

Recommended Installation Procedure (14SEPT04)
Atech Timing Belt Tensioner 979304
Fiat Alfa Romeo 2.5/3.0L, Unified V6 24V, DOHC

Caution:

The procedure to access the timing belt tensioner and all other timing driven components must be done according to the car manufacturer's guidelines.

Engine temperature:

1. This timing belt tensioner uses a bimetal clutching assembly and it is important that the engine temperature is stabilized to room temperature for proper belt tension adjustment. **Do not attempt to install a tensioner onto a hot engine.** (For reference, the minimum engine cooling period is 4 hours in tropical climatic regions).

Crankshaft and Camshafts TDC position setup:

2. Rotate the crankshaft **CLOCKWISE ONLY** to **TDC** (Top Dead Center) position (i.e. #1 cylinder firing position).
For this application, follow Fiat's guideline to set:
 - Crankshaft alignment.
 - Locking all 4 camshafts
 - Loosening and re-tightening all 4 camshaft sprocket mounting bolts, which will ease the installation of the belt.

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 clockwise 2 more full rotations with the camshafts to the timing position. This is to be accomplished while the belt is still attached. Also, DO NOT at anytime rotate the crankshaft and the camshafts when the timing belt is removed.

Belt and timing belt tensioner removal

3. Once the procedure for setting the TDC is completed, use a 13mm wrench to loosen the 2 M8 mounting bolts. Once the bolts are loosened, rotate the tensioner bracket Clockwise to release the belt tension.
4. Remove the timing belt, the tensioner's mounting bolts and the OLD timing belt tensioner. It is always recommended to replace the timing belt during the replacement of the tensioner.

Initial Setup of the timing belt tensioner

5. Mount the new timing belt tensioner (Figure 2) on the engine with the 2 M8 mounting bolts.
6. Hand tighten (lightly) the 2 mounting bolts, ensure that the tensioner bracket can be easily rotated along its guiding slot for ease of installation (Figure 3). Rotate the tensioner assembly clockwise to the end of its travel in the guiding slot. This will maximize the belt clearance for ease of belt installation.

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Installation of the timing belt tensioner and the timing Belt

7. Install the timing belt being careful to engage the appropriate teeth of all the corresponding sprockets as per drive layout (Figure 1) starting with the crankshaft and working COUNTERCLOCKWISE ONLY.

Caution: Do not disturb the position of the crankshaft sprocket during this procedure.

8. Fit the tensioner installation tool per Fiat's recommendation, and rotate the tensioner assembly COUNTERCLOCKWISE against the belt and the indicator mark on the arm will eventually start to move CLOCKWISE (Figure 4).
9. Continue rotating the tensioner assembly until the indicator mark on the arm moves past the maximum position edge of the nominal notch on the front plate approximately 1~3 mm. While preventing the tensioner assembly from rotation using the installation tool, torque the 2 M8 mounting bolts to **17~23 Nm** (Figure 5).
10. Follow Fiat's guiding line for re-tightening the 4 bolts on the camshaft sprockets.

Verification of the Nominal Position

11. Remove the Installation Tool, the *Wrench*, and any other tools used for the alignment of the TDC position.
12. Rotate the crankshaft at least two (2) complete rotations clockwise manually for proper seating of the belt until the crankshaft is aligned with the corresponding mark on the engine block.
Check the following:
 - Crankshaft mark is aligned per Fiat's guidelines.
 - Camshaft sprockets' marks are aligned per Fiat's guidelines.If the alignment of all the sprockets is not correct, the belt has to be taken off and the installation procedure has to be repeated starting at step 2.

Caution: If the alignment of the crankshaft at TDC is missed, do not rotate the Crankshaft counterclockwise to the correct position, but rather rotate the Crankshaft 2 more full CLOCKWISE rotations to the alignment points.

13. Check the alignment position of the Arm Pointer:
 - If the indicator mark on the arm aligns within the **Maximum/Minimum Position** on the front plate, the installation is complete (Figures 6 and 7).
 - If not, proceed as follows. The installation of the timing belt tensioner needs to be readjusted until the proper position is achieved.

Readjustment

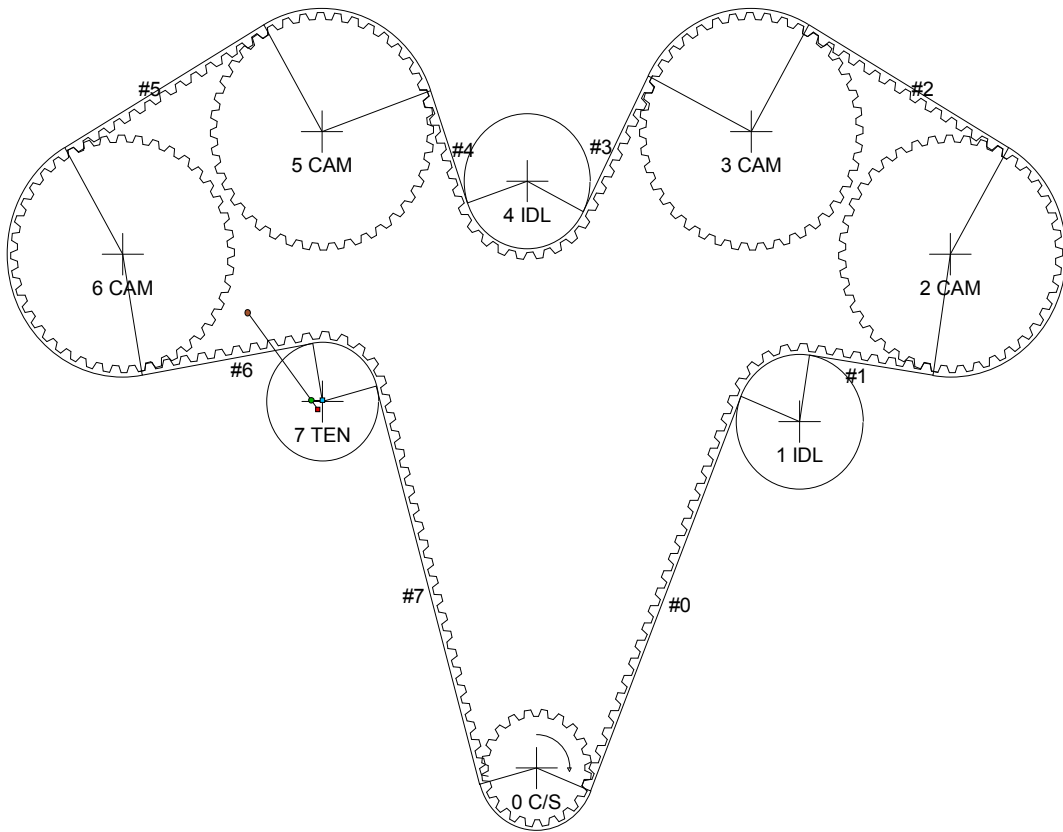
The timing belt tensioner re-adjustment is required if the arm indicator mark does not align within the Nominal Position Notch on the front plate.

14. Loosen the 2 M8 mounting bolts to allow the tensioner to easily rotate. The 2 mounting bolts and the Timing Belt Tensioner do not need to be removed.

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15. Fit the tensioner installation tool and adjust the whole tensioner assembly until the indicator mark on the arm aligns within the **Maximum/Minimum Position** on the front plate (Figures 6 and 7).
16. Re-tighten the 2 M8 mounting bolts to **17~23 Nm** torque while preventing the tensioner assembly from rotation using the installation tool.
17. Repeat steps #11, #12 and #13.

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0: Crankshaft, 1: Idler, 2 and 3: Camshafts, 4: Idler
5 and 6: Camshafts 7: Tensioner

Figure 1: Tensioner Layout for Fiat 2.5/3.0L, Unified V6 24V, DOHC Engine

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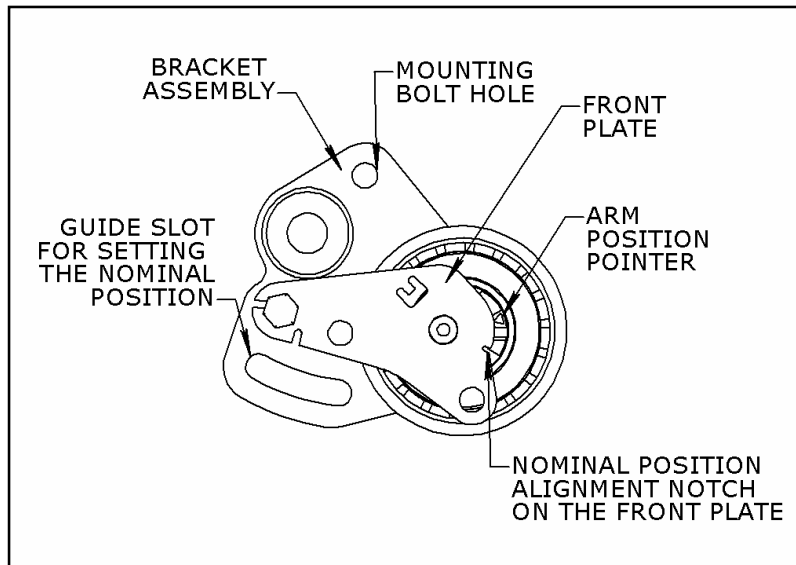


Figure 2: Timing Belt Tensioner

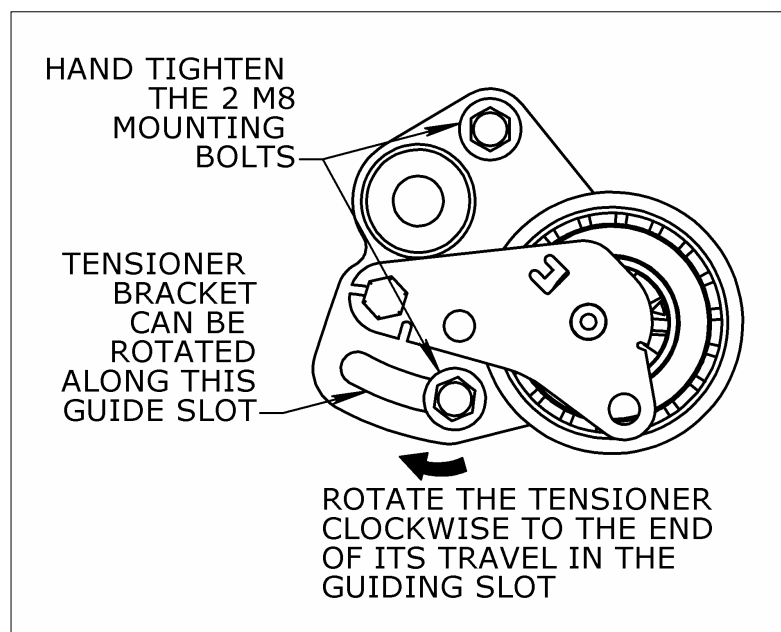


Figure 3: Initial Tensioner Setup

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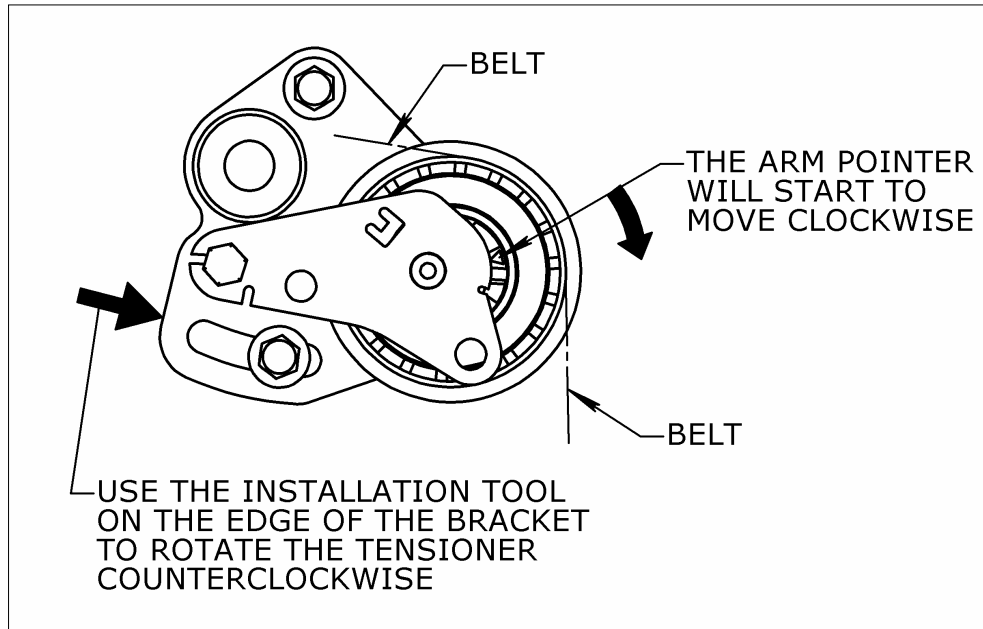


Figure 4: Tensioner Installation Direction

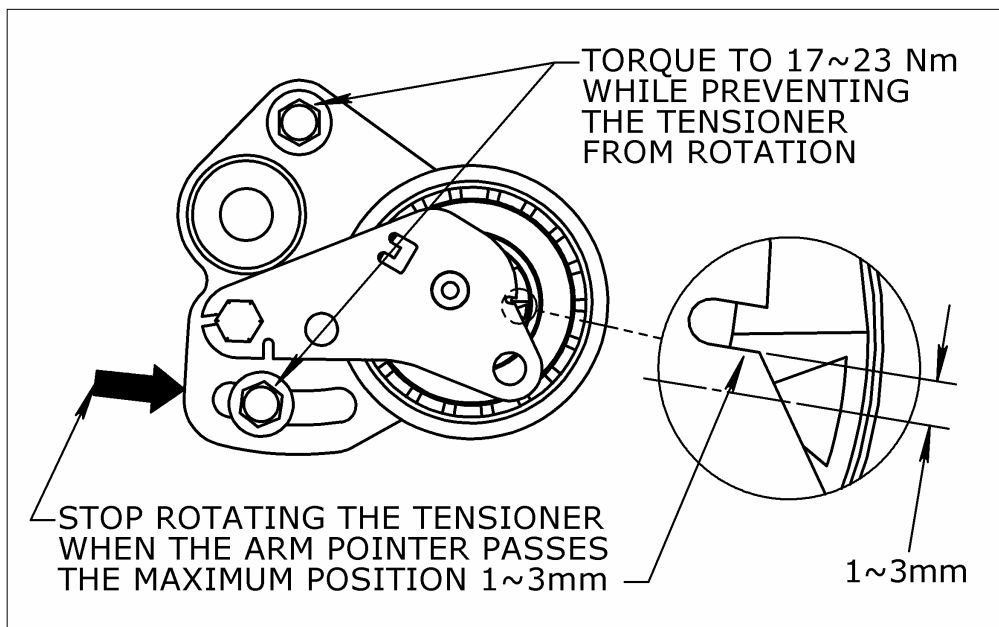


Figure 5: Tensioner shown at Over Tensioned Position

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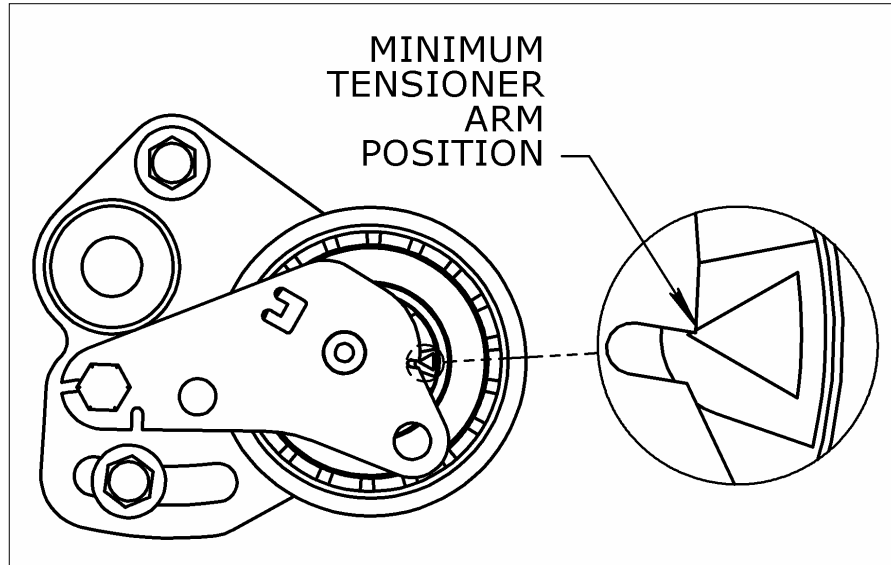


Figure 6: Tensioner is Re-adjusted to the
MAXIMUM Position at TDC

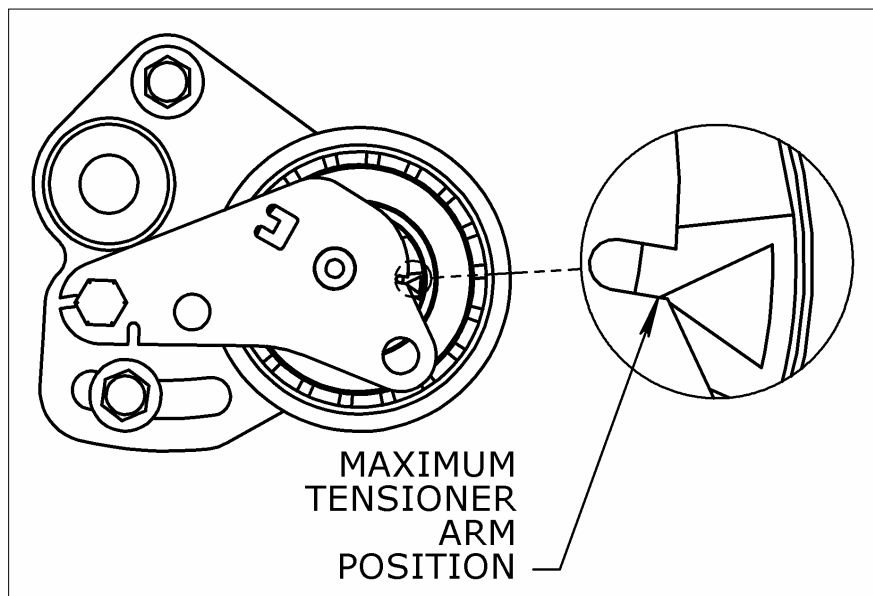


Figure 7: Tensioner is Re-adjusted to the
MINIMUM Position at TDC