

2002 Acura MDX

ACURA 3.2L & 3.5L V6 - MDX & TL

ACURA

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MANUFACTURER'S SUGGESTED SCHEDULED MAINTENANCE

Normal replacement interval is at 105,000 miles or 84 months. Replace at 60,000 miles if car is regularly driven in extreme temperatures (over 110 degrees F, or under -20 degrees F). On some TL models, service is due when the service light comes on.

REMOVAL & INSTALLATION

CAUTION: This application is an interference engine. Do not rotate camshaft or crankshaft when timing belt is removed, or engine damage may occur.

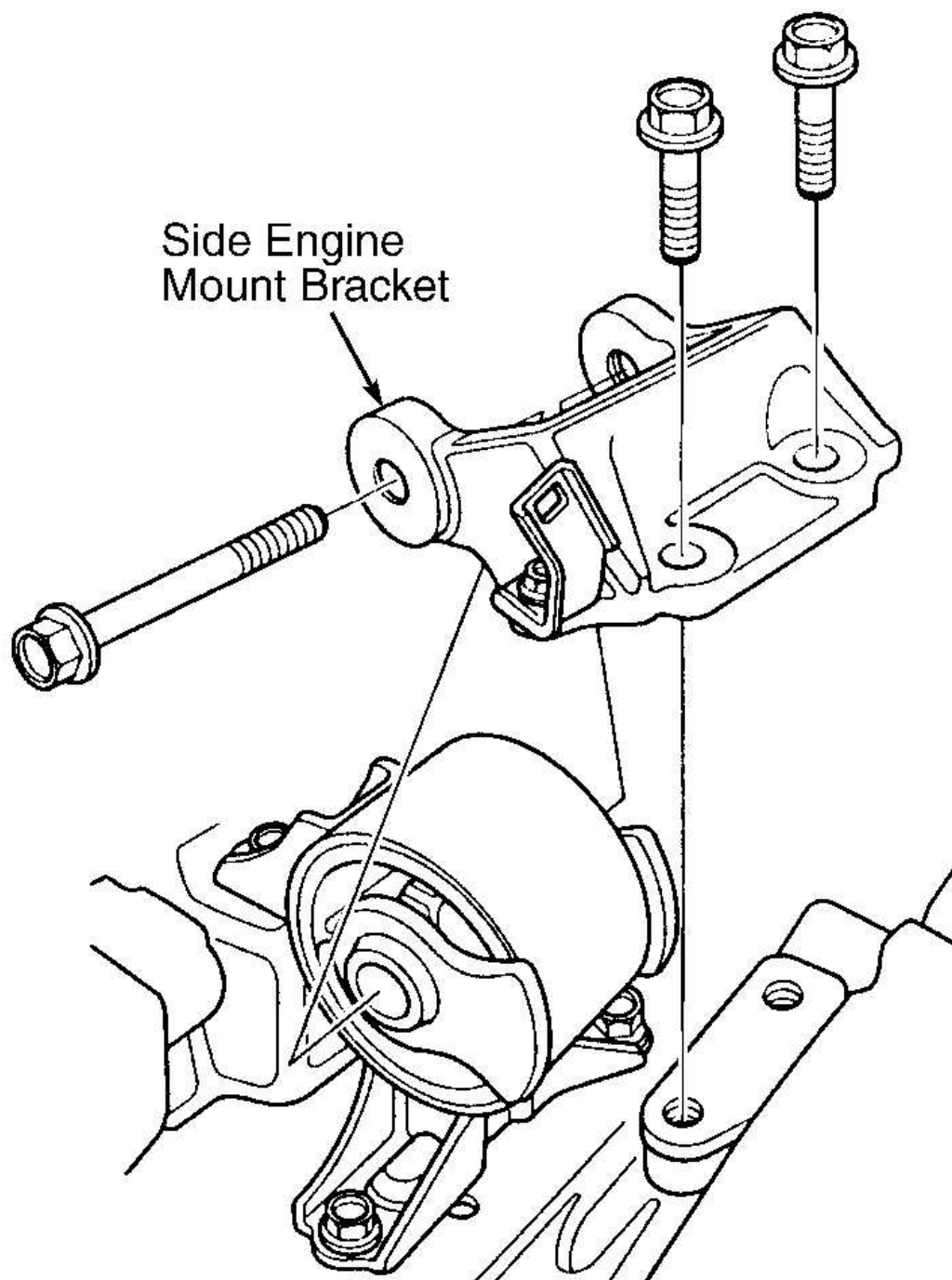
NOTE: Radio and navigation system (if equipped) contain an anti-theft protection circuit. Obtain anti-theft code numbers before disconnecting battery. Note radio preset frequencies.

TIMING BELT

NOTE: To inspect belt to determine if replacement is needed, disconnect negative battery cable. Remove ignition coil cover (if necessary) and front upper timing belt cover. Inspect timing belt for cracks or signs of oil or coolant leakage onto belt. Replace belt if necessary.

Removal (2001-02 MDX)

1. Set No. 1 piston to TDC by turning crankshaft so White mark aligns with pointer. Ensure marks on front camshaft pulley and front cover are aligned.
2. Raise vehicle and remove front wheels. Remove splash shield. Using lever tool, move auto-tensioner to relieve tension from generator belt. Remove generator belt.
3. Loosen power steering pump adjusting nut, lock nut and mounting bolt. Remove power steering pump belt. Support engine with jack and wood block under oil pan. Remove side engine mount bracket. See **Fig. 1**.
4. Remove dipstick and tube. Discard "O" ring. Using a heavy duty 19-mm socket and breaker bar, remove crankshaft pulley bolt. Remove upper timing belt covers and lower timing belt cover. See **Fig. 2**.
5. Using a battery hold-down bolt, grind threaded end to a slight bevel. Hand tighten bolt into timing belt adjuster to hold position. See **Fig. 3**.
6. Remove engine mount bracket on end of front cylinder head. Loosen idler pulley bolt about 5-6 turns, then remove timing belt.



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Fig. 1: Removing Side Engine Mount Bracket (MDX)
Courtesy of AMERICAN HONDA MOTOR CO., INC.

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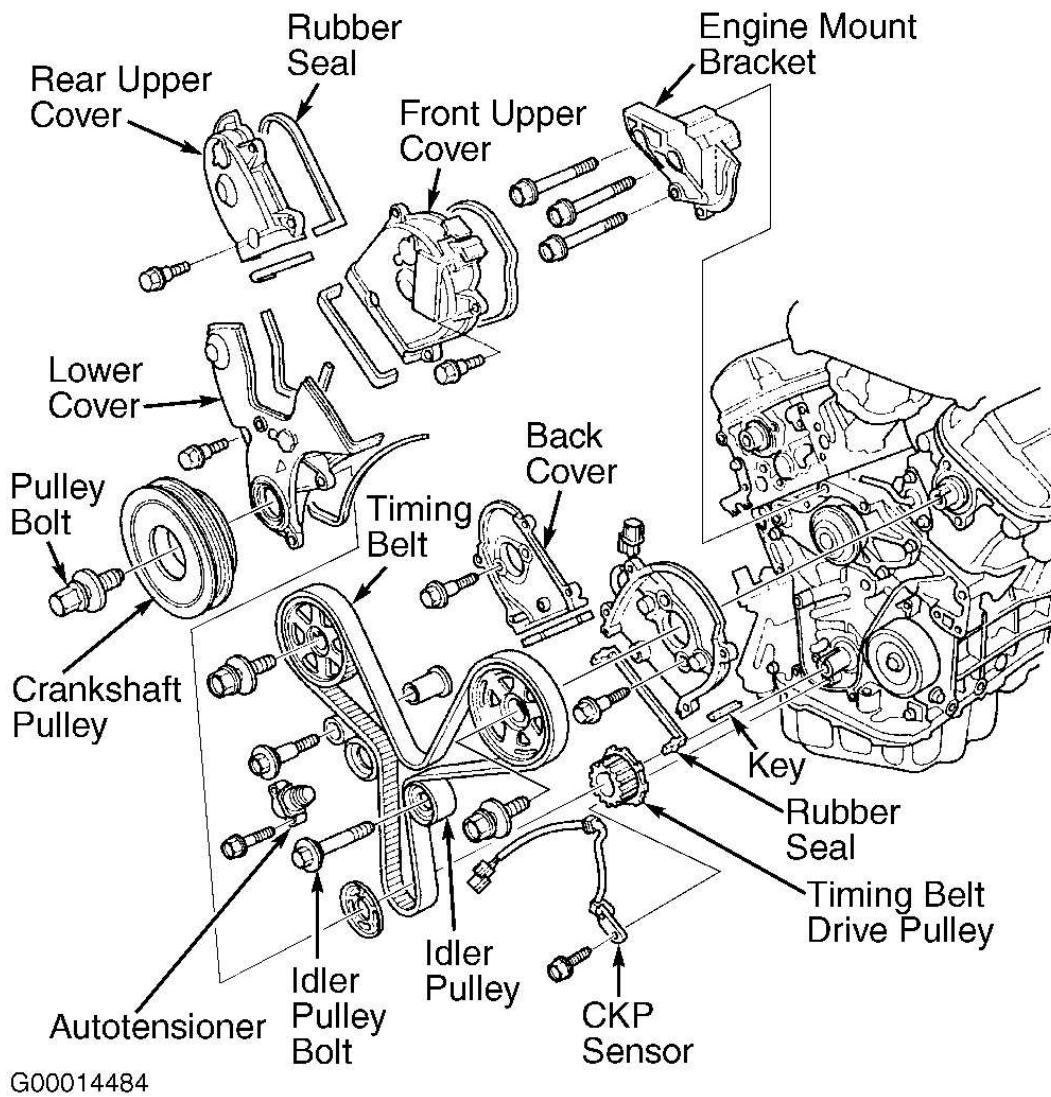
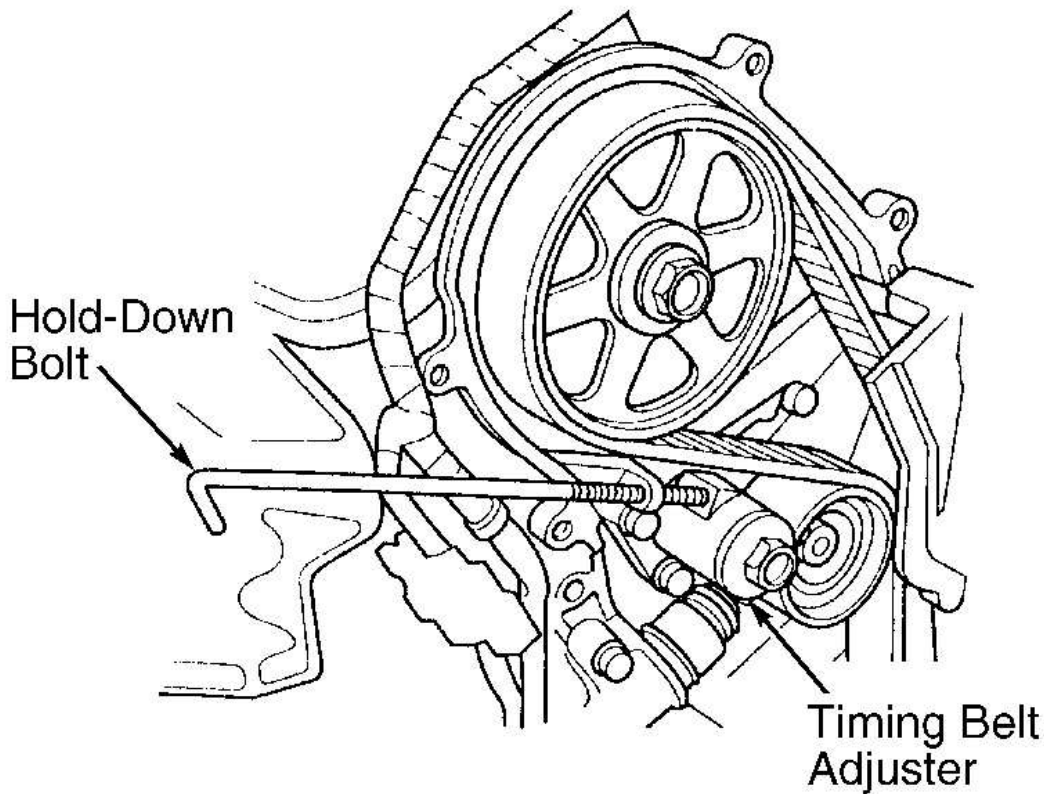


Fig. 2: Exploded View Of Timing Belt & Components
Courtesy of AMERICAN HONDA MOTOR CO., INC.

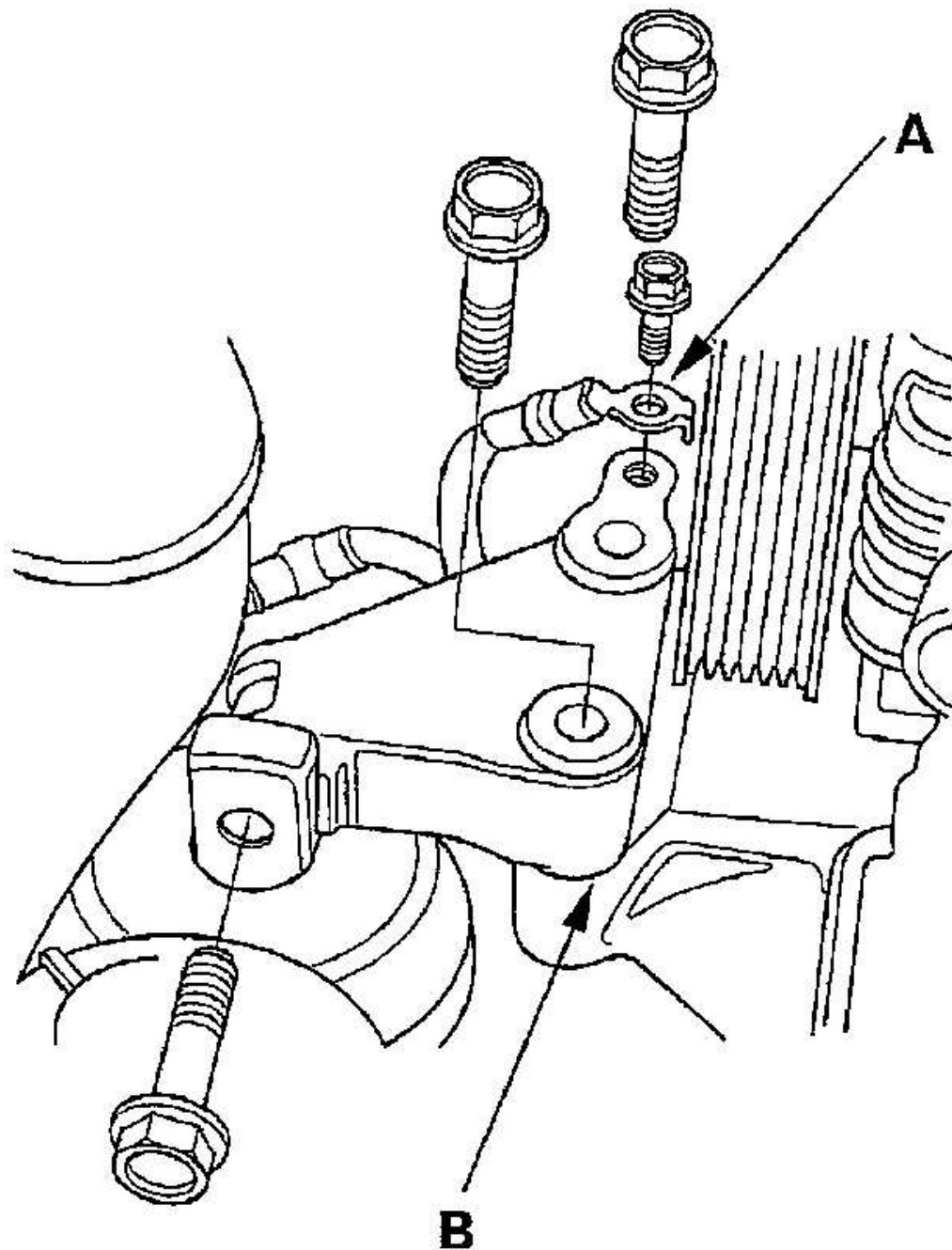


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Fig. 3: Installing Hold-Down Bolt To Hold Timing Belt Adjuster In Position
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

Removal (2003-05 MDX & TL)

1. Set No. 1 piston to TDC by turning crankshaft so White mark aligns with pointer. Ensure marks on front camshaft pulley and front cover are aligned.
2. Raise vehicle and remove right front wheel. Remove splash shield. Using lever tool, move auto-tensioner to relieve tension from generator belt. Remove generator belt.
3. Support engine with jack and wood block under oil pan. Remove side engine mount bracket. See **Fig. 1** or **Fig. 4**.
4. Using a heavy duty 19-mm socket and breaker bar, remove crankshaft pulley bolt. Remove upper timing belt covers and lower timing belt cover. See **Fig. 5**.
5. Using a battery hold-down bolt, grind threaded end to a slight bevel. Hand tighten bolt as shown to hold timing belt adjuster in position. See **Fig. 3**.
6. Remove timing belt guide plate from front of crankshaft sprocket. Remove engine mount bracket on end of front cylinder head. Remove idler pulley bolt, and idler pulley. Remove timing belt.



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Fig. 4: Removing Side Engine Mount Bracket (TL)

Courtesy of AMERICAN HONDA MOTOR CO., INC.

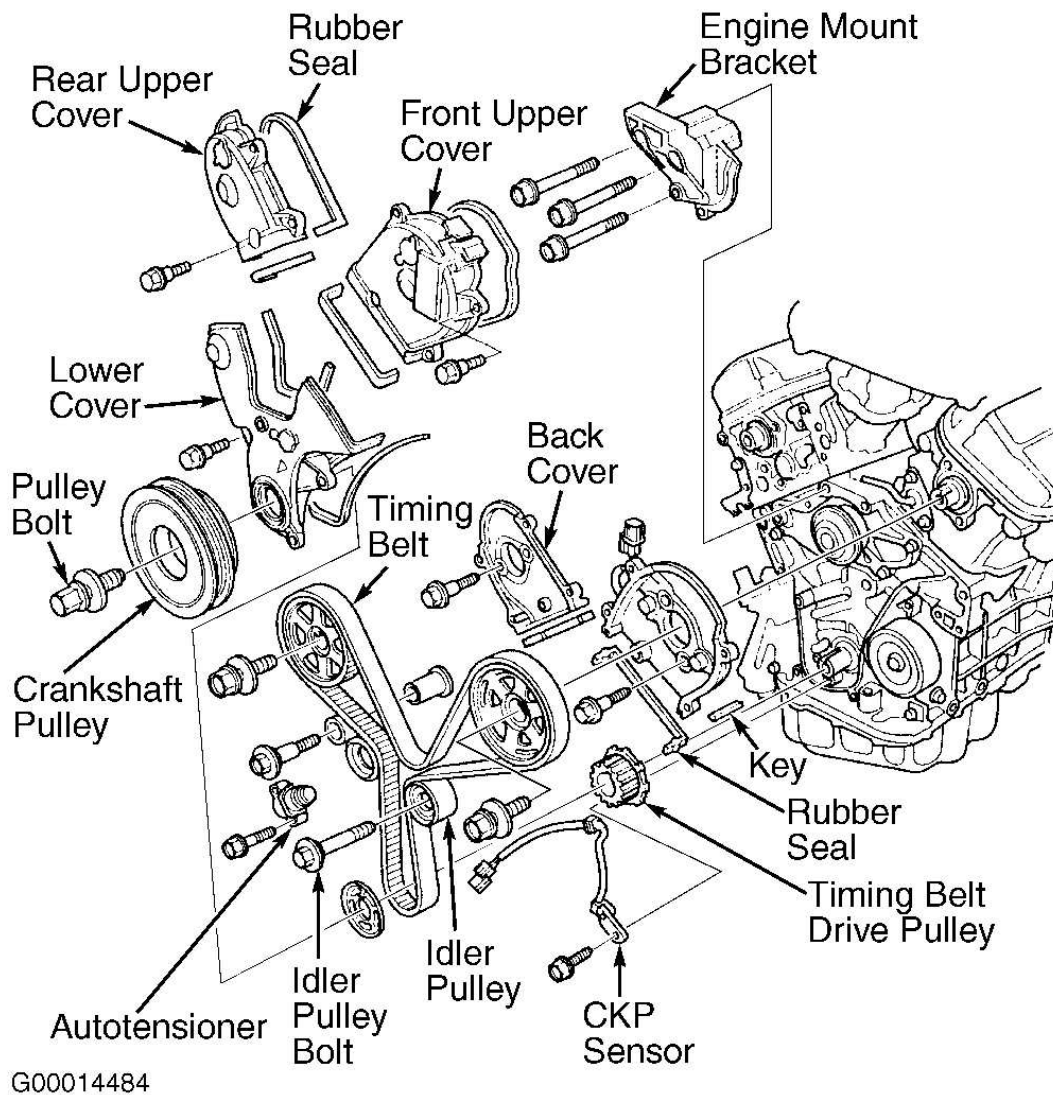


Fig. 5: Exploded View Of Timing Belt & Components
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

Inspection

Check belt teeth for cracks, damage and oil contamination. Inspect all sprockets for damage. Check tensioner pulley and idler pulley for grease leakage and roughness in rotation. Check sprockets and pulleys for wear, cracks or damage. Replace components if necessary.

Installation (New Belt)

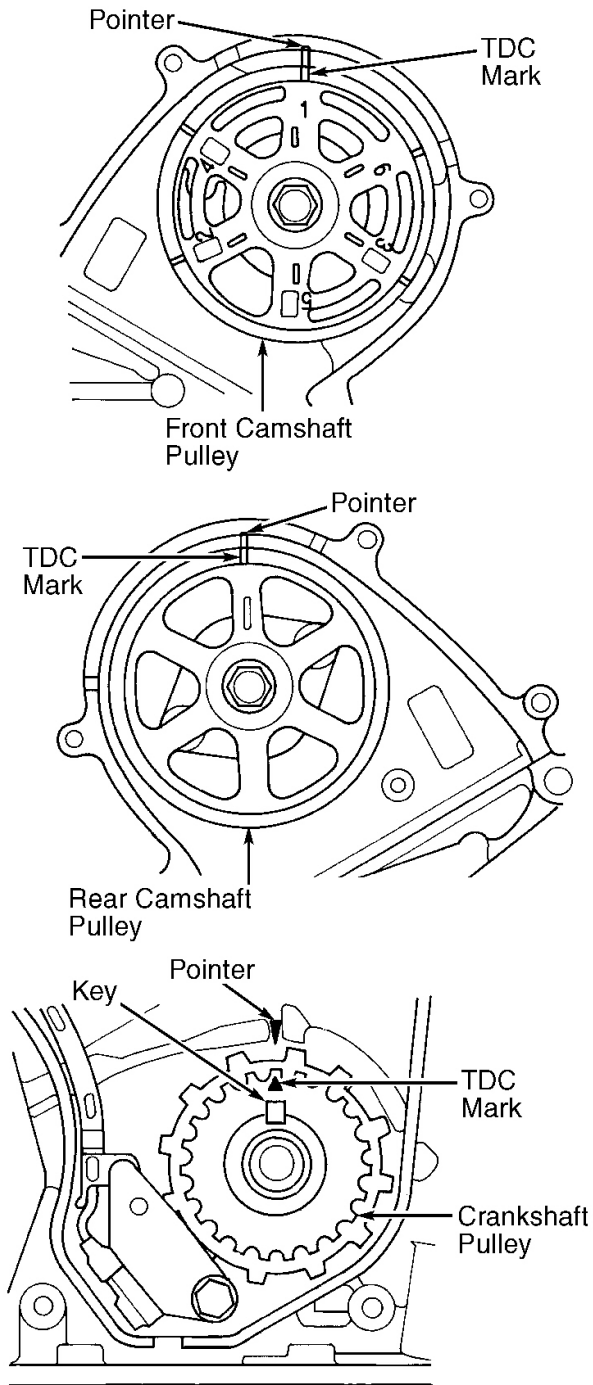
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1. Clean timing belt pulleys, and the upper and lower covers. Ensure timing belt pulley is still set to TDC position. See **Fig. 6** . Clean camshaft pulleys. Set pulleys to TDC position by aligning TDC marks on camshaft pulleys with pointers on back covers. Remove battery hold-down bolt from back cover.
2. Remove auto-tensioner. Ensure maintenance bolt is always pointing upward. Ensure no oil leaks or spills from auto-tensioner during handling.

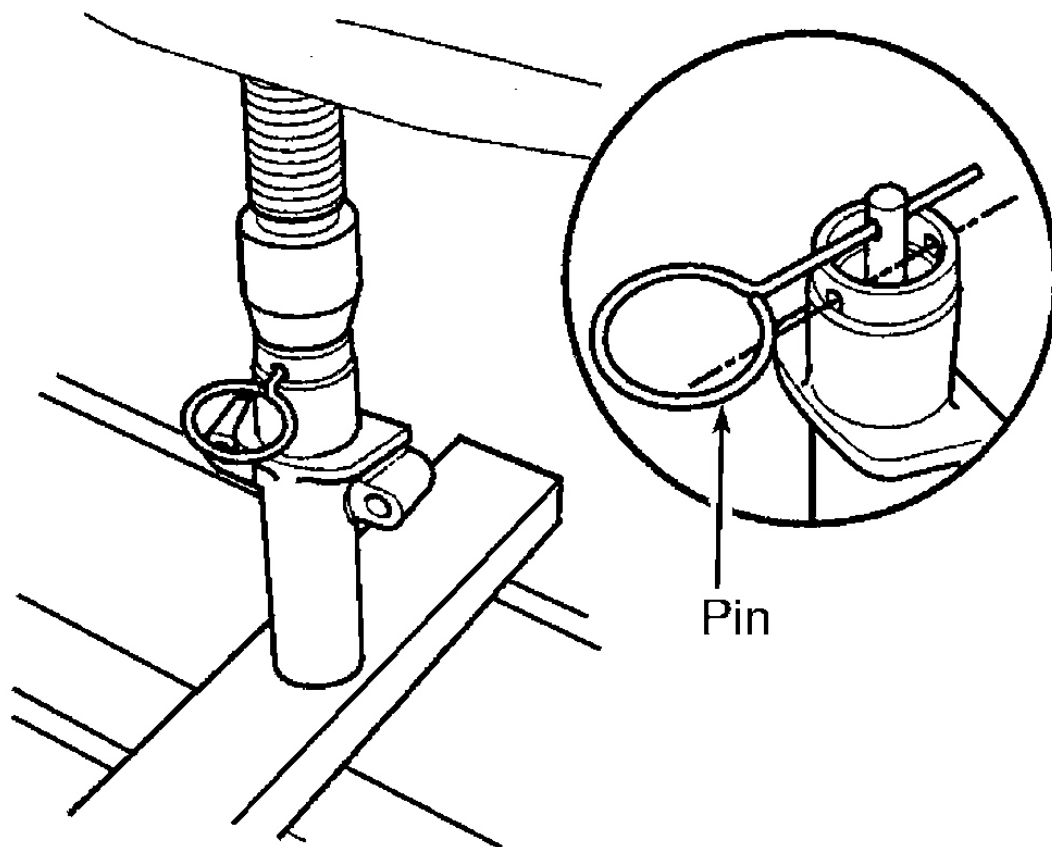
CAUTION: DO NOT exceed 2200 lbs. of pressure when compressing auto-tensioner.

3. Align holes on rod and auto-tensioner housing. Mount auto-tensioner in press, and slowly compress until a holding pin can be placed through housing and rod. See **Fig. 7** .
4. Install auto-tensioner, making sure the pin stays in place. Using battery hold-down bolt, hand tighten bolt as shown to hold timing belt adjuster in position. See **Fig. 3** . On 2003-05 models, apply liquid thread lock to idler pulley bolt, and loosely install idler pulley. On all models, install timing belt, working in counterclockwise direction, until belt is around all pulleys in the following order: crankshaft sprocket, idler pulley, front camshaft pulley, water pump pulley, rear camshaft pulley and tensioner adjusting pulley. See **Fig. 8** .
5. Tighten idler pulley bolt to specification. See **TORQUE SPECIFICATIONS** . Pull out set pin of auto-tensioner. Remove battery hold-down bolt from back cover. Install engine mount bracket. If applicable, install timing belt guide plate with concave side facing outward. Install upper and lower timing belt covers.
6. Clean crankshaft pulley and bolt. Lubricate pulley bolt and washer. Install crankshaft pulley, and tighten bolt to specification while holding pulley. See **TORQUE SPECIFICATIONS** . Rotate crankshaft pulley about 5-6 turns clockwise so timing belt properly sets on all pulleys.
7. Turn crankshaft pulley to align TDC mark. Check TDC mark alignment of camshaft pulleys. If camshaft pulley marks are at TDC, go to next step. If camshaft pulley marks are not at TDC, repeat installation procedure.
8. On 2001-02 models, install dipstick and tube with NEW "O" ring. Install and adjust tension of power steering belt. On all models, install generator belt. Install side engine mount bracket, and tighten bolts to specification (tighten vertical mounting bolts first, then horizontal mounting bolt). See **TORQUE SPECIFICATIONS** . To complete installation, reverse removal procedure.
9. Reconnect negative battery cable. Reset radio and navigation system (if equipped) anti-theft code. Reset preset radio frequencies.
10. On 2003 and newer models, perform Powertrain Control Module (PCM) reset procedure and Crankshaft Position (CKP) pattern learn procedure. See **RESET PROCEDURES** .



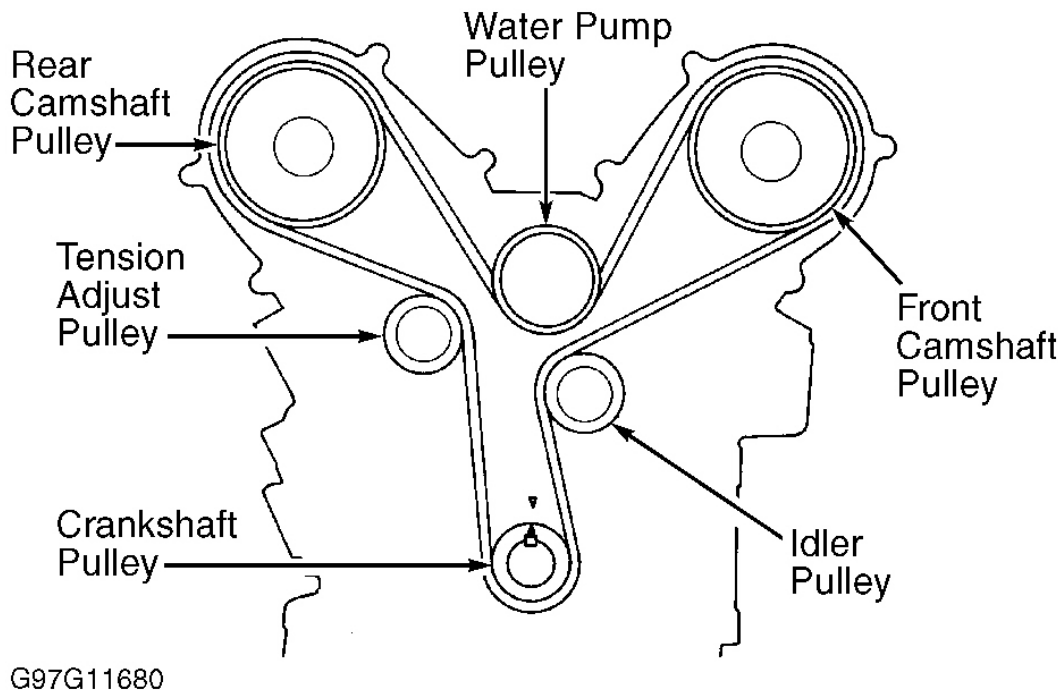
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Fig. 6: Aligning Crankshaft & Camshaft Timing Marks
Courtesy of AMERICAN HONDA MOTOR CO., INC.



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Fig. 7: Compressing Auto-Tensioner
Courtesy of AMERICAN HONDA MOTOR CO., INC.

**Fig. 8: Installing Timing Belt**

Courtesy of AMERICAN HONDA MOTOR CO., INC.

Installation (Used Belt)

1. Clean timing belt pulleys, and the upper and lower covers. Ensure timing belt pulley is still set to TDC position. See **Fig. 6** . Clean camshaft pulleys. Set pulleys to TDC position by aligning TDC marks on camshaft pulleys with pointers on back covers.
2. On 2003-05 models, apply liquid thread lock to idler pulley bolt, and loosely install idler pulley. If auto-tensioner has extended and timing belt cannot be installed, perform new belt installation procedure. See **INSTALLATION (NEW BELT)** . On all other models, if auto-tensioner has extended and timing belt cannot be installed, remove and compress auto-tensioner. Install auto-tensioner.
3. Install timing belt, working in counterclockwise direction, until belt is around all pulleys in the following order: crankshaft sprocket, idler pulley, front camshaft pulley, water pump pulley, rear camshaft pulley and tensioner adjusting pulley. See **Fig. 8** .
4. Tighten idler pulley bolt to specification. See **TORQUE SPECIFICATIONS** . Remove battery hold-down bolt from back cover. Install engine mount bracket. If applicable, install timing belt guide plate with concave side facing outward. Install upper and lower timing belt covers.
5. Clean crankshaft pulley and bolt. Lubricate pulley bolt and washer. Install crankshaft pulley, and tighten bolt to specification while holding pulley. See **TORQUE SPECIFICATIONS** . Rotate crankshaft pulley about 5-6 turns clockwise so timing belt properly sets on all pulleys.
6. Turn crankshaft pulley to align TDC mark. Check TDC mark alignment of camshaft pulleys. If camshaft

pulley marks are at TDC, go to next step. If camshaft pulley marks are not at TDC, repeat installation procedure.

7. On 2001-02 models, install dipstick and tube with NEW "O" ring. Install and adjust tension of power steering belt. On all models, install generator belt. Install side engine mount bracket, and tighten bolts to specification (tighten vertical mounting bolts first, then horizontal mounting bolt). See **TORQUE SPECIFICATIONS** . To complete installation, reverse removal procedure.
8. Reconnect negative battery cable. Reset radio and navigation system anti-theft code. Reset preset radio frequencies.
9. On 2003 and newer models, perform Powertrain Control Module (PCM) reset procedure and Crankshaft Position (CKP) pattern learn procedure. See **RESET PROCEDURES** .

RESET PROCEDURES

POWERTRAIN CONTROL MODULE (PCM) RESET PROCEDURE/CLEARING DIAGNOSTIC TROUBLE CODES

To clear codes using the Honda PGM Tester or the HDS, use the "CLEAR COMMAND". The PCM stores data and DTCs to correct the system even when there is no electrical power (such as the No. 10 BACK UP fuse removed or battery negative cable disconnected).

Honda PGM Tester and HDS has 3 kinds of clear commands:

- **DTC Clear** - This command erases all stored DTC codes and Freeze Data.
- **PCM Clear** - This command erases all stored DTC codes, Freeze Data and all specific data to correct the system except CKP pattern.
- **CKP Pattern Clear** - This command erases only CKP pattern data. This command is for the repair of a misfire or CKP sensor. If CKP pattern data is cleared from PCM, you must do the CKP pattern relearn procedure by test drive. See **CKP PATTERN LEARN PROCEDURE** .

CKP PATTERN LEARN PROCEDURE

NOTE: **Enable criteria: Engine coolant temperature must be 176°F (80°C) or higher.**

1. Having cleared the CKP pattern from PCM, leave Honda PGM Tester or the HDS connected to Data Link Connector (DLC) and turn ignition off. Turn ignition on. Wait for 30 seconds.
2. Test drive the vehicle on a level road. Decelerate (with throttle fully closed) from engine speed of 2500 RPM to 1000 RPM with A/T in "2" position.
3. Stop vehicle. DO NOT turn ignition off. Select the ALL DATA list in DATA LIST menu using Honda PGM Tester or HDS.
4. Check status of PULSER F/B LEARN. If it is set to NOT COMPLETED, enable criteria was probably not met. Repeat procedure from beginning. If it is set COMPLETED, go to next step.
5. Test drive the vehicle on a level road. Decelerate (with throttle fully closed) from engine speed of 5000 RPM to 3000 RPM with A/T in "2" position.
6. Stop vehicle. DO NOT turn ignition off. Select the ALL DATA list in DATA LIST menu using Honda

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PGM Tester or HDS.

7. Check status of PULSER F/B LEARN (HIGH RPM). If it is set NOT COMPLETED, enable criteria was probably not met. Repeat procedure from previous step. If it is set COMPLETED, go to next step.
8. Turn ignition off. Turn ignition on, then wait for 30 seconds. The procedure is now complete.

TORQUE SPECIFICATIONS**TORQUE SPECIFICATIONS**

Application	Ft. Lbs. (N.m)
Camshaft Sprocket Center Bolt	67 (90)
Crankshaft Pulley Bolt ⁽¹⁾	181 (245)
Engine Mount Bracket	
6 x 1.0 mm Bolt	8.7 (12)
10 x 1.25 mm Bolt	33 (44)
Engine Side Mount Bracket ⁽²⁾	
6 x 1.0 mm Bolt	8.7 (12)
10 x 1.25 mm Bolt	33 (44)
12 x 1.25 mm Bolt	40 (54)
Idler Pulley Bolt	33 (44)
Power Steering Pump Lock Nut	17 (24)
Power Steering Pump Mount Bolt	17 (24)
	INCH Lbs. (N.m)
Auto-Tensioner Maintenance Bolt	71 (8)
Auto-Tensioner Mount Bolts	106 (12)
Dipstick & Tube	106 (12)
Lower Engine Splash Shield Bolts	106 (12)
Timing Belt Cover Bolts	106 (12)
Water Pump Bolts	106 (12)
(1) DO NOT use an impact wrench. Make sure bolt is clean, and apply lubricant to pulley bolt and washer.	
(2) Tighten vertical mounting bolts first, then tighten horizontal mounting bolt.	