

# Summit Aircraft, LLC.

## Ski Installation procedures for Carbon Cub

**WARNING;** operating an aircraft equipped with snow skis can add additional risks and hazards to the aircraft and occupants. The operator of a snow ski equipped aircraft must have proper training, be proficient and be knowledgeable in all areas associated with this type of operation.

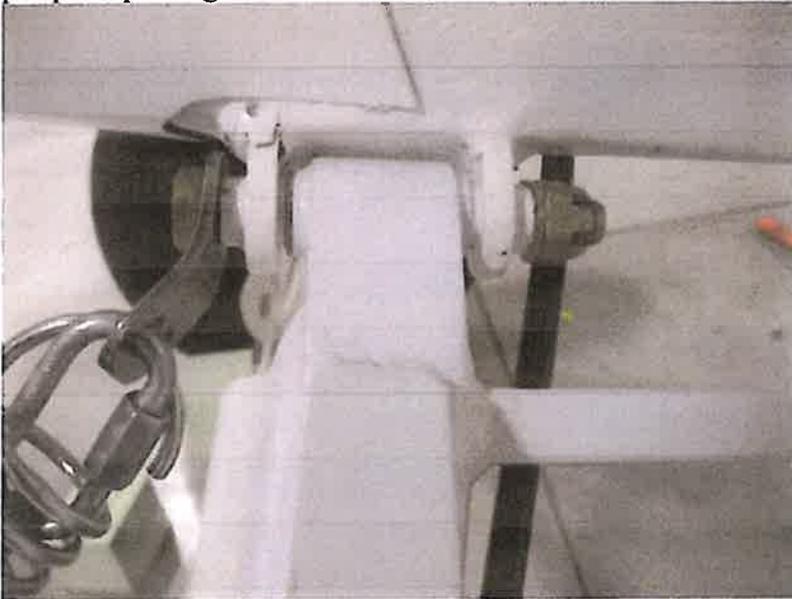
Properly secure the aircraft to safely allow the removal of the tire, landing gear bolts, some hammering, drilling and, pushing and pulling on the airframe.

Lift one side of the aircraft to remove one of the tires. You will first need to remove the bolts securing the brake pads to the caliper as the brake pads are located behind the brake disc. After the brake pads are removed, remove the axle nut cotter pin and then the axle nut, this will allow the tire to slide off of the axle.

Remove the 2 lower bolts in the brake flange that is welded to the axle. There are 4 bolts in the flange and you should only need to remove the lower 2 bolts. Now, remove the AN6 bolt that attaches the inboard end of the axle to the steel Bungee tube. With this bolt removed, the landing gear can swing up and down.



Remove the cotter pin and castle nut from the forward bolt that attaches the landing gear to the fuselage and replace it with the longer supplied bolt and the stainless 3-hole bent Tang. Slide the 3-holed bent Tang, bend forward, onto the bolt and then install the bolt back into the same hole, be sure the bolt has been lubricated. Use a thick washer to obtain the proper spacing for the Castle nut, install Castle nut and cotter pin.

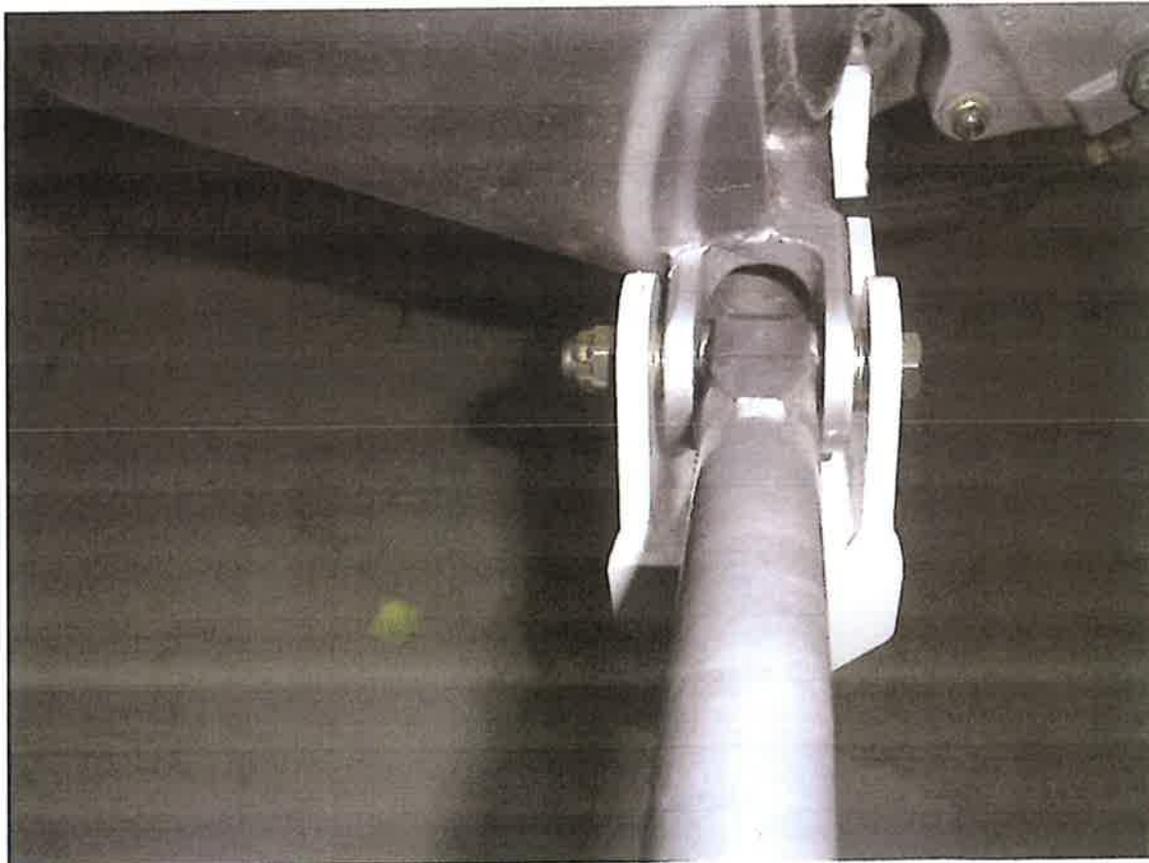


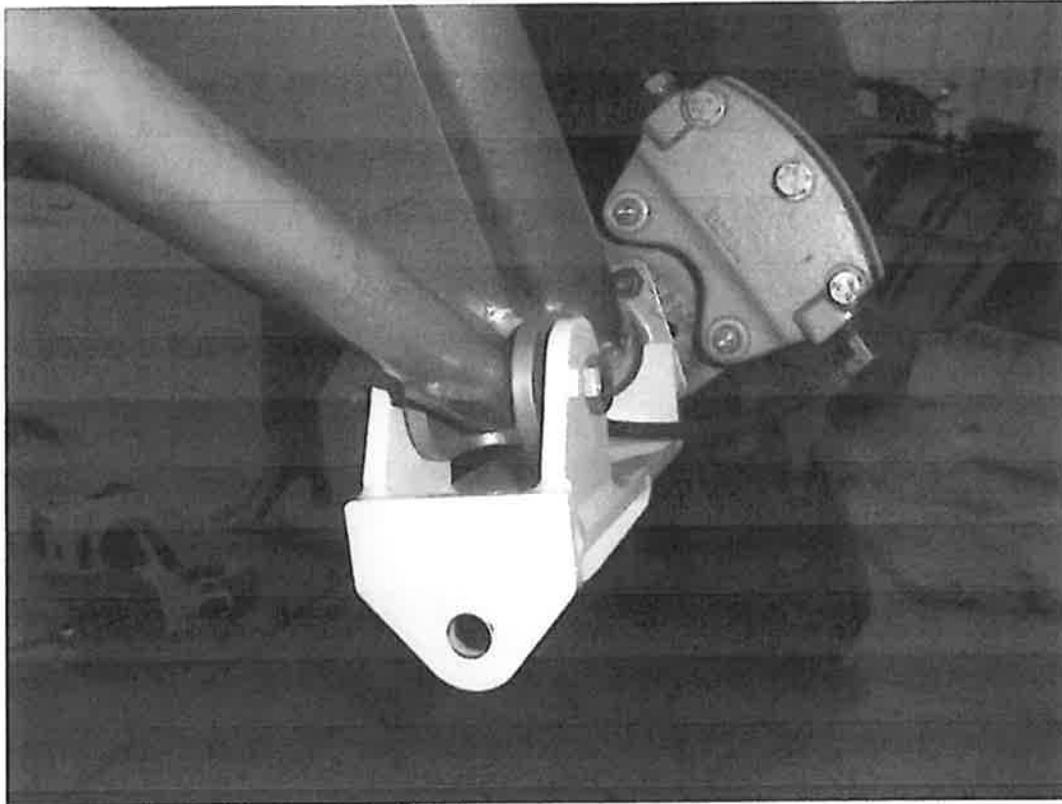
Remove the aft landing gear attach bolt cotter pin and castle nut and replace this bolt with the longer supplied bolt, be sure to lubricate the bolt. So, with the bolt fully installed, slide on a thin washer, the 2-hole bent Tang with bend facing aft and then a thick washer onto the bolt and secure with the castle nut and cotter pin. Aim the Tang towards the aft end of the ski.



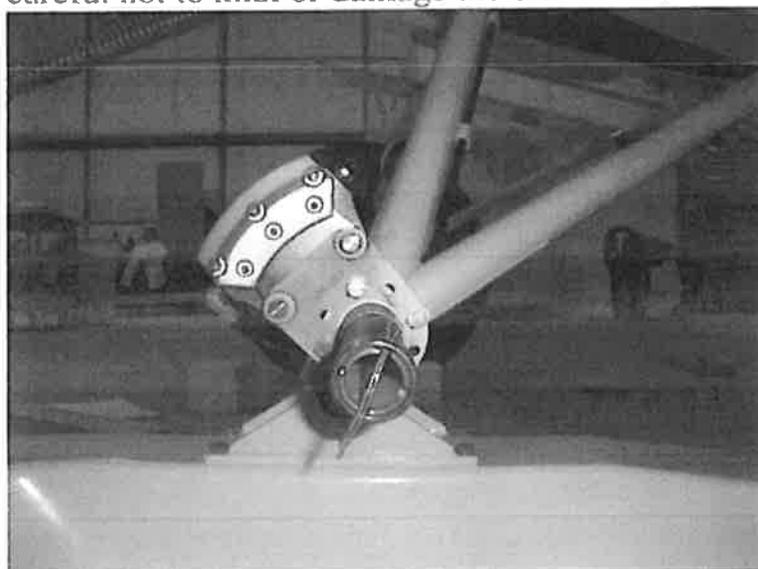
Now you should have both the forward and aft landing gear attach bolts replaced with the proper length supplied bolts along with the 3-hole bent tang on the forward face of the forward bolt and the 2-hole bent tang on the aft face of the aft bolt. Both bolts should be properly secured with cotter pins.

Next, put the end of the steel Bungee tube back into place in the axle and place the ski attach bracket onto the inner axle, it will saddle the outsides of the axle. At this stage the outboard end of the ski attach bracket should be hanging down just below the brake flange. Depending on the axle you have, there may be some extra space between the inside of the ski attach bracket and the outside of the axle. You will need to install some of the supplied thin or thick washers to take up this space. Now insert the longer supplied AN6 bolt, be sure to lubricate this bolt before installing, making sure all of the needed washers stay in place. Now the AN6 bolt is installed through the ski attach bracket, inboard end of axle and the steel Bungee tube, spin the castle nut on just to hold the bolt in place.





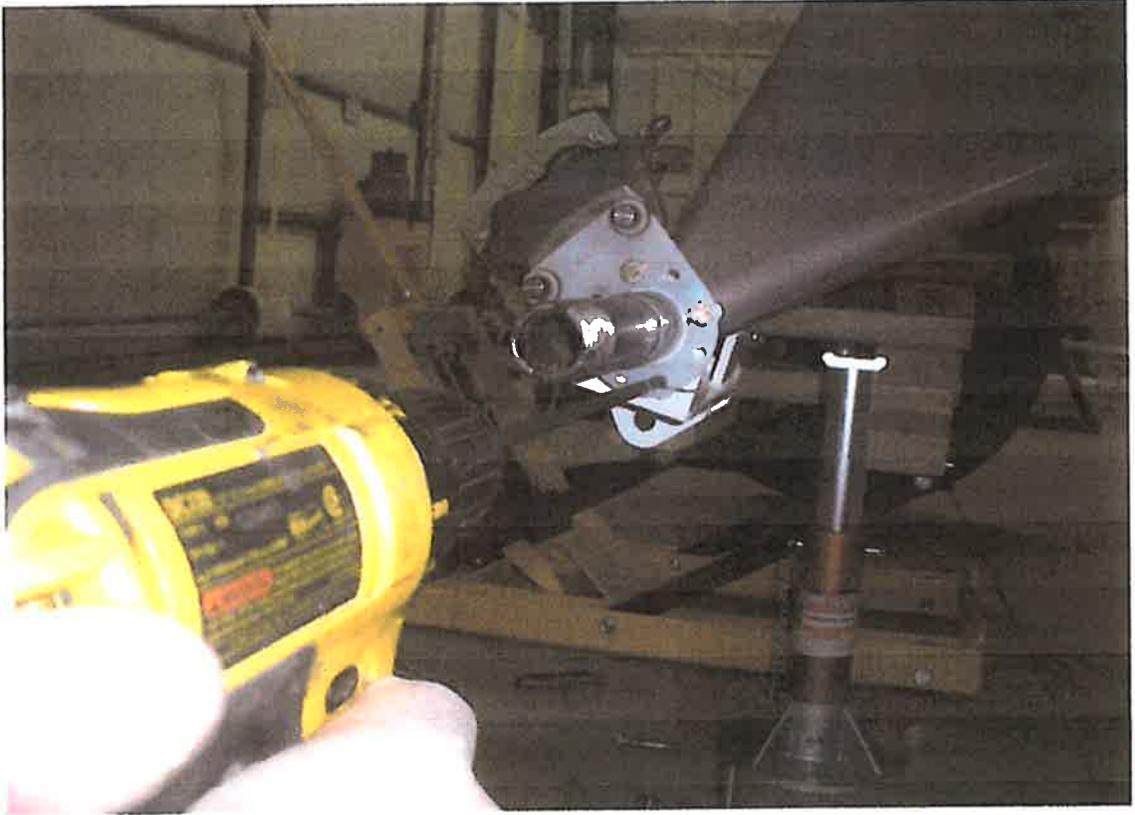
You may notice during this next procedure that there is a conflict with the ski bracket and the brake line; they want to be in the same place. The fix is to remove the upper 2 bolts that secure the brake caliper bracket to the brake flange, rotate the brake caliper bracket up one more set of holes in the brake caliper bracket. Basically, re-clock the angle of the brake caliper and the brake line will run between the ski bracket and the bottom of the axle. Be careful not to kink or damage the brake line.



Swing the outboard end of the ski attach bracket up and it will slide right up against the brake plate. Visually align the bottom of the axle to the top plate of the ski attach bracket, make them parallel to each other. Using a Vise Grip plier, clamp the ski attach bracket to the brake plate and recheck the alignment.



Using the supplied long  $\frac{1}{4}$ " drill bit, drill one of the lower 2 holes into the ski attach bracket. So the 2 lower bolts we removed in the beginning of this installation, those bolt holes will become our drill guides to drill the 2 holes into the ski attach bracket.



After you drill the first hole, recheck the alignment again, install one of the longer supplied AN4 bolts into the hole, install a washer and nut and properly torque. Once the bolt is in place and all looks good, remove the Vise Grip plier, drill the other lower bolt hole, install and torque the supplied longer bolt, washer and nut.

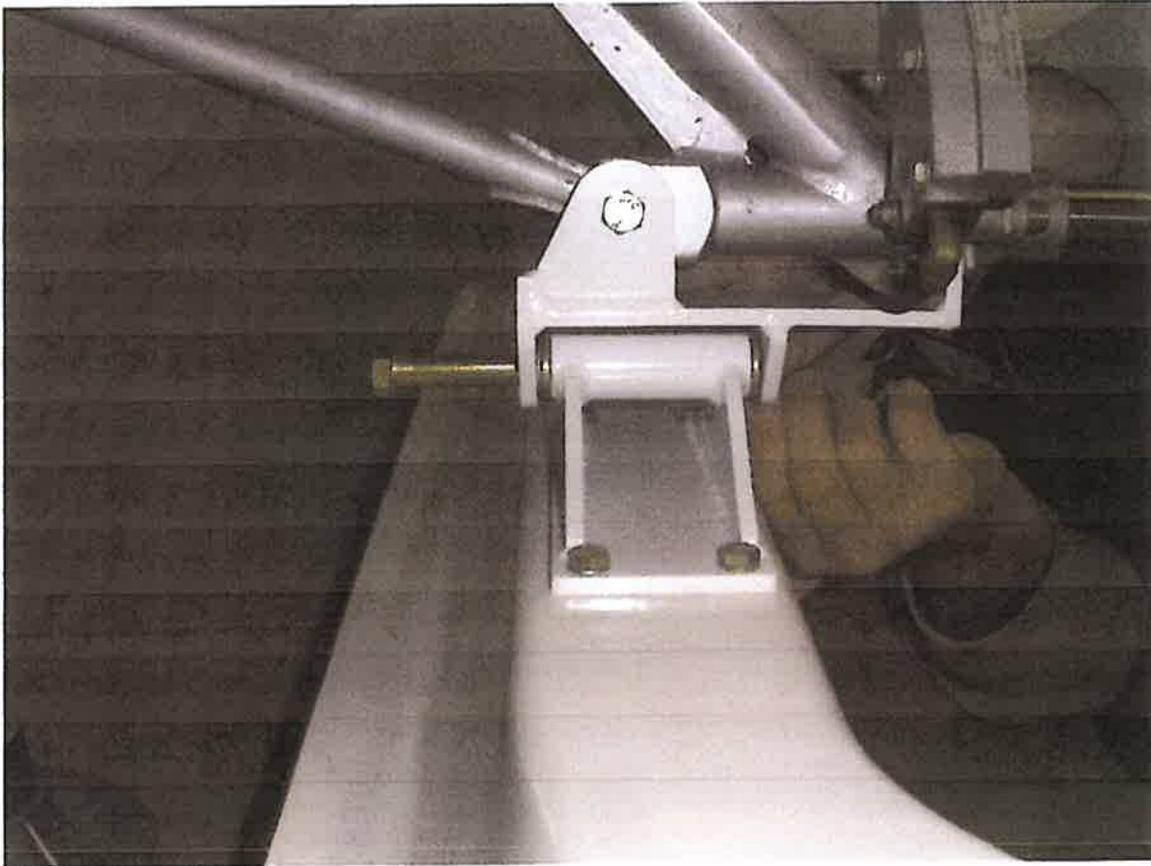
Now go back and, install and secure the washer and castle nut and cotter pin onto the AN6 bolt that you just previously installed into the ski attach bracket, axle and steel Bungee tube.

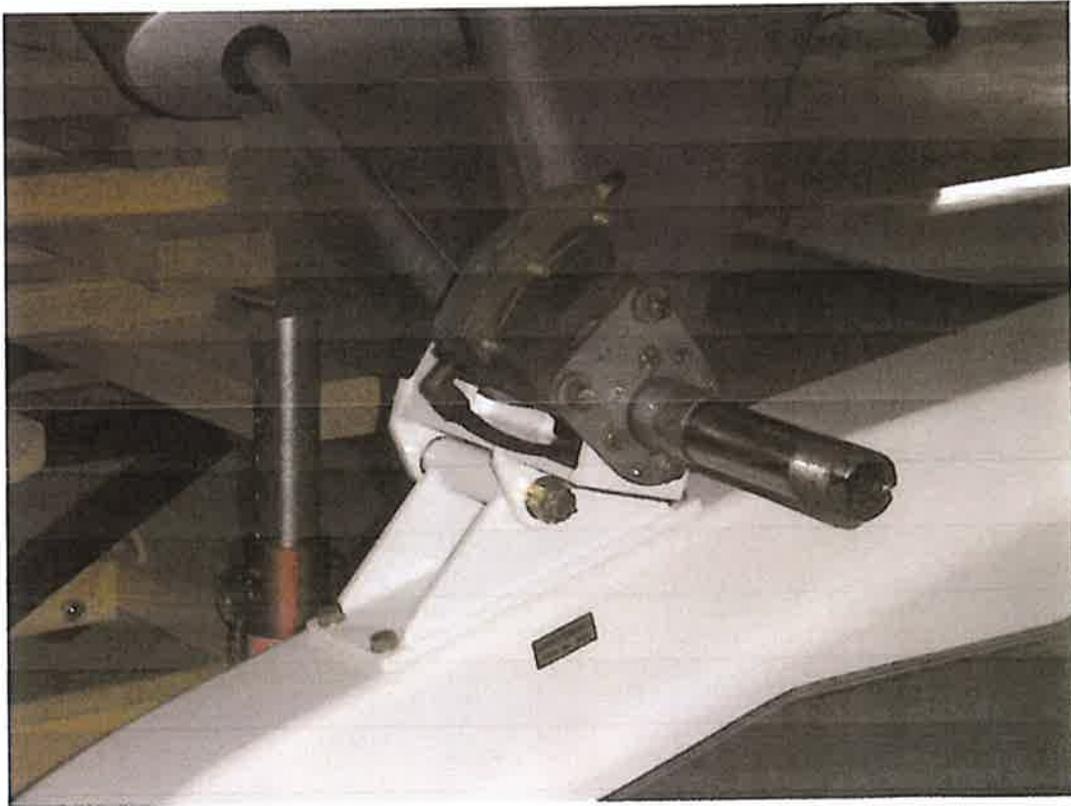
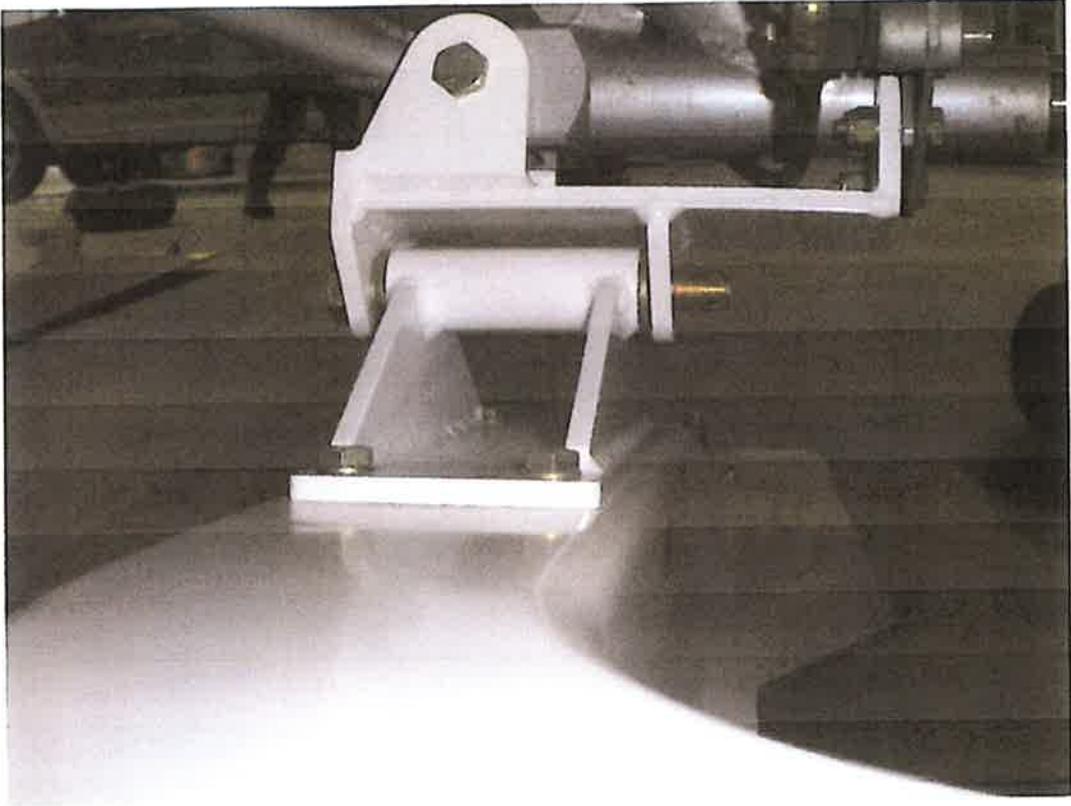
So far you have installed the forward and aft cable attach Tangs to the landing gear attach bolts, installed the ski attach bracket to the axle/gear leg and have re-installed the brake caliper.

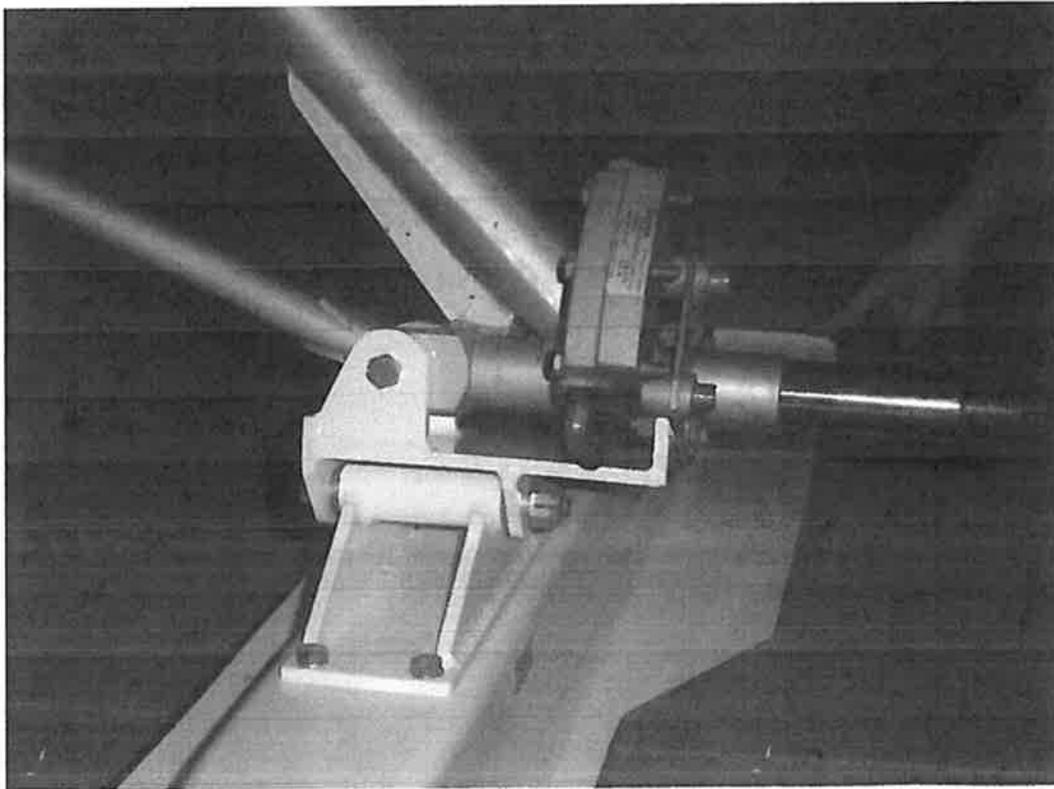
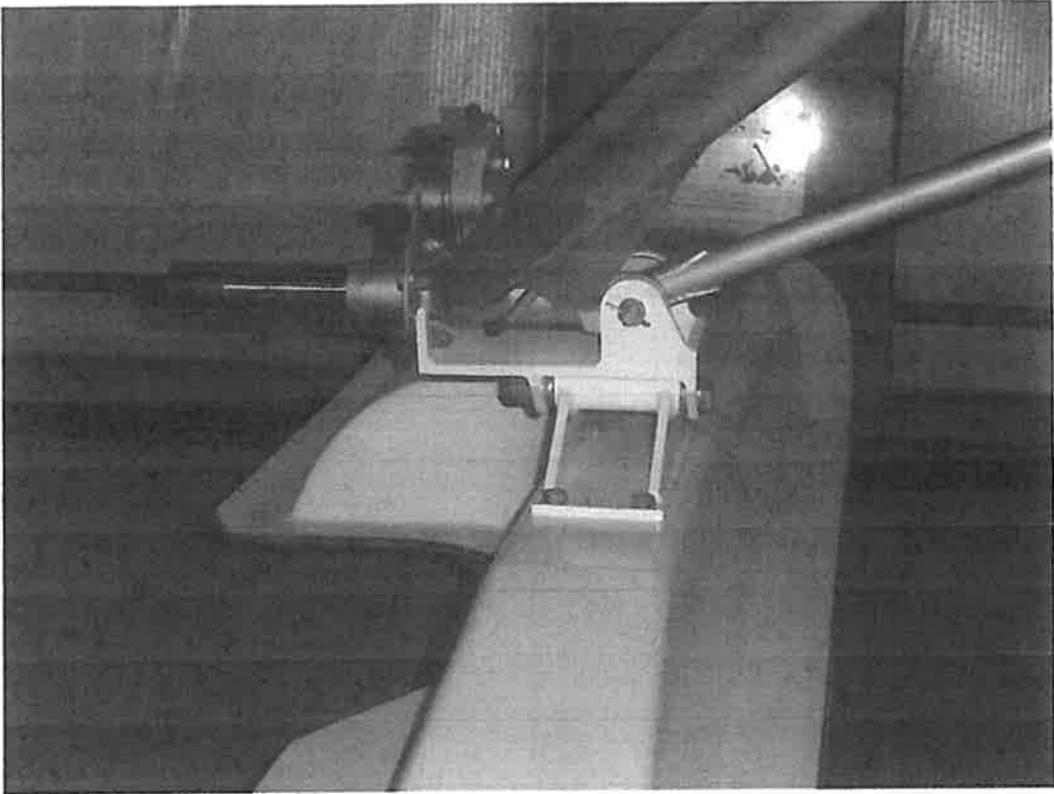
Now from the front of the plane, roll the ski under the landing gear and align the ski attach bracket to the ski bracket on the ski. Bolt the 2 brackets together using the supplied AN8 bolt and be sure to lubricate the AN8 bolt before installation.



There will be some extra space between the 2 brackets that will need to be filled using the supplied extra washers. Tighten the bolt/nut until there is a slight resistance when moving the ski up and down, insert cotter pin and properly secure. This procedure can be done with the tire removed or installed on the plane.

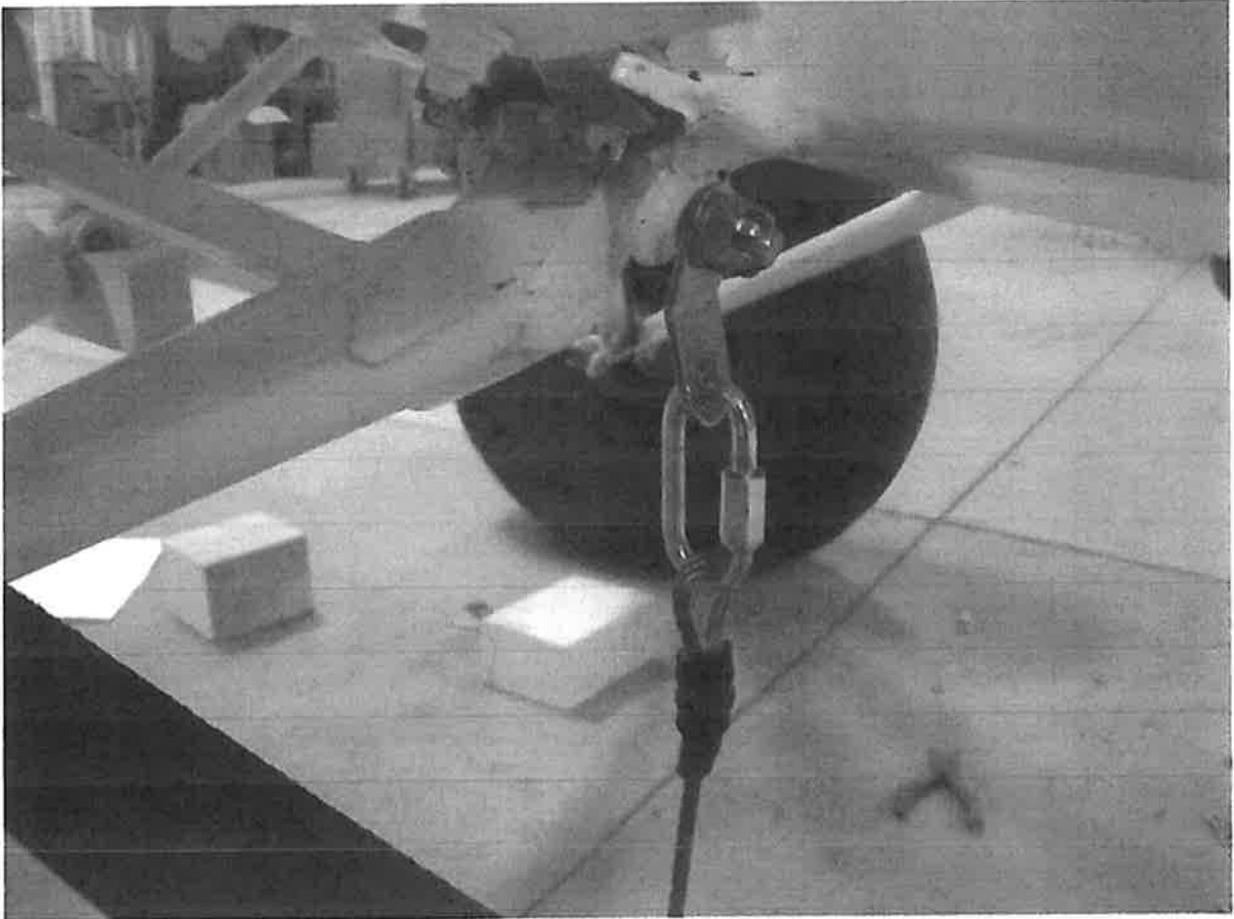




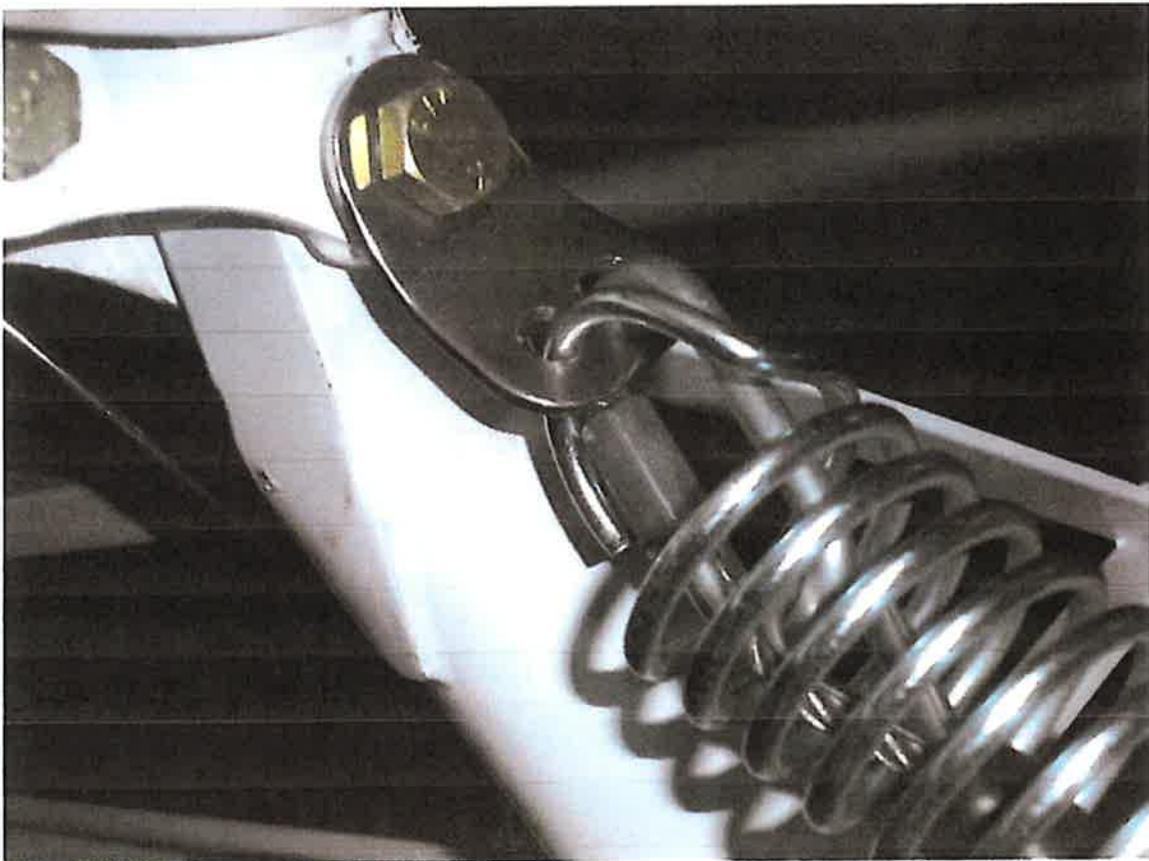


Now install the 8.50x6 tire onto the axle, tighten the nut, insert the cotter pin and properly secure. Re-install the brake system and secure the bolts. With the tire back on the ground, repeat this procedure for the other side. Check to make sure everything is properly installed and secured.

Attach the rear cable from the ski to the rear Tang using the threaded link and secure the threaded link.



Then run the forward attach cable up through the center of the spring and let the spring slide down the cable and rest on the ski. Now install the threaded link onto the attach cable and then into the outboard hole of the forward Tang. Slide the spring up the cable and hook it into the inboard hole in the Tang. With a bit of muscle, pull the spring down and hook it into the short cable. The ski tip will pull up into place with the ski tail wheel being pulled down onto the floor. The photo below shows an older Tang that is no longer used. The new stainless Tang has only one hole where the Quick Link attaches. So, attach the Quick Link into the single larger hole and then connect the spring into the Quick Link.





Confirm that all connections and installation is complete. You should have approximately 2 inches of tire below the ski when in flight and about 1 ½ inches when on the ground.

The long forward safety cable should have just enough slack in it to get it hooked into the Tang with the tail of the aircraft on the ground. There will be a fair amount of slack in the aft cable but once flying the spring will pull the ski tip up and put tension on the rear cable.

When the skis are installed and ready to use, check all bolts, nuts, cables, etc. to confirm they are properly secured. With the skis properly installed, the ski tips should be slightly above level with the aircraft in the level position. For example, when the aircraft is in level flight, the ski tips will be slightly above level. The forward ski cable/spring will hold the ski tip up in flight but will allow the ski tip to go lower when landing and taxiing. The rear ski cable prevents the ski tip from rising too high and likewise the forward cable limits the down travel of the ski tip.

Always feel free to call with any questions.

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**ATTENTION; it is extremely important to perform a preflight check for proper working condition of all the ski parts along with the ski cables and the springs. The ski cables must not have any frayed wires, and springs must be in excellent condition. Again, get proper training before ever attempting to operate an aircraft on snow skis.**