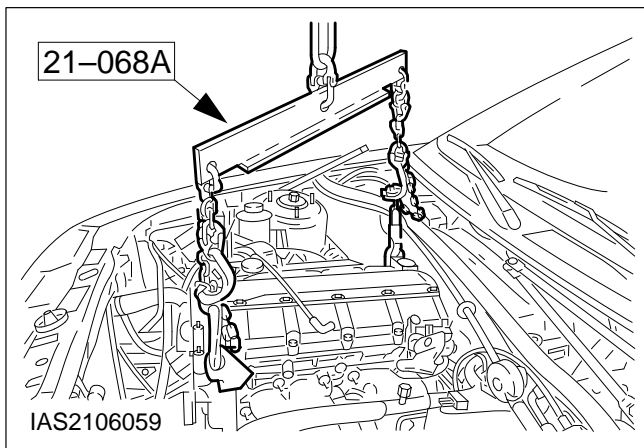
2 Engine drive plate.



NOTE: The torque converter hub must be fully in engagement with the driving pulley of the oil pump.

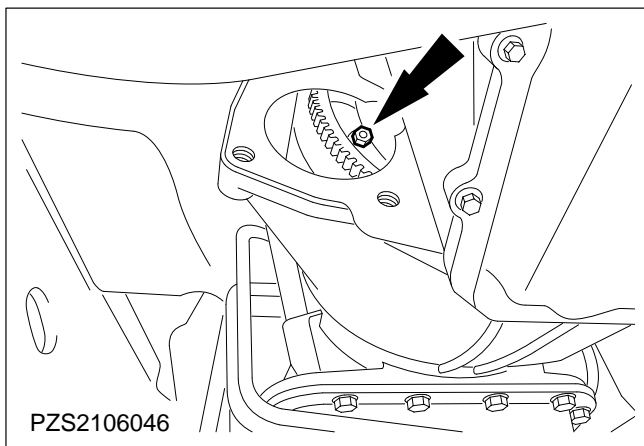
54. Check the fitted measurement of the torque converter:

The fitted measurement "A" between the torque converter housing flange and the torque converter centring pin is nine millimetres.

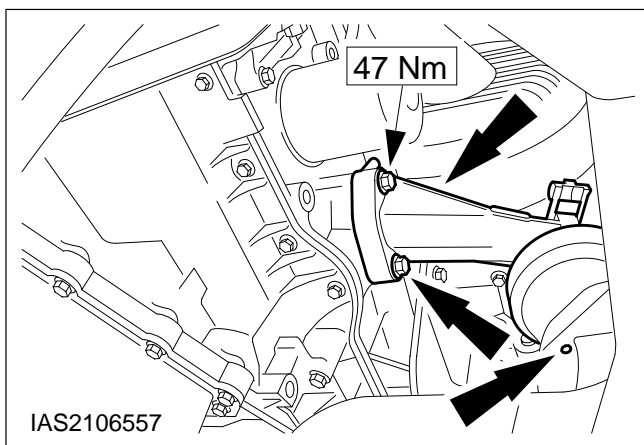


55. Position the engine ready for installation.

Connect the engine and automatic transmission using two flange bolts.



56. Loosely screw the torque converter to the engine drive plate (four nuts).

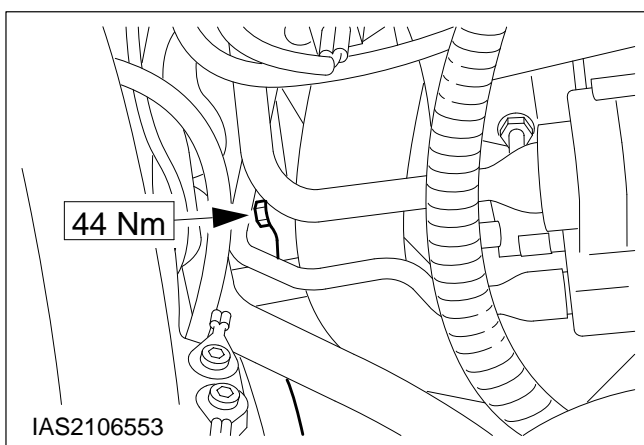


NOTE: Ensure that the engine mounting locking pin is correctly seated in relation to the crossmember.

57. Install both engine mounting brackets.

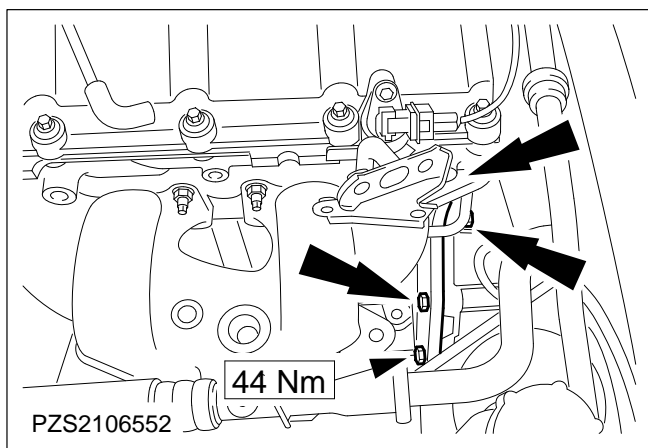
58. Remove the trolley jack.

59. Detach the engine lifting bracket.

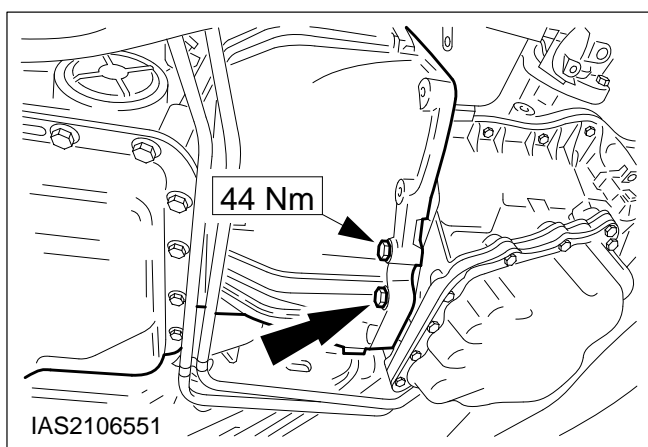


60. Lower the vehicle.

61. Tighten the top right-hand flange bolt.

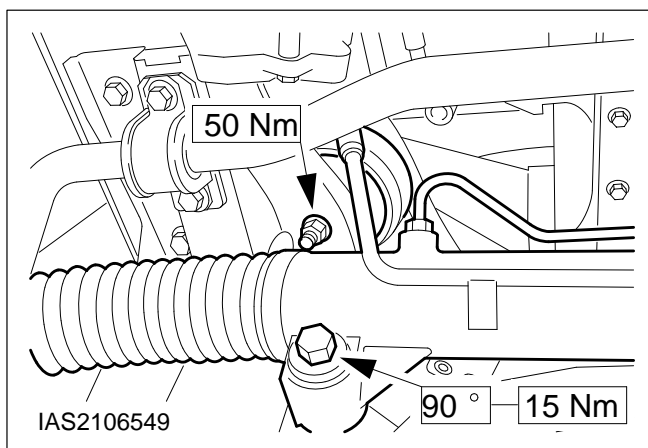


62. Tighten the top flange bolts.



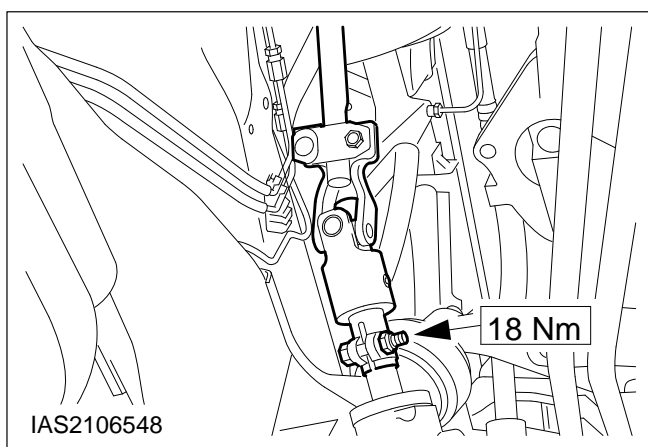
63. Raise the vehicle.

64. Tighten the bottom flange bolts.

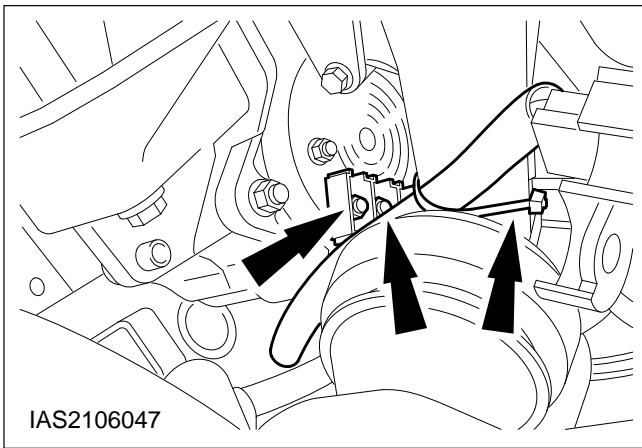


65. Fit both engine mountings (one nut for each mounting).

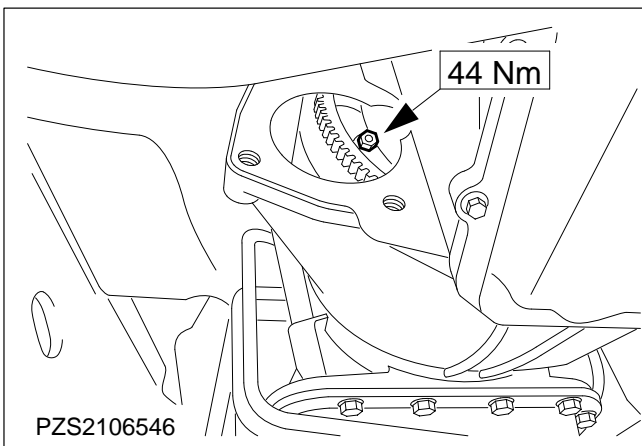
66. Fit the steering gear (one bolt on each side).



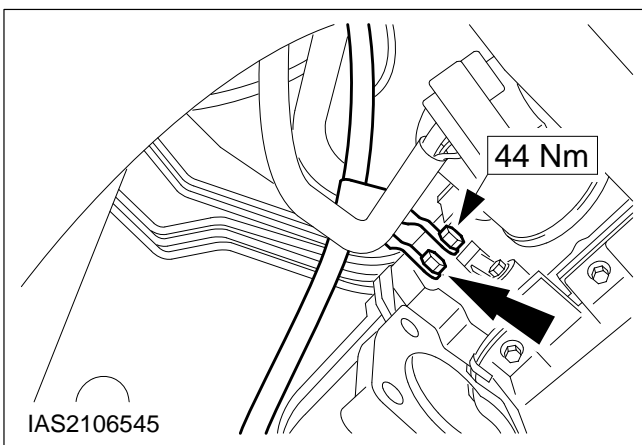
67. Connect the steering intermediate shaft.



68. Connect the alternator lead.

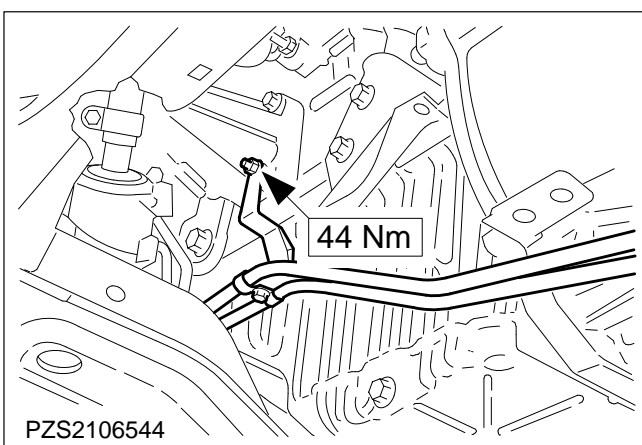


69. Tighten the torque converter (four nuts).

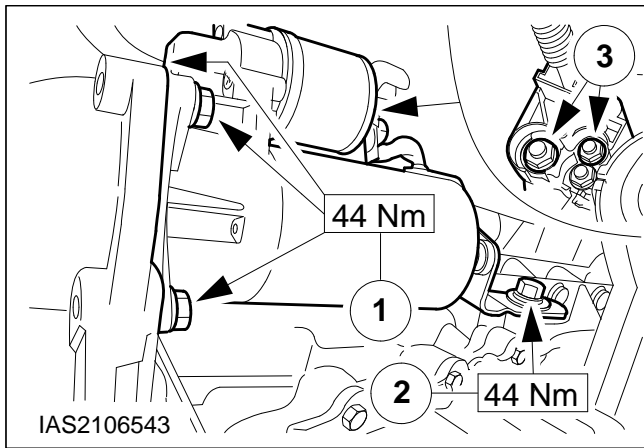


70. Fit the oil dipstick tube and the earth lead.

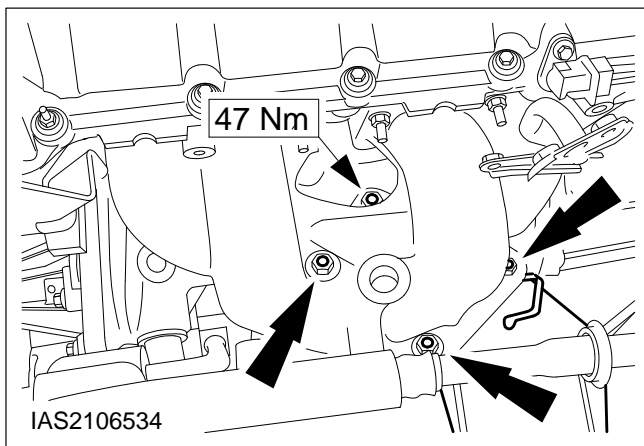
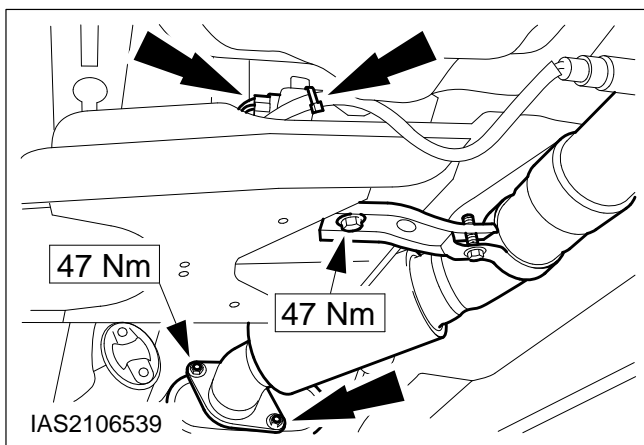
Clip the automatic transmission wiring loom into place.



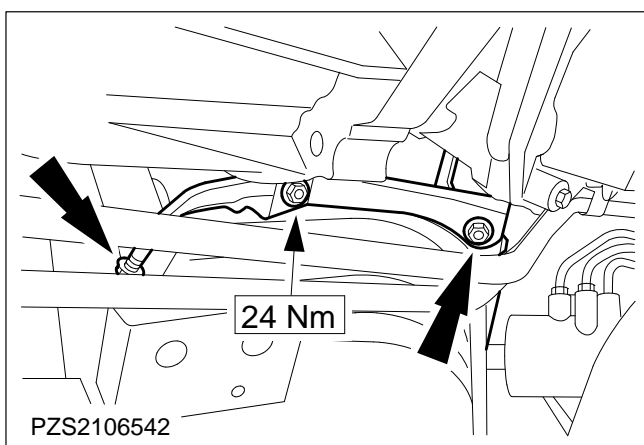
71. Attach the bracket for the oil pipes.

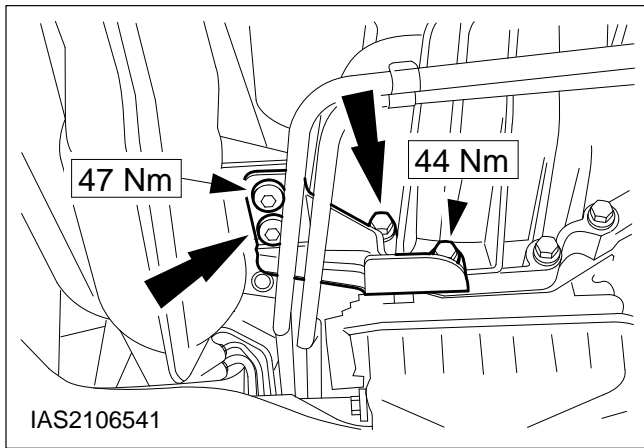
**72. Install the starter motor.**

- 1 Screw in the bolts.
- 2 Attach the bracket to the cylinder block.
- 3 Connect the lead.

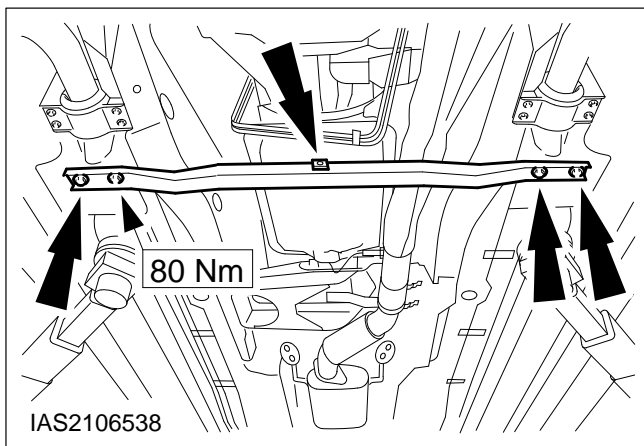
**73. Move the catalytic converter with the front exhaust pipe and with a new gasket into the installation position.****74. Lower the vehicle.****75. Secure the catalytic converter to the exhaust manifold.****76. Raise the vehicle.****77. Attach the front exhaust pipe bracket to the transmission crossmember.****78. Attach the front exhaust pipe to the rear exhaust pipe using a new gasket.****79. Connect the HO2S plug.**

Secure the wiring with a cable tie.

**80. Fit the front catalytic converter bracket.**

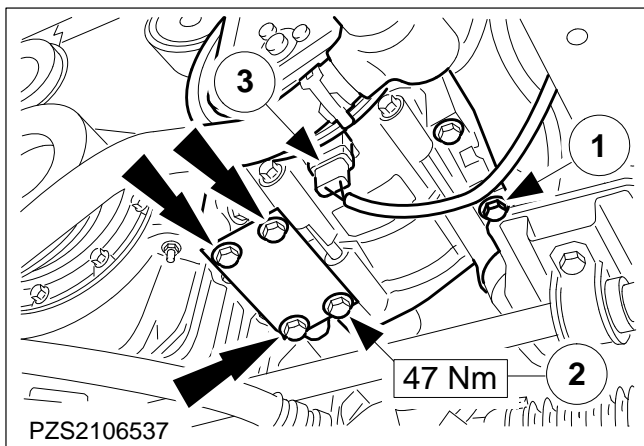


81. Attach the bracket to the catalytic converter and the automatic transmission.



NOTE: The tab points forwards.

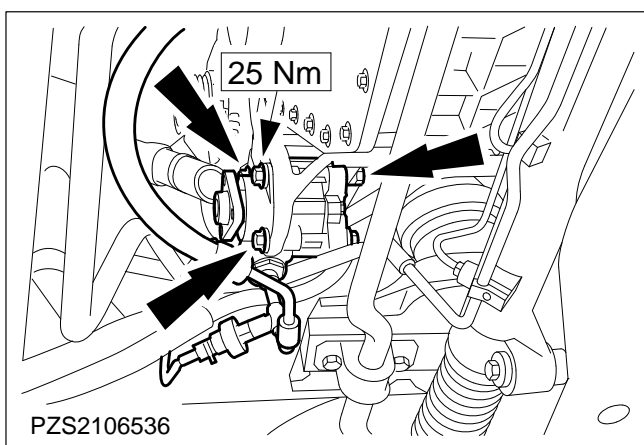
82. Fit the front axle transverse brace.



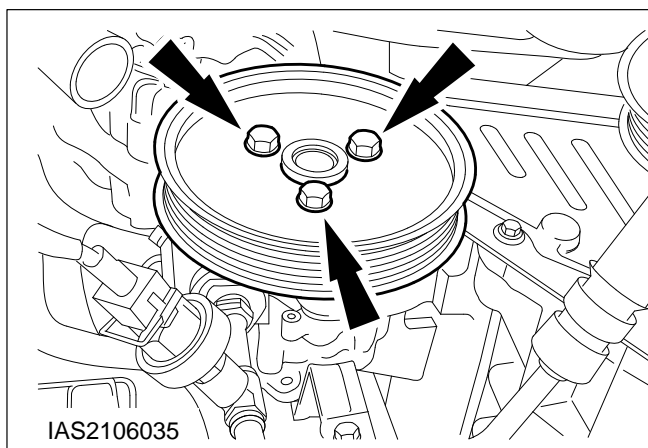
NOTE: Insert one bolt beforehand.

83. Attach the air conditioning compressor.

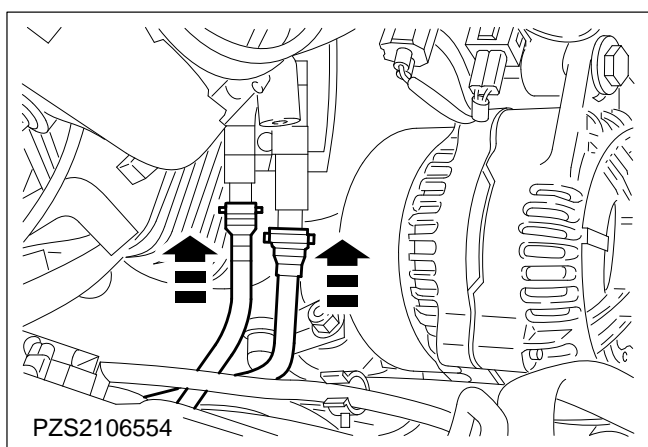
- 1 Insert the bolt before installing the compressor.
- 2 Tighten the bolts.
- 3 Connect the plug for the magnetic clutch.



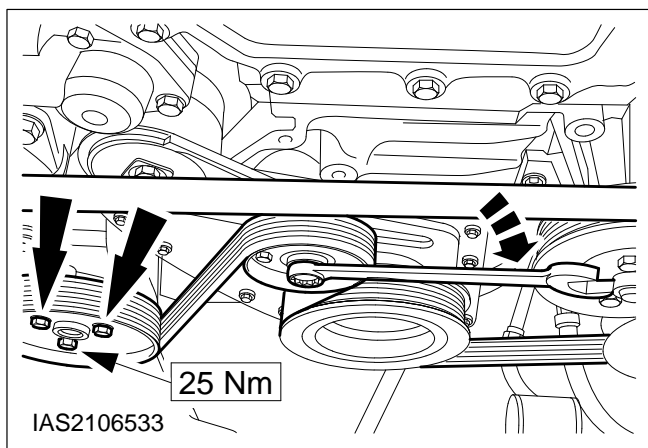
84. Fit the power steering pump.



85. Attach the pulley to the power steering pump.

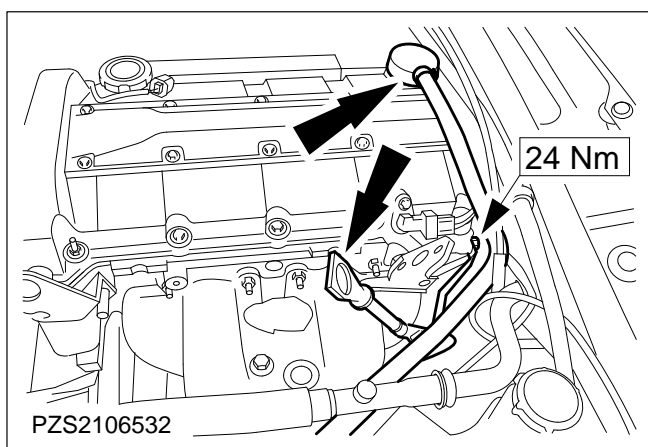


86. Connect the fuel lines.



87. Relax the belt tensioner and fit the drive belt.

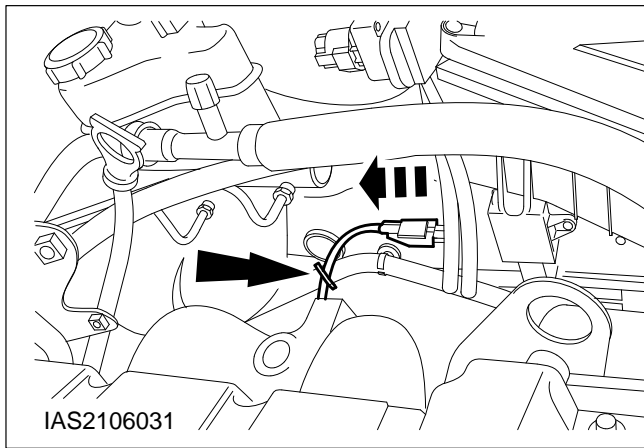
88. Tighten the pulley of the power steering pump.



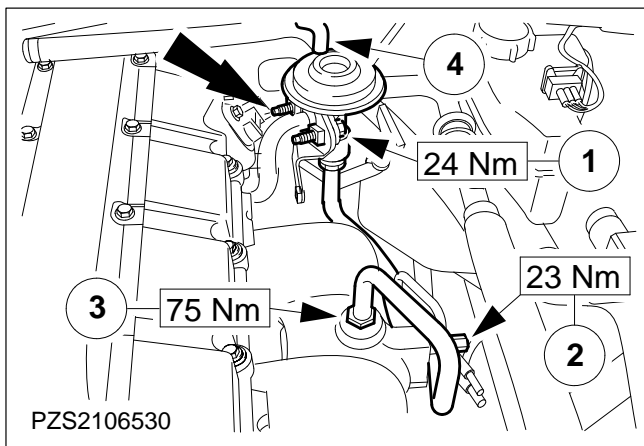
89. Connect the valve with the crankcase breather hose and clip it into place.

90. Fit the bracket of the oil dipstick tube.

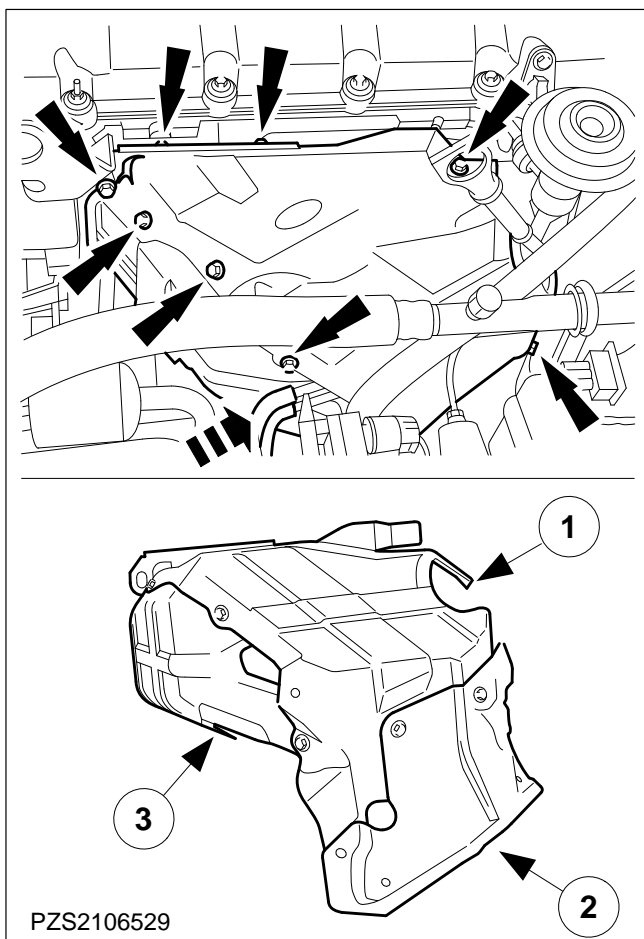
Insert the oil dipstick.

**91. Connect the HO2S plug.**

Secure the wiring loom to the heater coolant hose with a cable tie.

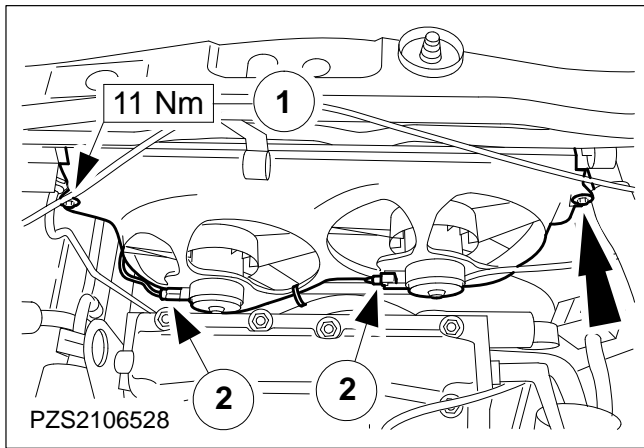
**92. Fit the EGR valve and the EGR pipe.**

- 1 Attach the EGR valve to the bracket.
- 2 Fit the EGR pipe bracket.
- 3 Fit the EGR pipe.
- 4 Connect the vacuum hose.

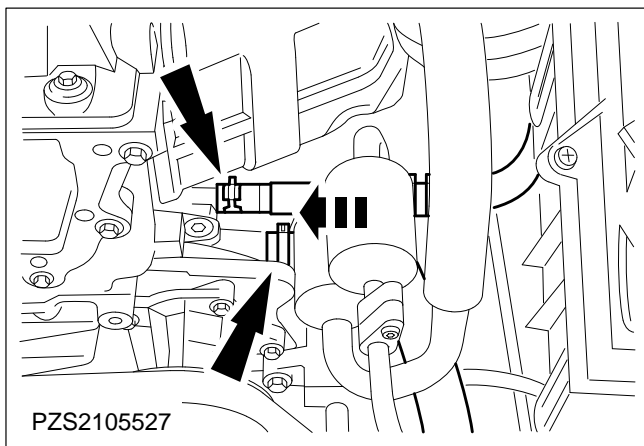
**93. Fit the three-part heatshield.**

- Loosely fit the parts in the order shown.
- Tighten the bolts.

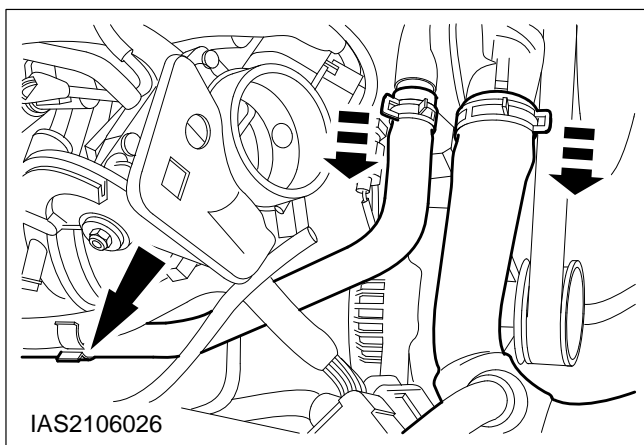
94. Attach the two vacuum hoses.

**95. Install the fan motors with the air baffle.**

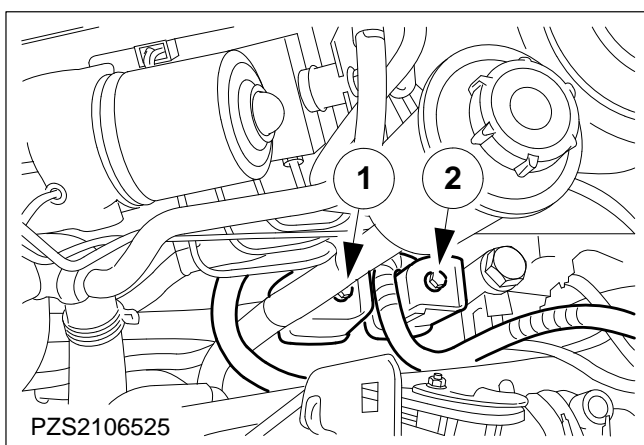
- 1 Tighten the nuts.
- 2 Connect the fan motor plugs.

**96. Attach the coolant hoses to the coolant pump.**

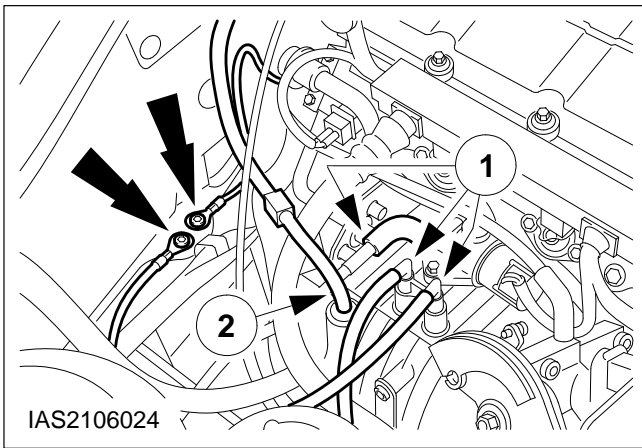
Use Special Tool 24-003.

**97. Attach the coolant hoses to the thermostat housing.**

Clip the coolant hose into position.

**98. Fit the wiring loom plugs.**

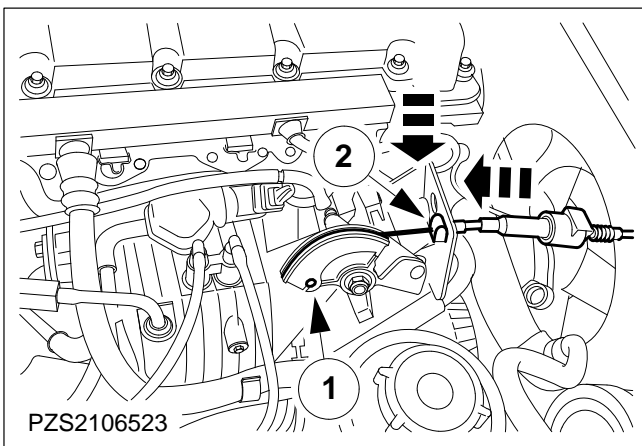
- 1 Main wiring loom plug
- 2 Automatic transmission wiring loom plug



99. Fit the vacuum hoses and the vacuum line.

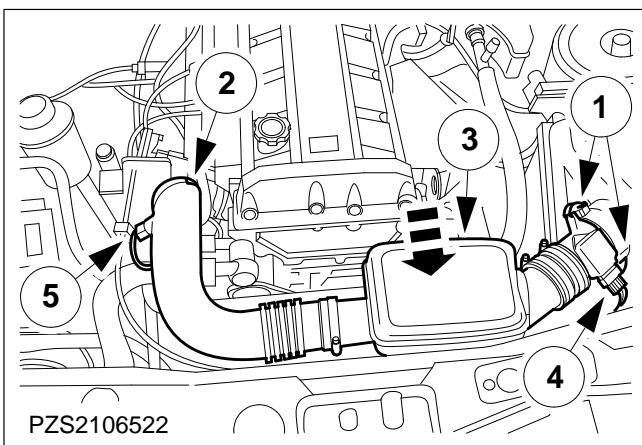
- 1 Vacuum hoses
- 2 Vacuum line to the brake servo.

100. Attach the earth lead to the bulkhead.



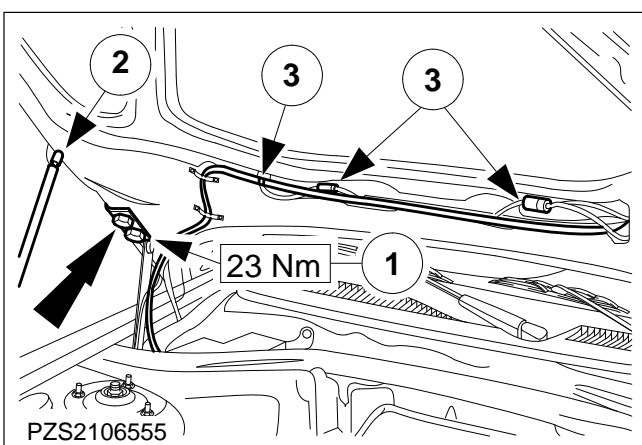
101. Attach the throttle cable.

- 1 Hook the cable in place.
- 2 Push the clip into place.



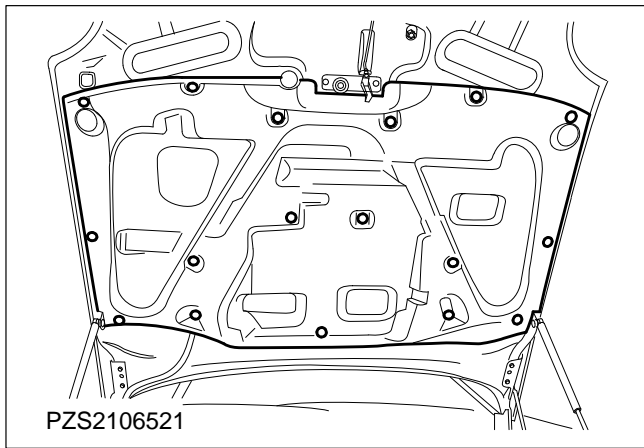
102. Connect the intake pipe.

- 1 Attach the intake pipe to the air cleaner housing (two clips).
- 2 Connect the intake pipe.
- 3 Move the resonator into the installation position (push-fit).
- 4 Connect the IAT sensor plug.
- 5 Connect the MAF sensor plug.



103. Attach the hood.

- 1 Fit the hood hinges.
- 2 Attach the two hydraulic struts to the hood.
Close the hood and check that it fits.
- 3 Connect the hose and plug of the windscreen wash system and clip them into place.



**104. Fit the hood insulation panel
(17 expanding pins).**

105. 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.
- Fit the battery cover.
- Reprogramme the preset radio stations.
- Reset the clock.
- Carry out a road test to enable the PC module (EEC V) to collect data.
- Check the engine and cooling system for leaks (visual check).
- Check the fluid levels after the road test and rectify them as necessary.