

Fixture Weight Calculation

S-6 x 12.5 steel I-beams, total 99" long = $(99) (12.5) / 12 = 103.125$ lbs

End Angles [$\frac{1}{2} \times 3.5 \times 4 \times .282 + \frac{1}{2} \times 4 \times 6 \times .282$] x 4 = 21.4 lbs

Top and bottom plates (2) (12 x 16 x 1) (.282) = 108.3 lbs

Lifting lug 1.5 x 6 x 10 with 1.875 hole, area = 34.37 in² , $34.37 \times 1.5 \times .282 = 14.5$ lbs

Four $\frac{3}{4}$ " lifting eyes 1 lb each = 4 lbs

Welding = 1 lb

Total weight = 252.325 lbs

Conservative weight estimate to be marked on lifter = 255 lbs

Load Rating:

3.5 tons on 2 lifting eyes

7 tons on 4 lifting eyes if equally loaded





SPREADER BAR

I.D. N^o 5

COLOR OF BAR :

Blue

LOAD CAPACITY PAINTED

ON BAR 7 TONS.

DATE CAP. & I.D. N^o PAINTED

ON BAR July 1988

DATE OF LAST LOAD

TEST. Aug 9, 1988

TEST LOAD WEIGHT 8.1 TONS

TEST LOAD % 115.7%

STRESS CALCULATIONS:

DONE BY Bosek & Miranda

DATE June 1988

REMARKS : Total capacity of the bar painted
on all sides.

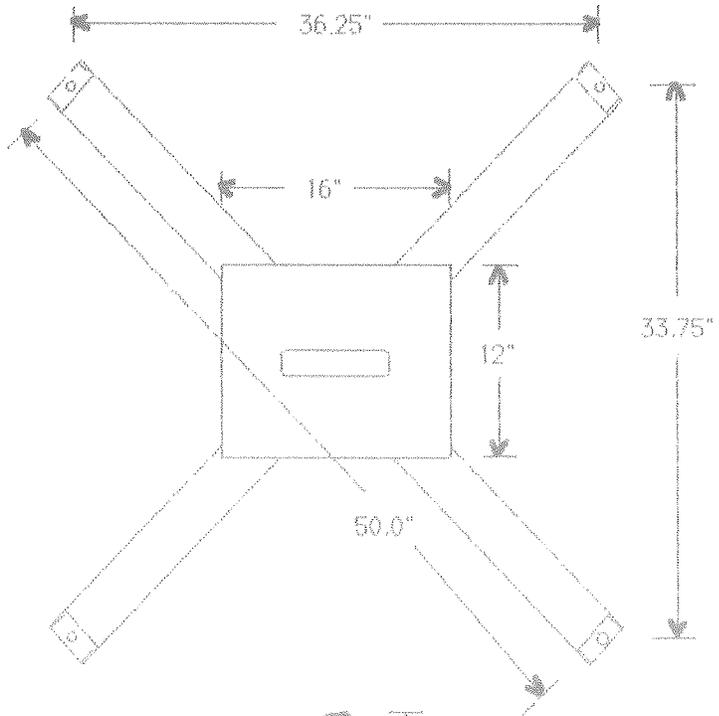


I.D. # 5

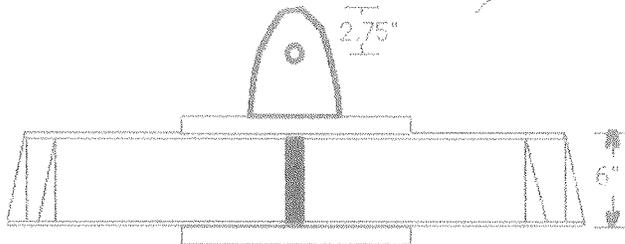
TESTED 8-9-88

Blime 35

Top



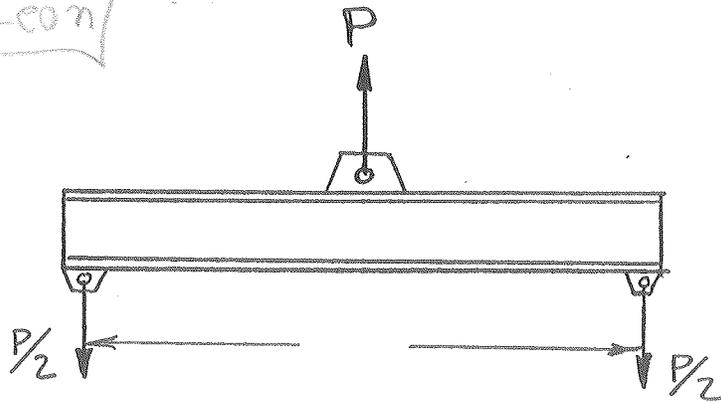
Side



scale: 1" = 1'

SPREADER BAR N^o 5 PAINT COLOR dark blue

Leon



BEAM SIZE 56 X 12.50

$$d = \underline{6 \text{ in}}$$

$$A_w = d \cdot t_w = \underline{1.392 \text{ in}^2}$$

$$L = \underline{50 \text{ in}}$$

$$d/A_f = \underline{5.02}$$

$$M = \frac{PL}{4} = \underline{12.5P}$$

$$S_x = \underline{7.37 \text{ in}^4}$$

$$V = \frac{P}{2}$$

$$t_w = \underline{0.232 \text{ in}}$$

BENDING STRESS :

$$F_b \text{ ALLOW} = 12,000 \text{ psi}$$

$$\text{OR } F_b \text{ ALLOW} = \frac{12 \times 10^6}{L \cdot d/A_f} = \frac{12 \times 10^6}{(50)(5.02)} = \underline{47,808 \text{ psi}}$$

USE THE LEAST

$$\therefore f_b \text{ MAX} = \frac{M}{S_x} = \frac{12.5P}{7.37} = 1.696P = 12,000 \text{ psi}$$

$$P = 7075 \text{ lb} = \underline{3.5 \text{ TONS}} \times 2$$

$$= \underline{7.1 \text{ TONS}}$$

SHEAR STRESS :

$$F_v \text{ ALLOW} = \frac{.4 F_y}{3} = 4800 \text{ psi}$$

$$\therefore f_v \text{ MAX} = \frac{V}{A_w} = \frac{P}{2(1.392)} = \frac{P}{2.784} = 4800$$

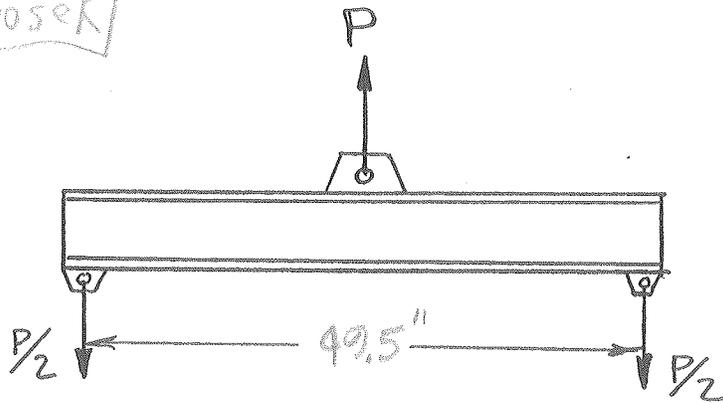
$$\therefore P = 13,363 \text{ lbs} = \underline{6.68 \text{ TONS}} \times 2 = \underline{13.4 \text{ TONS}}$$

SUMMARY :

$$\therefore P = \underline{7.1 \text{ TONS}}$$

SPREADER BAR N^o 5 PAINT COLOR BLUE

bosek



BEAM SIZE 56 x 12.5

$$d = \frac{6.00}{}$$

$$A_w = d \cdot t_w = \underline{1.392}$$

$$L = \frac{49.5}{}$$

$$d/A_f = \frac{5.02}{}$$

$$M = \frac{PL}{4} = \underline{12.375 P}$$

$$S_x = \frac{7.37}{}$$

$$V = \frac{P}{2}$$

$$t_w = \underline{.232}$$

BENDING STRESS :

$$F_b \text{ ALLOW} = 12,000 \text{ psi}$$

$$\text{OR } F_b \text{ ALLOW} = \frac{12 \times 10^6}{L \cdot d/A_f} = \frac{12 \times 10^6}{49.5 \times 5.02} = \underline{48292 \text{ psi}}$$

USE THE LEAST

$$\therefore f_b \text{ MAX} = \frac{M}{S_x} = \frac{12.375 P}{7.37} = 12,000 \quad P = 7146 \text{ lbs.}$$

$$= 3.57 \text{ TONS}$$

SHEAR STRESS :

$$F_v \text{ ALLOW} = \frac{.4 F_y}{3} = 4800 \text{ psi}$$

$$\therefore f_v \text{ MAX} = \frac{V}{A_w} = \frac{P}{2 \times 1.392} = 4800$$

$$P = 13363 \text{ lbs.}$$

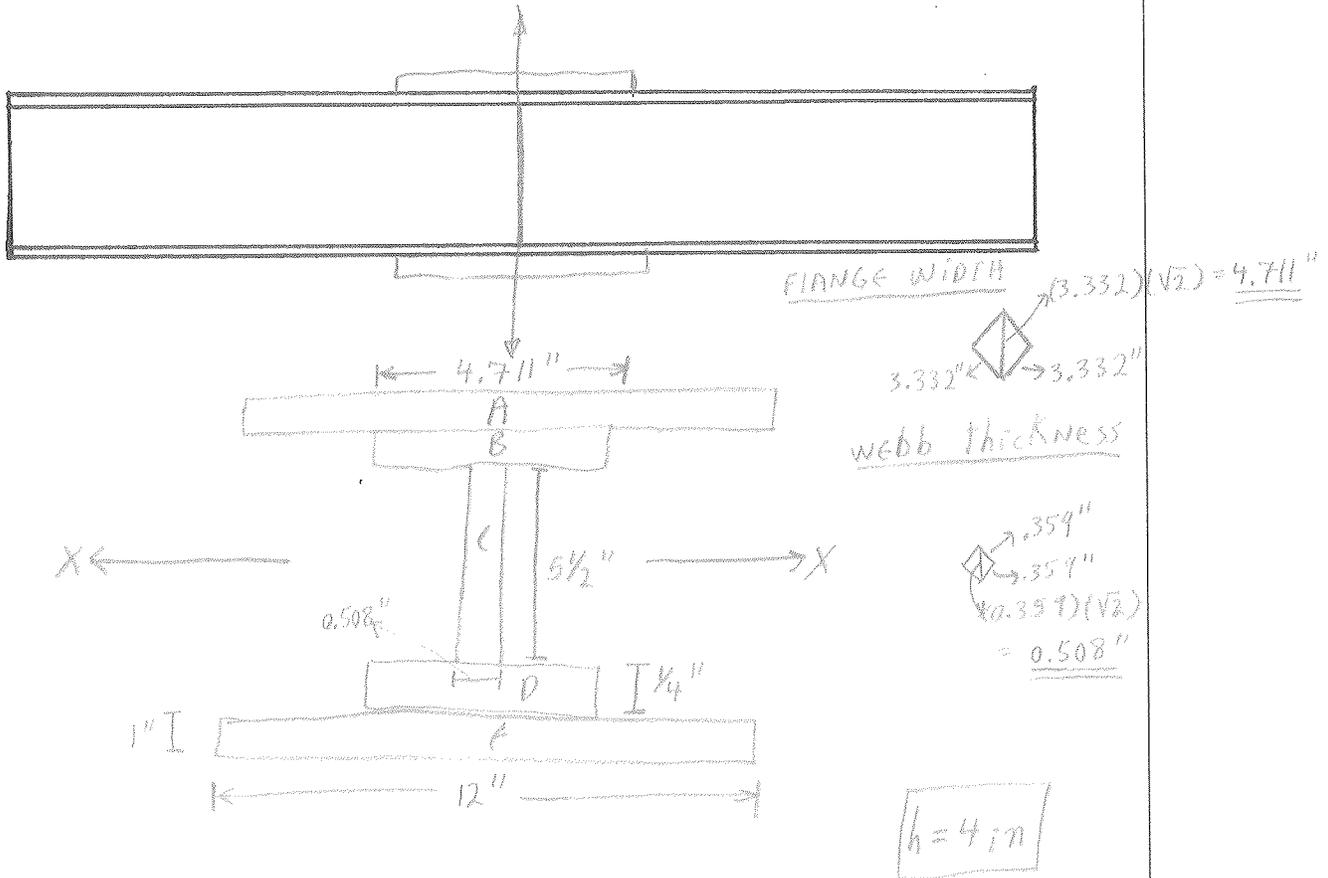
$$= 6.68 \text{ TONS}$$

SUMMARY :

$$\therefore P = \underline{7.1} \text{ TONS}$$

$$P = 2 \times 3.57 \text{ TON}$$

2 BEAMS PER ASSEMBLY

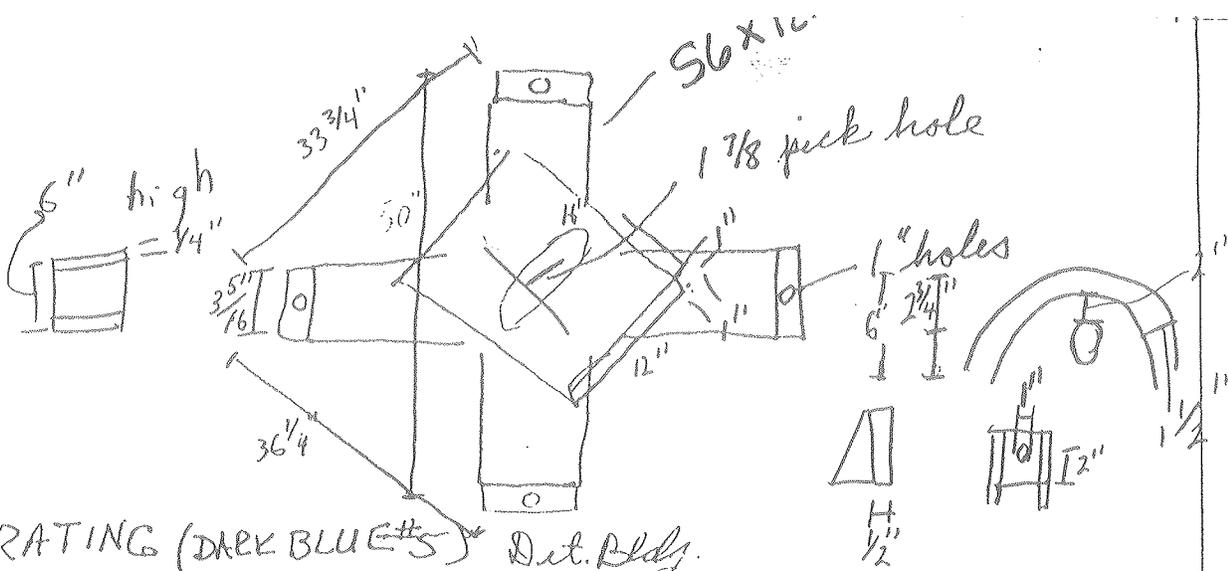


Section	Base (in)	Height (in)	I (in ⁴)	Area (in ²)	r (in)	r' (in)	Ar' ² (in ²)
A	12	1	1	12	7.5	3.5	147
B	4.711	0.25	0.006	1.178	6.875	2.875	9.737
C	0.508	5.5	7.043	2.794	4	0	0
D	4.711	0.25	0.006	1.178	1.125	2.875	9.737
E	12	1	1	12	0.5	3.5	147

$c = 4$

$I_{xx} = 322.529 in^4$
 $S_{xx} = 80.632 in^3 > 14.74 in^3$

Field Data



NO RATING (DARK BLUE #5) Det. Bldg.