

# NIEUPORT 24 AND 27

## R/C SCALE MODEL INSTRUCTIONS



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## NIEUPOORT 24 AND 27



Thank you for buying this AerodromeRC laser cut short kit for electric flight. The construction of this 1/8<sup>th</sup> scale, 40 inch wing span Nieuport 24 model kit is similar to the Nieuport 27.

This kit offers the builder three options for operating the ailerons: Scale function with servo in the fuselage to aileron bell-crank to torque rod to the ailerons, or servo in the wing operating the ailerons and the torque rod to the aileron bell-cranks, or servo in the wing to the ailerons.

The model pictured above has the latter option. All balsa and plywood needed to build this model is furnished in the kit.

Items needed to build this kit (that are not as easy to find at the local hobby shop) that may need to be ordered are 1/8" carbon fiber rods (6 at 24"), 3/16" carbon fiber rods (2 at 24" or wood dowels) and 1/4" carbon fiber rods (2 at 24" or wood dowels). Three 2-56 x 2" bolts with 2-56 blind nuts for motor mount/dummy engine.

### MODEL SPECIFICATIONS

**Scale:** 1/8th

**Wing span:** 40 inches

**Wing area:** 380 Square Inches

**Length:** 28 inches

**Weight:** 30 ounces (model pictured above – 32.4 oz.)

**Power:** AXI 2217/20 (model pictured above – Atlas 2317/20)

**Channels:** R/E/A/T

**Airfoils:** Top Wing-Under-cambered, Bottom Wing-Flat

**Wheels:** Balsa and ply with foam tires

**Designer:** M.K. Bengtson

**Prototype Builder:** Bert Ayers

### FEATURES

- One piece construction with scale fuselage and tail shapes
- Top and bottom wing alignment is built into model
- Scale dihedral, includes in wing aileron servos
- Fuselage built from laser cut formers and stringers
- Front of the fuselage is balsa box, the rear is built up with top and bottom formers, stringers

- Laser cut parts for built up cowl
- Dummy Vickers machine gun kit included
- Laser cut plywood landing gear in scale outline
- Laser cut IP struts
- Laser cut tail parts included with 1/32" balsa sheeting
- Scale number of ribs
- Laser cut 1/32" plywood trailing edges included
- Carbon tube leading edges and 1/8" diameter carbon rod spars in scale location (not included)
- Under cambered airfoil
- Balsa and plywood wheel kit with Neoprene foam rubber tire material included
- Dummy bell crank mechanically operated by in wing servos
- Dummy motor with electric motor mount included

### BUILDING THE MODEL

#### BEFORE STARTING

A note about the photos. The photos were taken of from other builds and the parts supplied may look slightly different from them. However, the concepts illustrated are the same. The prototype was built by Bert Ayers

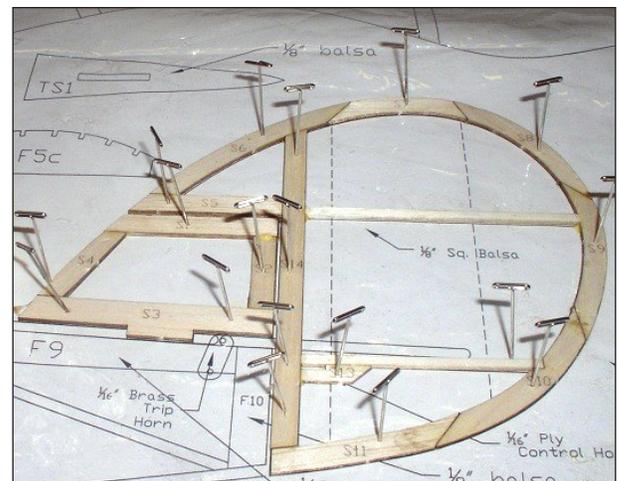
#### VERTICAL STABILIZER/RUDDER HORIZONTAL STABILIZER/ELEVATORS

Items needed to complete these parts:

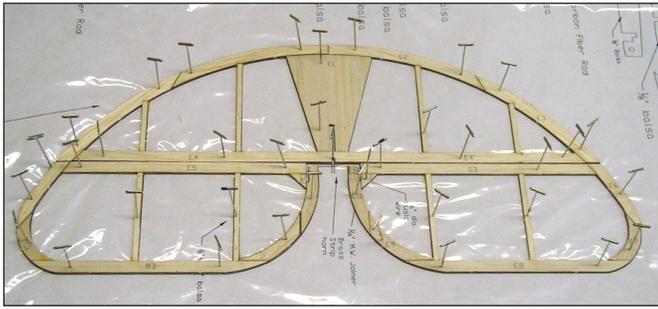
- Short length of 1/16" music wire
- 1/16" brass strip
- 6 Hinges – your choice

Cover the plans with a clear plastic sheet. The bag that the kit came in can be slit down the side and opened up to make a nice covering for the plans.

On the 1/16" balsa sheet of laser cut parts, find all the "S" parts. Pin and glue in place on the plan. A sheet of 1/16" laser cut 1/8" wide strips are provided with the kit. Do not use water based glues for tail assembly.



Again, on the 1/16" laser cut balsa sheet find all the "E" parts. Pin and glue down to the plan, the same as the vertical and rudder.

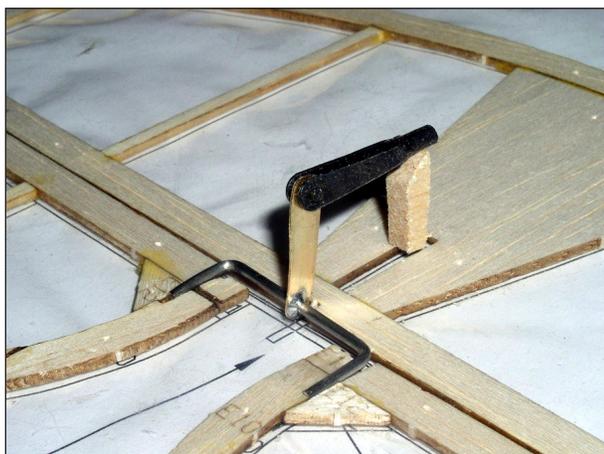


The rudder can be operated by either a push rod or by pull-pull cables. Find the 1/16" plywood sheet that has several laser cut control horns and choose the style you like. Attach after the sheeting is laminated onto both sides of the parts.

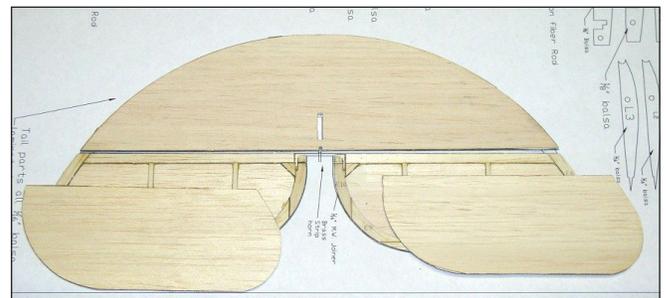
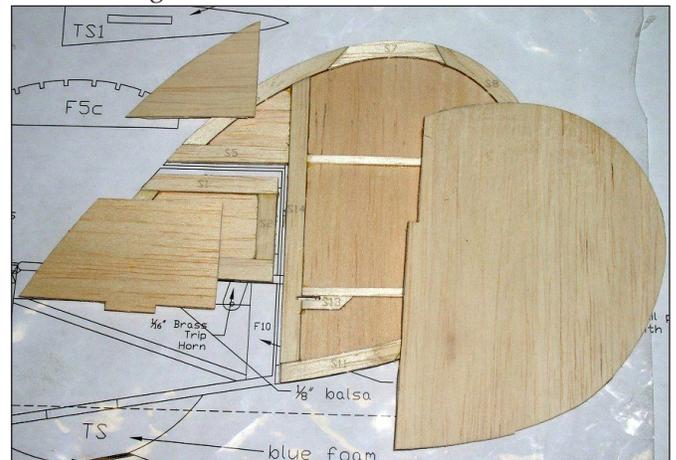
The elevators are operated by an internal push rod to a brass control horn soldered to a music wire joiner piece. Bend a length of 1/16" music wire to match the plan (fairly accurate).

Make a 1/16" brass strip as per plan. Solder to the music wire at a forward angle as per plan.

Pin down the stab and the elevators in correct position. Ruff up the music wire with sand paper and epoxy to the elevators. Use a small piece of plastic to keep the epoxy off the stab.



Sand both sides of the 1/16" frame works very flat. Any bumps will show in the covering. Find the 1/32" sheet balsa laser cut horizontal stab/elevators and vertical stab/rudder covers. Laminate them to the 1/16" frame works, one side at a time. Weight down on a flat surface with a flat surface.



Sand the edges half round. Finish the parts in whatever method you prefer. Remember, this is a short nosed model. Weight will have to be added to the front for any excess weight in the rear. The push rod or cable horns can be added to the rudder. Hinges can be added at this time by your favorite method.



## WINGS

Items needed to complete the wings:

- 6 - 1/8" carbon fiber rods – minimum 20" long
- 2 - 3/16" carbon fiber rods or wood dowels - 20"
- 2 - 1/4" carbon fiber rods or wood dowels - 20"
- 2 - 1/16" music wire - 12" long 2 - 3/32" brass tubes - 12" long
- 4 - 1/8" brass tubes - 5/16" long
- 4 - 1/8" wood dowel pins - 3/8" long
- 6 - aileron hinges

Aileron operation can be accomplished by option of three methods:

1. Servo or servos in the fuselage that move the Aileron Bell Cranks which are connected to the music wire torque rod embedded in the ailerons. Ailerons must be center hinged
2. Servos in the wings that operated the ailerons. The ailerons are connected to the Aileron Bell Cranks by the torque rods. Ailerons must be center hinged.
3. Servos in the wings that operate the ailerons. Aileron Bell Cranks are stationary. Ailerons can be center hinged, top hinged or bottom hinged. The model shown has this option.

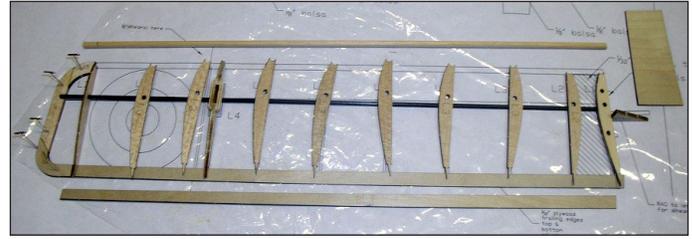
Aileron Bell Cranks are stationary. Ailerons can be center hinged, top hinged or bottom hinged. The model shown has this option.

## BOTTOM WINGS

Find all the "L" lettered pieces. They will be in the 1/16" and 1/8" laser cut balsa sheets as well as the 1/32" and 1/8" ply laser cut sheets.

The trailing edge pieces are labeled BLT, BLB, BRT and BRB – B for bottom, T for top, L for left and R for right. Cover the plans. Lay out the ribs in the proper position. **NOTE** that L1 and L2 are different in size. L4 needs to have some scrap added to the sides to make a box for the interplane struts.

Find "RAG" to be used to lean L1 outward for dihedral.

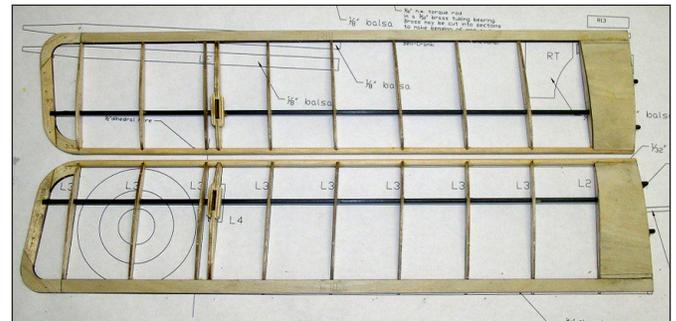


Pin down and glue the wing tip parts. Pin down the BLB trailing edge piece.

Cut the carbon fiber rod to correct length and carefully slide the ribs onto the rod in the correct order. Properly spaced the ribs can be glued to the rod, the trailing edge and the wing tip.

Be sure to lean L1 outward (toward wing tip). Add the BLT piece to the top aft of the ribs to complete the trailing edge. Glue on the leading edge (CF or wood dowel). Glue on the 1/32" plywood piece to L1 and L2.

Add the dowel pins to L1 with about 3/16" out toward center line. If your building board is long enough, you can build both wings at the same time, doing each step on the left, then on the right.



## TOP WING

The top wing is built pretty much in the same manner as the bottom wings. The ribs have undercamber which makes them somewhat thin. Make sure that whatever aileron servo you choose to use will fit into the thickness of the ribs. This builder used Hi-tec HS-45 servos.

Ideally, this wing should be built as one piece. If your building board is not long enough, then build in half's from center rib R1.

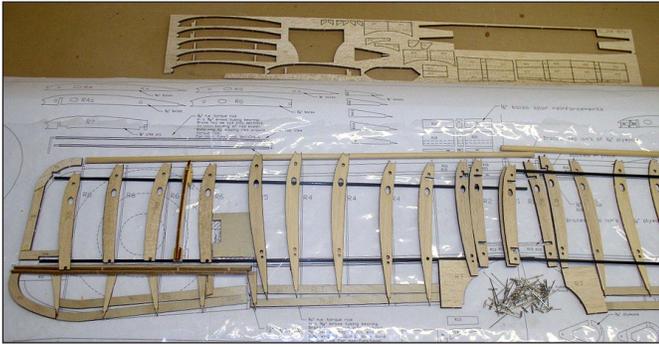
The photos show the left wing progress, repeat each step for the right wing. Once again find all the "R" lettered parts. **NOTE** that the aileron trailing edge 1/32" plywood is lettered ALB, ALT, ARB and ART.

There are a multitude of small parts that go into the center section. This builder chose to leave them in the laser cut sheet until needed, so as to avoid loss of parts.

1/8" ply rib R7 needs to have scrap ply side pieces glued onto the interplane strut slots to make a box.

Cut the carbon fiber rods and leading edge pieces to correct length.

Layout all the pieces in their proper position to make sure all the parts are present.



Pin down the TLB and TRB 1/32" ply pieces. Cut the CF rods to their exact length. Slide the carbon fiber rods into 1/8" balsa rib R5 and put them onto the plan in the correct position. Pin down the rib R5 then position the CF rods to their exact position. Use CA glue to glue the CF rods to R5. Do not glue R5 to the trailing edge plywood piece.

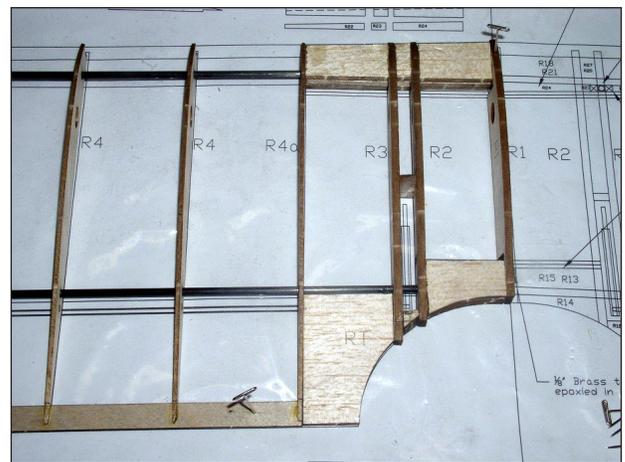
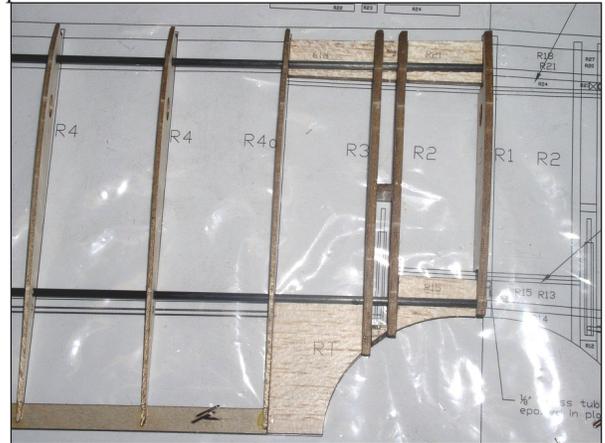


Now you can remove the pieces from the building board and slide the other ribs onto the CF rods in their correct order. If you are using the aileron torque rods, they need to be added at this point.

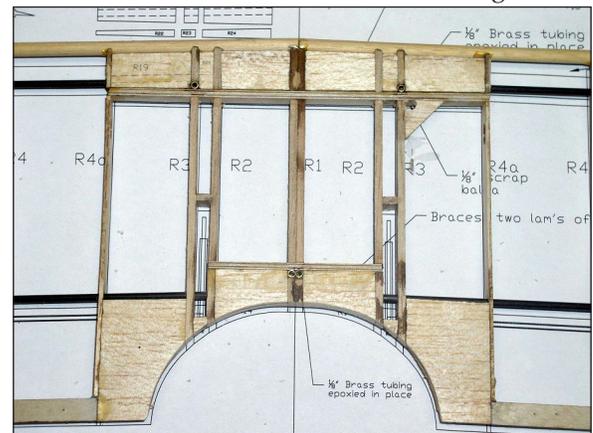


With all the ribs in the correct position, CA glue the ribs to the carbon fiber rods. Glue the trailing edge to the ribs also. The wing tip parts can be pinned down and glued. When the glue has cured, unpin the aft part of the wing tip and block up to match the taper on the 1/8" TE piece (approx. 1/8"). The wing tips and the TE piece can be glued in at this time. Switching to the center section, find all the small R16 thru 24 pieces and the RT pieces. Slip the RT piece under the CF rod and glue to rib R4a and rib R3. Slip pieces R12 and R15 in place to complete the half circle. Slip pieces R19, R20 and R21 under the CF rod at the leading edge. Add

pieces R16, 27 and 18 – R13 and 14 to block in the CF rods. Add R19, 20, 21 and R15 to top off the spar blocks. Also add a piece of 1/8" scrap balsa between Ribs R2 and R3 to complete the Aileron Bell Crank box.

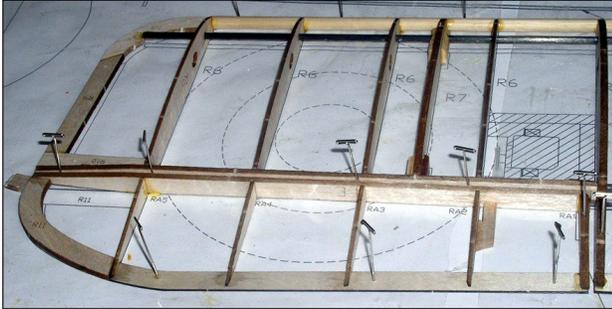


Find the 1/16" plywood wing brace pieces and laminate them together. Add the 1/4" leading edge CF or wood dowels. Join the two wing half's together – keep flat on building board. Turn the wing over and prepare the slots in the ribs where the plywood wing braces will go. Epoxy in both wing braces. Cut the 4 - 1/8" brass tubes that will go onto the Cabane struts. Epoxy them into the slots provided for them. Keep the inside diameter glue free. Add a piece of 1/8" balsa with a hole near which ever strut you choose to run the aileron servo wires down to the fuselage.



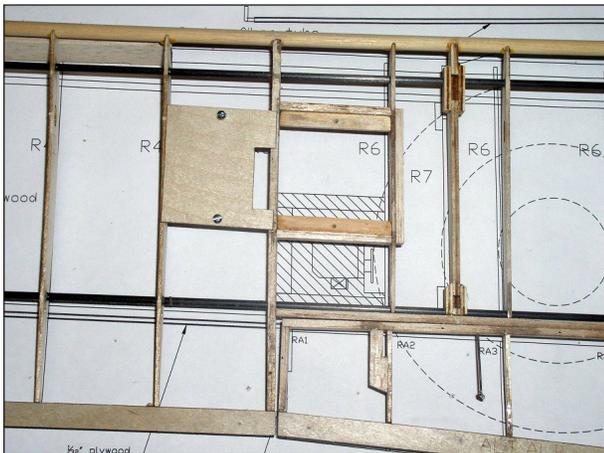
### AILERONS

Find the aileron ribs, wing tip R11 and 1/32" ply trailing edges, top and bottom and left and right. Pin the 1/8" balsa LE piece in position, block up R11 to match taper. This builder likes to put a pin as a spacer between the aileron an wing and a 1/16" spacer at aileron rib RA1. Add piece "m" in the bay where the control horn is mounted. This builder choose to top hinge the aileron, and added 1/4" scrap balsa on each side of TE and LE where the hinges will go.



### AILERON SERVO BAY

Find the 1/32" plywood servo mounting plates. Choose how you want to mount the aileron servos. This builder moved the servo bay forward to avoid the flying wires. Later found that it wasn't necessary - do as the plans indicate. Build a box to hold the mounting plate - either on top of the surface or embedded 1/32". The aileron control horn can be added after the wing is covered. Sand the wings in preparation for the covering. Be careful on the bottom surfaces to maintain the undercamber.



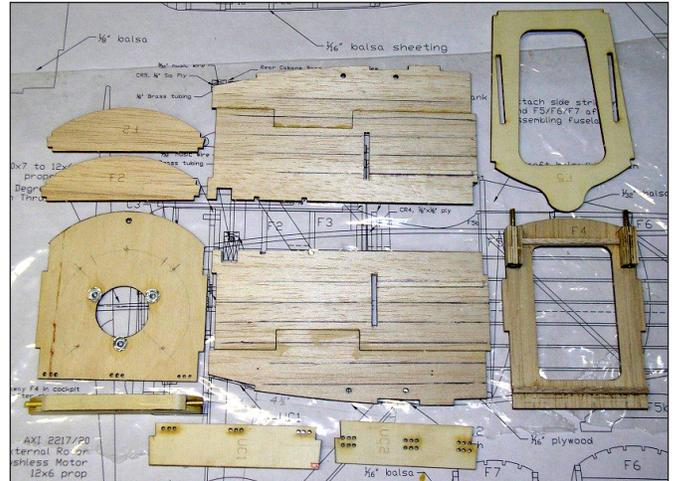
### FUSELAGE CONSTRUCTION

Items needed to complete the fuselage:

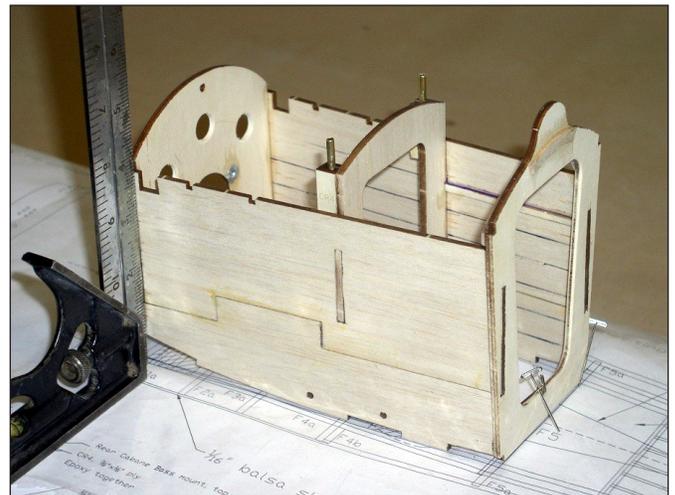
- 3 - 2-56 blind nuts
- 1/8" brass tubes - about 8" length
- Balsa block or blue foam
- 1/16" music wire - 3 inches - for tail skid

The fuselage is built in two sections; a front box section and the rear strip balsa section. Find all the "F" CR 1 thru 5 and the UC1 and 2 pieces. The 4 side pieces are not labeled and need to be joined together to make a right and left box sides. This builder added some 1/2" spaced lines to aid in

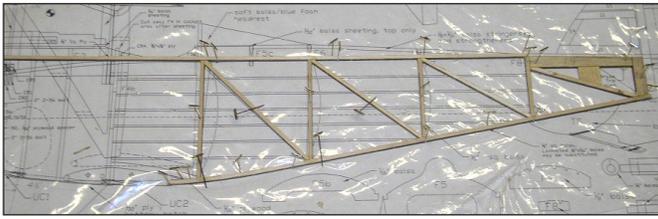
gluing items inside after the unit is assembled. This builder also preassembled the CR1 thru 3 plywood unit with the 1/8" brass tube embedded for attaching the front cabane struts (use epoxy). Also assemble the CR4 and 5 pieces with 1/8" brass tube embedded for the rear cabane struts. These two units can be epoxied to former F4 using the plan view of F1 for positioning. Add the 3 -2-56 blind nuts to the back of the firewall.



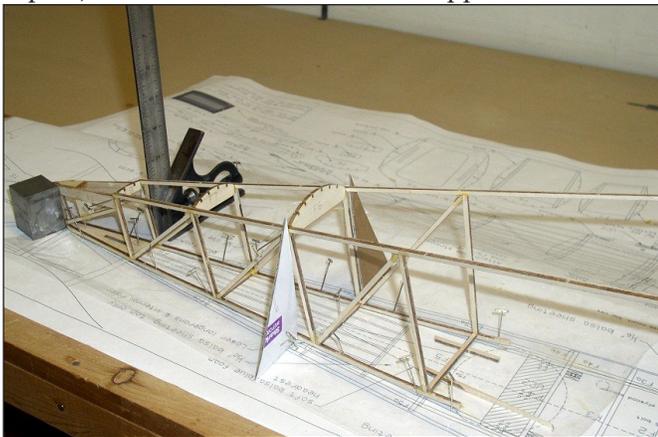
The front box assembly is tapered from front to rear so there are no square joints. The firewall, F4 and F5 need to be put together and glued carefully. This builder pinned the assembly to the plan top view while the glue was curing. It is important that the sides are square to the building board. The front cabane assembly can be epoxied into its slots near the firewall, as well as formers F2 and F3. Turn the box over and epoxy in the two landing gear mounting plates. Do not glue on the side formers until later.



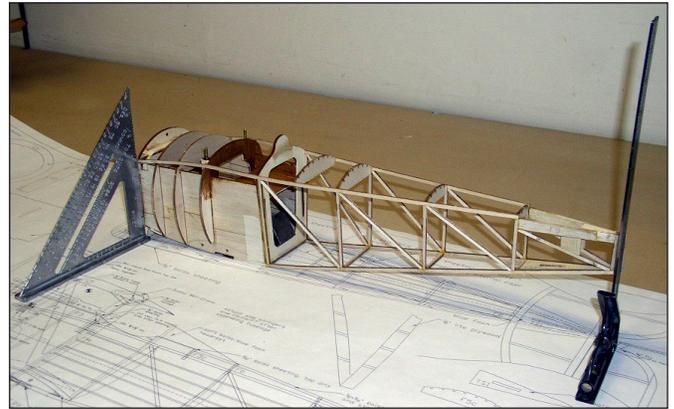
The rear section is built up from 1/8" balsa strips furnished in the kit. Note that the top longeron goes all the way to the firewall. Pin down and glue the strips per plan. F9 and F10 make up the tail post and horizontal support. This builder added a piece of 1/16" balsa where the pull-pull rudder cables will exit the fuselage. Make two sections. The most accepted method is to make the second one right on top the first, with plastic wrap between, to get exact duplicates.



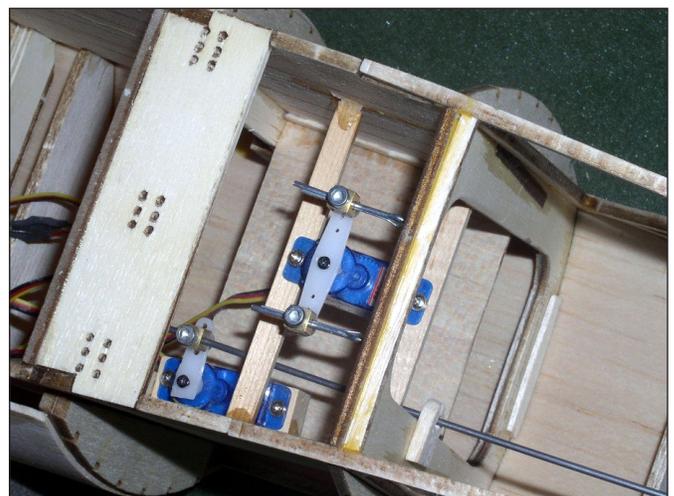
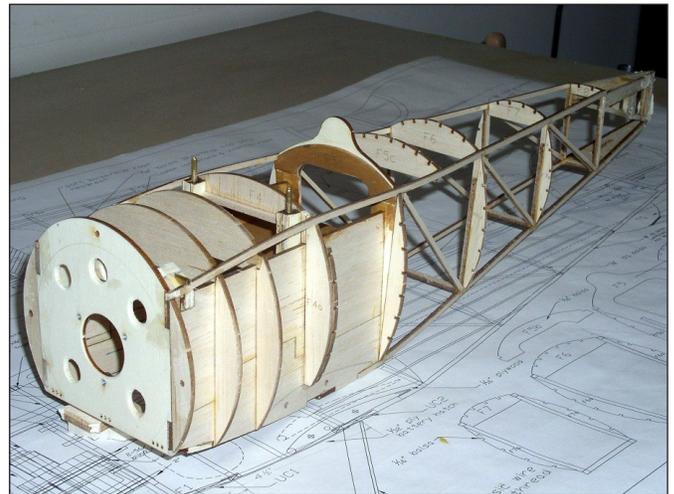
Find 1/8" balsa piece TS1 (tail skid mounting plate), make a duplicate from scrap balsa. The rear of the fuselage at the tail post has a slight radius. To achieve this curve, this builder soaked both side pieces (just the tail post area) in 1" of water for a couple hours. This allowed the pieces to bend around TS1 and its duplicate at the top. Later when the glue has cured, the duplicate piece can be cut out. Its only purpose is to maintain the curve while everything dries. Pin down TS1 to the top/bottom plan view. Assemble the section on the bottom longerons. Notice that the structure tapers outward to the top longeron. This builder made two cardboard fixtures, taken from former F6 on the plans, to make sure of the proper taper and squareness. The tail post must be square with the building board. Formers F6, 7 and 8 are used as cross supports. 1/8" square balsa (cut to size per plan) are used for the other cross supports



Use the top/bottom plan view to join the two sections. Pin the front box down to the plans, square the box to the building board. Slid the rear section into the notches for the bottom longerons. This builder cut at piece of scrap balsa 2 15/16" to block up the tail post (a measurement from extending a line on the plans [parallel to the datum line] at the rear landing gear plate). Add glue to bottom and top longerons where they fit into the front sections. Getting the tail post and front box square with the building board is really important.

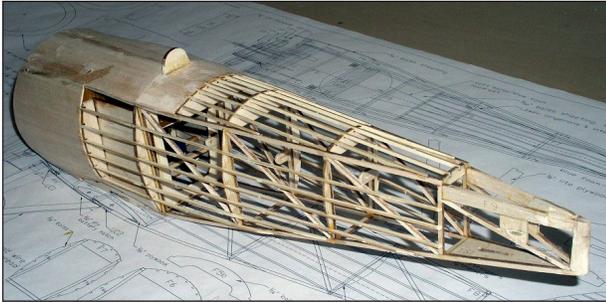


Add the rest of the rounded formers. This is a great time to install the elevator and rudder servos before the stringers are added. This builder also added a cockpit bottom and some guides for the elevator push rod as well as the cross pieces to mount the pull-pull rudder servo. When adding these items, the lines on the inside of the box sides really helps get things even.



Add the stringers (material furnished in the kit). From now on care must be taken when handling the fuselage

– stringers break easily! A sheet of 1/16" balsa is furnished in the kit to cover the metal panel areas. This builder made templates of heavy paper for each panel before cutting the balsa. Cover these panels in your favorite method. This builder used 3/4 oz. fiberglass cloth and finishing epoxy, then primer before covering the rear section with Polyspan (and dope). The headrest can be made of balsa or blue foam. The tail skid (plywood piece TS with 1/16" music wire) also can be blocked out with balsa or blue foam.

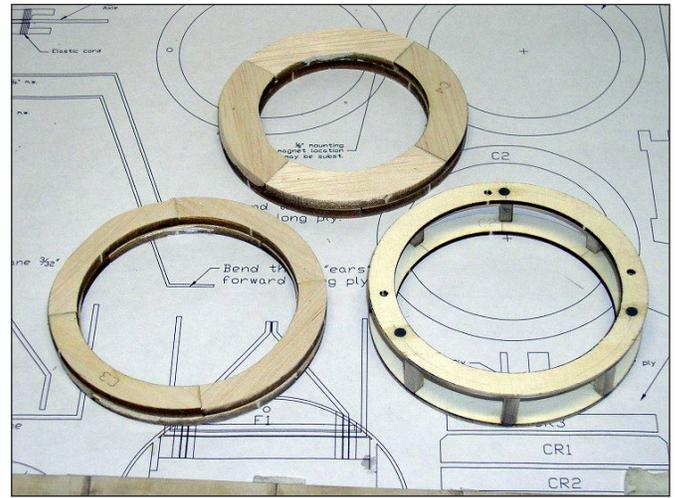
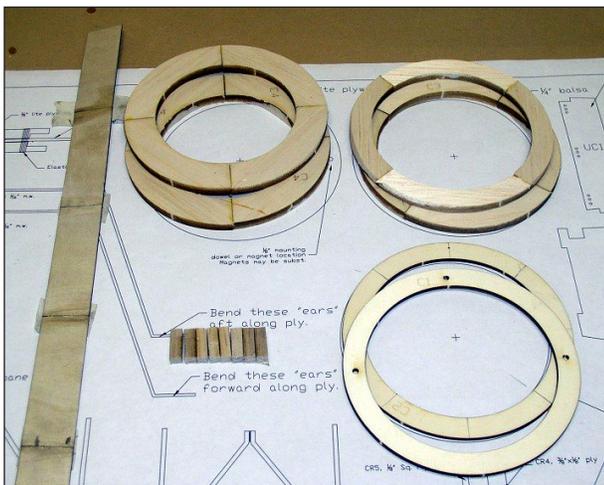


### THE COWL

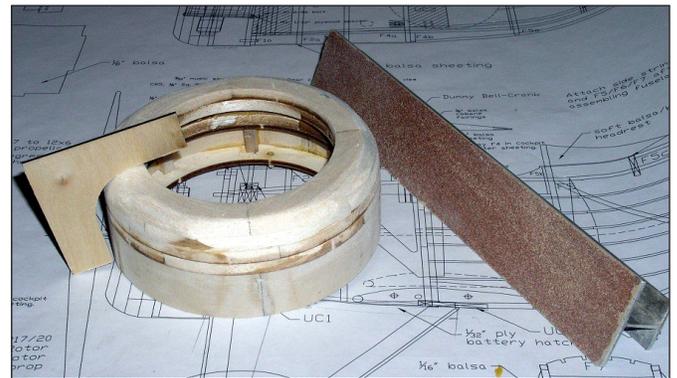
Items needed to complete the cowl:

- 3 – 1/8" dowel pins – 7/16" long
- 3 – mini magnets (pairs), or your method of securing the cowl
- 8 – 1/4" square balsa scrap – 13/16" long

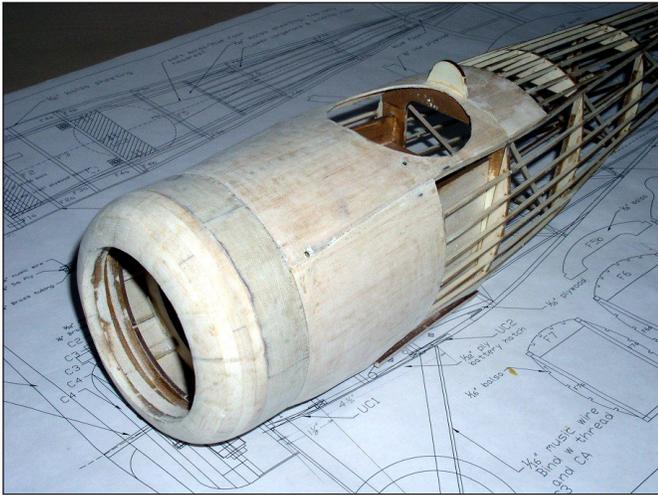
Find the five 1/32" x 1 1/16" ply strips. Butt glue them together with CA on a flat surface, sand smooth and put masking tape over the joints. Turn over and add more CA to the joints if needed. Sand the joints and tape. This is a much better method of adding the plywood ring, as opposed to gluing each piece separately. Find the two 1/8" plywood circles C1 and C2. Put C1 up to the front of the fuselage to make sure the dowel pin holes match up. Do not add the dowel pins yet. If you are using mini magnets to secure the cowl, this is the time to install them on the back of C1 and the front of the firewall. On the front of C1, mark off 8 equal spots where the 1/4" square spacers will be glued. Glue in each spacer square to the building board. Glue C2 on to the spacers, again check squareness all around the ring. Glue together the C3 and C4 1/4" balsa pieces. Laminate the C3-4 together, alternating the joints so they are not at the same place.



To attach the 1/32" ply strip to the C1-C2 ring, remove the masking tape from one side only then trial fit the strip to make sure it joins up to the total circumference. Adjust if necessary. Have several pieces of masking tape ready (about 2" long) CA one end of the strip to the center of one of the 1/4" square spacers, be sure it will be even all around. Put a slow curing glue on the edges of the plywood ring and tightly wrap the ply strip around the circumference, using lots of tape to hold the strip tight. When the glue is cured, remove that masking tape. Laminate the 1/4" balsa rings to ply would barrel. Do not glue to the dowel/magnet side. This builder made a template from the plans to sand the roundness to the front of the cowl.



The cowl and the other panels on the fuselage were covered with 3/4oz. fiberglass cloth with finishing epoxy. This builder also used a Dremel 1/2" drum sander to sand away quite a bit of excess balsa and plywood from the inside of the cowl.

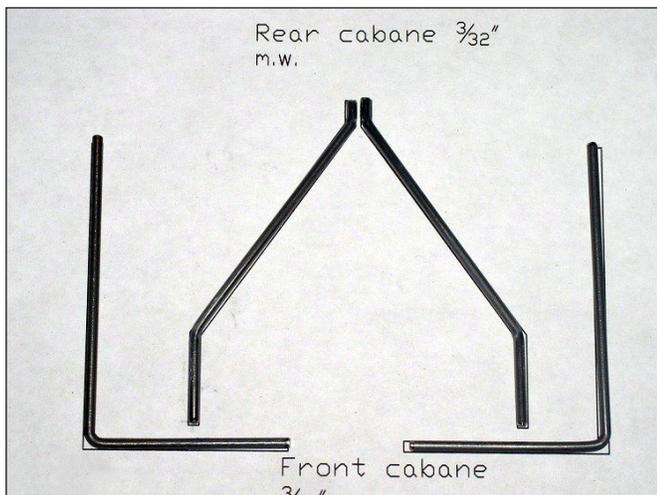


### CABANE STRUTS

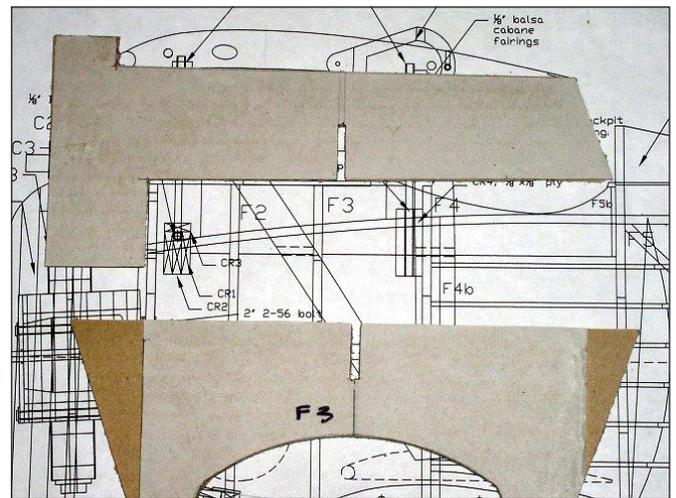
Items needed to complete the struts:

- 3/32" music wire – approximately 16" length
- Cardboard to make a positioning fixture

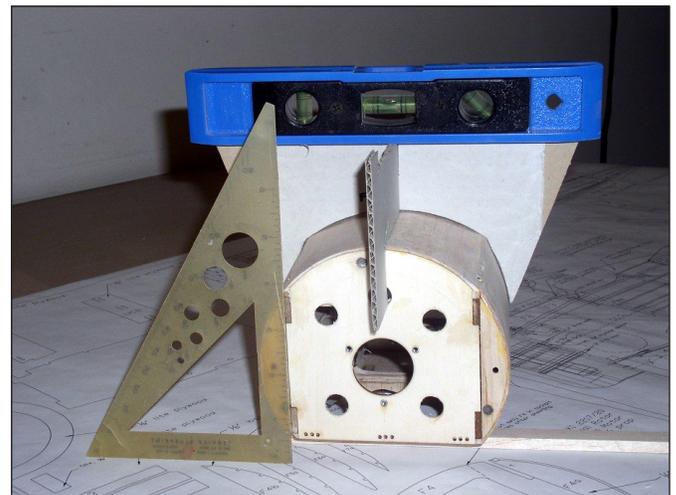
Bend the 3/32" music wire as per the plan. Very easy, all flat bends.



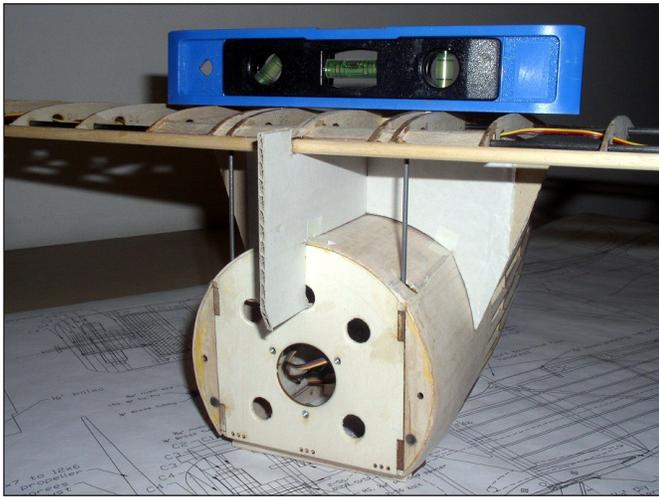
Make a positioning fixture by tracing directly off the plans onto tracing paper, then spray glue to stiff cardboard. This fixture will align the designed wing incidence, for and aft position and perpendicular to the center line. Use the front of the firewall as the reference point. Mark the strut positions on the fixture. One piece for the center line and the other cross piece at former F3. Cut a slot in each piece so that they dovetail together.



Square the fuselage by using the side tabs on the firewall as reference points. Put a level on the F3 cross piece. When level, tape the fixture to the fuselage.



Put the music wire into the appropriate brass tubes. Measure the distance between the brass tubes for the front struts on the bottom of the top wing. To get the same measurement for the struts on the fuselage, some grinding away of the inside corner brass tube in the fuselage may be necessary. Do not bend the wires. They must stay at 90 degree angles. The rear struts will require a notch in the cardboard fixture. Put the wing onto the fixture. The music wire needs to fit perfectly into the brass tubes in the wing so that the wing sits down on the fixture and is level. Some adjustment of the bends in the rear struts may be necessary.



To insure that the wing is in the correct position some measurements need to be done. Measure from the top box tabs on the firewall to the last wing tip rib. Equal measurement means the wing is in the center. The front cabane struts may need to be moved sideways to get a center. This builder did not have a problem. Measure from the tailpost out to the wing tip aileron hinge line. Equal on both sides means the wing is perpendicular to the center line. Adjustment of the bends of the rear struts may be necessary. When you are happy with the positioning, mark the struts so that you can put them back into their proper tubes. Remove everything from the fuselage. Save the fixture with the struts. This whole process will be repeated at the final assembly.

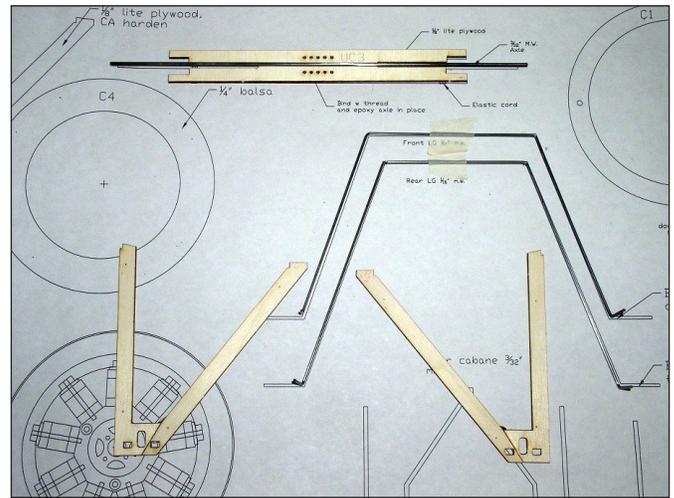
You may choose to not use the method described above to position the wing. However you do it, the measurements are necessary to achieve a "straight" airplane.

### LANDING GEAR

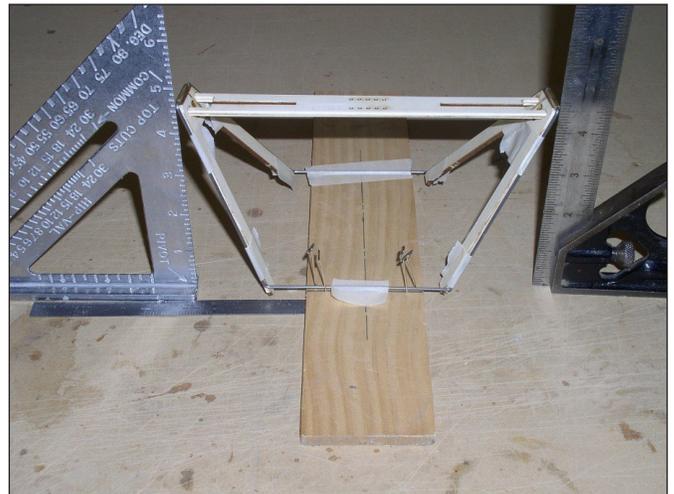
Items needed to complete the undercarriage:

- 1 - 3/32" music wire 10" long
- 2 -1/16" music wire, approx. 20" long
- Heavy Thread or Fishing Line
- Elastic Cord, approx. 36"
- Small copper wire for soldering
- Solder and soldering iron

Find the 4 pieces of 1/8" plywood landing gear legs and the UC3 cross bar. Epoxy the landing gear legs together on the plans. Soak the gear legs with thin CA glue to add some strength. Bend the 1/16" music wire as per plan. Bend the front wire with the "ears" aft, the rear wire with the "ears" forward. The "ears" will overlap each other and be soldered together.



Make a simple soldering fixture or attach the 1/16" music wire directly on your building board. A center line is needed. Mark the center of the cross part of the wire legs and secure them to the center line. The distance apart can be measured from the plan top view or directly from the mounting plates on the fuselage, approx. 4 1/2". Some adjustment of the bends may be necessary to get the "ears" evenly together, then wrap with copper wire and solder. Clean and rough up the wires with coarse sandpaper. Slide the 1/8" ply gear legs into position and epoxy. Set the UC3 cross bar in position. Use two squares and measure to the center line to get the legs even on each side, rebending the wires at the base may be necessary. When all is symmetrical, epoxy the cross bar to the ply legs. Mark a center point on the 3/32" music wire and on the ply cross bar. Tape the wire to the cross bar on the upper surface (which is the fuselage side of the bar) and thru the plywood legs guide hole (see plan side view for clarity). Lace and epoxy the wire in place. After the gear are painted, elastic cord can be laced in the provided positions.

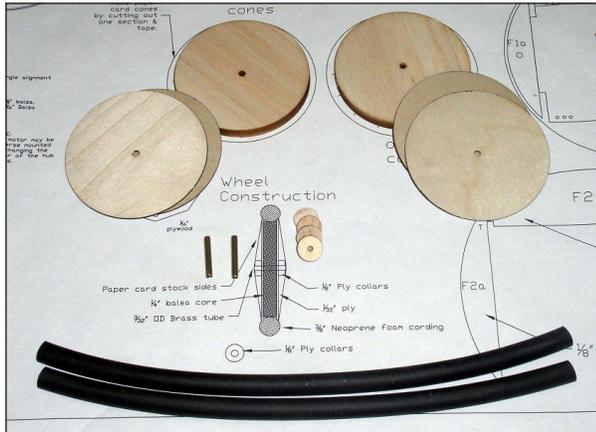


## WHEELS

Items needed to complete the wheels:

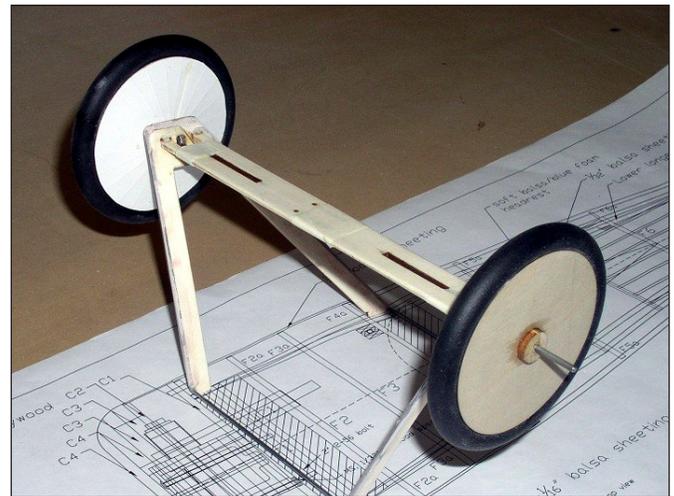
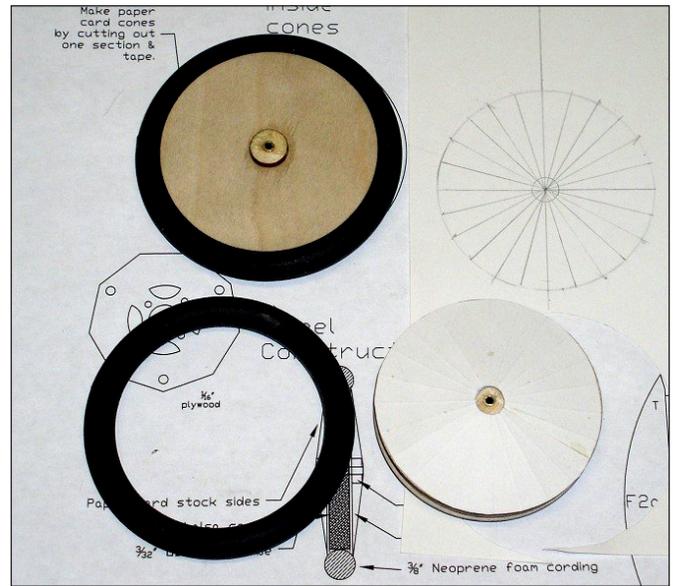
- 2 - 1/8" brass tubes, approx. 3/4" long
- 4 - 3/32" wheel collars (or solder on washers)
- Heavy Card Stock paper

Find the 1/4" balsa wheel cores, 1/32" plywood wheel rims and the 1/8" lite ply reinforcing collars. Cut 2 sections of 1/8" brass tubes to 3/4" long (they will be filed to final length after assembly). Find the 2 Neoprene lengths used for the tires (they are already cut to the correct length).



Laminate the 1/32" ply rims to the 1/4" balsa cores. Use the 1/8" brass tubes to center the rims, avoid gluing the brass tubes to the assembly. When the glue has cured, add one 1/8" lite ply collar to each side of the wheel assembly. Center the brass tube and glue it. Neoprene loves CA glue. When you join the ends of the neoprene with the CA it is final, so get it right the first time. Massage the neoprene into a donut shape before using the CA. Medium CA is ideal for this joint, but thin CA can be used. When you are ready, apply CA to one end of the neoprene then quickly join the ends and hold for a minute or so until the CA cures. Give the CA several minutes to thoroughly cure. The tires can be rolled onto the wheel rims. Apply thin CA around the rims or apply medium CA around the center of the 1/4" balsa core then roll the tire on. Copy the cone pattern from the plans onto heavy card paper. Cut out and score the lines for the spokes. Cut at one of the spoke lines and over lap one division to get the cone shape. Cut a 5/16" hole in the center of the inside cone (to slide onto the axle and wheel collar). Glue on the inside cones. If you

u use wheel collars, do the same for the outside cone. If you solder on a washer to hold the wheel on the axle, the cone will cover the washer.

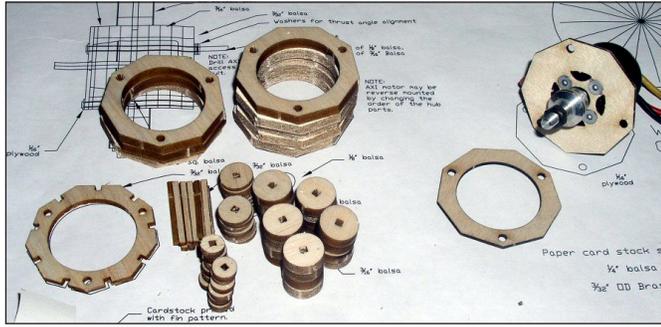


## MOTOR MOUNT/DUMMY ENGINE

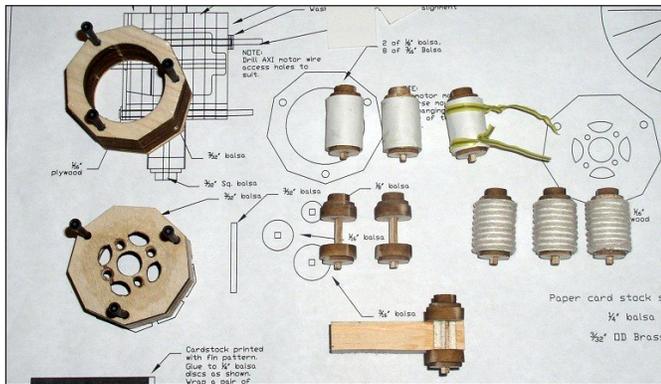
Items needed to to finish the motor mount:

- 3 - 2-56 x 2" machine screws
- Heavy Card Stock paper
- String
- 1/32" music wire, for push rods
- The motor that will power this model

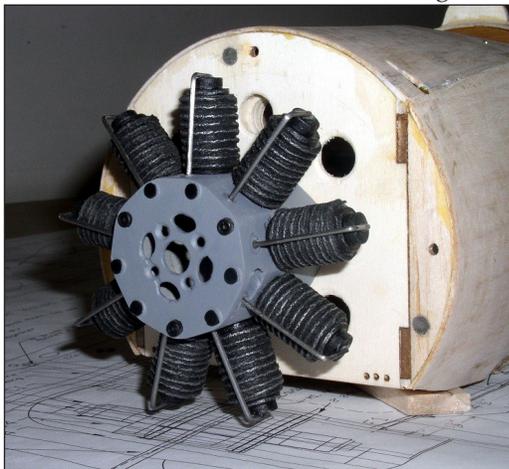
Find the two 1/16" plywood motor mounts plates. Compare the mounting pattern on the plate to your motor. Adjust the holes if necessary. Laminate the two plates together. Find the 8 3/16" balsa motor core pieces. Laminate them together - one section of 5 pieces and another section with 3 pieces. Check the plans for correct order of pieces. Use the 2-56 screws to line up the pieces properly. Laminate the 1/16" ply pieces to the 3 unit section, with the 1/8" notched piece between the 5 piece section. Mount your motor inside the core unit. A hole for the three motor wires to exit will need to be fashioned. Find the three different sized circular pieces for the engine cylinders as well as the 3/32" square balsa center sticks. This builder made a small fixture to glue the pieces square and proper distance apart.



Assemble the 9 cylinder cores. Cut 9 pieces of heavy paper from the pattern in the lower left corner of the plans. Cut the paper so the grain allows the paper to be rolled. This builder pre-rolled the paper around a Sharpie pen. Glue the rolled paper around the cylinder cores. Cut 2 pieces of string about 18" long, glue one end of the string to the top or bottom of the paper cylinders. Wind both pieces of string around the cylinder. Glue the other end of the glued string and unwind the unglued string. You have evenly spaced cylinder fins. Paint with dope or polycrylic to fix the string. Repeat for 8 more cylinders. Glue the cylinders onto the motor core using the 1/8" notched piece for proper spacing.



Paint the motor unit and add whatever detail you wish. Add some wire push rods to finish off the unit. Add washers to the top and left screws to get the proper down and right thrust for the motor. There is lots of room behind the cylinders to mount the ESC and nose weights.



## INCIDENTAL PARTS

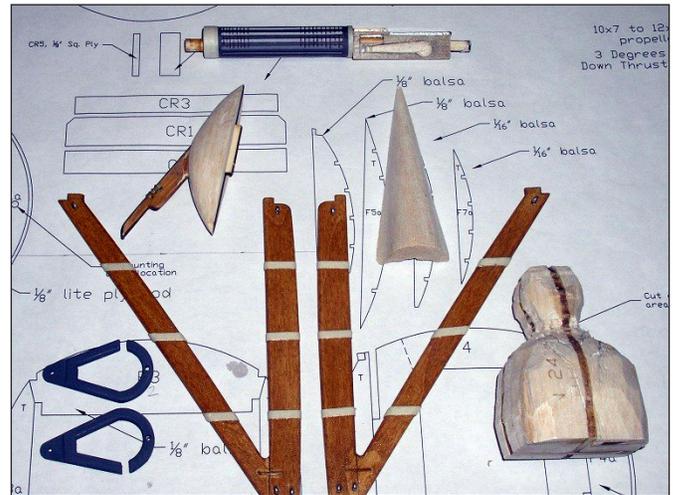
Items needed to build these parts:

- Blue foam or balsa blocks.
- 1/4" wood dowel – scrap for machine gun detail
- 1/16" music wire for tail skid
- Stain for the interplane struts

Find the 4 pieces of 1/8" lite plywood Interplane Struts. Epoxy the strut pieces together as per plan. Sand the edges half round then soak the struts with thin CA to add strength and stiffness. Stain the struts, then add the wood wrapping (this builder used masking tape). Then varnish. Find the 1/8" lite ply "TS" piece and bend the music wire to the proper shape and epoxy to the front of the tail skid. Add blue foam or balsa to fill out the piece as per plans.

Make a headrest from blue foam or balsa. Find the machine gun parts and assemble the gun. Cut the barrel from the lower left corner of the plans and wrap around the parts. Add whatever detail you wish.

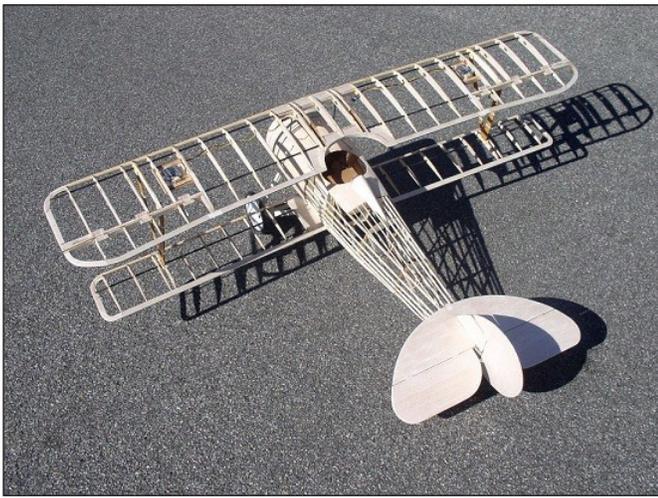
Find the 6 pieces for the Aileron Bell Crank. Laminate together and sand half round edges, paint. A pilot is provided in this kit. Join the front and profile pieces together then add scrap 1/4" balsa to fill out the form. Do some artistic carving, finishing and painting to have the proper scale pilot.



## FIT CHECK

Now that all the major units are constructed, it is time to put it all together for a fit check. Put the Interplane Struts in their appropriate wing slots and make sure they are seated all the way in. Pin or tape the tail feathers in position. Check that the elevator horn (interior) has good clearance. Tap on the landing gear. Admire your build.

Cover the major parts in your favorite method. This builder used Polyspan with Sig Lite-Cote dope. It is recommended that you paint all the parts before final assembly.

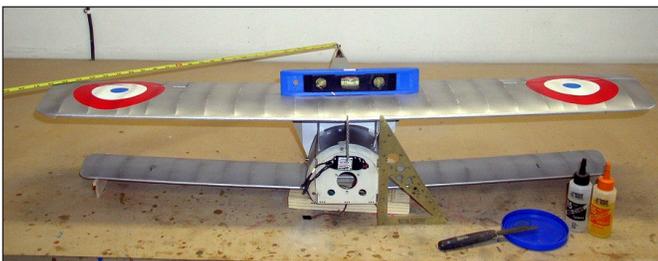


### FINAL ASSEMBLY

Items needed for the final assembly:

- Epoxy
- Fishing Line or similar for lacing the landing gear

It is important that everything is kept square and perpendicular during assembly to assure a "straight" model. Leave the landing gear off until the very last step so that the fuselage can set flat on the building board. Use the box tabs on the firewall as a reference to keep the fuselage square. Retrieve the cardboard fixture that was used to bend the cabane strut wires and retape it to the fuselage in the proper position. Add the cabane strut wires. Add the top wing. Check for level and perpendicularity by measuring to the tail post as was done when bending the strut wires. The photo shows the bottom wings already glued in position. This builder recommends that the bottom wings be glued after the top wing is fixed in position. The bottom wings and the interplane struts can be done at the same time. When you are happy that every is perfect add the glue. The fuselage joints can be glued with CA. The top wing presents a problem as its difficult to add CA underneath. This builder used 15 minute epoxy in the wing brass tubes then, when the position was correct, CA'd the fuselage joints.



When the glues have cured, remove all the fixtures. This is a good time to add the 1/8" balsa strut covers provided in the kit. Without the bottom wings it will be easier to work under the wing. Turn the model upside down on the building board. Put epoxy in the interplane sockets and on the inboard bottom wing root. Put the wing and struts in position. They should align themselves automatically. A measurement from the tailpost might be a good check.



Pre-fit the tail feathers to make sure the elevator control horn/push rod is unabstracted and the horizontal stab is on the same plane as the wings. Measure from the hinge line to some spot on the wing to make sure the stab is perpendicular to the center line. When you are are happy with the position, add the epoxy.



Lace the landing gear onto the mounting plates thru the laser cut holes. This builder used heavy fishing line and CA glue. You choose your method.



Congratulations, you have built a beautiful scale Nieuport flying model. Enjoy.

### FLYING

As with most short nose airplanes, weight will usually have to be added to the nose. The model pictured above required 6 ounces of stick on lead weights. That sounds like a lot of weight to add, but this model will handle it. This model is 32.4 oz., and shows no problem with that weight. Balance the model as per the CG mark on the plans side view – 2 1/8" from the center line point. As the wing tapers back, the mark will be closer to the leading edge. The control surface movements on the model above are more than necessary:

Elevator – 3/4" - only use about 1/4"

Ailerons – 5/8" -only use about 3/8"

Rudder - 1 1/2" - Wow! Use just a touch

For down and right thrust this model is flying with 3 metal washers (3/16" thickness total) behind the upper right mounting screw (looking at the dummy motor). No washers behind the other screws.

The model should ROG on grass, pavement or hard surfaces. The model may require coordinated turns using both ailerons and rudder control. This is due to adverse yaw. Halving the aileron down throw may reduce the yaw. This effect can be accomplished by rotating the control arm of the aileron servo forward about 20 degrees.

Let the model gain altitude slowly off the runway. Applying too much up elevator at slow speeds risks a stall. Make your turns gently as tight turns risk tip stalling in any model. Don't expect the elevator to make the model climb. Think of the elevator as a device to change the attitude of the model. The wing and airspeed ultimately make the model climb. Often down elevator applied at stalling can avoid a major crash. The most important details for proper flight operations are:

- CG location. Tail heavy models never fly well or at all.
- Down and right thrust
- Straight and non warped wings

### CONTACT INFORMATION

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