



Institutional Products Inc.
Indianapolis, IN

Main Mast 6" tubing - use 8 lbs. per ft.

	lbs.	Type
Backboard + Goal Weight (BGW)	240	RG-20

(2) Backboard Extensions

(B-641 / B-642) Weight (BEW) 50

120 ABH Assembly Weight (ABH) N/A

Roller Guide Weight (RGW)

(3 lb. / ft. + 5 lbs. each end) 16.47 + 10

Rear Brace Weight (RBW)

(4 lb. / ft. + 5 lbs. each end) 58.00 + 10

Top 2" x 3" Tubing Weight (TTW)

(4 lb. / ft) 24

Wing Down Weight (WDW)

(4 lb. / ft per wing down) 35.74 lbs. ea. (71.48 lbs. total)

D = WDW (total)

= 71.5 lbs.

E = 1/2(RBW) + 5 (fitting) + [(V-i)*3] + 5 (roller guide fitting)

= 1/2(58) + 5 + [(5.49 - 2.5) * 3] + 5 lbs.

= 47.97 lbs.

F = (Y - g) * (8 lbs. per ft)

= (13.416 - 4) * (8 lbs. per ft)

= 75.33 lbs.

G = BGW + (BEW or ABH) + (% of RGW: [(i * 3) + 5] + (g * 8 lbs. per ft.))

= (240) + (50) + [(2.5 * 3) + 5] + 4 * (8 lbs. per ft.)

= 334.5 lbs.

H = TTW

= 24 lbs.

Forces in folded position		lbs.
Downward:		553.30
Upward:		553.30

(Rb + Rc)

Roller Guide Length(ft) (V) 5.49

Rear Brace Length(ft) (W) 14.50

Distance from Main Mast to Rear Brace(ft) (X) 7.57

Main Mast Length(ft) (Y) 13.42

Top 2" x 3" Tubing length(ft.) (Z) 6.00

Truss Height 24.00

A = 1/2(RBW) + 5 lbs.

= 34.00 lbs. (Weight at rear brace in folded or playing position.)

$$\sum M_c = 0 = (H * (Y1 - .5 - g)) + (D * d) + (E * e) + (F * f) - (G * i) - (RB * (Y1 - g))$$

$$(24 * (13.92 - .5 - 4)) + (71.5 * 5.46) + (47.97 * 3.49) + (75.33 * 4.96) - (334.5 * 2.5) - (RB * 9.92)$$

$$(226.08) + (390.39) + (167.4153) + (373.6368) - (836.25) - (RB * 9.92)$$

$$321.27 - (RB * 9.916)$$

RB = 32.39 lbs. ** (Total Force for Both Eyebolts)

16.19 lbs. ** (Force for Each Eyebolt)

** In folded position

B = (BGW) + (BEW or ABH) + (RGW) + [1/2(RBW) + 5 lbs.] + (TTW) + (WDW) + (Y * 8)

(240) + (50) + (26.47) + [.5 * (58) + 5 lbs.] + (24) + (71.48) + (107.328)

553.28 lbs. *** (Total weight of main mast + weight of roller guide + weight of rear brace.)

276.64 lbs. *** (Weight on each eyebolt.)

*** In playing position

$$\sum M_B = 0 = [Rc * (Y1 - g)] - [G * (Y1 - h)] - [(F * c) - (E * b) - (D * a) - (H * .5)]$$

$$[Rc * (13.92 - 4)] - [334.5 * (13.92 - 1.5)] - (75.33 * 4.96) - (47.97 * 6.43) - (71.5 * 4.46) - (24 * .5)$$

$$[Rc * 9.92] - [4154.49] - (373.6368) - (308.4471) - (318.89) - (12)$$

$$[Rc * 9.92] - 5167.4639$$

RC = 520.91 lbs. (Force on pulley at backstop - in folded position.)

Note, the force on the pulley at the wall is 735 lbs - in folded position.

Project Name:

Project Location:

Units:

Shop Drawing :

Model 1350-FF

Load Analysis Calculations