

No. BPI 11-08

**Subject:** Hard braking when cold, lack of power assist

**Vehicles Involved:** all vehicles operating in cold climate (sub-freezing temperatures).

**Condition:** A hard pedal or lack of power assist in cold weather (below freezing) at initial start up when the brake pedal is depressed. Vehicles driven in cold weather and kept inside a garage overnight may experience these symptoms.

**Repair:** A quick test, with KOEO, depresses the brake pedal several times. This will bleed off any vacuum trapped in the booster. Apply pressure to the brake pedal and start the engine if your foot drops slightly the booster is functioning normally.

If the pedal does not drop perform the following steps; remove the power brake booster vacuum hose. It is important to check the booster operation with a vacuum gauge. A minimum of 16 inches hg (units for measuring vacuum inches of mercury) at the booster check valve connection is required to operate the booster.

If you do not have the proper vacuum, check the source, and check for obstruction in the hose. If the hose is obstructed, replace it. Check the PCV valve by shaking it. You should hear a clicking noise which indicates the valve is free. Check for any moisture or water inside the valve itself. If water is found, dry it out thoroughly. Replacement hoses should replicate the original equipment hose.

Condensation can freeze the booster diaphragm and/or check valve thus creating a hard brake pedal. Vehicles that have been driven in cold weather and are kept inside a garage overnight may experience these symptoms. Another approach to solving this problem is to let the engine warm up before driving away.