

## REMOVAL & INSTALLATION

### TIMING BELT

#### Removal

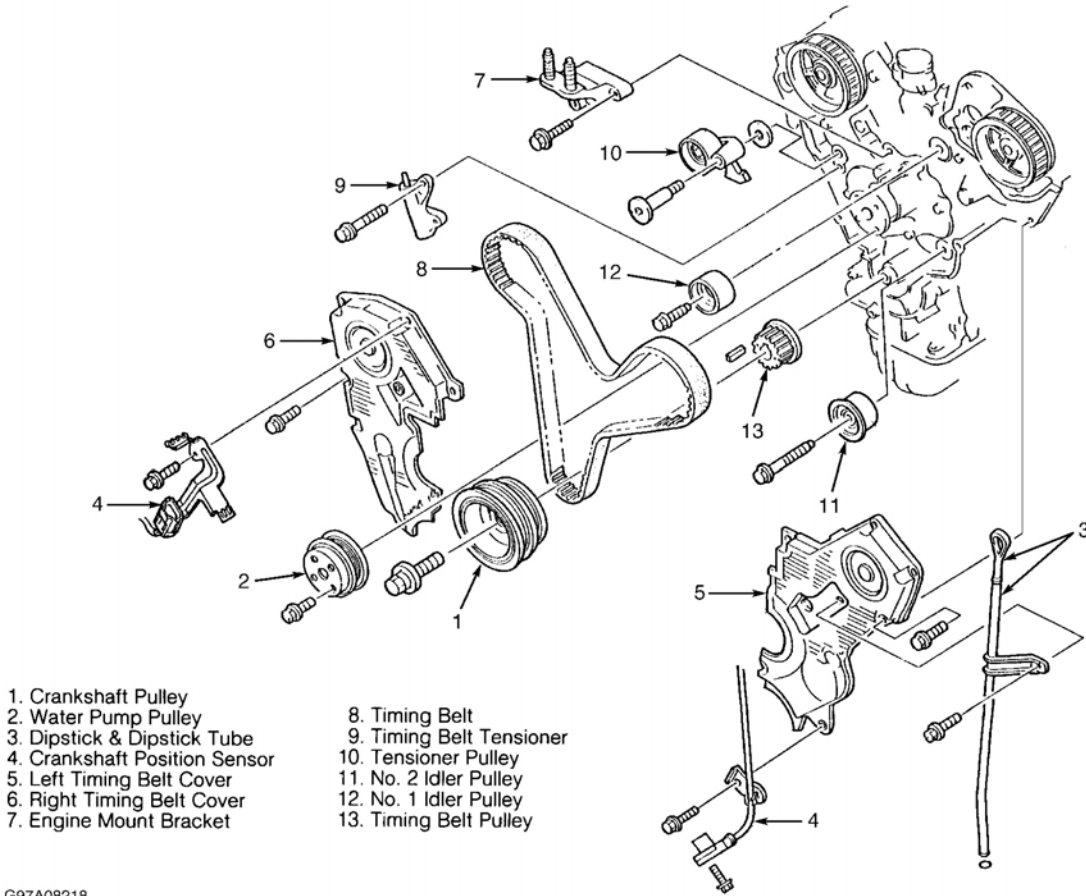
1. Disconnect negative battery cable. On Millenia, raise and support vehicle. Remove right front wheel. Remove lower engine covers.
2. On all models, remove accessory drive belts. Remove water pump pulley. Remove drive belt idler pulley bracket. Remove retaining bolts and power steering pump with hoses attached, and secure pump out of way. Remove spark plugs.

**CAUTION: DO NOT damage crankshaft position sensor rotor on rear of crankshaft pulley during crankshaft pulley removal.**

3. Holding crankshaft stationary, remove the crankshaft pulley retaining bolt. Using gear puller, remove crankshaft pulley.
4. Remove oil dipstick and oil dipstick tube. Remove crankshaft position sensor from front of engine. See **Fig. 1**. Support engine using hoist or floor jack. Remove right (timing belt side) engine mount. Remove retaining bolts, timing belt covers, and gaskets. See **Fig. 1**.
5. Install crankshaft pulley retaining bolt in crankshaft. Rotate crankshaft so No. 1 cylinder is at TDC on compression stroke. Ensure groove on crankshaft sprocket aligns with indicator on oil pump body. See **Fig. 2**. Ensure camshaft sprocket timing marks are aligned with marks on rear cover.
6. If reusing timing belt, place reference mark on timing belt to indicate direction of rotation. Loosen the 2 timing belt tensioner bolts. Hold timing belt tensioner, and remove lower retaining bolt. Remove No. 1 idler pulley and timing belt.

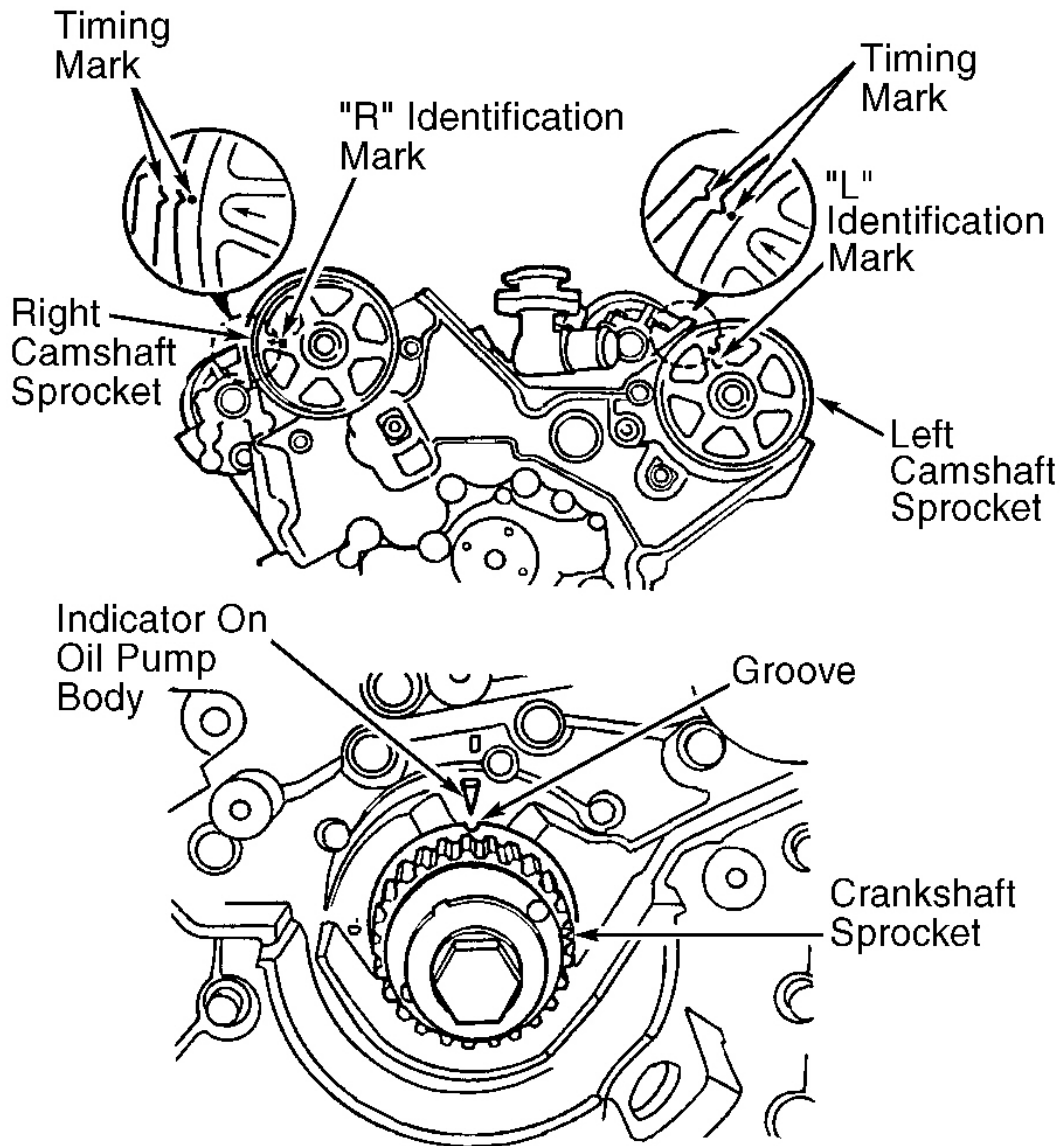
# 1998 Mazda Millenia

MAZDA '2.5L V6



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**Fig. 1: Exploded View Of Timing Belt & Components**  
Courtesy of MAZDA MOTORS CORP.

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**Fig. 2: Aligning Camshaft & Crankshaft Timing Marks**  
 Courtesy of MAZDA MOTORS CORP.

### Inspection

1. Inspect timing belt for damaged teeth, cracking and oil contamination. Ensure idler pulleys (No. 1 and No. 2) and tensioner pulley rotate freely. Replace damaged components.
2. Inspect timing belt tensioner for signs of oil leakage. Replace timing belt tensioner if oil leakage exists. Measure timing belt tensioner rod protrusion from end of rod to edge of housing. See **Fig. 3**. There are 2

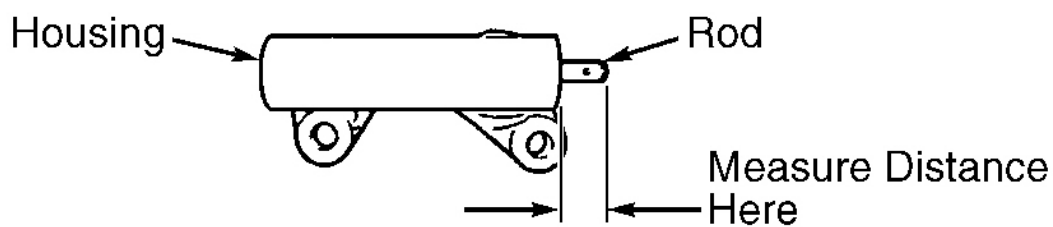
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types of tensioners used on this engine. See **Fig. 4** . Replace timing belt tensioner if rod protrusion distance is not as specified. See **TIMING BELT TENSIONER ROD PROTRUSION** table.

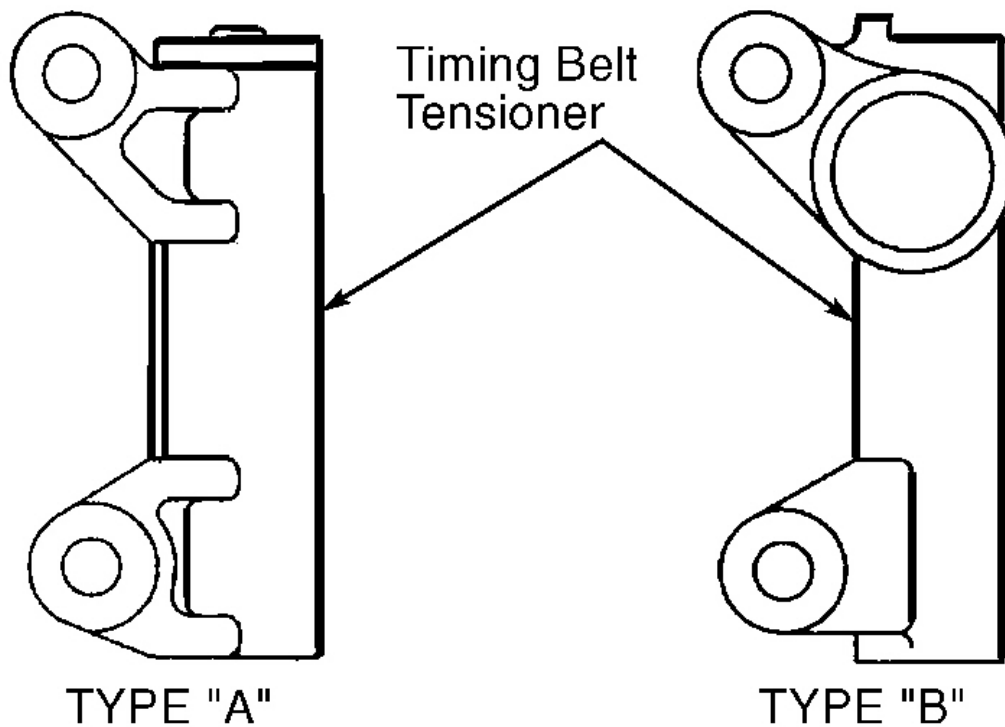
## TIMING BELT TENSIONER ROD PROTRUSION

Application	In. (mm)
Type "A"	
2001-02 Millenia	0.511-0.551 (13.0-14.0)
Except 2001-02 Millenia	0.473-0.511 (12.0-13.0)
Type "B"	0.563-0.594 (14.3-15.1)



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**Fig. 3: Measuring Timing Belt Tensioner Rod Protrusion**  
Courtesy of MAZDA MOTORS CORP.



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**Fig. 4: Identifying Timing Belt Tensioner Types**  
 Courtesy of MAZDA MOTORS CORP.

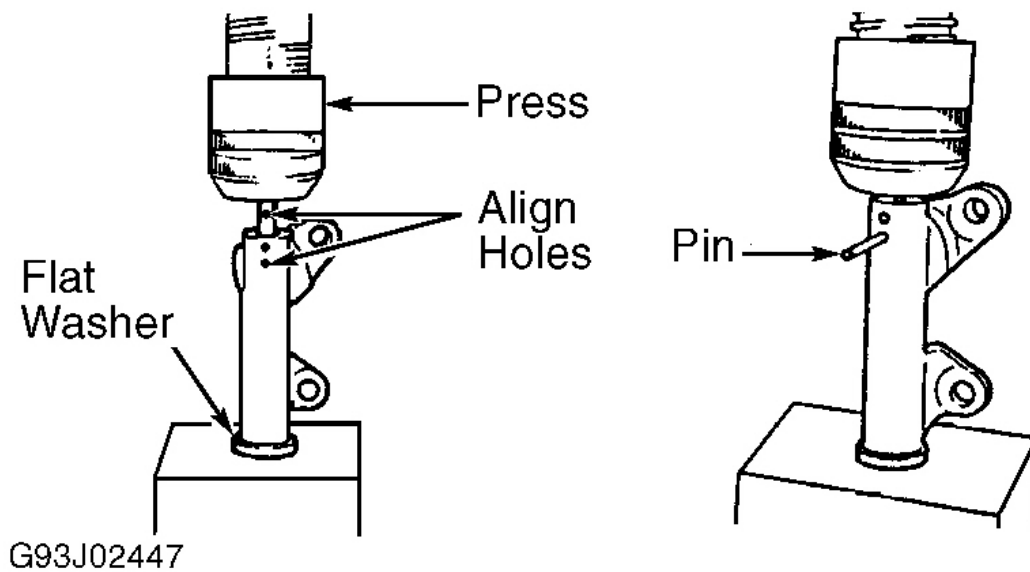
#### Installation

1. Place timing belt tensioner in a press using a flat washer to prevent damage to timing belt tensioner. See **Fig. 5** . Using no more than 2200 lbs. of pressure, SLOWLY compress tensioner rod until holes in rod and housing are aligned. Install 0.055" (1.4 mm) diameter pin through holes in housing and rod to hold rod in retracted position.
2. Install timing belt tensioner on cylinder block with the upper retaining bolt only; do not fully tighten upper bolt.

**CAUTION: If reusing timing belt, ensure timing belt is installed in original direction of rotation.**

3. Ensure crankshaft and camshaft timing marks align. See **Fig. 2** . Install timing belt on sprockets in order. See **Fig. 6** . Ensure tension exists on belt between crankshaft pulley and camshaft pulleys. See **Fig. 6** . While applying pressure on timing belt, install No. 1 idler pulley.

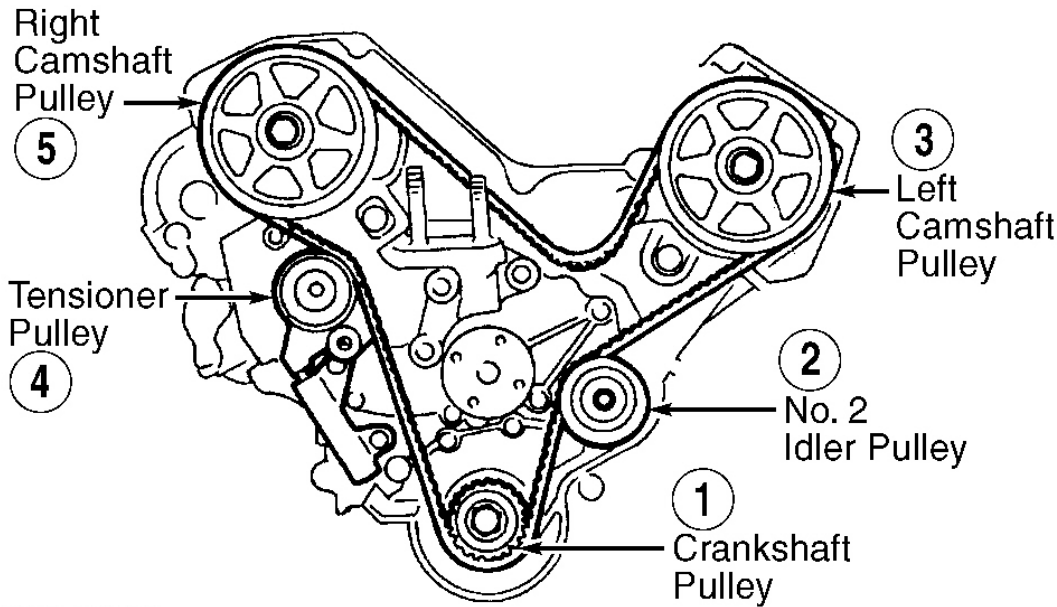
4. Push outward at bottom of timing belt tensioner, and install lower retaining bolt in timing belt tensioner. Tighten both timing belt tensioner retaining bolts to specification. See **TORQUE SPECIFICATIONS** . Remove pin from timing belt tensioner, allowing tension to be applied on timing belt.
5. Rotate crankshaft 2 full revolutions clockwise (as viewed from timing belt end of engine) from TDC to TDC. Ensure timing marks on camshaft sprockets and crankshaft sprockets are properly aligned. See **Fig. 2** . If timing marks are not aligned, remove and repeat entire timing belt installation procedure.
6. Install right (timing belt side) engine mount. Install timing belt covers using NEW gaskets. Tighten retaining bolts to specification. See **TORQUE SPECIFICATIONS** .
7. Install dipstick tube with new "O" ring. To install remaining components, reverse removal procedure. Tighten fasteners to specification. See **TORQUE SPECIFICATIONS** . Adjust drive belts to proper tension.
8. Check crankshaft position sensor air gap. Gap between center of sensor and outer edge of rotor tooth should be 0.020-0.059" (0.5-1.5 mm). If not, check for damaged components. Air gap is not adjustable.



**Fig. 5: Retracting Timing Belt Tensioner Rod**  
Courtesy of MAZDA MOTORS CORP.

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**Fig. 6: Installing Timing Belt**  
 Courtesy of MAZDA MOTORS CORP.

**TORQUE SPECIFICATIONS**

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Application	Ft. Lbs. (N.m)
Crankshaft Pulley Bolt	116-123 (157-166)
Drive Belt Idler Pulley Bracket Bolt	14-18 (19-23)
No. 1 & No. 2 Idler Pulley Bolt	28-38 (38-52)
Power Steering Pump Bracket Bolt	
Millenia	
1995-98	23-34 (31-46)
1999-02	(1)
MX-6 & 626	28-38 (38-52)
Power Steering Pump Pulley Nut	37-43 (50-58)
Right (Timing Belt Side) Engine Mount	
Nut (All Models)	55-75 (74-102)
Through-Bolt (626)	63-86 (86-116)
Tensioner Pulley Bolt	28-32 (38-44)
Timing Belt Tensioner Bolt	14-18 (19-25)
Water Pump Bolt	14-18 (19-25)


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**Wheel Lug Nut**

Millenia	66-94 (89-127)
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**INCH Lbs. (N.m)**

Crankshaft Position Sensor Bracket Bolt	69-95 (8-11)
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Timing Belt Cover Bolt	69-95 (8-11)
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Water Pump Pulley Bolt	69-95 (8-11)
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(1) Tighten bracket-to-steering pump bolt to 14-19 ft. lbs. (19-26 N.m). Tighten all other bolts to 23-34 ft. lbs. (31-46 N.m.).
