

Recommended Installation Procedure (29 SEP 2011)
ATech Timing Belt Tensioner (979872) FIAT 1.6L FAMILY B & C Diesel Engine

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).

Crank and Camshaft TDC position setup:

2. Rotate the crankshaft **CLOCKWISE ONLY** to **TDC** (Top Dead Center) position (i.e. #1 cylinder firing position). This defined position is to be the position where there is no action (positive or negative) from the camshaft or other sprockets. One should find no sudden movement or abrupt action from either of the sprockets. Generally cam & crankshaft sprockets have to line up with equivalent markings on the engine block to indicate TDC.

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 camshaft to the TDC position. This is to be accomplished while the belt is still attached.

Timing Belt and TBT (Timing Belt Tensioner) removal

3. Once the procedure for setting the TDC is completed, loosen the tensioner Mounting Nut. Allow the tensioner to move right until the belt can be removed and then remove the belt.

Initial Setup of the TBT

4. Place a new tensioner onto the mounting bracket. The tensioner's Anti-Rotation Slot should fit over the Anti-Rotation Pin on the bracket. Slide the tensioner to the farthest right position for easier routing of the timing belt (See Figure 1).
5. Hand tighten (lightly) the M8 Mounting Nut on the stud.
6. Insert timing pin in fuel pump sprocket (item #3 in Figure 2), slacken the pump sprocket bolts.

Pre-Installation of the TBT

7. Install the timing belt being careful to engage the appropriate teeth of all the corresponding sprockets as per drive layout (see Figure 2).

Caution:

Do not disturb the position of the crankshaft or camshaft sprockets and the pump sprocket during this procedure.

8. Push the tensioner into the belt. The tensioner assembly will move against the belt and the Arm pointer will eventually start to move COUNTERCLOCK WISE. Continue pushing the tensioner until its maximum travel position is reached (See Figure 3).
9. Lock the tensioner in this position by tightening the Mounting Nut with **30Nm** of torque.

Verification of the Nominal Position

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10. Tighten fuel pump sprocket bolts and remove timing pin.
11. Rotate the crankshaft 2 complete revolutions **CLOCKWISE manually** for proper seating of the belt until the crankshaft is repositioned at the TDC position.

Caution:

Repositioning the crankshaft to the TDC position must be done only during the clockwise rotation.

Verify that all timing indicators on camshaft sprockets, crankshaft sprocket and fuel pump sprocket align with corresponding indicators.

Installation Adjustment

12. Hold the tensioner in position, loosen the tensioner Mounting Nut enough to allow movement.

Caution:

Do not allow the tensioner to snap free, otherwise steps (7, 8, 9) need to be repeated.

Watching the movement of the Arm Pointers, slowly retract the tensioner away from the belt until the Arm Pointers align with the Nominal Position Indicators on the base plate (see Figure 4).

13. Torque the Mounting Nut to **30Nm** using a torque wrench. Engine should then be rotated as in step 9 to confirm tensioner position is correct. If not, loosen the mounting nut and repeat steps (7, 8, 9, 10).
14. Tensioner should have small oscillations about the nominal position with the engine running at idle.

Disclaimer

Every step of this installation **MUST** be properly performed or engine damage can occur.

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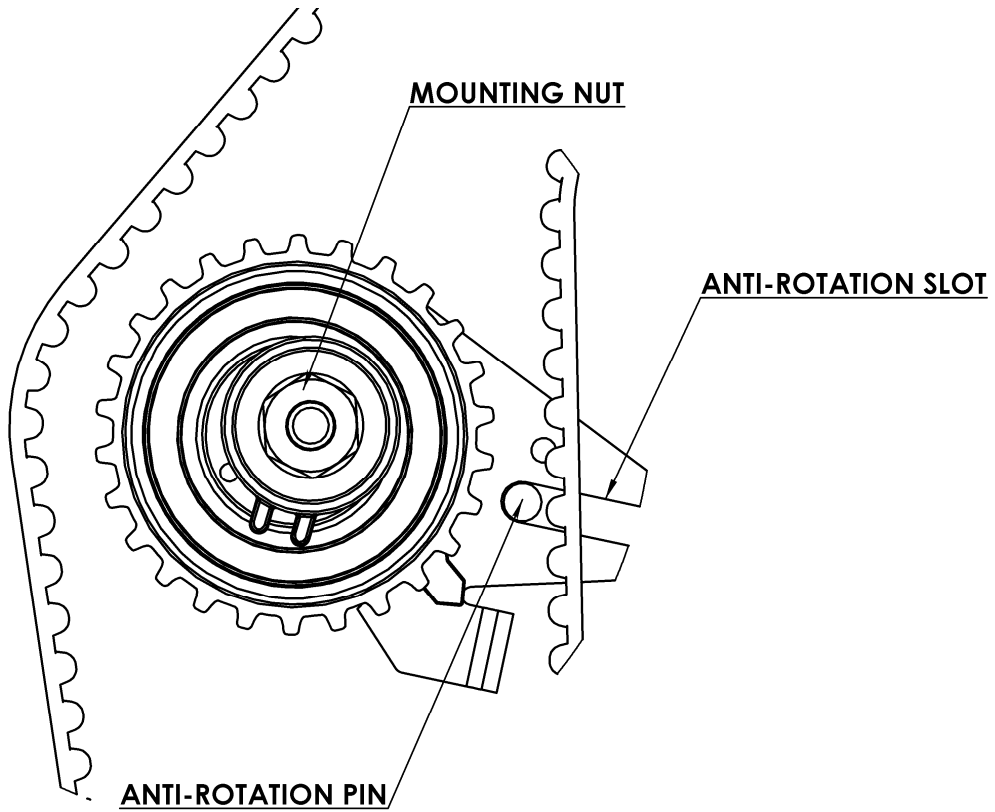
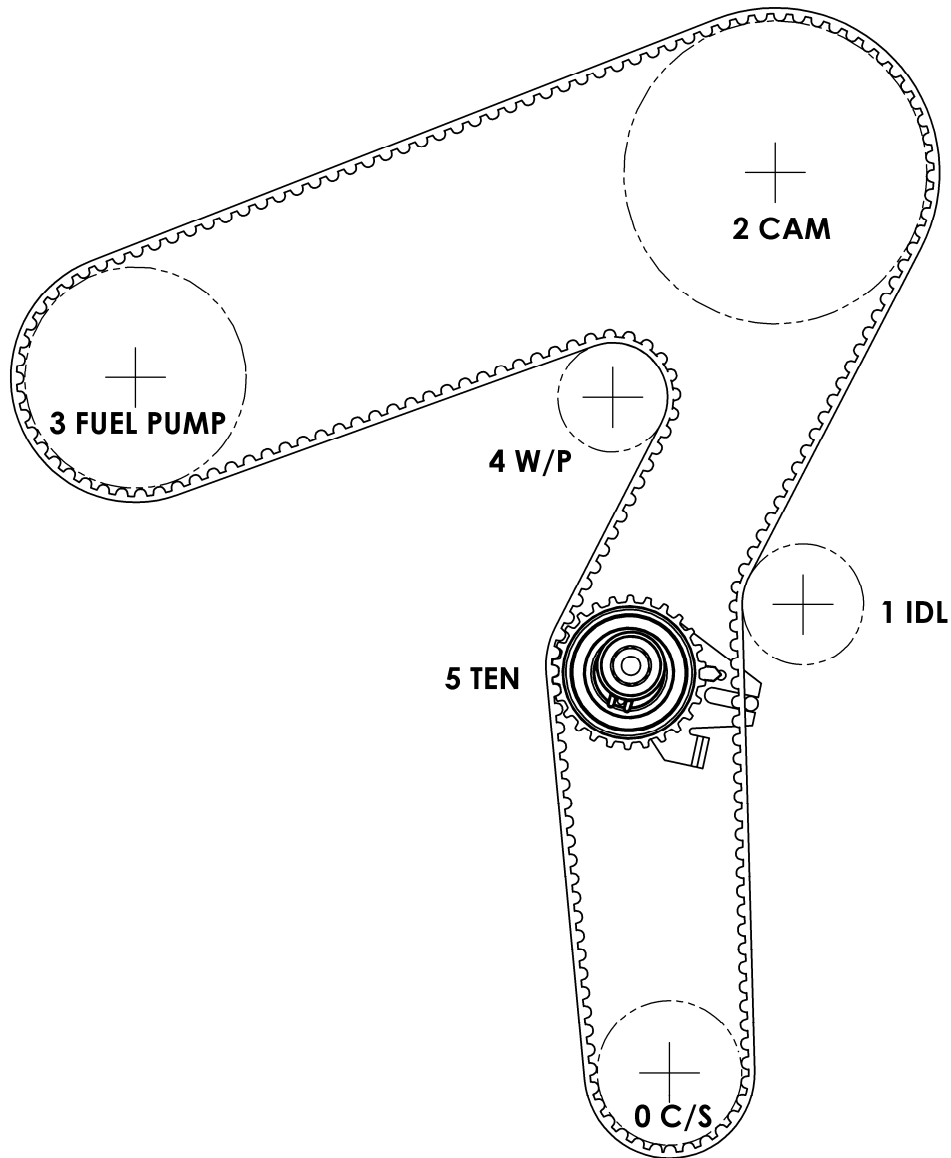


Figure 1: Tensioner shown at Free Arm position placed on the mounting bracket

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0: Crankshaft 1: Idler 2: CAM 3: FUEL PUMP 4: WATER PUMP
5: Tensioner

Figure 2: TBT Layout for FIAT 1.6L Family B & C Diesel Engine

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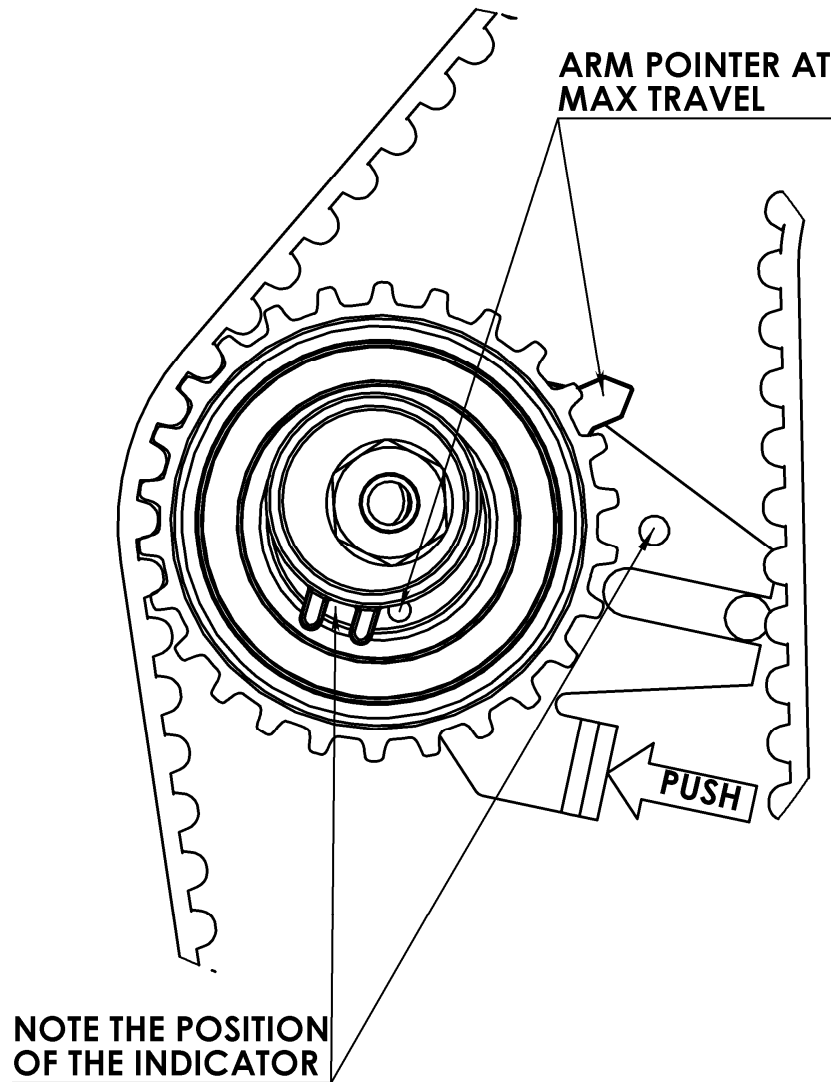


Figure 3: Proper Initial Setup of Tensioner

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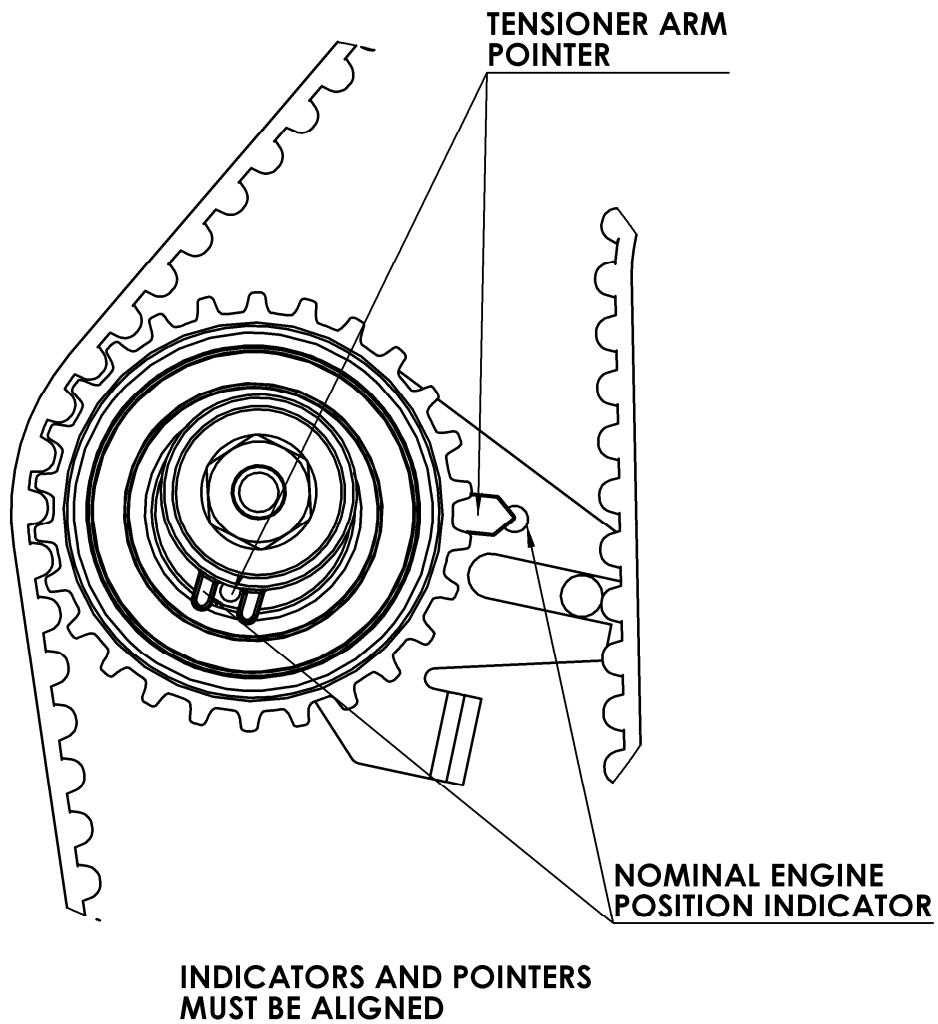


Figure 4: Verification of Tensioner Installation