

# Recommended Installation Procedure

ATech Timing Belt Tensioner (979001)  
DAIMLERCHRYSLER US Minivan 2.4L Inline4 SFI---( 11/06/2003)  
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## Initial Preparation:

**Caution: The procedure to access the timing belt tensioner and all other timing driven components must be done according to DAIMLERCHRYSLER PL's guidelines.**

**The mounting of the TBT is done on the engine with a M8 Mounting Bolt.**

## Cold Engine – Cold tensioner:

1. The tensioner must be installed on the engine at room temperature by allowing the engine and tensioner to stabilize to the same relative ambient temperature for proper belt tension adjustment. **Do not attempt to install a cool tensioner onto a hot engine or vice versa.** (For reference, the minimum engine cooling period is 4 hours in tropical climatic regions).

## Crankshaft and Camshaft TDC position setup:

2. Rotate the crankshaft **clockwise ONLY** to **TDC** (Top Dead Center) position (i.e. #1 cylinder firing position), see Fig.2 (a) and (b).

### Caution:

**If the alignment of the crankshaft and the engine block is missed, do not rotate the Crankshaft counterclockwise to the correct position, but rather rotate the Crankshaft 2 more full rotations with the camshafts to the timing position. This is to be accomplished while the belt is still attached.**

## Belt and TBT Tensioner removal

3. Once the procedure for setting the TDC is completed, loosen the *M8 Mounting Bolt*, engage a 1/4" Hex Key with TBT's arm Hex Hole and rotate the arm counterclockwise to loadstop, this will release the belt tension and maximize the belt clearance with TBT.
4. Remove the timing belt, the tensioner's *M8 Mounting Bolt* and the OLD TBT.

## Installation of the TBT (Timing Belt Tensioner) and the Belt

5. Install new TBT on the engine, which is locked at load stop by a installation pin (see Figs.3), ensuring that the flat surface of tensioner's spindle cup meets a raised stopper on the engine block and the TBT seats on the engine mounting surface properly.
6. Using a 13mm Wrench, torque the *M8 Mounting Bolt* to **22 -- 28 Nm**.  
**Caution: Do not over-torque or under-torque mounting Bolt.**
7. Install the timing belt being careful to engage the appropriate teeth of all the corresponding sprockets as per drive layout (see Fig.1) starting with the crankshaft and working counterclockwise.
8. Use a 1/4" Hex Key to engage with TBT's arm Hex Hole and rotate the arm counter clock- wise slightly, remove the installation pin. Holding 1/4" Hex Key , slowly release applied load allowing the TBT rotate clockwise against the belt.
9. Remove the 1/4" Hex Key and any other tools.

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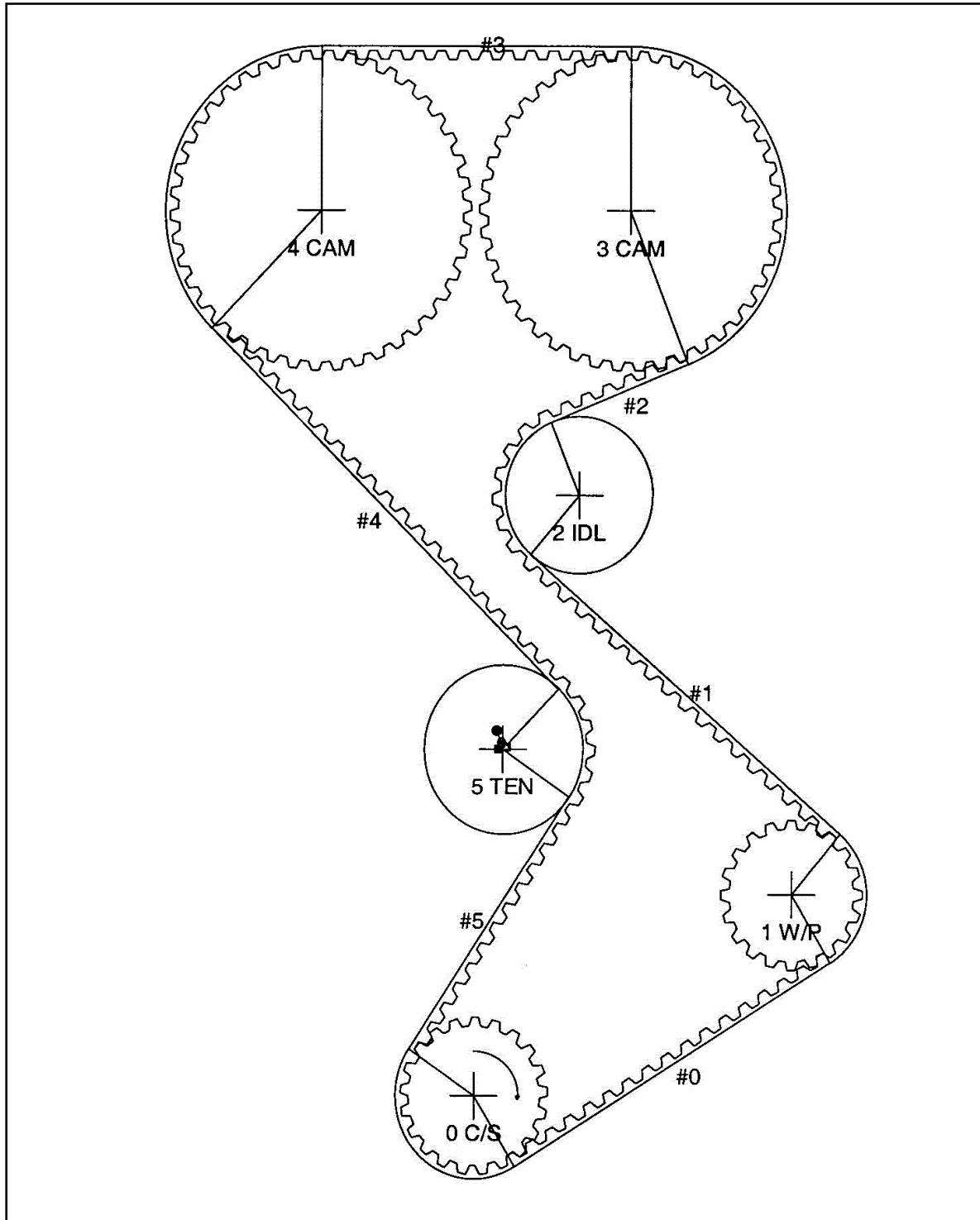
## Verification of TDC Position

10. Rotate the Crankshaft 2 complete revolutions **clockwise manually** for proper seating of the belt until the crankshaft is repositioned at the TDC position.
  - Check the **TDC** alignment of the crankshaft and the camshafts, see Fig. 2 a and b. If the alignment of all sprockets are within the guidelines, the installation is complete.
  - If any of the crankshaft or camshaft sprockets are not aligned at the TDC position, the belt has to be removed and the installation procedure has to be repeated starting at step 2.

**Caution: If the alignment of the crankshaft and its corresponding mark on the engine is missed, do not rotate the Crankshaft counterclockwise to the correct position, but rather rotate the Crankshaft 2 more full rotations to the alignment point.**

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0: Crankshaft, 1: Water Pump, 2: Idler, 3+4: Camshafts, 4: Belt, 5: Tensioner

Figure 1. TBT Layout for ATech 979001 (DC US Minivan 2.4L Inline4 SFI)

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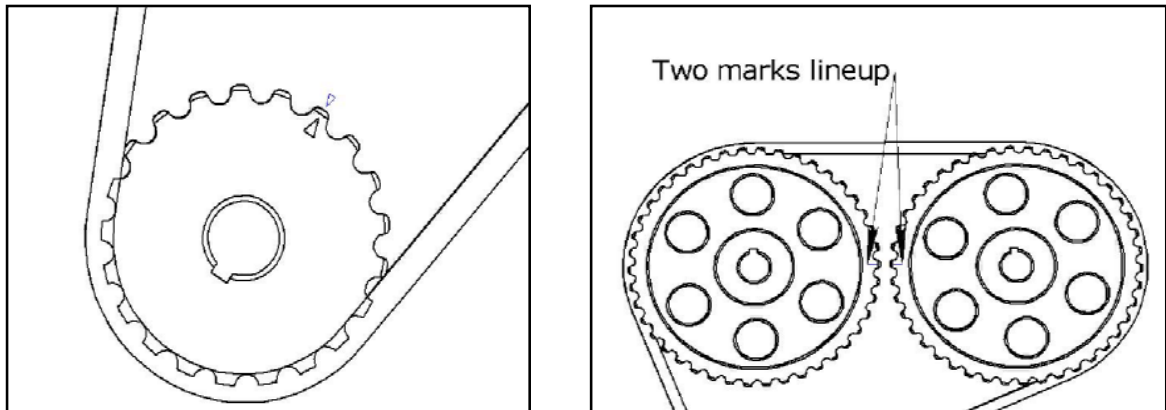


Figure 2. Camshaft and Crankshaft TDC Position

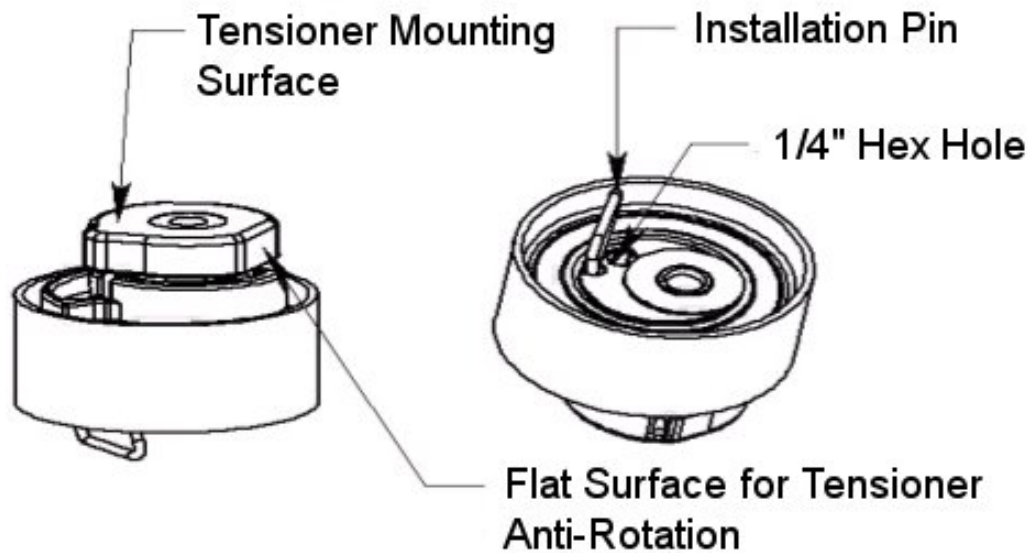


Figure 3. Tensioner Locked at load stop by Installation Pin