

Sprite Assembly Tips

The 2009 NATS 2-meter competition featured several of these good looking ships produced by Vladimir's Models in the Ukraine (<http://f3j.in.ua>) and distributed the U.S. by Kennedy Composites (<http://www.kennedycomposites.com>).

There are several threads on RC Groups regarding referencing both the thermal and thermal-electric variants, but no real step-by-step guides. The thread I found most useful is at <http://www.rcgroups.com/forums/showthread.php?t=934607>.

If this is your first composite sailplane build you might wish to view Paul Naton's instructional DVD titled "F3 Building Clinic". This and other interesting titles are available at <http://www.radiocarbonart.com>.

Model Contents:

- Left and right wing with carbon joiner
- Fuselage with canopy, boom, installed pushrods and fin mount
- Left and right elevator with two carbon joiners
- Vertical fin / rudder
- Servo tray with four screws
- Four servo covers
- Four control rods with eight screw-on clevises
- Four brass threaded control arms for ailerons and flaps
- One circuit board type control arm for rudder with clevis
- Two clevises with couplers for carbon pushrods
- Four wing bolts

Optional accessories:

- Ballast set
- Wing bag

To complete the model you will need:

- Two flap servos (JR 285MG or similar)
- Two aileron servos (JR 285 or similar)
- Four wing servo frames (optional)
- Elevator and rudder servo (JR 368BB or similar)
- Flight battery (2/3 AA up to 2/3 A bullet-style will fit easily)
- Receiver
- Switch and charging jack
- Servo extensions or materials for custom wiring harness

Recommended building supplies and tools:

- High speed rotary tool

30 minute epoxy
Epoxy thickener (baking soda can be used)
Medium CA
Razor knife or blade
Alcohol or swabs for cleaning
Sandpaper and/or emery boards

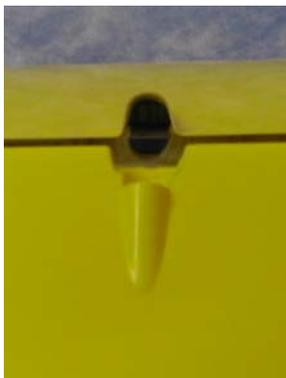
Ready? Let's get started.

Dry fit the fin, and mark the location for the rudder control horn. Use a fresh razor blade to cut the control horn notch, being careful to remove foam all the way to the opposite side skin. Rough up the horn with sandpaper, and clean thoroughly with alcohol. Glue in place with epoxy.

Rough up the contact points of the vertical fin and mount. Clean thoroughly and glue sparingly with epoxy.

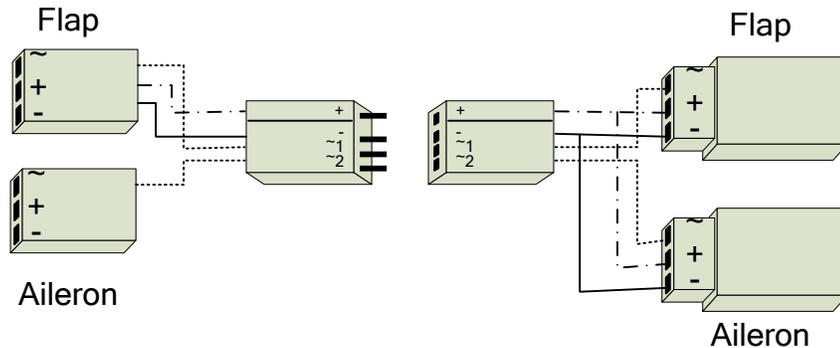


Use a rotary tool to grind out the shear webbing for control rod clearance. (Note that the supplied rods may be too short for the flaps). Solder the clevises to the rods on the servo end. The flap rods also required a bend in order to get full travel without binding. It was also necessary to extend the length of the brass control horn for the flaps by leaving a few threads exposed.



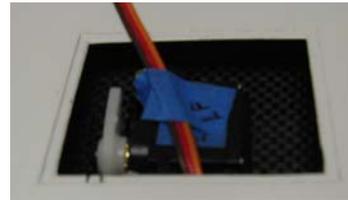
Several threads are left exposed on the flap horn to prevent the rod from binding.

Four pin Deans connectors can be used to make a custom wing wiring harness. In the diagram below note that the positive and negative feed to each wing half comes from the receiver flap channel, the only line used from the aileron feed is the signal. Both the positive and negative lines are split in the wing and shared by each servo.

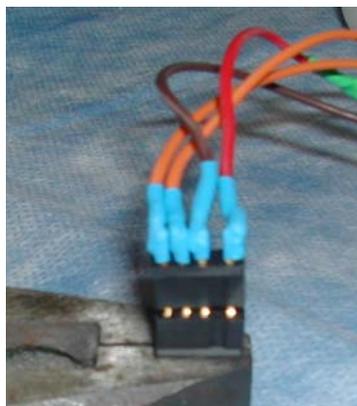


Setup the model in your transmitter, check out the servos and label them. Remember to pay attention to proper subtrim settings on flap servos. Trim the servo arms, label the servos and mount them in frames.

Mount the servos as far forward as possible making sure the servo arms are lined up with the horns in the ailerons and flaps.



Mark the wiring exit location with a fine ink marker. Be sure to get behind the spar box, and allow a wing root thickness of 4.5mm. Use a rotary tool grinder to start a small hole, and then use a small hand file for final shaping. Bend the solder tabs of the Deans connector as necessary to fit in the wing. Secure the deans connector in the wing with medium CA.



Complete the installation of the wing wiring. Once you are satisfied with control rod installation, centering, and deflection you can trim the servo covers with sharp scissors or blade. Secure them with tape or a spot of CA in each corner (with patience and CA debonder they can be removed later if needed).

Use aircraft ply to hold the plug end of the Deans connectors in the wing pylon. Again, bend the solder end as required for clearance. Glue the plugs to the holder with medium CA. Trim the plug holder to size and then mount one half of the wing with the plug installed. Secure the other end with thickened epoxy. After the first side is cured, repeat the process for the other side.



Trimming of the boom/ballast tube is optional if you require additional room for your receiver. Rough cut with a rotary tool grinder, and then smooth with an emery board or sandpaper on a popsicle stick.



Mount the rear servo on the underside of the servo tray so that the control rods will clear each other. Dry fit everything first and position the receiver, battery, switch and servos such that the plane will balance without additional weight. When you are satisfied with the balance point, secure the servo tray with thickened epoxy being careful to avoid excess epoxy on the seams.

Trim the elevator and rudder control rods and secure the threaded couplers. Note the use of 2-56 bolts (not supplied) for servo mounting.



Here the tow hook has been cut with a rotary tool disk and deburred with a hand file.



Ready to fly once there is some grass to land on!

