



Applies To: **2009 TSX L4** – ALL
2010 TSX L4 – From VIN JH4CU2...AC000001 thru JH4CU2...AC027068

November 17, 2010

Engine Rattles at Cold Start-Up

(Supersedes 10-024, dated September 3, 2010, to revise the information marked by the black bars)

REVISION SUMMARY

Under REPAIR PROCEDURE, the references to the power steering hose bracket were removed from steps 4 and 42.

SYMPTOM

At cold start-up, the engine rattles loudly for about 2 seconds.

PROBABLE CAUSE

The variable valve timing control (VTC) actuator is defective.

CORRECTIVE ACTION

Use the repair procedure in this service bulletin to replace the VTC actuator. This procedure does not require the complete removal of the cam chain and associated parts as you would during a normal repair, so it is much shorter.

PARTS INFORMATION

VTC Actuator: P/N 14310-R40-A01

REQUIRED MATERIALS

Hondabond HT Liquid Silicone Gasket:
 P/N 08718-0004
 (One tube repairs about two vehicles.)

TOOL INFORMATION

Stopper (lock pin): P/N 14511-PNA-003
 Tappet Adjuster: P/N 07MAA-PR70110
 Tappet Locknut Wrench: P/N 07MAA-PR70120

WARRANTY CLAIM INFORMATION

The normal warranty applies.

Operation Number: 1101Z9
 Flat Rate Time: 2.0 hours
 Failed Part: P/N 14310-R40-A01
 Defect Code: 03214
 Symptom Code: 04201
 Template ID: 10-024B

DIAGNOSIS

NOTE: If you're reading this service bulletin on ISIS and your computer has sound, click on the picture below to hear an example of the engine rattle.



1. Allow the engine oil to drain from the VTC system by not starting the engine for at least 6 hours.
2. Start the engine, and immediately listen for a loud rattle:

Do you hear a loud rattle that lasts about 2 seconds?

Yes – Go to REPAIR PROCEDURE.

No –

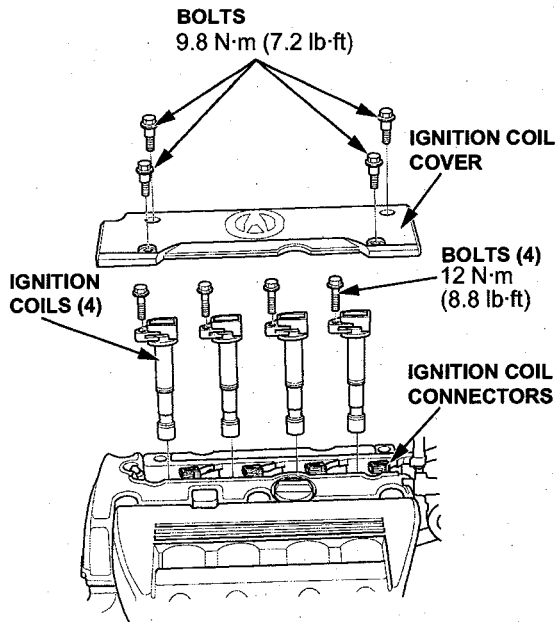
- If you hear a different noise, continue with normal troubleshooting.
- If you don't hear an abnormal noise, get more information from your customer and, if needed, continue with normal troubleshooting.

REPAIR PROCEDURE

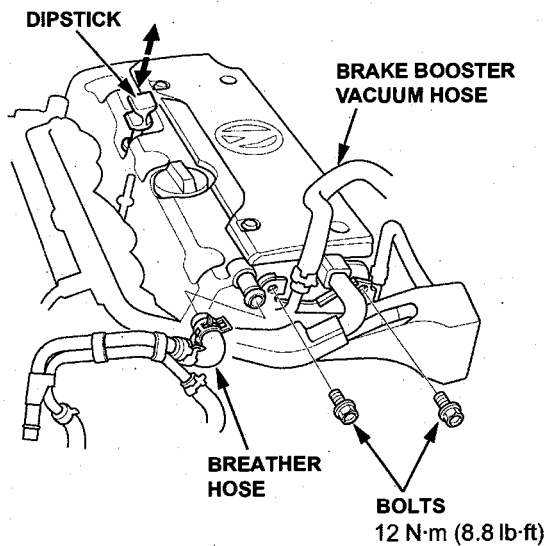
NOTE: This procedure is in an outline form that you can also use as a checklist for the repair. If you need more details, bookmark the following procedures in the *2009-2010 TSX Service Manual*, or view them online:

- Cylinder Head Cover Removal
 - Cylinder Head Cover Installation
 - Valve Clearance Adjustment
1. Remove the frame (strut) brace.
 2. Remove the engine cover.

- Remove the ignition coil cover and the ignition coils.

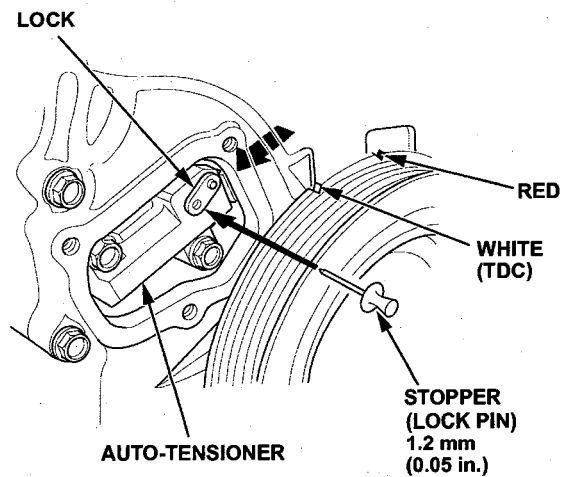


- Remove the engine oil dipstick, then disconnect the breather hose and the brake booster vacuum hose from the cylinder head cover.

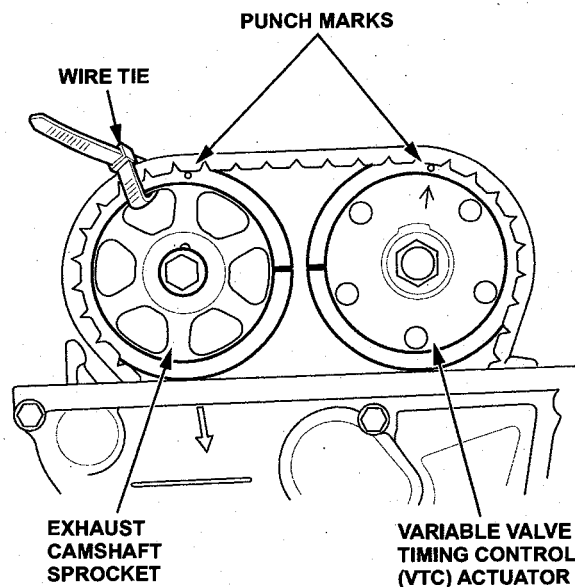


- Remove the two bolts holding the EVAP canister purge valve bracket to the cylinder head.
- Remove the cylinder head cover.
- Raise the vehicle on a lift.
- Turn the front wheels or remove the right front wheel.
- Remove the splash shield to access the crankshaft pulley.
- Remove the camshaft auto-tensioner (chain case) cover.

- Rotate the crankshaft clockwise to top dead center (TDC) No. 1 cylinder.
- Rotate the crankshaft counterclockwise to compress the auto-tensioner, then align the hole in the lock and auto-tensioner, and insert a 1.2 mm (0.05 in) diameter stopper (lock pin).



- Rotate the crankshaft clockwise to TDC No. 1 cylinder.
- Lower the vehicle.
- Mark the cam chain at the punch marks on the exhaust camshaft sprocket and the VTC actuator. Secure the chain to the sprocket with a wire tie.



- Hold the camshaft steady with an open-end wrench, and loosen the VTC actuator mounting bolt.
- NOTE:** Do not use an impact wrench to loosen or tighten this bolt; it will damage the locking pin inside the actuator.

17. Loosen the camshaft holder bolts, in sequence, two turns at a time.
18. Remove the five camshaft holders.
19. Carefully tip up the end of the intake camshaft until there is enough slack to lift the chain off the VTC actuator teeth.
20. Remove the intake camshaft while keeping some tension on the chain. Lay the camshaft on a clean workbench.
21. Secure the chain to the A/C compressor hose with a wire tie to keep it from falling down into the front cover.
22. Remove the VTC actuator mounting bolt, and separate the actuator from the camshaft.
23. Apply clean engine oil to the mounting bolt threads, then install the new VTC actuator to the camshaft, finger tight.
24. Remove the wire ties while keeping light tension on the chain.
25. Rotate the VTC actuator clockwise to lock it.
26. Slide the camshaft in at an angle so the chain can slip over the VTC actuator teeth.
27. Line up the marks you made on the chain with the punch marks on the exhaust camshaft sprocket and VTC actuator.
28. Apply engine oil to the journals and caps on both camshafts, and reinstall them.
29. Torque the camshaft holders, starting in the middle and working your way outward in the numbered sequence.

Torque

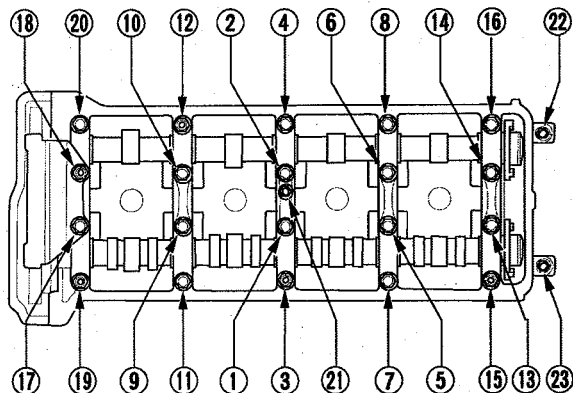
8 x 1.25 mm

22 N·m (16 lb-ft)

6 x 1.0 mm

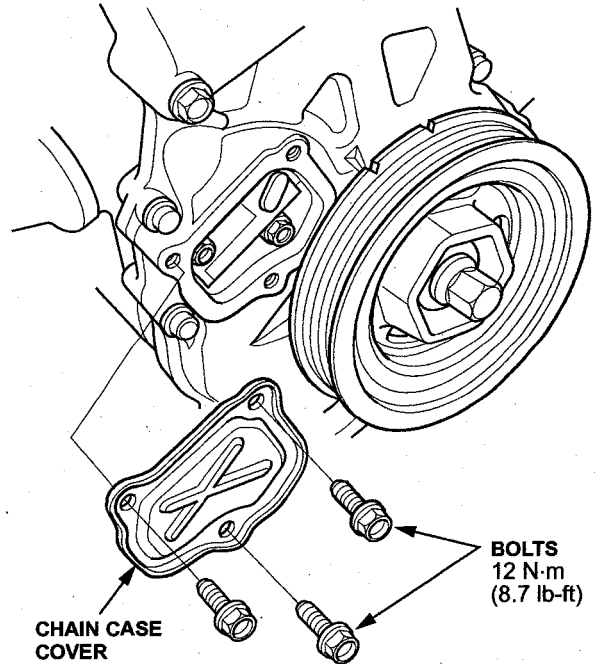
12 N·m (8.7 lb-ft)

6 x 1.0 mm Bolts: 21, 22, 23



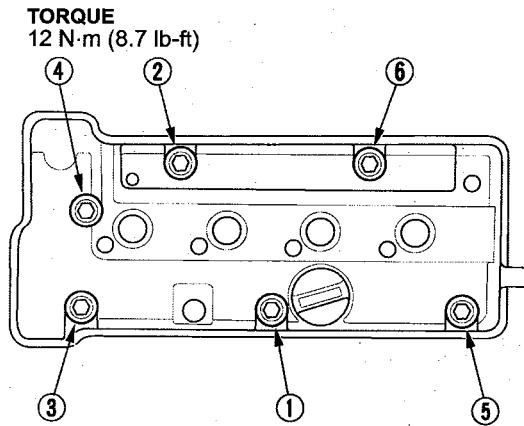
30. Hold the camshaft steady with an open-end wrench, and torque the VTC actuator mounting bolt to 113 N·m (83 lb-ft).

31. Remove the lock pin from the auto-tensioner.
32. Rotate the crankshaft in the direction of engine rotation (clockwise) two full turns, then stop at the white TDC mark (see step 12). Make sure the camshafts line up as shown in step 15.
33. Reseal and then reinstall the auto-tensioner (chain case) cover.

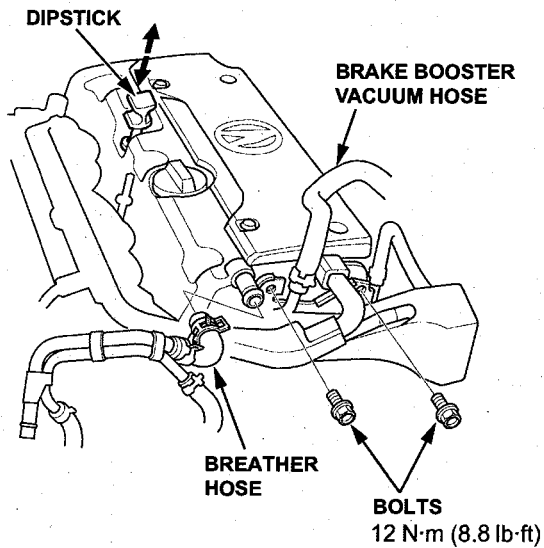


34. Check and, if needed, adjust the valve clearance using a tappet adjuster.
Intake: 0.21 - 0.25 mm (0.008 - 0.010 in)
Exhaust: 0.25 - 0.29 mm (0.010 - 0.011 in)
35. Then, using a tappet locknut wrench, torque the locknuts.
Intake and Exhaust: 14 N·m (10 lb-ft)
36. Raise the vehicle.
37. Reinstall the splash shield.
38. Straighten the wheels or reinstall the right front wheel (if removed).
39. Lower the vehicle.

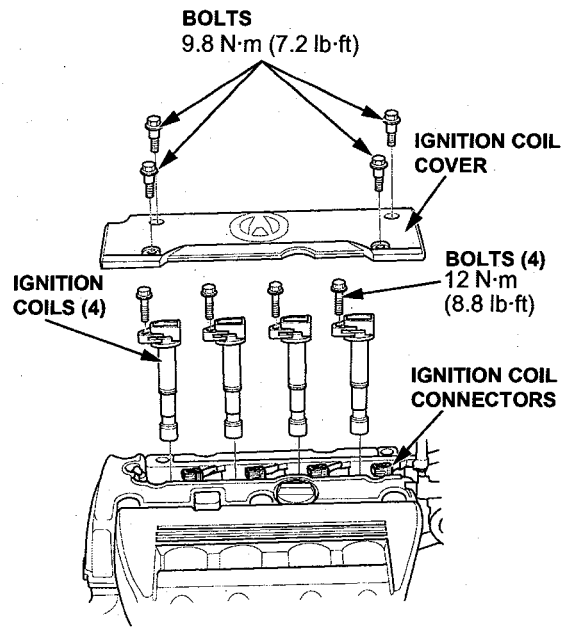
40. Reinstall the cylinder head cover, tightening the bolts in three steps. In the final step, tighten all bolts, in sequence, to **12 N·m (8.7 lb-ft)**.



41. Reinstall the EVAP canister purge valve bracket.
42. Reinstall the engine oil dipstick, and reconnect the breather hose and the brake booster vacuum hose.



43. Reinstall the ignition coils and the ignition coil cover.



44. Reinstall the engine cover.
45. Reinstall the frame (strut) brace. Torque the bolts to **22 N·m (16 lb-ft)**.
NOTE: To allow time for the liquid gasket to cure, wait **3 hours** before starting the engine.