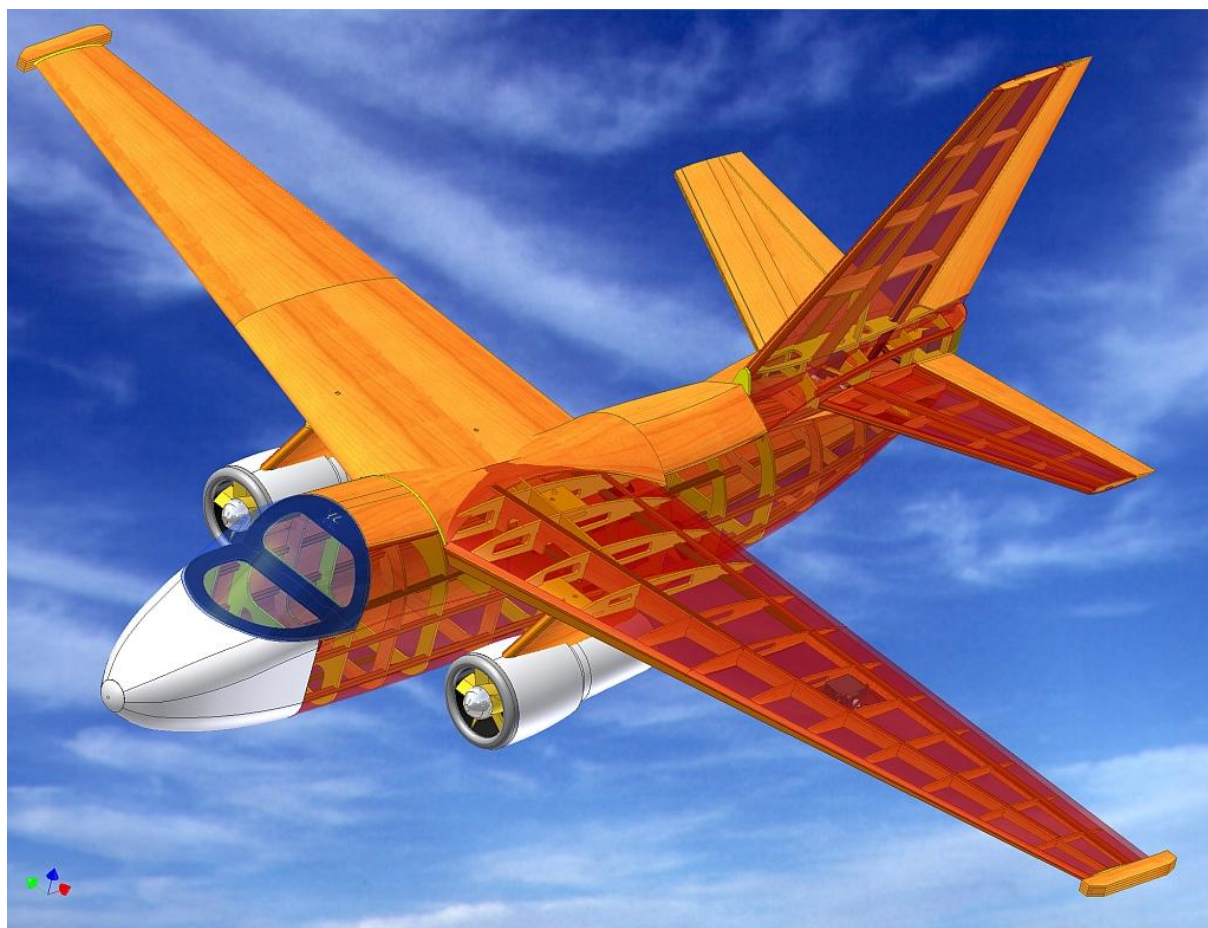


KEIRO – VIKING S3A



Building instructions

English short type
Original in German, see CD

**Thanks for having ordered our
VIKING S3A**

First of all, please excuse, that the english building instruction is kept quite short. As the manufacturer, KEIRO Modellbau, Rothrist, Switzerland, is a very small business, the translation was made by myself (also are all parts in your kit)

I learnt English as a mechanical engineering student here in Switzerland and tried to get some experience in a 3-month language-course in St. Pete, Florida.

But you see: 25 year old guy, learnig English in Florida ... ??

Whoever would like to correct these instructions, is kindly asked to contact me by mail k.eich@keiro.ch I even would send you the original word-file

**Our goal was to deliver a kit, that not only makes a well flying
EDF - Viking but also is fun to be built**

Some experience in building with wood and flying an EDF-jet is a must: We also assume that RC-components, batteries EDF and motors are known to you.

Our VIKING is designed in 1:14 scale. The CD contains lots of pictures of the original, so you surely will find your favorite.

The nacelles fit every 69mm-fan, like Wemotec Minifan, HET 6904, Schuebler DS-30-DIA

VIKING is prepared for retractable gears but as well can be launched by rubber.

My offer:

Please contact me, when you need more info.

I will allways try to help you as soon as possible

**And if you have suggestions for improvements, don't hesitate
to contact me**

k.eich@keiro.ch

Enjoy building and flying this Viking S3A



Content of kit:

- CD with lot of information.
Click on the file „[content.doc](#)“ to get a linked list of all topics
You definitely must see the building movies, maybe they even replace building instructions.
- plan sheets
- part lists
- Milled parts packed in bags. Please open only, when using them, to prevent mix-up
- sheeting material. Balsa 1.5mm x 1000mm x 100mm. Identification, see plans and parts lists.
- bars, mostly 1000mm long, see plans and parts lists
- Vacuum formed parts and fiberglass exhaust pipes and complete nose
- this instruction

How to use this building instruction:

This instruction is a step by step instruction with the following sections

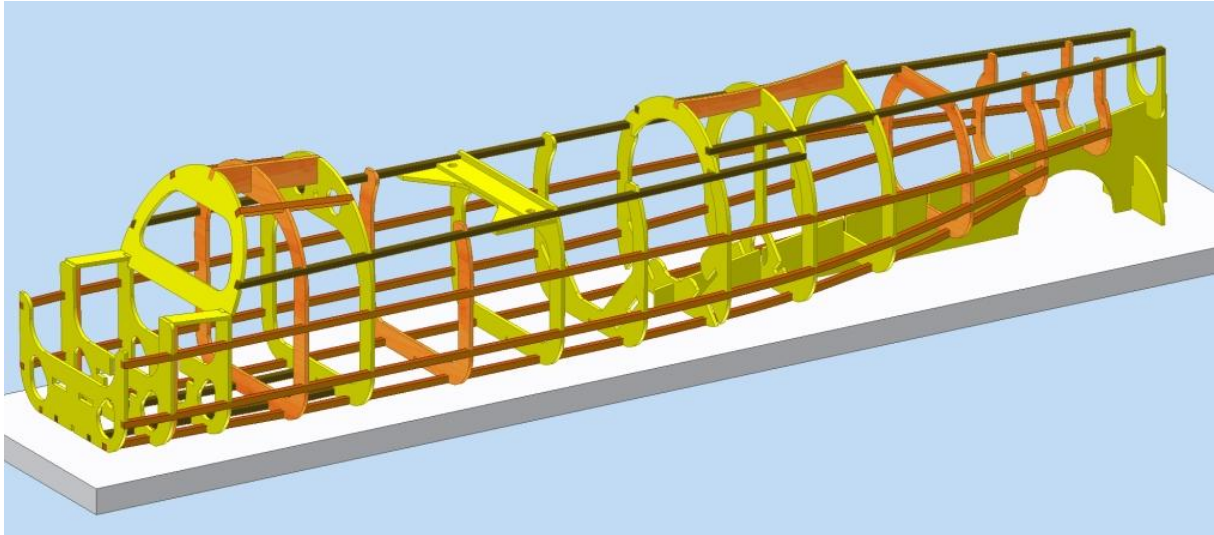
- fuselage (respective plan sheet: „Baugruppe Rumpf“)
- tail unit (respective plan sheet: „Baugruppe Leitwerk“)
- wing (respective plan sheet: „Baugruppe Flügel“)
- nacelles (respective plan sheet: „Gondel D69mm“)
- finish

Conversion table

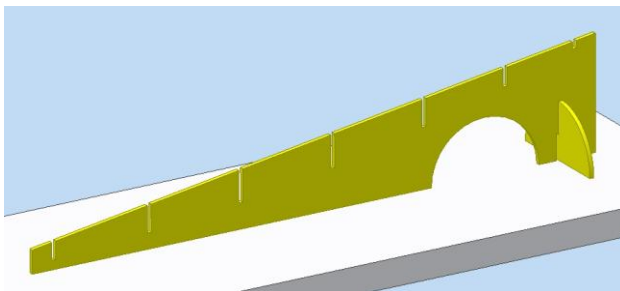
| 1 mm | 0.03937 inches | Parts in your kit |
|-------|----------------|-----------------------------|
| 1.5mm | approx. 1/16“ | Balsa sheeting |
| 2 mm | | Balsa wood (ribs) |
| 3 mm | approx. 1/8“ | Poplar plywood, Balsa wood, |
| 5 mm | | Balsa wood, Birch plywood |
| 8 mm | | Balsa wood |
| 10 mm | approx 3/8“ | Balsa wood |

Fuselage:

First goal: Fuselage frame:



Preparation:

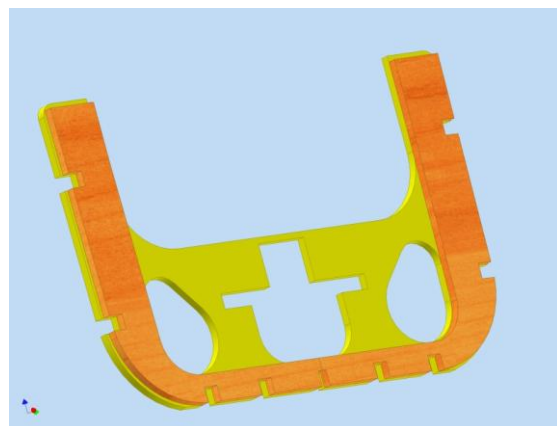


Jig for fuselage

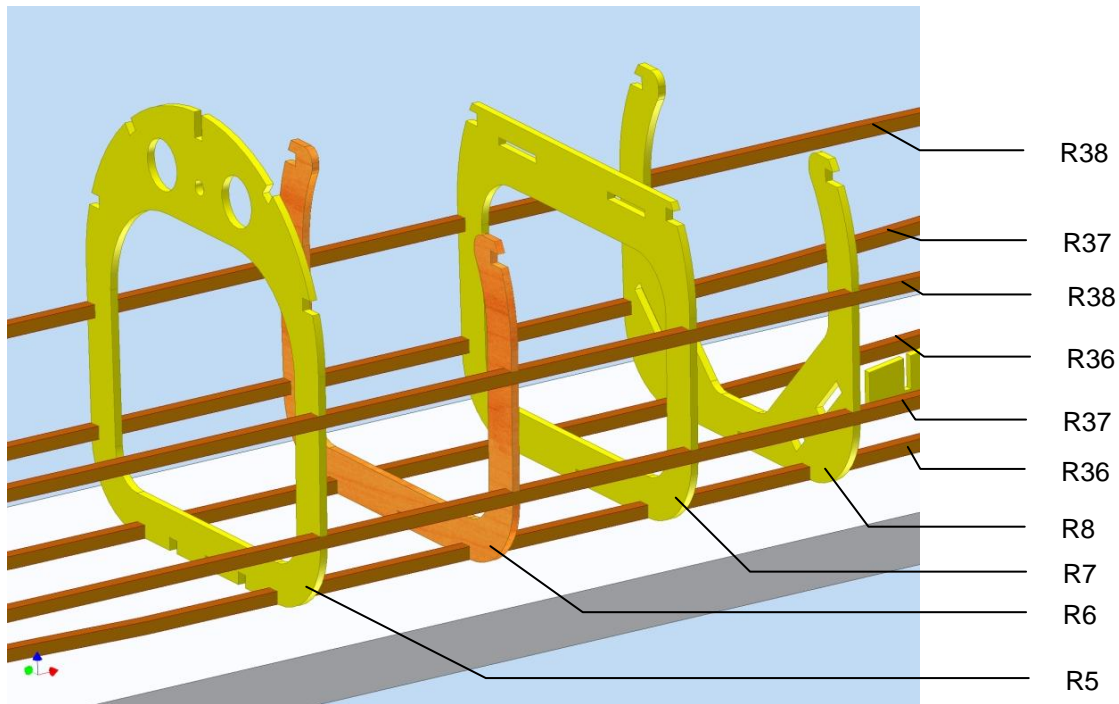
Formers R4, R6, R12, R13 and R14 are split parts. Glue together.

2 pcs. R18 on R2

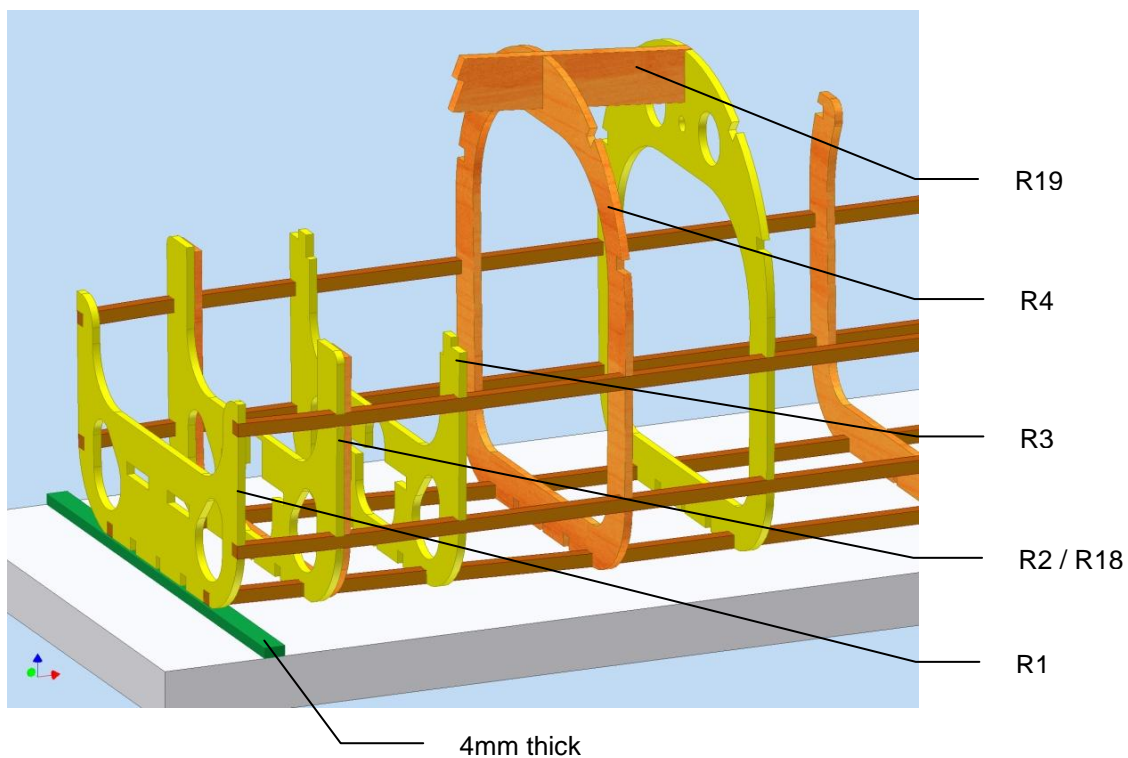
Preparation complete
Let's start !



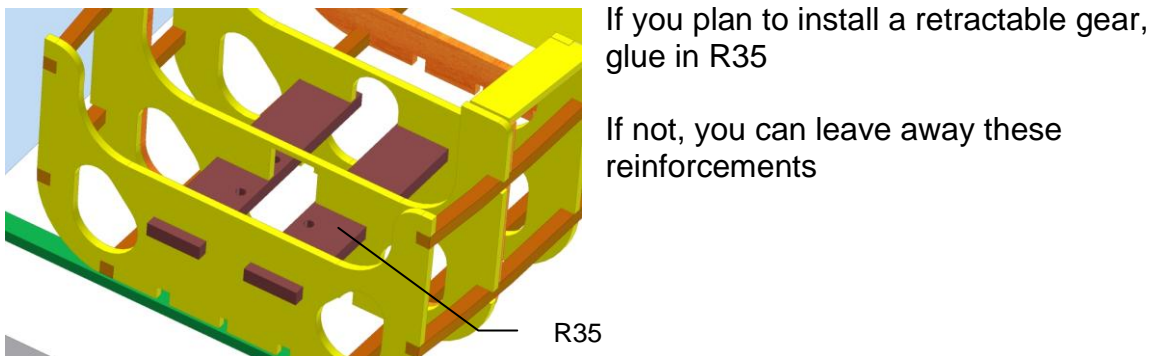
Fix longeron R36 (5x5x820mm) on the plan sheet.
Glue formers R5 to R8 in place
Formers R9 to R15 are placed on jig but not yet glued
Longerons R37(5x5x820mm) and R38 are fixed



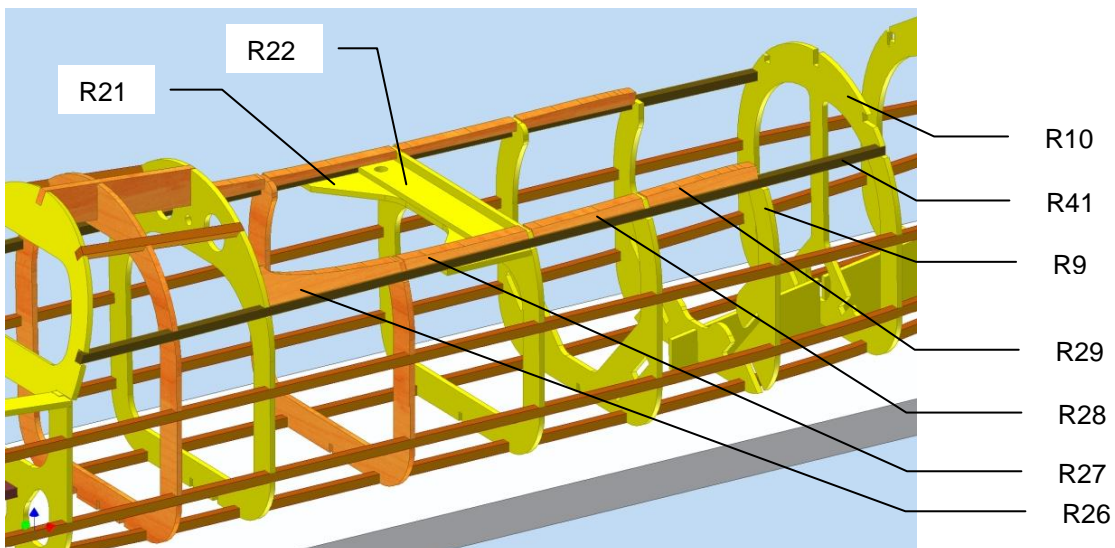
Support longerons and former R1 with 4mm and glue R1 to R4 in place.
Insert R19 between R4 and R5.



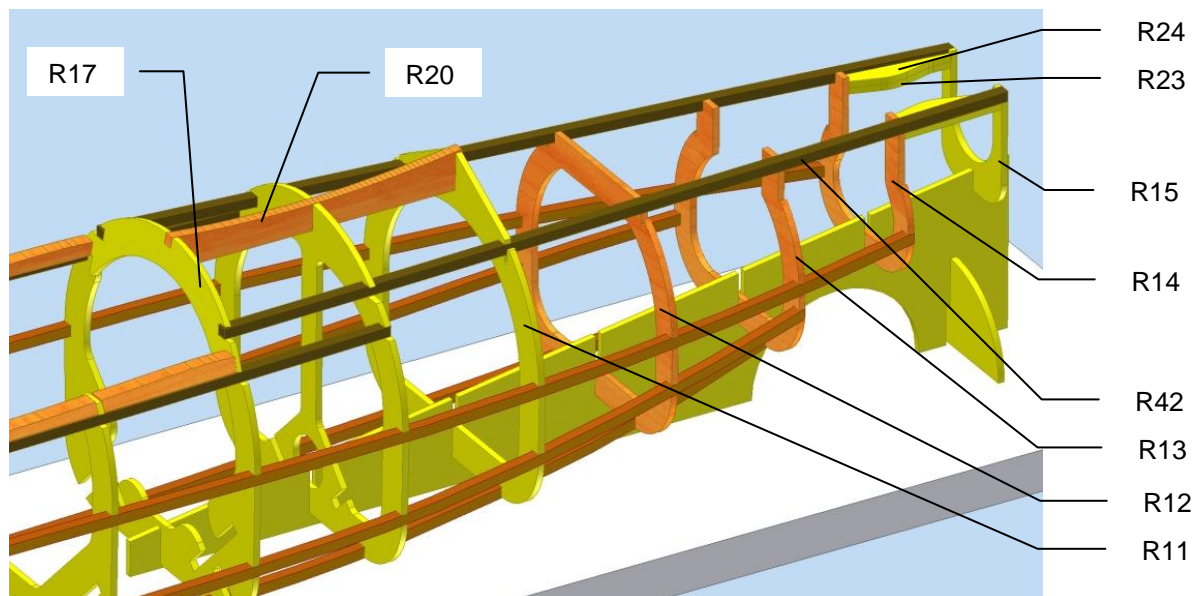
Next steps see picture



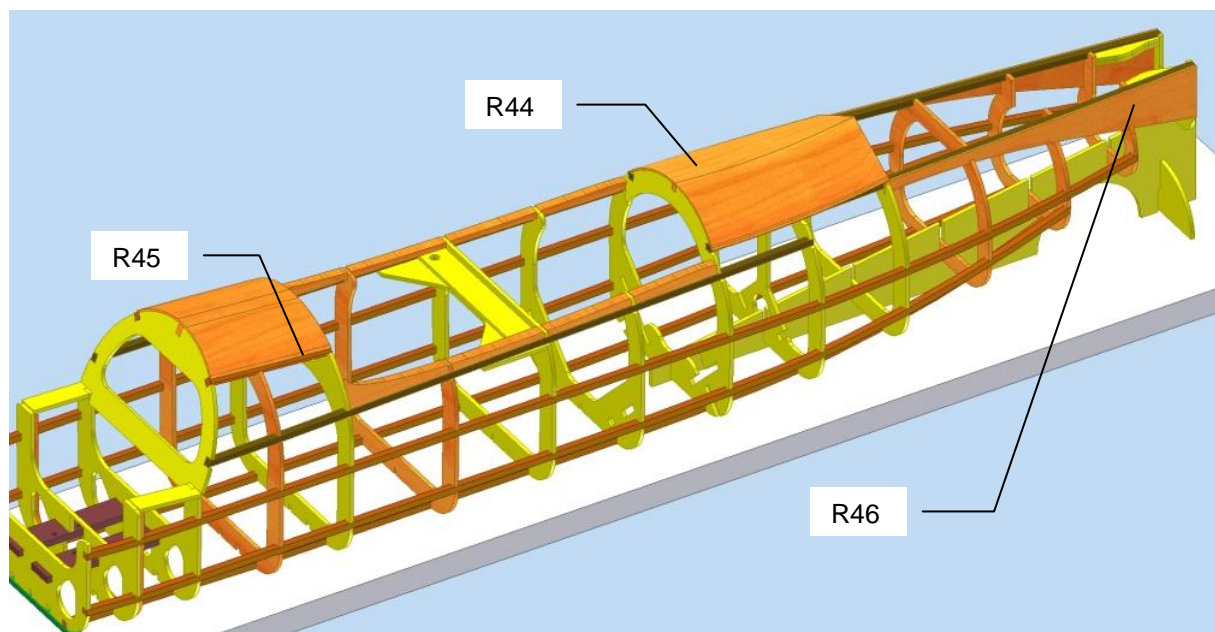
Continue with gluing R9 and R10 to the longerons.
 Fir longerons R41 (5x5x500mm) and wing fixing plates R21 and R22 are next.
 Wing supports R26 to R29 are glued on top of the fir-longerons and then shaped to fuselage.



Insert fir-longerons R42 (5x5x410mm) and glue R11 to R15 with all longerons. R20 gives the correct fit of R17 (slightly inclined). Glue in R23 and R24 as shown.



Now let's start the first sheeting, R44(2 parts), R45 und R46. All sheeting is Balsa 1/16". (leave the fuse still fixed on working support and jig).

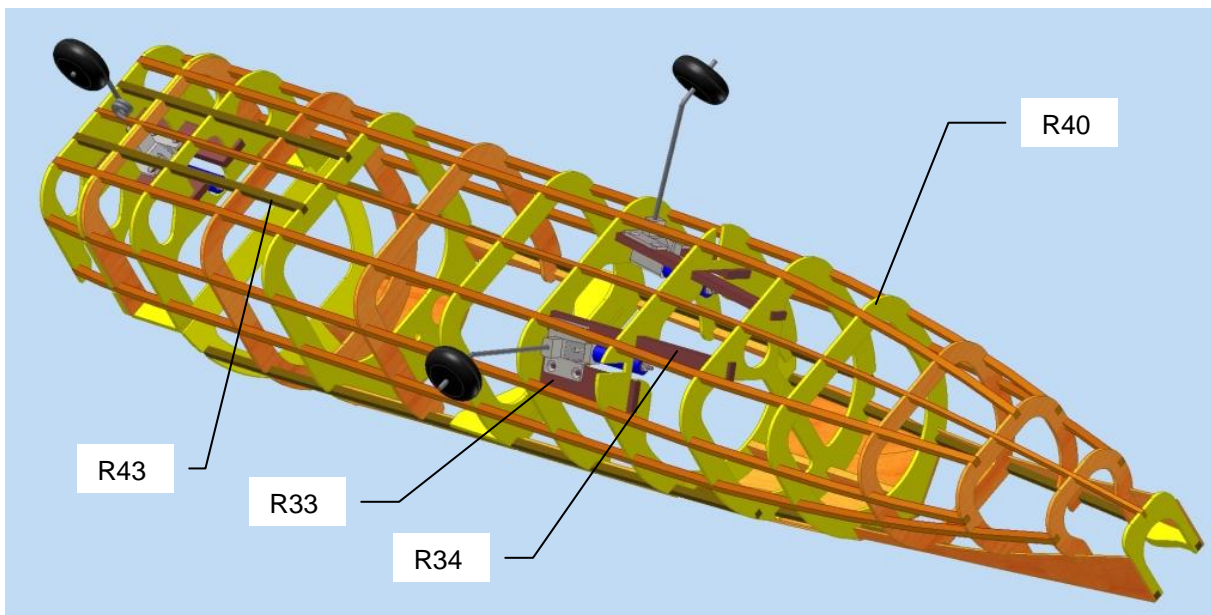


After all glue has completely set, you can remove the framework from working support

R40 of Balsa (5x3x960mm) is attached in the middle of the fuse-bottom (with RG only to former R4)

If RG will be installed you must glue in place R33 and R34 and reinforcement-fir-longerons R43 (5x5x210mm)

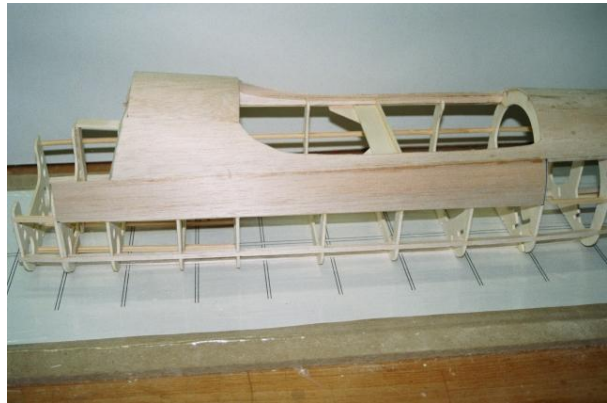
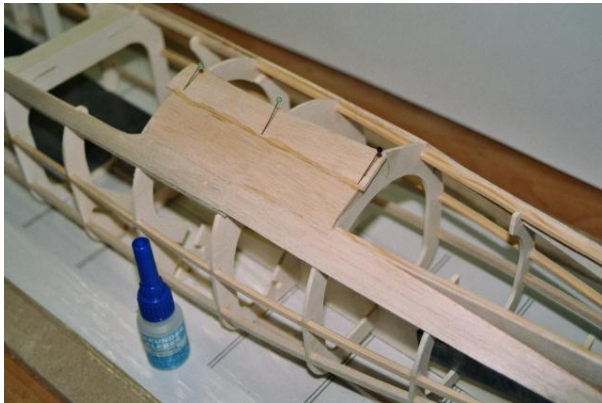
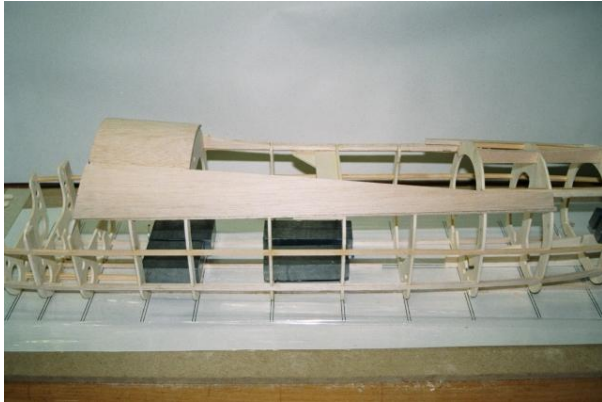
Maybe you testfit your RG. But please don't cut out the formers now. This would make sheeting more difficult.



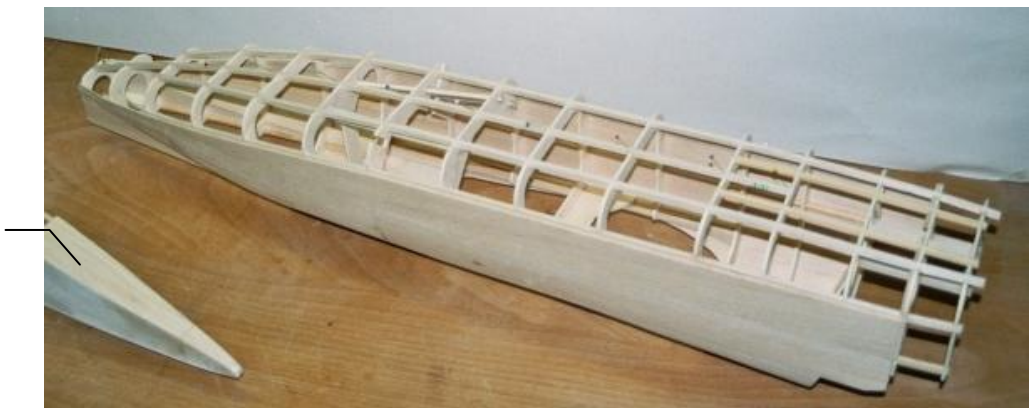
The fuselage is now ready for sheeting.

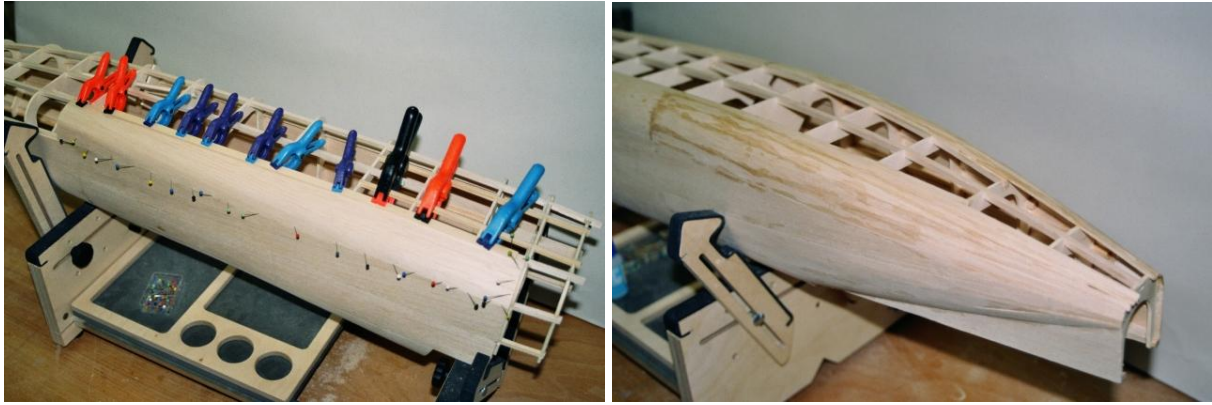
The following pictures show you the procedure.

Try to work symmetrically, the same stripes alternately left and right



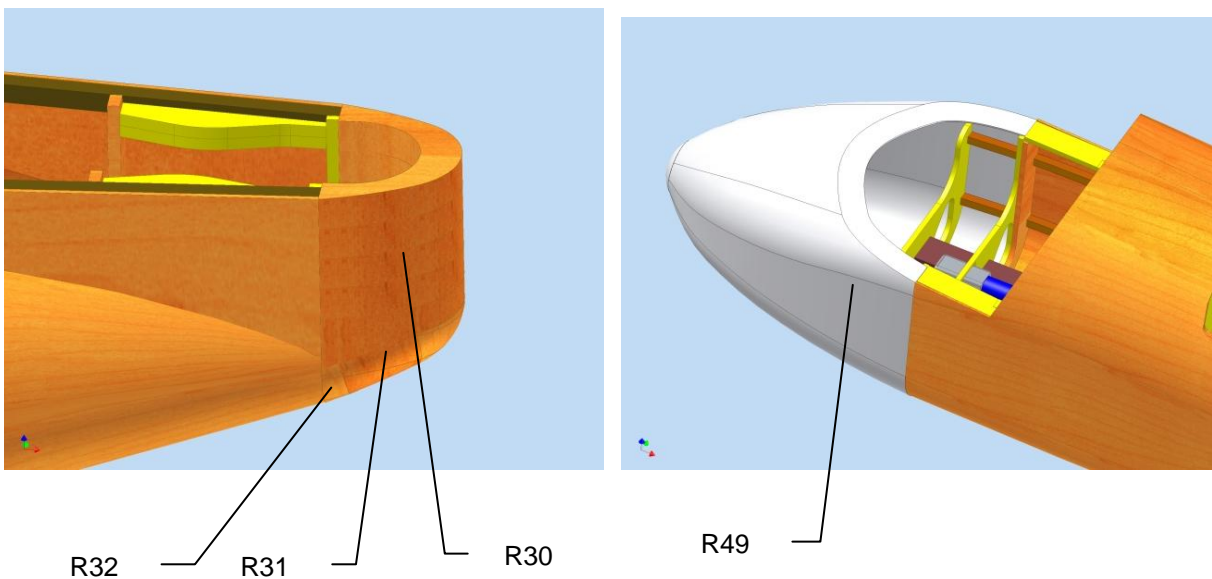
I am not a
VIKING





At last the aft end of the fuselage is closed with R30 to R32 as shown

The nose R49 is bonded to the fuselage after having opened the necessary cut out for your RG.

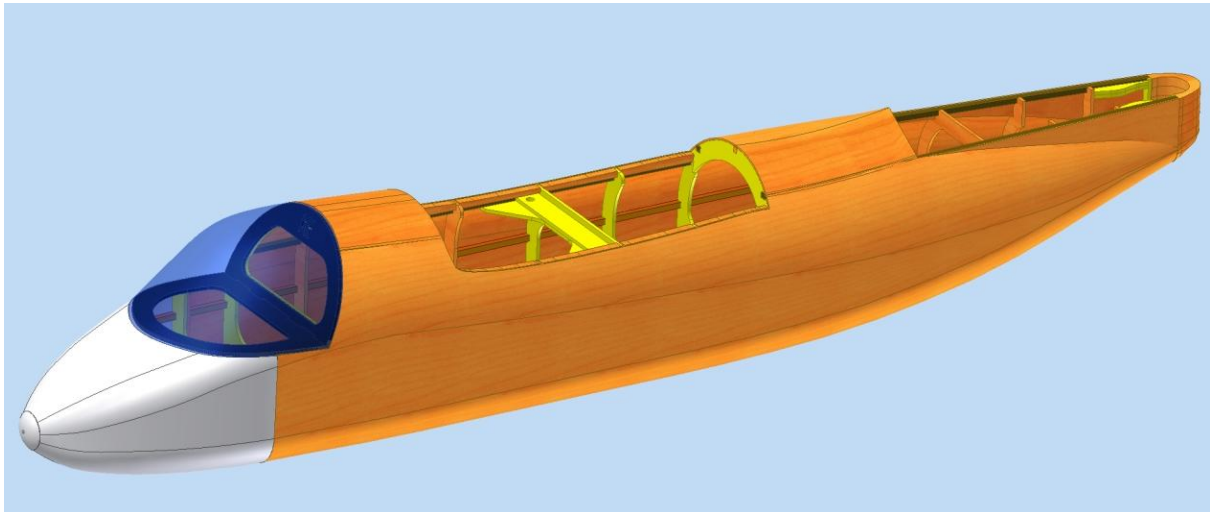


The canopy consists of R50 to R52 and is best assembled directly on the fuselage. Of course, you have to prevent the canopy to glue to the fuselage.

For ideas for pilots and instrumentation look at the pictures on the CD



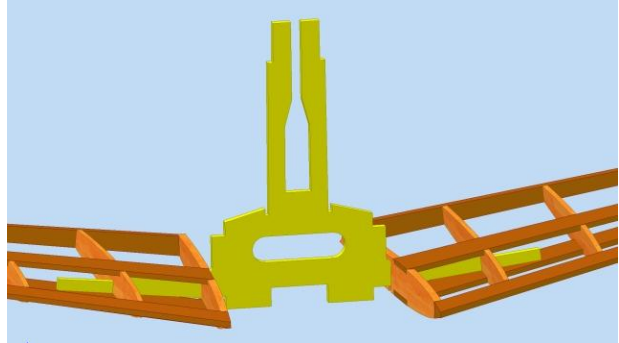
Now the word is sanding



Tail unit:

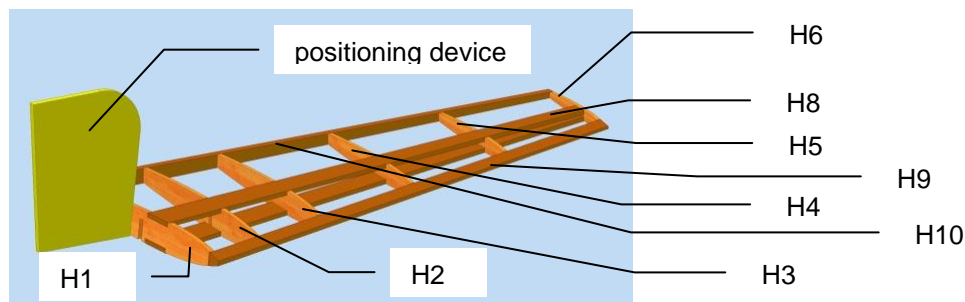
Our VIKING has a completely removable tail unit, that is fixed with two screws to the fuselage. Servos for rudder and elevator are placed in this unit

This picture shows, how horizontal stabilizers will fit to the central part

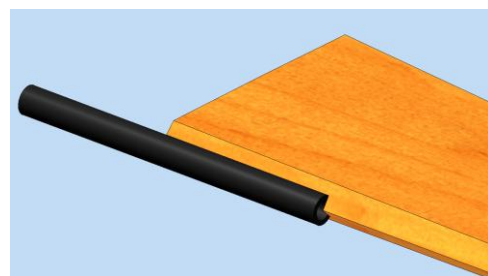
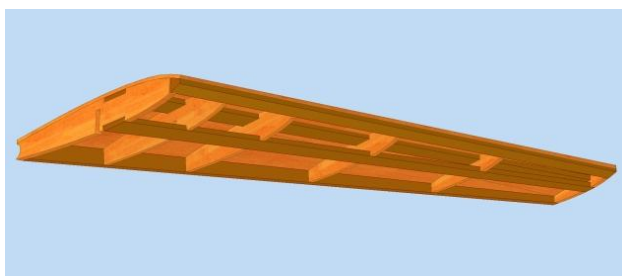


Build two reversed left to right horizontal stabilizers consisting of ribs H1 to H6, main spar H8, leading edge H9 and end spar H10.

Attention: Rib H1 is inclined 97°. Use the positioning device of the kit as shown



Sheet only the upper side



The elevators are grinded out of the 10mm Balsa H12.

See plan, how to bond the carbon tubes to the elevators. Center of tube must align hinges.

This picture shows, how vertical stabilizer will fit to the central part.

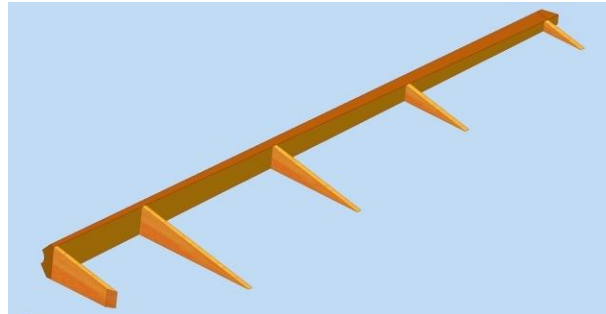
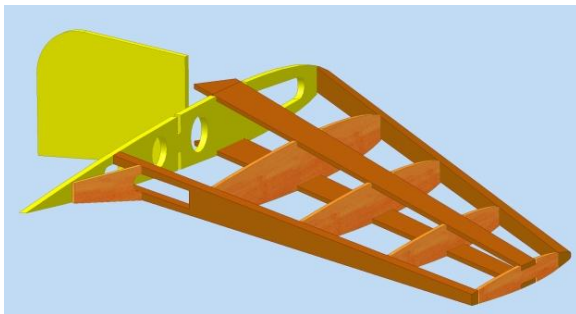


Vertical stabilizer:

Ribs S1 to S6, main spar S8, leading edge S7 and end spar S9

Attention: Rib S1 is inclined 92°. Use positioning device.

The rudder is built up of S12 – S17.

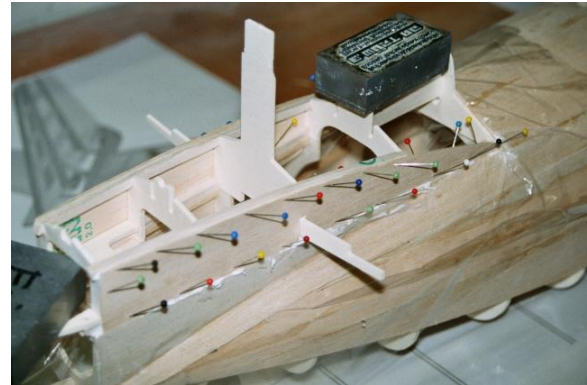
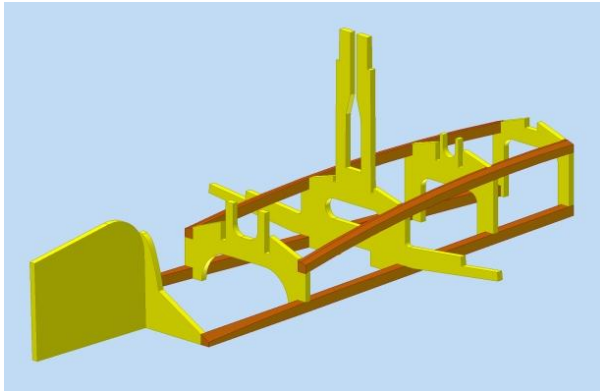


Sheet **only** the rudder (1,5mm Balsa) (S20) and fix the carbon tube S21, as shown.
Finish with S18 and S19



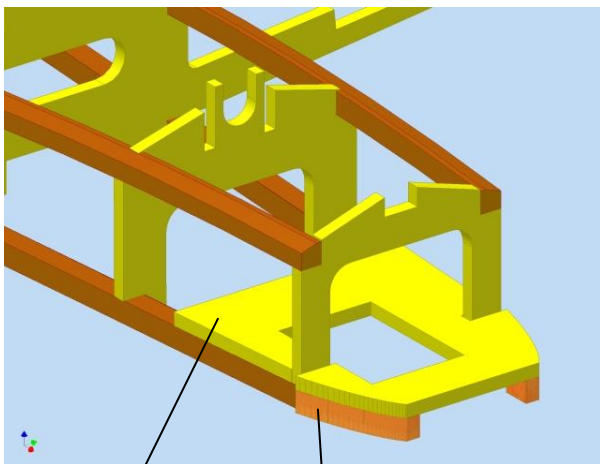
The central structure consists of formers L1 to L5 and balsa ledges L13 and L14. You can build it on the plan or directly on the fuselage to get a good fit.

Attention: Former L1 is inclined 88.5° Use the last side of positioning device.



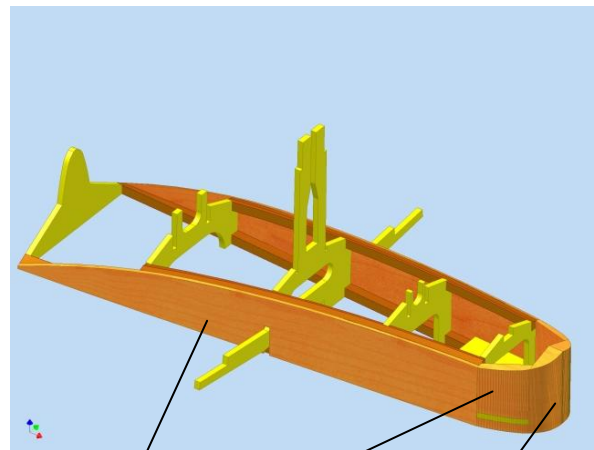
Continue with L7 to L11.

Align this structure perfectly with the fuselage and drill a hole for the 4mm leading bolt L15 through formers L1 and R11 (fuselage).



L7

L8

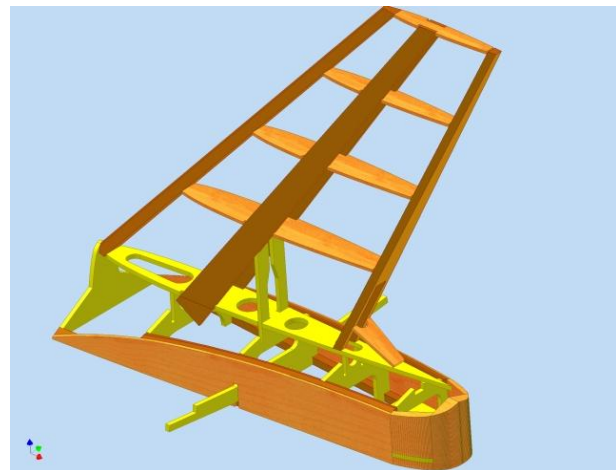
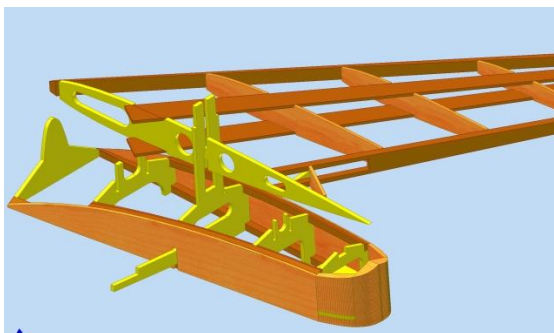


L11

L9

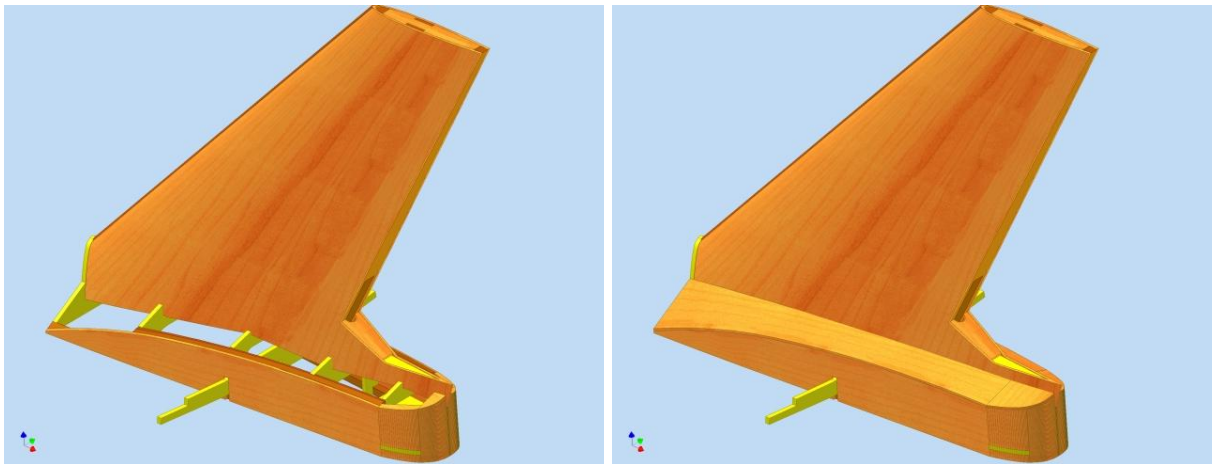
L10

Insert the vertical fin as shown, turn it perpendicular and glue very well.



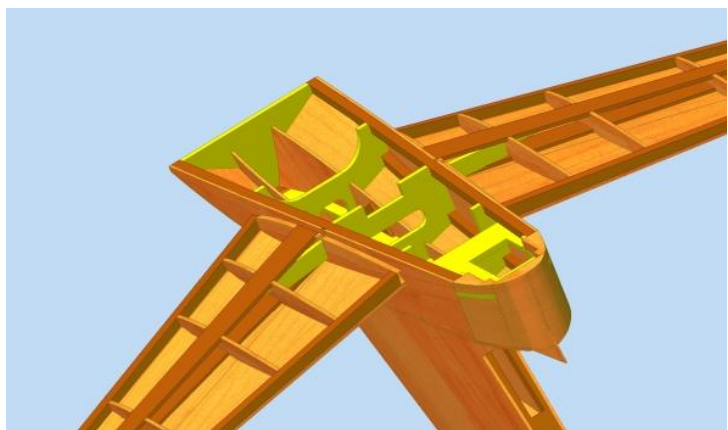
Now you can sheet with 1,5mm balsa.

Before sheeting the upper part of the central structure, drill holes for fixing screws through L7 into R23/24 (fuselage). Exact position, see plan sheet.

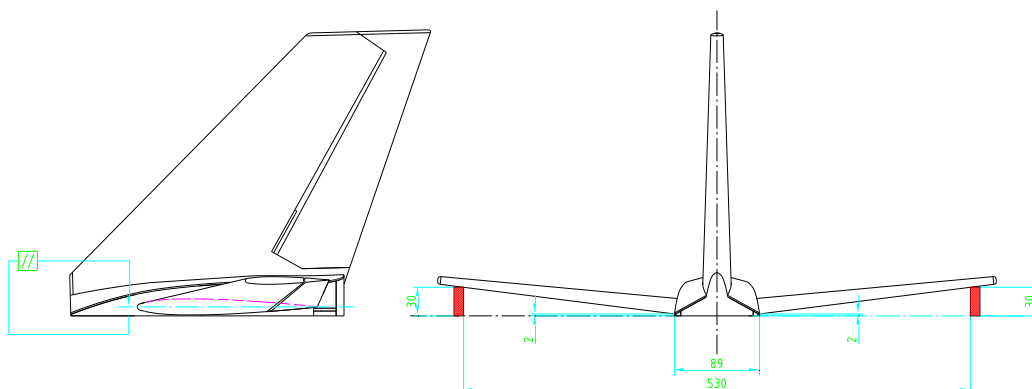


Hinges for rudder and elevator should now be prepared, but glue only when completely finished.

The mating of the vertical stabilizers requires accuracy to get a perfectly aligned tail unit



Please study the following draft



The real scale-freak can form rudder and elevator more detailed

See plan and pictures on CD

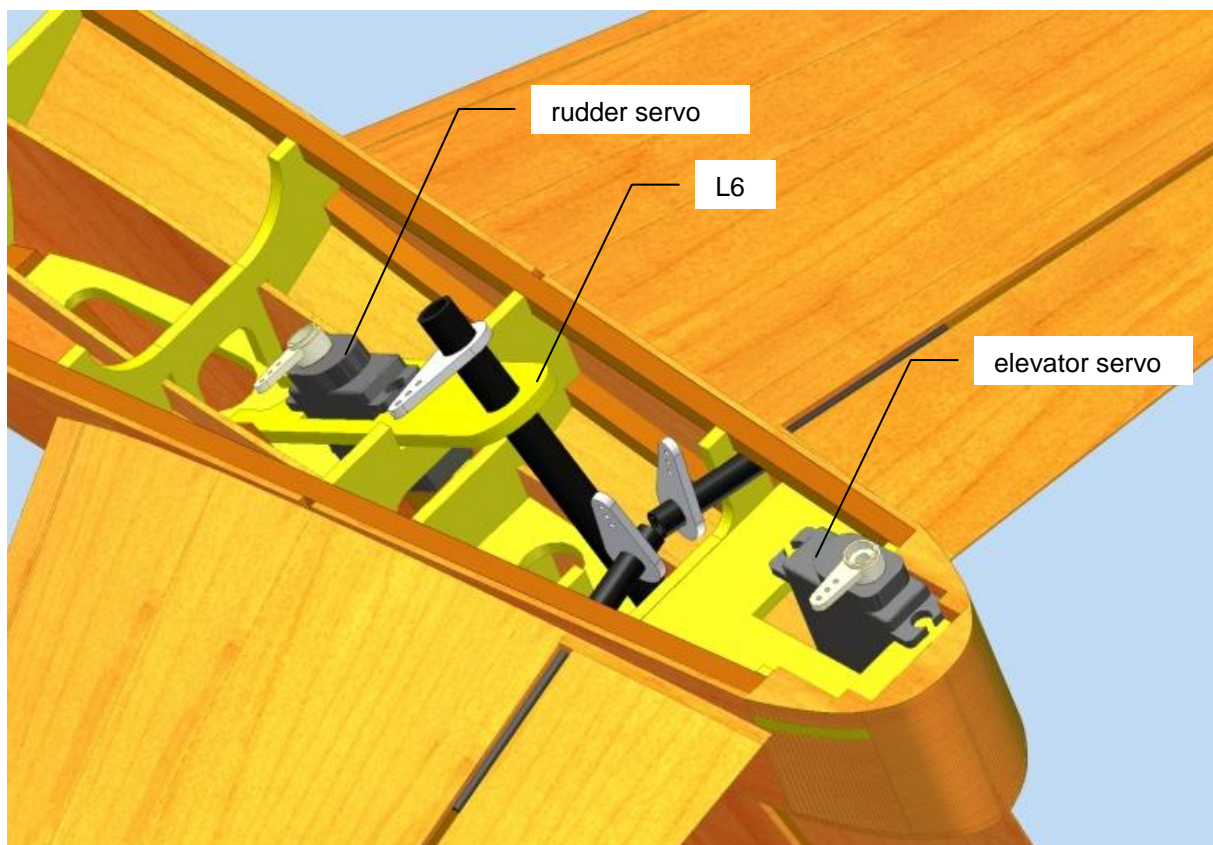
Picture shows elevator

The kit contains conventional end-ribs H7 for elevators and S11 for rudder



Finally you sheet the lower side of the horizontal stabilizer and glue in the servo tray L6.

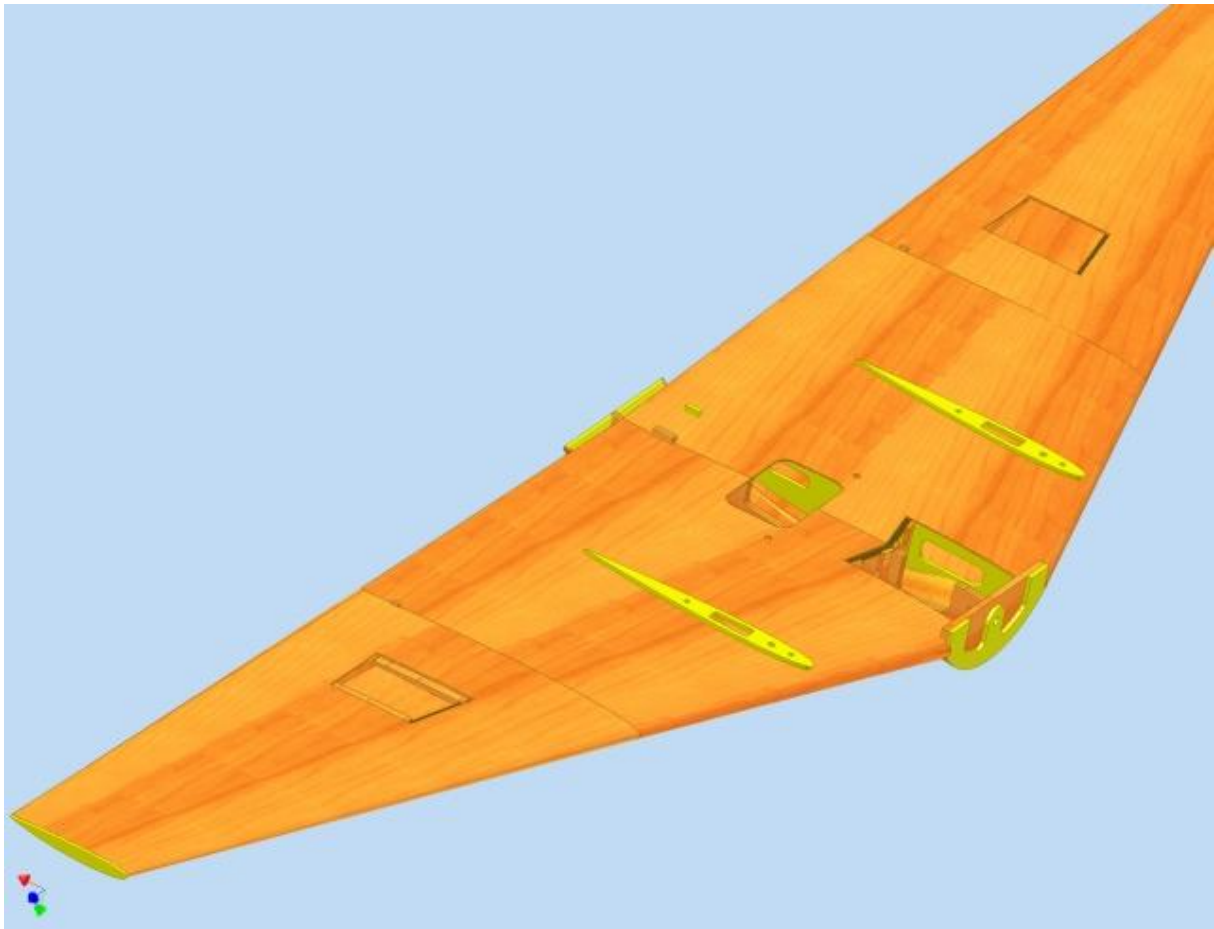
The control horns are carefully aligned and glued to the carbon tubes



Once more: sanding to a smooth finish

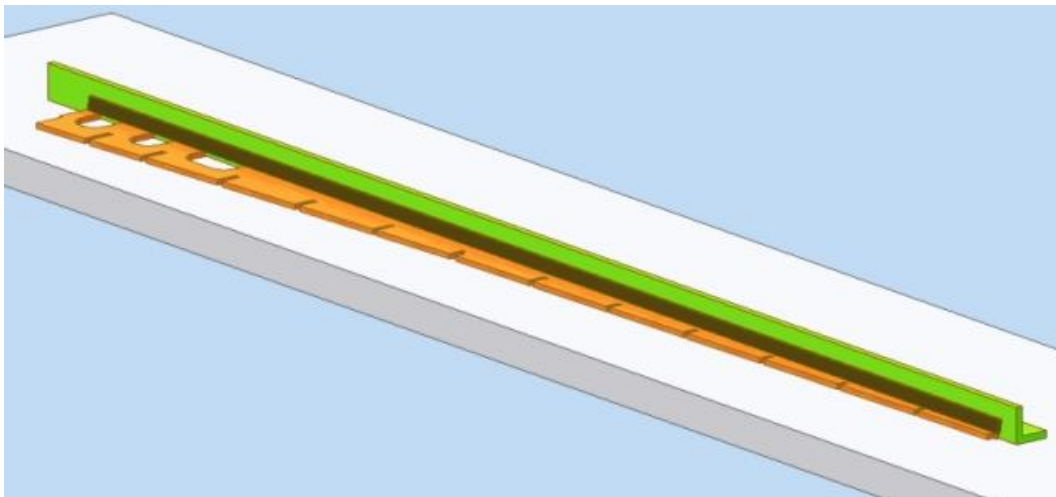
Wing:

Our goal:

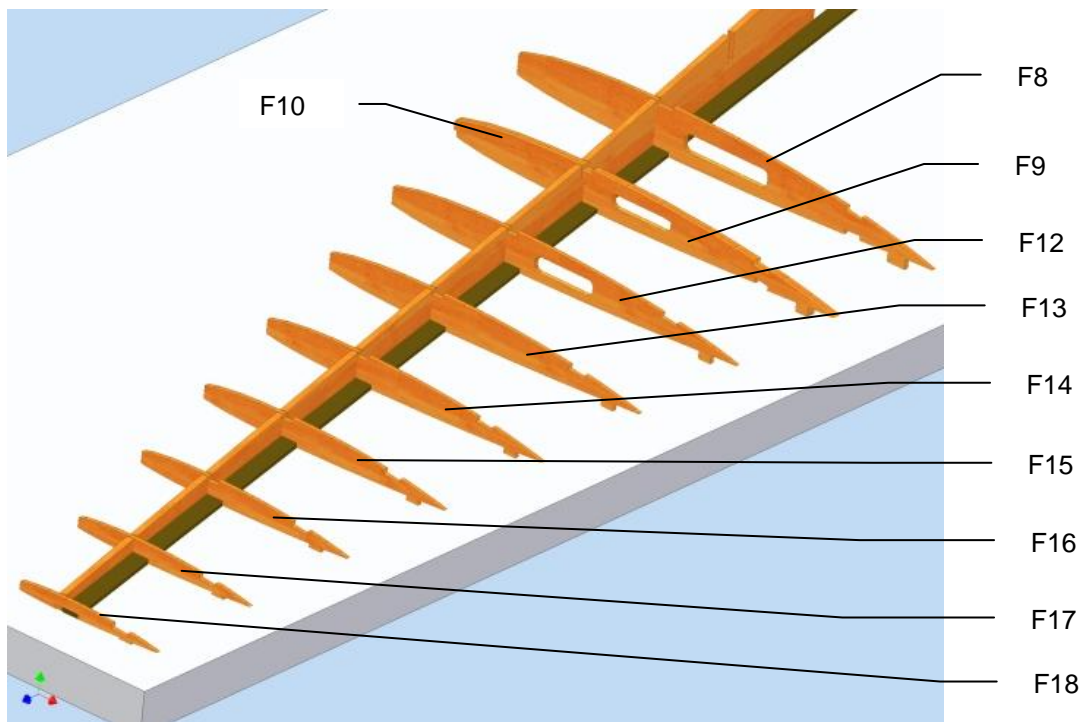


First of all we build two **reversed left to right** main spars consisting of F1 and F27 (fir 8x2x752mm).

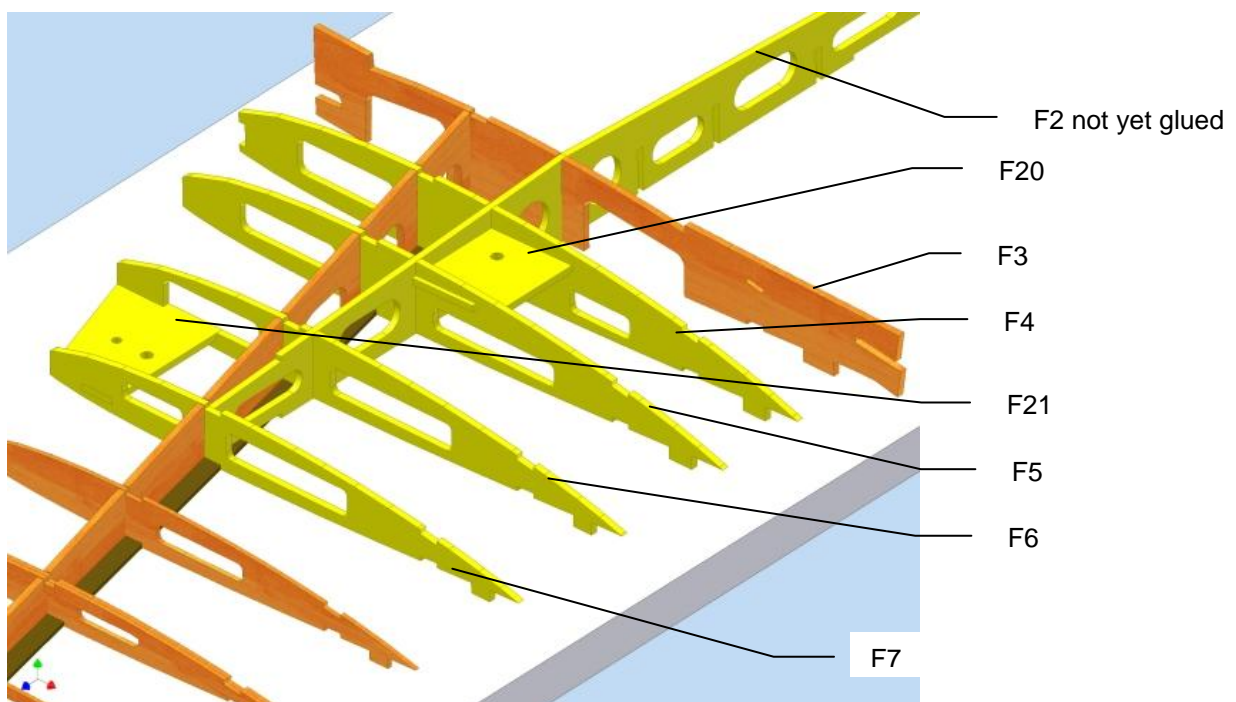
Take care of perfect straightness and good bonding as this is the vital part of the wing



The main spar is fixed on a perfectly even surface on the plan. Slide all ribs F8, F9 and F12 to F18 into the spar and glue. F10 is glued to the outer side of F9. Always be sure the rib-feet stand on the ground.

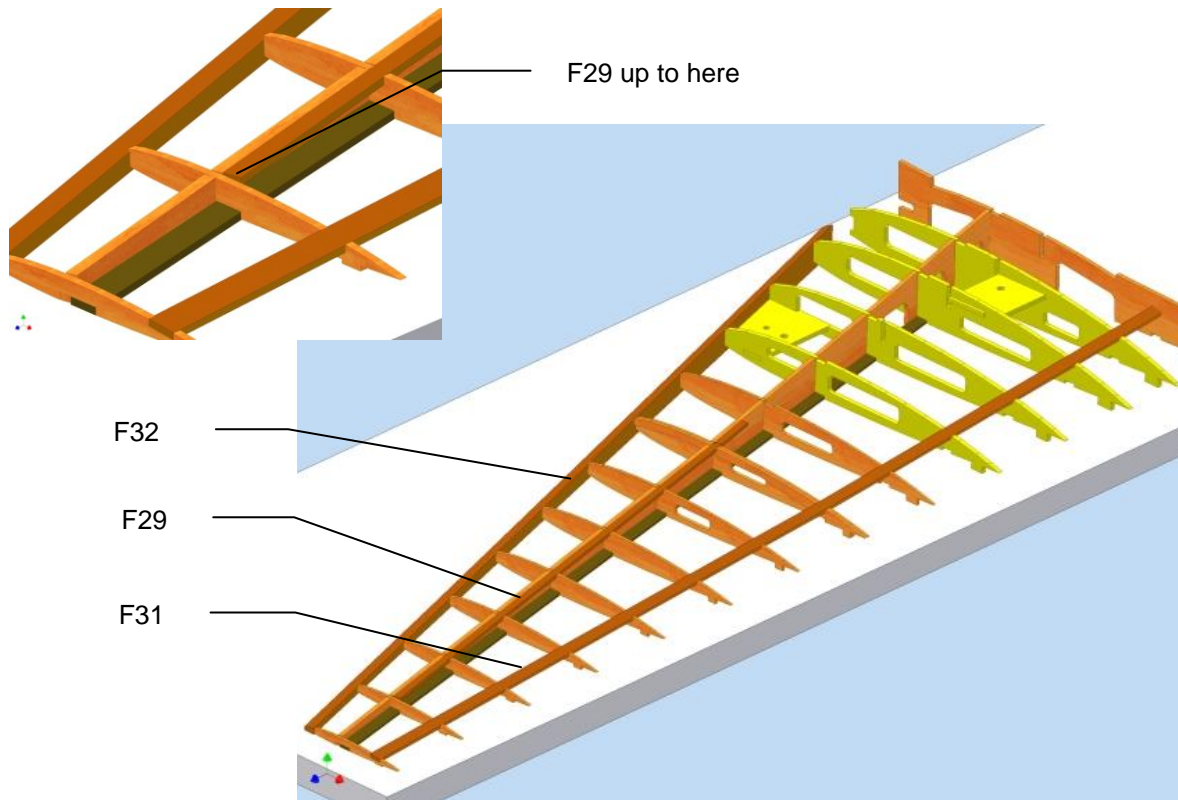


Continue with ribs F4 to F7 and fastening plates F20 and F21. Finally F3. Check-fit F2 but **do not yet glue!**



Put leading edge F32, with straight side on the building surface and glue to the front end of the ribs.

F29 (5x2x405mm) goes only to rib F17 and is well glued to the vertical spar. Insert F31 (8x2x740mm) and slide it into the central balsa-rib.

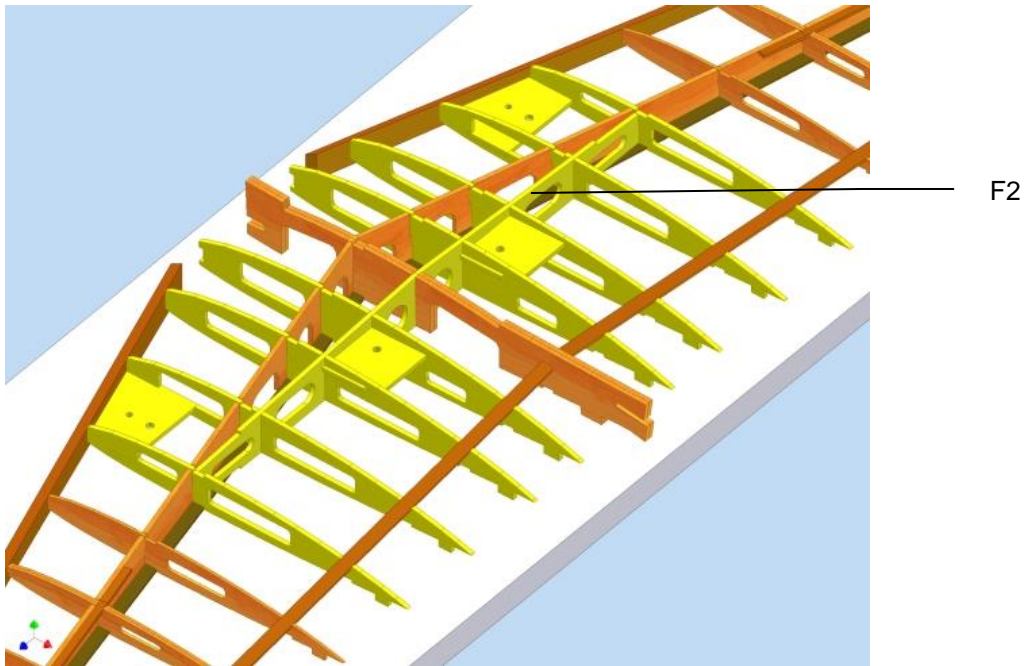


In the area of fixation screws for the wing and nacelles, you should fill with balsa, up to the sheeting surface. Makes hole-drilling easier afterward.

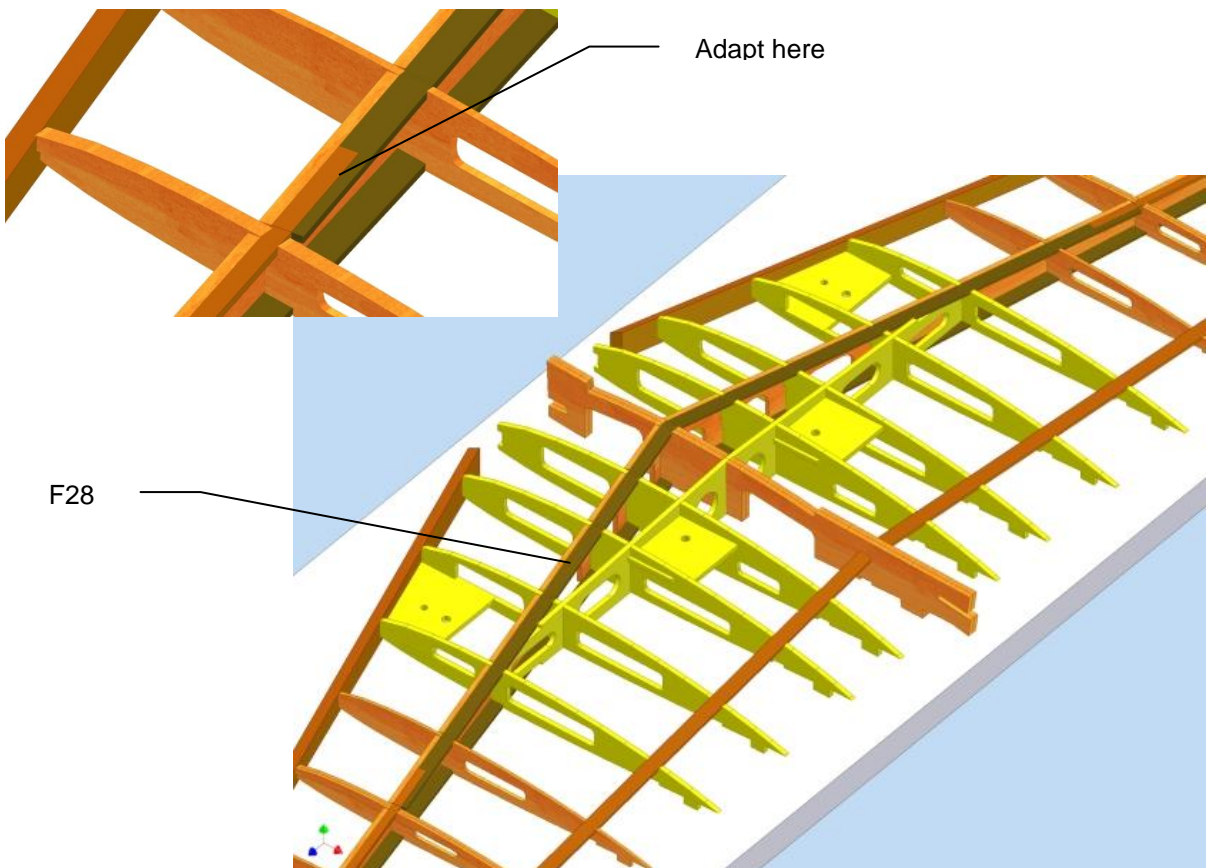
See picture below



Now the two halves are mated together and the center spar F2 can now be glued in place.



Adapt the inner fir-spars F28 to F29 and glue to vertical spar F1.



Leave the wing-frame on the plan. Sand or plane the leading edge to profile. and sheet the whole surface with 1.5mm balsa. See pictures and the wing plan for arrangement of the sheeting plates.



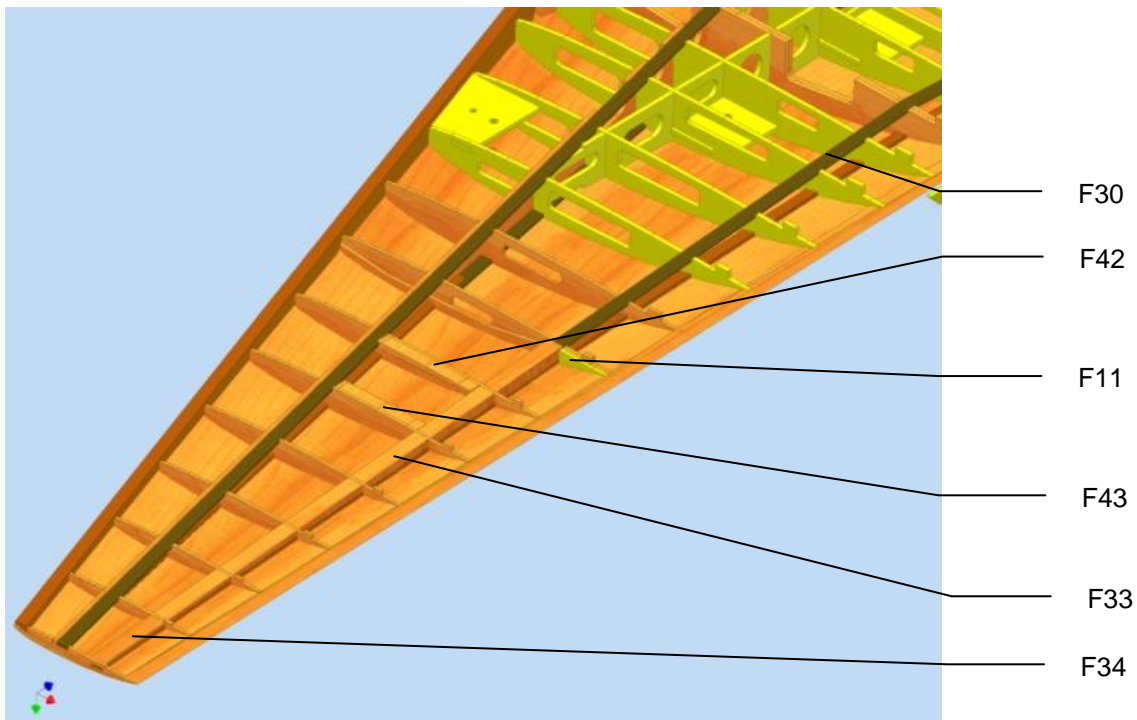
Sand the upper surface, including leading edge before removing the wing from the plan.

Now you remove the wing and turn it over to work on the inside.

First of all, you drill all holes through the sheeting (after having sheeted the lower side, you couldn't find the holes again).

Glue in all fillers F33 and F34(shorter). Later we will cut out the aileron through the center of these fillers.

All other parts are glued in as shown below.



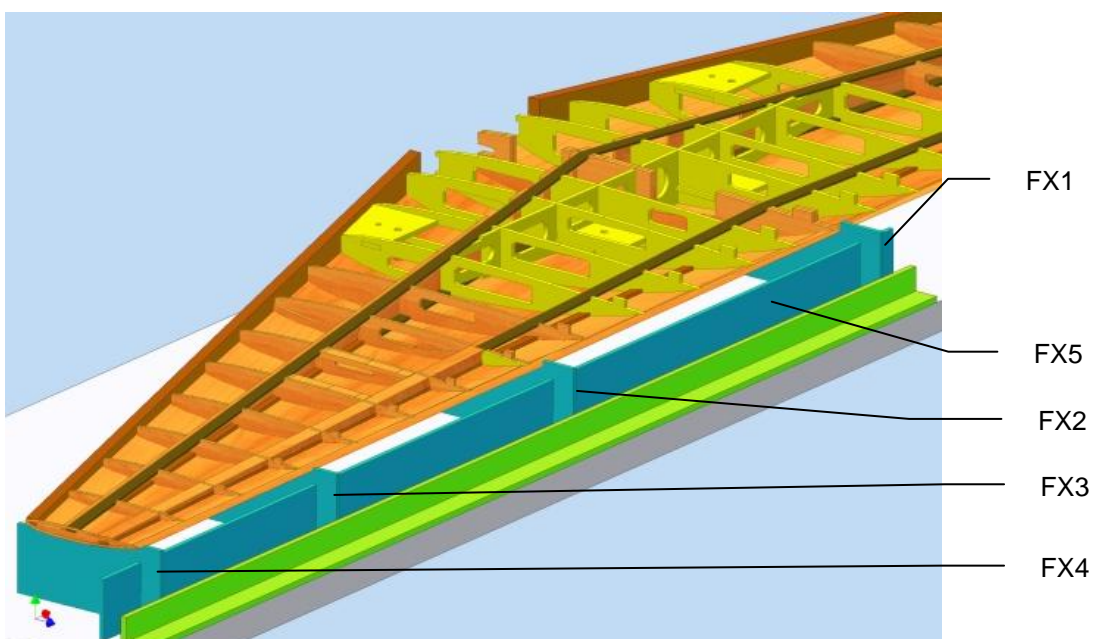
Fill also here in the area of the fixation screw for the nacelles and the wing-screws with balsa



Before sheeting the lower side the following works should be done:

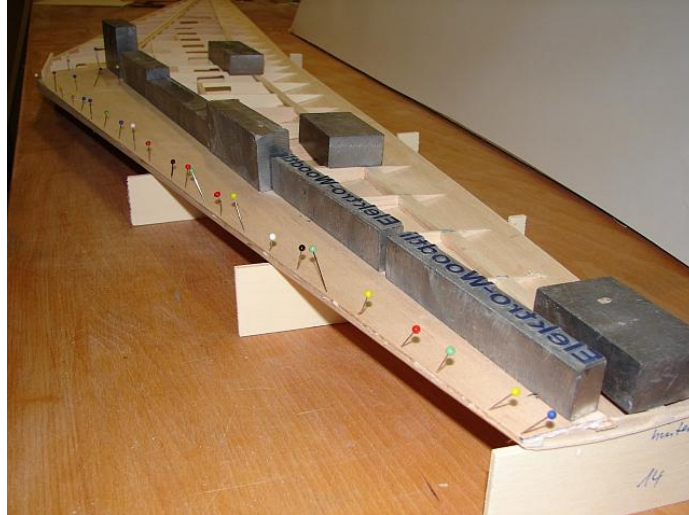
- Cut away all rib-feet
- Sand all fillers F33 and F34 to fit profile
- Sand leading edge to fit profile
- place servo cables for aileron-servos
- mark the ailerons on the upper side (poke some pins through the middle of the fillers and mark)

To get a perfect wing, build a jig of FX1 to FX5. **Don't glue** as we will take it apart and build it together again reversed left to right for the other wing-half.



Sheeting of lower side is similar to upper side. Cut out the holes for servos and in the middle before gluing. For size of servo-holes you can use the servocover F38.

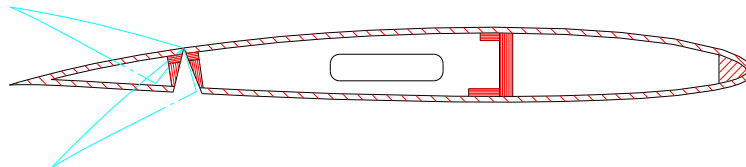
Take care, that your wing lays perfectly on the jig.



When both halves are sheeted, you glue the end ribs F19 on

And what now? Of course, sanding

When you are satisfied of your wing surface, you cut out the ailerons and shape it as shown here:



Now it's time to mount the adapting ribs for the nacelles F22 to the surface. You first drill the fixing hole through the wing. It must fit the rib-hole. The rib must furthermore be perfectly aligned to the flight direction. Look at the wing-plan (section through nacellefixation) for more information.

To check, put your wing on an even surface: Both ribs must lay perfectly on the surface



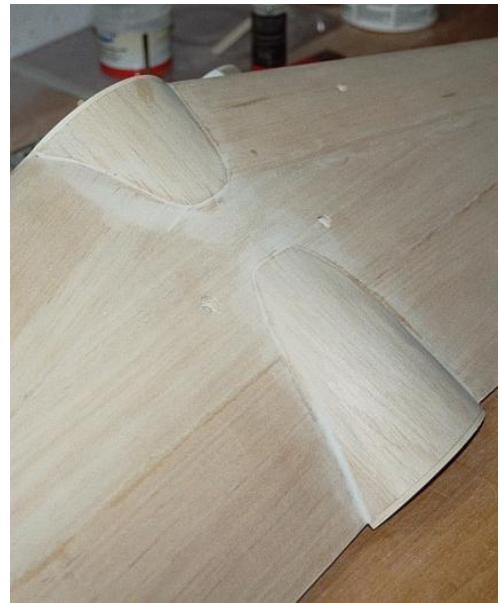
The middle part of the wing challenges you to some artistic works.

First glue F23 to F24 and both of them to the wing. Insert the bolt F41 and check with fuselage before gluing

Drill the fixation holes down into the fixation plate in the fuselage

Following work is best done with wing fixed to (protected) fuselage.

F25 together with F26 is glued to the wing and now starts the artistic part:



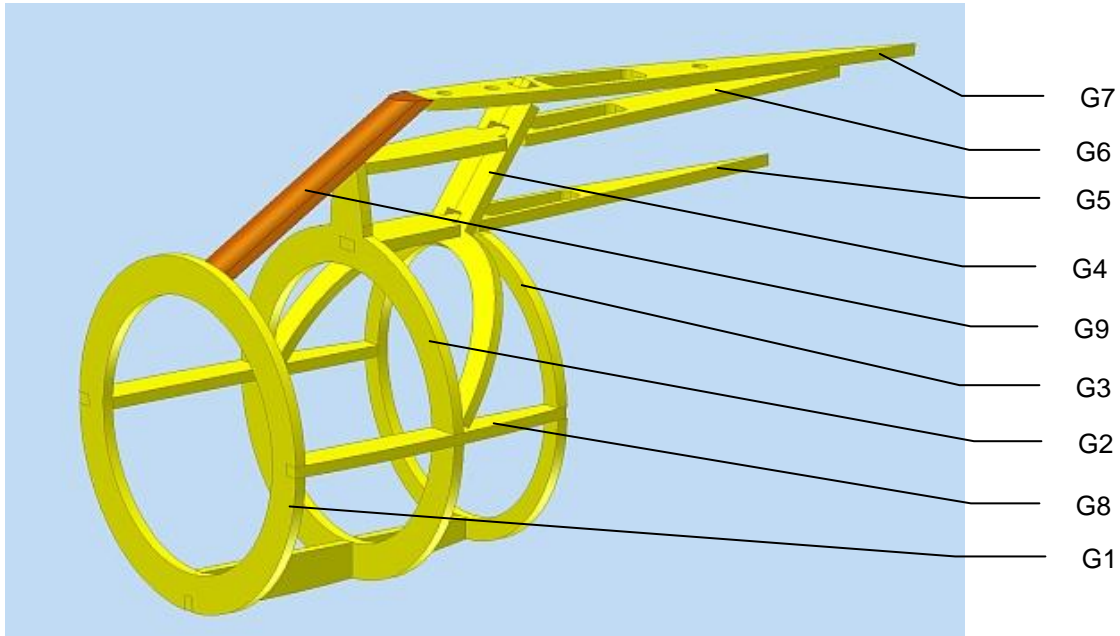
Maybe you use cardboard to find the shape of the balsa 1.5mm-sheeting

Another little challenge:

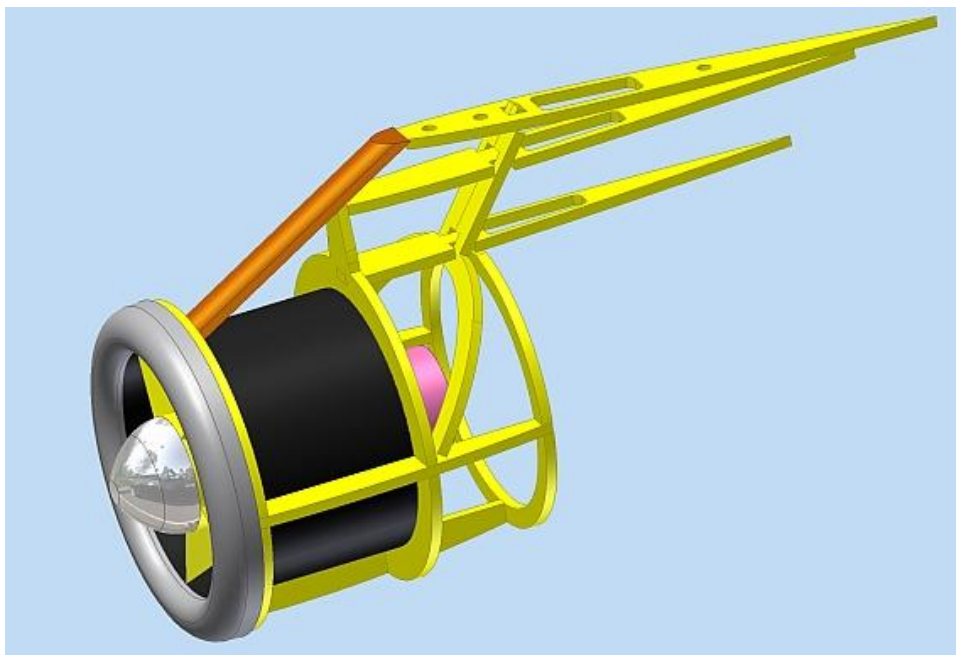


Nacelles:

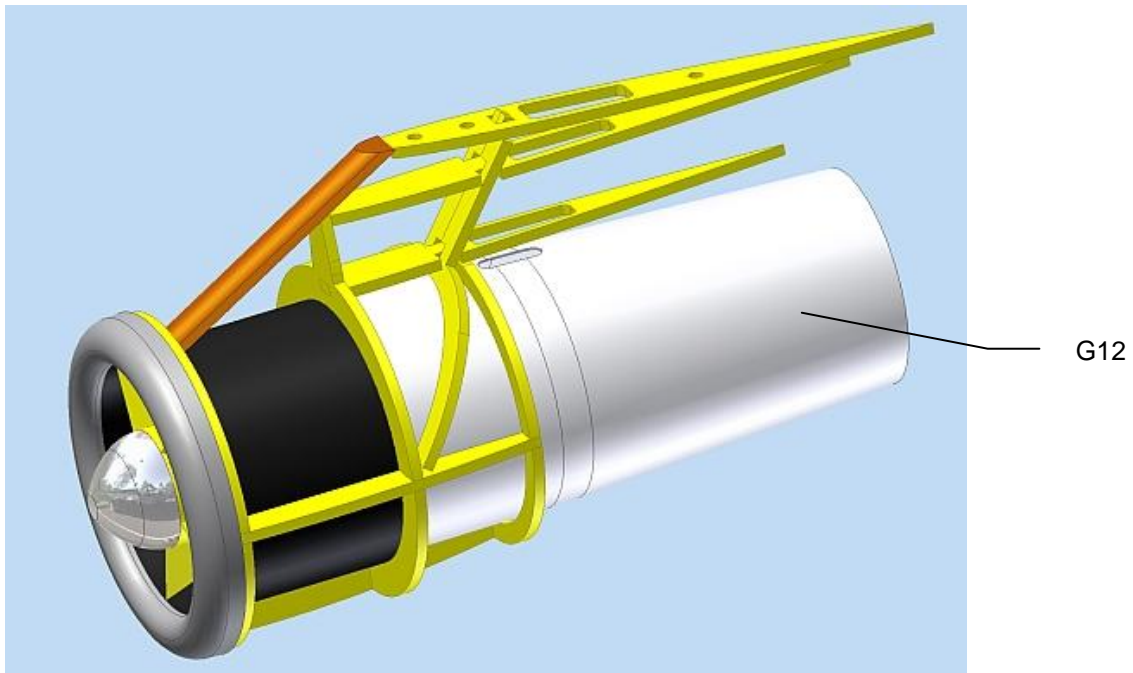
Designed for Wemotec MiniFan 480. For other makes you need an appropriate inlet-ring.



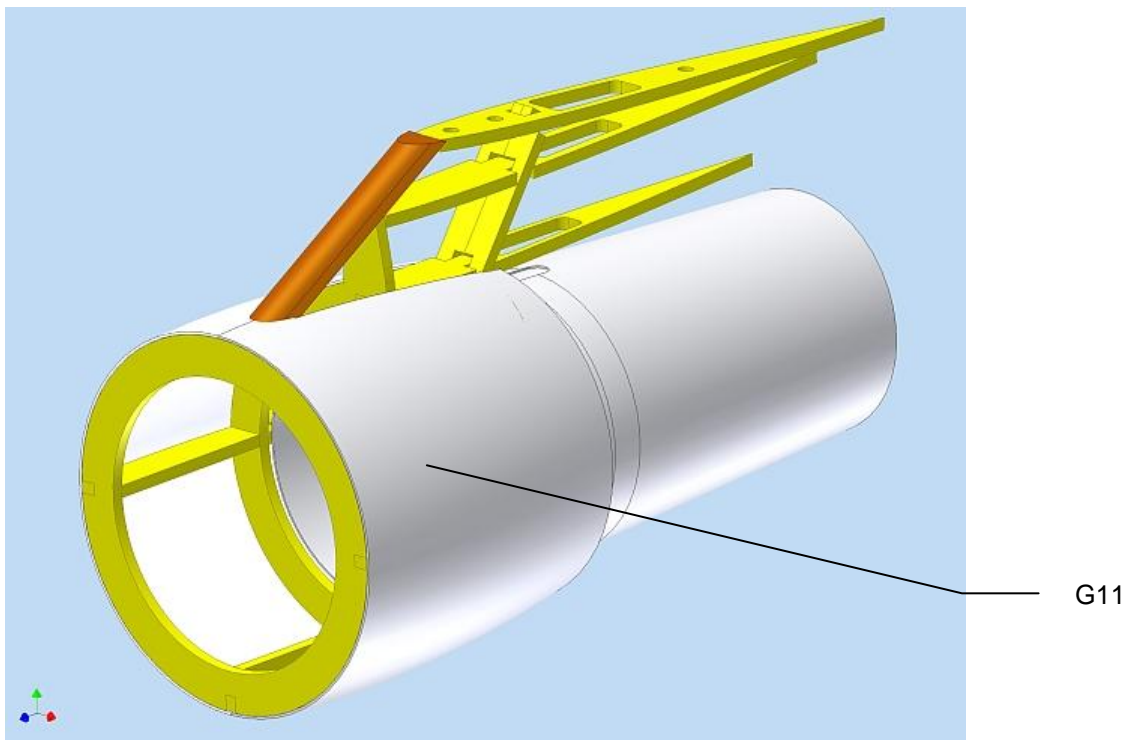
Remove the flanges of the Wemotec MiniFan and glue the inlet-ring to the fan-housing. Slide in the fan. It is fixed with some small screws through the inlet-ring.



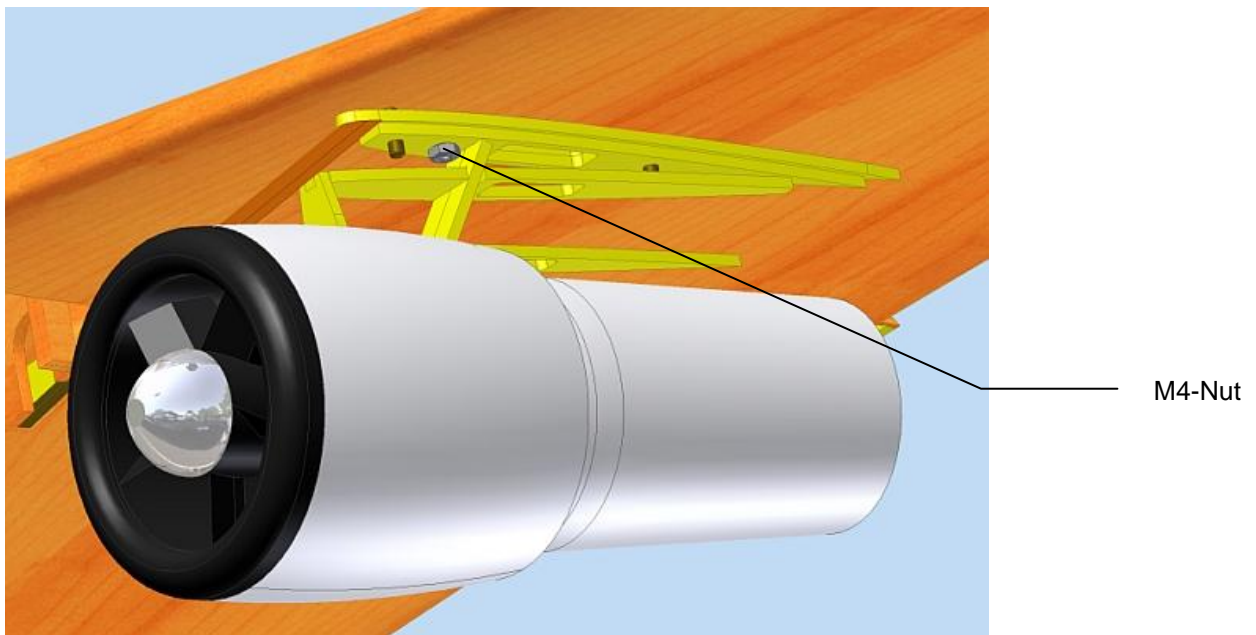
The exhaust pipe is moved from behind to the fan-housing. Make an opening for the electrical cables. The exhaust pipe is glued to the frame **but not to the fan**.



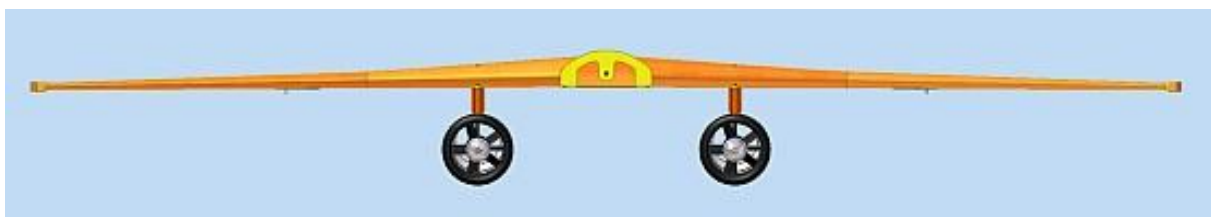
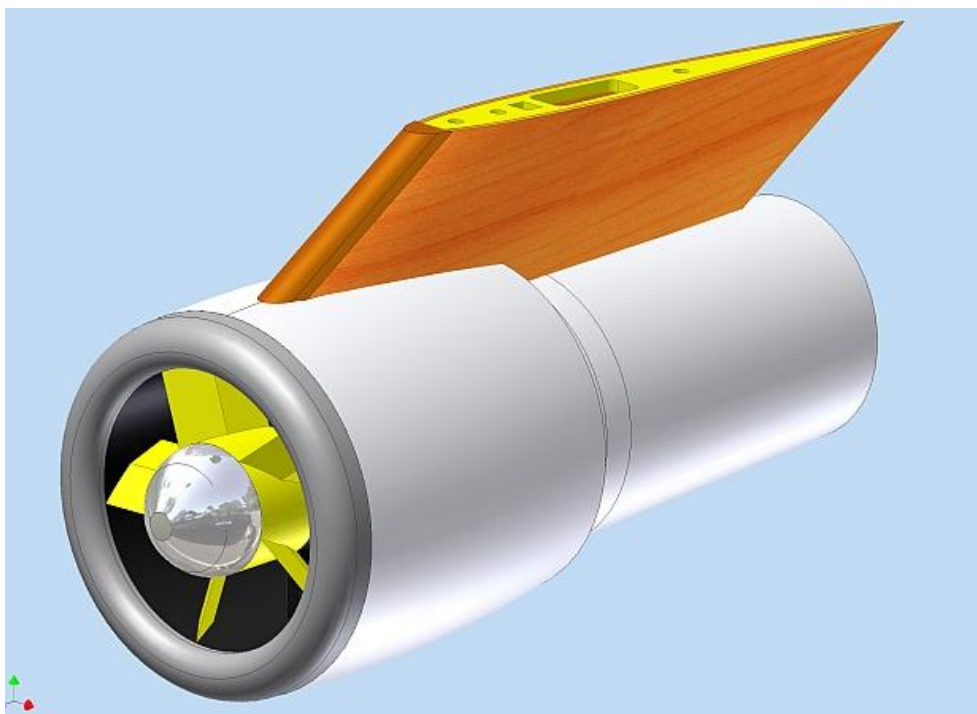
Remove the fan and attach the two halves G11



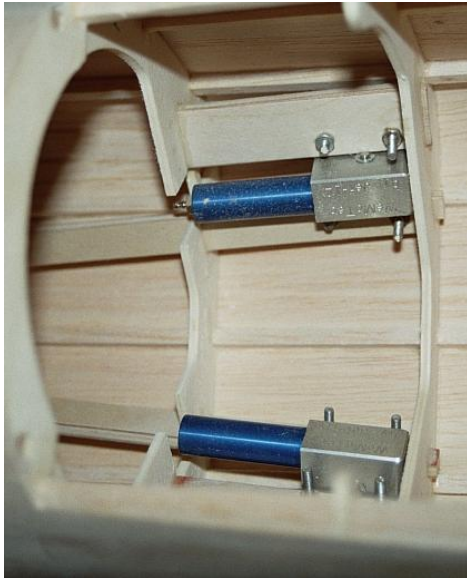
Fit the nacelle to the wing. If all is correct, you bond on a nut as shown below.



Sheet with 1.5mm balsa and sand



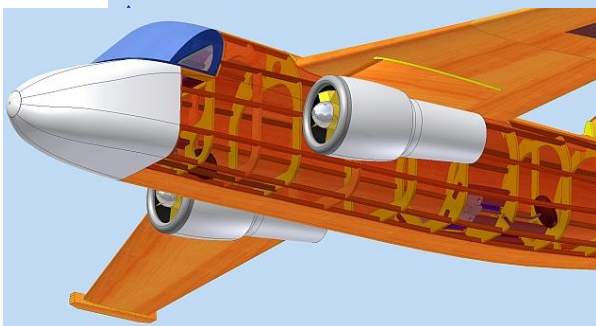
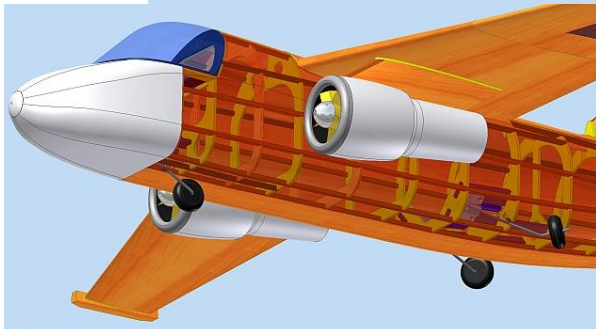
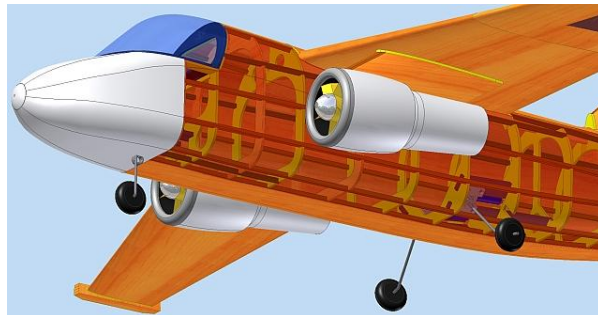
Finish



Hardpoints for RG-fixation are already built-in if desired.

Use RG with horizontal flange and width of housing of 14 to 16 mm (i.e Wemotec Mini 30)

The plan shows simple legs of wire, but you are free to use more scale legs. The openings in the fuselage have to be fit to your gear legs



That's the other way to launch your S3A VIKING. Glue in a reinforcement plate between former R2 and R3 and screw in a hook directly behind R2



Before maiden, check the correct angle between wing and horizontal stabilizer.
It should be **1° to 1.2°**

To get a correct center of gravity should not be difficult. The fuse has enough space to move parts

Correct CG is **125 – 135 mm** from front former of wing
(see plan)

We wish you lots of beautiful flights with your VIKING S3A.

And once more:

Please contact us by mail to k.eich@keiro.ch if you have questions concerning building or flying the VIKING.

You can ask in German, English, French, Italian and Spanish, but I will answer in German or English

Thank you, hope to hear of you