



# ENGINEERING SERVICES

## OVERVIEW

### Precision Conversions, LLC Overview

Precision Conversions LLC, (Precision) specializes in the conversion and modification of transport category aircraft from a passenger configuration to a freighter configuration. Our company's strengths include design engineering, substantiation, and certification, as well as the logistical management of all manufacturing, assembly, and installation of aircraft components and structure related to the conversion and modification.



### Engineering Capability Overview

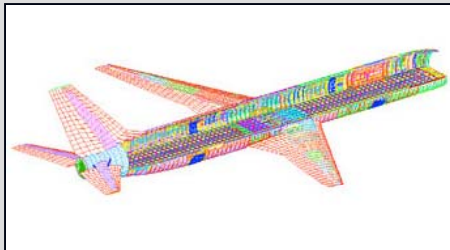
Precision maintains a diverse staff of direct engineers and key contracted engineers (Precision Engineers) through its engineering affiliate, Precision Engineering, LLC. Precision Engineers specialize in the design, substantiation and certification of aircraft programs. Their collective capabilities and strengths include:

- Design/Modification Engineering
- Liaison/Repair Engineering
- Structural Substantiation and Static Analysis
- Fatigue and Damage Tolerance Analysis
- Computational Fluid Dynamics Analysis
- Loads Database Development
- Certification
- Technical Publications
- AMOC Development
- Continued Airworthiness
- Technical Data Management
- Configuration Management
- Major Repair Evaluations and DER Approvals



## ENGINEERING SERVICES

### ENGINEERING CAPABILITIES



#### Design/Modification Engineering

Precision Engineers can provide expertise in design and drawing development for structural, system, and electrical modifications, including interior reconfiguration and monument development. Precision Engineers support the design process from concept through the manufacturing and installation stages.

#### Liaison/Repair Engineering

Precision Engineers excel in providing immediate and accurate solutions for aircraft system, structural, and electrical problems. The team consists of engineers who have provided liaison engineering support for multiple airlines and aircraft types. Precision Engineers are well versed and sensitive to stringent aircraft flight schedules and budgets but clearly understand maintenance and regulatory requirements.

#### Structural Substantiation and Static Analysis

Our stress analysts are well versed with industry analytical techniques and consistently provide timely and quality substantiation reports for modifications and repairs. Our analysts work closely with our FAA designees to ensure accurate results.

#### Fatigue and Damage Tolerance Analysis

Our stress analysts are fluent with fatigue and damage tolerance methods and we maintain an open and positive relationship with FAA designees and the FAA on damage tolerance methodology and evolving and accepted techniques. Our team has developed MPD and DTR inspection methods and is fluent with Part 26 compliance, FAR 25.571, AC 120-93 and staged damage tolerance approval process. Precision Engineers developed and maintain a certified loads data set for the B757 fuselage. Therefore we are able to provide timely and accurate analysis options for airlines operating the B757. We are also capable of applying DT industry accepted methodologies for all model types.

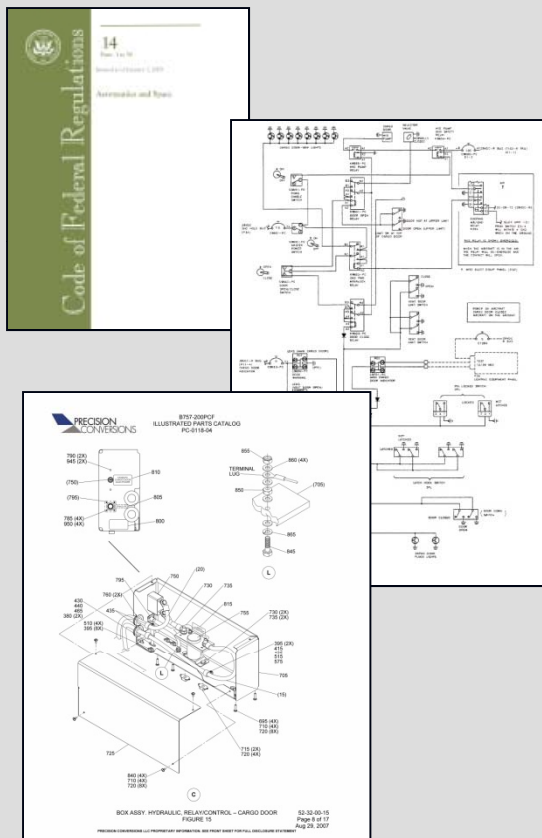
#### Computational Fluid Dynamics Analysis and Loads Database Development

Precision Engineers are experienced with wind tunnel model development and can assist in the successful validation and substantiation of wind tunnel results for your certification programs through its developed loads databases and extensive experience and relationship with the FAA.



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## ENGINEERING CAPABILITIES



### Certification

Precision Engineers are experts in certification plan and compliance checklist development and amendment level assessment. As such, we can manage any certification program from concept through STC issuance. The Precision team has a positive and open relationship with the FAA which includes the Aircraft Certification Office, AEG, Flight Standards, and MIDO.

### Continued Airworthiness

Precision Engineers can develop and support all aspects of an Instructions for Continued Airworthiness (ICA) program that includes inspection program development and management.

### Technical Publications

Precision's specialized staff of narrative writers and technical illustrators produces the highest quality aircraft manuals and supplements in support of STC programs and other aircraft modifications. Our tech pubs team consists of highly skilled individuals with diverse software experience and uncompromising standards for quality and accuracy. We can offer our customers complete and timely documents with full 24/7 online access to manuals and annual revision service.

### AMOC Development

Precision excels in rapid and accurate development of Service Bulletins and Alternate Methods of Compliance to Airworthiness Directives.

### Technical Data Management

Precision can provide on-site setup support of document control systems as well as data storage management services.

### Configuration Management

Precision can provide configuration management and control services as well as aid in the development of kit logistics.



## ENGINEERING SERVICES

### ENGINEERING CAPABILITIES



### Major Repair Evaluations and DER Approvals

Precision can support all airline and MRO maintenance and AOG requirements for major repairs that will include detailed repair instructions, working with technicians and inspectors, and provide FAA Form 8110-3 approvals. Precision Engineers are experts with major repair support for all model types and can and will support you around the clock to meet your schedule deadlines and FAA 337 return to service. Precision has extensive experience working with multiple airlines and MRO organizations.

### Engineering Specialists

Precision's Team of FAA DERs (Designated Engineering Representatives) includes Structures, Fatigue and Damage Tolerance, Mechanical Systems and Equipment, Electrical Systems and Equipment, Flammability, Interior Compliance and Management. Testing capabilities include static, DO-160 environmental, wind tunnel testing and model development.

### Engineering Tools

SolidWorks  
CATIA  
Autodesk Inventor  
AutoCAD  
NEi NASTRAN  
FEMAP  
NASGRO  
AFGRO  
Mathcad  
Desktop Publishing Software  
Computational Fluid Dynamics (CFD) Program  
Weight and Balance Program

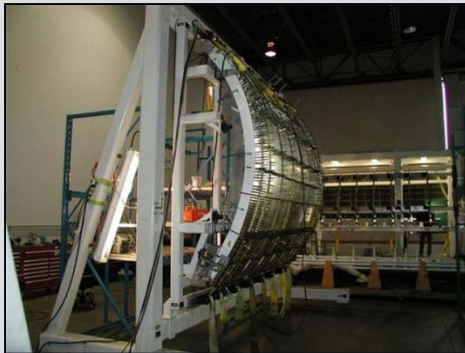
### Aircraft Experience

B707, B727, B737, B747, B757, B767, B777  
DC-8, DC-9, DC-10, MD-11, MD-80  
A300, A319, A320



## ENGINEERING SERVICES

### MANUFACTURING OVERVIEW



### Manufacturing Overview

Precision and its manufacturing support network specialize in the manufacture of complex aircraft components and structure which make up a final aircraft conversion kit. The complexity of part manufacturing varies from complex to simple, but all manufacturing/assembly processes comply with aircraft industry standards as well as the Precision developed process specifications.

### Key Manufacturing Specialties

Precision has developed over 60 supplier relationships specializing in the manufacture, assembly, testing, and installation of aircraft components and structure including:

Complex machining capabilities including 3-, 4-, and 5-axis CNC milling for both low and high speed applications, as well as conventional machining, CNC turning, and grinding for production runs and prototype needs.

Chemical milling processes to reduce weight while maintaining structural strength and integrity for complex contour sheet metal parts.

Composite manufacturing including reinforce flat panels, bulkheads, ducting, honeycomb panels and related products.

Electrical wiring and components including coax cables, trays, lighting, smoke detection, indication systems and avionic systems/subsystems.

Safety equipment including seatbelts, airbags, cargo and barrier nets, sling systems, tie-downs, and cabin interior products.

Tube bending and sheet-metal fabrication including stretch, hydro forming, brake forming, shearing, blanking, joggling, bending, flaring, and beading, as well as tube and component pressure testing.

Manufacturing inspection processes including state of the art CMM and NDT.



## ENGINEERING SERVICES

### MANUFACTURING CAPABILITIES



#### Parts Manufacturer Approval

Precision has an established Fabrication Inspection System (FIS) and a Quality Assurance manual that meets 14CFR 21.303(h) requirements. Therefore the FAA has granted parts manufacturer approval (PMA) to Precision that authorizes production of approved aircraft parts. Precision has received Material Review Board (MRB) authority from the FAA.

#### Kitting and Service Bulletin Development

Precision can develop detailed service bulletin and kitting for interior and modification programs.

#### Structural and Component Assembly

Precision maintains an alliance, through common ownership, with an Oregon FAR Part 145 approved facility that has extensive experience in the final assembly of primary aircraft components and structure, which is fully capable of supporting the assembly of large scale aircraft structure while maintaining stringent drawing tolerance requirements.

#### Structural and Component Installation

Precision maintains an alliance with multiple FAR Part 145 approved facilities that can support your modification program.

#### Tooling Design and Fabrication

Precision utilizes unique and precise tooling for the assembly and installation of primary structural components. Tooling jigs are utilized both on and off the aircraft to ensure precise and consistent alignment is achieved. Precision is fully capable of designing and manufacturing tooling and jigs for various aircraft programs and maintenance requirements, including tooling equivalency assessment.



## ENGINEERING SERVICES

### CONTACT INFORMATION

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