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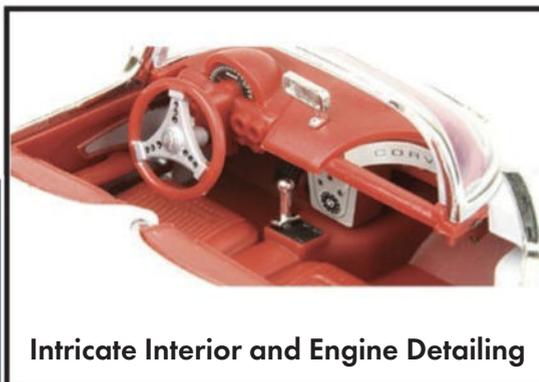
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THIS PAGE: Next-generation refueler KC-46A Pegasus flies against the New Hampshire sunset near Pease Air National Guard Base. (Photo by Ted Carlson /Fotodynamics.com)

ON THE COVER: Red Bull aerobatic pilot Paul Bonhomme banks Hurricane KC-46A Pegasus toward the White Cliffs of Dover over the Channel Coast in a scene reminiscent of the Battle of Britain. This beautifully restored aircraft wears the livery of none other than RAF ace Group Captain Douglas Bader's personal mount. (Photo by John Dibbs/Facebook.com/theplanepicture)



PHOTO BY JOHN DIBBS/FACEBOOK.COM/THEPLANEPICTURE

# The Warrior Spirit

**YOU WOULD BE HARD-PRESSED** to find a more iconic warrior figure in history than the fighter ace—except maybe commanding generals or Old West gunfighters.

The difference is that all of the aces have lived in the past century and some still walk among us. Their status is usually defined by enemy aircraft destroyed but, when you go deeper, it's apparent there is much more to the man than just aerial victories.

Take for example Group Captain Sir Douglas Bader, one of the RAF's top fighter aces of World War II with 20 confirmed kills. His ace status is known to many but besides his combat accomplishments, he had to continually overcome unimaginable adversity: debilitating leg injuries, a fanatical fight to regain his flying status, exhaustive and perilous dogfights during the Battle of Britain, and being shot down and subsequent German captivity in POW camps for three years. Even as a prisoner of war, his leadership and tenacity never wavered. Read all about this "pure warrior" by fighter pilot Clive Rowley RAF (Ret.) in our feature "Bader's Hurricanes."

A half a world away in the skies over the Pacific, another warrior ace, Col. Perry Dahl, was battling enemy aircraft with the 475th fighter group in his P-38L Lightning. After being shot down near Leyte, the next 30 days he survived in the ocean and jungle, and after being rescued by Filipino guerillas, continued to fly until War's end with nine aerial kills. Dahl is still with us and recently celebrated his 100th birthday. He credits his success with "being aggressive, otherwise you will end up a government statistic." In the story "Satan's Angels Ace," contributor Jim Busha gets the interview and real story from this proud warrior.

There's plenty more to satisfy your aviation passion in this issue, so climb in the cockpit with us and grab some throttle!

—Louis DeFrancesco

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# KEEPING 'EM FLYING!

The new generation of warbird pilots, restorers and mechanics

BY JAN TEGLER

**NEARLY 80 YEARS** after the end of World War II, the fighters, bombers, and trainers that defended freedom continue to enthrall and inspire audiences at airshows, thanks to generations of warbird pilots, maintainers, restoration specialists and collectors. In our September, 2022 issue we introduced you to the young warbird pilots, maintainers and restorers who are already beginning to displace more “experienced” warbird fliers and fixers. Their participation is vital for the warbird community, injecting new blood into a tradition reliant on people even more than aircraft to remind America of its proud history. Introducing the men and women who will fly history into the future is the goal here, and we hope to inspire more of you get involved. With that in mind, here are three more members of the warbird world’s new generation.



Jared Segebartt pilots the Hangar180 1945 P-51D "Patty Ann II" over the Craig Mountains near Lewiston, Idaho. (Photo by Jim Raeder Aviation Photography)



## RYAN HUNT » PILOT (P-51, T-6, T-34, B-25)

"I don't think I can come up with a word for the feeling you get from flying a Mustang," Ryan Hunt says.

"It's a moment of excitement and reflection, and remembering that the reason Mustangs were created was so that we could enjoy freedom, including the freedom to continue to fly these aircraft."

That moment came at just 24 years of age for Hunt when he soloed in "Tempus Fugit," a TF-51D in October of 2019. Owned by Triple Tree Aerodrome in Woodruff, South Carolina at the time, the Mustang has been sold to new owner Mickey Seeman of Jonesboro, Arkansas.

Now 29 and a corporate pilot flying Gulfstream IV bizjets, Hunt's family background was the magnet that gradually drew him to warbirds. His father Paul Hunt and grandfather Jimmie Hunt owned and flew several P-51s, including "Jumpin' Jacques," "Contrary Mary," and "Vergeltungswaffe" (now TF-51D "Little Witch"). His family's T-34 and stories of the Mustangs and T-6s the

Hunts had owned resonated with Hunt.

"I grew up on stories of the old warbird community back when it wasn't as much of a money game to be in it. Those stories were so cool. Hearing how Oshkosh fighter town would empty out and they'd take all of the Mustangs to do a flight. Or there's a five-ship just goofing off together, flying for lunch at a local airshow," he explains.

"Those things are really cool to me, the parts of general aviation that I really love. It was a time of warbirds being involved in the GA world. That type of camaraderie was something that I really enjoyed and almost something I searched for."

As a teenager Hunt started flying a Piper Cub and Cessna 180s, building tail wheel time. He also studied to be an airframe and powerplant mechanic while in college, helped maintain a T-6, and then got checked out in a Texan by his father.

His interests strayed for a period of time but flying the family's T-34 reinvigorated his

**LEFT:** Ryan Hunt sits on the wing of "Tempus Fugit," the TF-51D formerly owned by Triple Tree Aerodrome in Woodruff, South Carolina.

**RIGHT:** Ryan Hunt flies a Beech T-34, a warbird his family has owned for years and one that led circuitously to his opportunity to fly "Tempus Fugit."

**BELOW:** Ryan Hunt soloed in this TF-51D at just 24 years of age in 2019 after a week of instruction in the Mustang from P-51 pilot/instructor Mark Murphy and became one of the regular pilots for "Tempus Fugit." (Photos courtesy of Ryan Hunt)



passion for warbirds and led circuitously to an opportunity to fly "Tempus Fugit."

In 2017, Hunt's then-girlfriend/now-wife Kayla was invited to a fly-in at Triple Tree Aerodrome.

"I told her I'd take her. So we flew up," Hunt remembers. "In fact it was one of our first dates."

The couple taxied in from the Aerodrome's beautiful 7,000-foot grass runway, the longest turf landing strip in the world, to be greeted by Triple Tree founder Pat Hartness.

"With warbirds today, what do you normally expect?" Hunt asks.

"You think you're going to see a 50- or 60-year old guy get out of the airplane. But he sees Kayla get out of the rear cockpit, then sees me, a 22 year old at the time, step out. He was excited and it prompted the question, where are the youth in aviation?"

pilot transition to the Mustang, P-51 check pilot/instructor Mark Murphy, who owns the P-51D "Never Miss," went flying with Hunt in "Tempus Fugit" for a week.

"At the end of the week I did an authorization ride."

With that, Hunt became one of the TF-51D's regular pilots, helping to maintain it as well until its recent sale. Since then he's put another warbird on his ticket. In July 2021, he flew the B-25J "Betty's Dream" that now resides at the American Honor Foundation in Ocala, Florida.

"I was truly impressed by the B-25," Hunt says. "I had a ball flying it with all of the Dakota Territory guys, guys I looked up to growing up—Warren Pietsch, Bernie Vasquez, Sam Graves, and Doug Rosendahl. These are names I've seen all my life in magazines and here they are on my wing. How cool is this?"

## HUNT BECAME ONE OF THE TF-51D'S REGULAR PILOTS, HELPING TO MAINTAIN IT AS WELL UNTIL ITS RECENT SALE. SINCE THEN HE'S PUT ANOTHER WARBIIRD ON HIS TICKET. IN JULY 2021, HE FLEW THE B-25J "BETTY'S DREAM"

Hunt has also flown the B-25J, "Betty's Dream," formerly owned by the Dakota Territory Air Museum. "Betty's Dream" is now a part of the American Honor Foundation in Ocala, Florida. (Photo courtesy of Ryan Hunt)

The couple had been to other fly-ins where young people were present. They told Hartness, "Build something and they will come. Have a fly-in geared toward youth and I promise you they will show up."

Hartness said, "Ok, do it," Hunt recalls. The couple chuckled and went home after the event.

"About a month later Pat called me and said, 'So when's my fly-in?'"

Hartness had been serious. So the pair got to work and helped plan a young aviator fly-in at Triple Tree in June 2018. More than 200 airplanes and 500 people attended as well as recruiters from aviation charter companies and local colleges with aviation programs. It was a success and was held again in 2019.

By that point Hartness was impressed with Hunt and made a proposition Hunt explains. "He said, 'The reality is, we do not have enough people flying our P-51. We know your background. We know you have T-6 time and your family's history. Can we see about getting you checked out?'"

Hunt eagerly accepted the offer. As a TF-51D with dual cockpits/controls, "Tempus Fugit" was ready-made to help the young





Thirty-seven-year-old Reed has both worked on and flown the Erickson Aircraft Collection P-47D, "Hairless Joe." (Photo courtesy of David Reed)

## DAVID REED » DIRECTOR OF MAINTENANCE, ERICKSON AIRCRAFT COLLECTION

Leading a flight of Erickson Aircraft Collection's warbirds stands out in David Reed's memory.

That may sound odd given Reed's title as the director of maintenance for the Madras, Oregon-based mega-collection. But he's a warbird pilot, too.

In July 2018, Reed was in the cockpit of Erickson's FM-2 Wildcat with Jim Martinelli, Erickson's director of operations in the collection's F6F-5N hellcat and Mike Oliver, Erickson's general manager, in its F4U-7 corsair as well as Sal Rubino in his P-51D "Grim Reaper" and Chris Luvara in the P-51D "Straw Boss" on his wings.

"They let me lead a sunset flight and that was the first time they let me lead something at an airshow or even flying. It was a really big honor," Reed says.

There's a tradition of pilots who are also "wrenches" in the warbird world, a practice that's entirely logical and valuable given the complexity of aircraft designed for combat. Thirty-seven-year-old Reed is a great example of that tradition. He now flies Erickson's SBD-3 Dauntless, FM-2 Wildcat,

F4U-7 Corsair, F6F-5N Hellcat, P-40E Kittyhawk, P-47D Thunderbolt, and P-51D.

He's working on getting qualified in the collection's TBM-3E Avenger, AD-4W Skyraider and hoping to fly the F8F-2A Bearcat as well. But Reed's professional career has been and continues to be as a mechanic/restorer.

His family was involved in aviation through his father's flying as a corporate pilot with fixed-wing and rotary-wing aircraft and his own crop dusting business. Eventually, Reed and his brother learned to fly in a Cessna 150 their dad owned, but college, then airframe and powerplant school came first.

Reed also worked for Antique Aero in his native Hollister, California with owner Steve Lamb. "He was very good at troubleshooting and I think a lot of my problem-solving skills came from his direction," Reed says.

After a year and a half with Lamb, he joined Minh Jet. Also based in Hollister and owned by well-known Aero Vodochody L-29/39 expert Minh Venator, Minh Jet introduced Reed to air racing. Venator pioneered airframe and water-injection system improvements

to make the L-29s and L-39s racing in the Jet Class at the Reno Air Race faster and faster.

Minh Jet also restores the Czech-built jet trainers and it was there that Reed became familiar with the restoration process. Air racing gripped his attention and he volunteered to turn wrenches with Team Voodoo on their highly modified "Super Stang" and worked with Lee Behel on his sport class racer, "Breathless."

In the interim, Reed left Minh Jet and went to work for a general aviation maintenance shop in San Martin, California. But air racing had exposed his skills to a wider set of the warbird world, and in 2015 Erickson's Oliver called him with a job offer.

Reed met with Oliver in the pits at Reno 2015 and took him up on his offer to be flown up to Madras to see the Erickson operation in person. The collection was in the early stages of restoring its Hispano Aviacion HA-1112 "Buchon," the Spanish-built version of the Bf-109G-2 that appeared in the early 1950s.

Erickson wanted the 109 to emulate the G-10 version of the fighter with a crucial difference. It would be powered by an Allison V-12. HA-1112s used Merlin V-12s but an Allison V-12 modification had never been done before.

"I landed and looked at the Messerschmitt project which was in pieces. The inside of the fuselage was painted and it still needed some



Reed works on the nine-cylinder Wright Cyclone engine of the Erickson Aircraft Collection's Boeing B-17. (Photo courtesy of David Reed)

## “FOR THE FIRST FOUR TO FIVE MINUTES OF FLIGHT IT FELT LIKE I WAS SITTING ON THE TAIL WATCHING MYSELF FLY IT—ALMOST LIKE AN OUT-OF-BODY EXPERIENCE

sheet metal work. It was basically just a shell.”

That was the project Reed was hired for in October 2015. Working with Martinelli, Erickson Aviation, the company Jack Erickson founded, and outside specialists, the team completed the restoration in just 20 months. Reed rebuilt the 109's vertical stabilizer and re-skinned it, fit the tail section and mated it to the fuselage.

“Jack Erickson had wanted the Allison,” Reed explains. “He was thinking that if he wanted to take it to an airshow in Texas, he wanted it to be reliable.

“We shoe-horned the Allison into an all-original cowling and did the exhaust

manifold to help keep the stock look, but when you open the cowling it looks like a big header system off of a race car.”

They also adapted the Me-109's stock scoop, which fed its original Daimler engine's supercharger to the Allison's down-draft carburetor.

By this time, Reed had earned his private pilot's license accumulating about 220 hours. While he was knee-deep in the 109 project and maintaining the rest of the collection's warbirds, Erickson's management team made a decision to invest in his future.

In 2016, Brent Conner, the collection's chief pilot at the time, called to ask how many



**David Reed (front) at the controls of the Erickson Aircraft Collection's restored SBD-3 Dauntless as it flies over Madras, Oregon. (Photo courtesy of David Reed)**

tailwheel hours Reed had.

"I told him about 30 hours. He said, 'That's perfect.' I said, 'Why?' He replied, 'I'll call you later' and hung up."

Conner had been chatting with Jack Erickson and the news that Reed had so little time in taildraggers made him a perfect candidate to be trained to fly warbirds the right way.

He began flying the collection's Stearman, racking up almost 50 landings in the tricky biplane trainer. Then it was on to Erickson's T-6. After getting checked out in the Texan, he earned his commercial license and gained more experience giving rides in the airplane and ferrying it to airshows. By February 2018 he was ready to solo the SBD-3.

"I locked the tail wheel, turned the boost pumps on, pushed the prop full forward and the mixture rich, all the checklist items," Reed remembers. "I pushed the throttle forward to 42 to 43 inches [of manifold pressure], rolled,

lifted off the ground and made my power reductions.

"For the first four to five minutes of flight it felt like I was sitting on the tail watching myself fly it—almost like an out-of-body experience but not in the spiritual sense."

Thereafter he felt like he "slowly crawled back into the cockpit" and began doing slow-flight and maneuvering the dive bomber. He successfully three-pointed the Dauntless and taxied in with "a big sense of accomplishment and a huge smile on my face."

Two days later, he soloed in the collection's Wildcat. From there, "the rest is history" Reed quips. Heavy maintenance of Erickson's B-17F and Wildcat, repainting the Corsair, fixing the Mustang on the road and flying this airshow season have kept him busy.

"We work six, sometimes seven days a week. It's a lifestyle and I love it," Reed concludes.

## JARED SEGEBARTT » PILOT, HANGAR180 (P-51D, P-40N, P-64, FG-1D CORSAIR, FM-2 WILDCAT

At 40, Jared Segebartt has spent more than 11,000 hours flying.

"Probably 10,000 hours have been below 5,000 feet" he laughs, amazed at the sheer volume of work he has done in the air and his good fortune in becoming a warbird pilot.

"I'm just a dirty Ag pilot in Idaho and somehow I've flown over 100 different types. I just got back from a 1,600 mile trip ferrying a 1929 Waco INF. That Kinner [125 hp B5 radial] kept clicking along the whole time!"

Hangar180 Museum founder Gary Peters, a warbird pilot himself, has described Segebartt and fellow Hangar180 pilot Seth Denton as "two crazy-talented and skilled pilots."

Crop-dusting as much as seven days a week, feet off the ground over the rolling countryside of northwestern Idaho tends to sharpen any pilot. Segebartt has sprayed crops in everything from fixed-wing Grumman Turbo Ag Cats to Robinson R44 and Bell Jet Ranger helicopters—almost exclusively with stick and throttle or collective and cyclic firmly in his hands.

"I have maybe 100 hours of autopilot time in my career."

Like Hunt and Reed, aviation is in his bloodline. His grandfather worked on Corsairs as mechanic during World War II and passed the skill on to Jared's father, who was an aircraft mechanic prior to going into the construction business. His mother and father rebuilt a Luscombe Silvaire that they used on trips to visit to relatives.

"They used to fly all five of us, including my two sisters and me, in the Luscombe a hundred miles to see my grandparents. They put me in the hat rack, wrapped me up in a blanket."

Segebartt's work as a crop duster in the area near Hangar180's Lewiston/Nez Perce County Airport home base and his reputation as a skilled stick and rudder pilot with a copious amount of tail wheel experience led to an opportunity to fly the museum's replica North American P-64.

Often mistaken for the NA-50—an uncomplicated, economical, single-seat fighter developed by North American for export—the P-64 was developed from the NA-50 as the NA-68. Seven NA-50s were exported to Peru in 1938 and served exclusively with the Peruvian Air Force during World War II. The Royal Thai Air Force ordered six NA-68s. On their way to Thailand in 1940, their export clearance was canceled and they returned to the U.S. where the Army Air Corps designated them P-64s.

Hangar180's P-64 replica is actually a modified SNJ trainer, a very natural base for a P-64 since the NA-50/P-64 were derivatives of North American's NA-16/BT-9 trainers that gradually evolved into the T-6/SNJ.

Segebartt loves flying it. "When we first got it we thought it was going to be a bastard child, expecting it to be nasty."

Segebartt didn't know what to expect when he first flew the replica, with its retractable tail wheel, wheels from a Wildcat, wings shortened by about two feet each, a larger three-blade prop and the geared version of the Pratt & Whitney R-1340 that powers the T-6.

"Anytime you modify an airplane it's usually scary," he attests. "But that stupid thing is what a T-6 should have been. What a delightful airplane! You stall it and put it in ridiculous positions and it doesn't care. It'll spin if you let it. The crazy thing is, if you go above 10,000 feet you

**"GIVING RIDES TO VETERANS—THAT'S HANDS-DOWN THE BEST ... YOU GIVE A RIDE AND THESE GUYS GET EMOTIONAL. I CAN'T IMAGINE WHAT IT BRINGS BACK FOR THEM."**

can cruise at 210 or 215 mph—60 mph faster than a T-6. Visibility from the rear cockpit is really good and it's easy to get in and out of."

Segebartt also flies P-51D "Patty Ann II" and P-40N "Suzy" for Hangar180. In addition, he's flown for Mid America Flight Museum, piloting their FG-1D Corsair and FM-2 Wildcat from their Mount Pleasant, Texas base.

Jared says it's a privilege flying the two museums' warbirds. Though he enjoys them all, the P-40 is his favorite. The Wildcat ranks second, followed by the Corsair and Mustang.

"The P-40's the most difficult warbird to fly other than maybe the Sea Fury or something like that but the maneuverability and performance is great. You just feel comfortable in the Wildcat right away. In the first ten minutes I was doing full aerobatic sequences. In the Mustang, no way. The Corsair has the best feel of any airplane I've ever felt, period. The control balance and the smoothness of the R-2800—it's almost like a turbine. You don't feel power changes like you feel with a V-12."

But fulfilling Hangar180's goal of teaching people young and old about warbirds—"how many kids can we put on the wing and in the cockpit"—is what really satisfies Segebartt.

"Giving rides to veterans—that's hands-down the best. It's embarrassing. You always end up crying. We've done that a bunch of the different airshows we've gone to. You give a ride and these guys get emotional. I can't imagine what it brings back for them, things we can't even imagine. ➔

Jared Segabartt flies Hangar180's P-40N, "Suzy," above the Idaho landscape. (Photo by Jim Raeder Aviation Photography)





# BADER'S HURRICANES

Double amputee fighter ace Douglas Bader and his Battle of Britain Hurricanes

BY CLIVE ROWLEY, MBE RAF (RET.)



“Like all pilots who flew and fought in the Hurricane I grew to love it. It was strong, highly maneuverable and it could turn inside the Spitfire and the Me 109. Best of all it was a marvelous gun platform. The sloping nose gave you a splendid forward view, while the eight guns were set in blocks of four in each wing, close to the fuselage. The aeroplane remained rock steady when you fired.”

—(Group Captain Sir Douglas Bader, CBE, DSO and Bar, DFC and Bar)

Paul Bonhomme flies Hurricane Mk I/X AE977 for the camera of John Dibbs, set against the White Cliffs of Dover. The 1940-built Hurricane wears the markings of one of Squadron Leader Douglas Bader's personal Hurricanes during his time in command of 242 Squadron in 1940–41. Bader's Hurricanes carried the code letters LE-D and had nose art of his own design on both sides of the nose. (Photo by John Dibbs/Facebook.com/theplanepicturecompany)

Douglas Bader was one of the Royal Air Force's best-known fighter aces of World War II, during which he became a national hero in Britain. He is, perhaps, one of the most famous RAF pilots ever, and his story is well known to aviation enthusiasts. Having lost both his legs in a flying accident prior to the war, he managed to return to flying status and was credited with 20 aerial victories, four shared victories, six "probables," one shared probable and 11 enemy aircraft damaged, before he was brought down and forced to bail out of his Spitfire over enemy territory in August 1941, spending the remainder of the war as a troublesome POW.

Despite being an undisputed hero and an inspiration to many, the determined, dogmatic, stubborn and fearless Bader remains a controversial character who divides opinions. His personality was undoubtedly formed by his background and, not least, by having to overcome the severest of disabilities and adversities as a young man. He had great charisma and charm, but he could be abrasive, over-bearing, and downright rude on occasion. Some saw him as arrogant, cocky, outspoken, selfish, and impatient. He was intransigent and did not take kindly to any disagreement with his own strongly held opinions. What cannot be questioned though is his record as a proven and inspirational wartime leader, both on the ground and in the air, and also that he possessed enormous guts, fierce determination, and great fighting spirit.

I was privileged to meet Douglas Bader when I was a young RAF fighter pilot with 19(F) Squadron, flying English Electric Lightning F2As based in Germany. In the summer of 1976, I was asked to attend an air show at the famous ex-RAF airfield at Duxford, in Cambridgeshire, England, to represent my squadron, which had been the first to receive the Spitfire in August 1938 while it was based at Duxford. As I was attending in an official capacity, I was dressed in my best RAF uniform and I was introduced to Sir Douglas, who was visiting his old airfield to open the show. He had been posted to 19 Squadron at Duxford to fly Spitfires in February 1940. He was initially rather curt with me, even rude, no doubt wondering who this very young-looking RAF pilot was and what I was doing there, but after I had quickly

explained, he was kind enough to spend a few moments chatting to me. He stood with that wide leg stance he had, rocking slightly to help him keep his balance on his artificial legs. I easily forgave him his somewhat brusque demeanor as he had my unmitigated respect for all that he had done and achieved, especially as a great fighter leader in wartime.

### **"Crashed... Bad show"**

Douglas Robert Steuart Bader was born in London, England, in 1910, the son of a soldier who died in 1922 from shrapnel wounds received in World War I. Douglas was only 12 when his father died and his subsequent childhood was harsh and unhappy; he was bullied and he learned to fight. His childhood heroes were the fighter aces from World War I, and from an early age he was determined to become a pilot himself.

He won a scholarship to St Edward's School, Oxford, and by the time he graduated, his character had been formed. He had an urge to take risks, to compete and win at all costs, a desire to lead, a blustery self-confidence hiding his loneliness, and an undying need to prove himself.

He gained a valued place at the RAF College at Cranwell, where he excelled in sports, becoming a boxing champion and captain of the rugby team. He played rugby for Harlequins, one of the top British rugby clubs, and was tipped to be selected to play rugby for the English national team.

In 1930, he graduated from Cranwell as a Pilot Officer, with an above average assessment as a pilot, and joined 23 Squadron, flying biplane fighters. A year later he was selected to fly one of the squadron's Gloster



**Pilot Officer Douglas Bader (right) with Flight Lieutenant Harry Day (left) at Kenley in 1931 with a Gloster Gamecock. They constituted the 23 Squadron aerobatic display team, performing synchronized formation aerobatics in two Gamecocks at air displays in 1931. (Photo author's collection)**

Gamecock biplanes in its formation aerobatic pair. The team's synchronized, precision, low-level aerobatics thrilled the crowds at air displays that year and drew the highest praise, with Bader's performance at the huge RAF air show at Hendon in June 1931 being described in the press as "the best at the event." However, although he clearly possessed outstanding talent as an aerobatic pilot, he lacked discipline and repeatedly ignored orders about low flying and low-level aerobatics, to his lasting cost.

On December 14, 1931, while beating up Woodley Aerodrome, he attempted to slow roll a Bristol Bulldog biplane below 30 feet. His left wing clipped the ground and he cartwheeled into a horrific crash. Miraculously he was not killed outright, but in Roehampton hospital that night his right leg had to be amputated above the knee, and his left leg below the knee a few days later. He was in intensive care for weeks and almost died, but due to his physical fitness and his mental strength he began to recover. He came to terms with the loss of his limbs and he was never afraid of death again. He later wrote a note in his logbook beside the entry for the fateful flight: "Crashed slow-rolling near ground. Bad show."

### **"I have legs..."**

The road to recovery was hard and painful for Bader, but he was determined to return to a

fully functioning life as quickly as possible. He set his goals high and, when fitted with aluminum-alloy artificial legs, his sheer guts and determination enabled him to learn to walk again. By 1932 he was driving a specially modified car, playing golf, and dancing. He was probably the first man in the world to lose both legs and then walk without a stick and lead a normal life. Bader hated being called "legless," although newspaper reports almost always referred to him as such and many writers still do. He always insisted, "I have legs. It's just that the bottoms are artificial!" Most RAF aircraft at the time had the wheel brakes operated by a lever on the control column rather than by depressing the top part of the rudder pedals, so artificial legs with no ankle movement were not an impediment to Bader flying again. He passed a flight test at the Central Flying School and was judged competent for service. However, he was rejected by the medical board as there was nothing in the regulations to cover a pilot with artificial legs, and he was retired from the RAF on medical grounds.

By late 1933, he was working for Asiatic Petroleum Company (which was then absorbed by Shell), but the loss of his RAF flying career saw him fighting bouts of deep depression. By 1937 he had mastered playing golf and even tennis.



LEFT TOP: Flight Lieutenant Douglas Bader (center) with pilots of 222 and 92 Squadrons in front of a 222 Squadron Spitfire 1 at Manston in late May 1940. Flight Lieutenant "Bob" Stanford-Tuck of 92 Squadron is second from right. Bader had his first experiences of aerial combat flying Spitfires as a flight commander with 222 Squadron during Operation Dynamo, the Dunkirk evacuation, claiming his first kill against a Bf 109 on June 1. (Photo author's collection)

LEFT BOTTOM: One of Douglas Bader's original prosthetic "tin" legs, now in the collection of the RAF Museum. (Photo author's collection)



RIGHT: Squadron Leader Douglas Bader, OC 242 Squadron, with his Hurricane V7467 LE-D at Duxford in September 1940. (Photo courtesy John Dibbs /Facebook.com/theplanepicture-company)

## Return

As war clouds gathered over Europe in 1938, Bader wrote to the Air Ministry seeking a return to RAF flying duties. He was refused. Then in 1939 Bader wrote directly to Air Marshal Sir Charles Portal, then the Air Member for Personnel. Bader habitually went to the top to get what he wanted without going through the correct channels, and he was not averse to using his Cranwell connections, either. One of his former colleagues and close friends at Cranwell, Geoffrey Stephenson, was now Portal's personal staff officer. Eventually, after war was declared, a medical board decided that Bader could have a medical flying category with the final decision to be made by the Central Flying School, which would assess his performance in the air. At the end of his refresher course, he was assessed as "Exceptional." He was back!

## Spitfires

In February 1940, Bader joined 19 Squadron at Duxford and it was here that he made his first Spitfire flight. He flew his first operational sortie, a coastal patrol, just two days later. He quickly got up to speed as an operational fighter pilot and

thought deeply about tactics, generally disagreeing with the rigid attack plans used by RAF Fighter Command at the time. He favored the tactics developed by the successful fighter pilots in World War I: using the sun and altitude to ambush the enemy and getting in close to shoot. Despite being at odds with the official RAF tactics, Bader's skill and overall attitude saw him rapidly promoted to section leader.

In April Bader was posted and promoted to Flight Lieutenant to take command of "A" Flight of 222 Squadron at Duxford. Being a flight commander gave Bader real self-esteem and the leadership responsibilities he believed he was suited to, and he could now influence tactics and train his pilots accordingly.

Bader got his first taste of combat with 222 Squadron at the end of May and early June 1940, during the fierce aerial battles in support of the Dunkirk evacuation of the British Expeditionary Force from France. On June 1, the squadron was bounced by Bf 109s while on patrol near Dunkirk. Bader, flying Spitfire 1 P9443, latched onto a Bf 109 and shot it down, watching it go down in flames. This was his first kill, but in the same combat two of his fellow pilots were lost. Later that day on another patrol, Bader attacked



a German Dornier Do 17 that was bombing a British destroyer. He damaged it with his gunfire but it got away, being chased by other RAF fighters. He was credited with a third of a "probable." Bader took part in the last patrol over Dunkirk on June 4, and then, exhausted from the long days, numerous patrols and frequent combats, he slept for almost 24 hours.

## 242 Squadron

On June 24, 1940, Bader was promoted again, to Acting Squadron Leader, and given command of 242 Squadron, which was equipped with Hawker Hurricanes.

242 Squadron had been formed in October 1939 as the first Canadian unit within the RAF. All the pilots were Canadian, along with almost half of the ground crew. The squadron had fought over Dunkirk and been deployed in France during the final stages of the Battle of France. It had acquitted itself well, but had taken a mauling, losing eight pilots, and had only recently been withdrawn back to England. Much of its equipment had been lost during the frantic withdrawal from France, and there had been a breakdown in its leadership. The squadron

was now at Coltishall, Norfolk, in the 12 Group area, and although officially operational, was actually non-effective. Unsurprisingly, morale was low and the RAF had decided that Bader was the man to deal with the problems and mold 242 Squadron back into a fighting unit.

Some of the pilots now thought that the assignment of a "cripple" as their squadron commander was the final insult. Bader lurched out to a Hurricane, a type he had not previously flown, climbed in, took off and, having got the feel of the aircraft, he flew a tight, impeccable, low-level aerobatic display over the airfield, which ended all doubts about his ability as a pilot.

Bader later said: "When I first flew the Hurricane in June 1940, I was agreeably surprised at the compact feel of the aircraft. It had seemed big on the ground in comparison with the Spitfire, but in the air it felt nothing of the sort. You could see out of it better and the controls were perfectly harmonized. It climbed steeply and at lower speed, but required a good deal of right rudder in the climb to counteract the torque. I found this a considerable nuisance on a long climb until a rudder bias trim control was fitted."

Squadron Leader Bader set about transforming his unit,



leading from the front and concentrating on improving his pilots' flying, teamwork, and confidence and restoring their fighting spirit. He replaced the flight commanders with RAF men he knew and trusted, and he took uncompromising action to rectify the squadron's shortage of equipment, including spare parts and tools, refusing to announce the squadron as operational until the deficiencies were rectified.

Bader had won over his pilots and went on to be an inspirational fighter leader during the hectic weeks of the Battle of Britain in the summer of 1940.

### Bader's Hurricanes

During the Battle of Britain, Bader almost exclusively flew two Hurricanes, P3061 and V7467, as his personal aircraft, each with the code letters LE-D.

However, Bader's first aerial victory in a Hurricane, on July 11, was achieved while flying a different aircraft, P3048. This was a solo effort in the early hours of the morning, in terrible weather. Despite the low cloud and poor visibility, he intercepted a Dornier Do 17 reported by the controller at low level over the sea and hit it with two bursts fired at close range, before it disappeared into the cloud. He thought it had got away, but an Observer Corps post reported seeing the Dornier crash into the sea off the Norfolk coast.

### Hurricane P3061

From July 11 to September 7, 1940, all but three of Bader's operational sorties were flown in Hurricane Mk I P3061, and he was credited with six enemy aircraft destroyed while

flying it. On August 21, he shot down another Dornier Do 17 over the sea near Yarmouth. Then on August 30, after taking off from Duxford for a patrol over North Weald airfield in the 11 Group area, he led a large formation of 242 Squadron Hurricanes into combat for the first time. The squadron engaged a huge formation of German bombers with Bf 110 escorts and claimed 10 enemy aircraft destroyed, with Bader personally credited with two Bf 110s. He later described details of this combat:

"The first time that I led a squadron into battle it was against a horde of German bombers, 60 to 100 of them flying at 17,000 feet in perfect formation. We were in the ideal position, up sun and above them. We were flying in sections of three in line astern. I told the two sections behind that I would dive to attack the front of the enemy formation and they would follow immediately after my section had made contact. It worked perfectly. As we hit them, the leading German bombers and their twin-engine Messerschmitt 110 fighter escorts banked away to right and left, which disrupted the ones behind them, so the entire formation was broken into separate units turning south and making for home, pursued and in some cases being shot down by Hurricanes. Later in the evening we heard to our great satisfaction that other British fighters had knocked down more of this formation as they went south. It was a satisfactory first outing."

As the Battle of Britain progressed, Bader led larger composite formations of Hurricane and Spitfires, with 242 Squadron and other squadrons forming the Duxford

**242 Squadron Hurricanes climbing in formation during the Battle of Britain in September 1940, with Bader leading in his Hurricane LE-D. At this time the squadron was still using the three-ship "vic" formation for individual sections. (Photo author's collection)**



ABOVE: Squadron Leader Douglas Bader, OC 242 Squadron, with some of his pilots and his Hurricane 1 V7467 LE-D behind him at Duxford in September 1940, during the Battle of Britain. Left to right: Pilot Officer Denis Crowley-Milling, Flying Officer Hugh Tamblin (KIA April 3, 1941), Flight Lieutenant "Stan" Turner, Sergeant "Joe" Saville, Pilot Officer Norman Campbell (KIA October 17, 1940), Pilot Officer "Willie" McKnight (KIA September 27, 1941), Squadron Leader Douglas Bader, Flight Lieutenant Eric Ball, Pilot Officer Michael Homer (KIA September 27, 1940) and Flying Officer "Ben" Brown (KIA February 21, 1941).

BELOW: Douglas Bader (center) with Flight Lieutenant Eric Ball (left) and Pilot Officer "Willie" McKnight (right) admiring the nose art on Bader's Hurricane, V7467, at Duxford in October 1940. All the 242 Squadron Hurricanes carried this nose art, designed by Bader, on both sides of the nose. (Photos courtesy John Dibbs /Facebook.com/theplanepicturecompany)

ABOVE: Bader's 242 Squadron nose art was replicated on Hurricane Mk X AE977 from 2000 to 2013. (Photo author's collection)



"Big Wing." This was a concept which was strongly advocated by Bader and his 12 Group Commander, Air Vice Marshal Trafford Leigh-Mallory. Controversy has surrounded the Big Wing ever since and led to much debate. Suffice it to say that there was always insufficient warning of incoming Luftwaffe raids for the tactic to have been employed successfully in the 11 Group area, which was much closer to the enemy's airfields. Indeed, there was often inadequate warning for the Duxford Wing to form up and transit to the battle area. Post-war statistics show that the Big Wing was ordered up on 32 occasions during the Battle of Britain. On nine of these it failed to form up, and on only seven occasions was it able to engage the enemy. The massed nature of these combats created considerable confusion, a high risk of collision, the increased possibility of friendly fire incidents and led to significant and wildly optimistic overclaiming by the RAF pilots, sometimes by a ratio of 7:1. That said, casualties among the Big Wing were significantly lower than in smaller formation attacks, suggesting there was some protection in numbers.

On September 7, the Luftwaffe abandoned its strategy of bombing Fighter Command infrastructure and launched a full-scale attack against London. Bader, flying P3061, led three squadrons as a Big Wing: 242 and 310 (Czech) Squadrons flying Hurricanes from Duxford, and 19 Squadron with Spitfires from nearby Fowlmere. This was the first time that the Big Wing was involved in a large-scale operation in the 11 Group area. Ordered to patrol North Weald, it took 20 minutes to form up; the Wing arrived late and was still climbing when it met the enemy. Even so, in an engagement with German bombers and their escorts over the Thames Estuary, the Wing claimed 22 enemy aircraft destroyed, 11 by 242 Squadron, with another four probably destroyed and six damaged, although these claims were over-optimistic. Bader himself claimed two Bf 110s destroyed.

Sadly, one of the Wing's pilots, 25-year-old Canadian Pilot Officer John "Jack" Benzie of 242 Squadron, was killed during this combat. In addition, two of the 242 Squadron Hurricanes were seriously damaged in the air battle, although both made it back to Duxford. One of these was Bader's Hurricane P3061. He had been hit by gunfire from a Bf 109, which he had been late to spot behind him; he broke into a steep diving turn, but one of the 109's

## HURRICANE AE977

Hawker Hurricane AE977 was built as a Mk 1 at Fort William, Ontario, Canada, in the spring of 1940. After delivery to the UK by sea in April 1941, it was designated as a Mk X to differentiate it from UK-built versions.

In July 1941, AE977 was issued to the Royal Navy and from August it flew from Yeovilton as a shore-based aircraft with a unit of the Fleet Fighter School, training RN pilots. As a result of its service with the Navy, AE977 is sometimes referred to as a "Sea Hurricane," but it never received any of the naval carrier modifications and remained a Mk 1/X. In December 1942, it was involved in a mid-air collision with another Hurricane and crashed. AE977 was written off, although the pilot survived.

In the 1960s significant portions of AE977's airframe were recovered from the crash site. In 1994, Hawker Restorations Ltd. began to rebuild the Hurricane to flying condition, utilizing some original parts but with many new components. In 2000, the Hurricane emerged in the configuration of a Mk IIA/IV, painted to represent one of Douglas Bader's 242 Squadron Hurricanes with the code letters LE-D, although it retained its own serial. Stu Goldspink flew its first post-restoration test flight on June 7, 2000.

AE977 was sold to American collector Tom Friedkin and, in April 2001, it was shipped to the U.S. to fly with his Chino Warbirds.

In 2013, AE977 was purchased by Peter Monk and returned to the UK as part of his Biggin Hill Heritage Hangar collection. After arriving at Biggin Hill it was repainted, losing the 242 Squadron Bader markings, and it now represents Hurricane Mk 1 P3886 UF-K, a 32 Squadron aircraft flown in the Battle of Britain by Flight Lieutenant Peter Brothers. The Hurricane remains airworthy and flies regularly in those markings.

rounds pierced the right side of his cockpit, broke the undercarriage levers and exploded against the Kigas priming pump, fortunately without injuring him. This was to be the last time that Bader flew P3061 as it was taken away for repair.

### Hurricane V7467

While waiting for a replacement for his personal aircraft, Bader flew two operational sorties in different Hurricanes.

In the early evening of September 9, flying Hurricane P3090, he once again led the Big Wing of three squadrons against a mass German raid. As he had done before, he ignored his controller's directions, climbed the Wing higher than ordered, and positioned to have the advantage of the sun behind them. When the Wing intercepted a large formation of Dornier Do 17s, with Bf 110

Having crashed and been written off in December 1942, Hurricane AE977 was eventually restored to airworthy condition in the markings of one of Douglas Bader's Battle of Britain Hurricanes. (Photo by John Dibbs/Facebook.com/theplanepicturecompany)



and Bf 109 escorts, near London, they were level with them at 22,000 feet and coming out of the low sun. As some of the Wing's Hurricanes and Spitfires held off the German fighter escort diving on them from above, the leading Hurricanes got among the bombers. Bader claimed a Dornier Do 17 destroyed (one of four claimed by the squadron) and two Do 17s damaged. Total claims by the Big Wing were 21 enemy aircraft destroyed. Sadly, 24-year-old Canadian Pilot Officer "Pat" Sclanders of 242 Squadron was killed in this fight, shot down by a Bf 109. In addition, in a tragic illustration of the risks, two of the 310 Squadron Hurricanes collided while attacking the same Dornier, one unaware of the other Hurricane under its belly. Flying Officer John Boulton was killed in the collision, which also took out the German bomber. The other Hurricane pilot was able to bail out.

By September 14, Bader's replacement aircraft was available for him and he flew Hurricane Mk I V7467 for the remainder of the Battle of Britain. As with P3061 before it, V7467 adopted the code letters LE-D and it had Bader's squadron leader's pennant painted under the cockpit on the port side. The 242 Squadron Hurricanes now all had the same nose art, which was Bader's idea and depicted Hitler being kicked up the backside by a flying boot with "242" on it. A metal template was cut from the original drawing and the squadron's Hurricanes were painted with the nose art on both sides by one of the ground crew.

Flying Hurricane V7467, Bader added four more enemy aircraft destroyed, one probable and two damaged to his tally by the end of the Battle of Britain.

Perhaps the most significant sortie flown by Bader in V7467 was on September 15, now recognized as Battle of Britain Day. The Duxford Big Wing led by him that morning consisted of five squadrons, around 56 fighters, and it engaged a huge German raid on London. Bader led the Wing into an almost perfect intercept and they met the enemy formations with a height advantage and with the sun behind them. Bader ordered the Spitfires of 19 and 611 Squadrons to take on the Bf 109s that were escorting the bombers and which threatened the Wing. The Spitfires did this effectively, scattering the 109s, which were also on the limit of their fuel, and the German bombers were left unprotected. The three Hurricane squadrons then attacked



the bombers, followed by the Spitfires. As the Duxford Wing closed in, they were joined by the Spitfires of 41 and 609 Squadrons and the Hurricanes of 46 and 504 Squadrons. The German bombers were confronted by British fighters on all sides and one of the biggest combat actions ever seen over London developed. In the ensuing confused melee, with a high risk of collision and only fleeting shooting opportunities, the Big Wing pilots claimed 20 enemy bombers and six enemy fighters destroyed, six of those by 242 Squadron, with Bader in V7467 claiming a Do 17 destroyed and two damaged. The Big Wing lost three Hurricanes and two Spitfires downed or damaged beyond repair, at least one of those a result of "friendly fire" in the confusion of the battle. The RAF's claims for the battle that morning were unrealistic and the Big Wing's claims were totally inaccurate. During the entire raid the Luftwaffe lost fewer than 10 bombers, possibly only six. However, several of the Luftwaffe Bf 109 escorts did not make it home due to running out of fuel, having been forced to exceed their endurance.

Another Big Wing engagement that afternoon, once again led by Bader in V7467, was less successful, especially for Bader, as the Wing was still climbing for altitude when it met the enemy. Bader was bounced by a Bf 109; he broke towards it, hit someone's slipstream, stalled and spun. When he recovered from the spin, he was at 5,000 feet and out of the fight. The total claims for the five squadrons of the Big Wing that afternoon were 26 enemy aircraft destroyed, eight probable and one damaged. Two of the Wing's pilots were killed and two wounded.

Across the day of September 15, the Luftwaffe's actual losses were 56 aircraft,

**Group Capt. Douglas Bader (fifth from left) chats to Air Chief Marshal Baron "Stuffey" Dowding, the Air Officer Commanding in Chief of RAF Fighter Command during the Battle of Britain, prior to leading the victory flypast over London in June 1945. (Photo by John Dibbs / Facebook.com/theplanepicture-company)**

## BADER AFTER THE BATTLE

Wing Commander Douglas Bader led the three Spitfire squadrons of the Tangmere Wing from March 24 to August 9, 1941. During that time, he flew 62 fighter sweeps over enemy territory and was credited with eight further aerial victories and one shared, all against Bf 109s. He also claimed several other Bf 109s as "probables" or damaged in combat. He was awarded a Bar to his DSO and a Bar to his DFC.

On August 9, 1941, Bader's Spitfire Mk Vb W3185 D-B was brought down over enemy territory and he was forced to bail out when the tail broke off. The exact cause of the crash is uncertain. He may have been shot down by a Bf 109, but he was probably either the victim of a collision or of friendly fire. In his struggle to bail out, one of his artificial legs became trapped and snapped off as he eventually broke free. The RAF parachuted a new leg into France for him.

As a POW, Bader was uncooperative, a constant source of irritation to his captors and, despite his physical disabilities, he made several escape attempts. Eventually, in August 1942, the Germans moved him to Colditz Castle, where he remained incarcerated until he was liberated by the First U.S. Army Group in April 1945.

After returning to Britain, Bader was given the honor of flying the lead Spitfire in the victory flypast of 300 aircraft over London in June 1945. He retired from the RAF in July 1946 with the rank of Group Captain and returned to his pre-war job with Shell Oil company, continuing to fly the company's small aircraft. He became managing director of Shell Aircraft Ltd. and retired in 1969.

Bader's health began to decline in the 1970s, and in 1979 he made his last flight in his Beech 95 Travelair, which had been gifted to him by Shell on his retirement. He had recorded a total of 5,744 hours flying time.

Bader spent much of his personal time after the war touring veteran's hospitals, inspiring amputees and advocating for better treatment and the development of superior technology. He was appointed a Commander of the Order of the British Empire (CBE) in 1956 and was knighted by HM Queen Elizabeth II in 1976, in both cases for services to the disabled.

Group Captain Sir Douglas Bader, CBE DSO and Bar, DFC and Bar, died of a sudden heart attack on September 5, 1982, aged 72.



**Sir Douglas Bader at Duxford in 1976, six years before his death, with Hurricane LF363 of the RAF Battle of Britain Memorial Flight, which then wore the markings of his 242 Squadron Hurricane. This was the occasion when the author met Sir Douglas. (Photo author's collection)**

not the 185 claimed by Fighter Command, which lost 29 aircraft with 12 pilots killed. It is clear, even with these post-war corrected figures, that the Luftwaffe had lost the day. The large number of RAF fighters that the Luftwaffe encountered, including the mass attacks by the Big Wing, and the fact that they were continuously harried over England, had a profound psychological effect on the Germans, who had thought that they had RAF Fighter Command on its knees. Two days later Hitler cancelled the planned German invasion of Britain.

Bader continued to fly Hurricane V7467 for the remainder of his time in command of 242

Squadron, making further combat claims in it. In March 1941 Bader, now the recipient of the Distinguished Service Order (DSO) and the Distinguished Flying Cross (DFC), was promoted to Wing Commander and made the first Wing Leader of the Tangmere Spitfire Wing. His time flying the Hurricane was over, but he had certainly proved its worth, with 11 enemy aircraft credited to him as destroyed, plus a shared kill, one probable and four damaged. He had also become a wartime celebrity and a national hero. He later said: "I got much publicity in the war not because I was any better than the others, but because I was the chap with the tin legs." →

# WACO YKC

## Stunning and Ultra Rare Golden Age Cabin Flier

BY GILLES AULLIARD



**BETWEEN THE IMPLEMENTATION** of the Air Commerce Act of 1926 and December 31, 1948, all U.S. registered flying machines sported an N-number, much as they do today, the “N” being an internationally recognized identifier for the United States. During that period, however, an additional letter-identifier followed the “N.” Depending on their category, they were registered in the NC (Commercial), NG (Glider), NL (Limited), NR (Restricted, usually meaning race airplanes), NS (State government), and, finally, NX (eXperimental).



Flying gracefully over the Colorado landscape, Dave and Jeanne Allen's WACO Cabin proudly sports the NS14137 registration. The striking turquoise paint scheme has been painstakingly reproduced from the only picture in existence of the airplane in the guise of the Ohio National Guard during the 1930s.

This beautiful WACO, which won the EAA AirVenture Antique Grand Champion award, looks good on the ground as well as in flight. Entry to the cabin is made through a door on the left side of the fuselage that opens between the two rows of seats.



Airplanes registered in the NC category are seldom seen today, but the others, including NS (State) registrations, are all but unknown. One of those "S" category rarities is Dave and Jeanne Allen's WACO YKC N14137 (c/n 4223). A superb piece of work, it has even won the Antique Grand Champion award at EAA's AirVenture.

The model YKC (ATC 533) is one of the proud members of the WACO Cabin family, which comfortably seats four or five people while hauling them at a reasonably fast speed. Of the 60 YKCs built in 1934–35, about half are still registered, if not flying.

Manufactured in 1934, the Allens' number 4223 was purchased new by the State of Ohio Bureau of Aeronautics and delivered that November. Registered as NS14137, it was operated as a utility/VIP transport by the Ohio National Guard for the following five years. The airplane did not fly much after acquiring an NC registration in 1939, and the last logbook entry, in 1948, states "...



aircraft on back" indicating an abrupt—and unwanted—halt. That significant mishap started a long period of storage, which ended when the seriously deteriorated airframe was acquired by Dave and Jeanne Allen in 2003. Sixty-five years separated its 1948 flight from its next one.

After restoring a WACO Taperwing and

**The Allens enjoy taking the airplanes for a spin as soon as the sun comes up for the best and most enjoyable flying conditions. They also love to play the part of the 1930s' couple exhibiting their brand-new, straight-out-of-the-factory acquisition. Dave Allen even manages to make formation flying look easy.**

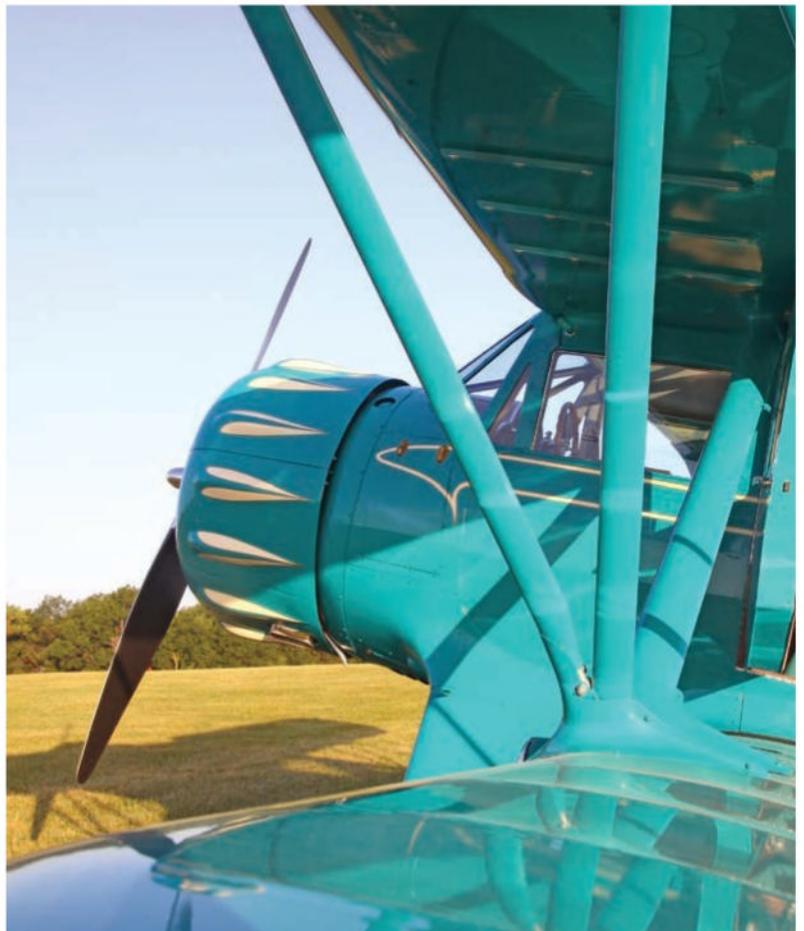
**“When flying it, all aspects of the airplane feel very much as if it’s 1934, especially the interior ... With its skylight, the view from it is whimsical.”**



**ABOVE:** The visibility from the cabin is outstanding by 1930s' standards, with bright light coming from the sky-light. The instruments are the best that technology at the time had to offer, encased in a gorgeous wood panel.

**RIGHT:** The forward-staggered wings of the airplane are heavily braced with a combination of struts and braces—no flying wires. The airplane also has the benefit of four ailerons, making control of the airplane more precise and lively.

**BELOW:** The WACO Cabin being their third project, the Allens have a good grasp of the restoration process. They are masters of the little things that make an outstanding restoration. This exhaustive project was a 10-year effort by Dave and Jeanne.



building a Straightwing WACO replica, the Elbert, Colorado, couple was looking for a new endeavor.

Jeanne Allen recalls, "Dave never really considered a Cabin WACO before getting a ride in Allen Buckner's in California. After this, we became convinced that a Cabin could be a good airplane for us because it is actually quite comfortable and fast enough to be used as a normal cross-country airplane.

"After evaluation of the few examples available, we opted to acquire a project and rebuild it. Through the National WACO Club, we found one that had the remains of a factory-original interior that could be used as a pattern. In fact, we even commissioned a mill to weave plush wool for the upholstery and headliner that was identical to the original. Having an aircraft that had that much originality was quite satisfying because we could see how the airplane would look once completed."

The only picture of the airplane in the guise of the Ohio National Guard was found by Andy Heins, president of the National WACO Club, and clearly shows the elaborate paint scheme and the state seal. The art was scrupulously replicated on the finished airplane—including the NS14137 registration—to spectacular effect.



After 10 years of working on it every day—initially part time, then full time when Dave retired—the airplane was ready.

According to Dave, "When flying it, all aspects of the airplane feel very much as if it's 1934, especially the interior. With the power reduced to cruise setting, it travels at 120mph with its 275hp Jacobs R755 burning about 11 gallons per hour. It is a very comfortable sightseeing airplane. With its skylight, the view from it is whimsical. I can't think of another word that describes it."

Looking at the airplane, one can only agree with the Allens' choice of airplane to restore: It looks as good on the ground as it does in the air. Better yet, it acts as a visual window into the past for all who see it. ➔

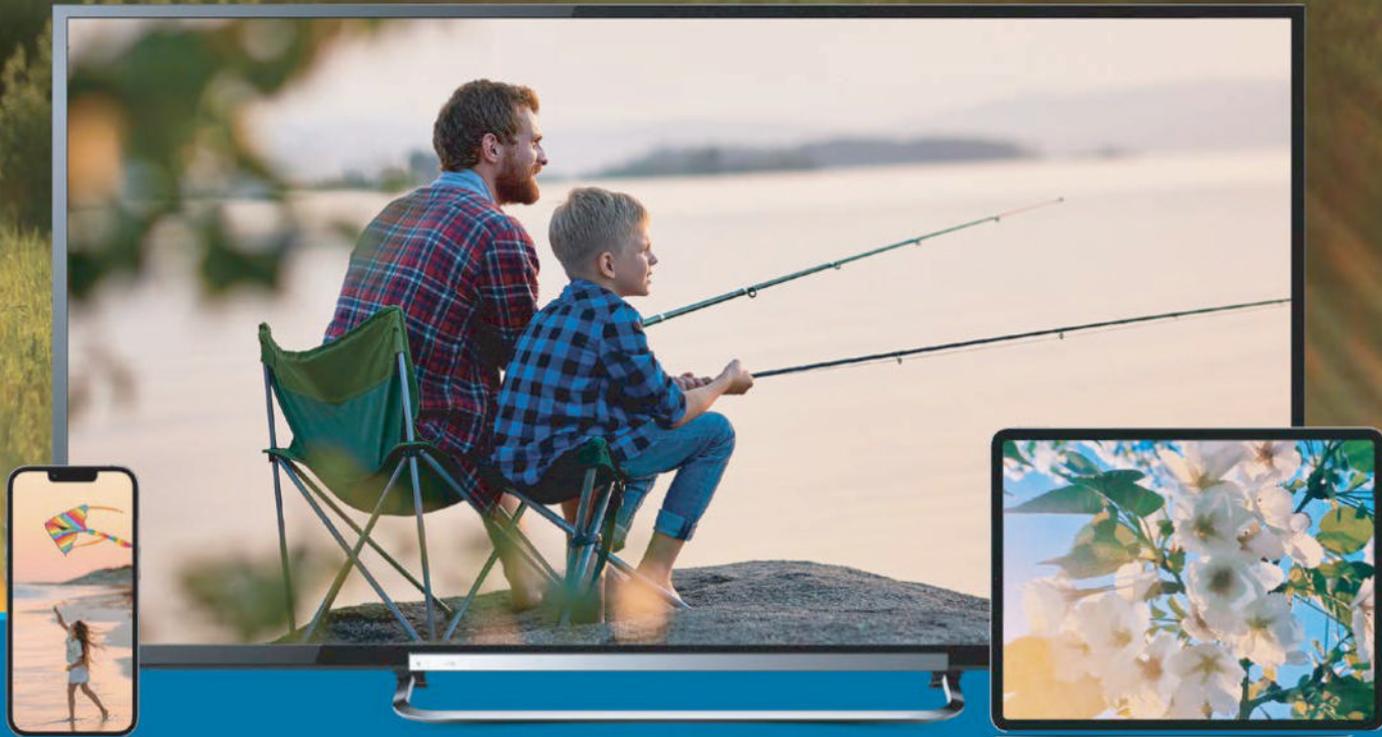
**The Allens did not overlook any details to set their airplane apart. The restoration was as accurate as possible, down to the highly polished original pyrene fire extinguisher mounted on the floor of the cabin.**

**The WACO Cabin can accommodate four people in good comfort. The passengers have the benefit of an outstanding outside view to the side and up. The front windows can be rolled down with an automobile-type crank to cool the cabin.**



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When the 475th Fighter Group Association decided to put its memorabilia into a purposely built display hangar at the Planes of Fame Air Museum in Chino, California, the museum's Lockheed P-38J Lightning was refinished to represent the fighter flown by Perry Dahl in World War II. Although it's not a particularly comfortable ride, as seen in this photo, the P-38 is sometimes used to give supporters "piggy-back" warbird orientation flights, which are quite popular. (Photo by Frank B. Mormillo)

# "SATAN'S ANGELS" ACE

Tales from a P-38 pilot in the South Pacific

BY COL. PERRY J. "PJ" DAHL, USAF (RET.) AS TOLD TO AND WRITTEN BY JAMES P. BUSH



**“AS A KID GROWING UP** on the bow of my father’s tugboat, hauling oil from Seattle to Alaska, I had a lot of time on my hands. I used to read the pulp magazines about the aces of WW I, such as the Red Baron. That’s probably how I became interested in flying. But when I became a fighter pilot, I didn’t care about flying straight and level; I was more interested in the fighter aspects of pursuing and attacking an enemy. It was the aggressive instinct of being a fighter pilot in combat, hunting and attacking other airplanes as opposed to being the hunted, that intrigued me the most.”

U.S. Air Force retired Col. “PJ” Dahl, a World War II P-38 Lightning ace, celebrates his 100th birthday at MacDill Air Force Base, Florida, Feb. 17, 2023. During the celebration, Dahl toured the F-35A Lightning II aircraft and shared experiences with young pilots. (U.S. Air Force photo by Senior Airman Lauren Cobin, Public domain, via Wikimedia Commons)

## Earning my wings

My initial exposure to the military was in 1939. At the ripe old age of 17 I joined the 41st Infantry Division of the National Guard in Seattle, Washington, because my parents thought that serving a year in the Army would do me some good. I guess it was because trouble always followed me wherever I went—thankfully always two steps behind! As a foot soldier, my mind was always in the clouds, so when the opportunity presented itself for me to go into aviation training, I was at the front of the line signing up. After completing preflight, I was sent to Cal-Aero in Chino, California, and almost washed out.

I had been out over the desert on a solo flight in my PT-17 Stearman and began to do some unauthorized aerobatics. As I looped and rolled my biplane around the sunny California sky, I didn't notice the other PT-17 nearby with an instructor seated inside. By the time I got back to base, my punishment awaited me: 25 tours of walking guard duty. Back to being a foot soldier again! The only reason I wasn't washed out of flying was because I was the only cadet in my class who hadn't ground-looped the Stearman. I attribute that feat to an excellent instructor I had, who took his time with me and showed me how to handle a Stearman, including aerobatics. It was instilled in me early on to be aggressive and utilize the strengths of the airplane in combat situations. By the time I earned my wings, I was sent to multi-engine training, not as a bomber pilot but as a fighter pilot.

## Lightning lessons

I thought the Lockheed P-38 Lightning was massive! As fighters go, it was a big airplane. With twin Allison engines, twin tails and a deadly weapons package in the nose, the P-38 was all business. I felt the Lightning was much easier to fly than a single-engine fighter; there were no worries with ground loops because of the counter-rotating propellers and tricycle gear. The visibility was excellent, sitting up high on three wheels instead of two with your tail dragging. There wasn't any dual-controlled P-38, so you hung on to every word the instructor told you about how to fly it and get back down in one piece. The checkout was simple: the instructor kicked you in the ass, slapped you inside and said go!

In early 1943 I was assigned to the 55th Fighter Group that was stationed in the



PJ Dahl strapping into his P-38. (Photo courtesy of author)

**ALTHOUGH THE LIGHTNING WAS FASTER, HAD MORE ARMAMENT AND BETTER WEAPONS, THE ONLY WAY TO SURVIVE AGAINST A TURNING ZERO WAS TO KEEP YOUR SPEED UP, OTHERWISE YOU WERE TOAST!**

northwest section of Washington state. Most of the guys I flew with had combat time in the Aleutians, and a couple of them had even tangled with the Japanese. Needless to say, they became our informal instructors and showed us what to do and what not to do in combat. The one golden rule that was drilled into us was to never, ever, under any circumstances get sucked into a low, slow-turning battle with a Zero. Although the Lightning was faster, had more armament and better weapons, the only way to survive against a turning Zero was to keep your speed up, otherwise you were toast!

As fighters go, the P-38 was the hottest ship in the air—at least that was my father's opinion during WW II. He had come to visit me in Washington, and I was showing him around the base, when two P-38s came roaring across the field practically "cutting grass" as they crossed in front of us. My father's jaw dropped as his eyes tracked the low-level duo leaving as quickly as they had come in. He turned to me and with the biggest smile I had ever observed on his face proclaimed, "23 Skidoo!"



**ABOVE:** In the beleaguered Southwest Pacific Theater during the summer and fall of 1942, AAF units struggled against the advancing Japanese juggernaut, fending off their foes with well-worn P-39s and P-40s and a handful of P-47s. By November 1942, brand-new P-38Fs and soon Gs began to filter into 5th AF units giving them a powerful offensive weapon that would help change the balance of the airwar over the Solomons and New Guinea campaigns.

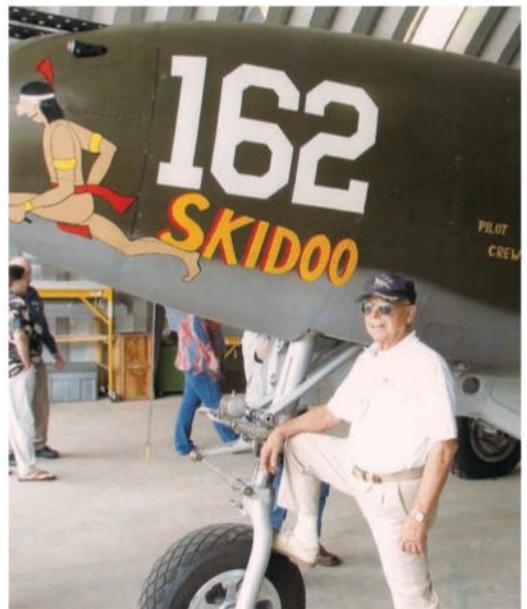
That was an old slang from the 1920s that meant getting out and leaving quickly. I decided that if I ever got my own P-38, I would paint that saying on my Lightning's nose. With the war heating up in the Pacific, we received word that a recently formed, brand-new all P-38 group—the 475th FG—was desperately looking for replacement pilots. Because they couldn't afford to send all of us overseas, the instructors decided to have a fly-off to see who was the most aggressive and capable. When the dust had settled, two of us—Joe Forester and I—were selected to join the group in New Guinea in October 1943.

### One of Satan's Angels

After the C-47 dropped Joe and me off in Dobodura, New Guinea, we reported to the commanding officer (CO) for our squadron assignment. Although Joe was only two years older than I, his hair was pure white in color. I, on the other hand, looked like a 16-year-old kid and stood only 5 feet, 5 inches tall. When we reported to the CO, he gave Joe and me the once-over and threw his hands up in disgust. He turned to his executive officer and said, "Oh, my God, they're sending me old men and boys!"

I became one of "Satan's Angels" with

**RIGHT:** Dahl stands in front of his 23 Skidoo artwork both in combat and at the Planes of Fame Museum in Chino, California. (Photo courtesy of author)



the 5th Air Force, 475th FG. Joe and I were assigned to the 432nd Fighter Squadron known as "Clover." The 431st was code-named "Hades," and the 433rd was called "Possum." My introduction to combat came at an accelerated pace.

### Baptism of fire

There were no milk runs for a new fighter pilot to fly in the Pacific in 1943. My very first mission was to Rabaul, the Japanese fortress of the Pacific. The enemy order of battle was to put up between 100 and 150 Japanese fighters against 18 of our P-38s. Our job was to protect the formation of B-25 Mitchell bombers that were sent in for low-level bombing and strafing. I have to be honest with you: I was all over the sky that day and never fired a shot. It wasn't because of a lack of Zeros—there were plenty all around. The problem I had was that I couldn't get any of

**THE P-38 CARRIES AN AWFUL LOT OF FIREPOWER IN ITS NOSE—FOUR .50-CALIBER MACHINE GUNS AND ONE 20MM CANNON. THE ROUNDS WERE A MIXTURE OF ARMOR-PIERCING, INCENDIARY AND CANNON SHELLS, AND WHEN THEY CONVERGED AT 300 YARDS, THEY FORMED A SIX-INCH CIRCLE OF DEATH.**

them to stay in one place long enough for me to get a shot off! I almost obliged them, though, because I came home with a handful of bullet holes in my Lightning. But I would soon return the favor.

A few days later, on November 9, 1943, I was flying the tail-end—Charlie position in Blue flight near Alexishafen, when all of a sudden my element leader broke off and went after a Helen bomber. I stayed with him covering his six o'clock and was dumbfounded to see a Zeke zooming in trying to get on my leader's tail. This guy must have had only one good eye, or he was so locked in on my leader that he never noticed me right behind him. The Zeke slid directly in front of me in the 12 o'clock position; I think I could have knocked it down with my pistol!

The P-38 carries an awful lot of firepower in its nose—four .50-caliber machine guns and one 20mm cannon. The rounds were a mixture of armor-piercing, incendiary and cannon shells, and when they converged at 300 yards, they formed a six-inch circle of death. Heck, you could sink a destroyer with that lethal combination. I barely squeezed the trigger and—boom! The Zeke blew up in front of me; there was nothing left of it. The guy never knew what hit him, and unfortunately for me, four missions later the roles would be reversed.

### Switching to glide

With a handful of combat missions under my belt, I was assigned to the tail-end—Charlie position in our flight. We had 18 P-38s up that day on combat patrol as we

made our way to Lae, New Guinea. Somewhere up ahead someone called out "bogies." For whatever reason, our leader decided to trade airspeed for altitude and ordered us to climb—a bad decision, especially when Zeros are around. As the tail-end Charlie, I was just above stalling speed when the order came to "Drop tanks!" Due to my inexperience, I failed to select internal tanks before jettisoning my belly tanks, and my world went silent in a split second; both my engines quit in unison and began sucking air.

It took me less than a second to realize my error as I pushed the Lightning over and screamed for the deck to keep my speed up. As I switched to internal tanks, both engines roared back to life as I pulled the nose up and began searching for my flight. I called my leader and, of course, lied to him, telling him I had some engine trouble

and had lost sight of the group. He told me to turn for "home plate," as they were busy engaging enemy fighters. Reluctantly, I turned for home, mad at myself for missing out on a good scrap. That's when I saw the Betty Bombers about to make a run on Lae.

I was young and foolish, so I convinced myself that I would just wander over to the Bettys and shoot a couple of them down. The trouble was I was so fixated

on the Bettys that I never saw the Zero diving down at my three o'clock until it was almost too late. This guy was so close, he was almost in my cockpit! As he hammered away at me, I threw my right wing up trying to block the incoming rounds. They found their mark and tore my right engine and vertical stabilizer to shreds. I could feel each of his rounds impacting my Lightning; this guy was really pouring the lead into me. As I looked into my rearview mirror, all I saw were the flashes of the Zero's guns and a long white vapor trail streaming from my engine. Trouble was right behind me, and it was time to lose this guy!

I shoved the throttles forward and pushed the P-38's nose downward as I dived for the deck a second time. With both engines turning, I was able to lose the Zero, and as soon as I was out of harm's way, I shut down the bad engine before it blew up on me. On the way home, a fellow Lightning pulled up alongside and rode shotgun on my wing. When I arrived over my field, I made a long approach, threw down my gear and greased my wounded Lightning onto the PSP runway. It didn't take me long to realize that, had I been flying a single-engine fighter, all of those slugs would have gone into my cockpit instead of my engine. It was a nice feeling to know while flying the P-38 that although you had two engines, you could always make it home on one.

### The old man and the kid make Ace

Right before Christmas 1943, I claimed a Zeke near Wewak, and a month later I bagged my third one. By April 1944, we

The introduction of the new P-38J to the Pacific War in early February 1944 gave operating units an advanced-range asset sporting improved maneuverability with powered ailerons and dive flaps to control compressibility effects. Delayed to the theater because of ETO priorities, the definitive "J" model piloted by skilled veterans soon wiped the skies of opposition from a swindling cadre of experienced Japanese pilots.



A distinctive feature of the Lockheed P-38 Lightning's cockpit is the use of a control yoke instead of the control stick more commonly used in most fighter planes. (Photo by Frank B. Mormillo)

## P-38 COMBAT STATS

The P-38 Lightning was one of the few American aircraft that was produced before Pearl Harbor and continued in service after the victory over Japan (VJ Day). In all, 10,003 P-38s were built by Lockheed at a typical cost of \$97,100 apiece.

In the Pacific Theater of Operations, the P-38 was credited with downing nearly 1,700 Japanese fighters, transports, bombers, sea planes and Kamikazes from 1942-1945. About 160 American pilots were able to proclaim themselves "ace" while flying and fighting in the twin-engine, twin-boom fighter around the globe.

In April of 1943, 16 P-38s flew almost 450 miles (one way) over open ocean at wave-top height on a sneak attack mission to intercept a pair of Betty Bombers, one of them containing the "architect" of the bombing of Pearl Harbor, Admiral Isoroku Yamamoto. After the shooting had stopped, the wreckage of two smoldering Japanese bombers along with a pair of Zero escorts lay on the ocean and jungle floor below.

"SATAN'S ANGELS" ACE



LEFT: Lone Star Flight Museum's P-38, flown over Breckenridge, Texas by Ronnie Gardner. (Photo by Bill Crump)

BELOW: Col. Charles MacDonald CO of the 475th Fighter Group by his P-38L-5 s/n 44-25643 #100 "Putt Putt Maru" at Dulag Leyte, Philippines, after scoring the 25th aerial victory on January 1, 1945.



## P-38 TOP 10 ACES

Although the Lockheed P-38 Lightning was overshadowed by the long legs and killer instincts of the P-51 Mustang and the hard-hitting abilities of the P-47 Thunderbolt in the European Theater of Operations (ETO), it nevertheless reigned supreme half a world away in the skies over the Pacific. To the men in the jungles, the P-38 was simply known as "The Ace Maker." Unable to turn with its arch enemy, the Japanese Zero, the U.S. Army Air Force pilots utilized the "slash, shoot and dive" qualities of the big twin-engine fighter to their advantage. They could either choose to stick around and slug it out or dive away and wait for better odds. In the end, the top two American aces of the entire war claimed their victories at the controls of the P-38 Lightning.



"Marge"—a P-38 named after Richard Bong's hometown sweetheart, played a significant role in achieving his 40 victories. This restored P-38 in Bong's scheme above is featured at The Richard I. Bong Veterans Historical Center in Superior, Wisconsin. (photo by Kevin Rofidal via Wikimedia Commons)



PILOT	VICTORIES
Richard Bong	40 victories, 5th AF
Thomas McGuire	38 victories, 5th AF
Charles "Mac" MacDonald	27 victories, 5th AF
Gerald Johnson	20 victories, 5th AF
Jay "Cock" Robbins	22 victories, 5th AF
Thomas Lynch	17 victories, 5th AF
Bill Harris	16 victories, 13th AF
Edward "Porky" Cragg	15 victories, 5th AF
Cyril "Cy" Homer	15 victories, 5th AF
Daniel Roberts	12 victories, 5th AF

were really on the offensive as we slugged it out with the Japanese day after day. On April 3, our Fighter Group along with the 80th Fighter Group, the Headhunters, were tasked with providing bomber escort to Hollandia. The 80th stayed up high with the B-24 Liberators, as our group was assigned to deck with low-flying A-20 Havocs and B-25 Mitchell bombers.

Lt. Col. "Mac" MacDonald led our squadron in as we protected the withdrawing A-20s. There were so many Japanese fighters around that everyone in our group got in on the action, even one guy from 5th Fighter Command, who showed up unannounced.

I tacked onto a Zeke and an Oscar and raked both of them with machine-gun and cannon rounds over Lake Sentani, and both hit the ground burning. My buddy Joe Forester was the tail-end Charlie in one of the flights and had a pair of victories to his credit before this mission. Joe was able to bag three more that day as we both evened our scores to five apiece. But Joe was about to pass me up, when he spotted a fleeing Oscar and went tearing after it. Unfortunately, another Lightning, flown by Maj. Richard Bong of 5th Fighter Command, appeared on Joe's wing and shot the Oscar down before Joe even had a chance. It was hard to be upset with a guy like Bong. That was his 25th victory of the war; besides, he still had 15 more to go before the war ended. All in all, that day our two groups shot down 25 Japanese fighters to the loss of one P-38. Not a bad day for "Angels and Headhunters."

### Trouble catches up

By November 1944, I had been promoted to the rank of captain and was the assistant operations officer. Our Army and Navy were marching and sailing northward and invading parts of the Philippines. On November 10, our group was part of a large air armada sent over Ormoc Bay off Leyte. The mission called for our B-25s to go in low and skip-bomb the Japanese troop and warships that were trying to supply and reinforce the Japanese troops on the ground. Col. MacDonald was leading our group, and he spotted a lone Zero stooging around up ahead. As Col. MacDonald dived on him, I think the Zero pilot bailed out before a shot was fired. He must have seen the daisy chain of P-38s right behind him!

After Col. MacDonald shot down the Zero, he called me and told me to take over the group, as he was returning to base for more fuel. Just as he bugged out, I looked to the other side and saw a flight of 18 Tony fighters in a big V flying just underneath the cloud deck. I circled our flight around and got on top of the clouds as I waited to pounce. We came zooming out of the clouds into the unsuspecting Tonys, and I knocked off the lead Tony with a short burst. The Tonys that remained turned into us as we got into a big swirling dogfight at 20,000 feet.

I was indicating over 400 miles per hour rolling and turning with the Tonys, when all of a sudden, I felt a huge

**I WATCHED AS MY RIGHT WING FELL AWAY WHILE GAS Poured OUT OF THE RUPTURED TANK. AS I BLEW MY CANOPY OFF, I THOUGHT OUT LOUD, "BOY, THIS AIN'T MY DAY!"**

jolt and looked in my rearview mirror and saw that both of my tail booms were gone. I never saw the guy I collided with. It was surreal, as time seemed to slow way down. I could see our base off in the distance and realized I would not be home for dinner. I watched as my right wing fell away while gas poured out of the ruptured tank. As I blew my canopy off, I thought out loud, "Boy, this ain't my day!"

I was having trouble getting out of the airplane and had just unbuckled, when—kaboom! The P-38 exploded and shot me out, leaving me with a bunch of nasty flash burns. My element leader told me there wasn't a piece of my airplane bigger than a quarter left; it had simply disintegrated. I chose to free-fall for awhile because I wanted to get away from the fight. At around 10,000 feet, I popped my chute and looked down and saw the entire Japanese Navy directly underneath me. Not to be outdone, I looked up and saw a Japanese pilot just above me hanging in his parachute. I was surrounded!

Because he had a smaller chute, he beat me down and hit the water first. He never came back up. As I floated downward through a hailstorm of bullets from the Japanese gunners on the ships below, they suddenly turned their attention to the incoming low-level B-25s as they made their skip-bombing runs in on the ships. With the Japanese ships turning tail and making a run for it, I just missed snagging the rigging of one of their cruisers as I splashed into the water nearby. They could care less about me as the gun-nosed B-25s continued to assault them.

During the next 30 days, I floated in the ocean for a couple of days, was strafed at by a Zero, shot at by a destroyer, rescued by Filipino guerillas, adopted a pet monkey I named Ormak, lived in the jungle and ate worms and bugs, lost 30 pounds, was rescued by American "Alamo Scouts," sent to Australia for R&R and lost another 10 pounds "fighting off" the Australian women! I returned to my squadron at Clark Field and ended up bagging a Sally and a Hamp in March 1945 to end the war with nine victories.

Looking back on it, being a successful fighter pilot meant you had to have that killer instinct. Sure, there were times when you got victories because you were there at the "right time, right place," but for the most part, if you weren't aggressive in combat, you were either a target or a future statistic on a government chart. We policed ourselves in the squadron: if you were afraid to mix it up, you were sent packing to fly C-47s for the rest of your tour. That may sound harsh to some, but war was life and death, and in order to survive, you had to count on the guy next to you to watch your back. There weren't many second chances in air-to-air combat. ➔

# The Corsair Maker

**BRINGING THE VOUGHT CORSAIR** to the fleet was a daunting challenge that spanned nearly three years. Key behind those efforts was the talent of Vought test pilot Boone T. Guyton. Like many of his 1930s contemporaries, Guyton was enamored with the exploits of Charles Lindbergh but felt that pursuing a career in aviation was an economic hardship his family could least afford.

Fortunate to attend college in St. Louis, Guyton arrived in the 1935 job-deprived Depression with little opportunity other than a local teaching position. Fortune arrived in his mailbox just in time to redirect his entire career as the Navy was sending out packets to new graduates about the recently instituted Aviation Cadet Program. With a strong academic and athletic background, the Pensacola training was a perfect fit for Guyton, ranking 10th in his graduating class that had a 44% washout rate. He was posted to NAS North Island and saw service on the carriers Lexington and Saratoga with VB-2 and VB-5 and various port facilities, cementing his knowledge of naval fighter and bombing practices.

At the time, military careers for pilots were often limited to three-year enlistments as there were only so many aircraft and positions available, and room was needed for the newly trained. Consequently, in July 1939, Guyton was about to be separated so he signed up with TWA to fly commercial. Again, fortune stepped in and just days before his forced "retirement" he was recruited by a Vought tech rep and was off to Stratford, Connecticut, for a frenzied introduction to the French version of the SB2U-1 Vindicator (V-156). Arriving at Orly Airport outside Paris in August 1939, he soon found himself in the thick of an expanding foreign war testing and training the French on the V-156.

With tension rising, Guyton was returned to the U.S. in January 1940, but again jobless, he found a short stint with TWA. Vought soon sought him out, as its test department was expanding to handle OS2U Kingfisher and the



experimental XF4U-1 programs. After initial flights of the XF4U-1, in July by chief pilot Lyman Bullard, Guyton joined the flight test program for the first American single-engine fighter to exceed 400mph. On his fifth flight bad weather forced an emergency landing that almost wrecked the precious prototype. Navy acceptance of the design came in October 1941, but with extensive changes to bring the design up to a wartime condition.

When the first production Corsairs exited the Stratford factory in June 1942, Guyton, as seen here, was tapped to manage the flight and production test program. Armament was improved to six wing-mounted .50s, displacing the wing fuel tanks now placed forward of the cockpit which necessarily was moved rearward by 32 inches. Overall length was increased, armor plate added, landing, arresting and tail gear improved, aileron control enhanced, and a new version of the R2800 engine was incorporated. But those significant improvements unearthed numerous idiosyncrasies that would take an extended period to make the Corsair acceptable for carrier operations. Guyton was charged with working out the engineering fixes and

improvements to these challenges as well as new models as they were introduced. He also was instrumental in demonstrating the Corsair nuances to transitioning pilots at various Navy bases.

Guyton further led the flight development of the V-173 Flying Pancake. Post-war, he stayed with Vought working the last developments of the Corsair series plus the F6U-1 Pirate and F7U-1 Cutlass but after the move to Dallas in 1948 his interest in the company and test piloting waned. He returned to Connecticut in 1951, later working with Norden Labs, Hamilton Standard, and United Technologies. He continued to fly until 1982, having flown over 100 different types during a storied 45-year career. –Stan Piet

*Ed. note: Boone was about 6 foot, 4 inches tall, and it was said in the fleet that's the reason the F4U-5 cockpit was so big!*



# KC-46A PEGASUS

## Next generation aerial refueler

BY TED CARLSON/FOTODYNAMICS.COM

**“LIVE FREE OR DIE”** is the motto of New Hampshire, one of the 13 original U.S. colonies. New Hampshire’s 157th Air Refueling Wing (ARW) was chosen as the first Air National Guard (ANG) unit to field the new Boeing Pegasus. The KC-135R was a major success for the unit, and New Hampshire was instrumental in maintaining solid mission readiness rate performance. With the demise of the KC-10A and now with the stalwart Stratotanker entering the sunset years, the KC-46A has become a welcome addition to the U.S. inventory.



White Sands National Park can be seen in the distance behind a KC-46 Pegasus from the 97th Air Mobility Wing refueling an F-16 Fighting Falcon from the 49th Wing at Holloman Air Force Base. (U.S. Air Force photo)



New Hampshire actually has two flying squadrons that fall under the 157th ARW umbrella, those being the 133rd ARS "Wildcats" and the 64th ARS "Phoenix." While the 133rd ARS is an ANG unit, the 64th is an active-duty associate unit: it stood back up in July of 2022 and will bring 159 new "embedded" members to Pease ANGB. The two squadrons are essentially melded and function as one squadron although the 64th ARS falls under the 22nd Air Refueling Wing at McConnell Air Force Base for their the administrative/financial structure.

As for the new kid on the block, are there "new aircraft" teething issues? Yes, but what new recent program is free of issues? And issues will be resolved as the program matures (such as the F-35, V-22, and so on). Enhancements are being made and within a few years, the aircraft bugs should mostly be worked out. Rather than dwell on the bugs, let's explore what the KC-46A brings to the table.

With their full-complement of 12 Pegasus now in the stable, New Hampshire received its last KC-46A on February 5, 2021. The primary missions are aerial refueling, moving cargo, and transporting passengers. Eventually the aircraft will be able to support increased cargo and passenger loads, making it a great asset to globally deploy units along with parts, logistical needs, and travel to wherever is needed. The unit's aircraft can refuel enroute as well during the movement.

### The KC-46A

The KC-46 was intended to be a modern refueler with the capabilities of the KC-10A and KC-135R/T. The Pegasus structure is based on the 767-200ER (same length at 159 feet, 2 inches), but it has been highly modified and is not anything like the 767 airliner. It does share the same 156 foot, 1-inch wingspan and has 767-300F wings (and -300F landing gear), which have been specially modified for the refueling role. Noteworthy are the addition of hardpoints and plumbing for the Wing Aerial Refueling Pods System (WARPS). A pair of red painted stripes can be found underneath each wing, guiding the refueling probe-touting receiver's drogue alignment.

It has the 767-400ER digital flight deck and the -400ER flaps. The aircraft shares the same 94-inch 62,000-pound-thrust (each) Pratt & Whitney PW4062 (military designation is



F139) high-bypass turbofan engines used on 767s. Thrust reversers are not present, thus larger carbon brakes are employed because it reduces maintenance hours. Interestingly, the Pegasus stops more quickly than the KC-135 on the landing roll.

The fuel capacity is a bit above that of the KC-135R, coming in at 212,300 pounds. The gross weight exceeds that of the 767-200ER, the Pegasus being 415,000 pounds. It can hold 65,000 pounds of cargo and up to 58 passengers. The aircraft has a minimum crew of three (two pilots and a boom operator) and maximum seats for up to 15 crew. Technically the boom operator is listed as the Aerial Refueling Operator, but the community still calls them "boom operators."

The RVS (Remote Vision System) replaced the old manual "boom pod" found in the KC-135, and the system uses an array of cameras, sensors, and screens designed to refuel the aircraft remotely from up front. Two boom operators, adorned in custom 3D-glasses, sit side-by-side and there is an observer's seat behind. Only one boom operator is required for a mission, but having a second boom operator allows for relief when missions can become refueling intense. The boom is based on the KC-10A boom but is a new-and-improved fly-by-wire version.

For the Aeromedical Evacuation (AE) role, two flight nurses and three medical technicians are the norm, but the medical crew numbers may be altered as required for the needs of patients. There are two sets of AE litters, including two stanchions and two gurneys, as a standard loadout on the aircraft.



**ABOVE:** ARW/133rd ARS New Hampshire ANG, on the ramp at Pease ANGB, New Hampshire. This bird has unique markings and is the unit's beautifully painted flagship.

**RIGHT:** The KC-46 boom, at first glance, it looks like the KC-10 boom. While it may appear like that on the outside, it actually is quite different in how it operates. (Photos by Ted Carlson/ Fotodynamics.com)



The glass cockpit was adapted from the 787 Dreamliner and modified for the Pegasus missions. There are three comfortable pull-down bunks up front, enabling extra crew members to comfortably sleep for long journeys, staving off the crew rest factor. Add in the unique refueling system (boom plus an integral drogue), defensive state-of-the-art laser countermeasures (Large Aircraft Infra-Red Countermeasures or LAIRCM), the cargo floor and loading system (a maximum cargo configuration can accommodate up to 18 463L cargo pallets), and numerous other bells and whistles, and you now have a Pegasus.

Interestingly, a handful of KC-767 tankers had been produced over 15 years ago for foreign operators such as Japan and Italy. It does have an older version of the RVS, where boom operators use cameras and screens. It was based on the 767-200ER and utilizes a modified fly-by-wire KC-135 boom, rather than the KC-10 style boom found on the KC-46A.

## Refueling

MSgt. Daren Hayes is a boom operator attached to the 133rd ARS; he joined the New Hampshire ANG in 2015 as one of the initial KC-46 cadre. He flew boom on the KC-135Rs for over three years and then transitioned to the KC-46A after New Hampshire started receiving the aircraft. He has 800 hours in the KC-135 and 400 hours in the KC-46. When asked about the new aircraft and unique system, MSgt. Hayes commented, "When the KC-46A arrived, we started receiving about one new aircraft every month. When you come out of KC-46 boom school, you have an initial AR qualification, followed by a Cargo qual.

"Every year, we have to do two check rides: AR mission and cargo. We have to stay current in both. We aren't doing much cargo at this time, but it will pick up. We do have a lot of people flowing into our community from the KC-10 now. They are seasoned and their cargo experience is invaluable. In the KC-135 we didn't do much cargo due to it being smaller, compared to the larger assets.

"The KC-46 boom is similar to the KC-10's; it's fly-by-wire and works great. With the KC-135 boom, you would get more tactile feedback, but the KC-46 boom is very reactive and once you are used to it, it does just fine. The biggest difference is the Remote Vision System (we still call the area the boom

## THE KC-46 IS A GREAT PLATFORM, AND AS DIFFERENT AS THE BOOM IS, IT IS AN OUTSTANDING AERIAL REFUELER. THE PEGASUS IS A GREAT ASSET

pod), and it is a big adjustment to learn. Once they get within 50 feet, it is like they are right there. We also have a soft-basket drogue that we use for Navy, Marine Corps, and foreign aircraft. While the drogue is slower refueling aircraft due to the limited hose diameter, it does allow us much greater flexibility and options. After we receive the WARPS pods, we will be able to refuel two drogue-capable aircraft at the same time.

"The KC-135 didn't have air conditioning, but now in the KC-46 we do; it makes for a much more comfortable day and is easier on aircrew. Since we can carry more cargo now, we can bring additional logistical support to the table. The KC-46 is a great platform, and as different as the boom is, it is an outstanding aerial refueler. The Pegasus is a great asset, better than the KC-135, and with the drogue, it expands our mission set with additional versatility."

## The Commander

Col. Nelson "NP" Perron is the 157th ARW commander who joined the New Hampshire ANG as a traditional guardsman in 2002, following the 9/11 attack. He became full time in 2004, and ultimately the wing commander in June of 2022. He has a total of 4,000 flight hours, with over 300 hours in the KC-46 and 3,500 hours in the KC-135R. When asked about the transition, Col. Perron said, "In 2014 we were designated to be the preferred and first Air National Guard KC-46A unit. The conversion officially initiated in 2018, and in August of 2019, we received our first two jets. By the end of spring 2021, we had all of our 12 primary assigned KC-46As. General Loh, Director, Air National Guard, and I took custody of our last jet from Boeing Field, Washington, which we ferried back here to Pease ANGB.

"The next Guard unit to transition to the KC-46 is the New Jersey ANG/108th ARW. They will become a classic associate unit of the active duty 305th AMW, located at



**TOP:** A typical Pegasus crew poses for a snap at Pease ANGB, New Hampshire. Left to right: 1Lt. Taylor Dirocco, Lt. Col. Paul Kell, TSgt. Victoria Nelson, MSgt. Diana Carr, TSgt. Daren Hayes, and 1Lt. Tim Guinee. U.S. Air Force Boeing KC-46A 16-6019 of the 157th ARW/133rd ARS New Hampshire ANG, is behind.

**ABOVE:** Boom Operator TSgt. Daren Hayes in the boom pod of U.S. Air Force Boeing KC-46A Pegasus 16-6019, from the 157th ARW/133rd ARS New Hampshire Air National Guard.

**RIGHT:** Col. Nelson Perron, the 157th ARW/CC (Wing Commander), previously flew the KC-135R before transitioning to the Pegasus. He joined them over 20 years ago, after being motivated due to the 9/11 attack. (Photos by Ted Carlson/Fotodynamics.com)

## WE ARE VERY PROUD OF BEING THE FIRST. NEW HAMPSHIRE HAS EXCELLED THROUGH THE TRANSITION, AND WE'VE SET THE BAR QUITE HIGH.

McGuire in New Jersey. The next two ANG units to make the transition have yet to be determined. As of now, the 157th is the only ANG KC-46A unit at this time. We are very proud of being the first. New Hampshire has excelled through the transition, and we've set the bar quite high.

"We have a specially marked Wing heritage jet, tail number 76034. The design was done by a passionate Airman and she sketched out the beautiful rendition. It was approved by the Guard Bureau, and with the help of others, the aircraft was painted in Alaska, which took two weeks. We also have named each of our 12 aircraft—written on the nose—after one of the 12 counties found in New Hampshire.

"We extended the KC-135 to KC-46 conversion offer to all of our aircrew, and we only lost three aircrew members that chose to retire; we had expected a much larger loss. The squadron doubled in size, since the crew ratios increased with the KC-46, and we went from eight 135s up to twelve KC-46s. That created a huge training throughput requirement and we came up with creative ways to train so many individuals.

"Some of our boom operators were hesitant about going from a visual sighting window to a fully-digital screen and camera system, the RVS. I'm happy to say that everyone that made the transition loves the platform now. For example, during night refueling the visuals are now much clearer.

"In order to take in the Pegasus in the form of a MWS [Major Weapon System] here, challenges included preparing the base and infrastructure. Once we were identified to be the KC-46 base in 2014, we immediately started planning and our civil engineers became incredibly busy. Our hangars were from the 1950s and '60s, and we needed them modified to house 767s. That takes time and money, and aside from acquiring new people that all require training, we had to re-cement the ramps, revise the fuel pits, and look at all the weight bearing capabilities on the airfield. The changes will be ongoing, with projects slated through 2030.

"Going from the KC-135 to KC-46, we had to have a mindset shift, based on the platform difference. The Pegasus capabilities are far different than what we had with the Stratotanker. The fact that we can be air-refueled, hold triple the cargo, with new defensive

## Flying the Pegasus

After takeoff, the KC-46 is flown with finesse, with the pilots turning knobs to achieve headings and altitudes. Throughout most of the flight, aside from performing an AR, turning knobs remains the theme, until landing. It flies smoothly, is incredibly comfortable compared to the KC-135, has a robust air conditioning system, and inside is very quiet. Pilots do not need the legacy standard sealed ear speakers. They basically use a mic and simply talk to each other within the low ambient noise.

Lt. Col. Gregg Van Splunder is the commander of the 260th Air Traffic Control Squadron and a KC-46A evaluator/senior pilot, with over 4,000 flight hours and 18 years of military aviation experience. He previously flew the C-5A/B, the C-17A, and was an instructor pilot in the T-6A. When he joined the New Hampshire ANG seven years ago, he flew KC-135Rs for over a year from Pease ANG. He then transitioned to the KC-46A.

When asked about flying the Pegasus, he said, "Compared to the 767 airliner, our aircraft have a boom, the RVS boom pod station up front, a drogue system, internet capability, LINK-16, secure communications, LAIRCM, and more. Comparing the KC-46A to the KC-135, the two biggest enhancements in the Pegasus are the ability to communicate, and now with both the boom and drogue, mission flexibility is huge!

"The KC-46 is very automated and comes with a new autopilot coupled with state-of-the-art avionics. We fly the KC-46A more with knobs and switches, whereas in the KC-135 there was a lot more hand flying. In the KC-135, it had so many modifications over the years, there were layer upon layer of stacked systems. The KC-46 combined 50 years of that evolution and the result is a user-friendly, aircrew efficient aircraft. Today our new pilots have the opportunity to learn a contemporary modern aircraft, and we operate them more aligned with FAA methodology.

"Unlike the '50s-vintage Stratotanker, the KC-46 will tell you when something is wrong via a self-diagnostic capability, and the messages are intuitive. This allows crews to focus more on the mission and less on the small details; I personally love flying that way and it's less stressful. Though air refueling is our bread and butter, with the additional cargo capacity I foresee us being more involved in cargo movements and aeromedical evacuations than before.

"Now that we can take on fuel, we can stay airborne indefinitely assuming we have spare crews on board. It is a new airplane and we are learning new things about it every day. It is very capable, but it is very different than what we are used to also. It is a great airplane, and we are learning fast."



**ABOVE:** The New Hampshire Air National Guard has a dozen KC-46s as primary assigned jets, and they are pampered and well-maintained. The mission readiness rate is quite good for a new asset, and it only gets better the longer they fly the Pegasus.

**BELOW:** With a duo of efficient powerful engines, the glass cockpit, and new avionics coupled with self-defensive systems, the Pegasus takes the tanking platform back to a contemporary status. (Photos by Ted Carlson/Fotodynamics.com)





CLOCKWISE FROM ABOVE: This Pegasus is configured for the cargo role, with the array of rollers and tie down points being noteworthy.

The nose landing gear is similar to the commercial 767-300F freighter, but has been militarized.

ASE (Aircraft Survivability Equipment) is various countermeasures, and devices to defensively defeat a targeting enemy. The LAIRCM (Large Aircraft Infrared Countermeasures) seen here is just one part of system.

The engines were not ordered with thrust reversers, but rather with larger brakes in order to reduce maintenance man hours and increase reliability.

The drogue is an important feature of the KC-46A, allowing it to refuel both refueling probe-equipped aircraft and receptacle-equipped aircraft during the same flight; plus, it can be refueled inflight. The KC-135 cannot do that, and thus the Pegasus brings that versatility to the table. (Photos by Ted Carlson/Fotodynamics.com)



## SINCE THE KC-46 IS AIR REFUELABLE, WHICH IS A BIG GAME CHANGER, WE CAN TAKE OFF FROM LOCATIONS WITH SHORT RUNWAYS WITH LIGHTER FUEL LOADS, AND THEN TAKE ON GAS.

systems allowing us to be closer to the warzone, and having multi-role capabilities all had to be addressed.

"The aircraft is not yet considered fully operational at this time, since there are some category 1 deficiencies that are going through the adjustment process. It is an A-model, and we will get there, but we are IOC [Initial Operational Capability] status. We are flying it daily and we can give fuel to 98% of the receivers. The 157th ARW was the first unit to come out of conversion and receive our full complement of aircraft, sooner than our active duty counterparts. We perform about 60% aerial refueling support, 30% cargo, and the rest is divided between moving people and AE [Aeromedical Evacuation] missions.

"We flew a 22-hour non-stop milestone sortie, using the drogue, our boom, we took on fuel, and landed in Saipan. We also did a 36-hour endurance mission, flying round robin to Pease ANGB, and went to Guam and back, fully utilizing our refueling abilities along the way.

"Since the KC-46 is air refuelable, which is a big game changer, we can take off from locations with short runways with lighter fuel loads, and then take on gas. The two powerful two engines give us superior takeoff performance, plus fuel efficiency, compared to the KC-135, and typically we can takeoff with 35,000 to 40,000 more pounds of fuel than the Stratotanker.

"The KC-46 is a modern aircraft, and while I love the KC-135, the Pegasus has all of the modern features. It is rewarding, responsive, and very capable. From an aircrew perspective, it is fairly straightforward. The air conditioning is robust, the systems are state-of-the-art, checklists are flow based, and thus more logical. Adapting as technology changes is important and keeping current with change."

Also in the interview was Command Chief MSgt. Kevin Reiter, who is on the support

side, and spent 15 years in active duty service, later transitioning to the Air National Guard in 2017. He has been in his current position of overseeing the unit Health/Morale/Welfare since February of 2023. He added, "During the aircraft conversion, 400 ANG members were gone and 'on and off' status for the Covid event, during the KC-46 training, so there were competing priorities. The Guardsmen would help at Covid call centers, support state staffing, work vaccination lines, and served as a calming service.

"We are the premier Guard unit and role model by embedding the 64th ARS active duty members in a fully integrated mode. They are a huge manpower asset with solid experience, and there is not an 'us and them' atmosphere, rather it is a 'we' situation. The KC-46 is a wonderful tool to embrace and is part of our legacy; it gives the New Hampshire Guard purpose and is a vital aspect of the state and federal mission sets."

### The Future

The near-term future will consist of making refinements and knocking out the teething process items. Included are the WARPS that is scheduled for being fielded soon. The boom actuator is being tweaked, and eventual enhancements fleetwide will occur. Enhancements to the RVS (dubbed RVS 2.0) are being worked on, to make it better than ever. And the cargo system is being fine-tuned, and soon will allow the Pegasus to make "full load" cargo runs. In all fairness, some of the adjustment issues are linked to the volatile supply chain flow, which has been a worldwide hurdle. ➔

*The author would like to acknowledge Col. Nelson Perron, 157th ARW/CC, Lt. Col. Gregg Van Splunder, 260th ATCS/CC, Maj. Peter Eshenour, 157th ARW/XO, Command Chief MSgt. Kevin Reiter/CCM, MSgt. Daren Hayes, TSgt. Victoria Nelson/PAO, SMSgt. Gary Howard (ret.), and the many others that helped with this article..*

# Training Mission

## BY THE TIME THIS TRAINING SCENE WAS RECORDED

in Canne, Italy, in July 1944, Allied Yugoslavian airmen had several years of experience working side by side with the RAF. Following the dissolution of the Yugoslav Kingdom in April 1941, surviving members of the country's air force migrated to British protectorates in the Middle East for service against the Axis. Training issues delayed their immediate service to the cause until well into late 1942, with their pilots initially being relegated to ferry service in the North African campaign.

In September 1943 a "B" Flight of No. 94 Squadron RAF, based initially at Bu Amud, Libya, brought Yugoslavian pilots their first combat experience. Flying Hurricane IIcs and Spitfire V/IXs uniquely decked out with red stars over the British cockades, they operated primarily in the Aegean Sea escort role, later moving to Savoia, Italy, in August 1944.

Concurrently, after the late 1943 Eureka strategy meeting of the Big Three in Tehran, the Yugoslavian Partisan army movement, the NOVJ, was formally recognized as a member of the anti-Nazi coalition. That set the stage for direct military aid from the British military, which soon brought two indigenous Partisan units into training and outfitting in North Africa in April 1944, but still under RAF operational command. No.'s 351 and 352 Squadrons initially operated with Hurricane Mk. II/IVs and Spitfire Mk. XIs from Lete Airfield, with 352 Sqn. receiving Spitfire Mk Vb and Cs late in June 1944.

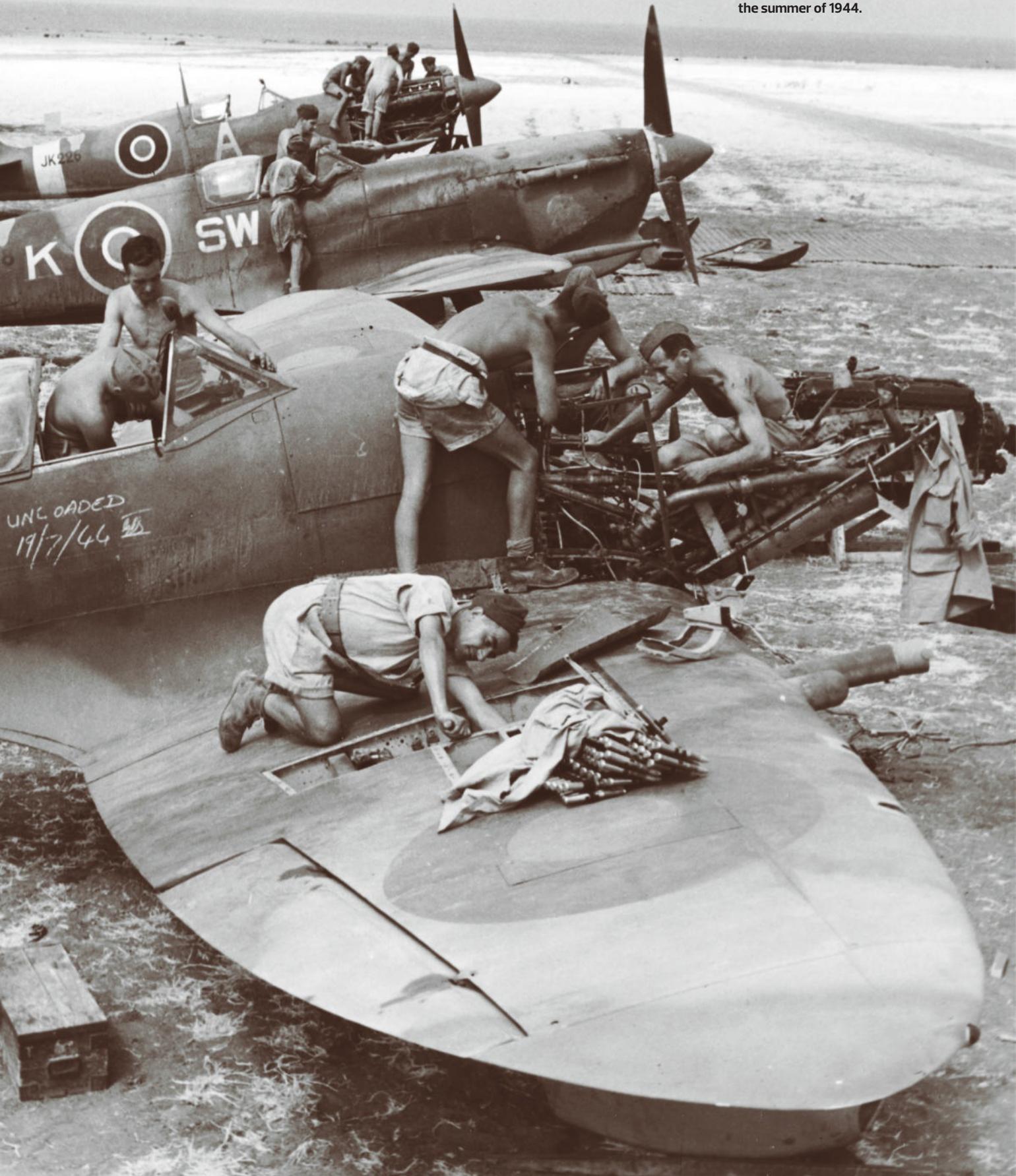
While the Partisan units were forming, No. 94's "B" Flight found itself out of work when its RAF component was reassigned to Greece in August 1944. Both Partisan units were then assigned to Canne, Italy, as part of the Balkan Air Force's No. 281 Wing initially taking over the former mission of No. 94 Sqn. By the beginning of 1945, the units found themselves providing direct fighter-bomber support to Marshal Tito's advancing armies, moving to an advanced base on the island of Vis off the Croatian coast, and then directly on Yugoslavian soil in February.

The moves to native territory also provided a political shift for their personnel, some aligning themselves with the Communist Partisans while others, who chose the Loyalist Monarchy, found themselves grounded or removed from any further war service. In May 1945, both units were disbanded from RAF service and their crews, aircraft, and support equipment were turned over to the newly established First Fighter Regiment of the SFR Yugoslavian.

Collectively, the Yugoslavs flew 600 missions, losing 10 pilots in combat. Their British supplied aircraft were quickly supplanted by Russian Yak-3s, 7s and 9s with numerous captured Luftwaffe and Croatian assets. However, some British types were kept as training airframes with the last being struck off charge in 1952. One restored airframe, a Spitfire F Mk.Vc Trop JK 808, ser. no. 17-545, is currently on display in Belgrade in the markings of No. 352 Sqn. —*Stan Piet*



Slavic ground crews, attached with RAF's No. 281 Wing, are trained on the intricacies of maintaining the Spitfire Mk V while based in Italy in the summer of 1944.





# STARFIRES

## *Over Korea*

F-94 pilots tangle with MiGs

BY WARREN E. THOMPSON



**FOR THE FIRST FEW MONTHS** of the Korean War, there was very little need for a nocturnal interceptor because the North Korean Air Force had been obliterated by U.S. fighters. In November 1950, this situation changed drastically. The sweptwing MiG-15 began flying south of the Yalu River, which put the airspace over friendly troops at risk along with the jampacked airbases south of the 38th parallel. Up until this time, the nightly alerts were manned by the F-82 Twin Mustangs and the Marines' F7F-3N Tigercats. These two World War II types would be no match for the MiG-15.

319th Starfires in flight over South Korea on a photo op in early fall 1952. (Photo courtesy of Robert Haller)

For the U.S. and England, the all weather interceptor business began to gain momentum in March 1948, when it became known that the Russians were producing a long-range bomber that had the capabilities of reaching targets across the Atlantic and friendly airbases in the Far East. Development of the radar-equipped jets was given top priority, and it was Northrop's F-89 Scorpion and Lockheed's F-94 Starfire that would fill that gap the soonest. Both of these aircraft carried a pilot and radar observer. Until these specialized jet interceptors were operational, the prop aircraft had to carry the responsibility.

The All Weather Squadron based closest to the Korean Peninsula was the 68th at Itazuke AB Japan. They would be the first to receive new F-94Bs in the Far East, and in turn, they would deploy a few at a time to several South Korean airbases to stand alert at night or during periods of inclement weather. They were spread thin because they still had the

Two Superfortresses had been lost in the past two days, and another one would go down on this night. Several 319th FIS F-94s were standing alert at Suwon waiting for any sign of enemy air activity. Capt. Ben Fithian and his R/O, Lt. Sam Lyons, were third in line to scramble. They were destined to make the squadron's first aerial kill. Fithian relates the events as they unfolded.

"We heard through our Intel of a lot of air activity over North Korea, and a short time later, we were ordered to scramble to help bring a damaged F-80 down. The pilot was having a tough time finding the base and was getting low on fuel. We launched, and after 15 minutes, we found him and helped bring him in safely. We were way too heavy on fuel to land, so we changed to a tactical channel and requested to be vectored into North Korea. Fortunately for us, one of our F-94s that had been orbiting over Chodo Island, up north, was having problems with its radar, so we were

## OUR DETERMINATION WAS DRIVEN BY THE 'PRIZE' OF BEING THE FIRST TO MAKE AN AERIAL KILL IN THE STARFIRE, AND IT WAS WELL WORTH LAYING EVERYTHING ON THE LINE.

responsibility of air defense in southern Japan, and this juggling act continued on through 1951. In mid-January 1952, the 319th All Weather Squadron, based stateside at McChord AFB, was ordered to load up and head for Korea. They would assume full responsibility for the defense of all air bases in South Korea during the hours of darkness.

The 319th would operate from Suwon AB (K-13) with their new F-94Bs, and by March 23, they were in place and fully operational with 25 Starfires and 26 aircrews. By this time, the MiG-15s and remnants of the North Korean Air Force (prop types) were venturing far south of the Yalu River at night, and the "Bed-Check Charlie" PO-2s were making dangerous low-level runs over the big airbases such as Kimpo and Suwon. The Pentagon had serious reservations about sending the new F-94B north of the 38th parallel because of fear of losing one and its classified radar falling into the hands of the Russians. The B-29s were catching hell up on their night missions over MiG Alley, however, and the Starfires were finally allowed to venture north to give them protection. At this point, the F-94 missions began to get very interesting with plenty of potential action.

### First kill in a Starfire

For some reason, a lot of activity was coming out of Manchuria on the night of January 30, 1953. The weather was relatively clear over a large area, and this was perfect for the B-29s to hit targets near the Yalu.

allowed to replace them on that station. This would put us close to any action that developed over MiG Alley, as it was approximately 50 miles west of Pyongyang.

"On the way in, I heard one of our F-94 pilots call out 'No joy,' which meant they could not establish radar contact with the unidentified bogey to which Chodo radar was vectoring them. In fact, the pilot complained he thought they were guiding him in on some rocks projecting from the sea, as his altitude was extremely low. When we got to within about 50 miles of that activity, Chodo ground control released that Starfire to return to Suwon, and we moved into its slot. We were cruising at about 25,000 feet, when they gave us range and direction to a hostile, which, from our position, was about 30 miles away at one o'clock. They gave us a descent order down to 5,000 feet and a series of turns for a heading to the southeast about 15 miles west of Pyongyang. This area was about as far south as the MiG-15s would venture, but the North Korean prop types had no boundaries north of the 38th parallel."

Ground control radar had Capt. Fithian close fast on the bogey beginning at a distance of 60 miles. The hostile's airspeed was only about 130 knots, so the closure rate was fast (the F-94B's top speed was well over 500mph). By the time the gap between the two was only five miles, his R/O picked it up on his scope. With the onboard fire control system they had, the only way to get an optimum firing solution was to drop down slightly below the target. This meant they were



ABOVE: This impressive view shows several Starfires in flight over the super base at Osan (K-55) that was under construction in 1952. Aircraft no. 449 was assigned to Capt. Ben Fithian, who made the first kill for the squadron. (Photo courtesy of Robert Haller)

RIGHT: By the time that the F-94Bs arrived at Suwon AB in large numbers, the runways had been improved and the parking revetments built up to protect against night attacks from the North Korean PO-2s. (Photo courtesy of Archie Gratch)





Radar Observer Lt. Craig Washburn poses in his "office" with the radar console in the up (stowed) position. The face of the console swung down and had the scope and control switches on it. The radar hand control was on a lower shelf below the position of his arm on the right side of the cockpit. (Photo courtesy of Craig Washburn)

## STARFIRE'S RADAR

Lt. Craig Washburn, Radar Observer  
319th FIS/Suwon AB, F-94B

The "B" model Starfire that we flew in the Korean War was a very able and reliable aircraft and with the E-1 fire control system, including the AN/APG-33 radar, it became, for its time, a formidable all weather/night interceptor! The Dash-33 radar had three modes of operation: search, hand control and lock-on. The scope had two displays; target azimuth/elevation and target range/azimuth that was activated by a console switch. An intercept was initiated in the search mode using the azimuth/elevation display. Once the target was observed in the search mode, the R/O spotlighted the target using the hand control and a cursor locked on to the target, which was then automatically tracked by the radar. At this time, the R/O was visualizing the intercept setup, locking on the bogey and giving commands (directions) to the pilot to complete the intercept.

The AN/APG-33 radar was very reliable and required only minor maintenance sessions to keep it in top shape. Checkout of the radar and aircraft was done with flights and practice intercepts the day before the night of standing alert. I never experienced a mission abort due to radar malfunction. Most of our intercepts were directed toward MiG-15 night intrusions over North Korean airspace. The radar's ability to perform these intercepts was excellent, and Lt. Rankin and I never missed intercepting a target on which we were directed. The Dash-33 was capable of detecting bombertype aircraft and flights of fighter aircraft at maximum range. The easiest target acquisition I experienced, in Korea, was a flight of 12 unidentified Australian Meteors. They came in at maximum range and were a concern for a lone interceptor until we got identification. It was also very capable of performing an airborne radar-landing approach in an emergency situation!



The F-94 aircrew of Lt. Craig Washburn (R/O) on the left and pilot Lt. Sandy Rankin were credited with a damaged MiG-15 in late January 1953. They flew for their entire tour in Korea with the 319th FIS. (Photo courtesy of Craig Washburn)



## WE CLOSED, AND THEN ALL HELL BROKE LOOSE! HE HAD LED US INTO THE MIDDLE OF INTENSE ANTI-AIRCRAFT FIRE AND SEARCHLIGHTS.

**The F-94Bs were equipped with four .50-caliber machine guns and could achieve airspeeds of 600mph. In a daytime dogfight with a MiG-15, the Starfire would have been hard-pressed to survive, as the MiG was much faster, and its climbing ability was in a league of its own. These 319th F-94Bs are seen in flight over South Korea in spring 1953. (Photo courtesy of Archie Gratch)**

skimming the treetops in total darkness.

"I looked out and saw that we were very close over some trees that looked like tall poplars or sycamores, so we inched up a bit. I figured that the enemy pilot knew the terrain well, and if we could stay behind him, we could make it through also. Our determination was driven by the 'prize' of being the first to make an aerial kill in the Starfire, and it was well worth laying everything on the line. By this time, we had dropped down to the 130 knots, which meant I had my speed brakes extended. After getting a lock-on, we started to close and climb slightly, as the target was now within firing range at about 1,200 feet. Our overtake speed was 40 knots. Based on what our scope was telling us, I fired a long burst but saw no results. Continuing to close, I fired again, and still no hits. We were about 600 feet behind the bogey, when I moved the stick around in a 6-inch circle as I fired and saw some flashes at last. We were armed with armor-piercing incendiary rounds that made a flash on impact, so as soon as I saw a lot of flashes, I held the stick steady and continued to fire. Our .50-caliber rounds were devastating to the target, as it immediately

burst into flames and nosed straight down.

The light provided by the ball of fire and low altitude gave us a lasting image. The aircraft hit the ground in seconds with the cockpit still closed. We identified it as a Lavochkin (La-9), built by the Russians after World War II, and it had the capability of speeds in excess of 400mph. It was part of many types given to the North Koreans in the late 1940s."

### **Mixing it up with MiGs**

During the waning months of 1952, the ability of the MiG-15 to fly missions at night increased significantly. It was later determined (postwar) that these aircraft, guided by well-trained ground control radar operators, were manned by experienced Russian and Warsaw Pact pilots. The B-29s had quit flying day missions because of the MiG threat and switched to the night bombing runs. The enemy had no choice but to go after them at night with their deadliest interceptor. For some reason, there was a flurry of enemy night activity during the final days of January 1953. This was also countered by the Marines utilizing their new F3D night fighters to help protect the Superfortresses. The F-94Bs from the 319th



FIS were kept busy almost every night.

Sometime prior to the night in which Capt. Fithian made his kill, Starfire pilot Lt. Sandy Rankin and his radar observer Lt. Craig Washburn were involved in the first scramble of an F-94 after the aircraft had been cleared to fly as far north as the Yalu River. They were members of "A" Flight and had the distinction of being the first in the squadron to be fired on by the enemy, the first to fire on an enemy aircraft and the first to achieve 50 combat missions in the F-94. This particular scramble proved to have some very close calls. Lt. Washburn relates the details of when they locked on to a MiG-15 up close to the Yalu.

"As soon as I locked on to him, I gave Sandy commands that got us in a close pursuit tail chase. We closed on the MiG, but he sped up and stayed ahead at a constant distance just beyond our firing range. This went on a few more times, and finally, he started a descent as his airspeed dropped. We closed, and then all hell broke loose! He had led us into the middle of intense anti-aircraft fire and searchlights. Sandy started to climb out, and I looked back and saw the air bursts coming straight up to us as if on a ladder. I called for a hard turn to port, and Sandy asked why. At that time, one exploded off our starboard wing, and that's all it took to get out of there. Thus ended our first mission, and believe me, we were educated on what to look out for in the future."

A few nights after this, on their second mission, they were credited with damaging a MiG-15 in a close encounter. There was a full moon, and the ground was covered in a heavy blanket of snow—perfect conditions for the MiG pilots—and there was plenty of activity that night. They were sitting alert when the call came for them to scramble. Arriving over the area, they were ordered to patrol and were immediately vectored toward one of the MiGs. They locked on and started closing the gap until almost within firing range. At that moment, a call from their controller informed them of another MiG-15 coming up fast on their six o'clock.

"He let us know he'd notify us if the MiG was getting close to firing range, and in the meantime, he had another F-94 from our flight rapidly closing in on the second MiG behind us, and all four aircraft went around the sky in line formation for several minutes! This, I think, indicates how good the Russians' ground radar controllers were, and their coordination, since we made several turns during the chase. It didn't take long for the trailing MiG to break off because the second F-94 was too close. At that same time, our MiG increased speed and headed straight for the Yalu River. The distance between us got to the point that our radar broke lock-on. I got on hand control and was able to keep a faint return on the scope, and Sandy decided to

**A flight of 319th Starfires in close formation on approach to Suwon AB in late 1952. Note the extended dive brakes. The tip of the vertical stabilizer is barely visible on the third aircraft, while the photo was taken from the fourth. (Photo courtesy of Robert Haller)**

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pursue it as long as I could keep it on the scope."

Once the MiG got close to the Yalu, its pilot decreased his speed, probably assuming that he was over safe territory. However, the Starfire continued to close the range and achieved a lock-on. At this point, the ground controller told them they were over the river and it was time to break it off and turn back. After a brief conversation between Lt. Washburn and Lt. Rankin, they continued their pursuit, telling the controller his message was garbled and they couldn't hear him. The MiG was now within firing range.

"About this time, Sandy told me to take a look off the starboard wing, and there was Antung AB lit up like a Christmas tree with runway lights shining brightly. I turned it over to him to monitor on his pilot's scope. We were now closing rapidly as Sandy started firing what seemed like a very long burst with our .50-calibers. We were very close to the MiG, and I was switching scopes and about to caution Sandy about range, when I noticed the target make a quick dive, and we lost lock-on. He figured the enemy pilot had executed a split-S maneuver. Here we were next to a major enemy air base that was jammed with MiG-15s, with no ground radar protection and the first light of dawn just minutes away!"

After a very brief discussion, it was decided to get down on the deck under enemy radar and head for the Yellow Sea, since they had been told that the MiGs would not fly out over water.

"During this time, I was straining my neck rearward looking to see if a MiG was on our

tail. The last thing I remember seeing was a lifeless enclave of snow-covered huts as we crossed over the coast. Our greatest concern now was fuel. Sandy established contact with our controller and asked for a heading toward Chodo as we began a gradual climb. We talked about not being able to make it back to Suwon and the possibility of a belly landing at Chodo, but as we reached that area, we had enough altitude and fuel to make it at least to our base. We made it—but it was close! The low-fuel warning light had been on for some time, and as we taxied into our revetment area at the end of the runway, we flamed out! The next day, our crew chief said we had exactly one cup of fuel remaining in the plenum feed tank. We received an official "Damage" for the MiG, and there was always the chance that he never made it safely to his base at Antung, and if that was the case, there was no way to prove the kill." →

*Author's Note: The protection for the night-flying B-29s was provided by the USAF's F-94Bs and the Marine's F3Ds. According to the Korwald aircraft loss report for the Korean War, only four Superfortresses were lost between January and July 1953. These losses were a combination of MiG encounters, mechanical problems, or battle damage, which caused them to be damaged beyond repair when landing at a friendly base. It was an outstanding achievement considering that the enemy had become very proficient in flying the MiG-15 at night.*

**Radar Observer Lt. Craig Washburn poses by his F-94 after a MiG-15 encounter that resulted in an official "Damage" claim. Taken in late January 1953 when the entire Korean Peninsula was covered in snow. (Photo courtesy of Craig Washburn)**

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## Old Enemies, At It Again

A North American AVG P-40B Tiger Shark bears down on a Nakajima A6M3-22 Zero over the Pacific Ocean in a scene reminiscent of the PTO in the early 1940s. These are among the rarest warbirds in existence and are owned by the Flying Heritage & Combat Armor Museum (FHCAM) in Everett, Washington. (Photo by John Dibbs/ Facebook.com/theplanepicture)



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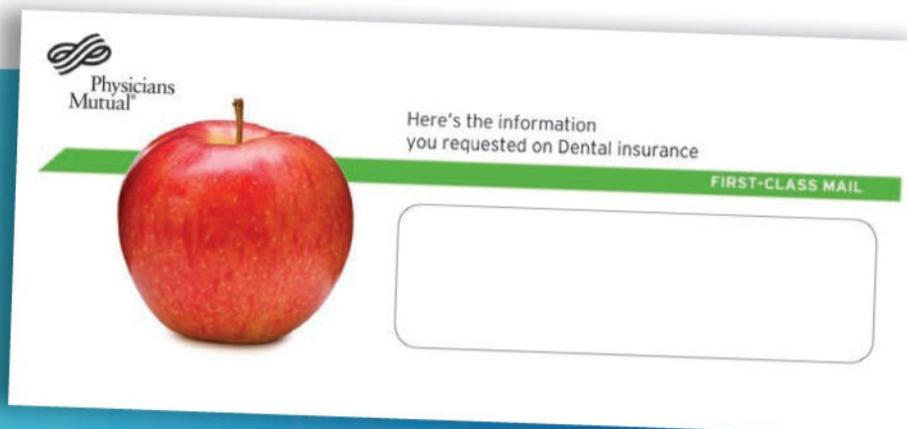
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