



COMBAT *Cub*

REBUILDING L-4H 43-30430/11721

BY DAVID WOODCOCK

MY FATHER, DAVID G. WOODCOCK SR., retired from the U.S. Navy Reserve as a captain and was a decorated naval aviator during World War II flying SBDs and SB2Cs in the Pacific. Needless to say, I grew up with aviation in my blood. I pursued a career in dentistry, and in my junior and senior years I completed a Bowers Fly Baby, which had its first flight in March 1971 – and I still managed to graduate with honors in May. Then, on to a wedding, three years with the U.S. Air Force, and eventually a private practice in Renton, Washington.

Fifty years later, I'm in my mid-70s and have completed three homebuilt aircraft – including a seaplane that was named Reserve Grand Champion at Oshkosh in 1998. I've also won the FAA Master Pilot Award. I felt it was time to return to my roots and fly for pure pleasure. My wife and I recently celebrated our 50th anniversary. We live on a 1,960-foot grass strip on the Washington State Olympic Peninsula (WN29). I have owned an Aviat A-1B Husky for over 21 years and put it

on Wipline amphib floats three years ago. We keep it at Port Angeles, Washington (KCLM), rather than fly it continually off grass. We purchased a 1952 Cessna 170B three years ago to keep at the home hangar. I enjoyed flying it but felt a light sport of some type would make more sense for the future. I happened to see an ad on Barnstormers for a restored 1944 Piper L-4H that was a combat veteran of the Battle of the Bulge. It was expensive compared to a standard J-3 Cub, but being a WWII history buff, I jumped on it and put the 170 up for sale.

The owner, Kris Nastro, a Navy F-18 pilot, was deployed in Colorado and hangared the airplane at Meadow Lake Airport (KFLY). He had purchased the Cub J-3C-65 (L-4H) in Tennessee in 2012. Its logbooks showed that in May 1946, Maj. John

Fleek had originally purchased it for \$300 in Europe, where it was assigned to the 9th Army Air Forces Training Division. Research from the aircraft record card came from three sources: a historian at the Smithsonian National Air and Space Museum, a private WWII historian from England named Ken Wakefield, and logbook entries found by other L-bird enthusiasts that contain this frame number. Kris knew this aircraft needed to get rebuilt and into a proper uniform. He was committed to making the aircraft a solid flying example and planned to upgrade the engine to a C90-8F.

WWII military documents show that 43-30430 had been purchased after the war by John Fleek for \$300. We were recently able to confirm that John was an enlisted man; we have not been able to confirm his rank or where he was assigned during the war, since thousands of military records were lost in a fire in the 1970s. If he was a sergeant, he may have flown this aircraft in combat. In May 1946, it was assigned to the 9th Army Air Forces Training Division before being shipped back to the United States in 1947.

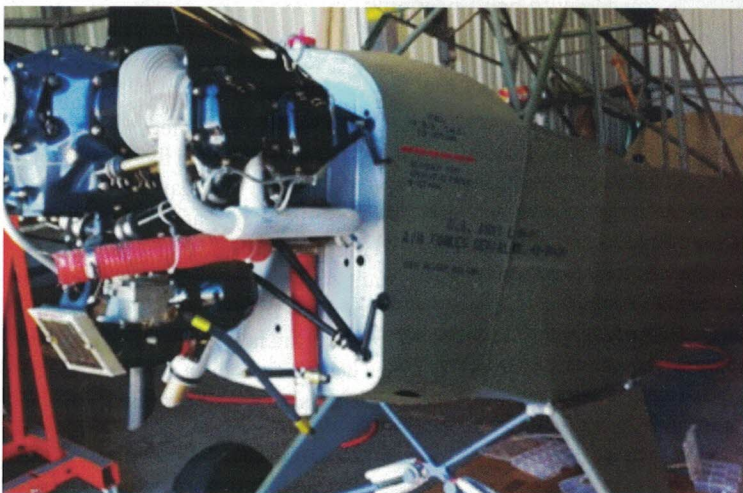
The aircraft had been completely re-covered in 1969, and the wings were re-covered in 2010 by the Tennessee owner. The airplane was flown from Tennessee to California, where Kris was stationed. Restoration was started in 2012 after damage to the left wing necessitated replacement. A 12-gallon auxiliary tank was installed in the replacement left wing. Corrosion was found in the rear fuselage tubing, and about 7 feet of the tubing was replaced.

The greenhouse cabin structure was built. The fuselage structure was epoxy-primed and painted. They decided not to build in the floor structure for the observer's feet when facing backward. Instead, for safety, a 406 MHz ELT and antenna were installed behind the rear seat, in addition to a hidden comm antenna. A small battery was wired into the baggage area to power the comm radio. Grove brakes were installed. The fuselage and rudder were covered and painted via the Stits Poly Fiber process. The newly majored C90-8F from Don's Dream Machines was hung.

Kris consulted with Paul Smith, who wrote and published *Saving a Grasshopper* in 2013 (see footnote 1). This is a go-to book for anyone restoring an L-4. Paul had carefully chronicled the restoration of his L-4H and meticulously matched the paint color formulas to the European theater units and the 1944 time frame. The fuselage was painted, and correct markings for the 30th Infantry Division were painted on. The aircraft did not arrive in France until November, so D-Day invasion stripes were not added to this restoration.

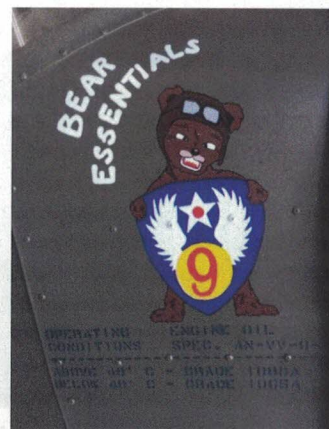


PHOTOGRAPHY BY KRIS NASTRO



PHOTOGRAPHY BY KRIS NASTRO

Most of the airplanes that did receive the stripes around D-Day had them all or partly painted over within a few months afterward. Since the right wing had been re-covered by the Tennessee owner in 2010 and been signed off, the California restorer opted to only repaint it along with the ailerons and horizontal tail surfaces. Restoration was completed in 2013. The corrosion in the fuselage should have been a clue to future problems elsewhere.



PHOTOGRAPHY BY DAVID WOODCOCK

Toward the end of the project, nose art was added, but there was no name above the 9th AAF Cub artwork. Then Kris met a 96-year-old former L-4 pilot who was telling him stories about his time in combat and how he would sometimes sit on a flak vest and shoot back with his 1911 Colt .45. He told Kris, "We were just young men with nothing but the bare essentials." The perfect name was created: *Bear Essentials*.

I purchased the airplane in May 2020. It had been annualized two months prior, so after reviewing the logs and a video inspection, the deal was done. I had a couple thousand hours of tailwheel time, but having never flown a Cub and not wanting to deal with spring weather in the Rockies, I had a ferry pilot from Colorado, Brooks Mershon, fly the airplane 23 hours to our home in Sequim, Washington.

The fuselage looked great, but the first things I began to notice were many areas of poorly attached pinked tape and edges lifting, fabric around an inspection ring coming loose, and an odd cut in the fabric from the top turnbuckle on the right wing. I also noticed a lack of rpm drop with carb heat. Kris assured me by phone that he had never had a problem with carb icing.

I flew the airplane for a couple months, reacquainting myself with hand-propping and heel brakes.

In August, I was departing our runway behind my friend's J-3 clone when I hit his prop wash. I suddenly found myself at low altitude, with the right wing stalling out. Assuming something in the 76-year-old airframe had failed, I chopped the power, kicked it level, and set down in the flat vacant lot next to our runway. Unfortunately, the left gear was damaged in a shallow drainage ditch, and there appeared to be some minor damage to the left wingtip. Neighbors to the rescue! We moved it back to the hangar for evaluation. After consulting with Mike Payne from the Port Townsend Aero Museum (PTAM), we came to realize that the fabric work on the wings and horizontal tail surfaces was going to be a continual problem. We came to the mutual decision to make repairs, re-cover them, and complete the restoration Kris had started.

The time was right — with the pandemic shutting almost everything down, the museum shop had some extra time. This decision turned out to be a godsend. We disassembled the airplane, and Mike's crew moved it to Port Townsend.

The PTAM has high school- and college-age students who volunteer their time to learn aircraft rebuilding techniques under the tutelage of Mike and Kevin Vogel. These same volunteers are eligible for flight training at no cost, and even aviation college scholarships.

When they removed the fabric from the right wing, the first thing that jumped out at Kevin was that the drag wires were loose. Two drag tubes were installed wrong, with no aileron cable guides below them. In addition, the diagonal braces meant to support the wingtip were missing. The washers under the castle nuts butting to the spars were not AN wood washers. Mike also discovered that the wing spars were missing the plywood doublers where the lift strut attachments are located. The cut in the fabric from the turnbuckle was caused by the wing flexing. None of this was readily visible or noted in previous annual inspections. Judging from the layers of varnish, the wing structure had been this way for many years and had obviously become progressively worse. Evidently, these deficiencies had continually gone unnoticed. After looking everything over, I concluded that my sudden loss of lift from the right wing and the subsequent hard landing were most likely the result of a change in wash-out to wash-in from this flexing wing. The wing was destined to fail in flight. Wings were repaired and rebuilt as needed, replacing all the old leading-edge aluminum.

We found that the ailerons had not been rib-stitched the last time they were re-covered, and the left aileron had been previously damaged and not properly repaired. It had to be replaced. During this time, Mike removed the fabric from the horizontal tail surfaces and found significant corrosion that needed to be repaired before the surfaces could be re-covered.

My friend Dave Miller and I (we are both aircraft builders and members of our local EAA Chapter 430) assisted Mike and Kevin in the re-covering process and the reassembly, working in the masked environment three days a week for two and a half months.

With the covering complete, Mike superbly matched the colors to the fuselage and old fabric samples, and he did a beautiful job with the camo application and painted stars and bars.

Thankfully, there had been no damage over the years to the original L-4 boot and engine cowling.



Kevin and Rose secure the tail to the trailer.

PHOTOGRAPHY BY DAVID WOODCOCK



Kevin Vogel demonstrating the fine art of rib-stitching.

PHOTOGRAPHY BY DAVID WOODCOCK



PHOTOGRAPHY BY DAVID WOODCOCK



Showing the Plexiglas turtle deck.

PHOTOGRAPHY BY U.S. ARMY



PHOTOGRAPHY BY JOAN MILLER

The engine, mount, firewall, and boot cowl were removed for inspection. Old copper primer and oil pressure lines were replaced. I removed the standard J-3 airbox and replaced it with the correct L-4-style airbox that I'd purchased from a seller in the Czech Republic. We discovered that the existing carb heat cable was the wrong cable for the aircraft. Without enough throw, the carb heat box apparently always had partial carb heat on, leading to the lack of rpm drop I noticed early on. That cable was replaced with a new one. Mild steel J-3 exhaust stacks were sent to Dawley Aviation in Wisconsin, and correct stainless steel stacks were fabricated and welded from original stampings.

The landing gear, wings, and tail surfaces were reassembled, and Mike rerigged the wing and controls. *Bear Essentials* was back on its feet and ready to fly on December 4, 2020. Mike did a test flight to double-check his rigging and gave the aircraft his stamp of approval. The flight home was gratifying. It flew beautifully hands-off and was almost 10 mph faster in cruise.

In Paul Smith's book there's a quote from a captured German officer of the 10th SS Panzer Division: "We cursed the little dark green, high wing aeroplanes. We knew that one of them in the area would precede a barrage and we tried our hardest to shoot them down. We dreaded those little observation aeroplanes — they were angels of death to us."

PIPER L-4H 43-30430/11721 MILITARY HISTORY

Saving a Grasshopper, by Paul Smith. Copyright 2013. Trafford Publishing.

April 6, 1944: 43-30430 is "factory complete" at Lockhaven, Pennsylvania.

April 10, 1944: Accepted by USAAF at factory in Lockhaven.

April 13, 1944: AAF takes delivery. Disassembled, crated, and put on train.

April 19, 1944: Arrives by train at Newark, New Jersey.

April 21, 1944: Departs as ship's cargo.

May 16, 1944: Arrives at U.S. Forces receiving, Attlebridge, England.

May 23, 1944: Receives AGF (field artillery) conditional inspection.

July 31, 1944: Assigned to "GLUE" – 9th Air Force in England

November 30, 1944: Transferred to Army Ground Forces and 30th ID.

Note: More than 600 L-4s crossed the channel between Newhaven, England, and St. Valery, France. They usually crossed in groups of 15 to 20 aircraft, escorted by an Air-Sea Rescue Walrus.

Not one was ever forced to ditch.

December 16, 1944: Battle of the Bulge begins.

January 25, 1945: Battle of the Bulge ends.

January 31, 1945: 43-30430 turned in to Mobile Reclamation and Repair Squadron.

March 1, 1945: 43-30430 returned to 30th ID.

March 24, 1945: 30th ID assault at the Rhine.

April 7, 1945: 30th ID takes Hamelin, then Braunschweig.

August 19, 1945: 30th ID returns to the United States.

August 1945 to April 1947: 43-30430 assigned to 9th AAF Training Division.

May 31, 1946: 43-30430 purchased by Maj. John Fleek, but it stays in theater.

March 21, 1947: John Fleek issued registration number for 43-30430.

April 30, 1947: 43-30430 assigned to Central Field Commission, Paris.

June 13, 1947: Arrives in United States and is transferred to foreign liquidation.

April 28, 1948: Airworthiness granted for N9217H.



 **BUTLER**
HIGH SPEED - CUSTOM FIT

888-235-3280
sales@butlerparachutes.com
www.butlerparachutes.com

A skydiver in a green jumpsuit and helmet is climbing a ladder to enter the cockpit of a red aircraft. The aircraft has a yellow and red logo on the side. The background is a blue sky with clouds.

The Battle of the Bulge and the 30th Infantry Division, 9th Army

NOVEMBER/DECEMBER 1944 – JANUARY 1945

The Allied forces had pushed the German troops back across France into Germany and were now in Holland and Belgium along the German border and the Siegfried Line. There was a sense among some that the war could be over by Christmas. Hitler had other plans, however.

The Third Reich was secretly massing a surprise winter attack with the goal of making a rapid offensive drive to Antwerp, Belgium, to split the British army to the north and the American army to the south and then destroy them.

The surprise attack along a 60-mile front was launched on December 16 during one of the coldest winters on record against Allied troops who were ill prepared for a winter battle. The rapid advance of German troops combined with poor weather conditions caused many flyable Cubs to be abandoned. Between the bad weather and the unexpected advance, the 1st Army lost more than 20 L-4s. All were blown up or burned to prevent them from falling into enemy hands. The 9th Army had its share of losses from Luftwaffe strikes against airstrips.

When Field Marshall Gerd von Rundstedt commenced the breakthrough, the 30th ID was rushed to the Malmedy-Stavelot-Stoumont area. The German 1st SS Panzer Division under the command of Kampfgruppe Peiper had broken through and overtaken U.S. troops of the 285th Field Artillery Observation Battalion, who were captured. More than 80 members of the

battalion were murdered. Following the Malmedy Massacre, the Panzer division continued advancing northwest, engaging the 30th ID, where the spearhead of the assault was soundly defeated. After the war, Peiper was convicted of war crimes and sentenced to death.

The 9th Army had more than 200 L-4 aircraft in operation during the fall of 1944 through the winter of 1945. The 50th Mobile Reclamation and Repair Squadron handled a constant stream of everything from airframe upgrades and minor repairs to engine changes and major rebuilding. During the winter battle, the weather, operational losses from carburetor icing, lost control during takeoffs and landings, and ground-handling damage claimed slightly more aircraft than combat in most units. They handled both L-4 and L-5 aircraft. Downed aircraft deemed salvageable had to be retrieved and repaired. Aircraft had to be test-flown prior to being returned to their units.

One can imagine the mental and physical strain pilots and crews endured while having to bivouac in the snow and eat K rations. As if that weren't enough, they were forced to deal with winter field repairs and maintenance, frost on their wings, and cold engines that didn't want to start. Material to cover wings and windshields and to insulate engine sumps was available.

Half-tracks, trucks, and jeeps would flatten out airstrip areas, and aircraft were

generally fine operating off packed or light snow, but skis were essential in deep snow.

We know 43-30430 was assigned to AGF and the 30th ID, but its exact role is not known since we have yet to find a photo. It may have been assigned to 30th ID headquarters and used for reconnaissance and aerial photography, or it may have been with a battalion, spotting targets and directing artillery fire. HQ was assigned two L-4s, as were each of the battalions under its command. Records from that winter were sketchy at best, and most have long been lost. We do know it was down for repairs with the 50th Mobile Restoration and Repair Squadron during February 1945, and we have a copy of the typed journal of its return to the 30th on March 1, 1945.

South of Malmedy around St. Vith, and at the besieged town of Bastogne, the American lines bulged but were not broken. With amazing speed, the U.S. 3rd Army moved north to relieve Bastogne, and by January 25, 1945, the German troops were driven back across the border. This was the costliest battle for U.S. forces during WWII, with approximately 89,500 total casualties, including more than 19,000 killed.

Photos and some of the statistics are from The Fighting Grasshoppers by Ken Wakefield, copyright 1990, and The Other Ninth Air Force by Wakefield, with his permission, copyright 2014.



This L-4 overturned while landing in snow. *National Archives photo*



Photography by Maj. C.W. Lefever



Left brake maintenance and repair. Francorchamps, Belgium, January 7, 1945. The number 44 is the identifier for the 30th Infantry Division. The letter C designates one of the 12 battalions it was assigned to. *Photography by Maj. C.W. Lefever*



To counter attacks from German fighters, many L-4s had the metal leading-edge wing to fuselage “eyebrow” fairings replaced with Plexiglas to increase the pilot’s visibility. From 1944 to 1945, the 9th Army had the 50th Mobile Reclamation and Repair Squadron install these frequently on its L-4s. After looking at many wartime photos of L-4s that featured these modifications, I contacted Paul Smith, who referred me to Keri-Ann Price, a talented L-4 builder in New Hampshire who had made form blocks for the Plexiglas. I purchased a set and was impressed with the quality and perfect fit. It was immediately obvious when sitting in the front pilot’s seat how effective this addition was.

So now that I had a museum-quality aircraft with a WWII combat history, I was anxious to fly it to air shows and war-bird events. It was restored as a working military frontline L-4 — ready to carry a photographer/observer with a K-20 aerial camera to do reconnaissance or direct artillery fire. Only one problem: All the events were canceled due to COVID-19. In a way, COVID actually sped our restoration efforts, since we really had nothing better to do for a few months.

Every time I fly this aircraft, I wish it could somehow relate battlefield encounters. I’m honored to own and fly it in memory of the pilots, ground crews, and the amazing brave soldiers who fought in the Ardennes and brought the ultimate victory in Germany. ✈



FACTS, FIXES & TIPS

FROM THE PROS

DRYWASH: THE UNSUNG HERO



DryWash, a waterless deep cleaning technology, uses a chemical formula to remove soil and grime, deoxidize, enhance paint gloss and provide a protective UV barrier. Increasingly popular, particularly since the elimination of water makes scheduling exterior cleaning flexible and convenient. DryWash can be adapted to surfaces by the extent, condition and type of soil. Its targeted surface application addresses signs of wear, corrosion and metal fatigue, all required checks for safety



compliance. A well-designed DryWash system deep cleans irregular surfaces, depositing a barrier against paint deterioration and inhibiting further oxidation, soiling and stains. The protective coating guards against UV and other atmospheric degradation, while reconditioning the surface, enhancing gloss appearance and intensifying paint color.

DryWash technology is the perfect solution to growing concerns of sustainable water management. Wastewater and runoff from wet wash pits cause very real problems with groundwater and soil contamination. This waterless application deftly addresses concerns for conservation and environmental compliance.

NUVITE offers a high-quality line of DryWash products - NuPol®, NuPower II®, NuGlaze® and CitriCut® Xtra. All engineered to clean, condition, protect, enhance and improve the longevity of your aircraft’s appearance, each has attributes to meet specific surface conditions.

TRY A DIFFERENT COAT ON FOR SIZE COATING VS SEALANT

Ceramic-based coatings are pricey as they require skillful application and follow up maintenance to meet longevity claims. NUVITE has another option...NuGlaze® Point Sealant and Polish. Not technically a coating, but a chemical sealant that checks many of the same boxes. NuGlaze® locks out moisture, fights oxidation, repels bugs/soil, enhances color and extends shine. Application is easy and can be done anywhere - just APPLY, DRY, BUFF to high-gloss shine.

WHAT’S YOUR ANGLE?



An angled buffer is too aggressive - it could burn the clearcoat or cut right through the paint. For painted surfaces it’s better to hold the random orbital flat against



target area, no more than 24sq inches. Running app. 1000 rpms, move up and down, left to right in a crosshatch pattern until the target area is fully polished.

Full NUVITE Product Line Available at:



To Order: 877.477.7823 aircraftspruce.com

QUESTIONS? Contact our technical specialists with unique requirements or for product and equipment recommendations.

Nuvite
CHEMICAL COMPOUNDS
516.935.4000
nuvitechemical.com

U A DIVISION OF UNIVERSAL PHOTONICS