

DIAGNOSIS AND TESTING > BRAKE SYSTEM > PINPOINT TESTS > PINPOINT TEST A : VIBRATION WHEN BRAKES ARE APPLIED

Normal Operation and Fault Conditions

During moderate to heavy braking, noise from the 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.

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A1 ROAD TEST THE VEHICLE -LIGHT BRAKING

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.

Is there a vibration/shudder felt in the steering wheel, seat or brake pedal?

Yes	GO to A4
No	GO to A2

A2 ROAD TEST THE VEHICLE -MODERATE TO HEAVY BRAKING

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.

Is there a vibration/shudder?

Yes	GO to A3
No	The concern is not present at this time.

A3 CHECK ABS (ANTI-LOCK BRAKE SYSTEM) OPERATION



NOTE: 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 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.

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).

Is the vibration/shudder only present on a wet, snowy or loose surface?

Yes	This is a normal operating condition of the ABS.
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No	GO to A5
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A4 ISOLATE BRAKE VIBRATION

 **NOTE:** This test step is not applicable to vehicles with drum-in-hat type or electronic parking brakes. For vehicles with drum-in-hat or electronic 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.

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.

Is there a vibration/shudder?

Yes	GO to A7
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No	GO to A5
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A5 CHECK THE FRONT SUSPENSION

Check the front suspension.

Are all the suspension components in satisfactory condition?

Yes	GO to A6
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No	REPAIR or INSTALL new components as necessary. TEST the system for normal operation.
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A6 CHECK THE FRONT BRAKE DISCS

Inspect the front brake discs. MACHINE or INSTALL new brake discs as necessary. REFER to: Brake Disc Machining . REFER to: Brake Disc .