

V70 (00-08), 2002, B5244S, AW55-50/51SN, L.H.D

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Variable valve timing unit, checking and adjusting

Note! Some variation in the illustrations may occur, but the essential information is always correct.

Special tools:

999 5451

999 5452

Installing and adjusting the variable valve timing unit/timing gear pulley on the camshaft

Note! This procedure must be carried out with precision as any deviation could generate a fault symptom.

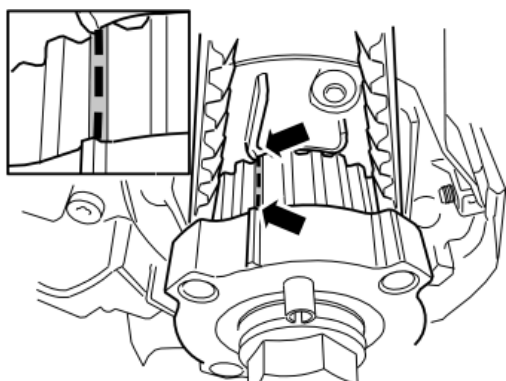
Installing the crankshaft adjustment tool



Remove the starter motor mounting screws. Pull out the starter motor and put it aside. Remove the plug of the gauge hole. Rotate the crankshaft slightly clockwise. Install: 999 5451 . Make sure that it bottoms against the engine block.

Aligning the crankshaft

Turn the crankshaft counterclockwise to its stop against the crankshaft adjustment tool. Check that the



marking on the crankshaft timing gear pulley aligns with the marking on the oil pump.

Installing the variable valve timing unit on the camshaft

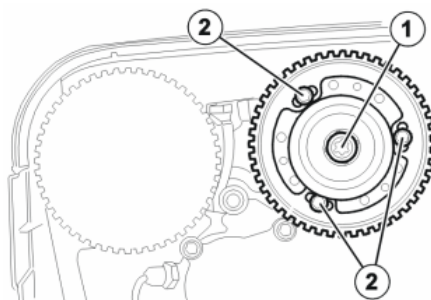
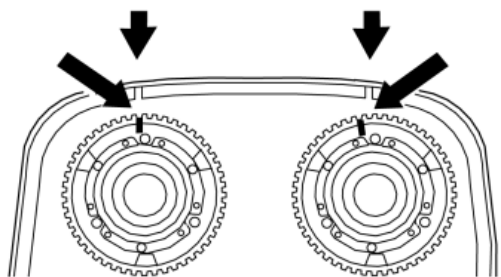
Note! Oil the center screw before installation.

Press the variable valve timing unit/timing gear pulley onto the camshaft. Install the center screw (1) that holds the variable valve timing unit to the camshaft. **Do not tighten yet.**

Slacken off, but do not remove the screws (2) which secure the timing gear pulley to the variable valve timing unit.

Position the upper timing cover.

Turn the timing gear pulley so that the screws at the oval holes are in the limit position. Continue turning clockwise until the timing gear pulley's marking is 1 tooth before the marking on the upper timing cover.



Check that the timing gear pulley is still in the **limit position** in the oval holes.

Tighten the center screw (1) in the VVT unit to **120 Nm**.

Check that the variable valve timing unit does not rotate when tightening. Install the center plug

and tighten to **35 Nm**.

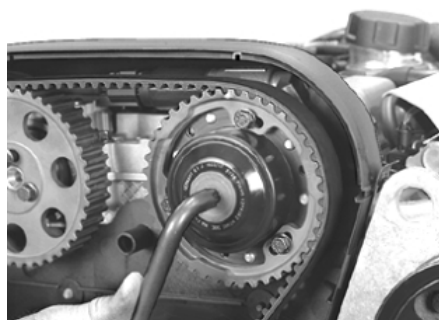
Install the belt pulley on the **exhaust camshaft**: Install the belt pulley on the intake camshaft with three screws; **do not tighten yet**.

Check that the markings on the belt pulley and the upper timing cover align.

Installing the timing belt

Install the belt in the following order:

1. Fit the timing belt over the pulley on the crankshaft
2. the idler pulley
3. cam wheel, exhaust camshaft
4. water pump
5. belt tensioner.



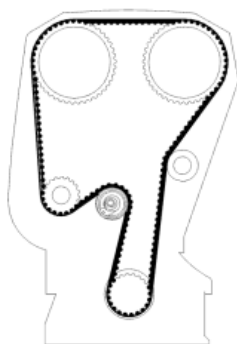
Turn the variable valve timing unit clockwise to the stop.

Note! Hold the VVT unit fixed in the limit position clockwise when the belt is fitted.

Check that the markings on the belt pulley and the upper timing cover align.

Install the timing belt (continued)

Fit the timing belt over the intake camshaft's cam wheel.



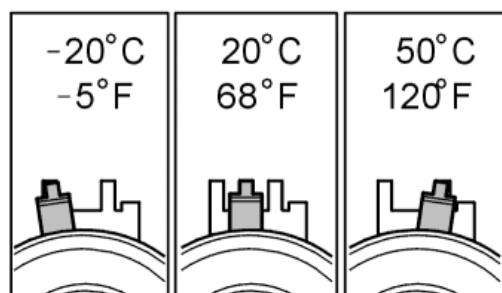
Tighten the timing belt

Adjust the belt tensioner

Note! This adjustment is done on a cold engine. A suitable temperature is approximately 20° C/68° F.

At higher temperatures (with the engine at operating temperature or a high outside temperatures for example) the indicator is further to the right. The illustration shows the position of the indicator when aligning the timing belt tensioner at different engine temperatures.

Tension the timing belt as follows:



Fix the belt tensioner center screw in position and turn the belt tensioner eccentric counterclockwise until the tensioner indicator passes the marked position.

Then turn the eccentric back so that the indicator reaches the marked position in relation to actual temperature.

At the same time, ensure that the center screw remains fixed. At 20° C/68° F, the indicator should be centered in the window.

If the indicator is not in the right position, the adjustment must be repeated.

Note! The variable valve timing unit must not be released from the limit position until after the timing gear pulleys have been tightened.

1. tighten the screws (2) on the timing gear pulley for the intake camshaft

to **10 Nm**

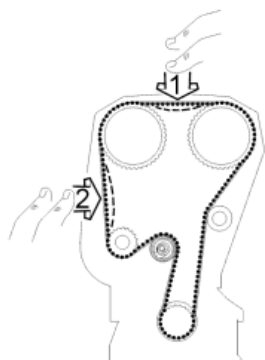
2. install the screw missing on the exhaust timing belt pulley
3. tighten the screws on the timing gear pulley for the exhaust camshaft to **20 Nm**.

- the camshaft adjustment tools 999 5452
- the crankshaft stop 999 5451 .

Install the plug with a new sealing washer.
Tighten to **40 Nm**.

Checking the markings and belt tension

- press the belt to check that the indicator on the tensioner moves easily
- install the upper timing belt cover
- turn the crankshaft 2 rotations; check that the markings on the crankshaft and timing gear pulleys align
- check that the indicator on the belt tensioner is within the marked area.



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