

# XS480 (axis)

By Stevens AeroModel



Length 41 inches | Span 47 inches | Area: 485 inches<sup>2</sup> | Flying Weight 24 oz.

Version 09/29/2009



# Product Support

## WARRANTY

Stevens AeroModel guarantees this kit to be free from defects in both material and workmanship at the date of purchase. This warranty does not cover any component parts damaged by use or modification. In no case shall Stevens AeroModel's liability exceed the original cost of the purchased kit. Further, Stevens AeroModel reserves the right to change or modify this warranty without notice.

## LIABILITY RELEASE

In that Stevens AeroModel has no control over the final assembly or material used for final assembly, no liability shall be assumed nor accepted for any damage resulting from the use by the user of the final user-assembled product. By the act of using the user-assembled product, the user accepts all resulting liability.

If the buyer is not prepared to accept the liability associated with the use of this product, the buyer is advised to return this kit immediately in new and unused condition to the place of purchase.

## **THIS PRODUCT IS NOT INTENDED FOR CHILDREN 12 YEARS OF AGE OR YOUNGER**

**WARNING:** This product may contain chemicals known to the State of California to cause cancer and or birth defects or other reproductive harm.

## PRODUCT SUPPORT

This product has been engineered to function properly and perform as advertised with the suggested power system and supporting electronics as outlined within this product manual. Product support cannot be provided nor can Stevens AeroModel assist in determining the suitability or use of electronics, hardware, or power systems not explicitly recommended by Stevens AeroModel.

For product assembly support, replacement parts, hardware, and electronics to complete this model please contact Stevens AeroModel on-line at [www.stevensaero.com](http://www.stevensaero.com).

*Stevens AeroModel*  
PO Box 15347 - Colorado Springs, CO 80935 - USA  
719-387-4187 - [www.stevensaero.com](http://www.stevensaero.com)

# Project Checklist

## Kit Contents

- Laser cut wood (19 Sheets - See inventory on following pages)
- Illustrated instruction manual
- Rolled computer drawn plan set
- Vinyl windscreen decal
- 1 - Pre-bent landing gear (1/8 in. dia.)
- 2 - 1/4 in. square x 24 in. length balsa stock (Leading Edge)
- 4 - 1/8 in. x 1/4 in. x 24 in. length balsa stock (Spar Cap)
- 12 - 1/8 in. x 3/16 in. x 24 in. length balsa stock (Sub Spar and Turbulators)
- Du-Bro RC 30 in. Micro2 Pushrod System [DUB922]

Taped to back of wood brick:

- 2 - 0.045 in. x 12 in. music wire
- 4 - 24 in. lengths of carbon fiber bar stock.

- Large Hardware Bag (4 x 6 in.)
  - 1 - Package rubber bands #33
  - 1 - Laser cut basswood elevator joiner
  - 2 - 2-1/4 in. Foam Wheels (pair)
  - 2 - Du-Bro RC EZ Connector [1 pkg. DUB845]
  - 2 - Du-Bro RC Micro2 EZ-Link [1/2 pkg. DUB920]
  - 4 - Du-Bro RC Micro2 Control Horns [2 pkg. DUB919]
  - 3 - 3/16 in. x 4-1/2 in. hardwood dowel (user will cut to final length)
- Small Hardware Bag (2 x 3 in.)
  - 1 - 1 in. length of fuel tubing (EZ link retainer)
  - 2 - Wheel retention washers (press on wheel collar)
  - 2 - 3/16 in. Neo. Magnet
  - 2 - 4-40 x 3/8 in. nylon machine screw
  - 4 - 4-40 x 3/8 in. Machine Screw (steel for motor mount)
  - 6 - 4-40 blind nuts

## Required Building Supplies and Tools

- 1 oz. Medium CA Glue
- 1/2 oz. Thick CA Glue
- 1/2 oz. Thin CA Glue
- CA glue accelerator (kicker)
- Balsa filler
- Hobby Knife with ample supply of #11 blades
- Sanding block with 400 and 600 grit paper
- Heat Gun and Covering Iron
- Small Needle Nose Pliers
- 1 in. x 12 in. length sticky back velcro
- 3/4 in. wide clear tape

## Optional Building Supplies and Tools

- CA glue de-bonder
- Long sanding bar
- Masking Tape (Low tack painters tape)
- Soldering Iron

## Required Electronics (Available at StevensAero.com)

- 4-6 Channel radio and micro receiver. We suggest the Spektrum DX6i and AR500 receiver.
- 4 - Hitec HS-65HB servos + two each 9 in. servo extensions.
- Hacker A30-28S Brushless Motor w/10x5 APC E propeller.
- Castle Creations 25A brushless ESC
- 1 pkg. 3.5mm gold bullet connectors [EFLA241]
- 11.1V 1600-2100mAh LiPo capable of 30A continuous

# General Assembly Instructions

Thank you, for purchasing this Stevens AeroModel XS480 [axis]™. A design inspired by our SHAFT™ line of model aircraft. This product has been developed and manufactured using state of the art CAD/CAM systems and features a unique interlocking construction process that, when compared to traditional methods found in other model aircraft kits, save countless hours of measuring, cutting, sanding, and fitting. We are certain that you'll find our kit to offer a truly exceptional build experience. As this kit is recommended for the novice model builder and pilot; we invite beginners who have purchased this kit to seek the help of a seasoned builder and pilot. At any time should one run across a term or technique that is foreign please don't hesitate to contact our staff with your questions.

## Read This!

Please **READ** and **RE-READ** these instructions along with any other included documentation prior to starting your build and/or contacting our staff for builder support.

## Pre-sanding

Do not skip this step. Prior to removing any parts from the laser cut sheet wood use a sanding block loaded with 250-400 grit paper and lightly sand the back side of each sheet of wood. This step removes any residue produced as a result of the laser cutting process and, as we have found that most stock wood sizes run several thousandths of an inch over sized, slightly reduces the thickness of each sheet.

Leave your pre-sanded parts in the sheet until required in the assembly process.

## Protecting your worktable

Use the poly tube that this kit was shipped in as a non-stick barrier between your worktable and the product assembly. Promptly clean up any epoxy spills with rubbing alcohol and a disposable towel.

## Bonding the assembly

As this product tabs, notches, and otherwise interlocks like a 3D puzzle we suggest that when fitting parts you dry fit (use no glue) the parts together first. It's advised to work 1-2 steps ahead in the instructions using this dry-fit technique which allows ample opportunity to inspect the fit and location of assembled components and realizes a benefit as each successive part contributes to pulling the entire assembly square. Once you arrive at the end of a major assembly step(s) square your work on top of a flat building table and revisit the dry fit joints with glue. Using the dry-fit process you'll be able to recover from a minor build mistake and will ultimately end up with a more square and true assembly.

Unless otherwise noted in the instructions, always use medium CA glue for bonding parts.

## Never force the fit!

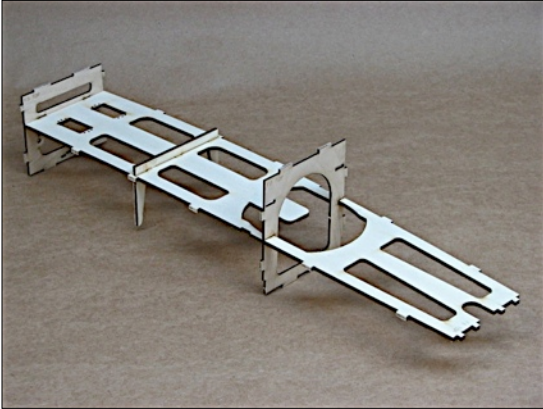
Remember this is a precision cut kit our machines cut to within 1 thousandth of an inch in accuracy. Yet the wood stock supplied by the mill may vary in thickness by up to 20 thousandths. This variance in the wood stock can cause some tabs/notches to fit very tight. Hey, dad always said it was easier to take away material than add it back. With this in mind, should you find a joint or two to fit rather snug consider lightly sanding a tight fitting tab rather than crushing and forcing your parts together. You'll break fewer parts in assembly and will end up with a more square and true assembly.

## Manual Updates

A full-color manual is available for download on the corresponding product page for this model aircraft at [www.stevensaero.com](http://www.stevensaero.com)

## Begin Fuselage Construction

- Dry fit formers F2, F00, and F3 to center crutch F0. **Parts are etched "top" install so that etching faces forward and top.**



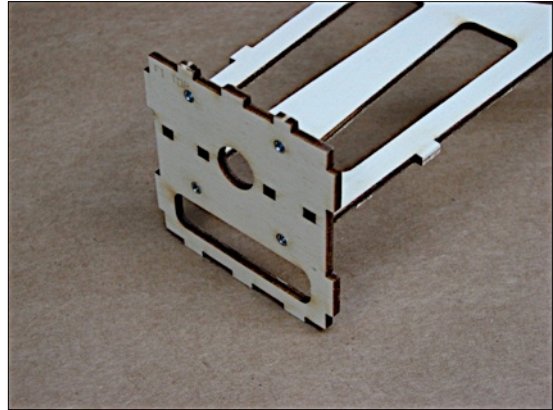
- Install G1 to notches provided in F0 center crutch and former F2.



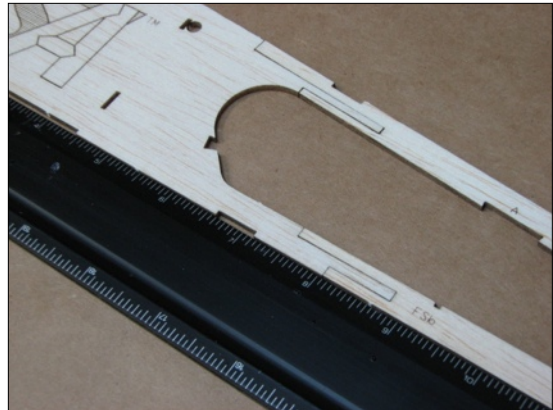
- Drive four of the provided 4-40 blind nuts to into one side of the F1 firewall. Retain with thick CA glue around edge of nut.



- Key F1 firewall to the front of F0 center crutch, with flange portion of blind nut facing aft.



- Assemble each of the two fuselage sides from FSa and FSb. Align parts with straight edge along fuselage bottom and glue.

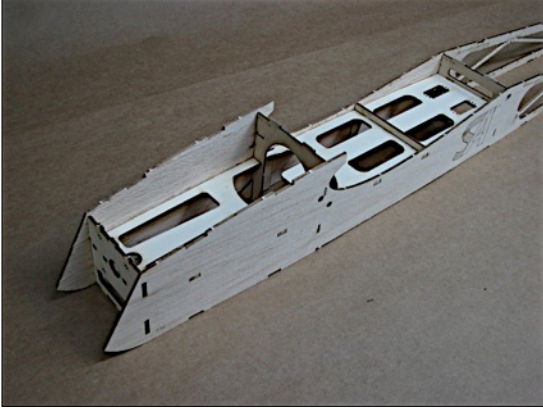


- With straight edge providing an alignment aide, install trussed components within fuselage side, matching A to A and B to B.



## Fuselage Continued

- Key completed fuselage sides to completed center crutch assembly. Tack glue sides at tab and notch locations to retain parts.



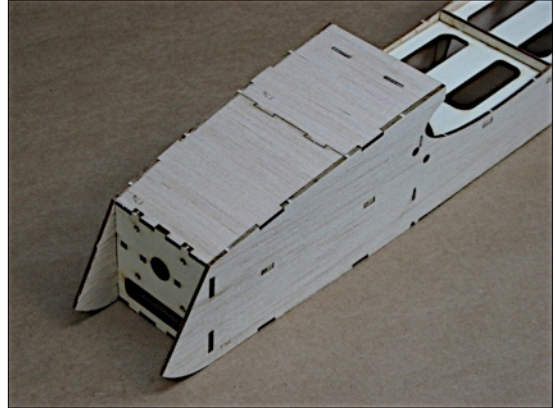
- Using thick CA glue, install the cross-grain doubler F10a forward of former F2. (F10a fits flush against F2 and F0 center crutch)



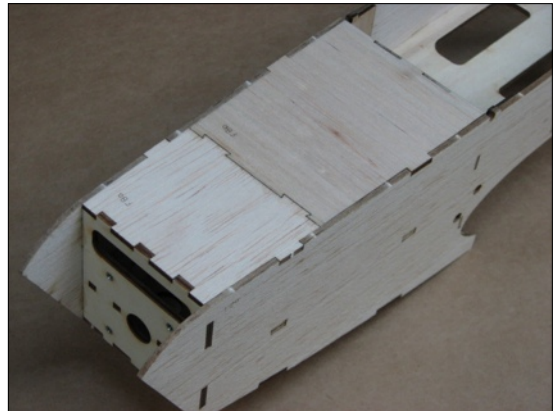
- Assemble the top (F7) and bottom (F8) fuselage formers from sub-assemblies F7a/F7b and F8a/F8b respectively.



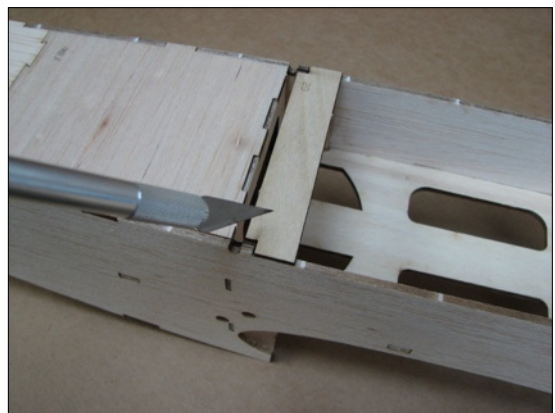
- Fillet interior joints along fuselage sides and former F1/F0 with medium CA glue then install/glue top former F7 to assembly.



- Again, fillet interior joints along fuselage sides and former F1/F0 medium CA glue then install/glue bottom former F8 to assembly.

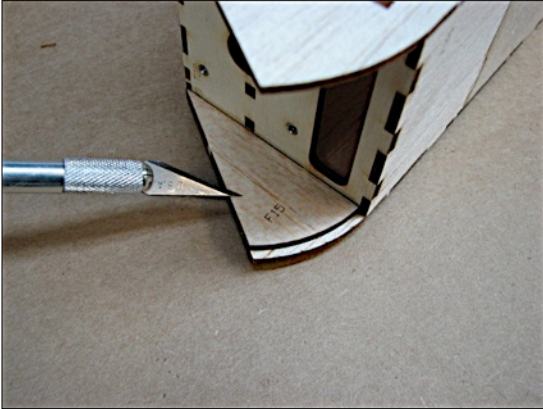


- Glue G2 into position spanning fuselage sides as indicated below.

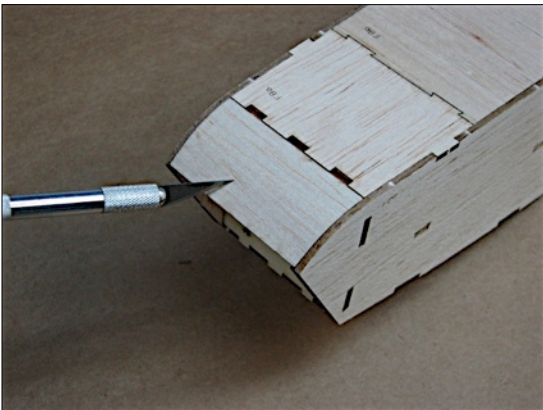


## Fuselage Continued

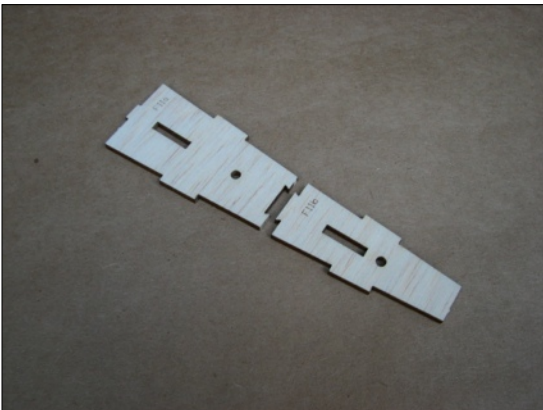
- Use thick CA glue to bond F15 to interior surface of right and left fuselage sides forward of F1 firewall. Radius of F15 locates 3/32 in. short of radius on fuselage sides.



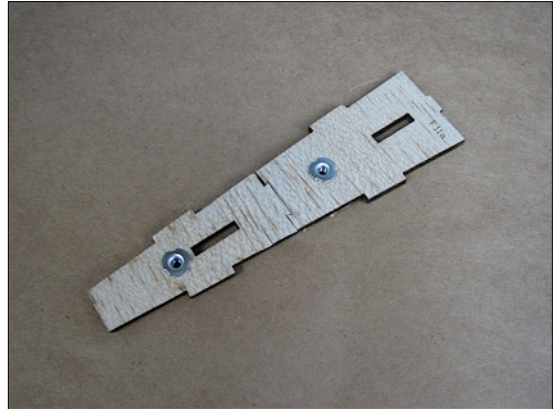
- Install F16 between fuselage sides forward of F1 and along lower edge of F15.



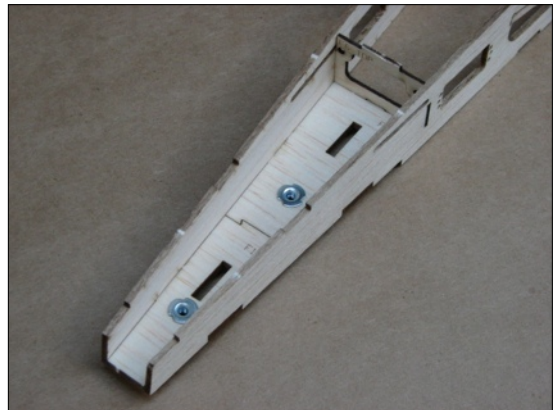
- Build / bond together former F11 from sub-assemblies F11a/F11b.



- Install blind nuts to completed F11 former and retain with medium CA glue.



- Study photo below then install F11 and F6 together between fuselage sides at tail. Note that the flange of installed blind nuts must face inside fuselage assembly. Tack glue.

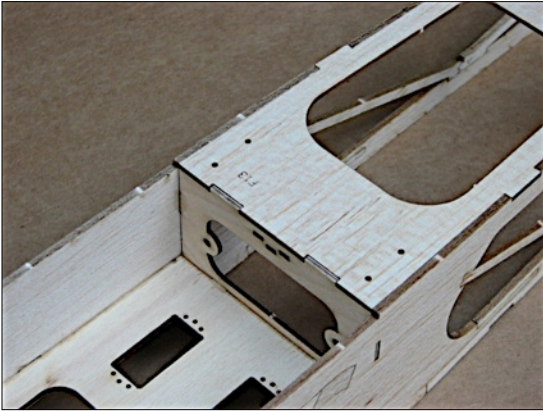


- Invert fuselage and install F12 to underside of F11.

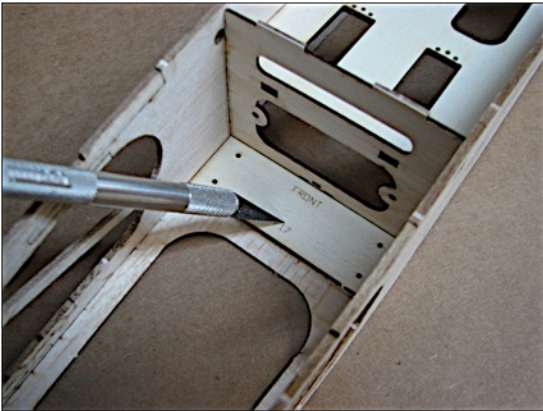


## Fuselage Continued

- Install F13 to span fuselage sides and former F3. Retain by tack gluing at tab and notches.



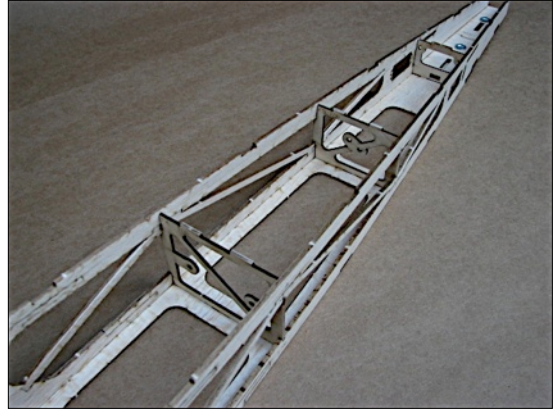
- Bond the of plywood hardpoint F17 with "FRONT" flush against aft side of former F3 and spanning fuselage sides.



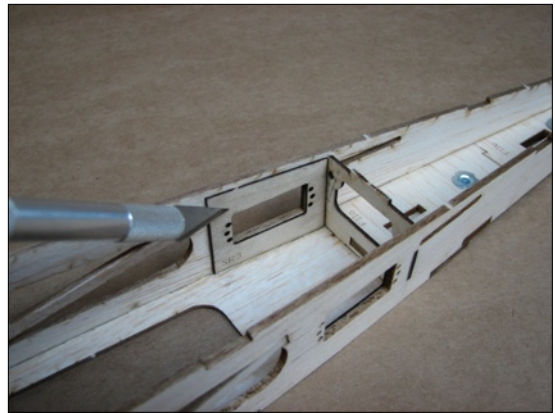
- Bond cross-grain doublers F10b within fuselage assembly as illustrated.



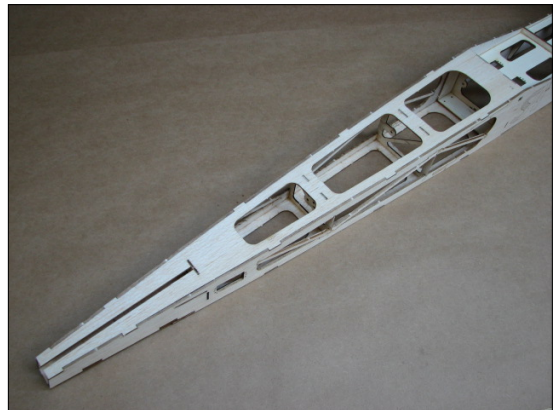
- Install formers F4 and F5 within fuselage assembly. Square fuselage to worktable and tack glue at tab and notch locations.



- Install optional servo pocket ply doublers F3 to right and left side of fuselage forward of F6.



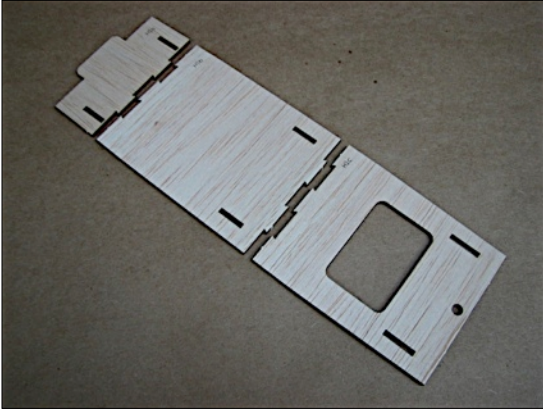
- Complete fuselage assembly by installing former F9 spanning fuselage sides and F3. **Now, square fuselage to worktable and bond all joints with thin CA glue.**



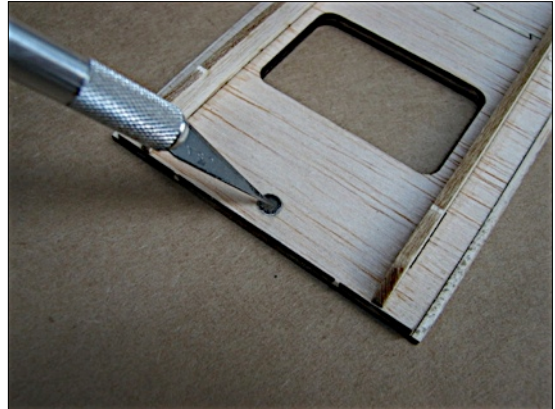


## Fuselage Hatch Assembly

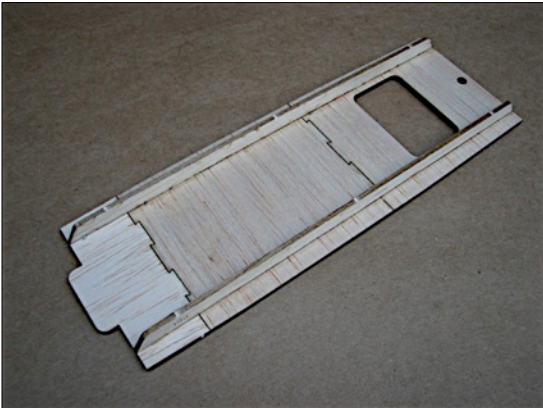
- Assemble H1 from parts H1a/H1b/H1c and bond using thin CA glue along dove-tail joints.



- Glue one 3/16 in. diameter magnet within locating hole in H1.



- Dry fit H1d doublers to right and left side of H1 hatch assembly. The tabs in H1d should extend proud of underside of H1d by 1/16 in.



- Dry fit H3 to notches in former F3.



- Using thick CA glue, bond H1 on top of H2 using tabs from H1d to locate H1 atop H2.

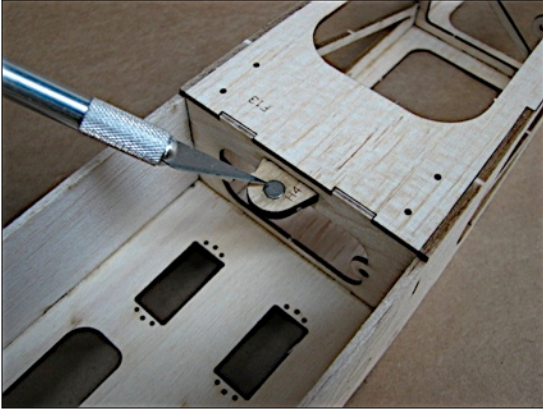


- Fit H4 to former F3 on top of H3 square to former then bond using thin CA glue.



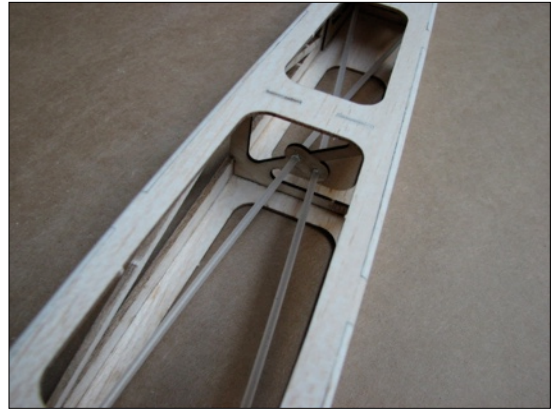
## Hatch Assembly Continued

- Install second magnet within H3/H4. **Important! Magnets are polarized thus, prior to securing magnet with glue check to see that it is attracted to magnet in hatch. If not, reverse magnet poles and check again. Once satisfied that your magnets will, indeed, attract (acting as the retention method for the hatch) bond with thin CA glue.**



## Pushrod Housing Installation

- Locate the push-rod sleeves included in your DUB922 pushrod system and pass through holes in formers F3 and F4.
- Route pushrod sleeves through former F5 then cross then pass through F6 as illustrated.

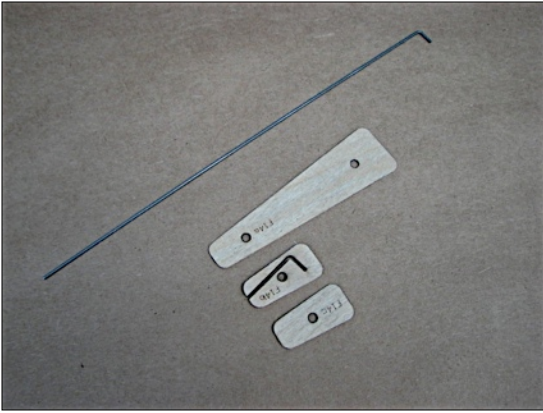


- Pushrod sleeves should exit on both right and left side of fuselage. Retain sleeves using medium CA at exit points and former pass-through locations.
- Trim pushrod sleeves so that only 1/4 in. of sleeve remains forward of former F3.
- Trim pushrod sleeves flush with fuselage sides using a sharp razor.

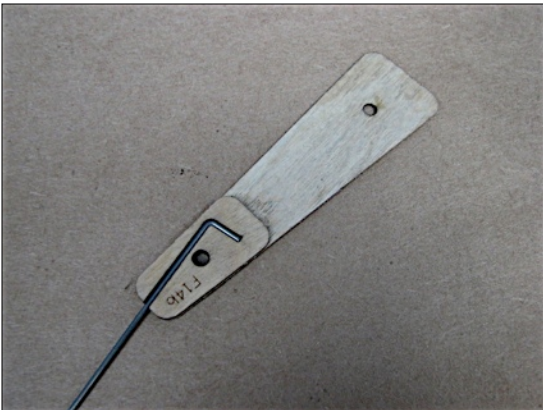


## Assemble Tail Skid

- Gather parts F14a, F14b, and F14c. Cut a 4 in. length of .045 in. wire from 12 in. stock and make 90 degree bend in one end (use the plan sheet to match length of bend).



- Using thick CA glue, laminate F14b on top of F14a. Nest "bent end" of wire in channel of F14b and retain with medium CA glue.



- Using thick CA glue, laminate F14c on top of F14b.



- Once glue has cured, straighten wire where it exits plywood then bend down at 45 degree angle (use plan set to gauge bend and angle) complete tail skid by making an upward "U" shape bend at end of skid.

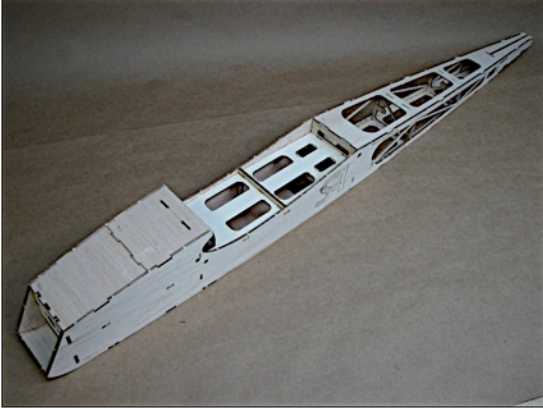


- Paint or cover tail skid to match covering job.

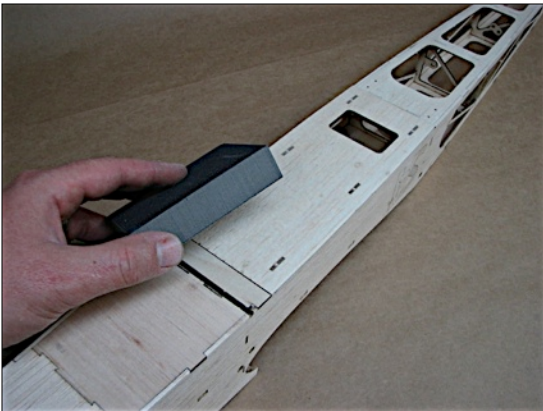


## Sand Completed Fuselage

- Completed fuselage assembly is now ready for sanding. Use small amounts of balsa colored wood filler to fill any imperfections and gaps.



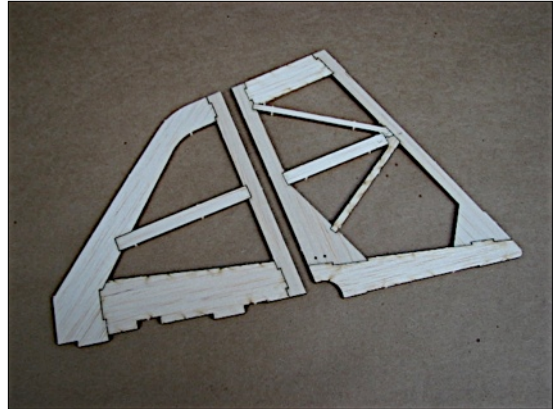
- With battery hatch installed, lightly sand entire fuselage assembly with 400 grit sanding block in preparation for covering.



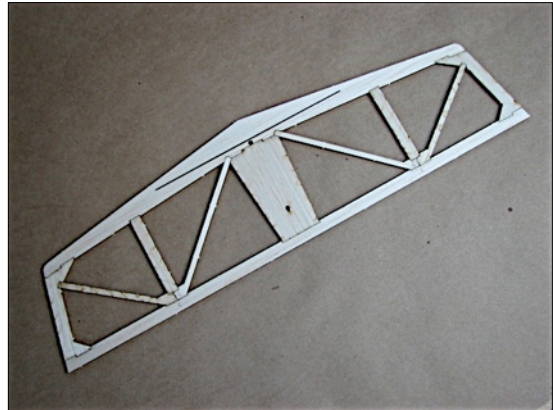
## Assemble Tail Feathers

- Assemble vertical stabilizer, rudder, horizontal stabilizer, and elevator halves. Using the plan set as a guide assemble each component beginning with the outer framework and finishing with the internal truss. Bond with thin CA glue.

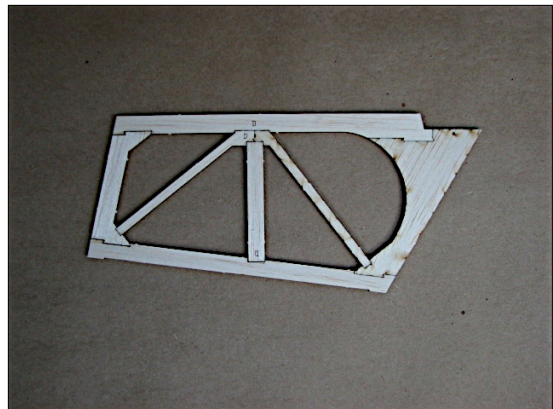
### Vertical Stabilizer and Rudder



### Horizontal Stabilizer

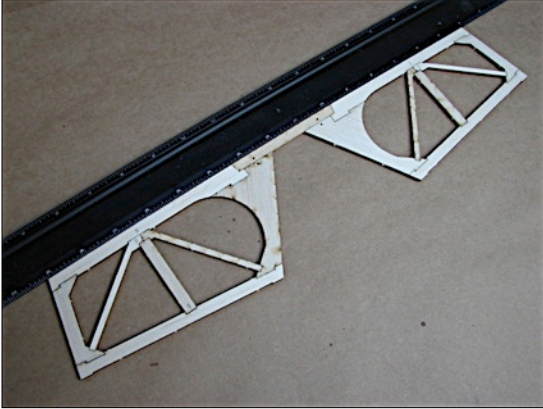


### Elevator (Make Two)

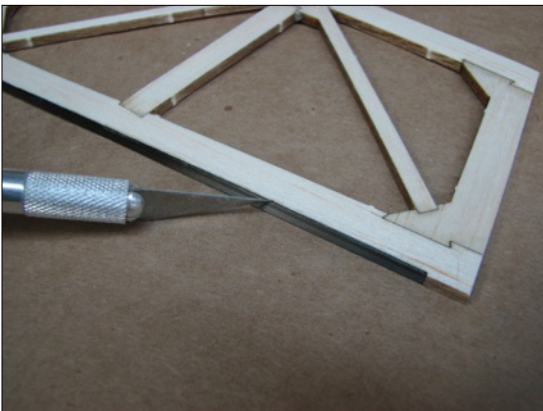
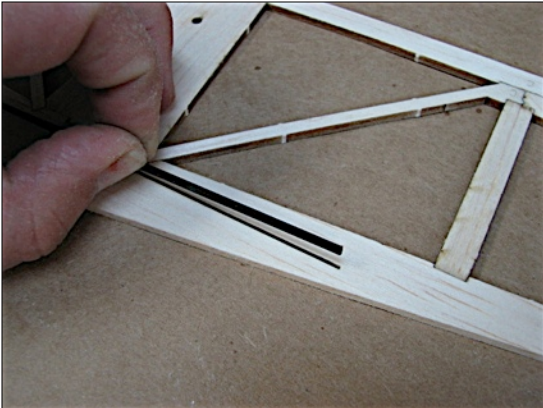


## Tail Feathers Continued

- Join elevator halves with basswood joiner. Use a straight edge to align assembly.

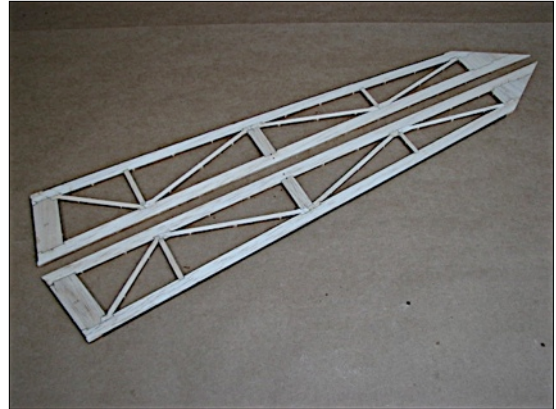


- Using the "Carbon Bar Stock Cutting Guide", located on the plan sheet, cut each of the four lengths of stock to proper lengths. Use medium CA glue to bond carbon stock, in lengths specified by plan set, to rudder, elevator, and horizontal stabilizer assemblies.

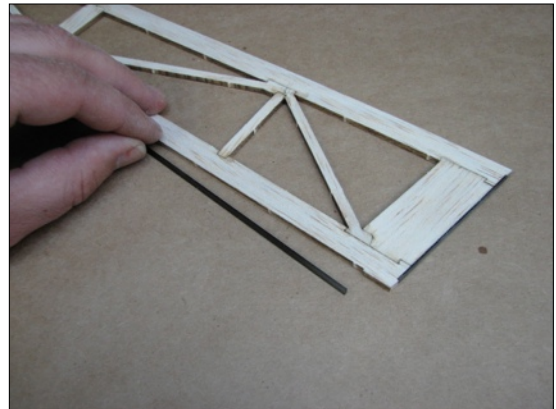


## Aileron Assembly

- Assemble a right and left aileron using the plan set as a guide. Assemble each component beginning with the outer framework and finishing with the internal truss. Bond using thin CA glue.

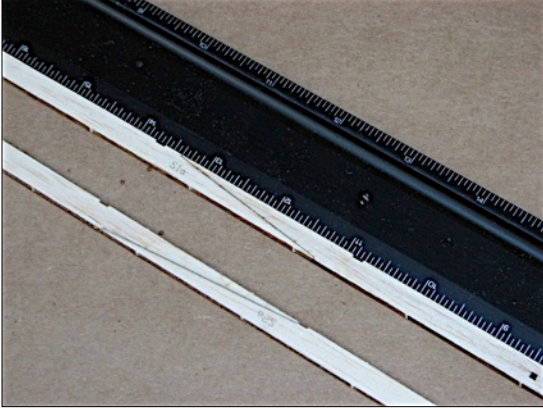


- Complete aileron assembly by cutting to length and bonding carbon fiber bar stock in locations indicated on the plan set. Use medium CA glue to bond carbon stock to aileron assembly.

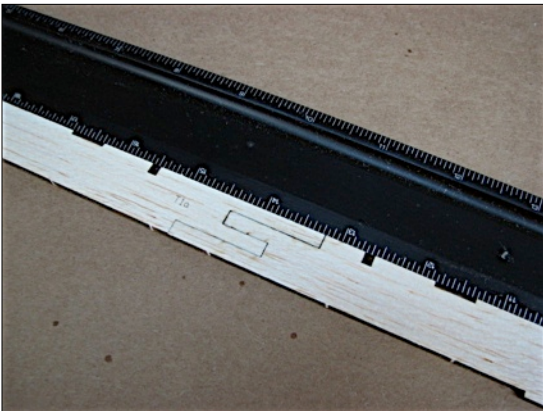


## Begin Wing Construction

- Bond S1a and S1b together to create bottom spar jig S1. Bond S2a and S2b together to create top spar jig S2. Use straight edge to align parts when bonding.



- Bond, with thin CA, T1a and T1b together to create T1 trailing edge. Use straight edge to align parts when bonding.



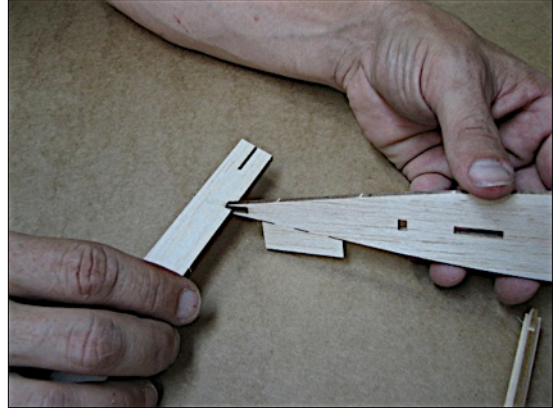
- Make spars from provided balsa stock.**

Use a scarf joint to join together two lengths of 1/8 in. x 1/4 in. x 24 in. balsa sticks to create one upper spar. Scarf together two more 1/8 in. x 1/4 in. x 24 in. balsa sticks to create one lower spar.

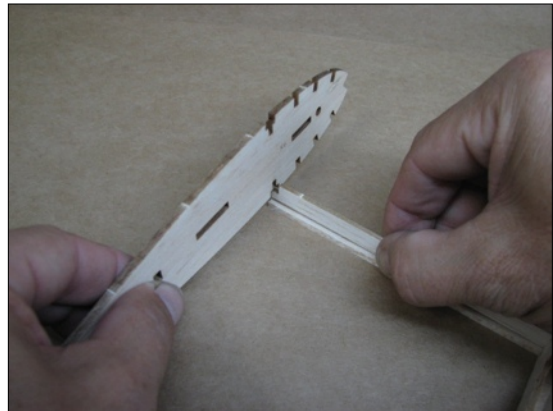
Tip: Use straight edge to align lengths of wood to be joined to insure accurate alignment.

See the detail on the plan sheet "How to make a scarf joint" for tips on creating a proper scarf joint.

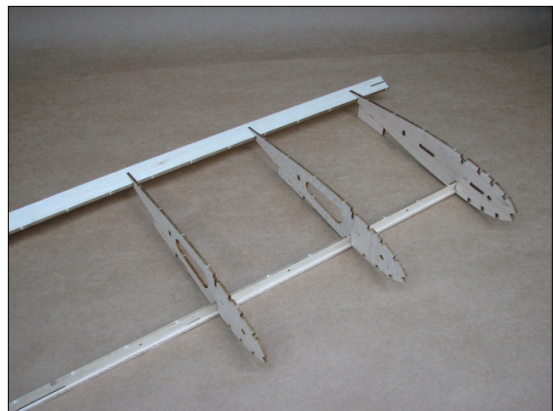
- Key one each right and left rib R5 to trailing edge in position indicated by plan set. **Install so that rib riser tabs face down.**



- Next, key R5 to end notch in S1 spar jig over top of lower spar (Joined from 1/8 x 1/4 x 24 in. balsa) Tack glue to retain.

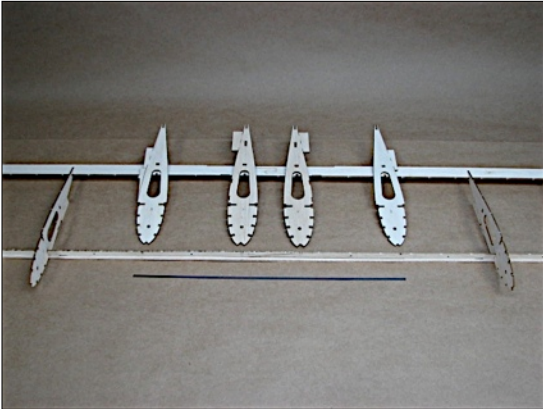


- Repeat process described in previous two assembly steps for right and left ribs R4 and R3.

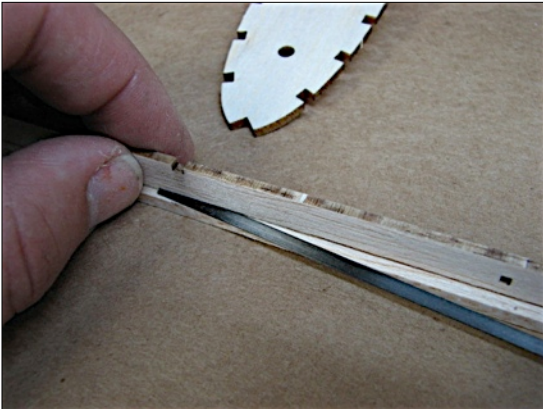


## Wing Construction Continued

- Cut to length (13 in.) and install the lower carbon fiber spar doubler, then install central ribs R1 and R2. Refer back to the plan sheet "Carbon Bar Stock Cutting Guide" to cut length of carbon for lower spar.



Carbon fits into recess cut into S1 lower spar jig and spans between R2 ribs across center of wing section.

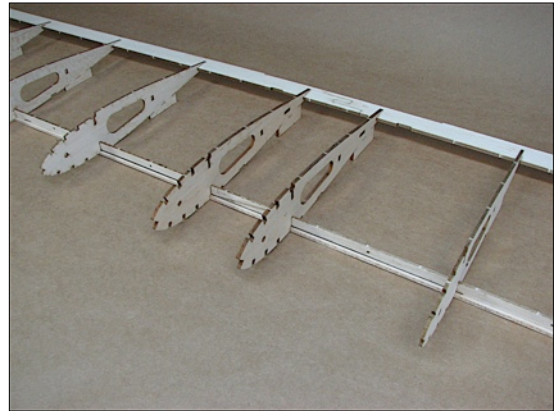


Carbon is captured by S1 jig and R1/R2 ribs.

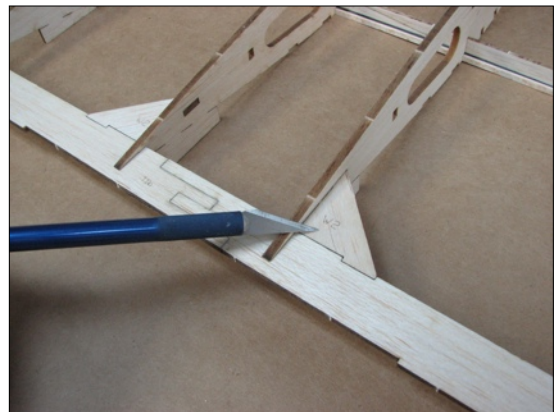


- Flatten wing against work surface, inspect all parts to ensure proper fit, then tack glue assembly together where ribs meet trailing edge and lower spar assembly.

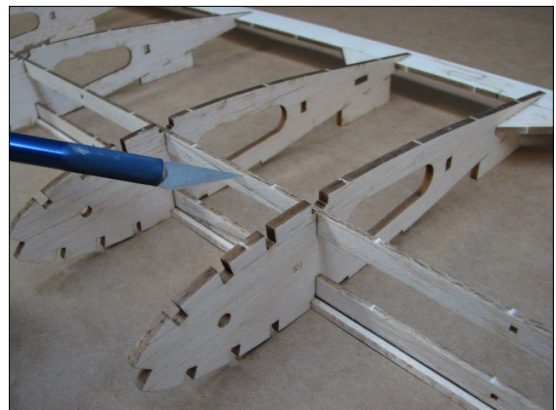
Use only enough glue to keep parts from shifting.



- Bond parts W2 to trailing edge of wing and left and right ribs R1.

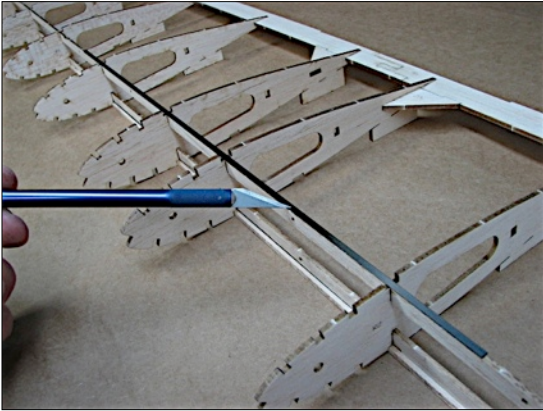


- Fit S2 upper spar jig to wing assembly.

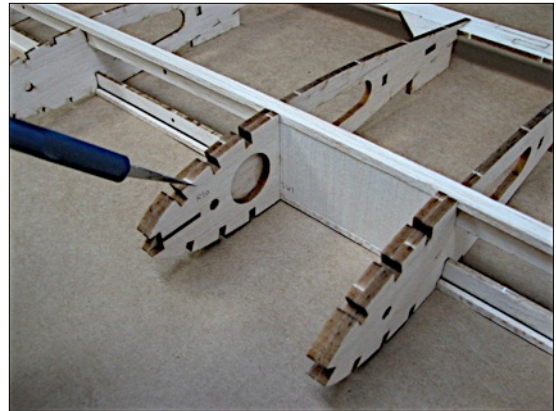


## Wing Construction Continued

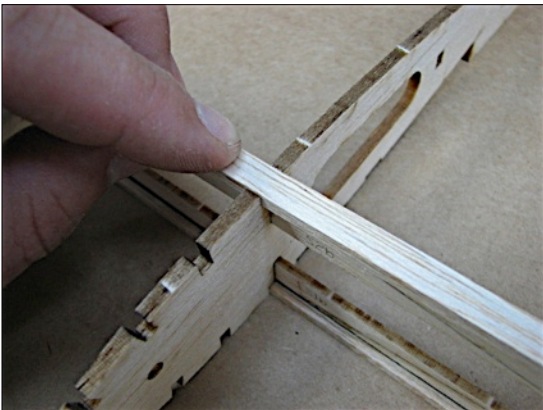
- Cut carbon flat stock to length (16 in.) and fit to recess in S2 spar jig, spanning right and left ribs R2. Tack glue carbon to S2 jig.



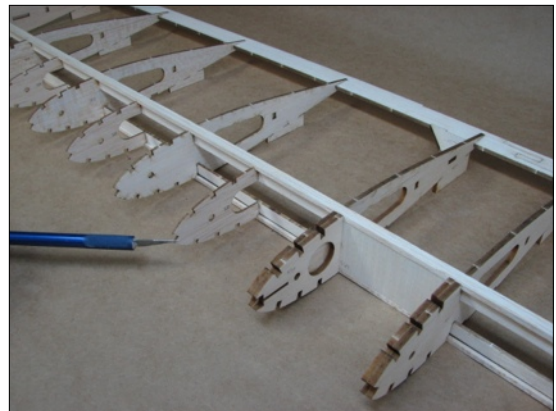
- Align R1a with notches in R1 then use thick CA glue to laminate R1a to inside surface of ribs R1.



- Install previously assembled 1/8 in. x 1/4 in. top spar spanning left and right ribs R5. Flatten wing on work surface then tack glue top spar where it intersects wing ribs.



- Install left and right sub ribs SR to notches in spar jigs. Tack glue with thin CA to retain.



- Bond SW1 shear web between R1 ribs, top and bottom spar, forward of spar jigs.



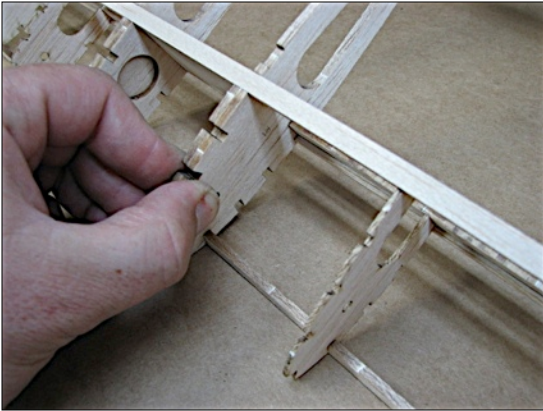
- Create W1 turbulator by joining W1a and W1b along scarf joint. Use straight edge to align parts while bonding.



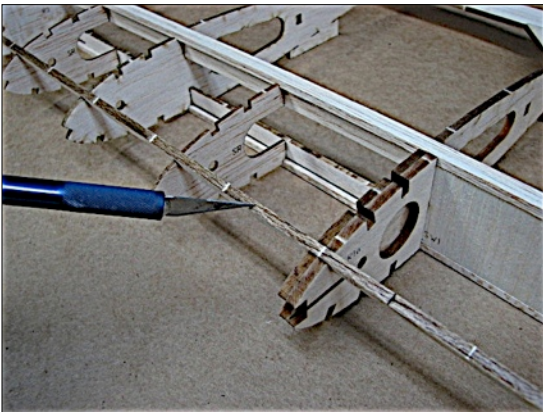


## Wing Construction Continued

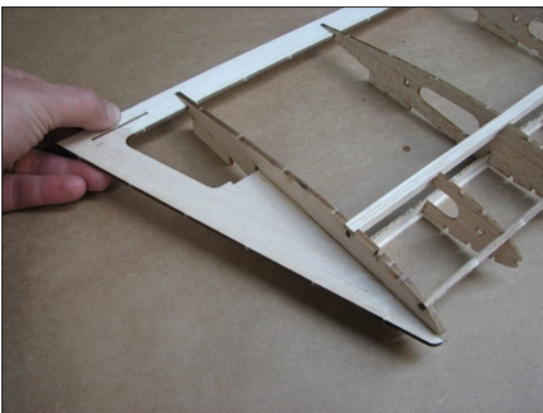
- Fit W1 to forward most notch in ribs spanning left and right ribs R5. Tip: Invert wing and use a gentle rocking motion against a hard flat surface to seat W1.



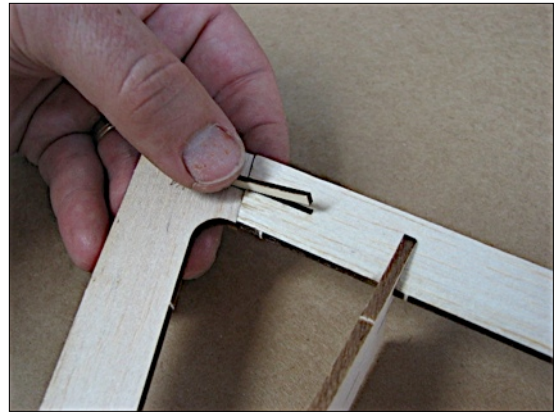
W1 fits flush with ribs R1 and R5 but sits 3/32 proud of the top surface of ribs R2-R4 and all sub ribs SR.



- Bond **RIGHT SIDE** wing tip W4 to wing assembly at R5 and trailing edge.



- Install ply "staple" W5 to strengthen joint of **RIGHT** wing tip to trailing edge.



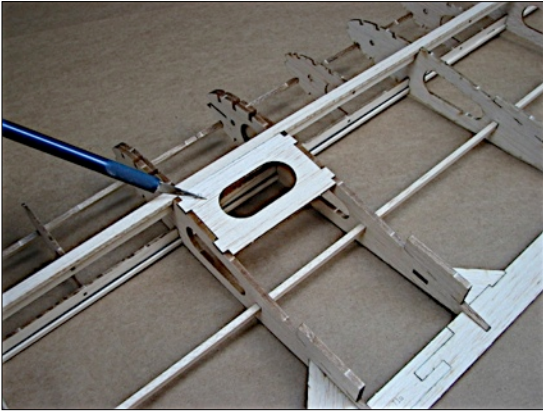
- Create and install sub spar.** Use a scarf joint to join together two 1/8 in. x 3/16 in. x 24 in. balsa sticks. Cut joined sticks to 43 in. length and install spanning wing assembly. Note that sub spar will seat against notch in wing wing tip as indicated below.



- Bond sub spar at wing tip. **DO NOT BOND** at interior ribs.
- Bond **LEFT SIDE** wing tip W4 to left rib R5m, sub spar, and trailing edge in similar manner to right side.
- Install ply "staple" W5 to strengthen joint of **LEFT** wing tip to trailing edge in same manner as right side.
- Inspect interior ribs over plan sheet to verify that they are not being pushed out of alignment by sub spar. Correct if necessary, then bond ribs at sub spar with thin CA glue.

## Wing Construction Continued

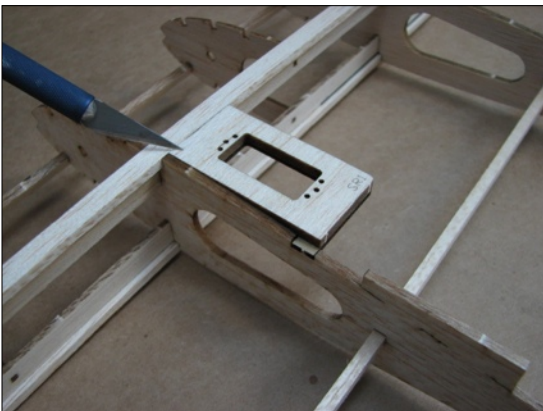
- Bond W6 to underside of wing assembly spanning notches in ribs R1.



- Bond right and left servo pocket ply doublers SR1a to notch in spar jig S1 and rib R3.



- Using thick CA, laminate SR1b balsa doubler to top of SR1a.



- Using thick CA glue, laminate W4 to recess in T1 at wing trailing edge.



- Fit and tack glue all SW2 vertical grain shear webbing in-between ribs and sub ribs spanning R1 through R4. Webbing is notched on one side where it partially extends into lightening hole gap at each sub rib SR.

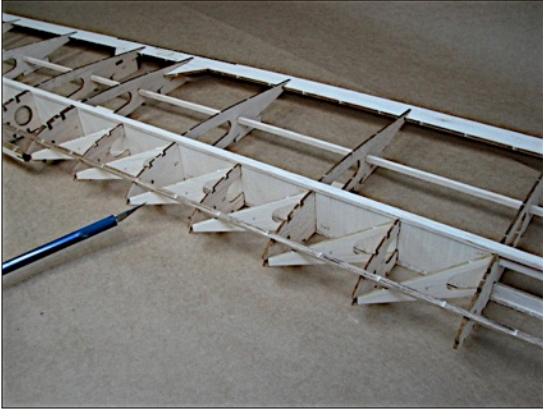


- Using thick CA glue, laminate together both LE1 center section leading edge parts, then install spanning ribs R1.



## Wing Construction Continued

- Use plan sheet as a guide to locate and install X rib trussing in leading edge of wing. Trussing fits between top and bottom spar, against spar web, and centered with leading edge notch in rib/sub-rib. Tack glue to retain.



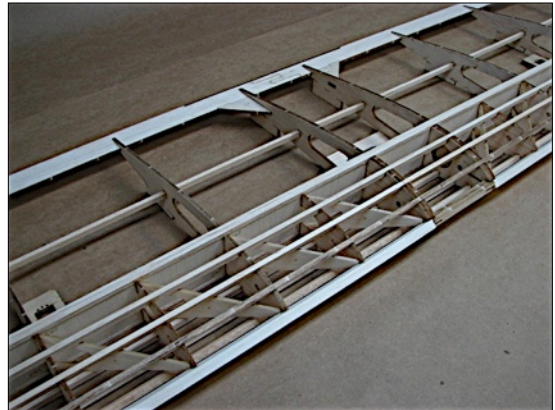
- Cut 1/4 in. square stock to fit leading edge and bond to wing using medium CA glue.



- Dry fit 1/8 in. x 3/16 in. x 24 in. turbulator stock staggered at wing center as illustrated.



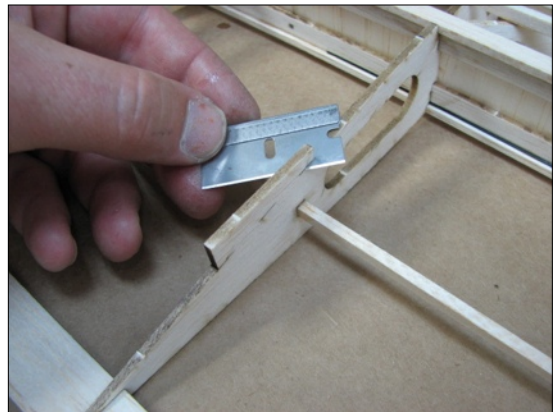
- Fit remainder of turbulator stock for both top and bottom of wing. Remember turbulators sit 3/32 in proud of interior ribs and flush with ribs R1 and R5. Flatten wing against your building surface then glue turbulator stock at each contact point with ribs.



- With wing held flat against your work surface proceed to thoroughly glue all mating surfaces paying particular attention to spar, webbing, and rib intersections.

- Use thick CA glue to fillet each X rib trussing at spar and leading edge joints.

- With wing assembly complete use a sharp razor blade to remove the riser tabs from the underside of each rib.



- Framing is now complete relax with a good cup of coffee and rub the dog's ears.

- Use a razor plane or sanding bar to knock the point off of the leading edge square stock. Remove only enough material from the point to bring it flush with the center section LE1.



- Use a long sanding bar loaded with 250 and 400 grit paper to round out leading edge to match wing saddle of fuselage.



- Use sanding block to taper SR1b to match rib.



Carefully remove material. Tip: protect surrounding spar and ribs from sanding block action with masking tape.



Properly tapered servo pocket.



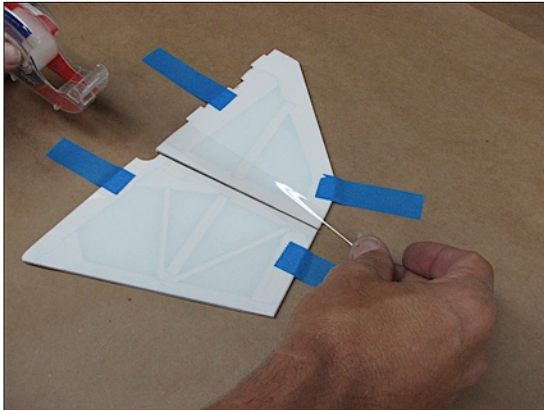
- Sand remainder of wing surface with 400 grit paper on a large sanding block in preparation for covering. Remove only enough material to eliminate the light brown "laser burn" and smooth out any raised grain.

## Final Assembly

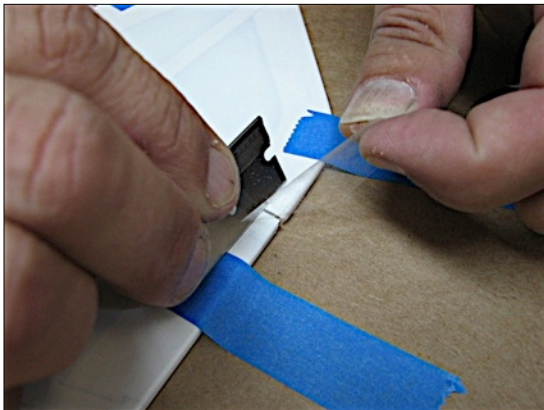
- Cover fuselage, wing, and tail feather components with a high quality light weight and user friendly film such as Stevens AeroLITE or AeroFILM.
- Follow diagram on plan for sanding instructions to complete tape hinge method for rudder and vertical stabilizer as given on plan set.

Tape components to work table, bevel side down, using a low tack masking tape. Space or gap rudder off of vertical stabilizer by 1/64 in.

Apply length of 3/4 inch wide clear tape or suitable hinge tape across gap.

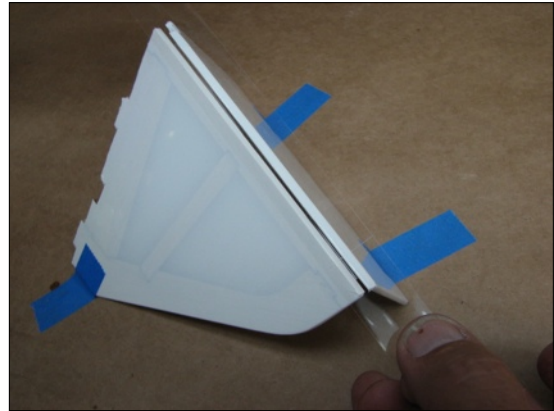


- Lift excess clear tape against the edge of a new razor blade to remove excess material.



- Remove taped parts from work table. Now invert assembly and, with freshly taped surface facing down, fold parts back to align beveled edge of movable surface (rudder) flat relative to fixed surface (in this case the vertical stabilizer) run a length of tape along back-side of hinge and remove excess tape with sharp razor blade as before.

Use a low tack masking tape to hold the part folded back on itself as illustrated below.



- Repeat previous three steps to hinge RIGHT and LEFT ailerons to wing and to hinge elevator to horizontal stabilizer. Remember the beveled surface should always face the underside of the model.
- Fit vertical fin (with rudder previously attached) to slots and tabs in fuselage assembly and retain with medium CA glue.



- Send in your \$5.00 donation to our "Feed the hand-model fund"

P.O. Box 15347 Colorado Springs, Co 80935

## Final Assembly Continued

- Mount Rudder and Elevator servos.** Trim length of long single-sided servo horn, provided with your HS-65, by one position; for both rudder and elevator servos.



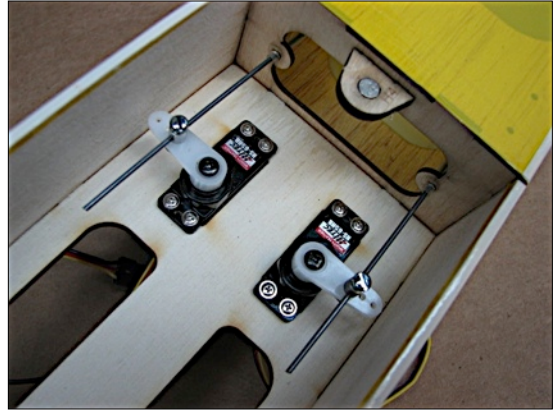
- Install Du-Bro RC Mini E/Z connector provided with your pushrod kit (DUB922) to inside hole of trimmed servo arms.



- Install HS-65 servos within fuselage using hardware provided with servo.



- Use radio, or servo tester, to electronically center servos. Install control horns to servos then pass pushrods through housing from tail of aircraft ending through E/Z connector as illustrated below.



- Trim two (2) Micro2 (DUB919) control horn "posts" to 1/8 in. length.

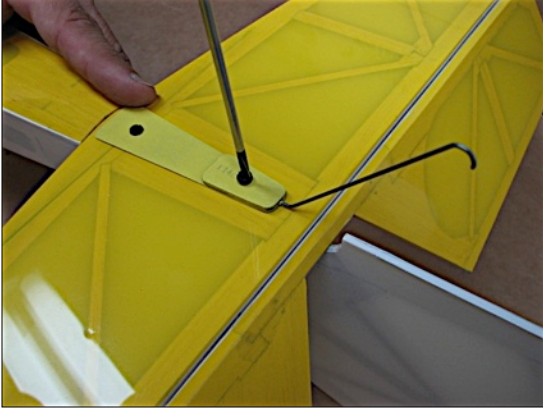


- Install control horn to laser drilled holes on push-rod side of elevator and rudder and bond with medium CA glue.

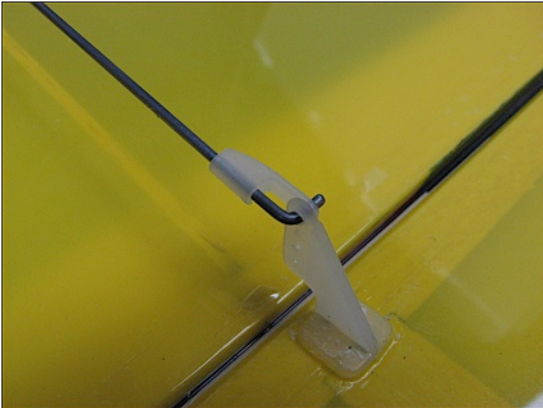


## Final Assembly Continued

- Install nylon 4-40 x 3/8 in. bolts through tail skid and horizontal stabilizer to retain stabilizer assembly to fuselage.



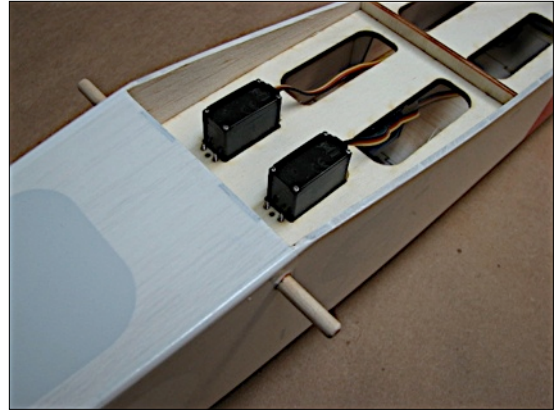
- Connect pushrod to control horn at both rudder and elevator then retain using Micro2 E/Z links provided with pushrod kit.



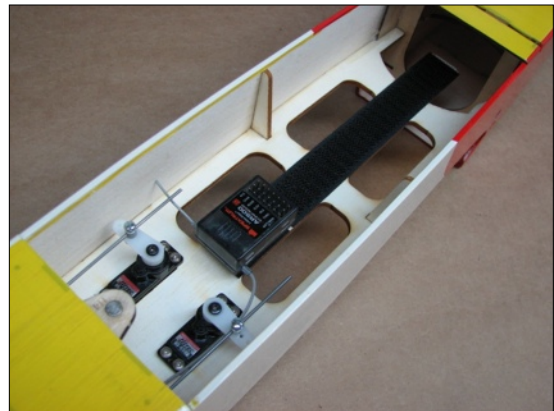
- Cut the three (3) provided 3/16 in. dia. dowels to 4-1/4 in length and install centered within fuselage assembly.



Retain dowels using medium CA glue.



- Install a 6 in. strip of sticky back hook and loop tape (not provided) centered to fuselage crutch to hold receiver and battery.

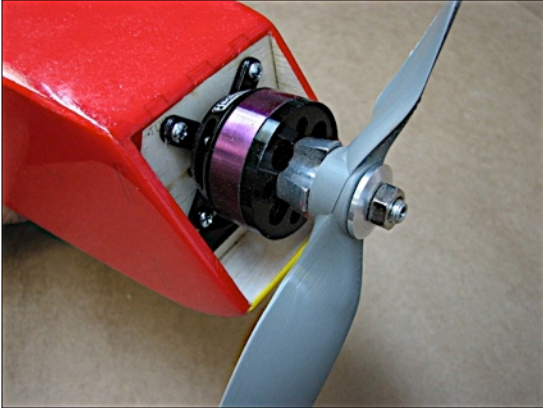


- Prepare motor and ESC for installation. Outrunner motors should be setup for radial style mounting.

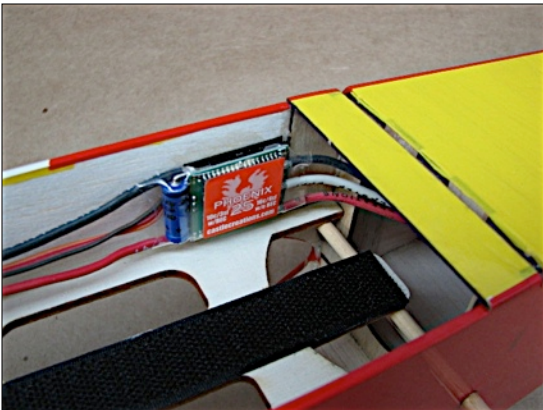


## Final Assembly Continued

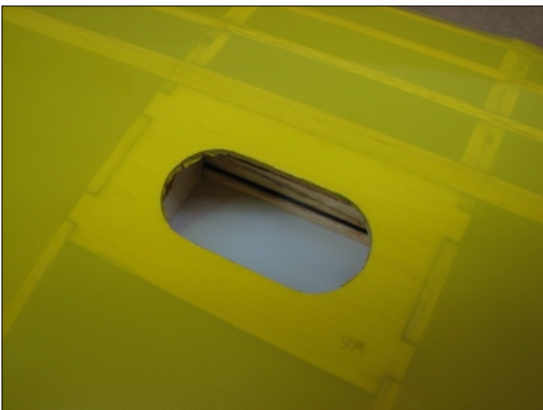
- Using provided 4-40 x 3/8 in. steel machine screws secure motor to firewall. Tip: Shim left side of motor mount with 1/16 plywood washers (located on sheet 18/19) for right thrust.



- Mount ESC to inside edge of fuselage using hook and loop tape (not provided).



- Open up hole in W6 former of wing to allow servo wires to pass through.



- Remove covering over servo pockets.



- Prepare long servo control arm with Mini E/Z connector (DUB845) located in second position out from servo arm center.



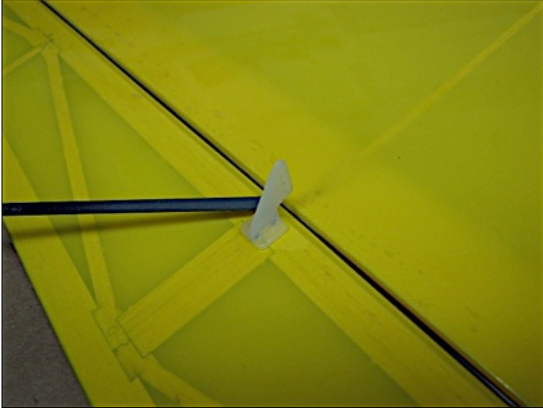
- Trim two (2) Micro2 (DUB919) control horn "posts" to 1/8 in. length.



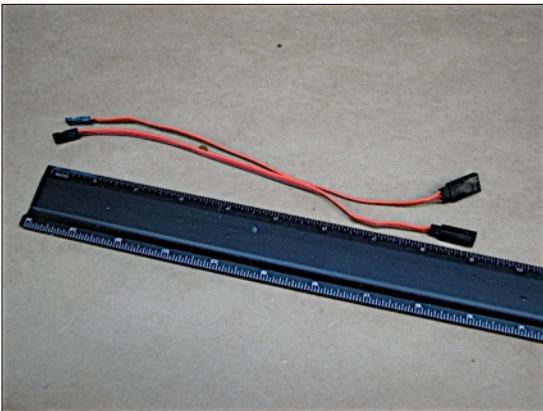


## Final Assembly Continued

- Install control horn to laser drilled holes on servo side of ailerons and bond with medium CA glue.



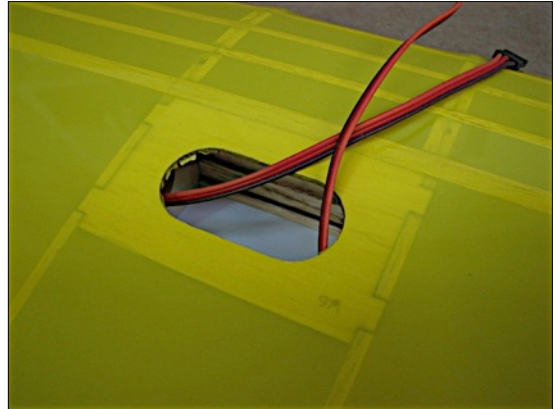
- Use two 9 in. extensions for aileron servos.



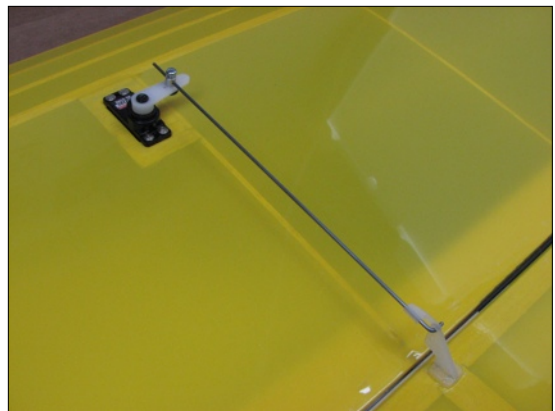
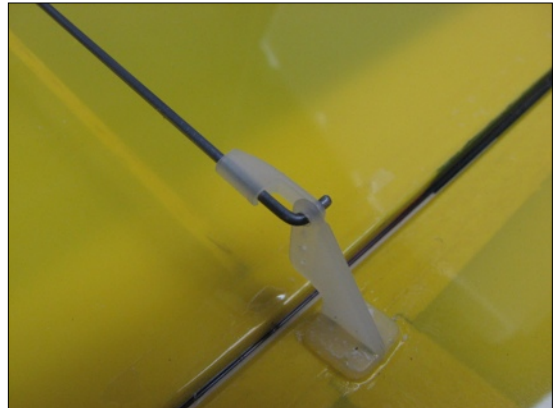
- With extension installed, fish wires through wing then mount HS-65 servos using hardware provided with servo.



- Aileron servo wire should pass through opening in W6 at bottom of wing.



- Use plan set as a guide to bend up two aileron control rods from provided .045 in. wire stock. Install to control horn at aileron and retain using Micro2 E/Z Links (DUB-920). Pass pushrod through Mini E/Z Connector at servo and retain with set screw.

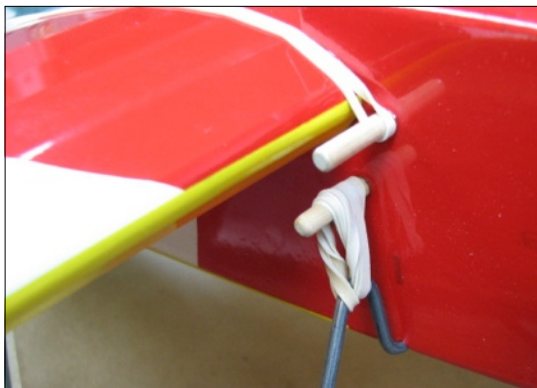


## Final Assembly Continued

- Fit, then bond wing centering tabs LE2 to slots in wing center section at LE1.



- Ream provided foam wheel hubs to fit 1/8 in. diameter wire landing gear. Retain wheels to gear using press-fit star washers.
- Make final electrical connections within fuselage from servos and ESC to radio.
- When installing wing route aileron servo leads around formers at wing saddle so as not to pinch wires between wing and formers.
- Install wing and landing gear. Use four of the provided rubber bands to install the wing (two on each side - do not cross bands). Use one each rubber band on either side of gear to secure landing gear to gear lug dowel. Vary tension and number of wraps of rubber band to soften or stiffen gear rebound.



## Initial Control Setup and Balance

- First, mechanically and electronically center all control surfaces; zero any trim settings in radio.
- Balance model at 3 in. from leading edge of wing. CG range will extend back to 3-1/2 in. from leading edge move CG back slowly as you become comfortable with flight performance.
- Control Surface Travel** given in degrees and set with protractor gauge:

### Ailerons

Low Rate: +/- 15 degrees 30% expo  
High Rate: +/- 30 degrees 70% expo

### Elevator

Low Rate: +/- 20 degrees 30% expo  
High Rate: +/- 40 degrees 70% expo

### Rudder

Low Rate: +/- 30 degrees 70% expo  
High Rate: +/- 30 degrees 70% expo

### Mixes

This shoulder wing model exhibits slight pitch coupling to gear with application of rudder and slight roll coupling with (in the direction of) application of rudder.

If desired the pitch coupling can be minimized by using a rudder to down elevator mix of about 7%

If desired the roll coupling can be minimized by using a rudder to adverse aileron mix of about 6%

- Target model weight is 24oz; when covered with AeroLITE and equipped as suggested in manual, this figure is easily obtainable. **Maximum suggested weight is 32 oz.**
- Please perform a thorough pre-flight and safety inspection prior to every flight. We suggest replacing all rubber bands retaining wing and gear every flying session.