# ARTICLE BEGINNING

## MANUFACTURER'S SUGGESTED SCHEDULED MAINTENANCE

The manufacturer recommends the belt be replaced every 105,000 miles.

## REMOVAL & INSTALLATION

| Tips | Click a link to view tip |
|---|---|

Eric O. Tip: Timing Belt - R&R
Tech1 Tip: interference engine - '01 2.5L

### TIMING BELT

| Tips | Click a link to view tip |
|---|---|

Tech1 Tip: INTERFERENCE MOTOR

### Removal

1. Disconnect negative battery cable. Raise and support vehicle. Remove engine under cover.
2. Lower vehicle. Remove radiator coolant reservoir, and set aside. Remove electric cooling fan and radiator shroud.
3. On Impreza and Forester, remove accessory drive belt cover. On all models, remove accessory drive belts.
4. Hold crankshaft pulley stationary, and remove crankshaft pulley center bolt. Remove crankshaft pulley. Remove timing belt covers.
5. Turn crankshaft to align crankshaft and camshaft timing notches with marks on rear timing cover and engine block. See **Fig. 1** and **Fig. 2** . On manual transmission models, remove timing belt guide from top of crankshaft pulley.
6. On all models, if reusing old belt, use White paint to mark timing belt in relation to sprocket timing marks. See **Fig. 3**. Also mark timing belt direction of travel. On 2000 and newer vehicles, count number of teeth between marks. For correct count, see **INSTALLATION MARK MEASUREMENT SPECIFICATIONS** table.
7. Remove No. 2 timing belt idler pulley. See **Fig. 4**. Remove timing belt. Remove timing belt automatic tensioner with rod facing up.

**INSTALLATION MARK MEASUREMENT SPECIFICATIONS**

| Application (1) | Number Of Teeth |
|---|---|
| Baja | |

| | |
|---|---|
| 2003-05 | |
| Z-1 | 46.8 |
| Z-2 | 43.7 |
| Forester, Legacy & Outback | |
| 2000-01 | |
| Z-1 | 44.0 |
| Z-2 | 40.5 |
| 2002-05 | |
| Z-1 | 46.8 |
| Z-2 | 43.7 |
| Impreza | |
| 2000-02 | |
| Z-1 | 44.0 |
| Z-2 | 40.5 |
| 2003-05 | |
| Z-1 | 46.8 |
| Z-2 | 43.7 |
| (1) To determine distances Z-1 and Z-2, see **Fig. 3**. | |

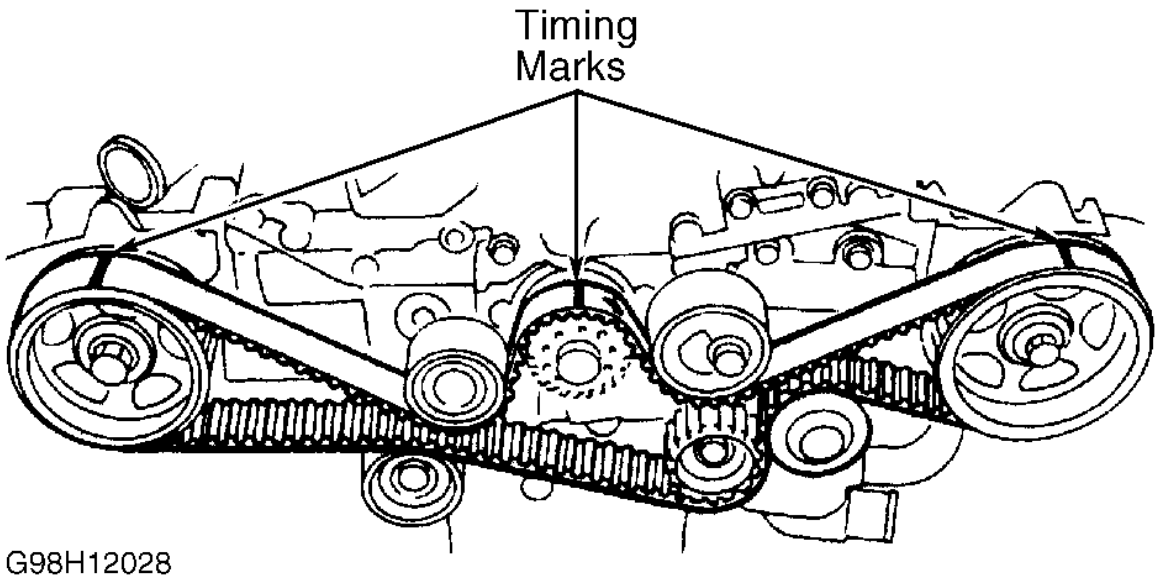


**Fig. 1: Identifying Timing Belt Routing & Timing Marks**
**Courtesy of SUBARU OF AMERICA, INC.**

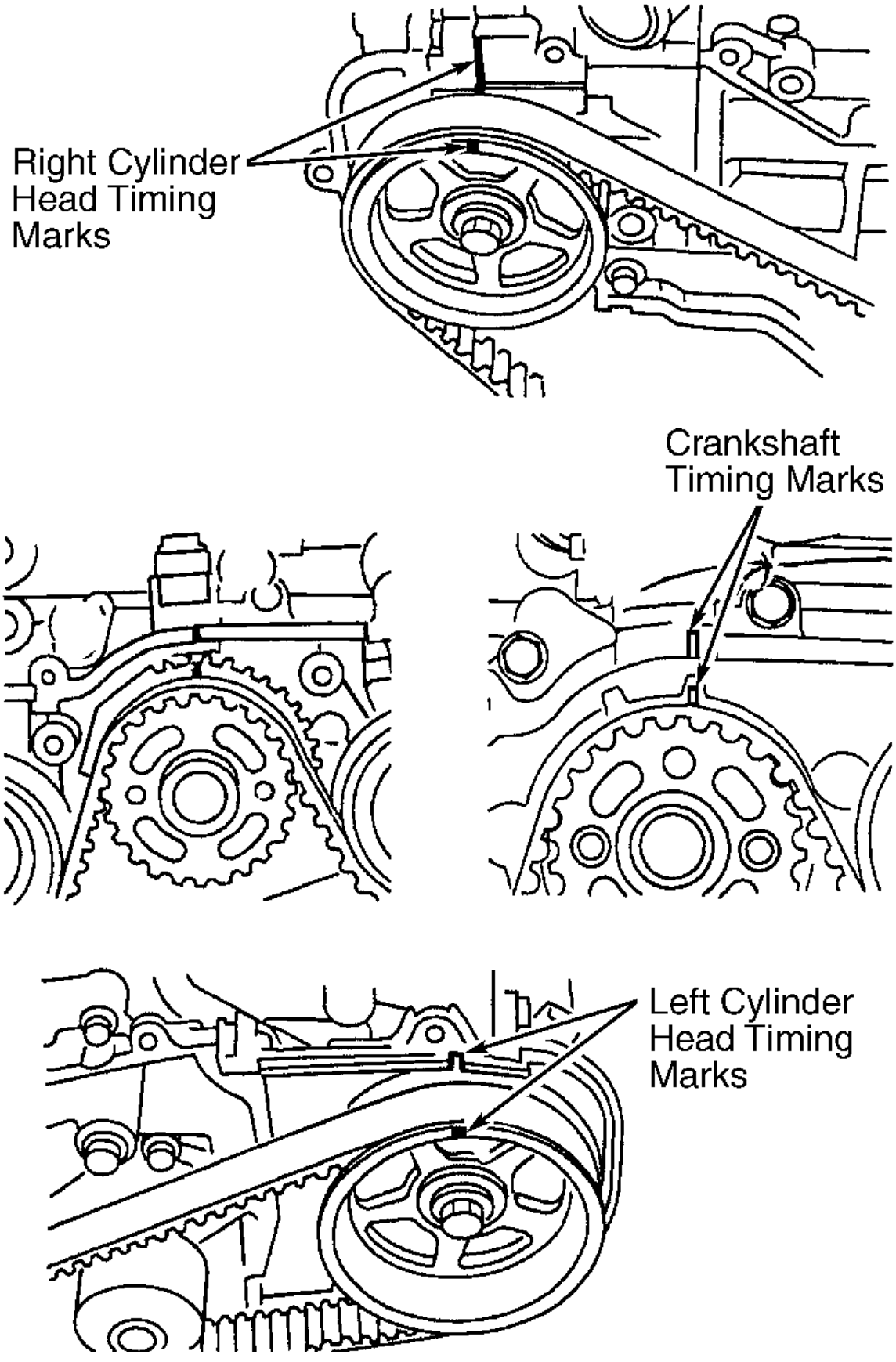
Right Cylinder
Head Timing
Marks
Crankshaft
Timing Marks
Left Cylinder
Head Timing
Marks

**Fig. 2: Aligning Camshaft & Crankshaft Timing Marks**
**Courtesy of SUBARU OF AMERICA, INC.**

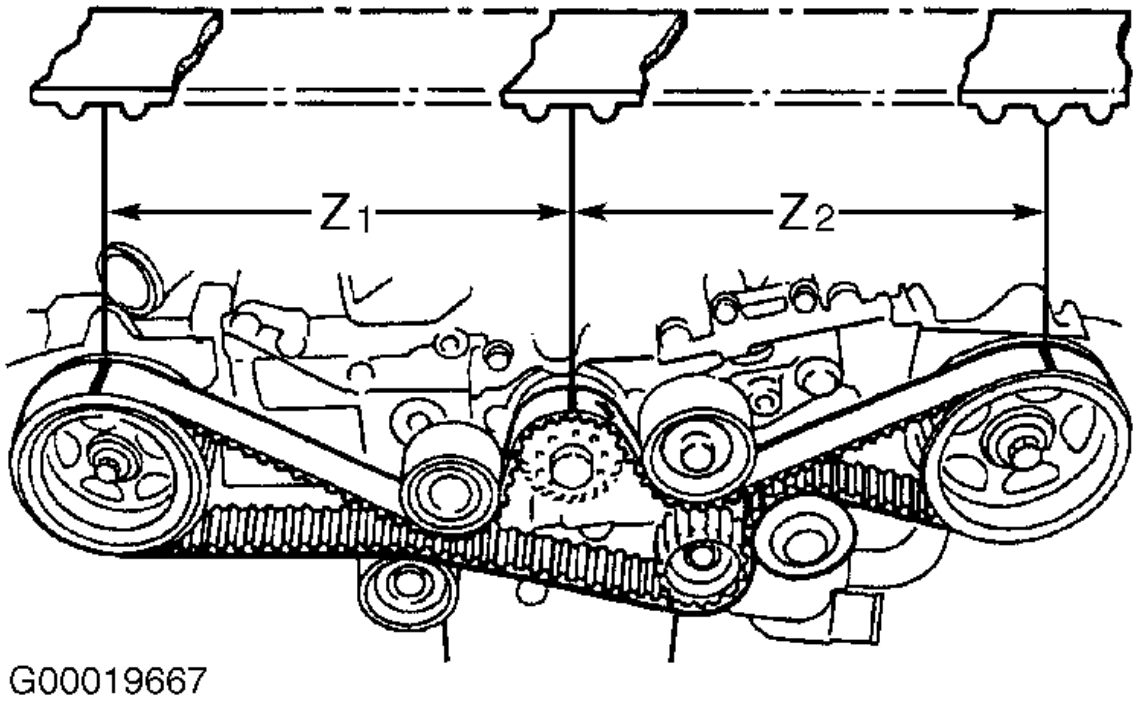


**Fig. 3: Marking Timing Belt For Reinstallation**
**Courtesy of SUBARU OF AMERICA, INC.**

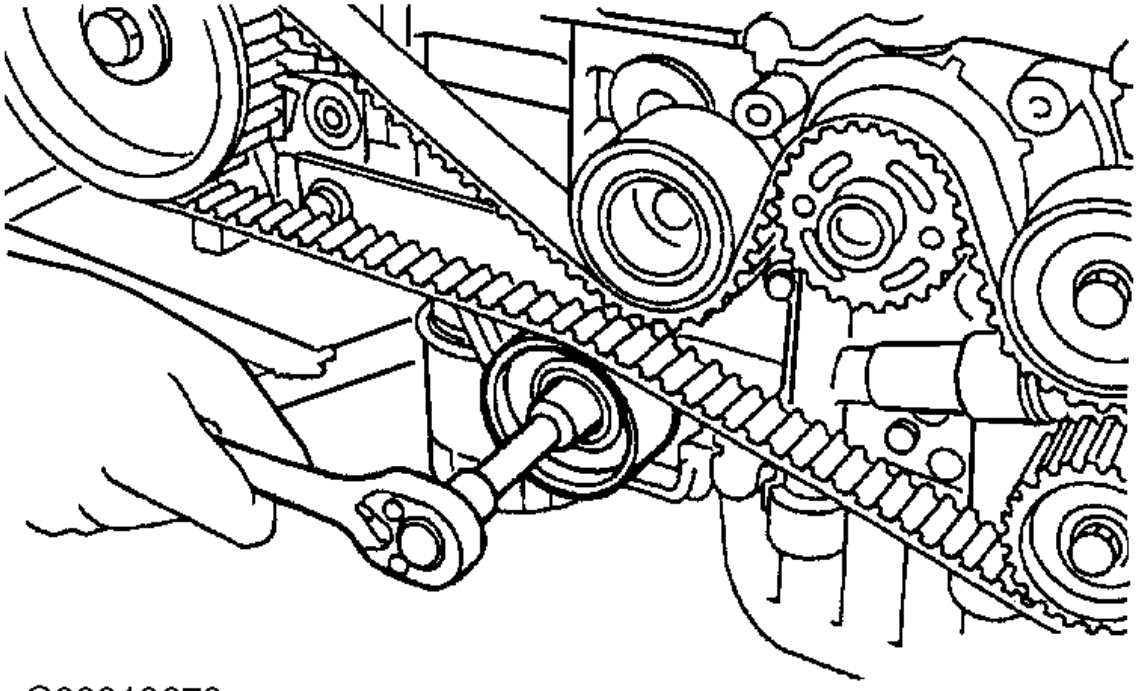


**Fig. 4: Removing No. 2 Timing Belt Idler Pulley**
**Courtesy of SUBARU OF AMERICA, INC.**

## Inspection

Tips Click a link to view tip

Tech1 Tip: Bent valves !

1. Inspect timing belt for wear on rounded edges of drive teeth. Inspect belt for signs of oil contamination. Replace belt if it is damaged or contaminated.
2. Inspect belt automatic tensioner oil seals for leaks. Slight trace of oil at rod oil seal does not indicate a problem. Inspect rod ends for abnormal wear and scratches.
3. Measure extension of rod beyond tensioner body. Holding tensioner with rod facing up, rod extension should be .204-.244" (5.2-6.2 mm). See **Fig. 5**. Replace automatic tensioner if rod extension is not as specified.

**CAUTION: Always use a vertical type pressing tool to compress automatic tensioner rod. DO NOT use a bench vise to compress rod. It may take more than 3 minutes to compress**

**the automatic tensioner rod.**

4. Place automatic tensioner in a press with tensioner rod facing up. Apply 66 lbs. (294 N) of pressure on rod. If rod moves down easily, replace automatic tensioner.
5. Inspect automatic tensioner and idler pulleys for worn bearings or lubricant leaks. Replace as necessary.

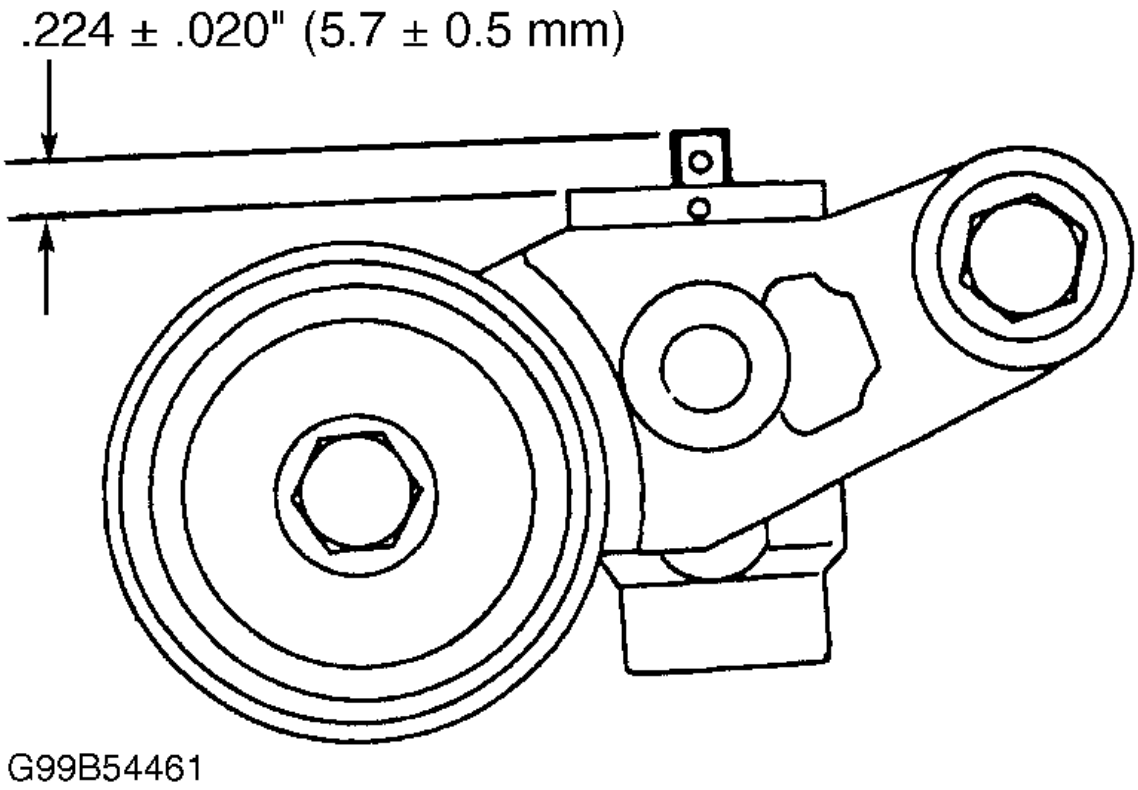


**Fig. 5: Checking Automatic Tensioner Rod Extension**
**Courtesy of SUBARU OF AMERICA, INC.**

## Installation

**CAUTION: To prevent damage, DO NOT apply more than 2205 lbs. (9807 N) of pressure to automatic adjuster rod. Do NOT press automatic tensioner rod past the top surface of the housing.**

1. Ensure crankshaft and camshaft timing marks are still aligned. Place automatic adjuster in a press with rod facing up. Apply 66 lbs. (294 N) pressure to end of rod. SLOWLY compress rod (taking more than 3 minutes) into housing until rod and housing holes are aligned. Insert locking pin through holes. See **Fig. 6**.
2. Install automatic tensioner on engine with locking pin in place. Install idler pulleys (if removed).
3. Ensure crankshaft and camshaft timing marks are still aligned. Install timing belt. If reusing old belt, ensure belt direction of rotation is correct and mating marks are aligned. Count number of teeth between crankshaft sprocket and camshaft sprockets so that belt will be installed in same position. For correct count of teeth, see **INSTALLATION MARK MEASUREMENT SPECIFICATIONS** table. To determine distances Z-1 and Z-2, see **Fig. 3**.
4. Install No. 2 idler pulley on engine. Remove automatic tensioner locking pin. On manual transmission models, install timing belt guide over crankshaft pulley. Adjust clearance between belt guide and belt to .020-.058" (.5-1.5 mm). See **Fig. 7**.

**CAUTION: If tightening angle of crankshaft pulley bolt is less than 65 degrees, bolt is damaged. Bolt must be replaced.**

5. On all models, install timing belt covers. Clean crankshaft pulley bolt and bolt hole. Install crankshaft pulley. Coat crankshaft pulley bolt threads with engine oil. Install bolt. While holding crankshaft pulley stationary, tighten bolt to specification. See **TORQUE SPECIFICATIONS**.
6. Install accessory drive belts. Install radiator fan assembly. To complete installation, reverse removal procedures. Adjust drive belts to proper tension.

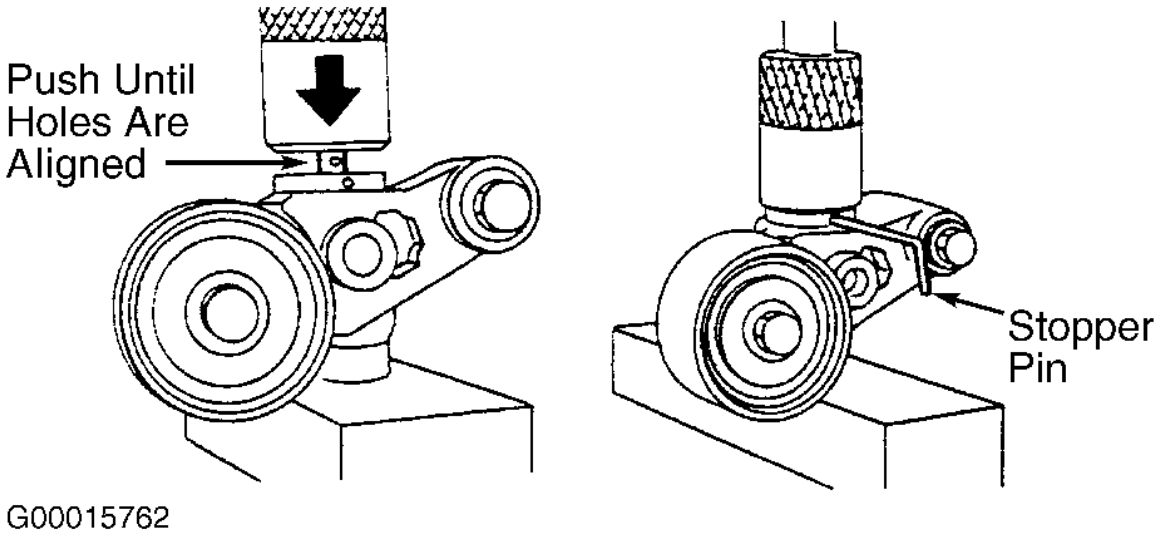


**Fig. 6: Installing Automatic Tensioner Pin**

**Courtesy of SUBARU OF AMERICA, INC.**

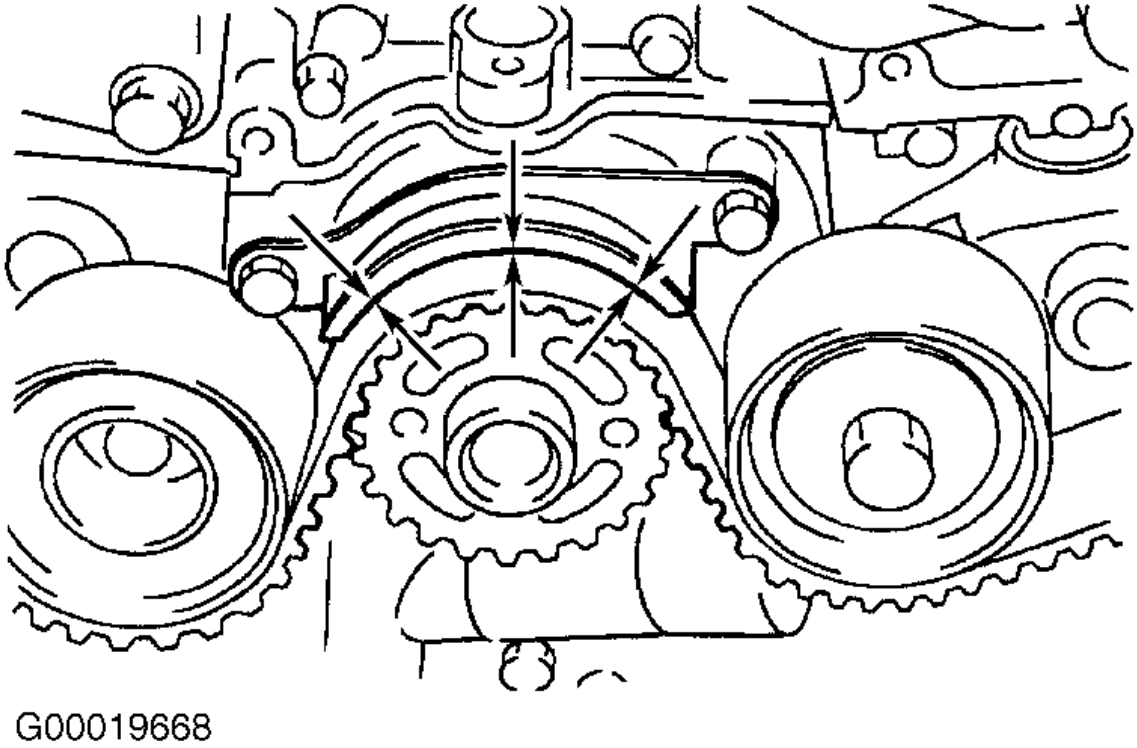


**Fig. 7: Checking Timing Belt Guide Clearance**
**Courtesy of SUBARU OF AMERICA, INC.**

## TORQUE SPECIFICATIONS

**TORQUE SPECIFICATIONS**

| Application | Ft. Lbs. (N.m) |
|---|---|
| Camshaft Sprocket Bolt | 58 (78) |
| Crankshaft Pulley Bolt | |
| Step 1 | 33 (44) |
| Step 2 (1) | |
| 2.2L | 94 (127) |
| 2.5L | 133 (180) |
| Idler Pulley Bolt | 29 (39) |
| Timing Belt Automatic Tensioner Bolt | 29 (39) |
| | **INCH Lbs. (N.m)** |
| Timing Belt Cover Bolt | 44 (5) |

| | |
|---|---|
| Timing Belt Guide Bolt (M/T) | 89 (10) |
| Valve Cover Bolt | 44 (5) |
| Water Pump Bolt | 89-124 (10-14) |

(1) Ensure tightening angle is between 65-75 degrees. If tightening angle is less than specified, bolt is damaged and must be replaced.