



Alistair Mason, Schaeffler

INA Belt Academy

VW Scirocco 2.0TDi

This month, REPPERT's Alistair Mason replaced the timing belt and water pump on a 2011 Volkswagen Scirocco. The car was fitted with a 2.0TDi common rail engine (engine code CFHC), had covered slightly more than 70,000 miles and was replaced due to advice given because of the age and mileage of the vehicle.

The engine was identified as an 'interference' type engine; therefore, in the event of timing belt failure, the likelihood of engine damage is extremely high. All timing belt replacements should be carried out with the engine at ambient room temperature, and always rotate the engine in the normal direction of rotation unless otherwise advised. It is also recommended that all the tensioners, idlers and fixings are replaced and torqued as per the manufacturer's instructions.

Workshop instructions and labour times can be found via Schaeffler's REPPERT service brand, while technical bulletins should be checked prior to repair.

Step-by-step procedure

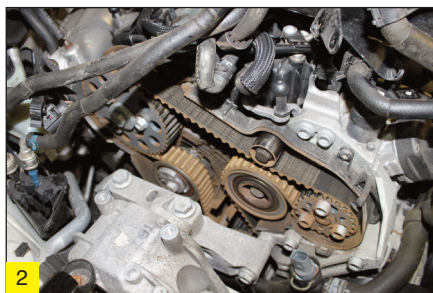
To carry out the replacement effectively and safely requires a two-post ramp, engine support, crank, cam and pump locking tools, as well as a pulley counter hold tool and cooling system vacuum bleeding set.

With the car positioned on the ramp, open the bonnet and remove the plastic engine cover, unscrew the bolt that secures the screenwash bottle filler neck, carefully undo the coolant expansion tank cap to release any pressure and then refit. Undo the retaining screws for the cooling system expansion tank, disconnect the diesel particulate filter pressure sensor and stow towards the bulkhead area.

Remove the complete fuel filter assembly, then unbolt and remove the bracket that contains the auxiliary fuel pump – then the whole assembly can be stowed and secured on top of the engine (Fig 1).



This now provides clear access to remove the upper timing belt cover. Release the retaining clips and remove the cover (Fig 2) – at this point, raise the ramp to gain access to the underside. Remove the engine shield and the O/S wheel arch liner (Fig 3).

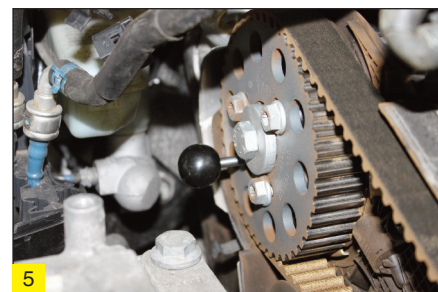
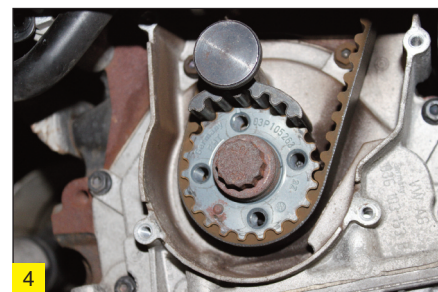


It is good practice to slacken the four bottom pulley retaining bolts with the auxiliary drive belt still attached; once the bolts have been slackened, remove the tension from the auxiliary drive belt and remove it.

Inspect the auxiliary drive belt for wear and cracking – replacement of this belt is always advised. Remove the bottom pulley, unscrew the retaining bolts for the metal coolant pipe – which runs along the timing belt cover – undo the lower cover retaining bolts and remove the lower timing belt cover.

Using a 19mm 12-point socket, rotate the crankshaft until the timing mark for the crankshaft aligns, locate the camshaft locking pin, before locking the crankshaft, camshaft and high-pressure fuel pump with the locking tools (Figs 4, 5, and 6).

Slacken the three bolts on the camshaft sprocket and the three bolts on the high-pressure fuel pump sprocket by holding the



pulleys with the counter hold tool.

Support the engine using an engine brace or sub-frame mounted support, and remove the complete engine mounting, located in the timing belt area. Loosen the timing belt tensioner nut and remove the timing belt. The camshaft sprocket can then be removed, as can the tensioner.

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On this application, there is no instruction to replace the tensioner stud, but it is best practise to do so.

Replace the three idler pulleys and torque to the manufacturer's specification, before raising the vehicle to gain access to the underside and drain coolant from the radiator. Using a coolant drainer, release the drain screw located at the bottom of the radiator on the N/S. Once the coolant has been drained, undo the three bolts from the water pump and remove the water pump.

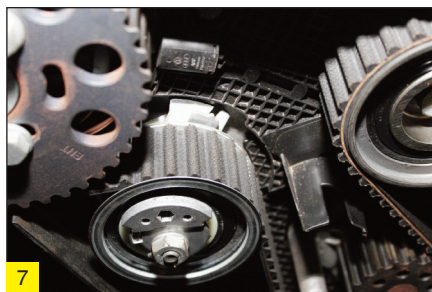
Before fitting a new water pump, clean the area where it is going to be positioned. Install the new component and torque the bolts to the manufacturer's specification, as well as ensure all coolant is removed from the timing belt area.

Fit the camshaft sprocket, and ensure the locking pin is correctly installed. Turn both the camshaft sprocket and high-pressure fuel sprocket in the clockwise direction on the elongated holes, leaving the bolts free enough for the pulleys to rotate but not tip, before fitting a new tensioner.

Timing belt installation

Fit the new timing belt, starting from the crankshaft, tensioner, camshaft, high-pressure pump, coolant pump, and then finally sliding it onto the idler.

When positioned correctly on the sprockets and idlers, tension the belt by turning the tensioner with an Allen key in a clockwise direction until the pointer aligns with the gap on the indicator back plate (Fig 7).



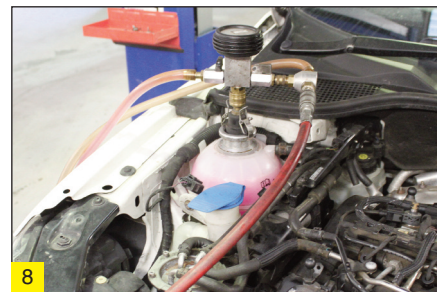
Hold the tensioning roller in position, tighten and torque the tensioner nut to the manufacturer's specification. The camshaft and high-pressure pump sprockets will now be aligned in a central position – at this point, hold the sprockets with a counter hold tool and tighten the sprockets, again to the manufacturer's specification.

Next, remove the locking tools and rotate the engine at least two complete revolutions in the direction of rotation, refit the locking tools to ensure the timing is correct and also check that the belt tension has not altered at the tensioner pointer. Once the correct timing and belt tension has been confirmed, ensure all

bolts have been torqued correctly, then refit all component in reverse order of removal.

It is worth noting that the engine mounting on this vehicle, located on the cylinder block, uses a stretch bolt, which will also need replacing.

Remember to refill the cooling system with the correct specification; however, it must be bled beforehand via a new and preferred method of 'vacuum bleeding' – it's quick, easy and removes all air from the cooling system (Fig 8).



When the repair is complete, run the engine to confirm a successful repair, always check for engine fault codes and carry out a road.

**Find more information on the
REXPert garage portal,
www.rexpert.co.uk, or call the Schaeffler
technical hotline on +44 1432 264 264.**