



FATIGUE & DAMAGE TOLERANCE

ENSURING THE SAFETY & DURABILITY OF AEROSPACE
STRUCTURES

04

CAPABILITY STATEMENT

OUR CAPABILITY

- Design against fatigue avoiding stress-raising features and performing assessments to maintain existing clearance
- Development of Load Spectra
- Fatigue life prediction based on S-N curves
- Fracture mechanics based crack growth prediction
- Stress intensity factor calculations
- Failure analysis
- Corrosion assessment
- Engineering critical assessment of existing structures and mechanical components
- F&DT analysis of Aerostructures at all stages of the product lifecycle (design, certification, in-service repairs, failure investigations)
- Test programme development and data usage
- Fast Jet Fatigue formula development
- Damage tolerance analysis for aircraft life extension programmes



OUR EXPERIENCE

- A320NEO F&DT Analysis of Wing Root, Flap Support, Engine Pylon Support, Sharklet and Rib 27
- A320NEO F&DT Certification Analysis of Wing Root, Flap Support & Engine Pylon
- PC-12 Fatigue Life clearance post modification to introduce an Equipment Bay in the Lower Forward Fuselage
- A380 Certification F&DT Approval
- A400M EIS Flap Beam Fitting Modification Static/F&DT Design & Certification
- A350XWB FTE concept, Plateau, C-Maturity, DFEM and Certification
- A350 Test Definition and Load Correlation Support
- A350 Main Landing Gear Fatigue Certification Analysis
- P-8A Poseidon Wing & Fuselage Stores Pylon F&DT Design & Certification
- Harrier I & II F&DT Analysis, Assessment and life extension programmes



EXPERIENCE AT A GLANCE

CASE STUDY — A320neo WING CERTIFICATION

- Conducted F&DT Certification Analysis for Wing Root Covers, Stringers, Spars, Flap Beam Attachment Support Structure & Engine Pylon Attachment Support Structure
- In conjunction with Airbus technical teams generated and developed the appropriate approach to perform equivalent legacy F&DT analysis using the current ISAMI approach. This needed to be done such that the legacy aircraft were not shown to be invalidated, whilst being able to certify the new NEO variant to the more stringent requirements
- Approval of Airbus Certification Stress Dossiers for the Engine Pylon Attachment Support Structure
- Agreeing with Airbus technical the mitigation routes for any low lives generated, using pragmatic modifications to methods and/or approaches to demonstrate the certified lives were obtainable

DELEGATED SIGNATORIES

- Static Metallic, Composite & FEA Approval for A350 Fixed Trailing Edge, A400M & Boeing Wide Body Stow Bins
- Static Wing Approval for DFM and F&DT Approval for A320neo Engine Pylon Attachment
- QinetiQ GmbH Structural CVE for Pilatus PC-12 Modifications

HISTORIC APPROVALS

- Boeing Wide Body Stow Bins Lead
- Static Signature for Harrier I & II

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