

#### SITUATION

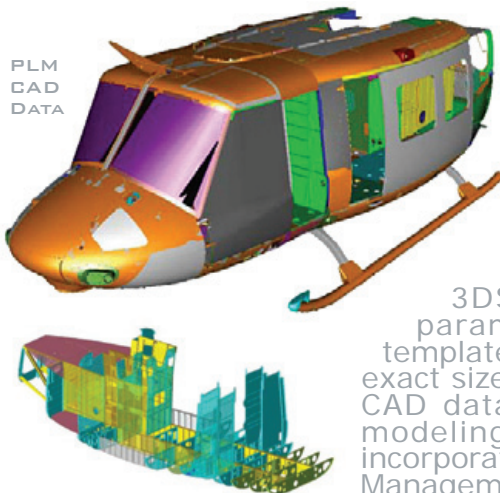
Bell Helicopter's "Huey" is one of the world's most recognizable helicopters. Primarily used by the US Marine Corps, the current model UH-1Y's design stems from the original UH-1 developed in 1955. Manufactured in Amarillo, Texas, Bell uses a system of templates to assemble the helicopters. These templates are physical masters, and most have no known documentation.

Bell Helicopter sought to transfer the production site of the cabin from their plant to one operated by Crestview Aerospace without stopping production. This was made more challenging by the fact that only one set of templates existed. Bell would need to duplicate over 500 of the unique templates in order to transfer production.



UH-1Y "HUEY" HELICOPTER

#### SOLUTION



PLM  
CAD  
DATA

Bell Helicopter turned to 3DScanCo for a reverse engineering solution. The sheer quantity of the templates combined with the goal of having as little downtime as possible brought 3DScanCo to Amarillo, Texas to perform on-site 3D scanning services. Each one of the 500+ templates, which range in size from four inches to four feet, was accurately scanned using the Konica Minolta VIVID 9i. The scan data captured on-site was then sent to 3DScanCo's Engineering Service Center in Atlanta, Georgia.

3DScanCo used Rapidform XOR to parametrically reverse engineer each template, paying close attention to model the exact size and location of the hole features. The CAD data generated by 3DScanCo's reverse modeling process was then successfully incorporated into Bell's Unigraphics Product Life Management (PLM) software system.



MANUFACTURING TEMPLATE

#### RESULTS

The scanning services performed by 3DScanCo offered Bell Helicopter the ability to successfully transfer production of the UH-1Y from their Amarillo plant to Crestview's without losing production time. Bell has since been able to use the CAD models of the templates supplied by 3DScanCo to assimilate cutting-edge technology in their manufacturing process, benefiting them with digital copies that could be manufactured on-demand. These digital models effectively eliminate the need for physical masters, enabling a higher level of control and documentation. 3DScanCo's services saved Bell a tremendous amount of time and over a half a million dollars on the project, all while breaking new ground incorporating the templates into a PLM environment for the first time.



ASSEMBLY VIA TEMPLATES

#### TECHNOLOGY

Konica Minolta VIVID 9i

RapidForm

#### TECHNIQUES

On-Site 3D Scanning

Reverse Engineering

Extracting Design Intent

#### APPLICATIONS

Large-Scale Assembly

Project Management

Aerospace Engineering