

## **EZNoselift Clamp System**

### **Disclaimer:**

My Liability Consultant (otherwise known as “wife”) insisted that I put a waiver of responsibility in here to let everyone know that you’re all responsible for yourselves (I’m sure your mothers all told you that at some point). As builders and pilots, you use this system and these instructions at your own risk. You should know that I explicitly designed both the parts and the instructions contained herein so that they would ensure your quick and certain demise should you make the mistake of using them, even as exactly directed. I hereby absolve myself of any responsibility for anything that happens either before or after you install this Clamping System into your aircraft.

She’s happy now. Well, with respect to this, anyway.

### **Included Parts List:**

2X	-	Clamps
4X	-	AN4-21A Clamp Bolts
8X	-	AN960-416L Washers
4X	-	MS21042-4 nuts
2X	-	Shear Pins
2X	-	AN5-12A (or AN5H-12A) Shear Pin Bolts
2X	-	Nordlock NL8sp Washers

### **Required Tools:**

- ½” socket
- 7/16” socket
- 5/16” socket
- Socket wrenches
- Torque wrench
- 0.015” shim/shim stock

## Introduction:

This process should take about 45 - 90 minutes, depending upon the complexity of the nose of your aircraft. These instructions assume that you already have an EZNoselift System installed to extend and retract your nose gear on your canard aircraft.

Here's a picture of the nose lift and side plates that are already installed, as well as the new clamps, shear pins and hardware.



**Figure 1**

## Installation Instructions:

1. Remove the NG-3/NG-4 bolt connecting the nose lift extension shaft to the nose gear strut. Retract the nose gear mechanism 90% so that it can be easily removed from the airplane. Remove the two side mounting bolts and outer washers from the attachment pins, and remove the pins and inner washers. Disconnect the P1 electrical connector. Remove your EZnoselift system from the airplane.
2. Place both clamp halves on the upper portion of the actuator. The round cutout shown in the clamp below is clearance for the hex screw at the top of the picture, and the square openings on the sides of the clamp will position over the ½” holes in the sides of the actuator.



**Figure 2**

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3. Position the clamps over the hex screw and the holes, and install the AN4-21A bolts with AN960-416L light washers under the head as shown:

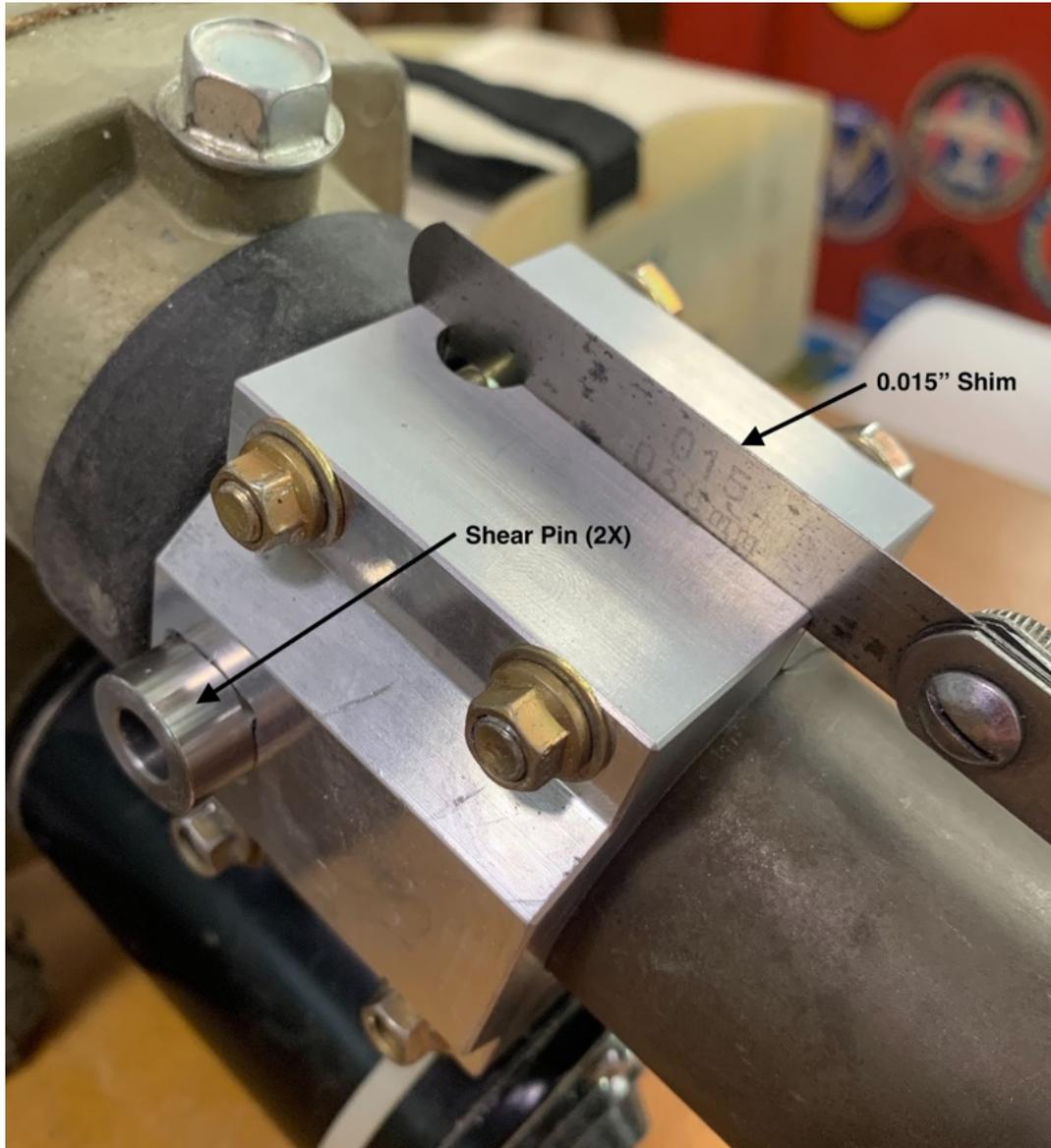


**Figure 3**

Install light washers under the nuts and finger tighten all four nuts.

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4. Install the two shear pins into the square holes in the clamps, ensuring that they insert all the way into the round holes in the actuator. They should almost seat on the outer face of the clamp, as shown here:



**Figure 4**

Using an 0.015" shim between the clamp halves, tighten the bolts and nuts on the shim side of the clamps as shown until the clamps are snug on the shim, but the shim can be wiggled out from between the clamps.

5. Remove the shim. If the shim is difficult to remove, you may very slightly loosen the two nuts.
6. Remove the shear pins from the clamps. If one or both is difficult to remove, you may very slightly loosen the two nuts a bit more, just until both shear pins can be removed.

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7. Re-Install the motor between the gold colored mounting plates in the NG-30s in the aircraft (the next few pictures show the system outside of an aircraft with loose mounting plates, but the assembly sequence is the same in the aircraft). Line up the square holes in the clamps with the upper  $\frac{5}{8}$ " holes in the mounting plates.

Put a light coating of grease on the outer diameter of the shear pins and insert the shear pins through the mounting plates and into the clamps and actuator  $\frac{1}{2}$ " holes. Note that the previously tightened bolts/nuts will now be inaccessible, under the actuator, but the top two bolts which have not been tightened past finger tight are easily accessible under the actuator motor and above the mounting plates.

Install the AN5(H)-12A bolts with the Nord Lock washers through the shear pins and into the actuator:



**Figure 5**

8. Torque the AN5(H)-12A bolts to 90 in-lb.
9. Torque the top two AN4-21A bolts and nuts to 50 in-lb. This picture shows the tightened AN4 and AN5 bolts on the actuator, in between the mounting plates:



**Figure 6**

10. Ensure that the actuator is free to rotate on the shear pins in the holes in the mounting plates. If there is any binding, remove the system and determine the cause, then reassemble.
11. Re-connect the P1 electrical connector.
12. Re-install the AN4 bolt through the NG-3/NG-4 and the lower mounting hole of the actuator extension and tighten appropriately

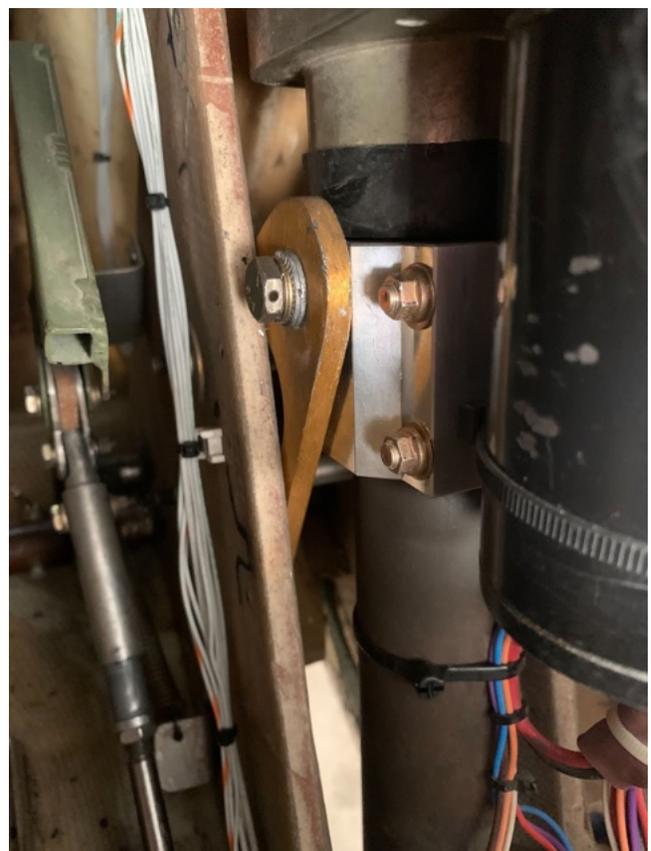
13. Test the system for extension/retraction.

Run the system for one or two seconds as a first test, to ensure that the two AN5-12A bolts are NOT interfering with the ball screw inside the extension tube. If they ARE interfering, you will hear a clicking noise coming from inside the tube. If you hear this, **stop running the system and get in touch with me for remediation**. This clicking is **not** the standard noise that comes from the manual extension rod in the instrument panel, if you have a manual rod, nor is it the slight repetitive noise that these systems sometimes make due to imperfect alignment of the motor/gear train head assembly with the extension tube. This will be an obvious, loud noise due to the tips of the bolts rubbing on the ball screw.

14. Have confidence that your EZNoselift attach bolts will no longer attempt to unscrew themselves, nor will they unscrew themselves and possibly bend or allow the stock pin to damage the mounting plates and/or allow a collapse of the nose gear system.

15. Make a standard maintenance entry in the aircraft maintenance logbook indicating the installation of the clamp system, with the date and TTAF.

Here are two pictures of the system during installation in my plane and after completion of the installation:



**Figures 7 & 8**

## Troubleshooting:

### Old Style EZNoselift:

1. Due to variability in EZNoselift manufacturing, there are various versions of the “Variable Height Screw” shown in Figure 1 on page 2. Some will easily fit in the recess provided in the clamp halves and some will not. If the screw in your unit does not fit, you can remove the socket head cap screw and replace it with an equivalent, low profile screw. You may need to reduce the diameter of the screw head to fit in the recess - you may grind a bit off of the diameter of the screw head to ensure that the clamp can fit around it. James Redmon supplied the following pictures to illustrate the process:



2. Due to variability in manufacturing, the shear pin holes may not be exactly 180 degrees apart. This has occurred in one known installation. If this occurs in your system as well, you may need to mill a bit of one of the clamp half mating surfaces so that the square holes in the clamp halves can both line up over the holes in the actuator tube.

### New Style EZNoselift (larger black mechanism housing on the top of the system - NOT the aluminum colored casting):

1. Apparently, due to variability in manufacturing, some units have more space between the motor and the ball screw mechanism than other units. The clamp system may or may not fit between the motor and the ball screw tube. If it does not fit, you're SOL. Send the unit back to me and I'll refund the purchase price - there's nothing for it.

**Revision List:**

<b>Date</b>	<b>Revision</b>	<b>Description</b>
12/5/2023	1	Initial Release
12/8/2023	2	Add Liability Disclaimer Page 1; Minor formatting changes
12/12/2023	3	Add test run warning for bolt interference in step 13
1/29/2024	4	Add Figure numbers; Add Troubleshooting section
2/9/2024	5	Add pics of modified screw from James Redmon