

XC70 L5-2.5L Turbo VIN 59 B5254T2 (2003)

Engine, Cooling and Exhaust > Engine > Timing Components > Variable Valve Timing > Variable Valve Timing Actuator > Component Information > Description and Operation

Variable Valve Timing Actuator: Adjustments

Variable valve timing unit, checking and adjusting

Special tools:

999 5451 ADJUSTMENT TOOL See: Tools and Equipment/999 5451 Adjustment Tool

999 5452 CAMSHAFT ADJUSTMENT TOOL See: Tools and Equipment/999 5452 Camshaft Adjustment Tool

Note! The illustrations in this service information are used for different model years and/or models. Some variation may occur. However, the essential information in the illustrations is always correct.

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 mounting screws for the starter motor.

Pull out the starter motor and place it to one side.

Remove the blind cover plug from the hole for the adjustment tool.

Turn the crankshaft clockwise slightly.

Install: **999 5451 ADJUSTMENT TOOL** See: **Tools and Equipment/999 5451 Adjustment Tool**.

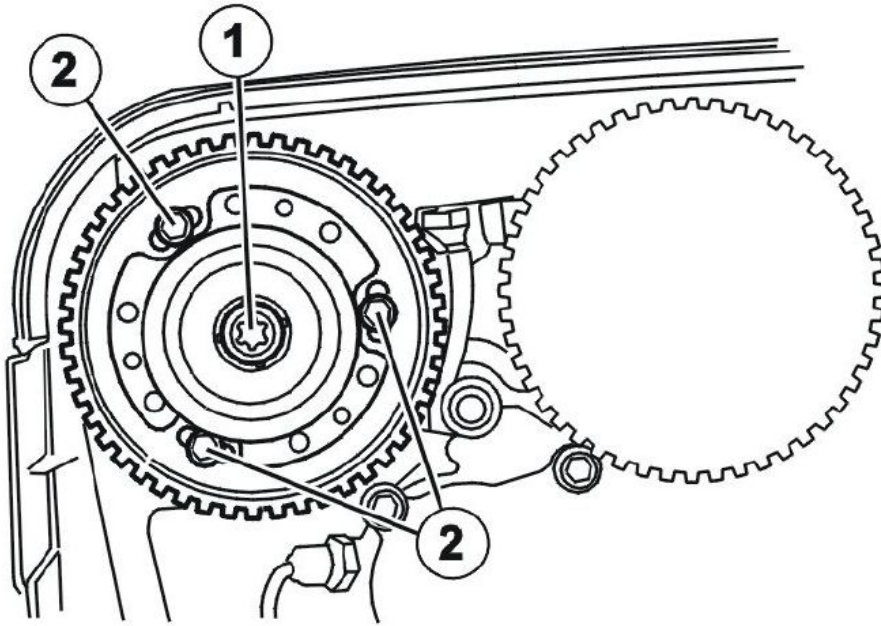
Ensure that the tool bottoms out against the cylinder block.

Aligning the crankshaft

Turn the crankshaft counterclockwise until it stops against the adjustment tool.

Check that the marking on the crankshaft timing gear pulley corresponds to the marking on the oil pump.

Installing the variable valve timing unit on the camshaft



Note! Oil the center screw before installation

Push on the variable valve timing unit/timing gear pulley on the camshaft.

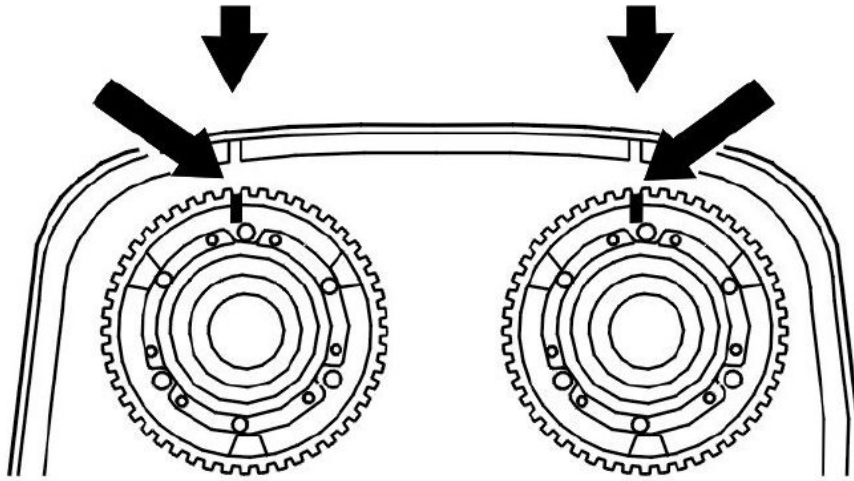
Install the center screw (1) which secures the variable valve timing unit to the camshaft. Tighten slightly.

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

Turn the timing gear pulley until the screws at the oval holes are in the center position. Tighten the screws (2) slightly.

Turn the variable valve timing unit clockwise to its limit position so that the unit is in its end position.

Position the upper timing cover

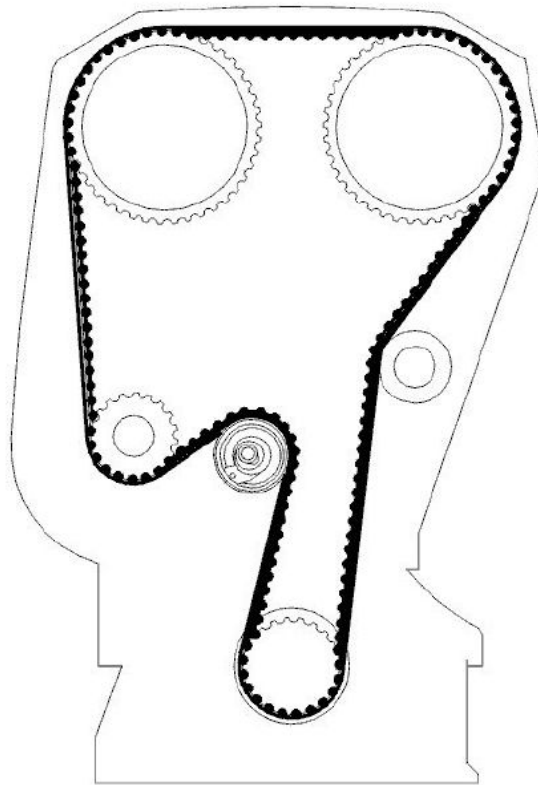


Undo the center screw and continue turning clockwise until the timing gear pulley marking aligns with the marking on the upper timing cover.

Tighten the center screw in the variable valve timing unit.

Tighten. [See: Tightening torque](#) [See: Specifications/Mechanical Specifications/Tightening Torque.](#)

Installing the timing belt



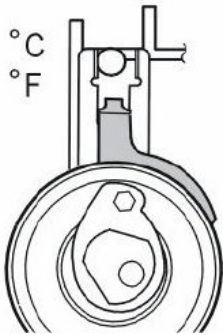
Note! Variable valve timing units do not have return springs and are easily thrown out of position when the camshaft belt is installed.

Check that the markings align.

Install the belt in the following order:

- the idler pulley
- intake cam
- exhaust cam
- water pump
- tension pulley.

Tensioning of cambelt



This adjustment is to be made with a cold engine.

A suitable temperature is approximately **20 °C/68 °F**.

At a higher temperature, for example with a warm engine or a higher ambient temperature, the needle is further to the right.

The illustration shows the position of the indicator when aligning the timing belt tensioner at approximately **20 °C/68 °F**.

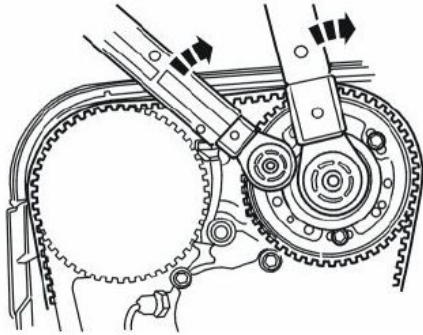
Note! There are two different tensioners depending on model year.

Fix the belt tensioner center screw in position and turn the belt tensioner eccentric clockwise until the tensioner indicator passes the marked position and reaches the end position. Then turn the eccentric back so the indicator reaches the marked position illustrated.

Tighten the center screw. **See Tightening torque See: Specifications/Mechanical Specifications/Tightening Torque.**

Check that the indicator is in the correct position.

Tightening



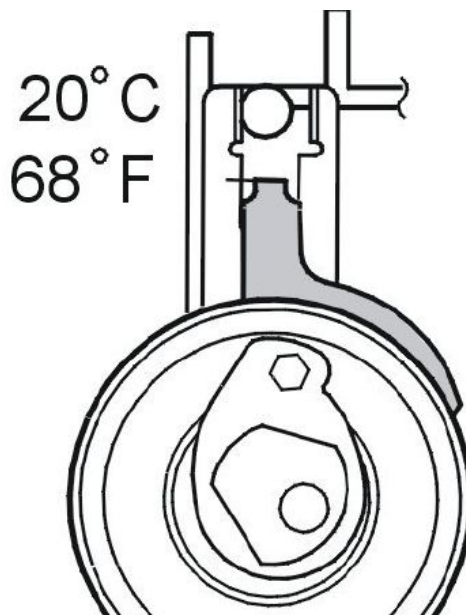
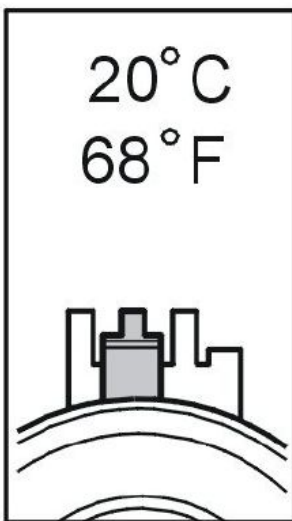
Slacken off the 3 x screws for the timing gear pulley slightly (applies to both timing gear pulleys).

Install the center plug in the variable valve timing unit. Tighten. [See: Tightening torque See: Specifications/Mechanical Specifications/Tightening Torque.](#)

Hold the center plug at 25 Nm at the same time as tightening the 3 x screws on the camshaft timing gear pulley to: [Tightening torque See: Specifications/Mechanical Specifications/Tightening Torque.](#)

Tighten the 3 x screws on the timing gear pulley for the intake camshaft. [See: Tightening torque See: Specifications/Mechanical Specifications/Tightening Torque.](#)

This is to ensure that the variable valve timing (VVT) unit is in its end position when the timing gear pulley is tightened.



Remove:

999 5452 CAMSHAFT ADJUSTMENT TOOL See: Tools and Equipment/999 5452 Camshaft Adjustment Tool from the rear of the camshafts

999 5451 ADJUSTMENT TOOL See: Tools and Equipment/999 5451 Adjustment Tool.

Install new plugs with new sealing washers.

Tighten. See: Tightening torque See: Specifications/Mechanical Specifications/Tightening Torque.

Checking the markings and belt tension.

Position the upper timing cover.

Turn the crankshaft 2 rotations. Check that the markings on the crankshaft and timing gear pulleys correspond.

Remove the upper timing cover.