Case Study

Quest Aircraft

Highlights

- Replaced CAM system whose external nesting module failed each time CAM was updated
- Old system required two weeks work to get post working - JETCAM post was working when engineer left
- Saving 50% on material through high performance nesting
- From DXF to complete nest in minutes
- Parts that took 20 minutes to tool are now tooled automatically
- One engineer who missed most of the training was able to train himself
- Did not need to hire a separate programmer as operator can drive the CAM system
- No support calls since system went live

Quest Aircraft, based in Sandpoint, Idaho, manufactures light aircraft. Founded in 1999 with a staff of 80, the company has recently moved from prototyping into manufacturing and uses a Komo CNC router for all of their sheet metal processing.

Their previous CAM system caused a number of significant problems; it was not supplied with an automatic nesting module, so parts were nested manually. A nesting module supplied by the local CAM system dealer frequently stopped working when the main application was updated. Quest spent two weeks re-writing the postprocessor after installation. Also, tooling had to be applied manually, taking upwards of 20 minutes per part.

In 2004 Quest Aircraft decided to evaluate alternative systems - a process that eventually took 1 ½ years. Material utilization and automation were their key decision-making factors. They set a series of benchmark tests to assess the functionality of each system. Said Keith Rutledge, Shop Manager; *"Initially, all of the other packages we were evaluating looked of a similar standard, however once we'd seen JETCAM and went back to them it was clear that they were extremely labor-intensive; taking too many stages to get from*

DXF to nest. Also JETCAM was far and away the most straightforward to use - I had planned to hire another programmer, but it was simple enough for our operator, who is not fully computer-literate to competently use. In our nest comparisons nothing came close to the sheet utilization that JETCAM's nester came out with. What also made a difference was that we always got a call back straight away with the answers to any questions we had."

The decision was made to purchase JETCAM Expert Premium, along with the MRP interface and Free Form High Performance Nesting in January 2006, with installation and training scheduled to take place the following

JETCAM™ MANUFACTURING MADE EASY

Software: JETCAM Expert Premium
Free Form High Performance Nesting
and MRP modules

Machines: Komo Router VR512 MkII

Installed: February 2006

month. The postprocessor generated accurate and clean NC code before the engineer left.

Of the training Keith said; *"Unfortunately I missed most of the three day training, however I was able to easily train myself within a couple of days. The two other staff trained were able to fully use the system straight away. Four months after installation we have not yet had occasion to need technical support. It is no exaggeration to say that JETCAM is the most flawless system I have ever seen. It works exactly as they said it would."*

The most visible effect after installation was the material savings. Previously Quest would spend considerable time manually nesting components. With JETCAM Expert components were imported from DXF, tooling automatically applied, the most efficient nest calculated and NC code generated - all in the space of a few minutes. Added Keith; *"Depending on the complexity of the nest we were seeing savings as high as 50%. We used to have a 4' cubic dump for scrap material which was emptied weekly. Now it takes several weeks to fill this."*

As Quest ramped up production and the programming requirements increased, they noticed that the resources required remained minimal, due to JETCAM Expert storing common data in databases for automatic retrieval and application. *"Tooling elements that used to be applied manually, such as speeds/feeds, depth of cut etc are now automatically taken from JETCAM's 'SEKT' database and applied during nesting. All of our nests are now produced automatically because of the accuracy of applied tooling along with the reliability and efficiency of the final NC code."*

Although Quest is in the early stages of full production, machining time is becoming more of an issue. JETCAM's optimized toolpath and intelligent method of applying tooling and routing have significantly reduced machine cycle time. Automatic auxiliary routing is also applied to the part. *"JETCAM Expert generates code that runs much faster on our machine. I noticed that it optimizes the travel time between components which means that it cuts the same parts much faster than before, while using much less material."*

Several months after the initial installation Quest Aircraft has yet to hit any problems with the system. Keith concluded; *"JETCAM Expert has already recouped its costs in terms of material savings, resource requirements and its overall ease of use. It is a rock. It has taken a process that I was concerned about and turned it into a non-issue. "*