

# > Case Study: CAD - Parametric Solid Modeling

**Client: NASA - National Aeronautics and Space Administration**

## **The Challenge:**

To create parametric solid models of all existing avionics bay design drawings, and develop a process to track drawing revisions.

### **BACKGROUND:**

NASA's fleet of shuttles is not supported by CAD generated engineering documentation. In the fall of 2002, NASA decided to conduct a feasibility study to convert over one million engineering drawings associated with NASA's shuttle fleet into CATIA version 5.

### **THE THINKPATH SOLUTION:**

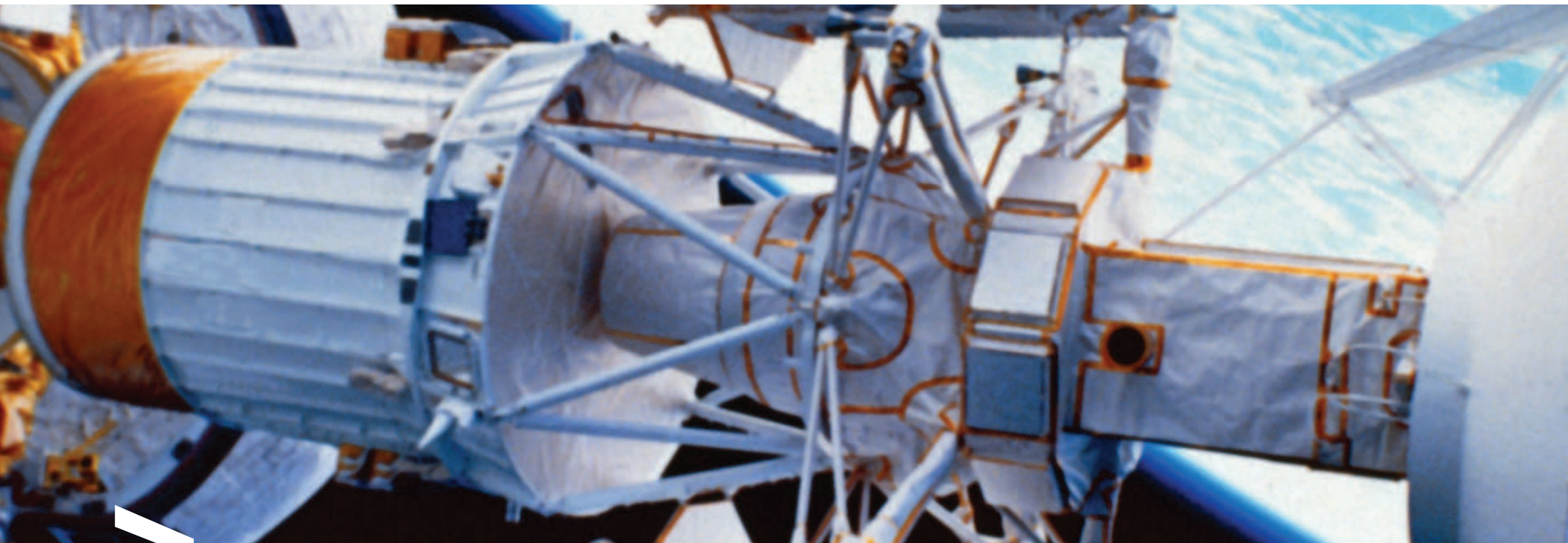
Thinkpath created a team of CAD designers proficient with CATIA Version 5, which created parametric solid models for each drawing, drawing revision and associated assemblies.

Additionally, Thinkpath created an XML database that was associated to each drawing that contained a detailed description of each revision.

### **THE RESULTS:**

Thinkpath's solution enabled NASA the capability to quickly view each revision level, as well as the associated changes to each drawing.

Thinkpath met all of NASA's requirements and left a user-friendly system in place. The entire program was developed and executed within tight time and budget constraints.



**CAD Services (Computer Aided Design)**  
Including: Solid Modeling, Scanning, Digitizing, Vectorization, Database Development & Management

# > CAD (Computer Aided Design) Services

## Thinkpath - When You Insist on a Professional

Thinkpath has the expert-level CAD capabilities to cover every aspect of your project. Our drafters and detailers have extensive industry expertise and advanced technical capabilities that embrace every aspect of your project.

Over the years, Thinkpath has provided CAD services to thousands of customers in a wide range of industries. As a result, we have developed the technical skill base and management structure to provide engineering services for programs of any size.

Our decades of experience along with over twenty CAD applications and state-of-the-art hardware insures your project will be completed on time with superior quality.

### Our Services

Thinkpath offers a full menu of CAD services. We can quickly respond to your needs by using our experienced staff in multiple shift operations. Here are just a few of the many services we offer:

- Drafting
- 2D and 3D Modeling
- Scanning Services
- CAD Database Management
- CAD File Conversion

### Advanced Tools for Excellent Results

Thinkpath professionals are masters in the sophisticated software programs needed to complete your project effectively. To successfully deliver our services we combine this expertise with the very best hardware.

Most of our team have been with us for years and have thousands of hours CAD experience, including all the latest software releases and the most up-to-date hardware.

### Other Engineering Services

We can also provide customized solutions for projects that don't fit into traditional categories, for example: As-built Architectural and/or Engineering Drawings. When you've got a project that's a little unusual, give us a call. With our extensive experience, we can get the job done right.

## We Specialize in These Areas

- Automotive
- Aerospace
- Material Handling
- Military Defense Systems and Equipment
- Medical
- Health Care
- Construction Equipment
- Power Generation and Distribution



### Scanning, Digitizing and Vectorization

Thinkpath offers various methods of transferring bulky archival paper-based drawings into usable and more valuable digital formats including raster scanning, automatic vectorization, heads-up digitizing, and complete redraw (direct input).

The company maintains the latest in scanning and conversion technology and trained staff to handle a full range of scanning formats, original media types, and vectorization applications.

### Database Development & Management

Your technical documents are more than just a collection of numbers, descriptions and drawings. They contain vital pieces of information - but only if you can access them efficiently. Thinkpath helps you realize the investment you have in your engineering activities by developing user-friendly and practical drawing databases.

First, we create a comprehensive catalog of your drawings, everything from CAD drawings and parametric assemblies, to the scanned drawings from your legacy files. We then set up a database that gives you access to each and every one of those drawings so you can view them (with dynamic rotate, zoom, and pan capabilities) and print them. Your database is programmed with sophisticated search capabilities that let you find what you need, quickly and easily.

### Solid/3D Modeling

Thinkpath's team of CAD technicians can quickly convert 2D drawings into 3D parametric models utilizing a variety of CAD platforms. The use of solid modeling technology is essential when a 3D CAD design is used in Computer-Aided Engineering (CAE), or finite element analysis applications.

### File Conversion

With multiple CAD systems in use today and the on-going need to share information - CAD file conversion has become a necessity. Since no two CAD systems are completely compatible, the source and conversion formats must be carefully considered. Thinkpath can perform translations between common CAD formats (including DXF, IGES, and STEP), or apply complex direct translators and custom conversion routines for unique requirements.

## You Can Count On Thinkpath

Our engineers, designers, drafters, and detailers have the industry experience to jump right in and get to work. They have software experience and skills to meet all your performance requirements, budget, and deadline - no matter how demanding the project.