

Belts and pumps

Coolant flush - Drain: Before timing belt re: coolant pump replacement.

Haynes section 1.29

1. Drain - Haynes steps 1-4.

Accessory belt - Remove:

Haynes section 1.22

Torque - Tensioner bolt = 25 Nm, 18 lb ft

1. Remove the belt - Haynes steps 5-9. Use 14mm socket to loosen tensioner.
2. Replace the tensioner. 12mm bolts x2.

How long does the old tensioner continue spinning after a gentle spin? New stops immediately.

Timing belt and pulleys - Remove:

Haynes section 2A.3

1. Access belt and align pulleys - Haynes steps 3-15. 10mm bolts for crankshaft belt guard.
2. Mark the pulley (and crankshaft?) marks and their corresponding body marks with white. Mark crankshaft and a bottom left bolt head with white.
3. Setup the VVT. 30mm crankshaft nut.
 - a. "Turn crankshaft clockwise until the markings on the crankshaft and camshaft pulley align. Turn the crankshaft a further 1/4 turn clockwise and then back again until the markings correspond." per AllData
 - b. "You have to setup the VVT HUB so that the hub is rotated full counter clockwise with respect to the cam, then align the marks as usual. You do this by rotating past the marks by 1/2 a rotation, then rotating backwards to match up the marks. From there, it's business like the non VVT cars." per abscae
4. Remove crankshaft pulley - Haynes steps 16-19. Pulley may need a few taps with a mallet.
5. Replace tensioner - Haynes step 20. 12mm bolt for tensioner.
 - a. "Slacken off belt tensioner center screw slightly. Hold the center screw still and turn the tensioner eccentric clockwise with a 6 mm (0.24 in) allen key to "10 o'clock". Remove the belt." per AllData
 - b. "Move tension arm to the right to relieve the tension." per FCP. Check video.
 - c. Ensure that the tensioner fork is centered over the cylinder block rib.
6. Replace idler - Haynes step 22. 12mm bolt for idler.

How long do the old tensioner and idler continue spinning after a gentle spin? And new?

Water pump: After coolant is drained and flushed, while timing belt is off.

Haynes section 3.7

1. Haynes steps 1-6. 10mm bolts x7 for coolant pump.

- a. Remove the old gaskets with a flat razor blade.

Oil pump gasket:

Haynes section 2A.9

1. Clean the "front" of the engine behind the belts and around the crankshaft.
2. Remove the pump - Haynes steps 1-4.
 - a. Don't lever too hard on the two lugs or they'll break.
3. Remove the old gaskets with a flat razor blade.
4. Inspect the pump - Haynes steps 5-13.
5. Create a "ramp" over the shaft right angle ridge. Secure with electrical tape.
6. Wrap the crankshaft's pulley splines with electrical tape, starting from the engine and working out, overlapping.
7. Install the pump - Haynes steps 14-16.
 - a. Install the pump without the seal.
 - b. Lubricate both sides of the seal. Install it using the old seal and PVC pipe to tap it slowly into place.
 - c. Constantly check to ensure the seal inner lip hasn't folded back.
 - d. When done, remove the tape and "ramp".

Timing belt and pulleys - Install:

Haynes section 2A.3

Torques:

Front timing belt cover - 12 Nm, 8.85 lb ft

Top timing belt cover - 8 Nm, 5.9 lb ft

1. Install and tension the belt - Haynes steps 28-36.
 - a. Before installing the belt, "Ensure that the allen hole on the eccentric is at "10 o'clock"." per AllData.
 - b. Timing belt should ride in the middle of the cams/pulleys, not at their edge.
 - c. "When mounting the belt, move the tension arm all the way right for maximum free play." per FCP.
 - d. See FCP video 11:20 min and 15:00 min for tricks. See my notes for more links.
 - e. See AllData tensioner info??
2. Reassemble - Haynes steps 37-38.

Accessory belt - Install:

Haynes section 1.22

1. Install belt - Haynes steps 10-12. See AllData pic for routing. T60 for tensioner. Ensure the belt is in all grooves.

Replace the radiator hoses and thermostat:

Haynes section 3.2 (hoses) and 3.8 (thermostat).

1. Replace hoses - Haynes 3.2 steps 1-5.
2. Replace thermostat - Haynes 3.8 steps 11-14, 20-22.

Coolant flush - Fill:

Haynes section 1.29.

1. Ensure the two drain ports are closed and the cooling hoses, etc are reassembled.
2. Remove 0.2 quarts coolant from the bottle. Add the rest (3.8 quarts, 3.6 Liters).
3. Haynes steps 14-16. Idle the car with the cabin temp and fan on max to fill the heater core.
4. Top up the tank with distilled water, since the correct amount of coolant is in.