

## **BRAKE CALIPER INSPECTION AND MAINTENANCE**

The brake linings and caliper can be inspected, maintained and repaired without raising the aircraft or removing the wheel.

### **INSPECTION**

1. Visually inspect the caliper for corrosion, leaking hydraulic fluid, cracks or visible damage.
2. Check back plate attachment bolts to insure that they are properly torqued/safety wired and have not worked loose.
3. Visually check torque plate for corrosion, cracks and loose bolts that attach the torque plate to the axle.
4. Visually check brake linings for wear. Linings worn to less than 0.100" must be replaced.
5. Check brake line and brake line fittings for signs of damage or leakage. If the linings have been contaminated with fluid, they should be replaced.
6. If any conditions specified in paragraphs 2 through 6 above are experienced, repair and/or replace is required as specified below.

### **MAINTENANCE AND REPAIR**

#### **1. Removal and inspection of brake linings**

- a. Remove back plate attaching bolts and remove back plate assembly.
- b. Slide brake caliper out of torque plate assembly. Removal of the brake line may not be necessary. If removal of the brake line is necessary, cap or plug the hydraulic lines to prevent entry of contaminants. After reinstallation of the brake caliper, bleed the brakes in accordance with paragraph 5(c) of the Master Cylinder Inspection and Maintenance Section.
- c. Slide press plate assembly off of torque pins.
- d. Remove old linings by removing the rivets with a small drift punch or 1/8" diameter drill. Use care to prevent elongating the holes in the back plate or press plate. De-burr the holes after drilling if necessary.

#### **2. Installation of new linings**

- a. Clean back plate and press plate surfaces before installing new linings.
- b. Inspect back plate and press plate for excessive corrosion, visible damage, or excessive warpage. Straighten or replace press plate if warped in excess of 0.010".
- c. Rivet new linings onto back plate and press plate using rivet tool #824 or equivalent. Refer to parts manual for proper linings and rivets. Small cracks in the tubular rivets are allowed after forming, providing that no

cracks extend beyond the crest of the rounding. There may be no more than two cracks in any 90 degree segment and no more than three cracks total.

- d. Check to ensure that pads are tight to the back plate and press plate, and free of any movement.

### **3. Reinstallation of back plate and press plate assemblies**

- a. Wipe dirt, grease, etc. from brake cylinder and piston and push piston back into cylinder.
- b. Clean torque pins and lightly lubricate with a dry film such as silicon spray. Grease will attract dirt and cause excessive wear on the torque pins and press plate.
- c. Slide press plate onto torque pins and install brake caliper assembly onto torque plate.
- d. Position back plate between tire and brake disc. Install and tighten attaching bolts and washers using the torque value found on the caliper label. Safety wire the back plate attaching bolts.
- e. If you have disconnected the hydraulic lines, bleed the brake system in accordance with paragraph 5(c) of the Master Cylinder Inspection and Maintenance Section.

## **REMOVAL, INSPECTION AND REPAIR OF THE BRAKE CALIPER**

### **1. Removal and Disassembly of the Brake Caliper**

Removal of the wheel is not necessary unless the torque plate is to be removed. Disassembly should be done on a clean, cushioned flat surface to prevent nicks, scratches, and gouges to the brake.

- a. Drain the fluid from the brake system by opening the bleeder fitting and pumping the brake pedal until the system is dry. Collect the discharged fluid and dispose of properly.
- b. Disconnect brake line from brake caliper. Cap the brake line to prevent foreign material to enter.
- c. Remove the back plate.
- d. Remove the piston from the caliper body. This can be done by injecting compressed air through the brake line fitting. Care must be taken to ensure that the piston does not exit at high velocity. Slowly introduce the air at low pressure and cover the piston and caliper with a rag and/or place face down on a soft surface.
- e. Remove the O-Ring from the piston. It is recommended that new O-Rings be installed. If the old O-Rings are to be re-used, care must be taken to ensure that they are not damaged during removal or re-installation. If the O-Ring is brittle, nicked, scratched or has flat surfaces, it must be

replaced. Use only approved O-Rings that are compatible with aircraft brake fluid.

- f. If removal of the torque plate is required, remove torque plate, and wheel as described in paragraph (1) of the Wheel Assembly Inspection and Maintenance Section.

## **2. Inspection and Repair**

- a. Visually inspect cylinder for cracks, nick, corrosion, or other damage. Cracks around the torque pins are cause for replacement.
- b. Inspect the caliper torque pins for excessive wear, proper tightness, cracks in the caliper body or other damage. Cracks in the caliper body or loose torque pins are cause for rejection of the caliper body.
- c. Inspect the piston bore and piston for contamination, corrosion and scratches. Light nicks and scratches can be removed by polishing. Care must be taken not to damage the protective coating which will result in increased corrosion. Deep nicks or scratches are cause for rejection of the part.
- d. Inspect back plate and press plate for excessive corrosion, visible damage, or excessive warpage which is cause for rejection of the part. Straighten or replace press plate if warped in excess of 0.010”.
- e. Inspect the torque plate for corrosion and cracks. Excessive corrosion or cracks are cause for rejection of the part.

## **3. Reassembly and Reinstallation of the Brake Caliper Assembly**

- a. Clean the brake parts, with the exception of the O-Rings and linings, in solvent and air dry.
- b. Carefully install a new O-Ring, or serviceable O-Ring, on the piston using aircraft hydraulic fluid, Dow 55M O-Ring Lubricant or equivalent.
- c. Lightly coat the piston bore with aircraft hydraulic fluid, Dow 55M O-Ring Lubricant or equivalent, and carefully place the piston into the caliper. The side of the piston with the O-ring closest to the surface goes in first. Insert it until the top of the piston is flush with the caliper body.
- d. Slide the caliper assembly onto the torque plate on the aircraft.
- e. Install the back plate, torque the back plate bolts to 70-80 inch-pounds and safety.
- f. Reconnect the hydraulic lines, bleed the brake system in accordance with paragraph 5(c) of the Master Cylinder Inspection and Maintenance Section.
- g. If the torque plate was removed, reinstall in its original, clocked position.