

NIEUPORT 17



Nieuport 17 model is made according to specifications of the actual French fighter aircraft of WWI. Model is produced by modern CNC technology from EPP foam and it is recommended for advanced pilots.

Before you start a build:

All steps do the best you can. Exact model build is very important and it has an impact to final flight characteristics of the model.
A good choose of RC components can achieve a very low weight.

AIRFRAME COMPONENTS



HARDWARE COMPONENTS



RECOMMENDED ELECTRONICS



OTHER NEEDED ITEMS



Recommended Setup:

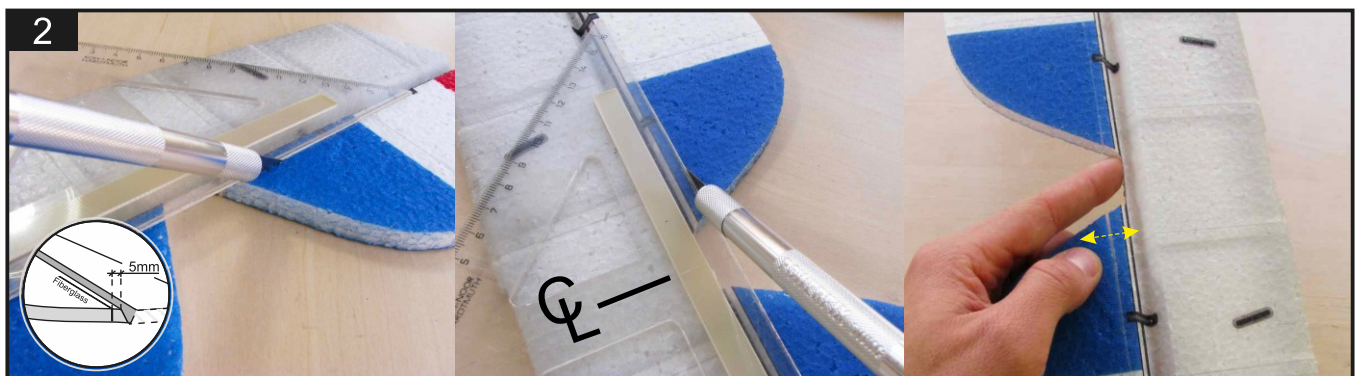
(4) Metal Gear 9-14g
50-72g Out-runner (200-300 Watts)
18-30A ESC
3s 850-1350 lipo
10x3.8 - 10x4.7 Prop

Model Spec's:

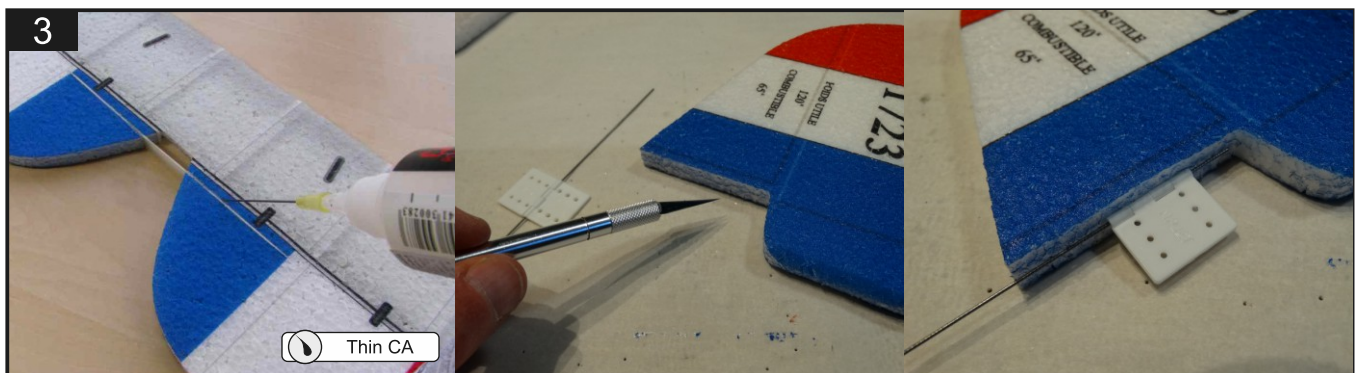
Wingspan = 40"
Length = 31"
AUW = 17-21oz. (depending on setup)



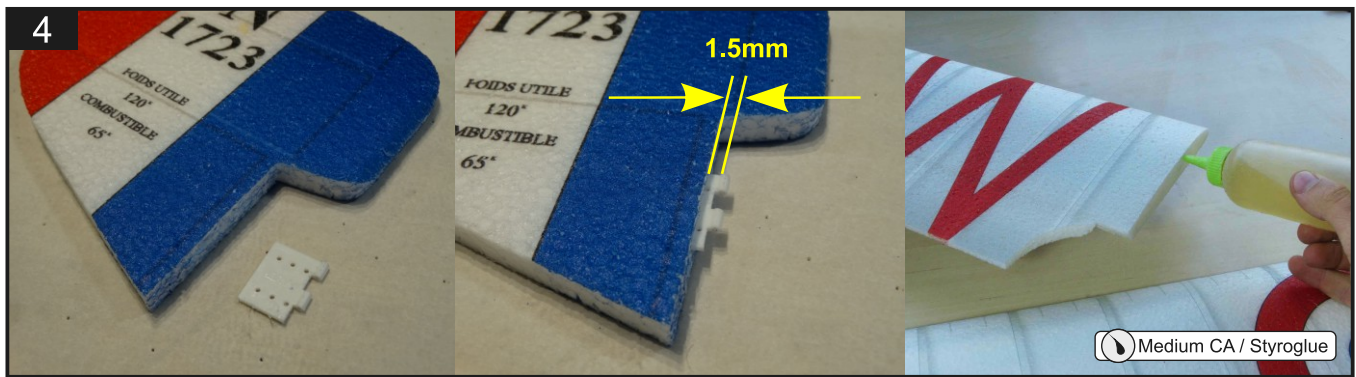
Start the build by locating the above items. Bend back the elevator and ailerons at the hinge lines. Be careful with the ailerons, they will not fold over completely without ripping, so just fold them as far as they will comfortably go. Rough up the fiberglass piece.



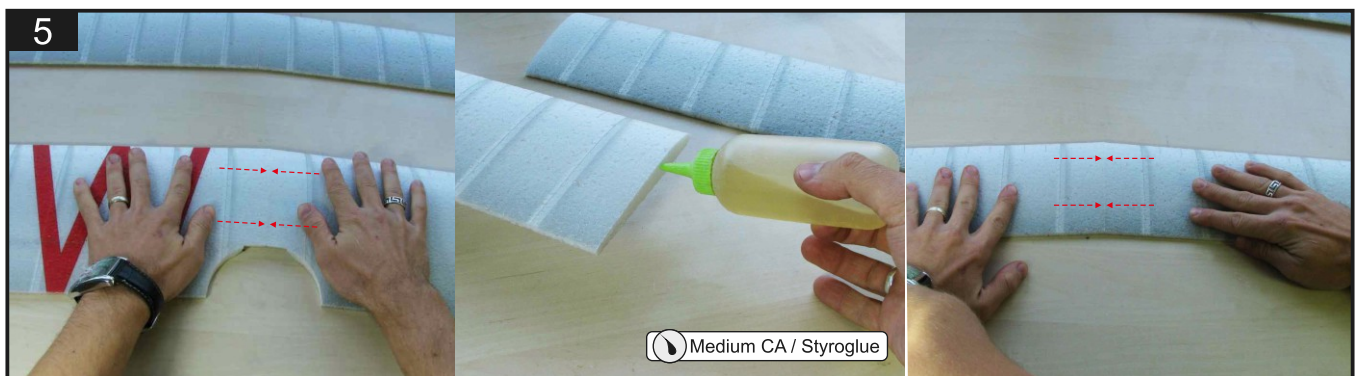
From the underside of the elevator cut a slit to accommodate the fiberglass piece approx 5mm back from the upper part of the hinge relief (on the control surface side) as shown above left. Center up the center of the fiberglass with the center of the elevator.



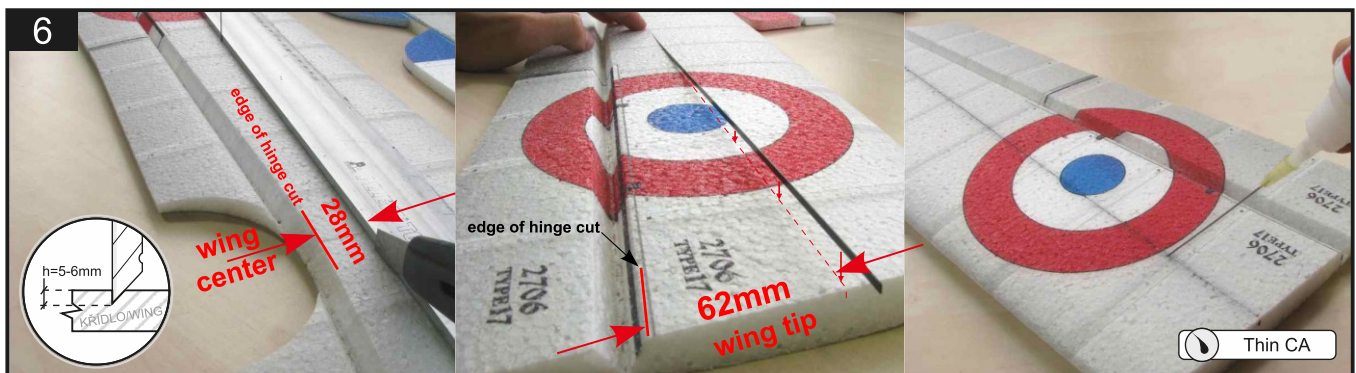
Lay the fiberglass piece into the slit, making sure it is centered and flush. Apply some thin CA and hit with kicker. Locate the hinge and cut a slit in the middle of the rudder as shown and test fit. Leave the center of the hinge knuckle about 1.5mm away from edge of the rudder, this will allow it to pivot freely at final assembly.



Once happy with the fit remove the hinge and hinge pin. Re-insert the half piece of hinge and apply some thin CA at the point where the hinge exits, make sure and leave the 1.5mm clearance between the foam and center of hinge knuckle. Next locate the upper and lower wing halves. Apply Medium CA to one if the upper wing roots as shown....



.... and apply Kicker to the mating wing root area, then match the two halves up making sure that they align the way you want at initial contact. Hold them tightly together for about 5 or 10 seconds. Repeat for the lower wing.

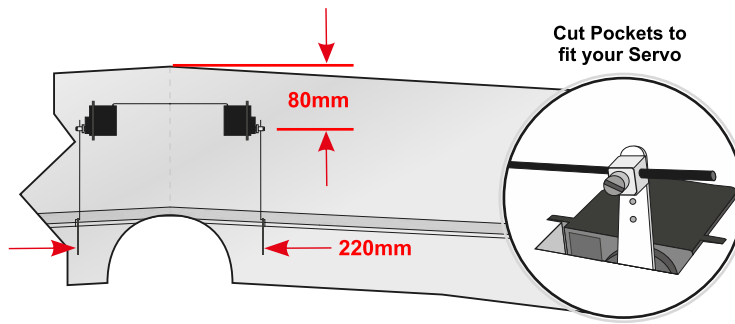


Flip the upper wing over so that the underside is facing up. With a straight edge slit approx 6mm deep from wing tip to wing tip. Then lay the long rectangle carbon spar in to the slit and press it in so that it is flush or just below flush. Make sure the wing is on a nice flat work area, then secure the wing and spar together with some thin CA and Kicker.

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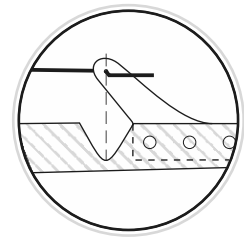


Assemble Quick
Link as shown (2x)



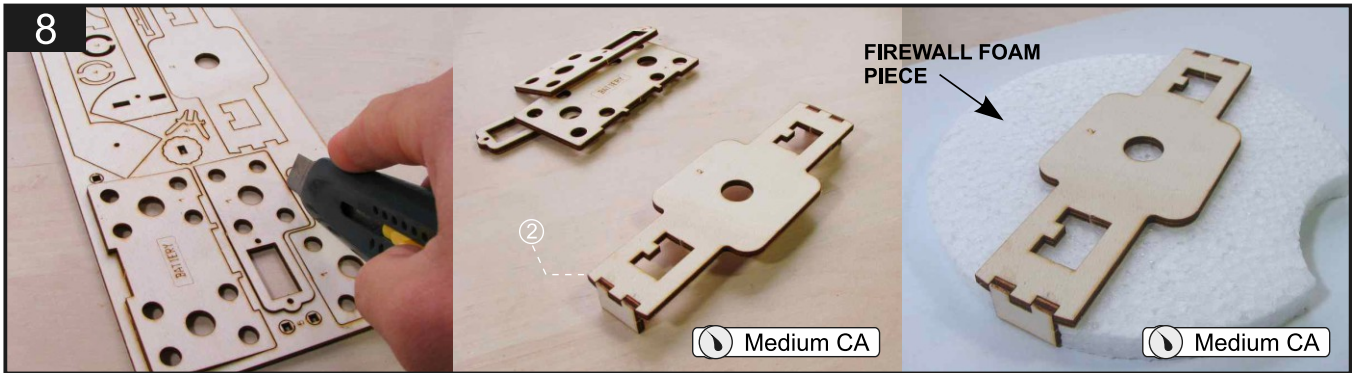
Cut Pockets to
fit your Servo

Horns used here are the
two that match and not
so tall at the other two



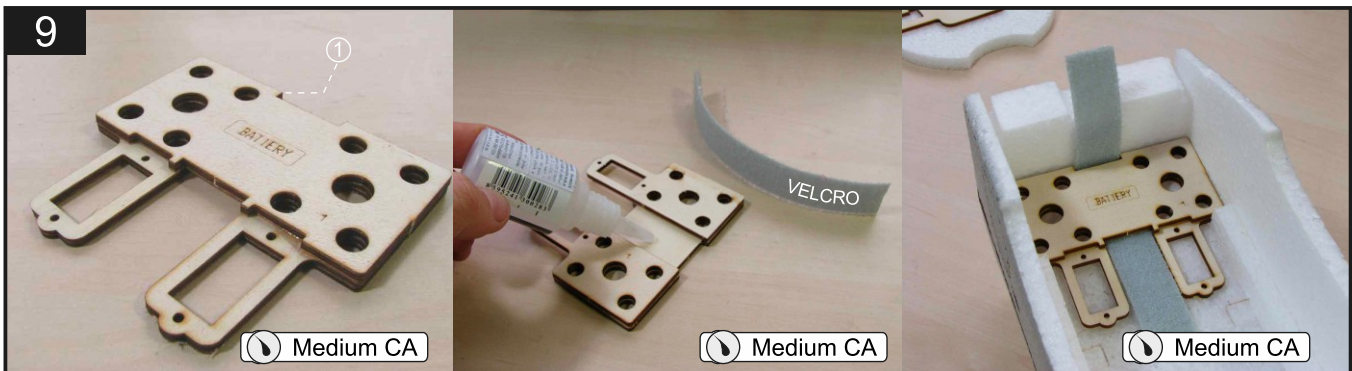
Locate the two servos you will use in the wing. Test them to ensure they are functioning properly. Locate the long single horn and attach a quick connector to a hole at approx 10 to 12mm from center. Cut a pocket in the wing to locate the servos approx as shown above. Next locate the control surface in line with the servo horn and at the hinge line.

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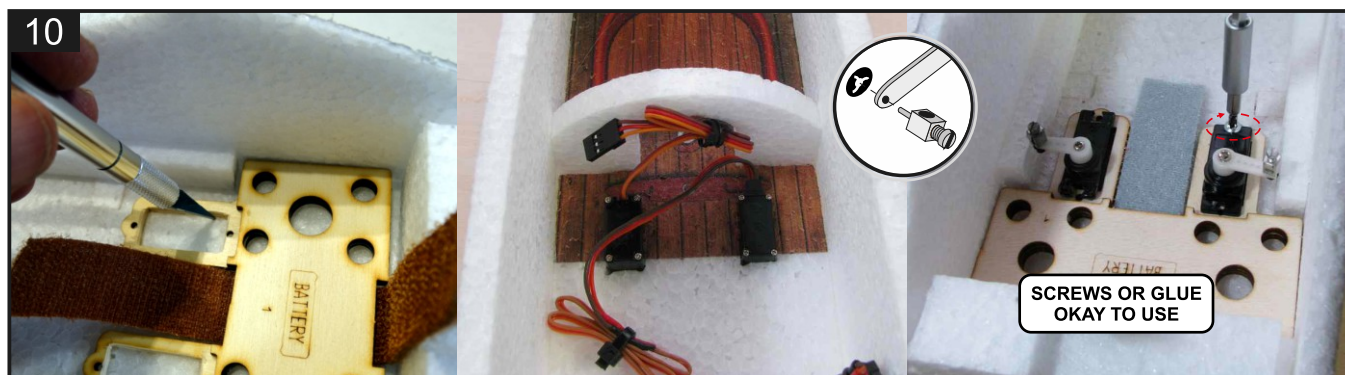


Locate the wood pieces for the motor mount and the servo tray as pictured above left and above center. With Medium CA attach the side pieces to the motor mount with medium CA. Next attach the motor mount with medium CA to the firewall foam piece as shown above left.

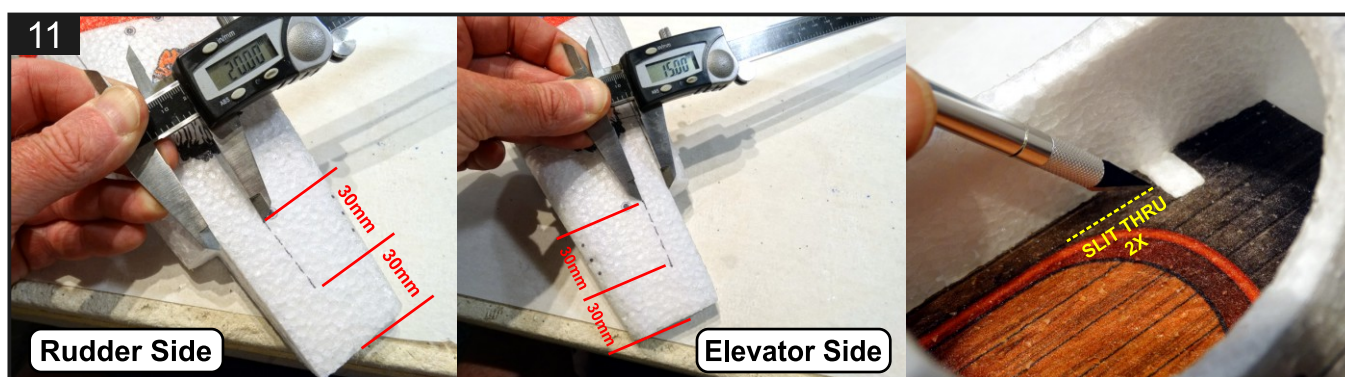
9



With medium CA, glue the three servo tray piece together as shown above left. Use the edges and holes for alignment. Not super critical. Flip the assembly over and coat the middle area with medium CA and secure the Velcro centered along it's length. Again with medium CA, attach the whole tray assembly into the fuselage as shown above right.



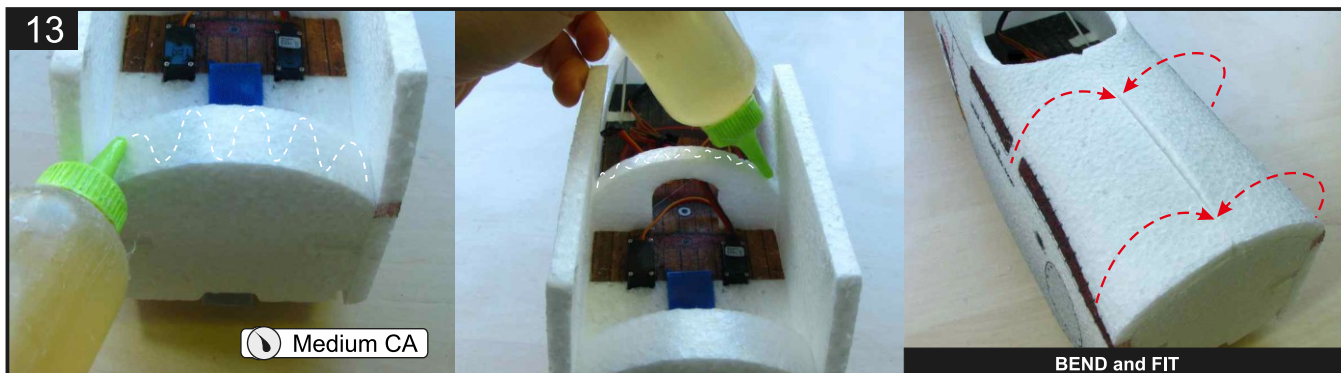
Using the servo tray as a guide, remove the foam inside the area where the servo will go. Install the servos, output shafts forward or rearward, does not matter. Attach the quick connectors to the single straight horns as was done with the aileron servos. Check the servos, center them and attach the arms as shown above left.



Locate the two push rods with their tubes and the main fuselage assembly. On the right (rudder) side of the fuselage cut a slit 20mm down from the area directly below where the elevator will mount as shown above left. Repeat this process for the left side, except make the slit 15mm down from the edge. Cut two slits symmetrically in the cabin 30mm long.



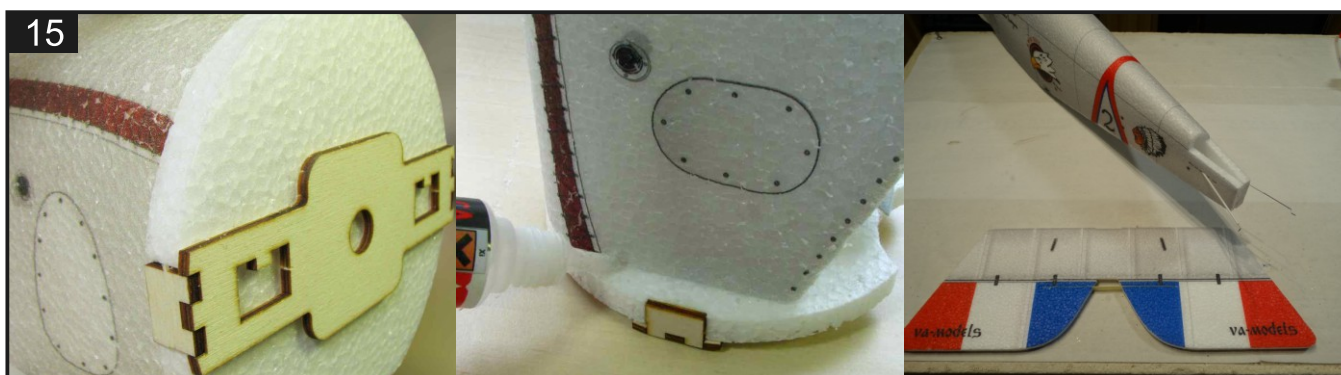
Feed the control rods up from the tail section, then thru the slits in the cabin that were just made. Push them thru into the servo bay area. NOTE - you will need approx. 15mm clearance between the plastic tube at both ends for the servo and control horn movement, but wait to trim the tube and wire until after the control surface horns are installed.



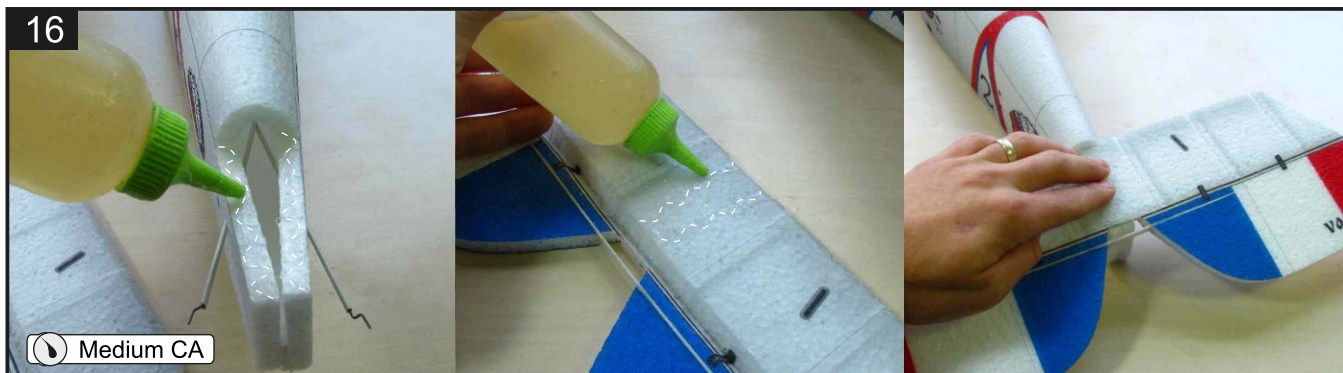
Closing up the top of the nose cowl is next. Make sure you have the tail servo wires routed into the bay below before doing this. Use medium CA and Kicker. Don't worry about the middle seam right now, just make sure the "skin" bends around and fits to the bulkheads.



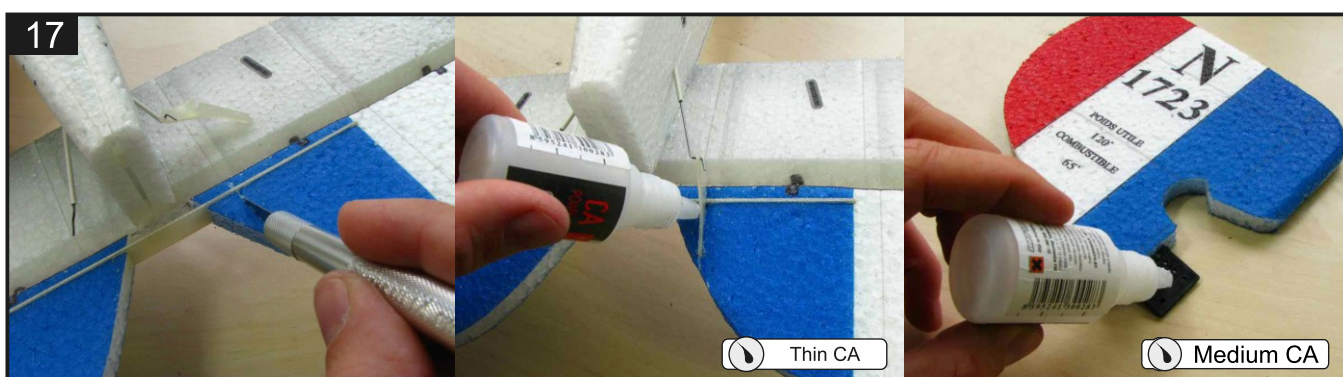
Once the glue has set to the bulkheads, now focus on closing up the seam with some medium CA as show above left. Next we will attach the firewall to the nose of the fuselage. Use medium CA again for this.



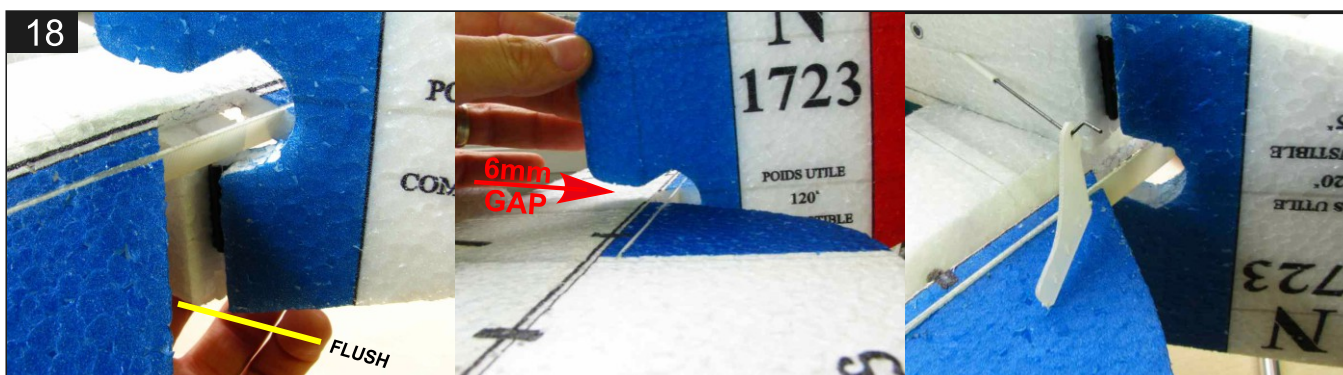
Note that the wood motor mount should be horizontal, and that the half circle cut out is at the bottom, 6 o'clock position. Add a little more thin CA along the vertical edges as shown above left. Next locate the elevator, it will be installed with the hinge relief facing downward.



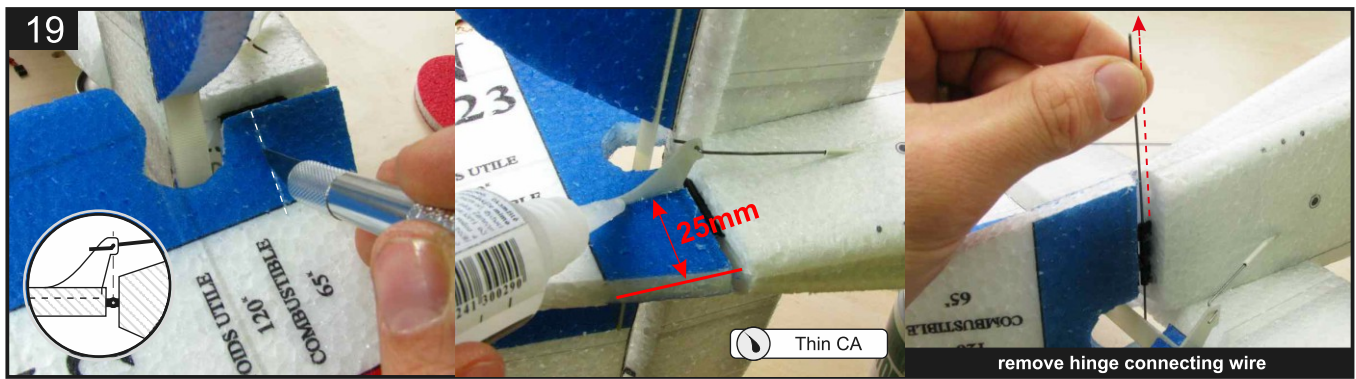
Elevator will be attached next. Test fit to make sure the elevator will rest perfectly horizontal in the pre-cut area. Next apply some medium CA and position the elevator as shown above left. Make sure it is level and perpendicular to the direction of flight.



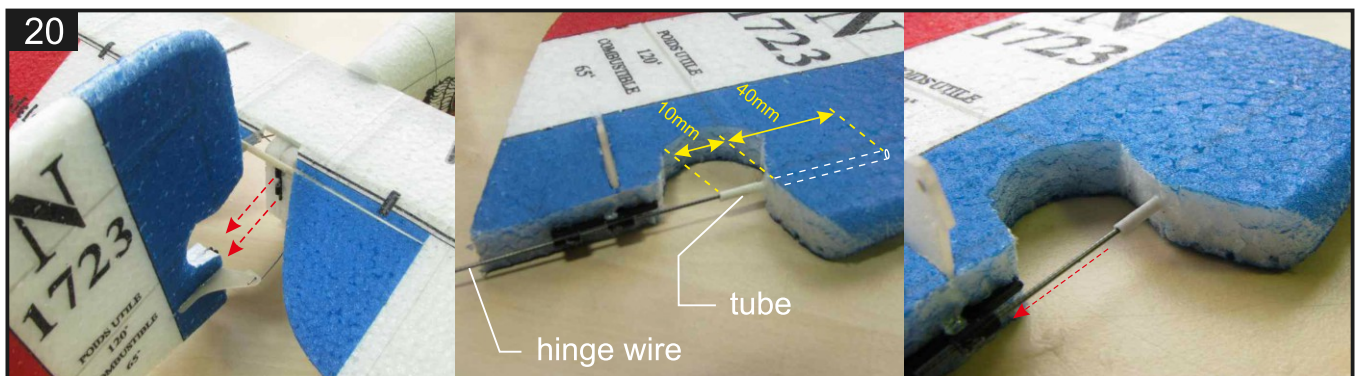
Locate the control horn that have the little notch in it, and cut a slot in the elevator control surface approx as shown above left. Shorten the base a little if needed, thread the z-bend thru the control horn, position in the slot and secure with CA. Loosen the quick link screw at the servo if necessary. Apply some medium CA to the fuselage side of the rudder hinge.



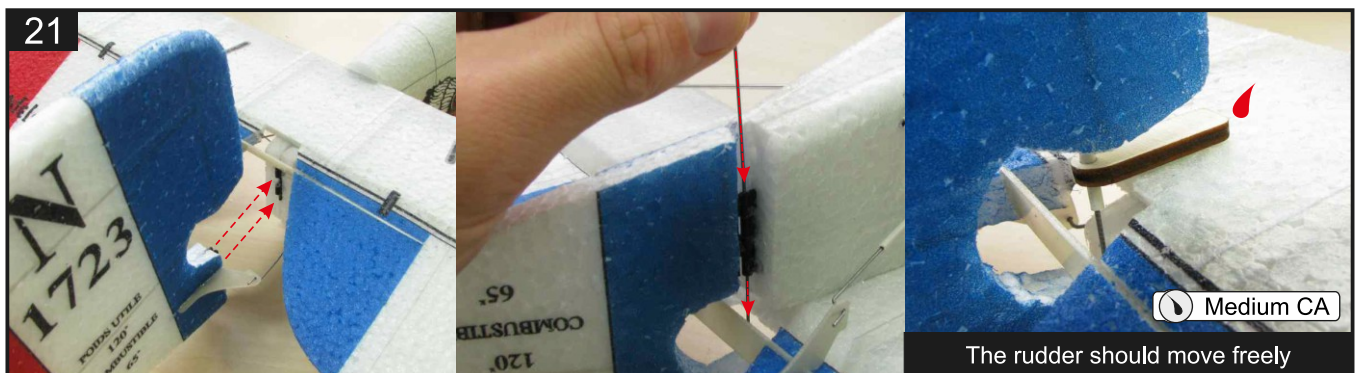
Slide the hinge into the gap at the end of the fuselage. If the gap is too big it can be closed up by squeezing the fuselage in that area and apply some CA, then re-cut the slot. Make sure the rudder can move freely in each direction and relieve the foam a little if need to clear the elevator joiner spar. Locate the last control horn and thread onto the z-bend.



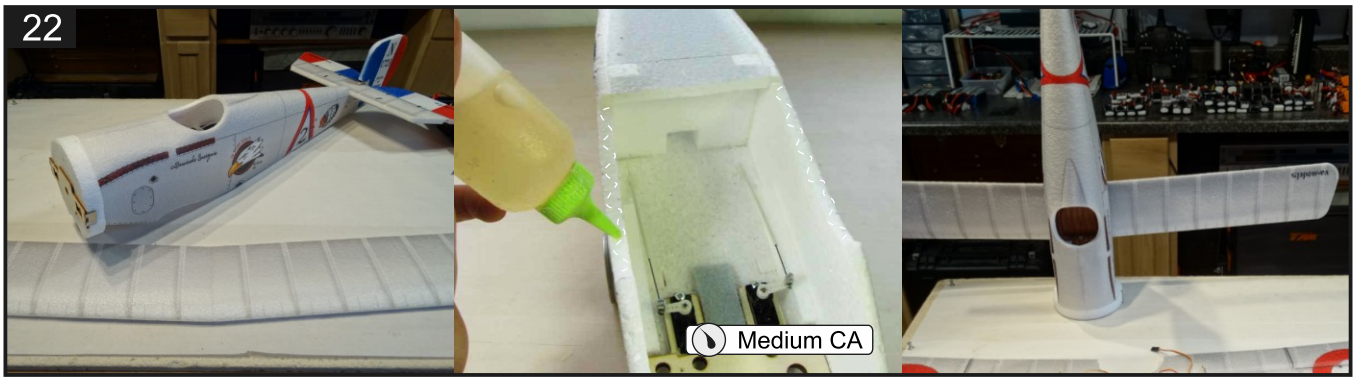
Cut a slot in the rudder approx where shown above left. Make the slot inline with the control rod. Install the control horn and secure with thin CA. Make sure hole for the z-bend and the hinge pivot point are even with each other as shown in the little round insert picture above left. Next, remove the hinge rod as shown above right.



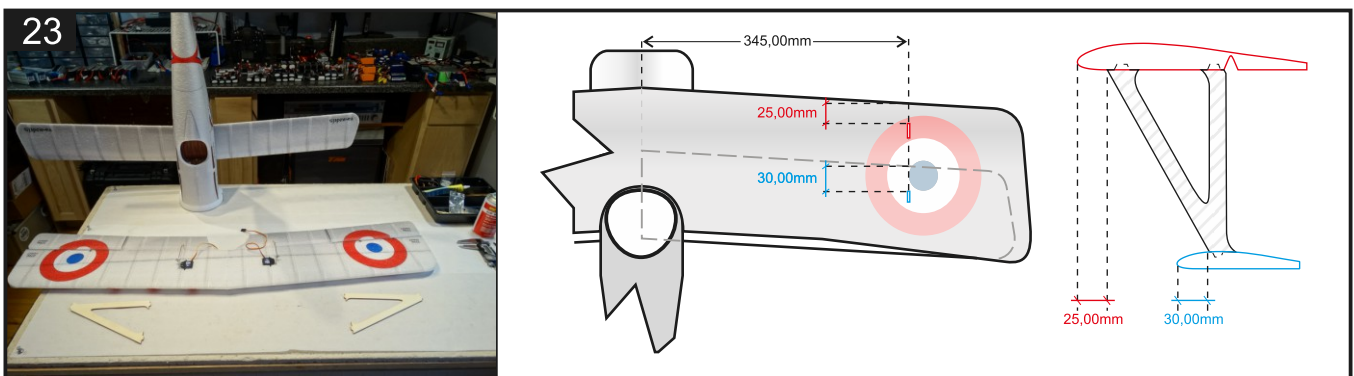
Remove the rudder and disconnect from the z-bend. Use the wire as a guide to make the pilot hole for the tube as shown above center, remove the wire and press in the 50mm length of white tube. Embed the tube approx 40mm into the rudder, make sure it stays concentric with the hinge wire.



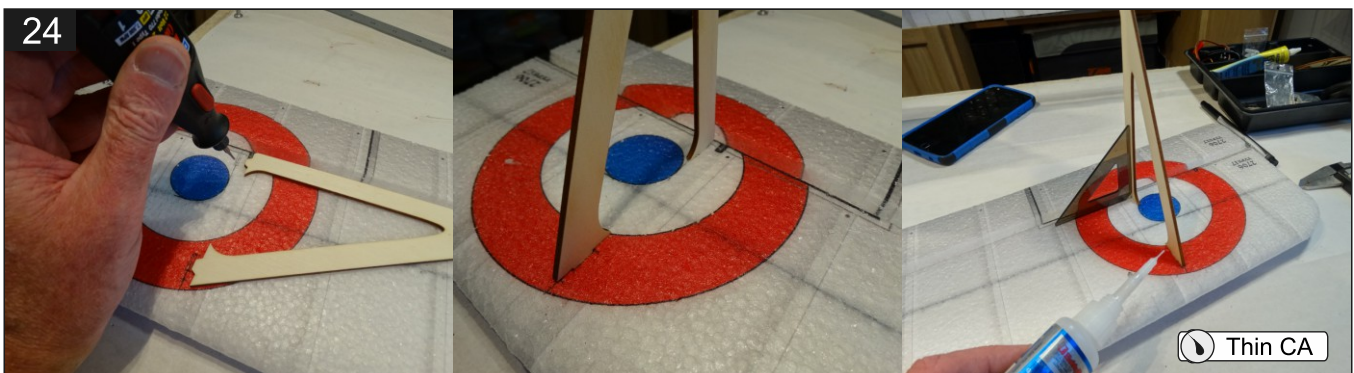
Re-thread the z-bend onto the control horn and partially install the hinge wire. Next locate the small rectangle wood piece with the single hole in it, and install the white tube thru the hole as shown above right. Make sure every thing pivots smoothly, then secure the wood piece to the elevator with Medium CA. Note NO CA on the white tube, it must pivot freely.



Locate the bottom wing (the smaller of the two), test fit it to the fuselage saddle and make some reference parts for its center and square position. Attach with medium CA, making sure that it is still square and true.



Locate the upper wing and the wing struts as shown above left. From the bottom side of the upper wing, mark out the positions of where the struts will attach as per the diagram above. Note that right now we only want to mark the upper wing.



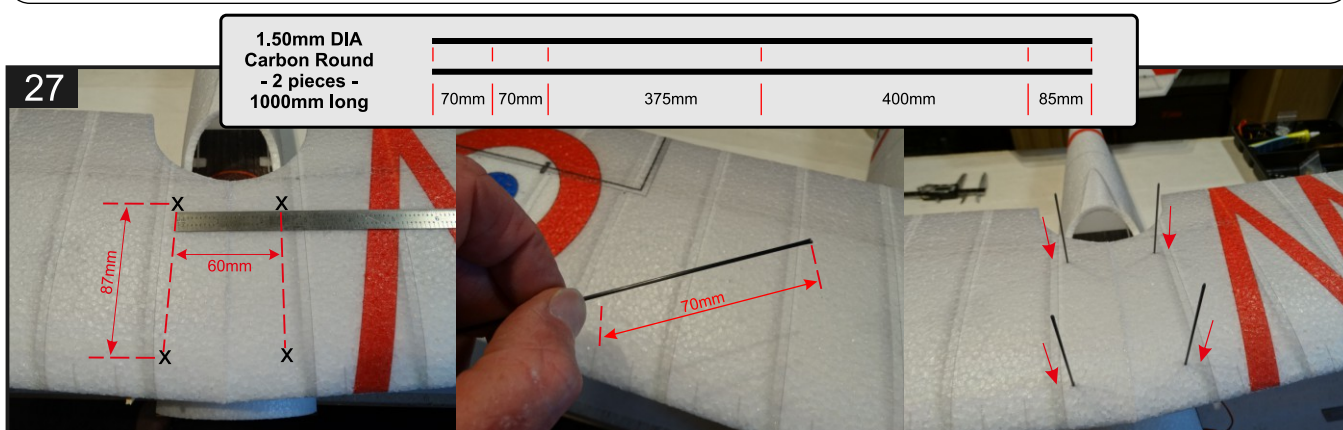
Once the location is marked, take a hobby knife or motor tool with a burr style tip and make small pockets for the tabs of the wing struts as shown above left. Test fit and make sure the struts will full seat into the pockets. Secure the struts to the wing with thin CA as shown above right. Make sure the struts are square before applying the CA.



Locate the wood sheet that has the section shown above left. Break out all the pieces and remove the sheet and attach with tape or stick pins as shown above center. Take the top wing and rest it in the “cradle” of this part, make sure that the profile of the upper and lower wings are matching up to the shapes cut in this jig.



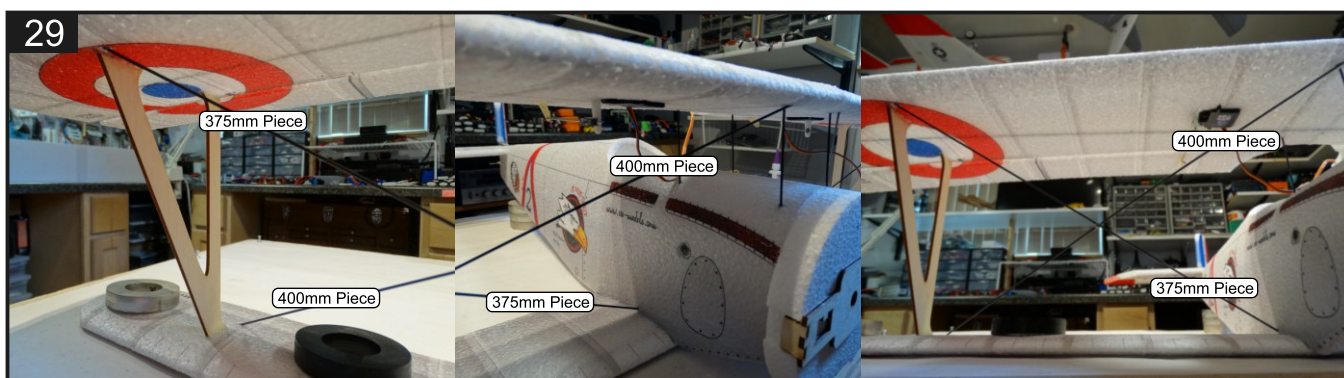
With the top of the lower wing strut resting on the lower wing as shown above left, position the leading edge of that strut approx 30mm from the leading edge of the lower wing, note the location of the tab, cut a small relief in the lower wing to accommodate it and then secure the two pieces together with some thin CA.



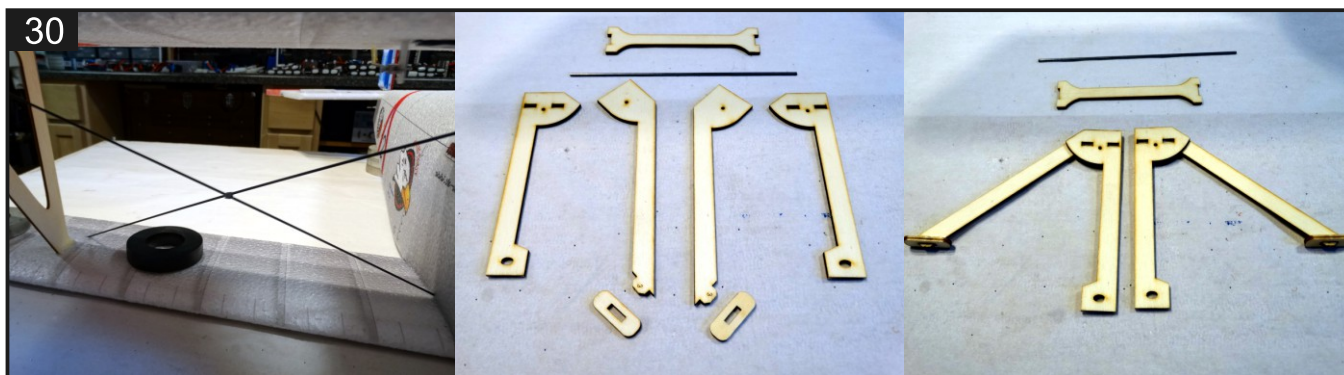
Once the outer wing struts are secure, it is time to do the center supports. Mark the four positions as shown above left from the center of the wing left to right and approx as shown front to back. Cut two pieces 70mm long of carbon rod from each of the two long 1.50mm dia rounds for a total of four pieces (see detail), then poke each thru the marked positions.



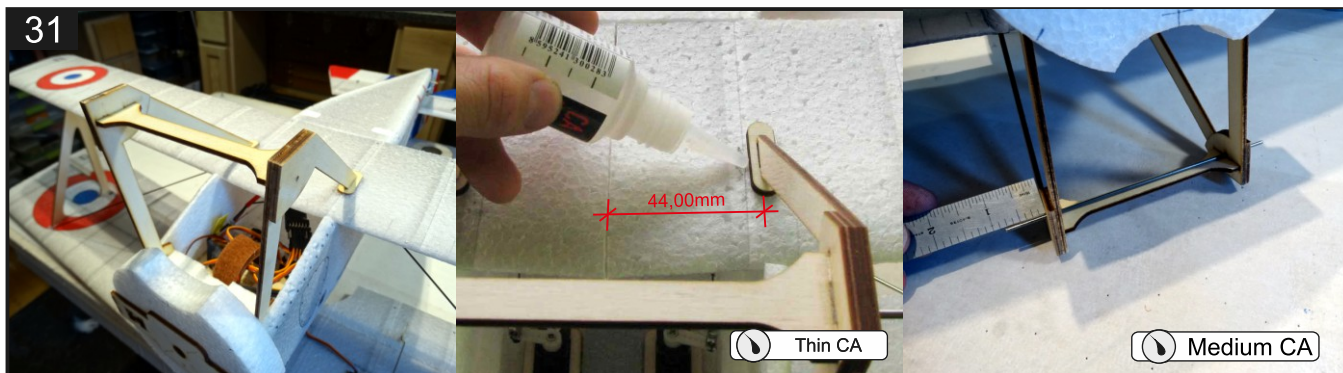
Guide the rods straight thru the wing and into the upper part of the fuselage. Push them far enough in that they are flush with the top of the wing, then secure both ends with thin CA. Next you will need to cut two 375mm and two 400mm from the 1.5mm dia carbon rounds, make sure and cut them each from the lengths as shown on the previous page, step 27.



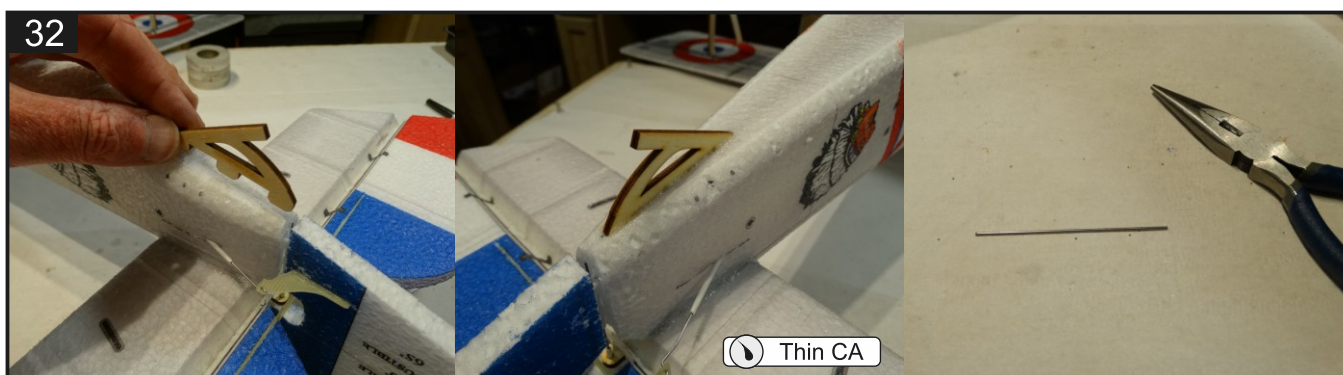
Study the pictures carefully. 400mm piece goes from top leading edge to bottom just behind the strut. 375mm piece goes from just forward of upper strut to approx 45mm from leading edge of bottom. Locations are approx, just make sure the centers meet-up and that you have about 8-10mm sticking into the foam on each end. Make sure everything is true.



Make sure everything is flat and true, then secure both ends of the carbon rods to the fuselage and wings with thin CA. Tie the middle cross over with some thread and thin CA. Next Locate the wood parts and 2.0mm dia steel rod. Glue the longer wood pieces together as shown with epoxy or thin CA. Note there is a left and right configuration.



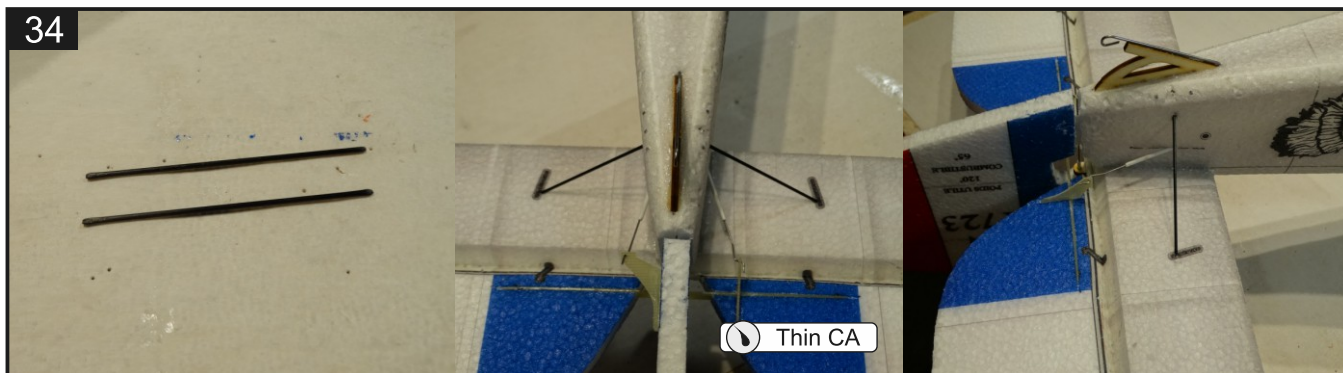
Configure the parts so that they look like the picture above left, with the front struts nested in the corner directly behind the firewall, and the rear struts located 44mm from the center of the bottom wing. Cut a small relief in the foam for the tab of the rear strut and then glue with thin CA. Center the metal axle and secure with medium CA.



Locate the wood tail skid piece shown above left, position approx as shown and cut some reliefs in the foam to accommodate the tabs and secure in position with thin CA.
 OPTIONAL - Create a wire to help protect the wooden tail skid. This piece will be bent and use to re-enforce the tail skid as shown in the next steps.



- OPTIONAL -
 Bend the wire as shown above left. Make a small loop in one end, and then an angle bend that matches the tail skid as shown above center. Poke it into the foam and align with the skid as shown above right and secure the two pieces together with some medium CA.



Locate the two pieces of carbon fiber round that were left over from doing the wing bracing, they should be approx 85mm long. Position the on the underside of the elevator as shown above center and above right. The ends should poke into the foam 3mm to 5mm on each end. Don't glue yet.



Verify that the elevator is square to the fuselage and parallel to the main wing. Now thin CA can be applied to each of the ends. Locate the plastic nose cowling. With a pair of scissors, trim around the open end as shown above center. For the front side, score the area to remove with a sharp hobby knife as shown above right.



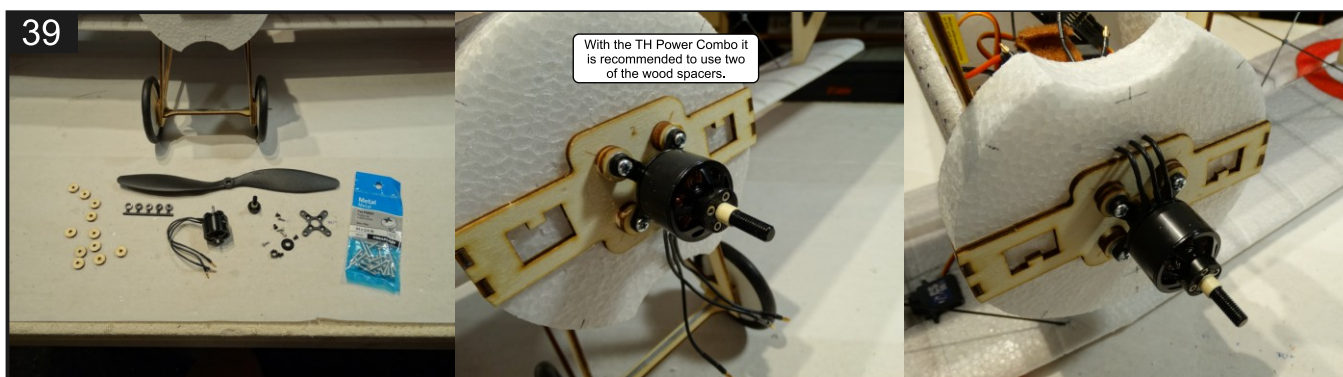
Once you have "scored" all around the front, it can be peeled out as shown above left. Clean up the edges a little with some sand paper for smooth edges as pictured above center. Locate the wood motor piece and attach to the cowling with medium CA.
NOTE - if you want to paint the wood piece.... do it before attaching to the cowling.



Locate all the #5 and #6 pieces that will be made in to the guns as pictured above. Study the center and right pictures above closely to see how all the parts go together. The pieces may require a little sanding to clean up the break out tabs and for best fit. Use thin CA to secure all the pieces together.



A nice touch to the detail is to paint the motor and guns with some black spray paint. Note that the picture above left shows the motor mounted in the cowl already, it should be painted loose for best results. Locate the wheel parts shown above center and install them on to the axle.



Locate the motor and all the pieces shown above left. Note - you will have to supply your own #4x3/4" wood screws and flat washers for thrust angle. Mount the motor with the wires facing downward like the center picture, then route them thru the firewall as picture above right. The number of wood washer spacers needed will depend on your equipment.



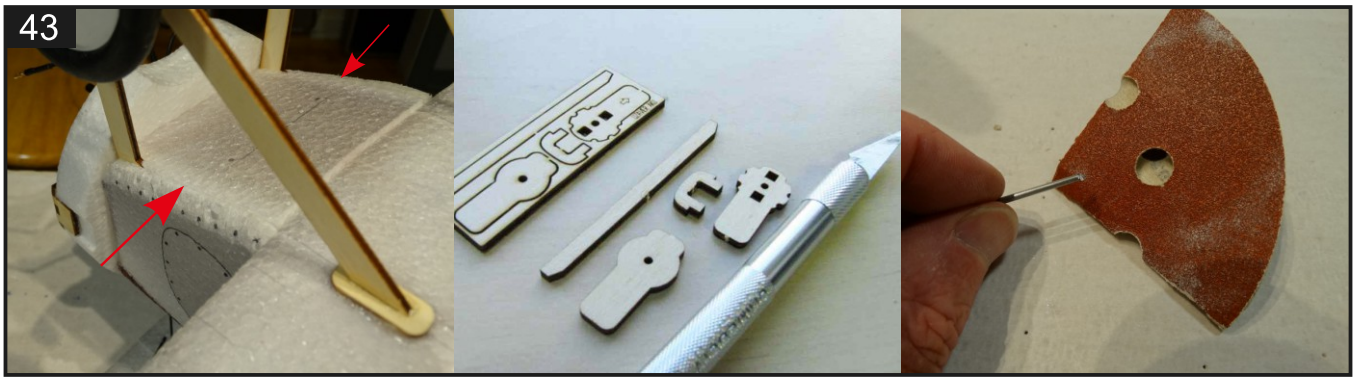
Slide the cowling over the firewall and line up with the center of the motor shaft. For best results, make sure you already have the motor shimmed for a little down and right thrust angle. Enlarge the center of the wooden mock motor as needed to accommodate your motor and provide the clearance needed for operation.



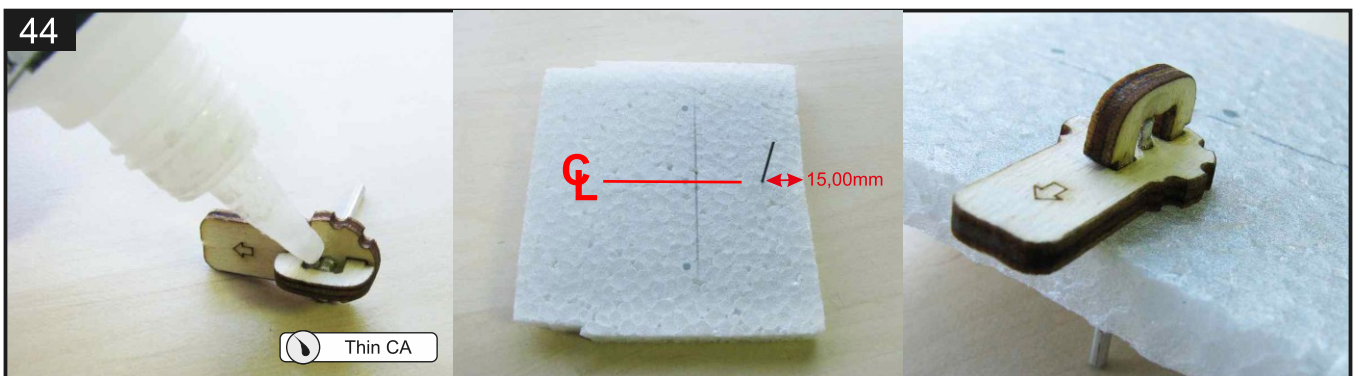
Locate the machine gun and half round loops as shown above left and attach with thin CA. Large gun is located and secured with thin CA as pictured above center. Find the instrument cluster as shown above right.



Position the instrument cluster approx as shown above left and secure with medium CA. Next find the battery hatch and bevel the front edge with a fresh hobby knife as shown above center and above right.



When trimmed properly the hatch should lay into position as pictured above left so that the sides are flush with the vertical sides of the fuselage. Next locate the wood piece for the latch shown above enter, and break them out carefully with a sharp knife. Locate the short 2.0mm rod and rough up one end with some sandpaper.



Assembly the two wood pieces and 18mm long rod as shown above left and secure together with thin CA. Next poke a hole in the hatch on center line and 15mm back from the rear edge. Next install the piece as shown above right.



Install the small internal wood piece as shown above left and secure it to the wire with some thin CA. With a pair of side cutters, remove the extra length of wire. Next install the hatch as shown above right and use it to position the long skinny wood piece in position so that it holds the front edge tight. Make sure to not get any glue on the hatch itself.

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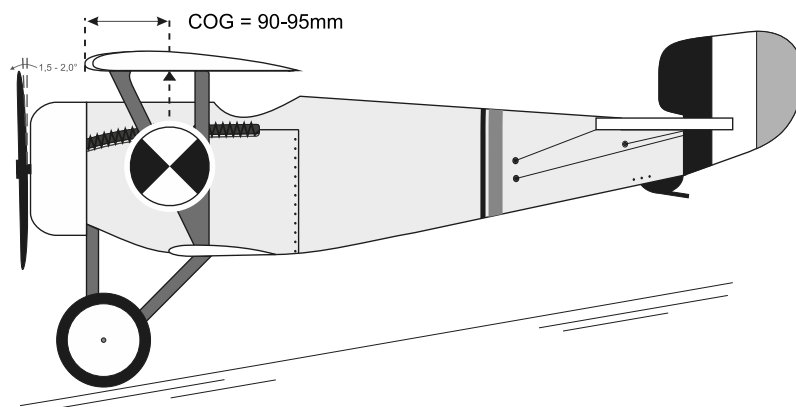


If you have not already done so, route the motor wires thru the firewall such that they will not interfere with when the hatch is installed. Next the latch can be rotated 90 degrees to lock into place at the center of the leading edge of the lower wing.

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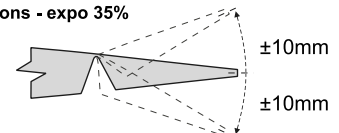


Tidy up the radio bay, make sure that the servo arms don't rub on any of the wires when being cycled. Balance a prop and check all that all the control are moving in the proper direction. If you want to accessorize, this model is 1:8 scale and there are some nice aftermarket pilots that will add the finishing touches to the Nieuport 17.

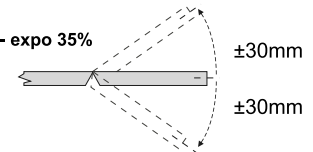


INITIAL CONTROL SETTINGS

Ailerons - expo 35%



Rudder - expo 35%



Elevator - expo 30%

