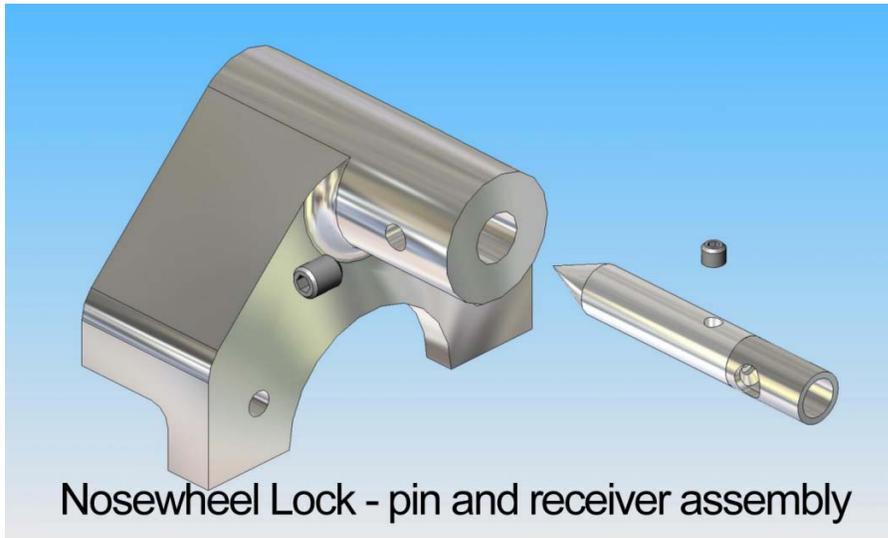


# The Mishler Velocity Nosewheel Lock System



The Mishler Noselock System is an easily installed solution to help prevent nosewheel shimmies upon landing. The system effectively captivates the castoring action of the nosewheel during takeoff by means of a pin and barrel assembly. The pin and barrel are attached to the upper flange of the Velocity nose strut and, through a push-pull cable, the pin can be engaged in a piece of aluminum angle attached to the nose fork, which effectively limits the rotation of the fork.



Nosewheel Lock - pin and receiver assembly

## *Most shimmies result during landing due to two reasons:*

**1** The nosewheel is misaligned with the direction of aircraft travel during landing – as can occur during cross-wind landings as well as after encountering multiple nose-bumps during take-off.

**2** The nut attaching the fork to the strut is incorrectly torqued. Too loose a fork-nut can easily introduce a shimmy situation. Too tight a fork nut can be just as bad, especially in directional correction during takeoff.

The Mishler Nosewheel Lock System effectively alleviates the opportunity for oscillatory forced feedback in the nose castor by restraining the motion of the fork during those periods where shimmy can occur: during takeoff and landing. A small degree of play in the system allows for ground directional control during roll-out, and the pin is easily disengaged for tighter taxi maneuvering.

Installation of the system is a simple affair, involving drilling two holes on the nose-strut flange for the pin housing, attaching an aluminum angle receiver, and running a push-pull cable into the cockpit.

### **Directions for Use:**

#### *During Take-off:*

- Taxi to line up with runway
- Loosen T-Handle, placing very slight pressure on the handle.
- Wiggle the plane side to side with brakes until pin slides completely into position. Lock T-Handle, take-off, have fun.

#### *During Landing:*

- Upon landing, slow down to taxi speed, unlock T-Handle
- Pull with slight pressure to remove pin. (Brakes may be necessary to again wiggle plane, but the pin usually pulls out easily unless you are trying to turn while removing pin.)
- If the pin does not easily disengage, it will generally be because there is a slight side pressure on it due to a small turn angle; straighten up the plane and the pin will slide out.



### *Notes:*

- If you forget your checklist, the differential braking will overcome a locked nose wheel even with pin engaged. The plane will feel very sluggish during taxi turns, which helps you remember to pull the pin (from experience).
- For fixed gear aircraft with nose wheel pant on, the wheel should be limited to about 100 degrees of movement or you will have to make a huge hole in the top of the pant for the mechanism. I prefer the limited amount of movement and actually lock the pin for hand positioning on ramp — a small price to pay for a straight fast wheel pant. In retract or non-wheel pant equipped aircraft, this effect does not apply.

The Mishler Nosewheel Lock System can be purchased at a price of \$189 by contacting Ken Mishler at [KMis178813@aol.com](mailto:KMis178813@aol.com)

# The Velocity Nose Wheel Lock

*Design by Necessity*

Upon taking off at Sebastian, FL, runway 22, and crossing over runway 04, the nose on my SUV floated up after hitting the runway seam - then retouched one more time before going airborne. At about 15 feet above the runway the plane started a left bank. Trying to adjust for level flight, I found myself at full right aileron while still making a hard left climbing turn. At 400 ft and 100 degrees into a turn, I did a mental check of my plane's construction: every nut, bolt, and washer and, oh yeah—visual check, “Are both wings still on?”

I remember thinking to myself, “Newly installed front wheel pant.” (But not quite in those words.) I eventually lowered the nose to pick up speed and the unanticipated turn started to get a little better. At 140kts I felt a change, and the ailerons gained authority over the turn. Whew. It then flew just like it always had for the past 400 hours.

Upon landing, I encountered a nose wheel shimmy that no one should ever have to go through. What I think happened was that the nose wheel, upon retouching the runway during my take-off bump, turned about 25 degrees to the right. Then during slow flight, the cocked wheel pant acted like a big rudder, turning the plane right even though the ailerons were applied in full left roll. Speed eventually helped aileron authority become more effective and, when fast enough, straighten up the nose wheel pant slightly. But still – a shimmy resulted during touch-down.

Regardless: no one hurt – equipment saved – so now what? Well, I wasn't coming back out of the hangar until I was sure this would never happen again. Thus: the birth of the nose wheel lock. A long story for one of the scariest ten seconds of my life.

*-Ken Mishler*



---

Ken Mishler



# Order Form

*Disclaimer and Purchase Agreement:*

The Mishler Nosewheel Lock System is intended for use on experimental aircraft only; it is an experimental part and the installer understands and assumes all risk of failure and/or damage incurred during its use.

---

Installer Signature

**Shipping Info:**

Name: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

E-Mail: \_\_\_\_\_

Phone: \_\_\_\_\_

Aircraft Type:

Fixed Gear \_\_\_\_\_

Retractable \_\_\_\_\_

Please return the form with signature and check in the amount of \$189 to:

Mishler Enterprises  
7463 North 16th Manor  
Vero Beach, FL  
32966