

# Brake Systems

## BRAKE SYSTEM TROUBLESHOOTING

**NOTE** — This is a general trouble shooting guide. Not all steps will apply to all brake systems. When using this guide, locate condition in column one that corresponds to your problem and determine the possible cause in column two. Match the number of the possible cause with the same number in column three.

CONDITION	POSSIBLE CAUSE	CORRECTION
▶ Pull when brake applied	<ol style="list-style-type: none"> <li>1) Incorrect tire pressure</li> <li>2) Front end out of line</li> <li>3) Unmatched tires</li> <li>4) Restricted brake lines or hoses</li> <li>5) Malfunctioning caliper</li> <li>6) Bent shoe or oily linings</li> <li>7) Malfunctioning rear brakes</li> <li>8) Loose suspension parts</li> <li>9) Loose calipers</li> </ol>	<ol style="list-style-type: none"> <li>1) Inflate tire evenly to pressure indicated in owner's manual</li> <li>2) Check and align front end</li> <li>3) Make sure all tires have approximately equal amounts of tread and pressure</li> <li>4) Inspect for soft hoses or damaged lines. Replace with new hoses or brake tubing</li> <li>5) Check for stuck or sluggish pistons, improper fluid, repair as necessary</li> <li>6) Install new shoe and lining in complete axle sets</li> <li>7) Check auto adjuster and wheel cylinders, repair as necessary</li> <li>8) Check and repair as necessary</li> <li>9) Check and repair as necessary</li> </ol>
▶ Squeal or squeak without brakes applied	<ol style="list-style-type: none"> <li>1) Front linings worn out</li> <li>2) Dust or oil on drums or rotors</li> </ol>	<ol style="list-style-type: none"> <li>1) Replace linings</li> <li>2) Remove drum or rotor and clean</li> </ol>
▶ Brake rough, chatters or pulsates	<ol style="list-style-type: none"> <li>1) Excessive lateral runout</li> <li>2) Parallelism not to specifications</li> <li>3) Wheel bearings not adjusted</li> <li>4) Rear drums out-of-round</li> <li>5) Disc pad reversed, steel against rotor</li> </ol>	<ol style="list-style-type: none"> <li>1) Check and repair as necessary</li> <li>2) Check and repair as necessary</li> <li>3) Check and adjust to specifications</li> <li>4) Check and repair or replace as necessary</li> <li>5) Replace disc pad and machine rotor as necessary</li> </ol>
▶ Excessive pedal effort	<ol style="list-style-type: none"> <li>1) Malfunctioning power unit</li> <li>2) Partial system failure</li> <li>3) Worn disc pad or lining</li> <li>4) Piston in caliper or cylinder stuck or sluggish</li> <li>5) Fading brakes due to incorrect pads or linings</li> <li>6) Lining or pads glazed</li> <li>7) Worn drums</li> </ol>	<ol style="list-style-type: none"> <li>1) Check and repair as necessary</li> <li>2) Check front and rear brake system, repair as necessary</li> <li>3) Replace as necessary</li> <li>4) Remove caliper or cylinder and repair as necessary</li> <li>5) Remove and replace with correct pads or linings</li> <li>6) Sand lining and rotors or drums</li> <li>7) Repair or replace</li> </ol>
▶ Excessive pedal travel	<ol style="list-style-type: none"> <li>1) Partial brake system travel</li> <li>2) Insufficient fluid in master cylinder</li> <li>3) Air trapped in system</li> <li>4) Rear brake not adjusted</li> <li>5) Bent shoe and lining</li> <li>6) Plugged master cylinder cap</li> <li>7) Improper brake fluid</li> </ol>	<ol style="list-style-type: none"> <li>1) Check front and rear system for failure and repair</li> <li>2) Fill master cylinder with correct fluid, check system for leaks, repair as necessary</li> <li>3) Bleed system</li> <li>4) Adjust rear brake and check auto adjuster for damage</li> <li>5) Replace shoes in complete sets</li> <li>6) Clean cap vents, bleed system</li> <li>7) Flush system, replace all rubber parts, refill with correct brake fluid</li> </ol>

## BRAKE SYSTEM TROUBLESHOOTING (Cont.)

CONDITION	POSSIBLE CAUSE	CORRECTION
▶ Pedal travel decreasing	<ol style="list-style-type: none"> <li>1) Compensating port plugged</li> <li>2) Swollen cup in master cylinder</li> <li>3) Master cylinder piston not returning</li> <li>4) Weak shoe retracting springs</li> <li>5) Wheel cylinder pistons sticking</li> </ol>	<ol style="list-style-type: none"> <li>1) Open port with air or wire</li> <li>2) Replace rubber parts</li> <li>3) Overhaul master cylinder</li> <li>4) Replace springs</li> <li>5) Overhaul wheel cylinders</li> </ol>
▶ Dragging Brakes	<ol style="list-style-type: none"> <li>1) Master cylinder pistons not returning correctly</li> <li>2) Restricted brake lines or hoses</li> <li>3) Incorrect parking brake adjustment on rear brakes</li> <li>4) Parking brake cables frozen</li> <li>5) Check valve installed in outlet to front disc brakes</li> <li>6) Incorrect installation of inboard disc pad</li> <li>7) Power booster output rod too long</li> <li>8) Brake pedal not returning freely</li> </ol>	<ol style="list-style-type: none"> <li>1) Check master cylinder and repair as necessary</li> <li>2) Check for soft hoses or damaged lines. Replace with new hoses or brake tubing</li> <li>3) Check and readjust to correct specifications</li> <li>4) Repair as necessary</li> <li>5) Check master cylinder outlet and remove check valve if present</li> <li>6) Remove and install shoe correctly</li> <li>7) Replace with correct length</li> <li>8) Stop light switch not adjusted correctly. Pedal pivot not lubricated. Wiring interference</li> </ol>
▶ Brakes grab or uneven braking action	<ol style="list-style-type: none"> <li>1) All conditions under "Brake Pulls"</li> <li>2) Malfunction of combination valve</li> <li>3) Malfunction of power brake unit</li> <li>4) Binding brake pedal</li> </ol>	<ol style="list-style-type: none"> <li>1) All corrections listed under "Brake Pulls"</li> <li>2) Replace valve and bleed system</li> <li>3) Check and repair as necessary</li> <li>4) Check and repair or lubricate as necessary</li> </ol>
▶ Pulsation or roughness felt during normal brake application	<ol style="list-style-type: none"> <li>1) Uneven pad wear caused by caliper not sliding due to improper clearance or dirt</li> <li>2) Uneven rotor wear causing a thickness variation between the two braking surfaces</li> <li>3) Drums out-of-round</li> </ol>	<ol style="list-style-type: none"> <li>1) Remove caliper and repair as necessary</li> <li>2) Machine rotors to specifications</li> <li>3) Machine or replace drums</li> </ol>
▶ Squeal or squeak with brakes applied	<ol style="list-style-type: none"> <li>1) Insulator on outboard shoe damaged</li> <li>2) Incorrect pads or linings</li> </ol>	<ol style="list-style-type: none"> <li>1) Replace insulator</li> <li>2) Replace with correct linings</li> </ol>