

# *Minimoa*

## **Build instructions**



<b>Specifications</b>	
Wing Span	112 in / 2844mm
Wing Area	54.8 sq dm
Flying weight	2.0kg-2.1g
Fuselage length	1246mm
Scale	1 / 6

<b>Requires</b>
RC transmitter with at least 5 channels
9g servos(ES08/DS395)*2
17g Servo(ES3004/AS82MG)*2
43g Standard Servo(ES3001/AS549)*2



# Tony Ray's AeroModel

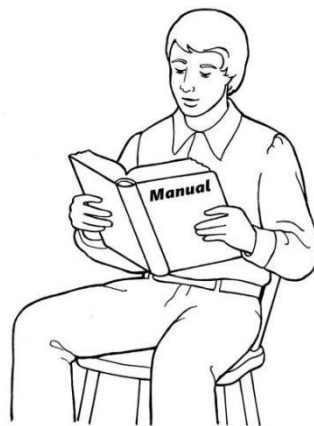
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# **BEFORE YOU BEGIN**

## ***Attentions and Tips***

1. Read through the manual before you begin, so you will have an overall idea of what to do.
2. Check all parts. If you find any serious defects or missing parts, please contact your local dealer.
3. Please build your kit in strict accordance with the sequence of the user manual.
4. Pre-Sanding: Before removing any parts from the laser-cut plywood sheet, use a sanding block loaded with 250 - 400 grit sandpaper and lightly sand the back side of the sheet. Which can significantly reduce burn marks of the wood and make the parts match better
5. Before building the model part on drawings, It is recommended to cover a layer of kitchen cling film (polyethylene film) on the drawing. This way can prevent parts from sticking to the drawing and causing damage.
6. Parts Assembly: This product's tabs and notches interlock like a 3D puzzle. We strongly suggest that when fitting parts, you "dry fit" (use no glue) the parts together first. It is advised to work 1 - 2 steps ahead in the instructions, using this dry-fit technique. This allows the opportunity to inspect the fit and location of assembled components, and shows the benefits of our construction technique. As each successive part is added, it contributes to pulling the entire assembly square. Once you arrive at the end of a major assembly sequence, square your work on a flat work surface, and bond the dry-fit joints with glue. Using the dry-fit process, you'll be able to recover from a minor build mistake, and will ultimately end up with a square and true assembly.
7. This is a precision laser-cut kit. Our lasers cut to within 0.2mm in accuracy. Yet the wood stock supplied to us by the mill may vary in thickness by up to 0.2-0.3mm. This variance in the wood stock can cause some tabs and notches to fit very tightly. With this in mind, consider lightly sanding or lightly pinching a tight-fitting tab, rather than forcing the parts together. You may break some parts in assembly, but please don't worry, after the final covering work, it will not affect the strength and appearance of your model. You will end up with a circle and true airframe.



# KIT INVENTORY



## Sheet Wood Inventory

Item:	Mark	Quantity
1.5mm Balsa	B series: B1-B4, C series: C1-C10	38
2.0mm balsa	A series: A1-A7, H series: H1-H4	20
5.0mm balsa	D series: D1-D3	3
2.0mm Plywood	E series: E1-E6	6
3.0mm Plywood	F series: F1-F2	2
2.0mm Paulownia	G series: G1-G2	2
1mm Plywood	2 separate airbrake surface parts	1
3.0mm Paulownia	2 separate spar parts	2

## Wood Strips Inventory

3*3mm Balsa	10
3*3mm Pine	5
6*6mm Balsa	5



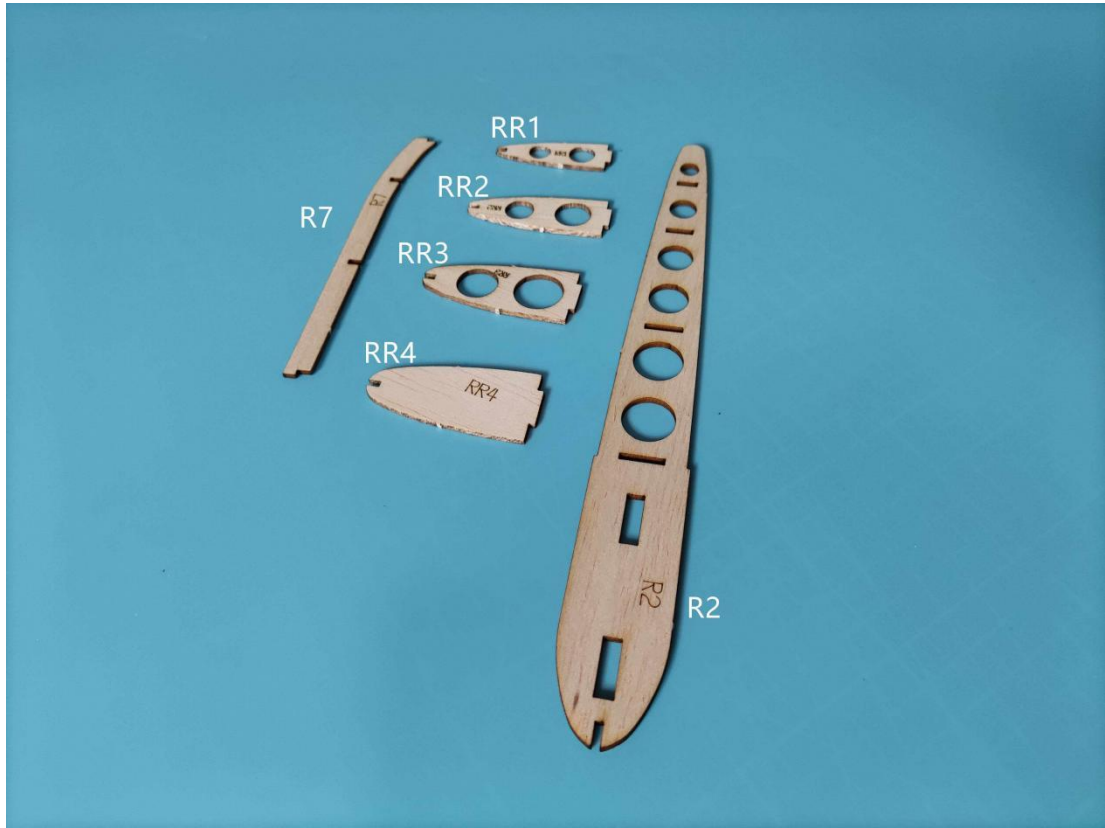
<b>Hardware parts</b>	
Blister PVC canopy(Front)	1
Laser cut PVC canopy(Behind)	1
PVC Tube (Outer diameter: 12mm, Inner diameter: 10mm)	1
Aluminum Tube (Outer diameter: 10mm, Inner diameter: 6mm)	4
Plastic Hinges (Flaky Version)	10
Plastic Hinges (Columnar Version)	10
M2*8 Screws (Spacer Version)	30
M2*10 Screws	10
M3*35 Screws	1
M3*25 Screws	4
M2 Screw nut	10
M3 Screw nut	1
M3 Four Claws Nut	2
M2 Steel push rod (Thread at both ends Length:25mm)	2
M2 Steel push rod (Thread at one ends Length:250mm)	4
Nylon rudder horn	5
M2 ball joint connector	10
M5*2 Mini magnet	8
2.0 in PU wheels	1

<b>Paper parts</b>	
1:1 drawings	2



# Part1. Rudder

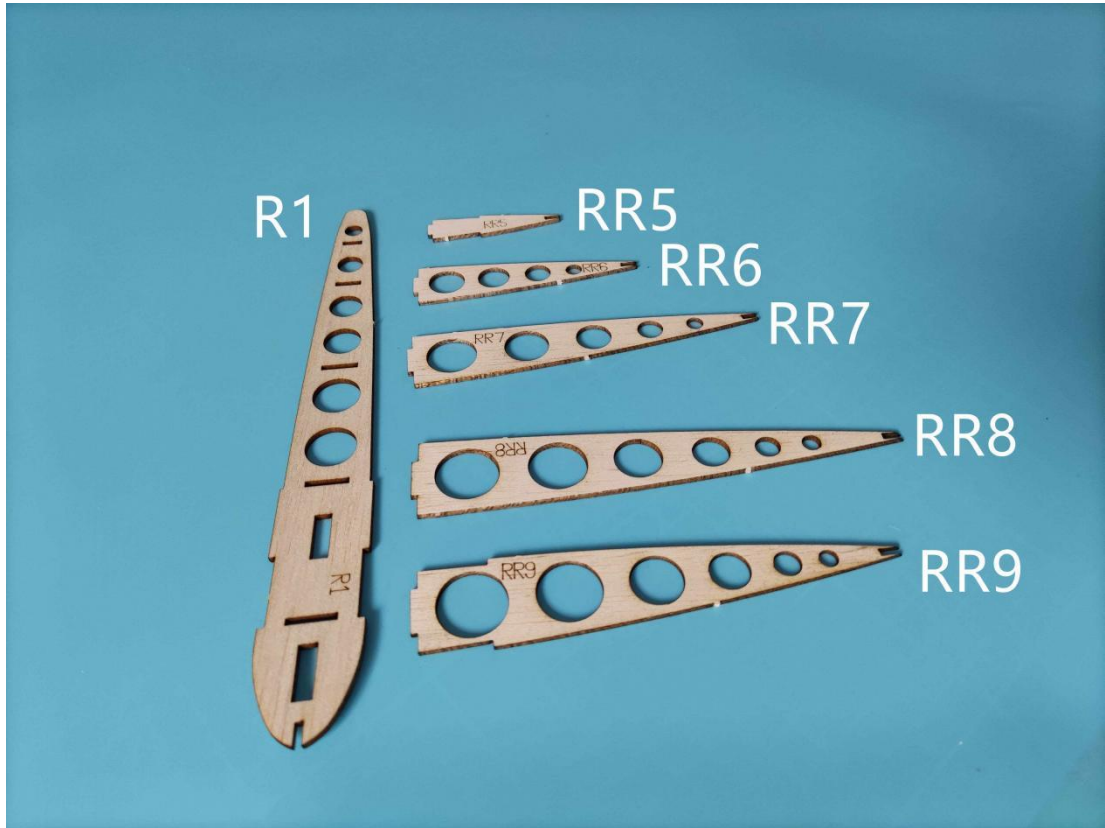
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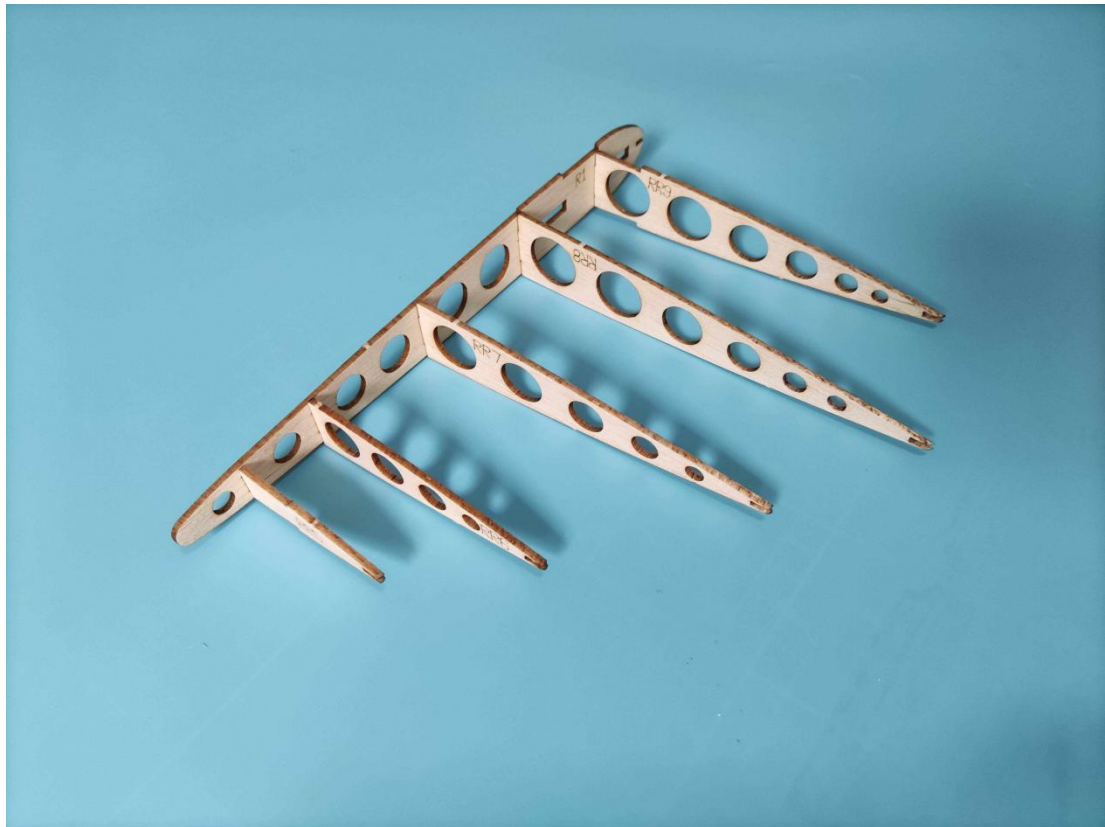
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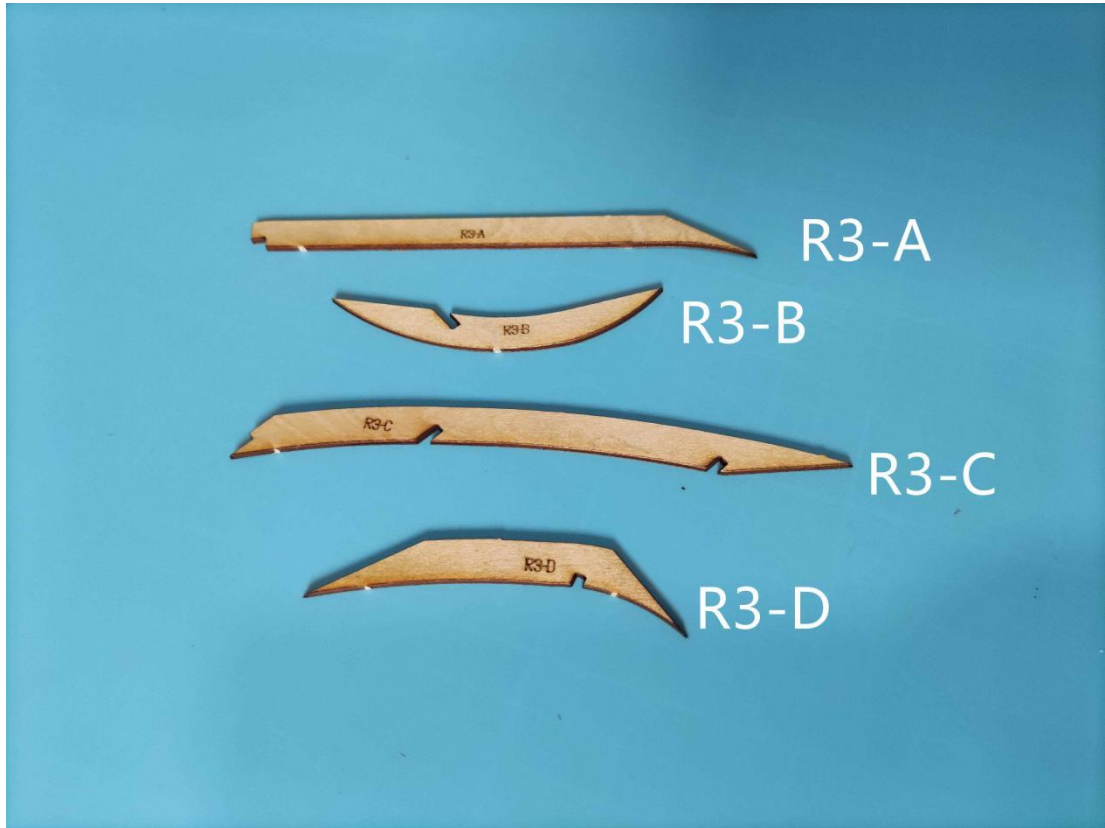
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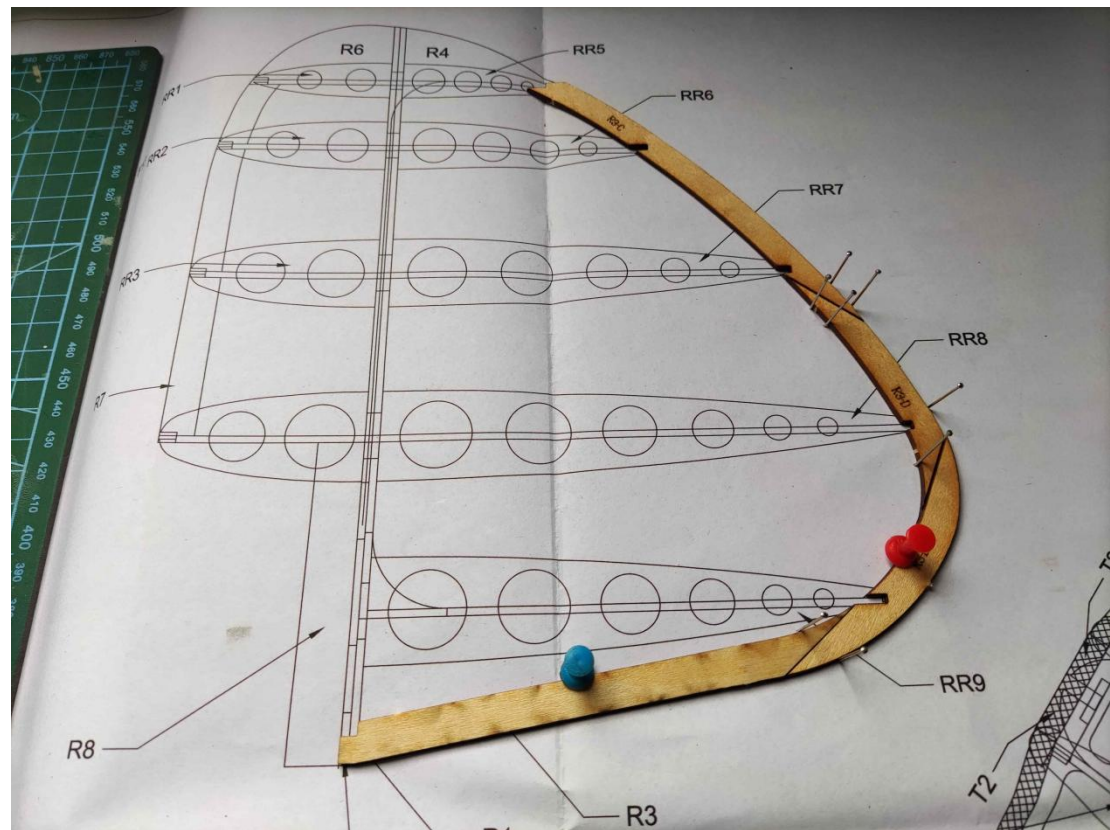
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Step5



Step6

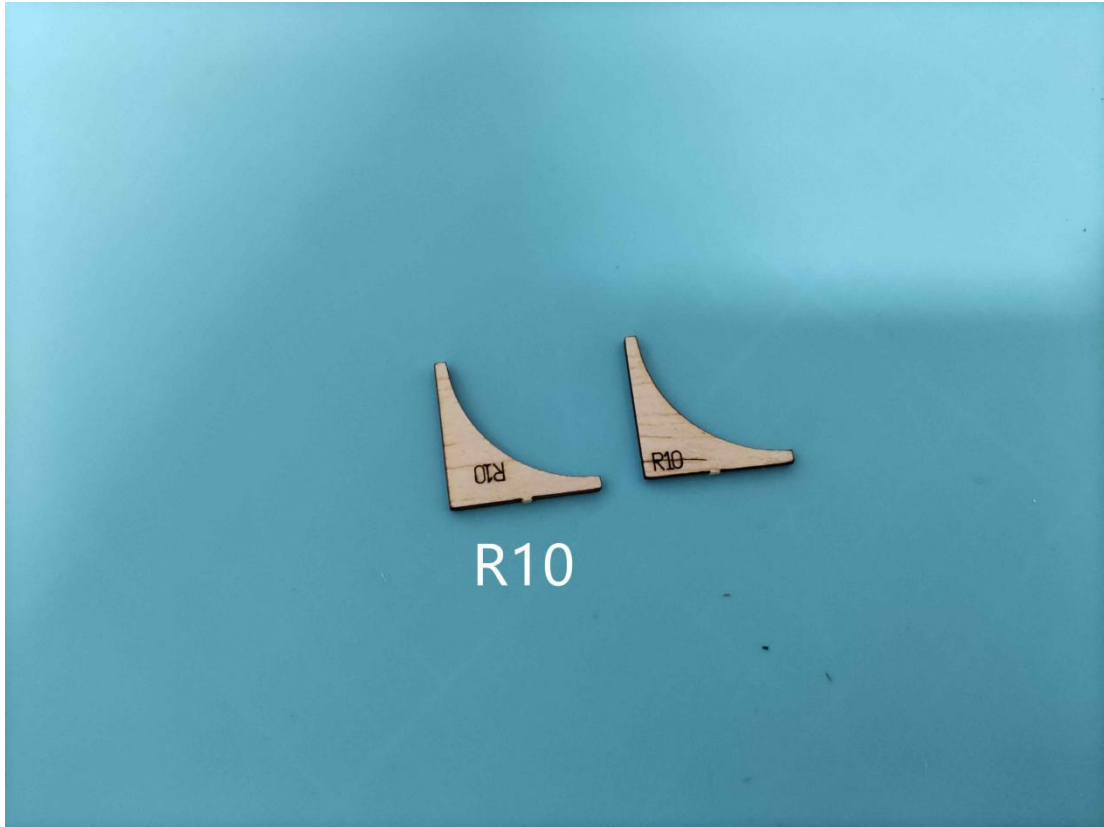




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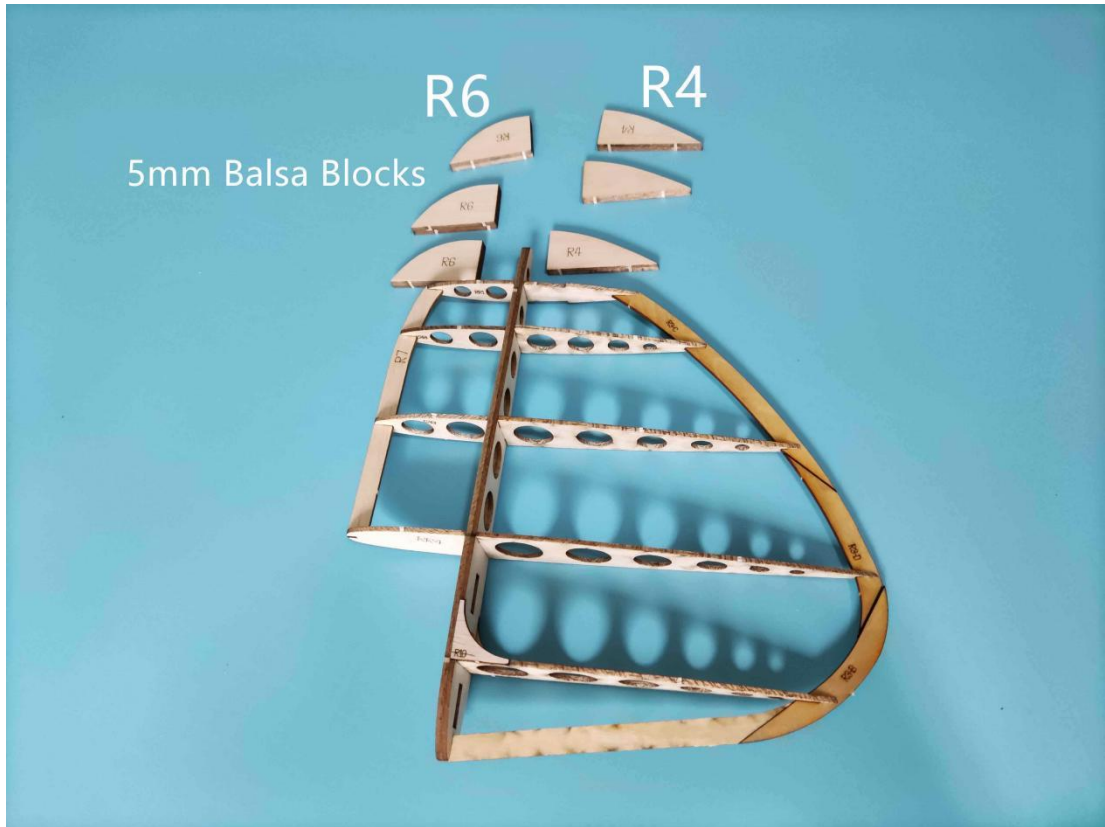
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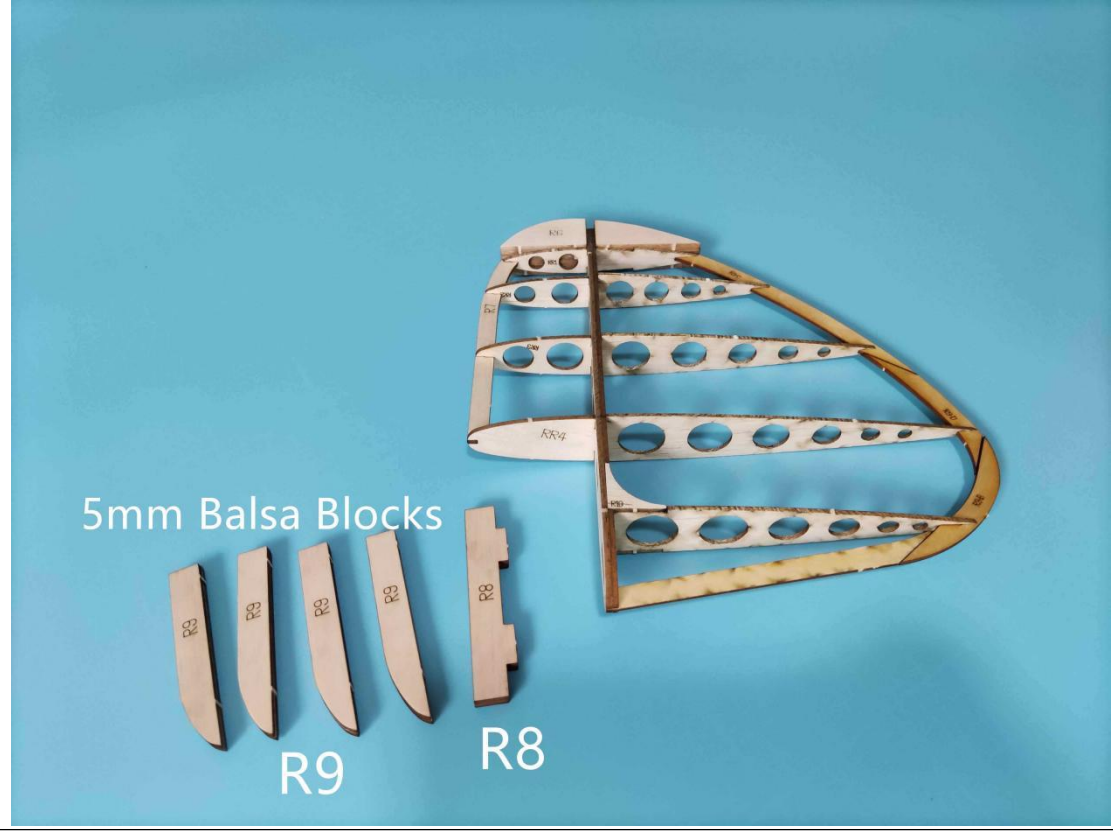
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Step10



Step11

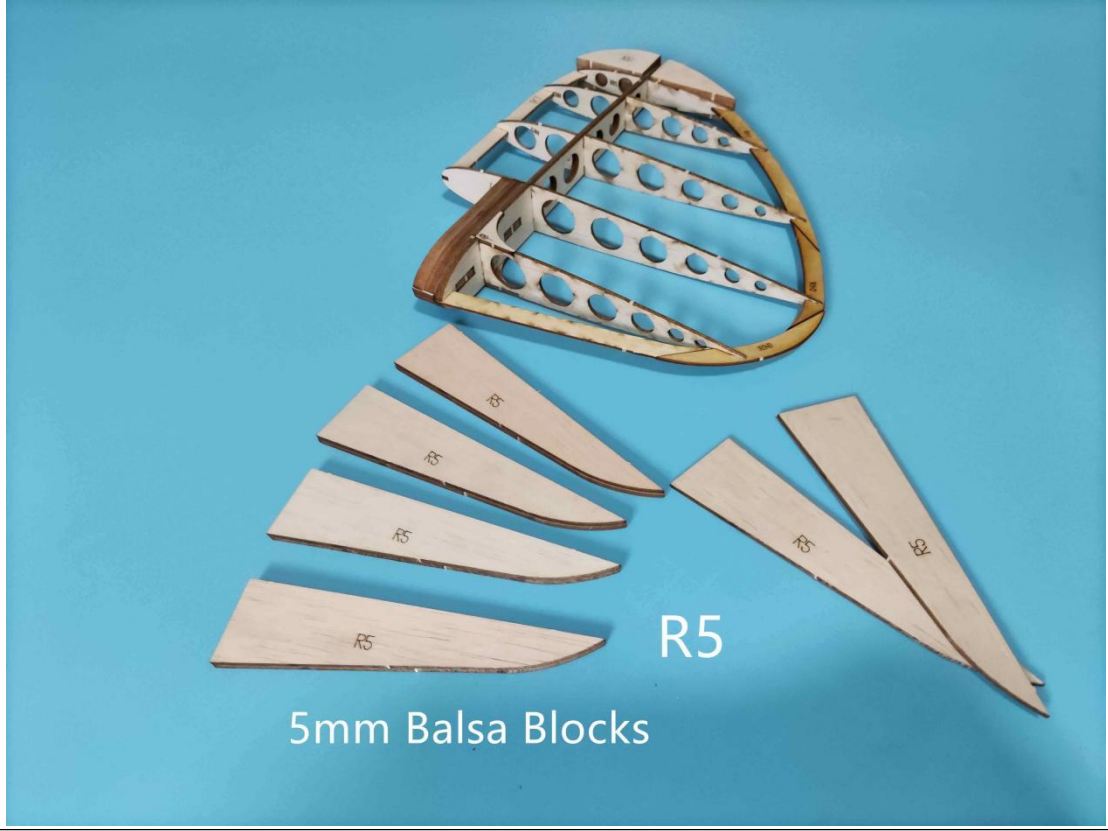


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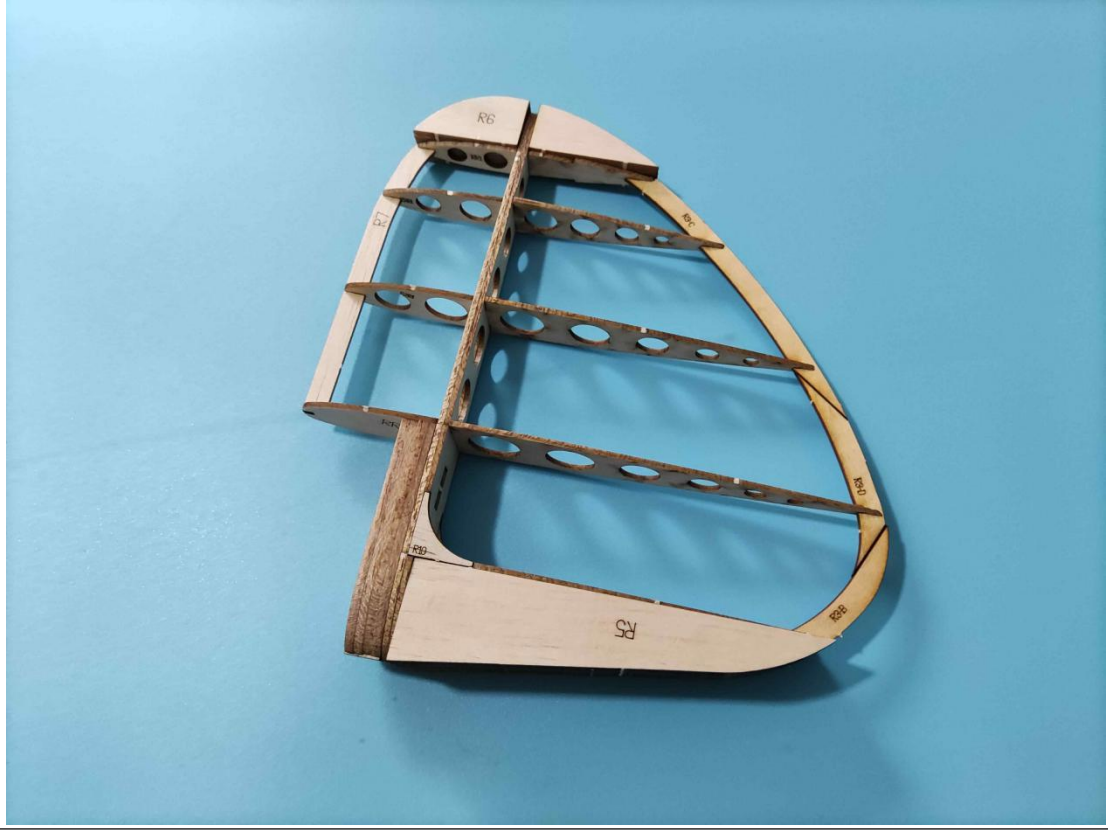




Step13



Step14





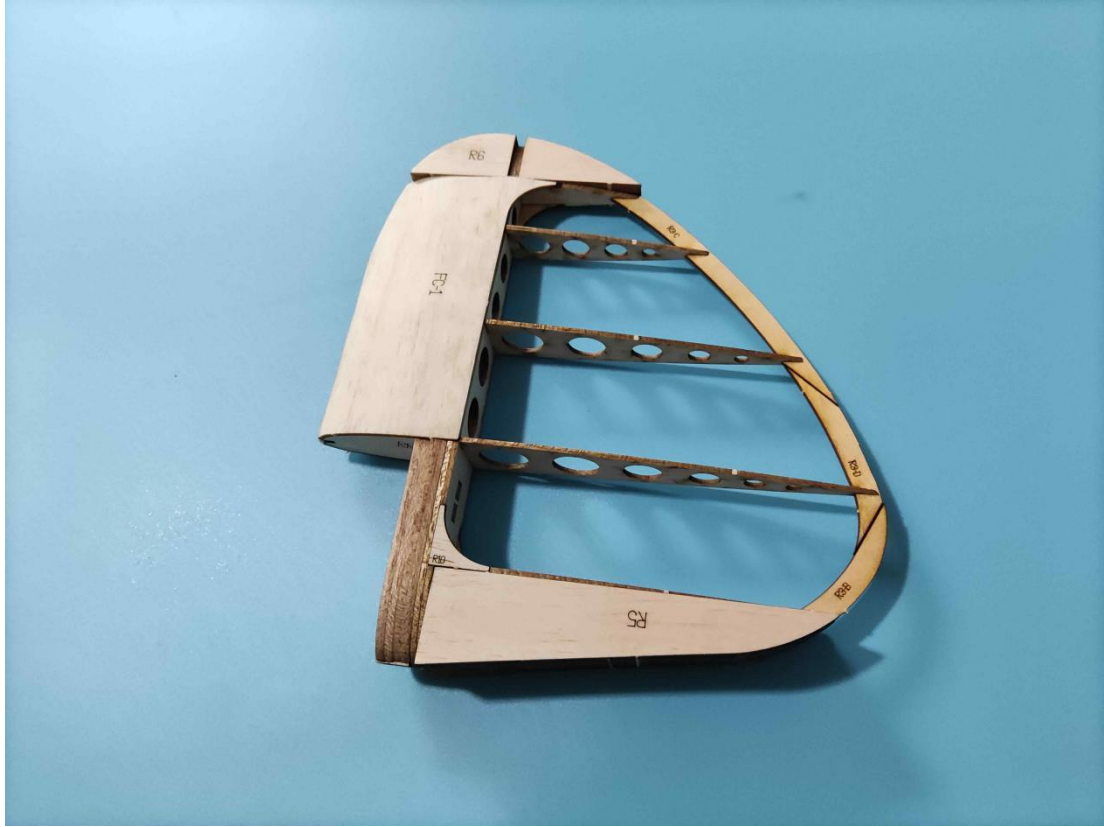
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Step16



Step17

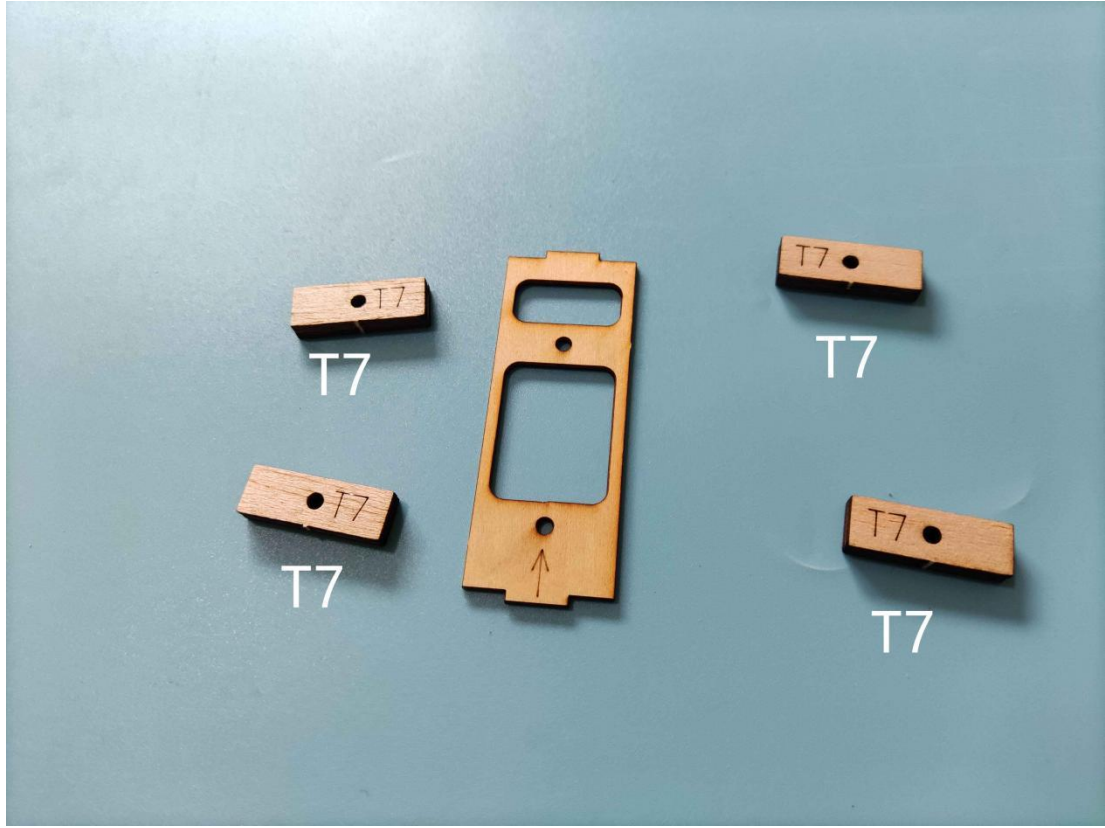


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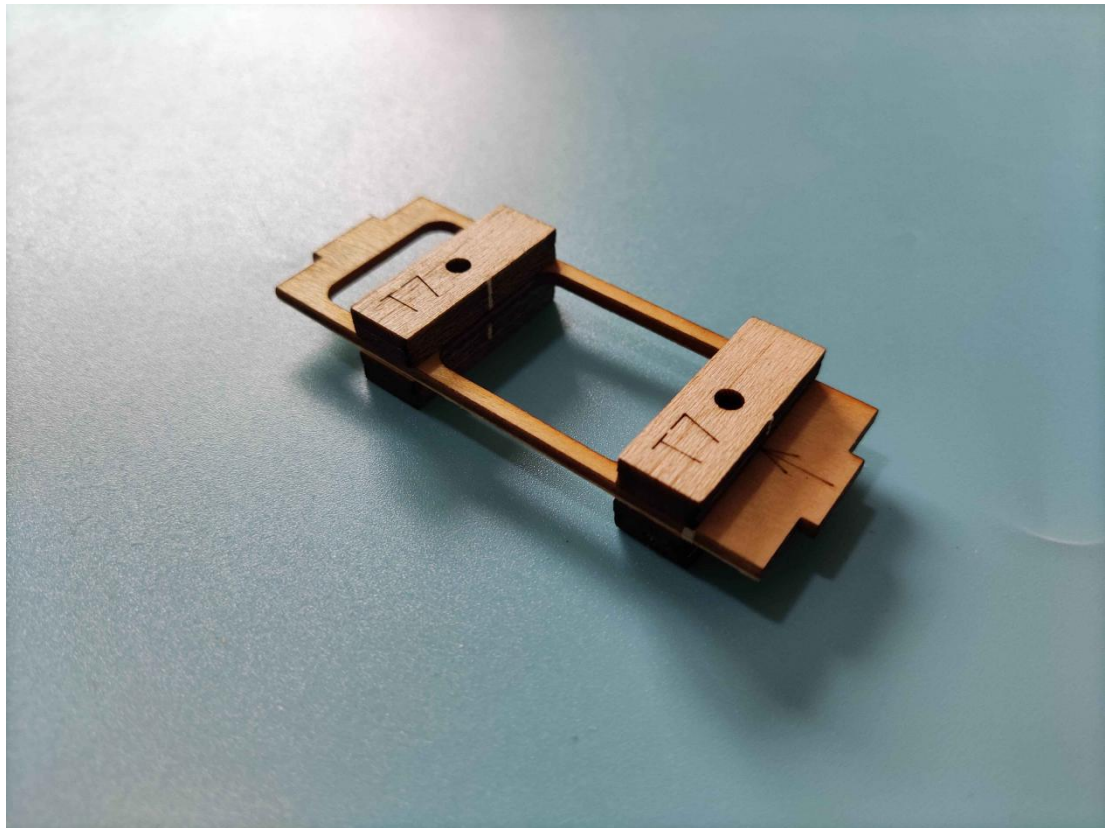


## Part2. Horizontal Tail

Step 1

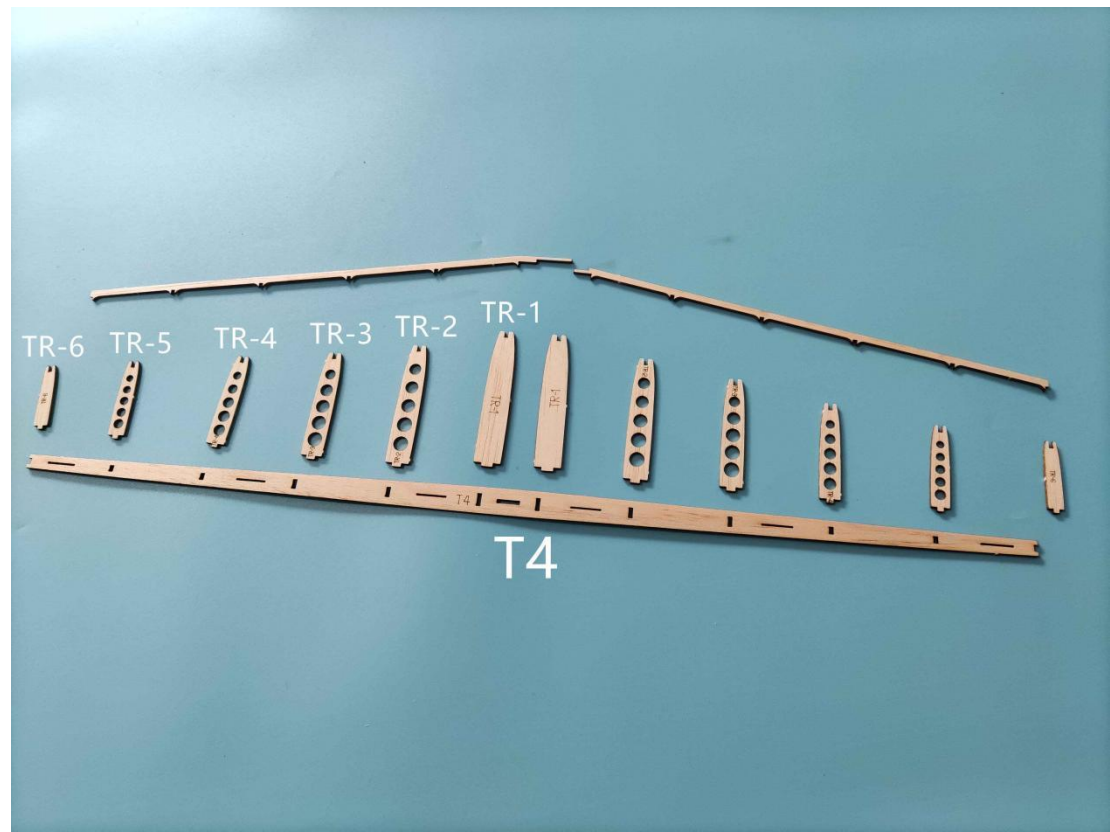


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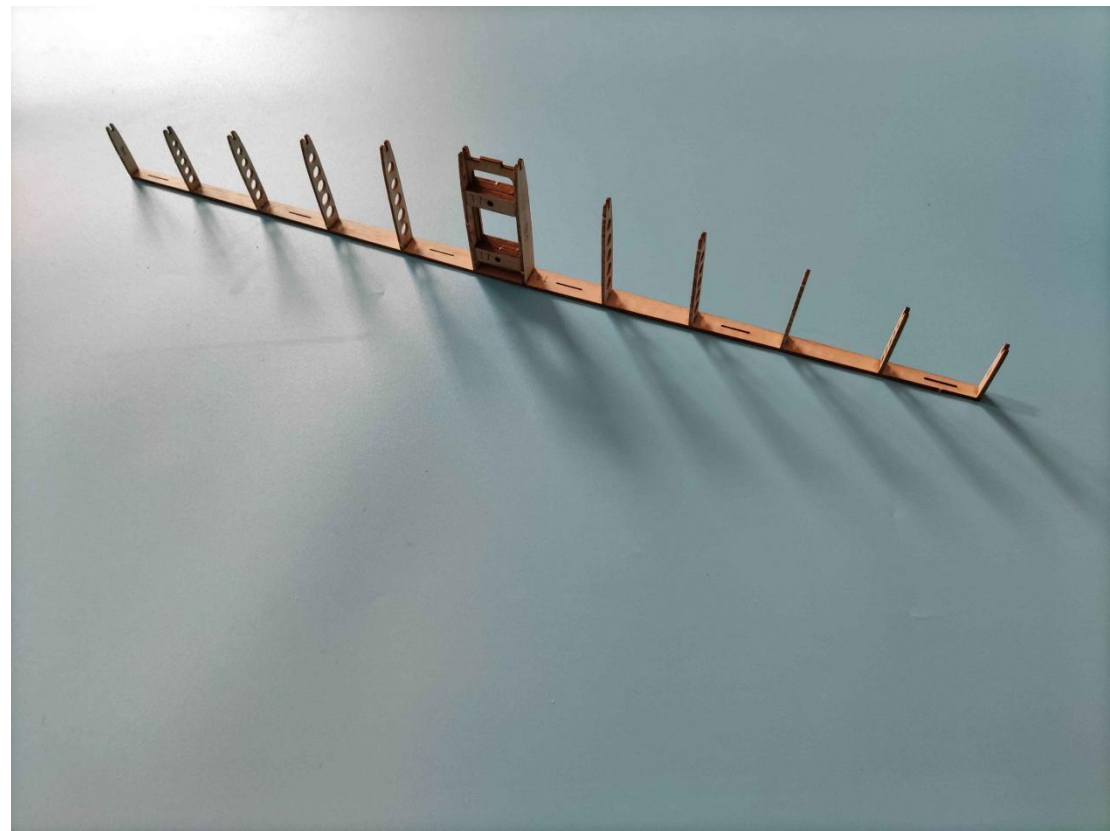




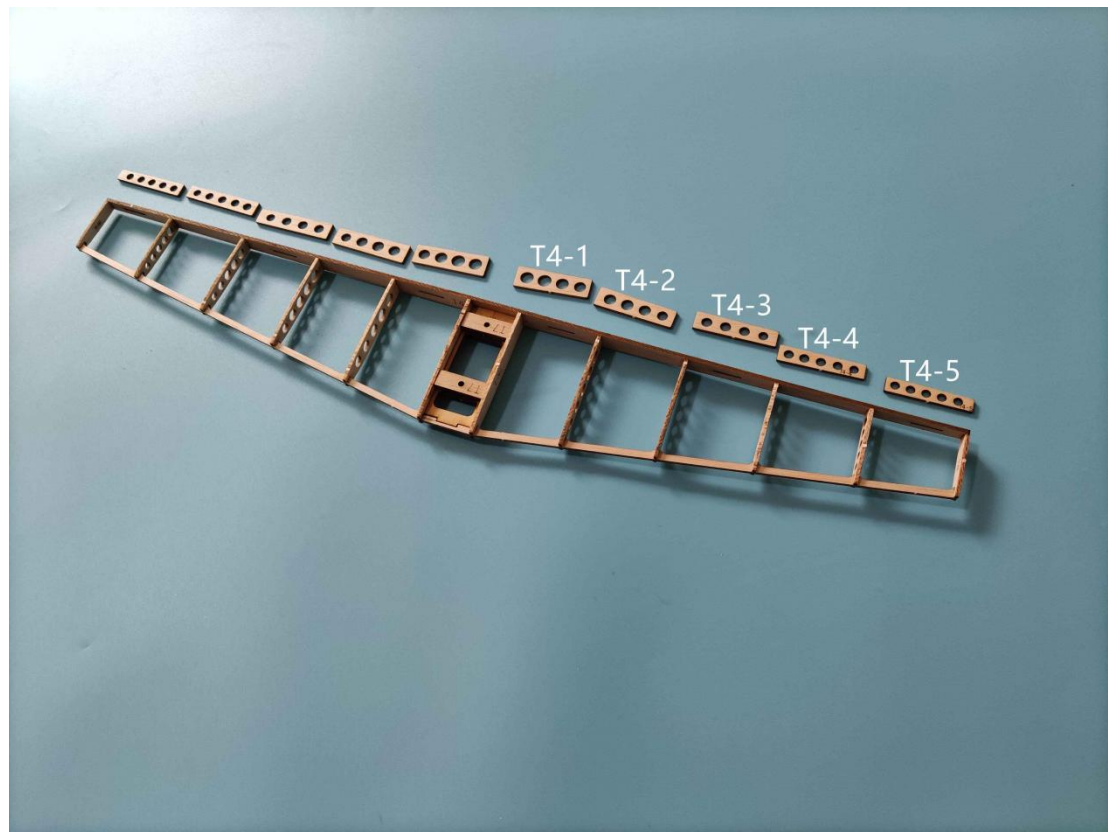
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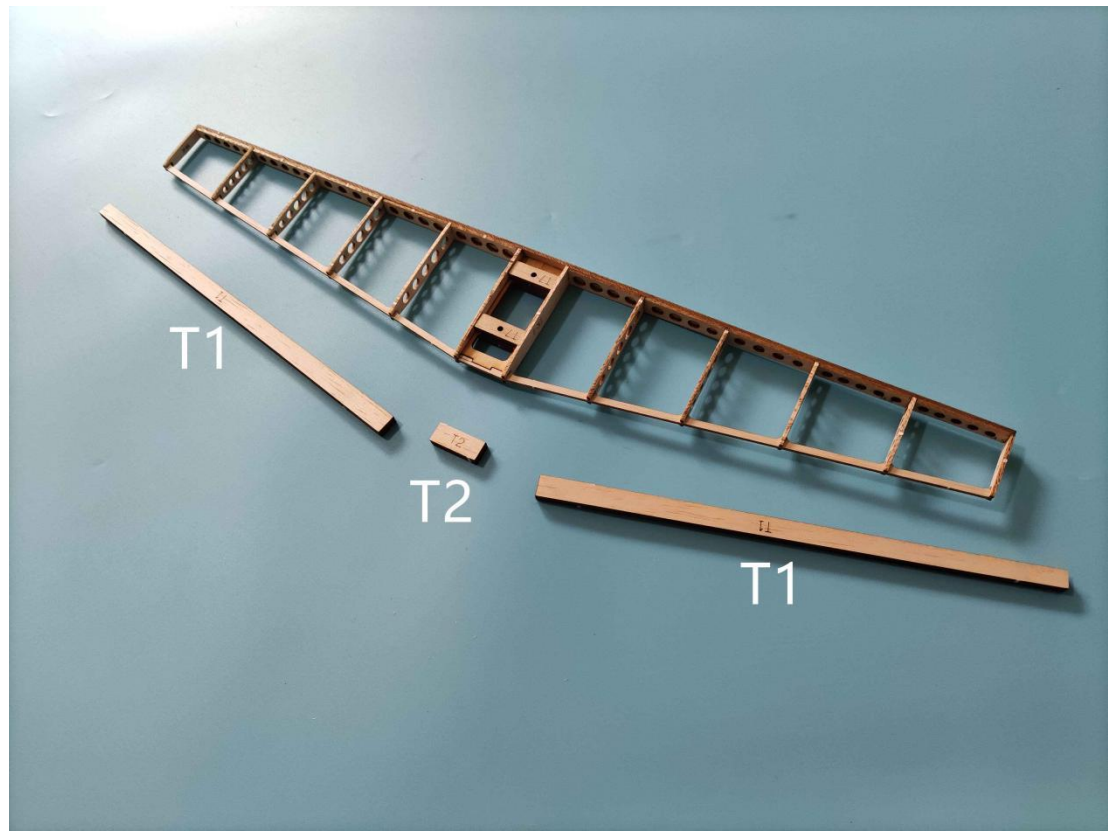
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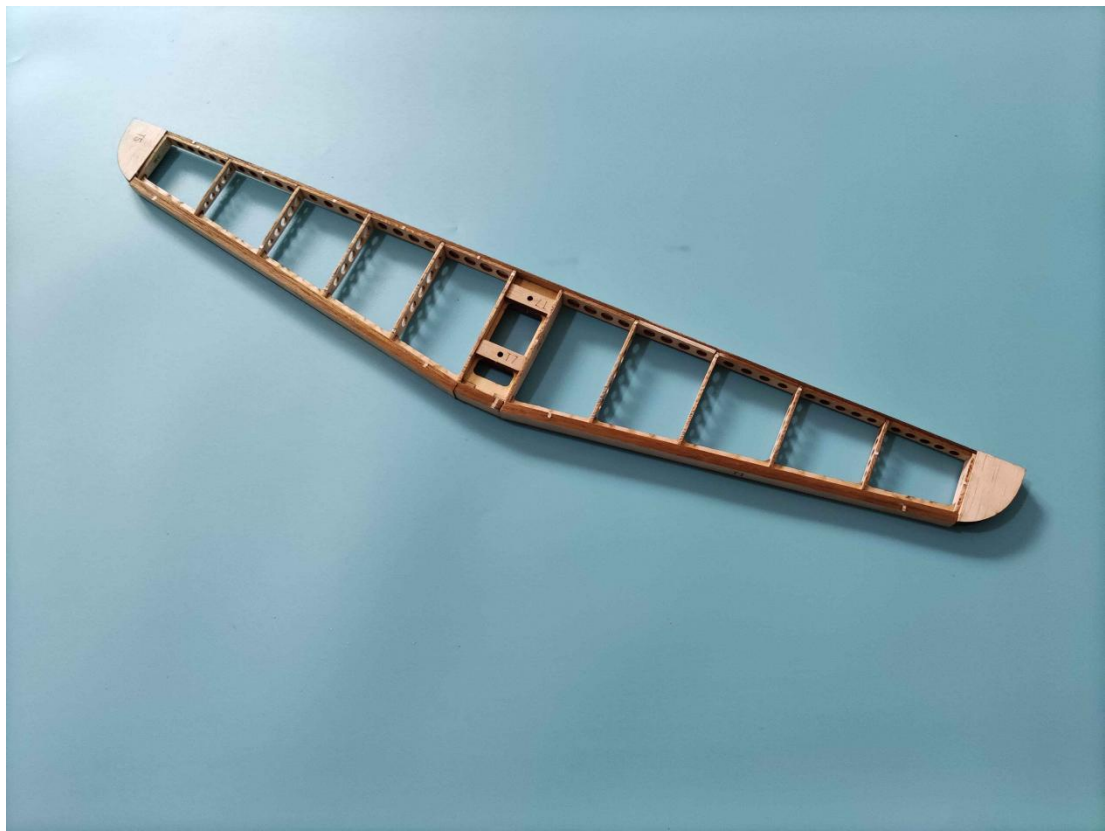
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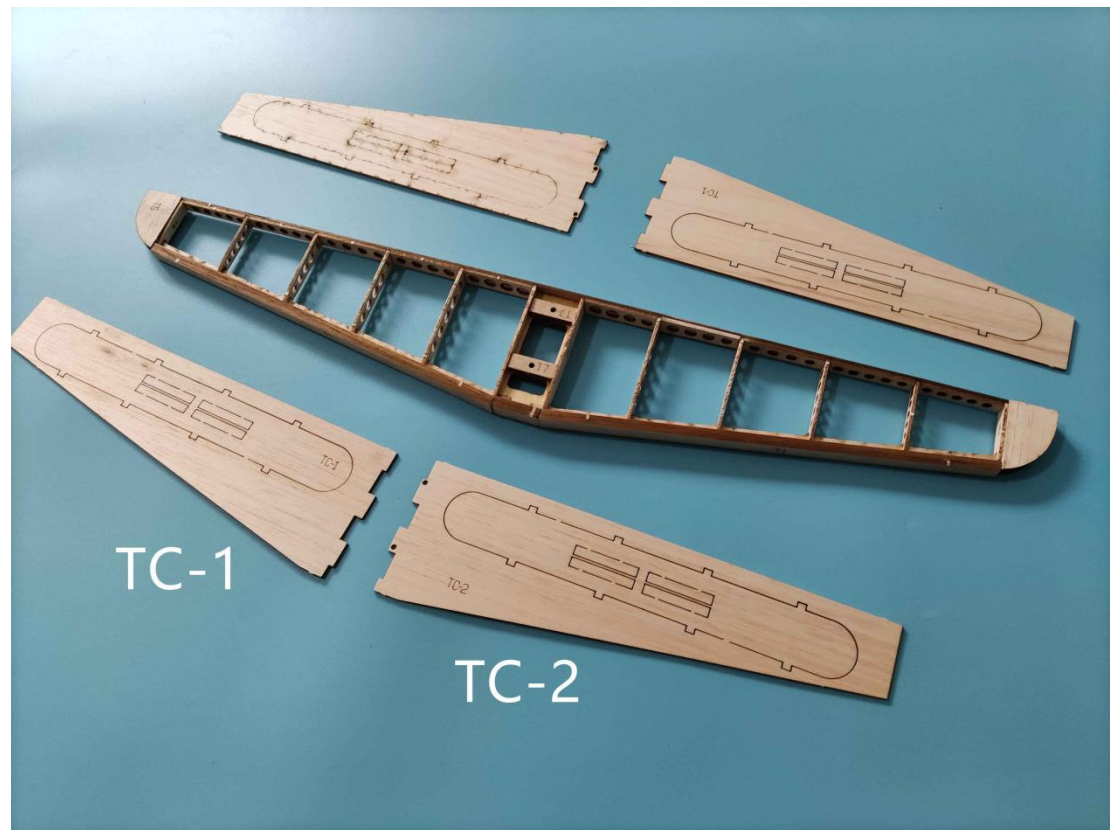


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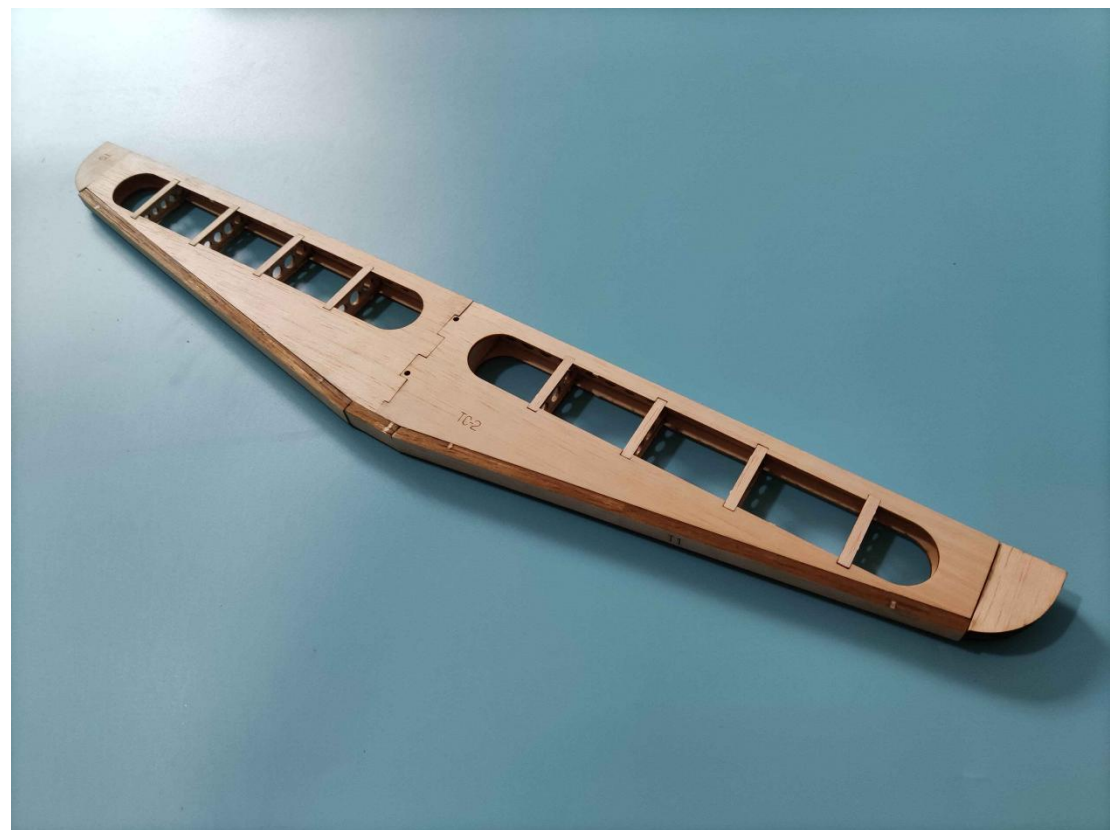




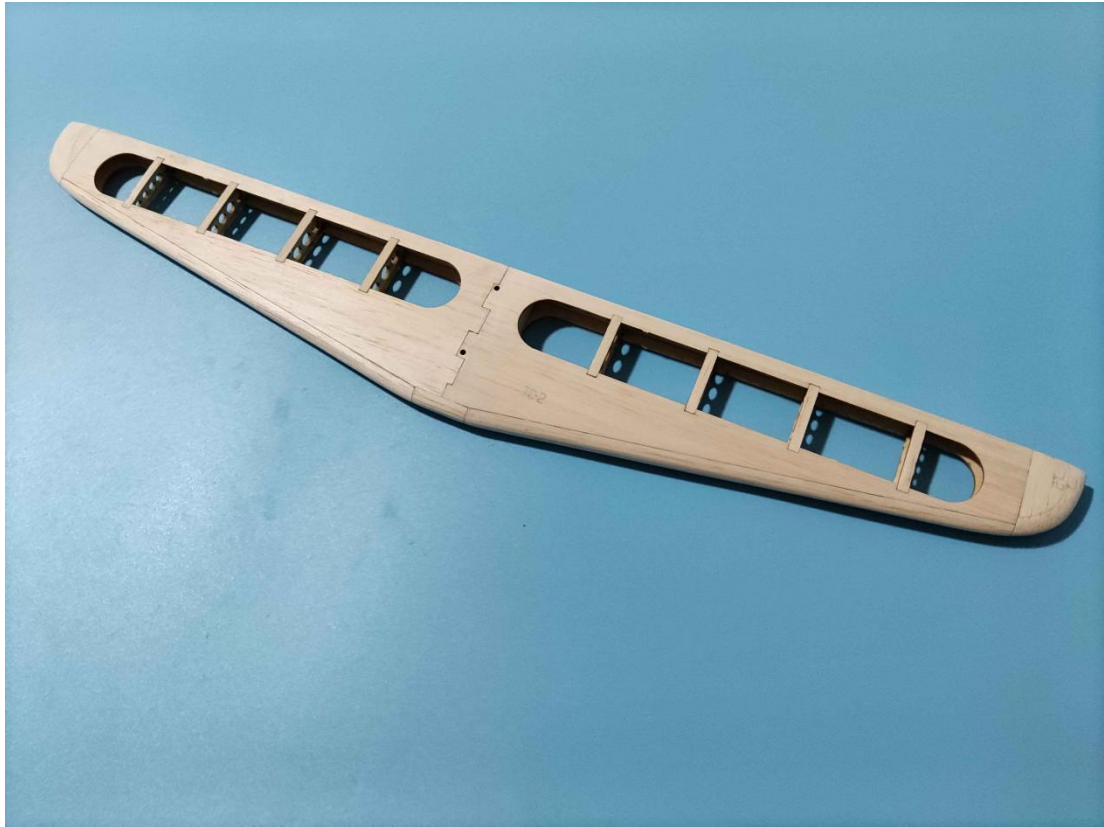
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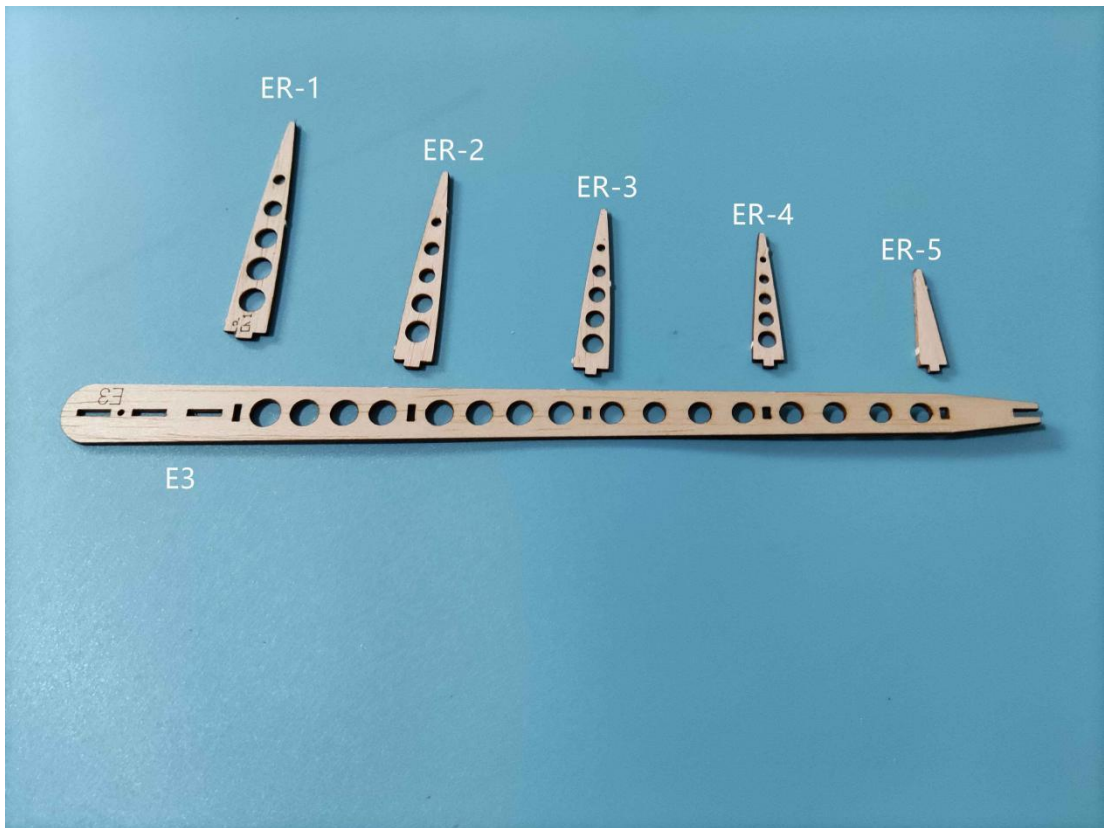
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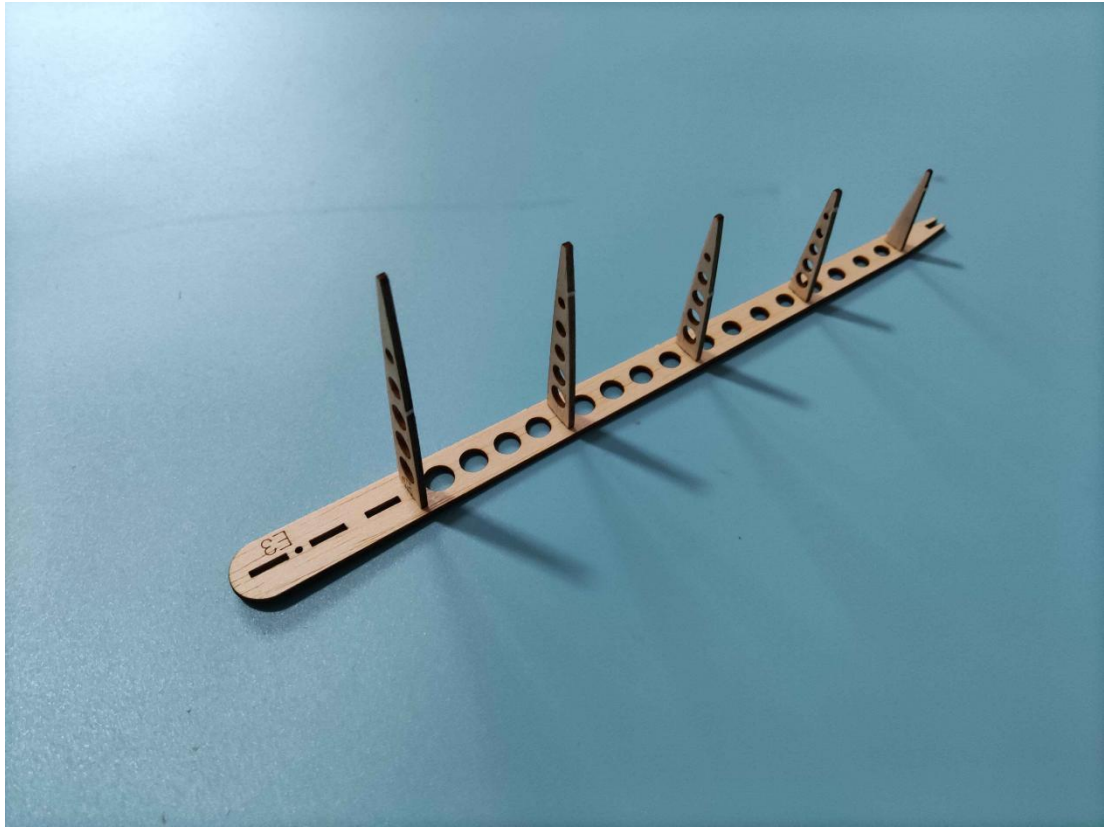


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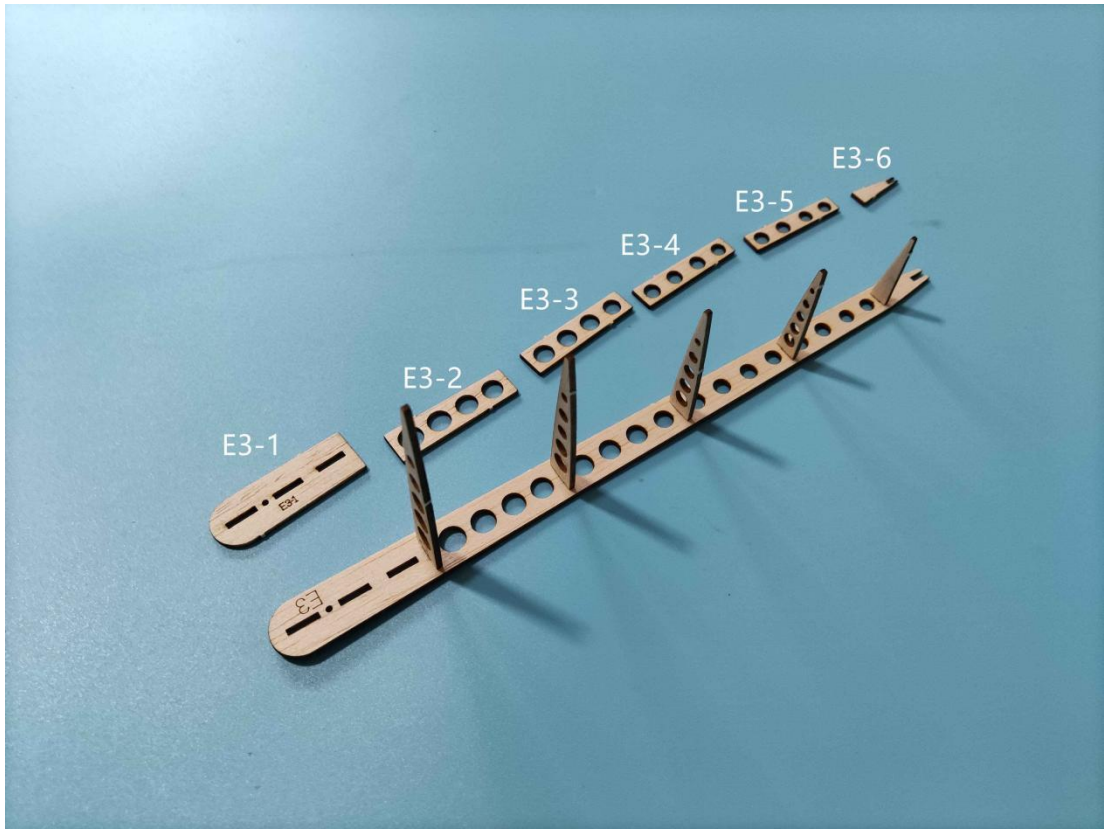




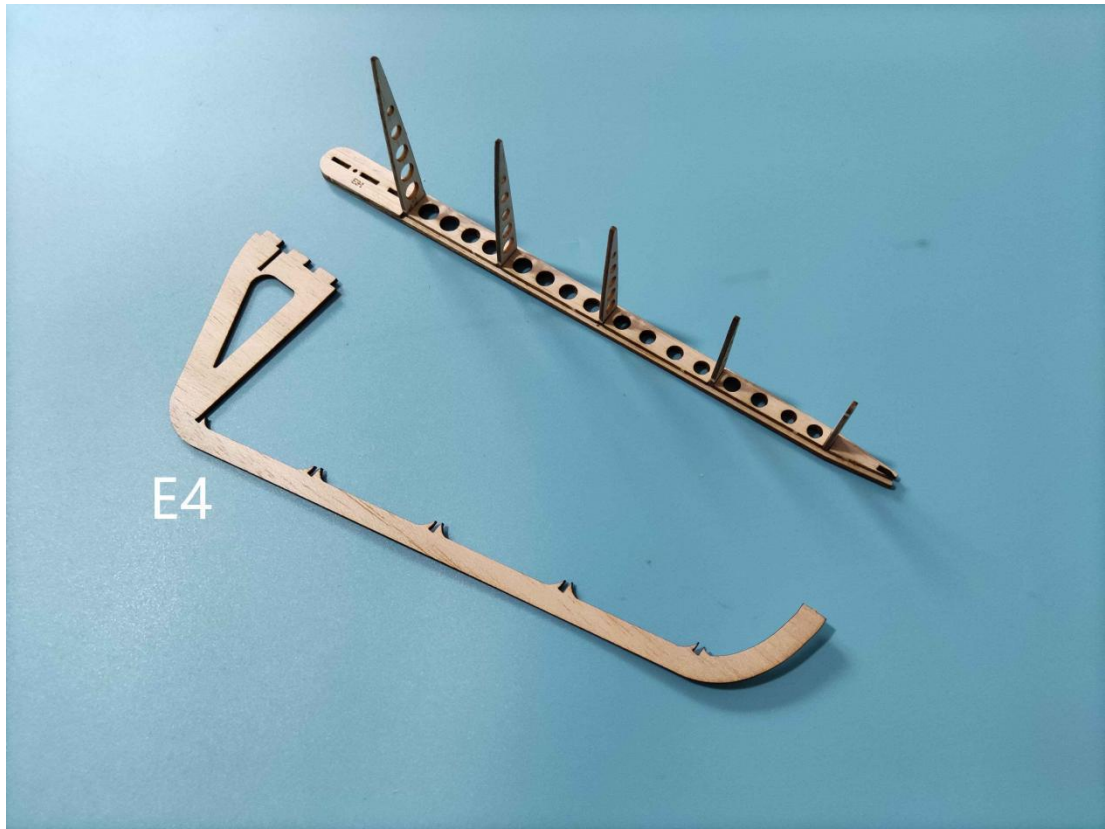
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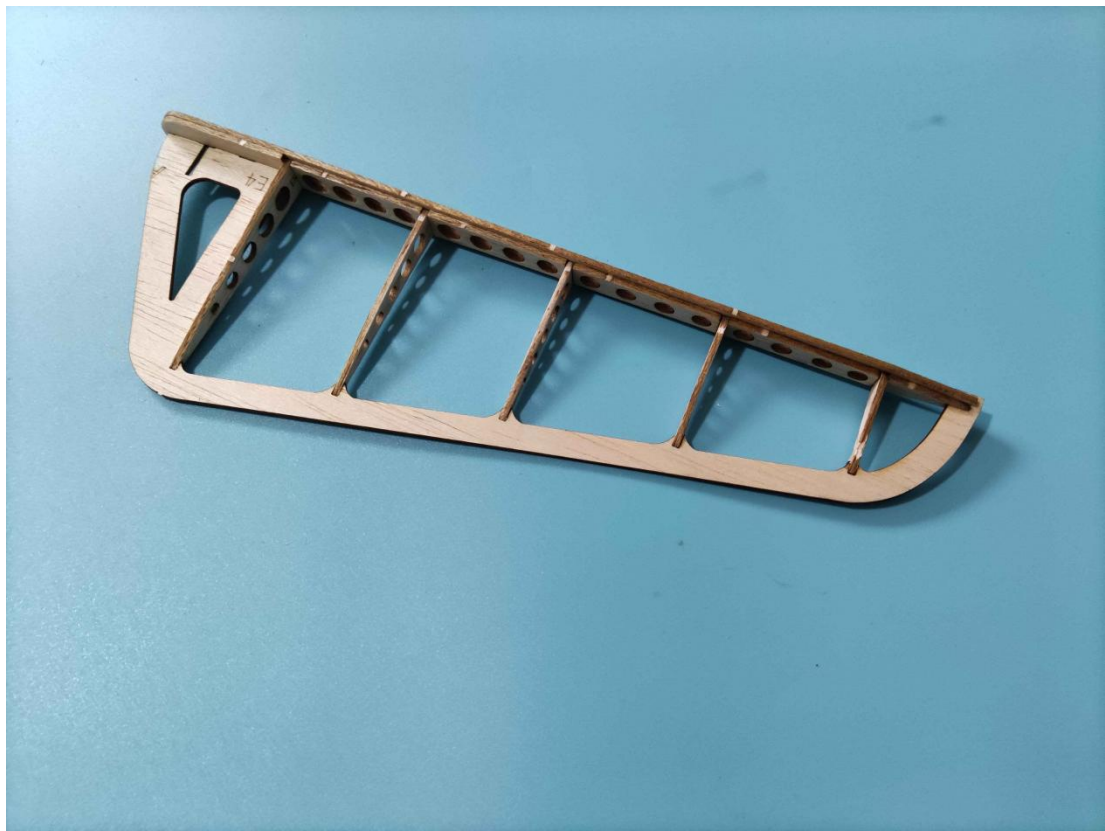
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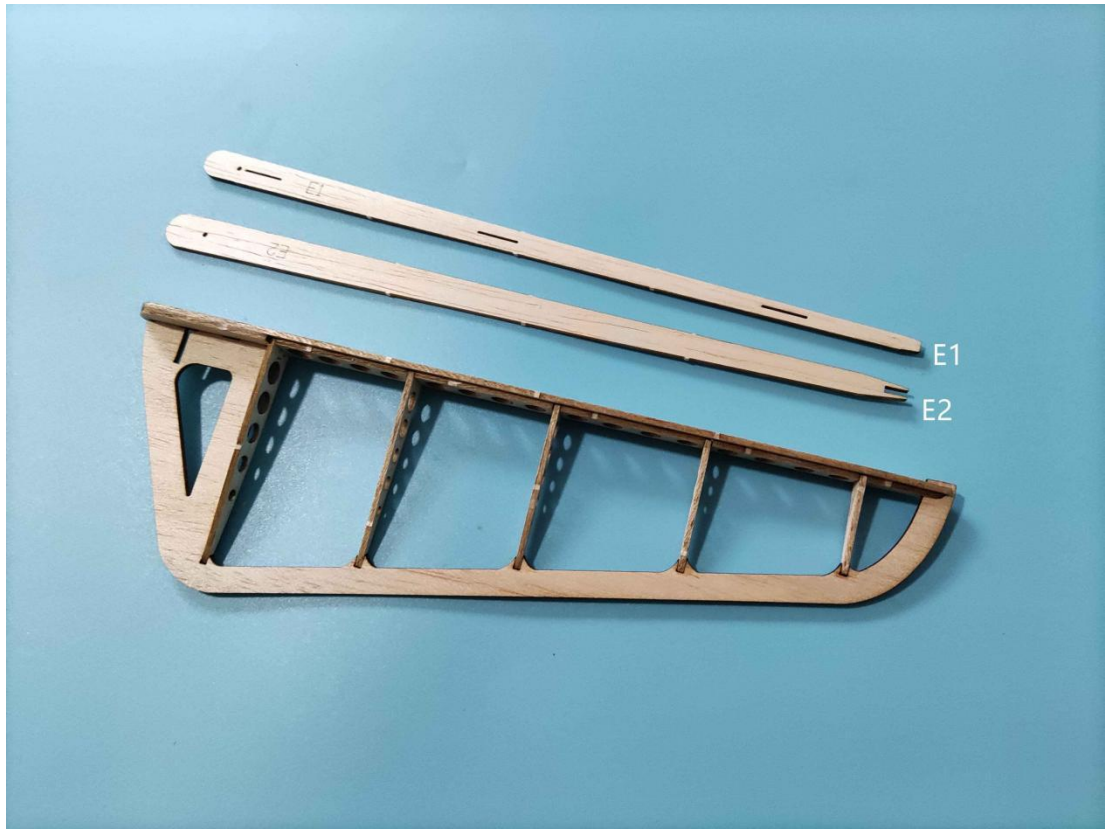


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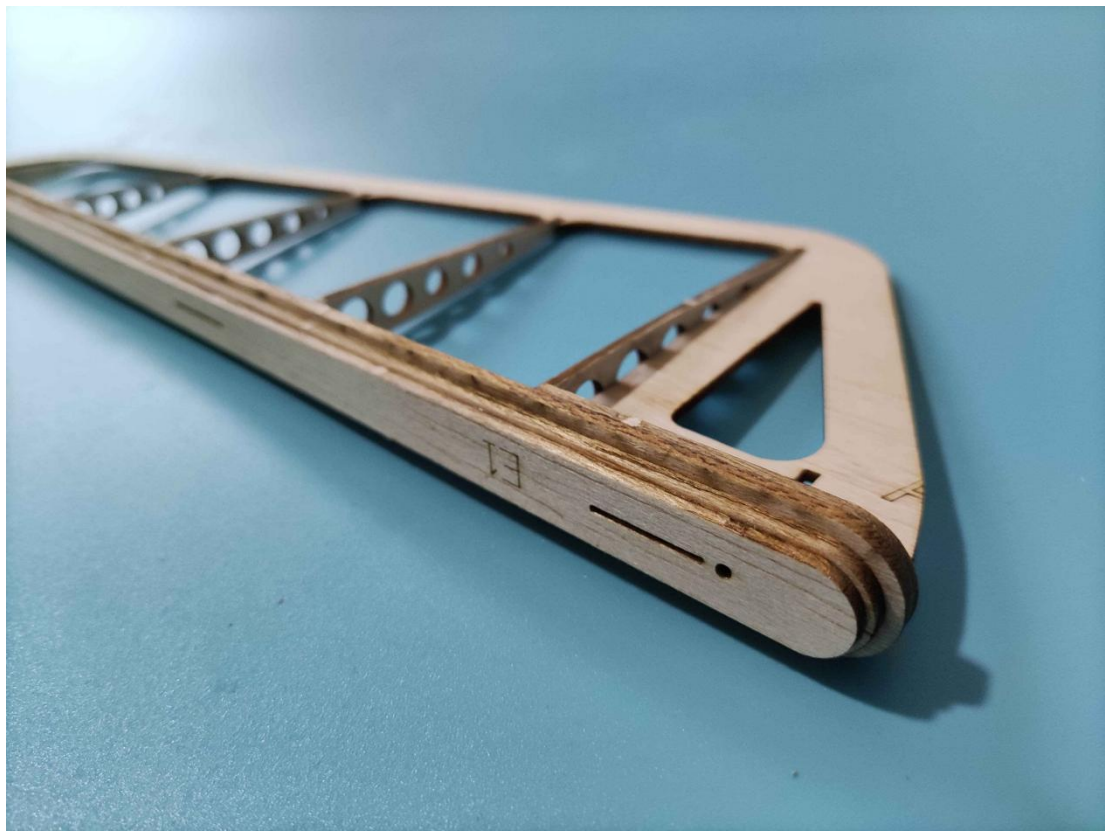




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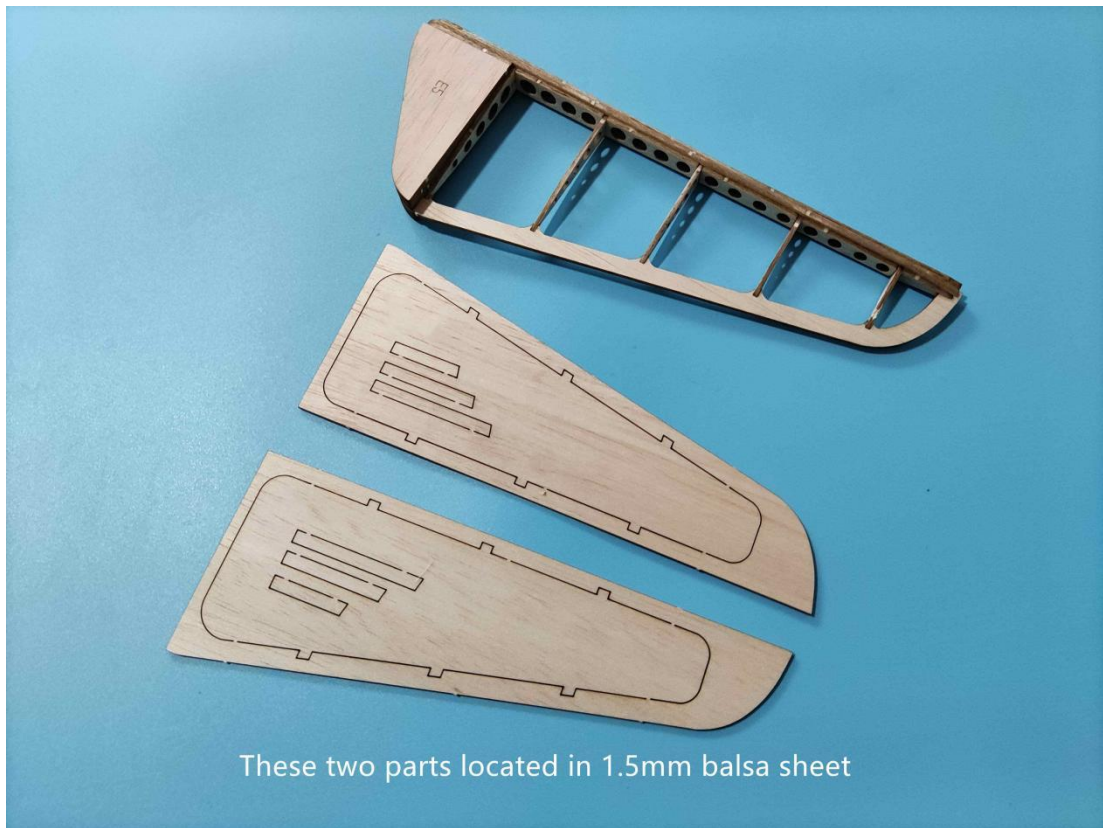
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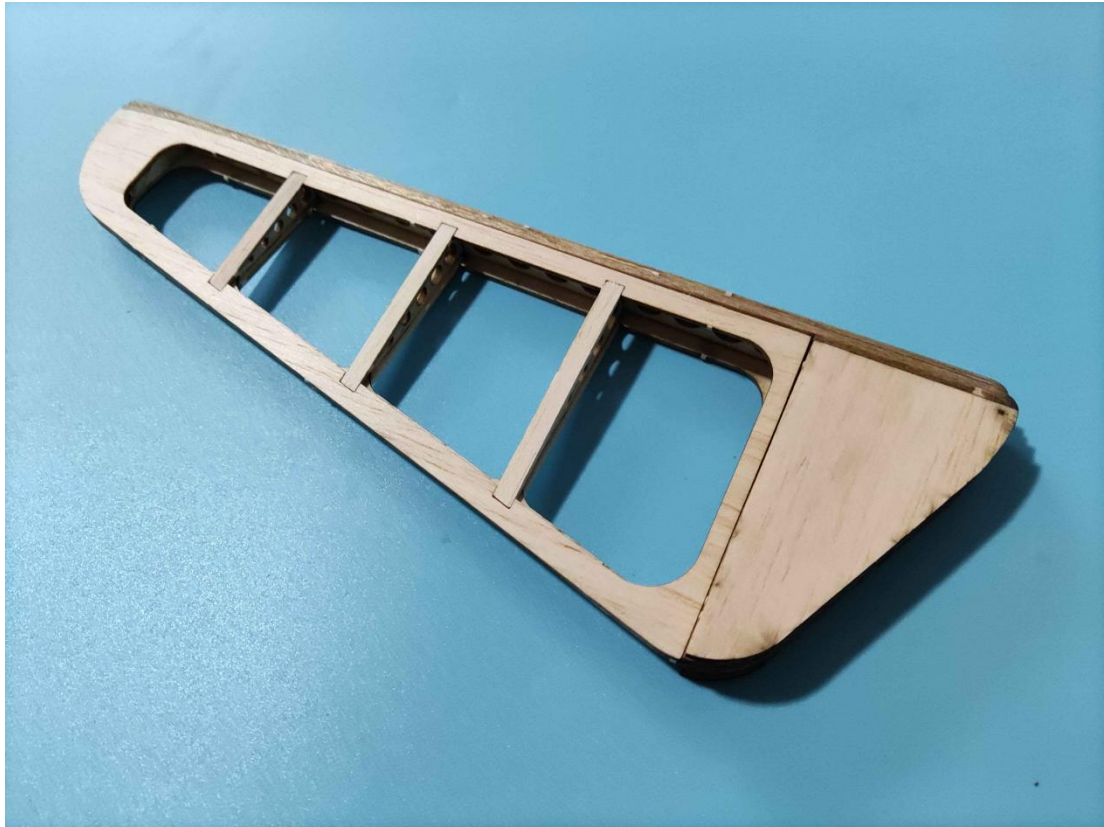


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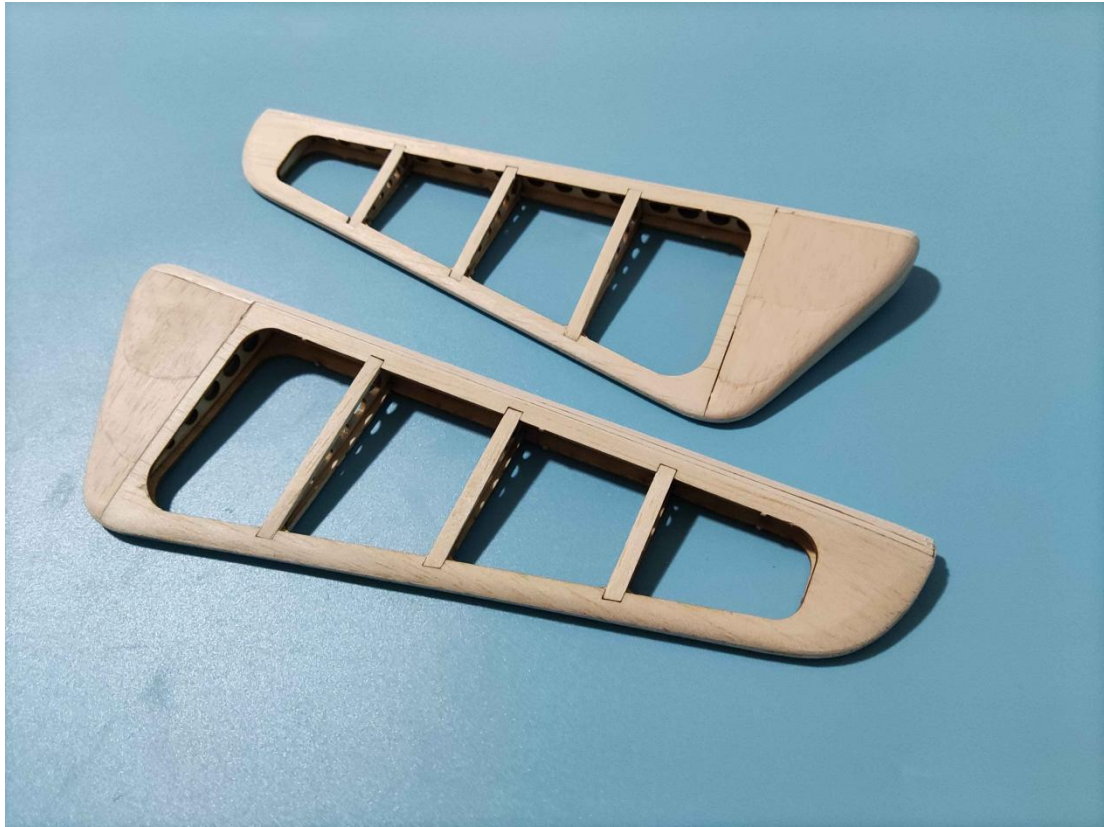
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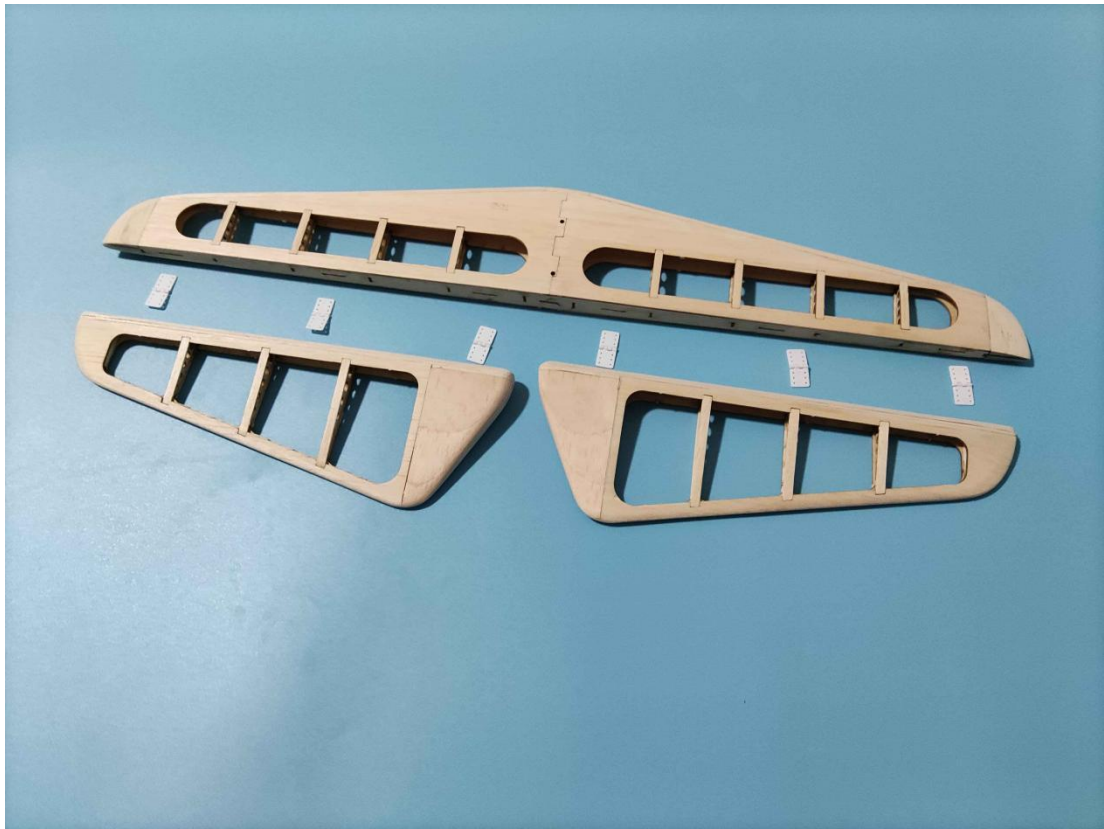
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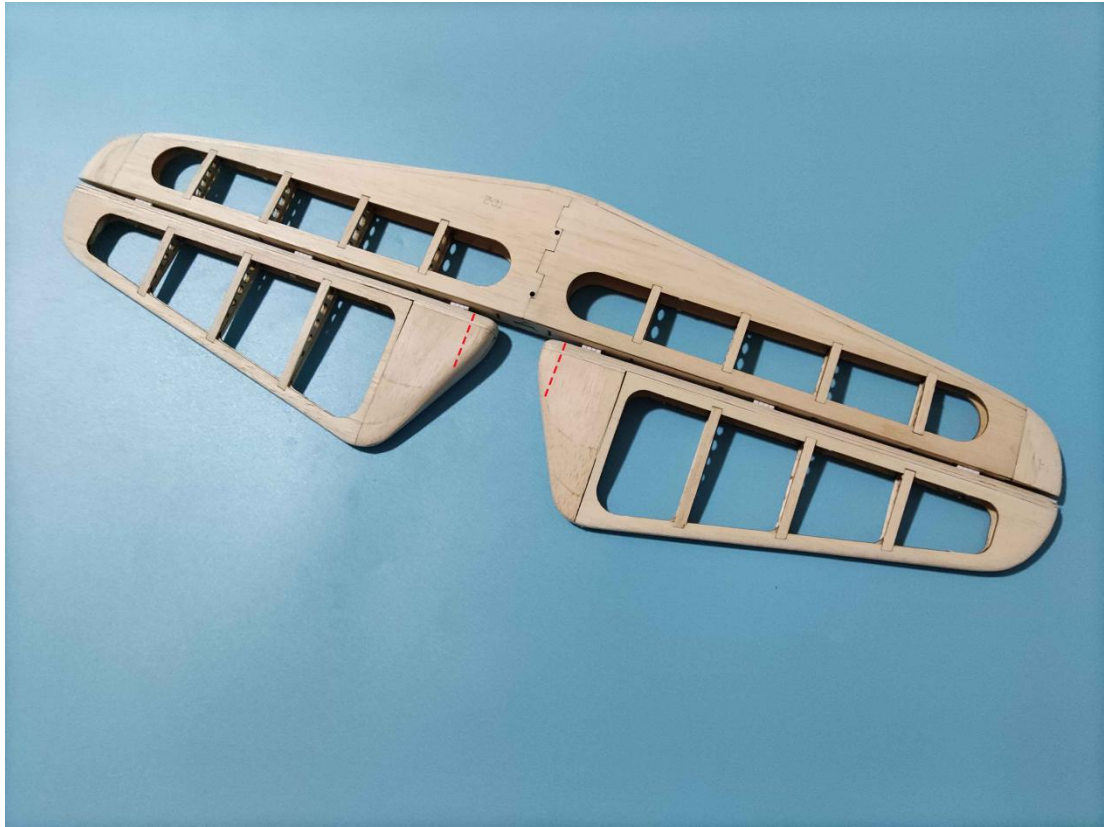
Step 23



Step 24



Step 25



**Builder's note:**

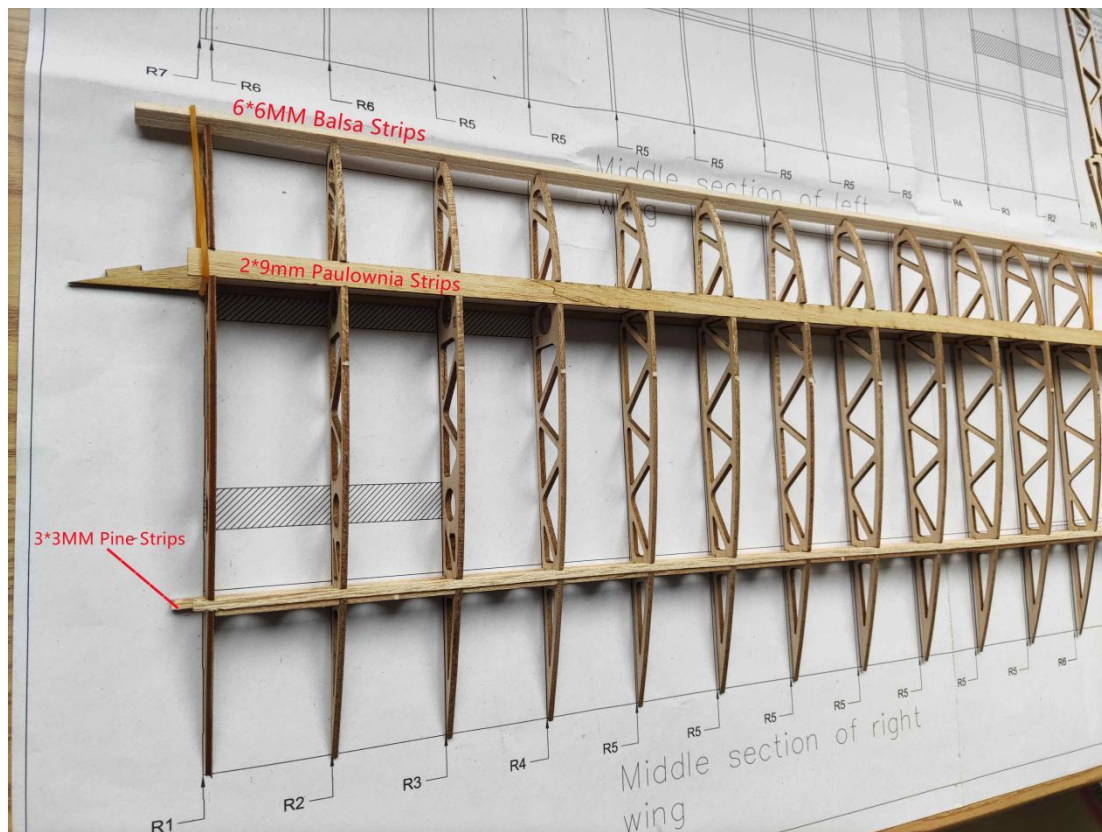


## Part3.Centre wing section

Step 1

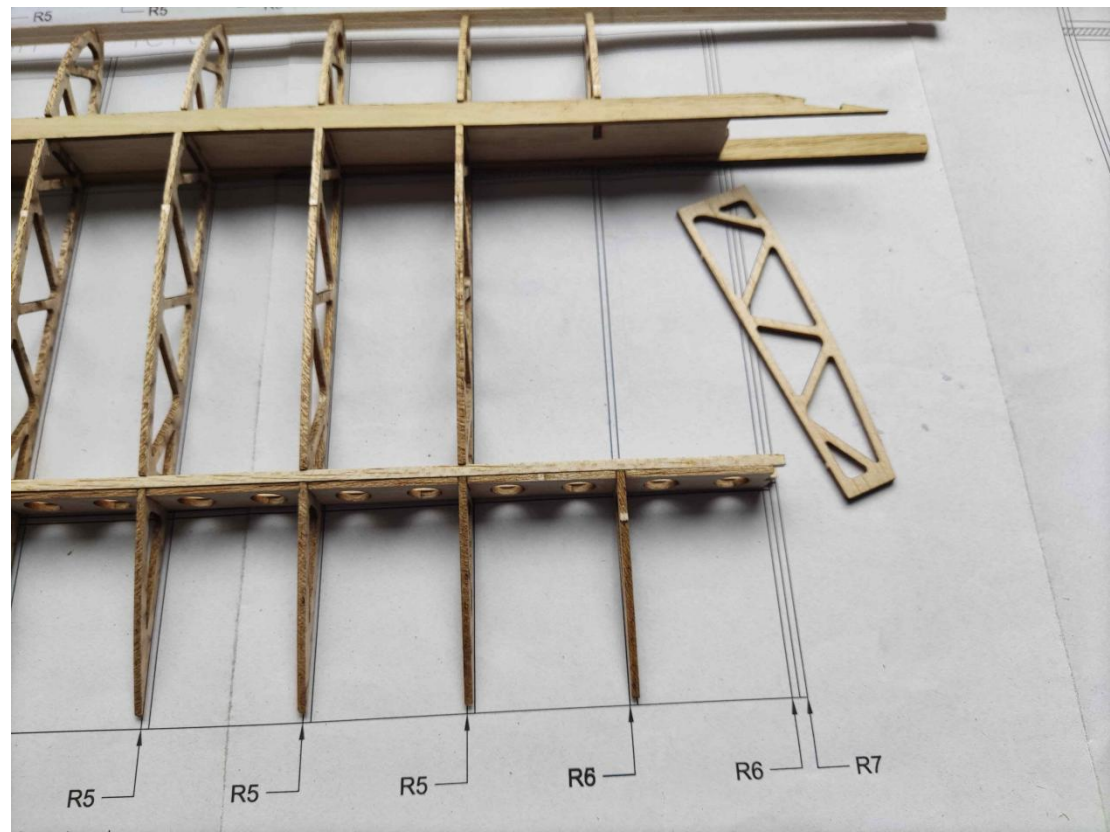


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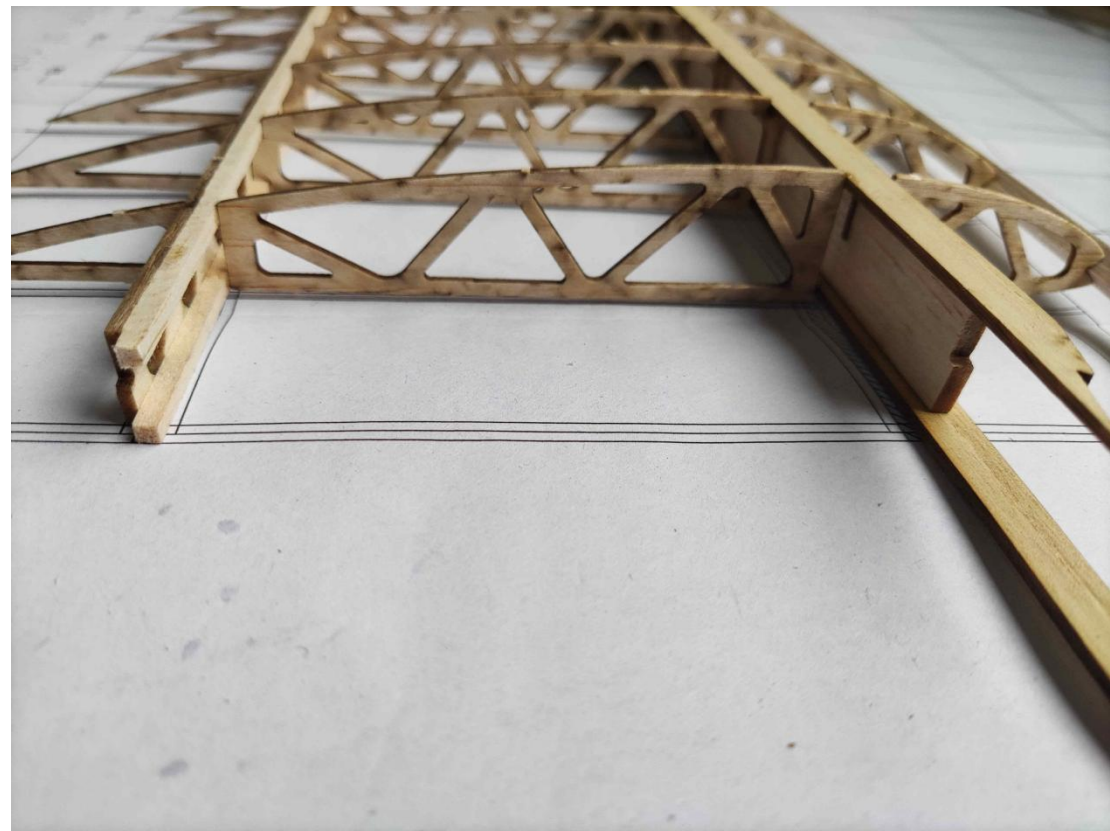




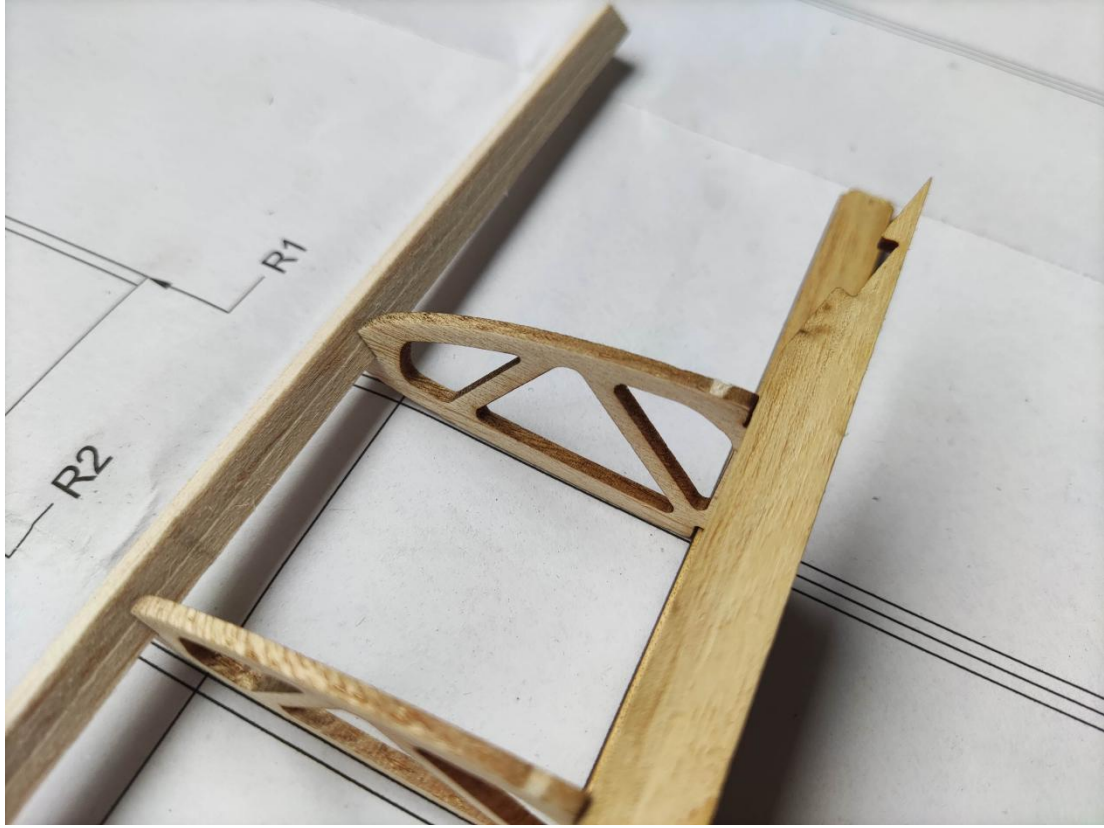
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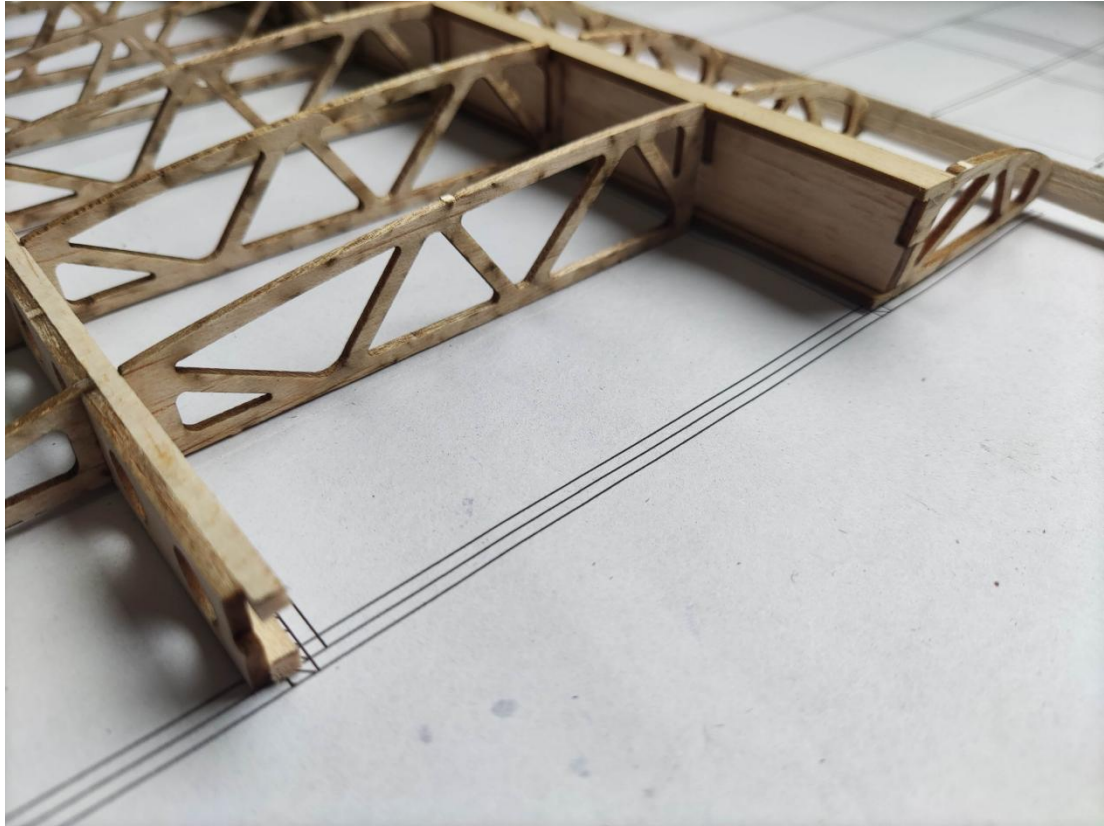
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Step 5

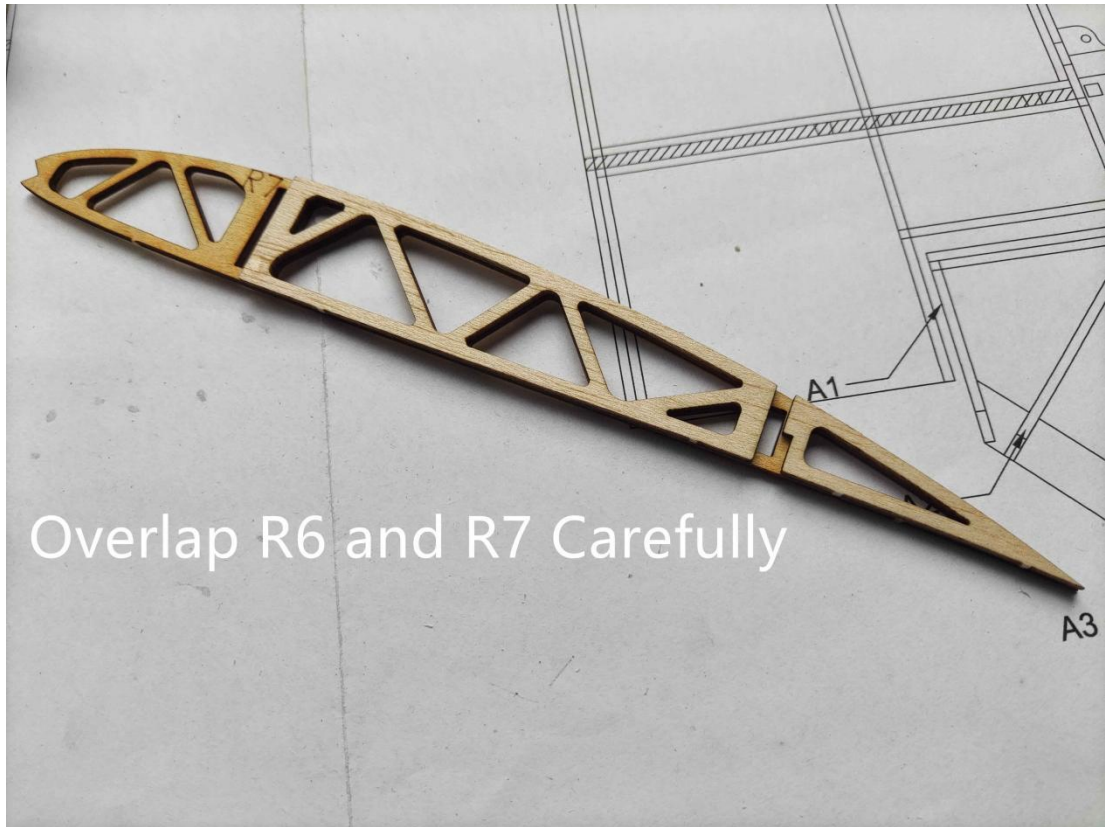


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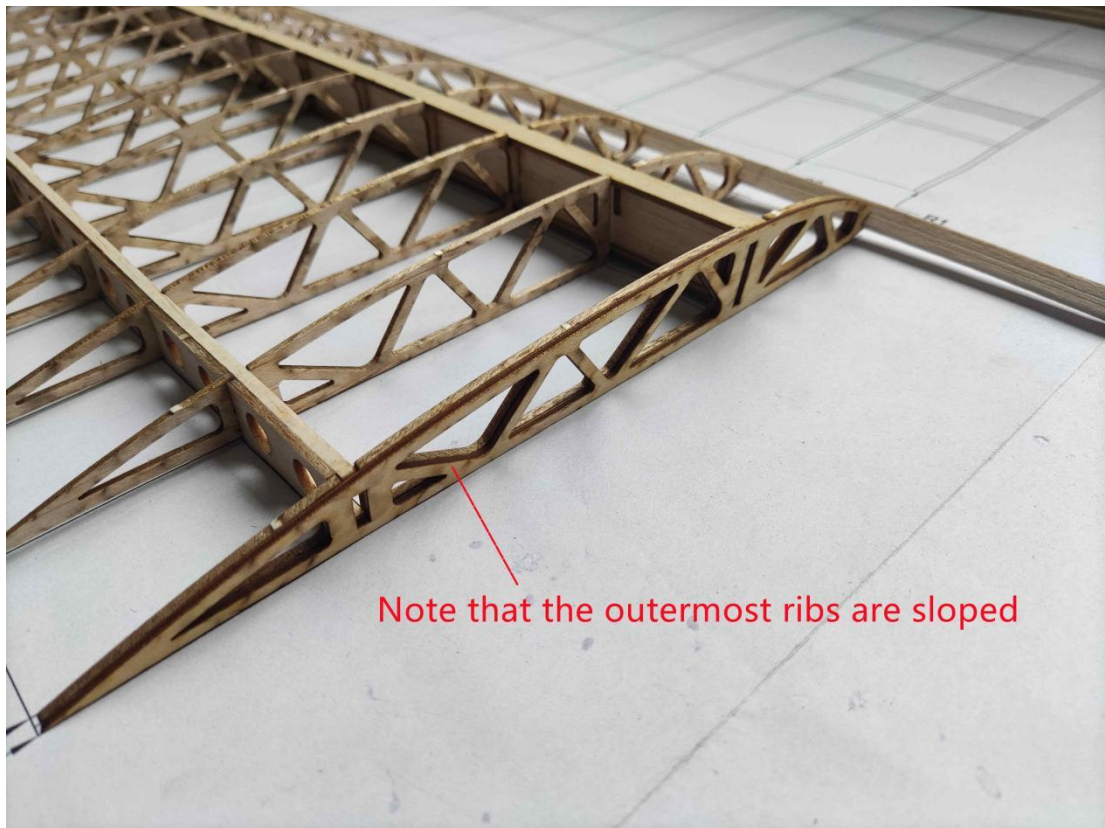




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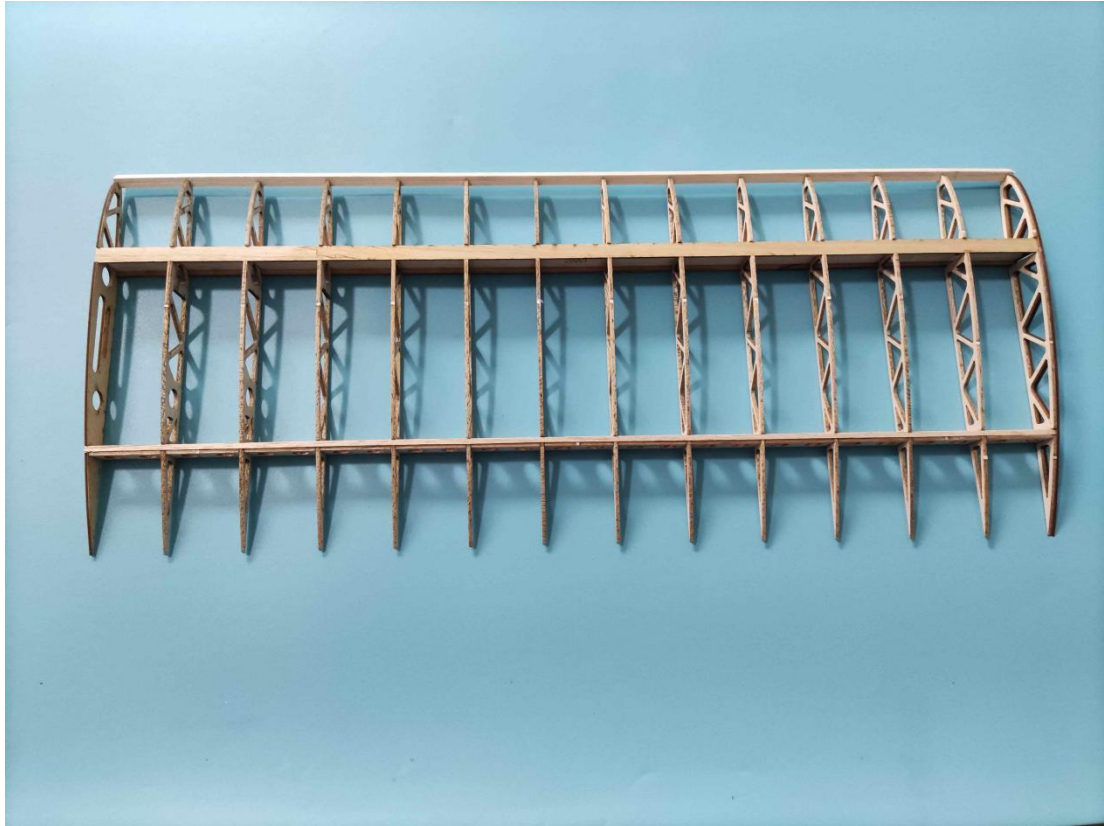
Step 8



Step 9

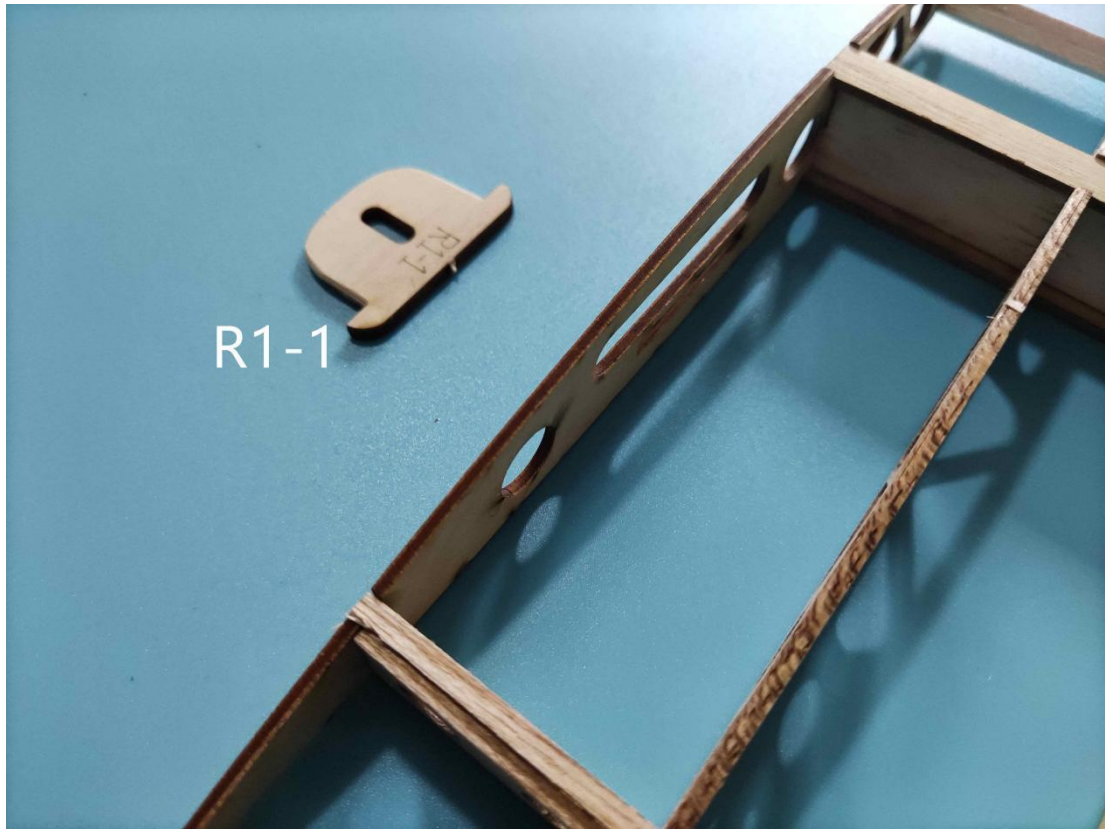


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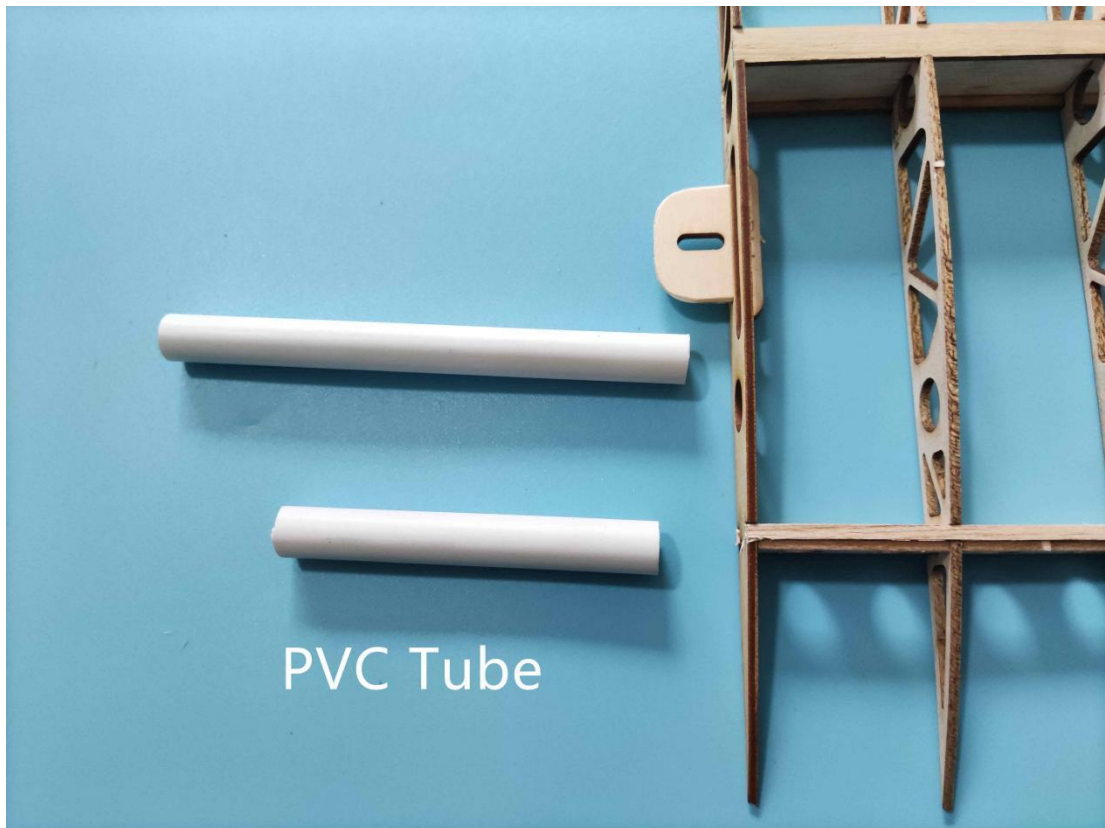




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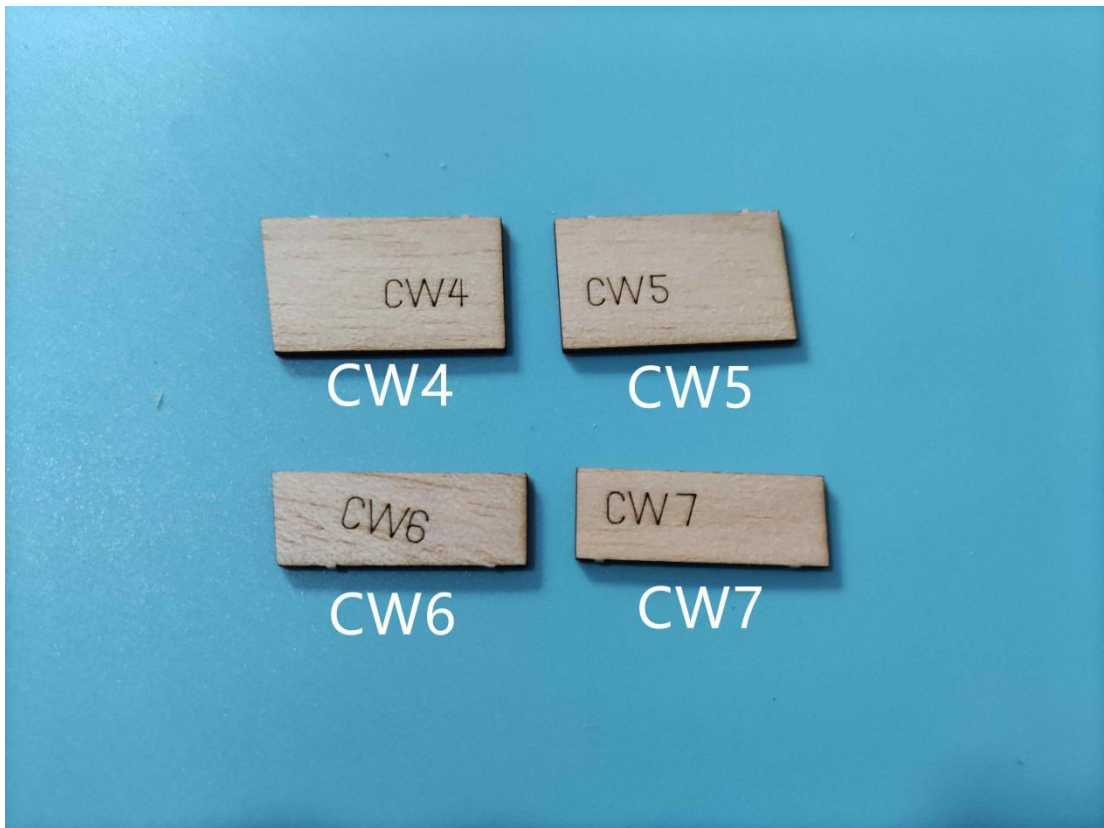
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Step 13



Step 14





Step 15



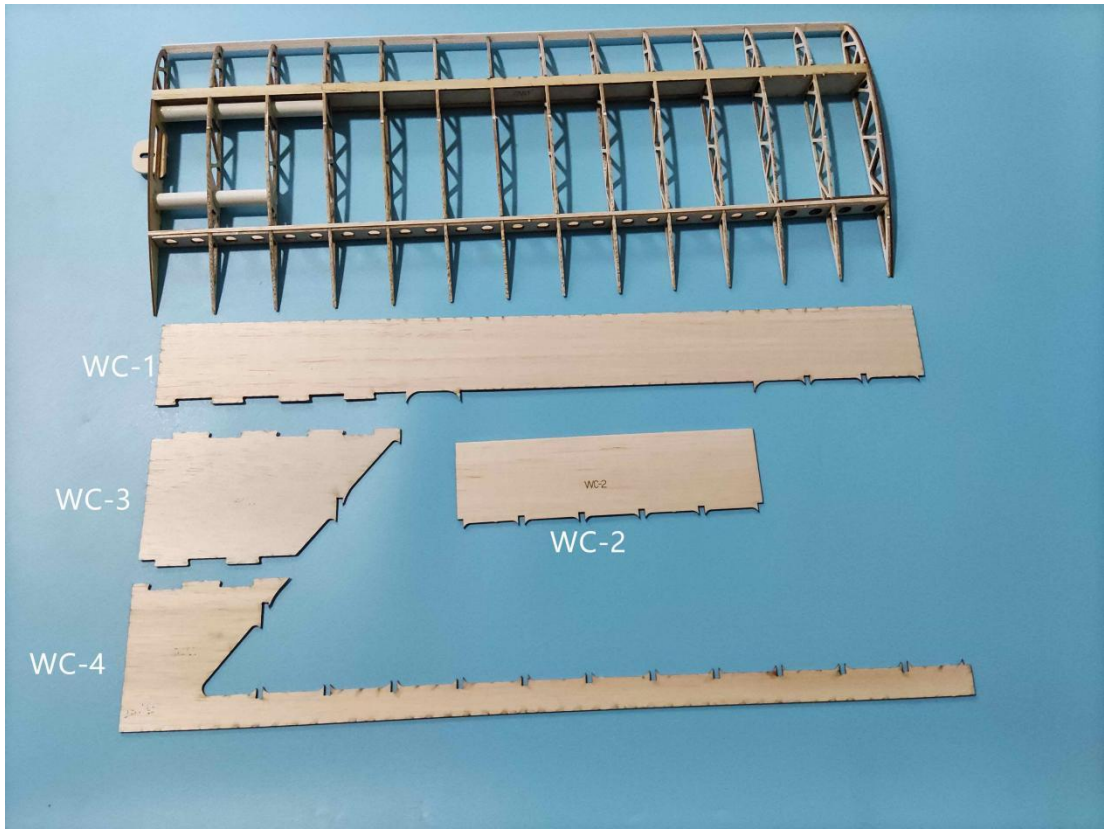
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Step 17

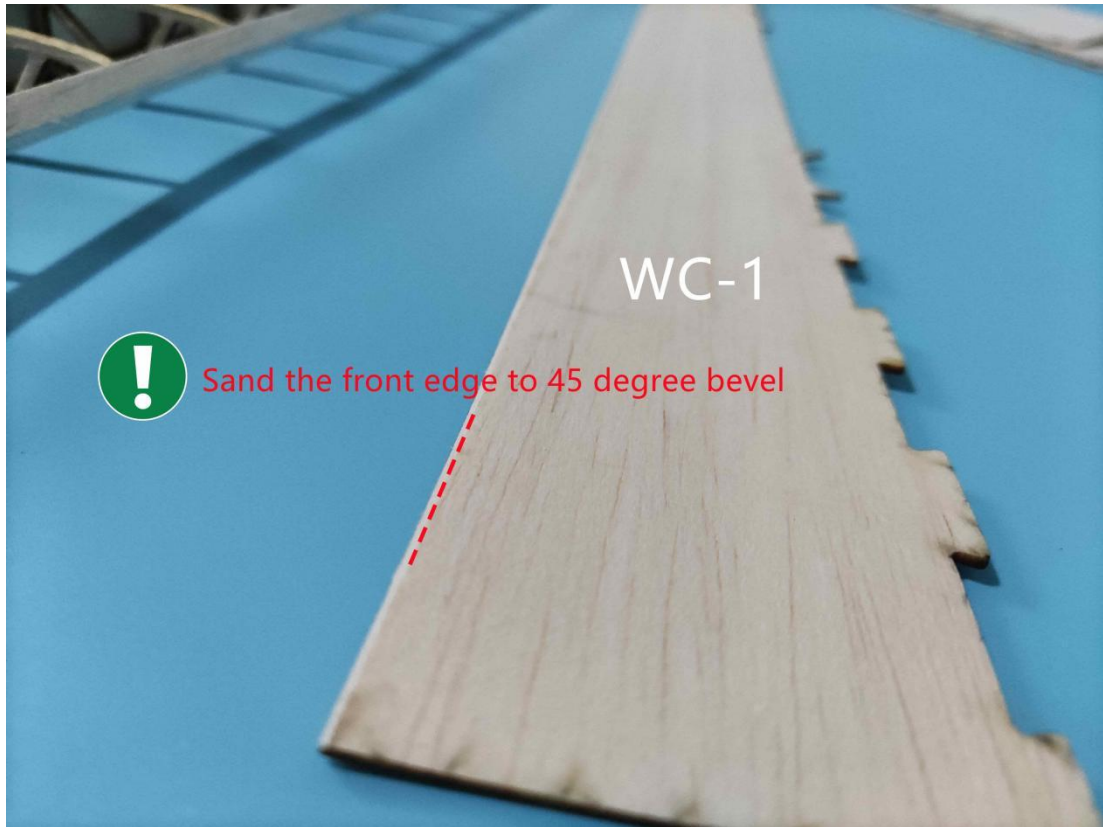


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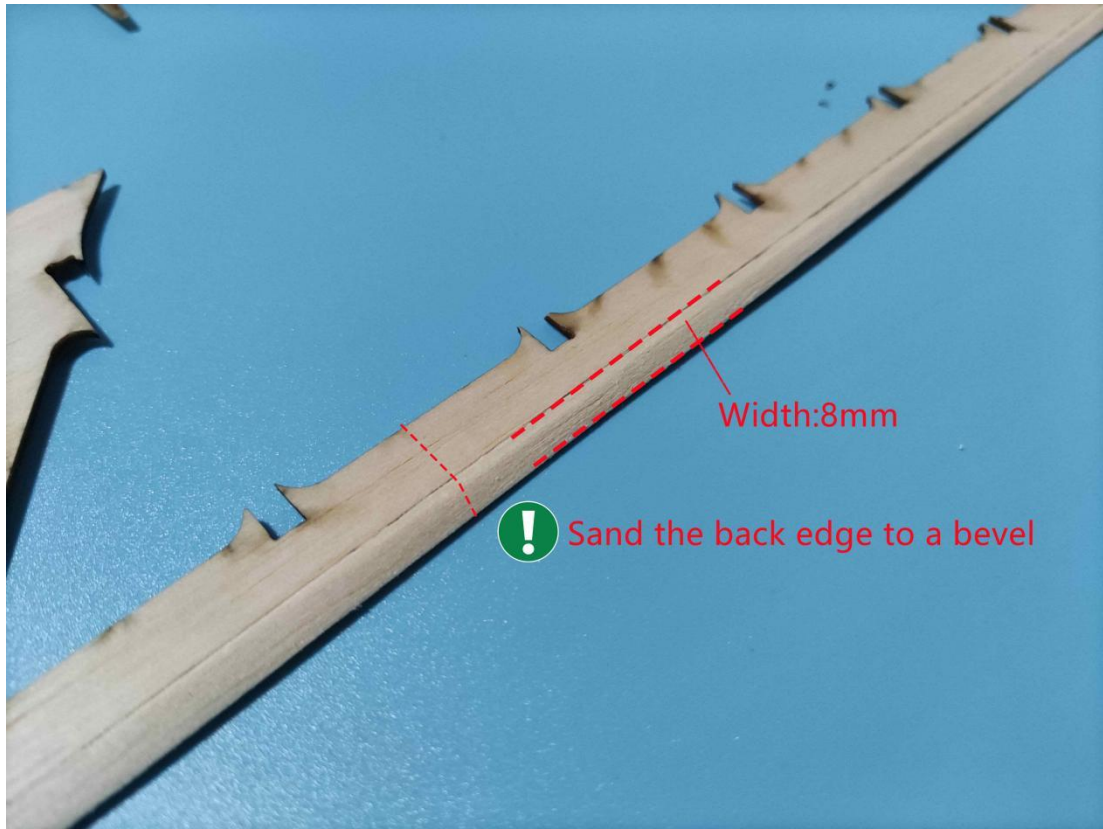
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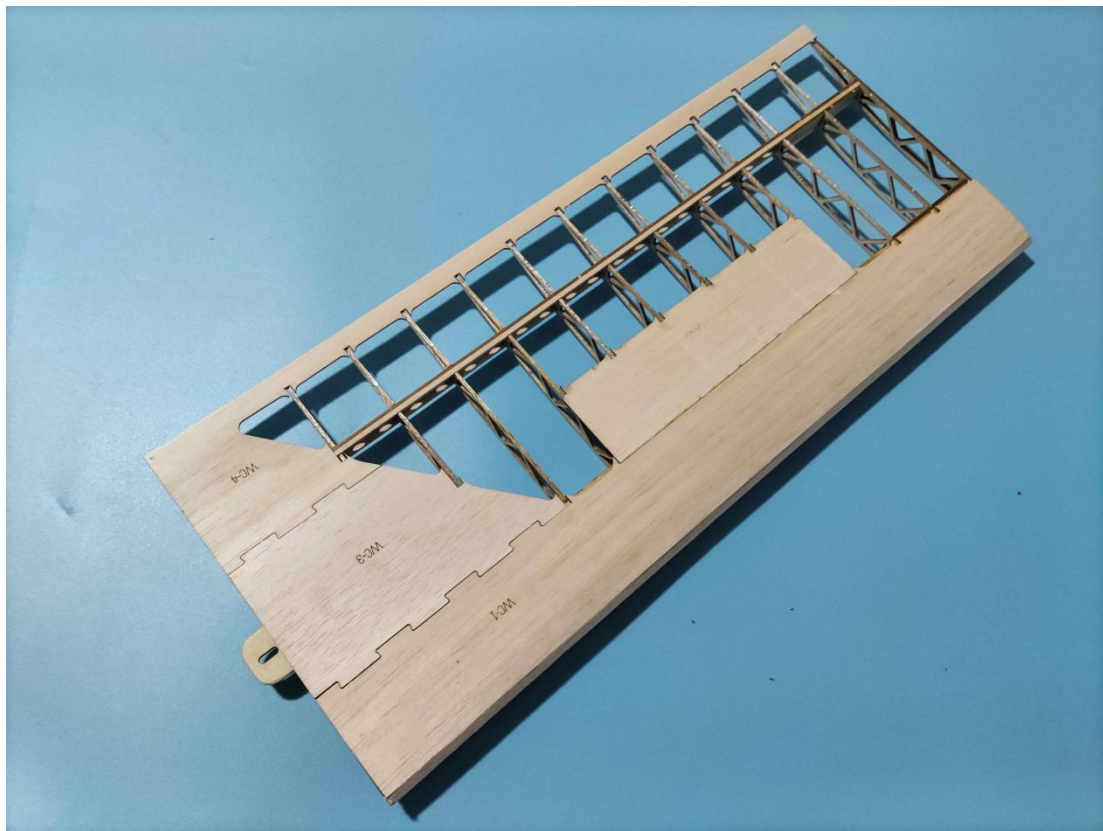
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Step 21

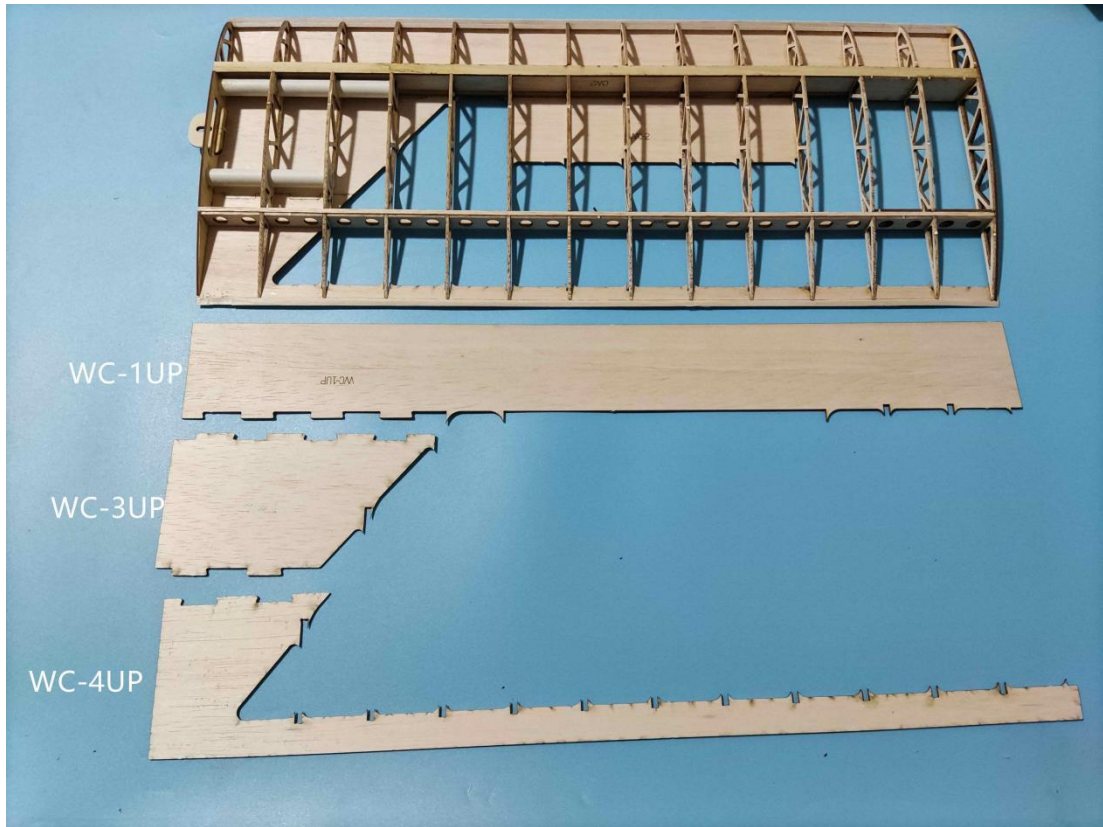


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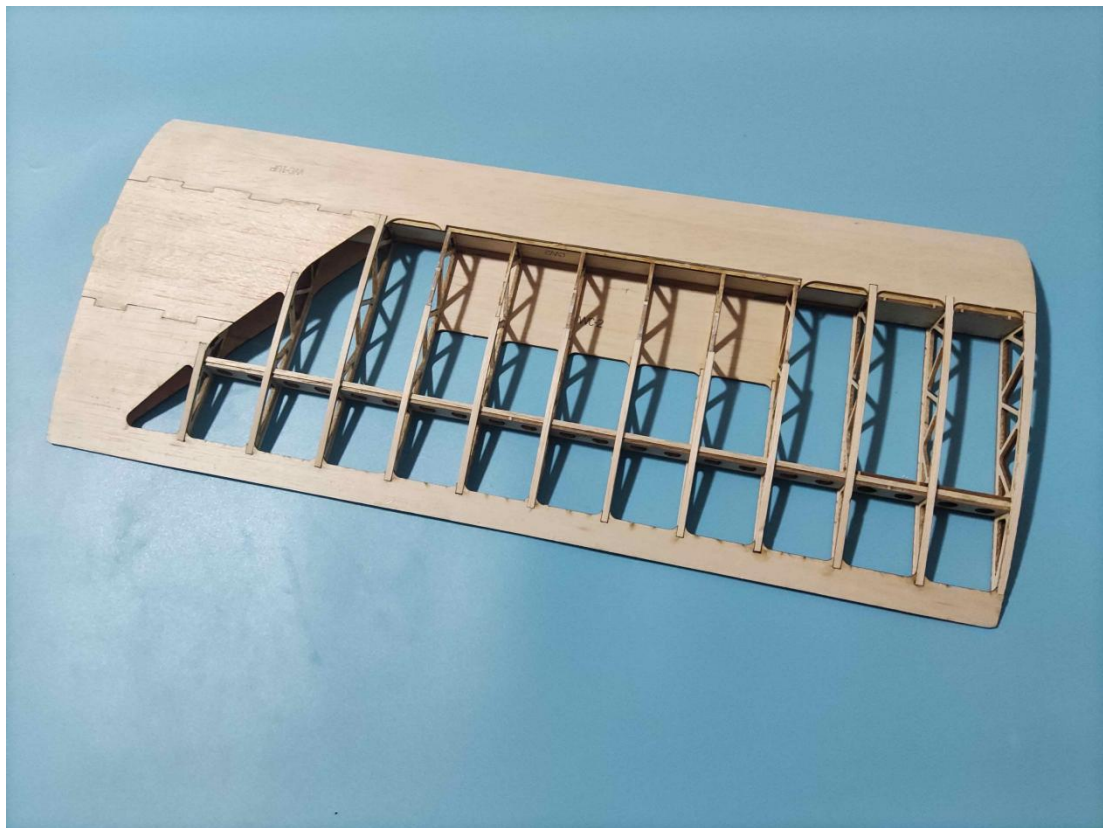




Step 23



Step 24





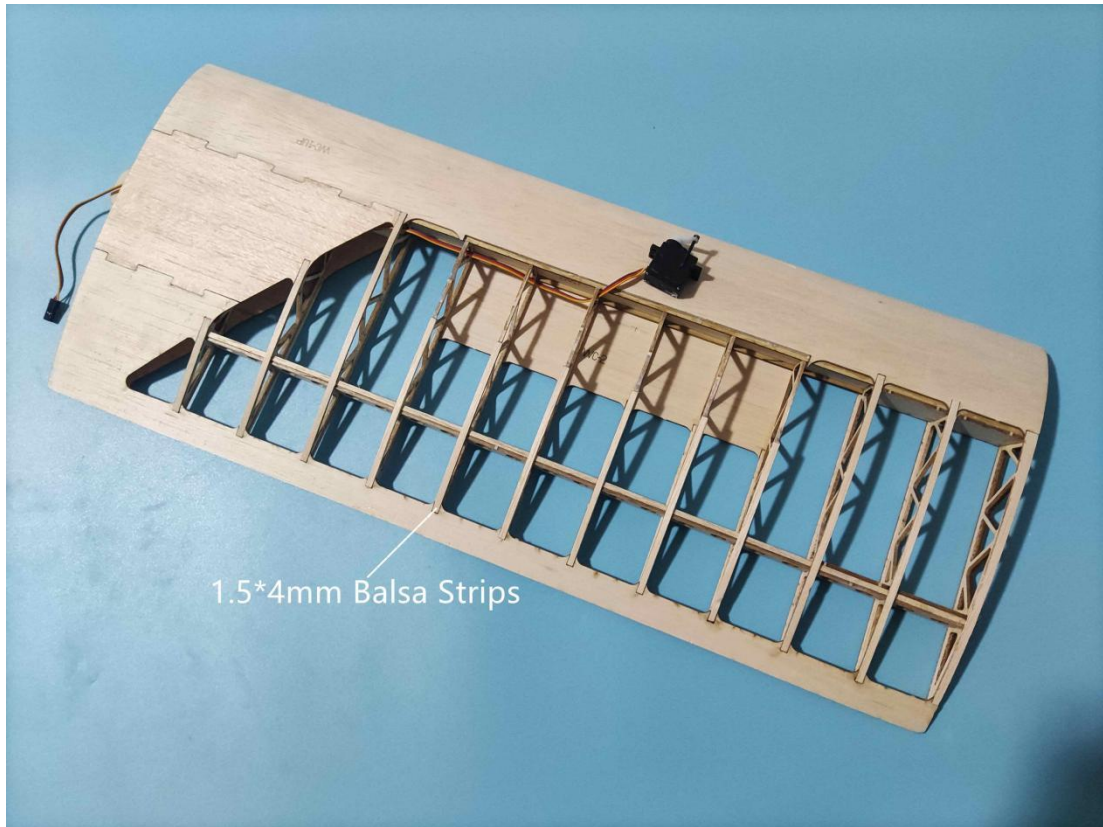
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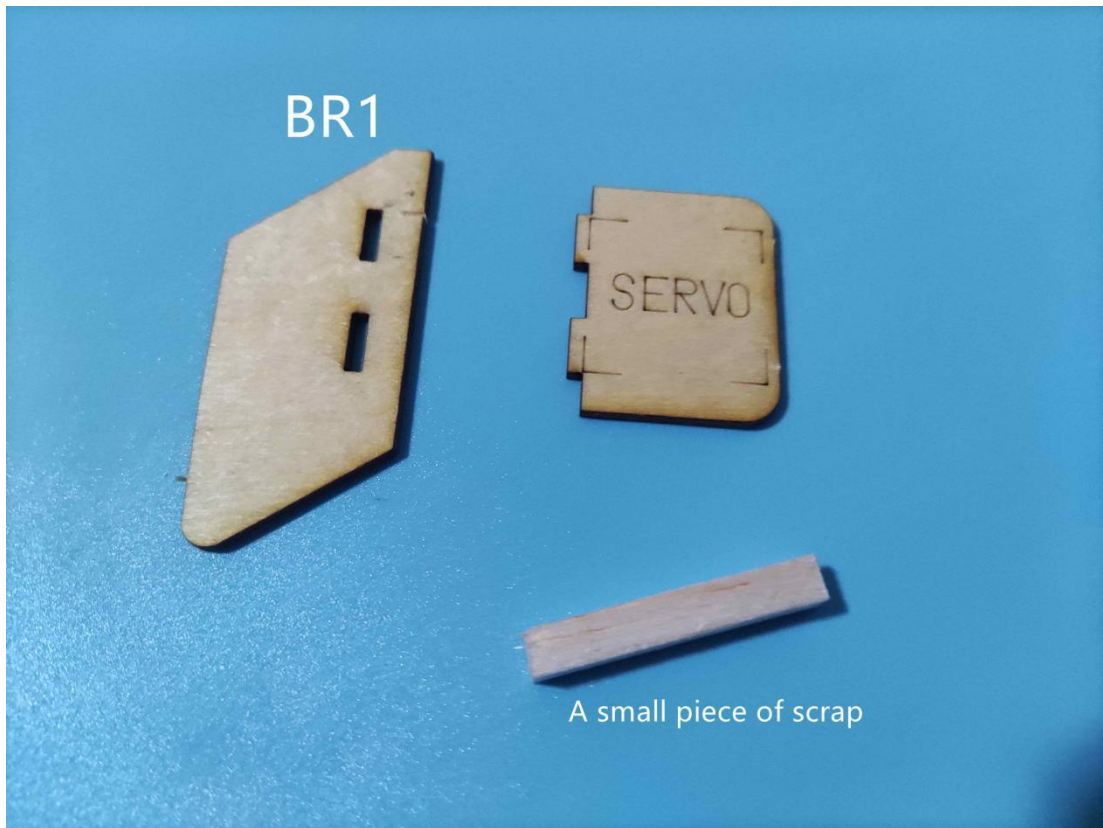
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Step 27

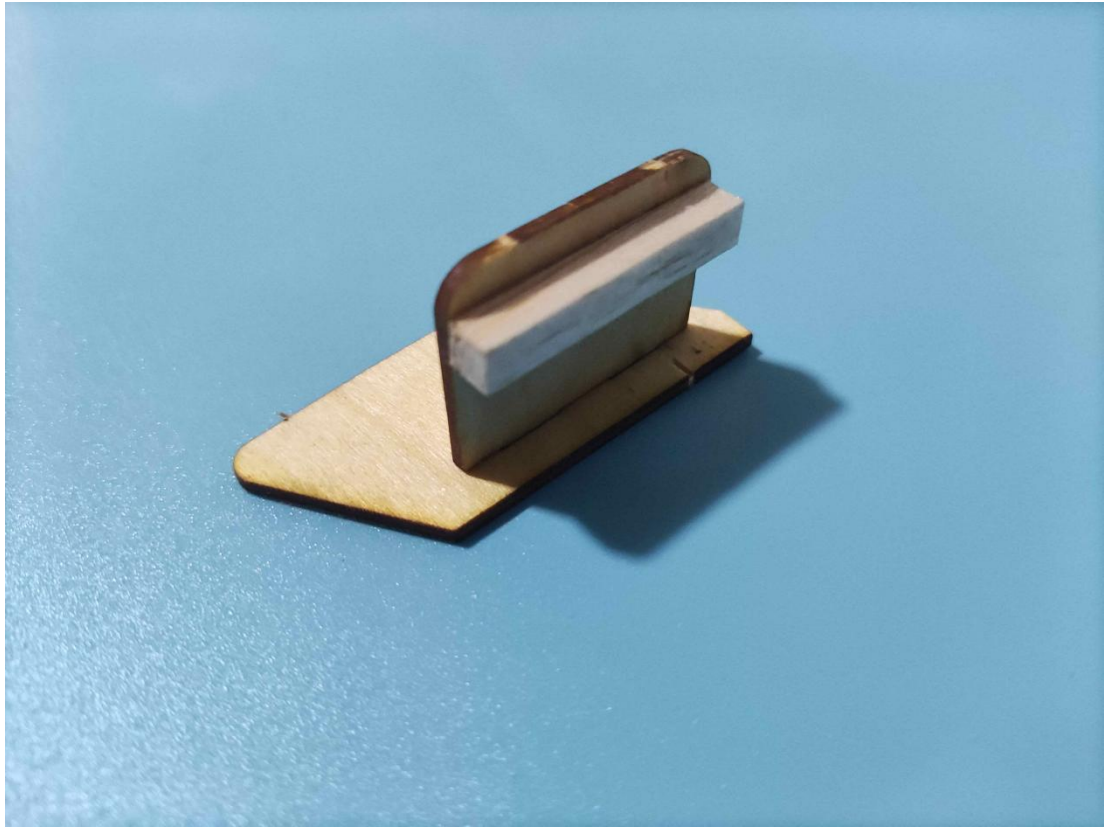


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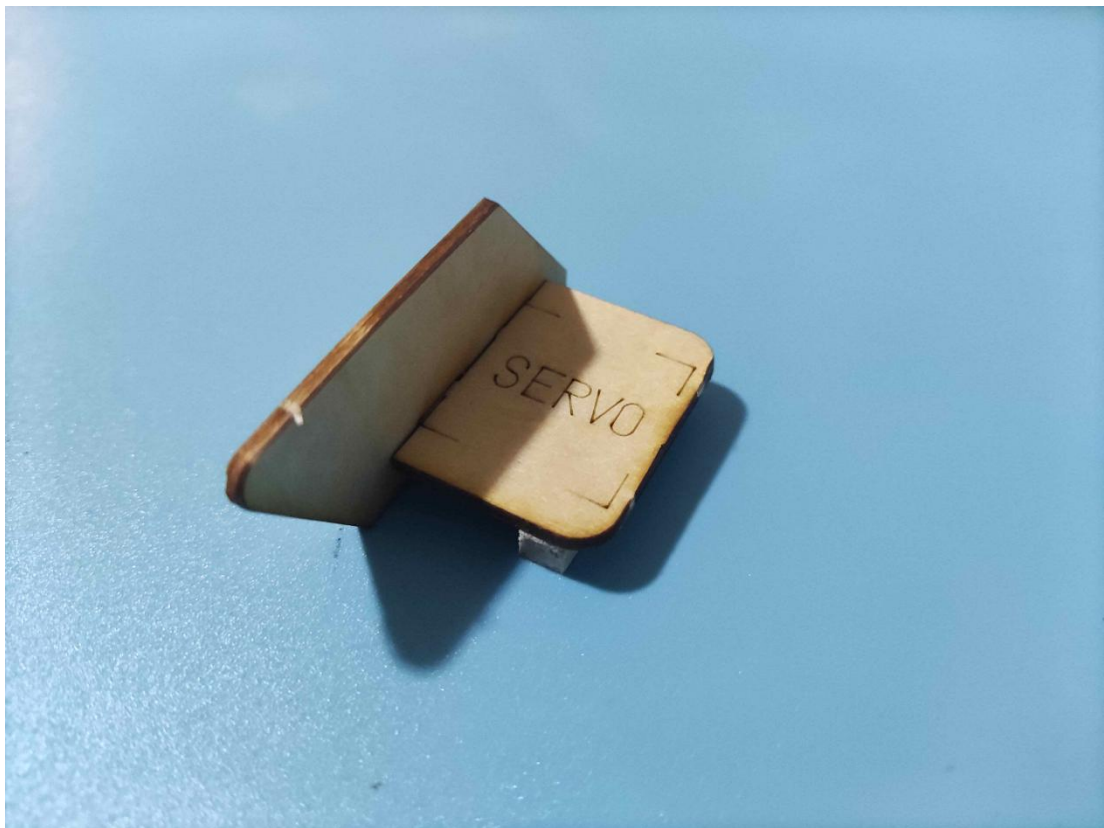




Step 29



Step 30





Step 31



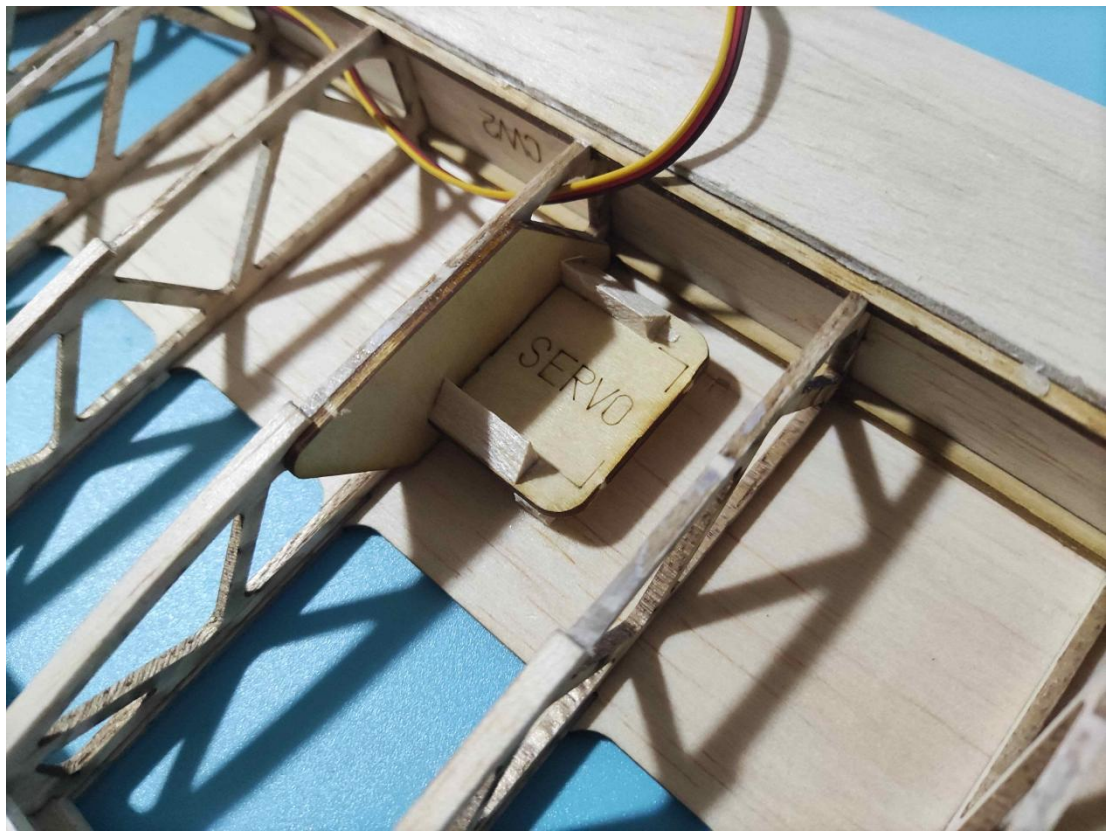
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Step 33



Step 34





Step 35

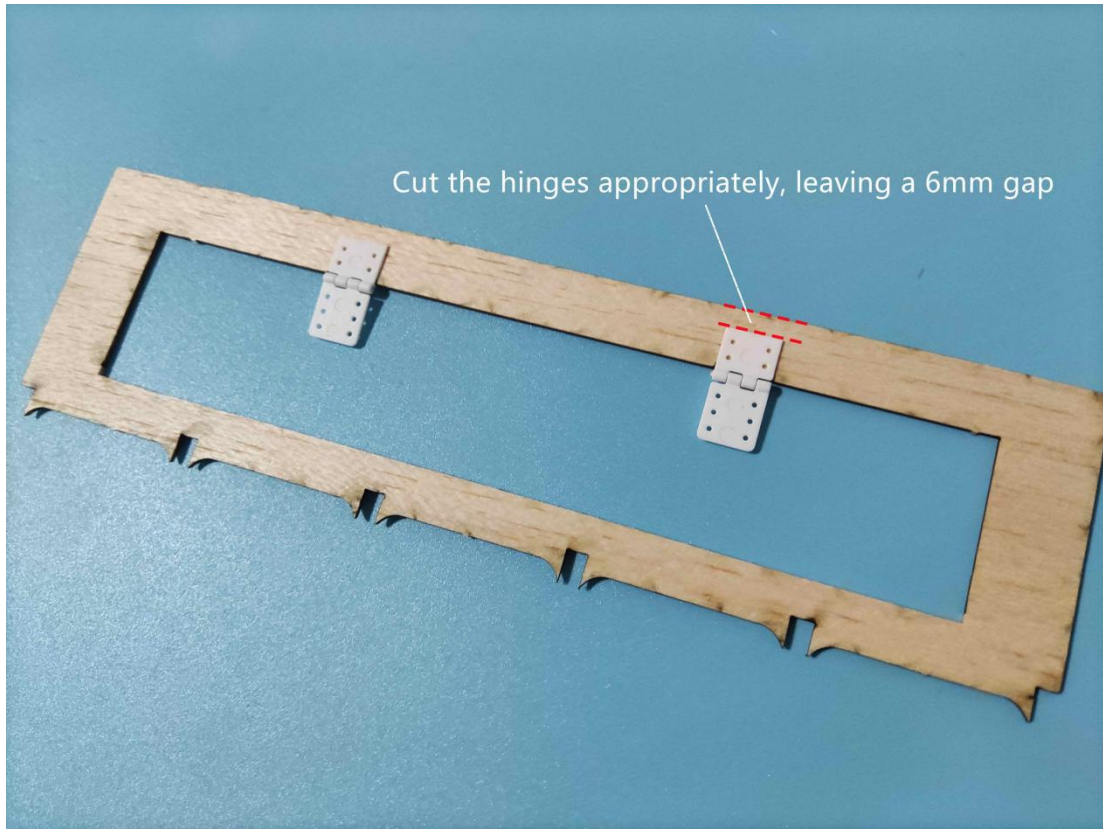


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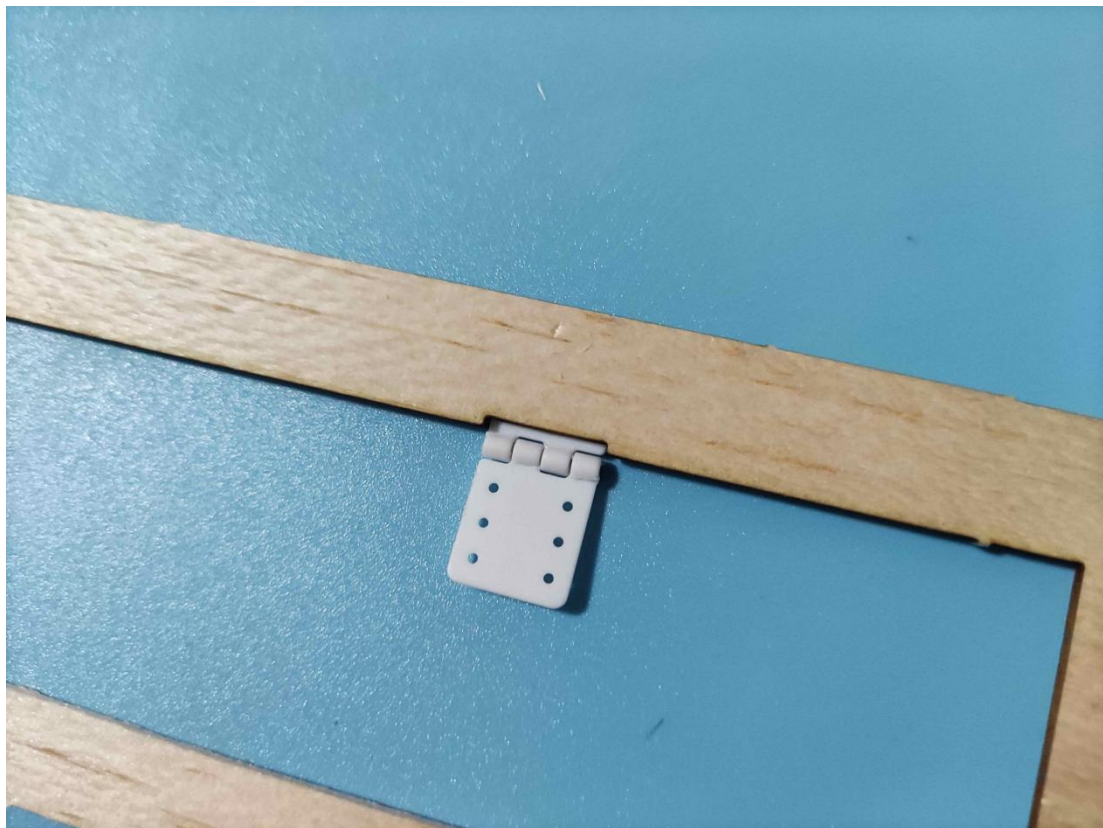




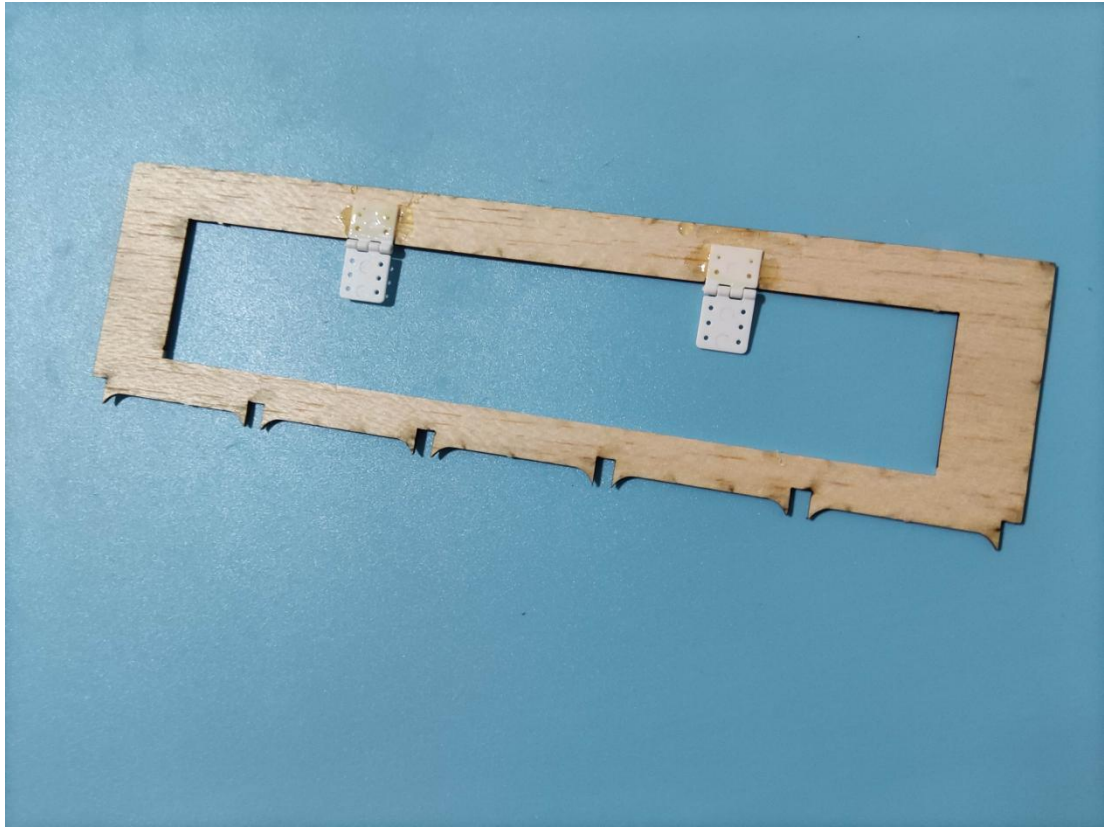
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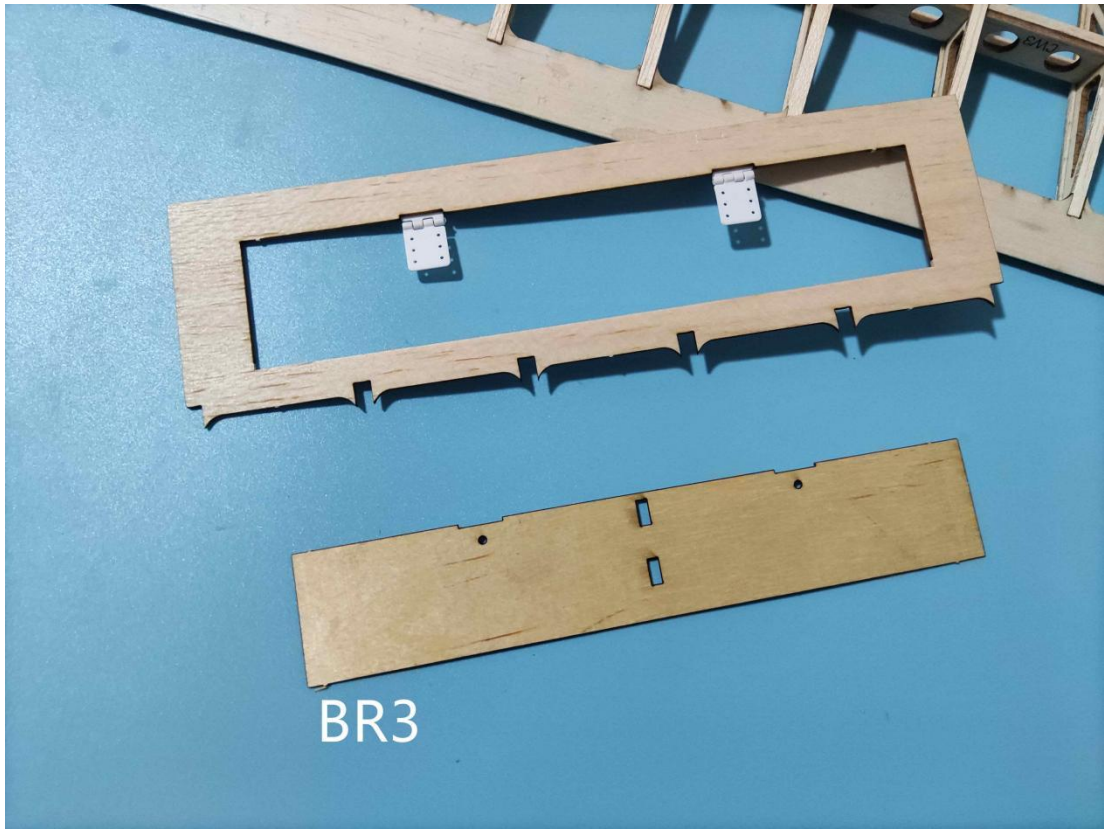
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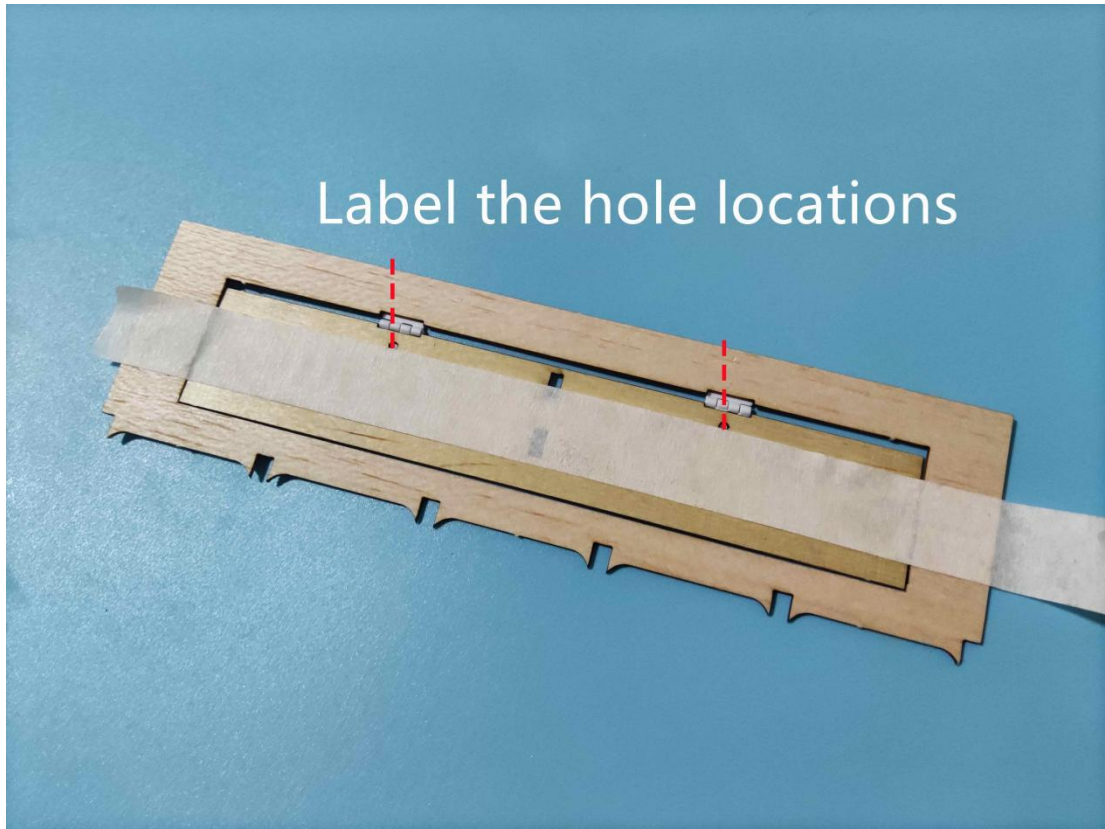


Step 40





Step 41

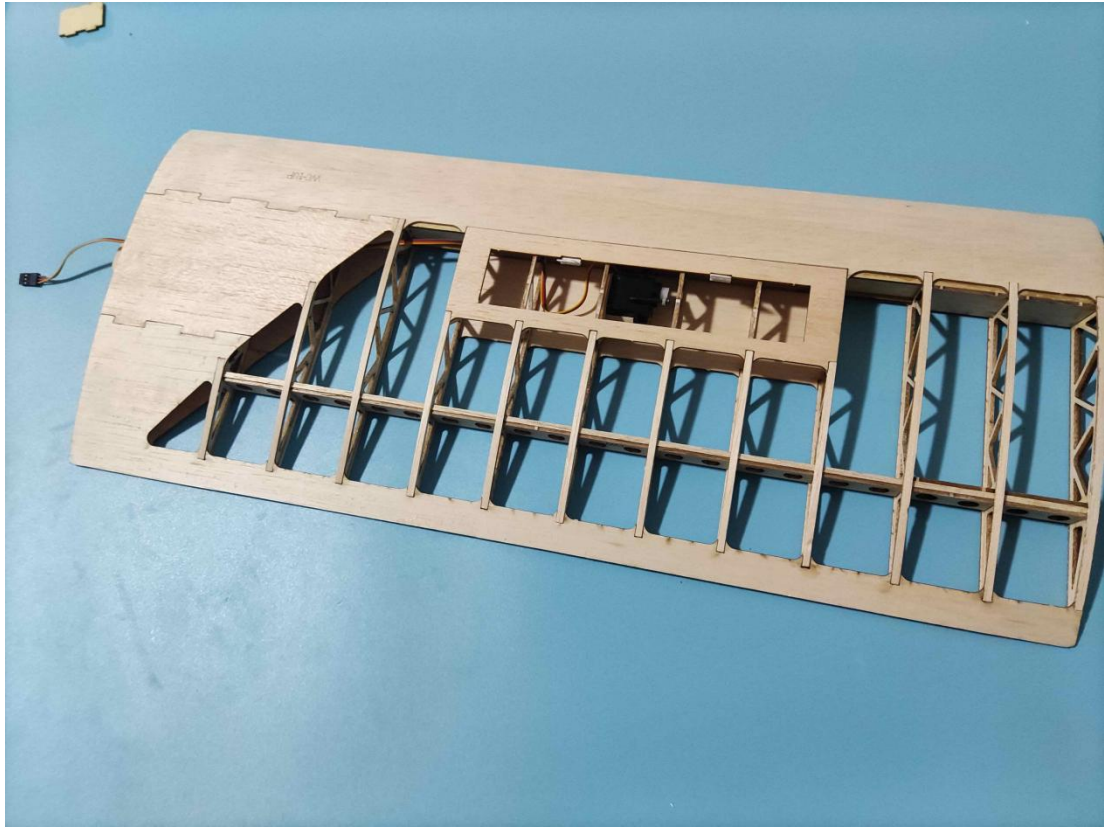


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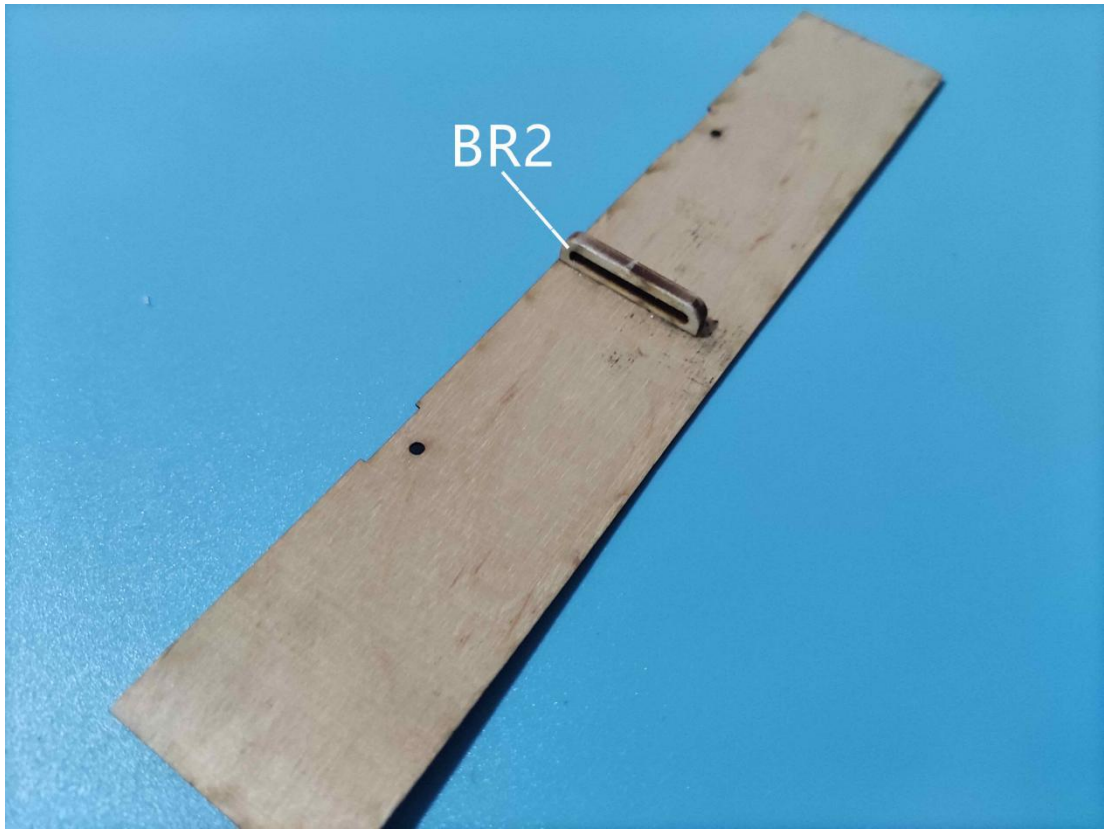




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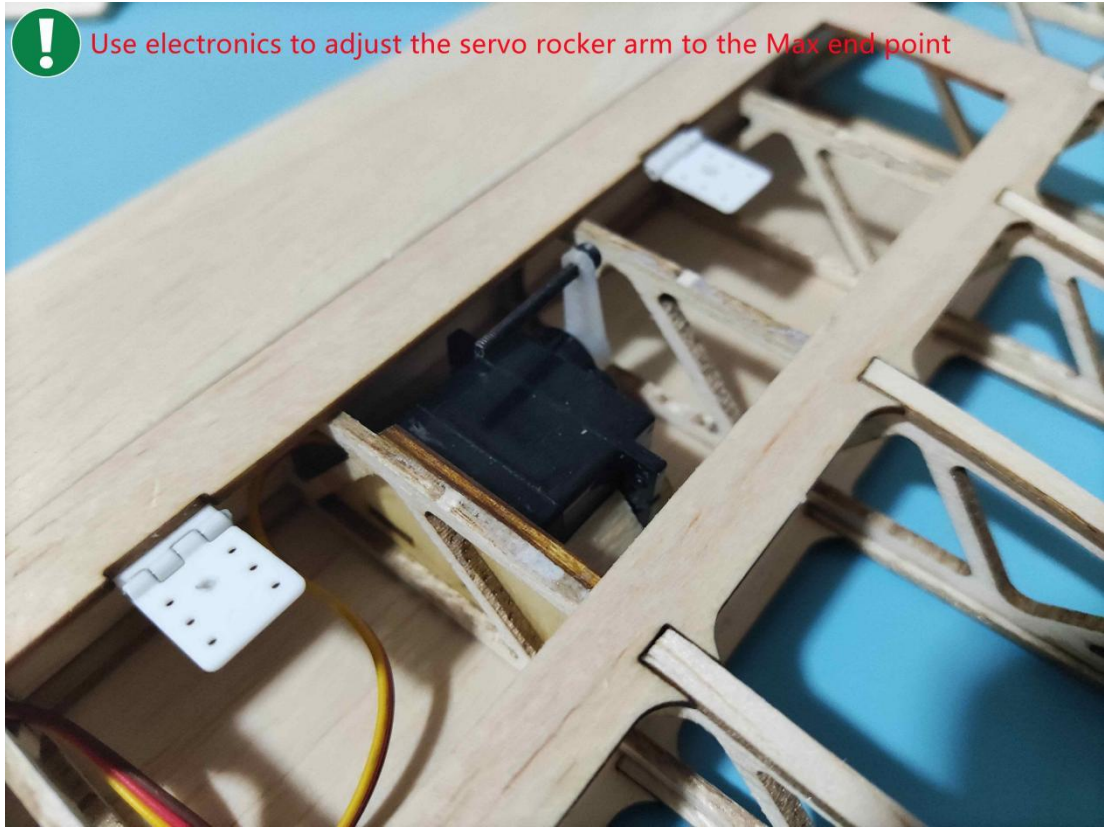
Step 44



Step 45



Use electronics to adjust the servo rocker arm to the Max end point



Step 46

Install the airbrake surface when the servo rocker arm to the max end point





Step 47

The air brake opens and closes properly by electronically adjusting the travel of the servos and raising the servos by adding thin sheet under the servos

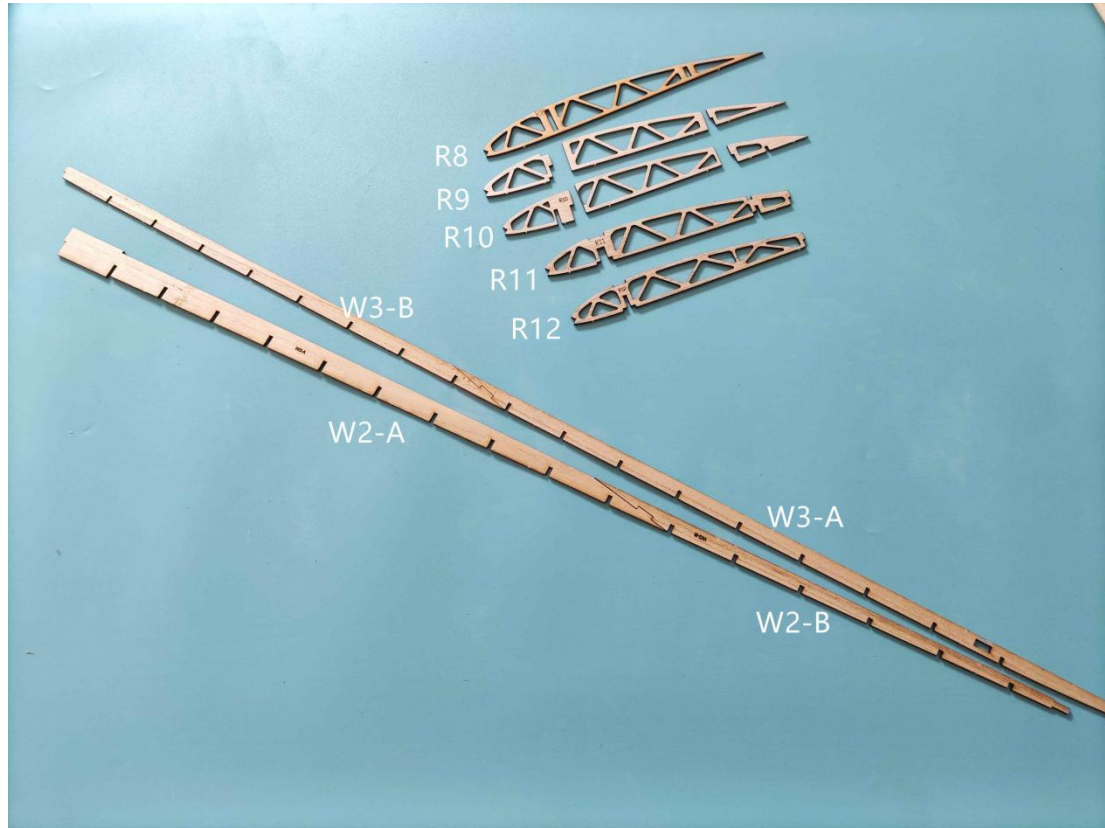


**Builder's note:**



## Part4.Outer wing section

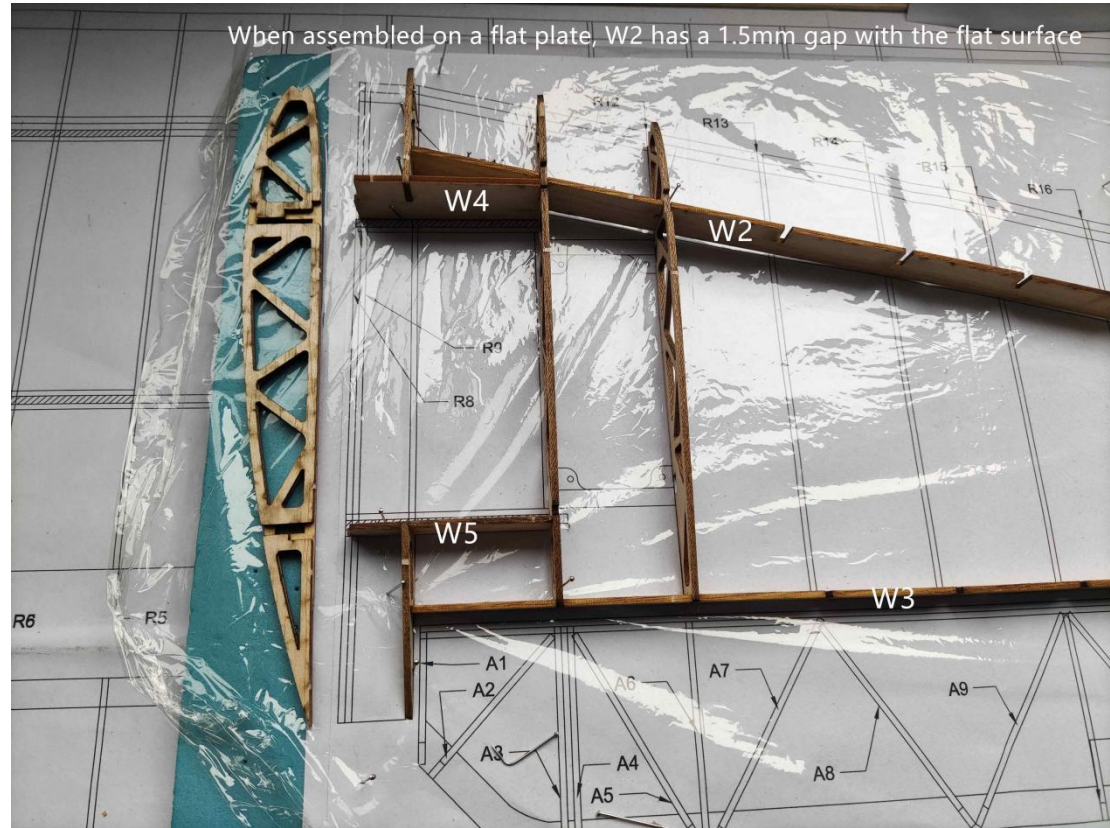
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Step 2



Step 3

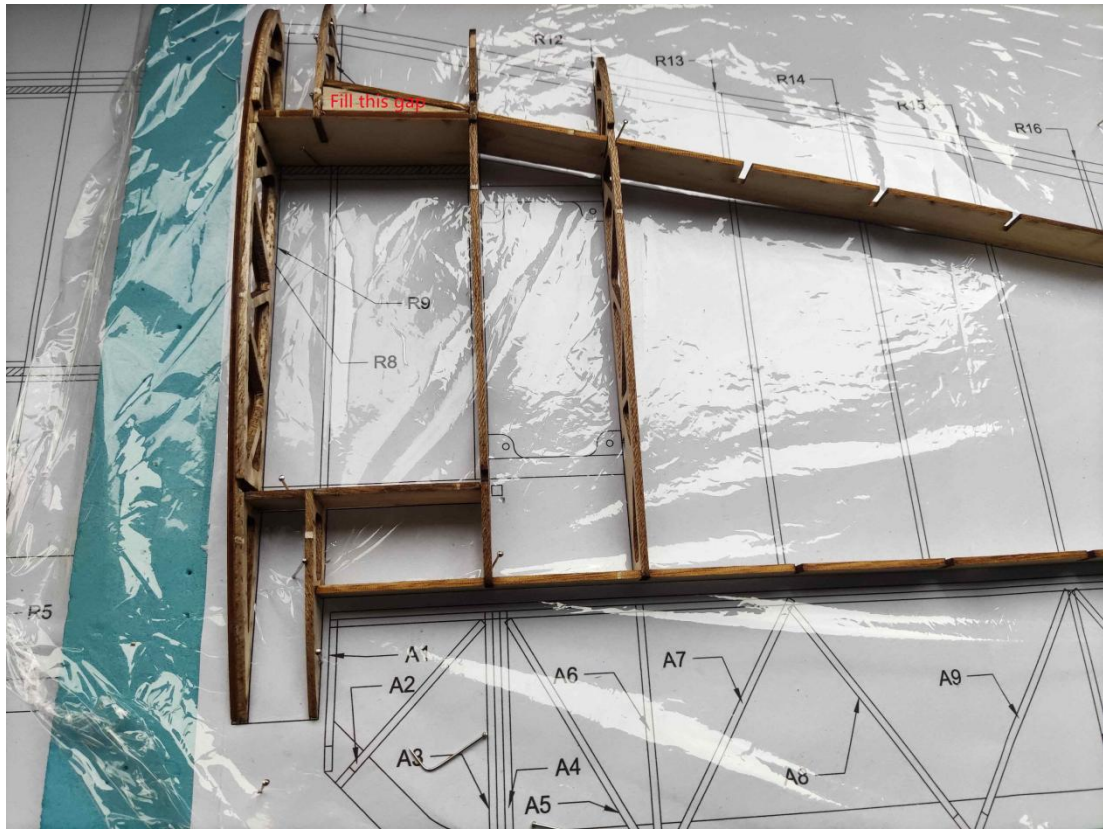


Step 4





Step 5



Step 6





Step 7



Step 8

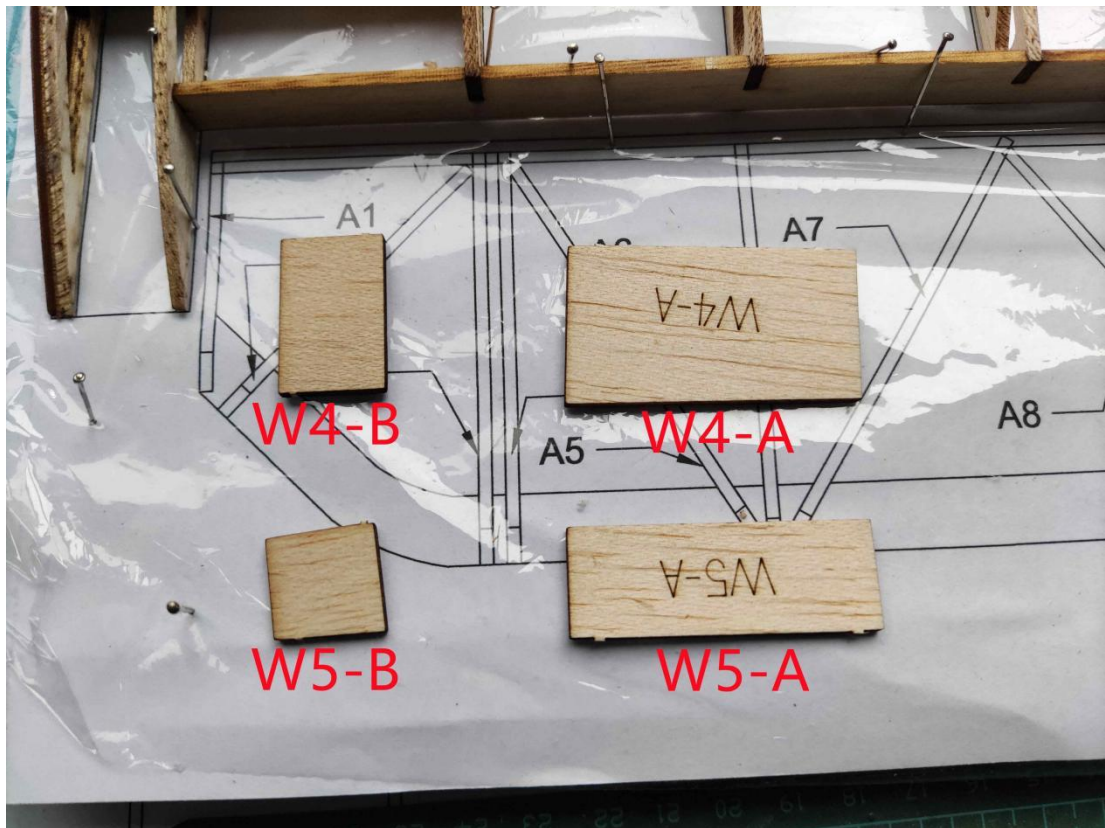




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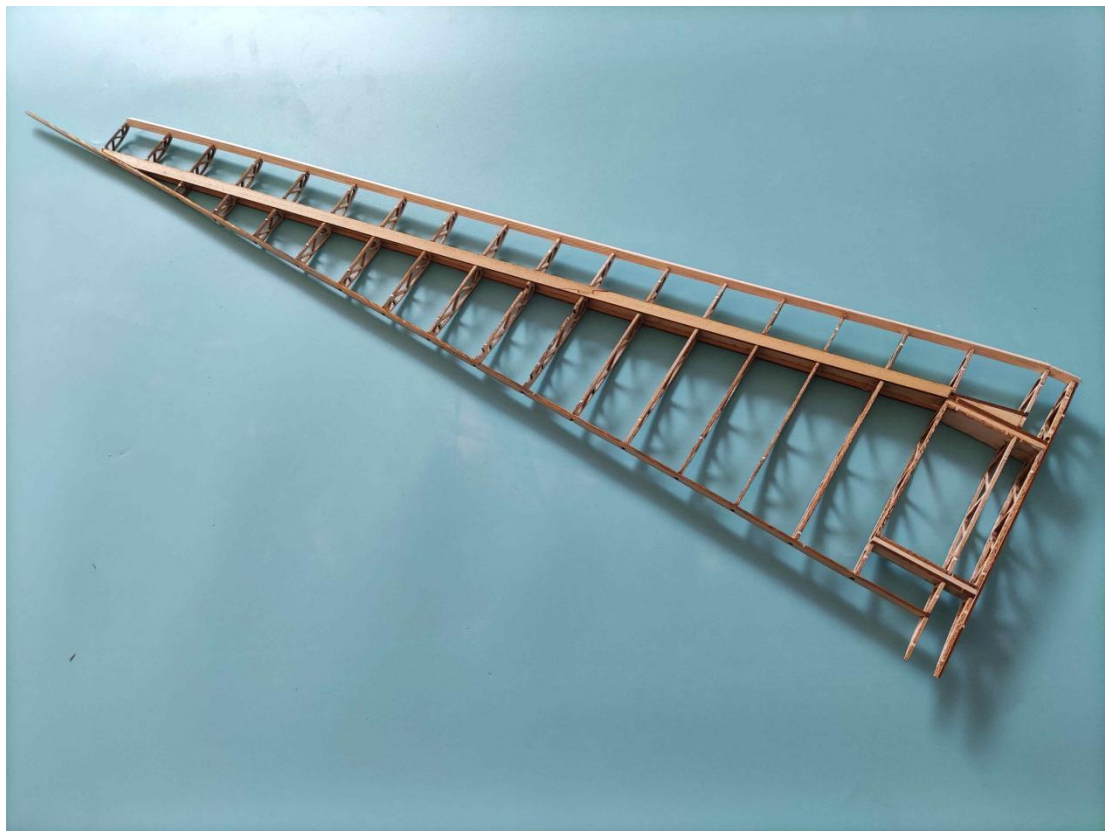
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Step 11

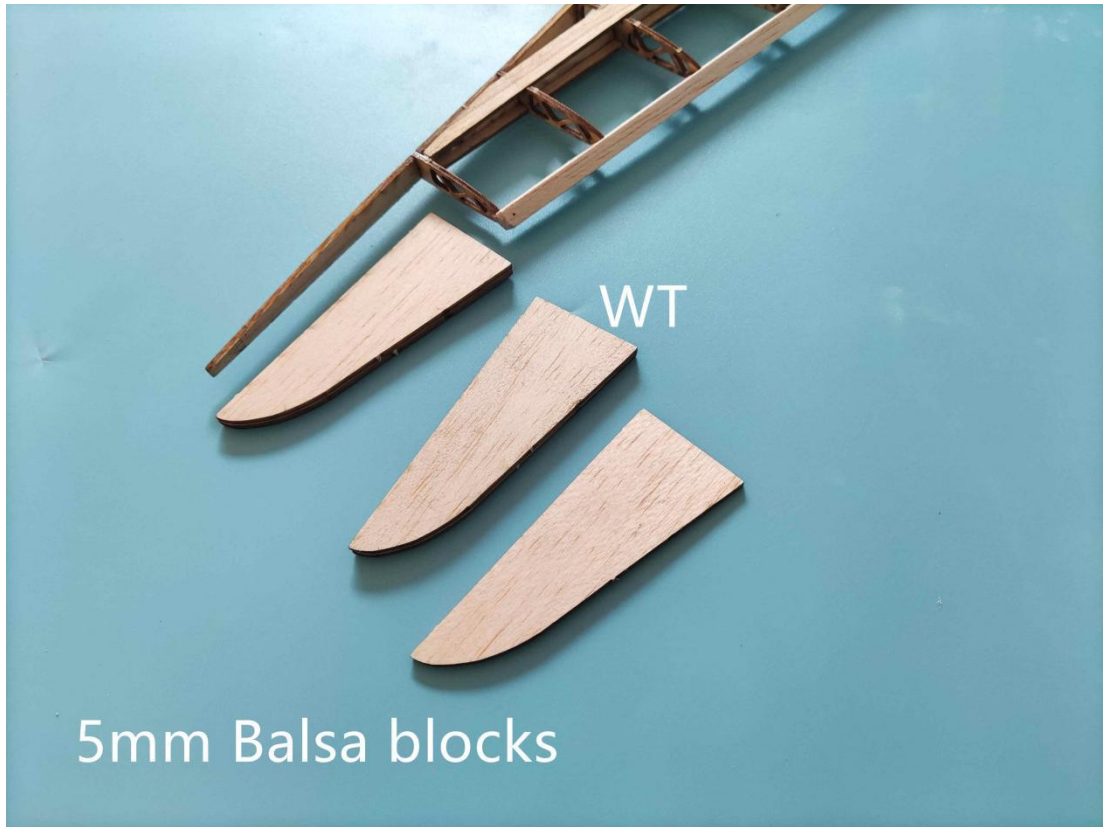


Step 12





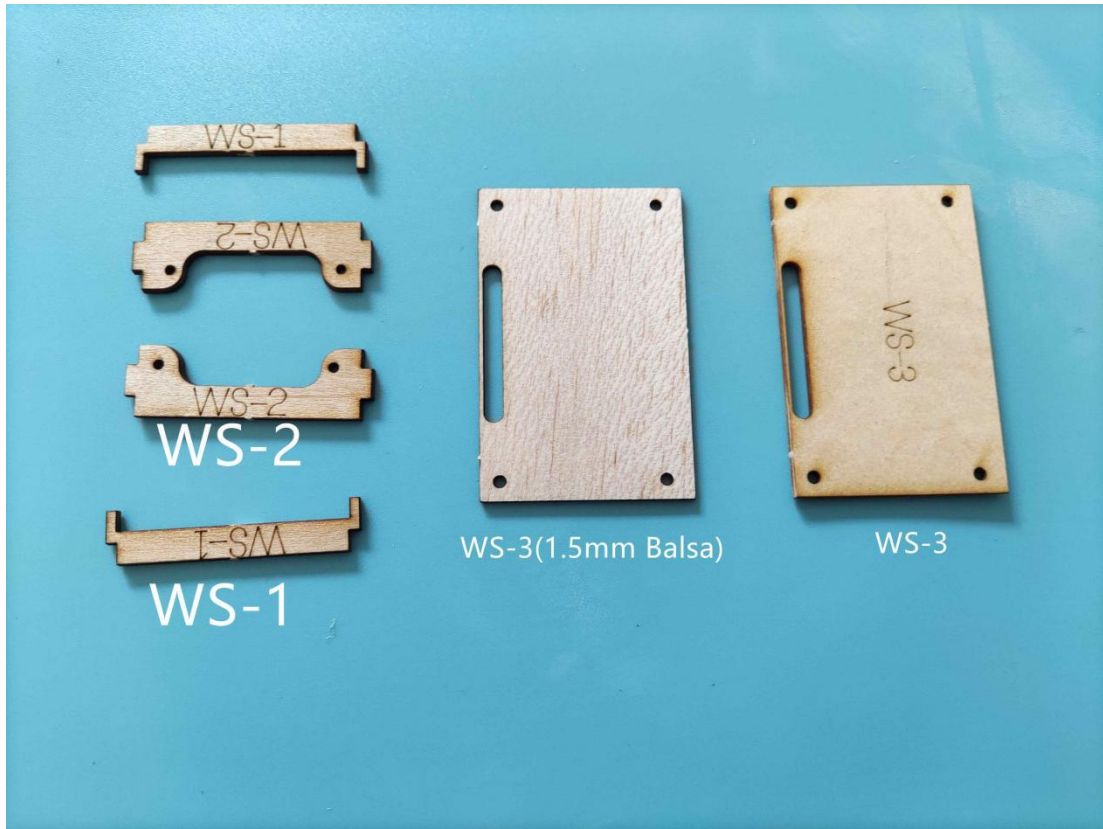
Step 13



Step 14



Step 15



Step 16

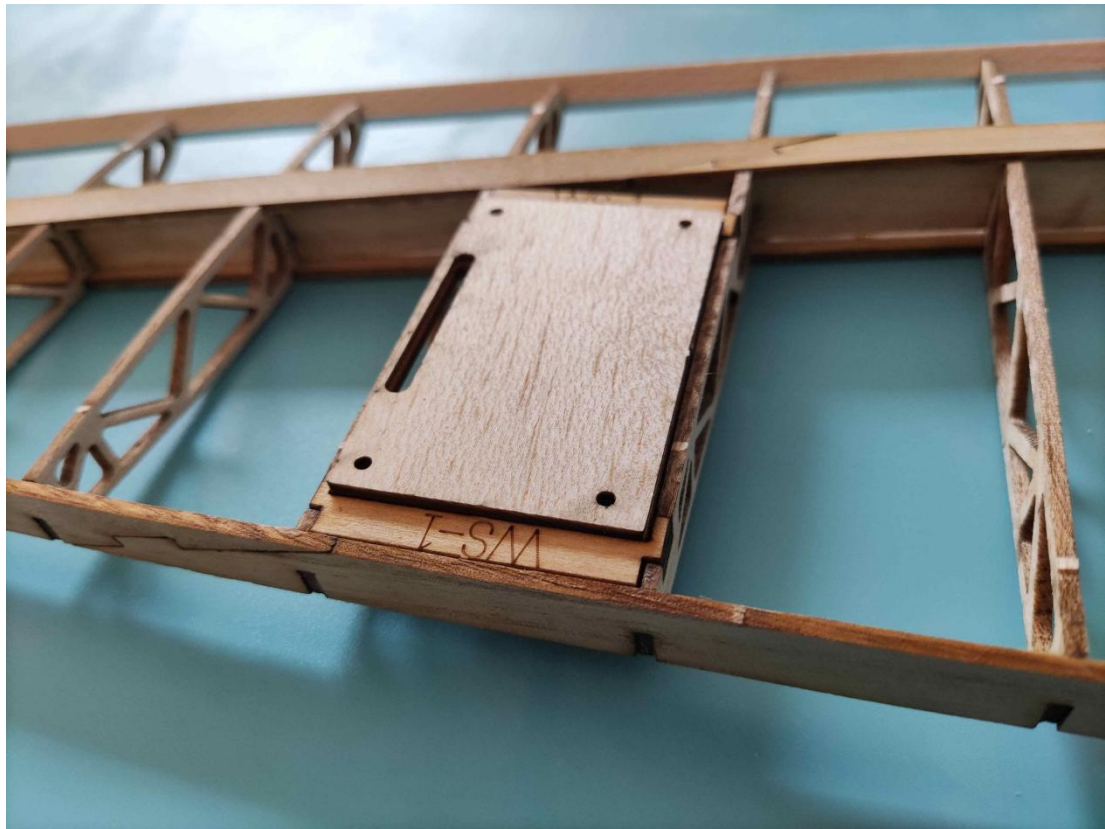




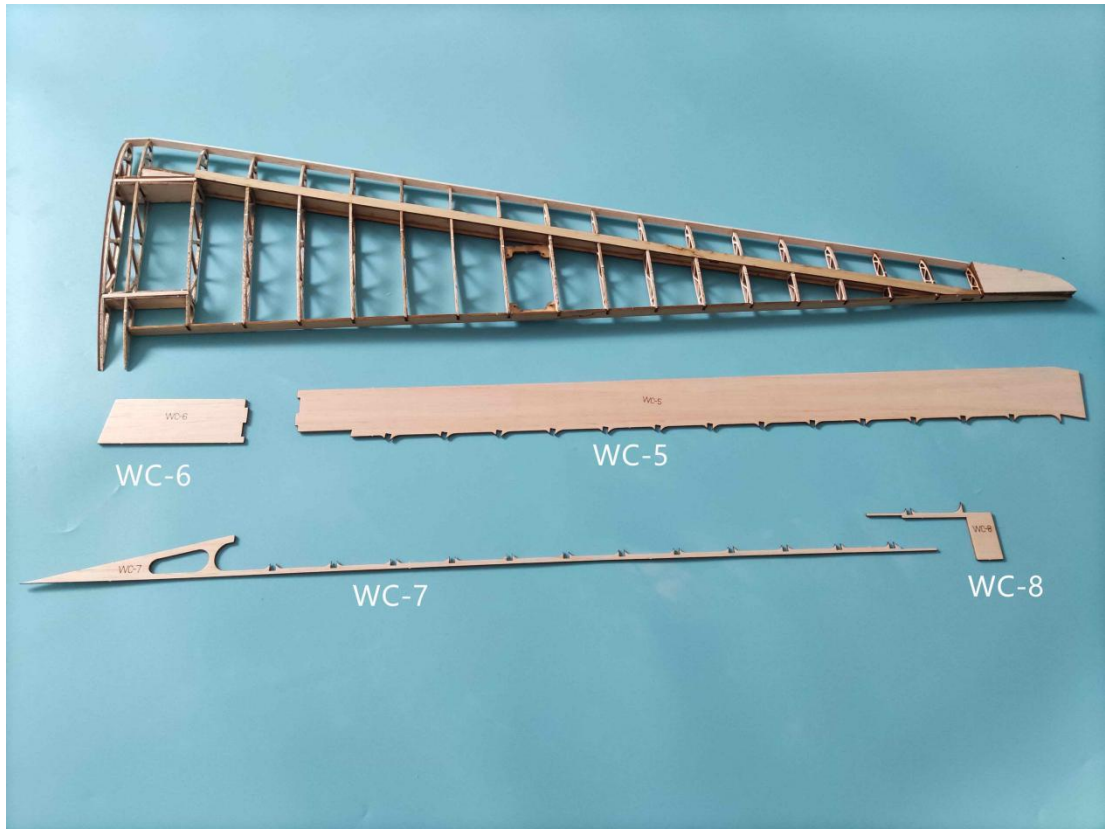
Step 17



Step 18



Step 19



Step 20





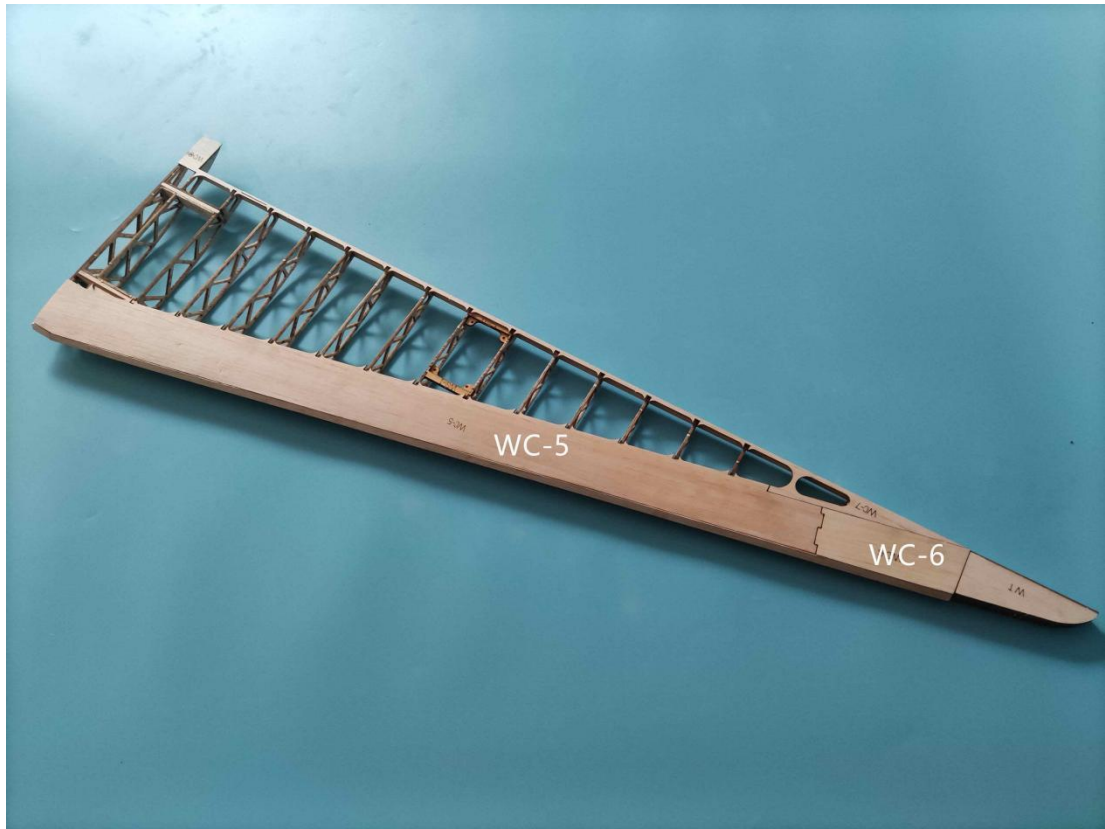
Step 21



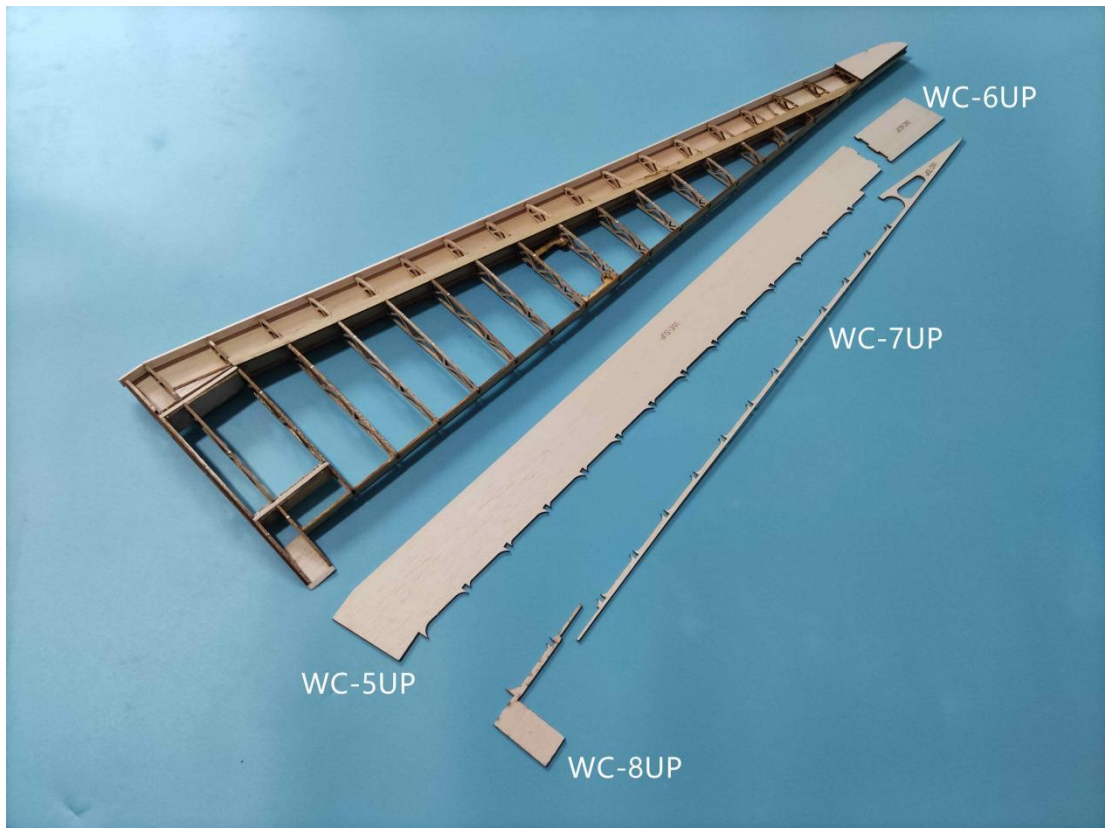
Step 22



Step 23



Step 24





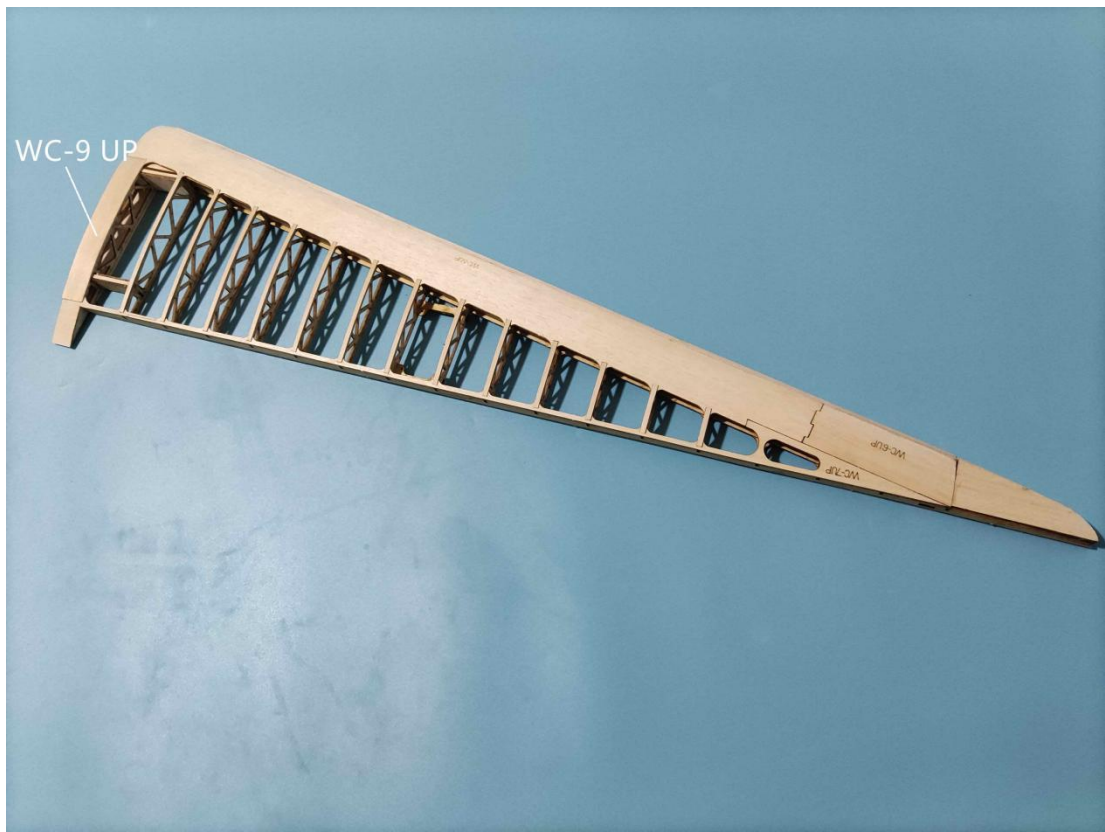
Step 25



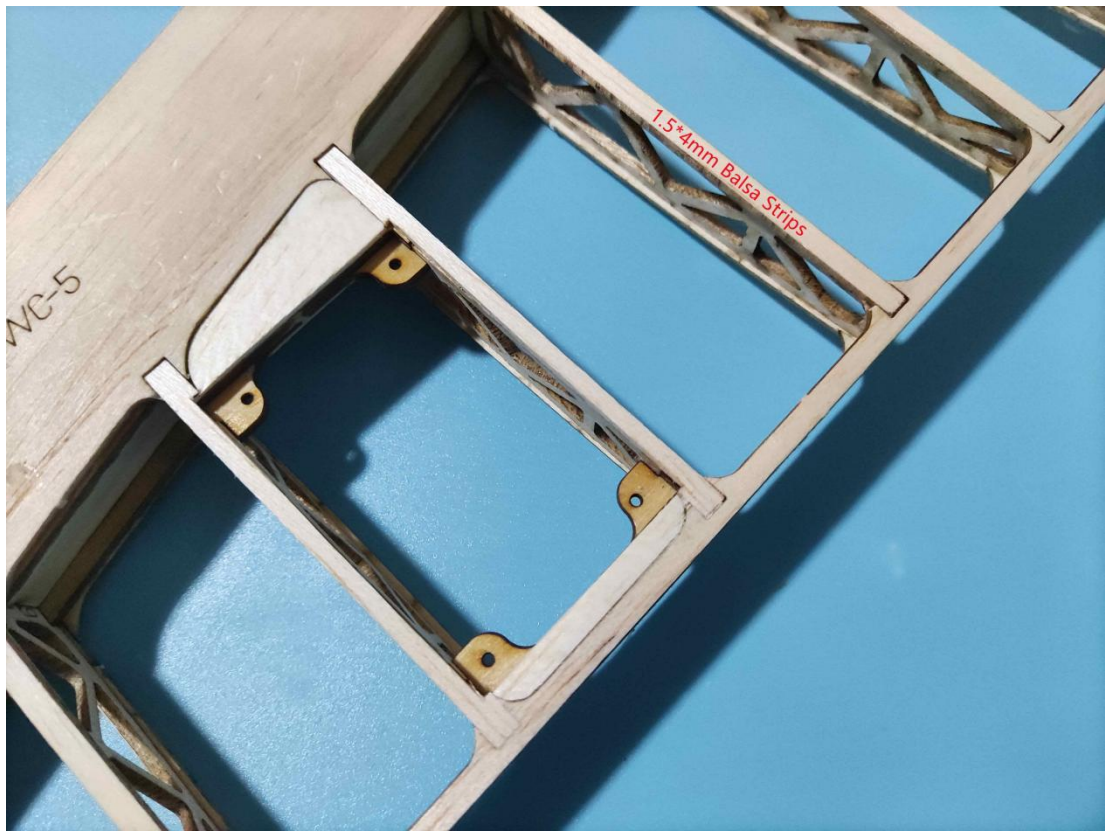
Step 26



Step 27



Step 28





Step 29

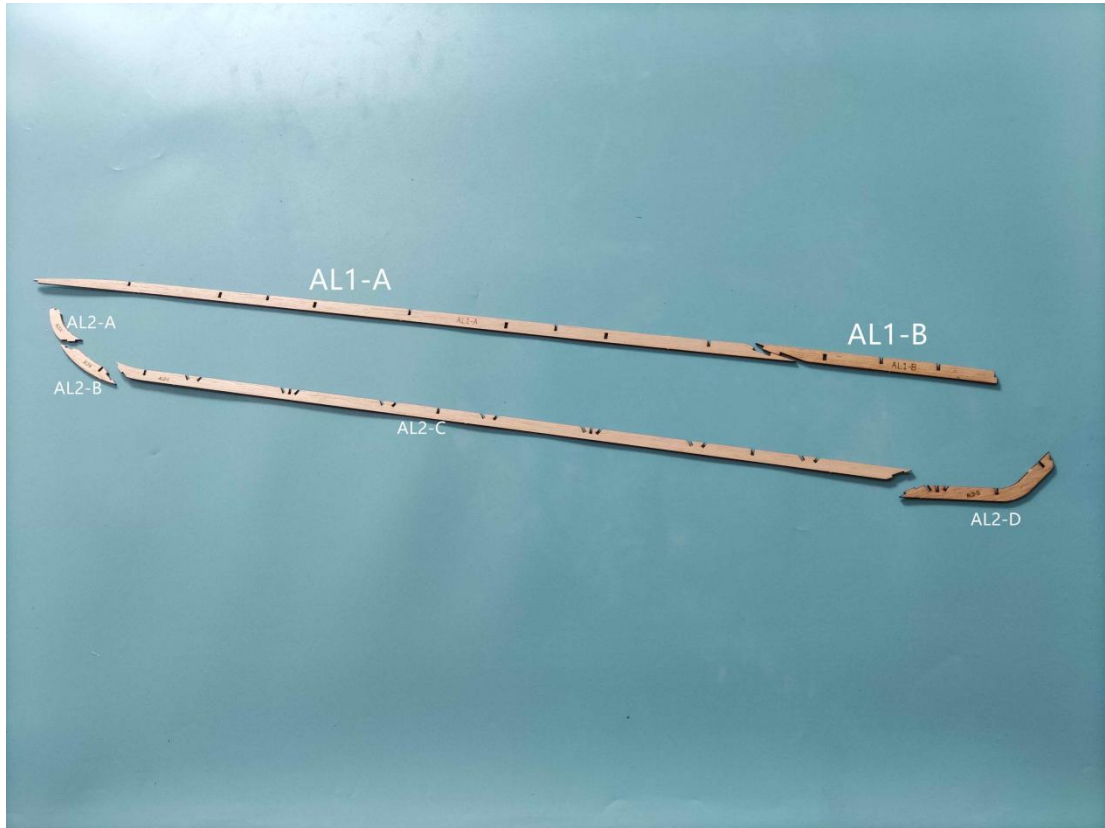


Step 30



# Part5.Aileron

Step 1

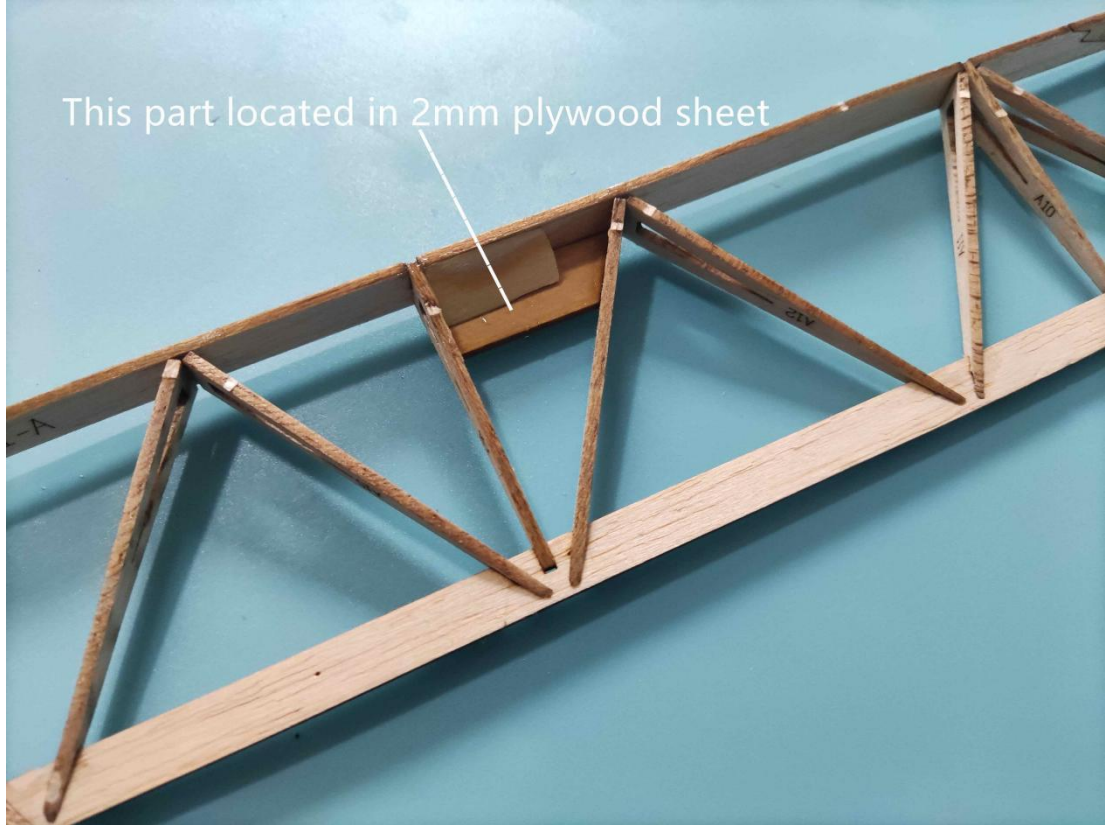


Step 2

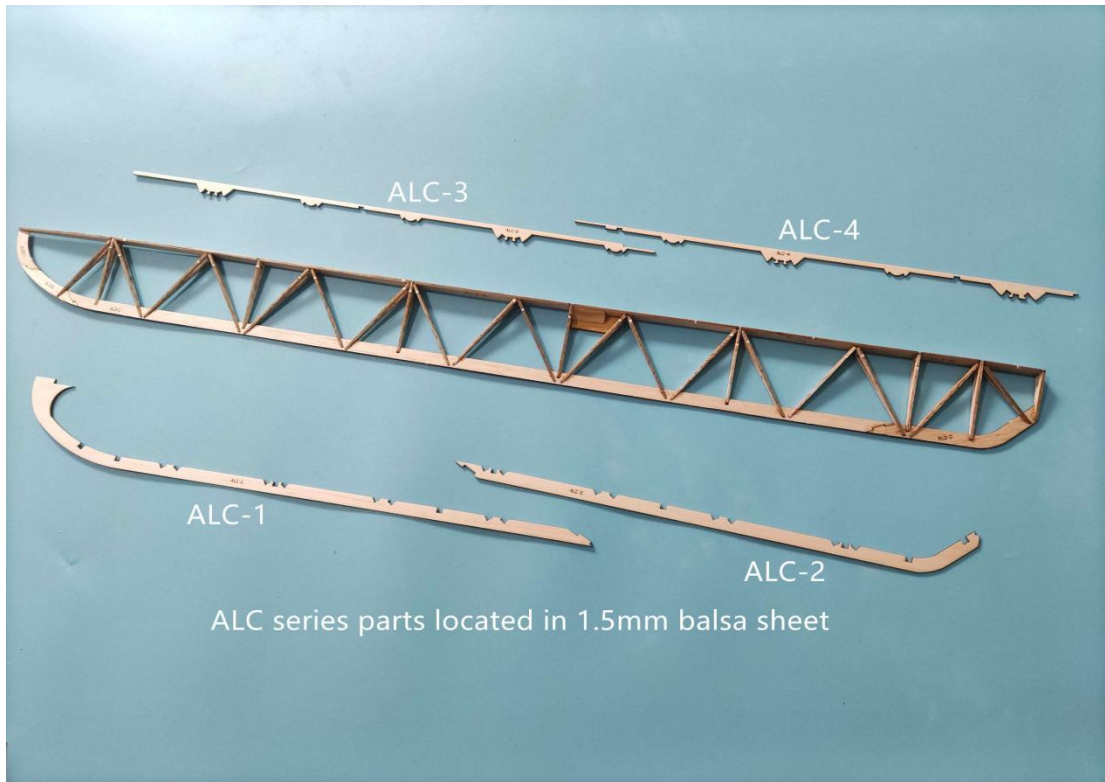




Step 3



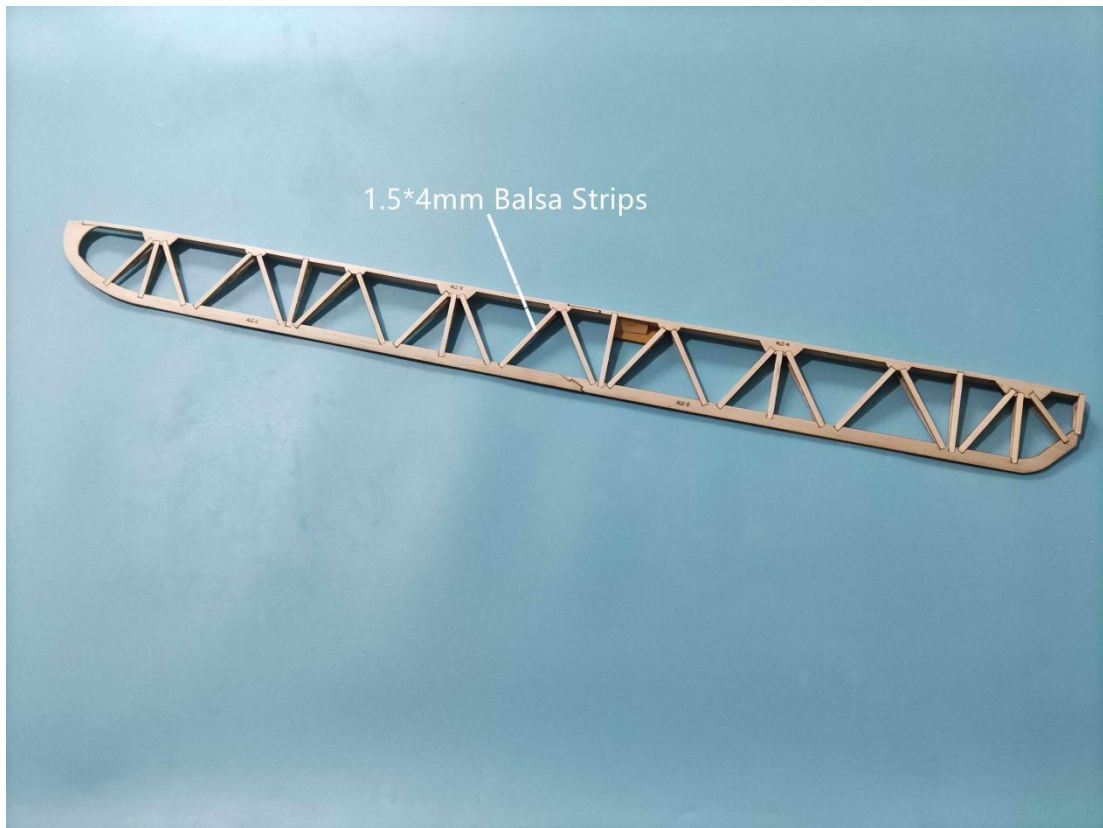
Step 4



Step 5

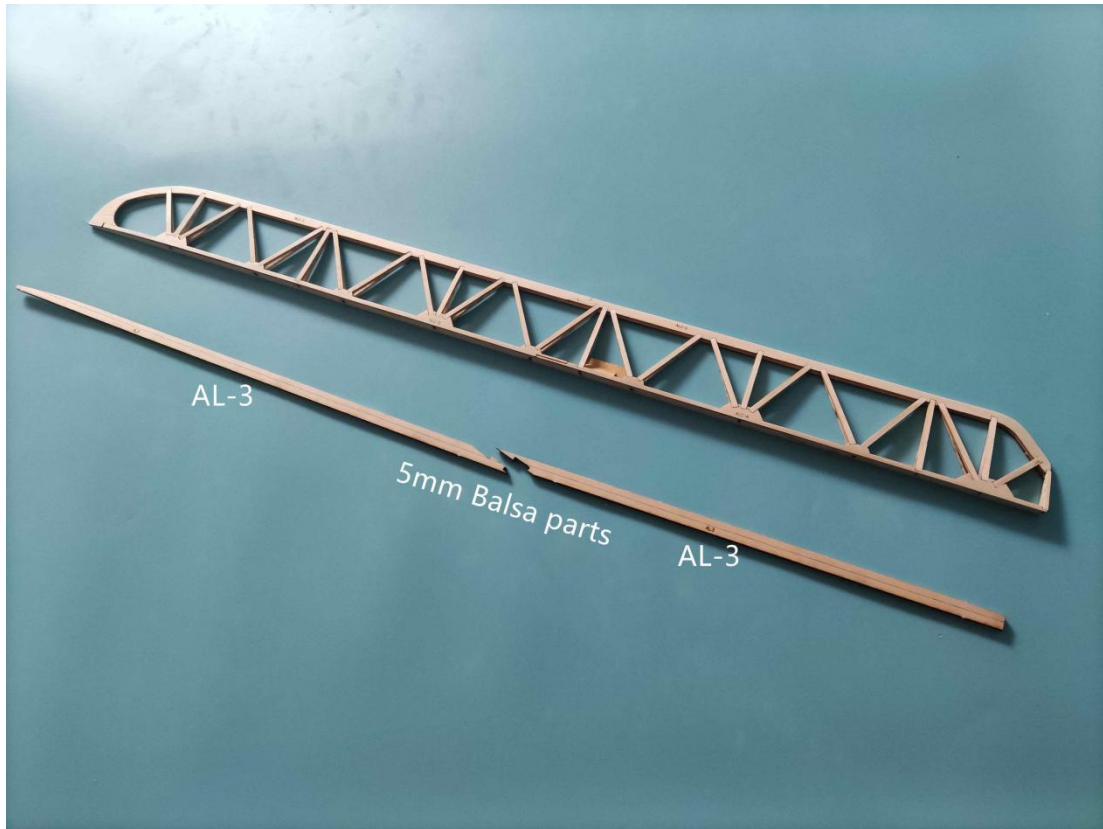


Step 6





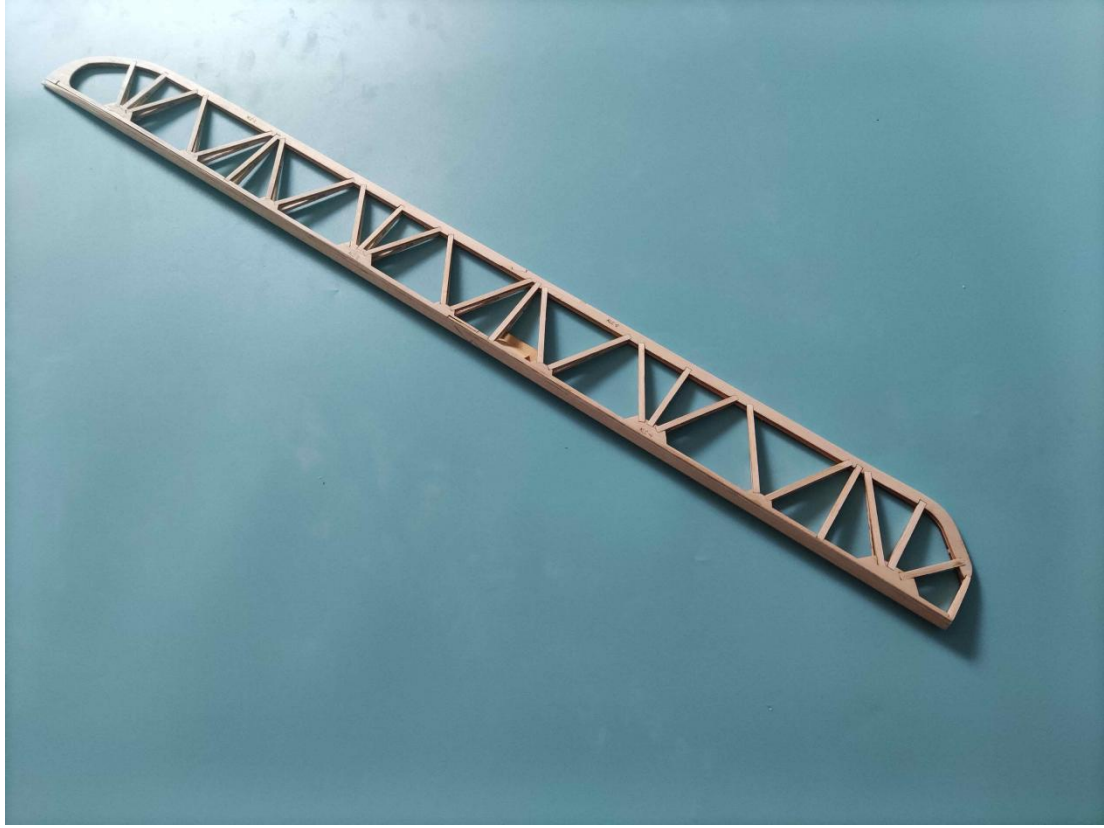
Step 7



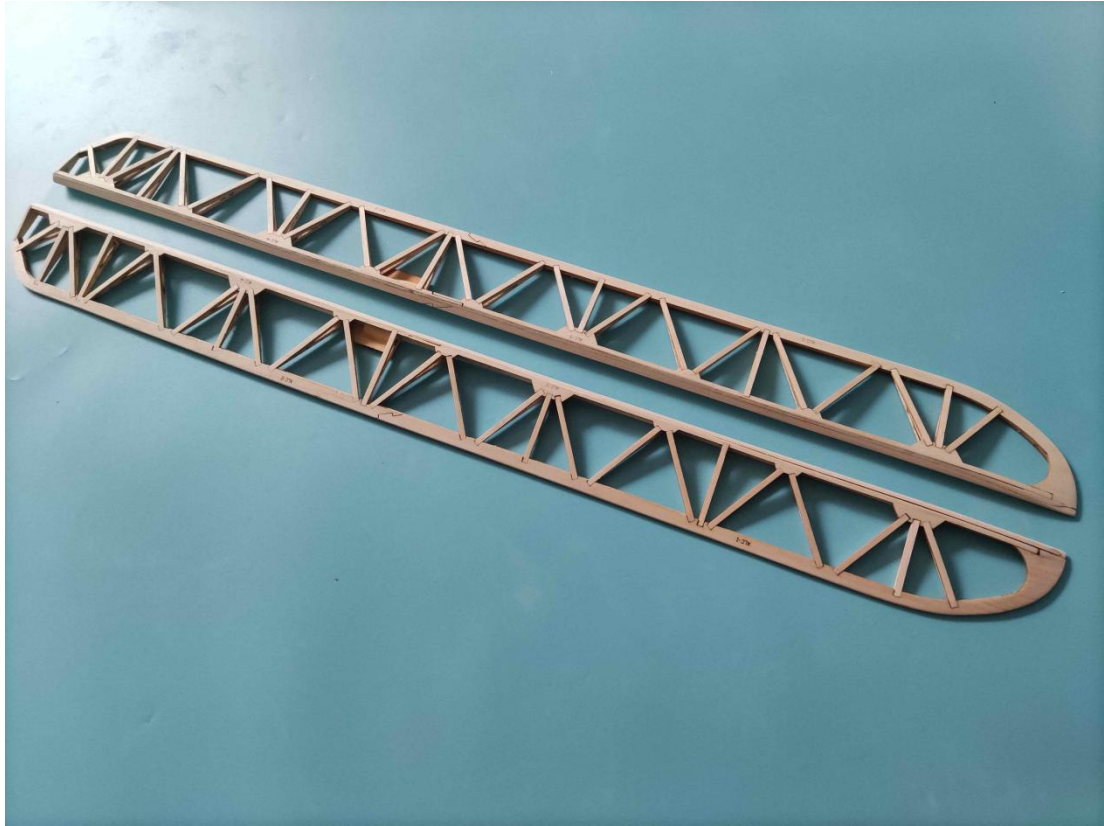
Step 8



Step 9



Step 10

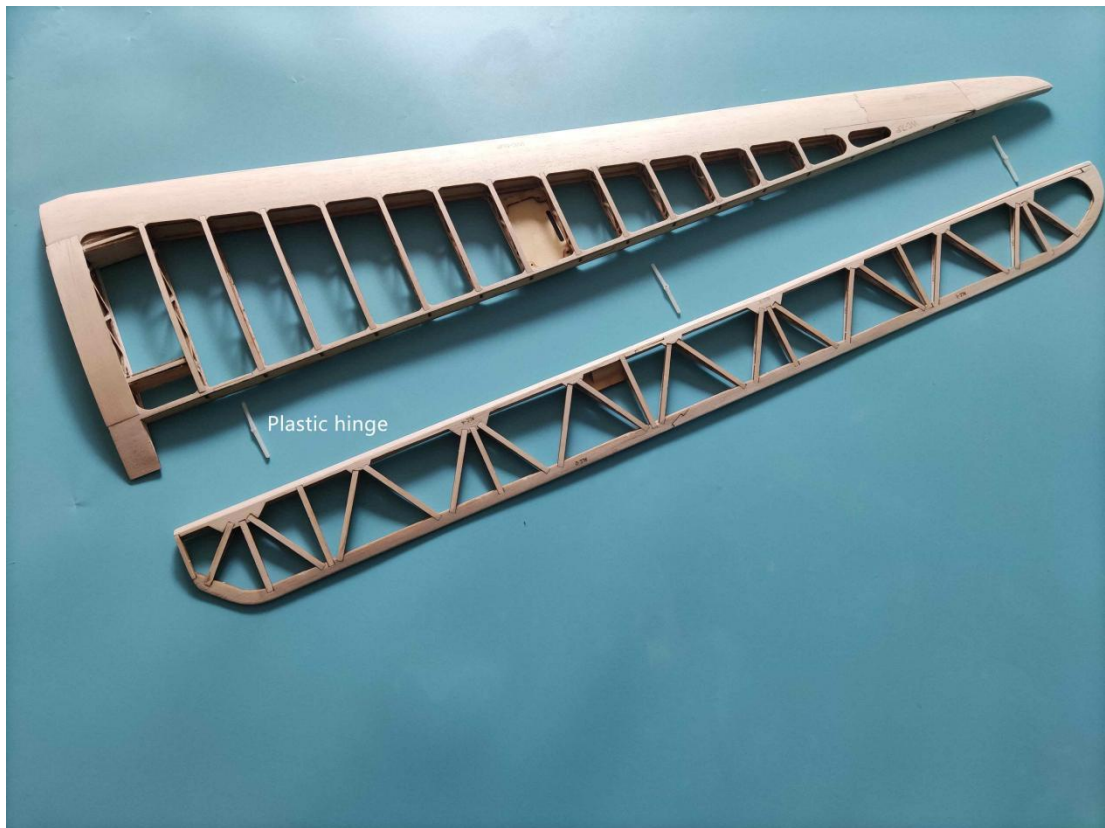




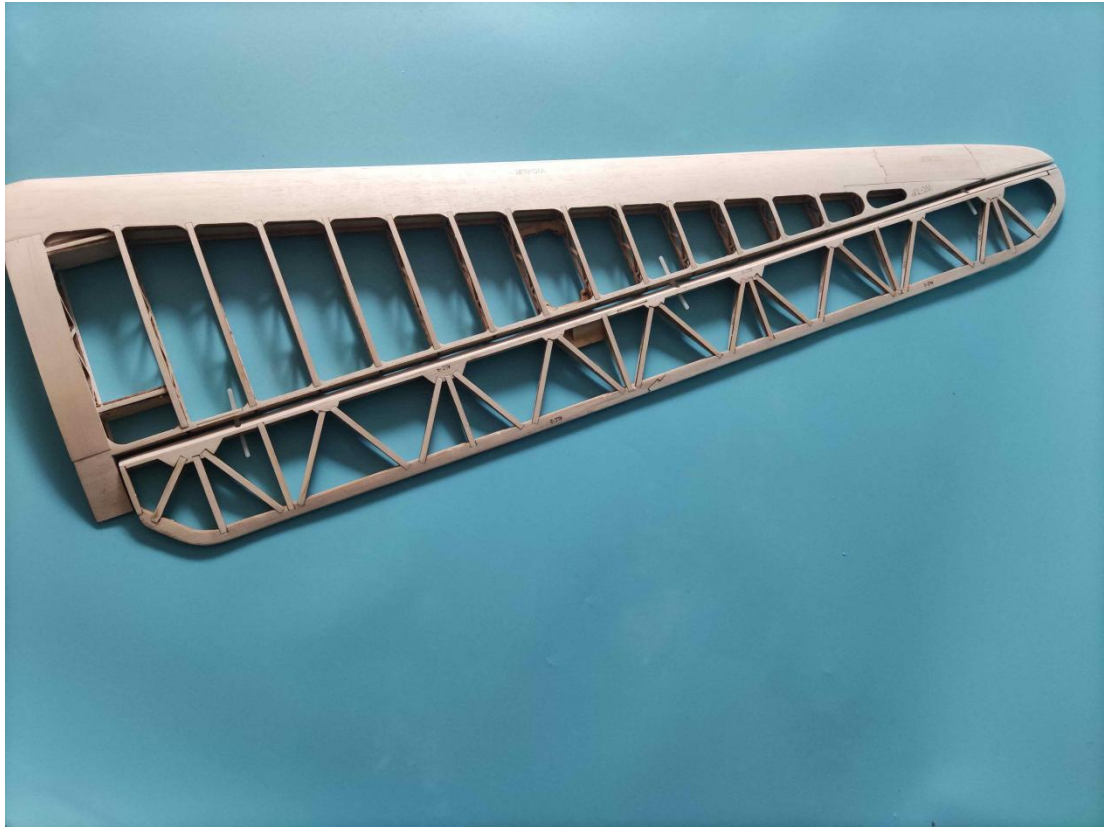
Step 11



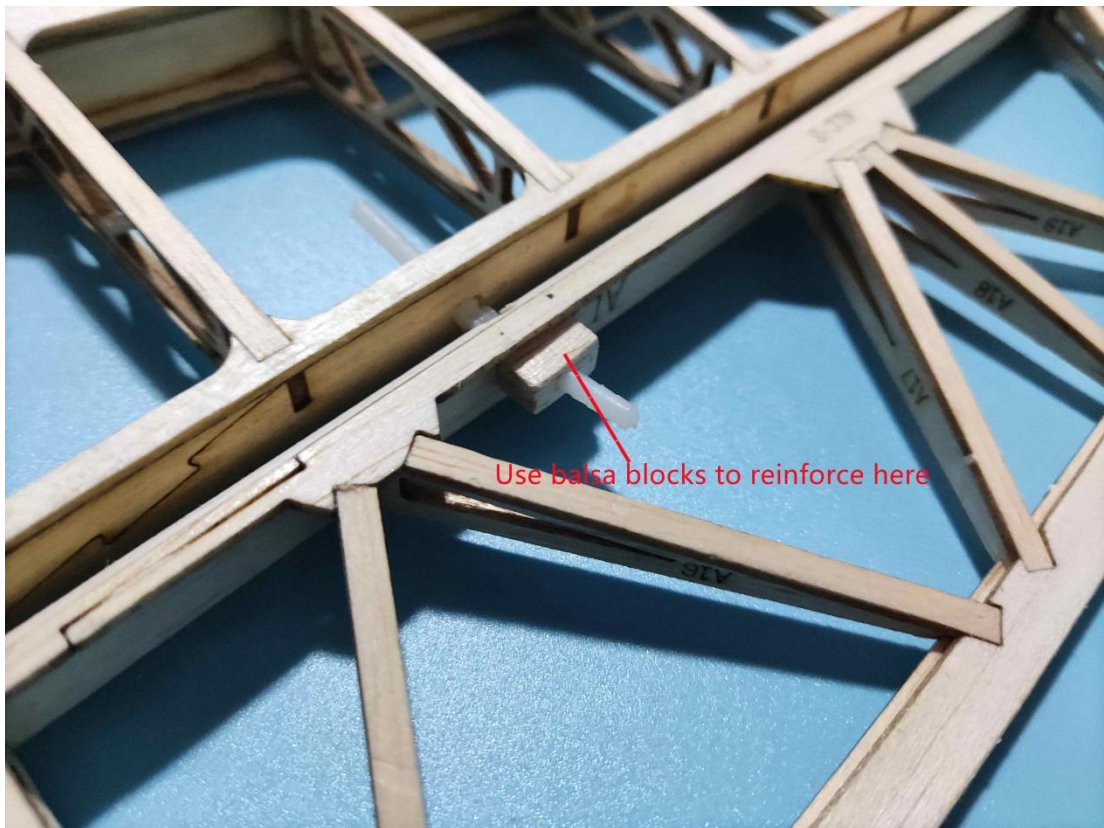
Step 12



Step 13



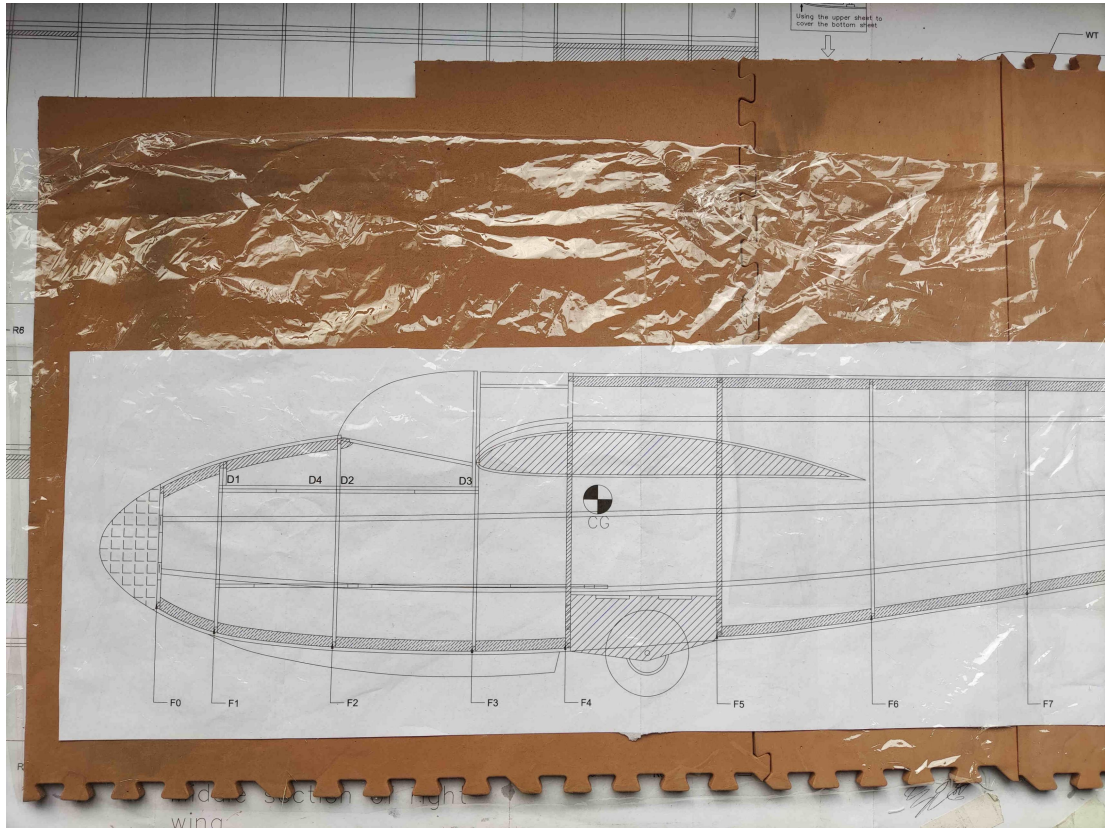
Step 14





# Part6.Fuselage I

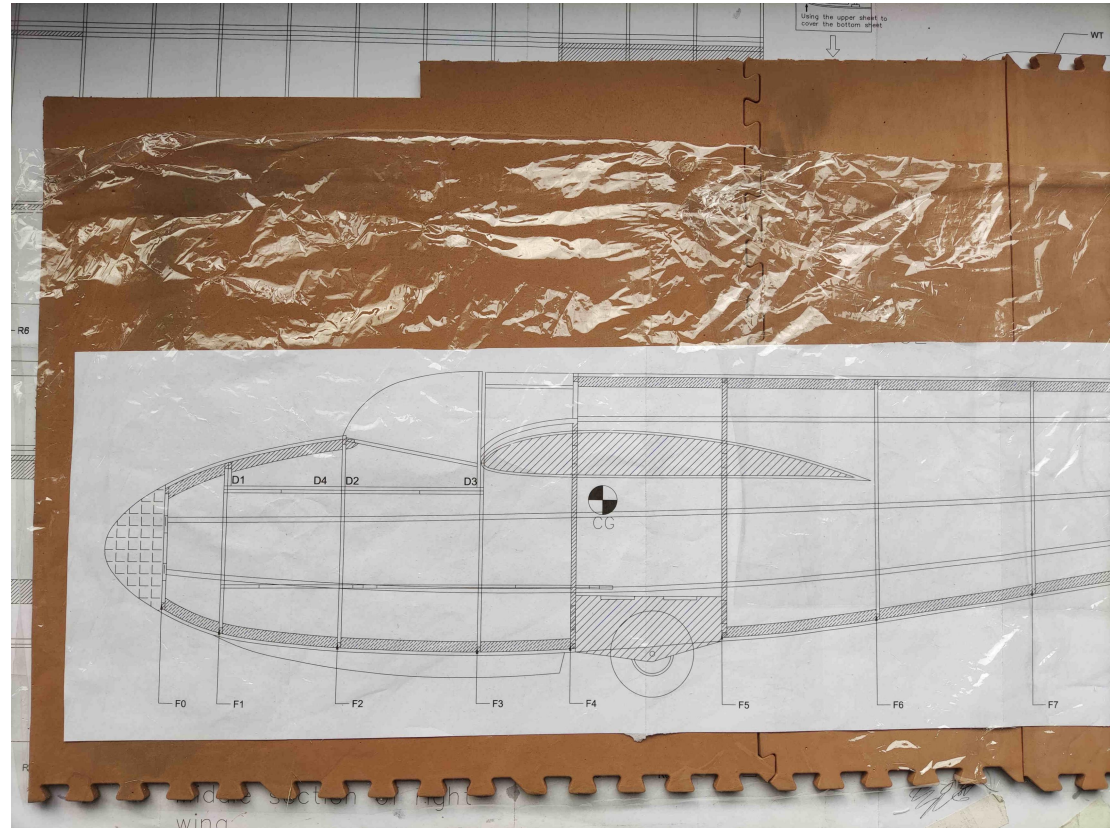
Step 1



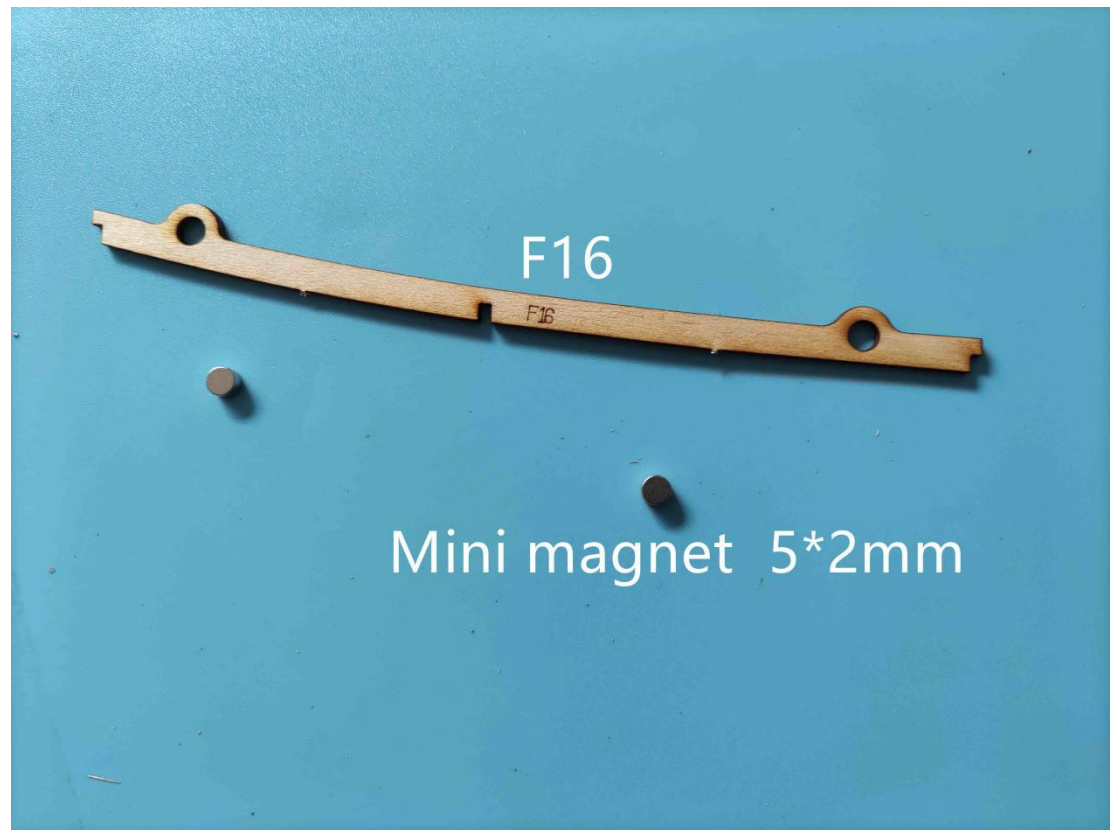
Step 2



Step 3

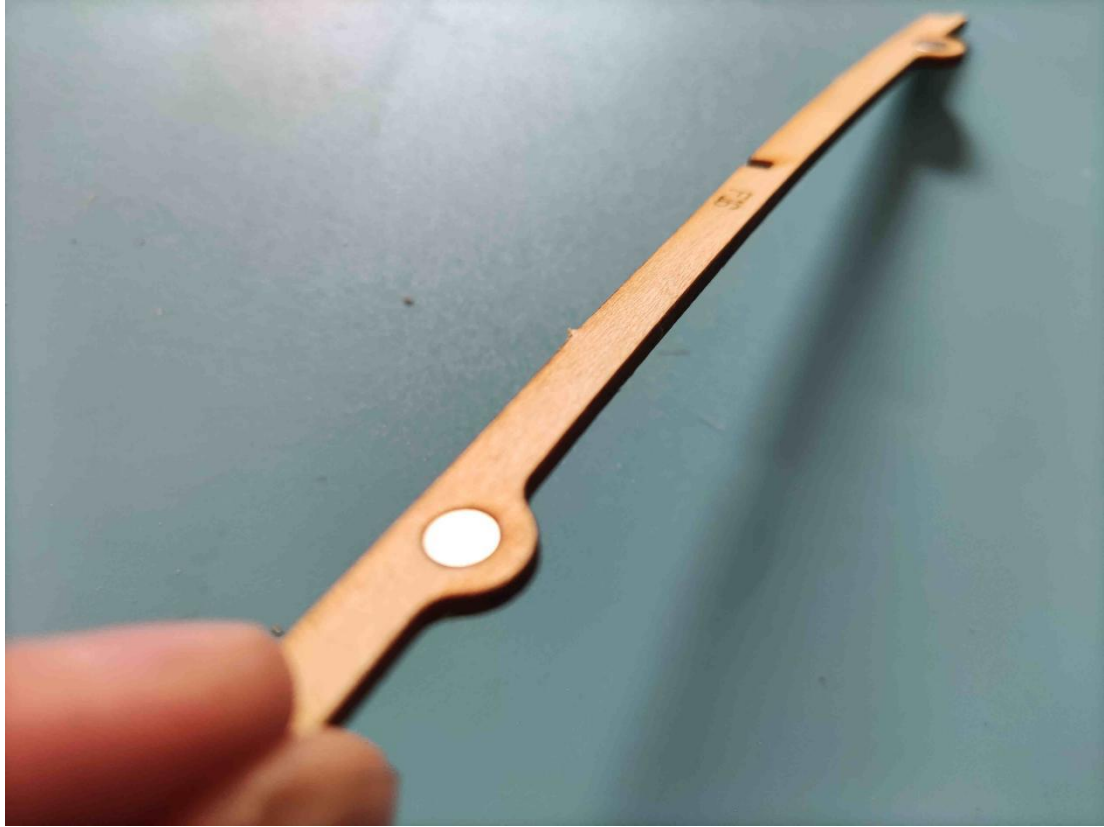


Step 4

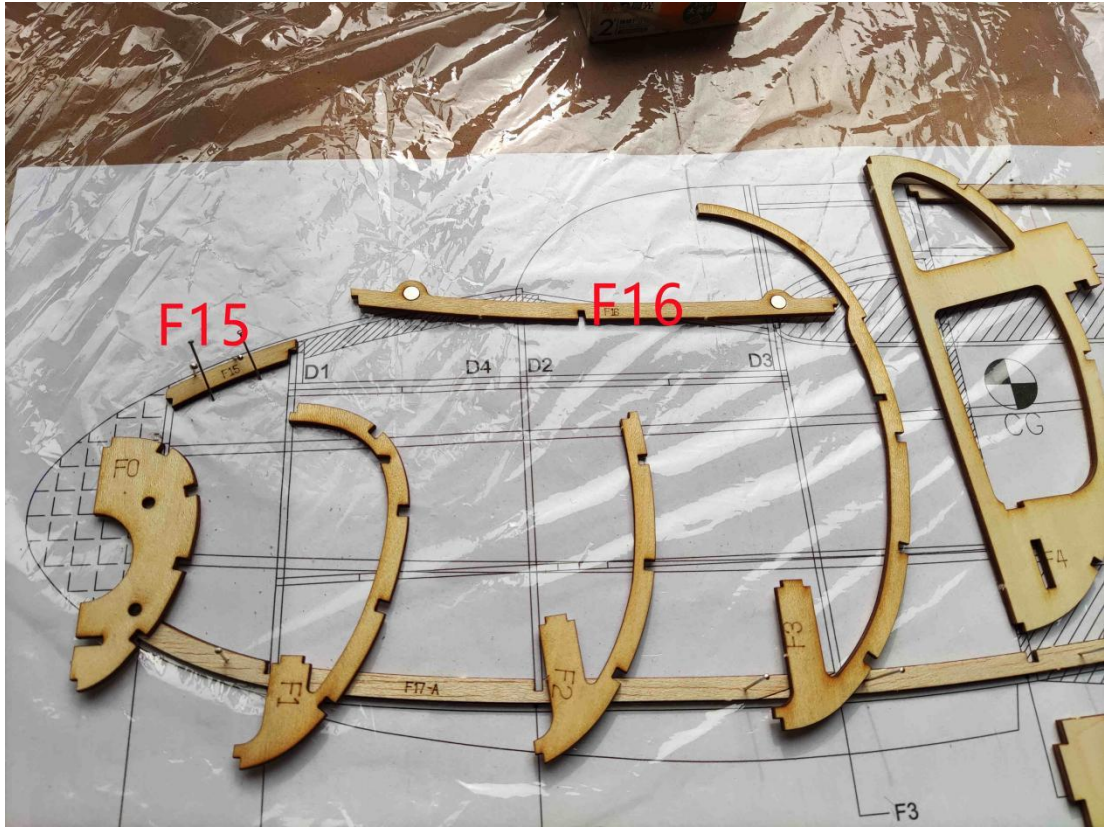




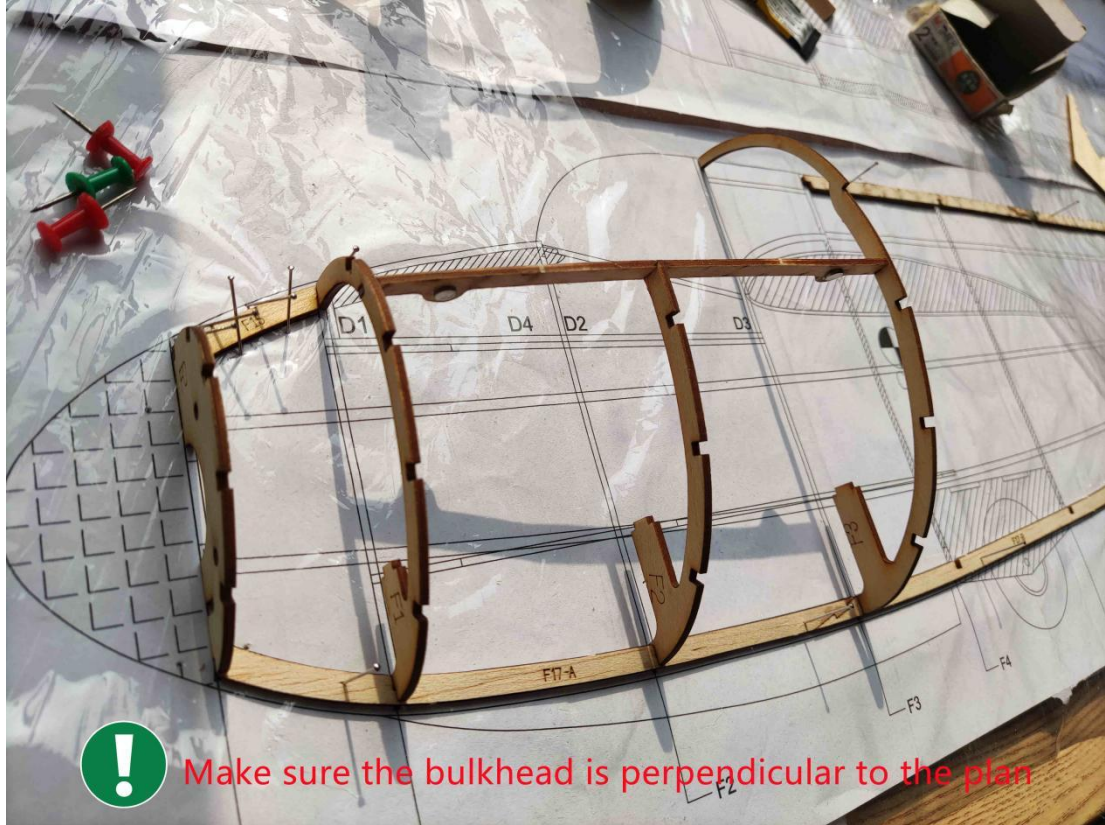
Step 5



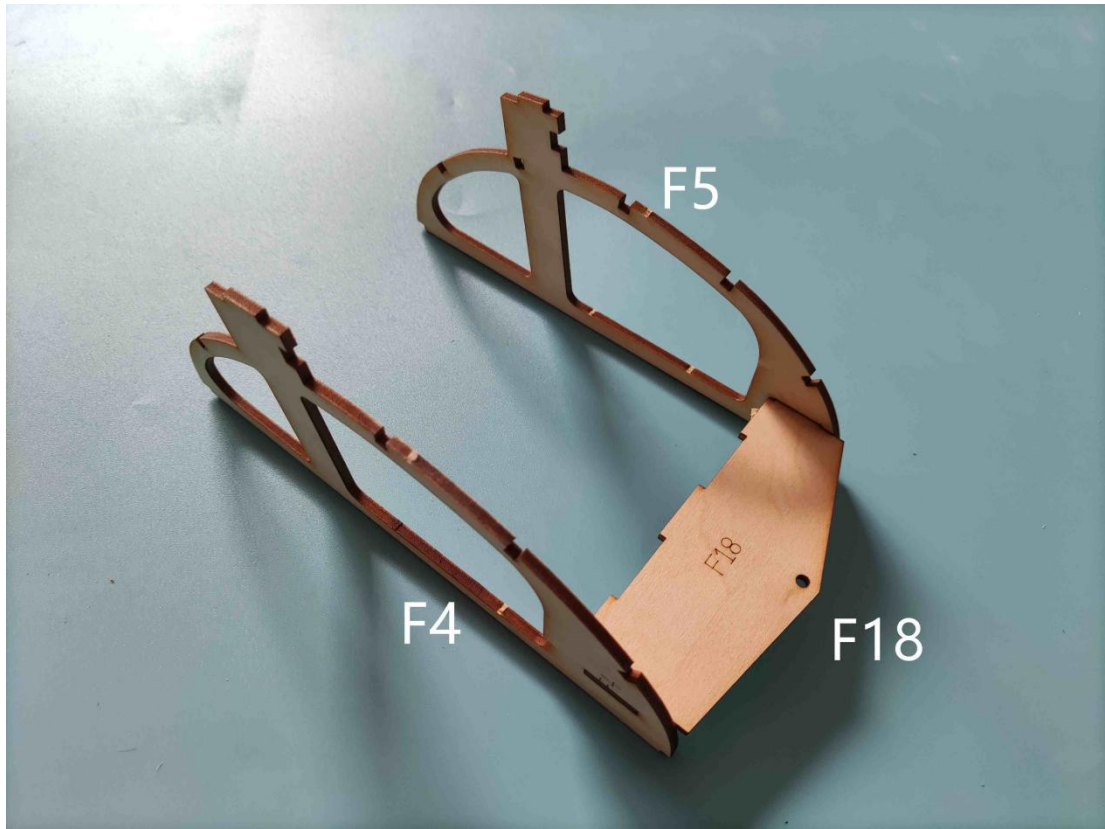
Step 6



Step 7



Step 8





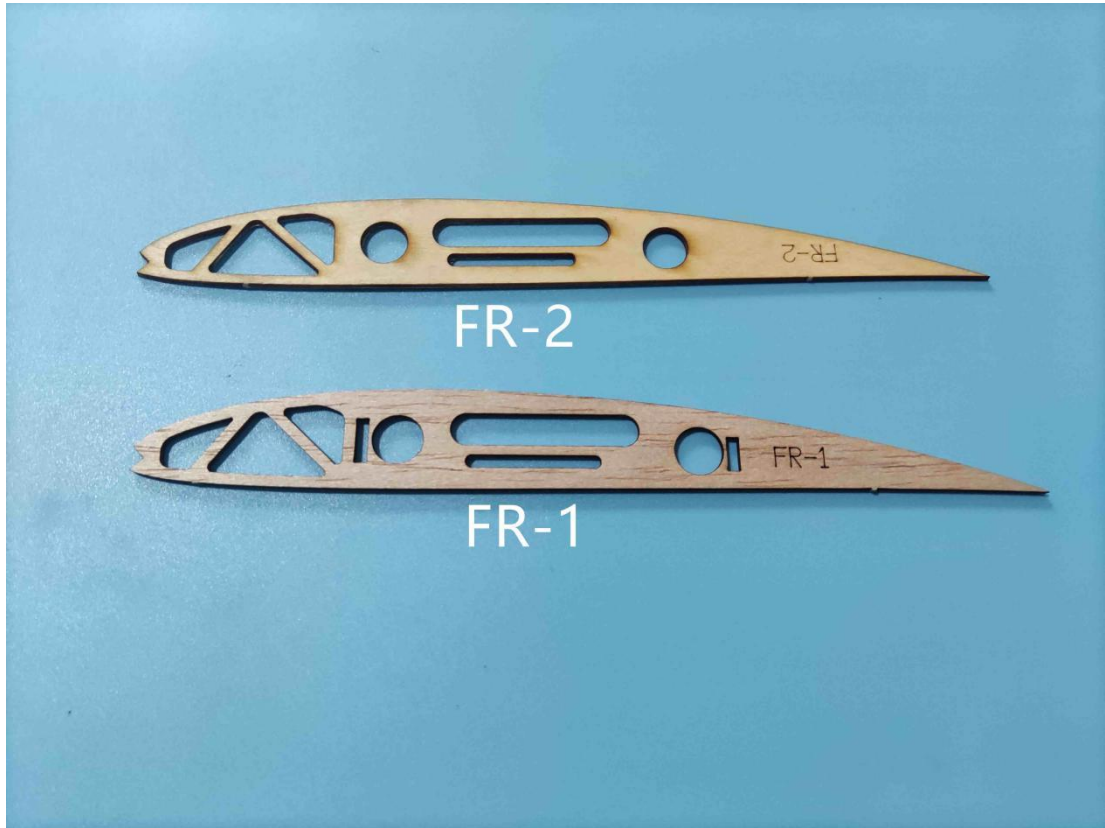
Step 9



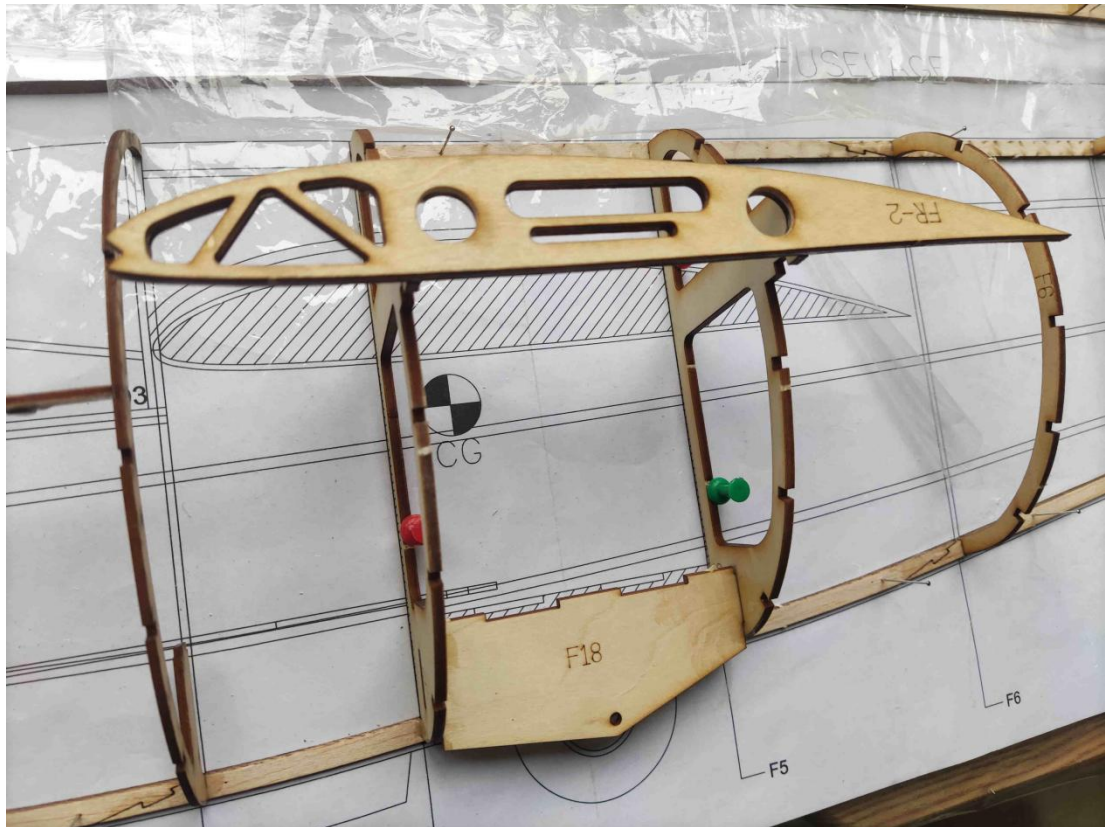
Step 10



Step 11



Step 12

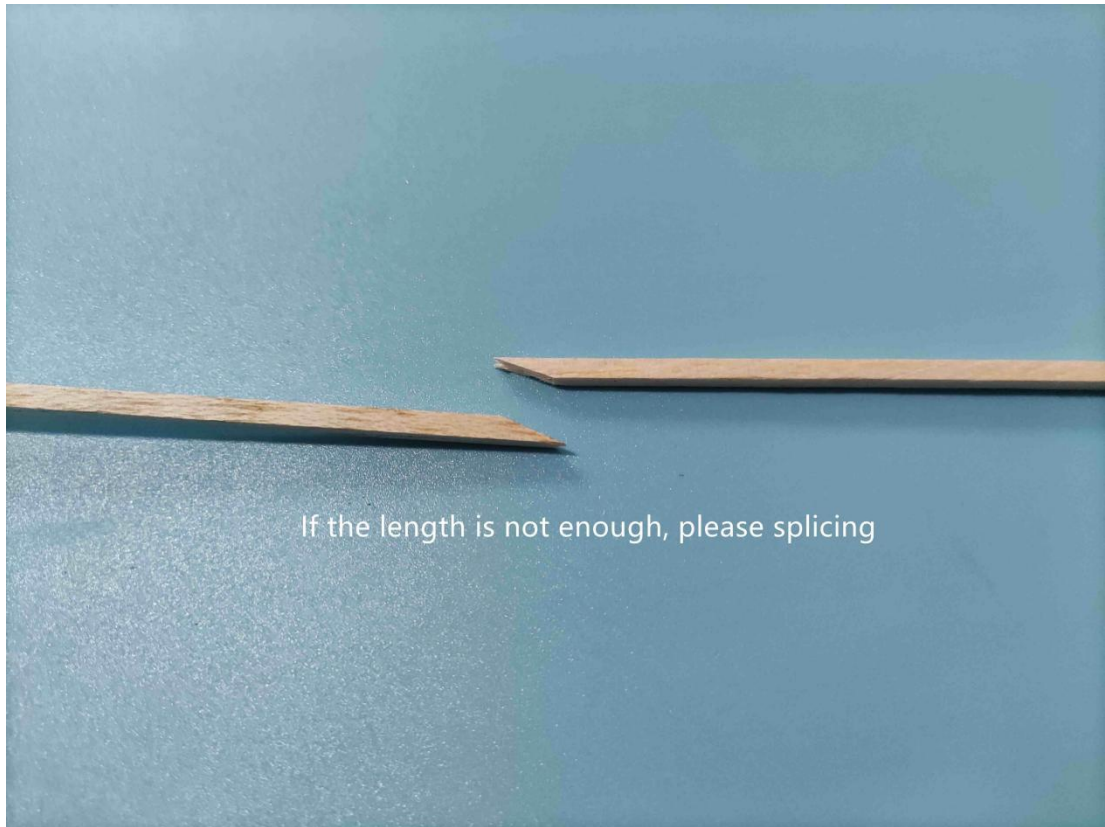




Step 13



Step 14



Step 15

Combine two 3\*3 balsa strips and sand them into a circular arc

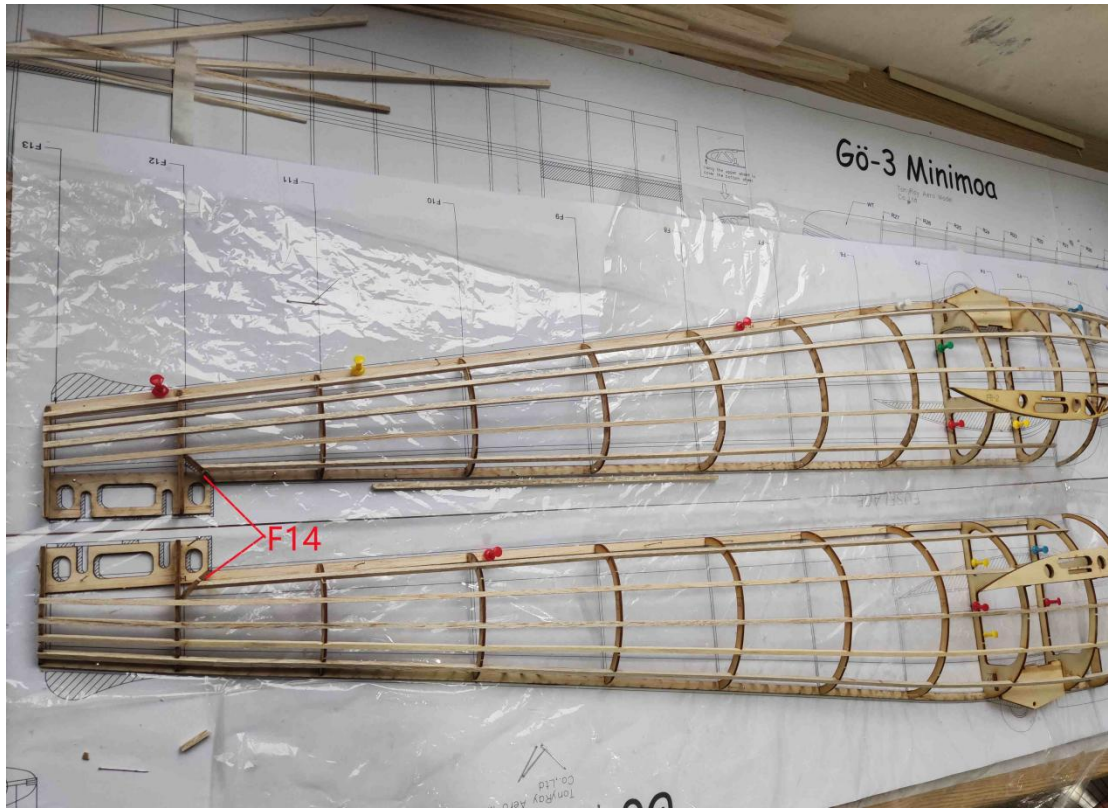


Step 16

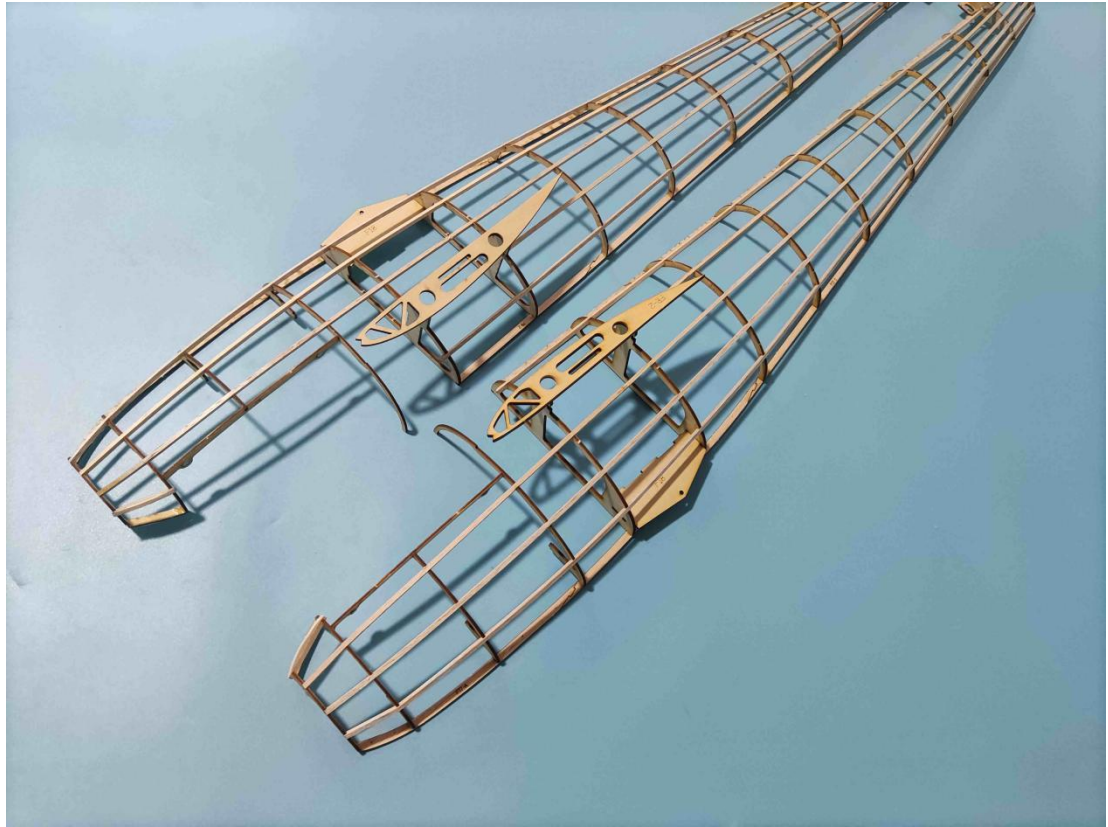




Step 17



Step 18



Step 19



Step 20

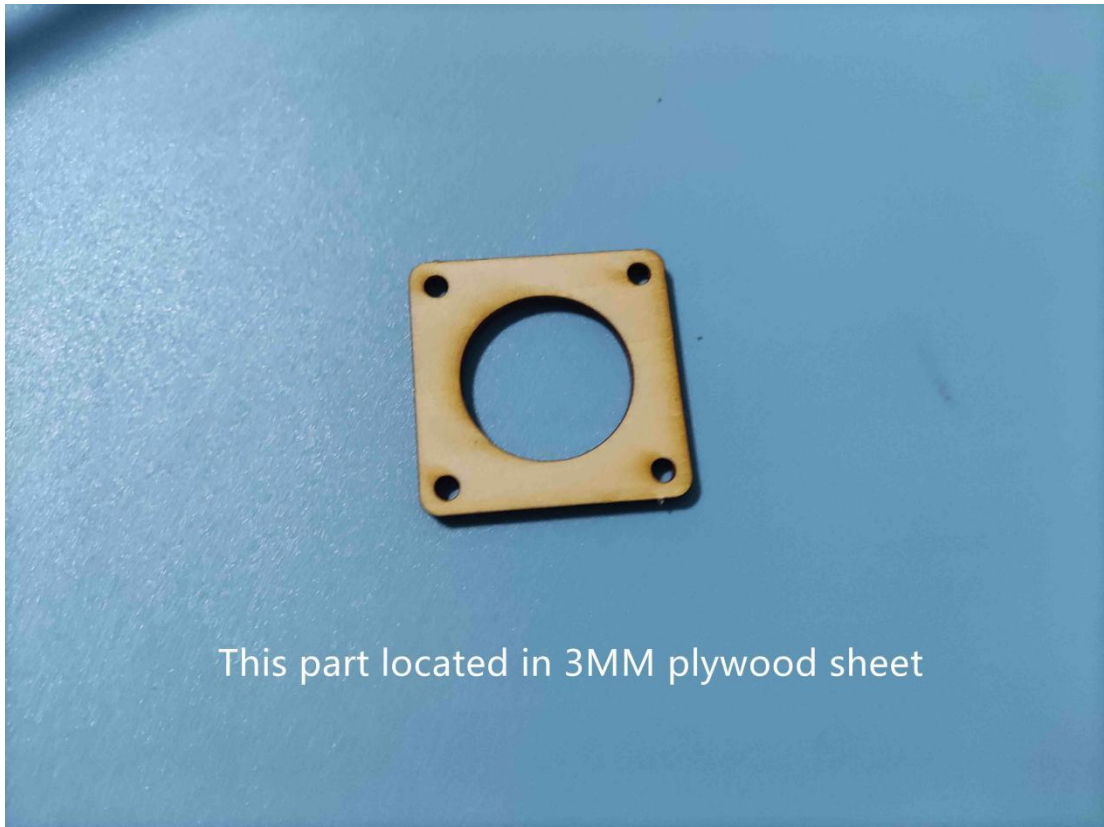




Step 21



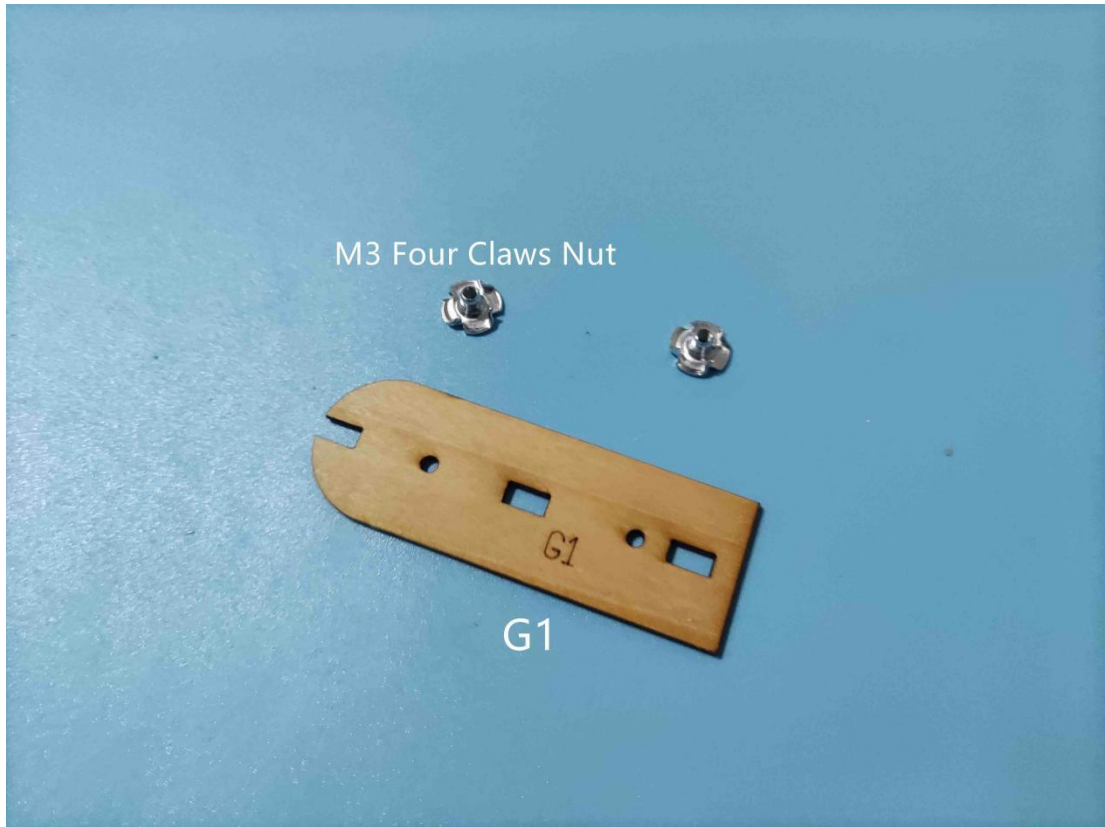
Step 22



Step 23

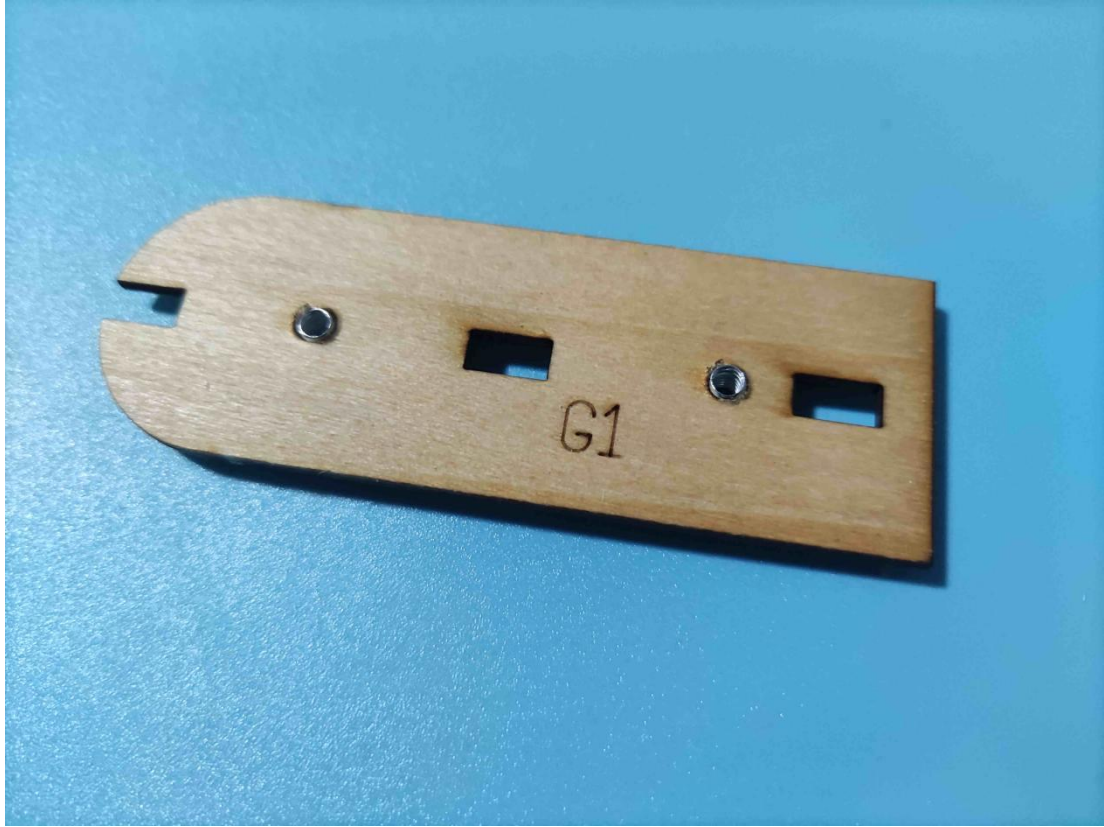


Step 24





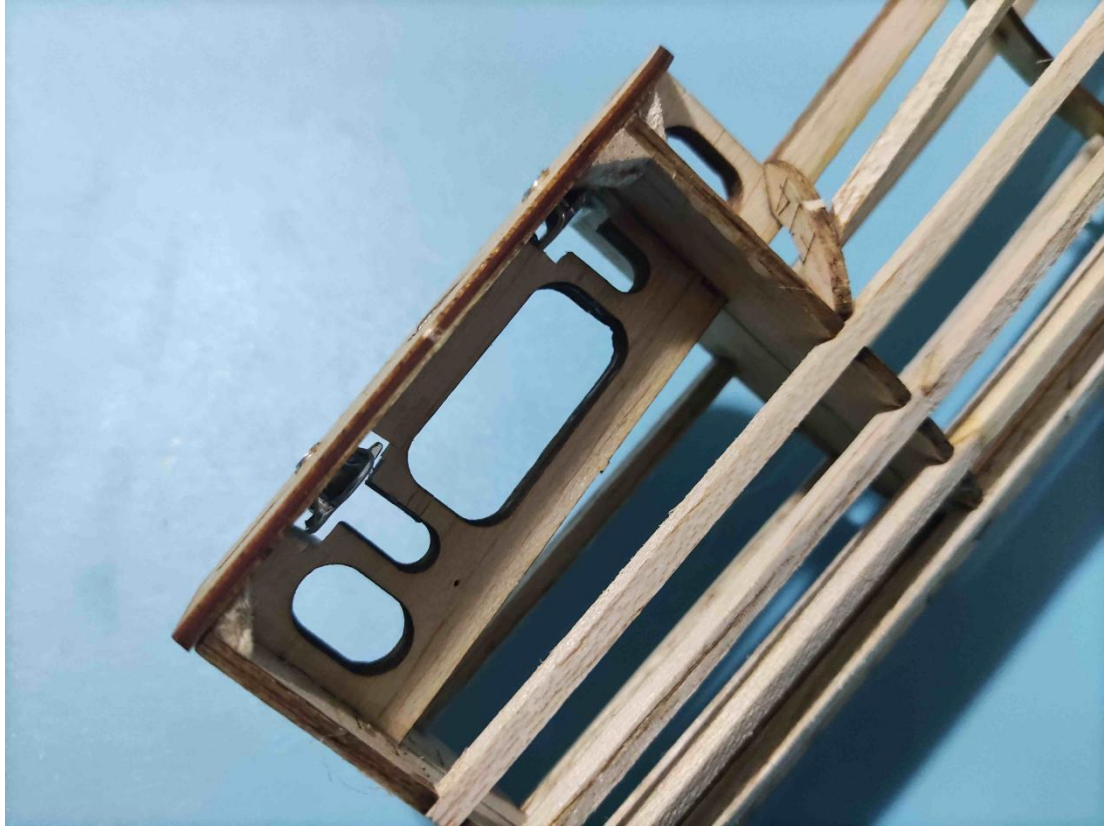
Step 25



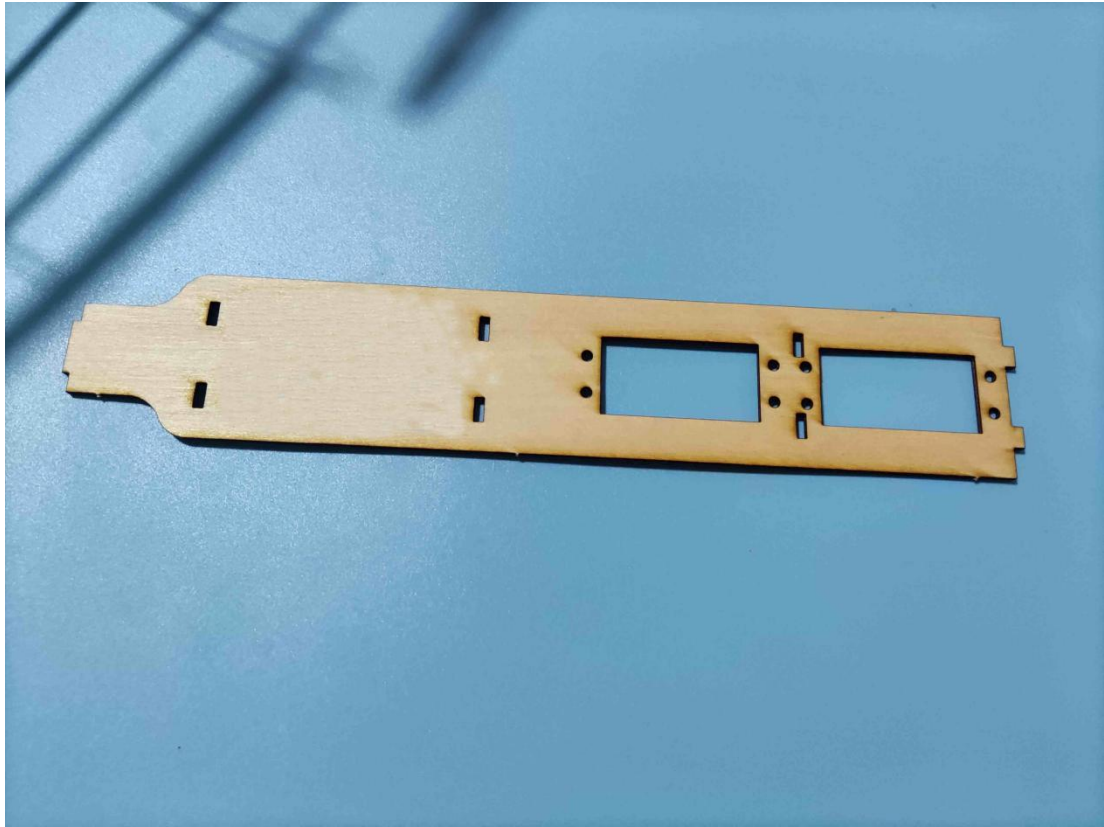
Step 26



Step 27

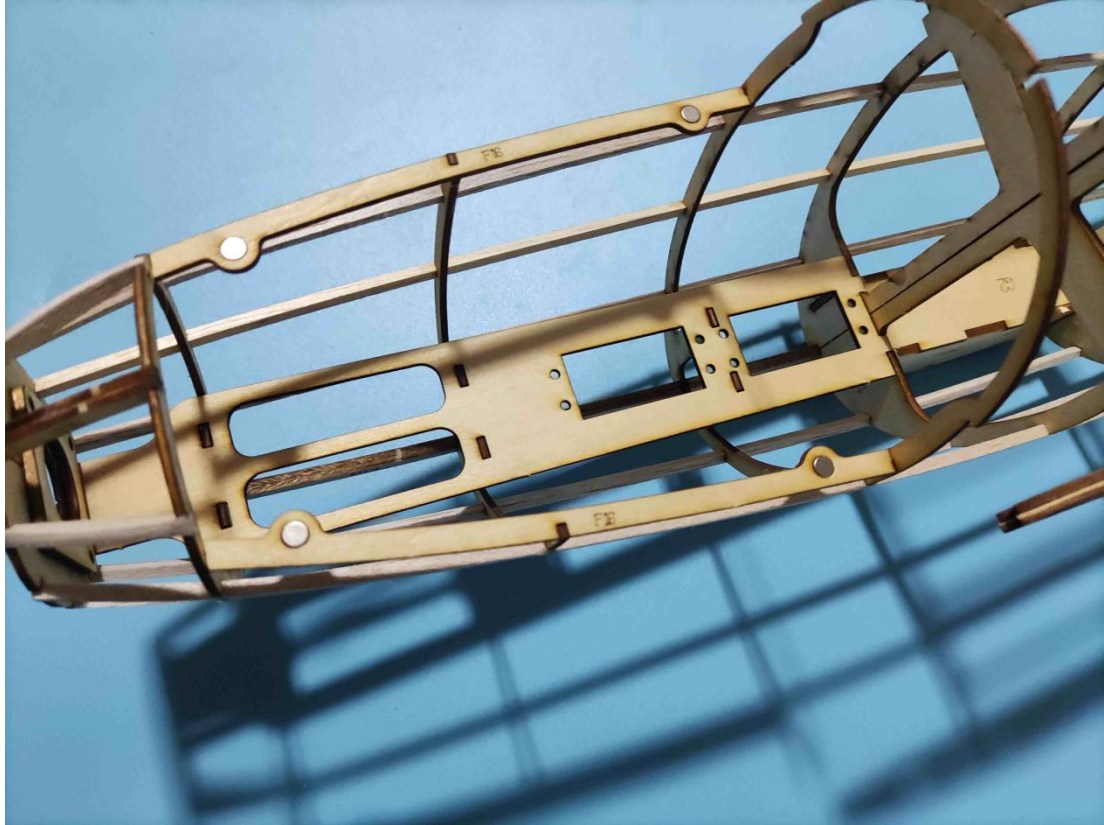


Step 28

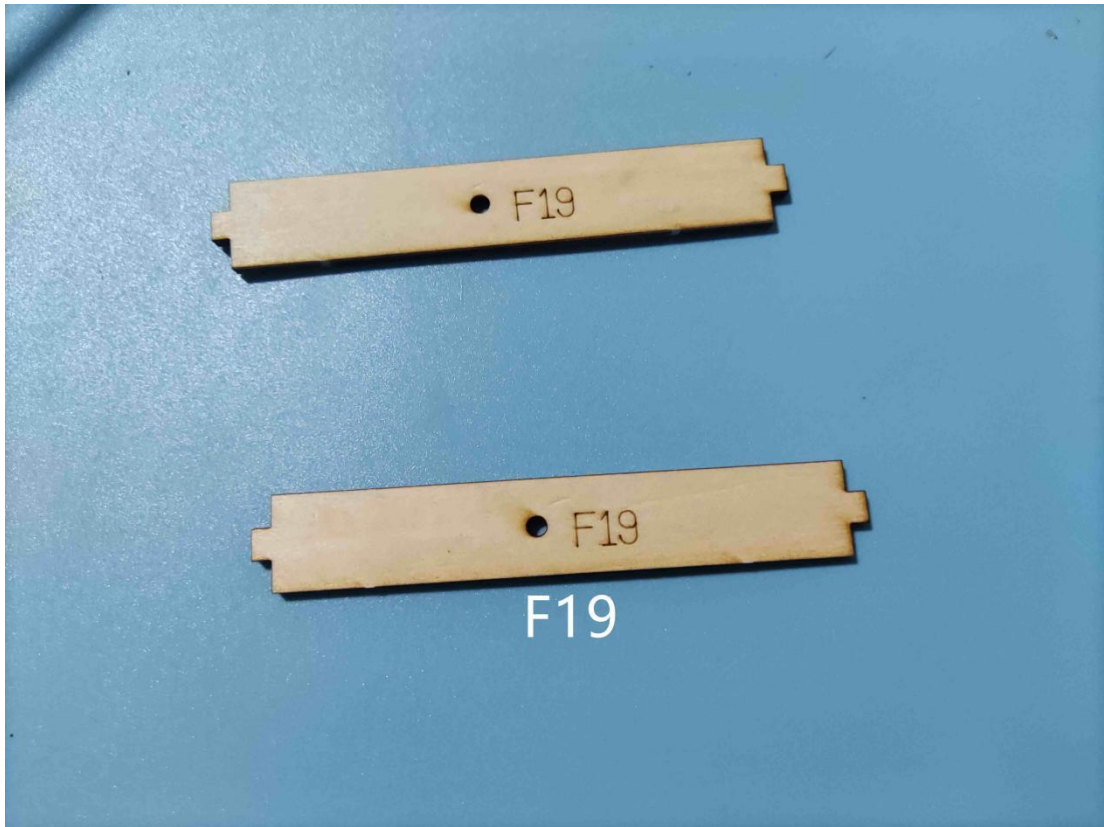




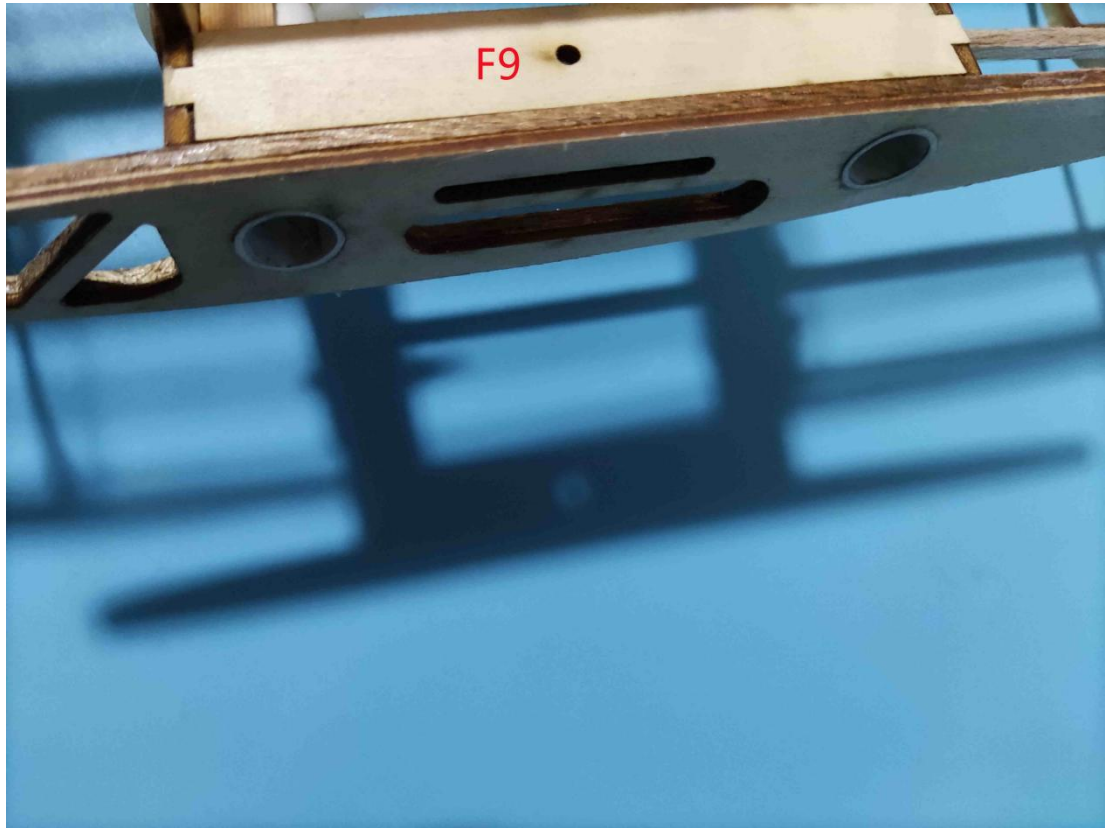
Step 29



Step 30



Step 31



Step 32





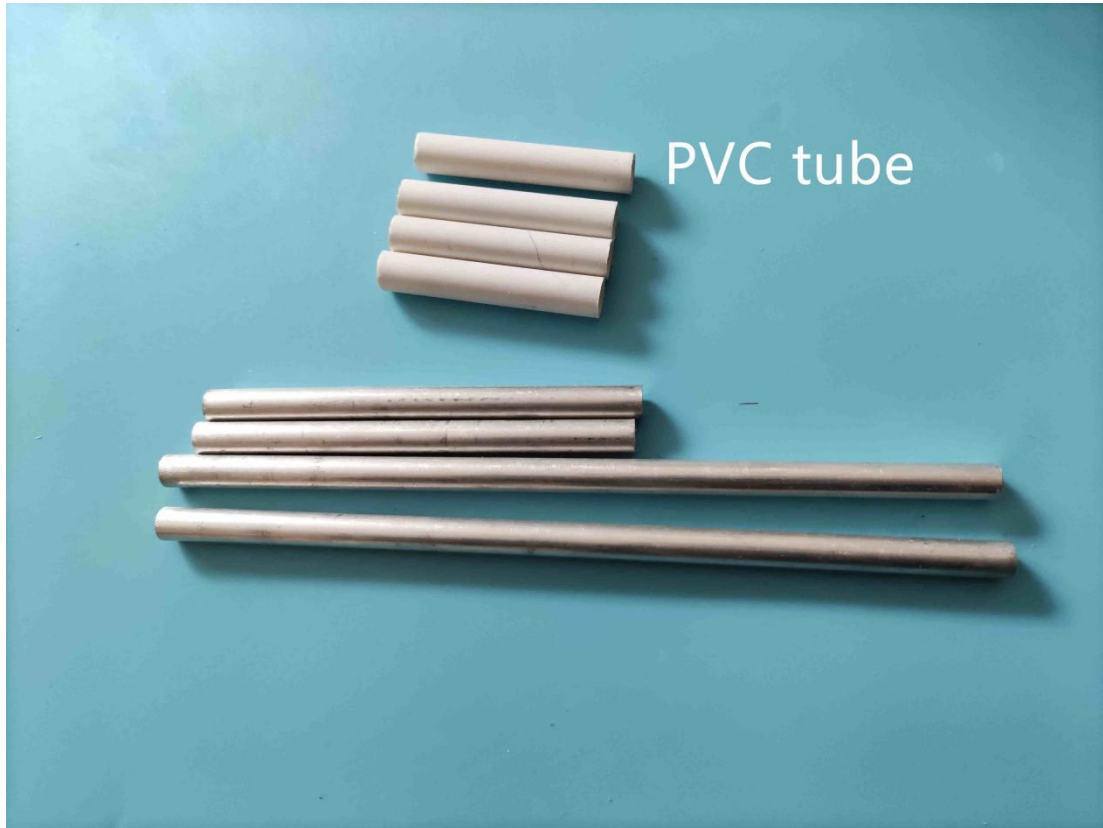
Step 33



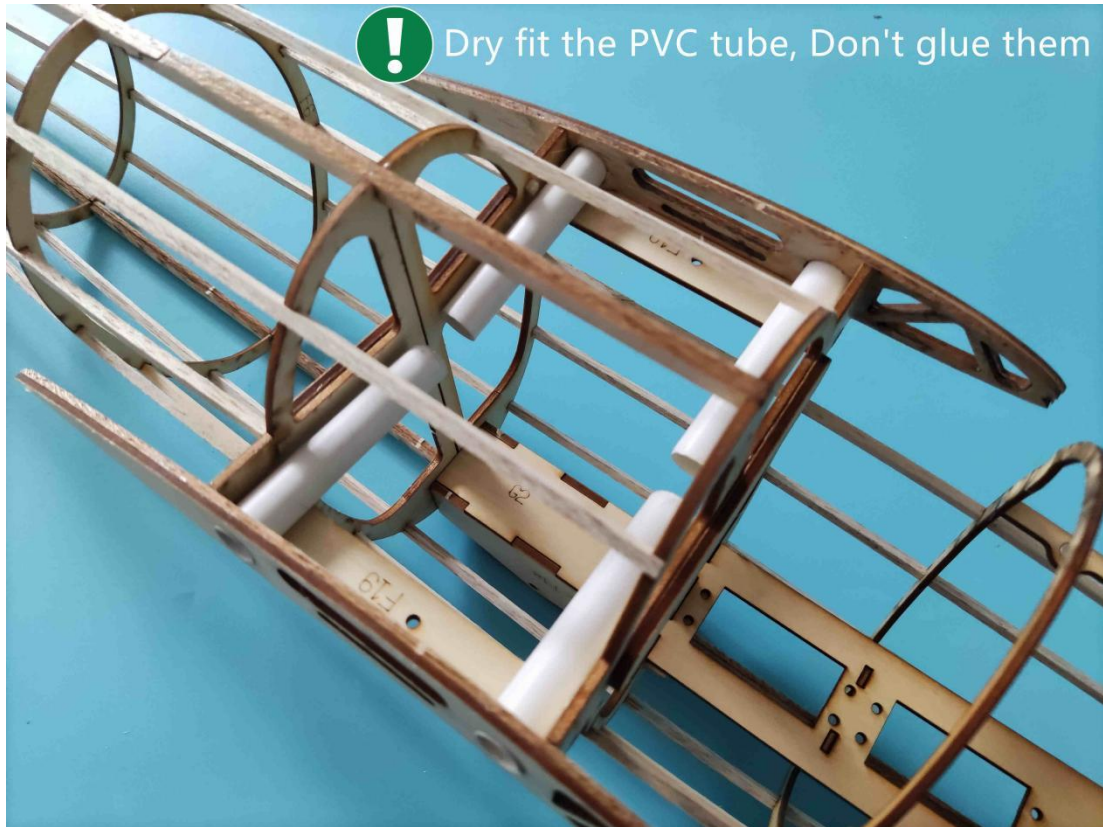
Step 34



Step 35

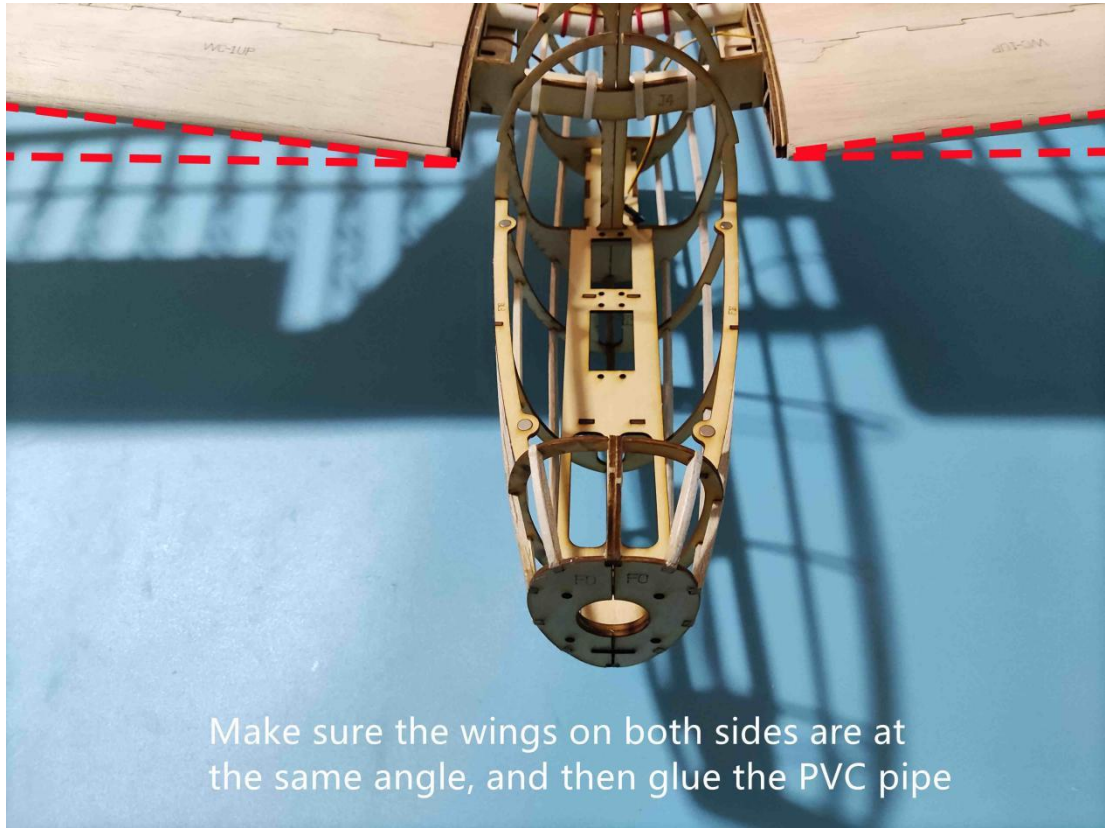


Step 36





Step 37



Step 38

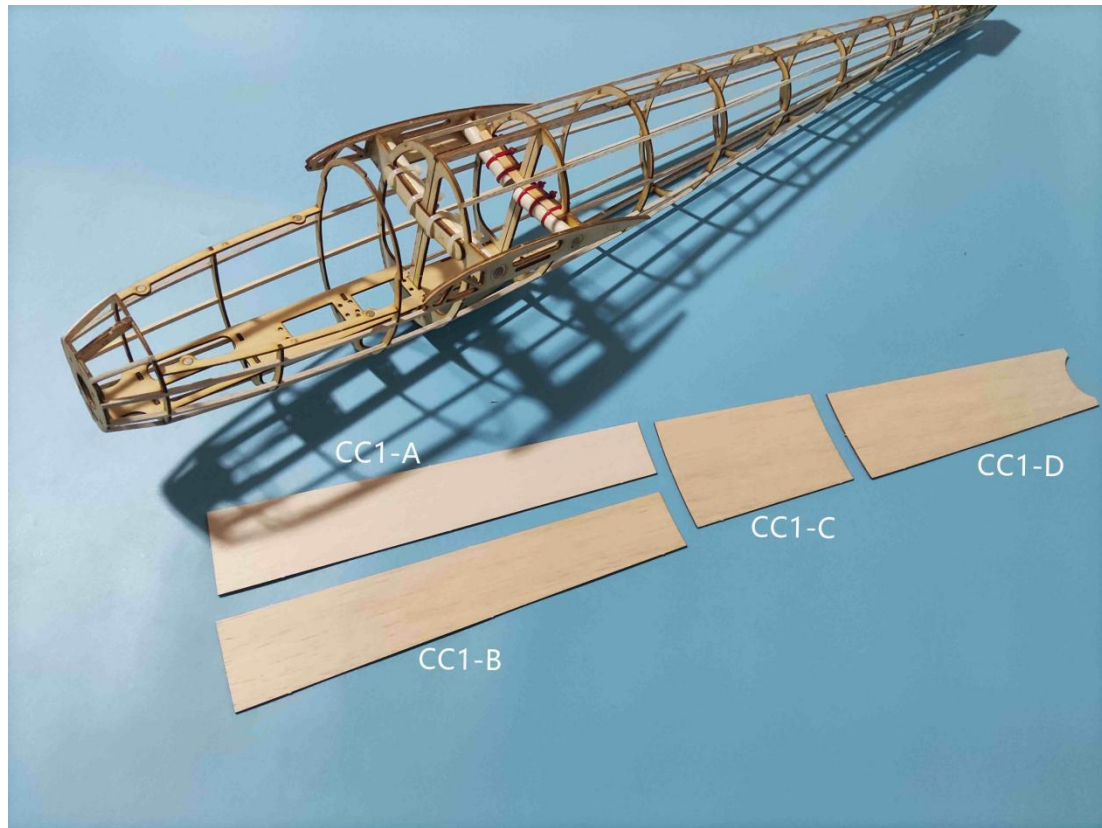


Reinforced sleeve part



## Part7.Fuselage II

Step1

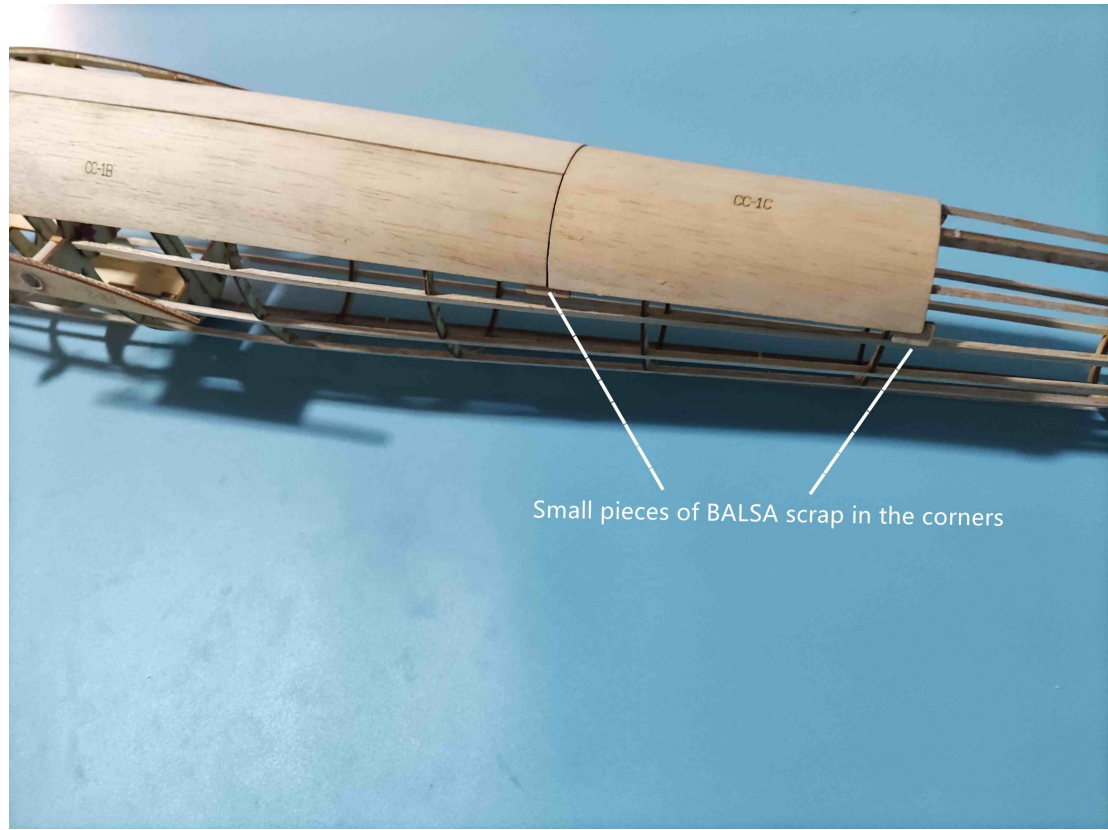


Step2





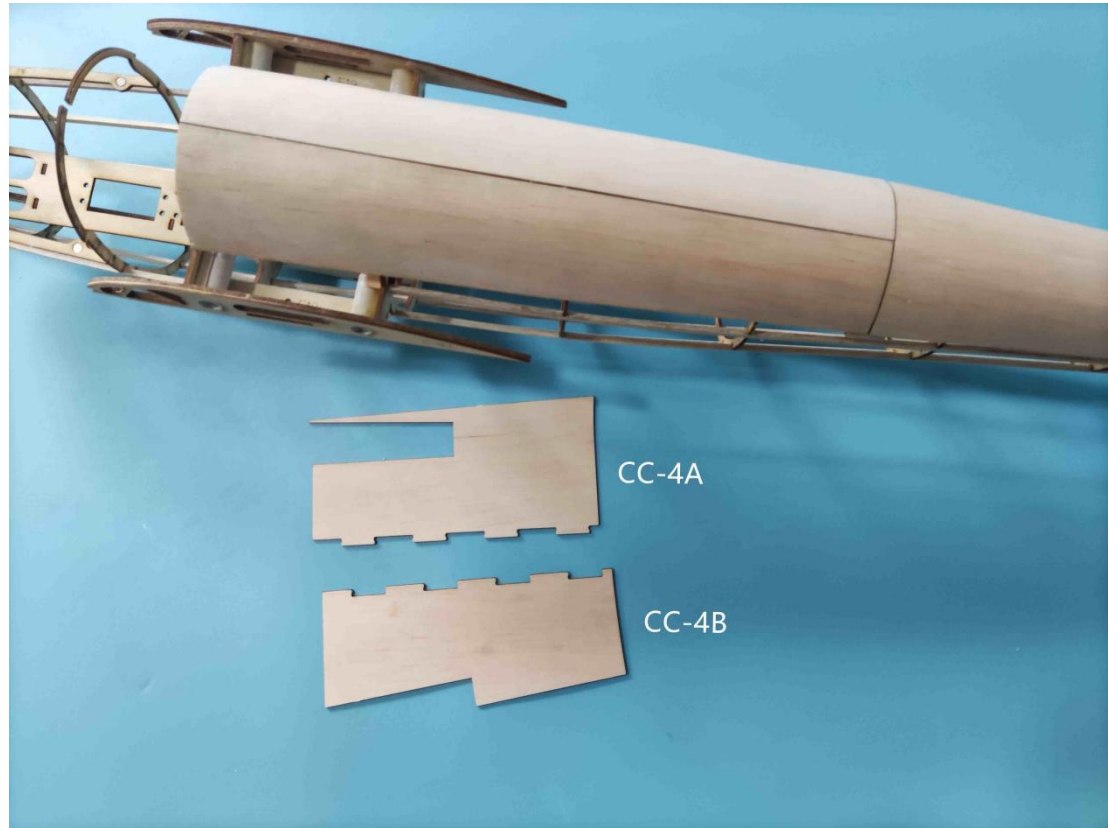
Step3



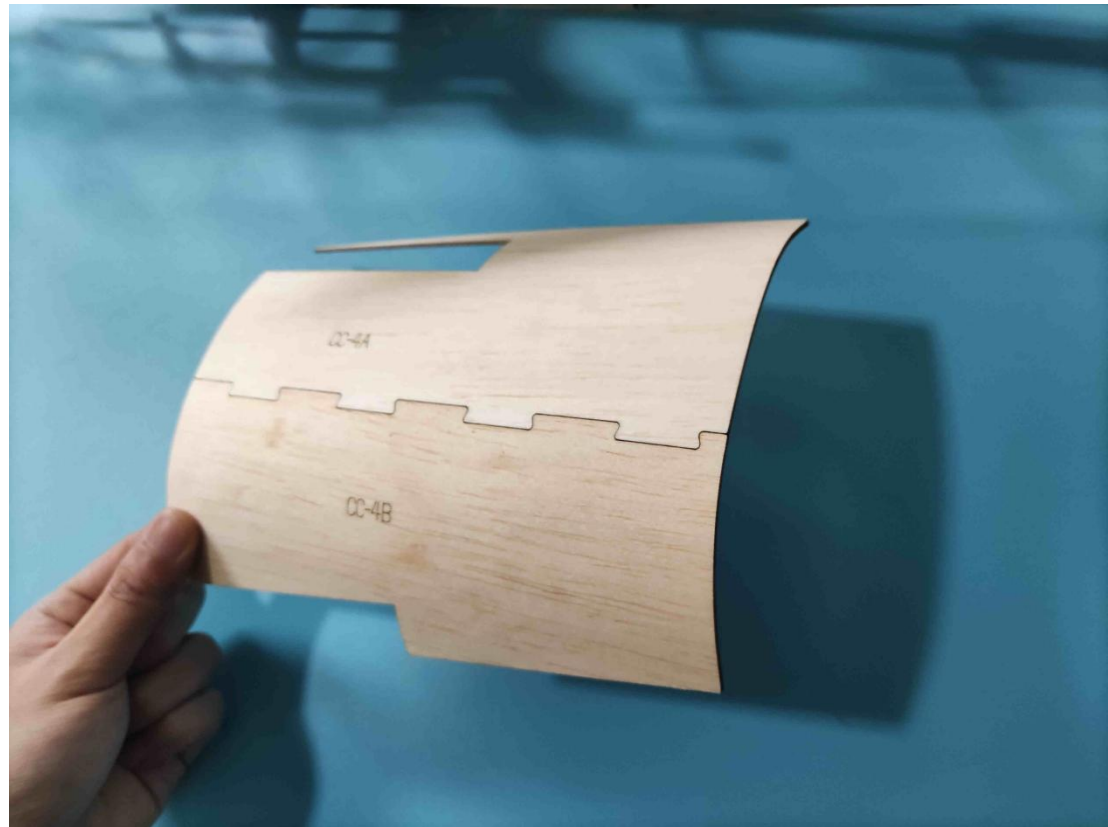
Step4



Step5

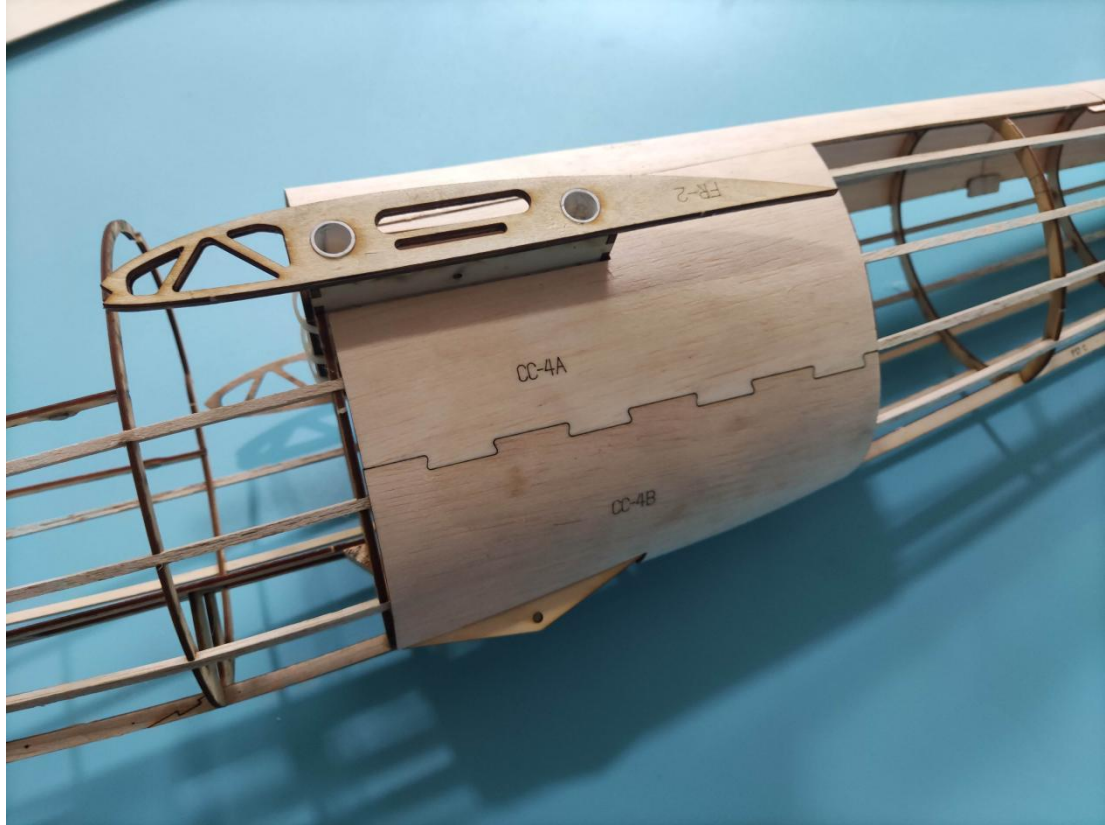


Step6

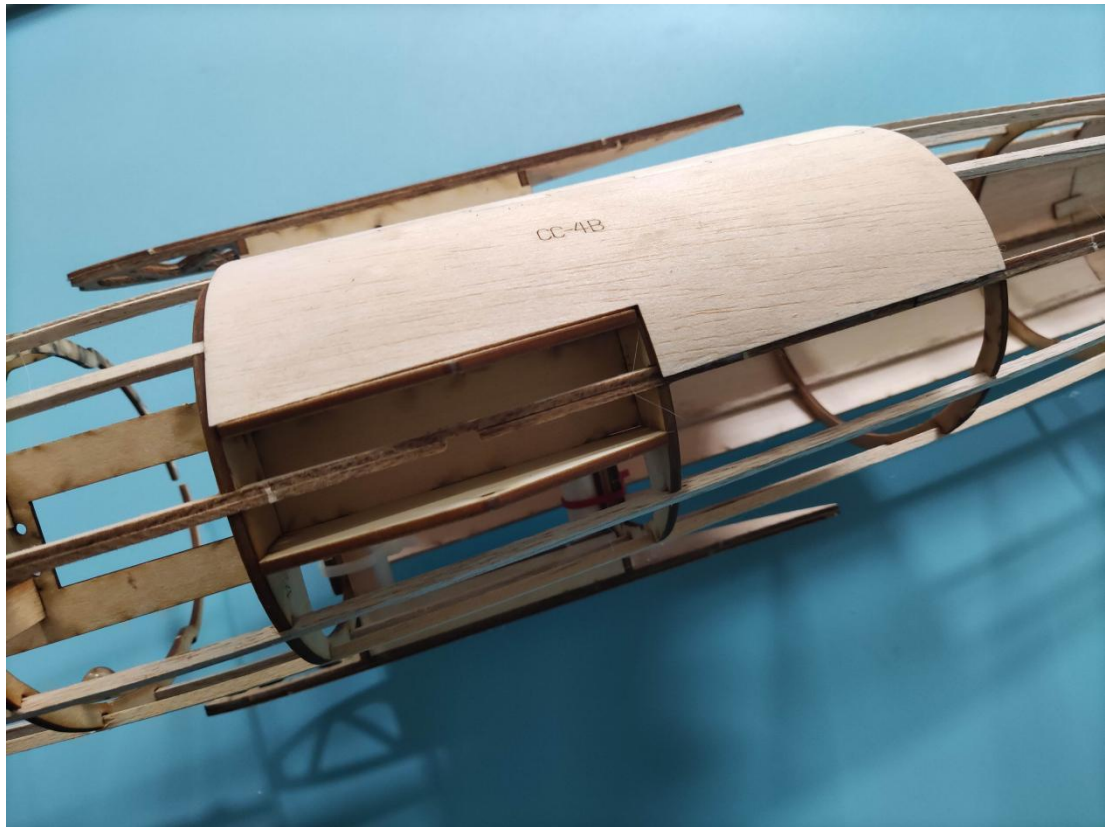




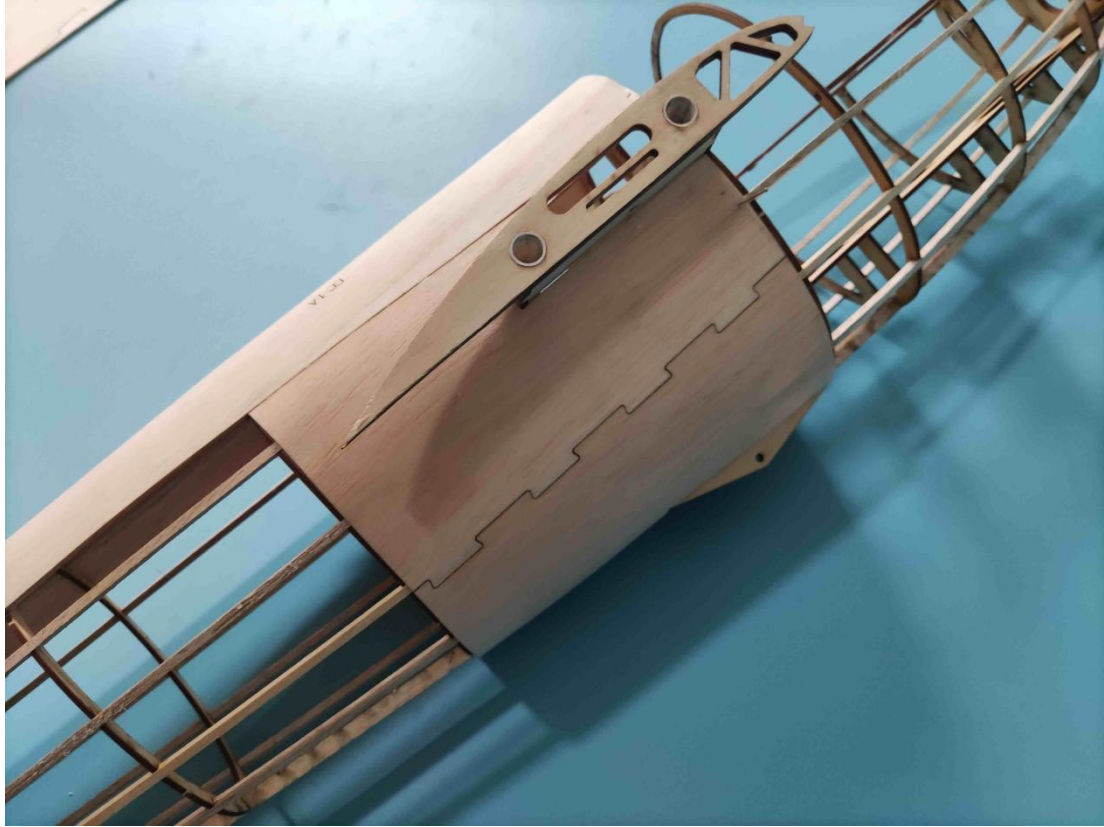
Step7



Step8



Step9



Step10

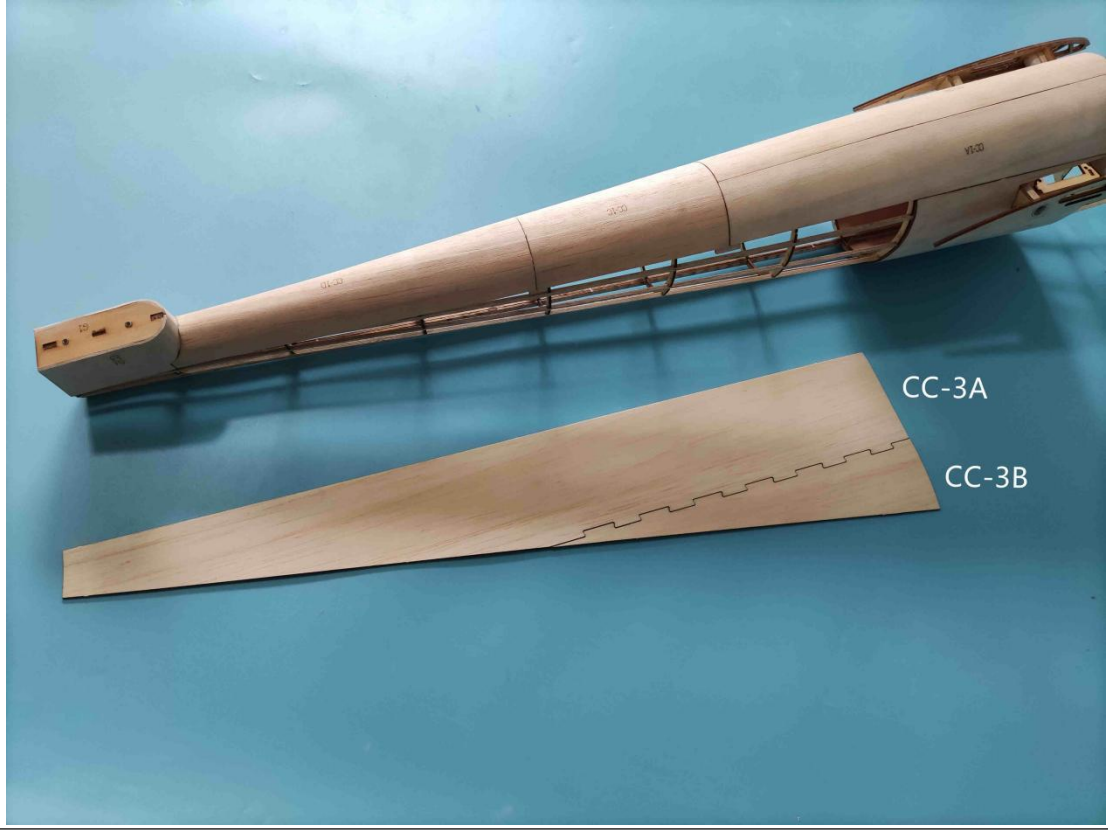




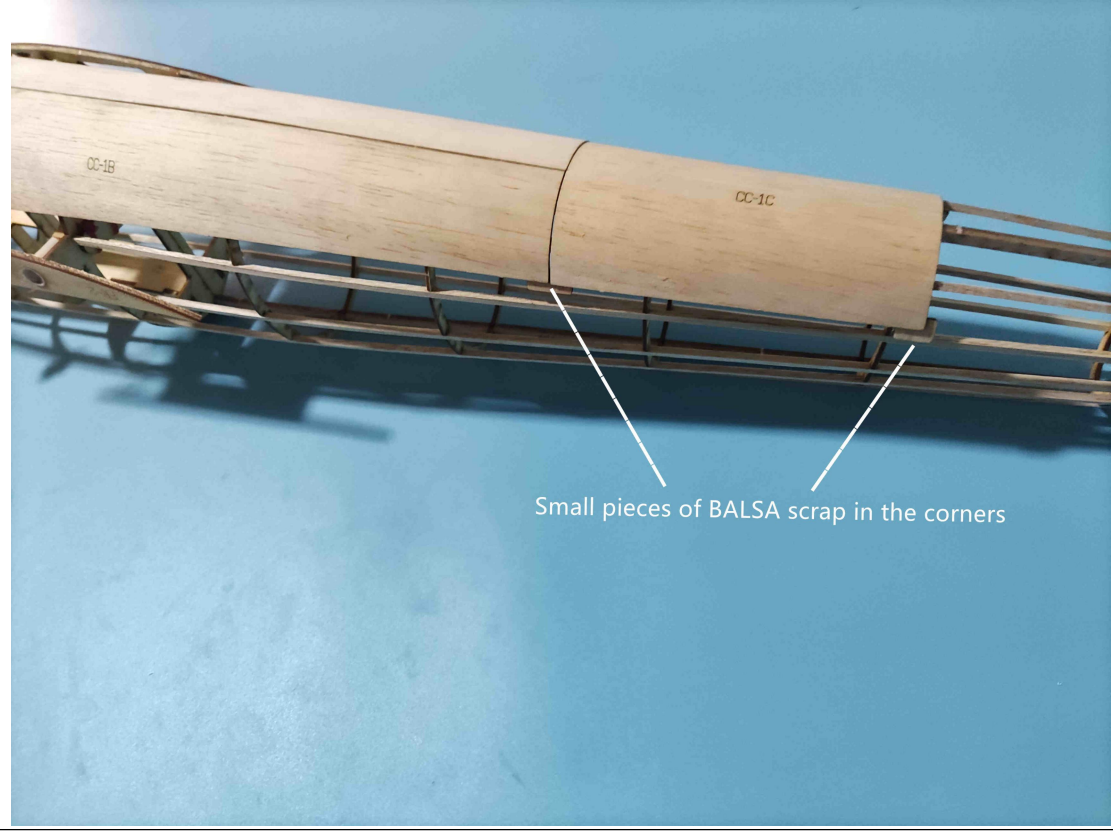
Step11



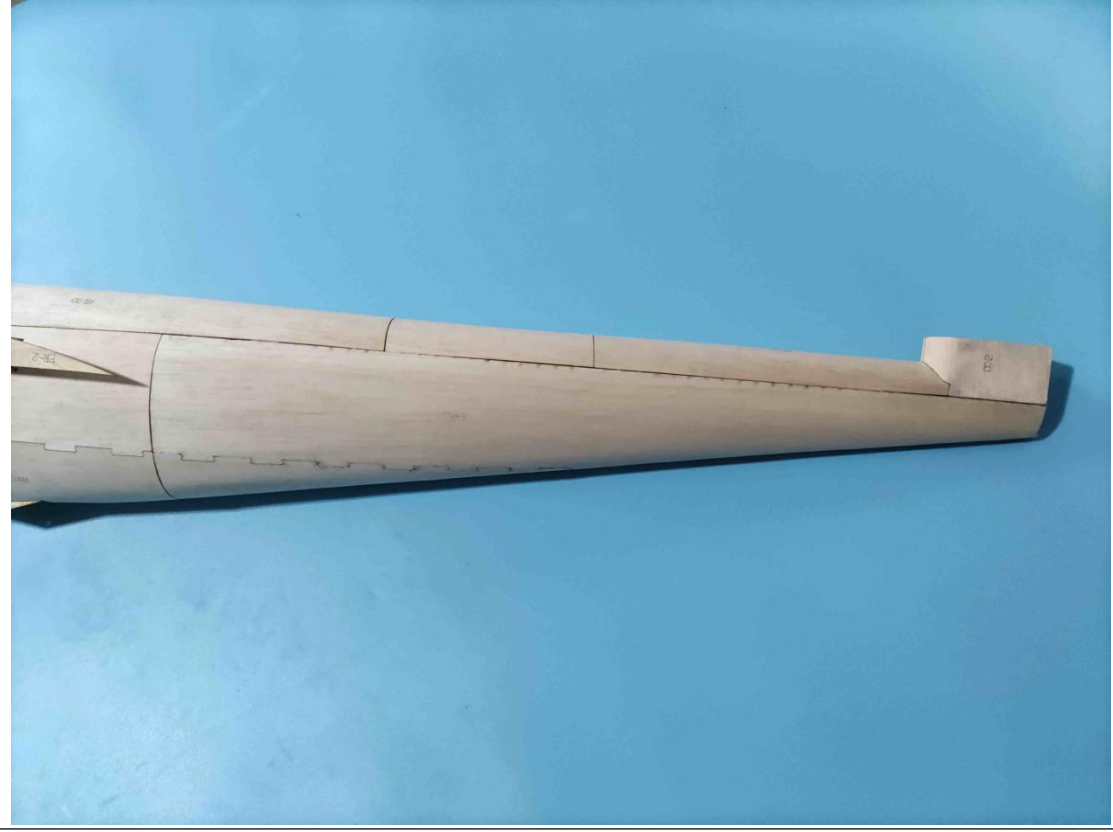
Step12



Step13

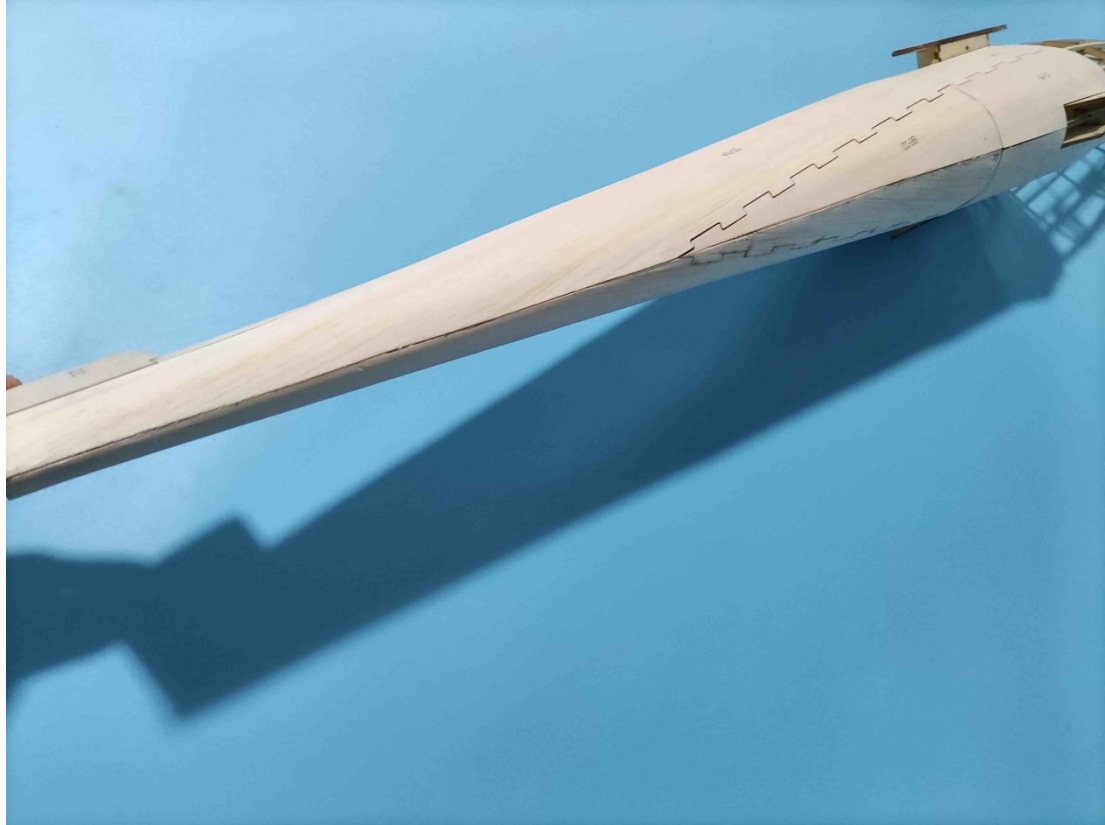


Step14

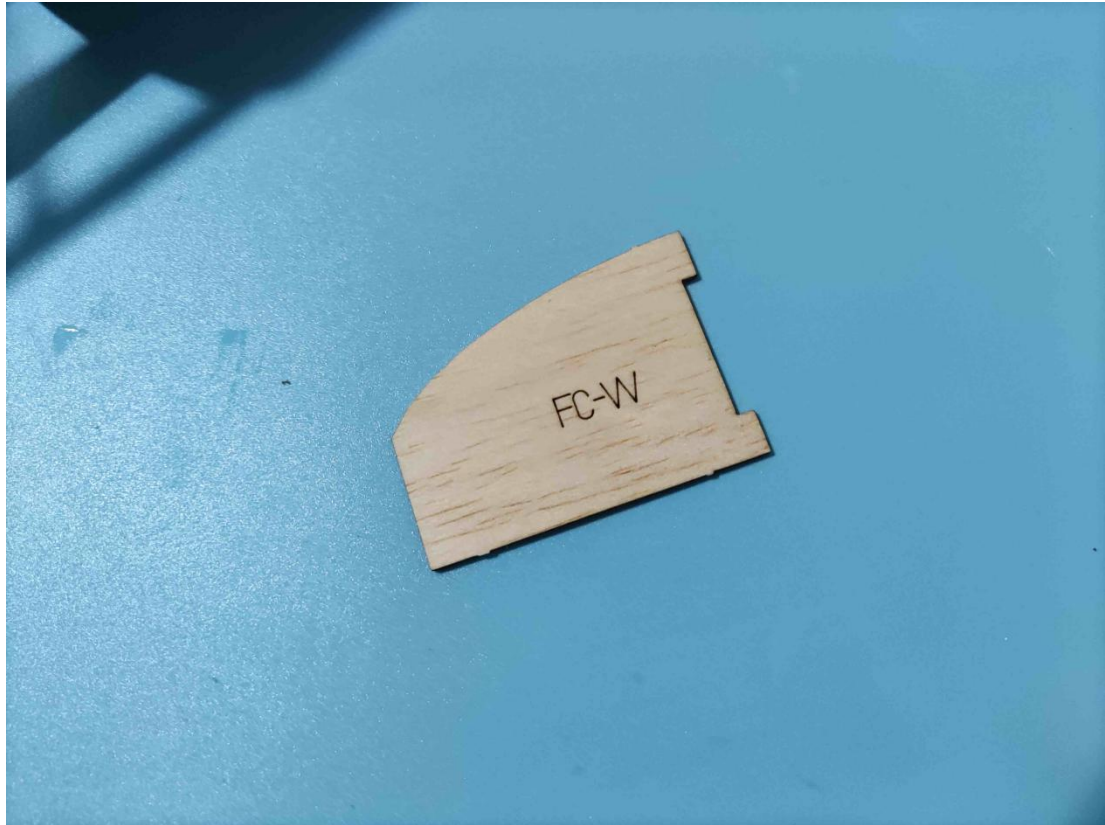




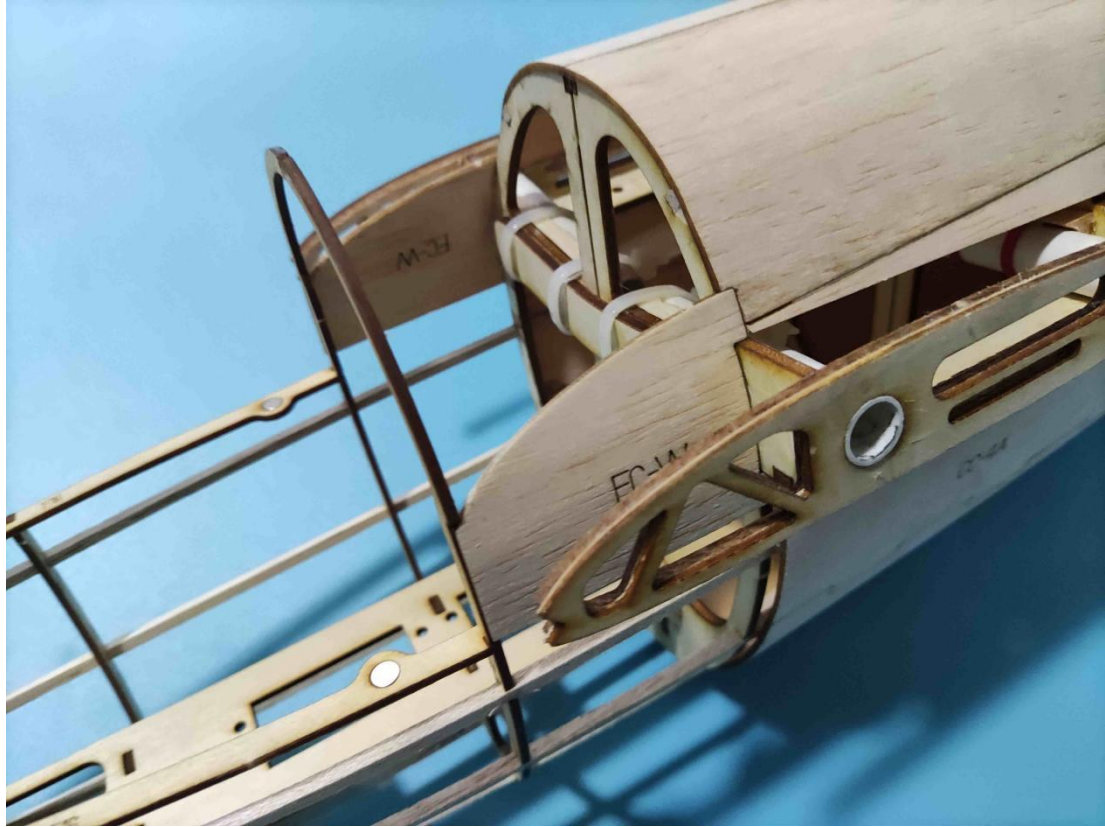
Step15



Step16



Step17

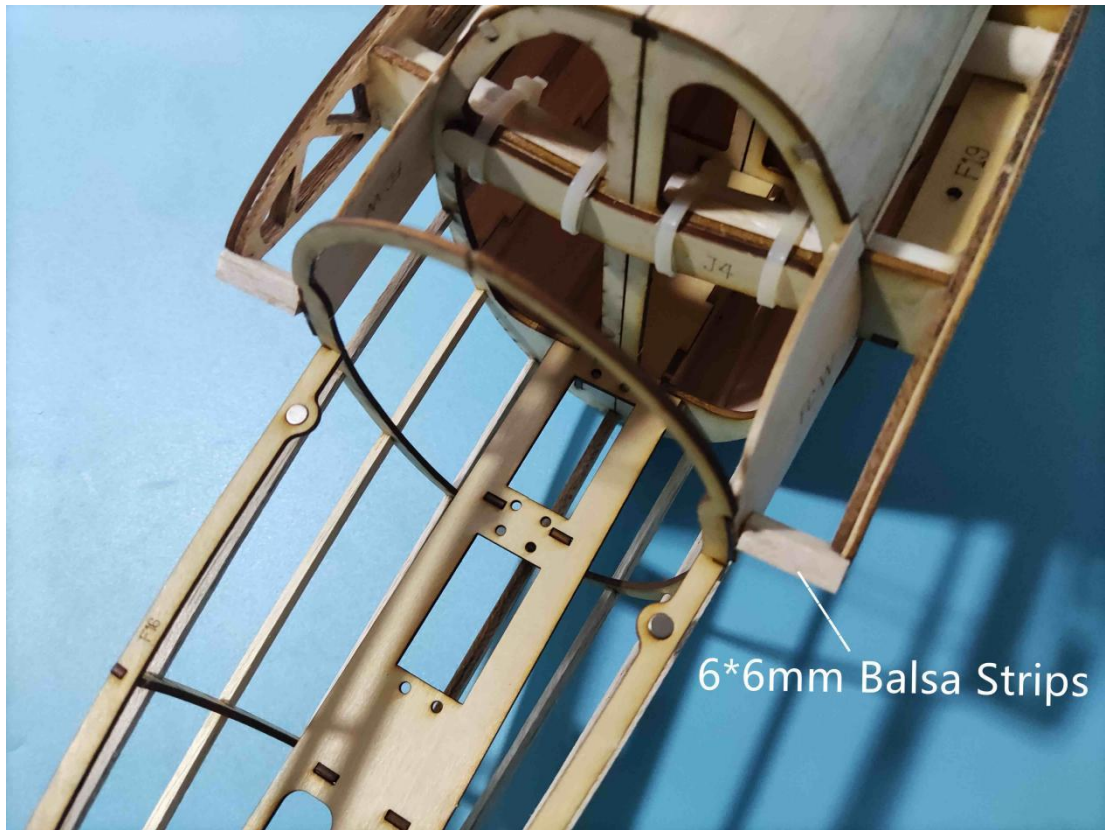


Step18

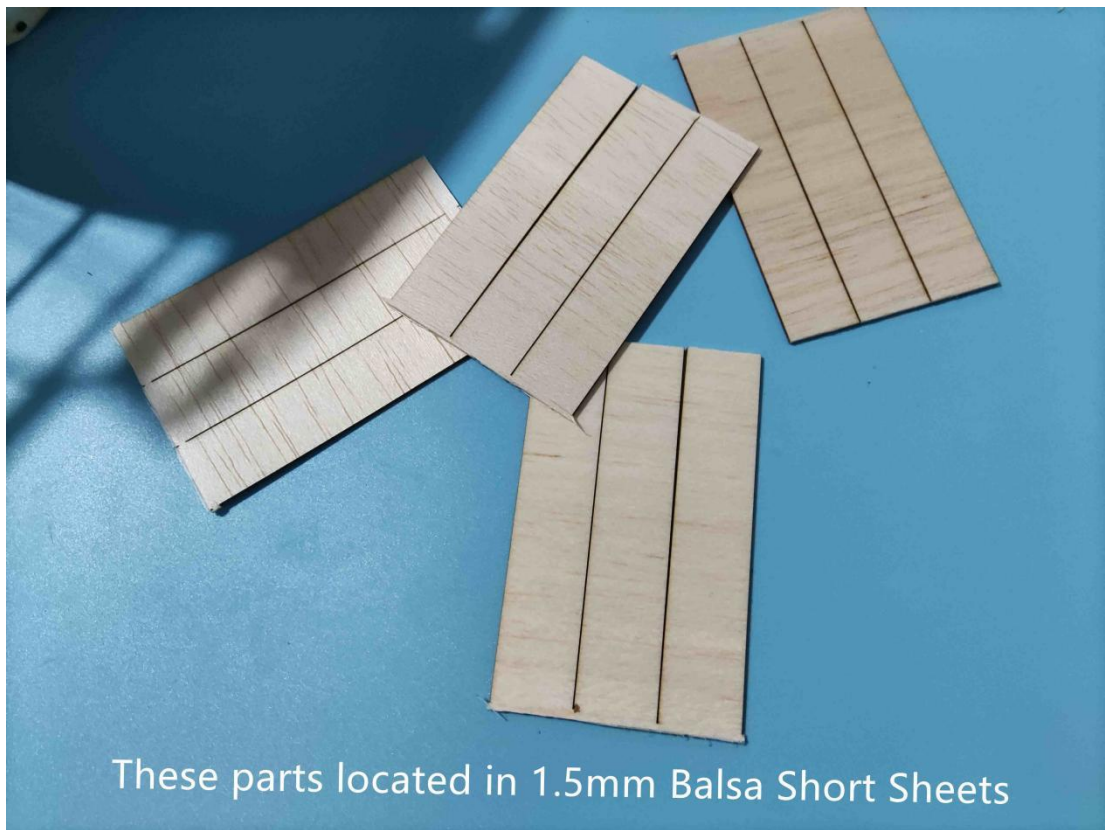




Step19



Step20



Step21



Step22

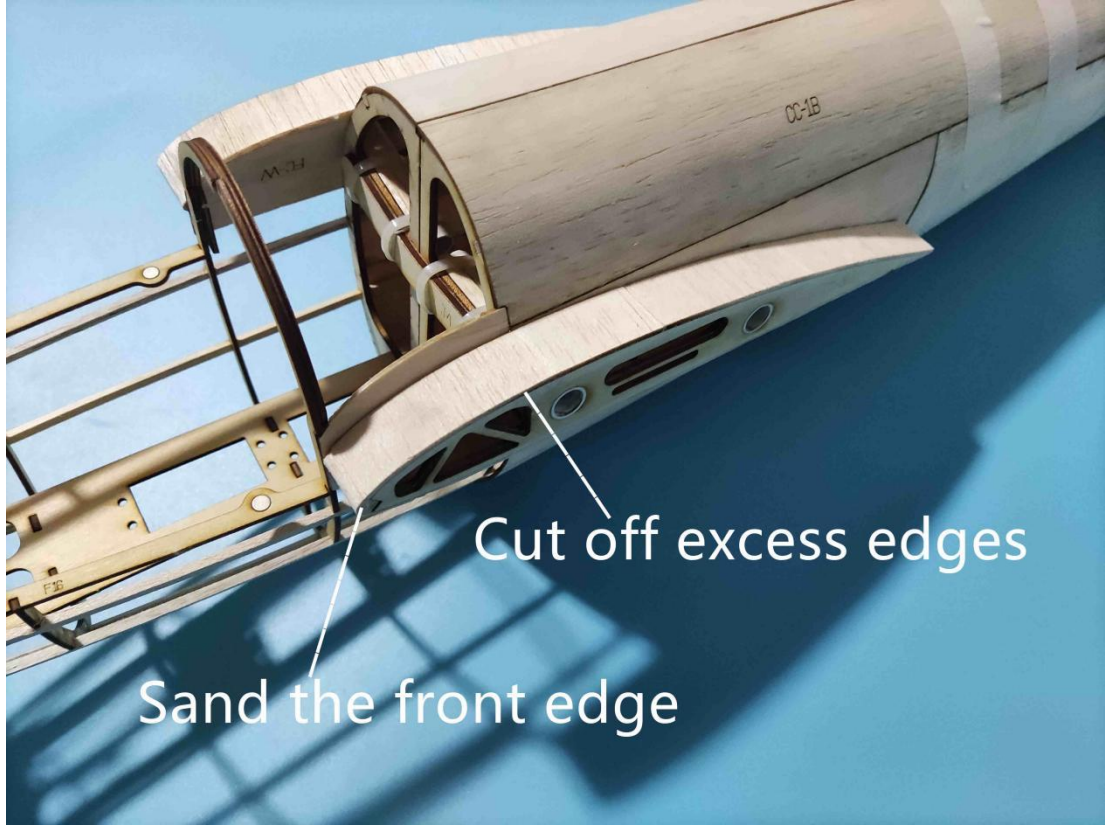




Step23



Step24



Step25



Step26





Step27



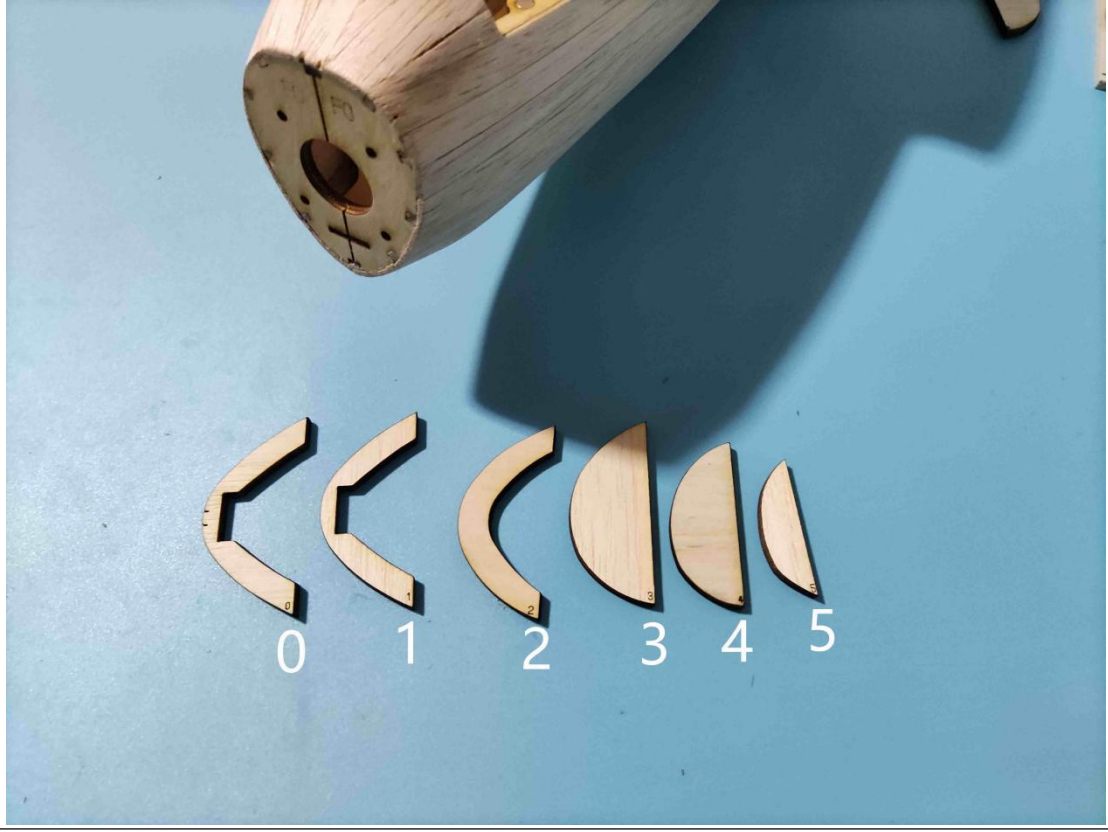
Step28



Step29



Step30





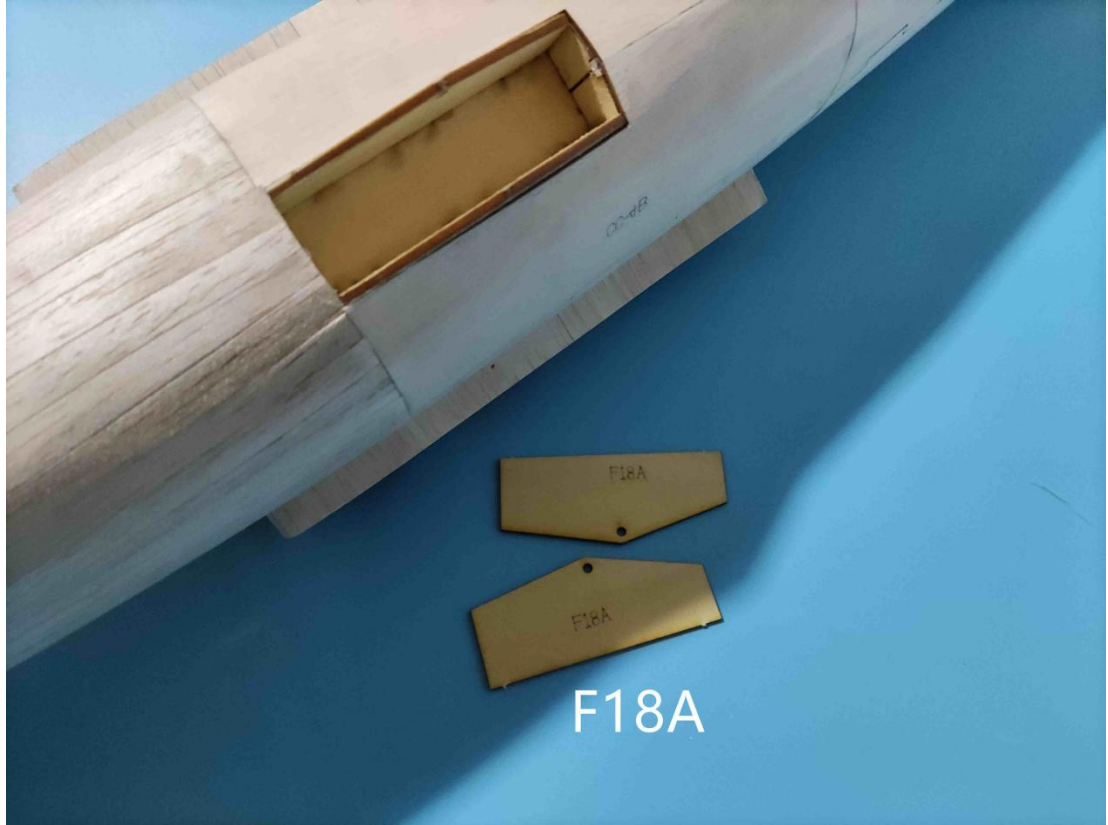
Step31



Step32



Step33



F18A

Step34





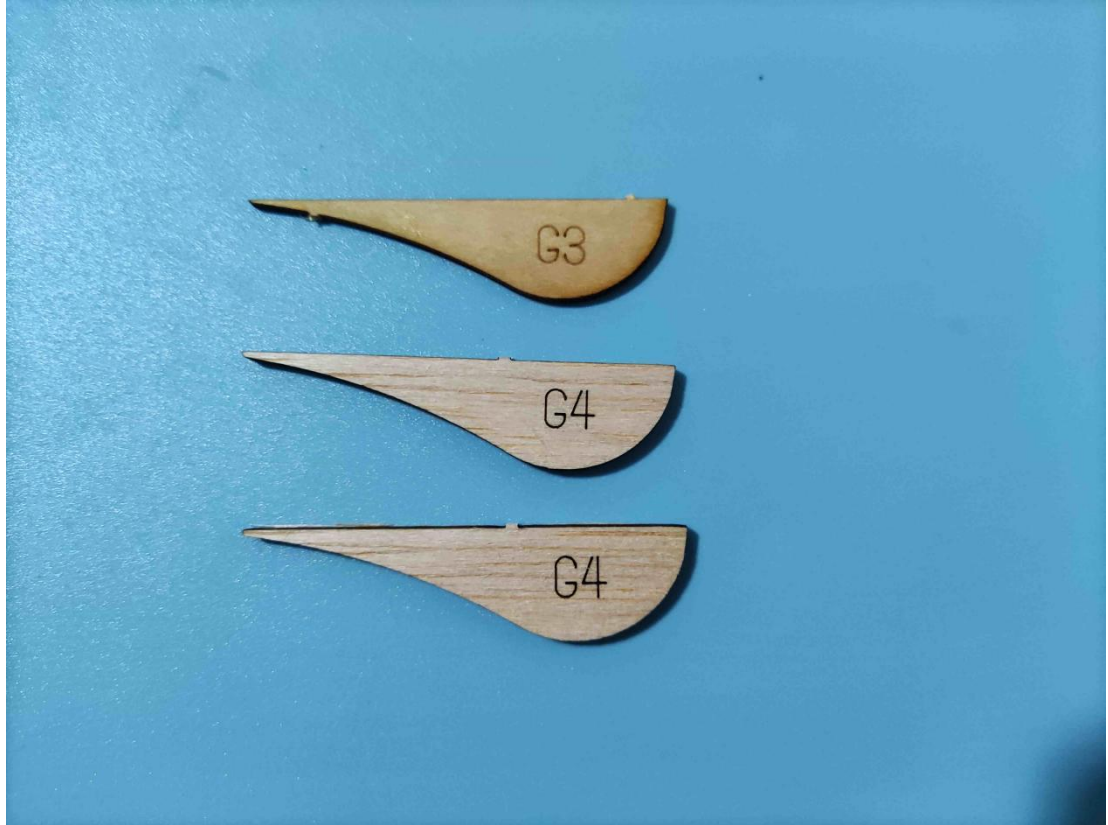
Step35



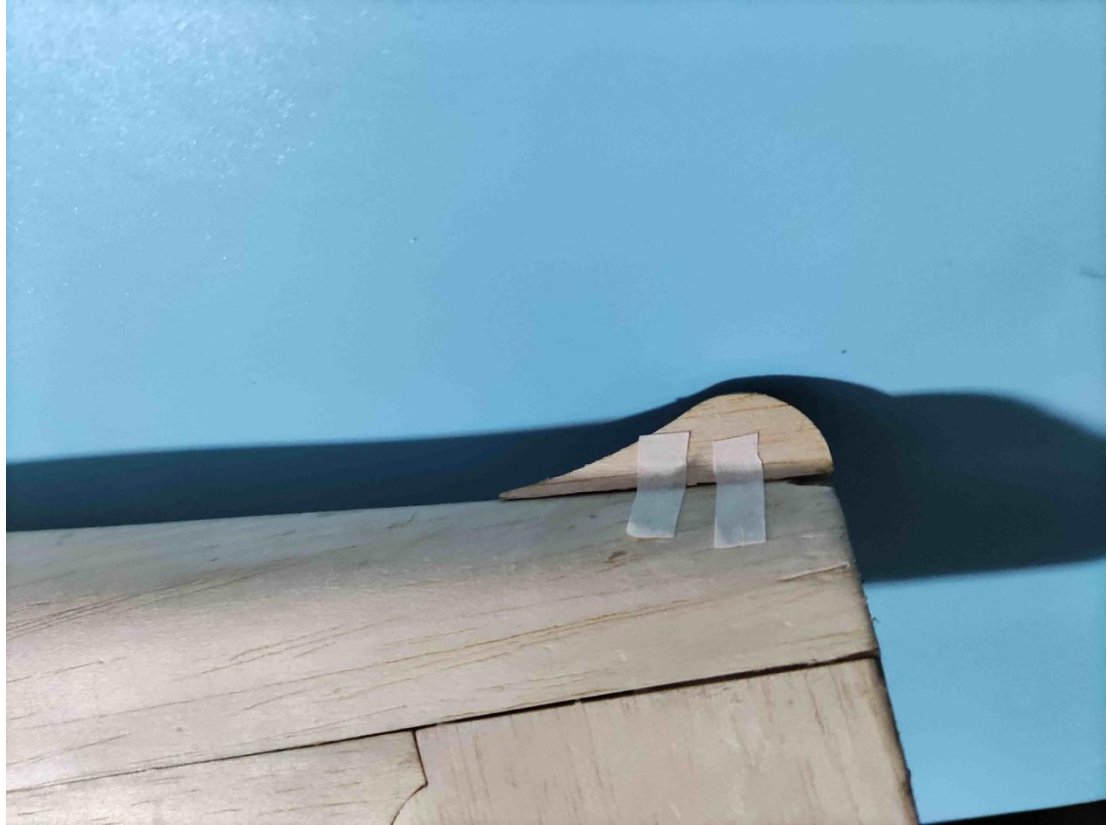
Step36



Step37



Step38





Step39



Step40



Step41

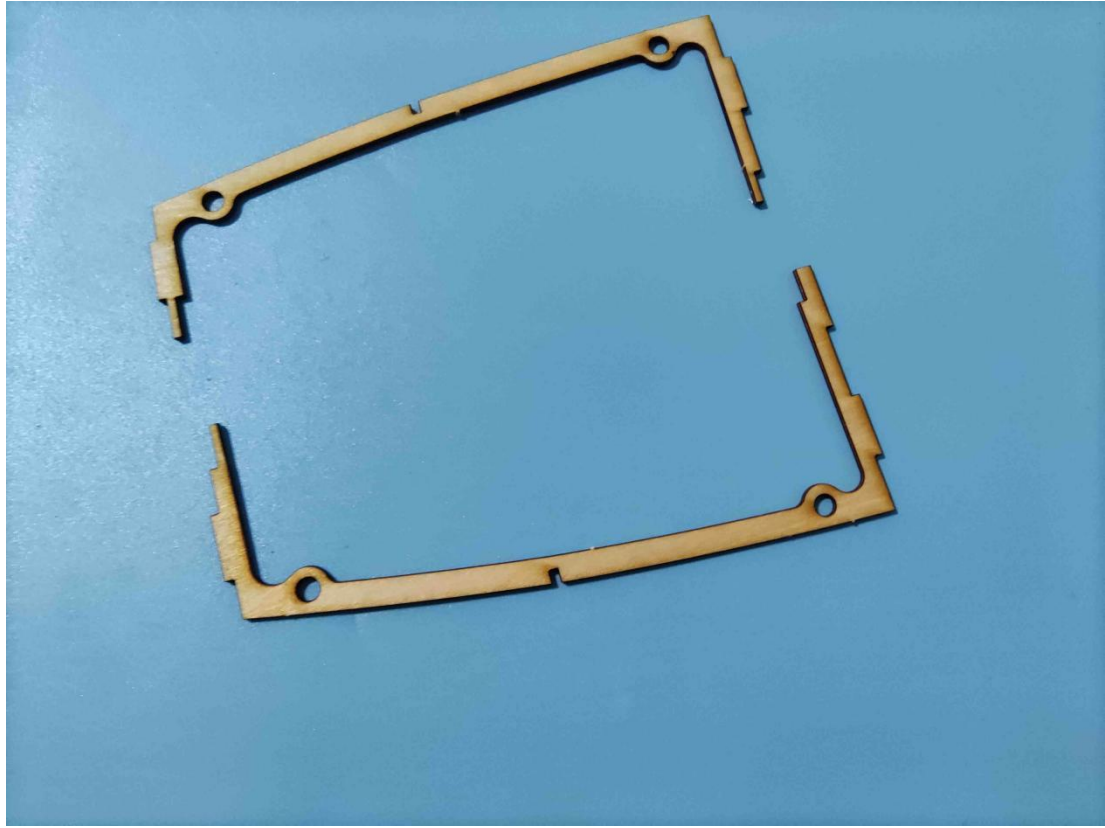


**Builder's note:**



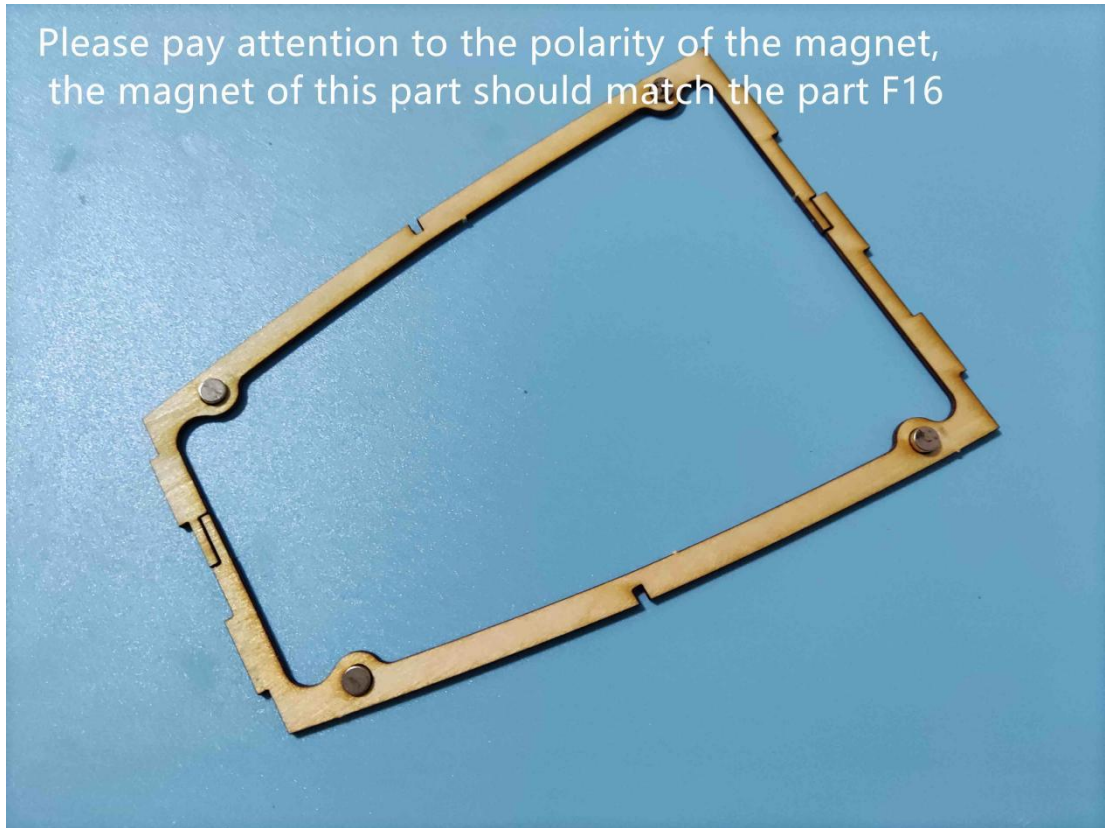
## Part8.Canopy

Step1

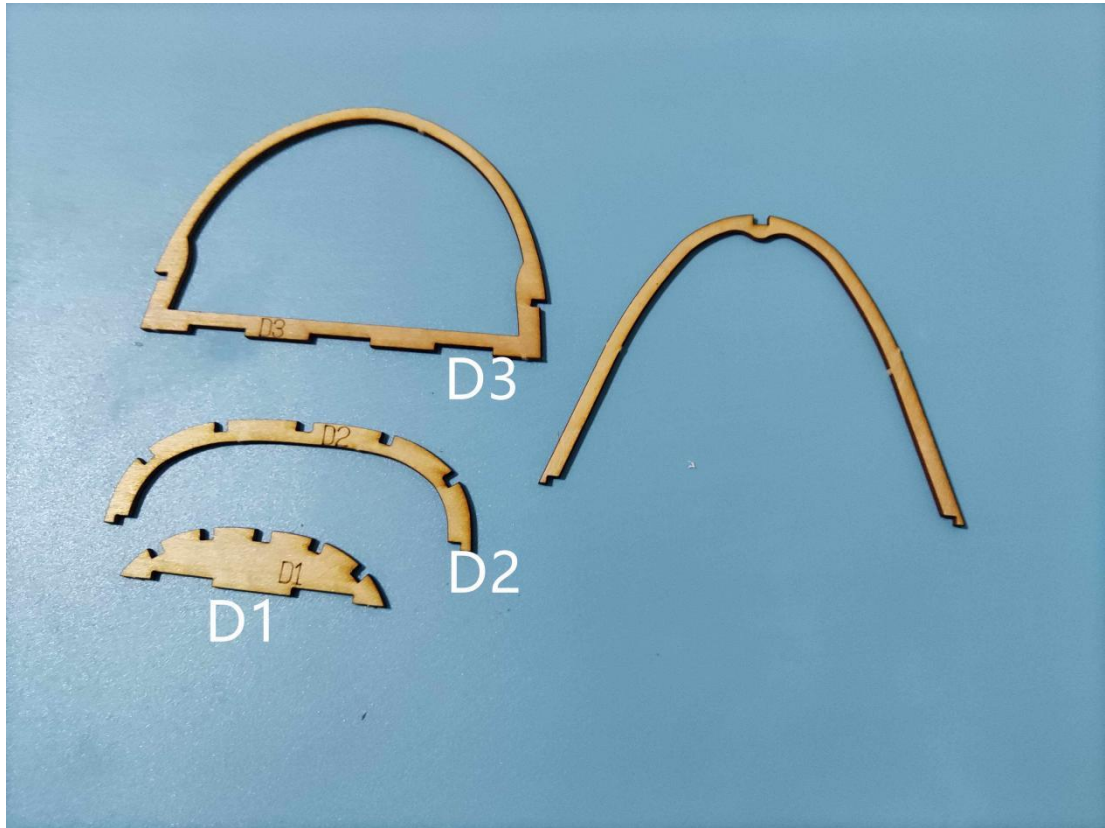


Step2

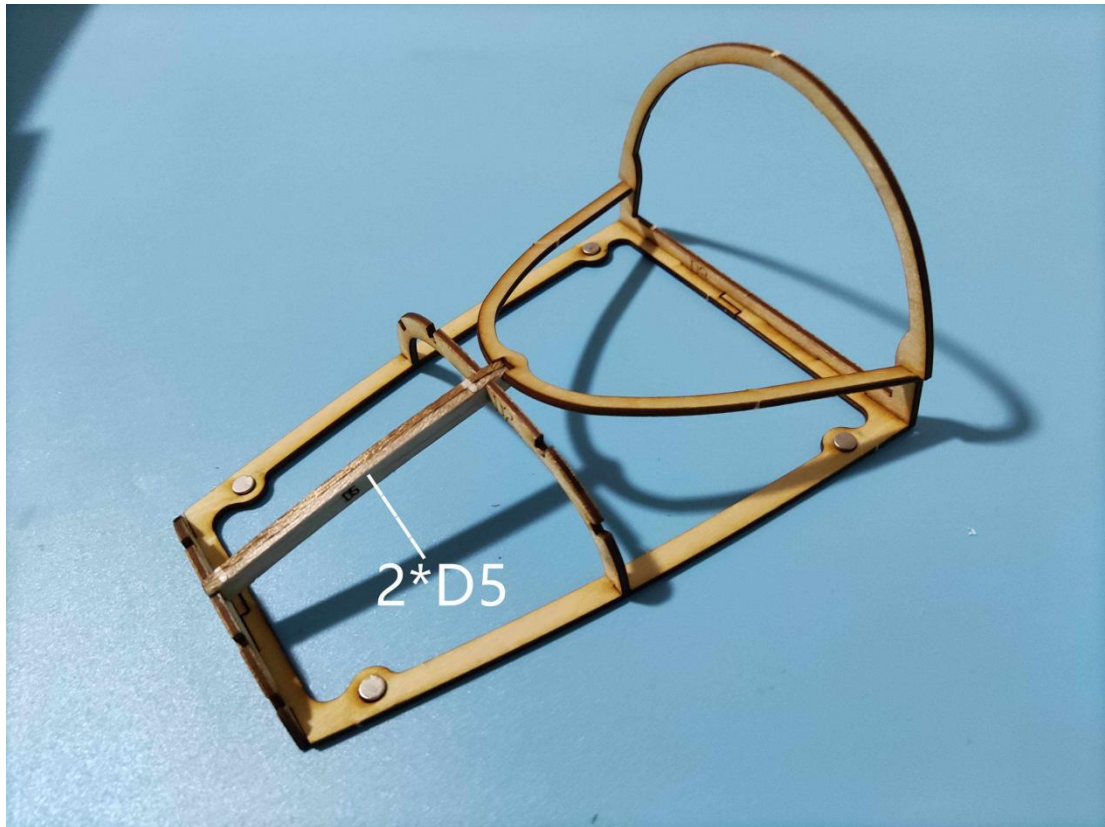
Please pay attention to the polarity of the magnet, the magnet of this part should match the part F16



Step3



Step4





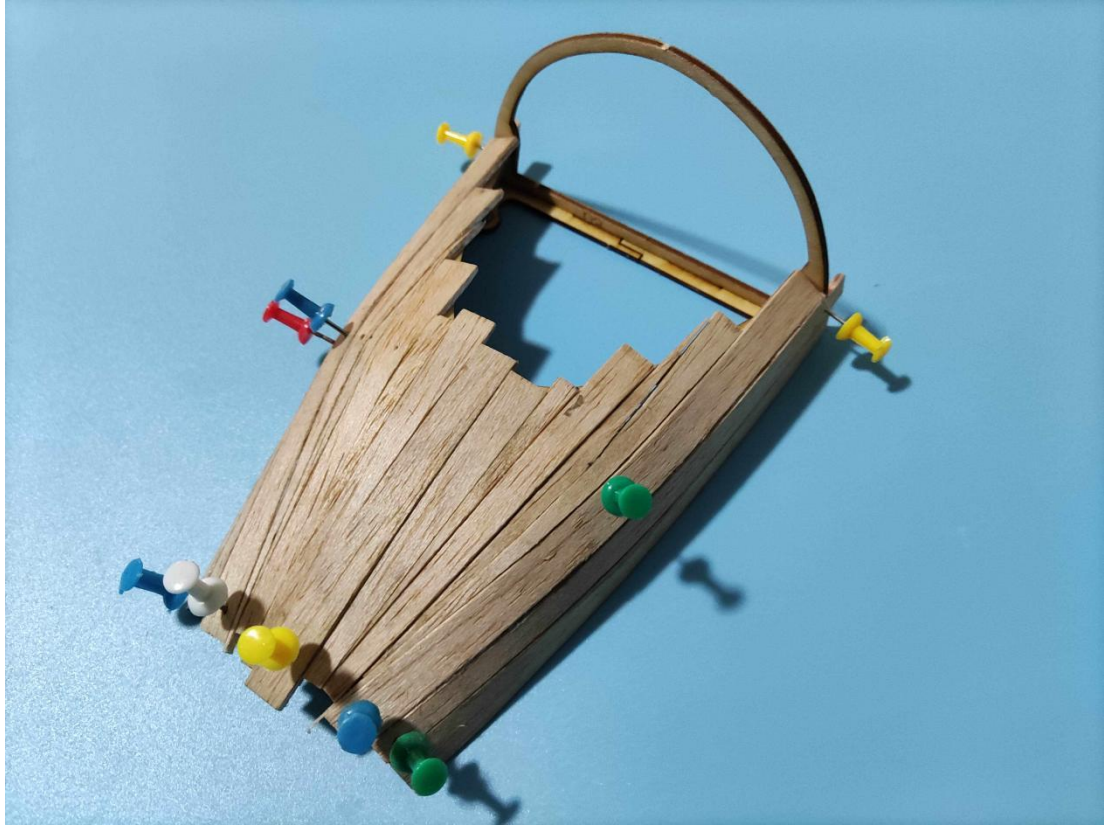
Step5



Step6



Step7

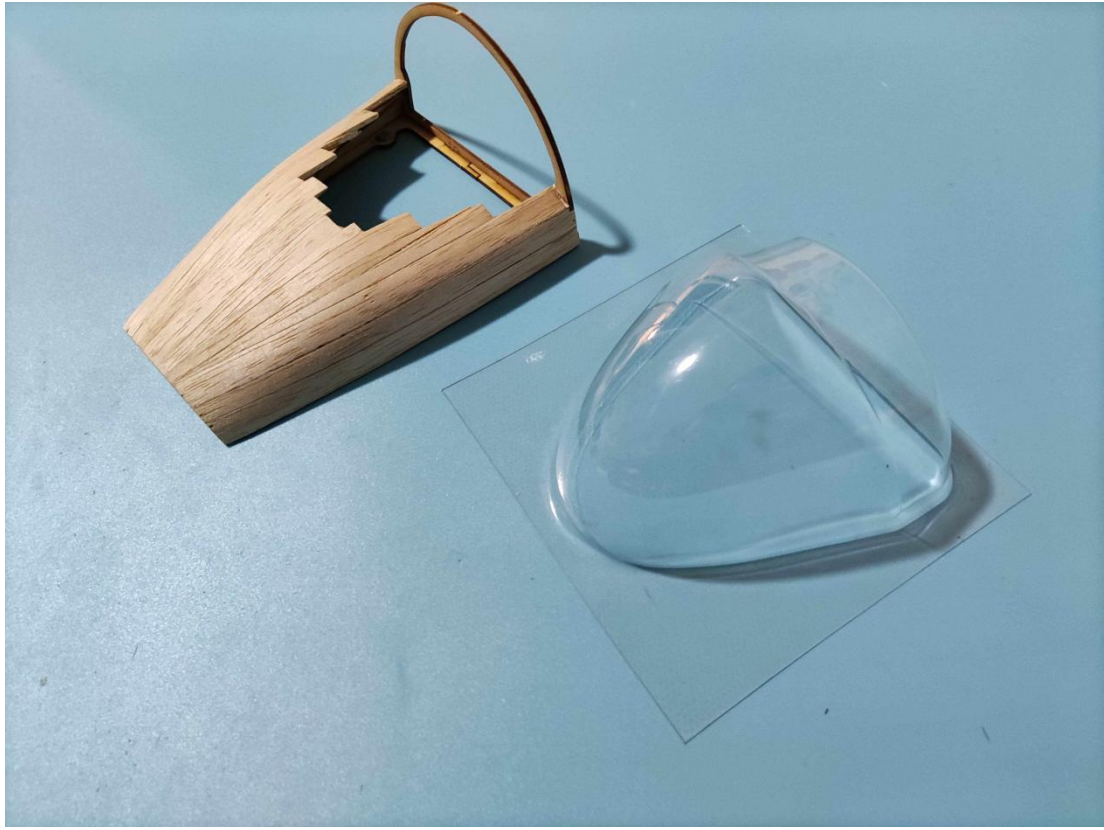


Step8





Step9



Step10



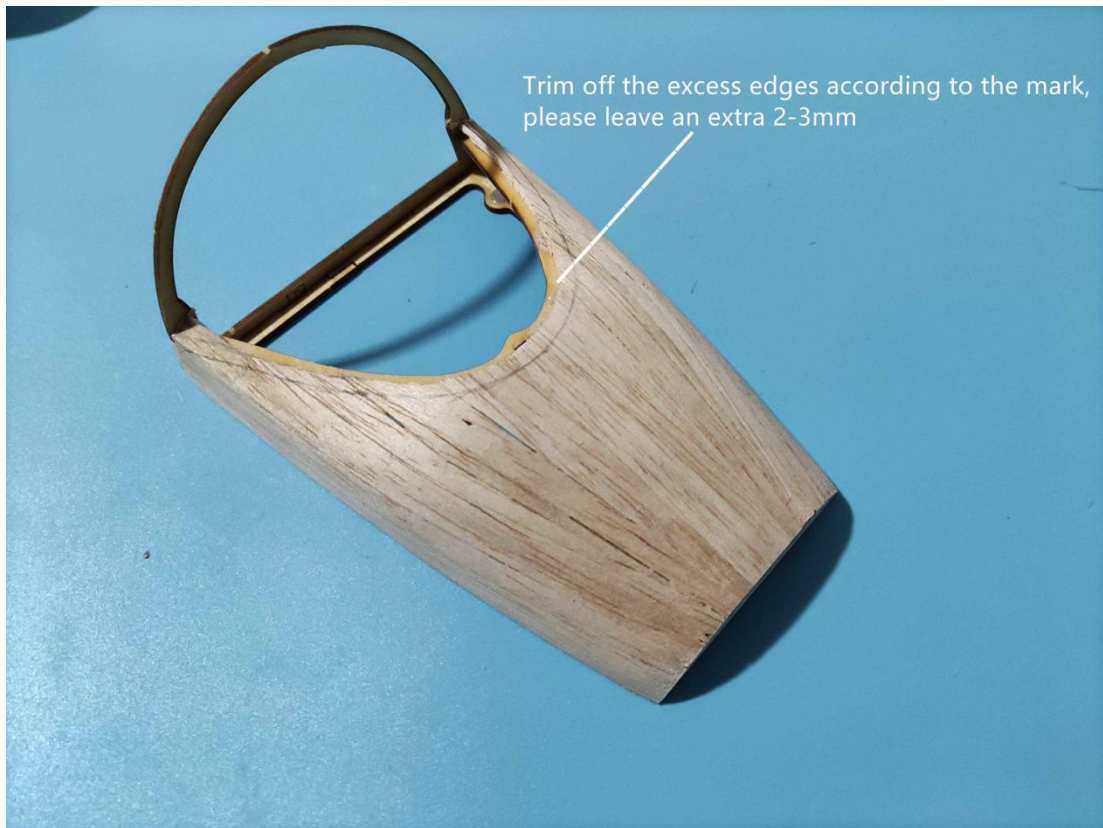
Step11

Dyr fit the canopy, and make a mark



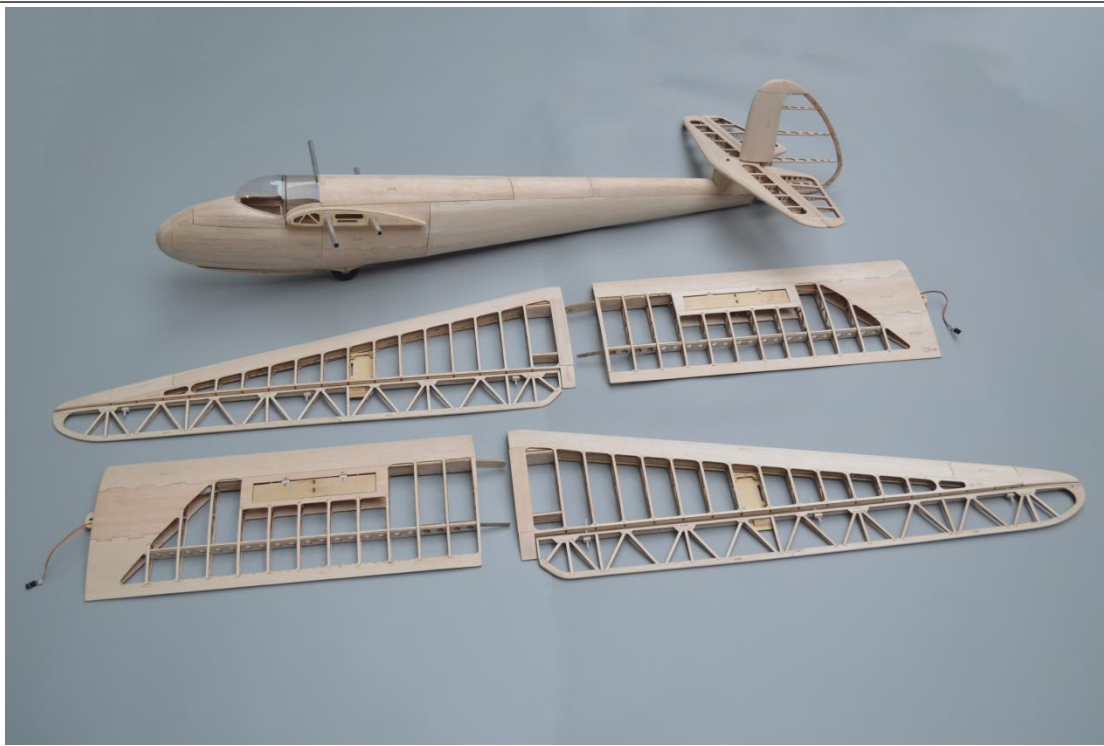
Step12

Trim off the excess edges according to the mark, please leave an extra 2-3mm





Step13



## Part9.Before you fly







## Auxiliary Socket Tool



How to successfully install the pushrod system inside a closed fuselage?

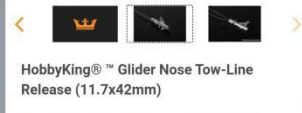
- Step1: Drill a hole in the tail with the same diameter as the sleeve
- Step2: Insert the sleeve from the rear all the way to where the front servos are located inside the fuselage
- Step3: Starting from the tail, insert a hard nylon wire or steel cable inside the sleeve, extending all the way to the servo position at the front of the fuselage
- Step4: Fix the front end of the wire rope firmly on the equipment mounting bracket, and then pull out the auxiliary sleeve from the rear
- Step5: In this step, you can get a nylon wire (steel cable) to run through the front and rear of the fuselage.
- Step6: Connect the front end of the nylon wire to one end of the push rod, and pull the nylon wire out from the rear of the fuselage until the end of the push rod reaches the tail of the aircraft smoothly.

If you want to build powered version, 3548EGL are highly recommended

You can also use:  
TORQUE LS 3223/10  
Xpower XC3223/10 LS  
HACKER A3012XL



If you want to build towed version, We recommend this device



HobbyKing®™ Glider Nose Tow-Line Release (11.7x42mm)

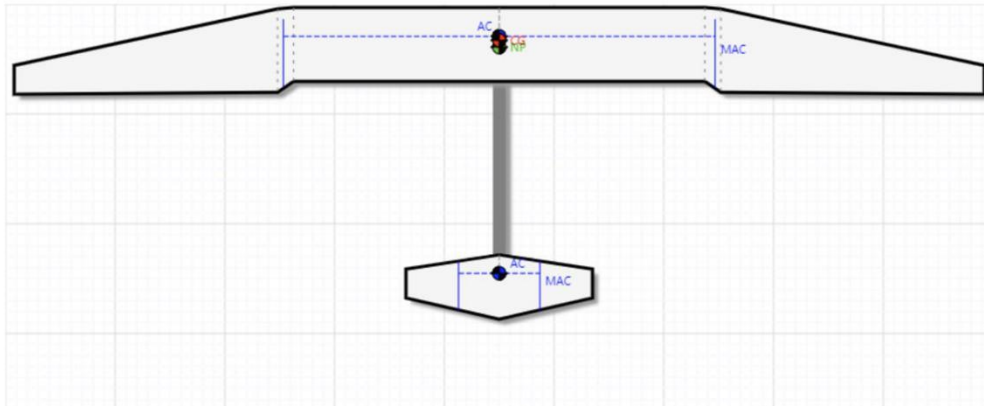


## CG:

### **90mm from the leading edge of the wing**

Wing AC [•]: 89.68 mm (= 25% of MAC)  
Wing MAC @ Distance 211.09 mm @ 671.99 mm  
Wing Span: 3020.00 mm  
Wing Area: **605900.00 mm<sup>2</sup>**  
Wing Aspect Ratio: 15.05

Tail AC [•]: 57.21 mm (= 25% of MAC)  
Tail MAC @ Distance 151.95 mm @ 126.67 mm  
Tail Span: 580.00 mm  
Tail Area: **84100.00 mm<sup>2</sup>**  
Tail Aspect Ratio: 4.00  
Stabilizer Volume ( $V_{bar}$ ): 0.48



### Control Travel

ELEVATOR	$\pm 15^\circ$
RUDDER	$\pm 15^\circ$
AILERON	$+25^\circ -15^\circ$

**Note:** In order to make the flying experience better, please avoid the same amount of aileron up and down, which will cause slight reverse sideslip



***Thank you!***



**Tony Ray's AeroModel**



## ***Part Location Lookup Table***

The following parts are sorted according to the order in which they appear in the manual

Serial number of Components	Serial number of wood sheet
<b>Part1. rudder</b>	
R7	A3-a
RR1	A3-a
RR2	A3-a
RR3	A1-a
RR4	A1-a
R1	A3-a
RR5	A1-a
RR6	A3-b
RR7	A3-a
RR8	A3-a
RR9	A3-a
R3-A	E4
R3-B	E3
R3-C	E4
R3-D	E3
R10	A4-b
R6	D2,D3,A5-b,A6-a
R4	D1,D2
R8	D2
R9	D2,D3
R5	D1,D2
FC-1	B2-b, B3-a
<b>Part2. Horizontal Tail</b>	
↑	E2
T7	D3
T4	A6-a
TR-1	A1-b
TR-2	A1-b
TR-3	A1-b
TR-4	A1-b
TR-5	A3-b
TR-6	A1-b
leading edge without number	A5-a
T4-1	A1-b
T4-2	A1-b
T4-3	A1-b
T4-4	A1-b
T4-5	A1-b

T1	D2
T2	D3
T5	D1
TC-1	B1-a,C8-b
TC-2	B1-a,C6-b
E3	A1-a
ER-1	A5-b
ER-2	A5-b
ER-3	A5-b
ER-4	A5-b
ER-5	A5-b
E3-1	A1-a
E3-2	A1-a
E3-4	A1-a
E3-5	A1-a
E3-6	A1-a
E4	A5-b,A6-a
E1	A1-a
E2	A1-a
E5	D3
Covering part without number	C5-b,C7-b,C9-b,C10-b
<b>Part3.Centre wing section</b>	
R1	E2
R2	E5
R3	E5
R4	E5,E6
R5	A2-a,A5-a,A6-a,A6-b
R6	A2-b,A4-a
R7	E2
CW2	Scattered two separate paulownia parts
CW3	A7-a
2*9 paulownia strips	G1
R1-1	F1
CW4	A6-a
CW5	A6-a
CW6	A1-a,A5-b
CW7	A5-b,A6-a
WC-1	C6-a,C8-a
WC-2	C2-b,C4-b
WC-3	C3-b
WC-4	C3-a
WC-1UP	C2-a,C4-a
WC-3UP	C1-b



WC-4UP	C1-a
BR1	A1-b
“SERVO” board	E2
WC2-UP	B3-b
BR3	F2
BR2	Scattered two separate 1mm plywood parts
Part4.Outer wing section	
R8	E2
R9	A2-a
R10	E5
R11	E6
R12	A6-a
W3-A	G2
W3-B	G2
W2-A	G2
W2-B	G1
W4	F2
W5	G1,G2
R13	A4-a
R14	A4-a
R15	A4-a
R16	A4-b
R17	A4-b
R18	A4-b
R19	A4-a
R20	A4-a
R21	A4-a
R22	A4-b
R23	A3-a, A7-a
R24	A7-a
R25	E1
R26	E1
R27	E1
W4-A	A3-b
W4-B	A6-a
W5-A	A3-b
W5-B	A3-b
WT	D1
WS-1	E3,E4
WS-2	E3,E4
WS-3	E1, C5-b,C7-b
WC-5	C9-a,C10-a
WC-6	B1-b

WC-7	C9-a,C10-a
WC-8	C2-a
WC-9	C6-b,C8-b
WC-5UP	C5-a,C7-a
WC-6UP	B1-b
WC-7UP	C5-a,C7-a
WC-8UP	C4-a
WC-9UP	B1-b
Part5.Aileron	
AL1-A	A7-a
AL1-B	A6-a
AL2-A	A5-a
AL2-B	A5-a
AL2-C	A5-a
AL2-D	A5-a
ALC-1	B4-a,B4-b
ALC-2	B4-a,B4-b
ALC-3	B4-a,B4-b
ALC-4	B4-a,B4-b
AL3	D2,D3
Part6.Fuselage I	
FB-1	A1-a,A3-a
FB-2	A1-a,A3-a
F17-A	A3-a
F17-B	A3-a
F17-C	A3-a
F16	E4
F15	E1
F0	E4
F1	E3
F2	E2,E4
F3	E3
F4	F1
F5	F1
F18	F1
F6	E3
F7	E3
F8	E3
F9	E3
F10	E1
F11	E2,E3
F12	A1-a



F13	A1-a
FR-1	A7-a
FR-2	E1
F14	A1-b
G2	E1
G1	E1
F19	F2
J5	F1
J4	F2
Part7.Fuselage II	
CC1-A	B3-a
CC1-B	B2-b
CC1-C	B2-a
CC1-D	B2-a
CC4-A	H2
CC4-B	H3-b,H4-b
CC-2	B1-b
CC3-A	H3-a,H4-a
CC3-B	H3-a,H4-a
FC-W	B2-a
Nose block“0”	D2
Nose block“1”	D3
Nose block“2”	D3
Nose block“3”	D2
Nose block“4”	D1
Nose block“5”	D2
F18A	E4
G6	D1,E4
G3	E4
G4	A1-a,A3-a
Part8. Canopy	
D4	E1
D5	A1-a
D3	E2
D2	E1
D1	E1

***The End***