

The Warbird Savivors

Inside the Restoration Community

BY BUDD DAVISSON



Aero Traders in Chino, California, is usually assumed to be the “B-25 Kings.” So when owner Rod Lewis tasked them with restoring the sole flying Douglas A-20 Havoc to 100 percent historical accuracy, they had their work cut out for them. (Photo by David Leininger)



When countries began ridding themselves of their propeller-driven fighters in the early '60s, Mustangs being the most numerous, they gravitated home to the United States. With the prices of a flying Mustang running as low as \$2,500 (\$20K in 2019 dollars) or less, the airplanes were not out of the reach of sport pilots wanting more "sport" than was commonly available. Moreover, many of the North American marvels had just been released from military service, so they were in good flying condition. A "restoration" consisted of flushing out all the mouse hotels, installing new spark plugs and coolant couplings, and slapping on \$50 worth of whatever paint was available. The result was that av journals ran occasional stories of Tri-Pacer pilots finding the horsepower of a Mustang a little out of their league with the predictable results. For that reason and because of the required maintenance, it wasn't unusual to find them semi-abandoned behind barns and on out-of-the-way airstrips.

THE WARBIRD SAVIORS

It is important to note that emergence of the warbird movement in the mid-'60s was only 20 years after the iconic warriors had stopped rolling off their production lines. Today, however, with some of them creeping up on 80 years of age, "restoration" means something entirely different. Not only has nature wreaked havoc on many of the airframes, but the concepts of safety, the appreciation of history, and the unreal increase in value have left the concept of rattle-can restorations by individual owners far behind. We're now seeing more totally authentic restorations, accurate right down to the last rivet, budgets be damned. Plus, age has demanded that every nook and cranny of the airframe be investigated.

The P-51D far outnumbers all other fighter types because they were in service so much longer in foreign countries. The last P-51 in U.S. Air Force/Air National Guard (ANG) service completed its last flight in January 1957. The last 10 Mustangs, however, were taken out of service in the Dominican Republic in 1984, with nine of them being imported to the United States shortly thereafter. So their condition was better and parts were more available than other reciprocating fighters of the time. It didn't take long, though, before different fighter types began to creep into the restoration mix. P-40s, for instance, while much cheaper than a Mustang, were in much shorter supply. Most had been scrapped shortly after they went out of service. In fact, during the '60s and into the '80s, there were only a few of them flying. The same thing went for P-51B/Cs, Corsairs, and P-47s. That, however, has changed radically and has given rise to an ever-growing constellation of super-restoration companies that think nothing of taking a rusted, corroded shadow of an airplane—any airplane—and bringing it back to life in as-produced condition. At the same time, according to those in the restoration business, the warbird market itself is changing.



Pacific Fighters | Idaho Falls, Idaho

John Musala II, whose father, John Musala Sr., started Pacific Fighters in Chino, California, before moving it and his two sons, John II and Jared, to Idaho Falls, Idaho, says, "Where it used to be that there would be 10 or 15 individuals out there with a single airplane, each needing restoring, now we're seeing more individuals who own 10 or 15 airplanes each. The single-plane owners are still out there, but we're seeing more of the collector types as part of our business. At the same time, the restoration requirements over the years have become increasingly specific, often oriented toward bringing what were once unexpected airplanes back to life. For decades, for instance, there was maybe one P-51B/C flying; now, there are nine. We've done five in recent years, each beginning with wrecked airplanes or scattered mismatched airframe components. In some cases, they were airplanes that, because of their advanced state of deterioration, 25 years ago, no one would have attempted to restore to flying condition. Those major efforts are now becoming much more common."

Musala continues, "There's a lot of interest in one-of-a-kind airplanes. In fact, the first major restoration we did here in Idaho Falls



Pacific Fighters' founder, John Musala Sr., and his sons, Jared (left) and John II, have, among other aircraft, restored five P-51B/Cs in the last few years. Usually they begin with wrecked airframes or piles of deteriorated parts. *Berlin Express* is their latest award-winning effort. (Photos by Jim Raeder)



was a Mustang that had been flown by NACA [National Advisory Committee for Aeronautics] during and after the war. The wings were fitted with aerodynamic steel plates, which gave each wing a section with a different airfoil overlaid on it that was heavily instrumented. It was a research vehicle instrumented for supersonic testing, and we restored it to that configuration, not to another stock Mustang configuration.

"Originality, authenticity—whatever you want to call it," he says, "is also becoming a major part of what we do. When doing P-51B *Berlin Express*, for instance, the owner wanted it to be a winner, and it had to be exactly to WW II production specifications. Along with combat field modifications, among other things, that meant doing such things as taking the modern alloy designation stencils off the aluminum and rerolling it with the WW II designations: 24ST as opposed to 2024-T3 as it is today. That's usually only seen on the inside of an airplane. If it is primed

inside, it's barely visible but you have to look close. More demanding on *Berlin Express* was installing the fuselage fuel tank behind the pilot. When licensed by the FAA [Federal Aviation Administration] in Limited category, it was stipulated that the fuel tank could not be installed because it shifted the CG [center of gravity] back outside of the CG envelope and made the airplane unstable. So we had to modify the tank and reduce its capacity from 85 gallons to 40 gallons and make multiple test flights with varying amounts of fuel in it and also document the effects."

Musala adds, "It also has to be understood that no two Mustangs, for instance, are the same. It's the same for any WW II airplane. You'll find fit and finish details throughout that vary. Often, it's like an archeological dig, where you remove a piece of skin and the color hiding in the joints tells us how it is to be finished. This kind of detail work was a real game changer, but it greatly increases the cost and time."

AirCorps Aviation | Bemidji, Minnesota

Since the founding the company in 2011, AirCorps Aviation, a team of 35 craftsmen and women, has become known for world-class authentic restorations. The four partners—Erik Hokuf, Eric Trueblood, Dan Matejcek, and Mark Tisler—can each trace their warbird roots back to restorers and premier collections of WW II aircraft in the upper Midwest. For a period of time, the four founders worked together as freelancers doing work in clients' hangars before establishing their restoration shop. Trueblood says, "We went where the help was needed, worked hard, and steadily grew our vision. We are proud to say that our very first two major restoration customers are still doing major projects with us today."

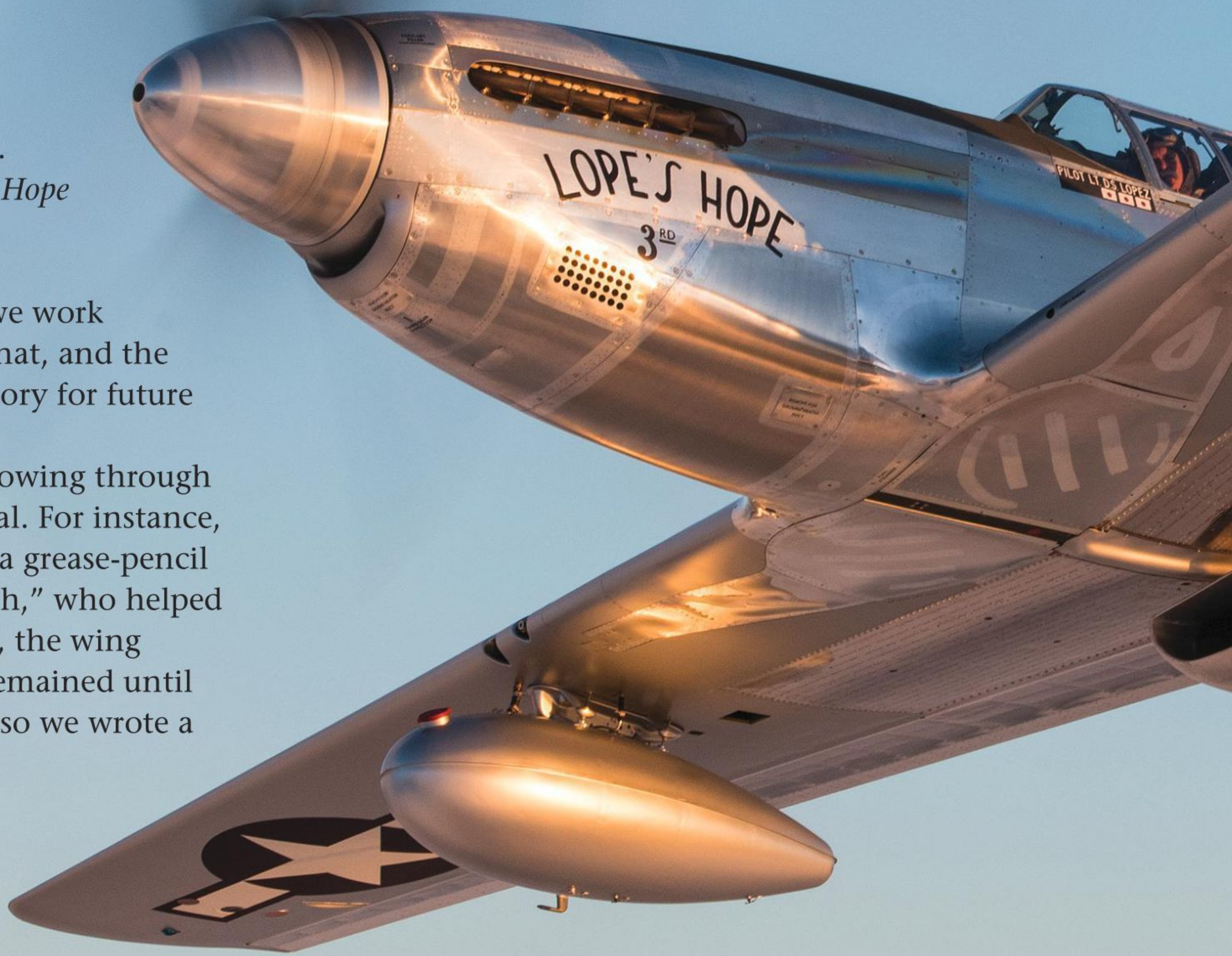
In addition to warbird work, their FAA PMA (parts manufacturer approval) Quality System and aerospace fabrication work being performed outside the warbird market only enhances their award-winning restorations. The company has also developed a platform to bring information to the public and generate warbird interest in new generations through aircorpslibrary.com, an online information service.

AirCorps is currently restoring a combat veteran razorback P-47D as well as a P-51D. Last year, their completion of P-51C *Lope's Hope 3rd* drew accolades.

Trueblood adds, "Working with historic airplanes is definitely fun, but the people we work with and for are what make it a real joy—that, and the knowledge that we're helping preserve history for future generations.

"We're very aware of the history that's flowing through our hands. Sometimes, it gets quite personal. For instance, on one of the P-47s we restored, there was a grease-pencil inscription inside the wing skin from "Edith," who helped build the airplane. Edith finished her work, the wing panel was closed up, and there the name remained until we opened it up. That piqued our interest, so we wrote a blog about it, which was featured on CNN. Pretty soon, phone calls from around the world started coming in. What we warbird restorers are doing is about far more than horsepower and guns. In a few years, we'll have no more WW II vets, so we have to do a better job telling their stories."

When talking about the warbird restoration market, Trueblood says, "We're all trying to catch the attention of a relatively small number of potential customers; however, we're seeing a noticeable expansion in new interest, from people who've never owned a warbird before. This is primarily coming through overseas clientele, and most wanting to get into the warbird fun are younger. In some cases, they're seeing a restored warbird as an investment, but all show an appreciation for the history involved."



The stunning lines of Don Lopez's P-51C mount in WW II, *Lope's Hope*, was remanufactured to the smallest factory detail. (Photo courtesy of AirCorps Aviation by EAA/Scott Slocum)

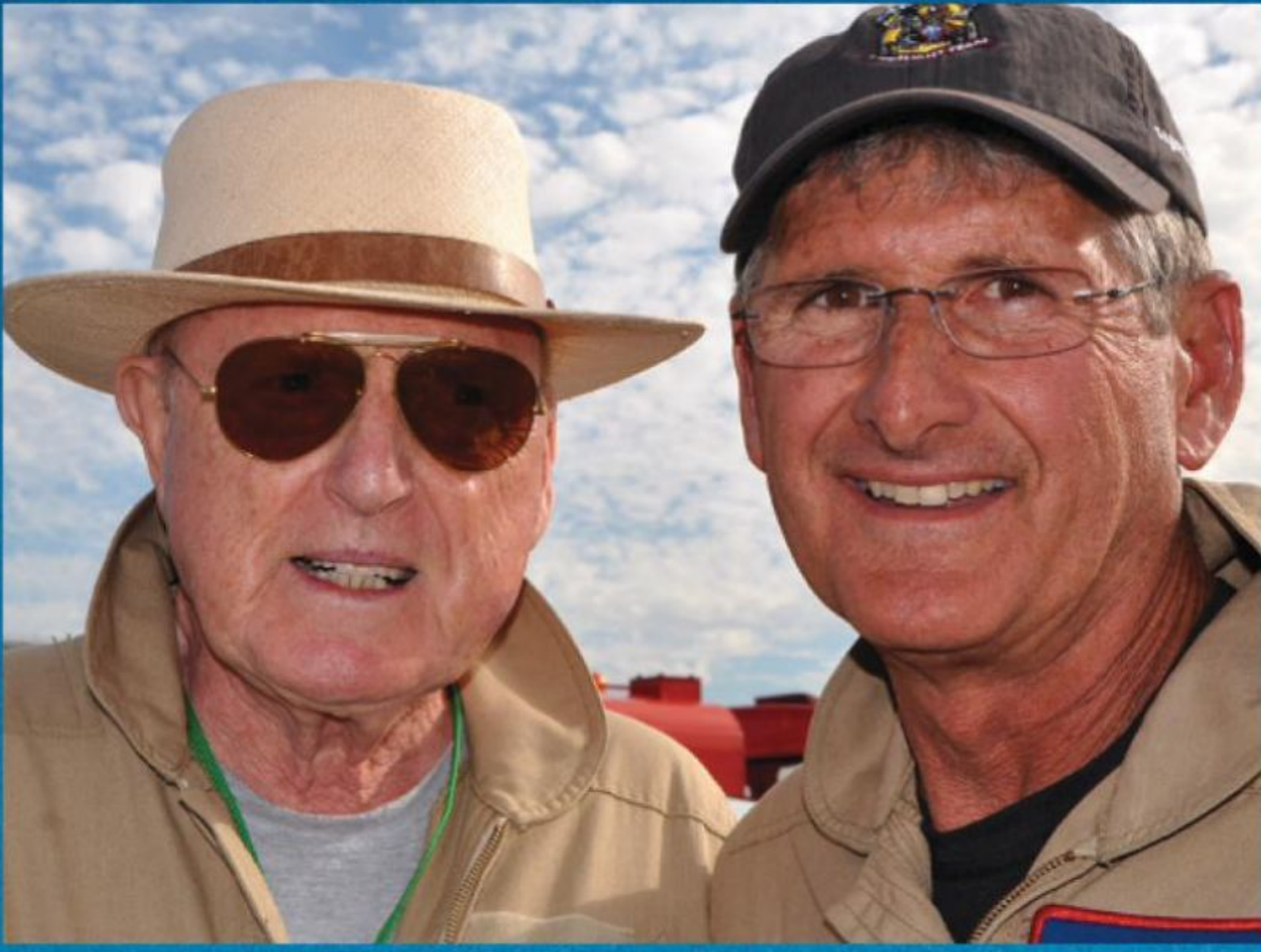


AIRCORPS LIBRARY

All aircraft restorers, enthusiasts, and model builders working from their home or shop know that it's possible to spend almost as much time doing research as it is actually working on their aircraft. Finding the details of how an aircraft was originally built and equipped is a huge project, one that AirCorps Aviation aimed to make easier when it created its AirCorps Library website. Since 2015, aircorpslibrary.com has been continually acquiring and digitizing manuals and engineering drawings from any and all WW II-era aircraft, and making the information available to the public. To date, there are almost 400,000 parts and engineering drawings as well as thousands of manuals available on the site, with more added every day. At only \$5 per month, or \$50 per year, this is a resource that will make everyone's technical life easier, whether you're building a model or restoring a P-51D in the back bedroom.



AirCorps Aviation founders with Grand Champion P-51D *Twilight Tear*: (left to right) Mark Tisler, Chad Hokuf, Erik Hokuf, Eric Trueblood, Dan Matejcek, and Stefan Hokuf.



Steve Hinton (right), of Fighter Rebuilders, has restored a wide number of aircraft for internationally known collectors, such as Stephen Grey (left) of the Fighter Collection.

The P-40C rebuilt for the Fighter Collection was the first long-nosed Warhawk to fly since 1949. It has since been sold to and is displayed at the Flying Heritage & Combat Armor Museum in Everett, Washington. (Photo by Frank Mormillo)



Fighter Rebuilders | Chino, California

When talking about West Coast warbirds, every tale has to begin with Ed Maloney, who, for decades, was saving warbirds left and right and keeping them in his Planes of Fame Air Museum that is now located in Chino, California. We're not talking about saving the typical Mustang or T-6. Long before warbirds were cool, he was rescuing one-of-a-kind aircraft during the 1950s, like Me 262, P-59, Japanese Zero, NAA O-47, P-26, P-12, and on and on. What's more, he kept many of them flying. However, Maloney's greatest contribution to warbird preservation may well have been his overwhelming willingness to reach out to the young people around him and bring them into the fold, helping keep ancient pelicans flying. Those became known as "The Chino Kids." Steve Hinton, world famous as a pilot and warbird rebuilder, was one of the first of the "Kids."

Hinton says, "I was in second grade and we were drawing on the board, and there was a kid there who could draw airplanes better than I could. That was Jim Maloney, and we became good friends. From that point on, I was

out at the airport every minute I could, and by the time I was a teenager, Jim and I were helping his dad rebuild all manner of exotic airplanes, especially warbirds. It became something we just did, and over time, we became good at it. Along the way, we both got our pilot's license and started flying everything we worked on, which included Mustangs, Corsairs, and anything Ed had in the museum.

"Everything we did for Ed was as volunteers, but in 1980, Jim and I began doing business under the name of Fighter Rebuilders, with our first paying project being a P-40 for Flying Tigers Airline. That airplane is now in Hawaii.

"We lost Jim in 1982, but the company has continued to grow, and we've done 42 restorations on aircraft, many of which were trucked in or were just a collection of pieces. The nastiest one was a badly corroded P-38 that was found abandoned somewhere in Texas. One of the most difficult was the P-39 because there were practically no parts available for it. Both of those ended up in England."

Hinton says that, of all the airplanes they've restored and then flown, the F-86 is his favorite airplane to fly.



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GossHawk's FW 190F-8 is being restored to museum-quality originality, which is difficult because it is being remanufactured from several different damaged airframes. (Photo courtesy of GossHawk Unlimited)

GossHawk Unlimited | Casa Grande, Arizona

Dave Goss and his daughter, Lindsey, of GossHawk Unlimited, can sympathize with Hinton on the problem of lack of parts as they have restored a number of Axis aircraft, including a Japanese "Oscar," and are now doing their second complete Focke-Wulf FW 190 restoration.

Dave Goss says, "The first FW we did was for Doug Champlin at the Champlin Fighter Museum in Mesa, Arizona. That was the only FW 190D-13 to survive the war, and as opposed to restoring most American military airplanes, there were zero blueprints available. To make matters worse, a lot of details on the airplane were constantly being contradicted by what we saw in the hundreds of photos we were using for reference. Then we finally found that the airplane was one of the very last long-nose 190s built before they became TA 152s, so some of the parts were in transition. However, that was a pretty complete and reasonably clean airframe, whereas the FW 190F-8 we are currently doing was shot down. Due to the damage incurred, we have had to use original parts from other FW 190s, and when the parts we need aren't available, we have reverse-engineered and made them from scratch, utilizing the techniques that the Germans used.

Goss continues, "The 190F-8 is being done



for a major East Coast collector/museum and everything absolutely has to be as-original but flyable. Sometimes, however, it can be hard to determine what 'original' is. Plus, some hard decisions sometimes have to be made by the client. For instance, in one area, the FW uses what, from the outside, looks like normal countersunk, flush rivets; however,

Dave and his daughter, Lindsey, are the team behind GossHawk Unlimited.

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they somehow look different. That's because they are being set into dimples as opposed to the metal being machine-countersunk to accept their heads yet they fill the dimple. A normally available 120-degree flathead aircraft rivet used in that situation will not totally

fill the dimple, so there is slight indentation around it. The Germans fixed that by using a flush rivet that is slightly domed, not flat, so when it is set, the head material flows out to fill the dimple. Unfortunately, those rivets haven't been made since 1945. We can have them made, but they cost tens of thousands of dollars. That decision was left up to the client, who said, 'There is only one definition of "original," so do it.' These kinds of decision are constantly being made, when they would never come up in restoring an American airframe."



Left: The cockpit of the FW 190F-8, working its way toward completion. (Photo courtesy of GossHawk Unlimited)

Below: GossHawk restored the only surviving long-nose FW190D-13 while it was part of the Champlin Fighter Museum. It is now owned by and on display at the Flying Heritage & Combat Armor Museum. (Photo by Heath Moffit)





Aero Trader is doing a complete restoration of Kermit Weeks's A-26. (Photo courtesy of Aero Trader)



Neither Carl Scholl (left) nor his partner, Tony Ritzman, knew anything about airplanes when they started Aero Trader, by purchasing the largest known supply of B-25 parts. They are now the "B-25 Kings" and award-winning bomber restorers. (Photo courtesy of Aero Trader)

Aero Trader | Chino, California

Carl Scholl, who, with Tony Ritzman, founded Aero Trader in Chino, California, admits, "I got into restoring WW II bombers on a lark. I wasn't even a pilot then and didn't know much about B-25s, until a friend pointed one out a few miles away from me that was basically abandoned and available for what amounted to a scrap price: \$1,000. This was 1976, and although I knew airplanes from building models and growing up in Dayton, Ohio, across from the municipal airport, that was all I knew. I just thought it would look good sitting in my backyard. In the process of figuring out what to do with it, I stumbled into Jack Hardwick, who was a legendary WW II parts guy. He literally had acres of them. It was impressive! Then he said, 'Why don't you buy all of my parts and become the B-25 King?' And again, on a lark and knowing little about the airplane, I said 'OK,' and things took off from there."

Scholl continues, "I bought 40 acres out in the desert, got my friend Tony interested and involved, and started buying B-25 parts everywhere we could find them. Sometimes, they were airframes (we have six projects now); more often, they were just heaps of what looked like scrap, but to us, they were ancient treasures. However, we had no grand plan. For a good portion of the time, when we were hauling stuff, like armor plate and gun turrets, out to the desert, we had no idea how useful they'd eventually be. Small parts, like those, were always junked on military airplanes as soon as they are put into civilian use. We, for instance, have two 40-foot containers full

of nothing but old military radio gear. When the market began to shift toward authenticity, as opposed to just flyable and usable, all of the stuff we'd scrounged became like gold. We got so deep into the airplane that we wound up getting the type certificate from Shell Oil, which didn't even know it had had it since 1947. So, now, we definitely are the 'B-25 Kings.' By the way, we also learned how to fly early on."

When Texas collector Rod Lewis decided to bring the only flying A-20 Havoc back to original and tasked Aero Trader with the job, they found themselves in unfamiliar territory, which was a challenge.

Scholl explains, "We already had Kermit's corroded A-20 sitting on the field, but there are few, if any, parts for the airplane available. Fortunately, the drawings still exist, so what we couldn't find, we fabricated, and we finished up with a totally authentic restoration of a wildly rare airplane. It won Grand Champion WW II at Oshkosh 2018."

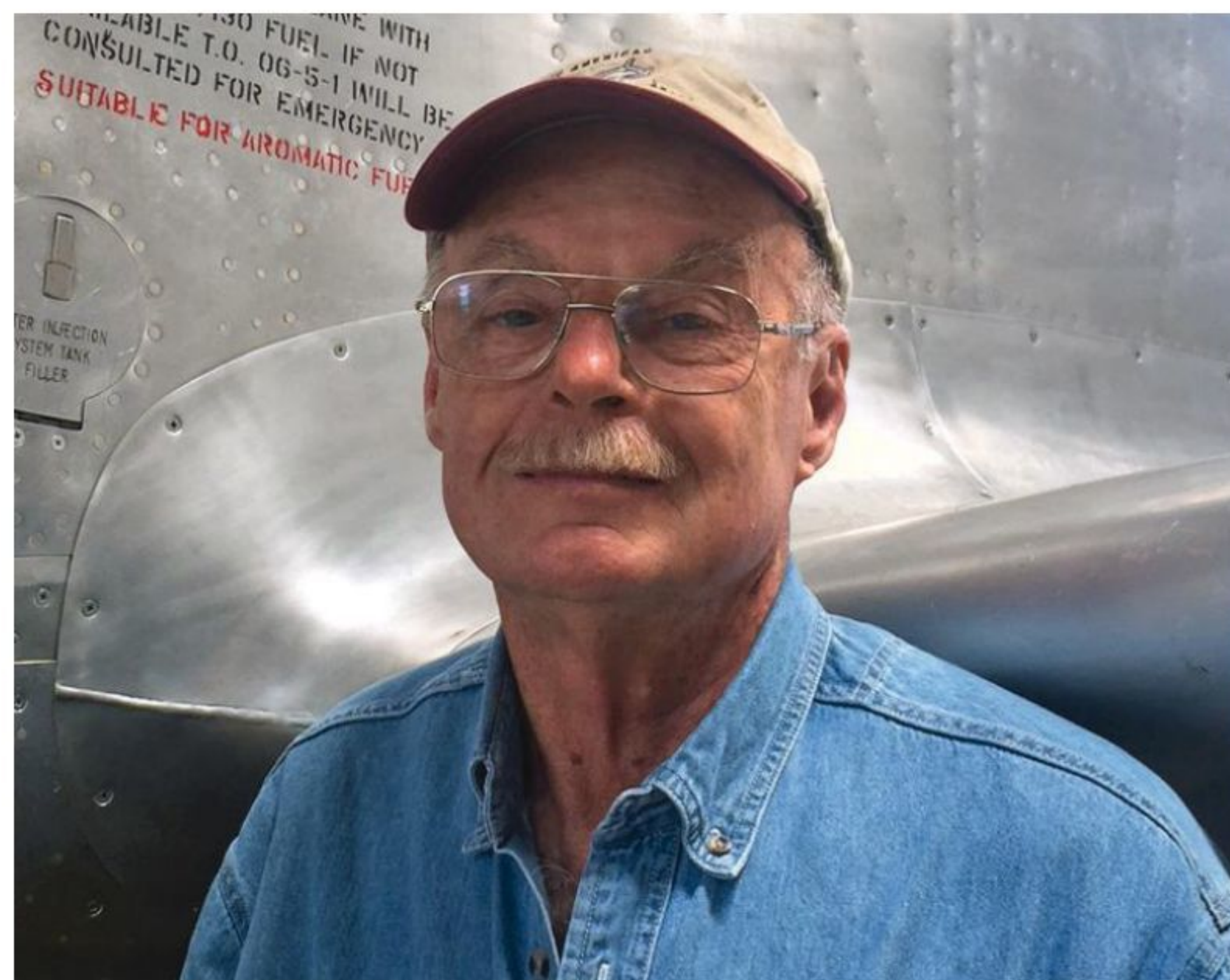
Tom Reilly Vintage Aviation | Douglas, Georgia

Tom Reilly, of Tom Reilly Vintage Aviation, says, “I was a Cessna 150 pilot and a skydiving instructor and had no idea what a warbird was until a guy pulled a Mustang up in front of the shop, and I suddenly and passionately discovered another world. A short time later, I bought 13 NAA Yales that had been sold out of a famous auction in Canada, where they had been sitting (in a field) for decades. They had been bought by bidders that quickly found they were over their heads, so I bought them and transported them to Florida and other destinations, one at a time. I put new tires on them, put the tail up in a truck, and headed south. I made a good profit and was instantly out of the skydiving business. Then I discovered B-25s, which were extremely cheap at the time.

Reilly continues, “I found several scattered around the East Coast; most, like the ex-Battle of Britain camera plane sitting in New Jersey, hadn’t flown for decades. I paid off the lien holders, worked hard through a freezing winter getting it ferriable, and flew it to Fort Lauderdale without a single hiccup. I sold it to four guys for much more than I paid. I was in business!”

Then Reilly got a call from Bob Collings of the Collings Foundation.

Tom says he’s a “bomber guy,” and this formation of the Collings Foundation’s nationwide Wings of Freedom Tours proves that: He restored them all. The B-24 alone took 97,000 man hours and millions of rivets. (Photo courtesy of the Collings Foundation)



Tom Reilly’s reputation is that of tackling huge bomber restoration projects.

Reilly explains, “Mr. Collings said he wanted to work warbirds into his historical aviation experience, so he bought a B-25. He sent me to inspect it and bring it back to Kissimmee, Florida—another midwinter flight with no heat! Shortly after that, he sent me to Mesa, Arizona, to inspect a B-17 that he had just purchased that had been a fire bomber. That was the same day the Challenger exploded. I’ll never forget it. We took that B-17 down to the smallest part and brought it back up like new. Then he bought an ex-RAF B-24 from England





and assigned me the job of totally rebuilding it. The airplane had some corrosion and was a terrible mess, having set in India for several decades. We pounded hundreds of thousands of rivets into that airplane, and it took 97,000 man hours; that's 22 man years at 12 hours a day. It was a huge job!"

All the airplanes that Reilly has restored—the B-17, B-24, and B-25—are part of the Collings Foundation's nationwide Wings of Freedom Tours.

Reilly's latest masterpiece is the resurrection of the prototype XP-82 Twin Mustang. The parts scrounging and restoration that project entailed could fill a book or would make an enjoyable movie.

More Restorers Out There

It takes only a casual perusal of the warbird-restoration community to realize that it has been growing and increasing in complexity at an ever-increasing rate. It has become so large and so international in scope, that *Flight Journal* recognizes that this article only gives a brief glimpse into it. Regrettably, many very accomplished companies and craftsmen haven't be mentioned. We know you're out there, and we appreciate your efforts. Someday we hope to tell the complete tale of those mechanical heroes who have made it their life's work to save our cherished warbirds. †

Above: Reilly's latest project was smaller than a bomber but, in terms of complexity, much harder because parts were so rare. It is the prototype XP-82 and uses Merlins rather than Allison as the production F-82. Reilly started with only half an airplane. (Photo courtesy of Reilly Aviation/Mike O'Leary) Below: Bet you can't count all the rivets on this B-17 center-section. The 1930s' technology used lots of closed corrugated sections that invite corrosion, so every rivet required removal for complete disassembly and remanufacturing. (Photo courtesy of Tom Reilly)

