





TESTED PILOTS

GENERAL AVIATION LANDS ON THE EDWARDS LAKEBED

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Edwards Air Force Base. The name alone conjures up images of the dry lakebed and aviation legends. Chuck Yeager and the X-1. Scott Crossfield and the X-15. John Young and Robert Crippen and the space shuttle. Tim Hu and the 182. *Tim who?*

The Air Force gave each pilot a specific landing time, so many were preflighting at their departure airports before dawn to make sure they arrived at Edwards on time.



PHOTOGRAPHY BY BRADY LANE AND COURTESY OF PANCHO BARNES TRUST ESTATE ARCHIVE

Tim Hu, EAA 660935, was one of the 102 general aviation pilots lucky enough to be selected to fly their own aircraft to the first Flight Test Nation Fly-In on October 1. More than 2,000 pilots leapt at the chance to fly in the same airspace where the sound barrier was broken and to roll their planes' wheels on the unusual surface.

"As soon as I saw the runway, my heart just raced," Tim said. "From base to final I realized that's what the shuttle and X-15 astronauts saw."

The event was billed by Edwards Air Force Base as a midair collision avoidance safety workshop, but it was so much more. Edwards is home to the Air Force Flight Test Center (AFFTC), which touts itself as the world's premier test flight facility. The base's two dry lakebeds of Rosamond and Rogers make incredibly smooth landing surfaces from any direction covering a total of more than 60 square miles.

The natural runways repave themselves periodically when winter

rains send small streams to the low-lying basins of Rogers and Rosamond. As the shallow water evaporates, insistent Mojave Desert winds lap the moisture over the clay, smoothing it anew. When dry, the surface forms a mosaic of shallow concave clay shards, looking like the debris of unfired pottery.

Some of the pilots described the surface like the top of a brownie, while others said it was like broken up potato chips. "It's certainly not like concrete. There's no question about that," said David Klein, EAA 606251, who flew his Cessna 182 to Edwards. "It's not like grass. It was very crunchy; it felt like going over a shag rug, very thick."

THE LEGEND BEGINS

It is said Gen. Al Boyd, father of modern Air Force flight testing, once called this place "God's gift to the Air Force." Gen. Henry "Hap" Arnold began using it in the 1930s for bombing practice and testing, with targets carefully arrayed on the clay surface with oiled grids for reference. Back then the place was

usually referred to by the name of the nearby enclave of homesteaders, whose post office was called Muroc, a reversal of the founding family's real name, Corum.

During World War II, America entered the jet age on Rogers Dry Lake as America's first jet aircraft, the Bell XP-59A Airacomet, made its initial flight on October 1, 1942—exactly 68 years before civilian pilots flocked to the adjacent Rosamond Dry Lake for the safety program.

The isolation of this place made it ideal for testing—few people were near enough to see the secret aircraft in development or be imperiled if something went wrong. And pilots could take comfort in having the lakebeds stretching beneath the piercing desert sun, ready to catch crippled X-planes on any heading to a safe landing.

No one knew that better than famed test pilot Scott Crossfield. In 1959, the expanse of dry clay on Rosamond lakebed provided a haven for him when the engine of his X-15 exploded. Forced to land with fuel



ABOVE: Pancho Barnes's place was the intersection between Hollywood cowboy stars and fighter test pilots. Matinee legend Roy Rogers and Republic Aviation test pilot Carl Bellinger with Pancho, probably during the filming of Son of Paleface in the nearby desert in 1952.

LEFT: A lonely sign stands guard amid scrub brush letting anyone who may venture into the desert know they are forbidden on the Rosamond lakebed.

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aboard, Scott made a steep descent, and when the rocket plane slapped down onto the clay, the fuselage broke just behind the cockpit. A cool-headed Scott was heard on the radio announcing, "My back is broken." Horrified rescuers were relieved when they reached him to find only the reparable X-15 had a broken back.

During the 2010 fly-in, F-16s and F-22s flew overhead, and the startling sonic booms they sent cracking across the lakebed reminded the modern fliers not only of that first jet flight, but also of the most famous event in Edwards's history—Chuck Yeager breaking the sound barrier on October 14, 1947.

Just to the east of the fly-in site, rubble is all that remains of the lively resort known as the Happy Bottom Riding Club or Rancho Oro Verde. Owned by Pancho

Barnes—the larger-than-life aviatrix who pioneered movie stunt flying—the club was a favorite of test pilots celebrating their ground-breaking flights, as well as Hollywood luminaries.

During the October safety fly-in, a vintage Bucker Jungmann biplane taxied up to the big tent erected on the lakebed, and a Pancho Barnes stand-in clambered out in flight jacket, riding boots, jodhpurs, and beret, bantering (possibly more politely than prototype Pancho) with Maj. Gen. David Eichhorn, then AFFTC commander.

"Historically, we've done a Pancho Barnes party every October," Gen. Eichhorn said. "I wanted to expand on that a bit this year, make it broader than just Pancho, but with a focus on Pancho because she is still the most colorful character we've ever had out here."

THE CHOSEN FEW

Gen. Eichhorn randomly selected the 102 pilots from the more than 2,000 that entered the online lottery. Only 100 were supposed to be selected, but the Air Force counted wrong and two extra were selected. An additional 20 were put on a waiting list in case someone had to cancel. Those who weren't selected were invited to drive to the event.

Jonathan Bailey, EAA 848359, went through several emotional stages once he learned he would be able to fly his Cirrus SR22 Turbo G3 to Edwards. "Shock, disbelief, then gratitude," he said. "When it sunk in I felt like I was given a very special opportunity."

The 44-year-old pilot thought about what the fly-in would mean to his father. "My dad has been in aviation all his life, grew up on the heels of World War II, and we have always loved the history of aviation. I figured it would give him pleasure to know his son landed at the place where



ABOVE: Tim Hu is giddy after landing his 182 on the dry lakebed at Edwards. The flight from Cheyenne, Wyoming, was his first cross-country over the Rockies.

LEFT: After an engine explosion, legendary test pilot Scott Crossfield's crash landing on the Rosamond lakebed in 1959 left his X-15 with a "broken back."



Under a high desert sun, a Decathlon is parked with other general aviation aircraft on the potato chip-like surface of the dry lakebed.

and cool to land at that particular restricted Air Force facility. I'd regret it if I didn't at least apply," Tim said. "I clicked 'submit' about 30 seconds before the deadline." Tim's quick work paid off.

Just as Edwards Air Force Base has helped test pilots broaden aeronautical horizons for decades, the fly-in provided the same opportunity for Tim and other general aviation pilots as well. The trip would be Tim's longest solo flight, and having to go over the Rockies literally took his flying to new heights.

"I had never taken a small airplane above 12,500 feet, let alone 16,500 feet," Tim said. "I had never used oxygen at altitude. I had never had to get an oxygen bottle serviced before." He applied a time-honored asset of test pilots, a positive mental attitude, to his journey. "I never before had flown in a 40-knot head wind for four hours straight—normally irritating, but I thought it part of the adventure."

LAKEBED LANDING TECHNIQUES

Tim had some trepidation at first about landing on the dry lakebed, ranging from possible wheelpants damage to engine sand ingestion to "pranging" his Cessna on the plain surface of the lakebed. "I'm not sure what it's like landing in the desert, because you get down to maybe 20 or 10 feet above the runway, the Air Force tells us that you lose your depth perception," Tim said. "You don't have grass, you don't have the usual markings you have at an airport."

Even Air Force pilots consider landing on the Edwards lakebed an experience. "Many of them are apprehensive about landing on our lakebed," said Bill Koukourikos of the AFFTC Flight Safety Office. "We invite them here, and they don't want to do it because they just don't know what to expect."

To help the pilots, the Air Force sent packets of information that included an instructional DVD on how to land on a lakebed, color knee cards of the specific fly-in arrival and departure procedures, and a unique transponder code and landing time.

all this history took place that he followed and dreamed about in real-time as a young man."

Many of the winning pilots were quick to share their good fortune. "I immediately called a few Ninety-Nines pilot friends to ensure that every seat of my Piper Arrow was filled for this once-in-a-lifetime opportunity," Cheryl Cooney, EAA 646756, said.

Pilots flew in from all over the country in everything from Bonanzas and Stinsons to homebuilts like an RV-6 and warbirds like a P-51 and a DC-3. There was even a Grumman Albatross, which looked a bit odd on a dry lakebed.

Jim Simmons, EAA 120292, and Rick Bernardi, EAA 742506, made the longest pilgrimage to Edwards; they launched out of

Meriden, Connecticut, in Jim's 1987 Mooney 205. "The idea of participating in such a historic event fascinated me, so I entered immediately upon learning about it," Jim said. "I never really thought I'd be chosen." When he got the call informing him he was selected, Jim said the caller even questioned whether he would actually fly there from Connecticut. "I never hesitated," he said.

The same can't be said for Tim. He learned about the fly-in lottery only minutes before the deadline to enter. His first thought—that the flight from Cheyenne, Wyoming, to Edwards would be too far—was quickly dismissed.

"I started thinking that this would be an epic adventure. I had never flown to California in a small airplane, and it would be so awesome

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With no visual references for a pilot to gauge height, the Air Force recommended landing close to the black oil line marking the side of the 300-foot-wide runway and using the aircraft's shadow as a guide.



Col. Dawn Dunlop, commander of the 412th Test Wing, discussed the role of women in aviation and flight testing.

The landing procedures sent to the pilots said, "Landing on the dry lakebed is like...well...landing on a lake, except it's dry." The Air Force recommended landing near the side of the 300-foot-wide runway, marked by thick black lines of oil, which could be used as a guide. Another suggestion was to use your aircraft shadow on the ground to help with

height awareness. It's common even for experienced pilots to flare high and drop in the landing. Therefore, the Air Force said some pilots like to land with power to use as little sink as possible.

Armed with this knowledge, Tim delicately landed his Cessna "like a butterfly with sore feet...flared, added just a touch of power, let out power real slow to idle, floated, and waited." Once he touched down, Tim noticed, "You could hear the tires crunch the dried mud as you rolled over it."

While landing and taxiing on the surface was a new experience for Tim, Carl Scholl, EAA 184061, didn't have any hesitation about planting his B-25 bomber on the clay. "For us it was just like driving around on pavement." It should be noted, however, he has a dirt strip in another part of the desert where he flies regularly.

Carl entered the lottery so he could get another historic runway in his log-book. Earlier in the year, he landed at the Wright Field complex of the National Museum of the U.S. Air Force in Dayton, Ohio. It only seemed right to log landings at both of these legendary hubs of flight test in the same year.

THE FLY-IN'S MISSION

The purpose of the event was to educate pilots on flying safely near restricted airspace or in military operations areas (MOAs), particularly around Edwards. "We want to reduce the risk of military and civilian aircraft possibly coming into contact with one another in the R-2508 Complex [Edwards's airspace]," said Bill. "We also want to foster goodwill and camaraderie between military and civilian fliers."

Like any good fly-in, the day began with a pancake breakfast hosted by EAA Chapter 1000. Afterward, pilots and passengers were treated to videos showing Edwards's history and the AFFTC museum collection, which includes the YF-22 prototype and a YF-117 stealth fighter.

The safety briefing was designed to foster understanding between civilian and military pilots since there are a number of civilian communities and airports within the R-2508 Complex. The Air Force gave out a safety brochure explaining the differences between restricted airspace and MOAs. For instance, restricted airspaces tend to have "invisible" threats like artillery, laser firing, guided missiles, and unmanned aerial vehicles, while MOAs

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Carl Scholl added a second historic runway to his B-25's logbook, having landed at the Air Force Museum's Wright Field in Dayton, Ohio, earlier in the year.

include air combat maneuvers, air intercepts, and low-altitude flying.

Bill gave advice—some mandatory, some merely prudent suggestions—on how general aviation pilots may gain permission to pass through restricted areas when they are not “hot” and how civilians can improve their chances of see-and-avoid when crossing MOAs. Military training routes in R-2508 can host jets flying faster than 500 knots as low as 200 feet above ground level. The brochure noted, “Many of the turn points along the military training routes are road intersections or other well-defined geographic points YOU might use yourself for a cross-country flight.”

Fly-in recipients also received this advice: “For flights inside the complex, realize that borders between restricted areas and MOAs are normally hard boundaries for general aviation aircraft. However, these borders may be soft boundaries for *military aircraft*. You may

find fast-moving aircraft coming from directions you don't anticipate.” The fly-in guests were told to keep at least 3 miles away from airspace boundaries to provide a buffer since military traffic may fly right up to the complex boundary.

Amid the banter and mutual admiration for each others' chosen aircraft, fly-in participants learned some sobering statistics from the Air Force's presentation brochure: “Studies have shown that if two aircraft are closing at 600 KIAS [knots indicated airspeed] on a collision course (you at 100 KIAS and the jet fighter at 500 KIAS), there is no way to avoid a midair if they see each other at closer than 1.5 miles. This even assumes the jet fighter pulls 7g's to try to avoid the impact. Assuming both pilots see each other at 1.5 miles, by the time they take the six seconds to move their aircraft, the impact will occur. No way out, none!”

Jonathan found the workshop very useful. “Especially learning about the fact that those military fast movers are really just flying visual like we civilians do, but have only mere seconds to react,” he said. “I always get flight following from ATC wherever I go VFR, but this reinforced the importance.”

For Jim, the fly-in's shared theme of women in aviation was a plus, as Air Force women who are test pilots talked about their perspectives with the audience. Perhaps modestly, Jim said, “I do not consider myself a ‘Right Stuff’ pilot. However, I have built three plans-built aircraft (two Steen Skybolts and a GP-4), and I was the test pilot for two of them.”

The fly-in on the storied lakebed gave civilian pilots a rare peek into the high-level world of flight testing. It gave the testers a chance to see and appreciate how varied the world of general aviation is.

“I guess the one thing the whole experience brought home is, no matter what plane you fly, civilian or military, we are all pilots and use the same skills, experience the same feelings, joy and fear, and choose to continue pushing our own limits for the unique rewards flying provides,” Jonathan said. “It is a special club, but its members share more in common than I used to think.”

Will the Air Force open up the lakebed to general aviation again? Bill already is talking about doing it in 2012, to alternate with years in which there is an air show at Edwards Air Force Base. Don't send in your request just yet, but maybe practice your test pilot steely gaze just in case... *EAA*

Fred Johnsen, EAA 761454, is director of the Air Force Flight Test Center Museum at Edwards AFB and serves on the staff of *AirVenture Today* each summer.

Steve Schapiro, EAA 101816B, is senior editor of *EAA* publications. To see a video and photo gallery of Tim Hu's flight into Edwards visit www.SportAviation.org.