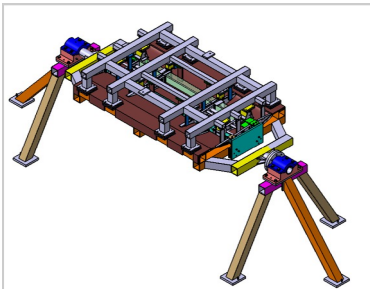


## ▶▶ Assembly Jig for UAV Wing



### Project

Design of the assembly jig for the UAV wing.

### Issue

The UAV wing is a composite structure with skeletal components and the skin is assembled onto it with adhesives. The mounting brackets are the only metal components in the structure. The requirement is for a fixture which in the first setting can locate the mounting points on the brackets and other structural components when assembled, and in the second setting could apply equal pressure on the skin and the skeleton while the adhesive sets.

### Solution

A final design for the fixture was arrived upon after reviewing the initial designs and deliberating with the manufacturing and assembly teams.

The design had to incorporate a frame hinged onto the fixture in the first setting. This helped in easing the assembly and removal process. The second setting had to be designed with another similar hinged frame to apply uniform pressure on the skin and structure assembly.

Major emphasis was accorded to achieving assembly objectives, cost effectiveness, weight, ergonomics and ease of manufacture & replacement.

CAD models based on the finalized design were generated and subjected to analysis by the simulation team to check for the soundness of the design of the various components of the assembly. Necessary changes were made to the design based on the simulation results. Drafting for all the components were done and forwarded for manufacturing.

### Tools

- CATIA V5
- MSC FEA

