James F. Jendusa, P.E.

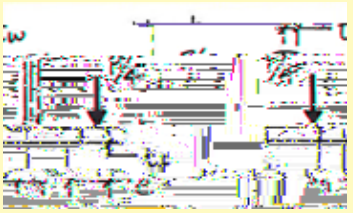

Figure 2

The bottom part of the crane beam must be checked for:

1. Tension in the web.
2. Bending of the bottom flange.

Most underslung cranes will have each end supported by 2 pairs of wheels. Each individual wheel load will include a portion of the lifted load (in its most critical position), the dead loads, and impact. Impact is usually about 25% of the lifted load but will depend on the speed and braking ability of the hoist. Allowable stresses must be reduced due to the cyclical nature of the applied load.

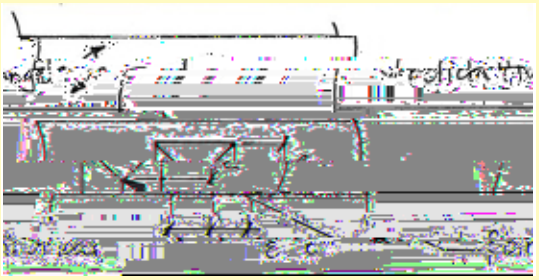

Figure 3

The wheels must be purchased to suit the profile of the supporting crane beam, either an S-shape or a W-shape. The web tension at each pair of wheels is checked at the intersection of the web and fillet (at the “k” distance).

Referring to Figure 1 below, the length of resistance is seen to be 3.5/95 Tw -0.005 Tw (3.7 Bis7.20 Tj0.0 @(R/4)Tj/TT2 1 Tf0 Tc 0 Tw***1.969 0 Td( )Tj0.091 Tc

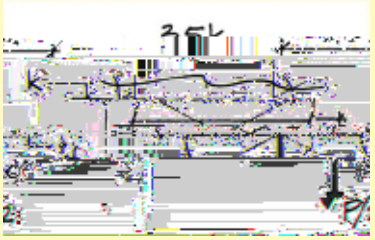

Figure 1