

Tailwheel assembly sequence

These instructions are a guide to changing and servicing your tailwheel assembly. Please read these documents carefully and file them away for future reference. It is important to regularly perform maintenance on your tailwheel assembly, as outlined in this document and our other documentation. If you lose these documents, they are available for free download on FlyboyAccessories.com, or you can request a hard copy by contacting us by phone, post, or email.

Thanks very much for shopping with Flyboy Accessories. Please don't hesitate to contact us if you have any questions, comments, or concerns.

Removing the old tailwheel unit

Raise the tail of the aircraft and support it on a padded crate, stool, or other stable object. Remove your existing tailwheel fork by removing the large AN364 nut and washers. Turn the tailwheel fork 90 degrees and drop it down and out of the mounting socket. The locking pin and spring may pop out so place your hand behind the fork as it drops out so that the locking pin and spring aren't lost.

Checking for fit

The locking pin, spring, and the washers from the old tailwheel will be reused. Check the fit of the old washer against the new tailwheel fork as shown to the right. There should not be any gap between the parts. If there is, bevel the center hole of the washer so it sits down flush.



Installing the locking pin and spring

In the photos above, note the square hole where the locking pin will reside. Even if your old mounting socket has a grease zerk (not installed on our mounting socket, shown in the right hand photo), no grease will get to this critical area unless you periodically disassemble the tailwheel, clean it, and regrease it by hand. **Do this at least once a year!**

In the center photo, notice the orientation of the rounded corners of the locking pin. Also notice that the spring is installed behind the locking pin as shown. Of course, when you install yours, it will be covered with grease or heavy oil. Your choice... just make sure the locking pin, spring, and entire shaft always stay lubricated.

Press the locking pin and spring into its housing and slide the mounting socket over the tailwheel shaft. When in proper position, the mounting socket should click into place and engage the locking pin.

The right hand photo shows the relationship between the locking pin and the machined groove in the mounting socket. The crescent shaped groove is what provides the unlocking action for the locking pin.



Installing the control arm, washers, and nut

The locking pin should firmly and positively lock into the notch in the control arm as shown on the left. If the corners of the notched area get worn or rounded, replace the control arm or service the notch. If the locking pin develops wear or burrs, it can be reprofiled with a file, sandpaper, or Scotchbrite wheel. Keep this area well lubricated to prevent excessive wear.



The center photo shows the placement of the optional shim. The shim is **OPTIONAL**. It is simply used to fill small gaps caused by wear or part variation between different manufacturers. As the bushing in the mounting socket wears down in height, you may add a shim washer if you like. Unless bushing wear is severe, the shim washers are for aesthetics only and do not affect normal operation.

The right hand photo shows the large washer, which fits over any shim washer that may be installed. As noted in the very first photo at the top, make sure that the large washer fits properly. If it doesn't fit tightly to the pivot shaft, your shim washer may move out of position, and the tailwheel fork may move up and down excessively.

Some installations may have a second, smaller washer on top of the large washer as shown on the left.

The last photo shows the AN364-820A nut. It is OK to reuse this nylon locker nut, but when you can turn it with your fingers, it is time to get a new one. After tightening this nut down **COMPLETELY**, test the function of the system by swinging the tailwheel fork left and right. You should be able to easily feel the locking and unlocking of the system as it is moved through its range of motion.

Replacement parts and service are available at www.flyboyaccessories.com.

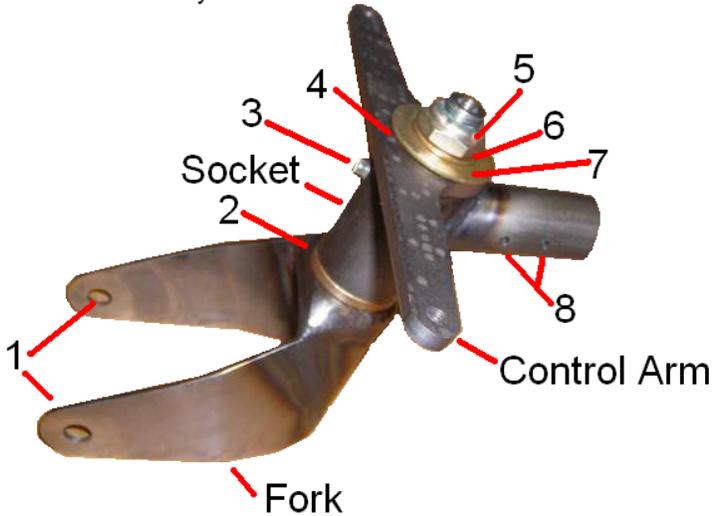
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Screaming Eagle full swivel tailwheel installation and maintenance tips

Screaming Eagle
Tailwheel Assembly



1 Add AN washers to center your tire as required. Often just reversing the tire in the fork or adding a washer to one side will give a good fit.

2 The bronze bushing may be sanded, filed, or ground down in the unusual case that the assembly binds up when the large nut (#5) is tightened.

3 The grease zerk found on Van's standard sockets is mostly a bushing retainer. Greasing it is useless. Disassemble the unit, clean and grease regularly.

4 The locking pin and spring (inside the unit) are a wear item. Clean, inspect and dress any burrs per the drawings below. Keep greased.

5A The large nut should be tightened completely. If the shaft is too short, i.e. the shaft won't turn, remove a small amount of the bronze bushing (#2).

5B Conversely, if the shaft has excess up and down play, you can add the optional shim included with the retrofit

thicknesses are available. Ignore any vertical play less than 0.015". Some space is required, or the large nut (#5) will tighten onto the socket rather than the shaft, and the fork will not be free to swivel and unlock.

Note: The shim is normally placed between the control arm and the large washer (#7) but can be placed below the bronze bushing as long as the locking pin functions normally.

Check the locking pin function by rotating the fork! If your locking pin doesn't pop into the recess in the socket and lock the fork as it should, then check the pin for burrs, dirt, etc. and check the control arm for burrs. If you installed the shim washer below the bronze bushing and are having problems with the locking pin, you may try moving the shim washer to between the control arm and the large washer.

6 The small washer is placed between the nut (#5) and the large washer (#7)

7 The large washer is placed between the small washer (#6) and the control arm.

8 These holes are to be drilled in assembly with the tail spring (stinger). Use AN3 bolts. No slop or wobble is allowable here.

Periodic Maintenance: Units are NOT lubricated when shipped. Grease the unit prior to initial installation. Maintenance should be done once every 6 months thereafter, more often if your aircraft stays outside or gets wet or dirty regularly. To lubricate the main shaft and locking pin, you MUST remove the large nut that retains the main shaft and disassemble. **Don't lose the locking pin and spring, which will fly out** when the main shaft clears the bushing. Wrap your hand around the rear of the shaft as you remove it to catch the pin and spring.

Drop the shaft down from the bushing socket, clean it, and grease the shaft by hand. While you're in there, check the condition of the locking pin and spring. Clean and grease them as well.

The locking pin will wear. When it does, take it to your Scotchbrite® wheel and touch it up so it looks like this:



YES



NO

The locking pin should be slightly blunt with nicely rounded corners, not a completely round front edge as shown on the right. A fully rounded pin, as shown on the right, may not engage sufficiently if your control arm is worn.

Replacement parts: Replacement parts and service are available from Flyboy Accessories through www.flyboyaccessories.com.

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Flyboy Accessories Tech Sheet – locking pin problems and how to correct them.

With wear or improper configuration, you may experience some problems with the locking and unlocking on your tailwheel assembly. If you are experiencing problems with the wheel unlocking when it shouldn't or staying locked when it should unlock, there is usually an easy solution. Maintaining your tailwheel assembly should be a part of regular maintenance on your airplane. Refer to this document to learn what to look for and how to solve problems.

First, it's important that you understand how your tailwheel assembly works. Raise the tail so you can service the tailwheel. Remove the nut and washers from the top of your tailwheel. Notice the interaction of all the tailwheel parts as you swing the tailwheel back and forth. You should be able to see the locking pin engage and disengage the notch in the control arm smoothly and securely. If the action isn't smooth or the locking isn't secure, it is time to do something to fix the problem!

All control arms will wear, get dirty, and occasionally have problems with locking or unlocking. Periodically inspect, clean, and grease the unit. If the problem is more than dirt or dried grease, then fix it by changing the profile of the locking pin from a round nose to a blunt profile as shown here. The locking pin should be slightly blunt with nicely rounded corners, not a completely round front edge as shown on the right. A fully rounded pin, as shown on the right, may not engage sufficiently if your control arm is worn. You can quickly reprofile your locking pin on a Scotchbrite® wheel.



If the locking pin is not the problem, you may also try **deepening the notch in the control arm as shown below.**

It is important **NOT TO WIDEN** the notch. If it is widened, there might be excessive slop in the steering. Detailed below is one method of safely deepening the notch.

You can easily deepen the notch with a round file, 2 pieces of scrap steel bar stock, and a vise. Use the bar stock as a guide and a guard. It will guide the file and guard against widening the notch.

Clamp the whole shebang into a vise. The bars should be parallel to the notch. Use a 1/4" drill bit to maintain the proper bar spacing. This is easily done by nesting the drill bit in the existing notch in the control arm. Place one of the bars on either side of the drill bit and clamp it all in the vise.

Next, simply file the notch about 0.050" deeper. Hitting the exact depth dimension for the notch is not important. What you're trying to do is to give the locking pin the maximum depth possible to get good engagement. The limiting factor now will be the depth of the groove in the tailwheel socket, rather than the notch in the control arm. Of course, make sure not to file far enough to compromise the strength of the control arm assembly.

