

RECOMMENDED INSTALLATION PROCEDURE

ATech Timing Belt Tensioner (979341)

FORD ZETEC 2.0L DOHC GAS

(09July03)

Initial Preparation:

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

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 regions)

Crank and Camshaft position setup:

2. Rotate the crankshaft **CLOCKWISE ONLY** to TDC (Top Dead Center) position (i.e. #1 cylinder firing position). Review FORD'S guidelines on how to locate and lock the crank and cam shaft positions at TDC.

For this application:

- ◆ The Crankshaft has to be locked in position using a pin. Review FORD'S guidelines for access.
- ◆ The valve cover has to be removed for camshaft sprocket alignment. Review FORD'S guidelines for access.

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 TDC alignment point. This is to be accomplished while the belt is still attached.

Belt and Timing Belt Tensioner (TBT) removal

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

3. Loosen the TBT mounting bolt (Fig's.1 and 3) and rotate the TBT's installation shaft away from the belt (clockwise) to release the belt tension, and then remove the belt.

Note: Replace timing belts at any time the timing drive is serviced. Do not reuse the old belt.

4. Remove the bolt and the timing belt tensioner.

Initial Setup of the TBT (Timing Belt Tensioner)

5. Mount the new TBT (see Figs. 2 and 3) on the engine ensuring that the tensioner's *Locator Tab* is engaged with the slot in the engine.
6. Rotate the installation shaft on the tensioner using a 6mm Hex Allen Key to approximately the "**4 O'clock position**", see Fig. 3. Hand tighten (lightly) the *Mounting Bolt*. This will maximize the belt clearance for ease of installation.

Installation of the TBT and the Belt

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 only. Ensure that the belt is tight between the corresponding sprockets.

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8. Using a wrench to prevent the rotation of the mounting bolt, rotate the *Installation Shaft* CLOCKWISE with a 6 mm *Hex Key*. The Tensioner assembly will move against the belt and the *Arm Pointer* will eventually start to move CLOCKWISE (See Fig. 4).
9. Continue rotating the Installation Shaft until the Arm Pointer aligns with **Point A** of the base plate (see Fig 5). Lock the tensioner in this position by torquing the mounting bolt to **20~28Nm**.

Caution:

The arm pointer must not pass the right-hand edge of the *Base Plate Tab Point "A"* during installation.

Verification of the Nominal Position

10. Remove the *6mm Hex Key*, the *Wrench*, and any other tools used for the alignment of the TDC position.
11. Rotate the Crankshaft 2 complete revolutions **CLOCKWISE manually** for proper seating of the belt until the crankshaft is repositioned at the TDC position.
Timing alignment:
 - ◆ Check the TDC alignment of the crankshaft and the camshafts as per Ford's guidelines. If the alignment of all sprockets is within the guidelines, proceed to step 12 for checking the TBT arm pointer alignment.
 - ◆ 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.**

12. Check the position of the *Arm Pointer*.
If the *Arm Pointer* aligns between the **Maximum/Minimum Position Notch**, the installation is complete (See Figs. 6 and 7).
If not, proceed as follows. (*The installation needs to be re-adjusted until the proper position is achieved*).

Re-adjustment

TBT re-adjustment is required if the arm pointer does not align within the alignment notch of the rear plate (max./min. range). Re align the crank and camshaft sprockets at the TDC position if not done already.

13. Engage the 6mm Hex Key and retain the installation shaft's position while loosening the Mounting Bolt with the Wrench. The mounting bolt and the *Tensioner* do not need to be removed.
14. Rotate the *Installation Shaft* with the *Hex Key* until the *Arm Pointer* aligns between the **Maximum and Minimum Position Notch** (See Figs 6 and 7).
15. Re-torque the *Mounting Bolt* (**20~28 Nm**) while preventing the *Installation Shaft* from turning by holding it with the *Hex Key*.
16. Repeat step #10, #11 and #12.

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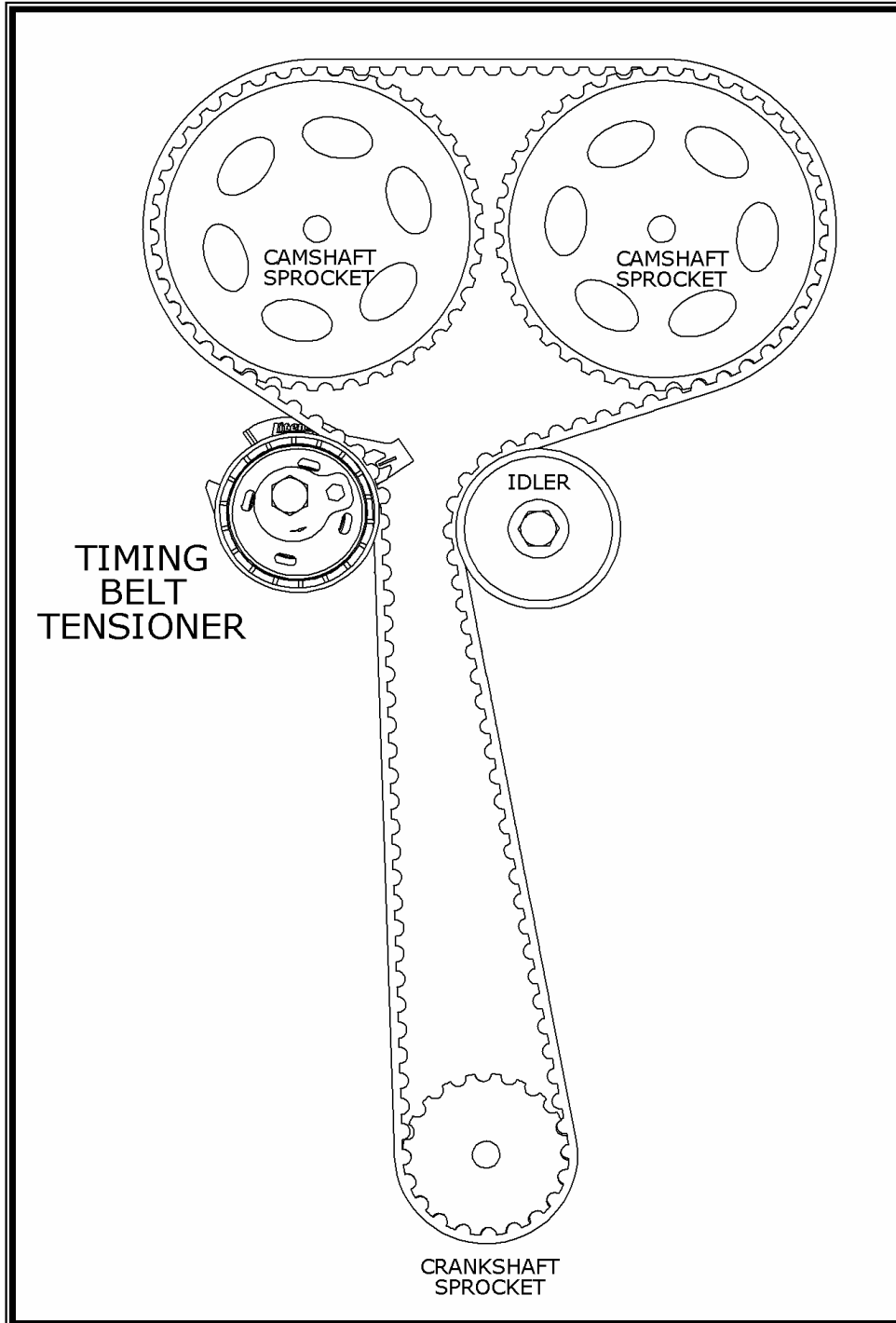


Figure 1: Timing Belt Layout for Ford's ZETEC 2.0L DOHC

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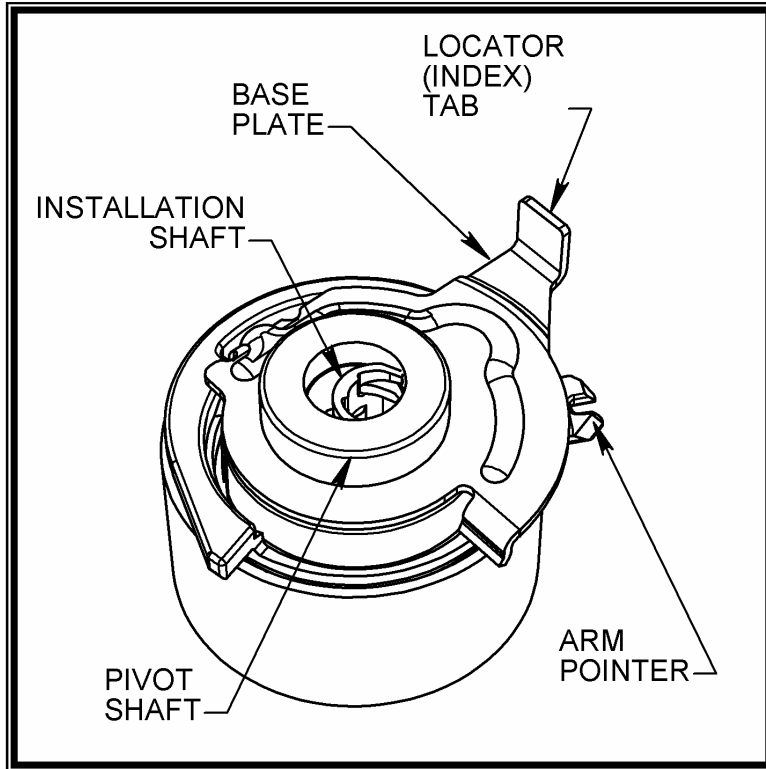


Figure 2: Back view of the (TBT) Timing Belt Tensioner.

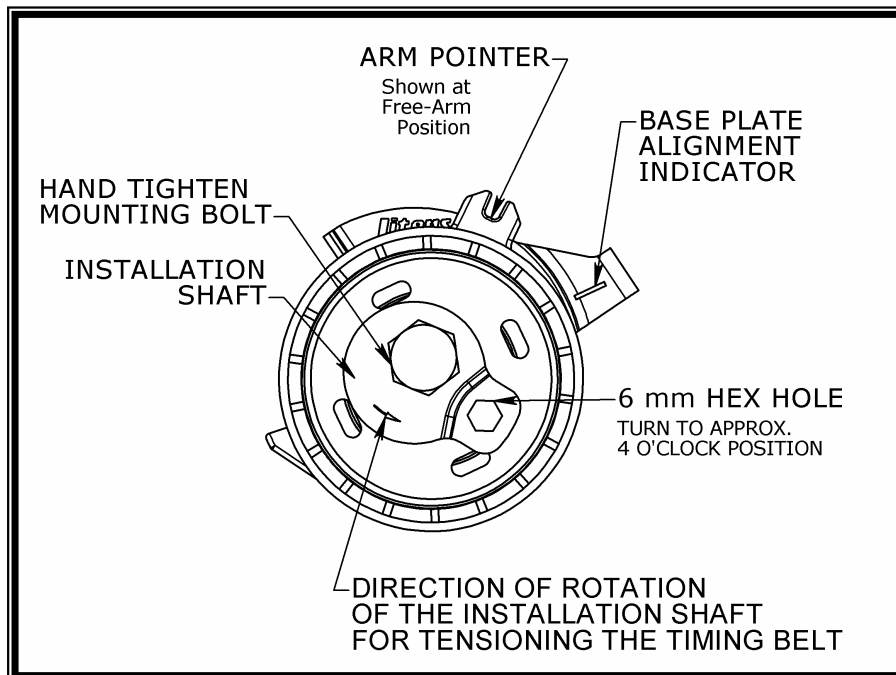


Figure 3: Timing Belt Tensioner shown in the initial setup.

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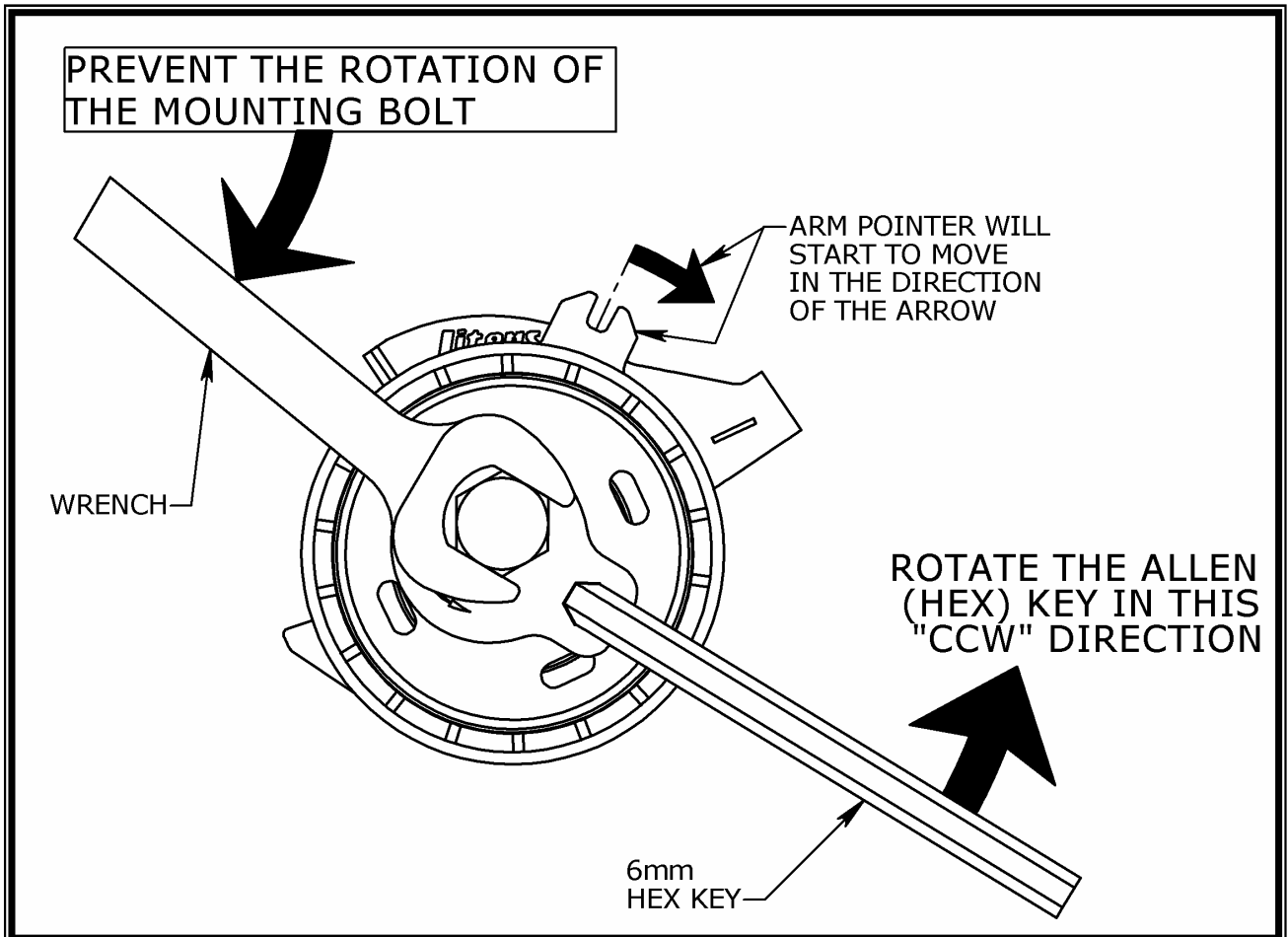


Figure 4: Timing Belt Tensioner Rotation direction during installation.

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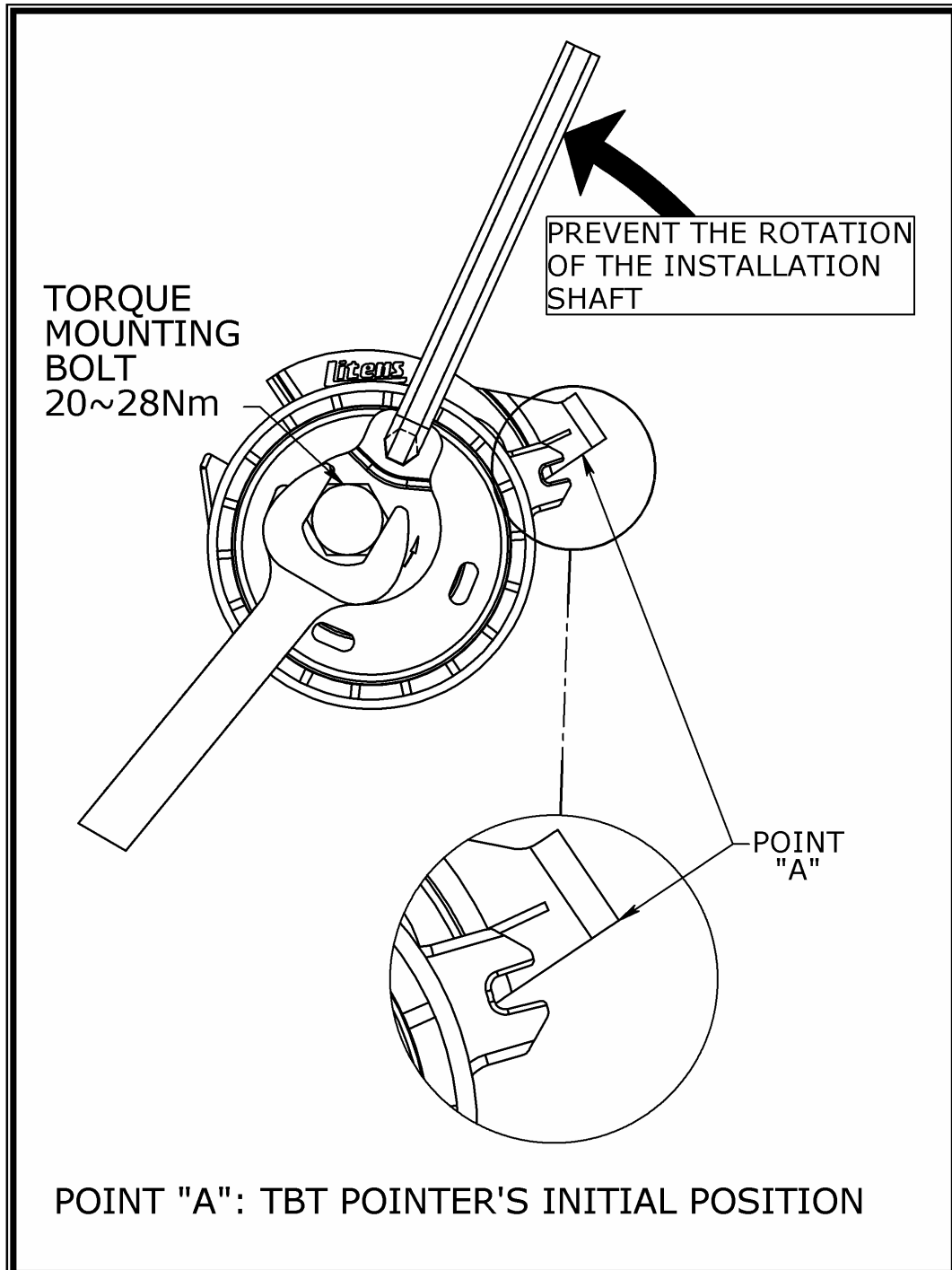


Figure 5: Initial Over Tension of the TBT alignment of the Arm Pointer to Point "A"

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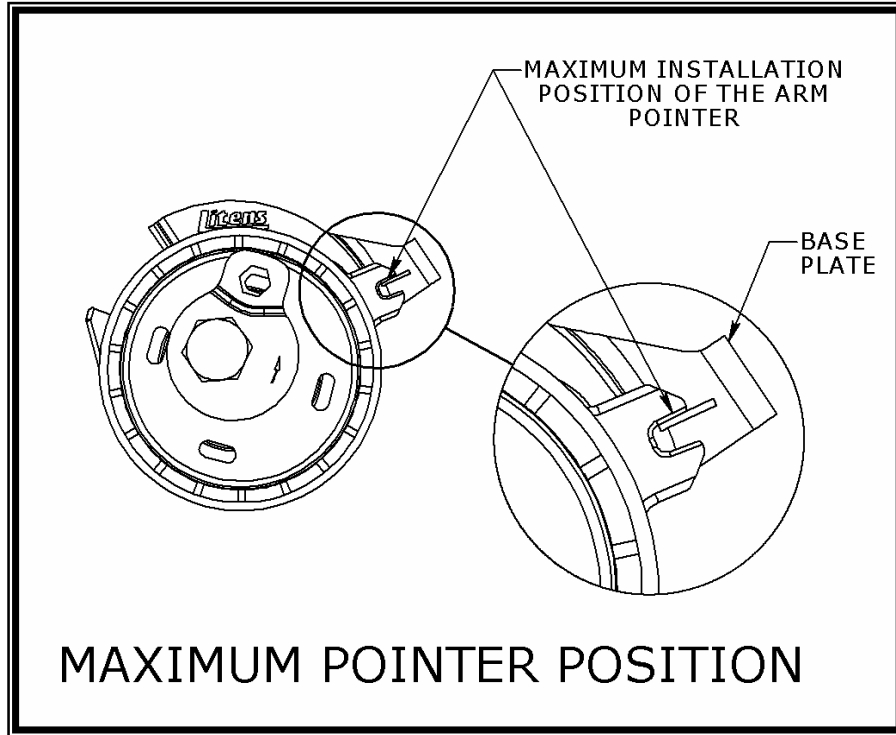


Figure 6: The Arm Pointer is adjusted at the MAXIMUM installation position at TDC.

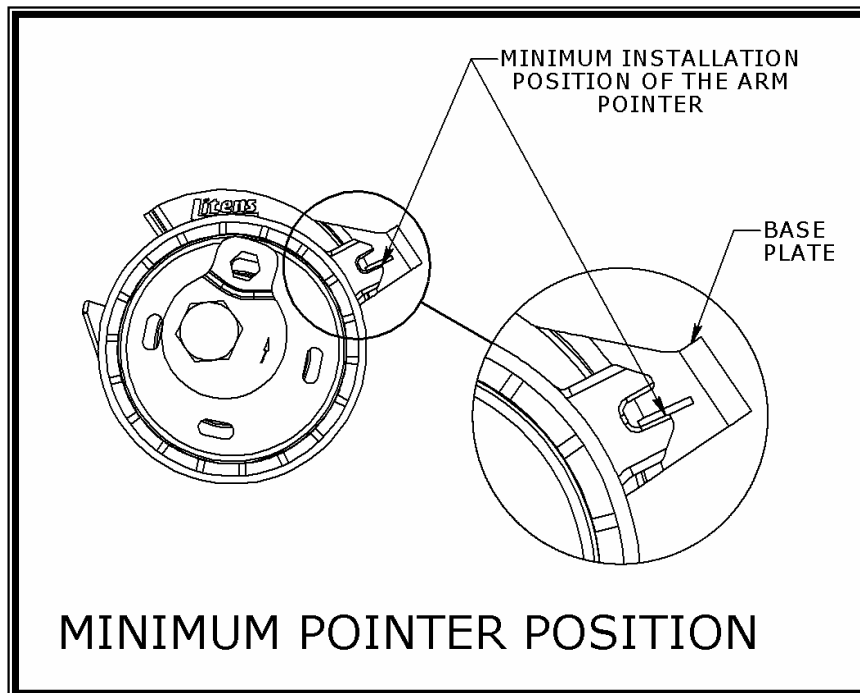


Figure 7: The Arm Pointer is adjusted at the MINIMUM installation position at TDC.