Getting timing belt tension right

Problems persist with the premature failure of the belt and tensioner on the 1.7-litre turbo diesel engine used in many Vauxhall/Opel and Isuzu vehicles. Following the prescribed belt and tensioner change instructions is key to making sure it doesn't happen to you, Dayco explains.

The issue is further complicated, as there are at least ten versions of this unit, each with its own variation. However, the most common cause of failure occurs when belt is over tensioned. Being forearmed with the knowledge, it is easy to avoid if the correct fitting procedure is followed.

In the overwhelming majority of cases, the cause of the failure is as a direct result of the incorrect installation of the new belt and tensioner, so workshops must ensure that the technicians tasked with the repair follow all of the technical guidelines. If these procedures are followed, a failure of this nature is extremely unlikely.

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

To demonstrate the extent of this phenomenon, if during its tightening the tensioner moves by only four or five degrees, the tension on the belt will increase threefold, from the 20kg it is designed for to a catastrophic 60kg plus, causing the tensioner to wear excessively and ultimately, distort and fail.

To prevent this costly problem, Dayco recommend technicians follow its published fitting procedure, designated for the specific engine code and make sure that they tighten the bolt to the manufacturers specified tension, which is also stated by engine code in the Dayco technical sheet.

This is particularly important as it seems more than a coincidence that the most common failures tend to occur on the Z17DTH and Z17DTL units, which both feature tensioners that have a lower torque setting than the majority of the other engine codes.

Fitting Procedure

The precise detail of the fitting procedures differ according to the engine code, but to set an accurate tension of the belt, the engine must be cold and so it should have been at rest for at least four hours. Common to all engines are the following:

1) The TDC locking bolts must be installed in the camshaft sprocket and the high-pressure pump sprocket. The lug on the crankshaft pulley must be in line with the lug on the oil pump cover.

2) Observe the direction of engine rotation, the timing belt must be installed and tensioned in the direction of the arrows in a clockwise direction starting from the crankshaft, oil pump, fuel pump, camshaft and tensioner pulley.

3) Not all engine codes need this step, but Z17DTH and Z17DTL units require the TDC bolts to be removed and the crankshaft rotated 60° in the direction of engine rotation.

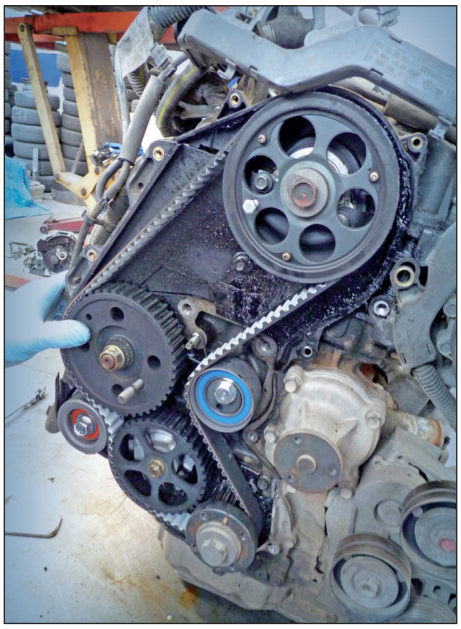
4) Tighten the tensioner bolt to the vehicle manufacturers specified torque for the engine code in question, making sure the tensioner does not move during this operation. It is advised to make a reference point to make sure the tensioner has not moved.

5) Dependent upon the engine code, the crankshaft must be rotated between two and six revolutions in the direction of engine rotation to the adjustment position

6) The lug on the crankshaft must then be in line with the lug on the oil pump cover.

7) Reinstall the TDC bolts to the camshaft and fuel pump sprockets, if it is not possible to install these freely then the tension procedure must be repeated.

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 just 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 – three, the belt will need to be reset.



Product Quality

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

The Dayco HT belt has become the original equipment (OE) solution for an increasing number of vehicle manufacturers. As a result, more vehicles fitted with these white belts are coming into the workshop.The kit also improves upon the standard two-year warranty. Dayco's unique Long Life + 1 year warranty is free of charge to the factor, workshop and motorist, and extends the warranty on the Dayco HT belt from the existing two years, to three years.

For more information regarding the OEM quality power transmission products in the Dayco range, phone Team PR Reilly on 01-832-0006 or visit www.dayco.com.

DAYCO®