

# Timing belt guide

## Volvo XC90 2.4D



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The Volvo XC90 has proven to be a very popular vehicle since it was launched in 2002. The technical team at INA takes a look at the timing belt replacement guide and offer a few handy tips to assist the Irish independent aftermarket garage network.

**T**he timing belt system may look a little tricky, but with a little know-how and the appropriate tools, it will prove to be an ideal repair for any independent garage.

The engine has been identified as an interference type, so in the event of a timing belt failure, the likelihood of engine damage is extremely high. It is important to install a new timing belt system on an engine at ambient room temperature. Always adhere to turning the engine in the normal direction of rotation unless advised otherwise by the OEM installation instructions. Recommended torque values should always be used. It is recommended that all the tensioners and pulleys be replaced at the same time as the timing belt.

Nothing out of the ordinary is required to complete the job. For the repair we used a four-post ramp, however a two-post ramp would also be suitable.

For safety reasons it is best practice to disconnect the battery earth lead. The vehicle may also be fitted with anti-theft locking bolts, so make sure the locking key is available before commencing the work.

Remove offside front wheel and remove the locking clips that hold the front half of the wheel arch liner. A second splash guard will be behind the wheel arch liner which can be completely removed. Fold the wheel arch liner, carefully behind the suspension arm to reveal sufficient working space. Remove the engine strut brace and engine top cover.

Remove the auxiliary belt cover and release the auxiliary belt tensioner. It is quite tricky to install the locking pin to hold the tensioner, due to the limited amount of space between the engine and body. To overcome this problem, we

used a torx bit on the tensioner body to release the tension, enabling the removal of the auxiliary belt.

Remove the timing belt cover that is held by four clips and one bolt. Rotate the engine in a clockwise direction until the timing marks become aligned both on the crankshaft and camshaft. The camshaft mark is a very small indent on the pulley, which aligns with a small notch on the rear protection cover (fig 1). The crankshaft alignment is a little more straight forward, as a rivet on the crankshaft pulley should be positioned at the 12 O'Clock position (fig 2).

Rotate the engine a quarter turn clockwise, and then release the crankshaft centre bolt and four outer bolts. Remove the crankshaft pulley. Refit the centre bolt and rotate the crankshaft



anti clockwise until the timing marks are aligned on the camshaft (fig 1) and on the crankshaft (fig 3).

Slacken the tensioner pulley bolt and using a 6mm Allen key, rotate the tensioner until at 10 O'Clock position to release the tension. Remove the tensioner bolt, tensioner pulley, timing belt and the guide pulley.

Install the new tensioner, making sure the Allen key adjustment hole is positioned at 10 O'Clock, and tighten by hand the tensioner bolt. Install the new guide pulley and tighten the bolt to 25Nm. Install the timing belt in an anti-clockwise direction, starting at the crankshaft pulley. Ensure that the belt is kept taught between the pulleys as you install it.

Rotate the crankshaft by a small amount of movement in a clockwise direction, to apply tension to the belt between the camshaft and crankshaft pulleys. Rotate the tensioner pulley anti-clockwise until the pointer is positioned just past the right hand side alignment mark of the tensioner back plate.

Slowly rotate the tension clockwise until the pointer becomes aligned centrally between the alignment marks (fig 4). Tighten tensioner bolt to 27Nm. Press down on the non tensioned side to make sure the pointer is able to move freely. Rotate the crankshaft two turns clockwise and check that the timing marks are still aligned, and the pointer is still in the central position. If not then the tensioning procedure must be repeated.

The installation of the remaining parts is the reverse order of removal but it is strongly advised to check the condition of the auxiliary belt and driven components for excessive wear and consider replacing them. Finally, it is advisable to rotate the engine by hand a number of times before starting the engine to check for any interference or noise.

**For technical support and repair installation tips, go to [www.RepXpert.com](http://www.RepXpert.com) or you can call the LuK technical hotline on 0044-143-226-4264.**

