

SATURN

3.5L V6

MANUFACTURER'S SUGGESTED SCHEDULED MAINTENANCE

The manufacturer recommends the belt be replaced at 50,000 mile (severe service) or 100,000 mile (normal service) intervals.

REMOVAL & INSTALLATION

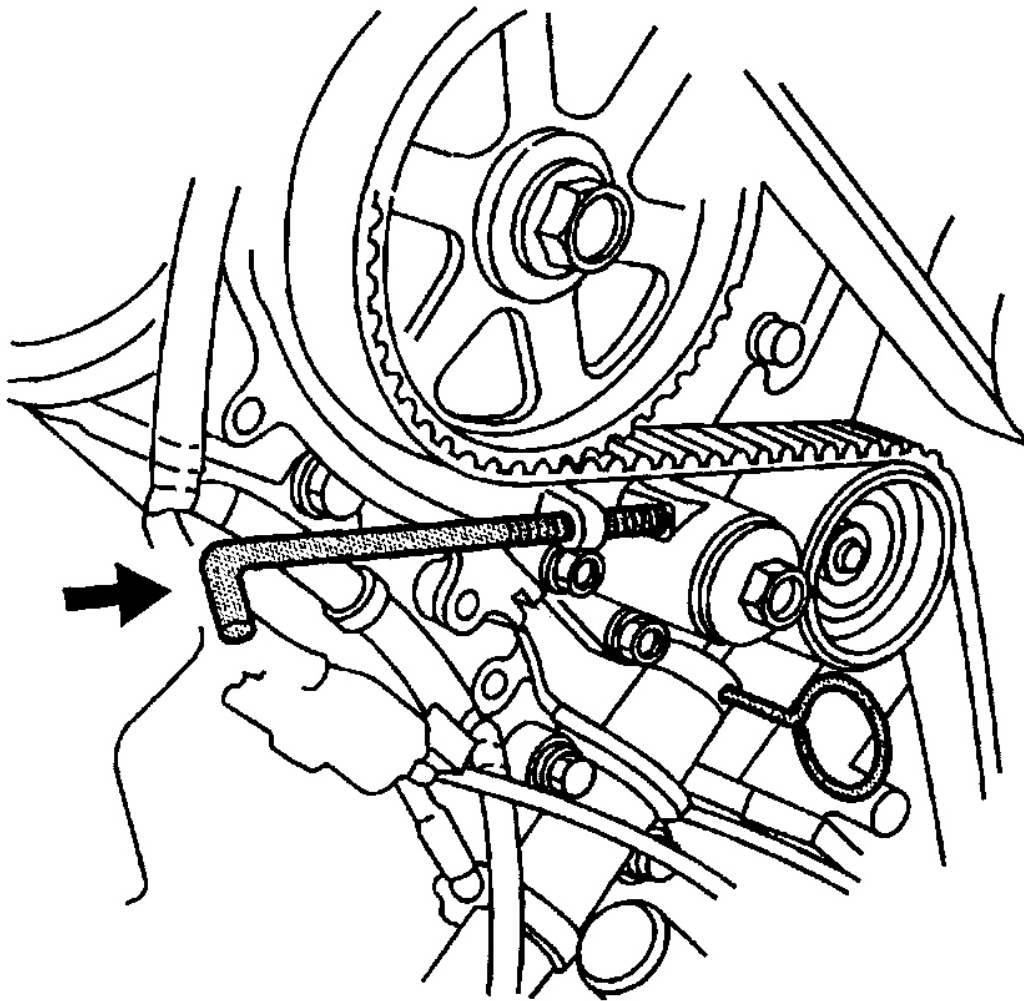
CAUTION: This application is an interference engine. Do not rotate camshaft or crankshaft when timing belt is removed, or engine damage may occur.

TIMING BELT

Removal

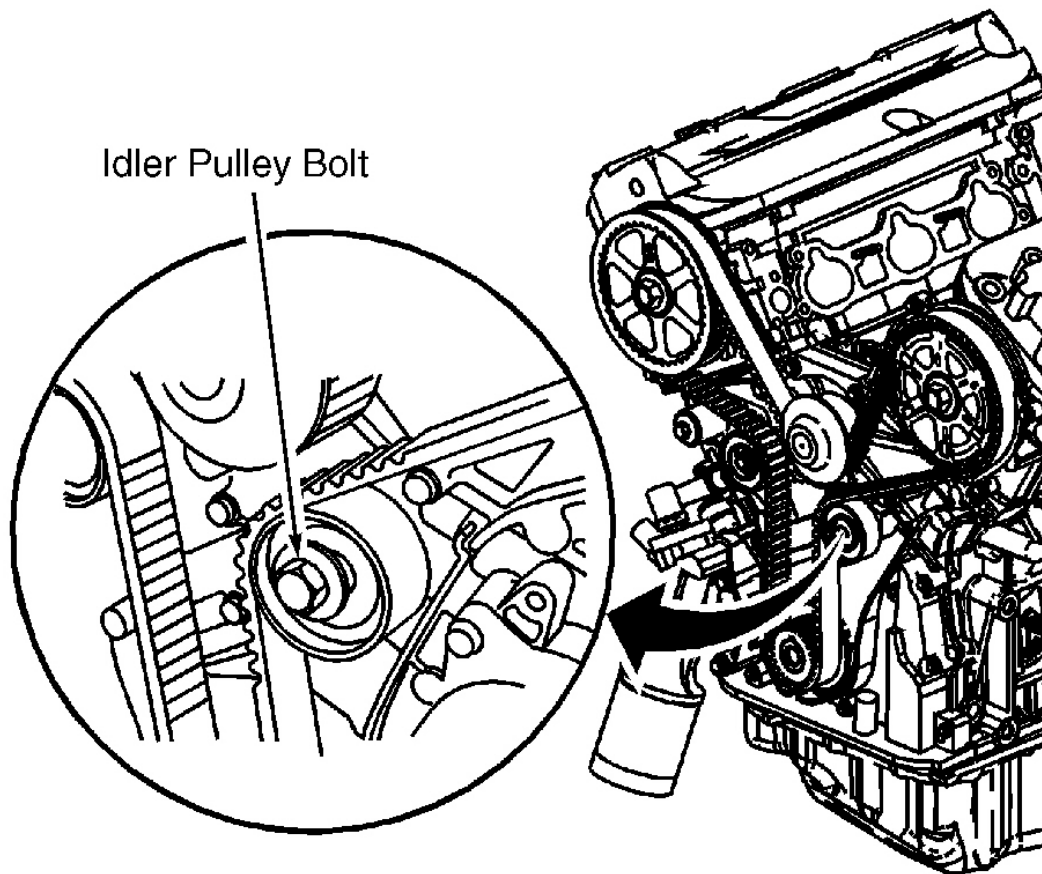
CAUTION: The Powertrain Control Module (PCM) has to perform the crankshaft position learn procedure when timing belt is removed. See RESET PROCEDURES .

1. Remove the air cleaner assembly. Remove the engine drive belt. Remove the right splash shield. Using Camshaft Sprocket/Balancer Holder (EN-46337), remove the engine balancer.
2. Remove the timing belt cover bolts. Remove the timing belt cover.
3. Using Timing Belt Tensioner Pulley Retaining Bolt (EN-46331), secure the tensioner pulley. See Fig. 1 . Loosen the idler pulley bolt about 5 or 6 turns. See Fig. 2 .
4. Remove timing belt from the pulleys.



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Fig. 1: Installing Timing Belt Tensioner Pulley Retainer Bolt
Courtesy of GENERAL MOTORS CORP.



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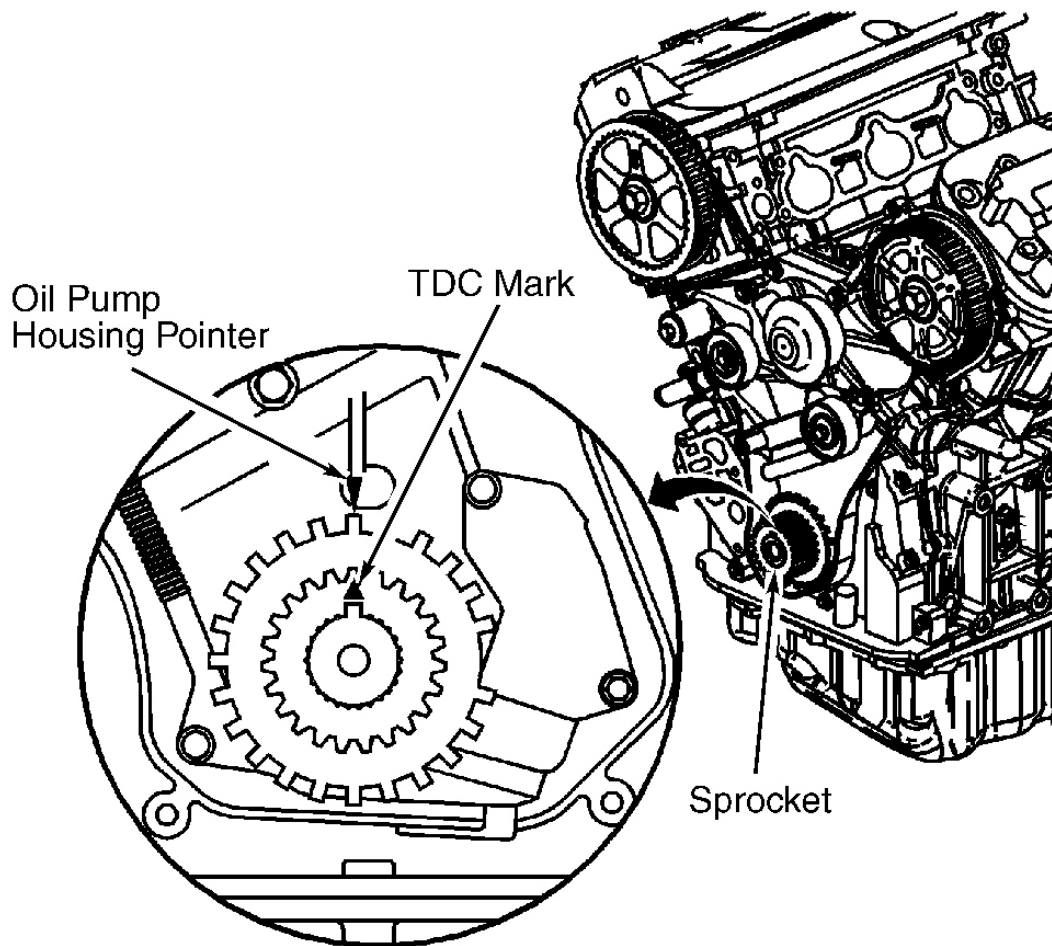
Fig. 2: Identifying Idler Pulley Bolt
Courtesy of GENERAL MOTORS CORP.

Installation

NOTE: If tensioner is removed and rod is extended, use a hydraulic press (do not exceed 2200 lbs.) to slowly compress the tensioner. Insert Timing Belt Tensioner Retaining Pin (EN-46330) through housing and rod. When installing tensioner, leave retaining pin installed.

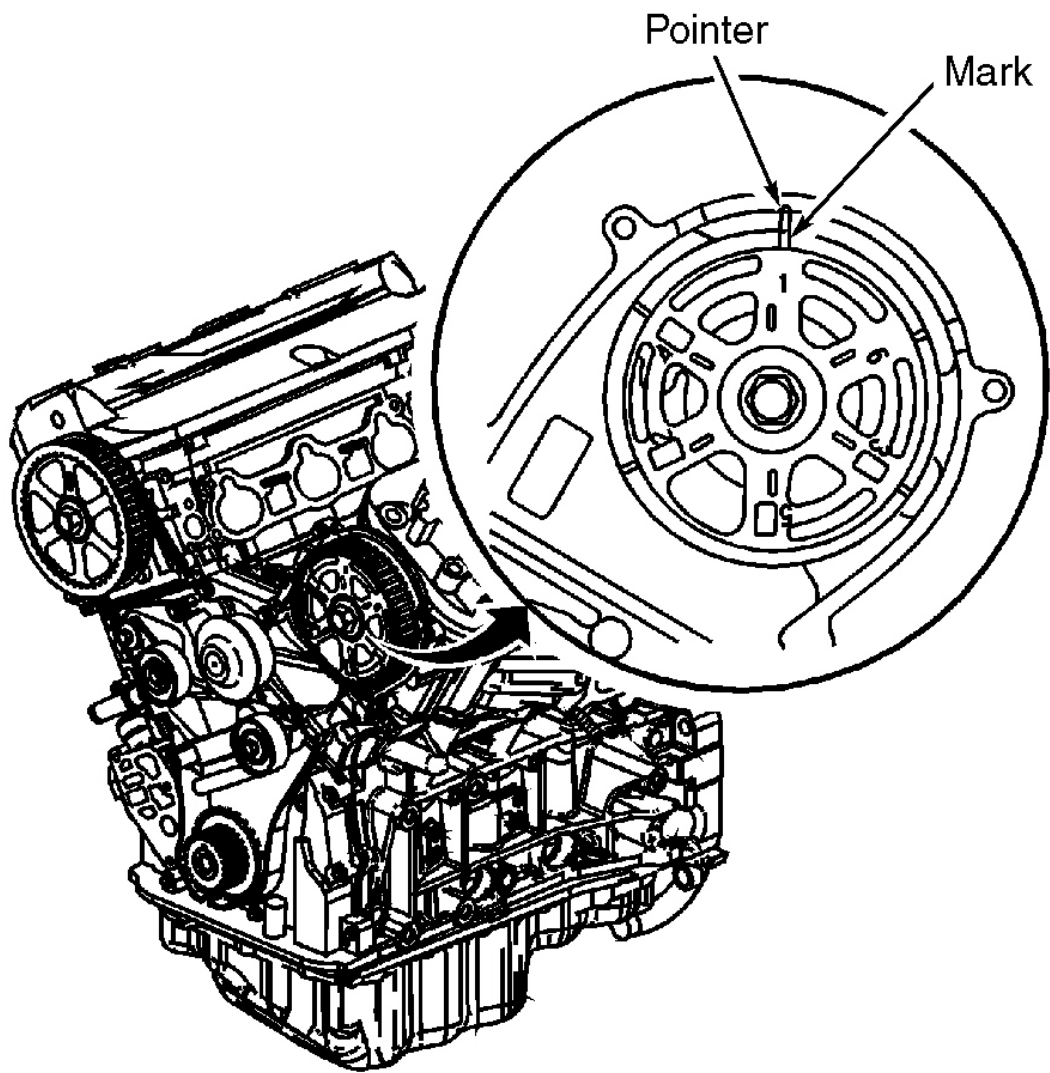
1. Clean the belt pulleys and covers. Rotate the crankshaft and align the Top Dead Center (TDC) mark on the sprocket with the pointer on the oil pump housing. See **Fig. 3** .
2. Rotate the left camshaft sprocket to TDC by aligning the mark on the sprocket with the pointer on the cover. See **Fig. 4** .
3. Rotate the right camshaft sprocket to TDC by aligning the mark on the sprocket with the pointer on the cover. See **Fig. 5** .

4. Install the Timing Belt Tensioner Pulley Retaining Bolt (EN-46331). Screw the timing belt tensioner pulley retaining bolt all the way in by hand, until it contacts the timing belt tensioner. See **Fig. 1** .
5. Install the belt onto the sprockets. Install the timing belt in a clockwise sequence starting with the tensioner pulley. See **Fig. 6** .
6. Tighten the idler pulley bolt to specifications. See **TORQUE SPECIFICATIONS** . Remove the Timing Belt Tensioner Retaining Pin (EN-46330), if necessary. Remove timing belt tensioner pulley retaining bolt.
7. Install the guide, balancer and bolt. See **Fig. 7** . Tighten the bolt until snug. Using the Camshaft Sprocket/Balancer Holder (EN-46337), rotate the crankshaft clockwise about 5 or 6 complete revolutions to position the timing belt on the sprockets.
8. Align the mark on the crankshaft sprocket with the pointer on the oil pump housing. See **Fig. 3** . Inspect the left camshaft sprocket for proper alignment. The TDC mark on the sprocket should align with the pointer on the cover. See **Fig. 4** . Inspect the right camshaft sprocket for proper alignment. The TDC mark on the sprocket should align with the pointer on the cover. See **Fig. 5** .
9. Remove the guide, balancer and bolt. See **Fig. 7** . Install the timing belt cover.
10. Perform the crankshaft position learn procedure. See **RESET PROCEDURES** .



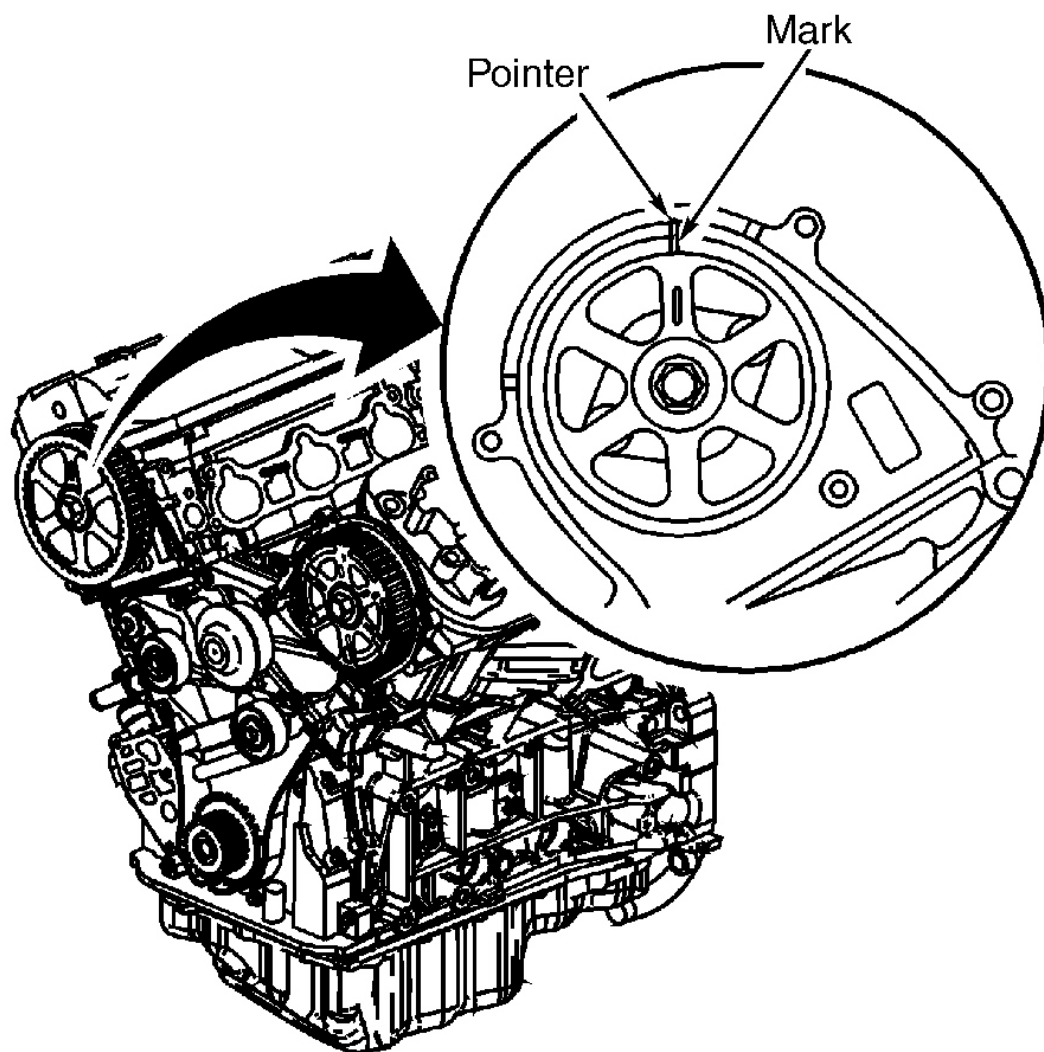
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Fig. 3: Identifying Crankshaft Timing Marks
Courtesy of GENERAL MOTORS CORP.



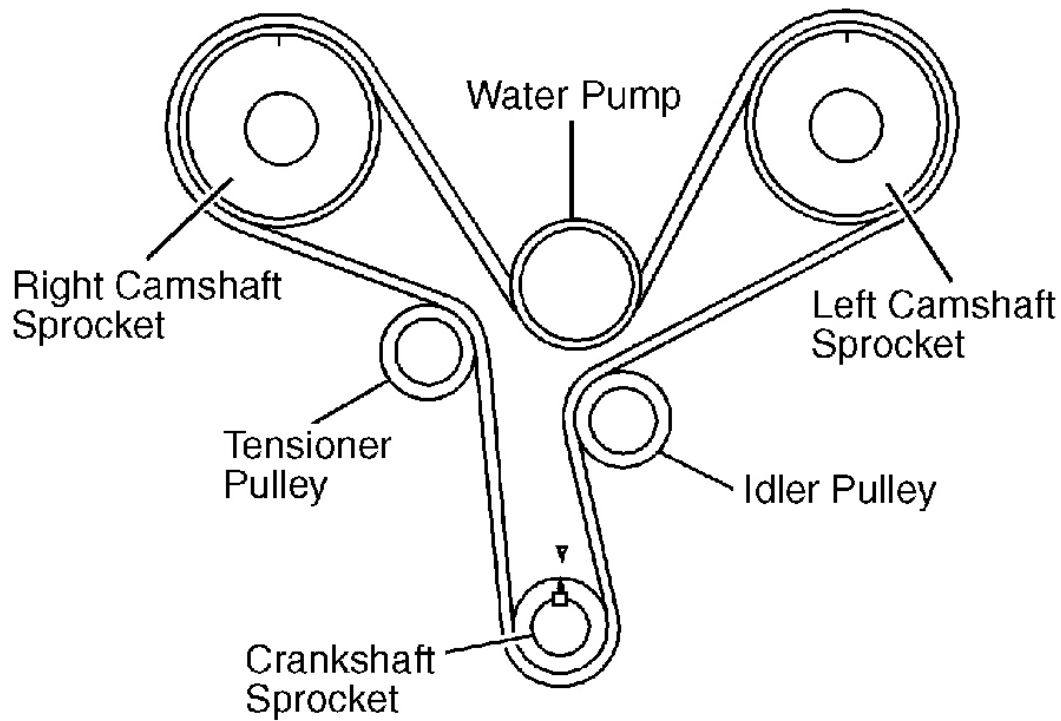
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Fig. 4: Identifying Left Camshaft Sprocket Timing Mark
Courtesy of GENERAL MOTORS CORP.



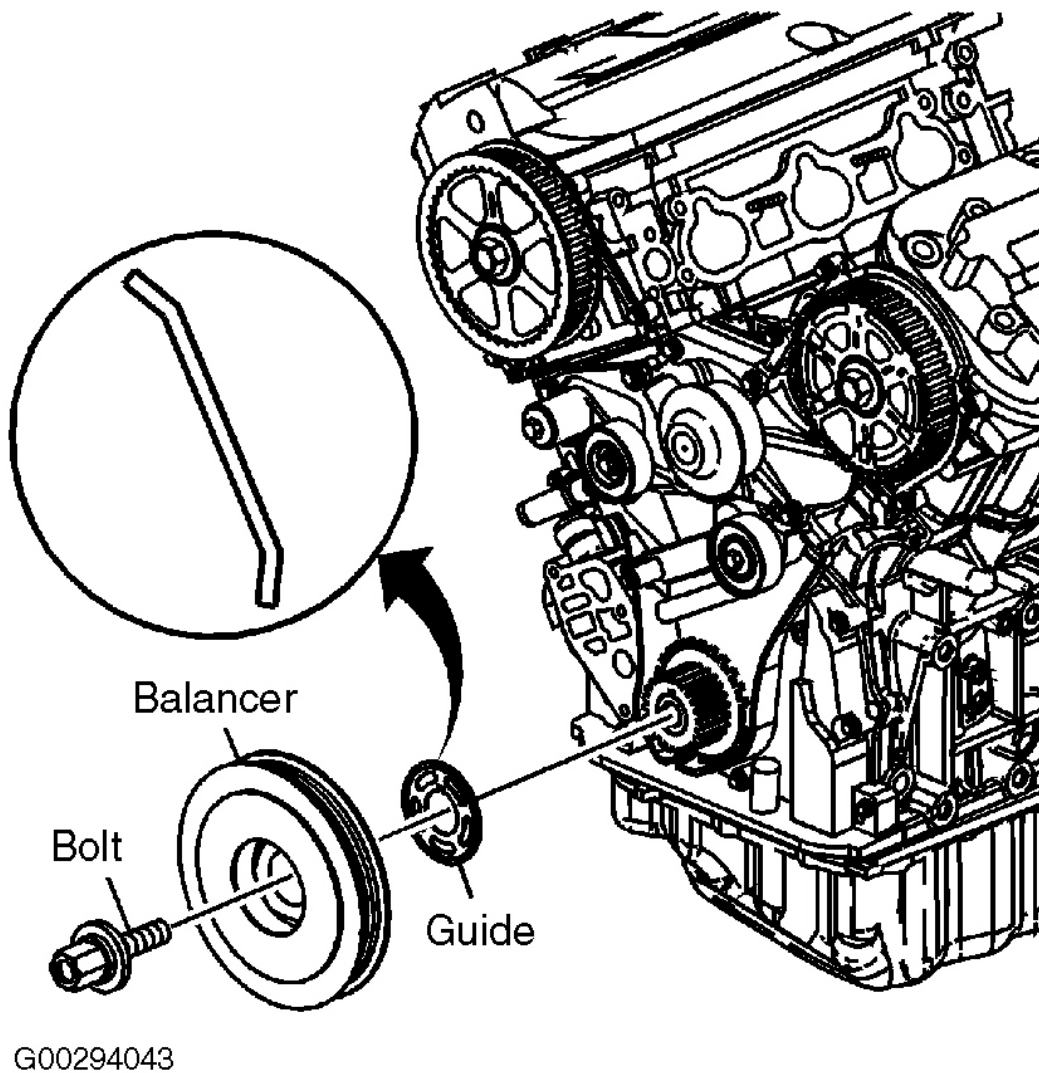
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Fig. 5: Identifying Right Camshaft Sprocket Timing Mark
Courtesy of GENERAL MOTORS CORP.



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Fig. 6: Identifying Timing Belt Alignment
Courtesy of GENERAL MOTORS CORP.



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Fig. 7: Identifying Balancer Components
Courtesy of GENERAL MOTORS CORP.

RESET PROCEDURES

CRANKSHAFT POSITION LEARN PROCEDURE

1. Connect scan tool to Data Link Connector (DLC).
2. Turn all electrical loads and accessories off (including A/C).
3. Ensure gearshift is in Park or Neutral position.
4. Turn ignition switch to ON position.

5. Using scan tool, clear DTC information.
6. Wait 5 seconds and start engine. Operate the engine with no load at 3,000 RPM until the ECT reaches 90° C (194°F). If the engine cooling fan turns on during the idle portion of this procedure, do not include the fan run time in the total idle time.
7. Let the engine idle with the THROTTLE CLOSED and the engine cooling fan OFF, for a total of 5 minutes. The PCM has now learned a new idle position.

TORQUE SPECIFICATIONS

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Application	Ft. Lbs. (N.m)
Timing Belt Idler Pulley Bolt	33 (44)
Timing Belt Rear Cover Bolts	16 (22)
Timing Belt Tensioner Bracket Bolt	18 (25)
Timing Belt Tensioner Pulley Bolt	18 (25)
Timing Belt Tensioner Pulley Nut	59 (80)
	INCH Lbs. (N.m)
Timing Belt Auto-Tensioner Bolts	106 (12)
Timing Belt Front Cover Bolts	106 (12)