

## Pinpoint Tests

### Pinpoint Test A: Vibration When the Brakes are Applied

#### Normal Operation

During moderate to heavy braking, noise from the Hydraulic Control Unit (HCU) and pulsation in the brake pedal can be observed. Pedal pulsation coupled with noise during heavy braking or on loose gravel, bumps, wet or snowy surfaces is acceptable and indicates correct functioning of the ABS. Pedal pulsation or steering wheel nibble when the brakes are applied (frequency is proportioned to the vehicle speed) indicates a concern with a brake or suspension component.

#### PINPOINT TEST A: VIBRATION WHEN THE BRAKES ARE APPLIED

| Test Step   | Result / Action to Take   |
|---|---|
| <b>A1 ROAD TEST THE VEHICLE — LIGHT BRAKING</b>   |   |
| <ul style="list-style-type: none"> <li>Road test the vehicle. Warm the brakes by slowing the vehicle from 80 to 32 km/h (50 to 20 mph) using light brake force. At highway speeds of 89-97 km/h (55-60 mph), apply the brake using light pedal force.</li> <li><b>Is there a vibration/shudder felt in the steering wheel, seat or brake pedal?</b></li> </ul>  | <p><b>Yes</b><br/>GO to <a href="#">A4</a>.</p> <p><b>No</b><br/>GO to <a href="#">A2</a>.</p>                        |
| <b>A2 ROAD TEST THE VEHICLE — MODERATE TO HEAVY BRAKING</b>   |   |
| <ul style="list-style-type: none"> <li>Road test the vehicle. At highway speeds of 89-97 km/h (55-60 mph), apply the brake using a moderate to heavy pedal force.</li> <li><b>Is there a vibration/shudder?</b></li> </ul>  | <p><b>Yes</b><br/>GO to <a href="#">A3</a>.</p> <p><b>No</b><br/>The concern is not present at this time.</p>         |
| <b>A3 CHECK ABS OPERATION</b>   |   |
| <ul style="list-style-type: none"> <li><b>NOTE:</b> During moderate to heavy braking, noise from the <a href="#">HCU</a> and pulsation in the brake pedal can be observed. Pedal pulsation coupled with noise during heavy braking or on loose gravel, bumps, wet or snowy surfaces is acceptable and indicates correct operation of the ABS. Pedal pulsation or steering wheel nibble with the frequency proportional to vehicle speed indicates a concern with a brake or suspension component.</li> <li>Road test the vehicle and apply the brakes on a dry, firm surface, then apply the brakes on a wet, snowy or loose surface (such as gravel).</li> <li><b>Is the vibration/shudder only present on a wet, snowy or loose surface?</b></li> </ul> | <p><b>Yes</b><br/>This is a normal operating condition of the ABS.</p> <p><b>No</b><br/>GO to <a href="#">A5</a>.</p> |
| <b>A4 ISOLATE BRAKE VIBRATION</b>   |   |
| <ul style="list-style-type: none"> <li><b>NOTE:</b> This test is not applicable to vehicles with drum-in-hat type parking brakes. For vehicles with drum-in-hat parking brakes, proceed to the next test step. For all other vehicles, apply the parking brake to identify if the problem is in the front or rear brake.</li> <li>Apply the parking brake to identify if the problem is in the front or rear brake. At highway speeds of 89-97 km/h (55-60 mph), lightly apply the parking brake until the vehicle slows down. Release the parking brake immediately after the test.</li> <li><b>Is there a vibration/shudder?</b></li> </ul>   | <p><b>Yes</b><br/>GO to <a href="#">A7</a>.</p> <p><b>No</b><br/>GO to <a href="#">A5</a>.</p>                        |
| <b>A5 CHECK THE FRONT SUSPENSION</b>  |   |

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|--|---|
| <ul style="list-style-type: none"> <li>• Check the front suspension. Refer to <a href="#">Section 204-00</a>.</li> <li>• <b>Are all the suspension components in satisfactory condition?</b></li> </ul>                                    | <p><b>Yes</b><br/>GO to <a href="#">A6</a>.</p> <p><b>No</b><br/>REPAIR or INSTALL new components as necessary. TEST the system for normal operation.</p>   |
| <p><b>A6 CHECK THE FRONT BRAKE DISCS</b></p>   |   |
| <ul style="list-style-type: none"> <li>• Inspect the front brake discs. Refer to <a href="#">Brake System Inspection</a> in this section.</li> <li>• Road test the vehicle.</li> <li>• <b>Is the vibration/shudder present?</b></li> </ul> | <p><b>Yes</b><br/>GO to <a href="#">A7</a>.</p> <p><b>No</b><br/>The concern has been repaired.</p>   |
| <p><b>A7 CHECK THE REAR SUSPENSION</b></p>   |   |
| <ul style="list-style-type: none"> <li>• Check the rear suspension. Refer to <a href="#">Section 204-00</a>.</li> <li>• <b>Are all the suspension components in satisfactory condition?</b></li> </ul>                                     | <p><b>Yes</b><br/>INSPECT the rear brake discs. REFER to <a href="#">Brake System Inspection</a> in this section.</p> <p><b>No</b><br/>REPAIR or INSTALL new components as necessary. TEST the system for normal operation.</p> |

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