

Recommended Installation Procedure
ATech Timing Belt Tensioner 979645
RENAULT 1.4/1.6L 4cyl DOHC K4M+ 760 Engine
(09FEB05)

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. 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 tensioner onto a hot engine.** (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).
For this application, follow Renault's guideline for:
 - Removing the camshafts' plugs at the rear of camshaft, and the plug on the engine cylinder block.
 - Crankshaft being locked in position using a pin.
 - Camshafts locked using a special setting bar.

Caution:

If the alignment of the TDC position 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 locking points. 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

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

3. Loosen the Flanged Mounting Nut (Fig. 2) and rotate the tensioner's installation shaft away from the belt to release the belt tension.
4. Remove the timing belt, the tensioner's Flanged Mounting Nut and the old tensioner. It is recommended to replace the timing belt during the replacement of the tensioner.

Initial Setup of the Timing Belt Tensioner

5. Install the new tensioner (Figs. 3 and 4) on the engine mounting stud ensuring that the anti-rotation Locator Tab of the base plate is engaged with the slot in the engine.
6. Rotate the installation shaft on the tensioner using a 6mm Hex Allen Key to the "**8 O'clock position**", see Fig. 4. This will maximize the belt clearance for ease of installation. Hand tighten (lightly) the Flanged Mounting Nut on the stud.

Installation of the Timing Belt Tensioner and the Belt

7. Install the timing belt being careful to engage the appropriate teeth of all the corresponding sprockets as per drive layout (Fig.1) starting with the crankshaft and working counterclockwise.
8. Using a 13mm Wrench to prevent the rotation of the flanged mounting nut, 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** (Fig. 5).
9. Continue rotating the Installation Shaft so that the Arm Pointer passes the nominal notch in the base plate and approximately aligns with the right edge of the base plate alignment notch (Fig 6).

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Lock the tensioner in this position by torquing the Flanged Mounting Nut to **23~28Nm**.

Caution:

Do not over-torque the flanged Mounting Nut; the arm pointer must not pass the right edge of the Base Plate alignment notch during installation.

Verification of the Nominal Position

10. Remove the 6mm Hex Key, the 13mm Wrench, the Camshafts setting bar and the Crankshaft locking 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 per Renault's guideline and re-lock it with the pin.
Timing check:
 - ◆ Try to install the camshaft setting bar. If the bar can be fitted easily, then the timing setting is correct. Proceed to step 12 for checking the tensioner arm pointer alignment.
 - ◆ If the bar cannot be fitted, the belt has to be removed and the installation procedure has to be repeated starting at step 2.

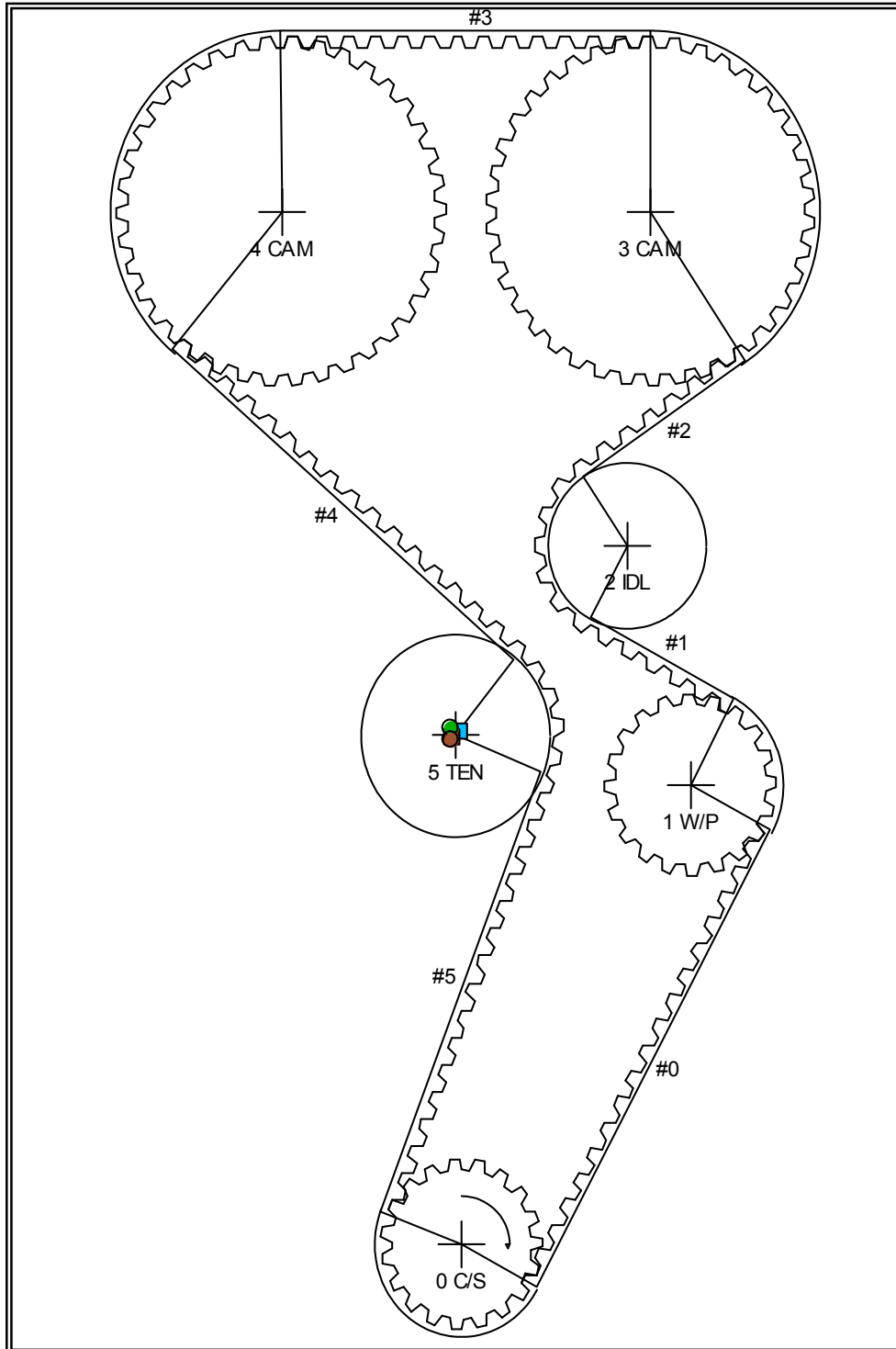
Caution: If the alignment of the TDC position is missed, do not rotate the Crankshaft counterclockwise to the correct position, but rather rotate the Crankshaft 2 more full rotations to the TDC position.

12. Check the position of the Arm Pointer.
If the Arm Pointer aligns between the **Maximum/Minimum Position Notch** (Figs. 7 and 8), the installation is complete.
If not, the tensioner re-adjustment is required until the proper position is achieved, and proceed as follows:

Re-adjustment

13. Ensure to re-lock the crankshaft and camshafts at TDC position if not done already. Engage the 6mm Hex Key and retain the installation shaft's position while loosening the Flanged Mounting Nut with the 13mm Wrench. The Flanged Mounting Nut and the Tensioner do not need to be removed.
14. Rotate the installation shaft **COUNTERCLOCKWISE** until the Arm Pointer moves **COUNTERCLOCKWISE** past the left edge of the base plate alignment notch, and then rotate the Installation Shaft **CLOCKWISE** with the Hex Key until the Arm Pointer moves clockwise to align between the **Maximum or Minimum Position Notch** (Figs 7 and 8).
15. Re-torque the Flanged Mounting Nut to **23~28 Nm** while preventing the Installation Shaft from turning by holding it with the Hex Key.
16. To verify the proper installation of the tensioner, repeat steps #10, #11 and #12.

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0: Crankshaft, 1: Water Pump, 2: Idler, 3, 4: Camshaft, 5: Timing Belt Tensioner

Figure 1. Timing Drive Layout for Renaults' K4M+ 760, 1.4/1.6L

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Figure 2: Flanged Hex Nut used for mounting the tensioner on the engine.

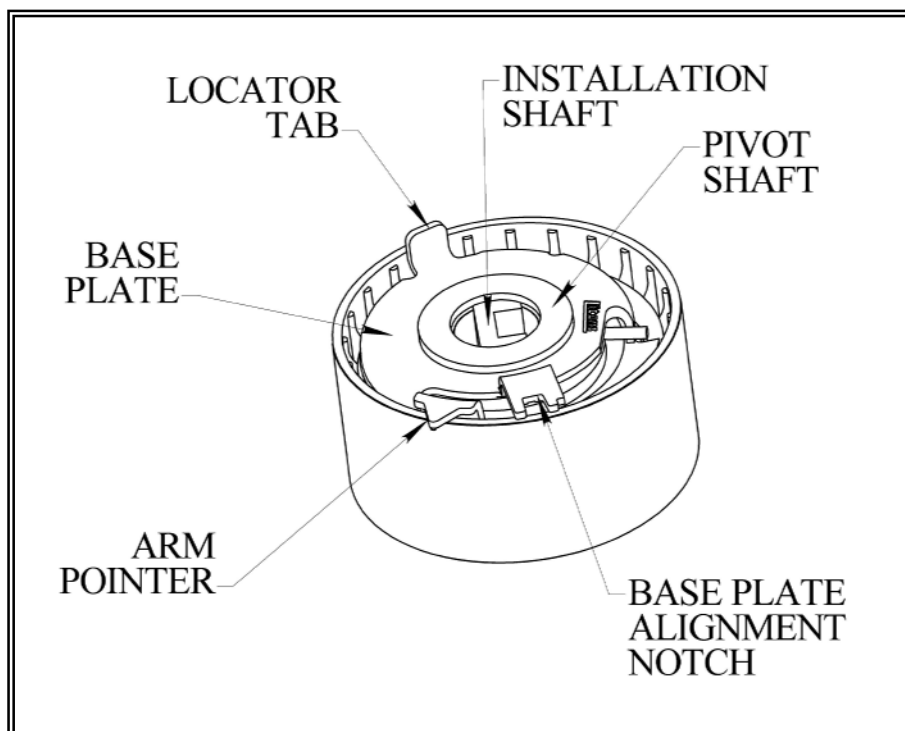


Figure 3: Back view of the (TBT) Timing Belt Tensioner

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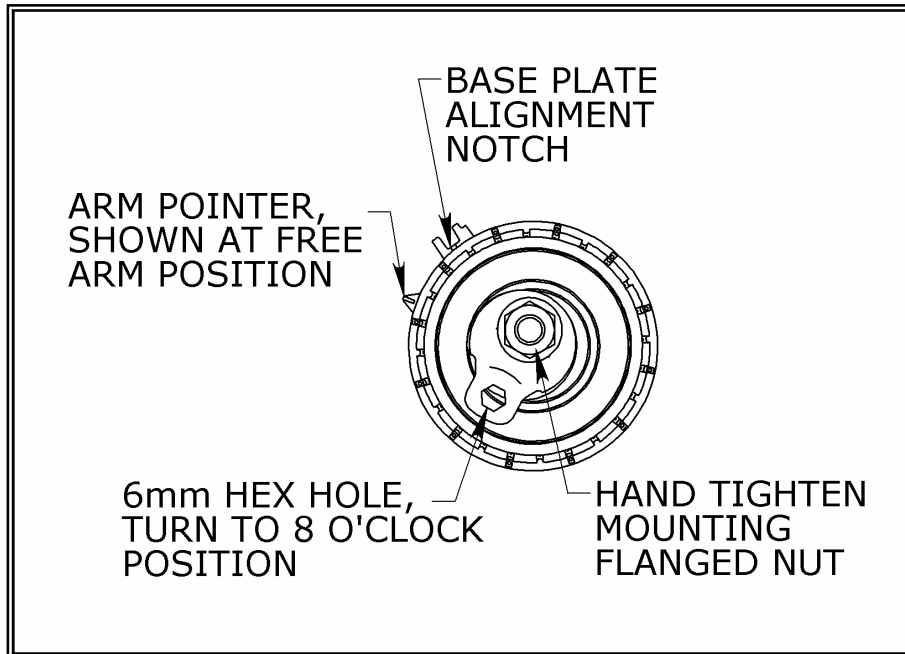


Figure 4: Timing Belt Tensioner shown in the initial setup

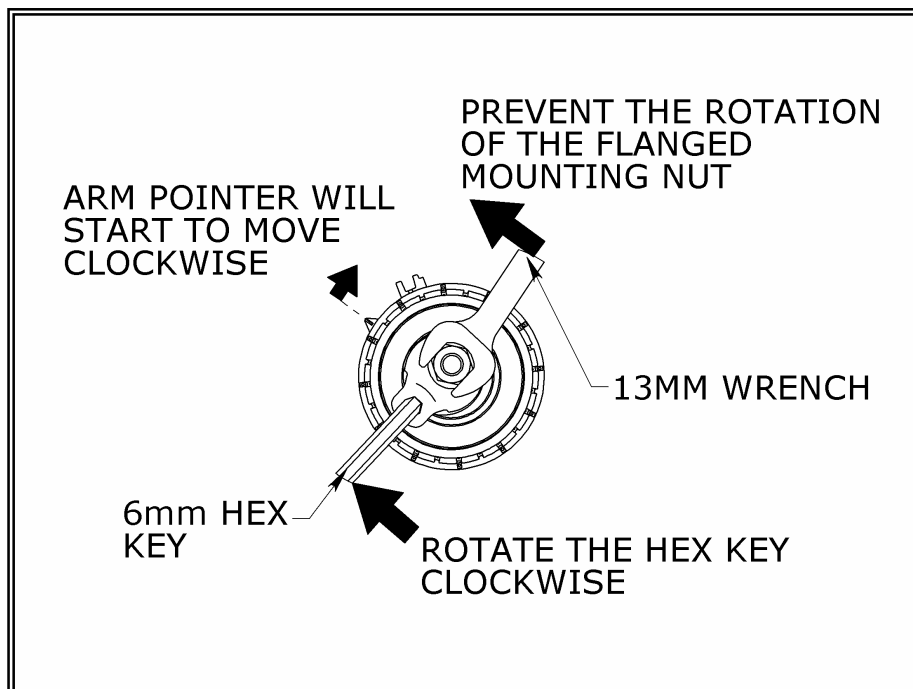


Figure 5: Timing Belt Tensioner Rotation direction during installation

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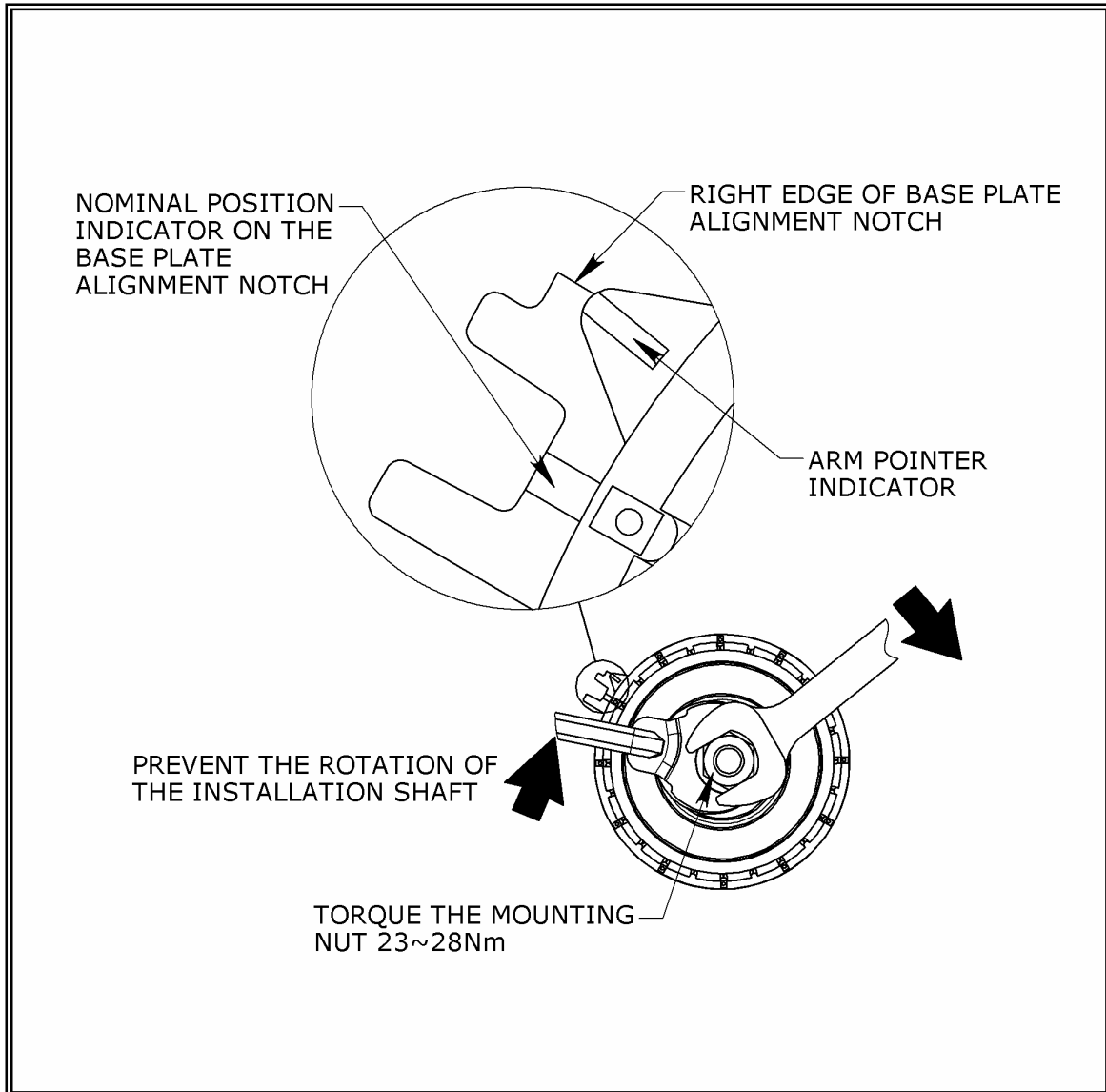


Figure 6: Initial over tension; the TBT pointer aligns approximately with the right edge of the base plate notch

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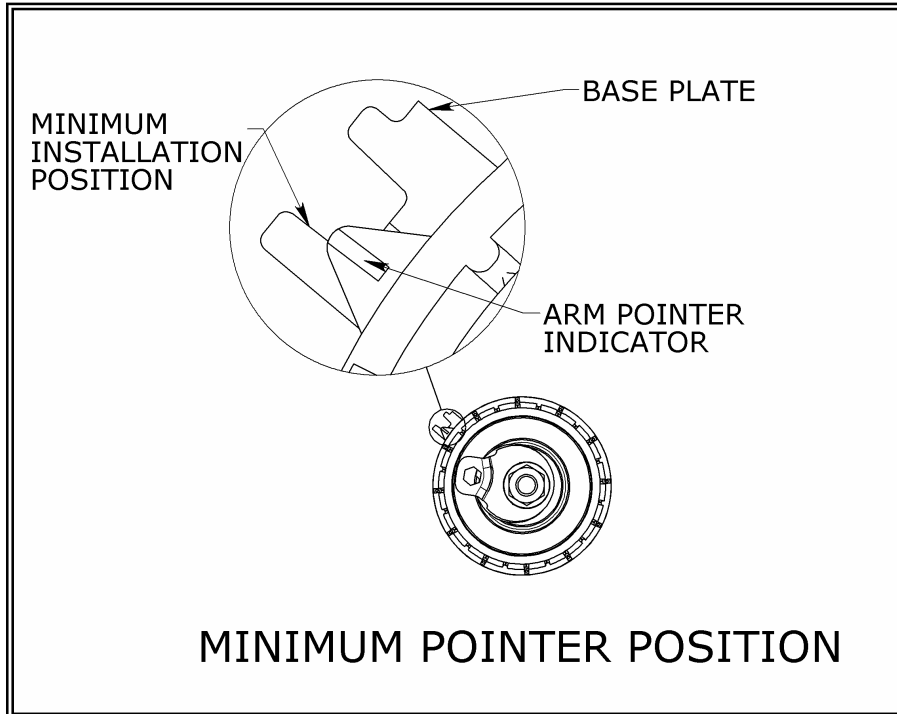


Figure 7: The Arm Pointer adjusted at the MINIMUM Installation Position.

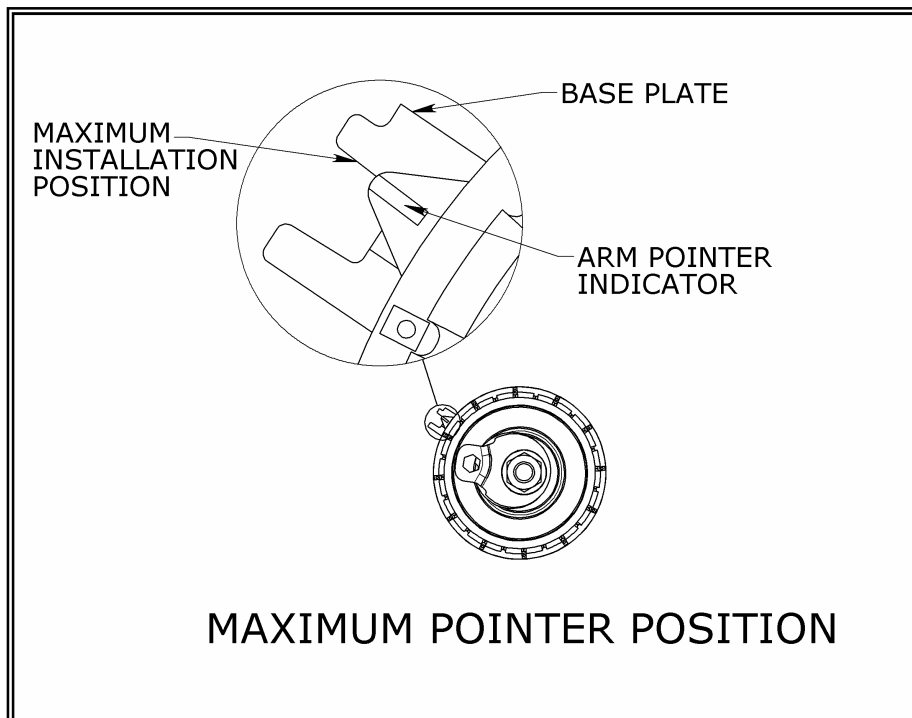


Figure 8: The Arm Pointer adjusted at the MAXIMUM Installation Position