

Component Tests

Brake Booster

1. Disconnect the brake booster vacuum sensor/check valve from the brake booster and connect a suitable vacuum/pressure tester to the booster side of the vacuum sensor/check valve.
2. Apply the parking brake, start the engine and place the transmission in NEUTRAL.
 - Allow the engine to reach normal operating temperature.
3. **NOTE:** Subtract approximately 3.38 kPa (1 in-Hg) from the specified reading for every 304.8 m (1,000 ft) of elevation above sea level.

Verify that vacuum is available at the vacuum sensor/check valve with engine running at normal idle speed.

- The vacuum gauge should read between 51-74 kPa (15-22 in-Hg).
 - If specified vacuum is available, stop the engine, connect the vacuum sensor/check valve and continue with Step 5.
 - If specified vacuum is not available, continue with Step 4.
4. Disconnect the vacuum sensor/check valve from the vacuum hose and verify that the specified vacuum is available at the hose with the engine at idle speed and the transmission in NEUTRAL.
 - If specified vacuum is available, stop the engine, install a new vacuum sensor/check valve and continue with Step 5.
 - If specified vacuum is not available, stop the engine, connect the vacuum hose to the vacuum sensor/check valve and refer to [Section 303-00](#) to diagnose the no/low vacuum condition.
 - On vehicles equipped with a brake vacuum pump, if specified vacuum is not available, inspect the vacuum hose and install new as necessary. If vacuum hose is OK, install a new brake vacuum pump. Refer to [Section 206-07](#).
 5. Apply the brake pedal several times to exhaust all vacuum from the system.
 6. Apply the brake pedal and hold it in the applied position. Start the engine and verify that the brake pedal moves downward after the engine starts.
 - If the brake pedal moves, the brake booster is operating correctly.
 - If the brake pedal does not move, install a new brake booster. Refer to [Section 206-07](#).
 7. Operate the engine a minimum of 20 seconds at idle. Stop the engine and let the vehicle stand for 10 minutes, then apply the brake pedal. The brake pedal feel should be the same as that noted with the engine operating.
 - If the brake pedal feels hard (no power assist), install a new brake booster vacuum sensor/check valve and retest.
 - If condition still exists, install a new brake booster. Refer to [Section 206-07](#).
 - If the brake pedal feels the same as noted with the engine operating, the vacuum sensor/check valve is functioning properly.

Brake Master Cylinder — Bypass Condition

1. Inspect the master cylinder. Refer to [Brake System Inspection](#) in this section.
2. Disconnect the brake tubes from the master cylinder.
3. Plug the outlet ports of the master cylinder.
4. **NOTE:** Make sure that the outlet port plugs do not show signs of leakage.

Lightly apply the brakes and hold for 10 seconds. Release the brakes and then reapply with heavy force. If brake pedal height cannot be maintained, the brake master cylinder has an internal leak and a new brake master cylinder must be installed.

- If brake pedal height is maintained, reinstall brake tubes and tighten to specifications. Refer to Specifications in this section. After installation, bleed the brake system. Refer to [Brake System Bleeding](#) in this section.

Brake Master Cylinder — Compensator Port

1. Inspect the master cylinder. Refer to [Brake System Inspection](#) in this section.
 2. With the vehicle in NEUTRAL, position it on a hoist. Refer to [Section 100-02](#).
 3. Apply and release the brakes.
 4. With the brakes released, attempt to rotate each wheel and check for any brake drag.
 - If an excessive amount of brake drag exists at multiple wheels, continue to Step 5.
 - If an excessive amount of brake drag exists at only one wheel, it indicates a possible seized brake caliper, brake wheel cylinder or parking brake component. Repair or install new components as necessary.
 5. Check the brake stoplamp switch and the brake pedal free play to verify that the brake pedal is not partially applied.
 6. Loosen the brake master cylinder nuts and position the brake master cylinder away from the brake booster.
 7. With the brakes released, attempt to rotate each wheel and check for any brake drag.
 - If the brake drag is no longer present, install a new brake booster. Refer to [Section 206-07](#).
 - If the brake drag is still present, install a new master cylinder. Refer to [Section 206-06](#).
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