

Wing Rigger™ 5 Setup and Maintenance Note Version 5.0

This note pertains to initial adjustment on the Wing Rigger model 5 as well as a few maintenance considerations. Note that the unit is shipped unadjusted; the adjusting bolts must be properly tightened before the unit is used.

Trailing Edge Keeper Adjustment

Position the Rigger so that when the wing hangs vertically in the saddle it is located at the desired span-wise balance. Typically, the desired position is near half way between the root rib and wing tip. With the Wing Rigger positioned accordingly, there should be 5-10 pounds of downward weight on the spar. The actual amount of spar end weight is not critical as long as the weight is definitely downwards at the spar end. You may want to note the preferred position with respect to the dive brake box or other wing elements for future reference.



The black steel straps have slotted bolt holes. Loosen the four bolts holding the metal adjustment straps to allow free movement. Open the pad to its widest position and insert the keeper into the Wing Rigger saddle until the lower black metal straps are within about 3 inches of the trailing edge -- then tighten the holding knob. Now push the hardwood pad flat against the wing surface while modestly tightening the four bolts with a wrench. Remove the keeper and fully tighten the four nuts to *30 ft*lbs*. The preferred procedure is to hold the bolt head stationary while tightening the nut with a torque wrench.

Test the fit by reinstalling the keeper -- pushing it into position with around 15 pounds of downward force; then tighten the holding knob. This is the normal manner of usage. When pushed into place, there should be 1-2 inch of clearance to the trailing edge.

Depending upon the sailplane type and wing chord, different lengths of the aluminum bars may be used for the trailing edge keeper. In some applications, the long bar on the keeper may need to be shortened. If the long bar bottoms-out when pushed into place, it should be shortened.

Saddle Rotation Angle Limit Adjustment

The wing saddle pivots from a vertical position to a horizontal position. Wing Rigger includes a stop mechanism to limit the rotation at the horizontal position. The stop mechanism is comprised of two cams bolted to a steel plate; one of the cams is eccentric and thereby adjustable.



To adjust the limit angle: loosen the nut; swivel the eccentric cam; then retightened and finally torque the nut to *30 ft*lbs* while holding the bolt head stationary.

In most applications, the objective of this adjustment is to make the lift pin sockets align to the lift pins when the fuselage is in its normal position for wing assembly. It can be preferable to error on the side of a slightly excess rotation allowance; this reduces the possibility of undesired limiting when the ground terrain is uneven. During assembly, the normal practice is that the user will compensate by slightly raising the wing's trailing edge, if need be, to line up the lift pins before pushing the wing home.

Adjustable Drag on the Third Wheel

Model 5 Wing Rigger units are equipped with an adjustable drag feature on the third wheel. The purpose of this is to allow convenient operation on sloping ground. The drag on the third wheel prevents the unit from rolling out of position when you are setting up to assemble or disassemble. Since the third wheel lifts off of the ground when the wing is clamped in position for movement, the drag feature will have no deleterious effect in usage.

Experience has shown that it takes only a small amount of drag force to prevent the unit from rolling. Adjusting the drag force is easy. First release the jam nut on the axle bolt. There is a Belleville spring under the head of the axle bolt which is setting the axial tension as the bolt is threaded inwards. Adjust the bolt to the desired drag torque then retighten the jam nut.

Tire and Wheel Considerations

Wing Rigger standard wheels are 10” pneumatic style with 5/8” bore available at most hardware stores in the USA. Exact match wheels are available at www.harborfreight.com as item 41475.

The third wheel carries no significant weight. If a flat should occur on one of the outer load carrying wheels, an expedient is to swap the flat to the middle position until it can be repaired or replaced. Since the wheels are inexpensive, some users keep a spare on hand.

Inserting any thick flexible material between the tire and inner tube can be effective in preventing flats due to thorns. The appropriate dimension for such a liner is 4” X 28”. The picture at right depicts installation of a ¼” thick felt liner.

Customers in the southwest USA or other areas where thorns are present should consider using a liner. Polyurethane foam type “flat free” wheels are an excellent option.

Typical experience is that pneumatic tires will noticeably loose pressure over a period of several months; occasionally refilling the tires may be necessary even if a thorn leak has not occurred.



For the two outer wheels, the sleeve on the model 5 axle bolt is slightly longer than the width of the wheel hub. This allows the wheel bearing to operate properly with no axial binding. Since different wheels may have different hub widths, the sleeve may require length adjustment if a wheel is changed.

Other Considerations

No lubrication should be required. Particularly... to assure solid clamping performance, do not apply grease or oil at the main column locking knobs or aluminum block areas.

Wing Rigger should be stored in a manner that is protected from the weather. It can be stored inside an enclosed trailer. If the unit becomes wet, wipe dry before storage.

To enhance appearance and to protect the black oxide surfaces against rust stains, you may occasionally wipe down the black metal parts with a rag that is lightly dampened with machine oil.

Wing Riggers have been in use for many years without a single reported failure of a gas strut. Nonetheless, we will note that the gas spring is easily replaced. The part number for a 60 lbs spring is 9416K193 from www.mcmaster.com. Unscrew the large sliding knob from the main column (model 5 only) and remove the black plastic end cap from the bottom of the main column. Remove the clevis pin and slide the gas strut assembly out the bottom of the column.