

# > 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. 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 TES SOLUTION:**

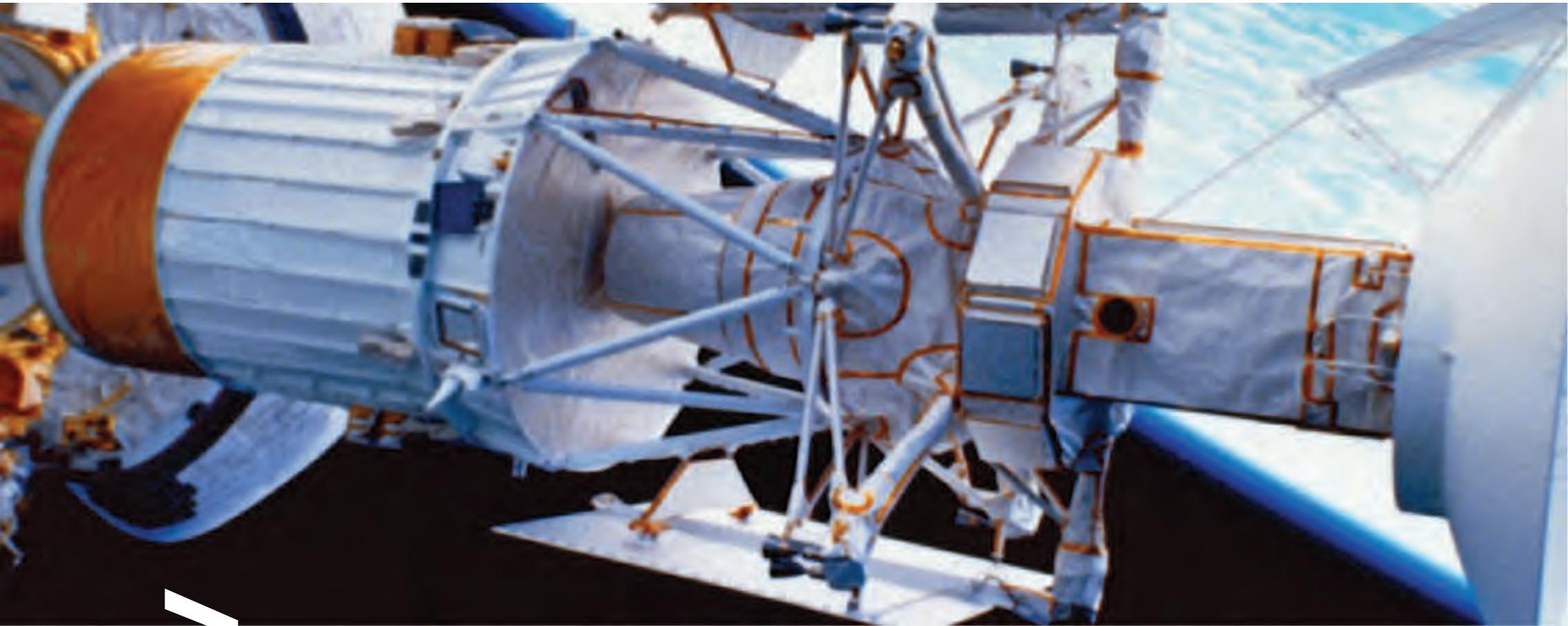
TES created a team of CAD designers proficient with CATIA Version 5, which created parametric solid models for each drawing, drawing revision and associated assemblies.

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

### **THE RESULTS:**

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

TES 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 and Vectorization

# CAD (Computer Aided Design) Services

## **Thinkpath Engineering Services, L L C . (TES) – When You Insist on a Professional**

TES 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, TES has provided CAD services to thousands of clients 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, ensures your project will be completed on time with superior quality.

### **Our Services**

TES 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 File Conversion

### **Advanced Tools for Excellent Results**

TES professionals are masters in the sophisticated software programs needed to complete your project effectively. To successfully deliver our services, we combine this expertise with a proven quality program.

Most of our team has been with us for years and have thousands of hours of 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

TES 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.

## Cost Savings

TES's CAD services team is comprised of engineering professionals that are experts in CAD and have a solid understanding of engineering principles.

A typical CAD services team member may also have an associate degree with one to five years experience. This enables TES to provide its clients with very attractive bill rates, many times, lower than its clients' internal burden rates.

## Solid/3D Modeling

TES'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).

## 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. TES 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 TES

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.