

Falco Builders Letter



John Harns taxis out for the first flight in Jim Baugh's Sequoia 300.

Sequoia 300 First Flight: Jim Baugh

After the world's longest development time, the Sequoia 300 has finally flown. The airplane was built by Milford D. "Jim" Baugh of Spokane, Washington, and the first flight was made by John Harns.

I really should go back and tell you the entire story about how this airplane came to be. It all started years ago with my Messerschmitt BO-209 Monsoon. The Messerschmitt was my first airplane, and it was a wonderful machine. Not unlike the Falco, it had 150 hp Lycoming, tri-cycle gear, two seats side-by-side and a bubble canopy. The propeller and gear were both fixed, but the plane had delightful controls. It had a control stick and when you moved it, things happened right away.

I bought the Messerschmitt before I knew how to fly and took my instruction in it. I quickly got an instrument ticket and flew it regularly on business trips to Greensboro, North Carolina, where I was developing a couple hundred condominiums.

The Messerschmitt would cruise at about 145 mph and whenever I flew it, I kept thinking about what a delight it would be to have a machine that really moved. There were plenty of big-engined production airplanes, but they all had six seats and were boring aircraft. I thought of the Messerschmitt as a 'Porsche', and I kept thinking of what I really wanted was a 'Ferrari'. Two seats, a big engine, and retractable gear—sort of a two-seat, single-engine Aerostar.

I began to study the alternatives of a move-up machine. The Aero Commander 200D was the fastest American machine. I went to the Reading Air Show and stumbled across a stunning all-

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white machine with a bubble canopy. Holy she-ut, it was gorgeous, and a ramrod-straight, white-uniformed pilot named Harry Shepard told me it flew "just like a P.51." So airplanes *don't* have to be boring, I thought. It was an Italian machine, something imported under the name of "Waco Meteor", but there were only a couple in the country.

At that time, the most exotic homebuilt was the Thorp T-18, which people called the "Tiger", and they would lie on the ground and take pictures of it. But in reality, it was a small machine and didn't have comfort, range or luggage capacity. Most of the other homebuilts were crude, country-cousins to production machines. There were a couple of fast, one-off homebuilts. The Brokaw Bullet was a very fast, tiny-winged thing that wasn't a practical machine at all.

The most interesting machine, though, was something called Melmoth, built by *Flying* magazine's Peter Garrison. It was a 200 hp retractable with long range tanks. He flew it to Europe and later to Japan. It began to dawn on me that maybe you could really build an acceptable airplane yourself. Garrison had done it all by referring to a copy of Bruhn's *Design of Flight Vehicle Structures*. I got a copy and would put myself to sleep by trying to wade through the tome.

In the end, I concluded that this was all over my head. Sure, I could see how you could figure out a few things, but assuming you did build an airplane of your own design, how would you ever know if you had left out some critical calculation? You wouldn't trust an amateur brain surgeon, so why put your life in the hands of an amateur aircraft designer? Particularly a drama major from the University of Virginia where many of the students spent more time drinking than they did studying.

I began to think about hiring an engineer to design a plane, and after reading an interesting article in *Air Progress*, I wrote the author, Robert Cumberland. Was it crazy to think about hiring someone to

design a plane for you, and could he suggest a few? It wasn't crazy at all replied Cumberland, and he suggested a few designers who didn't appeal to me at all. How was I to know that Cumberland, now a good friend and technical editor of *Automobile* magazine, is as crazy as I am?

Then one day, Dixon Christian, a friend of mine who was always chasing deals mentioned that he had talked to an interesting guy on the telephone. The guy was an aircraft designer, and he seemed to have lots of experience. Fellow named Dave Thurston who had designed the Lake amphibian. Thurston had also designed the Thurston Teal, another amphibian and had sold the design to Schweizer Aircraft, where he was working.

I called Dave Thurston and talked about my idea. Is it crazy to think about designing and building an airplane like the one I had in mind? No, he said, in fact, he was presently designing a sophisticated homebuilt amphibian called the Trojan, with 260 hp engine, retractable gear and four seats. We continued to talk about the project, what it would entail, how much difficulty, etc.

Dave Thurston had very impressive credentials. He had graduated at the top of his class at the Guggenheim School of Aeronautics at New York University and won the coveted Chance Vought design award. Out of school, Dave worked at Brewster and Chance Vought, and then moved on to Grumman where he stayed for about 14 years. (There's an interesting parallel: Roy LoPresti went to the same school, won the same award, and worked at Grumman. Roy later did some of the design work for Dave on the Colonial

David B. Thurston



Skimmer, the aircraft we now call the Lake amphibian.)

With the outbreak of World War II, aeronautical engineers were in high demand, and engineers with Dave's credentials were rare. He quickly rose to lead projects and in all he was involved in the design of a dozen or so aircraft, among them the Brewster Buffalo export fighter, the F6F Hellcat fighter, three Grumman postwar personal type aircraft, the F9F Panther Jet fighter, the Rigel guided missile, the F11F Tiger Jet fighter, as well as the Lake and Teal amphibians.

Dave was also a Designated Engineering Representative of the FAA, which basically means that the FAA accepts him as an expert and allows him to sign off and approve all sorts of things. Dave was also working on a couple of books for McGraw Hill, and eventually wrote three, *Design for Flying*, *Design for Safety*, and *Homebuilt Aircraft*. His first book, *Design for Flying*, is a classic and in 1978 Dave won the prestigious Earl D. Osborn award from the Aviation Space Writers Association, their top award for writing on the subject of general aviation, for the book.

There wasn't any question in my mind that Dave Thurston had all the experience necessary and could design the aircraft I had in mind. He was also rather frustrated with working at Schweizer and wanted some projects to work on in the evening, thus his hourly rate was very reasonable.

So we set to work on it. I formed a corporation named for the airplane, and Dave began the design work, alternating

between the Trojan, the Sequoia and his book writing. I had decided from the beginning to sell sets of plans to others to spread the cost of the design work as well as making tooling and a few kits.

Jim Bede had long since come and gone, but he showed to everyone that a market for a kit was there. Frank Christensen had just started marketing the Eagle, and he clearly showed that a quality homebuilt and kit could be built and sold. Rutan was making waves with the VariEze.

There's always been a certain amount of controversy about the proposition of selling plans for a new aircraft. Some people consider it heresy. Obviously it is preferable to the builder to purchase only something that has been fully proven, but that requires a lot of money spent before that stage can be reached. Dave Thurston and I both felt that as long as the purchaser was fully informed about the risks associ-

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ated with the project, then it was simply a decision for an adult to make. In the case of both the Trojan and the Sequoia, we turned down many applicants for the plans who appeared to us to be naïve or inexperienced. And it never made sense to us why it was all right for a Peter Garrison, say, to build an unproven airplane designed by a Harvard English major (himself) and not all right for someone else to build an unproven airplane designed by one of the true experts in the field having paid the mighty sum of \$400.00 for the plans.

So we set at it. The Trojan was an all-metal design. Make no mistake about it, Dave Thurston is a *metal* man, as conservative a designer as I've ever seen. He still carries with him the old Grumman preference for 'rugged' design. At Grumman, they never used a 3/16" bolt because a mechanic with a hangover might wrench the head off the bolt, and that didn't happen with quarter-inch bolts.

At the time, I was intrigued with the possibilities of a fiberglass airplane. I wanted a machine that would be sail-plane-smooth and that was achievable with fiberglass, but Dave Thurston wanted nothing to do with using fiberglass as primary structure. So we settled on an all-metal structure. The wings and tail are of conventional aluminum structure with flush rivets on the outside. The thought of a single rivet head showing seemed like anathema then. The fuselage was to be built of welded steel tubing, with a non-structural fiberglass shell. This would give us all of the aerodynamic benefits of a smooth structure.

Even though this was a new, completely unproven airplane, from the beginning Dave and I were interested in building a very conservative design aerodynamically as well as structurally. The typical problems you see with high-performance airplanes are tiny wings and tail surfaces. In particular, the tail surfaces of many airplanes are very small, and this makes for a fast airplane. The price you pay for this is marginal stability and control at low speeds. We wanted none of that and happily accepted the speed penalty of large tail surfaces and a long tail arm.

This balanced-design goal is all in stark contrast to the high performance singles that have since hit the homebuilt market. Swearingin built the SX-300 by the clever device of using a stabilizer for a wing, and

the Venture folks mistook a Czechoslovakian cartoon for an engineer's drawing. When he came to Oshkosh, Stelio Frati sneered at the tiny tails of the 'racing' airplanes, and launched into an animated lecture that people always talked about his quest for speed as if it were speed-at-any-price. He was interested in building fast airplanes, to be sure, but ones that a normal person could fly, thus all of Frati's aircraft, like Thurston's, have ample tail areas. As someone once said, you can never have too much tail.

In those days, I was infected with a combination of enthusiasm, naïvete and fearlessness that can be both dangerous and annoying when I see it in others today. With relatively little sense of the difficulties involved, we began with the idea of building the airplane with a turbocharged 320 hp Continental Tiara engine and with a fully pressurized cockpit. We abandoned both quickly in favor of a turbocharged 300 hp Lycoming and no pressurization.

I have since come to see the wisdom of doing one thing well, but along the way we considered and variously proposed a tandem two-seat version and a four-place Kodiak version as well. Looking back on it, it's amazing to me how obnoxious an ordinary person can become when fully charged up with enthusiasm. I would do drawings of various paint schemes and—it's very embarrassing to admit this now—I would actually send them to people, including the press. I managed without the slightest bit of effort to annoy Peter Garrison into snarls by letter, while others would bite their tongues politely.



Thurston, however was a voice of reason and kept me out of any serious trouble. Looking back on it, once you accept that that the venture is sane—which I'll grant you requires a leap of faith—the basic design decisions I think were fine.

We collected a diverse group of builders. There was an insurance agent out in Oregon who had been a stress analyst during the war. Chuck Davis was the maintenance manager for a fleet of helicopters in the Louisiana delta. Jim Dulin was a corporate pilot who delighted in barrel-rolling a P-Navajo with the boss in the back while on instruments. A former spray pilot with more time in tight turns than most of us have total time, Jim was a delight, a scruffy little Woody Guthrie type with an Oklahoma drawl who used to camp out at Oshkosh with somebody else's wife. He was later killed in a motorcycle accident when his dirt bike flipped over and he hit a pole. He had seven different airplanes, including a one-of-a-kind Curtis Pitts racer that now hangs in the EAA Museum. I miss him even today.



Jim Dulin and Alfred Scott pose proudly with the Neuman N2, perhaps the worst homebuilt ever to appear at Oshkosh.

There was Mike Perry out in Seattle, a window-display designer who helped us at the Oshkosh booth for a few years and who had a penchant for group sex and who occasionally would write me Bede-name-calling letters while drunk demanding complete electrical system drawings with a carbon copy to *The Aviation Consumer*—this from a guy who hadn't begun the fuselage. Butch Harbold in Charlotte hired an old-time homebuilder named

Gene Livingston, who had built 35 homebuilts, to build him a Sequoia. IBMer Bruce Horvath signed on, as did a homebuilder up in Alaska named Dick Wright, who had a fleet of Beavers and who built a 4500-square-foot log cabin with a liftup first floor to get the plane out.

Dick likes things in twos. I have a photo on my wall of him flying two airplanes at once. He has a disassembled Cessna 180 on floats strapped to his Beaver. "California pilots" would fly their float planes up to Alaska and land in some little lake they couldn't get out of, and then Dick, for a king's ransom, would go in and rescue their plane. He has also started two of our planes, both a Sequoia and a Falco, though neither has progressed very far. He also has two wives, one in Anchorage and one in Florida. They both know about each other and don't much care. It's a long story.

They were a bunch. Some of them are still at it and some have long faded from sight. There were also a lot of others—in all we accepted about 40 builders—who didn't stand out. I remember going to a California fly-in back then and meeting some of them. One who struck me at the time as the *least* likely to finish an airplane was a large, slow-talking, unbelievably longwinded bulldog of a man. There's no way this guy is going to go the distance, I thought. Yet this was the very man who outlasted them all and became the first to fly.

A retired survival instructor from the Air Force, who as a kid had hung out at the airport and would work three days for a fifteen minute ride, Jim Baugh has the tenacity of a snapping turtle, a creature who will bite down and not let go even after you've cut the head clean off. Building the Sequoia became a single-minded pursuit for Jim. He had no illusions about the unproven nature of the plane, and maybe that just made the mountain all the more inviting to climb.

What happened at this end was that we cranked out kits for about ten airplanes. I made the tooling for the tail group ribs, and we had a fellow by the name of Andy Brennan in California make up complete kits of ribs and spars for the tail. We sold these at our out-of-pocket cost.

We did the same with the wing. I made the tooling for the wing, flap and aileron ribs, and then former race car builder, Mike Underwood, made the wing spars, wing ribs and many other parts. We had

a series of engine mounts and control system kits made as well.

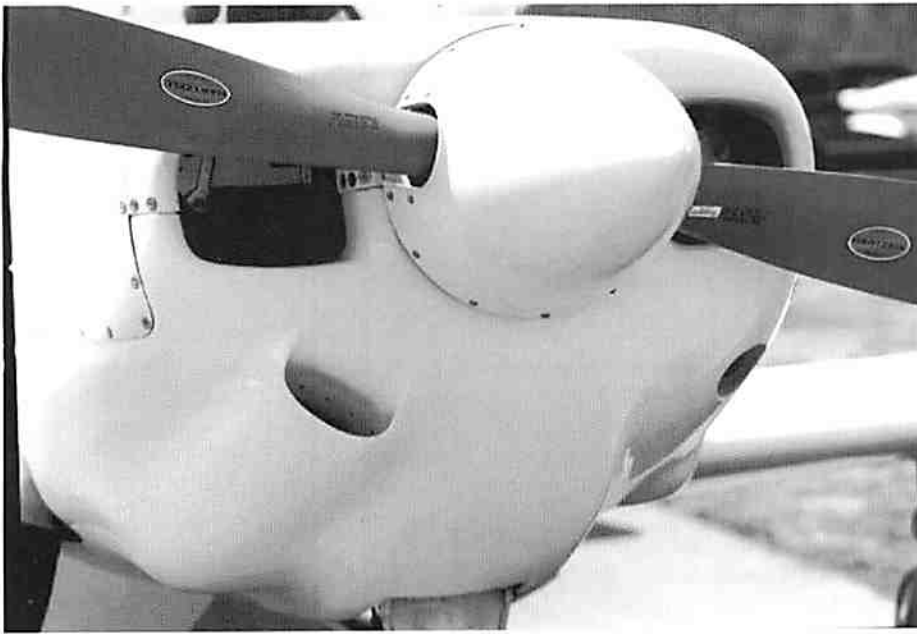
The landing gear became quite a job. Because of the crazy way the main gear swings in the wing and the way the retraction arm follows it, there was no way to design such a thing entirely on paper. Dave Thurston did the initial design, and then I made a wooden mockup of the thing. It turned out to be difficult but in the end we came up with a design that works. It's something to see work and when it starts to retract, you could win bar bets that the retraction arm wasn't going to fit into the cavity in the wing, but it slides up into place just as nice as you please.

By the time the landing gear was being built, a worrisome pattern had emerged. We would produce the kits and then sell them at our out-of-pocket cost—a fair way to handle such a cooperative multiple prototype thing. But I would find that builders would speak up and say that they wanted us to produce a kit, but once the kit was on the shelf they would say, "that's great, just hold on to it, and I'll send you a check when I need it."

Before we started the landing gear, I took a head count. How many of you want landing gears? I got a count of ten, so without the slightest idea of what they would cost, we got a shop to make a set of ten. When they were finished the bill came to a staggering \$70,000.00. Oh dear, I thought, how am I going to handle this? The problem of the 'just hold on to it till I'm ready' syndrome had already reared its ugly head.

So what I did was price the gear at \$10,000.00 and told everyone if they wanted them and would order and pay for them in the next 30 days, they could have them for \$7,500.00. We sold all but one, and as luck would have it the one we have left was for a guy who had previously said he wanted one. And last year at the West Coast Falco Fly-In, I had to sit and listen politely as a Falco builder told me that he and my former Sequoia builder had spent "many hours talking about you", and how the guy thought I was trying to "make money" on the gear and "didn't think that was right." Sometimes aviation is tough on your gizzard.

Dave left Schweizer and moved to St. Augustine, Florida, to be near the Seafire project, the production version of the Trojan that a bunch of jackasses in Sanford, Florida, were working on. It was



largely financed by a collection of crazy government assistance grants. They finished and flew the prototype and a homebuilder in South Carolina finished and flew a Trojan. Both flew well.

Dave hated Florida. It was a community of retirees, with everyone just "waiting around to die" and he left as soon as the Seafire project stalled. He moved to Connecticut and later to Maine, where he lives now.

The project stretched on for a number of years, with Dave cranking out drawings and me getting the kits organized, made and shipped. I spent nine months making the tooling for the canopy bubble. It was to be made by a new process that Walter Hoy of Airplane Plastics was working on. The idea was to form the bubble to a precise shape with a combination of air vacuum and hot oil. First, you would pull the hot plexiglass down into the hot oil by pulling the air out, then shut off the air valves and pump out the oil. The hot oil would cushion the bubble from any markoff from the mold and also would keep the plastic hot.

He spent an enormous amount of time, money and effort on the project and could never get it to work. I also spent three months making a mold for the Falco bubble, intended for the same process. In the end, it was a complete disaster as he was plagued with markoff of tiny dirt particles. It was an expensive lesson for both of us, and eventually we went to a different way of making the bubbles.

I had originally conceived the non-structural fiberglass shell as a VariEze-like con-

struction. We would glue blocks of foam in place, then sand them to shape, glass it and finish it out like a normal Tupperware airplane. I tend to be a snob about these things, and finally decided that we should really do it the right way. Make a plug, pull a mold off it and make nice, lightweight parts that were the right shape from the beginning. It would be much lighter, and you could get perfectly smooth shape. No question that it was the way to go.

It would also be a simple thing. After all, I had been reading all those articles in magazines about how you could just whip out VariEze's in nothing flat. I figured I'd just knock out the fuselage shell plug in a couple of weeks and then pull molds off it. In the end, it took years.

It's very difficult to explain to someone who hasn't done it, how much time you can spend on making a plug. Like framing a house, the basic shape comes together very quickly and then you begin the long, slow process of smoothing everything out. The last fifty-thousandths will drive you nuts.

Somewhere along in this process, I decided this half-hobby, half-business Sequoia was not the way to go. It should either be a hobby or a full business. I couldn't see making a business of anything but a proven airplane. I pursued the idea of resurrecting the Bucker Jungmann and Jungmeister airplanes as kits, and finally wrote Frati about the Falco... but that is another story.

And it was also during this time that the famous dispute with Piper occurred. I was

flipping through the latest copy of the *Flying Buyers Guide* and was surprised to see a full page advertisement announcing the "new Piper Sequoyah", a re-engined version of the Aerostar, now known simply as the 602P. So I wrote Piper a letter and told them it was our name and wanted them to drop the name, and that I was interested in a quick, amicable settlement of this situation.

We quickly heard from the patent and trademark attorney for Bangor Punta, then the parent of Piper Aircraft. We agreed to meet in Washington at the offices of our trademark attorneys, a very prestigious firm that specialized in that field. It was the most wonderful dispute I've ever been involved in, and I'd love to find another just like it for the simple enjoyment of it all. Although Piper and Bangor Punta were huge firms, both of my attorneys said they had never been in a stronger position. The attorney from Bangor Punta didn't even try to make an argument, and you almost felt sorry for the guy. "They didn't check with me" he said, and talked about "having egg on our face".

Indeed they did. One of the senior engineers at Piper is a friend of mine and knew all about the Sequoia. He later told me that when he heard they were going to use the name, he told his boss who passed it on to the Piper director of marketing. Bangor Punta had an in-house trademark attorney already on the payroll. All they had to do was call him up and ask, "Do we have a problem?" but they didn't. The stupidity is astonishing, and I've come to the conclusion that most disputes are like playing tennis with old ladies—it isn't necessary to slam the ball, you just keep it in play till someone screws up.

The poor Bangor Punta attorney was completely unprepared for our demands. They thought we were out to hold them up for a bunch of money and asked if they could rent or buy the name. I said we weren't interested in that. "What do you want?", he asked. I told him there were four demands: (1) we wanted them off the name in a reasonable length of time, (2) we would like this to be an amicable settlement and wanted a joint press release on the settlement, (3) this wasn't our fault so we wanted them to pick up our legal costs, and (4) we wanted all this in writing.

The Bangor Punta attorney, Pat Walsh, listened politely and then said quietly, "I think I'd like to make a telephone call" and left the room to call Piper. My two

attorneys nearly fell out of their chairs laughing. He returned to say that he was unable to reach the executives who were at that moment flying between Vero and Lock Haven. We'd have to conclude it by telephone.

What he didn't know, and what my attorneys wouldn't let me tell him, was that we had almost no legal time involved. There was one short phone call as we drafted the letter to Piper, then a trip to Washington, lunch and a fifteen-minute chat before the Bangor Punta attorney came in the door. Piper could have settled the whole thing on the spot for a couple hundred dollars.

It didn't work that way, however. Instead, the lawyers haggled for a month. Piper refused to pay our legal costs—that was our problem, not theirs. Okay, we countered, then we want money for corrective advertising (a well-established legal remedy in situations like this). They thought about it for a while and then called to say that they wouldn't pay us any money for corrective advertising, but they were going to run corrective advertisements and Piper was sending two executives to explain these ads to me.

So the two guys flew to Richmond, and I met them at the airport and drove them to the dingy little office that I used to have. Both were quite nice people. John Mariner was head of advertising, and Tom Gillespie was director of marketing and

on the board of Piper. Gillespie was a former Marine Corps aviator and didn't impress me as particularly smart. He's one of those guys who's always charging full speed ahead—but who never stops to wonder if this is the direction we really should be charging.

After the usual cordialities we got down to business. Gillespie said they understood they had to get off the name, and they were going to do that. And they had prepared this full page ad that they were going to run in *Flying*, *AOPA Pilot* and other magazines. Then Mariner read me the ad, something about "This is the new Piper [insert new name here, they were still working on it]. This is not the Sequoyah as we had previously called it, and not to be confused with the Sequoia 300 produced by Sequoia Aircraft of Richmond, Virginia." The ad went on some more, and when they finished, they both sat there with the silliest expressions on their faces and asked me what I thought about it.

"Well", I told them, "I am not at all happy about how this is working out, and so that you can understand why, let me take you back through this whole thing." I told them about our four original demands, how the negotiations had evolved and why we were sitting here today talking about this advertisement. I told them I thought the ad was stupid and that they should spend their time trying to sell airplanes. I didn't understand why they

didn't want to go along with our original demands, and then I dropped the bombshell on them. I quietly explained that "as of today, our legal bills are about \$2,500 and if we could settle this thing quickly, they would not run more than \$3,000."

What happened next was beautiful. John Mariner started to sputter all over himself, "S—t! That's less that it will cost to set the type on this ad" and while he was a-sputtering, Gillespie bolted out of his chair and lunged at me. "Can we put this in writing?" he asked, all excited. I explained calmly that it really wasn't a problem at all, that this was what I had been asking for from the beginning. It's all I wanted.

Then Gillespie got on the phone and called the trademark attorney. "Pat", he barked in a loud voice, "We've got a deal with Scott." And then he read him the same four conditions that I had given the attorney one month earlier.

It was simply *wonderful*. It's been a long time since I've enjoyed a dispute as much as that one, and a couple of weeks later, Gillespie called to thank me for how I treated them. Apparently they were so shell-shocked from greedy people grabbing for them, that they didn't recognize an amicable offer when they got one.

In North Carolina, Butch Harbold's airplane was coming together quickly. When he first found him, Gene Livingston's wife had just died, and Gene had completely given up on life. He was just sitting around the house doing nothing. The Sequoia project got him fired up again, and Butch, a cardiologist, said Gene was "the only person I ever cured". Butch essentially adopted Gene, and put him to work on his 260 hp Chipmunk after he crunched a wing after the engine quit during a low-level tail slide. In addition to competing in unlimited aerobatic competition, Butch also does the airshow circuit with his Chipmunk.

As he was building the wing, unbeknownst to Butch, Gene Livingston was slowly losing his eyesight and eventually he became legally blind. Gene's workmanship was always on the rough side, and like so many old-time builders he was interested in getting things flying and not in polishing parts. Eventually, as I was working on the fuselage and cowling mold, it became obvious that Gene couldn't do it anymore and Butch needed a new builder. Butch finally set Gene up in a mobile home out at the airport, takes him groceries and

John Harns (left) congratulates Sequoia builder Jim Baugh after the first flight.



books on tape, and no doubt will sit and read most, but not all, of this account to Gene.

Butch looked around for a new builder, and finally I suggested that he talk to Gar Williams. Gar had a shop in Naperville, Illinois, and he had about five employees working on a number of restoration projects. He had restored many antiques and classics, and also would maintain airplanes for various people.

When Gar got into the project, he found an unbelievable can of worms. The fuselage was bowed by an inch and a half and the number of squawks was too numerous to mention. One wing had one-and-a-half degrees more twist than the other. They decided they would have to take the wing apart and reskin it. Good thing they did because when they got inside, they found horrible workmanship. There was nearly a quarter of an inch of Bondo on parts of the wing, many rivets were missing and even a few six penny nails substituted for aluminum rivets.

It was so bad that Gar eventually recommended reskinning the other wing just because of the workmanship problems, and in that wing they found the same sort of thing. The wings, says Gar, would have failed on the first takeoff.

During this time, I was heavily involved in working on the Falco design. Literally years went by during which I would finish supper and go back to the office to work out design problems on the Falco, and I would spend odd hours working on the Sequoia mold. I got to hate the damned thing. You'd get covered with Bondo dust, and you could sand for months and not seem to get anywhere.

Gar wasn't able to proceed with the Sequoia project until he had the fuselage shell and cowling mold, so he had to put Butch's airplane in a mini-warehouse until I finished it. He kept pestering me, and I kept working at the plug in dribbles and spits. This went on for a long time, much too long, until finally one day Gar's wife, Mary Alice, laid into me something awful with heaps of ice in the tone of her voice.

Thank you, Mary Alice, for giving me that well-deserved, well-placed kick in the butt. I was so embarrassed about the situation, that I resolved that I was going to finish the damned thing by Oshkosh, two months away. And finish it, I did. I spent nearly every evening of the next two months sanding Bondo, spraying gel

coat and slopping West System epoxy. I eventually used about eighty gallons of the stuff, making the molds for the fuselage in six large pieces and the cowling in four pieces. I hated every minute of it, but thank you again, Mary Alice, for blasting me.

With the cowling and fuselage shell shipped, I was no longer the one holding anyone up. Gar and his crew made good progress on the fuselage and completing the wing. Gar had been planning to close his shop when he reached retirement age, but a couple of things forced this on him earlier than planned. One of his employees died, another got sick, that sort of thing. Gar finally wrote Butch that he wasn't going to be able to finish it.

Butch found a couple of guys in Tennessee to take over the project. After picking up the fuselage, they started going over it and called Butch to come out and look at it. They had all kinds of things they didn't like about it. The canopy frame was "all wrong." The fuselage shell was attached "all wrong" and was going to "blow off on the first flight." (Mind you, Dave Thurston, Gar and I had spent a lot of time talking about how to attach the shell.) Lots of other things they wanted to change. All this without a glance at the drawings or a single call to me. I called Gar and we both agreed that these were *not* the people who should be finishing the plane, and that they were over their heads. Butch said he had begun to suspect that as well, and you'll be pleased to hear that Charles Gutzman has agreed to finish the plane. He'll do a great job.

Meanwhile out in Spokane, Jim Baugh kept up a steady pace. There were many difficulties along the way, and Jim would call me to talk about these. We delivered a canopy bubble and both Jim and Gar used the Falco canopy frame/track design, but they beefed the canopy frame up a little. We never got a windshield made, but Jim adapted a Glasair III windshield.

Jim Baugh had the airplane essentially finished in November, but he had a little fiberglass work left to do on the cowling. He decided to let that wait until warmer weather. There was also another problem. After years of working on the airplane, suddenly the idea of flying it started to look like a rather scary proposition. The enthusiasm that carried Jim through much of the early years started to wane.

John Harns, who lives nearby and who has followed the construction of the plane

for a long time, had agreed to do the first flight. Good thing, because Jim Baugh is a relatively low-time pilot. He has about 300 hours in things like Cherokees, and he was painfully aware that he fit the profile of people who have had accidents in high performance homebuilts. In fact, it was worries about Jim Baugh that drove me to write "How to Kill Yourself in a Homebuilt Aircraft", just as concerns about Richard Brown drove me to write the Falco Flight Test Guide. I'm pleased to report that Jim has the right attitude, is getting checked out in Bonanzas and is proceeding slowly.

The weight and balance turned out to be something of a problem. The airplane was heavier than expected, and more worrisome, was a bit tail-heavy. It's a mystery to us all why this has happened.

For one thing, it has been a constant source of amazement to all of us how accurate Dave Thurston's plans are. Even though it was a new design, Dave's original drawings had fewer errors than the Falco plans have *now*. It's not a difficult thing to estimate the weight of a metal structure, and we've weighed the various pieces and assemblies and have found them to come very close to Dave's numbers.

As we went along, we began with an initial design estimate of 1,800 lbs, and then as Dave designed parts, he would work up an estimate of what the part should weigh. Then when we made parts, we weighed many of the completed assemblies, tail surfaces, landing gear, welded fuselage, completed wings, etc. There was some growth in weight and our final estimate was for the airplane to weigh about 1,900 lbs. That includes 170 lbs for the fuselage, which is what Butch Harbold's weighed, and 75 lbs for the fiberglass shell. The shell components weighed 49.5 lbs as shipped.

The empty weight includes only 15 lbs for instrumentation, so radios would add to that. Jim Baugh used some rather heavy seats and added an intercooler to the engine compartment. Where the extra weight came from is something we don't understand. In any event, the airplane required 30 lbs of lead to be installed on the front of the engine to bring the CG range within Dave's recommended limits for the first flights (18-26% MAC vs the Falco's limits of 19-30%). That brought the empty weight to 2,202 lbs and allows for two pilots to fly and still stay within Dave's suggested limits.

There were lots of calls leading up to the first flight. Finally, one Sunday evening I got a call at home—*collect!*—from Jim Baugh. I was *not* happy about this, and finally agreed to accept the charges only after arguing with the operator for a while. Then Jim came on. “We’ve got a very serious problem with the Sequoia. Are you sitting down.” Yes, I lied, standing in the kitchen with Meredith looking on. “We had a main wing spar failure.”

“Was anyone hurt?”, I asked.

“Fortunately not. It happened on takeoff. Why don’t I put John on? He can tell you about it.”

“How’s your insurance?” barked Harns, and I was beginning to smell a rat when he chuckled a bit and then said “She flies fine.” Cute guys, just trying to rattle my cage. It didn’t work, but it sure rattled Meredith. Jim later admitted it was all his idea and apologized.

The first flight was on April 26 from the airport at Spokane. John Harns took it up for about ten minutes and quickly landed because the oil temperature was nearing the redline. “It’s going to be a fine airplane”, said John.

They ordered a new oil temperature sender, and later concluded that the problem is something about the sender being right next to the return line from the turbocharger and that the temperature gets hot on takeoff and then calms down in flight.

On the following Friday, John took it up for about 45 minutes with the gear down the whole time. He took it to a full approach to landing stall with moderate power, 30° of flaps and gear down. It broke sharply to the left for about a quarter turn.

From the beginning, we all took solace that every airplane that Dave Thurston designed flew well on the first flight, and the Sequoia is no exception. John reports that it is “very responsive in all controls, even more responsive than the Falco.”

At this time, three people have flown in the plane, John Harns, Jim Baugh, and Randy Dalstram, an instructor who has taken over John’s role as lead pilot during the test period. Randy has quickly become comfortable in the plane and loves it.

Once the bugs are worked out, there’s



really no question that this is going to be a wonderful plane to fly. Everyone reports that it feels very solid in the air, and it’s an airplane that goes where you point it. It rolls from 45° to 45° in two seconds without even full aileron deflection, and it’s “rock solid when you turn the controls loose.” Jim reports that it’s noisy in the cockpit, but otherwise is comfortable to ride in.

“It’s going to be a dream to fly”, he says, although he admits to overcontrolling on his first takeoff. “It was a double handful and then some.” He was a half-step behind on everything and finally came to understand that with maneuverable airplanes you use a gentle touch on the controls.

Marilyn Baugh
*“If he doesn’t finish
the damned thing,
he’d better learn to make
love to it, ’cause he can
forget about me!”*

There are inevitable problems with a new design. John Harns reported that the plane feels very short-coupled on the gear and that you really have to stay on top of it, like a tail-dragger. Jim Baugh has since come to think that it was a matter of overcontrolling on the part of the pilot.

The brakes are fairly weak and won’t hold the plane still when you do a full power

run-up. Jim used a couple of Mac trim actuators in the elevator, and these seem to work too fast and take the trim tabs twice the travel we’d like. Doubling the length of the control arm will cure these things.

On Randy Dalstram’s first flight, the engine went rough. He quickly landed the plane and found that a loose injector line was dumping raw fuel over the top of the engine. Not a pleasant thing for a turbocharged engine. Then a couple of weeks later, they received an emergency AD from Lycoming to tighten the injector lines and supports. Others, apparently, have had the same problem.

The landing gear is hydraulically actuated, and it takes 18 seconds to get the gear up and 16 seconds to extend them.

Jim Baugh





There's no pitch change with gear extension, but the airplane pitches nose down when the flaps are lowered.

Jim has set the gross weight at 3,200 lbs, empty is about 2,200, and with a 300 hp turbocharged engine, the airplane accelerates, climbs and flies quickly. It will climb with full flaps, and with the flaps up and gear down, it climbs at 1,100 fpm at 110 mph indicated. With two on board and 85% power, it will climb at 2,000 fpm through 8,000 feet. This makes Jim say things like, "Man, that mother climbs!"

They haven't really opened it up yet, but at 4,000 feet, they've seen 180 mph indicated with 21"/2300. At 10,500 feet and 51°F, a power setting of 26-27" and 2300 produces 181-182 mph indicated. It appears that the airplane will come out fairly close to the estimated numbers for cruise and climb. It burns about 35 gph in a climb and then settles down to 14-15 gph at cruise.

At this time, they have about six hours on the plane, and they're in no hurry to explore the ragged edges. Instead, they plan to spend a lot of time getting used to the plane, and in late July, we hope to get Al Aitken out there to open the envelope and get some engineering numbers on the handling, CG limits and performance. Once he flies it, I hope to get someone like Peter Lert to take it up and give us his evaluation so that we can figure out what sort of tweaks might be in order.

There are many similarities between the Falco and the Sequoia. Peter Bacqué, a writer for our local newspaper, said the Sequoia looks like a "Falco on steroids."

The simple fact is that two designers, particularly conservative classicists like Thurston and Frati, with similar goals will design similar airplanes. Thurston, of course, did a great deal of engineering work on the Falco after we took it over but, amazingly, Thurston and Frati have never met.

There are several obvious areas for improvement. The airplane could use a windshield that was designed to fit properly with the windshield bow. It wouldn't be any faster, but it would look nicer. The exhaust pipe came right out of a Piper that uses the same engine, and it requires a big hole in the right side of the cowling. There ought to be a more elegant solution. And finally, a good paint scheme design would do wonders for the airplane. Jim Baugh just painted it with a temporary, get-it-flying coat of white with a few stripes on the tail.

In all, it took Jim Baugh eleven years to build the plane. There were, of course, the usual motivations to finish the plane, but Jim had an additional one. About a year ago, at a time when his wife was none-too-pleased with him, he overheard Marilyn tell a friend, "If he doesn't finish the damned thing, he'd better learn to make love to it, 'cause he can forget about me!"

What lies ahead for the Sequoia? I'm not sure. At the time when we started on the airplane, there were essentially no high-performance retractable gear airplanes offered for amateur construction—now, of course, there are many. One of the great lessons for me has been the absolutely stunning amount of work that's

necessary to bring an aircraft to the point where it's not only a flyable airplane, but there's also a complete kit and builder's manual available. I've done this on the Falco, and partially on the Sequoia, and I just don't have the energy or interest to pursue the Sequoia design by marketing it again.

I expect that there will be a flurry of interest in the airplane as a result of this first flight. My intentions are to continue to support the builders that we have. For many years now, we have refused requests to sell additional sets of plans for the aircraft because we were not prepared to offer the kind of support a builder needs, and also because the initial goal of sharing tooling and initial kit costs had been achieved. We would like to concentrate all of our energies on the Falco, so we would consider selling the entire Sequoia 300 project—design, tooling and all components—to the right party, but I would be very selective.

Based on my experience, I think that what should happen is that the fuselage should be redesigned in aluminum. It would probably be lighter, and I doubt there would be any difference in speed. It would be much more buildable, either as a production aircraft (the airplane was designed to FAR Part 23 standards) or as a kit. But we've got enough to say grace over with the Falco, and we'll leave it to someone else to do it all with the Sequoia.

Jim Baugh will have the Sequoia at the West Coast Falco Fly-In in September, and Dave Thurston is even mumbling about coming. We'll have more reports in future issues, but don't look for Jim and the Sequoia at Oshkosh. He's going to take things slow with the plane and get to know it before he takes it that far.

At the end of it all, I look back at the process and wonder what it all means. Part of me says that it's a neat thing and shows what someone can do when they put their mind to it. It's kind of embarrassing that I didn't finish mine in record time while simultaneously doing all the Falco design work but, hey, life doesn't always work out like you think it's going to, and maybe it's more interesting that way.

There's also part of me that says in a quiet little voice—and this is the uncomfortable part—as I look at the photos and think about the effort and expense of it all, that maybe—just *maybe*—we're all certifiable.—*Alfred Scott*

Construction Notes

In the brake system, we use a little piece of brass tubing shoved into the nylon tubing so that the metal fittings can tighten down on the tubing. This makes a superior joint, but I'm told that the 1/8" tubing that we supply is a little loose in the 1/4" nylon tubing. I suggested to Cecil Rives that he get some 5/32" brass tubing at a model airplane store. It wouldn't quite go in, but he found that if you heat the tubing, the brass insert will go in and the tubing will still fit in the Swagelok fitting.

Also, when hooking up the Alcor 46150 EGT meter to the rotary switch, Cecil found that Alcor's instructions were a bit confusing. The meter has three terminals. The Yellow (+) and Red (-) are the ones we want and which are hooked up to the thermocouple leads. The other terminal is marked 'UCS' and this is only for turbine intake temperature on turbo-charged airplanes.

Cecil also had a problem with the fuel flow totalizer. The Silver Fuelgard is no longer made, but Shadin makes one that fits in the same hole in the panel. The problem, though, was that the dang instrument is so long that the connector would hit the mounting strap on the front fuel tank.

The Shadin unit is about 8 inches long and Cecil and I spent some time working out how to install the thing. Cecil says that if you know about the problem in advance, you can just trade the locations with the totalizer and OAT and that will take care of the problem.

Next we considered the possibility of making up a custom plug. If you ever find yourself in a situation like this, you might try this trick. Many custom plugs are molded plastic affairs in which the plastic is simply injected around the pins and allowed to cool. You can do much the same thing to create a custom-shaped plug. What you do is first destroy the connector that you have and reduce the end of the wire to loose wires with pins on the ends of each wire. Then you put a piece of (wax?) paper on the connector on the back of the Shadin unit, and then poke each loose wire-and-pin into the proper place, shoving through the paper. The paper is there to serve as a barrier for when the plastic cools.

When you get all of the wires in place, you make a molded-in-place plug with a hot-

melt glue gun, forcing the hot glue down into all the crevices and between all the wires. You can push and shove the wires over to make the plug into the shape you want. The whole process is actually rather easy, and the result is a distinctly unlovely glob of glue, but hey, it's a neat way to solve the problem if it crops up.

In Cecil's case, that would only partially solve the problem, so we talked about mounting the instrument so that it would protrude into the cockpit and thus give him more clearance. If you're now reading this and thinking "Oh my God, do I have to go through all this just to put in a fuel totalizer", take heart. Cecil finally called the folks at Shadin, who said they were coming out with a new model in a couple of months. The new one will be 4.5" long, vs 8" on the one Cecil has. Cecil's gonna make them a deal they can't refuse.

John Devoe wrote in asking about a drawing for the cabin air inlet. He has already purchased a plastic scoop from Aircraft Spruce. John then learned from Jonas Dovydenas that we had already designed a scoop. We have this as part of our 'advanced builder memo' series, future construction manual chapters-to-be that are not quite finished.

I looked at the plastic scoop some years ago and found it really didn't suit our needs. First, it was rather small, and the little threaded nut control on it was admirably simple, but it didn't seem to fit in well with a fuselage with two plywood skins. In the end, it just seemed simpler to make the whole thing out of wood. That's what everyone does now and if you follow the drawing, it will really blast some air into the cockpit.

Just in case you're thinking about what a smart guy I am for designing a system that works so nicely when others don't, let me set the record straight: it's mainly a matter of luck. I measured a vent on a Frati Picchio once in Milan, and it was about three-inches across so I decided to use that size even without asking anyone if it even worked well. Then the location on the side of the fuselage was primarily dictated by getting the vent down low enough so that the outlet would be below the instrument panel. Why our vent works wonderfully and a slightly smaller one in a slightly different location works not at all is a mystery to me.

Somebody asked in the last builder letter about grounding metal parts in the air-

plane and what sort of wire to use. I mentioned that any wire could be used. This caused Steve Wilkinson to mention that Aircraft Spruce already sells a wire specifically made for this purpose. It's called 'tinned copper braid' and it's a flat thing that looks like a metal shoe lace. It's nice because since it's flat and braided, you can staple it in place if you like, and if you want to attach it to a bolt and continue on, it's just a matter of driving an ice pick through it to create a hole for the bolt.

Wicks Aircraft is selling a set of drawings for a plywood scarfing machine. It uses an electric motor and a sanding drum. From the photo, it appears that it rides on rails, but that might be an illusion. The package includes a 30" x 24" blueprint, instruction, parts list and five colored photos. It's P/N SJP-1 and it's available for \$12.95 from Wicks Aircraft, 410 Pine, Highland, Illinois 62249.

Jerry Walker mentioned that the accelerometer that IFR now supplies has a bezel that 3mm over the 2-1/4" hole. I spoke to IFR's Jim Garufo about these made-in-China instruments. He said he went to China and took along a bunch of drawing of how U.S. instruments are made. The company he dealt with has been making instruments for years, but not for the U.S. market. In return for his services, IFR got exclusive world marketing rights. It also appears that the Chinese company substituted a few parts and this results in a slightly oversized bezel on the gauge.

Jerry Walker said that he would recommend that you not attempt to enlarge the hole in the panel or to cut the panel out for the rather odd-shaped thing-thing about the knob in the lower left. Instead, he said if he had to do it all over again, he'd just use longer screws and pull it up snug to the back of the panel.

Occasionally we hear from a builder who reports that their control cables are just a smidgen too long for their airplane, and that the cables bottom out before the correct tension is reached. This usually happens on the forward aileron cables. If this happens to you, you can file about 1/8" off the threaded ends of the studs that go into the turnbuckles. This will probably take care of the problem, and if not, then you can do the same thing to the aft cables. Many builders have had this problem and have solved it this way.

I just got a letter from a Falco builder who had spent several years deciding to build



Bob Brantley's tail section takes shape.

the Falco, then bought an 18,000 square foot steel shed to build the Falco in. Then after reading the manual, he became upset at finding that he needed to install a climate control system for the building, and that with a building that large, it would cost more than the airplane.

That's quite true, but you don't need to do it. Steve Wilkinson's climate control system was a barn door, and he lives in New York. This is a non-problem. First, try to understand that no two Falco builders are alike. Some are very laid-back and others are compulsive about every single detail. In our manuals, we try to give you as much information as possible.

Unless you heat your shop in the winter, and thus probably should add a humidifier to keep some moisture in the air, all most of you need to do is be aware of the humidity. Don't skin something large right after a heavy rain when there's lots of humidity in the air. If you like, get a wood moisture meter to see what's what. Many builders have done this. Some find it interesting and informative. Others tell me it's a waste of time, and that you don't need to be that finicky.

And the other thing you need to keep in mind, whenever one of these seemingly impossible barriers springs up, is that a lot of people with ordinary mechanical skills have already done this. Don't let these things dominate your vision, instead ask how others have done it.

I'm finding that many Falco builders have adopted the practice of putting a light spray of water on the outside of the plywood just before gluing it to the wing or fuselage. They also use damp rags for this purpose, and it's to slightly expand the plywood so that it will tighten slightly when the glue dries.—*Alfred Scott*

Goings On at Sequoia Aircraft

We have something of a problem developing with our vacuum system. We include the vacuum gauge, hoses, fittings, filter and regulator in one of our kits, and we leave it to the builder to purchase the vacuum pump with the engine. Last fall, as part of a normal re-order process, we ordered fifty airplane ship-sets of the filter, regulator and low-loss angle fittings from Airborne. Delivery was promised for April.

In April, Brenda faxed Airborne a note asking about the delivery status of the order. We soon heard from their sales manager, who had replaced the guy with whom we had placed the order. He wanted to know if we used a standby electric vacuum pump in our system, and talked about renegeing on the shipment of the order if we didn't have such a system.

This came as something of a surprise. Some years ago, when we were designing the system, we followed Airborne's instructions and guidelines to the letter. A vacuum system is a temperamental thing, and it's important that it functions reliably. The vanes in a dry vacuum pump are carbon, and in effect it creates its own graphite by wearing away slowly.

Vacuum pumps are very sensitive to dirt and solvents, each of which can quickly lead to a pump failure. They also depend on a good flow of air for cooling. Restrict the flow of air, and you can be assured of a short life on your pump. This is why Airborne makes the low-loss fittings. These fittings are made by bending a short length of thin-walled steel tubing and then brazing them into a steel fitting. This allows the air to pass through with much less resistance than if you use drilled AN-style fittings. Each AN-type fitting has the same effect as adding 10 feet of hose to the system.

We are the only aircraft kit manufacturer that has ever ordered direct from Airborne, and apparently we are the only kit supplier to supply all of the components—hoses, fittings, gauges, etc. From what I understand, everyone else is left to their own devices. The filters and regulators are readily available but you won't find the fittings anywhere.

Airborne is simply trying to minimize their exposure to products liability risk, and you can hardly blame them. Like everyone else, they've been hit with law-

suits. There are about two accidents a year that occur because of vacuum pump failure in IFR conditions. Although we are all trained on partial panel, the simple fact is that the average pilot does not fly partial panel well. In actual conditions, the minimum required equipment of needle-ball-and-airspeed really don't work for average pilots.

In order to sell to us under their new policy, Airborne has four conditions. First, they want to be involved in the design process and approve of the design. That's fine with us. We have submitted our drawings, and Airborne's engineers have reviewed the system. They have no problem with our design or installation.

Second, Airborne is strongly opposed to the use of reconditioned or overhauled pumps and insist that a new pump be installed at the time the airplane is manufactured. They don't insist that the pump be their pump; you can also use a competitor's pump. They have a service letter out that says that their tests of overhauled show lower than normal flow rates and higher than normal operating temperatures, which "will significantly shorten pump life".

(I'm not interested in getting into a debate on the wisdom of new vs overhauled pumps. I'll leave that to the *Aviation Consumer* or *Light Plane Maintenance*. Falco builder Howard Benham is an instructor at FlightSafety and confirms the problems with overhauled pumps. I also spoke to Mike White, of Rapco, which overhauls pumps and has a line of replacement filters. He says that in the early days of overhauling pumps, some companies were just replacing vanes and that doesn't work. He says their reconditioned pumps have a new bearing, a relined cavity and a new Teflon coating. They've overhauled 35,000 pumps and have a 2.5 to 3% return rate on warranties.)

So Airborne wants us to supply a new vacuum pump as part of our kit. As far as I'm concerned, that's a non-issue. All of you will be buying a pump eventually, and I'm happy to include a new pump in our kits.

Finally, for any airplane capable of IFR flight, Airborne wants a backup pneumatic power source for the air-driven gyros, or a back-up electric attitude gyro instrument.

What's been happening is that after one of these accidents in which a pilot was

killed trying to fly partial panel, the families sue and make a couple of complaints. The first complaint is that no one warned the pilot that he should have had some backup, and the second is that he should have been forced to install such a system.

I don't know if the second argument has any legal validity, but failure to warn is always a serious legal matter, and it is the area where companies most often get into trouble. In any event, the reality in 1992 is that the sales people at Airborne are telling us they'd rather have us clone their products than buy them direct.

On the issue of some sort of backup system in the event of a vacuum system failure, you really *do* need something in reserve. In most of the accidents, the pilot flew the airplane for 45 minutes or so on partial panel, then lost control under the heavy work load on an approach. An expert pilot like John Harns might be able to shoot an approach with partial panel, but the rest of us need help. Precisely what equipment you install is up to you, but I have a few thoughts.

Our first preference has always been that everyone flying a Falco in IFR should have a Century I autopilot. It's an all-electric system and if your pneumatic gyros go south, you can just flip a switch and let the autopilot do it.

Another system that's very popular is the manifold pressure system. The nice thing about this system is that it's so unbelievably simple and light. There's a shuttle valve and an extra hose that is plumbed into the engine manifold right in front of the injector. If the vacuum pump fails, then you can continue on by using the suction in the intake manifold to drive the gyros. You only get suction if you are using partial throttle, so you can't use full throttle and still have full vacuum pressure.

You can use full throttle intermittently, of course, to climb or go around and then throttle back to spool up the gyros. Steve Wilkinson has been a 'beta tester' and has installed the first such system on the Falco. It has always been our intention to make this a standard part of our kit. Airborne doesn't care for the system because it doesn't work in all flight regimes.

Another alternative is to use a second, electrically powered artificial horizon. The problem for us is where to put it.

And the other choice, the one Airborne

prefers, is an electrically driven auxiliary air pump. It's a pump that you mount on the firewall somewhere and plumb into the system. Airborne makes a fine system with an indicator switch that lights up as a warning when the engine-driven pump has failed. Other companies make similar systems. Airborne does not insist that you use theirs, only that you should install such a system if you fly IFR.

For the most part, I see the liability situation pretty much as Airborne does. Whenever I come across a situation like this, I always try to imagine the situation fully developed with an accident and a lawsuit. If every Falco was going to be used for IFR, we would go along with Airborne and force the purchase of a new pump and an auxiliary pump by making it part of a kit that we wouldn't break up.

But I have a problem with the George Barretts and Joel Shankles out there who are just going to fly their Falcos in VFR. If we took Airborne's position, we'd be forcing you to buy some expensive equipment you don't want or force you to go shopping for the other pieces. For those of you forced to go shopping, you'd find that the fittings are difficult to find—Aircraft Spruce doesn't even list them. You'd end up making changes to the system, and you would end up flying around with the same kind of systems installed in other homebuilts—abortions.

And the question I hear some future lawyer raising in an accident involving such a plane is whether Airborne and Sequoia acted as an impediment to safety. My conclusion is that we would be seen as making it more difficult to install a proper system. I've asked Airborne if we could have two kits, a VFR-only kit and an IFR system, and then let you decide which one you want to buy. They haven't even answered the letter.

The people at Airborne are very nice people, but they're caught up in the madness of the age. How absurd it is for a company to tell you they'd rather have you clone their products than buy them. What actually happens in situations like this is that a loss prevention specialist arrives from the products liability insurance company, and they arrive at a plan to reduce liability by taking certain measures. What makes sense as a policy for Beech, Piper, Cessna and Mooney doesn't make much sense with a kitplane, but this requires a change in the insurance policy, a decision from the re-insurer, etc. In the end, it's just too small an order for the

issue to get consideration. Why is it better to have the parts follow an Airborne-Aircraft Spruce-you path rather than Airborne-Sequoia-you path completely escapes me. We live in a world that's a little crazy right now.

Our plan is to rework the design of the vacuum system to show a VFR system, a manifold-pressure auxiliary system, and the Airborne auxiliary air system. We'd like to be able to give you fully detailed bolt-it-here instructions on the aux system, but so far our requests for dimensioned installation drawings have been ignored—all we have are sales pamphlets. We'll also be adding warnings to the flight manual about the need for a backup system for vacuum pump failures.

In any event, we're weighing our options at this time. One alternative is to take Airborne up on their invitation and to clone all the parts and make them ourselves. The Airborne engineers cheerfully told us what materials to use and how to do it. The fittings are easy. We're also looking into cloning the regulator. It's a very simple device.

The way it works is that there's a diaphragm and a spring. A tiny hole in the fitting in the middle lets the lower pressure inside the device reach the cavity above the diaphragm. The larger area of the cavity pulls the plates away from the central tube, leaking air into the system, and the tension on the spring sets the pressure.

It's also quite easy to make. Our version would use a tube with a sawcut instead of Airborne's casting, but otherwise they would be functionally identical. The Airborne filters have been cloned by a rival company who will happily sell to us. The only real expense is the deep-draw stamping to hold the filter and diaphragm. At this time we've priced them with our stamping company, and the numbers are coming together rapidly. It looks like it's going to cost us about the same to build 500 clones as it would be to buy 50 units OEM-direct from Airborne. We're also talking to some other companies about sharing the tooling for these. If that happens, the cloned regulator will be a no-brainer, and you'll see some private-label regulators on the market soon.

The whole thing is filled with irony. All of you will have an Airborne pump on your Falcos no matter what, because it's the only one that will fit—others hit the engine mount. We can buy replacement

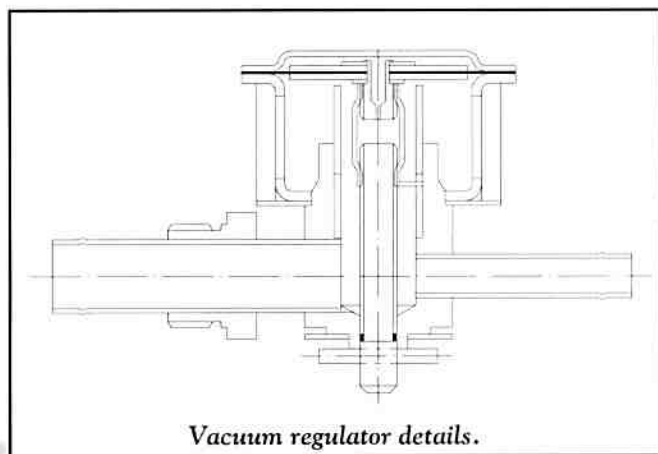
Airborne diaphragms cheaper than making them ourselves. All of the threaded fittings are made by Parker Hannifin, the parent company. And the only kitplane manufacturer that runs up against the problems is the only one that's been installing systems per Airborne's instructions. It's a very crazy world out there, but it's not the fault of the manufacturers, indeed they are the principal victims.

Other news. At long last, we have shipped the wing fillet molds to our supplier, and we will have the parts here shortly. We are a little disorganized on this, and we haven't yet decided where (i.e. which kit) to put the parts so at this time they're listed as a separate item in our price list. We will also be getting the wheel well doors and gear doors made over the summer and will be adding these fiberglass parts to the kits.

We're also getting the exhaust port horns made at last. These things have been an unmitigated disaster. First we spent a lot of money for tooling to make them in metal, but then the shop was unable to get good parts. Another shop tried using the same tooling and failed as well. For a long time, we showed the parts in our cowling kits as back-ordered parts, but then Brenda mentioned that we had never figured the cost of the parts in the kits—*quel bummer*. Anyway, these things are simply internal fairings. They're intended to let the air flow smoothly out of the engine compartment. They're intended to give a little speed. Karl Hansen has a set installed on his and thought they added a knot or so. We'll be shipping them out soon, and we'd appreciate any reports you have on speed increases. If they don't do anything, we'll eliminate them.

Steve Wilkinson has the doors on his Falco, and the wheel well doors are unbelievably stiff. Even so, they pull open about an inch at the trailing edge. Larry Black reports that his doors, which aren't nearly as stiff, barely pull open at all—by only 3/8"—and they have a gap of 3/16" to begin with. We don't understand why they are moving, and this is something we're trying to chase down. We think it has to do with the linkage, not the stiffness of the door.

Pawel Kwiecinski called and reported that on a recent inspection, he noticed that the P/N 708 nose gear drag strut supports were loose. (These are the hinge-like



Vacuum regulator details.

fittings which are installed on each side of the nose gear bay at the front. They are attached to the fuselage by five bolts, and the nose gear upper drag strut support is attached to them.) Pawel says this cannot be observed with the gear fully up or fully down, but only when the gear is partially retracted. With the airplane on jacks, and with the gear partially retracted, he could move the nose gear and this caused the P/N 708 supports to move up and down by about 3mm.

Several years ago, this Falco suffered a nose gear collapse. The airplane hit a ditch and the nose gear collapsed. We later concluded that the nose gear was not completely checked for overcenter and had not passed the 'kick test'. In this incident, the pressure on the nose wheel caused the system to involuntarily retract. The upper and lower drag struts were not damaged, nor was the P/N 605 nose gear adjustment screw (that's the rod-end-bearing that is installed in the upper drag strut) but the nose gear screwjack (the male threaded part) failed in bending.

At Pawel's request, we sent a letter to all owners of Sequoia Falcos and asked them to inspect their airplanes. We have received reports from Karl Hansen, Steve Bachnak, John Oliver, Steve Wilkinson, and Neville Langrick so far. All report no sign of movement of the P/N 708 supports. Karl Hansen reported that two of the bolts could use some tightening.

Pawel ended up fixing his by drilling out the holes for the next larger sized bolts and installed them. My conclusion is that the design is fine and that the holes in Pawel's airplane were ovalized at the time of the accident.

Steve Wilkinson made a new transponder antenna according to Michael Scaturo's design. He put it in the bottom

of the fuselage, and Steve reports that it "seems to be working beautifully."

Some of you have asked about the main landing gear screwjacks. The ones we are shipping now have an integral spring base, so you don't need to drill any rivet holes or install anything. You just drop the spring in there. We will probably always make these that way, and it's simpler for us to make them that way.

Believe it or not, we have not yet gotten the wing ribs finished. It's astonishing how much work they require in the preliminary stage. We now have all of the spruce pieces cut up, and we've just finished cutting up the plywood for plates and gussets. The little plywood gussets fill fifteen grocery bags and weigh 120 lbs.

We've made a number of very minor adjustments to the design of the ribs so that they can be made more efficiently. In certain places, the gussets are slightly larger rectangular pieces positioned at an angle rather than custom-angled pieces as shown on the drawing. The changes are very small and always involve the same or more glue area, so there's no decrease in strength. Also on some of the ribs at stations 1 through 4 for the part between the main wing spar and forward wing spar, we're putting plywood on both faces of the ribs. As it was, the gussets covered a lot of area. We'll get a slight increase in strength for an insignificant increase in weight.

We will be assembling the ribs using glue and staples. With this method, you can make a lot of ribs at one time, so we expect to have ribs stacked to the ceiling before very long. As I write this, we are just days from starting the gluing process, and we expect to complete fifty airplane rib kits this summer.

I'm really tired of wing ribs, and I'm beginning to feel like Brenda Avery, who exploded the other day in frustration over something with "Why couldn't Mr. Frati design a square airplane?"

A reminder: as we announced in September, we're not having a display booth at Oshkosh this year. We will be having our Falco builders dinner as usual on Tuesday night. I plan to fly up on Sunday and stay for a few days. After years of working the show, I'm curious what it will be like just to enjoy the place.—*Alfred Scott*

Sawdust

- Watch your step. Everybody has to plaster 'Experimental' on their amateur-built airplanes, but as a result of his 'experimentation' with various landing configurations, Jonas Dovydenas now has 'Experimental, You Betcha' on the side of the Stealth Falco. Like a fighter jock scoring his kills, Jonas plans to add exclamation points for each future boo-boo.

- Obscurity in America. According to published reports, the highest paid attorney in the U.S. is a trial lawyer in Houston who was paid \$45,000,000.00 last year by his firm. That's more than the GNP of some African countries.

- Mr. Rutan goes to Washington. Voyager pilot Dick Rutan is running for congress. Shame he wasn't in office during the Anita Hill thing and could have demonstrated his famed sensitivity towards women. Somehow the usual californiawords—*caring, sharing, concerns, communicate*—don't seem to apply to the guy who would barely let Jeanna fly the thing on the round-the-world flight. Basically, what happened was that the two, who had been something of a pair, had already come to a terminal split before the flight but decided to stick it out anyway.

- Enterprise Zones. Want to solve all of our nation's inner city problems without costing the taxpayer a cent? It's quite simple, according to a plan concocted by a friend, Walter Marsh. You just pass a law that any products manufactured in inner-city enterprise zones would be free of product liability claims. The problem, of course, is what do you do with the rest of the country after everyone moves to the inner cities?

- Now we are 700. The other day we shipped out our 700th set of Falco plans to Wolfgang Schlegel in Munich, Germany. Indicated engine is a 150 hp Zöche Aerodiesel, whatever that is. Does anybody want to break it to Dr. Schlegel gently about how we feel about such modifications?

- Sorrrreeeee. Gee, we're really sorry about this, but Mr. Frati made a little ol' miscalculation some years ago on the CG of the Falco, so what we need all of you to do is saw the wing off and move it aft 1.5"—either that or make a new horizontal tail that's bigger. Just kidding, but now you know what it's like to be a Glasair IIS builder who just got a service letter to that effect.



Squadron Marina to attack Oshkosh. He always swore he'd never go back, but look for Steve Wilkinson and his newly painted Falco on the flightline at Oshkosh. The airplane is all decked out in phony Italian warnings—Sperimentale, Pericolo, Stephano. Don't worry, he's not doing this to enjoy it. It's just an article he's working on, and he's getting paid to do all this.

- Good curve. Is anybody noticing? For the second year in a row, the EAA's financial base has grown by about 30%. One more year like that and the EAA will have grown financially more in three years under Tom Poberezny than it did over the first thirty years.

- GPS Watch. As the street price of the Sony GPS approaches \$1,000, now comes Trimble with a handheld, battery-powered GPS with full Jeppesen worldwide database with a list price of \$1,295.00. Mark my words, sonny, it's just a matter of time before Seiko puts one in a digital watch.

- Hair travel. She's stubbornly resisting hair coloring, but things could change! It was pretty tough on her recently when Meredith Scott was talking to my brother's classmate and his wife. They were only ten years younger than Meredith, and Meredith was talking about working in New York right out of college, flying back and forth to Richmond, etc. "Really?" asked the gal. "They had *air travel* to New York back then?"

- Kudos for IFR. After years of hearing complaints about slow delivery from Instruments and Flight Research, suddenly we've been getting astonished reports from Falco builders of prompt delivery. "You must really have lit a fire under their tail!" wrote one builder that he got his in three weeks. Even Steve Wilkinson is impressed with the changes in attitude. IFR's Joe Fox says prompt shipment has become a "mission" for him and says they've

made the decision to try to keep three complete Falco instruments sets on the shelf so they can give prompt shipment.

- It ain't so EZ for the big guys. No one argues the potential benefits, but in "Why Composites Wait in the Wings", a major article in the April 1992 *Interavia*, writer Bill Sweetman details the enormous problems faced by airliner manufacturers in making components of composite materials. There's the expense of the raw materials: a manager at Douglas says "we pay more per pound for the prepreg system than we do for the end product in aluminum." And in a speech of exceptional candor to his alma mater Rensselaer Polytechnic Institute, Raytheon President Max Bleck talked about the staggeringly difficult problems that Beech had to overcome to design, certify and manufacture the Starship. When they began "much of the technology to accomplish the task was still largely theoretical." In all, it took six years and \$350 million dollars to overcome the problems and to develop the technology. Although graphite epoxy has just 57 percent the density of aluminum, the weight savings in actual structure were different. "In Starship, we believe we achieved a modest weight savings over what the airplane would have been in metal. In some areas of the aircraft, this weight savings may approach 20 percent. In others, it is substantially less. Clearly, the reality of weight savings is less than initially forecast." Bleck's conclusion on the field of composite airframe manufacturing? "In many respects, the jury is still out." And the conclusion



John Harns and Larry Black prepare the air over Coeur d'Alene for the third annual West Coast Falco Fly-In which will occur on September 11, 12 & 13 in Coeur d'Alene, Idaho, which is something of a resort that's grown up around a large lake. John and Pat Harns are hosting the event and are mailing invitations to almost everyone, but if you do not receive a personal mailed notice by July 1, John says to "please forgive me, and please call or write for all the information." All reservations must be confirmed by August 1. Please contact John or Pat Harns, Rt. 1, Box 445, St. Maries, Idaho 83861, telephone (208) 245-4600.

that most engineers have is that what the production companies are doing and what homebuilders and the composite kit plane companies are doing are worlds apart, and that if you don't do the engineering, sooner or later it's gonna bite you.

- 33rd Sequoia Falco takes to the air. Jan Waldahl flew his Falco for the first time on March 30 in Sandane, Norway. The first flight was "60 minutes of great fun" according to Jan. On the third flight, Jan heard a "pling" in the headphones, the ammeter went to max on the plus side, and then he had a complete electrical failure. He cranked the gear down and landed to discover that a loose diode connection in the alternator created an enormous short and burned out the ammeter shunt and turned the alternator shunt blue. We're waiting for photos and more details from Jan, so we'll have full coverage of this in the next newsletter.

- With a tongue like this, who needs a propeller? One of the first things any journalist learns is how to say terrible things about people without libeling them. You learn to use weasel-words like *alleged* and *reportedly* and to express things as a personal opinion. It appears Javelin Ford designer Dave Blanton has never been to school on this stuff. First, he calls a world famous engineer "a Goddamned liar"—in print! Blanton called a NASA engineer—who happens to be an expert on powerplants—"a professional liar." In

print. You want to know what this is all about? It's an argument about what is a horsepower. No kidding. You can look it up in a dictionary. He attacked plenty of others—the editor of *Kitplanes*, *Aviation Consumer* magazine, the EAA, some EAA directors, and finally a guy named Bill Jongbloed. Jongbloed simply wrote an article for *Kitplanes* explaining (correctly) how to calculate horsepower. Blanton wrote letters attacking Jongbloed, who makes high quality racing wheels, and said that Jongbloed's wheels "had killed people on the track." That's not true, and Jongbloed finally took him to court and won a judgement for \$100,000.00. Blanton didn't even come to the trial, and when he came to the default judgement hearing, Blanton reportedly was ejected from the courtroom by the bailiff because he reportedly wouldn't shut up, in fact, Jongbloed reports that as he was being taken from the courtroom, Blanton yelled, "Goddamit, this is America. I want my trial. This man threatened to kill me." During the EAA audit, Blanton, who lives in Wichita, called me "direct dial from Hong Kong" with a whole bunch of silly stuff and followed up with an incoherent letter saying among other things that Tom Poberezny "is a nasty little boy." Don't you love it? It was so bad that I actually faxed the auditors asking them not to waste any of the EAA's money pursuing accusations from "this notorious fruitcake". Um, make that *alleged* notorious fruitcake.

Brenda's Corner

Yes, Virginia, wing ribs *are* going to be made. I have seen the jigs, I have seen the bags of gussets, I have seen boxes of braces and corner pieces, and I have been soaking and bending capstrips. The time is getting close. It's sort of like waiting for Christmas when you were a child—you didn't think it would ever get here.

Even though we are not having an exhibit at Oshkosh this year, the show must go on and the annual Falco builder dinner will go on, too. Steve Wilkinson has agreed to take charge and will be letting the restaurant know how many to expect for dinner. We would appreciate it if you could drop us a note if you are planning to attend.

If you are unable to do that or decide at the last minute to attend, leave a note for Steve on his Falco on the flight line. He will be arriving Monday, August 3. As in the past, the dinner will be at Martini's Restaurant in the Midway Motor Lodge in Appleton. The date will be August 4, with the bar opening at 7:00 p.m. and dinner at 8:00 p.m. The menu will be prime rib or baked haddock and the price will be around \$15. We have already heard from several builders who are planning to attend so there should a nice size group.

This will be the first time in nine years that I haven't had Oshkosh take a hunk out of the summer. It seems like I have a endless summer without those two weeks staring me in the face. I am sad that I will miss seeing all of you who I have gotten to know over the years. That was one of the positive thing about Oshkosh, getting to meet so many Falco builders and other people associated with the media and aviation.

After my column in the March issue, I heard from several of you who confessed that you actually do read Brenda's Corner. Thank you for your support. Oh, by the way, someone *did* take pity on me and took Alfred's license plate. If you are traveling around Ocala, Florida, look for it on a old Chevy pick-up with a Falco paint scheme.—Brenda Avery

Mailbox

I had some tough assignments during my twenty-five years in the USAF. Some thirty-five years ago, while a staff officer at Strategic Air Command Headquarters in Nebraska, I was required to get my flying time in a T-33. A few years earlier, the reserve unit to which I was assigned after WWII had nothing but the T-6 available. I managed.

In a vicarious way, I re-lived the former experience as a result of a visit paid me in early May by Jonas Dovydenas and Bob Bready. Jonas managed to slip the Stealth Falco into a local airport with only 11,318' of runway, the now nearly deserted former Pease AFB. When we met on the tarmac, we represented three-quarters of the New England Squadron (Falco) since only the pastry baker was missing. Perhaps one day soon we shall have a gathering of four of the pretty birds.

After lunch in the base chapel, now converted to a sandwich shop, and an inspection of Falco N644F—I graduated from pilot training in June of '44 with class 44F—Jonas allowed as how we should take a ride in N873DX. I currently fly a rented Warrior, thus what followed was a most impressive takeoff and after we cleared the ATA, Jonas demonstrated a few slow rolls—it seems they are now called aileron rolls—and then let me fly the Falco. What can I say that has not been said before? I had a T-33 in my hands again! Most of my USAF flying was in the "heavy iron", thus when Jonas rolled this Frati beauty, it was the first time I was upside-down in a wind machine in over a quarter of a century.

Ryan Black, 27 months old, gets his first ride in an airplane.



Nude sunbathers in Cape Cod can sleep soundly tonight, our country is safe. John Devoe, Bob Bready and Jonas Dovydenas at the top secret New England Stealth Falco Air Force base.

A ride in a Falco sure presses one on to completion. In the New England Squadron, Bob Bready is next.

*John Brooks Devoe
Stratham
New Hampshire*

All tail surfaces completed. Wing ribs completed and all spars except main wing spar, which is now under construction. I'm on full swing on the Falco this year, thanks to Larry Black's consistent efforts to drive me on.

*Shahid Choudhry
San Jose
California*

Wing construction is proceeding slowly but steadily with ailerons and flaps nearing completion. All wing ribs are constructed and the main spar table is under construction. All the other spars are completed.

*Dan Martinelli
Montose, B.C.
Canada*

I started the Falco in the spring of 1982 soon after soloing in a Grumman Cheeta. I built the tail from the Dahlman precut wood. Soon found that renting IFR Tigers, Mooney 201s (great flying club), instrument instruction, etc. left too little money for Falco! In 1991, after 500 hours TT and instrument rating, I decided to go at the Falco again and ordered updates. The next month, I was laid off (mechanical engineer). No work since and therefore no real progress. I have a promising interview on Monday. Maybe there's hope!

*Bob Logan
Easton
Connecticut*

Right on schedule and having a good time, but quality takes time. So that factor even enhances the pleasure of building the Sequoia Italian classic. Keep up the good work, including your insightful reflections on safety such as manifested itself once again in your most recent builder's letter. I look forward to each one of them.

*Bill Roerig
Kaukauna, Wisconsin*



Back home at the Devoe Falco Werks, John builds up some currency time in the simulator.

I read with interest your article "How to Kill Yourself in a Homebuilt Airplane" and found myself in agreement with most of the points you made. Surely you are not serious about the Grumman American aircraft being difficult to fly. I agree that the AAI is a little sensitive on the elevator, but the bigger designs such as the Tiger are very easy in every way, as long as you do not attempt to spin them.

You emphasize the need for a check-out before flying a new type such as the Falco. In the UK, there are not too many Falco pilots, and consequently if any of your builders in this country would like to use me as a check pilot then I will happily make myself available. I have in excess of 1,500 hours in the Falco.

Peter Hunter
London
England

I wasn't trying to beat on the Grumman American series, only reporting the accident record and the Yankee Association's dramatic improvement in the accident rate by using a formalized familiarization program that introduces the new-to-type pilot to the peculiarities of the airplane. And also remember, you are right at home in the Falco, and the Yankee series are truck-like by comparison.—Alfred Scott

Most of the instruments arrived from IFR on Friday. Well packaged, and they called me ahead of time to let me know they were on the way. The encoding altimeter is really neat—small even compared to a

standard altimeter, with mating connector and full text documentation provided. Overall, I would have to give IFR high marks for what I have seen from them so far.

Craig Bransfield
Bakerfield
California

Greetings from Australia!! I know that it has been about a year since you sent me the plans for the Falco, and I feel terrible that it has taken me so long to write to thank you. After reading your last newsletter, I felt that I just had to write. I read with interest the section on homebuilt aircraft accidents and was very interested in what you had to say—I had just finished reading the article you referred to from *Aviation Consumer* when the Builders Letter arrived.

It appears that there is some type of informal competition as to the quickest and slowest Falco to be built, and while it seems to be pretty much accepted that the Falco built by Karl Hansen was the quickest to be built, the time for the slowest appears to be increasing all the time. Although I hope I don't get into the situation where it will take me forever to build mine, I think I would have to take the prize for the person who has wanted to build a Falco for the largest amount of time.

I feel it is only fair to claim this. Five years ago, before I had even believed I would learn to fly, I wrote to you requesting

information on what I still believe to be one of the most beautiful aircraft in the world. From that time on all I have wanted from this life was a Falco, and that was before I expected that I would fly it—I just wanted that sexy wood-chip to be mine. Now I have the plans and the will, but not the necessary funds, but I'm working towards that too.

Brenda, I can't believe that you are still waiting for someone to ask for Alfred's old license plates. I never wrote, figuring that they'd be gone before I even received the newsletter, and I live over here so the postage would be astronomical anyway. Intend to get 'FALCO' as the registration on my car, when I get half a chance and some spare cash. You'll be glad to know that at least one of us reads your part of the letter, though.

You may have noticed that I am a Falcoholic, too. I've never used that term before, but it fits pretty well. I'd drive across the country to see one, and I'll probably go into shock when I finally do. I can't wait.

Karren Melhuish
Newcomb, Victoria
Australia

Karl Hansen probably still can claim the title of the fastest Falco, but the quickest build was by Pawel Kwiecinski and friends, who did it in 13 months. Also we got lots of letters like this one saying, "We DO read your column, Brenda!" Guido Zucconi should be flying his Falco shortly, and when you do, Guido, you're going to have to give Karren a ride—she'd dying to become a fast lady.—Alfred Scott

Progress to date on my Falco is proceeding at a rapid pace now. Wiring is complete except for radios. Undercarriage complete and painted. Airplane complete and in its primer coat. I collect my remanufactured (Lycoming) engine today. First flight? Before this time next year.

Stuart Gane
Menhirs, Farmington
England

You're right about IFR. They seem to be doing things differently, and the reason may be that I'm now getting my faxes rapidly answered by a guy named Joe Fox, in sales. Maybe he's new. I griped about the directional gyro, and Fox answered that they'd repair it for free, both to see if there was some fault in it they should know about and "to fulfill their commitment to me as a customer."

I faxed him back and said thanks, that was nice of them, but could they tell me how long it would take, since I didn't want to pull the entire panel out and leave it on the bench for four months. He faxed back that it would probably take two weeks, but rather than get involved in an overhaul that might take even longer "and risk yet another delay in the fulfillment of our obligation to you as our customer" due to unforeseen circumstances, they'd simply ship me a new DG tomorrow if I'd return the old one ASAP. Somebody must have read a book about quality. I'll send him a nice note.

By the way, I don't know if anybody else is dumb enough to have done it, but maybe you should warn people not to use brass safety wire anywhere. I don't think the FAA allows it anymore, but before I learned that, I'd safetied a few "inconsequential" things here and there, one of which was the brake disk capscrews. Taxiing out for takeoff this morning, I heard a thump-thump-thump that made me think I had a flat tire. Got out and looked, and one of those capscrews had backed out enough to nick the brake caliper every revolution, for the safety wire had broken—probably because of the constant heating and cooling of the brakes. Naturally, I resafetied them all.

My only other recent anomaly has been the result of something I think you noticed. Maybe it was somebody else, but in any case, one of the forwardmost tiny woodscrews securing the aluminum plate that covers the underwing slot designed to provide room for landing-gear removal was missing. I knew it but had never gotten around to replacing it, thinking one little screw out of 20-odd certainly couldn't make a difference. Well, it did: just enough that the slipstream got under that panel, worked away at that loose corner and finally peeled the aluminum plate partway back ripping out another half-dozen screws in the process. A good lesson.

Steve Wilkinson
Cornwall-on-Hudson, New York

Yes Virginia, there is a Falco being built in Santa Barbara. Things are finally taking shape. I've been doing odds and ends jobs getting ready to start on the flaps and ailerons. Will have to do some garage remodeling when that wing spar arrives. I will start on the panel wiring to keep busy till then.

When I used to build model airplanes, I used a small hand plane made by the



Larry and Ann Black over the Sawtooth Mountains of Idaho.

David Co. in Holland. I found that this plane works great on the leading edges of the tail surfaces and for trimming the edges of the plywood skin. You can also plane up flush to another surface.

Williams Tool now sells these for \$9.95 (P/N 20-00104) and a ten-pack of refill blades (P/N 20-00157) for \$1.59. Their phone number is (800) 788-0007.

Bob Brantley
Santa Barbara, California

I have received the construction manual on disc and I am still in the process of translating the manual to German. I'm not yet finished with the translation since I was involved in writing a new flight handbook for our L1011 operation which took a lot of my spare time. I have finished the tail section and the wing. I made all my wing spars and ribs myself. I'm starting with the fuselage now. In the meantime, my workspace—my two car garage—get's pretty tight.

Cipriano Kritzinger
Wegberg, Germany

On May 24th, we met with John Harns at Coeur d' Alene, Idaho. Ground speed going up was 195 mph. Return 208 mph with the last leg from Red Bluff, California, start up to shut down 230 mph. I believe the airplane was designed with a built-in tail wind!

We did have an approximate 20-mph headwind for the first 400 miles on our return trip. When we were coming back we actually saw a Cessna 185 flying backwards. Falcoholism takes its toll.

Larry Black
Campbell, California

Midere Dottore:

Regretta telle ue eyewen anabotte e SF.26CC, 1980 modele, hada bene ina ereforze di Burma. Juice 1,600 whores ona di herefreme, 360 hevedi engina. Di bankeres uasa pressina hard di sellere and dei teke mi lobid subito pronto—is a "RAT NOW" in Englese, capice? Dispilote paydeme littlibite moedan uane e useplanes wene i figure de costi uva espresso machina e navigazione e radio equipamente plusa de costifora paysan (mebbe due) helpina dei costruzione an alle di sandinone di sprucei wude.

Quippe here alla de manuales di costruzione ana di planz. Mebbe somme dei i getta ronde tue buildemi uane—somme dei wene ibe olansloe (donwanafli tue offene) an canteke di "molta momentas" per ruminatazione (como Wilkinson) asse isande sprucei wude alla die. Ey, autelse u due alle dei ina ruminatazione? Pique lint from u frenze navele?

Isende u \$60 here. Gete anuddere 5 yeresdi "Lettores di Bilderes" uiche i heve quippe inaboxe tue rede somedei.

Nowi gotta fliplene, Dottore, plantue visitu durina Festivale di Hoysterres. Buzze u owse anfrens, turnone systema generazione di smokolio uen i duit. Meke trubles. Hah!

Ciao e bona fortuna!

Guillermo Notte
LaGrangeville, New York

Signore Notte (aka Bill Knight) isa dirtirotten sunnobicheta, dasawa i sei.—Scoti