VVT or Timing Chain Noise on 2006-2010 Mazda 2.3L Engines

The AERA Technical Committee offers the following information regarding a VVT (Variable Valve Timing) or timing chain noise on certain 2006-2010 Mazda 2.3L engines. Mazda has updated previously published information to include the following vehicles.

APPLICABLE MODEL(S)/VINS:

- 2006-2007 Mazdaspeed6
- 2007-2009 Mazdaspeed3
- 2007-2010 CX-7 2.3L Turbo vehicles with VINs lower than JM3ER******327444 (produced before Feb. 26, 2010)
- 2010 Mazdaspeed3 vehicles with VINs lower than JM1BL******295247 (produced before Feb. 27, 2010)

VVT Noise:

When the engine is first started, some vehicles may exhibit a loud ticking noise from the variable valve timing (VVT) actuator (A). This is caused by the lock pin of the variable valve timing actuator not fully engaging or from a worn lock pin hole.

Timing Chain Noise:
With the engine warmed up, some vehicles may exhibit a knocking/rattle type noise from the front timing cover and/or valve (cylinder head) cover below 2,000 rpm. The noise is caused by excessive stretching of the timing chain.

Customers having this concern should have their vehicle repaired using the following repair procedure shown below in the flow chart.
REPAIR PROCEDURE FLOW CHART

Vin Cutoff for Modified Timing Chain

<table>
<thead>
<tr>
<th>Model</th>
<th>Year</th>
<th>VIN/Date of Timing Chain Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAZDASPEED3</td>
<td>2007-2009</td>
<td>No Modification</td>
</tr>
<tr>
<td>MAZDASPEED3</td>
<td>2010</td>
<td>JM1BL ****** 152965 (May 1, 2009)</td>
</tr>
<tr>
<td>MAZDASPEED6</td>
<td>2006-2007</td>
<td>No Modification</td>
</tr>
<tr>
<td>CX-7</td>
<td>2007-2009</td>
<td>JM3ER ****** 300119 (May 1, 2009)</td>
</tr>
</tbody>
</table>

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## COMPARISON PICTURES

<table>
<thead>
<tr>
<th>OK</th>
<th>NEED TO REPAIR</th>
</tr>
</thead>
<tbody>
<tr>
<td>![OK Image 1]</td>
<td>![NEED TO REPAIR Image 1]</td>
</tr>
<tr>
<td>![OK Image 2]</td>
<td>![NEED TO REPAIR Image 2]</td>
</tr>
<tr>
<td>![OK Image 3]</td>
<td>![NEED TO REPAIR Image 3]</td>
</tr>
<tr>
<td>![OK Image 4]</td>
<td>![NEED TO REPAIR Image 4]</td>
</tr>
<tr>
<td>![OK Image 5]</td>
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### Variable Valve Timing (VVT) Actuator Replacement Only:

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Qty.</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>L3K9-12-4X0C</td>
<td>Variable Valve Timing Actuator</td>
<td>1</td>
<td>---</td>
</tr>
<tr>
<td>L3K9-10-230</td>
<td>Seal Cover</td>
<td>1</td>
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<tr>
<td>LFBL-10-237</td>
<td>Sealing Head Cover Washer</td>
<td>14</td>
<td>---</td>
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<tr>
<td>L3K9-12-429</td>
<td>Washer</td>
<td>2</td>
<td>---</td>
</tr>
<tr>
<td>0000-77-5W30-QT</td>
<td>Engine Oil (5W-30)</td>
<td>6 qts</td>
<td>---</td>
</tr>
<tr>
<td>9XG0-99-667L</td>
<td>Blind Plug</td>
<td>1</td>
<td>---</td>
</tr>
<tr>
<td>L3K9-10-193</td>
<td>High Pressure Fuel Pump Gasket</td>
<td>1</td>
<td>---</td>
</tr>
<tr>
<td>L3K9-13-ZE5</td>
<td>High Pressure Fuel Pump O-ring</td>
<td>1</td>
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</tbody>
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### VVT Actuator and Timing Chain Replacement:

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<tbody>
<tr>
<td>L3K9-12-201A</td>
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<td>---</td>
</tr>
<tr>
<td>LFBL-10-237</td>
<td>Sealing Head Cover Washer</td>
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<td>---</td>
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<tr>
<td>LF01-11-406</td>
<td>Crankshaft Pulley Lock Bolt</td>
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<td>L3G6-10-602</td>
<td>Oil Seal</td>
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<tr>
<td>L3K9-11-407</td>
<td>Lock Washer</td>
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<tr>
<td>0000-77-1217-ES</td>
<td>RTV Sealer</td>
<td>1</td>
<td>1 tube = 1 repair</td>
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<tr>
<td>L3K9-12-4X0C</td>
<td>Variable Valve Timing Actuator</td>
<td>1</td>
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