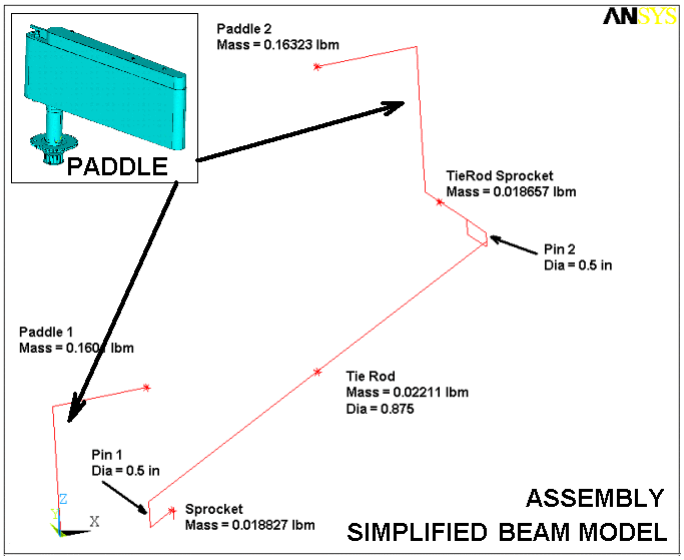
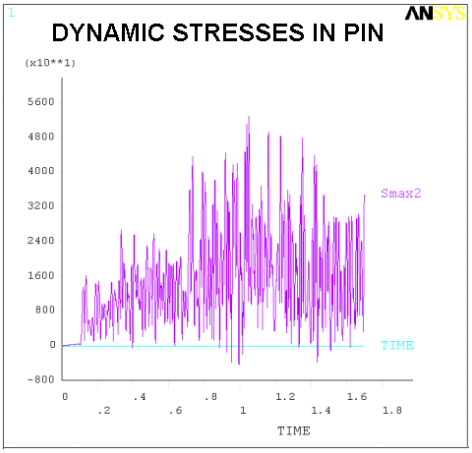
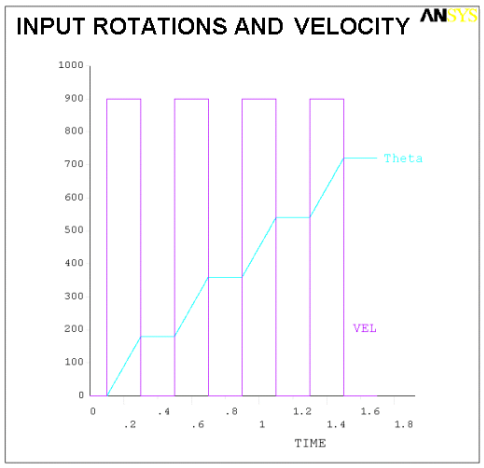
VIBRATION AND DYNAMIC STRESSES IN A HIGH SPEED BAGGAGE DIVERTER

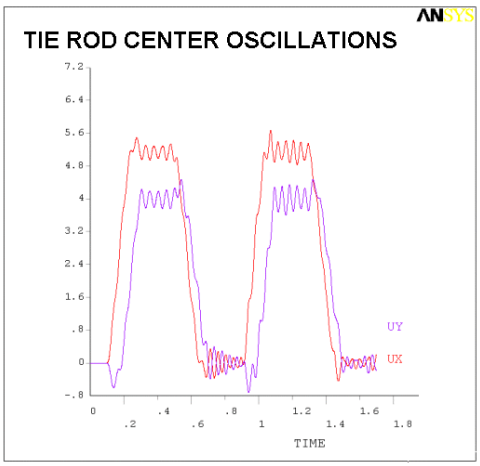
PURPOSE: Dynamic characteristics, dynamic stress and fatigue identification in the connections of a high speed airport baggage diverter

A finite element model of a high speed baggage diverter was developed to understand the dynamic behavior of the connecting structure during operation. Various parts of the paddle were modeled using FEA and its mass and inertia properties were measured. The connecting elements were model using a lumped mass assumption, thus creating a beam-mass dynamic simulation model. Input velocity and displacements were applied and the dynamic displacements and stresses simulated using the FEA Analysis. From the dynamic stresses, susceptibility to fatigue and its critical location in the structure were identified. Peak dynamic forces and moments were extracted for sizing the various connections and pins.









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