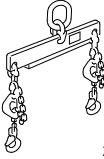
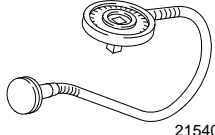
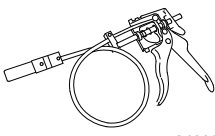


Engine and A4LDE Automatic Transmission – Remove and Install (21 132 0)

Special Tools

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

Workshop Equipment

Transmission jack	
Workshop crane	
Assembly table with retaining strap	GV 2166
Auxiliary plugs for automatic transmission	

Materials

High-temperature grease	ESDM-1C220-A
Automatic transmission fluid	ESPM-2C166-H

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.

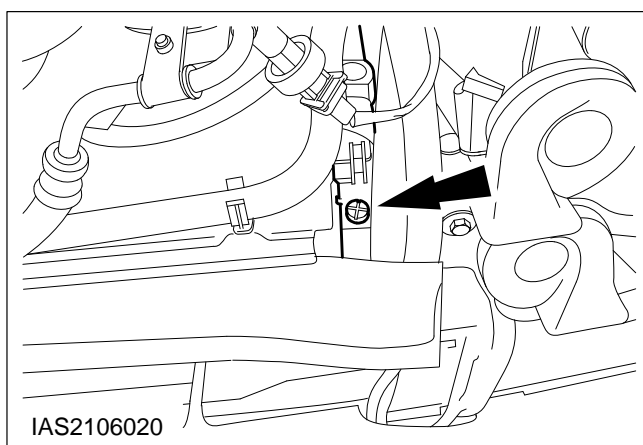
Unscrew the coolant expansion tank lid.

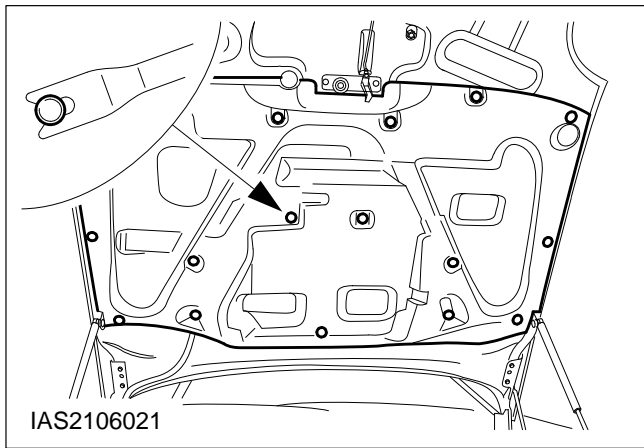
2. Raise the vehicle.

3. Detach the engine undershield.

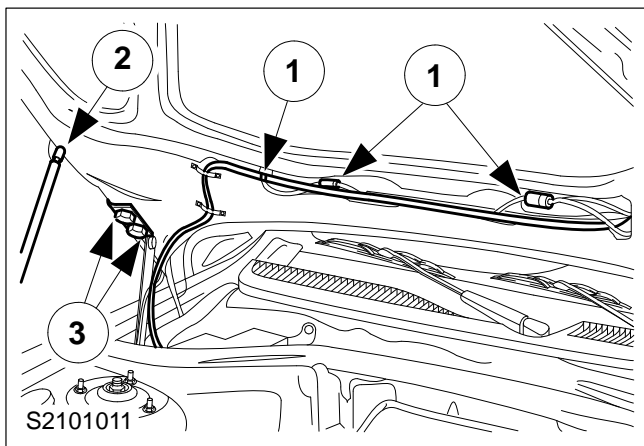
4. Drain off the coolant.

5. Lower the vehicle.



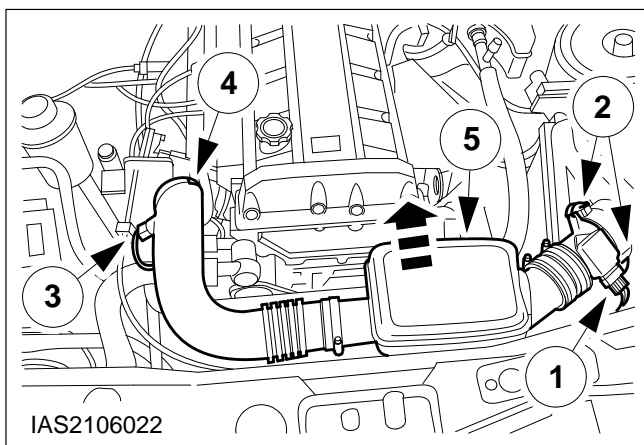


6. Remove the hood insulation panel (17 expanding pins).



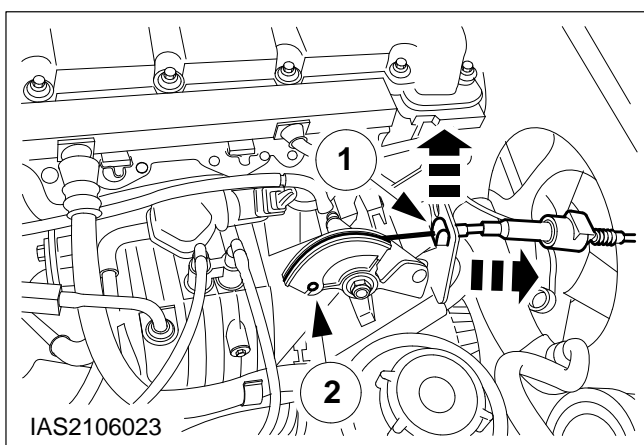
7. Detach the hood.

- 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.



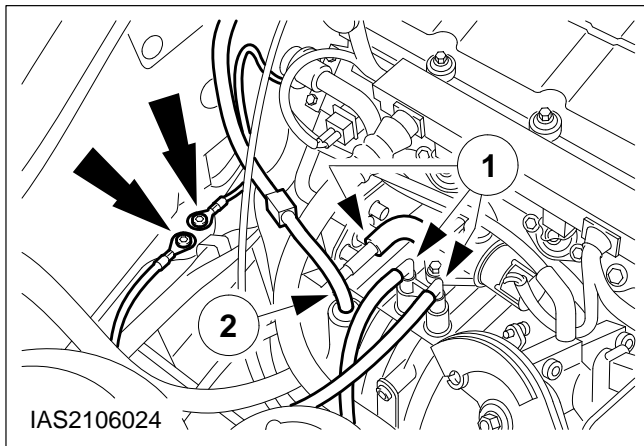
8. Remove the intake pipe.

- 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.

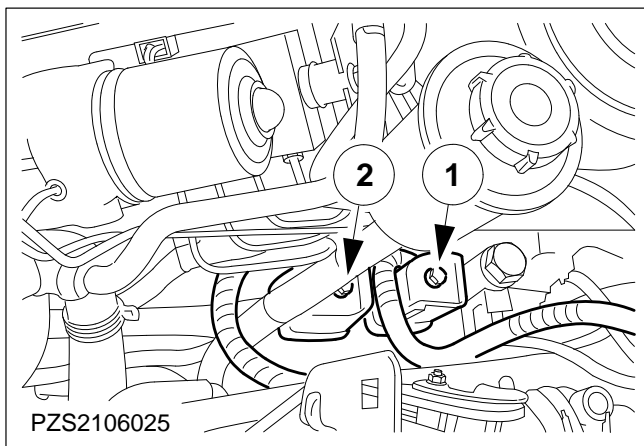
- 1 Remove the retaining clip from above.
- 2 Unhook the cable.



10. Remove the vacuum hoses and vacuum line.

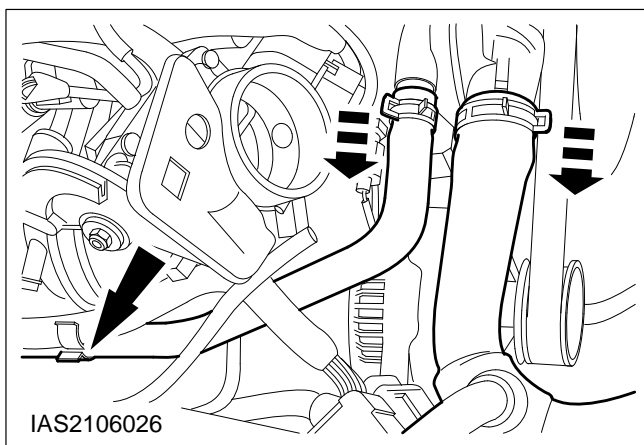
- 1 Vacuum hoses:
- 2 Vacuum line to the brake servo.

11. Detach the earth lead from the bulkhead.



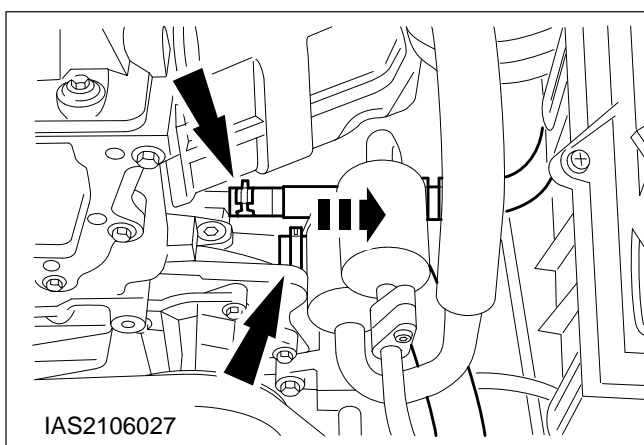
12. Detach the wiring loom plugs.

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



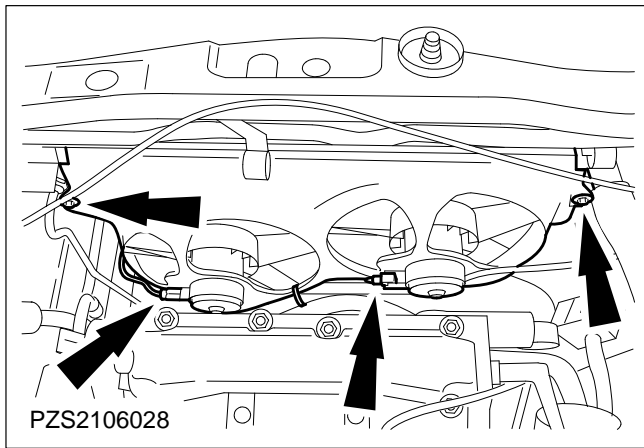
13. Detach the coolant hoses from the thermostat housing.

Unclip the coolant hose.



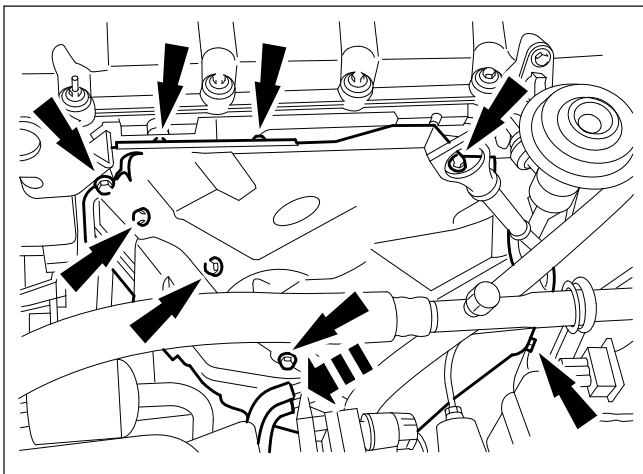
14. Detach the coolant hoses from the coolant pump.

Use Special Tool 24-003.



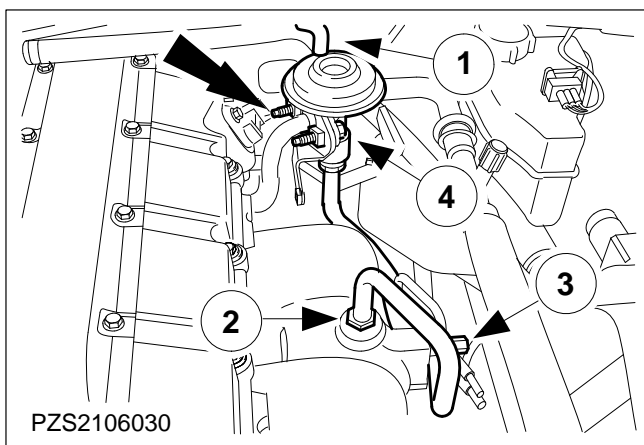
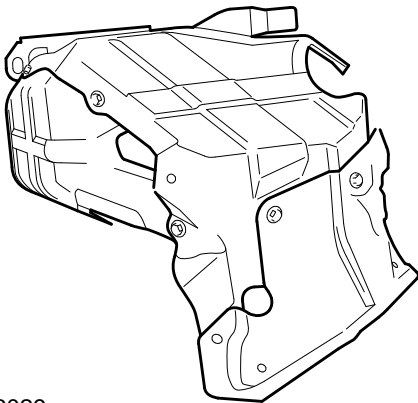
15. Remove the fan motors and air baffle complete.

- Disconnect the fan motor plugs.
- Unscrew the nuts.



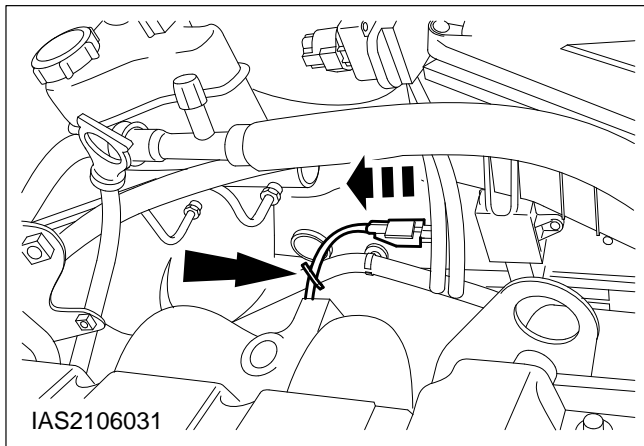
16. Remove the three-part exhaust manifold heatshield.

17. Disconnect the two vacuum hoses.



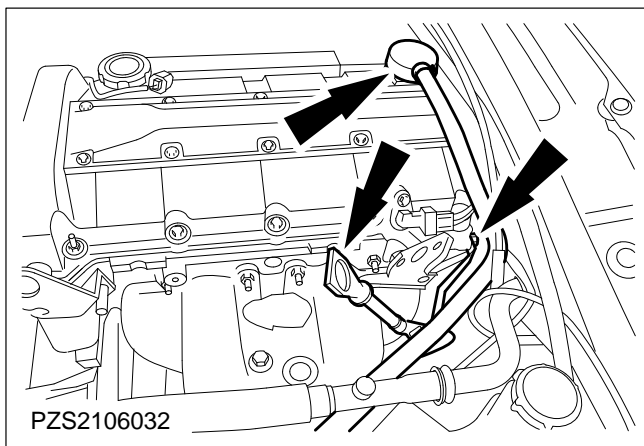
18. Detach the exhaust gas recirculation valve (EGR valve) and the EGR pipe.

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



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

Cut the cable tie.

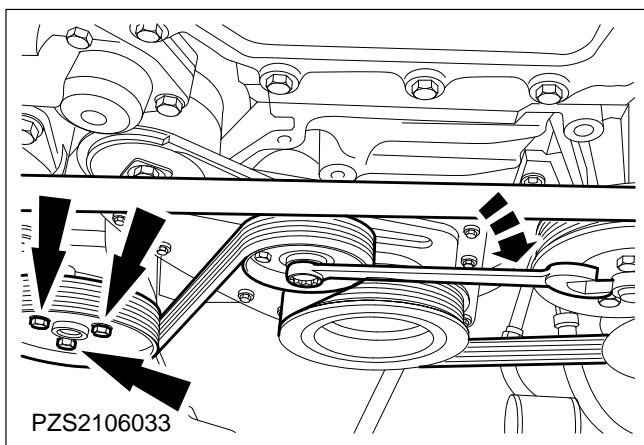


20. Remove the valve with the crankcase breather hose and unclip it.

NOTE: Only slacken the bolt.

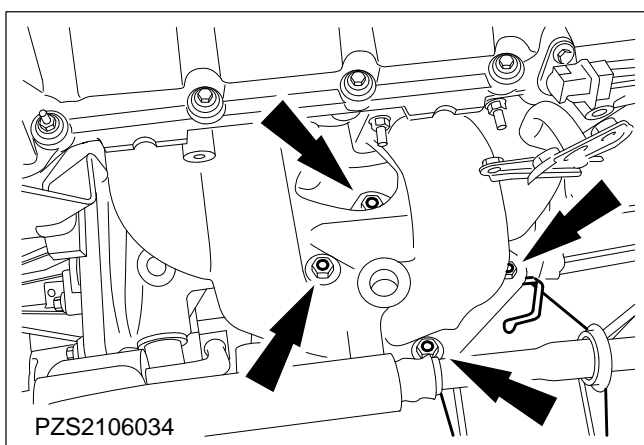
21. Detach the bracket from the oil dipstick tube.

Withdraw the oil dipstick.

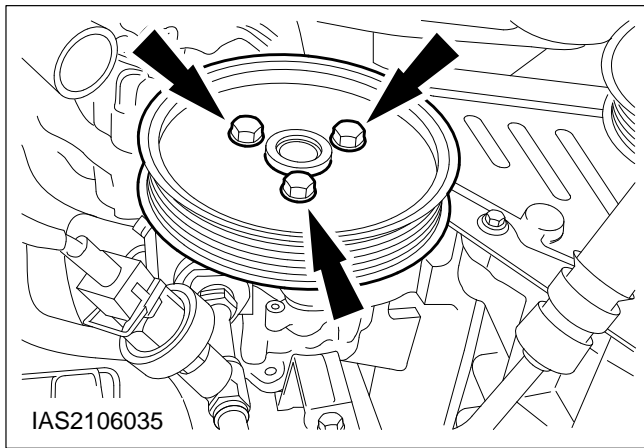


22. Loosen the power steering pump pulley.

23. Relax the drive belt and remove it.

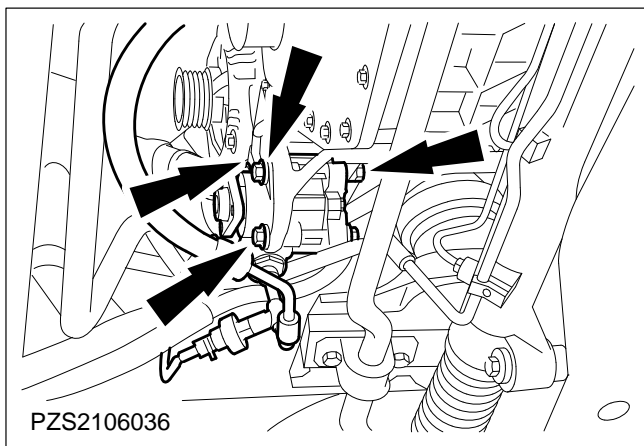


24. Detach the catalytic converter from the exhaust manifold.

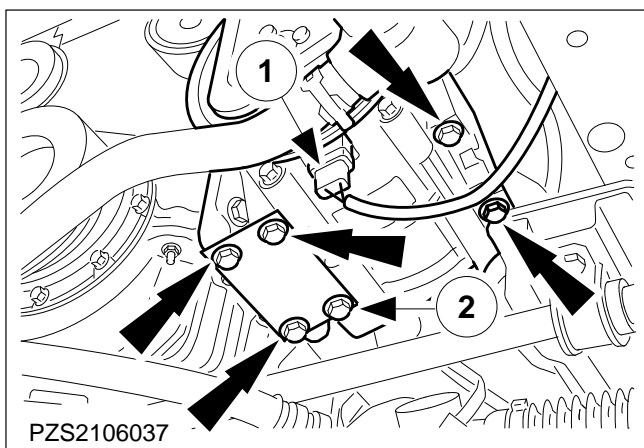


25. Raise the vehicle.

26. Detach the power steering pump pulley.



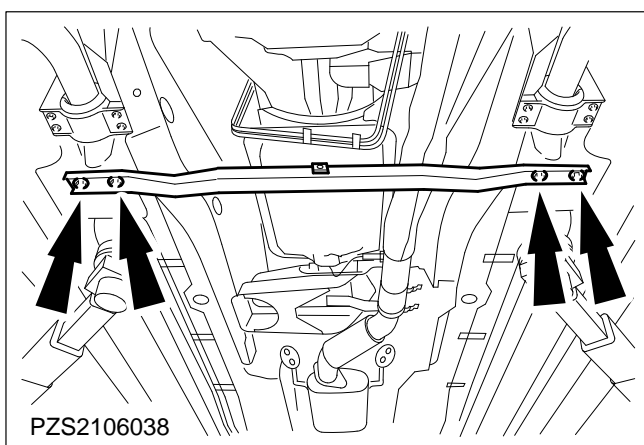
27. Detach the power steering pump and tie it up.



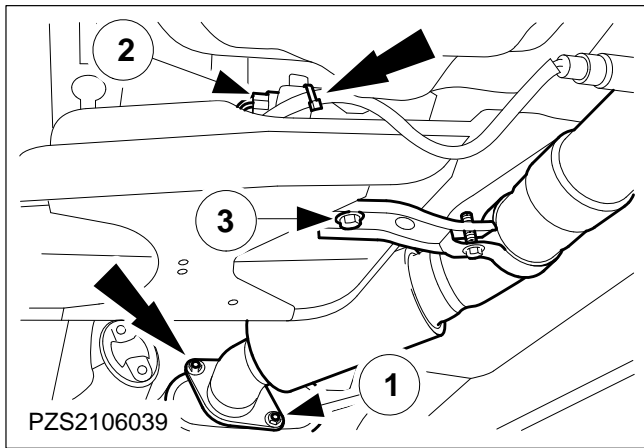
NOTE: The air conditioning system should not be opened.

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.

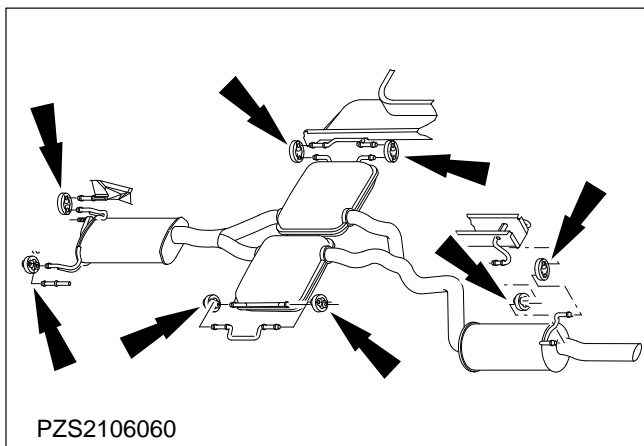


29. Detach the front axle transverse brace.



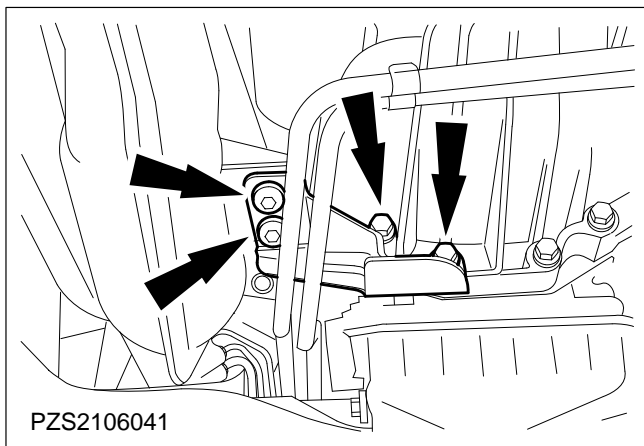
30. Remove the catalytic converter with the front exhaust pipe.

- 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.

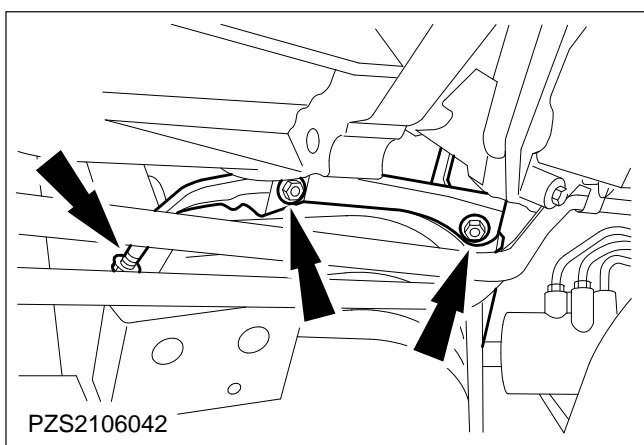


31. Remove the rear part of the exhaust system.

Unhook the mountings.

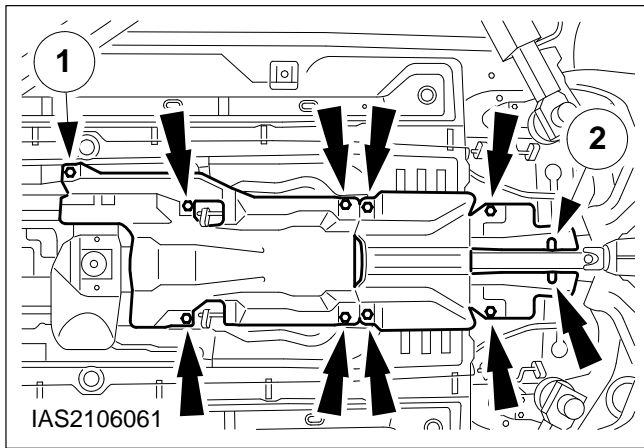


32. Detach the bracket from the catalytic converter and the automatic transmission.

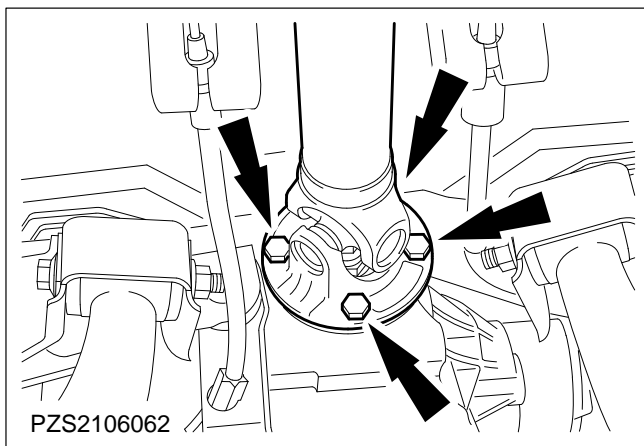
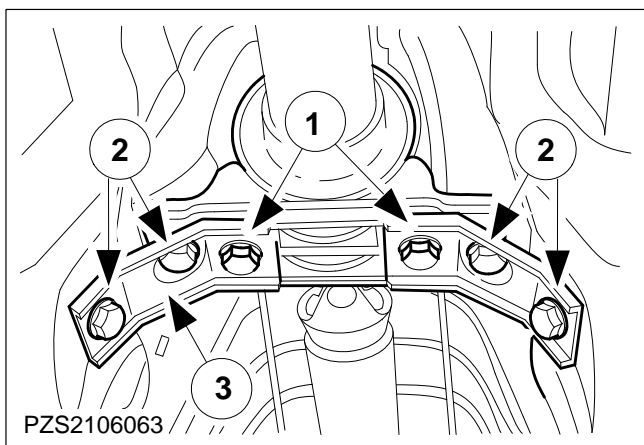


33. Remove the catalytic converter with the front exhaust pipe.

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

**34. Detach the exhaust system heat shields.**

- 1 Nine nuts.
- 2 Two clips.

**35. Detach the driveshaft from the rear axle.****36. Detach the driveshaft centre bearing.**

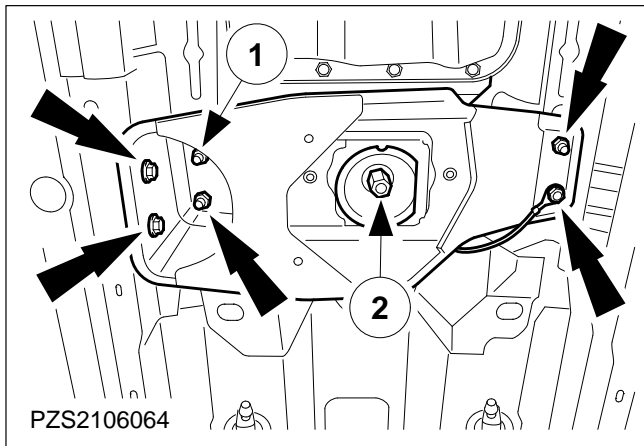
NOTE: There are spacer washers between the floor assembly and the centre bearing.

- 1 Slacken the bolts.
- 2 Remove the bolts.
- 3 Turn the two brackets 90°.

NOTE: Escaping oil.

37. Withdraw the driveshaft from the automatic transmission.

Close the opening in the automatic transmission with an auxiliary plug.

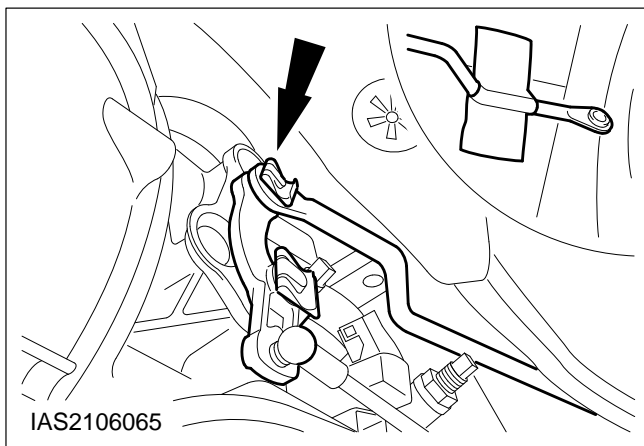


NOTE: Support the automatic transmission with a transmission jack.

38. Detach the transmission crossmember.

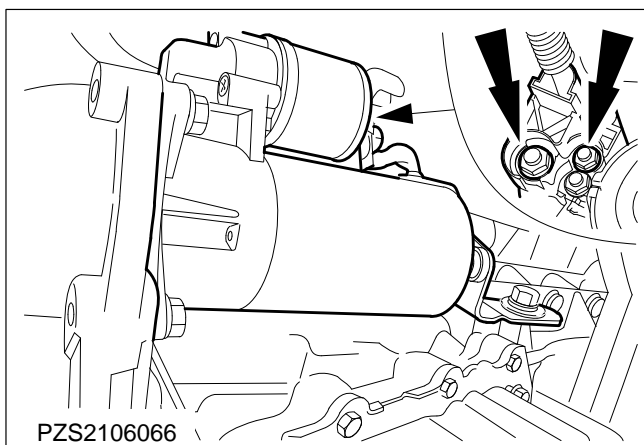
- 1 Detach it from the body.
- 2 Detach it from the automatic transmission.

Lower the automatic transmission and remove the transmission jack.

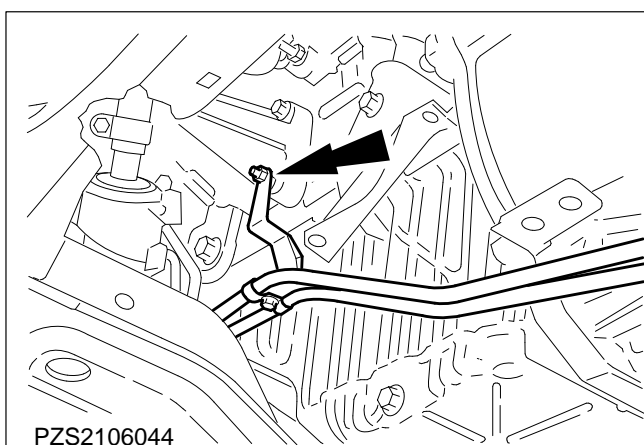


39. Detach the shift rod from the cranked lever.

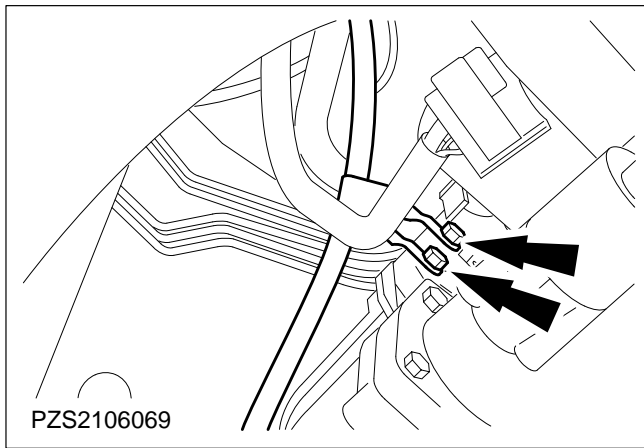
Secure the shift rod to the inside of the body with adhesive tape.



40. Disconnect the starter motor lead.

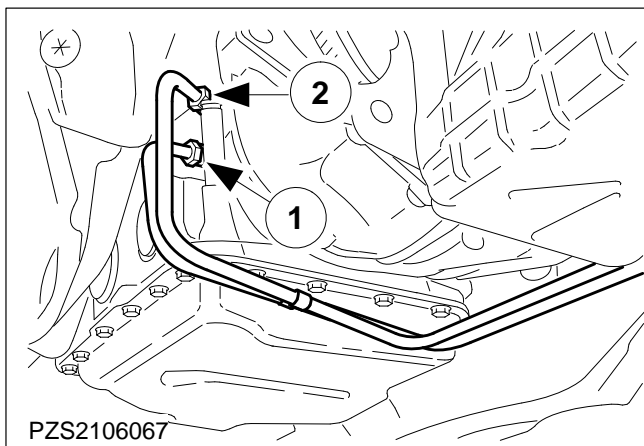


41. Detach the bracket for the oil pipes.



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

Unclip the automatic transmission wiring loom.

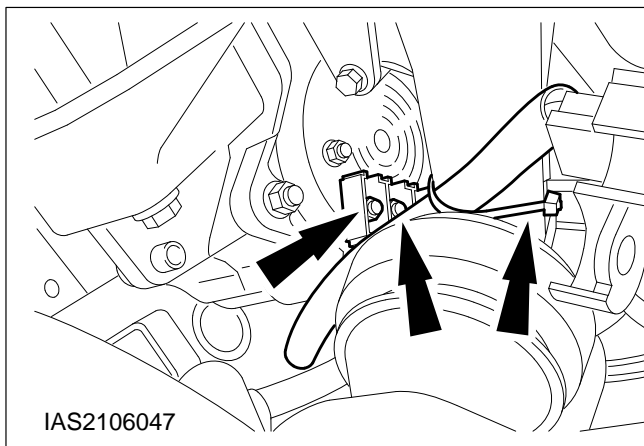


43. Detach the oil pipes from the automatic transmission.

1 Return pipe

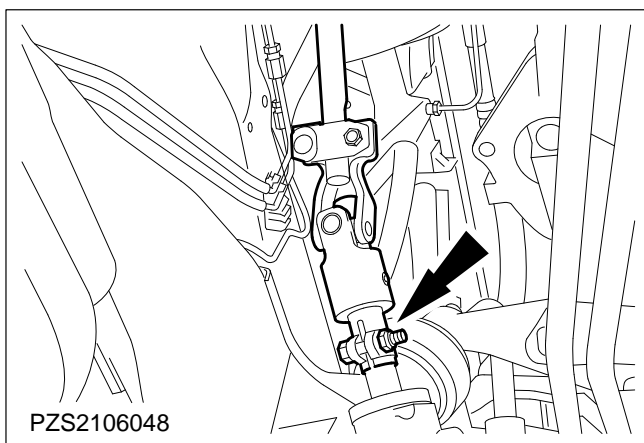
2 Feed pipe

Close off the openings.

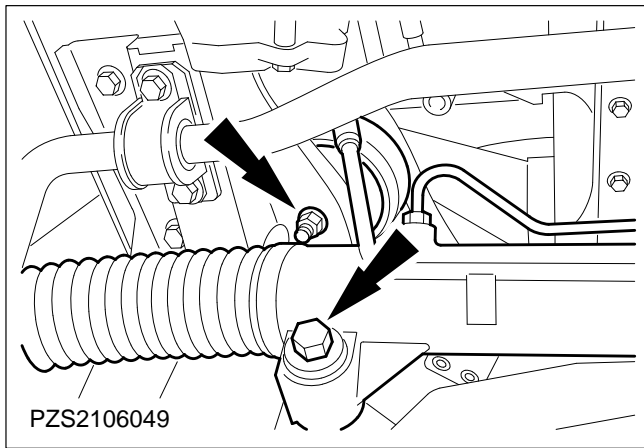


44. Disconnect the alternator lead.

Cut the cable ties.

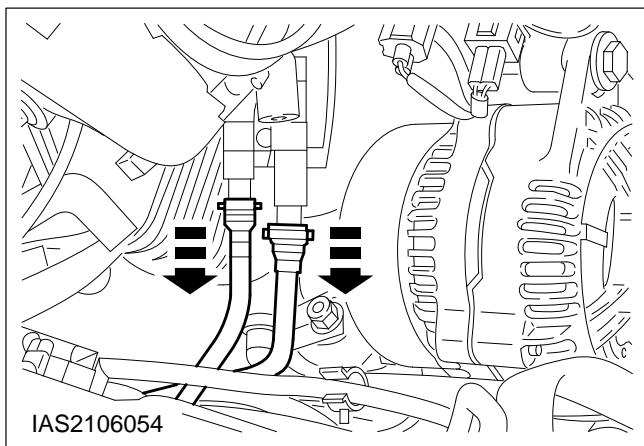


45. Detach the steering intermediate shaft.



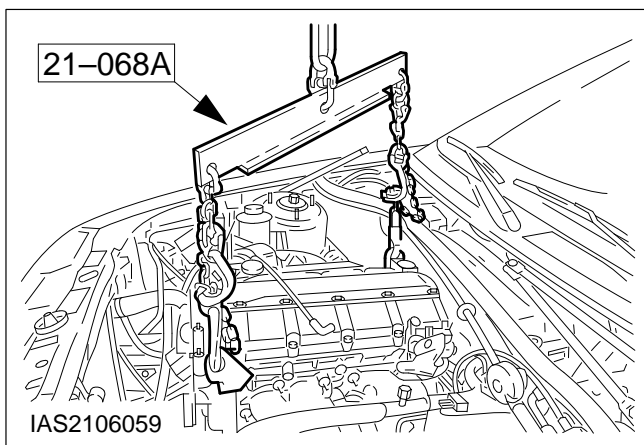
46. Detach the steering gear (one bolt on either side) and lower it.

47. Detach both engine mountings (one nut on each mounting).



48. Lower the vehicle.

49. Disconnect the fuel lines.



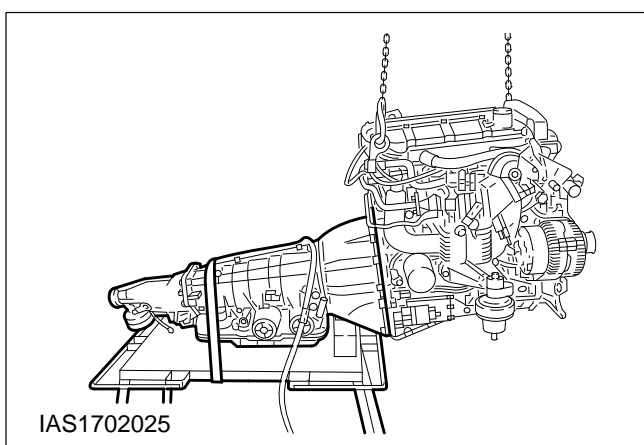
50. Attach the engine lifting bracket.

NOTE: The front chain should be shorter.



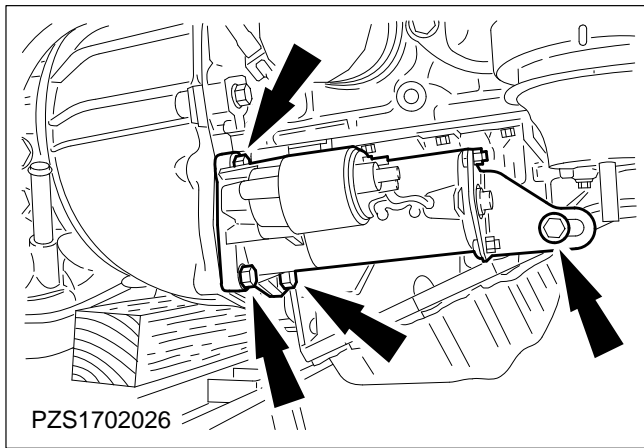
CAUTION: Do not damage the radiator.

51. Lift the engine and automatic transmission assembly out using the workshop hoist.

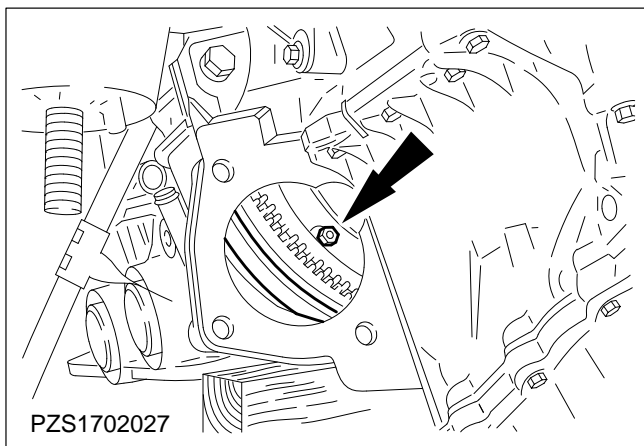


Engine from/to Automatic Transmission – Disconnect and Connect – Engine and Transmission Assembly Removed (21 132 7)

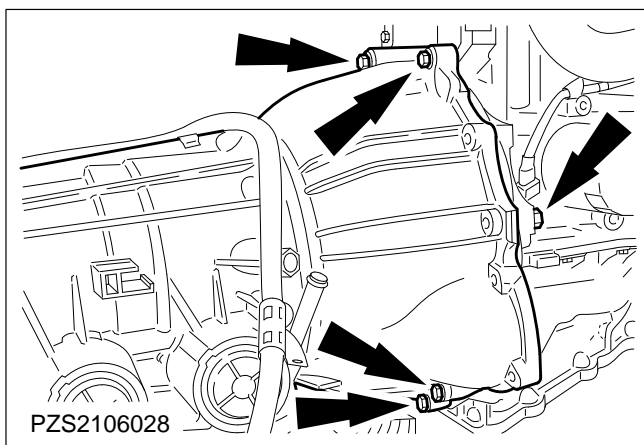
52. Secure the automatic transmission to the assembly table using the retaining strap.



53. Remove the starter motor and bracket.

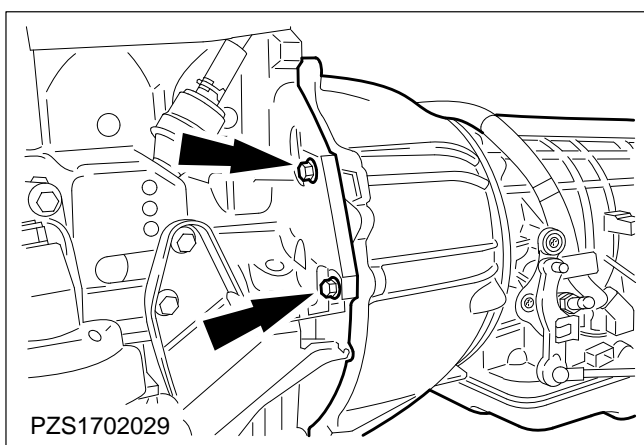


54. Detach the torque converter from the engine drive plate (four nuts).



55. Disconnect the automatic transmission from the engine.

Undo the five flange bolts on the right-hand side.



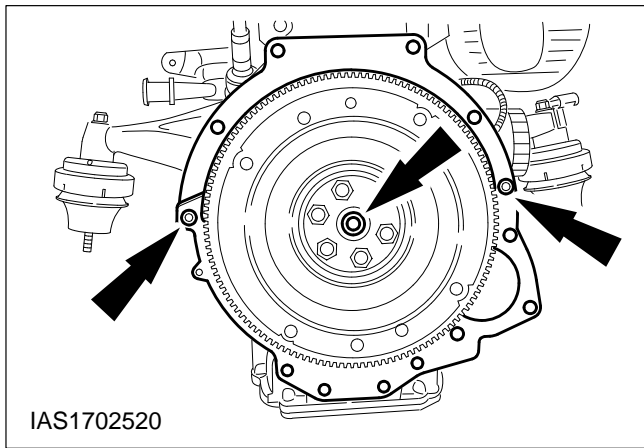
56. Disconnect the automatic transmission from the engine (continued).

Undo the two flange bolts on the left-hand side.



WARNING: Make sure that the torque converter remains in the transmission.

57. Disconnect the engine from the automatic transmission.

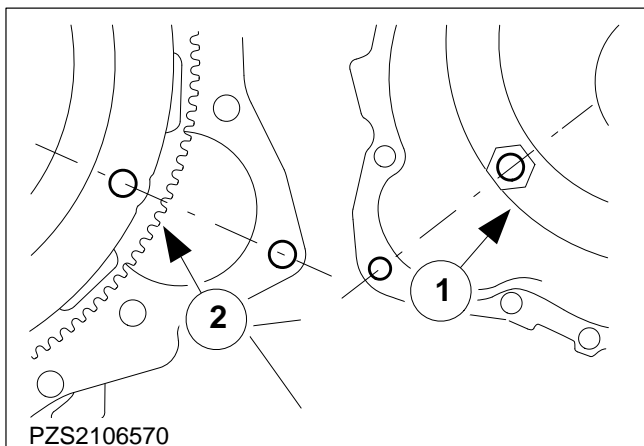


58. If necessary move the locating sleeves from the automatic transmission flange to the engine flange.

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

Fix the adaptor plate in position using a little grease.

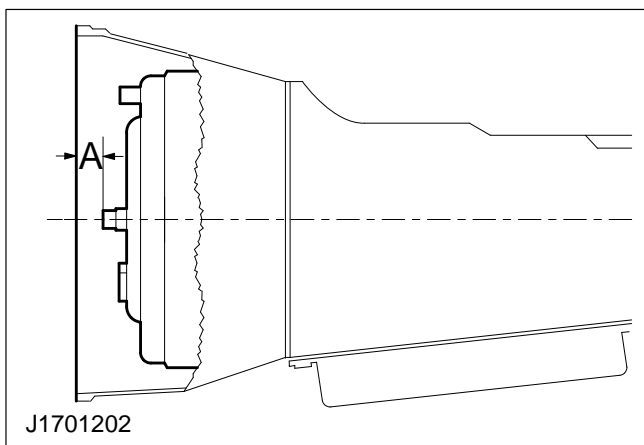
60. Apply a thin coating of high temperature grease (ESDM-1C220-A) to the torque converter guide bore.



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

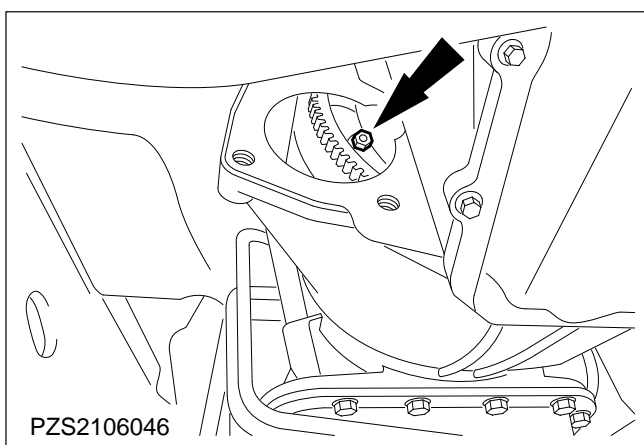
1 Torque converter

2 Engine drive plate.



62. Check the fitted measurement of the torque converter:

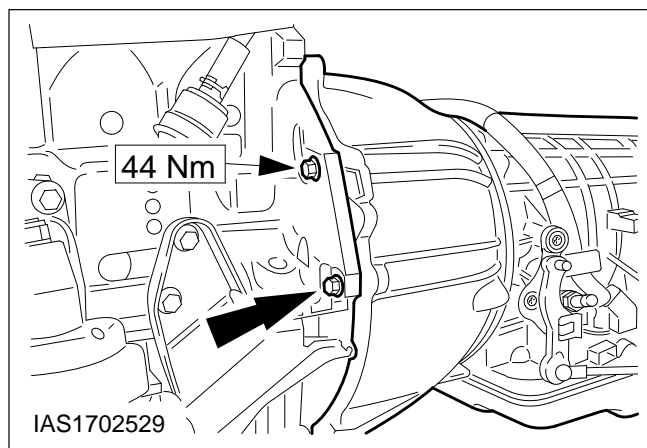
The fitted measurement "A" between the torque converter housing flange and the torque converter centring pin is 9 mm.



NOTE: Ensure the torque converter is correctly fitted in the engine drive plate.

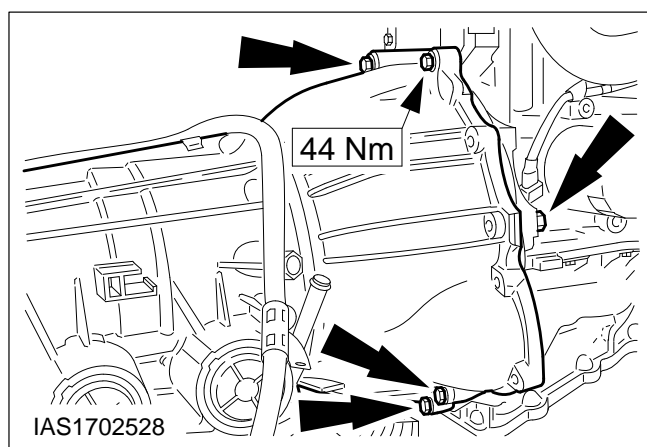
63. Connect the automatic transmission to the engine.

- Insert the torque converter attachment studs into the engine drive plate and do up the nuts (x 4).
- Screw in the flange bolts.



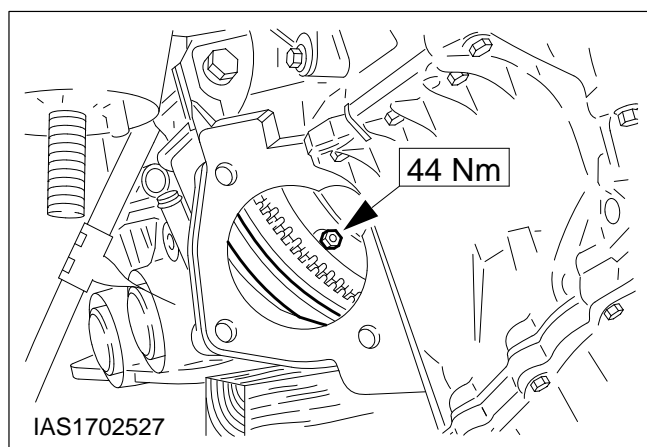
64. Connect the automatic transmission to the engine (continued).

Tighten the two bolts on the left-hand side.

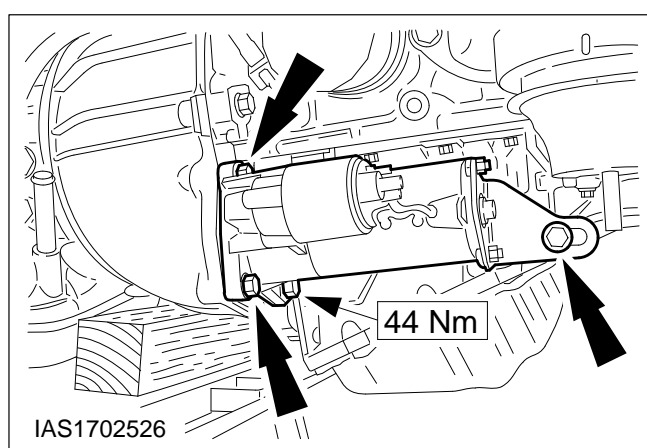


65. Connect the automatic transmission to the engine (continued).

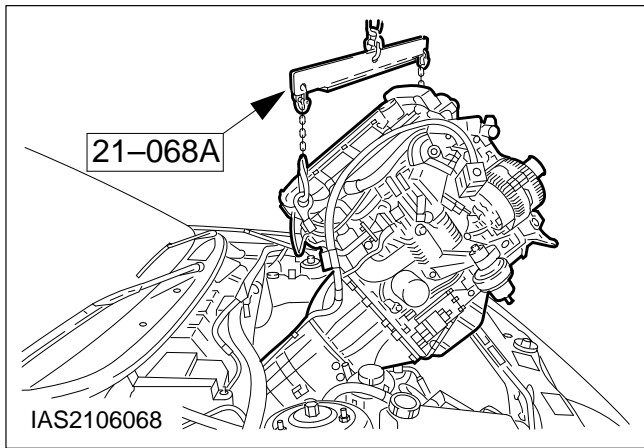
Tighten the five bolts on the right-hand side.



66. Secure the torque converter.



67. Fit the starter motor and bracket.

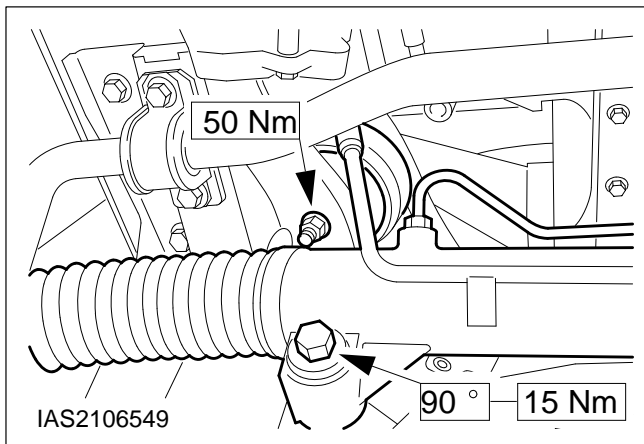


Install

NOTE: Suspend the engine and the transmission assembly from the engine lifting bracket with the shorter chain at the front.

68. Install the engine and transmission assembly.

69. Detach the engine lifting bracket.



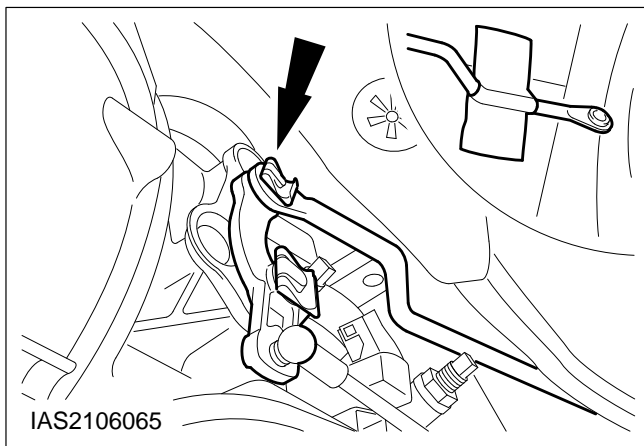
70. Raise the vehicle.

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

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

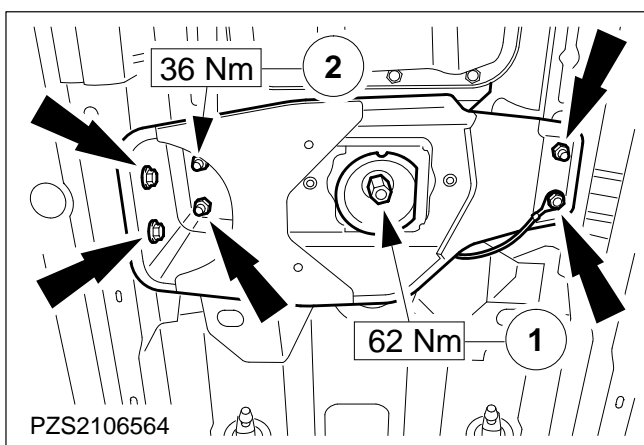
NOTE: Use Special Tool 21-540.

72. Fit the steering gear (one bolt on either side).



73. Attach the shift rod to the cranked lever.

Remove the adhesive tape.



74. Raise the automatic transmission using the transmission jack.

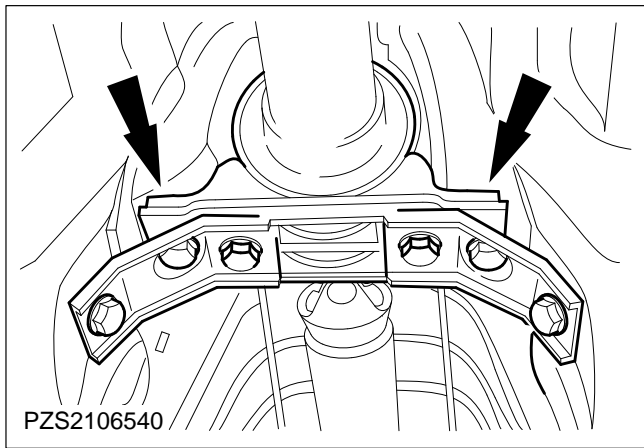
NOTE: Attach the earth lead.

75. Attach the transmission crossmember.

1 Attach it to the automatic transmission.

2 Attach it to the body.

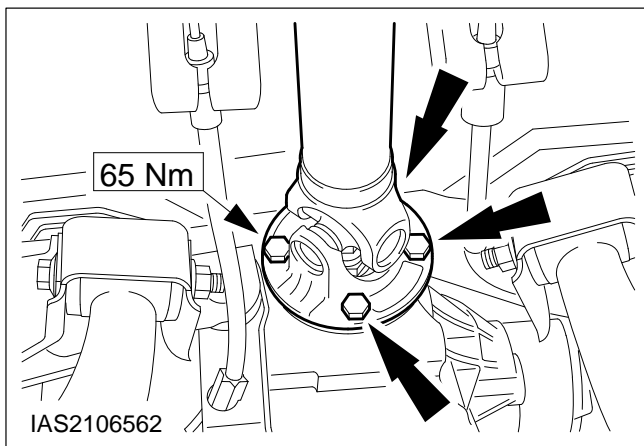
Remove the transmission jack.



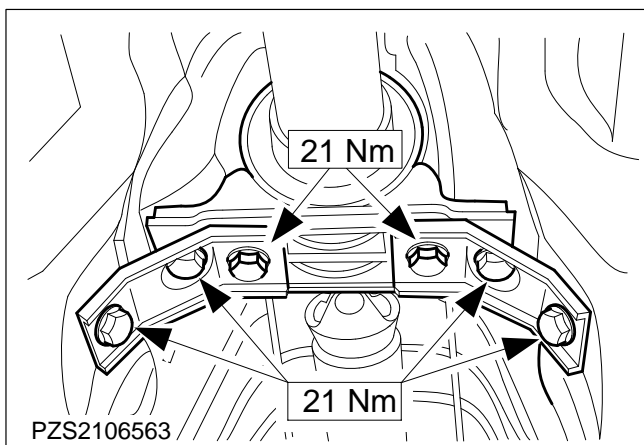
76. Push the driveshaft into the automatic transmission.

NOTE: There are spacer washers between the floor assembly and the centre bearing.

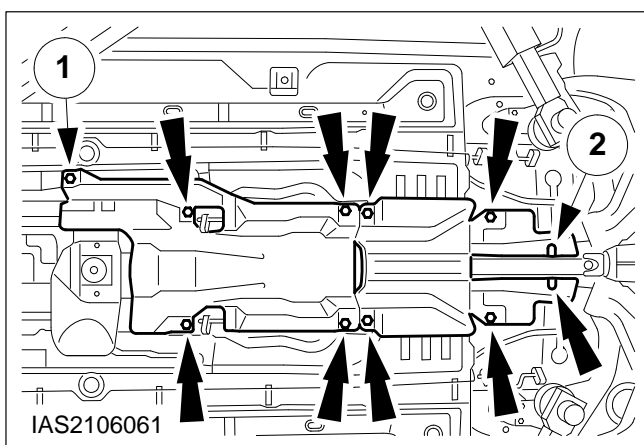
77. Loosely fit the driveshaft centre bearing.



78. Attach the driveshaft to the rear axle.



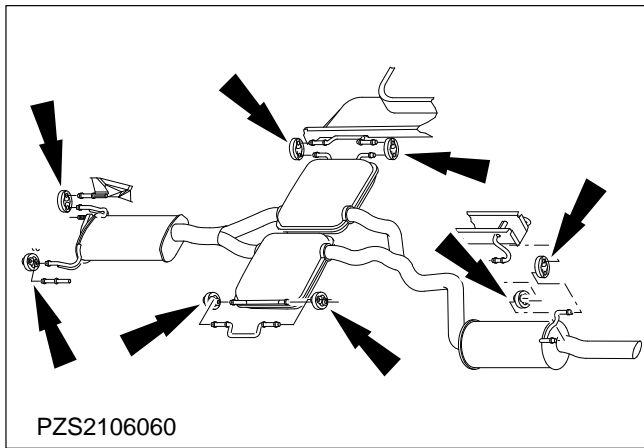
79. Align the centre bearing so that it is free of strain and tighten it.



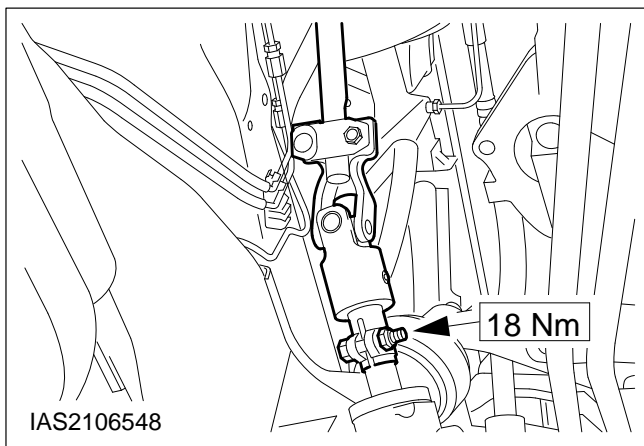
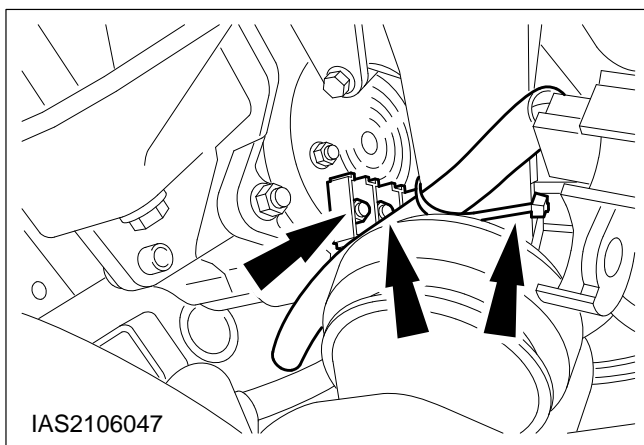
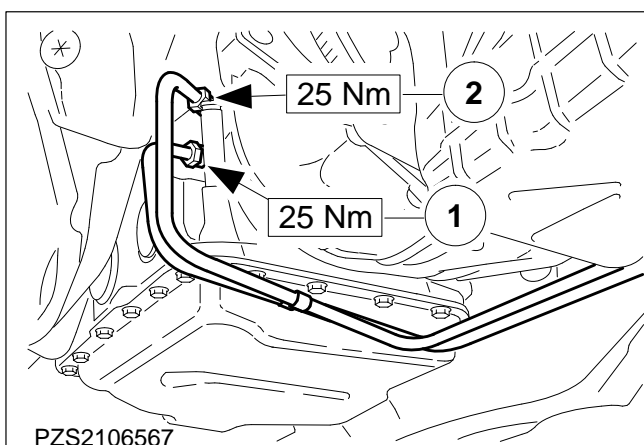
80. Fit the exhaust system heat shields.

1 Nine nuts.

2 Two clips.

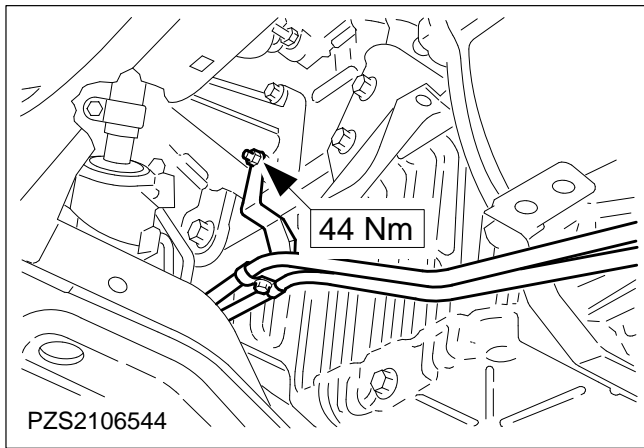
**81. Install the rear exhaust system.**

Attach the rubber insulators.

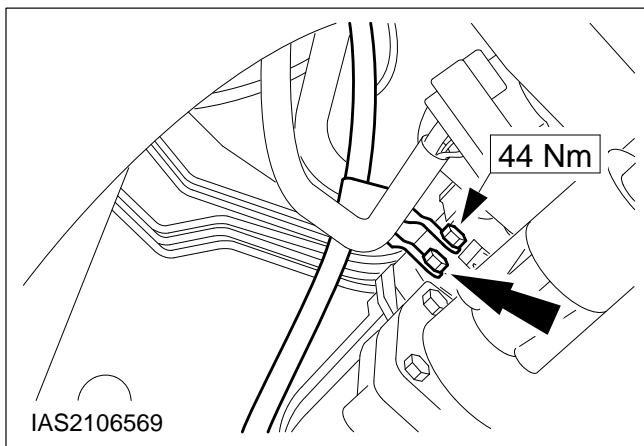
**82. Connect the steering intermediate shaft.****83. Connect the alternator lead.****84. Attach the oil pipes to the automatic transmission.**

1 Return pipe.

2 Feed pipe.

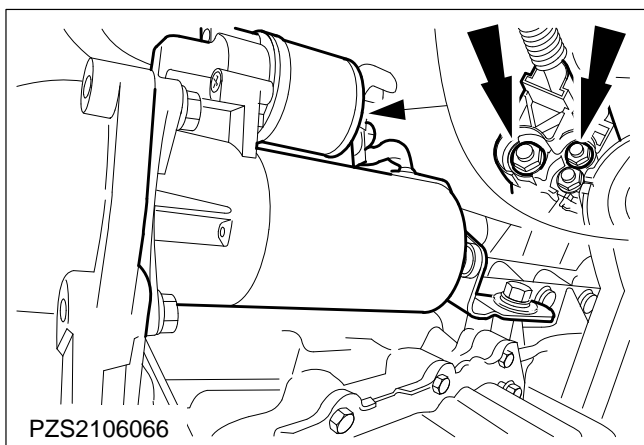


85. Attach the bracket for the oil pipes.

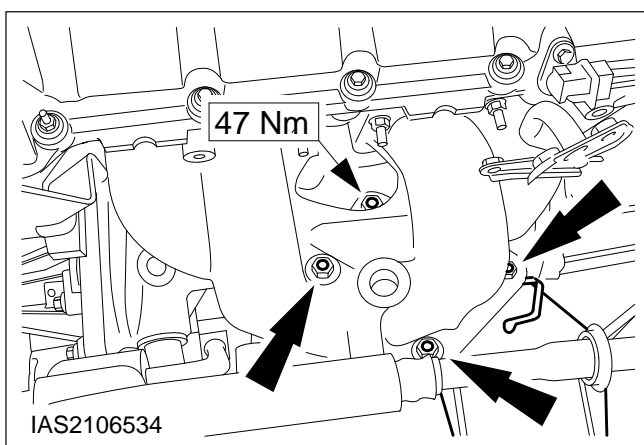


86. Fit the oil dipstick tube and the earth lead.

Clip the automatic transmission wiring loom into place.



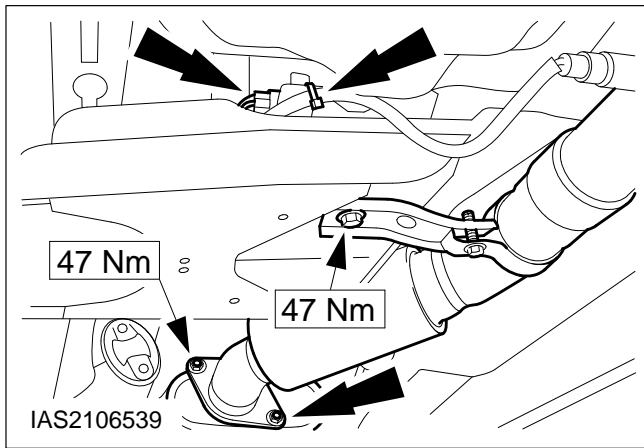
87. Connect the starter motor lead.



88. Move the catalytic converter with the front exhaust pipe and with a new gasket into the installation position.

89. Lower the vehicle.

90. Secure the catalytic converter to the exhaust manifold.



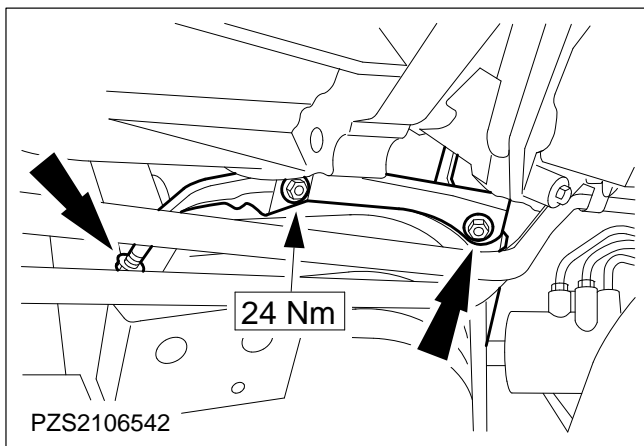
91. Raise the vehicle.

92. Attach the front exhaust pipe bracket to the transmission crossmember.

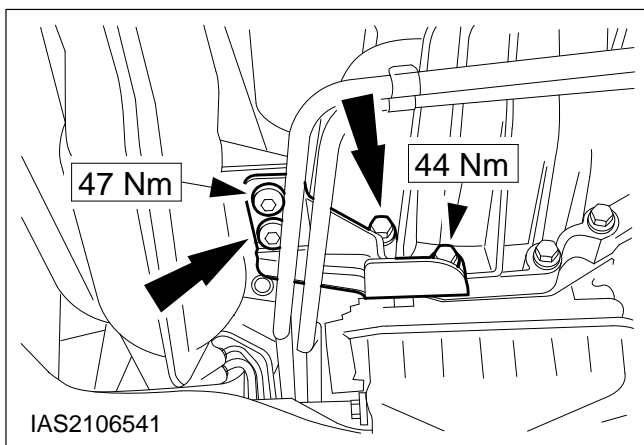
93. Connect the HO2S plug.

Secure the cable with a cable tie.

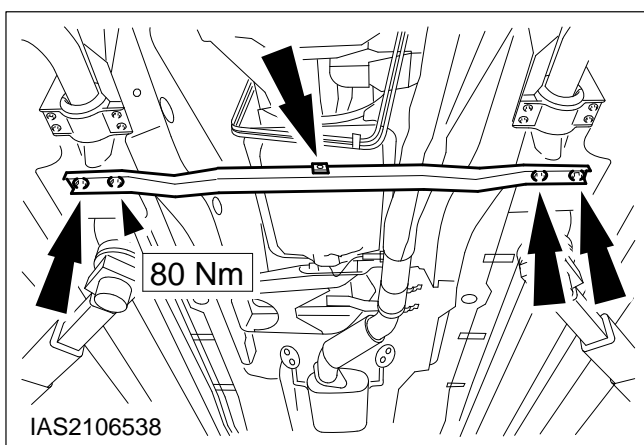
94. Attach the front exhaust pipe to the rear exhaust pipe using a new gasket.



95. Fit the front catalytic converter bracket.

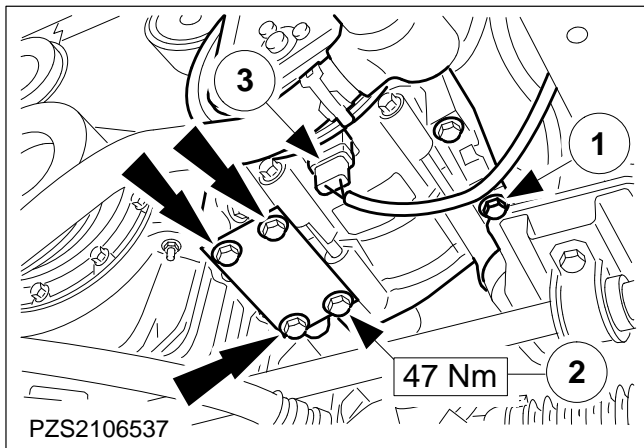


96. Attach the bracket to the automatic transmission and the catalytic converter.



NOTE: The tab points forwards.

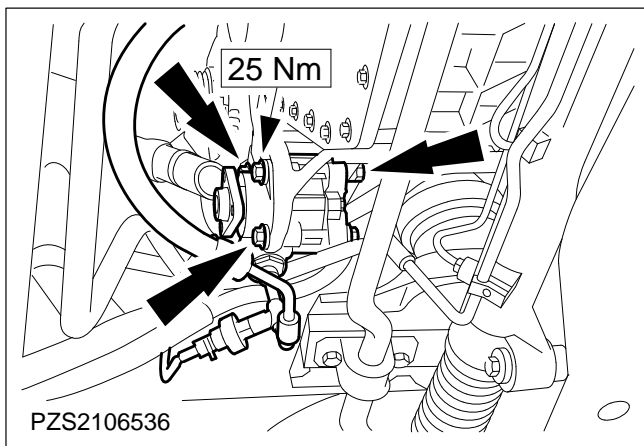
97. Fit the front axle transverse brace.



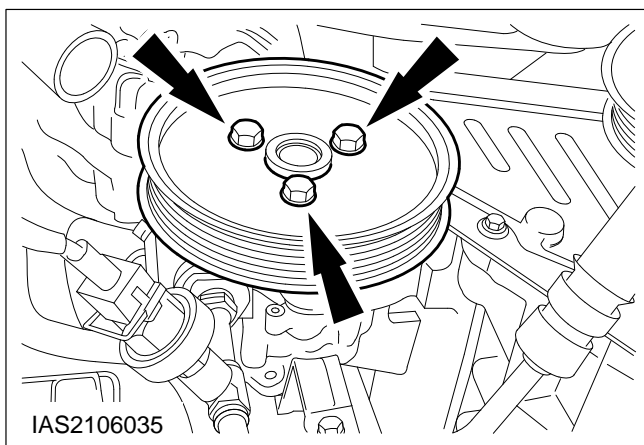
NOTE: Insert one bolt beforehand.

98. Attach the air conditioning compressor.

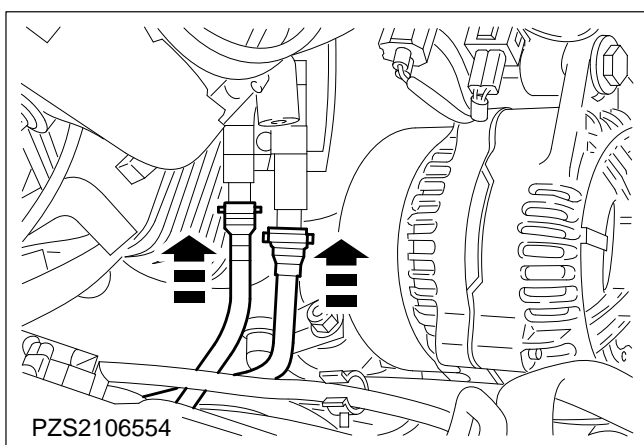
- 1 Insert the bolt before installing the compressor.
- 2 Tighten the bolts.
- 3 Connect the plug of the magnetic clutch.



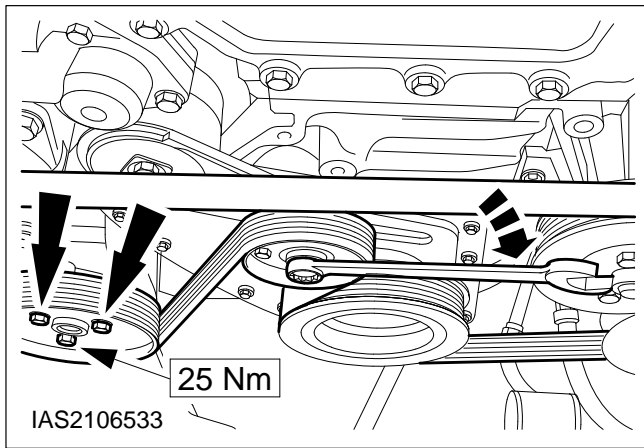
99. Fit the power steering pump.



100. Attach the pulley to the power steering pump.

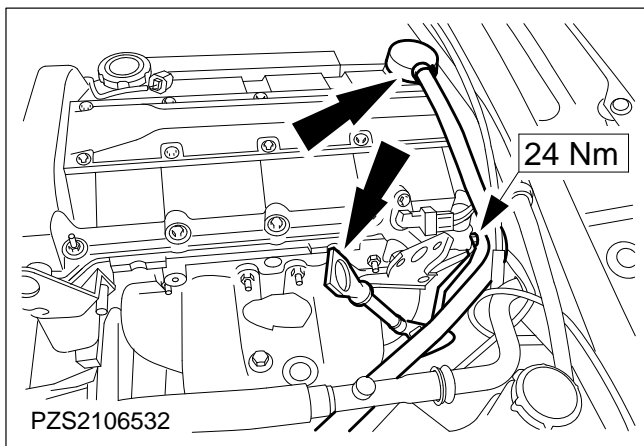


101. Connect the fuel lines.



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

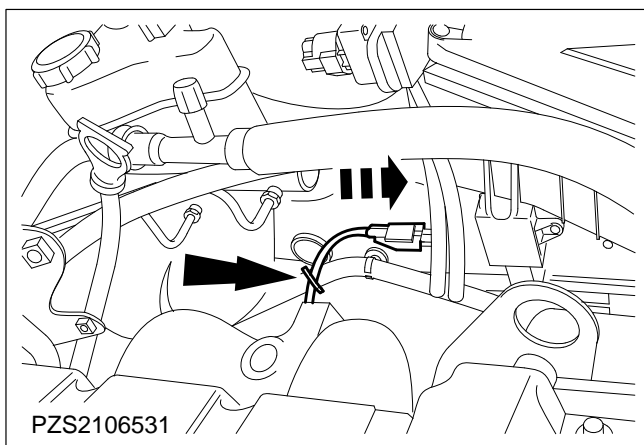
103. Tighten the power steering pump pulley.



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

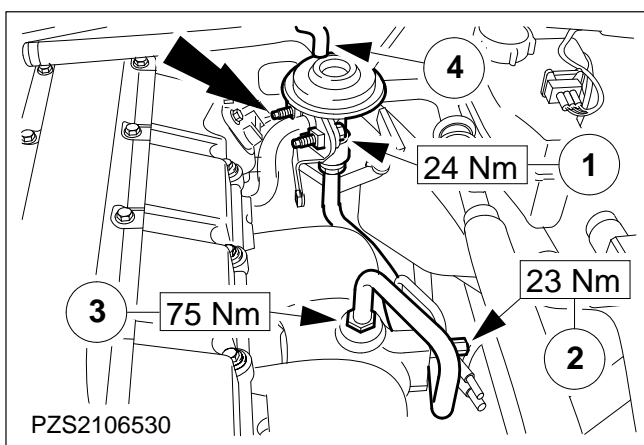
105. Fit the oil dipstick tube bracket.

Insert the oil dipstick.



106. Connect the HO2S plug.

Secure the cable to the heater coolant hose using a cable tie.



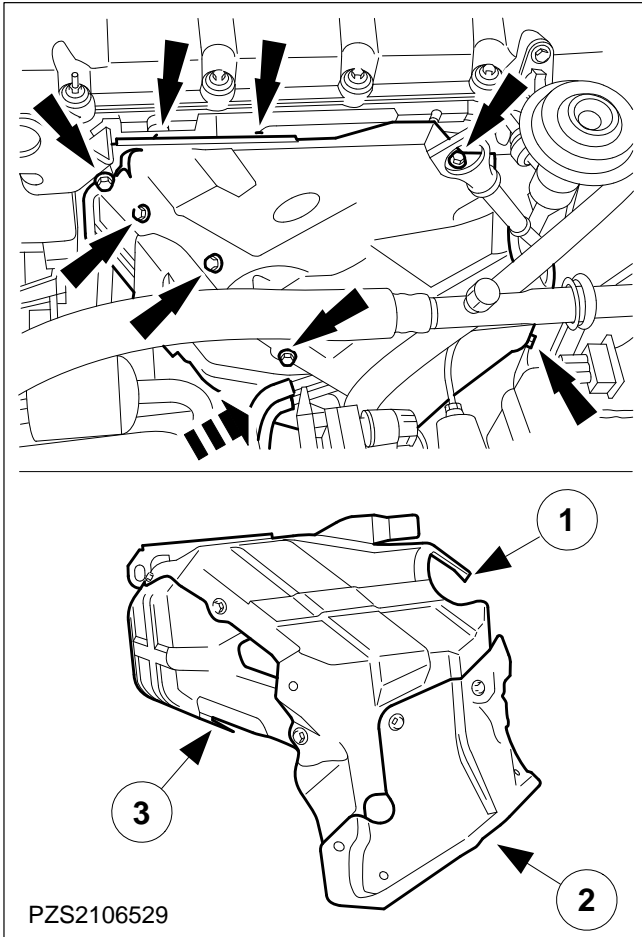
107. Fit the EGR valve and the EGR pipe.

1 Attach the EGR valve to the bracket.

2 Fit the EGR pipe bracket.

3 Fit the EGR pipe.

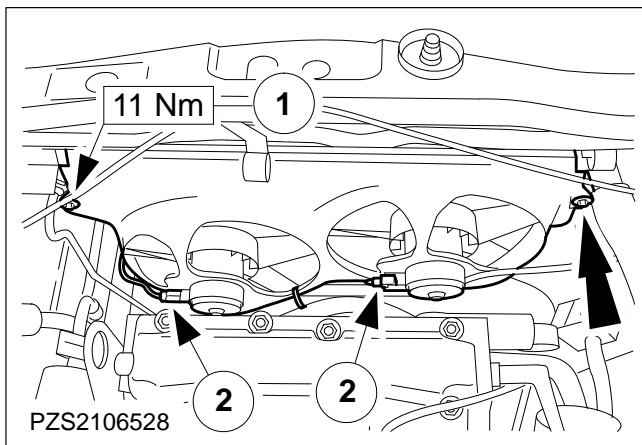
4 Connect the vacuum hose.



108. Fit the three-part exhaust manifold heatshield.

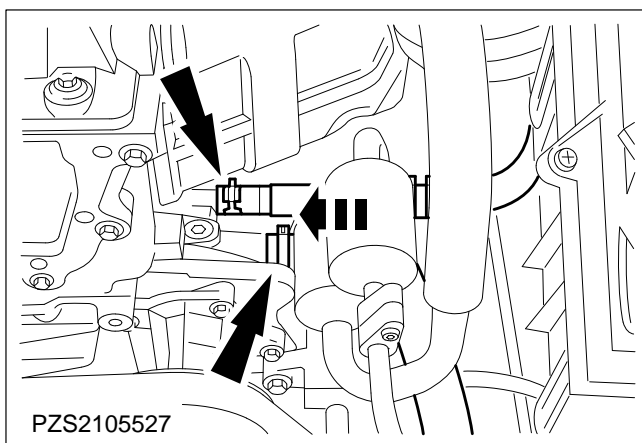
- Loosely fit the parts in the order shown.
- Tighten the bolts.

109. Slide on the two vacuum hoses.



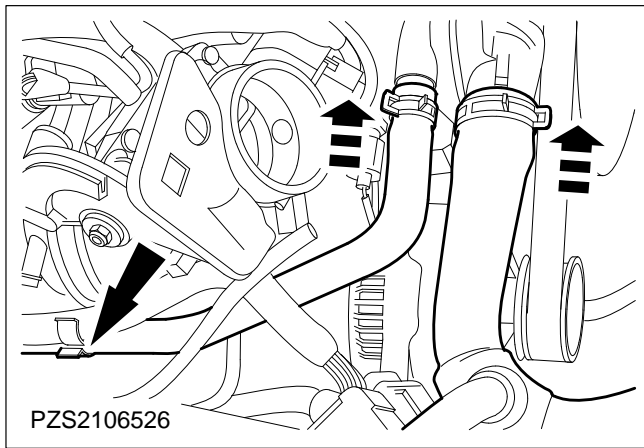
110. Install the fan motors with the air baffle.

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



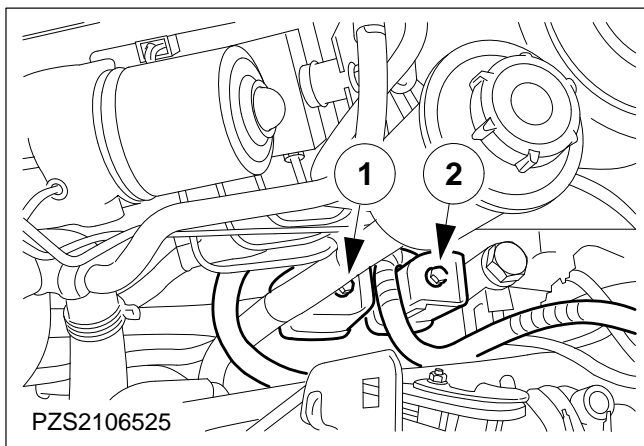
111. Attach the coolant hoses to the coolant pump.

Use Special Tool 24-003.



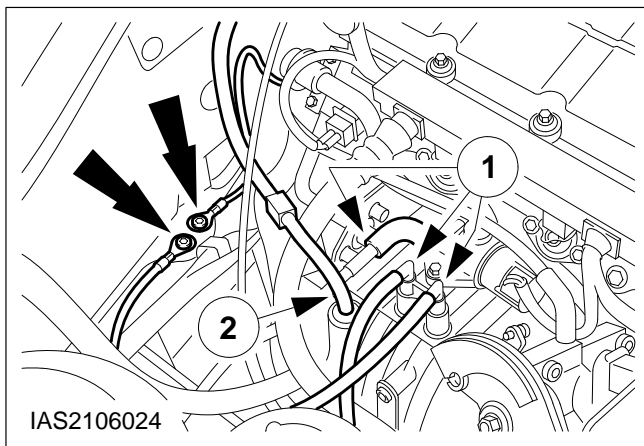
112. Attach the coolant hoses to the thermostat housing.

Clip the coolant hose into place.



113. Fit the wiring loom plugs.

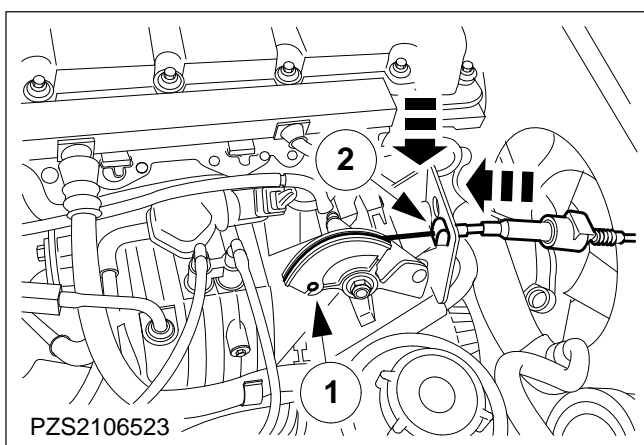
- 1 Main wiring loom plug
- 2 Automatic transmission wiring loom plug



114. Fit the vacuum hoses and vacuum line.

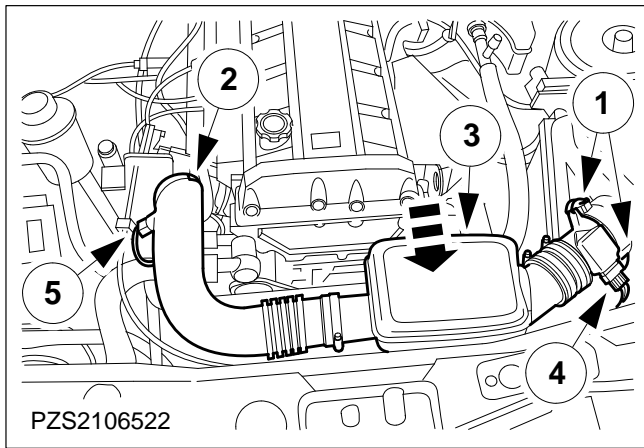
- 1 Vacuum hoses
- 2 Vacuum line to the brake servo.

115. Attach the earth lead to the bulkhead.

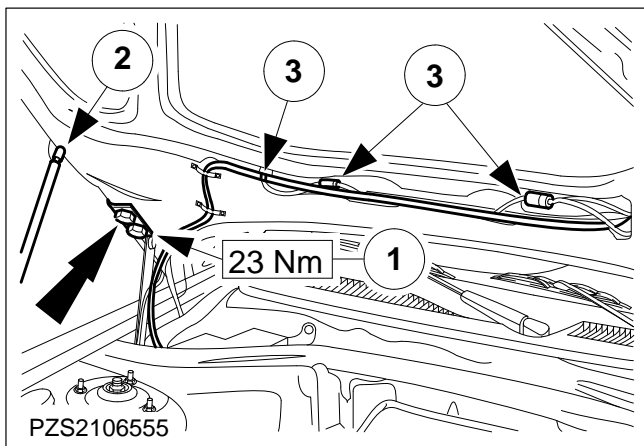


116. Attach the throttle cable.

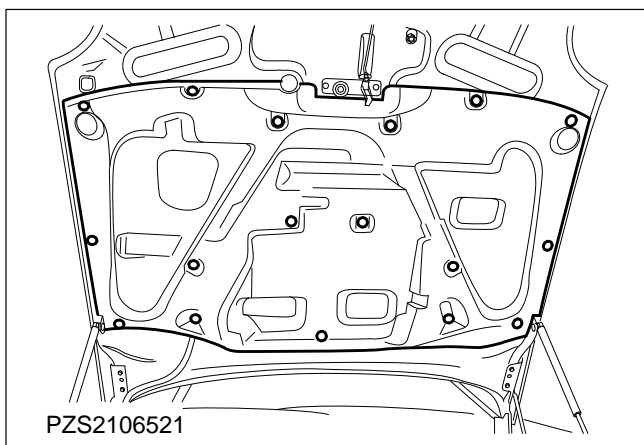
- 1 Hook the cable in place.
- 2 Insert the circlip.

**117. Install the air intake pipe.**

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

**118. Attach the hood.**

- 1 Fit the two hood hinges.
- 2 Attach the two hydraulic struts to the hood.
Close the hood and check that it fits. Open the hood.
- 3 Connect the hose and the multiplug of the washer system and clip them in place.

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

120. Finishing operations.

- Fill up with coolant.
- Check that the vacuum hoses and wires are routed correctly and secure them with cable ties.
- Insert the transmission dipstick.
- 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.