

# How To Inspect The Nose Gear Strut

This “How To” illustrates the procedure for removing the nose gear fork, wheel and fairing assembly in order to inspect the nose gear strut. (*Refer to TL Ultralight Notice ID: TL091507-Rev1.*)

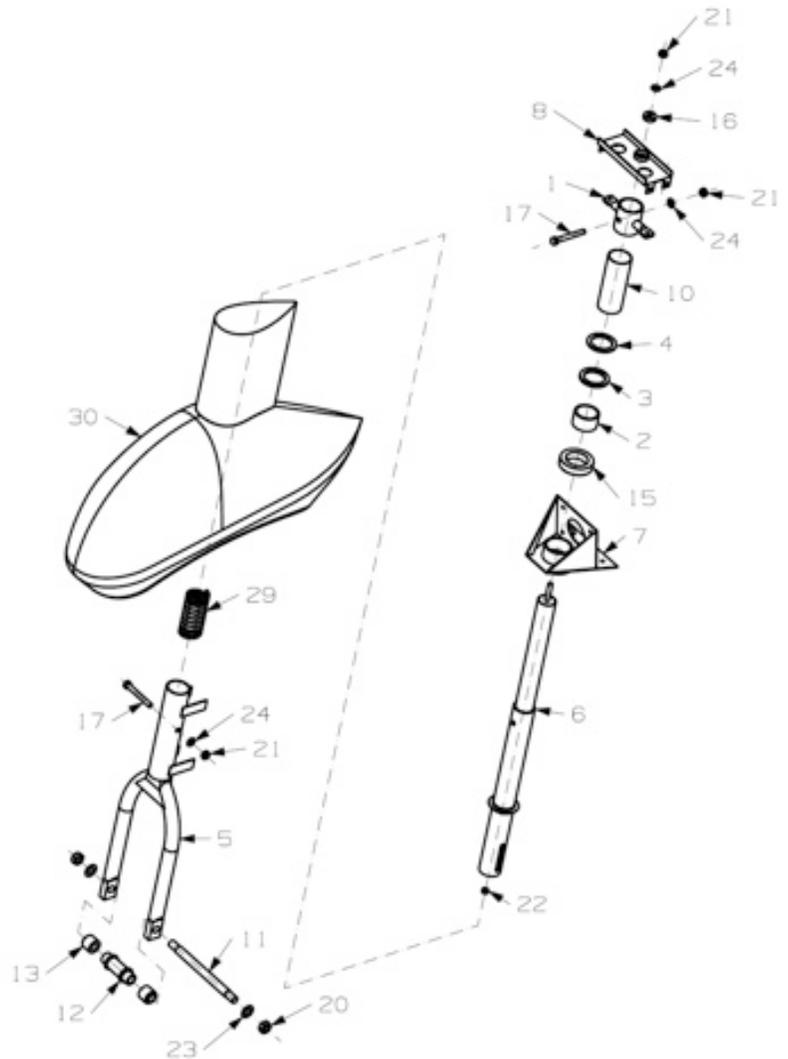
The nose gear strut inspection can be performed by two people (e.g. - the owner and an assistant) in 15 to 30 minutes. You will need wheel chocks, wrenches, a padded sawhorse, a good light source, clean rags to clean the nose gear strut and new waterproof grease to re-coat the strut prior to reassembly.

## Description of the assembly:

The lower nose wheel fork (Item 5 in the illustration) and wheel/tire assembly attaches to the upper nose gear strut-tube (Item 6) by a single bolt (Item 17). This bolt aligns the upper and lower nose gear tubes and retains the spring (Item 29) which is compressed from above by the lower end of the upper nose gear strut and contained by the lower nose gear yoke tube. The bolt travels in the machined slot in the upper nose strut. Travel is limited by by compression of the spring (bottom) and a rubber bumper (top) so that it does not impact the bottom and the top radius of the slot when the gear is fully compressed or extended. The bolt functions to retain the alignment of the centerline of the lower nose wheel fork (therefore the nose wheel/tire assembly) and the upper nose gear strut which is connected to the push rods attached to the rudder pedals.

## Area of Inspection

The area of this inspection is primarily the upper and lower portions of the machined slot in the upper strut. This slot should be examined in detail while on the aircraft after removal of the lower nose gear fork and wheel assembly. Also inspect the top edge of the nose wheel fork as it exits the top of the nose wheel fairing (Items 30 & 5). This steel tube should have vertical straight edges and should be round and concentric. There should not be signs of metal stress such as “belled-out” edges or an elliptical shape at the top of this tube.



## Observe the Operation of the Nose Gear

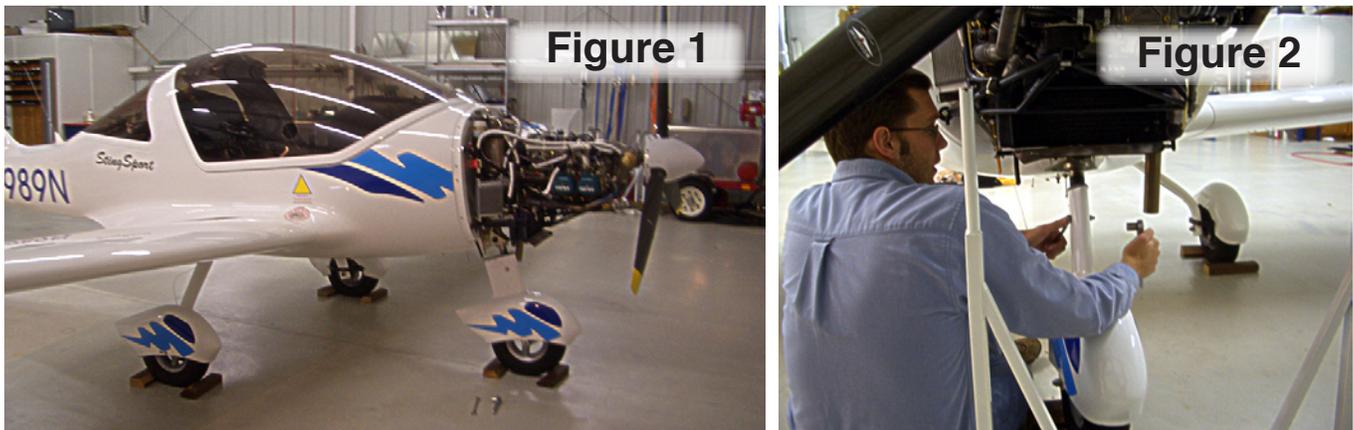
Prior to disassembly, have an assistant push down on the aft fuselage to raise the nose gear off the parking surface. Observe the operation of the nose gear to confirm a smooth compression of the coil gear spring shock damper (Item 29) and interrelated movement of the upper strut into the lower fork when the load is replaced on the nose gear system after the pressure on the aft fuselage is released.

## Disassembly

The lower nose wheel fork will be removed together with the wheel, tire and fairing as a single assembly. Removal of this assembly exposes the slot in the upper nose gear strut for inspection. The procedure is described below and illustrated in the photographs.

**Figure 1:** Remove top and bottom cowling and chock all wheels.

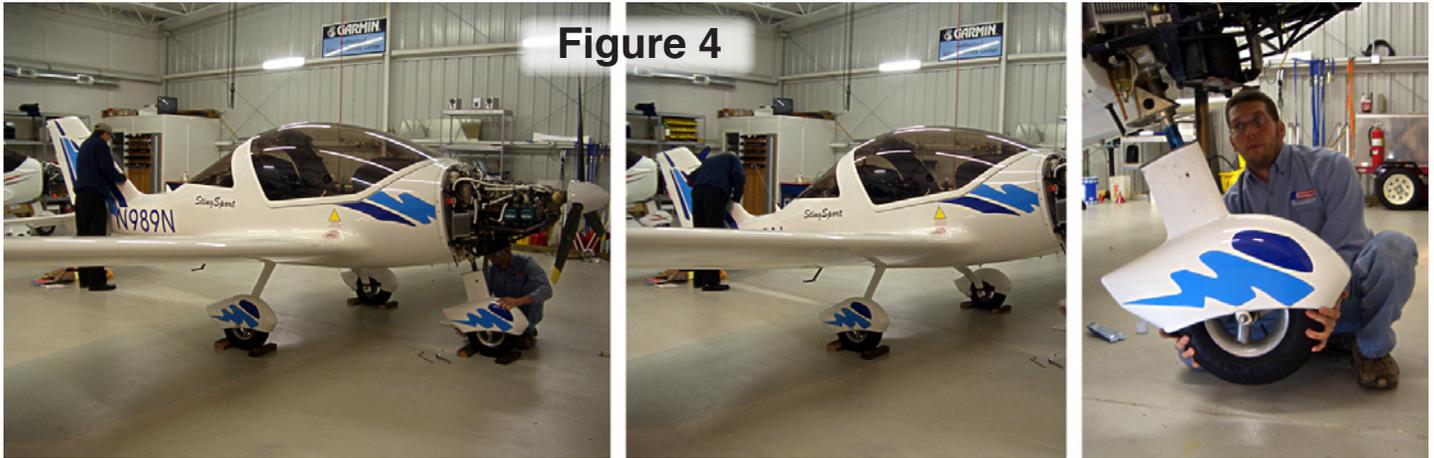
**Figure 2:** Remove the nut and washer (Items 21 & 24) from the retaining bolt (Item 17) in the nose gear fairing. Do not attempt to remove the bolt until the pressure on the captured spring is relieved in the next step.



**Figure 3:** Compress the strut by pulling down on two propeller blades while pushing against nose wheel tire to compress the assembly; release compression after assistant removes the retaining bolt.



**Figure 4:** Press down on the vertical tail fin to raise the nose; hold while assistant slides the nose gear fork down off of the nose gear strut. This is accomplished by grasping the nose wheel (not the fairing) and pulling down with a back-and-forth twisting motion until it drops free. The compression spring should remain in the nose gear fork and need not be removed.



**Figure 5:** While the tail continues to be held down, the assistant positions a stand to support the nose of the airplane during the rest of the inspection. Figure 5 shows the stand we use at the SportairUSA hangar, which engages the motor mount support fittings near the firewall. A padded sawhorse rated for the load is an acceptable substitute. The sawhorse can be placed under the fuselage just aft of the lower cowling or on either side under the front motor mount. It is a good idea to tie the sawhorse to the adjacent structure of the airplane to reduce the chance that it will move if bumped during the remainder of the procedure..



**Figure 6:** The nose gear strut is exposed. Old grease should be removed with a clean cloth.



**Figure 7:** Use a good light source to inspect the lower exposed portion of the nose gear strut. The strut should be straight and its center-line axis aligned with the center-line axis of the lower nose wheel fork into which it is inserted. The machined slot at the bottom of the strut is the movement slot for the retaining bolt. There should not be any cracks radiating from the bolt travel slot. Replace the upper nose gear strut if cracks are found.



**Figure 8:** Replace the lubricant. Evinrude-Johnson Triple Guard Marine Grease, P/N 508298 is an acceptable lubricant. Reassemble the nose gear components in reverse order as noted above. Assure that the nose gear retaining bolt is inserted through the wheel fairing, the lower nose gear fork and in the slot of the upper nose gear strut. Then install the retraining nut and washer. Mark the nut and bolt with safety paint to quickly inspect any rotation of the nut on the threads of the bolt.



### Log Entry

Make a log entry of this inspection in the aircraft records.

*End of "How To Inspect The Nose Gear Strut"*