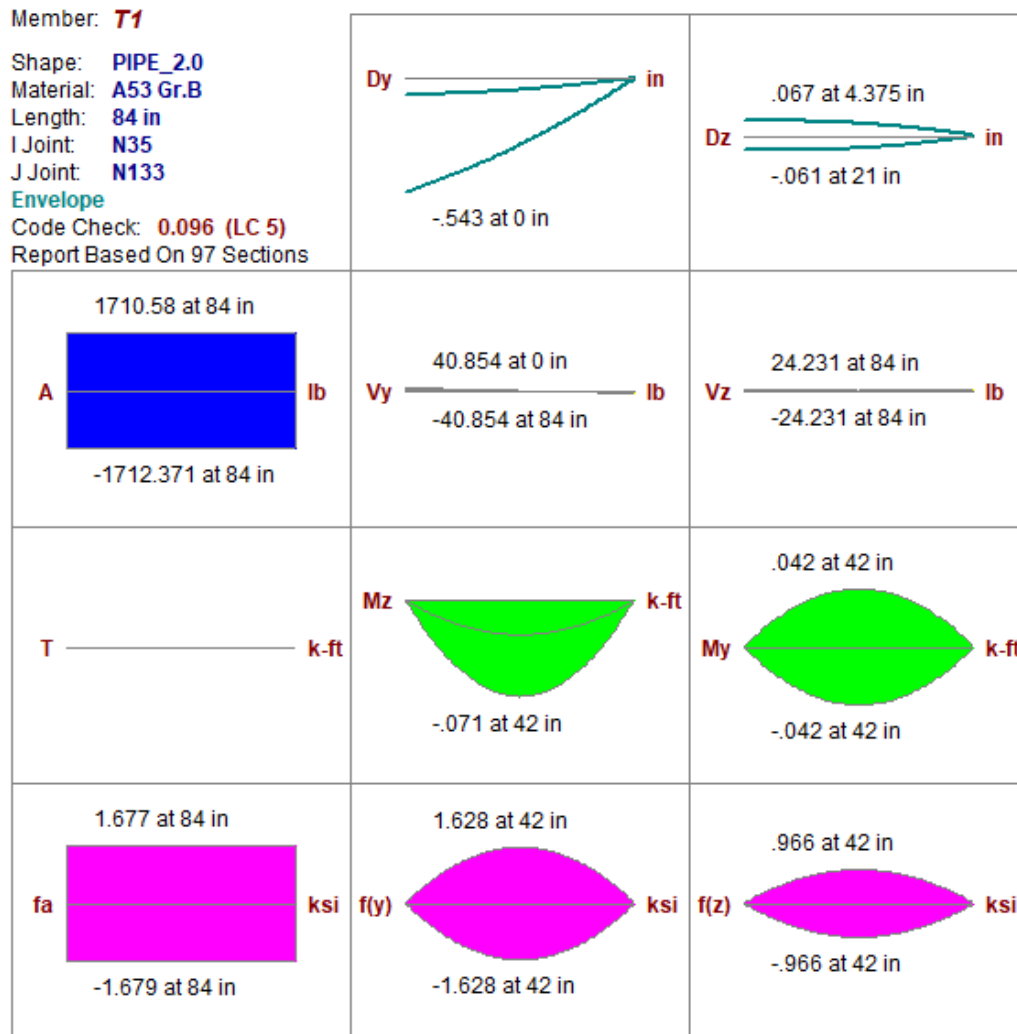


Figure 1: Antenna Mount Tieback Connection Picture



Figure 2: Detail Report Summary of Tieback



AISC 14th(360-10): LRFD Code Check

Direct Analysis Method

Max Bending Check	0.096 (LC 5)	Max Shear Check	0.004 (s) (LC 18)
Location	84 in	Location	84 in
Equation	H1-1b*	Max Defl Ratio	L/1937

Bending	Compact	Compression	Non-Slender
Fy	35 ksi	Lb	84 in
phi*Pnc	17855.085 lb	KL/r	107.139
phi*Pnt	32130 lb		
phi*Mny	1.872 k-ft	L Comp Flange	84 in
phi*Mnz	1.872 k-ft	L-torque	84 in
phi*Vny	9639 lb	Tau_b	1
phi*Vnz	9639 lb		
phi*Tn	1.77 k-ft		
Cb	1.136		

Figure 3: Drawing of Tieback Connection, with Load and Moment Arm

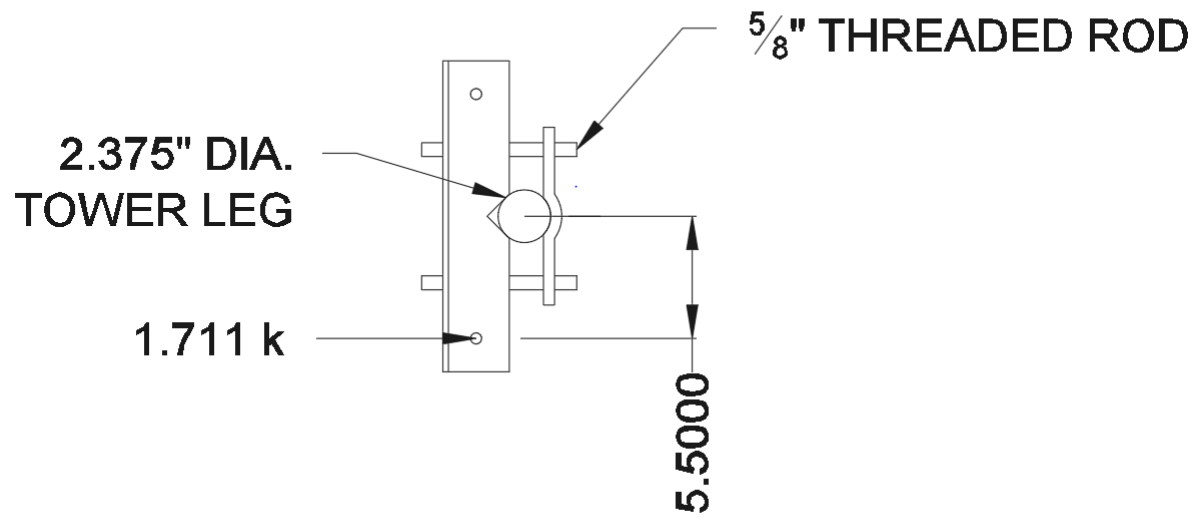


Figure 4: Calculations for Tieback Connection (TIA-222-H, Section 4.9.11.3)

Given:

$$D = 2.375''$$

$$T_{ut} = 0.0 \text{ k}$$

$$d = 0.625''$$

$$V_{us} = 0.0 \text{ k}$$

$$\phi_u = 1.0$$

$$T_{ur} = 1.711 \text{ k} \times 5.5'' = 9.4105 \text{ k-in}$$

Required:

Check tieback connection for nominal torsional strength.

Solution:

$$T_p = 20 \text{ ksi}, A_g = 20 \left(\frac{\pi d^2}{4} \right) = 20 \left(\frac{\pi (0.625)^2}{4} \right) = 6.136 \text{ k}$$

Nominal sliding strength

$$R_{ns} = 0.3(2T_p - T_{ut}) \geq 0$$

$$R_{ns} = 0.3(2(6.136) - 0) = 3.6816 \text{ k}$$

Nominal Torsional Strength

$$R_{nr} = 0.5 D R_{ns} = 0.5 (2.375'') 3.6816 \text{ k} = 4.37 \text{ k-in}$$

Unity check

$$\left(\frac{V_{us}}{\phi_u R_{ns}} \right)^2 + \left(\frac{T_{ur}}{\phi_u R_{nr}} \right)^2 \leq 1.0$$

$$\left(\frac{0}{1(3.6816)} \right)^2 + \left(\frac{9.4105 \text{ k-in}}{1(4.37)} \right)^2 = 4.63 \not\leq 1.0$$

∴ Not adequate