Sequence IIIH Engine Test
(ASTM D8111)

Specifications
• API Category – SN, SN PLUS, SP
• ILSAC category – GF-5, GF-6

Objective
Measure lubricant thickening and piston deposits under high-temperature conditions.

Field Service Simulated
High-speed service under relatively high ambient conditions.

Test Fixture
2014 Chrysler 3.6 L Pentastar port fuel-injected gasoline engine.

Test Parameters
Using unleaded gasoline, the engine runs an 8-minute initial lubricant leveling procedure followed by a 15-minute slow ramp-up to speed and load conditions. It then operates at 137 bhp, 3900 rpm, and 151°C lubricant temperature for 90 hours, interrupted at 20-hour intervals for lubricant level checks.

Test Parts Evaluation
• Inspect all six pistons for deposits, varnish, and stuck piston rings.

Used Lubricant Analysis
• Using ASTM D445, compare kinematic viscosity increase at 40°C to a new lubricant baseline (% increase) every 20 hours.
• Wear metals (ASTM D5185)
• Total base number (ASTM D4739)
• Total acid number (ASTM D664)
• Oxidation and nitration by Infrared Spectra (IR 5.8_6.1)

Pass/Fail Criteria

<table>
<thead>
<tr>
<th>Parameter</th>
<th>GF-6 Pass Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Viscosity increase</td>
<td>100% maximum</td>
</tr>
<tr>
<td>Weighted piston deposits</td>
<td>4.2 minimum</td>
</tr>
<tr>
<td>Hot stuck rings</td>
<td>None</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Parameter</th>
<th>IIIH to IIIG Equivalency SN/SN PLUS/GF-5 Pass Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Viscosity increase</td>
<td>150% maximum</td>
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<tr>
<td>Weighted piston deposits</td>
<td>3.7 minimum</td>
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<tr>
<td>Hot stuck rings</td>
<td>None</td>
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PASS

FAIL
We welcome your inquiries. For additional information, please contact:

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