

THE MISSION, THE HONOR, AND THE THRILL

In the cockpit with the pilots who fly the USAF Heritage Flight and U.S. Navy Legacy Flight Demonstrations

BY JAN TEGLER



A P-51C from the Commemorative Air Force's Red Tail Squadron leads a USAF Heritage Flight with an Alabama Air National Guard F-16C from the 100th Fighter Squadron on its left wing and an F-22 from the 325th Fighter Wing at Tyndall AFB on its right wing. (USAF photo)

Major Joshua “Cabo” Gunderson, who served as the U.S. Air Force’s F-22 Demonstration Pilot until the end of 2022, described the first time he flew the Raptor in formation with a P-51 Mustang as a part of the USAF Heritage Flight as “surreal.”

“You pinch yourself,” he says. “You’re like, ‘Holy cow! I’m here flying a Raptor next to this Mustang.’ You can hear the Merlin from the cockpit of the Raptor which is wild!”

The highly popular Heritage and Legacy flights pair WW II, Korean, and Vietnam-era warbirds with today’s Air Force and Navy jet fighters in tight formation passes in front of airshow crowds across the nation.

The idea—to honor America's military aviation past, celebrate the present, and inspire Americans to serve in the military—goes back to the mid-1980s. At the time, the "Flight of the Grumman Cats" combined the Wildcat, Hellcat, Tigercat, Bearcat and other ex-Navy fighters like the Corsair and F9F Panther with active-duty F-14 Tomcats in formation displays.

Legendary F-14 pilot Dale "Snort" Snodgrass was one of the first active duty military pilots to participate in what became the U.S. Navy Legacy Flight. Snodgrass was also among those who got the USAF Heritage Flight underway in 1999. Master warbird pilot Steve Hinton was involved as well.

Hinton, president of the renowned Planes of Fame Air Museum, was still part of the Heritage Flight until the end of the 2021 season. He was the P-51 pilot Gunderson flew wing on during his first Heritage Flight training sortie at Davis Monthan AFB in 2019. "It's one thing to own a warbird, but flying in circles—you need a real mission and this is a significant mission the way I look at it," Hinton says, emphasizing the importance of putting history together in formation.

Warbird Heritage Foundation founder and pilot Paul Wood has been the civilian lead for the Navy Legacy Flight program for 16 years. Like Hinton, he describes his involvement in these unique displays as an "honor and a privilege."

"For a civilian pilot, whether you're former military or not, to be flying in this sort of a program with active-duty Navy pilots in front line fighters is incredibly special."

"It's absolutely awesome," Lt. Kieran "Zero" Sexton, a 2022-season Super Hornet Demo pilot with VFA-106 said. "These are the airplanes you saw in aviation museums growing up sitting there not flying. And then here I am on the wing of a Corsair. It's gorgeous!"

It's special for those of us watching from the ground, too. But what's it like to actually be at the controls of a Mustang, a Corsair, or Skyraider in tight formation with a Super Hornet or F-22?

Sights, sounds, and the bow wave

"It's so cool seeing these young guys pull up alongside me in one of the formidable jewels of our nation's firepower—just incredible," says Mark "Mutha" Hubbard, who flies an FG-1D Corsair as well as the Hellcat and Bearcat with the Legacy Flight.

F/A-18 Super Hornets, EA-18 Growlers, and F-35Cs are the active-duty fighters that fly in the Navy demonstrations. With over 4,000 hours in Hornets and Super Hornets, Hubbard served as Commodore, Strike Fighter Wing Pacific prior to retirement in 2012. "Now I'm flying one of our nation's treasures, but I know what it's like for those guys," he says.

RIGHT: A P-51 Mustang, F-35A Lightning II and A-10 stack it up during a USAF Heritage Flight Demonstration. (USAF photo by Capt. Kip Sumner)



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LEFT: The Air Force Demo Team Heritage Flight insignia shows off smartly on the helmet of one of the Heritage Flight's warbird pilots. (USAF photo)

RIGHT: Members of the Air Combat Command F-22 Demonstration team, including Maj. Joshua Gunderson (second from left) pose before a performance at Joint Base Elmendorf-Richardson, Alaska. (USAF photo by 2nd Lt. Sam Eckholm)



"I keep my canopy cracked a little bit in the Corsair. You can actually hear the guys in the Super Hornets because they'll jam the throttles from MIL power to idle, MIL to idle. My gosh! For a second it takes you back and you feel like you're in the Hornet. Then you realize, 'No, I'm driving this piece of history around. Let me move the throttle gently and keep the speed up so I don't get too slow for these guys.'"

On the other side of the formation, Sexton said he could hear the Corsair's R-2800 radial from the Super Hornet "and feel it pounding away right next to you."

Stuart Milson is the only warbird pilot to fly with both the Navy Legacy and Air Force Heritage Flights. He flies the Corsair and Hellcat with the Legacy Flight and the Skyraider and Mustang with the Heritage Flight.

Milson says the sensation of flying next to big modern jet fighters isn't just visual or aural. You can actually feel their presence in formation. "The F-35, you can really feel the bow wave when they get close," he explains. "It's a big aircraft and not as sleek as some of the others. It will literally try to turn your airplane away from them when they get close. You feel it through the stick. It depends on which warbird you're flying, but sometimes when they get in close you'll actually have to hold aileron toward them to keep your line."

"The Super Hornet will kind of give you a shove," Hubbard says, while Hinton agreed he could "really feel the bow wave" from the F-35 and F-22.

Hinton flew several Heritage Flight demos with F-35 Demo pilot Major Kristin "Beo" Wolfe. He said she's an excellent pilot and seeing her drive the stealthy jet up next to him was always attention-getting, including during a display at the Reno National Championship Air Races. "When she slips on my wing, it's like 'Whoa! Here she comes!' We join in front of the crowd. I'm in a bank running 40 inches at 2,400 rpm, indicating around 300 mph in the Mustang and all of sudden this 'boat' comes up next to me. Her face is barely ten feet off my wingtip. The airplane seems really big, especially initially. She'll slide right up then nod her head and go back three feet or so."

Formation finesse

The Heritage and Legacy Flights combine warbirds in three primary formation types: two-ship, three-ship, and four-ship groupings. The warbird pilots and aircraft most commonly lead the formations, although the roles are occasionally reversed. Warbirds lead most often because of the performance differences in the aircraft.

"The airplanes, especially the WW II fighters, are day and night different—power and wing loading, the airfoils—from the jets," Hinton explains.

"It's really hard on warbirds to try to follow around a modern fighter. Being a warbird pilot you hate to be running the throttle back and forth. An A-10 isn't too bad to fly wing on, but the other ones are ridiculous. Unless you're in an F-86."

Milson was part of a three-ship Heritage Flight at Oshkosh in 2019, combining an F-16 lead with two P-51s flying on its wings. "We do it but it's difficult for all parties involved," he says. "For example in an F-16, an eighth of an inch of throttle is a huge difference to us in a warbird."

Workloads inside the cockpit vary, too. Warbird pilots flying piston engine, propeller-driven fighters have plenty to do just to stay airborne, including engine management, constantly adjusting boost, fuel mixture, and propeller rpm while trying to preserve engine life in the precious warbirds.

"You're a voting member in the Super Hornet," Hubbard says alluding to the automatic, computer-aided management of engine and flight controls in the modern jet fighters. "But in the Corsair, you've gotta have a pilot, even for the basics. And we baby the engines."

Still, the warbird pilots say the active duty Heritage and Legacy jet drivers work hard to stay with them. Hubbard says the Super Hornet pilots are "hanging on the [turbine] blades" at 225 to 250 knots when the formations reposition for a pass away from or behind the crowd. "It's really cool looking over your shoulder seeing those guys working their asses off. I know how hard it is."

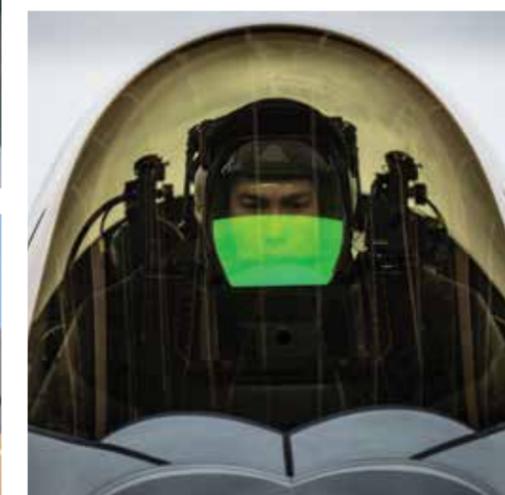
Gunderson said the task was not too hard in the F-22. "We can jockey our throttles around as much as we want to. With the Raptor's big wings, the surface area of the airplane and how well it handles across all flight regimes, slow or fast, high alpha, low alpha—staying with the warbirds is not too challenging."

He typically lined up his wing with the spinner on a WW II fighter to achieve the right, symmetrical look for the formation, noting that because the F-22 is so big compared to the propeller-driven fighters, a typical parade formation he'd fly with other F-22s wouldn't look right from the ground. "I looked for a three-foot wingtip spacing between the airplanes, Gunderson said. "I kind of got used to what the sight picture looked like. I looked at the tail and horizontal stabilizer in terms of spacing and distance. If I was able to put my wingtip on the spinner and see a symmetric horizontal surface, that was usually a correct position."

Because the cockpit of the F-22 is well forward on its fuselage, he didn't notice much of his own airplane behind him. "I didn't really notice the size difference until I saw the videos of it next to a Mustang afterwards. And you're like, 'Holy cow! That's a big jet!'"

Most of the warbird formations combining WW II fighters and modern fighters fly at between 230 to 270 knots depending on which warbirds are involved. Older, slower aircraft like the P-40 and Wildcat are a bit trickier for the jets to fly in formation with.

With a twinkle in his eye, Hinton explained that flying the F-86 Sabre in formation with modern jets was a different experience. "I remember when we first started flying the Sabre in the program and it would open the eyes of guys in the modern fighters," Steve says. "All you have



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TOP: Steve Hinton poses on the wing of a P-51. He continues to fly with the Navy Legacy Flight in 2024. (USAF photo by 2nd Lt. Sam Eckholm)

ABOVE: Maj. Joshua Gunderson configures the cockpit of his F-22 before a demonstration flight. (USAF photo by 2nd Lt. Sam Eckholm)

LEFT: From left: Lt. Col. (ret.) Charles Tuna Hainline, Air Force Heritage Flight Foundation A-1 Skyraider pilot Stuart Milson, and Maj. Cody Wilton have a post-flight discussion at Wings Over Texas. (USAF photo by TSgt. Betty Chevalier)

to do is keep the F-86 at 380 or 420 knots and pull some Gs around the corner, and they've got to stroke the burner to stay on your wing!"

Gunderson counters that he "never had to tap the burner" in an F-22 to say with the F-86. "Like every airplane, the Raptor has its hiccups and flaws but they definitely didn't mess up the motors. They're incredible!" Both the warbird pilots with their thousands of hours in a host of aircraft and the active-duty fighter pilots, who have so few hours comparatively that it sometimes surprised Hinton, have absolute faith in each other nevertheless.

"The amount of trust you have in the lead is huge,"

Gunderson affirmed. "The ground's moving by pretty fast and you're low but you have to stare at the warbird to keep position. The scariest part is when you're on the low wing, looking up at the warbird and blue sky. You know you're at 300 feet off the ground or whatever altitude we're at doing 215 knots. But you have faith these amazing warbird pilots are going to keep you safe.

"And they trust us not to hit them," he added. "There's turbulence up there, birds and all sorts of hazards. They don't have the option we have. We're low to the ground and if we hit them, they're done. They don't have an ejection seat."



ABOVE: A Heritage Flight combining (top down) an F-22 from 1st Fighter Wing, Langley AFB, P-47D "Tarheel Hal" (now known as "Hoosier Spirit II" as part of the Evansville Wartime Museum), P-51D "Bald Eagle" owned and flown by Heritage Flight founding member Jim Beasley Jr., and an A-10C from the 355th Wing at Davis Monthan AFB. (USAF photo)

RIGHT: Maj. Paul Lopez, Steve Hinton, and Col. Grey pose for a quick selfie during the Thunder Over the Bay air show at Travis Air Force Base. (USAF photo by 2nd Lt. Sam Eckholm)



"We're trying to fly a very smooth, predictable lead and fly the profile as perfectly as we can," Wood says. "The Super Hornet pilots are the best of the best. If we fly a smooth predictable lead, they know exactly where we're going, when we're going, what our roll rates/airspeeds are going to be. It has to be the same every single time."

An honor and a thrill

All of the participating pilots agree that flying with either the Heritage or Legacy Flights is an honor.

"It's a privilege, so humbling and a unique opportunity to fly with these young lieutenants doing the Legacy demos," Hubbard says. "It's also great getting to know them and be around them."

"For us old guys to be able to kind of hang out with these smart, motivated young pilots flying the high performance stuff from today is a thrill," Wood adds.

Hinton said he misses flying with the Heritage Flight. "When I hit 65 I put in for a waiver and they gave it to me four times thereafter. These flights are an amazing way to visibly highlight the importance of our heritage and it's been one of the joys of my career for sure. Flying with these young pilots has been tremendous. I can't tell you how much of an honor it is to even be considered to do it."

Gunderson summed up the thrill of flying with the

Heritage Flight by describing his participation in one of the many demonstration flights the Heritage pilots did paying tribute to the nation's first responders at the height of the Covid pandemic in the summer of 2020. Jim Beasley and Andrew McKenna joined on his wing for a flight from Richmond to Virginia Beach at sunset.

"We flew right down the peninsula over 38 locations, ranging from hospitals, fire stations and police stations to food delivery services," he recalls.

"Being able to fly with two Mustangs on my wing at sunset to give people some hope and positivity during that part of the pandemic, that will probably be the most memorable Heritage Flight that I'll do. It's magic." →