

HandHeld Scanner to Keep Planes Combat-ready



Engineers and machinists at several United States Air Force (USAF) bases are now using NVision's HandHeld laser scanner to reverse engineer complex aircraft parts, which are then machined to the highest level of accuracy and installed, maintaining USAF planes in peak working condition.

Reverse engineering is often required for aircraft that were originally designed without computer aided design systems (CAD) and for which even blueprints can be very difficult to obtain.

"The HandHeld Scanner is ideal for the diverse range of components that the USAF needs to reverse engineer," said Steve Kersen, NVision's Vice President of Sales and Marketing. "It's portable and capable of capturing 3D geometry from objects of virtually any size - from the exterior of an aircraft to extremely small parts such as an angle of attack sensor."

The HandHeld Scanner is attached to a mechanical arm that moves about the object, freeing the user to capture data rapidly and with a high degree of resolution. The mechanical arm keeps track of the scanner's location so all data is collected within the same coordinate system. As a part is inspected, the scanner generates a point cloud consisting of millions of points each with x,y,z coordinates and i,j,k vectors. Integrated software that comes with the scanner is used to convert the point cloud to an STL polygon and an optional tripod provides complete portability in the field. Intuitive software allows real-time rendering, full model editing, polygon reduction, and data output to all standard 3D packages.

NVision begins its work with each USAF base by first creating an extensive training program tailored to the individual needs of that base. The program is designed to provide USAF personnel with the opportunity to piece the portable CMM and laser together, calibrate it to a level of superior accuracy, and use the laser to scan individual parts in their shop as well as on the aircraft itself.

Once the aircraft parts are scanned with the HandHeld Scanner, the USAF machinists learn how to manipulate the data and create an STL file to open in the scanner's Reverse Engineering software. They then learn the basic tool sets of the Reverse Engineering software through the use of tutorials and one-on-one training with the NVision trainer. After a week of intense training in the software the USAF machinists are able to reproduce and modify parts for their aircraft in an accurate and timely manner.