



# SPOT THE D

**A final check can mean the difference between a job done well and a timing belt that's doomed to premature failure. However, identifying the cause can prove to be an uphill struggle...**

## CASE STUDY I

**Vehicle:** VW

**Model:** Passat

**Engine:** 1.9 Diesel

In most cases, timing belt misalignment in the drive system is a result of wear. More often than not, it's the result of either a worn tensioner that has not been changed at the same time as the replacement belt, or an incorrect tension setting at the time of the installation.

The Gates inspector was called out to a VW Passat with a premature timing belt failure after all likely causes had been eliminated at the scene. Through the application of some well-established diagnostic techniques, it was possible to clear the technician of procedural error. In fact, in accordance with good workshop procedure, a thorough inspection of the drive system components had been carried out at the time of the scheduled change. Moreover, a Gates Timing Belt Kit had been installed, while the installation tension had been checked by means of a sonic tension tester – an STT-1 – also supplied by Gates.

With the drive system cover removed, all the usual signs of misalignment were in place. Apart from the audible evidence – the noise, which had initially drawn the attention of the motorist – there was visible evidence (see picture A).

Common characteristics associated with misalignment are:

- Frayed edge to the timing belt itself.
- Reduced width.
- Fibre residue in the drive system.

The presence of these confirmed it was a clear-cut case of misalignment. So what was the cause? It was time to look for likely contributors.

While the engine block of both the petrol and diesel engine versions of the VW Passat 1.9 are almost identical, there are small differences. One difference was of particular interest and may have implications for installers of timing belts everywhere.

On the diesel engine version of the VW Passat, the manufacturer has fitted a mounting bracket to the side of the engine block. This has been introduced to accommodate the injection pump and keep it securely in place. Any

distortion of this bracket will have an adverse affect on the orientation of the injection pump. If the bracket has become bent for any reason, as proved to be the case, the timing belt will be compromised from the start. In this instance, a bent bracket meant that the belt was not running true. This distortion of the bracket may have been caused by any number of different factors during the operational lifetime of the vehicle. Whatever the specific cause, the result was that the timing belt began to 'track' within the drive system.

Changing the belt alone could not resolve the problem. The bracket had to be restored to its original condition to prevent misalignment from re-occurring.

