BMFA Payload Challenge 2026 - Challenge 5 Weight

Technical Drawings

Team: AIRBORNE ARCHBISHOPS

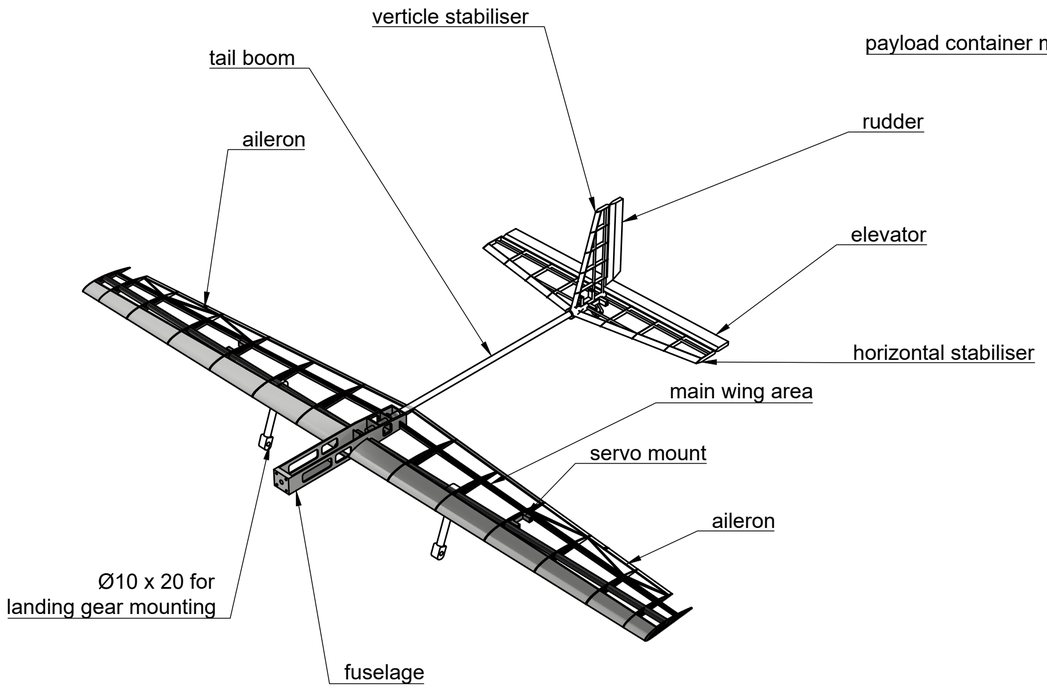
Institution: Archbishop Holgates Sixth Form
Reference Number: W05

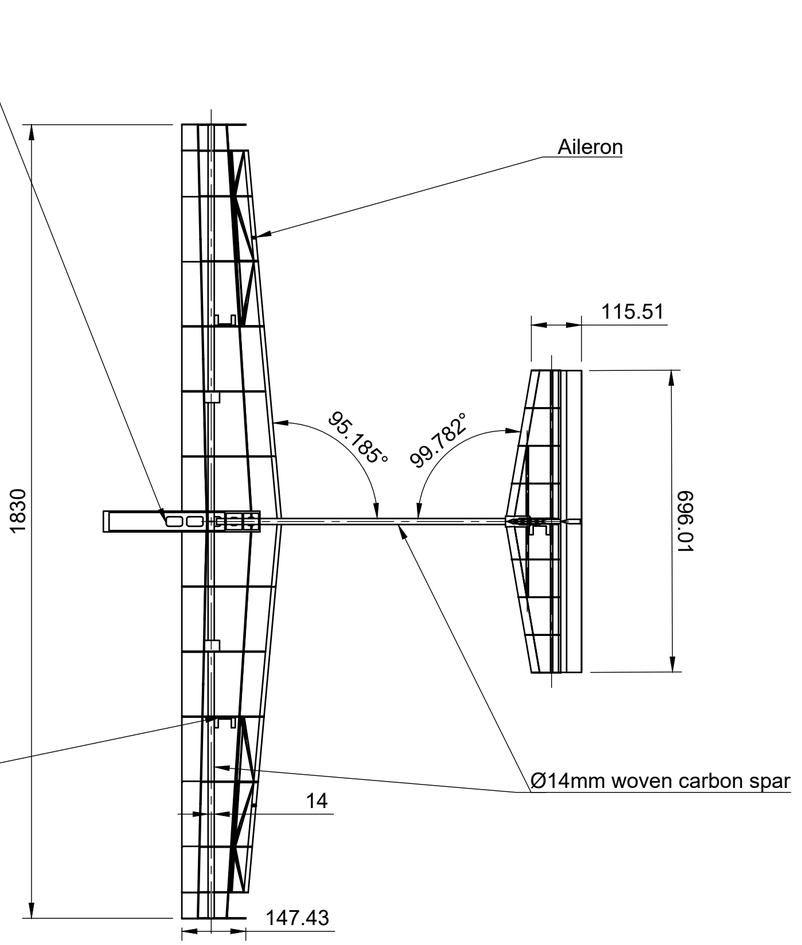
Team Members

- **Alfred Davies - Lead Engineer and Manager**
- **Eddy Merritt - Performance Analyst**
- **Alex Driffield**
- **Tom Cain**
- **Owen Bartholomew**

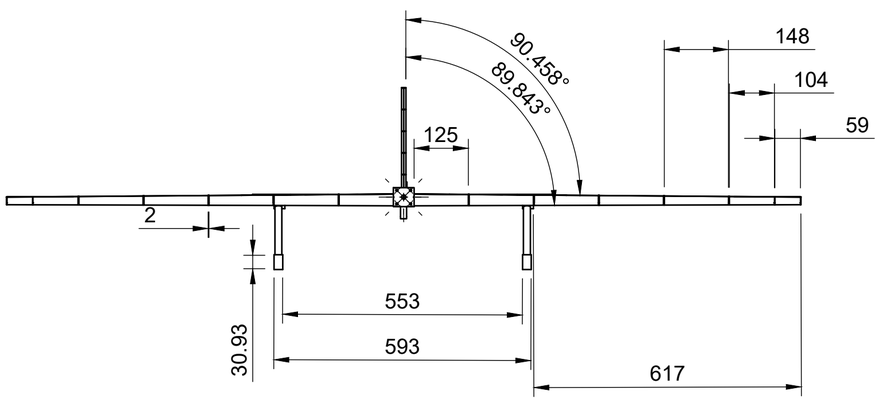
Competition Date: 11th June 2026
Submission Date 13th May 2026

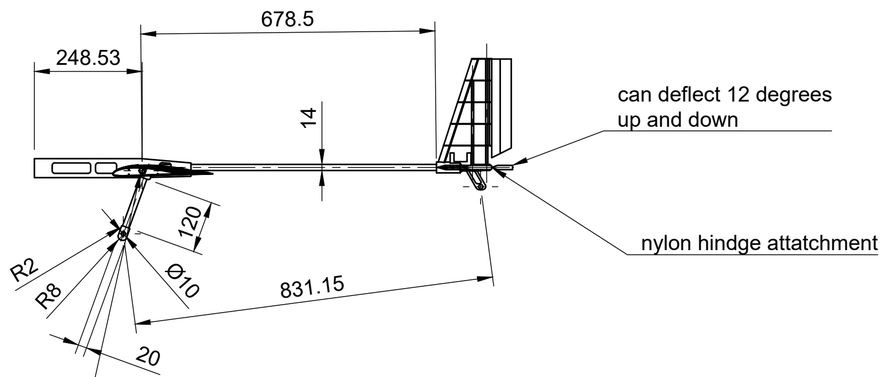
Technical drawings by Alfred Davies





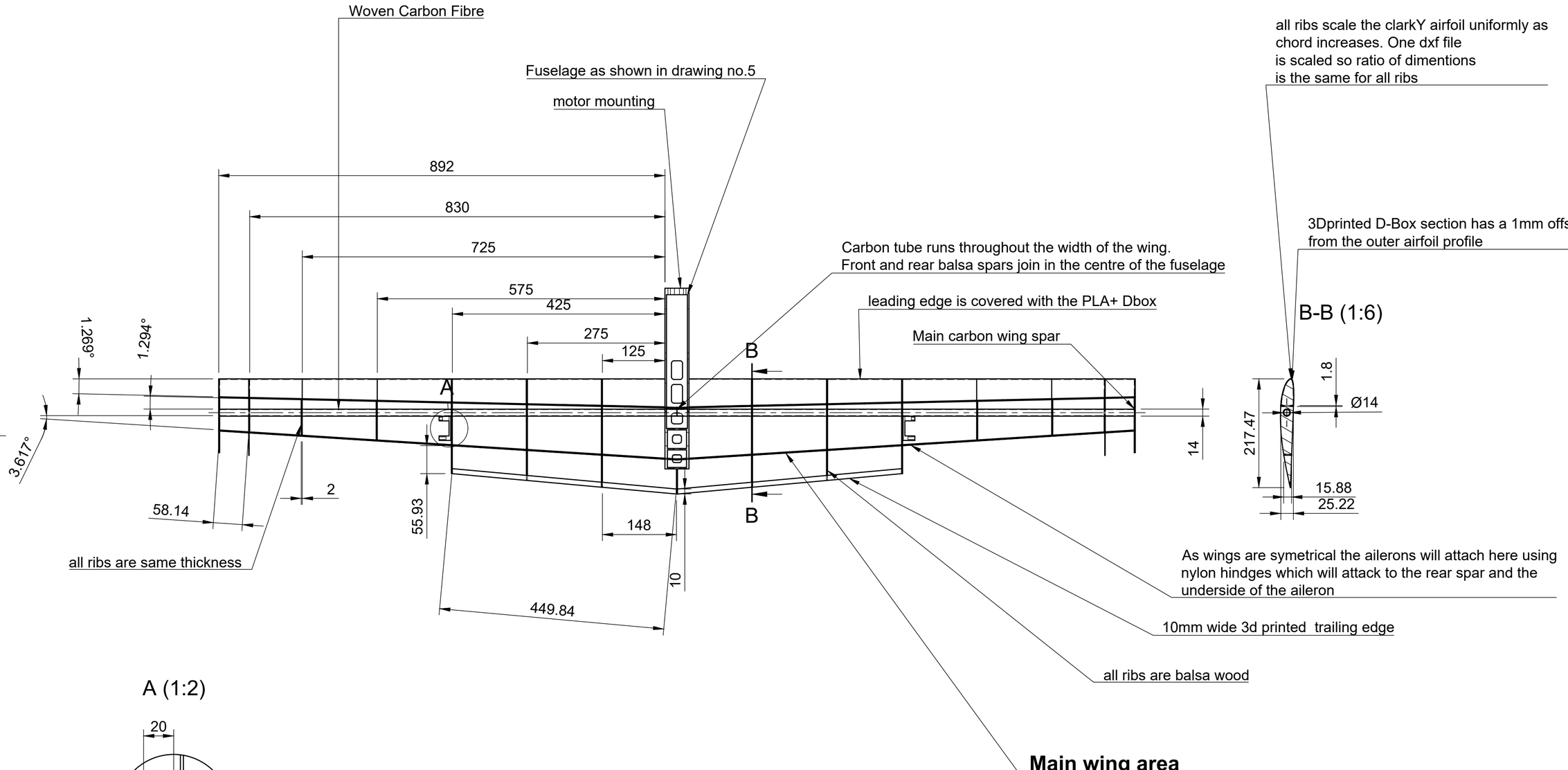
both servo mounts are glued onto the 3rd rib



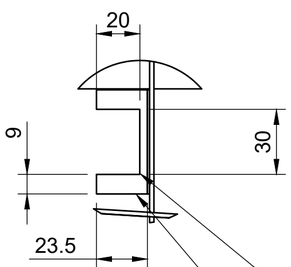


approximate position of the overall centre of gravity

Dept.	Technical reference	Created by	Approved by
BMFA W05	structual design	Alfred Davies 12/05/2026	Alfred Davies 12/05/26
Scale: 1:10 If material not defined assume Balsa wood		Document type: Final assembly	Document status: Approved
		Title: Wing design no.4	DWG No.: 1
			Rev.: 1 / Date of issue: 12/05/26 / Sheet: 1/1



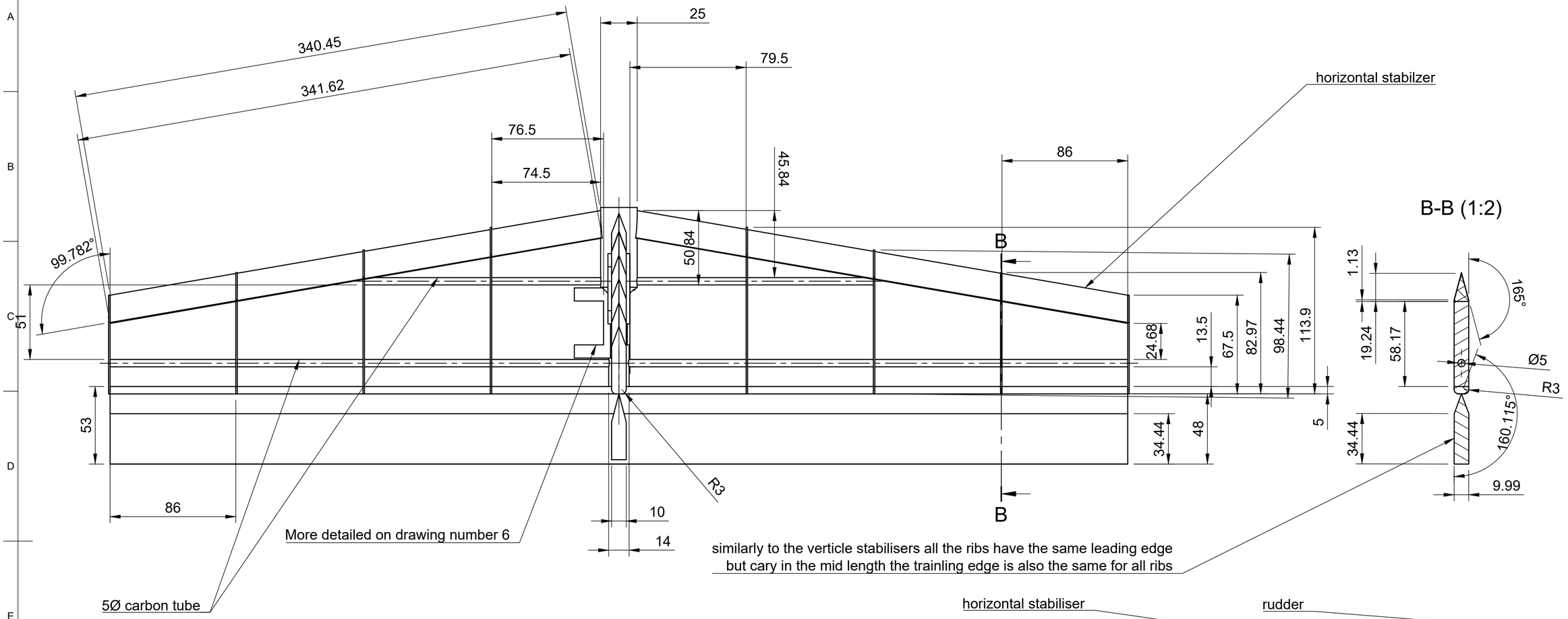
A (1:2)

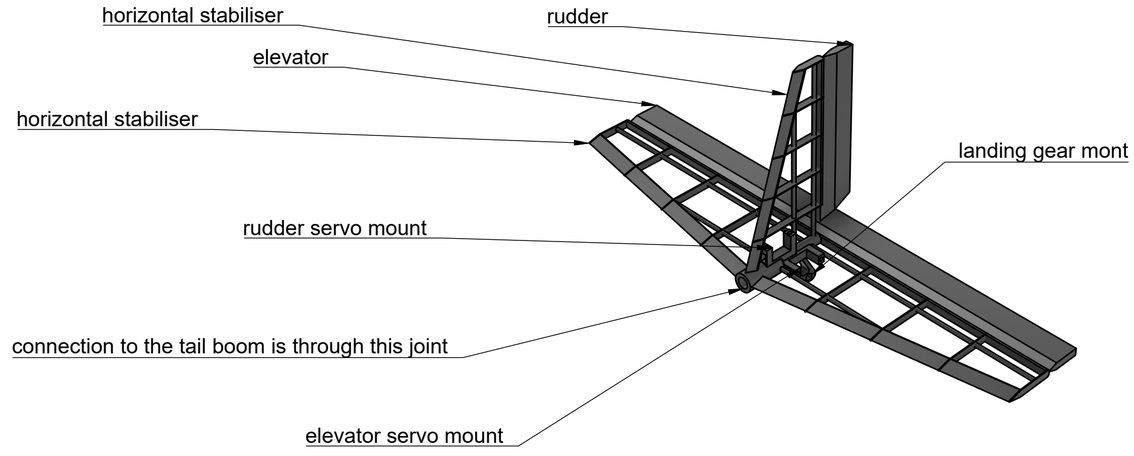


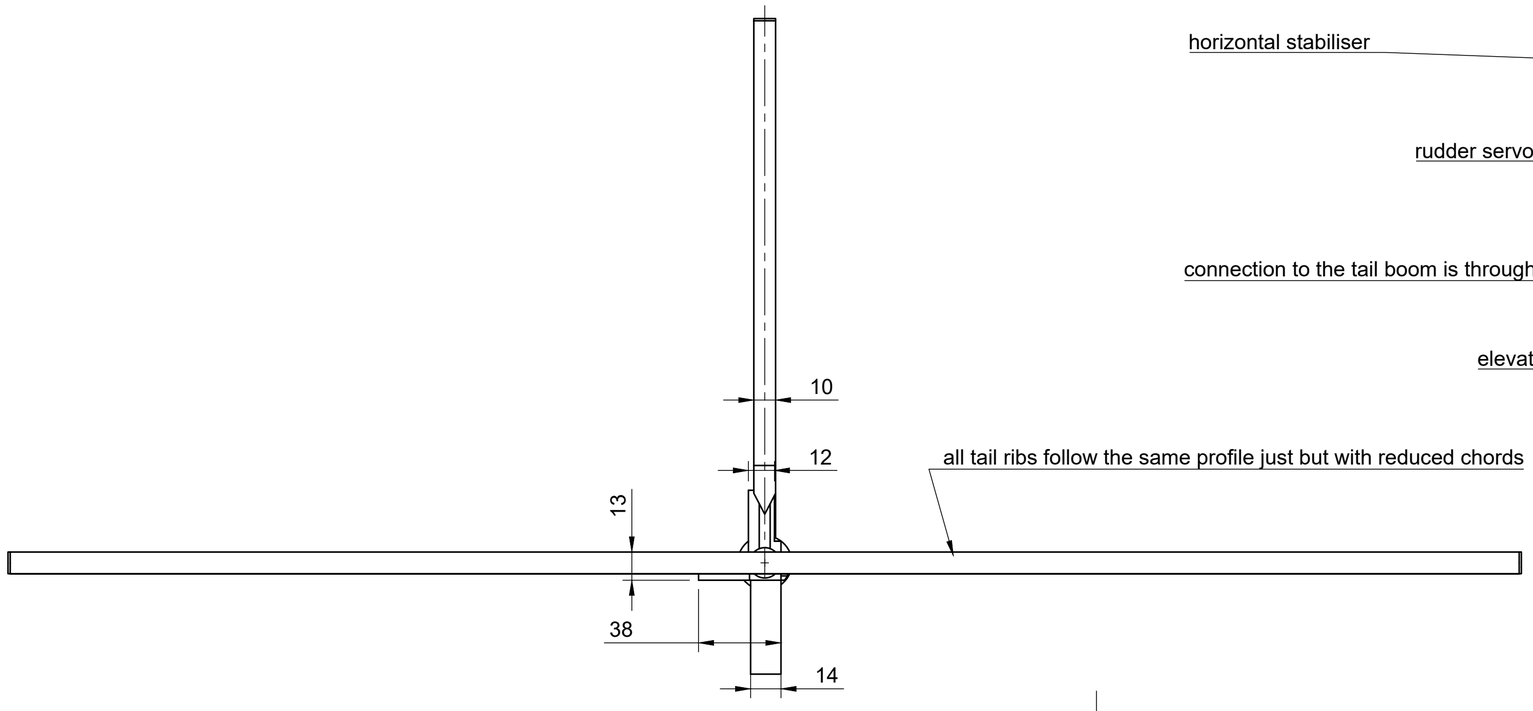
this is the servo mount for all servos used on the design.
This will fit the 4M-175AMG-030 Servo and is used for aileron,
elevator and rudder controll

Fully 3D printed Component

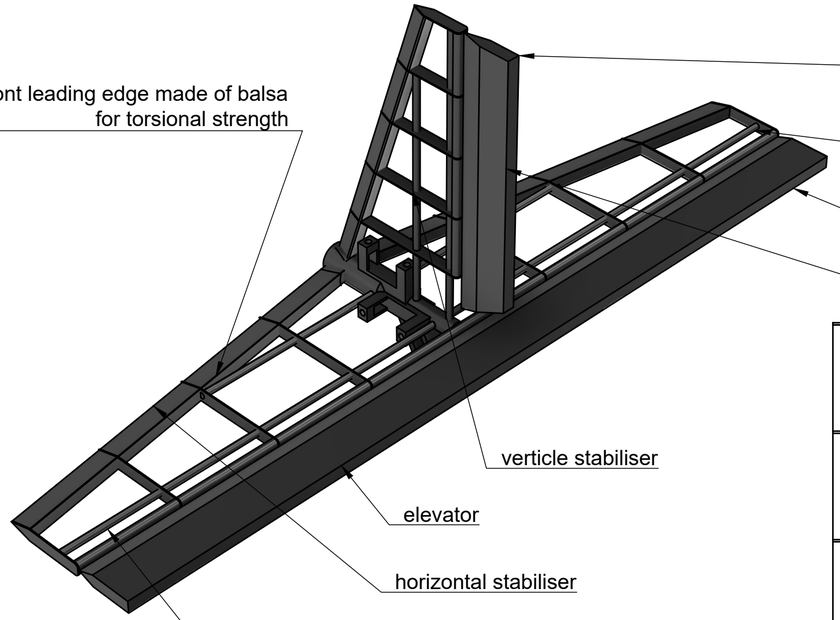
Dept. BMFA W05	Technical reference Wing Sizing	Created by Alfred Davies 12/05/2026	Approved by Alfred Davies 12/05/26
Scale: 1:6 If material not defined assume Balsa wood		Document type Partial assembly	Document status approved
		Title Wing design Plan veiw	DWG No. 2
			Rev. 1 / Date of issue 12/05/26 / Sheet 1/1

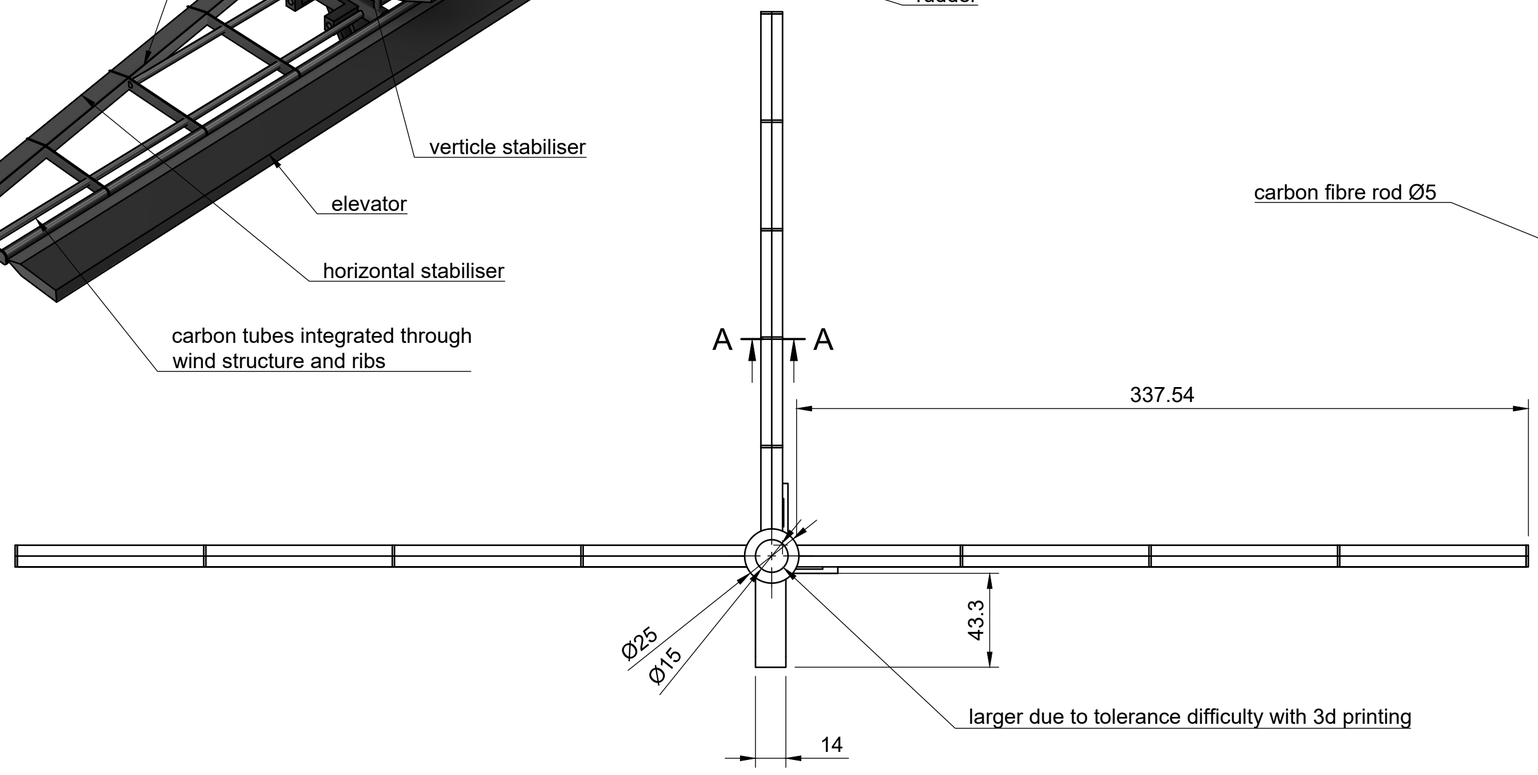




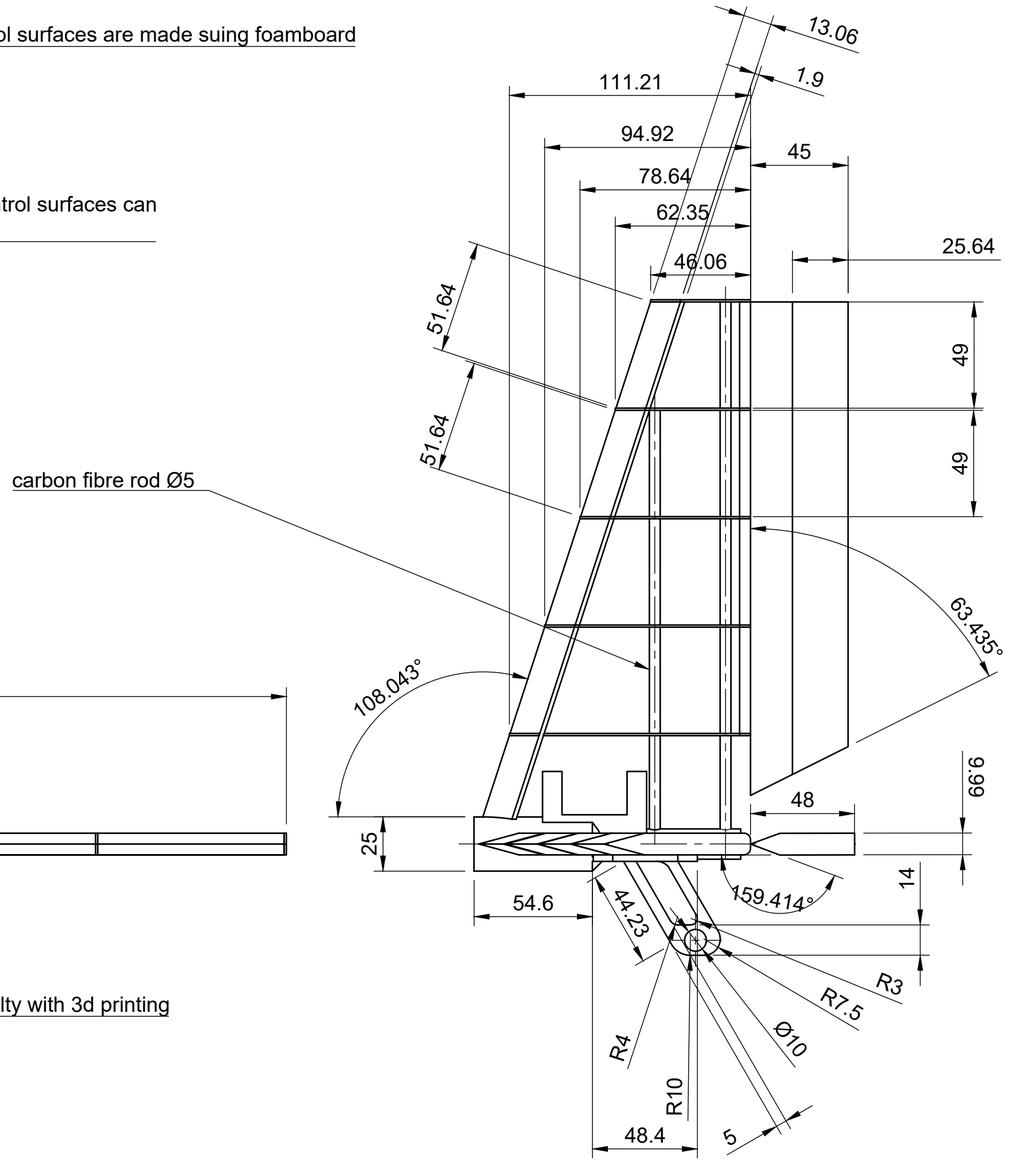


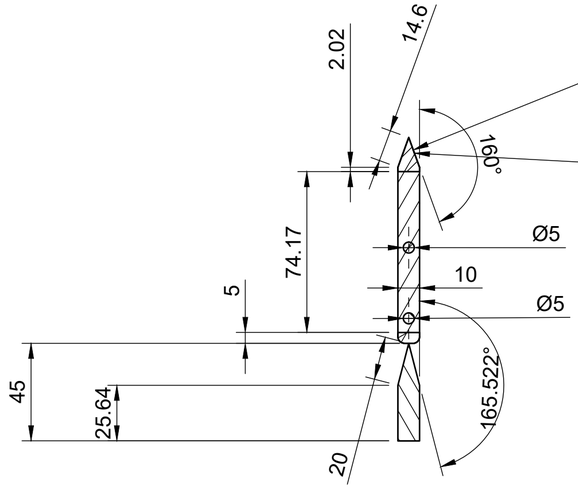
Dept.	Technical reference	Created by	Approved by
BMFA-WO5	Tail Design	Alfred Davies 12/05/2026	Alfred Davies 12/05/26
Scale: 1:2 If material not defined assume Balsa wood		Document type: Component Drawing	Document status: approved
		Title: Tail Design v1	DWG No.: 3
			Rev.: 1 / Date of issue: 12/05/2026 / Sheet: 1/1





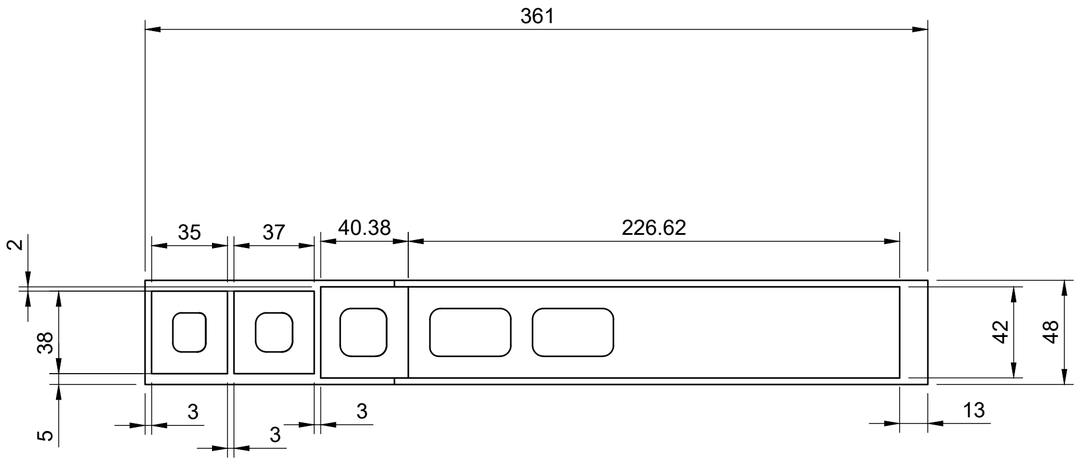
A-A (1:2)

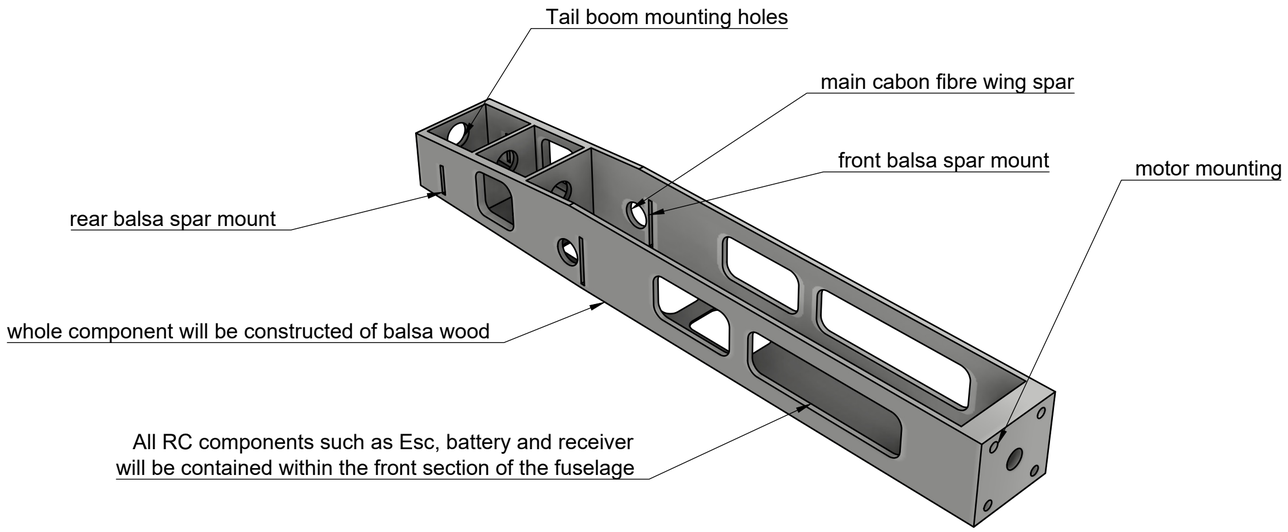


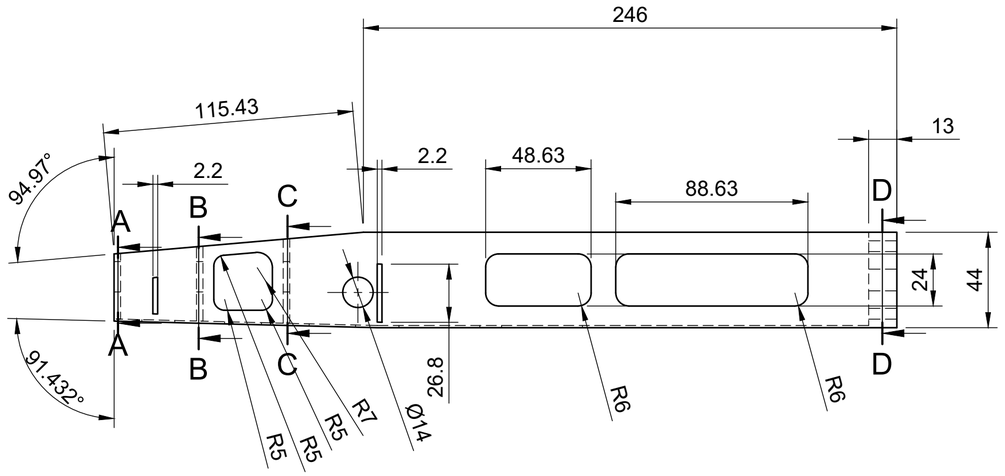


the font and rear tip of all verticle stabiliser profiles
are the same throughout but vary in the midsection length so that they can match the wing profile

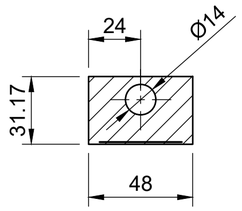
Dept.	Technical reference	Created by	Approved by
BMFA W05	Tail Design	Alfred Davies 12/05/2026	Alfred Davies 12/05/26
Scale: 1:2 If material not defined assume Balsa wood		Document type Component Drawing	Document status approved
		Title Tail Design v1	DWG No. 4
			Rev. 1 / Date of issue / Sheet 2/2



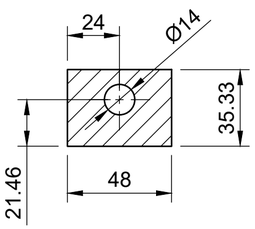




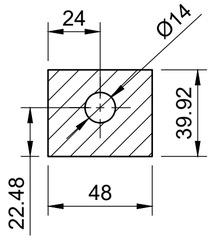
A-A (1:2)



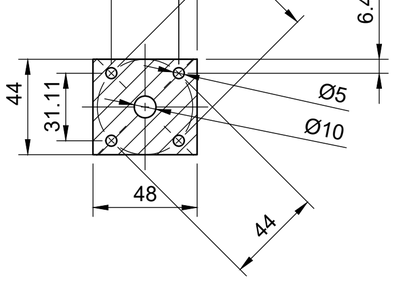
B-B (1:2)

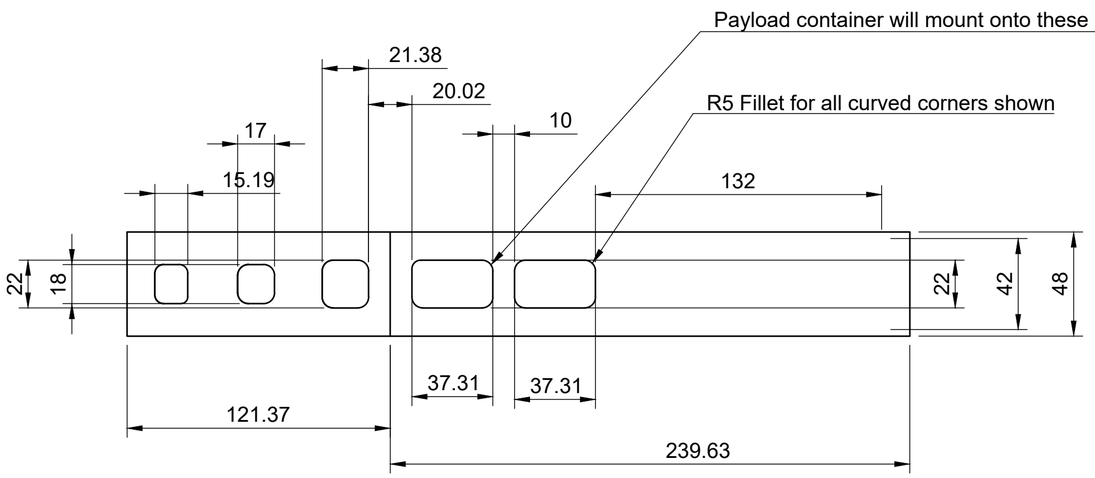


C-C (1:2)



D-D (1:2)



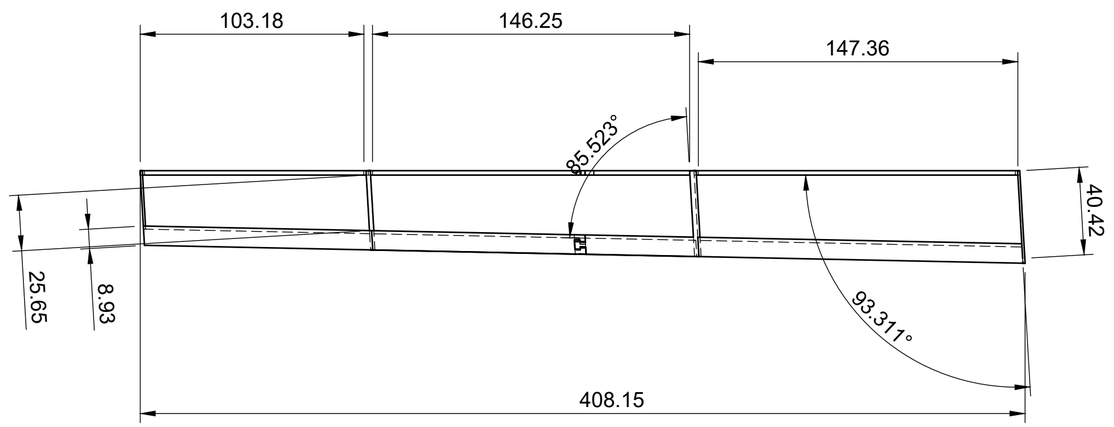


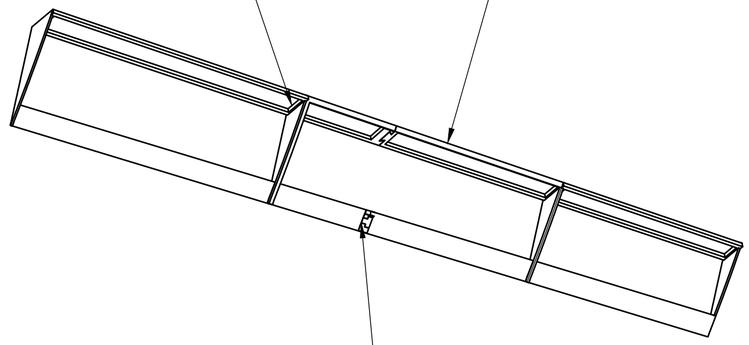
Dept.	Technical reference	Created by	Approved by
BMFA W05	fuselage	Alfred Davies 12/05/2026	Alfred Davies 12/05/26

Scale: 1:2
If material not defined assume Balsa wood

Document type: component design
Document status: approved
Title: FUSELARGE
DWG No.: 5

Rev.	Date of issue	Sheet
1	12/05/26	1/1

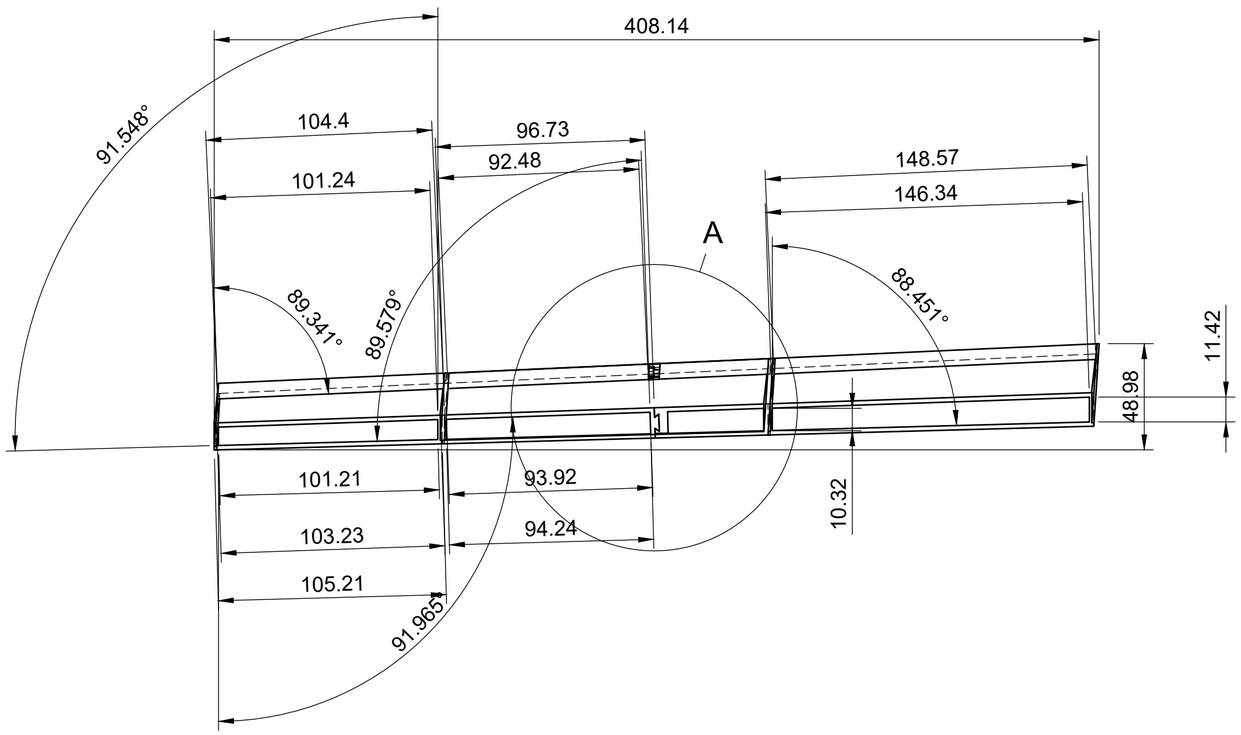


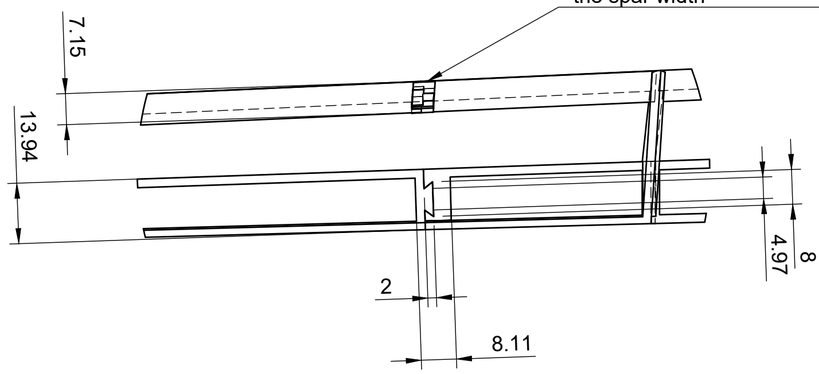


The backside allows the nylon hindges to attach

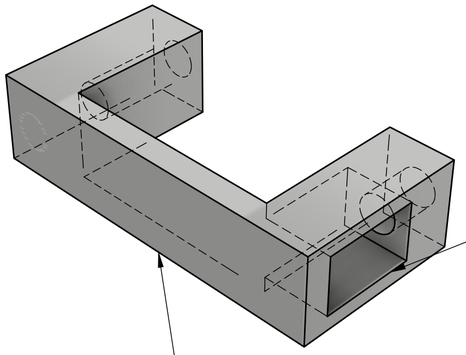
The airfoil can defelct 12 degrees up or down

3d printed joint connecting the aileron structure together





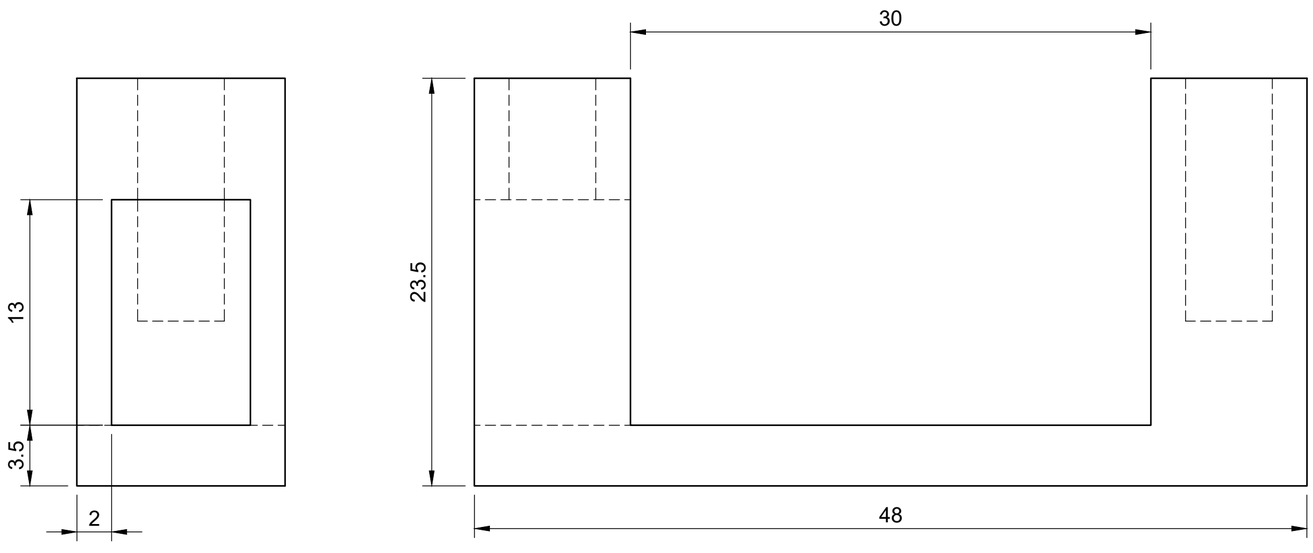
Dept.	Technical reference	Created by	Approved by
BMFA W05	Aileron	Alfred Davies 12/05/2026	Alfred Davies 12/05/26
Scale: 1:2 If material not defined assume Balsa wood		Document type: Component design	Document status: approved
		Title: Aileron Design	DWG No.: 6
			Rev.: 2 / Date of issue: 12/05/26 / Sheet: 1/1



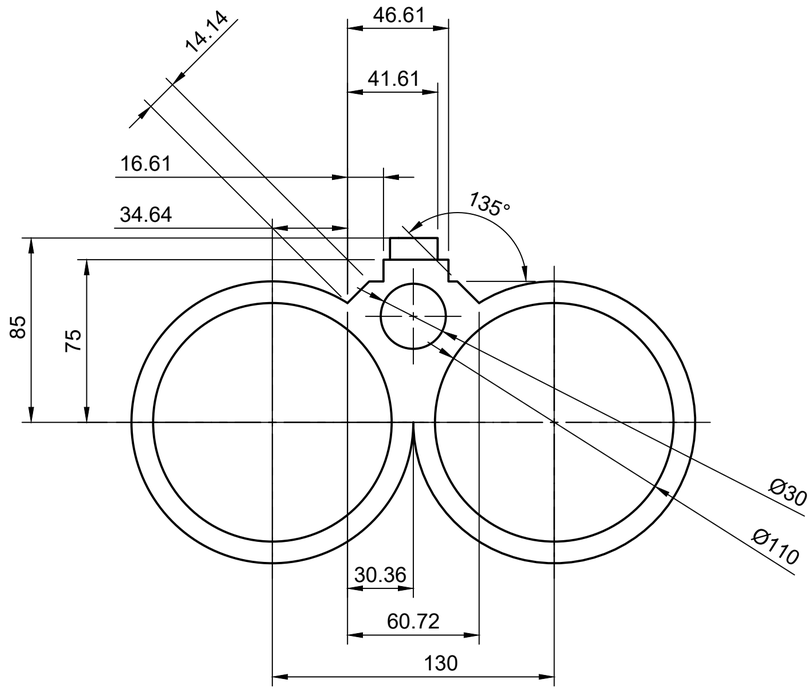
Holes for easy attachment to servos and exits for PWM cables

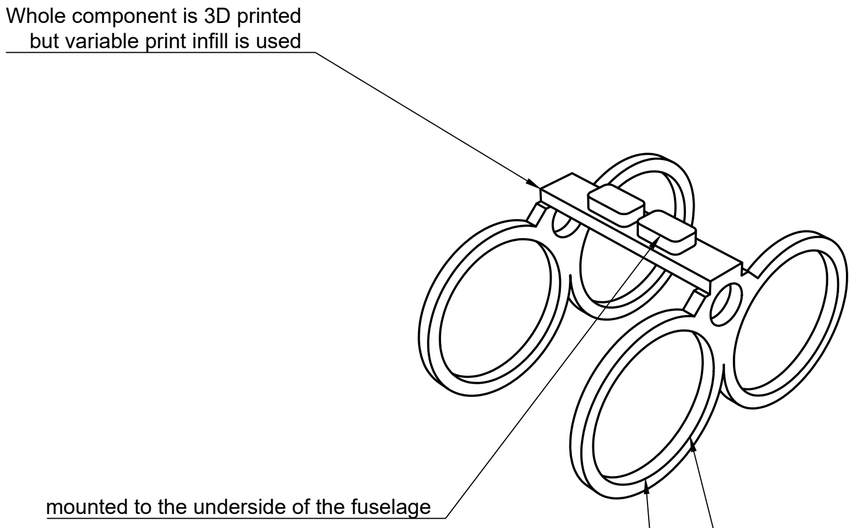
this will be glued directly onto the ribs

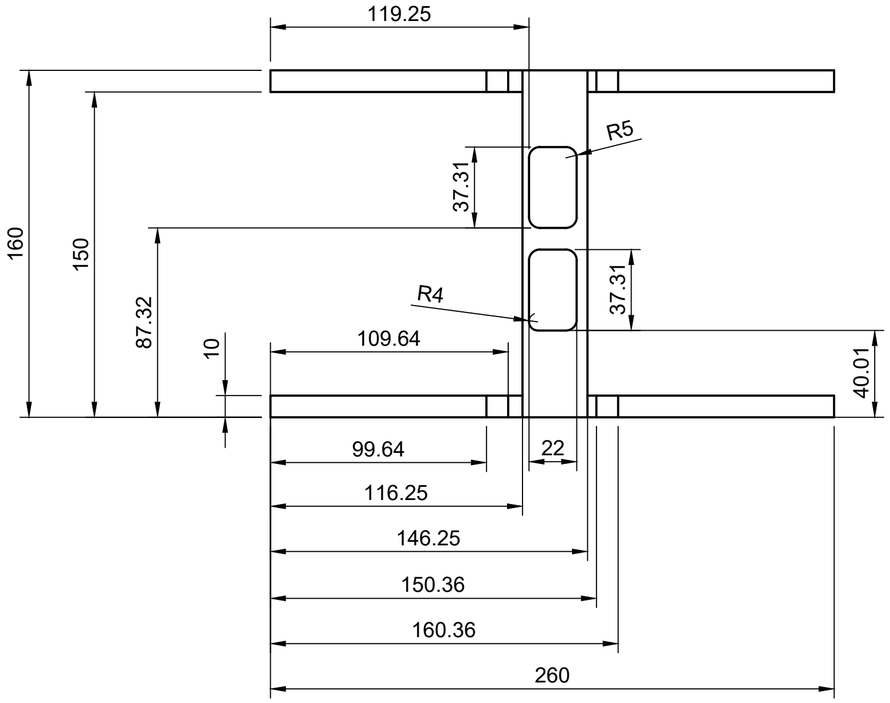


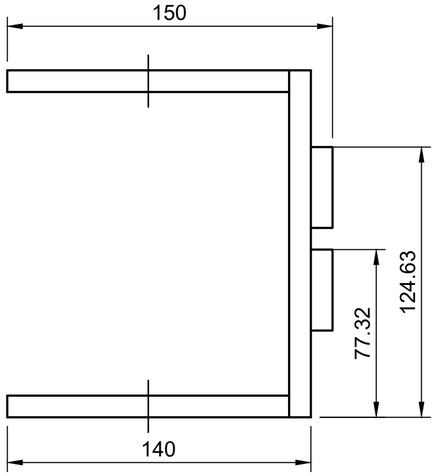


Dept.	Technical reference	Created by	Approved by
BMFA W05	Servo Mount	Alfred Davies 12/05/2026	Alfred Davies 12/05/26
Scale: 4:1 If material not defined assume Balsa wood		Document type: Component Diagramme	Document status: approved
		Title: SERVO MOUNT	DWG No.: 7
			Rev.: 1 / Date of issue: 12/05/26 / Sheet: 1/1







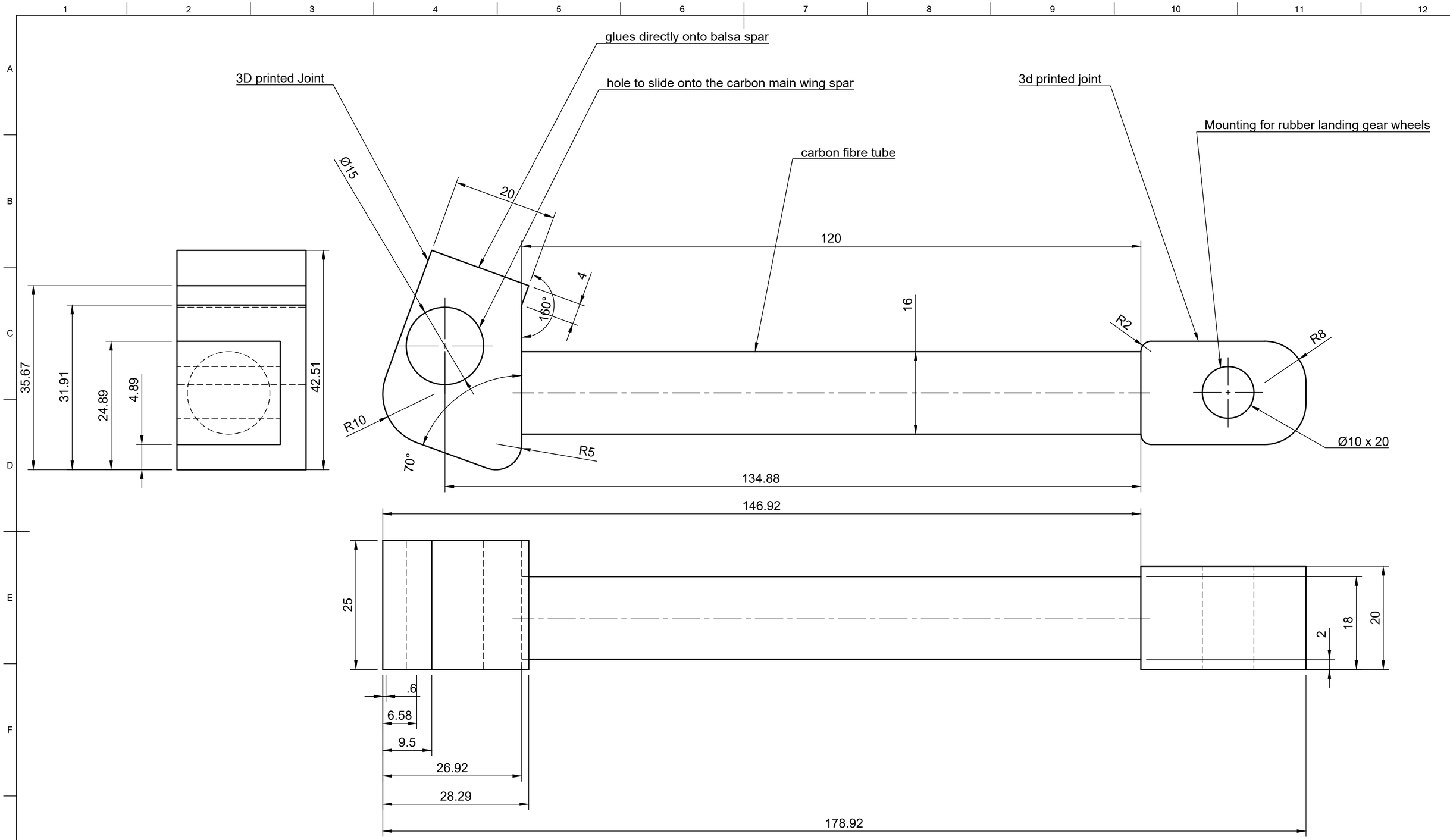


Dept.	Technical reference	Created by	Approved by
BMFA W05	Payload Container	Alfred Davies 13/05/2026	Alfred Davies 13/05/26

Scale: 1:2
If material not defined assume Balsa wood

Document type: Component Drawing
Document status: Approved
Title: PAYLOAD CONTAINER
DWG No.: 8

Rev.	Date of issue	Sheet
1		1/1



Dept. BMFA W05	Technical reference Landing Gear	Created by Alfred Davies 13/05/2026	Approved by Alfred Davies 13/05/2026
Scale: 2:1 If material not defined assume Balsa wood		Document type Component Drawing	Document status approved
		Title Landing gear front	DWG No. 9
			Rev. 1 / Date of issue 13/05/26 / Sheet 1/1