



TECHNICAL BULLETIN 035

25/03/2010

VAG 1.4 & 1.6 16V / SYNCHRONOUS DRIVE / INSTALLATION INFO

EXPLANATION:

The tensioner in this drive can be installed in a lot of incorrect positions, while still giving the impression that everything is OK.

- The correct tensioner bolt torque is critical.
- The visual access is quite limited when the engine is installed in the vehicle.

As a result of all this, installation errors can easily be made.

Fig. 1 shows the 2 different versions of the automatic tensioner (for the main drive) to be found in our kits. They are interchangeable.

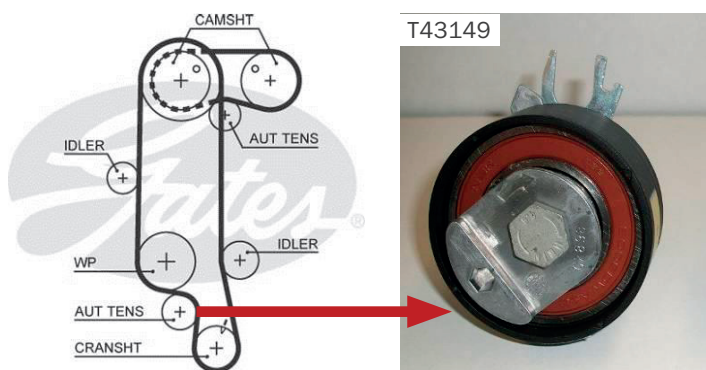


FIG. 1

Any incorrect position of the locating lug (Fig. 2, 3 and 4) will lead to an incorrect belt tension or to the fact the belt cannot be tensioned correctly.



FIG. 2



FIG. 3



FIG. 4



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GATES REFERENCE:
5565XS & related kits.

MAKE:
AUDI
SEAT
SKODA
VOLKSWAGEN

MODEL:
Various.

MOTOR:
1.4 16V, 1.6 16V.

MOTOR CODE:
Various.



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If the tensioner is torqued up while the locating lug is sitting on the bolt's head (Fig. 5 and 6), this will lead to a deformation of the lug (Fig. 7), an incorrect torque of the tensioner bolt and possible tensioner misalignment.



FIG. 5



FIG. 6

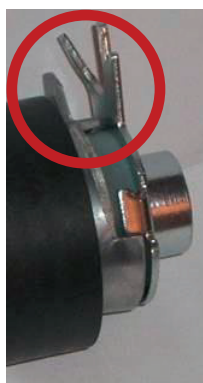


FIG. 7

The incorrect (too low) torque can lead to the bolt coming undone (due to vibrations) resulting in the load being transferred to the mounting bolt shank, causing it to shear (Fig. 8).

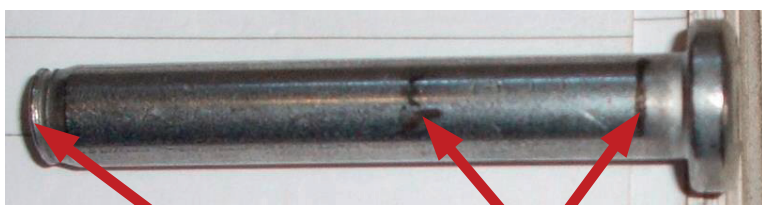


FIG. 8

Bolt sheared off

Tensioner contact marks

Though the locating lug is correctly placed, possible incorrect sitting of the tensioner against the engine block after the tensioner bolt is torqued, leaving a gap between the tensioner and the engine block (Fig. 9).

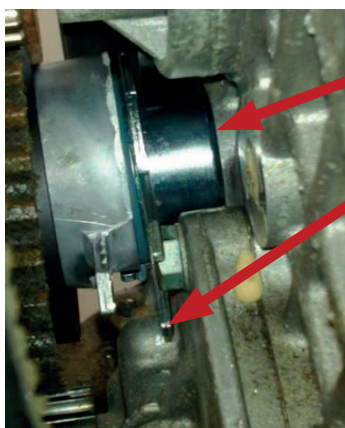


FIG. 9

Gap

Not far enough over bolt head

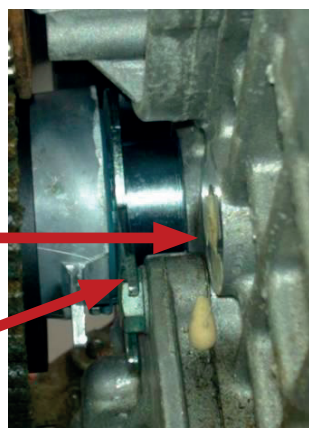


FIG. 10

No gap

Good position



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Too high torque can result in:

- deformation of the tensioner leading to overheating of the bearing
- damage of the thread in the alloy engine block, leading to the need of a thread repair (Fig. 11)
- bolt rupture



Repaired thread

FIG. 11

INSTALLATION / TENSIONING OF THE MAIN DRIVE:

Important: Engine must be at room temperature.

Put the engine at its Top Dead Centre (TDC).

Slanted tooth of the crankshaft pulley (Fig. 12) has to be in line with right hand positioning rib (Fig. 13).



Slanted tooth

FIG. 12



Positioning rib

FIG. 13

Lock the camshaft pulleys (Fig.14);
use Gates tool GAT4635
(VAG tool ref. 10016).

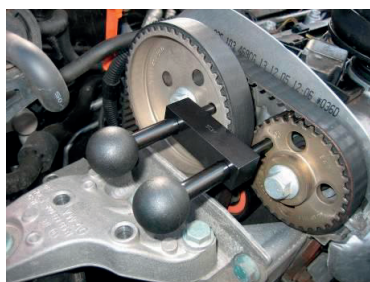


FIG. 14



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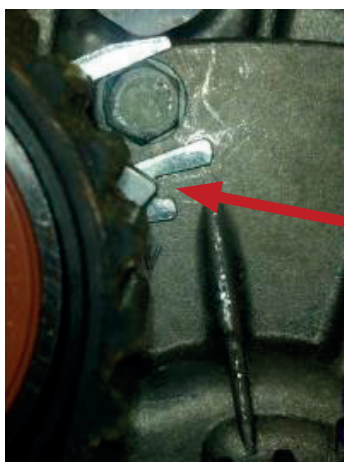
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Make sure the thread in the engine block is undamaged and clean.

Install the new tensioner.

Tighten the tensioner bolt finger tight assuring it's correctly placed (Fig. 10). Install a new PowerGrip® belt.

Turn the tensioner pulley clockwise till the pointer and base plate notch are well in line (Fig. 15).



Torque tensioner bolt (20 Nm)

Turn engine 2 revolutions to TDC and verify pointer position (adapt if needed).

Pointer in centre of the notch

FIG. 15

INSTALLATION / TENSIONING OF THE CAM-CAM DRIVE:

Fig. 16 shows the automatic tensioner for the cam-cam drive.



FIG. 16

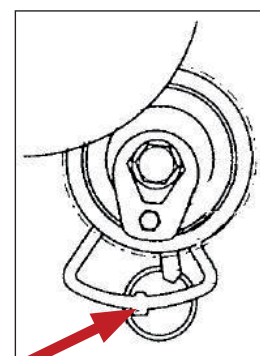
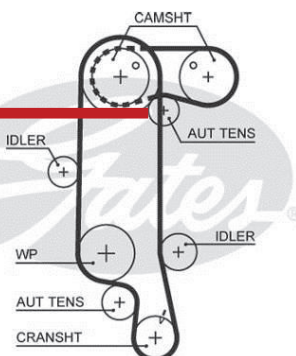


FIG. 17

When installing this tensioner, make sure:

- the locating lug is placed in the hole in the cylinder head at 6 o'clock (Fig. 17).
- the tensioner is turned anti-clockwise until the pointer is in line with the positioning lug
- the tensioner bolt is torqued to 20 Nm
- the engine is turned 2 revolutions to TDC and pointer position verified (adapt if needed).



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It is clear an incorrect position of the locating lug will lead to problems like tensioner misalignment with drive failure as a result.

In one case the tensioner was mounted upside down, with the locating lug trapped behind a part of the cylinder head at 11 o' clock (Fig. 18). When bolting on the tensioner, the back plate deformed, because there was no hole for the lug to fit in.

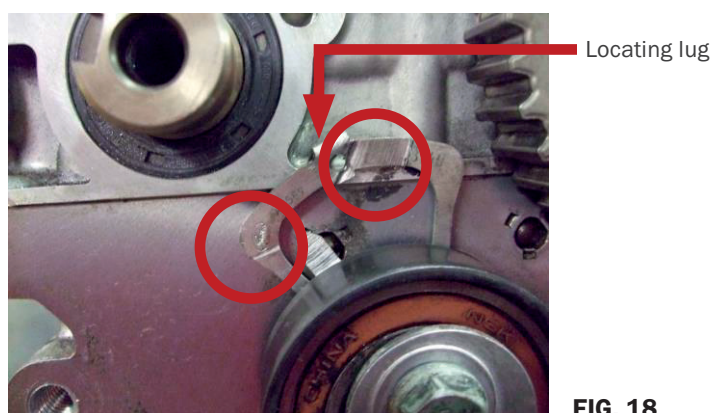


FIG. 18



FIG. 19

As a result, the left hand side cam sprocket and the timing belt were touching the back plate, and the belt edge was 'eaten' away until the belt broke. The marks on the tensioner back plate (Fig. 18) and the debris on the inside of the drive cover (Fig. 19) were the clear witnesses of this destruction process.

For the CAM-CAM drive, different kits are in the catalogue, the reason for this is a change in the involved tensioner.

The pulley width of the tensioner T43078 is 18 mm, for the T43140 the width is 19 mm (Fig. 20).

The main difference is to be found inside the tensioner. Requirements from OE on this tensioner resulted in two different "internal" constructions.

These tensioners are NOT interchangeable.

Check the online catalogue for the correct parts per application.

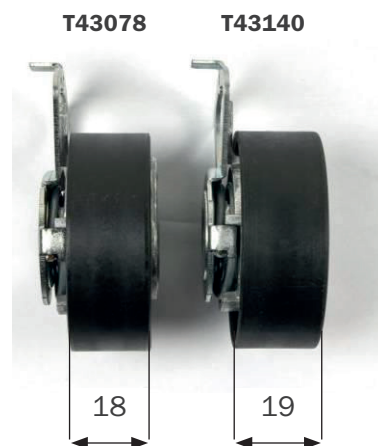


FIG. 20