Golden Skies R/C Aircraft, Inc.

Spring Landing Gear Installation on the CrossFire 320E

Congratulations on your purchase of the GSRC Articulated Knee, Spring Landing Gear (SLG) for the CrossFire 320E (CF). The SLG is the finest quality shock absorbing gear on the market and will provide smoother landings and less strain on the fuselage and wings than conventional wire gear.

There are some general considerations that apply to the overall installation and which will be reviewed first:

1. The SLG is installed by cutting off the wire gear, slipping the SLG shaft over the wire and tightening the setscrews.

2. When finally installed, the wing incidence (angle of attack) relative to the ground should be set between zero (0) and plus (+) one-half (1/2) degree. A negative incidence flies the plane into the ground and will result in an abrupt rotation and a "jump" take-off into the air.

3. The shock action travel is ~1.5" (1.0" typ) and one must take this into consideration when adjusting the overall gear length and to a lesser extent, wing incidence. The overall gear length is a matter of aesthetics and allowance for ample prop clearance. The engine size will determine the prop diameter. The SLG is intentionally longer than the CF wire gear supplied and may be shortened by cutting off the top of the gear shaft. The SLG has four (4) setscrews and one may lose the top two setscrews if the shaft top is cut off. You may choose to relocate the setscrews lower on the shaft if you desire. (Setscrews are: 6-32 and driven by a 1/16" Allen-wrench)

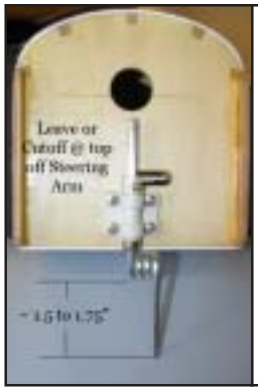
4. The SLG shaft hole is 5/32" to be compatible with most 40-60 size ARFs and retract mechanisms. The CF uses a more substantial 4.7mm (~3/16") gear wire; therefore, you will need to drill out the shaft hole to 4.7 mm to accommodate the wire gear. The following dimensions may be useful: (Metric drills may be ordered from GSRC (949)-429-2910 or McMaster-Carr ((562) 692-5911)
5/32" = 0.1563" = 3.96 mm; 3/16" = 0.1875" = 4.76mm; 3mm = 0.1181"; 4 mm = 0.1575"; 4.6 mm = 0.1811; 4.7 mm = 0.1850"

5. There are two ways to install the nose gear: a) Leave the wire coil on the nose gear or, b) Remove the wire coil. The attributes are:
:

i) <u>With wire Coil left **on**</u>:
   a) The coil will absorb some of the rearward landing shock.(+)
   b) The SLG shaft is off the fuselage center line.(-) (*)
   c) Coil will show, not as aesthetically pleasing (-)
   d) Less stress on firewall (+)

ii) <u>Removing Wire Coil.</u>
   a) There is no rearward shock absorption in the shaft (-)
   b) The nose gear shaft and wheel is on the center line.(+)
   c) The straight wire will bend over time/landings.(-)
   d) More aesthetically pleasing.(+)
   e) More stress on firewall.(-)

This is the standard nose wire gear installation position. The axial is ~ 4.75" below the bottom of the fuselage when the wire is flush with the top of the steering



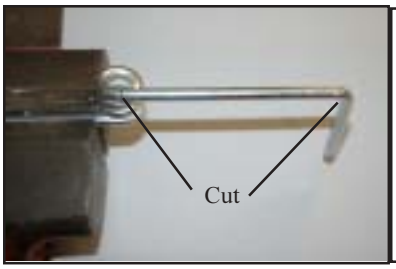
Cut off the wire gear ~ 1.5" - 1.75" below the coil. Slide the gear up to where the coil is just below the fuselage. The upper wire may be cutoff or placed into the motor mount ...drill motor mount as needed

Slide SLG on wire and secure with sct screws. Be sure to use Loctite.(R)

(*) One may move the gear-mount bracket over to the right by the width of the coil to bring the SLG shaft onto the fuselage centerline. There will be a slight arc in the nosewheel as it is steered left and right as a result of relocating the mounting bracket.

Refer to the GSRC website (www.goldenskiesrc.com) to get the latest revision of the installation instructions and to enlarge the pictures for greater clarity.

To Install without the wire Coil:



Cut out as long a length of wire as possible from the nose wire gear. Deburr the ends; or, cut a length of 3/16" piano wire to ~ 3-1/8" (longer if you want to extend the wire into the motor mount for added strength). If you use 3/16" piano wire you may need to drill out the landing gear bracket, the steering arm and the collars to accommodate the 3/16" wire.

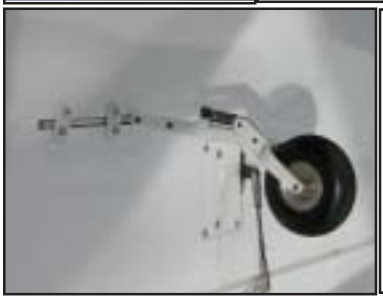
Install the wire into the nose gear-bracket with the steering arm on top and the collar on the bottom. The wire should be flush with the top of the steering arm. Note again that you may extend the wire above the steering arm into the motor mount if you desire a little extra strength. Doing this will alleviate a little of the stress on the lower part of the firewall.

Be sure to use Locktite (R) on all threads ... setscrews and bolts

NOTE: With this setup, you will most likely have to shorten the wing SLG to set the correct wing incidence.

Slip the nose SLG over the wire, align with the steering arm so that the axial is parallel with the steering arm. The steering arm should be approximately parallel with the firewall surface.

Note: The nose SLG length is adjusted for aesthetics and prop clearance. With a 15" prop, one typically wants to leave the nose SLG at full length.



Install the wing SLG in a similar fashion. First set the nose SLG length for prop clearance, then adjust the Wing SLG length to set the wing incidence. Two (2) setscrews are sufficient to hold the SLG to the wire; however, if you eliminate the top two setscrews by adjusting the SLG length, you may want to reposition the setscrews lower on the SLG shaft for added retention safety. ALWAYS USE LOCTITE (R) on all setscrews.

The wheels hubs are drilled for the 4.7mm gear wire and will need to be adjusted for the 5/32" SLG axils. Drill the wheel hubs to 3/16". Cut three pieces of 3/16" OD / 5/32" ID brass tubing to 3/4" length. Deburr all ends, inside and out. Place the tubing over the axle and the wheels over the tubing.

Alternative: One may elect to put new "Super-Wheels" on the SLG. The Super-Wheels come with plastic shims to accommodate different axle sizes:
2-3/4" Wheels: $ 7.00/pair (main wheels)
2-1/2" Wheels: $ 3.00 each (nose wheel)

Thank you for puchasing Golden Skies R/C Spring Landing Gear ..... GOOD FLYING & BETTER LANDINGS