



# TECHNICAL BULLETIN 022

02/06/2008

## CHEVROLET / DAEWOO 16V / SYNCHRONOUS DRIVE / INSTALLATION INFO

### EXPLANATION:

On this drive, the main failure is caused by not rotating the water pump at installation, needed to set the correct belt tension. Although the drive is equipped with an 'automatic' tensioner, this still has to be set up correctly. This drive requires manipulation of the eccentric water pump, located below the tensioner (Fig. 1).

It is strongly recommended to replace the tensioner, water pump and idler together with the belt, as these parts wear out also.

A worn bearing of any drive component (loss of grease, seizure, misalignment ...) is as bad as a worn belt, and will lead to premature drive failure, resulting in serious engine damage.



### BULLETIN

**GATES REFERENCE:**  
5419XS & its kits.

**MAKE:**  
CHEVROLET  
DAEWOO  
FSO  
ZAZ

**MODEL:**  
Aranos, Assol, Aveo, Cielo, Cruze,  
Espero, Kalos, Lacetti, Lanos, LeMans,  
Nexia, Nubira, Optra, Orion, Rezzo, Sens,  
Tacuma, Vivant.

**MOTOR:**  
1.4 16V, 1.5 16V, 1.6 16V.

**MOTOR CODE:**  
616L, A16DMS, A16SMS, F14D3,  
F16D3, LXT, V15L.

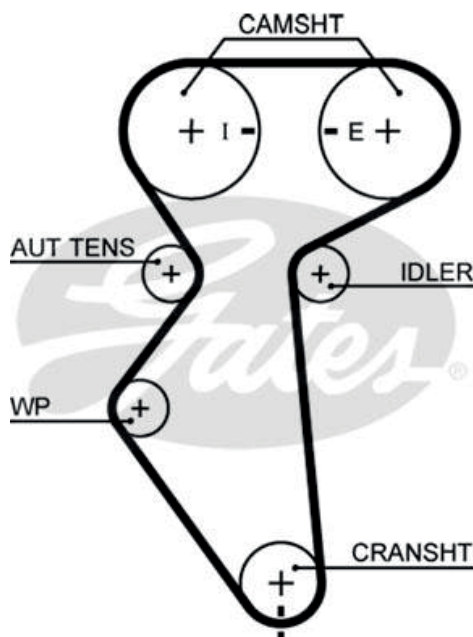


FIG. 1



# TECHNICAL BULLETIN 022

02/06/2008

Specific attention is required on:

- Do not hesitate to loosen the water pump; a new O-ring might be needed to avoid water leakage. Please use the proper tool to rotate the water pump. In this case, loosening the water pump is vital in order to reach the correct installation tension.
- Leaving the old tensioner on without even loosening the tensioner bolt is certainly not the correct way to work. Do not think that if the tension was OK before, and you do not touch it, it will remain OK; every belt has a little tolerance and also the wear of the pulleys can influence the correct setting. If one does not loosen the tensioner bolt, cutting the old belt to remove it, the pointer of the tensioner will hit the cold stop violently. This could seriously damage the pointer, resulting in a rupture (later on). Proceeding this way to install the new belt, the pointer of the tensioner has to be pushed back. When trying this with a screwdriver, one risks that the screwdriver will slip off the pointer (because of the high spring tension) which will again hit the cold stop. This can break off the tensioner pointer (Fig 2). Fig. 3 shows where the pointer is situated in its rest position on a good tensioner.

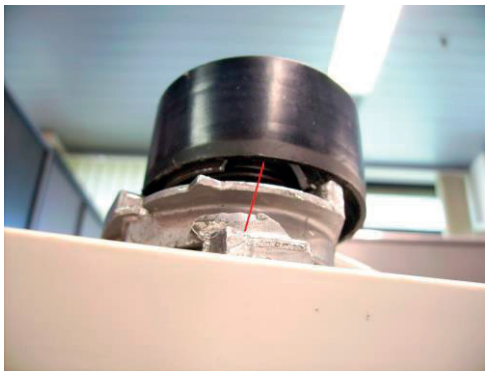


FIG. 2



FIG. 3

- If the timing belt is installed on a hot engine; it is clear this will lead to premature drive failure, because tensioner set up procedures have been developed for cold engines.

Trying short cuts in the procedure is always dangerous, but especially with more complicated drive systems like this one.

## CORRECT PROCEDURE:

### A) Removal:

In order to make access to the drive easier, it is recommended to remove the engine support (Fig. 4).



FIG. 4

Engine support



# TECHNICAL BULLETIN 022

02/06/2008

1. Remove auxiliary belt crankshaft pulley, re-install bolt.
2. Put engine at TDC: rotate the crankshaft clockwise until the timing mark on the crankshaft gear is aligned with the notch at the bottom of the rear timing belt cover, and align the timing marks on the camshaft gears (Fig 1). Block the camshafts with Gates multi-lock tool (GAT 4695).
3. Slightly loosen the bolts of the water pump.
4. Rotate water pump anticlockwise, using special adjustment tool (Gates: GAT V501A or OE: J-42492 or KM-421-A), to release tension on the belt (Fig. 5).
5. Remove the timing belt, tensioner and idler.

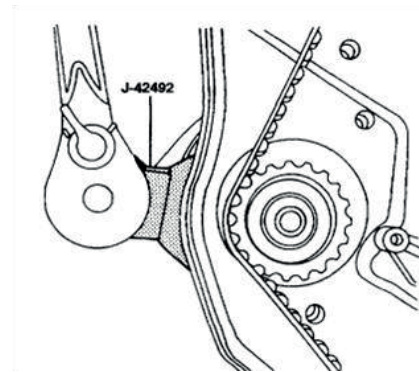


FIG. 5

## B) Installation:

1. Install a new tensioner, water pump and idler then fit the new belt (anticlockwise, starting from crankshaft).
2. Adjust the tensioner pointer up to the notch in the tensioner back plate - close to the right hand stop - by rotating the water pump gently clockwise (Fig. 6, 7 and 8).
3. Tighten the water pump bolts.
4. Rotate the engine 2 full revolutions clockwise (by rotating crankshaft) until TDC.
5. Slightly loosen the bolts of the water pump.
6. Bring tensioner pointer in line with the pointer on the tensioner back-plate by rotating the water pump anticlockwise, with special adjustment tool (Fig. 9).
7. Tighten the water pump bolts.
8. Re-install engine support.
9. Re-install the removed auxiliary belt crankshaft pulley.



FIG. 6

View from front



FIG. 7

View from back



# TECHNICAL BULLETIN 022

02/06/2008

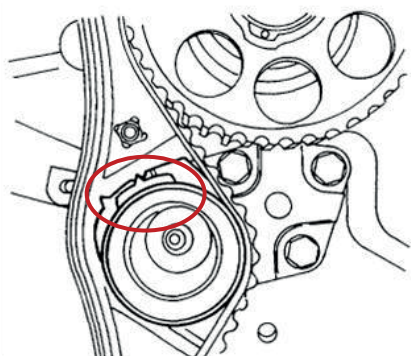


FIG. 8

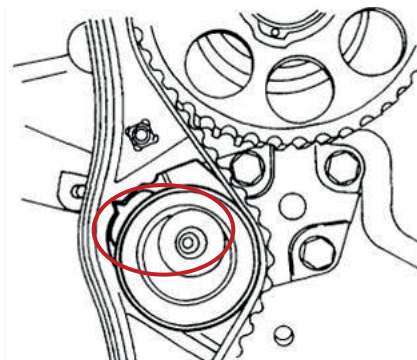


FIG. 9

## CONCLUSION:

- only work on cold engines
- replace timing belt, tensioner, water pump and idler every 60.000 KM or 4 years
- put the tensioner in correct position only by rotating the water pump
- follow every step in the OE installation procedure
- use the specified tools

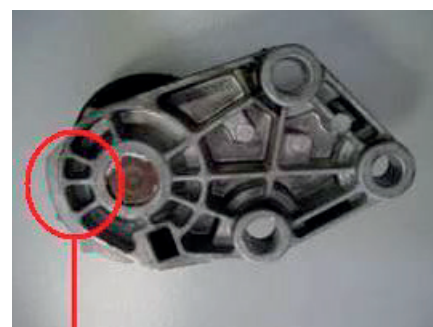
Watch out for counterfeit tensioners widespread in certain markets.



OE



OE



Counterfeit