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AIRLIFT / TANKER QUARTERLY

SUMMER 2021

Volume 29 Number 03



TANKERS IN THE MIX I: AIR REFUELING IN THE USAF 1945-1960

Beginning of a three-part history of air refueling after World War II

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THE A/TA HALL OF FAME CEREMONY

Honoring the 'Port Dawgs,' and Col. 'Rocky' Lane

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AIRLIFT/TANKER QUARTERLY
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Chairman's Comments



Gen. Duncan McNabb, USAF (retired)

I write this as we approach our Fourth of July and as our country continues to open up as more and more Americans are receiving their vaccinations. Allowing us to again have family get togethers and vacations sure feels good and holds great promises for things to come. It also will allow us to get together in person in Orlando to celebrate our Mobility warriors for what they do for our great Nation…and tell some good stories and have some fun.

I'm pleased to report our in-person 53rd Annual Symposium and Technology Exposition and accompanying Industry Interface Day with our AMC partners at Orlando Marriott World Center on Oct. 28-31, 2021 is coming together well. All our keynotes are on track. Registration is set to open July 6, 2021 so we'll be on our way. We are also continuing to look for ways to virtually share the keynotes and other highlights with Mobility Nation. It will be quite a gathering.

Given our Air Force Chief of Staff's call to arms to "Accelerate Change or Lose" and Gen. Van Ovost's supporting AMC theme, "Accelerating Change for Rapid Global Mobility", this year's convention theme is:

Leveraging our Legacy
To Aggressively Forge our Future

Indeed, we have a great legacy and foundation that allowed us to always answer the call. So, lots to talk about and we are working with AMC to come up with some great seminars, especially as Air Mobility and Global Reach are so pivotal to the National Defense Strategy.

For our Industry partners and supporters, registration for the Technology Exposition is well underway. If you are interested in exhibiting at this year's convention, please contact our Vice President of Industry at ***IndustryVP@atalink.org***. In addition, and in partnership with Air Mobility Command Headquarters, we will once again be conducting the Industry Interface Day. This was very well received at the last in-person convention, and we anticipate an even bigger event this year. Lt. Gen. Duke Richardson, the military deputy to the assistant secretary of the Air Force for Acquisition, Technology, and Logistics, has agreed to be our Chairman's luncheon speaker. Duke is a great guy and he has overseen a number of our mobility programs. It will be an honor to have him share his thoughts with us.

We will also celebrate all our 2020 and 2021 Award winners. This will include honoring our 33rd inductee into our Hall of Fame, Maj. Gen. Don Brown. Maj. Gen. Brown's huge impact on Mobility spanned three decades. This included being the mastermind behind the Airlift Master Plan and Total Force Plan, which set the force structure and manning of the command, including the rationale and justification for the C-17 to replace our aging C-141. His work and leadership resulted in a buy of 223 C-17s that literally changed the mobility world. Having served for Maj. Gen. Brown, no one fought harder for the mobility mission, which he and his wife Joan continued to do after he retired as ardent supporters of A/TA. We look forward to an outstanding tribute at our Saturday night Hall of Fame Banquet.

To continue to get ready for the Symposium and Technology Exposition, we had our first post Covid in-person Board meeting at Scott Air Force Base on June 6-9, 2021. The Huyser Chapter, led by outgoing Chapter President, Master Sgt. Michael "DJ" Daijogo, and incoming Chapter President, Master Sgt. Mecardo "Mico" Morales, the Chapter did a superb job hosting us.

It was a fast paced three days which included our Hall of Fame bust unveilings for our 2019 Inductee, our Aerial Transportation Career Field (Port Dawgs) and our 2020 Inductee, Colonel (ret) Rocky Lane (Raven 1). Despite a little rain, it was an awesome event and well-deserved recognition for our inductees.

At our board meeting we got to hear directly from the 18th Chief Master Sergeant of the Air Force and new Air Force Aid Society (AFAS) CEO, Kaleth Wright, about all they are doing for our airman. We also had a chance to discuss ways A/TA and AFAS might support each other and do some joint ventures.

The Board additionally had a breakfast with a number of our impressive young leaders, and a mixer at the golf course with A/TA members, Scott Air Force Base leadership and airmen, and civic leaders. We celebrated the award of the Abilene Trophy to the Scott Air Force Base Civic community for their outstanding support of our families and Scott Air Force Base.

On Wednesday, we had a joint A/TA and AFAS sponsored golf tournament that was a huge success. Chief Master Sgt. of the Air Force Kaleth Wright joined us for the tournament, and great fun was had by all. To say we were overwhelmed and energized by what the Huyser Chapter is doing for our Mobility airmen would be a huge understatement. Well done Huyser Chapter and thank you.

Our Chapters and members are indeed our life blood, so we are always looking for ways to add new members to our association. A quick update on our Chapter membership drive. Currently, the top five in order are: the Tony Janus Chapter at MacDill Air Force Base, Florida; Razorback Chapter at Little Rock Air Force Base, Arkansas; the Huyser Chapter at Scott Air Force Base; The Big Country Chapter at Dyess Air Force Base, Texas; and the Golden Bear Chapter at Travis Air Force Base, Texas. There is still plenty of time to sign up new members as we get ready for the convention…and make some award money for your Chapters.

Led by Lt. Gen. (retired) Chuck Johnson, Popeye, Tom Cost, and their team of volunteers we have continued to have outstanding virtual Leadership Series sessions. We had Maj. Gen. Stacy Hawkins, AFMC/A4, in May, Lt. Gen. Sam Barrett, JCS/J4, in June, and AMC Command Chief, Chief Master Sgt. Brian Kruzelnick is scheduled for July 30, 2021. Be sure to tune in live or see the recorded sessions on our A/TA website…the candid discussion and live question and answer are well worth your time.

On the strategic front, we are very proud to announce that our Scholarship Committee Administrator, Col. (retired) Barb Jacob, has made great progress developing a new A/TA scholarship program to complement our very successful Enlisted Education Grant Program. Once approved, we anticipate that our first call for scholarship applications will be this winter and award of our first college undergraduate scholarships in the Spring of 2022. Also, for the spouses, we are working to revitalize specific spouse activities. This will include having a spouse gathering at the convention to discuss ideas on how to make our Conventions an even better experience for them.

Before I close, and in great sympathy, I wanted to acknowledge that we lost a dear friend and one of our HOF C-17 Pathfinder Loadmasters, Chief Master Sgt. (retired) Mike Welch, on June 7, 2021. Mike was a tremendous leader and huge supporter of A/TA. We will sure miss him. We mentioned previously we lost Rosalie Cassidy last year. Along with Gen. Cassidy, she was a great mentor and friend to so many of us, including me. The Cassidy family let us know that the burial for Mrs. Cassidy to be with Gen. Cassidy at Arlington National Cemetery is scheduled for Oct. 18, 2021. Our hearts and prayers are with their families during these very difficult times.

We also have two of our finest mobility leaders and good friends, Lt. Gen. (retired) Bob Springer and Maj. Gen. (retired) John Becker facing some very serious health issues. Please keep them and their families in your thoughts and prayers.

As I close, have a great summer and we look forward to seeing you at the Orlando Marriott World Center on Oct. 28-31, 2021. It will be great to be together again and celebrate who we are and what we do…and be with wonderful friends.

My Warmest Regards,
Gen. (retired) Duncan McNabb, Chairman ■

Secretary's Notes



Tom Cost

The Board of Officers was pleased to hold its 2021-2 (spring) board meeting at Scott Air Force Base, Illinois in June. The Huyser Chapter did a great job hosting us to include an ice breaker that allowed us to meet with many of the local leadership council members.

Important news included the announcement that our 2021 convention is planned to be in person and will be held at the Orlando World Center this Oct. 28-31. Watch our social media (FB, Instagram, and Twitter) for registration opening dates and the convention agenda.

Of particular importance to our members is that the Association is moving forward to provide more scholarships. We are looking to increase endowments and donations that will allow us to expand the number and size of our scholarships. This remains in addition to our robust Enlisted Education Grant program. Stay involved with the Association for more information.

As a first, the in-person meeting was broadcast as a Live Event using Teams. Members with an ATA Teams account can view the meeting online at Airlift Tanker Association/2021-2 Board Meeting/Files.

The Association was excited to have Chief Master Sgt. (retired) Kaleth "K" Wright, the 18th Chief Master Sergeant of the Air Force, brief us on the Air Force Aid Society and the recent changes they have made to accomplish their goal of aiding airman and Guardians in response to the pandemic and other external issues.

Our 2021-3 (summer) board meeting will be held online using Teams on Aug. 2-3. Links will be posted on our web page (www.atalink.org/members) and social media.

Also, if you order using Amazon, remember to select the A/TA as your charity and use smile.amazon.com to help us help our airman.

Tom ■

Statement by Secretary of Defense Lloyd J. Austin III on the Passing of Former Secretary of Defense Donald Rumsfeld

JUNE 30, 2021



I was saddened to hear today of the passing of former Secretary of Defense Donald H. Rumsfeld. Mr. Rumsfeld had the singular distinction of holding that post for two nonconsecutive tenures, serving as both the 13th Secretary of Defense and the 21st. He also served in the U.S. Navy in 1954-57 as a pilot and a flight instructor, and he continued his service as a reservist until 1975, when he became Secretary of Defense for the first time. Over the decades of his remarkable career, from Congress to the White House to the Pentagon, Secretary Rumsfeld was propelled by his boundless energy, probing intellect, and abiding commitment to serve his country. On behalf of the Department of Defense, I extend my deep condolences to his family and loved ones. ■



A/TA Mourns the Loss of Dear Friend and Hall of Fame Member, Chief Master Sgt. (retired) Michael M. Welch

By Sondra Hart Airlift/Tanker Association Administrator



The Air Force and Airlift Tanker Association community lost a lifelong mentor and friend, when USAF Chief Master Sgt. (retired) Michael M. Welch, died on June 7th, 2021. He was a respected friend to many and a supporter of the Mobility mission, culture and history throughout his whole career and retirement.

Mike served on the A/TA Board of Advisors for many years and was the See Seventeen chapter president. He was inducted into the A/TA Hall of Fame as one of the six "Pathfinder Loadmasters" on Oct. 31, 2015 due to his groundbreaking work in developing the cargo compartment for the C-17A. A bust is installed in honor of this group at the A/TA Walk of Fame at Scott Air Force Base, Illinois.

Mike was a wonderful friend and colleague who always shined bright throughout all of life's blessings. His many years of flight experience and expertise assisted the development of the business end of the C-17, along with our Pathfinder Loadmaster team.

A/TA Past President and fellow Pathfinder Loadmaster, Chief Master Sgt. (retired) Mark Smith, offered the following:

Sharing fond, personal memories, Mike and I played softball together for many years at Wright-Patterson Air Force Base, Ohio. Mike's love of sports and capabilities on the field at 3rd base helped us win several base championships. Mike has now reached home plate, playing for the best ever All Star team – Godspeed my friend.

A/TA offers our deepest condolences to Mike's wife, Candace, his children and family. He will be sorely missed.

Obituary

Michael "Mike" Mark Welch passed away at his home in Hermosa Beach, California on June 7, 2021 at the age of 75. He was surrounded by his family as he peacefully passed. Mike is survived by his wife, Candace Joann Ford (Hermosa Beach, California); his three sons, Christopher Kevin Welch (Janel Sute Welch, Port Orange, Florida), Matthew Ford Welch (Hermosa Beach, California), and Andrew Ford Welch (Hermosa Beach, California); his three grandsons, Zachary Welch (Victoria Welch, Wilmore, Kentucky), Bret Welch (Bar Harbor, Maine), and Noah Welch (Wilmore, Kentucky); his uncle, Joe Welch (Donna Welch, O'Fallon, Missouri); his aunt, Gertrude Mello (Portsmouth, Rhode Island); his three step-siblings, Glenn Guthrie (Neptune Beach, Florida), Donna Guthrie (Atlantic Beach, Florida), and Richard Welch (Deana Welch, Mesa, Arizona).

Mike was born in Newport, Rhode Island on Nov. 11, 1945 to James and Diana (née Mello) Welch. He spent his early childhood in Newport before moving to Jacksonville Beach, Florida. He lived with his mother, his stepfather William Guthrie (a retired US Navy Chief Boatswain Mate) and his half-siblings Glenn and Donna, until he graduated from Duncan U. Fletcher High School.

Mike enlisted in the United States Air Force after high school, and over the course of his 24-year career, he rose to the highest enlisted rank of Chief Master Sergeant. During his career as a Loadmaster, his duty assignments included Texas, Florida, Hawaii, Georgia, North Carolina, Nakhon Phanom (NKP) Thailand, South Carolina, Oklahoma and Ohio. While stationed at NKP, he flew 151 night combat missions and 551 combat flying hours while flying the Ho Chi Minh Trail over Laos, Cambodia & North Vietnam, and 39 combat support missions in Vietnam.

Among his numerous awards, Mike earned the Distinguished Flying Cross for his actions on Dec. 25, 1970 in the Mu Gia Pass between North Vietnam & Laos. During this mission, he flew on the C-123K Candlestick for the 606th Special Operations Squadron, 56th Special Operations Wing at NKP. Other major awards and medals included the Meritorious Service Medal with 1 Oak Leaf Cluster (OLC); and Air Medals with 9 OLCs for his actions flying the Ho Chi Minh Trail in Laos, Cambodia, North and South Vietnam from February 1970 to August 1974. His other awards and medals included the Air Force Achievement Medal, the Presidential Unit Citation, the Air Force Outstanding Unit Award with V Device and 5 OLCs, the Air Force Organizational Excellence Award with 2 OLCs, the Air Force Combat Readiness Medal with 5 OLCs, and 16 additional Air Force and Foreign Campaign Medals.

Mike retired from the USAF in 1988, amassing more than 6,500 flying hours on numerous aircraft including the C-130E, C-123K, C-141 A/B, KC-10A, C-23A, C-27A, Aeritalia G.222 & Casa CN-235 and visiting 96 countries. After his retirement, he continued to stay involved in several military and civilian organizations. He was a president of the See Seventeen Chapter of the Airlift/Tanker Association (A/TA), executive board member of the A/TA; president of the Troop Carrier/Tactical Airlift Association; executive board member of the Professional Loadmaster Association; vice president of the 57th Alumni Association; executive board member of the Vietnam Veterans of America Chapter 53; secretary and treasurer of the Hermosa Beach Rotary Club; and member of the Distinguished Flying Cross Society, the Air Commando Association, and the Thailand, Laos, Cambodia Brotherhood Society.

Additionally, Mike was inducted into the A/TA Hall of Fame as one of the six "Pathfinder Loadmasters" on Oct. 31, 2015 due to his groundbreaking work in developing a loadmaster station for the C-17A. A bust is installed in honor of this group at the A/TA Walk of Fame at Scott Air Force Base, Illinois.

After retiring from the USAF, he began working for McDonnell Douglas Corporation (MDC), and eventually The Boeing Company. He was the Chief C-17 Aircrew Training Loadmaster; the C-17 Operations Engineering – Mission and Aircrew Systems as a Systems Analyst and Chairman of the Airlift Mission Systems Panel; then promoted to the MDC Commercial Division, Product Support, Technical Publications as a Senior Manager; then the International C-17 Programs Integrated Product Team (IPT) Lead and BC-17X Program Integration Manager; then the IPT Lead and Program Integration Manager for the United Kingdom C-17 Program and IPT Lead for the Canadian Forces C-17 Programs; and International C-130 Avionics Modernization Program Director, Business Development for Sweden, Norway, Netherlands, Portugal and Japan Programs. Mike retired from The Boeing Company on Dec. 31, 2014, after 27 years.

Mike's greatest passions outside of work and family were baseball and softball. He began playing at nine years old with the Lions in Newport, and continued to play with numerous teams in and around Jacksonville. His primary positions were Shortstop, Second Base, and Third Base, particularly preferring Shortstop. After joining the USAF, he continued playing baseball, as well as fast and slow-pitch softball. He played on base teams in places like Orlando, Honolulu, Charleston, SC, Altus, OK, and even in places overseas like NKP, Tachikawa in Tokyo, Puerto Rico, Guam, and the Philippines. His teams won a collection of awards, including participating in and winning several tournaments put on by Military Airlift Command, Strategic Air Command, and Pacific Air Command. Mike's team while stationed at Charleston Air Force Base, South Carolina was notable for having won the 1972 Command Tournament. After retiring, he was an avid senior softball player in a career that spanned nearly 20 years. He played for many recreational league teams in the area around Hermosa Beach, such as Marauders, Fat Cola, and Admiral Risty. He eventually joined the Git-R-Done tournament team that was a member of Senior Softball-USA, and with them he won a wide array of All-Tourney awards and championship rings. He also founded the softball team for his church, St. Cross Episcopal in Hermosa Beach, and his playing and coaching led the team to many titles. Mike earned a bachelor's degree in Education from Southern Illinois University at Carbondale, Carbondale, Illinois and a master's degree in Management & Supervision from Central Michigan University, Mt. Pleasant, Michigan. His hobbies outside of baseball and softball included skiing & golf. ■



MOBILITY HEROES

OUR HERITAGE

By USAF Col. (retired) Paul McVickar

Mobility Air Forces have been open to female crewmembers longer than any other Air Force aviation job. Nancy Harkness Love was several years ahead of us, though as she pioneered the way for women to fly prior to and during World War Two. She helped create the Women's Air Ferrying Squadron and the Air Transport Command's Women's Airforce Service Pilot Program. Her contribution allowed combat pilots to move directly to the war, while the women pilots delivered aircraft from the factory to the theater.

Nancy Love began her contribution to air transportation in 1936 when she and her husband, Army Air Corps Reserve Major Robert Love, established Inter City Aviation at Boston International Airport. There, she flew charters in addition to managing their fledgling air service.



Nancy Harkness Love. (Archive photo).

In the late 1930's, she flew as a test pilot for the Gwinn Air Car Company, where she tested the tricycle landing gear systems, later adopted as the standard for medium and large transports such as the Douglas C-54. Additionally, when an urgent request for aircraft came from France, following the 1940 German invasion, Nancy Love transported aircraft to Canada for the subsequent transshipment to France.

Beginning in 1940, Love saw the potential need for additional seasoned pilots in the upcoming years as the war in Europe increased in tempo. She recommended to the Air Corps using experienced women pilots to augment the existing pilot Force. It was not until 1942, after the United States entered the hostilities that she was able to generate a serious interest in her proposal. During this time, she met another Mobility Hall of Fame pilot, Col. William H. Tunner, then head of the Air Transport Command Ferrying Division, Domestic Wing, who helped her create the Women's Air Ferrying Squadron.

In 1943, the Women's Air Ferrying Squadron merged with the Women's Flying Training Detachment, creating the Women's Airforce service Pilot Program, with Nancy Love as the Executive Director. Charged with transporting military aircraft between factories, modification centers, depots, and operational units, this highly experienced group of aviators, averaging over 1,100 hours each, freed active-duty pilots for combat duty. Under Love's leadership, the Woman's Airforce Service pilots delivered 12,650 airplanes of 77 different types, covering over 60 million miles.

In December 1944, the Women's Airforce Service Pilot Program was disbanded after a last-ditch effort to get the militarization bill through Congress failed, but not before proving flying military aircraft was an acquired skill that was non gender-driven. Ultimately, it would eventually open the door to women in military aviation in general, and military air transportation in particular.

Thanks to Nancy Love, the Air Transport Command benefited from the experience of a cadre of pilots coming from a previously unused source. Eighteen hundred and thirty women applied for the Women's Airforce Service Pilots Program. One thousand and seventy-four graduated. Thirty-eight were lost in service to our country.

Nancy Harkness Love, leader and women's aviation pioneer, led the way for women in our Mobility Air Forces, and in so doing, earned a place in the Mobility Hall of Fame in 1996. ■

2021 Hall of Fame Inductee – Maj. Gen. Donald D. Brown



Car show at the Heritage Air Park on Scott Air Force Base, Illinois. (Photos by Master Sgt. Michael Daijogo, panorama created by Col. (retired) Paul McVickar).

The Airlift Tanker Association is proud to announce the selection of Maj. Gen. Donald D. Brown as its 33rd Hall of Fame inductee! Maj. Gen. Brown entered the Air Force in 1955 through the Columbia University Reserve Officer Training Corps program, and in 1956, graduated from pilot training. His first operational assignment was to the 18th Air Transport Squadron of the Military Air Transport Service at McGuire Air Force Base, New Jersey, flying North Atlantic routes in C-118s After various assignments and levels of command, Maj. Gen. Brown culminated a long and distinguished 32-year career as the commander, 22nd Air Force, Military Airlift Command, Travis Air Force Base, California.

Maj. Gen. Brown served at a pivotal time in Air Mobility history making significant contributions to our mobility force structure, mission, and culture. He was one of the most distinguished Mobility leaders and influencers of the 20th century. Maj. Gen. Brown was a command pilot with more than 10,000 flying hours—more flying hours than any other Mobility general officer in Air Force history. Maj. Gen. Brown served in several key Headquarters, Military Airlift Command (MAC) Operations and Plans/Programs leadership roles and served four MAC Commanders, Generals Bill Moore, Dutch Huyser, James Allen and Tom Ryan. During that period of time, Maj. Gen. Brown provided the continuity and the glue that helped the command modernize its vast fleet of aircraft.

While primarily an aviator and operator, Maj. Gen. Brown was also agifted logistician. Taking advantage of many career broadening logistical and supply opportunities, he consequentially served on both the Strategic and Military Airlift Command staffs. The knowledge and experience gained supporting major Air Force weapon systems and their lifecycles also gave Maj. Gen. Brown credibility when called to assist in the development and procurement of future Mobility weapon systems. His talent for implementing weapon system "life cycles" to include supporting equipment and bed down footprints, became the Air Force's cornerstone for the 21st century global mobility enterprise.



Maj. Gen. Donald D. Brown. (Courtesy photo).

Maj. Gen. Brown's impact on Mobility capabilities and operations spanned three decades. In the mid-1980s, he marshalled the seminal Airlift Master Plan; the Mobility Roadmap that analytically defended and justified the Military Airlift Command's and the future Air Mobility Command's force structure and manning. As MAC's deputy chief of staff for Plans, his leadership and networking abilities ensured the C-17 Globemaster III was added to complement and replace our aging airlift fleets.

Maj. Gen. Don Brown was definitely one of Air Mobility's most distinguished and inspirational leader, aviator, and logistician. He provided outstanding leadership and direction at a pivotal time in our airlift history, and his significant contributions to help sustain and modernize our mobility force structure continues to serve our Nation today.

The A/TA Hall of Fame was established in 1988, and is the highest honor the Association can bestow upon an individual or mission area demonstrating superior or sustained performance in the advancement of air mobility and refueling. As a lasting tribute to his legacy and achievements, a bronze bust depicting Maj. Gen. Donald D. Brown will be permanently mounted in the Air Mobility Heritage Park located at Scott Air Force Base, Illinois. ■

Airlift Tanker Association News

The Huyser Chapter of the A/TA held major events in early June, in addition to the Hall of Fame induction ceremony. It hosted the national board, a golf tournament and the pictured Car Show at the Heritage Air Park.

"On behalf of the A/TA Huyser Chapter I would like to thank each and every one of you for helping with our golf tournament," said Sgt. Michael S. Daijogo, past president of the chapter. "We do this event every year and cannot get it done without your help.

"This is typically our big fundraising event, the car show raised $14000 this year," he continued, "and plays a huge part in our contribution to Scott Air Force Base events and assisting our fellow private organizations. I have passed over the presidency for the chapter the Master Sgt. Mecardo Morales so if you want to help next year just let him know."



Senior Airman Thomas White, 436th Aerial Port Squadron ramp services journeyman, pushes pallets of ammunition bound for Tajikistan onto an aircraft at Dover Air Force Base, Delaware, June 22, 2021. Security cooperation between the U.S. and Tajikistan advances shared security interests and supports regional stability in Central Asia. (U.S. Air Force photo by Mauricio Campino).

COVER STORY

Tankers in the Mix I: Air Refueling in the USAF 1945-1960

By Robert C. Owen, Embry-Riddle Aeronautical University



Doing exactly what the Air Force bought it to do; a KC-135A refueling a B-52D in the latter 1950s. (U.S. Air Force photo).



THIS PAPER IS THE BEGINNING OF A THREE-PART HISTORY OF AIR REFUELING AFTER WORLD WAR II.

Its purpose will be to provide a succinct read for those not familiar with the several, very good books available on the subject, and to suggest the relationships of that early history to contemporary decisions about the content and scale of the future air refueling fleet. The immediate value of this second purpose is its relationship to the Air Force's ongoing involvement in what continues to be a politically contentious and developmentally protracted effort to recapitalize its fleet of AR aircraft. History should inform this effort for a number of reasons. Most important, the evolution

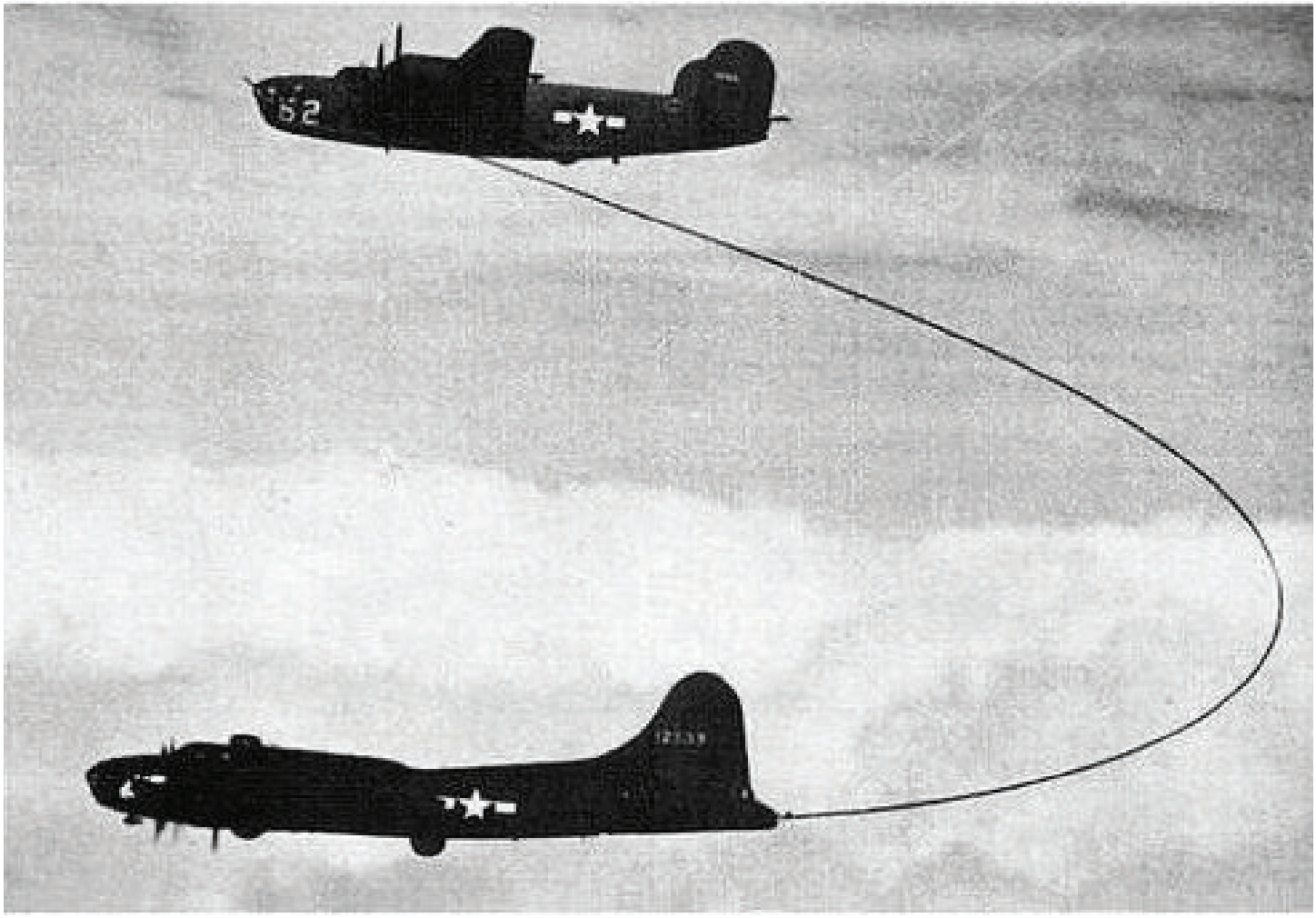
Cover Story *continued on page 10 >>>*

Cover Story *continued from page 9*

of air refueling policy and force structuring included choices about warfighting concepts, technologies, and intraservice dynamics that can provide relevant wisdom for choices made today. Also, a good historical perspective can refine current concepts and dogmas regarding possible military futures and the roles of tankers within them.

There are, in fact, a number of really important questions hovering about that suggest the need for a no-holds-barred operational, technological, and opportunity-cost analysis of where the Air Force plans to take the AR program. The USAF has not fought a peer or even near-peer opponent since 1945. This experience, or rather the lack of it, gives fundamental importance to the question of how to employ the tanker force against future enemies able to attack it electronically and kinetically to its full depth, possibly all the way back to the front doors of its crew force. Likewise, the continued equipage of the Air Force's tanker fleet with repurposed airliners raises questions about its ability to operate enough of them forward, and survivably, in regions not endowed with numerous and secure airliner-class runways, parking areas, and fuel storage capacities.

To begin, U. S. Army Air Forces and Royal Air Force experimented with aerial refueling in WWII, but without practical effect. Early in the war, the AAF experimented with the idea as a way to extend the ranges and war loads of B-17s and B-24s. It also tested concepts for refueling P-38s in flight, most of which were pretty wacky and dangerous. One called for dangling a canister of fuel from a B-24, while the pilot of a P-38 clamped onto and maneuvered down the suspending cable to force a connection between the canister and a shackle under the plane's nose. A blast of nitrogen would then force the fuel into the P-38's tanks, after which the canister (hopefully) fell away automatically. The project failed in part, one might



B-24 refueling a B-17 using looped-hose system. The process of capturing and reeling in the 235' long hose was complex and hazardous. (U.S. Army Air Force photo).



A key advantage of the probe-and-drogue system was that it allowed a single tanker, such as this KB-50 around 1956, to refuel as many as three fighter aircraft at the same time. (U.S. Air Force photo).

imagine, because there could not have been enough pilots available with the necessary combination of flying skills, courage, idiocy, and greed for flight pay necessary to make it militarily useful. The British, meanwhile, developed the operationally complex but useful looped-hose system. Already proven before the war in trans-Atlantic air mail flights, this system required the receiver aircraft to capture and connect to a long hose dangling from the tanker aircraft, which then flew a little higher to allow the flow to begin via gravity. This was the system used in the American bomber trials, and the RAF planned to use it on a large scale in "Tiger Force" operations against Japan beginning in late 1945 or early 1946.

The problem for AR in the AAF right after the war was that it was an orphan searching for its daddy. The early B-17/B-24 trials attracted interest among bomber leaders, but only for limited but emotionally important missions, such as revenge bombing Japan from Midway or Hawaii. For other operations, such as mass bomber raids against Germany, the choreography of hundreds of aircraft flying over and around each other to engage their hose grapnels and start their fuel flows was likely not practical. Further, the opportunity costs of redirecting so many large aircraft and crews from the bomber effort to tankers could not have been lost on senior commanders. Doing so meant reduced weight of bombs delivered on enemy targets, and mass was vital in an era of unguided weapons. So, once the arrival of the B-29 and the capture of bases nearer to Japan reduced the immediate need to range-extend smaller bombers, the AAF put AR on the back shelf. For a simpler set of reasons, fighter operators initially passed on AR; the concepts put forward by American engineers looked suicidal and the looped-hose system wouldn't work for single-seat aircraft. So, there it lay on the porch in a basket, and no one saw a reason to spend the money or the love to take that AR baby home.

Atomic bombs, however, put a more desirable face on the baby. Given the individual power and

***Cover Story** continued on page 12 >>>*

Cover Story *continued from page 11*

the initially limited number of nukes available, Air Force tacticians recognized that the new paradigm for strategic air warfare would be small formations of bombers, with some carrying bombs while others provided reconnaissance or defensive support. Given the distances involved in striking the Soviet Union from U.S. bases in the homeland, where the Air Force preferred to keep its people and "special weapons," AR was essential to success. By 1948, then, AR was the Air Force's highest developmental priority. By the middle of that year, two KB-29 AR squadrons were on line. During the Korean War (1951-1953), the Air Force also learned to use AR to support reconnaissance and large-unit transoceanic deployment operations by fighter aircraft. When smaller "tactical" nuclear weapons became available, fighter commanders embraced air refueling as a way to increase the strike range of their squadrons. Indeed, during the gigantic Army-Air Force Sagebrush exercise of 1955, air-refueled "tactical" nuclear strikes were the core feature of the Tactical Air Command's new warfighting concept.

Bombers comprised the principal demand signal for the USAF's growing tanker fleet, and never in history did bomber capabilities and fuel requirements expand as fast as they did in the decade after WWII. Strategic Air Command's fleet in the late 1940s was dominated by B-29s (entered service in 1944) and B-50s (1948). The gross weights of these aircraft were about 120,000 pounds and 173,000 pounds, respectively, and their go-to-war cruise speeds were in the 200-knot range. These aircraft were complemented by the class-of-its-own B-36 (1948), which had 10 engines and weighed 410,000 pounds, but still had a long-range cruise speed of only about 200 knots. B-45s introduced the jet age to the USAF bomber force, but it was the B-47 (1951) that would be the core SAC bomber through the 1950s. The USAF bought just over two thousand of these 221,000-pound aircraft that more than doubled the cruise speeds of their piston-engine predecessors. The 488,000-pound B-52 (1955) had an unrefueled combat range of over 8,000 nautical miles and cruised at around 440 knots. Until the arrival of the B-1 in 1986, it was the definitive bomber in the USAF inventory.

Concurrently, the Air Force invested heavily in tanker development to provide refueling support to the bomber and, increasingly, the fighter fleets. The first generation of air refueling aircraft were KB-29s and developed versions of them—KC-97s (1951) and KB-50s (1955). The KB-29s came in two versions: "M-models" (1948) equipped with the looped-hose system, and "Ps" (1954) equipped with the Boeing Flying Boom, which became and remains the Air Force standard for refueling equipment. After 1950, the Air Force equipped KB-29s, and later, KB-50s, with the probe-and-drogue system. This system remains the simplest of all refueling systems to use and was the early standard for Air Force fighters and remains the standard for the rest of the world today. The over 800 KC-97s built between 1950 and 1958 were all equipped with the flying boom, and essentially were reserved for support of SAC bombers. The operational differences between booms and drogues were that the booms could pump as much as 1,000 gallons per minute to one receiver at a time, while drogues each pumped 200-300 gallons per minute, but to two or, in the case of the KB-50, three receivers simultaneously. The final tanker fielded during this period was the turbojet-powered KC-135, which entered service in 1957 and remains the Air Force's core aerial refueler.

The matchup of tanker capabilities and receiver requirements was uneven until the KC-135 came on line. The early piston-engine tankers were well suited to refueling piston-engine bombers. Their cruise speeds and altitudes were similar and they burned the same aviation gasoline. They also had the capacity needed to service their bomber counterparts. The capacity of a B-50's fuel tanks was 11,500 gallons, while a KC-97 carried about 7,000 gallons of transferable fuel and could top off a half-full bomber in a few minutes. The situation changed drastically when the B-47s came on line. A B-47 carried 18,200 gallons of fuel. So, a half-fill of fuel required two KC-97s, the first of which would have to meet the jet at least a thousand miles after it took off and the other a few hundred miles later. To effect a tanker rendezvous, B-47 pilots had to descend their planes from over 30,000 feet at cruise to around 20,000 feet, where the KC-97s cruised, fly at dangerously slow speeds for 10-15 minutes, and then burn fuel to regain their cruise altitudes. The looming entry of the B-52, which carried approximately 45,000 gallons, transformed the tanker-bomber mismatch from awkward to downright absurd. This reality came home during Operation Power Flight in 1957, when 78 KC-97s were required to support three B-52s on a non-stop, around-the-world flight. KC-135s solved the general problem, since each carried 33,000 gallons of fuel and had the speed and altitude needed to continuously refuel B-52s from their takeoffs to points well down their attack routes. But, two or more would still be required to keep a bomber's engines turning on long combat or deployment missions.

For all of their operational virtues, KC-135s left Air Force fighter units out in the cold. Except for a few aircraft modified to receive refueling from a boom, all TAC fighters capable of AR in the latter 1950s did

so through the probe-and-drogue system. KC-135s came without the necessary equipment. Just why that was so has been difficult for this study to document. Strong rumor, however, has it that SAC's politically powerful commander, Gen. Curtis E. LeMay, blocked the installations because they would have put tactical fighters in competition with bombers for use of the aircraft, and he wanted none of that. Given LeMay's outspoken skepticism regarding even the need for tactical air forces in the atomic age, this explanation is plausible, though this author has yet to find the smoking-gun documents to prove it. As an offset to not being able to use KC-135s, TAC got aging and difficult-to-maintain KB-50s for a while, until the Air Force declared in 1958 that boom refueling would be the standard for all new aircraft.

In response to the move to booms, the fighter community began installing the necessary receptacles in some in-service fighters and all new aircraft. From a tactical perspective the adjustment may not have been the best solution, since boom refueling slowed the rate at which fighter formations could be refueled. But, the deed was done, though the question of how the exclusive shift to booms would affect future warfighting remained an active one for decades to come.

Additional Reading

Richard K. Smith's, Seventy-Five Years of Inflight Refueling (AF History and Museums, 1998) remains the best starting point to explore the subject. Richard Tanner's History of Air-to-Air Refueling (Pen-and-Sword, 2006) is an exhaustive and thoroughly illustrated technical history of every air refueling system ever built by the West. The best short read would be Ellery D. Wallwork and others, Air Refueling: Without Tankers, We Cannot…, (Air Mobility Command Office of History, 2009). Last, the debate over the relative merits of booms and drogues has generated dozens of public studies and probably hundreds of staff papers since 1958. Paul Killingsworth provides one of the best in his Multipoint Aerial Refueling: A Review and Assessment (RAND, 1996). All of these documents are easily found on the web, except Tanner's book, which is copyrighted by a private press.

Editor's note: In pursuit of writing A/TQ articles on tanker operations, Rob Owen is looking for individuals who have first-person insights into the planned use of tankers in a major NATO conflict during the 1960s and 1970s. Dr. Owen has other questions as well and is always open to conversations with veterans of air refueling operations and planning.

Email your contributions to: robert.owen@erau.edu ■



Lightning strikes behind an aircraft on the flightline at MacDill Air Force Base, Florida, June 8, 2021. (U.S. Air Force photo by Airman 1st Class David D. McLoney).

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Airmen gather before a commemoration ceremony for the Air Transportation career field, and retired U.S. Air Force Col. Lawrence Lane, former security forces raven officer, on Scott Air Force Base, Illinois, June 08, 2021. (U.S. Air Force Photo by Airman 1st Class Isaac Olivera).

A/TA honors 'Port Dawgs,' Col. 'Rocky' Lane during Hall of Fame ceremony

By Sidney Snyder, 375th Air Mobility Wing Public Affairs Office

The Airlift/Tanker Association recognized their Hall of Fame inductees from 2019 and 2020 during a ceremony June 8 at the Airlift Tanker Air Mobility Heritage Park at Scott Air Force Base, Illinois.

The honored inductees of 2019 are members of the Air Transportation Career Field or "Port Dawgs," who are represented with a circular medallion. On behalf of all the past, present and future Port Dawgs, retired Chief Master Sgts. William Powell, David "Ike" Eisenhuth and Walter Decker, accepted the medallion placed within the park. The medallion read "Air Transportation Specialist: Port Dawgs. Air Mobility starts and ends on the ground."

The 2020 inductee is Col. Lawrence "Rocky" Lane, who unveiled a bronze bust that is placed alongside the previous men and women inducted into the Airlift / Tanker Association Hall of Fame. He has been recognized as "DOD's and the Air Force's foremost anti-terrorism and force protection leader of his generation" largely because of his Phoenix Raven Program. His pedestal reads, "Colonel Lawrence Rocky Lane, a selfless and charismatic leader whose security and force protection initiatives prepare a Mobility Airman for the 21st Century."

Port Dawgs

During his remarks, retired Gen. Charles T. Robertson, Jr., former commander of AMC and U.S. Transportation Command, recalled a time where air mobility played a key role in a speedy and complete evacuation out of South Yemen. The Airmen had two nights to evacuate personnel. On the first night, they were evacuated leaving behind much of the equipment that would need to be out by the next. In a last-minute effort, a few Port Dawgs were asked to come along and help. Since the Port Dawgs knew how to efficiently load cargo, mission success was attained.

Additional remarks were provided by retired Gen. Duncan J. McNabb, also a former commander of AMC and USTRANSCOM and currently the A/TA Chairman of the Board. He said that "their [port dawgs] actions equip our nations with the speed and flexibility necessary to make rapid global mobility a reality every day."

Powell as an Airman 1st Class was solely responsible for all special handling cargo moving through the Hue Phu Bai airport in South Vietnam during 1969. He oversaw the movement of munitions, dangerous cargo and transport of all human remains. He managed the dignified transfer of the casualties from the battle at "Hamburger Hill." Decker assisted the evacuation of Vietnamese refugees in 1975 with Operations Baby Lift and New Life. He manifested and loaded more than 130,000 displaced persons to safety. Eisenhuth was the first-ever enlisted "cargo bookie" responsible for managing airlift assets in support of two combatant command's theater requirements. He moved emergency response personnel and equipment to help conduct search and rescue operations after the bombing of Pan American flight 103 over Lockerbie, Scotland.



Clockwise from the top left: Retired U.S. Air Force Chief Master Sgt. Bill Powell, former air transportation specialist, speaks during a commemoration ceremony for the Air Transportation career field, retired U.S. Air Force Col. Lawrence Lane, former Security Forces raven one officer, speaks during a commemoration ceremony on Scott Air Force Base, Illinois, June 08, 2021, sculpture bust of retired U.S. Air Force Col. Lawrence Lane, an Air Transportation medallion bust is revealed during a commemoration ceremony for the Air Transportation career field. (U.S. Air Force Photos by Airman 1st Class Isaac Olivera).

Individually, these men have exemplified leadership abilities as well as problem solving skills throughout their careers and represent just a few of the many contributions and accomplishments for air mobility and transportation missions.

Col. "Rocky" Lane

According to the A/TA award write up, Lane is a "mustang" who served 10 years as an enlisted jet propulsion specialist and flight mechanic prior to being commissioned as an officer in 1975, and which included a tour in Vietnam where he was awarded the Bronze Star and Purple Heart. During his 39-year career, he developed a new security and force protection culture to cope with challenges of a post-9/11 world. His philosophy that "everyone is a defender" helped to shape the Air Force's anti-terrorism and force protection tactics, including the Phoenix Raven program.

The first class of Ravens graduated in 1997 alongside Lane earning him the lifelong nickname of Raven One.

"The program is designed to produce elite security defenders who possess physical, mental and psychological abilities and toughness to deal with any situation," said McNabb. Today's modern entrances and gates, standoff and aesthetically pleasing perimeter barriers, as well as base and flight line surveillance cameras and sensors were designed under his watch.

In addition, he shaped the first Threat Working Group, that brings together a cross-functional team of experts to assess threats to daily operations, and the Force Protection Resources Board, that provides leaders inputs on security, force protection requirements, priorities and sources of funding.

A/TA Hall of Fame:

The Hall of Fame was founded to honor the men and women who have accomplished incredible acts in service of the United States Air Force as airlifters and tankers; they have all shown their ability to rise to the sense of duty and continuously push for innovation. For more details, please visit www.atalink.org/hall-of-fame.



A sculpture bust of retired U.S. Air Force Col. Lawrence Lane, former security forces raven officer, is revealed during a commemoration ceremony, on Scott Air Force Base, Illinois, June 08, 2021. (U.S. Air Force Photos by Airman 1st Class Isaac Olivera).

U.S. Navy Blue Angels refueled by Joint Base MDL KC-10 Extender

By Senior Airman Ariel Owings, Joint Base McGuire-Dix-Lakehurst Public Affairs

Six U.S. Navy Blue Angels F/A-18 Hornets receive fuel from a KC-10 Extender assigned to the 305th Air Mobility Wing on Joint Base McGuire-Dix-Lakehurst, N.J., June 28, 2021. The Blue Angels needed in-flight refueling during their flight home to Florida after participating in an Air Show. Stationed at Forrest Sherman Field, Naval Air Station Pensacola, Florida, the team consists of 140 active-duty Sailors and Marines. They have returned to their community outreach mission following the pandemic shutdown of COVID-19. While celebrating their 75th year in service, the Blue Angels also debuted their new jet platform, the F/A-18 Super Hornet. ■



U.S. Air Force Staff Sgt. Justin Draffen, 2nd Air Refueling Squadron boom operator, and Capt. Steven Trochlil, 32nd ARS prepare to refuel a U.S. Navy Blue Angels F/A-18 Hornet from a KC-10 Extender assigned to the 305th Air Mobility Wing on Joint Base McGuire-Dix-Lakehurst, New Jersey, June 28, 2021. (U.S. Air Force photo by Senior Airman Ariel Owings).



A U.S. Navy Blue Angels F/A-18 Hornet receives fuel from a KC-10 Extender assigned to Joint Base McGuire-Dix-Lakehurst, N.J., June 28, 2021. (U.S. Air Force photo by Senior Airman Ariel Owings).



Six U.S. Navy Blue Angels F/A-18 Hornets fly in formation behind a KC-10 Extender assigned to the 305th Air Mobility Wing on Joint Base McGuire-Dix-Lakehurst, N.J., June 28, 2021. (U.S. Air Force photo by Senior Airman Ariel Owings).

Department of Defense extends uniformed services identification card expiration policy guidance

The Department of Defense (DOD) remains committed to ensuring the health and safety of all DoD personnel and beneficiaries and ensuring their continued access to healthcare and all authorized benefits. In its ongoing response to the COVID-19 pandemic and its impact on identification (ID) card site operations, effective immediately, the DOD is extending temporary Uniformed Services ID (USID) card expiration policy guidance for all USID cards with expiration dates between Jan. 1, 2020 and July 31, 2021 as follows:

- Through Aug. 31, 2021, for all foreign affiliates and their dependents;
- Through Oct. 31, 2021, for the dependents of active-duty uniformed Service members, and Reserve and National Guard uniformed Service members and their dependents; and
- Through Jan. 31, 2022, for retirees and their dependents, and all other USID card populations.

ID cards that expired prior to Jan. 1, 2020, have not been extended and must be replaced. ID cards with expiration dates after July 31, 2021, must be replaced by their expiration date.

To learn more about the extension of policy guidance for expiring USID cards visit the DOD Response to COVID-19 - DoD ID Cards and Benefits website (***https://www.cac.mil/Coronavirus/***) for a fact sheet and FAQs.

To schedule an appointment to have an ID card reissued, visit the ID Card Office Online website (***https://idco.dmdc.osd.mil/idco/***), and select the ID Card Office Locator & Appointments option.

19th AW enhances interoperability during MG21

By 19th Airlift Wing Public Affairs

More than 170 Airmen and four C-130J Super Hercules assigned to the 19th Airlift Wing recently returned home after participating in Air Mobility Command's largest and longest running training event, Mobility Guardian 2021, at Alpena Combat Training Readiness Center, Michigan, May 15-27.

Conducted biennially, Mobility Guardian is the Air Force's only formal, Total Force, service-level mechanism for assessing and validating capabilities in Rapid Global Mobility missions specified and implied within the 2018 National Defense Strategy.

The 19th AW served as the largest participant in the mobility-focused exercise, in terms of number of personnel and aircraft. They joined more than 1,800 mobility, combat, and reserve forces, as well as forces from the U.S. Army to accelerate change in how AMC trains and develops Airmen to operate for tomorrow's high-end fight.

"AMC must simultaneously prepare for tomorrow's fight while maintaining success in today's operations," said Gen. Jacqueline Van Ovost, AMC commander. "AMC's priorities are aligned with those of the Air Force, U.S. Transportation Command and the Joint Force, ensuring AMC is agile, aligned and capable of executing national objectives across each of AMC's missions."

Building upon lessons learned from the Mobility Air Forces Weapons and Tactics Conference and previous iterations of the exercise, MG21 focused on experimenting with emerging concepts and technology and developing Airmen by exposing them to complex challenges based on relevant real-world security challenges and future conflicts.

"A lot of this was Airmen-led," said Lt. Col. Nathan Powell, 19th Operations Group deputy commander. "This exercise construct presented problems where Airmen could use their experience and innovation to solve problems."

Integration of cutting-edge concepts to advance warfighting capabilities was at the heart of MG21.

This included Multi-Capable Mobility Airmen demonstrating speed and agility while enabling refueling and re-arming of fighter aircraft in an austere location. Additionally, aircrew and mission planners used specialized computers and communications aboard aircraft to rapidly share data, promoting increased awareness of simulated threats and allowing for faster decision making.

Powell said that while most of the Airmen involved in the exercise haven't worked under the Agile Combat Employment construct, the 19th AW was well postured to bring lessons learned to its MAF partners.

"It wasn't so much experimental learning for 19th Airlift Wing members," he said. "Our experience from locally generated exercises, such as ROCKI 21-02, helped accelerate the learning process for the MAF."

Over the course of the two-week exercise, the 19th AW contributed to a handful of AMC firsts, including the use of a fueled Aerial Bulk Fuel Delivery System and inflight transportation of MHU-141 munitions trailers to rearm and refuel A-10s quickly, known as an integrated combat turn.

"Herk Nation and the Herk culture is adept to these kinds of operations," Powell said. "For the C-130 community, this wasn't a significant deviation from how we do business—but integrating in this fashion, across all of the mobility enterprise, to mission plan and project combat power lays the foundation to further develop warfighting concepts for AMC specifically."

Powell added that exercises like MG21 are critical to sharpening Mobility Airmen's readiness to project the Joint Force and ensure strategic deterrence in any environment across the entire competition continuum.

"The MAF feeds the fight," he said. "The logistics and port opening capabilities that AMC provides enables maneuver warfare. The MAF will be critical to enabling any future fight against a near-peer or peer competitor.

For more information on Exercise Mobility Guardian 2021, visit ***https://www.dvidshub.net/feature/MG21***. ■



An Airmen from the 19th Airlift Wing prepares a hose for refueling at Alpena Combat Readiness Training Center, Michigan, May 25, 2021. (U.S. Air Force photo by Senior Airman Blake Gonzales).



U.S. Air Force 1st Lt. Riley Richards, a copilot assigned to the 61st Airlift Squadron, and U.S. Air Force Capt. Christopher Cruz, a pilot assigned to the 61st AS, operate a U.S. Air Force C-130J Super Hercules assigned to the 19th Airlift Wing above Michigan, May 22, 2021. (U.S. Air Force photo by Staff Sgt. Joseph Pick).



Aircrew members assigned to the 41st Airlift Squadron and air transportation specialists assigned to wings throughout Air Mobility Command prepare to load container delivery systems onto a U.S. Air Force C-130J Super Hercules assigned to the 19th Airlift Wing at Alpena Combat Readiness Training Center, Michigan, May 21, 2021. (U.S. Air Force photo by Staff Sgt. Joseph Pick).

Air Mobility News & Views *continues >>>*

906th ARS takes teamwork to a new level

By Airman 1st Class Mark Sulaica, 375th Air Mobility Wing Public Affairs Office, 375th Air Mobility Wing

Airmen across 32 different career fields work in unison to service, sustain and fly KC-135 Stratotankers. These Airmen, with the 906th Air Refueling Squadron on Scott Air Force Base, Illinois, enable a global support mission in tandem with Air National Guardsmen.

A unique trait of this squadron that not many share is their interoperability with multiple aspects of the total force package. These active-duty Airmen get the job done every day alongside their brothers-in-arms, and critical Team Scott members, with the 126th ARS Air National Guard Airmen. These Airmen help provide global support in air refueling for our mobility Airmen across the globe.



U.S. Air National Guard Airman 1st Class Paul Kampwerth, 126th Air Refueling Squadron hydraulics apprentice, equips an engine cover on a KC-135 Stratotanker on Scott Air Force Base, Illinois, June 2, 2021. (U.S. Air Force photo by Airman 1st Class Mark Sulaica).

"A lot of bases you go to across my career are separated, you're in your little section; you're not really sure how you fit in the grand scheme of things," said Master Sgt. Ronald Fisher, 906th ARS maintenance superintendent. "Having all these shops being able to coordinate work together especially in close proximity, allows all of our members to see exactly what they're doing and how this shop affects the mission overall, so it really is a huge deal."

With the assistance of the 126th ARS integrated into the 906th ARS, Airmen are capable of solving issues quicker.

"They have the experience on the Aircraft," said Fisher. "New problems that arise a lot of times are not new problems to them," he explained. "Having the ANG wealth of experience maintaining the aircraft speeds up the process for training new Airman, young staff and tech sergeants, allowing the 906th ARS to defeat tasks with the support of the ANG."

Fisher explained that the bonds between the 906th ARS and ANG runs deep. To Fisher it is hard to differentiate between active duty and guard.

The interoperability produces better quality Airmen. The integration between the two units is paramount in its mission's success, said Fisher.

"The numbers show we are definitely killing it," said Fisher. "I'm so proud of my Airmen for what they do every day. ■



U.S. Air Force Senior Airman Sabian Scott, 906th Air Refueling Squadron KC-135 Stratotanker aerospace maintenance journeyman, and U.S. Air National Guard Airman 1st Class Brian Okoniewski 126th ARS KC-135 aerospace maintenance journeyman, inspect the refueling panel inside of a KC-135 on Scott Air Force Base, Illinois, June 2, 2021. (U.S. Air Force photo by Airman 1st Class Mark Sulaica).

Former senior leaders discuss the future of AMC at Mobility Statesmen

By Air Mobility Command Public Affairs

Former commanders and command chiefs of Air Mobility Command met with Gen. Jacqueline Van Ovost, AMC commander, and Chief Master Sgt. Brian Kruzelnick, AMC command chief, during the Mobility Senior Statesmen and Mobility Enlisted Statesmen symposiums at Scott Air Force Base, Illinois on May 27, 2021.

"I'm excited and humbled to welcome back so many great leaders not only for AMC, but also for our Air Force and Joint Force," said Van Ovost.

During the symposium, the group discussed the Mobility Air Forces' growing role and progress made in ongoing Joint All Domain Operations experiments, received a programmatic update from planners on the MAF roadmap, and looked at some innovative initiatives like Condition-Based Maintenance Plus.

"Competing across the spectrum in this digital age requires a culture change and we cannot do that without strong officer and enlisted leadership," said Van Ovost. "I learned from the many great leadership teams that have led throughout this command, so I am very excited to have the Mobility Enlisted Senior Statesmen join us!"

This is the first year the two groups combined to listen and collaborate on efforts concerning the development of mobility Airmen, projection of the joint force and advancement of warfighter capabilities.

"Each leader shaped and sharpened this command along the way, adapting to the strategic and operational environment at that particular time and vectoring the MAF in the right direction," said Van Ovost. "Their continued support and mentorship is invaluable to our continued progress."

The former commanders and chiefs provided insight based on their wide breadth of experience during their Air Force careers, as well as valuable perspective based on their current involvement with industry or academia.

"I'm thankful they were all able to make it in-person to listen to what we are working on, where we are headed and provide immeasurable expertise," said Van Ovost. ■



Gen. Jacqueline Van Ovost, Air Mobility Command commander, far left, and Chief Master Sgt. Brian Kruzelnick, AMC command chief, far right, gather with former AMC senior leaders at Scott Air Force Base, Illinois, May 27, 2021. (U.S. Air Force photo).

Air Mobility News & Views *continues >>>*

AMC Deputy Commander, Lt. Gen. Brian Robinson: How MAF projects the power of the Joint Force forward

By Allison Elliot, The Mobility Forum Staff Writer

With 85 percent of the joint force assigned to the continental United States, the Mobility Air Forces (MAF) has had to evolve its warfighting capabilities to project the power of the joint force forward. According to Lt. Gen. Brian Robinson, deputy commander of Air Mobility Command (AMC), Scott Air Force Base, Illinois, projecting that power forward has involved a degree of modernization.

"We are on a path to advance our technologies and capabilities to allow us to advance our decision-making in the role that we will play for projecting power for the joint force," Robinson said. "The ability to do that while being fully aligned with JADC2 (Joint All-Domain Command and Control) and projecting that power to the time and place of our nation's choosing is going to be key."

It has been important for MAF to be involved in the development of JADC2—the link connecting the joint forces, command, and control— because of platform size, electrical power, and presence.

"There are some unique reliances, operationally and tactically, that our partners will have on us because of the size of our platforms and the power they can generate. Those factors allow the ability to carry some of our capabilities plus our ubiquitous presence around the world at any one time," Robinson said.

The features of the MAF platform allow the Air Force and joint force flexibility and options to engage the enemy, wherever they may present themselves in the world.

"Where we are going with JADC2, every platform—before it is considered for its true capabilities—is a node in a network architecture, and if we are part of that architecture with our ubiquitous presence and power, we offer alternative paths to that global network should the adversary decide to contest us in a particular geographic region or particular domain," said Robinson.

The tankers are vital to AMC's role in competition and future high-end fights for moving forces to wherever they need to be.

"The tankers are going to be the key to getting that force into the position it needs to be in for its assigned objectives quickly. They are going to be the key to establishing that air bridge—the ability to stay connected on behalf of the joint partners as we are dragging the fighters across the ocean or refueling the bombers as they are making their way to the objective area," Robinson said. "It is about expediting decision-making for the next best move to stay on top of or out in front of the adversary in a position of advantage."

The role of tankers and airlifters in day-to-day operations and competition—not just high-end fights—is one that Robinson feels is "under-represented and appreciated." Specifically, he notes the ability to be in sync with allies while being out of sync with adversaries.

"Take a look at open-source reporting on some of the bomber task force missions and the dynamic force employment approach. Those activities go on every day, and the idea is for us to be strategically predictable to ourselves but unpredictable to the adversary that the particular operation is aligned against. It is the same roles that tankers and airlifters will play, but in daily competition, as opposed to just high-end conflicts," Robinson said.

AMC learned a significant amount of information from the first four experiments or exercises it conducted on the capacity of the KC-46 Pegasus tanker and the role of the C-17 Globemaster III transport. The challenges the team faced included combining the existing systems and hardware with potential future systems.

"The first four, I think what we learned is, it is okay and necessary to fail. We went into some of those on-ramp experiments with expectations with how a certain system design or architectural approach would work, and sometimes it worked but sometimes not as well—and sometimes not at all," Robinson said.

Additional experiments are planned, and Robinson states they will happen as long as progress is shown with the experiments. These experiments are all part of an evolution to developing JADC2. The key, once again, is adaptation.

"We have to learn to adapt our acquisition process and thinking about how we have to go after future capabilities rather quickly because there is a terminal point where the game ends and there is a winner and a loser, and everyone is jockeying for position in the competition infinitely. We have to adapt," Robinson said.

Artificial intelligence (AI) has a "significant" role in modernizing AMC for its part in JADC2. The future for this technology in aircraft operations applications is bright, as seen in the private sector.

"Today, it is all done fairly manually when an aircraft, if you will, comes into a particular operating site. [That] is when we get the best visibility on it or the status of the airplane or crew or lots of other factors. So there is a lot of distance to make up for AI and machine learning from that perspective. We see corporate aviation entities have sort of blazed the trail already…, and we can certainly learn from it," Robinson said.

Robinson notes, however, that AI experts state that machine learning cannot make up for human decision-making. They can help with a decision or even make a minor decision, but pressing the button should fall to a person.

"Humans learn from machines and machines learn from humans, so you can work that back into machines, but if the consequences are 'should we go to war or not,' you may not want to let the machine make that call," Robinson said. "But if the decision is 'what is the most important thing out the door,' then a machine can make that decision or at least a recommendation to the decision-maker."

The Advanced Battle Management System (ABMS) focuses on technological solutions as opposed to JADC2, which focuses on intangible operational elements of the mission. The experiments are centered on the ABMS component.

"The experiments are going after some material solutions. The material solutions are more about the ABMS side of it, what hardware is necessary to move the data across. JADC2 tends to be more about tactics, techniques, and procedures— the non-material solutions about what you are going to do with that hardware," Robinson said.

Developing and modernizing AMC's platform for its role in JADC2 is not about learning more about the adversary, Robinson explained, but more about ourselves: our capabilities, capacity, and disposition. These experiments and AI technologies are to further our decision-making capabilities to better respond to adversarial advances.

"It is about expediting decision-making for the next best move to stay on top of or out in front of the adversary in a position of advantage. TRANSCOM (U.S. Transportation Command) calls it 'advancing decision-making.' That is why their strategic principles are what our combatant command is aligned under, but it is similar with the effort from the Air Force with JADC2, same outcome. Sensing, aligning, orienting, and making decisions very quickly in a battle and the operational space we know will be rapidly changing," Robinson said. ■

AMC receives two prestigious safety awards

By Maj. Carolyn Sparks, AMC Public Affairs

Air Mobility Command (AMC) recently received two awards recognizing the accomplishments of their 2020 safety program.

AMC captured the Secretary of the Air Force (SAF) Safety Award for the third consecutive year, and the Maj. Gen. Benjamin D. Foulois Memorial Award for the second year in a row and the 19th time in its history.

"We are incredibly honored to have earned these coveted safety awards," said Col. Brandon Hileman, AMC Director of Safety. "It is truly a team effort and a testament to our outstanding Air Mobility warriors."



Courtesy graphic. (U.S. Air Force).

The SAF Safety Award is the Air Force's most prestigious safety award given to the major command, field command, direct reporting unit, or field operating agency with the most effective overall safety program. Recipients of this award are approved by the Secretary of the Air Force.

"The many achievements of Air Mobility Command indicate strong support for safety at all levels of command personnel," said John P. Roth, acting Secretary of the Air Force.

Since 1938, the Maj. Gen. Benjamin D. Foulois Memorial Award recognizes the major command, field command, direct reporting unit, or field operating agency with the most effective aviation safety program.

"Our safety programs save lives," Hileman said. "People are our greatest asset, and AMC is doing everything we can to protect Airmen so they can continue to provide rapid global mobility."

Air Mobility Command is recognized across the Air Force as a benchmark for proactive safety, according to Hileman. He cited the command's risk management culture as the reason for extraordinarily low aviation Class A and Class B mishap rates, which have been 54 percent below the Air Force average since 2017.

The AMC safety programs also save the Air Force money.

"Mishaps can cost millions of dollars and result in destroyed aircraft or assets. Preserving these valuable resources equals combat capability," said Hileman.

Unique to the command, AMC's "Hindsight in 2020" Critical Days of Summer campaign leveraged lessons learned to recognize and avoid seasonal hazards and successfully reduced lower level, Class C mishaps by 35 percent.

The command's leadership role in the Airmen Safety Action Program, or ASAP, was another key component in the safety accolades. Airmen and civilians submitted 1,210 ASAP reports, and the AMC safety team worked with appropriate stakeholders across the enterprise to assess and resolve identified hazards. ■

Statement on completion of Mobility Capability Requirements Study 2020

By U.S. Transportation Command Public Affairs

U.S. Transportation Command briefed members of the House Armed Services Committee on the results of the Mobility Capability Requirements Study 2020 (MCRS-20), June 30. The classified study, directed in the Fiscal Year 2020 National Defense Authorization Act, provides a comprehensive assessment of current and future mobility requirements necessary to satisfy the demands of the National Defense Strategy and project and sustain the Joint Force on a global scale.

MCRS-20 evaluated the command's ability to perform core missions (strategic sealift, strategic airlift, theater airlift, air refueling) against the latest intelligence estimates, wartime demands, and emerging Joint and Service concepts in contested environment scenarios. The study also analyzed additional mobility categories, including Aeromedical Evacuation, and airfield and seaport enablers.

"Our analysis goes beyond the mobility platforms and integrates key warfighting functions, current wartime demands, and future concepts entailing maneuver and distributed operations," said U.S. Army Gen. Stephen R. Lyons, commander of USTRANSCOM. "We also assessed our adversaries' capabilities and intent, and our ability to operate in a contested environment. We've advanced significantly in our analytic framework."

MCRS-20 integrated the warfighting framework of the mobility enterprise (the global network of airfields, seaports and surface routes; commercial providers, military capacity and global command and control) with warfighting functions (like intelligence, fires and protection). This enabled a thorough analysis of kinetic and non-kinetic effects and threats that can disrupt, delay or deny mobility enterprise operations, distributed logistics, and sustainment.

This study captures the effects of contested logistics and persistent multi-domain attack and quantifies those effects in a range of risk outcomes, which indicate not only what capabilities and requirements are necessary, but also where efforts to build resilient logistics should be focused.

While MCRS-20 is complete, USTRANSCOM will continue to assess the ability to project and sustain the Joint Force in the context of the strategic environment and priority wartime missions. ■

Air Mobility News & Views *continues >>>*

Rocket cargo delivery gets big boost

By USTRANSCOM Public Affairs

Department of the Air Force announced Friday its fourth Vanguard program focused on Rocket Cargo signaling another step toward someday using rockets to deliver cargo for the Department of Defense (DOD).

U.S. Transportation Command (USTRANSCOM) is partnering with the U.S. Air Force, U.S. Space Force and the Air Force Research Laboratory (AFRL) to explore commercial capabilities in the field of space travel for global logistics. AFRL is leading a science and technology effort to determine the viability and utility of using large commercial rockets for Department of Defense global logistics, potentially expanding the portfolio of capabilities the USSF presents to combatant commanders.

"Being able to move payloads across the globe in under an hour is the logistics of tomorrow," U.S. Army Gen. Stephen R. Lyons, commander, USTRANSCOM, said following the funding of the AFRL study. Lyons announced USTRANSCOM's partnership with SpaceX, XArc, and AFRL to explore for point-to-point space travel for logistics during the annual National Defense Transportation Association and USTRANSCOM Fall Meeting in October 2020.

"We must challenge ourselves to think differently about projecting the force of the future, and how rocket cargo can be part of our logistic enterprise. Within the next five to 10 years, space transportation will allow the command to complement its air, sea, and land logistics operations" Lyons said. "And that will provide senior leaders a completely redefined variable in decision making and the advantage of time."

The Rocket Cargo Vanguard opens the door to key data from commercial partners for better understanding the challenges of landing at an austere site or even on a maritime platform. SpaceX plans to launch multiple Starship prototypes in 2021. With each commercial launch and test, DOD and industry move closer to making space transportation a reality.

Point-to-point space transportation presents a fundamental shift in the way the DOD could respond to contingencies and disasters by potentially reducing the number of days required for planning, coordination, and execution. In conjunction with capacity, the speed of space transportation shows the potential to offer more options and greater decision space for leaders while creating dilemmas for adversaries.

U.S. Navy Lt. Cmdr. Andrew Moore is managing the partnerships and guiding the thought leadership for USTRANSCOM's vision. "The DOD has explored space transportation in the past," he said. "Today, multiple factors are at play and it is the convergence of favorable costs, capacity, speed and access that makes commercial space mobility and logistics increasingly attractive."

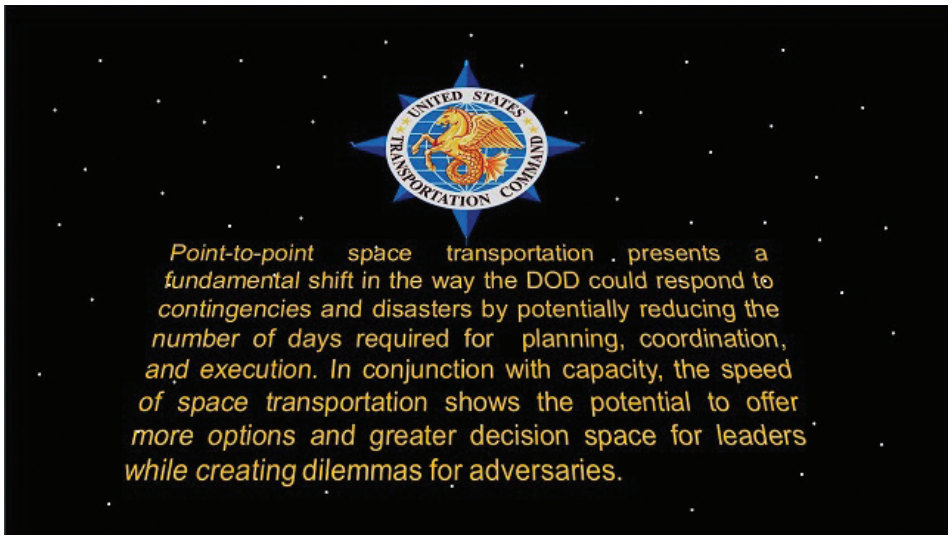
Point-to-point space transportation shows the potential to provide movement of vital resources while eliminating en route stops and other challenges, such as diplomatic approvals for access and overflight. Once orbital, vehicles have the capability to reach any point on earth.

In the past, the U.S. government led the technology development and bore the brunt of the cost. Today, commercial space launch providers, SpaceX and others, are rapidly developing and funding reusable transportation capabilities with payload capacities that may prove beneficial for strategic logistics.

"Since industry bears the bulk of development costs, the government is in an opportune position to influence designs and be postured to utilize future capabilities," said Moore. The strategy aligns with the 2020 National Space Policy to develop government systems only when no suitable or cost-effective service is available.

According to Moore, it is similar to how the DOD works with commercial aircraft engineers to ensure compatible defense features such as the 463L pallet system, which is a common size platform for bundling and moving air cargo and serves as the primary air cargo pallet for the U.S. Air Force, other air forces, and many civilian cargo transport aircraft.

USTRANSCOM exists as a warfighting combatant command to project and sustain military power at a time and place of the nation's choosing. Powered by dedicated men and women, USTRANSCOM underwrites the lethality of the Joint Force, advances American interests around the globe, and provides our nation's leaders with strategic flexibility to select from multiple options, while creating multiple dilemmas for our adversaries. ■



Courtesy graphic (U.S. Air Force).

Lyons witnesses KC-135 -hot-pit refueling – "significant innovation for warfighting readiness"

By Rob Wieland, USTRANSCOM Public Affairs

On March 22, U.S. Army Gen. Stephen R. Lyons, commander, U.S. Transportation Command (USTRANSCOM), stood on the flight line at Al Udeid Air Base, Qatar, with U.S. Air Force Lt. Col. Isaiah Oppelaar, commander, 340th Expeditionary Air Refueling Squadron (EARS), to witness his first KC-135 hot-pit refueling.

The hot pit refueling allows a ground crew to add fuel to the aircraft while the engines and aviation systems remain running, reducing the refueling process from four to six hours to roughly an hour, and keeping aircraft ready to respond to any mission.

As the tanker parked in spot 20A, deployed U.S. Air Force airmen assigned to the 379th Expeditionary Aircraft Maintenance Squadron, 340th EARS and 379th Expeditionary Logistics Readiness Squadron quickly readied and refueled the aircraft.

"This is the most significant innovation for warfighting effectiveness since I've been the USTRANSCOM commander," said Lyons after watching the 30-minute procedure. "This is a great example of how Airmen-driven innovation can bring significant warfighting capability to any theater."

Air Mobility News & Views *continued on page 23*

While this was the first time Lyons saw the time-saving procedure, the wing began hot-pit refueling in September 2020, and has completed validation and verification of its processes.

"Air refueling aircraft are critical to rapid global mobility and the lifeblood of the joint force's ability to deploy and employ the immediate and surge forces," said Lyons noted in his written posture statement provided to the Senate Armed Services Committee. "TRANSCOM operated from all seven continents, delivering over 95 million gallons of fuel during air-to-air refueling operations resupplying nearly 60 thousand aircraft and directly supporting 38 Bomber Task Force missions,"

This capability, which is estimated to cut aircraft turn-times by 75 percent, enabling a quick return to the mission for KC-135 squadrons.

"Hot-pit refueling increases the locations KC-135 can operate from, limits the amount of time the aircraft is on the ground, and significantly increases the amount of gas KC-135s can provide on any given day – key operational factors during a contingency," said U.S. Air Force Col James Blech, director of TRANSCOM's commander's action group and a KC-135 pilot. "While there's nothing new about hot-pit refueling, the way in which our deployed commanders are working through the tactics, techniques and procedures will create options for senior leaders we haven't seen in recent years from the air refueling fleet. I'm extremely impressed with the collaboration between the operations and maintenance teams to make this happen."

Shortly after the 379th Air Expeditionary Wing began hot-pit refueling -- the first KC-135 unit to do so -- the 100th Air Refueling Wing (ARW), Royal Air Force Mildenhall, United Kingdom, and the 92nd ARW, Fairchild Air Force Base, Washington, also started using the method that will create more dilemmas for our adversaries. ■



A U.S. Air Force KC-135 Stratotanker aircraft assigned to the 379th Air Expeditionary Wing is refueled during a hot-refueling training scenario at Al Udeid Air Base, Qatar, Sept. 21, 2020. (U.S. Air Force photo by Staff Sgt. Heather Fejerang).

Royal Danish Air Force brings deployment tradition to Shaw AFB

By Tech. Sgt. Elysia Wray, Ninth Air Force (Air Forces Central) Public Affairs Officer, Swedish Air Force

With 49 years of tradition in the making, the Royal Danish Air Force hosted their first Danish Contingent, or DANCON, march on U.S. soil at Shaw Air Force Base, South Carolina, June 5.

More than 60 participants from the RDAF, Ninth Air Force (Air Forces Central), 20th Fighter Wing, U.S. Army Central and other coalition forces had six hours to carry a 22-pound ruck for 15.5 miles.

"The history of the DANCON dates back to 1972, where it was held for the first time at a U.N. mission in Cyprus in the Mediterranean Sea," said Royal Danish Air Force Lt. Col. John Roland Pedersen, the Danish detachment commander. "Ever since, it has become tradition that Danish contingents on a mission around the world have arranged a march similar to this one, which we are doing today."

The march not only gives participants the opportunity to demonstrate their physical abilities, but it also allows them to build camaraderie within their own units and with members from other military branches and countries.

"At some point my legs were cramped up pretty bad," said U.S. Army Sgt. 1st Class Layelquinn Ferguson, a forward observer assigned to the 4th Battlefield Coordination Detachment, USARCENT. "I was actually unable to stand until a coalition member stopped and helped me stretch and that was a huge help. To be honest, I would not have been able to get up by myself if he did not stop and help me up. And that's what this is all about, coalition forces helping each other out."



Royal Danish Air Force Lt. Col. John Roland Pedersen briefs rules and safety guidelines to members from the U.S. Air Force, U.S. Army, and Royal Danish Air Force as they prepare to begin the inaugural Danish Contingency, or DANCON, ruck march at Shaw Air Force Base, S.C., June 5, 2021. (U.S. Air Force photo by Tech. Sgt. Elysia Wray).

The DANCON march is not just about showing how fast you can finish and who finishes first. This traditional ruck reinforces teamwork and shows how military members take care of each other. They have great pride in upholding traditions and honoring legacies.

"The purpose of the DANCON is to challenge your physical, mental endurance and determination, but more importantly, it is an opportunity to meet new friends, have a few laughs and a pleasant break in the daily routines," Pedersen said.

Members from the RDAF recently deployed to Shaw Air Force Base as part of the recent transition of the 727th Expeditionary Air Control Squadron, known as "Kingpin," from Al Dhafra Air Base, United Arab Emirates, to Shaw Air Force Base. DANCONs, previously held at deployed locations overseas, are a legacy that will continue by the RDAF at Shaw Air Force Base and other places around the globe. ■

TALES ON THE RAMP



This forum is intended to provide a venue for those funny events, anecdotal happenings and "Old War Stories" from tanker and airlift operations throughout the years. We've all got some and now here's an opportunity to share them with our members. We're not just talking about flying stories, but virtually anything related to air refueling and airlift operations – from 35 thousand feet, to the flight line to the MPF (CBPO for you more experienced members) and anywhere in between. Don't worry about ratting anyone out. The A/TQ staff will edit out any incriminating evidence to protect the not-so-innocent, including the author's name. Please take a minute to recall some of your best stories and attach them to an email addressed to ataeditor@yahoo.com. We need your participation to make this a fun feature for all our readers.

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If you meet the criteria, apply today! The A/TA wants to help you continue your education.

Industry Partner HIGHLIGHTS



Col. Cary Walgamott
USAF (Ret)

The Airlift/Tanker Association team is in the final stretch with preparations for the 53rd Annual A/TA Convention, Symposium, and Technology Exposition in Orlando, Florida. Another world-class program has been planned and preparations are coming together nicely. Once again, we anticipate an outstanding lineup of senior Air Force speakers including the Secretary of the Air Force and the Air Force Chief of Staff as well as an impressive list of seminars on a wide variety of mobility topics are at the heart of the symposium program.

We will again have several industry-focused seminars including panel discussions and specific speakers focused on industry matters. In addition, the Chairman's Luncheon -- always a very popular event – will feature a key senior Air Force leader, to address industry specific subjects. Also, the "Second Industry Interface", a huge success at last year's convention, will be held on Thursday, Oct. 28 from 0800-1600, before the Airlift/Tanker Association Symposium. More details about the "Second Industry Interface" will be announced as they become available either by email or in my early September update letter to the exhibitors. If your company is interested in attending the all-day event, ensure you plan your travel and hotel reservations accordingly. To register for the event, please go to the A/TA website at ***https://www.atalink.org.***

New this year is a vastly expanded list of sponsorship and branding opportunities! All of these items are listed on the A/TA website at ***https://www.atalink.org*** under convention. Companies who sponsor these events/activities will receive additional recognition in the following manner: 1. The name of the company and event supported will be listed on a large banner posted at the convention registration. 2. Each company will also receive additional recognition in the A/TQ Quarterly Magazine provided in each convention attendee's registration package. 3. Companies participating in support of these events/items will be recognized from the stage during A/TA events in the ball room. 4.

In addition, sponsors will be recognized by categories (Diamond, Platinum, Gold, Silver, and Bronze) depending on the amount of their sponsorship contribution. If you are interested in sponsoring any of the events/activities or branding items, please contact Tom Cost at ***Treasurer@atalink.org*** or by cell phone at (618) 975-9473.

A reminder to all military organizations and units. The partnership agreement between the Airlift/Tanker Association and Air Mobility Command has changed. Due to this, there is no longer a restriction on Air Force organizations exhibiting at the convention. If you are interested in displaying your unit's mission or recruiting in support of that mission, contact me at ***IndustryVP@atalink.org*** for exhibit booth applications.

When you go to the Airlift/Tanker Association website to register for this year's event, you will also find something new. Our IT team and ATA administrative staff have been working diligently since last year's convention to further streamline and enhance the registration process so it's more customer-friendly. Their efforts have been exemplary and we hope your registration goes very smoothly. As a reminder to all exhibitors, in addition to your exhibit booth reservation, you must individually register for the convention as well. This is accomplished on our A/TA website at ***https://www.atalink.org***. Individual convention registration opened in July.

This year our convention will be at the beautiful Marriott World Center in Orlando, Florida. We are thrilled to once again be hosting an in-person Convention, Symposium and Technology Exposition. The 53rd Airlift/Tanker Association Convention will be an historic event – come and be part of history.

Warm Regards,
Cary Walgamott
Vice President Industry ■

A/TA Industry Partnership remains a bargain at the annual rate of $1900. Industry Partner benefits include a reduced exhibit rate, opportunity to select your exhibit location (based on established criteria), a write-up with your logo in the convention issue of the *Airlift/Tanker Quarterly* (as well as a listing on our website) and five "free" individual memberships. A new and exciting benefit for our Industry Partners is our Industry Partner News page on our website. This is a place where you can share information about new products/services or company news. Contact Sondra Hart at **ata@atalink.org** or 423-902-2297 to become an A/TA Industry Partner today.

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AIR MOBILITY CLASSICS

Air Mobility Classics is a recurring feature contributed by USAF Lt. Col. (retired) Douglas H. Lloyd.

Boeing XC-105

The Boeing B-17 Flying Fortress…is arguably the most famous and recognizable aircraft of World War II. But how many are familiar with the B-17's forefather…the gigantic Boeing XB-15? And why did the smaller, seemingly less-capable B-17 eclipse its mighty progenitor, which ultimately achieved its only real success as a cargo carrier?

The first World War had shown the potential of the bomber, and by the early 1920s the nascent U.S. Army Air Service longed for a long-range, high-payload bomber. The ponderous, six-engine Barling Bomber was the manifestation of this desire. Unfortunately, the technology of the day couldn't deliver…the Barling was woefully underpowered and struggled just to remain airborne, let alone fulfill its lofty mission requirements.

By the early 1930s, the advent of the monoplane and advances in aerodynamics convinced the Army that it was time to try again. "Project A" laid down the ambitious design goal: the ability to carry a 2,000-pound bomb load 5,000 miles at 200 mph. Boeing and Martin Aircraft tendered proposals, the Boeing Model 294 design was accepted, and an order for one Prototype XBLR-1 (experimental bomber long range) was placed in July 1935.

The Boeing engineers pulled out all the stops, producing a sleek, four-engine, all-metal, mid-wing-monoplane of staggering size. With a wingspan of 149 feet, a length of nearly 88 feet, and a gross weight of almost 71,000 pounds (double that of the B-17), it was the largest and heaviest airplane built in the United States up to that time. This dreadnaught of the sky bristled with six .30 and .50 caliber gun turrets, and boasted such innovations as a flight engineers' station, heating and pressurization, complete sleeping and kitchen accommodations for the ten-man crew, and crawlways in the thick wing that permitted inflight servicing of the engines.

Before construction was completed, the aircraft was re-designated the XB-15, and assigned serial number 35-277. On Oct. 15, 1937 the behemoth made its successful first flight, piloted by Boeing test pilot Eddie Allen (ironically 26 months after the initial flight of the Flying Fortress). Acceptance testing was carried out by military pilots at Wright Field, and it soon became apparent that the XB-15 was not going to live up to expectations.

The four Pratt & Whitney R-1830 Twin Wasp Senior engines, although producing 1,000hp each, were still insufficient to push the XB-15 to the speed and range numbers projected for it. Cruise speed was a sedate 171 mph (while the B-17 cruised at 231), and range with a 2,511-pound bomb load was only 3,500 miles. The clear superiority of the smaller B-17 was obvious to the AAF, and the XB-15 was destined to be a "one-off".

Nevertheless, the aircraft was assigned to the 2nd Bombardment Group at Langley Field in August 1938, serving with the 49th Bombardment Squadron from 1938-1940, and the 41st Reconnaissance Squadron between 1940 and 1942.

Ironically, except for some classified bomb tests in the Canal Zone in 1940, and several antisubmarine patrols, even while stationed at Langley as a "bomber", the XB-15 made the biggest name for itself flying cargo missions, a preview of the airplane's ultimate future. The most notable of these was the humanitarian airlift of 3,250 pounds of medical supplies to Santiago, Chile in early 1939, after a devastating earthquake that killed 30,000 people.

Maj. Caleb V. Haynes (who piloted the XB-15 for most of it's AAF service) and his crew were later awarded the Mackay Trophy for the outstanding flight of 1939. Later that year the XB-15 set several world records in payload to altitude and closed course speed competitions.

By late 1940, all pretense of the XB-15's use as a bomber was forgotten, and the aircraft was sent to Duncan Field, FL to have its armament removed and passenger seats installed. The plan was to use the aircraft to transport Lend-Lease ferry crews. Records indicate that only one flight was made for this purpose before the airplane was flown to the San Antonio Air Depot in 1941 for conversion to full cargo configuration.

Assigned to the Inter-Depot Transport Service, the XB-15 shuttled between Duncan Field and Albrook Field, Canal Zone until early 1943, when it was further modified with the addition of cargo doors and a hoist, the gross weight being raised to 92,000 pounds.

In March 1943, the aircraft was transferred to the 6th AF Service Command at Howard Field, Canal Zone, assigned to the 20th Troop Carrier Squadron (Special), and finally reclassified as a cargo aircraft on May 6, 1943 with the designation XC-105.

The personnel of the 20th TCS affectionately gave the aircraft the nickname "Grandpappy", and always referred to the aircraft as "He", in contrast to the usual practice of giving aircraft female personas. For the next 18 months "Grandpappy" shuttled steadily around the Caribbean, mainly carrying passengers and freight from the Canal Zone to Florida and the Galapagos Islands.

But by late 1944, with the war in Europe winding down, and the threat to the Canal Zone minimal, the 6th Air Force in the Caribbean began drawing down, and the XC-105's services were no longer needed. He had amassed an enviable record, safely transporting 5,530 passengers and 150,000 pounds of cargo and mail.

On Dec. 18, 1944, the 20th TCS said goodbye to "Grandpappy" as it was transferred to the Panama Air Depot and scheduled to be scrapped in May 1945. That was postponed until late 1945, when it was dismantled, trucked to the Curundu Swamp near Albrook Field, and unceremoniously buried with other warbirds, where it remains to this day. ■



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ANR Model

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High Impedance
NSN# 5965-01-680-0088
P/N 43102G-09





DC ONE-XM ENC

C-130J ANR Model

Low Impedance
NSN# Pending
P/N 43102G-10



DC PRO-X2 ENC

KC-10 ANR Model

High Impedance
NSN# Pending
P/N 43105G-05

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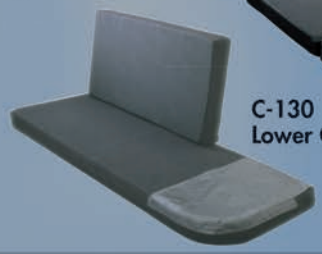
C-130


C-130 IPECO Pilot/Co-pilot


C-130 AMI Pilot/Co-pilot/ Navigator/Observer

C-130 Upper Crew Bunk


C-130 Lower Crew Bunk



KC-135


KC-135 Pilot/Co-pilot


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C-17


C-17 Crew Cushion
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