Malcolm Short, Schaeffler

Timing belt

2008 Audi A4 2.0TDi

The Audi A4 may sound like a daunting vehicle on which to change a cambelt, but with a little know how and the appropriate tools, it will prove to be an ideal repair. INA takes a closer look at this popular model.

In this article we tackle the A4 2.0TDi, with an engine code of CAGA. The engine on this vehicle has been identified as an interference type, so the likelihood of engine damage, if the cambelt breaks is very high. It is very important that the belt installation is performed on a cold engine, so plan the job carefully. Always turn the engine in the normal direction of rotation only (unless advised otherwise by the OEM fitting instructions), recommended manufacturers torque values should always be used and it is recommended to change the tensioners and the pulleys when replacing the cambelt.

A two post ramp is ideal for carrying out the replacement and it is vital that the appropriate timing belt replacement tools are used, these are readily available from most motor factors. If the vehicle is equipped with alloy wheels, it's a good idea to locate the adapter key before you start.

Before carrying out any work disconnect the battery earth cable. Remove the bumper top closing panel, the cold air intake duct and the engine cover. Disconnect the air temp sensor from behind the Audi logo attached to the front grille. Raise the vehicle and remove both front wheels. Remove the driveshaft guard and the wheel arch liner fixings, there are quite a lot of fixings to be removed. In this example we did not remove the complete liner, but just enough to carefully fold it

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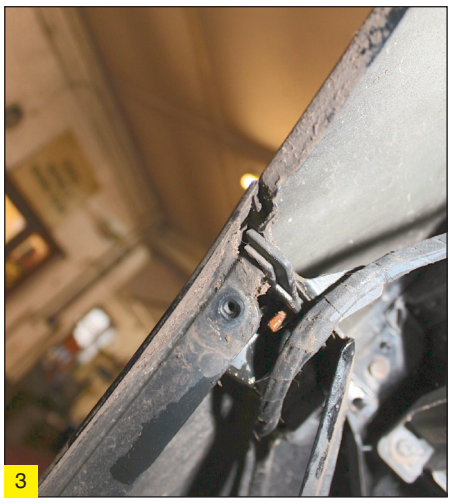
towards the rear of the wheel arch, to allow enough access to the drive system (fig 1). Remove the engine undertray.

Disconnect the front fog light multi



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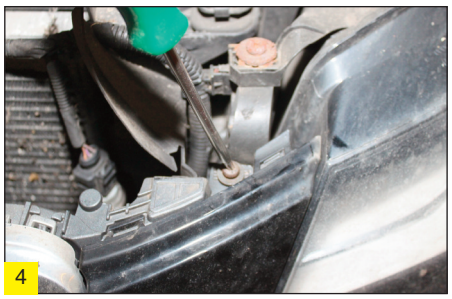

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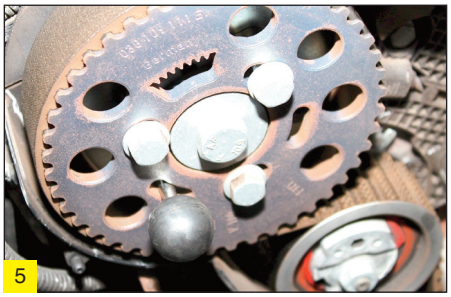
plug connectors on both sides (fig 2). Remove the bumper by removing the two bolts one in each wheel arch (fig 3) and the two bolts from the brackets one on each side next to the headlights (fig 4). Disconnect both headlight multi plugs and the bonnet release sensor wire. Disconnect the bonnet release cable. Remove two bolts located on the top of the modular front end (MFE), next to the headlights. Remove the bolts, there are three on each side on the longitudinal member, and replace the top two bolts on each side with either a longer bolt or all thread to slide the MFE into its service position.



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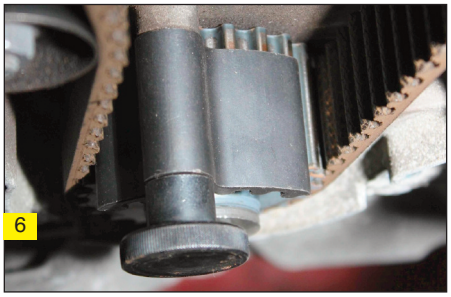
Disconnect the intercooler pipes and slide the MFE forward into service position. Remove the upper timing belt cover.



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Release the auxiliary belt tensioner by turning it clockwise, and remove the auxiliary drive belt. Pop out the

crankshaft pulley centre cap, and remove retaining bolts and crankshaft pulley. Remove the lower and centre timing belt covers. Rotate crankshaft clockwise to TDC on No. 1 cylinder, ensuring that the TDC markings are in alignment with the camshaft pulley windows positioned at 12 o`clock (fig 5), rotate crankshaft one turn clockwise if not. Lock the crankshaft using the special tool and ensure the dowel on the tool is located in the oil seal housing (fig 6).

Slacken the camshaft and high pressure pump bolts just enough to allow them to rotate freely on their axis, but not enough to allow them to tilt. Slacken the tensioner pulley nut and remove the timing belt.

Replace all the tensioner and pulleys. When installing the new tensioner, it is imperative to locate it in the slot on the belt cover back plate to avoid failure or damage (fig 7). Install the tensioner locking pin (if not already fitted, ensuring the tensioner is in the right starting position). Lock the camshaft and pressure pump sprockets with timing pins (fig 8). Turn camshaft and high pressure pump sprockets fully clockwise in slotted holes.

Install the timing belt in the following order:

1. Crankshaft sprocket (CS)
2. Guide pulley (G1)
3. Tensioner pulley (TP)
4. Camshaft sprocket (Cam)
5. Water pump sprocket (WP)
6. Guide pulley (G3)
7. High pressure fuel pump sprocket (FP)
8. Guide pulley (G2)

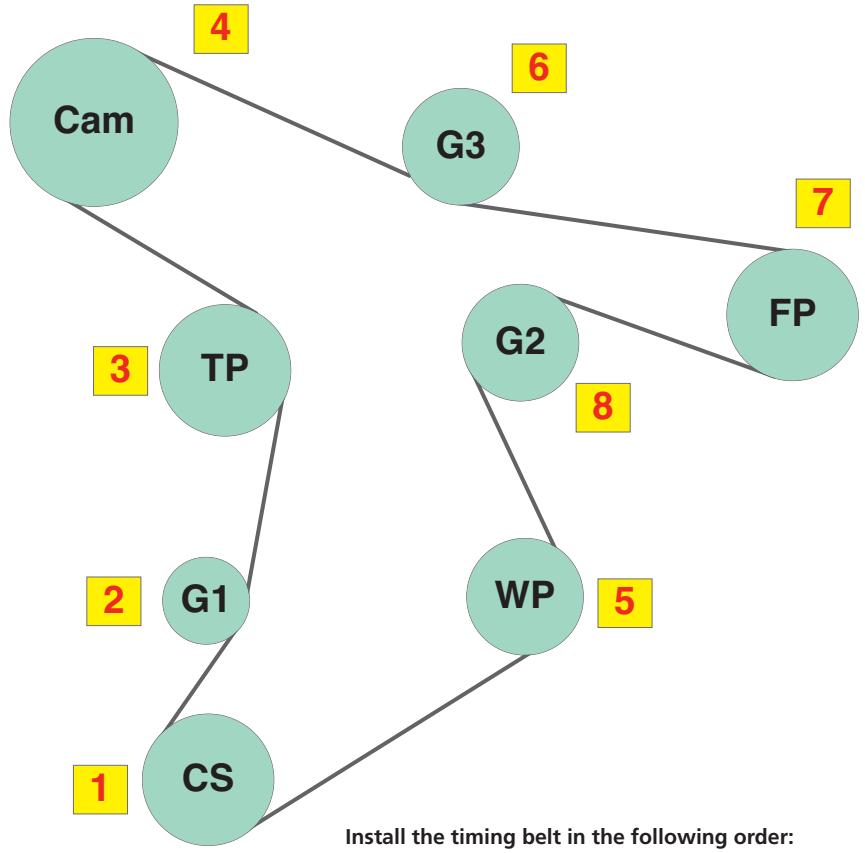
Remove the locking pin. Rotate the camshaft sprocket anti-clockwise, using an anti-rotation tool to ensure the belt is taut between the camshaft and high pressure pump sprockets. Tighten the securing bolts for the camshaft and high pressure pump pulleys, to a tightening torque of 20Nm.

Slowly rotate the tensioner pulley clockwise, until the pointer is aligned with the locating notch (fig 9). Make sure the tensioner nut does not turn while aligning the pointer. Tighten the tensioner nut to a torque of 20Nm + 45°.

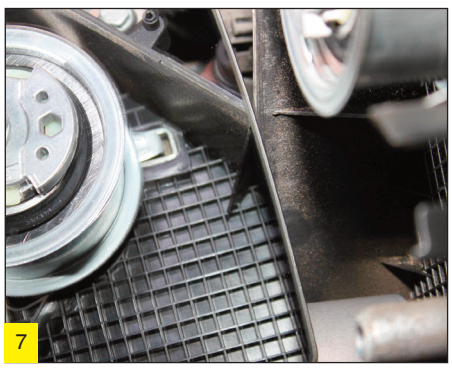
Remove the camshaft, high pressure pump and crankshaft locking tools. Rotate crankshaft slowly, two turns clockwise until just before TDC on number 1 cylinder. Refit the crankshaft locking tool whilst slowly turning crankshaft to TDC and make sure the locating dowel sits inside the oil seal housing. Verify the timing marks are aligned and the camshaft locking tool can be easily inserted. (NOTE: do not insert high pressure locking tool, as this could be slightly misaligned and does not need adjustment). Make sure the tensioner pointer is correctly aligned with the locating notch, keeping in mind a 5mm tolerance is permitted to the right of the notch only. Repeat the procedure if this is not the case.

The installation of the remaining parts is the reverse order of removal, but it is strongly advised to check the condition of the auxiliary belt and driven components for excessive wear and consider replacing them. Finally, it is advisable to rotate the engine by hand a number of times before starting the engine, to check for any interference or noise.

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



Install the timing belt in the following order: CS, G1, TP, Cam, WP, G3, FP and G2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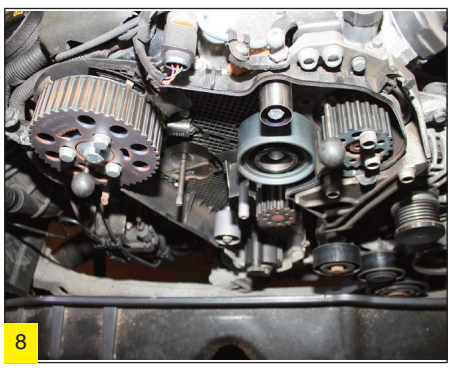
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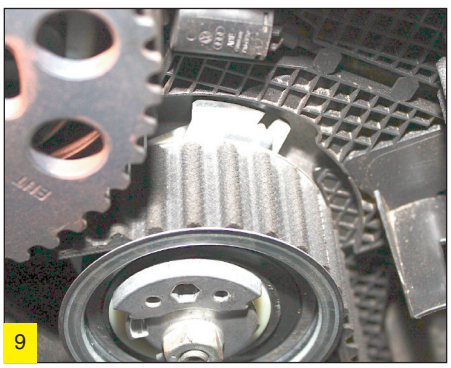
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