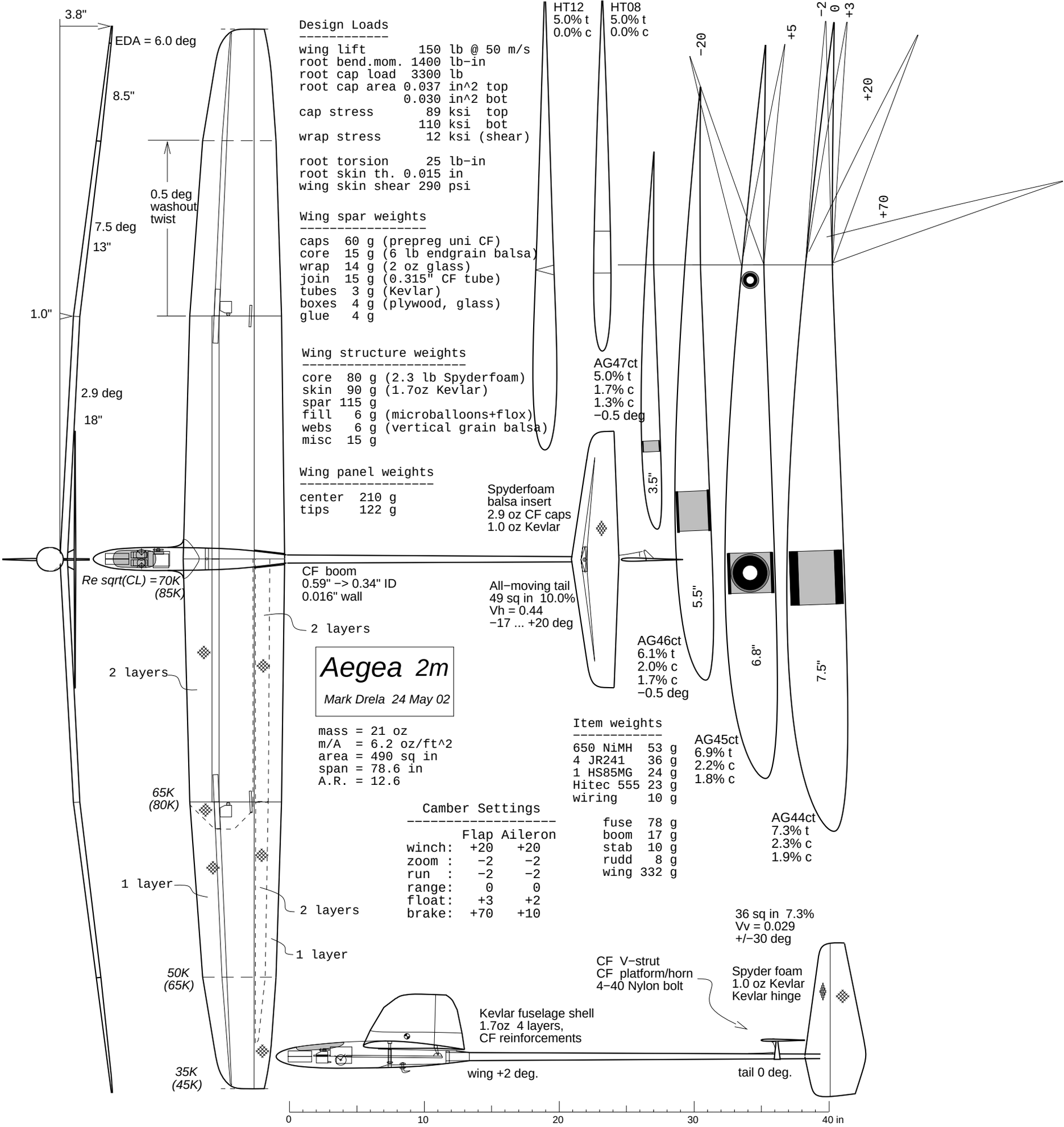
3.8"
EDA = 6.0 deg
8.5"
0.5 deg
washout
twist
7.5 deg
13"
1.0"
2.9 deg
18"
Re sqrt(CL) = 70K
(85K)
65K
(80K)
50K
(65K)
35K
(45K)
2 layers
2 layers
1 layer
2 layers
1 layer
CF boom
0.59" -> 0.34" ID
0.016" wall
Spyderfoam
balsa insert
2.9 oz CF caps
1.0 oz Kevlar
3.5"
All-moving tail
49 sq in 10.0%
Vh = 0.44
-17 ... +20 deg
5.5"
6.8"
7.5"
HT12
5.0% t
0.0% c
HT08
5.0% t
0.0% c
AG47ct
5.0% t
1.7% c
1.3% c
-0.5 deg
AG46ct
6.1% t
2.0% c
1.7% c
-0.5 deg
AG45ct
6.9% t
2.2% c
1.8% c
AG44ct
7.3% t
2.3% c
1.9% c
-20
+5
-2
0
+3
+20
+70
Aegea 2m
Mark Drela 24 May 02
mass = 21 oz
m/A = 6.2 oz/ft^2
area = 490 sq in
span = 78.6 in
A.R. = 12.6
Design Loads
wing lift 150 lb @ 50 m/s
root bend.mom. 1400 lb-in
root cap load 3300 lb
root cap area 0.037 in^2 top
0.030 in^2 bot
cap stress 89 ksi top
110 ksi bot
wrap stress 12 ksi (shear)
root torsion 25 lb-in
root skin th. 0.015 in
wing skin shear 290 psi
Wing spar weights
caps 60 g (prepreg uni CF)
core 15 g (6 lb endgrain balsa)
wrap 14 g (2 oz glass)
join 15 g (0.315" CF tube)
tubes 3 g (Kevlar)
boxes 4 g (plywood, glass)
glue 4 g
Wing structure weights
core 80 g (2.3 lb Spyderfoam)
skin 90 g (1.7oz Kevlar)
spar 115 g
fill 6 g (microballoons+flox)
webs 6 g (vertical grain balsa)
misc 15 g
Wing panel weights
center 210 g
tips 122 g
Item weights
650 NiMH 53 g
4 JR241 36 g
1 HS85MG 24 g
Hitec 555 23 g
wiring 10 g
fuse 78 g
boom 17 g
stab 10 g
rudd 8 g
wing 332 g
Camber Settings
Flap Aileron
winch: +20 +20
zoom : -2 -2
run : -2 -2
range: 0 0
float: +3 +2
brake: +70 +10
36 sq in 7.3%
Vv = 0.029
+/-30 deg
CF V-strut
CF platform/horn
4-40 Nylon bolt
Spyder foam
1.0 oz Kevlar
Kevlar hinge
Kevlar fuselage shell
1.7oz 4 layers,
CF reinforcements
wing +2 deg.
tail 0 deg.
0
10
20
30
40 in