NAVAL AIR WARFARE CENTER AIRCRAFT DIVISION

The Naval Air Warfare Center Aircraft Division is the Navy's full spectrum research, development, test and evaluation (RDT&E), engineering and fleet support center. We are a recognized leader in the design, development and engineering of aircraft systems; shipboard, fixed and mobile communications; and information technology systems.

Atlantic Ranges and Facilities

The Atlantic Ranges and Facilities provides safe, instrumented, controlled indoor and outdoor flight and ground testing/training in air, land, and sea arenas. This includes design, development, operations, maintenance, and configuration management of range and generic ground test facilities. The Atlantic Range and Facilities provides management of extensive airspace resources covering the regions over the Chesapeake Bay and over the Atlantic Ocean along the coastline of Delaware, Maryland and Virginia. This Patuxent River complex is known as the Mid-Atlantic Test and Training Range. This demanding sea level environment is augmented by the Air Combat Environment Test and Evaluation Facility, the most advanced installed systems test facility in the world. Many virtual and simulated environments are supported by state-of-the-art laboratories including Manned Flight Simulator, Electronic Combat, Anechoic Chamber and C4I laboratories. Our unique focus on carrier aviation is supported by the Steam Catapult and Arresting Gear, the Landing System Test Facility, the "Hush House" and the Electromagnetic Environmental Effects (E3) facility. The Real-Time Dynamic Flight Test System provides a state-of-the-art engineering workstation designed to modernize flight testing.

Visit the Atlantic Test Range web site at: http://arf.navair.navy.mill

Air Vehicle

The mission of the Air Vehicle competency is to provide the people, processes and facilities necessary to support the maritime engineering needs of technology development, system acquisition and product support of all Naval Aviation aircraft. Support is provided to IPT's, Naval Aviation S&T Office (NAVSTO), and the general needs of naval aviation. Air Vehicle Engineering consists of Air Vehicle Systems Engineering, Aeromechanics, Structures, Materials, Vehicle Subsystems, Airworthiness, and Air Vehicle Technology Office.

Avionics & Electronics

The Avionics & Electronics product area includes RF sensors and all mission systems.

Highlights of this area include the Facility for Antenna Radar Cross Section Measurement (FARM).

Carrier Suitability & Support Equipment

Aircraft Launch and Recovery Equipment ALRE is responsible for design, development, evaluation, verification, fielding, and in-service engineering support for ALRE and aircraft/target/weapon SE. Provides life-cycle engineering support and interfaces with other competencies to optimize systems requirements definition, design specifications, development and acquisition support, evaluation verification/certification, in-service engineering, and Fleet technical support for ALRE and SE. Develops specification and contract work statements. Conducts engineering investigations of Fleet report discrepancies, and develops service change ECPs for ALRE and SE. Executes the timely acquisition and delivery of SE and ALRE equipment for U.S. Navy, Marine Corps, and FMS case site stand-up. Executes systems engineering for SE and ALRE development programs.

RESPONSIBILITIES
Life-cycle support for SE & ALRE; world-wide engineering support; limited manufacturing/prototyping capability.

RESOURCES
810 people; 450 engineers/scientists; 246 technicians/specialists TC-13 Mod0 & Mod2 cats;jet car track site;runway arrested landing site; elevated fixed platform; JBD site;EMI,environmental test,VLA and materials labs.

PROGRAMS SUPPORTED
Standard engine test set;integrated shipboard information system;universal jet air start unit;VSTOL optical landing system; GFE for CVN 74/75/76; electromagnetic A/C launch sys;Mk7 Mod4 arrest gear;P-25 fire truck; M-31 expeditionary arresting gear.

KEY PROCESSES
Acquisition strategy for ALRE; identification of core capability/critical skills; engineering investigations.

Cost Analysis

The Cost Analysis competency provides the Naval Aviation Systems Team (TEAM) with the people, processes, tools, technical knowledge, and facilities necessary to provide a clear and comprehensive understanding of total ownership costs and their attendant uncertainties to be used in developing, acquiring, and supporting affordable naval aviation systems. This competency provides program cost estimating; resource analysis; contract cost and schedule performance evaluation; and data quality standards in support of TEAM program

and project management efforts throughout a system's life-cycle. Additionally, the Cost Analysis competency provides coordination and control of cost analysis and cost data produced throughout the TEAM and develops TEAM-wide processes, policy and standards for cost estimating/analysis, data, and training.

Crew Systems

The Crew Systems Department provides the people, processes and facilities necessary to execute the engineering aspects of technology development, systems acquisition and fleet support for the coordinated life cycle management of all aircraft flight crew systems and the human engineering design for all flight crew and maintainer hardware/software interfaces. This includes the application of systems engineering and integration, design analyses, test and evaluation and maintenance engineering. Emphasis is on the design and operational integrity of human-machine systems in the areas of Cockpit/Crew Station Integration, Emergency Egress/Crashworthy Systems, Threat Protection/Mission Enhancement and Human Systems Integration.

Resources: 167 people; 114 engineers/scientists; 48 technicians/specialists. ejection tower; horizontal acceleration; advanced crew station lab; display evaluation lab; thermophysiology lab.

Programs supported: TACAIR & helo helmets; NACES escape system;body armor; laser eye and CBR protection; expanded aircrew accommodations; advanced crashworthy aircrew survival system Key processes:in-service engineering support; mishap investigation support; make-or-buy decision;human subject testing.

Logistics

The Logistics competency provides the Naval Aviation Systems Team with the people, skills knowledge, facilities, equipment, and logistics processes to develop, plan, and integrate support considerations into designs; and to establish and maintain integrated logistics support capable of supporting fleet operations and maintenance throughout the full life-cycle of aviation weapon systems and related equipment. This competency's principal focus is the support of integrated program teams (IPTs) and enterprise demands.

Propulsion & Power

Provides the engineering people, processes and facilities necessary to support Integrated Product Teams, Product Support Teams and Externally Directed Teams in technology acquisition, system acquisition and product support for Naval aviation. Responsible for the definition of technical requirements, performance monitoring, engineering investigation and evaluation, propulsion

system integration, in-service engineering and technology planning, development and transition. Responsibilities: support all navy airbreathing propulsion & power systems; rapid response to fuel & lubrication issues;mishap investigation.

Systems Engineering

Responsibilities: R&M,susceptibility and production systems engineering; systems safety
Resources: 413 people;303 engineering/scientists;61 technicians/specialists; VP & VS systems integration labs;E-6A/TACMO airborne frequency facility; tactical systems development facility;TAMPS lab;airborne low frequency facility;tactical aircrew combat training systems lab

- Customers:PMA-290 maritime surveillance A/C;PMA-265 F/A-18; PMA-275 V-22;PMA-241 F-14;PMA-299 multi-mission helos
- Programs Supported: F/A-18C/D FMS; F/A-18E/F integrated test team;F-14 precision strike & night vision cockpits;P-3C cluster ranger;V-22 FSD;JSF concept demonstration;E-2C mission computer upgrade
- Key processes: risk management;systems trades;systems simulation models & Prototypes;design reviews.

Test & Evaluation

The Test and Evaluation (T&E) TEAM is the supplier of choice for life cycle test and evaluation. We support the Naval Aviation Systems TEAM in the development and fielding of quality aviation vehicles, weapons systems and related products for the Operating Forces. Our people, processes, facilities, resources and leadership are dedicated to satisfying the test and training requirements of the Navy program managers, fleet operators and other customers. We are committed to uncompromising quality at the least cost to the taxpayer.

Training Systems

Within the Naval Air Systems Command, the NAWCTSD provides fully integrated life-cycle support (i.e., research, front-end analysis, acquisition, product support, and disposal) for training systems using state-of-the-art simulation and training technologies for all Naval warfare areas and other services.

NAWCTSD is also one of the cornerstones of the National Center of Excellence for Simulation and Training (NCOE), established in 1985 by the Governor and the Cabinet of the State of Florida

Visit the Training Systems homepage for more information on products and services at: www.ntsc.navy.mil.

Warfare Analysis

Health of Naval Aviation (HONA) Analysis and Assessment

- Manage and maintain the HONA data base
- Conduct long range force level planning
- Maintain the Long Range Planning System (LRPS)
- Support OPNAV (N88) in development of the Naval Aviation budget

Source Selection Management

- Provide formal source selection evaluation leadership to NAVAIR and PEO programs, formulate associated policy, develop procedures, and ensure consistency.

Analysis of Alternatives (AoAs) and Warfare Analysis, Modeling and Simulation

- Conduct AoA's, which are useful to decision-makers according to DOD guidelines
- Assess performance of warfare systems in the projected operational environment

Threat and Scenario Analysis and Support

- Provides most up-to-date and validated technical information on weapon systems that are threats to future and deployed naval aviation systems. Analysis may include threat country studies to include threat weapons system characteristics, tactics, and order of battler for present and future areas of interest.
- Provide validated threat scenarios both present and future for use in modeling and simulation for test and evaluation and research and development

Systems Requirements and Technology Assessments and Concept Design and Evaluation

- Analyze system performance to define potential operational benefits of various levels of Capability
- Assess potential operational benefits of insertion of technologies into naval systems
- Theoretical prediction of the functionality and effectiveness of a system made up of platforms, weapons, sensors, data links and operators
- The preliminary determination of a typical configuration for a new system, (i.e., aircraft or weapon) that would foretell the likely vendor response to a solicitation for bids in a acquisition. Analytical estimates of the feasibility, performance and utility of proposed configuration of a system (i.e., air platform, weapon system, sensor system)

Weapons

The mission of the Weapons and Subscale Targets competency is to provide the people, process and facilities necessary to support the maritime engineering needs of technology development, system acquisition and product support of all Naval Aviation weapons and subscale targets. Support is provided to IPTs/EDTs/ETs maritime aviation technology programs and the general needs of

Naval Aviation. Weapons and Subscale Targets consists of the following Level 3 Competencies: (1) Weapons/Subscale Targets Integration, (2) Guidance and Control, (3) Airframe, Propulsion, and Ordnance Systems, (4) Science and Technology and (5) Weapons Prototyping.