

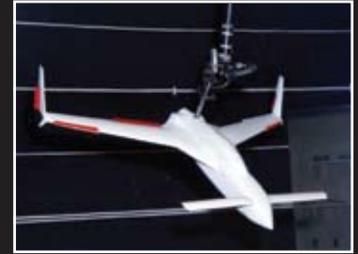


General Aviation Support Services

Flight Dynamics Analysis and Simulation



BAR's 30+ years of experience will ensure the success of your GA program



Prototype Model Construction

BAR model engineers and builders have extensive experience in engineering and fabrication techniques using the most appropriate methods to satisfy the customer's test and application requirements. Light-weight model fabrication methods pioneered by BAR have resulted in models that have been used for static and dynamic wind tunnel testing and later outfitted for sub-scale flight testing. BAR model methods have been used in some of the most demanding dynamic test applications.

Aerodynamics Data Collection

BAR offers many options for obtaining aerodynamics data for GA configurations ranging from wind tunnel testing to computational methods. BAR's wind tunnel testing services provide for the acquisition of static, dynamic and powered-effects data. Whether you have a sub-scale model or a full-scale flight article, BAR can accommodate your configuration using company-owned and partner facilities. For an initial assessment or as a supplement to wind tunnel testing, BAR's SimGen™ software provides a quick and easy computational method for generating aerodynamic data from 3-view drawings of the aircraft.

Flight Dynamics Analysis

An essential part of any GA development program is the assessment of the vehicle's ability to meet the design requirements. BAR provides the expertise to assess the aerodynamic characteristics of the aircraft over the full operational flight envelope and determine its suitability for its targeted profile. Whether the outcome of an assessment verifies the viability of the design or produces recommendations for design changes, an aerodynamic assessment is a critical step in assuring the success of any GA program.

Simulation Flight Model Development

Using data provided by the customer, collected in the wind tunnel, or generated from BAR's SimGen™ software, BAR can rapidly develop and deploy a full, non-linear six degree-of-freedom simulation flight model in the DSix™ environment for a gamut of design and support functions. BAR's simulation expertise, demonstrated through the development of over 180 military and civilian aircraft configurations, combined with BAR's commercial off-the-shelf (COTS) simulation tools, provide a complete solution for a variety of applications including: (1) auto-pilot and control law development, (2) mission capability assessment, (3) pilot training, and (4) marketing your GA aircraft to prospective buyers.

Flight Control System Development

BAR's flight control development expertise is capable of supporting the most demanding FCS development applications. The application of the latest software tools (Matlab Simulink integration with our DSix sim environment) and the latest control system methodologies (automated dynamic inversion methods for specialized controllers) distinguish BAR's control system design capabilities.

GA Support Services

Wind Tunnel Testing

- Build scale model for testing
- Determine viability of novel aircraft configurations
- Quantify powerplant effects on aerodynamic characteristics
- Identify stability & control issues
- Quantify precise vehicle performance
- Provide source data for high-fidelity flight simulation database

Simulation

- Develop high-fidelity flight models
- Assess flying qualities
- Develop and demonstrate control laws and auto-pilot functions
- Evaluate mission capabilities and hardware



Partial list of customers who have enlisted BAR's services