

BRAKE MASTER CYLINDER - MAINTENANCE PRACTICES

1. General

A. This section provides information on brake master cylinder removal, installation and disassembly/reassembly.

2. Master Cylinder Removal/Installation

A. Remove Master Cylinder (Refer to Figure 201).

- (1) Drain the hydraulic fluid from brake system.
- (2) Remove the pilot foot rest assembly immediately forward of pilot's control column mast.
- (3) For Airplanes 208B5000 and On refer to Figure 201 and do the steps that follow:
 - (a) Loosen the hose union fitting nuts on each of the cylinders.
 - (b) Remove the hose assemblies from the cylinder union fittings.
 - (c) If the master cylinders are to be replaced, remove the two each union fittings and related O-rings from the right and left brake cylinders.
 - 1 Discard the removed O-rings.
 - (d) Plug the cylinder ports.
- (4) For Airplanes 20800001 and On and Airplanes 208B0001 thru 208B4999 refer to Figure 201 do the steps that follow:
 - (a) Loosen the nuts and the remove the hoses from the cylinder.
 - (b) Remove the fittings from the brake cylinder.
 - (c) Plug the cylinder ports.
- (5) Remove the cotter pins and clevis pins from the upper connection at rudder pedals of the master cylinder.
- (6) Remove the cotter pins and clevis pins at the floorboard mounting points.
 - (a) Remove the master cylinder.

B. Install the Master Cylinder (Refer to Figure 201).

- (1) Remove the plugs from the ports of the brake cylinder.
- (2) For Airplanes 208B5000 and On refer to Figure 201 and do the steps that follow:
 - (a) Install two each union fittings and related new O-rings to the right and left brake cylinders.

NOTE: Fittings that were removed from a master cylinder that is being replaced can be used for the new cylinder if they are found to be serviceable.
 - (b) Put the hose fittings in their correct position on the right and left cylinder union fittings.
 - (c) Tighten the union fitting nuts on each of the cylinders.
- (3) For Airplanes 20800001 and On and Airplanes 208B0001 thru 208B4999 refer to Figure 201 and do the steps that follow:
 - (a) Attach the fittings, O-rings, and nuts to the brake cylinder.
 - 1 Tighten the nuts.
 - (b) Attach the hoses to the fittings.
- (4) Put the master cylinder in its correct position on the floorboard mounting points.
 - (a) Install the clevis pins and cotter pins that attach the master cylinder to the mounting points.
- (5) Put the piston rod clevis in its correct position on the rudder pedal bell crank.
 - (a) Install the clevis pins and cotter pins that attach the master cylinder to the bell crank.
- (6) Connect the brake hoses to the master cylinder (Upper port is inlet, lower port is outlet).
- (7) Bleed the brake system. Refer to Wheels and Brakes - Maintenance Practices.
- (8) Install the pilot foot rest assembly.

3. Master Cylinder Disassembly/Reassembly

A. Disassemble the Master Cylinder (Refer to Figure 201 and Figure 202).

- (1) Drain residual hydraulic fluid from open ports of body.

- (2) Loosen the jam nut and remove clevis and nut from the piston rod.
 - (3) Remove snap ring.
 - (a) Use the piston rod to the pull plug from the body.
 - (4) Remove the packings and backup ring from the plug and discard.
 - (5) Remove the return spring and washer from the piston rod.
 - (6) Loosen and remove the nut and washer.
 - (a) Record the position of the countersink of the washer.
 - (b) Remove the spring, piston, Stat-O-Seal, and the compensating sleeve from the body.
 - (7) Remove the packing from the piston.
- B. Assemble Master Cylinder (Refer to Figure 201 and Figure 202).
- (1) Use clean hydraulic fluid (MIL-PRF-5606) as a lubricant for the new piston packing.
 - (a) Assemble a new packing in the groove of the piston.
 - (2) Assemble the Stat-O-Seal, piston, and spring onto the piston rod.
 - (a) Make sure that the small diameter of the spring is in contact with the nut.
 - (b) Tighten until clearance between the piston and Stat-O-Seal is 0.040 inch, +0.005 or -0.005 inch.
 - (3) Install the washer with the countersink toward the clevis, on the assembled piston rod.
 - (4) Install the return spring on the assembled piston rod.
 - (5) Lubricate the cylinder bore of body with hydraulic fluid.
 - (a) Insert the piston rod assembly in the body.
 - (6) With the notched end toward the piston, install compensating sleeve over the piston rod.
 - (7) Lubricate the plug with clean hydraulic fluid.
 - (a) Insert a new backup ring and packing in the interior groove of the plug.
 - (8) Install a new packing on the exterior groove of the plug.
 - (9) Slide the assembled plug over the piston rod and in the body.
 - (a) Install the snap ring.
 - (10) Assemble the clevis to the brake master cylinder as follows:
 - (a) Apply Locquic Primer T to the master cylinder assembly rod threads.
 - 1 Allow the primer to dry before you continue the procedure.
 - (b) Apply Loctite 222 anaerobic adhesive to the master cylinder.
 - 1 Make sure that the adhesive does not contaminate the rod shaft seal.
 - (c) Thread the jam nut by hand on the master cylinder rod until it bottoms out.
 - (d) Thread the clevis on the rod a minimum of seven threads.
 - (e) Hold the clevis so it does not turn.
 - 1 Torque the jam nut to 35 in-lbs.
 - (f) Remove all primer and adhesive that is more than necessary.
 - (11) Screw the jam nut and clevis on the piston rod end.