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glattCAD
MODEL AIRCRAFT

DESIGN.
PRECISION.
PERFECTION.

HEINKEL HE-162 SALAMANDER



MANUAL PART 3: WINGS

- RC MODEL AIRCRAFT - 25% SCALE
 - WINGSPAN 180 CM
 - LENGTH 227 CM
- TAKE OFF WEIGHT 12 .. 18 KG
- CAD DESIGNED - CNC MILLED
 - WOOD CONSTRUCTION
- SUPPLEMENTED WITH COMPOSITE PARTS
 - JET OR EDF DRIVE

HE-162 SALAMANDER 25%

RC MODEL AIRCRAFT
SPAN. 180 CM • LENGTH 227 CM
TAKE OFF WEIGHT 12 .. 18 KG

PART 1: FUSELAGE

PART 2: EMPENNAGE



PART 3: WINGS

Questions? 

INFO@glattCAD.DE

Have Fun!

Christoph Glatt.

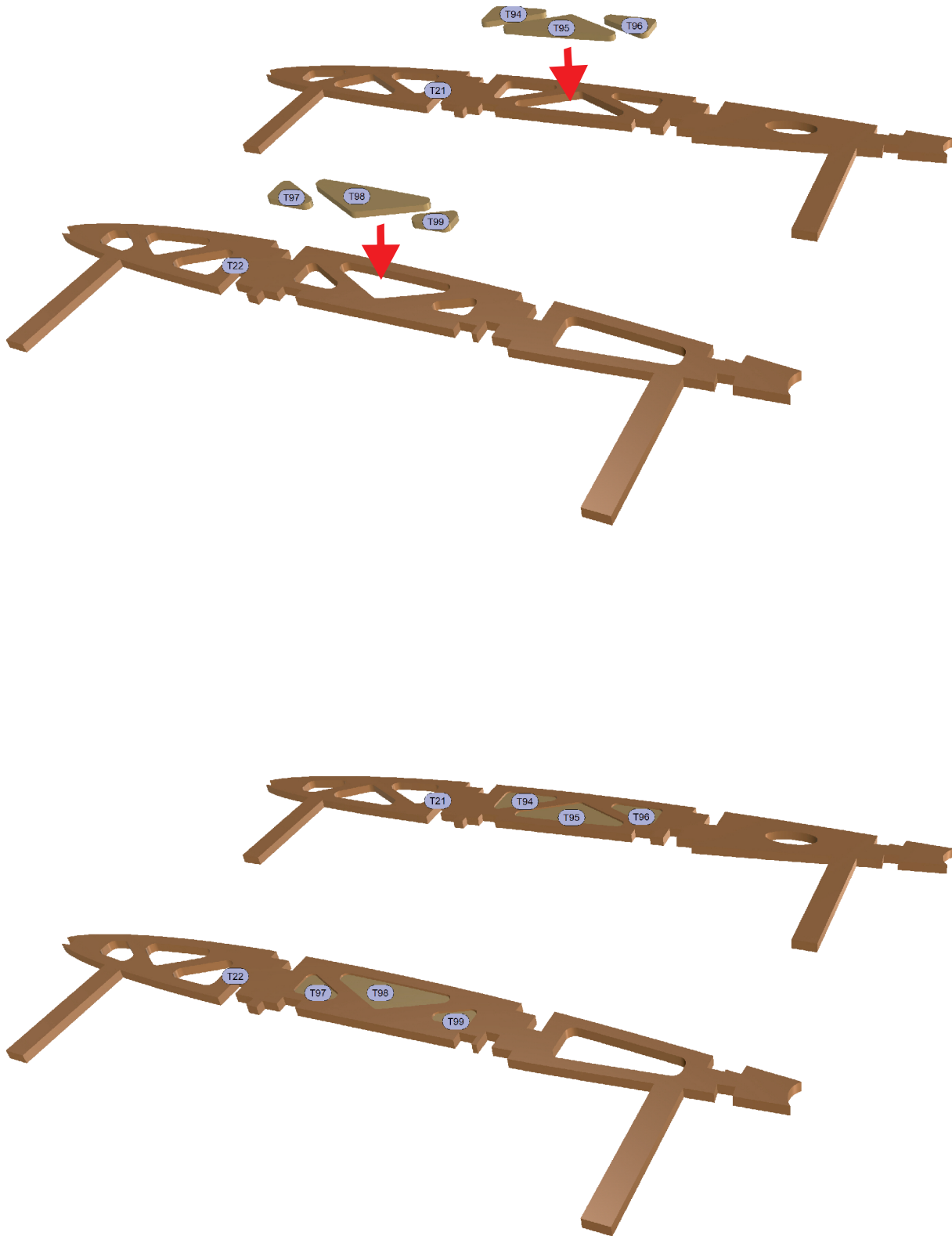
Most images depicted in this manual will be self-explanatory. You will find hints and tips in form of additional text where necessary. Please browse the manual first to get an overall impression. If you are not sure what step to do next skim the pages ahead and try to find the idea behind the design that is not completely comprehensive to you in the moment.

Cut out the pieces and parts from the milled boards using a box knife or a similar sharp tool. Turn the board on its back so you can better see the small tabs that need to be cut. If you break parts by accident this is not a problem. Wood is patient. Modelers are used to glue things together (again).

Basically you should always test-fit the parts first before glueing. You can take PVA, CA or any type of glue that is usually taken in wood model making. Use resin for the typical highly stressed bonds and feel free to add some carbon stringers, wooden reinforcements, ... where you find it useful (but: keep additional weight in mind).

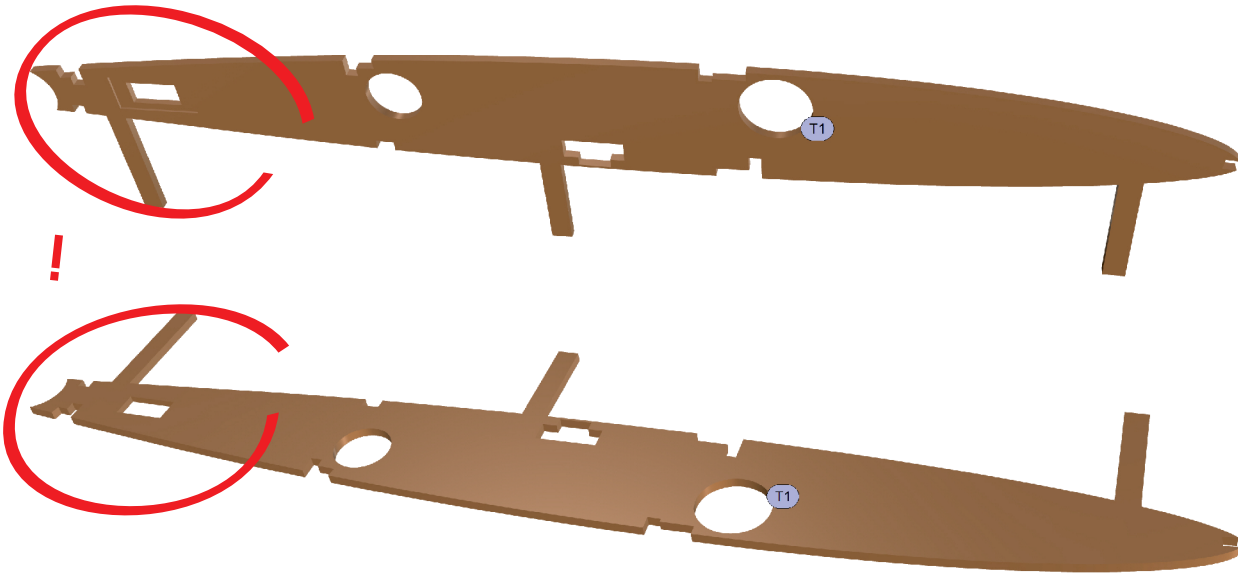
Have fun!

1

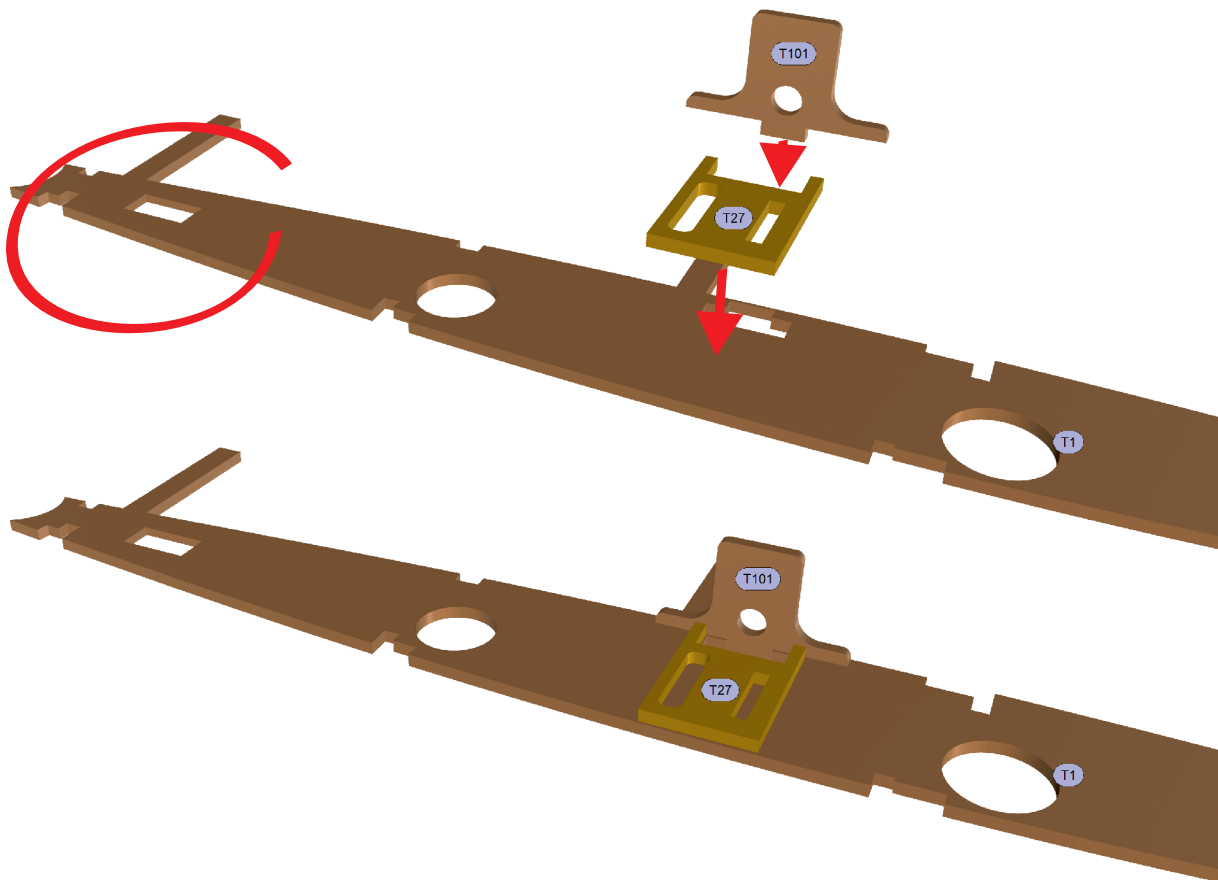


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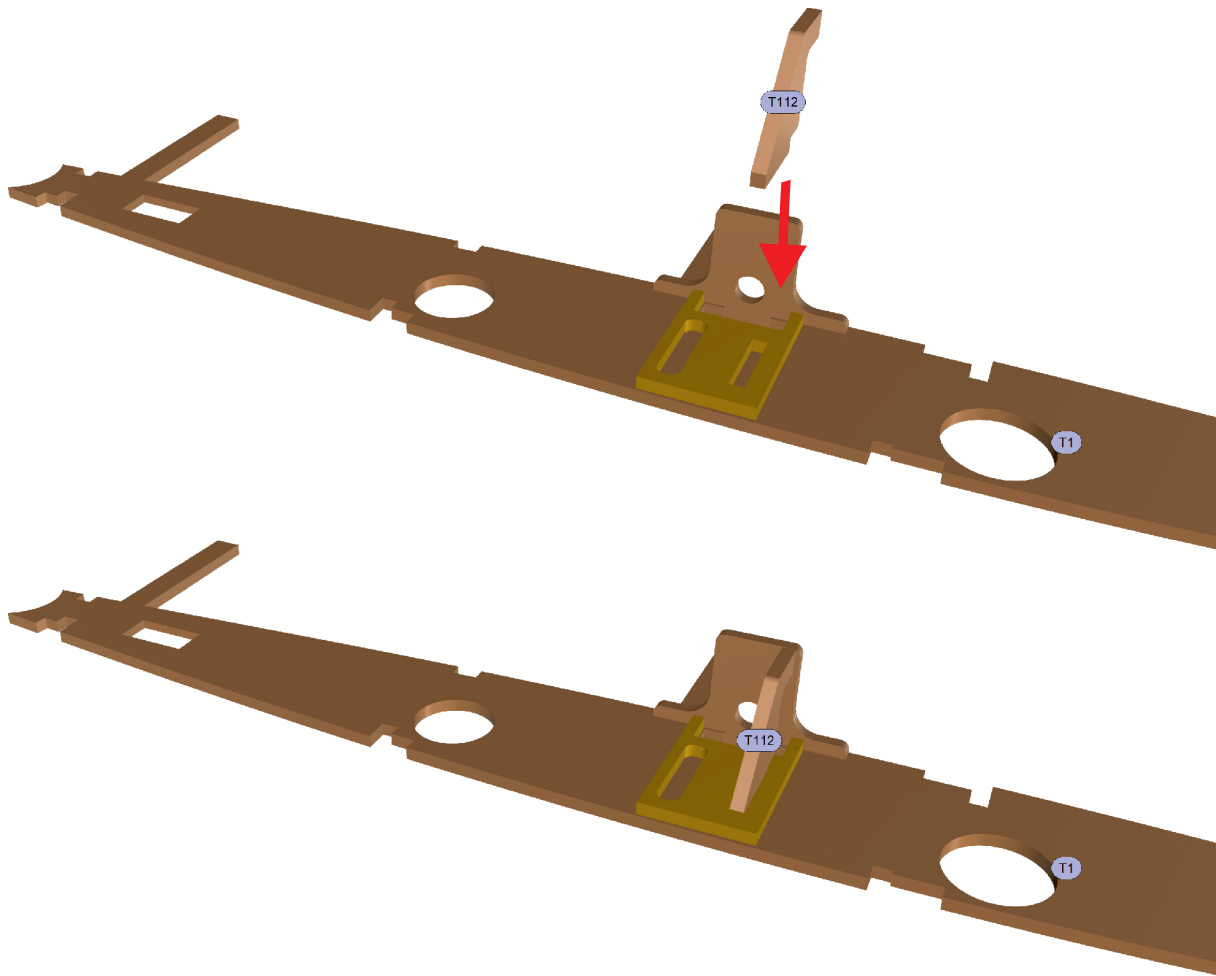
2



Please note: the root ribs for the left and right wing differ.

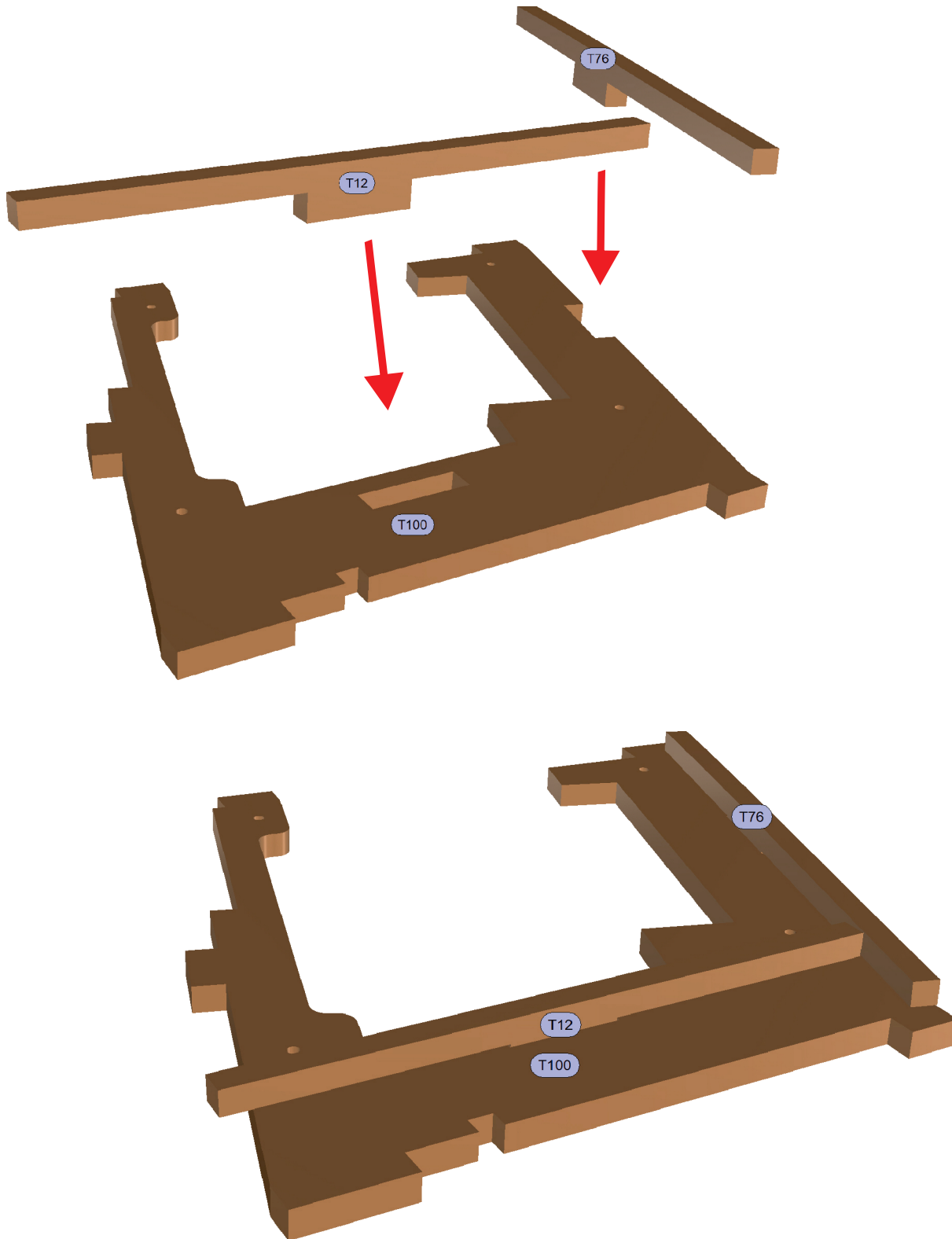


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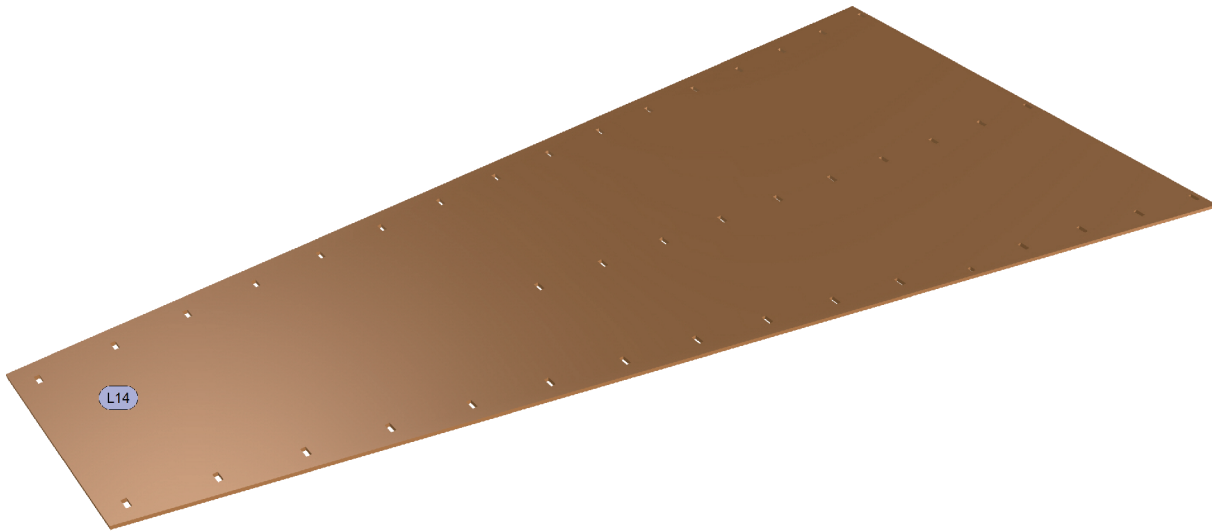


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4

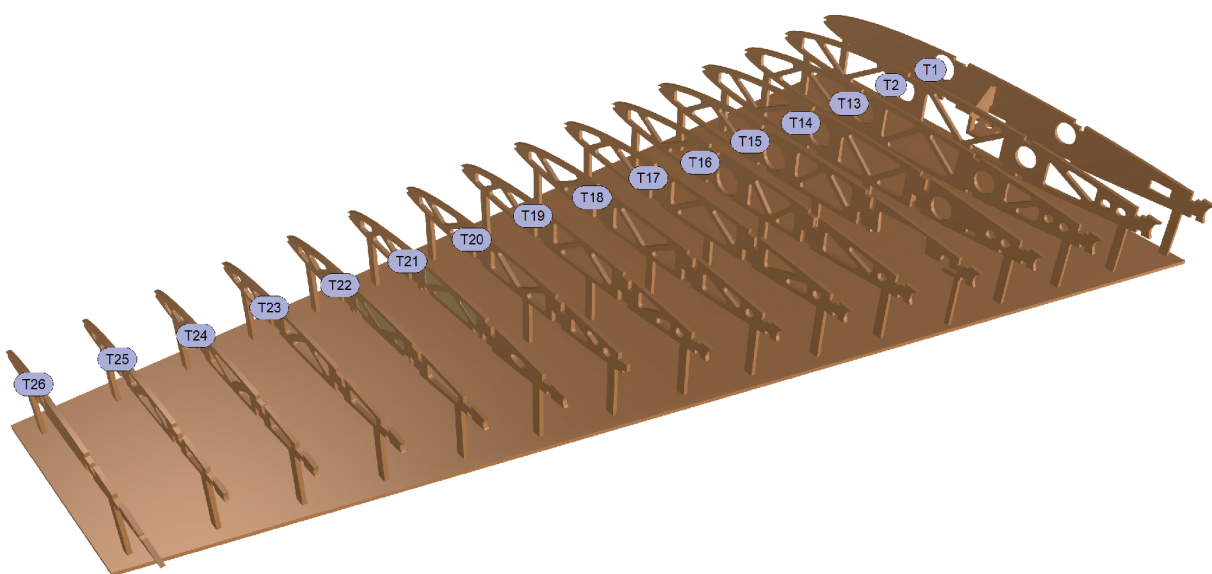


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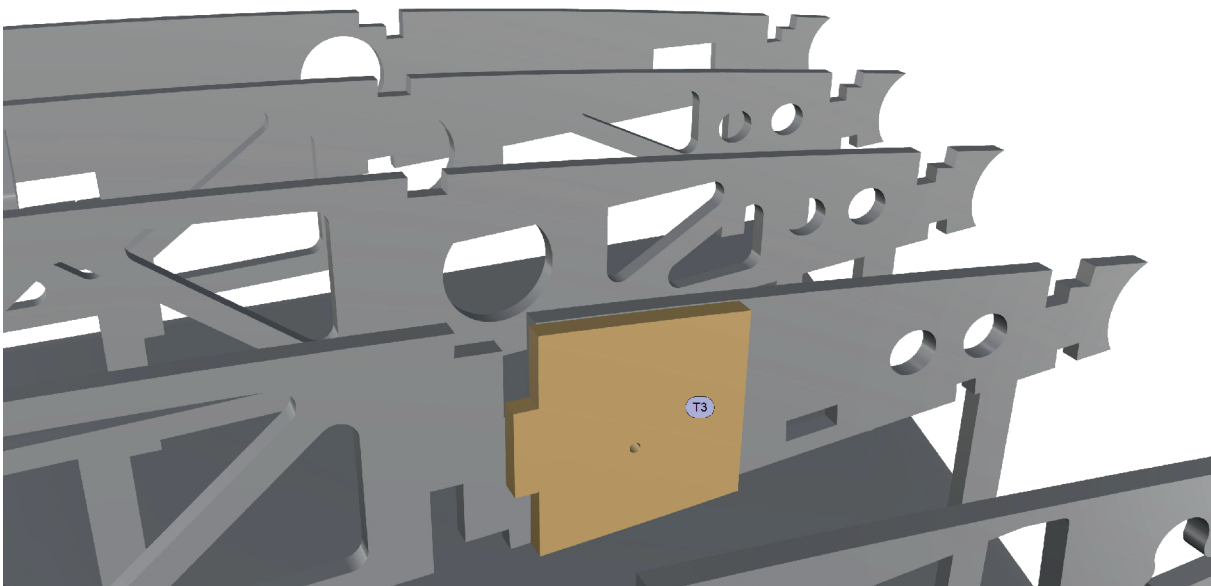
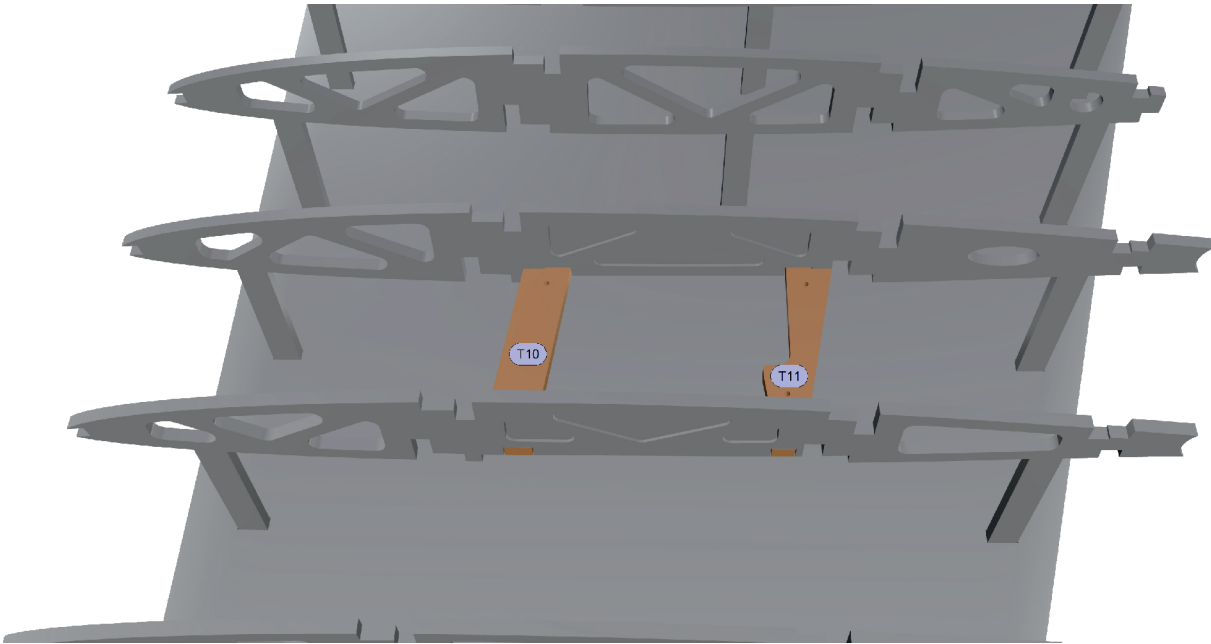
The auxiliary jig is used for both the left and right wing. Therefore, please insert the legs of the ribs into the grooves and do not glue!

You start building the left wing. The construction of the right wing is not shown in this manual but it works in the same way.

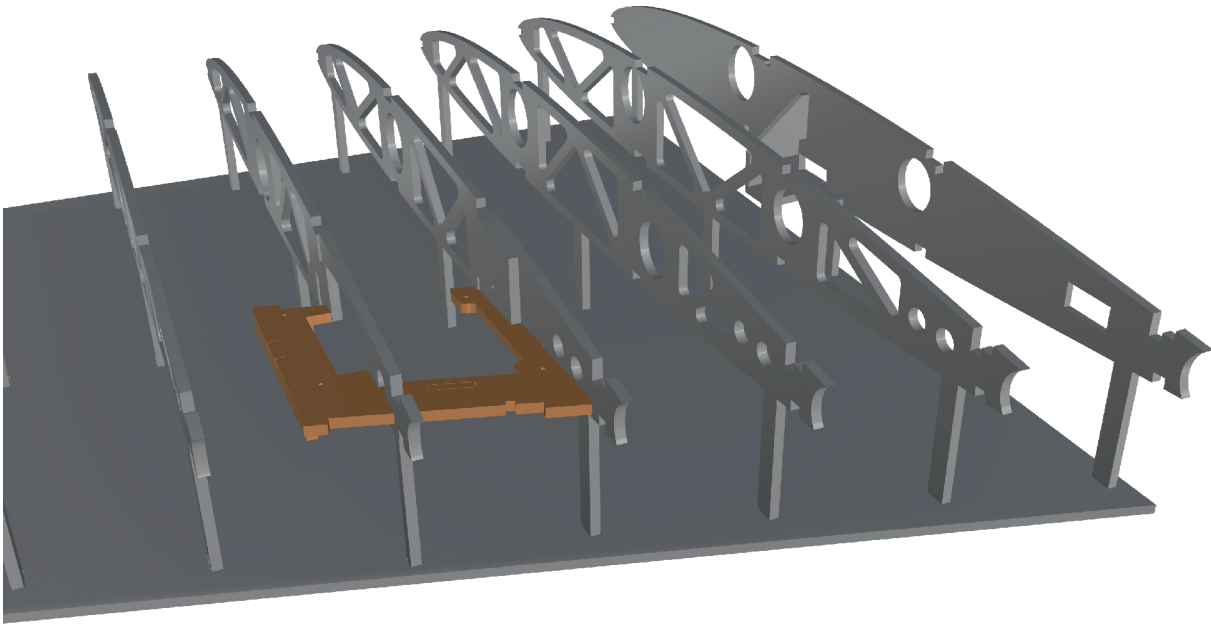


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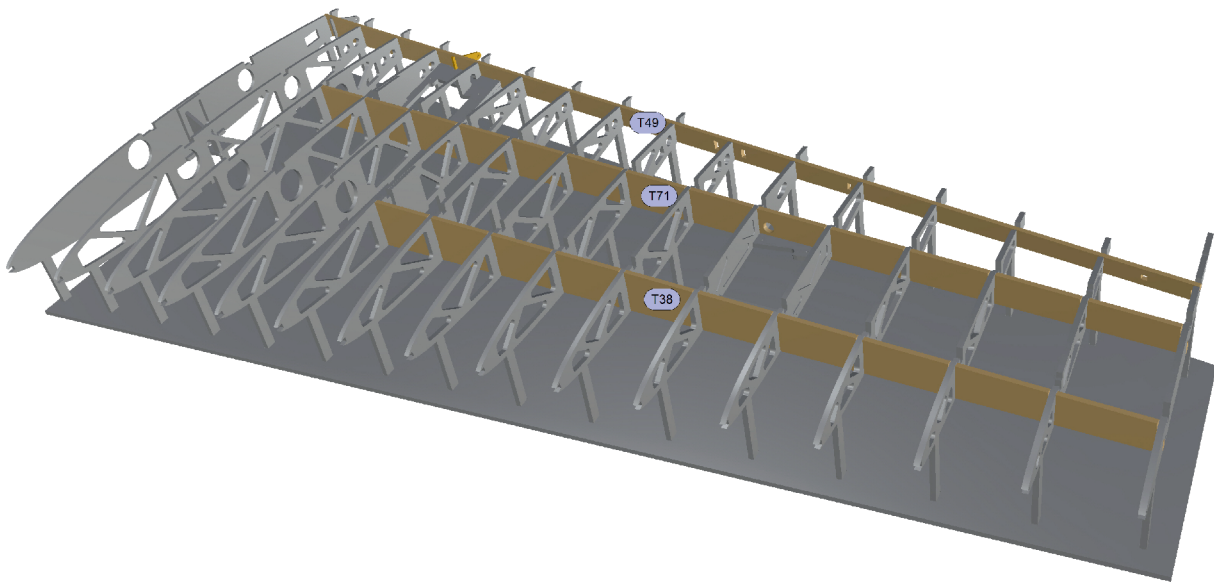
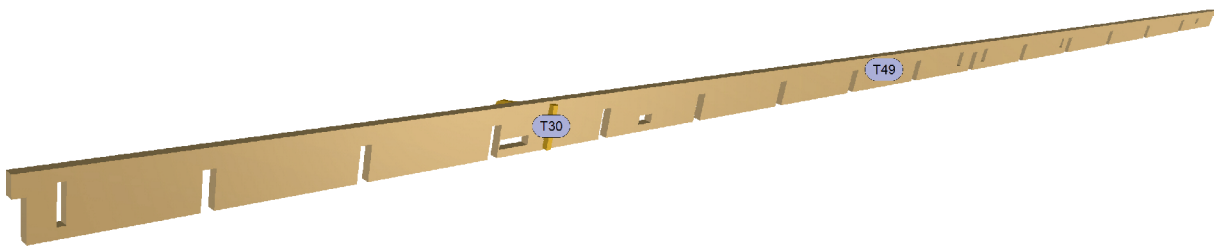
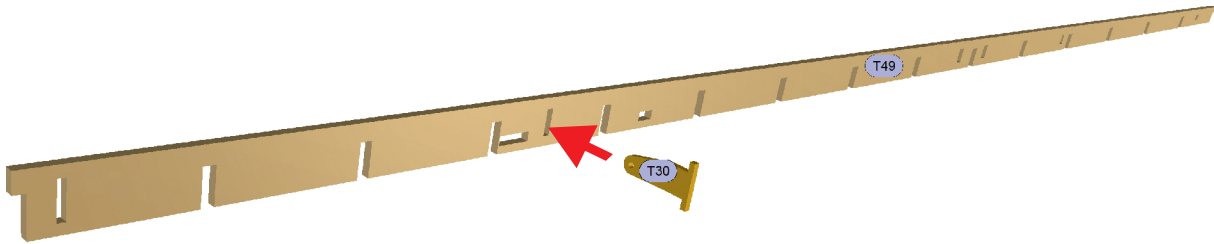
AILERON SERVO FRAME,
WING CONNECTORS END PIECE



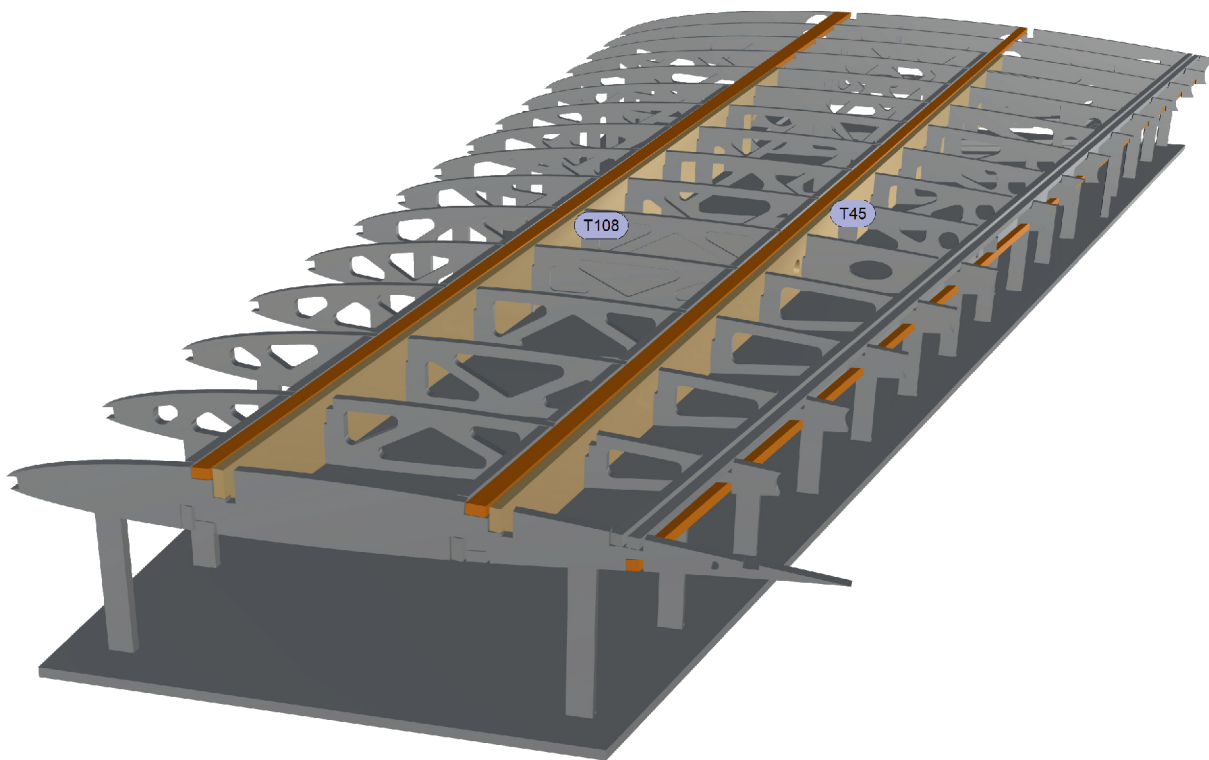
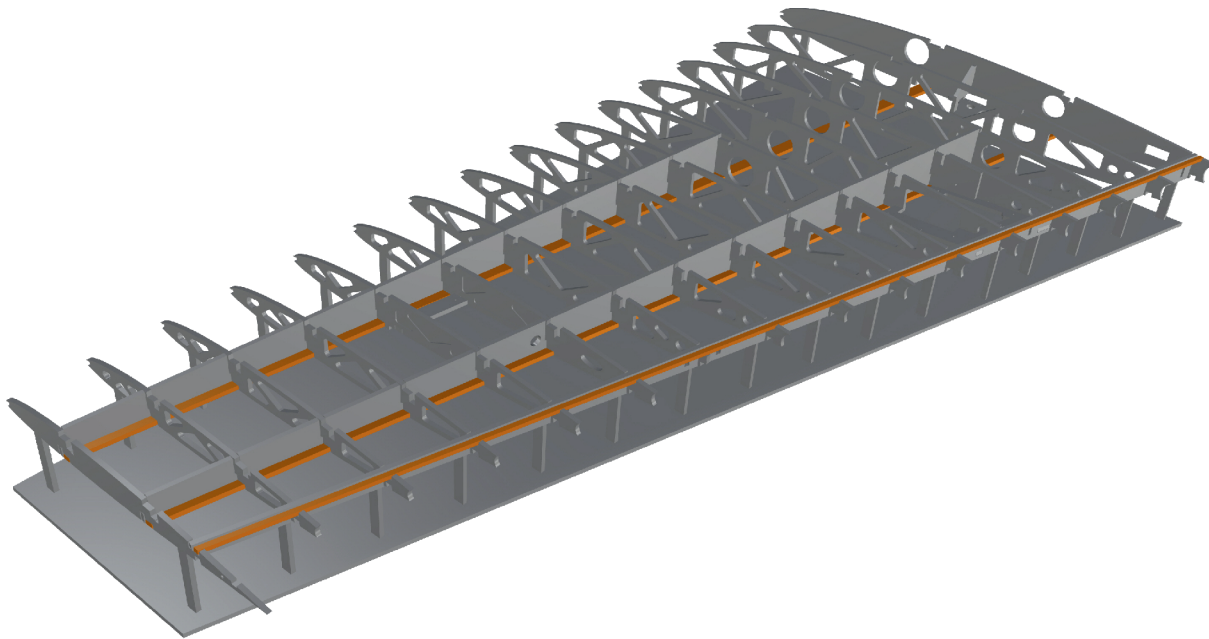
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"COMB BOXES",
FLAP 2ND HINGE

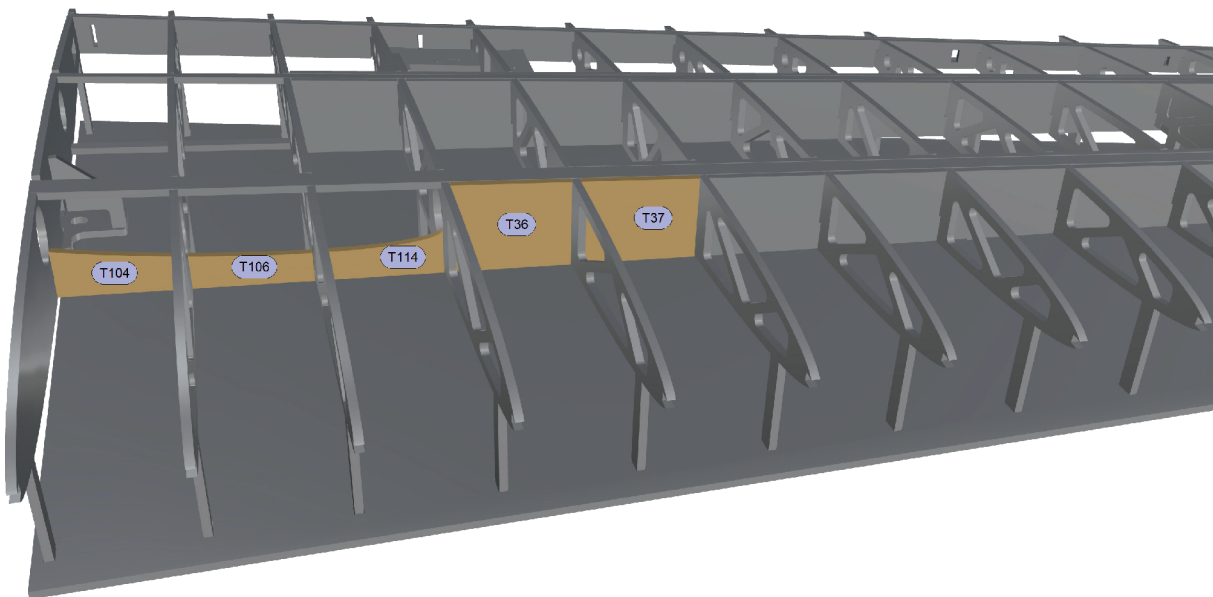
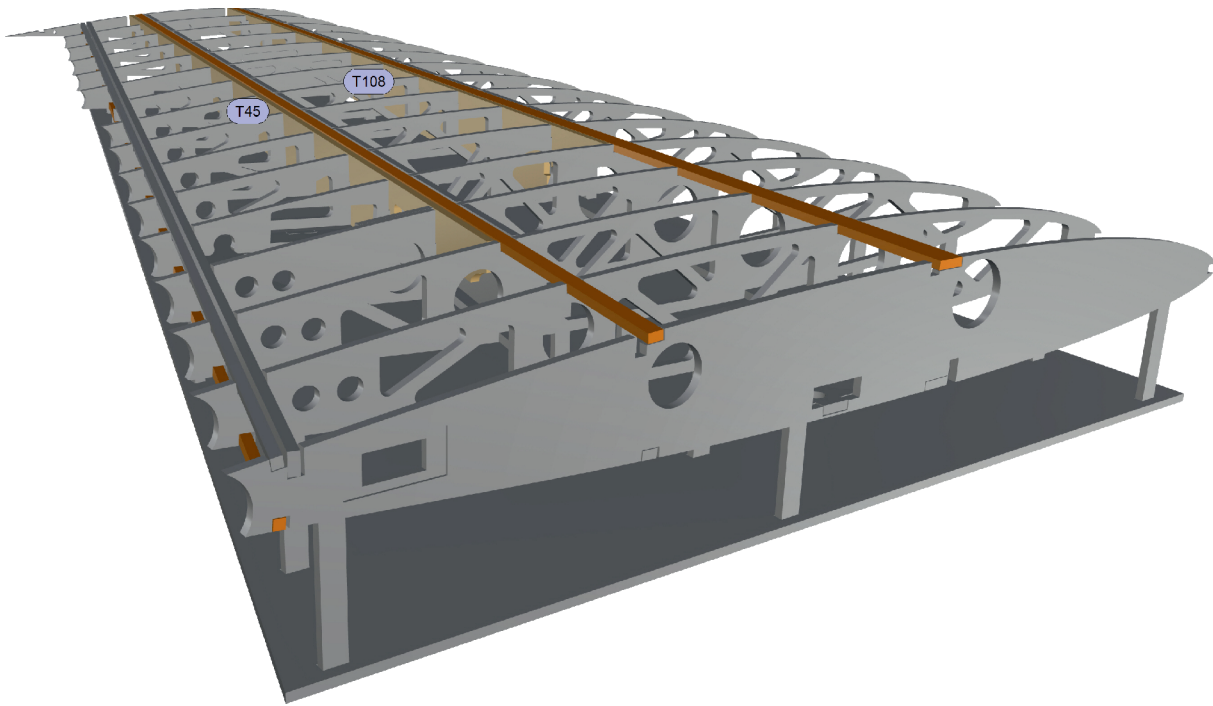


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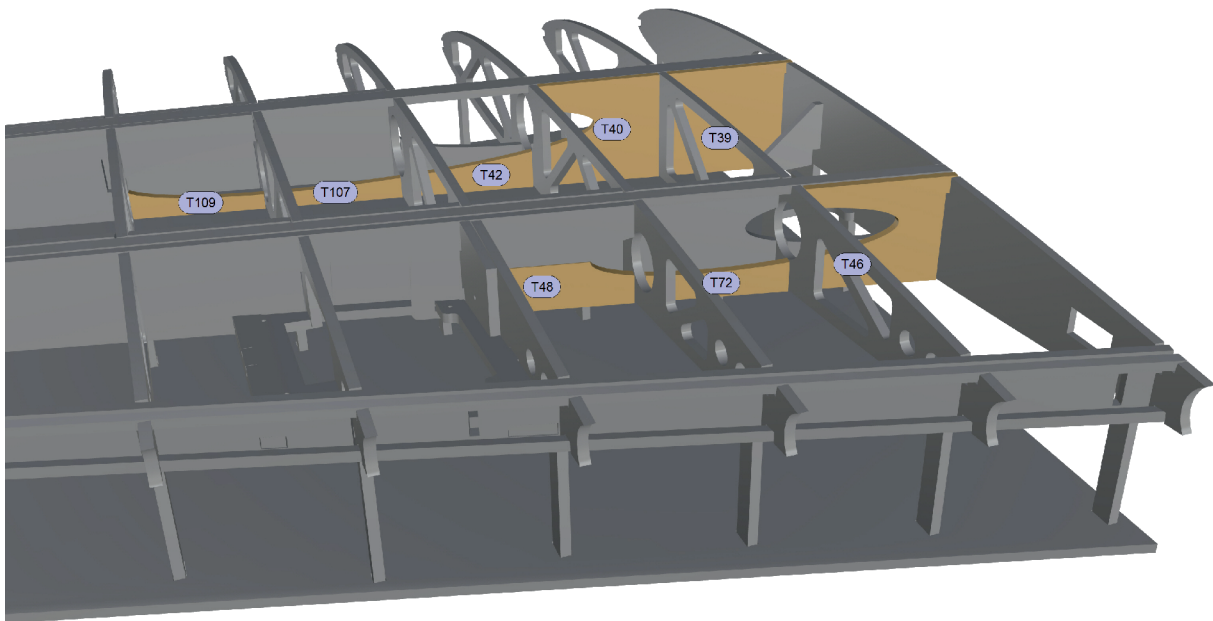
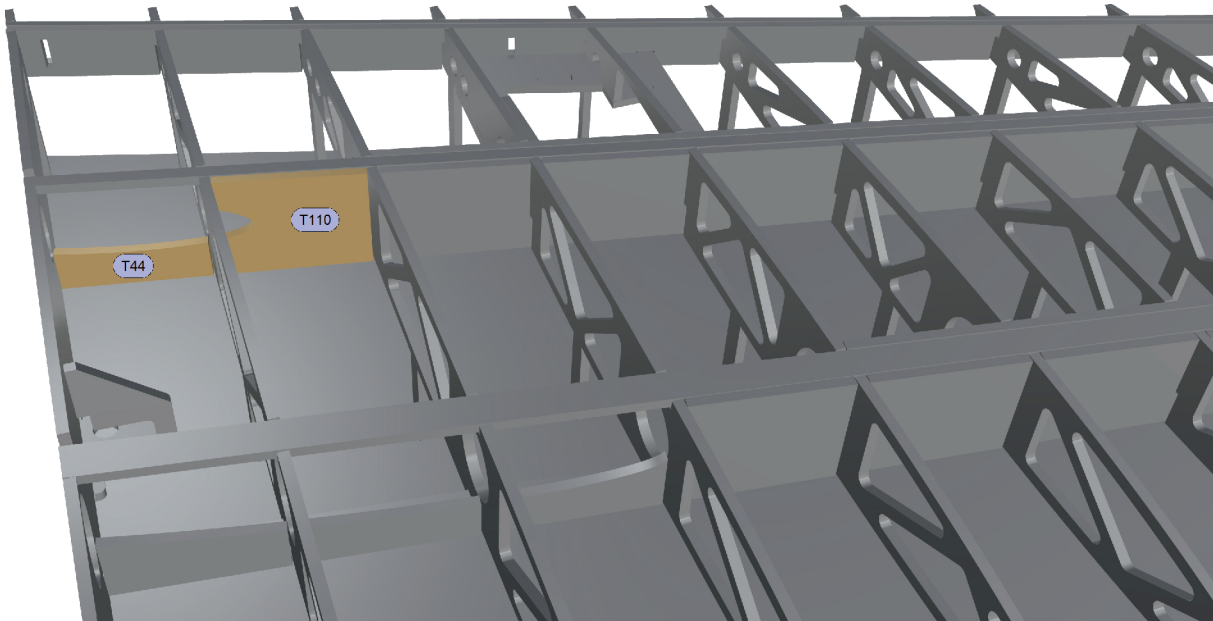


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SPARS,
"COMB BOXES"

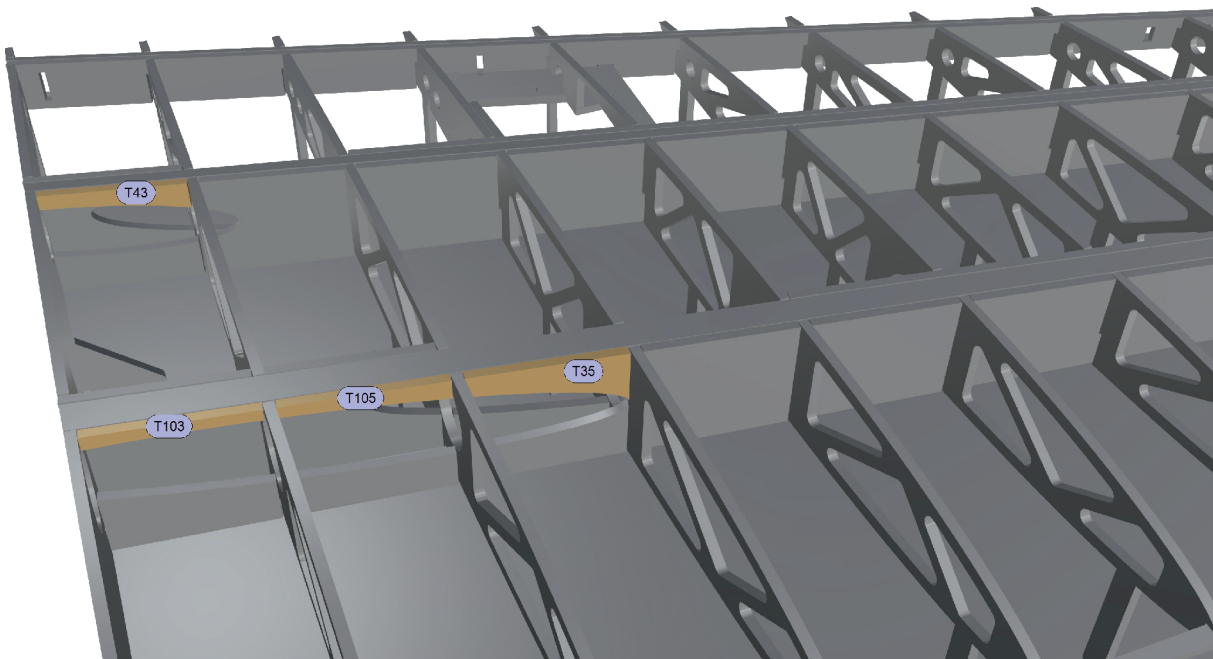
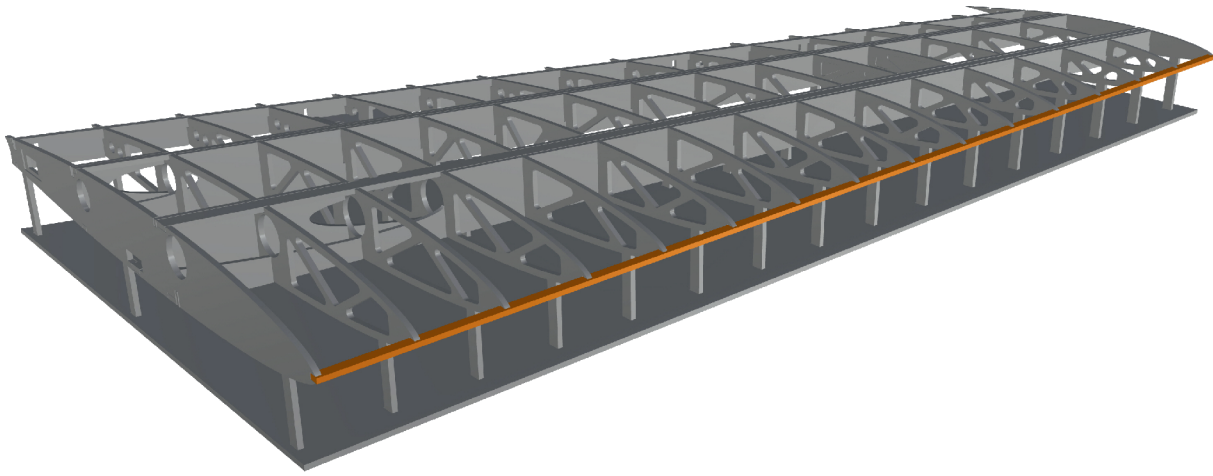


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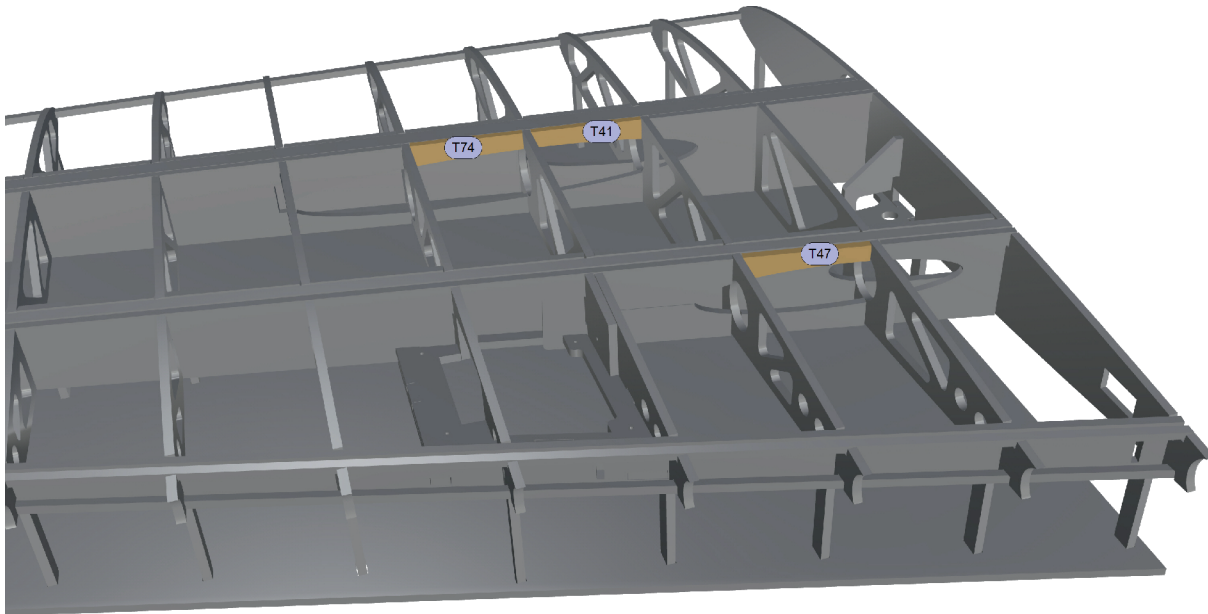
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SPARS,
"COMB BOXES"



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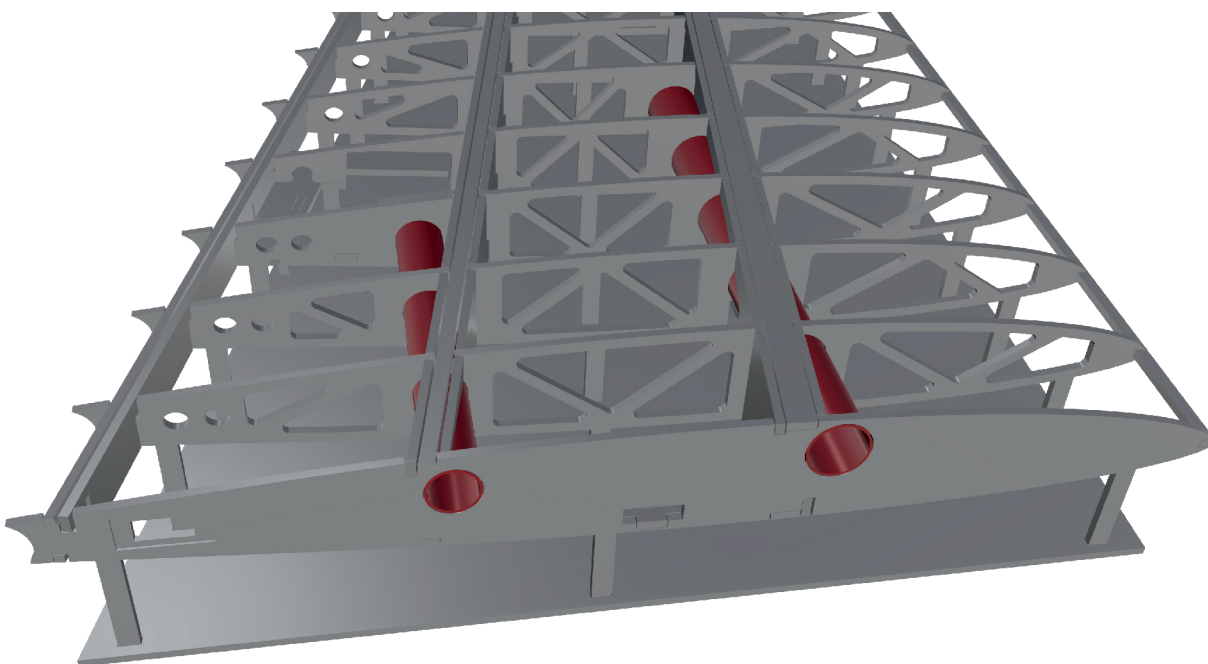
"COMB BOXES",
WING CONNECTRO OUTER TUBE



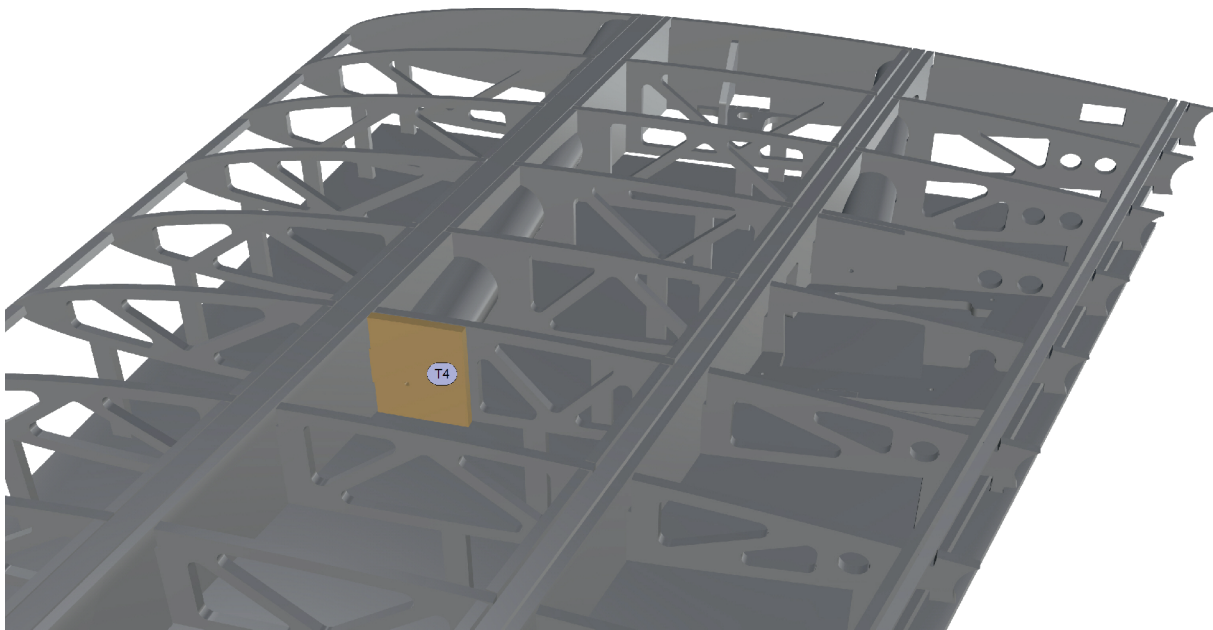
You will have to work out a little the two areas where the wing connector outer tubes will be installed.

Take care:

As much as necessary, as little as possible!



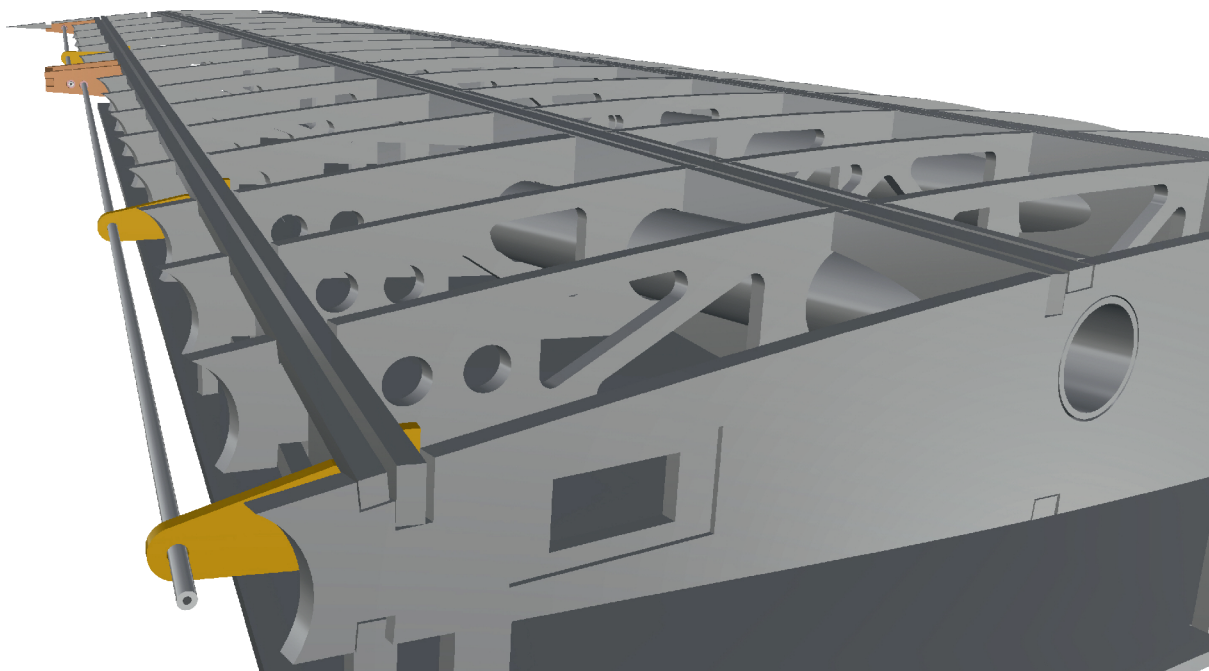
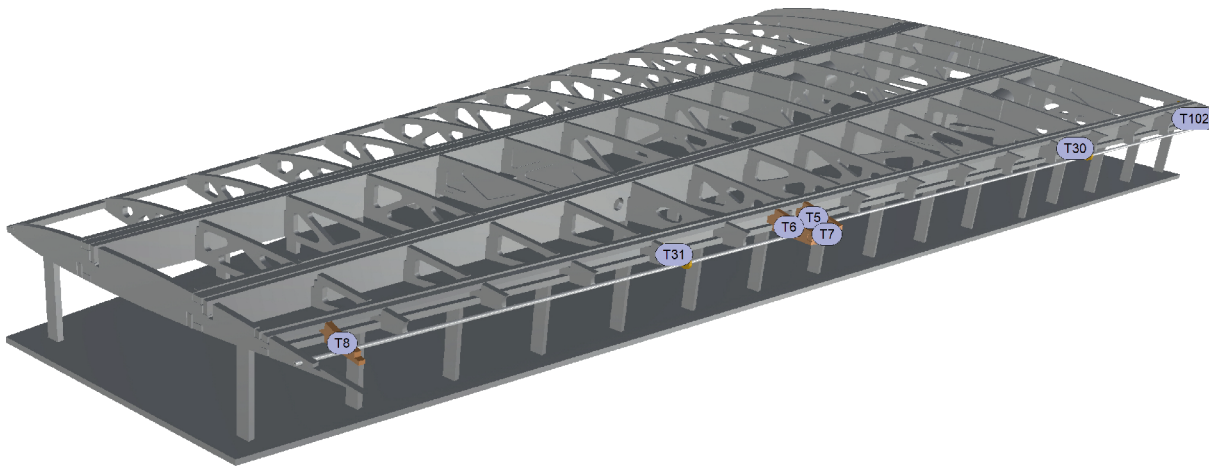
WING CONNECTORS END PIECE

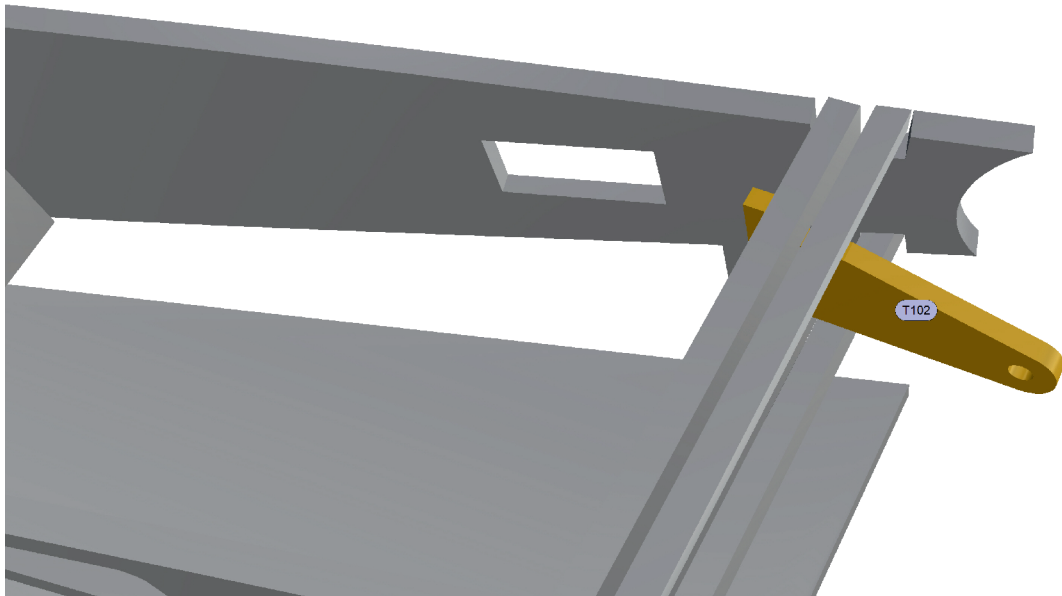
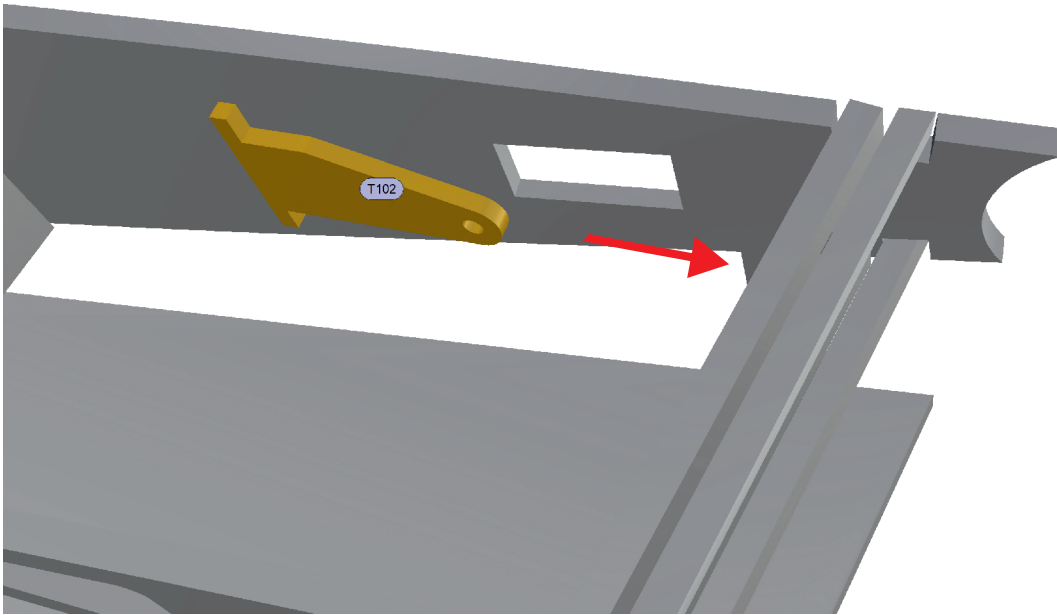


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AILERON & FLAPS SUSPENSION

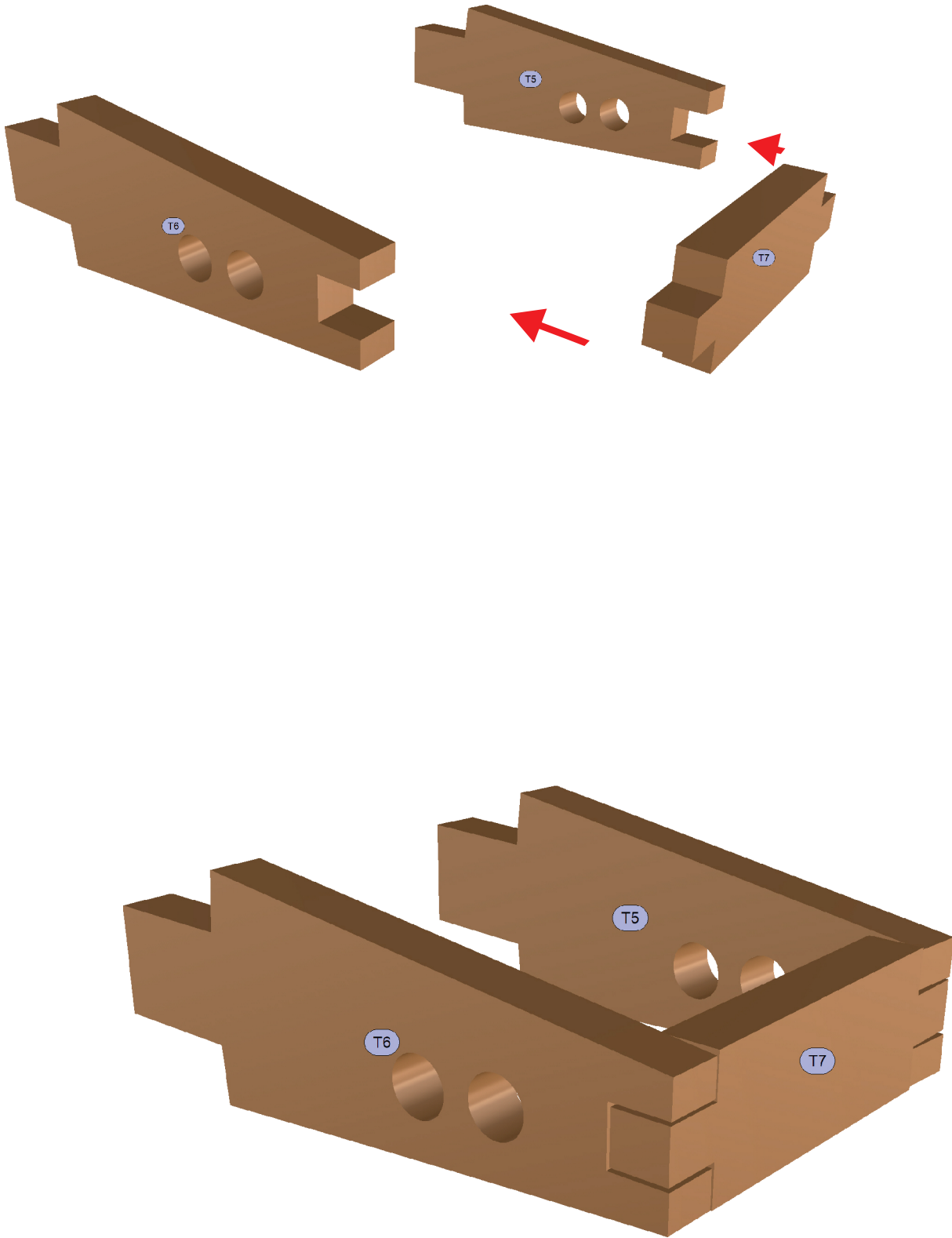
You start with the construction of the rudder hinges. The steps on the following pages explain this in detail. Here you can see what the construction will look like in the end. Always test before glueing!



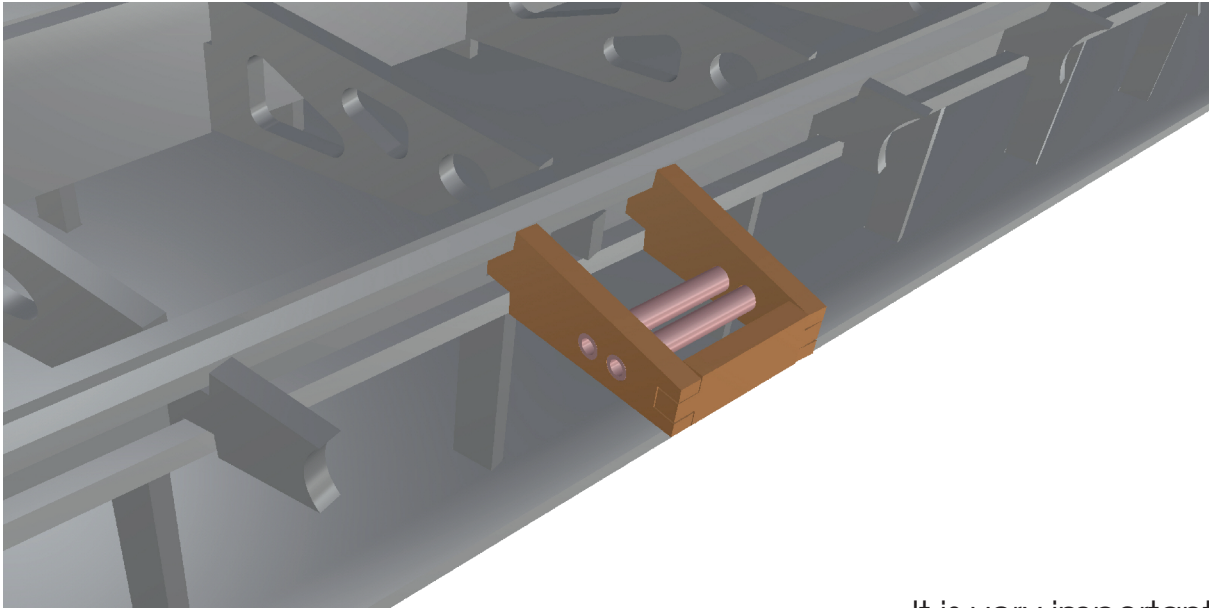


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MIDDLE HINGE BLOCK

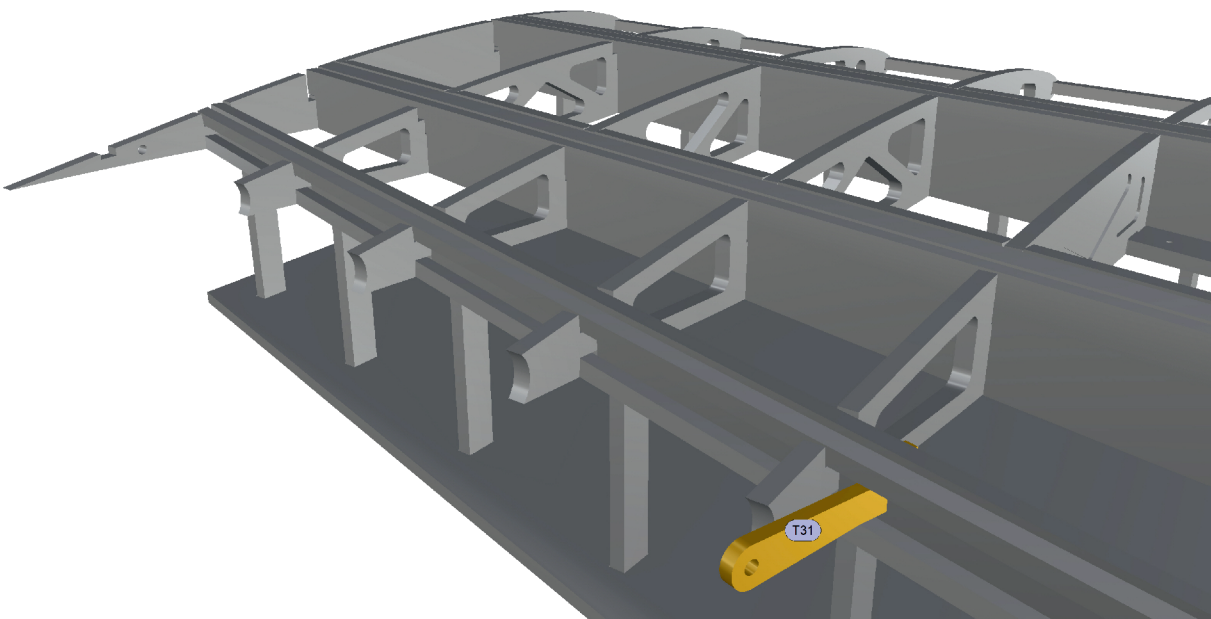
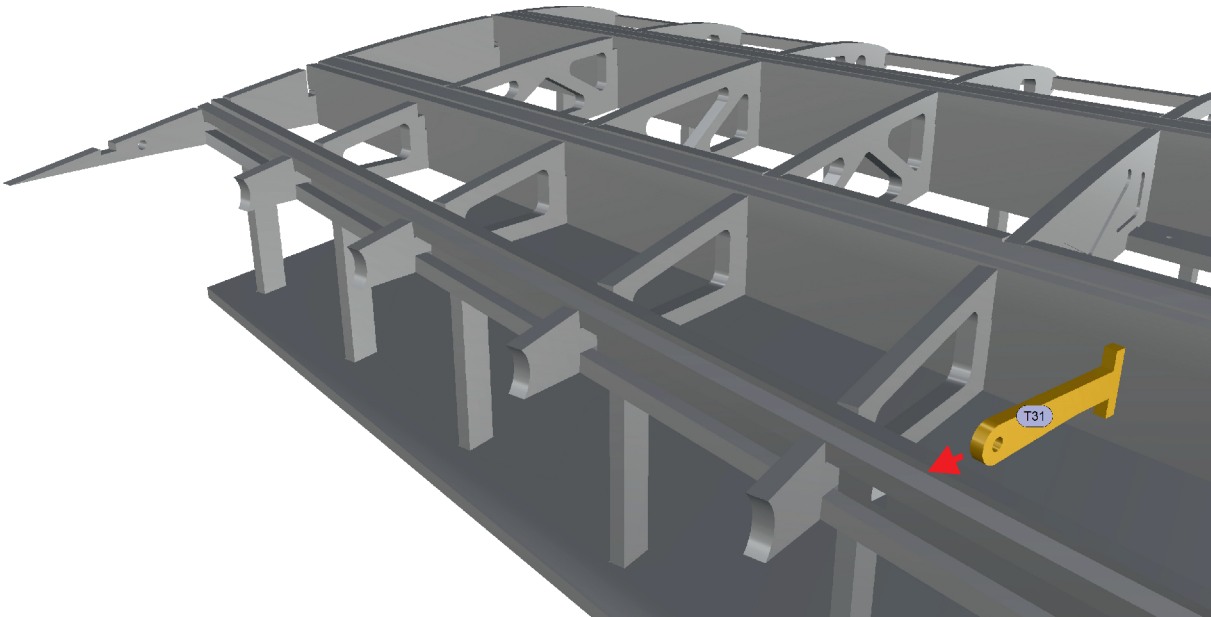


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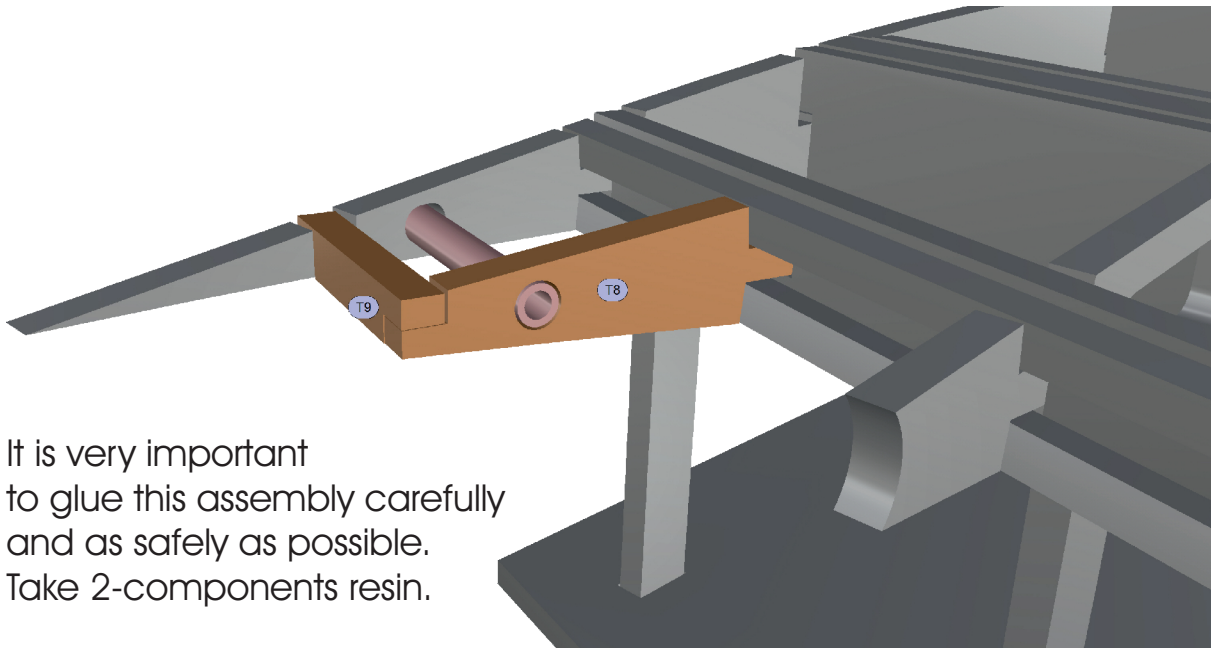


It is very important to glue this assembly carefully and as safely as possible. Take 2-components resin.

(Use $d = 3.00 \dots 3.2$ mm "Bowden" plastic tubes.)

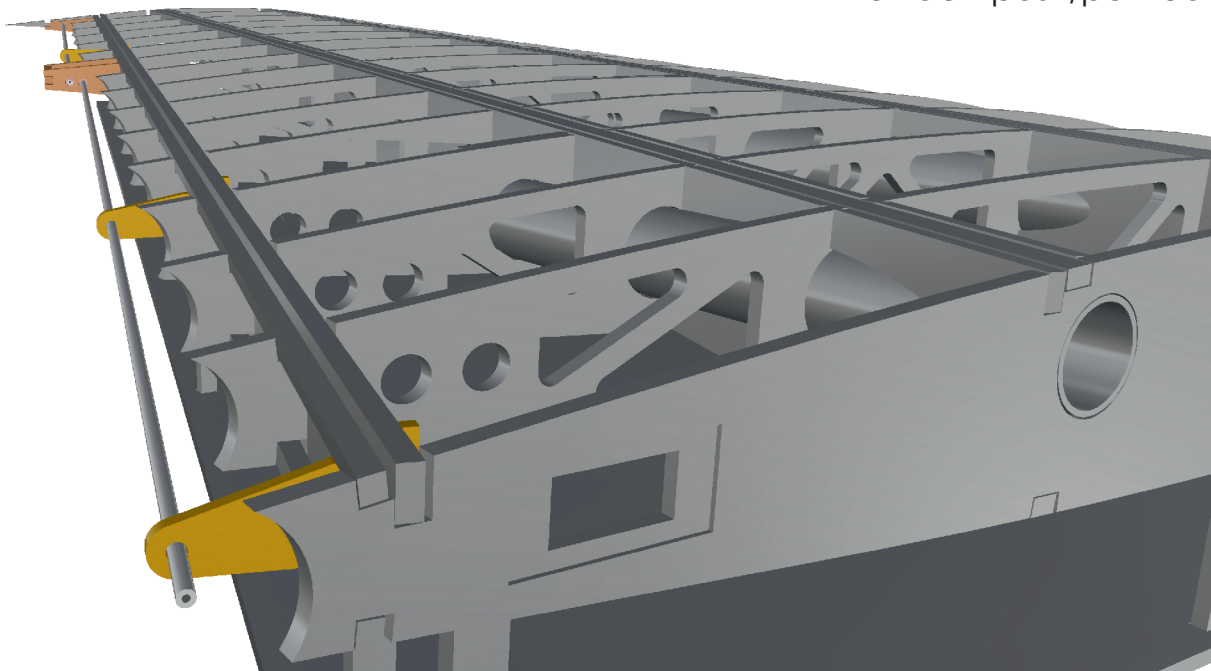


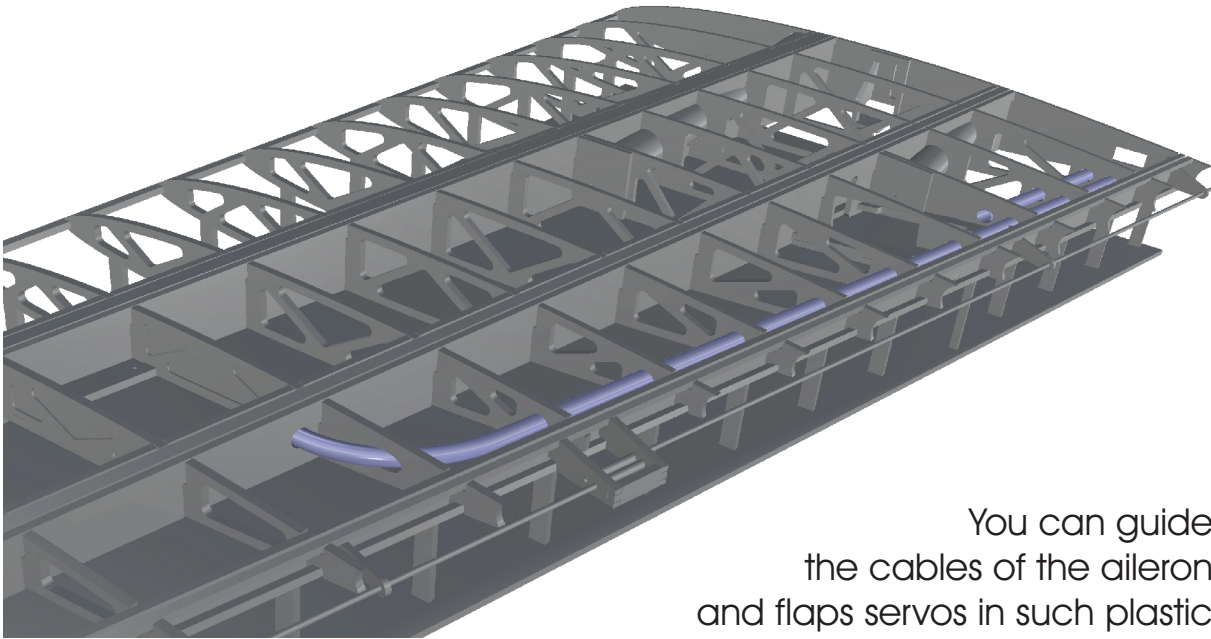
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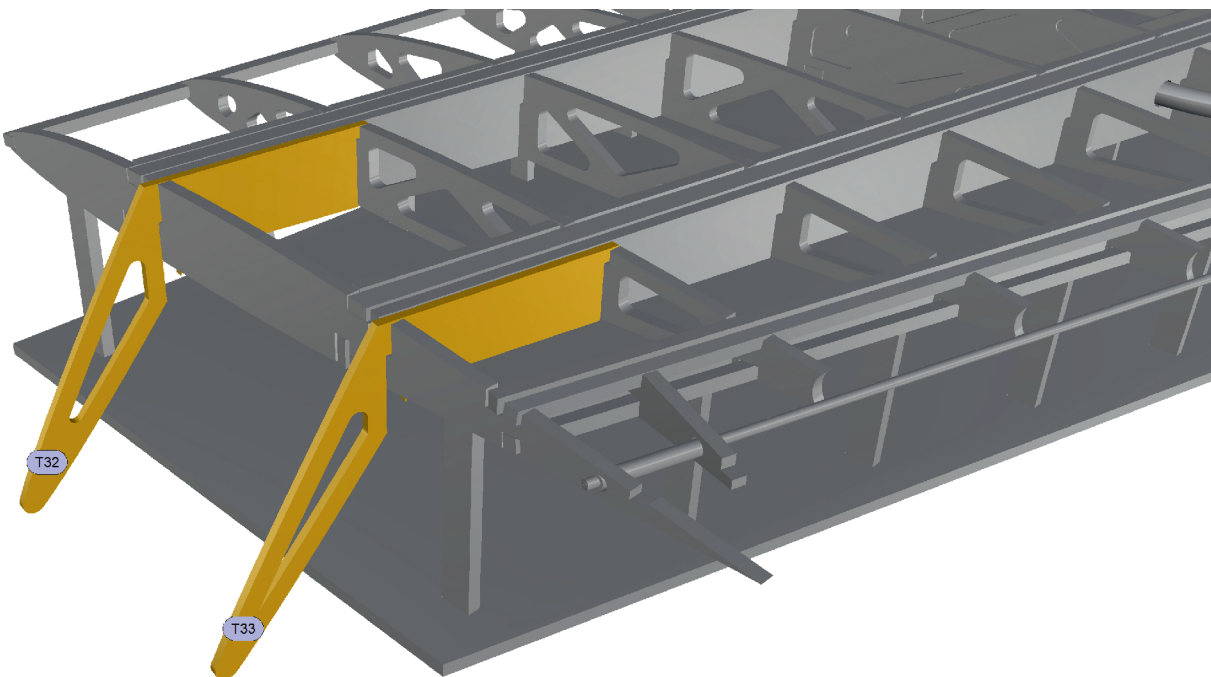
It is very important to glue this assembly carefully and as safely as possible. Take 2-components resin.

As axles you can use either 2 mm spring steel wire or the inner parts of a Bowden push/pull rod.

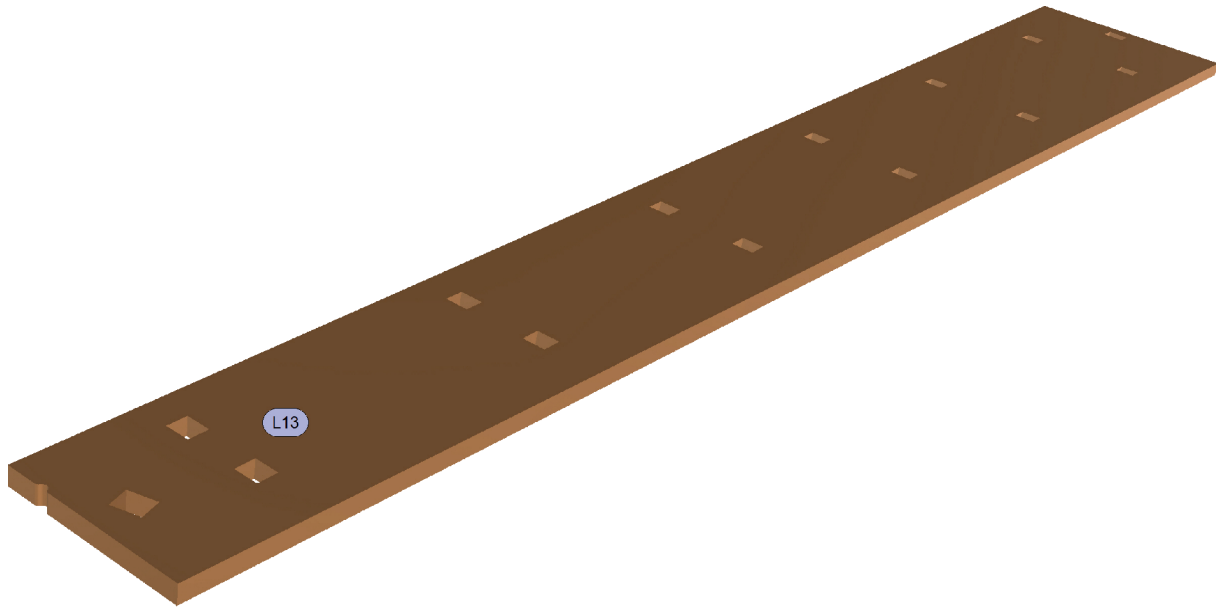


INSTALLATION TUBES,
WINGLET HOLDERS

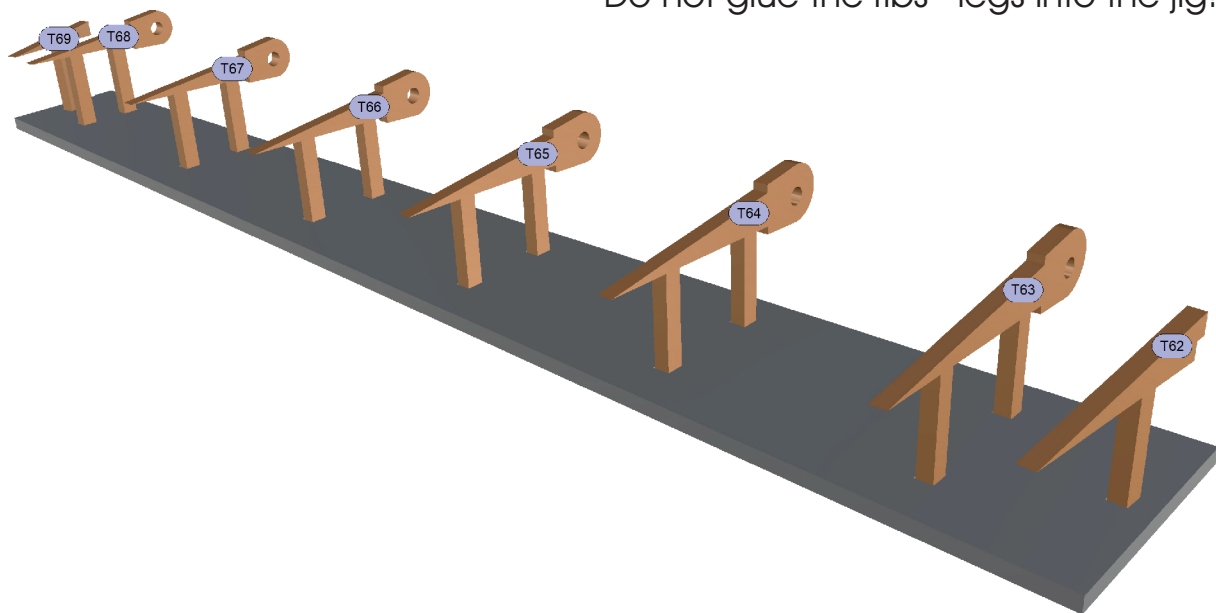
You can guide the cables of the aileron and flaps servos in such plastic cable tubes ("cocktail straws"). Push a suitable silicone fuel tube a little way in and bend it carefully with hot air.



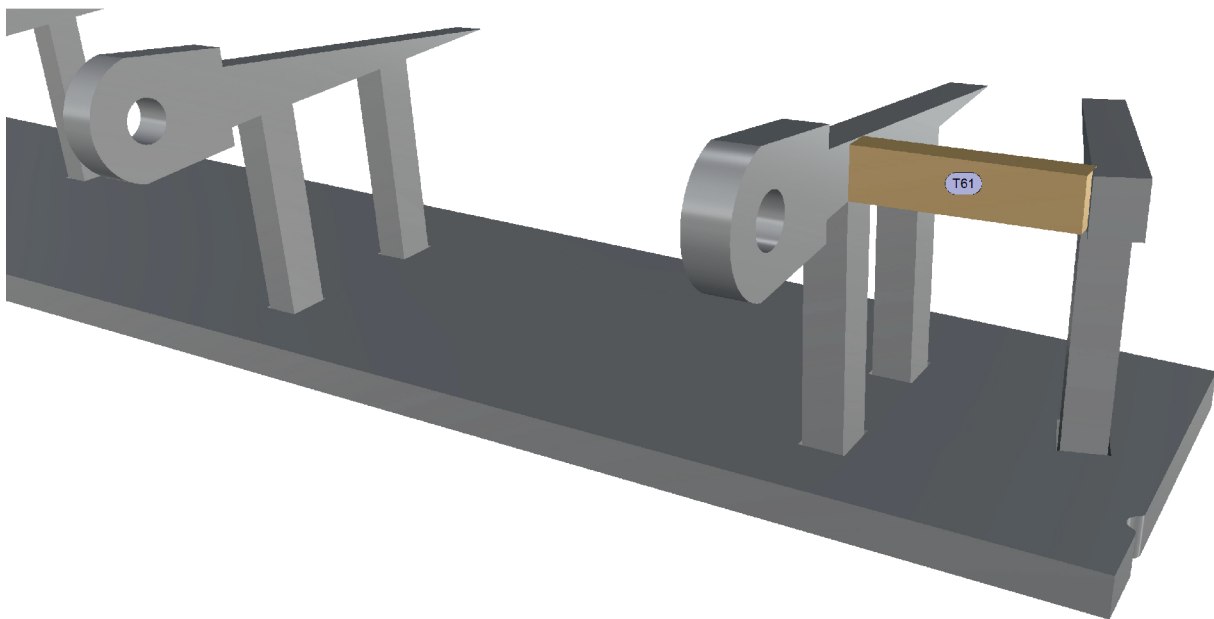
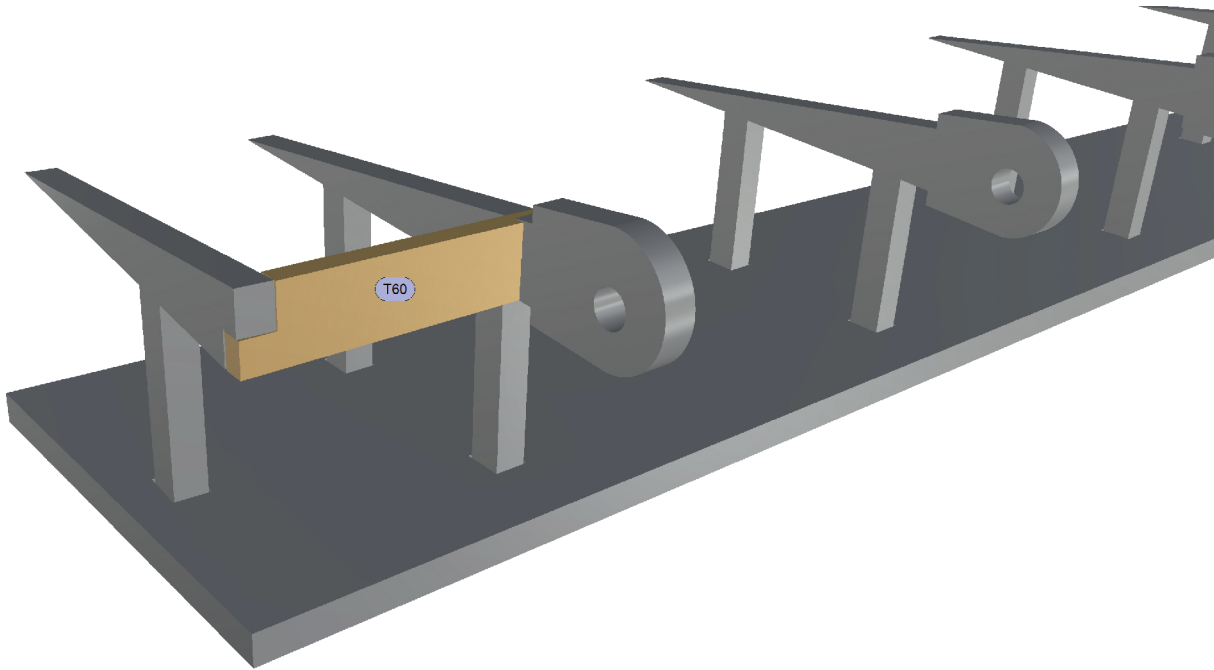
AILERON
MAIN STRUCTURE



Do not glue the ribs' legs into the jig!

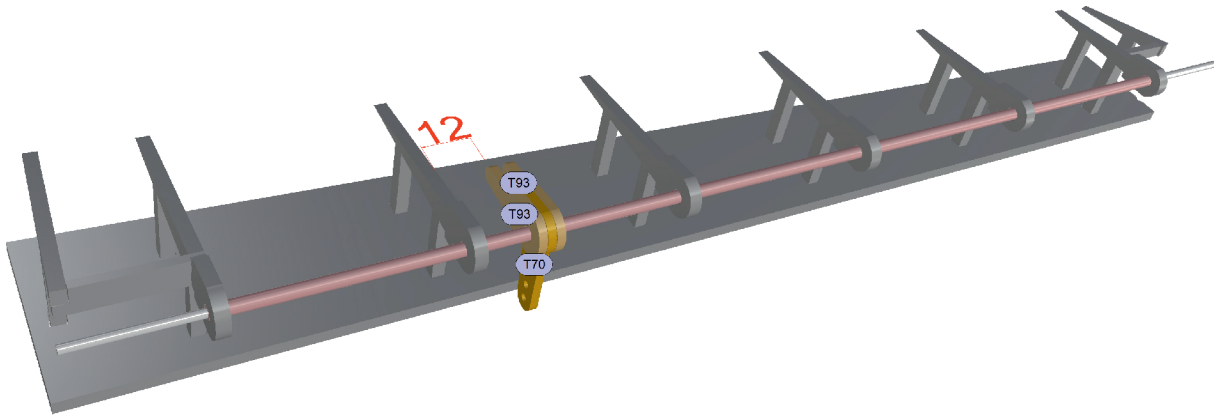


RIBS FRONT CLOSING



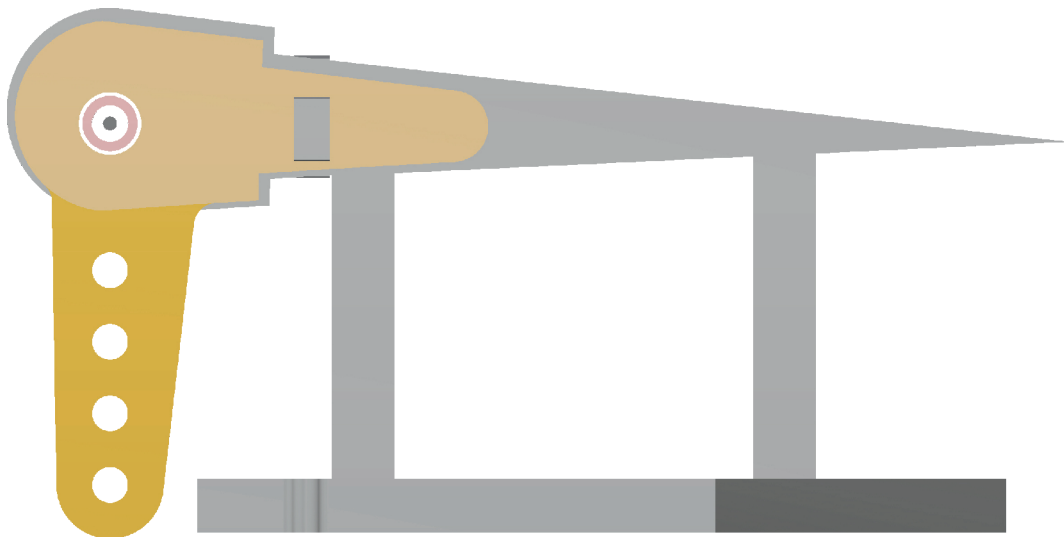
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HINGE TUBE,
RUDDER HORN

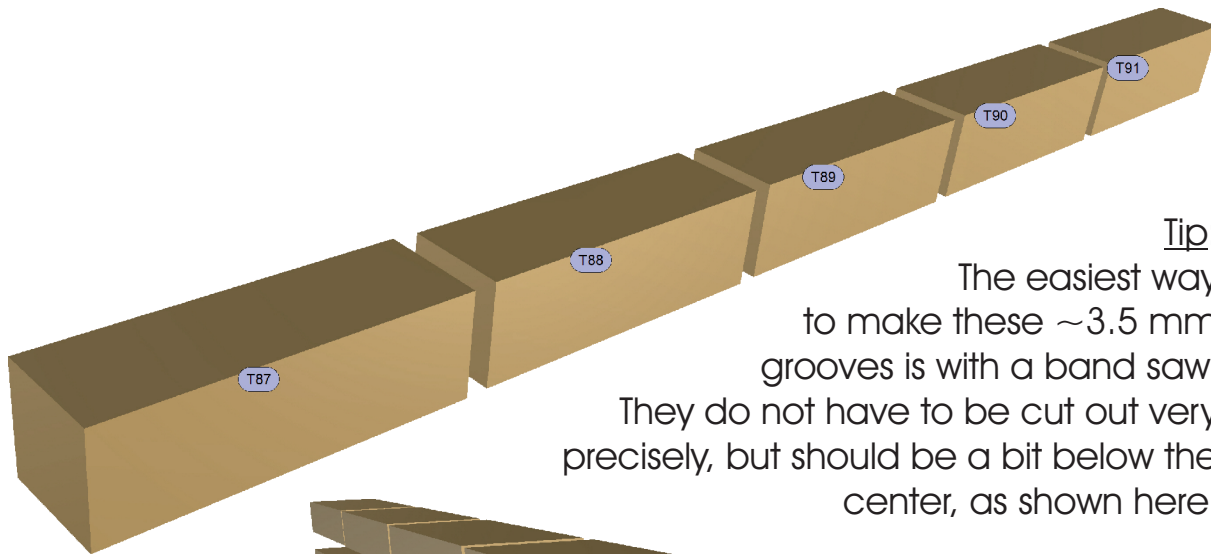


The distance between rib T64 and T93 should be 12 mm.

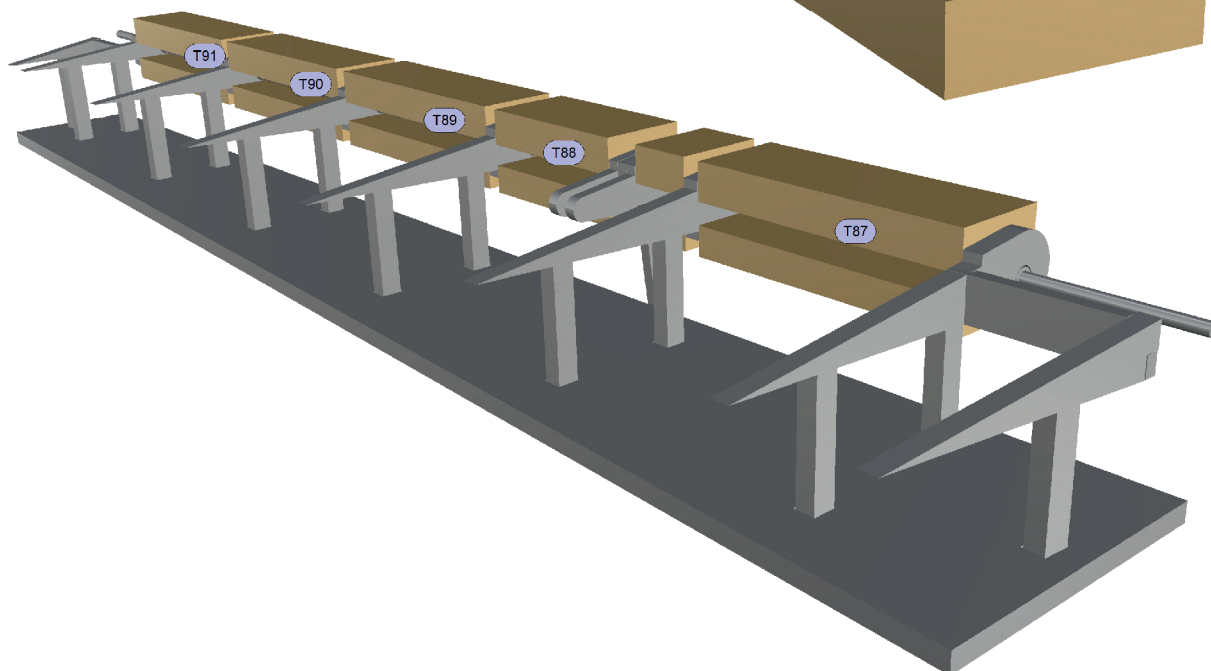
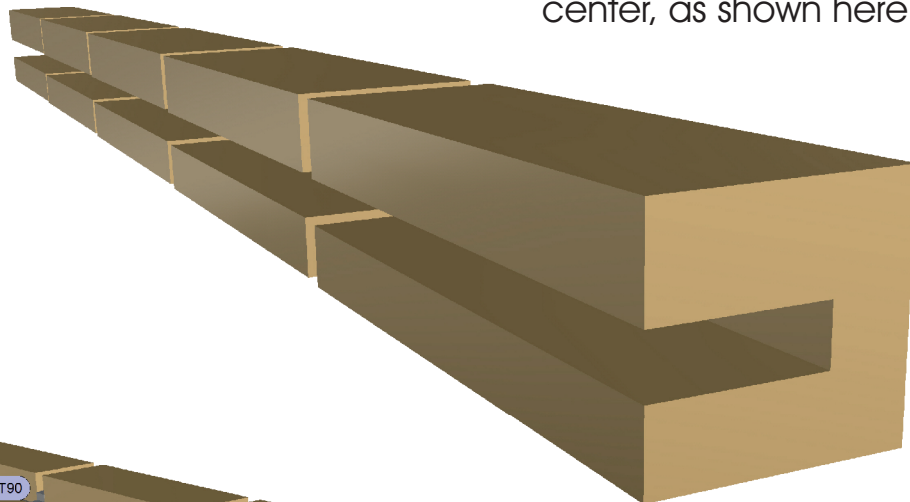
As indicated here, the aileron's rudder horn should point 90° down.



AILERON NOSE BLOCKS



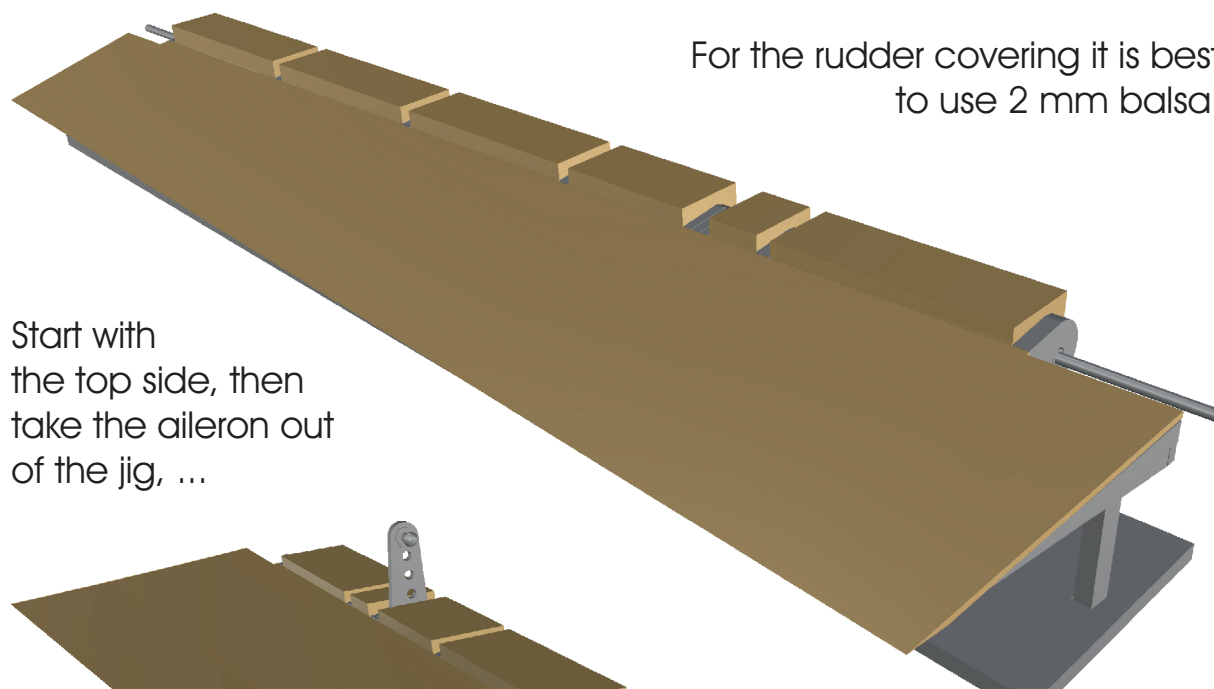
Tip:
The easiest way to make these ~3.5 mm grooves is with a band saw. They do not have to be cut out very precisely, but should be a bit below the center, as shown here.



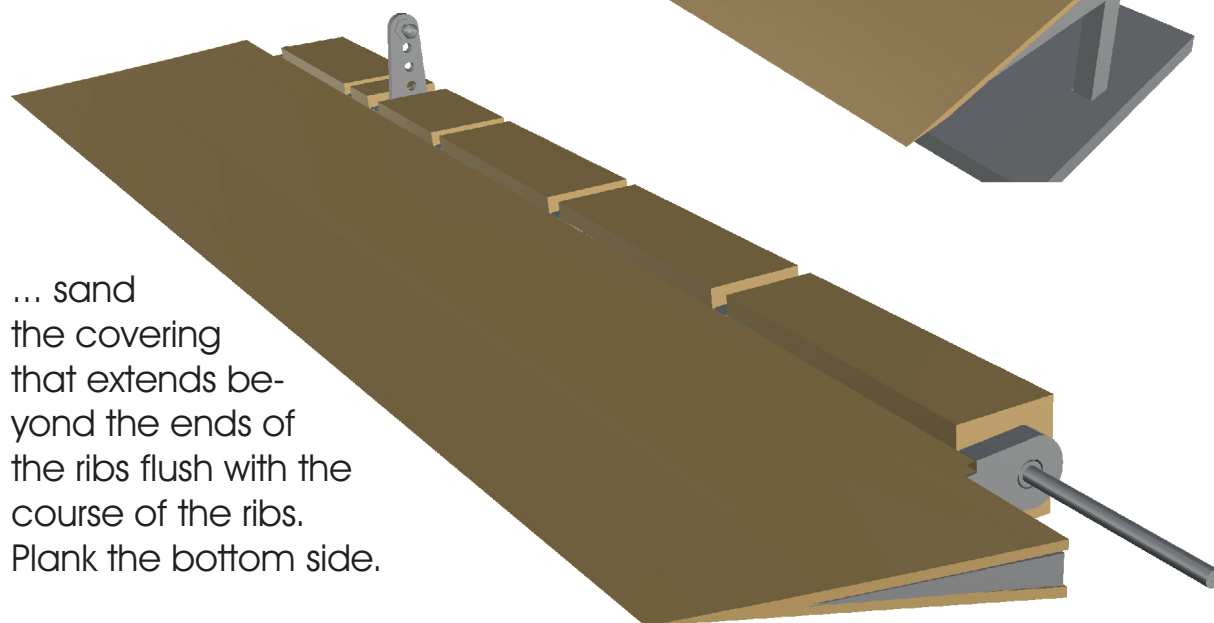
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AILERON
BALSA COVERING

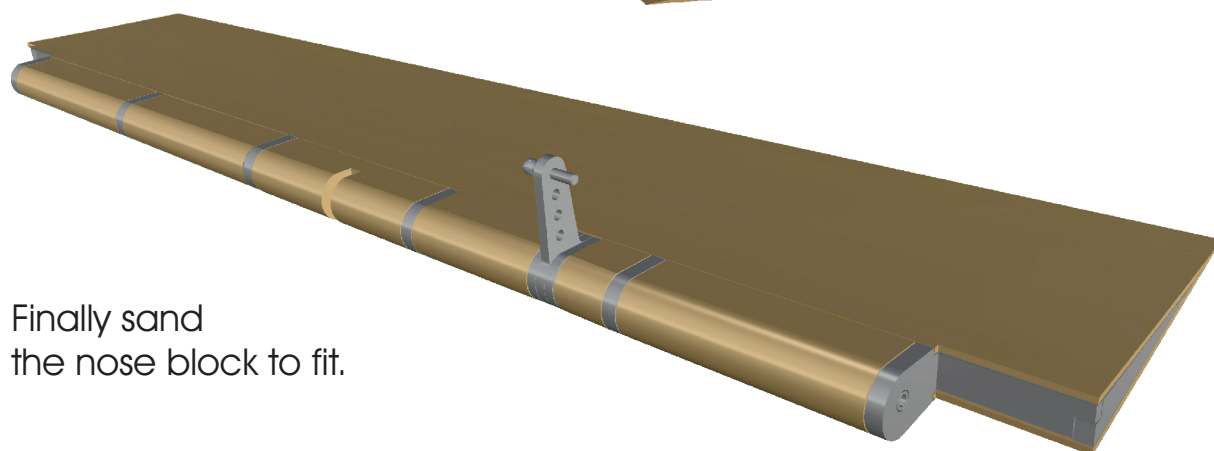
For the rudder covering it is best to use 2 mm balsa.



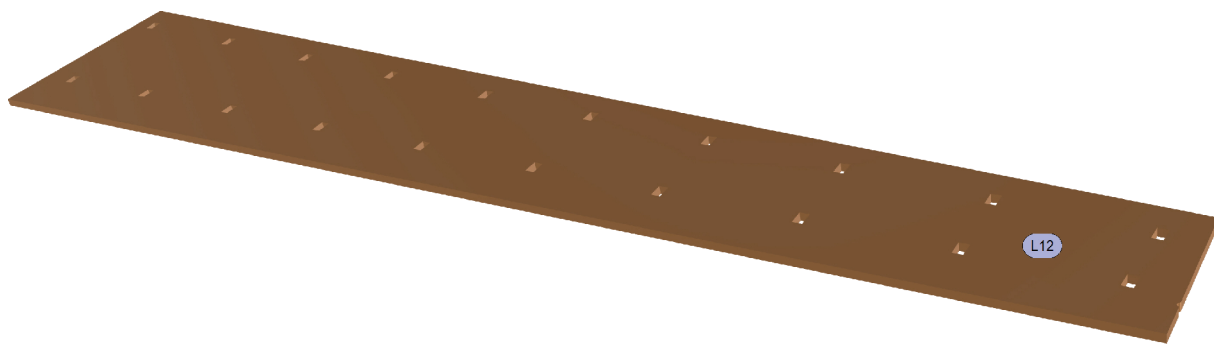
Start with the top side, then take the aileron out of the jig, ...



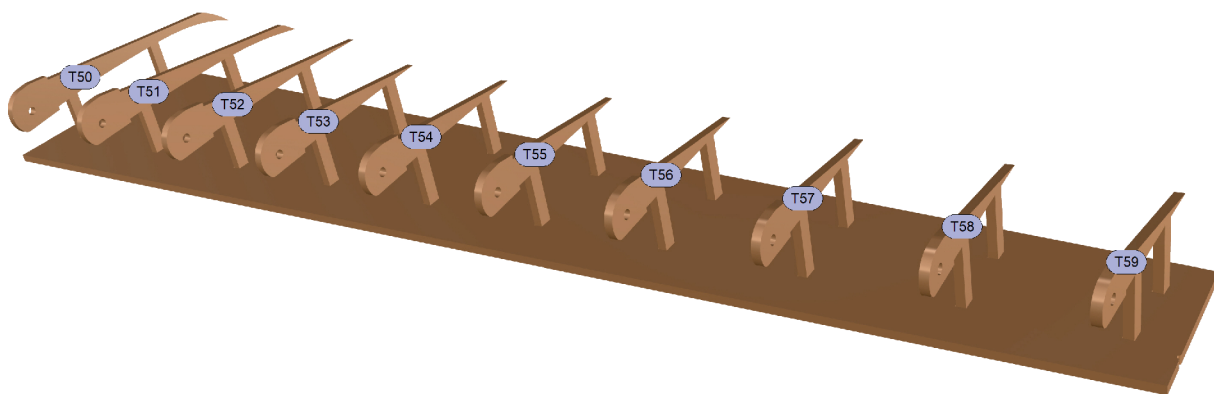
... sand the covering that extends beyond the ends of the ribs flush with the course of the ribs. Plank the bottom side.



Finally sand the nose block to fit.

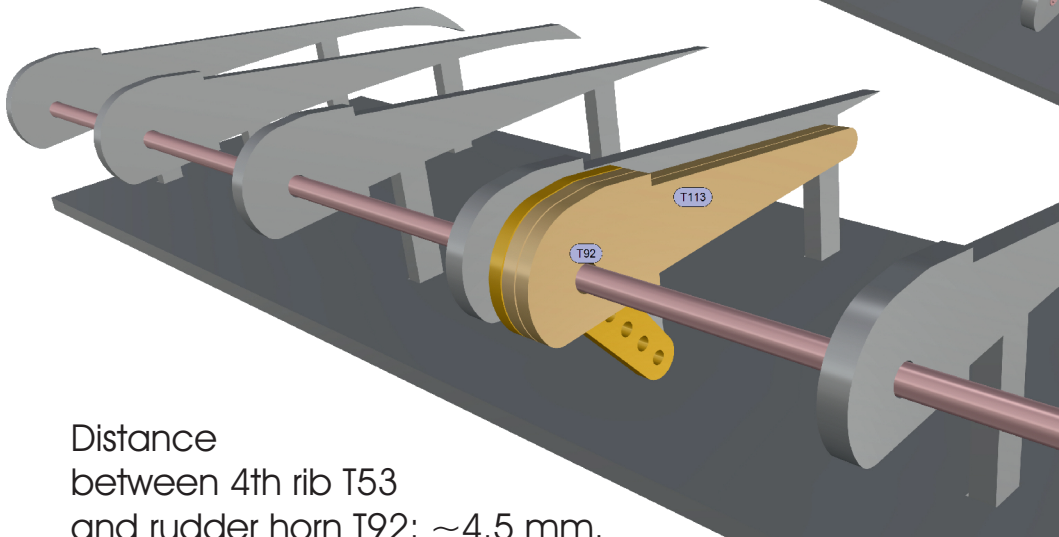
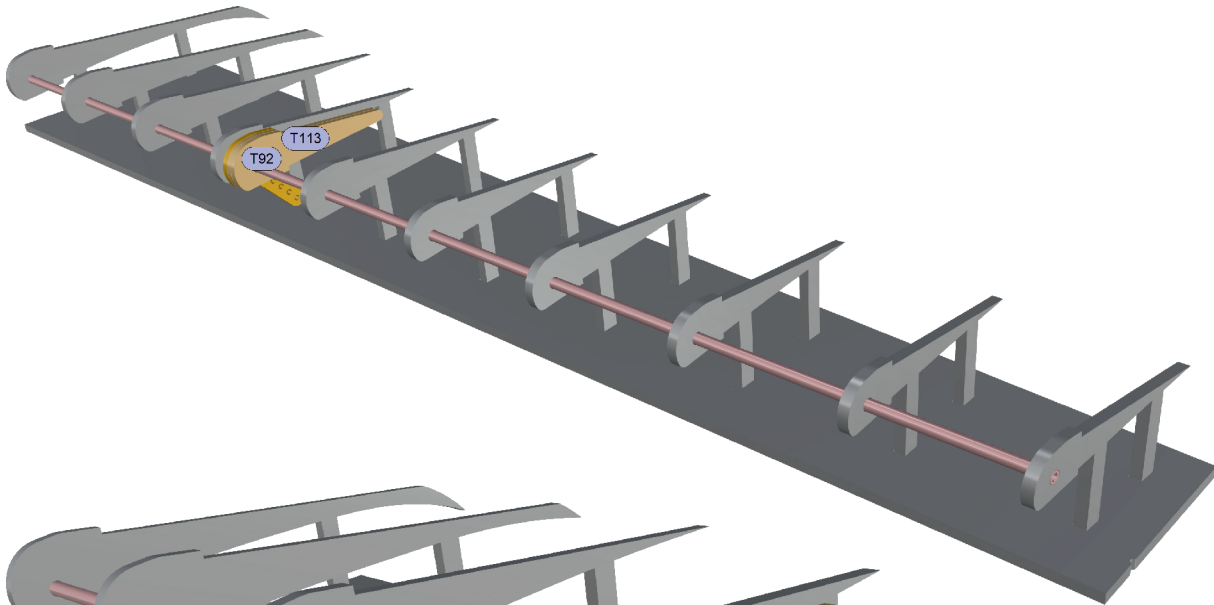


Again, do not glue the ribs' legs into the jig!

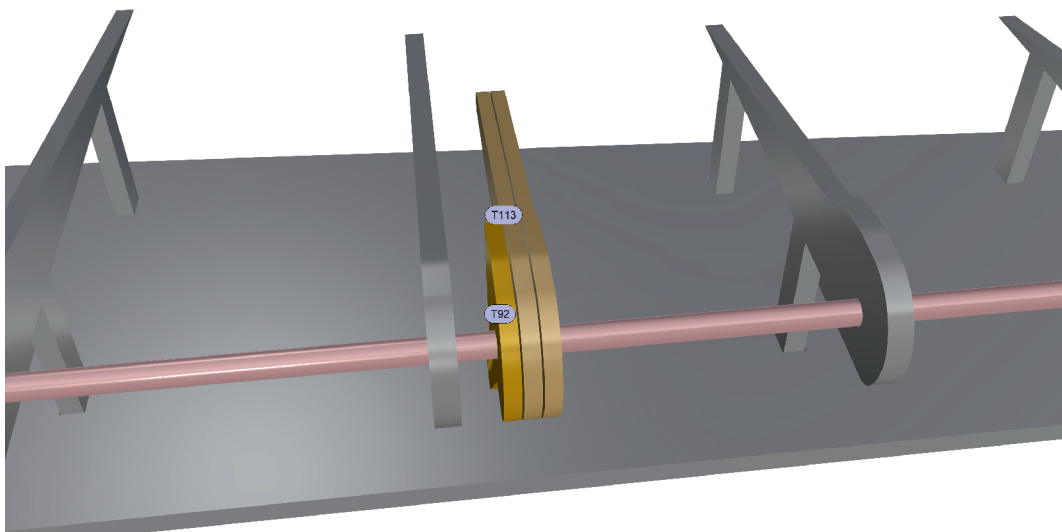


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HINGE TUBE,
RUDDER HORN

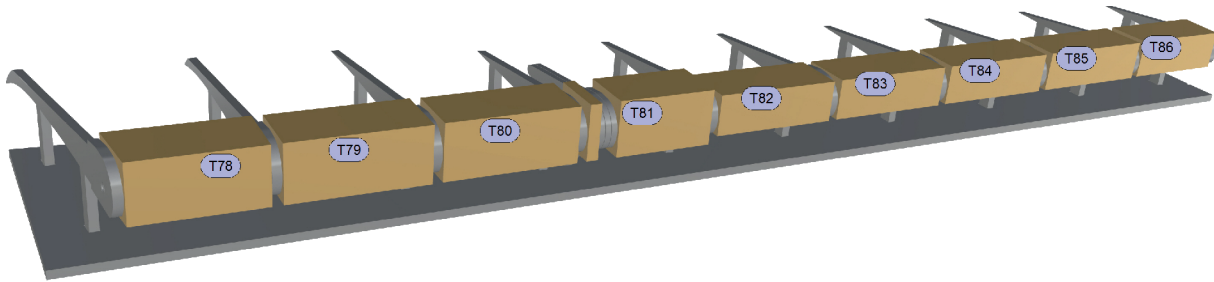


Distance
between 4th rib T53
and rudder horn T92: ~4.5 mm.

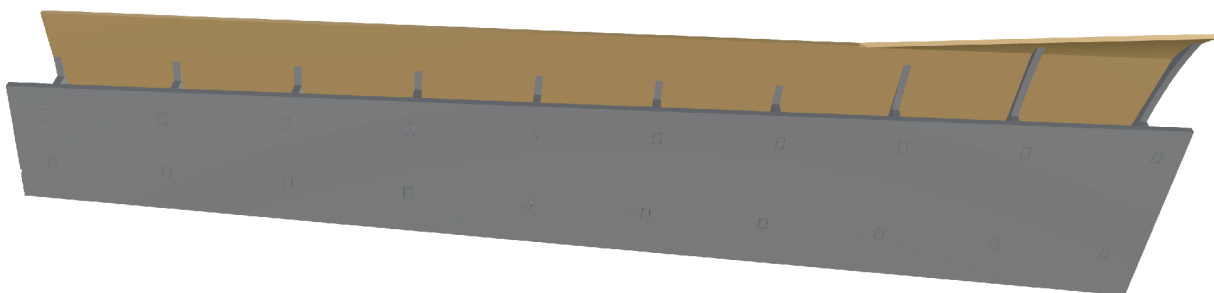
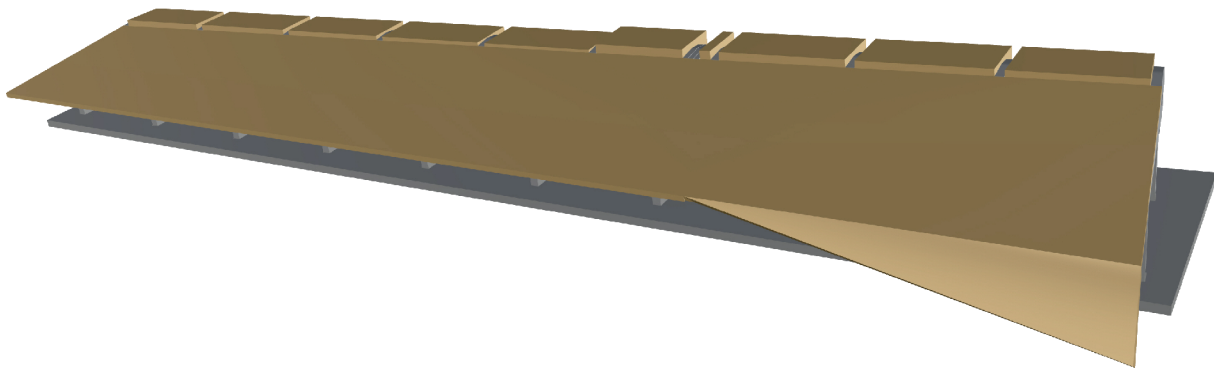


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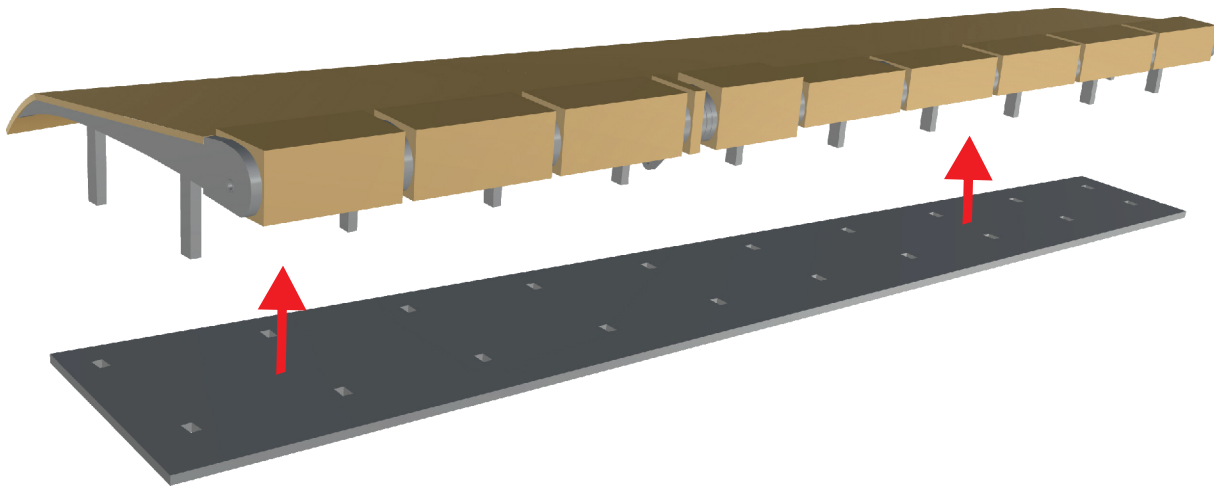
FLAP NOSE BLOCKS,
BALSA COVERING



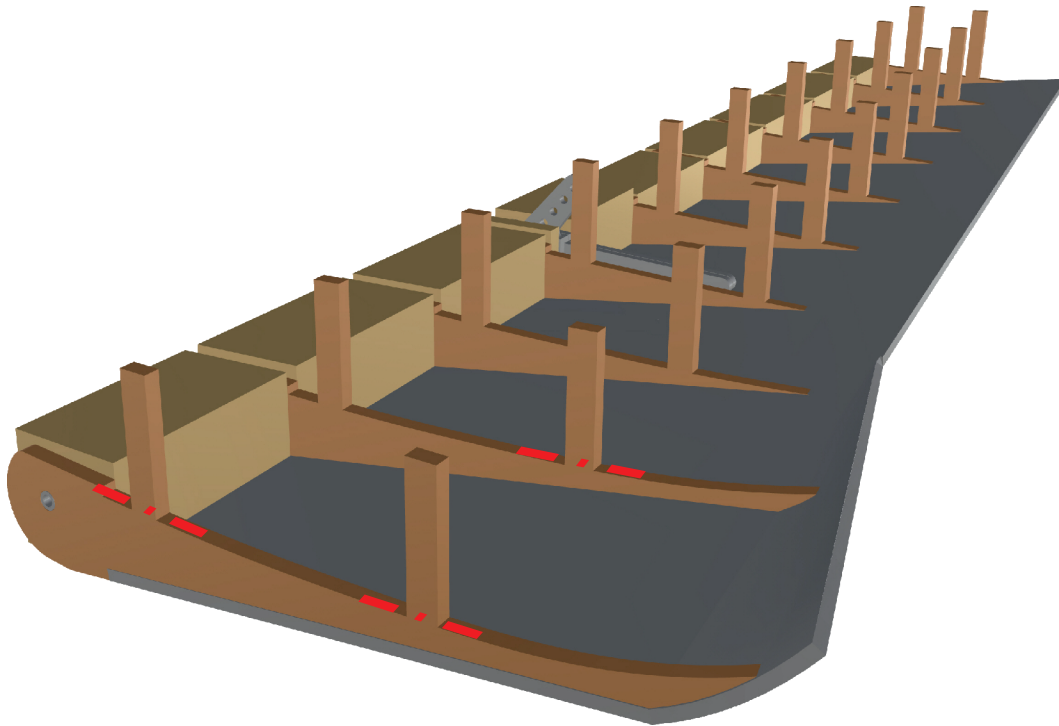
As with the ailerons, cover the top side first.



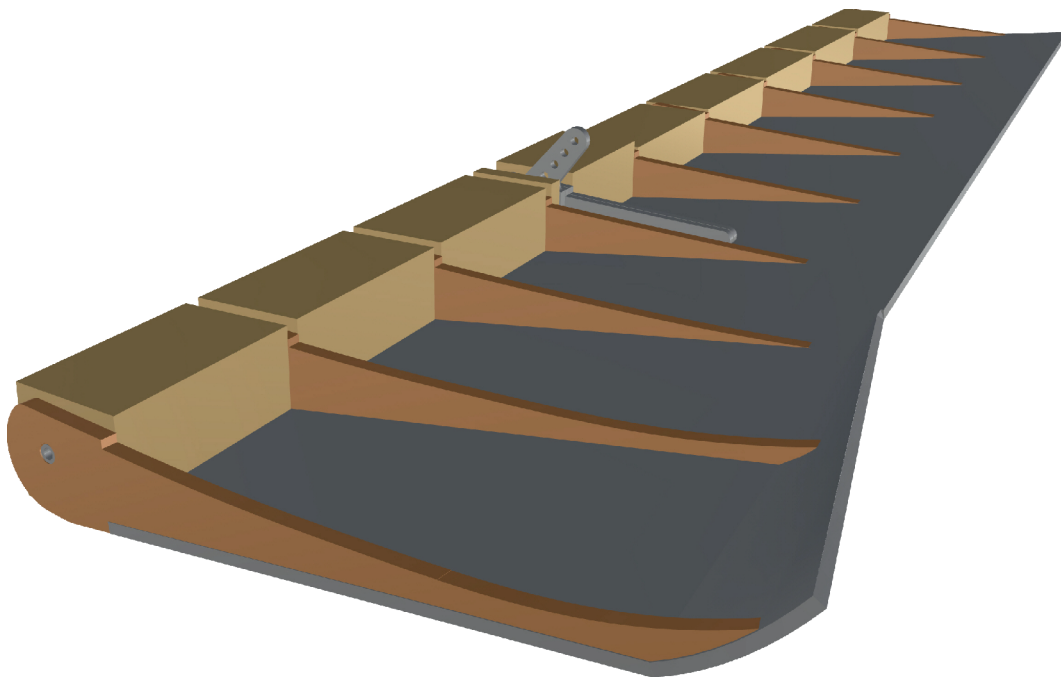
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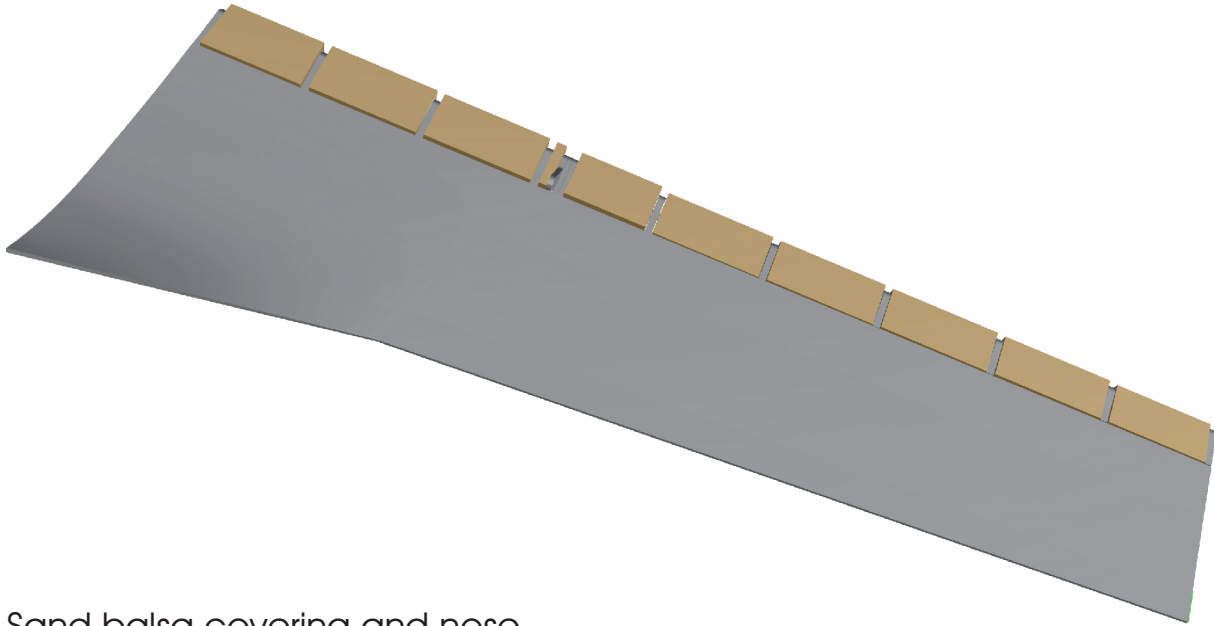


Take the rudder out of the auxiliary jig.

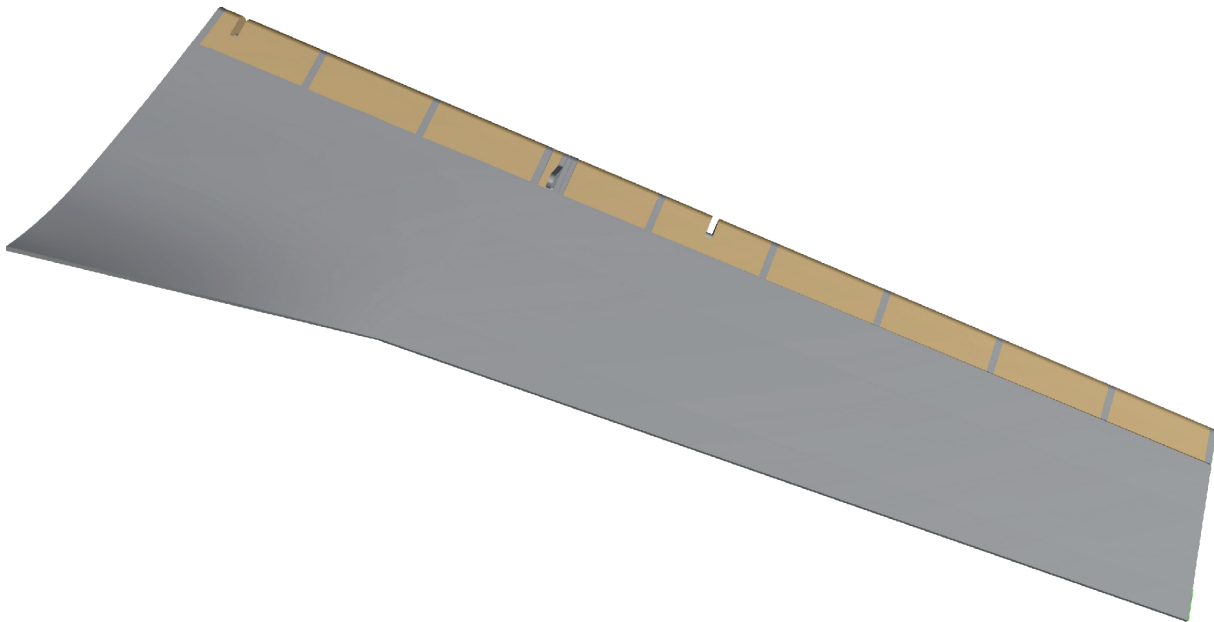


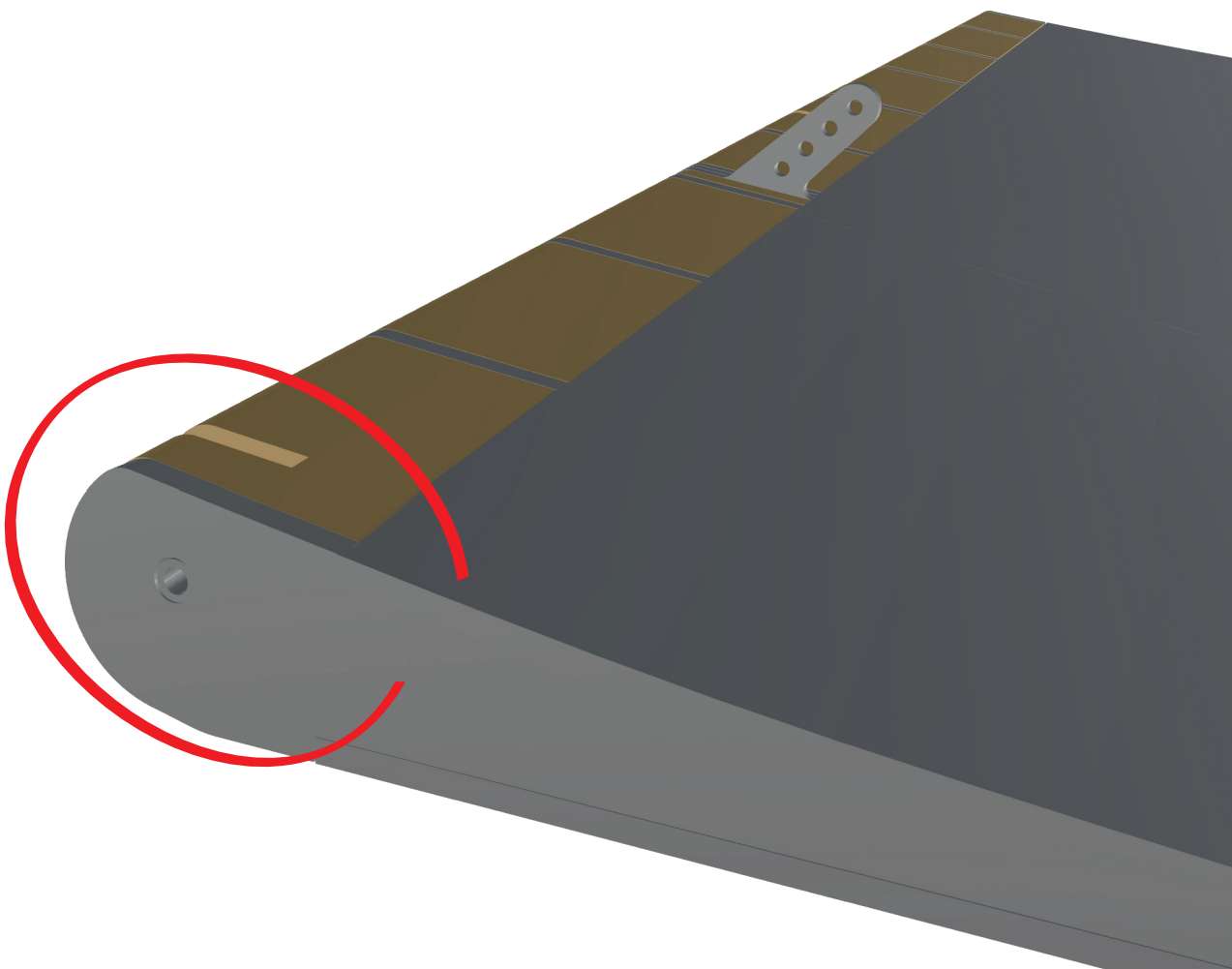
Cut off the legs and cover the bottom side.



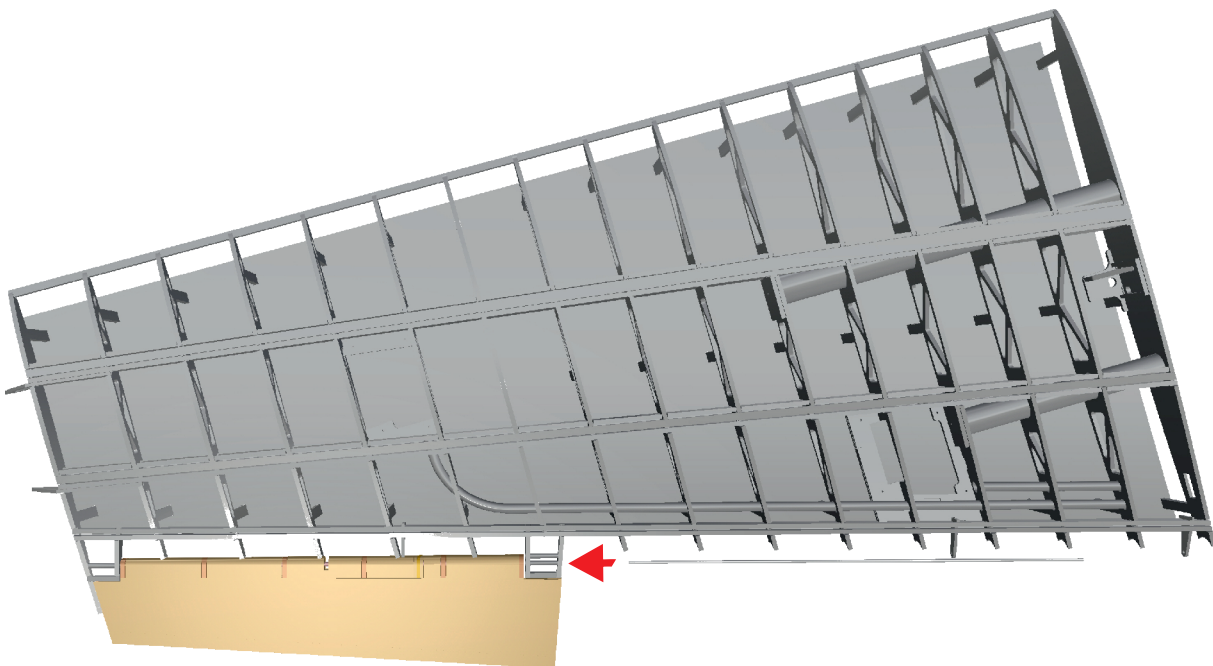
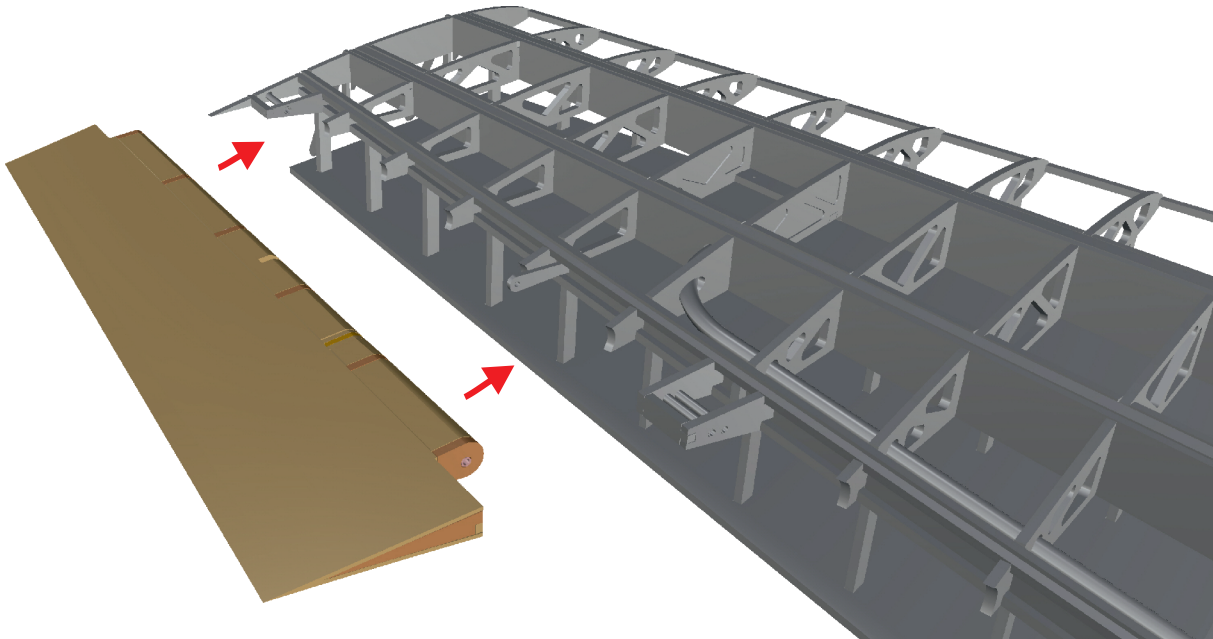


Sand balsa covering and nose.



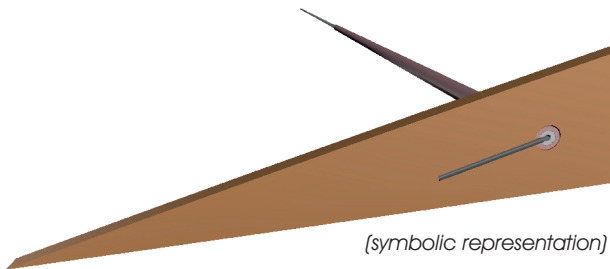
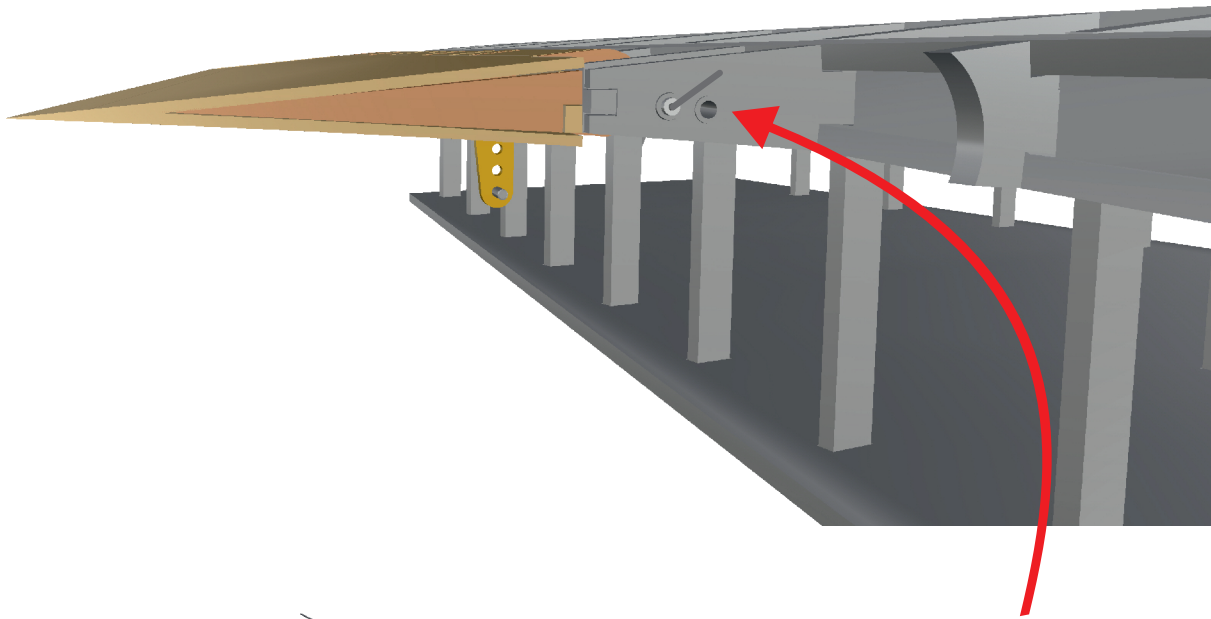


Cut grooves in the nose,
exactly where the hinge bars protrude rearward from the wing.
See also the following pages.

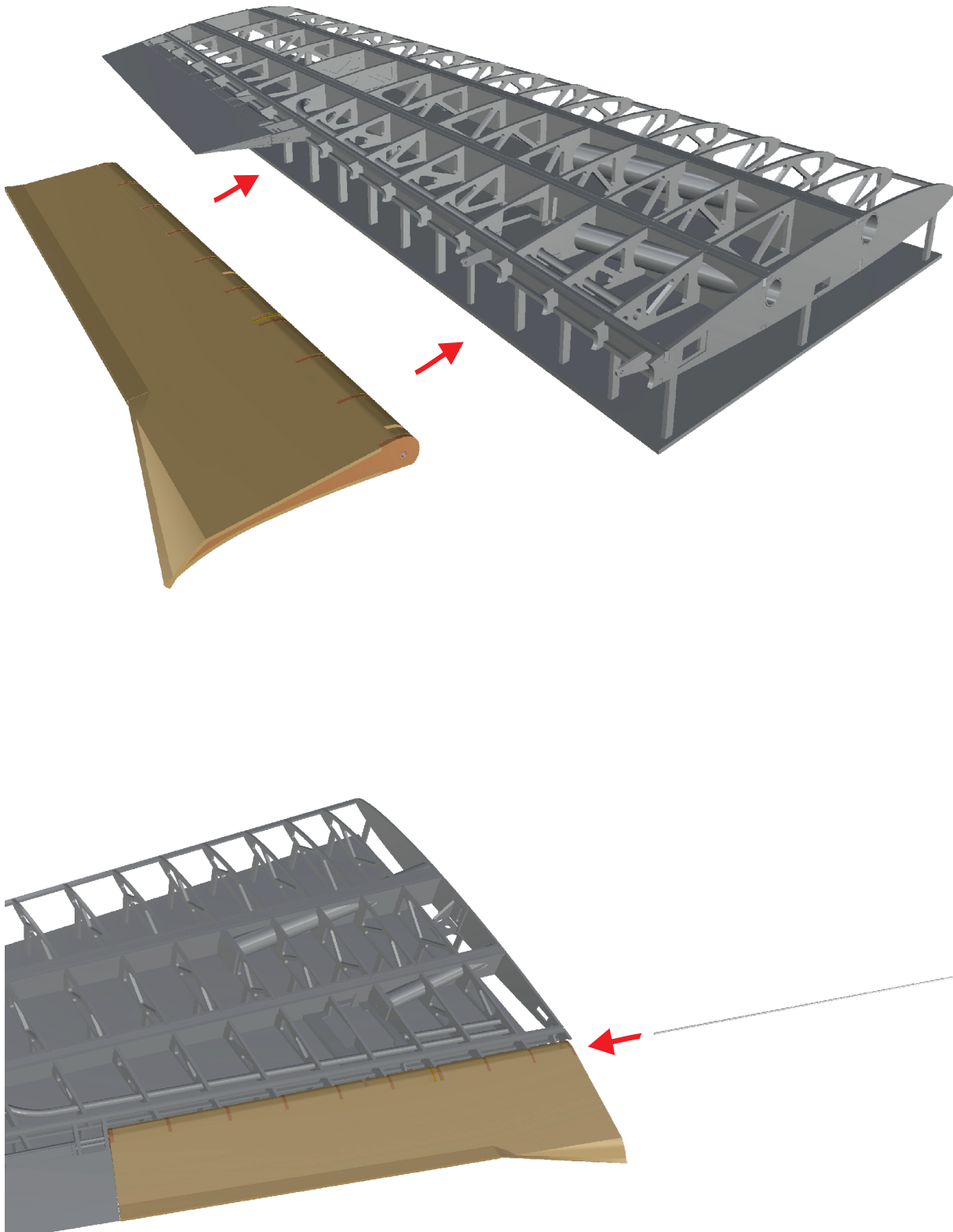


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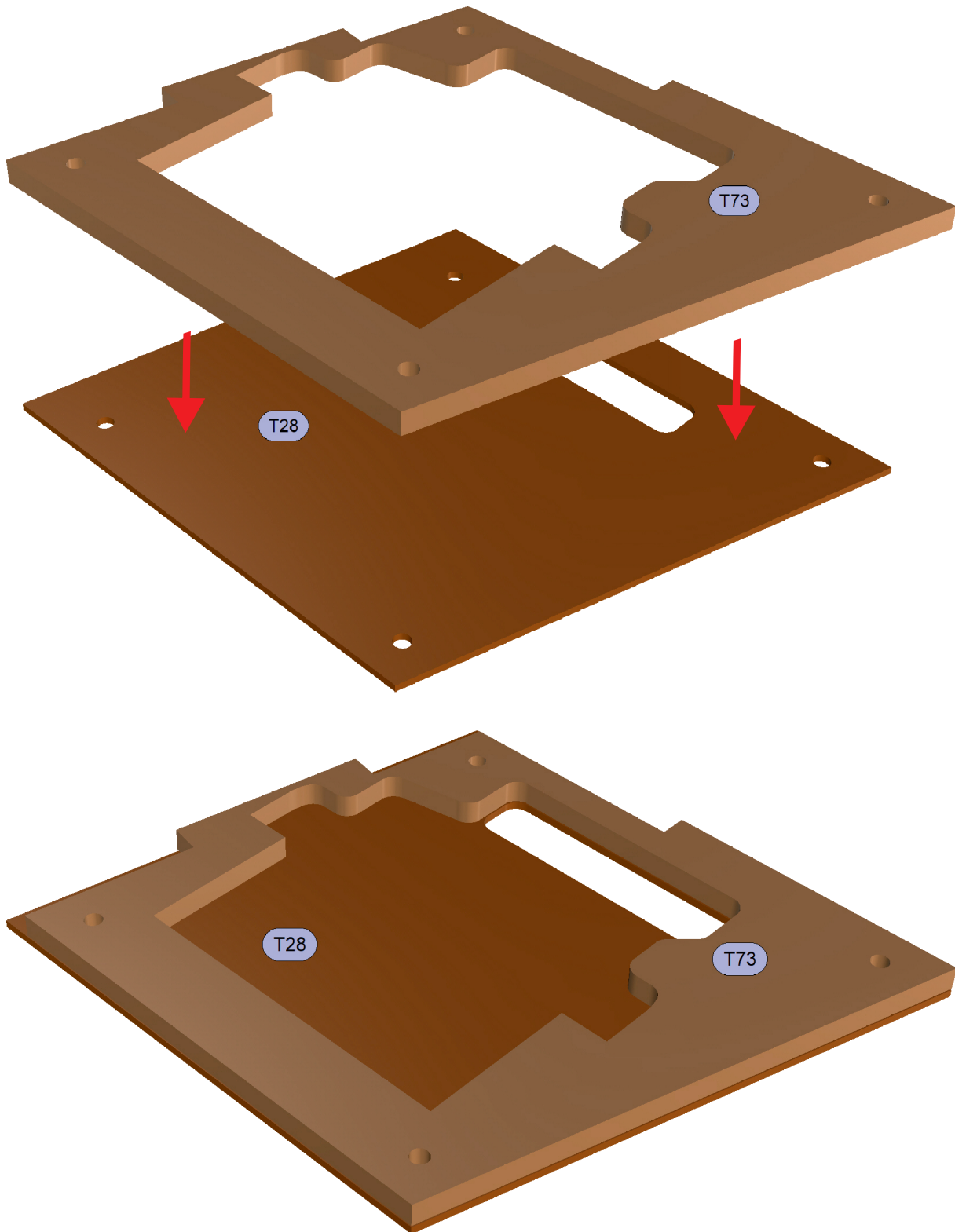
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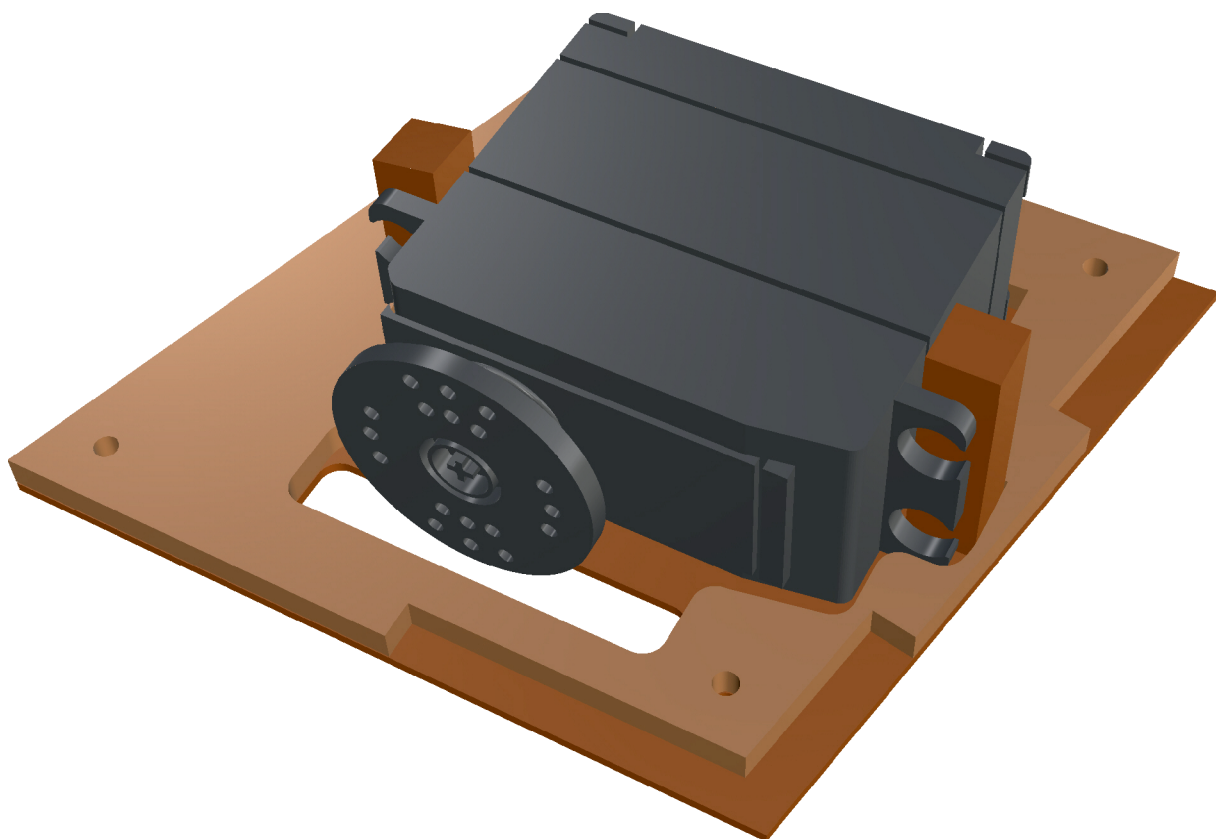
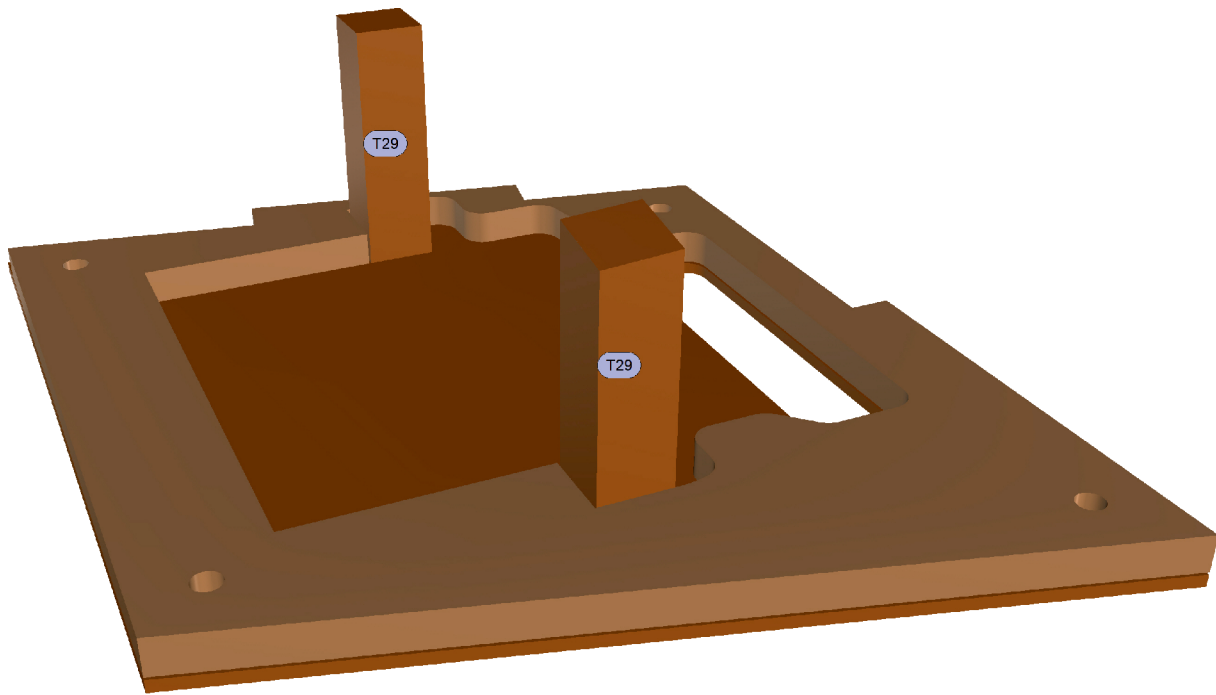
Bend the steel wire 90° at the end and file a fine notch into the middle hinge block T5. Proceed in the same way with the flap, see following page.



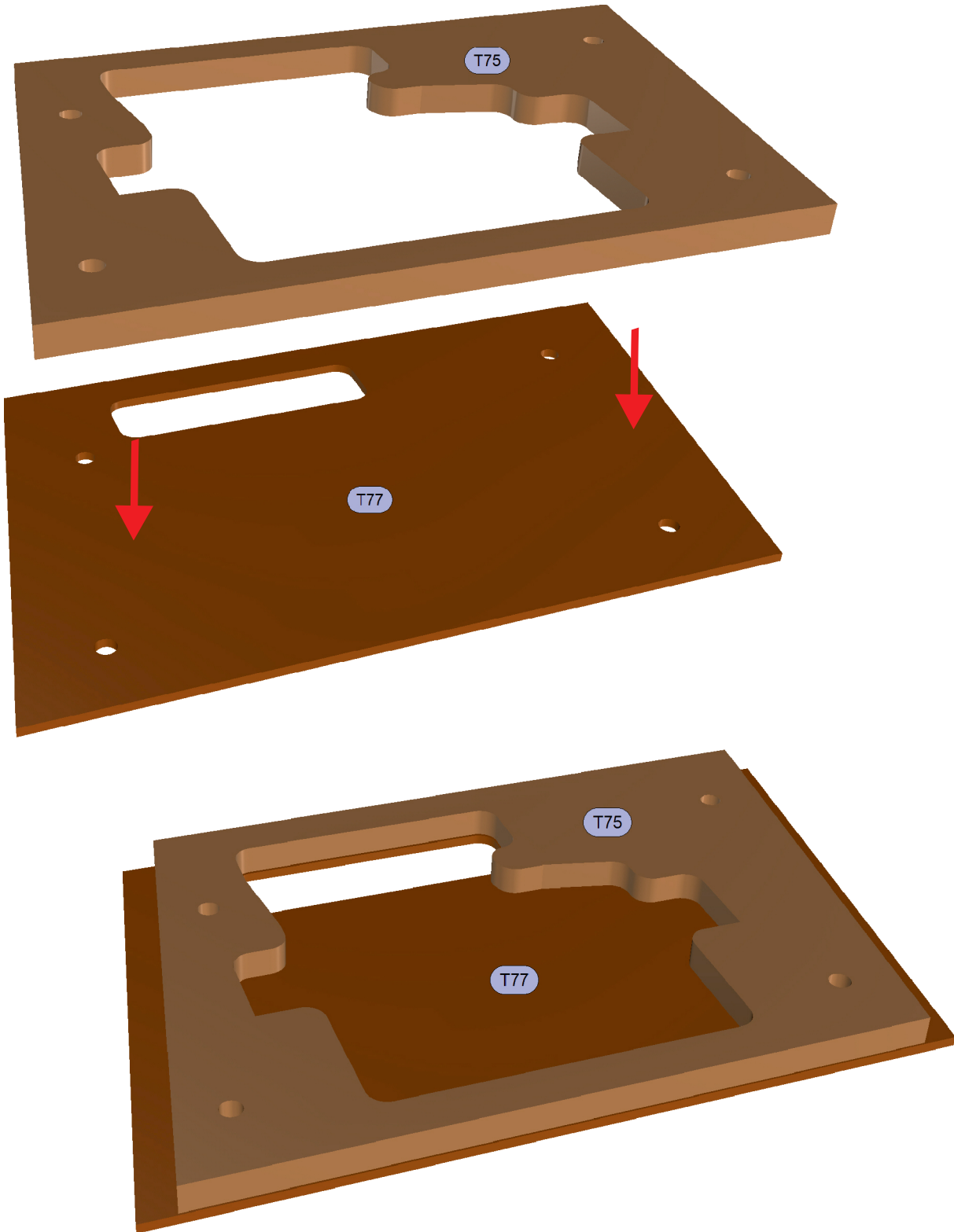
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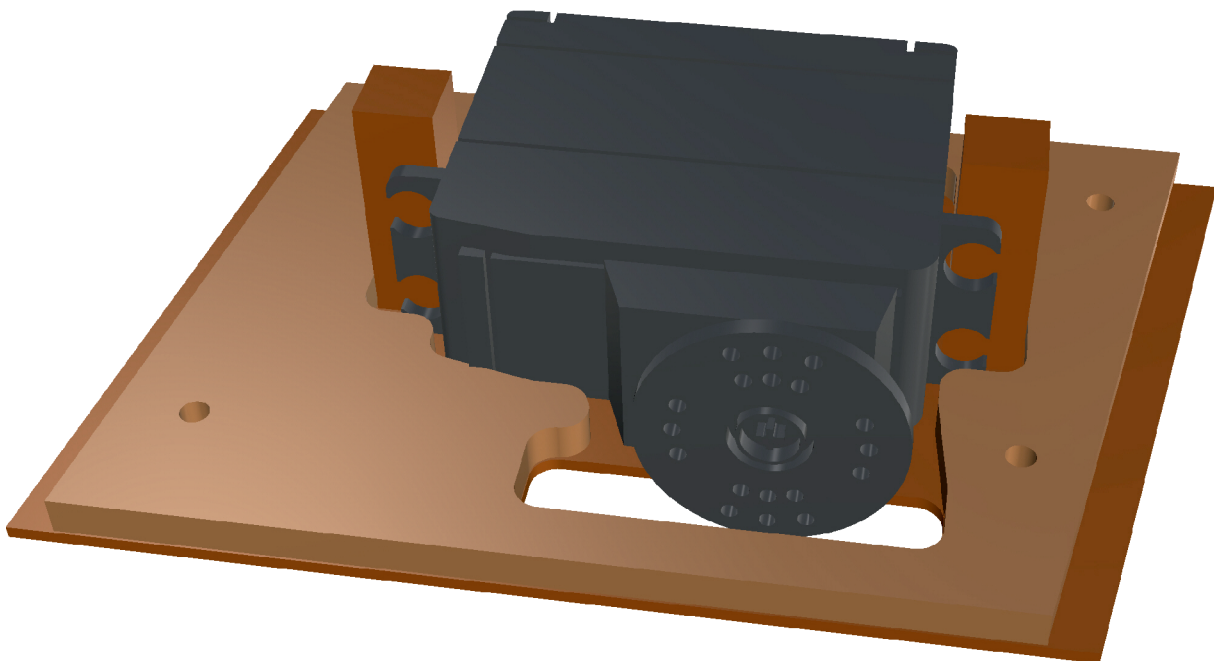
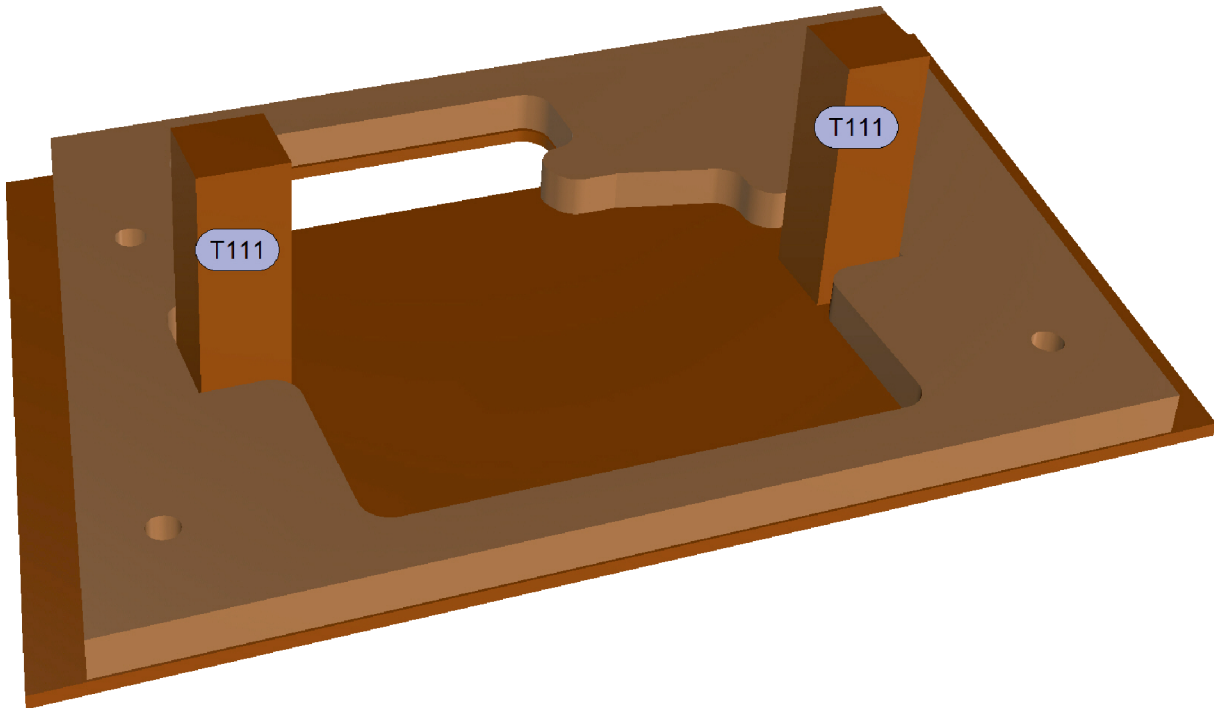
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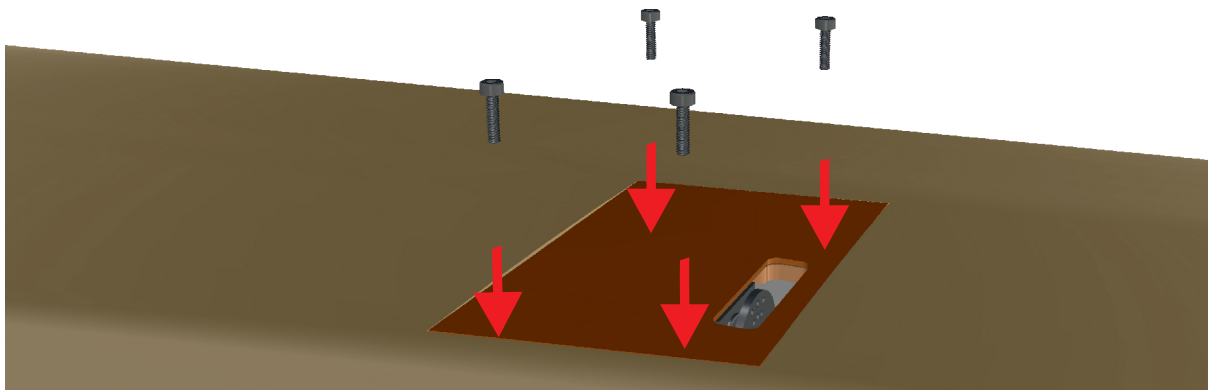
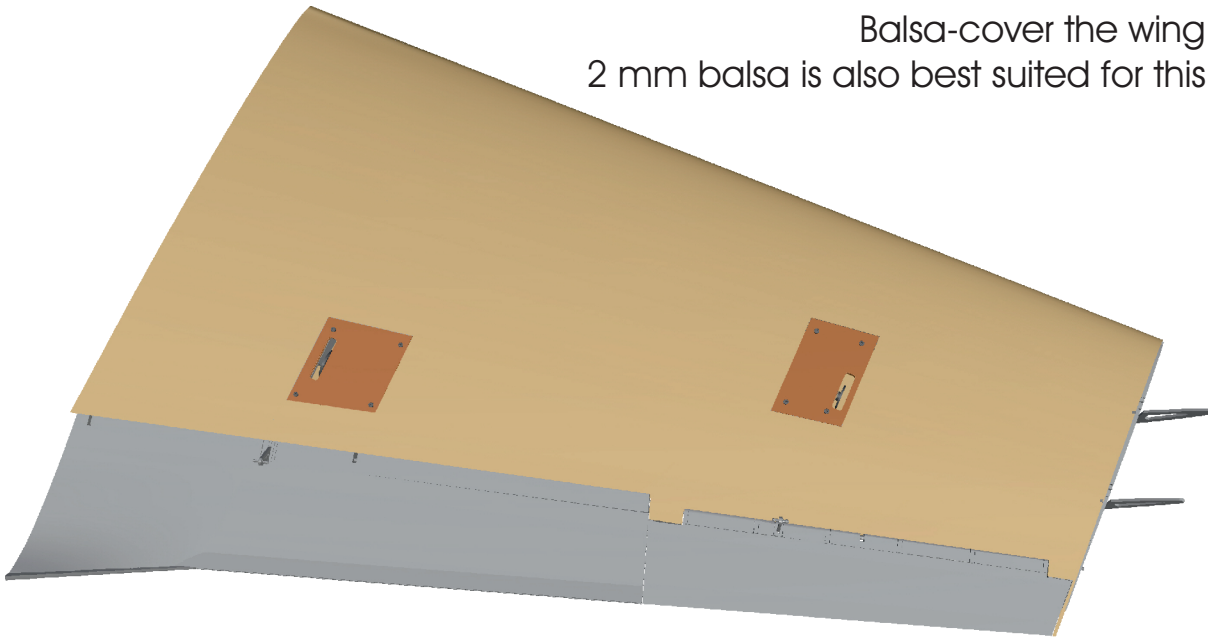
HE-162 SALAMANDER • 25%



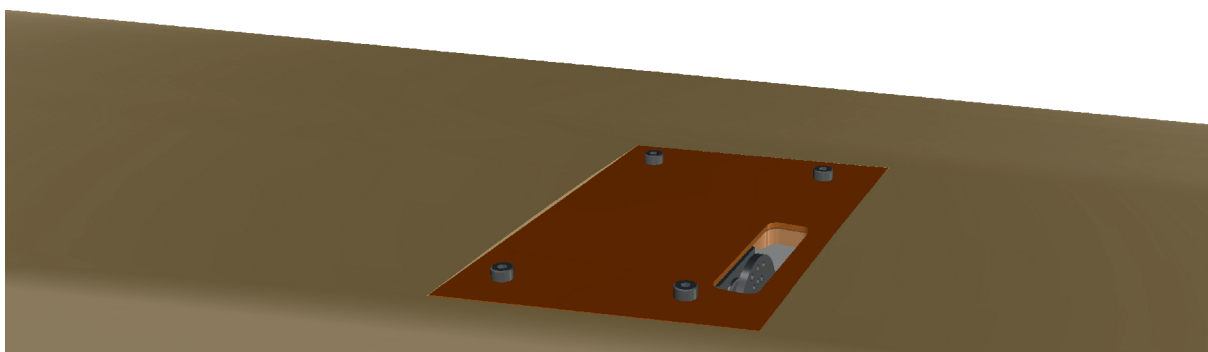
HE-162 SALAMANDER • 25%
HE162.26.05_PART3.01 - 2022-12

WING Balsa Covering,
SERVOS MOUNT

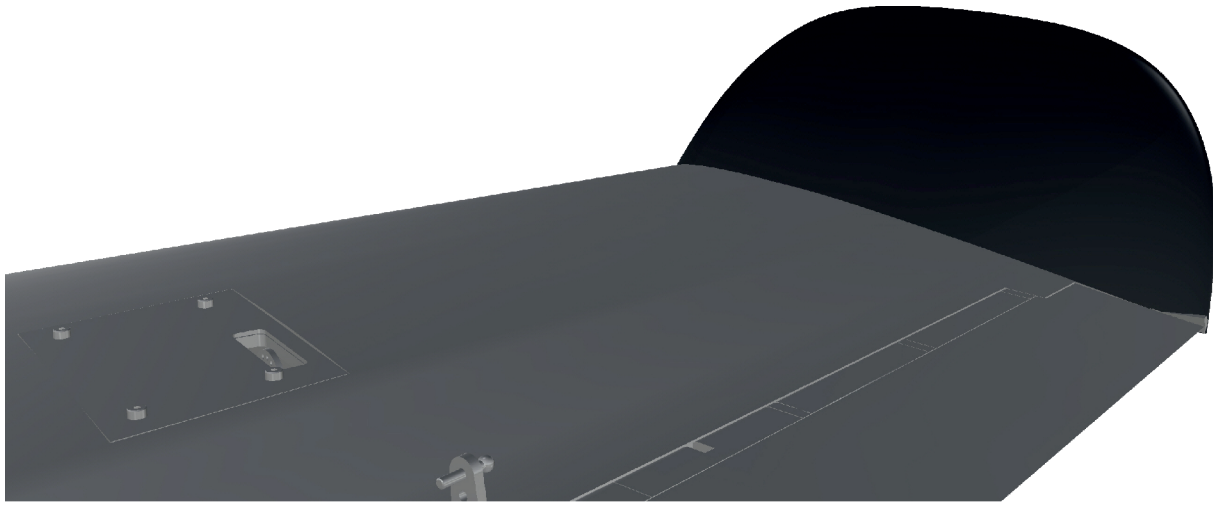
Balsa-cover the wing.
2 mm balsa is also best suited for this.



Drill threads in the frame components located in the wing and harden them with CA. This way you do not need to install nuts.



WINGLETS ("LIPPISCH EARS")



HE-162 SALAMANDER • 25%
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