



We can do better!

Women in USAF Test Pilot School represent broader STEM disparities



Air Force photograph by Kyle Larson

U.S. Air Force Test Pilot School Class 17B poses in front of the X-15 hypersonic rocket plane in March 2018. The class graduated June 8, 2018.

by **Jessica "Sting" Peterson**
Edwards AFB, Calif.

It's time to have some hard conversations.

Since the inception of the U.S. Air Force Test Pilot School in 1944 there have been 3,249 graduates to date; as of December 2022, only 87 have been female.

Over the past five years, the average female-to-male make-up of a USAF TPS class has been between 1-to-2 out of 24 students, and more than a quarter of the classes have been composed of only men.

It took having just five females graduate in one class, less than a fourth of class USAF TPS Class 20A, for the event to make national news.

With so much effort being put into diversity and inclusion in the military, specifically with women, why are the percentages of females ap-

plying and attending the USAF TPS still so low?

The student make-up of the USAF TPS is a barometer for the status of Science, Technology, Engineering, and Mathematics (STEM) education in the population. With the continued Air Force pilot shortfall and the looming shortage of STEM professionals, it is critical for our national security to increase the number of students studying aviation and STEM career fields across the board. This includes underrepresented groups such as women.

When you look at the general population numbers for females in both STEM and aviation career fields, it is not surprising the USAF TPS has such low numbers for females in the course.

These statistics unfortunately mirror national numbers in broader STEM career fields, for which females are drastically under-represented. According to the census, the general working population is composed of 48 percent females yet women

only make up 27 percent of the scientist and 15 percent of the engineering career fields. Within general aviation, women only make up nine percent of the pilot population. For the larger Air Force, women make up around 20 percent of the military ranks and 29 percent of the civil servant workforce. To increase the number of women who can apply to the USAF TPS, the pipeline of women in aviation and STEM career fields needs to be increased.

What are the barriers?

The first female graduate at the USAF TPS was Capt. Jane L. Holley, a flight test engineer, in 1975. It would not be until 1989 when Capt. Jacquelyn Parker would be the first female test pilot to graduate from the USAF TPS.

Historically there were many barriers that women in aviation had to overcome including air-

craft and flight equipment design. Aircraft cockpits and equipment were designed for the average range of a predominately male aircrew; women who were shorter or lighter were limited on what they could fly. Recent efforts on aircrew flight equipment and cockpit design are making military aviation more accessible for women, removing one of the barriers.

Another barrier is the core requirements to apply to the USAF TPS, a graduate level program with a master's degree in flight test engineering. To attend, a student must have a physical science bachelor's degree that includes science, engineering, and mathematics courses, with a technical master's degree preferred. In addition, rated aircrew must meet a minimum of at least 500-750 hours of flight time in their platform to apply for

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the course. These are key steps in education and a career before someone can even apply for consideration at the USAF TPS. Women are not reaching these core requirements compared to their male counterparts.

Additionally, once women enter a career in STEM and aviation, we need to continue to support them through their career and life progression.

The Air Force recently changed its policy regarding female aircrew. In the past, in order to continue flying, each member had to receive a waiver. Now, the member can request to continue flying without the requirement to get a formal waiver. These changes are a positive step forward in breaking down the barriers that have historically halted women from even applying to the USAF TPS.



Courtesy photograph

Jessica "Sting" Peterson, Technical Director, 412th Operations Group flies a glider to simulate a space shuttle approach in Tehachapi.

Why should we care?

In my career, I have found that team diversity provides benefits for creative thinking and ability to identify and cover blind spots that one-sided teams may miss.

Additionally, for just sheer numbers, the United States is not producing enough STEM graduates to meet national security threats. The United States' role as the world's foremost performer of research and development is changing as Asia continues to increase its investments.

For decades, the United States has led the world in the number of scientist and engineering doctorate degrees awarded. However, China is now closing that gap. In 2018, China awarded nearly 38,000 doctorates in natural sciences and in engineering; the United States awarded 31,000. If we are serious about the future of our country as a leader in technology and development, we need to nurture STEM education and career fields across our entire population.

What can we do?

Underrepresented groups, such as women, present an opportunity to boost the overall enrollment in STEM degrees and aviation careers.

To increase our numbers in advanced degrees, such as the USAF TPS, we need to start by increasing our numbers at the beginning levels of education. You can help by getting involved in STEM outreach and education at the K-12 level. Go to career fairs, volunteer to speak at our local schools, find science and robotics competitions to be involved in.

Most importantly, we all need to share what is cool about our job and how students can apply science and mathematics to the real world. I've tackled this by becoming a "STEMinist," advocating for STEM careers and putting myself out there

for the sake of our workforce.

While these conversations can be hard, recognizing the deficiencies in our current STEM career fields and choosing to act is critical for the prosperity and national defense of our country. We can do better.

Learn more about Edwards Air Force Base STEM efforts at <https://www.edwards.af.mil/stem/>.

Editor's note: Jessica "Sting" Peterson is a United States Air Force Test Pilot School graduate and current adjunct instructor. She serves as the Technical Director for the 412th Test Wing Operations Group and maintains flying currency as a flight test engineer for a variety of tactical and fixed-wing aircraft.

Virgin Orbit files for bankruptcy protection

by **Stuart Ibberson**
editor



Virgin Orbit photograph

Long Beach, Calif., based Virgin Orbit filed for Chapter 11 bankruptcy protection April 3.

The company told the U.S. Bankruptcy Court in the District of Delaware that it is looking to sell off its assets.

The filing went on to say that Virgin Orbit had secured \$31.6 million in debtor-in-possession financing from Virgin Investments Ltd. Virgin Investments is owned by Sir Richard Branson, who founded Virgin Orbit.

According to Dan Hart, Virgin Orbit CEO, once financing is approved by the court, the funds would provide the company the liquidity to continue operating as it looks for buyers.

"While we have taken great efforts to address our financial position and secure additional financing, we ultimately must do what is best for the business," Hart said.

What is 'best for the business,' includes "swift conclusion to its sale process in order to provide clarity on the future of the Company to its customers, vendors, and employees." That includes trying to find a buyer for the company rather than just selling off its assets.

"We believe that the cutting-edge launch technology that this team has created will have wide appeal to buyers as we continue in the process to sell the company. At this stage, we believe that the Chapter 11 process represents the best path forward to identify and finalize an efficient and value-maximizing sale," Hart said.

In its filing with the court, the company said it has between 200 and 999 estimated creditors. As of Sept. 30, it had about \$243 million in total assets, and \$153.3 million in total liabilities.

Early in March, Virgin Orbit said it has 'paused' all work but did not say how long that pause would last. Then, at the end of March the company announced it was laying off 675 people — about 85 percent of the total workforce.

The bankruptcy filing comes a day after the company had informed the Securities and Exchange Commission that it would be unable to file an annual report, known as Form 10-K, in time.

"Based on currently available information, management anticipates that it

will be disclosing in the Form 10-K that the company's liquidity condition raises substantial doubt about the company's ability to continue as a going concern for at least 12 months from the expected issuance date of the Form 10-K," the company said in its SEC filing.

The LauncherOne program started as an initiative within Virgin Galactic in 2012. The rocket was designed to be launched from the WhiteKnightTwo aircraft used by Virgin Galactic for its SpaceShipTwo suborbital spaceplane. The company scaled up the rocket, and in 2015 announced it had acquired a Boeing 747 from Virgin Atlantic to serve as the launch platform.

Virgin Orbit was spun off to create Virgin Orbit in 2017 to target the market for small satellite launch. The company's LauncherOne rockets are launched mid-air from a modified Boeing 747 based at the Mojave Air and Space Port. This should allow for more flexibility than launching from fixed sites.

Virgin Orbit had several successful launches from its base in Mojave, launching satellites for private business and the U.S. government, over the Pacific Ocean off the coast of Southern California. But its most recent launch, from southwest England, ended in failure. In its March 31 layoff announcement, the company said an investigation found the rocket's fuel filter had become dislodged causing an engine to overheat, and other components to malfunction.

The company's shares, which are listed on the Nasdaq stock exchange, fell 24 percent before the opening bell on April 4, and are now worth about 15 cents. Two years ago, shares traded above \$10.

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Support organizing to complete flight test museum

by Larry Grooms
special to Aerotech News

On March 22, an occupationally diverse group of Aerospace Valley citizens became the first cohort in a series of National Museum League Training Camps preparing an ancillary fundraising team to finish construction of the Flight Test Historical Foundation Museum.

Just after a cold and windy day-break, a dozen invitees representing economic development, media, mar-

security shutdowns after 9-11, extended by anti-terrorism efforts, and the arrival of the pandemic and most recently, national recession, supply-chain disruptions leading to shortages of construction materials and doubling the costs for almost every phase of the construction program.

Because the Aerospace Valley museum's program involves transporting military based historic inventory to a public-accessible off-base site, the Flight Test Historical Foundation's publications all include this

Rex Moen, longtime museum foundation board and executive board member, served as a career legislative staffer for the late California State Sen. Col. William J. "Pete" Knight. Knight made aerospace history and won astronaut wings for flying the X-15 rocket research to hypersonic speed and reaching space.

As a member of the Flight Test Museum Foundation's Board of Directors for more than 23 years, Moen is first the foundation's fundraising chair.

Joining Moen on the training team tour were: Flight Test Museum Director George Welsh, tour guide and driver; Jimmy Doolittle III, past FTHF chair and retired vice-commander at Edwards; David Smith, Air Force Plant 42 Director, FTHF Board member and chair of the NML Speakers Bureau.

Danny Bizzell, The Commander's Community Adviser, welcomed the tour and delivered a briefing on history and mission of Edwards, which he called "The Center of the Aerospace Testing Universe."

Joining him at the doorway were other key museum leaders, including Art Thompson, chairman of the Flight Test Historical Foundation Board of Directors, the non-profit lead planner and fund-raiser for its annual "Gathering Of Eagles," and ongoing membership drive and donor recruitment program. The program includes financial partnership with the Society of Experimental Test Pilots in building the Education Center to house SETP's priceless archives in the Bob Hoover Library and Conference Center. Next major steps will include roofing installation and cloaking exterior and interior framework, notably the Education Center.

Thompson presented the case for the new museum's successful outcomes by pointing out the universally unique conditions that make it not just



keting, civilian/military and veteran groups and some elected officials boarded a van for an eight-hour tour, with scheduled stops at historic locations and inside an ancient hangar concealing aircraft historically unique to Edwards AFB.

First stop on the tour was the existing on-base museum structure, too small to accommodate most of the aircraft in the inventory, and largely inaccessible to the public because of a series of unfortunate events. With

notice to avoid any misunderstanding: "The mission of the Flight Test Historical Foundation (FTHF) is to raise funds to support the development of the Air Force Flight Test Museum at Edwards AFB. A private, nonprofit 501(c)(3) organization, the FTHF's fund-raising efforts focus on museum improvements, exhibits and aircraft acquisition/restoration. We are actively engaged in STEM education and construction of a new, more accessible, museum facility."



Photographs by Larry Grooms



another local attraction, but a one-of-a-kind worldwide tourist "mecca," a new family-affordable vacation location. Like taking the kids to the aerospace version of Disneyland where the rockets and airplanes are real and tour guides share "The Right Stuff," having actually "been up there and done that cool and inspiring stuff."

And Thompson repeated the punchline showstopper on his video: "People talk about going to Kitty Hawk to see where the first American airplane flew. After that, the first flights of everything else came here."

Members of the first Training Camp group were: Thompson; Kathy McLaren, president of AV/Edge; Matt Winheim, president of Edwards AFB Civilian/Military Support Group; Paul Vitale, president of the Pete Knight Chapter of Air & Space Forces Association; Laura Wyatt, district director for Kern County Supervisor Zack

Scrivner; Dennis Anderson, adviser for newspaper campaign articles; Larry Grooms, aviation news writer, Aerotech News and Review; Claudia Elliot, Tehachapi News reporter; Claudia Baker, owner, Tehachapi Loop Newspaper; Mark Laciura, reporter, Tehachapi Loop; Stuart Naucht, Richmond Properties; Maria "Ali" Villalobos, representing Lockheed Martin.

Future Training Sessions

Moen explained that about 11 more Flight Test Museum Foundation Life Friends Campaign Training Camps are scheduled for up to 13 participants from the Tri-County Los Angeles, Kern and San Bernadino regions. The camps, all to be held at Edwards AFB on a weekday from March through June, are expected to raise funds to permit timely resumption of the remaining construction work.

USAF conducts second ARRW hypersonic test

A U.S. Air Force B-52H Stratofortress released the second All-Up-Round AGM-183A Air-launched Rapid Response Weapon off the southern California coast March 13, 2023.

This test was the second launch of a full prototype operational hypersonic missile and focused on the ARRW's end-to-end performance. The test met several of the objectives and the ARRW team engineers and testers are collecting data for further analysis.

But in March 28 testimony before the House Appropriations Committee defense panel, Air Force Secretary Frank Kendall said the test was "not a success."

Kendall also indicated the Lockheed Martin-made AGM-183A Air-launched Rapid Response Weapon program may be in jeopardy. The service, he said, is "more committed to HACM [the Hypersonic Attack Cruise Missile, the service's other major hypersonic weapon program] at this point in time than we are to ARRW."

The ARRW effort "has struggled a little bit in its testing program," said during a hearing on the fiscal 2024 budget request. He said an ultimate decision on whether to continue with the program could come as part of the fiscal year 2025 budget process next year following a study of the failed March test and possibly two more test launches.

Hypersonic weapons can travel at speed up to Mach 5, are highly maneuverable and difficult to track. Russia and China are investing heavily in developing these weapons.

While the test flight occurred on March 13, the Air Force did not announce the test until March 24. However, the service only announced that the test had taken place, saying it met "several of the objectives."

While Kendall said the test was not successful, he did not comment on how it failed.

"We did not get the data that we needed from that test," he told lawmakers. "They're currently examining that, trying to understand what happened."

The Air Force has two more ARRW prototypes it plans to test after the studies on the failed test are done, Kendall said.

"We'll probably have to make a decision on the fate of ARRW after we complete the analysis, and hopefully do those two tests," Kendall said. "We'll revisit it, I think, as we build the 2025 budget



Air Force photograph by Matt Williams

A B-52H Stratofortress assigned to the 419th Flight Test Squadron takes off from Edwards Air Force Base, Calif.

to see what will be done in the future."

The U.S. Air Force has received about \$115 million in research, development, test and evaluation funds for ARRW in fiscal 2023, down from \$308 million the previous year. For 2024, the service has requested \$150 million in RDT&E, but no procurement funds, and budget documents are silent on what the program's R&D funding could be in subsequent years.

Contrast that with HACM, which received \$423 million in fiscal 2023, and the Air Force wanting to spend nearly \$382 million on that

program's RDT&E in fiscal 2024. The service's budget documents map out a plan for spending nearly \$1.5 billion more on HACM between fiscal 2025 and 2028.

Kendall said HACM has been "reasonably successful."

"We see a definite role for the HACM concept," Kendall said. "It's compatible with more of our aircraft, and it will give us more combat capability overall."

The 412th Test Wing at Edwards Air Force Base, Calif., executed the ARRW test flight.

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NASA takes weather instrumentation to new heights

by Jim Skeen
NASA Armstrong

Researchers at NASA's Armstrong Flight Research Center in Edwards, Calif., developed an innovative atmospheric sensor suite, which can monitor air quality, help uncrewed aircraft avoid dangerous wind shears, and aid noise studies.

The idea for the sensor suite, called SonicSonde (pronounced Sonic S-ON-D), evolved from NASA Armstrong's research into noise from non-engine aircraft components during airplane landings. Because weather conditions impact how sound travels, the team wanted data on conditions such as temperature, moisture, and wind speed, but no one instrument could provide all the data to the resolution required by advanced research projects.

"Ultimately, the SonicSonde project came about because we saw that there was that gap in technology," said Senior Meteorologist Kimberly Bestul, the principal investigator for SonicSonde.

The team worked with an external weather instrumentation company to build a custom, lightweight sonic anemometer and then worked with NASA Armstrong's model shop to develop a frame that allowed the instrument to spin into the direction of the wind.

A sonic anemometer, which uses ultrasonic sound waves to calculate wind velocity, is not new to the weather world, Bestul said. Sonic anemometers are typically fixed on a tripod or a structure at the surface, whereas SonicSonde is exposed to constant motion while tethered and ascending.

"A key aspect of this development was figuring out the math to allow us to get rid of the motion effect on the sensor so that we report true wind measurements as it's going up and down that col-

umn of air," Bestul said. "In addition, we have a temperature sensor, relative humidity sensor, pressure sensor, and an air quality sensor onboard. We can get all the variable data and have it wirelessly fed down to a ground station computer in near real time to give us a snapshot of the atmosphere at that time."

The project was paid for through NASA Armstrong's Center Innovation Fund, a program aimed at encouraging creativity and innovation while addressing NASA's technology needs.

With the CIF funding, the SonicSonde project team custom-built a sensor platform that features a specialty, lightweight sonic anemometer, an instrument to measure atmospheric pressure, temperature, relative humidity, air quality, and wind velocities. Attached to two balloons tethered to a truck-mounted winch, SonicSonde provides measurements along a column of air up to 5,000 feet above ground.

"We chose a maximum altitude of 5,000 feet because the lowest layer of the atmosphere, specifically nearest the surface, is the most dynamically changing," Bestul said. "To be able to frequently sample, at a high resolution, various atmospheric parameters is beneficial because it allows us to see the changes that occur in short time spans."

Ground testing included attaching the instrument suite to a line to simulate swaying motion. That allowed the team to determine the proper math to correct for motion once the instrument was aloft.

"We started to do some ascent tests where we'd hold the instrument suite at a specific altitude and compare it to a fixed sensor at the same altitude," Bestul said. "We let it drift like it normally would on the blimp and then compared the SonicSonde

data to other sensor data to make sure that the math was still holding. From there, we did incremental altitude ascents to test how well the instrument suite was collecting data as it was constantly ascending."

The researchers developed customizable computer software to support and display real-time data streaming and they did ascent testing over six days, wrapping up late last summer. The team continues to analyze test results.

"By the time we were on the last test, we were live streaming all the data as it was going up,"

Bestul said.

The work resulted in a tethered sonic anemometer with the capability to capture a comprehensive snapshot of a vertical column of the atmosphere to a degree and resolution previously not obtainable in tethered instrumentation. SonicSonde offers flexibility to tailor data output and displays to specific research objectives.

"Everything that we set out to do, we accomplished," Bestul said. A patent is pending for SonicSonde and it already has interest from manufacturers looking to commercialize the technology.



NASA photograph by Lauren Hughes

SonicSonde is shown here in a close-up shot during one of its flight tests. NASA Armstrong's model shop developed a frame that allowed the instrument to spin into the direction of the wind.

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Veteran goes airborne again! 62 years later

by Dennis Anderson
special to Aerotech News

CORSICANA, Texas — The talk at the Liberty Jump Team hangar before jump day was about Juan Moreno. The last time he made a jump from an airplane as an Army paratrooper John F. Kennedy was president.

Moreno, an 82-year-old retired sales executive from Palmdale, Calif., earned his Army jump wings at Fort Campbell, Ky., with the 101st Airborne Division in 1959.

Now, 62 years later, as the wind and sun dropped, Moreno was boarding a C-47 transport that rolled off the assembly line about the time he was born during World War II.

Flown by an expert crew from Greatest Generation Aircraft, the plane dubbed “Southern Cross,” was taxiing on the tarmac, its Wright-Cyclone engines roaring like it was firing up for D-Day, June 6, 1944.

The plane was about to carry 15 commemorative parachutists aloft on “jump run” over the Gordon K. Smith Memorial Drop Zone, named for a hero

brother, Juan.”

Although the team is packed with Vietnam War-era veterans in their 70s, Moreno was title holder for senior jumper the first week of Spring 2023.

To make parachute jumps, the California veteran needed a doctor’s clearance, plus the ability to do 10 push-ups and sit-ups, and to run a half-mile in seven minutes.

“I can do all that, and I will get the doctor’s note,” Moreno told me.

The two of us shared a bond. When we met a year earlier at a veteran event dubbed Coffee4Vets, a weekly get-together at Crazy Otto’s Diner in Lancaster, Calif., we saw each others’ “Jump Wings” insignia. I asked him what unit he served with.

“A Troop, 3rd of the 8th Cav, in the 8th Infantry Division, Airborne,” he reeled off like it was yesterday. “That was in 1960.”

A dozen years apart, we served in the same troop, at the same base in West Germany, with the same mission, reconnaissance of the Cold War border with East Germany. We even slept in the same barracks, originally built for

He’ll be OK.”

Garner, a Vietnam combat veteran, has an appreciation for risk. He has been parachuting for more than 50 years, landing on the one good leg he brought home from Vietnam after a Viet Cong hand grenade shredded his right leg in 1967. Rolling on the side of his body opposite his prosthetic, Garner has logged nearly 600 jumps.

Like other team parachutists, whose ages range from the 20s to past 80, Garner is dedicated to the team’s non-profit mission. The team’s purpose is to finance travel expense and escort the few surviving World War II veterans to battlefields of their youth at Normandy, Holland and Bastogne.

The other team mission is to perform commemorative parachute jumps that preserve the 83-year heritage of airborne operations innovated during World War II. The team travels to air shows, and military base events, with parachutists dropping “old school” under military round canopies.

Team members jump in Normandy, France, at D-Day ceremonies, and in Holland where thousands of lightly armed paratroopers fought a lopsided battle against Nazi tanks in September 1944.

The aircraft carrying Juan and his new teammates lofted skyward over an expanse of scrub land similar to terrain that greeted paratroopers on D-Day.

Inside the aircraft, Moreno heard the same commands voiced when he served as a young paratrooper.

“Get ready!” the Jumpmaster shouts. “Stand up!” Paratroopers rise as one. “Hook static lines!” The nylon lines that pull the chutes open are hooked to a cable running fore to aft in the plane’s cavernous interior.

“Sound off for equipment check!” And each jumper, checks complete, shouts, “OK!” and slaps the leg of the buddy in front of them.

The first jumper is ordered to “Stand in the door!” and hears the final command, “Go!” In one-second intervals, paratroopers step out the door into the 100-mph blast of the aircraft’s wind stream, canopies snapping open like



Photographs by Dennis Anderson

Juan Moreno

sailcloth in a gale.

For the first time in 62 years, Juan Moreno was descending toward a Drop Zone. He got a bird’s eye view, but 30 seconds later it was “whump!” and he was on the ground, rolling in a Parachute Landing Fall position.

Five football fields distant, by the hangar, team members on the ground wondered aloud, “Is Juan getting up?” A stretcher was prepared, but someone with binoculars shouted, “He’s up! He’s walking in.”

Moreno was not only “Airborne” anew at 82, he was ambulatory, and walking off the Drop Zone under his

own power. The next morning he jumped again.

A couple of days later, enjoying a bottle of Dos Equis, he said, “Mentally, and spiritually, I am elated. I’m sore, but I am so happy the Lord gave me this opportunity to jump again.”

Of his brothers and sisters on Liberty Jump Team, Green Berets, active duty officers, veteran paratroopers, he said, “I really love these people. They were really good to me.”

At a small graduation ceremony, Jumpmaster Butch Garner awarded team jump wings. Jumpmaster Dennis Harrison, an 82nd Airborne veteran, awarded his certificate.

“It’s an honor to know you, Juan,” Garner said. “You’re an excellent representative of the Airborne tradition. All The Way!”

Moreno received his team “Challenge Coin” from me. We are confident declaring we are the only A Troop, 3/8 Cav, recon paratroopers still jumping from military aircraft in the world.

Editor’s note: Dennis Anderson is a licensed clinical social worker at High Desert Medical Group. An Army paratrooper veteran, he serves on the Los Angeles County Veterans Advisory Commission.



“You don’t grow old jumping from airplanes. It’s stopping jumping that makes you grow old.”

Col. Stuart Watkins, 8th Infantry and 82nd Airborne Division



of D-Day.

With black-and-white stripes painted on its wings, the troop transport looked like part of the air armada in Steven Spielberg and Tom Hanks’ epic mini-series “Band of Brothers,” about the 101st Airborne in World War II.

On the grass field outside the hangar, the team’s unofficial chaplain, Aaron Koepp, a Christian missionary who lives in France, removed his World War II-style “steel pot” helmet and led the prayer, much as chaplains did before D-Day.

“Lord, please protect our brothers and sisters. Give them light winds, and a soft landing,” Koepp said, his head bowed. He stood in a circle of 20 or so parachutists waiting to jump in the second load. “And please protect our

the Wehrmacht in 1936.

The odds of two troopers from the same 150-man unit encountering each other for coffee more than 50 or 60 years after their active service were, well, stratospheric.

For three years, I have been making military aircraft jumps with the non-profit Liberty Jump Team. After I returned last year from commemorative jumps at World War II drop zones in Normandy, France, Juan told me, “I want to do this.”

He looked like he meant business, and he did. He passed all the tests and showed up for training the first week of Spring 2023.

“Juan embodies the Airborne spirit,” Butch Garner, a senior trainer with the team, vouched. “He’s going to do fine.

On this date...

April 9, 1959: NASA announced the selection of the United States' first seven astronauts, which the news media quickly dub the "Mercury Seven." The seven original U.S. astronauts were: Scott Carpenter, Gordon Cooper, John Glenn, Gus Grissom, Wally Schirra, Alan Shepard and Deke Slayton. The Mercury Seven created a new profession in the United States, and established the image of the American astronaut for decades to come. All of the Mercury Seven eventually flew in space.



April 13, 1960: Maj. Robert M. White became the first U.S. Air Force test pilot to fly an X-15. Carried aloft by a Boeing NB-52A Stratofortress was airdropped at 9:15 a.m. above Rosamond Dry Lake. White

ignited the two Reaction Motors XLR-11 rocket engines and with a burn time of four minutes, 13.7 seconds, the X-15 accelerated to Mach 1.9 and reached 48,000 feet. Both numbers were slightly short of the planned Mach 2.0 and 50,000 feet. After eight minutes, 52.7 seconds, White and the X-15 touched down at Edwards Air Force Base, Calif.



April 13, 2019: The Stratolaunch made its first flight at the Mojave Air and Space Port. The aircraft flew for 2.5 hours, achieving a speed of 164 knots and altitudes up to 17,000 feet.

April 10, 1959: Northrop test pilot Lewis A. Nelson made the first takeoff of the prototype YT-38-5-NO Talon, serial number 58-1191, at Edwards Air Force Base, Calif. After testing, the two YT-38s were modified to the YT-38A configuration. The modified aircraft was accepted by the U.S. Air Force and ordered into production as the T-38A Talon. The T-38 was the world's first supersonic flight trainer.



April 14, 1947: Douglas Aircraft Company test pilot "Gene" May took the Number 1 U.S. Navy/NACA/Douglas D-558-1 Skystreak high-speed research aircraft, Bu. No. 37970, for its first flight at at Muroc Army Airfield (now Edwards AFB), Calif. The aircraft had been transported from the Los Angeles factory to Muroc by truck. The Skystreak was a joint U.S. Navy/National Advisory Committee for Aeronautics research aircraft designed to explore flight at high subsonic speed.

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Bill Scott — More than a flight test engineer

by Cathy Hansen
special to Aerotech News

We at the Mojave Air and Space Port have a wonderful opportunity to know so many unique individuals who make a big impression in the aerospace community.

Our friend, William “Bill” Scott” is one of those people. He is a full-time author and consultant presently, but has a long aviation history in this area.

He served in the U.S. Air Force and is a Flight Test Engineer graduate of the U.S. Air Force Test Pilot School at Edwards Air Force Base, Calif. He also served as aircrew on classified airborne-sampling missions, collecting nuclear debris by flying through radioactive clouds; an electronics engineering officer at the National Security Agency, developing space communications security systems for satellites; and an instrumentation and flight test engineer on U.S. Air Force fighter and transport aircraft development programs during his service in the military.

After the military, he was a civilian FTE/program manager for three aerospace companies: General Dynamics (F-16 Full Scale Development), Falcon Jet Corp. (Coast Guard HU-25A development and certification), and Tracor Flight Systems Inc. in Mojave.

He worked as a FTE on the Canadair Challenger Business Jet certification program at Mojave Airport in the 1980s and was involved in a deadly deep stall test flight on April 3, 1980.

Challenger prototype, Ship One departed Mojave in the morning and climbed to cruising altitude and began some stall tests. The aircraft went into a deep stall and control was lost. The aircraft went into a dive and the pilot couldn't recover control. All three crew members, including Bill Scott, bailed out and the aircraft crashed in the desert near California City.

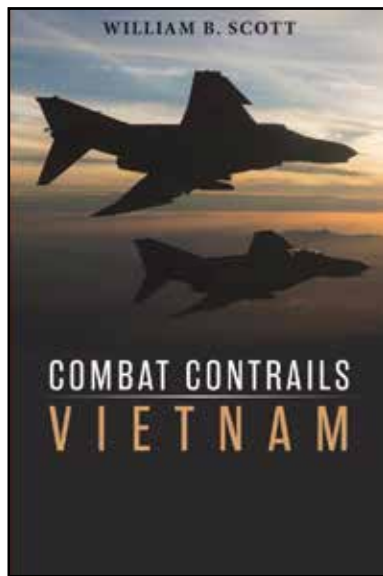
Dick Rutan happened to be flying in his Long EZ that day and radioed for rescue crews, giving coordinates and circling the downed crew members. Unfortunately, the pilot, Norm Ronason, was last to bail out and he was too low for his parachute to open. Co-pilot, Dave Gollings and flight test engineer, Bill Scott, survived.

Bill gave a presentation at Plane



Crazy Saturday in December 2022 about the Canadair Challenger test program and the April 3 incident. Because there are winds that occasionally blow at Mojave and the aircraft had been sitting outside, they determined that sand had blown into the pitot tube giving faulty readings in the cockpit instruments. There were other problems as well, including the emergency spin chute, jettison system malfunctioned.

Scott is the former Rocky Mountain Bureau Chief for *Aviation Week & Space Technology* magazine, author of *Combat Contrails: Vietnam* and numerous other books. He wrote for the international magazine for 22 years and also served as Senior National Editor in Washington, D.C., and in Avionics and Senior Engineering Editor in Los Angeles.



He covered advanced aerospace and weapons technology, business, flight testing and military operations, wrote more than 2,500 stories for the magazine, and received 17 editorial awards.

Scott told me that he had flown with Skip Holm in a BD-10 here at Mojave for a story he was doing for *Aviation Week* magazine. The flight went well while he was on board, even though the aircraft suffered many problems during other flights.

Designed by Jim Bede as the first homebuilt supersonic jet aircraft. First flight was July 8, 1992. Only five were built, three crashed and the last two are not flyable.

Scott is a licensed commercial pilot with instrument and multi-engine ratings. In 12 years of military and civilian flight testing, plus evaluating aircraft for *Aviation Week* over 22 years, he logged approximately 2,000 hours of flight time on 81 aircraft types. He holds a Bachelor of Science degree in Electrical Engineering from California State University-Sacramento.

Recently, the Mojave Transportation Museum invited Scott back to Plane Crazy Saturday to give a presentation on his book *Combat Contrails Vietnam*. This is a book that he was moved to write after hearing so many of his friends tell their stories of flying in the Vietnam war. Scott served during the Vietnam era, but didn't fly in country.

Stories are recalled by many of our flying friends, including: Roy Martin, Joe Guthrie, Skip Holm and Ad Thompson.

Some of the stories are funny, some are sad and some are just terrifying!

One that got my attention was by Tom Menza flying a C-123K transport. He described this aircraft this way, “Our lumbering 1950s vintage C-123K transport wasn't sexy, but the old girl was a vital link to the troops depending on us to bring them beans, bullets, bombs and priceless letters from home.”

One day they had a “bizarre” mission. He noticed the ground crew spreading hay and straw on the cargo bay's floor. A large truck backed up to the lowered rear ramp and delivered a 2,000-pound water buffalo to be de-



livered to a Vietnamese village as a gift from the U.S. State Department.

It took a dozen handlers to get the beast up the ramp and then wrap nylon straps around him and anchor the straps to the floor.

The hay was supposed to absorb all of the buffalo droppings during the 40-minute flight. When the aircraft was at their cruising altitude, the animal broke loose and started charging the loadmaster. As he ran back and forth in the airplane, it was difficult for the pilot to maintain control. It was a hair-raising flight for everyone involved.

I'll let you purchase the book to see how this story ends. After five attempts at landing with this 2,000-pound upset animal running back and forth, they were headed for disaster.

You can buy this book at Plane Crazy Saturday, the third Saturday of each month at the Mojave Air and Space Port

at Rutan Field, Amazon, Good Reads or go to COMBAT CONTRAILS: VIETNAM — William B. Scott (williamsb-scott.com).

Almost five decades after American troops left Vietnam, thousands of that war's veterans are dying. Many are taking untold stories of combat to their graves, believing nobody wants to hear what they had experienced. Others, who see their horizon approaching, are now sharing memories with families, friends and other veterans.

Combat Contrails: Vietnam captures 18 of these stories, most of which have never appeared in print.

Finally, warriors who fought in Southeast Asia are being heard—and honored.

Thank you William “Bill” Scott for writing this great book! And he donates all of his proceeds from this book to helping Vietnam Veterans.



Photographs courtesy of Cathy Hansen



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Proving the four-engine bomber: Intercepting the SS Rex

by Dr. William Pace Head
Robins AFB, Ga.

On May 12, 1938, three Army Air Corps Boeing B-17 Flying Fortresses, attempting to prove the value of four-engine bombers, simulated the interception of the Italian passenger liner SS Rex, 620 miles at sea.

They believed the mission would demonstrate the feasibility of using long-range bombers for coastal defense, thus convincing War Department leaders and Congress to build more than the 13 then in existence.

At 8:30 a.m., the three B-17s prepared to launch in a rain squall even as a morning position report from Rex was relayed to lead navigator 1st Lt. Curtis LeMay. It indicated that the luxury liner was then 725 nautical miles from New York Harbor, farther east than his original computations indicated. LeMay's original flight plan had incorporated an area search, if necessary, but weather conditions and the ship's distance from Long Island precluded that possibility.

With Col. Robert Olds, commander of the 2nd Bomb Group at Langley Field, Va., acting as the mission commander, and Maj. Caleb V. Haynes as lead pilot on B-17 number 80, the bomber flight took off from Mitchel Field, N.Y., at 8:45 a.m. and flew east from Sandy Hook at 170 mph on a true course of 101 degrees through rain, hail, downdrafts, and an intense headwind that reduced their ground speed by 11.5 mph.

The other two bombers were Aircraft 81 piloted by Maj. Cornelius W. Cousland with co-pilot Maj. Gen. George W. Goddard — Chief of the Materiel Division's Photographic Section who documented the mission using a modified Graflex camera — and 82 flown by Capt. Archibald Y. Smith. Number 80 carried a NBC radio crew scheduled to broadcast the event. Number 81 carried a reporter from the New York Herald Tribune, and number 82 carried one from the New York Times.

LeMay was unable to check the effect of the winds on ground speed

and drift because of a heavy overcast that limited their altitude to 1,100 feet. At 10 a.m. they emerged into good weather that only lasted an hour. LeMay took double shifts until the B-17s had to maneuver to transit a cold front. At 11:15 a.m., they reassembled in clear weather on the other side, where LeMay checked their course again. He calculated an intercept time of 12:25 p.m. for Olds, who in turn passed it to Maj. Vincent L. Meloy in order to schedule the live radio broadcast. At noon the B-17s encountered an area of scattered rain squalls. They spread into a line abreast formation with the aircraft 15 nautical miles apart to increase their chances of spotting the Rex.

At 12:23 p.m., the bombers broke out of the squall line, and Cousland, in No. 81, instantly sighted the Rex. "There it is! There it is!" he yelled into his radio to the other pilots, "81 to 80, twelve o'clock." Two minutes later, just as predicted, the B-17s flew by the Rex while it was 620 miles east of Sandy Hook. The aircraft reversed course and came up on the ship's port side, with No. 82 flying wing on No. 80 at smokestack level.

From the co-pilot's seat of No. 81, Maj. George Goddard took a series of photographs with his Graflex camera. In the waist position of No. 80, Meloy made voice contact with the ship's captain, who invited "all members of the flight to come down to lunch." The ship's passengers filled the decks, waving to the bombers, with a group of Americans purportedly singing the Star-Spangled Banner.

Because of the bad weather, the B-17s returned individually to Mitchel Field. Cousland's Flying Fortress encountered severe hail, damaging all the forward surfaces of the plane, with ice causing a temporary shutdown of one engine. As a result, Cousland lagged behind the others, landing at 4:30 p.m. The next morning the three bombers took off to return to Harrisburg and spotted the Rex passing the Statue of Liberty at 9:30 a.m. as it entered New York Harbor.

The Airmen's elation at their accomplishment was short lived.



Courtesy photograph

A B-17 bomber.

In the immediate aftermath, shortsighted and jealous Army and Navy leaders, tied to outdated notions of U.S. military policy and fearful they might lose funding from Congress, convinced the War Department to limit further expansion of the Air Corps as well as its roles and missions. However, this reactionary manifestation did not last, for Airmen had an important ally.

In January 1939, President Franklin D. Roosevelt, very much aware of the threats in Europe from German airpower and cognizant of the impact such missions had on public opinion, issued a public statement calling for an expansion of the Air Corps in anticipation of the need for modern weapons in case of another world war. While for the time being, he stopped short of calling for a full-scale military buildup, he advocated that America protect her own shores and the rest of the Western Hemisphere. From this

point on everything changed.

The new Army Chief of Staff General George C. Marshall, at the behest of the White House, sought to bolster the Air Corps. To do so, Marshall accepted advice from senior airmen like Air Corps Chief of Staff Gen. Henry H. Arnold, Gen. Frank Andrews, commander of General Headquarters Air Force, and Gen. A.W. Robins, Chief of Materiel Division.

During the next several months, Congress appropriated funds to train hundreds of new pilots and air crews as well as build new aircraft like the B-17. When war did come on Dec. 7, 1941, America was at least capable of defending herself until her mighty industry would fill the skies with the weapons needed to take the war to her enemies.

Ultimately, missions like the interception of the Rex bore important fruit, publicly proving that the fledgling Air Corps was a major component of coastal and national defense. More importantly, it had also convinced many important leaders, like FDR, that heavy four-engine bombers were crucial to winning any future wars.

The mission also validated the efficacy of the B-17 to seek and find a target. This would prove vital in the decisive days of daylight bombing raids over World War II Europe. The B-17s and her sister bombers would prove essential to victory. Last, but not least, it eventually kick-started the careers of those involved; especially young Curt LeMay. By the end of the war, General LeMay would lead the 20th Air Force to victory in Japan.

The success of the Rex mission has not been forgotten. On Aug. 24, 2007, three B-52s from the 2nd Bomb Wing, successors to the unit which flew the 1938 mission, effected "Operation Rex Redux." Flying out of Barksdale AFB, Louisiana, crew members executed a formal training mission to test a new targeting system and commemorate the interception of the Rex. Employing the call signs Rex 51, Rex 52, and Rex 53, they intercepted the Military Sealift Command vessel MV 2nd Lt. John P. Bobo, just east of Bermuda. As in 1938, they proved the vital nature of U.S. airpower.



Courtesy photograph

The Italian passenger liner SS Rex, 620 miles at sea.



Courtesy photograph

Col. Robert Olds



Courtesy photograph

Lt. Gen. Curtis E. LeMay



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Remembering Pancho Barnes

by Bob Alvis
special to Aerotech News

Last month, we celebrated women's achievements in many aspects of life, and because this is an aviation publication, we focused on the contributions of generations who have served in making the skies a place where women could be an accepted part of the airmen's everyday adventures in the sky.

Today we speak and look at things differently than we did many years ago, and after reflection and some soul searching a subject started to spool up in my soul that I want to address.

Last week, on March 30, 48-years ago a very famous women aviator departed this world and I wanted to share a few personal thoughts about who she was and what she meant to many of us. We formed our own opinions about a woman who was larger than life.

Many books and programs have been produced about the famous Pancho Barnes, and I'm not here to share any revelations or any historical research. I am here to just tell a story the way I see it, in a world that might have a hard time understanding Florence Barnes—the way she was, and how she lived her life in the roughneck days of early aviation out at her famous ranch.

In the 1960s, my dad and I had an encounter with Pancho at the Orange Julius on Avenue I, here in Lancaster, Calif., on a Saturday morning — it left an impression on me that I will never forget. It's a story I only share in private, as it was colorful conversation going back and forth between the legend and my dad. That day was the beginning of my learning curve—what the history of Pancho was all about, at least to me.

The stories were all legendary and as always, lots of fact and fiction can spin the truth but when you start to see a pattern, a lot of the tall tales are found to contain many truths. Because Pancho was such a legend, I'm pretty sure



Courtesy photographs

many wanted to dismiss her because of her brash style, but then, just as many people wanted to be part of her no-holds-barred world.

Looking at our world today, with all the "woke" agendas and "cancel culture," it would have been difficult

for a spirited woman like Pancho to fit in — a world where everybody can end up a victim and cry foul if you said the wrong thing in the wrong way yet alone get on her wrong side. It's safe to say the world she created around her was not for the timid. We all know she spoke her mind and lived life the way she wanted, and to heck with others and their feelings.

Did this make Pancho a mean woman? Not really and I feel that deep down inside that rough exterior she probably had a heart of gold. The way her close friends interacted with her made it seem like her friendship was something they really cherished. Heck, when you look at all the photos of the good times at the club there are smiles all around, and if she wasn't that special friend to so many, I feel those photos would not exist. Just about everybody wanted to sit at her bar.

Pancho and her farm life said a lot about her character also. All those lucky horses had an owner who thought so much of them that her swimming pool had provisions allowing the horses to cool off with the staff after a day of work. That shows Pancho's kind of spirit in a special way. As a dog owner myself, seeing the photos of Pancho with her dogs and pet pigs — always smiling and holding them tells me what a nice person she must have re-

ally been.

Today we do our best to not offend others, but back then it was just a part of the culture. People spoke their minds because the world they lived in and understood was not about feelings; it was not looking weak in a world of harsh words and actions. You can stand toe-to-toe with men or women who would try to knock you down. Pancho's world was never short of people looking to do just that, but that action would never end up well for competitors as she was a street fighter when it came to getting her way.

That's what her story and legacy means to me as we try to live in a world where we think about every word before we let it roll out. Sometimes things need to be said, and it would be nice to have some of that spirit of hers that had people at social gatherings and events walking on eggshells fearing what she was going to say or who she might offend. I read something once where she said offending somebody can sometimes be a tool to self-improvement for the offended.

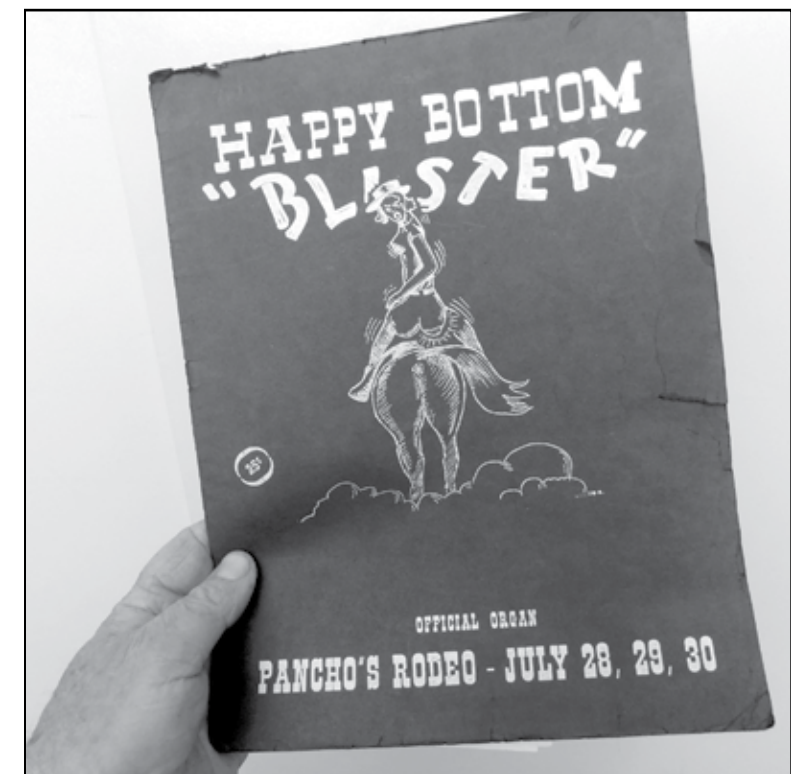
Yes, Pancho would have a hard time fitting into our world today but that's not what we really care about. Any of us who understand that generation know the gifts they passed on to us baby boomers. They made us tough, and to stand up and be heard without

the fear of censorship. As I was thinking of her passing it made me sad to think how the later years of her life played out, but at least she was spared the censorship that would take a spirited woman with a sharp tongue and reduce her to just another voice in a loud crowd.

If Pancho were alive today, I'm sure if she saw my writing here, she would probably say "Who is this idiot?" Who the heck is he to try and explain what I'm all about?" "Knock it off!" (I did not use the R-rated language as I wanted to respect the media here!) And as she chewed me out, I would probably just turn and walk away with a bit of a smile, thinking "I have just been told to go to hell by a legend and that, my friends, make this a good day!" Feelings still intact, for it was done by the one and only Pancho Barnes.

As we remember her life and the anniversary of her passing last week the words "rest in peace" just do not do the Pancho legend justice. So, let's just say: "Chase the wind, Pancho and never stop. Thank you for keeping the spirit of never backing down to a good fight alive, as many of us still look up to you with admiration and as an inspiration feelings be damned in a pretty soft world."

Until next time Bob out ...



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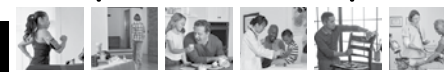
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Business & Professional Code Section 21700-21707

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Date: March 23rd, 2023 Signed NOVA STORAGE

This notice is given in accordance with the provisions of section 21700 et seq. of Business & Professional Code of the State of California. The owner reserves the right to bid at the sale. All purchased goods are sold "As Is" and must be paid for and removed at the time of sale. Sales subject to prior cancellation in the event of settlement between owner & obligated party. Auctioneer: Nova Storage

NOTICE OF PUBLIC LIEN SALES

Business & Professional Code Section 21700-21707

Notice is hereby given by the undersigned that a public lien sale of the following described personal property will be held at the hours of **12 noon on the 19th day of April 2023** or thereafter. The auction is being held at www.selfstorageauction.com by competitive bid. The property is stored by **Nova Storage located 825 W Avenue L12., Lancaster, CA 93534.**

The items to be sold are generally described as follows: Furniture, clothing, tools and or other household items stored by the following persons.

- 0495 Valencia, Carlos
- 0333 Jones, Eva Mae
- 0203 Celis, Sonya
- 0051 Taisacan, Brittnee
- 0478 Miller, Cary
- 0403 Navas, Carlos
- 0574 Siebenhoven, H. Von

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St. Jude patient Isabelle with her mom, Abigayle, SFC, U.S. Army National Guard

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- **Education** - Charter or private school options for children, higher education for adults
- **Food/ Entertainment** - What are options for eating out, recreation and socializing?
- **Transportation** - Who has military financing for vehicle purchase or leasing?
- **Worship** - Where are the local churches, synagogues, etc?
- **Specialized medical and dental care** - What providers are available in the community to supplement on-base services?
- **Pre-school and child care** - Who can be trusted to care for children of dual-income families?
- **Goods and services** - Where are the best places to go for furniture and home goods, car repair, and specialty goods and services?

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Publish Date: May 19, 2023

Advertising Deadline: May 12, 2023



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Half Page (10.25" x 6.5")	\$975 ⁰⁰	\$1326 ⁰⁰
Quarter Page (5" x 6.5")	\$535 ⁰⁰	\$710 ⁵⁰
1/8 page (3.325" x 5")	\$295 ⁰⁰	\$385 ⁰⁰
Business Card (3.325" x 2")	\$127 ⁰⁰	\$163 ⁰⁰

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- ✓ Our Hometown Heroes promotion, offering \$1,000 off of options or closing costs for military, aerospace employees, and others working for the safety of their community*
- ✓ Special interest rates, closing cost reductions, base price discounts, free refinancing^{^^}, and more

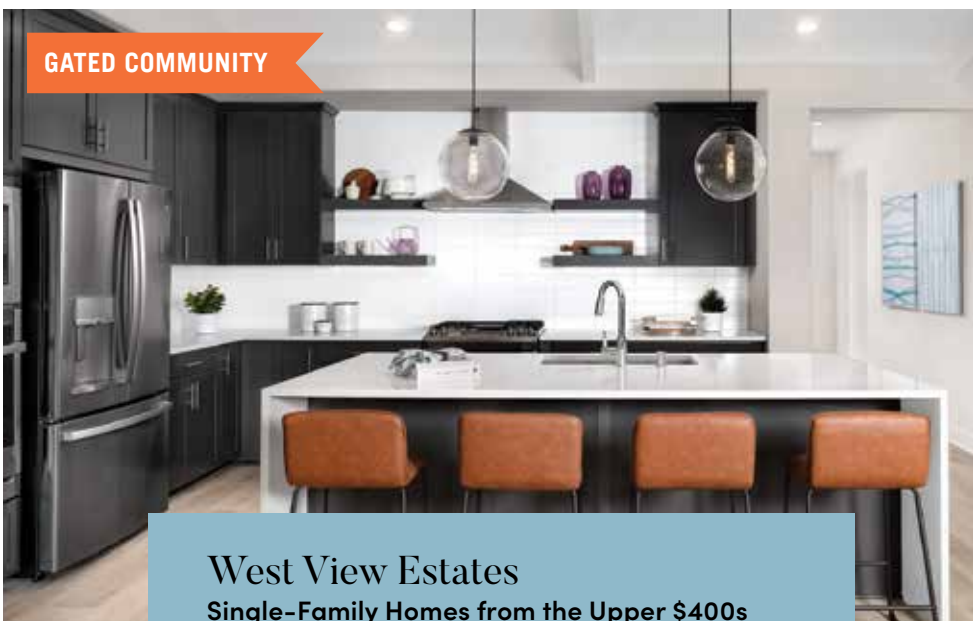


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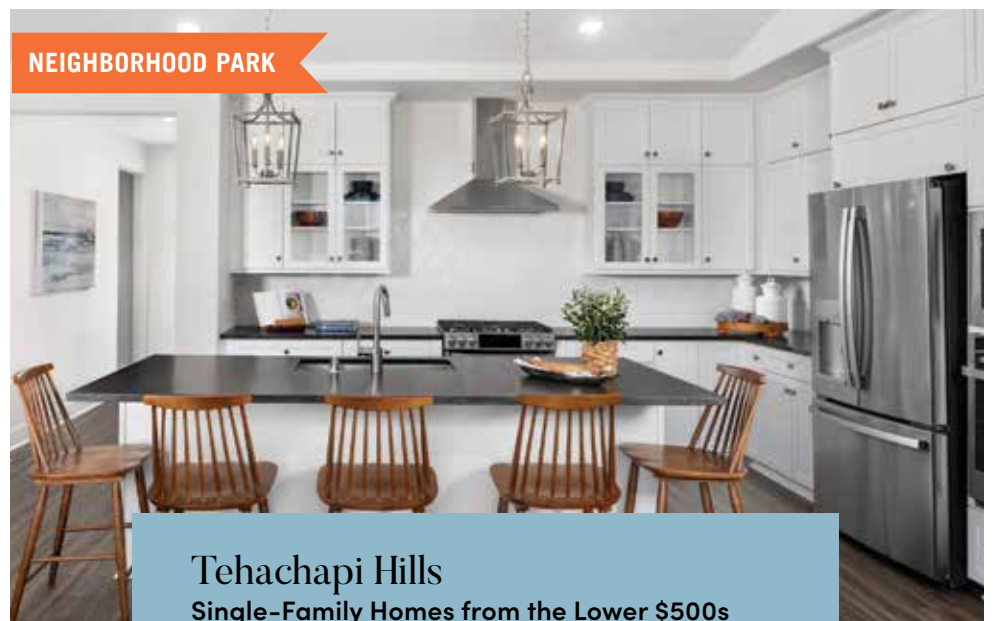
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[^]Special Financing Incentives may vary and are subject to change without notice. Special Financing Incentives may not be combined with any other offers. Seller contribution limits apply and may affect maximum financing. Maximum closing cost assistance may vary based on the purchase price, product and occupancy. Special Financing Incentives are based on the use of K. Hovnanian American Mortgage, L.L.C. ("KHAM"). K. Hovnanian American Mortgage, L.L.C. 3601 Quantum Boulevard, Boynton Beach, FL 33426. NMLS #3259 (www.nmlsconsumeraccess.org). Licensed by California Department of Financial Protection and Innovation under the California Residential Mortgage Lending Act. Lic. #4130532

^{^^}Offer is subject to program requirements, credit and underwriting approval, and use of K. Hovnanian American Mortgage, L.L.C. (KHAM) for the financing of your K. Hovnanian Home purchase. Limited to one-time refinance per household within the first three years from KHAM closing date. Offer excludes government recording costs or transfer taxes, funding fee, upfront mortgage insurance premium fees, interest per diem or escrow funds set up. Equal Housing Opportunity. K. Hovnanian American Mortgage, L.L.C. 3601 Quantum Boulevard, Boynton Beach, FL 33426. NMLS #3259 (www.nmlsconsumeraccess.org). Licensed by California Department of Financial Protection and Innovation under the California Residential Mortgage Lending Act. Lic. #4130532. See a Sales Consultant for full details. Equal Housing Opportunity.

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