FAA Presentation
NTSB Hearing Panel 1

Presented to: NTSB

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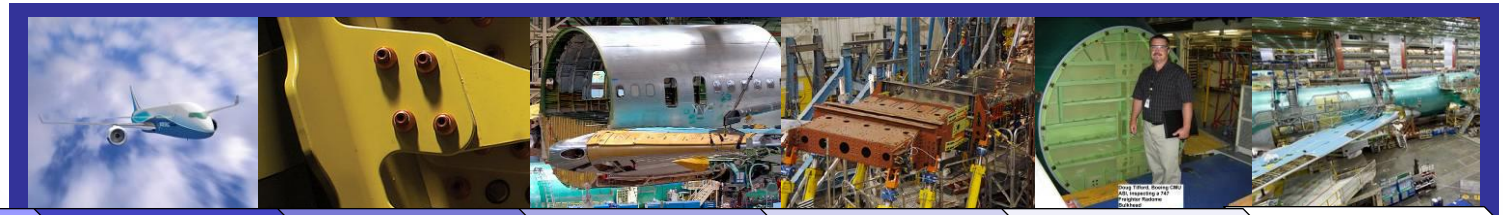
Aircraft Certification Process



Standards | **Airplane Definition** | **Detail Definition** | **Build** | **Test** | **Certification** | **Production**

Familiarization Briefings

Application for TC/ATC/STC

Certification Project Notification

Application for Production Certificate

Preliminary Type Certification Board

Project Specific Certification Plan

Production Certification Board

Issue papers

Certification Basis

Equivalent Safety Findings

Special conditions

Exemptions

Certification plans

Conformity Inspections

Detail–level compliance findings

Airplane-level compliance findings

Safety Review Board

Type Inspection Authorization & Conformity Inspection

Flight Tests

Type Inspection Report

Final Type Certification Board

Issue Type Certificate

Final Production Certification Board

Issue Production Certificate

Define Requirements

Compliance Findings

Continuous Improvement Integral to Managing Safety

Certification Process • Documented process with checks and balances, proven and improved over five decades. • Leverages expertise from industry through delegation • Clear roles and responsibilities	**Risk Based Decision Making** • Requirements • Methods of compliance • Level of involvement • Delegation • Continued Operational Safety
Regulatory Requirements • Setting the appropriate level of safety • Includes technical assessments of system performance and hazards • Collaboration with experts, industry, and the public • Flexibility to address new technologies	**Continued Operational Safety** • Data driven • Monitoring the safety of the fleets • Participation of manufacturers and operators • Flexibility to take actions appropriate for the risk

Boeing 787 Li-Ion Battery Certification

Loss of Battery Function

System safety requirements (25.1309)

Functional hazard assessments

System architecture

These batteries provide backup functions

Loss of function is not critical

Direct hazard of battery failures

Special conditions

Requirements build on experience with other battery technologies

Analyses and Tests

Battery system design

- **Protective features**
- **Containment**
- **Instructions for Continued Airworthiness**

Summary

- **The aircraft certification process is robust**
- **It is designed to evolve and continuously improve**