

MISSION



An AIM-9 Sidewinder missile begins its early separation from an F-22 Raptor during a launch test over Edwards AFB.

Photo by Judson Brohmer

• AIR FORCE FLIGHT TEST CENTER

The Air Force Flight Test Center at Edwards Air Force Base, Calif., is the Air Force Materiel Command center of excellence for research, development, test and evaluation of aerospace systems for the United States and its allies. It operates the U.S. Air Force Test Pilot School and is home to NASA's Dryden Research Center and considerable test activity conducted by America's commercial aerospace industry.

From the development of the country's first jet aircraft to the Air Force's newest fighter, the F/A-22 Raptor, the test forces at Edwards have played a role in the development of virtually every aircraft to enter the Air Force inventory since World War II. With the center's capability of just-in-time testing, Edwards can provide real-time solutions during combat operations. This combat support establishes the Flight Test Center's direct and tangible link to the warfighter.

Guiding this considerable tasking is the Air Force Flight Test Center Headquarters. Led by a two-star general and his command section, Flight Test Center staff agencies include comptroller, contracting, environmental management, history, information technology, inspector general, intelligence, plans, protocol, public affairs, safety, small-business office and the staff judge advocate office.

The two major organizations carrying out the center's mission are the 412th Test Wing and the 95th Air Base Wing, with more than 5,500 service members and government employees.

The 412th Test Wing manages the center's flight operations programs and functions. In doing so, it manages all engineering support for manned and unmanned aerospace vehicle test programs. With many different types of planes operated by the 412th aircrews, the Edwards flight line takes on an almost expeditionary aerospace force look.

The aircraft flown here include the B-1B, B-2, B-52, C-12, C-17, NKC-135, KC-135, CV-22, F-15, F-16, F/A-22, F-117, T-38 and T-39. Additionally, the Global Hawk unmanned aerial vehicle and L-23 glider are tested at Edwards. The Airborne Laser 747 test platform is currently undergoing development and modifications for testing and in 2005 the X-35 Joint Strike Fighter aircraft will be tested here.

The 412th Test Wing also programs, develops, operates and maintains engineering technical services and facilities to support testing, and operates and manages logistic support.

The Test Wing's support-side counterpart, the 95th Air Base Wing, runs Edwards like a small town, delivering a quality of life that makes the base a great place to live and work. The Air Base Wing maintains the security, roads, buildings, transportation and community support services that make the flight-test mission possible. It provides the housing, childcare, recreational activities and medical care that affect every person on base. Without the Air Base Wing, the Flight Test Center could not succeed in helping to keep our Air Force the world's finest.

TEST WING AND AIR BASE WING STRUCTURE:

412th Test Wing

- U.S. Air Force Test Pilot School
- 412th Operations Group (OG)
 - 410th Flight Test Squadron
 - 411th Flight Test Squadron
 - 412th Flight Test Squadron
 - 412th Operations Support Squadron
 - 416th Flight Test Squadron
 - 418th Flight Test Squadron
 - 419th Flight Test Squadron
 - 452nd Flight Test Squadron
- 412th Maintenance Group (MX)
 - 412th Component Maintenance Squadron (CMS)
 - 412th Equipment Maintenance Squadron (EMS)
 - 412th Aircraft Maintenance Squadron (AMXS)
 - 412th Maintenance Operations Squadron (MOS)
- Electronic Warfare Directorate (EW)
- Engineering Directorate (EN)
- Project Management Directorate (DR)
- Resource Management Directorate (RM)

95th Air Base Wing

- AFFTC Museum (MU)
- Chaplain Office (HC)
- Command Post (CP)
- Military Equal Opportunity (ME)
- Plans & Programs Office (CA)
- 95th Mission Support Group (MSG)
 - Logistics Readiness Division (LRD)
 - Support Squadron (MSS)
 - Security Forces Squadron (SFS)
 - Services Division (SV)
- 95th Medical Group (MDG)
 - Medical Support Squadron (SGS)
 - Medical Squadron (SGO)
 - Aerospace Medicine Squadron (SGP)
- Civil Engineer/Transportation Directorate (CE)
 - Engineering Division (CEC)
 - Explosive Ordnance Disposal Division (CED)
 - Fire Protection Division (CEF)
 - Housing Office (CETH)
 - Resources Division (CER)
 - Transportation Division (CET)



F-22 Raptor.
U.S. Air Force photo



A KC-135 refuels an F-22 Raptor.
USAF photo by Kevin Robertson



A KC-135 refuels a B-2 Spirit.
U.S. Air Force photo



CV-22 Osprey.
Photo by Thomas Powell



C-17.
U.S. Air Force photo



A C-130J Hercules sits in the Benefield Anechoic Facility for defense systems testing.
U.S. Air Force photo by Thomas Powell

• DEVELOPMENTAL TEST AND EVALUATION

Edwards' contribution to the U.S. fighting forces results from test and evaluation—the bedrock of the Air Force Flight Test Center's existence.

The fundamental purpose of test and evaluation, known as T&E, is identifying risks that need to be reduced or eliminated before a system is sent to field bases. Here, the major type of test and evaluation is developmental.

Developmental T&E, known as DT&E, occurs as early as possible in the test and evaluation process and involves close collaboration with the system developer when it's still practical and affordable to change design. It serves as a bridge between system designers and operational users.

Operational test and evaluation, known as OT&E, usually done at other bases, takes a system shaped by DT&E and determines whether it's effective and suitable for its intended task.

The present Air Force test and evaluation philosophy employs combined DT&E and OT&E to increase efficiency and to ensure participation by operational testers prior to major acquisition milestones. The center relies on the combined test force to carry out this mission.

A combined test force, known as CTF, is an integrated product team consisting of three independent groups—a contractor test team,

an Air Force developmental test team and an Air Force initial operational test team—working together to meet respective taskings. The purpose of the CTF concept is to minimize duplication and accomplish required test programs while conserving resources.

Besides flight test facilities, the Flight Test Center has an array of ground test facilities. The Avionics Test and Integration Complex, which includes the massive Benefield Anechoic Facility, allows for complete testing of a fully integrated avionics suite in a simulated flight environment, including electronic threats and computer software checkout.

For example, when aircraft systems are tested for integration with other on-board functions, a plane is placed inside the BAF's anechoic chamber—the world's largest electronically secure and quiet environment that realistically simulates an outdoor range. The benefit of this and other modeling and simulation is safer, less expensive testing.

Other aircraft test resources at Edwards range from general support aircraft to extensively modified weapon systems with a full range of instrumentation. Some of the center's flight test engineering capabilities focus on propulsion, human factors, manned and unmanned aerospace vehicles, access to space, weapon delivery and parachute equipment.

• LINKED TO GLOBAL ENGAGEMENT

These and other disciplines directly link Edwards to a vision for the 21st century America's Air Force. Global vigilance, reach and power—and its six core competencies: air and space superiority, global attack, rapid global mobility, precision engagement, information superiority, agile combat support, command and control.

How?

- By ensuring weapons systems—needed to control what moves through air and space—perform as advertised.
- By ensuring long-range combat platforms can reach beyond friendly borders and can respond effectively in any crisis.
- By ensuring airlift and aerial refueling aircraft can move forces and firepower anywhere in the world at any time.
- By ensuring fighters and bombers can successfully apply selective force against specific targets.
- By ensuring intelligence-gathering planes and unmanned aerial vehicles can deliver powerful knowledge.
- By ensuring Edwards troops are trained thoroughly to join an air expeditionary force deploying to a global hot spot.

As the Air Force transforms into an expeditionary aerospace force, the center will march in step with its T&E mission.



A NATO Airborne Warning and Control System aircraft flies with three F-16 Fighting Falcons during a test mission.

U.S. Air Force photo by Tom Reynolds