

Wing Rigger™ Model 6 Setup and Maintenance Note

This note pertains to initial adjustment on the Wing Rigger model 6 sailplane solo assembly system as well as some lubrication and maintenance considerations.

Trailing Edge Keeper Adjustment



The trailing edge keeper serves to clamp the aft portion of the wing solidly against the Wing Rigger saddle as the keeper is pushed into place. The keeper is adjustable to accommodate differing wing chord and aft wing thickness of different gliders.

The keeper adjustment needs to be made at the appropriate span-wise location of the Wing Rigger. Position the wing in the Wing Rigger saddle so that when the wing rests vertically (leading edge down), it is at the desired span-wise balance point. Typically, the desired position is near half way between the root rib and wing tip. With the Wing Rigger positioned accordingly, there should be around 5-10 pounds of downward weight at the spar. The actual amount of spar weight is not critical as long as the weight is definitely downwards at the spar end. For future reference, you'll want to note the preferred position with respect to the dive brake box or other wing feature.

To make the adjustment, note that the black steel straps and the grey push plate have slotted bolt holes. The slots are short and usually hidden under the bolt heads. Loosen the four bolts holding the metal straps and the grey push plate to allow free movement of the keeper pad. With the glider wing positioned vertically in the Wing Rigger saddle, insert the keeper into the saddle until the padded lower black straps are within 2 or 3 inches of the trailing edge -- then tighten the holding knob. Push the keeper pad flat against the wing surface and modestly tightening the four nuts with a wrench. Remove the keeper and fully tighten the nuts to *~25 ft*lbs*.

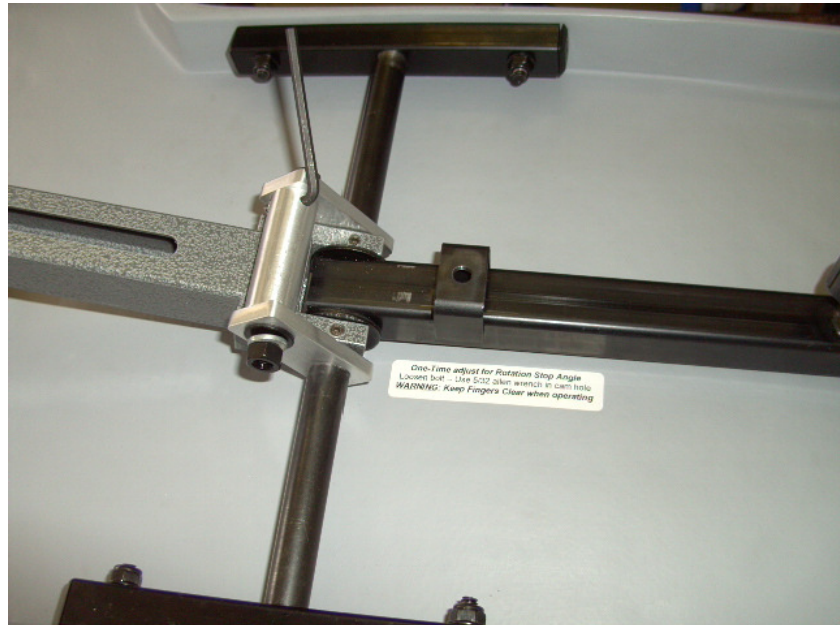
Test the fit by reinstalling the keeper -- pushing it into position with a significant downward force. Then tighten the holding knob. This is the normal manner of usage. When pushed into place, there should remain around 1 inch or so of clearance between the lower padded straps and the wing trailing edge. Iterate the adjustment if clearance is not adequate.

Depending upon the sailplane type and wing chord, different lengths of the long aluminum bar may be used for the trailing edge keeper. For some applications, the long bar on the keeper may need to be shortened. If the long bar bottoms-out when pushed into place, the keeper will not be able to apply sufficient clamping pressure on the aft portion of the wing.

Saddle Rotation Angle Limit Adjustment

Model 6 incorporates an adjustable saddle pivot stop mechanism comprising an eccentric cam. As the wing saddle pivots from a vertical position to a horizontal position, the adjustable stop limits the rotation in the horizontal.

To change the saddle stop angle, loosen the bolt running through the eccentric cam. Insert the short end of the 5/32 allen wrench into the cross hole of the cam. The allen wrench is used unconventionally as a position indicator and control lever while setting the stop angle. You will need to unload the mechanism in order to rotate the cam. Once the desired setting is established, lock the cam by tightening the nut to $\sim 25 \text{ ft}^* \text{ lbs}$.



Spare Allen Wrench Stowage

In most applications, the objective of the rotation angle adjustment is to make the wing lift pin sockets align to the fuselage lift pins. Note that it may be preferable to error on the side of a slight excess rotation allowance; this reduces the possibility of undesired limiting if the ground terrain under the Wing Rigger happens to be uneven. During assembly, the normal practice is that the user can slightly raise the wing's trailing edge, if need be, to line up the glider's pins as the wing is pushed home.

Warning:

→ Keep fingers clear of the cam mechanism when saddle is rotated ←

Wheel and Axle Assembly

Model 6 incorporates a sliding axle to facilitate lateral adjustment of the wing during assembly. There are multiple options for breaking down the unit for storage. If desired, the wheels can be easily removed. The axle shaft may also be removed or it may be left in place.

Because the axle shaft is case hardened, it is resistant to scratching. The axle slides in precision reamed Delrin bushings. The bushings are designed to pivot slightly in order to allow for the bending moment of the axle under heavy load.

The hidden inside face of the bushing block is chamfered to allow easy insertion of the axle shaft. Use gentle forces when installing the axle; give the axle a jiggle while entering the chamfered hole of the far bushing.



The wheels are retained on both sides by steel shaft collars. These collars have outstanding holding power when properly tightened. Use the 5/32" allen wrench to secure the collars. You will find that the collar cap screw can be loosened and tightened with just a quarter turn of the wrench. If only the wheels are to be removed, then the inner collars may remain fixed to the axle shaft.



The current design accommodates the use of a variety of wheels having a 5/8" axle bore. For various reasons the user may desire to change the wheels to another type. If more height is desired, 13" diameter wheels can be exchanged for the standard 10" wheels; or 8" wheels if less height is preferred.

Wing Rigger Maintenance Considerations

Typical experience is that standard pneumatic tires can gradually lose pressure over a period of months in the same manner as a bicycle tire or wheel barrow tire. Check air pressure after a period of storage. The standard tires are rated for a maximum of 30 PSI -- operation is satisfactory at 30 PSI or at much lower pressure.

Maintain a thin coat of grease on the steel axle shaft to protect the axle against rust staining. A clear product such as Super Lube is a good choice for your Wing Rigger and is often used on glider pins as well. Especially in a humid operating environment, the axle must be protected from rust. Wing Rigger should always be stored in a manner that is protected from the weather and protected from moisture and high humidity. Storing the unit inside an enclosed hangar or trailer is generally satisfactory. If the unit becomes wet, wipe dry before storage. Keep wet rags away from Wing Rigger components in storage. This is much the same manner as one would properly treat a sailplane's steel wing pins for example.

Over time, accumulated dirt on a lubricated axle may impede the sliding action. On occasion, wipe down the axle shaft and the bushing surface to remove any grit accumulation. Reapply the protective lubrication after wiping clean.

Aside from the axle, no other lubrication is suggested. Particularly avoid use of grease or oil at the main column locking knobs and the associated aluminum clamp blocks as lubricant there would diminish the effectiveness of the column clamp mechanism.

Occasionally wipe down the exposed black oxide surfaces with a rag lightly dampened with light machine oil to best protect the black steel parts and fasteners.