Spicy Sonex

Tony Spicer keeps the first Sonex on the leading edge

Jack Cox EAA 14286

There may be no bigger booster of the sleek little Sonex than Tony Spicer (EAA 536307).

Every year you'll find him helping out at the Sonex Ltd. display at EAA AirVenture Oshkosh and Sun 'n Fun. You'll see him ripping around the pattern at each event in his red-nosed Sonex, N232TM. You'll meet him at many of the workshops at the Sonex Ltd. facilities at Oshkosh.

With that degree of involvement, you might presume Tony is a Sonex employee, but he isn't. He simply wants to share his enthusiasm for the airplane with everyone.

Tony was the first customer to complete and fly a Sonex when his airplane made its first flight in 2000. Until then, only three factory prototypes had flown, so his was the fourth to take wing. Subsequently, he has flown N232TM from his home in Wilmington, North Carolina, to Oshkosh and Lakeland four times each, and he regularly attends local fly-ins all over the Southeast. As of late October, he had flown the airplane a total of 380 hours, which is an average of 95 hours per year.

As one of the highest time Sonex pilots flying one of the highest time Sonex airplanes, Tony's experience offers some valuable insights for other would-be builders considering the design as a project.

In the Beginning

Tony came by his interest in aviation naturally. His father, Russ Spicer, was a World War II 8th Air Force fighter pilot who named his P-51 Mustang Tony Boy after his son, who had been born in San Antonio in 1939. Russ Spicer survived his combat tour, which included being shot down over the English Channel, and remained in the Air Force after the war, which meant a peripatetic lifestyle for him and his family.

"I was an Air Force brat," Tony says, "and we moved every six months to three years throughout my childhood."

Tony left home to attend Texas A&M, where he learned to fly during his freshman year, soloing an Interstate Cadet in less than five hours. Eventually, however, he was "invited not to come back to school for academic reasons," so Tony joined the Air Force to fly for Uncle Sam. Unable to pass the eye tests for becoming an Air Force pilot, he went into navigator training instead. He became a second lieutenant navigator in April 1960 and embarked on a 20-year Air Force career.

Tony's military stint unfolded in roughly five-year segments. He spent the first five years serving as a navigator on C-130s, C-133s, C-124s and C-121s, flying out of Travis

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Air Force Base to locations all over the Pacific. For the next five years he was an instructor at the Air Force Navigation School at Mather Air Force Base, teaching student navigators in T-29s.

The next 10 years got a little more exciting. He was trained as an F-4 backseater (a Weapon Systems Officer, or WSO) at George Air Force Base, and then was shipped out for a combat tour in Vietnam. Once there, however, he had more than navigation on his mind.

"The Air Force F-4s were different from the Navy models," Tony recalls. "They had a full set of flight controls in the backseat, so I got to be very proficient at doing everything that I could from that position. I could take off, land, refuel."

Tony put his F-4 stick time to good use, conducting close formation flights in southeast Asia. He was based out of Da Nang and flew missions as far north as Hanoi before his tour was up and he was sent back to Seymour Johnson Air Force Base in North Carolina. But that respite turned out to be short-lived, as three months later the squadron was sent to Thailand for six months. That was followed by a return to Seymour Johnson, three years in Spain, then a return to Seymour Johnson. There, with 20 years of service, Tony retired from the Air Force.

While in the service, Tony had attended night school to earn a degree in political science. After retiring from the Air Force and settling down in Wilmington, North Carolina, he obtained a degree in electronics.

"I went to work for Corning designing equipment to manufacture optical fibers and was with the company for 15 years. In 1998 they offered me early retirement, so I opted to build homebuilts instead of going to work everyday—and I've been having a blast ever since," he says.

Tony put about 40 hours on his first homebuilt, a single seat Sky Raider. He says he was "a little nervous" about flying with a two-stroke engine, and he wanted more speed and another seat.

"I started looking around again, and I first saw the Sonex at Sun 'n Fun in 1998 and again that summer at Oshkosh. I wanted something that was going to be fairly simple to build, had decent performance, and was something I could build by myself," he recalls.

"The Sonex met all those requirements, so that September I talked to John Monnett (EAA 15941) about the plans. Only the wing plans had been completed at that time and John said I should wait another three months and get the complete set. I didn't want to wait; I wanted to get started right away. So I ordered the plans that were available and began construction of the wings the following month, in October 1998."

Building the Sonex

Pete Buck, a lead engineer at Lockheed Martin's famed Skunk Works, did much of the Sonex engineering and was creating the Sonex plans in his spare time. Tony hoped to get the plans piecemeal as he built, but that was not to be.

"One thing I found out early on was that I could build faster than Pete Buck could draw plans," Tony says.

He bought the proprietary wing spar extrusions from Sonex as well as a package of parts that included prebent aluminum for the control surfaces and all of the 4130 welded

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parts, the engine mount, push rods, and other hardware. That got him on his way, but there were plenty of challenges on the horizon.

"I had to figure out on my own how to bend my wing leading edges, and it took me three tries to get the first good one. I ended up designing and building my own press brake with parts that included $50 worth of lumber from Lowe's," Tony says. "I drilled a couple of holes in my garage floor, bolted the rig down and got two good leading edges on my first try. That information was put on the Internet and a lot of other builders made copies of my 'Lowe's press brake' to do their leading-edge wing and tail feather skins."

After completing his wings, Tony found ways to stay busy on the project. Jeremy Monnett (EAA 590707) supplied enough info over the phone or through sketches and photographs by e-mail that Tony often had parts finished before the printed plans showed up.

"In fact," he says, "I would eventually fly the airplane about six weeks before the last drawings arrived."

By contrast, current Sonex builders have the luxury of readily available plans and materials, and many of the parts are ready to install. In addition, there are several Sonex e-mail lists with which builders can share ideas and building tips, as well as websites on which builders chronicle their progress. Sonex maintains a list of links at *www.sonex-ltd.com*.

Design Features

The Sonex was designed to be powered by a VW conversion, the four-cylinder Jabiru 2200, or the six-cylinder Jabiru 3300. This was before Sonex Ltd. developed its Aero Vee engine.

Tony opted for the 120-hp 3300. Like his airframe, it was one of the very early examples, so it has been upgraded several times over the past four years. He switched from the factory-provided Bing carburetor to an Ellison throttle body injector, and to a new Jabiru induction system that allowed the engine to develop full power at 3,050 rpm instead of 3,300 rpm.

The standard Jabiru engine package includes a good muffler, but it is rather heavy and radiates too much heat for a cowling as tightly fitted as those on the Sonex. The Monnetts worked with Jabiru to develop a set of straight pipes specifically for the Sonex, a prototype of which Tony tested on his airplane.

Some cracks developed, so the design was changed from one piece to two, and the exhaust has been trouble free since then, Tony says. He had his ceramic coated to reduce heat radiation under the cowling.

Tony initially ordered a 54-by-60-inch Prince prop—wood with an

outer lay-up of Kevlar and painted red. Later, Lonnie Prince asked for it back for tweaking, and it was returned with a carbon fiber lay-up and painted black. Tony was happy with the performance of both versions.

Initially, Tony used standard steam gauge flight instruments and a Grand Rapids EIS to monitor engine functions, plus the outside air temperature, fuel flow, and fuel remaining. The simple VFR panel was part of his effort to keep the airplane as light as possible, and it paid off. When completed, he was pleased to find that his 638-pound Sonex was within 15 pounds of the weight of the factory's Jabiru 3300 prototype.

From its start in October 1998, the project took Tony just over 20 calendar months to complete, with the actual working time about 16.5 months. Keep in mind that his airplane was scratch built, largely from raw materials. Today's Sonex kits are prepunched and more completely finished, and therefore go together much faster.

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Spicer's Grand Rapids EIS displays airspeed and other flight information. The rectangular placard above the EIS is his checklist.

Flying N232TM

With construction nearing an end, Tony started thinking about the first flight.

"I knew I had to get myself ready also," he recalls. "I started by flying three hours in the same day in a Piper J-5. All in the pattern, nothing but touch and goes. Then a couple of weeks later, two fellows in our EAA Chapter 297, one with an RV-6 and another with an RV-6A, volunteered to give me some time. I started out with two hours in the tri-gear 6A just getting used to flying a higher performance airplane, then spent two more hours in the taildragger RV-6 doing tail wheel takeoffs and landings. I didn't have any trouble with either airplane, but the experience really boosted my confidence."

Finally on June 12, 2000, it was time for Tony to take his own airplane up. Two members of his EAA Chapter, John Corbett (EAA 455162) and Glenn Moore (EAA 25549), flew chase in a Citabria.

"After I landed they commented on how calm I sounded on the radio. I told them that if they thought I was calm, they should have been where I was," Tony says. "I didn't remember anything about that first flight."

"One of the many things that impressed me is how great the Sonex tracks on the ground—much better than the RVs and Cubs I've flown," Tony says. "I think the reason for it is that there are no springs in the tailwheel steering. It's directly coupled and is very responsive. I've also been very impressed with the titanium main gear legs, which soak up landing shocks so efficiently that I often can't tell when I get the airplane on the grass runway where I'm based."

Designer Pete Buck pulled the titanium gear from his experience at the Skunk Works, where they found that a plain, untapered titanium rod has the same bending properties as a tapered steel rod. That property allows designers to create a simple landing gear from a titanium bar that simply plugs into a mounting socket at one end and has an axle mounted on the other.

Tony is also quite pleased with the airplane's performance. The airplane boasts a 2,000 fpm initial climb solo on a cold day near sea level. At maximum gross weight on a hot, humid day, it still climbs initially at 700 fpm. Normal cruise at low altitude and 2,900 rpm is 150 mph at about 5.7 gallons per hour. At 7,000 to 10,000 feet and 3,150 rpm, the airplane makes 170 mph true at around 5.3 gph. Vne is 197 mph.

In the pattern, Tony says, the airplane is "easily as docile as a Cub." He slows to 80 mph on downwind, 70 on base, and 60 on final. Three-point touchdowns are usually at about 50 mph.

"I've been tickled pink with the Jabiru engine. It's a perfect fit for the Sonex. It's very smooth, runs cool, and is very economical."

Reeling in the Years

For the first couple of years, Tony was content to simply cruise around the country, but, eventually, he felt the need for a little more excitement—like some sport-type aerobatics. Trouble was, he had not included aerobatics in his initial testing. That made it necessary for him to go through a new Phase One test and paperwork exercise.

There was other tinkering he wanted to do. From the start, Tony was not satisfied with his craftsmanship on his canopy and cowling, although everyone else, including judges at fly-ins, thought they looked great.

"I knew where the flaws were and they bugged me every time I looked at the airplane. As a result, I built and installed a new cowling and a new canopy," Tony says.

With that project behind him, Tony then built a new instrument panel. He had his Grand Rapids EIS upgraded to include airspeed and other flight information and eliminated the steam gauges.

Recently he painted the windshield frame and the exposed fuselage frame the same red as the cowling. The rest of the airframe is polished.

"I use the Nuvite products and inexpensive rotary and orbital buffers. It gets a fresh polish job every March, whether it needs it or not," he says. "Not bad for an airplane that is hangared 12 miles from the Atlantic Ocean."

Tony says he enjoyed the building process so much he thought he would finish the airplane, fly it a bit, and then sell it and build something else. After getting it flying, however, he has found that he is "having way too much fun to even think about what to build next."

A final note: Even when solo, Tony never really flies alone. His father, Russ Spicer, died over 40 years ago, but the Army Air Corps patch he once wore is in the Sonex every time Tony flies it.

After flying dozens of other Sonex builders and prospective builders in N232TM, Tony decided there had to be a better way to reach those for whom coastal North Carolina is too far to travel.

The result of that introspection is a DVD titled *Right Seat with Tony Spicer*, a "not quite ready for prime time" production shot by Tony and edited by Andrew Pearce, an Aussie Sonex builder currently residing in Raleigh.

According to those who have seen it, it's as close to getting a ride in a Sonex as you can come without actually strapping one on.

For info on acquiring the DVD, contact *info@sonex-ltd.com* or call 920/231-8297.