

DIAGNOSIS AND TESTING - HYDRAULIC BOOSTER

The hydraulic booster uses hydraulic pressure from the power steering pump. Before diagnosing a booster problem, first verify the power steering pump is operating properly. Perform the following checks.

- Check the power steering fluid level.
- Check the brake fluid level.
- Check all power steering hoses and lines for leaks and restrictions.
- Check power steering pump pressure.

NOISES

The hydraulic booster unit will produce certain characteristic booster noises. The noises may occur when the brake pedal is used in a manner not associated with normal braking or driving habits.

HISSING

A hissing noise may be noticed when above normal brake pedal pressure is applied, 40 lbs. or above. The noise will be more noticeable if the vehicle is not moving. The noise will increase with the brake pedal pressure and an increase of system operating temperature.

CLUNK-CHATTER-CLICKING

A clunk-chatter-clicking may be noticed when the brake pedal is released quickly, after above normal brake pedal pressure is applied 50-100 lbs.

BOOSTER FUNCTION TEST

With the engine off depress the brake pedal several times to discharge the accumulator. Then depress the brake pedal using 40 lbs. of force and start the engine. The brake pedal should fall and then push back against your foot. This indicates the booster is operating properly.

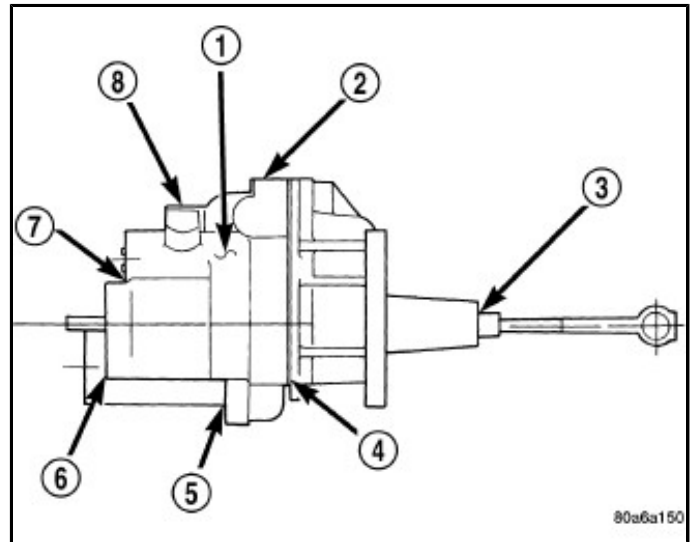
ACCUMULATOR LEAKDOWN

1. Start the engine, apply the brakes and turn the steering wheel from lock to lock. This will ensure the accumulator is charged. Turn off the engine and let the vehicle sit for one hour. After one hour there should be at least two power assisted brake application with the engine off. If the system does not retain a charge the booster must be replaced.
2. With the engine off depress the brake pedal several times to discharge the accumulator. Grasp the accumulator and see if it wobbles or turns. If it does the accumulator has lost a gas charge and the booster must be replaced.

SEAL LEAKAGE

If the booster leaks from any of the seals the booster assembly must be replaced .

- **INPUT ROD SEAL (3):** Fluid leakage from rear end of the booster.
- **PISTON SEAL (6):** Fluid leakage from vent at front of booster.
- **HOUSING SEAL (4):** Fluid leakage between housing and housing cover.
- **SPOOL VALVE SEAL (7):** Fluid leakage near spool plug.
- **RETURN PORT FITTING SEAL (8):** Fluid leakage from port fitting.



HYDRAULIC BOOSTER DIAGNOSIS CHART

CONDITION	POSSIBLE CAUSES	CORRECTION
Slow Brake Pedal Return	<ol style="list-style-type: none"> 1. Excessive seal friction in booster. 2. Faulty spool valve action. 3. Restriction in booster return hose. 4. Damaged input rod. 	<ol style="list-style-type: none"> 1. Replace booster. 2. Replace booster. 3. Replace hose. 4. Replace booster.
Excessive Brake Pedal Effort.	<ol style="list-style-type: none"> 1. Internal or external seal leakage. 2. Faulty steering pump. 	<ol style="list-style-type: none"> 1. Replace booster. 2. Replace pump.
Brakes Self Apply	<ol style="list-style-type: none"> 1. Dump valve faulty. 2. Contamination in hydraulic system. 3. Restriction in booster return hose. 	<ol style="list-style-type: none"> 1. Replace booster. 2. Flush hydraulic system and replace booster. 3. Replace hose.
Booster Chatter, Pedal Vibration	<ol style="list-style-type: none"> 1. Slipping pump belt. 2. Low pump fluid level. 	<ol style="list-style-type: none"> 1. Replace power steering belt. 2. Fill pump and check for leaks.
Grabbing Brakes	<ol style="list-style-type: none"> 1. Low pump flow. 2. Faulty spool valve action. 	<ol style="list-style-type: none"> 1. Test and repair/replace pump. 2. Replace booster.