

RECOMMENDED INSTALLATION PROCEDURE
LITENS TIMING BELT TENSIONER 979680 FOR AFTERMARKET
AUDI 2.5L V6 TDI (A4, A6, A8 / VW PASSAT / SKODA SUPERB)
Litens Tensioner only used on fuel injection pump (FIP)
February 18/2003

TBT Belt Removal:

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. From the front of the engine, 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 any of the sprockets.

Notes:

Make sure, as per Audi guidelines,

- I. That the fuel injection pump, camshaft and crankshaft are locked and adjusted to the proper position for timing belt and tensioner replacement.
- II. To follow the procedure for removal of the Viscous Fan Bracket, which is required to replace the TBT only.

For this engine:

- a) The TDC hole in the crankshaft web must be aligned with a blanking plug hole and locked in place using a crankshaft locking tool.(not shown)
 - b) The camshaft must also be aligned and locked at the rear of the engine (not shown).
3. Remove the fuel injection pump vibration damper bolts x4, see Fig.5
Note: Do not slacken (loosen) the injection pump center hub nut.
 4. Insert locking pin tool No. 3359 in the fuel injection pump sprocket as per **Audi's guidelines, see Fig. 6.**
 5. Loosen Fuel Injection Pump timing belt tensioner installation nut using special socket tool or boxed-end wrench, see Fig. 3.
 6. Using 6mm Allen key, turn the tensioner's installation shaft clockwise in the OFF position away from the belt, until the tension is fully relieved from the belt.
 7. Lightly re-tighten the TBT installation nut, see Fig 3.
 8. Mark direction of rotation on the belt with a visible marker (chalk) if the belt is to be reused.
 9. Remove the fuel injection pump belt.
 10. To replace the tensioner, the Viscous Fan Bracket has to be removed. This should be done **as per Audi's guidelines**. This may necessitate placing a drip pan under the engine if the water pump should leak some liquid.

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Pre-Installation of the TBT

11. On the bench, remove the used FIP TBT and replace with a new tensioner.
12. Rotate the installation shaft using the 6mm Hex Key until the tensioner guide slot is the furthest away from the top of the bracket, see Fig. 8. This will ensure that the tensioner is at its furthest position from the belt.
13. Lightly tighten the TBT installation nut.
At this stage the belt could be installed.
14. Re-install the Viscous Fan Bracket on the engine, **as per Audi's guidelines.**
15. Install the timing belt in a counterclockwise direction starting at the camshaft, being careful to engage the appropriate teeth on the upper half of the two sprockets, i.e. the camshaft and the fuel injection pump, see Fig. 3 for layout.
(Caution: Do not disturb the position of the crankshaft, fuel pump or camshaft sprocket during this procedure.)

Setting of the TBT

16. Engage the Special Socket Tool and the 6mm Hex Key. Loosen the installation nut, and while preventing the installation nut from rotation, rotate the FIP TBT installation shaft COUNTERCLOCKWISE (ON position), see Fig. 3; until the arm pointer aligns with the alignment indicator on the rear plate of the FIP TBT, see Figures 9a,b and 10a,b. This is the setting range position of the FIP TBT. The sighting for the pointers' alignment may only be accomplished from the top of the engine.
17. While preventing the Hex Key from turning, tighten the installation nut of the FIP TBT to **37±3 Nm**. Remove both the Hex Key and Socket Tool.
18. Remove the locking pin on the fuel injection pump cam pulley and re-install the vibration damper.
19. Remove the locks from the crankshaft and the rear of the camshaft.

Verification of the Nominal Position

20. Manually only, rotate the crankshaft two (2) complete revolutions and slowly for proper seating of the belt until the crankshaft is repositioned at the TDC position.
Note: Repositioning the crankshaft to the TDC position must be done only during the clockwise rotation. Do not attempt to rotate the engine using other components than the Crankshaft pulley.
21. Check the position of the Arm Pointer.
If the Arm Pointer still remains aligned within the Alignment Indicator on the rear plate of the TBT, the installation is complete.

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Note: The TDC marks on the camshaft pulley must also line up.

- If not, go to step #22. The installation needs to be repeated until the proper position is achieved.

Readjustment

22. Engage the Hex Key and retain its position while loosening the Mounting Nut with the Special Socket Tool. The Installation Nut and the Tensioner need not be removed. Rotate the Installation Shaft Washer CLOCKWISE with the Hex Key until the Arm Pointer returns to the Free-Arm Position. Follow steps #16, 17, 20, 21.

Disclaimer

Every step of this installation **MUST** be properly performed or engine will not function properly and damage may occur.

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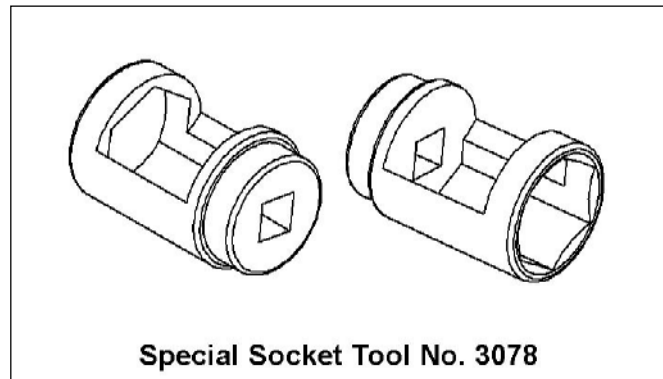


Fig1: Recommended Tool for TBT installation

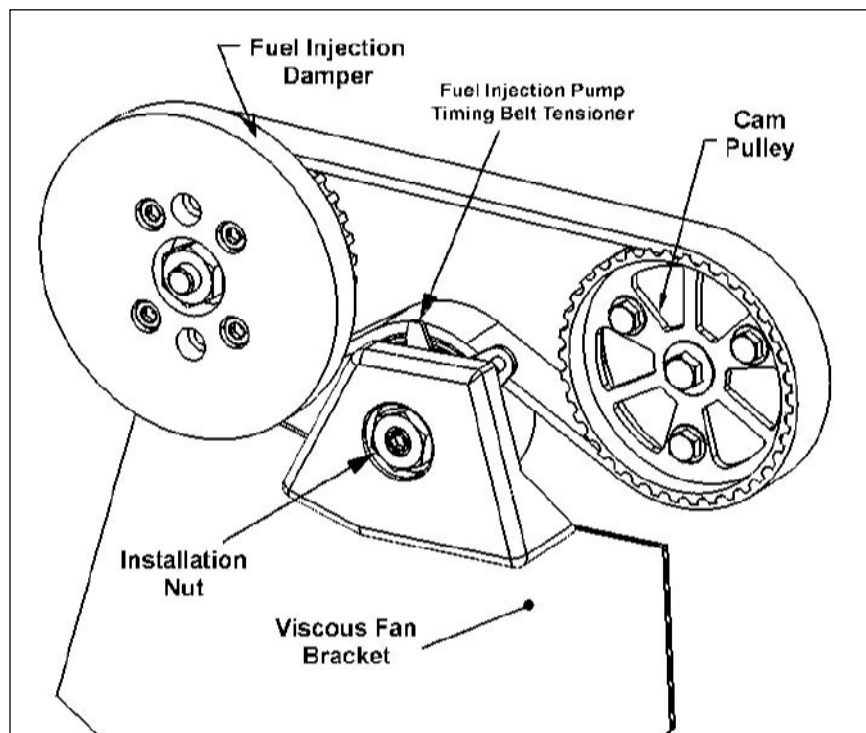


Fig 2: Front View of Fuel Injection Pump System

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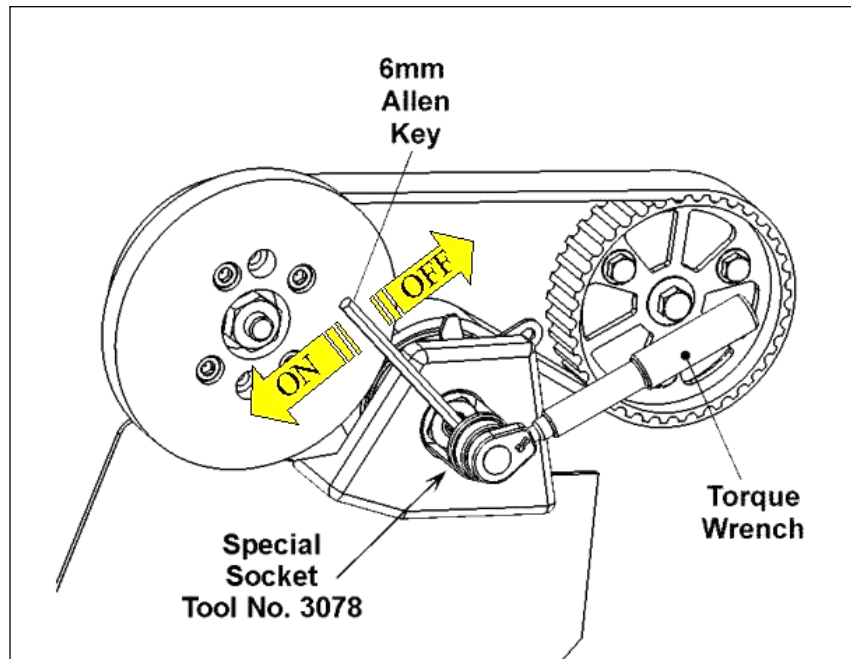


Fig 3: Direction for Removing and Installing the Timing Belt Tensioner

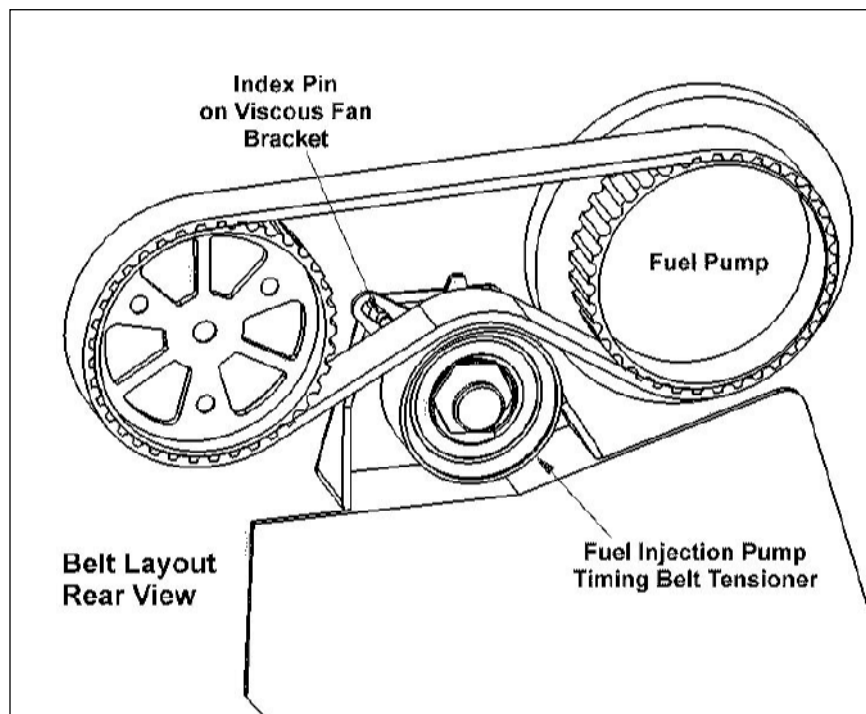


Fig 4: Belt Layout Rearview and Index Pin Location

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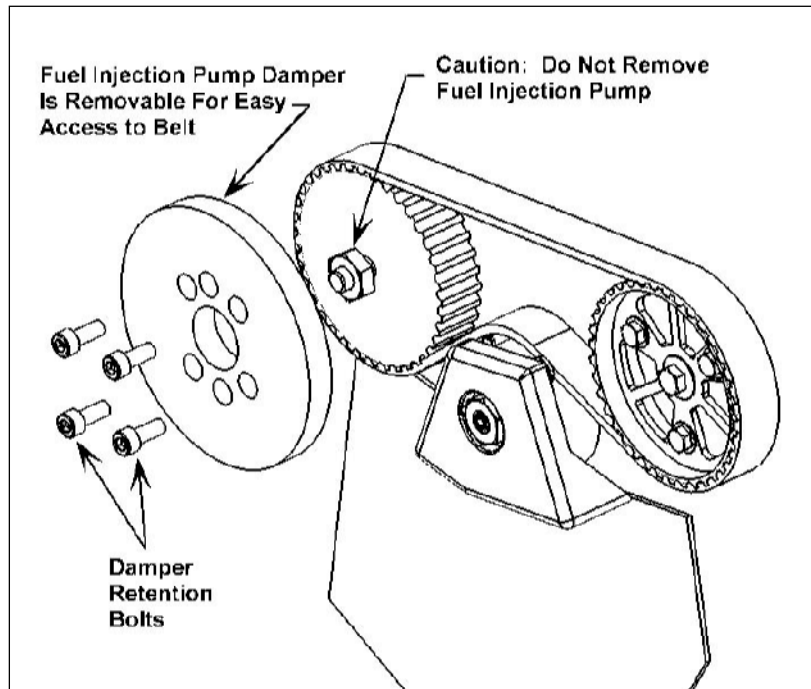


Fig 5: Fuel Injection Pump Damper Removal; Audi's Guideline

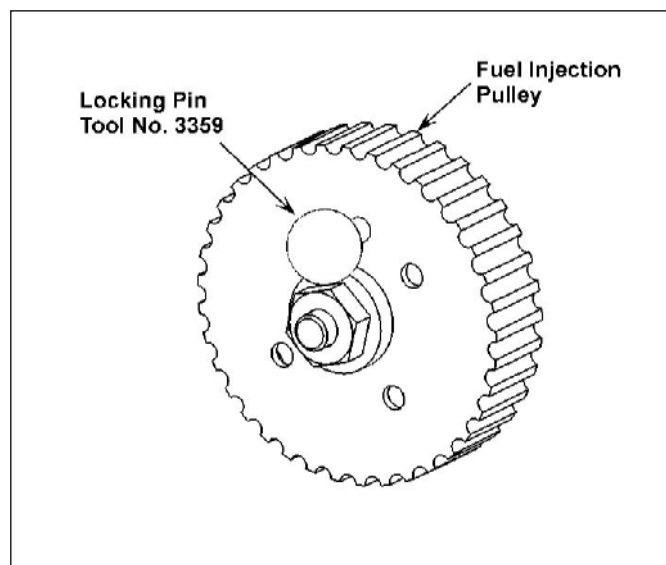


Fig. 6: Pin Required to Lock the Fuel Injection Pump Before Belt Removal

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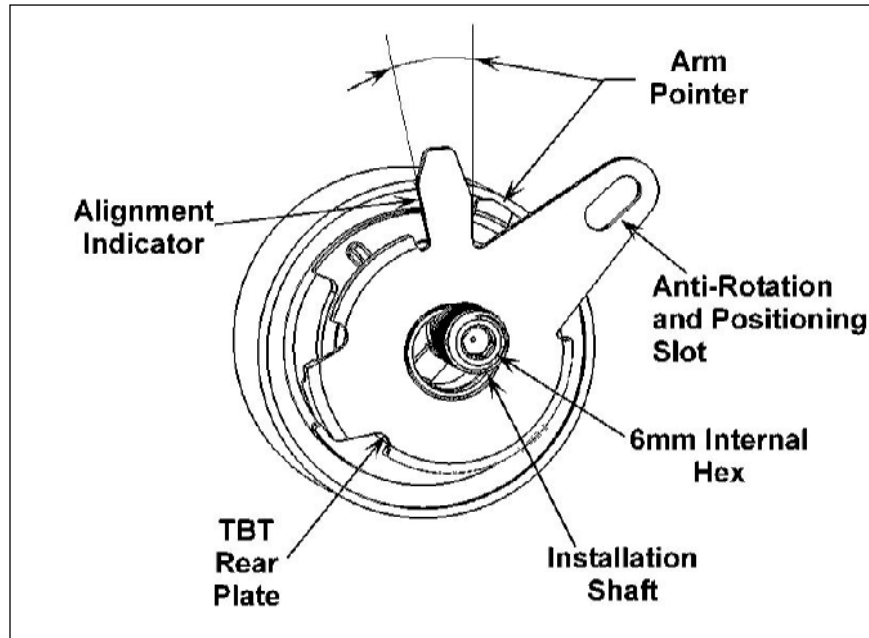


Fig. 7: Timing Belt Tensioner for the Fuel Injection Pump

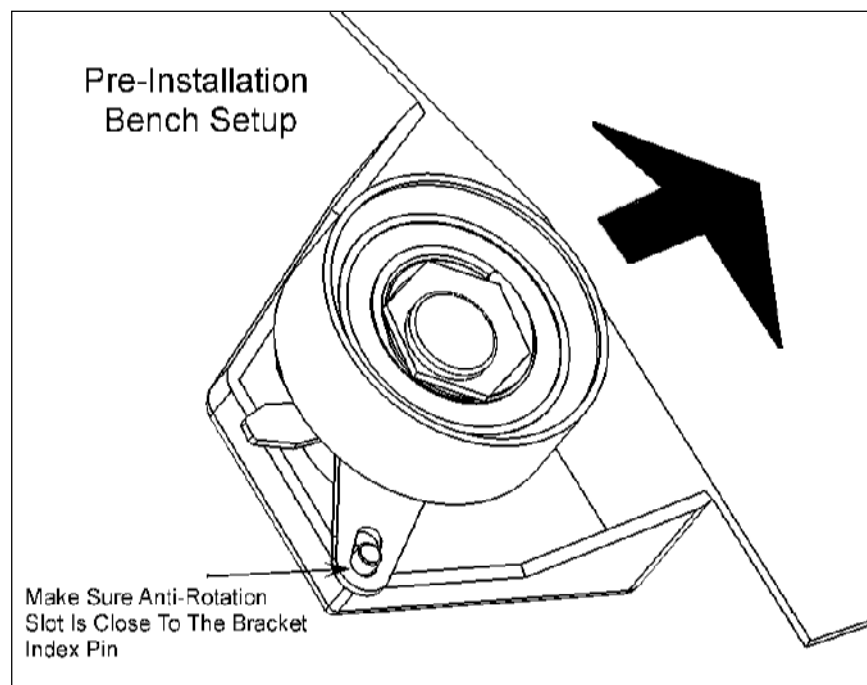


Figure 8: Bench Setup of the Timing Belt Tension on Viscous Fan Bracket

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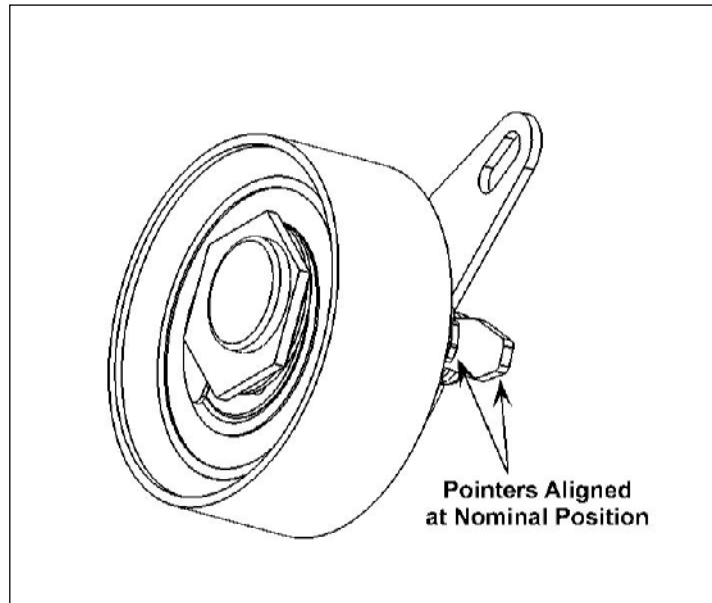


Fig. 9a: TBT Pointer Alignment for proper Layout Installation

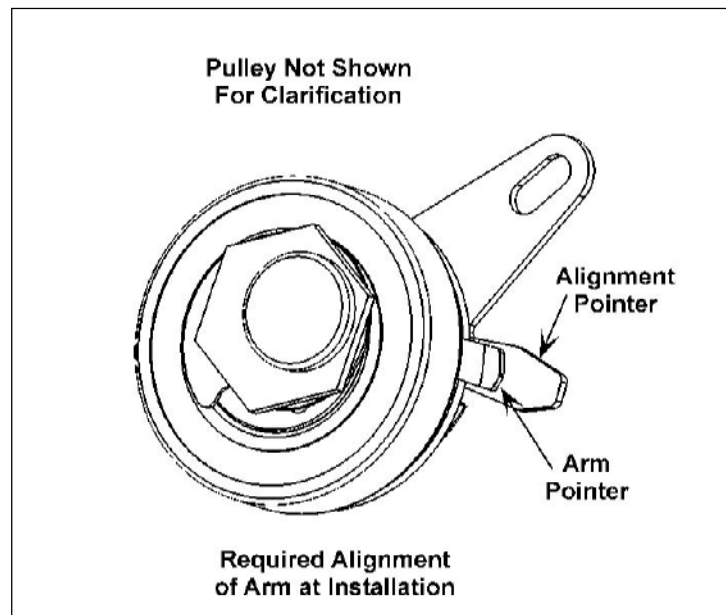


Figure 9b: TBT Pointer Alignment for proper Layout Installation

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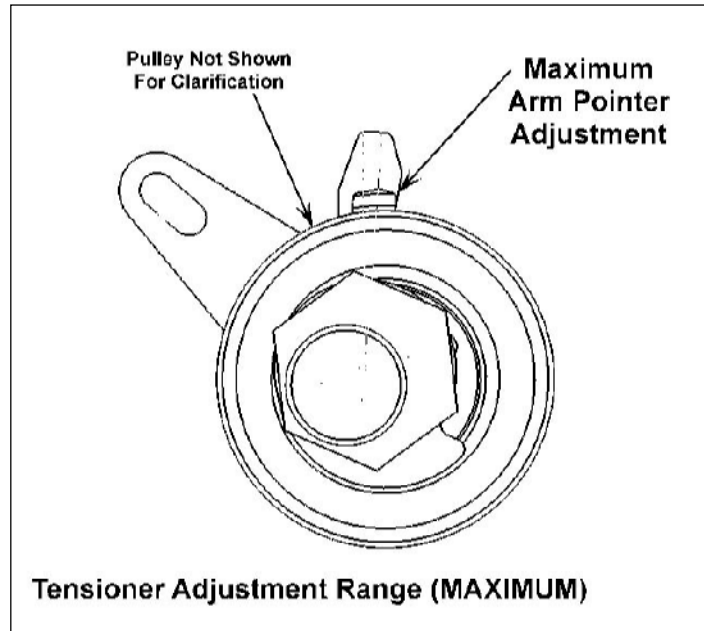


Fig. 10a Maximum TBT Arm Pointer Location

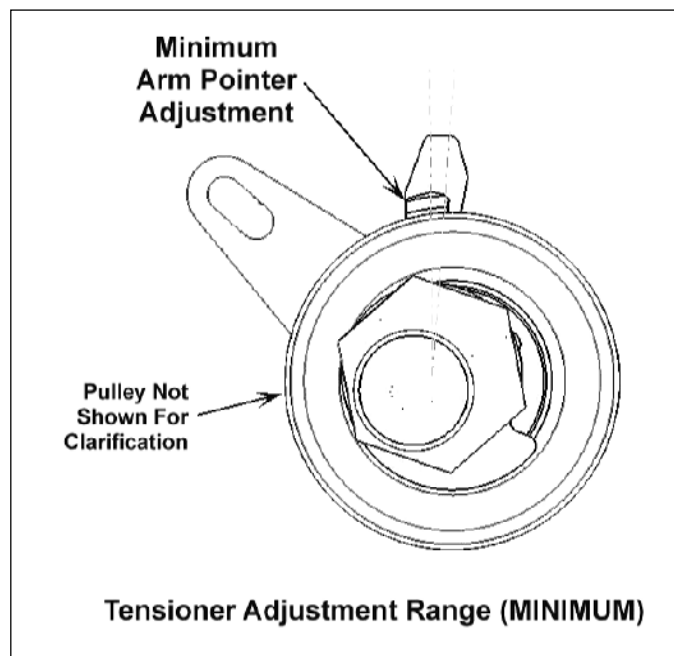


Fig. 10b Minimum TBT Arm Pointer Location