DIAGNOSIS AND TESTING (Continued)

2. Observe fluid level in reservoir. If after several brake applications the fluid level remains the same, measure wheel turning torque required to rotate wheels with brakes applied as follows:
   - Place transmission in NEUTRAL and raise vehicle on hoist. Refer to Section 00-02.
   - Apply brakes with a minimum of 445N (100 lbs) and hold for approximately 15 seconds. With brakes still applied, exert torque on front wheels to 101 N·m (75 lb-ft). If either wheel rotates, inspect internal components of master cylinder. Replace or service master cylinder.

Diagnostic Technique No. 3

Reservoir Sealing Points—Check

An empty reservoir condition may be caused by two types of non-pressure external leaks.

Type 1: An external leak may occur at the master cylinder reservoir cap because of improper positioning of the gasket and cap. Reposition cap and gasket.

Type 2: An external leak may occur at the reservoir mounting grommets. Service such a leak by installing new grommets.

Type 3: ABS only - An external leak may occur at either end of the HCU supply hose or the HCU reservoir.

Diagnostic Technique No. 4

Brake Pedal Reserve—Check

Where a low pedal or the feel of a bottomed out condition exists, check for brake pedal reserve.

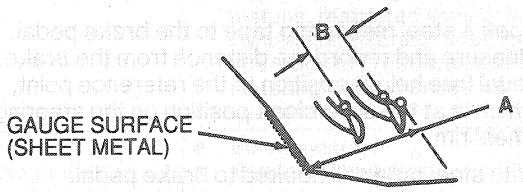
1. Operate engine at idle with the transmission in either PARK or NEUTRAL.
2. Depress brake pedal lightly three to four times.
3. Allow 15 seconds for vacuum to replenish booster.

   NOTE: This increased resistance may feel like something has bottomed out.
4. Apply brake pedal until it stops moving downward or an increased resistance to the pedal travel occurs.
5. Hold pedal in applied position and raise the engine speed to approximately 2,000 rpm.

   NOTE: The additional movement of the brake pedal is the result of the increased engine manifold vacuum which exerts more force on the brake booster during engine rundown. This means that additional stroke is available in the master cylinder, and the brake system is not bottoming out as a customer may believe.
6. Release accelerator pedal and observe that brake pedal moves downward as engine returns to idle speed.

Brake Pedal Free Height Measurements

1. Insert a slender, sharp-pointed prod through carpet and sound deadener to dash panel metal. Measure distance to center on top of brake pedal pad.
2. If the position of pedal is not within specification, check brake pedal for missing, worn, or damaged bushings, or loose retaining bolts and replace, if required.
3. If pedal free height is still out of specification, check brake pedal, booster or master cylinder to ensure correct components are installed. Replace components as necessary.



H4001-B

TYPE	PEDAL FREE HEIGHT "A" MAX.	PEDAL FREE HEIGHT "A" MIN.	MAXIMUM PEDAL TRAVEL (INCHES) "B"
Power Disc	172mm (7.0 Inches)	156mm (6.0 Inches)	59.5mm (2.34 MAX.)

NOTE: Vehicles close to maximum pedal travel specifications may be improved by bleeding the brake system.

Brake Pedal Travel Measurement

Tools Required:

- Brake Pedal Effort Gauge 021-00001

1. With engine running and transmission in PARK or NEUTRAL, block wheels and release parking brake.