

# Getting correct belt tension

The Opel evergreen 1.7-litre diesel engine has been a regular fixture in a number of configurations in many Opels for more than a decade. The design of the timing belt tensioner has gone from fully fixed, to a spring-loaded version, requiring a different tightening procedure, as explained by Dayco.

During installation, the function of the new, spring loaded timing belt tensioner, is to provide the correct tension to the timing belt. But once the engine's adjustment revolutions have been made and the retaining bolt secured, the tensioner, in reality, becomes a fixed tensioner and will not modulate belt tension like an automatic tensioner does.

Naturally, this change was made in a bid to make the tensioning of the belt, which is particularly important on this unit, an easier and more accurate task. However, while this may be the case on the production line during the engine's manufacture, it has proven to be a far more challenging operation for the workshop undertaking a timing belt replacement.

The result of the problem is revealed by a premature failure of the replacement spring-loaded tensioner and the subsequent need to install another timing belt kit. The cause of the failure is excessive tension on the belt, which puts an unacceptable load on every component in the timing system, but particularly the tensioner, which can become distorted, and the timing belt, which can wear unevenly.

The reason that the belt can become over tight, is because although it is straightforward to install the new spring loaded tensioner, it is very easy for it to move while it is being secured. Even a small movement can make a big difference to the tension on the belt.

To prevent this costly problem, Dayco recommends technicians use the following procedure when fitting a timing belt kit to this unit, to ensure that the job is completed correctly and without the risk of subsequent failure.

To set an accurate tension of the belt, the engine must be cold, at rest for at least four hours.

Install the new tensioner, engage the spring 'hook' and preload the tensioner, by turning it anti-clockwise with an Allen key and lock it in this position, so that it is out of the way while the belt

is fitted.

Lock the camshaft and injection pump sprockets in place with locking bolts and ensure that the notch in the crankshaft is aligned with the lug on the oil pump cover and the timing mark on the timing belt.

Install the timing belt following the direction of its rotation, starting with the crankshaft pulley, followed by the oil pump pulley, injector pump pulley and finally the camshaft pulley. While carrying out the installation, it is very important to make sure that the belt is taught between the oil pump and injection pulleys.

With the belt in place, slacken the tensioner-retaining bolt and allow the spring to apply tension to the belt. Remove the locking bolts from the camshaft and injection pump sprockets.

Rotate the crankshaft against the direction of the engine rotation, in accordance to the requirements of the specific engine code, which are stated in the Technical Bulletin accompanying the Dayco timing belt kit. Tighten the retaining bolt on the tensioner to the torque setting, also stated in the Technical Bulletin.

It is during the action of tightening the retaining bolt that the belt can inadvertently be over tensioned, so a handy hint to ensure that the tensioner doesn't move during this process, is to scratch a mark on the tensioner and a fixed point on the engine, before the finally tightening is done. If the marks remain in line, the belt will be at the correct tension, if not, the tension will be wrong.

Finally, rotate the crankshaft in the direction of the engine rotation, in accordance with the requirements of the specific engine code. Make sure that the crankshaft notch is still in line with the lug on the oil pump and the timing mark on the belt, and that the locking bolts can easily be re-inserted into the camshaft and injection pump pulleys.

If any of these final checks do not match, the



**The newer design, spring loaded timing belt tensioner for Opel evergreen 1.7l diesel engines**

installation process must be carried out again from the beginning.

To simplify the process further, technicians can use a Dayco Tensiometer, which will ensure the correct tension is achieved. The tool is easy to use and only needs the relevant test code for the belt application to be entered and the belt vibrated. If the test reading is 'OK' the belt is fine, but if the result reads + or - 3, the belt will need to be reset.

Depending on the variant, Dayco provides either timing belt kit KTB414 or KTB468 for the GM 1.7 diesel engine, but both options contain a High Tenacity (HT) or 'white' belt.

Full technical information is available on the Dayco website, [www.dayco.com](http://www.dayco.com). Or for more information regarding the OEM quality power transmission products in the Dayco range, please email: [info.uk@dayco.com](mailto:info.uk@dayco.com) or call Team P R Reilly on: 01-832-0006.

