



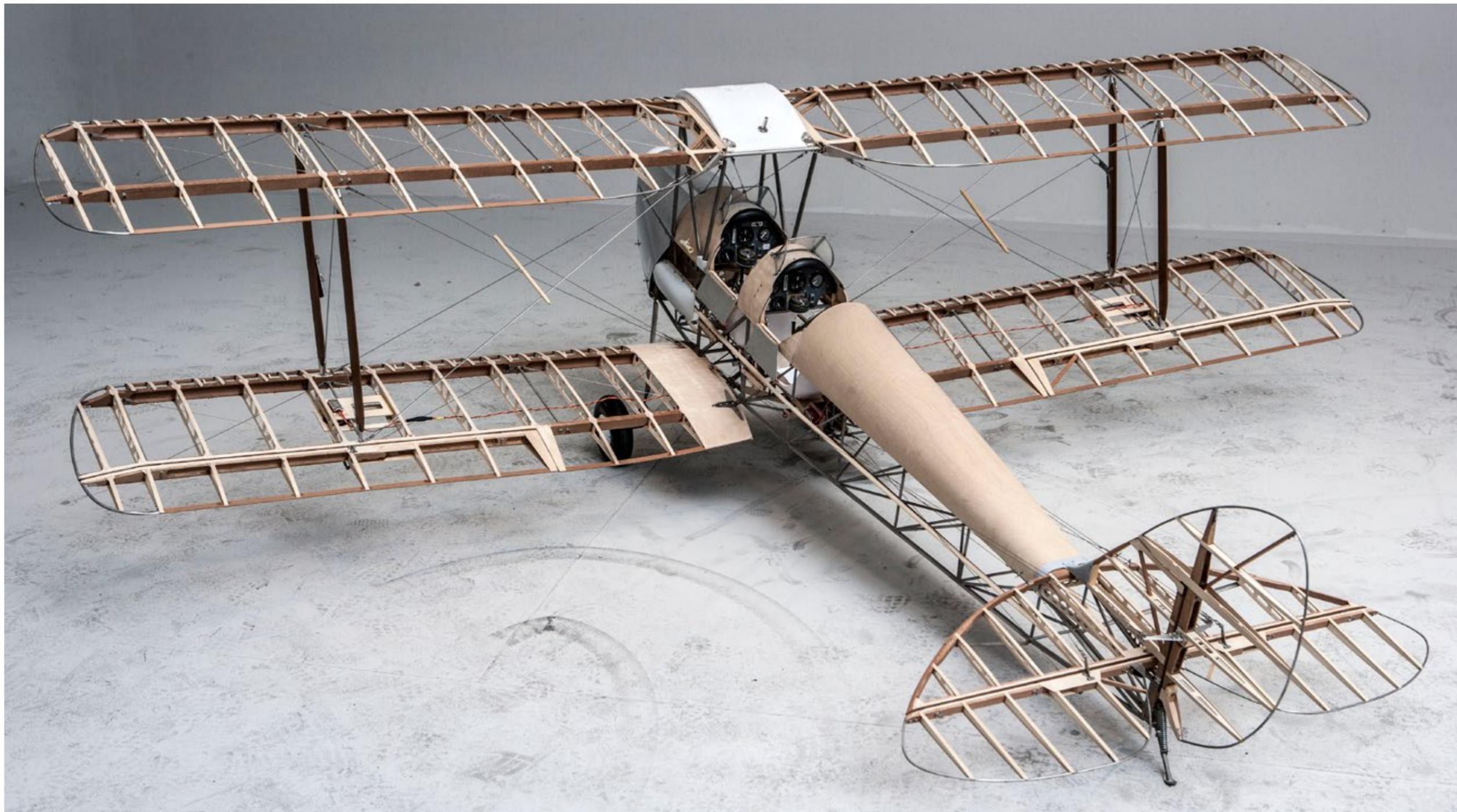
De Havilland DH.82

Tiger Moth

1/2.8 (35.7%) scale RC

P H O T O B U I L D I N G M A N U A L





DE HAVILLAND DH.82 - TIGER MOTH

1/2.8 (35.7%) SCALE RC

Wingspan: 3.19 m (10.47 ft)

Length: 2.59 m (8.5 ft)

Wing area: 2.79 sq m (27.87 sq ft) approx.

Wing loading: 80 gr/sq dm approx.

Weight: 20 kg (44 lb)

Engine: Valach Motors VM 12012-4T

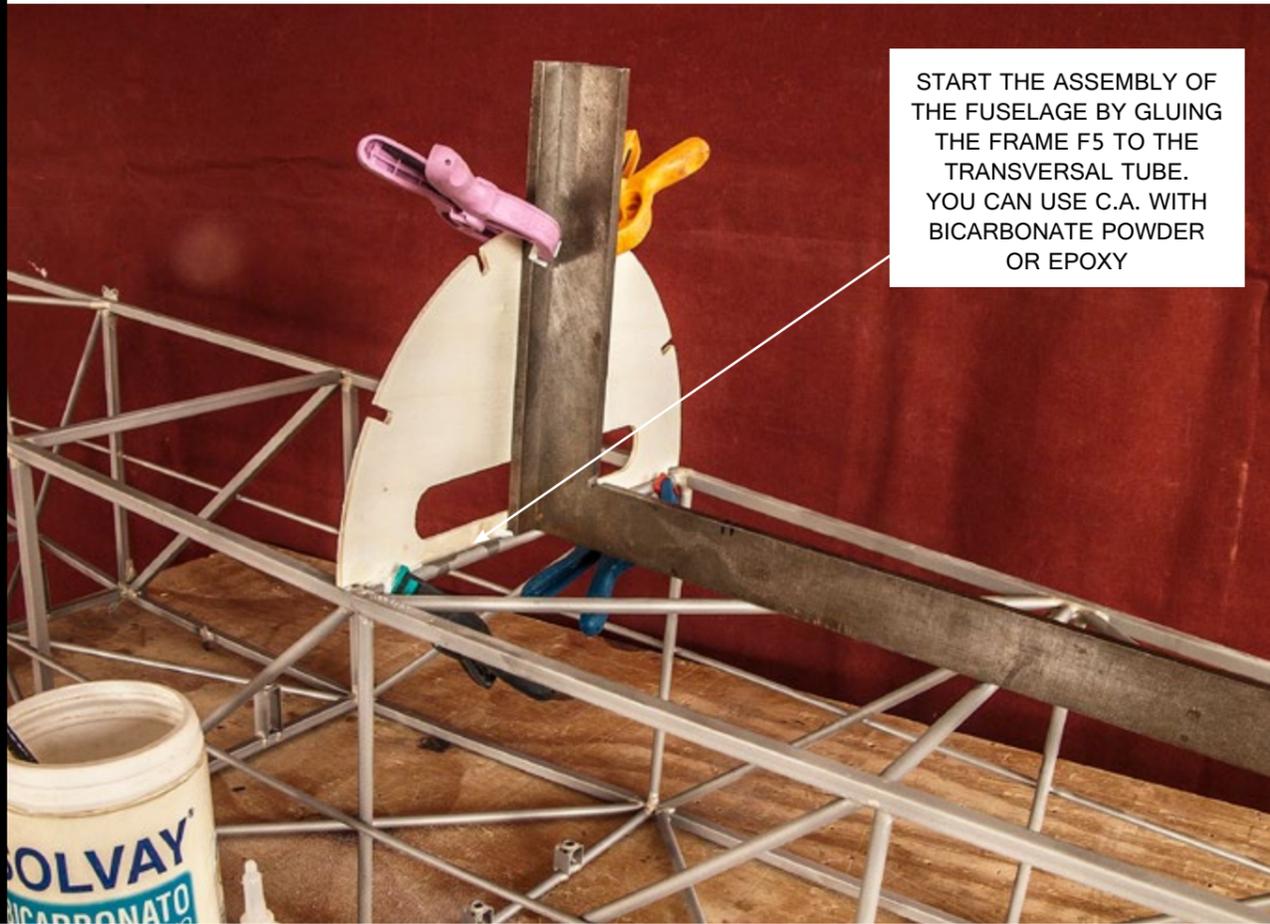
Kolm Engines IL-100/135/155 2 cyl. or IL-150 3 cyl. in-line 4 stroke or similar

Designed and engineered by Paolo Severin in consultation with Gerhard Reinsch from November 2014 to September 2015.

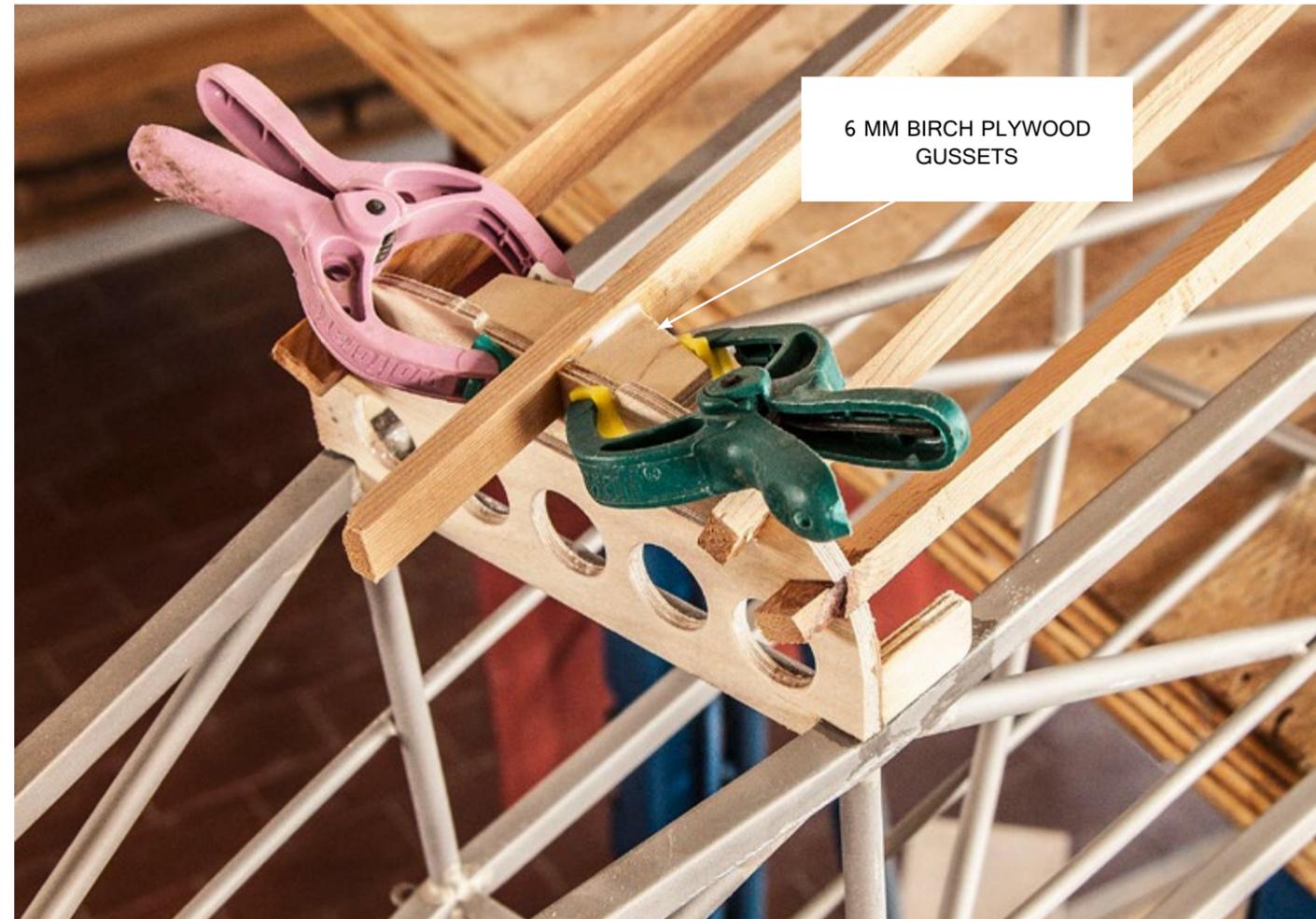
Flight tested with two prototypes from March to August 2015 by Gerhard Reinsch.

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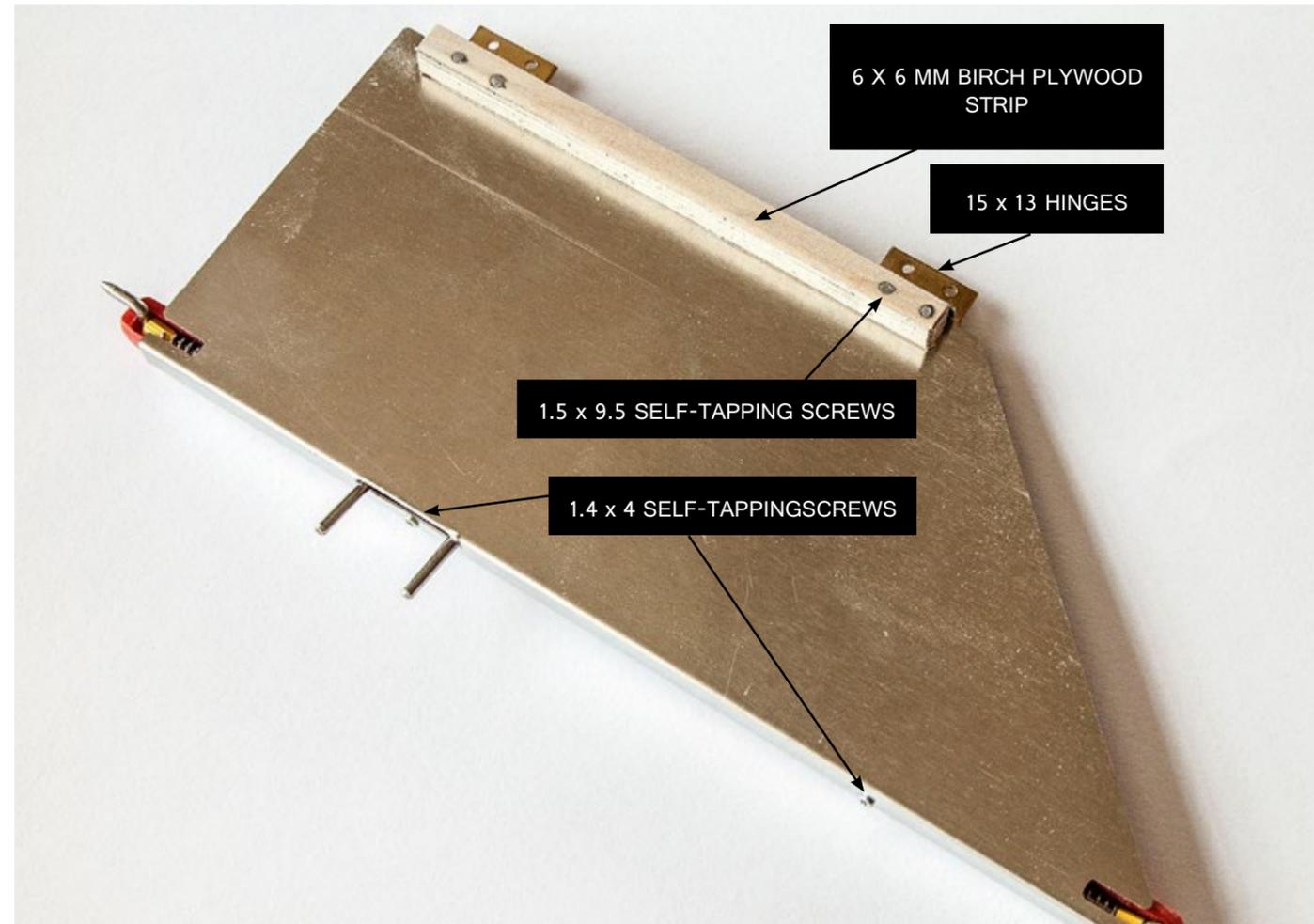


START THE ASSEMBLY OF THE FUSELAGE BY GLUING THE FRAME F5 TO THE TRANSVERSAL TUBE. YOU CAN USE C.A. WITH BICARBONATE POWDER OR EPOXY



6 MM BIRCH PLYWOOD GUSSETS





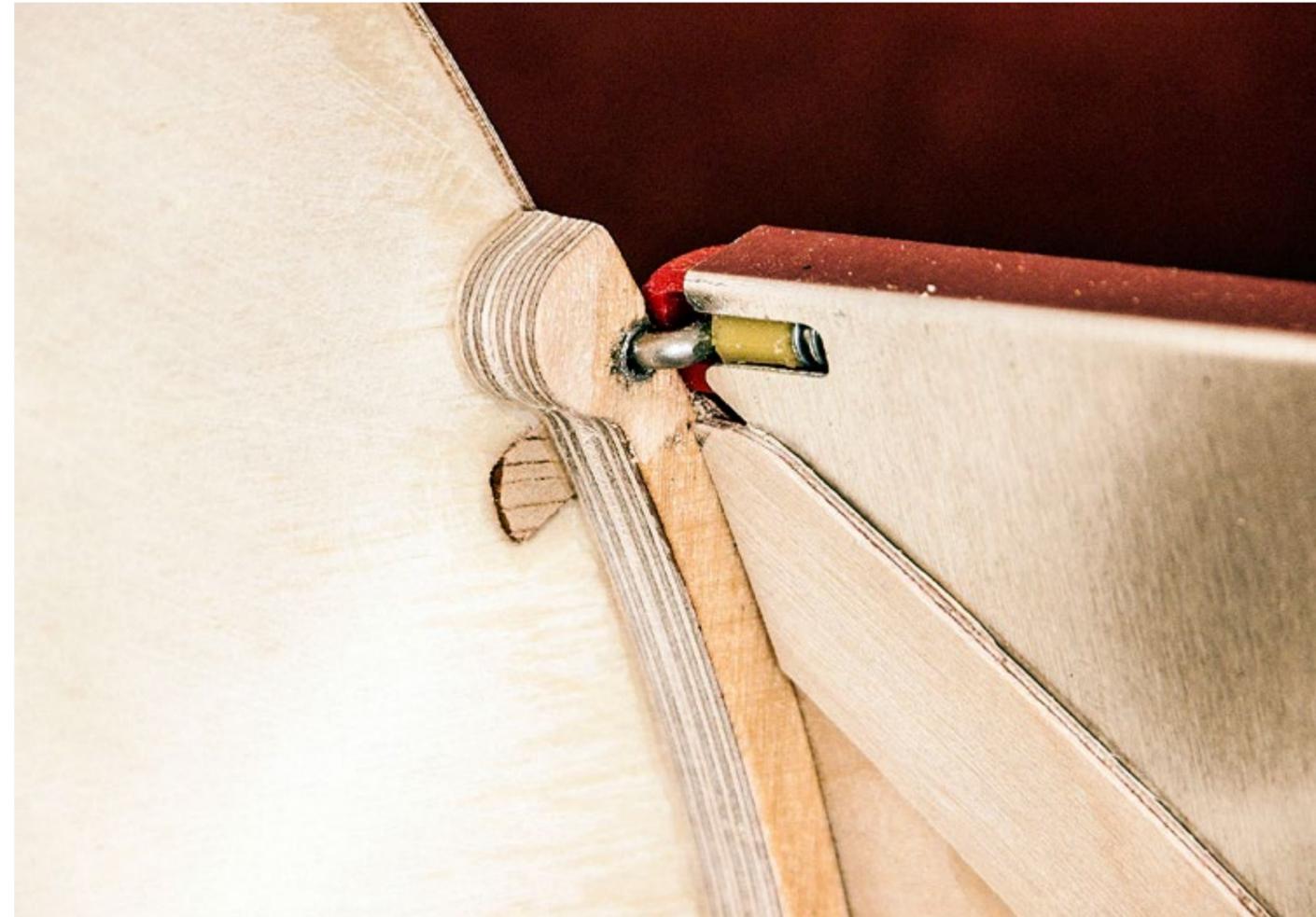
MOUNT THE DOOR AND MARK
THE HOLE FOR THE LATCH



...AND CUT AFTER THE EPOXY HAS
HARDENED



DRILL Ø 3 MM, GLUE THE TUBE WITH
EPOXY...



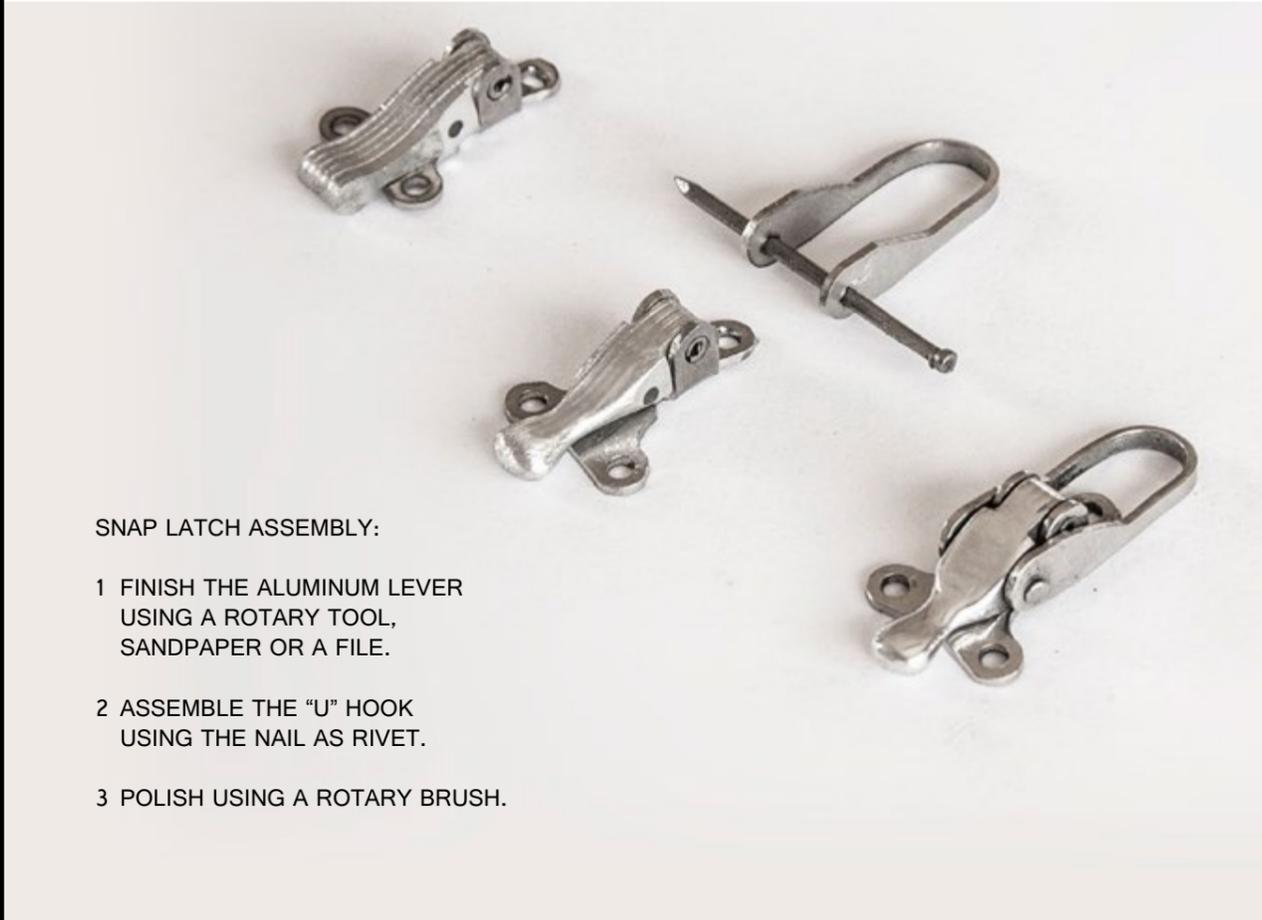




HEAT SHRINKING TUBE



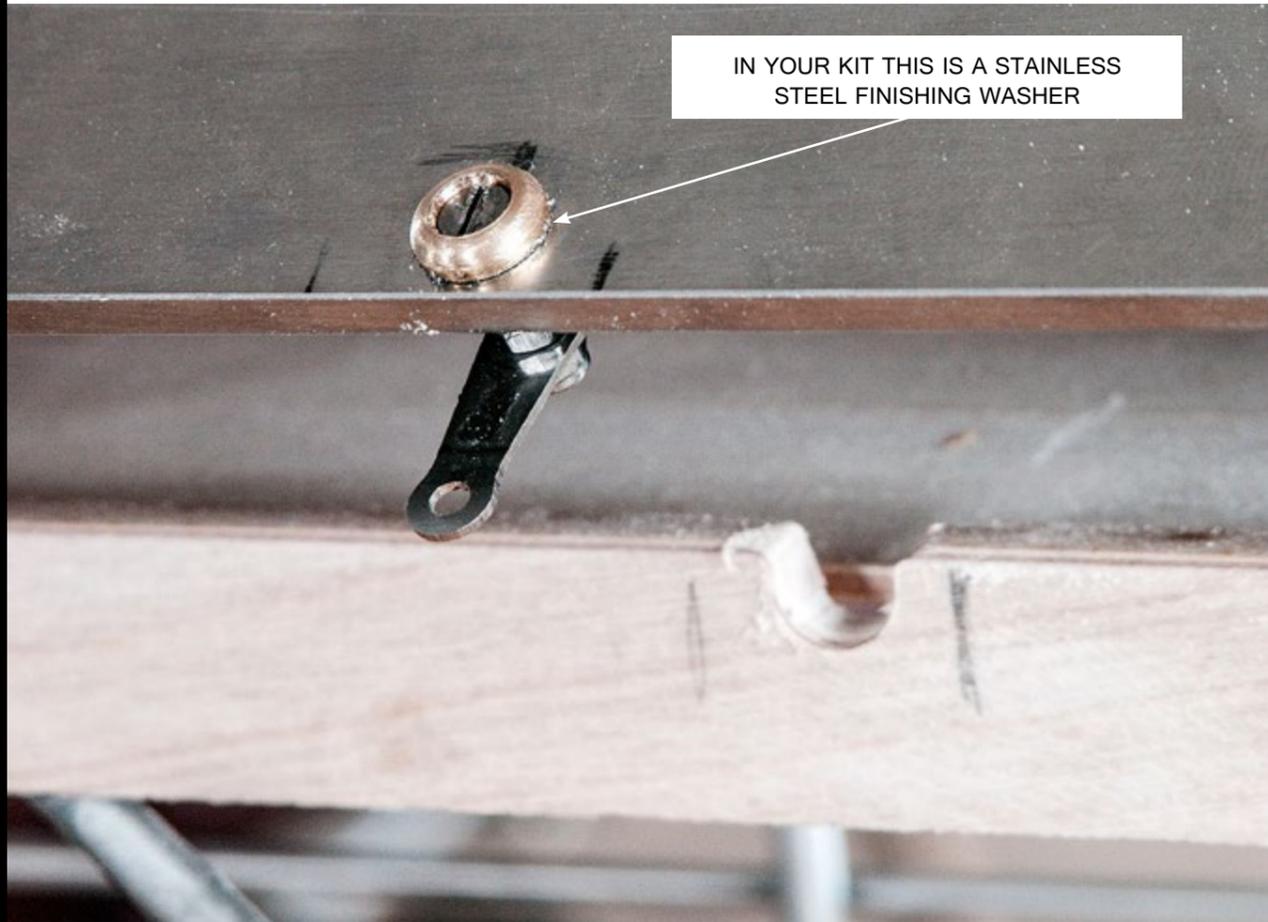
TO ATTACH THE PIANO HINGE TO THE LUGGAGE DOOR, USE 1.5 X 5 MM ALUMINUM RIVETS. WHEN HAMMERING, PLACE THE HEAD OF THE RIVET ON A BLOCK OF HARDWOOD TO AVOID DAMAGE TO THE RIVET HEAD.



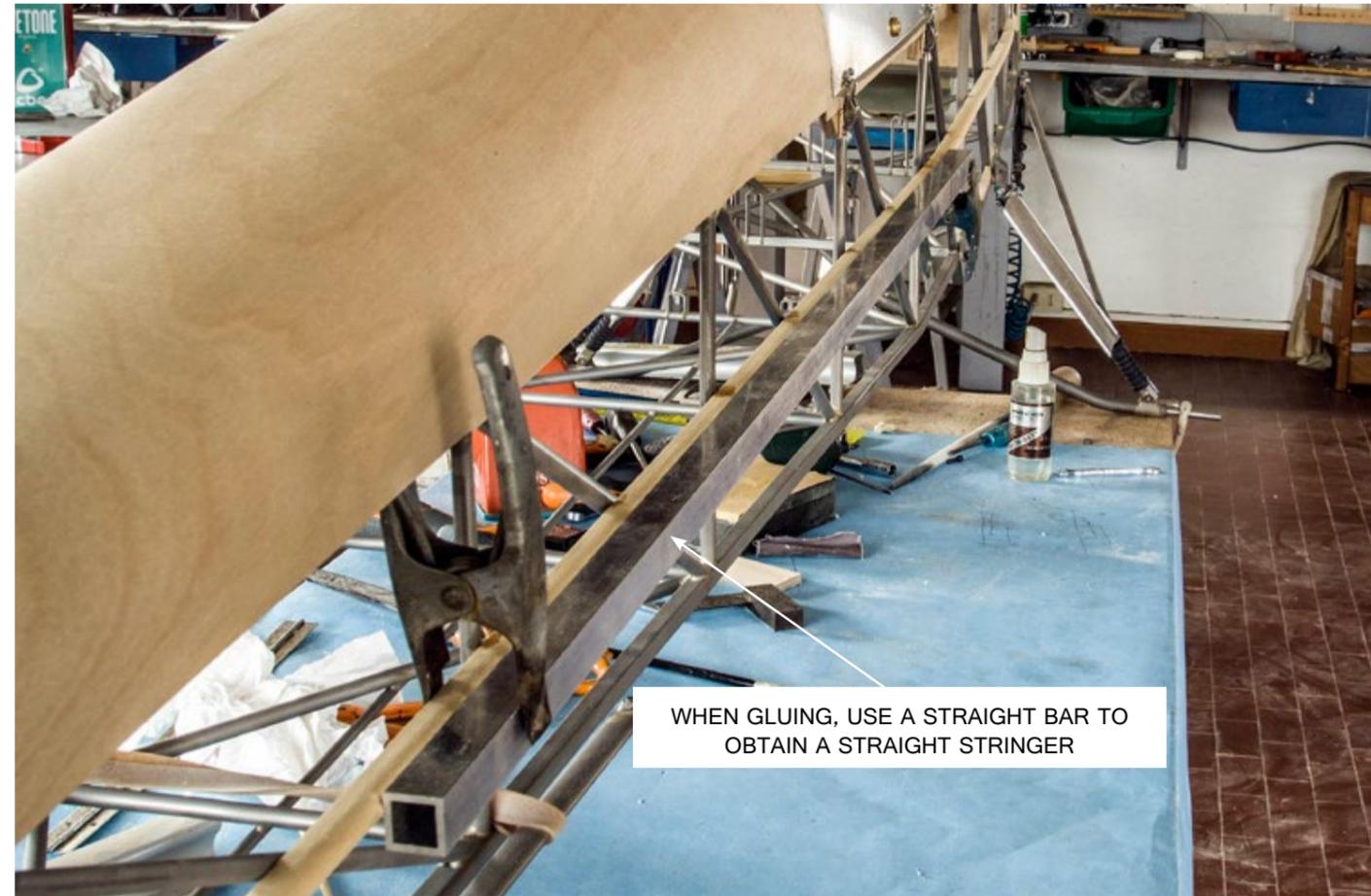
SNAP LATCH ASSEMBLY:

- 1 FINISH THE ALUMINUM LEVER USING A ROTARY TOOL, SANDPAPER OR A FILE.
- 2 ASSEMBLE THE "U" HOOK USING THE NAIL AS RIVET.
- 3 POLISH USING A ROTARY BRUSH.





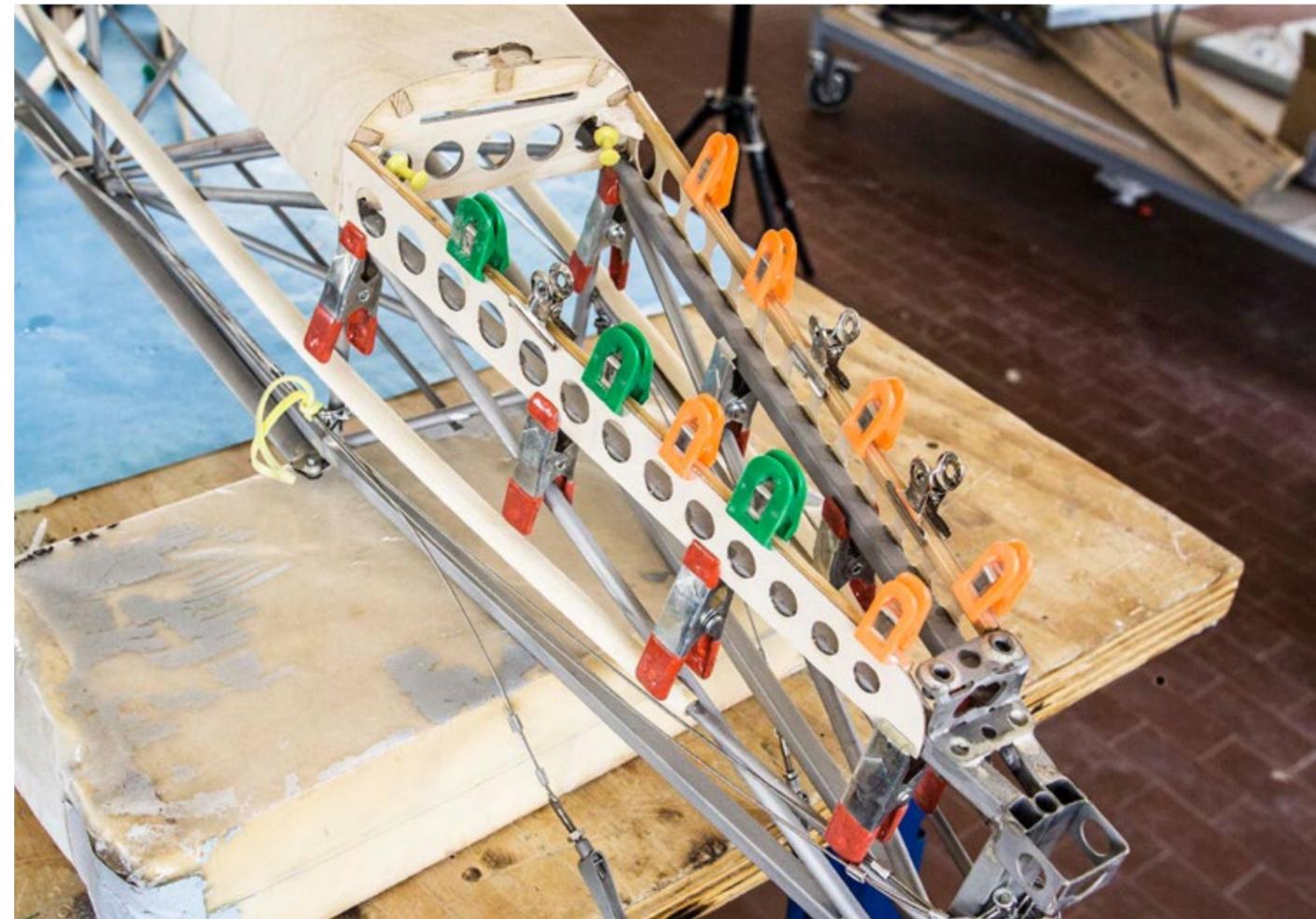
IN YOUR KIT THIS IS A STAINLESS STEEL FINISHING WASHER

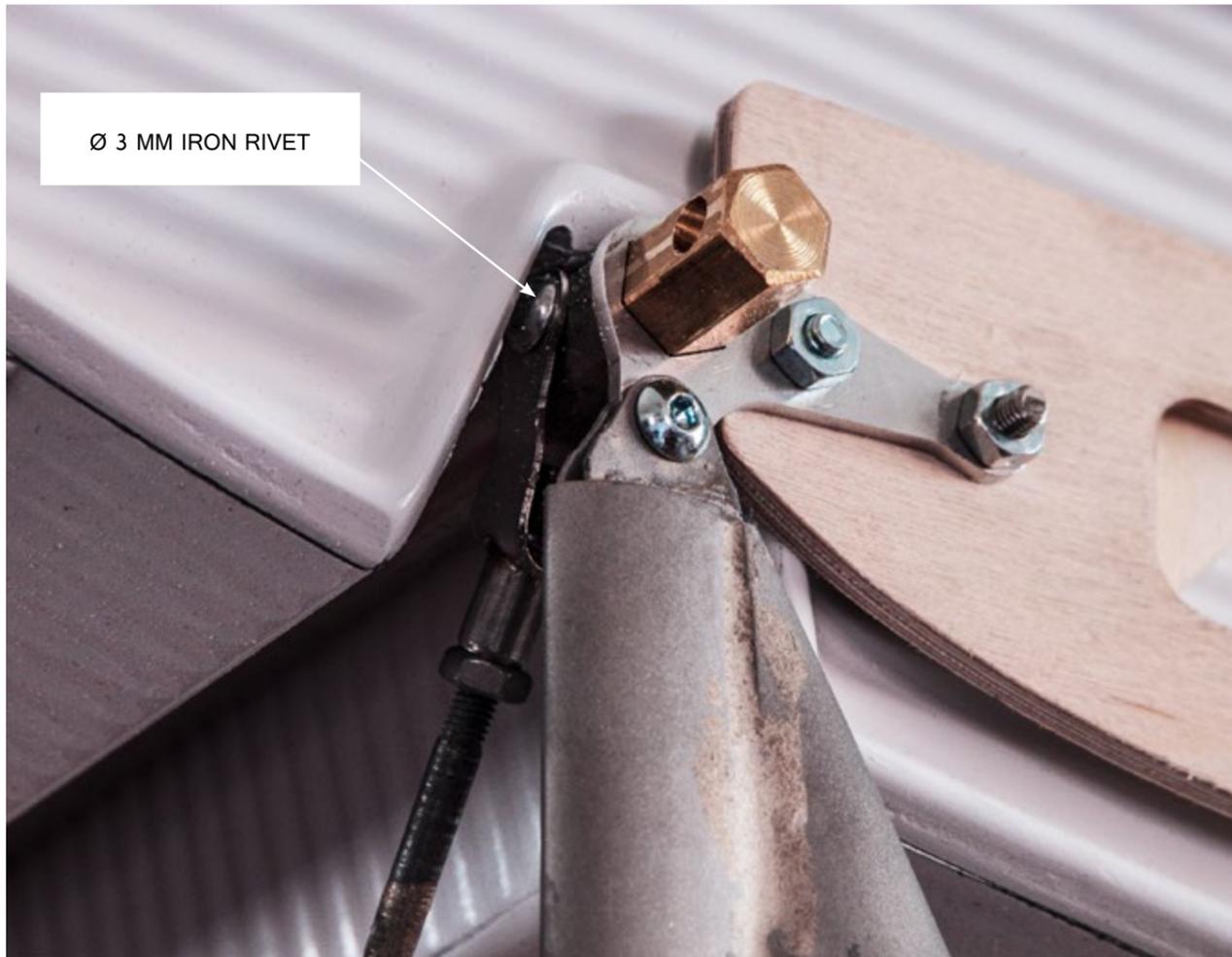


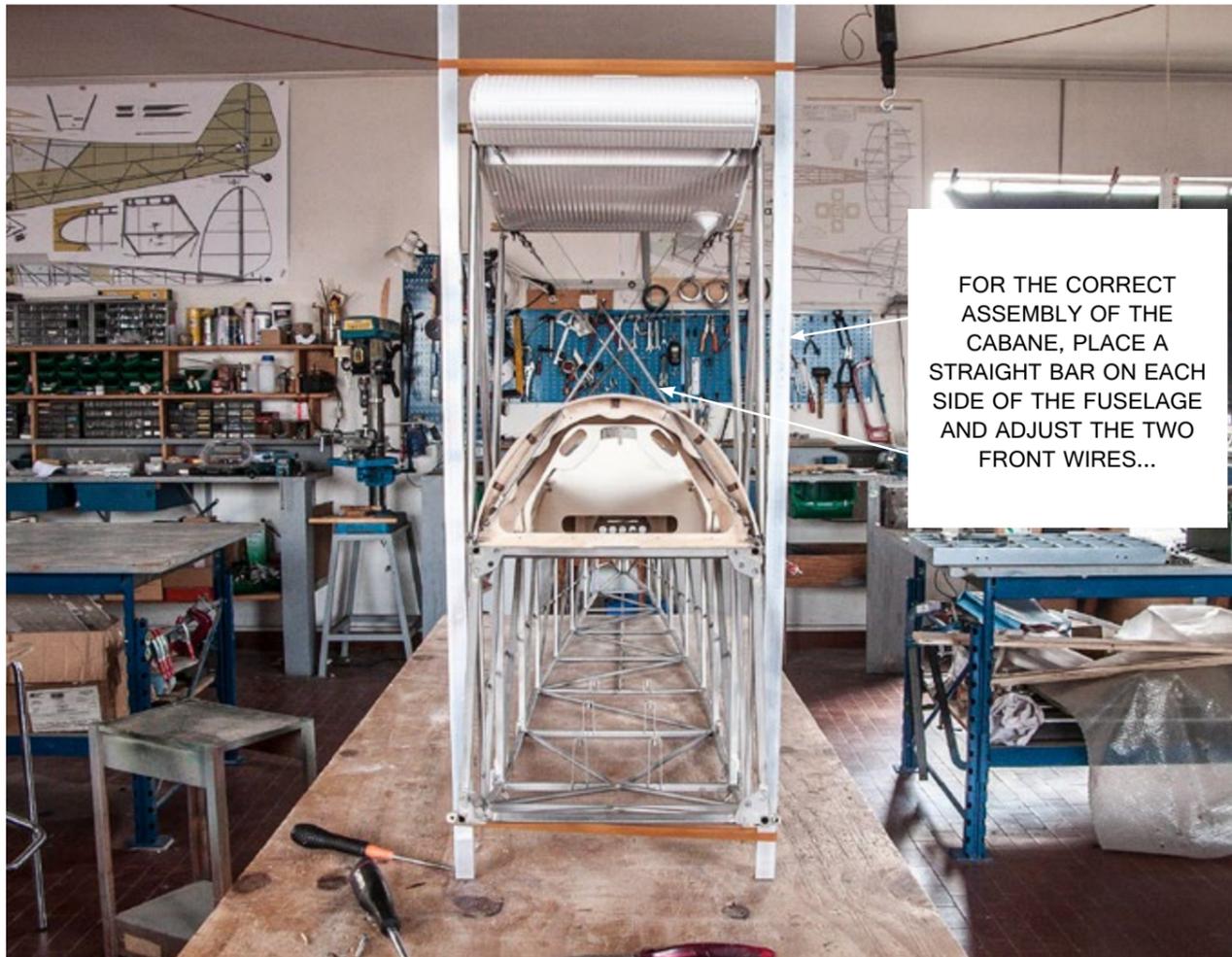
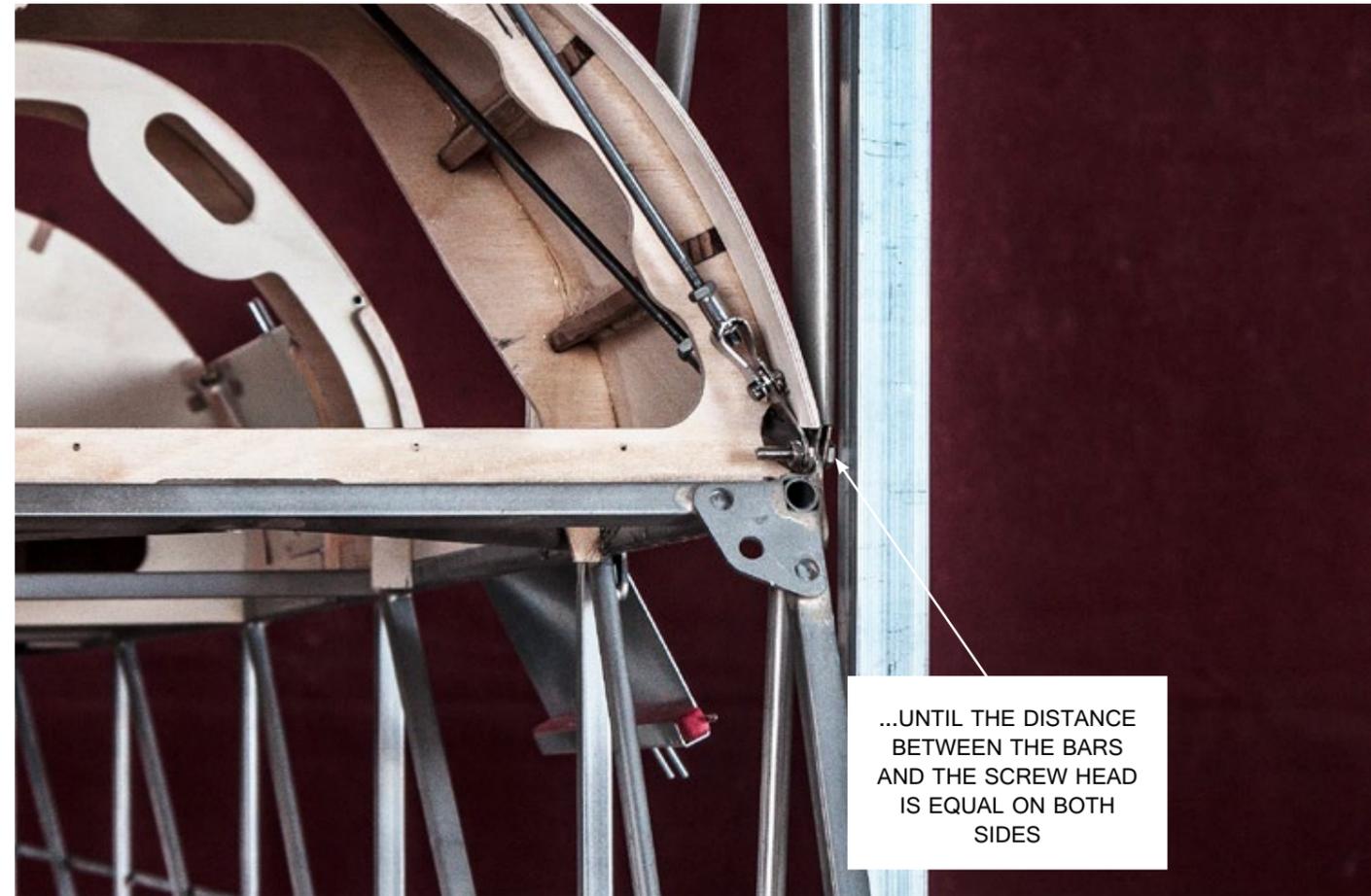
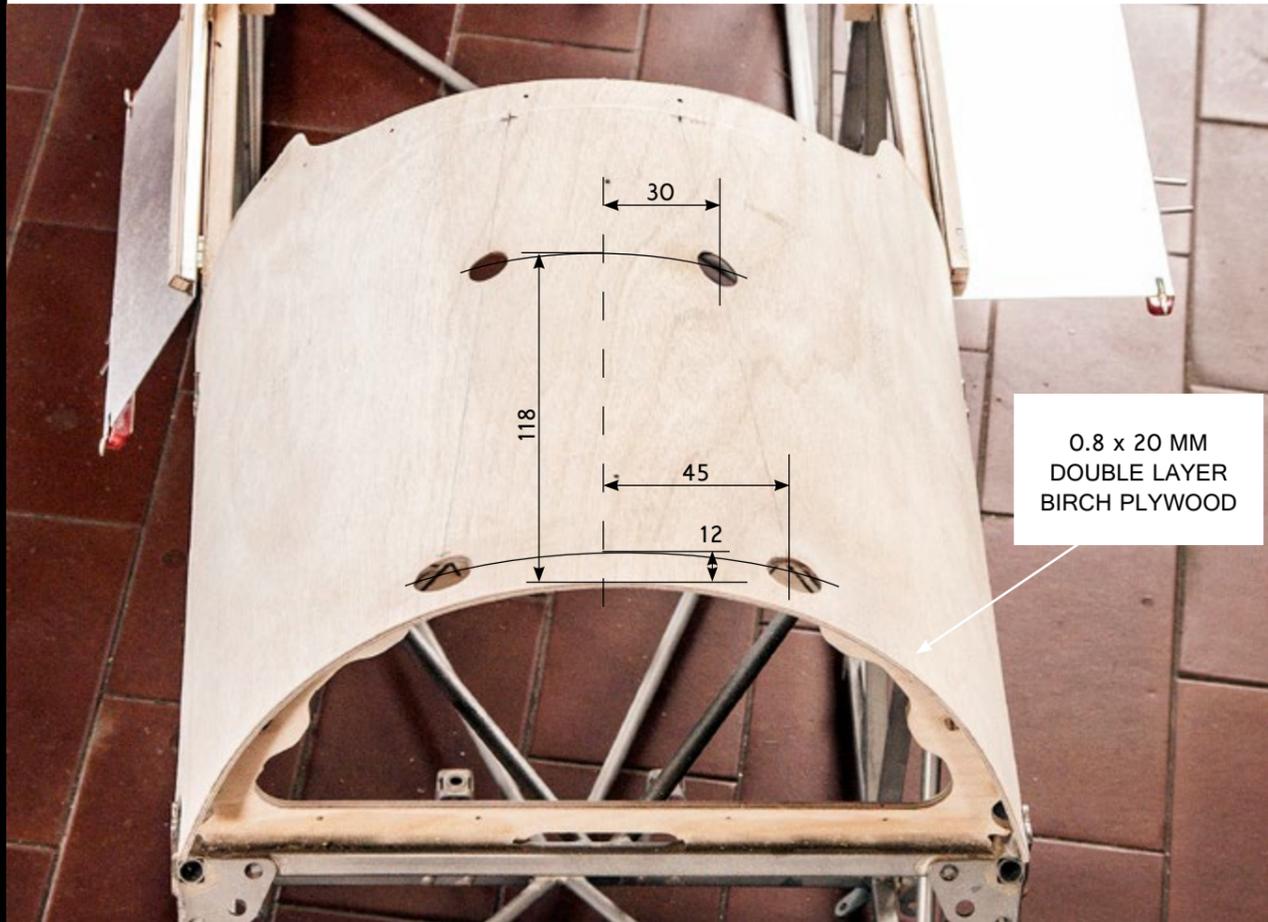
WHEN GLUING, USE A STRAIGHT BAR TO OBTAIN A STRAIGHT STRINGER



USE A SCREWDRIVER AS A KEY

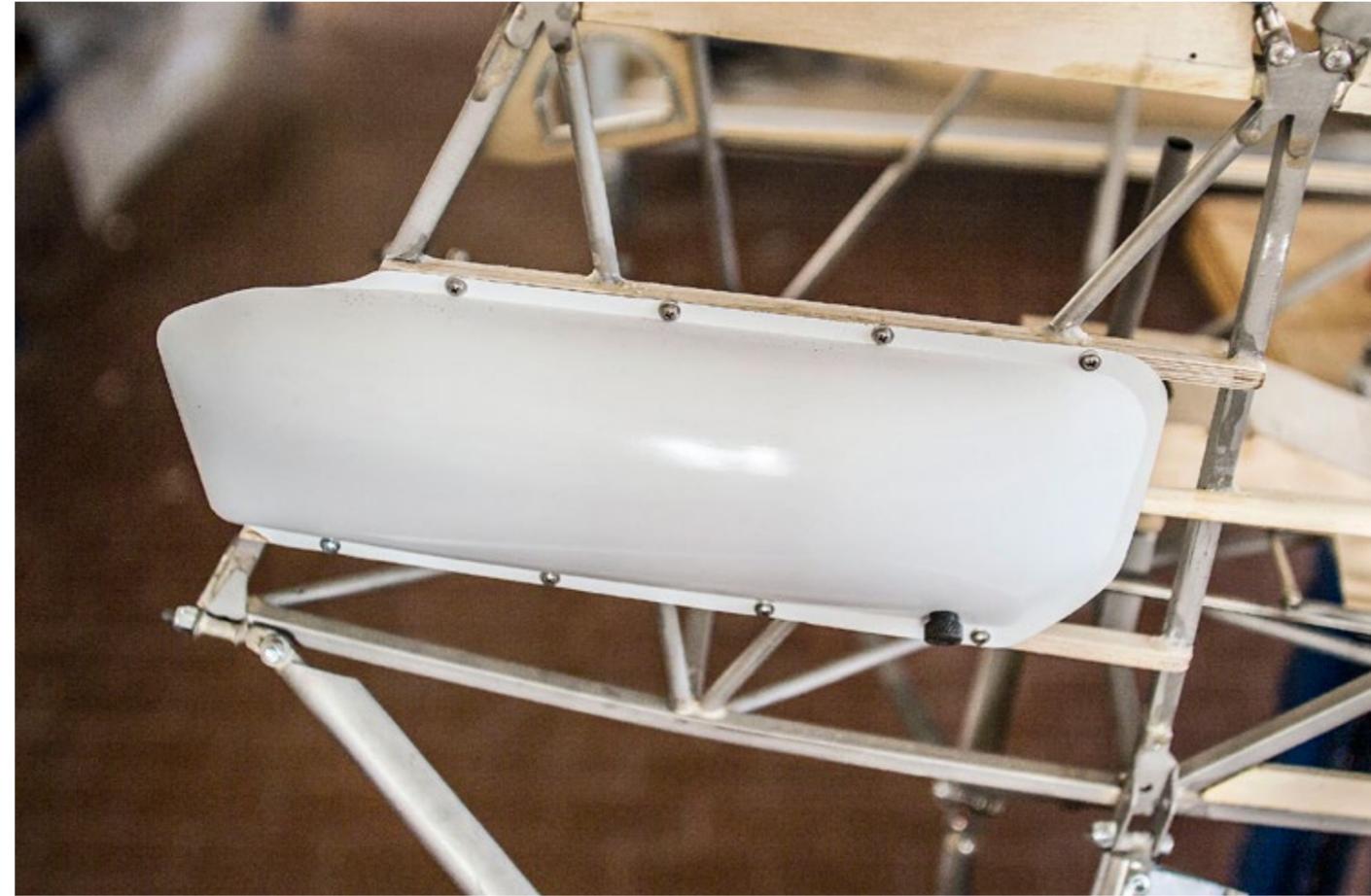








...THE TRANSVERSAL INCLINATION OF THE CABANE.
BE SURE THAT THIS DISTANCE IS EQUAL ON BOTH SIDES



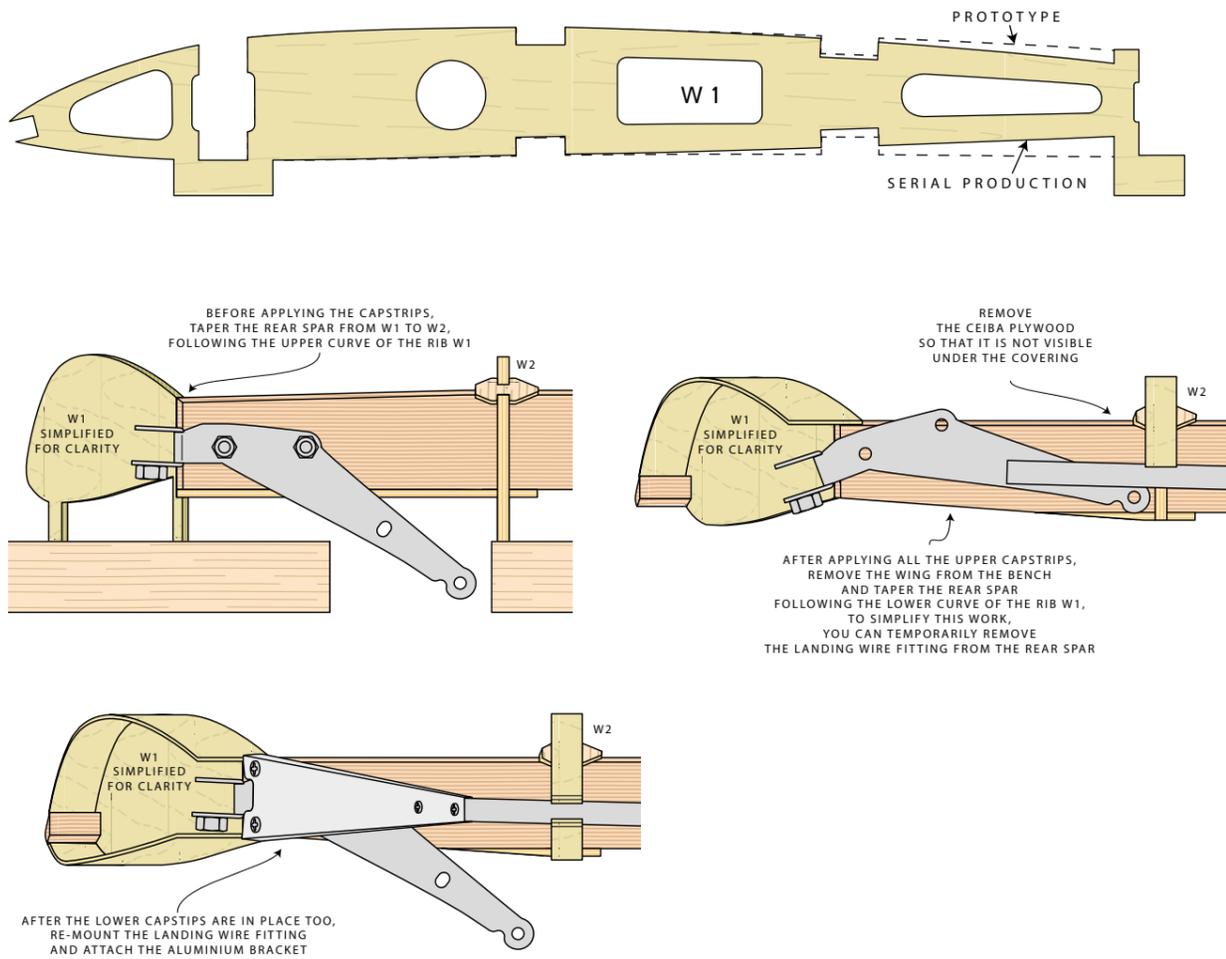
PLACE A STRAIGHT BAR ON EACH SIDE OF THE FUSELAGE AND ADJUST THE TWO REAR WIRES, SAME AS YOU ALREADY DID WITH THE FRONT WIRES.



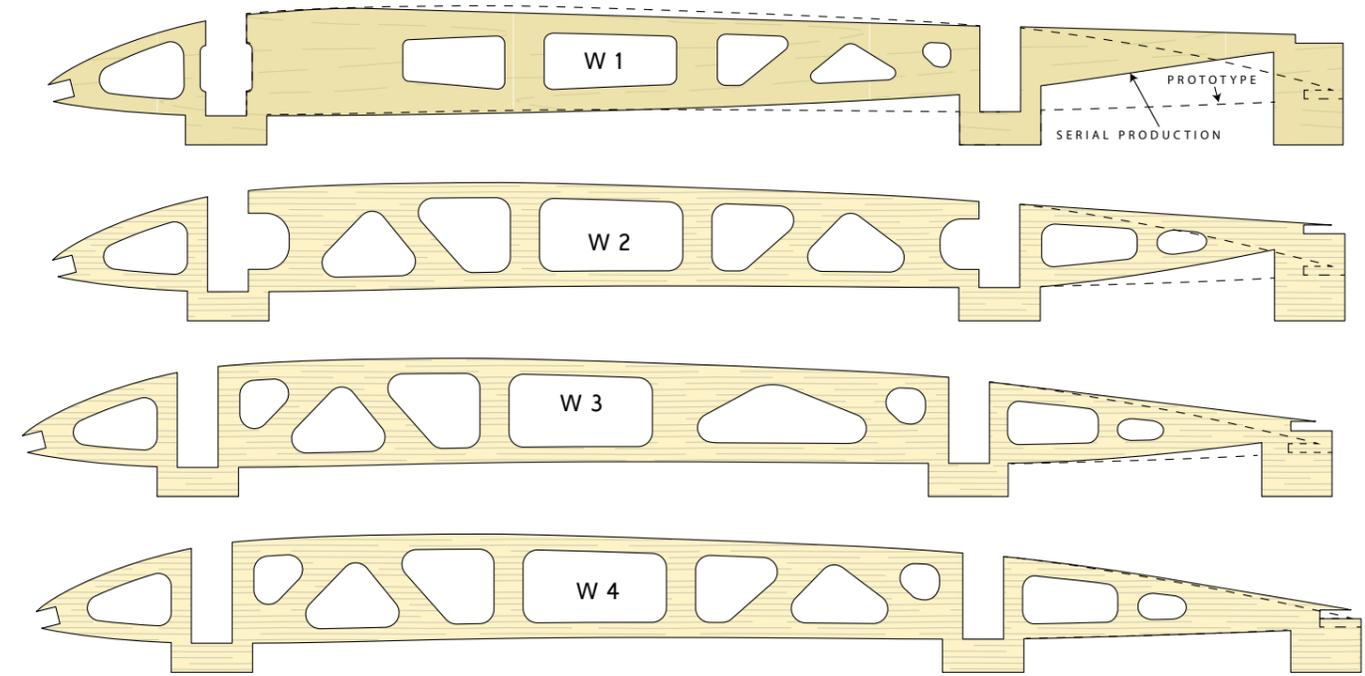
ATTENTION:

The pictures in this manual have been made on the second prototype that I built. Later, I had the opportunity to inspect a real Tiger Moth under restoration and, for better scale fidelity, I made a change to the center ribs on all wing panels. Paolo Severin

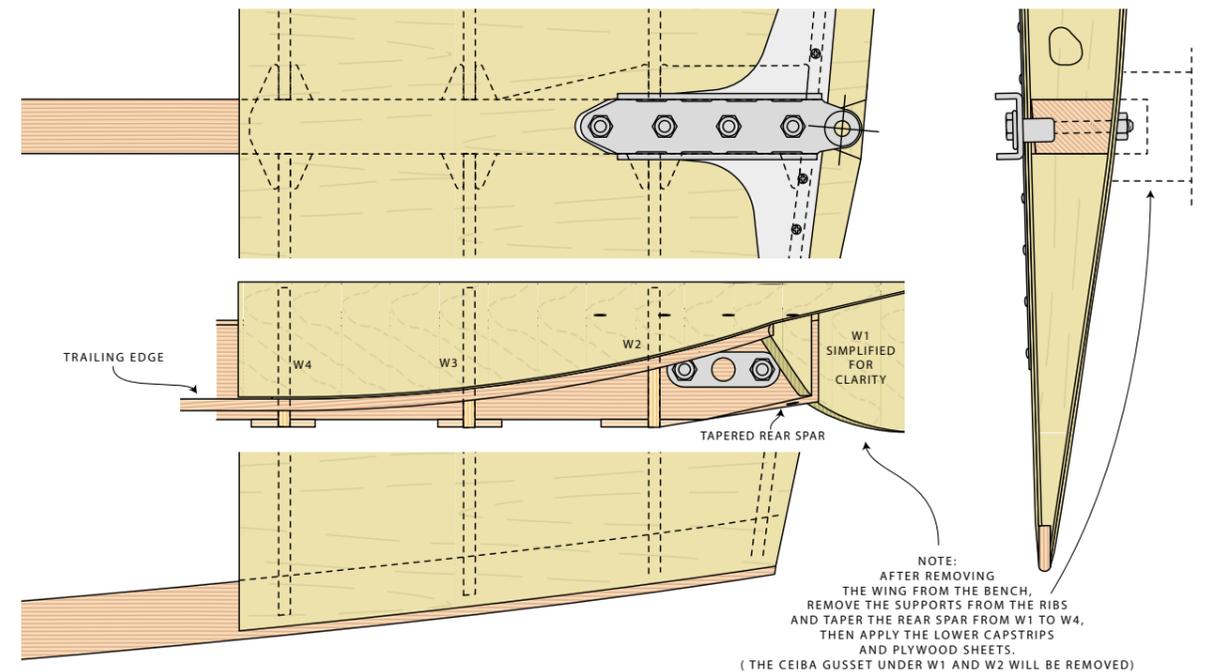
TOP WING
Only rib W1 is modified.



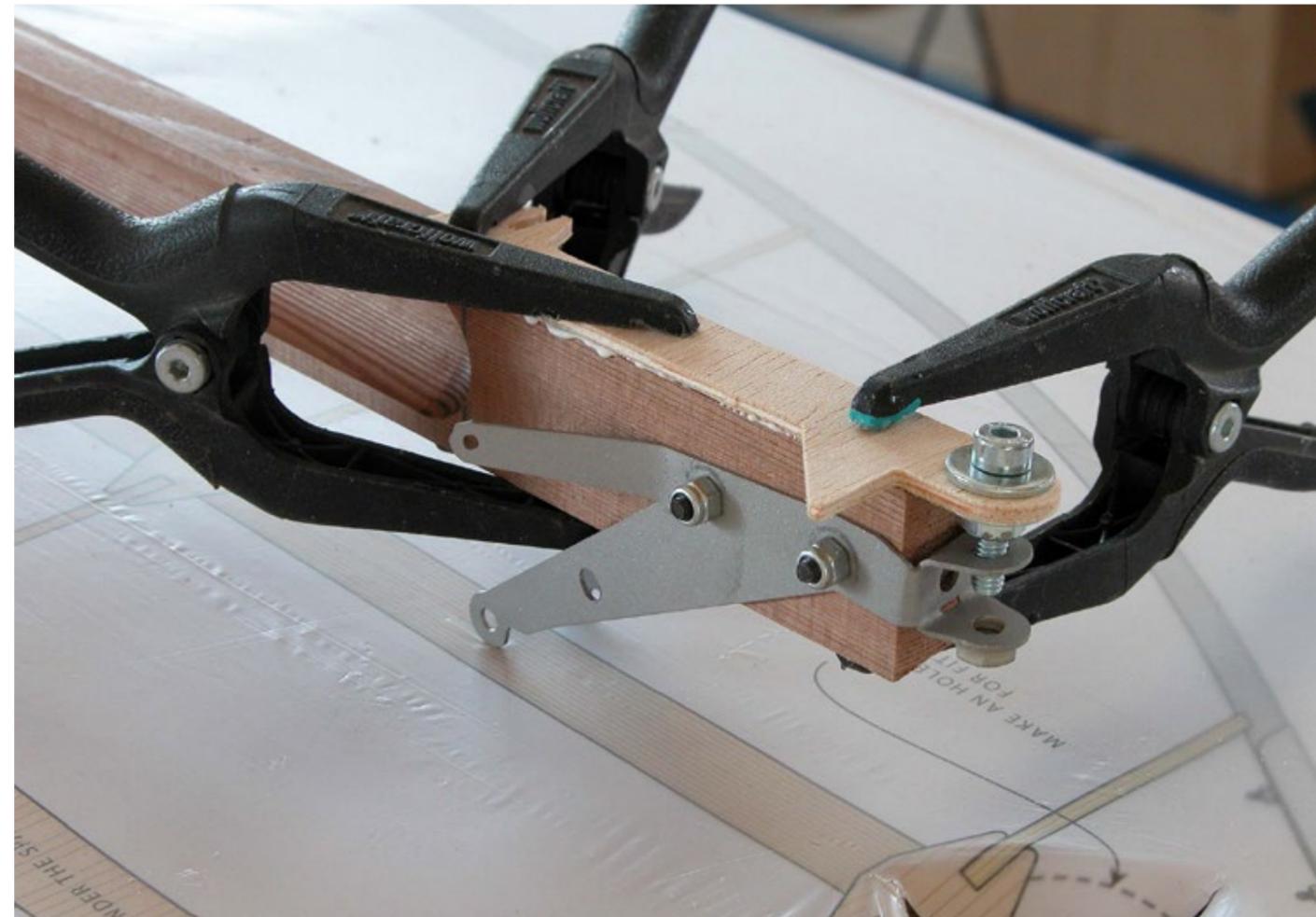
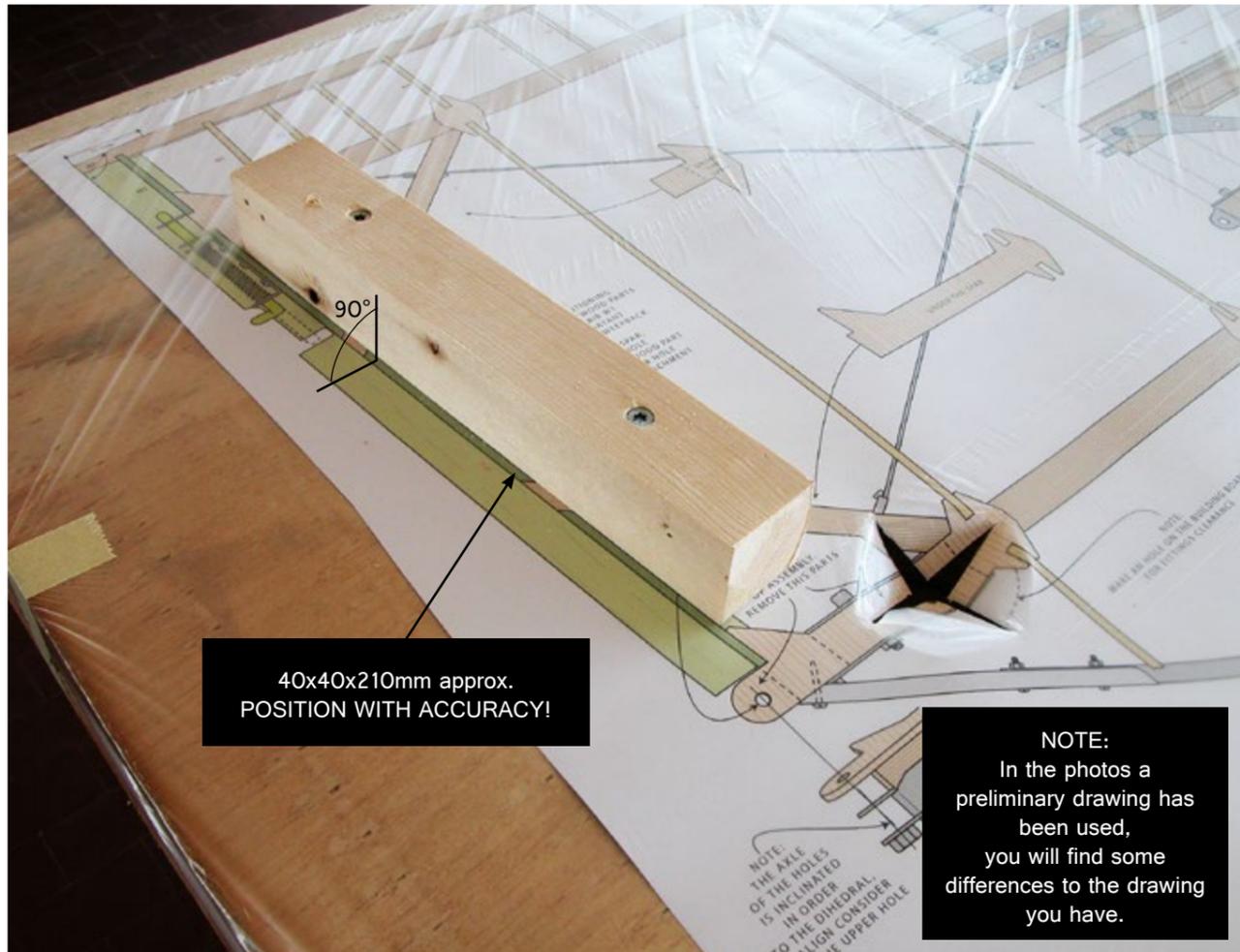
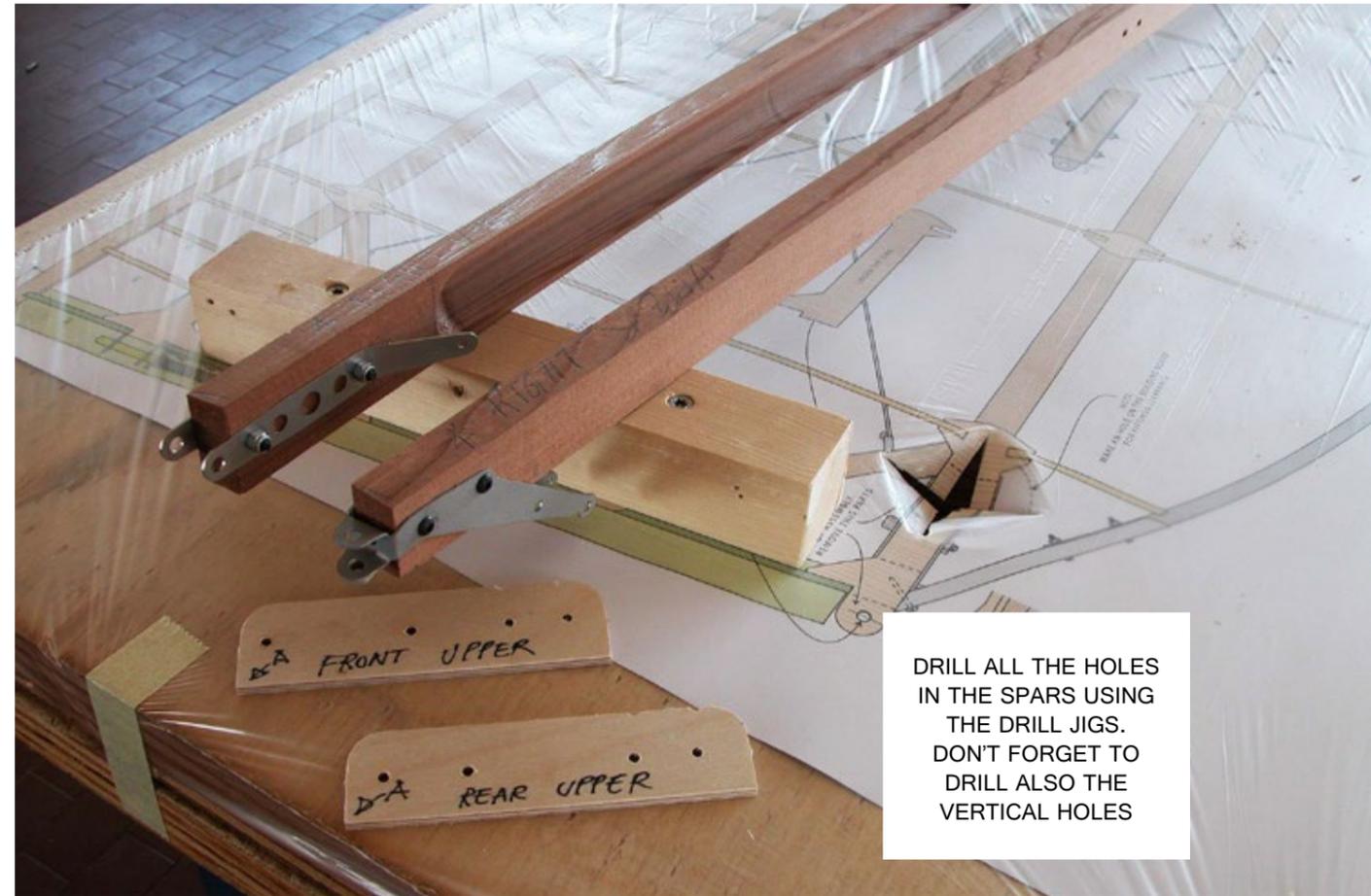
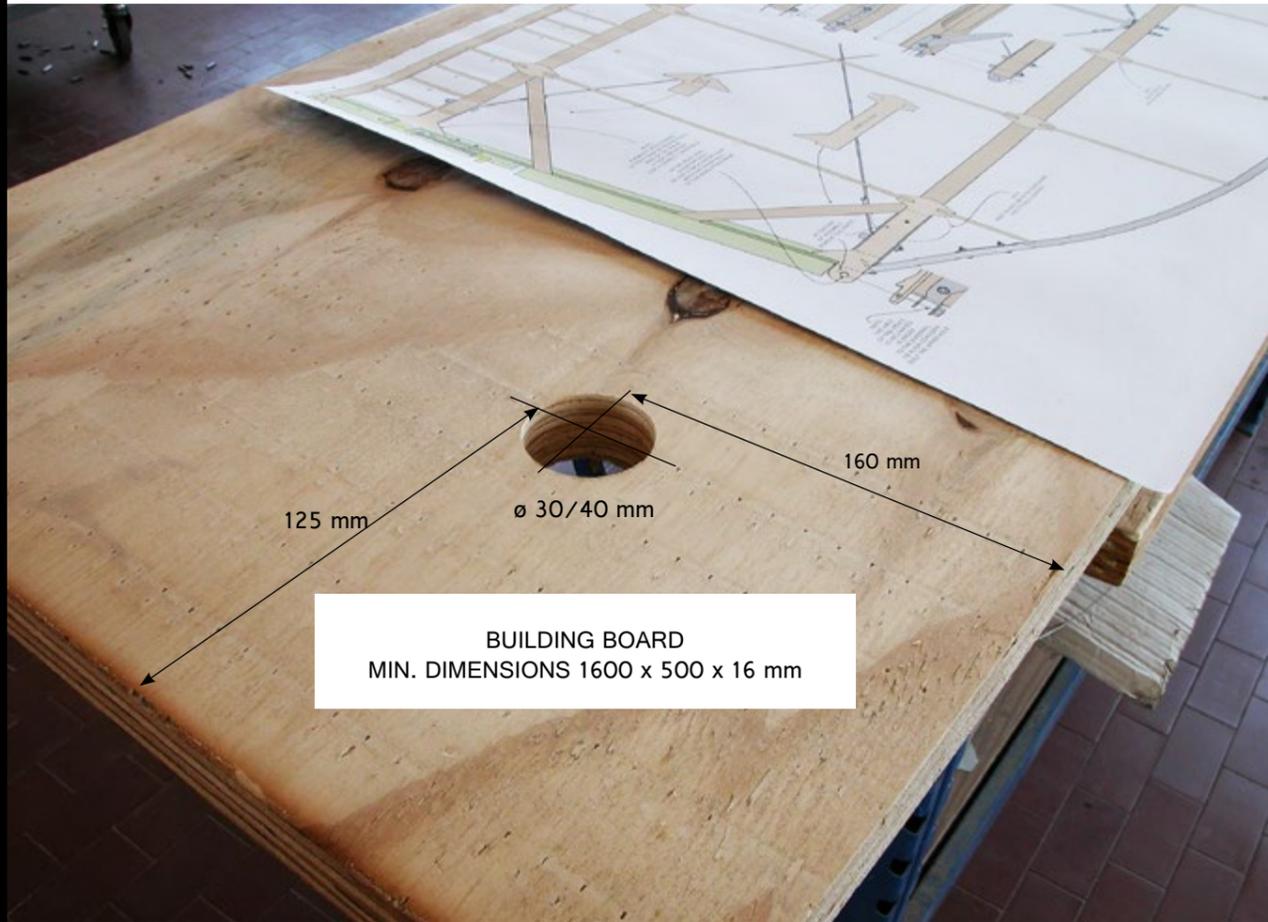
BOTTOM WING
Rib W1, W2, W3 and W4 modified.

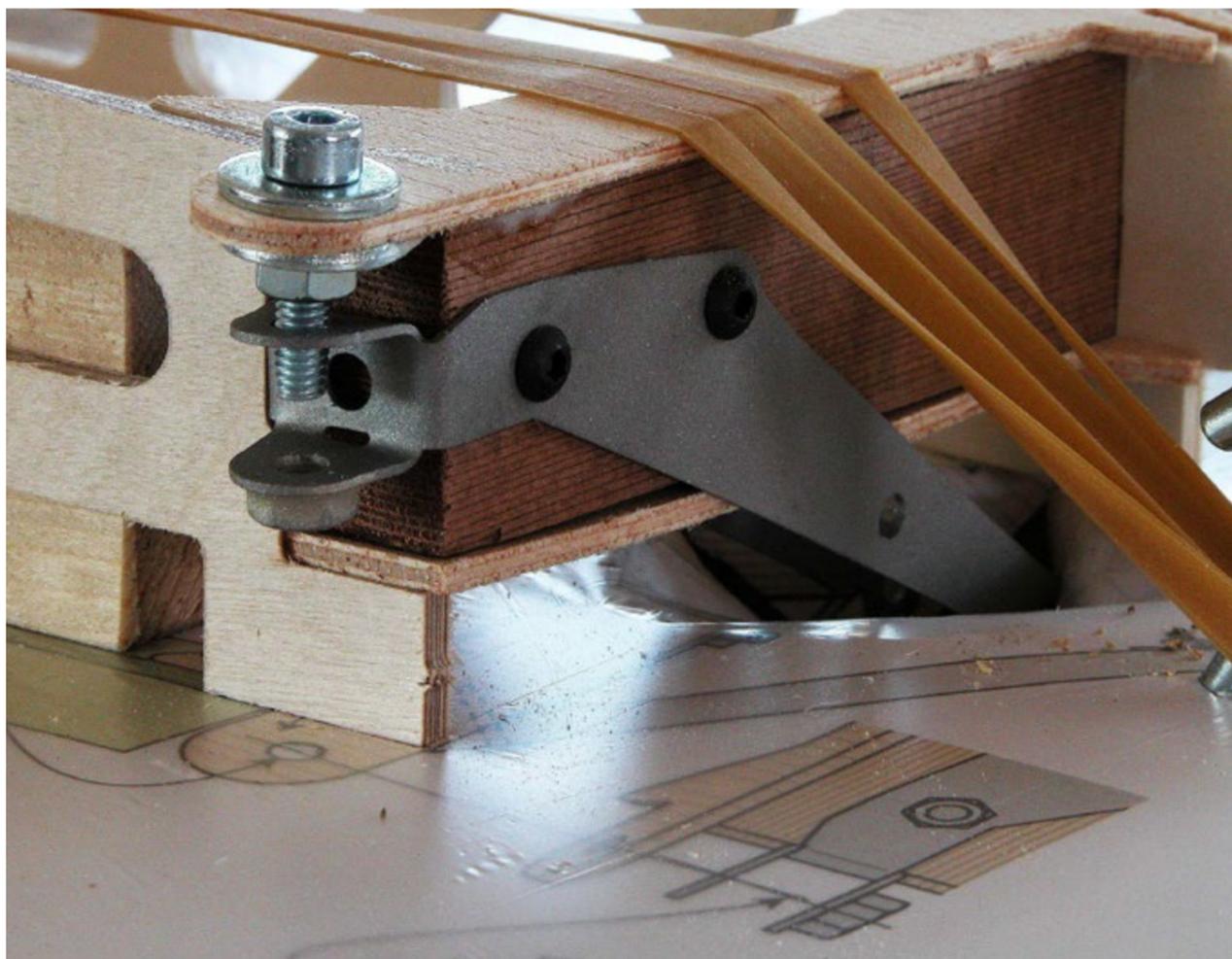
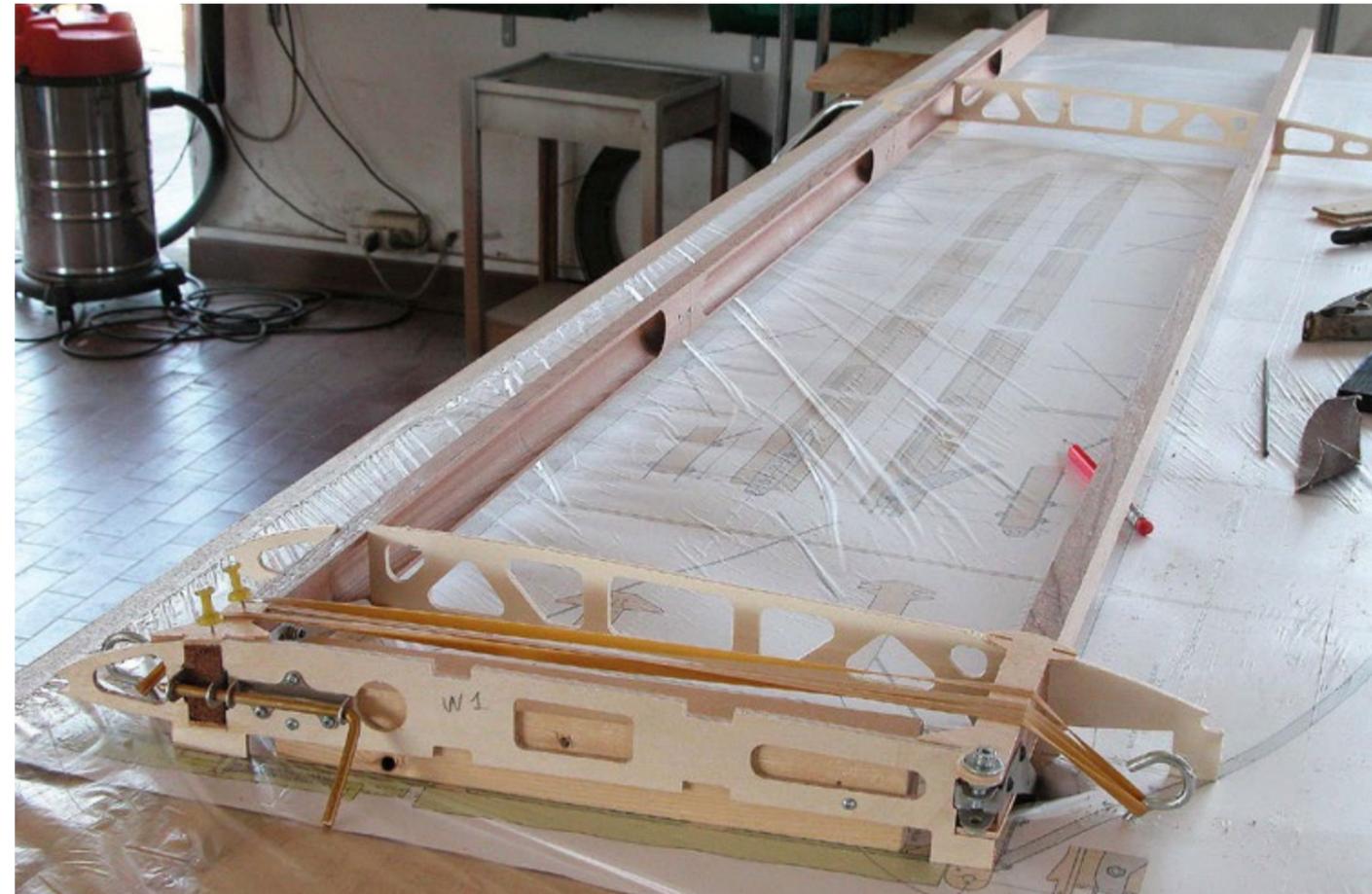
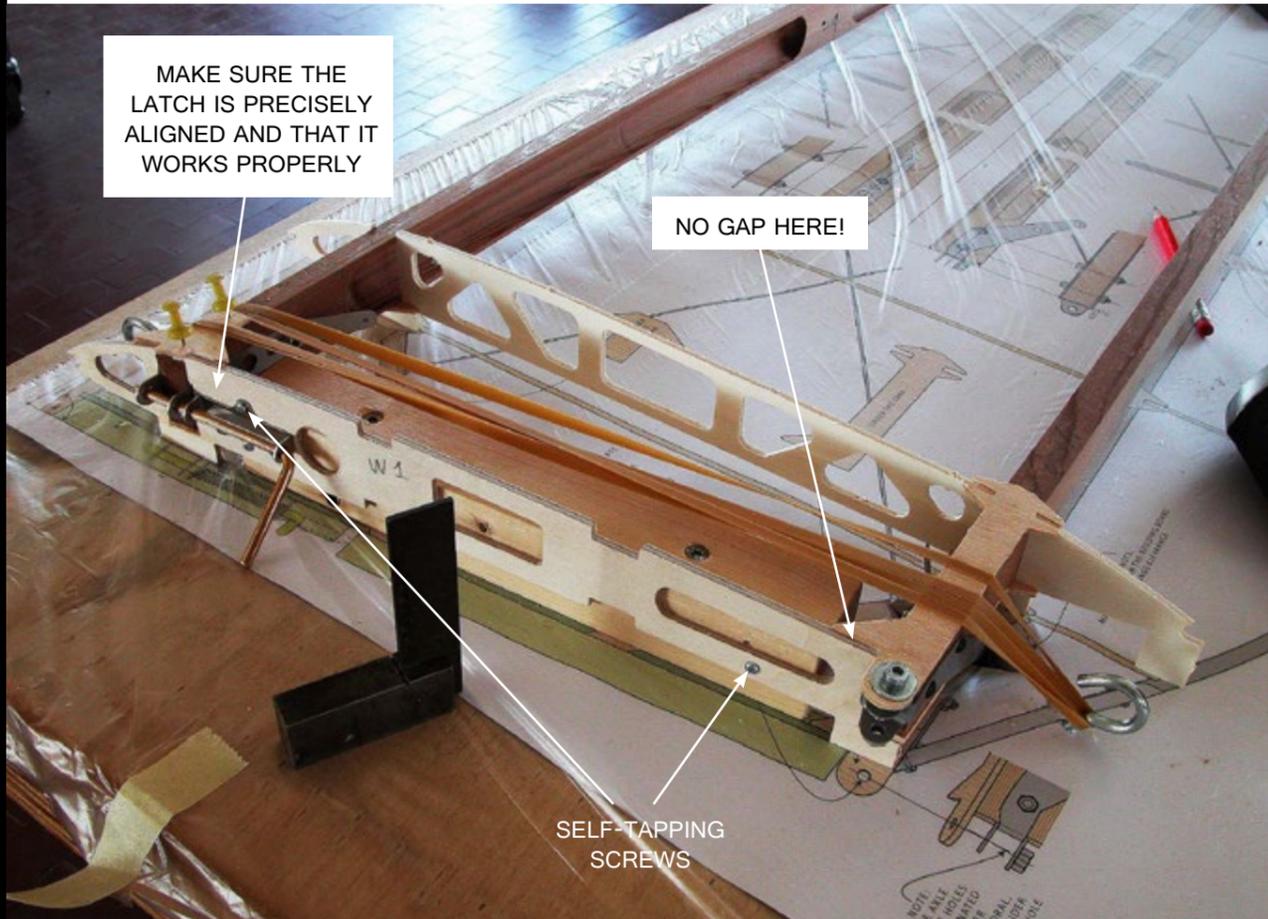


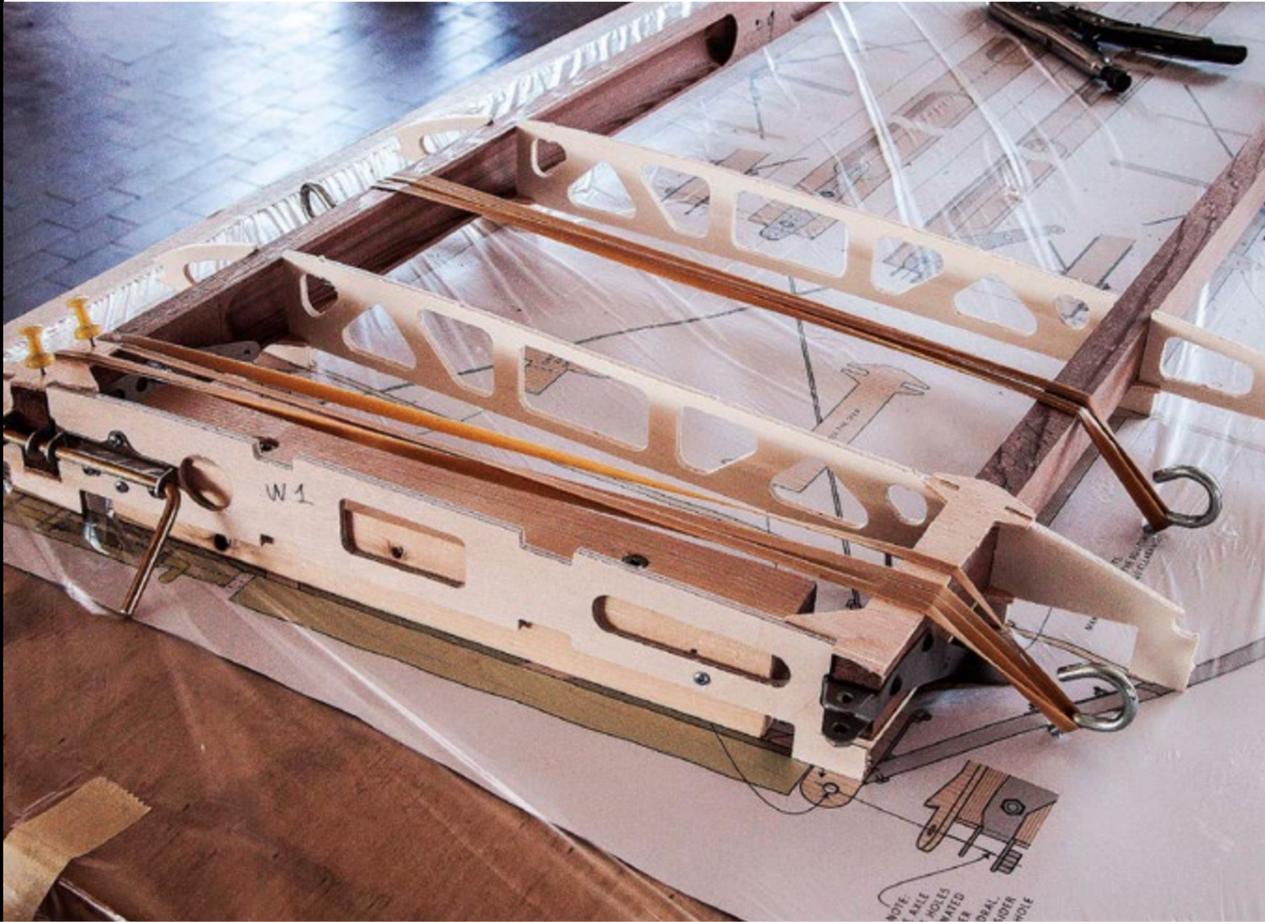
In the above photos, you see the first Tiger Moth built from my kit under construction in the workshop of my friend Gianni Vetrini. Note the first four ribs on the bottom wing.



Bottom wing of a real Tiger Moth under restoration, the upper plywood sheeting is modified now to represent the original.







PLACE TWO GUSSETS UNDER EACH RIB, BE SURE THAT THE SPARS ARE CAREFULLY PRESSED DOWN, AND GLUE WITH 4 DROPS OF C.A.



GLUE THE UPPER GUSSETS IN PLACE WITH PVA GLUE

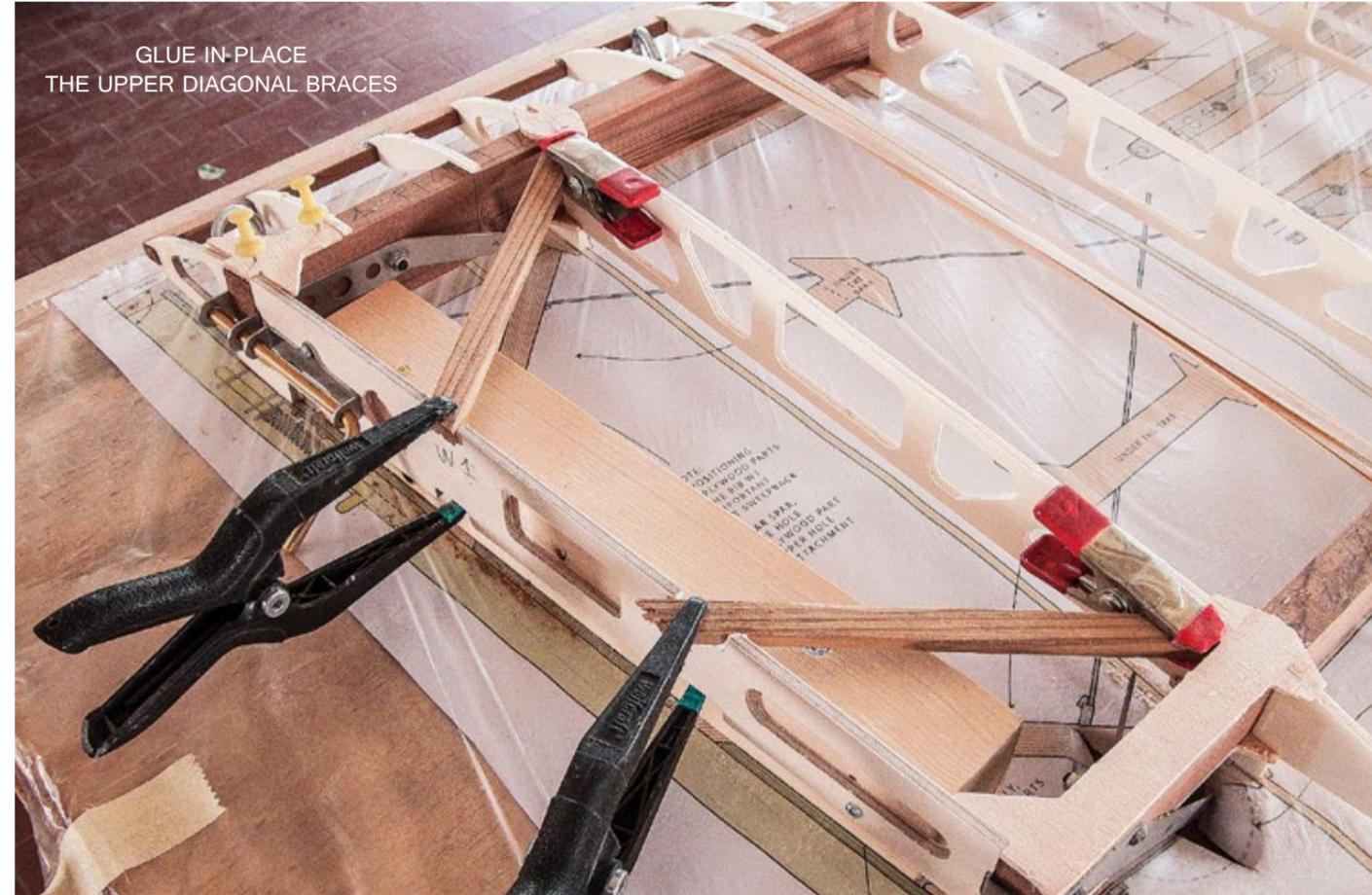
A BIT MORE HEIGHT (UP TO 1 MM) IS CORRECT



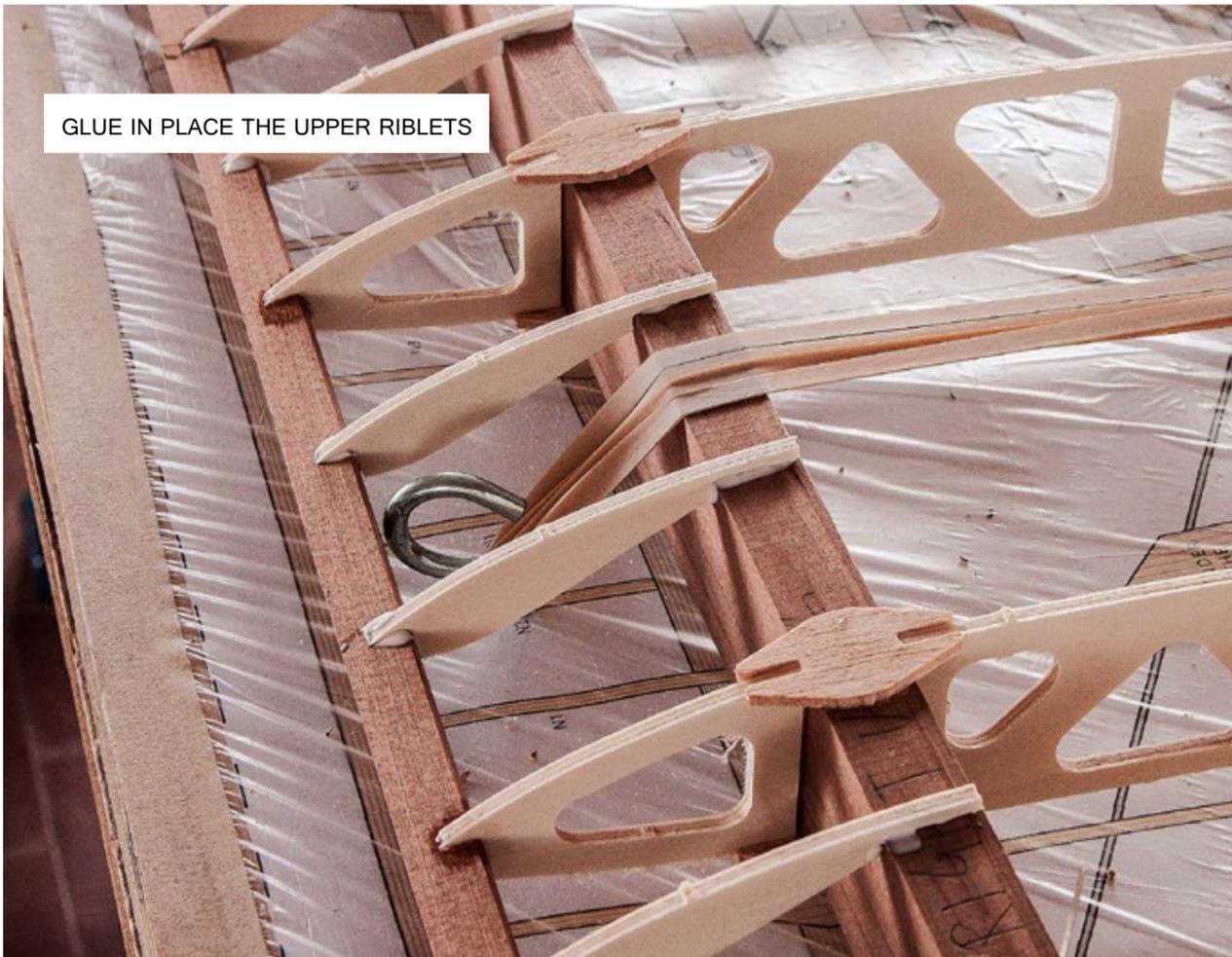
GLUE THE LEADING EDGE TO THE RIBS



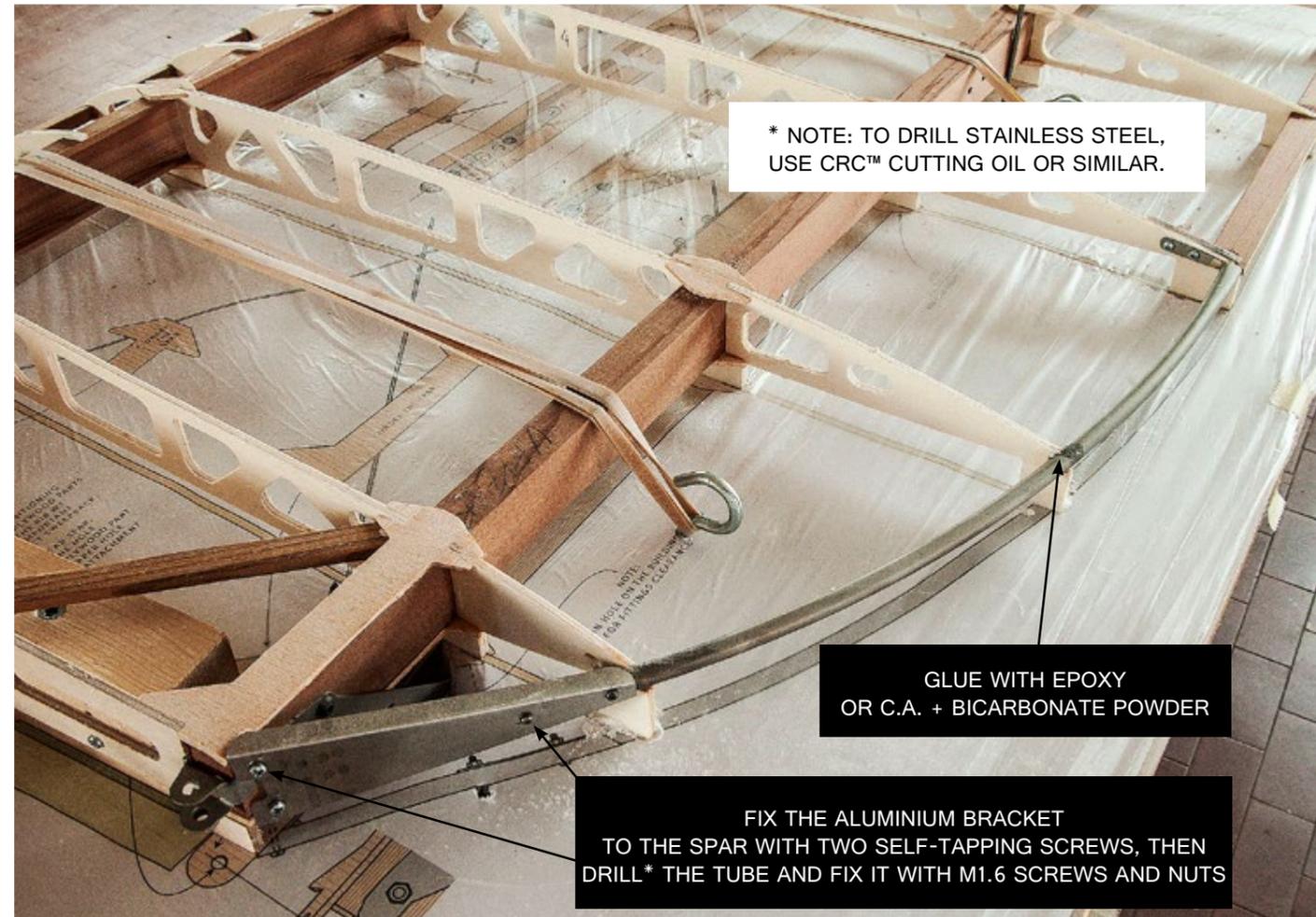
GLUE THE TRAILING EDGE TO THE RIBS



GLUE IN-PLACE THE UPPER DIAGONAL BRACES



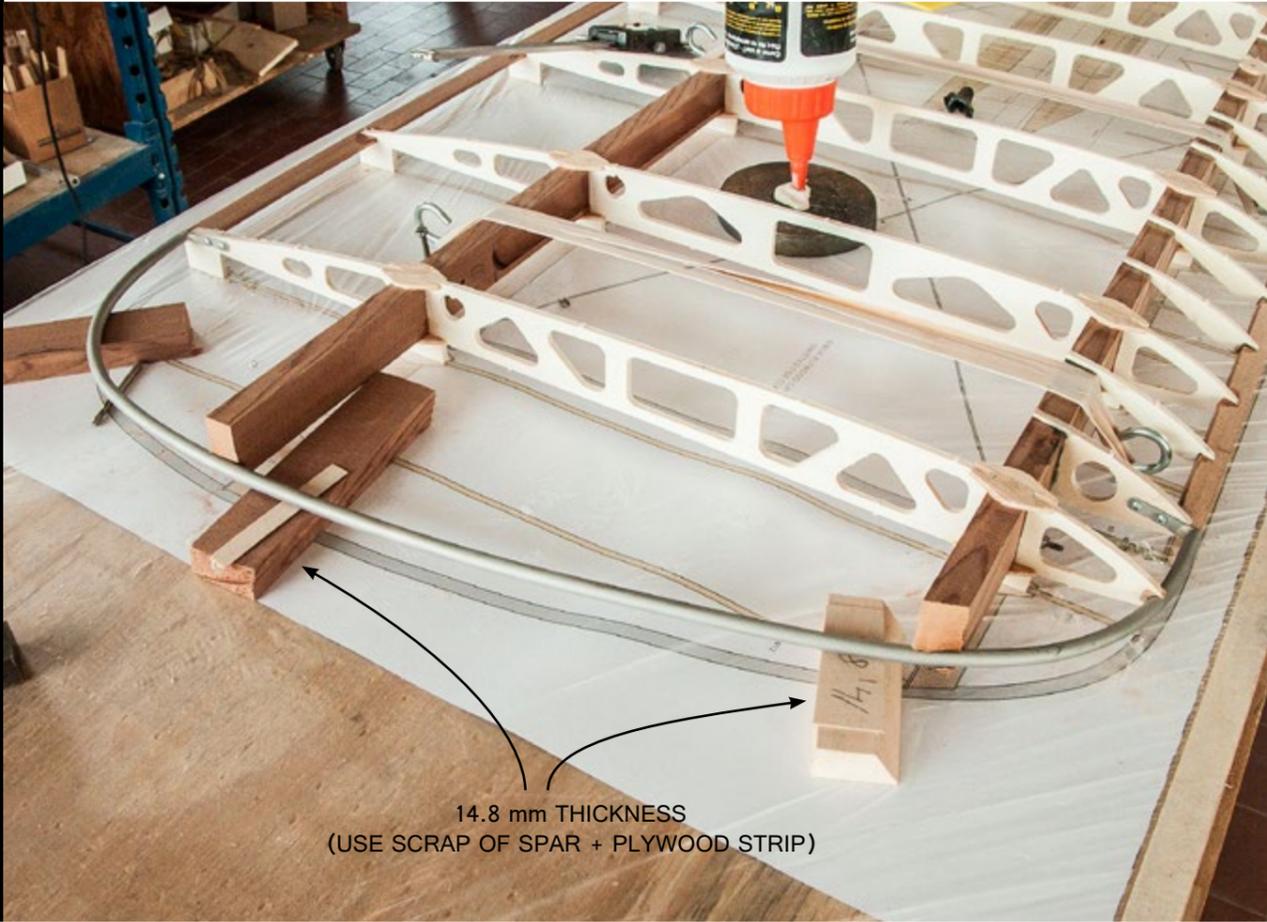
GLUE IN PLACE THE UPPER RIBLETS



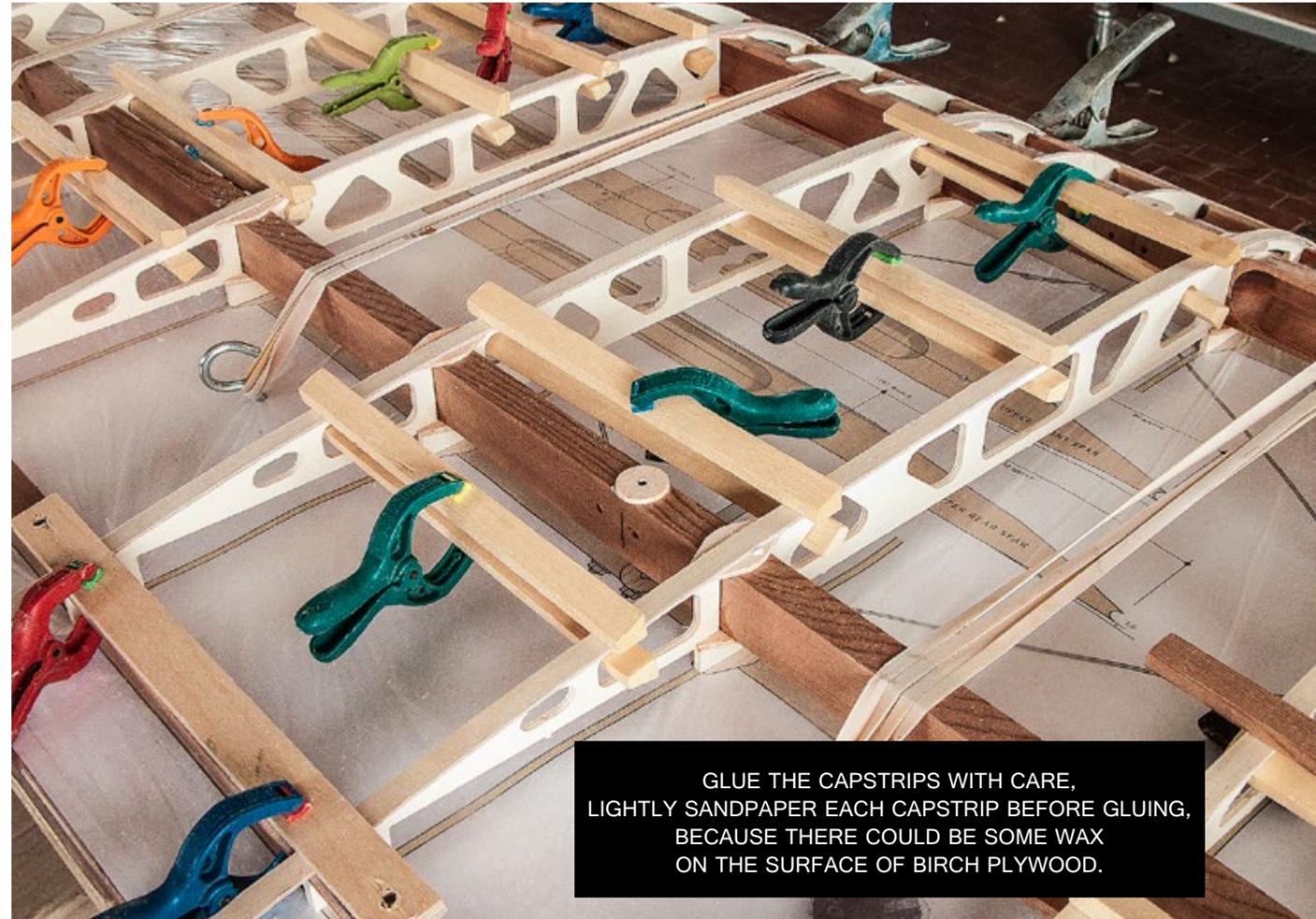
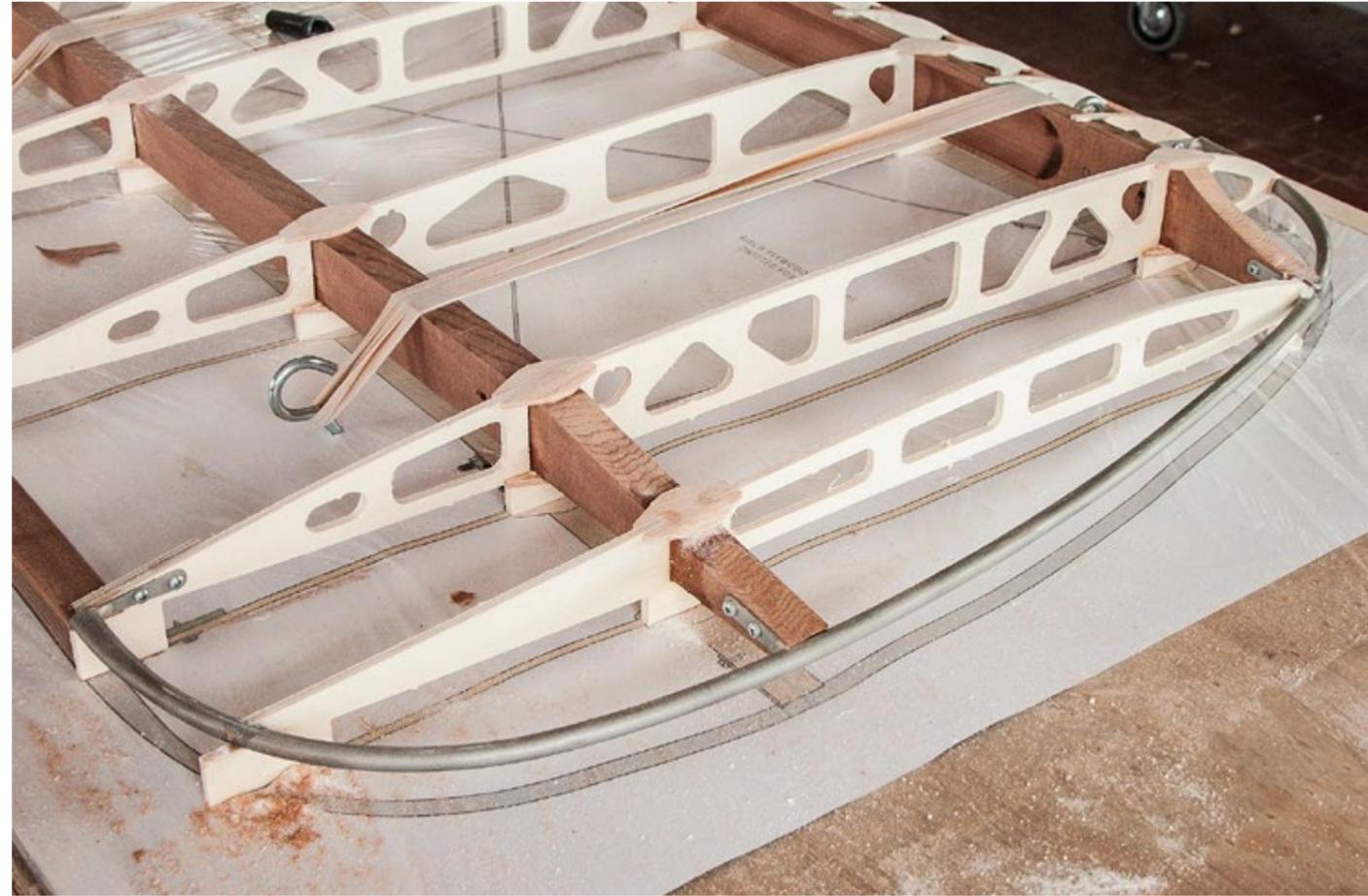
* NOTE: TO DRILL STAINLESS STEEL, USE CRC™ CUTTING OIL OR SIMILAR.

GLUE WITH EPOXY OR C.A. + BICARBONATE POWDER

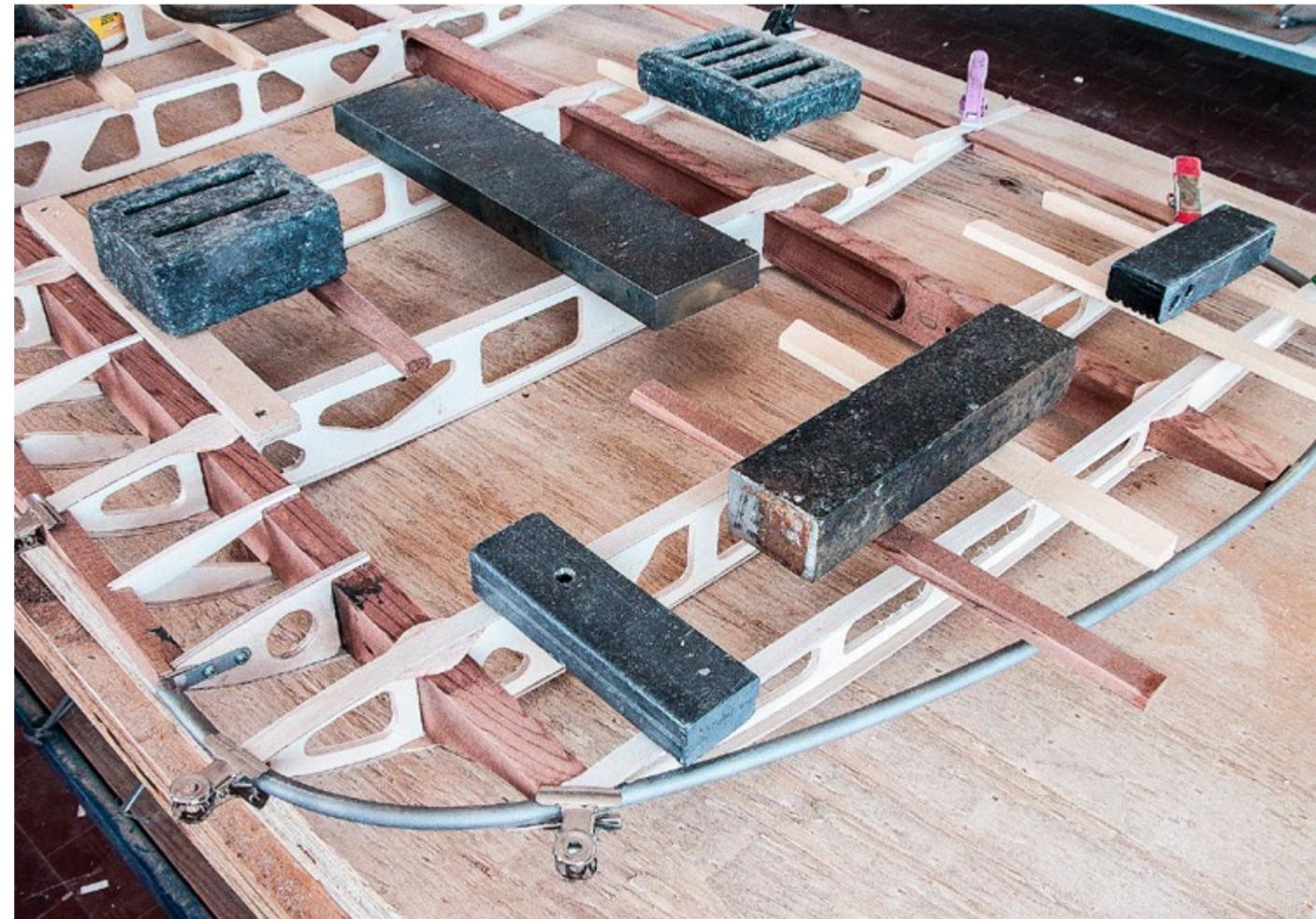
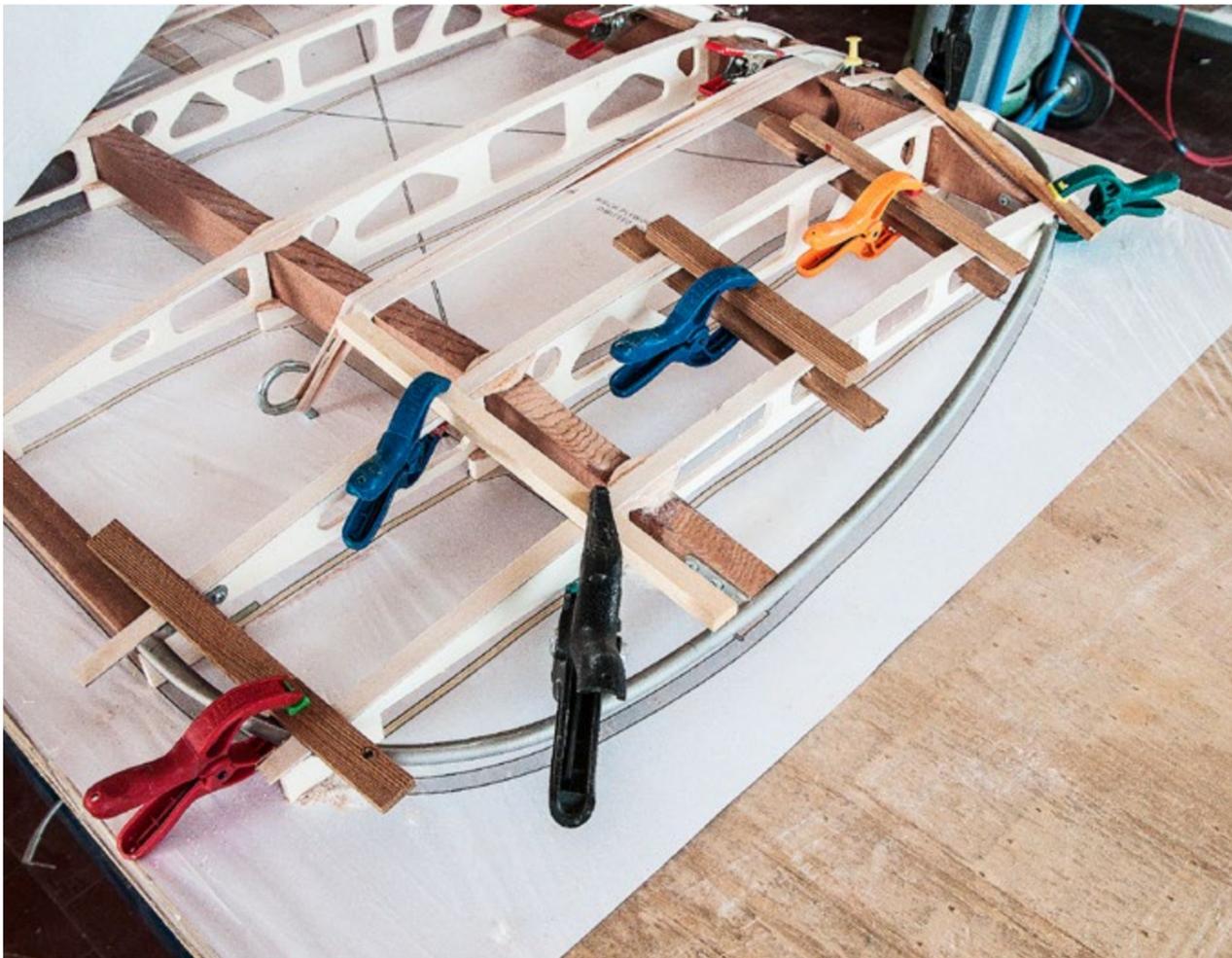
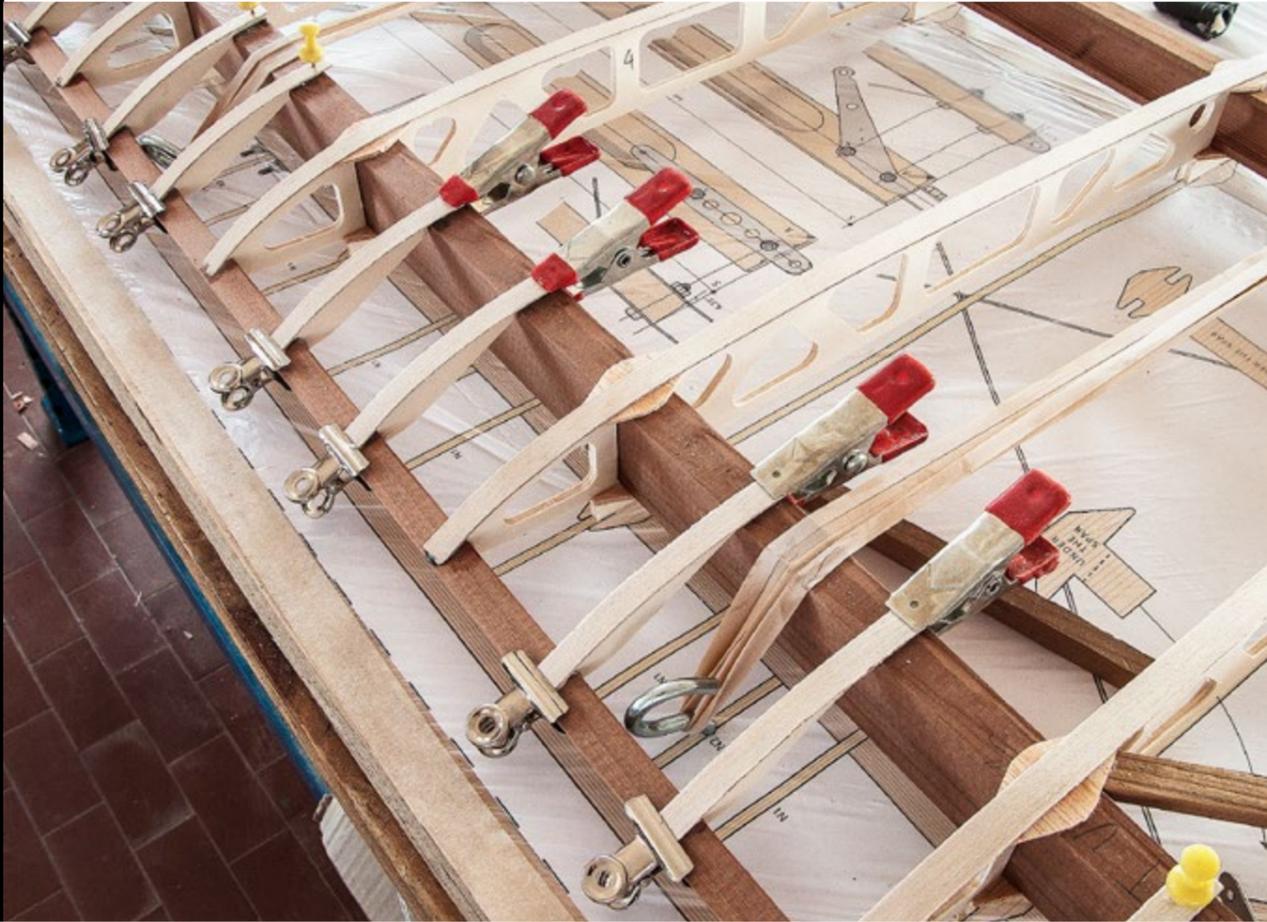
FIX THE ALUMINIUM BRACKET TO THE SPAR WITH TWO SELF-TAPPING SCREWS, THEN DRILL* THE TUBE AND FIX IT WITH M1.6 SCREWS AND NUTS

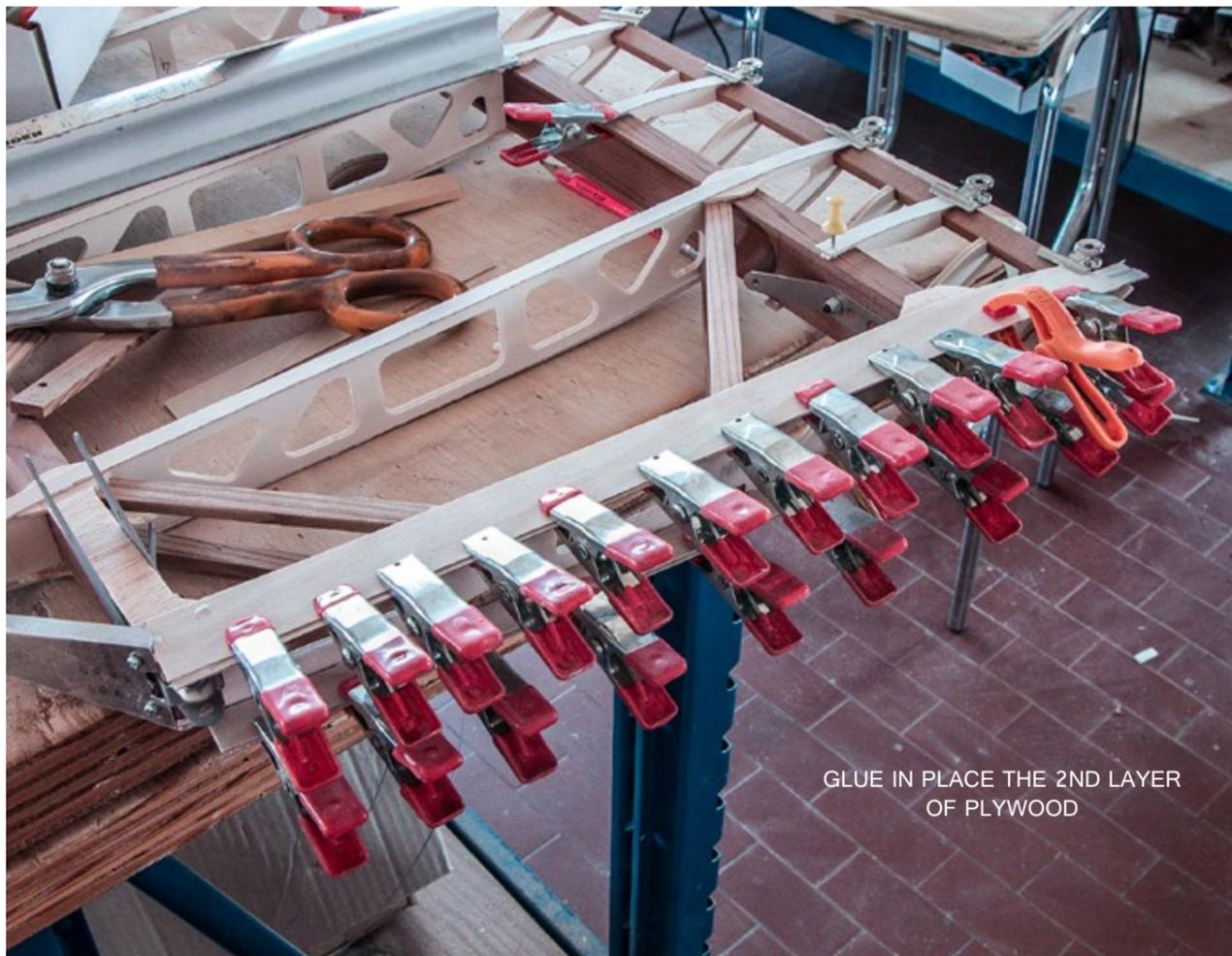


14.8 mm THICKNESS
(USE SCRAP OF SPAR + PLYWOOD STRIP)



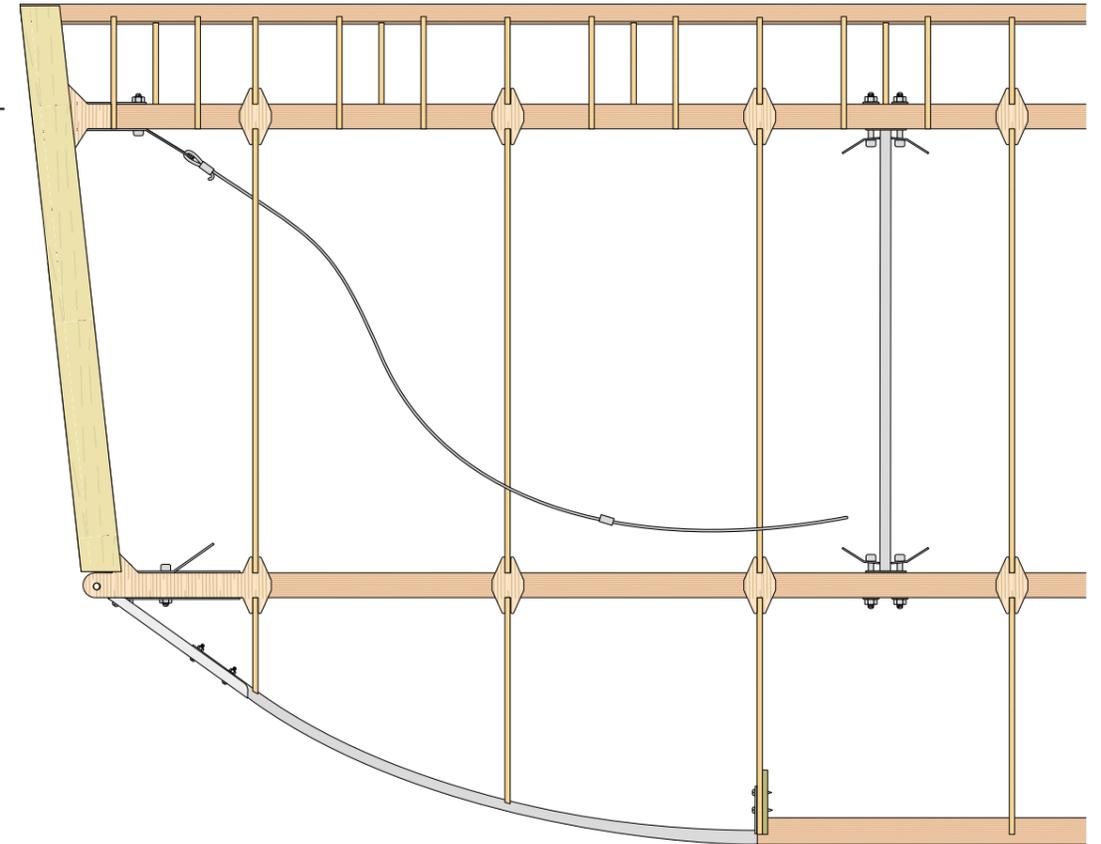
GLUE THE CAPSTRIPS WITH CARE,
LIGHTLY SANDPAPER EACH CAPSTRIP BEFORE GLUING,
BECAUSE THERE COULD BE SOME WAX
ON THE SURFACE OF BIRCH PLYWOOD.





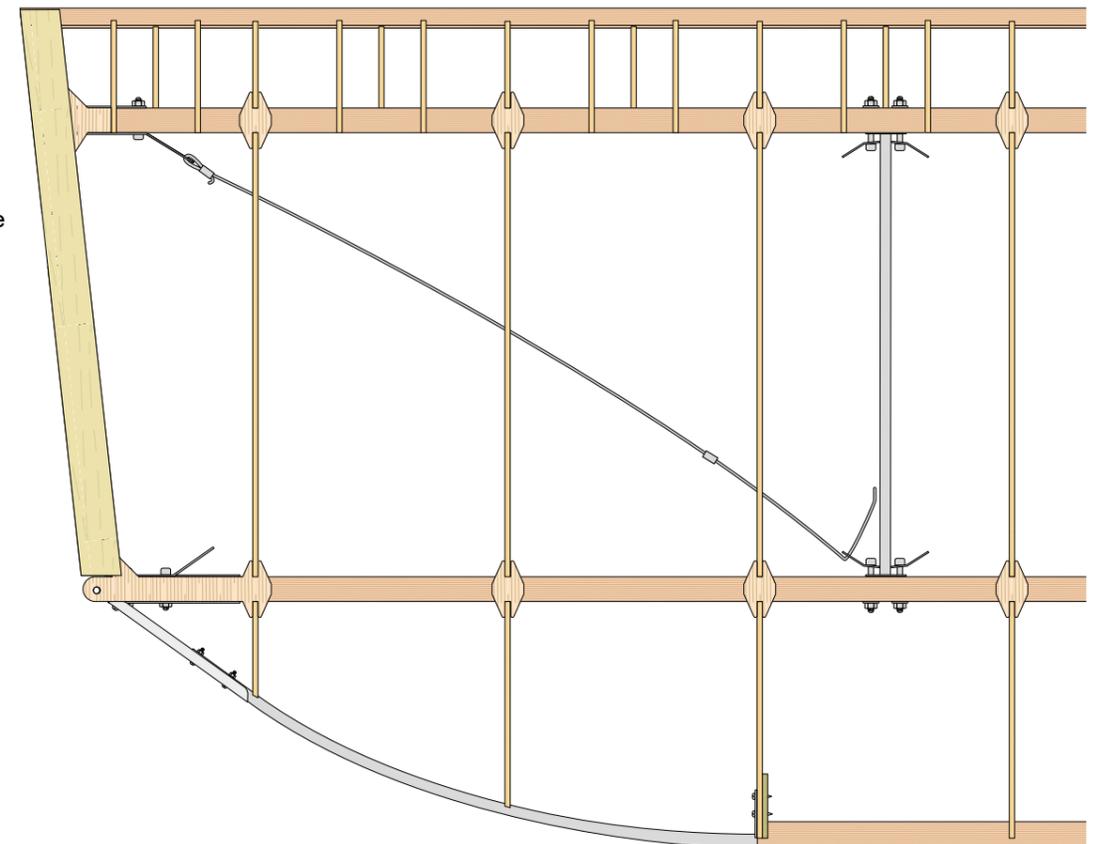
1) Attach one end of the wire as shown in the drawing. Don't forget to insert a second ferrule to attach the other end.

2) To achieve the

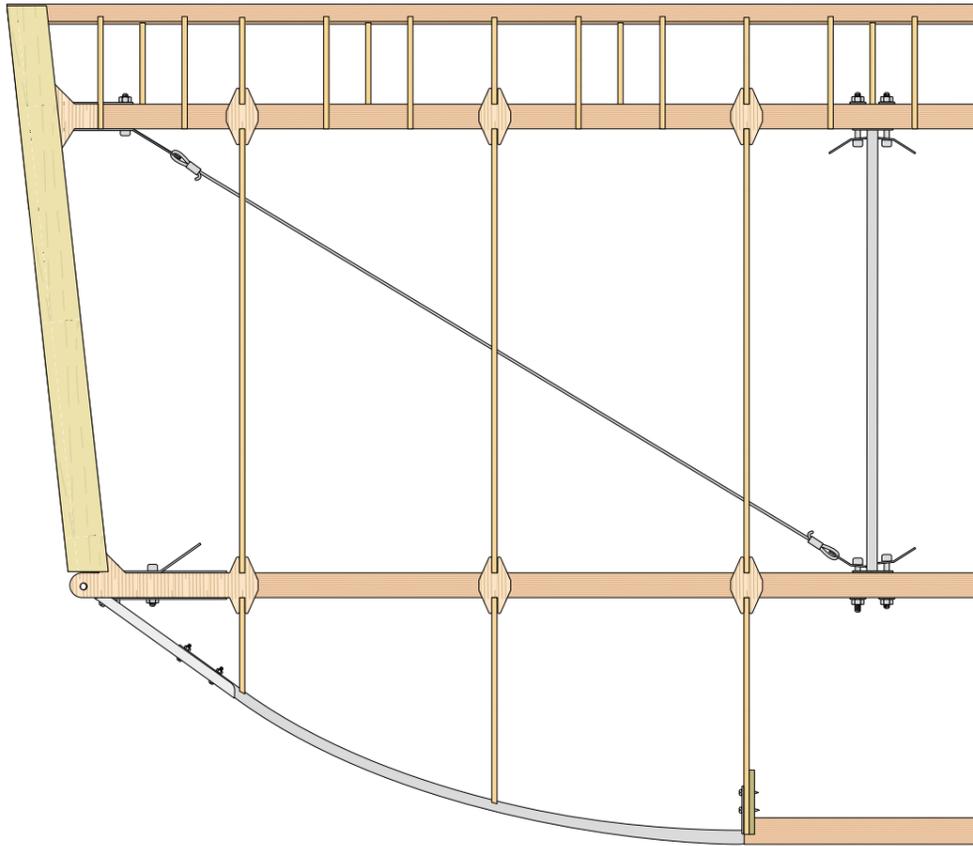


correct tension, make a 90° bend in the other end of the wire and insert in the lug as in the drawing.

3) Insert the wire completely and fully



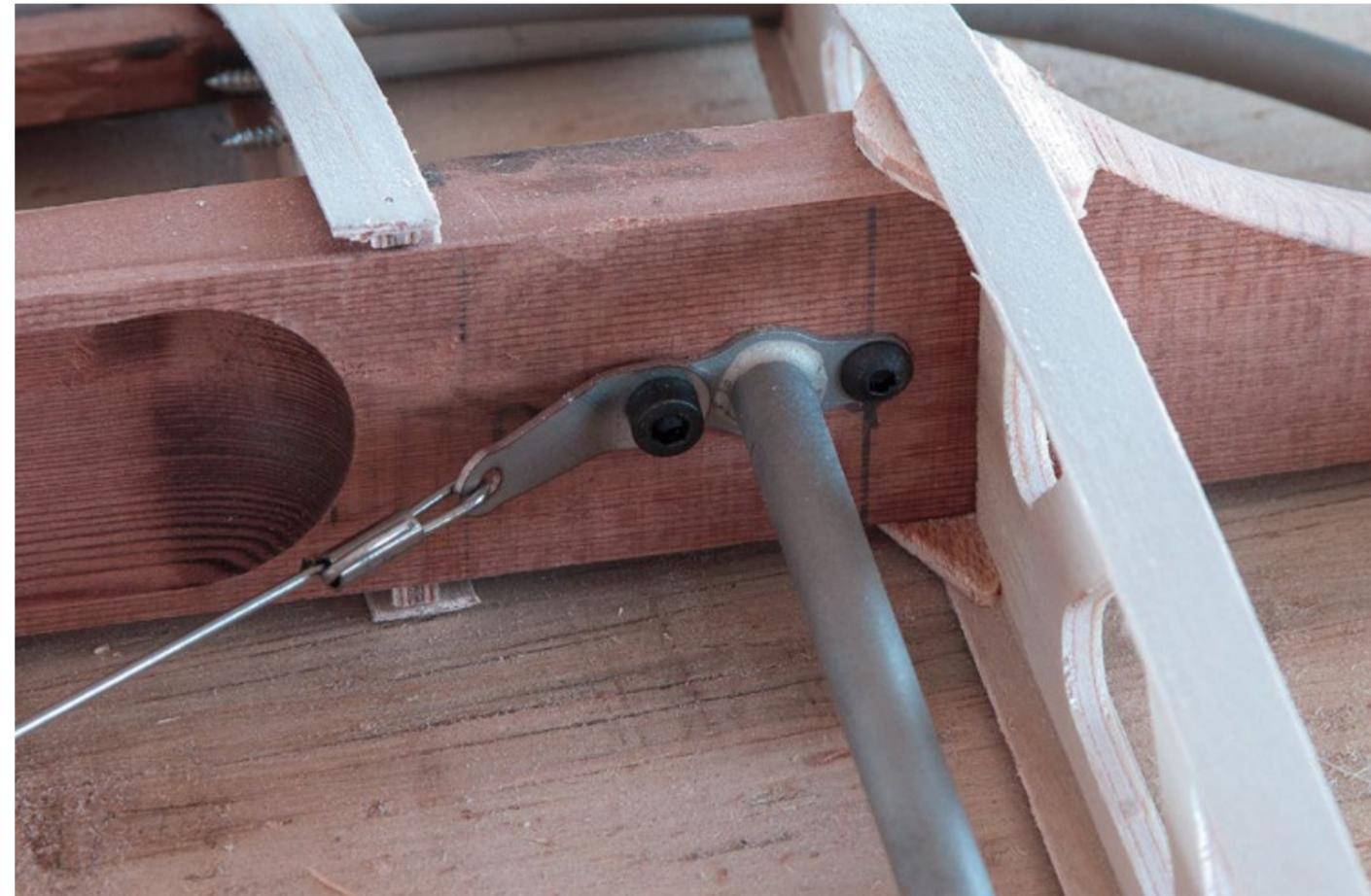
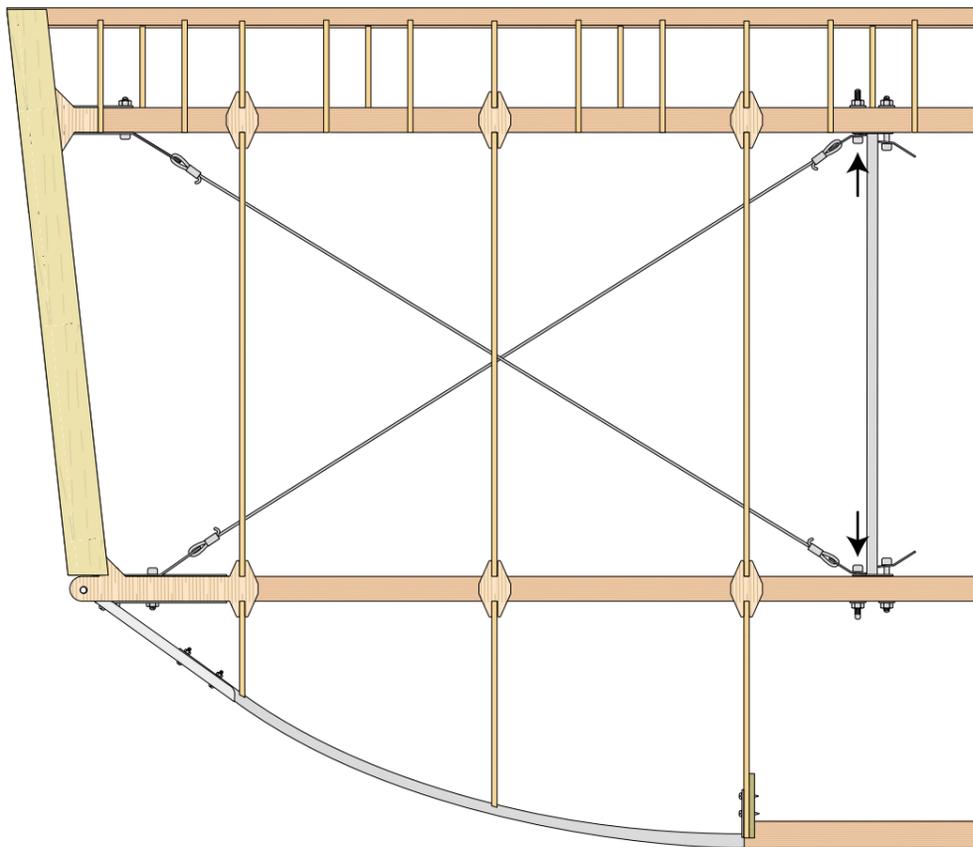
bend the ends to 180° and lock with the ferrules.
4) Mount the other wire and tighten with



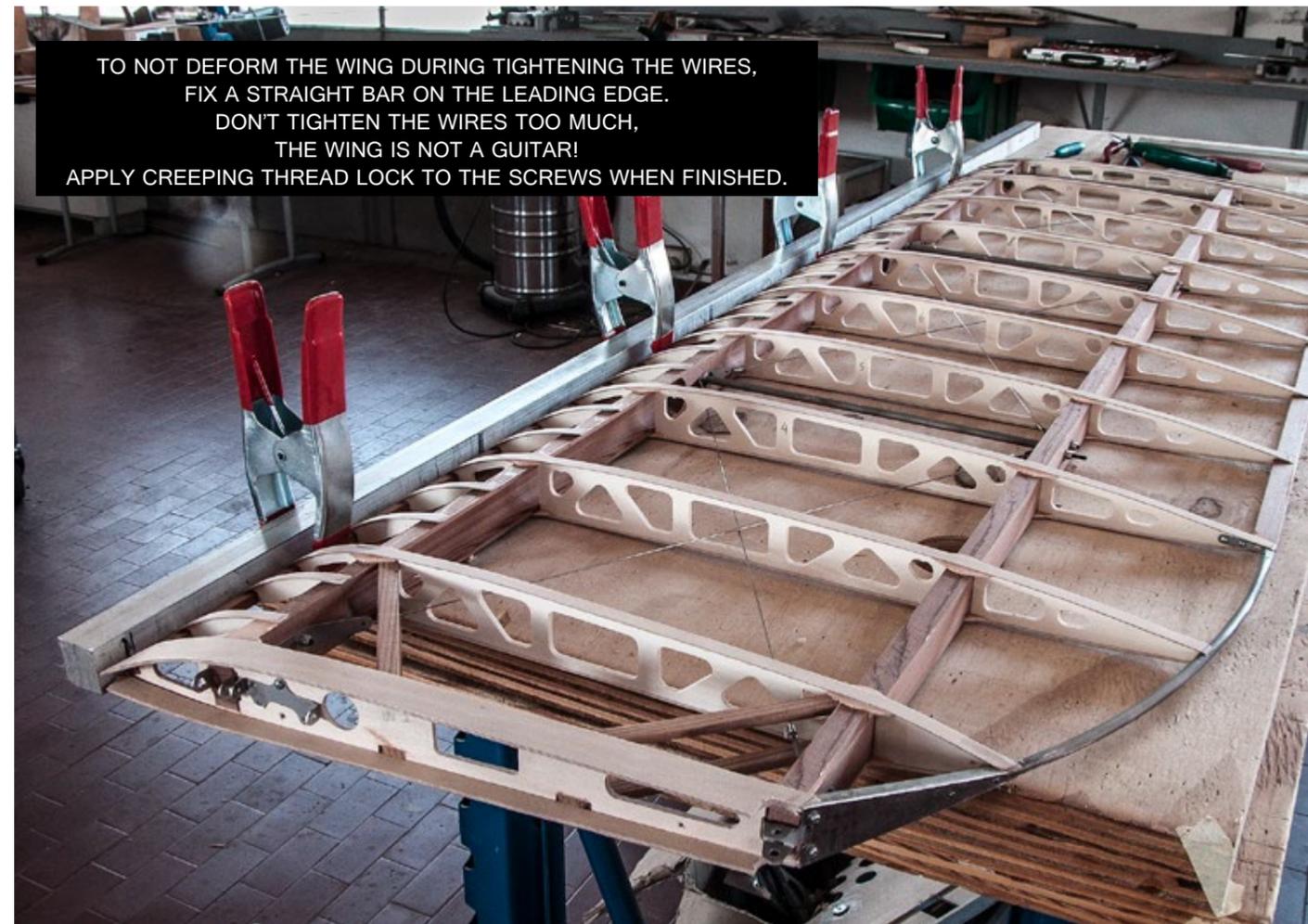
the screws. Check that the tension is not excessive. You can bend the stainless steel wire many times without compromising its integrity. In any case, there is ample wire supplied.

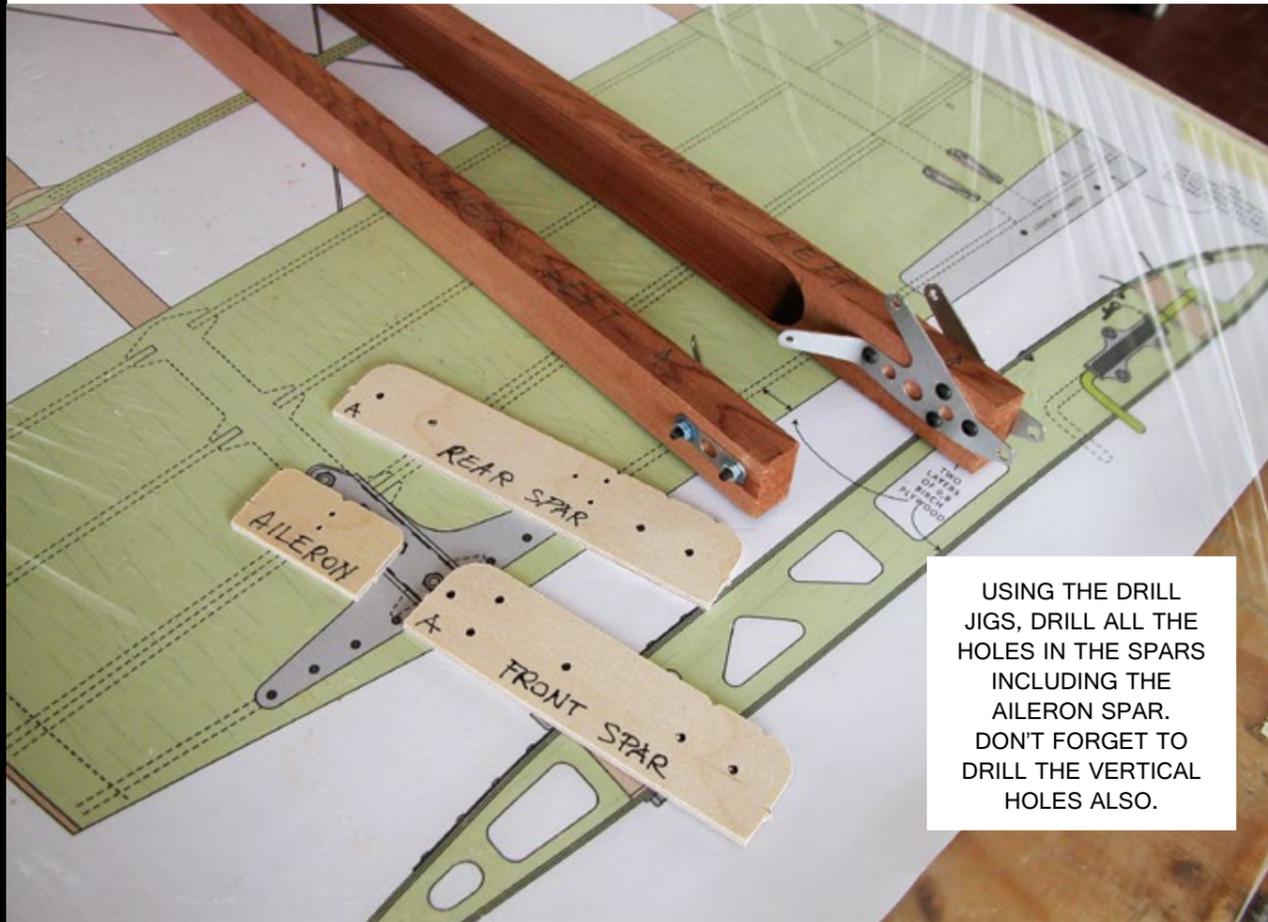
Do not press the ferrules; it is not needed for strength. If you don't press them, you can always reuse the ferrules in case you do not succeed on the first try and you have to replace a wire.

If it makes you feel more secure, press the ferrules just before covering the wings.

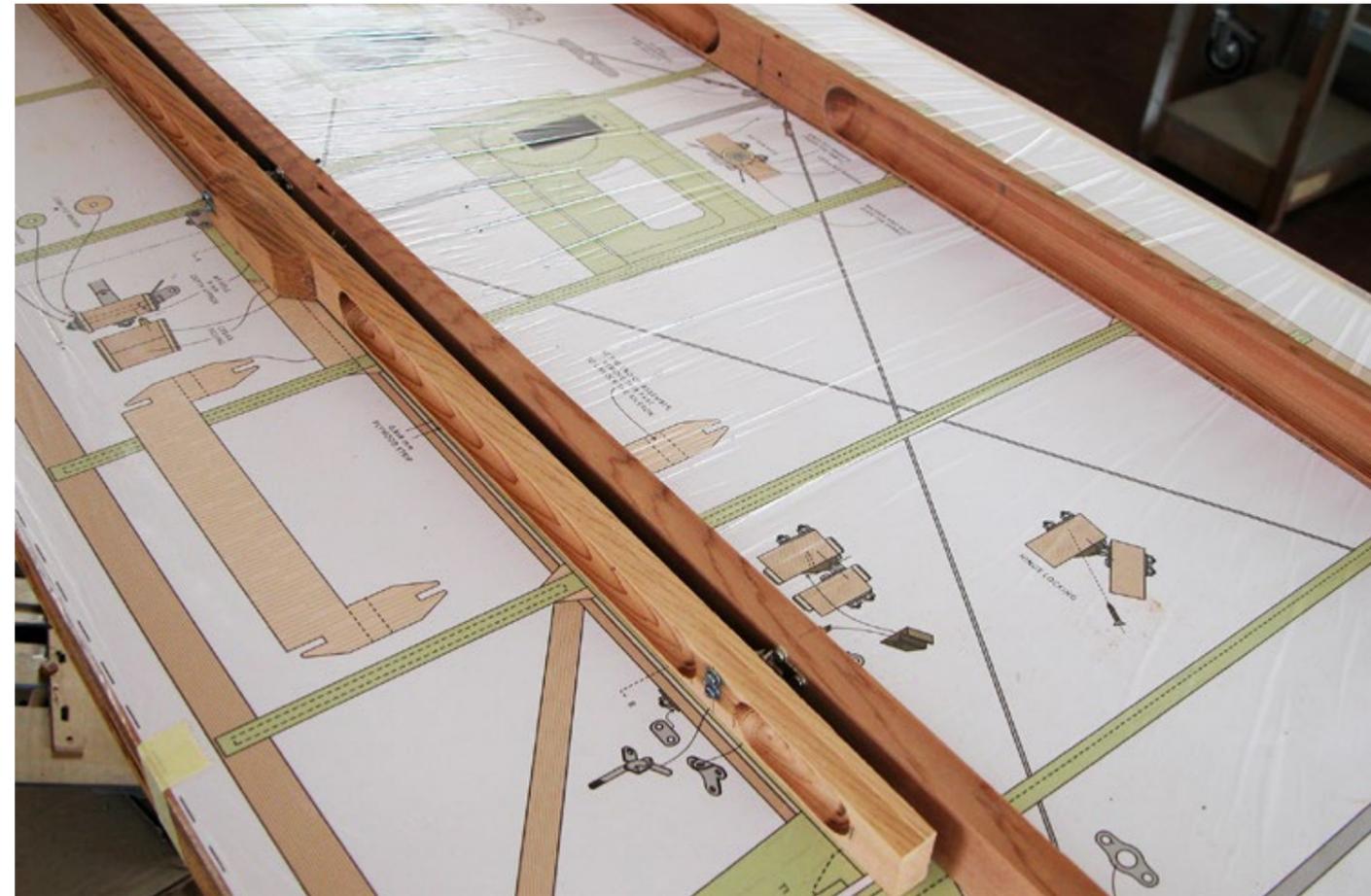


TO NOT DEFORM THE WING DURING TIGHTENING THE WIRES, FIX A STRAIGHT BAR ON THE LEADING EDGE. DON'T TIGHTEN THE WIRES TOO MUCH, THE WING IS NOT A GUITAR! APPLY CREEPING THREAD LOCK TO THE SCREWS WHEN FINISHED.

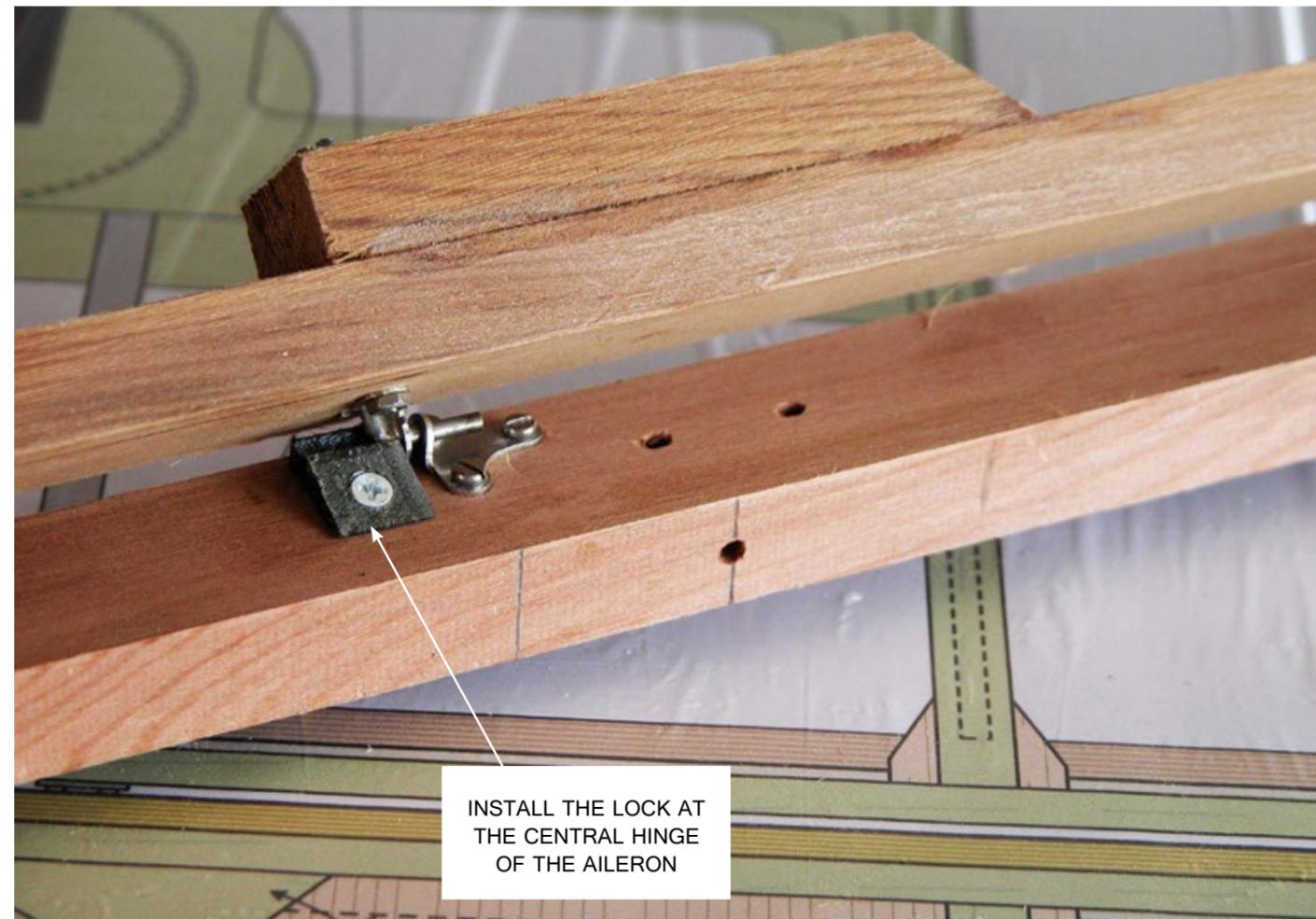




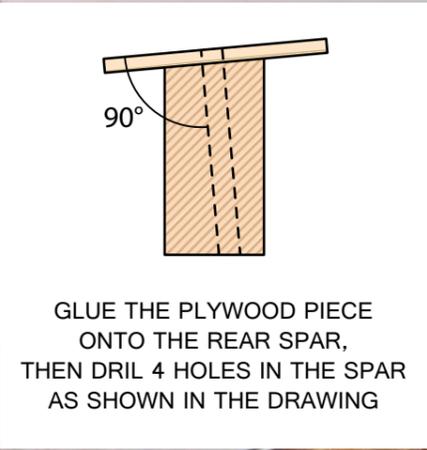
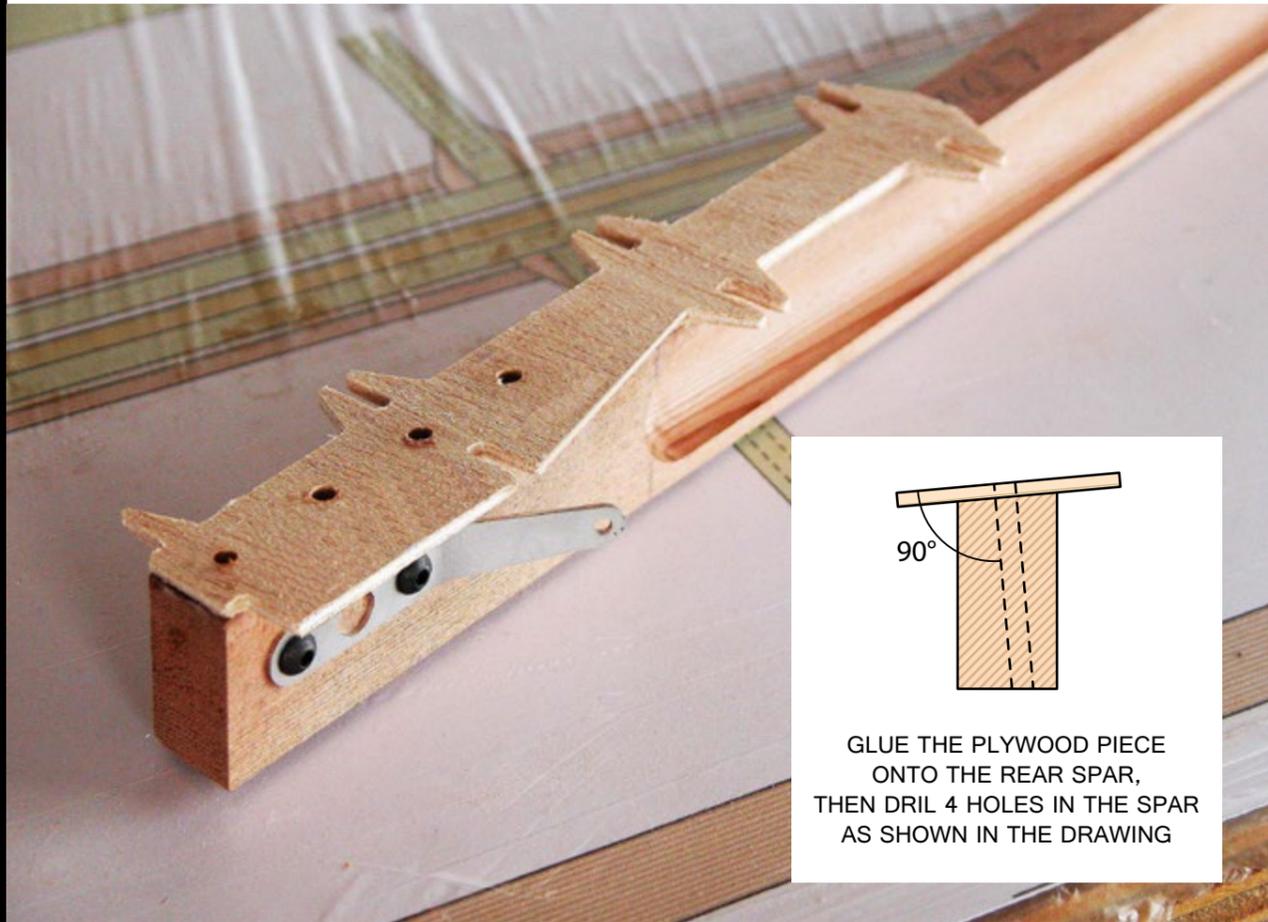
USING THE DRILL JIGS, DRILL ALL THE HOLES IN THE SPARS INCLUDING THE AILERON SPAR. DON'T FORGET TO DRILL THE VERTICAL HOLES ALSO.



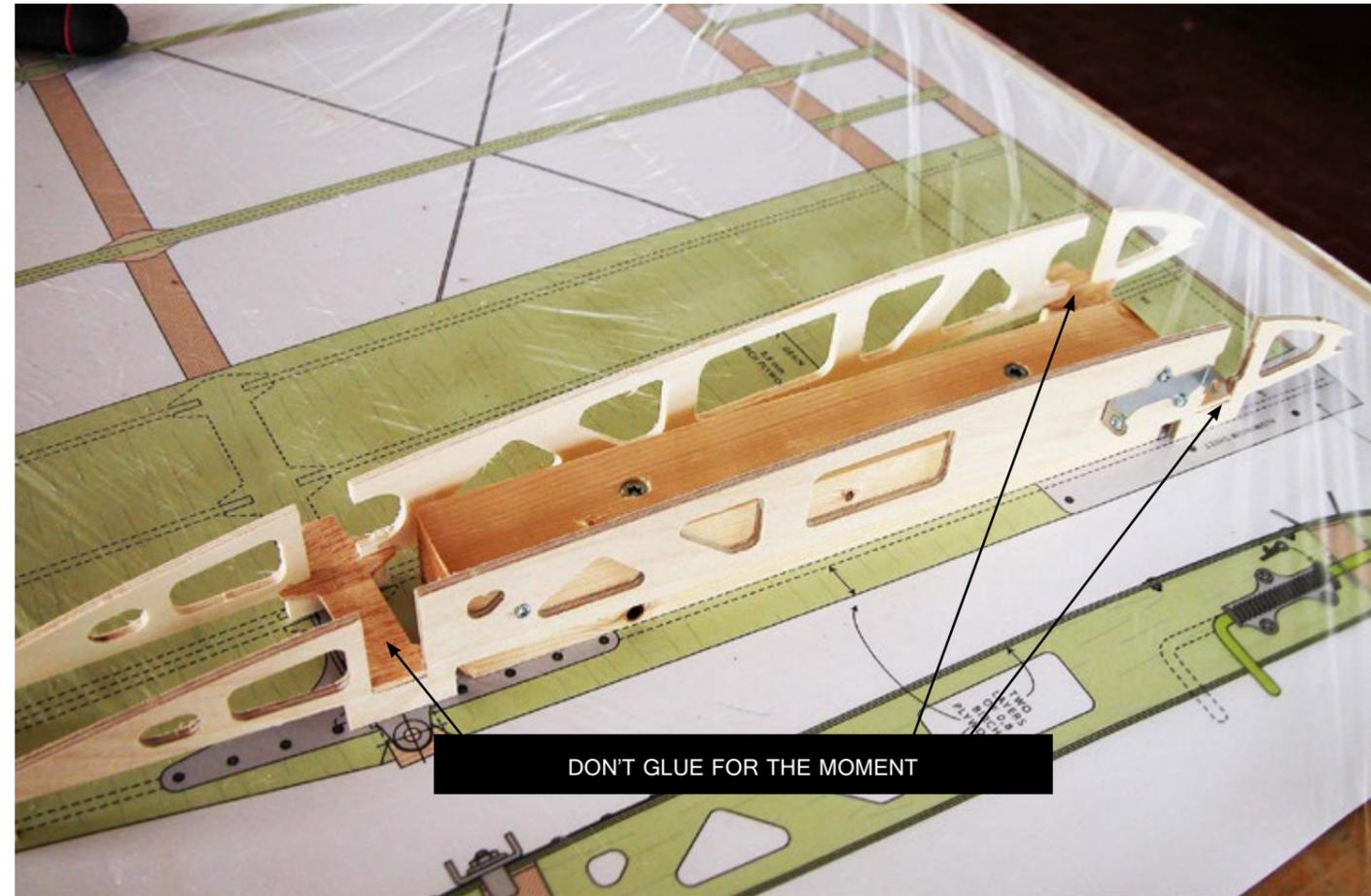
ASSEMBLE THE AILERON SPAR WITH THE REAR WING SPAR



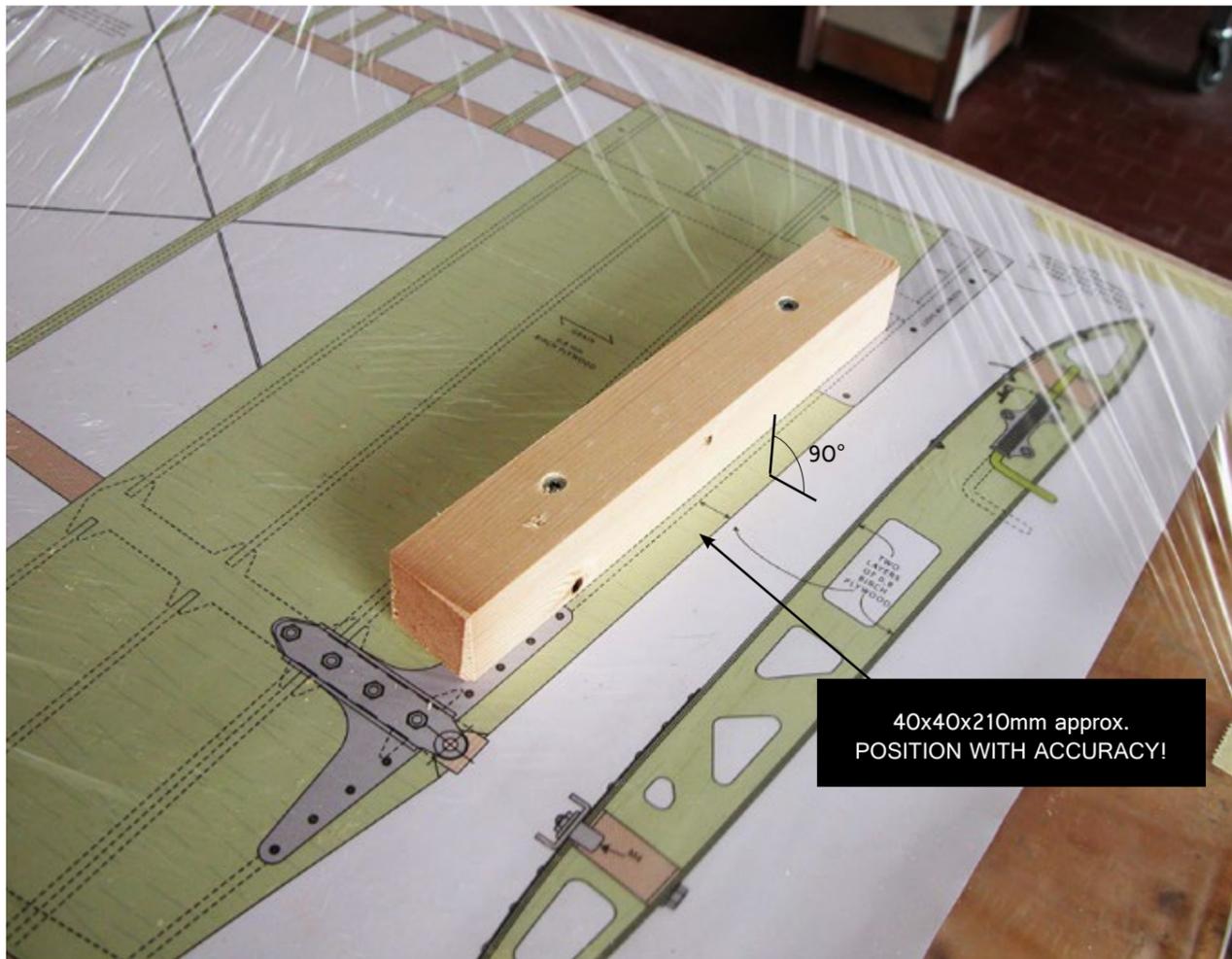
INSTALL THE LOCK AT THE CENTRAL HINGE OF THE AILERON



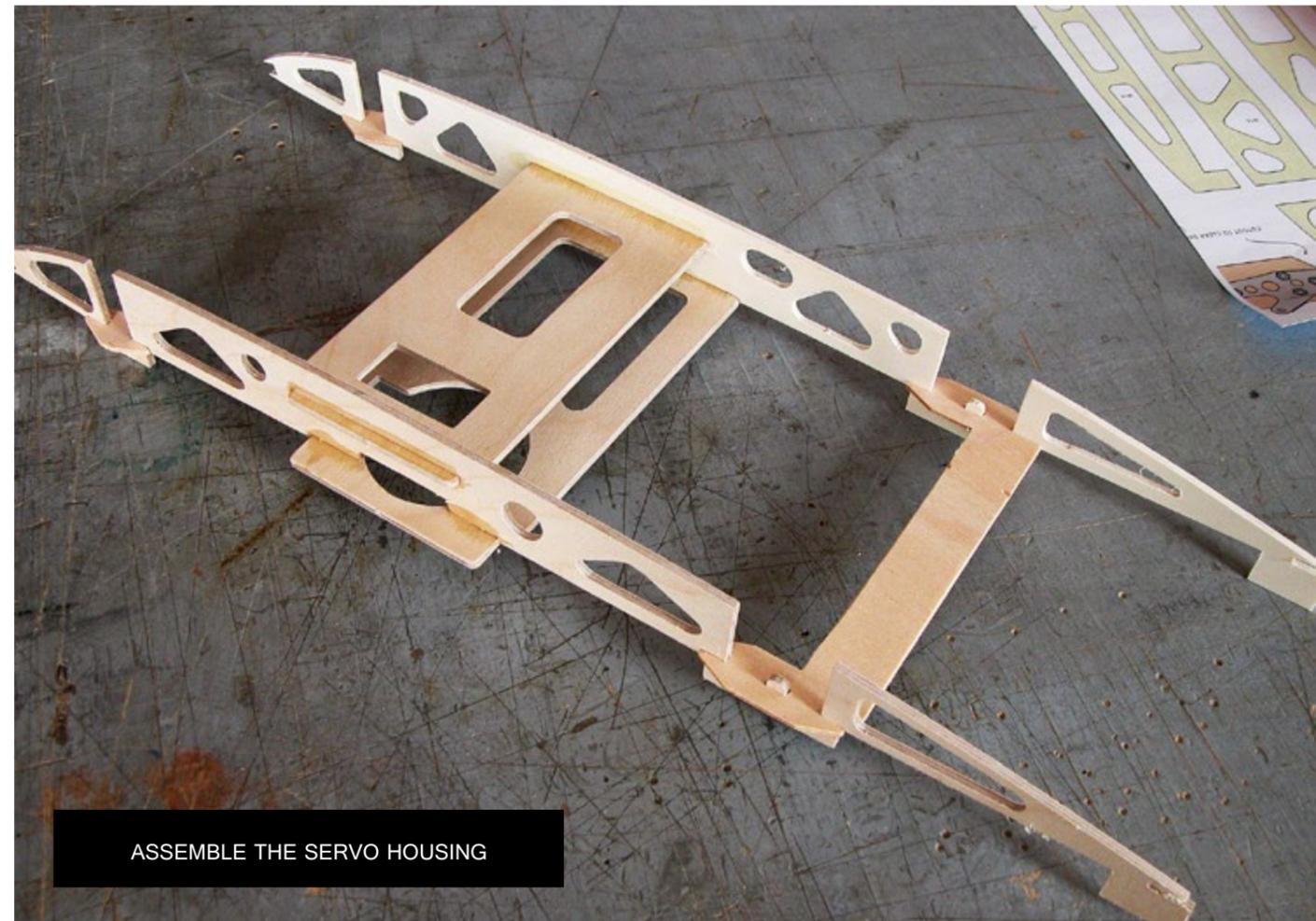
GLUE THE PLYWOOD PIECE ONTO THE REAR SPAR, THEN DRILL 4 HOLES IN THE SPAR AS SHOWN IN THE DRAWING



DON'T GLUE FOR THE MOMENT

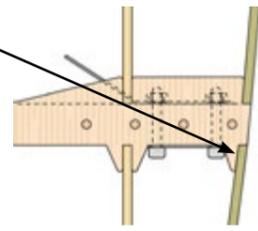


40x40x210mm approx. POSITION WITH ACCURACY!



ASSEMBLE THE SERVO HOUSING

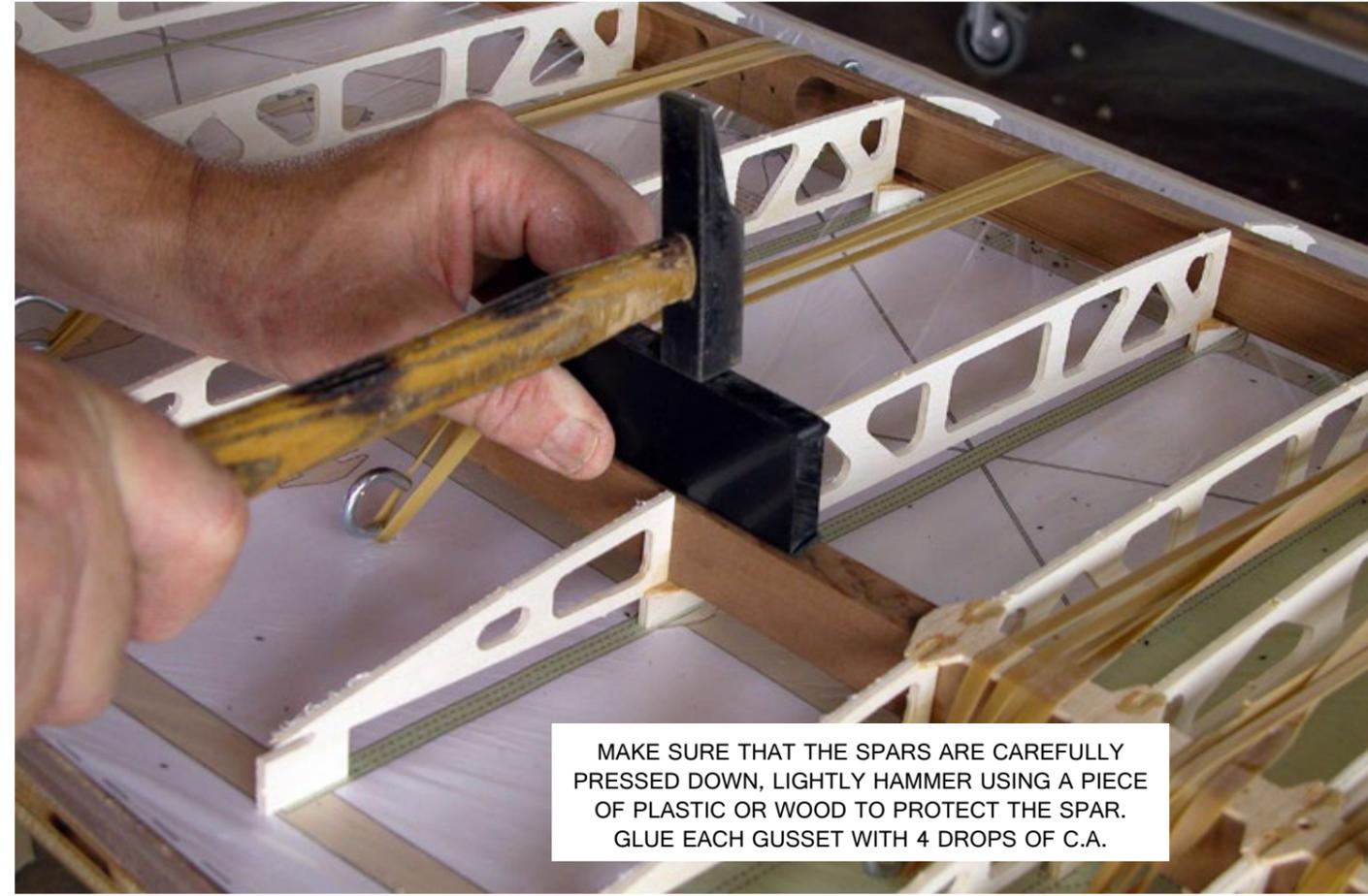
NO GAP HERE!
THE POSITION OF THIS PIECE IS VERY IMPORTANT FOR CORRECT WING SWEEPBACK



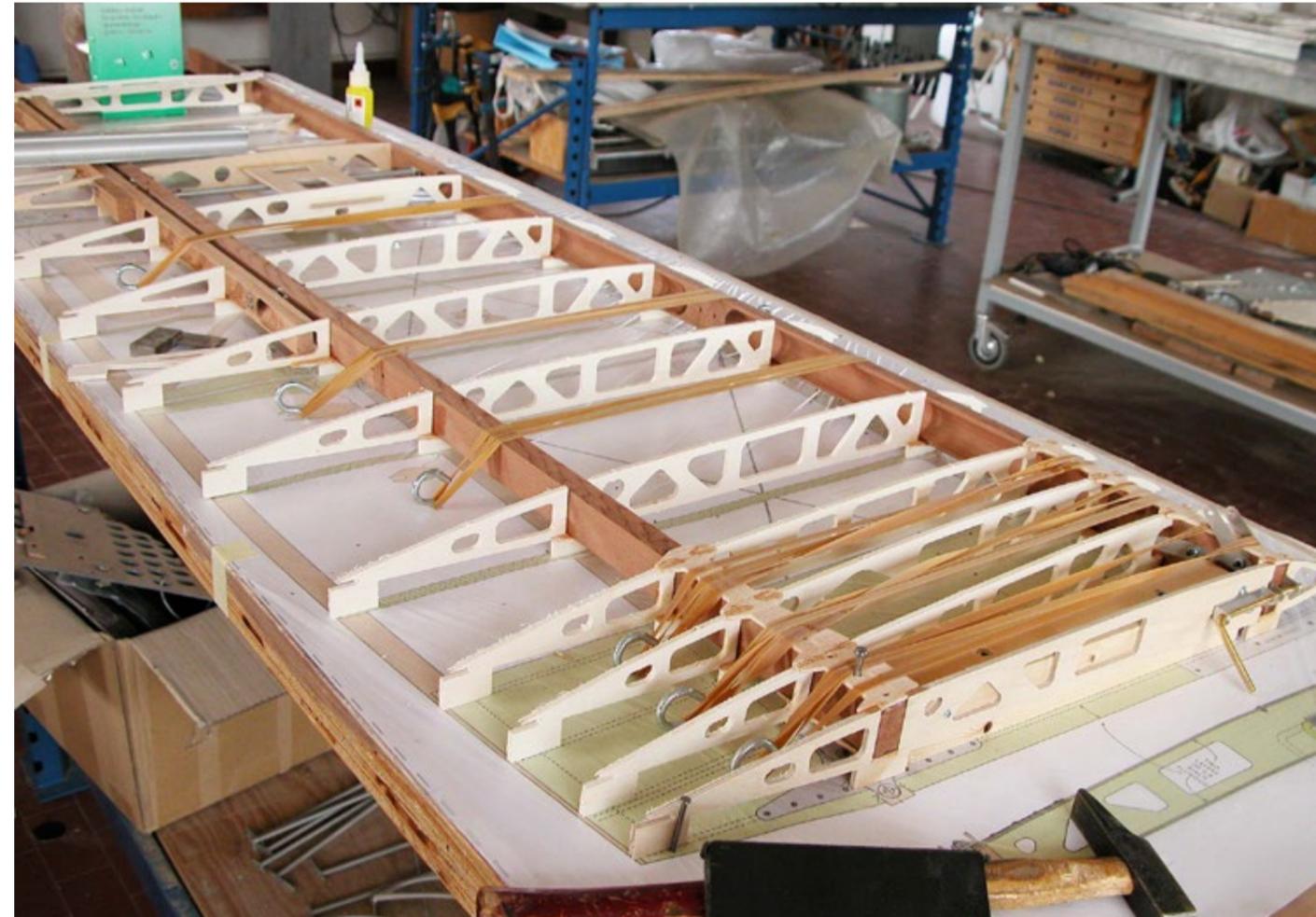
GLUE THE UPPER PLYWOOD PIECES WITH PVA GLUE. MAKE SURE THAT THE SPARS ARE CAREFULLY PRESSED DOWN, THEN GLUE THE LOWER PIECES WITH C.A.

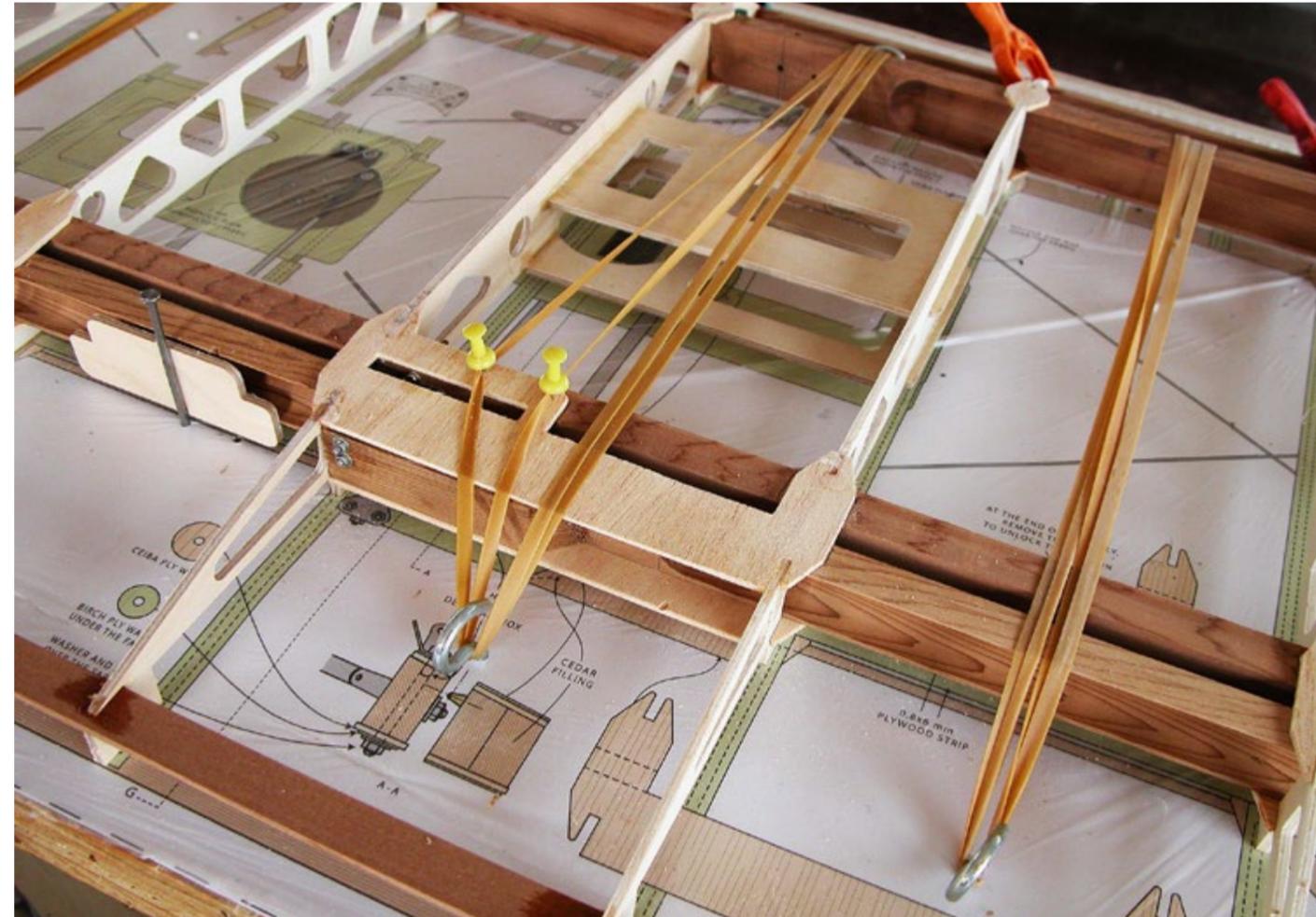
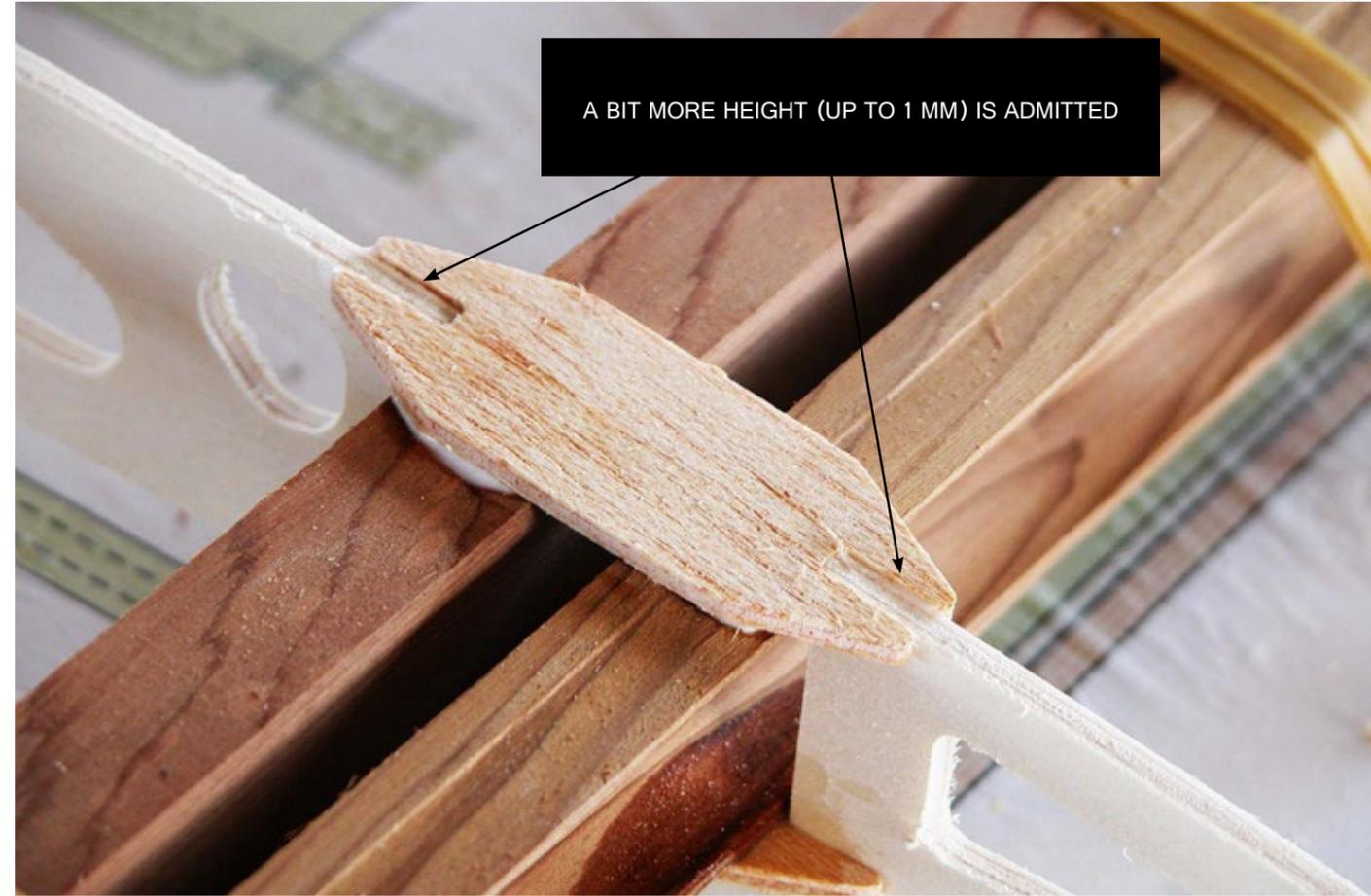
SELF-TAPPING SCREWS

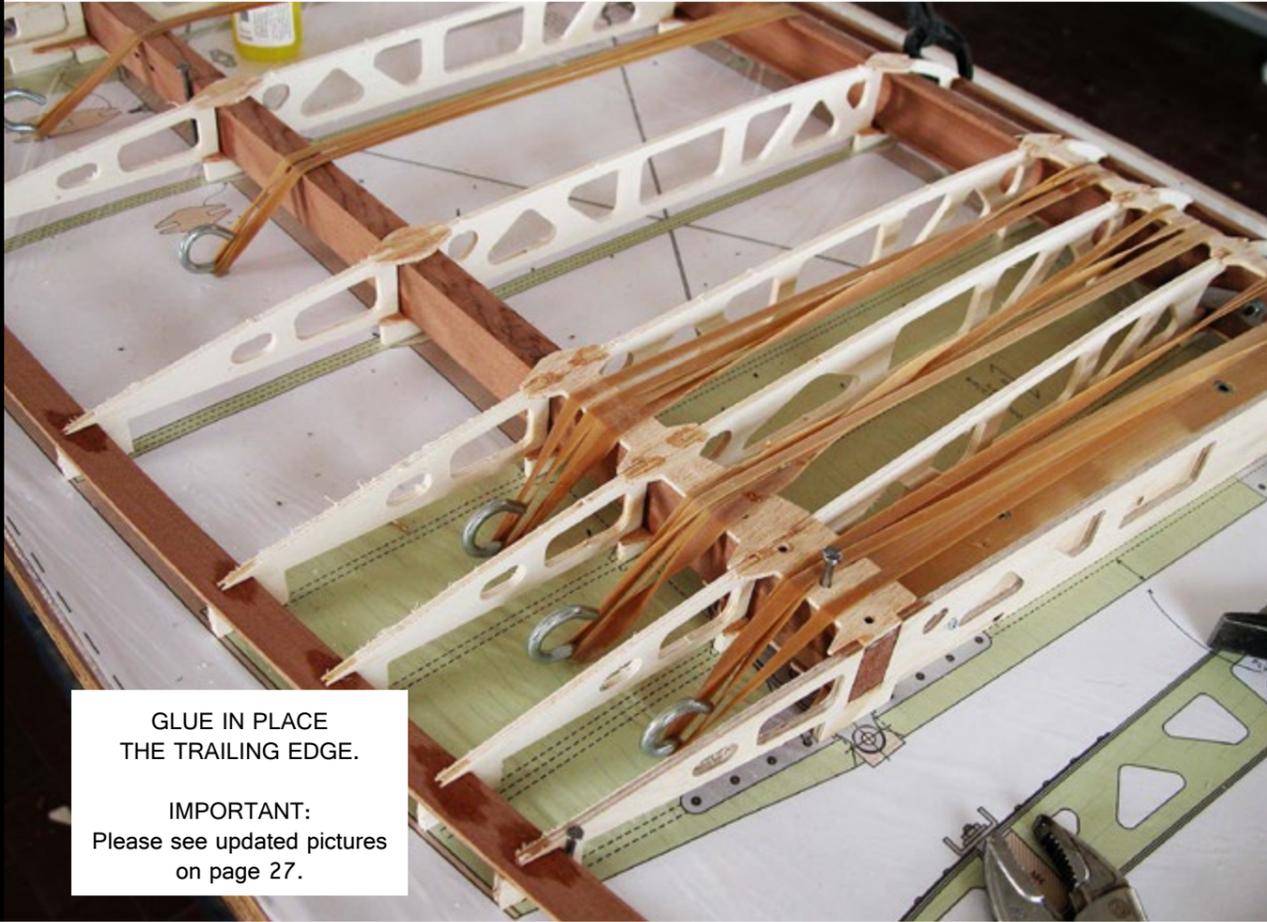
MAKE SURE THE LATCH IS ALIGNED AND THAT IT WORKS PROPERLY



MAKE SURE THAT THE SPARS ARE CAREFULLY PRESSED DOWN, LIGHTLY HAMMER USING A PIECE OF PLASTIC OR WOOD TO PROTECT THE SPAR. GLUE EACH GUSSET WITH 4 DROPS OF C.A.







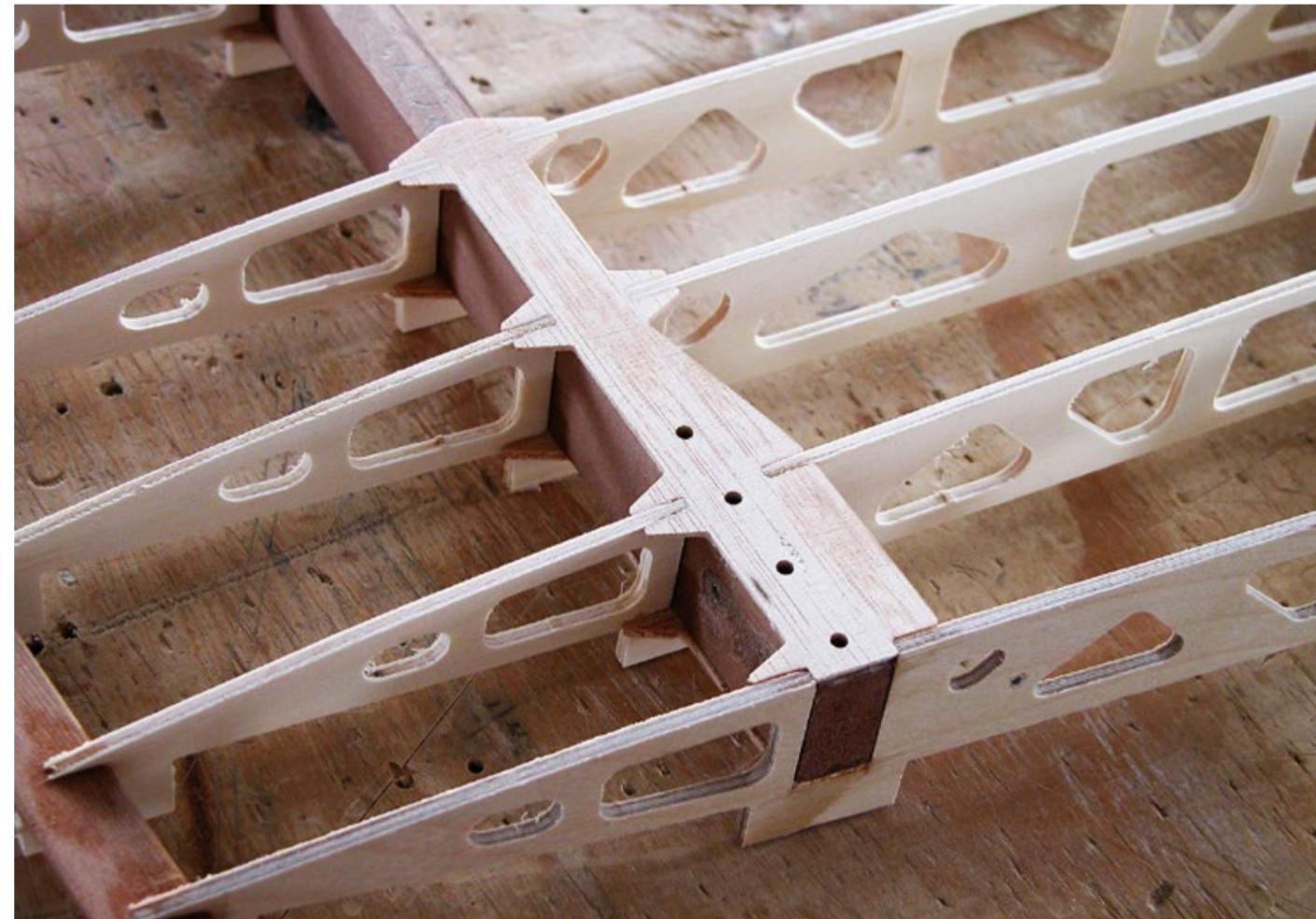
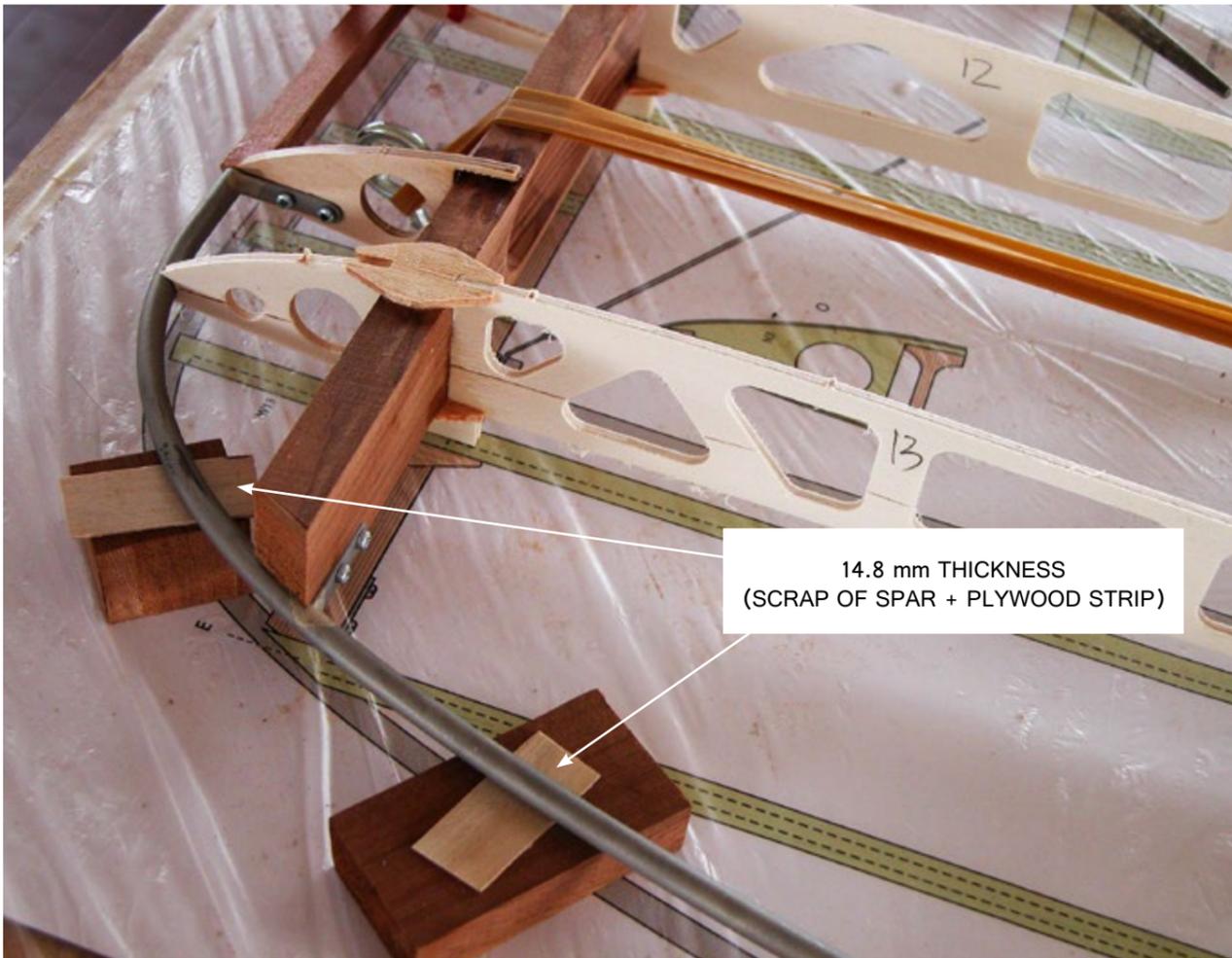
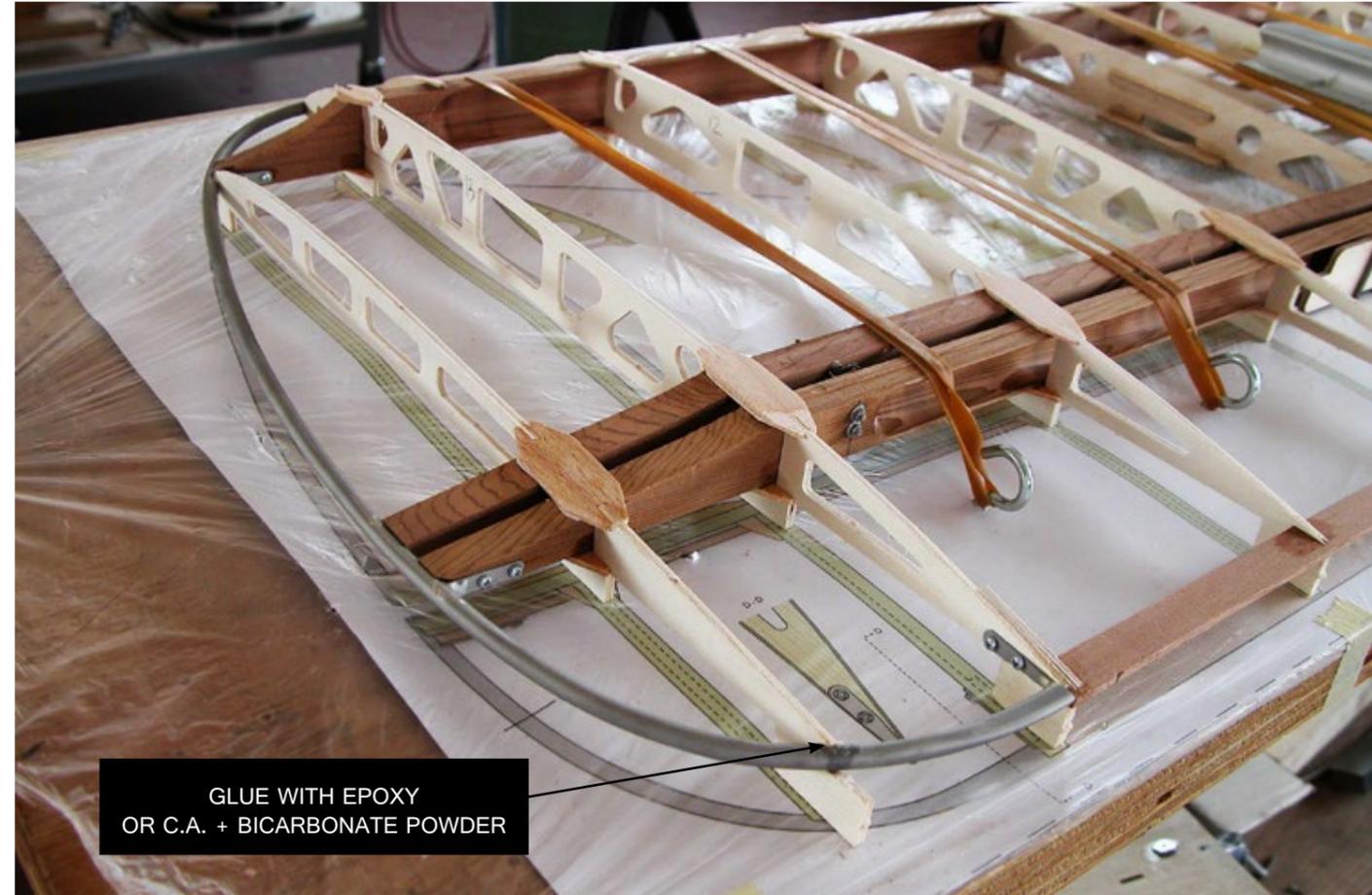
GLUE IN PLACE
THE TRAILING EDGE.

IMPORTANT:
Please see updated pictures
on page 27.



GLUE IN PLACE
THE LEADING EDGE



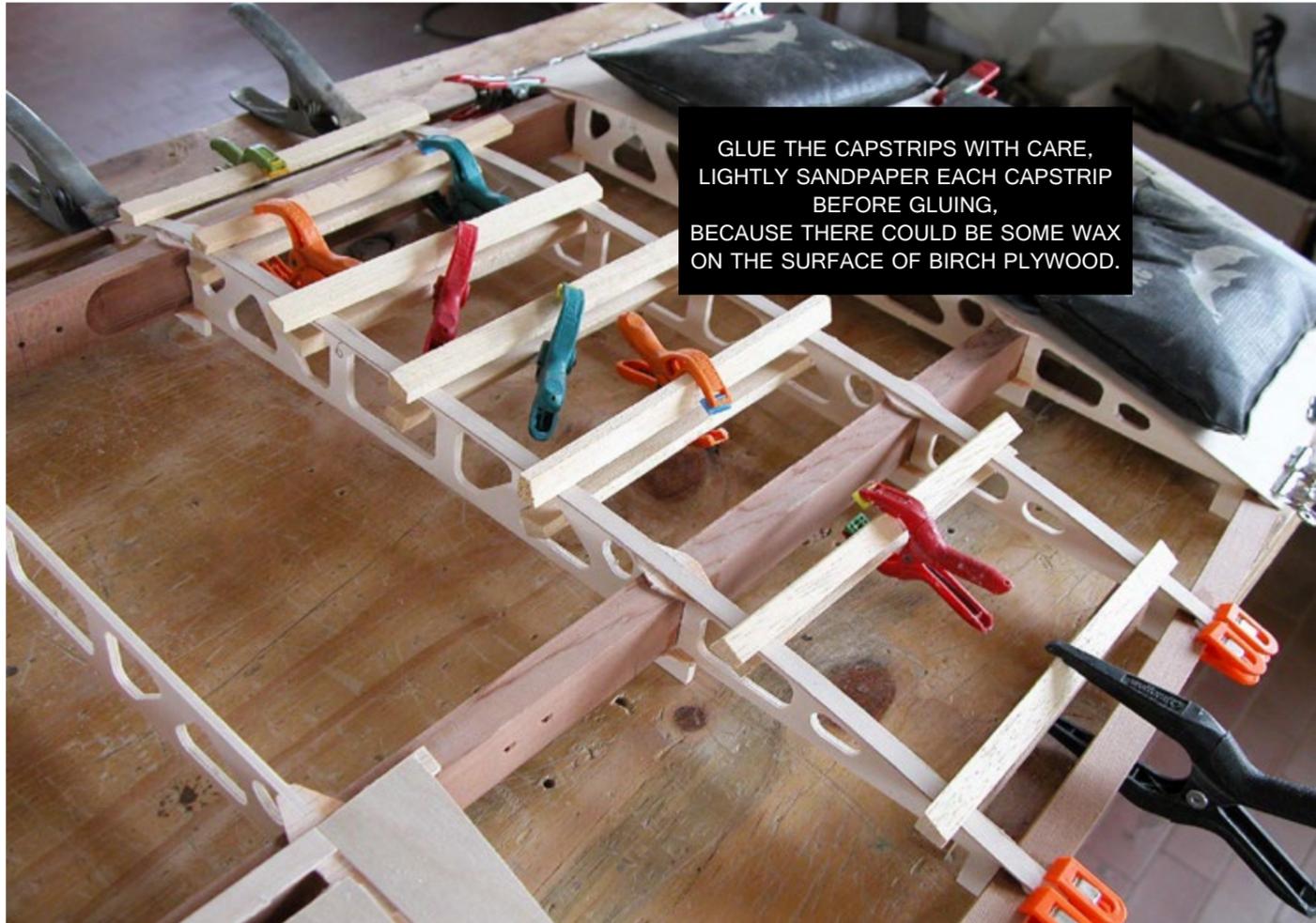




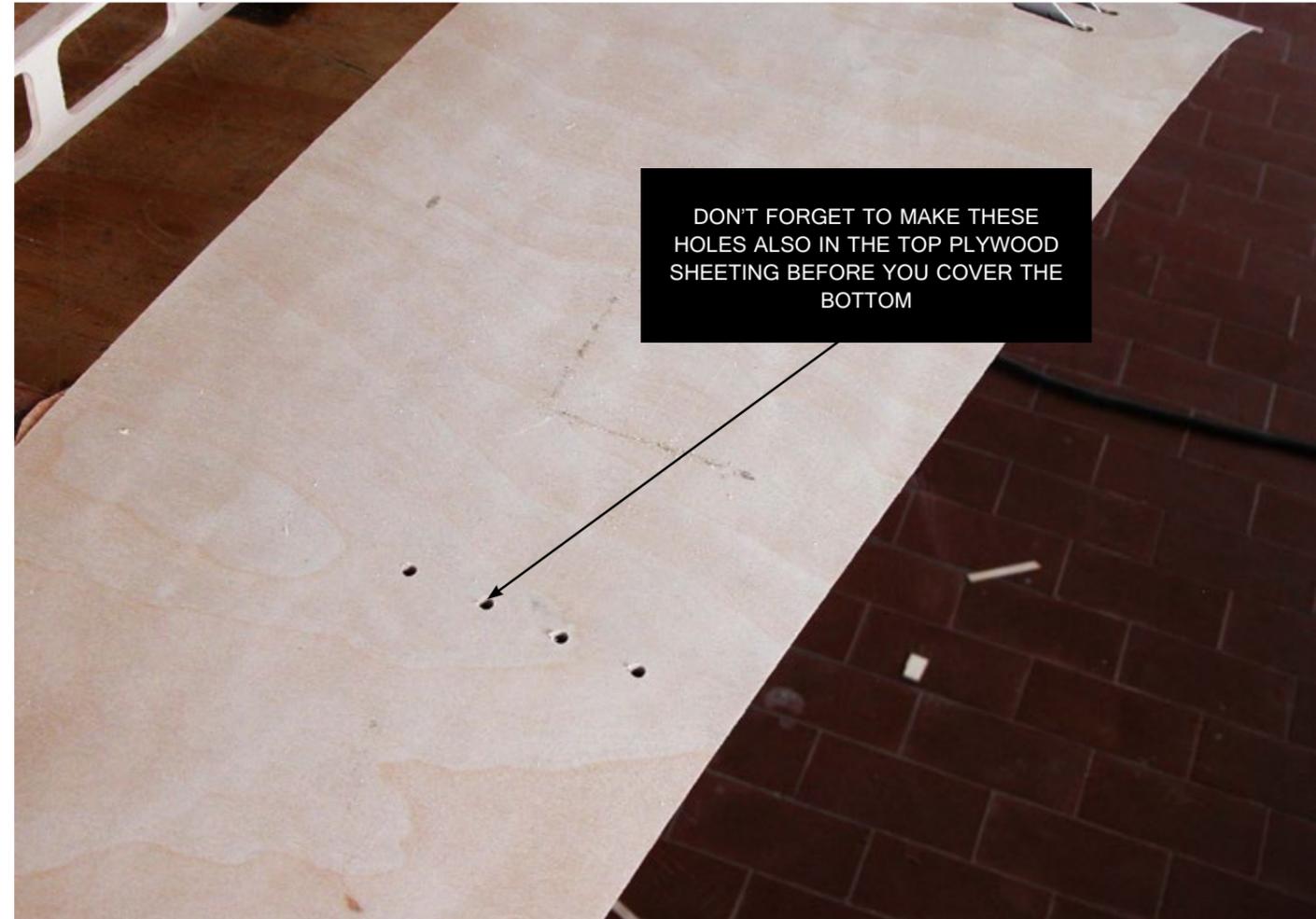
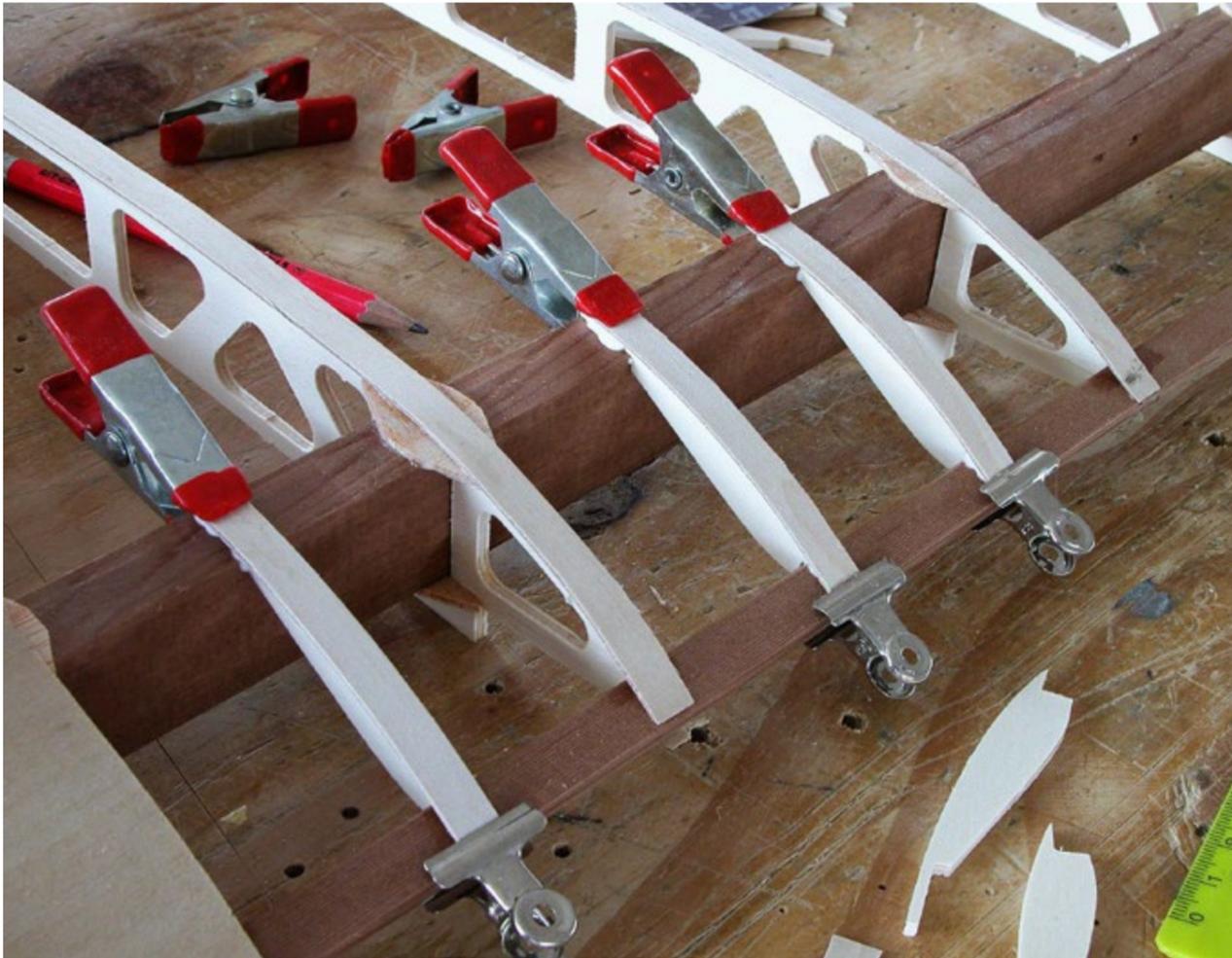
GLUE 2x8 MM Balsa STRIP BETWEEN THE GUSSETS, THEN SANDPAPER AND GLUE A 0.8x8 MM BIRCH PLYWOOD STRIP

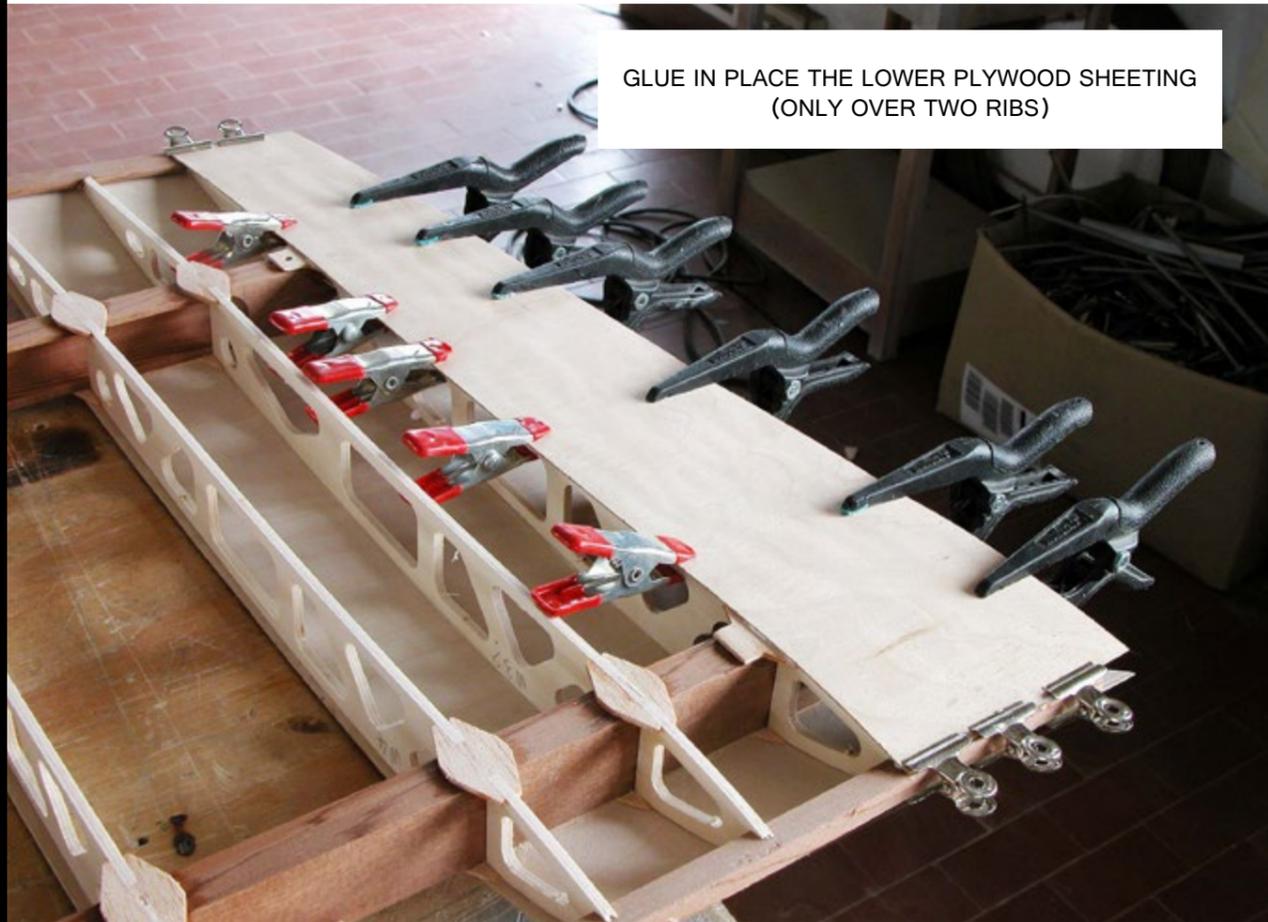


GLUE IN PLACE THE TOP PLYWOOD COVERING

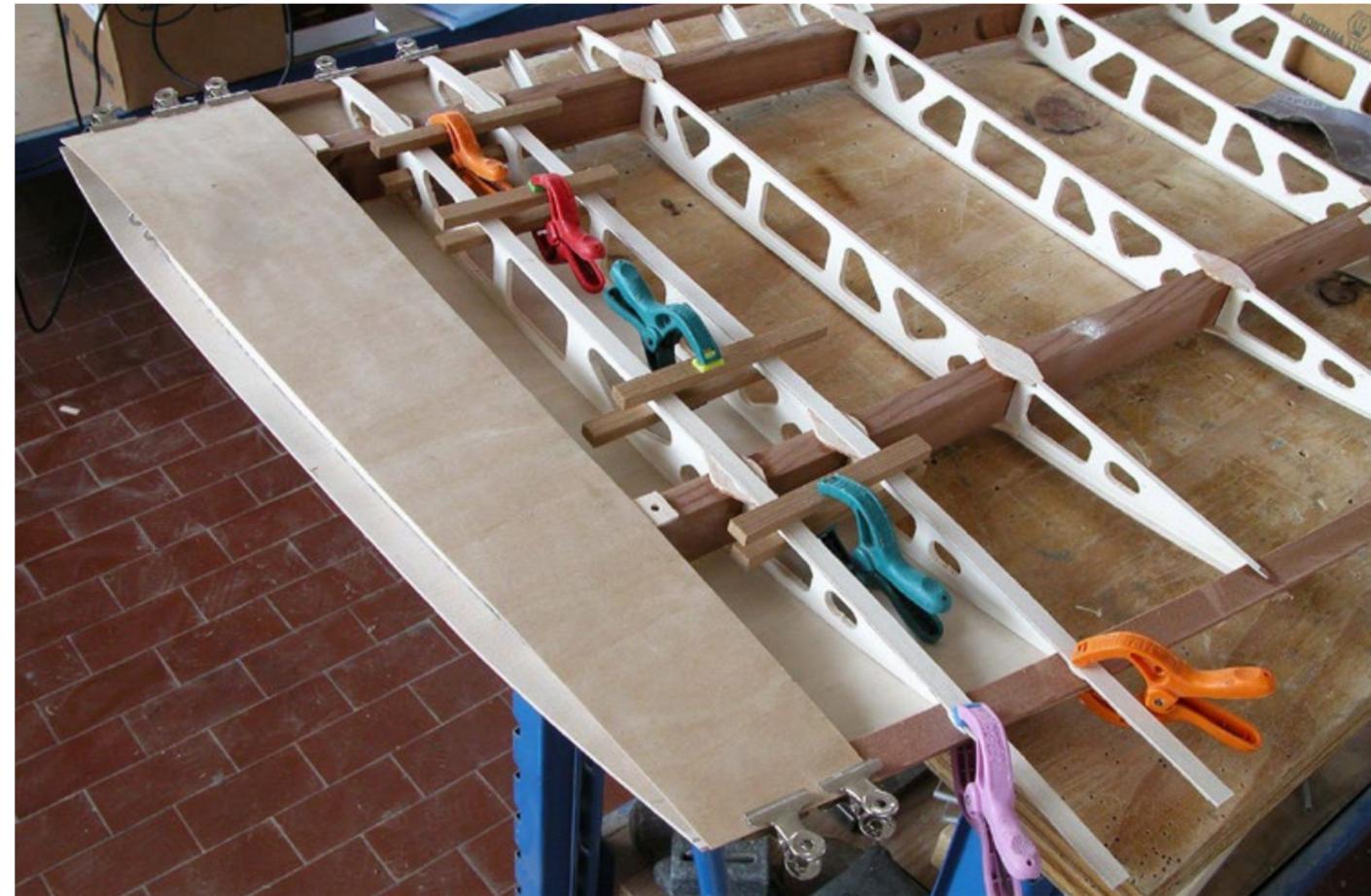


GLUE THE CAPSTRIPS WITH CARE, LIGHTLY SANDPAPER EACH CAPSTRIP BEFORE GLUING, BECAUSE THERE COULD BE SOME WAX ON THE SURFACE OF BIRCH PLYWOOD.

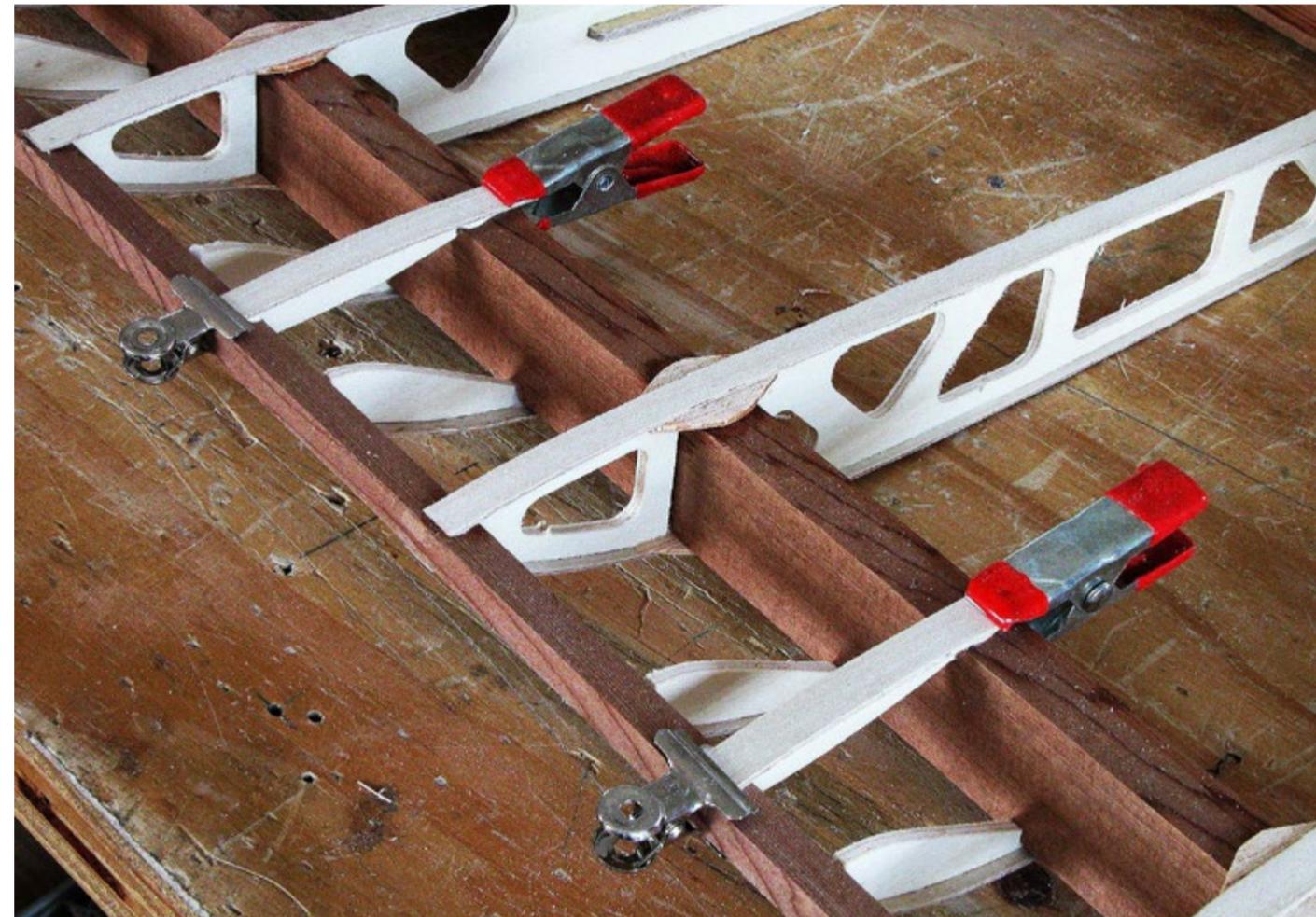


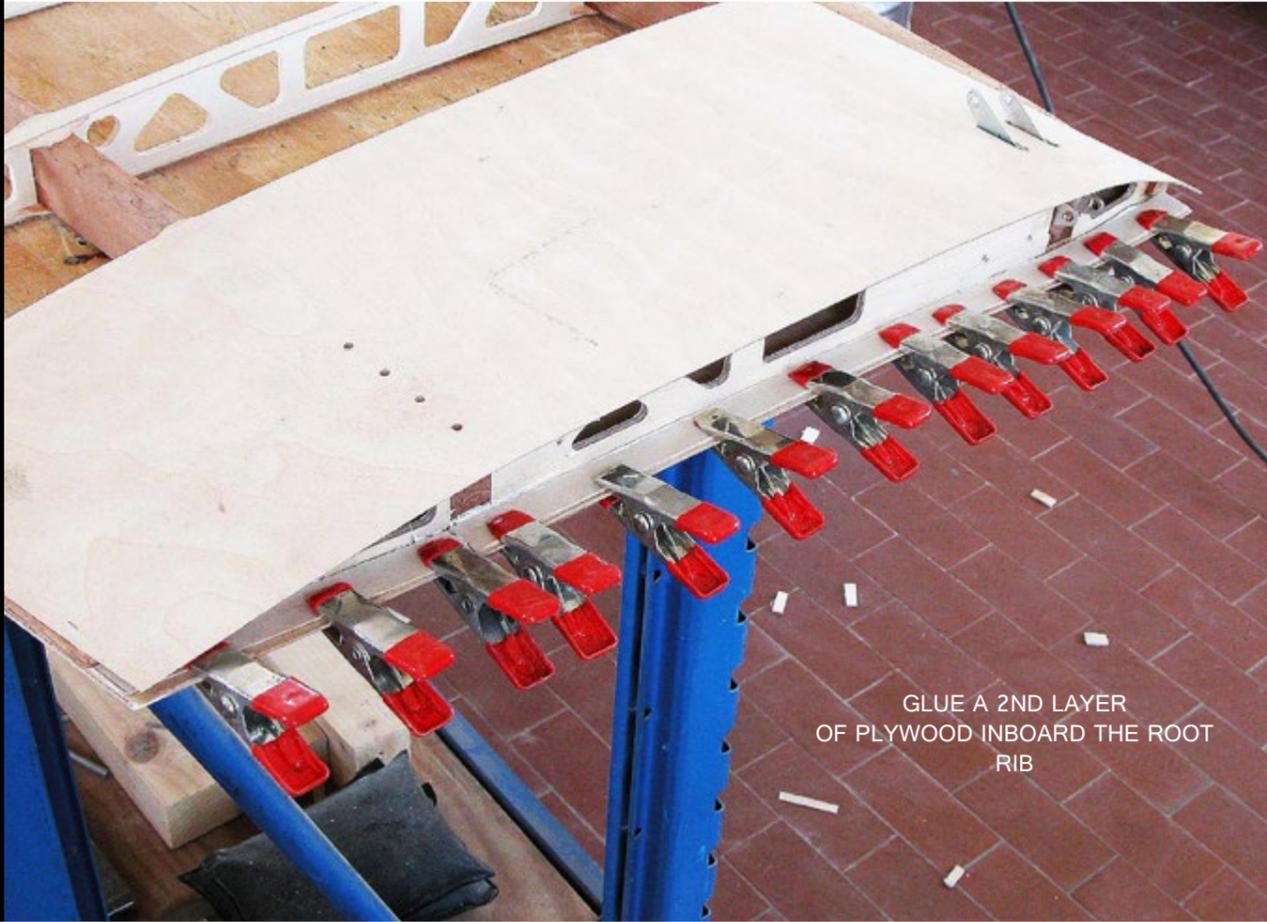


GLUE IN PLACE THE LOWER PLYWOOD SHEETING
(ONLY OVER TWO RIBS)



GLUE 2x8 MM BALSA STRIPWOOD
BETWEEN THE GUSSETS, THEN
SANDPAPER AND GLUE A 0.8x8 MM
BIRCH PLYWOOD STRIP ON TOP





GLUE A 2ND LAYER OF PLYWOOD INBOARD THE ROOT RIB



CUT THE WINGTIP SO THE ALERON IS FINALLY FREE!

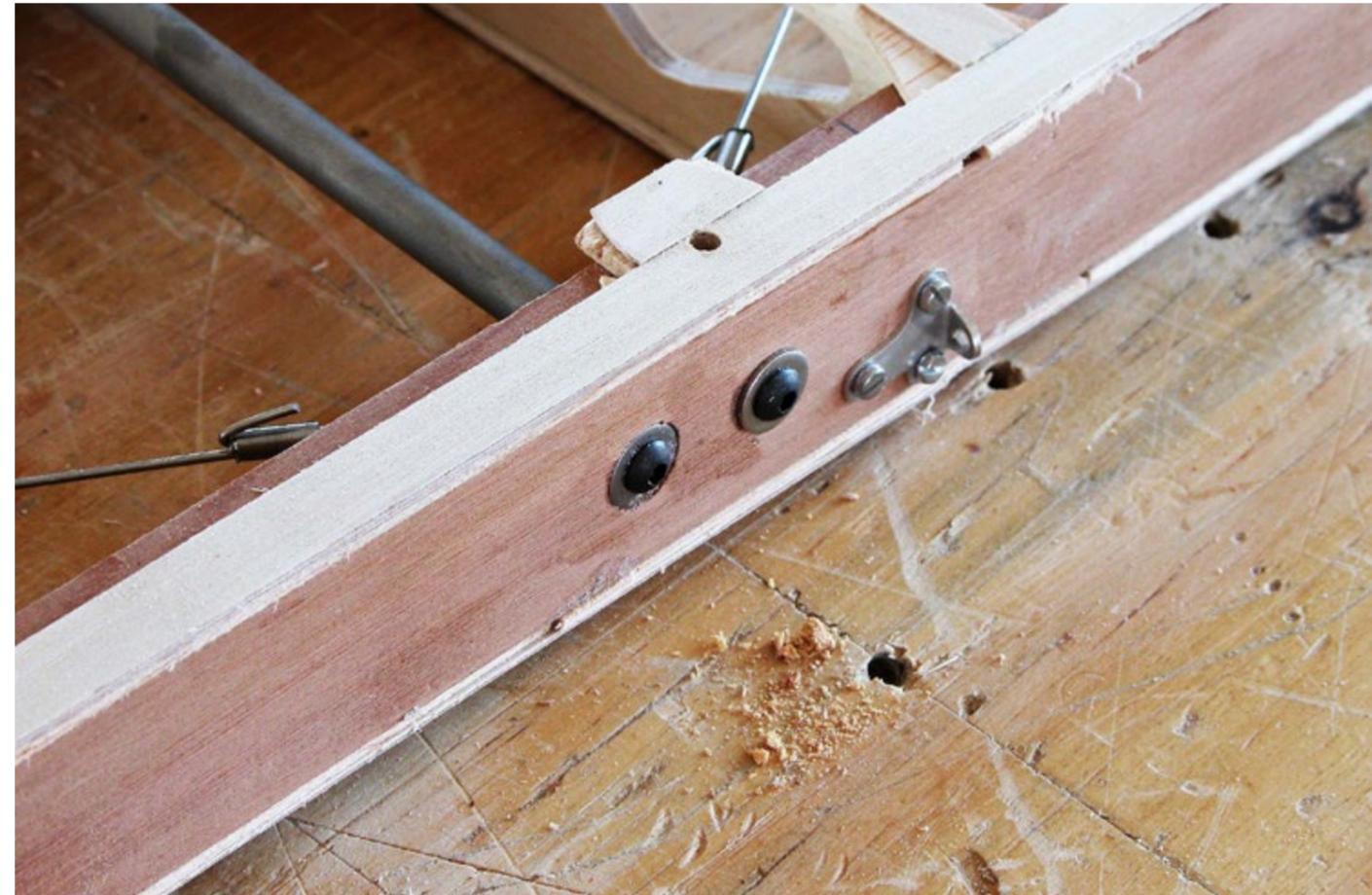




TO AVOID DEFORMING THE WING DURING TIGHTENING OF THE WIRES, FIX A STRAIGHT BAR ON THE LEADING EDGE.

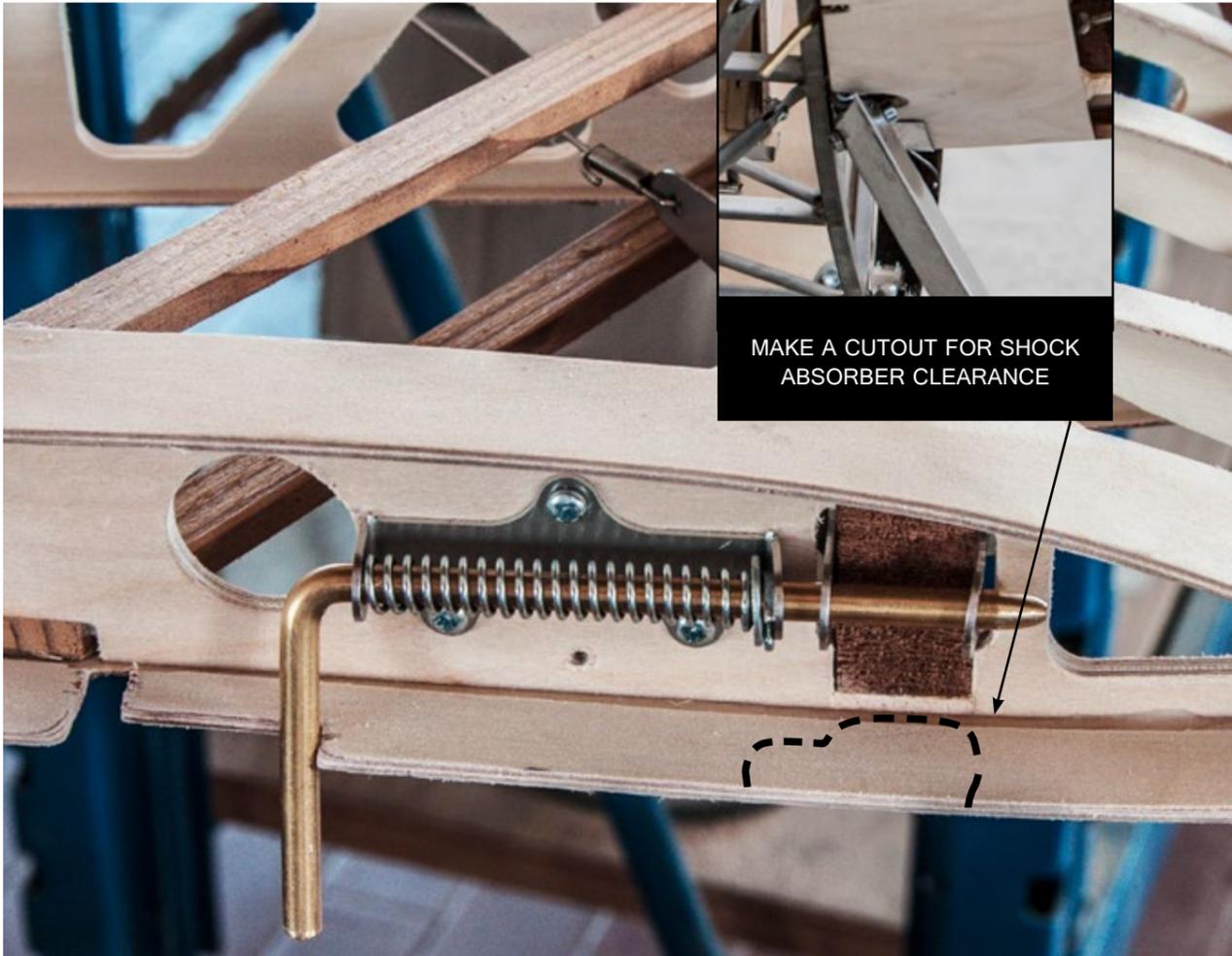


DONT OVERDO WHEN TIGHTENING THE WIRES.

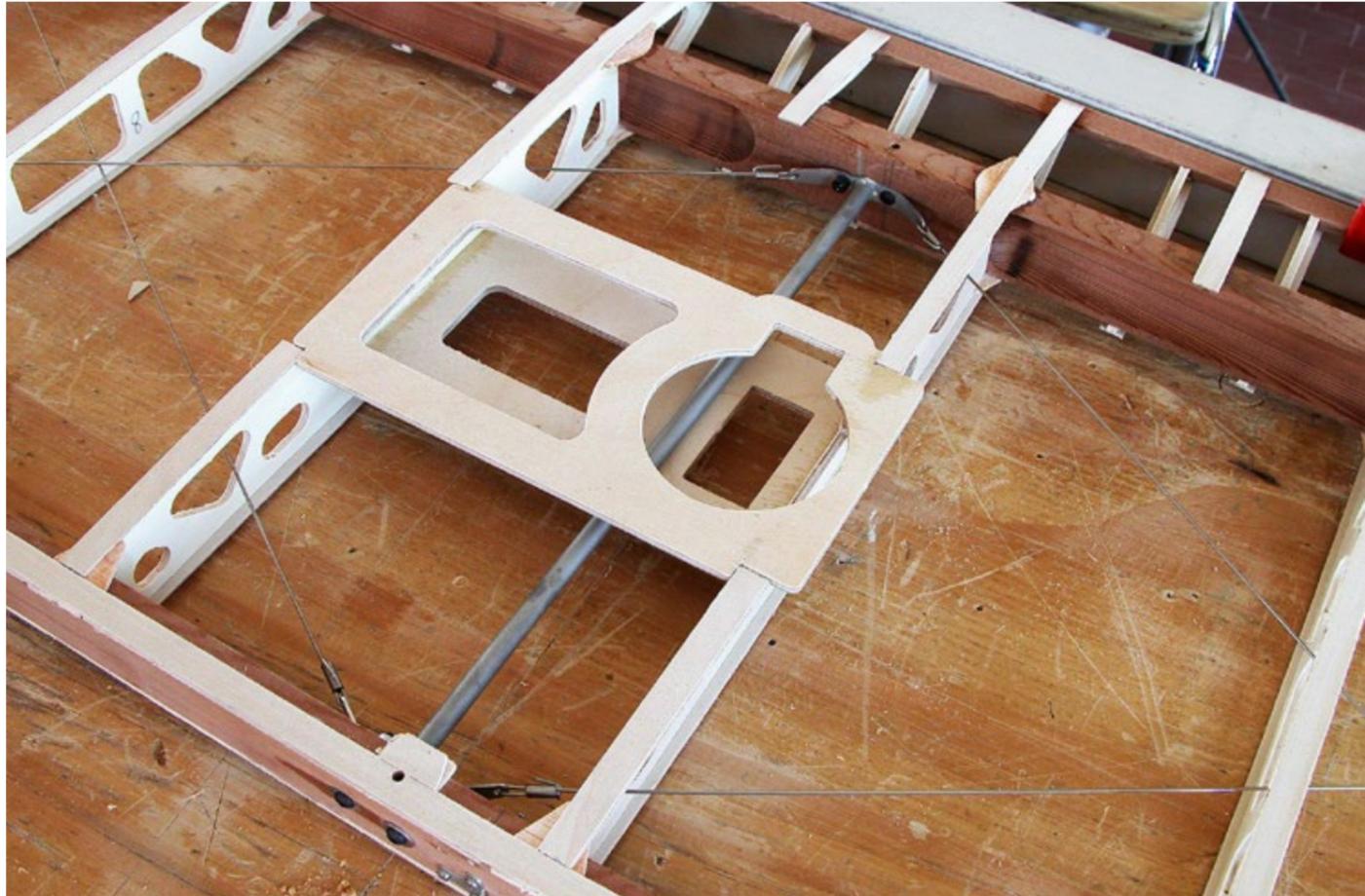


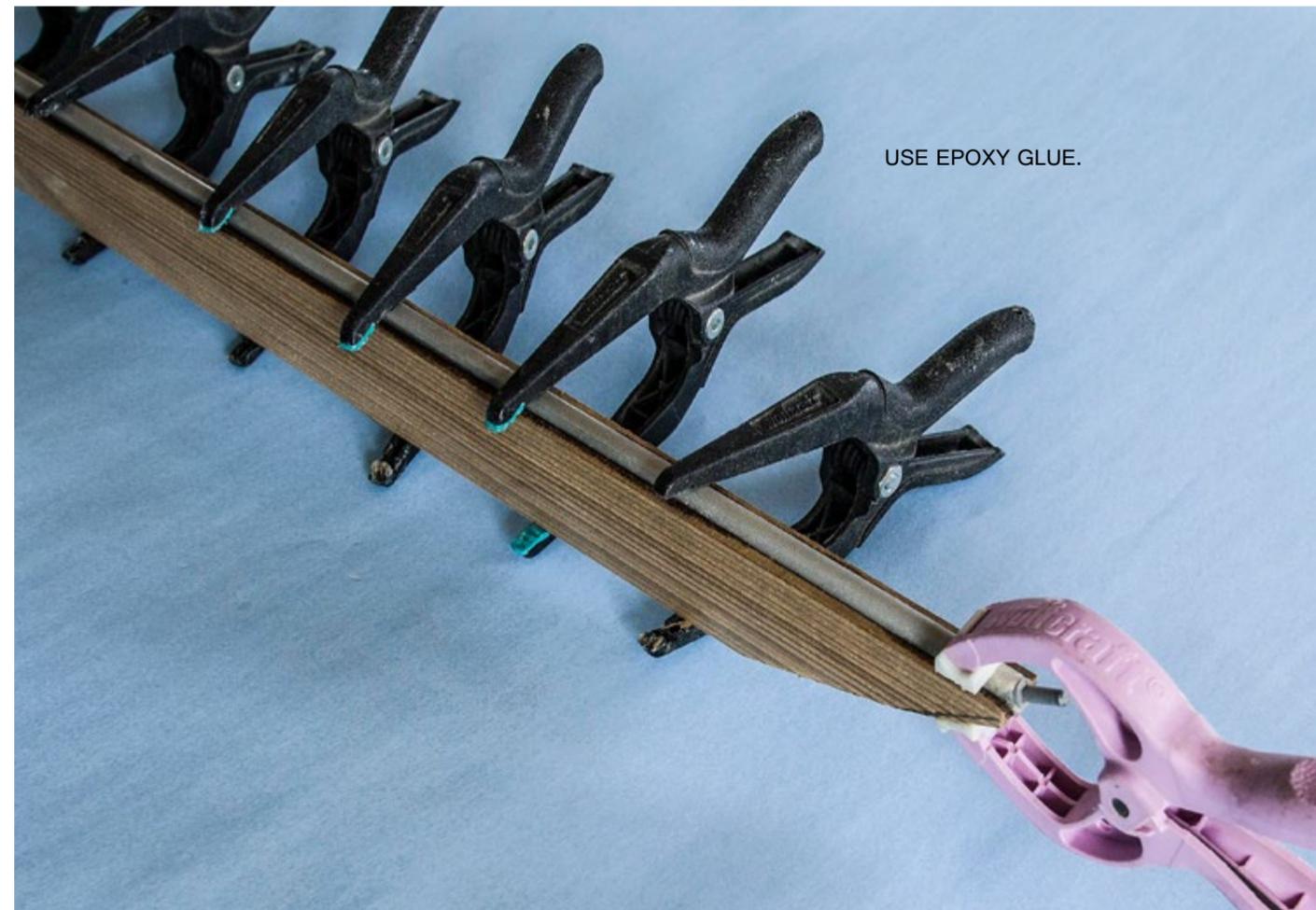
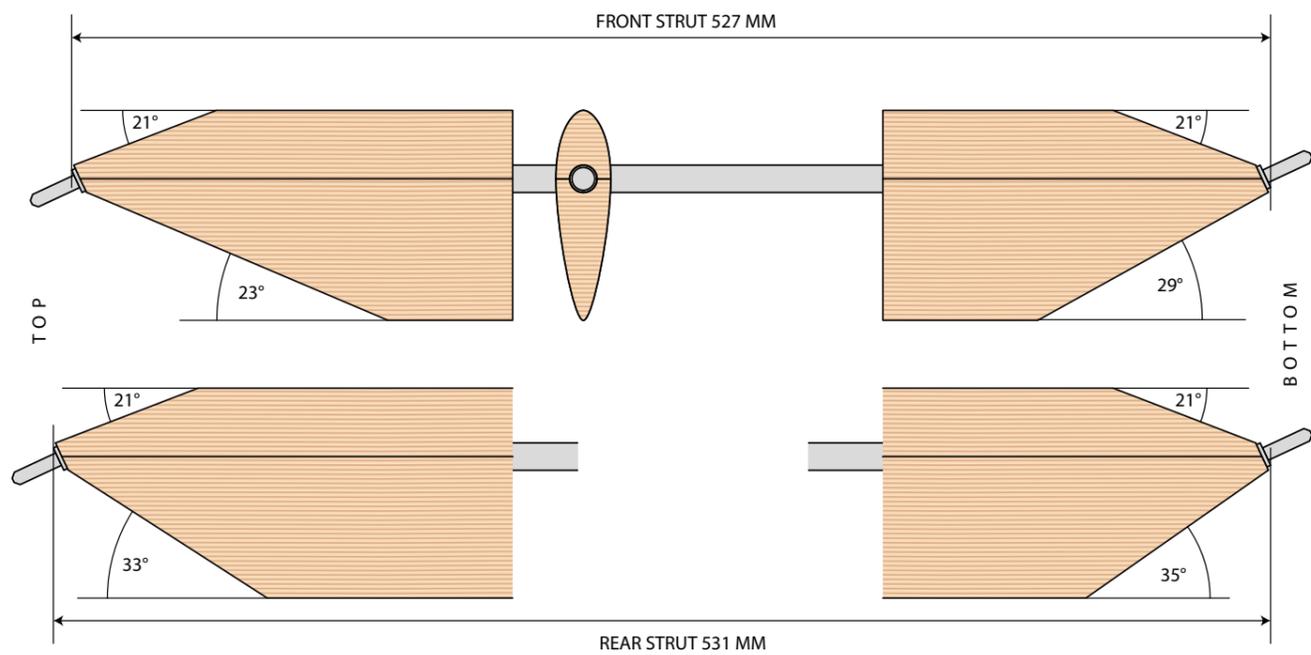
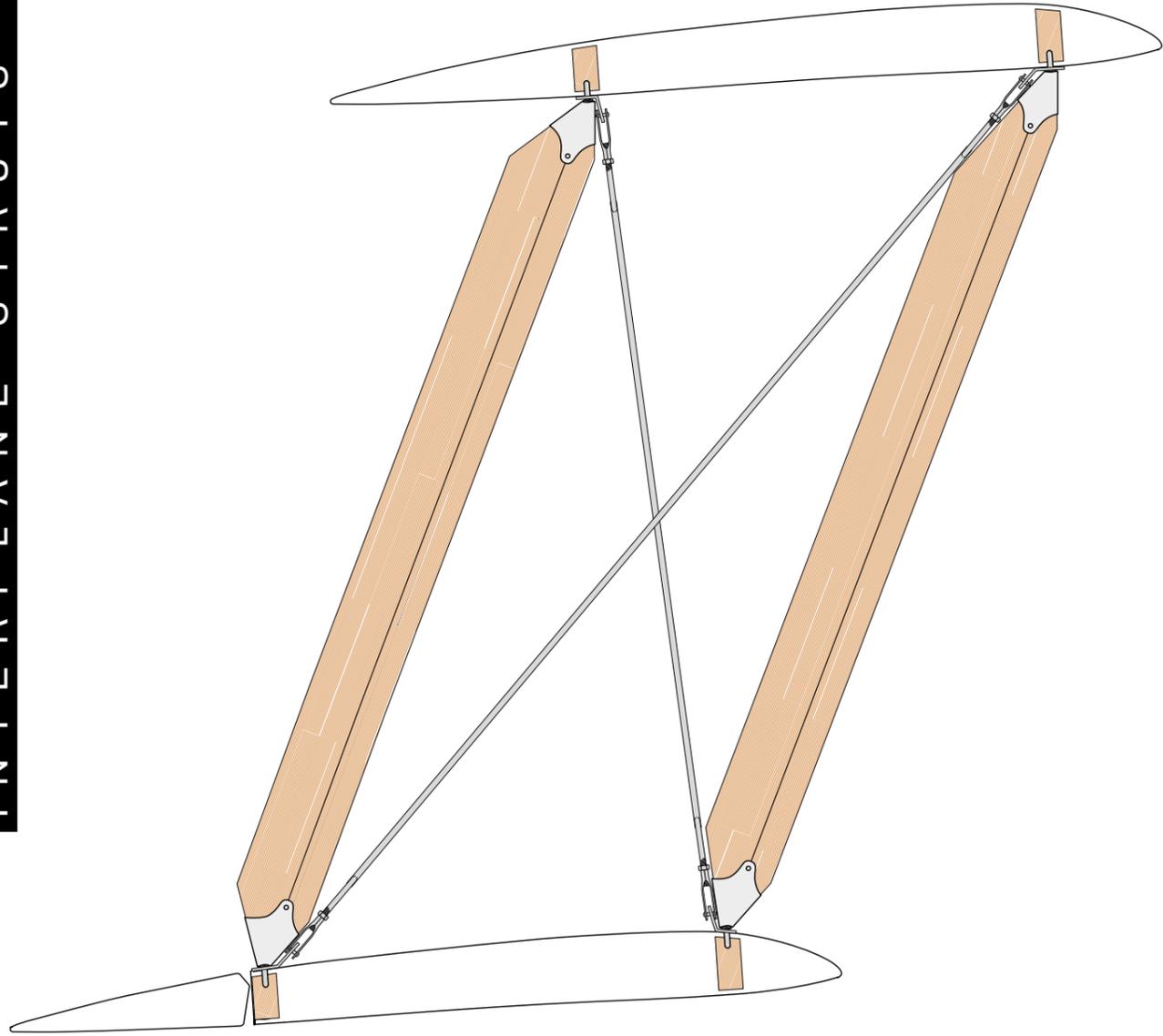


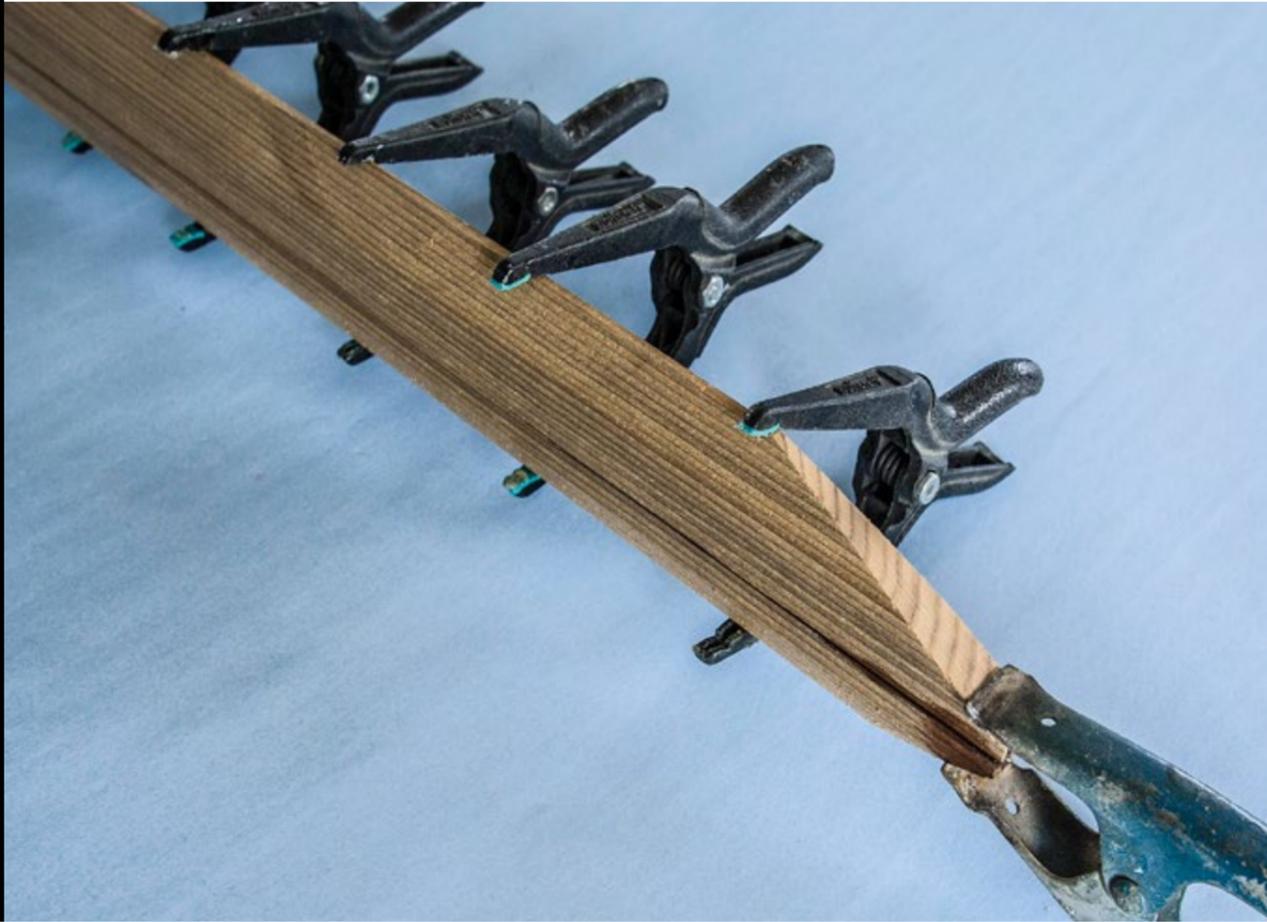
MAKE A SLOT TO ARM THE LATCH



MAKE A CUTOUT FOR SHOCK ABSORBER CLEARANCE







USE EPOXY GLUE,
KEEP IN PLACE WITH ELECTRICAL TAPE

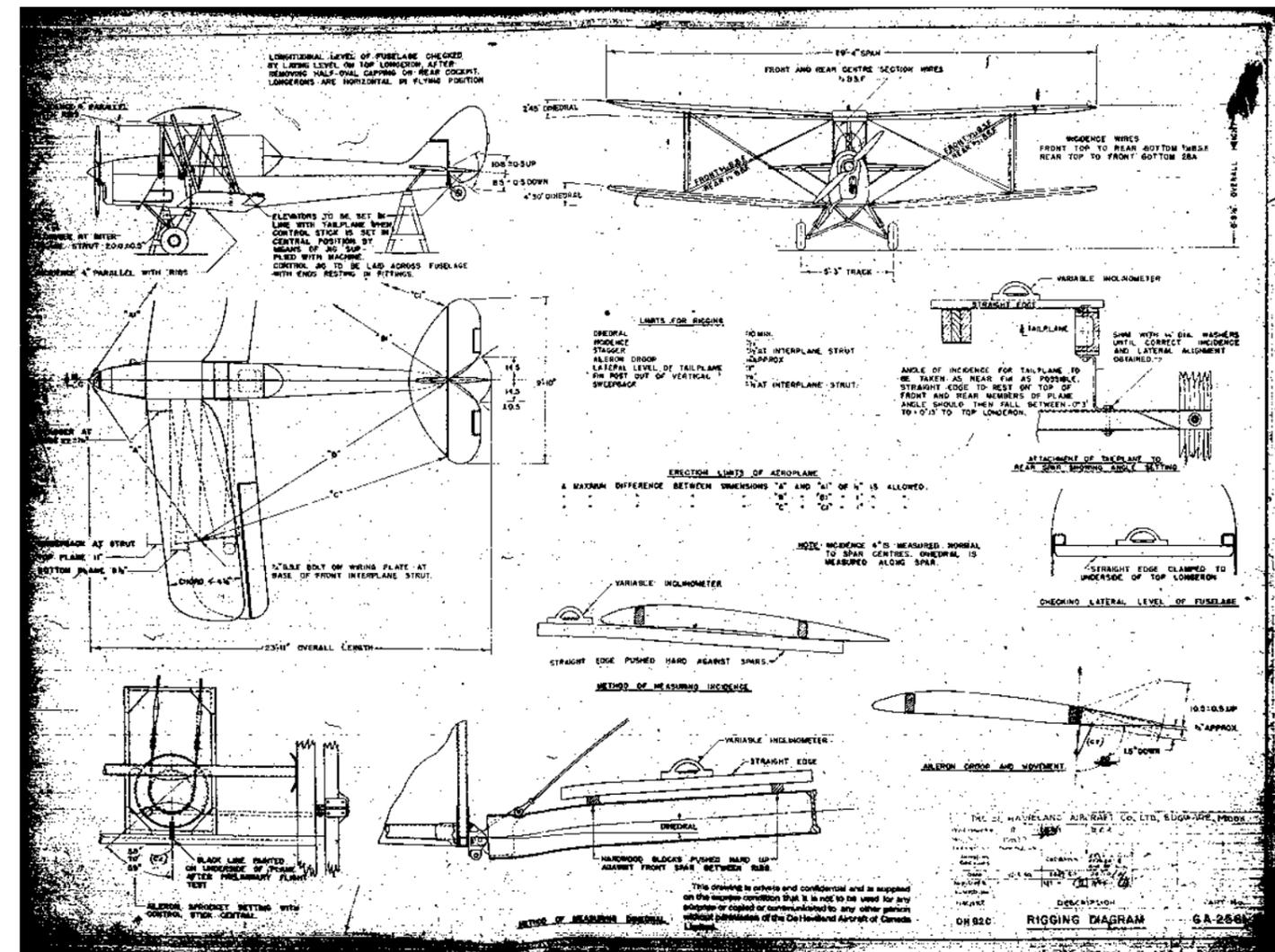
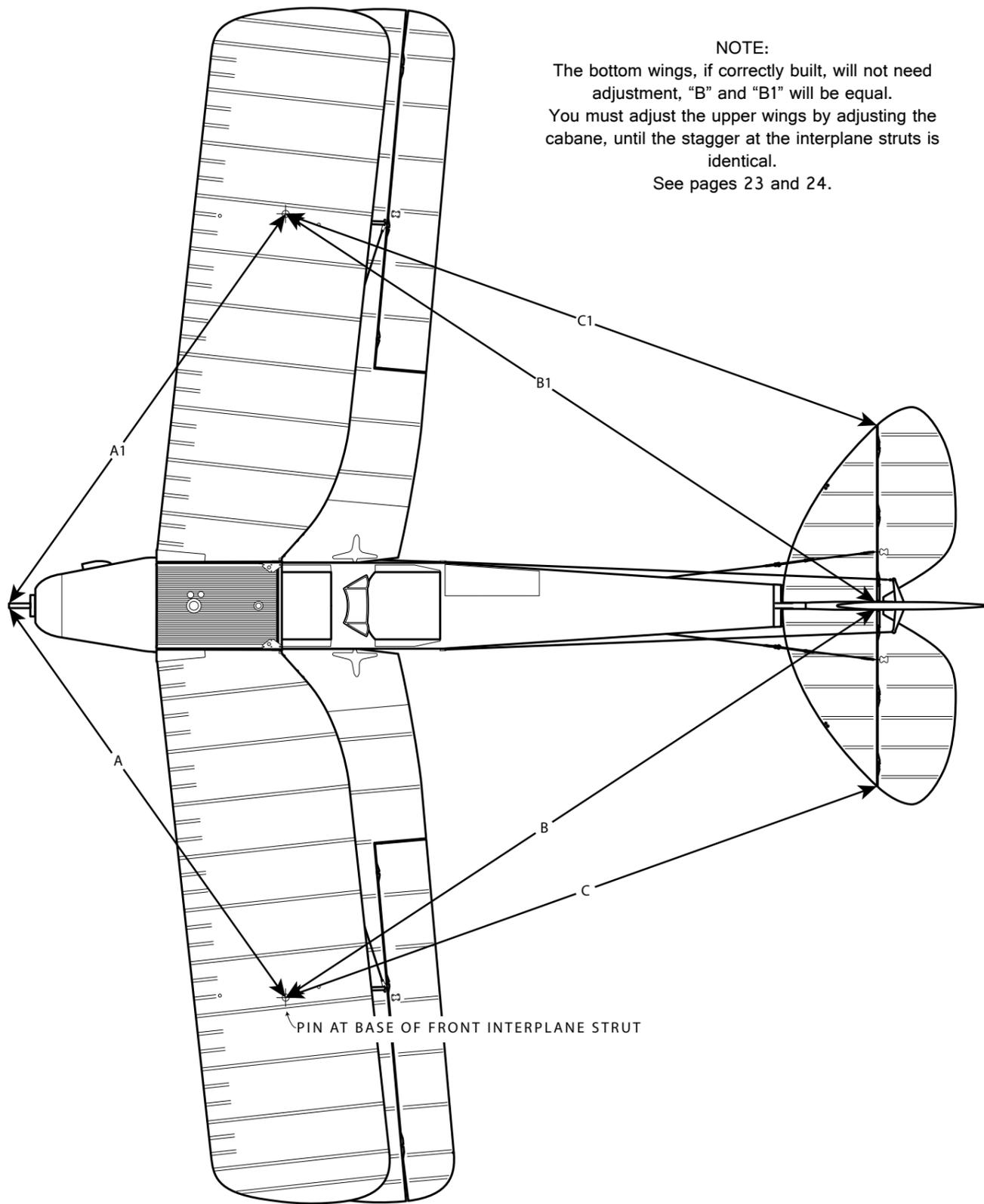


PITOT ON FRONT STARBOARD INTERPLANE STRUT

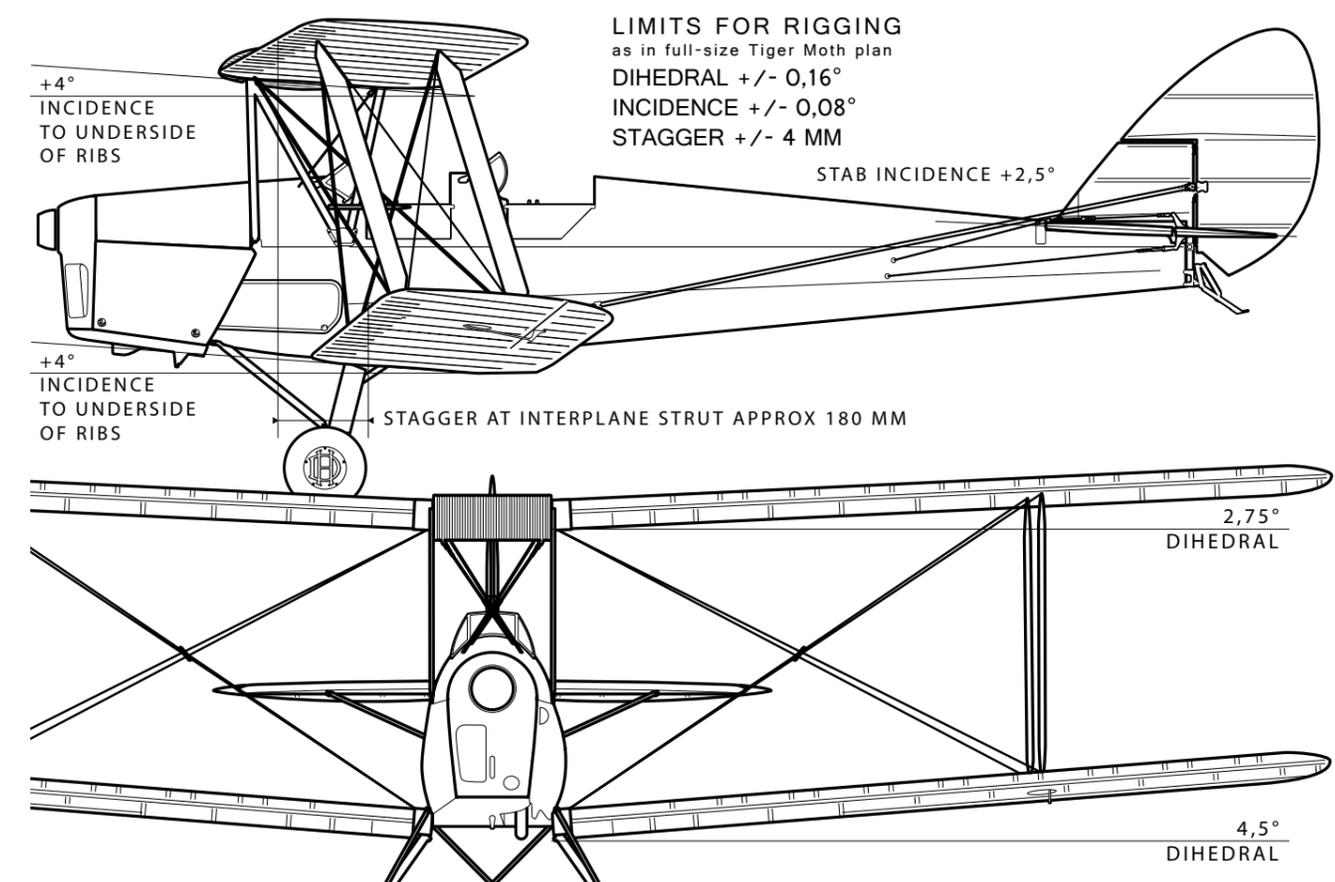


AIR PRESSURE A.S.I. ON FRONT PORT INTERPLANE STRUT



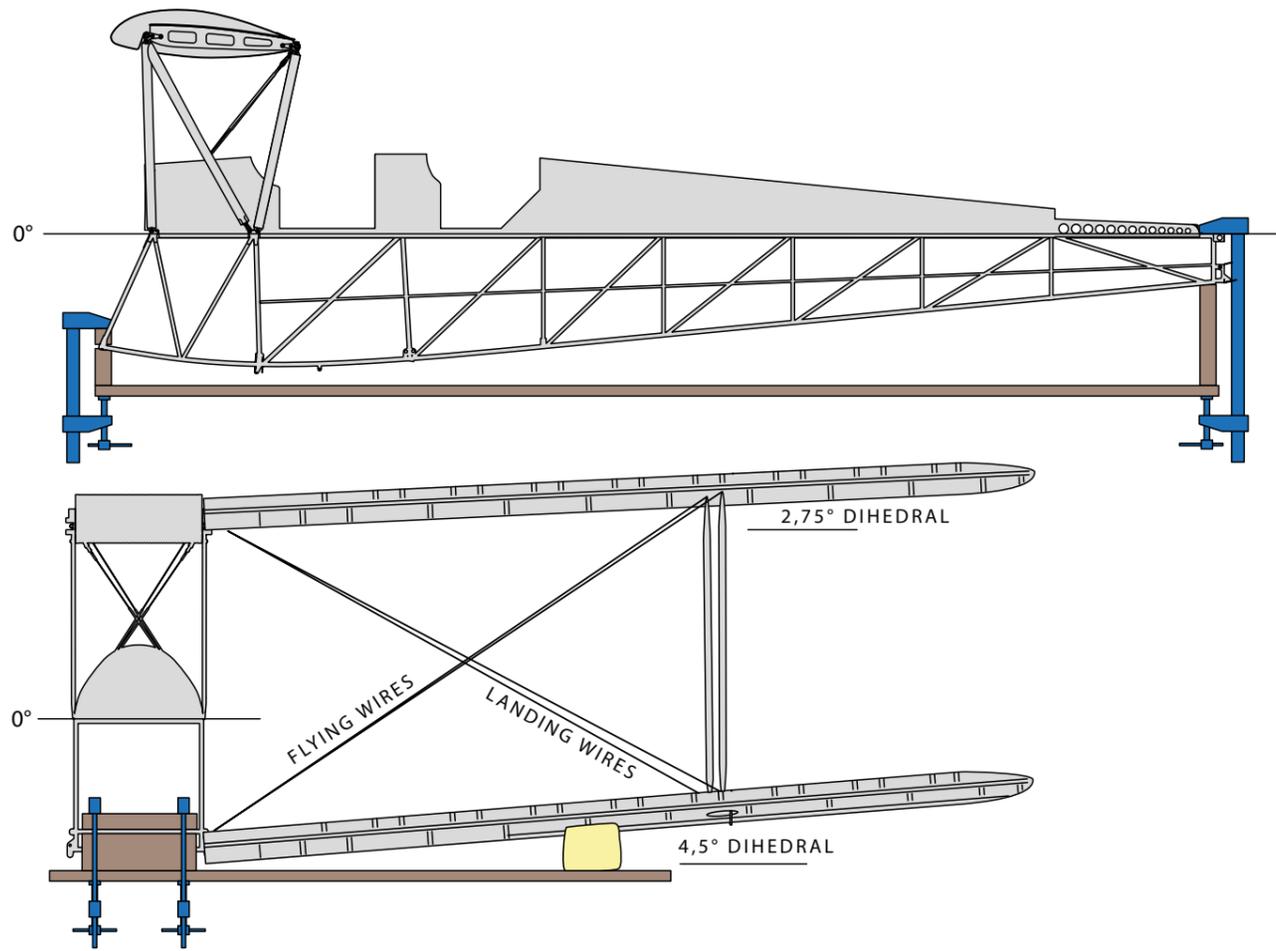


The original rigging diagram (From full-size plan set of the Canadian version)



ERRECTION LIMITS OF AEROPLANE (scaled down from full-size Tiger Moth plan)

A	MAXIMUM DIFFERENCE BETWEEN DIMENSIONS "A" AND "A1" OF 4 MM IS ALLOWED	"B"	"B1"	9 MM	"
"C"	"C1"	9 MM	"		



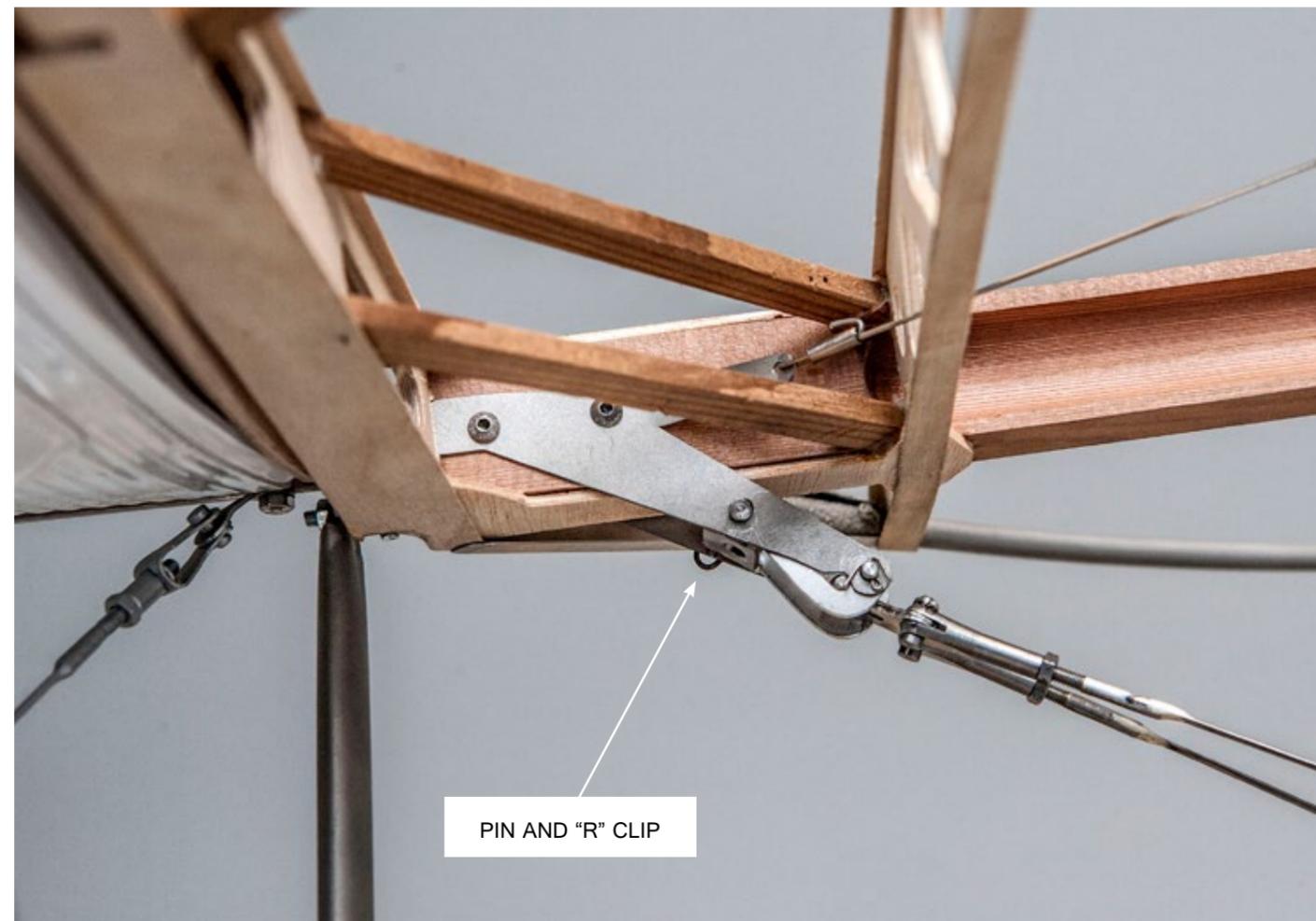
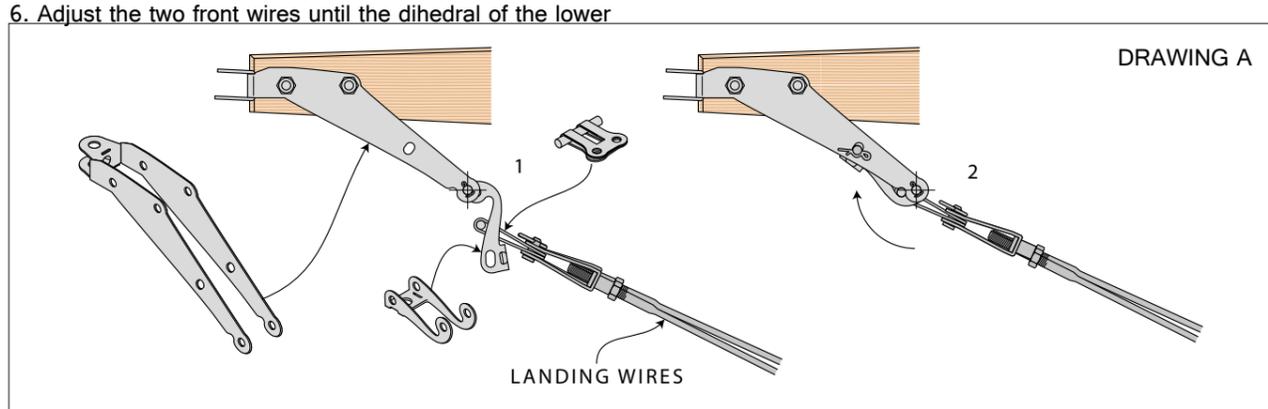
1. Before covering, lock the fuselage in horizontal position.
2. Fix the bottom wing to the fuselage with the M4 screw and the latch (put a cushion sponge under the wing)
3. Fix the upper wing to the cabane with the M4 screw and the latch, then insert the struts. Make sure that the strut pins are completely inserted in the wing holes
4. Mount the two landing wires. For the moment, insert the metal clevis 2 or 3 turns onto the threads, don't forget to insert the locking nuts. See locking system in the drawing A, don't close the lever for the moment.
5. Mount the two flying wires. For the moment, insert the metal clevis 2 or 3 turns onto the threads, don't forget to insert the locking nuts.
6. Adjust the two front wires until the dihedral of the lower

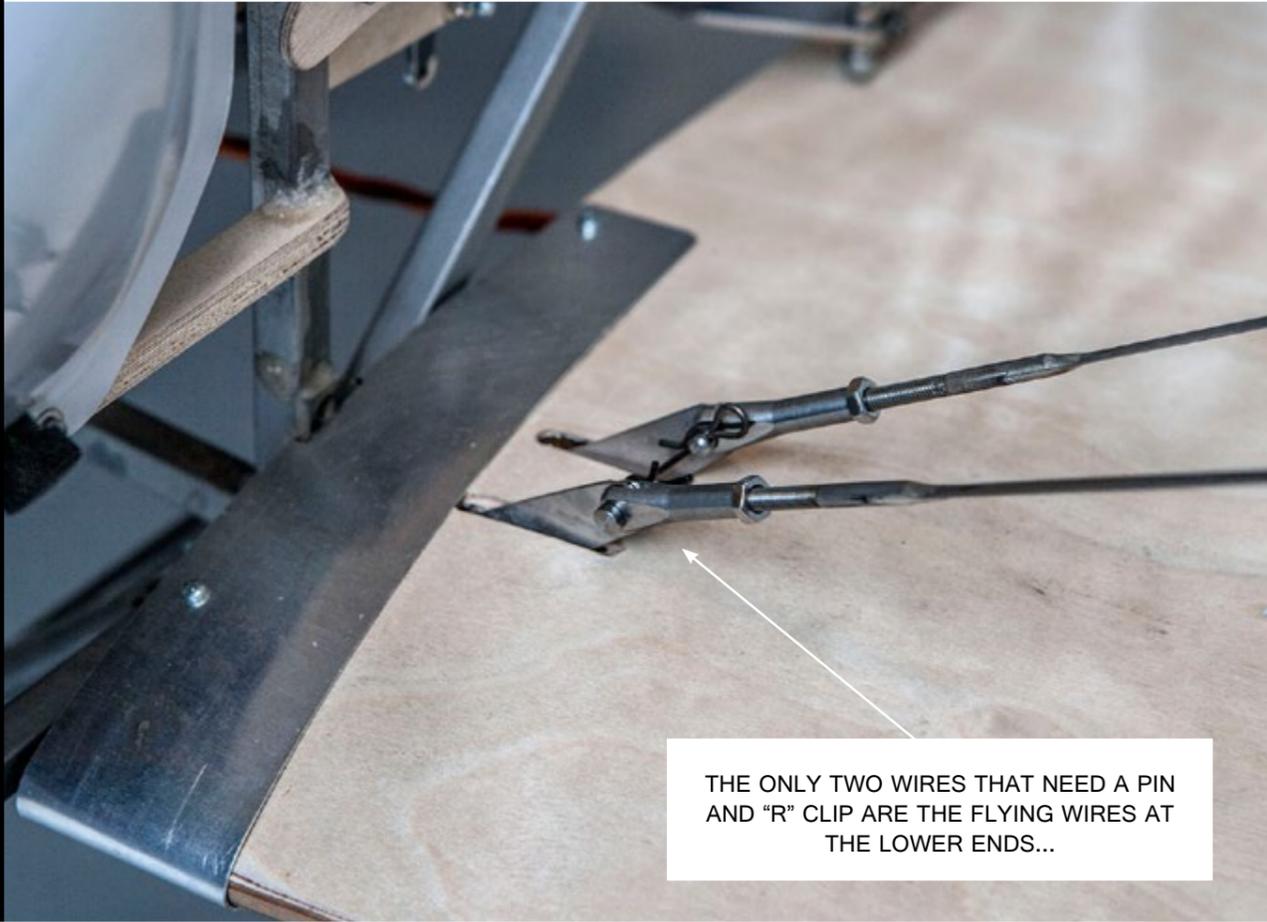
wing at the front spar is approx 4,5 degrees. The dihedral of the upper wing is automatically determined by the length of the struts.

7. Apply the rear flying wires and adjust the two rear wires until the dihedral of the rear spar of the bottom wing is approx 4,5 degrees. This way the wing incidence will be identical over the full length of the wing.

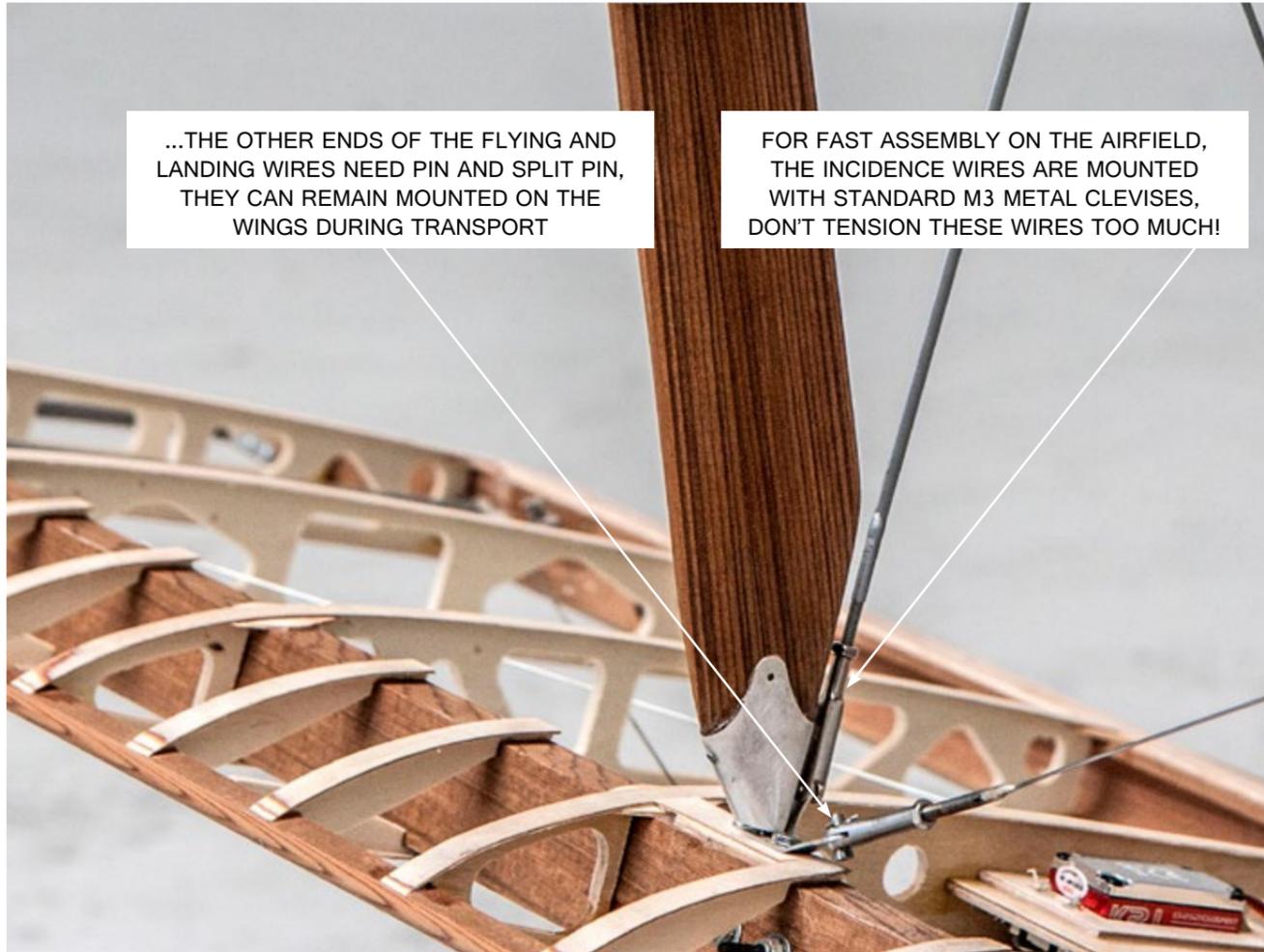
7. Mount the other wing, adjust the dihedral of both wings definitively, then lock all the metal clevis with the nuts.

Note: do not tension the wires too much with the wings mounted on only one side and without the firewall, (the firewall, like on the full-size Tiger Moth, contributes to the strength of the fuselage).



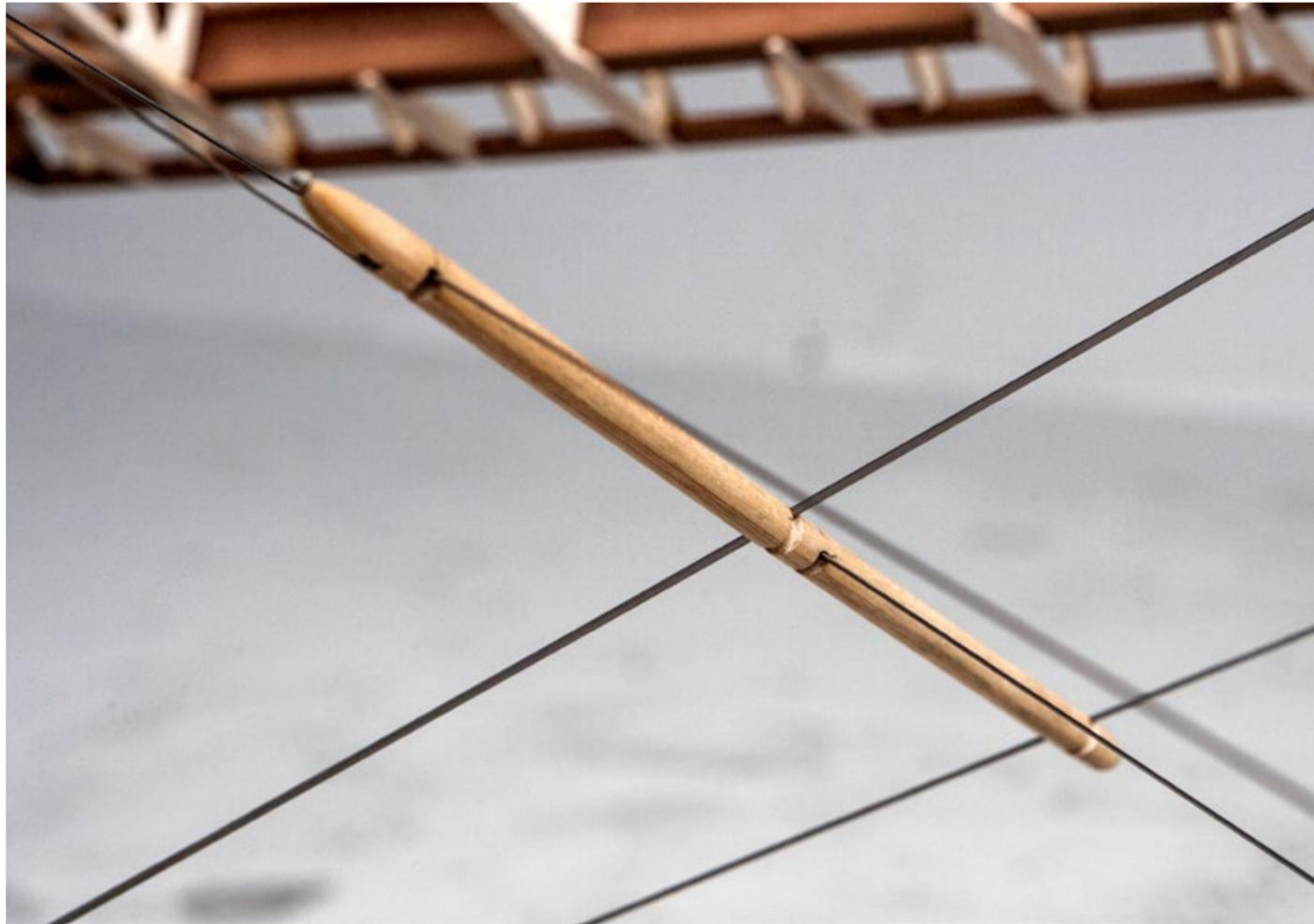


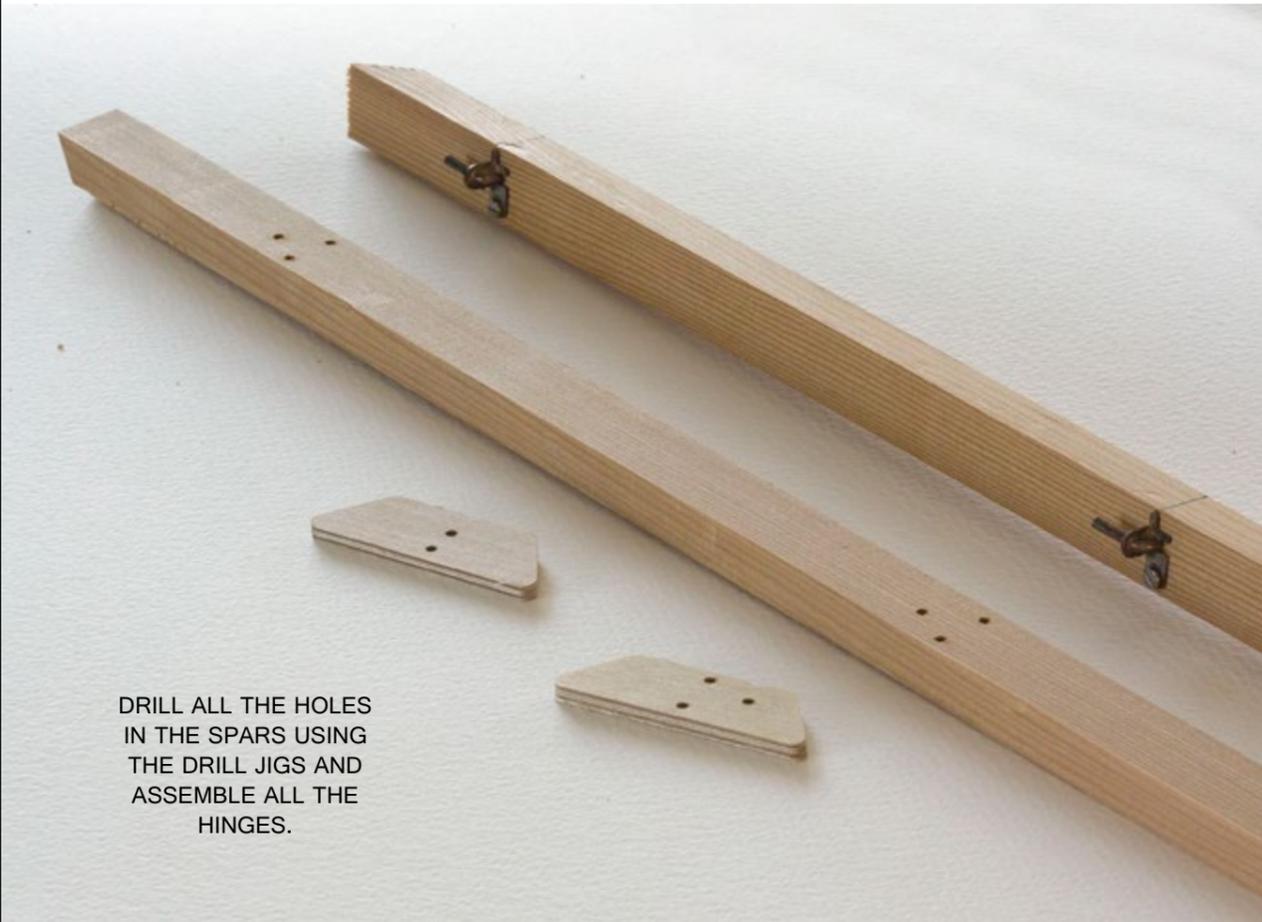
THE ONLY TWO WIRES THAT NEED A PIN AND "R" CLIP ARE THE FLYING WIRES AT THE LOWER ENDS...



...THE OTHER ENDS OF THE FLYING AND LANDING WIRES NEED PIN AND SPLIT PIN, THEY CAN REMAIN MOUNTED ON THE WINGS DURING TRANSPORT

FOR FAST ASSEMBLY ON THE AIRFIELD, THE INCIDENCE WIRES ARE MOUNTED WITH STANDARD M3 METAL CLEVISES, DON'T TENSION THESE WIRES TOO MUCH!

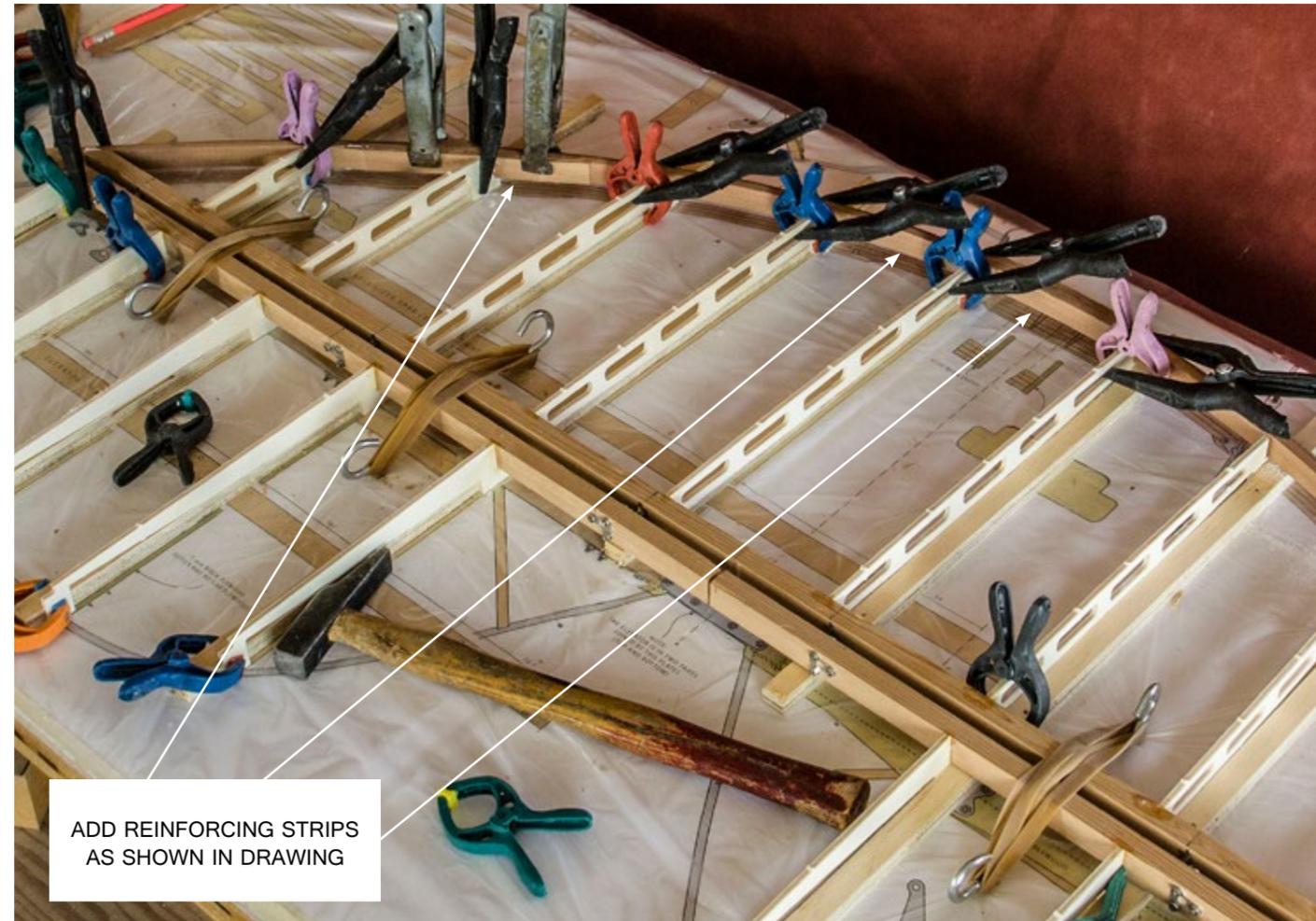




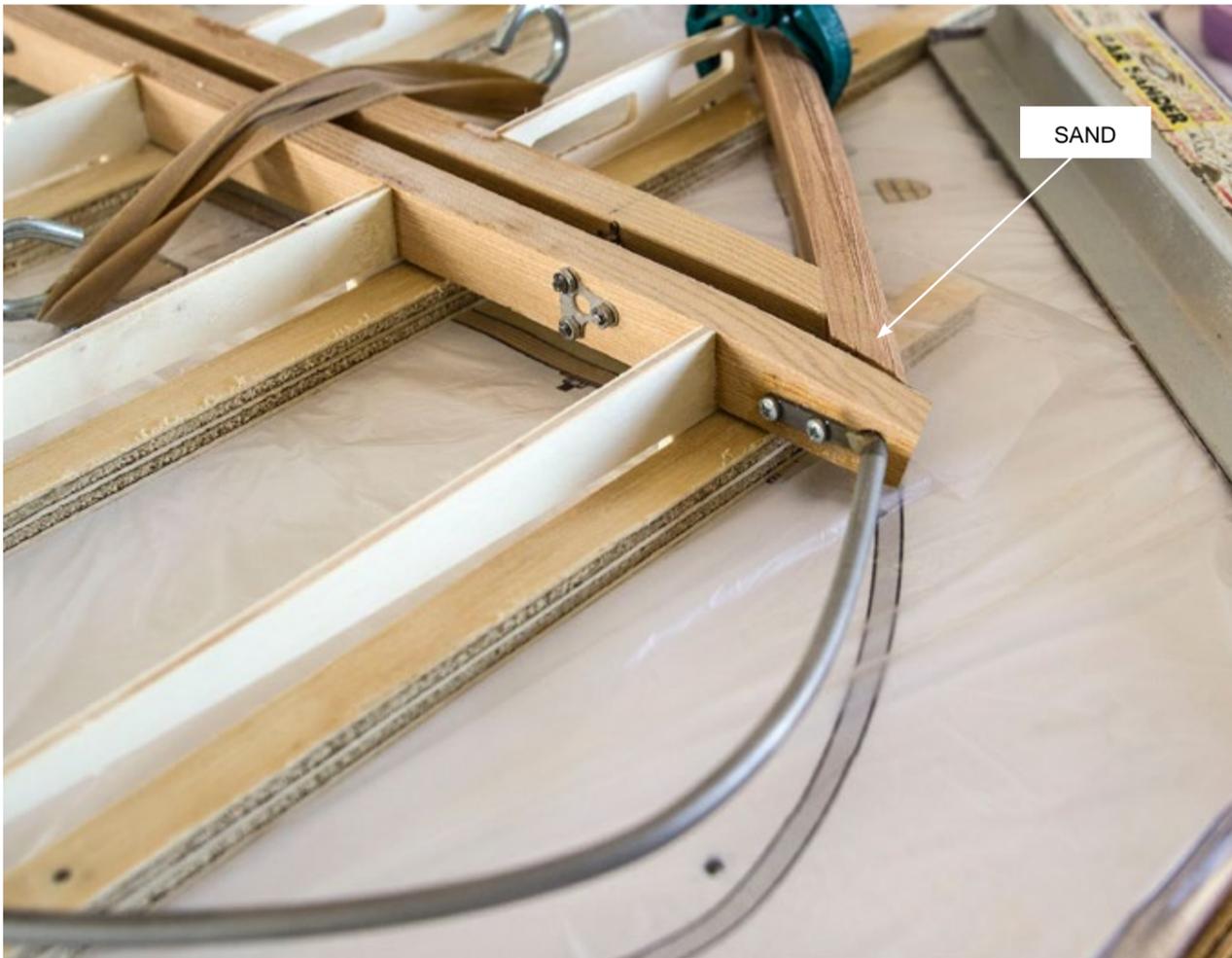
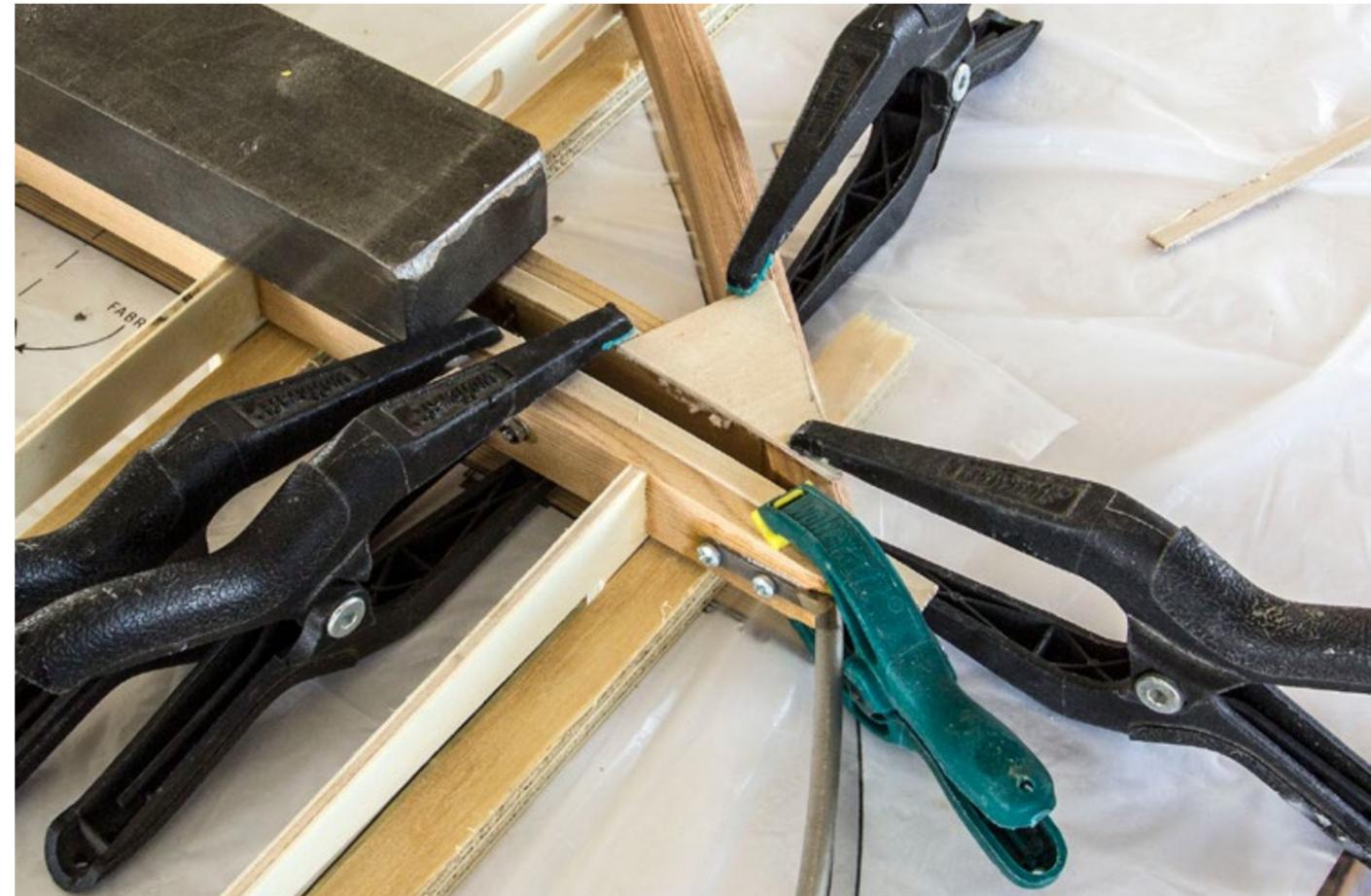
DRILL ALL THE HOLES IN THE SPARS USING THE DRILL JIGS AND ASSEMBLE ALL THE HINGES.

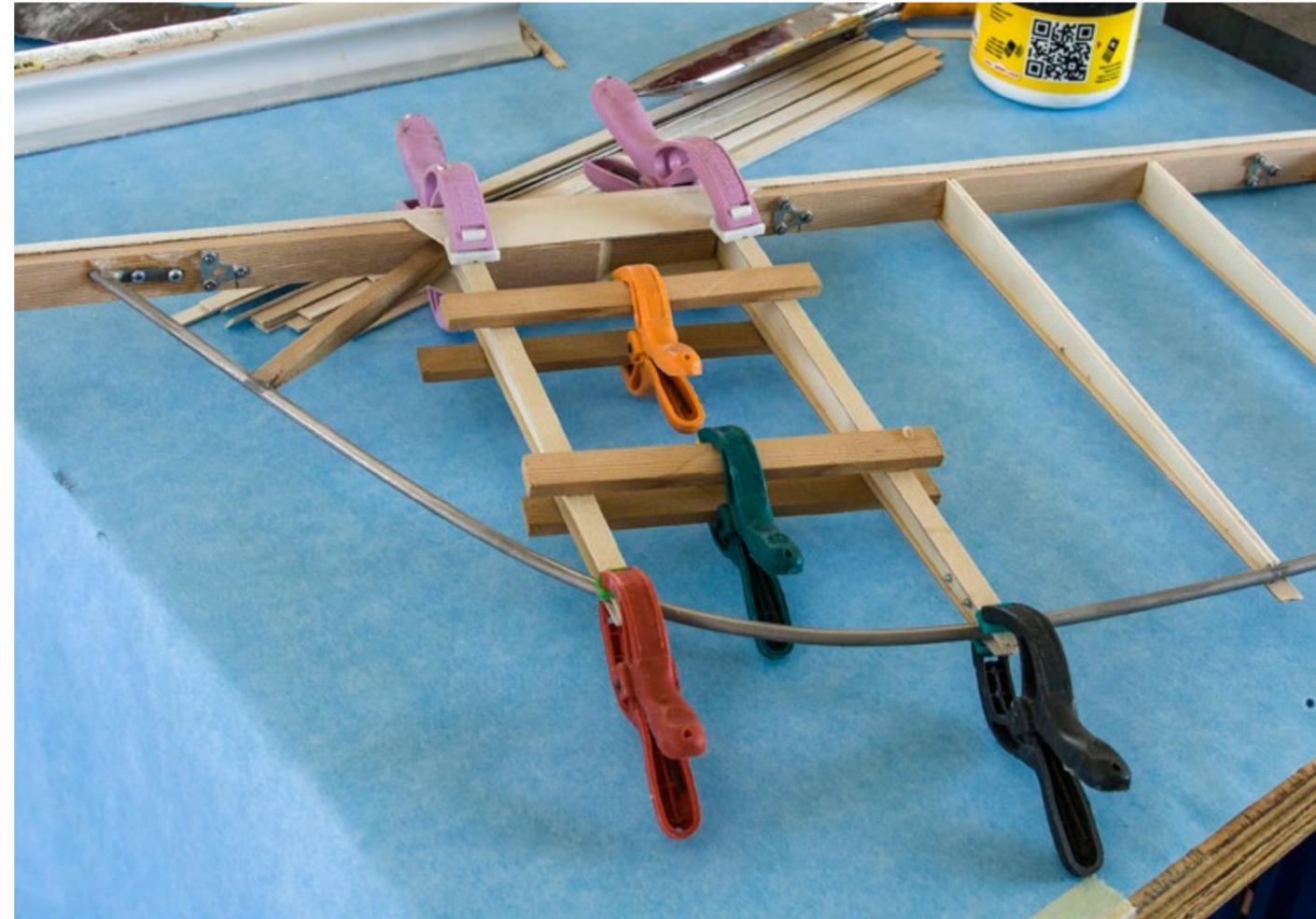
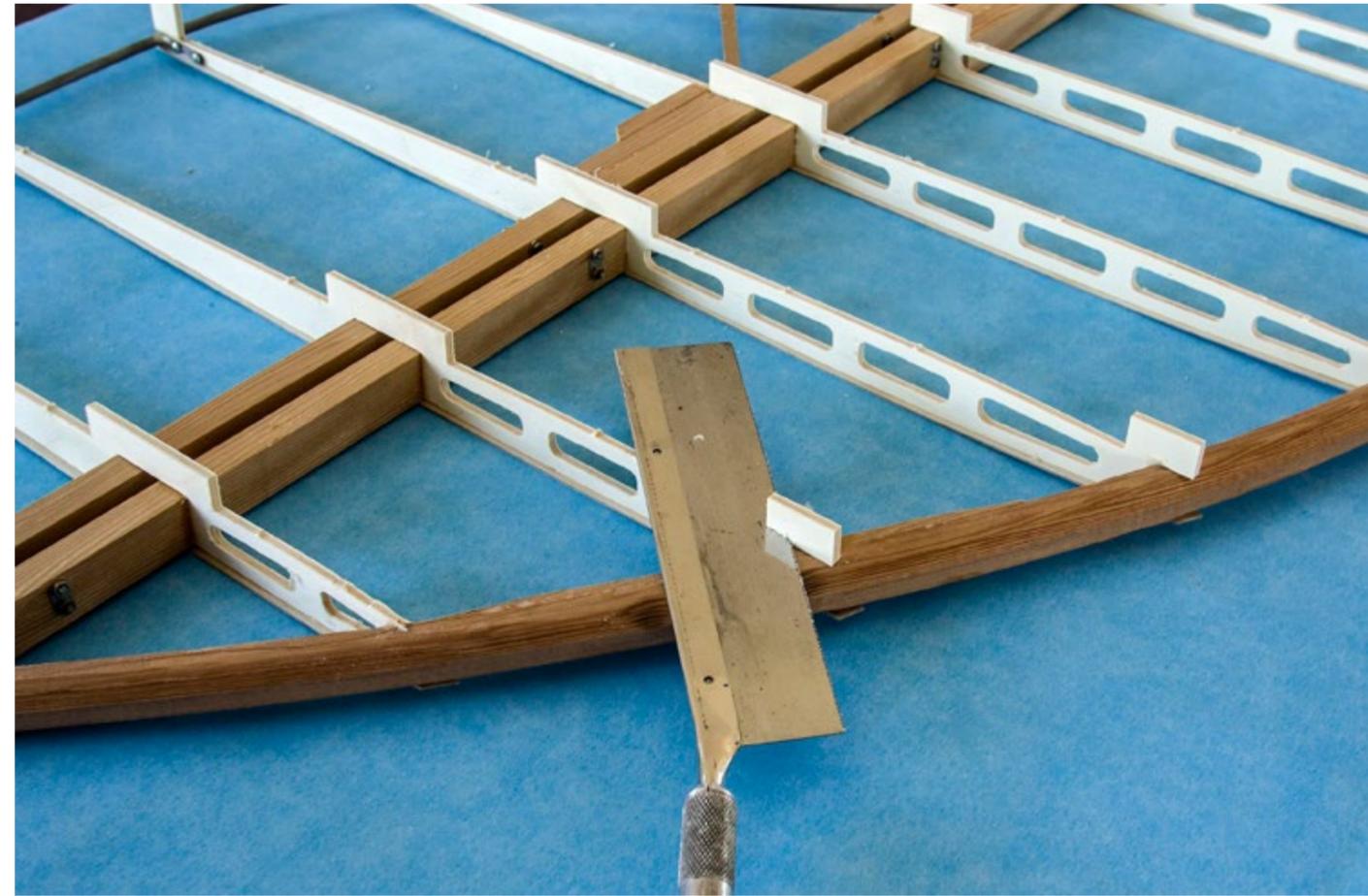


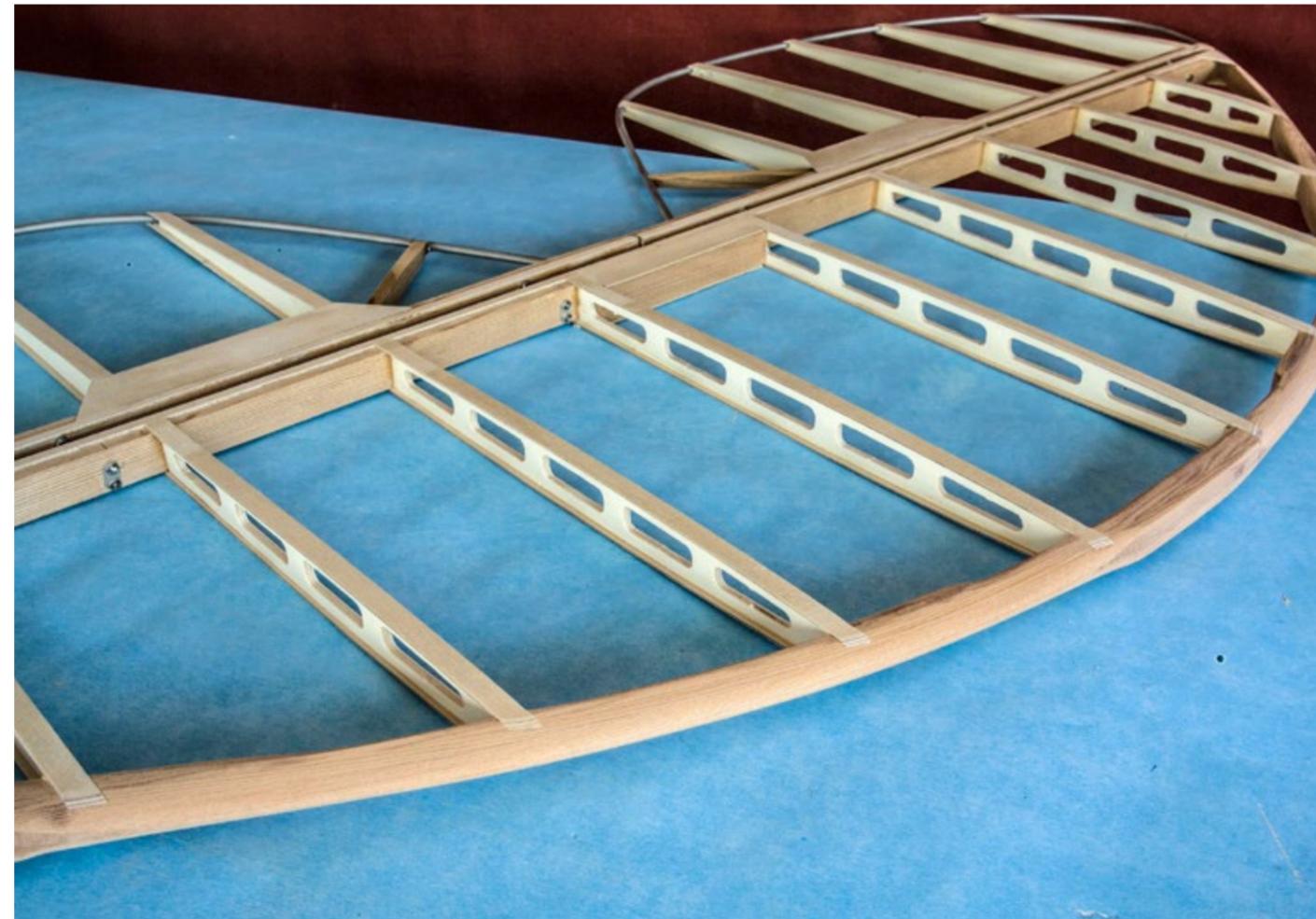
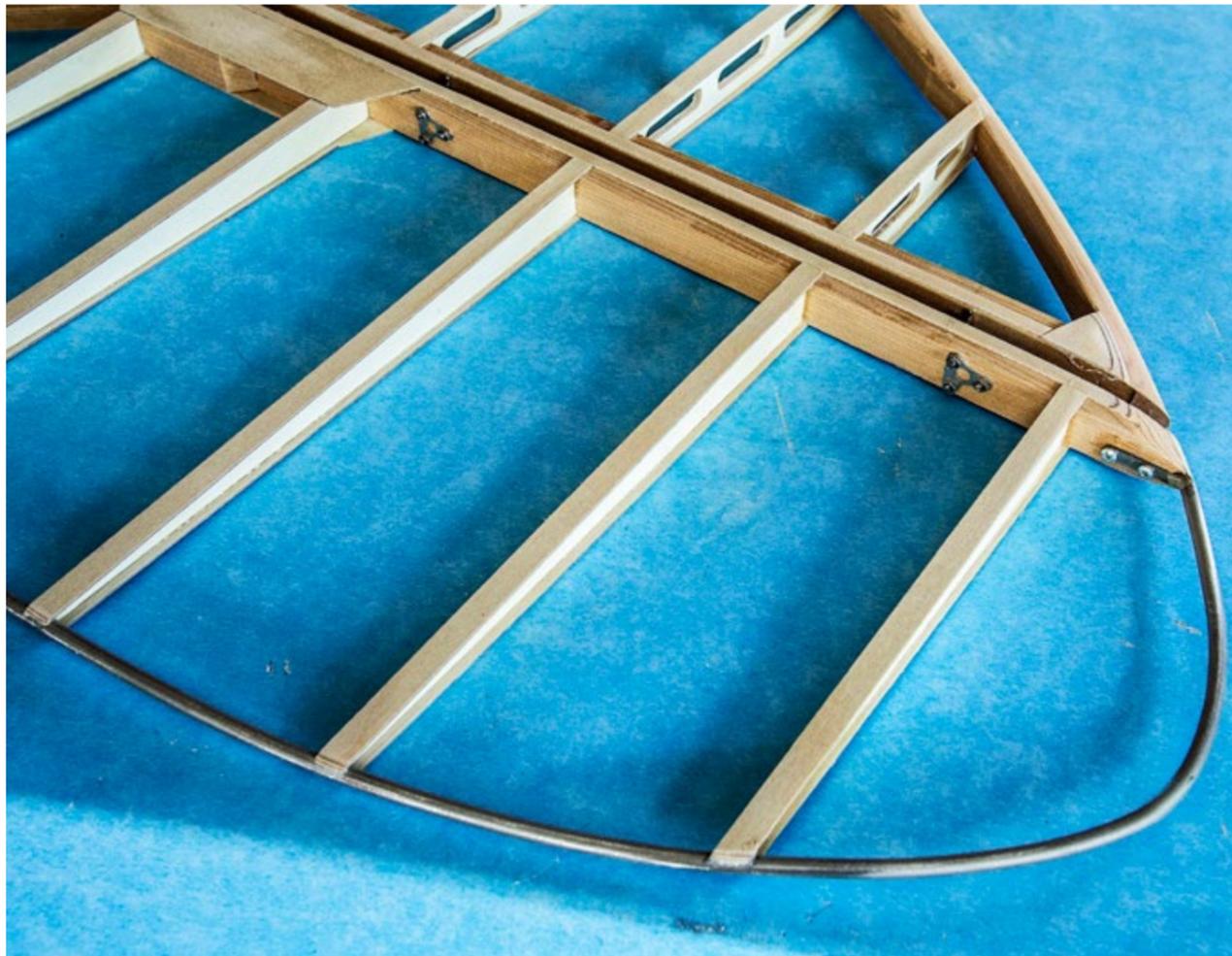
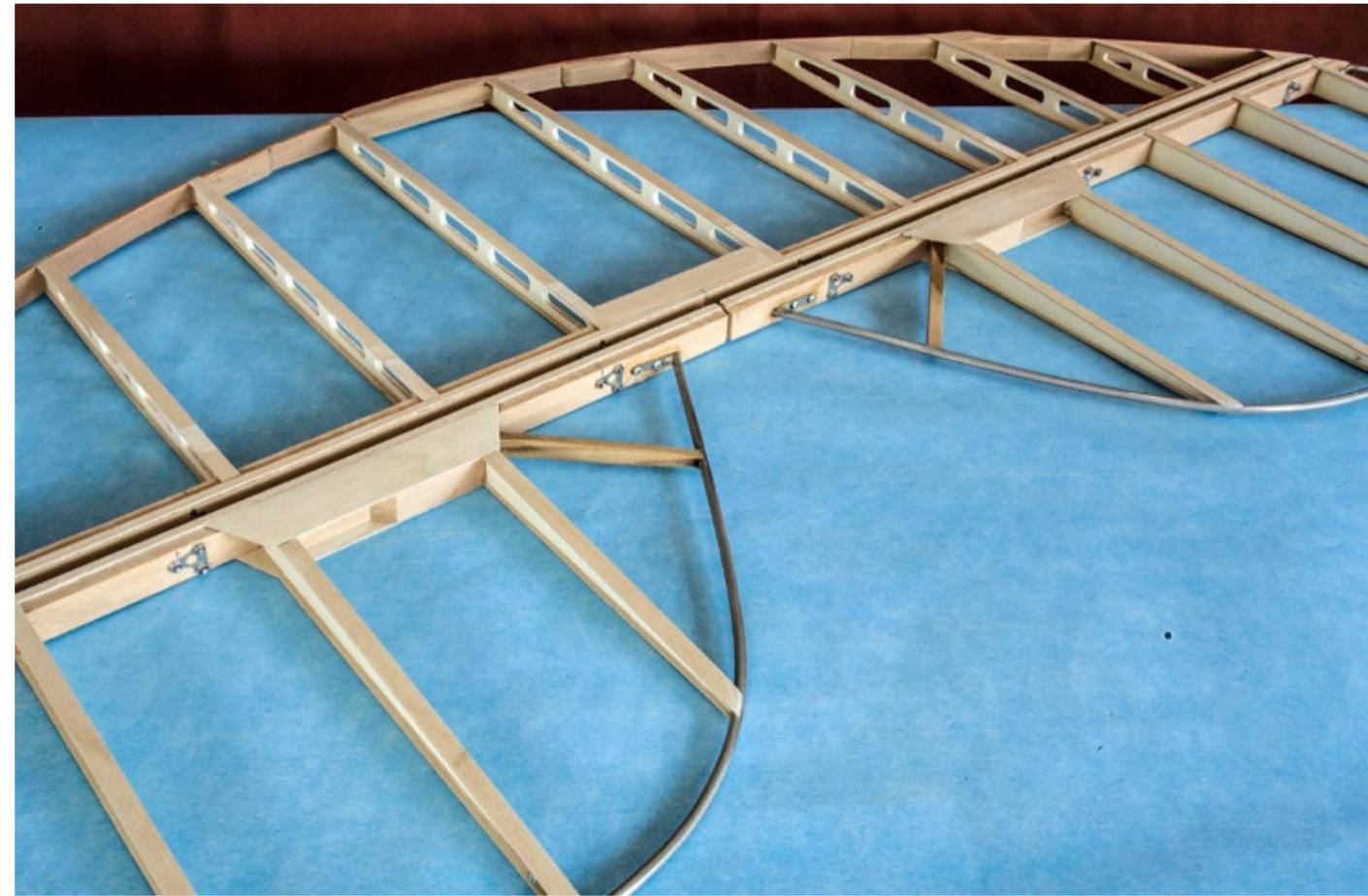
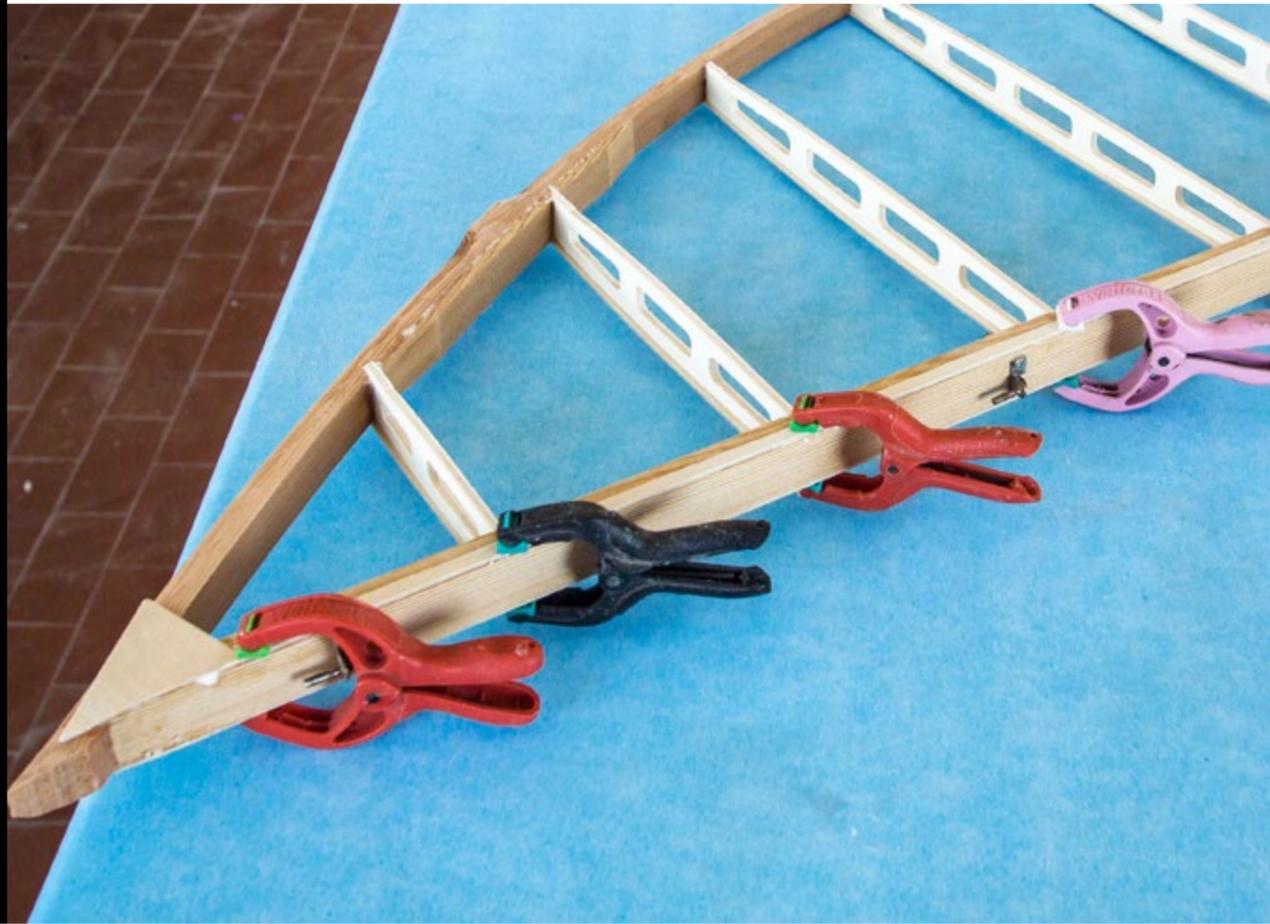
NAIL A STRIP UP TO 10 MM THICK NEXT TO EACH RIB, COVER EACH STRIP WITH SELLOTAPE TO PREVENT GLUING.

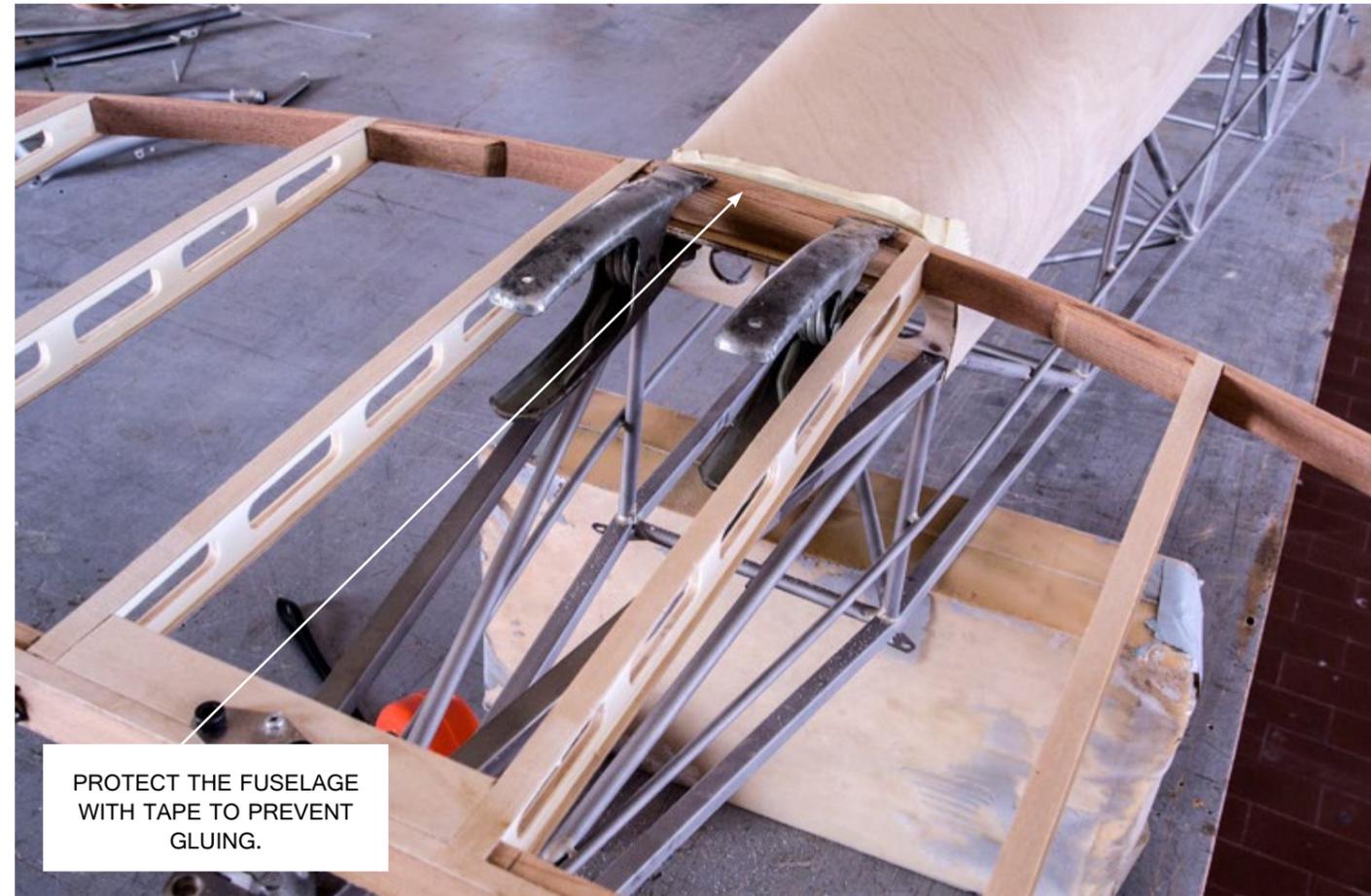
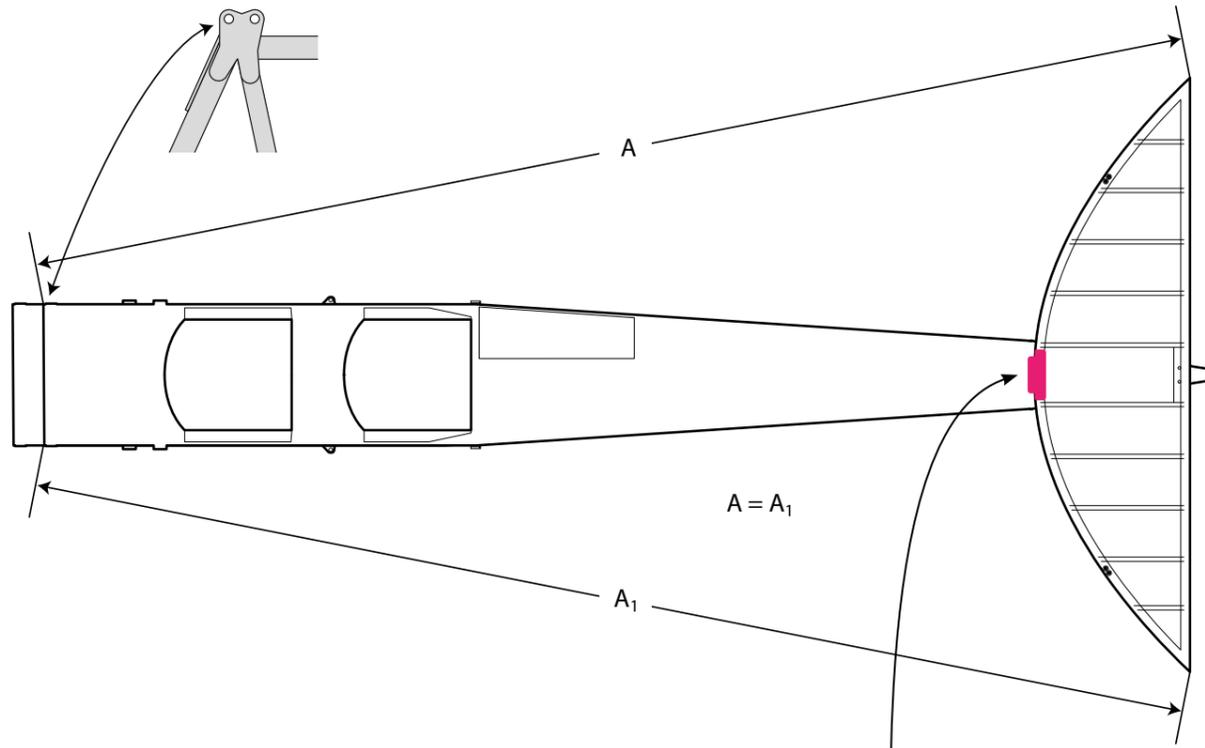


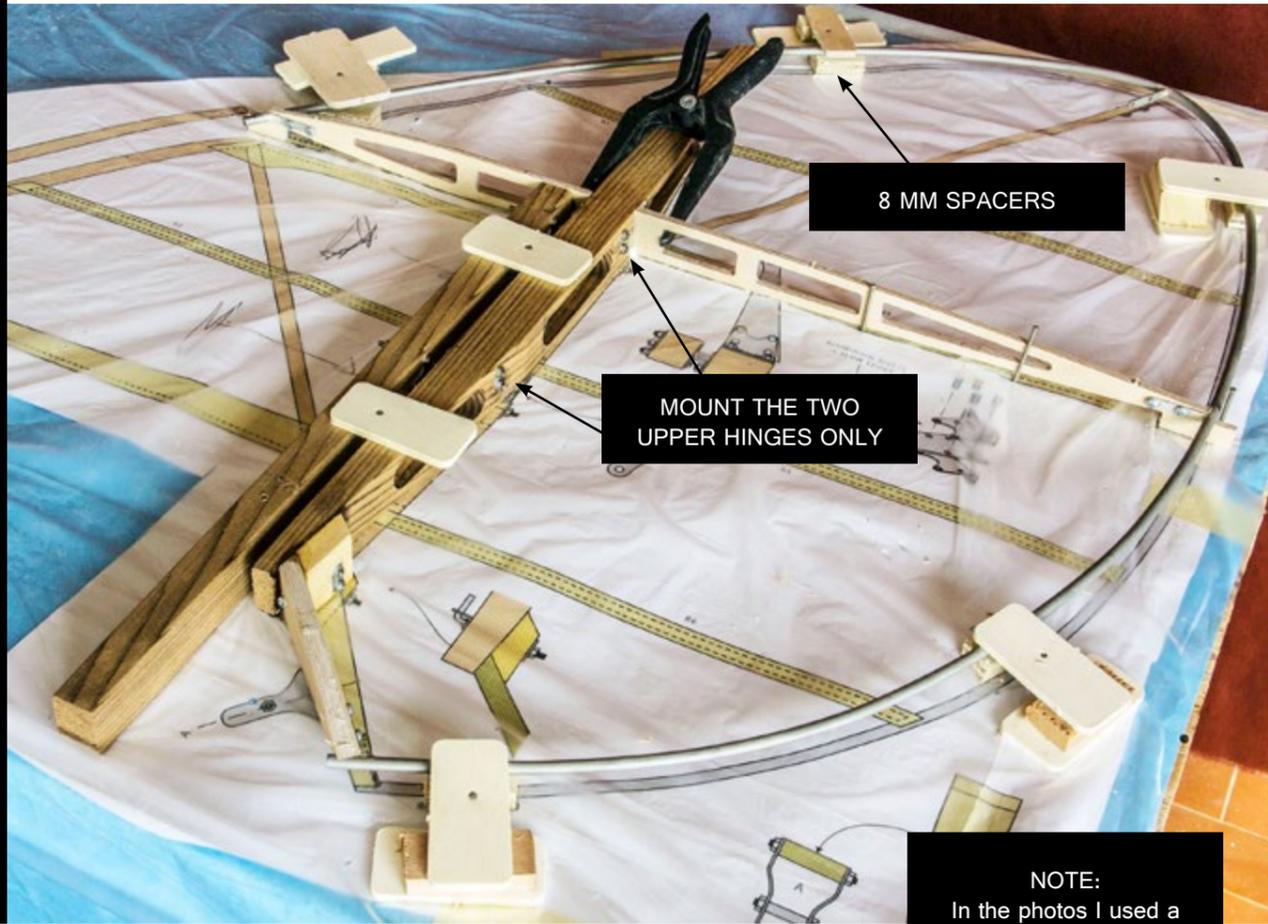
ADD REINFORCING STRIPS AS SHOWN IN DRAWING



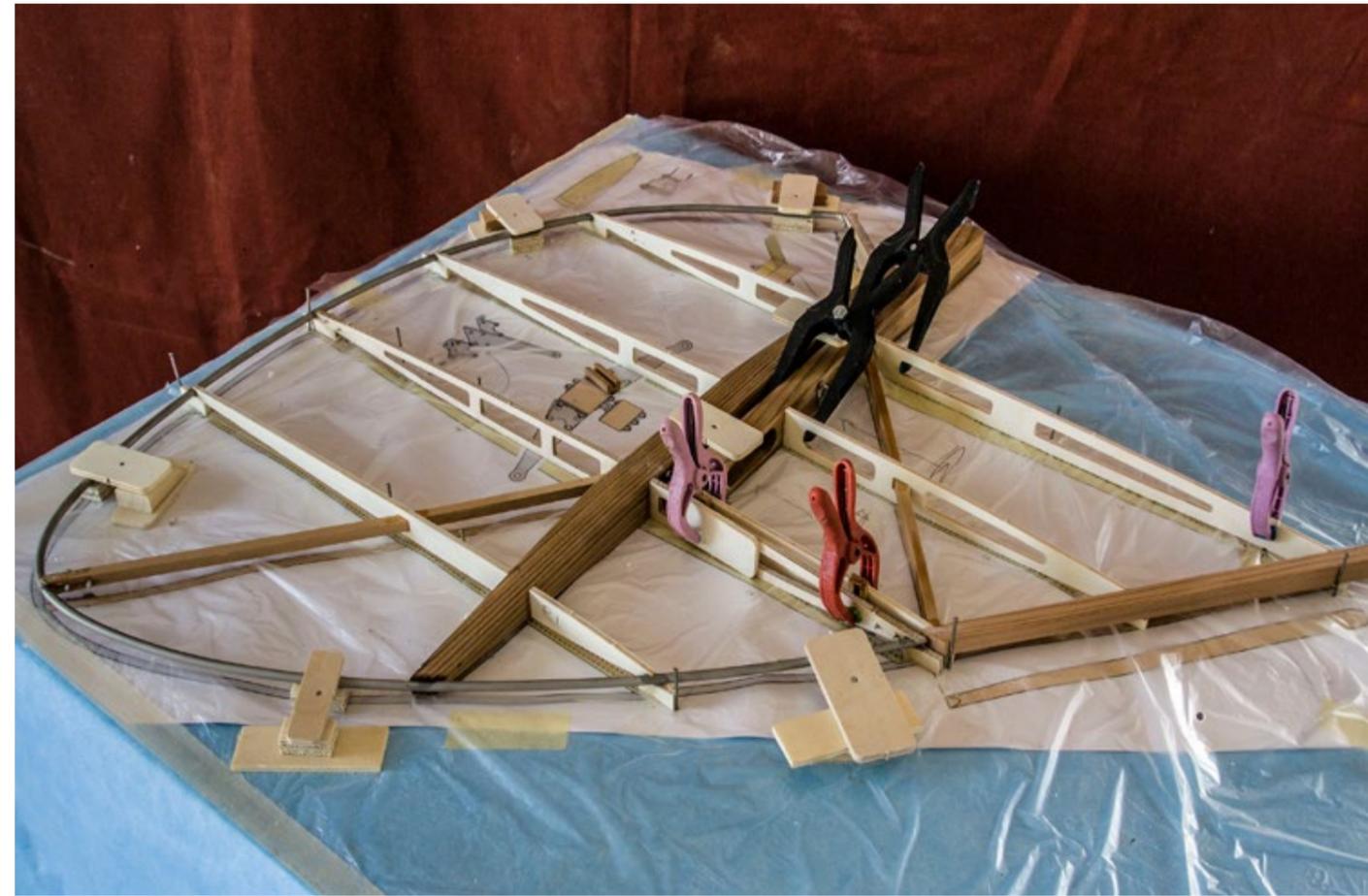


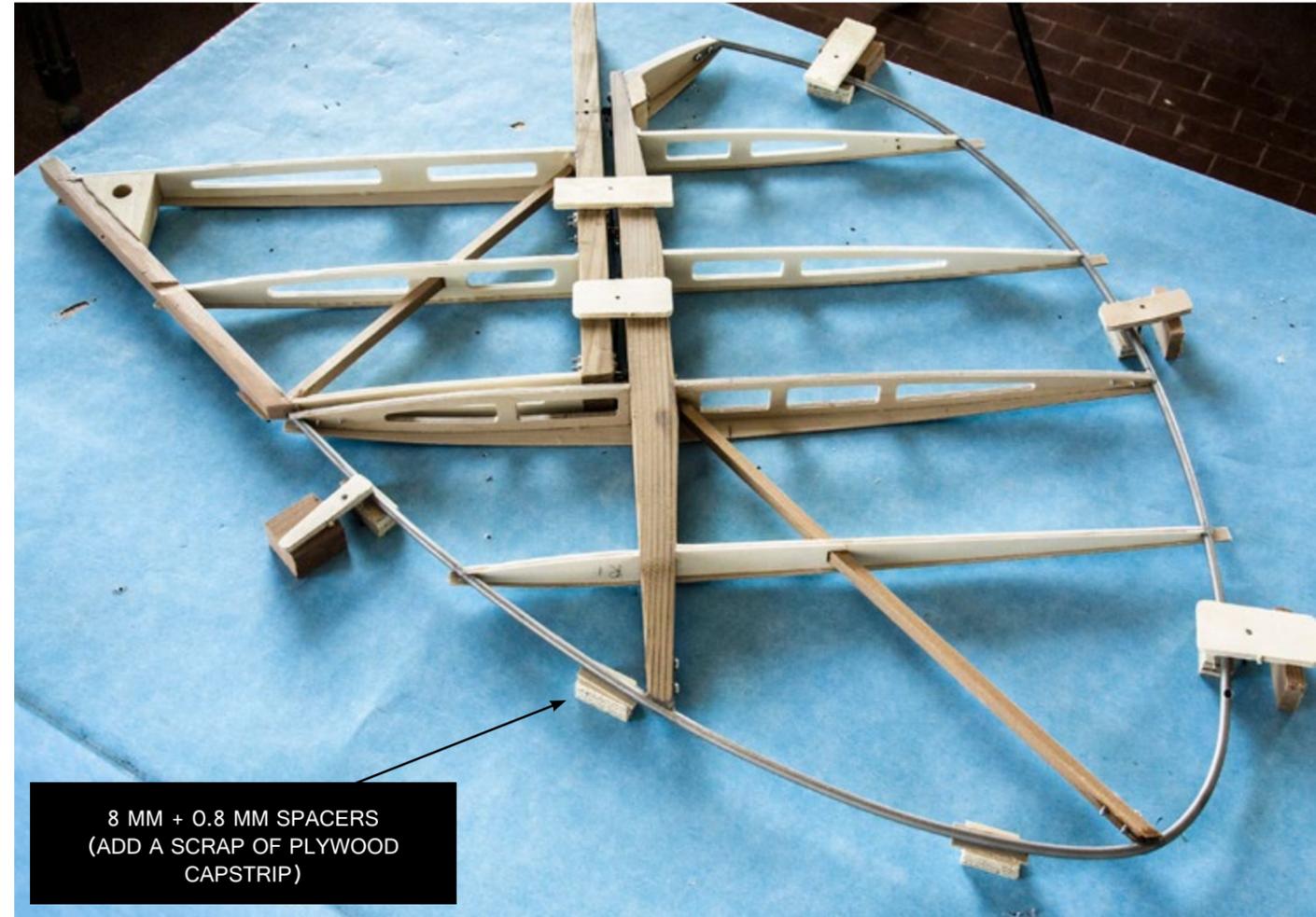
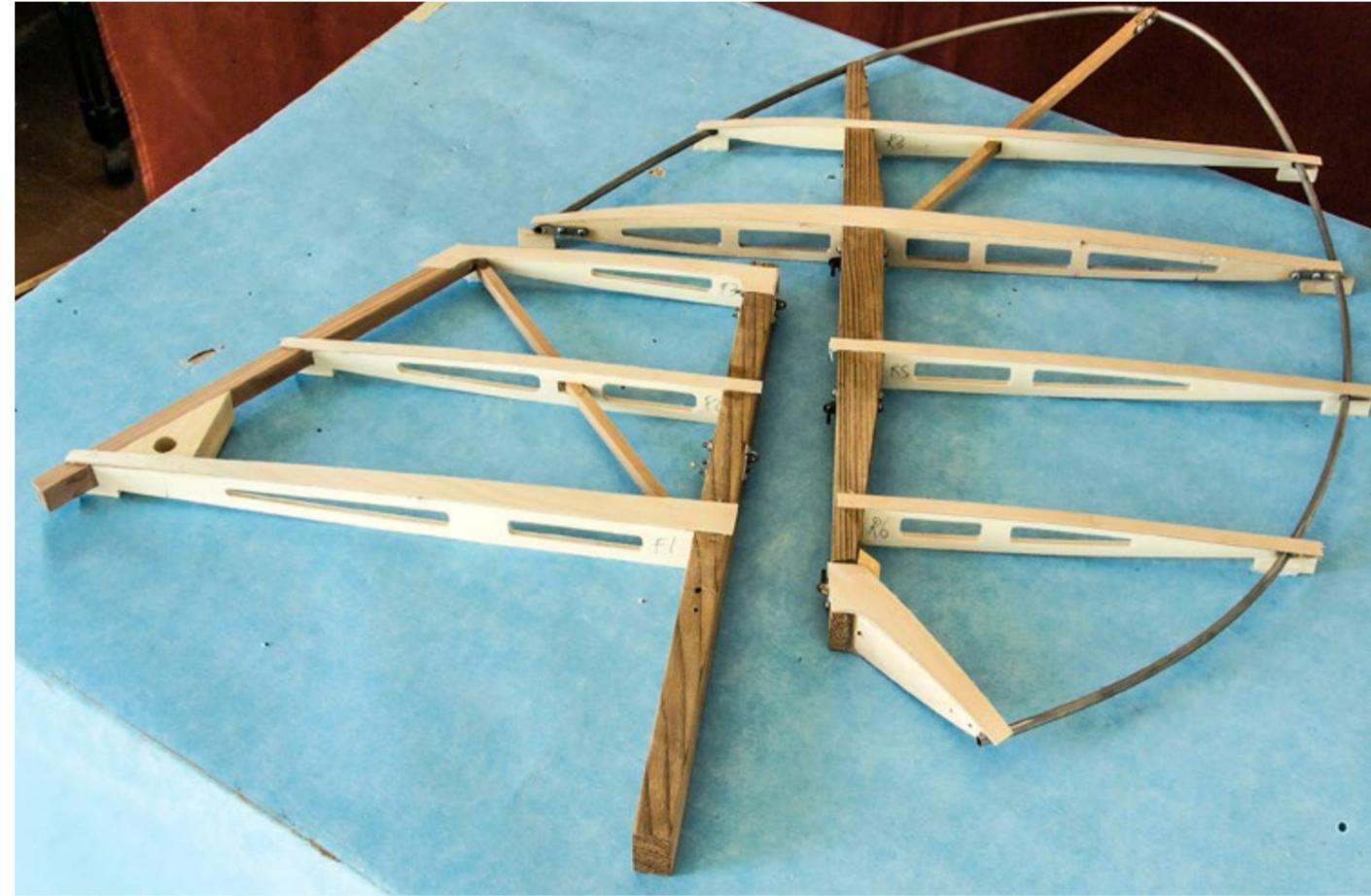


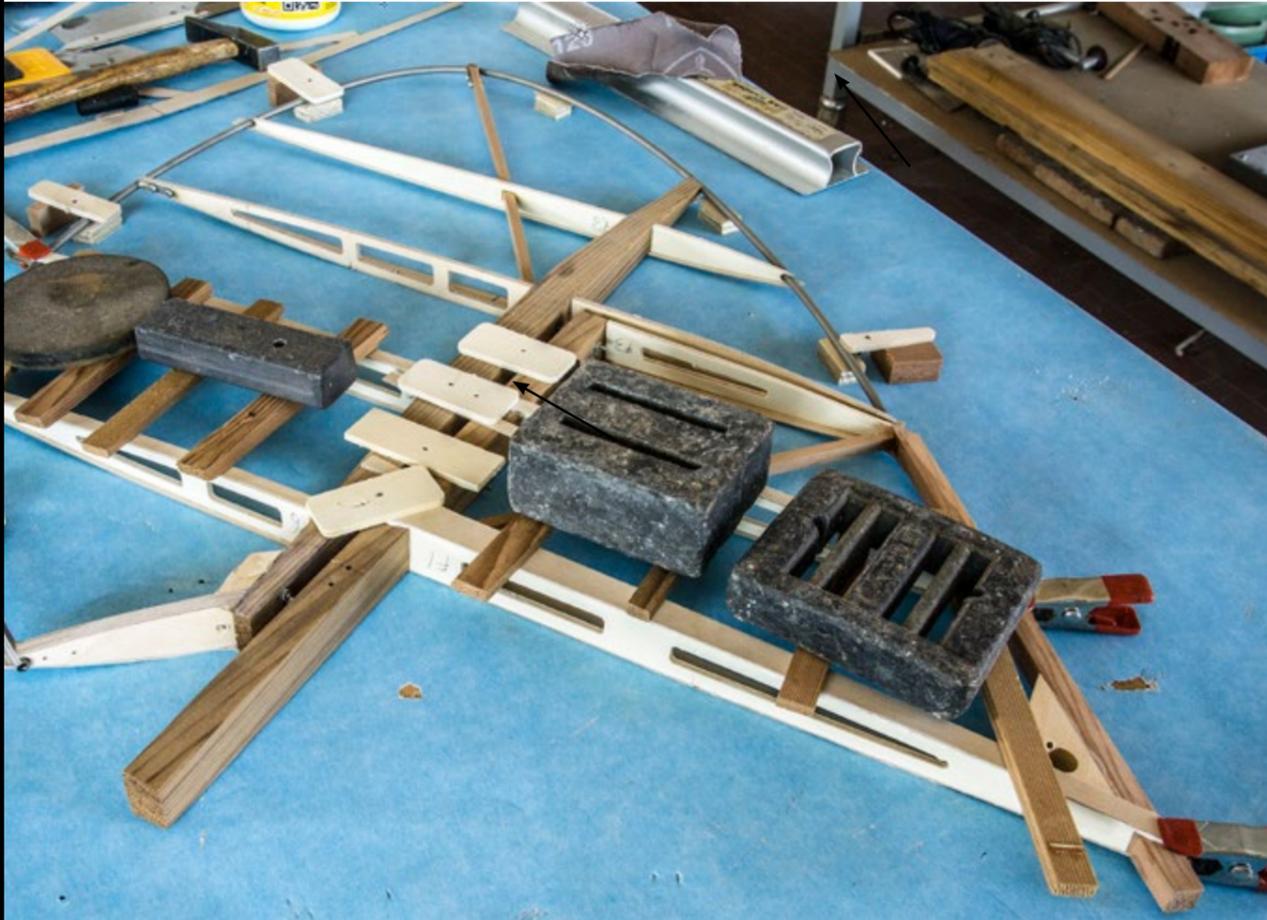


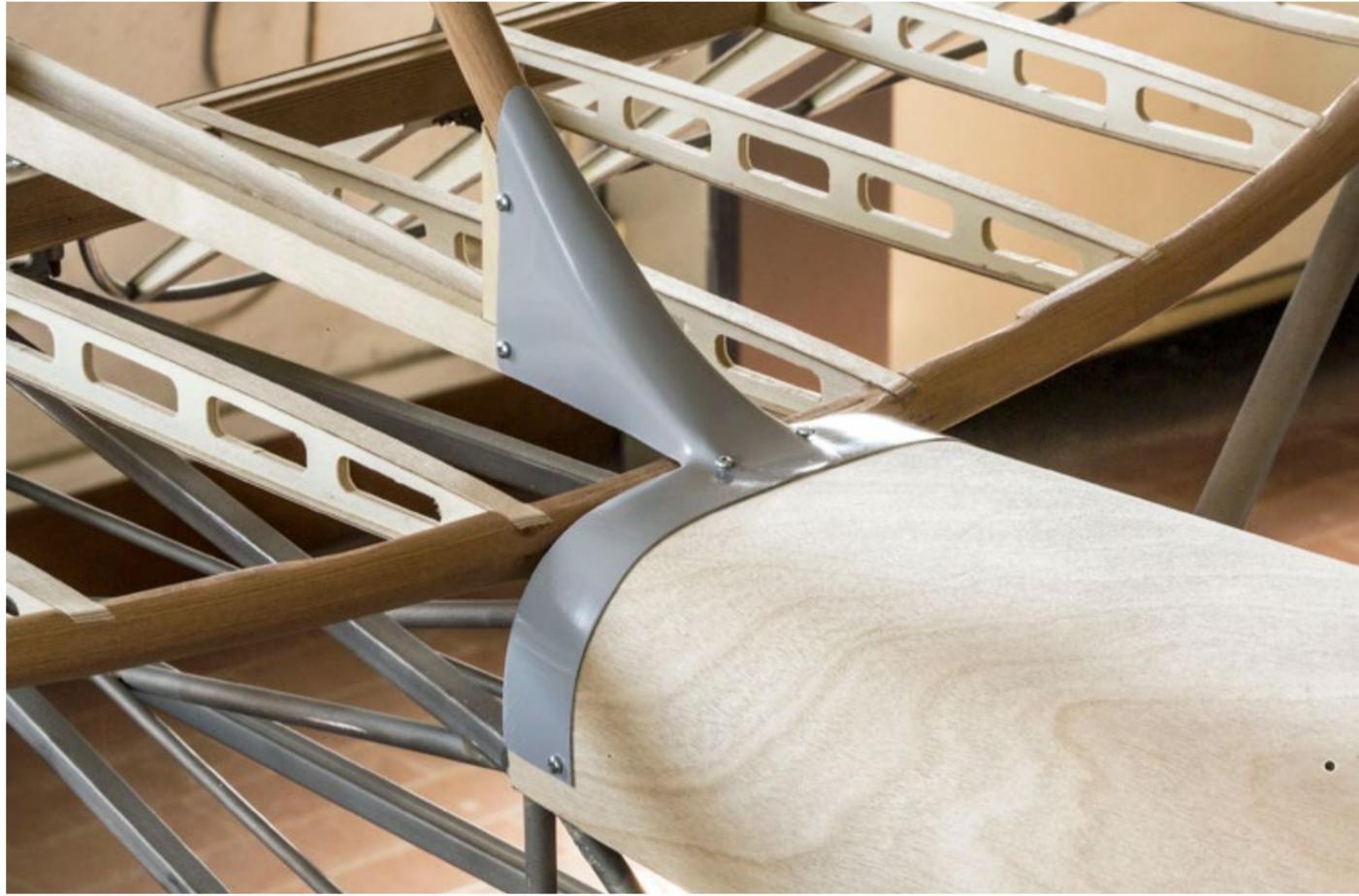


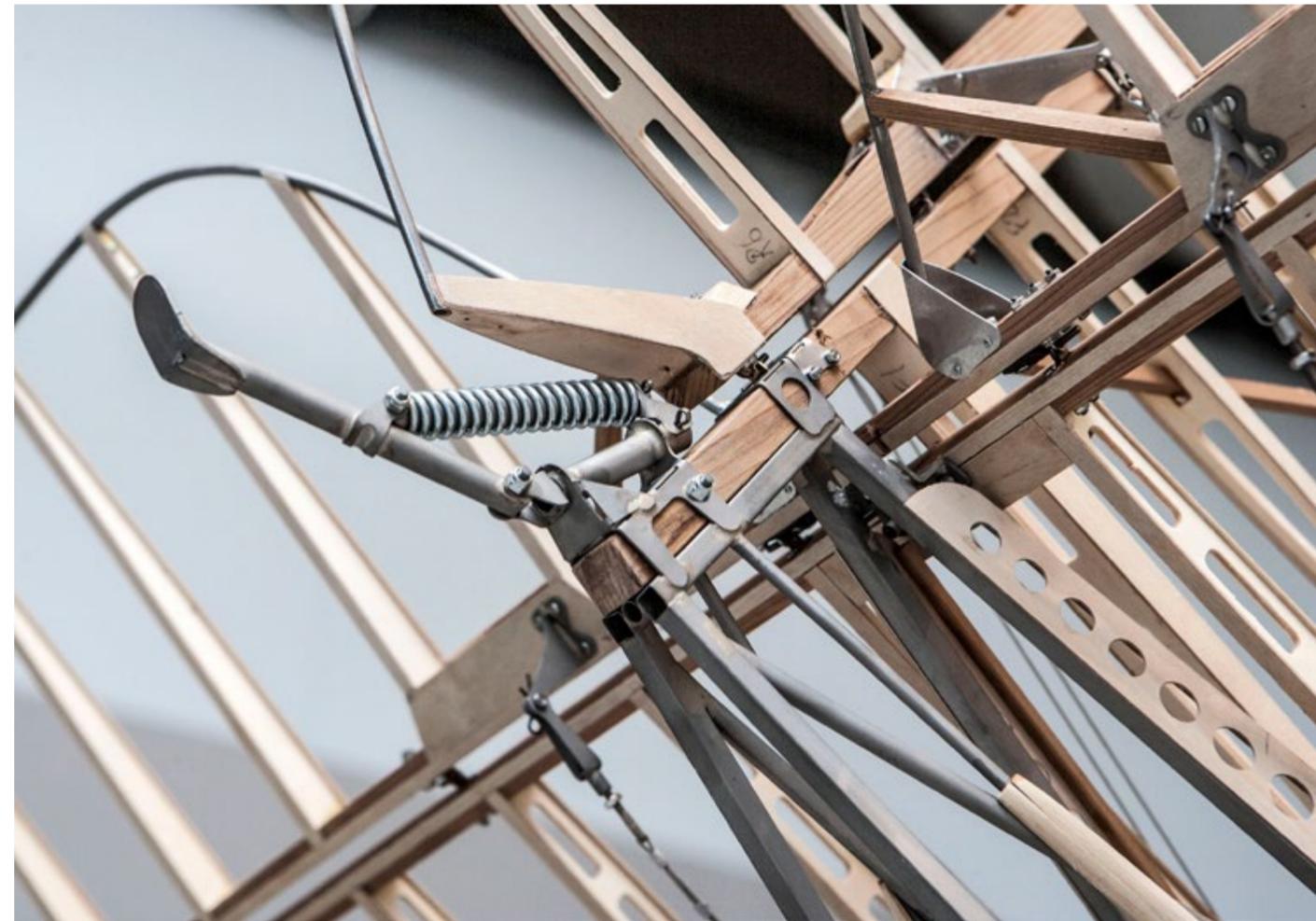
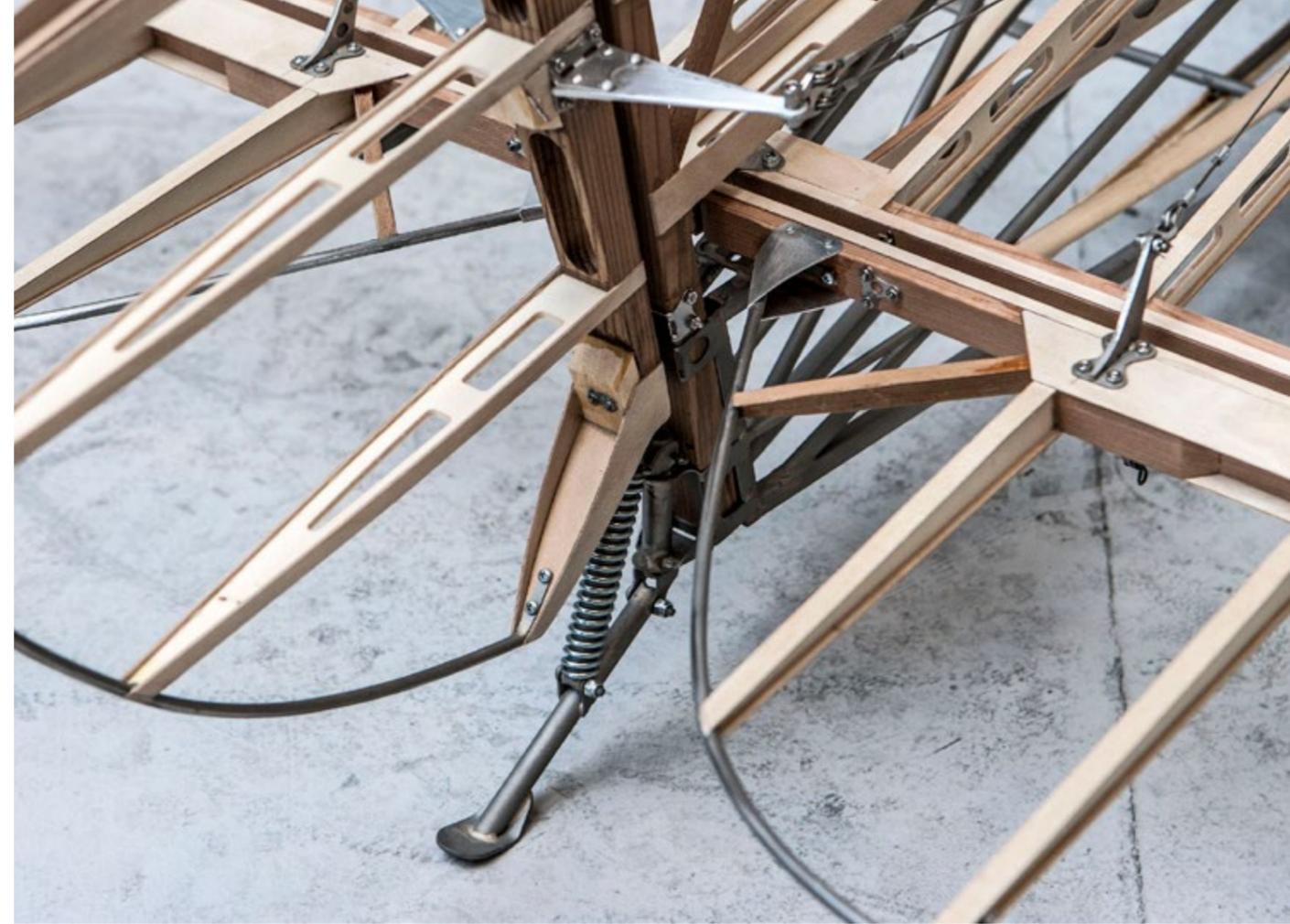
NOTE:
In the photos I used a preliminary drawing, you will find some differences to the drawing you have.



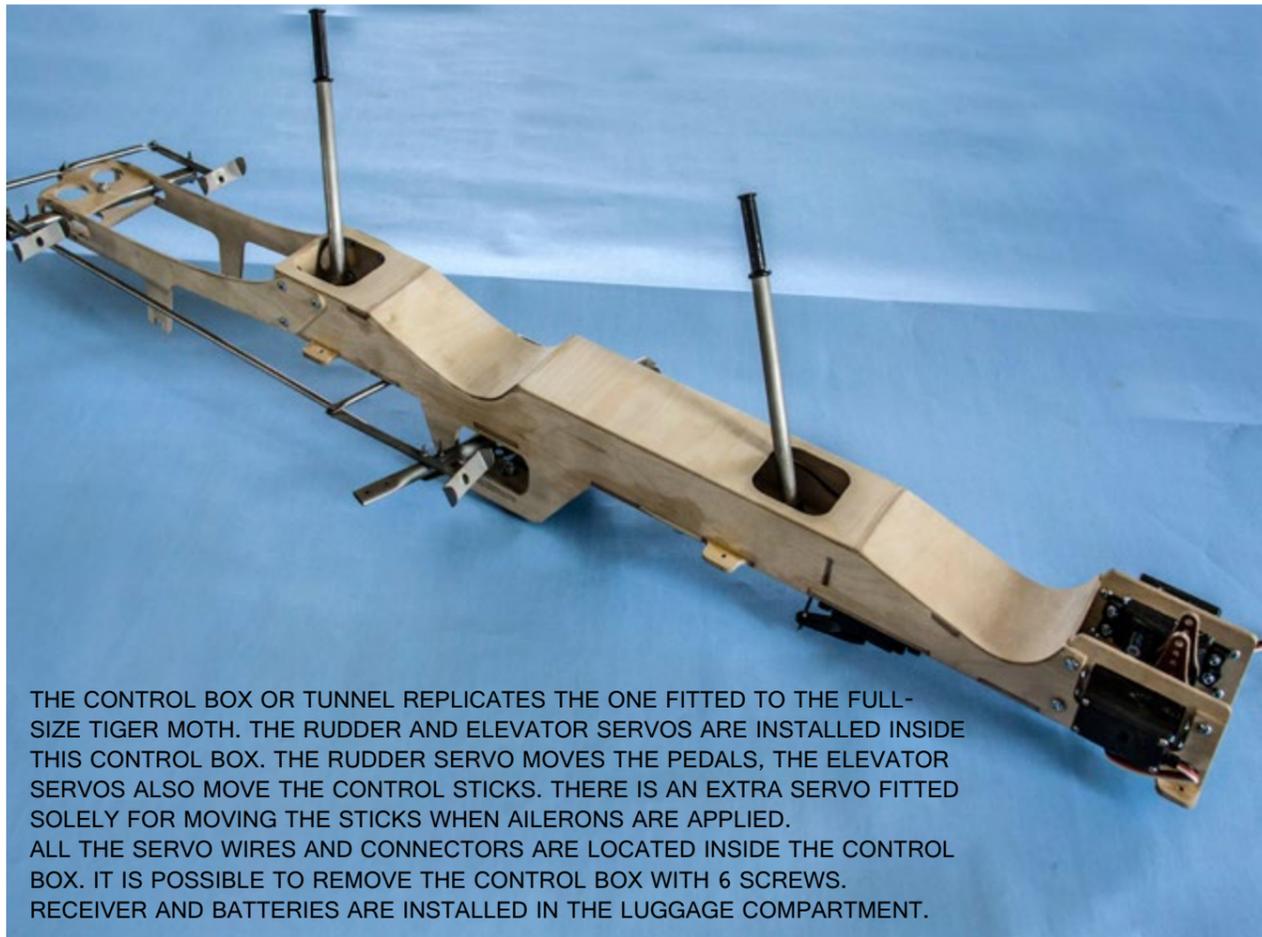
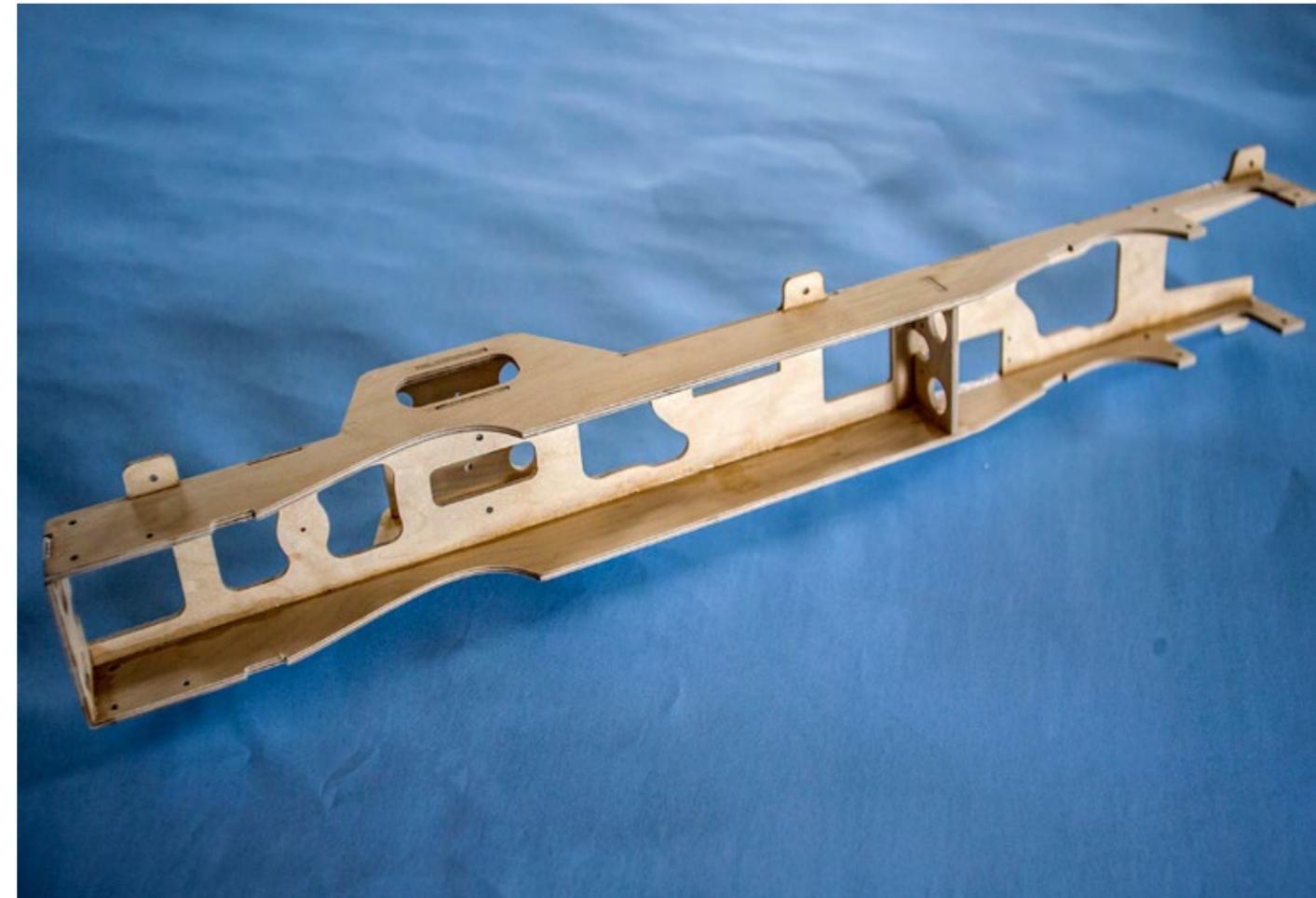
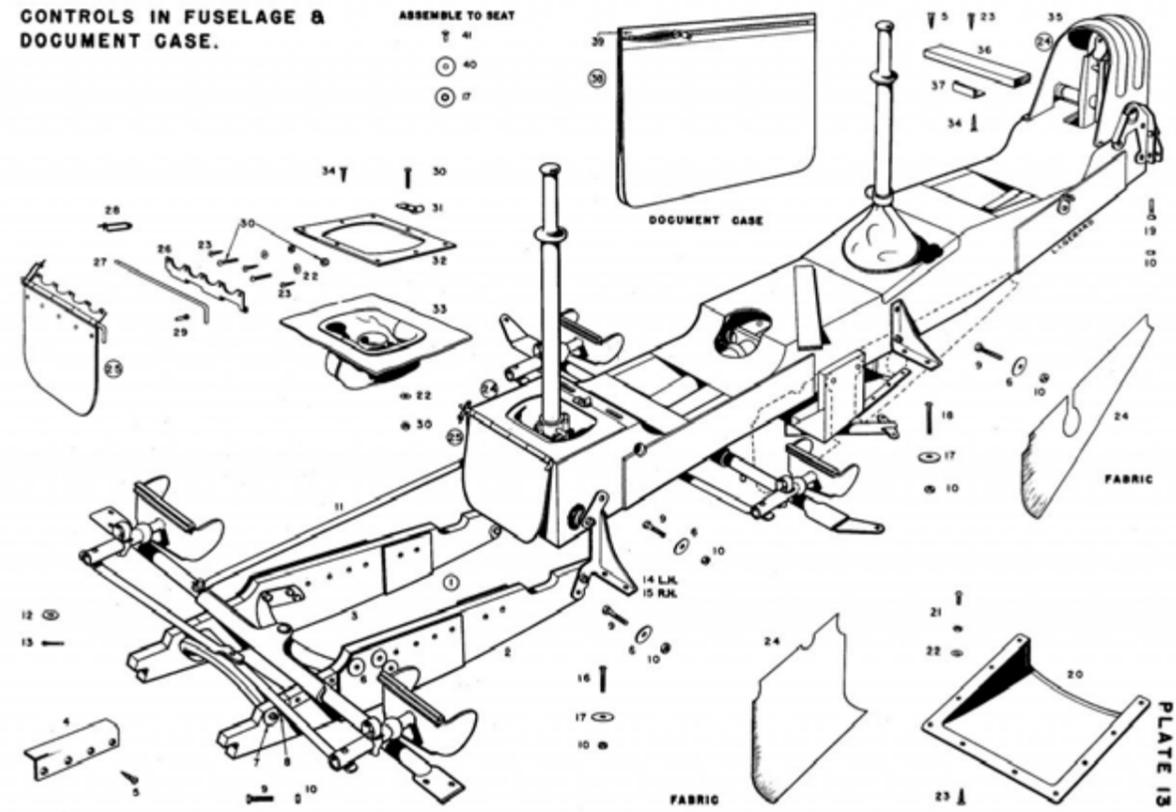






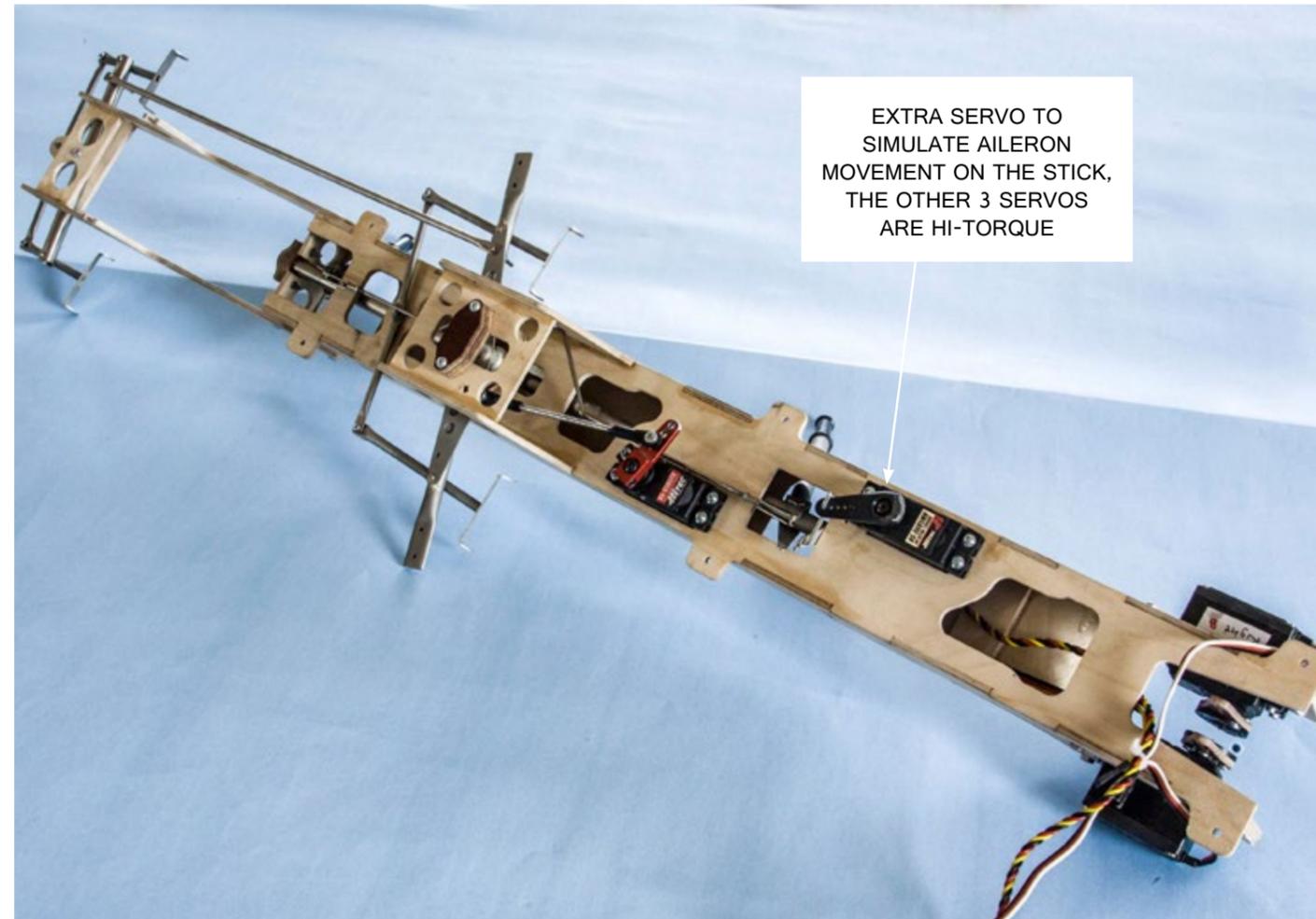
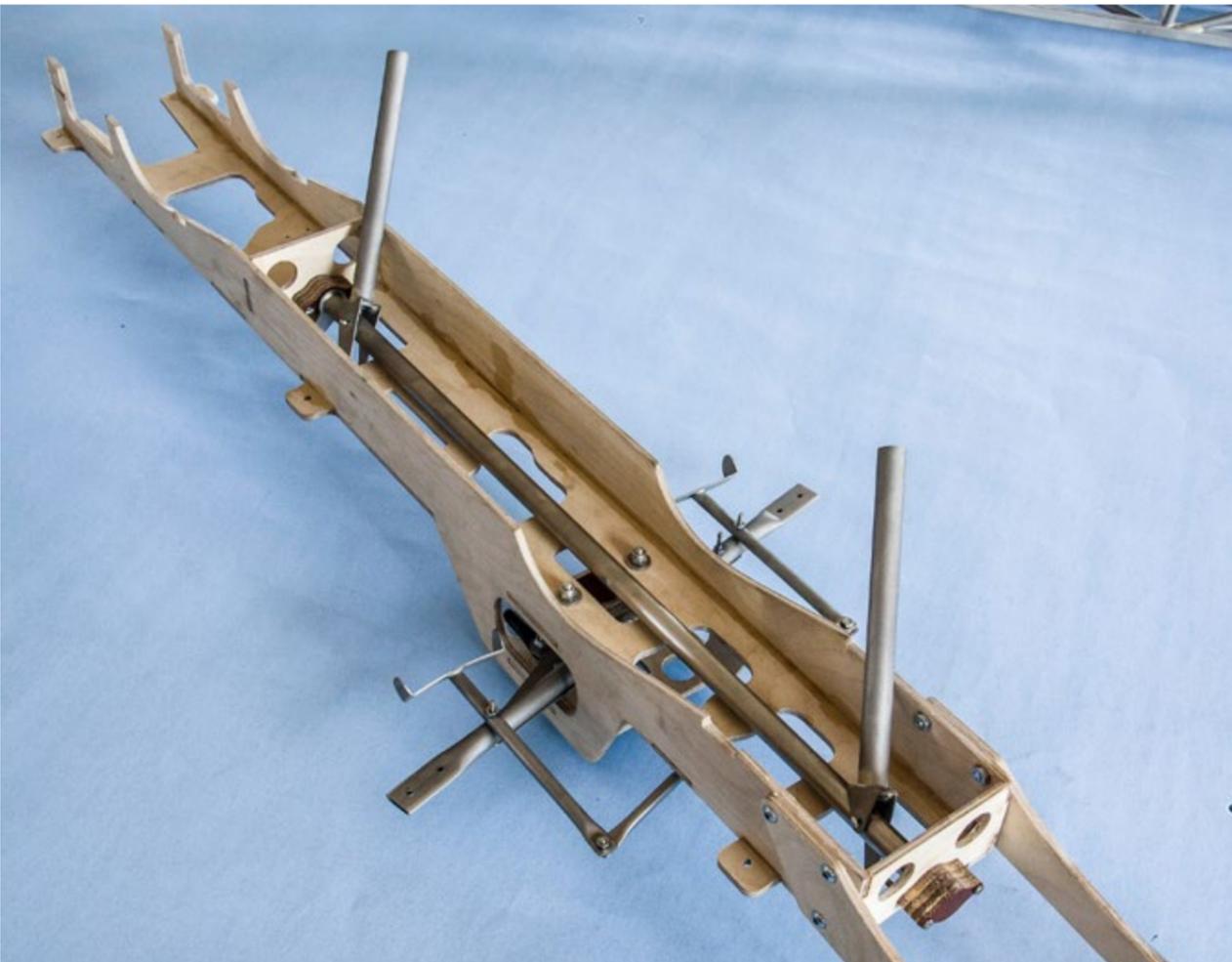
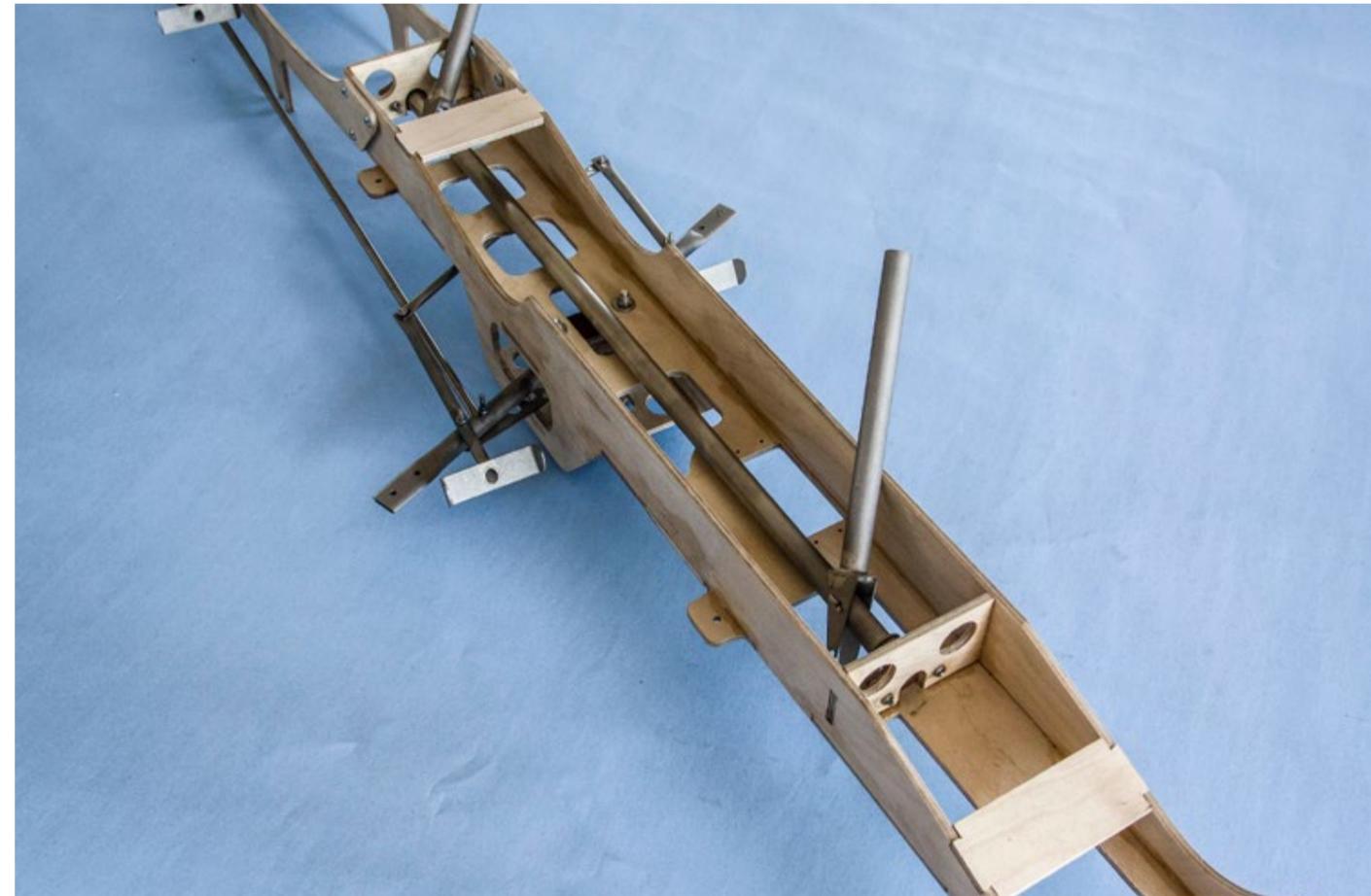
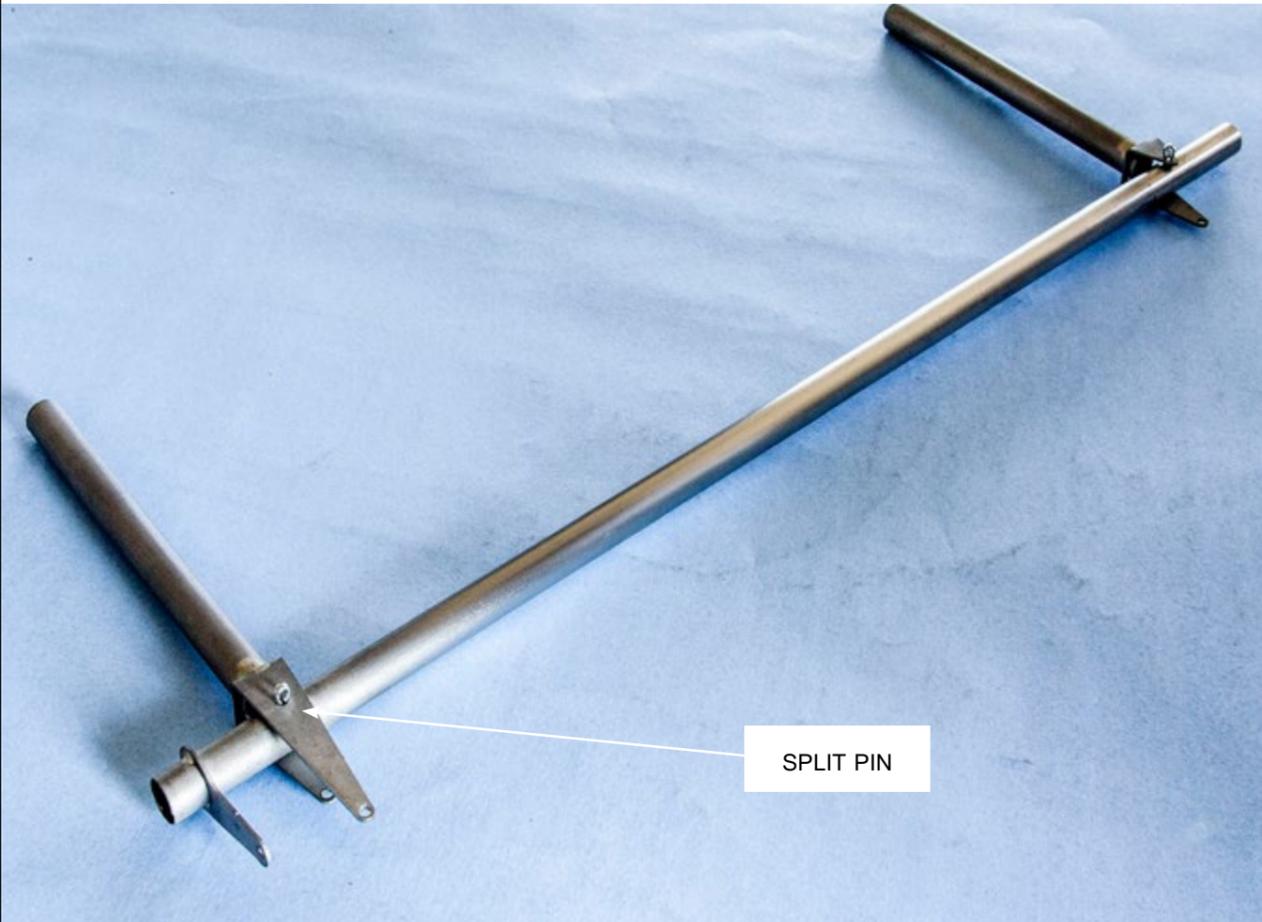


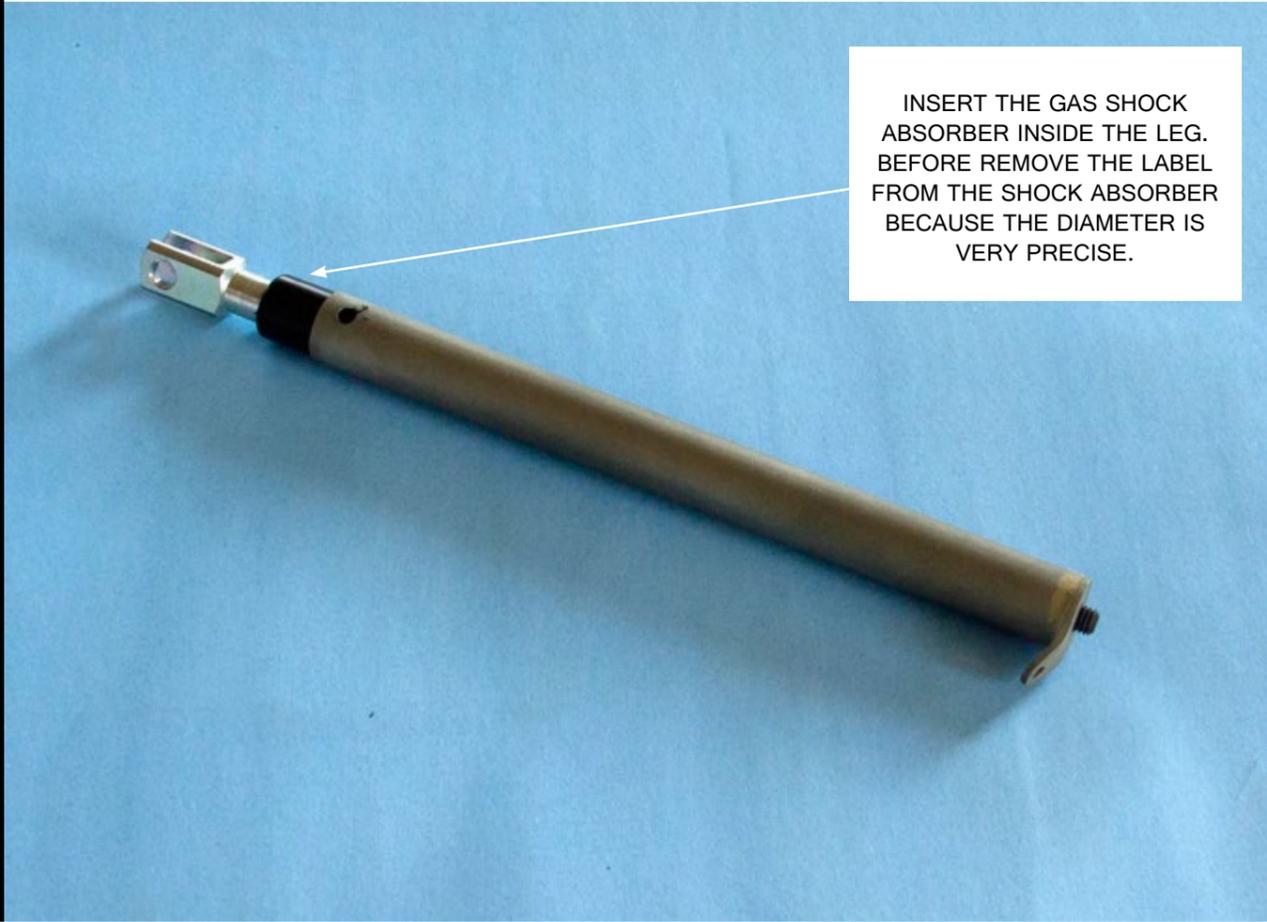
THE FULL-SIZE TIGER MOTH CONTROL BOX

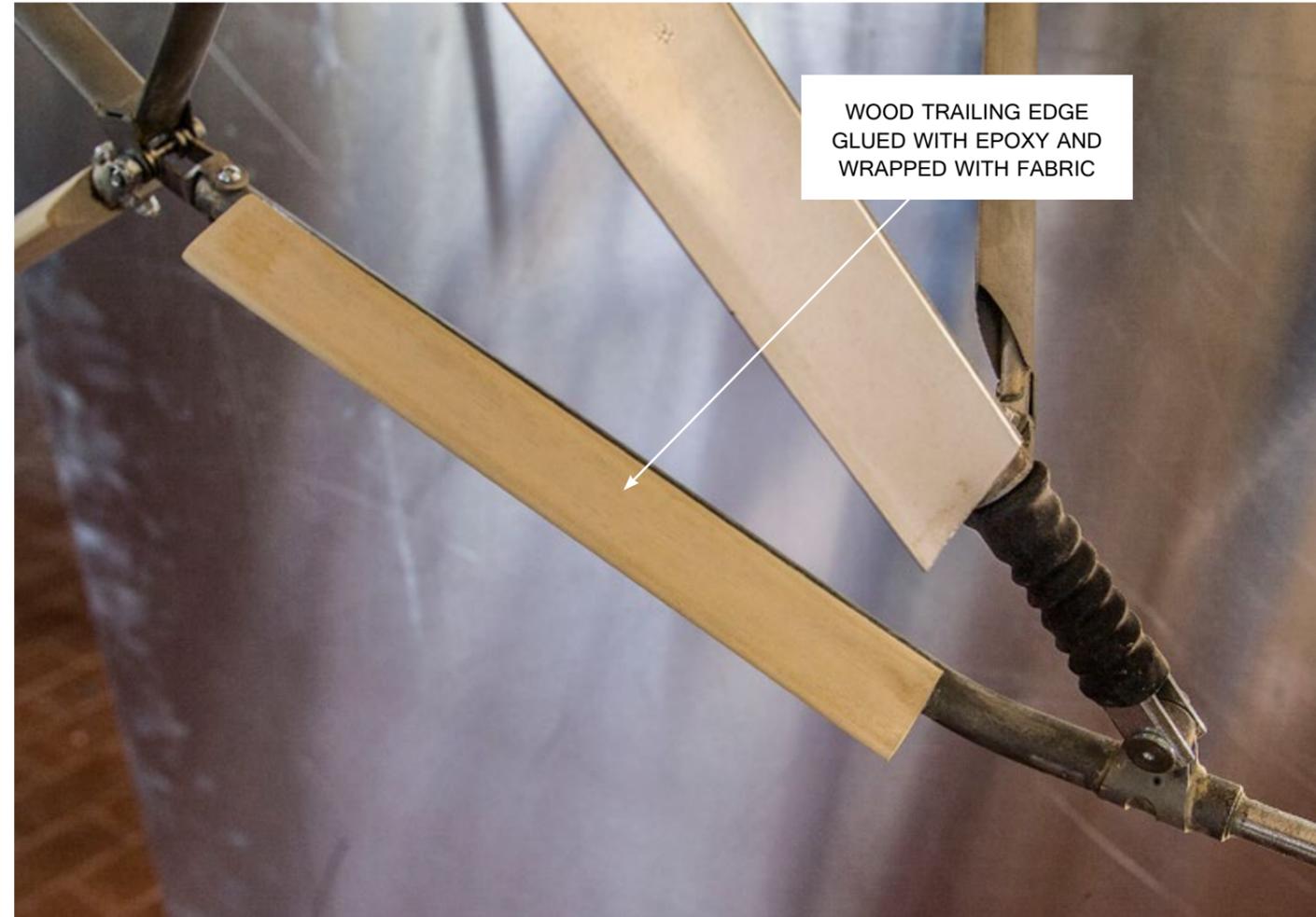
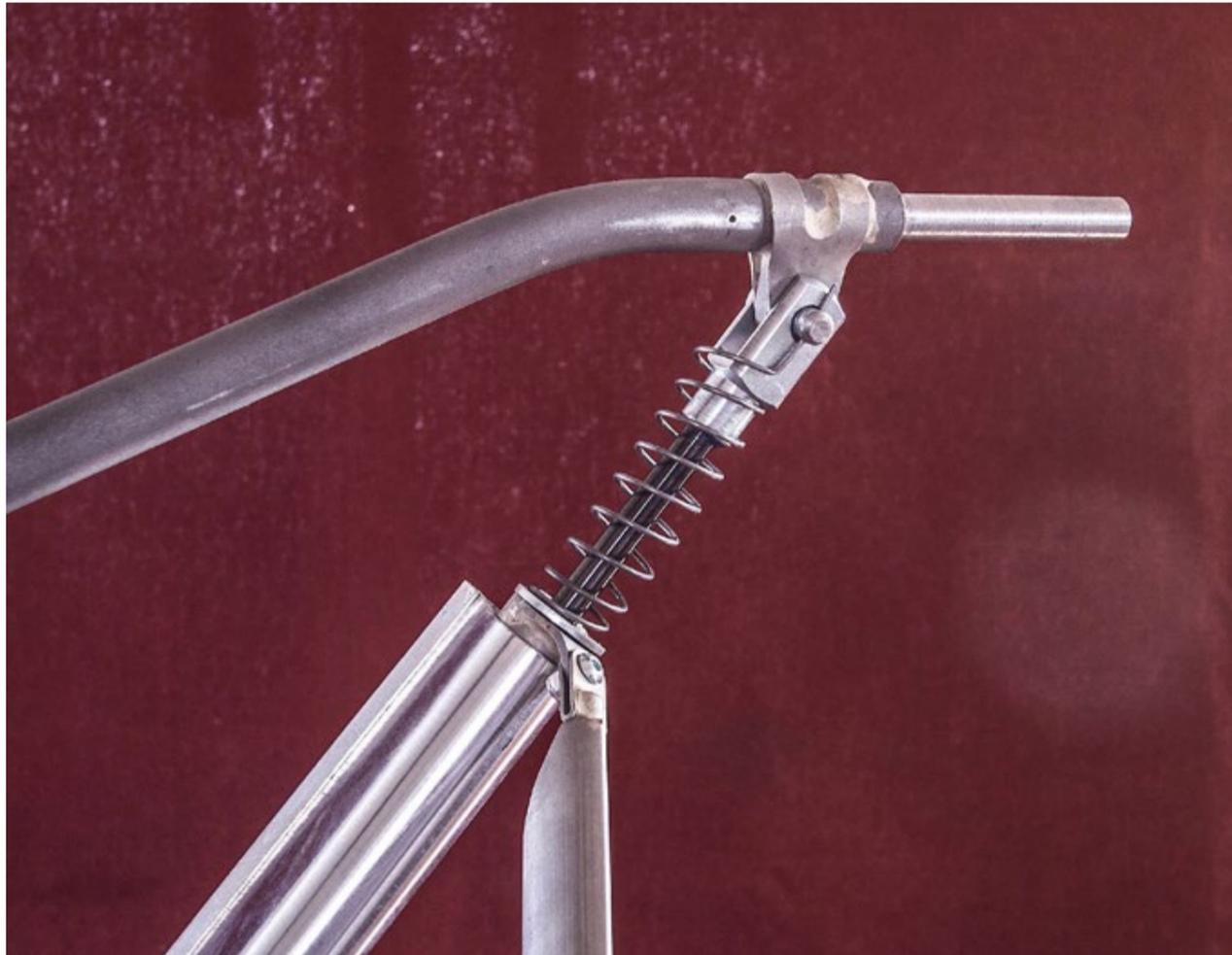
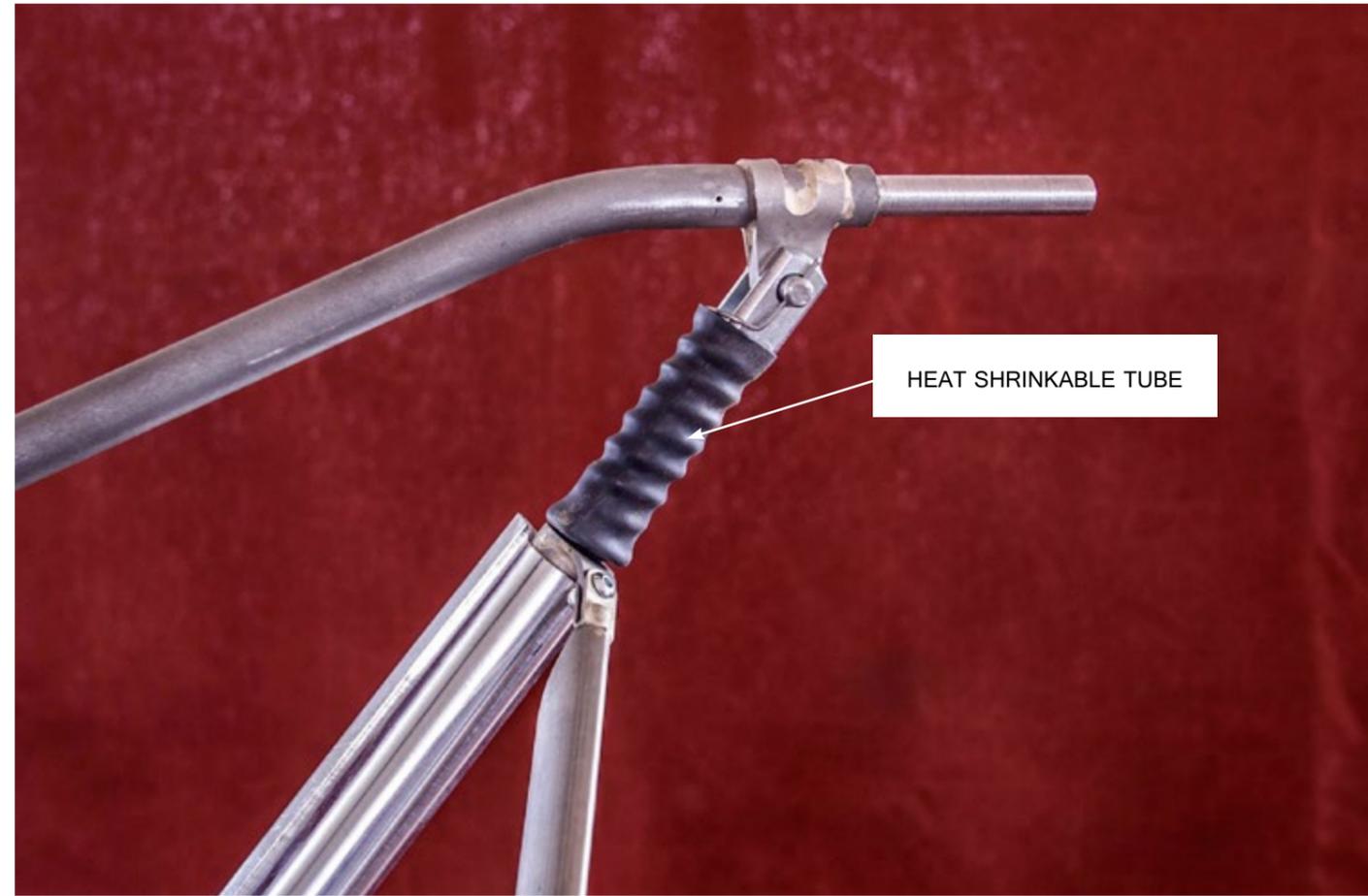
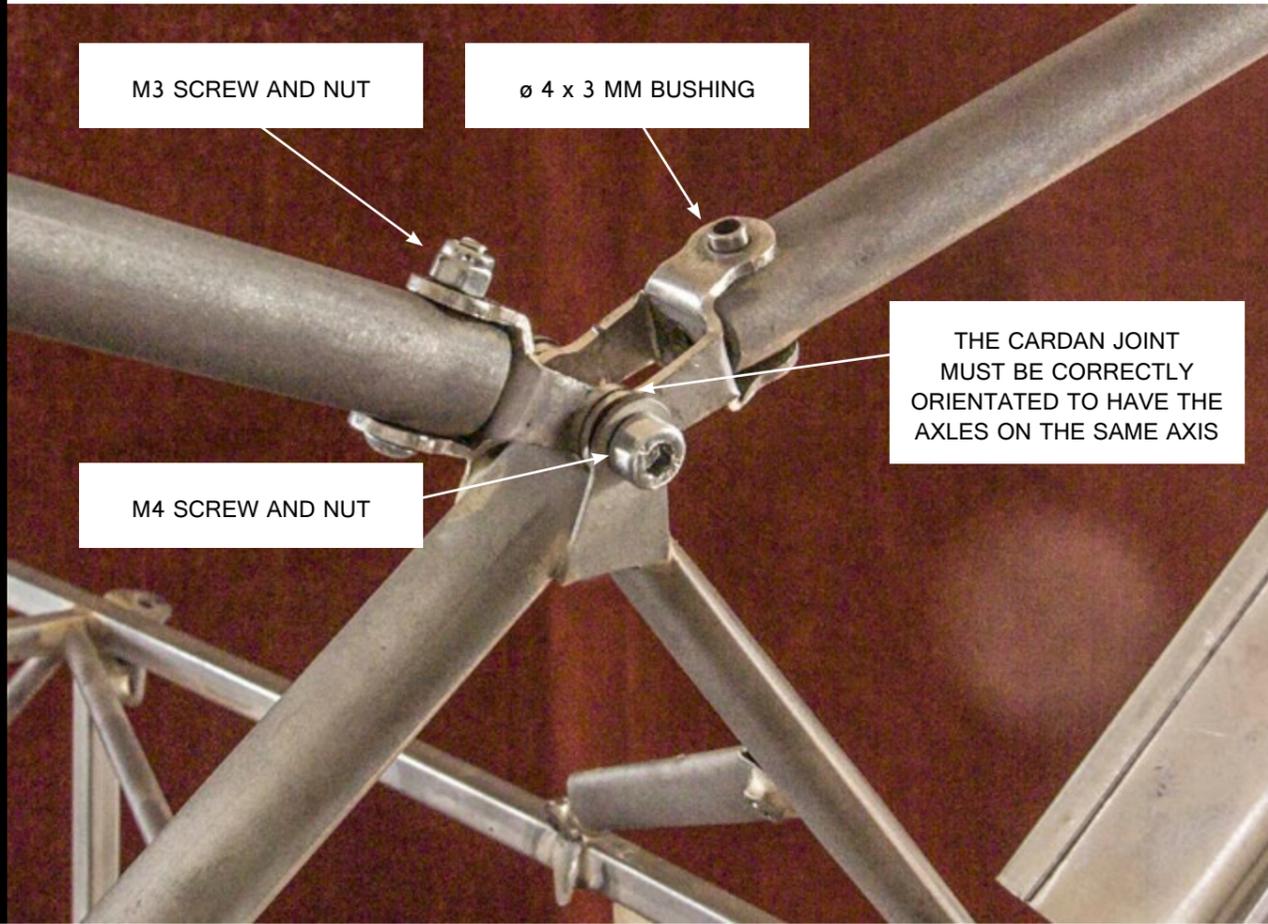


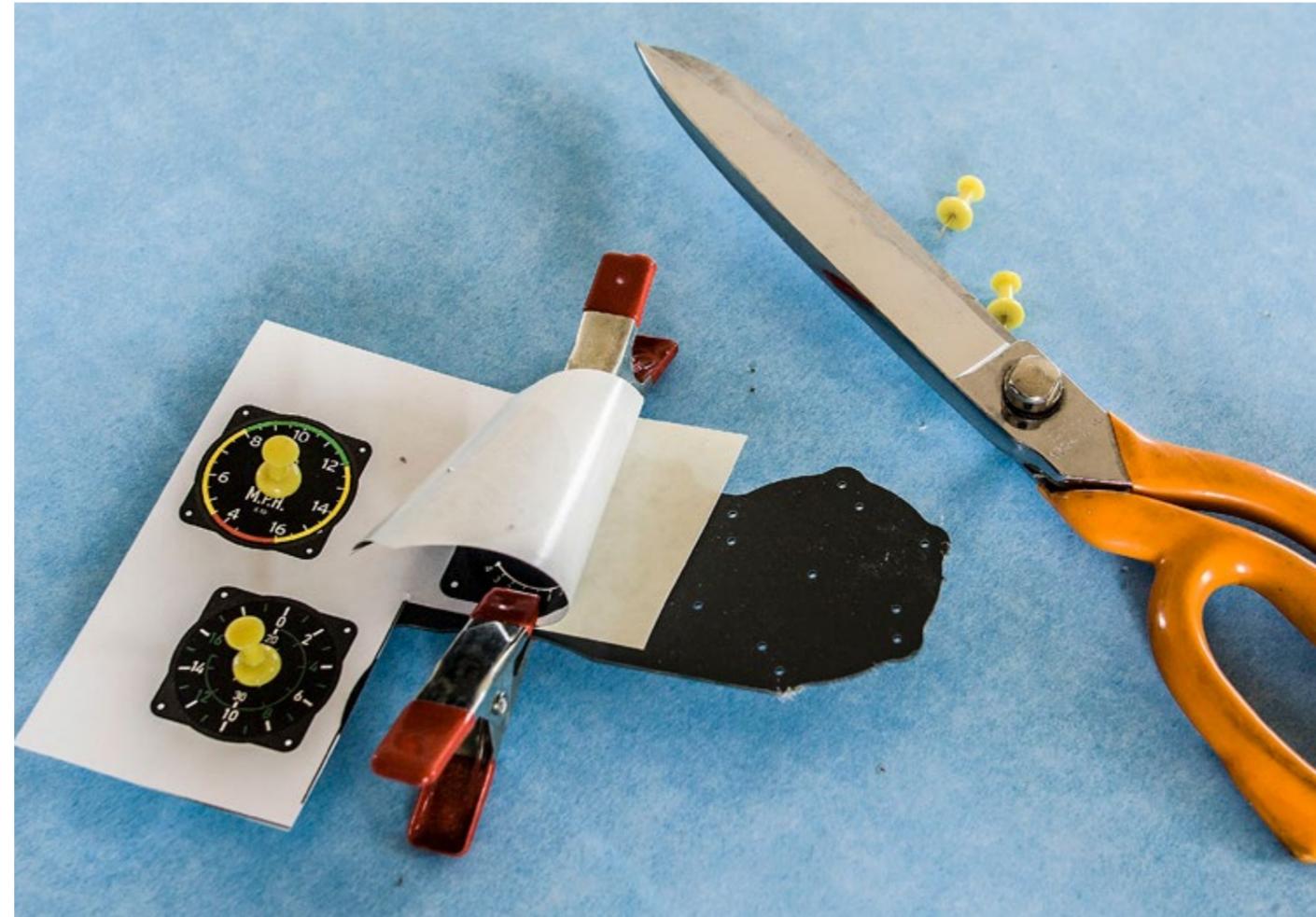
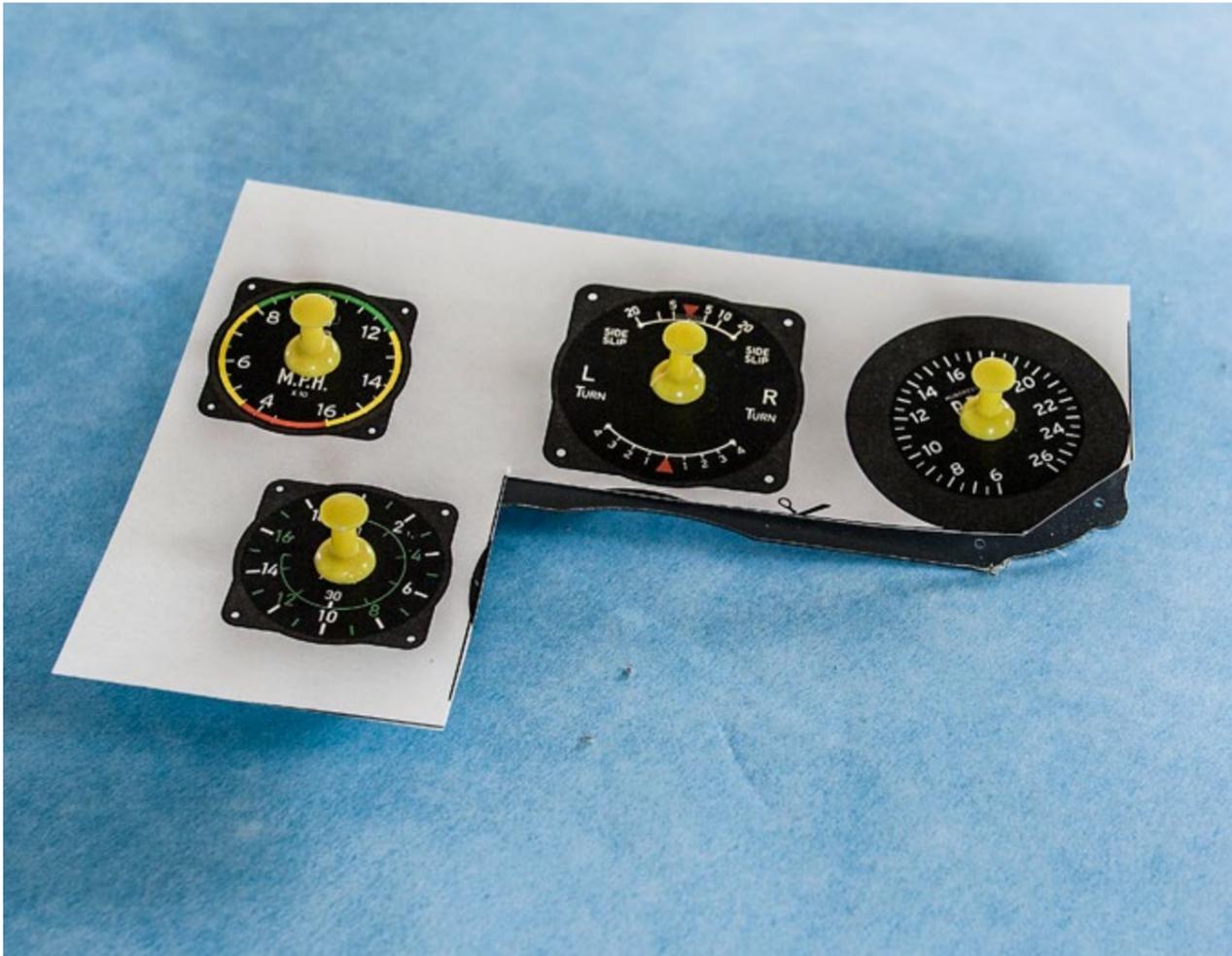
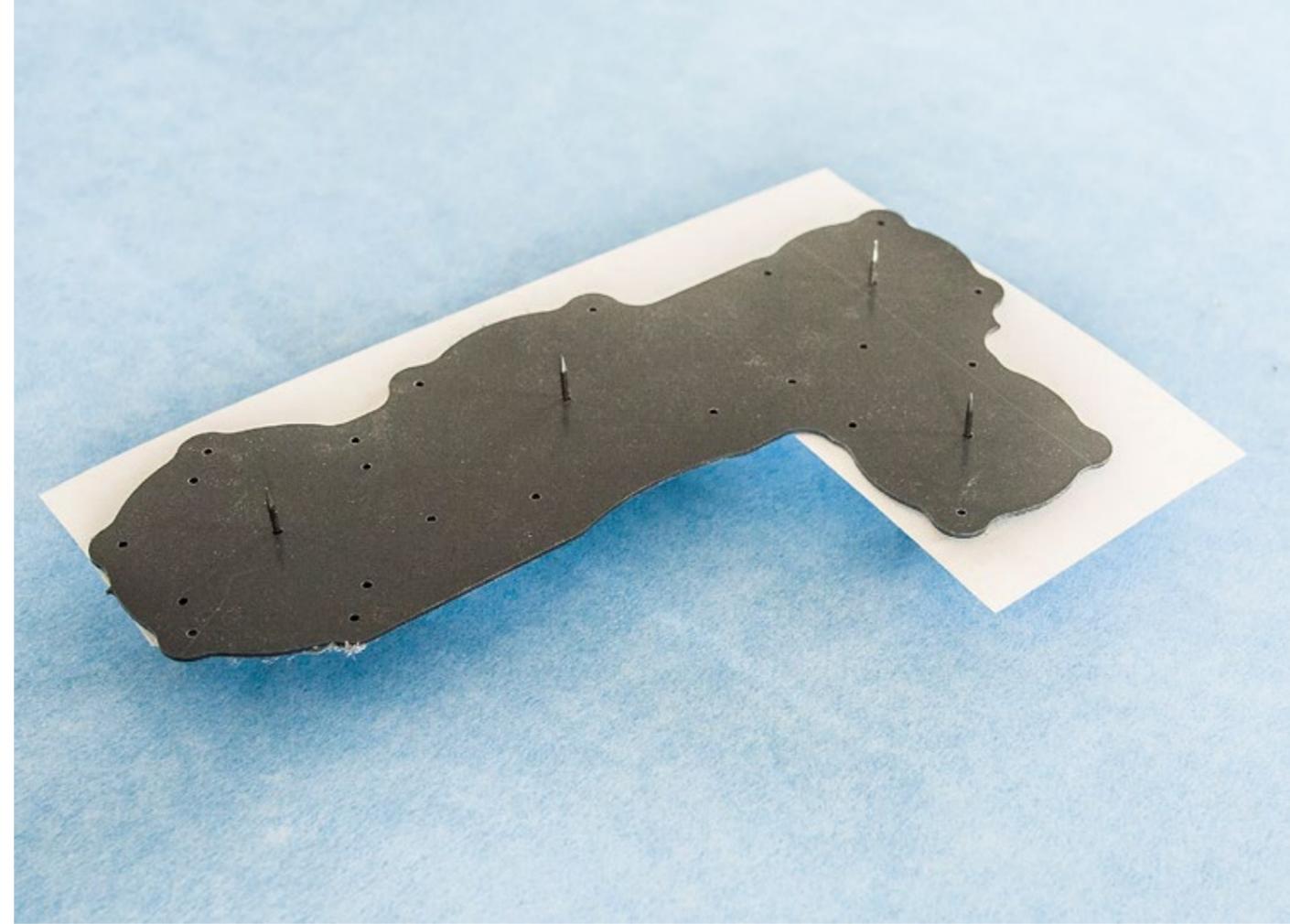
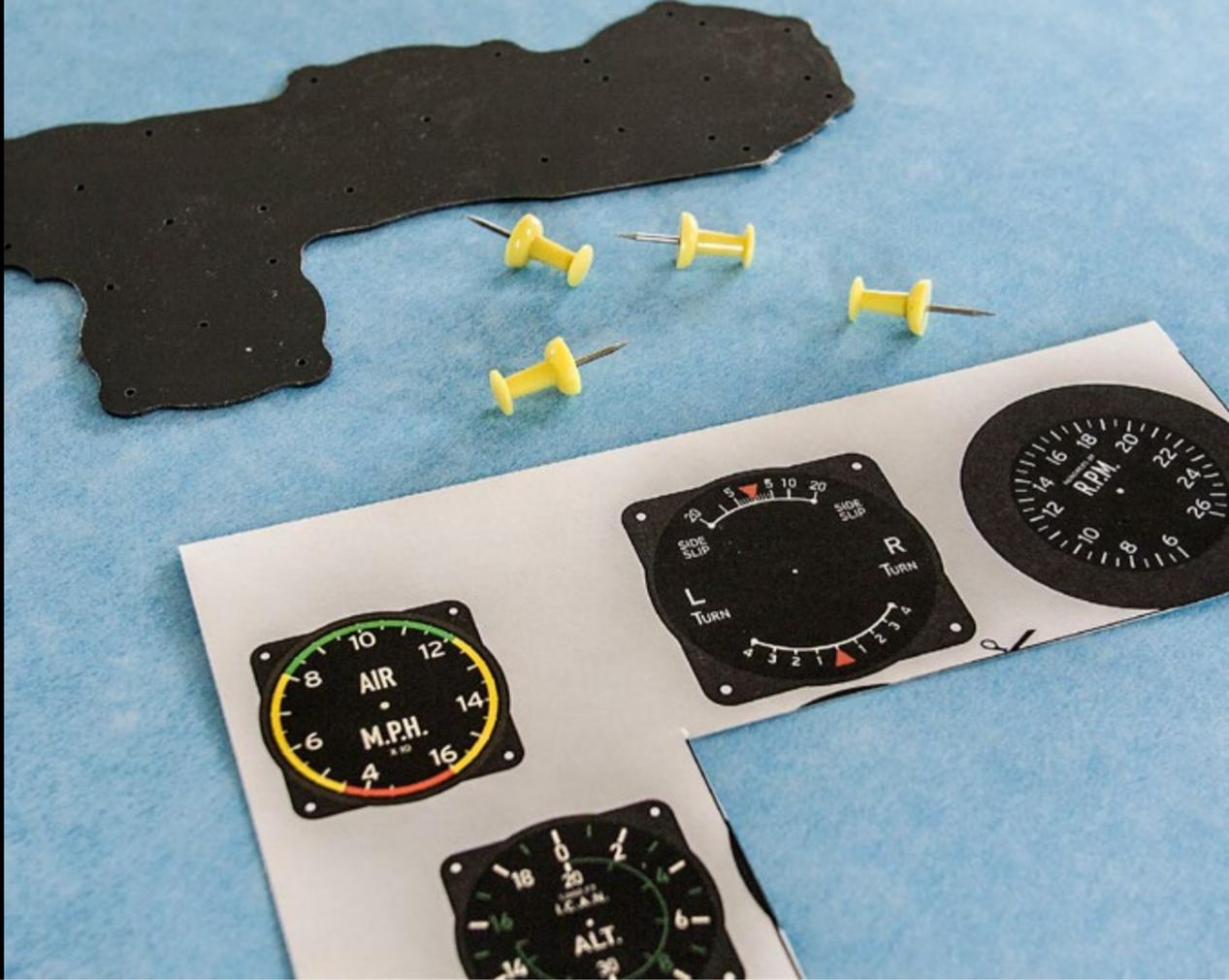
THE CONTROL BOX OR TUNNEL REPLICATES THE ONE FITTED TO THE FULL-SIZE TIGER MOTH. THE RUDDER AND ELEVATOR SERVOS ARE INSTALLED INSIDE THIS CONTROL BOX. THE RUDDER SERVO MOVES THE PEDALS, THE ELEVATOR SERVOS ALSO MOVE THE CONTROL STICKS. THERE IS AN EXTRA SERVO FITTED SOLELY FOR MOVING THE STICKS WHEN AILERONS ARE APPLIED. ALL THE SERVO WIRES AND CONNECTORS ARE LOCATED INSIDE THE CONTROL BOX. IT IS POSSIBLE TO REMOVE THE CONTROL BOX WITH 6 SCREWS. RECEIVER AND BATTERIES ARE INSTALLED IN THE LUGGAGE COMPARTMENT.



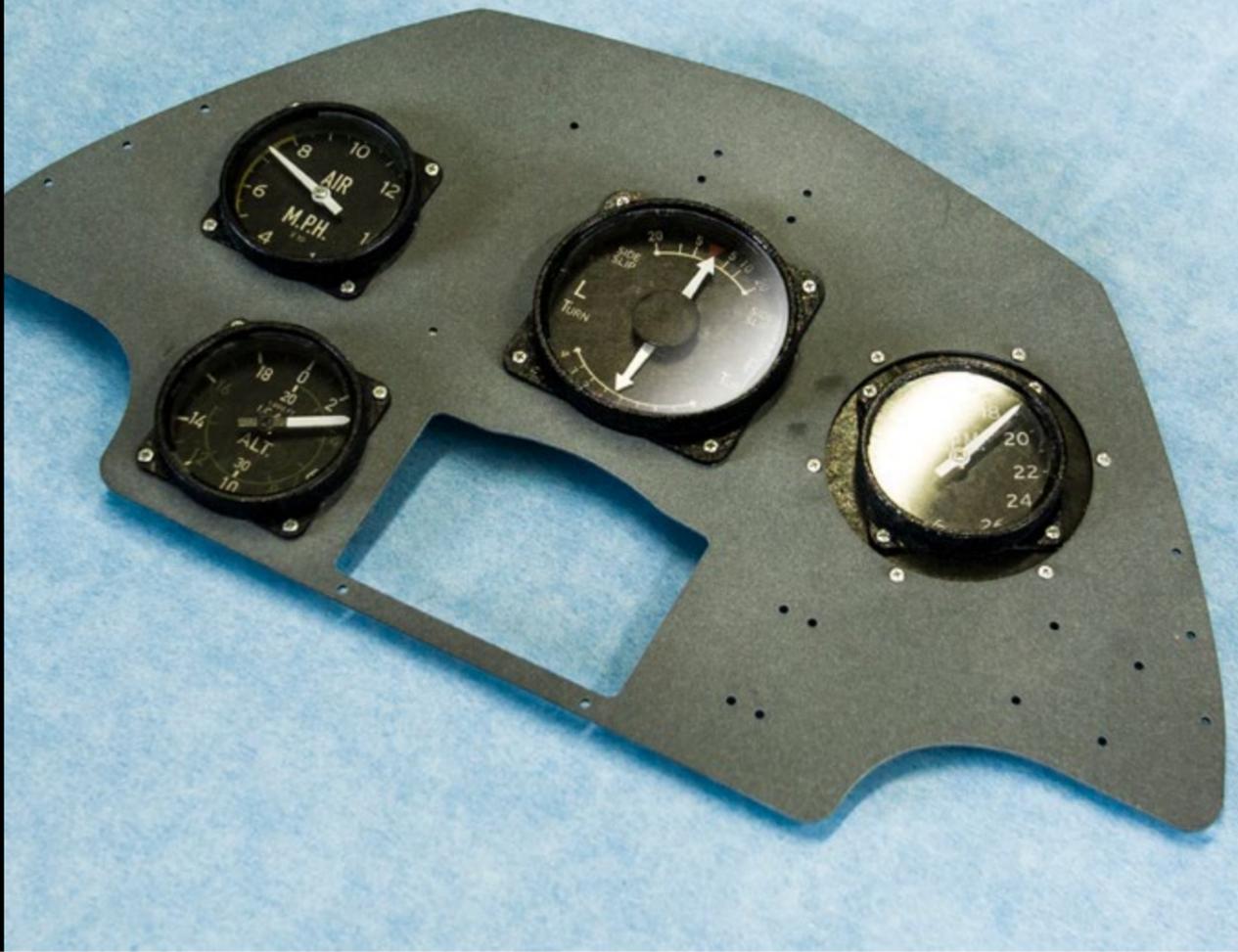










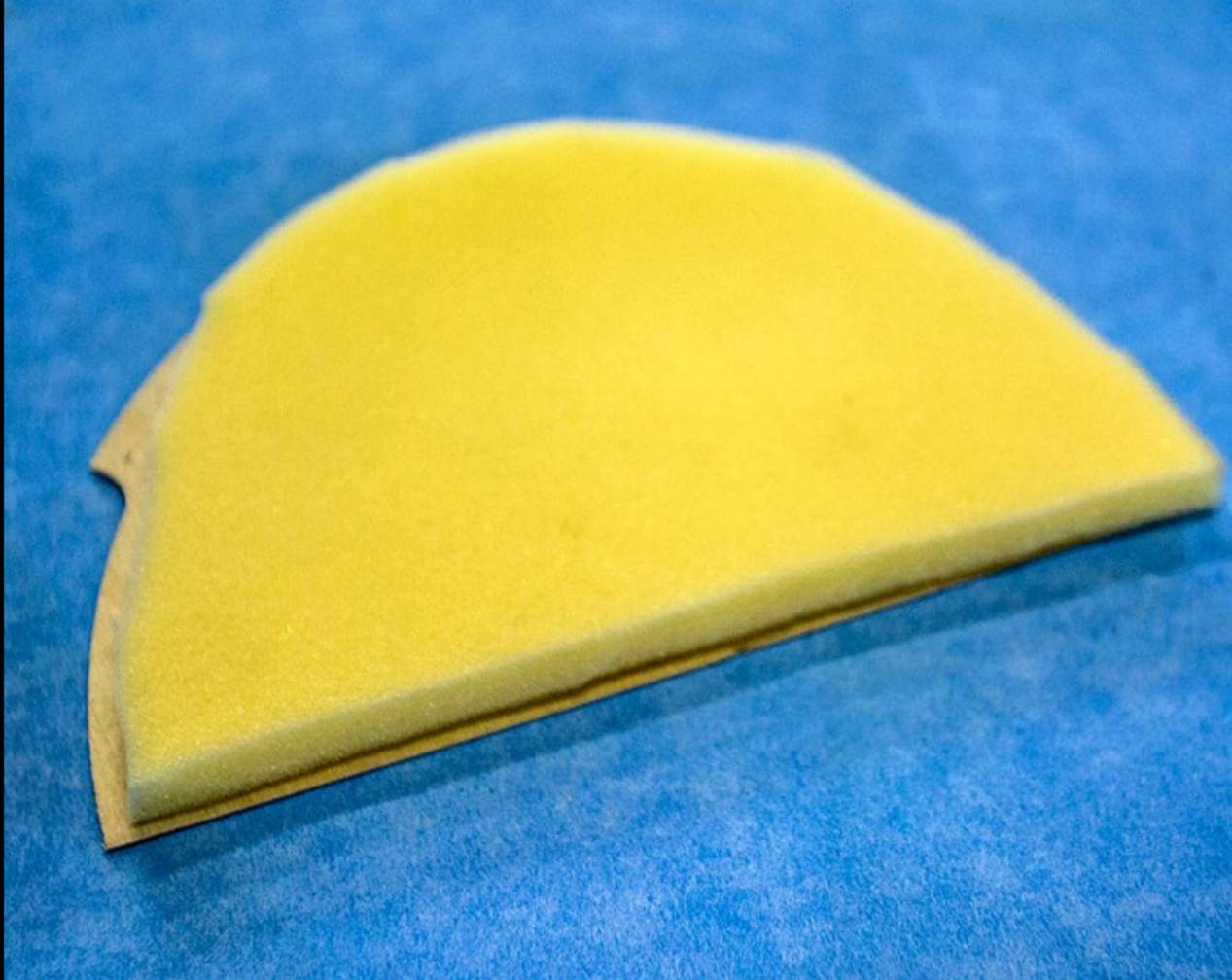




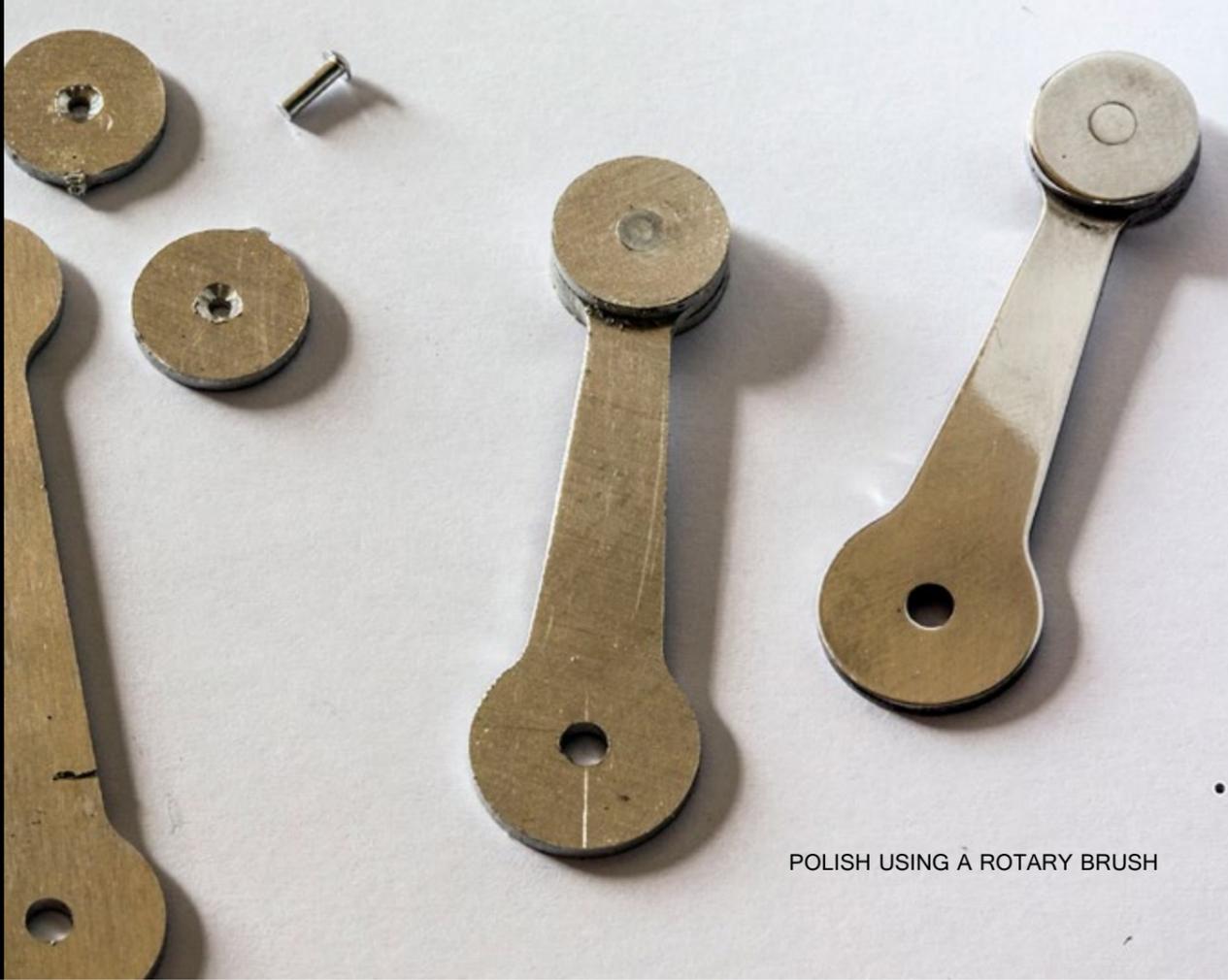


GLUE THE ENDS WITH A BIT OF C.A.
BE CAREFUL NOT TO PUT CYANOACRYLATE ON
THE FRONT SIDE OF THE ECO LEATHER,
IT IS VERY DELICATE









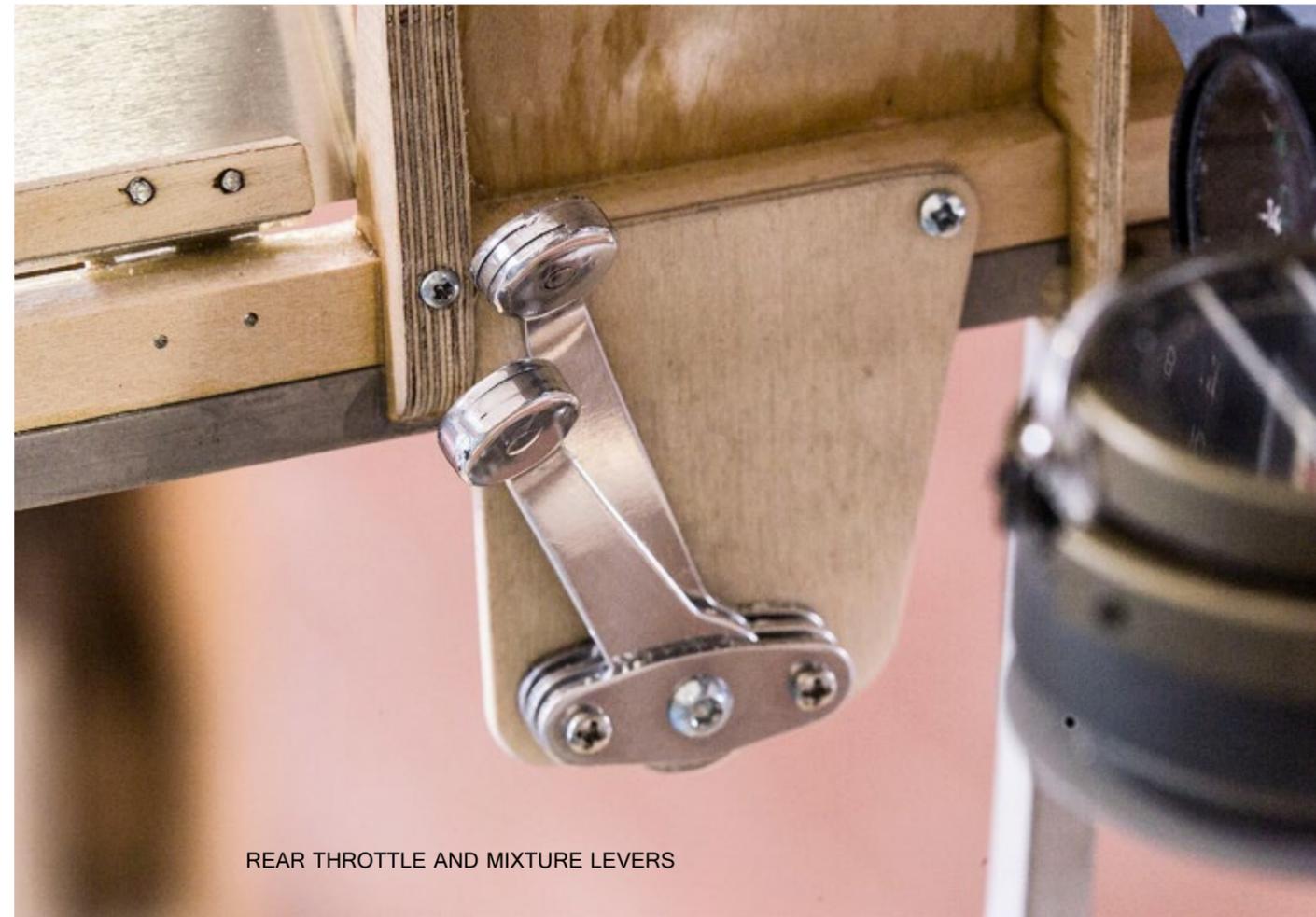
POLISH USING A ROTARY BRUSH



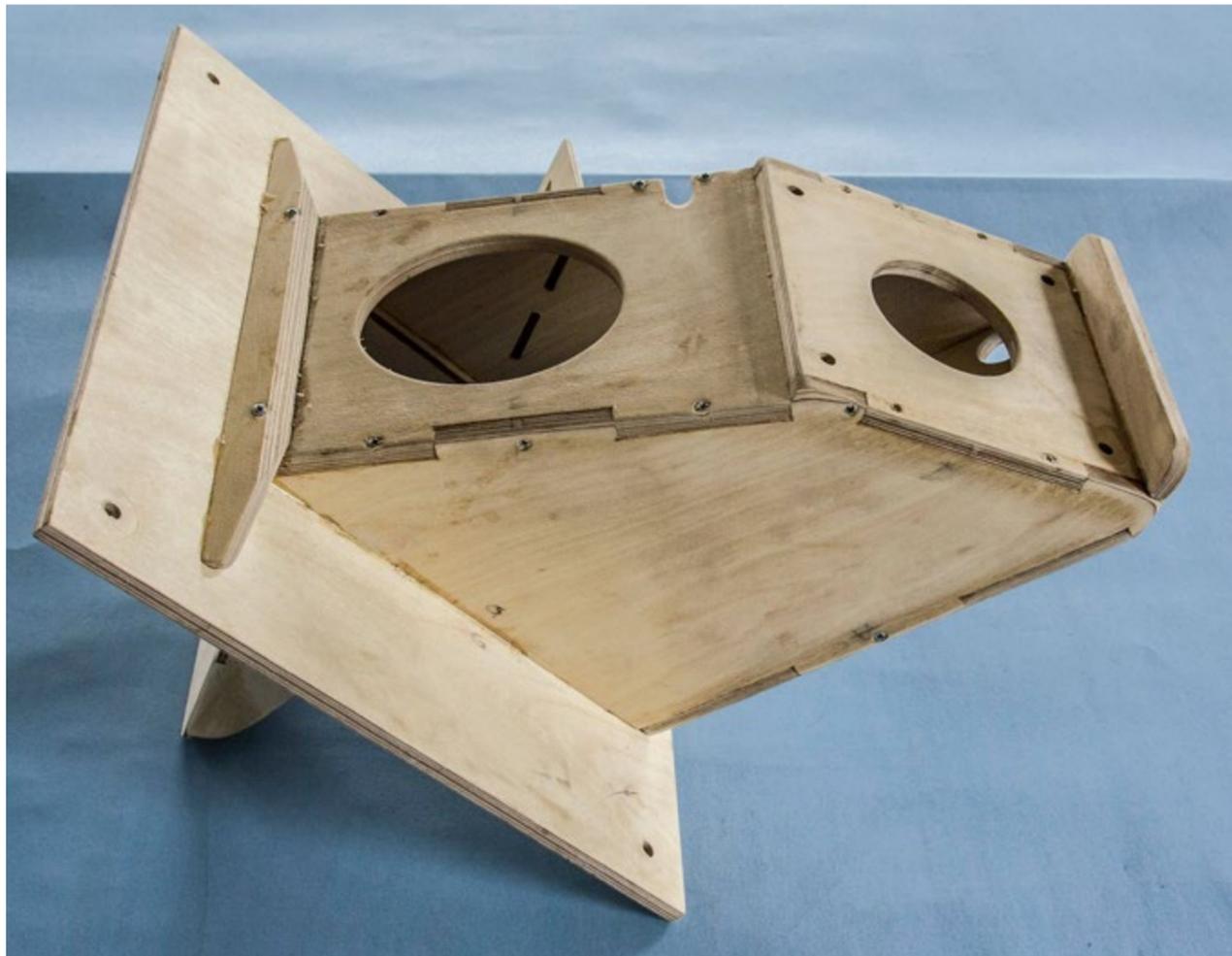
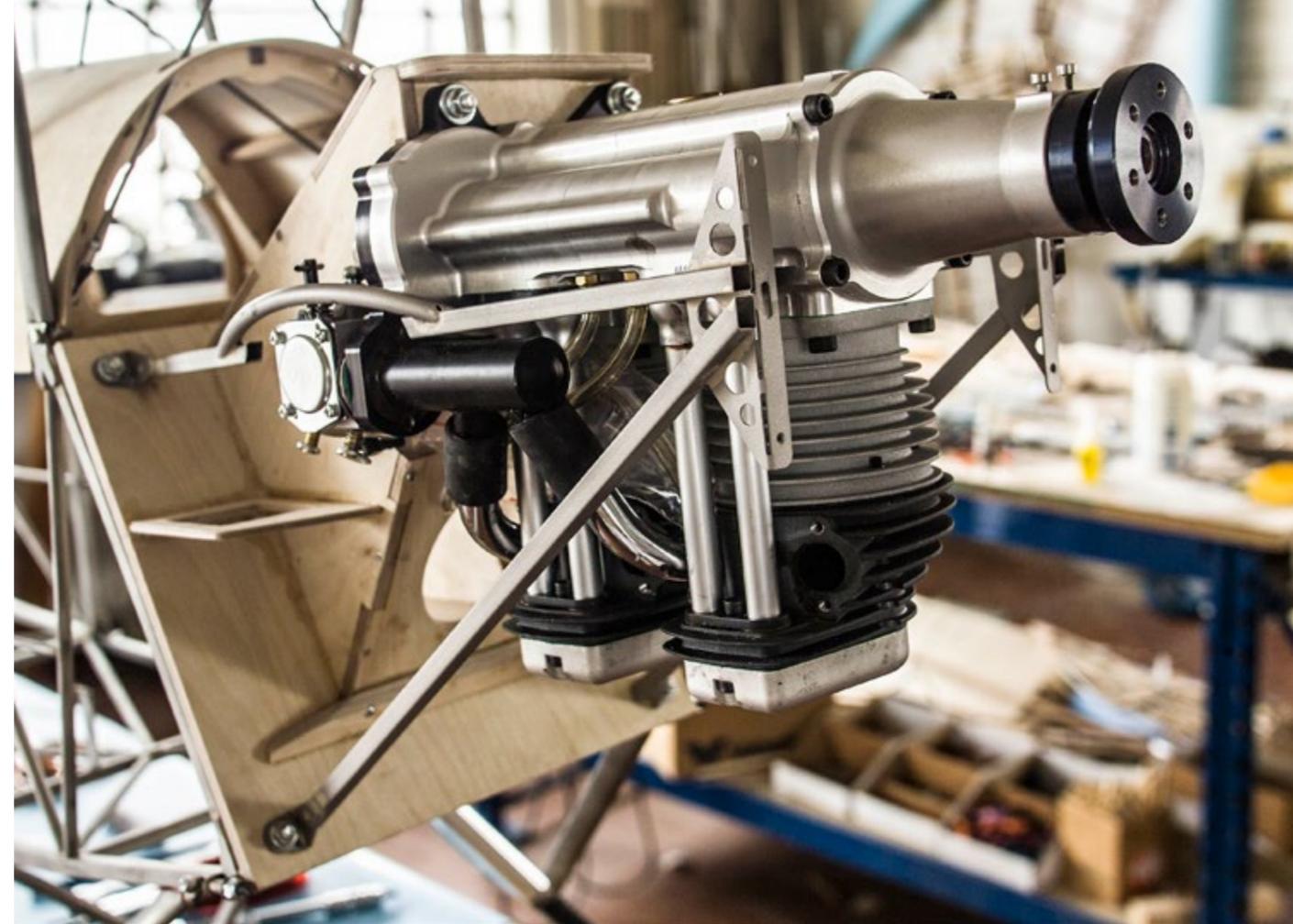
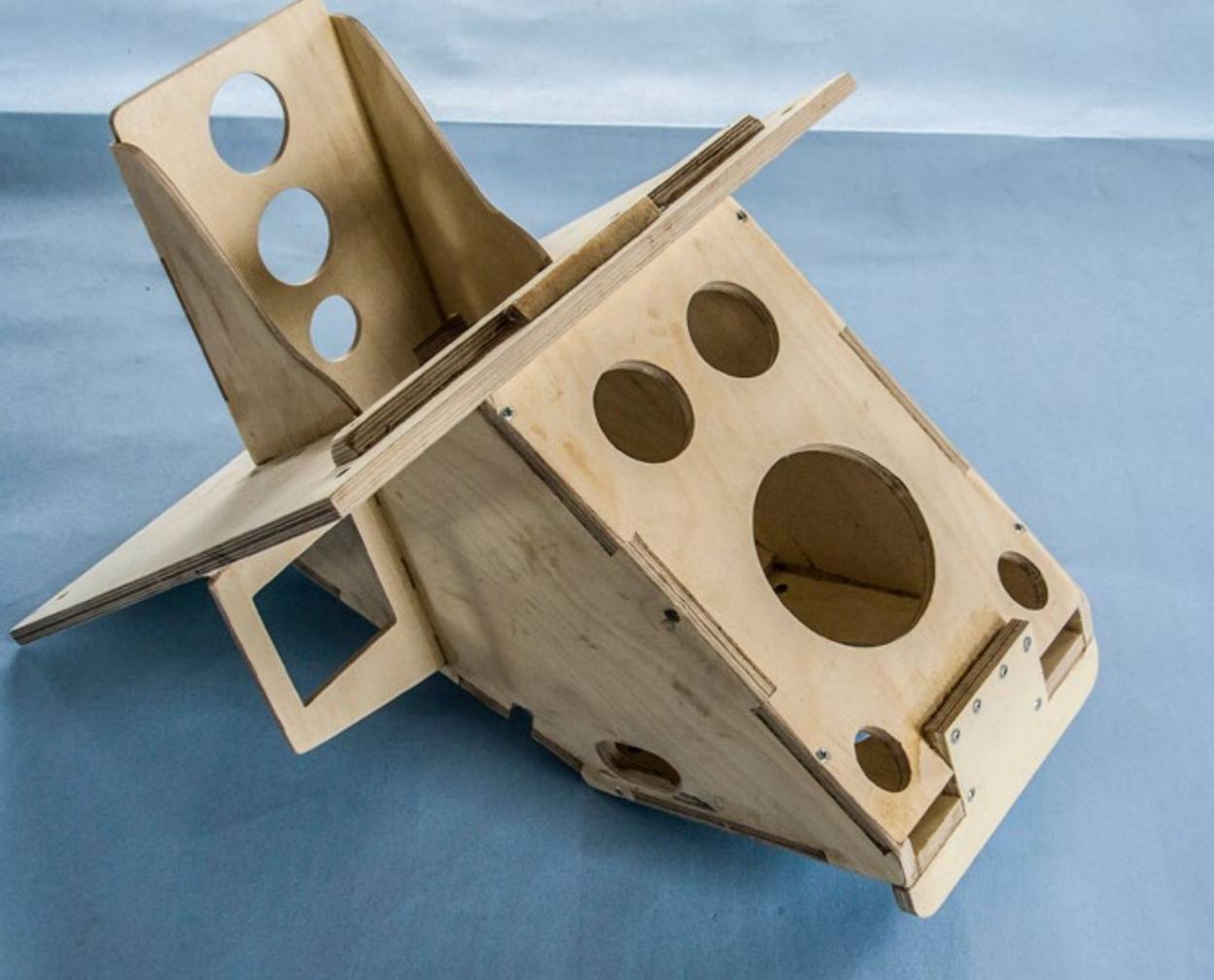
FRONT THROTTLE AND MIXTURE LEVERS

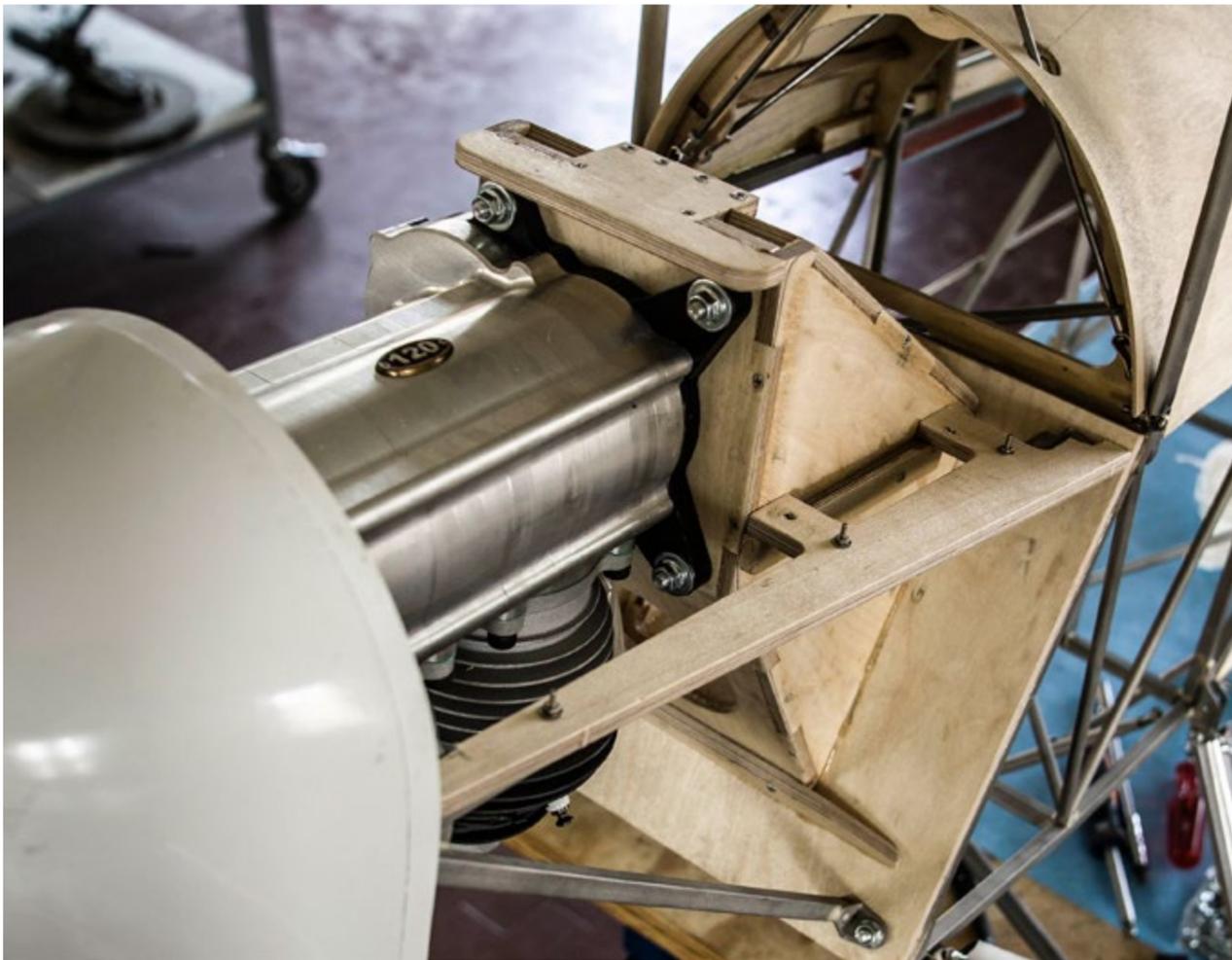


TAIL TRIM LEVER

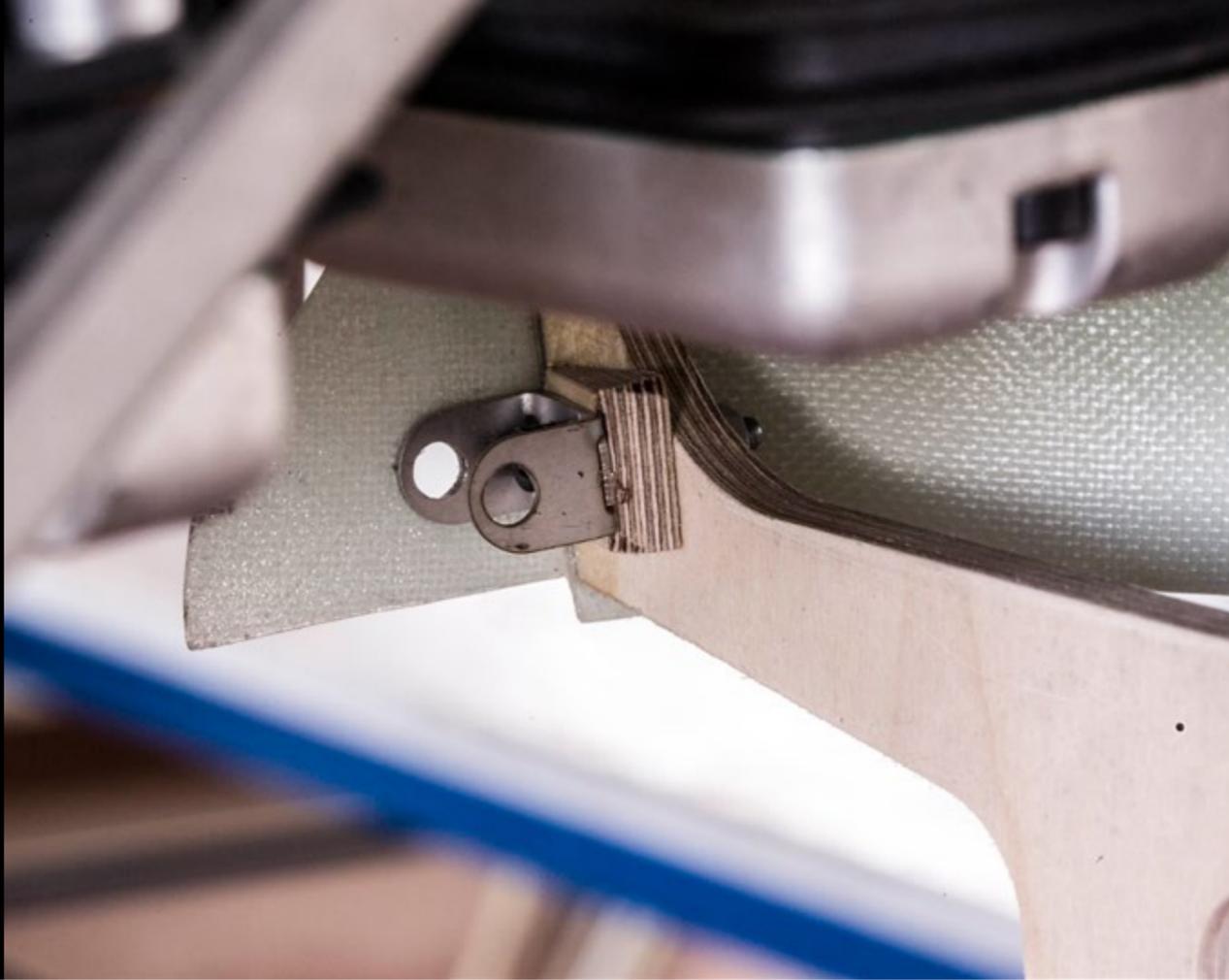


REAR THROTTLE AND MIXTURE LEVERS













INDEX

FUSELAGE	page	4
DOORS	"	8
CABANE	"	20
WINGS	"	26
TOP WING	"	28
BOTTOM WING	"	44
INTERPLANE STRUTS	"	68
RIGGING	"	74
HORIZONTAL STABILIZER	"	80
FIN & RUDDER	"	90
TAIL	"	98
CONTROL BOX	"	100
UNDERCARRIAGE	"	104
INSTRUMENT PANELS	"	108
CRASH PAD	"	116
HEADREST	"	118
SEATS	"	120
CONTROLS	"	122
VALACH MOTOR MOUNT	"	124
COWL	"	126
COOLING BAFFLE	"	134

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