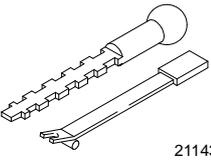
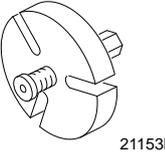
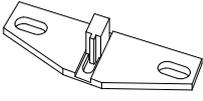


Oil Seal – Crankshaft Front – Renew (21 467 0)

Special Tools

 21143	21-143 Oil seal remover
 21153B	21-153B Remover for vibration damper
 21168	21-168 Crankshaft immobilising tool
 21178	21-178 Installer, radial oil seal

Materials

Description	
Adhesive	WSK-2G349-A7 (Loctite 243)
Coolant	ESD-M97B-49-A

Remove

1. Preparatory measures:

- Make a note of the radio keycode.
- Make a note of the preset radio stations.
- Remove the battery cover (one nut).

⚠ CAUTION: Disconnect the battery negative lead.

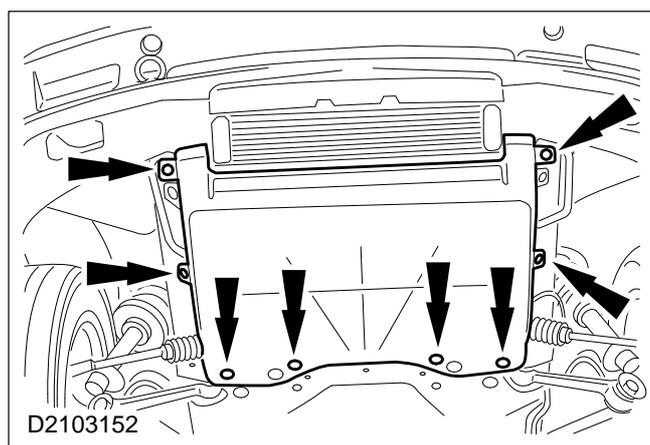
⚠ WARNING: Danger of scalding if the engine is warm.

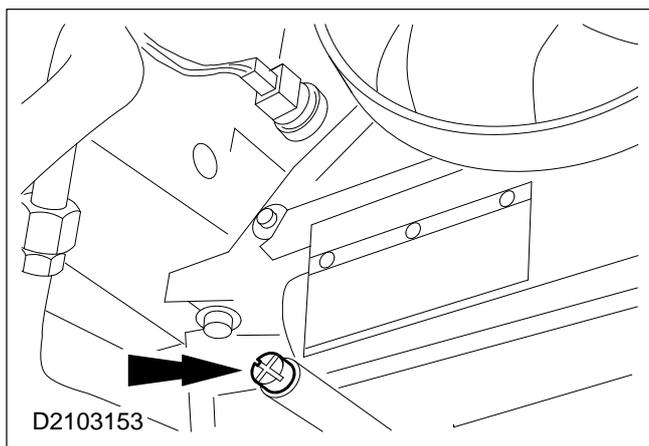
Open the coolant expansion tank.

2. Raise the vehicle.

3. Raise the vehicle.

4. Remove the front engine undershield.



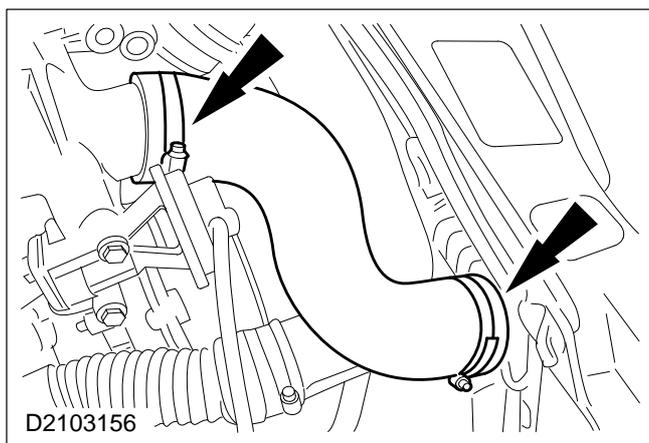


⚠ WARNING: Danger of scalding if the engine is warm.

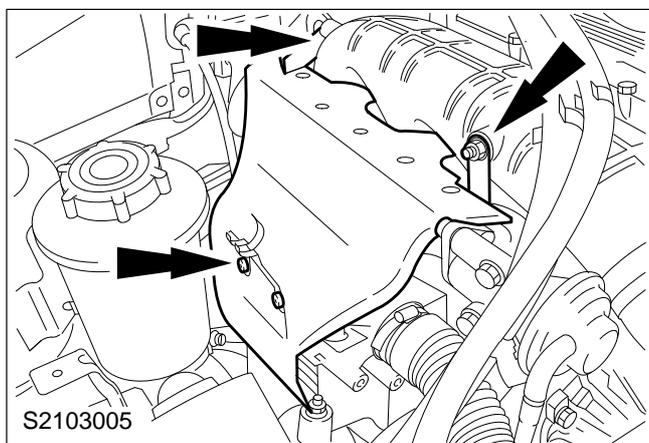
5. Drain off the coolant.

Screw the screw plug back in again once the coolant has been drained off.

6. Lower the vehicle.

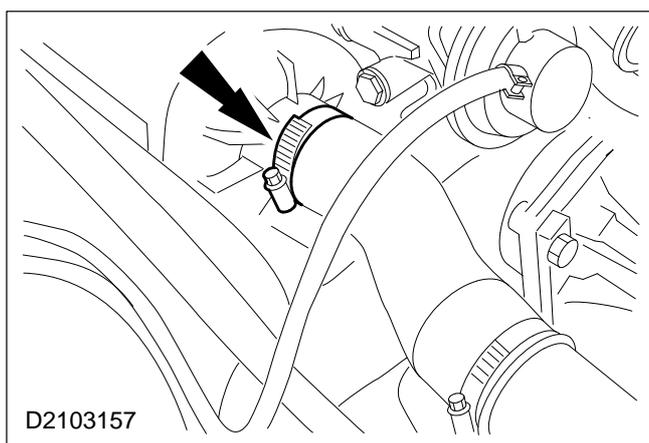


7. Remove the air hose between the inlet manifold and the intercooler.

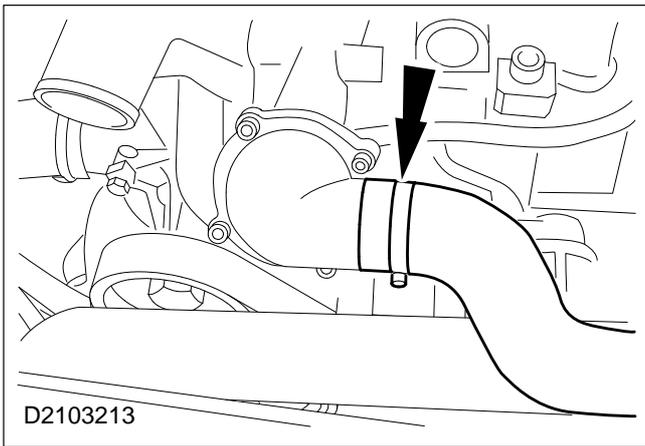


8. Remove the turbocharger heat shield.

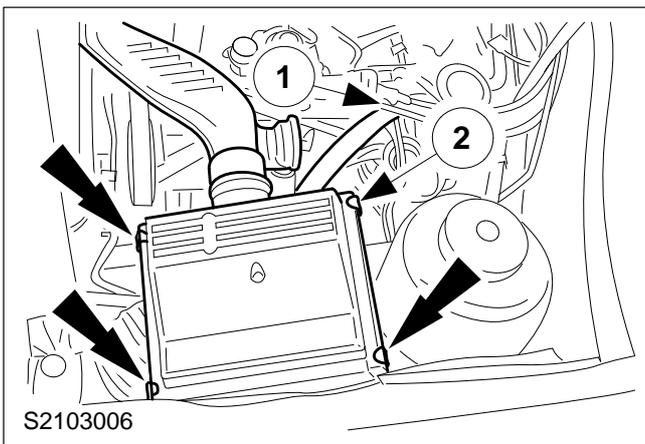
Unclip the hoses.



9. Detach the intake pipe from the turbocharger.

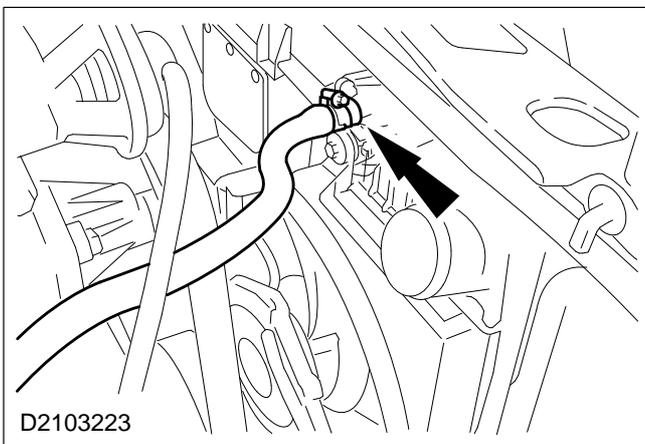


10. Detach the coolant hose.

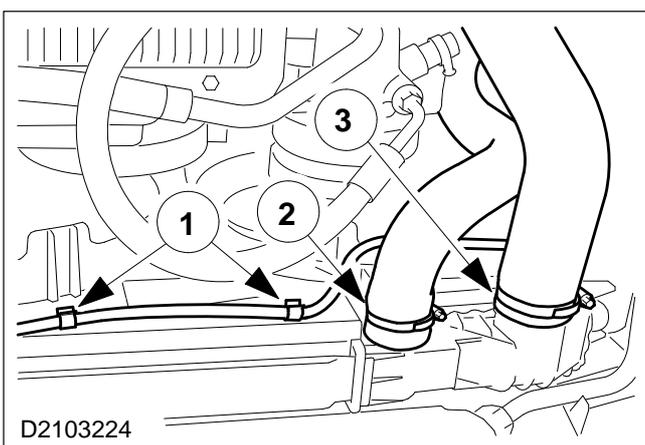


11. Remove the intake pipe.

- 1 Disconnect the crankcase ventilation hose.
- 2 Detach the cover from the air cleaner housing and remove it together with the intake pipe.



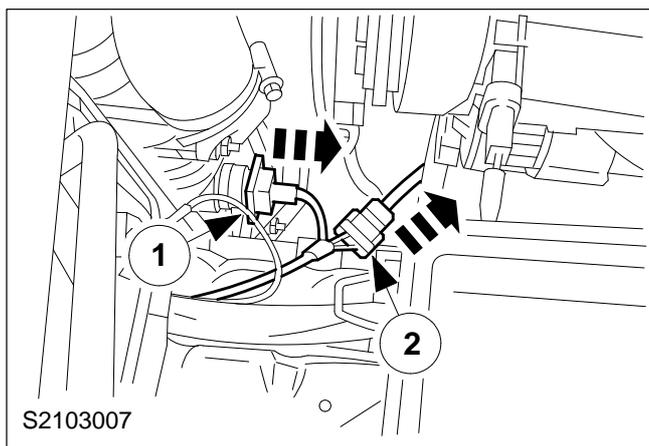
12. Detach the coolant hose from the radiator.



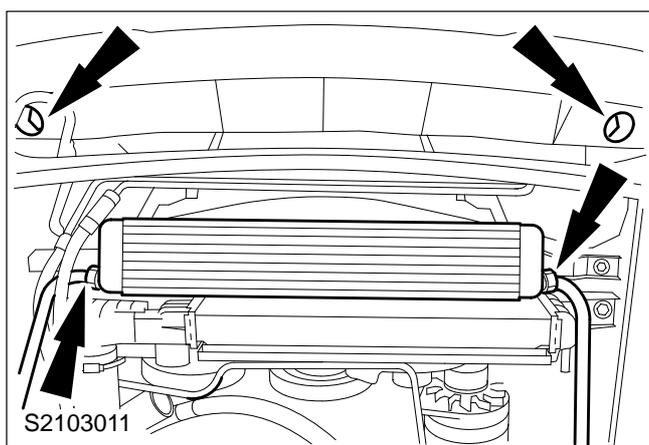
13. Raise the vehicle.

14. Detach the hoses from the bottom of the radiator.

- 1 Take the crankcase ventilation hose out of the clips.
- 2 Coolant hose
- 3 Air hose from the intercooler.

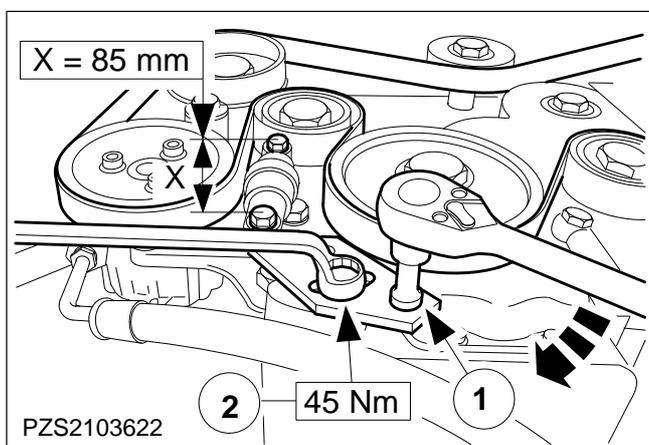
**15. Disconnect the plugs.**

- 1 Engine coolant temperature (ECT) sensor plug.
- 2 From both fan motors (left-hand side shown).

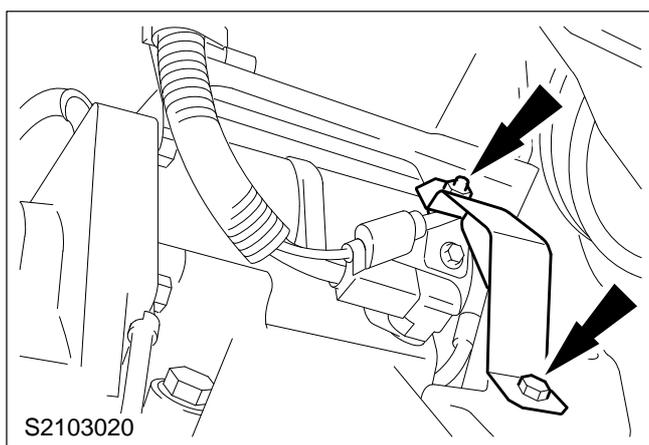
**16. Disconnect the pipes from the oil cooler.****17. Remove the radiator with the intercooler.**

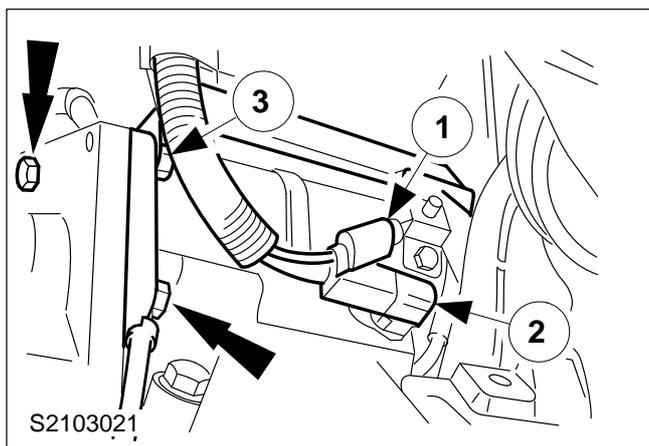
NOTE: The radiator is a push fit at the top.

- One bolt on each side.
- Remove the radiator downwards.

**18. Remove the drive belt.**

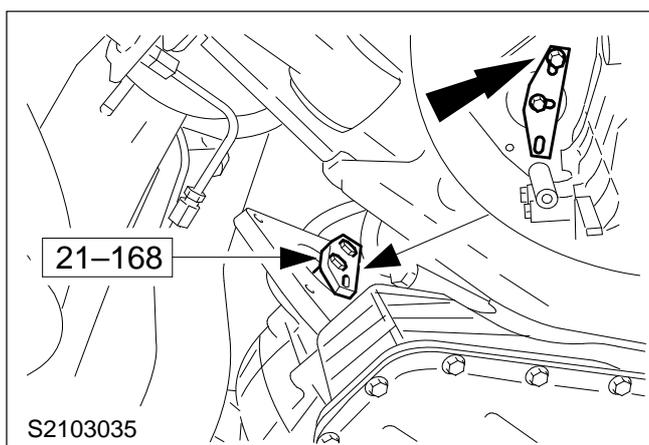
- 1 Slacken the bolt.
- 2 Slacken the drive belt and remove it.

**19. Detach the heat shield bracket from the starter motor.**



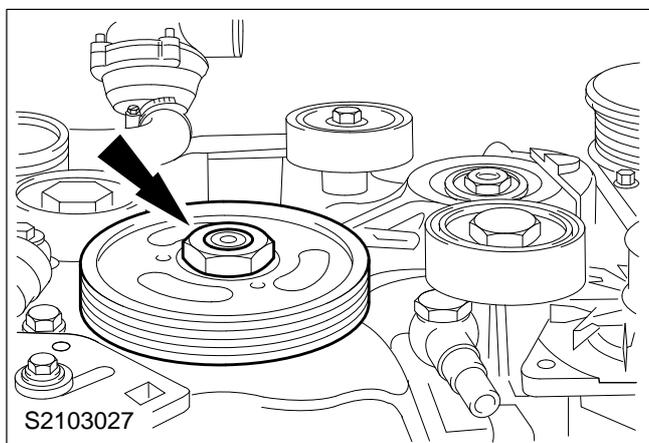
20. Remove the starter motor.

- 1 Disconnect the plug.
- 2 Open the cover and disconnect the battery positive lead.
- 3 Detach the starter motor with the heat shield and place them to the side.

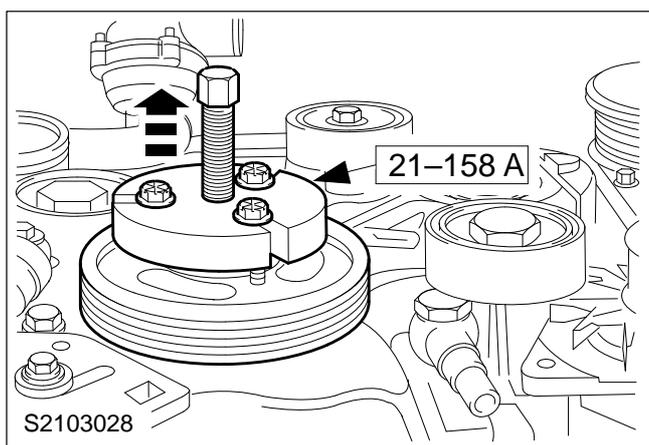


21. Immobilise the crankshaft using the locking tool.

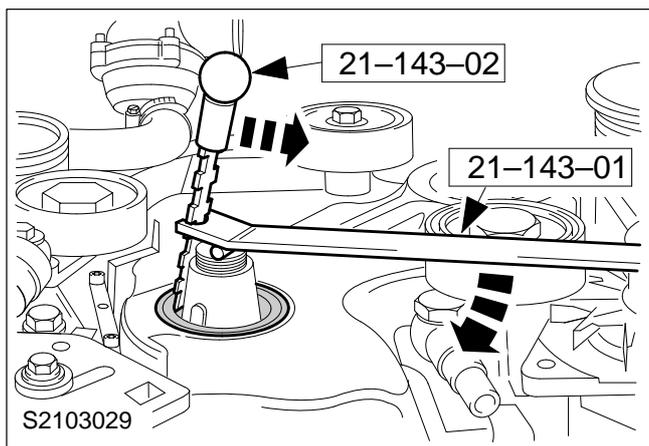
- Attach the locking tool to the transmission intermediate flange using a bolt.



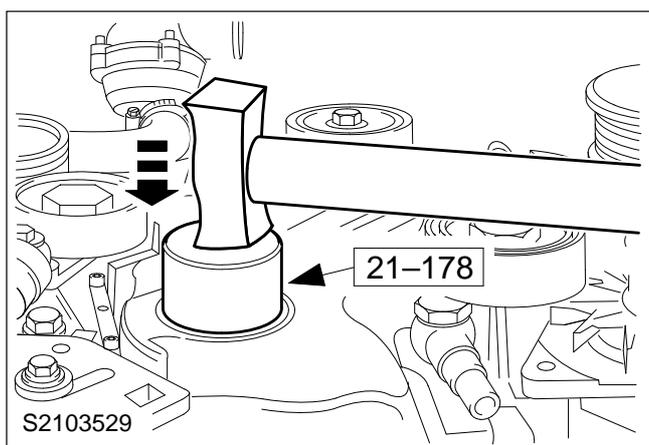
22. Remove the crankshaft pulley/vibration damper nut.



23. Remove the crankshaft pulley/vibration damper.



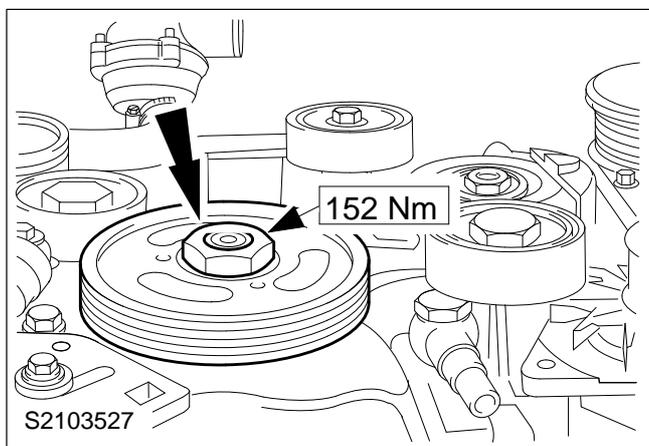
24. Remove the crankshaft front oil seal.



Install

NOTE: Fit the seal dry.

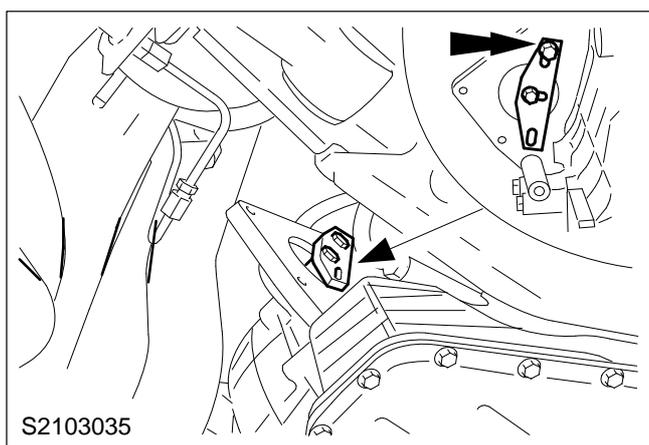
25. Fit the oil seal using the special tool.



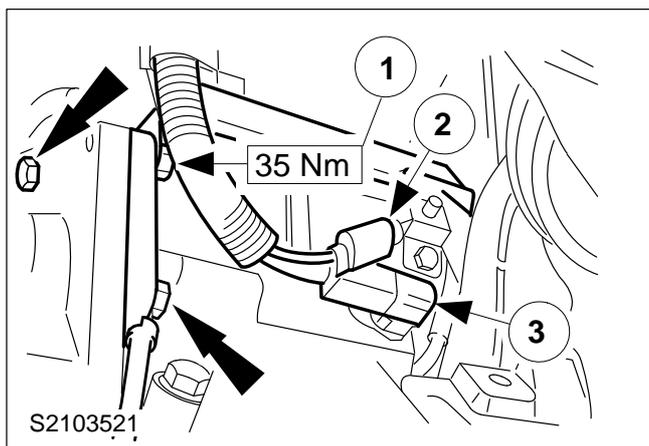
NOTE: The crankshaft is immobilised.

26. Fit the crankshaft pulley/vibration damper.

Apply adhesive (WSK-2G349-A7) to the crankshaft thread.

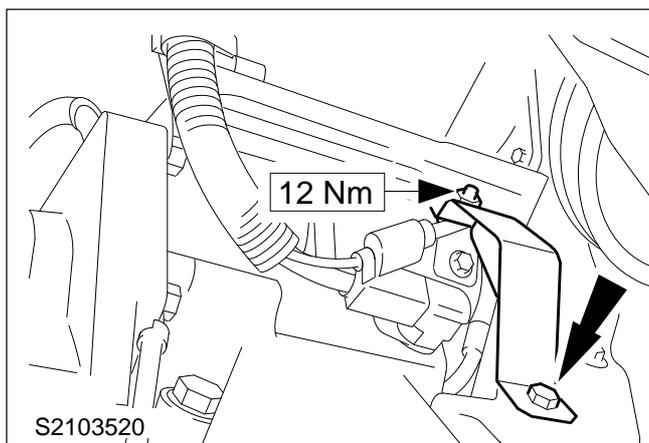


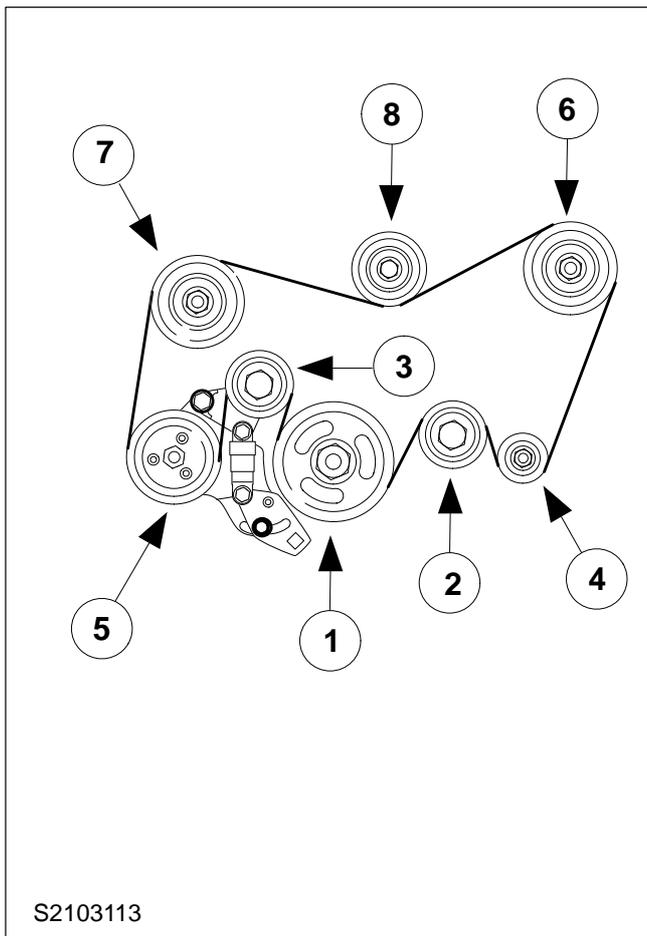
27. Detach the crankshaft locking tool from the crankcase intermediate flange.

**28. Install the starter motor.**

NOTE: Attach the ground cable using the lower bolt.

- 1 Fit the starter motor with the heat shield.
- 2 Connect the plugs.
- 3 Connect the battery positive lead and push the cover back in place.

**29. Fit the heat shield bracket to the starter motor.**

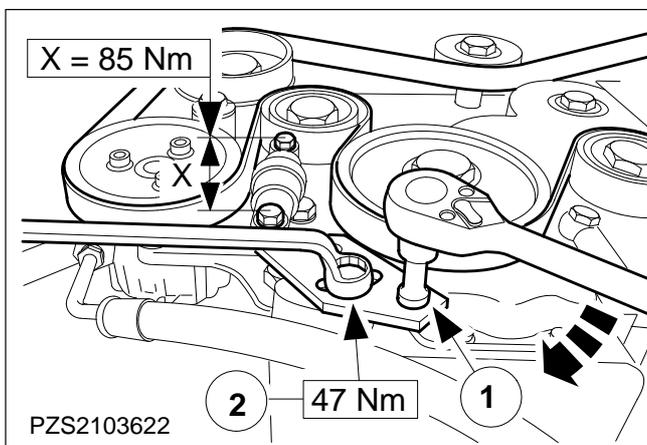


NOTE: Correct seating of the drive belt.

30. Lay the drive belt in place as shown.

NOTE: The writing on the drive belt must be legible from the front.

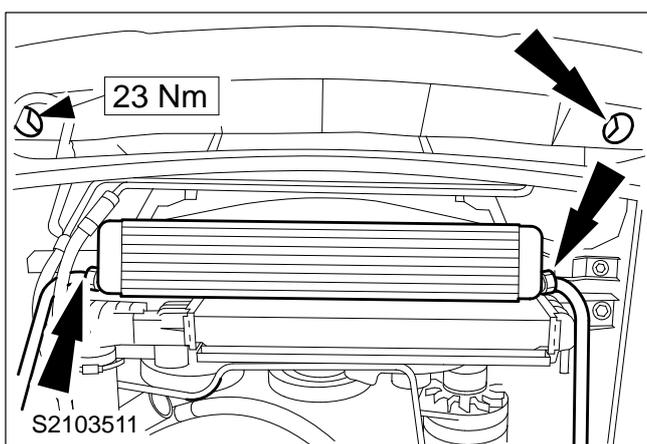
- 1 Crankshaft pulley/vibration damper
- 2 Idler pulley
- 3 Automatic belt tensioner pulley
- 4 Alternator pulley
- 5 Power steering pump pulley
- 6 Air conditioning compressor pulley
- 7 Coolant pump pulley
- 8 Idler pulley



NOTE: Check the setting after a five-minute road test.

31. Tension the drive belt.

- 1 Tension the belt and hold it taut as soon as the automatic belt tensioner has reached the specified measurement "X".
- 2 Tighten the clamp bolt on the automatic belt tensioner.

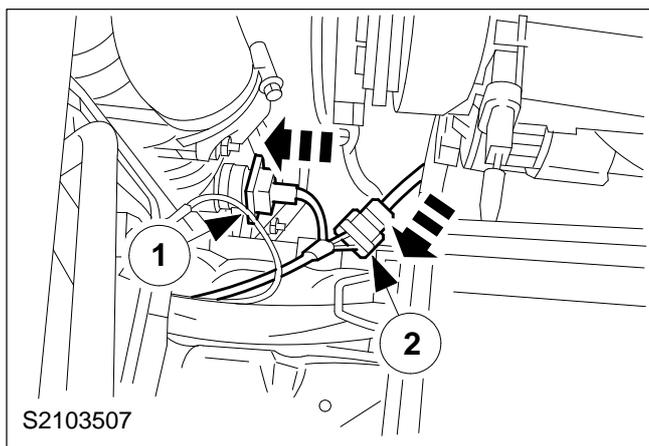


32. Install the radiator and intercooler.

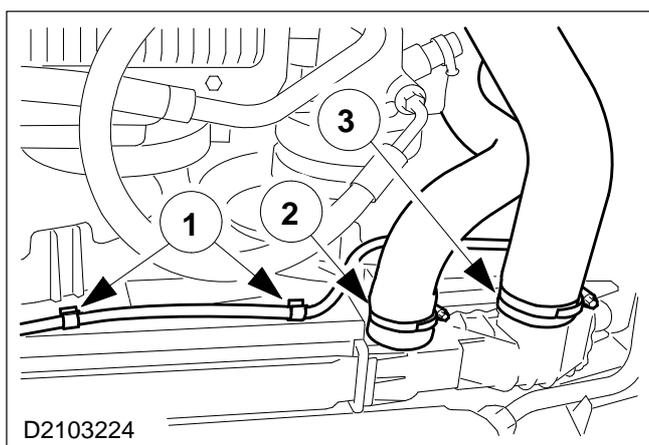
NOTE: The radiator is a push fit at the top.

Install the radiator from below and secure it (two bolts).

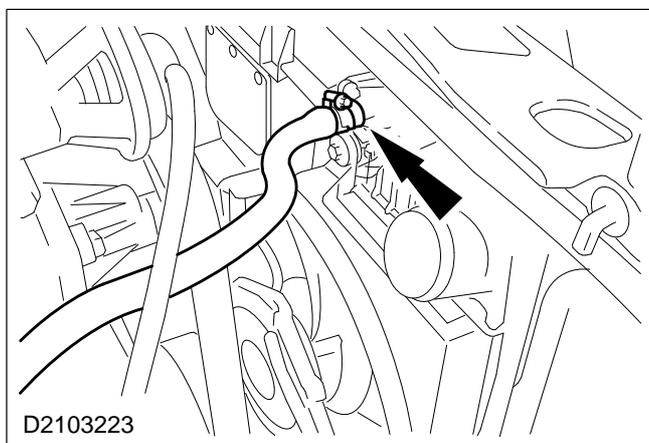
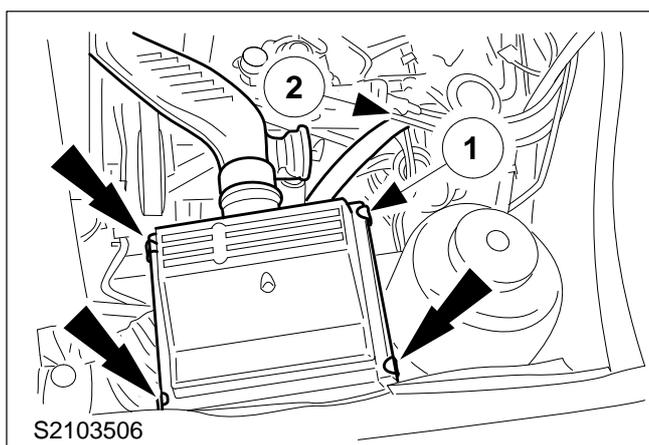
33. Connect the pipes to the oil cooler.

**34. Connect the plugs.**

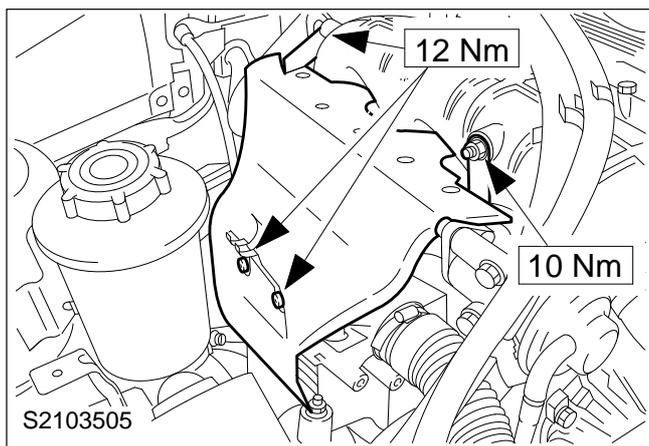
- 1 To the ECT sensor
- 2 To both fan motors (left-hand side shown)

**35. Connect the hoses at the bottom of the radiator.**

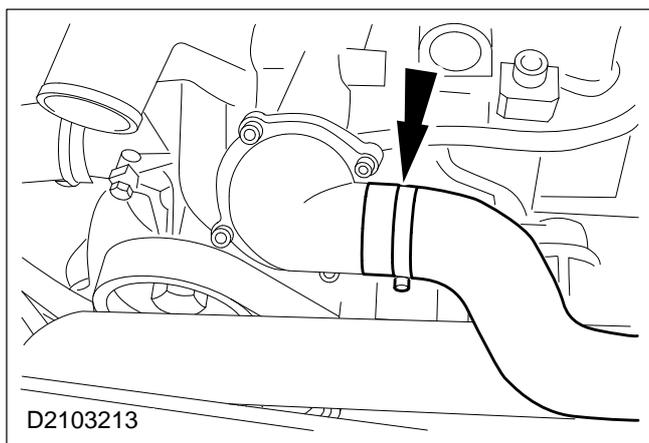
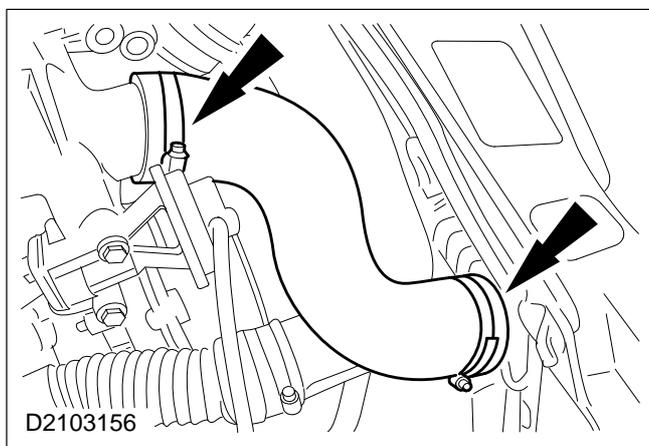
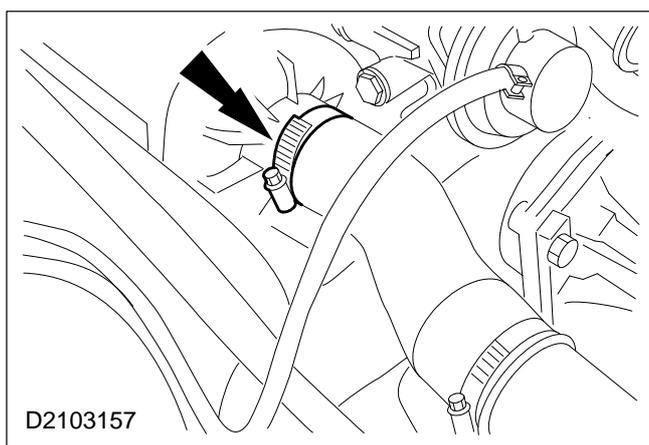
- 1 Clip in the crankcase ventilation pipe.
- 2 Coolant hose to radiator.
- 3 Intake pipe to the intercooler.

36. Lower the vehicle.**37. Fit the coolant hose.****38. Install the intake pipe.**

- 1 Attach the crankcase breather hose.
- 2 Air cleaner housing cover.

**39. Attach the turbocharger heat shield.**

Clip the hoses in place.

**40. Fit the coolant hose.****41. Air hose between the intake manifold and the intercooler.****42. Attach the intake pipe to the turbocharger.**

43. Finishing operations:

- Fill up with coolant.
- Check the engine oil and top up as necessary.
- Connect the battery negative lead.
- Fit the battery cover (one nut).
- Check the routing of the vacuum hoses and the wiring and secure them using cable ties as required.
- Remove the air from the cooling system.
- Check the engine and cooling system for leaks (visual check).
- Carry out a road test to enable the PC module to collect data.
- Enter the radio keycode.
- Program the preset radio stations.
- Reset the clock.

44. Carry out a road test so that the PCM can gather data.**45. Raise the vehicle.**

NOTE: Check the setting of the multi-groove belt after a five-minute road test.

46. Install the front engine undershield.**47. Lower the vehicle.**