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VAA PRESIDENT **JOHN HOFMANN**

EAA Oshkosh memories

MY FAMILY MOVED TO northern Wisconsin (Chippewa Falls) late in 1976. I was already an aviation nut, building plastic and radio-controlled models in the basement. Dad and I heard of a great aviation gathering off Lake Winnebago, and with Mom in tow, we made the four-hour drive to EAA Oshkosh 1978.

Not knowing the size and scope of the event, we did not have lodging arranged ahead of time. We stayed at the now-demolished "Hotel Menasha" a few miles north of Wittman field. I can't remember the length of our stay. Forty-seven years dulls the mind, but I think we were there three days and two nights.

The oil embargo was still a recent memory, and the big winner was the canard Quickie powered by an 18-hp Onan industrial engine. It was seen often in the flyby pattern that was part of Oshkosh traffic. Rutan aircraft were the rage, and the VariEze was starting to show up in number. As a 15-year-old who loved the TV series *Black Sheep Squadron*, I was excited to meet Pappy Boyington and George Gay, the sole survivor of Torpedo 8 in the Battle of Midway.

These three days changed my life. Dad and I made the trip yearly, and he did what he could to avoid camping on the ground. One year, he spent more time fixing a borrowed RV than he did enjoying the show! This is the same year I learned from the late Jim Southworth how to shower in a thunderstorm!

Each July came and went, as did trips to Oshkosh with Dad and friends. Moving to Indiana brought new friends from EAA Chapter 226 in Anderson. I finally became part of Camp Scholler and did my first volunteer work for EAA at Gate 8. This was the pedestrian gate out of Camp Scholler that stood just south of where Exhibit Hangar B is now and across the corner from where Jerry's One Man Band stood. If I remember correctly, our chapter worked that gate until it closed.

> **Volunteering has been the way for me to connect back to the enthusiasm for AirVenture I had in my youth.**

Moving back to Wisconsin, I live only 45 minutes away, and it became more of a day trip to AirVenture instead of the old "pilgrimage." I had lost that camaraderie of friends, and attending without that connection was not as much fun.

Then, I had an opportunity to volunteer with VAA. I started and stayed with membership. Working

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Vintage AIRPLANE

May/June 2025

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Visit EAAVintage.org for the latest information and news.

Current EAA members may join the Vintage Aircraft Association and receive *Vintage Airplane* magazine for an additional $45/year.

EAA membership, *Vintage Airplane* magazine, and one-year membership in the EAA Vintage Aircraft Association are available for $55 per year (*Sport Aviation* magazine not included). (Add $7 for International Postage.)

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COVERS

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The freshly restored Fairchild "Nad and Ricki" takes flight near EAA AirVenture Oshkosh. Photography by Ed Hicks

Back
Rocky and Sherri Driggers enjoy an early-morning flight in their Luscombe. Photography by Connor Madison

QUESTIONS OR COMMENTS?
Send your thoughts to the Vintage *editor at jbusha@eaa.org.*

For missing or replacement magazines, or any other membership-related questions, please call EAA Member Services at 800-JOIN-EAA (564-6322).

PHOTOGRAPHY BY **CONNOR MADISON**

How To?

ROBERT G. LOCK

Select and Use Aircraft Screws

BY ROBERT G. LOCK

THERE ARE SEVERAL TYPES of screws available for aircraft use; however, two of the most popular are the AN525 washer head and the AN526 screw. Both are protruding-head screws and can be purchased as either slotted or Phillips head. All the older aircraft used slotted-head screws because the Phillips head was not invented yet.

The AN525 is a structural screw, being made from 2330 nickel steel and then heat-treated, just like the bolts. After heat-treating, the screws are plated with cadmium for corrosion protection. Common sizes are the No. 8 and No. 10.

The AN526 is a non-structural, truss-head screw made from low-carbon (1020) steel. It is not hardened by heat-treating because there is not enough carbon in the alloy. These screws are commonly used for attaching a cowling, fairings, etc. Do not substitute these screws in any structural application. Figure 1 is a sketch of these screws.

When driving screws into structure it is wise to use a washer under the head to protect a painted surface or to keep from scratching polished aluminum. For the size 10 screws you can use an AN90-10L steel washer or a No. 10 fiber washer. Either is commonly used.

Screw code sizes are difficult to remember, so I always refer to a catalog or my trusty *Standard Aircraft Handbook* for reference.

The standard No. 10 screw will take an AN365-1032A fiber locknut, which is normally used. Or an AN366 winged nut plate can be riveted to the structure to make the removal and installation job easier. Figure 2 shows the AN366 nut plate.

The Phillips-head screws are easier to install and remove because the screwdriver fits well into the slots, so when using a slotted-head screw, be careful and hold the screwdriver firmly to keep it from slipping out of the slot and damaging the finish.

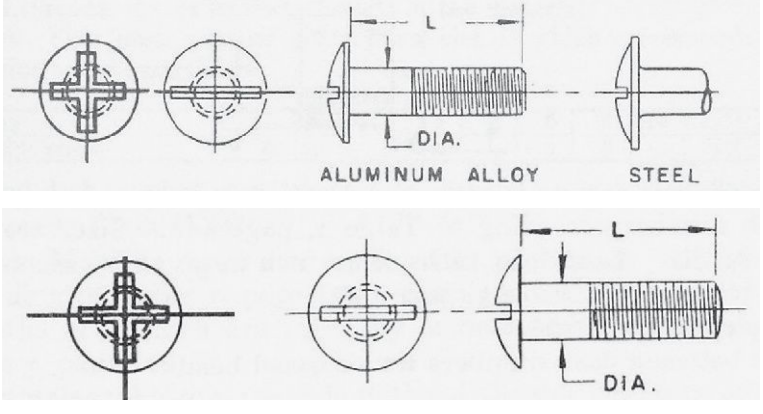


FIGURE 1

Sheet metal screws may be used for attaching non-structural parts on the aircraft. These screws come in truss heads similar to the above machine screws and can be purchased in either Phillips or slotted heads. Type A screws have a point on the end of the threads, while type B screws are flat on the bottom of the threads. They are normally secured by Tinnerman nut plates that carry the NAS395 code and come in various types from A-E and H. The Tinnerman nut plates come in screw sizes No. 6, No. 8, and No. 10.

Figure 3 is a Tinnerman Type NAS 144 nut plate that can be flush riveted to a structure. This type of nut plate readily will accept any coarse-threaded sheet metal screws — just secure the correct size when ordering.

Brass screws are used for installing instruments because they are non-magnetic. The common screw to use is the AN520B round-head screw that comes in sizes 6-32, 8-32, and 10-32. Head types are either slotted or Phillips (recessed). Figure 4 shows a brass screw.

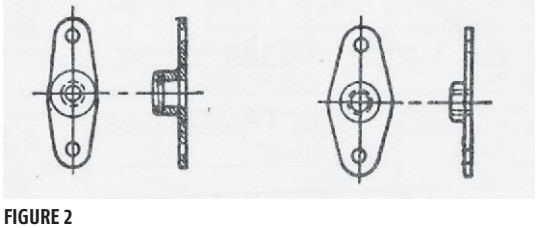


FIGURE 2

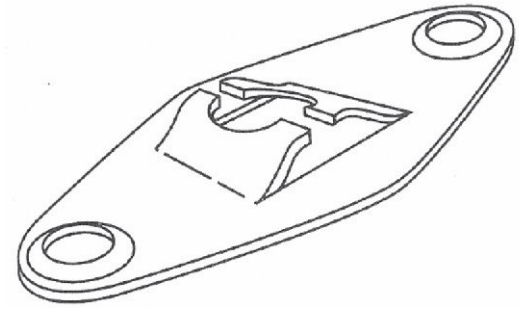


FIGURE 3

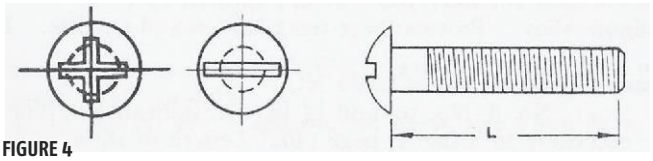


FIGURE 4

Special nut plates are available that fit into instrument holes and make mounting much easier. You must order these special mounting nuts by paying attention to the length of the ears that insert into the instrument. When using this type of mounting nut, the only thread size available is 6-32; therefore, the only brass screw that can be used would be a 6-32. Figure 5 is a sketch of an instrument mounting nut plate.

There are flush-head countersunk machine screws available for aircraft use. These screws carry code AN510 and have an 82-degree included angle between the taper. Like most all other machine screws, they come in slotted and recessed-head styles.

Finally, there are fillister-head screws that have a hole for safety wire drilled through the head. These screws carry the code AN502. They are manufactured from 2330 nickel steel and are heat-treated and cadmium-plated.

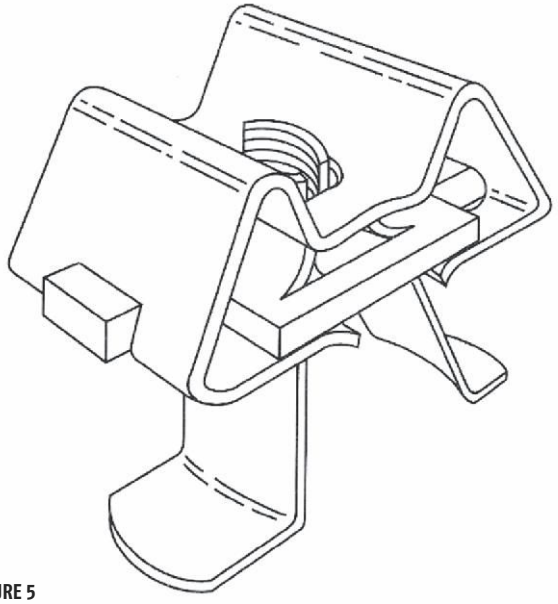


FIGURE 5

2025 VAA Board of Directors Election

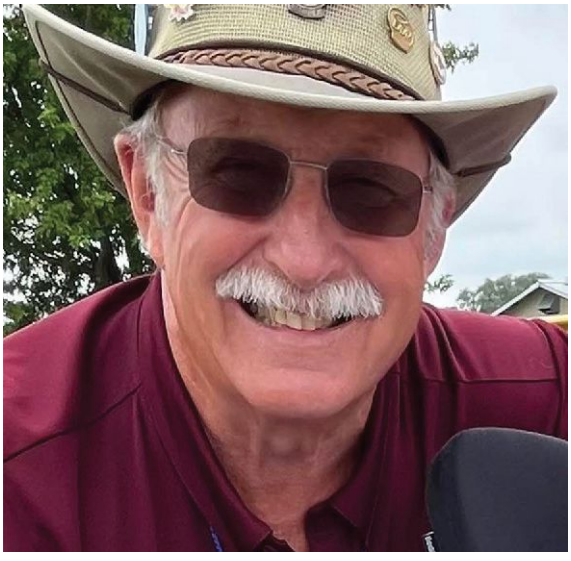
READ ON TO LEARN more about the candidates for this year's Vintage Aircraft Association board of directors election. Be sure to mail in your ballot so that it arrives at the Vintage Aircraft Association office on or before July 7, 2025.

PAUL KYLE
TREASURER

PAUL'S INSPIRATION IN FLIGHT came from his grandfather and father, who took him to his first EAA Oshkosh convention in 1983. During the late 1980s, he helped his grandfather build a Sonerai II. While in college, he started taking flight lessons in his father's 1959 Cessna 150. Paul graduated from Concordia University in Wisconsin with a degree in accounting and acquired his CPA license in 2011. He currently resides in Mason, Ohio, with his wife, Stephanie, and their young sons, Ethan and Allon.

Paul has volunteered in numerous positions for Vintage, starting with the Antique Classic division during the 1989 Oshkosh convention, where he worked the flightline. He started volunteering during the work weekends in the mid-1990s at Tall Pines Café and as chair of Aeromart. While he still helps out during the work weekends, Paul's main responsibility is now as Vintage finance chairman during EAA AirVenture Oshkosh.

RAY JOHNSON
DIRECTOR



RAY GREW UP ON a farm near Marion, Indiana, and has had a lifelong interest in old airplanes, having an uncle who took him for his first ride in an Aeronca Defender. He received his private pilot certificate in 1980, and the same year he joined EAA and the Vintage Aircraft Association. He was honored with a Bronze Lindy in 1995, and then in 1996 received Grand Champion Classic Aircraft with his 1947 Aeronca Chief (11AC). Ray also owns and enjoys flying his 1963 Mooney M20C.

Ray has attended every Oshkosh convention since 1980. In 1991, he started the Fly/In Cruise/In, held annually in Marion, Indiana, with this year being the 34th consecutive Fly/In held there. This will be his 15th year serving as chairman of and conducting the daily Vintage in Review program at Rose Memorial Plaza. Ray retired from American Electric Power after 42 years of service.

EARL NICHOLAS
DIRECTOR

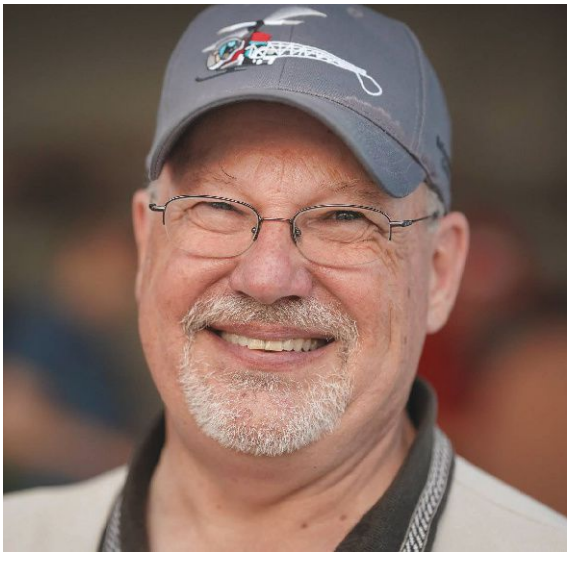
EARL'S LOVE OF FLYING came from his parents, who often took their children to airport fences to watch the airplanes. At the urging of his father, he took up flying at the Stick & Rudder club at the Waukegan airport (UGN) and passed his private checkride in 1974.

Earl served as a board member of Stick & Rudder and later as its assistant treasurer, treasurer, and president. His first visit to the Oshkosh convention was for one day in 1981. He began volunteering on the Vintage flightline the following year and joined VAA in 1987.

Earl has had many Vintage jobs over the years, including tracking volunteer hours, producing the *Daily Aerogram*, and producing volunteer name tags. He was appointed as an adviser to the board in 2015.

He serves as Vintage computer ops chairman during AirVenture and designed and launched the Vintage website in 2013.

JOE NORRIS
DIRECTOR



JOE GREW UP ON a cranberry farm in central Wisconsin. Several neighbors had light aircraft and some had airstrips on their property, so it was always easy to be around airplanes and airplane people. A close friend of the family was ag pilot Jim Miles (EAA 158), who introduced Joe to EAA by taking him to Oshkosh for the convention in 1970, where they camped under the wing of Jim's Piper PA-12 Super Cruiser. Joe joined EAA in 1976 and became a lifetime member in 2002. He also is a lifetime member of VAA (VAA 5982).

Joe earned his private pilot certificate in 1978 and bought his first airplane in 1979 — a 1955 Piper Tri-Pacer. He flew it for about a year and then converted it to a PA-20 Pacer (tailwheel) configuration. He holds commercial pilot and flight instructor certificates with airplane and helicopter ratings, as well as an A&P mechanic certificate with IA. Joe is also a designated airworthiness representative for experimental aircraft.

Joe has owned a number of vintage aircraft over the years, including a Waco UPF-7, a Cessna 180, and a Piper J-5 Cub Cruiser. He currently owns and flies a 1960 Piper PA-18 Super Cub.

CHARLIE WATERHOUSE
DIRECTOR

CHARLIE'S INVOLVEMENT IN AVIATION began at age 14 with a Young Eagles flight at the DeKalb County Airport (KGWB) in Auburn, Indiana. Along with his father and younger brother, he started to become more active with his local VAA chapter, and in 2010 he attended his first AirVenture, where he found a passion for volunteering. He has since taken on the role of Vintage Hangar events chairman and currently serves on the VAA board of directors. During the summer of 2014, Charlie obtained his private pilot certificate, and in 2015, he was honored in the EAA Young Eagles yearbook.

Charlie earned a Bachelor of Science degree in aeronautical and astronautical engineering at Purdue University, and a Master of Science degree in aerospace engineering from the University of Dayton. He is currently employed by the United States Air Force as a flight mechanics engineer at Wright-Patterson Air Force Base. Charlie is also an Eagle Scout, loves the outdoors, and enjoys traveling with his wife, Kayla. He's currently pursuing his tailwheel endorsement and hopes to own a vintage aircraft someday.

EST. 2001

FRIENDS OF THE RED BARN

DEAR FRIENDS,

For one week every year a temporary city of about 50,000 people is created in Oshkosh, Wisconsin, on the grounds of Wittman Regional Airport. We call the temporary city EAA AirVenture Oshkosh. During this one week, EAA and our communities, including the Vintage Aircraft Association, host more than 600,000 pilots and aviation enthusiasts along with their families and friends.

As a dedicated member of the Vintage Aircraft Association, you most certainly understand the impact of the programs supported by Vintage and hosted at Vintage Village and along the Vintage flightline during EAA AirVenture Oshkosh every year. The Vintage flightline is 1.3 miles long and is annually filled with more than 1,100 magnificent vintage airplanes. At the very heart of the Vintage experience at AirVenture is Vintage Village and our flagship building, the Red Barn.

Vintage Village, and in particular the Red Barn, is a charming place at Wittman Regional Airport during AirVenture. It is a destination where friends old and new meet for those great times we are so familiar with in our close world of vintage aviation. It's energizing and relaxing at the same time. It's our own field of dreams!

The Vintage area is the fun place to be. There is no place like it at AirVenture. Where else could someone get such a close look at some of the most magnificent and rare vintage airplanes on Earth? That is just astounding when you think about it. It is on the Vintage flightline where you can admire the one and only remaining low-wing Stinson Tri-Motor, the only two restored and flying Howard 500s, and one of the few airworthy Stinson SR-5s in existence. And then there is the "fun and affordable" aircraft display, not only in front of the Red Barn but along the entire Vintage flightline. Fun and affordable says it all. That's where you can get the greatest "bang for your buck" in our world of vintage airplanes!

For us to continue to support this wonderful place, we ask you to assist us with a financial contribution to the Friends of the Red Barn. For the Vintage Aircraft Association, this is the only major annual fundraiser and it is vital to keeping the Vintage field of dreams alive and vibrant. We cannot do it without your support.

Your personal contribution plays an indispensable and significant role in providing the best experience possible for every visitor to Vintage during AirVenture.

Contribute online at EAAVintage.org. Or, you may make your check payable to the Friends of the Red Barn and mail to Friends of the Red Barn, P.O. Box 3086, Oshkosh, WI 54903-3086.

Be a Friend of the Red Barn this year! The Vintage Aircraft Association is a nonprofit 501(c)(3), so your contribution to this fund is tax deductible to the extent allowed by law.

Looking forward to a great AirVenture 2025!

PHOTOGRAPHY BY **JACK FLEETWOOD**

Good Old Days

From the pages of what was ...

Take a quick look through history by enjoying images pulled from publications past.

More Air Power for another United Nation

The Brazilian Air Force will soon get six-cylinder, inverted, in-line, air-cooled Ranger engines made in Brazil, under a contract recently signed by that good neighbor's Government and the Fairchild Engine and Airplane Corporation.

Brazil-made Rangers, to power its air force's primary trainer, the Fairchild PT-19, will enable Brazil to turn out better pilots than ever in an even shorter space of time.

Ranger-powered PT-19's, with "fighter" characteristics, are ideal for the strenuous course of acrobatics included, today, in practically all United Nations' primary flight training. Unlike the trainers used in the last war, the PT-19 with its Ranger engine, can *safely* do every maneuver in the book: slow rolls, snap rolls, Immelmanns, loops, half rolls, inverted coordination exercises and turns, vertical reversements, spins, and combinations of these. The result—better pilots trained faster.

Brazil-built Rangers will also power Muniz M-9 biplanes and 2-engine Grumman Widgeons currently seeing service in Brazilian coastal patrol, Amazon River patrol and mail delivery. Thus, to the Brazilian Air Arm is added that "touch of tomorrow in the planes of today," which characterizes Fairchild planes and engines everywhere.

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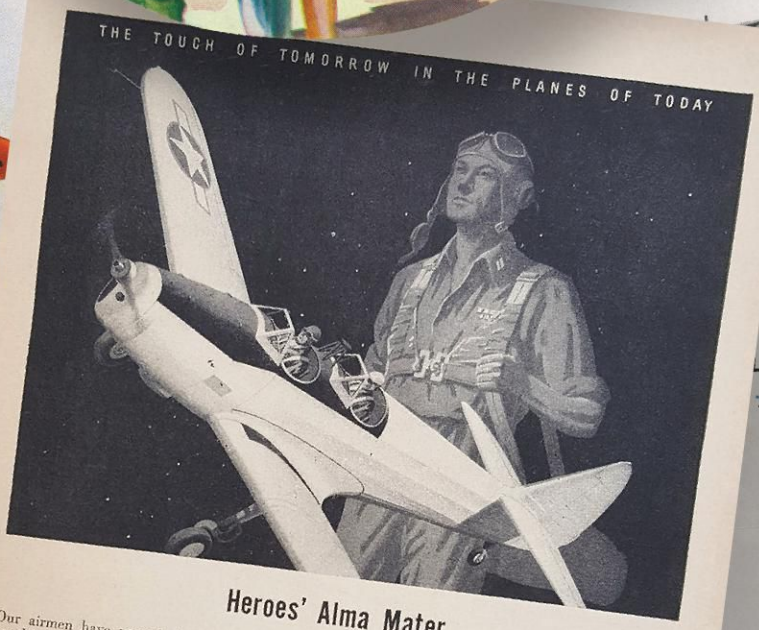

Heroes' Alma Mater

Our airmen have proved themselves masters of anything that flies.

When you hear of their exploits you wonder how such skill, such devastating dexterity could be acquired in a few brief months. Surely, these men must have been "born to the blue."

Yet the plain fact is that scarcely one in a thousand ever flew a plane before the war. Each and every one had to be *trained*—thoroughly and quickly.

In their training, the Fairchild PT-19 Primary Trainer with "fighter" characteristics is their flying school.

This staunch little ship is ideal for the rigorous acrobatic program prescribed in primary training. In the words of a veteran pilot-teacher now at an army flying school: "It is unnecessary to caution student or to warn him about excessive speeds in roll-outs or dangerous positions while he is flying a PT-19. We simply go ahead and teach him to do every maneuver in the book: slow rolls, snap rolls, Immelmanns, loops, half rolls, inverted coordination exercises and turns, vertical reversements, spins, and combinations of these. The PT-19 can certainly 'take it.' That is the best confidence builder ever invented."

From behind soda fountain and plow, office desk and ivied walls, after a short intensive training in the PT-19, the most daring and expert flyers the world has known have emerged. After six hours training in a PT-19 it is not unusual to solo Army students who have never flown before.

As a constant check on the performance of PT-19's, on the American mainland and abroad, the reports of a corps of specialists written in the field, enable our engineers and designers back home to keep that "touch of tomorrow in the planes of today."

FAIRCHILD

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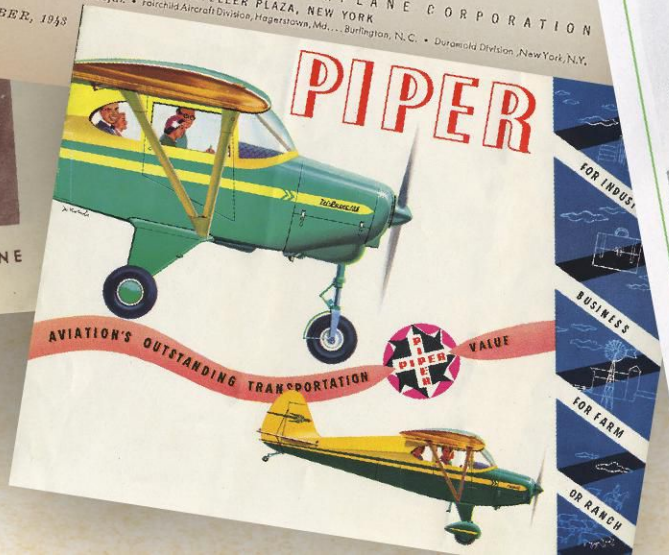

CLICK HERE
TO SEE A VIDEO

Double Wheels, Double Take!

A summer sojourn in the Clipper *Calypso*

BY SPARKY BARNES

PHOTOGRAPHY BY **ROGER CAIN**

WHEN BEN PRESTEN WAS born 26 years ago, he went to the airport before he went home. His life has been completely immersed in aviation, thanks in large part to his father, photographer/author Eric Presten, and to his friends at Sonoma Skypark. Ben made his first solo at age 14 in a Schweizer 2-22 glider. He soloed an Aeronca Champ on his 16th birthday, and shortly thereafter, soloed his dad's PA-16 — which no doubt catalyzed his affinity for Clippers.

In May 2021, a Piper Clipper fortuitously landed in Ben's hands.

"This airplane found me. I was flying it for two years before I owned it, because its owner was nice enough to put me on his insurance and let me fly it during the time that he owned it. He learned to fly in it, and after he got his pilot's license, he decided he wanted to buy an RV and go a little faster," Ben recalled. "I wasn't looking for an airplane, and he wasn't sure he wanted to sell it. But the stars aligned, and it just fell in my lap."

In October 1949, shortly after N6858K rolled off Piper Aircraft's production line at Lock Haven, Pennsylvania, it flew to its new home in Minneapolis, Minnesota. From there, it would traverse the country for more than seven decades as it flew from one owner to another in states including Texas, California, New York, New Hampshire, Maine, Virginia, Pennsylvania, and Maryland.

PIPER PA-16 CLIPPER

One of the early short-wing Piper models, the PA-16 came onto the drawing board between the PA-15 Vagabond and PA-17 Vagabond Trainer. Billed as "Truly a plane you can afford to buy and enjoy to fly," fewer than 740 Clippers were manufactured from 1949 to 1950. An original brochure touted, "Now, for less than the price of comparable two place planes, you can enjoy the added utility and comfort of a four passenger Piper Clipper. ... If you want comfort, dependability, safety, economy, load carrying capacity and high performance at minimum cost, you want the Clipper. The plane that embodies all of Piper's 18 years of experience in producing the most airplane for the least money."

N6858K was originally powered by a 115-hp Lycoming O-235, but that was removed in the early 1960s, and a 150-hp Lycoming O-320 was installed. It's always nice to have more horsepower and more fuel to go with it.

"This airplane has essentially a Tri-Pacer fuel system, so the 12-gallon nose tank has been removed, and the right wing has an 18-gallon tank just like the left wing does," Ben said. "I get well over four hours' range, which is a lot longer than I can sit in the airplane. I'll cruise about 125 mph if I'm in a hurry, but usually I'm cruising about 120 mph."

Art Whitaker and Verl Buroker developed the tandem gear more than 75 years ago.

This Cub Special (NR4559M), shown here in 10 inches of snow, was the tandem gear test airplane.

The Clipper's cabin easily can be converted to carry bulky cargo by removing the rear seat — which is exactly what Ben did on his long cross-country this past summer. The wide and low-to-the-ground rear door facilitates loading that aft cabin area. "I do have a nice back seat for it," Ben commented. "I let a friend of mine fly the airplane, and he had another adult up front and two 14-year-old kids in the back, and it performed just fine."

CARPE DIEM

Ben graduated from Chico State in May 2024 with a degree in entrepreneurial business management. After he acquired his Clipper, he used it for weekend commutes between his Sonoma home and campus for three years. It took him less than an hour to fly from home — far better than a two-and-a-half-hour drive.

Liberated from his studies and heeding the seductive call of the wild blue yonder, he embarked upon a flying sojourn from coast to coast. He flew from California to New Jersey to officially complete the coast-to-coast venture. Then came the fun and socially oriented flights.

Ben's next and rather impromptu destination was the birthplace of his Clipper — Lock Haven, Pennsylvania — for the Sentimental Journey Fly-In. On the way there, he stopped at the Golden Age Air Museum in Bethel, Pennsylvania, where the museum staff helped him install the Whitaker tandem gear he'd carried along with him. "It was really fantastic to bring her home and go see the factory that she was built in," Ben

PHOTOGRAPHY BY **SPARKY BARNES** *COURTESY OF* **DAVE STEVENSON COLLECTION**

said. “I went and did the Lycoming factory tour, too, so I saw the factory where the engine was built.”

From Lock Haven, he flew up to Old Rhinebeck Aerodrome in New York, and after that he and *Calypso* were westbound for Brodhead, Wisconsin. The next leg of his summer sojourn had him arriving at EAA AirVenture Oshkosh and parking in the “Fun and Affordable” area near the VAA Red Barn.

> **“It was really fantastic to bring her home and go see the factory that she was built in.”**
> **— Ben Presten**

“It’s my 25th year here; I’ve only missed one year of my entire life. This is my first time flying my own airplane in, and it’s really cool being here at Oshkosh with her,” Ben said. “From here, I’m going back to Brodhead and take the Whitaker gear off. I’ll put on the 6.00-6 wheels and tires, a set of nice wheelpants, for my flight back to California.”

Ben Presten of Sonoma, California, with Calypso.

TANDEM GEAR

The concept of tandem gear has been around almost as long as powered flight itself. The first known airplane to have tandem-wheeled gear was the Curtiss Eagle Model 19 (America’s first tri-motor biplane), circa 1919. Another example of streamlined tandem gear was on Ben O. Howard’s pylon racer *Ike* (but they were removed after the 1932 races).

More than 75 years ago, another tandem gear was developed for general aviation use by Verl Buroker and Art Whitaker. The Whitaker gear has a large footprint to facilitate operations from rough terrain. Although tandem Whitaker gear are a bit arcane, the occasional set is still in use today — such as Ben had on *Calypso* last summer.

DOUBLE WHEELS, DOUBLE TAKE!

N6858K was the only airplane sporting a set of vintage Whitaker tandem gear on the flightline during AirVenture. In fact, as far as Ben knows, his airplane is the only one actively flying with a set of this tandem gear.

“There are a few others on display in museums, and there’s a few other people that have them but don’t use them. The way this whole thing started is, I put my dad’s set of tandem gear on my airplane. I flew it for about two months like that, and I really enjoyed it,” Ben said. “It’s quirky, but in a way I like, so I decided I wanted a set for myself. I wound up buying three sets to restore one set.”

Calypso was virtually center stage in the Vintage area all week. Numerous passersby did a double take at the double wheels on the Clipper, the vast majority of whom had never heard or seen of such an arrangement. In fact, one day Ray Johnson featured Ben and his Clipper during the Vintage in Review session to help familiarize folks with Whitaker gear.

“Lots of people have asked about the gear, and oddly enough, a lot of them think it’s something I just came up with — that I just welded it up from scratch,” Ben said. “So it’s really fun for me to tell people it was a certified option for the airplane, and it’s an original tandem gear.”

WHITAKER GEAR

Aviation historian and pilot Dave Stevenson, of Kingston, Tennessee, owned a set of Whitaker gear and used it on his J-3 Cub for several years. He diligently researched the history of this unique landing gear, and kindly shared his personal records and correspondence for inclusion in this article.

Head-on view of the Clipper with the streamlined tandem gear.

PHOTOGRAPHY BY **SPARKY BARNES**

Centennial for Fairchild to be celebrated at EAA® AirVenture® Oshkosh™ 2025

The 100th anniversary year will welcome you to the AirVenture flightline, with additional programs and activities held in conjunction with the Fairchild clubs.

All owners of Fairchild aircraft are invited to be part of the centennial activities by registering with the Fairchild club at **www.fairchild-club.org**

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Manufacturers of Travel-Air Planes
WICHITA KANSAS

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All owners of Travel Air aircraft are invited to be part of the centennial activities by registering with their type clubs: Travel Air: **www.bonanza.org** (American Bonanza Society)

Art Whitaker of Portland, Oregon, was a longtime Piper distributor (dating back to the 1930s), and his dealer network included Oregon, Washington, Idaho, and western Montana. An imaginative proponent of general aviation, Art possessed a knack for novel marketing techniques, which catapulted his aircraft sales. Those included displaying a new Cub in front of a movie theater when an aviation movie was featured, at a car show, or atop a trailer during a parade. Verl Buroker, who had been a Navy pilot and had done some development on nose-over protection for "taxi trainers," described Art as "always dreaming of something to build or sell and that included go carts, aluminum boats, ground tugs, wheel fairings, control locks, beacon mounts, shock cord tool, dust and spray equipment for planes."

BIT O' HISTORY

Verl wrote the following account in December 1998: "The story begins in 1947 while traveling the northwest, helping Art Whitaker's dealers demonstrate and sell Piper, Bellanca and Swift airplanes. Herman L. Martin (Art's largest dealer) in Walla Walla, Washington sold all models of Pipers from the J-3, PA-11, PA-12, PA-14 and PA-18 to farmers throughout the eastern Oregon and Washington wheat country. Herm thought he could increase Piper sales if the utility of these models could somehow be increased ... [by providing] buoyancy on soft and rough surfaces. ... During the turmoil of the 1948 Vanport flood, I dreamed up the tandem landing gear and built the first one in [Art's] shop on Union Ave. and Alberta St. in Portland, Oregon. ... [The prototype] was installed on a PA-11 Cub Special, and the first test was done at Hank Troh's Skyport. ... I flew the gear first, then came Art's turn. Art took off and was gone for well over an hour, leaving us wondering what might have happened. Art was having a ball by landing several places around the area, and before anyone could get close to the many-wheeled landing gear he would give it the gun and head for another field to tease them a little. Many hours of flight test on rough, soft, sandy, plowed and rocky surfaces were done prior to starting the [Civil Aeronautics Authority (CAA)] engineering drop tests and the required flight tests.

PHOTOGRAPHY BY JACK FLEETWOOD

"A large jig was built to simulate the fuselage of a Piper PA-14 Family Cruiser. The jig was fastened to the north wall of Art's hangar at Portland International located on the west side of the airport. The landing gear end of the jig was sandbagged to a gross weight of 1850 lbs. for the drop test and would be hoisted to the prescribed height using a cable attached to a glider tow hook release. The [CAA] would determine the height distance using a N.A.C. recording accelerometer to verify the load and drop. All four wheels would be landing on greased plates at that gross weight. Several drops were made without the accelerometer showing any load at all, so we took the meter to a lab and had it checked. It was found to be ok. More and higher drops were made until a slight reading was noted on the meter. The [CAA] concluded the gear was at least 60 percent stronger than required. After the engineering tests came the flight tests which were passed with ease. ...

"The first request for a flight demonstration came from the U.S. Coast and Geodetic survey people to see if the tandem gear might be suitable for their work mapping remote areas of Canada and Alaska. We flew their management people in and out of plowed fields, sand bars, rocky surfaces, etc. and they made the tandem gear a requirement on planes used in certain areas they had to map.

"The tandem gear was originally designed for Piper models: J-3, PA-11, PA-12, PA-14, PA-16, PA-18, and PA-20. The Cessna version came later. Several operators modified the gear to fit other aircraft makes and models such as the CallAir, Stinson L-5, and Aeronca Champ, to name a few.

"The Army contacted Art [in 1950] regarding testing the gear on a Piper L-18C at Fort Bragg [North Carolina] for possible purchase for the Super Cubs they expected to be buying in the near future. ... The Army ... ended up buying the Cessna L-19 instead ... and requested we modify the gear to install on the L-19. We modified a set and sent it to Fort Bragg for their test. ... The Army ended up buying 100 sets, plus several spares. [Verl received a letter from the CAA in October 1953, advising that "the Whitaker Model L-19 Tandem Gear has been approved for installation on the Cessna Models 170, 180, and 305A Series aircraft."] The total tandem gear kits sold were between 500 and 600, and were sold all over the world.

"In closing — a comment made by a senior Piper engineer: 'The tandem gear is a commendable gadget of little or no practical use.' The Piper sales department didn't feel that way when they had as many as 10 Cubs sitting at Lock Haven that owners refused delivery on until a tandem gear was installed on their new airplane. W.T. Piper Sr. was a booster — it gave his Cubs more utility."

GROUND HANDLING

The tandem gear model GW-100 is listed on the type certificate data sheet for the PA-16 (item 210, dated June 8, 1949). The gear mounts right onto the axle, and Ben said it only takes about an hour to swap the single wheel for the tandem gear, including disconnecting and then reconnecting the brake lines. The old Hayes expander tube brakes are on the rear wheels only.

The main advantage to landing with the tandem gear, said Ben, "is that they provide the ability to roll over pretty-good-sized obstacles, ruts, or bumps, and the increased footprint prevents the aircraft from sinking into soft ground."

The Whitaker gear does, however, pose a bit of a challenge when it comes to ground handling. Since the tandem gear are resistant to turning, it can be rather awkward to taxi (or even push the airplane around), especially on pavement.

Ben described ground operations this way: "On the ground, it's kind of like trying to push a dual-axle trailer around by hand; you have to

TC 1A1 (CAR 3)
1949 PIPER PA-16 CLIPPER SPECIFICATIONS

ENGINE: 115-hp Lycoming O-235-C1
LENGTH: 20 feet
HEIGHT: 6 feet, 2.5 inches
WINGSPAN: 29 feet, 4 inches
EMPTY WEIGHT: 850 pounds
USEFUL LOAD: 800
GROSS WEIGHT: 1,650 pounds
BAGGAGE CAPACITY: 50 pounds
SEATS: 4
CRUISE: 112 mph
MAX SPEED: 125 mph
STALL SPEED: 50 mph
CLIMB AT SEA LEVEL: 600 fpm
SERVICE CEILING: 13,500 feet
FUEL CAPACITY: 30 gallons (12-gallon fuselage tank and 18-gallon left wing tank)
OIL CAPACITY: 1.5 gallons
CRUISING RANGE: 480 miles

slide one tire sideways to get the airplane to turn. When you step on the brakes, it just rocks the weight onto the front wheel and the rear tires slide. That doesn't slow you down much, so it's a lot like flying on skis. You get used to not being able to turn or stop very well. I've landed this gear on lots of rough grass strips and gravel bars, and it did just fine. I landed on sand once, and it built up a pile of sand between the two wheels and acted as a chock! It took me a while to get it out of the sand bar."

As a comparison, Ben said he's "also flown a set of 26 by 11 by 4 Bushwheel tires, and as far as soaking up bumps, the tandem gear works about equally as good. But the Bushwheels don't have the disadvantages that the tandem gear does for ground maneuvering."

IN FLIGHT

There isn't much appreciable drag while flying a J-3 Cub or PA-16 Clipper with the Whitaker gear, although they do add 46 pounds to the airframe weight.

Ben said that in flight, he can tell "the airplane's a little heavier, and the CG is a little different. It slows you down just a little bit if you're trying to go as fast as possible, but it doesn't slow your cruise down much. I tend to land it a lot slower with the tandem gear, because I can land at a higher angle of attack with the rear wheels hanging way down. There's a cable on each end of the gear that limits the travel, and then a bungee on each end sort of acts as a shock absorber while the gear is rocking fore and aft."

GRASS RUNWAY THERAPY

Whether on single or tandem gear, on a hop around the patch or a coast-to-coast flight, Ben derives great pleasure from owning and flying his Clipper. Ben grew up surrounded by aviation at Sonoma Skypark where there are numerous vintage airplanes. But when he bought his Clipper, he brought one of his dearly held dreams to fruition. He named N6858K *Calypso* because it embodies the lyrics of the chorus in the John Denver song *Calypso*.

> **"It's very rare that I'm flying in my airplane that I don't have a smile on my face."**
> **— Ben Presten**

"Of course the song is about Jacques Cousteau's boat, but the chorus talks about the places you've been, the things that you've shown us, the stories you tell, and the men who have served you," Ben explained. "After 75 years of flying, this Clipper has experienced a lot of that."

It's easy to see that Ben has bonded with his PA-16 in the best of ways. "For a long time, I never had the opportunity to just go out any morning and climb in an airplane and go flying, without anybody asking questions. Now I can just get up in the morning, jump in my airplane, and go flying. *Calypso* is the first airplane I ever got to do that in. I have a very serious emotional connection with this airplane; I take good care of her, and she takes really good care of me. I will never forget being able to get up at sunrise and go flying by myself, when nobody else was awake," Ben shared. "It's very rare that I'm flying in my airplane that I don't have a smile on my face. It's very therapeutic for me, and I joke that I'm going to go out for some grass runway therapy!"

N6858K all dressed up with her wheelpants in California.

PHOTOGRAPHY BY **SPARKY BARNES**

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A young couple's 'I do' to restoring their 1940 Luscombe

BY HOLLY CHILSEN

WHEN IT COMES TO the centuries-old wedding tradition of something old, something new, something borrowed, and something blue, Rocky Driggers, EAA Lifetime 999526/Vintage 730443, and his wife Sherri, EAA Lifetime 1586525, had the "old" part already defined about six months before they tied the knot — a 1940 Luscombe 8A. After the couple bought the airplane, they quickly embarked on a whirlwind journey that included countless hours of restorations, a long trip, and two pieces of shiny hardware — a testament to the hard work they poured into N28412, which they named *Poppy*.

A SPECIAL DYNAMIC

To understand how a young couple can survive today's world while purchasing a vintage airplane, planning a wedding, and tackling several projects together, you really have to understand this couple first. After all, their love story is intertwined in the story about how *Poppy* became an award winner two times over. Rocky and Sherri actually found the answer to love's quest with something familiar to singles nowadays: There's an app for that.

"We met on Tinder," Sherri said. After realizing they had a shared passion for aviation and witty, sarcastic humor, their story took off in the style of a romantic comedy.

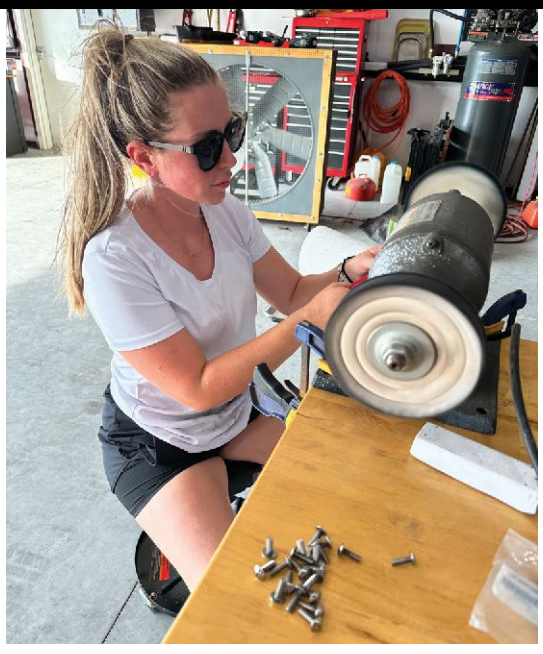
"We tease, because I say that I'm the funny one out of the two of us," Sherri said and laughed.

It doesn't take long after you meet Rocky and Sherri that you understand why they work so well as a pair. Rocky has a simple yet sweet definition for his wife: his better half. Sherri describes her husband as technical and matter-of-fact, saying so with the slightest smirk on her face. But it's that lighthearted attitude that makes their relationship a strong one, not to mention the professional skills that each brings to the table. Rocky is a certified flight instructor and airline pilot, and Sherri works in real estate, with a keen eye for interior design. She is also on her way to getting her pilot certificate by building hours in the air.

"I soloed when I was 17," she explained. "I was a part of a program called Teens in Flight. It's actually based out of Flagler County [Florida]. It's a nonprofit organization that helps families of veterans and underprivileged kids get their pilot's license. Unfortunately, the program had just started out, so I got through my solo at 17 and then the program took a little bit of a hiatus. I'm now [33], so there's been a gap between that. That gap was caused by college and funds to operate an airplane."

PHOTOGRAPHY BY **HOLLY CHILSEN**

PHOTOGRAPHY COURTESY OF **SHERRI DRIGGERS**



PHOTOGRAPHY COURTESY OF **SHERRI DRIGGERS**

Rocky's encouragement is helping his wife close that gap and get the dream closer to fruition. It started with a conversation about being able to purchase an airplane that was affordable to fly and maintain.

"When we started dating, he was telling me that aviation is really not that expensive when you look into general aviation," Sherri said. "And he is a CFI, so we had talked about if I was to purchase an airplane, that he would help me get my license and pursue my passion in aviation."

ART DECO WITH A POP

Sherri said she started out looking at Cessna 120s and 140s and spent time doing a lot of research about side-by-side taildraggers. Why taildraggers? Sherri said she has a passion for adventure and pushing herself to taking on new challenges.

"I've always had manual transmissions in my cars because I've always said I want to drive the car, not be driven by the car. And with a tailwheel, it's essentially the same thing. It's — you're actually flying the airplane. You have more control over it. It's going to take more skill. And it's going to build a better pilot out of you."

There were no disagreements about the taildragger component of the airplane decision. Rocky said that was really his one and only requirement.

"I said, 'Okay, if I'm going to teach you to fly in it, it's got to be a taildragger.' My attraction to vintage airplanes, though, is just something that I've always had since I was little," Rocky said. "I've always been obsessed with round engines, wheelpants, and bright, shiny old. So I'm a vintage airplane guy through and through."

That's when Sherri came across the Luscombe.

"When [Don Luscombe] designed the airplane, he designed it so that it would be economically friendly for people to get into general aviation, and that was his whole purpose," Sherri explained. "I really was inspired by that, so that definitely played on my heartstrings as somebody who couldn't previously afford aviation."

> **"I would encourage anyone to get a vintage airplane. You're preserving history, which is a great thing, and it's really teaching other people about aviation and keeping that spirit of flying alive."**
>
> **– Sherri Driggers**

Not only are Luscombes an affordable option on the market, Rocky added that they are fairly cheap to fly as well.

"Your operation costs are going to be right around $60 to $65 an hour," he said.

So then it was decided, and in February 2024, they found one for sale. While the original Luscombes that came off the line were polished,

"Let's see … if I hit Dayton about noon, then steer say 310, I should make Chicago at about two-thirty. Plenty of time to take my nap and still take in the Cubs game."

Early on, Ohio was a big aviation state: the Wright Brothers, John Glenn, Eddie Rickenbacker, Dominic Gentile, and of course **General Barnett Overbite, USAF, Retired**, shown here planning a cross country early in his career.

Very *late* in his illustrious career he wandered into the unattended cockpit of a Boeing 737, sat in the right seat, pushed the gear lever up, and proclaimed most assertively *"Bombs away!"* By design, only the nose gear came up, causing panic, screaming, and a mad scramble for the doors. General Overbite was then gently escorted to some nice new quarters.

N28412 was painted in red and black, which screamed art deco to Sherri's vintage soul.

"What I really liked about the Luscombe that we bought was, when she takes off you notice her in the sky," Sherri said. "But finding out that she's a 1940, I really appreciated that it was time period-esque. We also agreed prior to buying an airplane, we would not have a fully polished airplane. They're beautiful, but we like our sanity too much, and we want to continue to like each other."

Not only did the exterior color make a statement, but at the time, so did the engine. When the Luscombe's previous owner gave them a peek at the powerplant, they weren't expecting to see something so ... bright.

"He kind of hemmed and hawed about it. And he was like, 'Yeah, unfortunately, it's a yellow engine,'" Sherri said. "So she has a yellow engine that came off of a Piper Vagabond; it's an '85 stroker."

But out of something so unusual came inspiration for the perfect name — *Poppy*.

"And I told Rocky, I said, 'I love the fact that it has a yellow engine because it looks like a poppy flower.' And the poppy is significant to the time period being post-World War I. So I thought it was just really, really fitting, and it all just came together."

THE RESTORATION: A TEST OF LOVE AND PATIENCE

"Sherri knew going into this that she was never going to have money for anything other than airplanes," Rocky joked. "She learned that quickly." But Sherri didn't just accept it — she embraced it. Her passion for preserving aviation history aligned perfectly with their shared goal of putting *Poppy*'s best face forward.

> **"I'm just proud that it's not only cosmetically gorgeous, we also have an airplane that is mechanically safe and correct. So that's what matters the most to us."**
>
> **— Rocky Driggers**

"This started off it wasn't supposed to be a project. We bought the airplane with the intention of me to learn how to fly in it," Sherri said.

While the airplane was airworthy when they bought it, Sherri said there were things that needed to be repaired before being comfortable taking a cross-country trip.

"We put new tires on her, we've done paintwork on her, polished all the parts. We've put new cylinders on her. We got into her and realized that she wasn't actually correct on the tail wheel, so we had to go ahead and change out a couple things on the tail wheel."

That was just the beginning stages. By April 2024, they flew *Poppy* into SUN 'n FUN.

"We had no expectations of entering her to be judged," Sherri said. "But she's a showstopper; she's a head-turner. So when we came in, we had a couple judges approach us about entering her in to be judged. We took the chance and decided why not? She's not to where we wanted her to be, but apparently the judges thought so."

They ended up going home with some hardware: Bronze Age Monoplane Outstanding Closed Cockpit. Riding on the wings of that high, they put their sights on flying *Poppy* to EAA AirVenture Oshkosh just a few short months later, where they were invited be part of the affordable aircraft showcase. That's when the real nitty-gritty work began.

"And we were [saying], if we're going to do this and we're going to fly 26 hours round-trip, we'd better do this right," Rocky said. "We ended up taking the airplane pretty far apart, doing a very extensive annual on it. There were some corrosion issues in the wings. We fixed those. We found a broken bolt on the landing gear, so we ended up having to change that. There were some issues with the tail wheel leaf springs. There were a lot of parts missing there, so we ended up having to buy new parts or make new parts, install all that. [Then] every time you opened a panel, there was something else to get into."

PHOTOGRAPHY BY **PHIL HIGH**

PHOTOGRAPHY COURTESY OF **SHERRI DRIGGERS**

The biggest part of the revamp was the interior — which Sherri compared to an '86 Chevy.

"We did an entire interior headliner in about a month and a half," Rocky said. "We had another guy do our upholstery for us and some of the side panels, but we did the entire headliner ourselves, which was a true test of a relationship."

Another component in the process was for Rocky and Sherri to compromise.

"When it comes to aviation, I tend to take a back seat, because he's grown up in this and I know he's the expert in it. I don't push back on that as much," Sherri said. "But when it comes to interior or cosmetics on the airplane, I do push back and we butt heads a little bit. When doing the interior, he was very hesitant of my choices. He didn't say a whole lot. He waited until it was done, and then he finally admitted, 'You know, I'm not going to lie; I was worried about your color choices. But I wasn't going to say anything. I was going to let you have it. But it turned out really good.' And I said to him, 'But if it would have

PHOTOGRAPHY BY **PHIL HIGH AND CONNOR MADISON**

turned out bad, you would have let me know; I would never live it down.' He goes, 'Oh, you're right.'"

After long days and late nights of pouring all of their energy into getting it AirVenture-ready, Rocky and Sherri's whirlwind project was done, and they took a collective sigh of relief.

"It is a great feeling of joy, and it's also a great feeling of relief," Rocky said. "Because every night that we've been home, there's been no time at home to watch TV, watch a movie, cook dinner, or anything like that. It's as soon as we're home, we're back into the hangar working on the airplane, trying to get it up to where we wanted it to be. And I'm just proud that it's not only cosmetically gorgeous, we also have an airplane that is mechanically safe and correct. So that's what matters the most to us."

Then they took a memorable 11-plus-hour trip from their home in Hernando, Florida, to Oshkosh, Wisconsin, where all their hard work paid off — an honor they never could have imagined. *Poppy* won Antique Customized Runner-Up.

"Which was second to a bronze Lindy in antique," Sherri said proudly. "We came in second right behind the [Pepsi] Stinson Reliant, which is pretty big. I mean, here we have this little $27,000 Luscombe that comes runner-up to an over-million-dollar restoration."

There was one aspect of their win that was especially gratifying for Sherri. "I also want it to be noted that we won with our yellow engine."

Sherri, never one to let Rocky off the hook, made sure to note one important detail: "He was more excited about AirVenture than our wedding in Italy," she revealed with a laugh. When she confronted him about it, his response was classic Rocky: "How many people can say they're going to be featured at AirVenture? It's a once-in-a-lifetime opportunity. You can get married multiple times."

Rocky and Sherri have no plans to stop here. They're already looking ahead to further upgrades and another shot at AirVenture. "He is hoping that we can get a Bronze Lindy," Sherri said. Either way, they're committed to keeping their aircraft in pristine condition.

AND THEY FLEW HAPPILY EVER AFTER

Sherri's journey in the Luscombe has been steady, even though life's big events — like their wedding and AirVenture — momentarily slowed her progress. But she still has a clear goal in mind: to solo in N28412 and eventually expand her flight skills to other aircraft, perhaps something aerobatic.

"Our goal would be to have a Pitts," she said. "Rocky had an S-2B at one point. The goal would be to have another S-2B. And my one stipulation on airplanes is any airplane that we own, I have to know how to fly it."

I don't think Sherri has to worry about having anyone available for some flight lessons. And really, the benefit is twofold.

"It's great having the ability to travel and enjoy this together. But they say you should never teach your spouse to fly, ski, or golf. And so far we've done fly; we're not going to do golf, but maybe ski-ing," Rocky said and laughed.

PHOTOGRAPHY BY **CONNOR MADISON AND PHIL HIGH**

All jokes aside, Rocky said his wife has definitely refreshed his skills as a pilot at the same time.

"Being an airline guy, I haven't really taught someone how to fly in five years," Rocky said. "So it's been also a skill-refresher for me as much as it is her learning from day one. It's also sparked more of a passion for general aviation for me. It's always been there, but it was kind of on the back burner for a little while with doing the airline thing, because I [was] feeling pretty burnt out. And it's just really being able to share the joy of flying with the woman that I love is ... you can't imagine something better."

And you better believe with Rocky as Sherri's CFI, there is no mistaking what takes priority, and that's always going to be safety.

"We have a discussion whenever we get into the airplane that we're not a couple anymore; we are instructor and student," Rocky explained. "Or if we're flying together for not a lesson, it's I'm PIC and she's SIC, or whatever else it is. That way, there's no gray lines there because there shouldn't be in a flight deck. So we draw a line clear in the sand, and then whenever we step out of the airplane, once we're done with the debrief, we're back to being a couple again. So you have to divide the two, and it helps out a lot."

Their love story is certainly one of adventure, teamwork — with plenty of neighbor and family support along the way — and an unwavering commitment to aviation. From teaching each other patience in the cockpit to preserving a piece of history, Rocky and Sherri Driggers are proving that love and flight go hand in hand.

"I would encourage anyone to get a vintage airplane," Sherri said. "You're preserving history, which is a great thing, and it's really teaching other people about aviation and keeping that spirit of flying alive. It's not just the newest, greatest, biggest thing; it's really just preserving the history and the passion of general aviation. And it's something that I'm honored to be a part of. I'm just the caretaker right now for the next person, and hopefully she's flying in another 84 years."

So there you have it. A story about not only a truly remarkable airplane, but an airplane that reflects the sort of vintage love Rocky and Sherri have for one another. And as they go through this life as husband and wife, literal journeys with *Poppy* or not, there's no doubt it's going to be filled with mutual respect, plenty of laughter, and the occasional eye roll.

Holly Chilsen, EAA 1495056, is EAA's social media manager. She creates content for EAA's social media channels and writes for EAA's print and digital publications. When she's not learning about aviation, she's cooking up the latest delicious creation in her kitchen. Email Holly at hchilsen@eaa.org.

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PHOTOGRAPHY BY **ED HICKS**

‘NAD AND RICKI’

Fabled Fairchild flies again

BY SPARKY BARNES

JAKE ATTEBERRY WAS BUBBLING over with excitement, and his friend Brian Pyle was full of smiles as they took turns describing their newly acquired Fairchild during EAA AirVenture Oshkosh 2024. Oh, what a museum find it was! Delighted with their extremely good fortune, they were no doubt pinching themselves from time to time to make sure they were really living the dream and not just dreaming.

(left to right) Willie Turner, Jake Atteberry, and Brian Pyle.

North Carolinians Jake and Brian went to school together at Vincennes University in Indiana and have remained friends ever since. They’re also a good aviation team — Jake (who had his pilot certificate before he attended Vincennes) holds an A&P/IA mechanic certificate, and Brian holds an airline transport pilot certificate. Their acquisition of NC15921 all came about one day when Jake was talking with another longtime friend, Willie Turner, vice president of operations and marketing for the Hiller Aviation Museum.

PHOTOGRAPHY BY **SPARKY BARNES**

PHOTOGRAPHY BY **ED HICKS**


"NAD RICKI"
NC
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"At the time, I was working on a Seabee aircraft, and they had just let a Seabee go out of their museum at the San Carlos Airport in San Francisco," Jake said. "So I asked if there were other airplanes they were going to move out of the museum, and this Fairchild came up in our conversation. It had been in the museum 27 years, and it had not been run at all. So Brian and I went out to California and looked it over. We just thought, 'Holy cow, that's just what we've been wanting!'"

THE MODEL 24-C8C

NC15921 (serial No. 2724) is a 1935 Fairchild Model 24-C8C, one of 130 produced by the Kreider-Reisner Aircraft Co. (a division of Fairchild Aircraft Corp.) at Hagerstown, Maryland. A three-place cabin land monoplane, its original engine was a 145-hp Warner Super Scarab (serial No. SS198E), and its wooden propeller was a Hartzell 706E (serial No. 15581).

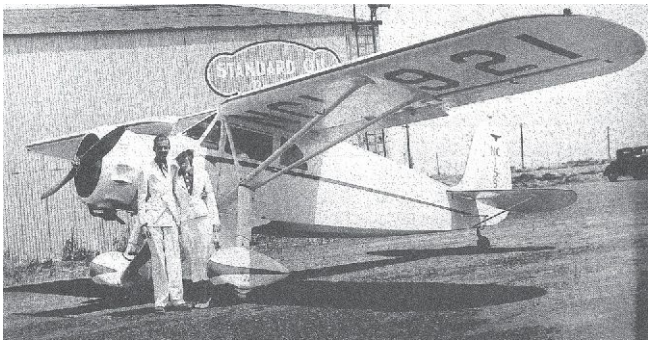
The Model 24 was introduced in 1932, and the new 1935 Model 24-C8C was described by aviation historian and author Joseph Juptner as "a homogenous blend of airframe strength behind a pleasing appearance that was all contained in generous airplane dimension. ... In this new version for 1935 a little performance was traded off for an increase in gross weight allowance, and 'wing flaps' were added to lower the landing speed" (U.S. Civil Aircraft).

A WEDDING GIFT

On May 27, 1936, NC15921's transfer of title from Fairchild Aircraft to James (Jim) Ricklefs and Nadine Davis, Toyon Farm, Los Altos, California, was signed. The airplane was a wedding gift from Nadine's father, William Henry Davis. Pilots Jim and Nadine were married several weeks later, on June 18, 1936.

The Davis family was among the upper echelon of California society, and a newspaper account from Jim's hometown of Monticello, Iowa, described their wedding in some detail: "A pagoda, in front of a fountain which was banked with flowers in the formal garden, was the setting for the ceremony. ... The bride wore a white satin gown and a white tulle veil. Her only jewelry was a diamond brooch, a gift from her father. A wedding dinner was served in the garden with an orchestra furnishing music. Mr. and Mrs. Ricklefs left following the dinner in their airplane, a gift from the bride's father, for a few days in Monterey, before sailing for Honolulu where they will spend the summer" (*The Gazette*, June 19, 1936).

What wasn't included in that wedding description was this: "After the wedding, Nadine and I went down to Palo Alto airport and got in the airplane and then we flew over the ranch where the dinner was still in progress. They had two tall trees that were not too far apart, and anyway, I put the airplane up on its edge and flew through those two trees, and I can still see my father-in-law shaking his fist at me for doing that!" ("Jim Ricklefs" by Martin J. Pociask, *HAI Heritage Series,* Winter 2008-2009).



Jim Ricklefs and Nadine Davis Ricklefs with their Fairchild (before their personal emblem was on the fuselage) at the Palo Alto airport in 1936.

(left to right): Test pilot Frank Egbert, backup pilot Jim Nissen, Fairchild owner Jim Ricklefs, and Air-Fab owner Bob Hall.

The newlyweds continued their flight, arriving at their first destination. "Monterey did not have an airport so Jim landed the plane inside the county racetrack, tied the airplane to the fence, spent several days at the Del Monte Lodge, came back to the airplane and flew away. Nobody said boo. Imagine if you did that today!" ("Honeymoon Airplane" by Jim Ricklefs, *Vintage Airplane*, April 1992).

There couldn't have been a more symbolic depiction of the newly wedded couple than the Fairchild logo itself — a lively horse with wings spread, as though ready for takeoff. The airplane was personalized with the name Pegasus on the Fairchild's cowling, and an emblem with a creative rendition of a Pegasus was added on each side of the fuselage just aft of the windows. It depicted a laughing woman riding a winged horse with a helmet-and-goggles-clad man holding onto the horse's tail, with a dog running beside them. Nineteen-year-old Nadine Davis was an experienced horsewoman who shared her father's interest in raising and training horses. In fact, she'd participated in the California State Fair horse show in 1935, and her horse placed third in the five-gaited saddle horses novice category. Twenty-two-year-old Jim Ricklefs was a junior at Leland Stanford Junior University (the school colors inspired the Fairchild's cream and red-trimmed livery), and also a student at the Palo Alto school of aviation. In 1934, he had joined the ranks of the Junior Birdmen of America.

PHOTOGRAPHY COURTESY OF **JIM RICKLEFS** PUBLISHED IN APRIL 1992 ISSUE OF VINTAGE AIRPLANE

Fairchild in the museum.

The Fairchild had to be extricated from the far corner (near the beacon) to exit the museum.

The Fairchild cleared the nose of the Albatross by 1 inch when leaving the museum. (The Albatross couldn't be repositioned, having been assembled inside the museum.)

Brian Pyle standing next to aircraft by the door we exited the museum from next day. We started the engine.

Disassembling the airplane before rolling it out of the museum.

With the wings installed, it was time to move the Fairchild to a borrowed hangar to complete the inspection.

PHOTOGRAPHY COURTESY OF **JAKE ATTEBERRY**

Jake was grateful to borrow three hangars from pilots who had temporary hangar space available to complete the inspection/maintenance prior to flight.

The neatly finished command center — note the chrome control sticks and Fairchild rudder pedals.

Note the emergency flare panel above the pilot's side window.

Just after returning from their six-week Honolulu honeymoon, the Ricklefs flew the Fairchild to Monticello and spent a month with Jim's parents. Not long after that, they relinquished the reins of the Fairchild to another owner.

OWNERS AND AIRWORTHINESS

Inasmuch as can be gleaned from the aircraft registration and airworthiness records, the Fairchild was in the hands of Nelson Dewey Ashford of Tudor, California, later that summer. During his ownership, a different 145-hp Warner (serial No. SS229E) was installed in January 1937. At that time, the total aircraft flight time was 110:25. By January 1939, the recorded time for the aircraft and Hartzell wood propeller 706E (serial No. 15571) was 177:00 and the engine was 77:00. A steerable tail wheel was installed in the summer of 1939, and Benjamin Franklin Curler of Reno became the new caretaker. He apparently was a frequent flier; by December, 86 additional hours of flight time were recorded.

In August 1941, the Fairchild's reins were released to Howard Brown of Reno, and by October, it was in the hands of Lin Shecut Felder, M.D., of Winnemucca, Nevada. The next summer, the airplane went to Walter J. Browne of Fillmore, Utah. The Fairchild was used for flight instruction

The late summer sun highlights NC15921.

PHOTOGRAPHY COURTESY OF **JAKE ATTEBERRY** *PHOTOGRAPHY BY* **SPARKY BARNES**

by Browne Flying Service, and after an accident in August, a few repairs were in order. A new Sensenich propeller replaced the Hartzell, and the left wing had a new front spar and leading edge installed. New shock struts and landing gear vees and axles, as well as new brake cables and new wood formers (bottom of fuselage) were installed. The job was completed after new fabric was installed on the wing and lower fuselage, and new landing gear fairings and wheelpants were installed. According to the aircraft records, NC15921 was being used for a cross-country war training service program, and by April 1943, the aircraft had 911:20 hours' time. The Warner was majored around that time.

> "After 27 years, it started on the first blade! It was just amazing." — Jake Atteberry

By September 1943, the airplane had a new owner — Nevada Aviation Inc. at Yelland Field in Ely, Nevada. In 1944, a transmitter and RCA receiver were installed (and a 10-pound lead weight on the engine mount), along with a dynamotor supply and power unit. Two Grimes landing lights and three Grimes one-and-one-half-minute flares were installed.

Nevada Aviation's vice president, W. Howard Gray, bought the airplane in February 1945, and by August 1946, the Fairchild landed in the hands of the Santa Rosa school of aviation at Sonoma County Airport in California. In April 1947, the reins of the Fairchild were back in the hands of a private owner — Lawrence J. Riordan of Carson City, Nevada. That fall, the single rear passenger seat was removed and a double seat installed in its place. In 1951 and 1952, there was a quick succession of five more owners.

Clyde H. Smith purchased the Fairchild from E.H. Roybal of San Diego in June 1953 and based it at Livermore Sky Ranch. The following year, the propeller was

Close-up view of the 145 Warner (s/n SS704E) dataplate.

apparently replaced with another Sensenich prop, and a used left wing was purchased from Vest Aircraft Co. and installed. By 1955, the Fairchild's total time was 1,897:25 hours, and the Warner (serial No. SS229E) had 494:38 hours' total time. By 1959, the Fairchild had been rebuilt and re-covered with Irish linen and finished with butyrate dope with top coats of synthetic enamel. The airframe's recorded time was 1,921:55 hours. Apparently, there was another 145-hp Warner (serial No. SS704E, which is on the airplane today) that had been installed by then, and it reportedly had an estimated time of 1,200 hours.

The Fairchild's reins were relinquished in 1978 to Dr. Edward Lehi Torrey of Alameda. Little is known about just how or when the Fairchild ended up languishing in a hay barn in San Jose. Its airframe had been reduced to a dust-laden ghost ship poised on its outrigger gear, with its engine and prop still hanging on it. Subjected to the ravages of time, it was a bleak and sadly silent sentinel of days gone by. But help was on the way ...

In September 1982, Jim was reunited with the Fairchild 46 years after he'd first owned it. During that time, Nadine and Jim had become parents of three daughters, and

The Fairchild's lovely curved rudder.

Note the faired outrigger gear and wheelpants.

PHOTOGRAPHY BY **SPARKY BARNES**

Nadine had sadly passed from this earthly life at age 36 in 1953. Jim remained vigorously involved in aviation — especially in the realm of helicopters.

Jim discovered the Fairchild relic in a roundabout way. "I would never have found it on my own, but a kind of casual friend of mine from back East had heard about this airplane that was for sale, and he came out and looked at it. ... He wrote to the [FAA], and he got the microfiche records on this airplane. When he got those, he saw that my wife and I were the first owners of it. Being a nice guy, he called me and said, 'I'll buy this if you don't want it,' but he says, 'I think you ought to have it'" ("Jim Ricklefs," by Martin J. Pociask, *HAI Heritage Series,* Winter 2008-2009).

AIR-FAB RESTORATION

The Fairchild was restored by Air-Fab at the Hollister airport in California, and those involved in the ground-up restoration included Tex Newman, Robert Hall, and Ray Johnson, Jim's son-in-law. By January 1991, the "Honeymoon Airplane" had been transformed from a grossly neglected basket case back to its original refulgent finery. Robert Hall, Air-Fab founder, signed off on the restoration, which included replacing all the wood formers and stringers, sandblasting and epoxy-priming all the steel parts, installing new glass, and replacing all wiring and fuel and oil lines. The airframe was covered with Ceconite 102 and finished with butyrate dope. Metal components were painted with acrylic enamel.

Since Jim had the Fairchild restored in loving memory of Nadine Davis Ricklefs, it needed a few finishing touches. One was having the name *Pegasus II* (as a nod to the first Pegasus) painted on its boot cowl. The other was having the "Nad and Ricki" emblem (Nad for Nadine and Ricki, her name for Jim) back on the fuselage. Fortunately, Jim still had photos of the emblem from 1936, which artist Bob Sterling carefully duplicated.

The 145-hp Warner, with its Hartzell 706E-67 wooden prop, reportedly performed poorly on the April 1991 test flight, so it was removed, gone over, and then reinstalled.

NC15921 was awarded Grand Champion at the Watsonville West Coast Antique Fly-In in May 1991, and was featured in art-deco style on the 1992 flyer for the event. Jim himself became a luminary in the world of aviation, receiving numerous awards for his achievements through the years. He was president and owner of Rick Helicopters Inc. and Alaska Helicopters Inc. in the 1950s and 1960s. After he retired, he stayed busy with aviation-related restorations, ranging from World War I airplanes and engines to vintage Sikorsky and Hiller helicopters.

After flying the Fairchild "Honeymoon Airplane" to various air shows for a number of years, Jim lent it to the Hiller Aviation Museum in San Carlos. He formally donated it in March 2007 and would occasionally stop by to see it. In 2015, Jim joined the squadron heading west at the age of 101.

PHOTOGRAPHY BY **JIM RAEDER**

RELEASED FROM CAPTIVITY

On May 20, 2024, the bill of sale from the Hiller Aviation Institute to Jake and Brian's Little Air Dream LLC was signed. It was almost 88 years to the day after Nadine and Jim became the Fairchild's first owners.

At that point, Jake and Brian fully realized the scope of the potential work ahead of them. They figured they'd have to restore the airplane and were making plans to pack it in a container and ship it home to Mooresville, North Carolina. Their first conundrum was literally extricating the airplane from the other museum displays and then getting it through a large roll-up door. "There was an Albatross in the middle of the museum, and we had to take the Fairchild's wings off because there was just no other way to get it out," Jake said. "Then we moved about 20 helicopters out of the way and wiggled the fuselage around and carried the wings outside."

WILL IT RUN?

Jake started taking a closer look at the airplane, and a thought hit him all of a sudden: "I wonder if this thing will start? What's it going to hurt to try?"

Jake borrowed the battery from the museum's forklift and rigged it up for the starter, and then rigged up a gas can and fuel line for the engine. Brian climbed inside, primed the engine, and engaged the starter.

"After 27 years, it started on the first blade! It was just amazing. We did have a lot of experts from Vintage Aircraft Association and Marginal Aviation telling us how to prepare the engine and get everything ready to go," Jake recounted. "When it started that easily and the oil pressure came right up, we started wondering what the best way was to get it home."

Jake was reluctant to take the Fairchild further apart and knew that shipping it would require removing the wheels from the landing gear and dismantling other components, and he was concerned about damaging the airplane. So he and Brian decided that flying it might be the better option. While most of Brian's general aviation flight time had been in four-place Cessnas and Pipers, he had also logged some tailwheel time in a Super Cub and Decathlon. Initially, they contemplated hiring a ferry pilot, but after some consideration, Brian finally decided to fly it himself. He made the journey solo to keep the airplane as light as possible, and Jake joined him at AirVenture.

"That's what we bought it for — to fly! Jake worked on it for weeks in a hangar at the San Carlos Airport, and then after he got it ready, I went out there," Brian said. "I did a test flight and a couple of takeoffs and landings there at San Carlos, and the Warner ran just fine, and the airplane just flew perfect. That was about a week or so prior to Oshkosh."

FLIGHT TO OSHKOSH

Brian and Jake embraced their unanticipated good fortune and made the commitment to fly the Fairchild to North Carolina — by way of Wisconsin. "It took 25 hours of flying time to fly it to Oshkosh. I was averaging my speed with a little headwind and a little tailwind, and every time, it came up right at 107 mph for the no-wind cruise speed," Brian said. "It holds 20 gallons in each wing, and the Warner is burning 8 gph. It burned about 1 quart of oil every eight hours."

Brian found the Fairchild to be pleasingly stable in flight, even on thermally days. "It was about 102 degrees when I stopped in Kingman, Arizona. I only felt a few light bumps when I was going in there," Brian said. "I cruised at 9,500 MSL, and the airplane climbed up there fairly quickly, but it didn't want to go much higher than that. The flight controls are very smooth because the Fairchild has push-pull aluminum tubes and hundreds of ball bearings, as opposed to cables. The shock absorbers make it a little bit different to wheel-land it on concrete or asphalt runways, so I usually make three-point landings."

HILLER AVIATION MUSEUM

Willie Turner (whose father was Bill Turner of Repeat Aircraft, known for his Golden Age of Air Racing collection) was on the flightline with the Fairchild during

PHOTOGRAPHY BY **JIM RAEDER**

AirVenture. Willie, who was a professional air boss at West Coast events for 18 years, had known Jim Ricklefs personally. Willie shared: "Jim was a very good friend of Stan Hiller, the founder of our museum. Stan was a very early pioneer in helicopters, and Jim was one of Stan's first big customers. Jim bought a bunch of Hiller helicopters from Stan and was at one time the largest helicopter FBO in the country. Many years later, when Stan was opening up the museum, Jim decided to donate the Fairchild to the museum. We'll miss having the Fairchild there, but we're constantly rotating our collection. We're a 501(c)(3) educational institution, and we do really well with our youth programs. When Jake and Brian removed the Fairchild from the museum, it was just perfect timing because it opened up more space for our summer camps. We'll have over 2,000 kids from kindergarten to eighth grade attending our camps throughout the summer."

> "It's just great to have it flying again — and to be the one who's flying it!" — Brian Pyle

PEGASUS FOR POSTERITY

For Jake, the best part about being the current caretaker for *Pegasus II* is the gift of airworthiness after 27 years of being a static museum display. "There had been some negativity about the possible condition of the Fairchild. Some folks said that the fabric would have to be replaced, and the engine would obviously be ruined so we'd have to rebuild it, and the wood ribs, spars, formers, and stringers would just be dry-rotted after sitting in the museum all those years," Jake chuckled. "It was not true, which of course surprised us. I inspected it thoroughly, and if any of those things were true, the airplane wouldn't be flying right now. Everything was in excellent shape!"

In keeping with the romantic theme of the "Honeymoon Airplane," Jake particularly enjoyed a rather coincidental aspect of being at Oshkosh with the Fairchild. That's because he and his wife, Karen, were married at Oshkosh (in Fergus Chapel at Pioneer Airport) back in 1989.

As for Brian, the opportunity to have the Fairchild flying again is the fulfillment of their shared dream of owning an antique airplane. "Bringing it back to life and getting it out in the light of day is very rewarding! If it was still sitting in a museum — well, who knows? It might have just sat there forever, or gotten lost or shoved in a back room, or torn apart and never flown again. It's just great to have it flying again — and to be the one who's flying it! Having it here at Oshkosh, surrounded by other antique airplanes, is a thrill for both Jake and myself. Probably most people thought it would never show up here, that it was flatlining — but we've revived it, and will keep it flying and its history alive!"

PHOTOGRAPHY BY **ED HICKS**

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The Art of Letting Go

Realistic valuation and selling tips for antique airplanes

BY TONY CALDWELL

PHOTOGRAPHY BY **JIM KOEPNICK**

PILOTS ARE UNCOMMONLY ATTACHED to their airplanes. Like some boat owners, many refer to them in the feminine gender and anthropomorphism is common. This is understandable in a traditional sense of the aircraft as a "ship" in antiquated parlance, and because pilots are generally passionate about aviation and the unique conveyances that lift them skyward.

It's also a handicap when it comes time to part with their treasure. Admittedly, it's hard to put a price on something we are attached to. Our vision is blurred and our reason sometimes a bit off-kilter due to our emotional bond or our pride of ownership. These are among the reasons that we often see antique airplanes for sale for what are frankly unrealistic prices. And often it's also the case that the proud owner's market judgment is flawed by one of several other things:

Believing it's worth what we paid for it. In a rational sense, of course, we realize that markets are dynamic, and things of all kinds rise and fall in value over time due to the essential facts of supply and demand (more on that in a moment).

Believing it's worth what we have invested in it. This is especially prevalent in the sale of "projects," where the owner sets out to restore an airplane and for whatever reason has decided not to finish. In the case of an incomplete professional restoration, the fact is the labor cost investment is essentially worthless, as most buyers (who ultimately determine value) simply discount those expenses, either with their own costs of labor (free) or the tried-and-true replacement analysis wherein one looks at similar items that have those costs reduced or eliminated.

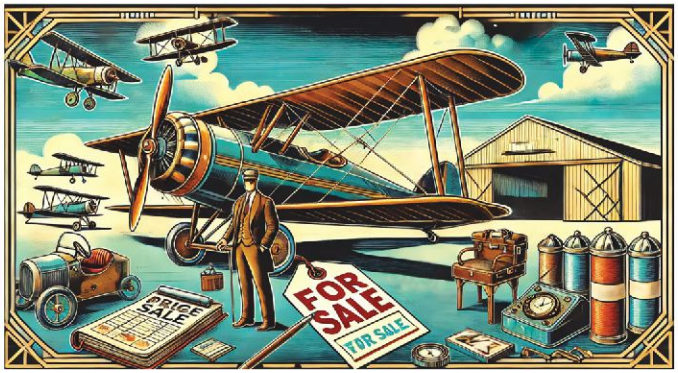

ILLUSTRATION COURTESY OF **TONY CALDWELL**

Another thing sellers often overlook is that, despite rarity, older airplanes, and older restorations of older airplanes, have wear and tear that reduces desirability and value. I often say that people who have cats don't realize their houses smell. In the same way, someone who has owned an airplane for a long time just doesn't see its time- and use-induced flaws.

PHOTOGRAPHY BY **CONNOR MADISON**

Believing it has value because it's "rare." I see this all the time, and like a siren song it appeals to me, too. But the truth is that rarity is relative. And that relativity affects market value. Part of the relativity equation is that often an antique is rare because it didn't have much value when it was new compared to other airplanes, which is why it didn't sell well in the beginning. Sometimes this is because it didn't (and doesn't) fly well; other times because it's funny-looking. But usually it's simply because there were better airplanes then, and the survivors are better now.

I do think rarity can add value, but it's usually not what the seller, with an unsold airplane languishing in the hangar, thinks — especially when balanced against condition, restoration quality, and the fact that most buyers want things they've heard of, not things they haven't.

Believing there are lots of buyers for antiques. Often this is because there used to be, and they believe time on the market will mean a sale at what they think the airplane is worth. This is clearly fantasy, as there are demonstrably fewer people interested in general aviation than there used to be, and fewer interested in the care of cantankerous old airplanes specifically. When the market shrinks, essential economic theory tells us so too does value. Even a rare aircraft is oversupplied to the market when there are few or no buyers.

Believing its worth what a spouse said it was. Unfortunately, many pilot aircraft owners don't dispose of their treasures while they are still with us, leaving their heirs to figure out what to do. When this happens, the heir, with no knowledge of anything having to do with the antique market, falls back on what their dearly departed told them it was worth. And when we're honest, we all know that we tend to exaggerate in this area as we attempt to justify the lavish amounts of money we dump into our airplanes.

Put a price in the ad. Don't make it hard for people to determine their interest or to buy your airplane.

Believing an airplane or project is worth more than the sum of its parts. In fact, almost always the breakup value of a project or airplane has more value than the whole.

There are other issues that affect market misjudgment with antiques. One of the most prevalent is not understanding the cost of restoration. To take a pile of parts and make an airplane today requires a lot of money or huge amounts of personal time and skill. The latter — skill — simply isn't as abundant as it once was, as few people earn their living with their hands anymore. And it's clear that disposable time has

PHOTOGRAPHY BY JIM KOEPNICK AND ANDREW ZABACK

much more demands on it than it once did. So the individual capability to restore something just doesn't exist in the quantity it once did, and this dramatically affects value. If you don't have time or skill and want to restore an airplane, you need a skilled professional, and there simply aren't many of them anymore. So selling a pile of parts and a dream of completion faces the hard reality that buyers see the problems and don't want a nightmare.

So sellers advertise their piles of parts or their pride and joy, and sit and watch their ads grow old with puzzlement and incomprehension. A friend said to me many years ago, "The only reason something doesn't sell is price," and he is absolutely right. When the price is right, and the object is properly exposed to the marketplace, it sells quickly. I've seen airplanes sell in under an hour, and others sit on Barnstormers year after year. It makes you wonder if the seller simply doesn't understand market forces or is waiting for a fool.

The truth in all this is there aren't many buyers anymore. For some airplanes, there may only be one or two or perhaps a handful. This reminds me of the wisdom of a real estate agent many years ago who said, "Usually your first offer is your best," and while you may bring it up some, leaving things on the market tends to actually depress their value as potential buyers begin to believe something's wrong.

Despite all of the reasons not to buy antiques (they are wasting assets, going down not up in value; they are expensive to restore and maintain; there are fewer buyers all the time, making value loss inevitable; and so on), I keep buying them anyway. But while I may be foolish, I'm not a fool and won't buy something that is priced higher than the current market will bear. So I watch beautiful airplanes and interesting projects sit in hangars, depreciating and being unappreciated until their owners either give up or get realistic. This does happen all the time, where someone drops their price once or over time, and then — boom! — it sells.

Now that the thing has sold, the seller has had some success. But they've also had a lot of costs. During all that time, the airplane had to be maintained, stored, and insured, which reduced what the seller really got. And the hidden cost that none of us likes to think about when it comes to slowly eroded value is the cost of owning an asset that isn't producing income (even if your money is in a CD, at least it's increasing).

I bought an airplane this week that the seller had listed less than 24 hours because she had it priced right. I've bought airplanes a year after making an offer when the seller finally figured out my offer was fair or even generous. I've watched other airplanes just sit.

So here's my advice:

1. **Be realistic.** Look at what things are really selling for when you set a price.
2. Related to No. 1 though is that it can be hard to establish a value on something that there aren't many of. **My advice here is to not look with derision at any offer.** "Serious offers only" and "no tire-kickers" may make you feel like you won't be wasting your time, but they are off-putting, even to serious, legitimate buyers. And "no lowball offers" just means that if you're overpriced, you aren't going to learn much from people who may love your airplane but have a different idea of value. I've moved up my offers after discussion, and also walked away from nice airplanes just because the seller was not worth dealing with.

PHOTOGRAPHY BY **CONNOR MADISON AND BONNIE KRATZ**

3. **Understand there aren't many real buyers** (in absolute terms and also that can write a check instead of asking for time to scrounge money they may never find). When you are talking to one, try to find common ground and make a deal. It may be a long time, and a lot less money, before you find the next one.
4. **Be prepared.** Have scans of your logs ready to send. Know the history and have it written down. Take high-quality, high-resolution photos and be ready to send them (or have in Dropbox, which is even better). Take photos of the flaws as well as the finer points. A broker friend of mine, who has a flawless reputation, takes detailed photos of everything. I'd be happy to buy an airplane anytime from him, sight unseen. Be like that.
5. **Be honest.** Last summer, I spent five hours in a fast plane, and a fair amount of money, to go see an airplane that wasn't what it was represented to be. Pictures lie but sellers shouldn't. Be completely truthful. Tell the prospect about your airplane's flaws as well as its virtues. They are going to find out eventually. But when I find undisclosed flaws that the seller knew about, or should have known about, I start deducting from my offer the things I didn't discover because trust is gone. Or I simply walk away from an airplane I might have bought if the seller was transparent.
6. **Be available.** Respond quickly to inquiries. Answer email the day you get it. Respond to texts. Answer your phone. Don't make it hard for a buyer to buy your airplane. I'm busy; that's why I can buy an airplane. If someone makes it hard for me, I just move on. There are lots more airplanes and projects than I can ever buy or restore.

This is a small community of people interested in these airplanes, and you've only got one reputation. Burnish it; don't diminish it.

7. **Don't say things in your ad like "serious inquiries only."** Every inquiry may be a potential offer. When I see things like that, I don't even bother because I know the person who wrote that is going to be difficult to deal with, and life's too short for that.
8. **Put a price in the ad.** Don't make it hard for people to determine their interest or to buy your airplane. Make it easy, and it will sell quickly.

9. **Name your price.** Sellers don't want to have to guess what you want. I know the rule that the first person to name a price loses. But in this game, the seller who insists on an offer may just not get one.
10. Related to No. 9 above is **be respectful and respond to all offers, even if it's not one you want to take.** Differences of opinion exist. I recently dealt with a seller who insisted I name my offer and also asked that I give my rationale. I spent thousands of dollars to go see this airplane and dozens of hours researching it. I spent hours complying with the seller's requests. Then I didn't hear anything back. I won't go out of my way to bad-mouth that person, but if anyone asks me, I'll tell of my experience. This is a small community of people interested in these airplanes, and you've only got one reputation. Burnish it; don't diminish it.
11. **Clean it up.** This is so obvious I can't believe I need to say it, but time after time I go look at an airplane, and I guess I'm expected to have X-ray vision to see through the dust, grime, dirt, oil, bird droppings, and you name it. It's irritating because it's not only hard to see the quality of the paint, but it's hard to believe the seller's assurances about how well cared for the airplane is when the plain truth is so obviously different. So give it a bath. Give it a polish. Clean your hangar while you're at it so I don't have to wonder about you, your attention to detail, and your care of this treasure you're trying to unload.

Some of this advice may grate. I get that. But here's the deal — there is a "golden rule" in economics, which is that "the ones with the gold rule," and that simply means that buyers need to be respected and responded to appropriately.

It's often said that value is what a willing seller and willing buyer agree to in an arm's-length transaction. Getting to agreement requires being thoughtful, knowledgeable, reasonable, respectful, responsive, and willing to compromise. If buyers and sellers approach acquiring or disposing of antique airplanes and projects like that, life is pretty easy. When they don't, these industrial works of art and instruments of infinite pleasure gather dust and disintegrate.

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Low and Slow Has Its Charm

Brandon Abel's Champ

BY BUDD DAVISSON

PHOTOGRAPHY BY **JIM BUSHA**

AS IT OFTEN HAPPENS, you start a casual conversation with someone and find out he's a pilot. Then, through a series of pointed references, you figure out this is not your average pilot. His regular ride while in the service was an F-15 Eagle. He was both a fighter pilot and a test pilot. However, he retired from that. Now he's a test pilot for a major airline. He okays the airline's new purchases, conducts maintenance checks, and ferries its sick birds. And yes, he has his own airplane. You start to ask him what it is, but before he answers, you know his answer will fit his background. A souped-up Pitts? A big-engine Swift? An Extra NG? Then Brandon Abel answers: "We came up with a bag of bones and restored it with a bigger motor. However, it's still registered as a 7AC Champ, and we love it!"

The "bigger motor" was a C85 replacing the A65. A far departure from an F-15! Obviously, Brandon Abel, EAA 700546, of Henderson, Nevada, is not your average Champ pilot.

"I guess it could be said I come from an aviation family. My great-uncle on my father's side barnstormed in the '20s and '30s, but died flying 'The Hump' in WWII. My grandmother later wrote a book about her brother, *The Welch Airplane Story*, published in 1983," Brandon said. "On my mother's side, Oshkosh was their annual vacation, and my mom took me to Oshkosh for the first time in 1981 when I was only 1 year old. Little airplanes are part of my upbringing."

After graduating from Purdue University with a degree in aeronautical engineering, Brandon joined the Air Force, cycling through T-37s and T-38s while flight training in Del Rio, Texas.

"From that point on, things really got interesting," he said. "Among other things, I spent three years at Eglin AFB in Florida, then Nellis AFB, Nevada, where I flew F-15s as an aggressor pilot in the 65th Aggressor Squadron. That was a huge amount of fun but at the same time was hard work, as I was doing almost constant serious air-combat maneuvering training against the guys in the school. It really kept me sharp!

"Shortly after that, I was sent to TPS [test pilot school] at Edwards, where I spent over four years, and part of that time was spent flying F-16s, conducting various test programs," Brandon said. "I spent six months flying in and around Afghanistan, which was quite an experience and really expanded my understanding of the global aspects of what I was doing. Then it was four years' more schooling, first a year at Air Command and Staff College, then to MIT for my doctorate in aeronautics. Finally got back into

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the cockpit at Edwards, where I flew everything from F-16s to gliders, eventually becoming the director of operations at TPS. My time in the service, the last 16 months of which as a full colonel, was a wild, incredibly interesting ride!"

No one stays in the military forever, and when Brandon became a civilian, just about the only thing that changed was the type of aircraft he was flying. The job was close to being the same except armament and ordinance were lacking.

"I hired on to a major airline as what they call a flight test captain," he said. "I went through a huge amount of airline training on the different aircraft they were flying, where my test pilot experience was broadened to include all of the airliners I was likely to fly. Now I do airline acceptance flight testing for every new airplane that comes into their inventory. Every day is different and includes picking up aircraft that have had mechanical problems and bringing them home."

Although Brandon's most serious flight training and early career was entirely jets, his grassroots aviation upbringing had taken root.

"In 2005, when I had been in the Air Force for about four years, I knew I was going to want an airplane of my own once I became a civilian, which at that point was a long time away," he said. "I also knew I'd want to keep flying unusual airplanes. So, while still stationed at Eglin AFB, I got with my uncle, John Ross, EAA 69154, who is a wizard at restoring rag-and-tube airplanes, and bought a Champ that was an absolute basket case. Uncle John described it as a 'pile of parts,' but it was a solid starting point.

"My goal with the Champ, N2307E, was to have a totally reliable airplane in which I could take off cross-country and count on having no problems," Brandon said. "Yes, I'd be cruising at 80 mph, as opposed to the 0.95 Mach I'd see in an F-15 Eagle, but it would be 'real' flying. I augmented that in 2018 by getting with the Commemorative Air Force in L.A., where I've been flying their T-6 and C-53. Once we got the Champ in the air, I made the 1,500-nm one-way trip, West Coast to Indiana, at least a half-dozen times. The wind could make that a long or short trip. My most recent long Champ trip was Las

PHOTOGRAPHY COURTESY OF **BRANDON ABEL**

Vegas to Terre Haute, Indiana, which it is likely to call home for the foreseeable future.

"First, I should make it clear that my uncle John and I agreed I couldn't be trusted to hold even a screwdriver. The entire restoration process was his project. When possible, I'd do a little grunt work here and there, but that was it."

Brandon said once John stripped the airplane down to its tubing, they were pleased to find the airframe was in good shape for a flying machine pushing 75 years old. Although the tubing had the typical lower longeron rust from the back seat to the rudder post, some of which needed to be replaced, it was otherwise in good condition.

"John sandblasted it and sprayed it with Stits epoxy primer, so it's likely to last another 75 years," Brandon said. "Starting at the front and working back, the original cowling was pretty beat up. Actually, I remember the boot cowling was one of the first components we bought at Oshkosh in 2005, a couple months after purchasing the aircraft. John made the engine cowling himself, and we kept and used the original nose bowl. Since all the sheet metal up front was fresh, it made sense to also replace the tired-looking firewall with a new one."

The Continental 85-12 engine that came with the aircraft looked good and had fairly low time, according to Brandon. "So, beyond checking it out and cleaning it up, we didn't overhaul it. However, on its third flight, my brother, Elliot Abel, EAA 795399, and John dead-sticked it onto a highway off the end of the runway after the engine quit at around 400 feet. The carburetor needle valve had stuck, so we overhauled the carb. After that it ran great, and we flew it for six years, until in 2015 when the engine ate a bearing on initial climb-out. The oil pressure dropped to near zero, but I was able to fly it back to the airport. After that we completely overhauled the engine, and it has flown great ever since.

"It originally had a pull starter, but I had a few problems with it and ended up hand-propping the aircraft most of the time," he added. "Since I often fly the aircraft alone or with inexperienced passengers, that became a hassle. So about 10 years ago we converted it to a Sky-Tec push-button starter, and it works exceptionally well."

When Brandon purchased the project, it already had a battery, generator, and starter, so aside from adding an intercom during restoration, he flew it that way until 2022.

"Regardless of how our airplane stable may change, the Champ is a forever airplane for us."
— Brandon Abel

PHOTOGRAPHY BY **JIM BUSHA**

"Initially, for a radio I used a handheld," he said. "However, I yielded to modern times, and we installed a Trig TY91 radio and transponder/ADS-B Out. Working out of Vegas and L.A. was getting too difficult without them. That's the only avionics it has. Navigation is still by 'whiskey compass,' with a handheld GPS as backup. However, at 80 mph, a sectional is actually all I need."

"You can't fly a Champ without the window being open in the summer. That's universally accepted as standard operating procedure!"

— Brandon Abel

The brakes are original, too.

"We're sometimes asked whether we went to Cleveland brakes, but we didn't see any reason for that change," Brandon said. "You almost never need the brakes in a Champ, so we have the original standard mechanical drum brakes, which, in my opinion, is enough. My only problem is with winds over around 20 knots, when I sometimes don't have enough brake to do a 180-degree turn on the ramp, due in part to N2307E's large dorsal fin.

"And yes, it still has the original heel brakes," he added. "This aircraft was the first tailwheel I flew for any appreciable amount of time, so I didn't really know any better. I'm used to them now, but it was initially a challenge trying to angle my feet to use rudder and brake simultaneously."

The cockpit was another area that got updated.

"The cockpit area of a Champ is pretty basic, so we replaced the floorboards and all the cables and pullies, which resulted in better-feeling controls," he said. "But I wanted it to be as original as possible, so I purchased a new panel from Univair and installed newly overhauled instruments."

Brandon said they had to replace the plexiglass during restoration, as expected.

PHOTOGRAPHY BY **JIM BUSHA**

"Now, after 15 years of flying the restored aircraft, the windshield and door windows still look great, but the sliding plexiglass on the left side definitely has some scratch marks from buffeting while flying with the window open," he said. "However, you can't fly a Champ without the window being open in the summer. That's universally accepted as standard operating procedure!"

Brandon said the wings were fortunately in decent shape and only needed minor repairs, cleaning, and new leading edges before covering. Poly Fiber was chosen for the cover, and Aero-Thane for the paint. The paint scheme is classic 1946 Aeronca, using Champion Yellow and Champion Orange.

"While we were doing the wings, we talked about installing a wing tank, but I decided to keep just the 13-gallon nose tank due to originality. Looking back, I wish we would have installed a wing tank. During those long trips between Indiana and the West Coast, some extra fuel would have been really nice," Brandon said.

"As we've developed our life in Terra Haute, the Champ has definitely been part of the family. Of course, it always has been," he said. "My wife, Amber, and I were dating when I bought the project in 2005. So she's never known me without the Champ. She has been tremendously supportive of the Champ and our other aircraft obsessions. My girls like flying in the Champ, but sometimes it's tough to compete with their friends and other teenage-girl interests, like sleeping-in some mornings.

"Although I also own a 1940 Welch OW-5M and 1936 Aeronca C-3 my uncle is in the process of restoring, I'm also in the market for a light twin that can get me from Las Vegas to Indiana and L.A. quicker than my car," Brandon said. "I've focused on Cessna 337s and some other light twins, but who knows what the future holds! However, regardless of how our airplane stable may change, the Champ is a forever airplane for us. By the way, it might be worth mentioning that N2307E won Outstanding Aeronca Champ at AirVenture in 2021."

It would appear that no matter how much Mach 1 flight time a grassroots pilot logs, little airplanes like the Champ always win in the end.

Adhesives and Bondings, Part I

BY ROBERT G. LOCK

THIS ARTICLE WILL CONCENTRATE on the art of bonding non-metallic and metallic materials. We will explore bonding hard and soft wood and briefly describe some techniques used in bonding aluminum, although aluminum bonding is not that widely used in antique aircraft restoration. I hope you'll find it interesting, for my purpose is to raise awareness about the importance of surface preparation, proper mixing, and application of the adhesive, and correct use of clamps to apply pressure during cure.

First, what is bonding? Bonding is the fabrication of parts where attachment of sub-members is by the use of adhesives. Assuming the adhesive is mixed and applied properly, the strength and integrity of a bond depends entirely on the person making it. The actual bond cannot be inspected or tested without breaking the part. Therefore, it is necessary to make test samples to check bond strength. The integrity will depend on preparation of the surface, quality of the adhesive, correct mixing of adhesive, and proper cure techniques.

So, we'll begin the discussion with wood structures and take a quick review of wood.

The shape of the leaf of the tree determines whether a wood is classified as soft or hard. Softwoods come from conifer trees with sharp-pointed leaves, while hardwoods come from broad-leaf trees. Therefore spruce and Douglas fir are softwoods, while birch, mahogany, and oak are hardwoods. Softwood is used for the majority of the primary structure because it is lighter in weight. The most common of these softwoods for aircraft structure is Sitka spruce (which is considered the standard) or Douglas fir.

Spruce is the easiest to work because it doesn't splinter; it's also the best to bond. Douglas fir is slightly denser and more easily splinters when planed. It may also be a little more difficult to obtain a good bonded joint with Douglas fir.

Plywood (created using woods that are members of the hardwood family) is a veneer and is bonded into sheets using an odd number of plies. Mahogany is the most common, followed by birch. The core material in plywood is most likely basswood or poplar. Aircraft-grade plywood will meet MIL-P-6070.

A note here should be made that, generally, softwoods are less dense and lighter than hardwoods. When bonding plywood plates to wing spars it will be necessary to lightly sand the surface to be bonded. This will put some sand scratches in the dense surface and will aid in strengthening the bonded joint. Softwood surfaces, particularly spar splices, should not be sanded because sanding dust will enter into the softwood's more open wood-grain structure and may cause a weak bond.

Let's look at surface preparation of wood structure. First, the most strength of any bonded joint is one that is placed in a shear load. That's why spar, rib, and plywood splices are made with such long scarf joints (10-to-1 to 12-to-1). This places the bond line in shear. For spar splices, spruce or Douglas fir should be planed only. For Resorcinol adhesive, because this type of adhesive doesn't like thick bond lines, the joint should fit together very closely. The thicker the bond line the weaker the bond. Also, heavy clamping pressure should be used during the cure. Parallel clamps used with caul blocks are best for spar splices.

The final fit for rib cap strip splices is usually achieved by sanding. Again, make the fit between the surfaces close. Pressure on the bond line is achieved by nailing through plywood gussets. The same thing is true for plywood surfaces; sanding is a must to achieve a close fit. Clamping is by the use of nailing strips and, in some cases, by the use of sand bags.

Epoxy adhesives are somewhat different than Resorcinol adhesive. Epoxies can withstand a thicker bond line and not lose strength. However, epoxy resins don't like heavy clamping pressure. And that is a problem when using epoxy resins for spar splices. I still use Resorcinol adhesive for making spar splices because I know how it works and what kind of pressure it likes. If you clamp epoxy adhesive with parallel clamps, this is what will happen. The clamp pressure will drive out excess resin, but because epoxy resin is so viscous, the clamping pressure will eventually be lost or diminished. And if you apply too much pressure, much of the epoxy resin will be driven out of the joint, resulting in a weak bond. I urge anyone who uses epoxy adhesive to make some test samples; prepare the surface, spread the resin, clamp using the same method you will use on the actual part, allow it to cure, then test the sample to destruction. Adjust pressure on the bonded joint so you will know in advance exactly how to use the adhesive.

Figure 1 and Figure 2 show how to make such test samples.

It should be noted here that cure temperature is important. *Do not allow the temperature to drop below 70°F during*

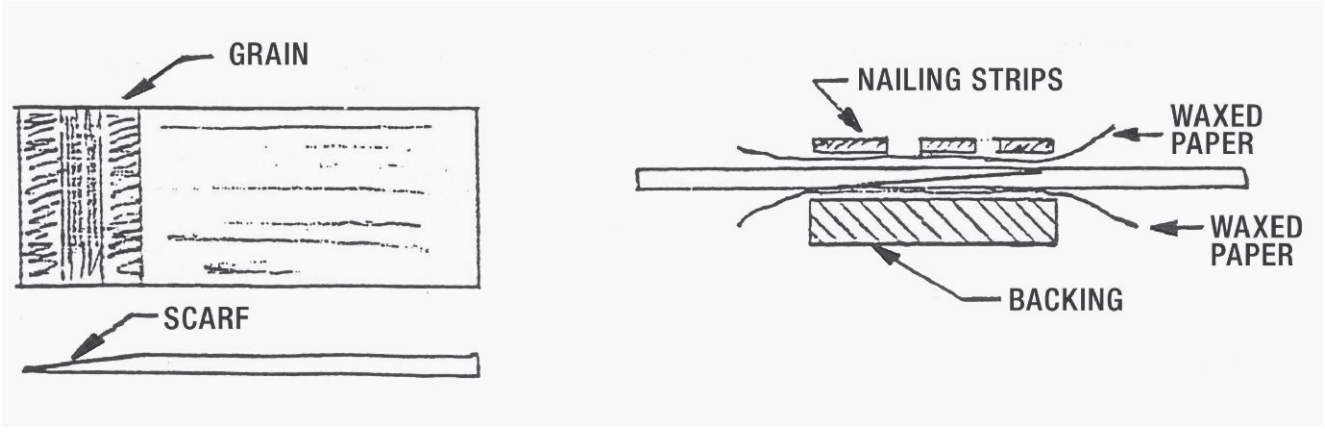

Figure 1

the curing stage, especially for Resorcinol adhesive. Some epoxy adhesives will cure at temperatures as low as 50°F, but I'm always concerned about low temperature cures. We call the cure of these types of adhesives "cold setting" or "low temperature" cure. Cold-setting or low-temperature cures generally are from 150°F and below. Cure times can be speeded up by increasing the temperature, but I've never gone above 125°F. If you are using an elevated temperature, be sure to monitor temperature with a thermometer and don't allow any "spikes" in temperature.

Epoxy adhesives are "thermosetting" plastics. The adhesive is composed of a resin with a catalyst or hardener. Once mixed, the material cures by chemical cross-linking of the molecules of the resin. A byproduct of the curing process is "exothermic heat." To gain the best advantage of epoxy resins, accurate mixing of resin and catalyst is required. Some adhesives have simple resin/catalyst ratios, like one part resin to one part catalyst. Other materials can have ratios like 100 to 42, 10 to 1, or 3 to 2. The ratios are given by either part or weight. The most accurate method of mixing is by weight using a scale. Accurate measuring and complete mixing of resin and catalyst is required, so stir slowly for a minute or more to assure the mixture is properly prepared. Don't stir too fast or you will whip air into the adhesive. We don't want porosity in the bond line caused by air bubbles.

Some adhesives have different catalyzing agents based on working temperatures. There will be slow setting for hot temperatures and fast setting for cold temperatures. Never adjust catalyst ratio to gain an advantage in curing time. In other words, don't add more catalyst to make the material cure faster. If temperature control is available, adjust the temperature. Adding heat will cure an epoxy adhesive faster, and cooling will make it cure slower.

When constructing the test samples, the bonded surfaces must be clean. Mix the adhesive and apply it to both surfaces; allow it to set for approximately one minute. Then check for any dry areas where adhesive may have soaked into the wood. Recoat if necessary, assemble, and clamp using the same method as will be used in the repair or fabrication – that is C-clamps, parallel clamps, screws, nails, etc. Allow samples to cure, monitoring curing temperature and time. When cured, place the sample in a vise, attach a small parallel clamp, and begin to twist, push, and pull until the sample breaks. Closely examine the broken samples. If the

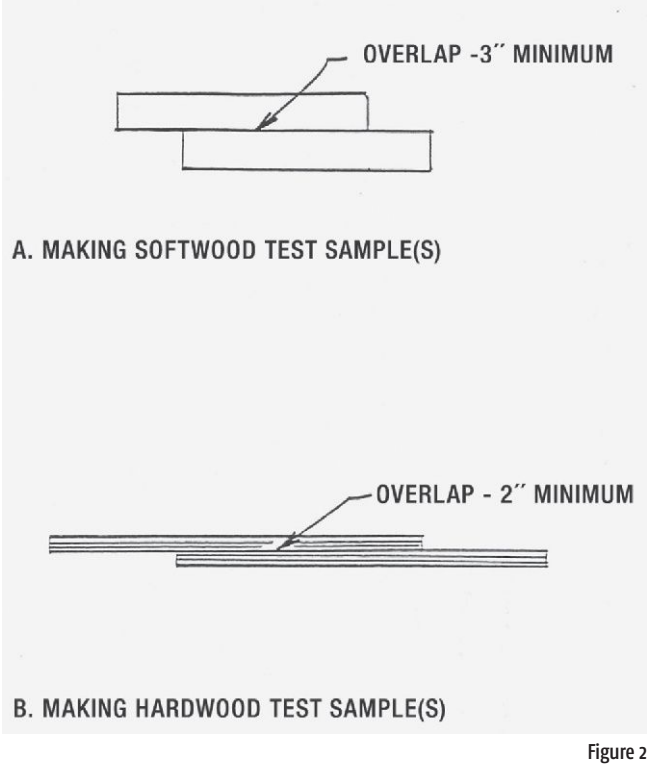

Figure 2

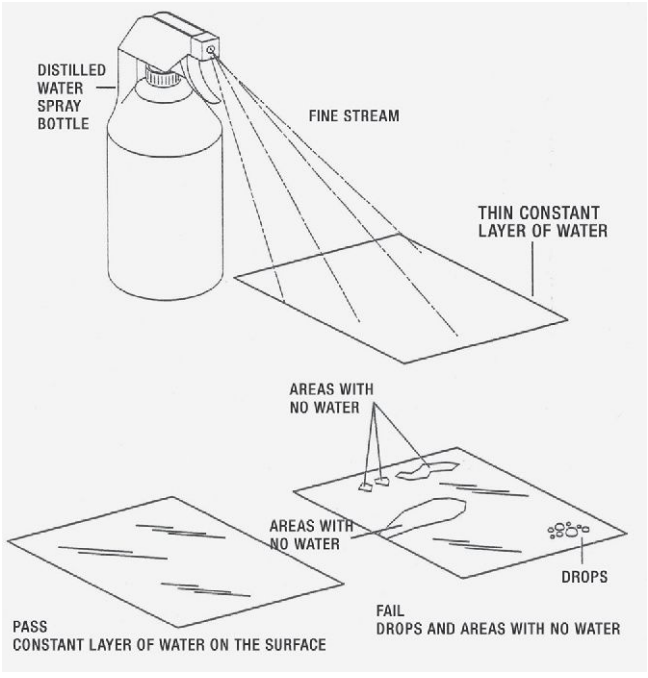

Figure 3

bond line holds, the splice is good. If the sample breaks down the bond line and there is no evidence of wood fibers holding to the bond line, then the sample fails. Figure out what happened, modify the procedure, and try again.

Let me just say a couple of things about the bonding of aluminum because it is not widely used in the restoration area. Again, the outcome of the bonded joint depends on surface preparation and the skill of the person making the bond. I have bonded aluminum using low-temperature and high-temperature cure adhesives. I have experimented on surface preparation from just light sanding (scratching the surface) to chemical treatment, including anodizing. The results confirm that the best surface treatment is anodizing, followed by chemical treatment, followed by scratching and wiping, followed by no surface preparation at all.

As is with all types of bonding, cleanliness is very important. Don't bond anything that has surface contamination. Figure 3 shows a method, the "water break test," to determine surface cleanliness on aluminum. A fine mist of distilled water is sprayed on the surface, enough to wet the entire area. If the water breaks or beads up, there is surface contamination. Do more cleaning and repeat the process until a fine layer of water covers the entire surface. Of course all the water must be completely removed before bonding. Again, the bonding surfaces must be scrupulously clean. This includes wood surfaces, although a water break test is not recommended. Latex or butyl gloves should always be worn when handling aluminum surfaces to be bonded, thus avoiding "finger fat." Finger fat is the oils that are transferred from the hands to the clean surface to be bonded.

Figure 4 shows a method of handling that will keep the bonding surfaces clean.

For low-temperature bonding of aluminum I have used 3M EC-2216 B/A Structural Adhesive. Results were quite good, again with prior surface preparation. I have cured the 3M adhesive to 125 degrees Fahrenheit in an oven with controlled temperature. Again, I recommend making test samples before proceeding on with the repair. Here is one way I have tested bonded aluminum joints using room-temperature curing epoxy resin (see figure 5).

Figure 5 shows what are typical lap bonds of aluminum substrates. The properly cured example shows "squeeze-out" of the epoxy adhesive during the cure process. One should always look for squeeze-out for a visual inspection of the joint. The only other low-tech method to test the joint would be to tap test it using a coin or tap-testing tool and listen for a "metallic ring" sound indicating a sound bond. Coin tap testing, normally done with a "coin" made of heavy metal such as brass, is best done by someone who has experience in this type of testing.

High-temperature bonding is accomplished with an epoxy phenolic adhesive film that is in the "B stage" of cure (catalyzed epoxy rolled into a thin, uniform film, then

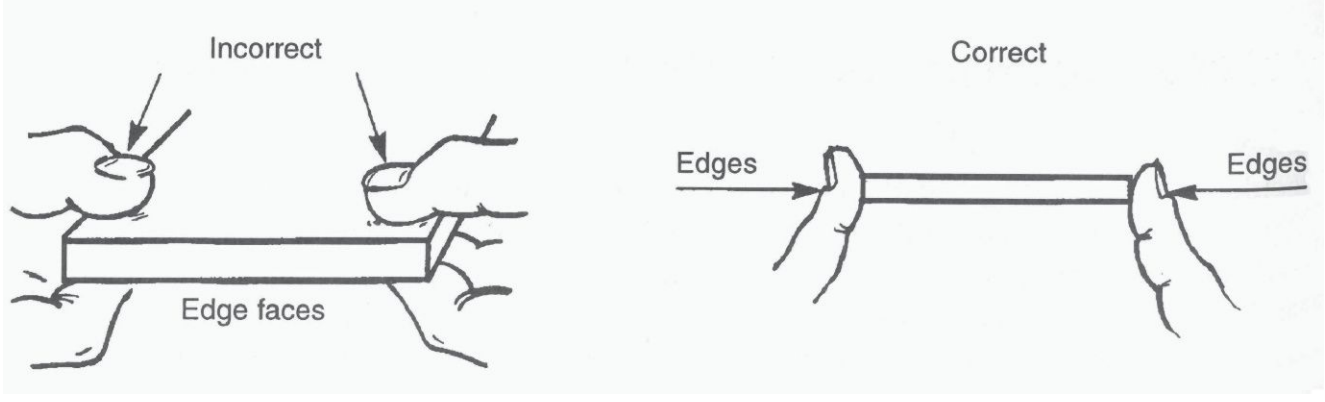

Figure 4

PHOTOGRAPHY COURTESY OF **ROBERT G. LOCK**

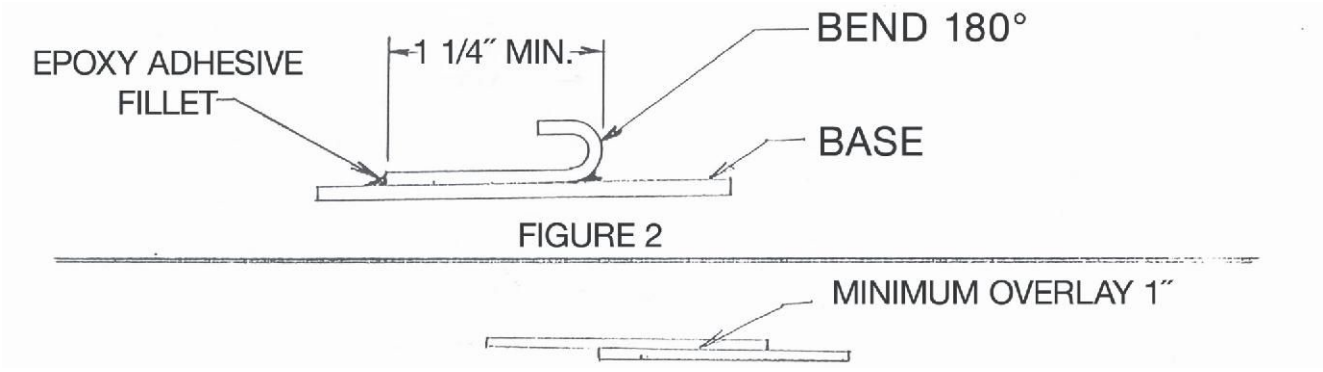

Figure 5

frozen and kept frozen until used). This type of process cures beginning with room temperature (usually 70 degrees Fahrenheit), a temperature ramp to 250 degrees Fahrenheit or 350 degrees Fahrenheit at 3 to 5 degrees per minute, a hold for about one to one and a half hours, then a cool down at 5 degrees per minute to 140 degrees Fahrenheit, then final cooling back to room temp. As you can see this process is not something you can do in your shop or hangar, so it isn't in use except for large repair stations. But it is an interesting process anyway!

I hope this theory of bonding will help mechanics and restorers master the art of creating airworthy bonded joints, particularly on the primary structure of the aircraft. Remember, given that all instructions are closely followed, the final outcome of the strength and airworthiness of the bonded joint will depend on the person who does the job.

CONTINUED FROM **PAGE 1**

with people who wanted to become members of Vintage or needed a little convincing to join brought on the enthusiasm that had lacked in recent years. More than that, I found many new friends and a sense of family I realized I needed. Paul Poberezny always said that airplanes brought us all together as friends and family, and volunteering has been the way for me to connect back to the enthusiasm for AirVenture I had in my youth.

If this sounds familiar to you or you feel a little empty about AirVenture, then maybe you should try volunteering with the Vintage Aircraft Association. Many opportunities and "big adventures" await when you volunteer. If you work enough hours, you may qualify for free admittance and camping. We have many volunteers who have worked for 20 or more years, and none of us are getting younger. To continue providing the service we do for the attendees, we need new people to help at Oshkosh. If you are interested in helping, the volunteer booth is located on the west side of the arch by the VAA Red Barn.

Working with people who wanted to become members of Vintage or needed a little convincing to join brought on the enthusiasm that had lacked in recent years. More than that, I found many new friends and a sense of family I realized I needed.

If you are not able to volunteer but still wish to help the Vintage Aircraft Association, consider a tax-deductible donation to our annual Friends of the Red Barn fundraising event. This is our only fundraiser, and it helps us keep our Vintage Village in shape and improving each year. Membership dues alone do not contribute enough for this purpose, and we rely on the FORB donations to make up for any shortfalls.

You can contribute only at http://EAAVintage.org; look for the "Donate to Friends of the Red Barn" button on the homepage.

Duane Cole said it best, "Happy flying, safely."

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