

CHRISTOPH GLATT
BAUERNSTR. 77
86462 LANGWEID
GERMANY

WEB: WWW.GLATTCAD.DE
EMAIL: INFO@GLATTCAD.DE

glattCAD
MODEL AIRCRAFT

DESIGN.
PRECISION.
PERFECTION.

HEINKEL HE-162 SALAMANDER



MANUAL PART 2: EMPENNAGE

- 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!

Kind regards,
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.

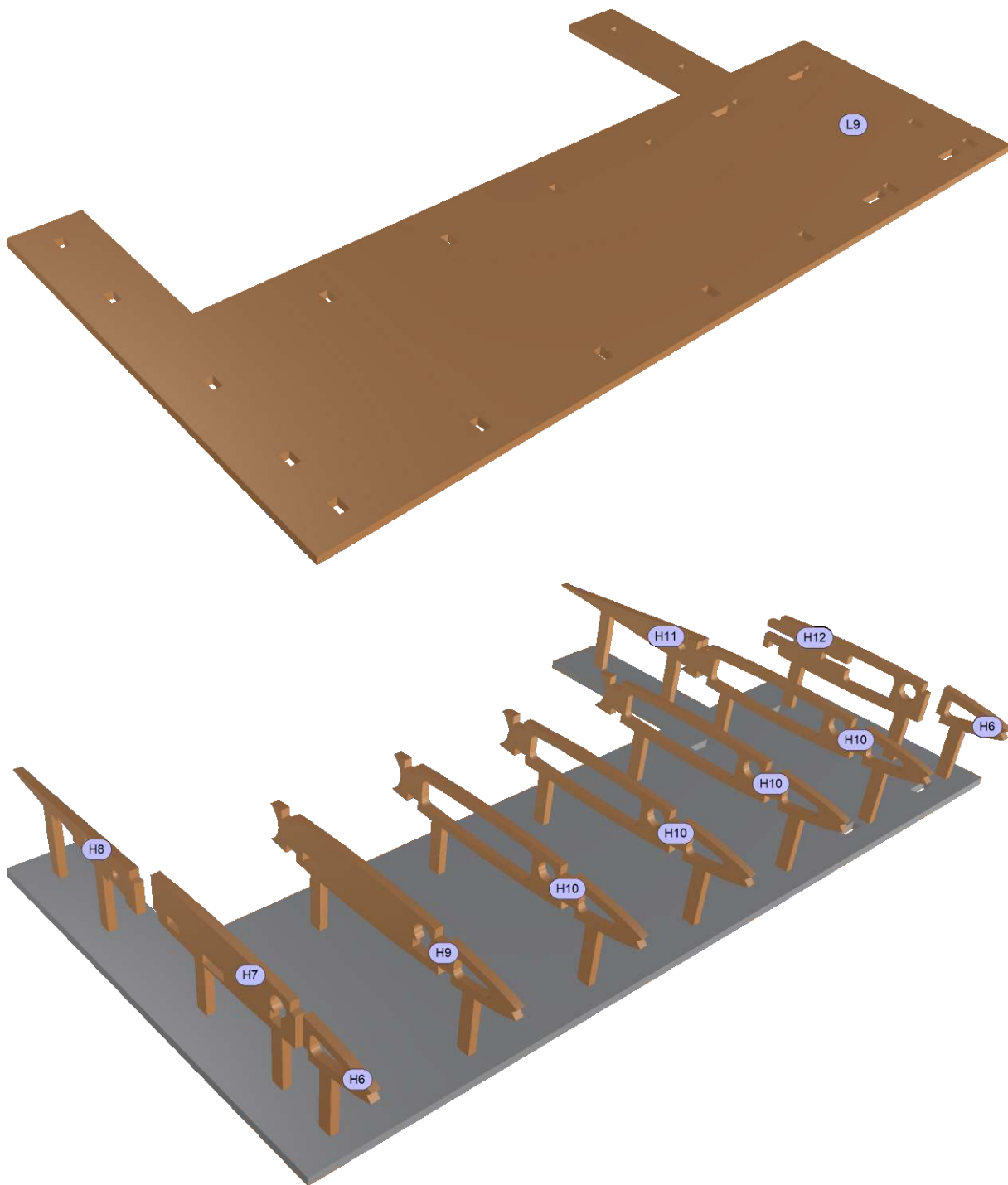
Cut out the pieces and parts from the milled boards using a box knife or a similar sharp tool. Turn the board on its back so you can better see the small tabs that need to be cut. If you break parts by accident this is not a problem. Wood is patient. Modelers are used to glue things together (again).

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

ELEVATOR\
JIG (AUXILIARY BUILD BOARD), ~RIBS

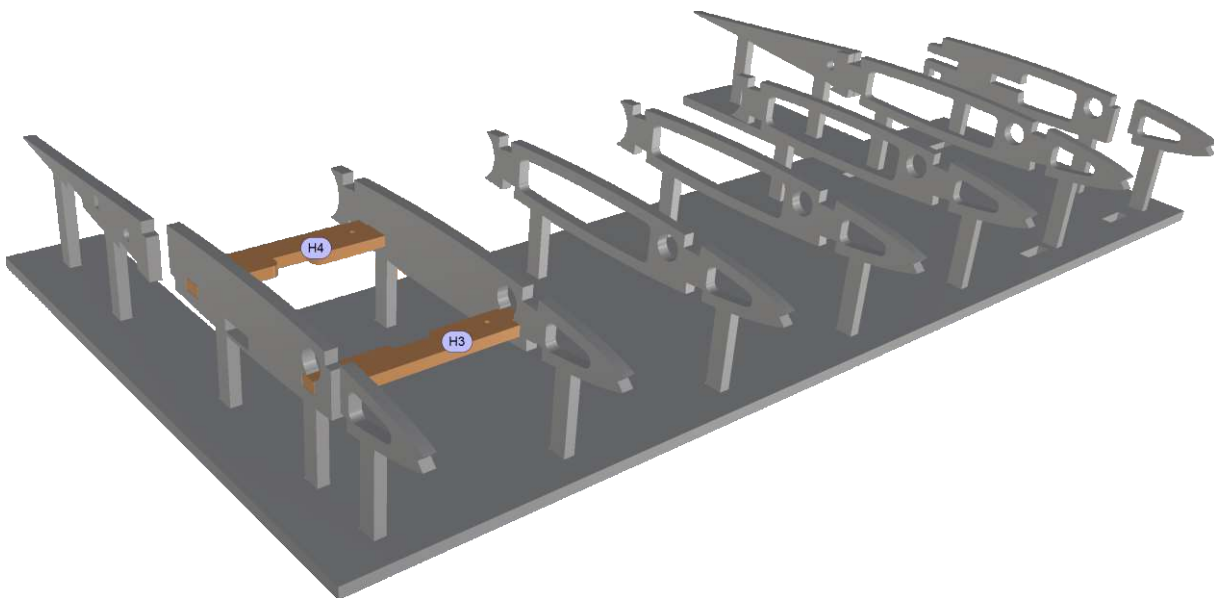


HE-162 SALAMANDER • 25%

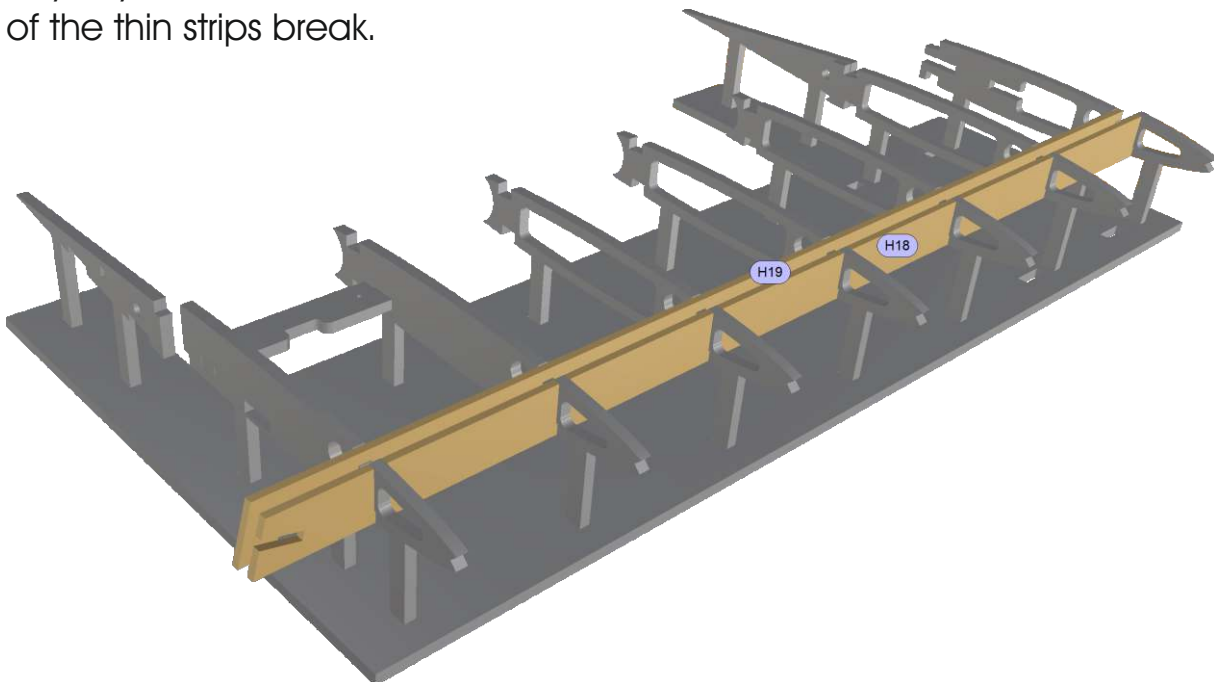
HE162.26.02_Teil2.01 - 2020-10

2

ELEVATOR\
SERVOMOUNT, ~ FRONT SPAR BOX



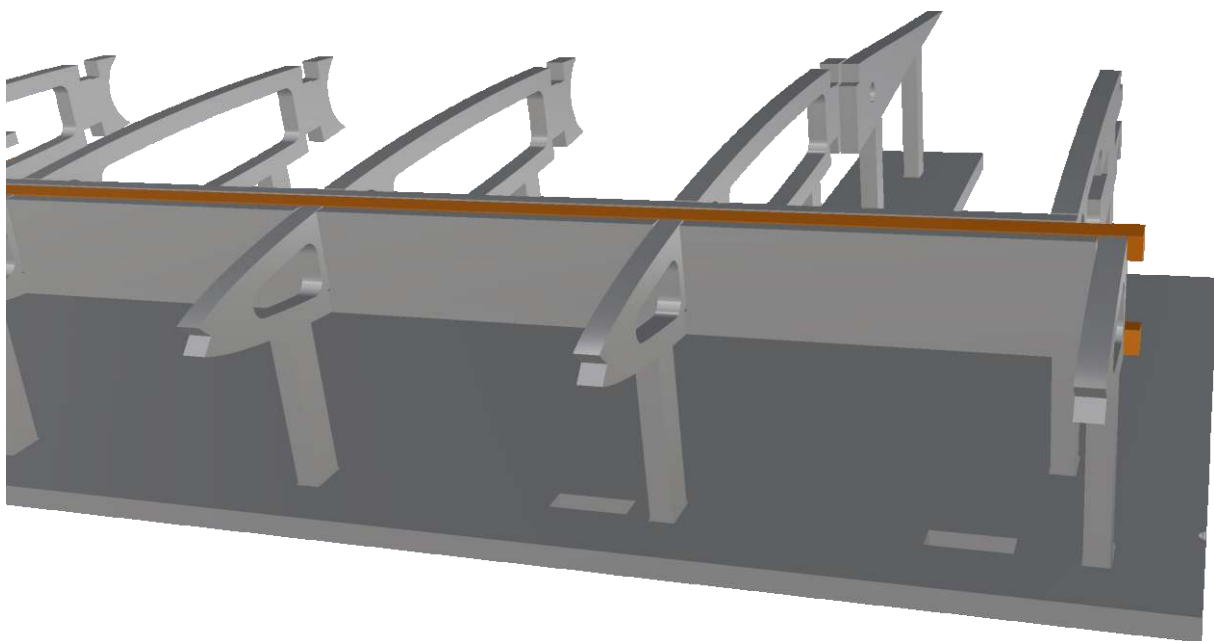
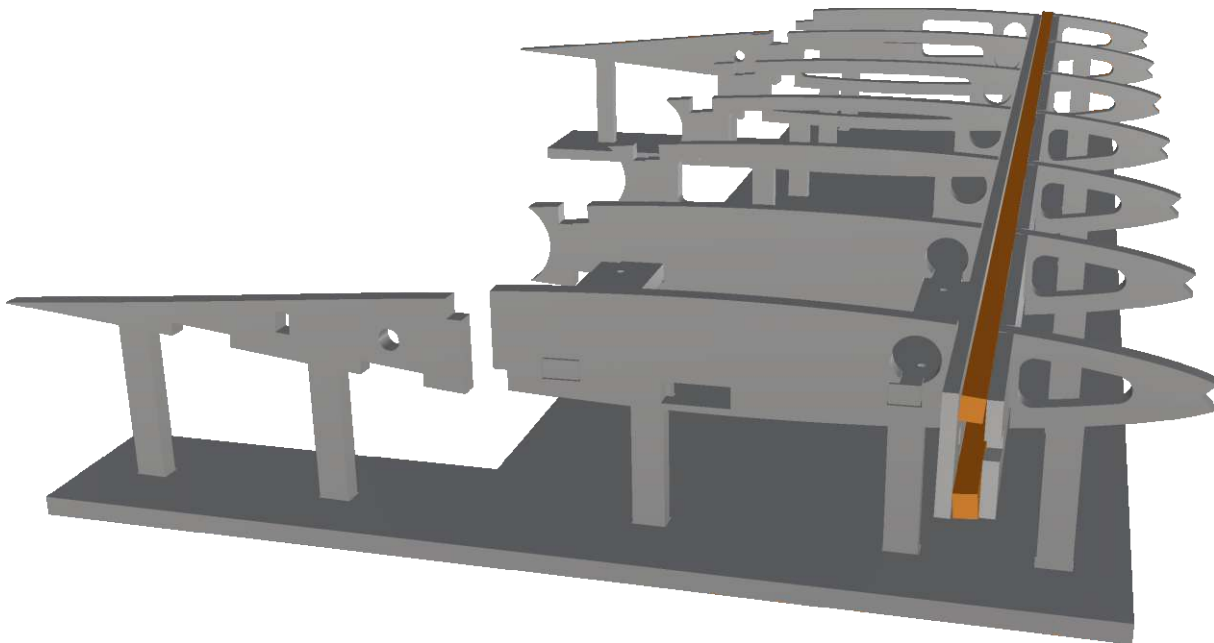
Take your time clicking the "balsa combes" into the ribs step by step. Anyway it will not be an issue if some of the thin strips break.



3

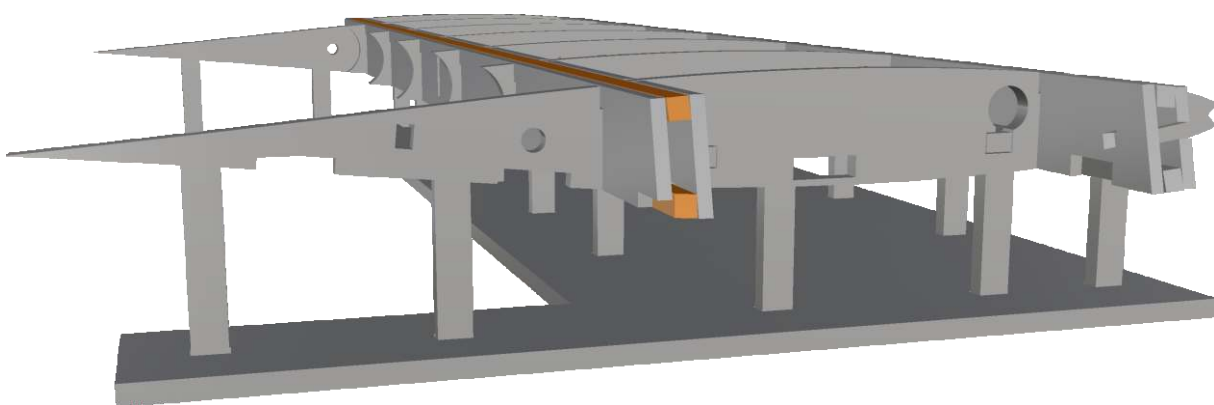
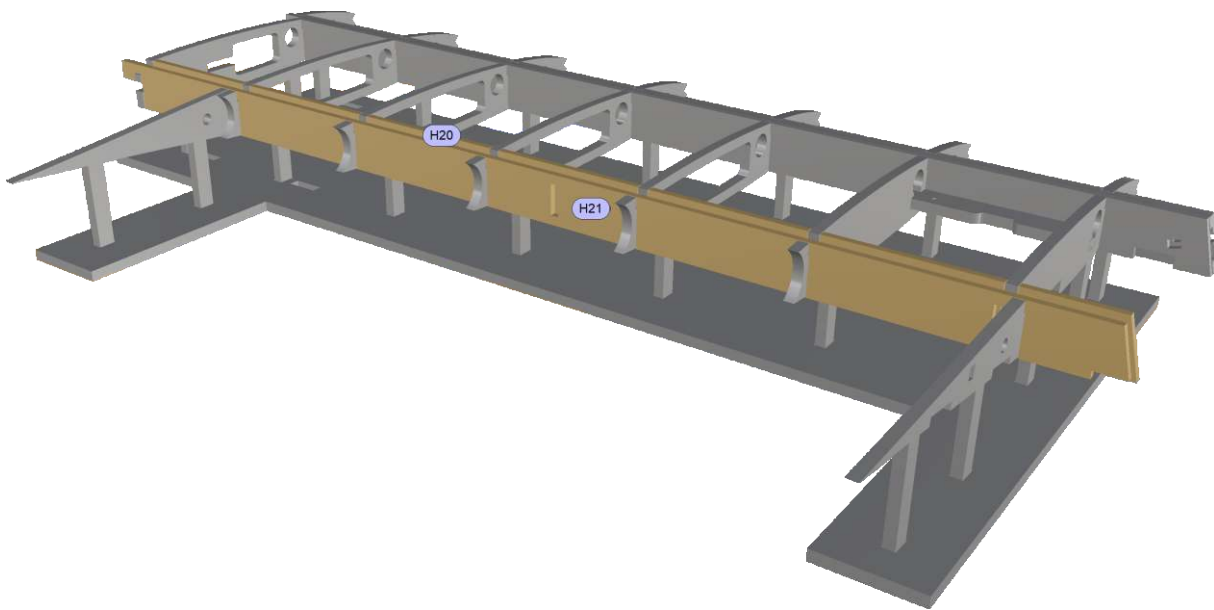
MANUAL

ELEVATOR\ FRONT SPAR BOX



HE-162 SALAMANDER • 25%
HE162.26.02_Teil2.01 - 2020-10

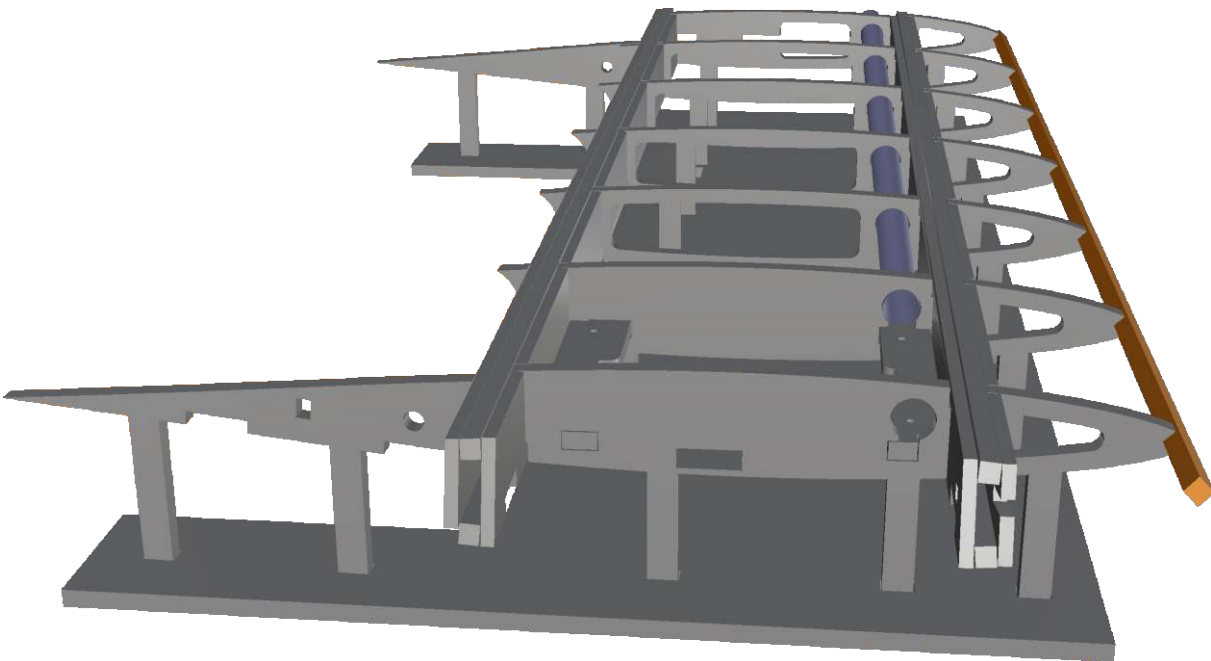
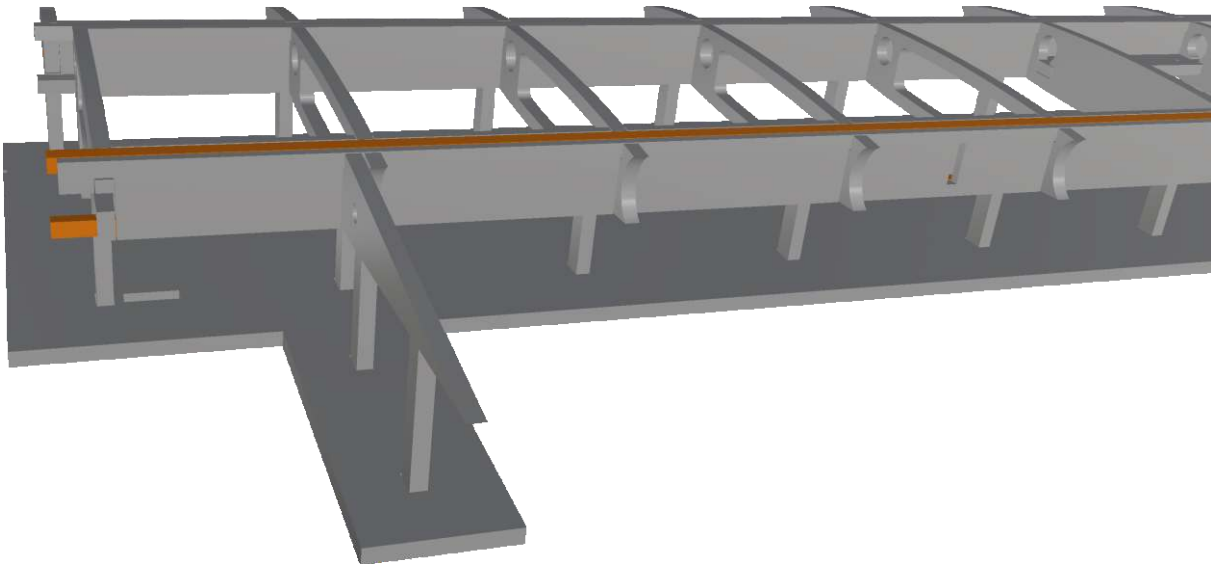
ELEVATOR\
REAR SPAR BOX



HE-162 SALAMANDER • 25%
HE162.26.02_Teil2.01 - 2020-10

5

ELEVATOR\REAR SPAR BOX,
~ ELECTRIC INSTALLATION\TUBE,
~ LEADING EDGE SPAR



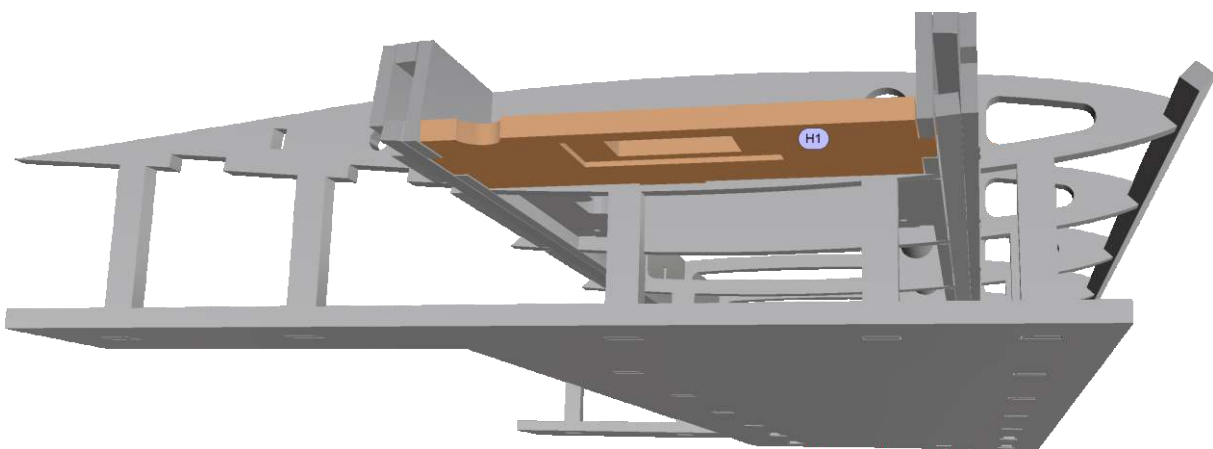
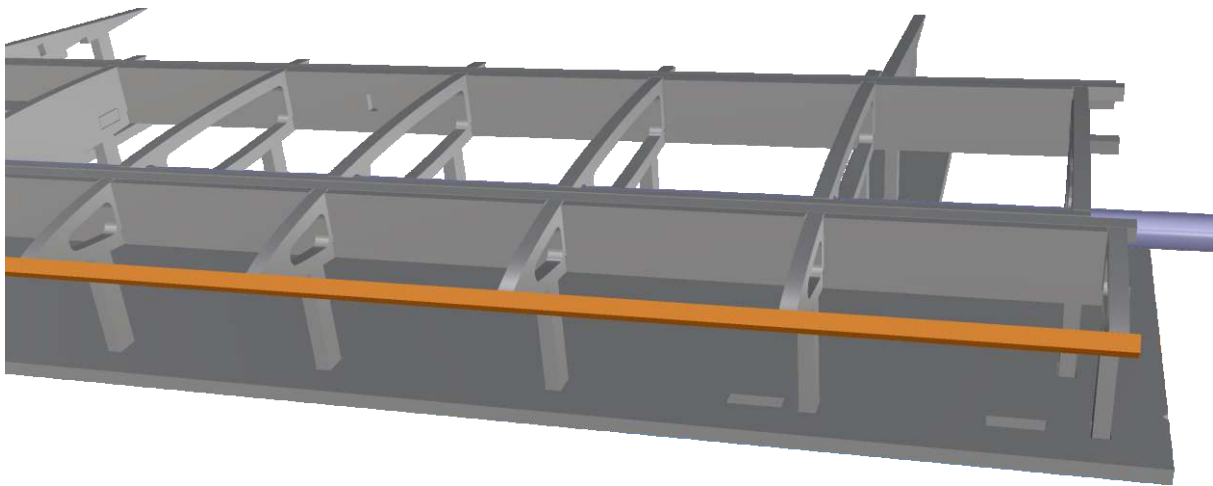
HE-162 SALAMANDER • 25%

HE162.26.02_Teil2.01 - 2020-10

6

MANUAL

ELEVATOR\LEADING EDGE SPAR,
~ELECTRIC CONNECTION

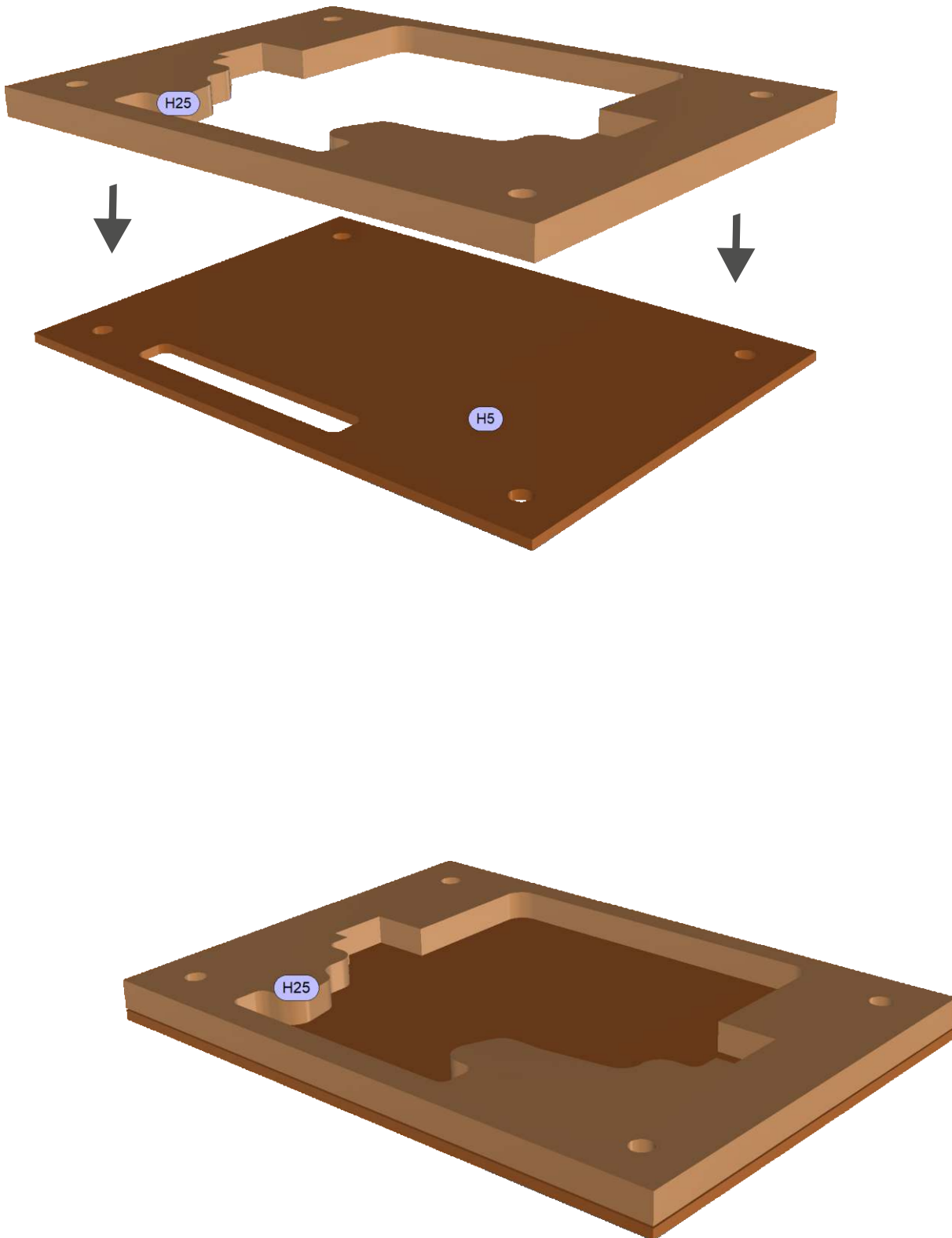


HE-162 SALAMANDER • 25%

HE162.26.02_Teil2.01 - 2020-10

7

ELEVATOR\
REMOVABLE SERVO CAP



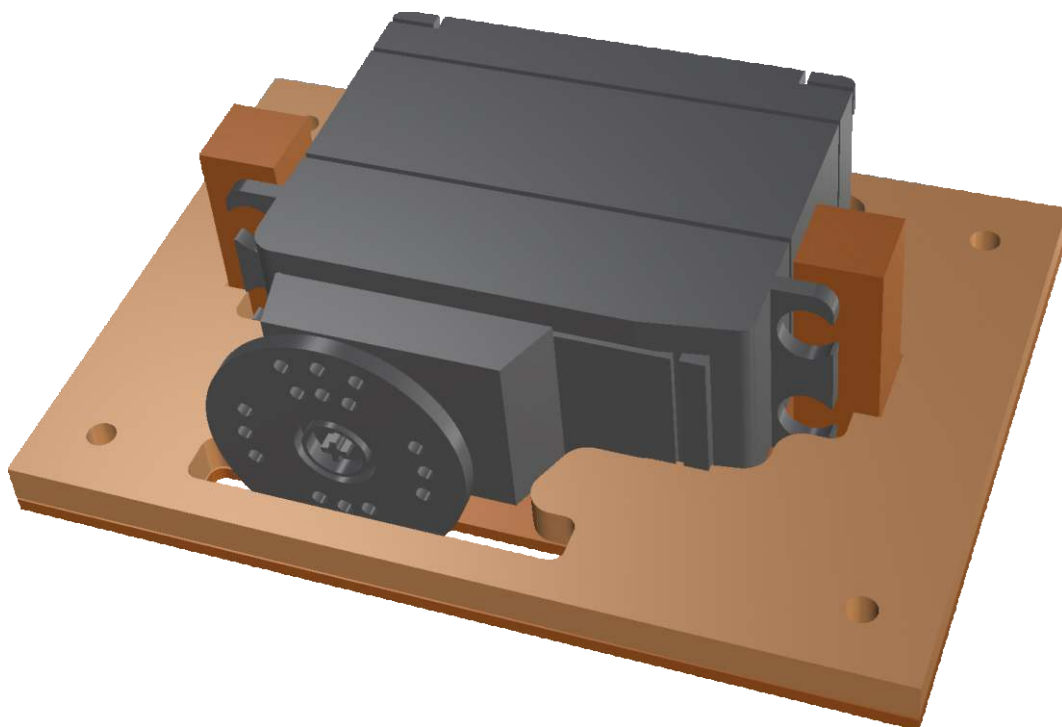
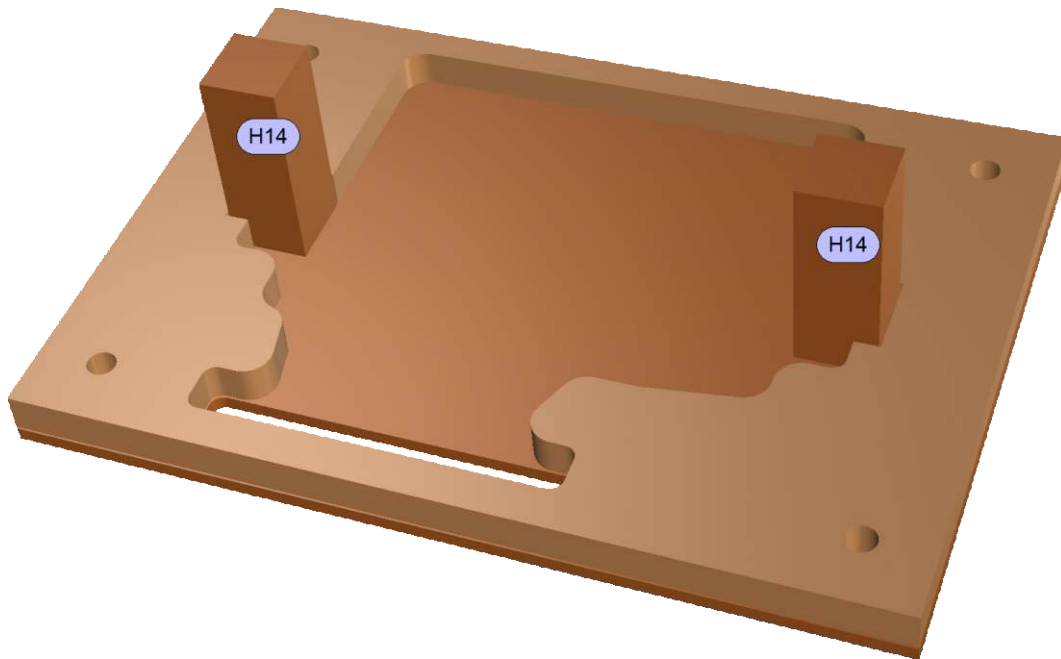
HE-162 SALAMANDER • 25%

HE162.26.02_Teil2.01 - 2020-10

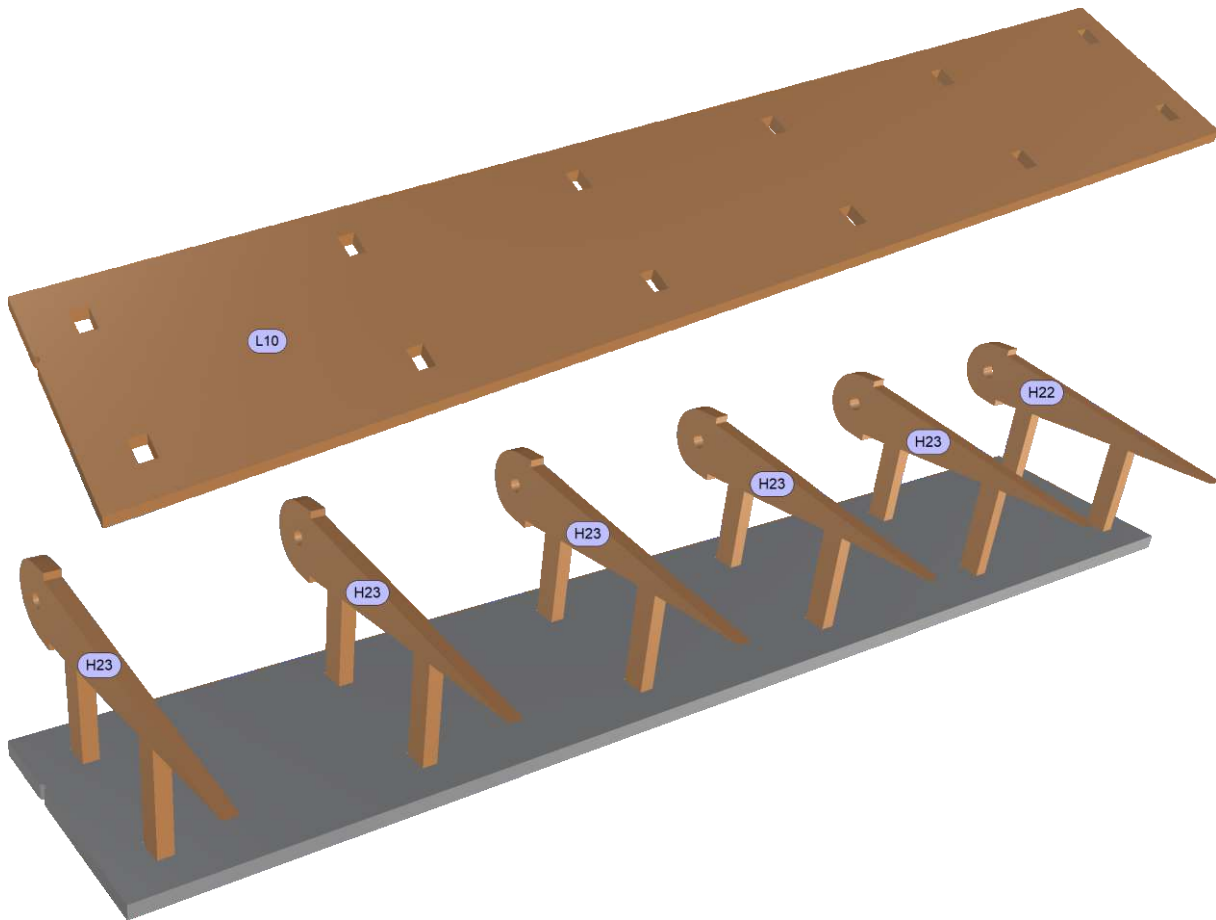
8

MANUAL

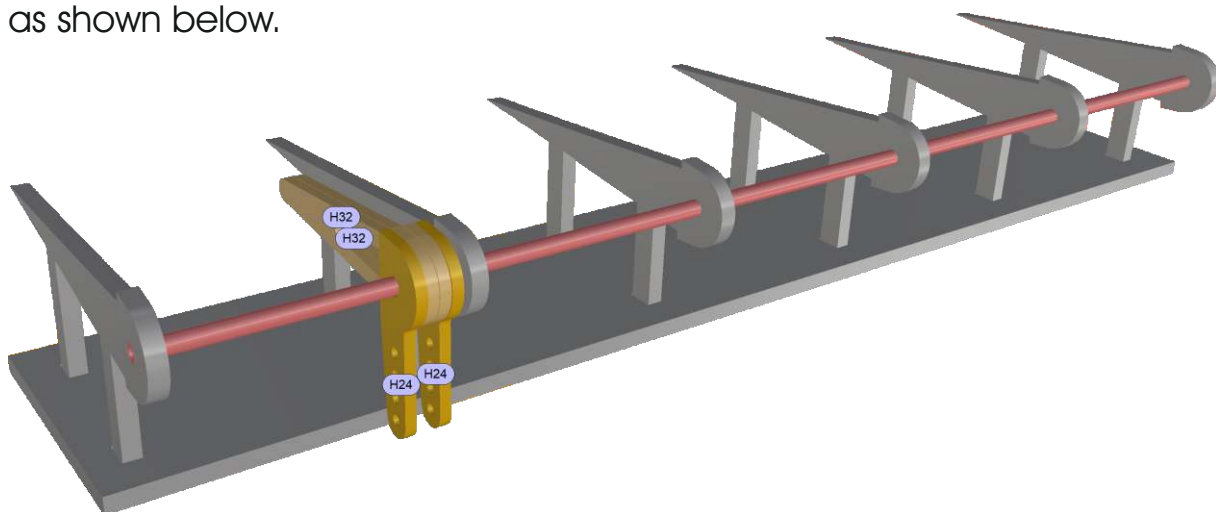
ELEVATOR\ REMOVABLE SERVO CAP



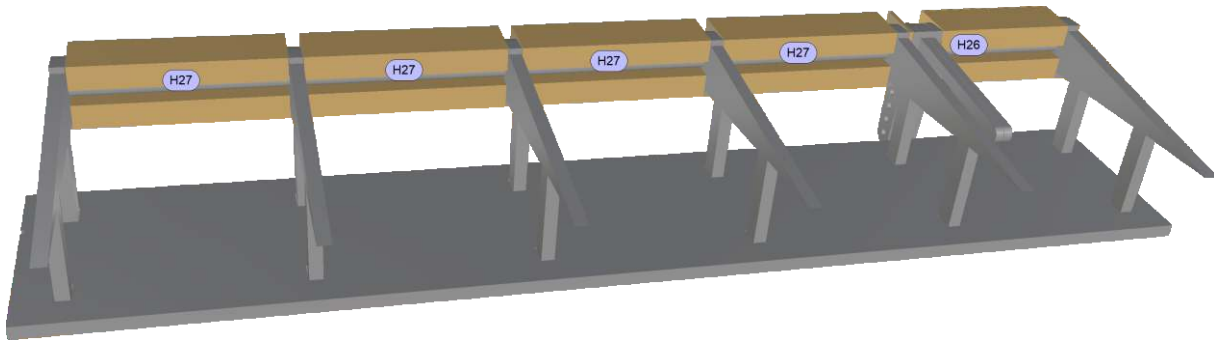
HE-162 SALAMANDER • 25%



Glue a plastic tube (outer tube of "bowden cable", D3.0 x d2.1 mm) into ribs after having threaded the control horn parts as shown below.

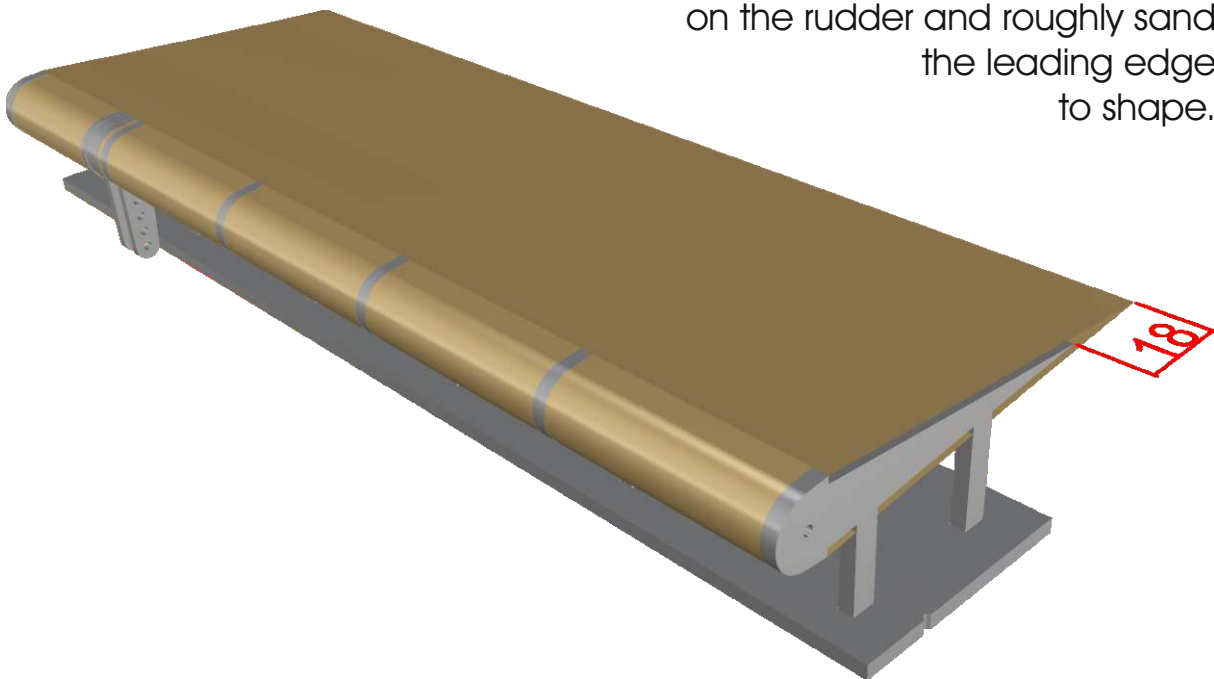


ELEVATOR\
 RUDDER BLADE\LEADING EDGE,
 ~ COVERING

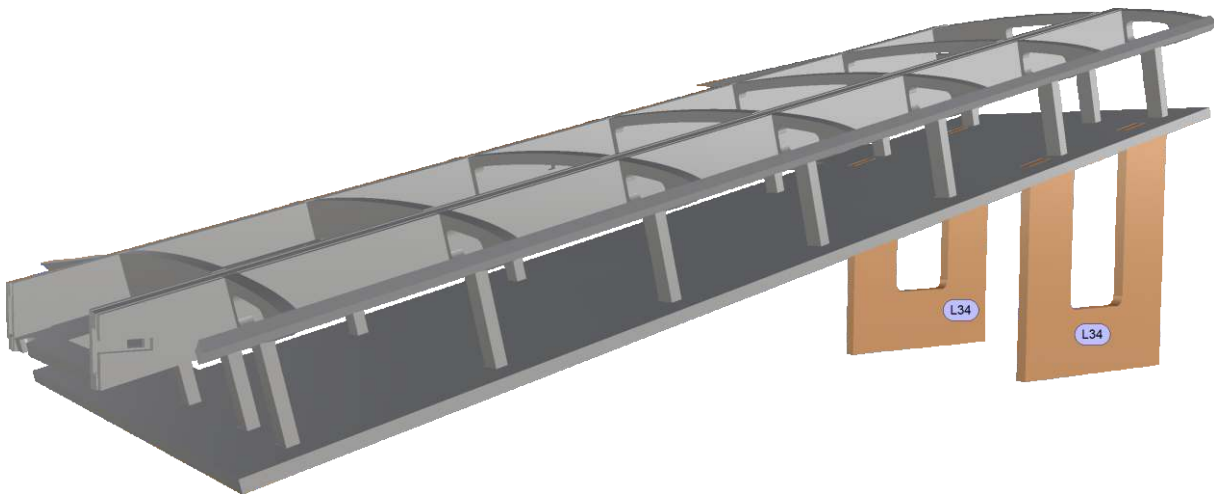


Saw/file grooves into the balsa parts H26 and H27 and glue the pieces between the ribs and to the bowden tube.

Put on the upper 2mm balsa sheeting on the rudder and roughly sand the leading edge to shape.



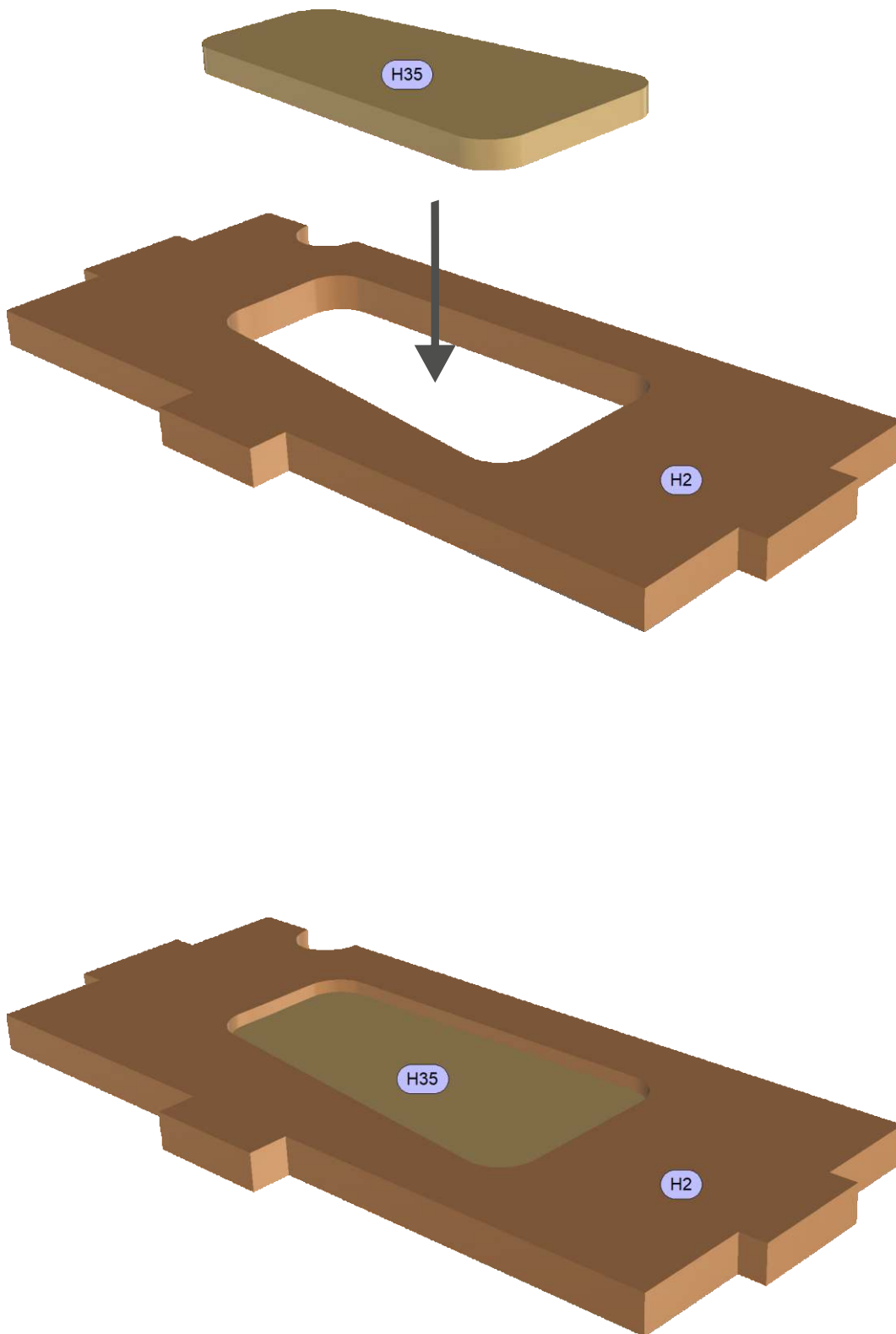
ELEVATOR\
CONNECTING BOTH HALVES\
AXILLIARY DEVICE



The following steps handle the connection of left and right elevator.
The correct angle is secured by using auxiliary parts L34 to be attached
to either of the elevator jigs.

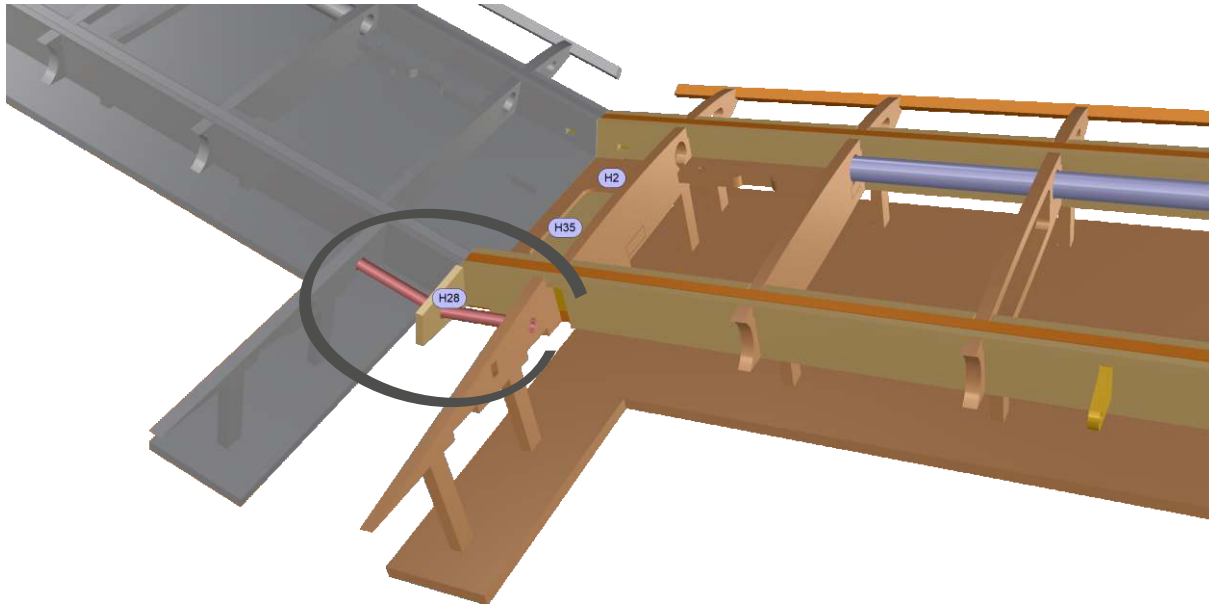
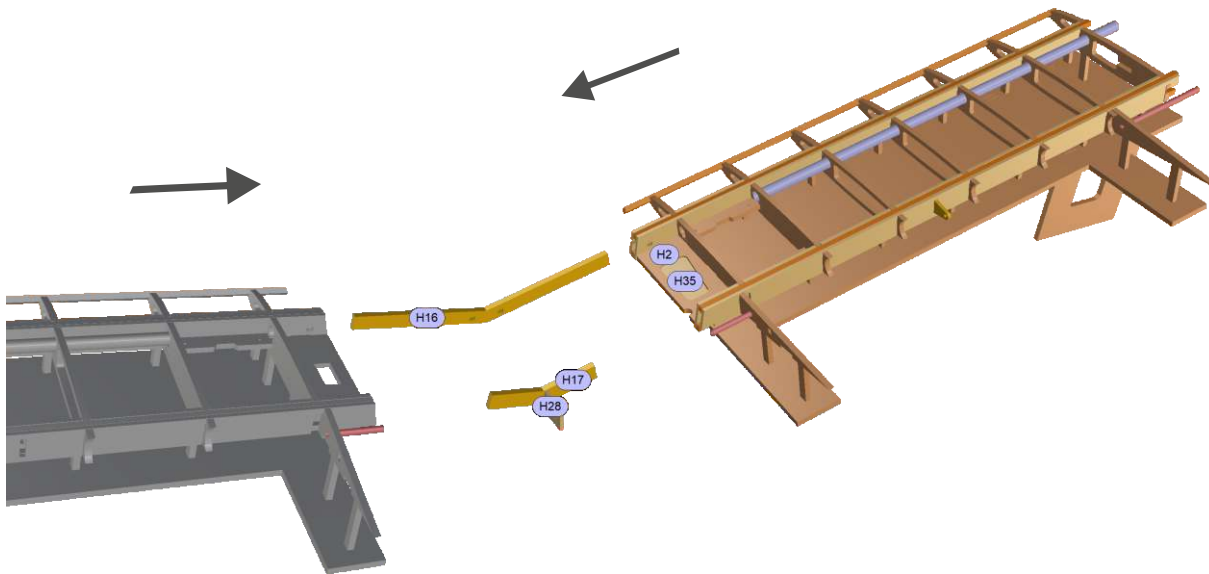
12

ELEVATOR\
CONNECTING BOTH HALVES\
FILLING PART



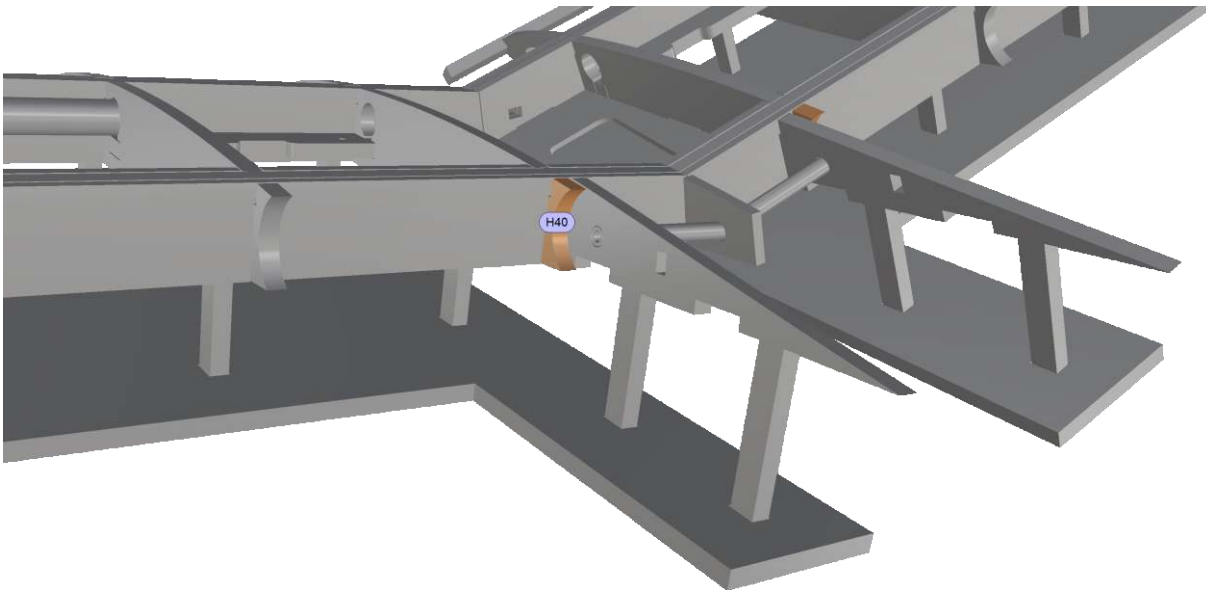
HE-162 SALAMANDER • 25%
HE162.26.02_Teil2.01 - 2020-10

ELEVATOR\
CONNECTING BOTH HALVES\
CONNECTORS



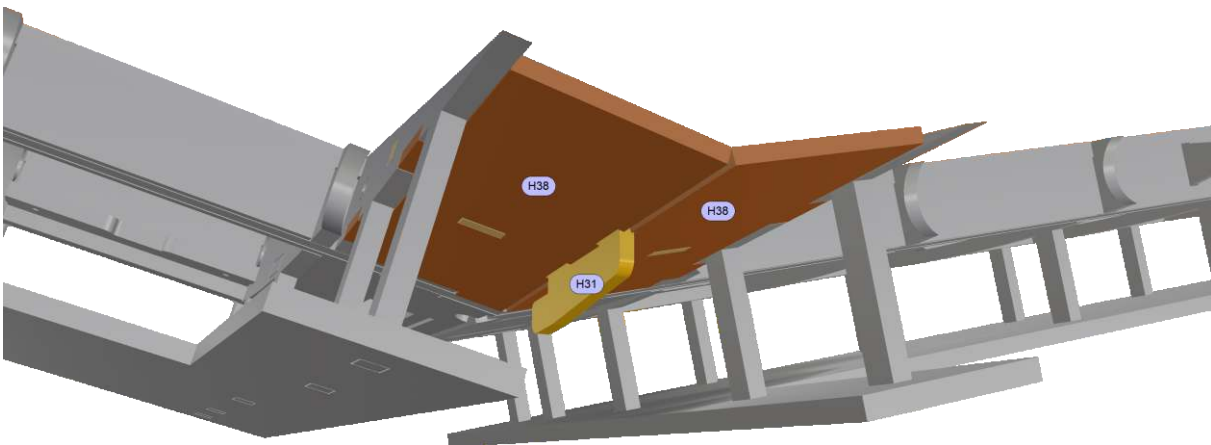
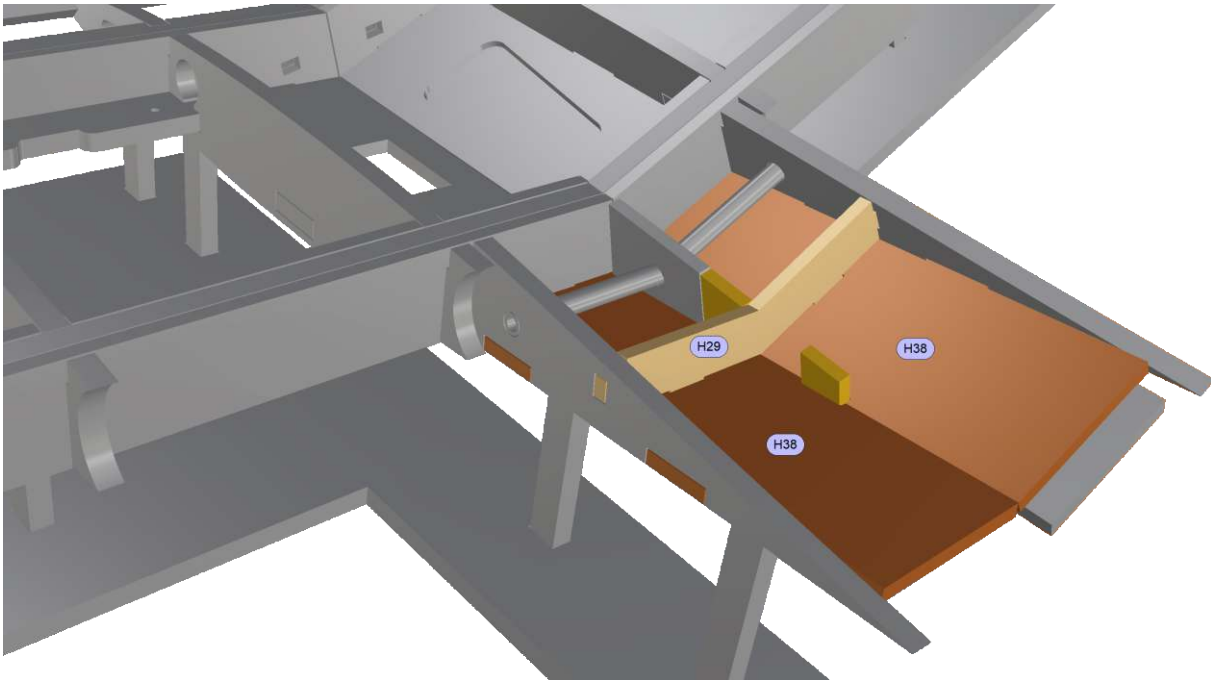
Recommendation:

Reinforce the area around H28 with some thickened resin and connect the plastic tube to the rear spars by inserting small wooden filling pieces. This region is vital for keeping the rudder blades safely connected to the elevator!

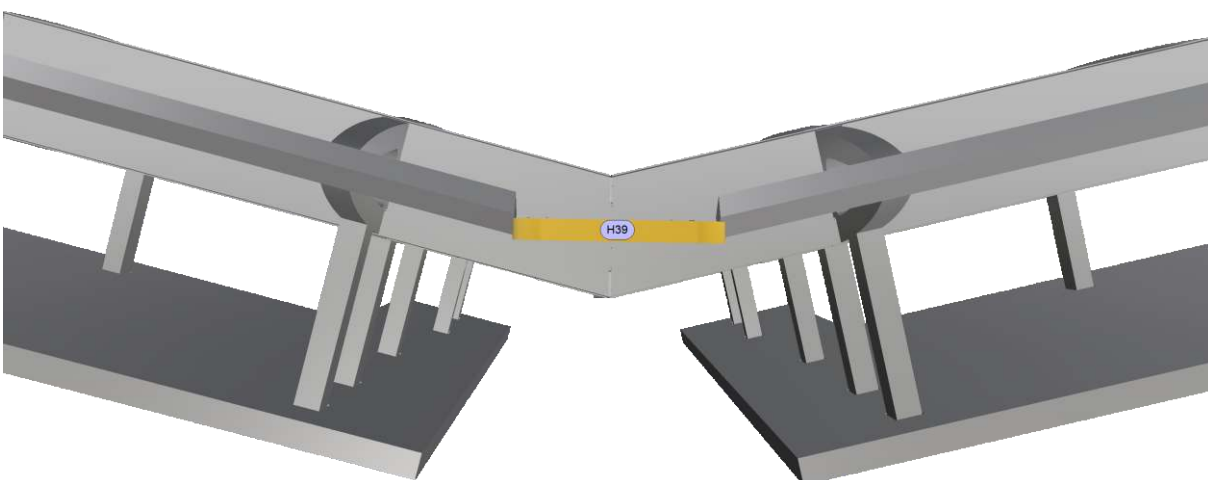
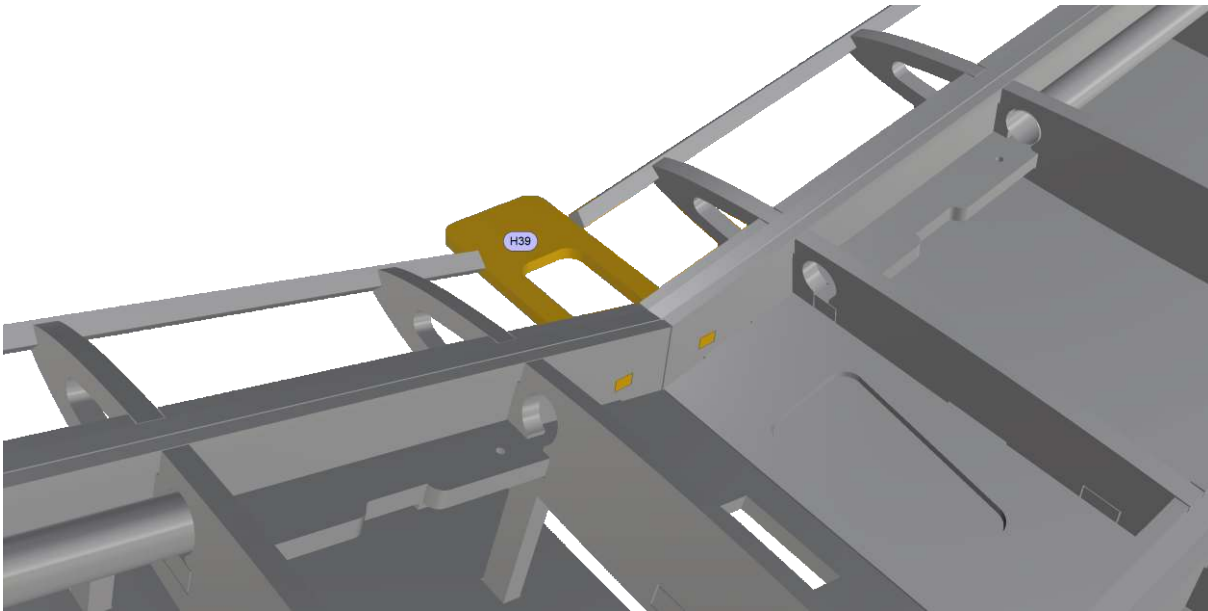


HE-162 SALAMANDER • 25%

ELEVATOR\
FUSELAGE LOCATING FACES



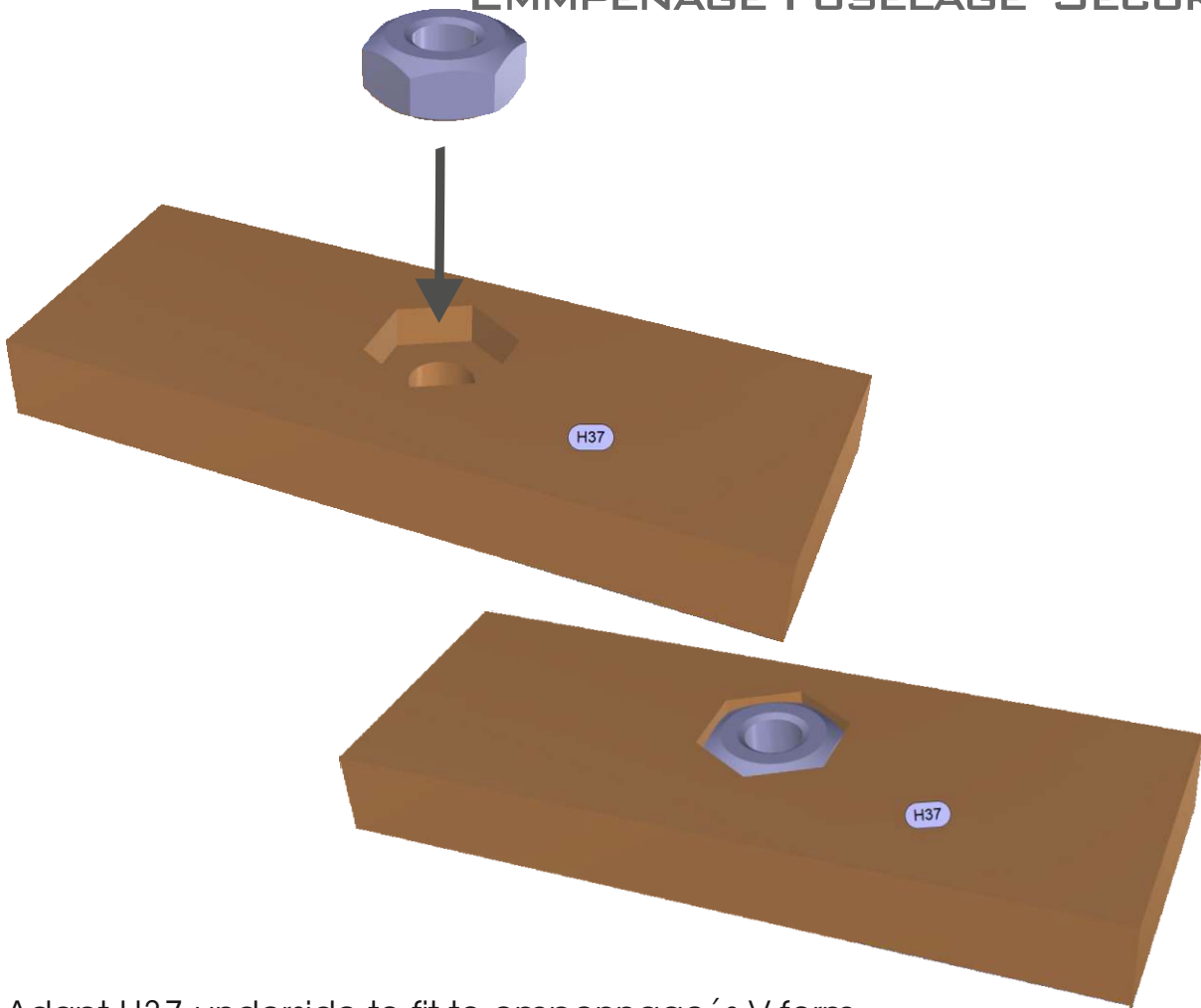
HE-162 SALAMANDER • 25%
HE162.26.02_Teil2.01 - 2020-10



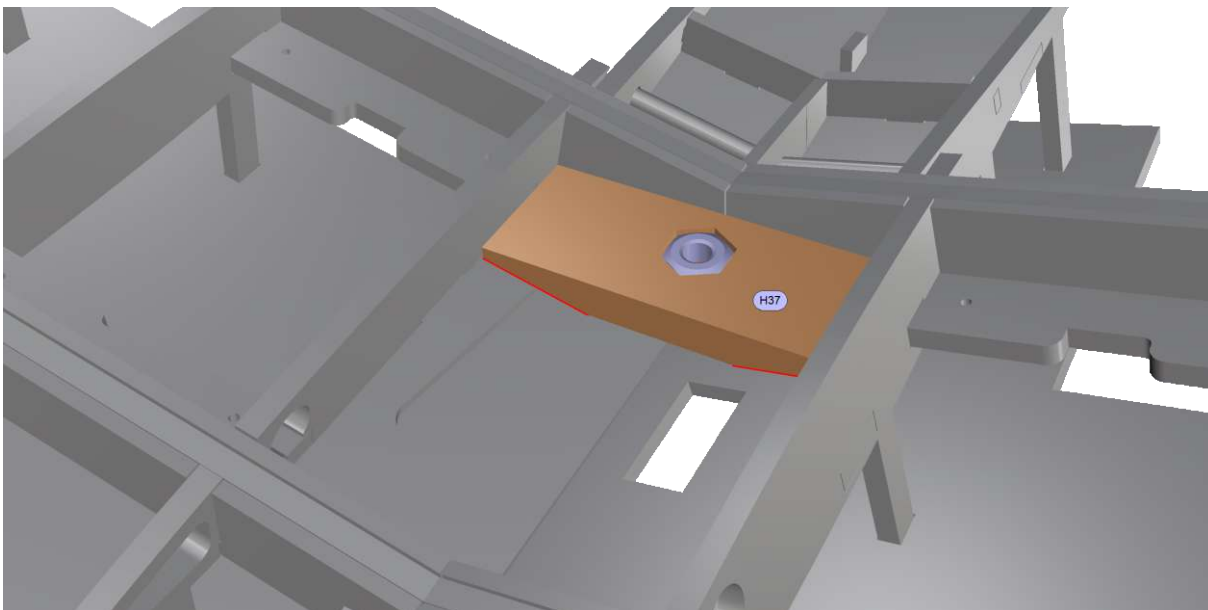
HE-162 SALAMANDER • 25%
HE162.26.02_Teil2.01 - 2020-10

17

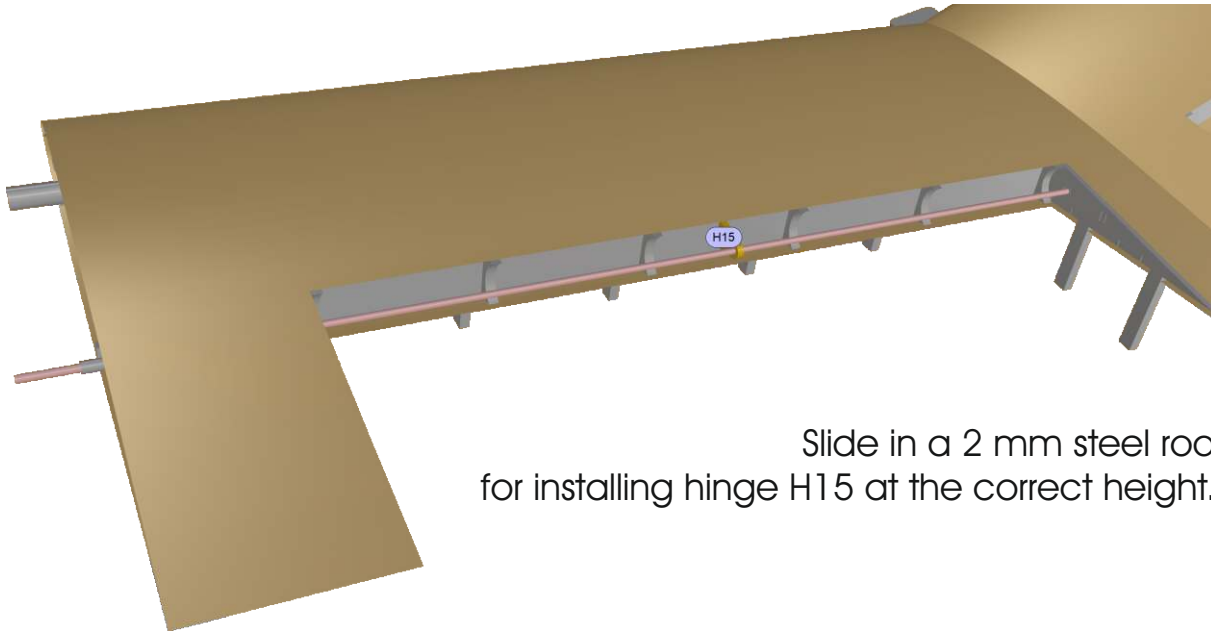
ELEVATOR\
EMMPENAGE-FUSELAGE SECURE FIX



Adapt H37 underside to fit to empennage's V-form.

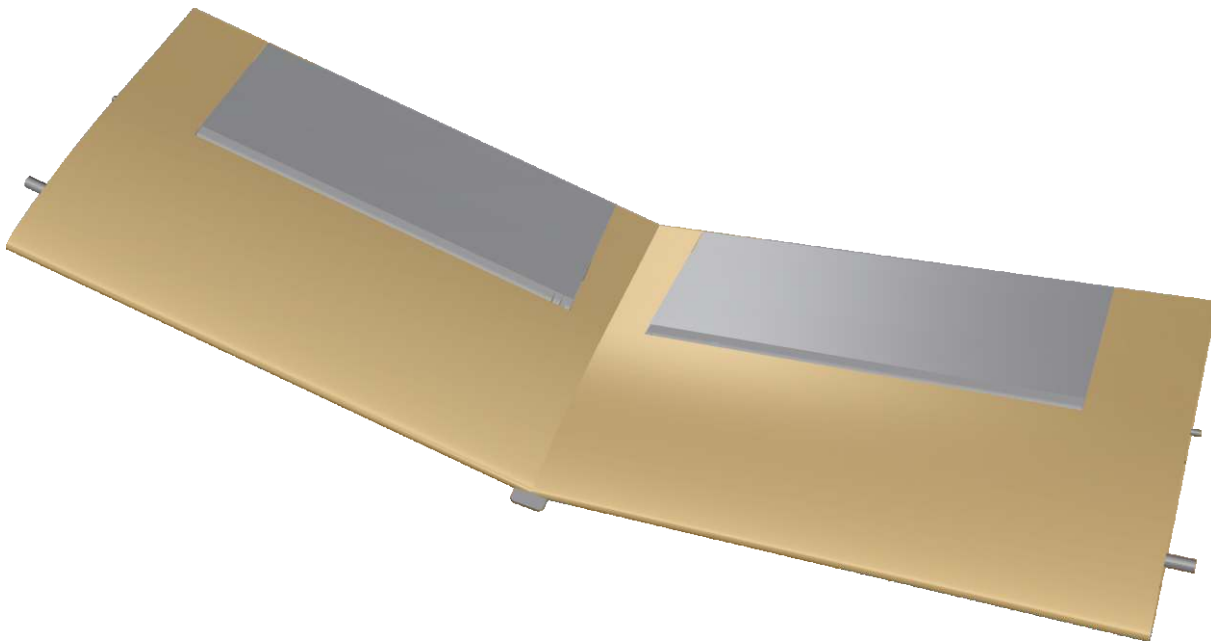


ELEVATOR\
 RUDDER BLADE HINGES,
 ~ COVERING



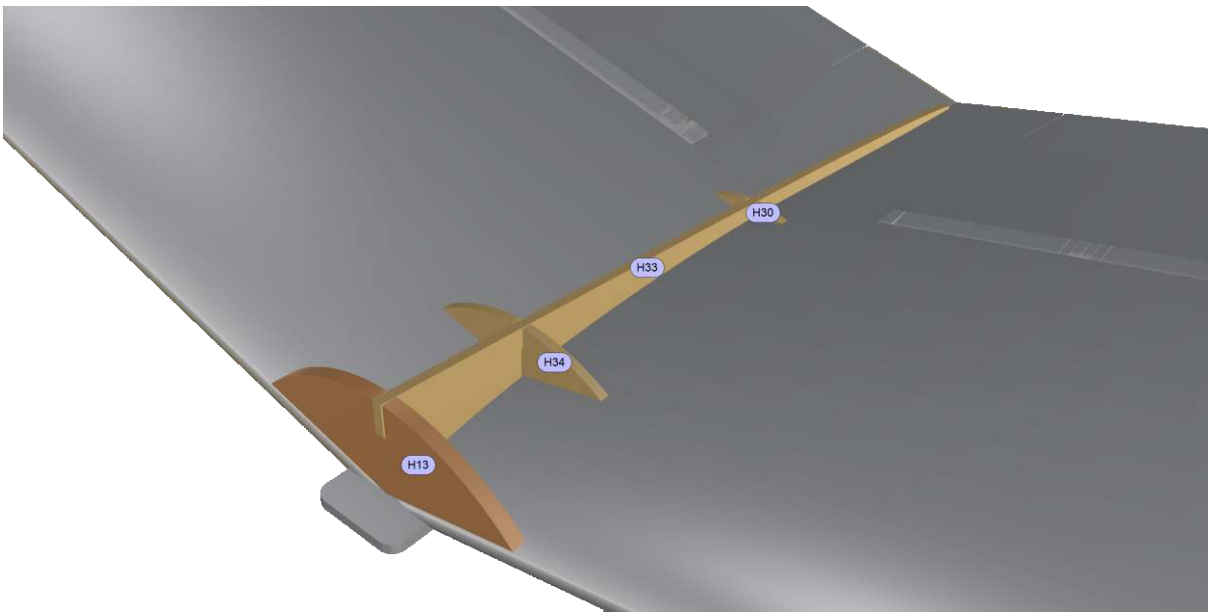
Slide in a 2 mm steel rod
 for installing hinge H15 at the correct height.

Cover the elevator. Take middle-hard balsa of 2 mm thickness.



HE-162 SALAMANDER • 25%
 HE162.26.02_Teil2.01 - 2020-10

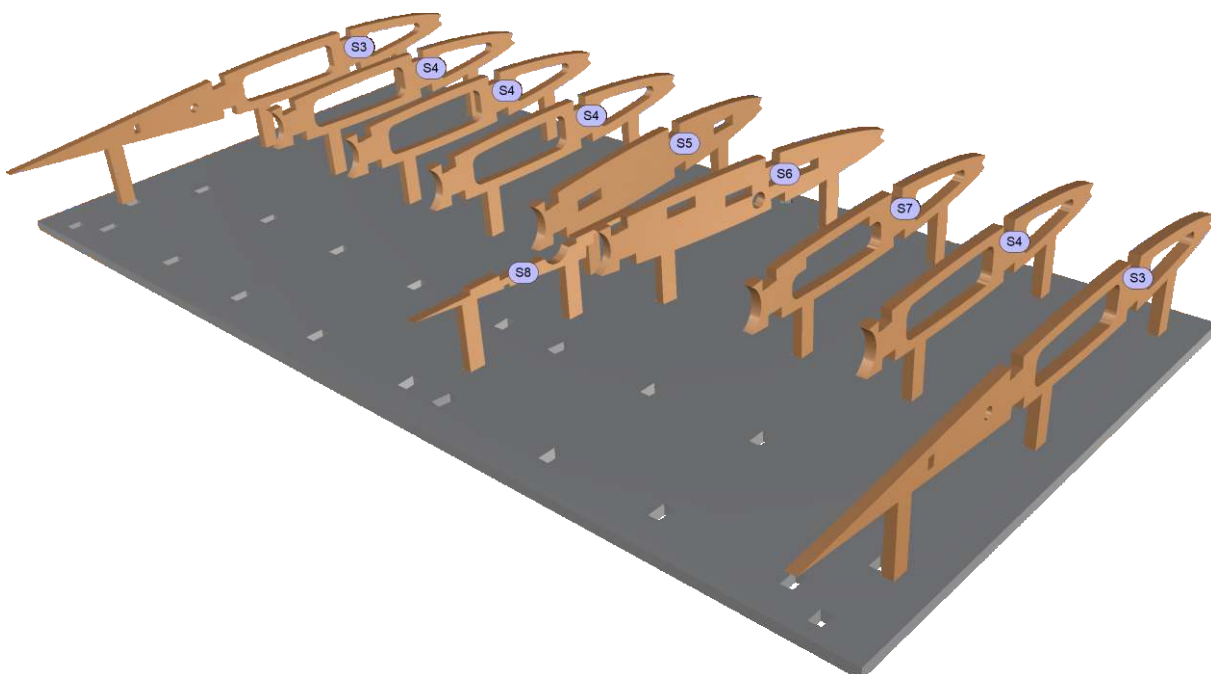
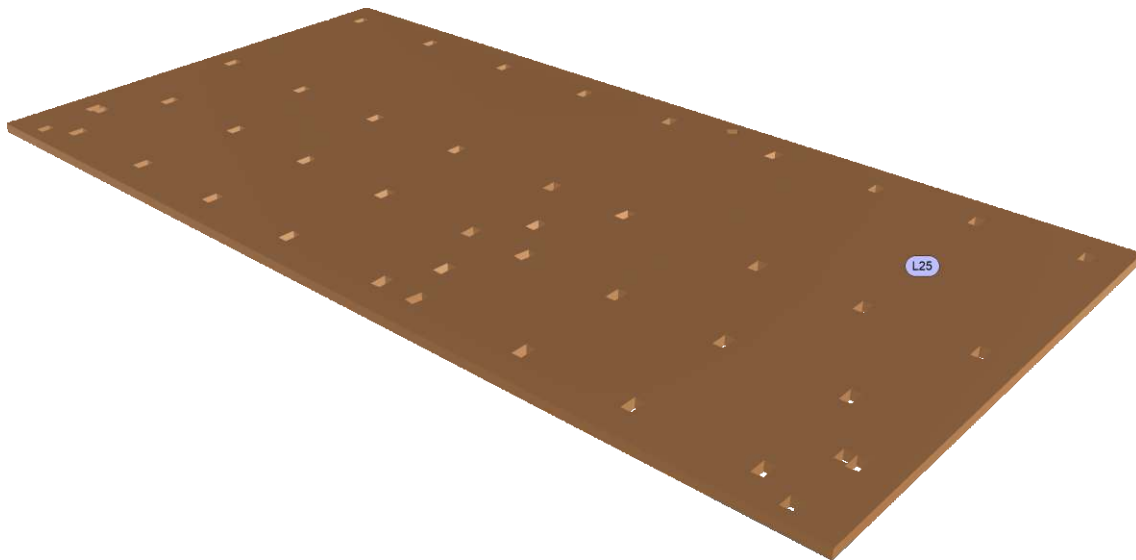
ELEVATOR\
SUBSTRUCTURE FOR OUTER SHAPE



Add these pieces onto the covering. Test-fit on the fuselage.
The structure will be sheeted later.

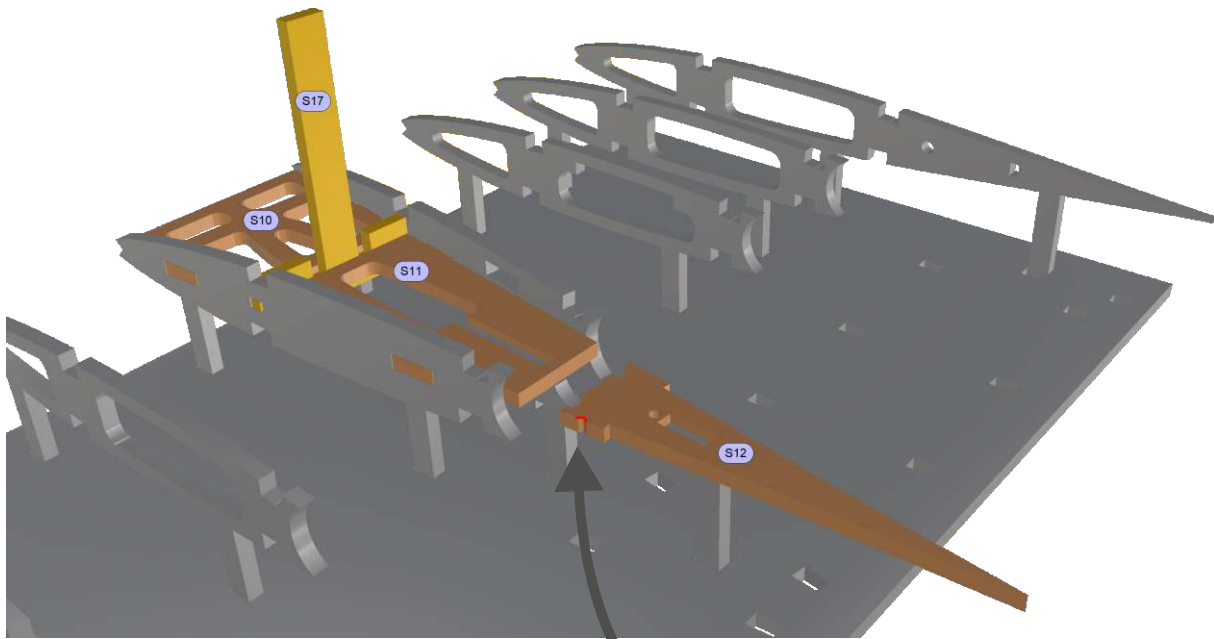
HE-162 SALAMANDER • 25%

VERTICAL STABILISERS\
JIG,
~ RIBS



HE-162 SALAMANDER • 25%

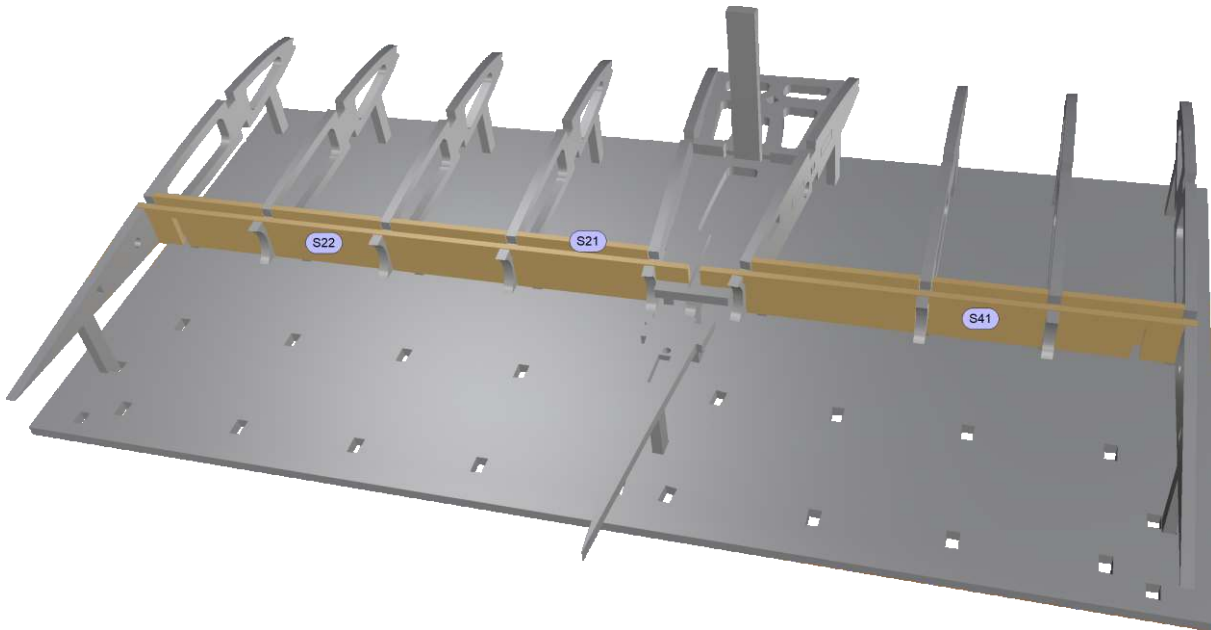
VERTICAL STABILISERS\
CONNECTING STRUCTURE



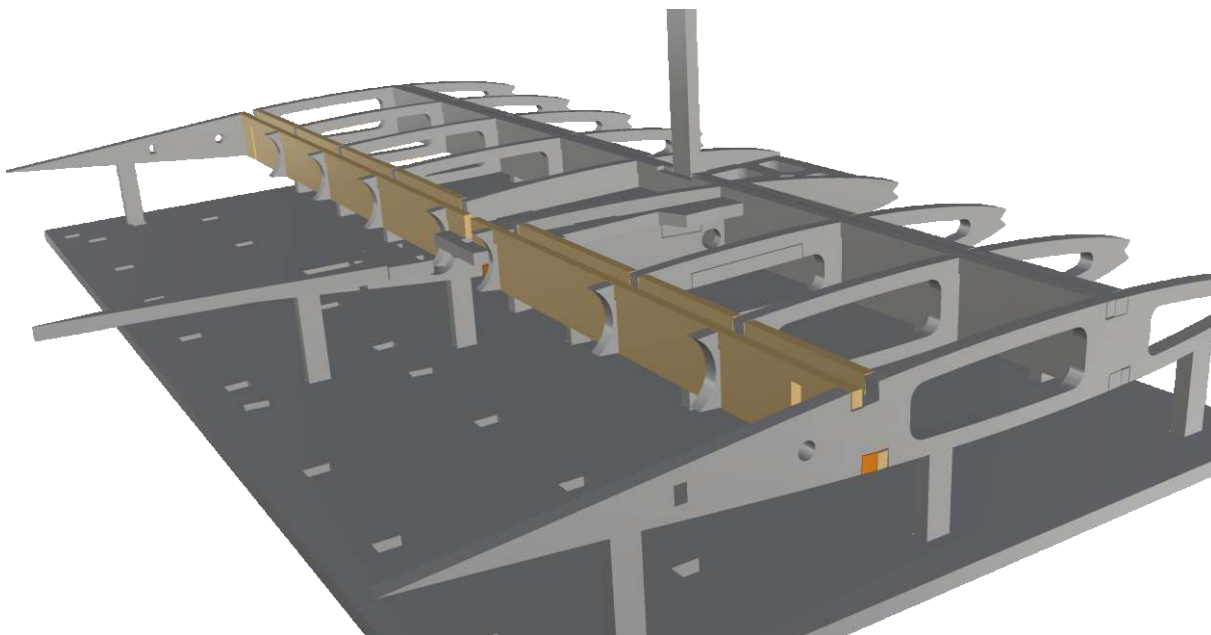
File a tiny notch here.

HE-162 SALAMANDER • 25%

VERTICAL STABILISERS\
REAR SPAR BOX

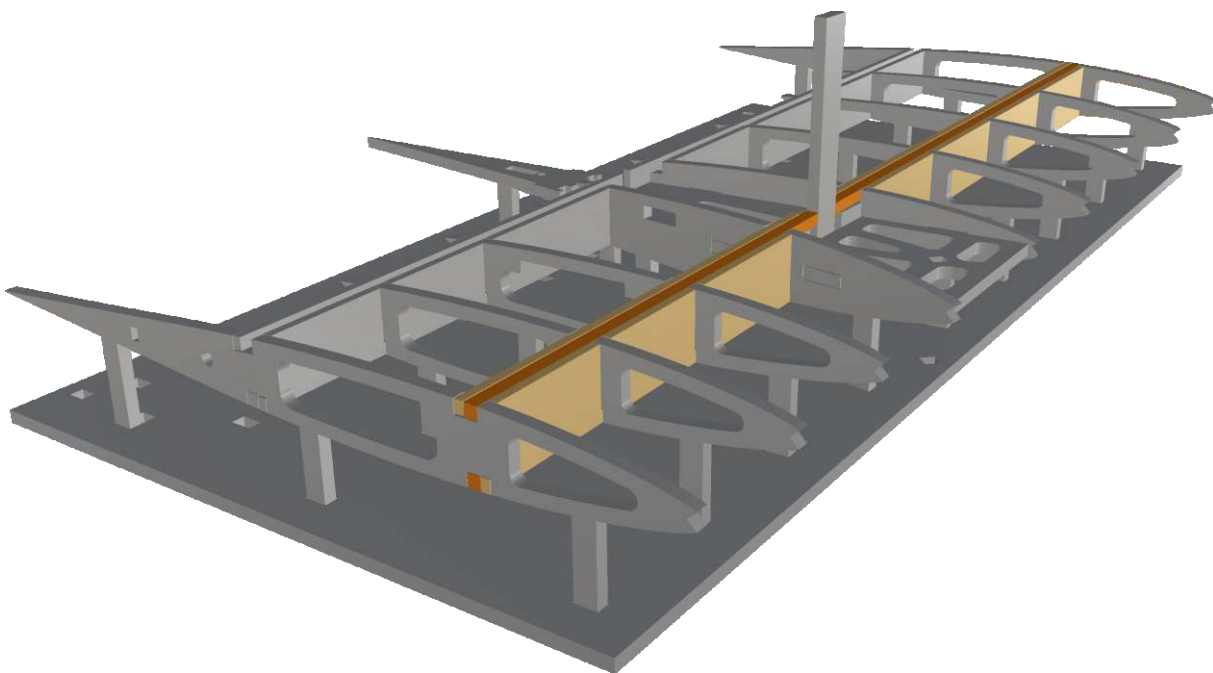
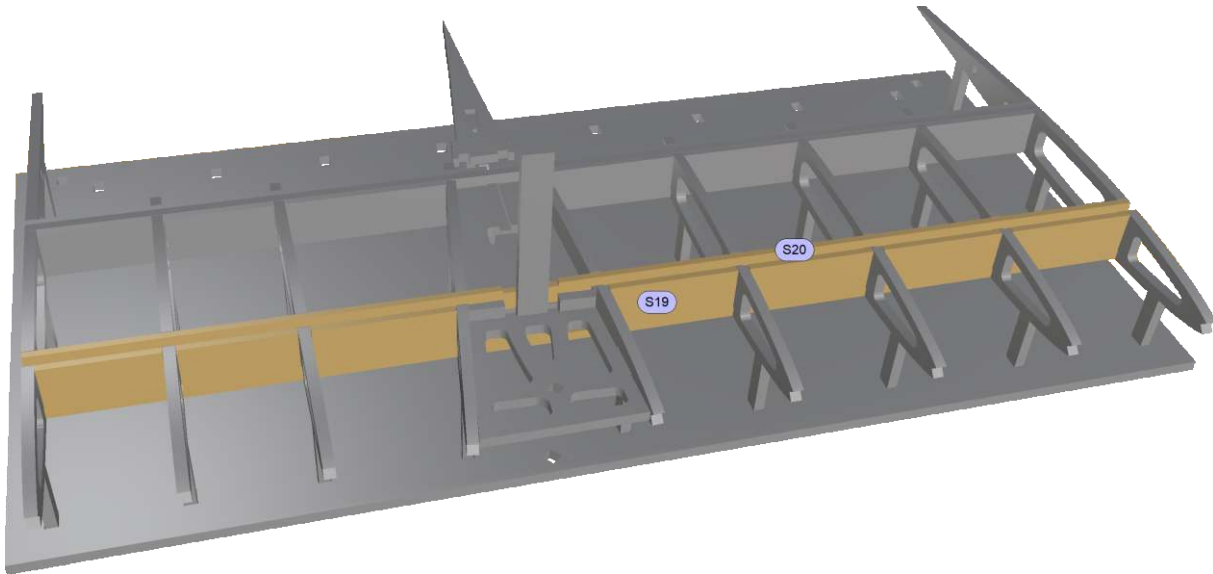


As with the elevator,
be patient clicking the "balsa combes" into the ribs step by step.



HE-162 SALAMANDER • 25%

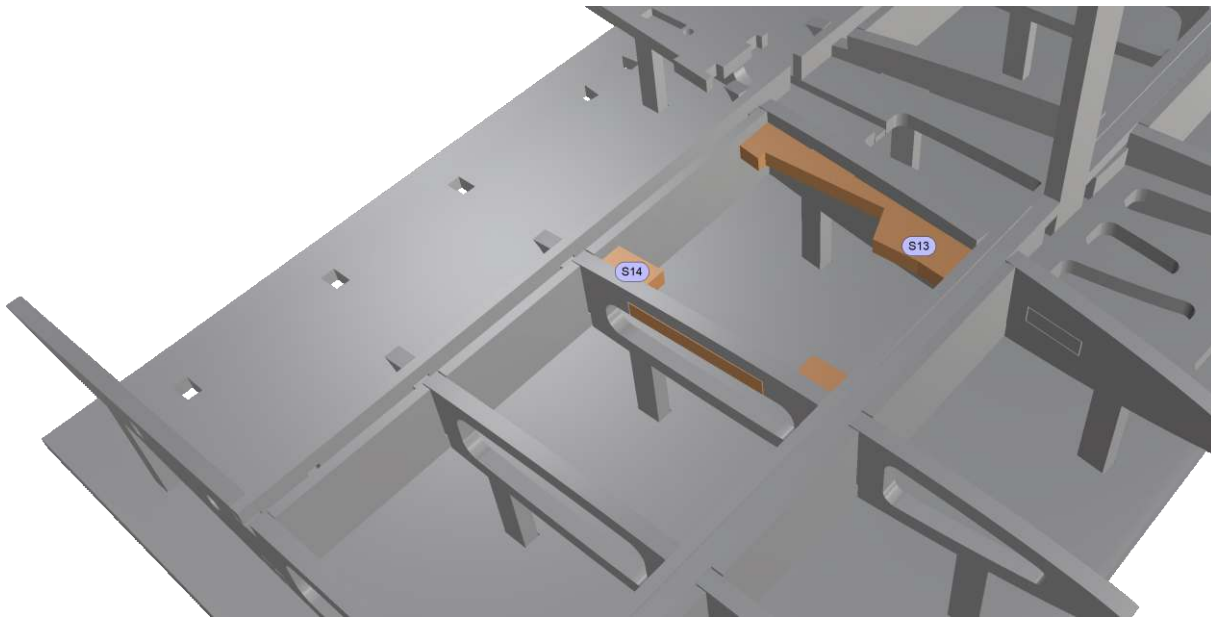
VERTICAL STABILISERS\
FRONT SPAR BOX



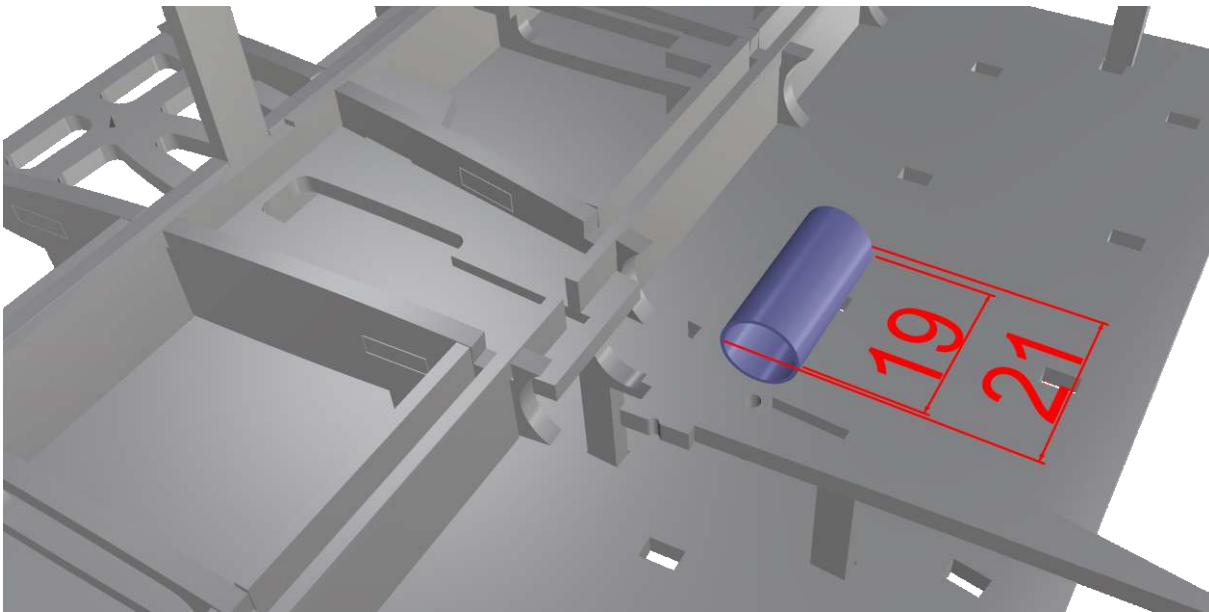
HE-162 SALAMANDER • 25%

HE162.26.02_Teil2.01 - 2020-10

VERTICAL STABILISERS\
SERVO MOUNT

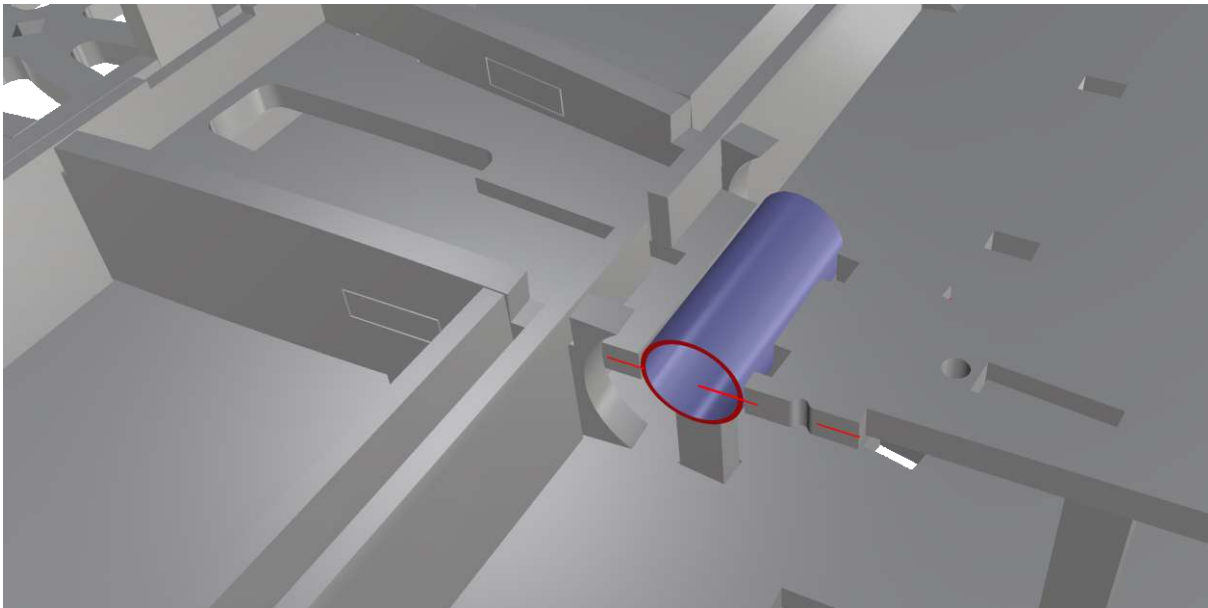


HE-162 SALAMANDER • 25%
HE162.26.02_Teil2.01 - 2020-10

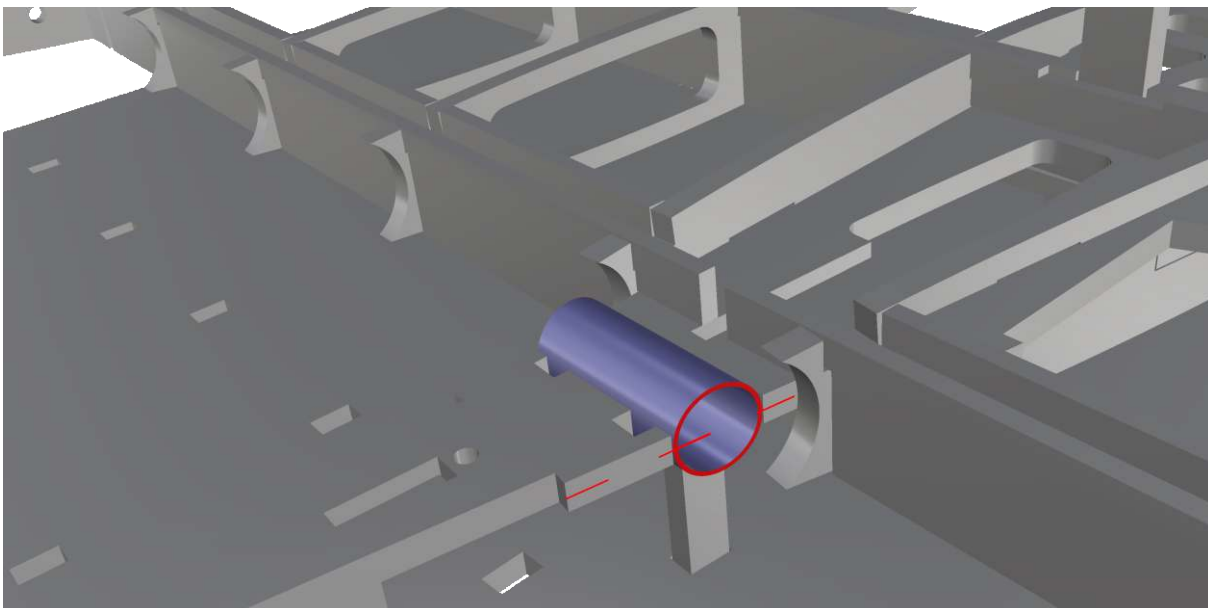
VERTICAL STABILISER\
RUDDER BLADES SUSPENSION

Adapt a piece of aluminium or brass tube D9mm x d8.1mm to the dimensions as depicted here.
Browse to the next steps (pages) to find a functional description of how the rudder blades suspension works.

VERTICAL STABILISER\
 RUDDER BLADES SUSPENSION

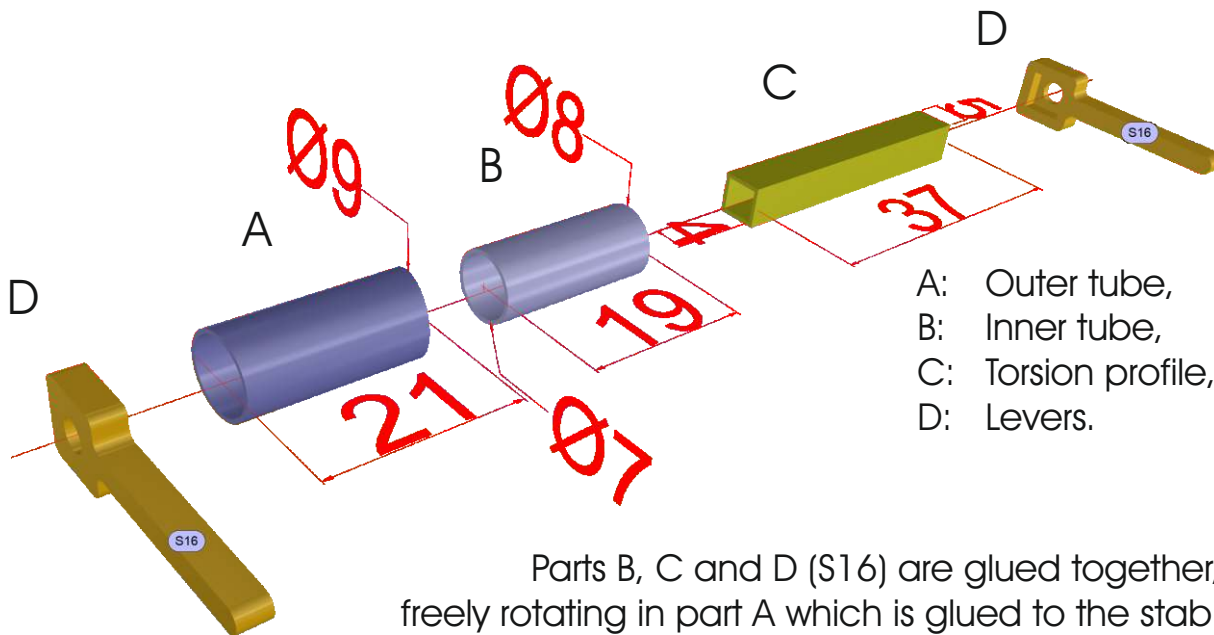


The tube is inserted for test purposes into the gap between parts S11 and part S12. The open sides should be filed to get in-line with S11/S12.



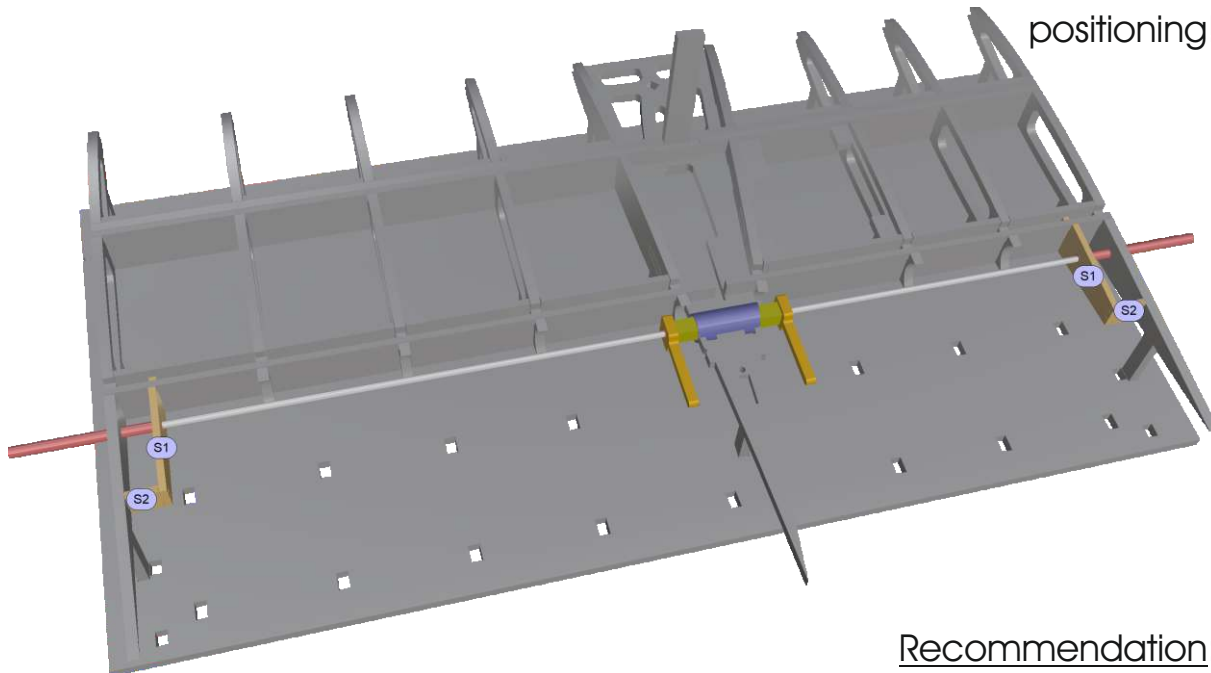
HE-162 SALAMANDER • 25%
 HE162.26.02_Teil2.01 - 2020-10

VERTICAL STABILISER\
RUDDER BLADES SUSPENSION



- A: Outer tube,
- B: Inner tube,
- C: Torsion profile,
- D: Levers.

Parts B, C and D (S16) are glued together, freely rotating in part A which is glued to the stab. Insert a 2 mm steel rod for correct positioning!

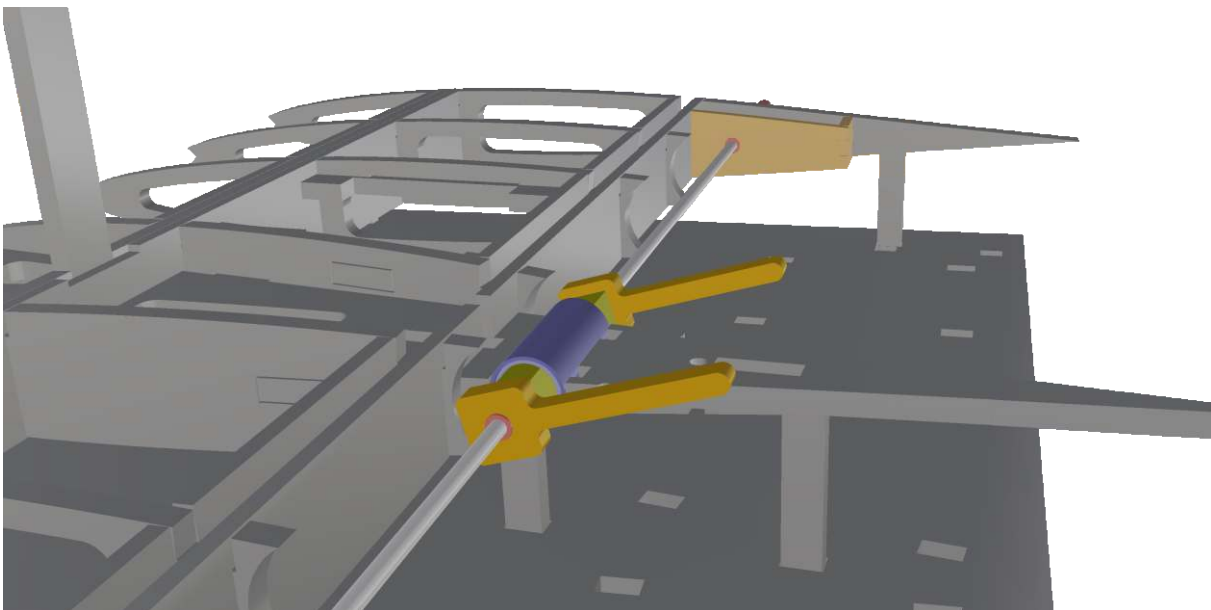
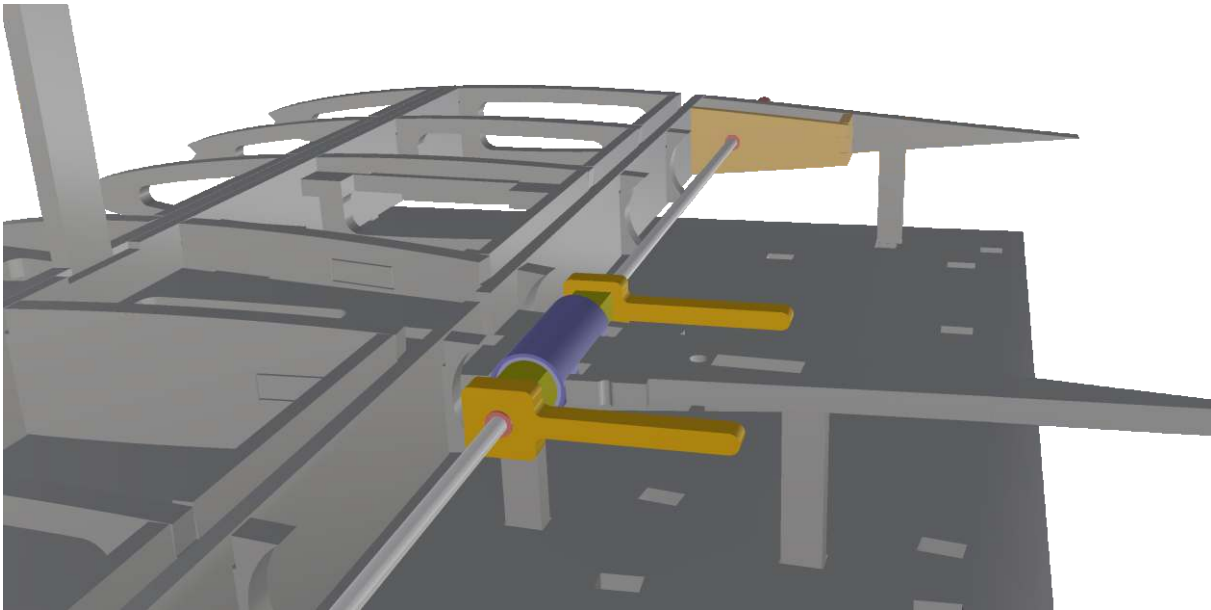


Recommendation:

Reinforce the area around S1 and S2 with some thickened resin and connect the plastic tube to front and side by inserting small wooden filling pieces.

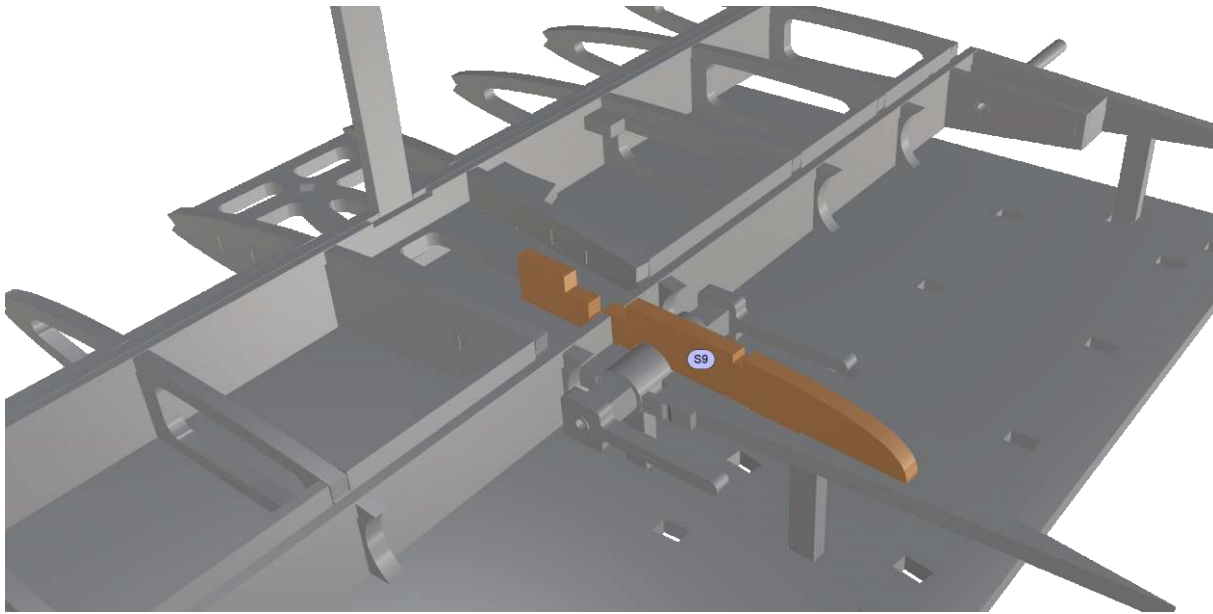
This region is vital for keeping the rudder blades safely connected to the vertical stabiliser in flight!

VERTICAL STABILISER\
RUDDER BLADES SUSPENSION



HE-162 SALAMANDER • 25%

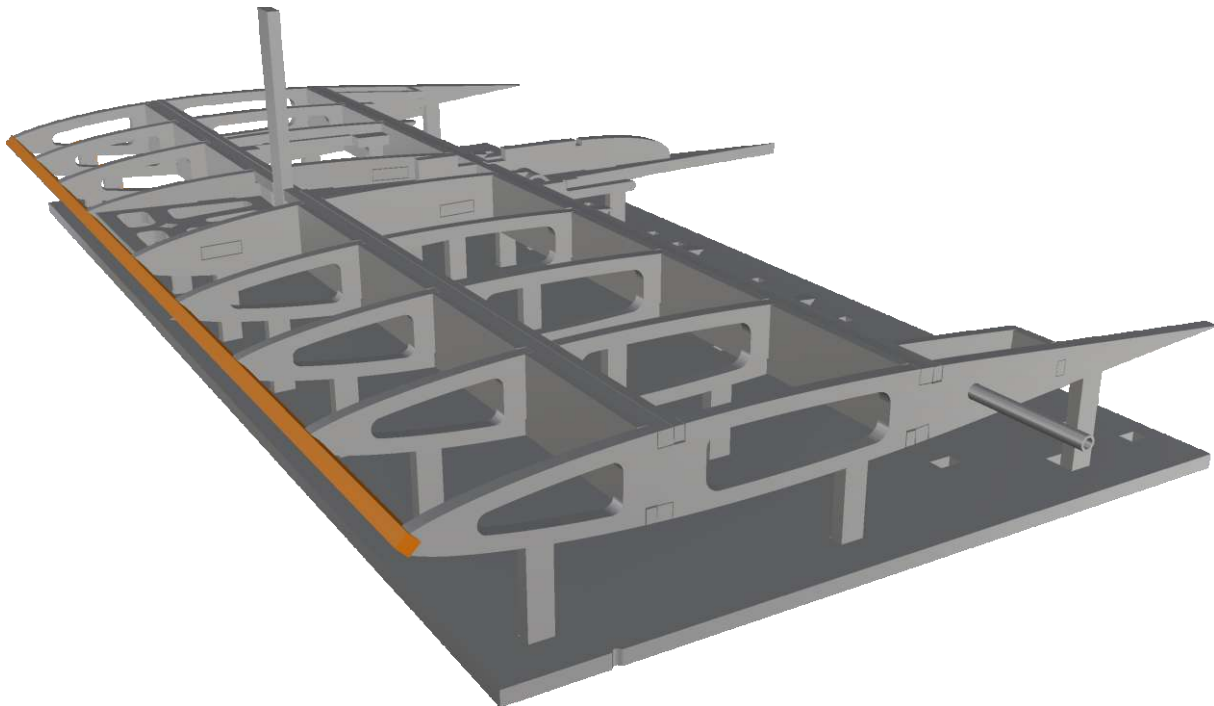
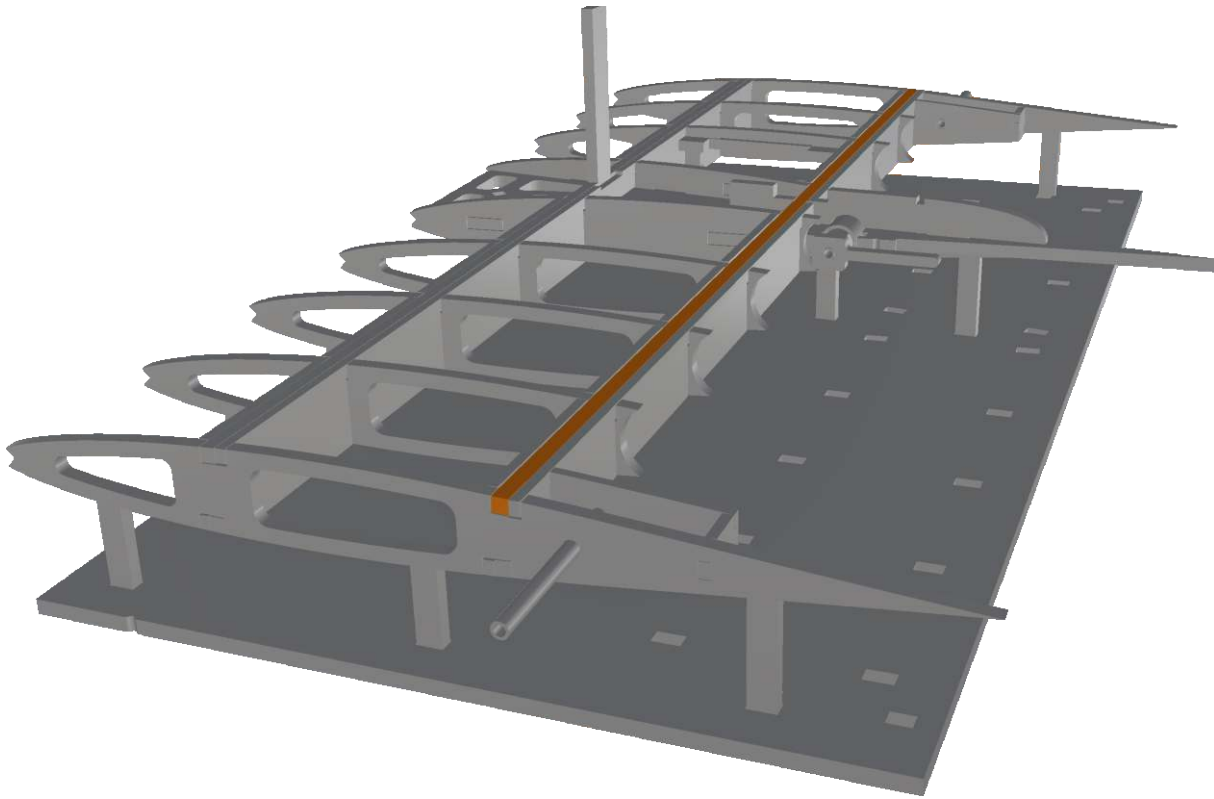
VERTICAL STABILISER\
CONNECTING PIECE



HE-162 SALAMANDER • 25%

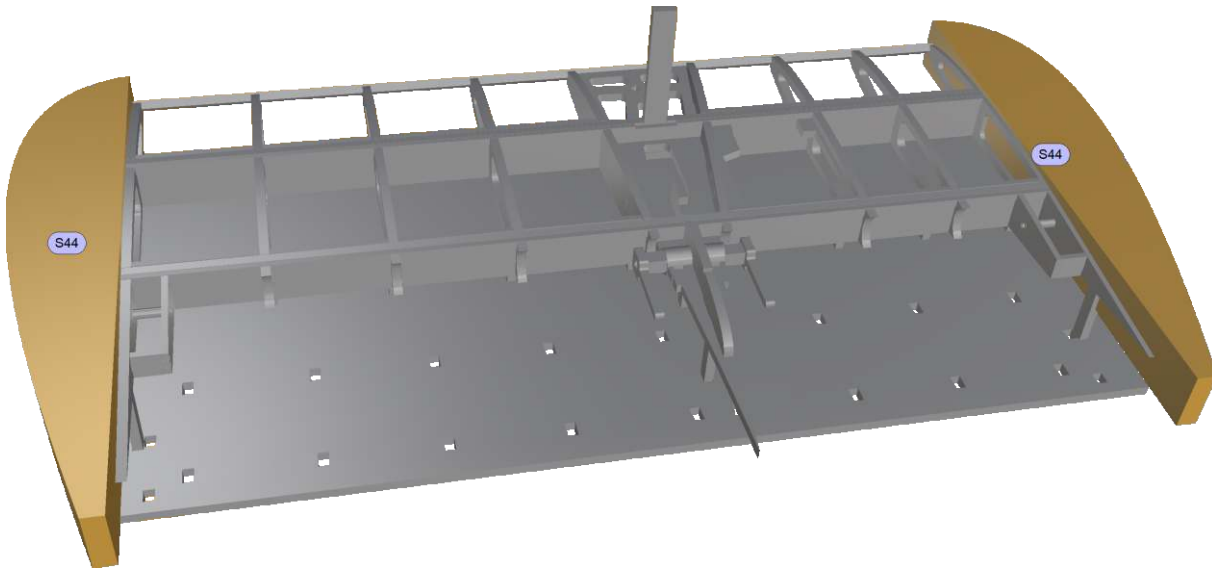
HE162.26.02_Teil2.01 - 2020-10

VERTICAL STABILISERS\
REAR SPAR BOX,
~ LEADING EDGE SPAR

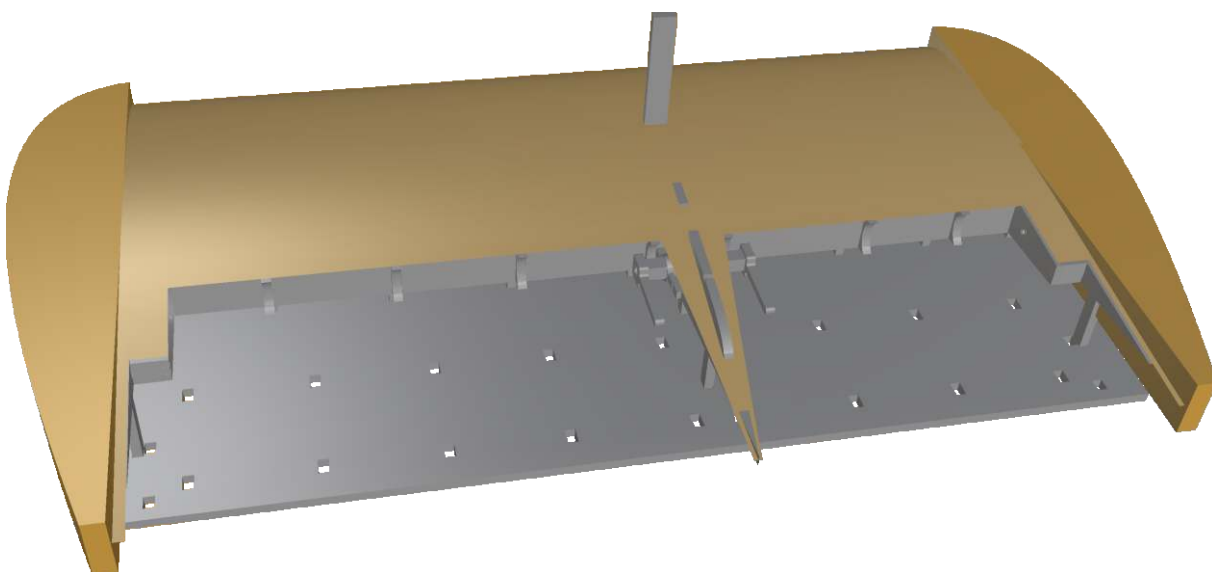


HE-162 SALAMANDER • 25%
HE162.26.02_Teil2.01 - 2020-10

VERTICAL STABILISERS\
TIPS,
~ COVERING INNER SURFACE

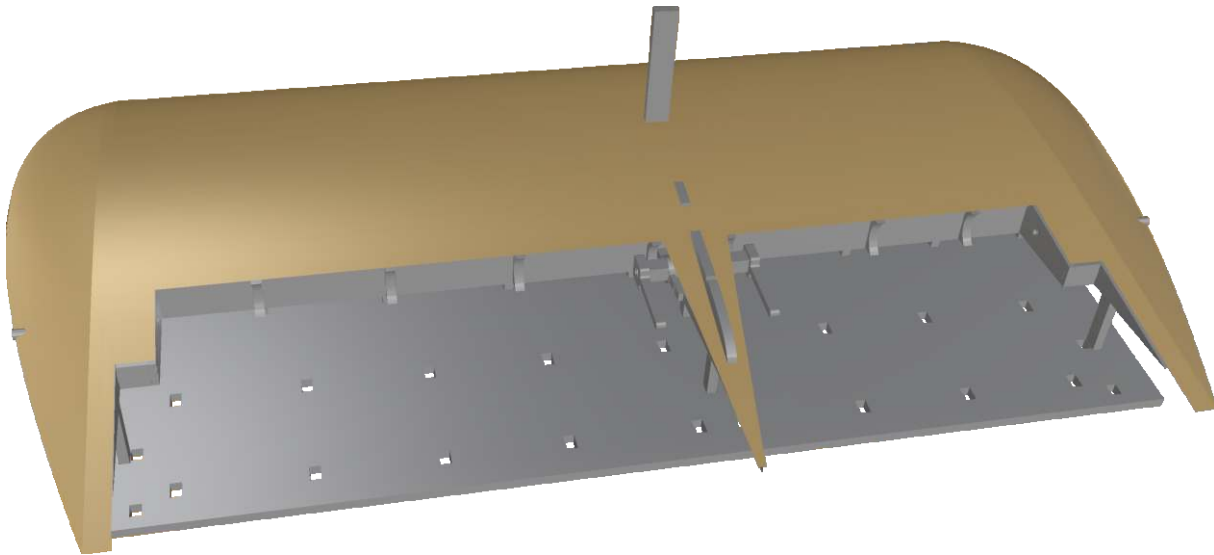


Attach tips and cover the upper side using 2 mm middle-hard balsa sheets.



HE-162 SALAMANDER • 25%

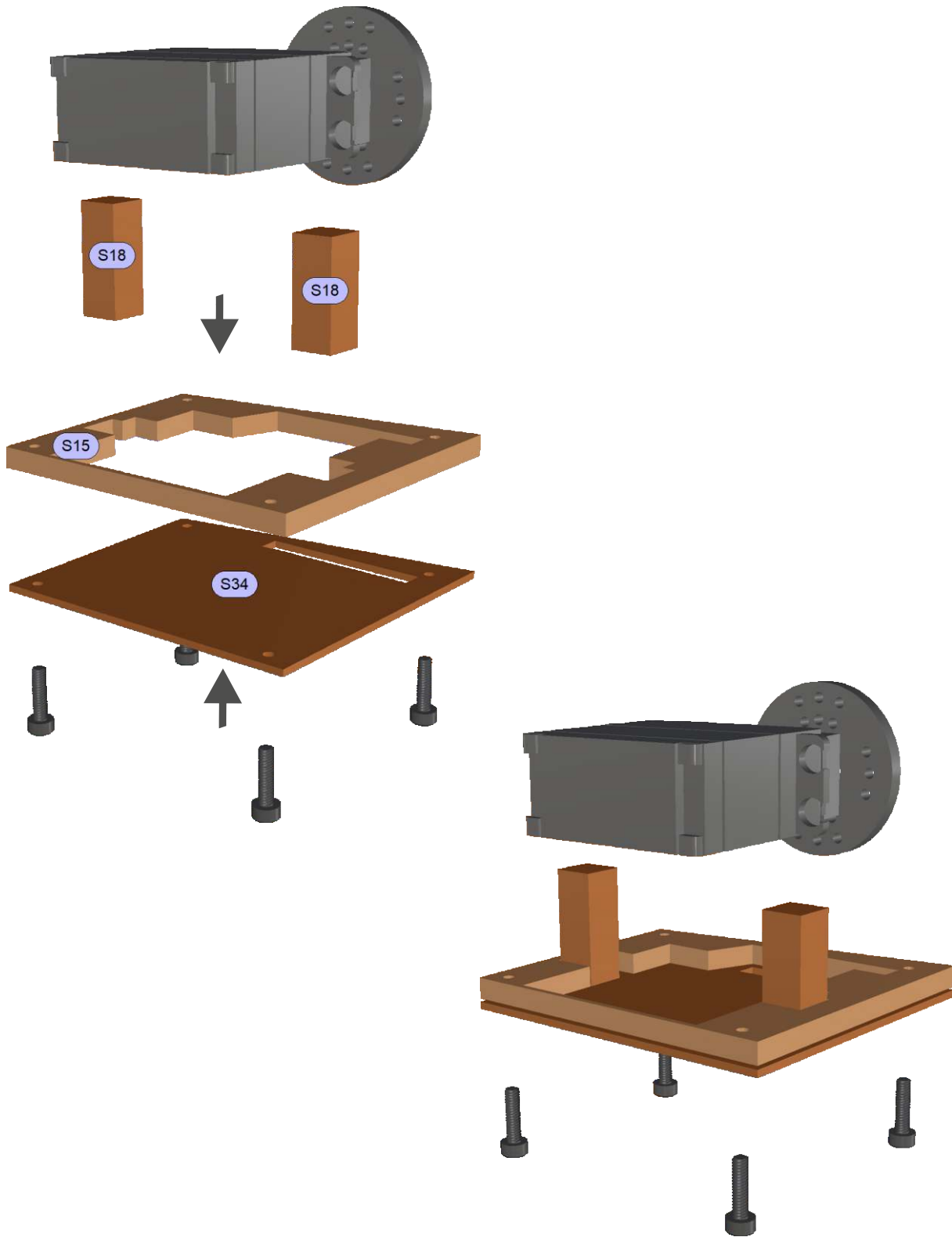
VERTICAL STABILISERS\
COVERING INNER SURFACE



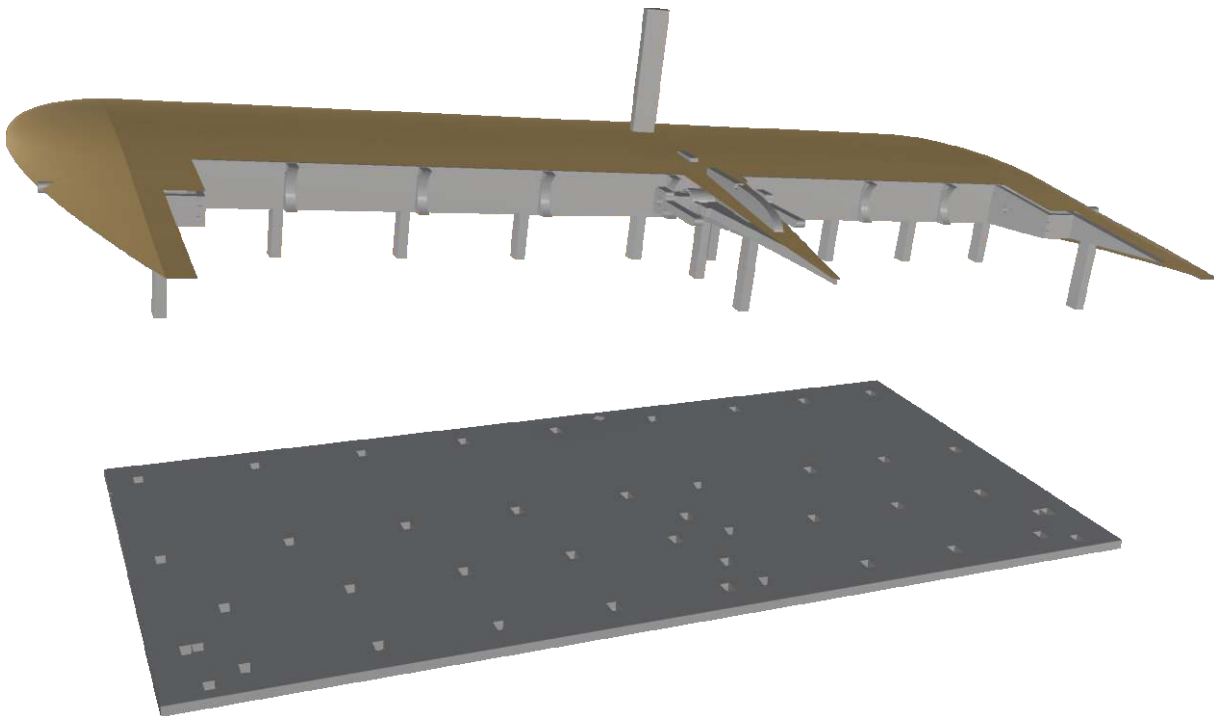
Pre-shape the tips at this side.

HE-162 SALAMANDER • 25%

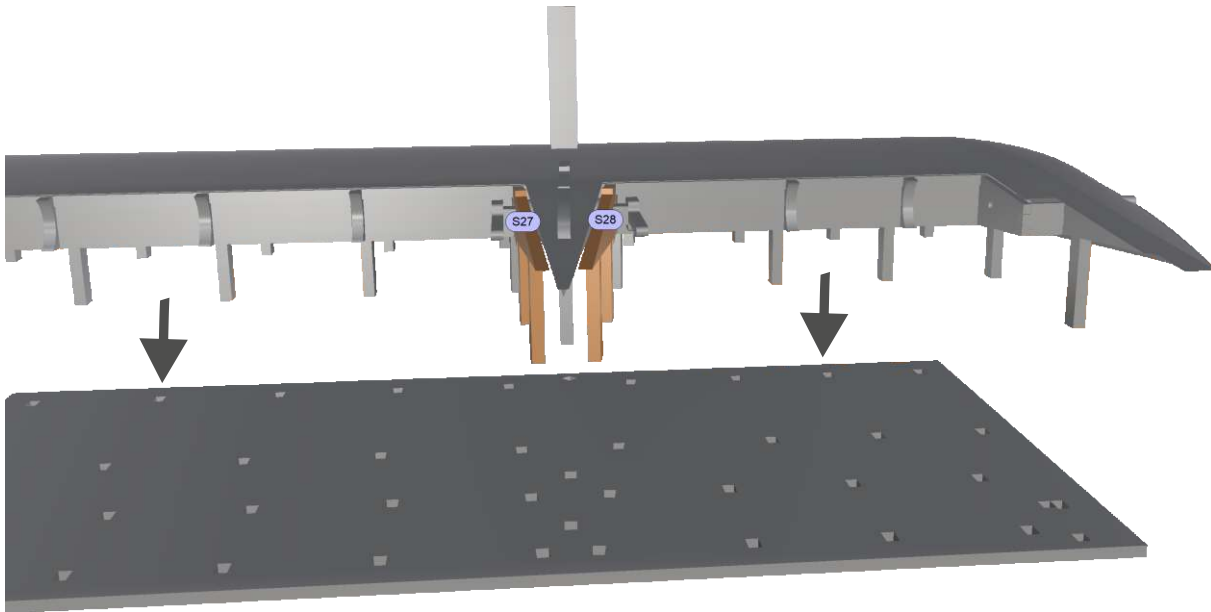
VERTICAL STABILISERS\
SERVO CAPS



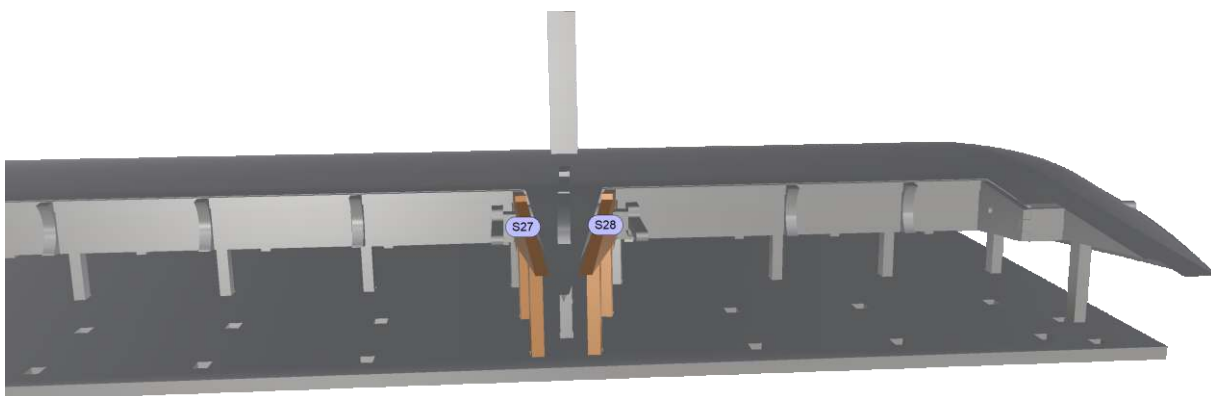
HE-162 SALAMANDER • 25%
HE162.26.02_Teil2.01 - 2020-10

VERTICAL STABILISERS\
BUILDING THE RUDDER BLADES

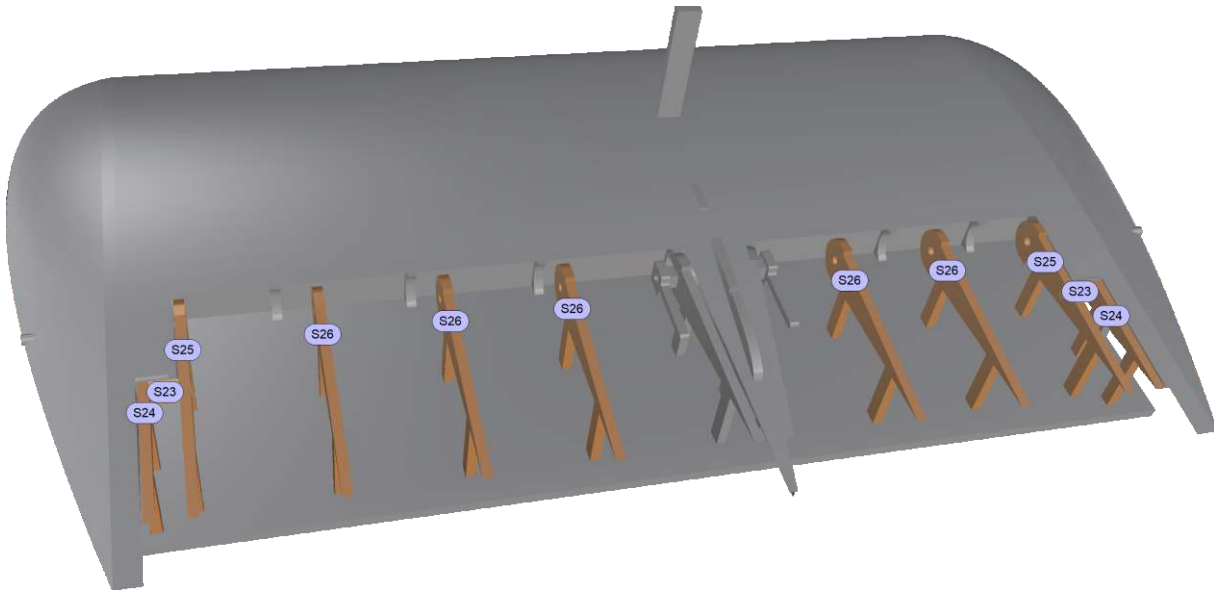
Take stabiliser off the jig. It is no problem if some of the legs brake.

VERTICAL STABILISERS\
RUDDER BLADES

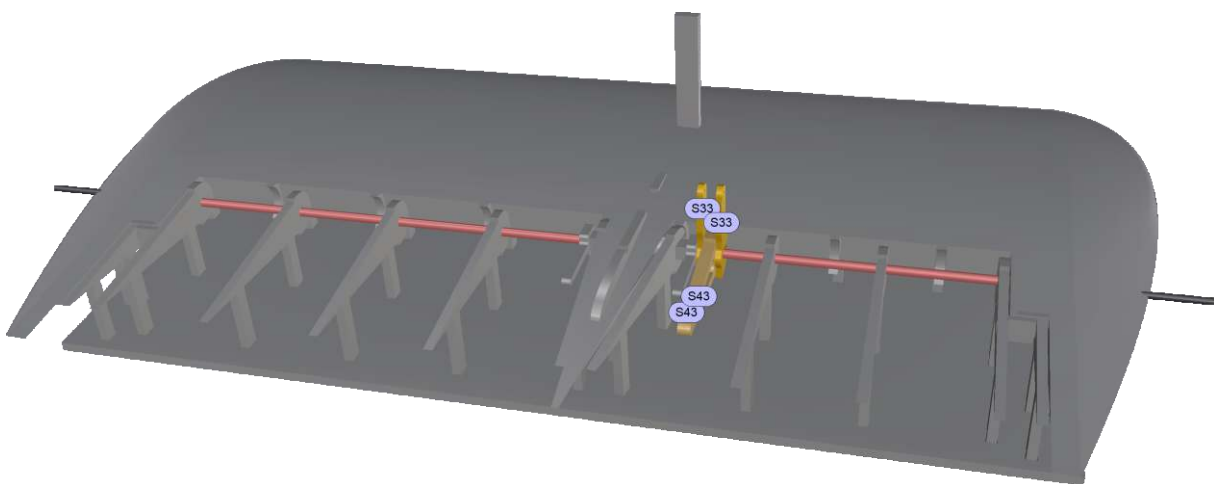
Position rudder ribs S27 and S28 into the suspension structure and put stabiliser and new ribs back on the jig.



VERTICAL STABILISERS\
 RUDDER BLADES

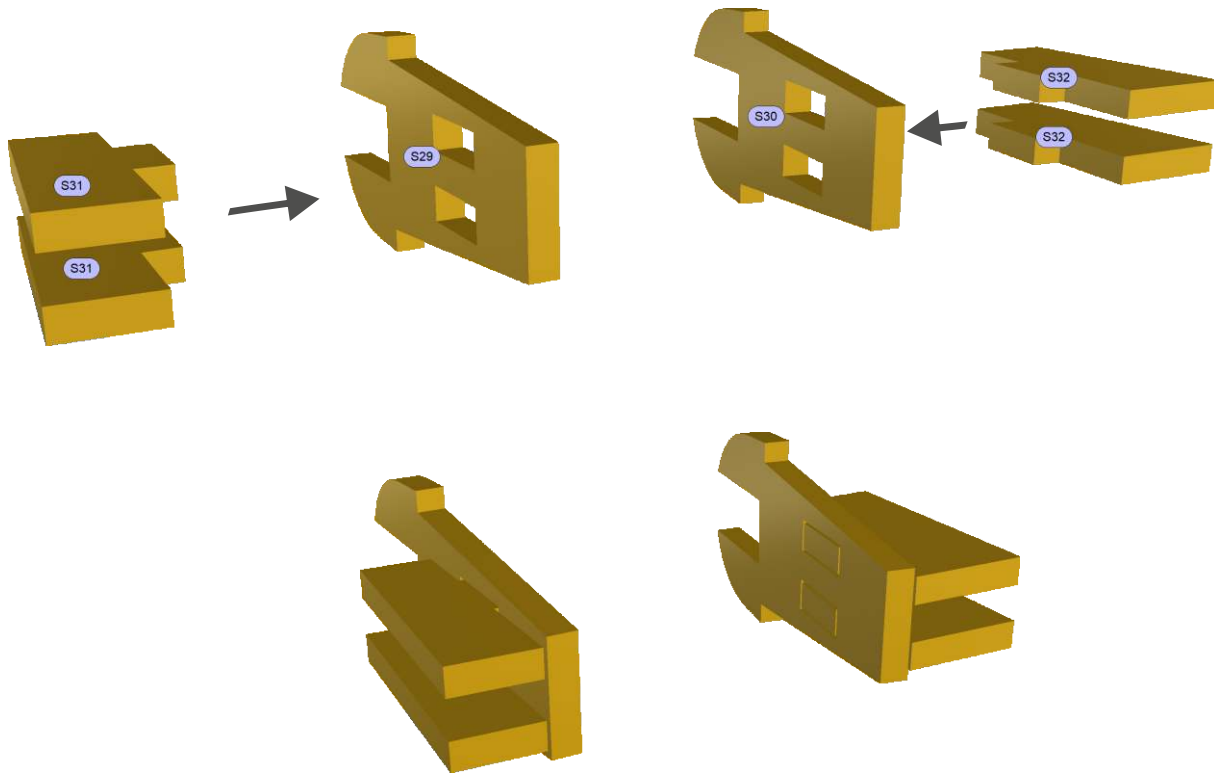


Add the ribs and glue plastic tube (bowden D3 mm) into ribs after having threaded the control horn parts as shown below.

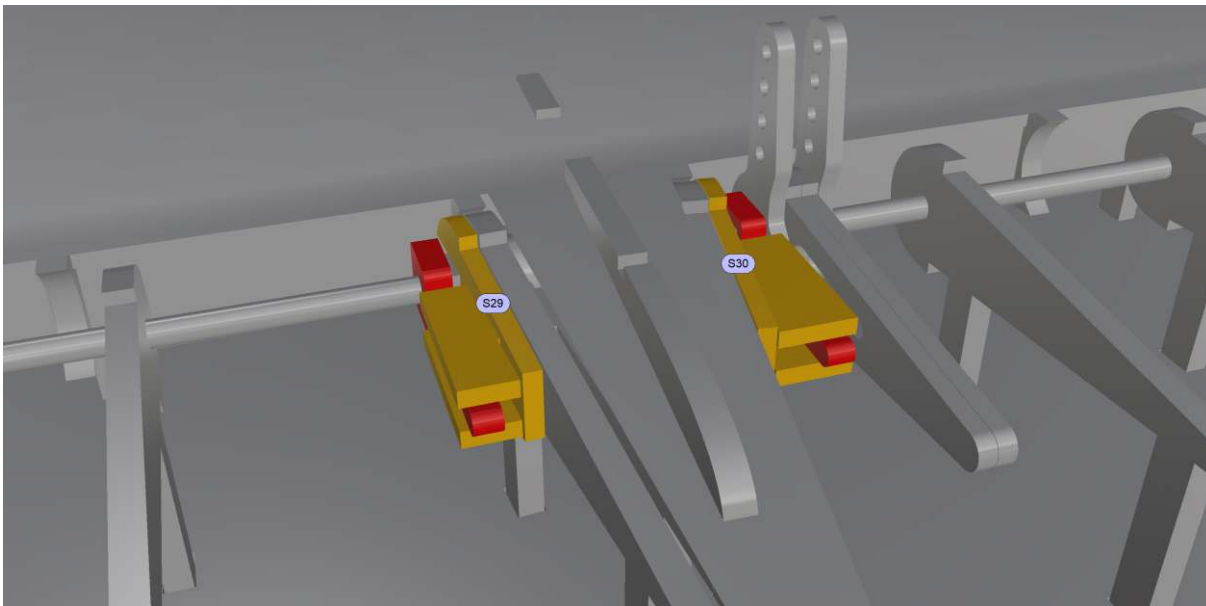


HE-162 SALAMANDER • 25%

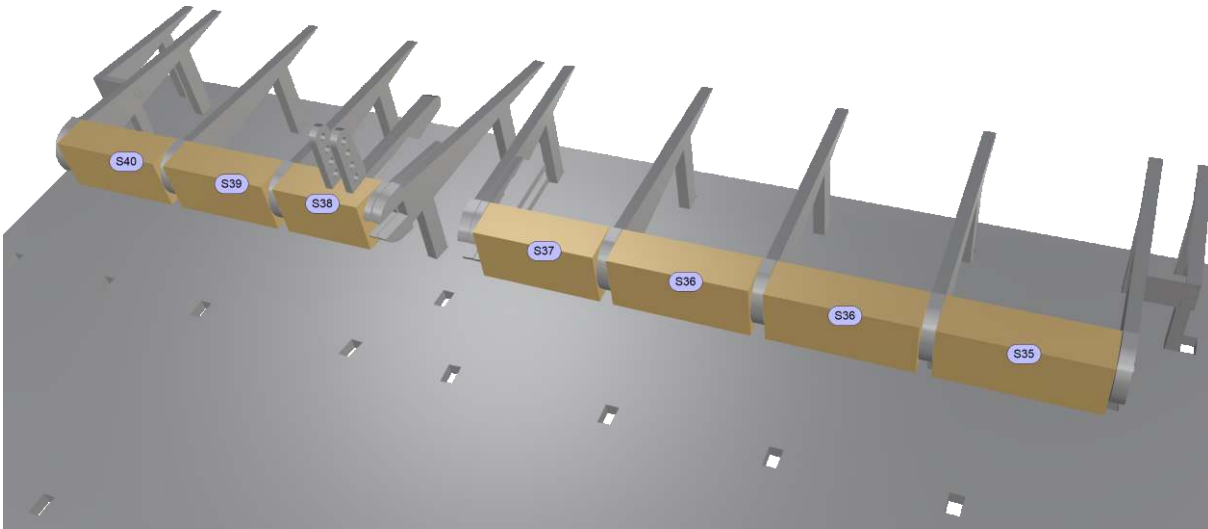
VERTICAL STABILISERS\
RUDDER BLADES BRACKETS



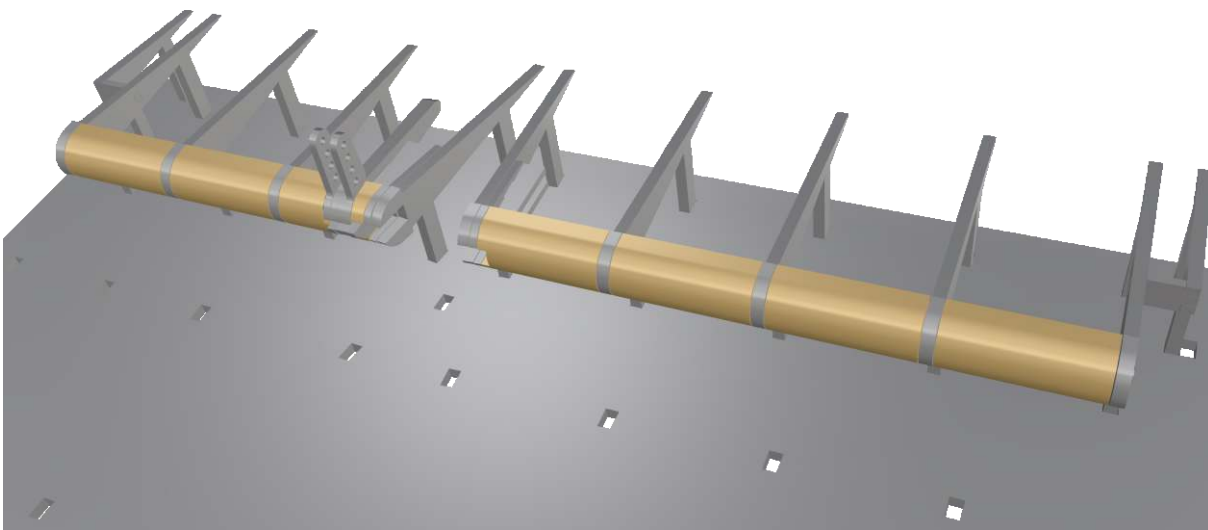
The rotating suspension system´s levers (depicted red; built during the last steps) reach into the brackets. The brackets need to be firmly glued to the rudder blades.



VERTICAL STABILISERS\
 RUDDER BLADES\
 LEADING EDGES



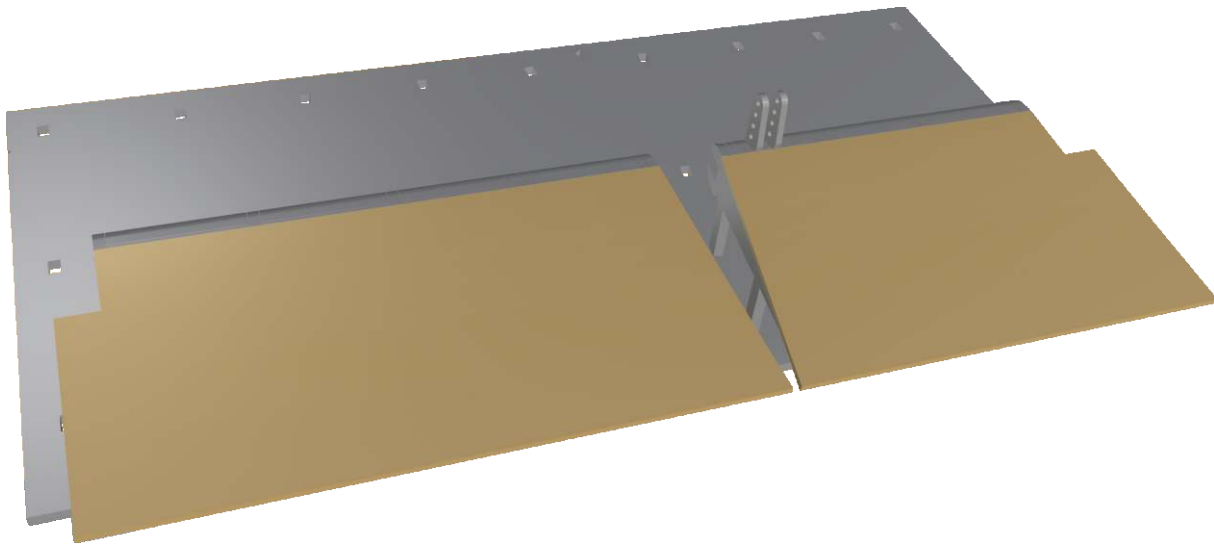
Shape and sand the leading edges only roughly now. Fine sanding work should be done after covering the rudder blades with balsa - see next step.



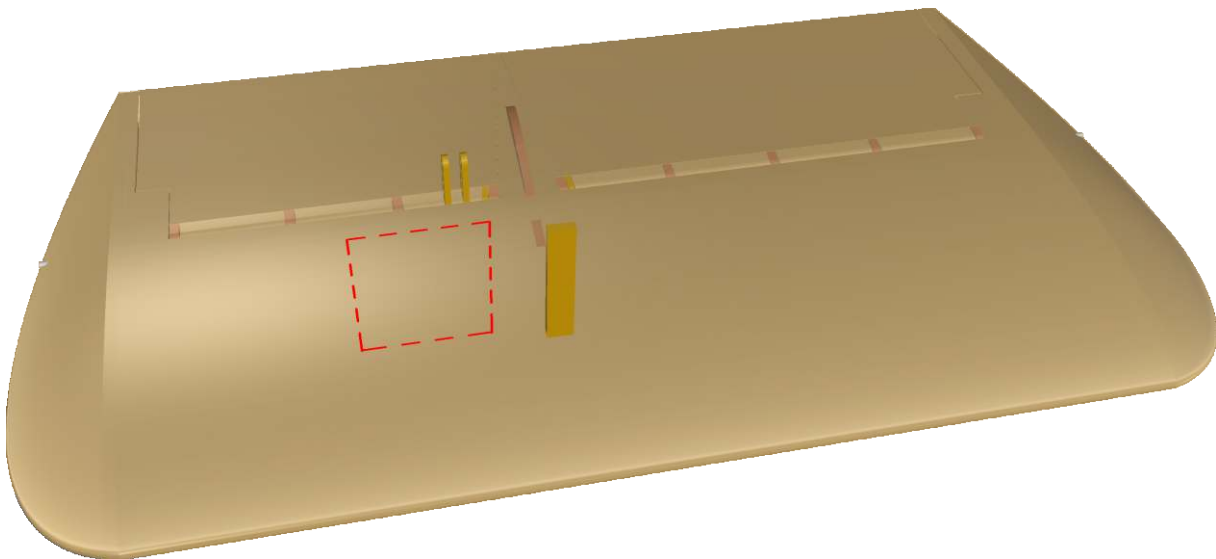
HE-162 SALAMANDER • 25%

HE162.26.02_Teil2.01 - 2020-10

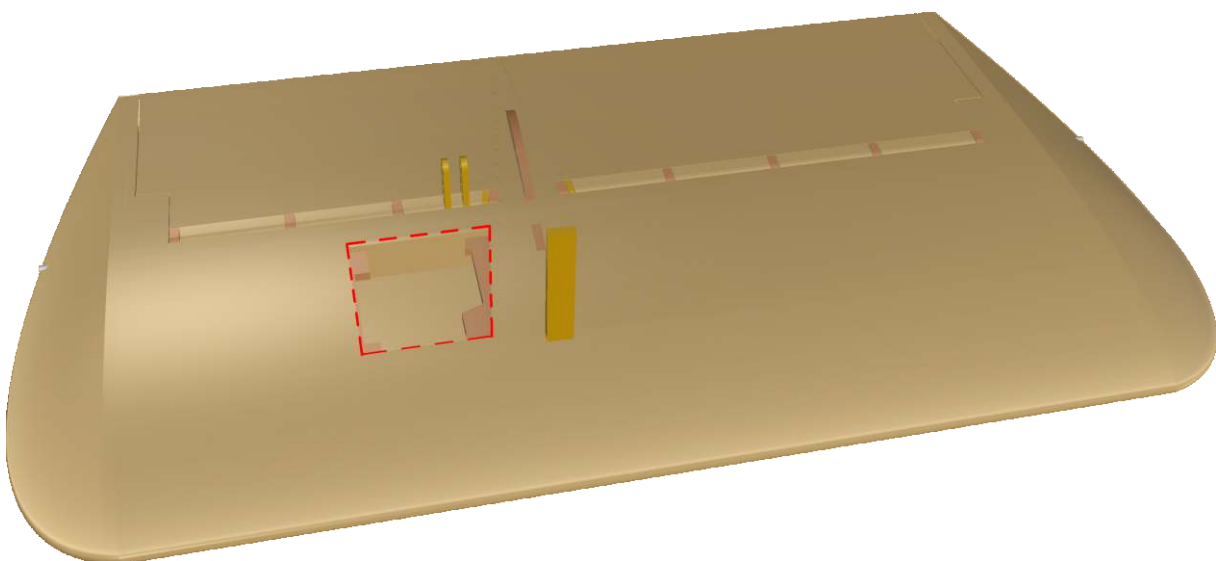
VERTICAL STABILISERS\
RUDDER BLADES\
COVERING



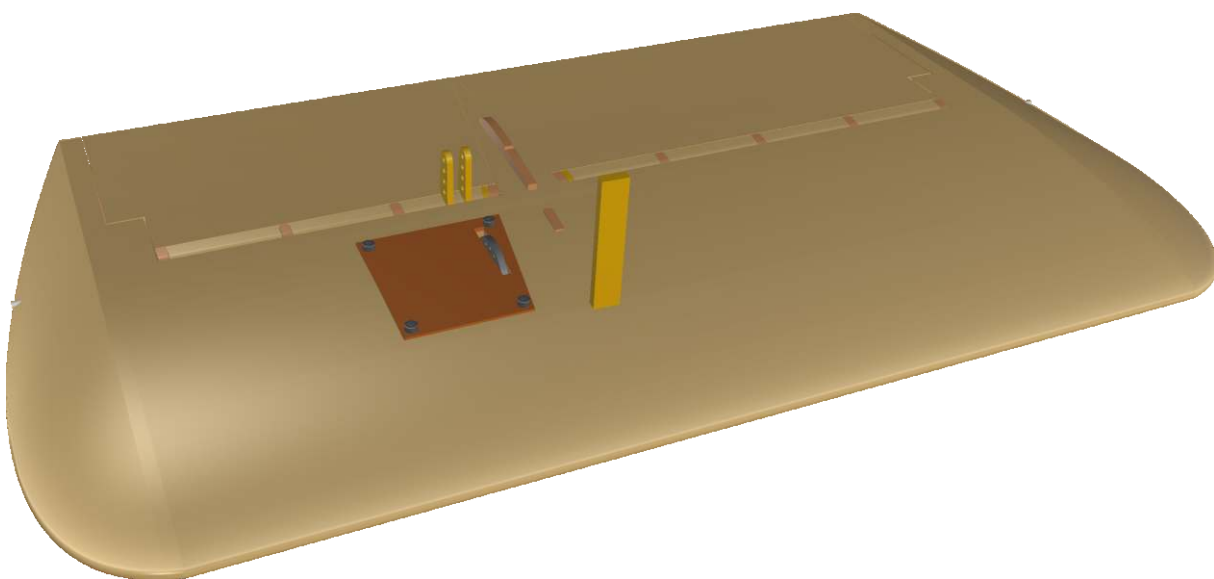
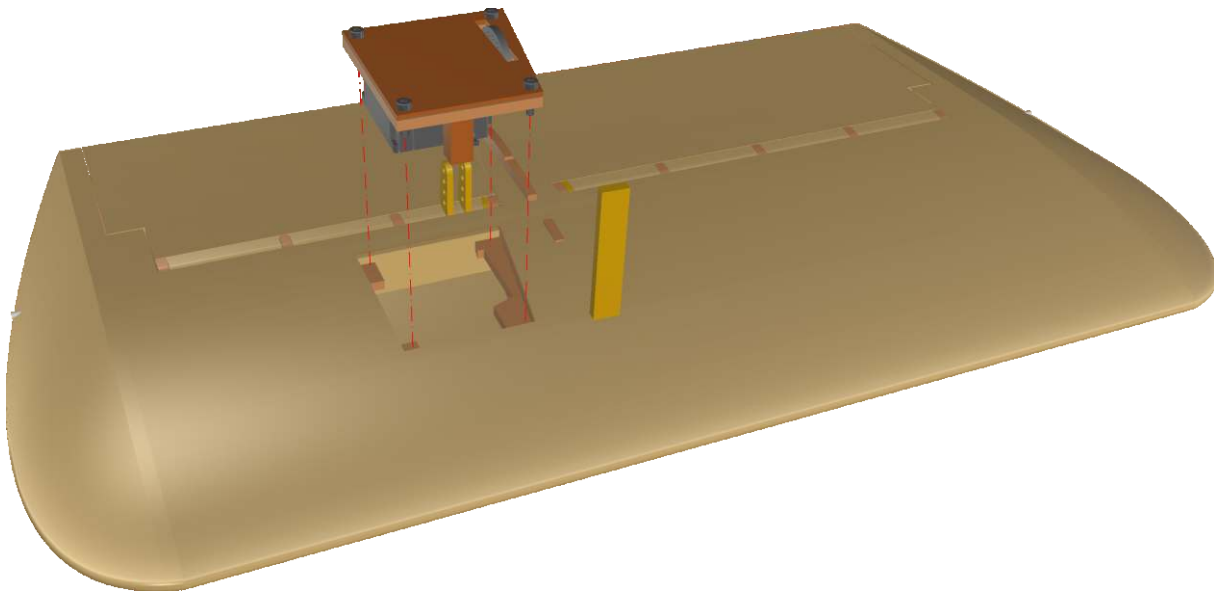
HE-162 SALAMANDER • 25%

VERTICAL STABILISERS\
SERVO UNIT CUT-OUTS

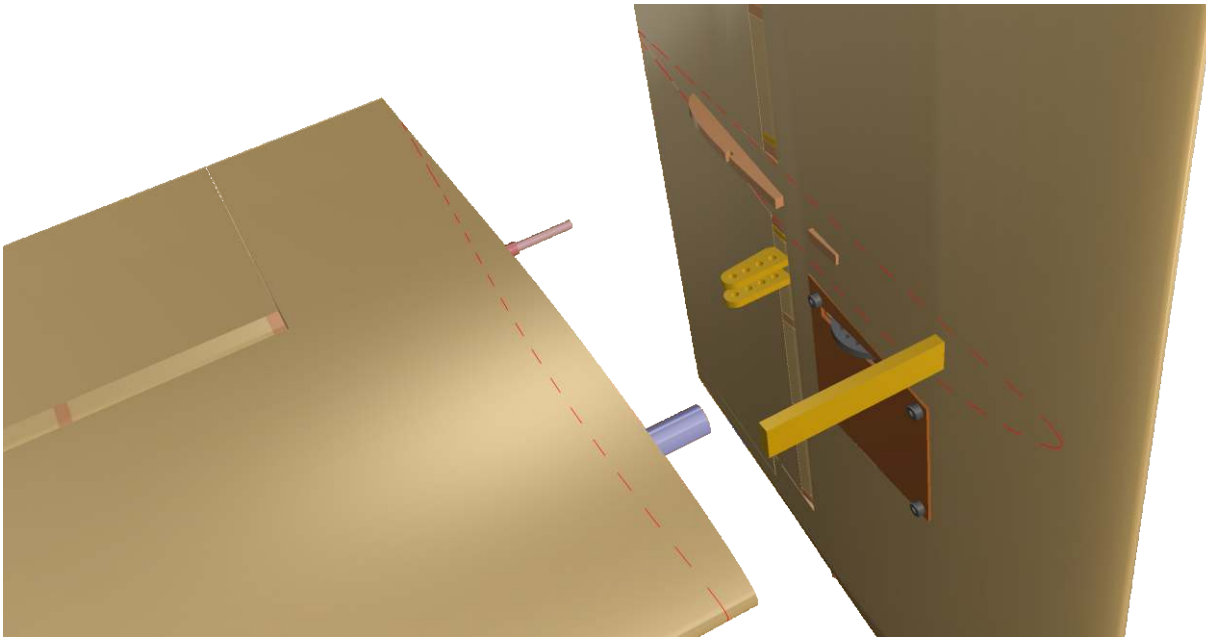
Find the areas where the servo units shall be installed and cut the balsa covering out.



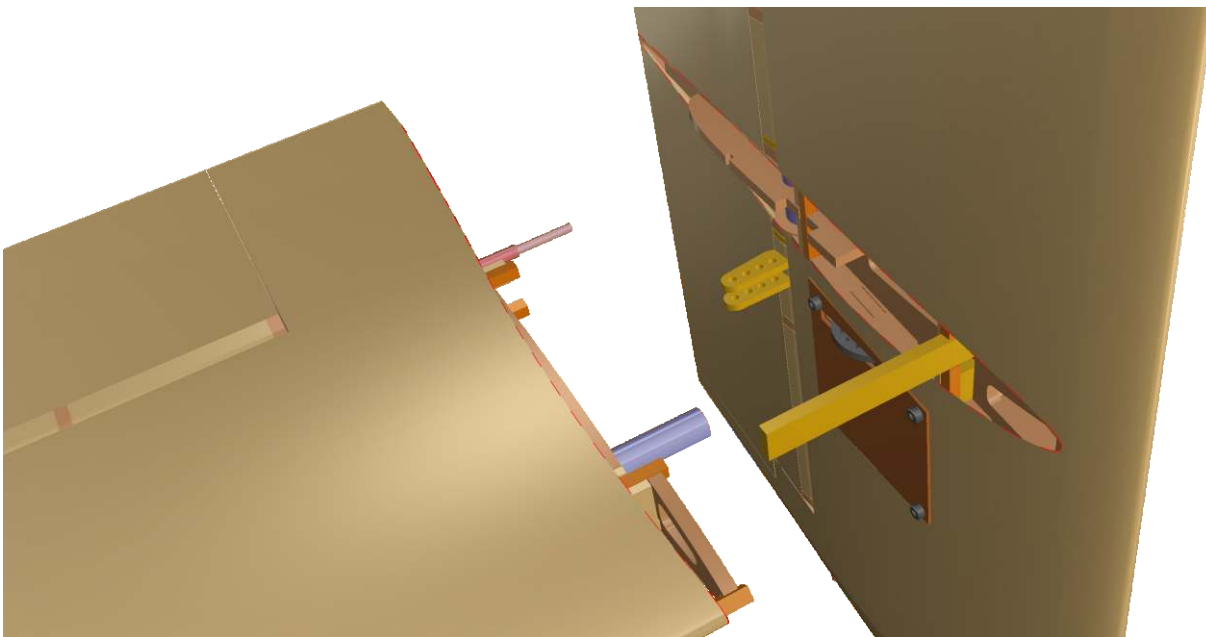
VERTICAL STABILISERS\
INSTALLATION OF SERVO UNITS



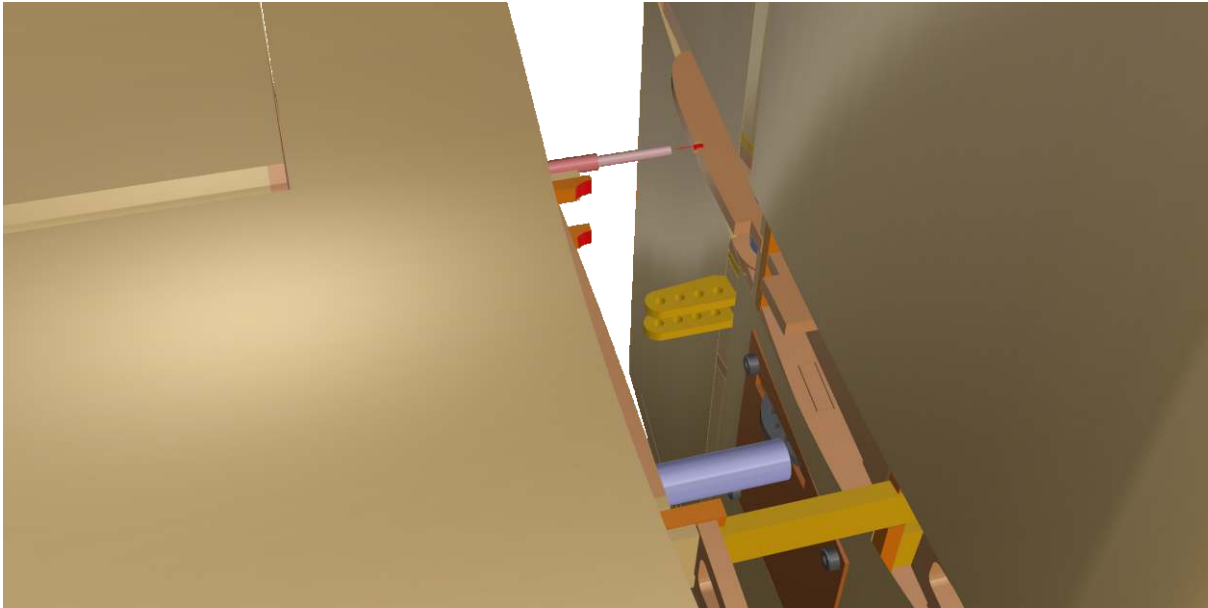
HE-162 SALAMANDER • 25%
HE162.26.02_Teil2.01 - 2020-10

EMPENNAGE\
CONNECTION OF VERTICALS STAB'S TO ELEVATOR

Do the cut-outs on both sides and firmly connect the components together, e.g. by epoxy glue.



EMPENNAGE\
CONNECTION OF VERTICALS STAB'S TO ELEVATOR



HE-162 SALAMANDER • 25%
HE162.26.02_Teil2.01 - 2020-10