I HAI Stated On the Kitchen Table

CELEBRATING 50 YEARS OF THE SONERAI





BY HAL BRYAN

"THIS IS THE FIRST prototype Formula Vee racer. It was built to compete in the Formula Vee category, which was a new category back in the '70s. It was really built to compete against Steve Wittman," John Monnett, EAA Lifetime 15941, founder of Sonex Aircraft, said about the Sonerai, which celebrated its 50th anniversary at EAA AirVenture Oshkosh 2021.

Those who know their air racing history know that competing against Steve Wittman was no small thing. But, first, a note about pronunciation. Some might say that last syllable like "rye," but the origin of the name clears up any confusion.

"I was just babbling one night in my room, as I normally did," John said. "Names [like] Sun Ray, Sonic Ray, and Sonerai came out of my mouth. I said, 'Nobody knows that name because it doesn't exist. I've invented the word."



THE WAY TO THE SONERAI

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efore designing and building the Sonerai, John followed the path familiar to so many of us. He built static model airplanes as a kid.

"I got into radio control very early on, and that got to be an expensive hobby," he said. "I actually sold all my radio equipment and

bought my first real airplane in a bushel basket, literally, on the south side of Chicago. Hauled it home to my dad's house, and I rebuilt it in a garage, a single-car garage. That's the start of the thing. I rebuilt that one, rebuilt another antique, then I built a homebuilt. Then finally built the Sonerai. We've built a lot of airplanes since then."

That first airplane was a 1939 Aeronca Defender, which was followed quickly by a Piper J-4, and then the airplane that came to be known in family-friendly circles as the Monnett Mini. The seeds for the Sonerai were planted when John attended a forum that Steve Wittman held at the 1968 EAA fly-in in Rockford, Illinois, about creating the Formula Vee racing class. Two years later, when EAA had permanently moved the fly-in to Oshkosh, John realized that Steve's V-Witt prototype was the only real contender in the field. John was ready to add to the mix.

"I didn't take any ideas from his stuff, but we looked at the formula and I went back and literally on the kitchen table started doing drawings for what is called the Sonerai," he said. "But yeah, it started on the kitchen table."

The requirements for the Formula Vee category were stipulated by the Professional Race Pilots Association and called for an airplane with 75 square feet of wing area, room for a 170-pound pilot, and a 1,600-cc Volkswagen engine. John's personal requirements for the design included folding metal wings, a steel tube fuselage, and a dash of inspiration when it came to the aesthetics.

"My favorite airplane of all time is the Spitfire," he said. "The tail of the Sonerai kind of pays homage to the Spitfire with its elliptical shape. It just flies like a little fighter. It's a very nimble airplane." The earliest drawings showed that John was considering making the airplane a low-wing, with Spitfire-style elliptical wingtips as well, but the design evolved away from that idea.



SPECIFICATIONS

SONERAI I PROTOTYPE

CERTIFICATION: Experimental amateur-built

LENGTH: 16 feet, 8 inches WINGSPAN: 16 feet, 8 inches

MAXIMUM GROSS WEIGHT: 750 pounds EMPTY WEIGHT: 440 pounds FUEL CAPACITY: 11 gallons SEATS: 1

POWERPLANT MAKE & MODEL: 1,600-cc VW conversion HORSEPOWER: 50 PROPELLER: Two-bladed, wood (varying designs) CRUISE SPEED: 150 mph

VSO: 40 mph



JOHN, YOU HAVE A RACE

In the March 1972 issue of *EAA Sport Aviation*, John wrote about the first real test of the airplane.

"Sonerai is a racer, a racer indeed in the classic form," he wrote. "But it participated in a race much different than that of chasing around a pylon. The race was a mythical one, imagined and participated in only by a few apprehensive, yet determined individuals. The race was fought against time — the race to Oshkosh '71."

That's right, the Sonerai was designed, built, and flown in 11 months, only eight of which were devoted to the actual build process. And all this while working a full-time job and spending two nights a week working on his master's degree.

"I was a high school art teacher," John said. "I taught for nine years. I built airplanes while I was doing that, and started the business in our garage and basement. Finally, one day [my wife] Betty said, 'What are you going to do? Are you going to teach? Or are you going to build airplanes?' It took me about two minutes to make up that decision. And we've been building airplanes ever since, and she's been a big supporter of that ever since we started."

John's art background enabled him to design the logo and other markings for the Sonerai. It also led him to get very specific about the color.

"Dodge had all these really cool colors back then with the Dodge Chargers and all those," he said. "I picked that color Sassy Grass Green. ... When it gets out in the sun, it's just like somebody turned a switch on. It becomes real neon. It was just different to have a green airplane, because everybody had a red and white Pitts."

Once completed, and proudly covered in Sassy Grass Green, the Sonerai first flew on the second anniversary of the first moon landing, July 20, 1971.

"There is a fantastic feeling flying an airplane that gives you a solid responsive feel in the air," he wrote at the time. "Any apprehensions I had about it being competitive were quickly dissolved. The first flight went well except for an extremely sensitive elevator which was easily corrected by changing the linkage."

A little more than a week later, John lost power just after takeoff and had to put the Sonerai down between a couple of rows of trees. That meant that the trip to Oshkosh would involve testing another of the airplane's design features — the ability to be towed on its own wheels. By the time he wrote the *EAA Sport Aviation* story, he'd towed the airplane more than 4,000 miles without incident. While at Oshkosh, John swapped out the carburetor and then, after several flights, found the real problem.

"It turned out to be the magneto drive coupling that had broken into 16 pieces," he wrote. "It must have been the reason for the power loss since SONERAI has only one magneto. A new part, found in an old dusty Oshkosh magneto repair shop, got us back in the air again to enjoy the remainder of an exciting week!"

After that Oshkosh debut, John was off and running. He was selling plans and designing variants, including the Sonerai II, which was introduced in 1973, and the low-wing Sonerai IIL in 1980. A tricycle-gear version, the IILT, came out in 1983, followed the next year by stretched versions, the IILS and IILTS. The rights to the Sonerai series changed hands over the years but returned "home" to Sonex Aircraft in late 2019. Plans are now available directly from Sonex.

According to the company's website, thousands of Sonerais have been built over the years by people interested in racing or, in many cases, just nimble, simple, and affordable single-seat flying fun.



PURE PERSEVERANCE

Dennis Hlavacek, a retired United Airlines A&P mechanic, of Downers Grove, Illinois, officially started building his Sonerai IIL back in 1984, when the design was still a teenager.

"I got married to my wife, Cathy, in 1982, and we lived in a condo, and we were trying to find a house to buy," Dennis, EAA 114438, said. "And the deal was when we finish up the house the way we want the house, then I'll start the Sonerai. And it had to have a garage. It had to have a basement. ... I built the wings in the basement. ... In 1983, we moved into the house. And then ... I started the airplane. I remember it well. I cut the first piece of metal for a wing spar on New Year's Eve, 1984."

Dennis' project took just a bit longer than the nine months John had needed to build the prototype.

"I started the wing, and that progressed pretty quickly," he said. "My first son was born in '85 and my other son, Brian, was born in '89. And just after a couple of years when I started it, then I got hired at United."

His schedule at United had him working the graveyard shift, six days on then two days off. Those hours, along with life's regular demands, didn't leave him much free — or, more importantly, well-rested — time to spend on the airplane.

"This is something I built in my garage from a box of steel tubing and sheet metal. This is my airplane. This is an airplane that I bailt. It all hits you, what you accomplished." — DENNIS HLAVACEK

"And there were things you've got to do around the house, the kids and everything, their activities and stuff," he said. "And you try to fit the airplane in with all that. And it can be kind of challenging sometimes, you know? And well, we tried. We always managed to get everything done and I still managed to find time, whenever I could. A couple of welds here, a couple of welds there, a few more rivets here and there." Dennis continued like that for years, chipping away at the to-do list that steadily, if almost imperceptibly at times, became smaller.

"The only time it was actually dormant is I got to the point where I needed a place to put the airplane, to assemble it and to do all of the final stuff, the rigging, the flight controls and everything," he said. "There's some things you have to do just with the airplane assembled. And I could not find any place to do it. It sat. The fuselage was in front of the two cars on the landing gear in the garage. ... The wings were hanging from the rafters on slings above the cars, completed. And it was that way for a fair few years because I really didn't have a place."

Then, he got a tip about the possibility of some hangar space at Hinckley Airport (0C2), which wasn't that far from home. He ended up sharing a hangar with a couple of guys. One of the guys was building a Sonex. The other, as it happened, was building a Sonerai. Dennis moved the project right away.

"That was a monumental occasion, I guess," he said. "The garage was empty. When I moved out to the airport, it was a whole different ball game. ... This is actually starting to feel like an airplane now. ... I'm at an airport, in a hangar, with the wings around. My God, it looks like an airplane."

Dennis chose a Great Plains 2,180-cc Volkswagen aircraft conversion engine and a 52-inch Prince P-TIP prop. The airplane is covered using the Superflite system and painted in a striking Insignia White and Cessna Sunset Red scheme that he designed and shot himself.

"I kind of modeled it after the old Piper color scheme, like say a Comanche or something," he said. "I wanted to have the lines as straight as I could so it wouldn't be very confusing. It would kind of accentuate the length of the airplane, even though it's not very long itself."

In the cockpit, he's got only what he needs.





SPECIFICATIONS

DENNIS HLAVACEK'S SONERAI IIL

CERTIFICATION: Experimental amateur-built

LENGTH: 18 feet, 10 inches WINGSPAN: 18 feet, 8 inches HEIGHT: 5 feet, 6 inches

MAXIMUM GROSS WEIGHT: 880 pounds EMPTY WEIGHT: 618 pounds FUEL CAPACITY: 10 gallons main, 6 gallons auxiliary SEATS: 1

POWERPLANT MAKE & MODEL: Great Plains 2,180-cc VW HORSEPOWER: 75 PROPELLER: Prince P-TIP 52-by-48 CRUISE SPEED/FUEL CONSUMPTION: 130 mph/3.5 gph

VNE: 160 mph VSO: 58 mph VX: 75 mph VY: 85 mph





"Basically, it's just the bare bones," he said. "I've got the pitot-static, airspeed, altimeter, vertical speed and cylinder head temp, oil pressure, EGT, and of course, a sight gauge for fuel. And as far as my avionics, there's my trusty Sporty's handheld, which I have a mount for. ... It's very simplistic. ... Not much more advanced than a J-3."

Finally, on September 23, 2020, nearly *36 years* after cutting that first piece of metal, Dennis got to fly his Sonerai for the first time. The moment was powerful, and his memories vivid.

"Oh my God, I'm flying along, I'm not renting a 172. This is something I built in my garage from a box of steel tubing and sheet metal," he recalled saying to himself. "This is my airplane. This is an airplane that I built. It all hits you, what you accomplished."

Even though the build took longer than Dennis ever imagined, he doesn't look back with regret.

"After all the years transpire and you think you're missing out on the flying and everything instead of building, when you make that first flight, all that's forgotten," he said. "Everything that didn't happen in the past is all forgotten because now you're in the here and now. You're flying this airplane."

At the time of that momentous first flight, Brian's sons, both of whom were born after Dennis started on the airplane, were aged 30 and 35. They had some powerful words for their dad.

"They said, 'Dad, you presented the greatest example of perseverance and determination to us that anybody could have ever done. It's a great example.' And that just really struck me to have been able to make an impression on my sons in that way, to teach them to never give up and to always keep forging ahead, you know? And it was very humbling. They always say through EAA that building an airplane is an educational experience, and it is."

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Check out the digital edition of *EAA Sport Aviation* for a video about the Sonerai.



FASTER ISN'T FAST ENOUGH

Visitors to EAA AirVenture Oshkosh 2021 might have spotted a shiny blue and gray Sonerai, nicknamed *Skye Racer* and emblazoned with a bold No. 64 on the turtledeck and the wing. *Skye Racer*'s builder and pilot, Jeff Lange, EAA 664188, of Waupaca, Wisconsin, had some particular requirements when it came to choosing an airplane to build a couple of decades ago.

"I wanted something single-seat and small," he said. "I looked at the Midget Mustang. And as I looked into it, I figured out that I could probably build a Sonerai I with the engine for the cost of the O-200 for the Midget Mustang. And, at that time, I didn't have money or much in the way of extra funds, so the Sonerai seemed like the perfect thing with the VW engine."

Jeff learned to fly in 1998, but even before he started, he knew he wanted to build an airplane. He also knew that it needed to be a taildragger, so he bought a Cessna 120 to get some tailwheel experience. At that same time, he bought a partially completed Sonerai fuselage from a man in Jonesboro, Arkansas, and his education truly began.

"It was a huge learning experience to build it. I think I built every part ... three times," he said. "The second time was probably good enough, but the third part was the way I wanted it. And [learning] was an important part of building for me. ... So, this was my learning plane for building."

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It's a huge learning process, and it teaches you a lot of discipline when it comes to planning, project management, anger management, among other things. ... You come out of it with a lot of life skills, too."

— JEFF LANGE

Starting with the partially complete fuselage, what Jeff describes as the first time he built this airplane took about 1,200 hours over a period of about four years. His Sonerai made its first flight on March 1, 2003, right here in Oshkosh.



SPECIFICATIONS

JEFF LANGE'S SONERAI I

CERTIFICATION: Experimental amateur-built

LENGTH: 17 feet, 2 inches WINGSPAN: 16 feet, 8 inches HEIGHT: 4 feet, 2 inches

MAXIMUM GROSS WEIGHT: 950 pounds EMPTY WEIGHT: 600 pounds FUEL CAPACITY: 20 gallons SEATS: 1

POWERPLANT MAKE & MODEL: Self-designed, using Great Plains crankshaft and hub, Revmaster heads HORSEPOWER: 125 PROPELLER: Wood, two-blade, 48-by-50 or 52-by-56 CRUISE SPEED/FUEL CONSUMPTION: 200 mph/7 gph (at 12,000 feet)

VNE: 225 mph VSO: 55 mph VX: 100 mph (estimated) VY: 90 mph (estimated) "It was nerve-wracking," he said. "There's no way to get time and type with a single seat. And nobody I knew had a two-seat for me to get any time in. So, I went from a Cessna 120 to this."

The airplane was built around a 1,850-cc Volkswagen conversion that gave him a climb rate of about 700 fpm and a cruise speed of about 140 mph. After what he described on his blog as some "tinkering with props, carbs, heads, and wheel pants," he reported that he eventually saw the climb rates rise to 1,300 fpm and the cruise speed increase to 160 mph. In 2006, he built a new 2,110-cc engine, added a new exhaust, a larger carburetor, a new prop, and some other modifications, all of which added another 100 fpm and another 20 mph in cruise. The following year, he shortened the wings by 8 inches and built modified Hoerner-style tips. This all happened before he painted it. When he did, he named it after his newborn daughter, Bethany Skye.

He flew his first AirVenture Cup race in 2007, starting in Dayton, Ohio, and averaged 172.42 mph. Over subsequent years, he made continuous improvements and upgrades. In the 2012 AirVenture Cup, his average speed was up to 200.96 mph.

"The second first test flight was in 2014," Jeff said. "I had torn the airplane down and redid the entire fuel system, the entire engine, [and] turbocharged it. ... That was a really nerve-wracking flight because there were so many things that were done to it that hadn't been done to a VW before. ... I did a short test hop, came back, checked everything, and took off and did an hour test flight. And the only problem I had with it was the exhaust ... was starting to burn the cowl. ... That silver thing, that's where the heat from the turbocharger comes out and wants to melt stuff."

Other upgrades included a completely redone fuel system with larger tanks, a dual-battery electrical system, a CB Performance Magnaspark secondary ignition, and a turbo-scavenging pump once he realized that the original gravity drain wouldn't cut it. The most noticeable visual change was likely the sleek and streamlined cut-down cowling. He also made changes to the seat and the control system to give him enough room to fly with a helmet during testing. All told, the "second build" took another 3,000 hours over approximately four years.



"The hardest parts for me were the canopy and the cooling baffles," he said. "I think the cooling baffles are the part of airplanes that I hate the most. If you want to slap them together, they're fairly easy. But if you really want to minimize cooling drag, it's really hard. But the satisfaction I get out of the airplane has been each year improving its speed. ... I have the race speeds on the wing, but over the years, as I raced and changed it, it's to the point now where it cruises right around 190 mph and tops out at around 210."

So, after nearly 20 years of tinkering, it must be finished, right? Not exactly.

"I'm going to keep building it," Jeff said. "It's almost ready for the fabric to come off and be repainted. But not because it needs it, because there're shapes on the fuselage that I've learned aren't really good. So, I want to redo the fuselage and see if I can continue to squeeze every last bit out of it for speed."

He's also got a new propeller to install over the winter, and is looking forward to doing more testing after that.

If he ever does finally decide that *Skye Racer* is fast enough, he's got two more Sonerai projects hanging in the rafters alongside a Cavalier, a Smith Miniplane, and a Glasair.

"Building your own airplane is super educational," he said. "It's a huge learning process, and it teaches you a lot of discipline when it comes to planning, project management, anger management, among other things. ... You come out of it with a lot of life skills, too."

THE HALF-CENTURY MARK

The prototype Sonerai, all aglow in Sassy Grass Green, was proudly displayed outside at AirVenture Oshkosh 2021, and was also honored on the traditional "I Flew My Homebuilt to Oshkosh" patch that was given out to all homebuilders who did.

"This year's special because it's the 50th anniversary," John said. "It's hard to believe that some time [ago] this guy was a young lad that built an airplane in nine months and brought it up here and made a business out of it. It's been here for a while. It now belongs to the EAA museum. It was one of the first airplanes to hang in the foyer of the EAA museum when it opened. We're very proud of it."

The pride, as sincere as it is justifiable, is quickly tempered with a dose of modesty.

"From 10 feet away, it looks really good still," he said. "But it's like every other 50-year-old — 10 feet's a good distance."

Dennis, Jeff, and the hundreds of others who have painstakingly plansbuilt their own Sonerais are obviously happier getting far closer than that. **EAA**

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