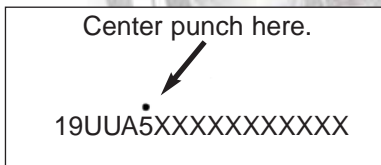


Revised Timing Belt Tensioner

2002-2003 Acura 3.2L SOHC Engines
A revised timing belt tensioner for 2002-2003 Acura 3.2L engines is part of a product improvement by Acura.

The original design timing belt tensioner is filled with oil to dampen oscillation. Due to a manufacturing situation, the tensioner oil can leak. If enough oil is lost, the timing belt loosens and causes engine noise. The worst-case scenario is the belt may lose tension and allow the loss of cam timing.

Vehicles with the revised tensioner should be identified by a punched mark above the sixth digit of the engine compartment VIN code as shown:



Refer to the chart (**Figure 1**, above) to determine which vehicles are affected.

Cylinder Head Gasket Leak On 1988-95 1.6L Honda Civic Engines

You or your supplier customers may have received complaints that oil is leaking externally or there is coolant loss on 1988-'95 1.6L Honda Civic engines due to a cylinder head gasket leak. This information does not apply to the VTEC engines.

This information also supersedes Honda service bulletin 97-047, dated September 29, 1997. The current corrective action prescribed by Honda involves installing a new MLS cylinder head gasket (p/n 12251-P01-004) and 10 new head bolts (p/n 90005-PM3-004). It is important to note that the following torque

2002 3.2TL:
From VIN 19UUA5...2A052043
Thru 19UUA5...2A061706
2003 3.2TL:
From VIN 19UUA5...3A000001
Thru 19UUA5...3A043888
2002 3.2CL:
From VIN 19UYA4...3A000001
Thru 19UYA4...2A005879
2003 3.2CL:
From VIN 19UYA4...3A000001
Thru 19UYA4...3A009883
2002 MDX:
From VIN 2HNYD1...2H505108
Thru 2HNYD1...2H545156

Figure 1 Revised timing belt tensioners are available for Acura engines with these VIN numbers.

procedure should only be used for installing the revised MLS gasket on 1988-'95 1.6L non-VTEC engines.

1) Carefully remove all gasket material from the head and the block with gasket solvent and an adequate scraper. The head and block mating surfaces must be clean, flat, and smooth for the new head gasket to seal properly. Do not use power tools or abrasives to remove the gasket material as

they will damage the head and block surfaces causing the new head gasket to leak.

2) Before the gasket solvent dries, rinse any pieces of the gasket from the coolant passages in the head and block with water. You

must remove all of the gasket material to prevent engine overheating.

3) Position a new head gasket on the block and install the cylinder head. Do not use any gasket sealers (Honda gasket) on the gasket or mating surfaces.

4) Apply engine oil to the threads and washers of the new cylinder bolts. Install the bolts, and torque them in the sequence and steps shown in **Figure 2**, below. Do not use the head bolt tightening steps in the Honda service manuals.

5) Step 1. Tighten all 10 bolts in sequence to 14 ft.lbs. (20 Nm).

Step 2. Tighten all 10 bolts in sequence to 36 ft.lbs. (49 Nm).

Step 3. Tighten all 10 bolts in sequence to 49 ft.lbs. (67 Nm).

Step 4. Tighten bolts 1 and 2 to 49 ft.lbs. (67 Nm) again.

Camshaft Identification For 2001-2003 3.0L & 3.5L DOHC Hyundai Engines

The AERA Technical Committee offers the following information regarding camshaft identification for 2001-2003 Hyundai 3.0L and

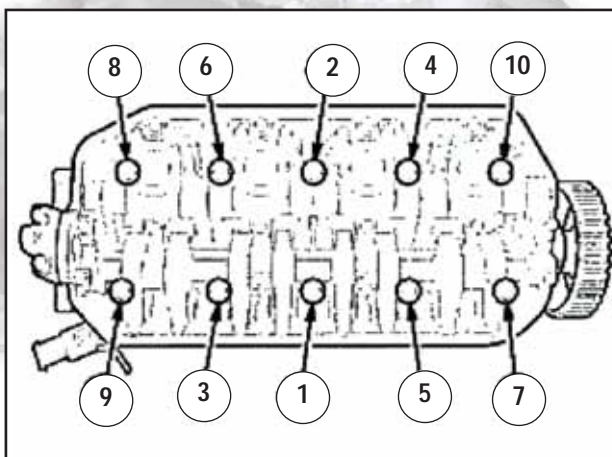


Figure 2 Torque sequence for 1988-'95 1.6L Honda Civics (non-VTEC). Oil leaks and coolant loss may be eliminated by using an MLS head gasket.

Intake	3.5L	3.0L
15 - Right	2490035700	2490035520
15 - Left	2410035700	2410035520
Exhaust		
15 - Right	2470035520	2470035520
15 - Left	2420035520	2420035520

Chart 1 Hyundai camshaft identification.

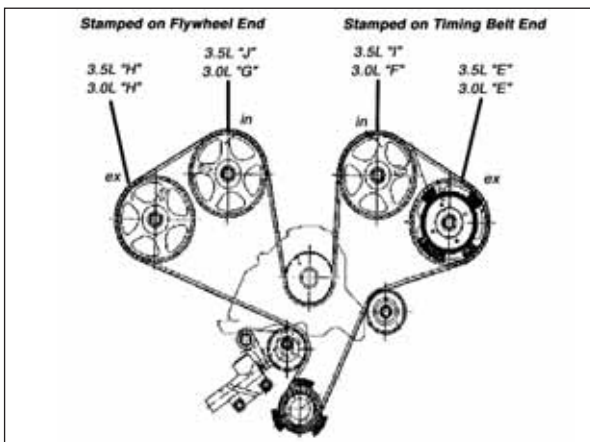


Figure 3 Hyundai camshafts are etched with a letter on the end for identification.

3.5L engines. Previously published service manual information has been called misleading, resulting in incorrect assembly. Each of these engines use four unique camshafts that look the same.

Caution: while the camshafts all have letters cast in between the lobes with RI, RE, LI, LE, these casting letters are meaningless and should NOT be used to determine camshaft location.

Each camshaft for the 3.0L and 3.5L engine is etched with a letter on the end of the camshaft to identify the location the camshaft should be mounted in. The letter should be read while held in the "6 o'clock" position and viewed with a good working flashlight. Use the illustrations in **Figure 3**, above, for identification and location.

Cylinder Head And Intake Manifold Installation Caution For 1996-2004 Nissan 3.3L VG33E Engines

When working on 1996-2004 Nissan VG33E engines be aware that Nissan requires installing the cylinder heads and intake manifold as one unit. This procedure is uncommon in engine assembly, thus warranting this caution.

If only the intake manifold was removed, reinstallation is as follows.

- 1) Torque bolts in sequence to 2.9 ft.lbs. (4 Nm or .4 kgf-cm).
- 2) Torque bolts in

sequence to 6.5 ft.lbs. (9 Nm or .9 kgf-cm).

- 3) Torque bolts in sequence again to 5.8-7 ft.lbs. (8 - 10 Nm or 1.0 kgf-cm).

If replacing the intake manifold with a new one, the cylinder head gasket must also be replaced with a new one. If the entire engine or cylinder heads only have been disassembled, the following dual procedure should be used.

Cylinder Head Installation:

- 1) Install cylinder head with new gasket.
- 2) Install the washers between the bolts and cylinder head with the washer beveled side up as shown in **Figure 4**, right.
- 3) Do not rotate the crankshaft and camshaft separately, or the valves will hit the pistons.

- 4) Tighten the cylinder head bolts and the intake manifold bolts in 14 steps,

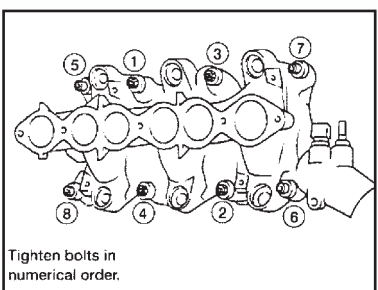


Figure 5 Nissan 3.3L intake manifold torque sequence.

and in the numerical order as shown in **Figure 5**, below. Use the specified angle wrench – ST10120000 (J24239-01) – as necessary.

- 5) Apply engine oil to threads and seating surfaces of the cylinder head bolts before installation.
- 6) Cylinder head bolts No. 4, 7, 9, and 12 (L1) are longer than the others (L2). Cylinder head bolts "L1" = 127 mm (5.0"). Cylinder head bolts "L2" = 106 mm (4.0").
- 7) Install the intake manifold

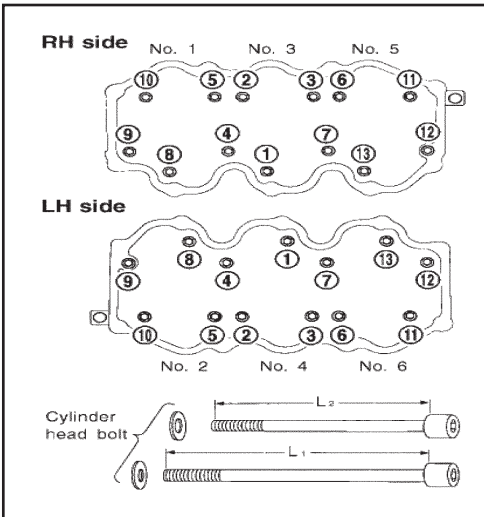


Figure 4 Install the washers between the bolts and cylinder head with the washer beveled side up on Nissan 3.3L engine.

and the cylinder head at the same time using the 14 steps shown below.

Cylinder head and intake manifold nuts and bolts tightening:

1) Tighten cylinder head bolts in sequence to 22 ft.lbs. (29 Nm).

2) Tighten cylinder head bolts in sequence to 43 ft.lbs. (59 Nm).

3) Loosen all cylinder head bolts completely.

4) Tighten cylinder head bolts 7 ft.lbs. (10 Nm).

5) Tighten intake manifold bolts and nuts in sequence to 2.9 ft.lbs (4 Nm).

6) Tighten intake manifold bolts and nuts in sequence to 13 ft.lbs. (18 Nm).

7) Tighten intake manifold bolts and nuts in sequence to 12-14 ft.lbs. (16-20 Nm).

8) Loosen all intake manifold bolts and nuts completely in sequence.

9) Tighten cylinder head bolts in sequence to 22 ft.lbs. (29 Nm).

10) Tighten cylinder head bolts in sequence to 60°- 65°degrees (clockwise). If an angle wrench is not available, tighten cylinder head bolts in sequence to 40-47 ft.lbs. (54 - 64 Nm).

11) Tighten cylinder head sub-bolts in sequence to 6.7-8.7 ft.lbs. (9.0 -11.8 Nm).

12) Tighten intake manifold bolts and nuts in sequence to 2.9 ft.lbs. (4 Nm).

13) Tighten intake manifold bolts and nuts in sequence to 6.5 ft.lbs. (9 Nm).

14) Tighten intake manifold bolts and nuts in sequence to 5.8-7 ft.lbs. (8 - 10 Nm).

Most of the leaks have been associated with the rear crankshaft area. While the most likely source of leakage is thought to be the rear crankshaft seal, this has not been the case in some complaints.

These engines use a crankshaft with flexplate/flywheel mounting bolt holes exposed to the crankcase. This type of design requires sealer on the bolt threads during assembly. Make sure the components and threads are clean and dry before applying a light application of thread lock (p/n 132298000-32110) to the mounting bolts. The bolts should be alternately tightened to 52 ft.lbs. Failure to apply sealer on the bolt threads may allow engine oil to seep around the bolt threads and leak externally.

Another possible cause of oil leakage on these engines has been the rear main seal, as a specific installation tool is required to maintain the seal to crankshaft alignment. **EB**

Rear Engine Oil Leaks On 1996-2004 Suzuki 1.8 & 2.0L DOHC Engines

There have been reports of oil leaks on 1996-2004 Suzuki 1.8L and 2.0L DOHC engines.