AeroTEC

TESTING | ENGINEERING | CERTIFICATION

An Introduction

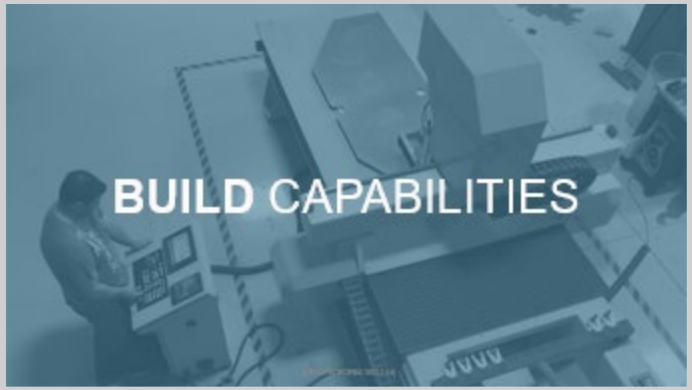
Updated: January 14, 2025

ACCELERATING
THE EVOLUTION OF AEROSPACE


COMPANY
OVERVIEW

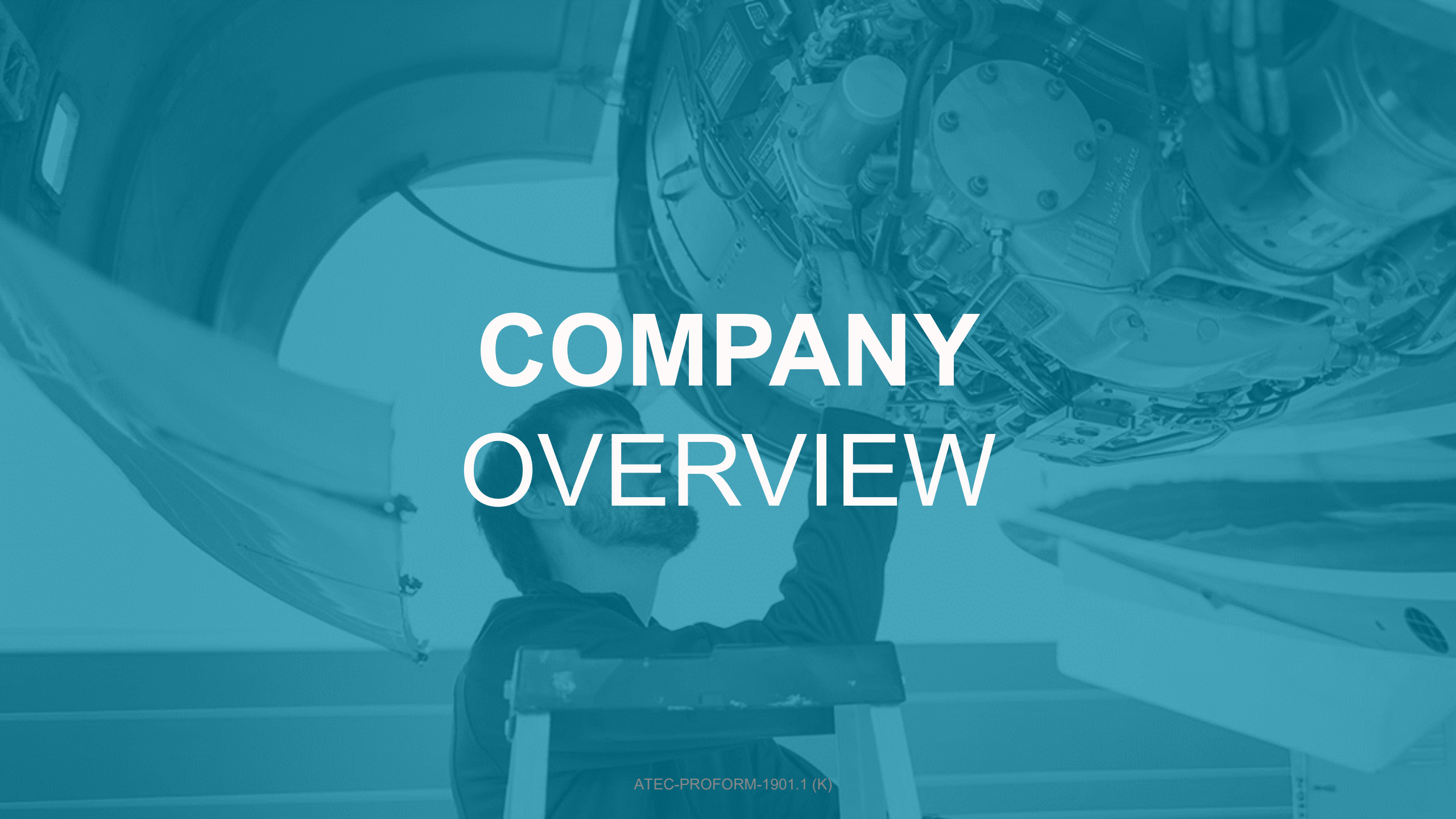

PROJECT
EXAMPLES


DEVELOPMENT
CAPABILITIES


BUILD CAPABILITIES

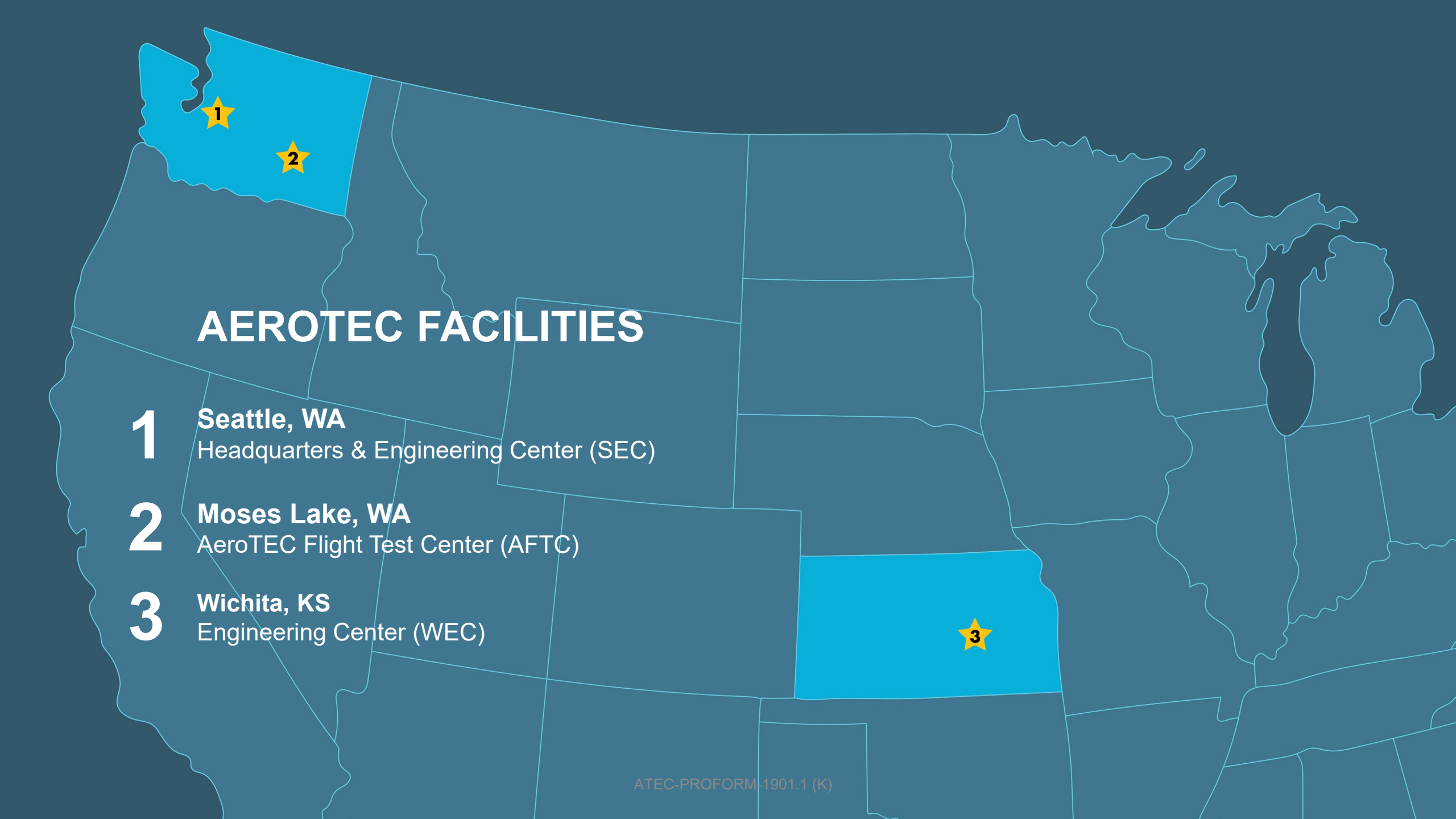

TEST CAPABILITIES


AEROTEC CULTURE



COMPANY OVERVIEW


Aviation Partners
2003
Test & Cert Partnership
Lockheed Martin
2004
CATB Test & Cert Program
MITSUBISHI AIRCRAFT CORPORATION
Facilities Expansion
2017
FAA Part 145 Repair Station
2018
eCaravan
magniX's All-electric flight demonstrator
2020
Universal Hydrogen Dash 8 Demonstrator
2021
NASA/magniX
2024
Electrified Powertrain Flight Demonstrator
AeroTEC
Founded in 2003
4 employees
MRJ (SPACE JET)
2014
Multi-aircraft TC Program
Test, Engineering, Certification
Boeing 737-800 BCF
2017
Boeing first outsourced flight test program
AS9100D Manufacturing
2018
New Widebody Hangar
2021
80,000 sq ft
Eviation
2022
Alice: All-electric commuter
Today
200 employees
4 locations



AEROTEC FACILITIES

1 **Seattle, WA**
Headquarters & Engineering Center (SEC)

2 **Moses Lake, WA**
AeroTEC Flight Test Center (AFTC)

3 **Wichita, KS**
Engineering Center (WEC)

CERTIFICATIONS

SEC AS9100D Certified

PRI Registrar
PERFORMANCE REVIEW INSTITUTE

This Certificate of Registration acknowledges

Aerospace Testing Engineering and Certification, LLC

5601 6th Avenue, Suite 410
Seattle, Washington 98108
United States

is registered as a Single Site quality management system in conformance with

ISO 9001:2015 and AS9100D

The audit was conducted in accordance with the requirements of SAE AS9104/1:2012-01. PRI Registrar℠ is accredited under the ICOP Scheme.

Scope of Registration:

Design and Engineer Aerospace Products, Including Aircraft Modifications.

ANAB IAF

Randy Daugharthy
Director of PRI Registrar

Number: 19118
Issued: 18-Jan-2024
Expires: 17-Jan-2027

161 Thorn Hill Road • Warrendale, Pennsylvania 15086-7527, USA

AFTC AS9100D & FAA Part 145 Certified

PRI Registrar
PERFORMANCE REVIEW INSTITUTE

This Certificate of Registration acknowledges

AeroTEC Inc. - Moses Lake Facility

7988 Andrews St. N.E.
Moses Lake, Washington 98837
United States

is registered as a Single Site quality management system in conformance with

ISO 9001:2015 and AS9100D

The audit was conducted in accordance with the requirements of SAE AS9104/1:2012-01. PRI Registrar℠ is accredited under the ICOP Scheme.

Scope of Registration:

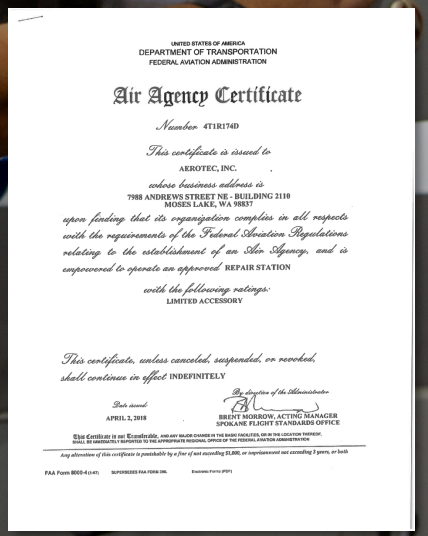
Manufacture and Fabrication of Aircraft Components including Maintenance and Modification of Aircraft

ANAB IAF

Randy Daugharthy
Director of PRI Registrar

Number: 19761
Issued: 22-Jun-2024
Re-Issued: 24-Jun-2024
Expires: 21-Jun-2027

161 Thorn Hill Road • Warrendale, Pennsylvania 15086-7527, USA



UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

Air Agency Certificate

Number 4T1R174D

This certificate is issued to
AEROTEC, INC.
whose business address is
7988 ANDREWS STREET NE - BUILDING 2110
MOSES LAKE, WA 98837
upon finding that its organization complies in all respects with the requirements of the Federal Aviation Regulations relating to the establishment of an Air Agency, and is empowered to operate an approved REPAIR STATION
with the following ratings:
LIMITED ACCESSORY

This certificate, unless canceled, suspended, or revoked, shall continue in effect INDEFINITELY

Date issued
APRIL 2, 2018

By direction of the Administrator
BRENT MORROW, ACTING MANAGER
SPOKANE FLIGHT STANDARDS OFFICE

This Certificate is not Transferable, AND ANY MAJOR CHANGE IN THE BASIC FACILITIES, OR IN THE LOCATION THEREOF, SHALL BE IMMEDIATELY REPORTED TO THE APPROPRIATE REGIONAL OFFICE OF THE FEDERAL AVIATION ADMINISTRATION

Any alteration of this certificate is punishable by a fine of not exceeding $1,000, or imprisonment not exceeding 3 years, or both

FAA Form 8000-4 (1-47) SUPERSEDES FAA FORM 396. Electronic Form (PDF)

LEADERSHIP TEAM

Lee Human
FOUNDER & CEO

Justin Morigeau
PRESIDENT

Jeff Smale
CHIEF OPERATIONS OFFICER

Emily Brown
HEAD OF SALES & MARKETING

Eric Padilla
HEAD OF PEO

Martin Tremblay
HEAD OF OPERATIONS

Todd Leighton
DIRECTOR EXPERIMENTAL PRODUCTS

Justin Bowen
DIRECTOR ENGINEERING – STRUCTURES/SYSTEMS

Brad Briscoe
FOUNDER,
SR OPERATIONS ADVISOR

Kent Baines
FOUNDER,
SR TECHNICAL ADVISOR

Expert Development & Integration Solutions

AeroTEC

OUR END MARKETS

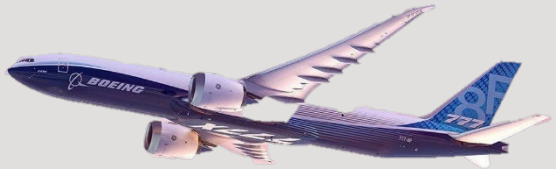
For nearly 20 years, we've helped companies around the world design test and certify everything from aerodynamic modifications to clean-sheet aircraft.

Defense & Space

Department of Defense

Special Missions Modifiers

Space Companies



Commercial Aero

Traditional commercial aerospace companies

Emerging tech startups

Government

Non-defense government agencies, like NASA

OUR PRODUCTS

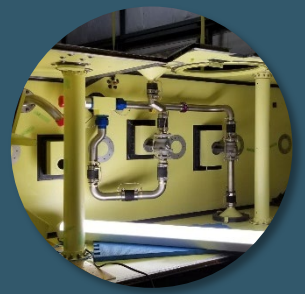
SUPPLEMENTAL TYPE CERTIFICATION
Certified modifications and system upgrades

TECHNOLOGY DEMONSTRATION
Proof of concept demonstrations

SPECIAL MISSIONS VEICLES
Integration of specialized modifications

TEST OPERATIONS
Ground or flight testing

SPECIAL TEST EQUIPMENT & SERVICES
Flight test equipment that can be customized for your needs



LOW-RATE, ACCELERATED PRODUCTION
AS9100D manufacturing, assembly and kitting

ENGINEERING & TECHNICAL SERVICES
Work-package based project support

WIND TUNNEL MODELING & TESTING
Models design and built to meet your requirements

FACILITY RENTAL
Development space, including engineering offices and aircraft hangars

If it flies, we got you. No exceptions.

COMMERCIAL

DEUTSCHE AIRCRAFT

Bombardier

zero G

SURFAIR

Gulfstream

Honeywell

GOVERNMENT & DEFENSE

Bombardier Defense

SPACE

BLUE ORIGIN

Challenges of Aerospace Development

What can AeroTEC unlock for you?

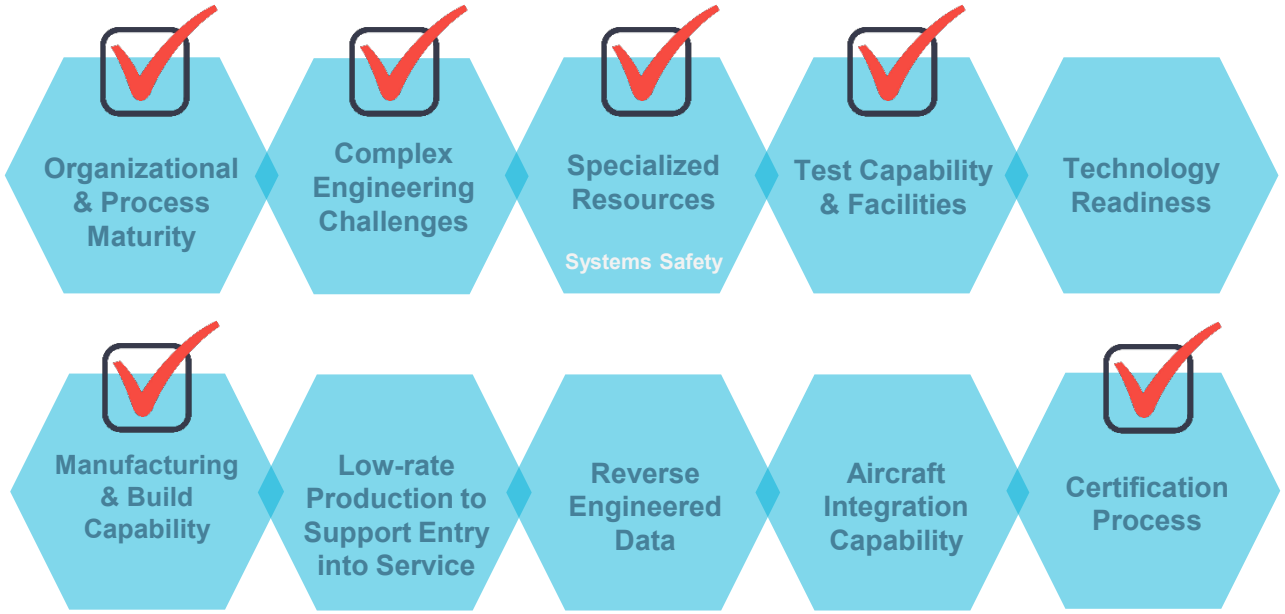
PROJECT EXAMPLES

MITSUBISHI AIRCRAFT CORPORATION

SpaceJet/MRJ 90

Type Certification Engineering & Test

2014 – 2020
400 people



EVIATION

Alice All-Electric Commuter Aircraft

Type Certification, Engineering & Test

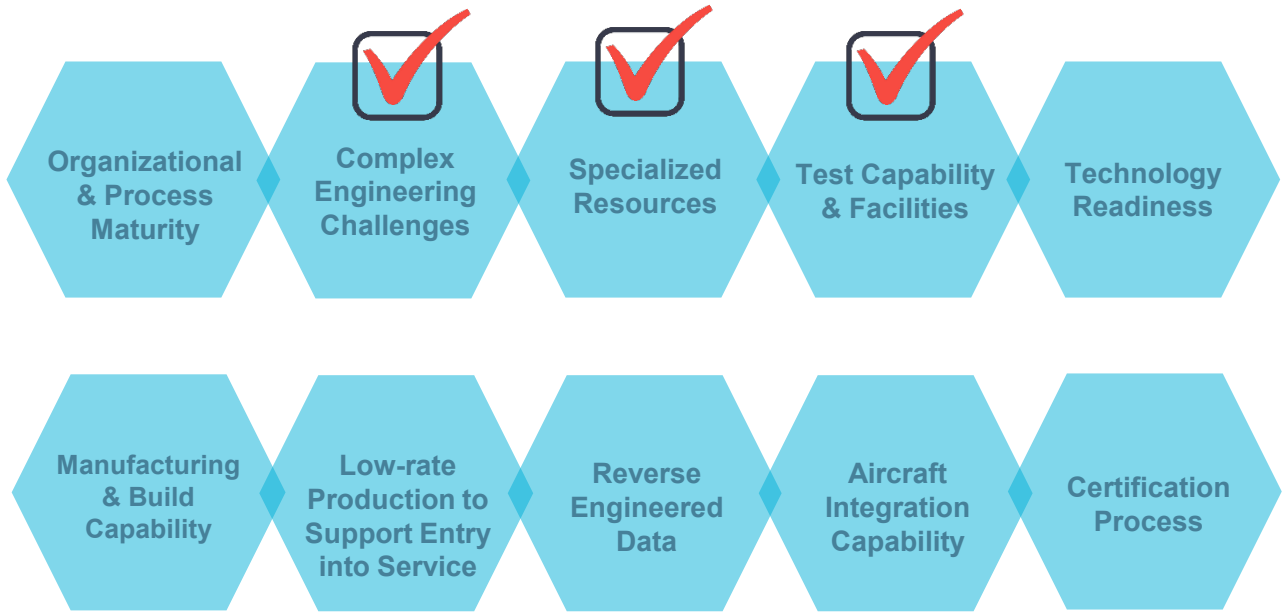
2020 – current
50 people

DEUTSCHE AIRCRAFT

The D328eco

Type Certification (New Derivative), Engineering & Test

2023 – **Active**



Aviation Partners, Inc.
Leaders in Advanced Winglet Technology

737 Split Scimitar Winglet STC

STC Engineering & Test

2012 – 2013
25 people

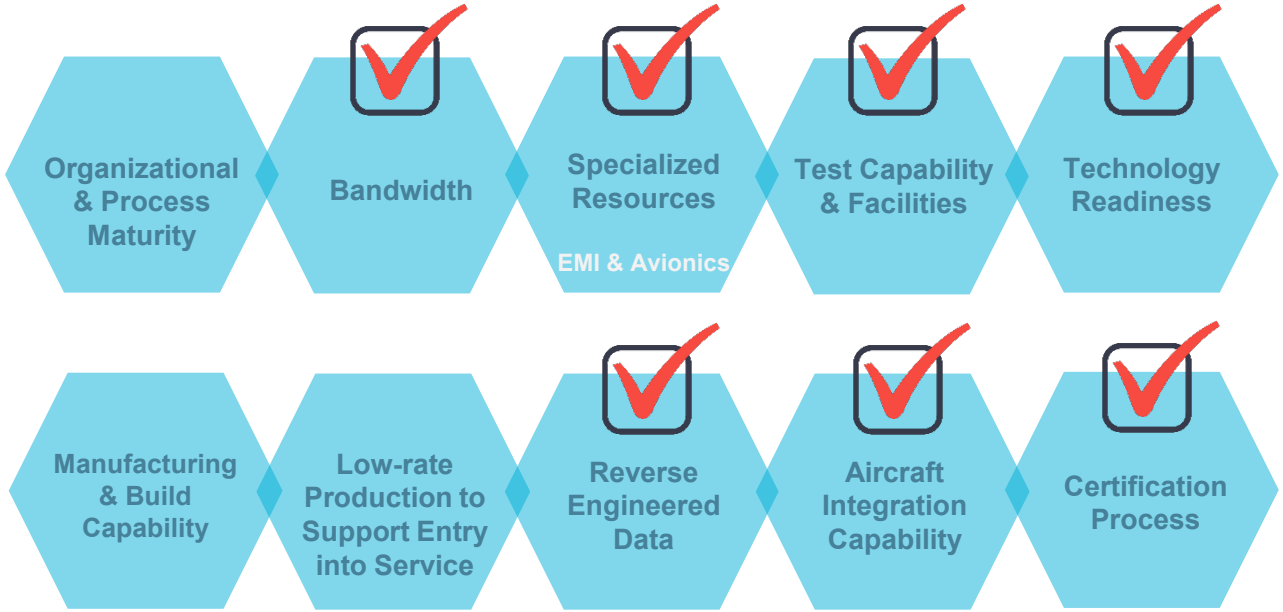
Honeywell

RDR-7000 Weather Radar

STC Engineering & Test

2020 – 2021
25 people

15 STCs in 15 months



BOEING

737-800 Boeing Converted Freighter

STC Engineering & Test

2017 – 2018
25 people

- Bandwidth
- Complex Engineering Challenges
- Specialized Resources
- Test Capability & Facilities
- Technology Readiness
- Manufacturing & Build Capability
- Low-rate Production to Support Entry into Service
- Reverse Engineered Data
- Aircraft Integration Capability
- Certification Process

SURFAIR MOBILITY

Hybrid & Electric Caravan

STC Engineering & Test

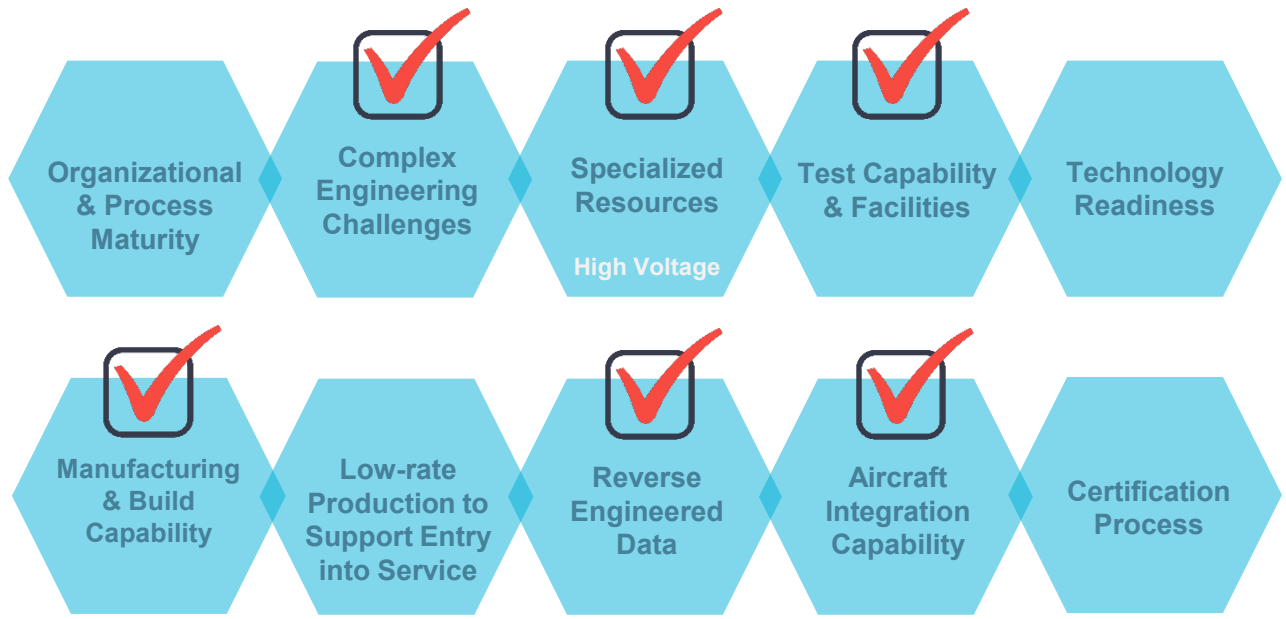
2022 – **Active**
30 people

LOCKHEED MARTIN

CATB Avionics Testbed

Special Missions Vehicle

2004 – 2005
10 people

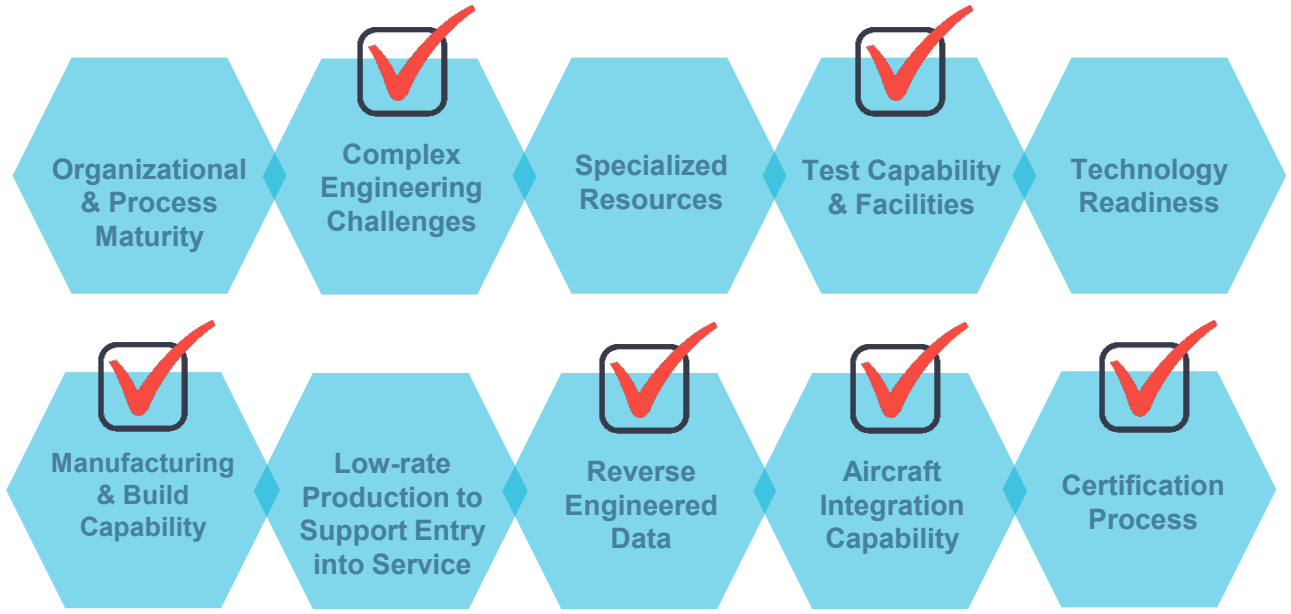


ERICKSON®

Aero Tanker

Special Missions Vehicle

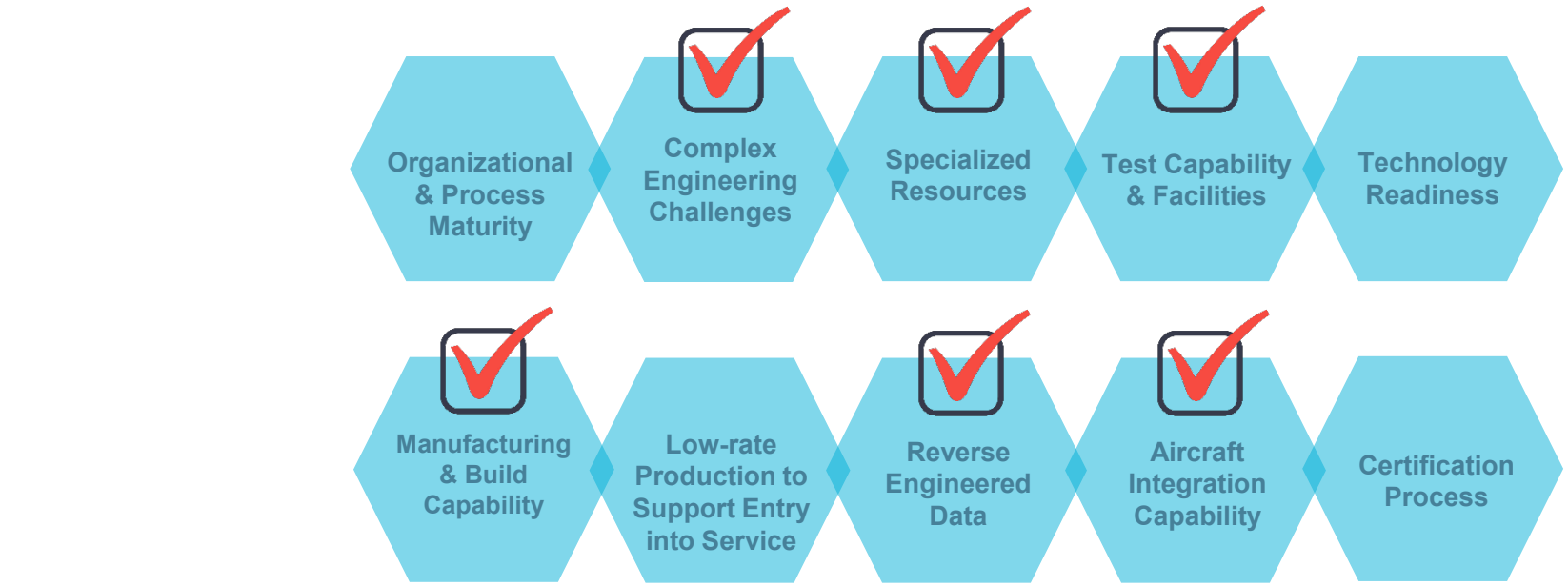
2014 – 2015
10 people



747- 400 Flying Testbed

Special Missions Vehicle

2019 – 2021
150 people

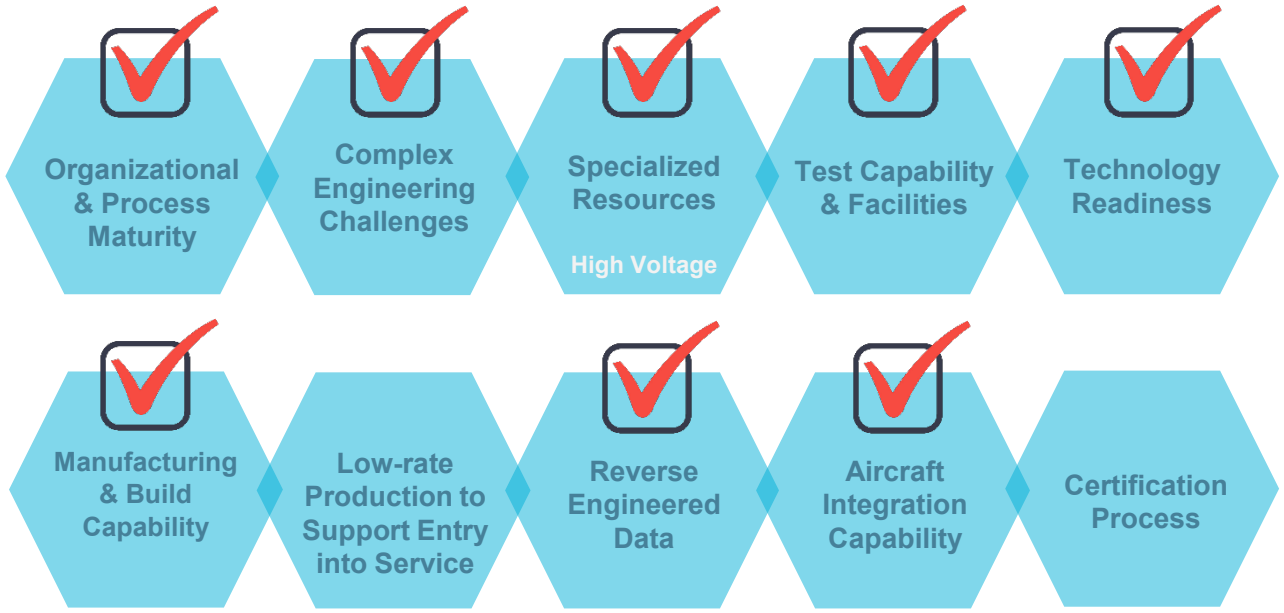


magniX

magni500 All Electric Motor Cert

Technology Demonstrator

2019 – 2020
30 people

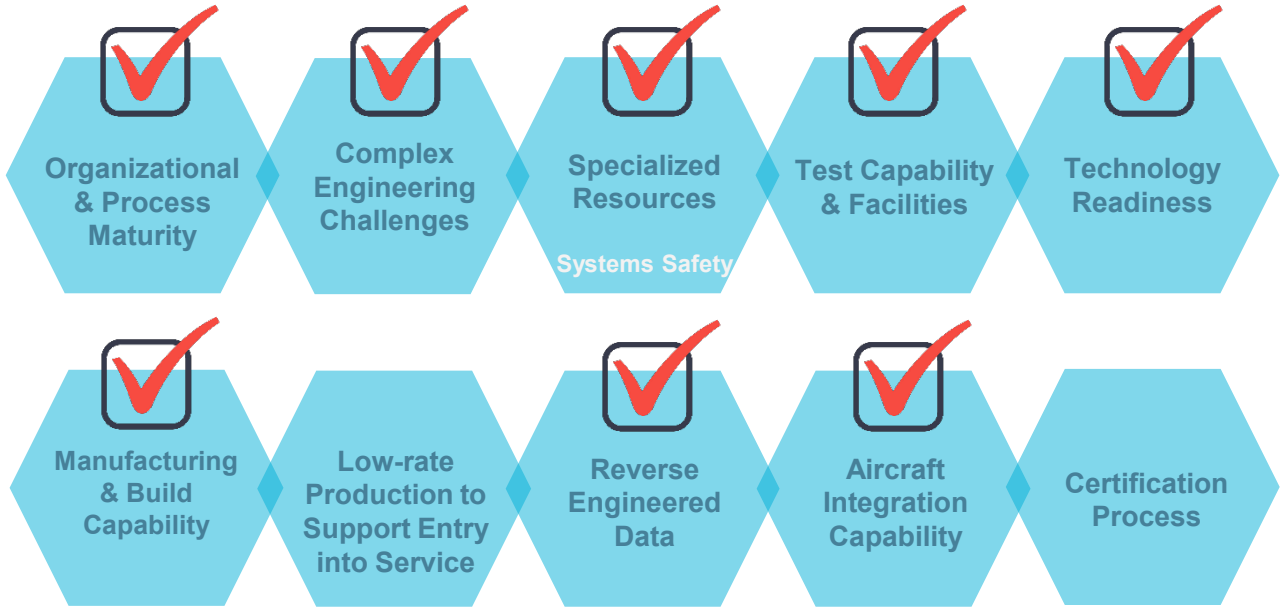


Universal Hydrogen

Dash-8 Hydrogen Tech Demonstrator

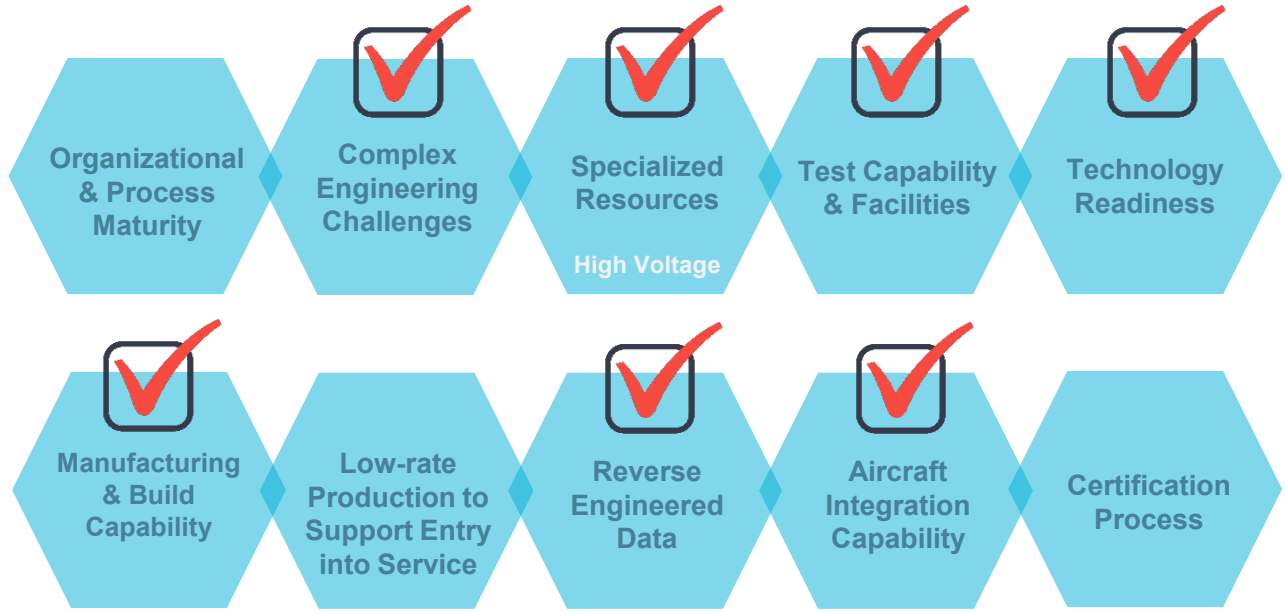
Technology Demonstrator

2021 – 2023
100 people



Electrified Propulsion Flight Demonstration

2022 – **Active**
80 people



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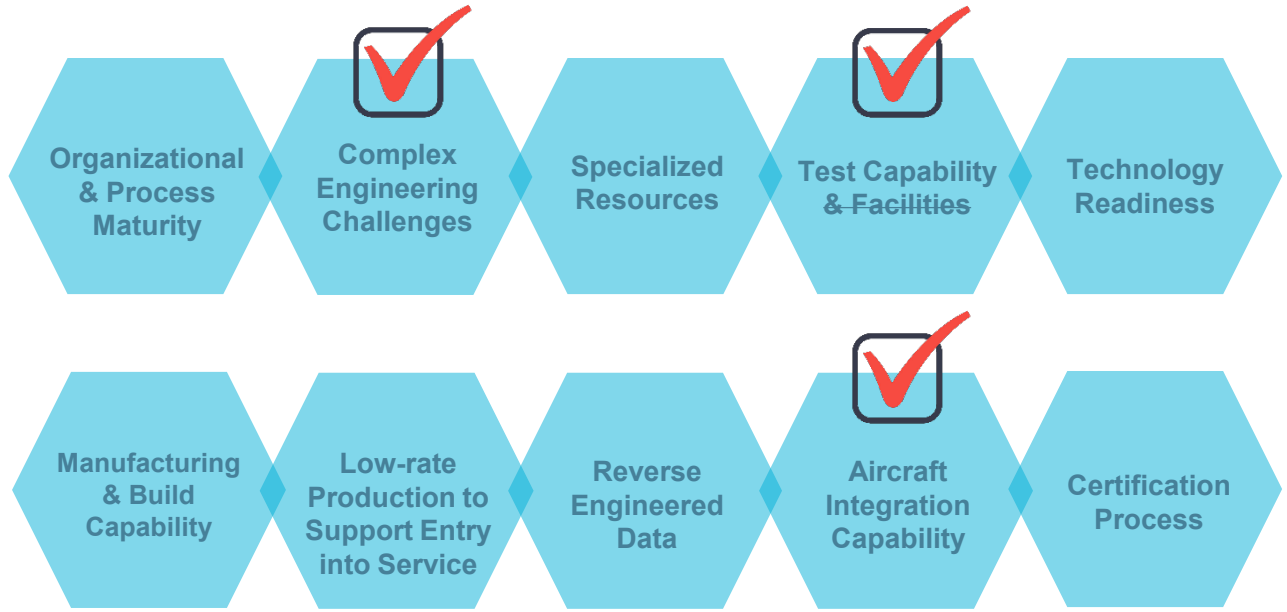
SIERRA™
SPACE
DREAMS WORTH CHASING™

Engineering Support

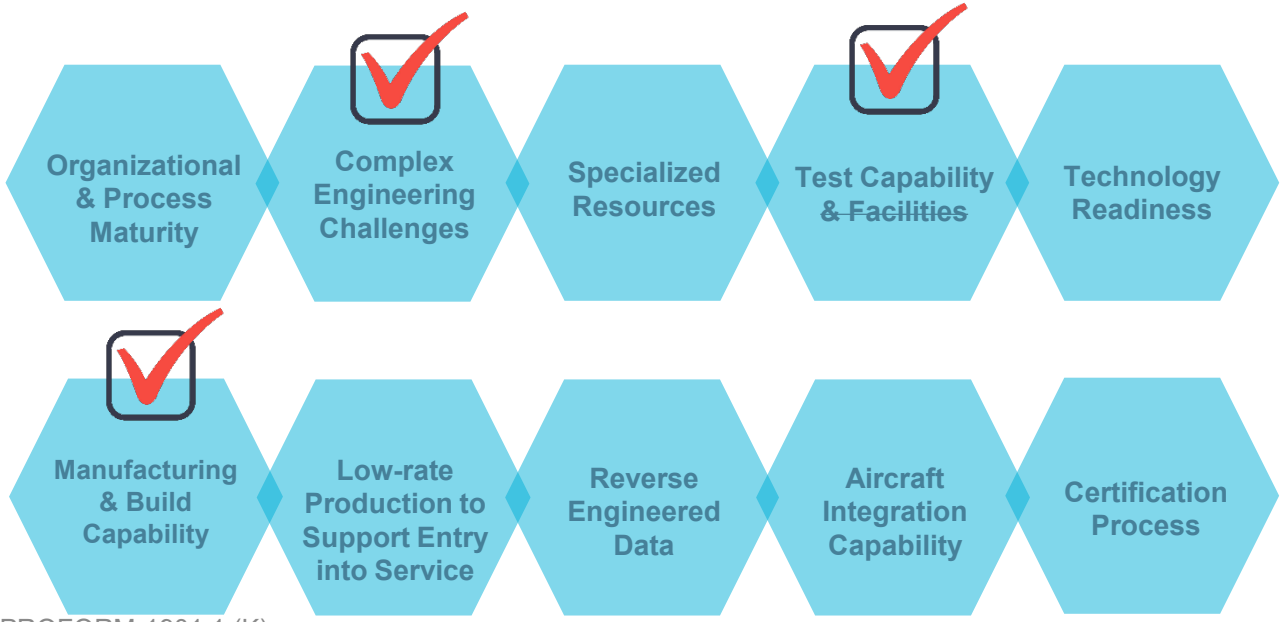
2023 – **Active**
6 people



Aurora FLIGHT SCIENCES

DARPA CRANE Wind Tunnel Model Design & Build

2024
10 people



DEVELOPMENT
CAPABILITIES

DESIGN

REQUIREMENTS

- Technical Requirements
- Schedule & Resources
- Certification Requirements
- ARP 4754
- V&V Analysis
- Program Planning
- Regulatory Coordination

DEVELOPMENT ENGINEERING

- Proof of Concept/Prototyping
- Certification Planning
- Test & Analysis Planning
- Simulation & Analysis
- Lab & Rig Test
- Wind Tunnel Testing
- Proof of Concept Testing
- Structural Testing
- Fatigue Testing

DETAILED DESIGN

- Critical Design Review
- System Safety Assessment
- Change Management
- DER Coverage

BUILD

MANUFACTURING

- Manufacturing
- Special Test Equipment

MRO & MODIFICATION

- Maintenance
- Modification

FLY

VALIDATION TESTING

- Flight Test
- Ground Test
- Instrumentation
- Software Tools
- Telemetry
- Metrology
- Repair Station
- Flight Operations
- Test Logistics
- Ground Support Equipment
- Test Lease Aircraft

CERTIFICATION DELIVERABLES

- Analysis
- Drawings
- Test Reports
- AFMS
- ICA
- Regulatory Coordination
- V&V Closure Evidence

Experienced Team

Detailed Processes

Gated Reviews

Lessons Learned

REQUIREMENTS DEVELOPMENT & MANAGEMENT

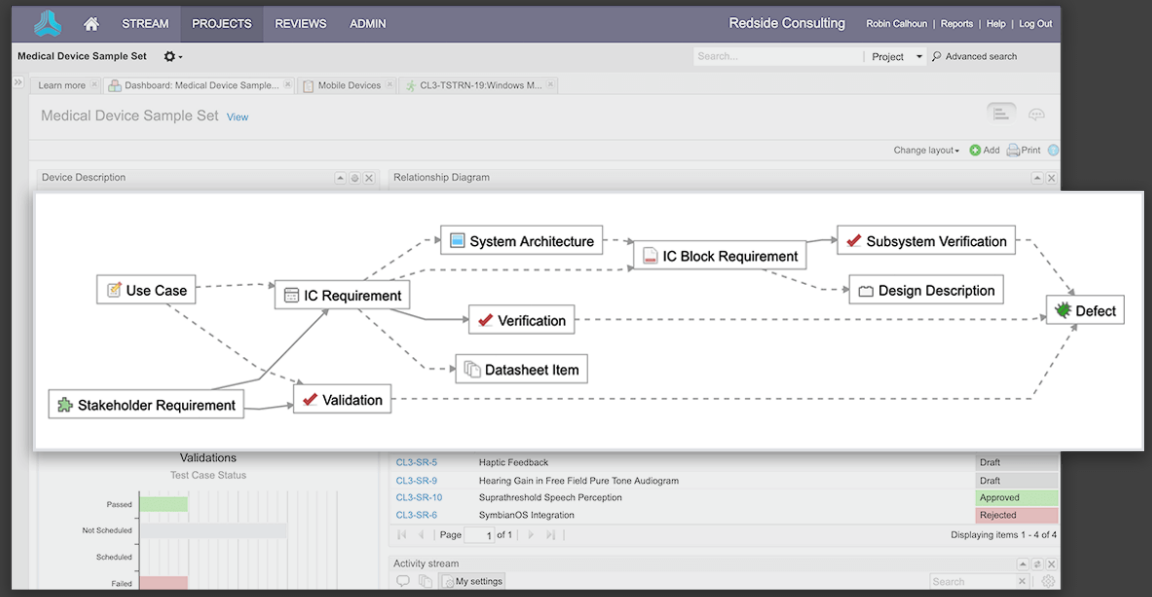
The key to success in product development is establishing detailed program requirements that are that are tied to regulations & customer needs.

Requirements Management Tool: **JAMA Connect**
Centralized program requirements (aircraft, system and component level)

Value added proprietary JAMA reference libraries:

- Established format for ALRs, SLRs, DLRs (attributes)
- Established means of compliance
- PSCP generation
- Part 23, 25, 27 & 29
- DO-160
- DO-311A
- Part 33

Jama software®



VALIDATION & VERIFICATION

- Comprehensive engineering requirements management
- Provide our customized requirements management tool; or
- Operate within a customer's requirements management environment

ENGINEERING PROCESS MANAGEMENT TOOLS

Jama software®

Requirements Management

Traceability report, verification summaries (will be included in reports), etc.

IBM DOORS

Requirements Management

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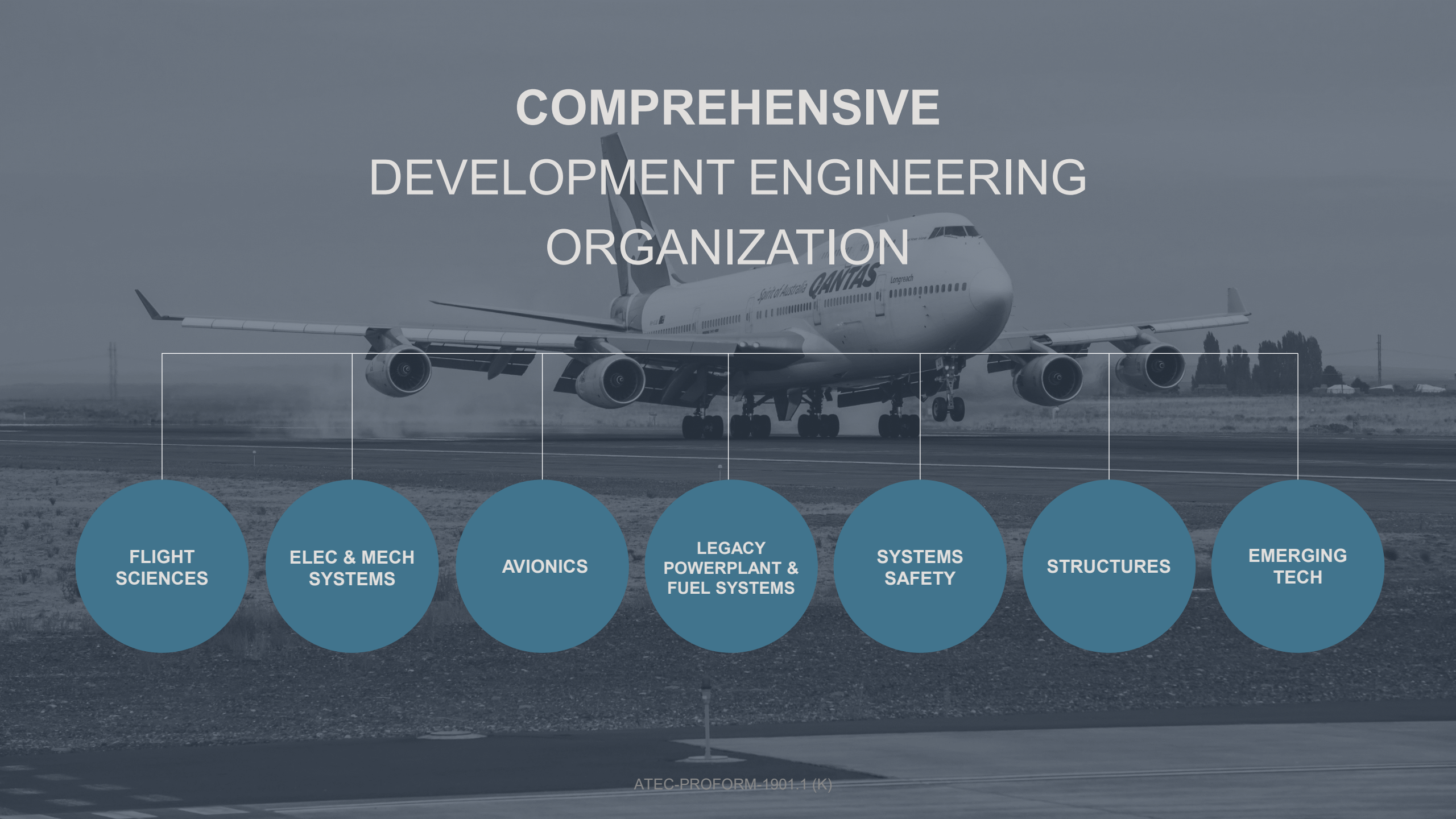
TEAMCENTER

Product Lifecycle Management

COMPREHENSIVE
DEVELOPMENT ENGINEERING ORGANIZATION



DESIGN ENGINEERING

- Extensive capabilities & infrastructure – can act as an OEM
- Clean sheet aircraft design
- Modifications to existing aircraft that require reverse engineering
- Integration of complex system designs

OML SCANNING

DESIGN ENGINEERING TOOLBOX

CATIA

3D Design and drafting

NX CAD & CAM

3D CAD Design, drafting and manufacturing support

OML SCANNING

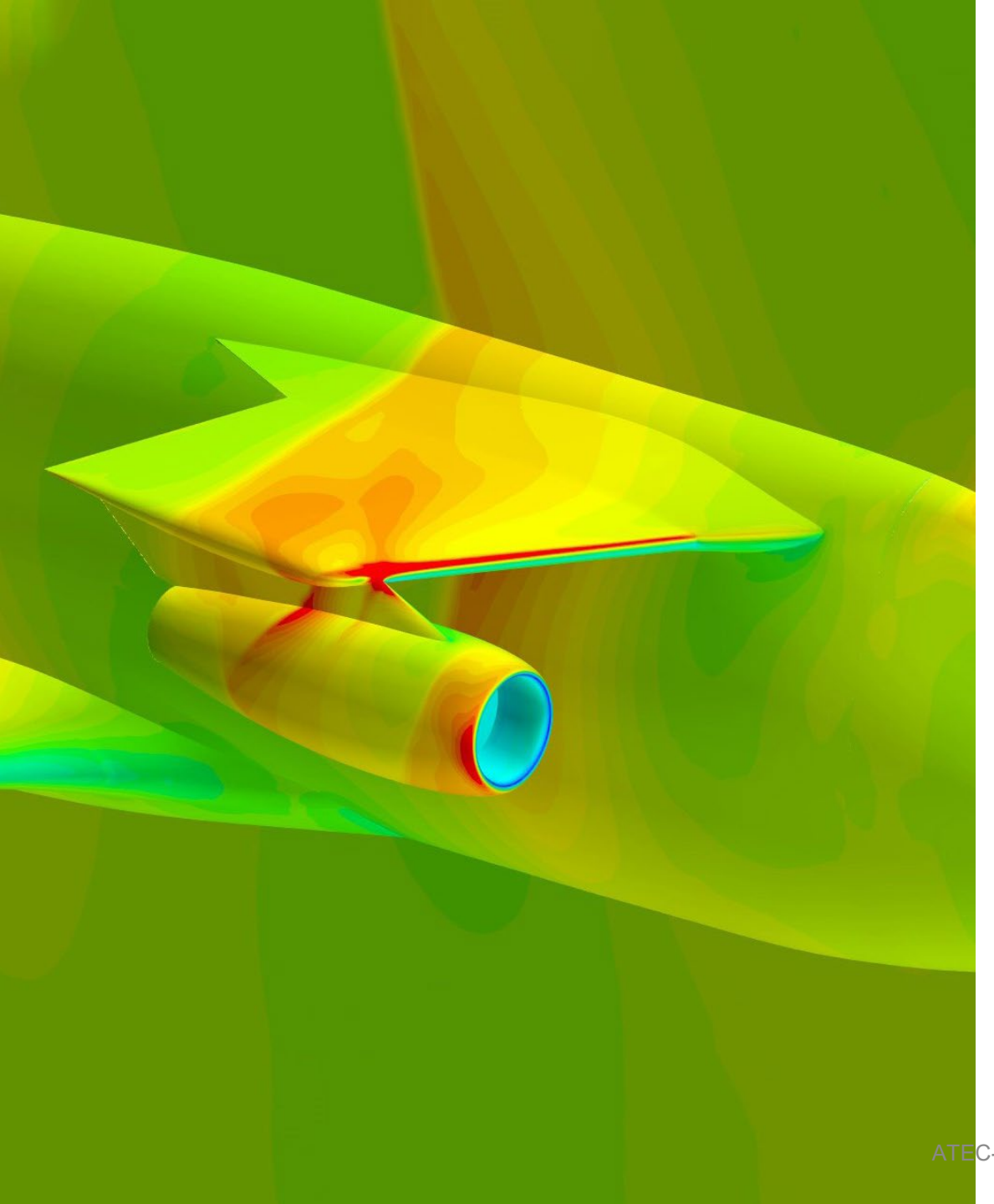
Laser scanning for reverse engineering

ENGINEERING SIMULATION

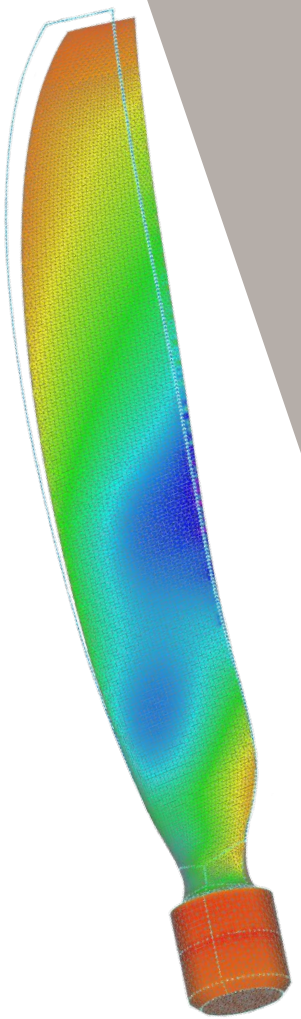
- Reduces program & design risks
- Saves cost by reducing variability, number/type of tests required
- Tool choice depends on program needs & complexity

SIMULATION TOOLBOX

- **STAR-CCM+** – Computational Fluid Dynamics (CFD)
- **FEMAP** and **NX Nastran** – Finite Element Analysis (FEM)
- **NASA LEWICE** – Ice accretion analysis
- **DFMEA** – Design failure modes
- **Relex** – Fault tree analysis
- **Nasgro** – Structures and fatigue/cracks
- **Amesim** – Integrated systems simulation
- **Matlab/Simulink** – Aircraft performance modeling



ADVANCED
CFD CAPABILITY

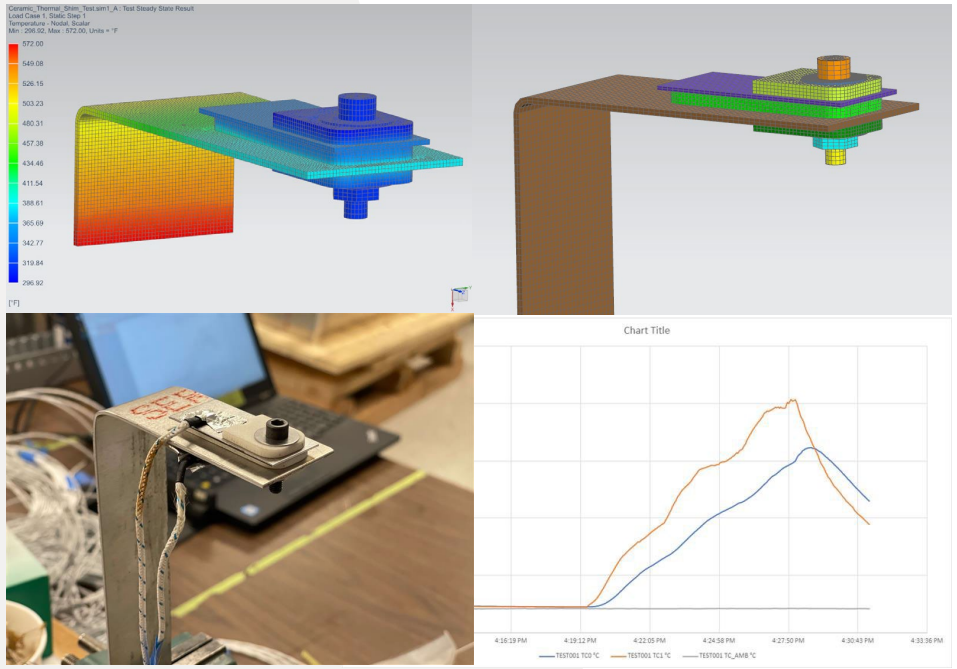


STAR-CCM+, SIEMENS' FLAGSHIP SIMULATION TOOL

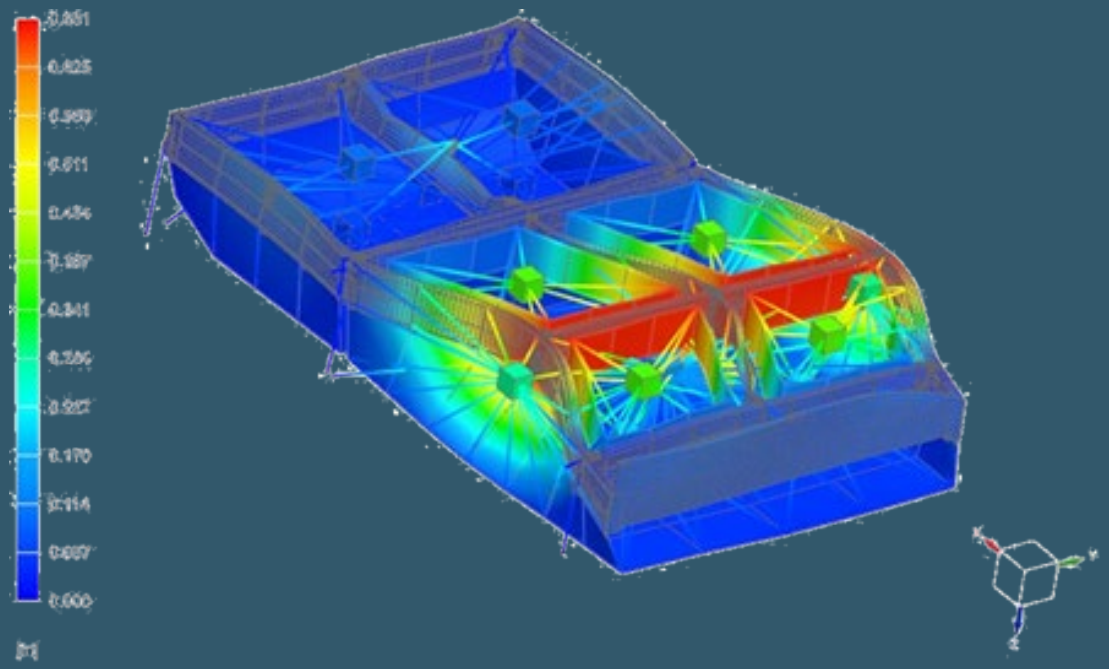
- External aerodynamic analysis
- Hydrodynamic analysis
- Heat transfer analysis

APPLICATION EXPERIENCE

- Air data probes placement
- Reduced Vertical Separation Minimum (RVSM)
- Airframe icing impacts
- Radome installations
- Winglet installations
- Flight test risk mitigation



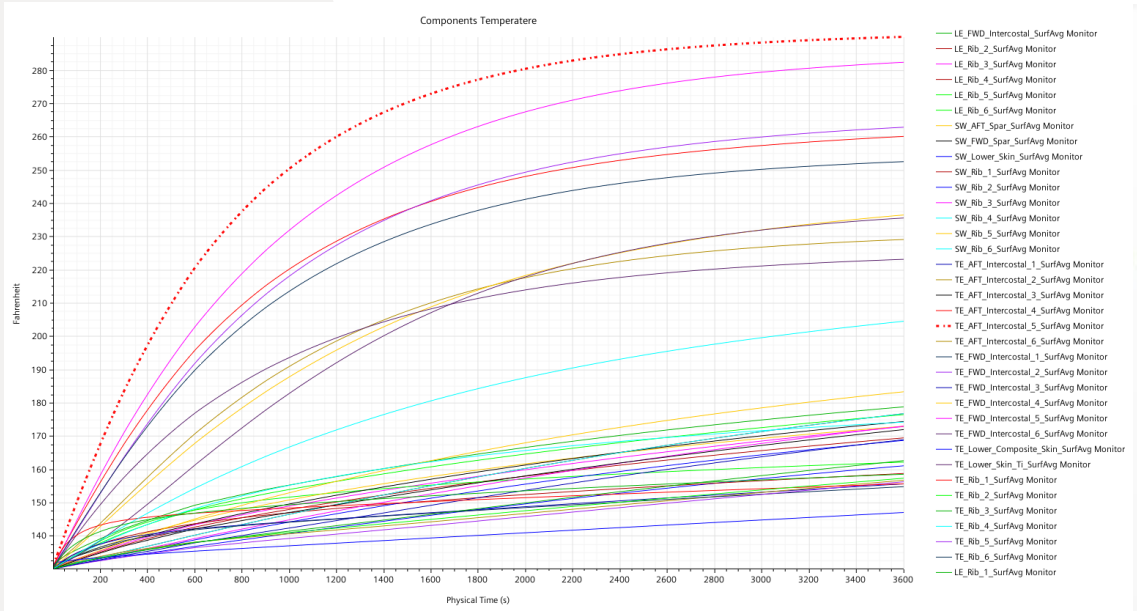
Steady State Heat Transfer (NASTRAN)

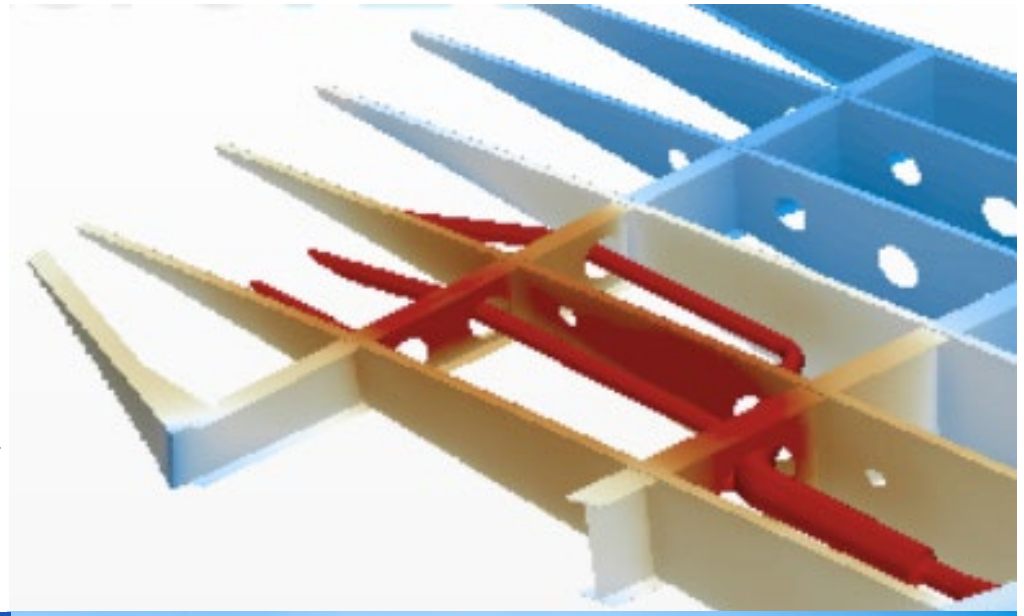


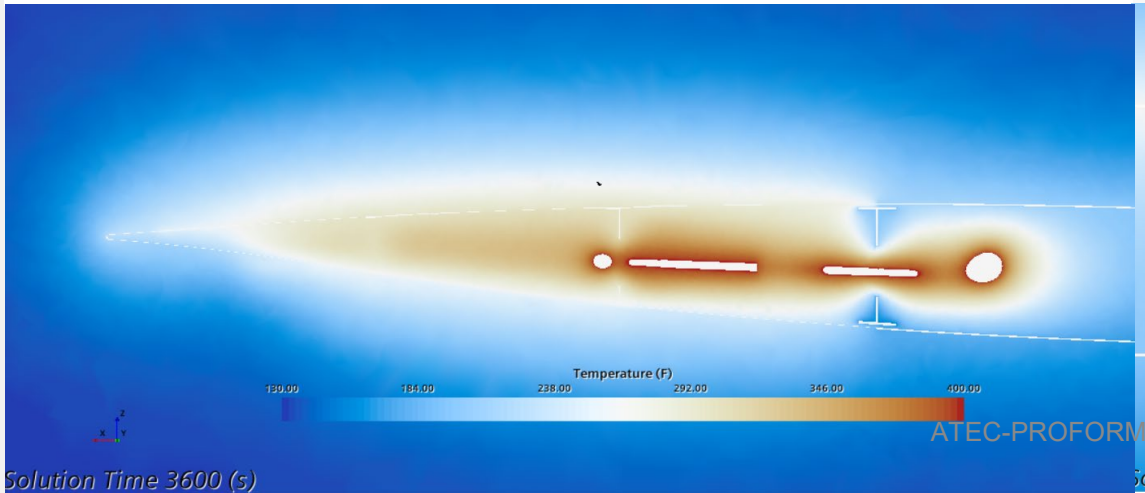
Vibration Analysis (NASTRAN)

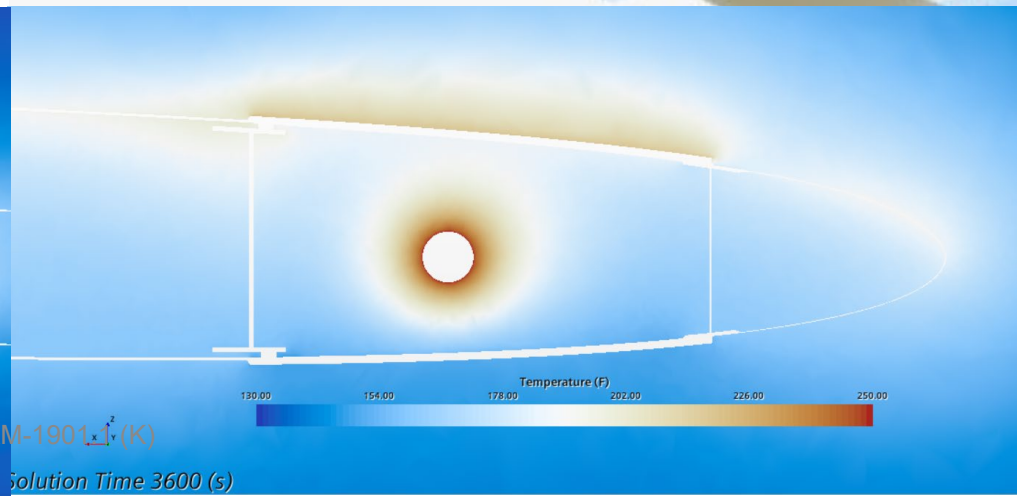
TRANSIENT CONJUGATE HEAT TRANSFER ANALYSIS (STARCCM+)

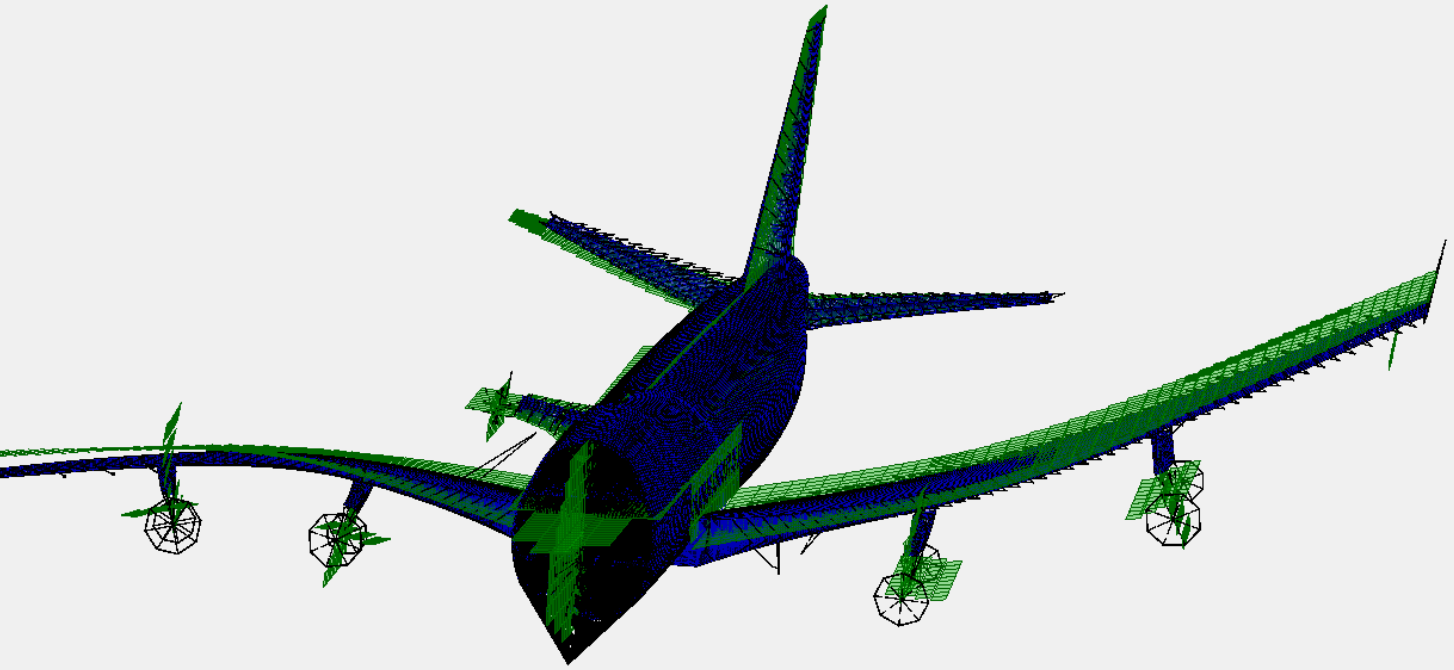
Using STARCCM+ to evaluate exhaust heat analysis within a wing box



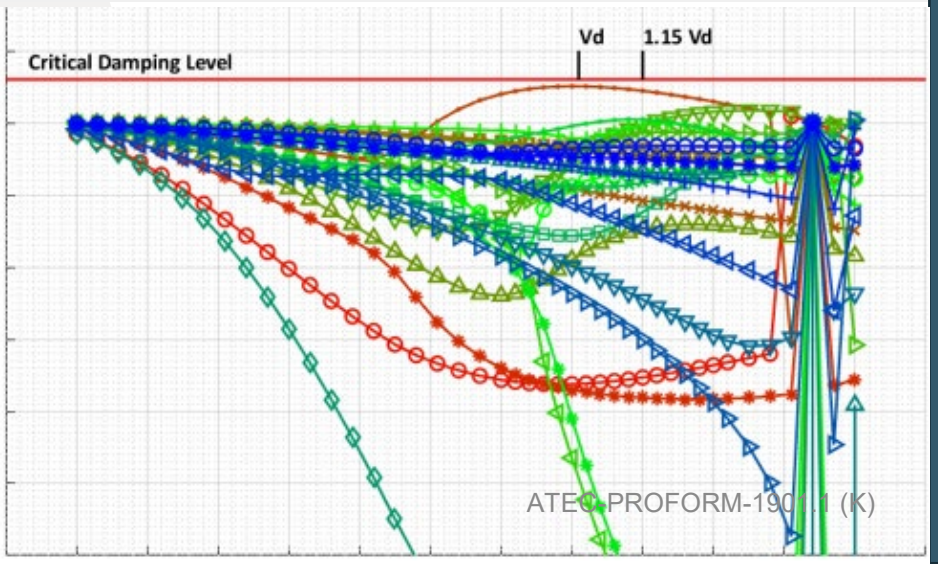








Flutter Prediction

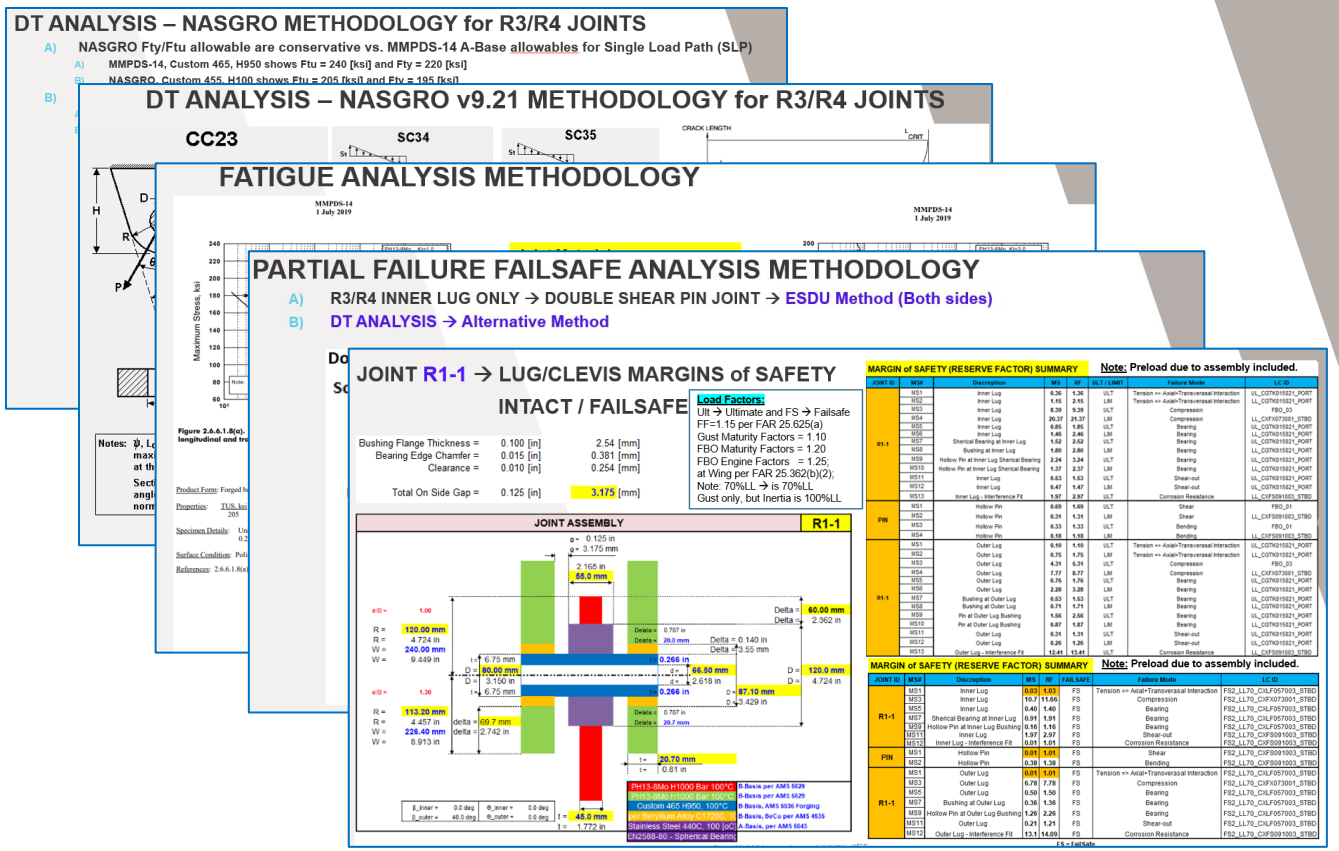


FLUTTER & GVT ASSESSMENTS

- Create Flutter analysis and model development
- Develop critical aircraft models; loads, stiffness, aerodynamic and mass models
- Correlate test and data correlation with flight test & GVT data post processing
- Whirl Flutter Analysis
- Ground Vibration Testing (GVT) Capabilities

AIRCRAFT STRUCTURAL ANALYSIS

- Building coarse grid internal loads model of entire aircraft or sub-model combined with DMIG using industry standard modeling convention.
- Envelope external loads summation using max/min values and potato plots to identify critical load cases and minimize FEM post-processing.
- Apply external loads summation into internal loads model and postprocess results.
- Create complex fine-grid FEM with non-linear considerations
- FEM quality checks and validation by test correlation.
- Composites modeling and strength analysis, including laminated or sandwich panels.
- Heat transfer analysis.
- Fatigue Analysis
- Damage Tolerance



FEM CREATION

- Standardized FEM creation methodology and processes depending on utilization
- Utilize test data to correlate and validate FEM construction
- Strain gage data filtering and manipulation
- Test data Correlation to FEA results
- Strain Gauge Calibration

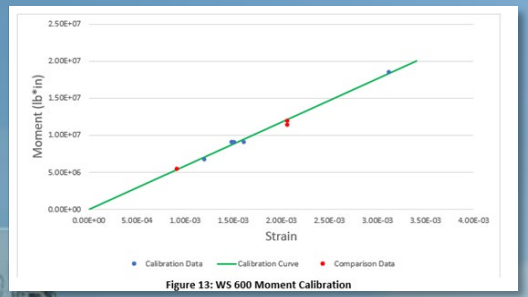
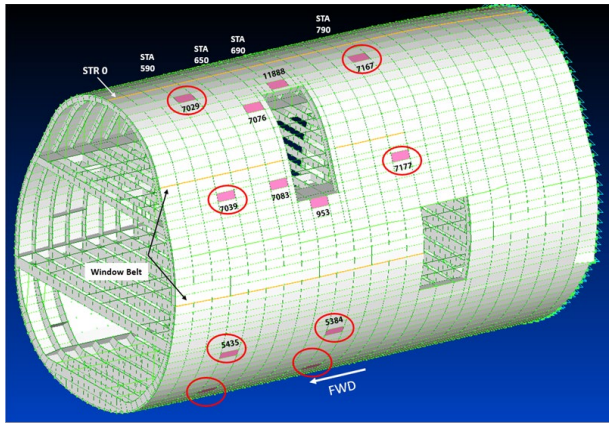
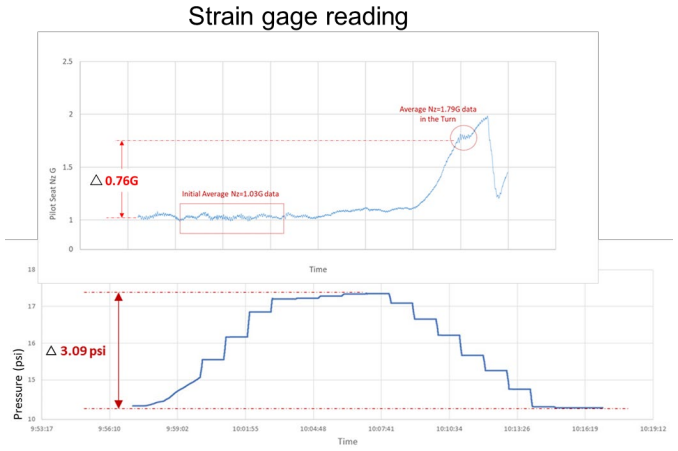


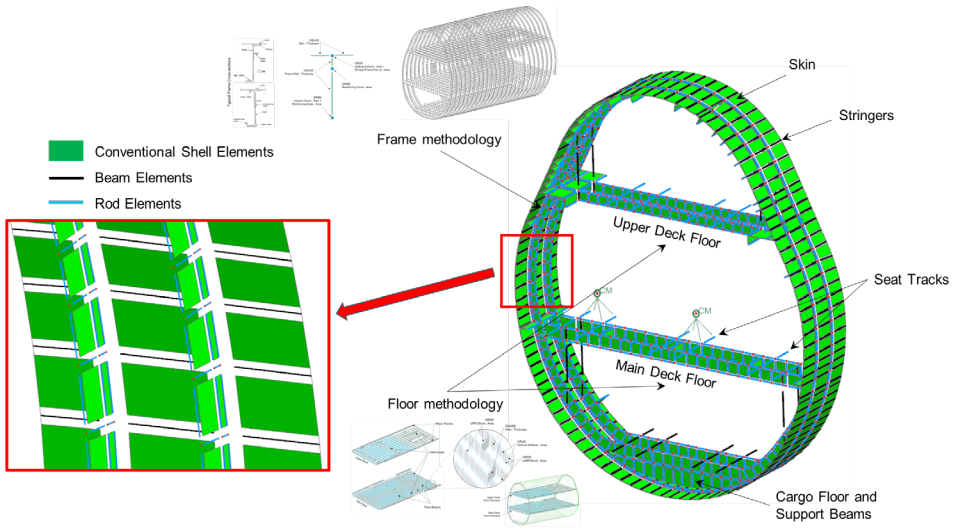
Figure 13: WS 600 Moment Calibration

FEM Postprocessing



Strain gage reading



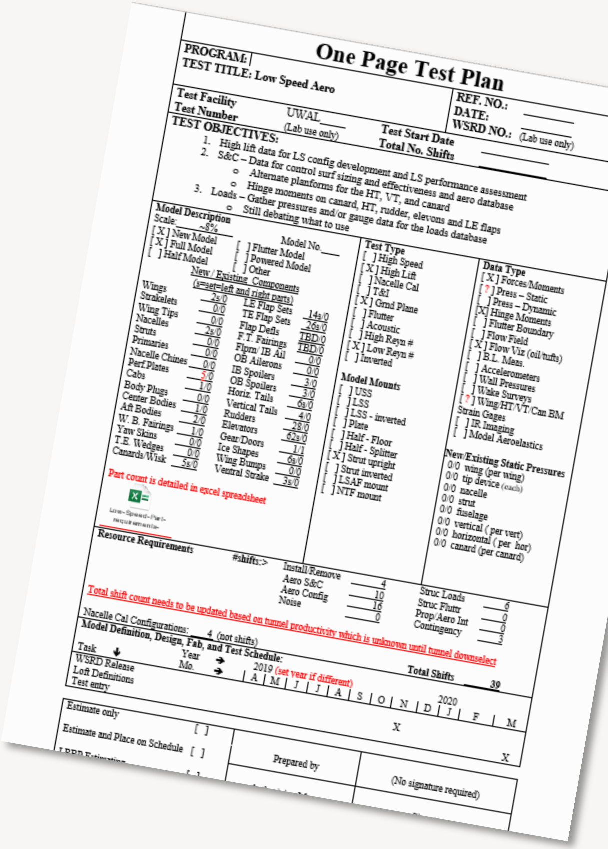


WIND TUNNEL
MODEL FABRICATION

- Built in-house for rapid response
- Production times are 2-3 months
- Designed for efficiency
- Designed for low cost
- Optional powered control surfaces

WIND TUNNEL TEST SUPPORT

- Wind Tunnel Facility Coordination
- Test Plans
- Test Conduct
- Data Analysis



One Page Test Plan

PROGRAM:
TEST TITLE: Low Speed Aero

Test Facility
Test Number UWAL____ (Lab use only)
Test Start Date
Total No. Shifts
REF. NO.:
DATE:
WSRD NO.: (Lab use only)

TEST OBJECTIVES:
1. High lift data for LS config development and LS performance assessment
2. S&C – Data for control surf sizing and effectiveness and aero database
   - Alternate planforms for the HT, VT, and canard
   - Hinge moments on canard, HT, rudder, elevons and LE flaps
3. Loads – Gather pressures and/or gauge data for the loads database
   - Still debating what to use

Model Description
Scale: ~8%
[X] New Model
[X] Full Model
[ ] Half Model
Model No.____
[ ] Flutter Model
[ ] Powered Model
[ ] Other

New / Existing Components (s=set=left and right parts)

Wings	2s/0	LE Flap Sets	14s/0
Strakelets	0/0	TE Flap Sets	26s/0
Wing Tips	0/0	Flap Defls	TBD/0
Nacelles	2s/0	F.T. Fairings	TBD/0
Struts	0/0	Flprn/ IB Ail	0/0
Primaries	0/0	OB Ailerons	0/0
Nacelle Chines	0/0	IB Spoilers	3/0
Perf.Plates	5/0	OB Spoilers	3/0
Cabs	1/0	Horiz. Tails	6s/0
Body Plugs	0/0	Vertical Tails	4/0
Center Bodies	1/0	Rudders	28/0
Aft Bodies	2/0	Elevators	62s/0
W. B. Fairings	1/0	Gear/Doors	1/1
Yaw Skins	0/0	Ice Shapes	6s/0
T.E. Wedges	0/0	Wing Bumps	0/0
Canards/Wisk	5s/0	Ventral Strake	3s/0

Part count is detailed in excel spreadsheet

Test Type
[ ] High Speed
[X] High Lift
[ ] Nacelle Cal
[ ] T&I
[X] Grnd Plane
[ ] Flutter
[ ] Acoustic
[ ] High Reyn #
[X] Low Reyn #
[ ] Inverted

Model Mounts
[ ] USS
[ ] LSS
[ ] LSS - inverted
[ ] Plate
[ ] Half - Floor
[ ] Half - Splitter
[X] Strut upright
[ ] Strut inverted
[ ] LSAF mount
[ ] NTF mount

Data Type
[X] Forces/Moments
[?] Press – Static
[ ] Press – Dynamic
[X] Hinge Moments
[ ] Flutter Boundary
[ ] Flow Field
[X] Flow Viz (oil/tufts)
[ ] B.L. Meas.
[ ] Accelerometers
[ ] Wall Pressures
[ ] Wake Surveys
[?] Wing/HT/VT/Can BM Strain Gages
[ ] IR Imaging
[ ] Model Aeroelastics

New/Existing Static Pressures
0/0 wing (per wing)
0/0 tip device (each)
0/0 nacelle
0/0 strut
0/0 fuselage
0/0 vertical (per vert)
0/0 horizontal (per hor)
0/0 canard (per canard)

Resource Requirements #shifts:>

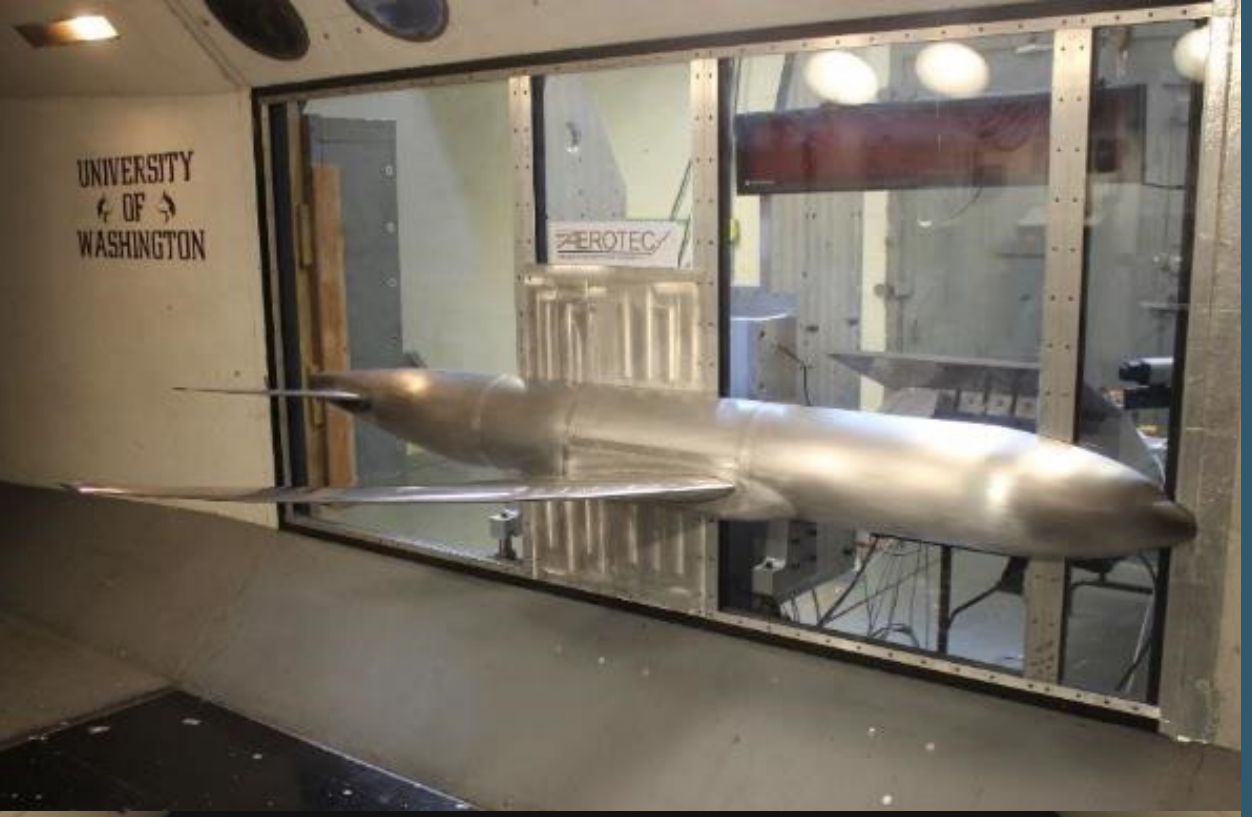
Install/Remove	4	Struc Loads	6
Aero S&C	10	Struc Fluttr	0
Aero Config	16	Prop/Aero Int	0
Noise	0	Contingency	3

Total shift count needs to be updated based on tunnel productivity which is unknown until tunnel downselect

Nacelle Cal Configurations: 4 (not shifts)

Model Definition, Design, Fab, and Test Schedule:
Task / Year / Mo. — 2019 (set year if different): A M J J A S O N D; 2020: J F M
WSRD Release
Loft Definitions
Test entry
Total Shifts 39

Estimate only [ ]
Estimate and Place on Schedule [ ]
Prepared by
(No signature required)



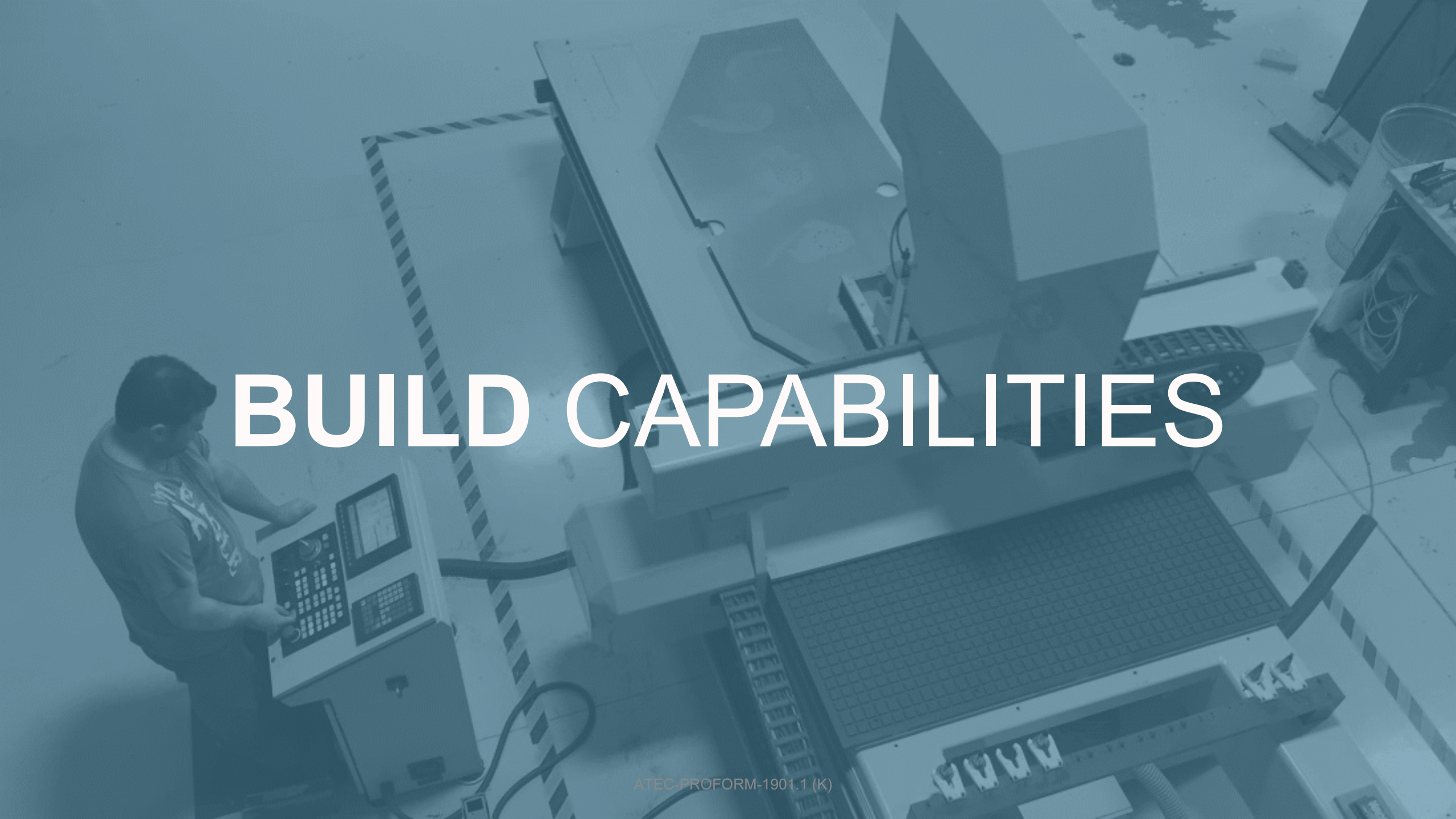
WIND TUNNEL FACILITIES

LOW SPEED WIND TUNNELS

- Average Max Speed: 250 mph
- Facilities:
  - University of Washington
  - Wichita State University
  - University of San Diego

HIGH SPEED WIND TUNNELS

- Average Max Speed: Mach 1.1
- Facilities:
  - Boeing Transonic Wind Tunnel (BTWT)
  - NASA Ames (Transonic & Supersonic)



BUILD CAPABILITIES

MOSES LAKE CAMPUS

FULLY SECURED FACILITY

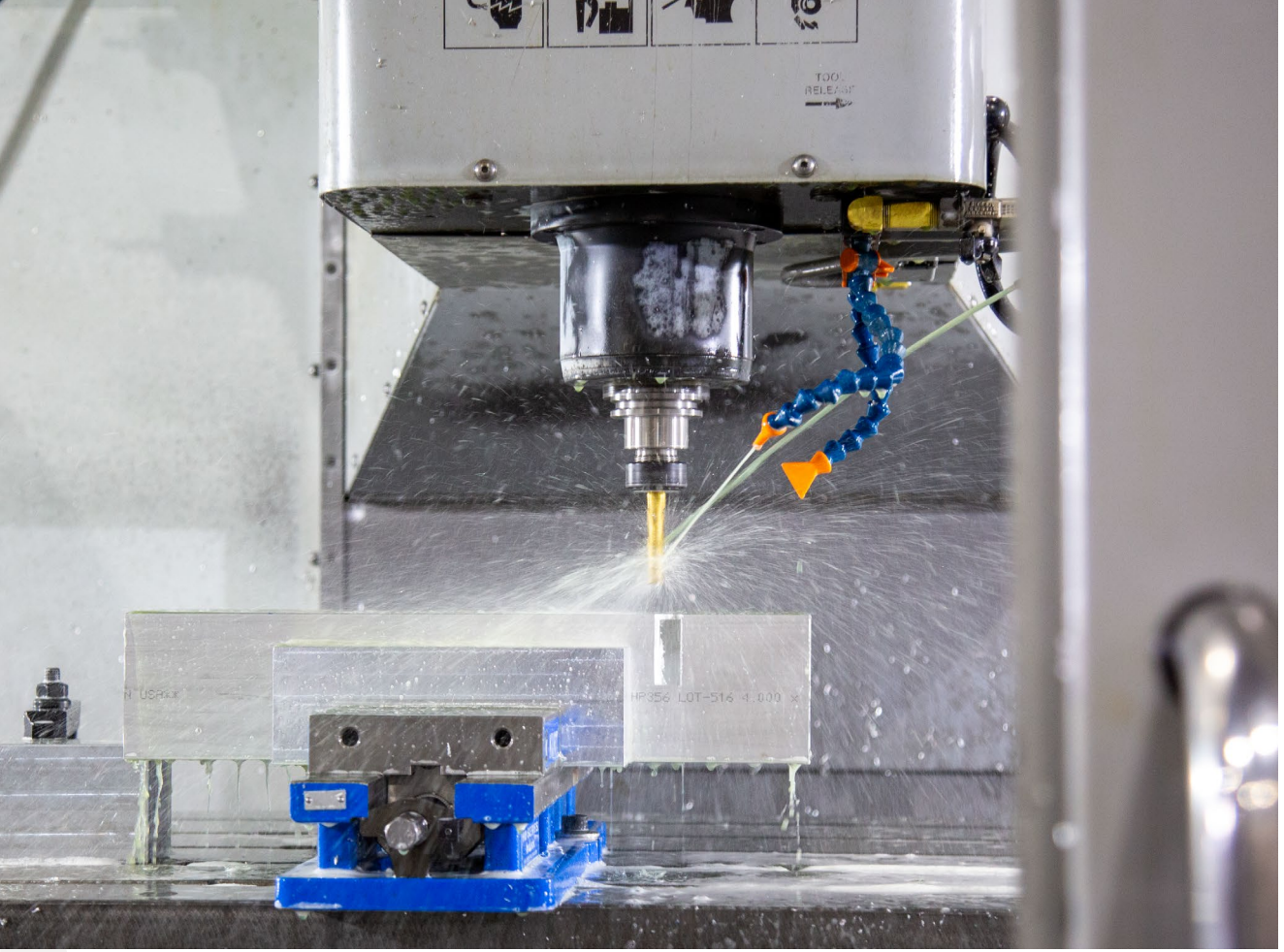
MODIFICATION, MRO & TEST

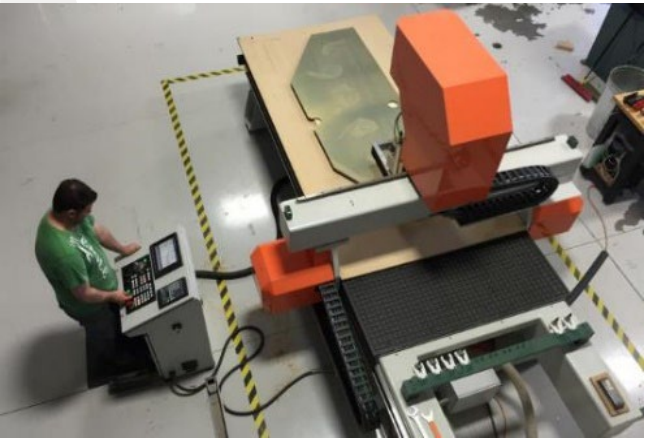
Ground & Flight Test Conduct | FAA Part 145 MRO Repair Station

FACILITIES

- 10,000 sq ft Warehouse, 35,000 sq ft Office Space and 12,000 sq ft Back Shop Space
- **182,000 sq ft of Hangar Space**
  - WBH #1 - 65,000 sq ft Wide Body Hangar #1 (747-8 & 777X capable)
  - NBH - 32,000 sq ft Narrow Body Hangar (holds two Boeing 737s)
  - WBH #2 - 85,000 sq ft Wide-Body Hangar #2 (747-8 & 777X capable)

WBH #1 **NBH** **WBH #2**





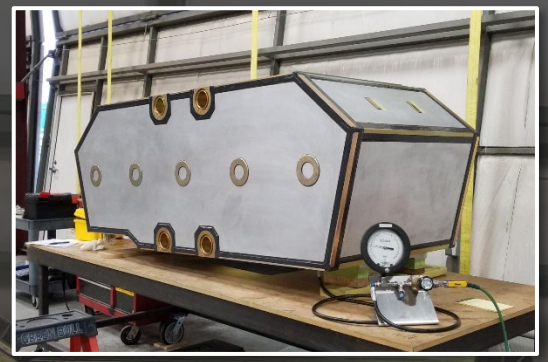
AS9100D CERTIFIED MANUFACTURING

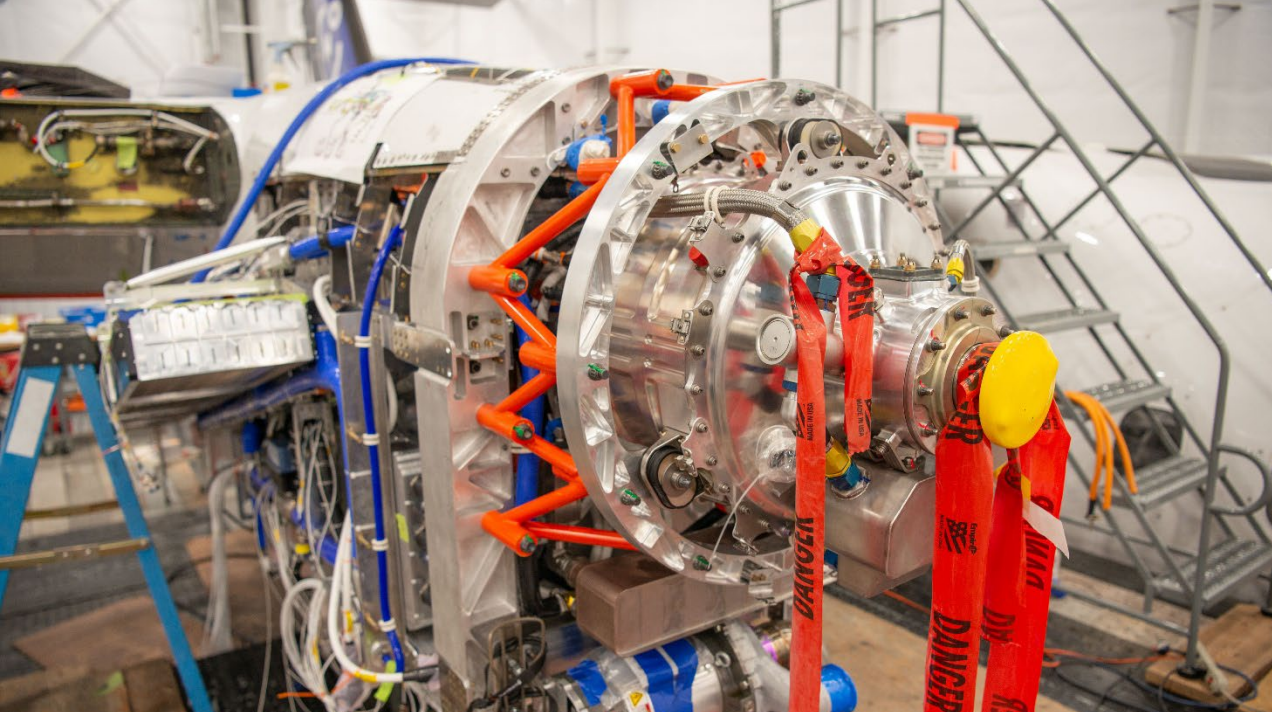
- CNC machining (3, 4 & 5 axis)
  - 1 Each 5 axis CNC mill – OKK VC-X500
  - 4 Each 3 & 4 axis CNC mills – Doosan / Haas
- CNC router (3 axis)
  - Aluminum & composite materials
- Sheet metal fabrication
- Turning capabilities
- 3D printing
- Wire shop and wire harness fabrication
- Complex assemblies
- Out of autoclave (OOA) composites
- NDT inspection: liquid fluorescent penetrant bench, shot peening and UT equipment
- Priming & painting capabilities
- Onsite battery servicing, maintenance and overhaul
- FAI Inspection: CMM and FARO arm laser scanning

AS9100D CERTIFIED MANUFACTURING

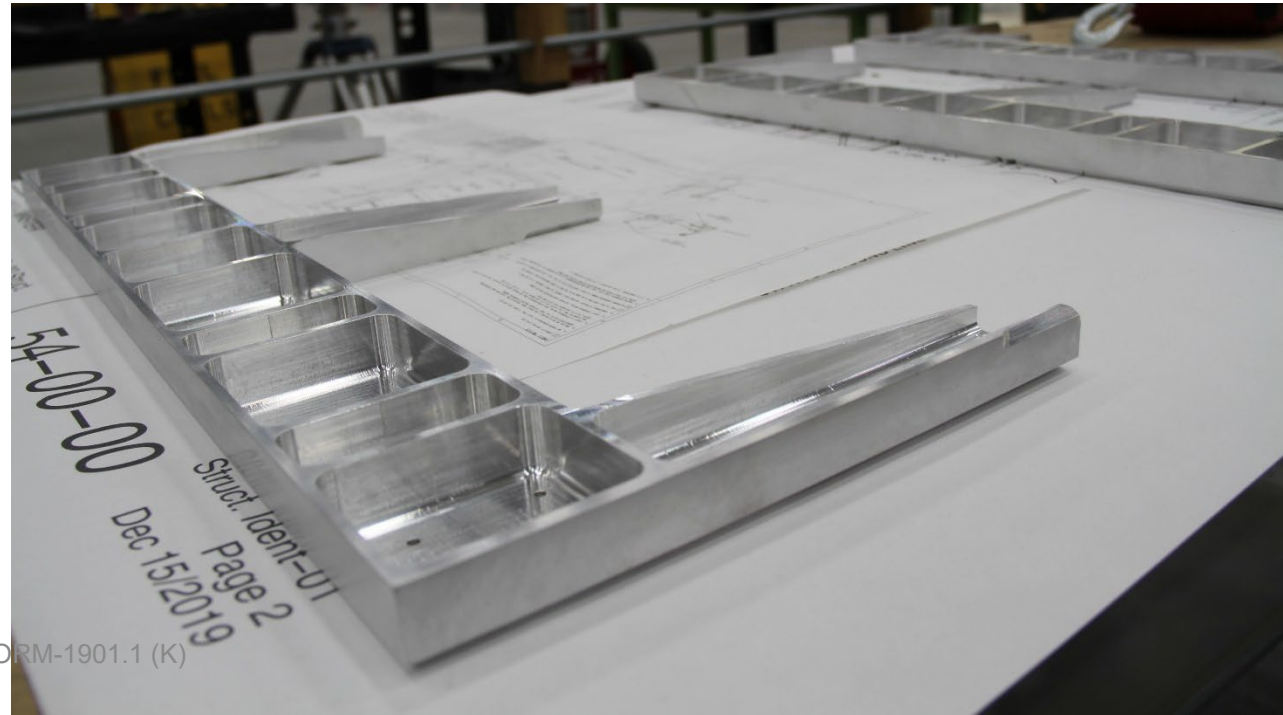
Complex Assembly Builds

- Fuel Tanks
- Flight Critical Parts
- Powered Wind Tunnel Models
- Custom Tooling Fabrication & Verification




DANGER


KEEP OFF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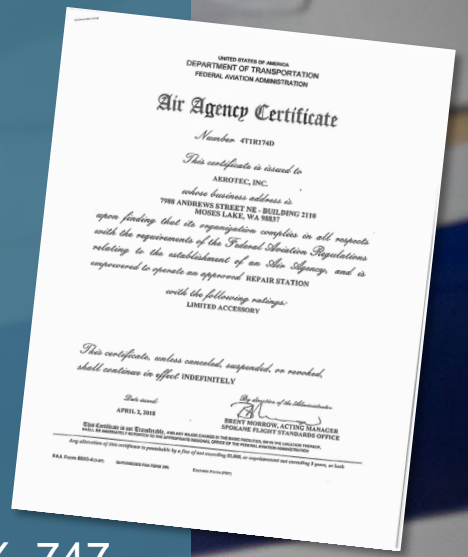
Struct. Ident-U1
Page 2
Dec 15/2019

FAA 145 MAINTENANCE REPAIR & QUALITY



UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

Air Agency Certificate

Number 4T1R174D

This certificate is issued to
AEROTEC, INC.
whose business address is
7988 ANDREWS STREET NE - BUILDING 2110
MOSES LAKE, WA 98837
upon finding that its organization complies in all respects with the requirements of the Federal Aviation Regulations relating to the establishment of an Air Agency, and is empowered to operate an approved REPAIR STATION
with the following ratings:
LIMITED ACCESSORY

This certificate, unless canceled, suspended, or revoked, shall continue in effect INDEFINITELY

Date issued:
APRIL 3, 2018

BRENT MORROW, ACTING MANAGER
SPOKANE FLIGHT STANDARDS OFFICE

FAA Part 145 Repair Station Certificate

MRO SERVICES

- Part 145 Aircraft Limited Ratings
- Comprehensive GSE
- Airframe ratings: 727, 737NG, 737 MAX, 747, 777, Cessna C208B Caravan
- Powerplant ratings: RB211, PT6, CF6, CFM56, PW4000, LEAP-1B, GE90, Trent, JT8D-17

FLIGHT TEST MAINTENANCE INTEGRATION

- Dual System Management
  - Experimental & FAR Part 43 Maintenance
- Integrated Processes
  - Adapted QMS for Experimental & FAR Part 43 Maintenance

MOSES LAKE
TEST HARDWARE

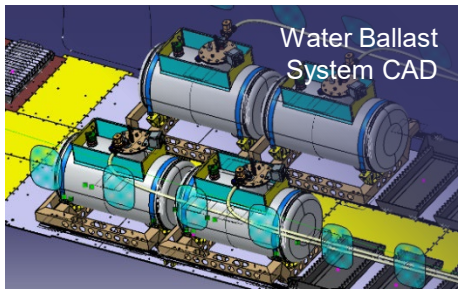
"You need it tomorrow?

We'll build it tonight"

FLIGHT TEST MANUFACTURING

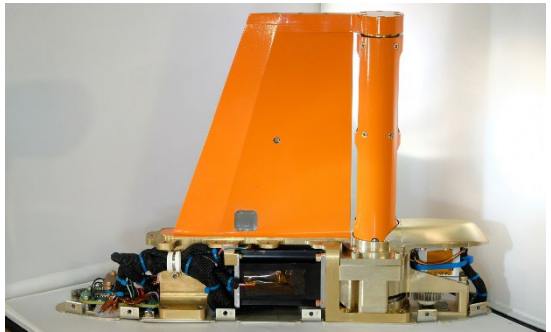
- Special Test Equipment (STE)
- Large Structural Parts
- Control Systems
- Wire Shop
- Composites

Wire Harness Shop & Instrumentation Lab


Water Ballast System CAD


Water Ballast System


Large A/C Trailing Cone Reel



FLUTTER EXCITATION SYSTEM

Rotary Vane Flutter Excitation System (FES) designed to provide controllable force inputs for flutter excitation up to 70Hz across a wide speed range.

- 0 to 70 Hz force frequency output
- ±59 lb at 350 KEAS, medium sized vane
- Operates on 28V DC Power, 30A peak current
- High and Low force selection
- 1-5 vane system can be run simultaneously
- Scalable system for larger or smaller force outputs depending on size of aircraft
- Flutter exciter system for subsonic or supersonic airplane application
- Digital control system with built in test profiles or custom discrete frequency test points
- Touch Screen
- System can be shutdown manually by pilot or via software control
- ARINC Interface

ARTIFICIAL ICE SHAPE DESIGN

- Ice shape design and fabrication
- Program planning
- Test execution

CASE STUDY

RAPID PROTOTYPING

ADJUSTABLE PITOT PROBE

PROBLEM

Customer needed a new, adjustable pitot probe to continue testing and original supplier estimated 6-month turnaround time.

AEROTEC SOLUTION

In 72 hours, AeroTEC:

- Designed a new probe with an adjustable base
- Fabricated the probe and base
- Delivered both to the customer

And minimized program delay with significant cost savings.

CASE STUDY

CERTIFIED SOLUTIONS

FALCON 900 LOAD ALLEVIATION ISSUE RESOLUTION

AEROTEC SOLUTION

- Airworthy, certified hardware and software
- Digital data bus, microprocessor, analog interface design
- DO-160F hardware qualification
- DO-178B software certification
- Detail and assembly drawings
- Wire harnesses
- Low volume production (<1000)

CERTIFICATION DELIVERABLES

CERTIFICATION PLANS & REPORTS

- Performance
- Stability & Control (S&C)
- Part 36 Noise
- Electrical and mechanical systems equipment
- Flutter
- Loads
- Powerplant

AIRCRAFT MANUAL UPDATES

- FAA-approved Airplane Flight Manual Supplements
- Operations Manual / Flight Planning Manual
- Pilot Quick Reference handbook
- Electronic Flight Planning database

PRODUCT SUPPORT

After Certification

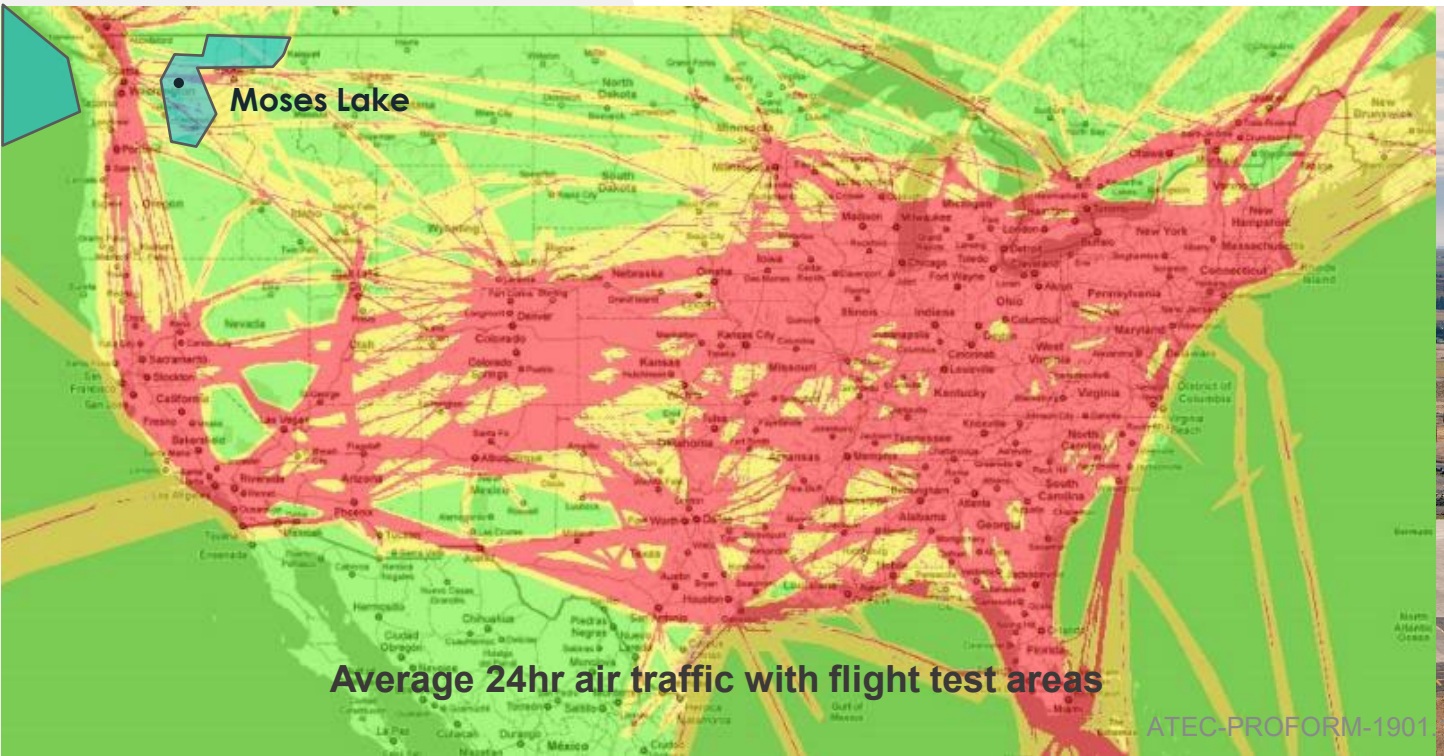
- Tech data updates
- Installation deviation approvals
- Initial low-rate production to support entry into service
  - Aircraft conversions
  - Parts Manufacturer Approval (PMA) parts
- Troubleshooting support
- Build, warehouse, direct ship

TEST CAPABILITIES

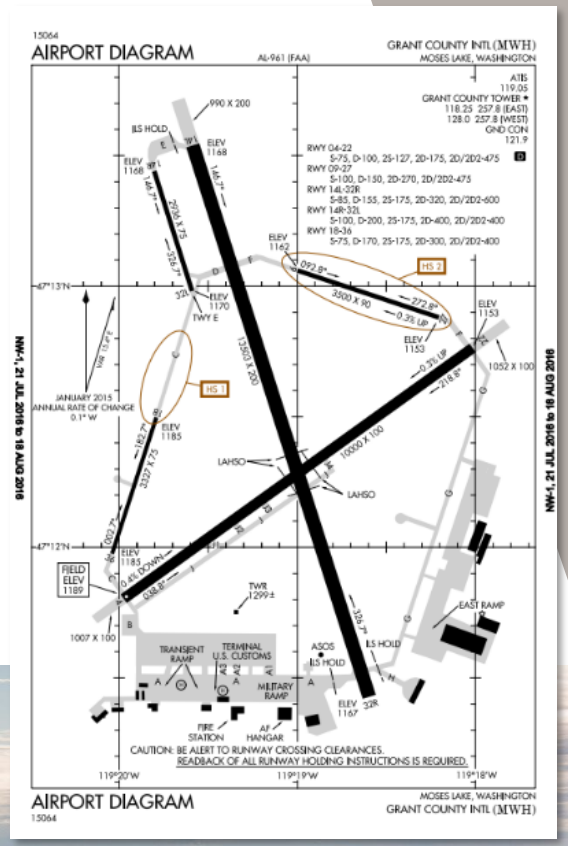
GRANT COUNTY INT'L AIRPORT

Home to AeroTEC's Flight Test Center (AFTC)

- Moses Lake, WA (2.5 hours east of Seattle)
- 13,500 ft & 10,000 ft runways
- Semi-arid climate
- 350 days/year Visual Reference Points (VFR) conditions
- Low traffic, large test area
- Customs facility

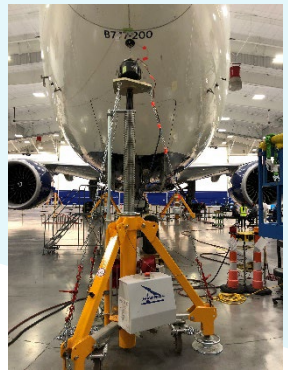


Average 24hr air traffic with flight test areas



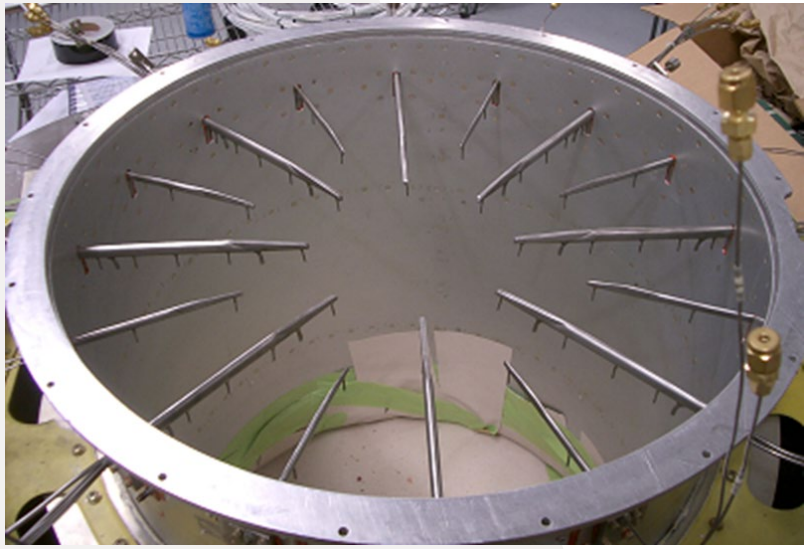
GROUND & FLIGHT TEST

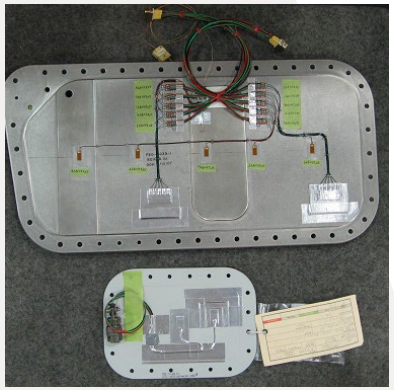
- Complete test crew
  - Designated Engineering Representative (DER) test pilots
  - Test directors
  - On-board data analysis
  - Instrumentation operators
  - Ground ops
- Remote telemetry monitoring
- Chase aircraft
- Instro & Special Test Equipment
- Ground Vibration Testing



SPECIALTY TEST EXPERTISE

- Ground Vibration Testing (GVT)
- Static Wing Bending
- Accelerated Processing Unit (APU) FireX Testing
- Smoke Testing
- Brake testing





TEST INSTRUMENTATION

- ARINC-429, ARINC-717, ASCB-C/-D Databus monitoring
- Precision air data (nose boom, trailing cone)
- Accelerometers (low frequency and wideband)
- Acoustics (sonic fatigue, cabin acoustics, FAR part 36)
- Space positioning (DGPS, IRU)
- Flight control positions and control forces
- Engine parameters (analog, EEC, DEEC, FADEC, rakes)
- Temperature, pressure, strain surveys
- Gross weight, fuel quantity, C.G. tracking
- Telemetry
- Weather data telemetry
- High speed HD video

TELEMETRY & DATA SERVICES

- Two telemetry rooms at our Moses Lake facility
- Fully capable mobile telemetry trailer
- Ability to track three individual test flights simultaneously

OFF-SITE TEST LOCATIONS

Test deployment for ideal conditions

ROSWELL INTL. AIR CENTER

- 13,000 ft runway
- Hot weather, runway performance

GUNNISON-CRESTED BUTTE REGIONAL AIRPORT

- 7,700 ft runway
- High altitude

GLASGOW INDUSTRIAL AIRPORT

- 13,500 ft runway
- Water ingestion, community noise

IQALUIT AIRPORT

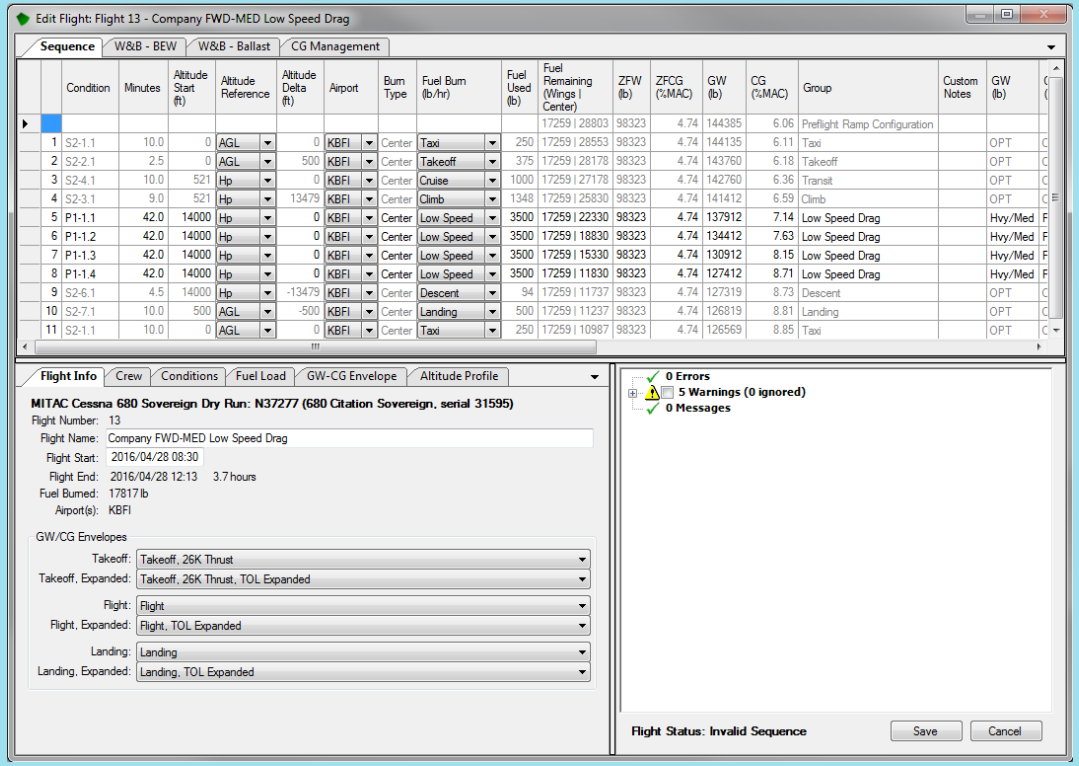
- 8,600 ft runway
- Cold weather

REYKJAVIK INTL. AIRPORT

- 10,000 ft runway
- Crosswind testing

TOM

TEST ORGANIZER & MANAGER



FLIGHT TEST SOFTWARE

TEST ORGANIZER AND MANAGEMENT (TOM)

- Requirements management
- FARs, EASA Specifications, customer requirements, etc
- Test condition management
- Risk assessment and mitigation (complies with FAA Order 4040.26B)
- Flight planning, including sequencing of test conditions and weight and balance
- Instrumentation management

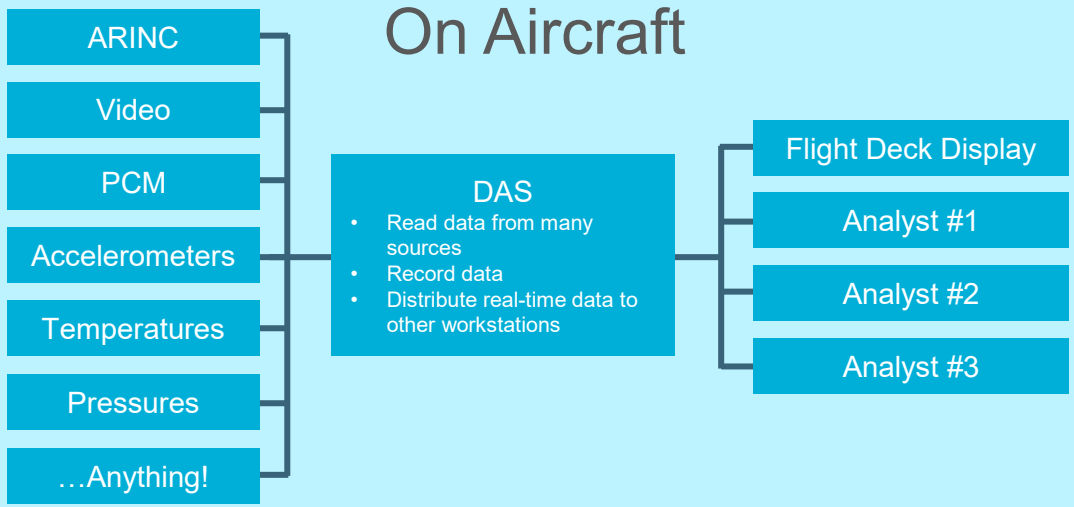
Data Acquisition System (**DAS**)

Real-time Aircraft Display (**RAD**)

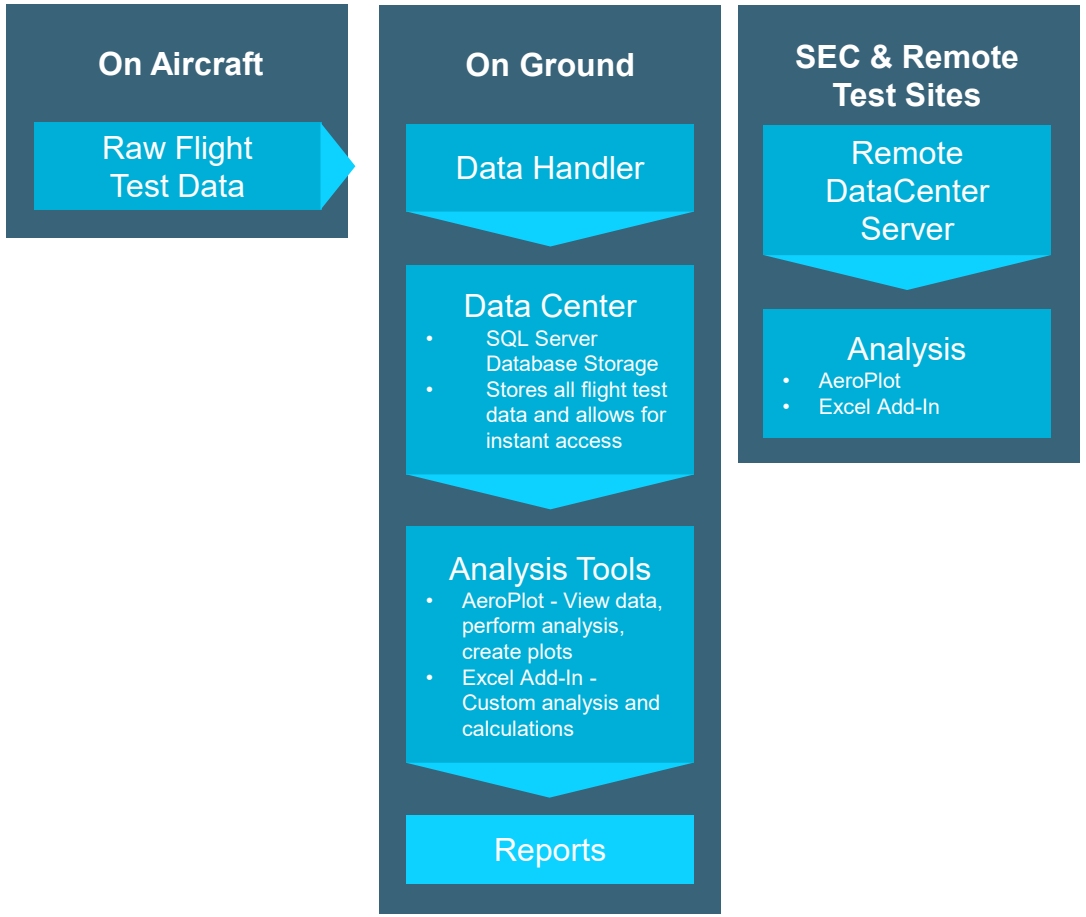
DataCenter Data Management and Analysis

FLIGHT TEST SOFTWARE

DATA ACQUISITION SYSTEM (DAS)



DATACENTER DATA MANAGEMENT & ANALYSIS



DESIGN

REQUIREMENTS

- Technical Requirements
- Schedule & Resources
- Certification Requirements
- ARP 4754
- V&V Analysis
- Program Planning
- Regulatory Coordination

DEVELOPMENT ENGINEERING

- Proof of Concept/Prototyping
- Certification Planning
- Test & Analysis Planning
- Simulation & Analysis
- Lab & Rig Test
- Wind Tunnel Testing
- Proof of Concept Testing
- Structural Testing
- Fatigue Testing

DETAILED DESIGN

- Critical Design Review
- System Safety Assessment
- Change Management
- DER Coverage

BUILD

MANUFACTURING

- Manufacturing
- Special Test Equipment

MRO & MODIFICATION

- Maintenance
- Modification

FLY

VALIDATION TESTING

- Flight Test
- Ground Test
- Instrumentation
- Software Tools
- Telemetry
- Metrology
- Repair Station
- Flight Operations
- Test Logistics
- Ground Support Equipment
- Test Lease Aircraft

CERTIFICATION DELIVERABLES

- Analysis
- Drawings
- Test Reports
- AFMS
- ICA
- Regulatory Coordination
- V&V Closure Evidence

Experienced Team

Detailed Processes

Gated Reviews

Lessons Learned

AEROTEC CULTURE

Provide value to the customer
Remain mission focused
Deliver on commitments
Bring your best

COMPETE TO **WIN**

Knowledge breeds credibility
Expertise expected
Data, not drama
Learning, always

GO **DEEP**

Mutual trust & respect
Feedback expected
Debate, decide, commit
Assume good intent
Better through diversity

ONE **AEROTEC**

Is your workplace safe?
Are you bringing your best?
Can you be successful?
It's OK to ask for help

FIT TO **FLY**

Bring solutions
W hat box?
No excuses

INFLUENCE THE **NEWS**

Professionalism expected
Keep it fun
Celebrate wins

SERIOUS WHEN **NEEDED**

PROJECT LEADERSHIP

Managed 100+ Certification Projects

- Experience on a wide variety of development programs
- Processes tailored to ensure just the right level of oversight
- Program leaders with a strong technical background
- Clear and open customer communication
- In-depth risk/opportunity assessments

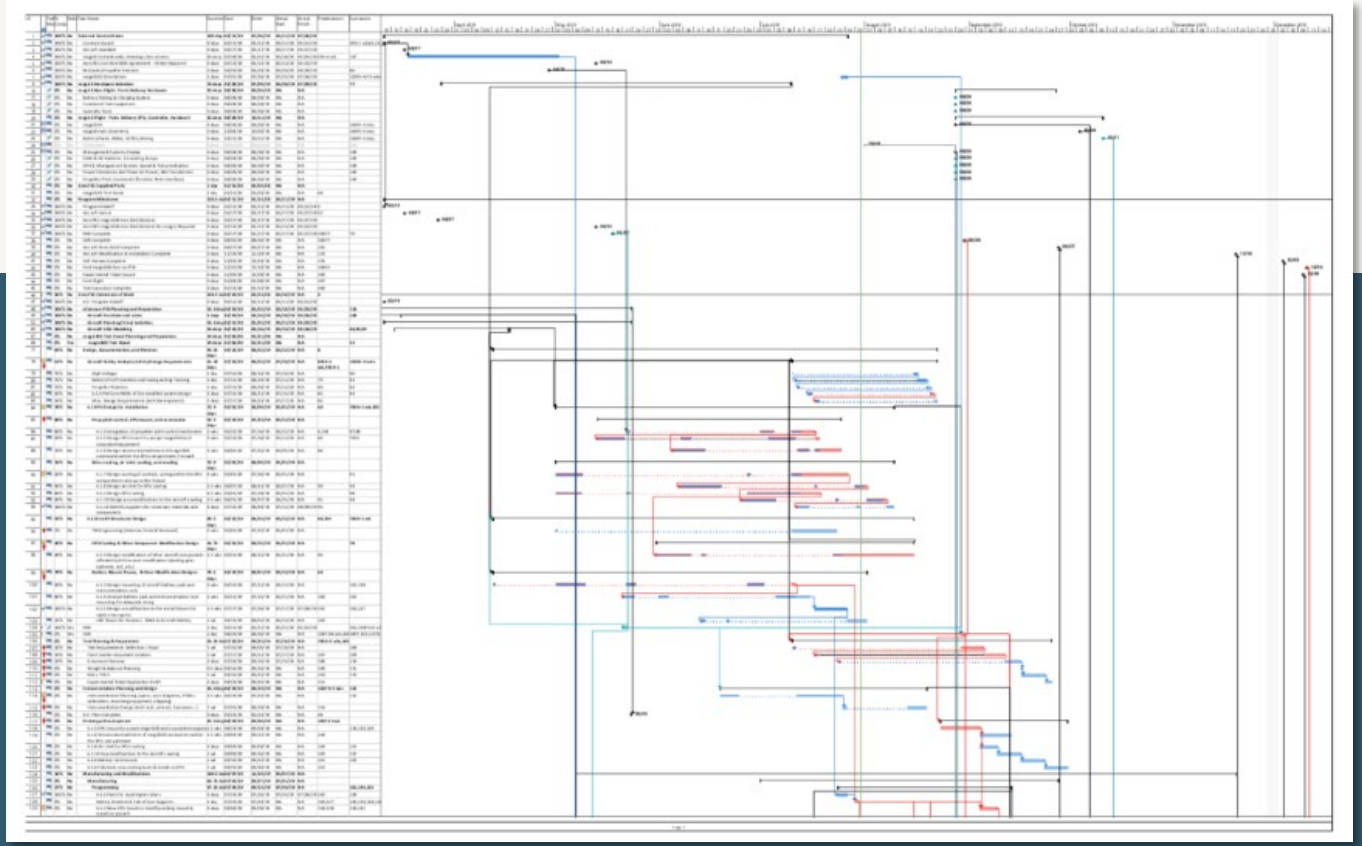
PROJECT SCOPING

SOW Co-development

We collaborate with customers to develop technical statements of work that are right-sized to meet program requirements.

Our team draws from a deep well of experience to design the lowest cost technically acceptable solutions.

TECHNICAL
SCHEDULES & BUDGETS



Integrated Program Schedule in MS Project

Outlines all tasks, resources and costs

Detailed schedule and project costs developed to meet customer needs

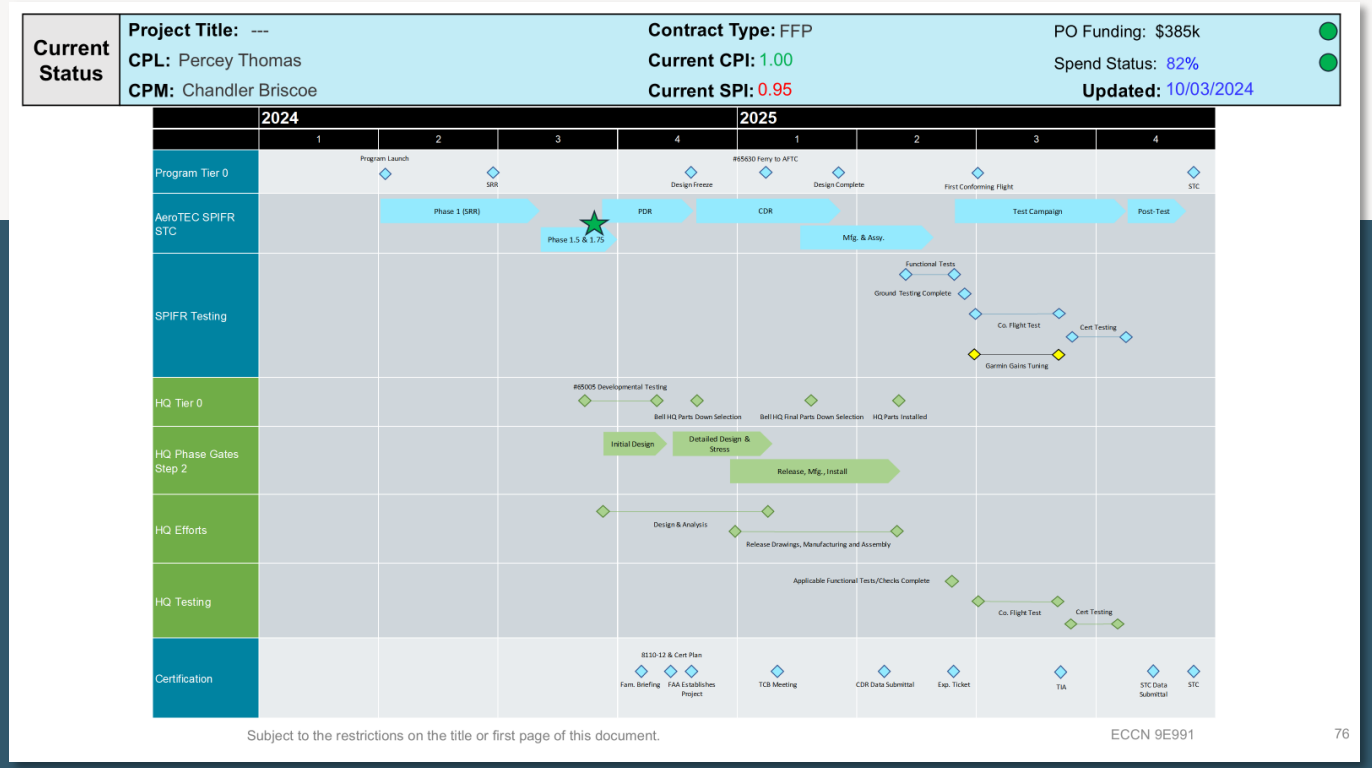
Program managers identify program

- Tasks
- Costs
- Resources
- Schedule

Developed in coordination with:

- Customers
- Technical Subject Matter Experts (SME)

ENSURING PERFORMANCE TO PLAN



Subject to the restrictions on the title or first page of this document. ECCN 9E991 76

Weekly Project Reporting

Communication of project status & controls

Weekly project reporting adaptable to customer internal processes

Project Controls

- Budget Performance
- Schedule Performance
- CPI & SPI
- Program Risk Monitoring

Responding to problems

- Risk Management
- Aggressive corrective action plans

WORKING WITH AEROTEC

Values in Action

- Collaborative approach to program management through open communication
- Customer IP safeguards
- Commercial flexibility and creative contract structures
- Kickstarter POs to keep projects moving while larger work scopes are negotiated

PROTECTING YOUR IP

Values in Action

- All programs segregated and allocated a unique program identifier
- Document management system is invitation only
- Annual training of ITAR & export control policies for all employees
- OPSEC training provided for required projects
- Nationality and training records accurately maintained by HR
- Cybersecurity maintained to CMMC standards
- There is no co-mingling of data

How can we help?