

ENGINE

ENGINE FRONT COVER [G222793]

IN-VEHICLE REPAIR

12.65.01

**TIMING
COVER -
RENEW**

**ALL
DERIVATIVES**

4.40

USED WITHINS

12.65.01

**TIMING
COVER -
RENEW**

**ALL
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4.40

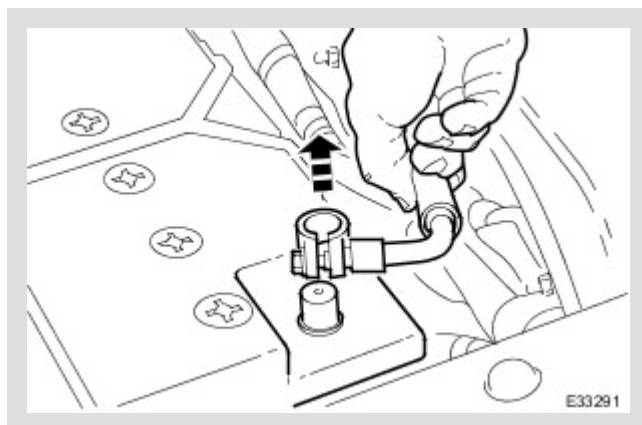
USED WITHINS

REMOVAL

1. Open the engine compartment and fit paintwork protection sheets.

2. Set the bonnet to the service access position.

3.

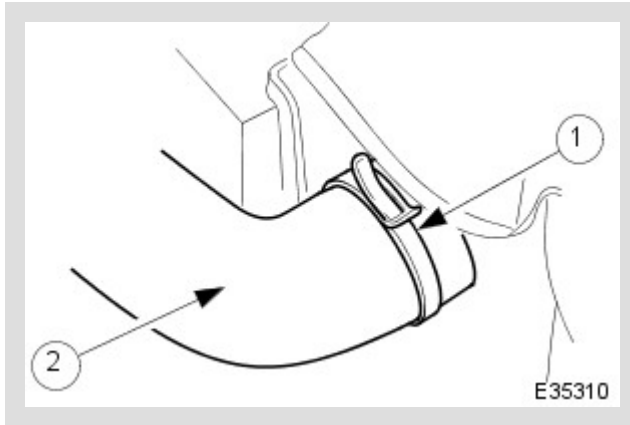


Disconnect the battery ground cable.

Remove the battery cover.

4. Drain the coolant from the radiator. Refer to Operation 26.10.01.

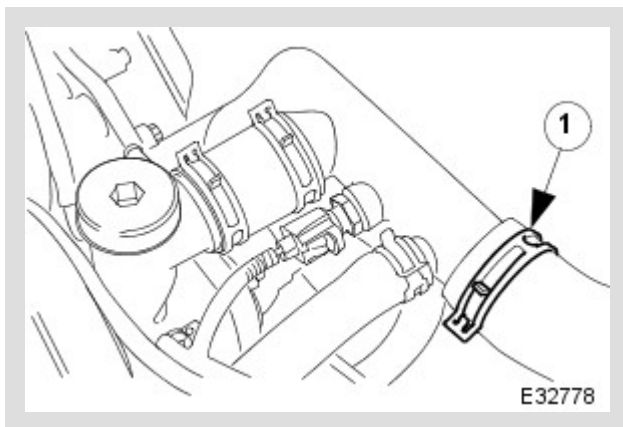
5.



Disconnect the radiator top hose.

1. Slacken the hose retaining clip and reposition the clip along the hose.
2. Disconnect the hose from the radiator.

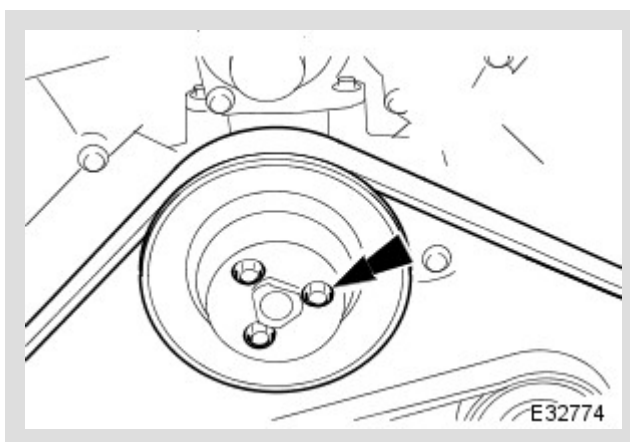
6.



Disconnect the top hose from the coolant outlet pipe.

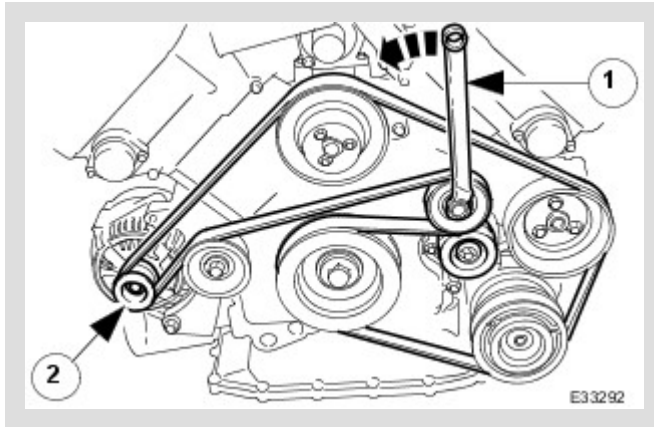
1. Release and reposition the hose clip, and disconnect the top hose.

7.



Slacken the three screws which secure the water pump pulley.

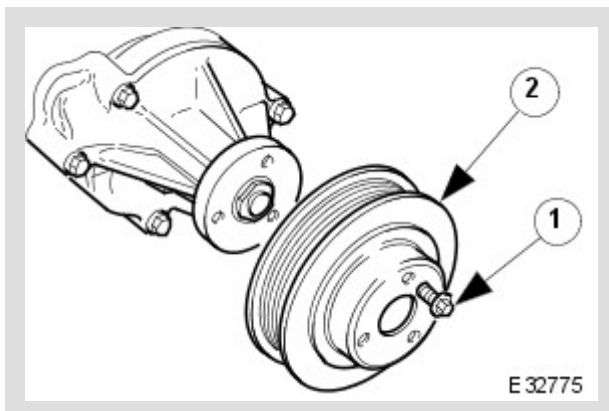
8.



Remove the drive belt from the generator and accessory drive.

1. Use a spanner e.g. Churchill JD-230 or Snap On XDHM 1415, on the centre bolt of the belt tensioner idler pulley, to turn the adjuster assembly to the left against spring tension.
2. Whilst holding the tensioner against spring tension, remove the drive belt from the generator pulley. Release the tensioner slowly and remove the spanner.
Disconnect the belt from the other pulleys and remove it..

9.



Remove the pulley from the water pump.

1. Remove the pulley securing screws.
2. Remove the pulley from the water pump.

10. Remove the belt tensioner assembly, from the Front Accessory Drive. Refer to Operation 12.10.41.

11. Remove the idler pulley, from the Front Accessory Drive. Refer to Operation 12.10.43.

12. Remove the crankshaft damper. Refer to Operation 12.21.09.

13. Carefully remove the engine covers, taking care not to damage the plastic fixings or the rubber inserts.

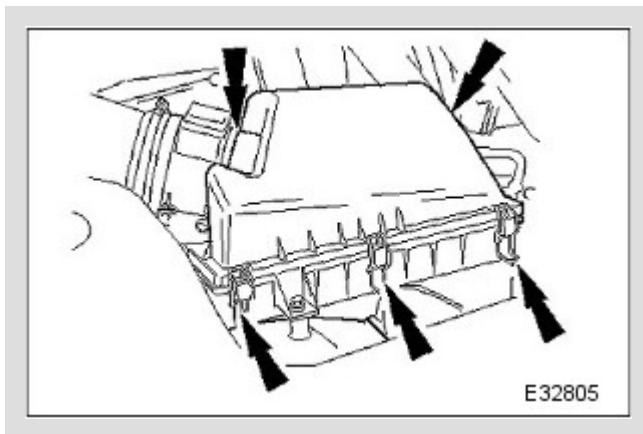
14.



Disconnect the intake tube from the throttle body.

1. Remove the two bolts which secure the intake tube to the throttle body.
2. Disconnect the intake tube from the throttle body.

15.

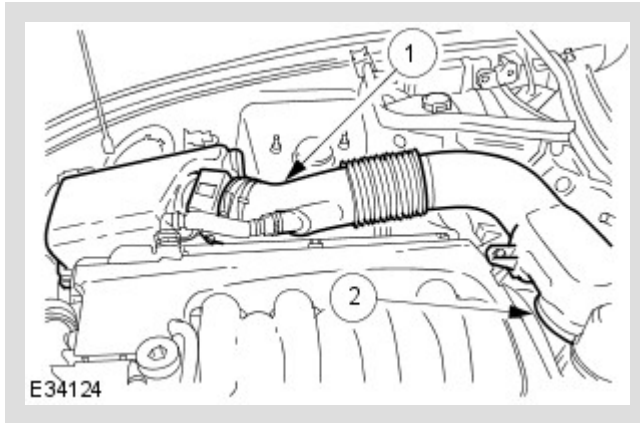


Disconnect the air cleaner cover.

Release the five clips which secure the air cleaner cover.

16. Disconnect the air flow meter multi-plug.

17.



Remove the intake tube / air flow meter / air cleaner cover assembly.

1. Remove the intake tube / air flow meter / air cleaner cover assembly.
2. Remove and discard the rubber seal; air intake tube to throttle body.

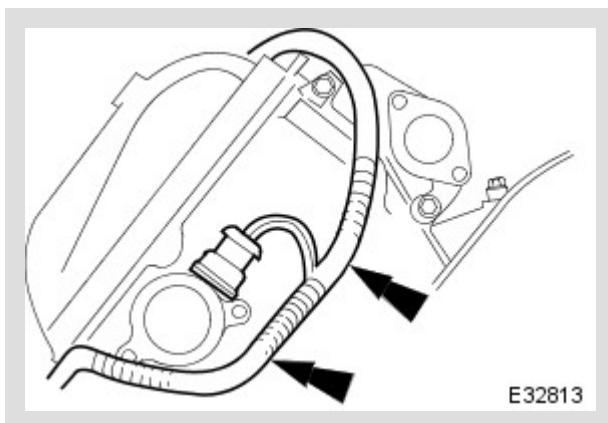
18. Remove the purge valve, from the evaporative control system. Refer to Operation 17.45.01.

19. Remove the on-plug ignition coils. Refer to Operation 18.20.41 and 18.20.42.

20. Remove the camshaft covers. Refer to Operations 12.29.43 and 12.29.44.

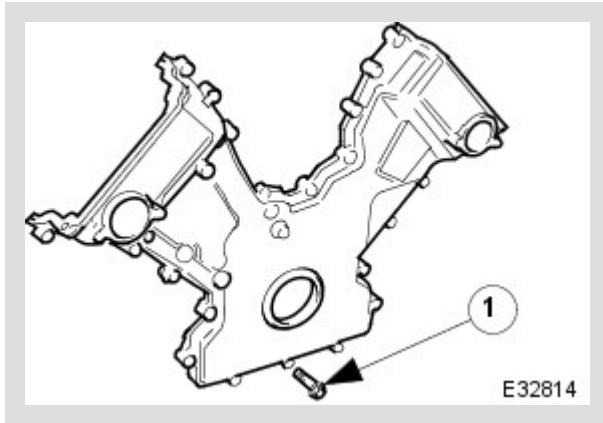
21. Remove the variable valve timing solenoids. Refer to Operation 18.30.63.

22.



Disconnect the engine harness retaining clips from the timing cover.

23.



Remove the timing cover securing bolts.

1. Remove the twenty-four bolts which secure the timing cover.

24.



Remove the timing cover, step 1.

Ease the cover towards the front of the vehicle to separate it from the engine.

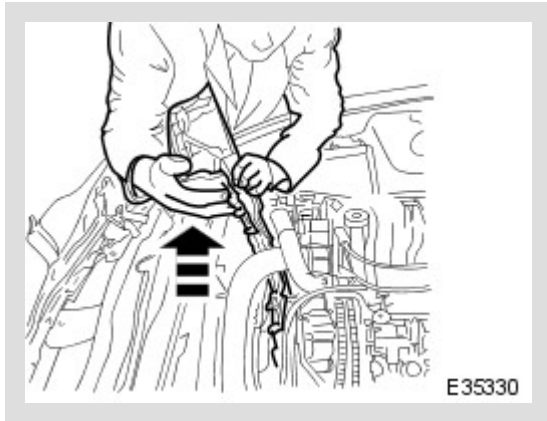
25.



Remove the timing cover, step 2.

Standing at the right hand side of the vehicle, rotate and manoeuvre the cover upwards to clear the water pump and hoses.

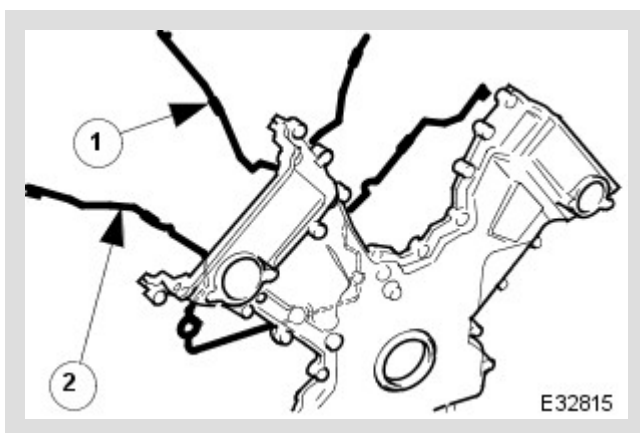
26.



Remove the timing cover, step 3.

Lift the cover clear of the engine compartment.

27.



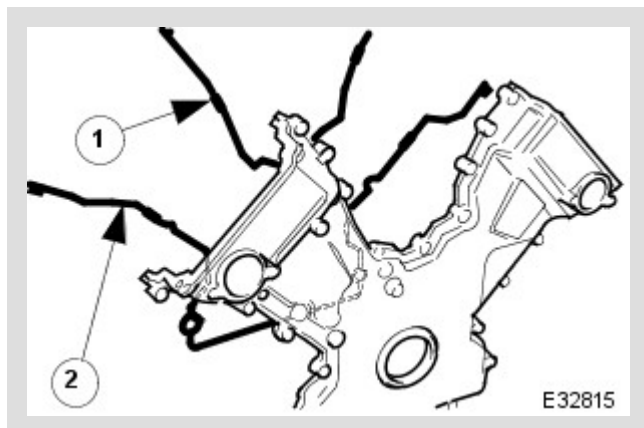
Remove and discard the inner and outer seals from the timing cover.

1. Remove the seal from the inner groove on the face of the timing cover.
2. Remove the seal from the outer groove on the face of the timing cover.

28. Clean all parts and mating faces.

INSTALLATION

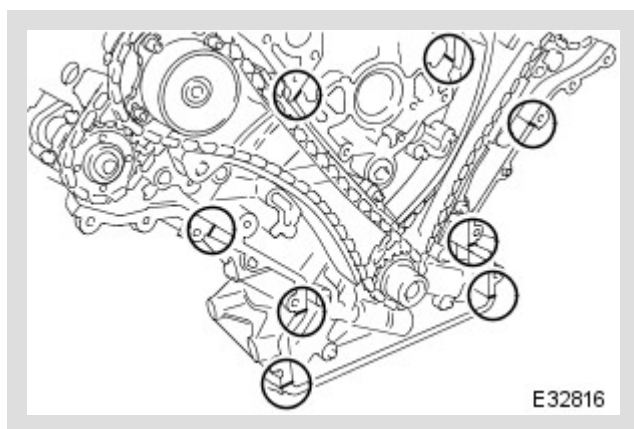
1.



Fit new seals to the timing cover.

1. Fit and fully locate, a new seal to the inner groove on the face of the timing cover.
2. Fit and fully locate, a new seal to the outer groove on the face of the timing cover.

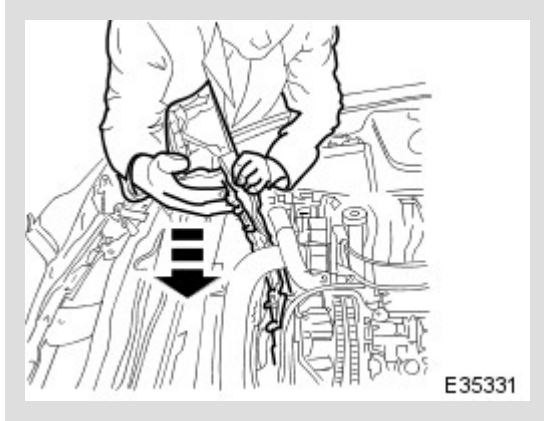
2.



Apply sealant to the eight joints on the engine face.

Sealant beads to be 3mm diameter and 12mm long. Cut the nozzle of the sealant tube to produce a 3mm bead. (Fit and tighten the securing bolts within twenty minutes of sealant application)

3.



Refit the timing cover, step 1.

Lower the cover into the engine compartment, to its approximate position.

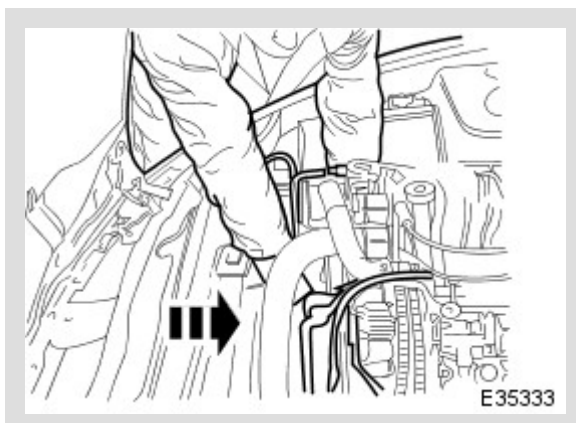
4.



Refit the timing cover, step 2.

Standing at the right hand side of the vehicle, rotate and manoeuvre the cover downwards to clear the water pump and hoses.

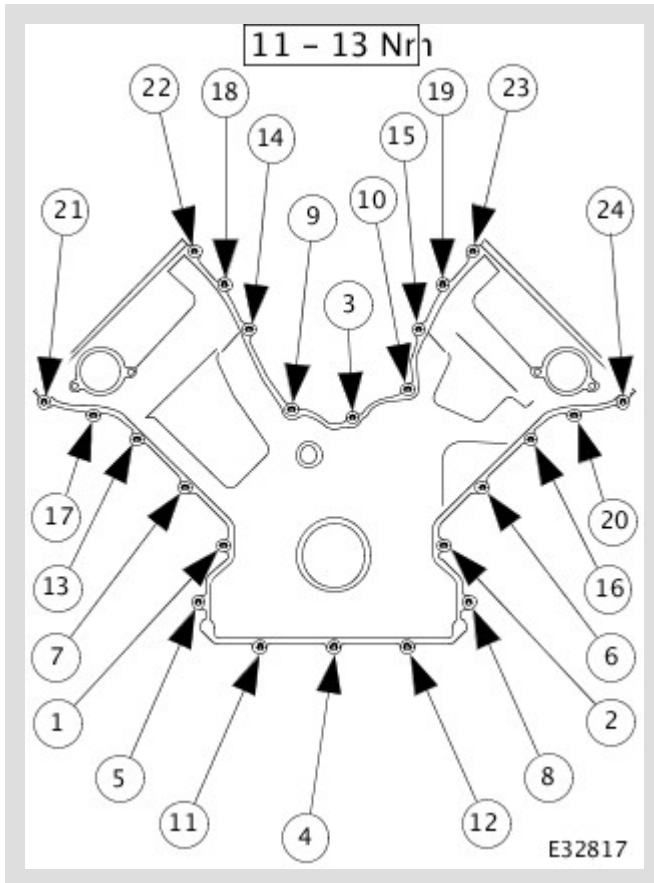
5.



Refit the timing cover, step 3.

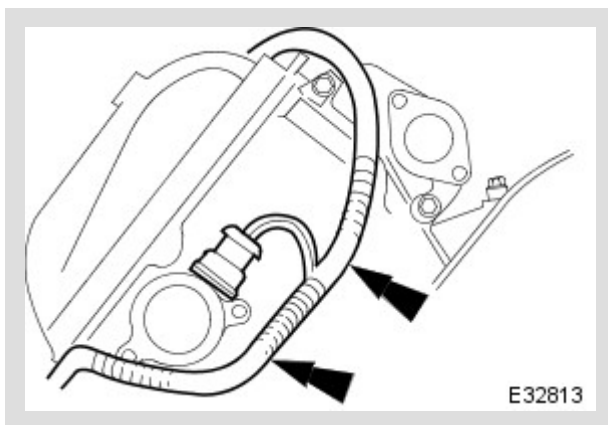
Ease the cover towards the engine and locate it directly onto the dowels so that the gaskets or sealant are not smeared.

6.



Fit and tighten the securing bolts in the correct order. Tighten to 11-13 Nm.

7.



Reposition and secure the engine harness clips to the timing cover.

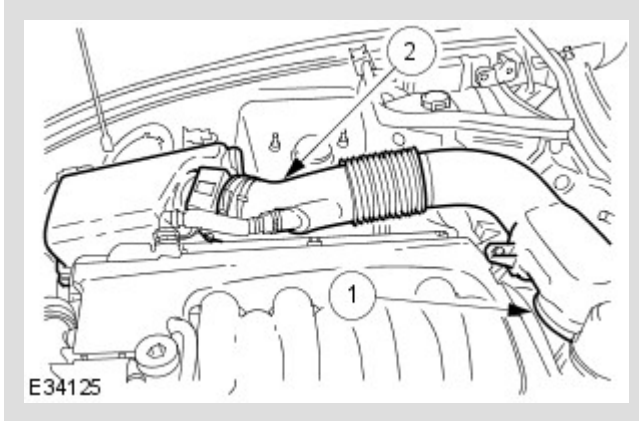
8. Refit the variable valve timing solenoids. Refer to Operation 18.30.63.

9. Refit the camshaft covers. Refer to Operations 12.29.43 and 12.29.44.

10. Refit the on-plug ignition coils and coil covers. Refer to Operation 18.20.41 and 18.20.42.

11. Refit the purge valve. Refer to Operation 17.45.01.

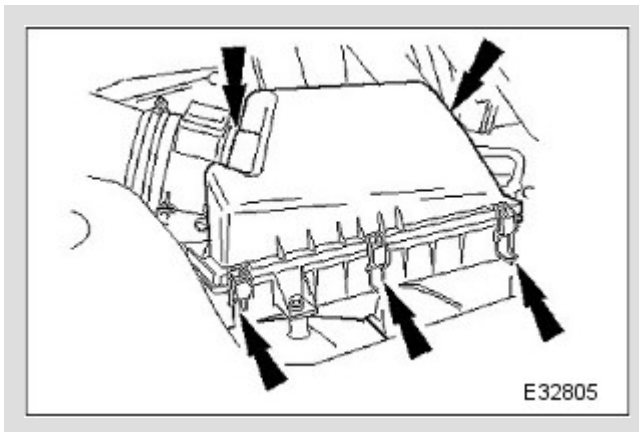
12.



Fit the intake tube / air flow meter / air cleaner cover assembly.

1. Fit a new rubber seal; air intake tube to throttle body.
2. Fit the intake tube / air flow meter / air cleaner cover assembly.

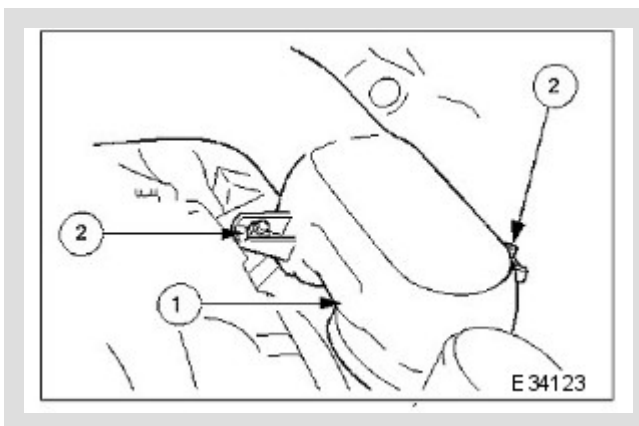
13.



Reconnect the air cleaner cover.

Fit the five clips which secure the air cleaner cover.

14.



Connect the intake tube to the throttle body.

1. Connect the intake tube to the throttle body.
2. Fit the two bolts which secure the intake tube to the throttle body.

15. Reconnect the air flow meter multi-plug.

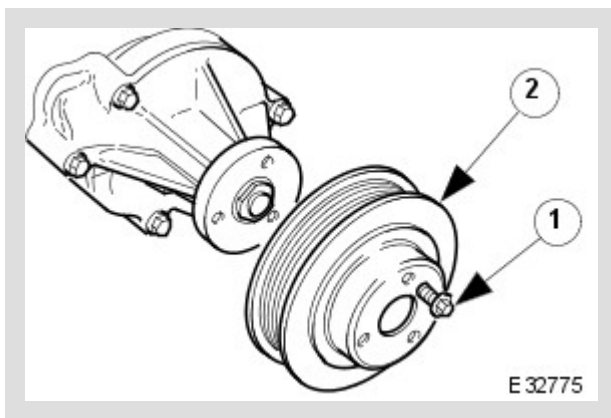
16. Refit the engine covers.

17. Refit the crankshaft damper. Refer to Operation 12.21.09.

18. Refit the idler pulley, to the Front Accessory Drive. Refer to Operation 12.10.43.

19. Refit the belt tensioner assembly, to the Front Accessory Drive. Refer to Operation 12.10.41.

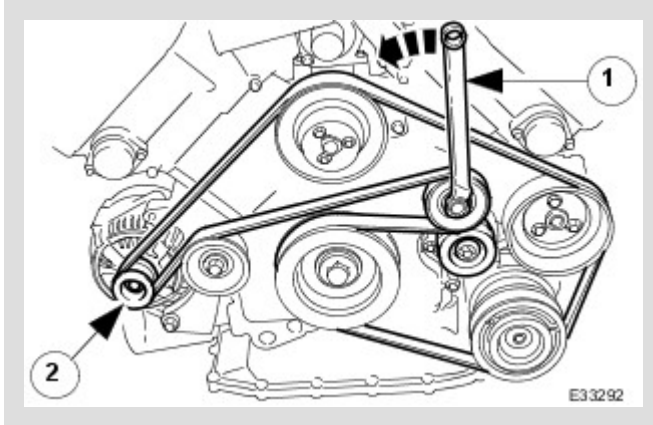
20.



Refit the pulley to the water pump.

1. Refit the pulley to the water pump.
2. Fit the pulley securing screws. Tighten as far as possible; then to the correct torque after the belt has been fitted.

21.

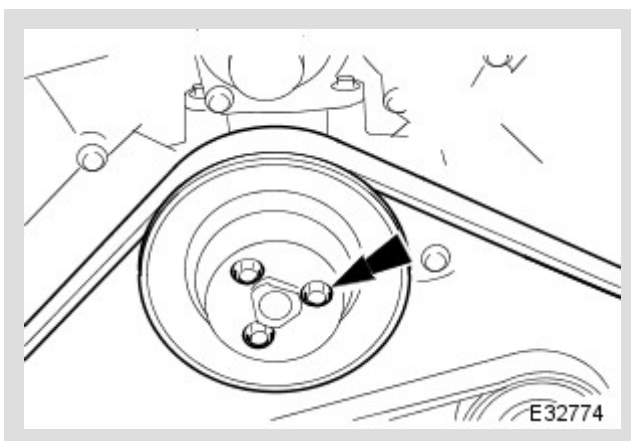


Refit the drive belt to the generator and accessory drive.

Locate the belt around the pulleys, except the generator pulley.

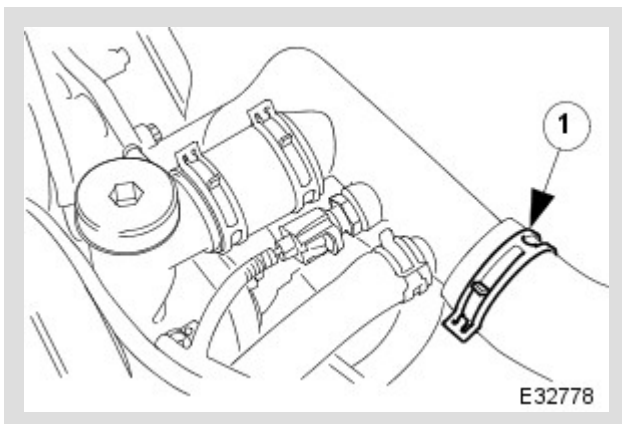
1. Use a spanner e.g. Churchill JD-230 or Snap On XDHM 1415, on the centre bolt of the belt tensioner idler pulley, to turn the adjuster assembly to the left against spring tension.
2. Whilst holding the tensioner against spring tension, connect the drive belt to the generator pulley. Release the tensioner slowly and remove the spanner.

22.



Tighten the three screws which secure the water pump pulley, to 10-14 Nm.

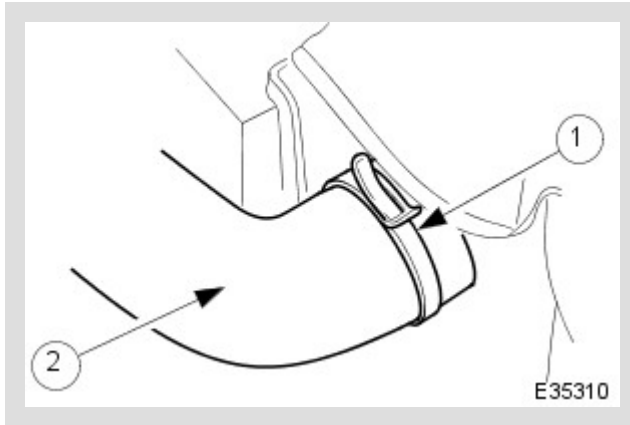
23.



Connect the top hose to the coolant outlet pipe.

1. Connect the top hose. Reposition the hose clip and tighten.

24.



Connect the radiator top hose.

1. Connect the hose to the radiator.
2. Reposition the clip along the hose and tighten the clip.

25. Reset the bonnet to the normal position and connect the gas struts.

26. Connect the battery and fit the battery cover.

Refer to the Battery Reconnection Procedure 86.15.15.

27. Refill the cooling system. Refer to Operator 26.10.01.

28. Remove the paintwork protection sheets and close the engine compartment.