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Sample work: Finite Element Analysis for a Pilot Extraction Tool

The pilot extraction tool assists the fighter jet pilot to quickly get out of the cockpit in emergency. The task involved creating 3-D beam model, conducting finite element analysis to ensure the structural integrity of the device, and recommending design changes for improved strength and reliability.

Finite element model was created and analysis was carried out using PTC Creo Structure. The analysis results indicated that the stresses and displacements were excessive due to a typical impact load. Design changes that included adding a cable to tightening the boom with the support connector were made, which significantly strengthens the structure.

This task was part of an Air Force SBIR (small business innovation research) Phase I effort.

