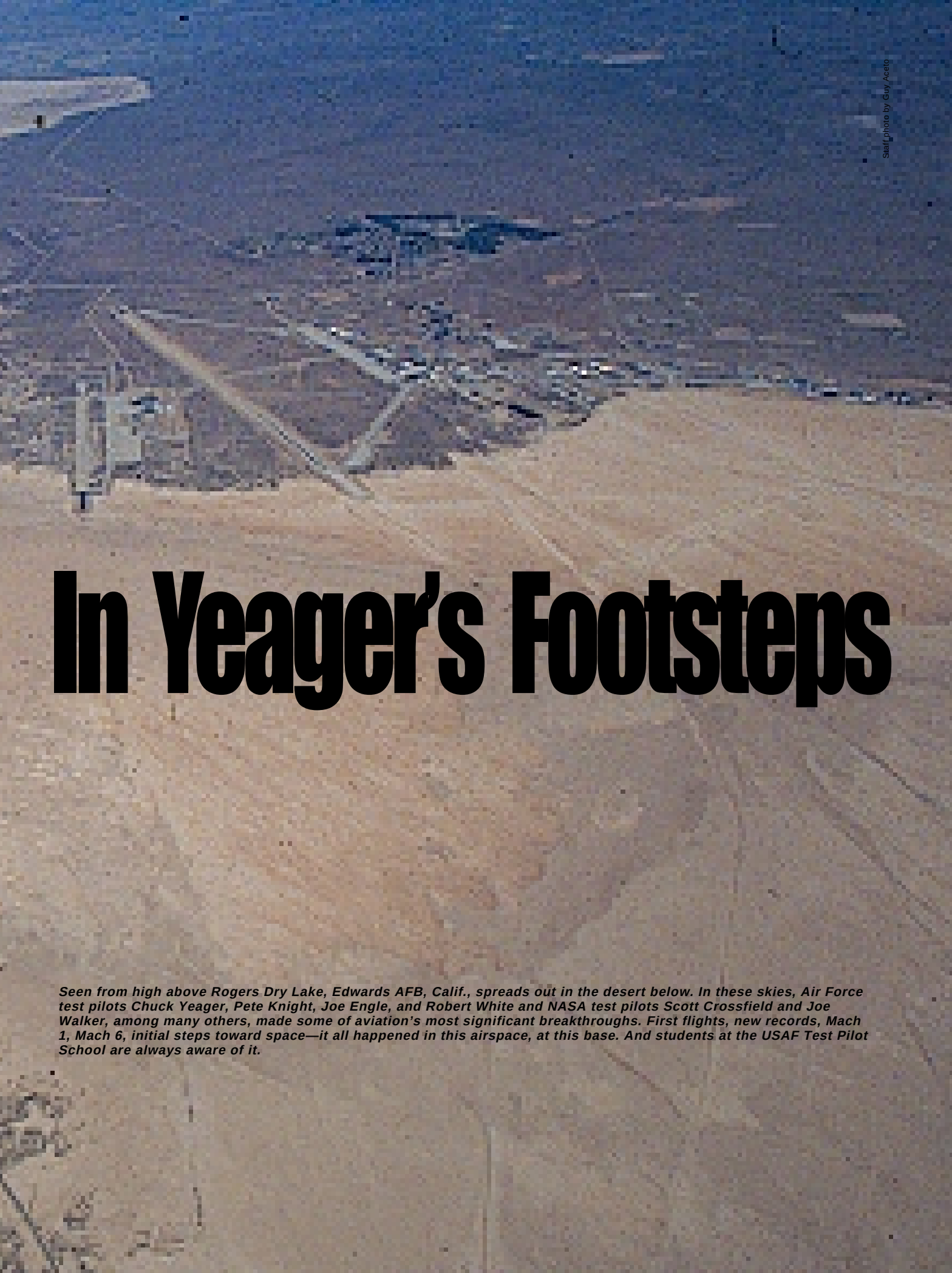
Pilots, navigators, and engineers train at the USAF Test Pilot School—preparing to write new chapters in aerospace history.

Photography by Guy Aceto, Art Director, and Paul Kennedy



Staff photo by Guy Aceto

In Yeager's Footsteps

Seen from high above Rogers Dry Lake, Edwards AFB, Calif., spreads out in the desert below. In these skies, Air Force test pilots Chuck Yeager, Pete Knight, Joe Engle, and Robert White and NASA test pilots Scott Crossfield and Joe Walker, among many others, made some of aviation's most significant breakthroughs. First flights, new records, Mach 1, Mach 6, initial steps toward space—it all happened in this airspace, at this base. And students at the USAF Test Pilot School are always aware of it.

The USAF Test Pilot School is located at Edwards AFB, which is in the desert of southern California about 75 miles northwest of Los Angeles. Edwards is also home to the Air Force Flight Test Center, NASA Dryden Flight Research Center, Air Force Research Laboratory Propulsion Directorate, and other associated units and agencies.

The military first came to what was then called Muroc in 1933 to design and maintain an Army Air Corps bombing range. Muroc AAF became Edwards AFB in 1950. More than 150 first flights have taken place at Edwards—from the XP-59A, spawning the turbojet revolution, to the X-15, with its hypersonic breakthrough, as well as firsts like Yeager's Oct. 14, 1947, breaking of the sound barrier.

Staff photo by Guy Aceto

Photos by Paul Kennedy

At the school, pilots, navigators, and flight test engineers learn to evaluate aerospace vehicles and systems. They undergo 48 weeks of training: some 537 hours of academics, 52 hours of labs, 21 scored academic tests, nine graded reports, comprehensive oral exams, and some 130 hours of flying for the student test pilots. The students are an experienced group. Pilots and navigators have an average of 8.4 years in service and 1,400 hours of flying time. The engineers are also experienced, with an average five years in service and 170 flying hours.

The intent students (Capts. Scott Ormsby and Greg Gilbreath) at left are attending class in a temporary facility. The Test Pilot School is undergoing extensive upgrading to its original building.

At right, USAF flight test engineer Capt. Michelle Dale listens to a previous lecture. Students also come to the school from other services and industry. Above, Canadian exchange pilot Capt. Ryan Palmer takes notes during a class.

Staff photos by Guy Aceto

Above are a twin-engine C-12 and an F-16B—two of the many aircraft used by the students during their nearly year-long training. They must be able to evaluate a wide variety of aircraft. These two, like most of the aircraft flown by the school, belong to the Edwards fleet or are contracted.

The school has only two assigned aircraft—gliders. At one time it did conduct spin testing in USAF AT-37s, but once that airframe reached the end of its service life, the school contracted commercial aircraft to perform that part of the curriculum.

Students spend the majority of time in T-38 Talons. At left is an AT-38. However, before they graduate, students will fly in as many as 30 different types of aircraft. And most of the aircraft used in the program have some modifications—additions of equipment used to conduct a variety of tests—whether internal or external.

Photos by Paul Kennedy

At left, engineer Dale and Capt. Jim Dutton go over the test points on a flight card, preparing for a flight during which they will collect data on the longitudinal stability of a T-38 test aircraft. Test flight briefs tend to run longer than standard operational briefs because of the need to document and measure every step in the process.

At right, Dutton and Dale go over details with the ground crew and perform their walk around check. They are going to fly a Data Acquisition System T-38. It's been modified with data collection equipment, including the test pitot tube mounted on the nose (top right). The idea is for the students to fly the jet and collect data, as if they were testing a new aircraft.

Below, Rogers Dry Lake offers not only a remote location and more than 345 sunny days a year but also the huge, flat lake bed itself. Hard and sunbaked, it provides an aircrew with options for recovering an aircraft, should things not go according to the test card. The lake bed has about 60 statute miles of runways on an area about 12.5 miles long by five miles wide. A second lake bed, Rosamond Dry Lake, has eight miles of runways.

Staff photo by Guy Aceto

Photo by Paul Kennedy

Students routinely practice landing on the lake bed. It's also used by NASA for the space shuttle. Behind the T-38 landing on the bed at left is one of two modified 747 aircraft NASA uses to transport the shuttle orbiter from Edwards to the Kennedy Space Center in Florida. If a shuttle needs to make a West Coast landing, it would normally use the main runway at Edwards but can land on the lake bed if wind conditions make it necessary.

Staff photos by Guy Aceto

A 45-minute drive north to the small town of Tehachapi, Calif., takes students to the Skylark North glider club at a local airport. At right and below, Lt. Tim West, a flight test engineer, gets a run down from the club's Gary Aldrich, a graduate of the Test Pilot School. Today, West will fly two sorties with instructor Aldrich.

A glider puts students in a different world from powered aircraft. Many enthusiasts say the lightweight aircraft gives them a better understanding of the dynamics of how an airplane flies.

The yellow aircraft above is a Schweizer 2-33, the same aircraft as the TG-4 used in the US Air Force Academy's Soaring Program. At left is the sleek and fully aerobatic Schleicher ASK-21.

Selected vintage military aircraft are carefully screened and brought out to Edwards for student orientation flights. Later the students complete reports on handling qualities and other aspects of the aircraft and flight. Even the instructors take advantage of the opportunity to fly a warbird. At right, instructor Maj. Doug Dodson gets briefed by John Harrison on the particulars of a T-28 Trojan.

Photos by Paul Kennedy

At left, a T-38 taxis to the runway while the T-28 does a touch and go.

Students learn to meticulously evaluate every flight. In the test world, describing handling as "mushy," for example, isn't enough; by the time they're through with this course, each student can describe an aircraft's handling in precise, quantitative terms.

New at the school is a space course, a cooperative effort with Air Force Materiel Command and NASA.Testers in the not-too-distant future will need to apply their analytical skills to a new breed of vehicle—piloted, small reusable spacecraft under development by the Air Force, NASA, and industry.

At right, first class members (from left, 1st Lts. Martin A. Martinez III and Nicole L. Rider and Maj. Scott E. Deakin) get instruction from NASA engineer John Bresina in flying one such vehicle—the NASA–Lockheed Martin X-33 reusable launch vehicle—via a NASA mission simulator.

For many students the Test Pilot School has been a step toward astronaut wings.

Staff photos by Guy Aceto

Above, a student puts an F-15E Strike Eagle through its paces. It's not like the movies: Rather than a seat-of-the-pants approach, TPS stresses a comprehensive, deliberate evaluation of systems and safely and carefully completing tests listed on the test card.

Photo by Paul Kennedy

The USAF Test Pilot School describes itself as the national center of applied aeronautical engineering, where the emphasis is on applying academic theory to military reality. The training is complex, varied, and intense to prepare students to handle any circumstances that may occur in a test flight.

TPS graduates follow in the footsteps of aviation pioneers as they train to become the technological leaders of tomorrow's Air Force. ■