

RECOMMENDED INSTALLATION PROCEDURE

TIMING BELT TENSIONER (979349)

- FIAT FIRE L4 16V -

November 5, 2002

GENERAL INFORMATION

The procedure to access the timing belt tensioner and all other timing driven components must be done according to FIAT guidelines. The guidelines that should be followed are for

- ◆ **Setting the TDC position of the crankshaft sprocket.**
- ◆ **Setting the camshaft sprocket position.**
- ◆ **Removing and retightening all bolts torque.**
- ◆ **Reinstalling the belt.**

1. Allow the engine and tensioner to stabilize to the same relative ambient temperature before installing a tensioner for proper belt tension adjustment. Do not attempt to install a cool tensioner onto a hot engine or vice versa.
2. Rotate the crankshaft **clockwise** 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 crankshaft or camshaft sprockets.

BELT AND TENSIONER REMOVAL

Once the procedure for setting the TDC is completed according to FIAT's guidelines:

3. Slacken the tensioner mounting nut.
4. Move the tensioner away from the belt.
5. Remove the timing belt.
6. Remove the tensioner.

REPLACING THE TIMING BELT TENSIONER

7. Mount the new tensioner on the engine.
8. Lightly tighten the tensioner mounting nut. Tightening Torque: 10 Nm
9. Using the installation tool rotate the tensioner until the Arm Pointer is pointing at the 8 O'clock direction (see Fig. 3).
10. Install the timing belt by following the assembly sequence described below (see Fig. 4). Ensure belt is taut between the sprockets:

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- (1) Crankshaft sprocket
- (2) Water pump sprocket
- (3) Camshaft sprocket
- (4) Timing belt tensioner

Verify that the belt is well aligned on all the corresponding sprockets as per drive layout.

SETTING TIMING BELT TENSIONER

11. Using the installation tool turn the tensioner (TBT) Shaft **counterclockwise only** while preventing the rotation of the mounting nut (see Fig. 5). The tensioner will move against the belt and the Arm Pointer will eventually start to move clockwise. Continue rotating the TBT Shaft until point A in the Arm Pointer aligns with the Nominal Position Indicator on the Base Plate (see Fig. 6).
12. Lock the tensioner in this position by tightening the mounting nut between **22~28Nm** of torque.

VERIFICATION OF THE NOMINAL POSITION

13. Rotate the crankshaft clockwise two (2) complete revolutions for proper seating of the belt until the crankshaft is repositioned at the TDC position.
14. Check the position of the Arm Pointer.
If the Arm Pointer aligns with the Nominal Position Indicator, the installation is complete (see Fig. 7). If not, proceed as follows.

READJUSTMENT

15. Use the installation tool to hold the tensioner position and loosen the tensioner mounting nut enough to allow tensioner movement. Rotate the TBT shaft until Arm Pointer aligns with the Nominal Position Indicator on the Front Plate (nominal position, see Fig. 7).
16. While preventing the Shaft from rotating, lock the tensioner in this position by tightening the tensioner mounting nut. Tightening torque: **22~28Nm**.
17. Repeat steps 13 and 14.

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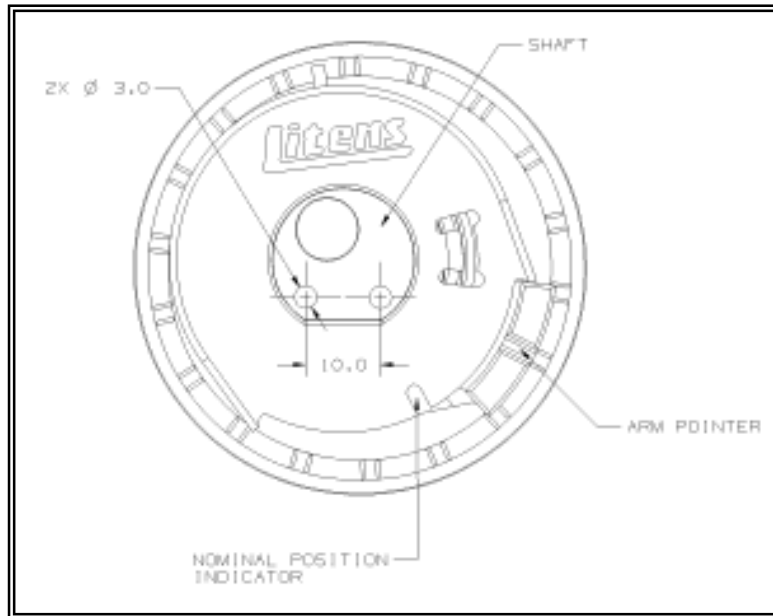


Figure 1: Timing Belt Tensioner

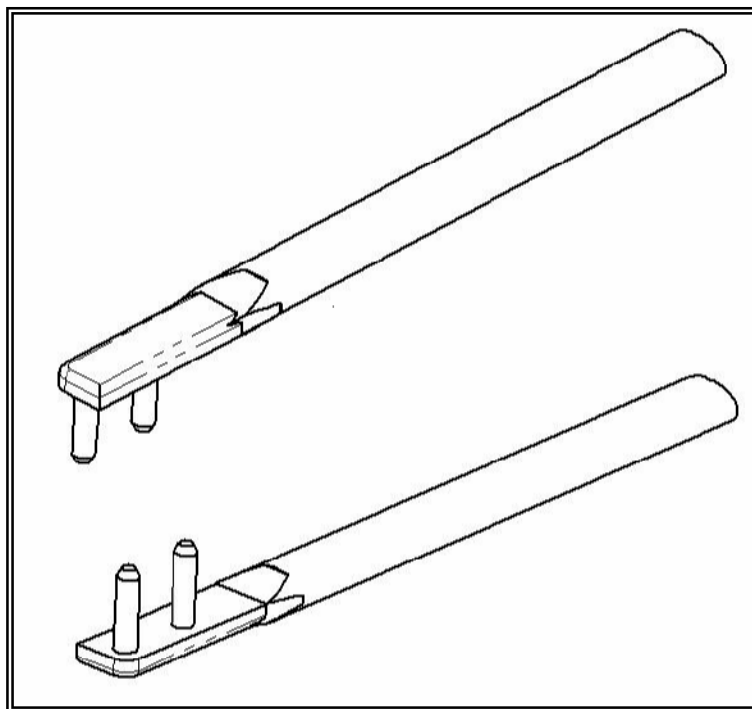


Figure 2: Installation Tool
Fiat No. 1860987000 or 70126010

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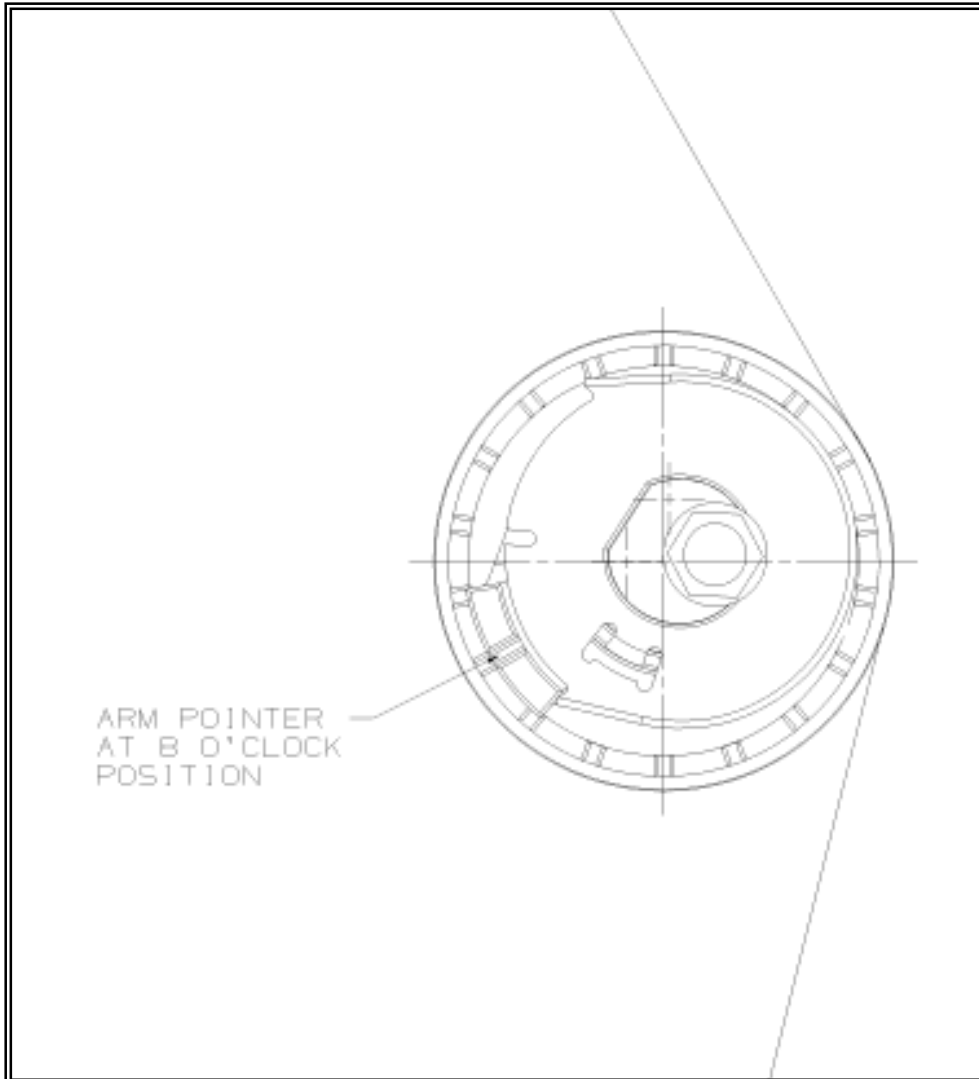


Figure 3: Initial position of Timing Belt Tensioner

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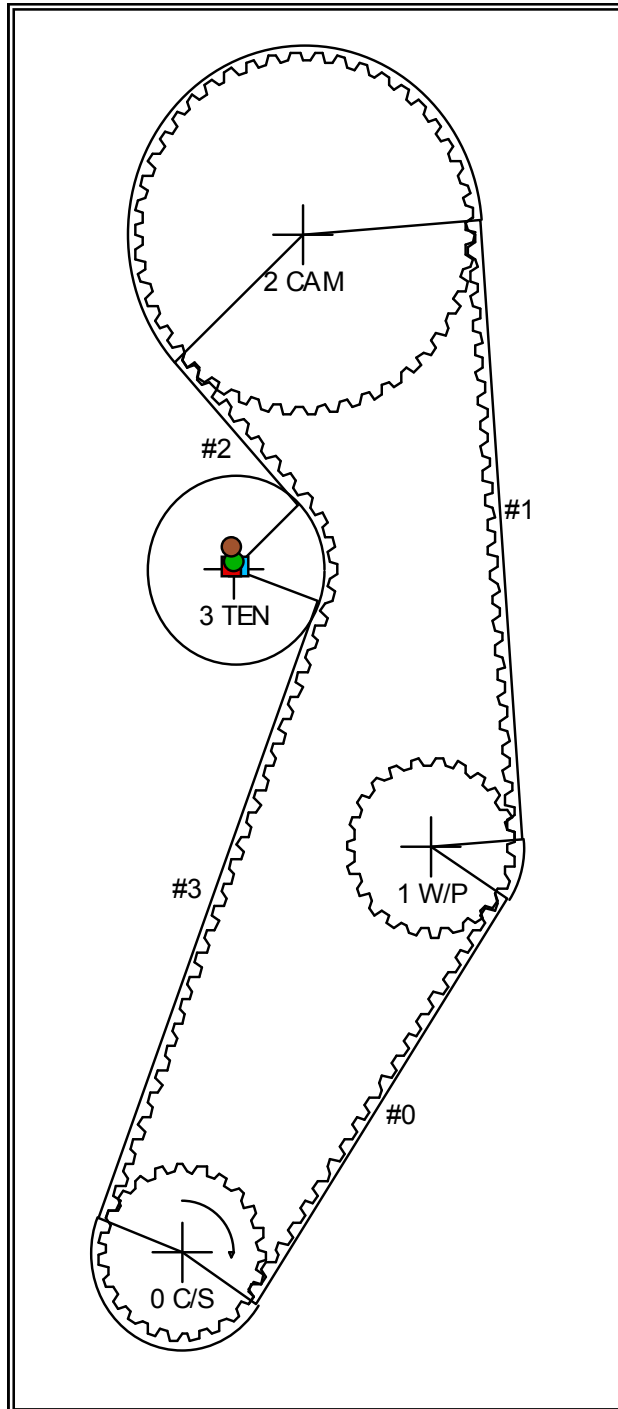


Figure 4: Timing Drive Layout
0: Crankshaft, 1: Water Pump, 2: Camshaft, 3: Timing Belt Tensioner

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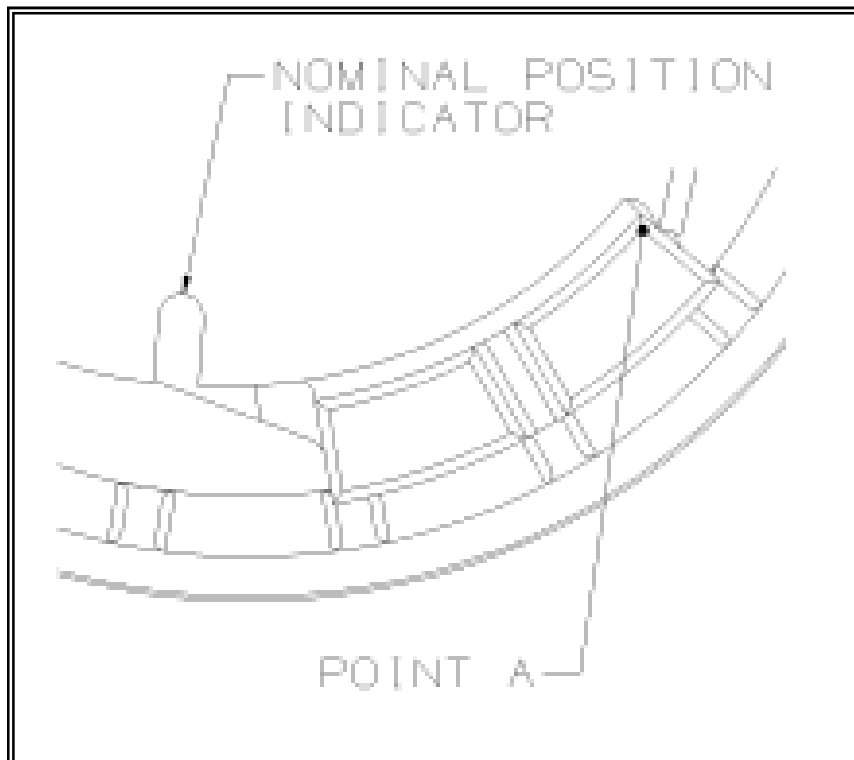
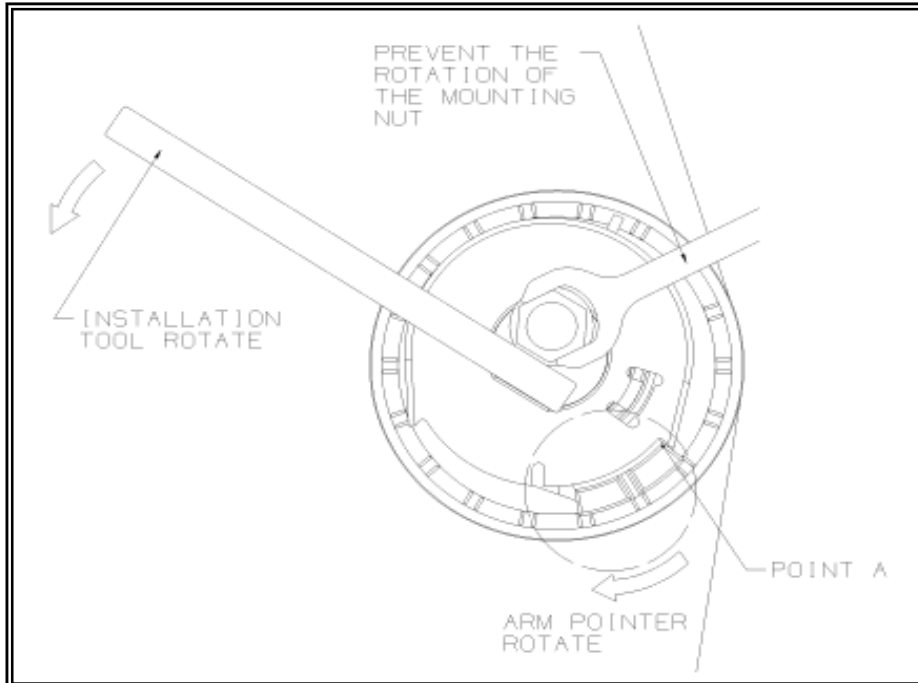


Figure 5: Setting Timing Belt Tensioner

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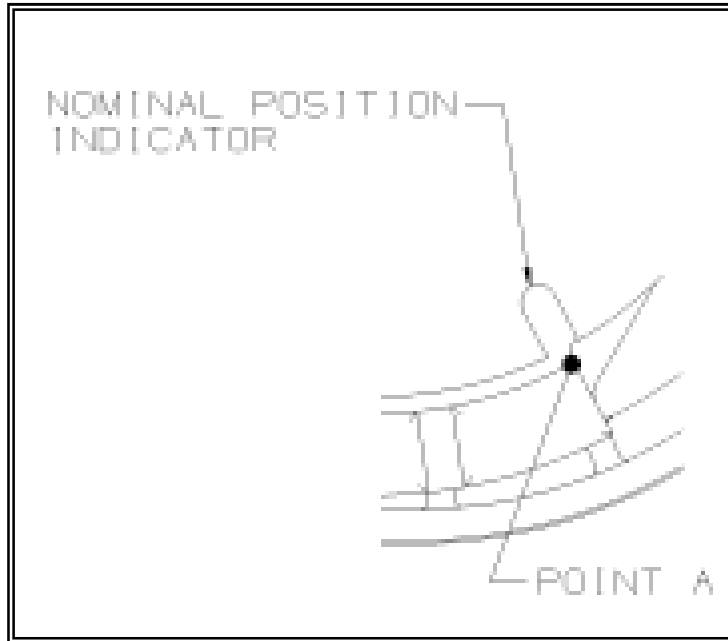


Figure 6: Over-tension the Timing Belt Tensioner
Alignment Point A at Nominal Position Indicator

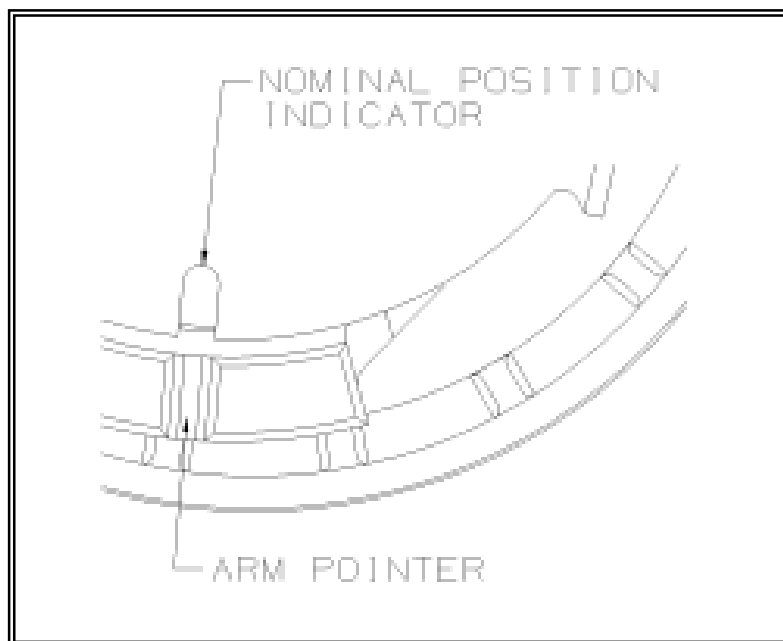


Figure 7: Arm Pointer aligns with Nominal Position Indicator