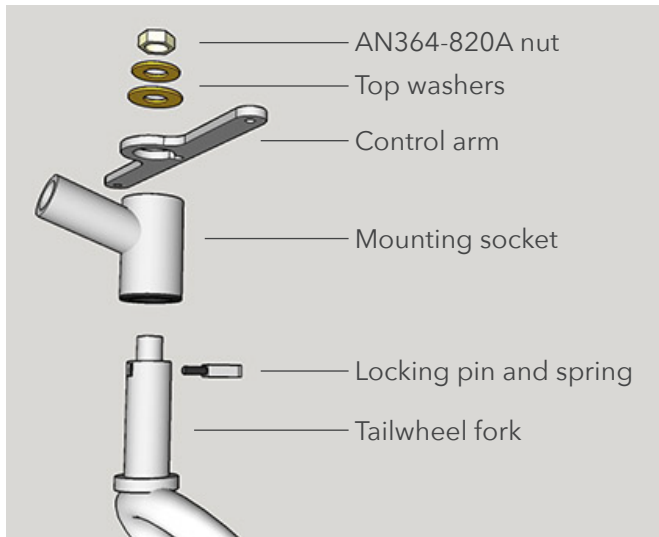


# TAILWHEEL INSTALLATION

These instructions should walk you through the basic information that you will need to install a new tailwheel and properly maintain the assembly.



To see a video of the inner workings of the assembly, visit [flyboyaccessories.com/twvid](https://flyboyaccessories.com/twvid)



## Defining terminology

See diagram on the left as a reference for a standard terminology of all parts used in this assembly.

## Removing the old tailwheel unit

Raise the tail of the aircraft and support it on a padded crate, stool, or other stable object. Remove the AN364-820A nut and washers from the top of the tailwheel assembly, and pull off the control arm. Turn the tailwheel fork 90 degrees to disengage the locking pin and slowly drop the fork down. Before the fork gets all the way to the bottom of the mounting socket, place a hand around the back side of the fork to keep the spring-loaded locking pin from shooting out of the assembly. They are difficult to find if they shoot across the hangar! Let the pin pop into your hand and then drop the fork all the way out of the mounting socket.

## Reusing parts from the original assembly

If you're replacing an existing Van's fork, you can reuse the control arm, locking pin, and top washers from the old assembly. You generally do not need to replace the mounting socket, which should remain bolted to the airplane unless you have a very good reason to remove and replace it.

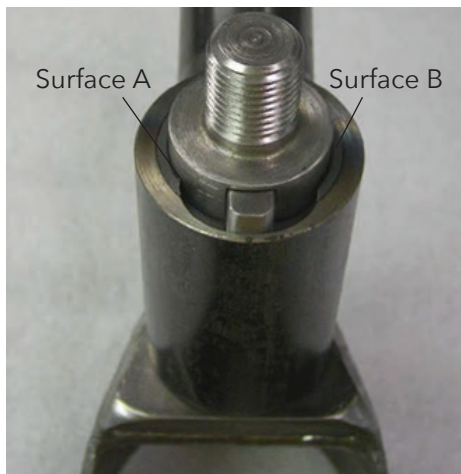
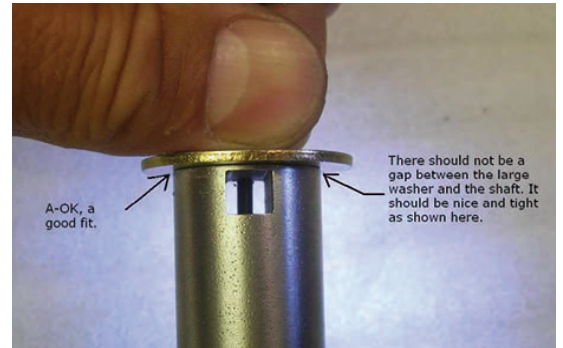


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# CHECKING FOR FIT

Before you install a new fork, you'll want to check everything for fit. We recommend a dry-fit of all the parts before you lubricate everything for final assembly.

- If you're reusing the old locking pin and spring, clean any old grease off the pin, check the sides and nose of the pin for any visible burrs. Put the spring and pin together and insert them into the square hole in the new fork. Cycle the pin in and out several times to make sure its travel is smooth.
- Check that the top washer sits all the way down flush to the top surface of the tailwheel shaft when installed. If there is a gap between the top washer and the top of the shaft, bevel the center hole of the washer until it can seat properly.



**Important!** Assemble the tailwheel fork, mounting socket, and control arm together as shown on the left. The top surface of the tailwheel shaft (labeled "Surface A") and the top surface of the control arm (labeled "Surface B") should be nearly co-planar, but the tailwheel shaft (Surface A) should be slightly taller than the control arm surface (Surface B). This is so that the top washer tightens down onto the tailwheel shaft and not onto the control arm when the nut is tightened. If the opposite is true, the tailwheel may bind and resist being turned. If you need to add height to the tailwheel shaft, that can be easily done with 1/2" ID shim washers, which can be found on our site.

## Lubricating the tailwheel unit

Once everything fits together, lubricate the unit for final assembly, paying special attention to the locking pin and square hole. Most general-purpose greases will do the job well. Common choices are Aeroshell 22, bearing grease, or (Van's recommends) WD-40. We recommend re-lubricating this assembly at least once per year.

*Note: If your tailwheel assembly has a grease zerk in the back of the mounting socket, chances are that it's non-functional and will not sufficiently lubricate the tailwheel mechanism. You must disassemble the tailwheel every time you lubricate it.*

# FINAL ASSEMBLY

## Installing the locking pin

Place the small spring into the hole in the back of the locking pin and insert the pin and spring into the square hole in the tailwheel. Make sure the rounded corners of the pin are oriented left-and-right instead of up-and-down.

Press the pin all the way into the square hole and then slide the tailwheel shaft up into the mounting socket. The locking pin should snap into the crescent-shaped groove at the top of the mounting socket. Turn the fork left and right to test the function of the pin. The crescent groove should be shaped to smoothly press the pin into its housing on either side. Once fully assembled, this action is what governs the locking and unlocking of the tailwheel.



## Installing control arm, washers and nuts

Install the control arm, allowing the locking pin to engage the notch in the control arm. If the corners of the notched area are worn or rounded, it may be time to replace the control arm or service the notch. Add the top washer. Note that some installations have a second, smaller washer on top of the large top washer. Finally, add the AN364-820A nut and tighten the nut all the way (snug is tight enough; don't worry about looking up a torque spec). This top nut can be reused as long as it provides the necessary grip on the threads.

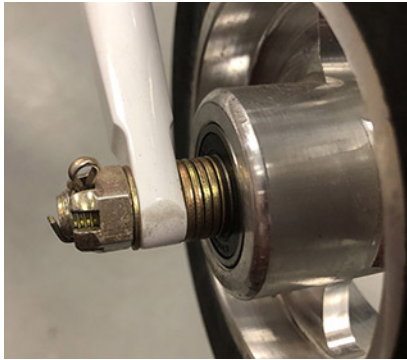
Test the function of the system by rotating the tailwheel left and right. The tailwheel should swivel freely, you should be able to feel the pin unlock from the control arm when rotated beyond about 35 degrees each way, and you should feel the pin locking again when the tailwheel and control arm are returned to their neutral trailing position.



## Tailwheel shims

If the tailwheel binds or feels excessively tight when the top nut is tightened down, you should consider adding a 1/2" ID shim of 0.005" or 0.010" to the base of the threaded stud on top of the tailwheel assembly. Conversely, if there is excessive (more than 0.020") up-and-down play or slop in the assembly, a 7/8" ID shim can be added to address this. Ignore any slop here less than 0.020" and take care not to shim too much or the tailwheel will bind. These 7/8" ID shims can be added under the mounting socket at the base of the tailwheel shaft so long as shimming here does not cause the locking pin to malfunction. Alternately, the shim can be placed on top of the control arm under the top washers.

# ADDITIONAL STEPS AND INFORMATION



## Installing the tire

Use AN960-616 and -616L washers to center the tire on the axle as close as possible. Add the castellated axle nut and tighten down until finger tight or snug. There is no need to torque this nut or preload the bearings. Over-tightening can cause damage to the bearings.

## Recommended assembly maintenance

We recommend that you thoroughly disassemble, clean, inspect, and regrease your tailwheel assembly at least once per year. Note that proper service of this unit requires disassembly; if your mounting socket has a grease zerk, it is likely non-functional and squirting grease at it will not properly maintain your tailwheel.

## Troubleshooting

Most issues that cause a tailwheel assembly to malfunction are easily remedied with a little diagnosis and maintenance. We've put together a list of common tailwheel problems and their solutions which can be found at [www.flyboyaccessories.com/trouble](http://www.flyboyaccessories.com/trouble)

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## MORE INSTALLATION DOCUMENTS

### AVAILABLE TAILWHEEL DOCUMENTS

Every airplane is different, and your install may be more involved than the simple retrofit. Find more documentation on tailwheel installation at [www.flyboyaccessories.com/docs](http://www.flyboyaccessories.com/docs) (or scan the QR code with a smartphone or tablet camera).



- Tailwheel installation and maintenance
- Tailwheel mounting kit assembly
- Drilling the tail spring
- Converting from an older bent-spring, non-swiveling Van's tailwheel
- Changing a mounting socket
- Condor2 pneumatic tailwheel instructions
- How does the full-swivel tailwheel assembly work? [video]
- Troubleshooting the tailwheel assembly
- Changing from Aviation Products tailwheel assembly

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[flyboyaccessories.com/docs](http://flyboyaccessories.com/docs)