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*EAA Sport Aviation* for a video  
about Jim Irwin's BT-13.

# Valiant Genealogy





**A VULTEE BT-13  
RETURNS HOME**

BY JIM BUSH

**WHEN JIM IRWIN**, EAA Lifetime 209874, of Corona, California, and I met a little more than four years ago to discuss a feature article on his company, Aircraft Spruce and Specialty, and its then-upcoming 50th anniversary, I noticed something out of the ordinary in his extremely neat and tidy office. Located front and center on his dark reddish-brown wooden desk was an old glass Jif peanut butter jar full of rusted nuts, bolts, and washers. When I inquired about the jar sitting prominently on his desk, he smiled, lowered his head, paused, and took a deep breath.



*Jim Irwin strikes a pose that is reminiscent of his father's 60 years prior.*



“**T**hat was a long time ago, and I wish I could go back in time for just one day,” he said. Jim explained that those nuts, bolts, and washers were meaningful keepsakes from his “baptism in aviation” back in the 1950s. “My father, Bob, had a Vultee BT-13 that he had purchased after World War II,” Jim said. “In the late 1950s, when I was 5 or 6 years old, my father would take me out to the airport — Brackett Field near Fullerton, California — when he worked on his airplane and gave me a very important task. In order to help keep the airplane flying, I was to fill that glass jar with every nut and bolt and washer I could find on the airfield. If I succeeded, my reward would be a chocolate malt and a cheeseburger. In reality, it was my dad’s way of keeping a 6-year-old busy scouring the ramp for hardware and not bothering him while he worked on his BT-13.”

Looking back now, Jim said those were some of the greatest times of his life. “It’s how I got inspired in aviation by my father,” he said. “And, it’s the main reason I have been on a pursuit to see whatever became of his airplane.”



## THE QUEST

**THE IRWIN FAMILY'S** BT-13 Valiant was produced as a B model and was one of almost 10,000 that had been built in Downey, California, in 1944 by the Vultee Aircraft Corporation. After acceptance by the Army Air Forces, the BT-13 was placed in the training pipeline where the airplane was used to teach the second stage of military flight training called basic. Flown to Michigan, the airplane helped teach a nation how to fly before being shipped back to the West Coast to a base near Fresno, California, and then to one near Long Beach, California, where it would be sold as surplus.

### “It’s amazing what an old airplane and fond memories can do to you.”

– Jim Irwin –

“My father bought it in 1951 for \$700,” Jim said. “These aircraft were based all over the country, and if the pilots graduated from basic training, they advanced onto the AT-6 Texan. Many of these young men became fighter pilots, and all of them cut their teeth in the BT-13.”

Bob Irwin was not a fighter pilot. Bob’s role in the war effort was as a Link Trainer instructor during WWII teaching pilots to fly on instruments, and he didn’t acquire his pilot’s license until 1949 at the University of Illinois. After moving out west in 1950, Bob rented various Aeronca Champs, and Cessna 120s and 140s before deciding he needed his own airplane.

“Although my father was not a military pilot, it was his goal to fly a military airplane,” Jim said.

In September of 1951, Bob and a bunch of his buddies went out to Long Beach Airport and inspected the line of BT-13s for sale. All of them shelled out \$700 apiece and became the owners and caretakers of a group of BT-13s. They also formed their own flying club.

Bob joined the local Civil Air Patrol (CAP) squadron and painted the distinctive CAP markings on the BT-13.

According to Jim, Bob was extremely proud of his airplane and flew it all over California for the next two years until something else caught his eye.

“He met my mother, Flo, told her he had an airplane, and asked if she would like to go out on a flying date,” Jim said. “About six months later they were married and took their honeymoon in this airplane to La Paz, Mexico.”

Bob continued to fly the BT-13 for 12 years and gave Jim his first airplane ride in the BT-13 when he was 5 weeks old. He sold it in 1962 due to a growing family and the need for an airplane with more seats to carry them all. According to Jim, when Bob sold the BT-13, a buyer from Texas flew it away, and Bob was convinced the only reason the buyer wanted it was for the engine so it could be repurposed

on a crop duster. It was a common practice in that era, especially for BT-13s.

“It’s amazing what an old airplane and fond memories can do to you,” Jim said. “My brother John and I, out of curiosity, wanted to find the answer of whatever became of Dad’s airplane.”

Both Jim and John assumed — as they had been told by their father — that the airplane had been scrapped. Around 2013, John called Jim all excited and told him he may have found the BT-13 while searching the internet.

“The original N-number — N54822 — was different and now showed up as N13VV,” Jim said. “But the information he found linked it to my father’s airplane.”

Jim began his own detective work and searched his in-house Aircraft Spruce database to see if the owner was a customer — he was. Jim found that Hal Ewing was the current owner. Jim knew he had to call to verify if this was his dad’s long-lost BT-13.

“Hal confirmed right away that the BT-13 was, in fact, my father’s,” Jim said.

Hal, an airline pilot, had owned it for 20 years and had been flying it until he had experienced an engine failure in 1996 and had to dead-stick into a short private strip. Hal trailered it back to his hangar in South Carolina, and it sat until a new owner bought it in 2015. That new owner is Jim!



The before restoration photos all tell the same story — the BT-13 needed a lot of work.



Although the fuselage surfaces looked fine from a distance, close inspection revealed corrosion in certain areas.



Aero Trader sent all of the instruments out to be overhauled. Thankfully, few needed replacement.



Torn edges in access panels, bad Dzus fasteners, and cracks in the engine cowling all had to be repaired.

RESTORING THE VALIANT





Interior detail work performed by Aero Trader.



Hanging the freshly overhauled Pratt & Whitney R-985 engine.



The BT-13's wide, fixed landing gear.



Fuselage baggage area.



## RESTORER'S GLORY

**JIM ACTUALLY PRESENTED** Hal with the check for the BT-13 at EAA AirVenture Oshkosh 2015. Both men knew how important it was to get this airplane back in the Irwin family. When Jim purchased the BT-13, Hal indicated that within a couple of weeks he could have the airplane flying.

"Unfortunately, that wasn't the case," Jim said. "When it arrived back in California, it became evident that wouldn't be the kind of airplane we'd want to fly. I knew I didn't want a museum piece. I wanted an airplane that my father would be proud of and one that I would feel safe when I took my family flying in it. I decided to have it restored and knew that Carl Scholl and his partner, Tony Ritzman, of Aero Trader in Chino, California, would be the only guys I would trust to complete the task."

Aero Trader has been involved in the aircraft restoration business since the mid-1970s when Carl, EAA 184061, bought himself "a slightly used B-25 Mitchell" because he liked the look of it. Since that time, Aero Trader has primarily focused its restoration work on B-25s and other assorted warbirds — including the 2017 EAA AirVenture Oshkosh Grand Champion World War II A-20 Havoc owned by Rod Lewis of Lewis Air Legends. Aero Trader was awarded a Gold Wrench for its meticulous attention to detail, which was just one more selling point for Jim.

"When Jim Irwin first approached us about doing the restoration, he had mentioned that the former owner thought it could fly in a few weeks' worth of work," Carl said. "Well, we found out pretty quickly that it probably wouldn't have flown in two and a half or three weeks."

The Aero Trader crew found that although the Pratt & Whitney R-985 radial engine had been overhauled, it was 20 years ago, and it had not been run since. Aero Trader sent it out for a fresh overhaul while it concentrated on the rest of the airplane. Carl found that the control surfaces needed to be re-covered, and a lot of the paint was chipping and needed to be redone. That was the easy part.

"Basically, all the components that you can unbolt off the airplane needed to come off and either be rebuilt, replaced, or at least looked at and inspected," Carl said. "Since the airplane was disassembled when it came in, the wings were off the center section. We pulled the fuselage off of the center section so that we could do inspections on the fuel tanks. The fuel tanks on BT-13s are called 'wet wings,' and they're notorious for leaking."

One of Carl's mechanics, Stuart Brosch, was the one who was responsible for sealing the tanks and getting those back to better than new. Stuart pulled off all the necessary mechanical devices on the trailing edge and opened up the panels underneath the wing. On BT-13s, there are approximately eight panels per tank. Once Stuart removed the panels, he proceeded to clean out all the acquired gunk and debris.

"There's a special sealing compound that we use to fill the inside of the tank," Carl said. "It took at least a half a dozen tries of putting the compound in there, letting it dry for a day, and then filling the fuel tanks, still finding out it's still leaking. Drain the fuel, let it dry out, and go back in there and try to find the areas where it's leaking. Once we accomplished that, then it was time to move on to the fuselage area."

The Aero Trader mechanics began inspecting all of the cables and pulleys, and what couldn't be refurbished had to be replaced. The next item on the long restoration list was the components for the main landing gear. These were disassembled, and all seals were replaced and checked for leaks. The master brake cylinders had their own set of issues for Carl. These had to be disassembled and inspected.

"One of them was completely shot, so we were on the hunt for several months looking for another master brake cylinder," Carl said.

The mechanics also found that a lot of the fuselage skins and surfaces may have looked good from 40 feet away, but that wasn't the case up close. Corrosion in certain areas was a major issue and needed to be addressed.

“The tail cone on this thing was in really bad shape when it came in,” Stuart said. “That was just one of the many major repairs I had to do. The access panels along the fuselage area had some bad Dzus fasteners and some torn edges. The engine cowling also had some major cracks in the cowl formers. There are leather pads in there that had to be replaced because they were so old and deteriorated. But this is what I love to do — restore history back to original. It was very interesting to see the design of how the engineers back in the 1940s put these airplanes together. They were true craftsmen and overbuilt just about everything.”

As the BT-13 makeover continued, the next items needing attention were the canopies. Aero Trader ended up replacing the side panels, the flat panels, and the sliding canopies. Some of the plexiglass was in pretty nice shape, and Carl was able to salvage most of the glass in it with an in-house plexiglass shop.

“We polished it up, and it turned out looking pretty nice,” Carl said.

## FAMILY BUSINESS

The Irwin family has been active in the aircraft parts supply business for nearly 65 years. They started Fullerton Air Parts in 1955 and operated it for 10 years, and then founded Aircraft Spruce and Specialty Company in 1965. Jim and Nanci Irwin took the helm of Aircraft Spruce in 1980, and now their sons Mike, Jeff, and Rob are part of the management team. It is a three-generation family business, all connected by Bob's BT-13.

The mechanics then turned their focus to the interior and redid the front and back cockpit seats and the rudder pedals before tackling the control surfaces.

“The flaps, rudder, and the elevators are fabric-covered,” Carl said. “And we had to have those re-covered before final assembly. We sent all the instruments out and had them overhauled, and there were very few that we had to actually replace.”

During the restoration process, Jim was able to visit the project quite often

and see what progress had been made with the airplane.

“It wasn't just any BT-13,” Jim said. “It was my dad's, and Carl was very reassuring that it would get done and it would be a nice, safe airplane for me to enjoy.”

After conferring with Carl, Jim decided to have the BT-13 painted silver because the skin had deteriorated a bit in the last 70 years and needed to be repaired. Both men agreed that it was easier to paint it silver than to try to keep it in bare aluminum in a polished form. As Carl's team finished the restoration process, the airplane received its final prep and paint with CAP colors at Century Aircraft Painting in Chino.

“Generally, we want to make sure that every aircraft we work on will be in airworthy condition when we finish,” Carl said. “I knew that Jim wanted this airplane to not only honor his father but [to be] one that would fly for a long time. After three years of restoration work, I don't believe he was disappointed with the results.”

## INSIDE THE BT-13

*The front office (right) and the rear seat cockpit (below) offered a great training environment for cadets transitioning into a higher horsepower aircraft.*



## FIRST FLIGHT

**MARK MOODY HAS BEEN** involved with historic aviation treasures pretty much all his life. His main interests have been in the WWII aircraft types ever since he could utter the word airplane. That's probably why he ended up as a mechanic and pilot who both flies and works on them.

"I got my license just out of high school and worked in general aviation for about five years," Mark said. "But my heart was with these old birds, so I dove into full-time war-bird maintenance and restoration after joining Carl at Aero Trader."

Mark's role in the Irwin BT-13 didn't happen until the project was nearing completion. He was involved in both the rigging and overseeing of the engine installation, including all of the various feet and yards of plumbing components and hardware.

"I was the final inspector to sign the airplane off," Mark said. "I've been involved with this type of aircraft since 1980. I own a T-6 that my father and I bought in 1983, and I have BT-13 time as well, so once the aircraft was signed off, I became the test pilot on May 23, 2018."

Because of Mark's radial engine time, he began with pulling the propeller through to avoid hydraulic lock, and once assured he had free movement, he climbed aboard the BT-13 with Jim nervously watching nearby. With the fuel turned on and Mark wobbling up the fuel pressure and then priming the engine, it was time to begin turning the propeller blades.

"Once I got a few blades turning, I turned the mag switch on and brought the Pratt & Whitney back to life," Mark said.

With all instruments in the green, Mark coaxed the BT-13 forward and began his S-turn waddle to the active runway at Chino. After running through his checklist, everything appeared normal and he was cleared to take the BT-13 back to the air after a more than 20-year hiatus.

"The first flight was pretty uneventful," Mark said. "My main concern on the first hop was to make sure the engine's happy and running smoothly. The weight and balance seemed to feel good. You figure that out pretty quick if it isn't."

### SPECIFICATIONS

#### BT-13B VALIANT

<b>MANUFACTURER:</b>	Vultee
<b>CREW:</b>	2
<b>LENGTH:</b>	28 feet, 10 inches
<b>WINGSPAN:</b>	42 feet
<b>HEIGHT:</b>	11 feet, 6 inches
<b>WING AREA:</b>	239 square feet
<b>EMPTY WEIGHT:</b>	3,375 pounds
<b>GROSS WEIGHT:</b>	4,496 pounds
<b>ENGINE:</b>	Pratt & Whitney R-985-AN-1 nine-cylinder air-cooled radial engine, 450 hp
<b>PROPELLER:</b>	Two-bladed Hamilton Standard two-position
<b>MAXIMUM SPEED:</b>	180 mph
<b>RANGE:</b>	725 miles
<b>CEILING:</b>	21,650 feet



**Check out the digital edition**  
of *EAA Sport Aviation* for more photos

of Jim Irwin's BT-13

*The big 450-hp Pratt & Whitney swings a Hamilton Standard propeller, which creates that distinctive BT-13 sound on takeoff.*



Mark flew around the airport for 10 minutes when he found that the radios weren't working very well. So, he came back and quickly took care of that problem. Other than that, the airplane was mainly squawk-free.

"I had never met Jim Irwin until the day that we test flew the airplane for the first time, and that's where I really learned about the history behind the airplane," he said. "It's also when I was asked by Jim to fly it to Oshkosh."

With more than a dozen hours on the tach and everything running smoothly, Mark departed Chino for the 1,500-nm flight to Oshkosh, Wisconsin. By the time Mark and the BT-13 arrived at AirVenture, it had close to 30 hours on it and was running flawlessly.

"The one thing about flying a BT-13 on a long cross-country is you realize quickly it doesn't get anywhere in a hurry," Mark said. "It only does about 120 miles an hour, so you have a lot of time to contemplate life as you're flying along. But you get to see the United States at a slow pace and take in all the splendor. It was a memorable adventure I will never forget."



**“It was just an incredible experience to be in that same back seat. ...**

**I could feel my dad in the airplane with me, and I’ve had that feeling several times since then.”**

– Jim Irwin



## THE SPIRIT LIVES ON

**JIM’S FIRST RECOLLECTION** of flying in the family BT-13 was sitting on his mother’s lap in the back seat. By the time Jim grew a little older, he graduated to being able to sit in the back seat by himself, paying attention to simple instructions with his dad up front teaching him how to fly.

“On every flight, he lifted me into the airplane and buckled me in,” Jim said. “Before he climbed in his seat, he would look at me and say, ‘Just remember one thing, don’t touch anything.’ Obviously, I had access to those rear controls, including the mixture control, so I listened to what he said.”

Jim fondly recalls some of those early flights with the canopy open and the warm California wind swirling through the cockpit.

“The smells of the oil and the fuel and my dad talking to me over the intercom was

something I will never forget,” he said. “When we got the airplane restored and I flew it for the first time, I flew from the back seat with Mark Moody. It was just an incredible experience to be in that same back seat ... 60-something years later. I was extremely emotional, particularly when we took a flight out over Lake Mathews here in Southern California. The only difference was the guy up front was a different pilot. I could feel my dad in the airplane with me, and I’ve had that feeling several times since then.”

Jim’s dad died in 2015 at the age of 95 before he could witness his old airplane and friend fly again. But Jim feels his dad would be very pleased and extremely excited about old 54822 coming home to Southern California.

“I think he would probably buy me another cheeseburger and a malt if he could see today what we’ve done with his

airplane,” Jim said. “I want to continue to fly it a bit, but at the same time, our intention is to donate this airplane to Planes of Fame Air Museum here at Chino Airport where the aircraft can be displayed. My wife, Nanci, and I have four children, all in their 30s now, and active at Aircraft Spruce in management. Two of the boys, Mike and Jeff, have pilot’s licenses now, and Rob and Krissy will get theirs eventually. I intend to give all of them a ride in the airplane, and I certainly want to have Nanci ride in the airplane just like my dad flew his wife around. I know it’s what my father would have wanted.” *EAA*

**Jim Busha**, EAA 119684, is an avid pilot and longtime contributor to EAA publications. He is EAA director of publications and editor of *Warbirds* and *Vintage Airplane* magazines, and the owner of a 1943 Stinson L-5.