



Design Loads

wing lift	150 lb @ 57 m/s
root bend.mom.	1400 lb-in
root cap load	2400 lb
root cap area	0.021 in ² top 0.014 in ² bot
cap stress	100 ksi top 150 ksi bot 390 ksi max
rod stress	120 ksi
web stress	270 psi (shear)
rib stress	750 psi (axial)

root torsion 33 lb-in
root skin th. 0.063 in
wing skin shear 100 psi

Wing spar weights

caps	38 g (prepreg uni CF)
core	36 g (10,8,6 lb endgrain balsa)
wrap	4 g (3k Kevlar tow/epoxy)
join	20 g (11/32" CF rod)
tubes	12 g (3/8" OD brass)
boxes	12 g (ply, glass cloth)
glue	8 g

Wing panel weights

center	156 g
mids	101 g
tips	24 g

Fuselage weights

shell	45 g
fittings	18 g
bulkheads	4 g
towhook	3 g
pushrods	7 g

4 lb C-grain balsa
16 lb balsa insert
0.014" carbon spine
Ultracote Lite

4 lb balsa front
6 lb C-grain rudder
0.8 oz Kevlar hinge
Ultracote Lite

boom 0.58" -> 0.38" ID
3 plies uni CF, light glass
0.022" wall thickness
ACP TU-10

All-moving tail
45 sq in 8.6%
Vh = 0.39
-17 ... +10 deg
strong expo
-8 deg mix-in
with full spoiler

Allegro-Lite
2-meter RES
Mark Drela 25 Aug 00

mass = 18 oz
= 36 oz ballasted

m/A = 4.9 oz/ft² @ 18 oz
= 9.9 oz/ft² @ 36 oz

area = 525 sq in
span = 78.4 in
A.R. = 11.7

CL = 0.9 max
= 0.7 min sink
= 0.5 max L/D
= 0.1 min

min sink = 0.87 ft/s @ 18 oz
1.20 ft/s @ 36 oz

max L/D = 20.0 @ 18 oz
24.5 @ 36 oz

Item weights

350mAh	57 g
3 JR241	27 g
Hitec 555	23 g
fuse	70 g
boom	15 g
stab	12 g
rudd	10 g
wing	281 g
ball	18 g
TOTAL	515 g

