



NUMBER 001

28/02/2005

GM 16V / Synchronous Drive / Installation Info.

GATES REFERENCE:	5368XS, 5369XS, 5408XS, 5461XS, 5499XS, 5542XS & their relevant kits.	
MAKE:	CHEVROLET / DAEWOO / ISUZU / OPEL / SAAB / VAUXHALL.	
MODEL:	Various.	
MOTOR:	16V: 1.4, 1.6, 1.8, 2.0, 2.2, 2.4.	
MOTOR CODE:	C14SEL, C16SEL, C16XE, C18SEL, C18XE, C18XEL, C18Y1, C20LET, C20SED, C20SEL, C20XE, C22SEL, F18D3, F20D2, L3Y, LD9, T18, T18SED, T20SED, T22SED, X14XE, X16XE, X16XEL, X18XE, X18XEL, X18XE1, X20SED, X20XER, X20XEV, X22SE, X22XE, Y16XE, Y16YNG, Y22SE, Y22XE, Z14XE, Z16XE, Z16YNG, Z18XE, Z18XEL, Z20L, Z20LEH, Z20LEL, Z20LER, Z20LET, Z22XE, Z24SED, Z24XE, Z24XED, 20XE.	

Important:

Only install the belt and the tensioner when the engine is at **room temperature**. **Only rotate the engine CLOCKWISE !!!** 

Never re-install a used belt (tensioners are developed for new belts!!!). The 'USED' position on the base plate is where the pointer will move towards during the life of the belt.

Camshaft- and crankshaft sprockets should not rotate unless the belt is installed and tensioned.

- Align Top Dead Centre (TDC) marks. As the same engine used in different models can have a different belt, we give here the TDC marks following the belt number, not following the engine code.
5369XS, 5499XS crankshaft: 5 o'clock, L-cam: 3 o'clock, R-cam: 9 o'clock
5368XS, 5408XS, 5461XS, 5542XS: crankshaft: 6 o'clock, camshafts 12 o'clock.
- Lock the camshafts.
- Loosen the tensioner bolt.
- Turn the tensioner clockwise and remove the belt.
- Remove the old tensioner.
- Install the new tensioner, hand tighten the bolt. The tensioner lip **has to be** in the oil pump housing slot. (The tensioner pointer has to sit behind water pump pulley). The Allen key hole **has to be set** in +/- 7 o'clock position as shown in Fig. 1.

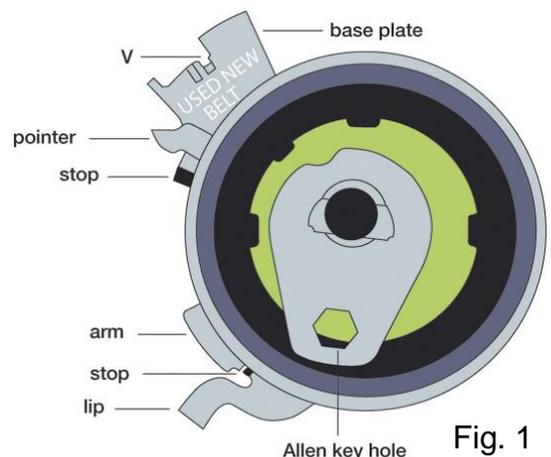


Fig. 1



7. Install the new belt anti-clockwise starting from the crankshaft.



8. Turn the tensioner (with the Allen key) anti-clockwise (while holding the bolt in place) till the pointer is in line (not passing) with the right hand side of the base plate (fig. 2).

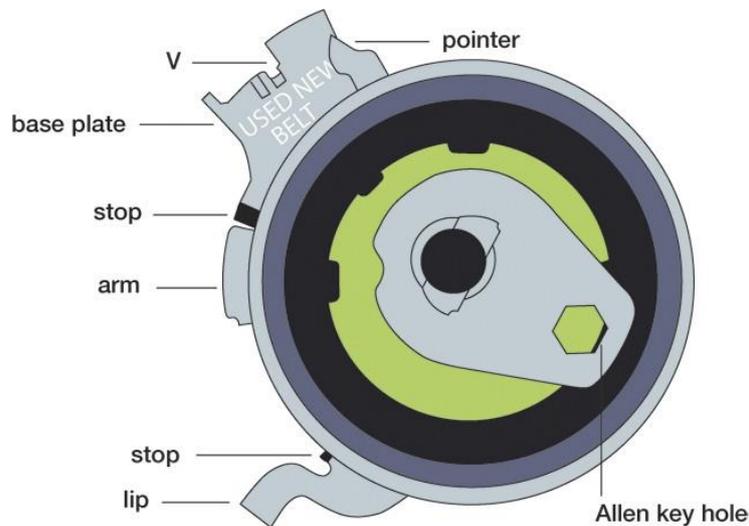


Fig. 2

9. Tighten the tensioner bolt (+/- 20 Nm).
10. Unlock the camshafts.
11. Turn the engine (manually) 2 revolutions via the crankshaft (this for the proper seating of the belt teeth in the grooves; and to distribute the tension), till TDC marks align again. If not aligned, restart at step 1.
12. If the pointer is not in line with V ("NEW" position), lock the camshafts again.
13. Loosen the tensioner bolt.
14. Adjust the tensioner (while holding the tensioner bolt in place), till the pointer is in line with V ("NEW" position); the Allen key hole has to be in +/- 5 o'clock position now (Fig. 3).
15. Tighten the tensioner bolt (+/- 20 Nm).
16. Unlock the camshafts.
17. Turn the engine 2 revolutions (via the crankshaft), till TDC marks align again.
18. Check the tensioner pointer position. If correct (pointer in V), install the other removed parts. If not correct, do repeat steps from 13 to 18, until the pointer aligns with V ("NEW" position).



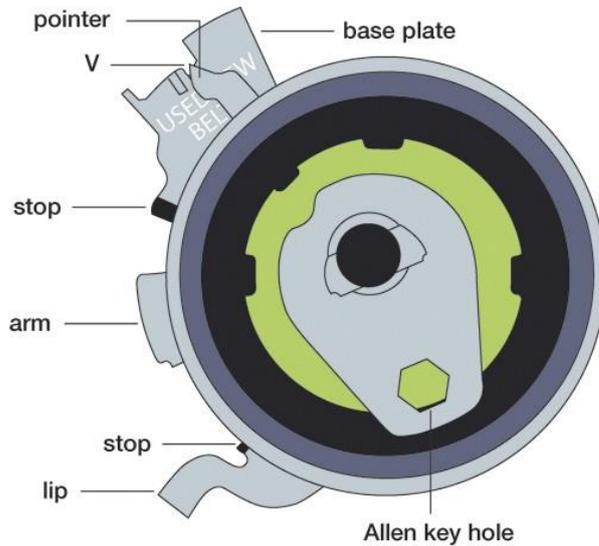
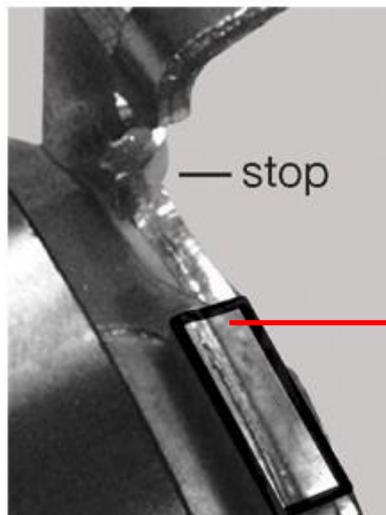


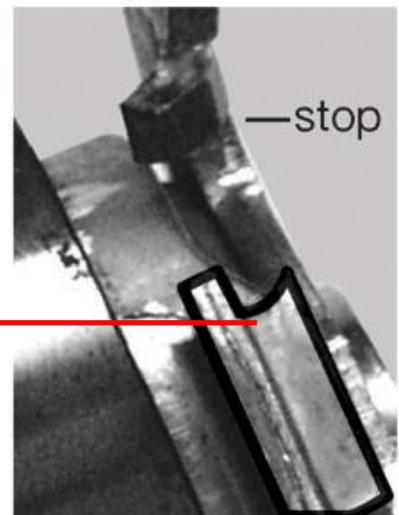
Fig. 3

Attention!!!

Rotating the tensioner in the wrong direction, having the Allen key hole in a wrong position to start off, not turning the engine 2 revolutions before and after setting the tension, can lead to system failure. This will cause the arm of the tensioner to hit the stop, creating a hammering noise, damaging and possibly even rupturing that part. This failure mode is very common and can easily be recognised when inspecting the edge of the arm (Fig. 4). The resulting wrong tension can cause the belt to rupture.



“normal”



“damaged”

Fig. 4

arm

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