

Recommended Installation Procedure

ATech Balance Shafts Belt Tensioner 979280

Fiat 1.75/2.0L, Gas, DOHC, Family B

Release Date: 07July 2004

Caution:

The timing drive system on these engines has two (2) timing belt drives. One is for the camshafts, and the other is for the balance shafts, and both drives are driven by the crankshaft sprocket. The following procedure is only for the balance shafts belt drive system.

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

Engine temperature:

1. The tensioner must be installed on the engine at room temperature by allowing the engine to stabilize 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).

Crank and Balance Shafts TDC alignment position setup:

2. Rotate the crankshaft clockwise ONLY to TDC (Top Dead Center) position (i.e. #1 cylinder firing position), review Fiat's guidelines on how to locate the crank and balance shafts positions at 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 clockwise 2 more full rotations 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 balance shafts when the timing belt is removed.

Belt and Tensioner removal

3. Once the procedure for setting the TDC and the alignment of the balance shafts marks are completed, loosen the M6 mounting nut and push the base plate tab away from the belt to release the belt tension.
4. Remove the belt (balance shafts), the M6 mounting nut and the OLD tensioner. It is always recommended to replace the belt during the replacement of the tensioner.

Initial Setup of the balance shafts tensioner

5. Fit the M6 threaded shaft of the new tensioner (Figure 2) into the engine bracket hole, and ensure that the tensioner's base plate hookup slot (Figure 3) is engaged in the Anti-Rotation pin on the engine block.
6. Hand (lightly) tighten the M6 mounting nut and ensure that the tensioner is easy to move.

Installation of the tensioner and the double sided timing Belt

The adjustment of the tensioner is achieved by pushing on the base plate tab only.

Install the 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 **CLOCKWISE ONLY**. Ensure that the belt is tight between the sprockets.

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Do not disturb the position of the balance shafts alignment and the crankshaft TDC positions during this procedure.

7. Manually push the tensioner base plate tab to move against the belt, and the tensioner arm will eventually start to move counterclockwise (Figure 4).
8. Continue pushing the tensioner base plate until the nominal notch on the arm moves under the pivot shaft. Torque the M6 Mounting Nut to **14~18 Nm** (Figure 5), while holding the base plate tab in this nominal position.

Verification of the Nominal Position

9. Rotate the crankshaft at least two (2) complete revolutions clockwise manually for proper seating of the belt and until the crankshaft is repositioned at the TDC alignment position.
 - ◆ Check the alignment of the balance shafts marks as per **Fiat's guidelines**.
 - ◆ If the alignment of the balance shafts are not correct, the belt has to be taken off and the installation procedure has to be repeated starting at step 2.
10. Check the alignment position of the Arm Notch:
 - If the load stop edge of the pivot shaft aligns within the **Maximum/Minimum Position** range in the arm, the installation is complete (Figures 6 and 7).
 - If not, proceed as follows. The installation of the balance shafts belt tensioner needs to be re-adjusted until the proper position is achieved.

Re-adjustment

The tensioner of the balance shafts belt re-adjustment is required if the load stop edge of the pivot shaft does not align within the Nominal Position Notch in the arm.

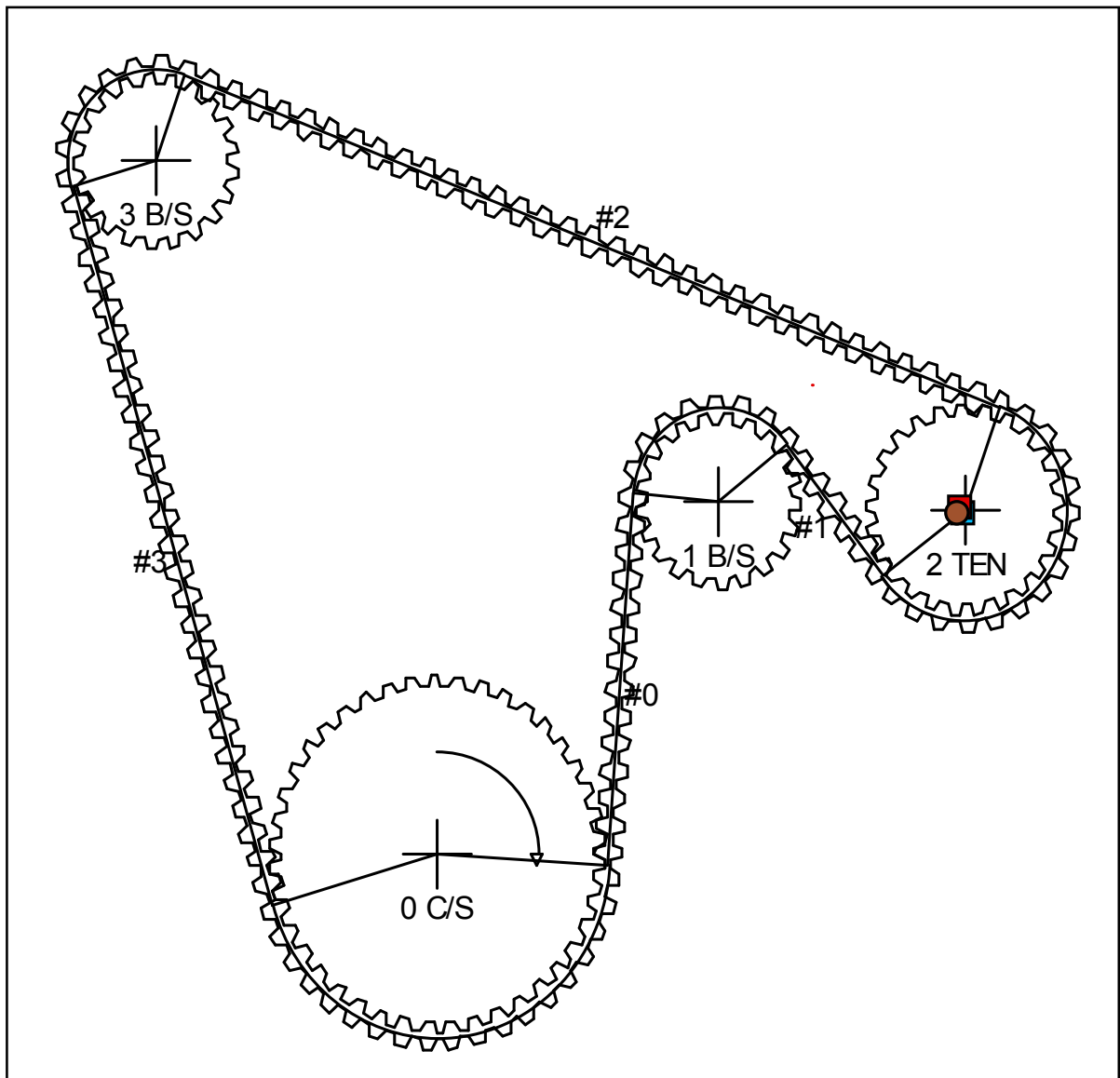
11. Loosen the M6 mounting nut until the tensioner can be moved easily. The M6 mounting nut and the tensioner do not need to be removed.
12. Push or pull the base plate tab until the load stop edge of the pivot shaft aligns within the **Maximum/Minimum Position** range in the arm (Figures 6 and 7).
13. Re-tighten the M6 mounting nut to **14~18 Nm** torque while preventing the base plate tab from moving.
14. Repeat steps #10 and #11.

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0: Crankshaft, 1 and 3: Balance Shafts, 2: Belt tensioner

Figure 1: Tensioner Layout for Fiat 1.75/2.0L DOHC Gas Family B Engine

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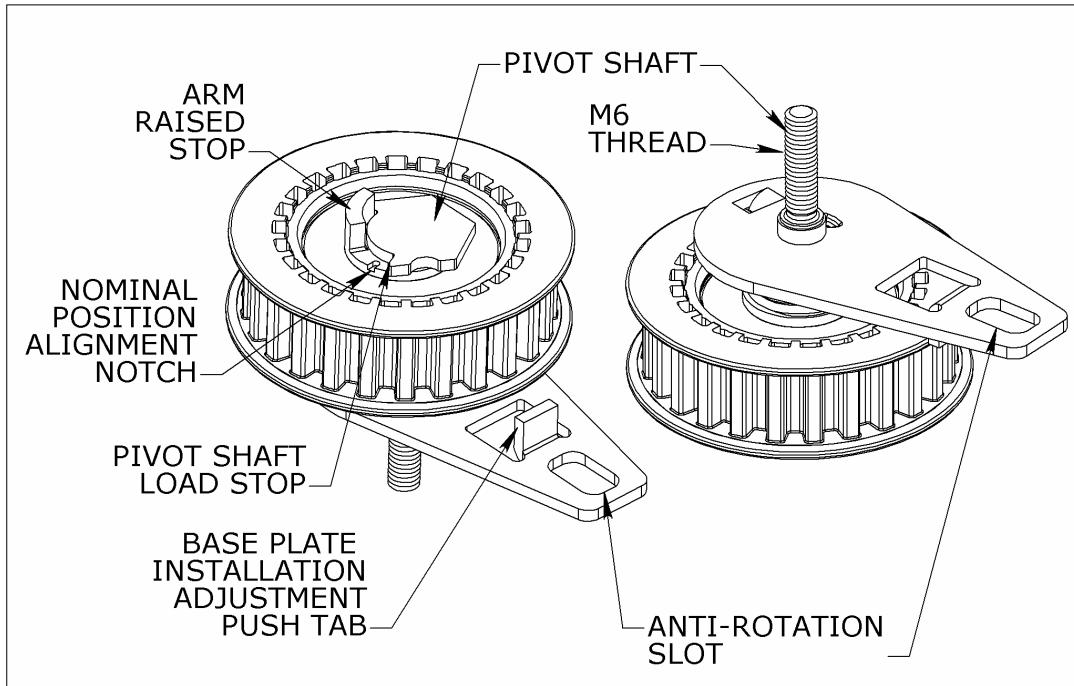


Figure 2: Balance Shafts Belt Tensioner

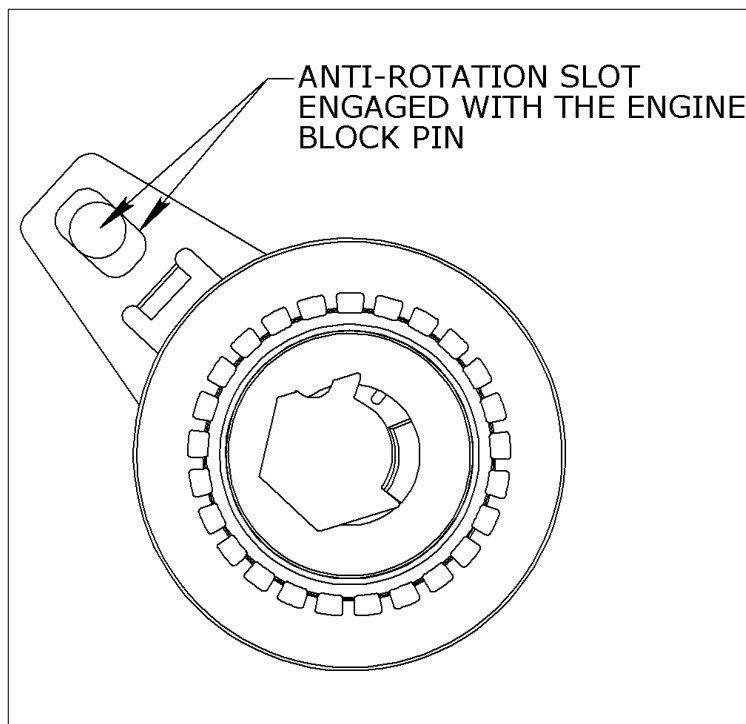


Figure 3: Initial Tensioner Setup

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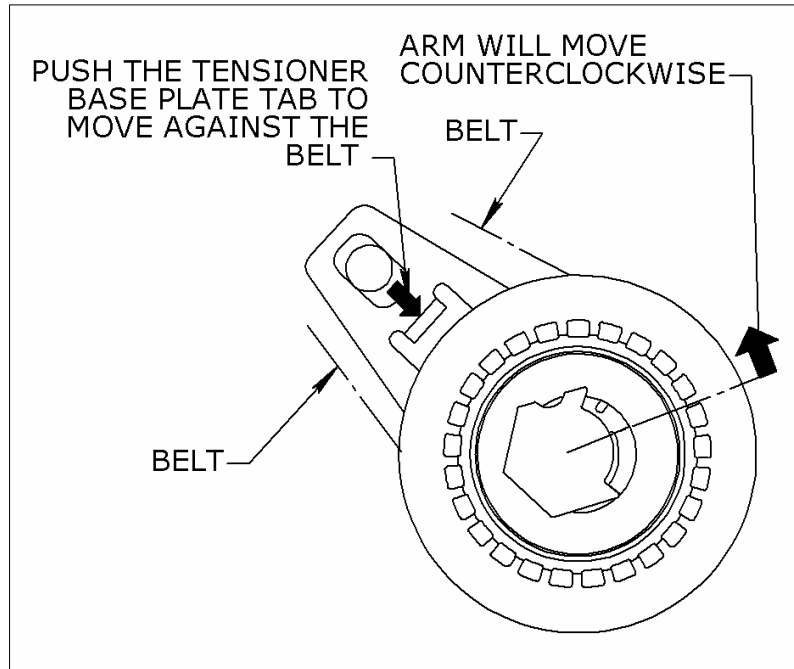


Figure 4: Tensioner Rotation Direction during Installation

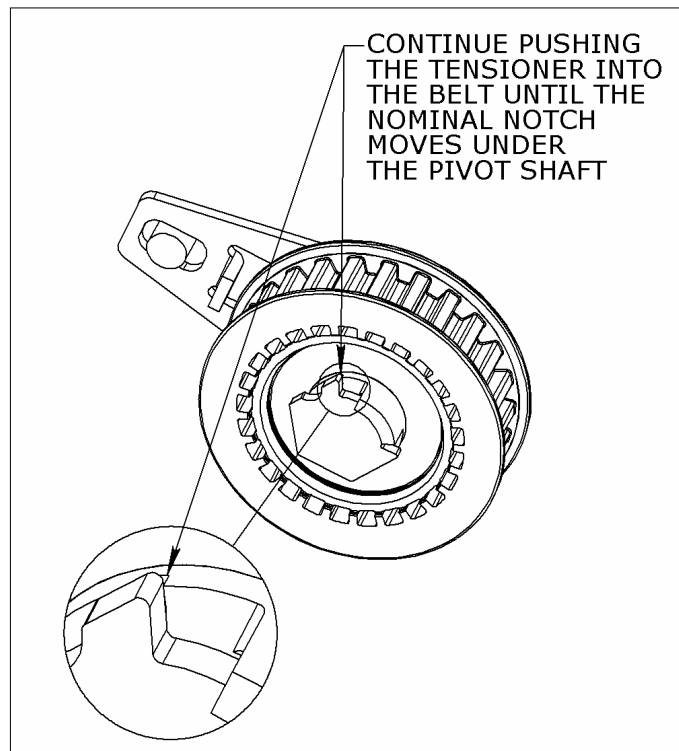


Figure 5: Initial tensioner setup for belt seating

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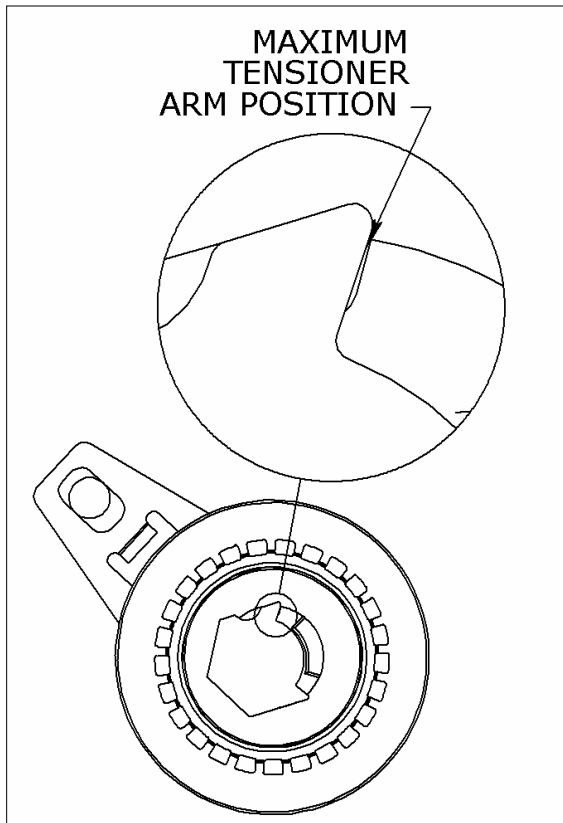


Figure 6: Tensioner is Readjusted to the MAXIMUM Position at TDC

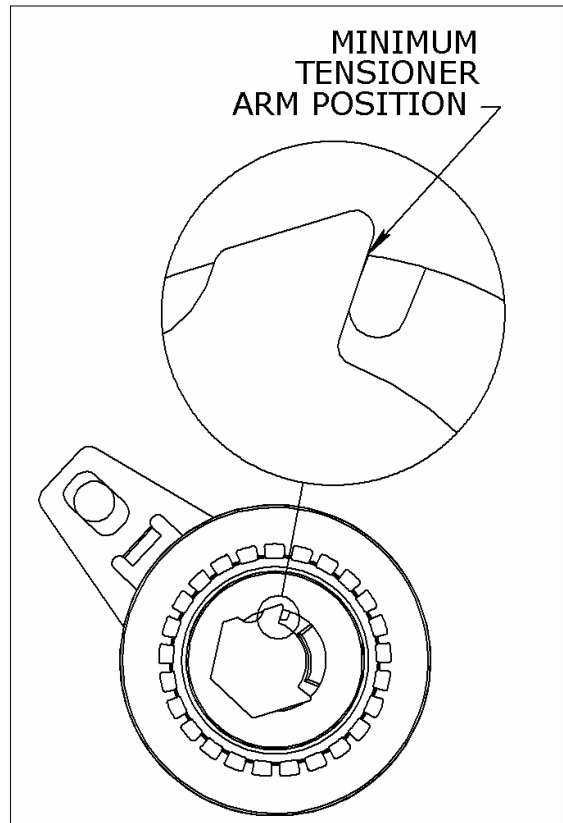


Figure 7: Tensioner is Readjusted to the MINIMUM Position at TDC