

- b. Check the brake fluid level. Inspect the brake fluid level and brake hydraulic seals. If the fluid level is ok, and the brake hydraulic system is free of hydraulic leaks, replace the brake master cylinder, then bleed and flush the brake system using fresh brake fluid that meets the manufacturer's recommended standards.

### 9. Brakes produce a burning odor

- a. Check for a seizing brake hydraulic component such as a brake caliper. Check the caliper piston for surface damage such as rust, and measure for out-of-round wear and caliper-to-piston clearance. Overhaul or replace failed parts and flush the brake system.
- b. Check for an internally restricted flexible brake hydraulic hose. Replace the hose and flush the brake system.
- c. Check the parking brake release mechanism, seized linkage or cable, and repair as necessary.

### BRAKE PERFORMANCE TROUBLESHOOTING HINTS

Brake vibrations or pulsation can often be diagnosed on a safe and careful test drive. A brake vibration which is felt through the brake

pedal while braking, but not felt in the steering wheel, is most likely caused by brake surface variations in the rear brakes. If both the brake pedal and steering wheel vibrate during braking, a surface variation in the front brakes, or both front and rear brakes, is very likely.

A brake pedal that pumps up with repeated use can be caused by air in the brake hydraulic system or, if the vehicle is equipped with rear drum brakes, the brake adjusters may be seized or out of adjustment. A quick test for brake adjustment on vehicles with rear drum brakes is to pump the brake pedal several times with the vehicle's engine not running and the parking brake released. Pump the brake pedal several times and continue to apply pressure to the brake pedal. With pressure being applied to the brake pedal, engage the parking brake. Release the brake pedal and quickly press the brake pedal again. If the brake pedal pumped up, the rear brakes are in need of adjustment. Do not compensate for the rear brake adjustment by adjusting the parking brake, this will cause premature brake lining wear.

To test a vacuum brake booster, pump the brake pedal several times with the vehicle's engine off. Apply pressure to the brake pedal and then start the engine. The brake pedal should move downward about one inch (25mm).

## 4. WHEELS, TIRES, STEERING AND SUSPENSION

### 4-A. Wheels and Wheel Bearings

#### 1. Front wheel or wheel bearing loose

##### All Wheel and Four Wheel Drive Vehicles

- a. Torque lug nuts and axle nuts to specification and recheck for looseness.
- b. Wheel bearing worn or damaged. Replace wheel bearing.

##### Front Wheel Drive Vehicles

- a. Torque lug nuts and axle nuts to specification and recheck for looseness.
- b. Wheel bearing worn or damaged. Replace wheel bearing.
- c. Wheel bearing out of adjustment. Adjust wheel bearing to specification; if still loose, replace.

##### Rear Wheel Drive Vehicles

- a. Wheel bearing out of adjustment. Adjust wheel bearing to specification; if still loose, replace.
- b. Torque lug nuts to specification and recheck for looseness.
- c. Wheel bearing worn or damaged. Replace wheel bearing.

#### 2. Rear wheel or wheel bearing loose

##### All Wheel and Four Wheel Drive Vehicles

- a. Torque lug nuts and axle nuts to specification and recheck for looseness.
- b. Wheel bearing worn or damaged. Replace wheel bearing.

##### Front Wheel Drive Vehicles

- a. Wheel bearing out of adjustment. Adjust wheel bearing to specification; if still loose, replace.

- b. Torque lug nuts to specification and recheck for looseness.
- c. Wheel bearing worn or damaged. Replace wheel bearing.

##### Rear Wheel Drive Vehicles

- a. Torque lug nuts to specification and recheck for looseness.
- b. Wheel bearing worn or damaged. Replace wheel bearing.

### 4-B. Tires

#### 1. Tires worn on inside tread

- a. Check alignment for a toed-out condition. Check and set tire pressures and properly adjust the toe.
- b. Check for worn, damaged or defective suspension components. Replace defective parts and adjust the alignment.

#### 2. Tires worn on outside tread

- a. Check alignment for a toed-in condition. Check and set tire pressures and properly adjust the toe.
- b. Check for worn, damaged or defective suspension components. Replace defective parts and adjust the alignment.

#### 3. Tires worn unevenly

- a. Check the tire pressure and tire balance. Replace worn or defective tires and check the alignment; adjust if necessary.
- b. Check for worn shock absorbers. Replaced failed components, worn or defective tires and check the alignment; adjust if necessary.
- c. Check the alignment settings. Check and set tire pressures and properly adjust the alignment to specification.
- d. Check for worn, damaged or defective suspension components. Replace defective parts and adjust the alignment to specification.