FIGURE 1

SYMPTOM/CONDITION:

Some vehicles may have a condition where the valve train makes a ticking noise similar to valve lifter noise, but not as loud. This noise is heard in a fully warmed engine between 500 and 1000 rpm. The ticking noise will disappear as the engine rpm is raised above 1000 rpm. Customers may describe this condition as lifter noise.
DIAGNOSIS:

Drive the vehicle to warm the coolant and engine oil fully. With the engine at idle and the hood open, listen carefully for ticking noises coming from the rocker covers. Raise the engine rpm and listen for the noise again. If the noise is heard at idle but not at higher rpm and is pinpointed in the valve train, perform the Repair Procedure.

NOTE: MAKE SURE THE TICKING NOISE ORIGINATES IN THE VALVE TRAIN. USE A STETHOSCOPE OR OTHER LISTENING DEVICE TO PINPOINT THE NOISE SOURCE.

PARTS REQUIRED:

1. MD361652 Spacer Kit, Rocker Arm
2. MD120091 Gasket, Valve Cover
1. 04883971 GEN II Silicone Adhesive Sealant

REPAIR PROCEDURE:

This bulletin involves removing components to gain access to the upper valve train, removing the rocker assemblies, and replacing the springs with specified solid spacers and washers.

1. Disconnect the negative battery cable.
2. Remove the air inlet tube between the throttle body and air cleaner.
3. Remove the dipstick tube assembly from the engine.
4. Remove the wiper arms.
5. Remove the cowl cover.
6. Remove the wiper module.
7. Remove the accessory drive belt.
8. Remove the generator assembly.
9. Remove the secondary ignition wires and coil.
10. Remove the ground wire attached to the rear of the intake.
11. Remove the front and rear valve covers.
12. Install auto lash adjuster retainers, special tool MD-998443. Carefully remove one rocker assembly from the head and place it on the bench.

**NOTE:** LOOSEN BEARING CAP BOLTS EQUALLY TO ELIMINATE UNEVEN STRESS ON THE SHAFT ASSEMBLY.

13. Once on the bench, disassemble the rocker assembly from one end. Leave the final (end) bearing cap in place. Take note of each rocker, lifter, and bearing cap position so it will be reinstalled in the same location from which it was removed. Refer to the arrow marks on the bearing caps and cylinder head for proper positioning. Discard the springs.

14. Reassemble the rocker assembly using the solid spacers in place of the springs. Do not install any washers at this time. All “A” locations will use the long spacer and all “B” locations will use the short spacer (Figure 2).

**NOTE:** SPACER KIT P/N MD361652 WILL INCLUDE 10 LONG SPACERS WITH A DIMENSION OF 29.2 MM (1.149 IN), 2 SHORT SPACERS WITH A DIMENSION OF 25.0 MM (0.984 IN), AND 24 WASHERS WITH A DIMENSION OF 0.4 MM (0.0157 IN). THE LONG SPACER WILL BE USED IN ALL “A” LOCATIONS AND THE SHORT SPACER WILL BE USED IN ALL “B” LOCATIONS. THE WASHERS ARE USED AS SHIMS (IF REQUIRED) BASED ON THE MEASUREMENTS TAKEN IN STEP 17.
15. Install the rocker assembly to the head without the lifters in place. Take note of each lifter location so they can be reinstalled back into the same rocker. Carefully snug the bolts evenly (from the center outward) to bring the assembly back down to its original position.

16. Torque the bolts to 10 Nm (85 in. lbs.) in the following order: bearing cap 3, 2, 1 and finally 4.

17. Measure the clearance between each rocker arm and spacer using feeler gauges (Figure 3). Tap each rocker over, if necessary, to get an accurate measurement. Write each measurement down to determine if washers will be required based on the following table.

<table>
<thead>
<tr>
<th>MEASUREMENT</th>
<th>WASHERS USED</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.59 mm (0.0232 in) Or less</td>
<td>0</td>
</tr>
<tr>
<td>0.60 to 0.99 mm (0.0236 - 0.0390 in)</td>
<td>1</td>
</tr>
<tr>
<td>1.0 mm (0.0394 in) Or greater</td>
<td>2</td>
</tr>
</tbody>
</table>

18. Remove the rocker assembly from the head. If any washer(s) is/are required (based on above table and measurements taken in step 17) disassemble the rocker assembly again. Take note of the position off all components so they can be reassembled into the same location. Place washer(s) only in those locations that require them (Figure 4).
19. Install the rocker assembly to the head with the lifters in place. Make sure to install each lifter back in their original location. Use the auto lash adjuster retainer special tool MD-998443 to hold the lifters in place while installing the assembly. Carefully snug the bolts evenly (from the center outward) to bring the assembly back down to its original position.

20. Torque the bolts to 10 Nm (85 in. lbs.) in the following order: bearing cap 3, 2, 1 and finally 4. Repeat the tightening procedure taking the torque to 20 Nm (180 in. lbs.).

21. Measure the final clearance between the rocker arm and spacer with feeler gauges (Figure 3). The minimum clearance is 0.2 mm (0.008 in) and the maximum clearance is 0.6 mm (0.024 in). If necessary, tap each rocker over to get an accurate measurement.

**NOTE:** IF THE CLEARANCE IS TOO SMALL THE VALVE TRAIN WILL BIND AND IF THE CLEARANCE IS TOO LARGE THE VALVE TRAIN MAY MAKE NOISE. IF NECESSARY, THE PROCEDURE WILL REQUIRE REPEATING TO BRING THE CLEARANCE WITHIN PROPER SPECIFICATIONS.
22. Repeat steps 12 through 21 for the other head.

23. The rocker cover gaskets are designed to be reused. Clean and inspect the gaskets before reuse. If necessary, use new gaskets p/n MD120091.

24. Place a dab of GEN II Silicone Adhesive Sealant p/n, 04883971 to each location on the heads (Figure 4).

25. Install each rocker cover and torque the bolts to 10 Nm (88 in. lbs.).

26. Reinstall all other removed components paying attention to any specifications listed in the service manual.

27. Start and run the engine at 2500 rpm to bleed air from the lifters. After the air is bleed from the lifters verify the repair by repeating the diagnosis section.

**POLICY:** Reimbursable within the provisions of the warranty.

**TIME ALLOWANCE:**
Labor Operation No: 09-80-01-95 .......................... 2.5 Hrs.

**FAILURE CODE:** P8 - New Part