

Falco Builders Letter



Things are never very hurried at the Wilkinson Werks.

Building a Falco, Part III

by Stephan Wilkinson. This article appeared in the January 1990 issue of Pilot magazine in England.

My Falco is nearly finished. That is a neat description that allows latitude for everything from truth to fantasy, as so often do the timetables of homebuilders. When curious friends inquire after my progress, I invariably say, "Oh, it's standin' on the gear, cockpit's finished, looks like an airplane." (At least it did until I sawed it apart.) I explain that the Falco has reached a state that would allow any *real* homebuilder to have it flyable in a month. The engine needs to be hung, the instruments and avionics are yet to be plugged into the panel, some plumbing awaits, and there's a week's worth of woodworking still to be done, for the airplane's private parts—belly and groin—have so far been left naked more easily to allow the installation of wiring and internal systems.

Yes, I'm aware of the commandment that "firewall forward is half the work." But

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Introverts

People often ask me what sort of people build Falcos, and I go through the list of features: Pilots. Men. Like to work with their hands. Introverts.

No kidding.

Ask the average person what an introvert is, and you hear descriptions like "anti-social", "don't like people", "withdrawn" but to use those words is to fail to understand the phenomenon.

Extraverts are people who gain energy, or get "tuned up," by people. Talking, playing or working with people is what recharges their batteries. Extraverts experience loneliness when they are not

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Goings On at Sequoia Aircraft

What's been going on around here is a lot of work on wood kits. Brenda puts in a couple of hours each day making ribs and I've got the tail group spars all set up and gluing. Strangely enough, it takes a couple of hours to make a set of tail group ribs (about ten minutes a rib for the whole process of removing the glued rib, cleaning up things and gluing a new rib) and about 45 minutes to glue up a set of tail spars. In fact, the spars are so easy, Brenda's developed a case of spar envy.

I held a steady schedule of making one set a day for about ten days and have since been doing additional work on the jigs to taper the tail spars and also much work on the main wing spar jigs. The way I approach things, almost all of the work is in the preparations. The actual manufacturing/gluing/cutting is a trivial affair.

The spruce for twenty wing spar kits and a few other things has finally arrived. I had carefully worked out all of the requirements for the job, but when you are looking at a materials list, it's not easy to visualize how much wood that actually is. When the dispatcher from the trucking company called to say that he had a shipment of 8,000 pounds of spruce, I thought that he was joking, but that's what it was. It made a pile about four feet tall and filled most of a 28' tractor-trailer.

But it's here, and we've got four tons of Sitka spruce stacked against the walls and starting to be processed. Actually, the entire weight wasn't aircraft-grade spruce, since there was a considerable amount of lesser-grade spruce and hemlock used for the crating. I converted this into a giant (7'H x 4'W x 20'L) table which is more 'second-story' storage space than a table. It sits over our existing assembly tables and takes up essentially no floor space.

The main wing spar laminating jigs are now finished. They're all laminated with white Formica and marked out with vari-

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Building a Falco

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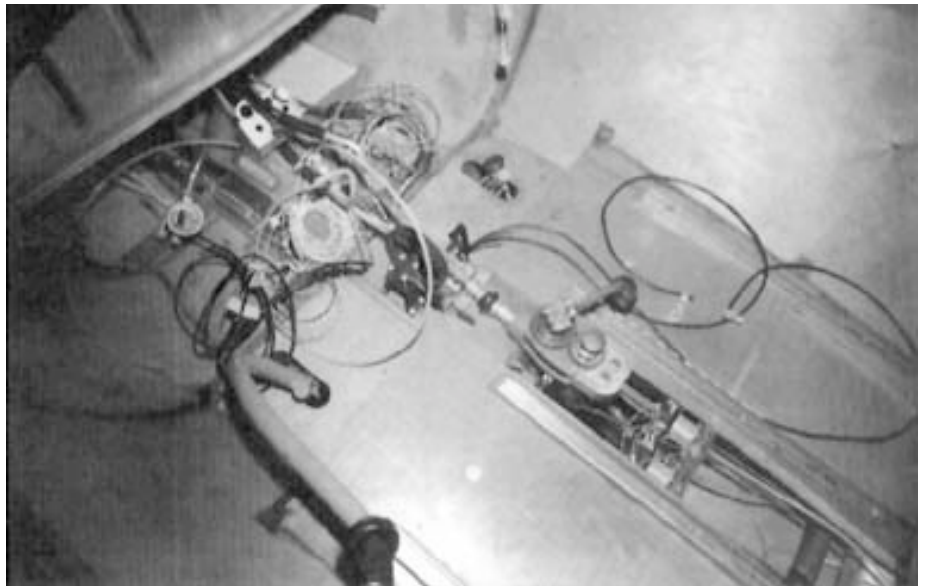
the Falco's engine is a proven installation done often enough—and with subkits sophisticated enough—that placing an IO-360 on the motor mount, cowling it and hooking up the plumbing and electrics is said to be a week's part-time work, once I figure out how to *lift* the fool thing. I fear that any hoisting technique that depends on the integrity of my barn's beams will result in the barn descending to the level of the Lycoming rather than elevating the engine.

My airframe, at least, is complete. The wiring harnesses are all in place. The cockpit is carpeted and upholstered, though all the fancy stuff has been stored for safekeeping. The structure is nearly ready to accept paint. The landing gear motors up and down. The control surfaces obediently waggle and flip. And if God is in the details, He awaits first flight in carefully crafted cockpit ventilators, fiberglass control-horn fairings at every conceivable location, Connolly hide on glareshield and baggage-compartment turtledeck, artfully Dzus-fastened access doors and panels at all the necessary locations.

But I know that I can stretch this job out for another year, maybe two. I tell myself that one of the dangers of homebuilding airplanes too hastily is that the anxious pilot-builder intends to finish all the messy details sometime after first flight and never does.

In at least one regard, I'll fall into that trap myself, for I've seen how chipped and battered nicely painted cockpit components become as work progresses around them. At this point, the cockpit is a Medusa's head of unconnected wiring, tubing, piping, cabling and controls, most of it writhing up through a pair of holes in the floorboards to terminate somewhere behind the panel. Some also snakes back from the firewall, and my main fear is that when I hook everything up, fuel will pour from the pitot tube, the oil cooler will receive glideslope signals, the manifold-pressure gauge will wigwag like a VOR, the brakes will lock when I key the mike and the control stick will be as electrified as as cattle prod.

So I intend to fly the airplane with the instrument panel and power pedestal still unpainted. Then, after I've had the panel in and out a dozen times to find the inevitable reversed wires, loose connections, leaking hoses and inop systems... *then* I'll



take it home, take it apart, and give it a beauty treatment.

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Falco builders seem to find their way into one of two groups, and I long ago chose mine. The airplane has a reputation for complexity and endless build time, especially in this era of instant aeronautical gratification. ("You simply glue the two halves together using household detergent as a solvent for the polyvinyl-excrement, plug the propshaft into the proven lawnmower engine we supply, cut an access door wherever you wish with an ordinary hardware-store keyhole saw, climb in and *go fly!*") So certain Falco builders set out to disavow this difficulty. One Chicago builder completed a Falco in 11 months, though he needed to import two devoted woodworkers from his native Poland in order to do so. Others have done it in less than two years of part-time work, and certainly the Italians who factory-built certificated Falcos for Aviamilano, Aeromere and Laverda (sounds like a firm of Roman divorce lawyers, doesn't it?) did it in jig-time, no pun intended.

I, however, am delighted to spend an entire afternoon fitting, sawing, chamfering, sanding, tapping and smoothing a single small block of wood that will be used as a post for a battery-cable hold-down fitting, say. I'm *happy* to spend an evening seeing to the routing of a single brake line, trying alternate paths, checking the location of clamps, swinging the gear to see what happens to the flexible tubing as the wheels retract. I look forward to burning up a day crawling into the tiniest part of the tailcone like a mad mole to install the marker-beacon

antenna that I forgot to fit back when the area was more accessible, then fiberglassing the cable juncture solidly into place and finally varnishing everything down, drunk from the polyurethane fumes in my little plywood cave.

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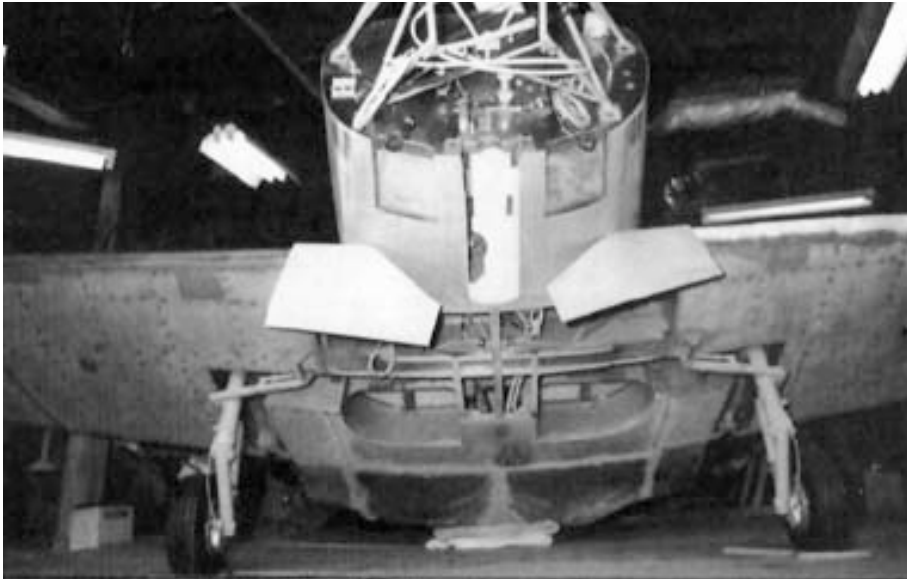
I have had my doubts about building a wooden airplane. First when my young daughter refused to contemplate flying in anything held together with glue, which she knew as the ingredient of kindergarten constructions. Most recently when I sat with a former president of the Grumman Corporation, interviewing him for a film I was writing.

Hoping to establish some bond as an airman with this lofty figure who happened to also be a pilot, I told tough old George Skurla that I was building a spruce airplane called a Falco. His nose wrinkled with disdain. "Jeez, a buddy and I bought an old Fairchild awhile ago—what was

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it? A PT-26, I think—and boy, lemme tell ya, we got into the wings and that thing was all *rotted*,” he said in a rich Long Island accent. “You don’t wanna mess with wood airplanes.” Granted, this was the man who made Tomcats and Lunar Modules, but I wondered. (I also wondered how rich you have to be to buy a classic airplane and not be entirely sure of its type.)

But today I have finally finished dealing with the one substantial area of aluminum on the Falco—the canopy skirt and windscreen trim strips—and I have nothing but pity for hand-builders of metal airplanes. My hands are blistered and nicked, sliced and splintered, bloodied and aching. Aluminum is an initially yielding material—how nice that you can cut it with scissors, you first think—that turns obstinate and dangerous as those very tinsnips convert it to a huge razor. It is soft enough to sand yet hard enough to pierce gloves.

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My Falco-ing is a rather haphazard process, as typified by the fact that I haven’t yet any good answer to the inevitable question, “How will you get it out of the barn and to the airport?” Nor do I have an answer to the question, “What color will it be?” There are some builders who know *nothing* about their airplane but what color it will be, and many seem to expend more effort on the design of a paint scheme and interior than any other part of the airplane.

Having never seen a truly beautiful Mercedes, Rolls, Ferrari or Porsche with feathers, hawks, cheetahs, stripes, speed lines, zoom stripes or any other orna-

mentation, I think I’ll paint my Falco a single, solid, unstriped color. Having never seen a tasteful luxury automobile with anything but a monochromatic and neutral interior, I’ve already carpeted and upholstered the Falco in utilitarian gray and black: tough Mercedes-Benz carpeting for the floor, baggage compartment, footwells and forward sidewalls. Half a Connolly hide to leather the glareshield and turtledeck. And some simple tweedy gray for the seats and cockpit sides.

The airframe will be burgundy. Or perhaps a splendidly saturated primrose yellow. Or maybe a rich dark blue. Who knows?

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With a kitplane as thoroughly supported as is the Sequoia Falco, the arrival of a new subkit is always an occasion for kitchen-table delights as the box is unpacked.



Everything comes in small, carefully marked envelopes, with a laboriously double-checked receipt, and everything is of the highest quality. There are nuts and bolts and washers, but there are also the little treasures. “Oh, my God, look at these cute little brake master cylinders... lookit, lookit, these are the linkages for the gear doors... oooh hey this must be a 90-degree drive for the tach...”

The deliveryman showed up this afternoon with a Sequoia kit called “Fuel System and Engine Hoses.” Now these hoses, understand, cost \$1,425. Shockingly expensive pipes and tubes, one might say. Except that the large carton contained 159 separate items ranging from rivets to a custom-built aluminum gascolator, a high-quality aircraft fuel-selector valve, quantities of that enormously expensive Aeroquip stainless-steel armored hose and an elegant fiberglass NACA scoop and air-filter mounting that I couldn’t have fabricated in 1,425 hours. They were all bagged, labeled, sealed, enumerated, marked, receipted and double-checked.

Sequoia makes a proper profit on every rivet, washer and Aeroquip hose they supply in such a kit and have never said they did anything less. But unless you’re an inveterate flea-marketer and full-time catalogue shopper, the cost of the selecting, buying and supplying that Sequoia does for the kit-builder is a substantial part of the value of such subkits.

Anybody who has ever glanced at the range of fittings available for aircraft plumbing has to agree. To make a pipe, hose or tube travel from one part of an airplane to another, there are: branch tees, run tees, street elbows, union el-

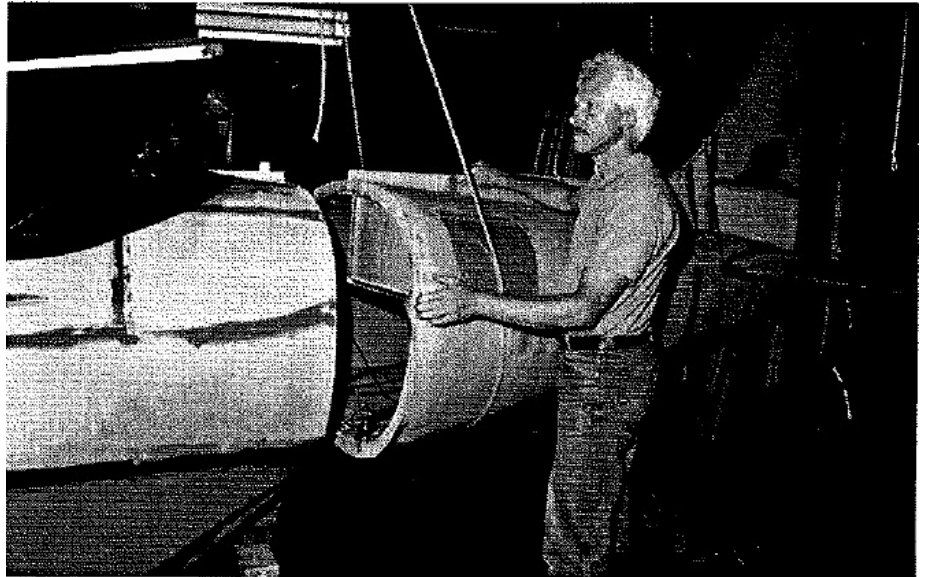
bows, reducers, adapters, sleeves, unions and connectors both male and female. There are: flared fittings, compression fittings, beaded fittings and barbed fittings. There are: hoses described by their inside diameter, hoses described by their outside diameter and hoses described by measurements that don't seem to pertain to either. Some fit into each other, most don't.

If any builder disagrees, Sequoia's Falco plans call out the specification or part number (and, where necessary, the supplier) of every single piece of standard hardware on the airplane. Go get 'em yourself.

This is one of the very few homebuilts to ever have had behind it a full-time company dedicated solely to supplying and helping its customers. In a warehouse in Richmond, Virginia, every day and probably every weekend (I've had my fax messages questioning a minor construction procedure turned around and answered in 20 minutes on a Sunday afternoon), a small but enormously competent Sequoia Aircraft staff is dedicated to *this* airplane. They're not making some flaky turboprop COIN-fighter prototype or trying to prove that their airplane goes 300 mph or sponsoring race teams, they're simply spending full time supporting a proven, conservative design for a particular breed of builder who wants that and nothing more.

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Today I took saw in hand and sliced the Falco in half. It was a wonderful moment, for it meant that for the first time in two years—since I set the finished wing level



on jacks and began building the fuselage upon it—there was a major change in the appearance and bulk of the airframe. The barn is now only half full. I no longer have to park the lawnmower under the starboard wing, the snowblower nestled back by the tail, family bicycles filed in odd slots.

If sawing seems an extreme measure to take to change the appearance of an airplane, understand that Frati designed the Falco with this destruction in mind. The ovoid fuselage ring at the rearmost extremity of the wing-root fairing, behind the cockpit canopy, is really two fuselage rings sandwiched together. When the fuselage framework is erected, the two identical frames are bolted together with washers the width of a saw kerf between them. Longerons are laid and glued, the skeleton is sanded and seamlessly skinned, the plywood monocoque is filled and filleted, prepared for paint.



Then you crawl into the tailcone and pull out the bolts, knock out the washers and—assuming you've been smart enough to establish the beginning of a sawcut somewhere before totally veiling the mystery of the kerf-wide gap—cut the tail off your Falco. Just like that.

"I would *never* cut my airplane in half," said one Falco builder. He was horrified by the insult to the airframe, apparently content to have his entire engine fastened to the fuselage by four bolts yet shocked by the thought of the rest of the machine following it around thanks to the shear strength of 12. Yeah, well if I didn't cut *mine* in half, I'd have the only Falco Museum in Cornwall, New York. The airplane would never fit out the barn door.

• • •

Now I know what it feels like to buy a four-cylinder thumper of an engine that costs more than an entire Japanese car yet looks about as sophisticated as four Beezer Gold Star motorcycles flying in formation. Thirteen thousand and twenty dollars for a Lycoming zero-timed and warranted by one of the finest engine-overhaul shops in the U.S. Everything but the crankcase in my engine is a factory-new part, since the overhauler had no core available. As a favor to a friend who will be sharing the flying of the Falco, he chose to assemble what we needed from his huge parts stockroom.

And that's the brother-in-law wholesale price, since my friend has dealer privileges. The retail figure is—hold still, this won't hurt much—\$18,600 for a zero-timed overhaul, \$27,415 for a factory-new engine.



The canopy and tail section moved into Steve's writing studio for the winter.

There are \$6,000 used Lycoming fours on the market. But the thought of sending \$6,000 to somebody thousands of miles away for an engine sight-unseen seems horrifying. There's no way to test-drive it, little way to comparison-shop, certainly no resort to honesty in the trade. Why was the engine taken off an airplane if it's in such peachy condition? "Oh, the airplane was wind-damaged while it was parked. Blew over, totaled the main spar but never even nicked the prop," is the usual answer. So usual, in fact, that if you believe that, we live in a nation of constant tornadoes, amid airports littered with Cessnas and Pipers like so many beetles on their backs.

But perhaps I shouldn't be so cynical. One Falco builder set about telephoning airports in South Carolina in the wake of Hurricane Hugo, which only weeks ago caused a calamity in that state. He knows that somewhere down there, the right Lycoming-powered Cessna or Piper is at this moment on its back, a total wreck but for the engine.

The engine option I've chosen is the most powerful one allowed for the Sequoia Falco: a fuel-injected 180-horsepower Lycoming four, exactly twice the horsepower on which the design first flew, in 1955. It's also the rarest. Most builders choose the more widely available IO-320 engine, used in Piper Twin Comanches and a number of other types. Some modify or scratch-build cowlings to accept carbureted O-320 engines, an even more easily obtainable powerplant, but I want to stick with the sleek Sequoia cowling.

I say "more widely available" and "more easily obtainable" advisedly. In the U.S., the supply of good 320- and 360-cubic-inch Lycoming cores has all but disappeared, for the ones that aren't already bolted to operating production airframes have been sucked up by the booming homebuilt market. There was a day when the engine of choice was a little Continental O-200 or a Lycoming O-235, but today, with Lancairs, Glasairs, Falcos and other high-performance small retractables proliferating, 150 to 200 hp is the most popular power range.

The IO-360-B1E that fits in the Falco powered very few production airplanes—early 180-hp Piper Arrows and Beech Musty-Beer Rs are the only ones I can think of, airplanes quickly superseded by 200-hp versions—so they're almost un-

obtainable on the used-engines circuit. (The nominally identical 200-hp IO-360 won't fit.)

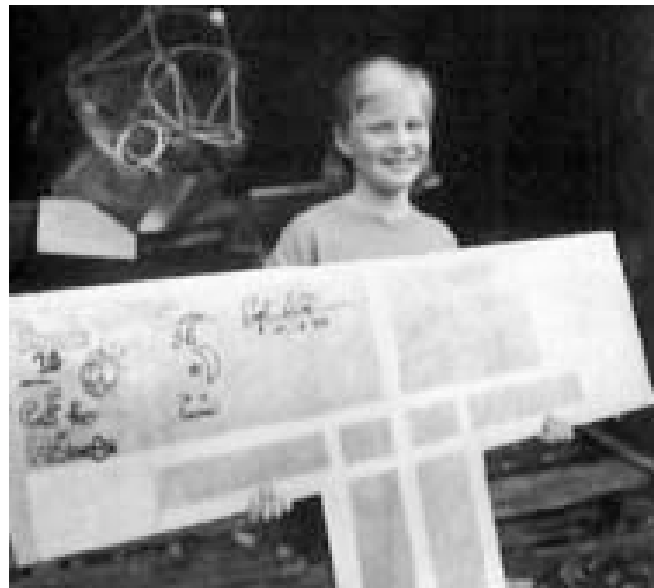
Certain more common engines can be turned into -B1Es, but with the addition of a manifold here, an injector there, hoses and pipes and elbows and gaskets and all sorts of things that cost the earth. I'm sure one could easily approach the cost of an overhauled engine simply by paying list price for the necessary pieces, so I've taken the coward's way out and gone straight to the zero-timed, dependable, guaranteed block.

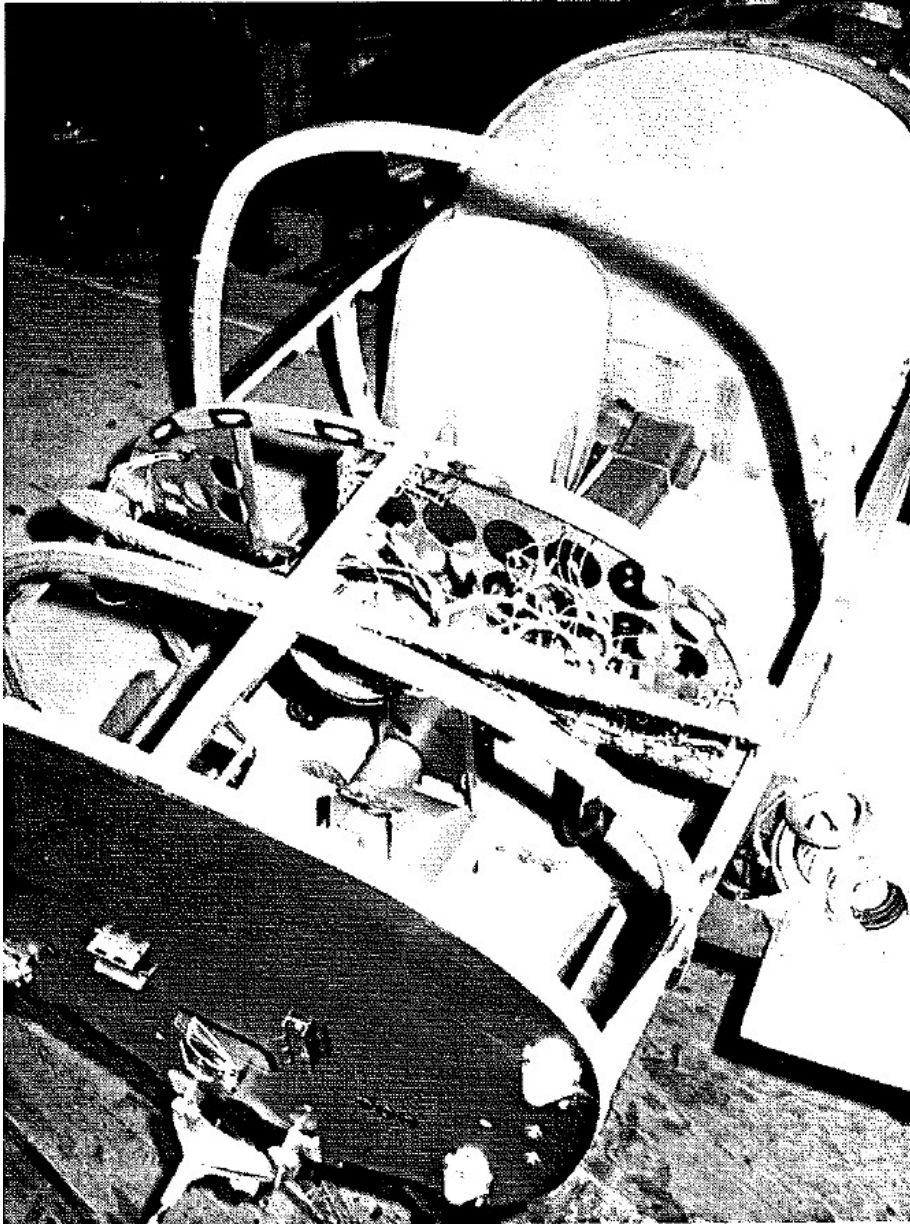
There's a disadvantage, though: what one wants to do while flight-testing a newly built airplane is quite the opposite of what is needed to break in a zero-timed engine. On the one hand, for the sake of the airplane you want to make some high-speed taxi tests, a few quick hops, fly around gently with the gear down until everything checks out. On the other, the new engine demands that you spend the briefest necessary warmup time, then get into the air and fly around at continuous high power until the cylinders begin to break in. I don't know how I'll handle that.

• • •

I'm secretly amused that friends and acquaintances see the Falco as an example of the great care and dedicated workmanship that I assumedly expend on a project. For that isn't the real me. I've done a lot of half-hearted carpentering—finished most of our house once the frame was erect, built porches and decks and outbuildings, plumbed and wired and

Brook Wilkinson holds the last skin to be installed, autographed by all.





poured concrete, worked on cars and motorcycles and even a couple of airplanes. And if there's a thread to be stripped, an irreplaceable part to be lost, a bolt to be dropped into the dark recesses of a timing-chain cover, I'm your man.

I've used screwdrivers as chisels and chisels as screwdrivers. I'm the first to reach for a wrecking bar when a hammer won't do. I've whanged nails into studs at every possible idiotic angle. I'll hacksaw half-way through something and then resort to a mallet. I've rounded more nuts than I care to remember by using a crescent wrench when the proper open-end wasn't convenient.

But building an airplane changes all that, as well it should. Aircraft homebuilding is supposed—by FAA regulations—to be an educational experience, which is why

we're supposed to do at least 51 percent of the work on even the most sophisticated kits ourselves. Building the Falco has forced me to use the right tools for the job, to do something over again if it isn't right the first time, to wait until one task is finished before moving on to the next.

There are times when I'll go out to the barn simply to commune with the Falco. Partly because there's nothing much left to do to the airplane—nothing I can work on—and partly because the structure, especially within the confines of the tiny barn, is quite amazing in its size and complexity.

Oddly, I rarely think of flying the airplane and have almost never sat in the cockpit musing about flight, partaking of that

classic homebuilder pastime “moving the controls.” The airplane has become, to me, a lovely and complicated structure of which I know every cranny and nook.

I'd make an apt vintage-car restorer, had I the talent, for I've always wanted an automobile that I'd “detailed” to perfection—chassis enameled, every suspension piece polished, the fenders as perfectly painted underneath as they are on the outside, every hose and wire shipshape and Bristol-fashion. (I once owned an early DB-4 Aston Martin and was delighted by the fact that the slots in all the screwheads securing the headliner were aligned; I must remember to do that on the canopy frame.)

With the Falco, I can try to do something a little like what I've always wanted to do with an unwieldy car, though I avoid the compulsiveness that drives some homebuilders to finish the insides of wings as lovingly as they do the outsides. But it's infuriating: certain parts need to be painted early, before they're mounted permanently, and the carefully enamel-sprayed control stick is inevitably nicked by the front fuel tank that must go into position and out again numerous times as work progresses. The landing gear, lovingly painted as well, begins to chip and flake a bit where scissors-arms slide against each other and where screwjacks grind the legs up and down. A bit of varnish drips on enameled linkages down under the floorboards, and I must be content that at least nobody will ever see it.

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I plan to return to these pages in a year or less to tell you all about the first flight of a Falco. It might not be painted, it might never be “finished,” but I really ought to get this creation in the air. My parents are 80, and they want rides.

Still, I remember that too many years ago, when I was an editor at the glorious old *Flying* magazine, I was the *naif* who wrote the title “Almost Ready to Fly” for the third installment of Peter Garrison's *Roll Your Own*, his classic account of building his airplane Melmoth. I'd seen Melmoth, and it certainly *looked* almost ready to fly... “standin' on the gear, cockpit finished, looked like an airplane.” Garrison, who knew better, was shocked. We had to title the next installment, two years later, “Still Almost Ready to Fly.”

Am I making the same mistake again? □

Goings On at Sequoia Aircraft

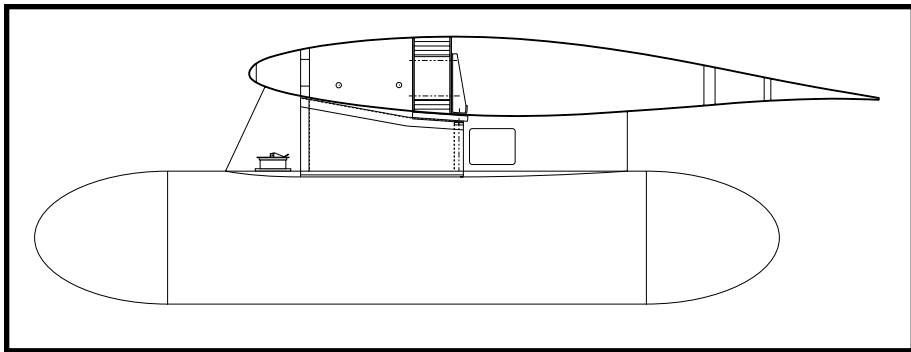
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ous lines that show the stations and other dimensions. There are hinged clamp bases installed and blocks cut and fitted to keep the clamps from falling away. Right now I'm in the process of scarfing all the laminating boards. This goes fairly quickly, and I have only five or six hours of that left before we get into the laminating of the spar booms. Each lamination will take one day, and the assembly will go fairly quickly once underway. As always, the work is all in the jig.

There are a bunch of other jigs that I've made. One is a "haircut machine" that goes on Gonzales. All of my jigs for tapering spars are built for the same finished cutting height of the planer blade, and the haircut machine is simply a monster Skilsaw mounted on rollers and linear ball bushings so that it will cut at a fixed height. It makes a cut 1/8" above the finished cut.

I also made a rigid saw base that installs on the crossfeed on the traveling cutter head. I already had a router holder designed into the machine, and my one regret in designing the machine was that there was no way to mount a saw on the thing. But in the end, the device I came up with worked as well as anything I might have designed in the beginning. So now we can use Gonzales as a moving-head saw.

George Barrett inspects a spar lamination being scarfed. The board is held down by vacuum.



By the way, I should mention that Gonzales does actually cut wood. There has always been some question as to whether the silly thing would actually work. Never a serious question, mind you, but just a little nagging wonder if this \$35,000.00 hunk would possibly have some unimagined difficulty. The cutter head is a high-helix cutter from a horizontal milling machine, and we tried out a cutter on spruce—cutting in every grain direction—before committing on the design. The overall design of the moving cutter head comes right from a Delta planer—infed roller, chip-breaker, cutter and outfeed roller—and I had calculated out the cuts-per-inch and feed rates of all of the standard machines and matched the numbers. But you never know about something until you actually fire it up and use it.

Well, the good news is that Gonzales cuts wood like there's no tomorrow. That thing chugs along and cuts spruce without any difficulty and leaves a beautifully smooth finish. The biggest problem with the machine is on the forward fin spar. We make the spars 18mm thick and then mill them to finished thickness after glue-up (same as with all spars), and the crossgrain blocks in the middle are what give me the problem.

The reason I use a high-helix cutter is that it will cut with the grain in any direction, while a straight-knife planer will chip crossgrain wood like crazy and make a mess of the wood. Gonzales cuts crossgrain wood beautifully, but the problem is that the chips from crossgrain clog the dust collector. When that spiral cutter hits crossgrain, it stops making little chips of wood and starts producing five-inch-long shavings and every ten spars or so you have to stop and clean a rats-nest of shavings out of the dust collector fan. If that's the biggest problem we'll ever have with this baby, that's fine with me.

I've also begun to do some work on designing an underwing tank. Howard and

Marty Benham are going to install one in their Falco, and I want to get the attachment details worked out. The design that I'm settling on is an aluminum tank with four bulkheads. The pylon will be an aluminum box bolted to the wing in two places. The unusual thing about it is the way the side loads are carried into the main spar. What I am working on is a 1/2" phenolic foot that will bear against the bottom of the wing spar. I'm using a 20-gallon tank for the design, and if you want a smaller tank, then all you will have to do is make the tank shorter. Don't concern yourself about the shapes of the "spinners" on the front and back—they'll be made of fiberglass, and I just used an ellipse because it was easy to draw.

You may remember that last year I reported some work I had been doing on a computer program for aircraft performance testing analysis. I hadn't touched the thing since March, but during the doldrums after Christmas, I got tired of working on other things and decided to reward myself with a couple of weeks of screwing-off—vacation at my desk, if you will. So I went back to work on the program and made enormous progress, and I have continued to work on it at odd moments, evenings and weekends.

While I still have much more work to do, it is a full working program that does most of what I want it to do. This is the first program on any computer to automate the industry-standard method of performance flight test analysis that is used by all of the major aircraft companies. My program, called Benchmark, can do in a few minutes what normally would take a specialized engineer weeks of work.

The neat thing about the method is that the flight testing is fairly simple and any of you can do it. You fly the airplane at various power settings, write down the numbers and then type them into the computer. Benchmark then crunches the numbers and solves for two magic numbers, called C_{do} and Oswald E, which define your airplane. With these

numbers and the ability to calculate engine power and propeller efficiency (both built into Benchmark), you can calculate the speed of the aircraft at any altitude, temperature, power setting and weight.

I've been using some flight test data from Karl Hansen and can now "fly" Karl's airplane. Benchmark is brutally honest about the speeds, and I had always thought that since Karl had seen a maximum speed of 228 mph at a density altitude of 6,000 feet, his plane would have a maximum speed at sea level of perhaps 235 to 240. It doesn't, and the reason has to do with the above-standard temperature on the day he flew the test.

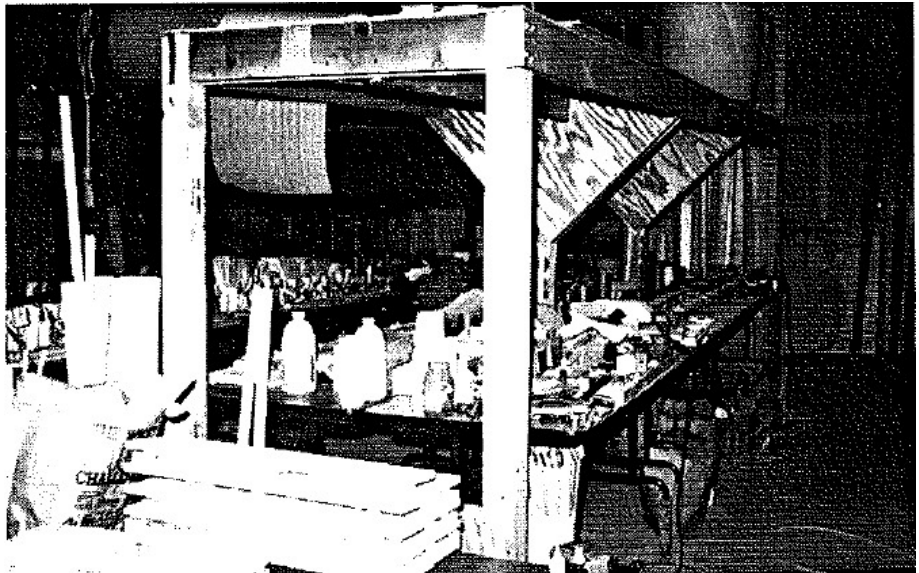
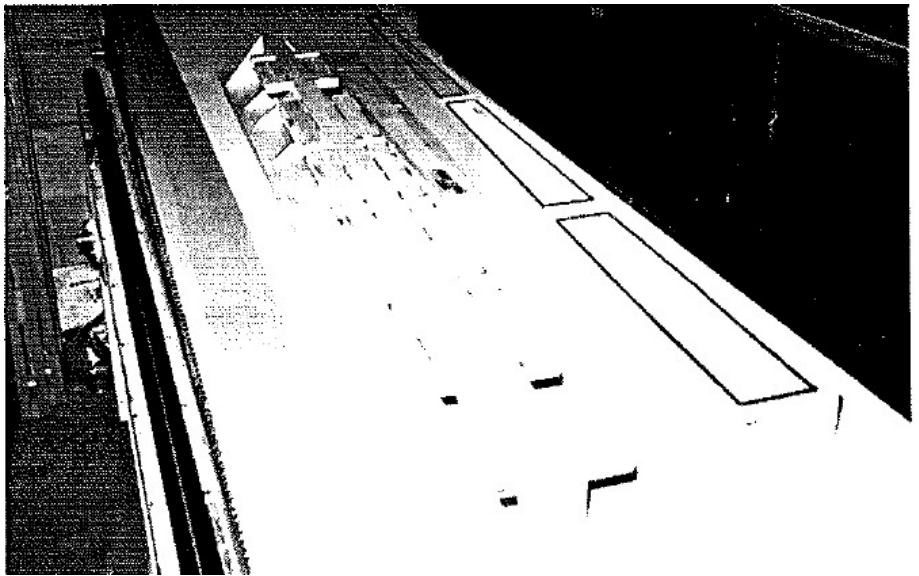
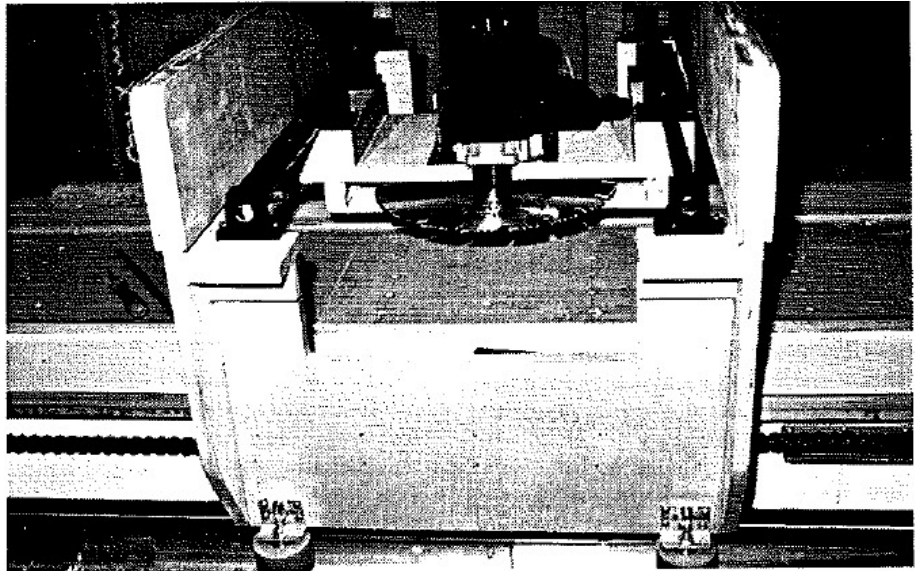
Here's some numbers on Karl's Falco at 1800 lbs and full throttle. At 2700 rpm, the altitude/speed (mph) are 0/226.30, 5,000/223.55, 10,000/219.55, 15,000/213.40 and 20,000/202.80. Karl's service ceiling is above 24,000 feet. Reducing the rpm to 2400, you get 0/216.90, 5,000/213.70, 10,000/209.15, 15,000/201.90 and 20,000/188.90.

The main work I have left to do is to write the portion of the program that models fuel usage and draws lot of charts. I know how to do all of this, but it just takes time. The exciting thing about this project is that you will be able to spend an afternoon testing your plane and then in an evening with the computer you will be able to produce performance charts for your airplane. The charts are the same sort that you get with a Mooney 201 or any production aircraft, but the charts will be for *your specific airplane*.

I'm not yet ready to release the program beyond a few test sites, but I would like some more data to crunch. We are now at a point where we can compare various Falcos and find out how they compare in speed. I'd like to see some numbers on Nustrini's Falco to compare to Karl's machine. If any of you want to participate in this, drop me a note, and I'll send you the instructions for the flight testing procedures that you must follow.

I've also continued to work with my friends who publish the PowerDraw drafting program. The latest development is a translator program, and I'm proud to say I supplied much of the programming that now makes it possible to include the drawings on pages 7, 11 and 12. At long last I can do a large detailed drawing and include a miniature in this newsletter without screaming.

—Alfred Scott



Top: The haircut machine runs on skateboard wheels and linear ball bushings. The SkilSaw can take a blade up to 14"—this machine is not finger-friendly. Center: Two tapering jigs for the main stabilizer spar. Both use vacuum to hold the spar in place. Bottom: And you thought only Texans built tables like this—the tail spar assembly tables with our storage shelf above.

Introverts

Continued from First Page

in contact with people. They're social animals.

We may have one or two extraverts who have built a Falco. Karl Hansen and Pawel Kwiecinski are two candidates, and it's interesting that they had helpers working on the project with them. But the rest are introverts, sure as shootin'.

Introverts are territorial and need space—private places in the mind and private environments. Introverts draw their energies from solitary activities, reading, working quietly alone or participating in activities that involve few or no other people. They become tired when surrounded by people—just look at how Jimmy Carter aged in four years.

Sound familiar? Do you find large parties tiring? Have you ever felt lonely when surrounded by a crowd of people, especially strangers? Do you prefer having just a few friends over for dinner, instead of a large crowd? Do you have a CB radio? Do you need to have a couple of hours to yourself every day? What do you do on Saturday night—go to a party or stay at home?

One problem with being an introvert is that we're in the minority. Extraverts make up about 75% of the population and much of western society is built around them. Outgoing, sociable and gregarious temperaments are the role model that is most often held up as what we should all be, and the notion that anyone would want or need some solitude is frequently seen as an unfriendly attitude. Because sociability is the expected norm, introverts are often seen as ugly ducklings. There's a story about a mother protesting, "My daughter is *not* an introvert. She is a lovely girl!"

Many introverts go through life believing that they ought to be more sociable and thus are really an ugly duckling, and as a result most of us experience a vague sense of guilt when we try to get off by ourselves.

The notion that introverts don't like people or want to be around them is silly, and is no more related to the psychological phenomenon than age, height or sex. On a Saturday morning, I'll often find myself with a book, desperately moving from room to room looking for a quiet spot, but when Meredith and the girls are out of town, I find the house a depressing, lonely spot, and I'm miserable.

You may be interested to know that we introverts are an important part of society. Did you ever meet an architect, engineer or aircraft designer who was a back-slapping, lemme-buy-you-a-beer type? Have you ever met a writer who didn't have a quiet, solitary place to work? There probably are some, but I think you'll find most in the crowded newsrooms of major newspapers. The thinkers of our society are almost always introverts: writers, artists, architects, designers, engineers, programmers, and—unfortunately—as-sassins.

It isn't that we're smarter, but rather that we get off by ourselves and the mind begins to wander. I find it hard to think with people around, and do most of my best work at night.

I've long ago come to the realization that I'm an introvert, and a rather hopeless one at that. I like seeing everyone at Oshkosh, but I find it enormously tiring. It takes me a good week of sleeping late and long walks to recover. This past year was particularly rough, since I'd brought along my type-A, extraverted nephew. After the show we'd come back to the hotel, I'd lay down hoping for an hour of total silence, and Jimmy would bounce on his bed and talk excitedly about the show. It got so bad that I started eating breakfast by myself—even when there were some Falco builders around—and normally I hate to eat alone in a restaurant.

Some of us even fall into that special category known as a compulsive. I once heard it explained that the difference between an addiction and a compulsion is that the addict can't help himself, while the compulsive knows it is wrong and does it anyway. What happens to me is that I will become totally engrossed in

something. I develop a temporary case of one-track mind and for a period of time, sometimes lasting a couple of weeks, I will be completely immersed in a project. It's almost a form of a high, and when it's over, I'll suddenly wake up and rejoin the world.

While I'm on this binge of work, I'll be relatively unaware of the day of the week or what else is going on in the world. I'll be so focused on a project that I hardly know where I am. And when I come out of the thing, I will have accomplished an enormous amount of work in a short period of time. Almost all of the work that I have done on the Falco drawings or design has been during one of these work-binges. I look forward to these binges. I *like* them.

I described this behavior to Walter Marsh—a friend who's just as weird as I am—and he stared at me in disbelief. "I do that," he said, "but sometimes it lasts three months for me."

I'm normally not much of a navel-gazer and don't care for this sort of thing, but Meredith has this little book (*Please Understand Me, Character and Temperament Types*, by David Keirsey and Marilyn Gates) that she's been reading that goes into all of this. This book also describes a personality subspecies that uses tools, masters them easily, and likes to fly airplanes. I don't like looking in mirrors, and I put the book down before finishing the page.

So the next time you find yourself sneaking out to the shop for a little work on the plane, and you're feeling a little guilty about not playing a game of cards with the kids, it may help to understand that you're just like the rest of us and need a little time to yourself.—*Alfred Scott*

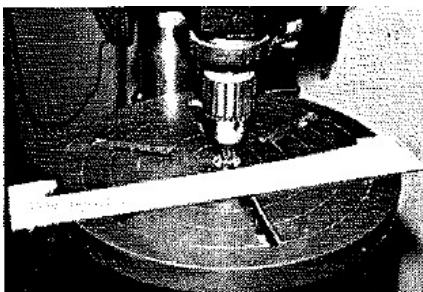
Klaus Bodentein is rebuilding a wrecked Falco in Germany. The wings were cut off at the landing gear. He saved the outer panels and built a new center section.



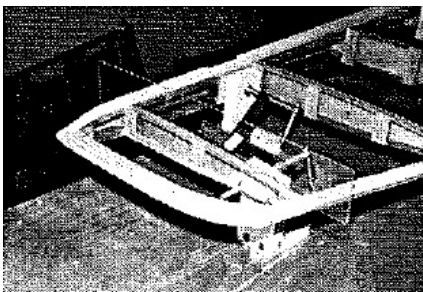
Construction Notes

Bob Brady sends word that you can have a problem using a “salamander” heater in your shop with epoxy. He varnished the surface of the wing with West System epoxy and noticed that when it hardened, the surface was gummy. He called Gougeon Brothers, and they attributed the problem to the heater, which they say will put moisture into the air.

Buzz Glade had the same problem in humid Florida and cured the problem by using a heat gun. As he squeezed the epoxy into the fabric, he used a heat gun in the other hand. The heat thins the epoxy so that it is much easier to spread, and the heat tends to kick off the chemical reaction so that the epoxy cures to a hard sheen.



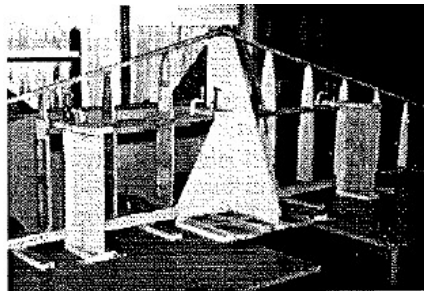
Craig Bransfield sent along a number of photos and descriptions of some techniques he has developed. Craig made some Lexan templates to fit to the outside of the stabilizer ribs during float sanding to check for a precise airfoil shape per the blueprints. Craig took his drawings to his local blueprinter and had copies of the drawings made. He glued these to Lexan that still had the protective paper on it, using 3M 77 spray adhesive.



Craig first drilled a hole at the leading edge to approximately match the leading edge radius, and then cut out the shape with a scroll saw or band saw, depending on how much curve was involved. The inside curve was then cleaned up with a fine-toothed die-grinder burr bit, then he peeled the protective paper off and checked the curve against the original drawing. Craig used this to check that the airfoil contours, top and bottom, left and right, were all the same.

When I need to make a template like that, I prefer to use acrylic, because it sands nicer than Lexan. I also prefer to scuff-sand one side of the acrylic and then draw directly on it. I find this easier and more accurate than pasting a drawing on the plastic. Second, if you are going to sand acrylic on a belt sander, I find it important to leave the protective paper on the bottom until all sanding is finished. Acrylic melts as it is sanded, and for some odd reason the slag breaks away cleanly and neatly when the paper is still in place and if the paper is removed it doesn't.

I'll also mention that this business of making a template to fit each rib is overkill, and you don't really have to do this. Most builders just glue the ribs in place and smooth things out by float sanding. At some point you stop looking at the drawings, and you accept the shape as sculpture—sand it smooth and skin that sucker.



Craig's stabilizer jig is a variation on our method. His purpose was to rigidly fix the spars in place and add the ribs, etc. around them. The jig goes up to the theoretical meeting point of the aft side of the leading edge strip, where a wood screw is installed to hold a nylon fishing line to define the location of the forward ends of the ribs.

As it turned out, Craig had enough length in the leading edge strips to actually join them together to temporarily add support. He says the jig allows for a fair amount of force to be safely used while bending the trim tab tube to fit, which he found difficult to install because the location of the holes did not describe a circular arc and thus required a certain amount of bending-in-place.

Craig Bransfield has come up with some minor variations and refinements for skinning the stabilizer and bending the skin around the leading edge. He used the Karl Hansen method of gluing a 20x20 strip of scrap wood to the plywood (see Chapter 10, Figure 11 of the construction manual) but did not use nails and rubber bands.

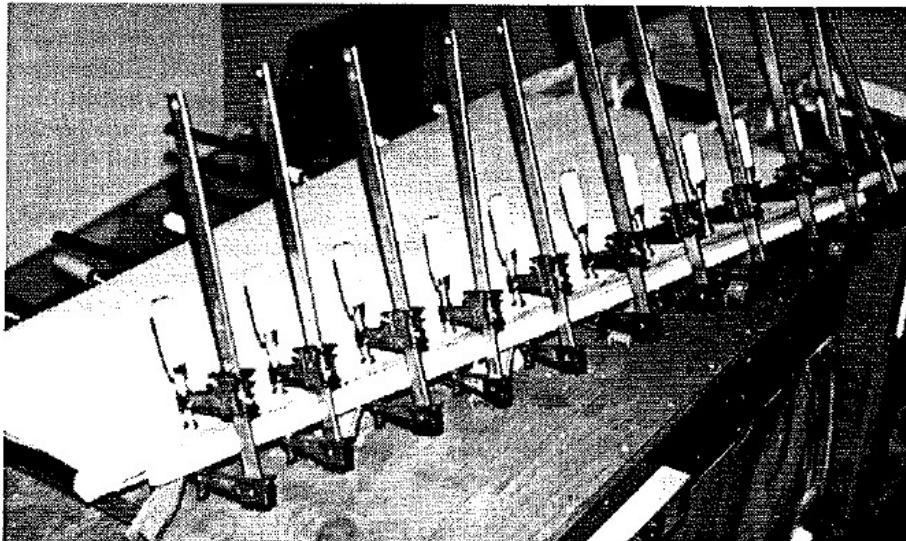
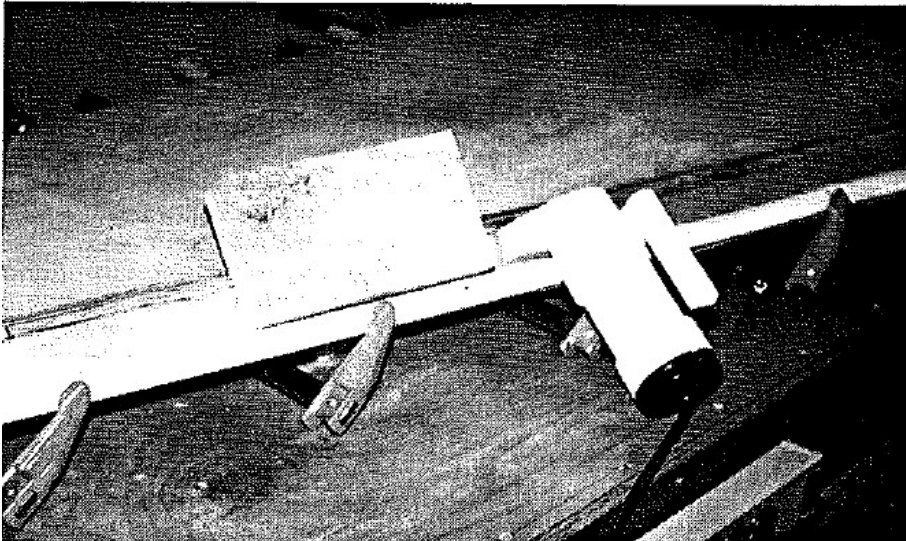
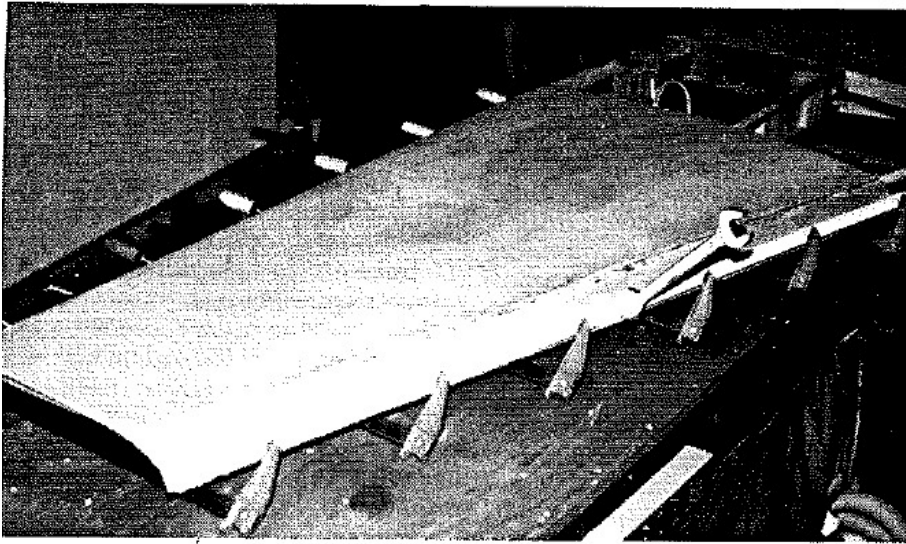
Craig glued the stabilizer skin on dry and used nailing strips made of 1/4" plywood. These covered all of the ribs and spars. At the leading edge, he used two 7mm-wide strips. He installed the skin dry and glued to skin to only a portion of the leading edge strip—just that portion that was flat enough that the skin would lay down on when dry. Craig put masking tape on rest of the leading edge strip or the undersurface of the overhanging skin to keep the glue from “contaminating” those areas. With the skin glued down dry, there was no tendency for distortion at the aft edge of the leading edge strip.

When the glue was dry, Craig removed all nailing strips except for the two 7mm-wide strips, and he removed the masking tape. It was now time to bend the skin around the leading edge strip. Craig used bar clamps (2 each of 18", 24" and 36") to pull the skin around. The clamps were located to take advantage of the strength of the installed ribs, but there is actually relatively little force required during bending. Craig found the biggest problem was forgetting to tighten the clamps evenly and having them fall off.

Now comes the real neat-o part of the operation, bending the skin with a clothes steamer. Craig says, “When one of us decides to open up a Falco factory, this is the job I want! Using my little ultra-cheap clothes steamer and a wet sponge, I went slowly back and forth across the leading edge, staying long enough in each spot to raise the wood temperature all the way through and allow the steam to penetrate the wood. This causes the plywood to quickly ‘stress-relieve’, so you can tighten up the clamps a little and pass by again. Five or six passes in 30 minutes was all it took to lay the skin all the way around to the other side of the stabilizer—and with no pre-soaking! All the heat, moisture and bending stress are concentrated exactly where they should be. This task is unbelievably pleasant—the aroma of the heated wood fills the air, absolute control is maintained and not a bead of sweat is raised!”

Craig says that about 40-50% of the bend will spring back when the clamps are released but this was not a problem. Craig concentrated the bend at the leading edge a bit more by clamping a caul strip to pinch the bend a slight additional amount and the 7mm-strips provided a surface to clamp to.

The same clamping system was used dur-



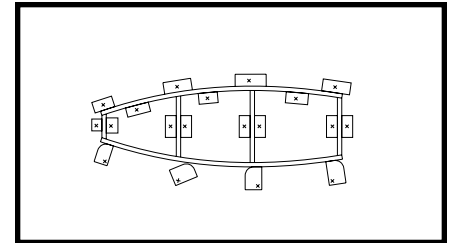
ing leading edge glue-down and the caul strip kept the skin from puckering out from the leading edge strip. Since the bottom skin applied is to be scarfed to receive the top skin which will be similarly wrapped around the leading edge, Craig only glued the skin down as far as the stabilizer centerline on the L.E. strip.

Dennis Simo is a professional woodworker from Milton, Ontario, Canada. Dennis and his partner Bruce Millar are building a Falco. Dennis sent along some interesting notes on building a Falco from scratch, and since there are others out there climbing this tall mountain, here's Dennis....

Simo on Falco

Although we received our plans in mid-July, we thought it best not to start anything until we had the chance to see some real Falcos and what better way than at Oshkosh? Besides, seeing Sequoia's workmanship was invaluable in setting a benchmark for our standard of quality.

While waiting for our delivery of Aerolite, we practiced with pine and carpenter's glue to determine the best way of jiggging the ribs. We arrived at a simple solution that is fairly quick and very accurate using combined methods from past builder's letters and previous experience. We attached the blueprints to 1/2" particle board and covered them with clear mylar or acetate sheets. Nail on positioning blocks as usual, except for the outside of the bottom capstrip.



Here you make rectangular blocks with one corner radiused off and nailed near the bottom in such a way that you can rotate the block away from the capstrip after you've finished trial-fitting everything. By using the capstrip cams, gluing-up need not be such a messy, oh-my-god kind of procedure, especially when fast glues like Aerolite are used. It also makes removing the finished ribs easier and the jigs reusable.

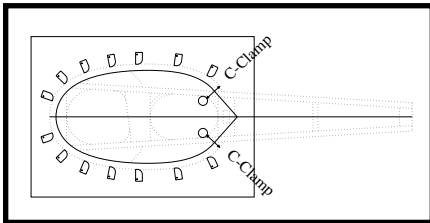
The only downside to this method is the damage done to the blueprints and occasionally covering up some tid-bit of information. Although we made all of the ribs double-thickness and sliced them in half to save time, I would not recommend making wood parts to anyone who doesn't like doing this sort of meticulous work. Sequoia's rib kits are a bargain at twice the price.

A note on bandsawing: buy a new 1/2" blade with 6 to 8 teeth per inch and then—with the saw running—very carefully touch *the sides only* with a sharpening stone to remove the set or stagger in the teeth. This will make it difficult to cut curves but to split ribs in half, it will leave a much smoother finish, eliminating about 80% of the sanding.

The spars were not as straightforward since none of the drawings were full scale,

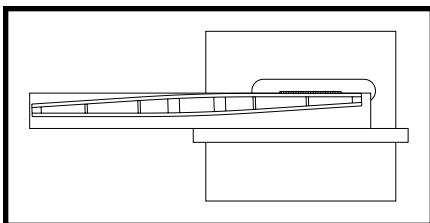
but we transferred the dimensions by essentially redrawing the spars on particle board and covering with mylar those areas that would come in contact with the glue. Clear packing tape works well also.

The lazy man's solution for the forward fin spar was to have the blueprint enlarged by someone with a stat camera. Carefully check for any discrepancies and then trace onto drafting mylar to "thin" the lines down. Think of this spar in three groups of subassemblies: the "ladder" which consists of the two long uprights and all the rungs in between; the "hoop" being the laminated fuselage former, and the "ears" being the solid pieces of spruce in between. Cut the mylar ladder and ears and all the remaining airspace out from within the hoop and using what remains as a template which you will use to trace and cut a plug from 3/4" particle board. Shoot the ends of the hooplines across each and mark the intersection. Bore two holes kitty-corner to the hoopline intersection, and you should end up with a thing that looks like those coin-op binoculars at Niagara Falls.



Screw this plug to another larger board with a sheet of mylar between. By using C-clamps in the holes, you can wrap soaked strips around, let them dry and then mount capstrip cams so you can glue up the strips around the plug. Put the cams on so you tighten the strips inward and upward. Cut the ladder portion off of the remaining mylar and use it to make the ladder as done for the ribs. Glue the remaining bits and pieces onto spruce stock and cut, sand and fit the ears.

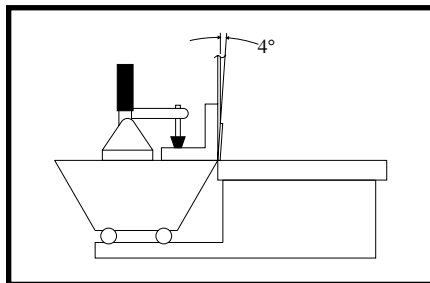
When the hoop is glued up, sand off the uneven edges. Glue ears to ladder, and then align on the hoop to mark where the offshoots need to be cut off. The two subassemblies should fit together perfectly. Remove the plug from the hoop jig and glue the two subassemblies together. Quick and painless.



The rest of the spars were relatively easy with the tapering being easier than first feared. It was our sliding-bed panel saw that made our day, but just as simple a setup can be had on a regular table saw. Rip a 12" by 8' piece of 1/2" particle board, align the taper lines on the glued-up spar with the edge so that what you don't want is hanging off and attach spar to board using long screws and big washers through the center and hot-glue "welds" around the outside. [Excuse me for interrupting, Dennis, but I can't recommend high-viscosity cyanoacrylate glues with accelerators—Zap-A-Gap and Zip-Kicker—too highly for this sort of thing. In a couple of minutes you can glue blocks around the spar and knock them off when you're finished.—Alfred Scott] Now run the board through the saw again at the old setting.

For the tapers on the forward faces of the stabilizer spar and fin spar, we used a carriage-rails-and-router setup with a custom 1/4"Ø planer-bottom bit.

Scarving the plywood for the aft face of the spar was also done on the table saw with a right-angle beam clamped to the sliding bed and the blade offset to 4 degrees (about a 15:1 slope). 3M rubber cement tape was used near the bottom and staples near the top to hold the plywood tight against the L-beam.



A similar setup can be achieved on a regular table saw by cutting a block to 8 degrees and then setting the blade to 4 degrees, attaching the plywood in the same way, but watch your fingers.

To date, our only mistake was a bad glue line on the plywood face of the main stabilizer spar. The problem compounded itself since all of our spruce was cut very close to the finished size to maximize the yield. When we milled off the offending plywood and enough spruce to clear the glue penetration, there remained less than the specified thickness overall. We hope to correct this problem by adding a 2mm-skin on the forward side between stations #2. All other experiences with Aerolite have been more than satisfactory.

—Dennis Simo

Brenda's Corner

Things have been going pretty smoothly in Brenda's Rib Factory. Alfred says I have made more Falco ribs than anyone, but I think Francis and Wanda Dahلمان probably have me beat. The only thing hard about making these ribs is getting them out of the jigs. I have broken more fingernails, cut more knuckles, and mashed more fingers than I care to think about trying to get them to come out without leaving half the rib in the jig. I have started using a very small brush on the capstrips and braces, and that has helped some. Also, it helps a lot to rub the jigs down with mold release wax after about three sets. I will not be disappointed when the tail ribs are finished, and I can move on to bigger parts.

I have had one major setback in my production line. After I get through gluing the plywood on the ribs, Alfred takes them to his shop and trims them up with his router. The elevator and rudder ribs come out just fine; but the stabilizer and rudder ribs are a different story. The router bit has a nasty habit of destroying the spruce on one side of the rib where it curves. I was not a happy camper when he brought them back to the office and I started pulling out rejects. Out of about 20 stabilizer station 0 ribs, three survived the spruce-hacking bit in Alfred's shop.

Once again, we have a block of rooms reserved at the Paper Valley Hotel in Appleton. If you think you are going to want a reservation, let me know as soon as possible. This year the hotel is requiring a one-night deposit which will be due about one month before the reservation date. The 1990 rates are \$66 plus tax for a single and \$77 plus tax for a double. Last year they had to turn people down for reservations the opening weekend only to have a couple of dozen no-shows Friday and Saturday. They have not sent me all the details about the way reservations will be handled this year, but I am sure there would be no problem getting a deposit refunded if adequate notice is given for cancellation.—Brenda Avery

Oops

Karl Hansen just called to report that contrary to my report of the Farmerville incident, his ASI does not peg. A friend did a barrel roll, lost it and Karl took over. He pulled out at "40 KIAS." I think that's about 260 KIAS which at 4,000 feet and 10° above standard works out to 315 mph true. Folks, be careful. The Falco will flutter and when it does it will all be over.

Trouble at the EAA

This thing started a couple of years ago when I was talking to Robert Cumberland, an old friend and technical editor for *Automobile* magazine, at the Oshkosh airshow. We talked about how big the show had become and how much money must be involved. We wondered how much money Paul Poberezny made from all this, and as we talked, I noticed an EAA director, Dean Hall, walking by. I called him over, introduced him to Robert, and told him what we were talking about. I said that it might not be any of our business, but we were curious how much Paul and Tom are paid. "That's a very interesting question," said Dean. "We don't know, and we are not permitted to know."

We talked to Dean for a half-hour on the subject. He explained that there is a compensation committee that knows and approves of the salaries. I asked about the quality of the financial reports, and Dean said they were very basic; that they were trying to get better reports but there was some political resistance. I ran into Dean Hall at Oshkosh '89 and again asked him about the salaries and financial reports. The situation was still the same.

Subsequent to that, I met with a man I will call "Bill Jenkins", who has intimate knowledge of the EAA. I said something about the lack of financial information and salaries, and Jenkins said that for years the financial information that has been presented to the board was very high-level and that the Poberezny's salaries were none of the board's business.

Jenkins went on to describe other very disturbing activities at the EAA. I had long suspected that the Poberezny's were running the EAA as a profitable family business under the guise of a non-profit organization, but I had never before heard anyone of authority confirm this, much less mention improper and illegal activities. I decided to rattle the Poberezny cage and ran a little item in the September newsletter about the salary secrecy and basic financial reports.

We always send a couple of complimentary copies of the newsletter to the EAA, and I soon began getting letters from board members, all denying the assertions. Two of the letters, from director Louis Andrew and Treasurer John Beetham, disturbed me. I had been prepared for how-dare-you-question-Paul letters, but both of these were reasonable

letters from reasonable people. I began to wonder if I was wrong about the EAA. I called Jenkins and told him I wanted to talk to some other people. He suggested I talk to Dick Wagner.

Dick Wagner owns Wag-Aero and for years has been a loyal and zealous supporter of the EAA. The Pioneer Air Park at the EAA museum was Dick's idea, and he spearheaded the effort to bring the project to reality. Dick has given an enormous amount of time and money to the organization.

I called Dick, introduced myself and explained that I had published something critical of Paul and Tom, and that I had gotten some letters from the directors that were making me wonder if I was wrong. Wagner said, "Before you tell me what you said, I can tell you that..." and he then talked for an hour and a half, pouring out the most bizarre story. He went on and on, and at the end he said this didn't even scratch the surface.

Dick said that for years, his wife had been telling him that he was a fool to be taken in by the Poberezny's, but he was torn between the things he saw and the noble purpose of the organization. Then a few years ago, he had one of those cathartic turning points in his life. He had been asked to serve on the EAA board, and just minutes before being introduced to the other directors he asked Tom Poberezny some questions about the finances of the EAA. The answers were politely evasive, and Dick changed his mind. "Tom, I can't do this," he said. Dick walked away from the EAA and has never looked back.

He suggested I talk to "David Wynn", another old-time EAA member who had become disillusioned. I called Wynn and heard essentially the same story. He said, "I used to have EAA 'tattooed on my chest.'" He had spent much of his spare time working on EAA things, but as he saw what I will politely call disturbing developments, he became increasingly disenchanted. He said he developed a love-hate relationship with the EAA, and then this gentle old man said the most remarkable thing: "I got so I would hate myself."

In retrospect, I wish I had never made those calls and could have remained ignorant of the whole affair. What I heard from Jenkins, Wagner, and Wynn were a series of allegations of wrongdoings, mostly by Paul Poberezny. In late January, I wrote a 4-1/2 page letter to the direc-

tors of the EAA and the EAA museum, itemizing the allegations as they had been presented to me and urging them to conduct an investigation.

At that time, Dick Wagner insisted on anonymity, and I carefully worded the letter to avoid identifying him. I failed. Tom Poberezny called Dick and asked him if he had been talking to me. Dick confirmed that he had and told Tom that he had been telling him these things for years. Tom said the account of Dean Hall not knowing about the salaries was "ridiculous" and that their salaries "are discussed openly at every board meeting." Dick Wagner called me immediately and reported that he felt "clean" and was glad to have it in the open.

My letter was presented to the directors at their regularly scheduled meeting in early February. The Poberezny's had a stack of papers displayed which they said showed that all of the allegations were false, and Tom reported to the directors that Dick Wagner had since become "contrite"—quite the opposite from my impression (indeed Dick is actively campaigning others to come forth and present evidence). The directors of both corporations voted to retain the accounting firm of Ernst & Young to investigate the allegations and present a report on their findings. One museum director resigned.

In the broadest terms, the allegations are that Paul Poberezny and others have used the museum's facilities, funds and airplanes in unethical and illegal ways to personally enrich themselves, and that Paul Poberezny has illegally funneled money from the organization to Ms. Jean Kinnaman. The FAA register shows that Paul owns 9 aircraft, including a King Air, Cessna 340, T-28 and P-51. Paul has engaged in numerous transactions with the museum—the T-28 and P-51 were donated to the museum and ended up in Paul's hands—allegedly at very favorable terms for Paul.

Even though most directors expressed the opinion that the allegations were unfounded and that I had been misled, I believe they are approaching this situation with an open mind and are mounting a credible investigation. My sources and I have asked that the accounting firm be authorized to offer confidentiality to EAA and EAA museum employees, and this has been granted. (Address letters to Ernst & Young, Attn: Paul L. Behrens, Personal and Confidential, Suite 900, 111 East Kilbourn, Milwaukee, WI

53202 or telephone 414-273-5900.) I believe that it will also be necessary to offer confidentiality to former employees as well, and I'm sure that Mr. Behrens will get that authority if he requests it.

My letter to the directors has been tightly controlled and only a few people outside the directors have a copy of it. I understand from "Jenkins" that EAA employees know that a controversial letter has been received, but they don't know what is in the letter, nor do they know about the investigative audit. I mention this because a week ago I received a letter which said in part (all "..." indicate deletions):

"I am a Director of EAA (either Foundation or Association!) and for obvious reasons I must remain anonymous. I even went so far as to send this letter, in a sealed envelope, to an EAA employee who is a friend of mine to mail for me. I read your letter of Jan. 29th with great interest. In your letter there are a few items that I do not believe are true, but for the most part you have hit the nail on the head. What you don't realize is that you have only touched on the tip of the iceberg. ... I have been involved with EAA since the mid 60's, and have seen more than I care to remember regarding Paul's....

"I have chosen to keep my mouth shut for all of these years to keep my position intact. ... I have seen what has happened to other people when they questioned the Pobereznys. Not only were they soon gone, but there were also many lies spread to discredit them. ...

"My reason for writing this letter is to beg of you not to stop insisting on a full accounting. If people such as myself are forced to tell what we know it is different than if we were to bring it up unsolicited. Many of us would love to sing but only to an impartial investigator.

"I think that the EAA employees should be questioned as they have the best seat in the house to observe Paul's wrongdoing. I agree that they are innocent but they are part of it just the same. I think you may find some of them very willing to talk also. ...

"I now have a few additional points that were overlooked or missed in your letter: ... [3/4 page deletion] ...

"I think I have given you some points to ponder for now. If some of us lose our

positions over this it will be a small price to pay to save the organization. On the other hand, if the Pobereznys do not lose their power from this, then they will be given a greater feeling of power and will continue their excesses."

This typed letter had a number of punctuation and spelling errors that I have corrected. I have supplied photocopies of this letter to the EAA treasurer to distribute to all of the directors.

While most of us think of the EAA as a single organization, it is actually two separate corporations. The Experimental Aircraft Association, Inc. is a 501c4 corporation, which is a special class of corporation intended for organizations like a chamber of commerce where the primary purpose of the corporation is not to make money. It is exempt from income tax, but it is not a non-profit corporation to which you can donate money, like a charity. The EAA Aviation Foundation is the museum, and this is a normal non-profit 501c3 corporation. The AOPA is organized in the same way.

As a member of the EAA, you can vote for the directors, but as a practical matter, the board is appointed because almost everyone just signs and returns the proxy with their membership renewal. Unless you change it, the latest proxy assigns your vote to (any two of) Paul Poberezny, Ray Scholler and Wes Schmid for a period of 40 months. The museum board is a self-perpetuating board that we have no say in selecting—in fact, the board consists of a very impressive group.

Each year the EAA publishes a basic statement of financial information about the EAA, but nothing about the museum. I have copies of the 1986 IRS form 990s for both corporations. These are a matter of public record, are much more detailed, and frankly aren't very interesting reading, but in case you are interested, here are the numbers for 1986. In that year, the EAA had total revenues of \$6,123,271, total expenses of \$6,027,324 and a net worth of \$1,919,736 at the end of the year. Of the revenues, \$2,845,898 came from the airshow, \$2,771,426 from membership dues, while the rest came from interest earnings, rental income and sale of goods. Major expense items are \$2,180,433 for the airshow, \$1,453,506 for publishing, and \$2,092,759 for membership service.

In the same year, the museum had total revenues of \$4,341,215, total ex-

penses of \$2,826,780 and a net worth of \$12,699,392 at the end of the year. Of the revenues, \$2,844,207 came from contributions, \$923,362 from the airshow, \$514,173 from the sale of goods, while the rest came from interest earnings, etc. Major expense items are \$318,268 for the airshow, \$1,127,363 for museum operations, and \$922,388 for aviation education.

Paul and Tom are paid by both corporations. Paul's salary was \$107,618 from the EAA, \$43,918 from the museum, plus \$46,376 total in contributions to employee benefit plans. Tom's salary was \$94,834 from the EAA, \$37,062 from the museum, plus \$26,475 total in contributions to employee benefit plans. The top five non-officer salaries at the museum varied from \$30,000 to \$53,000 plus some benefits.

The museum lists total assets of \$18,471,070, of which cash and pledges receivable were about 2 million each, land and building at about 7.5 million, and other assets (largely museum displays) of 6.2 million. The major liability on the balance sheet is an issue of 9.44% industrial development bonds, in the original amount of 5 million, with a balance due of 3.7 million.

No matter what the investigative audit shows up, the EAA could use a healthy vaccination with Solution of Gorby: openness and restructuring.

The museum's operation and finances should be openly published in summary form in the EAA's magazines, and copies of the IRS form 990's should be sent to any member on request for a reasonable fee. The 1986 EAA 990 is 6 single-sided pages, while the museum's 990 is 18 pages. Secrecy regarding the Pobereznys' salaries is patently absurd.

In particular, the EAA should advertise and publish the sales of museum assets. Any aircraft museum will receive far more donated aircraft, engines and equipment than it could possibly need or display, and these things must be sold. But they should be sold in open arm-length transactions.

If the EAA gives free advertising and booth space to Ms. Kinnaman's Acro Sport, Inc., it can certainly afford to advertise museum properties for sale in its magazines and also to report the sales when they occur. The EAA publishes exhaustive lists of items donated to the

museum, but nary a word about what they want to sell. Christie's advertises its aircraft auction sales in *Sport Aviation*—that the EAA Museum does not is a pathetic commentary on the Pobereznys' intentions. The alleged sweetheart deals on museum aircraft could never happen or escape notice if they did this.

The Pobereznys should surrender power to the directors. By controlling the proxies of members, the Pobereznys possess and exercise absolute power over the selection of directors, and as a number of former directors can testify, they have no difficulty in ridding themselves of directors who question their actions or methods. The proxies should be held by *independent* directors who have no financial dealings with the EAA or museum. The proxies are now held by men who have large financial dealings with the EAA.

Finally, the EAA and museum are badly in need of some new directors. We should all wait and see what the investigative audit will show, but it seems to me more than likely that many of the allegations of wrongdoing at the EAA are well founded. If so, those directors that knew of the wrongdoing and protected the perpetrators should be dismissed. I also think that directors who knew but did nothing should resign and allow their seats to be taken by people who cannot be intimidated.

I had intended to say nothing about this for a while, but several things made me change my mind: the anonymous letter from the director, that EAA employees did not know of the investigative audit, and my belief that this problem needs a bit of sunshine on it.

I believe in the EAA, and so should all of you. The neat thing about the EAA is that the individual is emphasized over the corporation and the Oshkosh show is the greatest thing in aviation today. There's a wonderful camaraderie about the EAA, and Oshkosh is aviation's summer party where the faithful in dicky-bird caps mingle with the designers and builders of everything from bozo-brained ultralights to the SR-71 Blackbird. The Pobereznys started a wonderful thing.

But the EAA should be squeaky-clean, and the many allegations indicate that it is not. This is a potential tragedy for a family and an organization. It demands equal measures of firmness, support and understanding from all of us, and aggressive solutions from the directors.

—Alfred Scott

Sawdust

- Banished to Balsa. "A number of years ago I had visions of the beauty and lines of a pusher pattern aircraft." So begins "Pattern Pusher" in a recent *Model Airplane News*, by none other than Tom Prescott, designer of the pathetic Prescott Pusher—which he artfully avoids mentioning. The Pattern Pusher looks like a scaled-down single-place Prescott Pusher that Tom-boy says "is a dream to fly, and it is fast!" CAD-CAM balsa models!

- Sometimes people take this Frati/Ferrari thing too far. I got a call the other day from a dude so deep down in Alabama you had to lay on the floor to hear what he was saying. Loved the Falco. Had been drooling over the brochure for years. Liked the wood construction. But what he really liked best was the professional design—"That Stelio Ferrati really knows how to design a plane."

- F.15A Picchio for sale. \$80,000.00. Serial number 15, in very good condition, "probably the most beautiful of Frati's planes". Contact Francis Truche, Residence Saint-Martin, 6 rue Minot, 52200 Langres, France. Telephone: (25) 87-07-37.

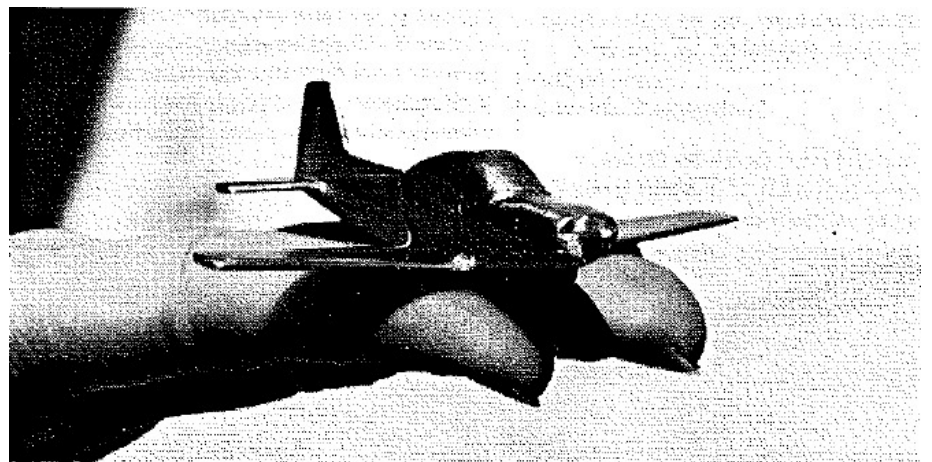
- Falco project for sale. John Kerasotas bought Tony Bingelis's Falco and has decided he'd rather fly than build. The Falco is entirely kit-built and the tail group is finished, the wing in the jig and there's a whole bunch of our kits there. Contact John Kerasotas, 2020 Bates Avenue, Springfield, IL 62704, or

telephone: (217) 788-5200 to get a jump-start on your project.

- George Barrett would like to know if anyone has tried a Croix low-pressure spraying system and has anything good, bad or ugly to say about it.

- Media watch. There was a long article in the March 16-29 1990 *Aviation News* (England) called "European Falco Factory", by Geoffrey Jones. There is extensive coverage of a number of our European builders: Neville Langrick, Bob Sothcott, Bjoern Eriksen, Jan Waldahl, Marcel Morrien, etc. Watch the pages of *Kitplanes* for this same article. In addition to Steve Wilkinson's "Building a Falco, Part III", *Pilot* (England) has also had a recent article on the Fat Falco, John Wynn's beautifully restored F.14 Nibbio. And if you are in Spain, watch the magazine racks for an upcoming article on the Falco in *Volar* magazine.

- No Prescription Required. A rather near-sighted friend of ours with a bad case of the morning-afters, reached for her bottle of Visine eyedrops and managed to pick up a bottle of cyanoacrylate Super Glue instead. She later told me that she realized that she had made a mistake when immediately after squeezing a few drops into her eye, the smell hit her at the same time that her eye started burning and she realized her eyelid was stuck closed. It was a very painful experience, she spent two days in the hospital, but there was no permanent damage. I asked her if she had any words of advice, and she said rather forcefully, "Don't do it!"



Lead Sled. How'dja like to have a Falco that weighed 156,250 lbs empty? And at full gross weight came in at... well, same thing. That's what you'd get if you made a Falco of solid pewter. Sorry, we don't have one, but here's a 1/100th scale Falco made by Skywarrior Miniatures, Box 159, Crawley, West Sussex RH11 0YE, England. The price is £4 (about \$6.50 at the current exchange)—dunno if that includes shipping, but Skywarrior takes Visa/MasterCard. The workmanship is reasonably nice but the wing is made of flat stock, so those of you who are ultra-finicky can look forward to a little bondoing, sanding and painting.

Mailbox

While preparing to depart for Oshkosh '88, you made a few last-minute "aerodynamic improvements" to the Corporate Disgrace with a shiny roll of what you humorously referred to as 200-mile-per-hour tape. Naturally I passed that on to my son sandwiched amid the volumes of anecdotes and experiences collected on the trip.

Recently, while returning from a walk to the park Adrian looked into the passenger compartment of a very tired, parked AMC Gremlin and announced "Look, Dad! 200-mile-per-hour seats!" Sure enough, every square inch of fabric on the bucket seats was covered by what must have been several rolls of no longer quite so shiny duct tape. I wonder what the sensation must be like going 200 miles per hour in a Gremlin.

Jack Amos
Richmond, Virginia

All wood components complete. Have started assembly of tail group and am making metal parts as required—very inefficient but helps to provide variety. The landing gear is almost complete, with all machining done by retired uncle. I have obtained a 160 hp Lycoming with 44 hours since major, complete with prop and all accessories.

Brian Nelson
Randsburg, South Africa

I am planning a move to the Pacific Northwest (along with just about everyone else in California) in the near future. This should give me an opportunity to really work on the Falco... seriously.

Alan Hantke
Sunnyvale, California

Painting of Terry Smith by Derek Buckner—call 215-262-8458 if you'd like one of yourself and your Falco.



While in Gibsons, B.C., time was my problem. Since moving, space to work is the limiting factor, but a school in Langley (about 10 miles away) is working on my Falco at present. Their quality of work is good, but they are very slow.

Gordon Cook
Surrey, B.C., Canada

Things are looking good for a 1990 commencement of work on my Falco, after a morale boost in July when I visited General Avia whilst on business in Milan. Unfortunately, Mr. Frati had his first illness in years whilst I was there, but I had the great pleasure of meeting Inginiere Monte and the delightful Carla, who made me promise to go back one day in the Falco!

Robert Dell
Melton Mowbray, England

I hope to be flying late this summer!

Dwight Lapeare
Samia, Ontario, Canada

No start made yet, other than great interest in your acrylic jigs. I have a local supplier who lets me have some large 'off-cuts' for next to nothing, and I am making patterns for the solid spruce ribs, (as per your newsletter of March '89) and for the finished wing ribs, and I have an industrial router which I will use for finishing.

I find the newsletter, in particular, 'Around the Falco Patch' very helpful. It is interesting to see how the construction of the airplane has changed with each builder. However, the greatest change has been with your own efforts in manufacturing the kits yourself. Since you started, and have been giving tips on your own construction and tooling problems, with some very good photographs, I have come to understand more clearly how the Falco goes together.

Alan Powell
East Ewell, England

Progress slowed down due to a malady which may be associated with the use of "Aerodux". I had a skin reaction (facial itching) which was immediate but my stomach problems have been more insidious, lagging on the usage by about six months. If it is an allergy, I hope that it is only peculiar to me. I should hate to think that all users have suffered similarly but by the same token, I should be more than pleased to hear from anyone that has suffered the incredible pains, acidity and incipient ulceration that my poor gut has taken over the past two years.

I am pleased to report that I am now recovered having last used the glue in June. In about four weeks time, I shall confirm my recent recovery with my doctor and start work once more on the wing ribs, assembly to main spar, and I shall try the glue again but in lighter and more airy surroundings. I will keep you informed.

Syd Clifford
The Coach House, The Grange
Whitley, Melksham,
Wiltshire SN12 8QN, England

While the Aerodux 500 instructions do not mention it, most resorcinol glues contain paraformaldehyde which other glue manufacturers warn may cause an allergic reaction. I think it would be wise to ask your doctor if a test for a paraformaldehyde allergy is available and take the test. You might also be tested for an allergy to wood dust, but perhaps you don't want to know about that. It's one thing to switch glues, but entirely another thing to switch airplanes!—Scoti

Just dropping you a brief line to let you know that my Falco project is still in the works. I have in fact finished the tail section, with the exception of the skins. I am currently working on my masters degree in architecture. This has caused me to put other times in temporary "hibernation" however I will soon be able to start again on my Falco full force.

I am grateful for the newsletter which not only serves to keep me informed and up to date with the latest revisions and builder info, but also keeps my enthusiasm up by means of the progress reports that other builders submit, in addition to successes in completing their Falcos. Please keep up the good work Alfred, believe me it is appreciated, even if sometimes you might not think it is. My best to you, your family and all the fellow Falco builders, a fraternity to which I am proud to belong to.

Ernest Mack
West Hollywood, California