

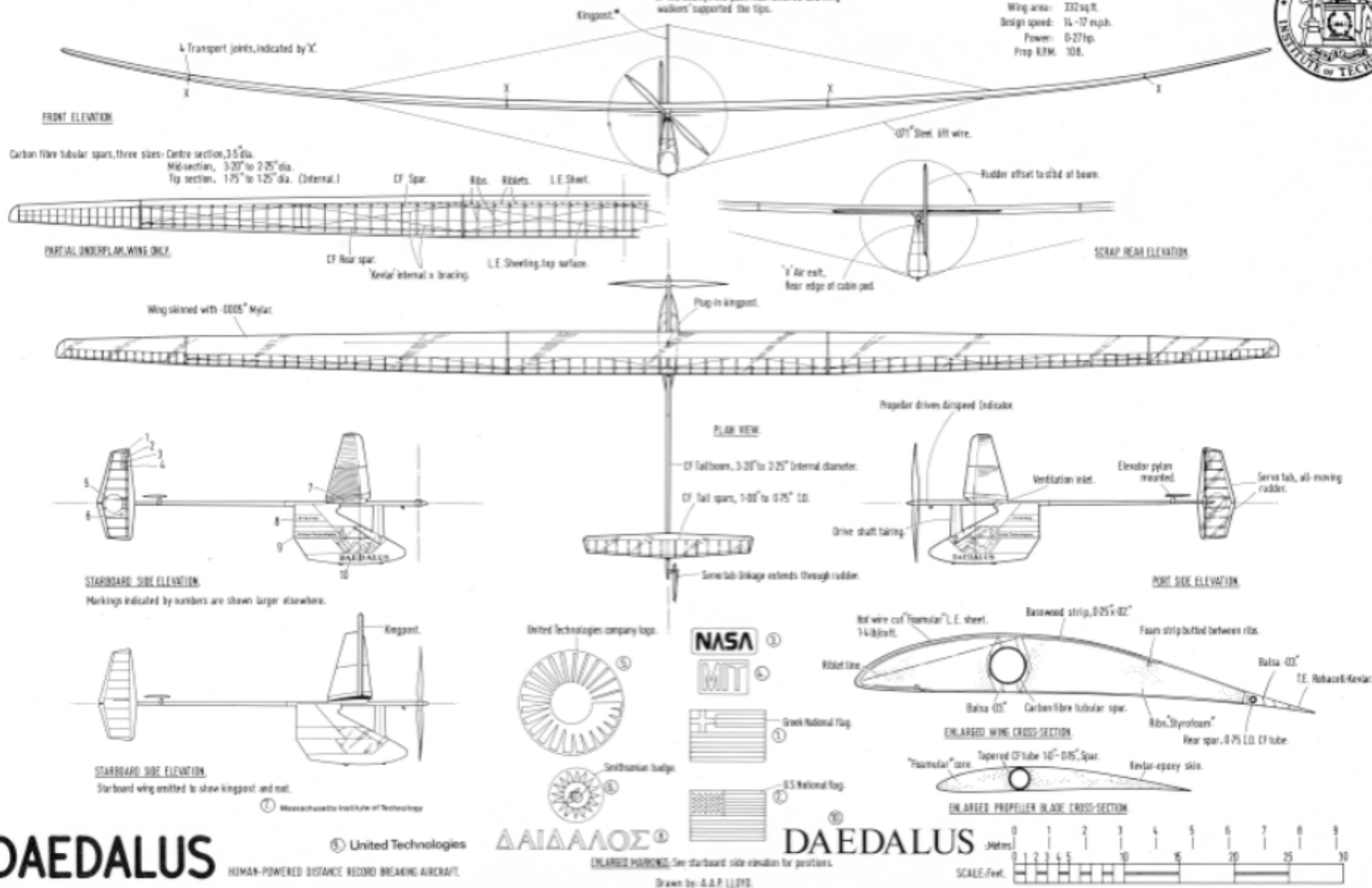
Gossamer Albatross.

This drawing depicts 'DAEDALUS', Massachusetts Institute of Technology's Man-powered distance record holder at the time of its 73 mile flight from Heraklion, Crete, to the island of Santorini, on April 23rd 1988.

Grateful thanks and acknowledgements to Mark Orin of MIT, John McInerney and Andrew Cranfield for sketches, photographs, drawings and enthusiasm!

• All flights prior to April 23rd were made with the kingpost and bracing wires in position to protect the wingspans from damage, on the day of the attempt the post was removed and wing walkers supported the tips.

Empty weight: 70 lbs.
All up weight: 229 lbs.
Span: 112 ft.
Length: 28 ft 6 in.
Prop diam: 11-3 ft.
Wing area: 332 sq ft.
Design speed: 14-17 mph.
Power: 0-27 hp.
Prop RPM: 108.



DAEDALUS

HUMAN-POWERED DISTANCE RECORD BREAKING AIRCRAFT.

United Technologies

ΔΑΙΔΑΛΟΣ

ENLARGED MARKINGS: See starboard side elevation for positions.

Drawn by: A.A.P. LLOYD.

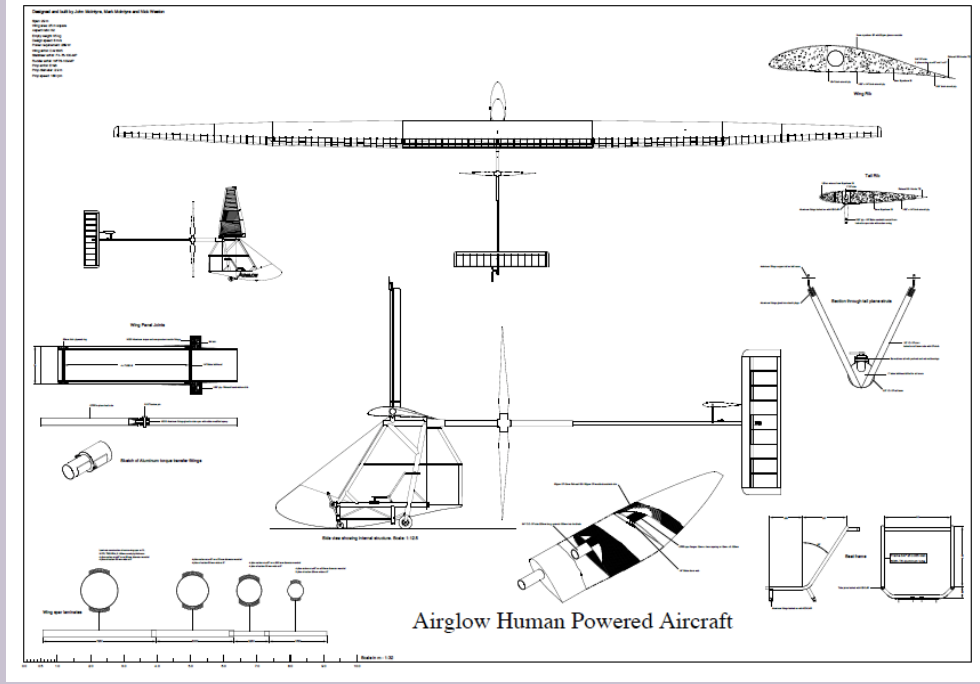
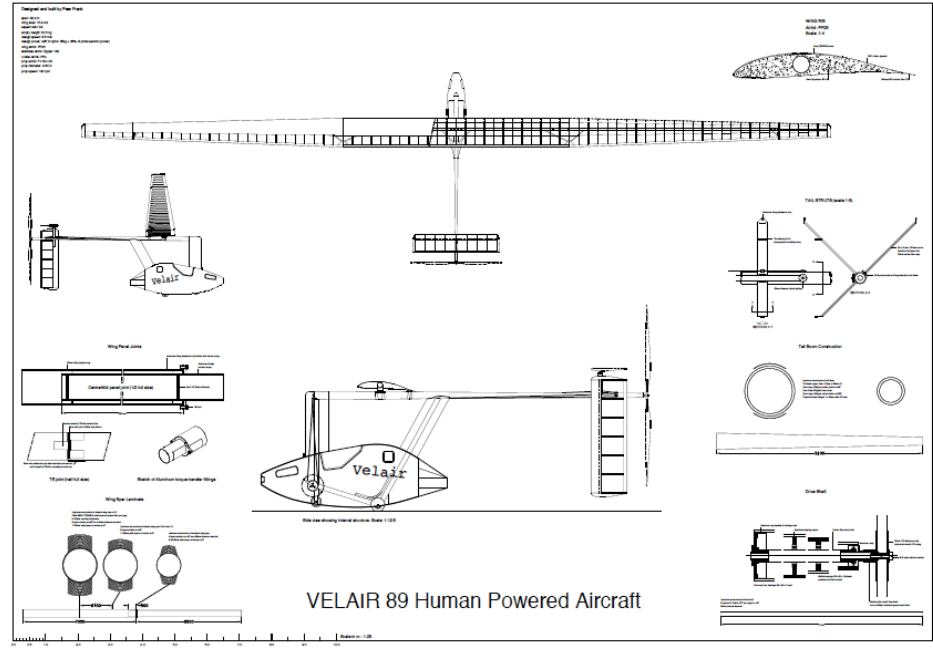
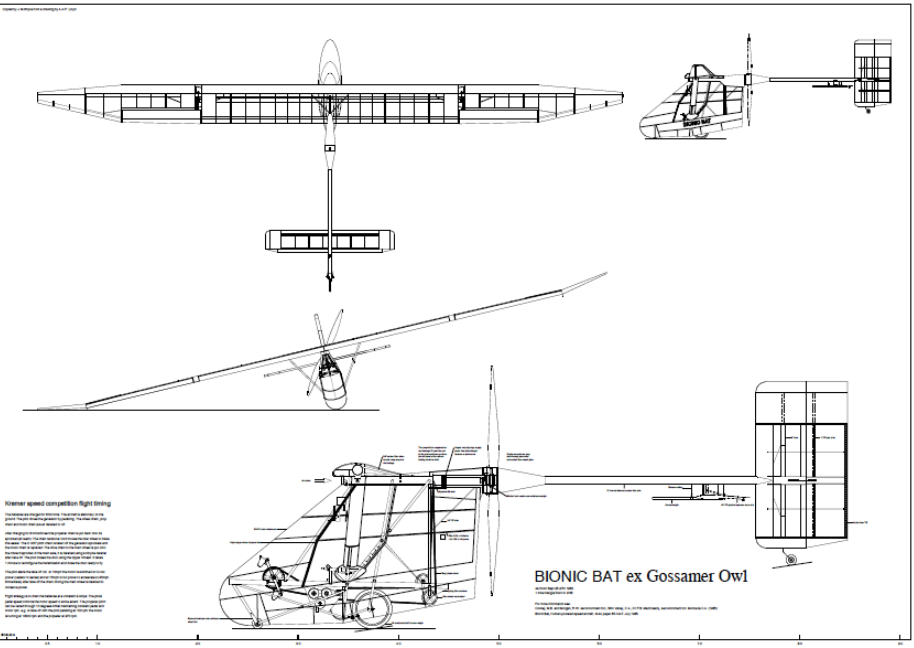
DAEDALUS

0 1 2 3 4 5 6 7 8 9

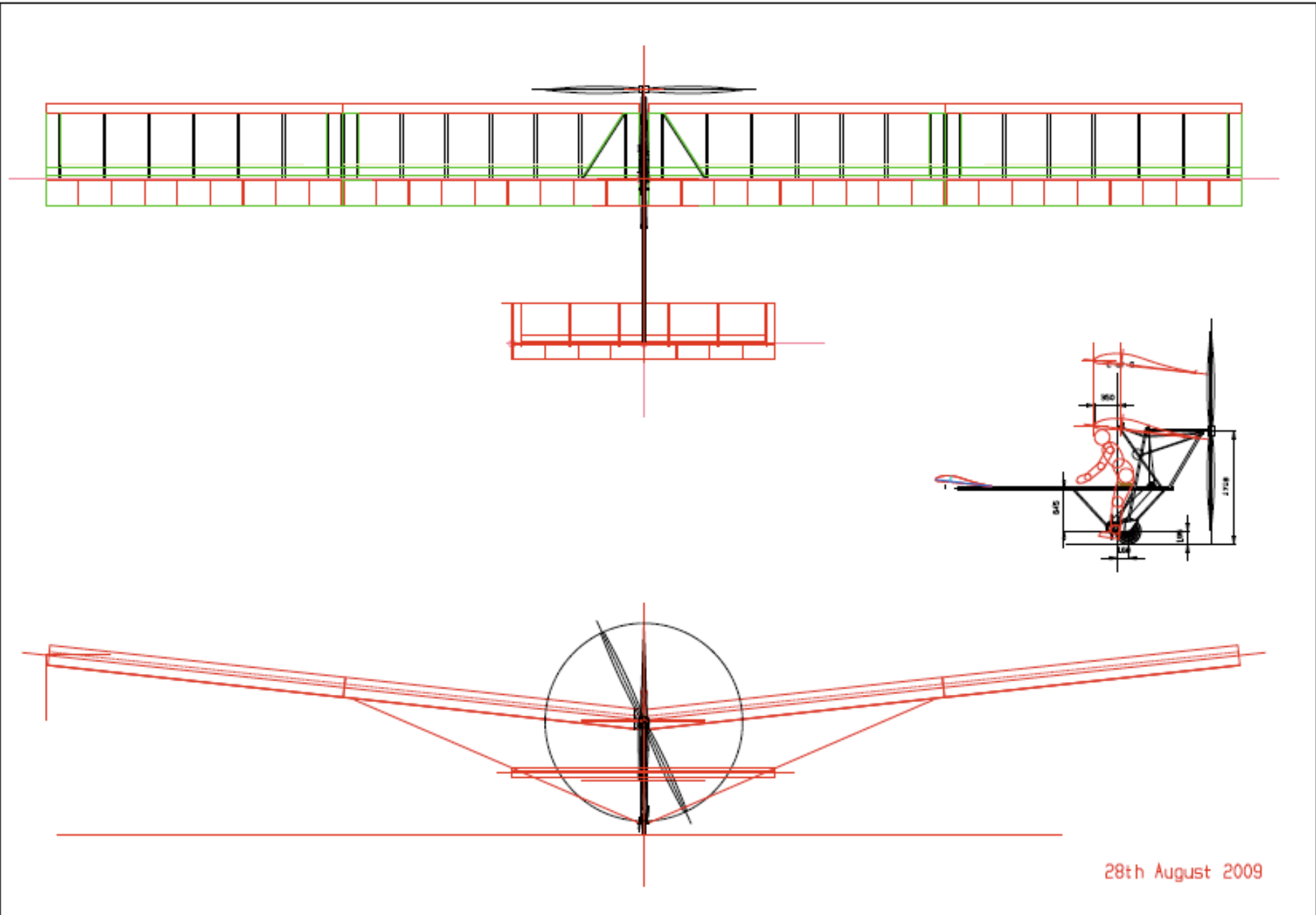
0 1 2 3 4 5 6 7 8 9

Metres

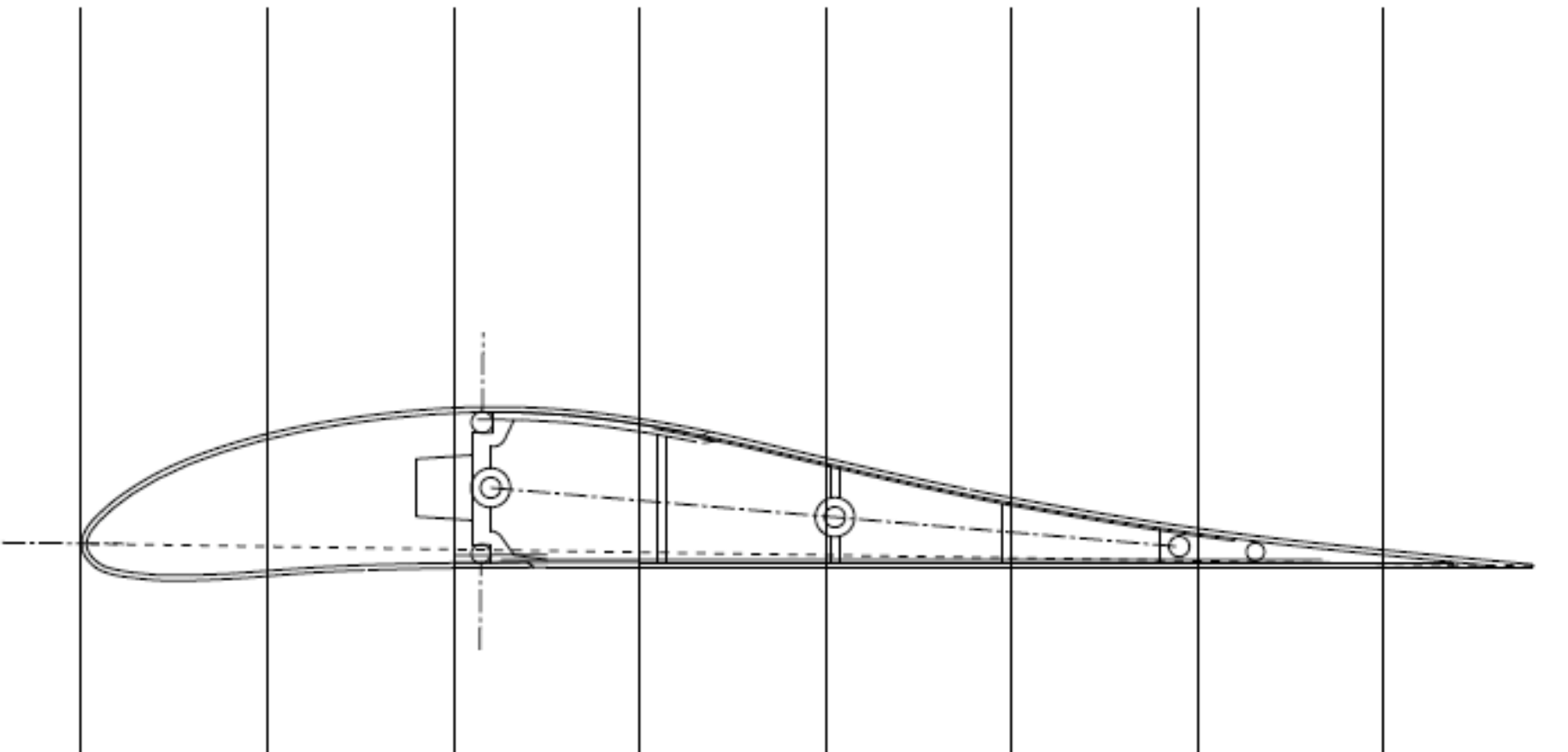
SCALE: Feet



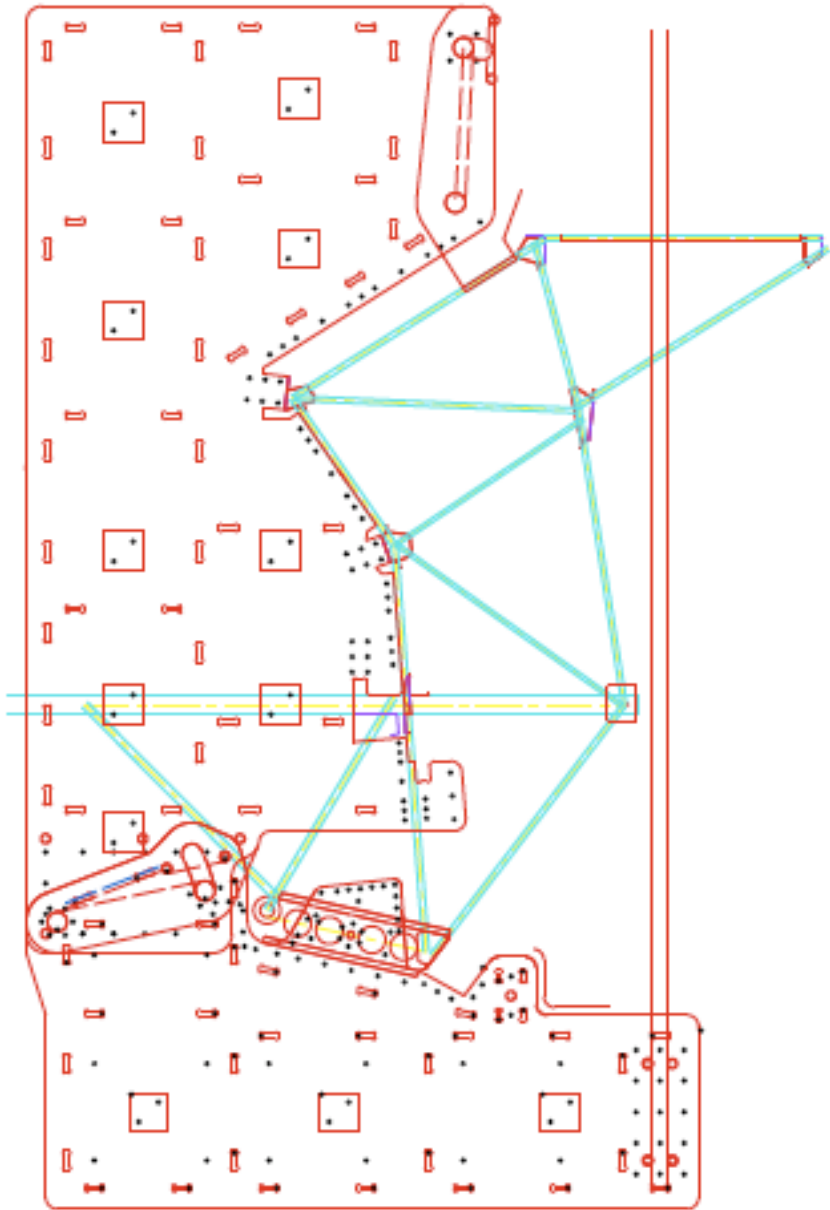
			Distance (m)	Span (m)	Wing Area (sq m)	Weight (kg)	Wing load 70kg pilot (kg/sq m)
1960/61	SUMPAC		650	24.4	27.9	58.1	4.59
1960/61	Puffin		900	25.6	30.7	53.5	4.02
1965/9	Puffin 2		900	28.3	36.2	63.5	3.68
1965	Toucan 2		700	42.4	64.7	109.3	2.77
	Linnet	Japan					
	Stork A	Japan					
1971	Jupiter		1,239	24.4	27.9	66.2	4.88
	Condor 1						
1977	Condor 2	Figure Eight	2,172	29.3	66.2	31.8	1.54
1979	Albatros	Cross Channel	35,820	29.3	46.5	24.9	2.04
1983	Marathon Eagle 1			24.4	23.2	60.8	5.63
1983	Marathon Eagle 3			19.2	18.6	60.8	7.03
1983	Bionic Bat	Speed/Store energy		14.6		34.1	
1983	MIT Monarch	Speed					
1984	Musculair 1	Speed					
1984	ASLAM			18	29.5	49.5	4.05
1985	Musculair 2	Speed					
1984	ASLAM		37				
1987	Light Eagle		15,360	34.7	31	41.7	3.60
1988	Daedalus 88	Santorini	116,000	34.1	30.8	31.8	3.30
1988	Velair 88						
1989	Velair 89			23.2	16.9	30.4	5.94
1990	Airglow-short			25.9	22.8	31.8	4.46
	Airglow-long			31.7		37	
2009	Better Fly						
2011	Aerocycle 1			18	28.1	44.5	4.07
2012				21	32.8	53.2	3.75
2013	Aerocycle 2			23	18.252	38.7	5.95
2014	Aerocycle 3			23	18.252	35	5.75
2015	Dash						

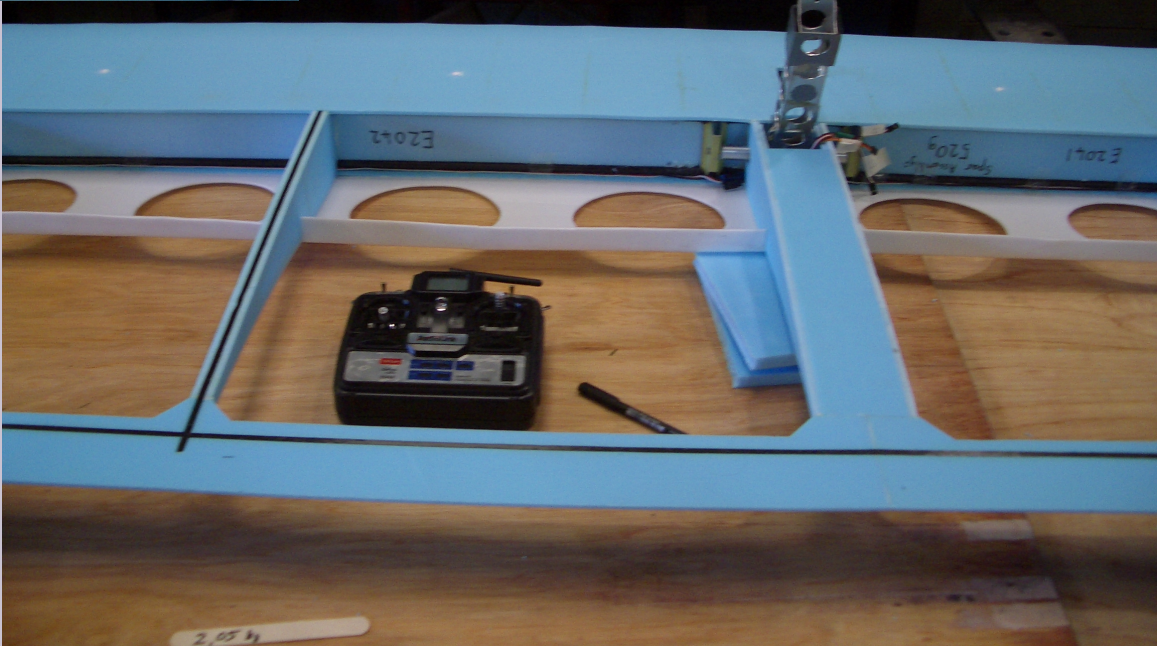
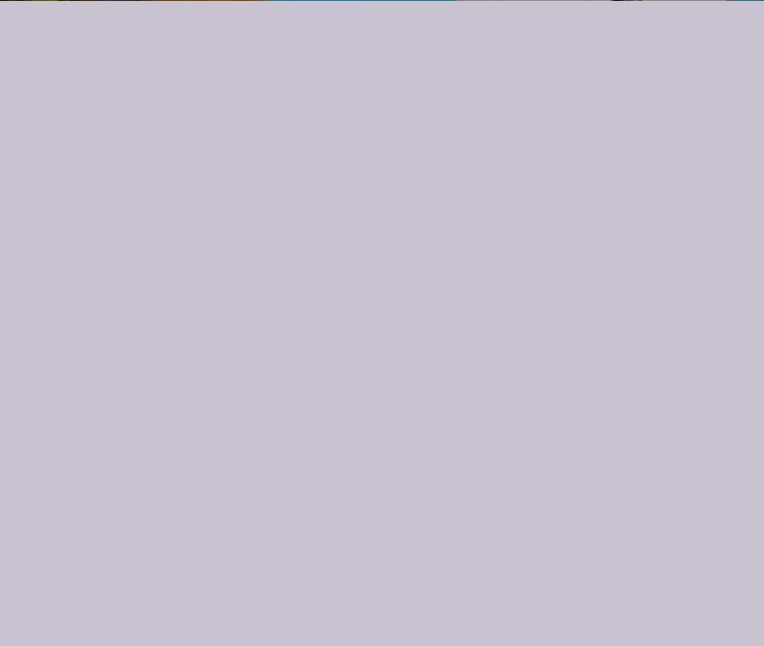


28th August 2009

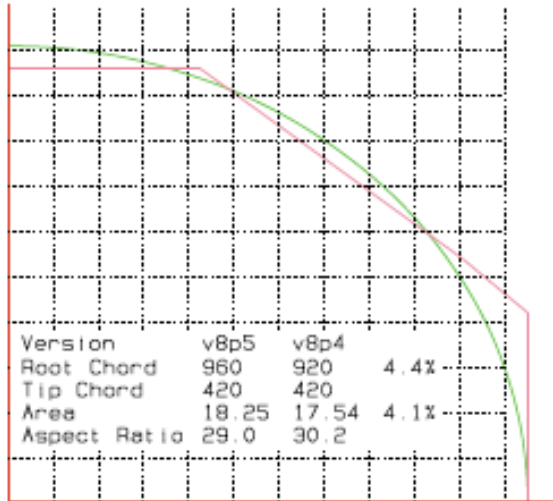






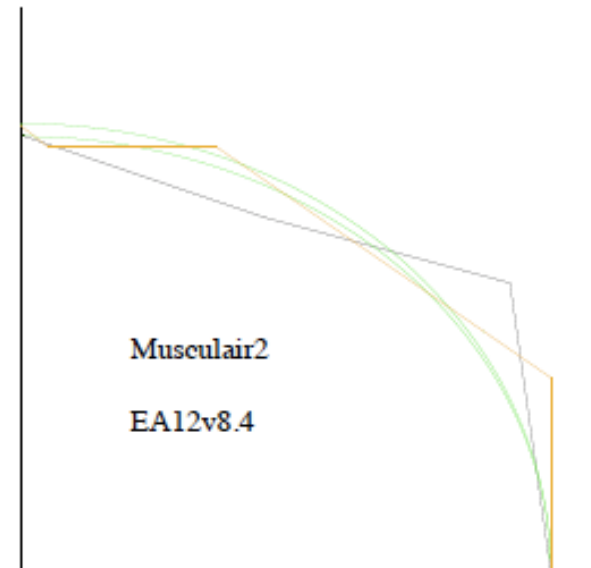
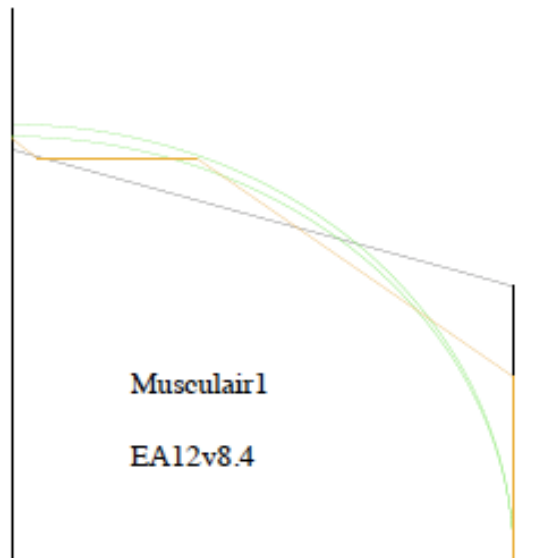
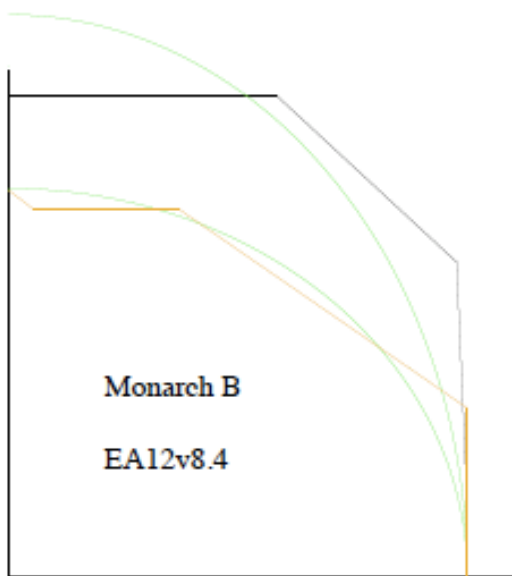
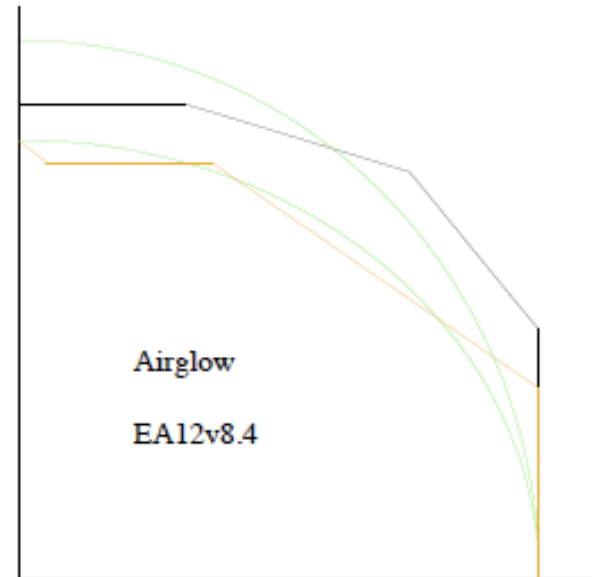
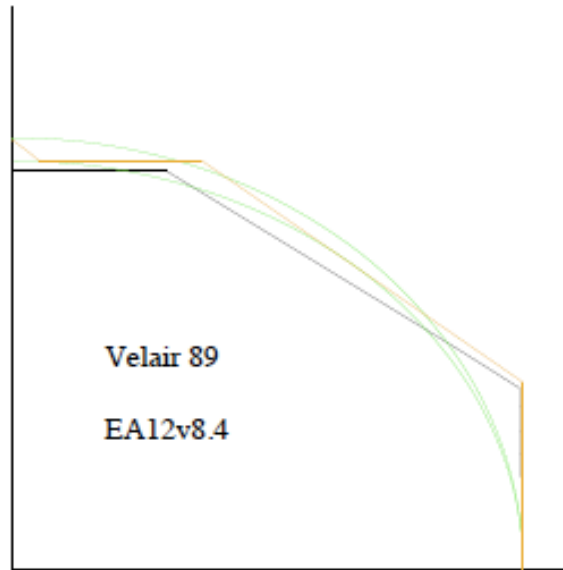


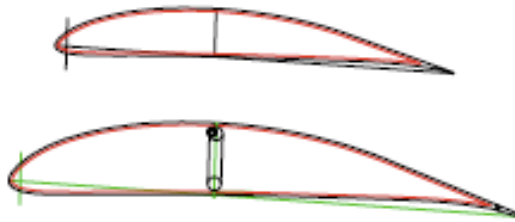




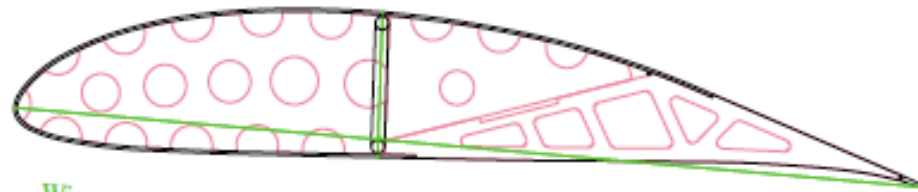
Ellipse and planform equal area
 Drawn without root extension

EA12v8p5 3rd May 2013

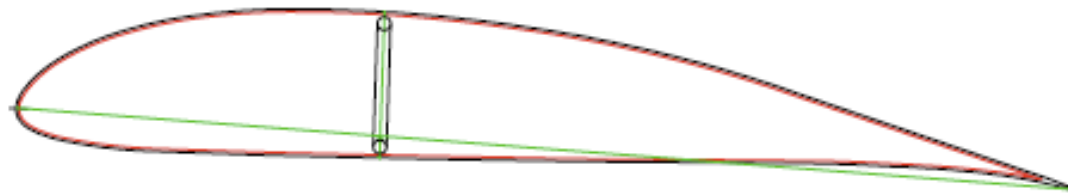




Rib rotated 1 degree washout to match jig
Spar reference then rotated -1 degree about spar/chord reference to put vertical



Wing as set is at Alfa 5 deg - 3 deg basic + 2 deg extra as set



Wing Stations for CAD drawing EA12_301

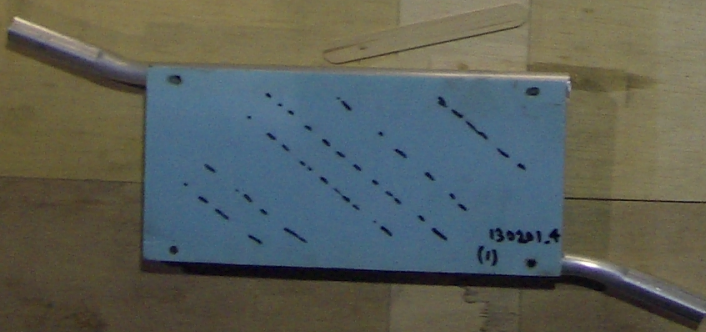
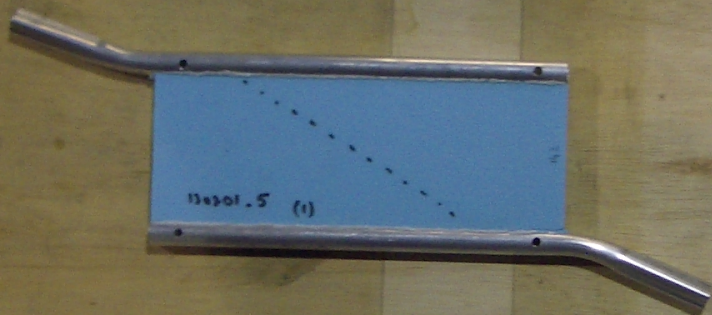
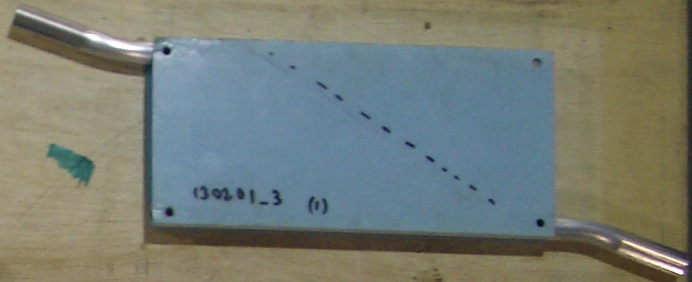
11th Feb 17

Amended Layers

Dihedral = 5 degs

	Wing Stn a/c cl	Layer Number Amended	Y+ dihdr1	Washout degs	Chord degs	Item No FwdRib
cl- Main spar pins	113					
Inboard face root rib	145	L52 (L22)	2.8	1.1	3.9	B5133
Intmedte extended rib	670	L53 (L23)	48.5	0.6	4.4	B5135
1st basic 960mm rib	930	L54 (L20)	71.2	zero	5.0	B5131
cl Mid Span Joint	4.315	L55 (L20)	366.2	zero	5.0	B5133 B5331/00
cl Outer Joint	10.045	L57 (L27)	865.6	1.0	4.0	B5331/22 B5531_00
Outbd face tip rib	11.465	L59 (L29)	989.4	1.0	4.0	B5531_05)





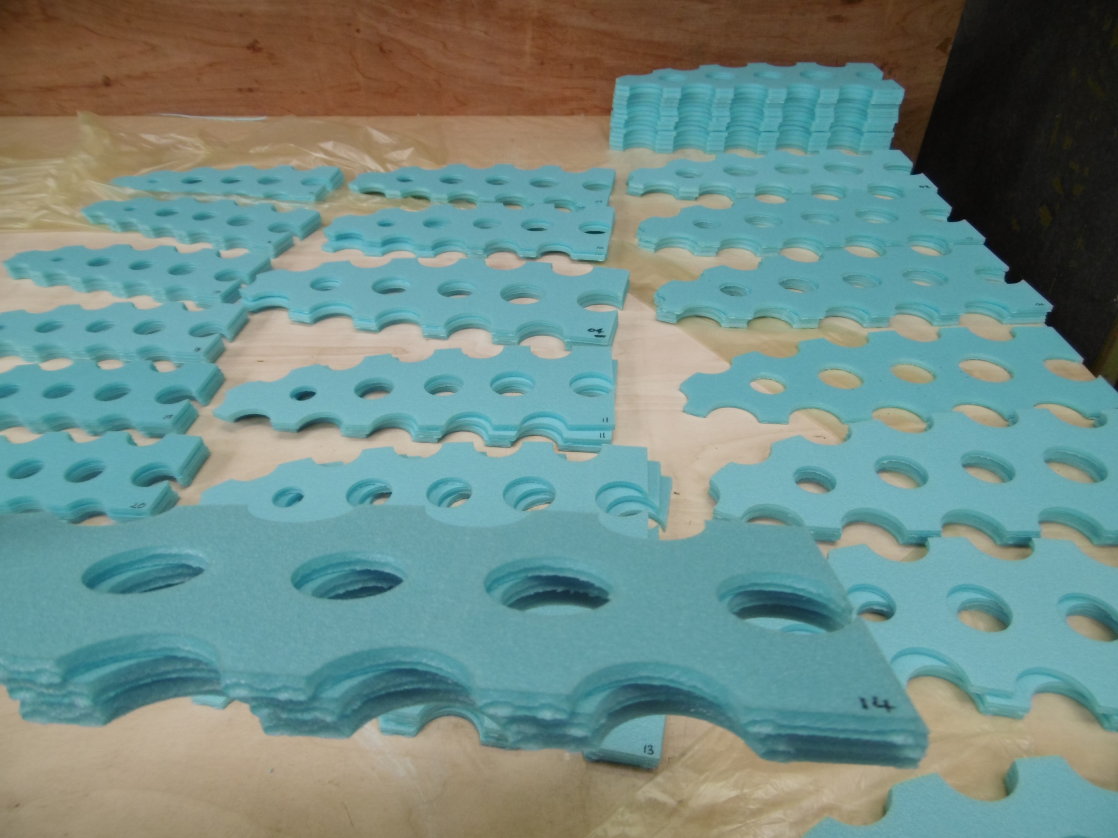


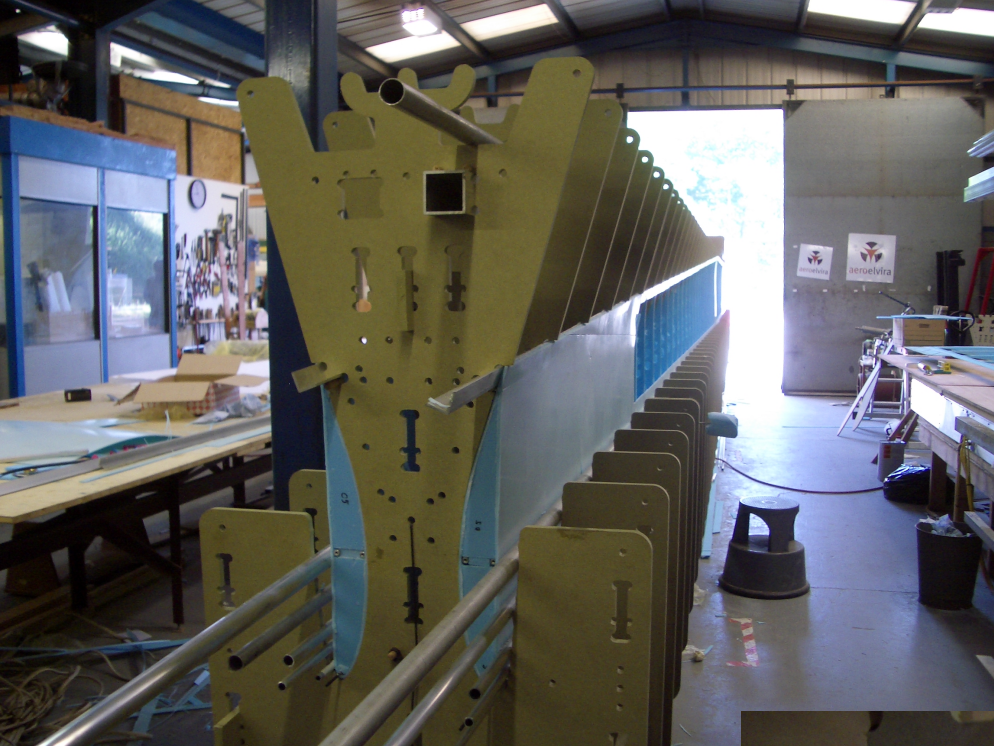


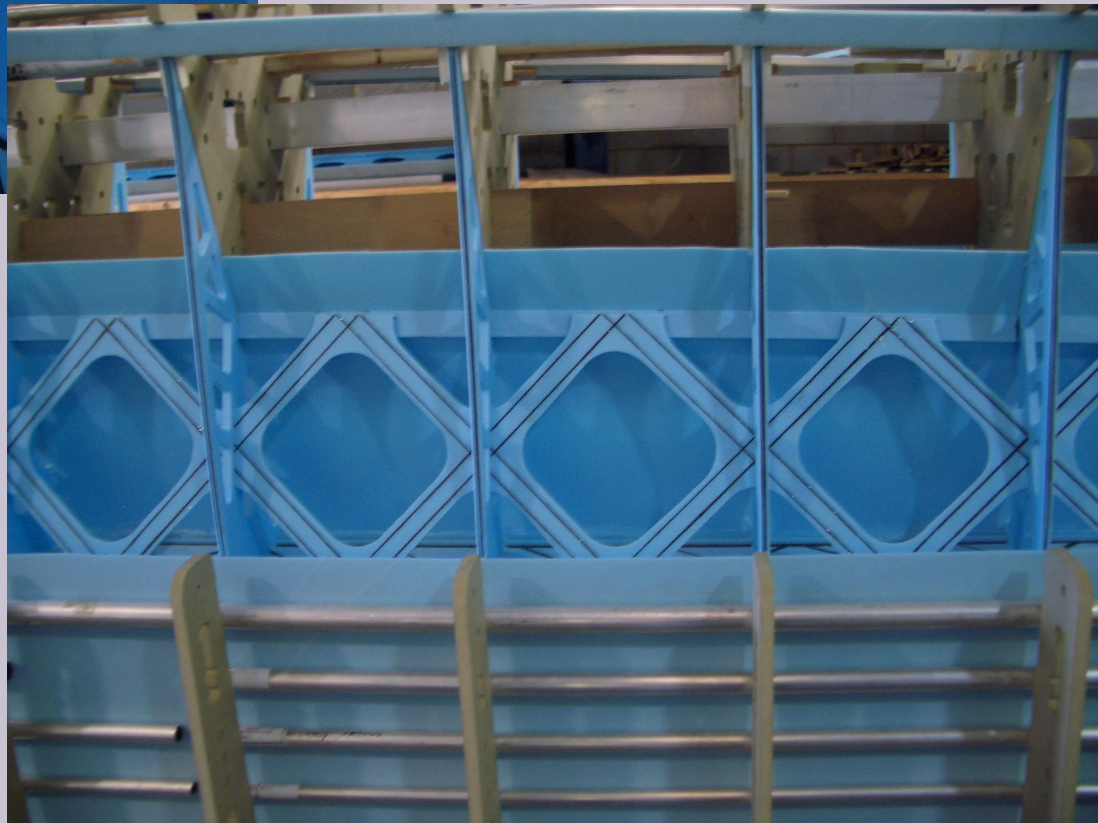














BST1338

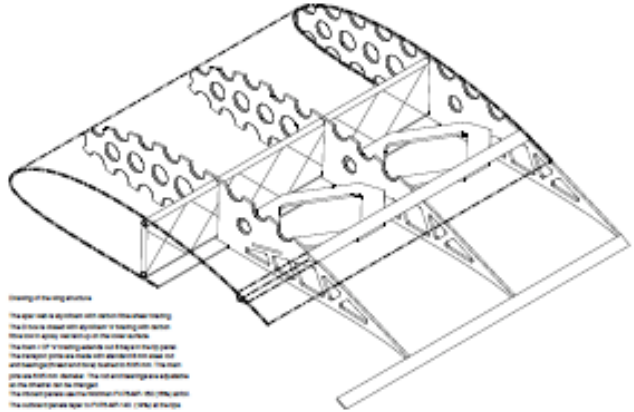
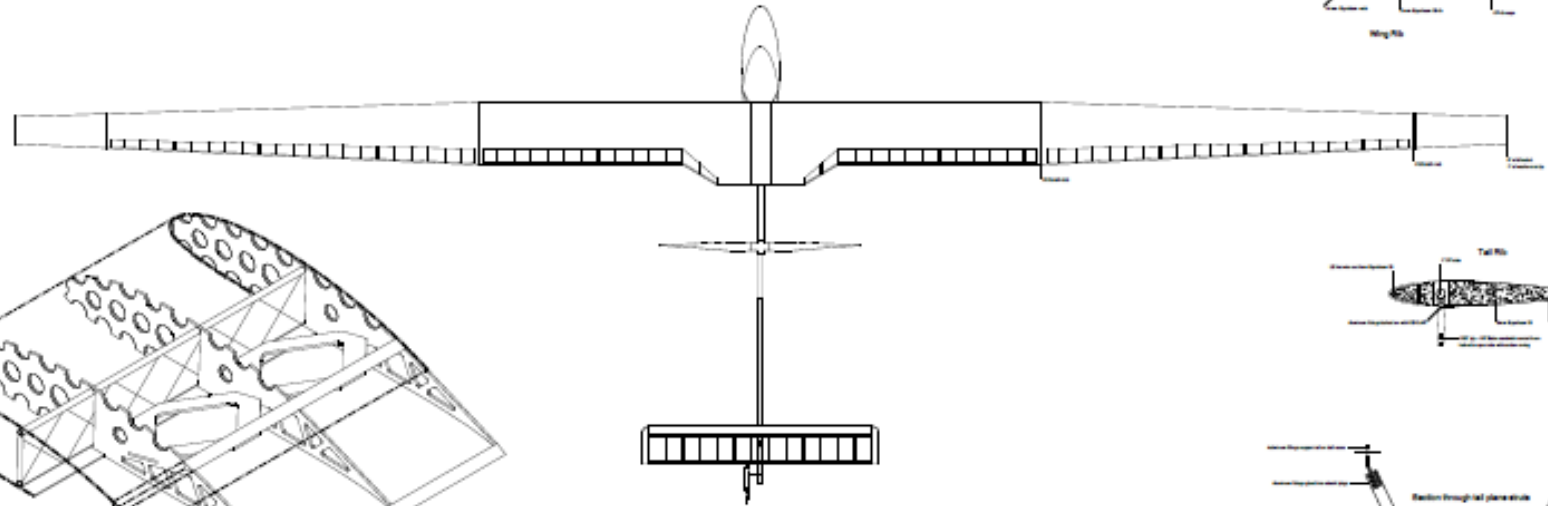
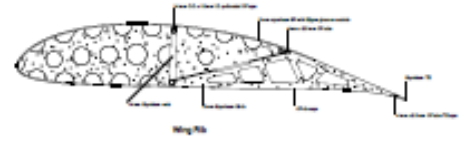
30 JOT
cut 20 TAGS
42mm ER
30-30
LINK
FINE LAJER!
TO GO ON 20 DATE

LE

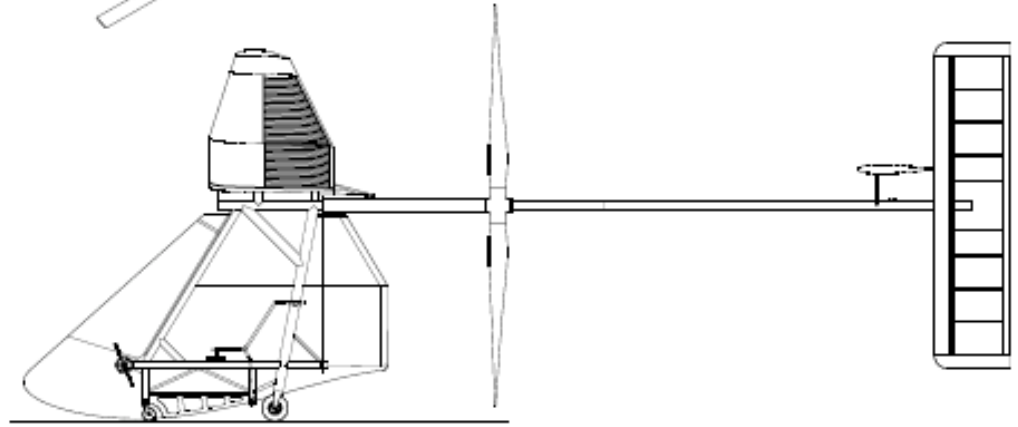
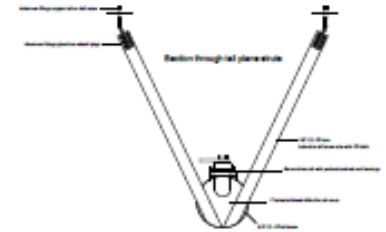


Designed by John Ridge

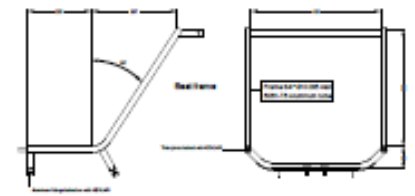
spec sheet
design name
designer
design date
design phase
design team
design location
design status
design notes



Wing structure
The upper half is attached to the fuselage using
the 1/2 inch steel wire system in the wing spar
The lower half is attached to the fuselage using
the 1/2 inch steel wire system in the wing spar
The upper ribs are made of 1/2 inch steel pipe
The lower ribs are made of 1/2 inch steel pipe
The ribs are spaced 12 inches apart
The ribs are made of 1/2 inch steel pipe
The ribs are spaced 12 inches apart
The ribs are made of 1/2 inch steel pipe
The ribs are spaced 12 inches apart



Side view showing internal structure Scale 1:125

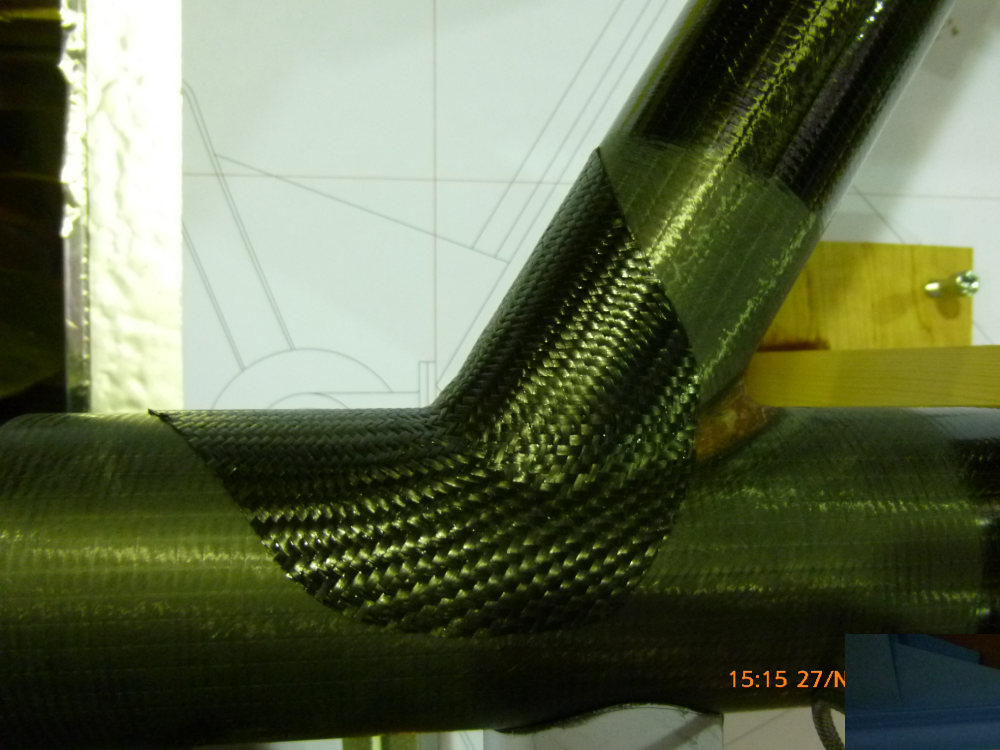


Aerocycle 3 Human Powered Aircraft



Digital Pressure
ON/OFF HOLD 2000

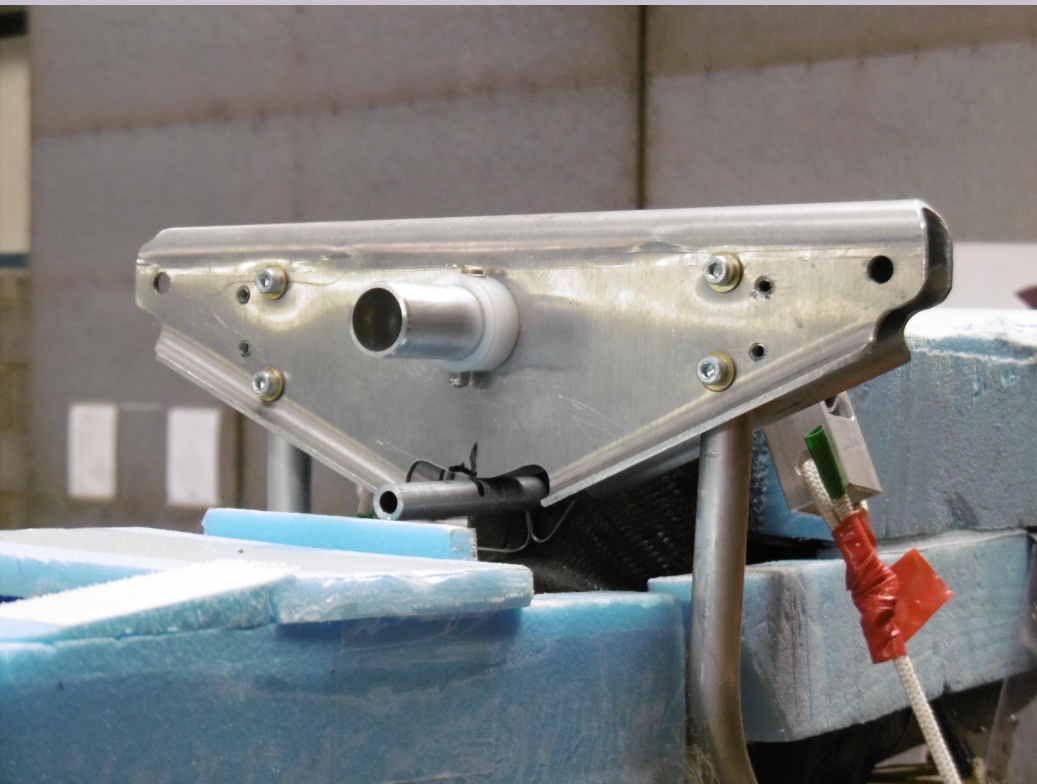
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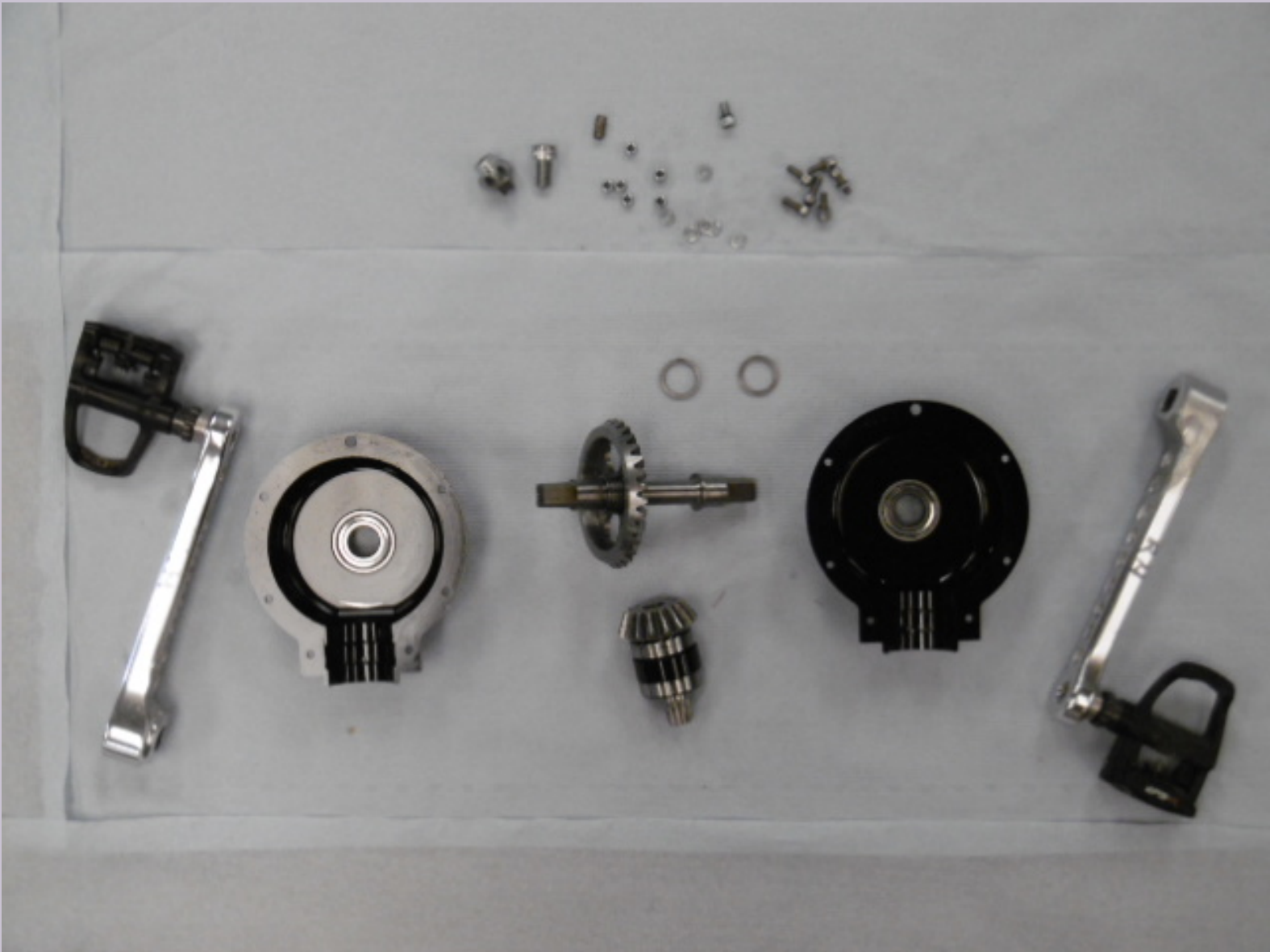
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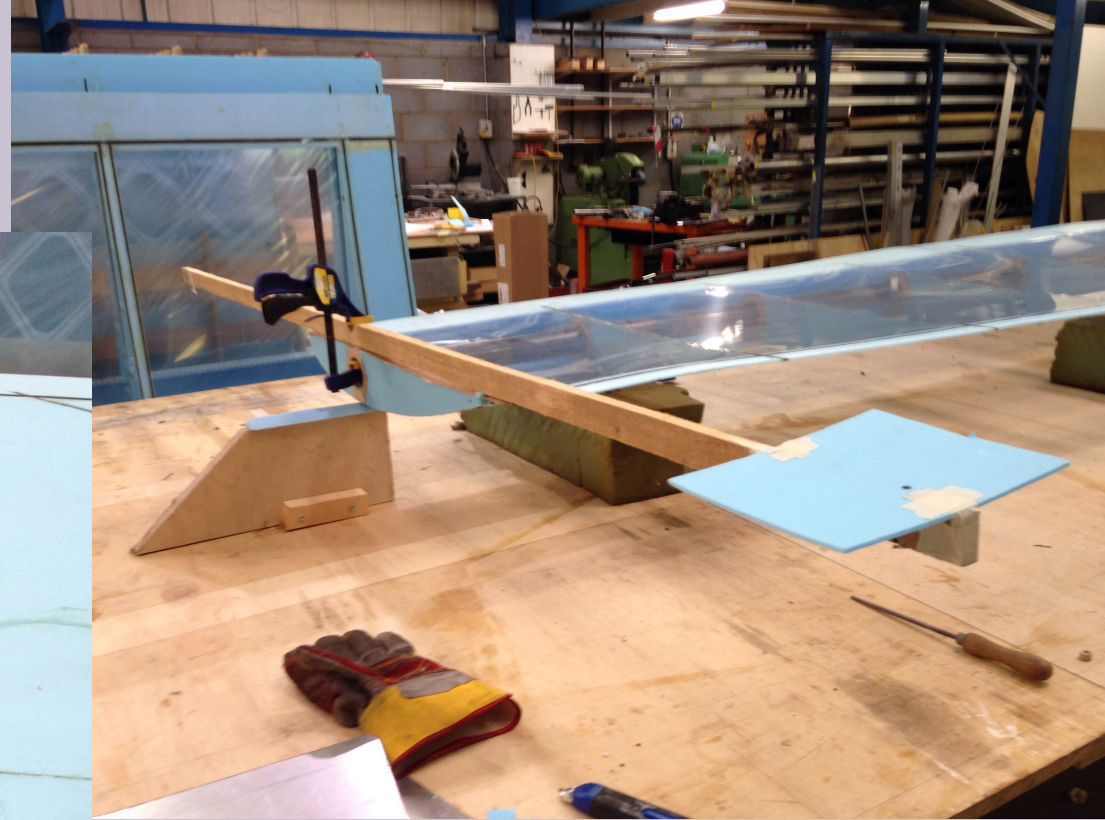
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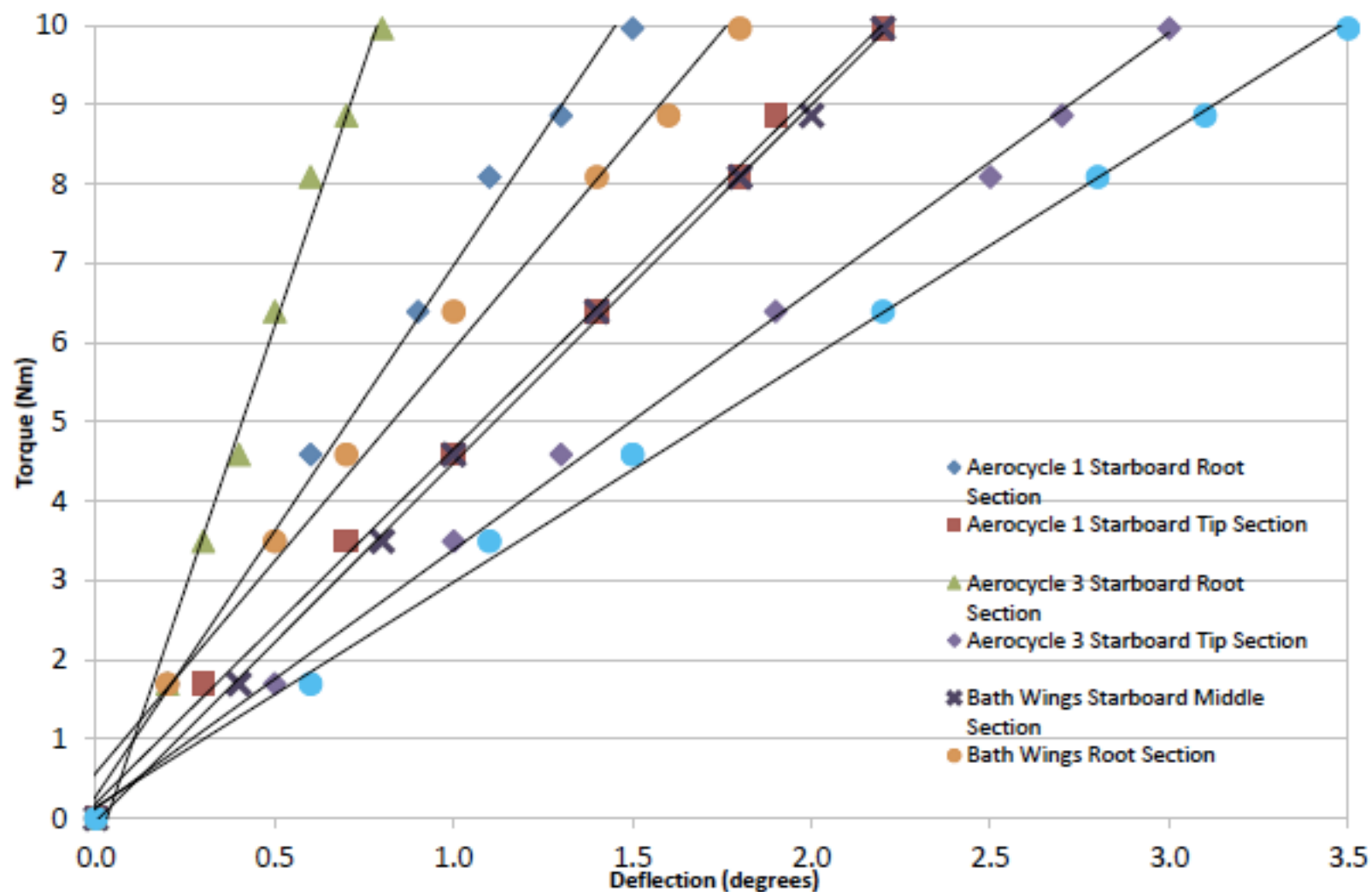
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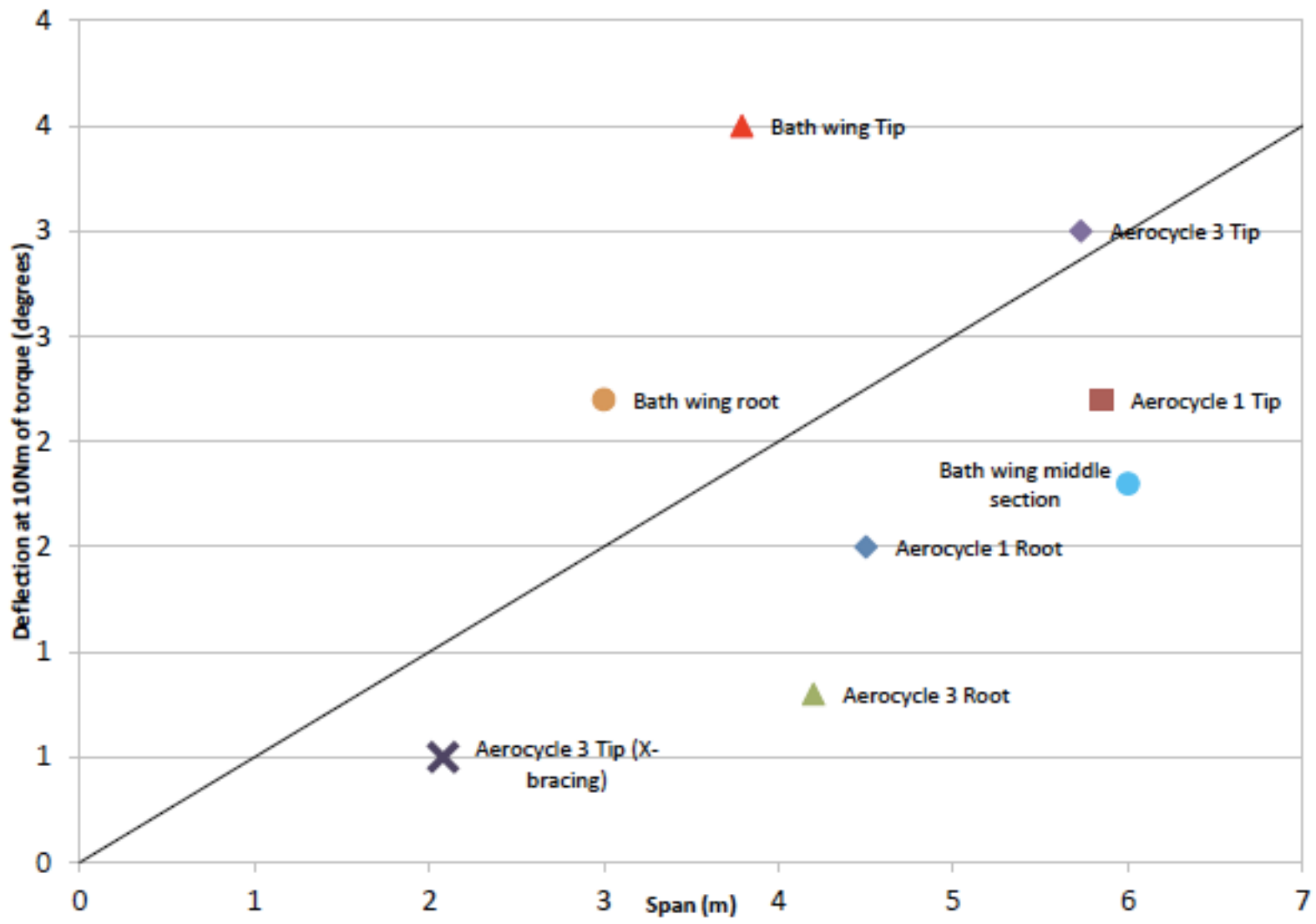








Graph 1: This graph shows the deflection against the torque on each wing.



Graph 2: This graph shows the deflection of each wing at 10Nm of torque against their spans. Wings below the trend line have higher torsional stiffness relative to their spans.



