Timing belt changes for the wary

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Love them or hate them, timing belt changes are not getting any easier. We can probably all admit to getting it wrong at least once. Here are some hints and tips from INA to avoid the costly mistakes.

Plan the job

The engine should be at room temperature when setting the belt tension. As the engine gets hotter it expands, so setting the belt tension of a cold belt on a hot engine will mean it is not as tight as the vehicle manufacturer's process specified when hot. A cold engine is a constant that you should stick to. Getting the engine at room temperature before you set the belt tension can be tricky, especially if it's a quick job and the customer has driven 10 miles to get to you. Make sure you get a tea break or lunchtime in the process, or better still, get it on the ramp the night before.

Always change all the pulleys and tensioners. INA tensioner sets & kits contain all OE components and all the bits you need to change the timing belt.

Think about the Front End Auxiliary Drive (FEAD) components. You have to remove most of them to get to the timing belt, they have done the same mileage as the timing belt and they can do as much damage as a timing belt if they fail. Why not change them at the same time?

Read the instructions

Some garages believe that vehicle manufacturers (VMs) dream up a complicated process to deter independent garages from doing the work. It is certainly working, but they don't do it for that reason. VMs will start from the position "I need X tension to make sure the belt doesn't fall off until the scheduled belt change". Then they develop a process that gets them there as quickly and as accurately as possible, repeatedly. Remember they have to do the same as you, but on a moving production line and they're doing it hundreds of times a day. If it will be OK if you miss a few bits out of the process, don't you think the VM would have done it like that too?

Read the instructions again

This time thinking about if it actually tells you how to replace all the pulleys and tensioners. Remember that some of the OE processes you have access to in aftermarket publications may not give you enough information to change the tensioner. Rover KV6 is a good example. If you follow the OE instructions with a new tensioner, it comes loose and you bend valves. Another good example is the Corsa 1.7 CDTi, where it says retract the tensioner from the belt and lock it and after fitting the new belt just let it go, but if you have the new tensioner in your hand which way do you turn it?

Special Tools

VMs will develop an accurate timing process and tools that produce repeatable and reliable engine or fuel pump timing, in a production environment to give maximum performance and minimum emissions every single time. If that involves some expensive special tools, then that is what is required and a bottle of Tipp-Ex just won't give the same results!

Special tools are sometimes crucial and will save you time and trouble

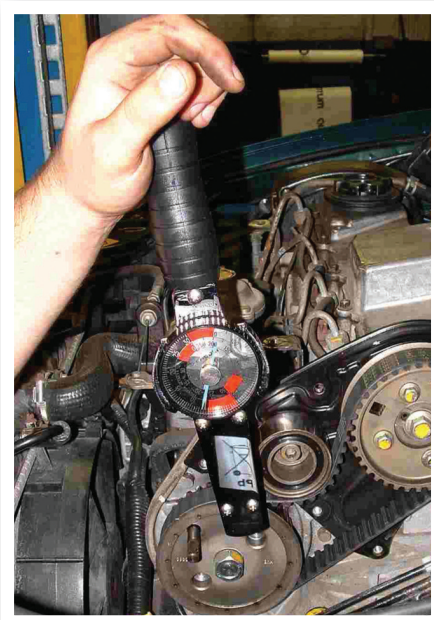
Repair all leaks

Timing belts and tensioners that use friction washers to damp out vibrations don't like oil or water. Leaving a leaking oil seal or a leaking water pump is not doing your customer a favour, you are risking total engine failure. A €2 seal and a few minutes work would be doing your customer a favour.

Understand "free wheeling cam pulleys"

One of the most common mistakes, usually due to lack of timing pins or tools, is to not lock the cams and loosen the cam pulleys using the "universal timing tool" (Tipp-Ex) to guess the valve timing. Unfortunately when it comes to tensioning the belt, not having loose pulleys means you will have a loose side of the belt and a tight side of the belt. Unfortunately the tensioner is usually on the slack side, so setting the belt tension in this condition will result in an over-tensioned belt.

With the camshafts locked and the pulleys loose, you will have even tension all around the belt (which is how the VM intended you to tension the belt). The same can apply to fuel injection pumps, which when pinned, the pulleys can be slackened on banana slots, to allow some free movement of the belt.



Torque wrenches and values are vital

Turn the tensioner the right way

Some tensioners are not marked and when you turn it one way, the pointer goes in the opposite direction (just to confuse you). Read the instructions carefully and if you are not sure or it's not clear, ask.

Get the torque right

Torque wrenches and torque values are vital pieces of kit when it comes to replacing timing and auxiliary belts and their associated tensioners and guide pulleys etc. With belt loads increasing and space reducing, some of these components are expected to perform harder than ever before. Not using a torque wrench can prove fatal to an engine if the bolt breaks.

Final Step

Always turn the engine over by hand after the process to make sure it turns ok. If possible, it's also a good idea to leave the belt cover off, so you can see that the belt sits nicely on the pulleys when running, before assembling it fully.

For technical support and repair installation tips, go to www.RepXpert.com or you can call the LuK technical hotline on 0044-143-226-4264.