

Brakes

FIG. 10: It is recommended that the brake system reservoir (1) (at the outside right rear of the cab) be checked periodically. If necessary, add the brake fluid. The fluid level should be maintained at 6 to 12 mm (1/4 to 1/2 in) from the top of the reservoir.

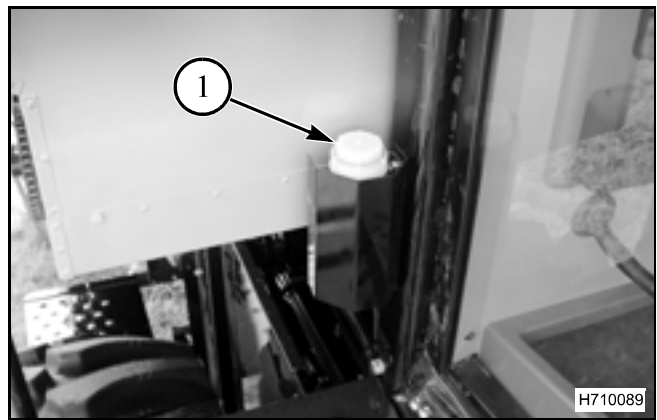


FIG. 10

Brake Lines and Hoses

FIG. 11: Metal lines and hoses should be checked frequently for leaks and for external damage. Metal lines are particularly prone to crushing and to kinking. Any such deformation can restrict the proper flow of fluid. Restricted flow will impair braking at the wheels.

Any time lines or hoses are removed or are disconnected, extreme cleanliness must be observed. Clean all joints and all connections before disassembly. Be sure to plug the lines and the ports as soon as they are opened. New lines should be flushed clean with brake fluid before installation to remove any contamination.

Use two wrenches (one to hold the joint and one to turn the fitting) when disconnecting or when replacing a line. Make sure that both fittings are correctly threaded and that the fittings turn smoothly using finger pressure.

Make sure that the lines will not rub against any other part. The brake lines must be at least 13 mm (0.5 in) from other moving parts. Any protective shielding, retaining clips, and brackets must be installed in the original location.

Fill the brake master cylinder reservoir and properly bleed the system any time the lines are removed.

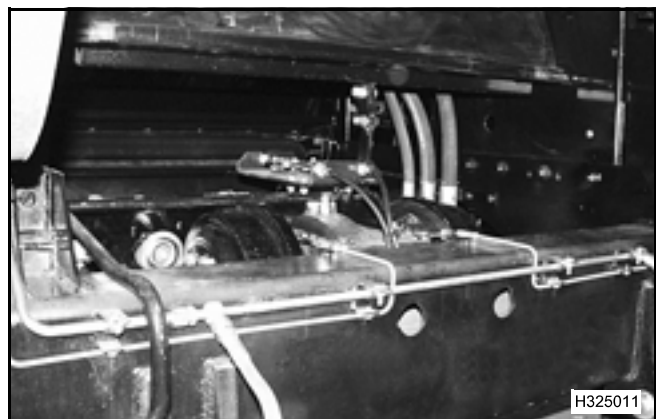


FIG. 11

Master Cylinder Operation

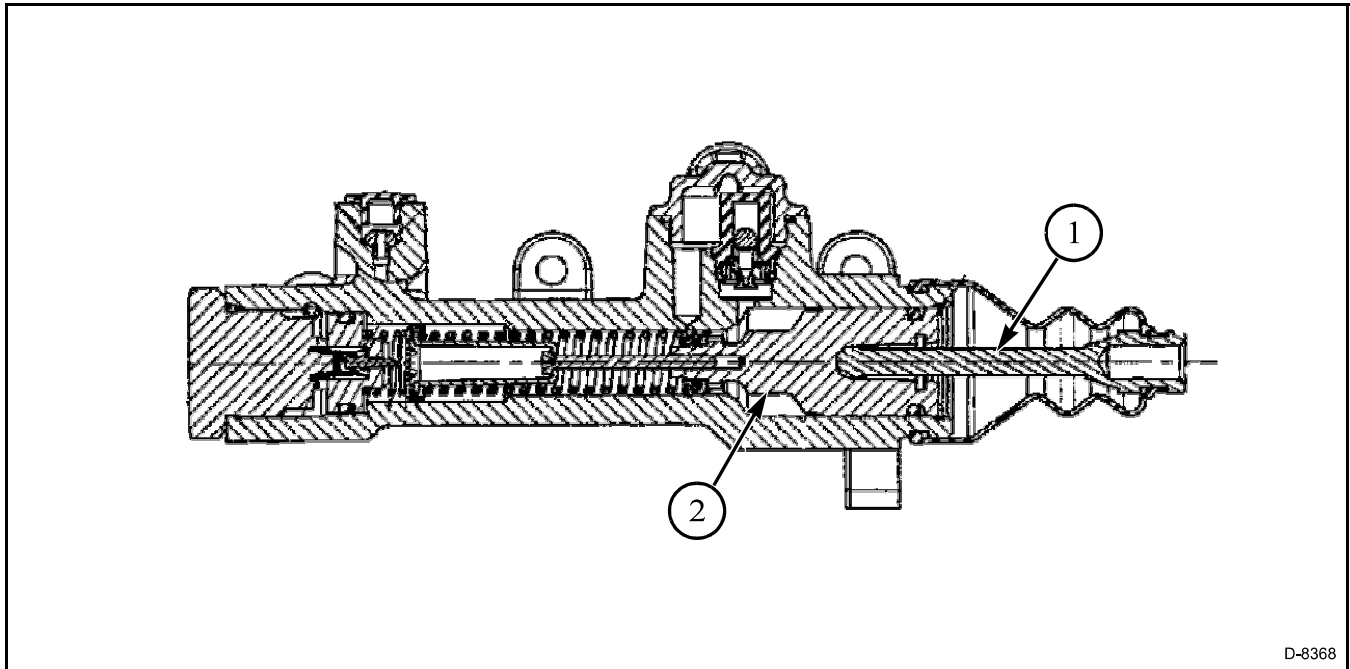


FIG. 12

FIG. 12: When one brake pedal is depressed, the push rod (1) forces the piston (2) forward in the cylinder bore. The lip of the primary cup (3) seals off the compensation port (5). The initial travel of the piston assembly forces the poppet control spring (8) to compress permitting the piston to mechanically unseat the poppet (4). Fluid under pressure can pass the poppet (4) and flow across the equalizing port (10) to the other master cylinder bore. Because the poppet in the non-activated cylinder bore is still on the poppet's seat, brake fluid flow/pressure is stopped at this point.

This creates a solid column of fluid between the master cylinder piston (2) and the wheel cylinder on the activated side of the braking system.

Further travel of the master cylinder piston (2) will increase the hydraulic pressure. This causes the fluid to flow from the outlet port (7) to the wheel cylinder. The pressure applied forces the two pistons of the wheel cylinders, outward in opposite directions against brake shoes/drums. When the brake pedal is released, the pedal return spring returns the brake pedal to the normal released position. The piston return spring (11) moves the piston to its normal released position.

The piston may move to the released position faster than fluid can return from the wheel cylinder. To compensate for this fast return, the lip of the primary cup (3) moves away from the cylinder bore wall. Fluid is allowed through the small holes drilled in the flange of piston (2) and past the lip of the primary cup (3). This keeps the area in front of the piston full of fluid at all times. This action enables the operator to pump the brakes to displace the wheel cylinder piston further if the brakes are not adjusted to specifications.

When the master cylinder piston returns to the fully released position, the compensating port (5) is uncovered and the displaced fluid returns to the master cylinder reservoir. The poppet return spring (9) forces the equalizing poppet (4) back onto its seat.

The wheel cylinder pistons are returned to their released position by the return springs mounted to the brake shoes.

When the brake pedals are locked together to apply both brakes simultaneously, operation is as described above. Because both poppets are mechanically unseated, brake system pressure is equalized through the equalizing port (10). The equalizing port inter-connects both sides of the master cylinder. This equalizing effect assures that equal pressure is applied to both wheel cylinders. Both brakes are applied equally even in the event the brakes are not adjusted evenly.