

1991 Mazda MX-5 Miata

MAZDA 1.6L & 1.8L 4-Cylinder - 1986-95

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MANUFACTURER'S SUGGESTED SCHEDULED MAINTENANCE

For 1992 and earlier model years, the manufacturer recommends the belt be replaced every 60,000 miles. For 1993-95 model years, the manufacturer recommends the belt be replaced at 60,000 mile intervals for vehicles sold outside of California. For vehicles sold in California, inspect timing belt at 60,000 and 90,000 miles, and replace timing belt at 105,000 miles.

REMOVAL & INSTALLATION

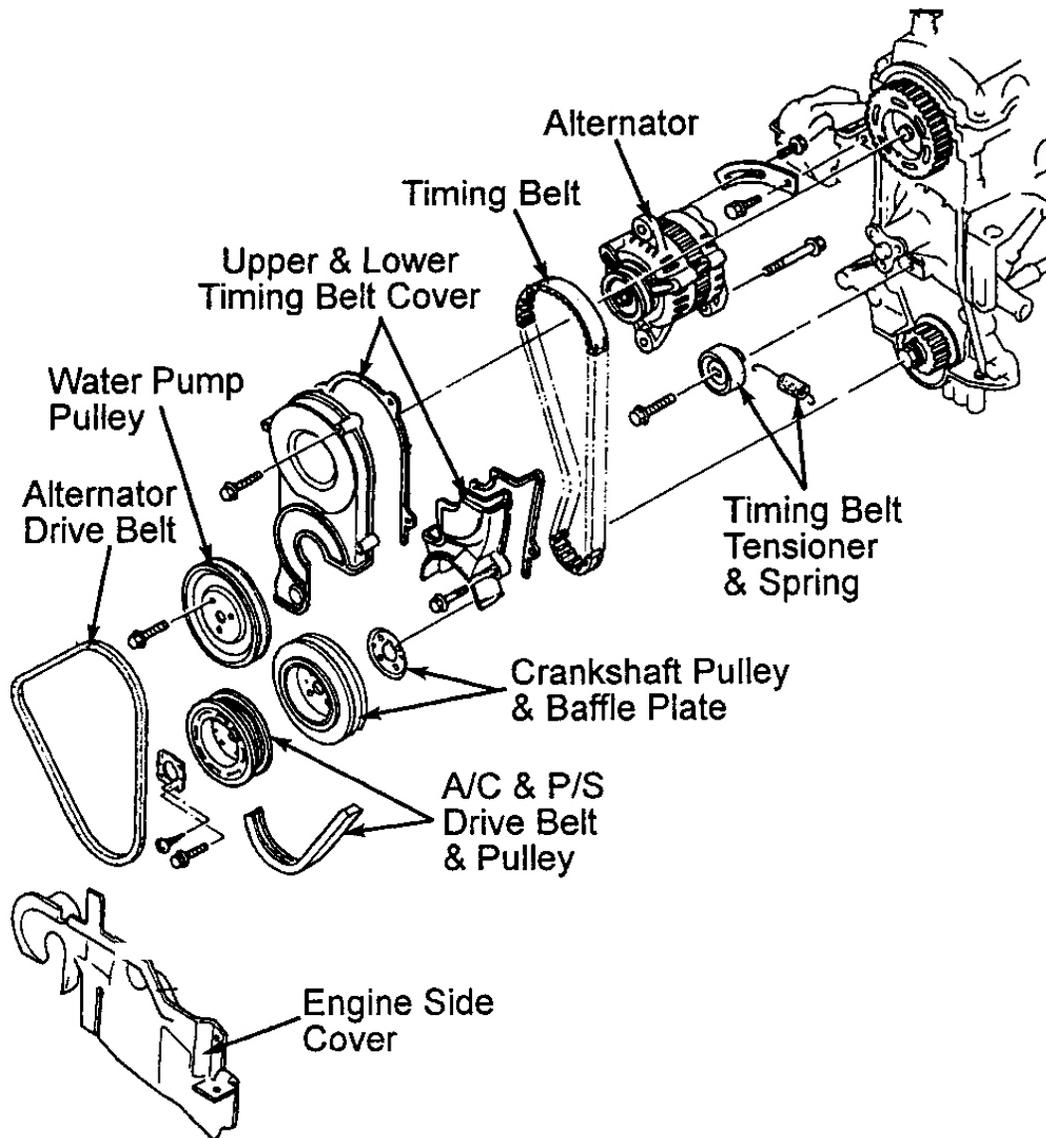
TIMING BELT

Removal (MX-3, Protege & 323)

1. Disconnect negative battery cable. Raise and support vehicle. Remove right front wheel. Remove right splash panels.
2. Remove drive belts and water pump pulley. See **Fig. 1**, **Fig. 2** or **Fig. 3** . Align crankshaft pulley timing mark with cylinder No. 1 at TDC of compression stroke. Hold crankshaft stationary, and remove crankshaft pulley bolts and pulley. Remove crankshaft pulley hub bolt and hub.
3. Remove timing belt covers. If timing belt is to be reused, mark timing belt rotation direction. Align timing marks on camshaft sprocket(s). See **Fig. 4** (SOHC) or **Fig. 5** (DOHC) . Loosen timing belt tensioner lock bolt. Temporarily secure tensioner away from belt with spring fully expanded. Remove timing belt.

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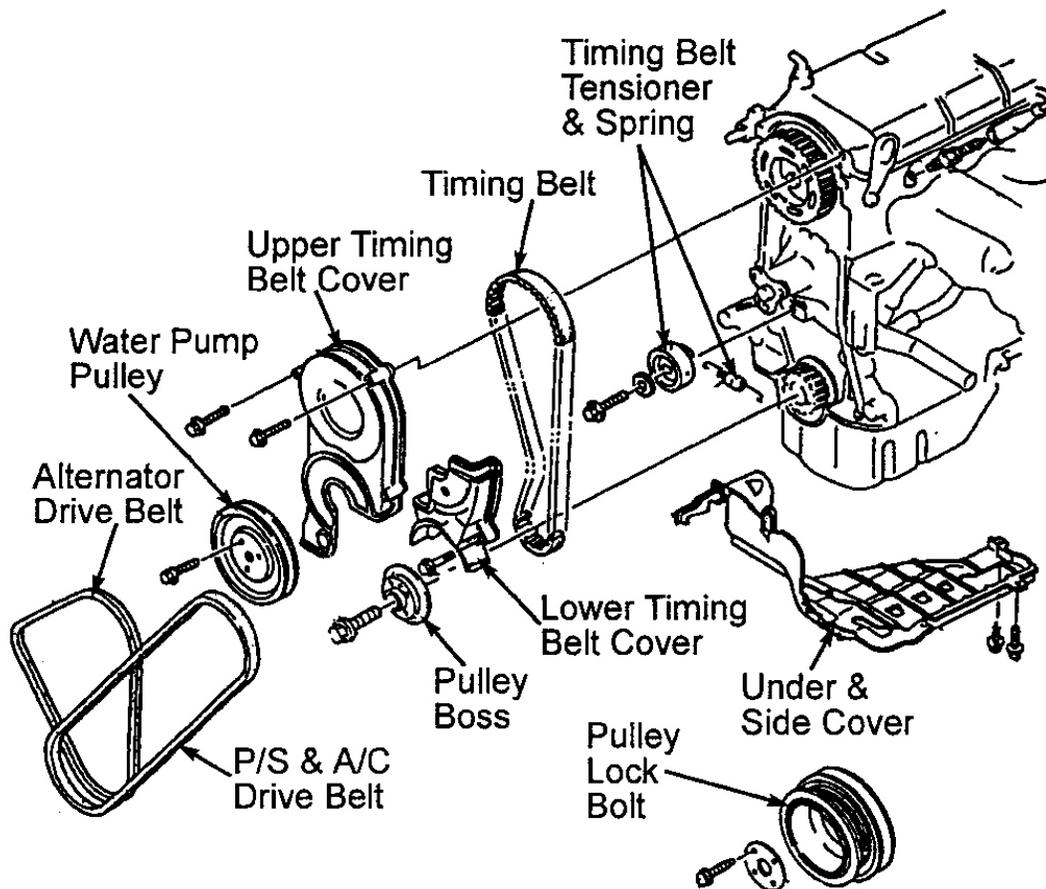


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Fig. 1: Exploded View Of Timing Belt & Components (1989 SOHC)
Courtesy of MAZDA MOTORS CORP.

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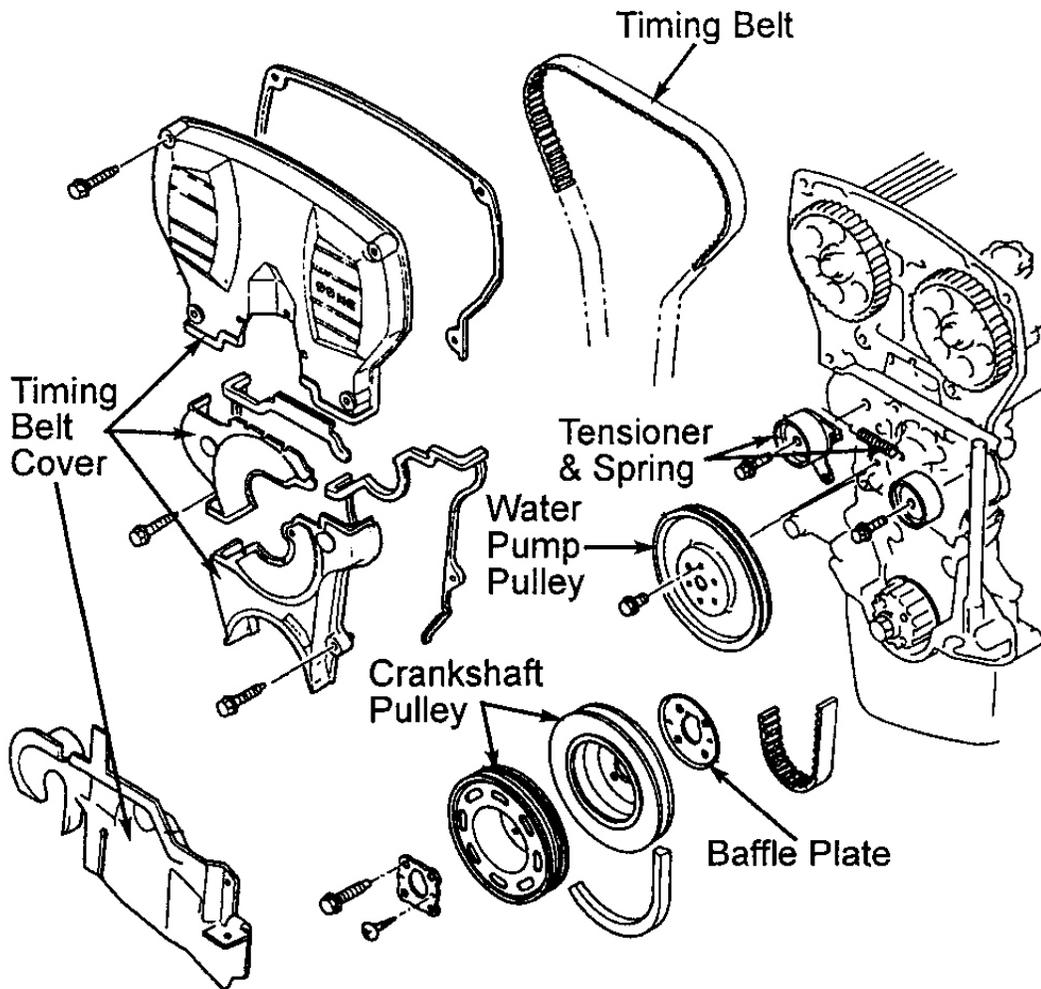


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Fig. 2: Exploded View Of Timing Belt & Components (1990 & Later SOHC)
Courtesy of MAZDA MOTORS CORP.

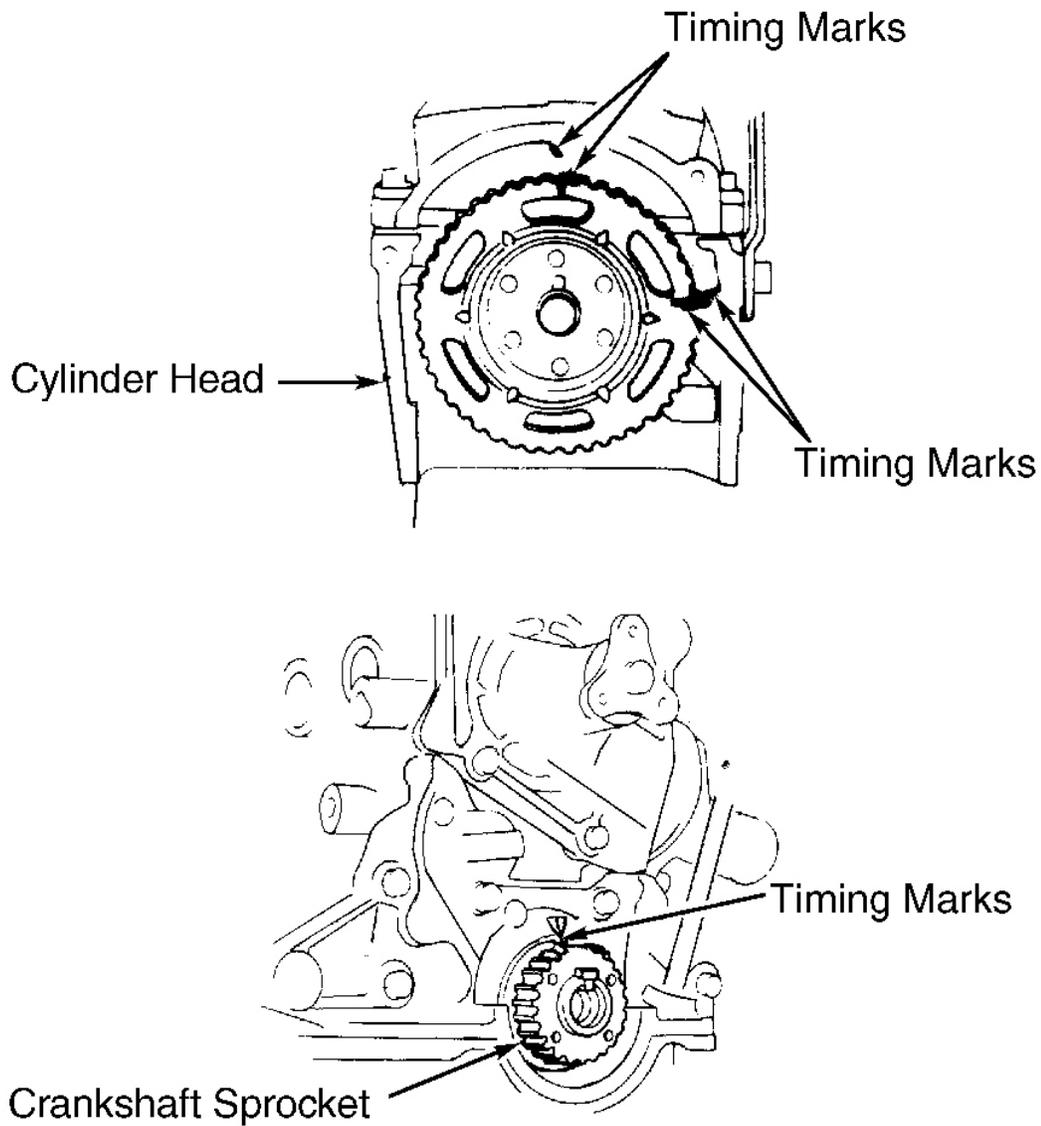
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Fig. 3: Exploded View Of Timing Belt & Components (DOHC Except MX-5 Miata)
Courtesy of MAZDA MOTORS CORP.



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Fig. 4: Aligning Camshaft Timing Marks (SOHC Engines)
Courtesy of MAZDA MOTORS CORP.

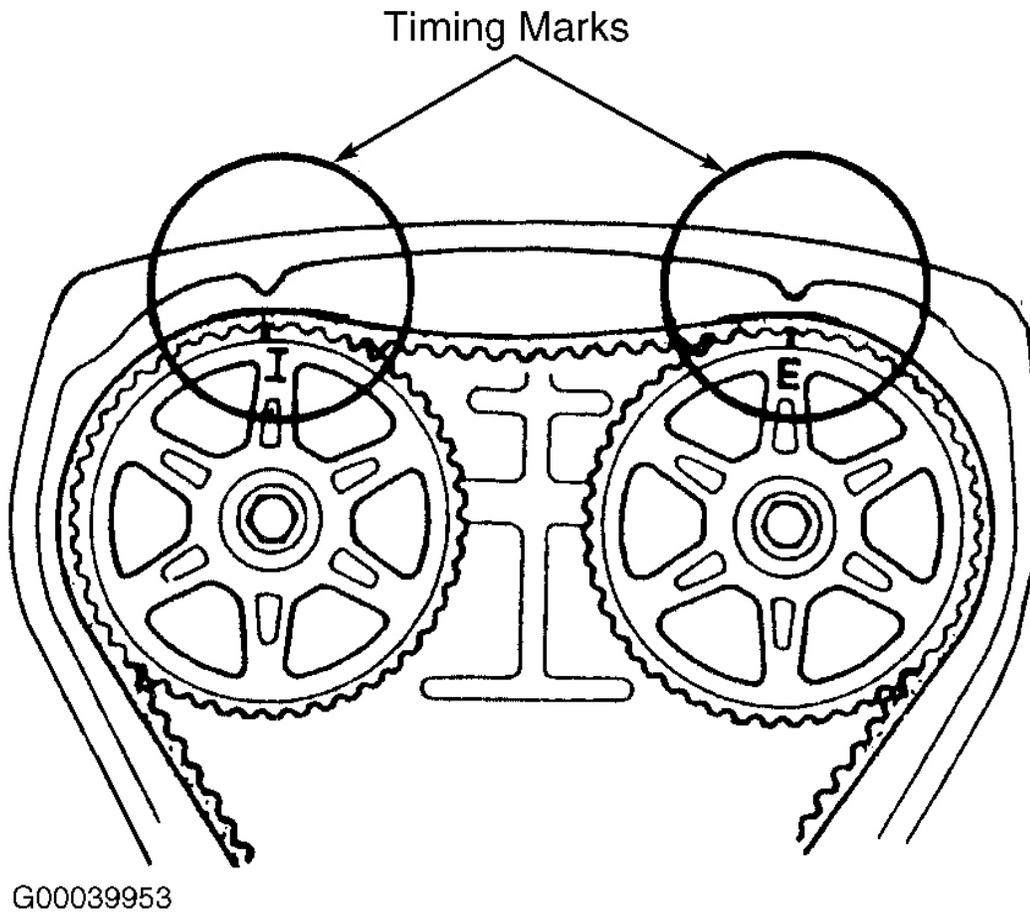


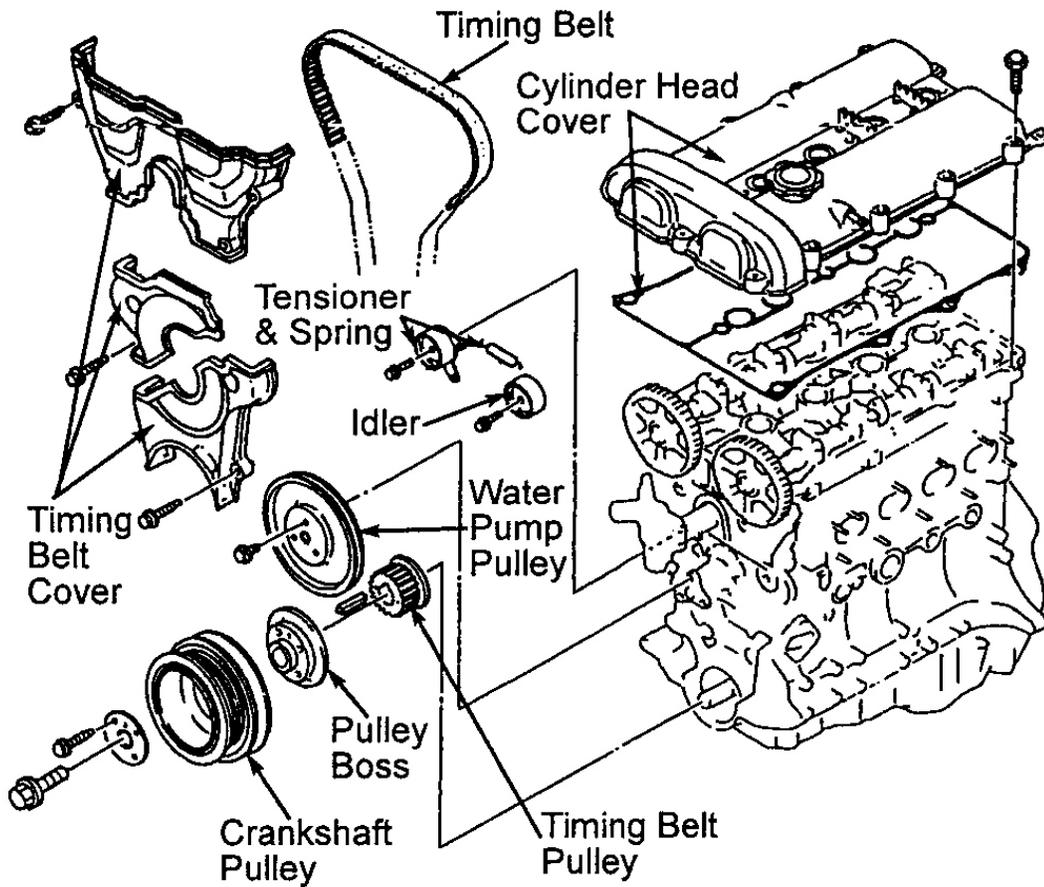
Fig. 5: Aligning Camshaft Timing Marks (DOHC 1.8L Engines)
Courtesy of MAZDA MOTORS CORP.

Removal (MX-5 Miata - DOHC)

1. Disconnect negative battery cable. Drain cooling system. Remove radiator hose and by-pass hoses from thermostat housing. Remove air cleaner intake duct assembly from throttle body to air cleaner filter housing. Remove splash shield.
2. Remove drive belt(s) and water pump pulley. See **Fig. 6**. Align crankshaft pulley timing mark with cylinder No. 1 at TDC of compression stroke. Hold crankshaft pulley stationary. Remove crankshaft pulley bolts. Remove pulley. Remove crankshaft pulley hub bolt and hub.
3. Remove cylinder head cover. Remove upper, center and lower timing belt cover. If timing belt is to be reused, mark timing belt rotation direction. Ensure timing marks on camshaft sprockets are aligned. See **Fig. 7**. Loosen timing belt tensioner lock bolt, and move tensioner away from belt with spring fully expanded. Remove timing belt.

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Fig. 6: Exploded View Of Timing Belt & Components (DOHC MX-5 Miata)
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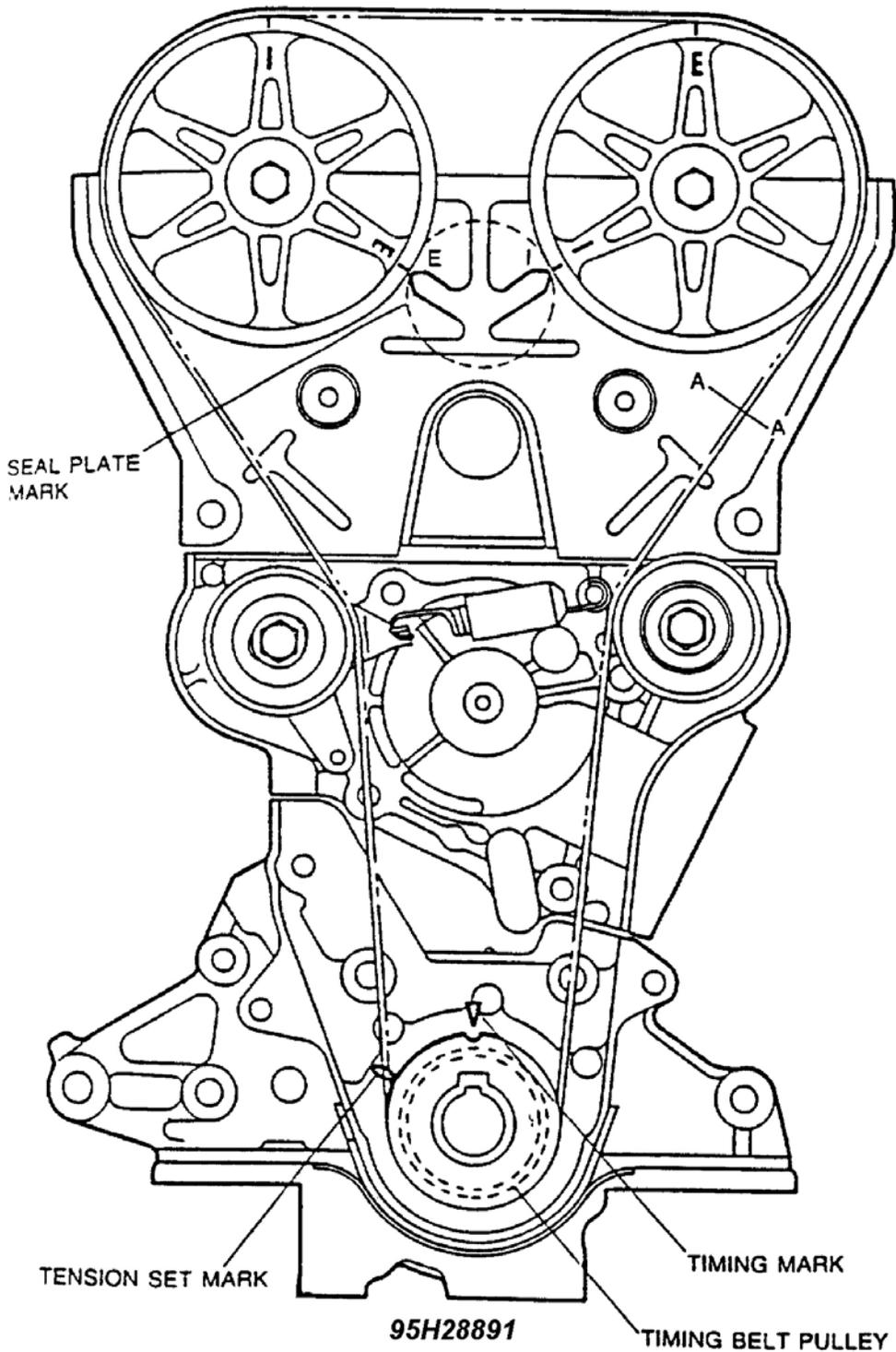


Fig. 7: Aligning Camshaft Timing Marks (DOHC MX-5 Miata)
Courtesy of MAZDA MOTORS CORP.

Inspection (All Models)

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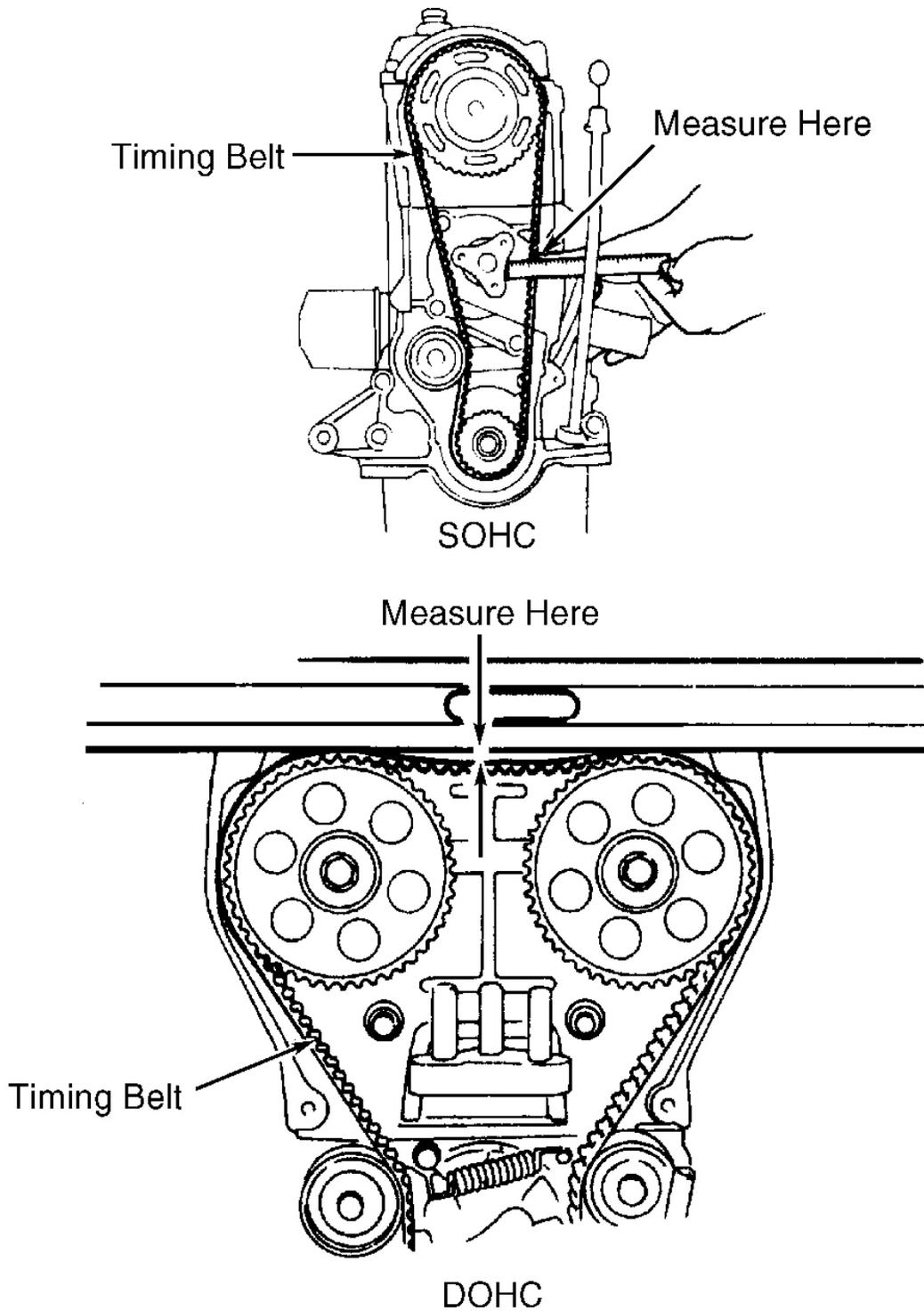
Check timing belt for cracks, peeling, abrasion or other damage. Check tensioner bearing for looseness or roughness of rotation. Inspect tensioner spring for stretching. Replace parts as necessary.

Installation (All Models)

1. Position notch on crankshaft sprocket to 12 o'clock position (aligned with mark on oil pump). Align timing marks on camshaft sprocket(s). For SOHC, see **Fig. 4**. For DOHC, see **Fig. 5** or **Fig. 7**. Ensure crankshaft timing mark is at TDC. Install belt around crankshaft sprocket, then working in a counterclockwise direction, route belt around camshaft sprocket(s).
2. Loosen timing belt tensioner lock bolt, and allow spring to apply tension on belt. Snug tensioner lock bolt. Rotate crankshaft 2 complete turns in direction of normal engine rotation. Ensure timing marks align. If timing marks are not aligned, remove belt, realign all timing marks, and repeat installation procedure.
3. On all engines, check timing belt deflection with 22 lbs. (10 kg) of pressure applied to belt. See **Fig. 8**. Ensure timing belt deflection is within specification. See **TIMING BELT DEFLECTION** table. Adjust drive belts to proper tension.

TIMING BELT DEFLECTION

Application	(1) Deflection - In. (mm)
1986-89	.47-.51 (11.9-13.0)
1990-95	
DOHC	.35-.45 (9.0-11.5)
SOHC	.43-.51 (11.0-13.0)
(1) Deflection measurement is with 22 lbs. (10 kg) of pressure applied to timing belt. See Fig. 8 .	



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Fig. 8: Measuring Timing Belt Deflection

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TORQUE SPECIFICATIONS**TORQUE SPECIFICATIONS**

Application	Ft. Lbs. (N.m)
A/C Compressor Bracket	
MX-3, Protege & 323	17-26 (23-35)
MX-5 Miata	11-16 (15-22)
Alternator Top Bolt	27-38 (37-52)
Camshaft Sprocket Bolt	36-45 (49-61)
Crankshaft/Timing Belt Sprocket Bolt	
1986-91	80-87 (109-118)
1992-95	116-123 (157-167)
Power Steering Pump-To-Bracket Bolt	
MX-3, Protege & 323	27-38 (37-52)
Timing Belt Tensioner Bolt	
DOHC	27-38 (37-52)
SOHC	14-19 (19-26)
INCH Lbs. (N.m)	
Camshaft/Rocker Cover Bolt	
DOHC & SOHC (Top)	43-78 (5-9)
SOHC (Timing Belt Cover-To-Camshaft Cover)	69-95 (8-11)
Crankshaft Pulley Bolts	109-152 (12-17)