



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 <sup>2</sup> top 0.014 in <sup>2</sup> 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/ft<sup>2</sup> @ 18 oz  
= 9.9 oz/ft<sup>2</sup> @ 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

