

Thank you for purchasing F4D-Skyray from www.Rbckits.com

For the first time, R/C enthusiasts we have a choice in scale and fun flyer aircraft designs.

Our goal, through computer technology and state-of-the-art production techniques, is to offer aircraft which in the past have not been modelled simply because they weren't popular enough to justify mass production. Our production techniques allow us to produce aircraft which, though not as popular and well known as P-51s and P-47s, still offer historical significance (good or bad!), Good looks and flying characteristics, and a uniqueness that is sure to turn heads wherever you take your airplane!

Your airplane has many unique features in its design:

CAD Design

CAD design allows strength to be built into the airplane without sacrificing weight. Accurate parts design and placement ensures a perfect fit.

CAD Drawn Plans

The plans in this kit are not copied from a master set! They are originals drawn directly from the CAD program where the airplane was designed. We do this because it allows us to use colour, which helps you better visualize the various components of the airplane, and we can use better quality paper, which greatly reduces the possibility of shrinkage.

Since you're going to build directly on the plans, they ought to be the proper size! Also, parts placement is guaranteed to be accurate, so you can build a better, straighter model.

Small and hard-to-produce parts are simply a computer file away, so you get a more accurate airplane.

Lightening Holes

Lightening holes are cut into all ribs and formers where possible and justified. This allows us to keep the weight on each plane to a minimum without sacrificing strength.

The same program that generates the design and plans also drives the cnc cutter, so every part is reproduced exactly as it was designed. cnc cutting also allows us to fit more parts on each sheet of

wood, reducing the waste, and lowering the cost to you.

Plastics

The cowl and wing fairing are accurately reproduced high quality Polystyrene, the canopy is made from PETG

General Building Information

The F4D-Skyray can be built by a person with building skills. It is designed for someone who has built a low wing warbird. No unusual building techniques are required, although more difficult areas are explained in detail where necessary. Certain steps in the building process must be followed as depicted, or you might find yourself digging back into the structure to redo something. These areas are outlined when necessary. Occasionally hints will be included at certain building steps. These are not required for completion, rather they are tips intended to ease a particular process. The cnc router does cut through the wood, As a result of this, occasionally there will be fraying on the surface of the wood. This is normal, and is only a surface problem and does not affect the wood in any other way. Similarly, the cnc settings are optimized for wood thickness averages, so occasionally, due to variations even in individual sheets, some areas might not cut through completely. Simply use care in cutting the parts from the sheets; most of the time, the parts will break out of the sheets!

Hardware and a EDF unit are not included in the kit. There are so many choices for quality hardware that these choices are left to the individual preferences of the builder, rather than include something in the kit that you'll probably throw away anyway.

This aircraft is not a toy. It must be flown in a responsible manner according to the rules set forth by Law. The builder assumes the responsibility for the proper assembly and operation of this product. Rbckits shall have no liability whatsoever, implied or expressed, arising out of the intentional or unintentional neglect, misuse, abuse, or abnormal usage of this product. Rbckits shall have no liability whatsoever arising from the improper or wrongful assembly of the product nor shall it have any liability due to the improper or wrongful use of the assembled product. Rbckits shall have no liability for any and all additions, alterations, and modifications of this product.

Having said that, turn the page and start building the best airplane kits on the market!

Material you might need:

Balsa knife, Stanley knife, straightedge, building board 1500mm
ca glue medium, thin, thick you need approx. 6 bottles, building nails, tape
Or use white glue, and canopy glue, epoxy for the canopy and cowls
Some drilling and bending tools, wire cutter, safety goggles etc. etc.

For finishing you need:

glass 25 gram 3mtr and filler dope 1 litre, brushes sanding paper, paint of your choice
Wheels as on the drawing, controls, motor edf unit, battery etc.

All vacuumformings should be roughened up before gluing

Check the pictures for additional information, a picture says more as a 1000 words so do look at the pictures on the cd

Wings:

Start with a flat building board with the size for the wing and fuselage

Place the drawing of the wing on the building board and protect it with plastic.

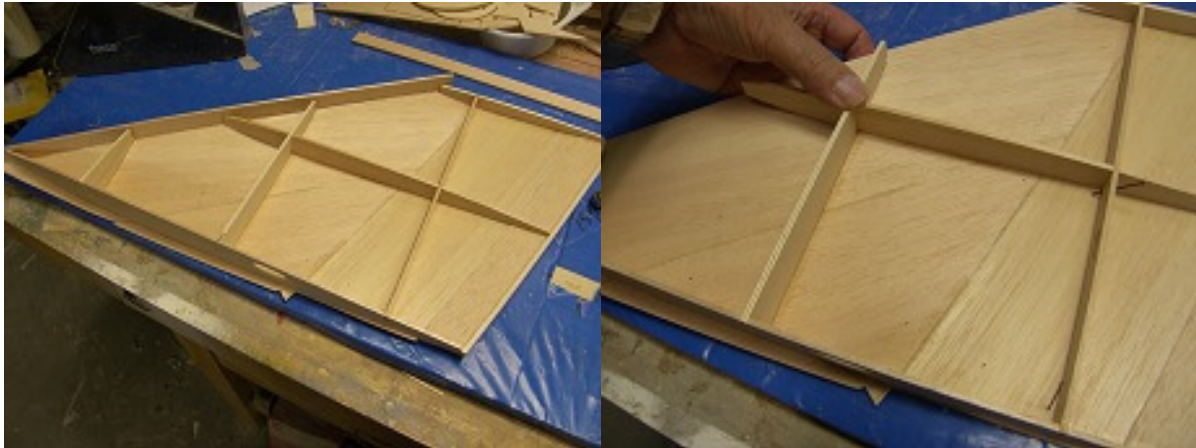
Start by making the Top sheeting from the supplied balsa sheet, use the template as a guide, place the sheets on the work plate and nail them down , use cello-tape to connect the edges, take them of and glue the edges with thick ca , place on the work plate and sand down the glued edge, turn the sheet over and take of the tape and sand the edges, now there will be one smooth side and a lesser smooth side , this is because of the thickness of the balsa is not even, the non-smooth side will be the inside of the sheeting.



take out all ribs and formers out of their sheets; you can mark the formers with a soft pencil if you like sand of all holding tabs.

The wing is build upside down.

Place Front part of W8 to the sheeting, draw up rib and former lines with a soft pencil to the balsa.



Mark the main-formers ribs on the bottom sheeting, place main-formers on sheeting place ribs , do not glue yet , make sure for straightness .

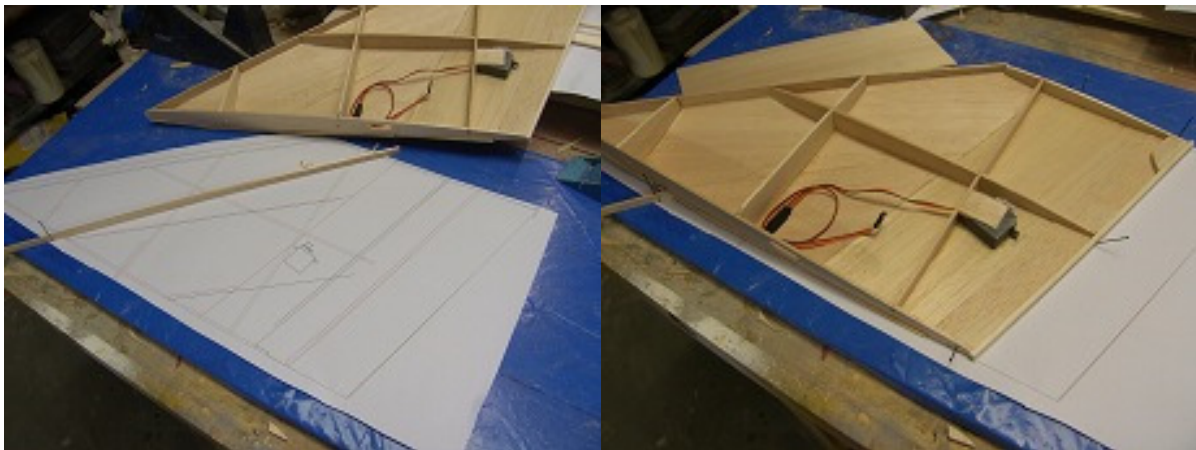
if all seems ok then pin down the main former and start glueing the ribs with thin ca one by one to the bottom sheeting, note roll the ribs over the sheeting and apply ca.

Place subleading edge and place servo, do not forget the servo wire extension.

place wing joiner formers

Place the help former on the position marked on the drawing

Now pin down the wing panel on the X marked spots , Place the small help-former as displayed on the drawing , make them from 3x9x500 balsa , important is that they all have the same height, this will give the correct washout.



Pin down wing and place scrap fills, aileron leading edges place bottom sheeting, you can sheet in one piece if you like , make servo arm opening. Also sheet the ailevon.

Place servo and wires into the wing , place servos on extra 1,5mm balsa , we shrined the servo in shrinking foil and ca them to the bottom sheeting, with a fill on top, make also a opening for the servo arm in the bottom sheeting. Cut the top sheeting as per plan.



Sand ailevon trailing edge to take the sheeting, place leading edge of wing and sand to shape



Join wing tips and glue to wing.



Sand trailing edge to fit tip

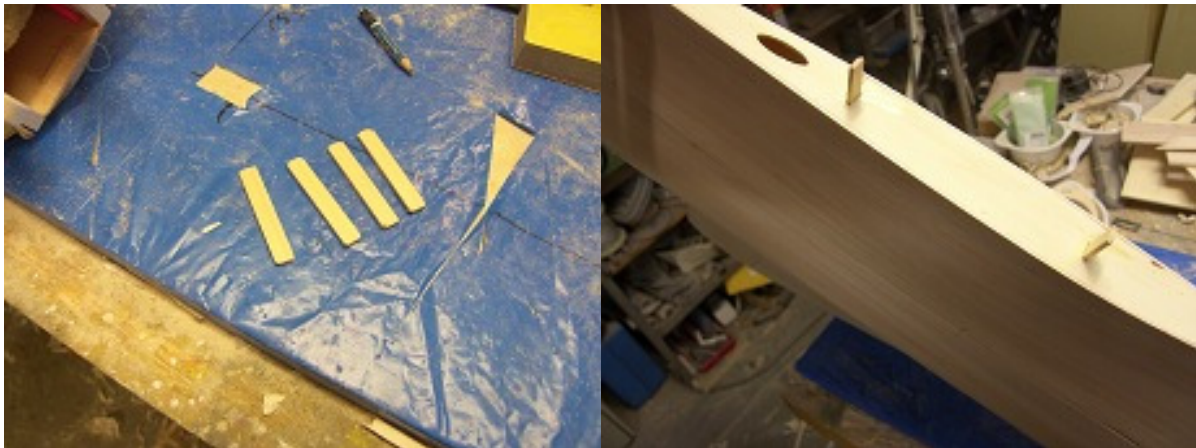


For the aileron tips you might want to use the scale outline, but this might not be handy when landing without a landing gear, we suggest for that that you use the straight aileron option.

Sand aileron edges to take the hinges



Cut the wing joiners to size 10x3x60 spruce and place them into the wing with a slow glue the



Do this the same for the other side of the wing.

Rudder:

Make up rudder from the ribs as on the drawing , make sheeting to size (1,5mm sheeting)

Place the help formers on the drawing and pin down ribs and formers, carefully glue to sheeting, else you end up with a ugly rudder.



Join LB1,1x and LB2 2x, LB3 2x and place to rudder.



Place Leading edge and tip and sand assembly to shape.



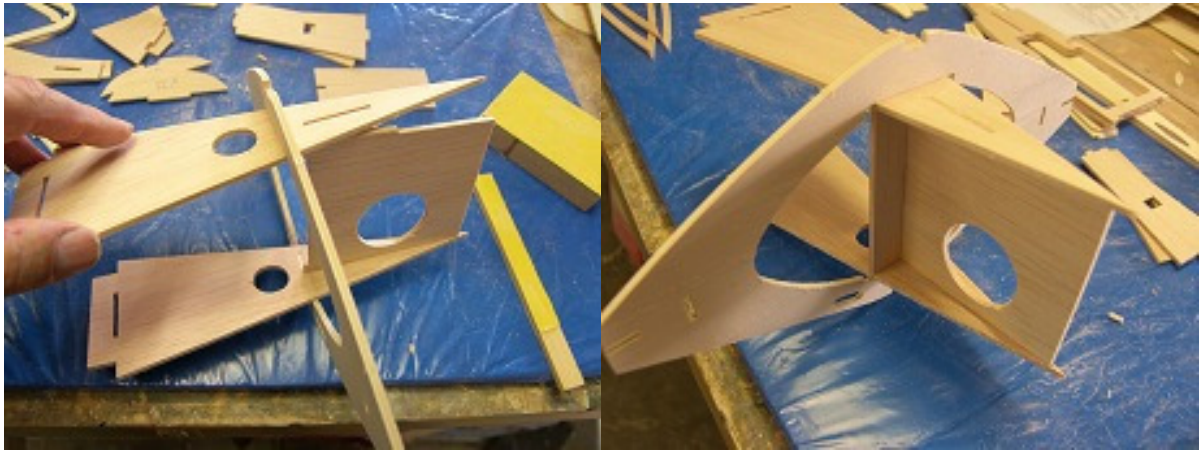
Fuselage:

Mark and take out all formers you need , and clean up the edge from the little holding tabs.



Note that the kit version has a fan unit moved 1 former to the back the basic construction is the same.

Start assembling the formers without glue.



Draw up a square on your work table from 323x156mm to pin down Former F22 you may use some scrap balsa or ply , important is that this is the square building of the fuselage



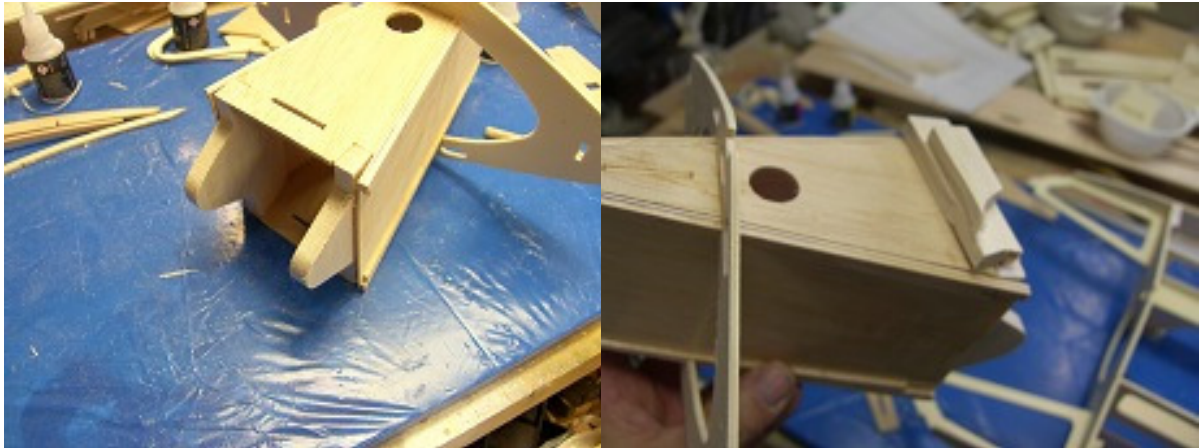
This assembly can be glued with a few drops just to hold straight.



Make the intake section with the duct lining and the duct holders.



Sand F6 to fit into the intake section and glue to duct lining and F7

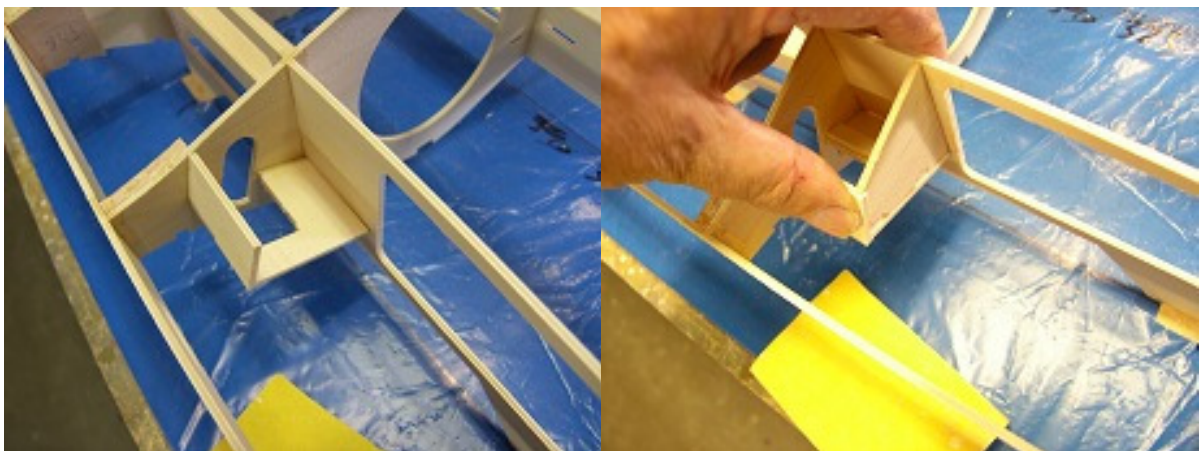


Place some scrap balsa on the bottom of F7 to get level with the fuselage assembly

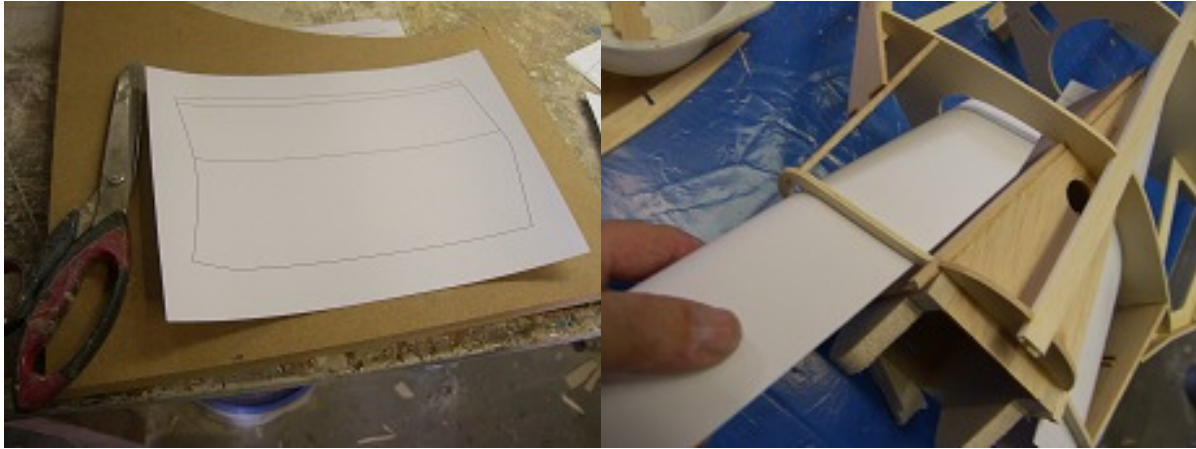


Place F21, F23 and 4x12 top stringer , if all seems ok then glue fuselage formers with thin ca

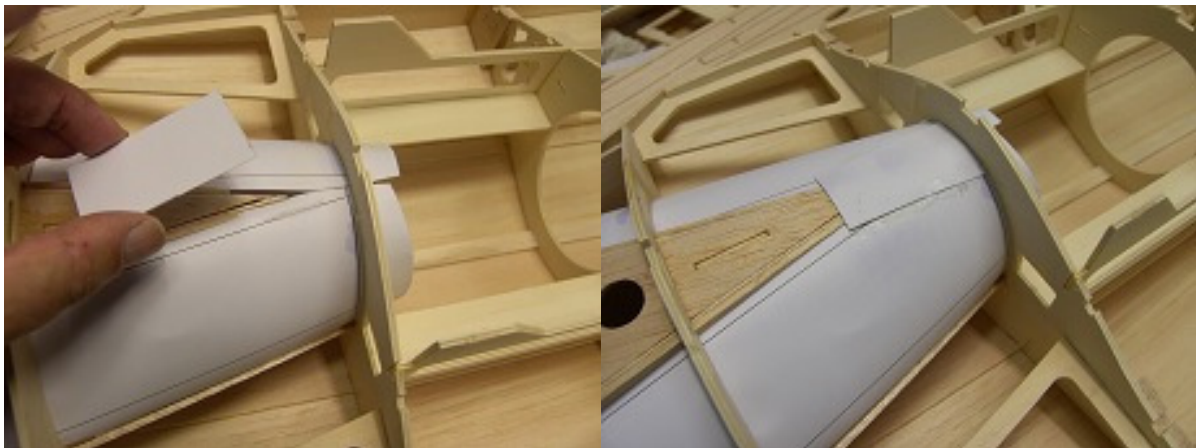
For retract version assemble the parts F17,18,19 gear you might strengthen this with glass and epoxy depending on your airfield



Cut intake duct as per plan and use a bit oversize on front and fan side



It is a bit fiddly to get it in, glue to formers close duct with scrap and place 3x6 stringers on the duct for anti-collapse

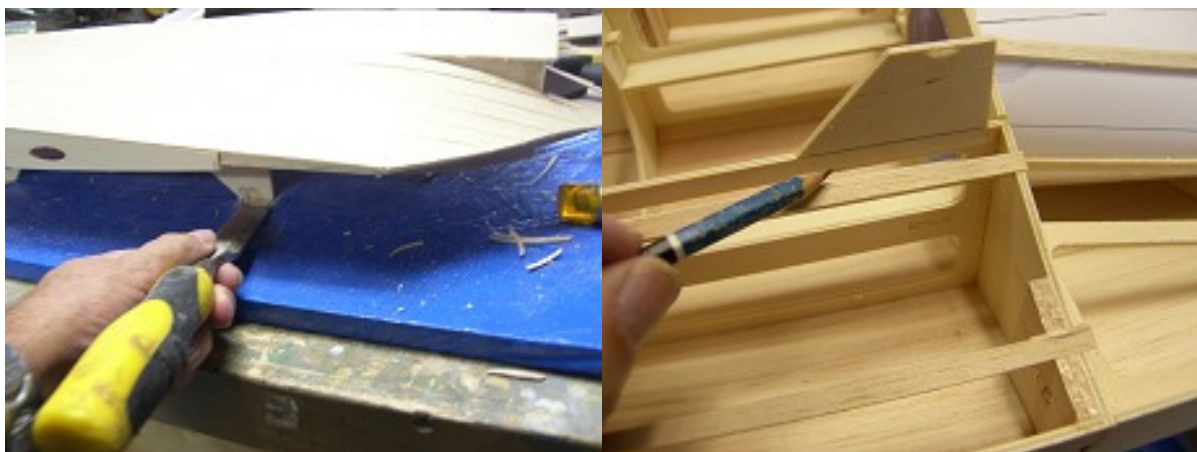


The fuselage can now be sheeted with 2mm balsa .For the tail part we cut the last 20cm in strips from 15-20mm, this will sheet easy for the concave tail.



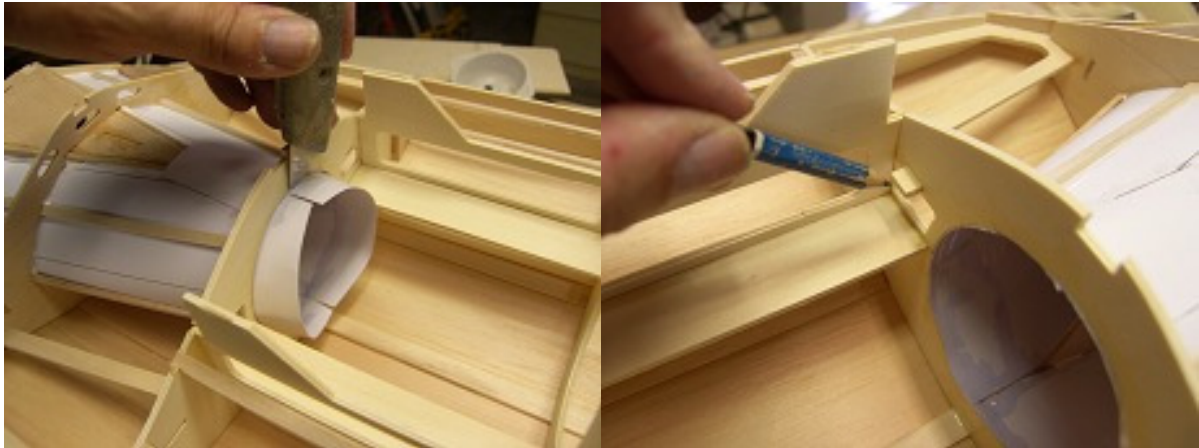
Sheet fuselage , it is not very difficult fairly straight sheeting.

Take of sheeted fuselage from building board , we did glue the feet to the board .

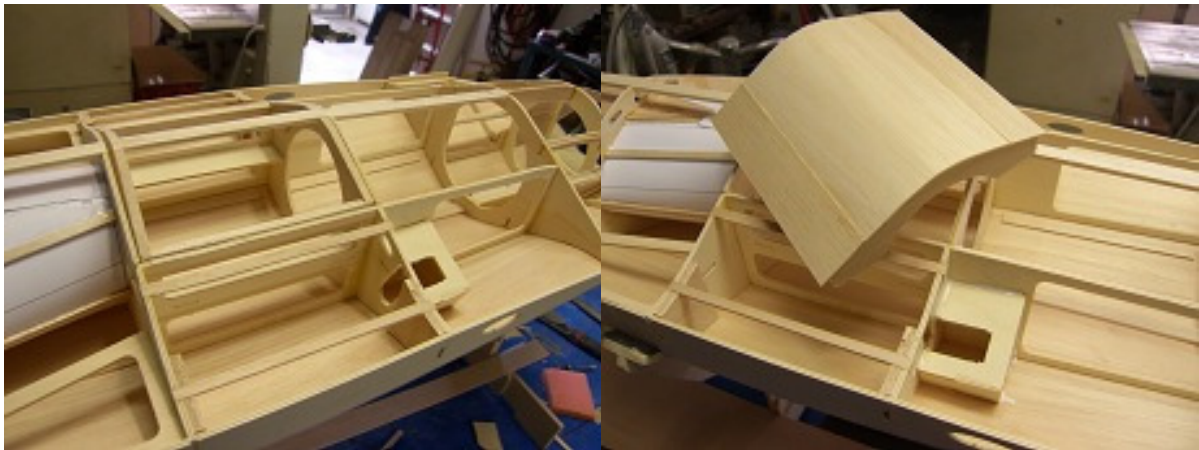


Take of the feet carefully .

Cut down the intake sheet flush with the former. Place stoppers



Place stringers for landing gear hatches and 4x12 mid stringer., we did make the hatch separate.



Sheeting the fuselage bottom., again cut the last piece for the tail part in small strips 15-20mm

The back part is sheeted with 2x12 mm balsa strips .



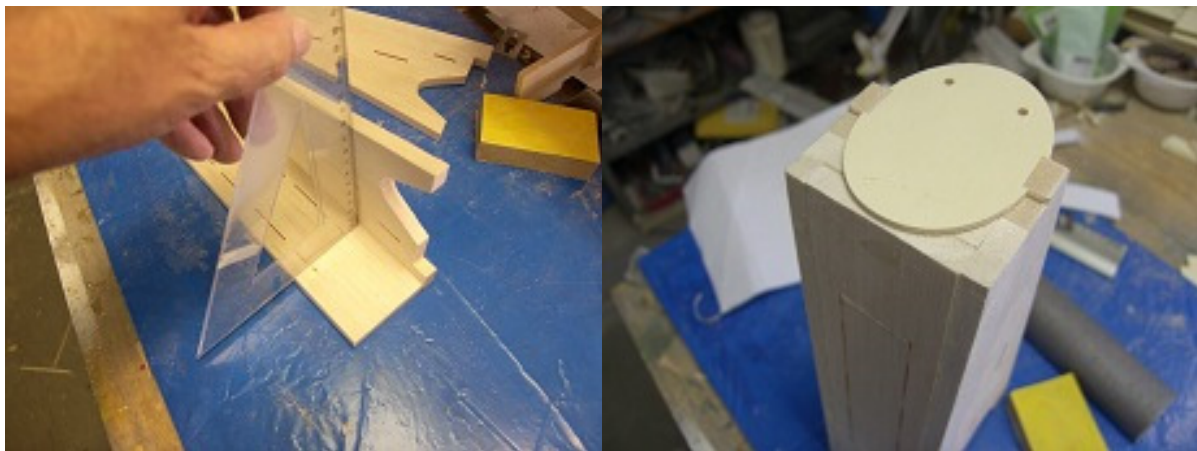
A bit of support for the sheeting coupling might be handy



Hatch fitting also ok like this.

Making the nose section of the fuselage is very easy.

Join F4 and F4a and join This with F5, place 15x15 triangle stock , sand this to the front angle and place F2.



Place this assembly to fuselage, making sure for straightness



Cut nose cone carefully to fit to F1 . Place F1 to F2 with help from 4mm dowels.



Now sand assembly to shape . carefully also use the canopy frame to fit to the side .

Cut to shape and place wing fairings, sand them flush with the fuselage , and place inlet lips



Place rudder to fuselage the 6mm dowels fit into F34 and F35 , Place Rudder with care for straightness



Make up turtle back from 4x25 balsa sheet and formers , it is handy to pre sand the 4mm sides before glueing to fuselage.

Use Rudder to fit turtle back.



Use canopy frame to fit to turtle back, place 3mm top sheet , sand flush and place 3mm closing sheet and sand turtle back to fin .

Make up canopy formers assembly, with the canopy closing, carefully step by step cut down the canopy to the inscribed lines



Place small tailcone to F26 and sand to shape.



Fit aileron to wing and cut the hinges, glue them with ca , make sure you pinch them with a small wooden toothpick to prevent them from slipping out of the wood

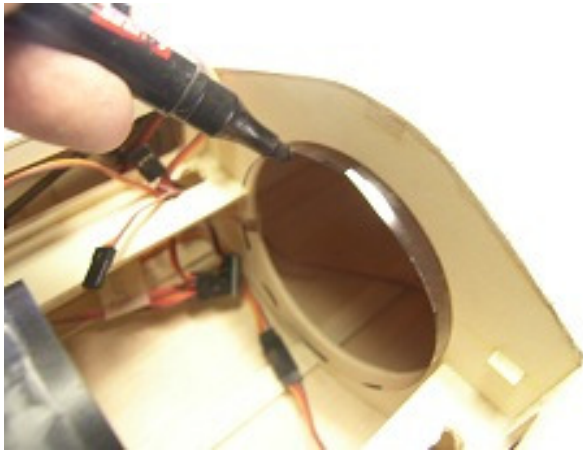


**Place servo steering wire and horn, we use Z-bends as this is dead sure.
Make the bends and then glue in the horn for best fit.**



**Cut out the outlet duct from the sheet pvc as per drawing.
Roll the sheet and tape with cello tape .
Place F25 loose in the tail. Now fold and place outlet tube in fuselage , over the fan unit, and place F25
with 2x 2,9x13 fasteners, this will give a trim possibility for the outlet air.**





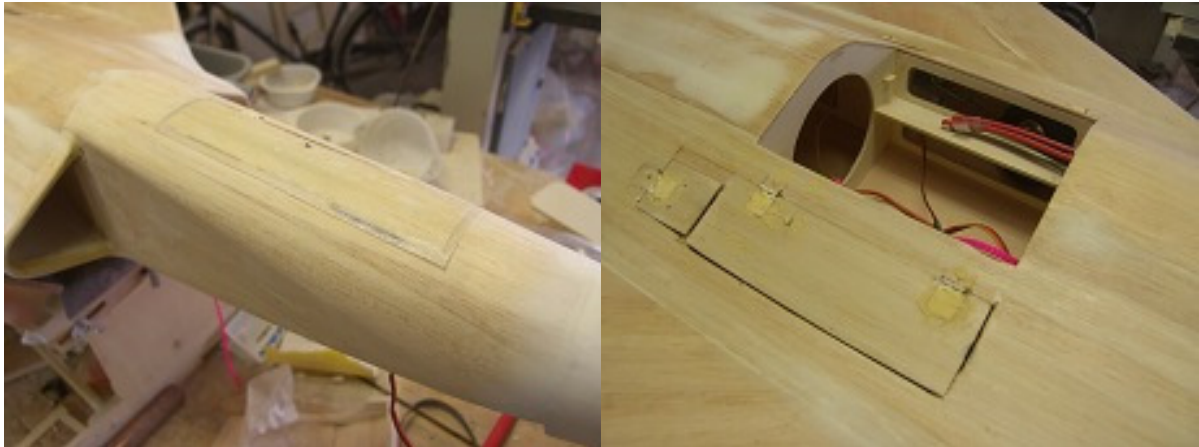
Folding and making the duct works best on a broomstick.

For bungee launch make up a launch hook as per plan,

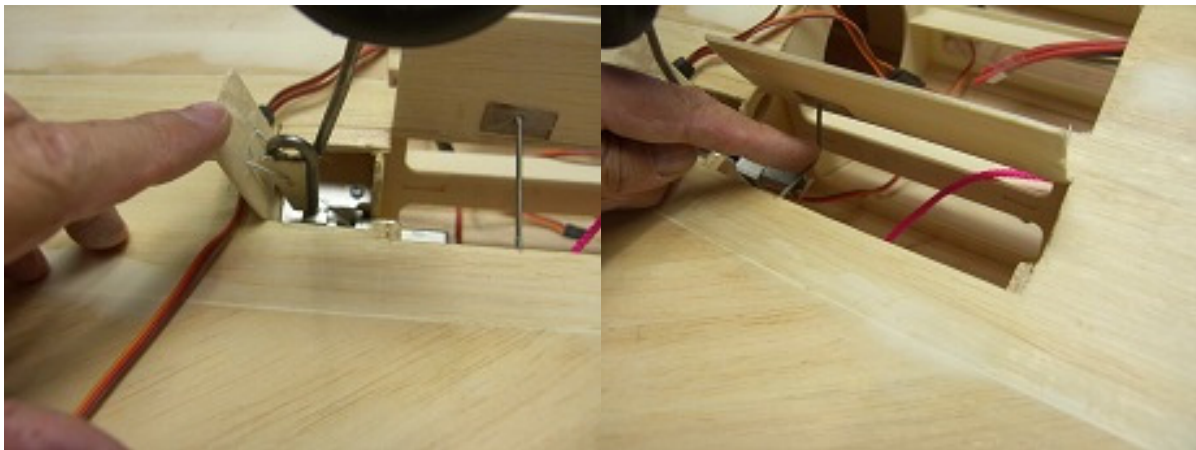
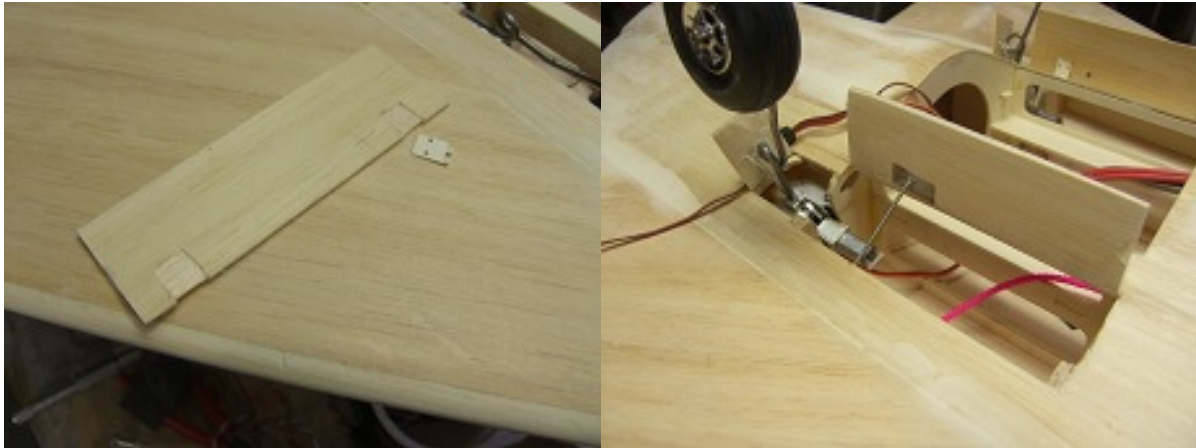
For retract version here some tips ,as there are so many types of retracts we do not supply additional hinges etc. for this .Take out the nose section hatch and sand to shape.



Place steering servo in RS4 place RS1,RS2 and RS3 , depending on your retract type you can have a top or bottom mount , , formers for bottom mount are also in the cut parts (RS6,7,8)



Use a spring closing for the hatch , note that there are no hinges or springs supplied for retract hatches



All controls like receiver speed controller or extra battery for retracts are situated in the back hatch

Finishing:

The whole airframe is covered in 25gr glass and doped with filler dope, **DO NOT USE SHRINKING DOPE EVER.**

Filler dope is not too hard to sand, and filled with some extra talcum powder sands great and smooth, when ready a thinned layer of sanding dope is OK

Now finish with... Vallejo, Humbrol or we used cheap spray cans... take care for the vacuumformings as some paints will not hold as good, or worse will dissolve or make it brittle

Canopy:

Cut oversize.. And test fit to fuselage, glue with canopy glue, or ca and make it lively with pilot, radios, etc. The canopy framing can be painted on

Have you found an error in the drawing or parts or instructions, just mail us at info@rbckits.com

I am sure we can find a solution for your build.

Some tips:

We used electric retracts for the Skyray , and we used a separate battery for the retracts this makes it safer, , air set is also possible , the weight difference is none

Wheels, we used Kavan treaded lightweight wheels , and we used 4,mm wheel legs, with a curl in it, CG measure with wheels in.

Retracts used on model: HK -15090S

EDF Unit , Wemotec Midi Evo fan

Motor Keda 75mm 2100KV 5S5000 or use a wemotec set

The Skyray tends to be nose heavy keep this in mind

Use a heavy motor light battery's or place fan unit more backward

extend intake ducts with a pvc tube (1mm) then

Servo : Cs993 for all

Flying:

The Skyray lifts off with speed (it is a delta and need speed and some wind) and is easy to fly landing: plan it in and land it as usual low speed as possible but do not make it too slow .

A 6S battery is also more powerful with 100 amps and a good drive,

Throws of the rudders etc., we like them big, but it might be too much so always, make them large and have a dual rate button in your fingers, to small throws is most of the time problems, to large... it is in your fingers

If you need additional pictures, just ask.

Have Fun with the F4D-Skyray

Additional HQ pictures are on the disk, also a 3d pdf, where you can see all parts of the Skyray in 3d, you need adobe 10X to view, and it will not work in your browser

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