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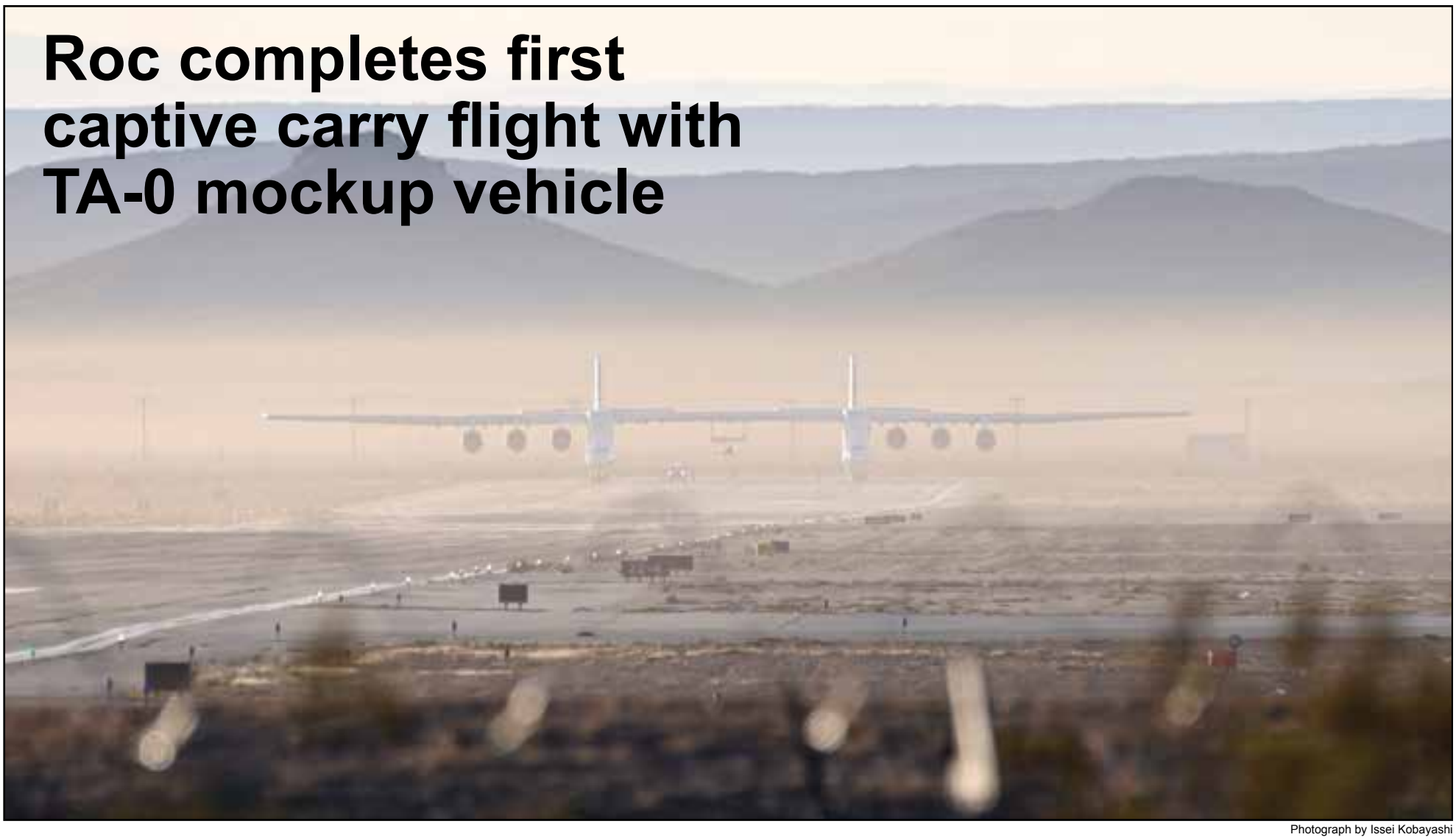
Roc completes first captive carry flight with TA-0 mockup vehicle



Photograph by Issei Kobayashi

Stratolaunch's Roc aircraft readies for takeoff at the Mojave Air and Space Port, Oct. 28, 2022. This was the aircraft's eighth test flight, and first captive-carry flight with the Talon A mockup attached.

by Cathy Hansen
special to Aerotech News

On Friday, Oct. 28, the morning was crisp and hazy at Mojave Air and Spaceport.

The Stratolaunch carrier aircraft, nicknamed ROC, was staged at the end of Runway 30.

Excitement filled the air as the team of engineers and other Stratolaunch personnel went through their checklists in preparation for this historic flight — the first captive-carry flight with the TA-0 rocket vehicle.

The Citation chase aircraft lifted from Runway 30 at 8:17 a.m., and then the giant twin-fuselage Stratolaunch carrier aircraft, with a 385-foot wingspan, started rolling at 8:21 a.m., raised into the air leaving a large cloud of dust in its wake.

Grace Wang, Talon A Pylon Lead Engineer, was very happy when watching takeoff of ROC, with TA-0 attached, "So many years to come to this point, this is so exciting, it warms my heart to see this." She said, "There is a rocket engine that burns liquid oxygen and JetA mounted on TA-0, but it will not fire."

She also said, "It is fully instrumented for data collection by Stratolaunch and Ursa Major Technologies, located in Colorado, the manufacturer of the Hadley rocket engine. It is a 5,000 pound class engine."

"They wanted the full weight with engine to verify how the Talon airframe will handle the airflow during flight. The company is collecting data at altitude, measuring thermal data, vibration, and flutter to compare Talon to mothership ROC. Cameras are mounted on Talon also for visual testing."

Wang said, "The gear was retracted at 15,000-feet. They wait because it uses a lot of hydraulic power to raise the gear. Gear, flight controls and flaps all use hydraulic power and they didn't want to overload the system."

This was eighth flight which expanded the flight envelope working towards hypersonic flight next year. Wang said, "We don't test too many different things on one flight."

"We are tracking for separation of Talon at the end of the year," said James Mason, Stratolaunch Engineer. "A lot of data has to be gone over after each flight."

Wang said, "Simulated approaches are completed at 15,000 to evaluate handling qualities with Talon attached. ROC has 28 wheels, six main gear with clusters of four wheels per gear (three per side) and two nose gears with two wheels per gear. Talon has three wheels that are only 9-inches in diameter."

Photograph by Jim Mumaw

The Talon-A mockup is attached to the Roc during a captive carry flight test at the Mojave Air and Space Port, Oct. 28, 2022.

The company said that the entire flight test lasted for a total of five hours and six minutes

See ROC, Page 2

Photograph by James Reeder

The Stratolaunch Roc made its eighth flight test, and first captive carry test Oct. 28, 2022, from the Mojave Air and Space Port.

and reached a maximum altitude of 23,000-feet.

During a press conference after the flight Stratolaunch CEO and President Dr. Zachary Krevor told reporters, "I was ecstatic seeing those two vehicles combined as they lifted off the runway and into the sky. Seeing our flight products operating together represents a significant step towards regular and reusable hypersonic flight."

Local shutterbugs were thrilled to witness history in the making at Mojave Air and Spaceport once again. Photos of the take-off, flybys and landing were captured by many professional and amateur photographers.

"We have conducted a variety of ground tests in anticipation of this first captive carry flight, and with each successful test milestone achieved we have built confidence that hardware will perform exactly as it was designed," Krevor said.

According to Stratolaunch, the company will complete a series of captive carry flights in the coming months, culminating in a separation test of the TA-0 vehicle out over the Pacific Ocean in late 2022.

"Testing and production are accelerating as we push forward to meet our commitment of providing hypersonic flight test service to our customers next year. Our team will continue accomplishing more complex test milestones as we progress to our first hypersonic flight," Krevor said.

Simultaneously, the company is continuously moving ahead with the system evaluation of its first hypersonic flight test vehicle, TA-1 as well as with the fabrication of the first and second fully reusable TA-2 and TA-3 hypersonic vehicles.

Delivery of hypersonic flight services for government and commercial customers is expected to start next year.

According to an Oct. 4, 2022, press release, Stratolaunch, LLC announced they have been added to the Test Resource Management Center's Integration Innovation Inc. (i3) team to demonstrate the SkyRange airborne test assets capability by tracking the first Talon-A hypersonic flight.

The press release also stated, "The SkyRange program is developing, operating, and integrating advanced sensors and capabilities for a fleet of air-vehicle systems that will support hypersonic test and evaluation. The program's test architecture includes both MQ-9 Reapers and RQ-4 Global Hawks allowing for a broad range of data capture on a variety of mission scenarios that will enable decision-making for high-speed system testing and fielding. This unique capability will increase national high-speed systems flight test capabilities and frequency, and ultimately enable leap-ahead technologies for our nation's warfighter."

"Stratolaunch's hypersonic flight test service is centered around its Talon-A, a reusable autonomous hypersonic testbed vehicle which provides a flexible test architecture for hypersonic flights and experimentation. During the Talon-A's maiden hypersonic flight, it will operate as a high-speed vehicle, which TRMC SkyRange assets will acquire, track, and otherwise support to validate developmental instrumentation payloads."

"We're excited for the opportunity to provide the SkyRange program an operational application with our first Talon-A hypersonic flight," said Krevor. "This mutually beneficial partnership will increase the pace and reduce cost of testing, which is critical to hypersonic system technology development."

Photograph by James Reeder

Crowds gathered at the Mojave Air and Space Port Oct. 28, 2022, to watch the Stratolaunch Roc aircraft make its eighth flight test. The five hour and six-minute flight was the first to include the Talon TA-0 rocket attached. While the test used the Talon mockup, Stratolaunch installed an engine to test the weight.

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Airports rent protest:

County airports' tenants push back on rent, fee study

by Larry Grooms
special to Aerotech News

LOS ANGELES, Calif.—In an Oct. 28 webinar conference, tenants from Los Angeles County's five General Aviation airports argued that a Denver, Colo.,-based consultant's research methods are biased towards unnecessarily raising rents and fees.

Callers questioned the two top executives of the Airports Division of the Department of Public Works, as well as David Benner, rate analyst with Aviation Management Consulting Group, the company presenting the methodology used in a previous rents and fees study for the county.

Lightning rods for much of the discussion were graphics illustrating what the consultant said were comparative and competitive factors between categorically similar airports. The callers disagreed, saying the company was comparing apples to oranges.

Addressing a caller's complaint about deteriorating physical conditions and neglected interior and grounds cleaning and maintenance at Compton/Woodley Airport, Airports Division Chief Paul Maselbas said he is "distressed" by shortcomings at airports since day-to-day operational management was "in-sourced" from longtime private sector operations contractor American Airports. Since the change in management, the number of custodians and groundskeepers at Compton has been cut from 10 to two.

One bright point did emerge from an otherwise polite but contentious online video session. A Gen. William J. Fox Airfield hangar tenant suggested the High Desert airport free up hangars and increase revenue by providing shade canopies over tie-down lanes. Pilot Frank Macaelo, owner of a delicate wood and fabric tail dragger, said sun damage keeps his aircraft in an unaffordable hangar.

Maselbas instantly made the connection between overhead shading of airplanes and solar panels to drastically reduce what he called Fox Field's outrageously high electricity bills. When a question of costs vs. savings came up, it was suggested that Lancaster's 20 schools with solar-covered parking might have an answer.

Since the city of Lancaster installed the solar system, the 20 schools in the district reportedly save an average $200,000 a year in electricity, and benefit from nighttime security lighting.

Much of the controversy over the rates and fees study hinged on disagreement over the basis of comparison between airports, which airports have commonality with the five county airports, and whether the assumptions about competitive advantages are even realistic.

Webinar callers to the scheduled 90-minute session that went into a 20-minute overtime wondered why the county's five small general aviation airports were ranked with large commercially dominant fields across the country, while nearby GA airports such as Flabob in Riverside and Cable Airport in Upland were omitted.

The answer was related to the way in which airports do or don't derive their revenue, and the amenities offered. Specific examples cited by the consultant and the Aviation Division executives included Big Bear Airport, excluded because it is city-owned and financed through property tax, and Cable Airport, which is privately owned and doesn't have a functioning control tower.

On the question of how Aviation Management Consulting Group, Inc., chooses to conduct a study, Benner wrote in a 2020 memo to Carley Shannon, director of sustainability for C&S Engineering, Inc., "It is AMCG's recommendation that the County of Los Angeles establish general aviation fees utilizing a cost recovery-based approach or methodology, not a market-based approach."

The AMCG website, states that an airport rent study is a streamlined approach to derive a market rent opinion. It goes on to say the rent and fee studies are among the airport's Primary Management Compliance Documents (PMCDs) to derive a supported market based rental rate for each component of the properties.

The website states, "the approach and comparative analysis is consistent with the FAA's policy which provides airports the flexibility to establish market rents for airport properties using any reasonable, justified, and consistently applied method."

An airport fee study is intended to guide policy makers and airport management in using industry best practices for types of fees that could be charged, the methods to establish fees, and the unit measure for charging such fees, "to fulfill the airport sponsor's FAA airport sponsor assurance obligation to "make the airport as self-sustaining as possible under the circumstances" existing at the airport. Airport fees are used to recover the operating expenses and non-operating uses of funds (e.g., capital expenses) relating to the planning, development, operation, and management of the airport.

Taken together, the PMCDs are supposed to: (1) contribute towards the airport's financial health; (2) foster orderly development of land and improvements; (3) promote the provision of quality aviation products, services, and facilities; (4) protect the health, safety, interest, and general welfare of the public; (5) reduce the potential for conflict; and (6) provide a platform for resolution of complaints.

Online searches of official data sources on Fox Field in Lancaster reveal wide discrepancies between information reportedly current in L.A. County Department of Airports postings, and 2022 numbers shown from the Federal Aviation Administration.

For instance, FAA information effective Oct. 6, 2022, shows 60 aircraft based at Fox Field, 56 being single engine. The FAA reports average daily aircraft operations at Fox at 132 for the 12-month period ending Dec. 31, 2021. That would total about 48,200 takeoffs and landings for that year, with 52 percent being local general aviation, 45 percent transient general aviation, 3 percent military and 1 percent air taxi. The Fox Field page on the county website reports 58,000 for the unspecified year.

Armstrong develops tech to bring space launch to any airport

by Jim Skeen
NASA Armstrong

A NASA-developed space launch system is attracting interest from companies that need to launch satellites in orbit. This same launch system could also develop high-flying, ultra-fast aircraft for national defense.

The Towed-Glider Air Launch System, or TGALS, is a low-cost, flexible approach for putting satellites and other payloads into space. Developed at NASA Armstrong Flight Research Center in Edwards, Calif., the innovative TGALS technique uses a low-cost glider to carry rockets and release them at the optimum place in the sky.

The TGALS technique uses a business jet-class aircraft to tow a remotely piloted glider with a launch vehicle mounted underneath it. Once released at about 40,000 feet, the glider uses its own small rocket motor to execute a pull-up maneuver, releasing the launch vehicle for ignition at an elevated flight path angle. After release, the glider returns to the airfield to be stored for the next mission.

"I think one of the big selling points is the flexibility for launch windows and launch locations around the world," said Brian Boogaard, Technology Transfer Administrator at NASA Armstrong. "There's only a handful of rocket pads where you launch a rocket, but you could fly the TGALS system anywhere there's an airport. There's a lot of flexibility that comes with it."

In addition to the launch flexibility, TGALS can carry launch vehicles that are 30 percent heavier compared to air-launched vehicles and 70 percent heavier than those using ground-based rockets.

The system offers improved safety by not having an on-board aircrew in an aircraft attached to or near a potentially explosive rocket.

NASA Armstrong researchers conducted proof-of-concept demonstration flights using radio-controlled one-third scale models of both glider and rocket. The tests included using a 27-foot- wingspan, twin-hulled glider home-built at NASA Armstrong and towed by the small DROID — for Dryden Remotely Operated Integrated Drone — unmanned aircraft.

Researchers also conducted studies and simulations of a glider capable of carrying an 80,000-pound rocket.

One company, Fenix Space, Inc. in San Bernardino, signed a licensing agreement with NASA to use the TGALS technology. NASA Armstrong is in talks with a second company also interested in the technology.

While there is interest from private companies in licensing TGALS technology, it could be a valuable tool for the Department of Defense as it expedites its hypersonic research, said Ben Tomlinson, NASA Armstrong Technology Transfer Officer.

TGALS could pair up with Sky Range, a program that uses high-altitude, long duration flight Global Hawk aircraft to provide telemetry for hypersonic research missions, Tomlinson said. Sky Range provides greater flexibility and reduced costs for hypersonic missions by replacing an aging fleet of ships deployed across the Pacific Ocean.

"TGALS is a good marriage with Sky Range," Tomlinson said. "Now we can do cool stuff with hypersonic vehicles again. TGALS is a cost-effective way of launching hypersonic vehicles."

NASA Armstrong has a long history of pioneering hypersonic research, including the X-15 rocket plane program of the 1960s in which one mission hit Mach 6.7 (4,520 mph). In the early 2000s, NASA Armstrong flew three 12-foot-long, uncrewed X-43 aircraft, with the final flight hitting Mach 9.6 (6,363 mph).

At present, hypersonic testing is primarily done with rockets or by air launches with a highly modified B-52 bomber.

"TGALS could be an alternate method of getting (hypersonic vehicles) to the range," said Craig Stephens, an aerospace engineer at NASA Armstrong. "It may be a simpler system to use. You may be able to have a bit more flexibility when you launch."

Stevens worked on thermal structure testing of control surfaces for the X-37 spaceplane, a vehicle that hits speeds of nearly Mach 25 (approximately 19,000 mph) on re-entry.

"In my opinion, we need to work in this area," Stephens said. "Other countries are definitely working on it and, in some regards, may be ahead of the United States in certain areas. It's a flight regime that we need to be working in, and be focused on developing test articles and increasing our knowledge and capabilities."

AV Wall again coming to Palmdale as part of Vets Day

by Stuart Ibberson
editor

The AV Wall will be on display Nov. 9-13, 2022, at the Palmdale Amphitheater at Marie Kerr Park in Palmdale, Calif.

While the wall will be open 24/7 for free public viewing, there are some specific events scheduled.

On Nov. 11 – Veterans Day – there will be a Veterans Day Ceremony at 11 a.m., that will also include the distribution of Vietnam Veteran Lapel Pins.

On Nov. 12, at 8 p.m., there will be a candlelight ceremony honoring the AV 76. Taps will be played nightly at 9 p.m.

The AV Wall is a half-scale size tribute monument of the Vietnam War Memorial in Washington, D.C. It is cared for by Point Man Antelope Valley, a veterans outreach organization that ministers to veterans of all wars.

PMAV is a non-profit, faith-based 501(c)(3) autonomous organization that is fully financed by donations. PMAV is under the umbrella of Point Man International Ministries, Spring Brook, N.Y.

The concept of a local mobile Vietnam memorial wall was first discussed in 2005 when a committee celebrating the 10th anniversary of the Palmdale Playhouse was looking for a mobile wall to display at the *A Piece of My Heart* play. The play by Shirley Lauro details the stories and struggles of six women who served in Vietnam. A mobile wall would be the perfect tie-in, but none were available at that time. "Why can't we build our own wall?" was asked by a Playhouse staff member, and the concept took off!

It took four years to raise the $102,000 to fabricate the wall. Signs and Designs, Inc. of Palmdale was integral in the manufacturing and engraving of the wall. Each year, upon the release of additions and changes to the wall by the Department of Defense, Signs and Designs, Inc. updates our panels.

F/A-18E testing completed at NASA Armstrong

by Jay Levine
NASA Armstrong

Understanding what stress, or strain, an aircraft can endure is critical to carrying out its intended mission.

To better understand the aircraft's capacity for strain, unique facilities can "load" the aircraft to specified stress points and document its performance.

Recently, that kind of loads calibration testing on the Navy's F/A-18E Super Hornet aircraft was completed at the NASA Armstrong Research Center's Flight Loads Laboratory at Edwards, Calif. The calibration established the correlation between strain gauges installed on the test aircraft and forces experienced by the F/A-18E structure during flight.

The aircraft was flown to Armstrong from the Naval Air Systems Command Air Test and Evaluation Squadron VX-23 located in Patuxent River, Md. The NASA Armstrong team assisted in preparing this F/A-18E aircraft for its new role as the Navy's next loads test aircraft.

The test data resulted in the development of loads equations that calculate real-time loads experienced during flight testing, which can be compared to established design limits to ensure safety of flight and crew. The aircraft can then be used to clear new structural modifications and payloads to the F/A-18E design limits.

Currently, NAVAIR is using NASA facilities to restore the aircraft from its testing configuration by removing test equipment, reinstalling hardware, and the landing gear, and preparing it for a return to its test squadron.

The recently concluded third and final testing phase involved loads calibration testing of the vertical tails.

"The lessons learned during the wing testing (the second phase that concluded in March) was applied to the vertical tail tests and it resulted in a very efficient testing activity," said Larry Hudson, NASA Armstrong Flight Loads Laboratory chief test engineer. "We completed the tests in three days."

The first phase of loads calibration testing focused on the aircraft's horizontal tails and concluded in October 2021.

It was a strong finish for a resilient and focused project team that faced a steep climb with a pandemic, challenges with procuring materials to make some of the test structures, and the loss of a colleague.

"It was difficult at times and losing project manager Kim Tucker was emotionally challenging for us," Hudson said. "Everyone worked well together, and it really was a perfect example of a team effort. The team was committed to getting the job done as quickly as possible, without compromising safety, while providing the high-quality data to the customer."

The planning and teamwork paid off.

"Our goal when we test any customer supplied component or jet, is to return it undamaged (unless a test objective requires testing to failure)," Hudson said. "After 87 load cases, our test approach and systems were able to do just that — obtain quality test data and deliver the test article back undamaged."

While the wing tests were the most complex given the number of actuators involved, the vertical tail had its own complexities due to the height above the ground and the precise alignment of two

NASA photograph by Joshua Fisher

A top view shows the wing loading test configuration of a Naval Air Systems Command F/A-18E. Staff from NASA's Armstrong Flight Research Center helped prepare the aircraft for its new role as the Navy's next loads test aircraft.

20,000-pound structures that were assembled away from the aircraft and then rolled forward for connect to the aircraft.

Testing included the operation of 84 hydraulic actuators during the performance of 87 load cases, including the simultaneous operation of 56 actuators, making it one of the most complex loads calibrations testing the lab has encountered. A load case consists of a distributed pressure load applied to the structure, and sensors recording the response.

"The project was good for the branch and for NASA Armstrong," said Keerti Bhamidipati, interim flight loads laboratory project manager said. "It sharpened our critical skill sets, and our technicians and engineers exercised flight loads laboratory practices to work through technical challenges and gain efficiencies. At the start of the horizontal tail testing our test cadence was a couple of load cases per day. By the end, we completed the vertical tail testing in just two and a half days."

World War II veteran feted on his 100th birthday

by Dennis Anderson
special to Aerotech News

LANCASTER, Calif. — Lou Moore qualified for pilot training in World War II, but it was a rough landing in an open-cockpit training biplane, a PT-17 Stearman, that he figures might just have saved his life.

"A lot of the fellows who got their pilot wings ended up getting killed in combat."

Instead, Moore shipped out to Europe with ground forces, one of more than 20,000 G.I.s aboard HMS *Queen Mary,"* the "Grey Ghost" that, along with the HMS *Queen Elizabeth,* carried most Americans to the scattered fronts of World War II.

Moore, who is Chinese-American, served in the European Theater of Operations — England before D-Day, and after that, air field security with an U.S. Army Air Force weather squadron in France. One of his frequent anxieties was to be mistaken as Japanese, but he said he had Army buddies who ran interference for him and kept him safe when they were "out on the town."

That was nearly 80 years ago. On Sunday, Oct. 30, his long-ago service was celebrated by more than 200 friends, family, brother and sister military veterans.

Arriving in a vintage 1940s Buick Roadster, preceded by motorcycle escort of American Legion Riders, World War II veteran and author Lou Moore celebrated his 100th birthday on Sunday at Bravery Brewing in Lancaster.

Courtesy photograph

World War II veterans Lou Moore was preceded by an American Legion motorcycle escort, as he arrived at Bravery Brewing for his 100th birthday party.

Courtesy photograph

World War II veteran Lou Moore and our writer, Dennis Anderson, at Moore's 100th birthday party, hosted at Bravery Brewing in Lancaster, Calif.

Moore, and the big gathering, was serenaded by Mariachis from Hermanos Ramos and dancers of Alin Folklorico followed by dancers of Halau Hula O Kanoelani led by Lia Kamminga.

After performing traditional Hawaiian dance, the group performed "Proud To Be an American."

Entertainment for the evening closed out with "America The Beautiful" performed by jazz saxophonist Herbie Kay.

Hosts Bart and Sandra Avery welcomed hundreds of patriotic friends. American Legion Post 348 Auxiliary Marcy Velador, her daughter, Illyana, lead caregiver Gabriella Santana and Post members worked with Broken Bit Steak House owner Mike Burroughs to organize the event.

"I never thought that in living through World War II and coming back without a scratch that I would live to be 100 and be here with all of you today," Moore said. "I thank you each and every one from the bottom of my heart."

Courtesy photograph

World War II veteran Lou Moore arrives in style in a vintage 1940s Buick Roadster for his 100th birthday party at Bravery Brewing in Lancaster, Calif.

Moore was Guest of Honor at the Coffee4Vets-hosted Veterans Military Ball, and he was recognized recently at the Senior Expo hosted by High Desert Medical Group at the Antelope Valley Fairgrounds.

Groups that attended and honored Moore included American Legion, Veterans of Foreign Wars, American Legion Riders, AV Vets4veterans, Point Man Antelope Valley, Coffee4Vets, Bombshell Bettys, and two other veterans of history's greatest conflict that took 40 million lives.

He was joined at table by World War II Navy veteran Carroll Bierbauer who served on the USS *Comfort* hospital ship, and U.S. Army Air Force veteran Ted Johnson.

Lou went into the Army soon after the Japanese attack on Pearl. In 2021 he was awarded the Congressional Gold Medal as one of 20,000 Chinese Americans who served in World War II. Soon after the war ended, he met and married Nellie Hatsumi Mayeda, one of the thousands of loyal Japanese American citizens interned in camps that the Supreme Court ruled unconstitutional decades after the war.

Lou and Nellie Moore were married 74 years, and she was main topic of Moore's memoir "Eternal Love," a brisk seller on Amazon.

"I am so grateful that I was able to survive the war, to return to the United States, and to marry my beloved Nellie, with whom I spent the next 74 years."

During a successful career in a number of business ventures, Nellie and Lou struck up a family friendship with another veteran of World War II, Ernest Borgnine. Borgnine was a Navy sailor during the war, but went on to his greatest fame as the namesake skipper of "McHale's Navy."

Courtesy photograph

During his 100th birthday party, World War II veteran Lou Moore and partygoers were entertained by Mariachis from Hermanos Ramos (picture), dancers of Alin Folklorico, and by dancers of Halau Hula O Kanoelani led by Lia Kamminga.

Recounting that his grandfather was a World War II Navy skipper killed in action, Bravery owner Bart Avery, brushing back tears, said, "You served in the war that had to be won. And we are so happy that you chose our location to celebrate your birthday."

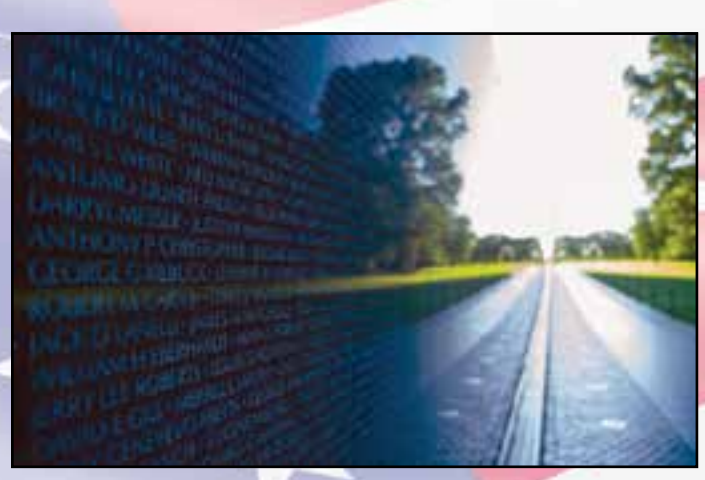
Avery added, "There is one thing you can be pretty sure about. I am pretty sure anyway, that today is the only day we have a World War II veteran celebrating his 100th birthday, in our Antelope Valley, at least."

Editor's note: Dennis Anderson is an Army paratrooper veteran who has worked as an Antelope Valley journalist for more than 25 years. He served in NATO during the Cold War, and deployed to Iraq as an embedded reporter. He still jumps, with Liberty Jump Team, from World War II vintage C-47 aircraft, and made commemorative jumps in Normandy for D-Day in June 2022.

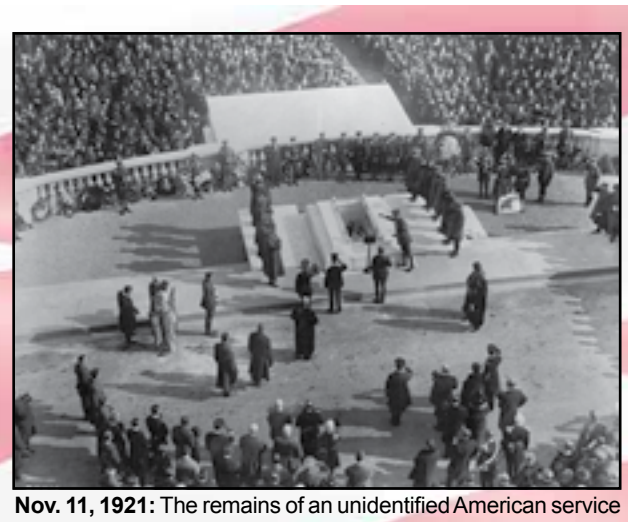
"I never thought that in living through World War II and coming back without a scratch that I would live to be 100 and be here with all of you today. I thank you each and every one from the bottom of my heart."
Lou Moore, World War II veteran

On this date . . .

Nov. 7, 2000: The X-35A accomplished its first aerial refueling. During its 10th flight, the JSF demonstrator completed four refueling operations from a KC-135 at 23,000 feet and verified its compatibility with the tanker's flow-field wake and refueling boom.



Nov. 10, 1982: The newly finished Vietnam Veterans Memorial was opened to its first visitors in Washington, D.C., three days before its dedication.



Nov. 11, 1921: The remains of an unidentified American service member were interred in a Tomb of the Unknown Soldier at Arlington National Cemetery in a ceremony presided over by President Warren G. Harding.

Nov. 9, 1946: The Lockheed XR60-1 Constitution made its first flight, a 45-minute flight from the Lockheed Air Terminal in Burbank, Calif., to Muroc Army Airfield. Joe Towle and Tony LeVier flew the aircraft. Ordered by the Navy, the XR60-1 was a very large, double-deck transport powered by four 3,000 horsepower Pratt & Whitney Wasp radial engines.

Nov. 10, 1988: The U.S. Air Force publicly unveiled the F-117 Nighthawk when Assistant Secretary of Defense J. Daniel Howard displayed a grainy photograph at a Pentagon press conference. After the announcement, pilots could fly the F-117 during daytime.

Nov. 11, 1947: Capt. Chuck Yeager became the first man to exceed 900 mph as he piloted the Bell X-1 to Mach 1.35. While this is an undated photo of Capt. Yeager, the Edwards History Office stated that it is known that he was briefing a news conference in Los Angeles, Calif. at the time.

Three of my favorite aviation legends!

Courtesy photograph

by Cathy Hansen
special to Aerotech News

When Dick Rutan sent me this photograph, taken at the Reno Air Races 2022, my mind started racing with memories of these great men of aviation.

The Reno Air Races was a gathering of veteran aircraft and the elite pilots of the ages!

I must confess that the HU-16 Albatross in the background stirred recollections of times with my husband, Al Hansen, too!

Clay Lacy

Everyone recognizes Clay Lacy's name, and connects it with Lacy Aviation, LearJets and Van Nuys Airport.

When I think of Clay, I see his purple P-51 Mustang, dubbed the Purple People Eater, his DC-7 Super Snoopy, the DC-8 with the Human Fly on top, and the Pregnant Guppy of Aero Spacelines.

It was two C-97's, also known as the Boeing 377 Stratoliner, placed together, one fuselage on top of the other. This aircraft was powered by four Pratt & Whitney R-4360 28-cylinder radial engines.

I worked at the air races in Mojave and I remember Clay telling me that he was going to take the DC-7 around the pylons and he would look for me by the pylon out where the boneyard is now. He was so low that the props were creating little whirlwinds on the ground. I was jumping up and down and screaming; I saw a photographer dive to the ground as Clay flew over us. I swear I could see Clay's fantastic smile in that cockpit! It was a great day to be under four roaring Wright R-3350 radial engines!

Dick Rutan

There is so much to tell about this decorated fighter pilot who flew 105 combat missions in F-100s with the Misty's in North Vietnam, flew as command pilot around the world, unrefueled, non-stop in Voyager in 1986 with Jeana Yeager, set numerous flight records in his homebuilt Long-EZ, is a fantastic motivational speaker and flew around the world again with his good friend Mike Melvill in the Long-EZ's that they built side by side, in the EAA (Experimental Aircraft Association) Friendship Tour.

The EAA Friendship Tour began when Mike told Dick that he wanted to fly his own homebuilt airplane to his hometown in Johannesburg, South Africa.

Mike asked Dick if he would like to fly along in formation. Dick's replay was, "That's half way around the world — why don't we go on around the whole world!"

There are many Experimental Aircraft Association chapters around the world, so the trip quickly became a tour from one EAA chapter to another.

Courtesy phootgraph

Dick Rutan

Courtesy photograph

Dick Rutan (left) and Mike Melvill plan their round-the-world flight in a Long-EZ.

They had to plan a route that would be doable for their little homebuilts. Finding the shortest route across the Atlantic posed a problem, but they finally agreed on a route.

They departed Mojave on April 4, 1997, and headed east. They crossed all the world's oceans, visited 14 countries, traveled more than one and a half times the distance of the equator, and returned home to Mojave on June 24.

They traveled 38,791 statute miles, used 2,108 gallons of fuel (U.S. gallons) with a total flying time of 232 hours. Around the world in 80 nights!

Mike painted names of all the places they visited on this remarkable flight, the date that they left Mojave and the date they returned (see Page 10).

Photographs courtesy of Cathy Hansen

Left: Clay Lacy's DC-7 Super Snoopy that he flew in the 1970 California 1000 Race at Mojave: Bottom left: Lacy's DC-8 with the Human Fly riding on top. Bottom right: Clay's Purple People Eater, his P-51 Mustang.

Clarence 'Bud' Anderson — the Last Living Triple Ace!

Bud would often come to Mojave Airport with his friend Chuck Yeager, to visit Dan Sabovich (East Kern Airport District's founding General Manager). Bud and Chuck enjoyed hunting on the Hansen Wilderness Ranch. He was a friend of my late husband, Al Hansen, as well.

See LEGENDS, Page 10

Courtesy photograph

Details of Dick Rutan and Mike Melvill's round-the-world flight in a home-built Long-EZ aircraft. The flight crossed all the world's oceans, was 232-flight hours long, 33,685 nautical miles, and used 2,018 U.S. gallons of fuel. As for the 'enjoyment factor, according to the notes, it was "A mix of extasy and terror!"

Courtesy photograph

Clarence "Bud" Anderson sits on his aircraft wing during World War II.

During World War II, while serving with the 363rd Fighter Squadron, 354th Fighter Group in the 9th Air Force, Bud Anderson flew 116 combat missions (480 hours) in a P-51 Mustang carrying the name of "Old Crow." He destroyed 16.25 enemy aircraft in aerial combat, and another one on the ground. Bud has the distinction of being a "Triple Ace."

He served two combat tours escorting heavy bombers over Europe in the P-51 Mustang, November 1943 through January 1945.

He learned to fly at age 19 gaining his private pilot's license in 1941 through the Civilian Pilot Training Program while attending college

In January 1942 he entered the U.S. Army Aviation Cadet Program receiving his wings and commission in September 1942. He received his test pilot training by completing the AMC Performance Course (1948) and the Stability and Control Course (1949) while at Wright-Patterson AFB, Ohio.

Bud served for 30 years in the U.S. Air Force accumulating over 6,700 flying hours, first as a Triple Ace in World War II, then as a commander of a squadron of F-86s in postwar Korea; and a wing of F-105 Thud's on Okinawa during the mid-1960s. In 1970, he flew 25 combat missions in F-105s as a wing commander in Thailand during the Vietnam War.

During his 30 years of distinguished military service, Anderson accumulated over 6,700 flying hours. He served as a fighter test pilot and Chief of Fighter Operations at Wright Patterson Air Force Base, Ohio. He participated in a number of unique test programs, including the wingtip coupling experiments and the parasite fighter program. While at the Air Force Flight Test Center at Edwards Air Force Base, Calif., he was assigned as Chief of Flight Test Operations and later Deputy Director of Flight Test.

Following military retirement in 1972, he joined the McDonnell Aircraft Company as their facilities manager at Edwards AFB. He retired from McDonnell in 1984 and moved to Auburn, Calif.

I like this quote in the foreword of Bud's book, *To Fly and Fight* by Brig. Gen. Chuck Yeager: "In an airplane, the guy was a mongoose. It's hard to believe, if the only Bud Anderson you ever knew was the one on the ground. Calm, gentlemanly. A grandfather. Funny. An all-around nice guy. But once you get him in an airplane, he's vicious. Shot down 17 airplanes. Best fighter pilot I've ever seen. He's also the best friend I have in the world. We go back 47 years, Andy and I."

Courtesy photograph

From left: Clarence "Bud" Anderson, his wife Eleanor, and Al Hansen.

I used to sit with my husband and remind him how lucky we have been to know so many wonderful aviation legends. We were always so thankful to meet up with these great friends.

Air Force photograph

During his distinguished career, Bud Anderson served as a U.S. Air Force test pilot at Edwards Air Force Base, Calif.

> *"In an airplane, the guy was a mongoose. It's hard to believe, if the only Bud Anderson you ever knew was the one on the ground. Calm, gentlemanly. A grandfather. Funny. An all-around nice guy. But once you get him in an airplane, he's vicious. Shot down 17 airplanes. Best fighter pilot I've ever seen. He's also the best friend I have in the world. We go back 47 years, Andy and I."*
>
> **Chuck Yeager talking about Bud Anderson**

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A spiritual journey like no other

Base chapel travels across the desert to new home

by Bob Alvis
special to Aerotech News

A number of years ago, as the sun rose on another day in the High Desert, a strange site was seen moving across the dry lakebed in Rosamond. Those viewing it were probably entranced as the structure slowly made its way towards its new home.

Many of us have come to know that yes, indeed, the Spirit travels in many ways, but this old timer was not just carrying the Spirit of itself but also of the hundreds who found refuge in its walls.

Nowadays, it's just an old church that sits in Rosamond, still serving the faithful — now known as St. Mary of the Desert Catholic Church.

But the other day, while sitting in traffic, I looked over at it and the history of its journey pulled at my heart, while the lives it touched so many years ago made me think of all the men and women it served when it was the chapel at south base at Muroc in World War II.

In World War II when our nation was building bases all over the country, these churches were the standard model and from the East Coast to the West Coast they were built in the hundreds. The services, the weddings, and the funerals numbered in the thousands as our nation rolled up

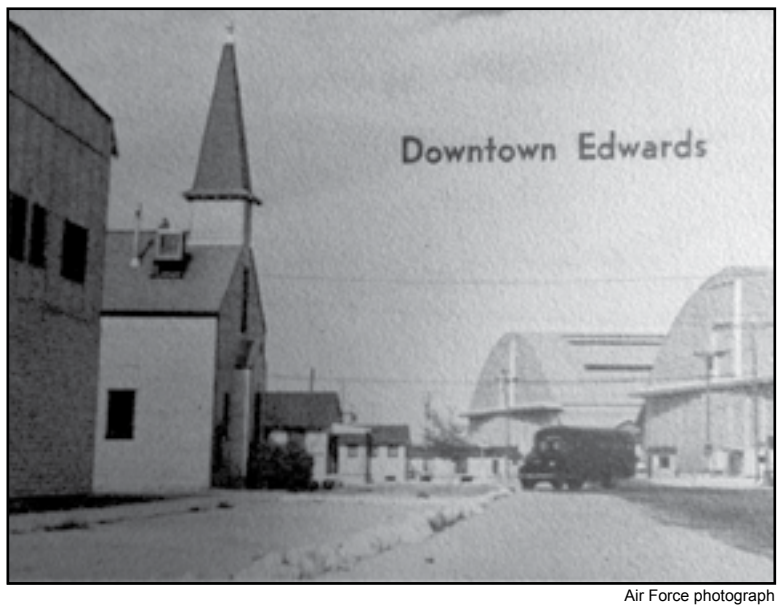
Air Force photograph

Meeting with the chaplain.

its sleeves and did what needed to be done.

Many a young Airman finishing up training probably left this chapel and left it to journey to Europe or the Pacific never to return. You hope and pray that the many weddings that took place carried on after the war and produced happy lives and families. The chapel was just as important to many stationed there as any other aspect of flight operations at the base, as it connected people to the Spirit they had left behind in hometowns across America and gave them a feeling of home and loved ones.

Yes, it's just an old chapel that was moved from the base at Muroc/Edwards to this new home and I wonder if those using it today can feel the presence of the Greatest Generation that sat inside those walls facing an unknown future and looking to the faith they embraced to give then the strength and courage to face the fear embracing the world.



Air Force photograph

The Cantonment Chapel on South Base, Muroc Army Air Field in the 1940s.

The generations who sat and worshipped in this chapel did answer the call and secured the freedom for the world from the evil they were called upon to defeat. This chapel played its part helping to secure that victory, but there also came a time when its mission at the old base was drawing to a close. The chapel was being replaced by larger and newer facilities, and it wasn't long until it faced an uncertain future.

This old chapel found a friend and a new mission when the Archdiocese in Fresno was looking to open a church in Rosamond, and in 1950 all the pieces fell in place for the old chapel to start its journey to its new home where it would embrace many new followers for generations to come.

Yep, I'm an old sentimentalist, and an old building like this speaks to my heart. Maybe someday I will find the time to spend a few moments in the silence there and sit for a bit remembering the many lives that made this sacred and special place a part of their journey. And I will say a prayer for those who never came home, and for the many lives it touched. Many churches nowadays are pretty fancy and elaborate, but for me and many others a simple church like this can become more than just a house of worship. It can become a conduit back to simpler times and good memories that remind us of family and friends long departed. In other words, the spirit gives us hope and peace of mind in a setting that is special to those of faith.

Yes, it's just an old church, but its story should be told and passed on to inspire future generations when today's world starts to overwhelm us. It's as much a symbol to American resolve as any statue and may those responsible for its upkeep and future treat it as such and we should be thankful that it still carries on today serving those of faith and being that symbol of peace and love that served past generations when they needed it most.

Until next time, Bob out …

Photograph by Bob Alvis

St. Mary of the Desert Catholic Church sits at 3100 15th Street West in Rosamond, Calif.

Air Force photograph

A young couple prepare to get married at the base chapel at Muroc Army Air Field (now Edwards Air Force Base).

Chapels spring up across the nation as the U.S. prepares for war

As the United States mobilized for war in the early 1940s, a need for permanent base chapels was determined. Prior to this time, most religious services were held in open fields, and other buildings such as clubs and mess halls.

In March of 1941, Congress passed a bill that provided for 604 chapels to be built across the nation in posts, camps and stations. These new chapels were designed to be used by Protestant, Catholic and Jewish service members to make their devotions.

According to Office of the Chief of Chaplains in 1942:

"The chapel was planned to resemble the small country churches which dot the countryside of America … Simple dignity marks the outward appearance of the chapel, the construction being of clapboard on a wooden framework, set on a concrete foundation,

"The inside is equally simple and attractive. The seats, which accommodate 300 downstairs, are built with slat backs and have kneeling benches for those who use them in worship … The balcony, which seats an additional 57 worshippers, or which may be used for the choir, also contains the electric organ which provides music for all services."

Many of these chapels are long gone, but thankfully, St. Mary of the Desert Catholic Church in Rosamond, Calif., is still in use.

VETERANS DAY ☆ NOVEMBER 11 ☆ HONORING ALL WHO SERVED

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 16th day of November 2022 or thereafter. The auction is being held at **www.selfstorageauction.com** by competitive bid. The property is stored by **Nova Storage located 3305 E. Palmdale Blvd., Palmdale, CA 93550**.

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

D210	Miller, Michelle
F498	Dillon, Ishimine
E349	Espinoza, Angelina
D142	Pratt, Emmanuel
E338	Trotman, Shawn
E412	Valiente, Desiree
B069	Marron, Mario
E466	Newsome, Lamarr
E491	Guynes, Sabrina

Date: October 19th, 2022 Signed NOVA STORAGE
This notice is given in accordance with the provisions of section 21700 et seq. of Business & Professional Code of the Sate 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

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

95	Cook, Katie
369	Montague, Tyrisha
41	Brown, Elizabeth

Date: October 19th, 2022 Signed NOVA STORAGE
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