

ContiTech: Expert Tips for Changing Timing Belts

- Detailed instructions for Audi A3 1.8-liter T with engine code ARZ
- ContiTech shows how to avoid errors when changing belts

Hanover, May 2015. Significant errors are frequently committed when changing the timing belt. To ensure that the belt change operation goes smoothly, the ContiTech Power Transmission Group provides fitters with a detailed installation guide. The ContiTech expert provides a step-by-step explanation of how to change the belt correctly in an Audi A3 1.8-liter T with engine code ARZ.

The manufacturer recommends changing the timing belt and the tensioning pulley at 180,000 km or after five years.

The labor time is 2.2 hours.

Tip: The multi-V belt ought to be changed at the same time as the timing belt. The multi-V belt has the same change interval as the timing belt. It is essential, therefore, to change the multi-V belt as part of the package in order to avoid later failures with unnecessary costs.

Fitters need the following special tools for the procedure:

1. OE locking tool (T40011)
2. OE tensioning bolt (T10092)
3. OE engine support bridge (10-222A)

Preparatory work:

Identify the vehicle using the engine code.

Disconnect the vehicle battery. Do not turn the crankshaft and camshaft once the timing belt has been removed. Turn the engine in the normal direction of rotation (clockwise) unless otherwise specified.

Turn the engine only at the crankshaft pulley and not at other sprockets.

Comply with all the vehicle manufacturer's tightening torques. Raise the vehicle and support the engine or fit the engine support bridge so that the front engine mount is not under strain.

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Removal: Remove engine cover, power steering reservoir (do not detach hoses), ancillary unit belt and belt tensioner, coolant expansion reservoir (hoses do not need to be detached), upper, middle and lower timing belt guards; disconnect fuel lines; remove plug from Hall-effect sensor, hose between charge-air line and charge-air cooler, engine compartment underpanel, crankshaft belt pulley and front engine mount, supporting engine to do so or lifting engine with engine support bridge.

Removal – camshaft belt:

1. Set valve timings to TDC mark of cylinder 1.
2. Mark (notch) on camshaft pulley must align with mark (notch) on rear timing belt guard (Fig. 1).



Fig. 1

3. Check crankshaft mark. To do so, remove rubber plug from torque converter housing (Figs. 2, 3, 4). Mark (notch) on flywheel must align with mark (projection) of opening (Fig. 5).

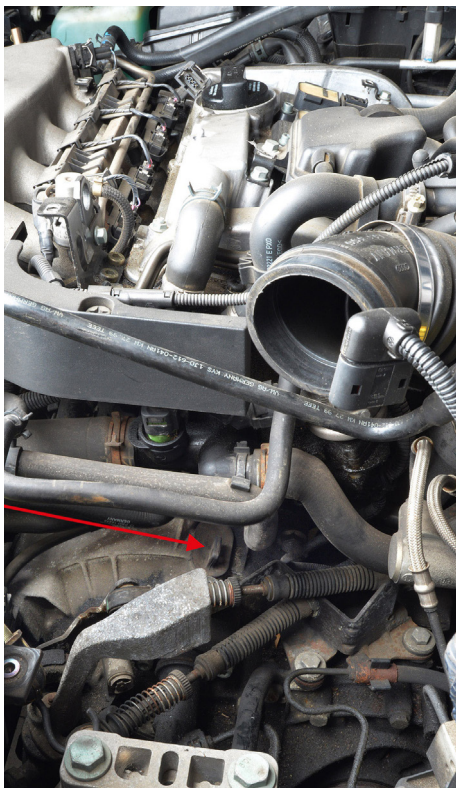


Fig. 2



Fig. 3



Fig. 4



Fig. 5

4. Screw OE tensioning bolt (T10092) into hydraulic damper and slowly release tension on timing belt/tensioning pulley by turning OE tensioning bolt (T10092) (Figs. 6, 7, 8a, 9), until OE locking tool (T40011) can be inserted into small bore of hydraulic damper (Figs. 8b, 9).

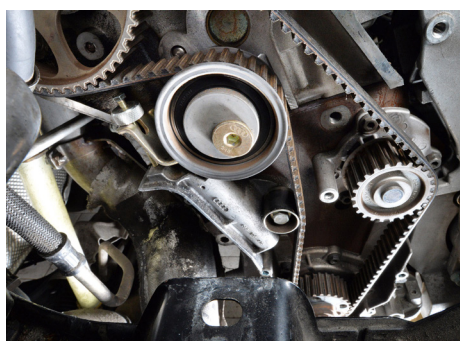


Fig. 6



Fig. 7



Fig. 8a

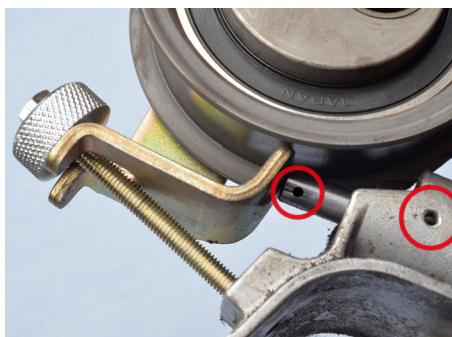


Fig. 8b



Fig. 9

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5. Timing belt can now be removed (Fig. 10).

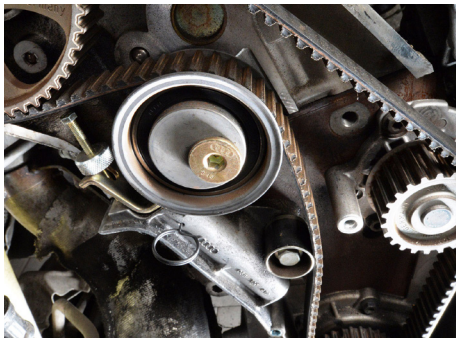


Fig. 10

Installation – camshaft belt:

1. Screw OE tensioning bolt (T10092) into new hydraulic damper (Fig. 11).



Fig. 11

2. Fit new tensioning pulley (27Nm) and new hydraulic damper (15Nm) and tighten OE tensioning bolt (T10092) such that locking tool will be easy to remove later from new hydraulic damper (Fig. 12). **Do not withdraw locking pin until timing belt and tensioning pulley are correctly installed! Hydraulic damper may only be actuated with tensioning bolt. Pressing together with vise or pliers could damage hydraulic damper.**



Fig. 12

3. Fit timing belt on crankshaft pulley, starting clockwise. **Take care to ensure that timing belt is not kinked during fitting! Timing belt must be tight between sprockets on tight side.**

4. Tension timing belt by withdrawing locking pin of hydraulic damper and removing OE tensioning bolt (T10092). Tension is set by hydraulic damper. There are no other marks on tensioning pulley.

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5. Turn engine through two revolutions in direction of engine travel. Set engine to TDC of cylinder 1. Check and, if necessary, correct timings.

6. Refit crankshaft belt pulley. To do so, hold crankshaft central bolt using box-end wrench or counterhold, then tighten to appropriate torque (strength category M8 8.8, 10Nm +90°, M8 10.9, 40Nm).

7. Fit components in reverse order of removal.

Fitting: Upper and lower timing belt guard (10Nm) using threadlocker, ancillary unit belt and belt tensioner (23Nm). Engine mount bolts and engine mount (engine stay to cylinder block 45Nm, connecting stay to body/engine mount 25Nm, engine mount to body 40Nm +90°, use new bolt). Hose between charge-air pipe and charge-air cooler, power steering reservoir and coolant expansion reservoir, reconnect fuel lines and plug Hall-effect sensor back in. Refit engine cover and engine compartment underpanel.

8. Record changing of original ContiTech timing belt on sticker supplied (Fig. 13) and stick this in engine compartment.



Fig. 13

Then carry out a test run or test drive.

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The ContiTech division is one of the leading suppliers of technical rubber products and is a specialist for plastics technology. It develops and produces functional parts, components and systems for mechanical and plant engineering, the mining and automotive industries, and other major industries. In 2014 ContiTech and US company Veyance Technologies Inc., which it acquired at the start of 2015, recorded pro forma sales of around 5.4 billion euros and now employ around 41,000 staff in 34 countries worldwide.

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