SPREADER BAR

I.D. Nº 1 COLOR OF BAR: Red

LOAD CAPACITY PAINTED ON BAR 33 TONS.

DATE CAP. & I.D. Nº PAINTED ON BAR 8-3-88

DATE OF LAST LOAD TEST. August 8 1988

TEST LOAD WEIGHT 41.16 TONS

TEST LOAD % 124.7%

STRESS CALCULATIONS:

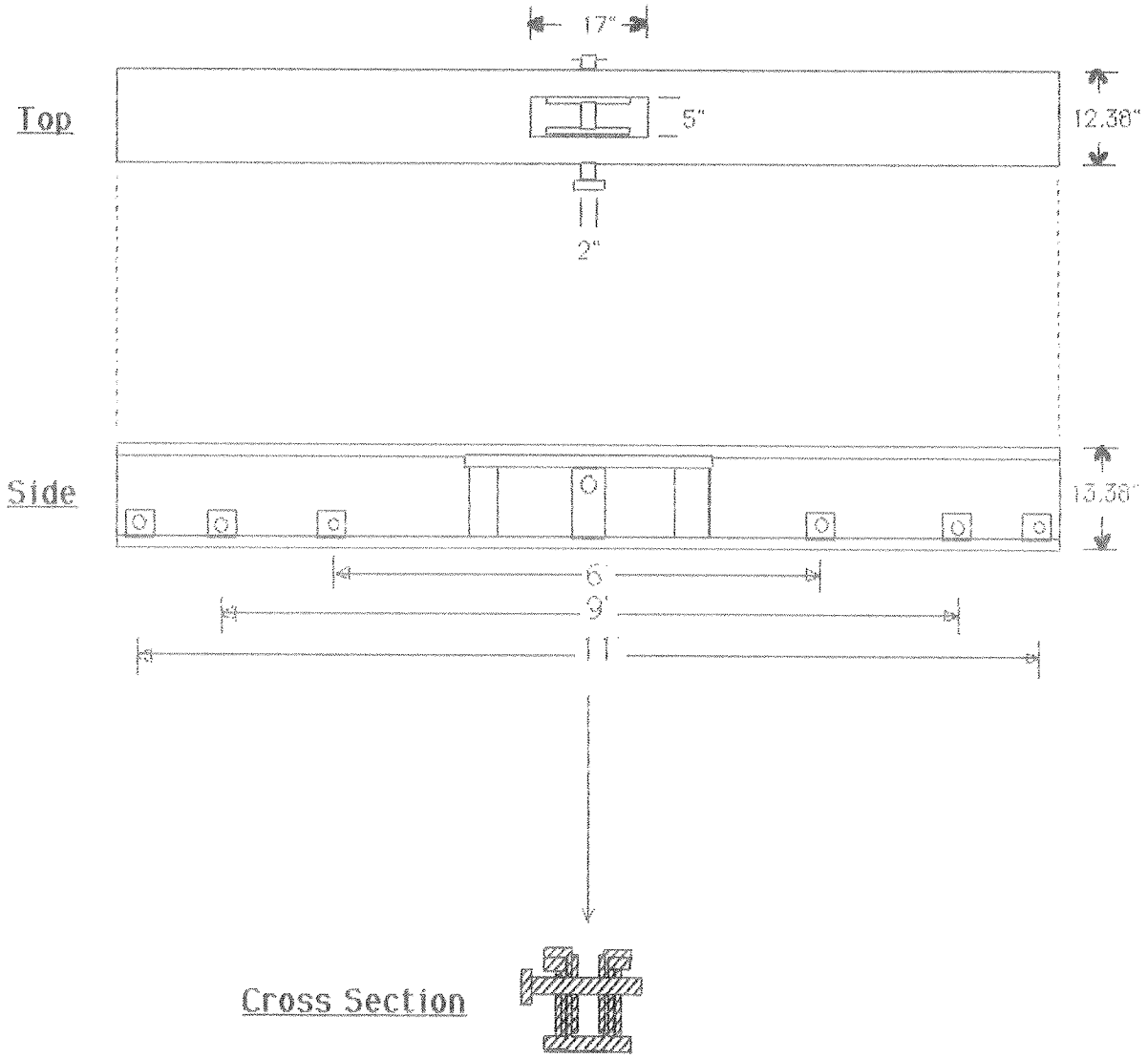
DONE BY Bosek + Miranda

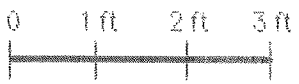
DATE June 1988

REMARKS: 20 ton capacity previously painted on bar - increased to 33 ton.

Tested OK

Rod #1

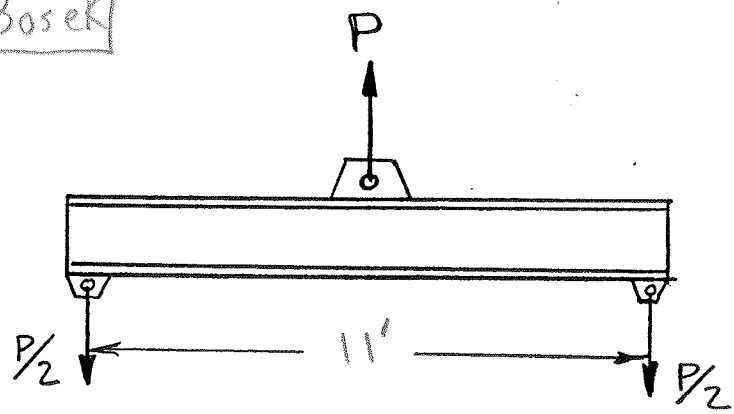




scale: 1/2 = 1'

SPREADER BAR Nº 1 PAINT COLOR RED

Bosek



BEAM SIZE W12 x 133

$d = 13.38$

$L = 132$

$d/A_f = .875$

$S_x = 183$

$t_w = .755$

$A_w = d \cdot t_w = 10.10$

$M = \frac{PL}{4} = 33P$

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

BENDING STRESS:

$F_{b\ ALLOW} = 12{,}000$ psi

OR $F_{b\ ALLOW} = \frac{12 \times 10^6}{L \cdot d/A_f} = \frac{12 \times 10^6}{132 \times .875} = 103{,}896$ } USE THE LEAST

$\therefore f_{b\ MAX} = \frac{M}{S_x} = 12{,}000 = \frac{33P}{183}$ $P = 66{,}545$ lb. $= 33.3$ TONS

SHEAR STRESS:

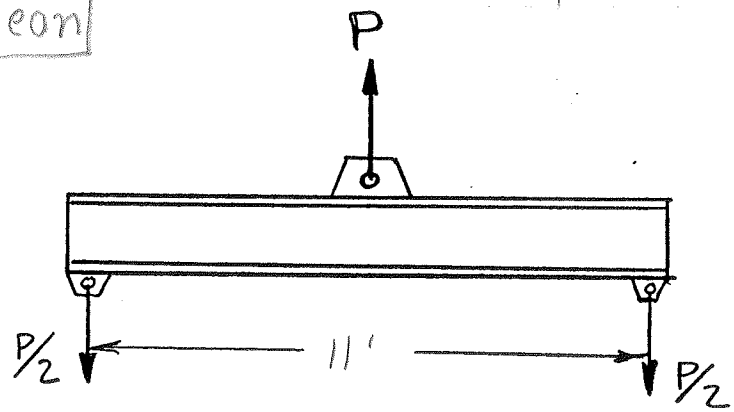
$F_{V\ ALLOW} = \frac{.4\ F_y}{3} = 4800$ psi

$\therefore f_{V\ MAX} = \frac{V}{A_w} = \frac{P}{2 \times 10.10} = 4800$ $P = 96{,}960$ lb. $= 48.48$ TONS

SUMMARY: $\therefore P = 33.3$ TONS

SPREADER BAR Nº [illegible] PAINT COLOR Red

Leon



BEAM SIZE W12 X 133

$d = 13\frac{1}{4}$ in

$L = 132$ in

$d/A_f = 0.875$

$S_x = 183$ in^3

$t_w = 0.455$

$A_w = d \cdot t_w = 10.10$ in^2

$M = \frac{PL}{4} = 33P$

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

BENDING STRESS:

$F_{b\ ALLOW} = 12{,}000$ psi

OR $F_{b\ ALLOW} = \frac{12 \times 10^6}{L \cdot d/A_f} = \frac{12 \times 10^6}{(132)(0.875)} = 103{,}896$ psi

USE THE LEAST

$\therefore f_{b\ MAX} = \frac{M}{S_x} = \frac{33P}{183} = 12{,}000$ psi

$\therefore P = 66{,}660$ lb $= 33.3$ tons

SHEAR STRESS:

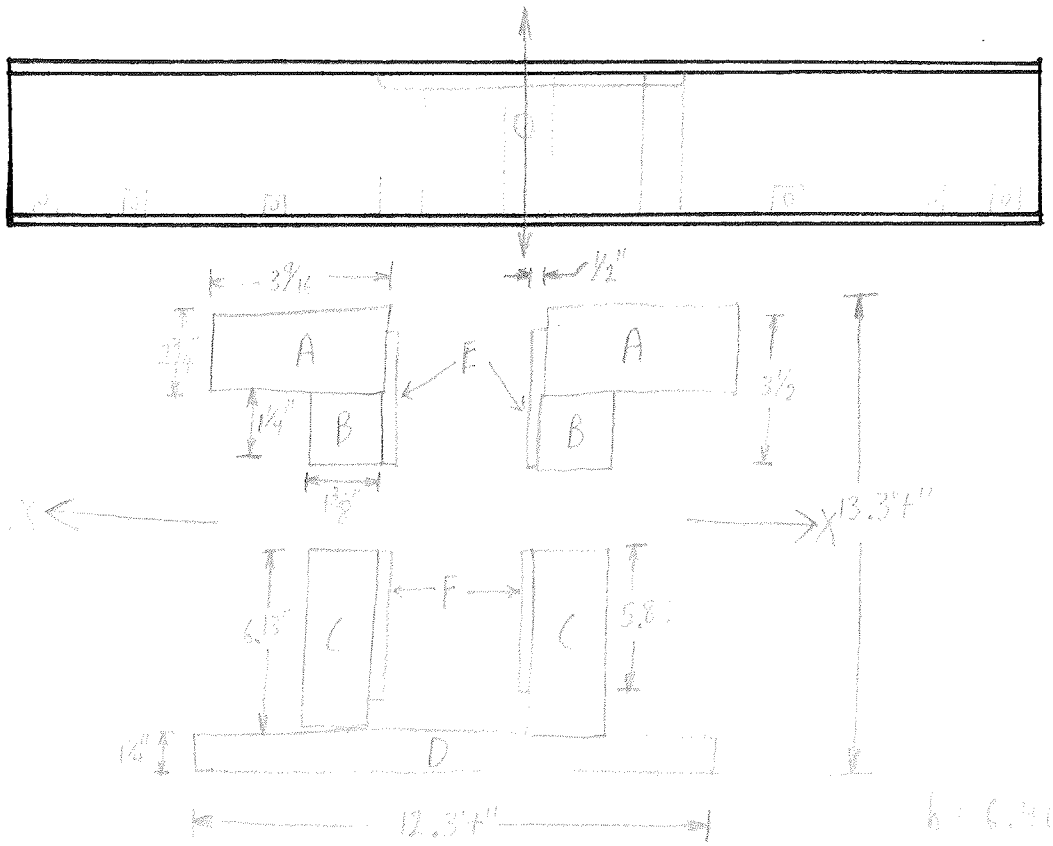
$F_{V\ ALLOW} = \frac{.4\ F_y}{3} = 4800$ psi

$\therefore f_{V\ MAX} = \frac{V}{A_w} = \frac{P}{2(10.1)} = \frac{P}{20.2} = 4{,}800$ psi

$\therefore P = 96{,}940$ lb $= 48.5$ tons

SUMMARY: $\therefore P =$ 33.3 TONS

SPREADER BAR № 1	Leon	Paint Color Red	



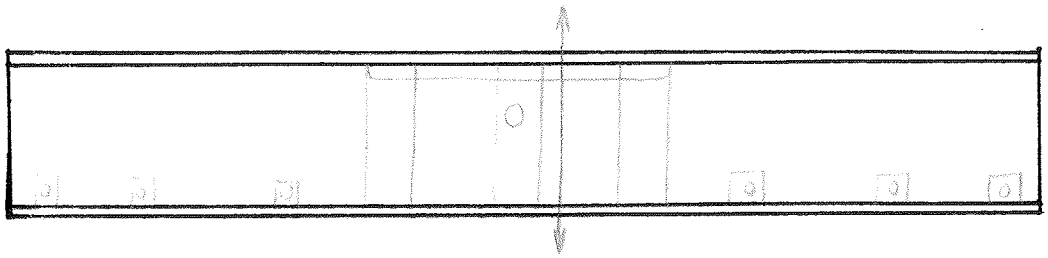
Section	Base (in)	Height (in)	I (in⁴)	Area (in²)	r (in)	r' (in)	Ar'² (in²)
A	7.125	2.75	12.348	19.594	11.995	[illegible]	[illegible]
B	2.75	1.25	0.448	3.438	9.995	3.591	[illegible]
C	2.75	6.13	52.788	[illegible]	4.315	[illegible]	[illegible]
D	12.37	1.25	2.013	15.463	0.625	[illegible]	[illegible]
E	1.0	3.5	[illegible]	[illegible]	11.12	[illegible]	[illegible]
F	1.0	5.8	16.259	[illegible]	4.48	[illegible]	[illegible]

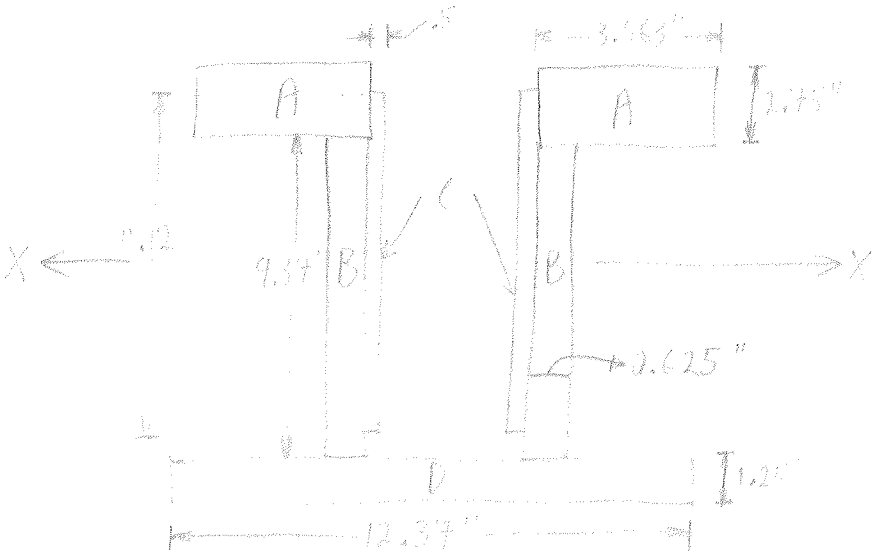
$c = 13.37 - 6.404 = \underline{6.966}$

$I_{xx} =$ [illegible]

$S_{xx} = \underline{20[illegible] \text{ in}^3} > \underline{183 \text{ in}^3}$

SPREADER BAR Nº 1 | Leon | PAINT Color Red | II





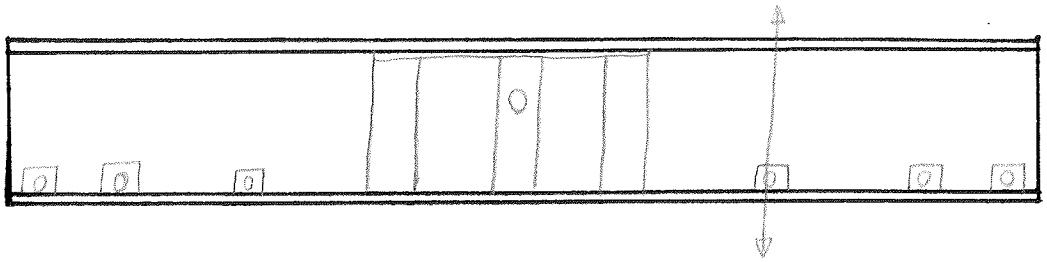
Section	Base (in)	Height (in)	I (in⁴)	Area (in²)	r (in)	r' (in)	Ar'² (in²)
A	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
B	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
C	1.0	[illegible]	114.586	11.12	[illegible]	[illegible]	[illegible]
D	12.37	[illegible]	[illegible]	15.463	0.625	[illegible]	[illegible]

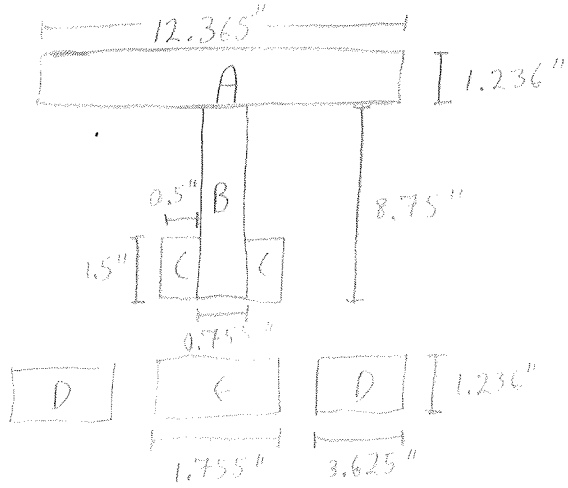
$c =$ [illegible] in

$I_{xx} =$ [illegible]

$S_{xx} =$ [illegible] in³ > 103 in³

SPREADER BAR Nº 1	Leon	PAINT Color Red





$h = 7.516$ in

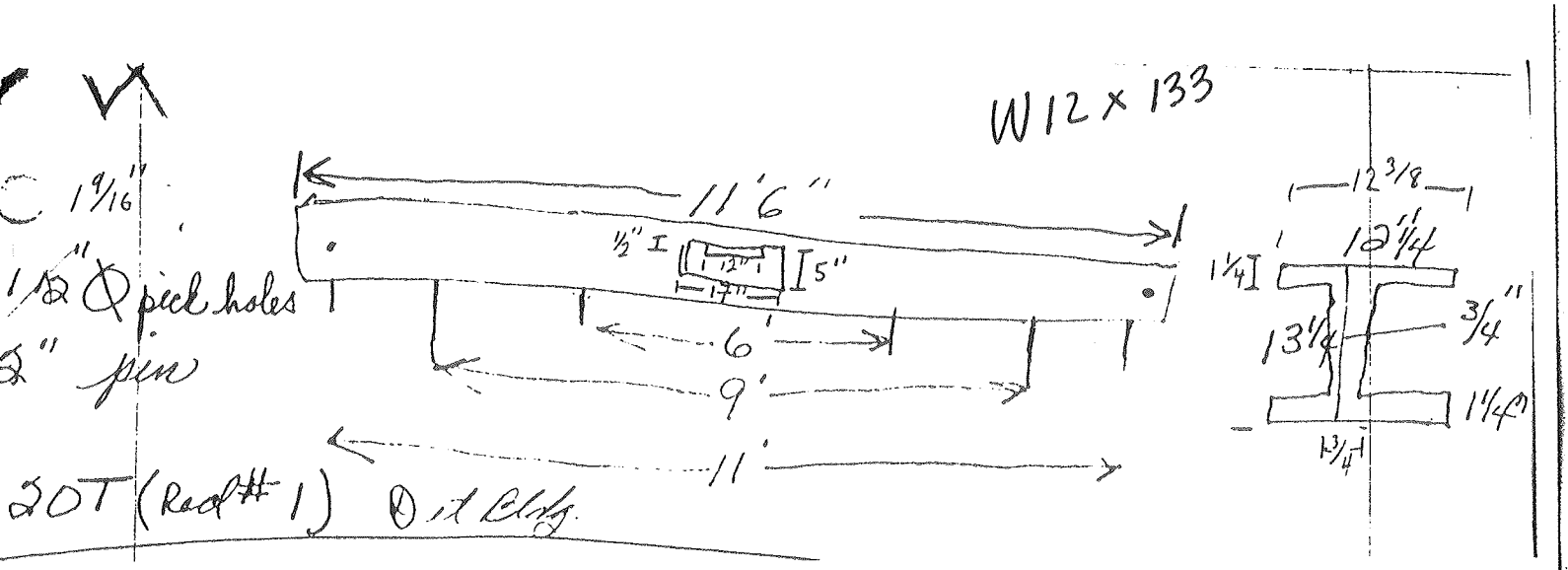
Section	Base (in)	Height (in)	I (in⁴)	Area (in²)	r (in)	r' (in)	Ar'² (in²)
A	12.365	1.236	1.946	15.283	12.762	5.246	420.596
B	0.755	8.75	42.149	6.606	7.769	0.253	0.423
C	1.0	1.5	0.281	1.5	4.144	3.372	17.056
D	7.25	1.236	1.141	8.961	0.618	6.898	426.386
E	1.755	1.236	0.276	2.169	0.618	6.898	103.206

$c =$ 7.516 in

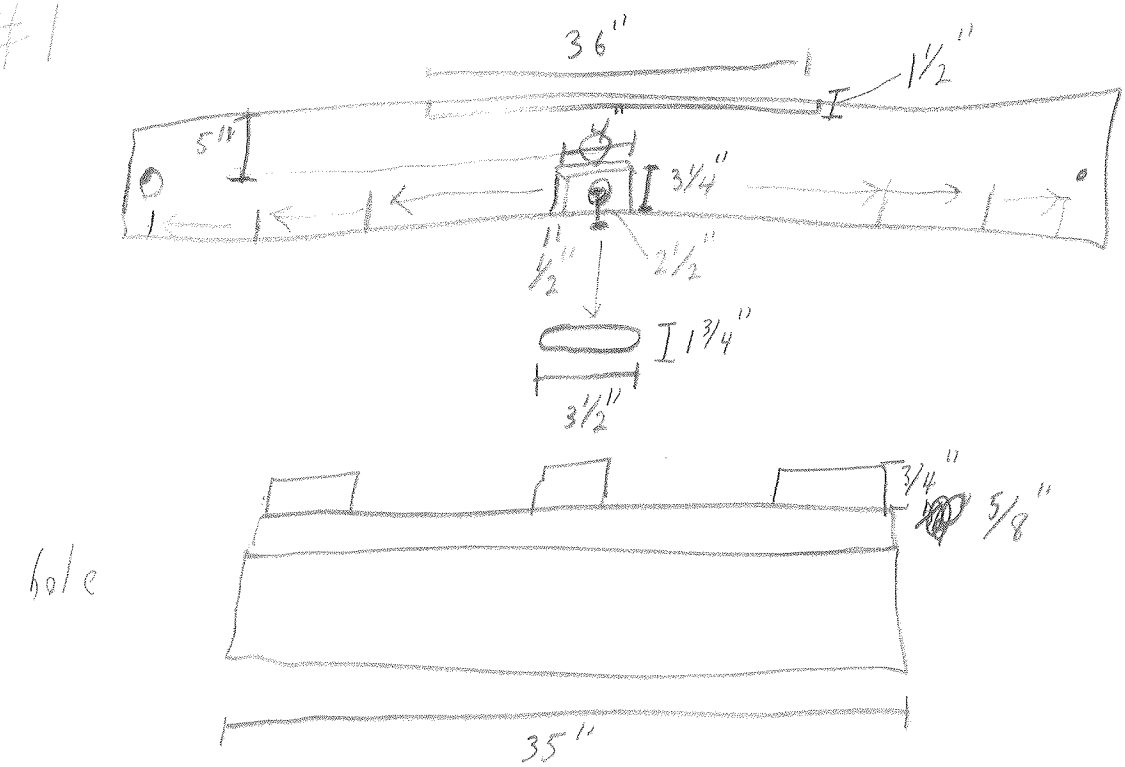
$I_{xx} =$ 1013.46

$S_{xx} =$ 134.84 in³ < 183 in³ → see back

Field Data



W12 x 133
1 9/16"
1/2" Ø pick holes
2" pin
11'6"
1/2"
12"
5"
17"
6'
9'
11'
12 3/8
12 1/4
1 1/4
13 1/4
3/4"
1 1/4
3/4
20T (Roof #1) Dit Bldg.

Field Data

#1