

RAPCO, inc.

REPLACEMENT AIRCRAFT PARTS CO.



Brake Maintenance



Rapco, Inc. manufactures a variety of FAA-PMA Approved brake wear components for the original (Caliper style) brake assemblies. Including: Brake discs, Organic Brake wear linings and Sintered Steel brake wear linings along with the appropriate brake lining rivet & pins.



(Steel Forge shown with finished brake disc)

Rapco, Inc. brake discs are manufactured from a heat treated steel forge forcing the steel grain structure in one direction and making the brake discs much stronger than the original welded steel discs.



(Shown here: Cross section of steel forge)

This steel forge process forces the steel to flow into one direction producing an extremely strong steel structure that provides the high torque strength needed in stopping the aircraft on the runway safely.

Where is your



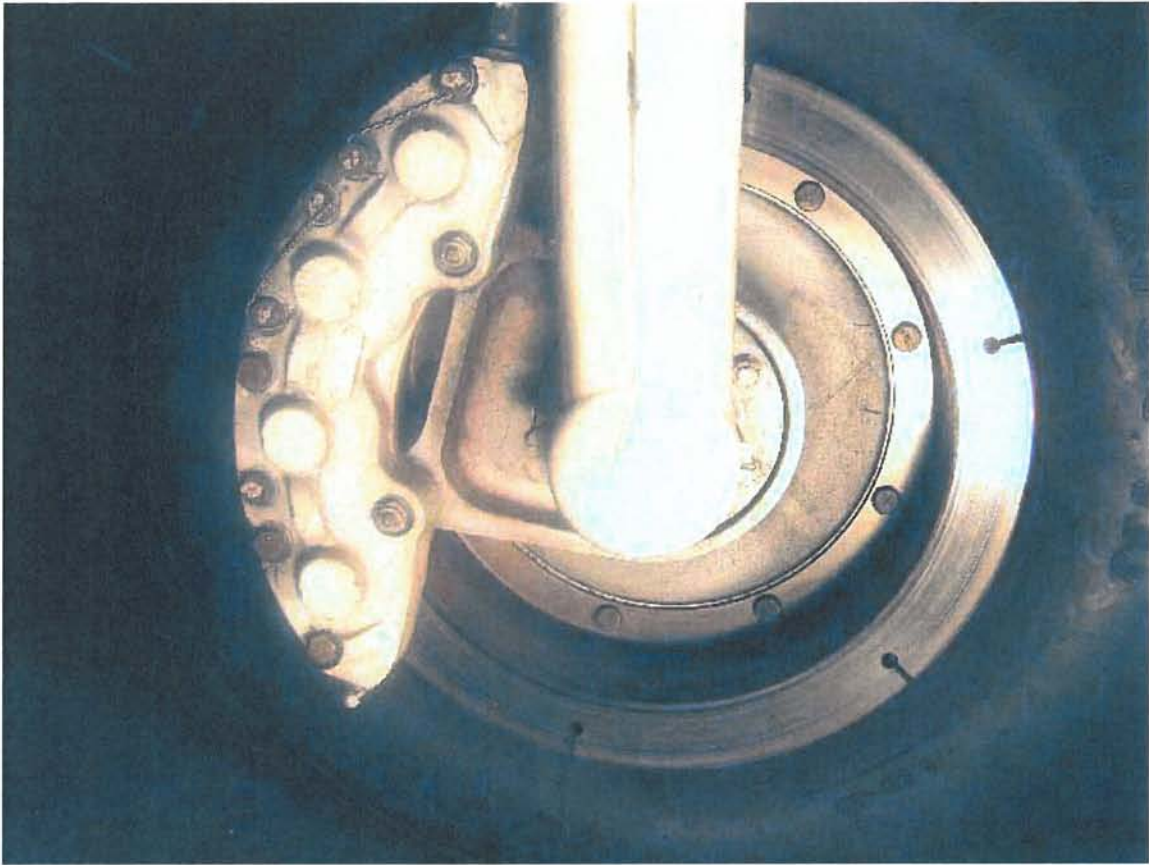
wear limit indicator?

Rapco, Inc is the first company to provide a wear indication for remaining brake lining (Pad) wear life at 0.100 inch.



(Shown brake installation with brake lining wear indicator)

Rapco, Inc. provides a wear indicator in each of our organic (Semi-metallic) brake linings making it easier to determine minimum wear while on the aircraft. *As the indicator disappears it will show minimum brake lining life left.*



(Shown typical 4 piston brake caliper & wheel)

The following... General Maintenance tips on General Aviation caliper style brakes....



(Shown: 2 Piston brake Caliper)

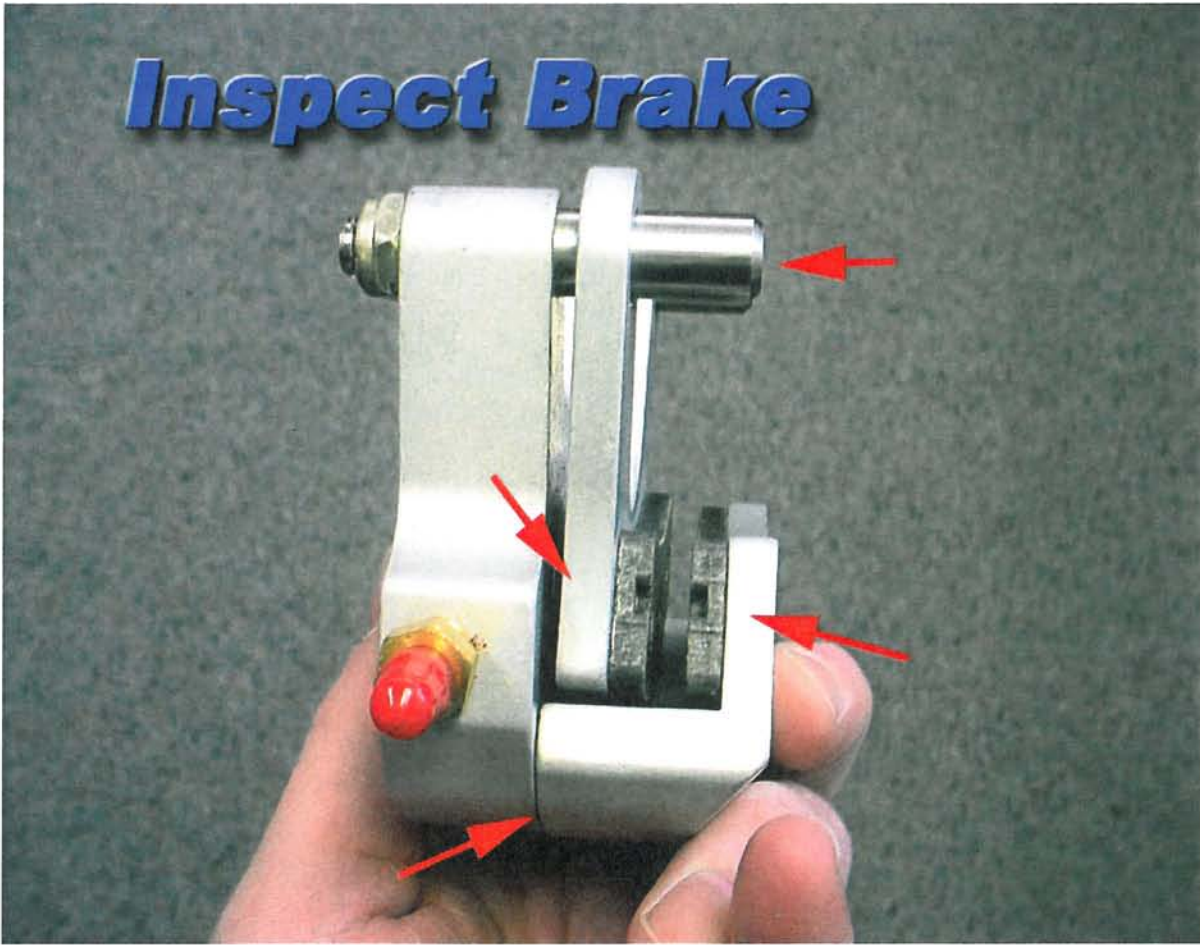
Always inspect and maintain brake calipers to their optimum performance level so that maximum braking & brake wear life can be expected.



(Shown: brake caliper piston)

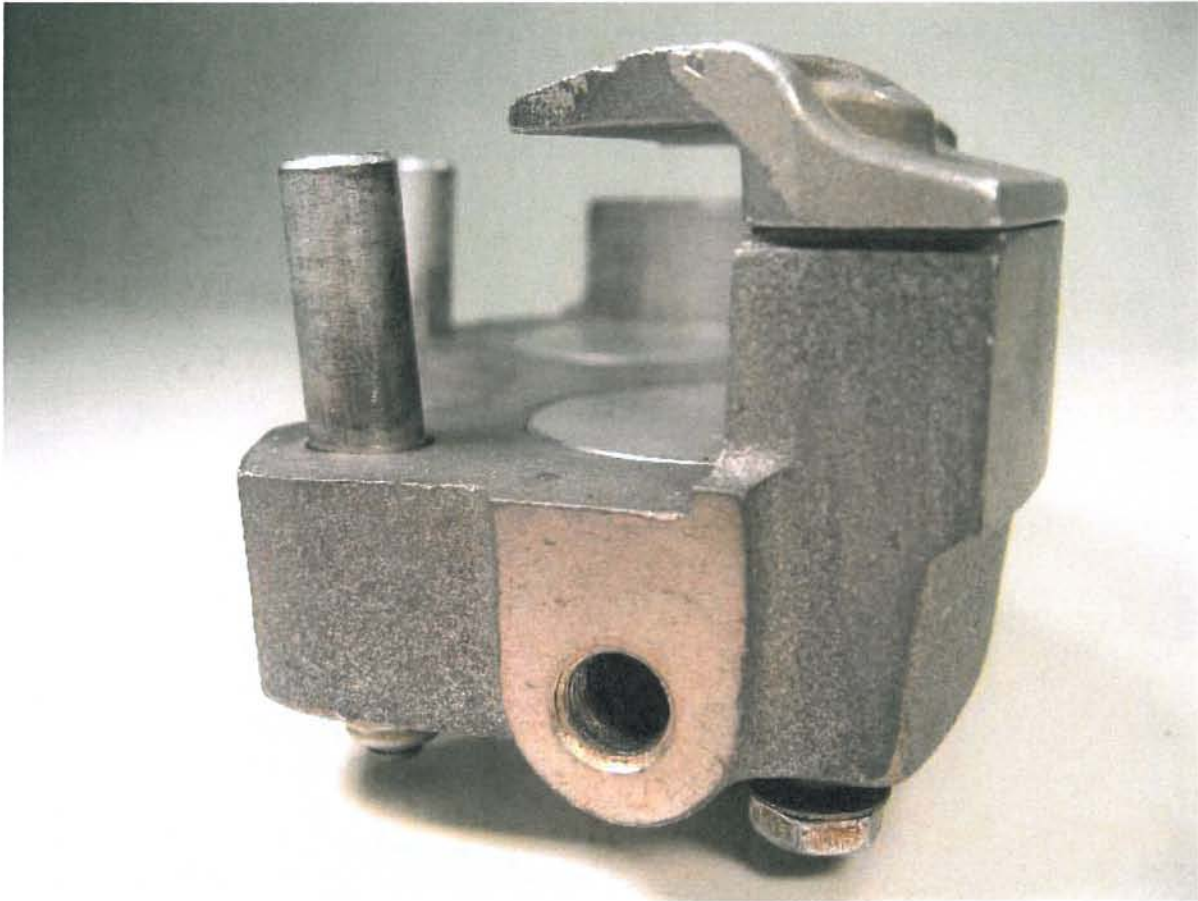
Inspect and clean all brake pistons and piston caliper housing bore for corrosion and dirt. When completing the caliper overhaul always replace o-rings with new.

Inspect Brake



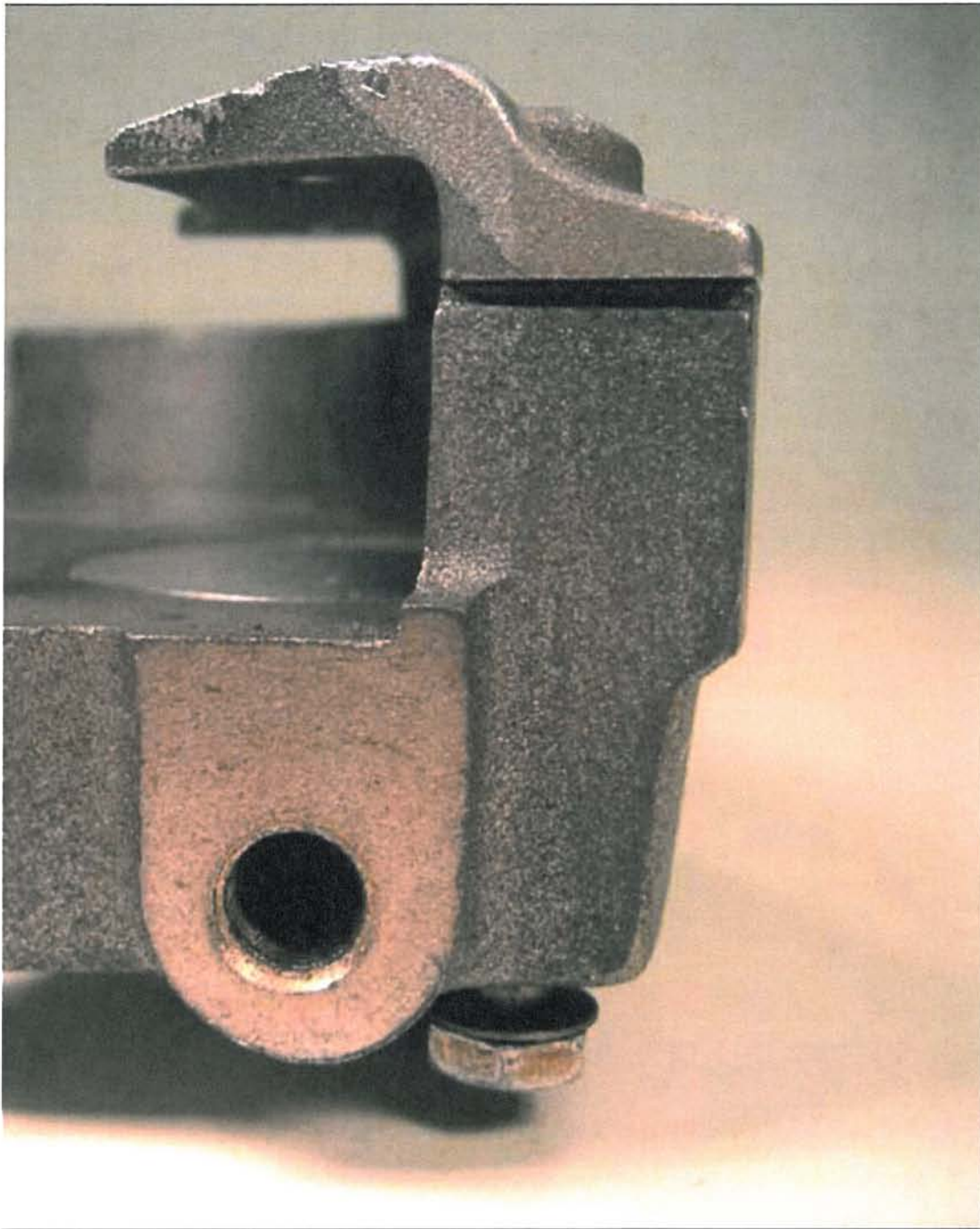
(Shown: point inspection of brake caliper)

Always refer to the component maintenance manual for inspection and overhaul of the brake caliper. It is extremely important to observe all components of the caliper in order to provide proper and safe operation of aircraft brake assemblies.



(Shown: Brake Caliper with bent anchor bolts)

Never install a brake caliper with bent anchor bolts. Always inspect the caliper and replace the anchor bolts as needed in accordance with the maintenance manual. Bent anchor bolts will cause the brake linings to contact the disc in an unparallel condition causing extreme uneven wear and possible locking of the brake.



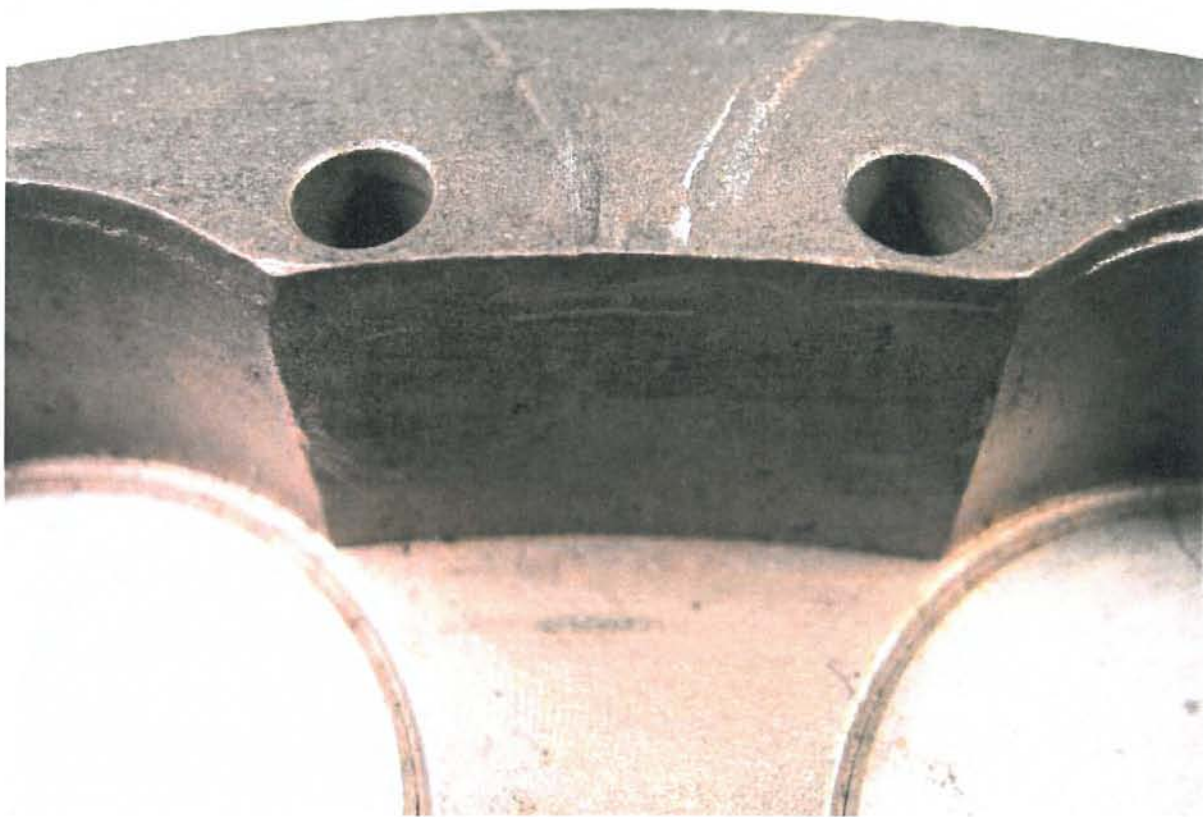
(Shown: back-plates uneven mount to the caliper assembly)

Always insure that the back-plate is parallel in the caliper and to the brake disc. If the back plate does not mount evenly on the caliper assembly it will cause an unparallel condition in relation to the brake disc. This is a very dangerous condition and can cause the brake to lock, over-temp, and possible ground-loop (On tail dragger aircraft) even a brake fire can occur from a locked brake due to unparallel.



(Shown: uneven brake lining wear due to unparallel condition in brake assembly)

The first indication of back-plate unparallel or bent anchor bolts is usually uneven brake lining wear.



(Shown here: excessively worn brake caliper housing)

The surface where the back-plate meets the caliper housing should be flat and parallel (Please refer to the component maintenance manual for details) Indentations in the caliper where the back-plate meets should not be excessive (More than 0.005). This is usually caused from over-torque of the tie-back bolts. Most tie back bolts are torqued no more than 80-90 inch lbs. (Dry) in accordance with the maintenance manual (Please refer to the component manual for the brake you are working on) This is extremely important to inspect this caliper properly and replace the caliper as needed. *An unparallel brake can cause the brake to lock and cause extreme airframe damage.*



(Shown: stretched tie back bolts from over-torque)

Replace all bolts as needed and make sure to use proper torque values when reassembling calipers and back-plates. *Always perform work in accordance with the manufacturer's component maintenance manual.*



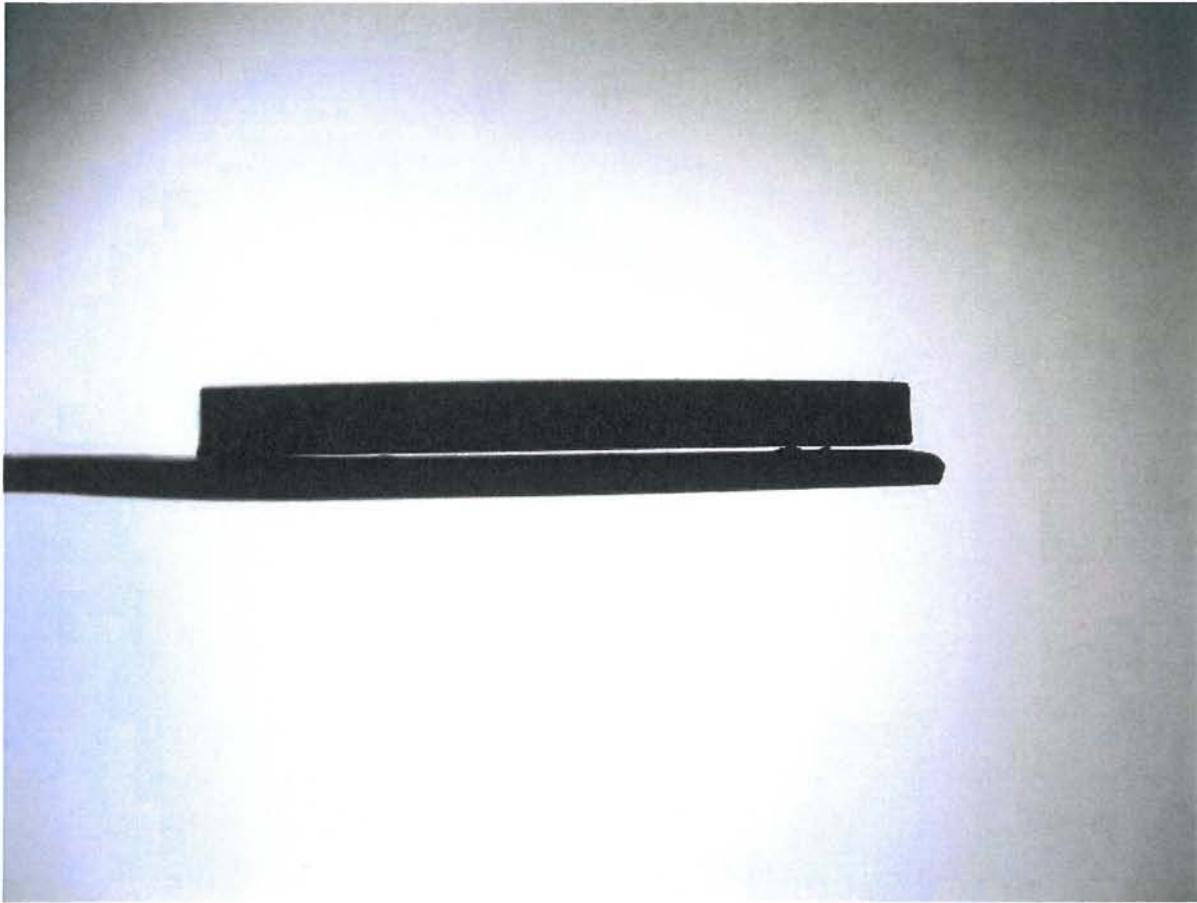
(Shown Here: typical brake pressure plate assembly)

Always make sure the pressure plate is completely flat and in good condition prior to brake lining installation.



(Shown: side view of Pressure plate with burr)

De-burr pressure plates and back-plates prior to brake lining install



(Shown: a cross section of brake lining mounted on pressure plate, showing a burr under the lining)

Always make sure there are no burrs under the brake lining before mounting. This will cause a stress point and the brake lining to crack. *Brake lining must rest flat on the pressure plate and on the back plate.*



(Shown: elongated brake rivet hole in back-plate)

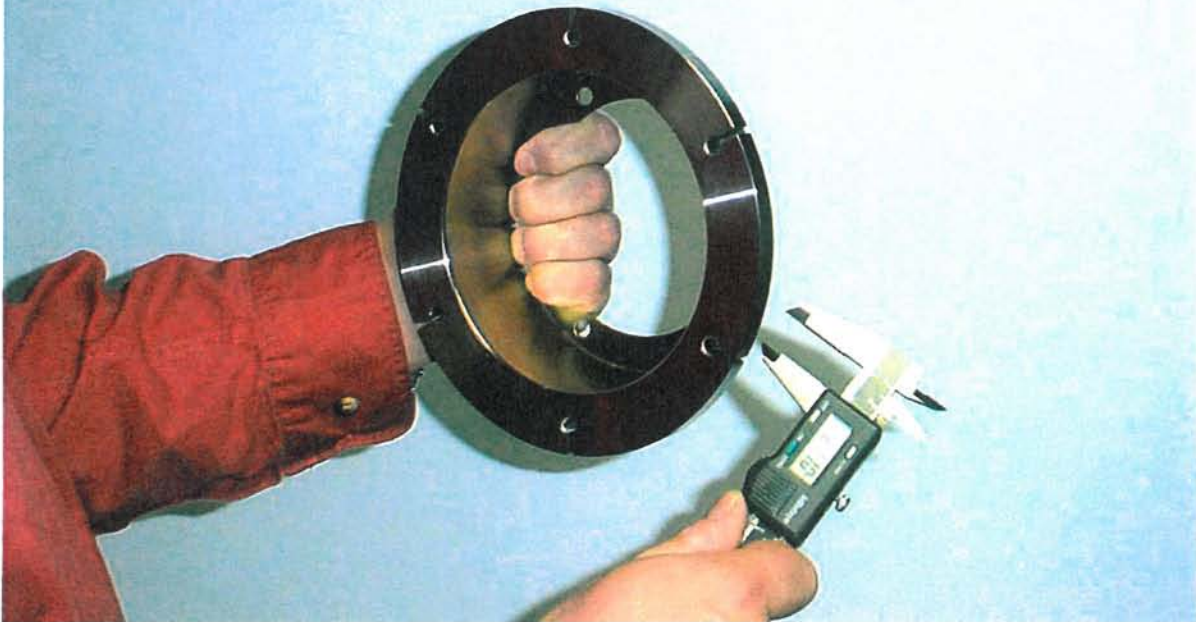
Replace any pressure plates or back plates that have elongated rivet holes. This condition can cause the brake lining to crack.



(Shown: Brake lining installation tool p/n: RA825)

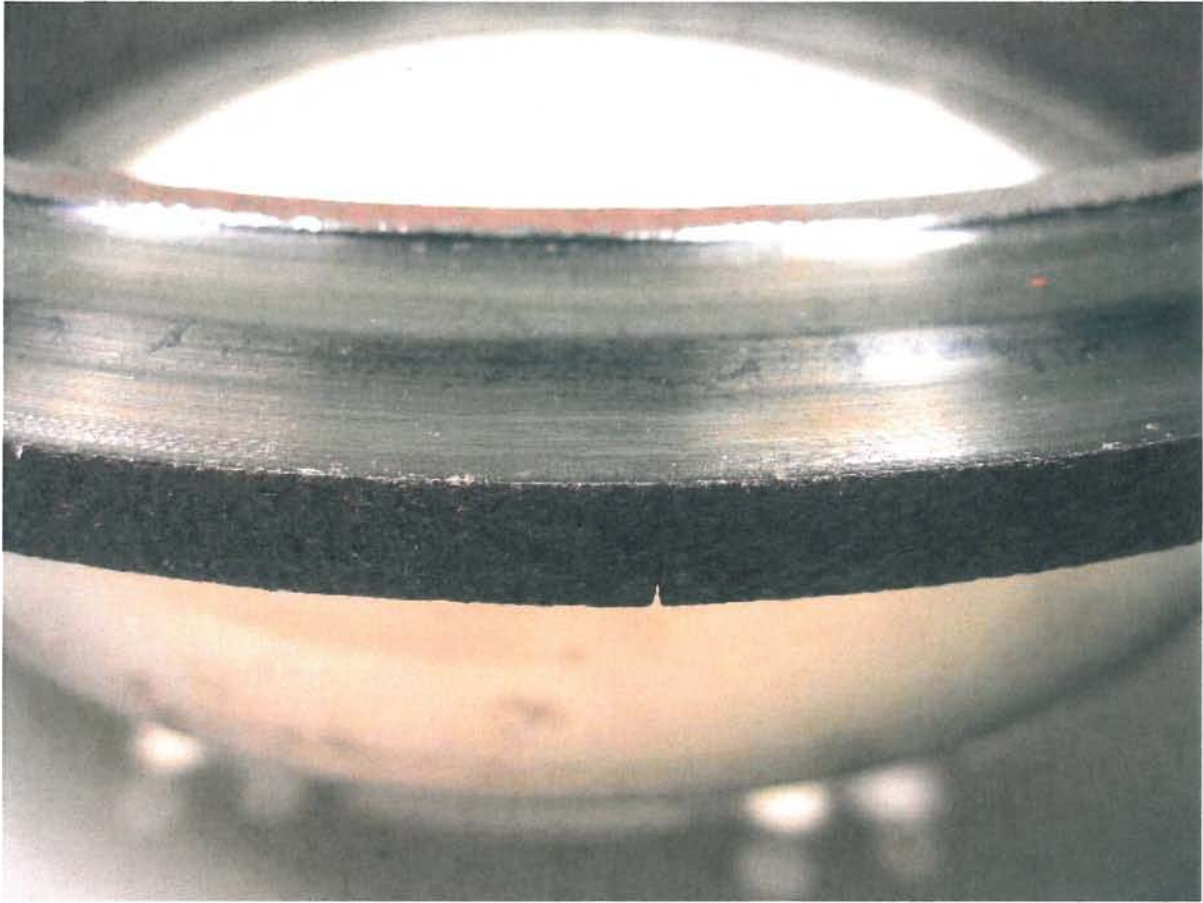
Use a twist type brake lining installation tool when re-installing new linings to the pressure & back plates. This will help from causing premature stress risers in the brake lining that result in lining cracks.

Measure Disc Thickness



(Shown: properly measuring brake disc)

Measure brake discs for maximum wear. Don't guess. Overly worn discs can crack and cause inadequate braking. *Sometimes this can be done on the aircraft but it may be necessary to remove the disc to properly measure the wear.* (Refer to Rapco catalog General Aviation brake section – “Cross reference & minimum wear thickness” Sec #5)



(Shown: Disc worn beyond minimum wear limits)

Wearing brake discs below wear limits can cause “heat cracks” and inadequate brake performance



Proper brake caliper and wheel maintenance will ensure years of good service life using Rapco brake linings and brake discs.