

## KIP LAURIE'S WELL-TRAVELED HOMEBUILT



BY BUDD DAVISSON



*Traveling the lower 48 wasn't in Kip's mind when he started the Waix. It became a goal after his first long cross-country.*

PHOTOGRAPHY BY TYSON V. RININGER





**HOW DO YOU KNOW** when a guy is seriously addicted to sport aviation? You get a pretty good clue when he says, “I usually eat standing up because the wing of my current project is in the dining room.”

And, yes, that answers the next question: No, he’s not married.

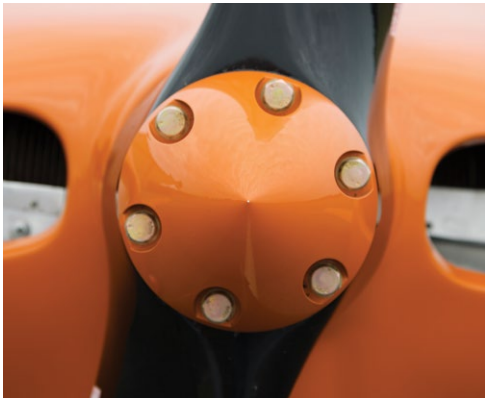
## THE NUTS AND BOLTS OF BUILDING A WAIEX

Kip says, “The entire airframe is blind riveted with stainless steel rivets with the exception of the spars, which use standard solid rivets. This simplifies construction significantly compared to an RV. I like to say that this airplane is built on a band saw. One basically takes pieces of 6061-T6 90-degree extrusion and uses the saw to make all sorts of shapes (400 or so if I recall correctly). The plans show what a ‘right side’ piece looks like and the builder must make the left. Soon he or she becomes pretty good at manufacturing mirror-image parts. If I had to do it all over, the machined angle kit would be the most tempting and would prevent the most finger cuts. After perfecting my solid riveting technique on the spars, I learned to enjoy using the rivet gun and squeezer and actually shot many solid rivets in the airframe where pulled rivets were normally used.

“Most builders might say that the canopy and cowlings is the hardest part because we signed up to build a metal airplane, but soon we’re cutting and shaping fiberglass, Lexan, and Plexiglas. While messy and tedious, those tasks did not produce the cussing like the drilling of the titanium landing gear legs and wing rigging. Both tasks require some special drilling techniques, but a bit of Internet research and help from fellow builders can go a long way in helping.

As for the building requirements of the airframe, he says, “It’s said that a Sonex product can be built with common hand tools. While that is true, there is always a tool of some kind that makes a given task easier. The question is how much to invest in tools that may be used only a few times and for what cost? I consider a pneumatic riveter (to prevent carpal tunnel), lots of fresh band saw blades, and a good digital protractor to be real necessities. My airplane flies straight thanks to that protractor.”

The Sonex plans are considered among the best in the business, and they are organized into a building tree format rather than step-by-step. Kip says, “Each page is a ‘branch’ of the tree and will have the builder either fabricate a part or make an assembly from previously made parts. After completion of a page, the builder moves closer and closer to the trunk. When I got my kit and was wondering where to start, I settled on the page the furthest from the trunk and that was the wing spars. Many builders begin with smaller pieces (stabilizers) first, so that the learning curve is less expensive.”



*A 120-hp Jabiru provides the power.*

### AT THE BEGINNING

Kip Laurie of Atlanta, Georgia, could be the poster child for those who are totally hooked on the aviation bug, in all its variations. He says, “I don’t know where it came from because there’s no aviation in my family, but it was definitely implanted in me from the beginning.”

He got his private pilot certificate in ’86 not even out of high school and says he originally wanted to be a controller but, when he took the test, realized it wasn’t really for him. Then he got his first job flying as a CFI and discovered a whole new world.

“Someone was actually paying me to fly! What a concept!”



*Designer John Monnett’s Waix has a V tail with a lower rudder, making it a “Y” tail.*



*The tail wheel has direct steering—no springs.*

For a while he was doing the usual fly-anything-to-get-more-flying-time thing and slowly worked his way into flying big iron for corporations. He’s now flying Challengers at Epps Aviation in Atlanta. Early on, however, he discovered the sport side of aviation—specifically homebuilts.

### ENTER THE HOMEBUILTS AND THE WAIEX DECISION

“I remember saving my pennies (literally) for a Bonanza while developing the creative side of hands-on building by completing over 40 flying models since childhood. But, over time, I realized that certified airplanes were out of reach financially speaking and



*Kip takes maximum advantage of lightweight, modern, glass cockpit equipment.*



*Waix is pronounced YX, hence the N number.*

building one myself would provide a greater reward also. Sure enough, I’ve discovered the pride of ownership of my homebuilts is extremely high because of the physical and emotional investment.”

“The first one,” he says, “was a Kolb FireStar, completed in 2000. I was hooked after a friend let me fly his, as it’s a great performer in the very light aircraft category. I knew it wasn’t the fastest airplane on the planet, but it would let me dip my toe into airplane ownership at minimal cost. It only cruises at 57 mph, but I flew it to Sun ’n Fun three times, which is a 900-mile round trip.”

Nine hundred miles at 57 mph! Did we mention that he is a hard-core sport aviation fanatic?

“After 10 years of low and slow flying, I looked at RVs, but they were out of my price range. Then I discovered John Monnett’s airplanes, which are basically a poor man’s RV but still little sports cars of the sky. I went for the Waix because it was capable of limited aerobatics, dirt simple, and offered great performance for the price. Further, after putting 500 hours on it, I’ve found it’s just a gas, oil, plugs, and tires kind of airplane. Its economy cruise is 145 mph at 5.2 gph. It’ll easily cruise

## SETTING IT UP FOR TRANSCONTINENTAL EXCURSIONS

Having what amounts to a tiny panel, Kip capitalized on modern technology.

“The foundation of the panel,” he says, “is a Dynon D180, which has everything I need—ASI/ALT/VS/slip skid/g-meter/OAT and all six cylinders monitored for CHT and EGT. It also has a nice artificial horizon in case the haze gets too thick. It’s never missed a beat in over 500 hours of operation. The only nav source is a panel-mounted Garmin 495. I did, however, use paper charts on all of the trips despite having a company-issued iPad with all of the sectionals. I still like paper, and I now own the entire USA set!”

Kip reports flying from three to six hours a day, which makes you wonder about the cushions he used to keep himself comfortable. He says, “I have the factory Sonex leather interior, and it’s plenty comfortable enough. I do use a water bottle as a lumbar support for my back, however, and I also use that in all of the other airplanes that I routinely fly (CL604, CE650, F33A, C-172, PA-18, and M20).”

at 160 mph, at the expense of more noise and 8 gph. It has a 15-gallon tank, so at econ settings I have 2 hours 45 minutes to a dry tank, which is perfect for two-hour legs.

“I opted for the 120-hp Jabiru 3300, but a lot of folks go with the 2180 VW because of the lower cost. I went into debt for the Jabiru because of the huge horsepower advantage. After all, one can always throttle back but not always up! One hundred twenty hp on this 700-pound airplane is pretty sporty!”

Although Sonex offers a wide variety of kits for the airplane, Kip stresses that his was one of the original basic kits that had no quick-build options. He reports, however, that he did find the factory computer-cut pilot holes in the skins to be a luxury.

“Jumping in at full speed and staying highly motivated throughout, it took me three years, three months to finish despite spending a lot of time away from home with my job. I had a friend do the paint, capping my 1,880 hours of labor, which was, of course, way over my original estimate. Forty pounds of leftover scrap aluminum was evidence enough of many tasks done twice or more.”

Incidentally, the tail configuration often prompts people to ask Kip how it flies, and he says, “I can’t tell it’s not a normal tail. It feels like any other tail. The lower rudder, by the





way, gives a way to actuate the tail wheel as well as acting like a ventral fin. This is where the 'Y' part of Waix—pronounced YX—came from. 'YX' stands for 'Y-tailed eXperimental.' Designer John Monnett preferred 'Y' tails on his racers, and the Waix is part of that historical lineage."

When Kip got the airplane flying and all the bugs ironed out, he immediately started taking advantage of the increased speed.

#### THE LAND IN ALL 48 BUG BITES

Kip says, "The 'motorcycle of the sky' aspect of the Kolb was great, *but* I really longed to venture out and see some new terrain with my new speed capability. Soon afterwards, the 'Coast to Coast Adventure Flight of a Lifetime' concept that has been in the back of my mind since I was a kid became too much to ignore. I've always subscribed to the notion that such a flight is nostalgic and a historically adventurous thing for an American to do whether one uses a stage coach, car, bike, or their feet.

"After completing a coast-to-coast trek flying from Kitty Hawk to Catalina Island within a relatively short time and with ease (no breakdowns or weather problems), I was convinced that the lower 48 states could be conquered in my little plane. A plan was hatched to land in every state, walk into an FBO, and get a business card. There would be no touch-and-goes."

Since Kip had a regular day job, he couldn't just take off and roam around hitting all the states in a single trip. Instead, he had to fit it into his vacations.

#### IF HE COULD CHANGE ANYTHING, IT WOULD BE...

"Not much really, but I would love to increase the firewall forward limit of 200 pounds to accommodate a Continental O-200. While my Jabiru has run like a sewing machine for 500 hours, I'd sacrifice 20 hp for a certified engine considering the terrain that I fly over and the large number of mechanics out there qualified to help work on it. The only thing that I have actually changed is a larger tail wheel for more ground clearance. Higher quality brakes to prevent vibration because of stamped drums would be nice, too, but Sonex now offers both of these as options. Also, I'd like to change my hangar size to accommodate three airplanes."

We all have dreams, and a bigger hangar is almost always one of them.

"The States were visited in three major trips. The first covered the West/Southwest; the second, New England; and the third the Northwest. These all happened in the summers of 2011, 2012, and 2013 respectively while using vacation time of about 10-12 days each. The southeast states were checked off with random fun flights from my home base of Monroe, Georgia."

As a general rule, when someone covers so much ground in anything mechanical, horror stories abound. Not so with Kip's adventures.

"I had terrifically good fortune regarding mechanical problems and weather. Over the course of approximately 103 flight hours and 13,500 statute miles, my only mechanical problems were a failed gas cap (resulting in fumes and not spilled fuel) and failed bearings in a tail wheel. The tail wheel nearly locked up while returning from the West Coast trip, and with only two landings to go before home, I was prepared to use it as a skid, if necessary.

"The Sonex philosophy of simplicity with limited frills allowed me to have some outstanding adventures with minimal problems. As the saying goes, 'It can't break if it's not installed.' My only en route maintenance was performing an oil change with the help of a fellow Waix pilot, Larry Engert, in his hangar in Idaho.

"Equally as surprising, especially considering that I was flying a VFR-only airplane, the weather delay time totaled about six hours for all the trips. I did, however, run from some nasty weather at times, but the Waix is fast enough to outrun most of it. Memorable weather events include flying around the Joplin tornado area and seeing (and feeling) the marine layer roll over the western third of the runway at Catalina Island. Desert winds and sunset limitations altered some plans, but each diversion brought pleasant surprises of their own. Like running out of light for Sedona but having the meteor crater slide under the nose in a race to Flagstaff."

#### MILESTONE EXPERIENCES

He says there are some situations and sights that will never leave his mind:

- Landing at First Flight Airport (Kitty Hawk) and having the Wright monument and the surrounding area all to himself on a calm morning.
- Flying the Hudson corridor. Sharing NYC with only a few helicopters and one Super

Cub who reported "circling the lady" as he was exiting the corridor northbound. "My little airplane and I 'owned' the Hudson for about six minutes."

- Landing at Sandusky, Ohio, and pulling up alongside the only airplane on the ramp, a P-51. "I thought the pilot looked familiar, and we began talking about Pitts Specials. He mentioned that he had about 4,000 hours in them. A few weeks later I confirmed, yeah, it was Gene Soucy."
- Landing on Catalina Island. "Mix in some amazing scenery, risks and apprehension of open-ocean flying, a mountaintop runway, and the psychological impact of being nearly 2,000 miles from home, surrounded by ocean in an airplane that I built, was surrealism blended with anxiety! Usually an optimistic type, I was thinking about odd things like how hard it would be to hammer out the main wing bolts to remove the wings and ship the airplane somewhere it could be fixed if the engine would never, ever start again!"

#### SO, NOW WHAT?

He's knocked off the continental 48. What about numbers 49 and 50?

He says, "Alaska? I get asked that often. My Washington stop was Walla Walla, and it was my best opportunity to check off No. 49. But, it was really not practical at the time as I was on a rigid schedule with my vacation time. And Hawaii? I never say never, but the truth is that I'll never get to Hawaii either unless I remove those snug wing bolts. Not likely."

So, when a guy has all of the continental states under his belt, he only has two options: The first is to start logging time in all the provinces in Canada and the states in Mexico. The second is to build another airplane with the possibilities of starting over. The other airplane is already in the works: He has a mostly scratchbuilt Pitts S-1D (flat wing, four ailerons) in process. It's up on its gear. Wings finished. And it's in the living room, dining room, and entrance hall.

When the homebuilding bug bites, it bites deep and hangs on. **EAA**

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