CAPABILITY STATEMENT

OVERVIEW
TLG Aerospace has the capacity to support the entire iterative aircraft design cycle from product development to certification.

Our in-house, multidisciplinary team of engineers and DER’s have the experience and tools necessary to get timely estimates needed to make business cases and design decisions at the beginning of a program, provide engineering to optimize your product during development, and generate the certification plans, analysis, testing and documentation needed to get your product to market.

ENGINEERING EXPERTISE
- Loads and Flutter
- Dynamics and Vibration
- Aerodynamic Design and CFD Analysis
- Stability and Control Analysis
- Metallic and Composite Analysis and Design
- Static, Fatigue and Damage Tolerance Analysis
- Bird Strike and Rotor Burst Impact Simulation
- Finite Element Analysis
- Industry Standard Design with CATIA V5
- Continued Airworthiness Documentation
- Support In-service Major Repairs and Alterations
- Ground and Flight Test Planning, Support and Analysis

AIRCRAFT EXPERIENCE
- Large Transport Airplanes
- Business and Commuter Aircraft
- General Aviation
- Space Launch Vehicles
- Personal Flying Vehicles
- UAV/Drone
- New Space Industry
- Military Aircraft and IS&R
- Supersonic/Hypersonic
- Agricultural
ENGINEERING SERVICES

AIRCRAFT LOADS, FLUTTER AND VIBRATION*

- Static and Dynamic Loads
- Flutter Analysis and Design
- Flight and Ground Testing
- Feasibility Studies and Product Development
- Engineering Project Management
- Simulation of Failure Modes
- Fuselage Decompression Loads
- Full Aeroservoelastic Calculation Capabilities

AERODYNAMIC DESIGN AND CFD ANALYSIS

- Senior engineers expert in applied aerodynamics
- Full CFD Capability, panel methods to Navier-Stokes
- Concept exploration, aircraft sizing and preliminary design
- Internal and external flows (subsonic, transonic, supersonic, and hypersonic) including chemical reacting non-equilibrium flows
- Design of airfoils, wings, control surfaces, high-lift devices, fairings, antennae, nacelles, struts, inlets, ducts, etc.
- Powerplant integration
- Thermodynamic and heat rejection analysis
- Scalable analysis using on-site and cloud based computing clusters
- Wind tunnel testing, low speed and transonic, quick reaction and production

PERFORMANCE, STABILITY AND CONTROL, AND HANDLING QUALITIES*

- Performance prediction, measurement and validation
- Mission analysis and optimization
- AFM-based performance modeling
- Classical and Non-linear stability and control analysis
- Flight dynamics simulation
- Aeroelastic and closed loop handling qualities
- Flight and ground test planning, support and analysis

STRESS AND DESIGN*

- Senior stress and design engineers
- Metallic and composite analysis and design
- Static, fatigue and damage tolerance analysis
- Bird strike and rotor burst impact simulation
- Industry standard analysis tools (PATRAN/NASTRAN/APEX)
- Finite element analysis experience includes:
  - Industry standard design using CATIA V5
  - Continued airworthiness documentation
  - Support in-service major repairs and alterations
  - Ground test planning, support, and analysis

FAA CERTIFICATION*

- Certification plans
- Agency certification coordination
- STC and TC certification documentation
- Test witnessing
- FAA DER approvals

*In-House DER services available