Falco Builders Letter

Bjoern Eriksen's Falco is now flying in Norway.

First Flight: Bjoern Eriksen

Another Falco flying—this one is in far-north Norway, and the proud builder is Bjoern Eriksen.

It's always interesting to find out something about people who build Falcos, and I asked Eriksen about his background. He began flying sailplanes at the age of 16, and later enlisted in the Norwegian Air Force where he worked as a mechanic on F-86s for two years. While in the Air Force, he started taking flying lessons and got his private and commercial licenses in 1960, and to earn money for his ATP rating, he did major overhaul work on light aircraft during the winter time.

Out of the air force, he worked at a seaplane pilot for a small company in northern Norway in 1964, and the following year got a job with Wideroes Flyveselksap, which is now one of the largest airlines flying domestic routes in Norway.

In 1967, the Norwegian government began a massive construction project of

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It's Easy Building a Falco

by Al Aitken

That's what my construction album says on the cover. You see, for the past 20 years I've been a Marine fighter pilot, and I had a callsign. Nobody ever called us by our real names, only by our callsigns. Most other fighter pilots had macho callsigns like Hawk, Thunder and Snake. Some chose their own callsign, but most earned or were 'awarded' theirs. Sometimes the callsign was a modification of the pilots name such as "Chiz" for Chisum. Other times the callsign was awarded for some heroic or dumb act the pilot committed

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In This Issue:

Have an Ice Day

I was happily cruising along in IFR conditions when my engine sputtered, coughed and began to lose power. Thus began the most harrowing ten minutes I've ever spent in an airplane.

It was early March, and I was on a flight from my home in Richmond, Virginia, to southern Florida. The weather was mostly VFR along the east coast, except for a band of IFR weather around Raleigh-Durham. I intended to fly over the weather and land in Charleston, which was clear.

So I cruised along at 7,500 feet above the blanket of clouds which hugged the ground, but the clouds got higher and I climbed slowly to stay above them. I eventually found myself at 12,500 feet, still on top—but there were layers of cloud above me and things were deteriorating. The prospect of completing the flight in VFR looked doubtful, so I called flight service, filed an IFR flight plan to Charleston, and then switched over to Jax Center and stood by until they could fit me into the system.

It didn't take long, and I was soon settled down at 12,000 feet, comfortably scanning the gauges as the clouds began to nibble at me, and then I was swallowed in white cloud. I've always enjoyed instrument flying, and these were the best of conditions—plenty of altitude, silky smooth air, temperatures below freezing and lots of cloud-filtered sunshine bathing the bubble-canopied cockpit of my Falco.

It may be—as one Italian Falco owner once called it—"the most ugly Falco I have ever seen" but it's equipped with a full panel of King radios, and there's a reliable 150 hp Lycoming up front. In its day, this Falco has flown all over Europe, across the Atlantic, and I've had it all over the U.S. in every sort of weather condition.

Thus it was that I wiggled myself down into the seat, relaxed and busied myself with the decision of when to switch tanks—nothing much else to be con-

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Bjoern Eriksen

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building small airports along the Norwegian coast, which is quite long and difficult to reach by anything other than air or sea. Wideroe was chosen as the sole operator of these small airports—most runways are only 800 meters long—and today they serve about 48 airports with a fleet consisting of eight Dash-7's and 12 Twin Otters.

In the process of building up the organization, Bjoern Eriksen was busy flying as chief pilot as well as an instructor. This took many hours of work, and in the late '70s, he stopped instructing and continued to fly as captain of a Dash-7, which he still does to this day.

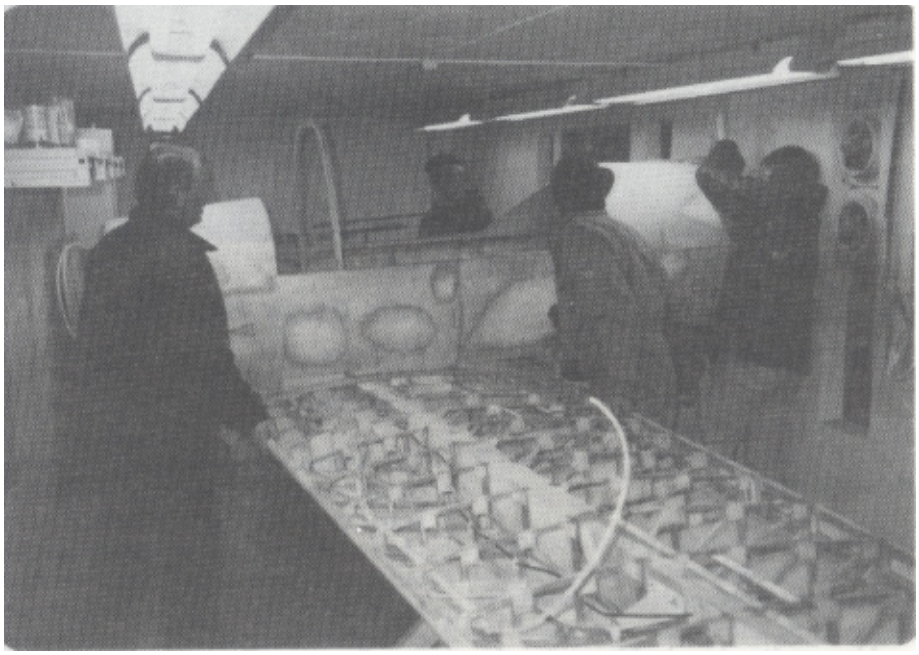
The change to ordinary flying duties gave him plenty of time off, and he soon felt he could do a lot more. It was at this time that we began selling plans for the Falco. Captain Eriksen was already well aware of the Falco, having followed it from the first article in 1955 in *Flight International* magazine and then later when the aircraft was offered for sale in Norway—but none was ever sold there.

"From the first time I saw it, I have wanted a Falco, but it had always been out of economical reach," says Eriksen. "But in 1980, the cards all of a sudden fell into place. I had the time to build one, the drawings were offered together with some essential kits, and I had the money to start."

"Our one-car garage was stripped and painted in light colors, new and very good lights and a heating system were installed. I was ready to start, but the project needed careful planning, as my workspace was only 3 by 7 meters." Now, let's put that in English measure, that's 9 feet by 21 feet. That's a tiny space in which to build a Falco—"So small you have to go outside to change your mind" goes the old saw.

The Falco was built very systematically. The first year was spent building ribs. Then another year was spent building the fuselage frames. Another year for the spars. Bjoern Eriksen's feat at building the Falco in this tiny space was a genuine Houdini stunt, and it is amazing that he accomplished it at all. The intriguing thing is that he figured it all out in advance, and the concept worked well.

He built the tail group and fuselage first, and completed the fuselage—without the wing—to a degree that is astonishing. The canopy, engine mount, engine, nose gear, and cowling were all completed before the wing was begun. The tail section was cut off and prepared for painting, as well as a short section of the fuselage centersection to ensure a perfect fit after final assembly.



Then it came time to build a small, 1.5-meter extension to the garage to accommodate the wing. The ceiling height was not sufficient to build the wing in the normal vertical jig, so he had to build it horizontally—a process which "involved very careful jigging."

The fuselage section was put in the garage in a horizontal position, and then the main

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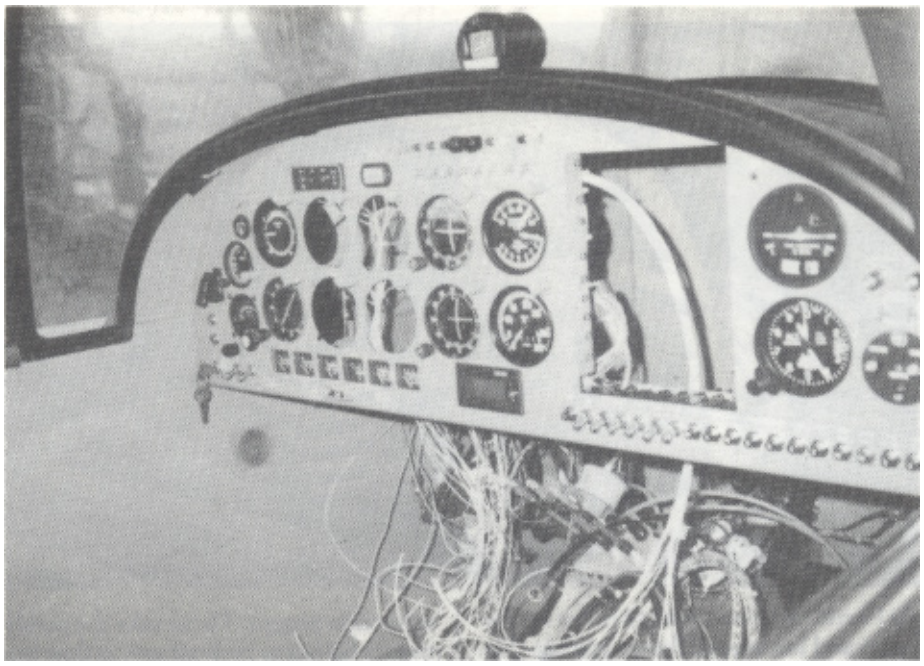
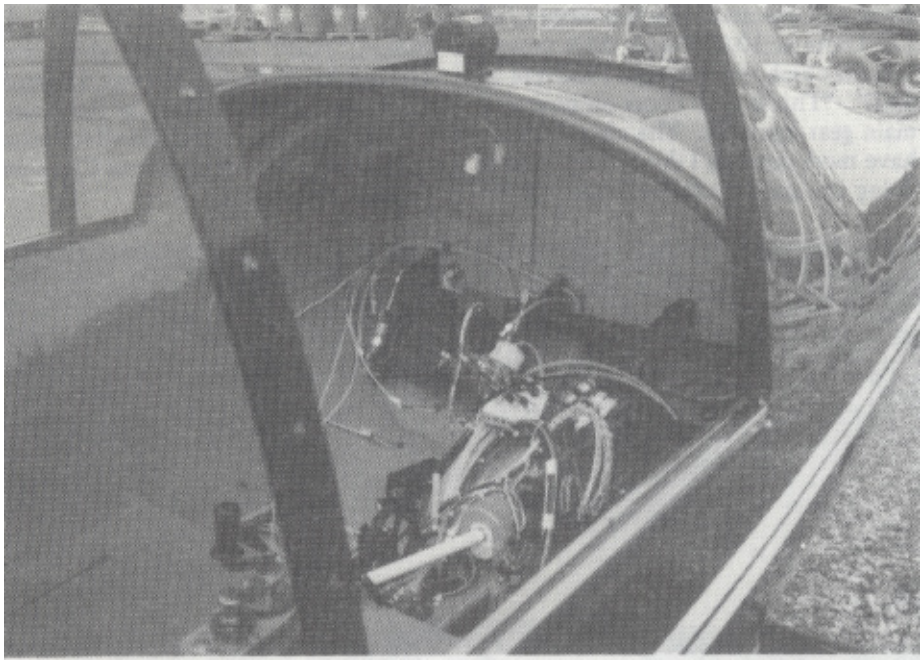
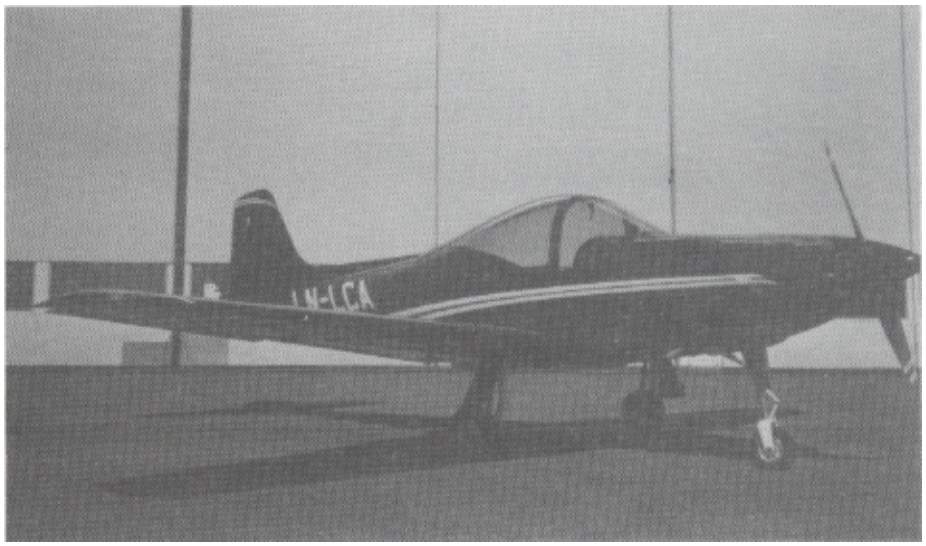






wing spar was carefully nested into place by inserting it through the fuselage. "I had figured out that this would work out, provided I kept the dimensions exact to the drawing. It did." When it came time to float-sand and skin the bottom of the wing, they would take the plane out of the garage, turn it over and walk it back into the tiny space.

The wing and fuselage centersection were completed all the way to painting readiness in the garage. Finally, the parts were moved to a professional car painter, and the Falco got its red color. Captain Eriksen reports, "He did a very good job, and the finish is very nice." The paint scheme was modified to suit the large letters required in Norway. All of the white striping and lettering is actually adhesive-backed plastic film.

The Falco was then taken to the Wideroes hangar at the airport, where Bjoern Eriksen did the final assembly—a process that took 1-1/2 years.

Eriksen says, "I have tried to keep the relation with the Norwegian CAA at a very professional level, and this has paid off. They are very pleased with the project as a whole. The rules in Norway are a bit more stringent than in the U.S. but quite okay if you are serious about what you are building."

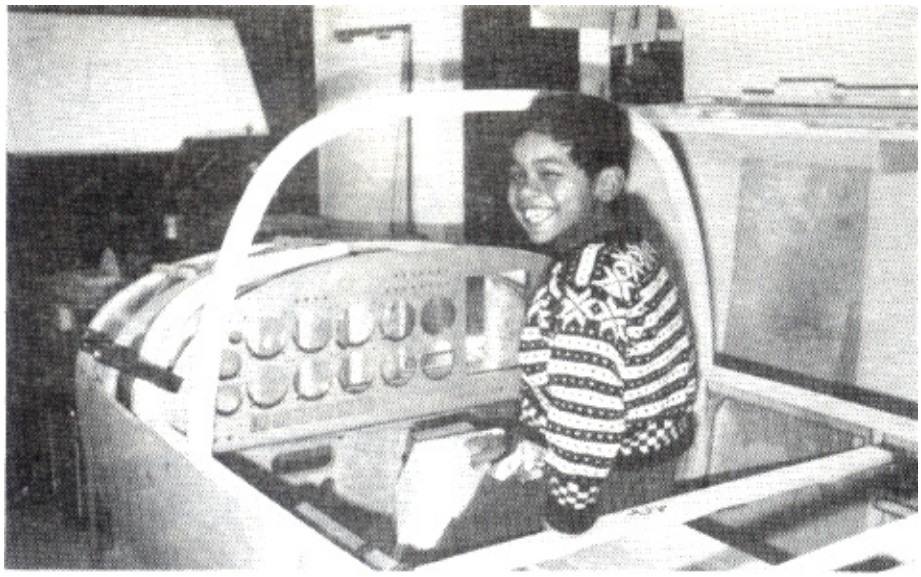
"The main problem building an airplane here in Norway is the astronomical cost due to freight and currency exchange rates. As a project, I am very happy with the Falco. There has been a very high quality on the drawing and parts from Sequoia, and the product support has been very good. However, I would like to mention that there have been some problems with the engine mount, canopy

and fuel tanks. When you live in Norway, this makes problems even when Sequoia offers new parts, due to the fact that the freight costs for the exchange of the parts exceeds the cost of the parts."

"I think it should be pointed out that to build a Falco requires a no-nonsense adherence to drawings and a generally good knowledge of aircraft construction practice. There are mistakes that you can make even with a very good construction manual at hand."

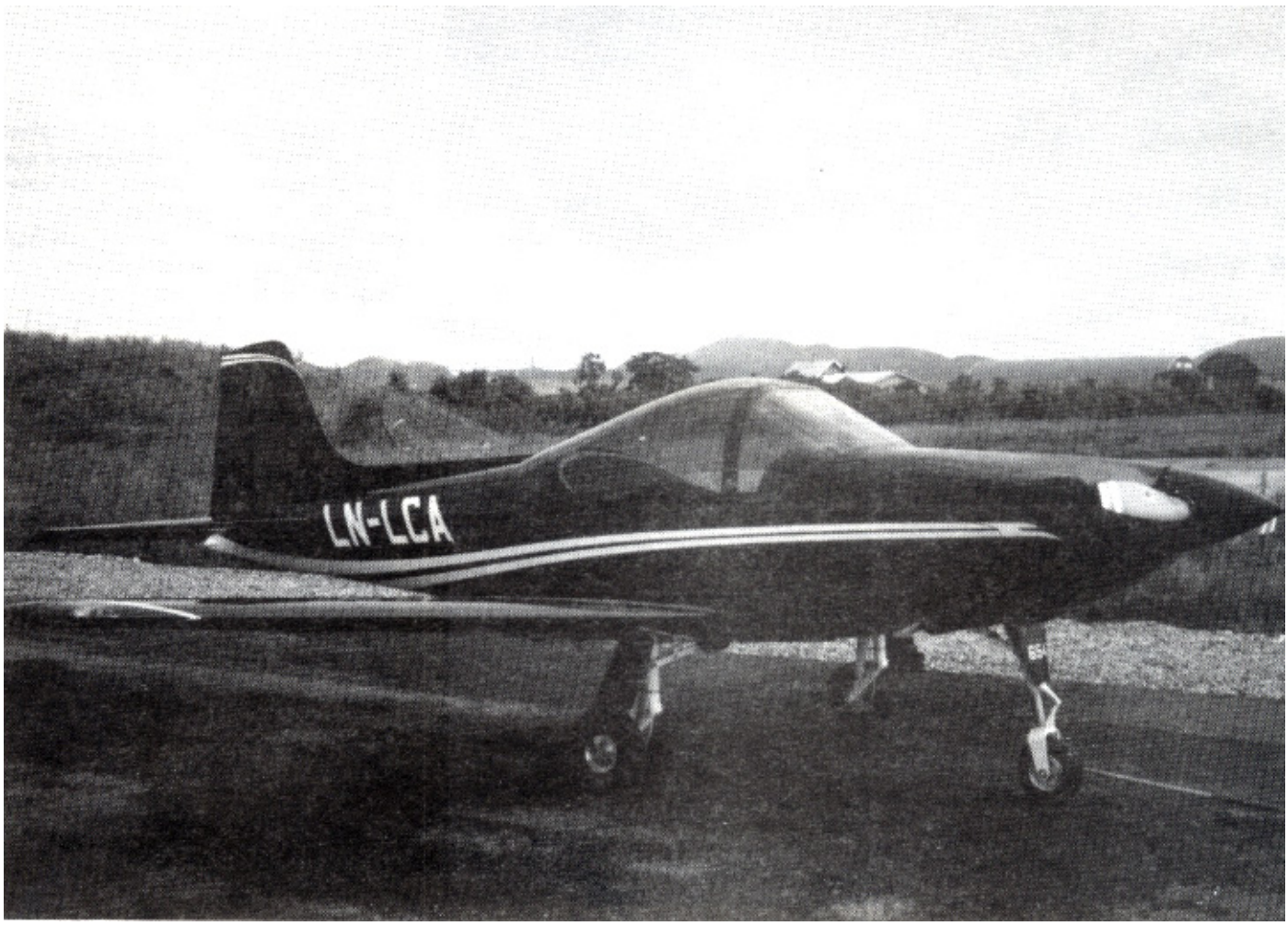
Bjoern Eriksen's Falco has a 160 hp IO-320-B1A engine and a standard canopy. It's the first Falco to fly with a red-and-white paint scheme *and* a standard canopy, and its gorgeous appearance confirms a theory that I've always had that the appeal of Karl Hansen's Falco has much more to do with the paint scheme than the Nustrini canopy.

The first flight of the Falco took place on February 22, and Eriksen reported that the flight lasted for 45 minutes and that the aircraft behaved just as expected. That makes LN-LCA the 29th Sequoia Falco to fly.



As I write this, he now has 6 hours on the Falco and has started flutter testing. He says, "The aircraft goes straight as an arrow at cruise and has a true airspeed of 170 knots at 10,000' with 65% power, and the climb rate averages 1400 fpm to 6000'. "This is with doors on nose and main gear legs only. The aircraft won't have more doors as I don't think that is doing any good for the reliability of the retraction system. Please take the performance figures as preliminary, as that type of testing has yet to start."

Bjoern, Torill Eriksen and their son, Morten, live in Bodoe, Norway, a town of 14,000 people that's north of the Arctic Circle. Best wishes to them all for many happy years with their Santa Claus-red Falco.—*Alfred Scott*



It's Easy Building a Falco

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either in the air or in the officer's club. They named me Easy! I'm often asked why, and my answer is always different depending on who's asking.

Now I'm building a Falco. Actually, I've been building it for 4 years now, but you wouldn't know it for the amount of progress I've made. Nancy, my very understanding wife, bought the plans and construction manual and gave them to me as an anniversary present on September 6, 1986. It was a remarkable thing for her to do because she had already lived through 7 years of construction of an all-metal Smyth Sidewinder. Then, much to her chagrin, after I sold the Sidewinder, I bought a Piper Comanche and carted her and the kids literally all over the country for the next 6 years. I used to say, "Isn't this great, sweetheart?" And Nancy would just smile.

In July of 1986, we had just moved to Virginia from California because the Marines transferred me to Headquarters Marine Corps for duty as a staff officer for the Deputy Chief of Staff for Marine Aviation. We actually stopped off in Richmond on the way into the Washington, D.C. area and met Alfred for the first time, looked at the Falco blueprints in detail and toured the warehouse of Falco parts. I was like a kid in a candy store. I had been interested in the Falco design for several years already, and I think visiting Sequoia and seeing the quality of the blueprints and hardware convinced me the Falco would be my next project. Nancy just smiled.

After I had the manual and blueprints and had examined almost every line and every word, Alfred invited us to Rosegill for the Oyster Fly-in in November 1986. I'll never forget our arrival at Rosegill; I walked from my car to the house and set a jug of wine down in the family room when I heard a voice say, "Come on, Al." I turned and followed Alfred—it's hard to keep up with him sometimes—and no more than 10 minutes after I drove up to Rosegill, I was lifting off with Alfred in a blue-and-yellow Falco. I was more hooked than ever. Nancy just smiled and figured I would be ordering kits soon.

I took delivery on the tail group kits from Sequoia and Trimcraft in December 1986. But serving as a staff officer in Headquarters has not allowed much time to build a Falco. My daily work routine for the last 4 years had me waking at 4:00 am, arriving at work by 5:30 am, leaving work as late as 8:00 pm and arriving home by 9:30 pm, sometimes 6 days a week. After a little dinner and relaxing for a few minutes, I really had only about 15 to 30 minutes each day to work on the Falco. On the weekends, I built a three-car garage so I'd have a workshop big enough to work on the Falco after the tail group was completed. For the past 4 years, according to my Falco construction log, I've averaged only a half-hour per day working on the airplane.

Now things have changed. I retired from the Marines in July and now fly for American Airlines. I have much more free time now. Throughout the transition period from then until now, including two months in Dallas for training, one month in New York on temporary assignment and hours glued to the television watching my friends beat the snot out of Saddam Hussein, I've managed to spend an average of one hour per day on my Falco; that's twice the previous rate.

Comically, I have been under the false impression that a Falco takes about 1500 man-hours to complete. Since I have worked 524.7 man-hours on the airplane so far, I figured it would take 2.9 more years to complete the project. Then I realized if 1500 hours was right, I'd be one-third complete right now, and I only have the tail group almost completed! Something wasn't right. Alfred corrected me and said it takes most builders 2500 to 3500 man-hours. Based on those figures, it will take 7.3 years from now to finish my Falco. Since I like to fly Falcos even more than I like to build them, I've got to increase my average daily work rate. That'll make Nancy smile.

The elevator and horizontal stabilizer has been finished for some time now. I just completed the rudder yesterday, and I have the vertical fin main spar glued to the horizontal stabilizer. That assembly is in my table jig, leveled and plumbed and the #3 vertical fin rib is glued in place.

A technique I've been using all along has really helped keep things aligned. When the construction manual calls for using small nails as alignment pins, I use toothpick dowels. For example, after setting the forward vertical fin spar on the forward horizontal stabilizer spar, aligning it perfectly with plumbs and clamping it, I drilled two small holes the size of round household toothpicks through the forward fin spar just inboard of the side longeron notches and about 5 mm into the stabilizer forward spar.

Then I glued a clipped-off toothpick shank through the forward fin spar and pushed it to bottom out in the holes drilled into the forward stabilizer spar. I quickly pulled the forward fin spar off the forward stabilizer spar and allowed the glue to set. Now I can set the forward fin spar back on the forward stabilizer spar in perfect alignment each time as I work with the #2 and #3 fin ribs. This technique really helps when gluing pieces to an angled surface where clamping pressure will cause the glued mating surfaces to "squirt" apart, such as the leading edge strips and the rudder tail light block.

I've flown four examples of the Falco so far: Alfred's, Buzz Glades's, Pawel Kwiecinski's and Karl Hansen's. They're all works of art and all fly beautifully, although Karl Hansen's is without a doubt the most superb of any airplane I've ever flown. I may be slow in building my Falco, but when it's finished, Karl will have to build another one to again claim title to the best Falco.

And so the work on my Falco progresses at a slightly increasing rate. Today I asked Alfred to put my name on one of the new wing spars they're currently fabricating. Nancy just smiled—she doesn't think it's easy building a Falco.

—Al Aitken

Easy Al after his first ride in a Falco at the Great Oyster Fly-In in November 1986.

Have an Ice Day

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cerned about. I had just finished switching tanks when the engine sputtered, the airplane shook and the propeller blades began to flick by irregularly. Fuel pressure was fine, so I pulled the carburetor heat knob and got immediate results. The engine coughed a bit and then began to run smoothly again.

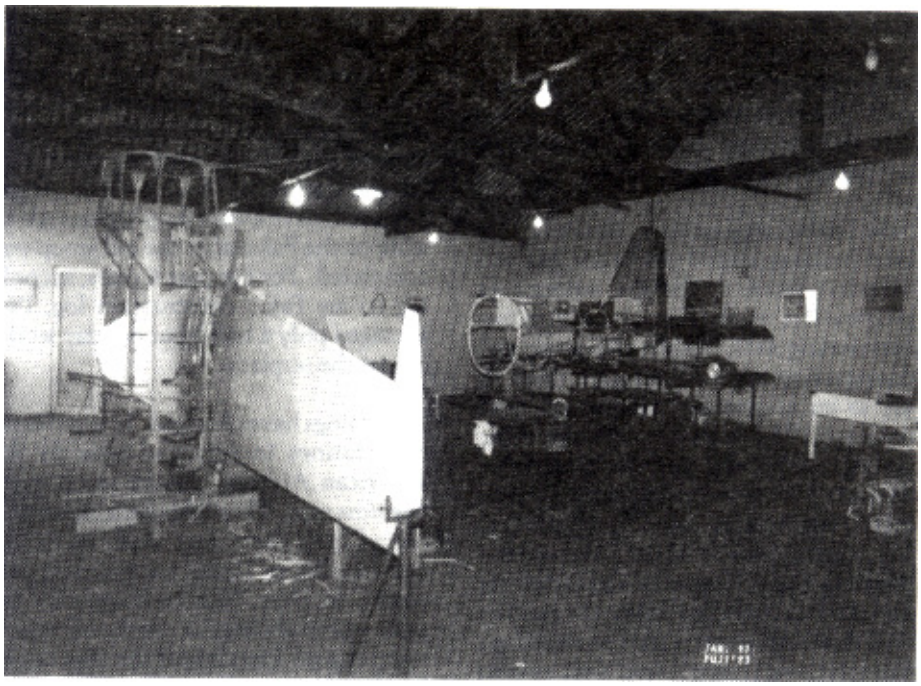
Carburetor ice. No big deal—I've had it hundreds of times, and carburetor heat has always cleared it up. I pushed the knob back in, and within a few seconds the roughness began again. This time when I pulled the carburetor heat knob, the problem did not clear up immediately. The engine continued to stumble and shake, and the rpm's were down to idle speed, so I dropped the nose to keep the propeller spinning, called Center and told them I had a serious case of carburetor ice and requested lower. I was immediately cleared to 11,000 feet.

But things didn't improve. The engine sputtered to life and died back down again, and then the airplane began to shake very badly as the engine coughed, sputtered, surged, shook, and then sputtered again. Surely, this thing is going to clear up, but it kept getting progressively worse, and the surges back to life were less and less frequent.

Ice began to form on the windshield and along the leading edge of the wing, and I got back on the radio with Jax Center and told them that my carburetor ice problem was extremely serious, that for all intents and purposes the engine was not even running, and that I needed lower altitude because I couldn't maintain level flight. Center said that I should contact Florence Approach and gave the frequency.

I missed the frequency and called back with "Say again that frequency" and the only response was the sound of the sputtering engine. By now the engine had settled down to rather violent shaking as ice formed on the propeller, and the engine showed simply no tendency to come back to life as it coughed and backfired.

We all imagine that in situations like this we'll be Yeager-cool and calmly chat with Center as we switch frequencies, twiddle knobs, deftly analyze the problem and fix it. But this problem isn't getting fixed, there's ice forming on the wings, I'm still in the clouds, and I keep calling back for that frequency and get no reply. Again



Marcelo Bellodi finally skins something!

and again I call for the frequency, and all during this time the plane continues to shake and sputter as fear begins to take hold. Your forehead becomes cold, your mouth is suddenly very dry and your palms are moist. Your vision becomes constricted, and you are aware of only the artificial horizon, the directional gyro, the stubbornly pessimistic tachometer and all that *white* out there.

It occured to me later to wonder if the engine was really turning fast enough to power the gyros; it must have because I'm still here, but I have no idea of the exact engine speed—such is the nature of the small mental room that fear puts you in.

The altimeter continues to unwind, and I finally get through to Center and beg for the controller to give me the frequency again very slowly, and I again repeat the seriousness of the situation—not that Jax Center or Florence Approach can do anything to get this engine running again. I dial in Florence Approach and, as the controller talks to me, I can hear other controllers talking loudly about me in the background.

This is *not* a good situation and as the altitude passes 8,000 feet, I ask for a heading to the nearest airport. The controller gives me the heading, and I stare hard at the DG and struggle to figure out which direction to turn. There's a strange numbness that creeps over you and which makes even the simplest of actions seem impossibly difficult. But I make the turn and focus all of my attention on holding the heading.

The nearest airport is Dillon, South Carolina—one of those small, off-the-beaten-path, land-and-get-gas strips that I prefer to big-city airports with their procedures and maintenance forms you have to fill out just to get some fuel. I've stopped there many times before, and I begin to fantasize about dead-sticking the Falco into Dillon, rolling out at the gas pumps and asking Mr. Price to take a look at my airplane.

Such pleasant thoughts are fleeting as the engine continues to cough, sputter and shake. The altimeter contines to unwind. Seven thousand feet, six thousand feet pass by and then things start to look just a tiny bit better: the ice on the windshield begins to soften and the engine begins to occasionally surge but then dies back again. My hopes rise and then crash again as the engine continues to stumble.

At 4,500 feet, I have decided to declare an emergency—although what difference that would make completely escapes me now—when I break out of the bottom of the clouds and into a layer of clear air. The engine surges, coughs, backfires, surges again, and then it begins to run smoothly.

Suddenly it is as though nothing had happened. The engine is smooth and is pulling strongly. I can scarcely believe it and flip through all cylinders on my 4-cylinder

CHT/EGT—everything's just where it should be. I begin to calm down, and the numbness and tunnel vision subsides. I talk to the controller and tell him that the engine is now running smoothly. As I approach Dillon, I decide to proceed on to Florence. The weather improves, my nerves settle down, and it's obvious that I can fly in clear air to Charleston so I decide to continue the flight.

In moments like this, there are no end-of-the-movie, sunset scenes with victorious music. Instead, you go through a long period of recovering from fear, you think of your family, and you wonder what in the world just happened to you.

North of Charleston, I encounter some of the worst turbulence I've ever seen. The Falco is thrashed about violently, the g-meter shows 3-g bumps, and I hunker down with both hands holding the stick so that my head does not hit the canopy—grinning from ear to ear that my problems are so small.

After landing, I found the carburetor heat system in good working order. It took a few weeks for it to finally dawn on me what had happened on that flight. Carburetor ice is caused by the cooling effects of the venturi of the carburetor and the evaporation of the fuel. With the right conditions of moisture, the temperature in the venturi can drop to freezing and ice forms. Those conditions are normally well above freezing—say 50°F.

And on that day, I was flying in air that was well below freezing. I suppose that supercooled moisture in the clouds might have frozen in the carburetor throat from additional cooling, but I think it's more likely that the ice was caused by *heating*. Remember, ice formed on the airplane only a thousand feet or so below. In other words, heat the air a few degrees, and you've got icing conditions.

The carburetor is bolted directly to the bottom of the oil sump, and it's entirely possible that the heat of the oil warmed the carburetor enough to cause a very bad case of 'internal airframe icing', that worsened as I descended into the icing layer, and which was difficult to melt with the cooled-down exhaust pipes of my barely running engine.

Who knows for sure what happened? But henceforth I'll approach icing conditions with a bit more caution—particularly from above the icing layer and with a carbureted engine.—*Alfred Scott*

Goings On at Sequoia Aircraft

Wood kits continue to dominate things around here. We've got all of the tail group and the 'other' wing spars going through the jigs in a steady stream. That process is now down pat, and it becomes very daily. We're doing the main wing spars in batches of five, and we have a batch going together now.

When we made the first set, there was always a problem with each step of getting the jig finished and perfected, and then the parts went fairly quickly. But it was still a start-stop affair. Now with this batch, the main wing spar production is a fairly straight-forward, boring process, and it's just a matter of cranking the parts out. We've got this batch of spars well into the process now and should have them ready to ship in a few weeks.

I've been spending a lot of my evenings working on the wing rib jigs. The spruce is on order and some of it has already arrived. At this point, all of the jig bases are made and all of the Baltic birch pieces are cut out, sanded to final shape and installed on the jig bases. The next step is to glue on the upper-level stop blocks that position the gussets. Then it will be a matter of going through the ribs and cutting all of the pieces.

There's nothing particularly new or different about the ribs since the jigging methods have been used before on other parts. We've now switched to using gloss Formica, which works better as a jig base, and I've learned to design the jigs to have plenty of room for fingers and to use UHMW polyethylene in the jigs.

I've also been spending some time working on a bunch of new drawings for the fuselage assembly. Lord knows when I'll finish them, because it's an enormous job. I'm doing much the same thing that I did with the wing and tail drawings—a complete overhaul of the drawings showing all of the old details plus some new ones, and arranging the details more logically on the drawings. Many of the assembly drawings disappear completely and become details on a drawing in the fuselage assembly.

The thing that is difficult about this is that so many drawings are affected, and it becomes an organizational nightmare to keep track of all the 'see drawing xxx' notes, making sure I've got all the changes done, etc. My goal is to really make a big dent into the revision list and show things in the fuselage with the same level of detailing that we use in the wing and tail drawing. My best guess is that I'll have them finished some time this summer.

You will note on the enclosed price lists that we have increased the prices of the kits across the board, and I'd like to explain these increases. Our costs break down into four categories: our out-of-pocket costs for the parts at the time of procurement or manufacture, the cost of carrying the inventory over time, the cost of replacing inventory at re-order time, and overhead.

Over the years our plans and kits sales have increased on a steady, non-remarkable pace (interestingly, magazine articles have little impact on this), and during this time I have spent much of my time with my head so buried in construction details that I've not spent the kind of time I should on analyzing the business end of things. When you go into something like this, everyone is prone to an optimistic, beat-a-path-to-our-door mode of thinking, and you tend to price things too low as a result.

We now have a fairly predictable pattern of sales and inventory turnover, and our overall pricing structure of markups has really not fully taken into account our costs of carrying inventory, the costs of replacing inventory, or the amount of time I put into this. The costs of replacing inventory is simply a matter of building into the price of the parts you sell the cost of replacing the inventory at the inevitable price increases that we face.

We don't like increasing prices any more than you do, but it's important that we be fair not only to you but to ourselves and that our prices reflect all of our costs. The overall price increase is not a one-time thing, and we will probably have additional increases at six-month intervals. We're making the effective date of the new price list at April 15, and will honor all orders received before that date at the old price. And also those few back-ordered kits for which we have money-in-hand will be honored at the old prices.

Again, I apologize for the price increases, but they are really a matter of fairly accounting for our costs. As expensive as our kits are, they are still something of a bargain.

—*Alfred Scott*

Construction Notes

We've made good progress on the fuel tank problem, although it's been slower than anyone would like. The front tank passes the 25-hour test with the braces installed as described in the last newsletter. Steve Wilkinson switched tanks with us and has the reinforced-and-tested tank in his plane.

There were two minor interference problems. One of the braces on the bottom of the tank rubbed his right brake master cylinder bracket. We're solving that in the future by moving the brace inboard by 10mm.

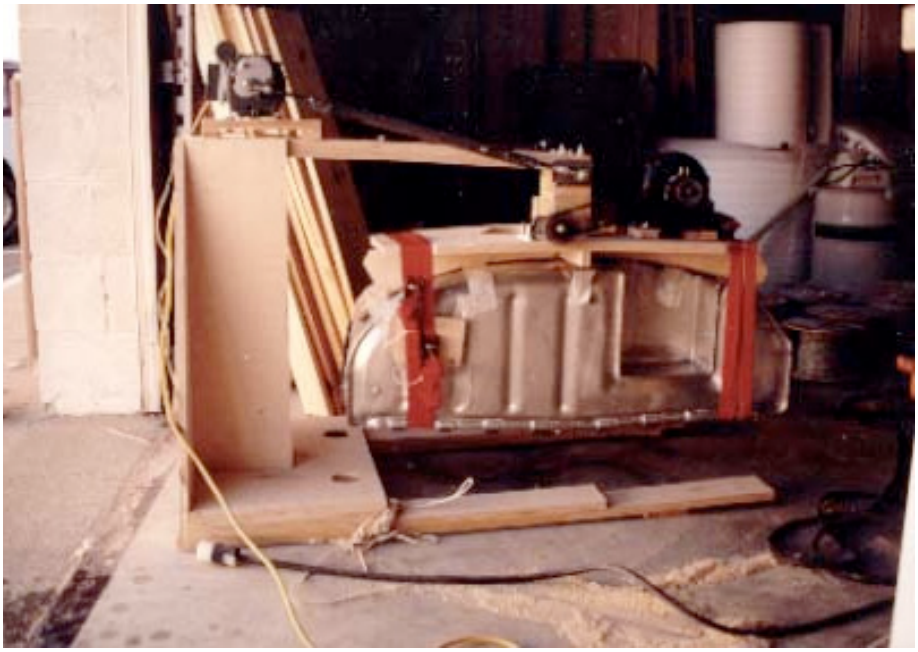
The second problem is that the end braces hit frame 3, and Steve had to bend them over slightly to get the tank to clear. Funny, I worked it all out that the braces would clear when installed, but never checked to see if you could get it in!

My original intention was to test the aft tank to see if it would fail and then fix what problems that we found. The aft tank seemed to be well designed, except for the flat bottom. The forward and aft ends are nicely bulged, and the top is a continuously curving surface. But the bottom has large flat areas and is a third again as deep, front-to-back, as the forward tank.

I spent some time looking at the tank, feeling the stiffness of the tank bottom, and I arrived at the conclusion that it was senseless to test it. The tank would certainly fail the test, and it would just add time and expense to the process. You would think that the shallow-vee of the bottom would add some stiffness to the tank bottom, and it does to some extent. But the area around the sump is very soft because the beading stops.

Having watched the front tank perform in the test rig, I came to the conclusion that the stiffening methods we used on the tank were gross overkill and added needlessly to the expense. In particular, the business of welding a 3/8"Ø rod along the bottom of the tank and then wrapping plates up fron the ends of the hat-sections and around the rod seemed silly. There's no question that it strengthened the tank, but I became convinced that the problem was one of vibration in flat panels—and nothing else.

So with the aft tank, we installed a hat-section on each side at B.L. 75. With the beading in place and with the tank stiffened in the center by the hat-sections, I figured the tank might pass the test. These hat-section braces were 'open' at the end; that is, they were just cut off square, and there's no end cap. You can peek down in the end of the brace and look clear through.

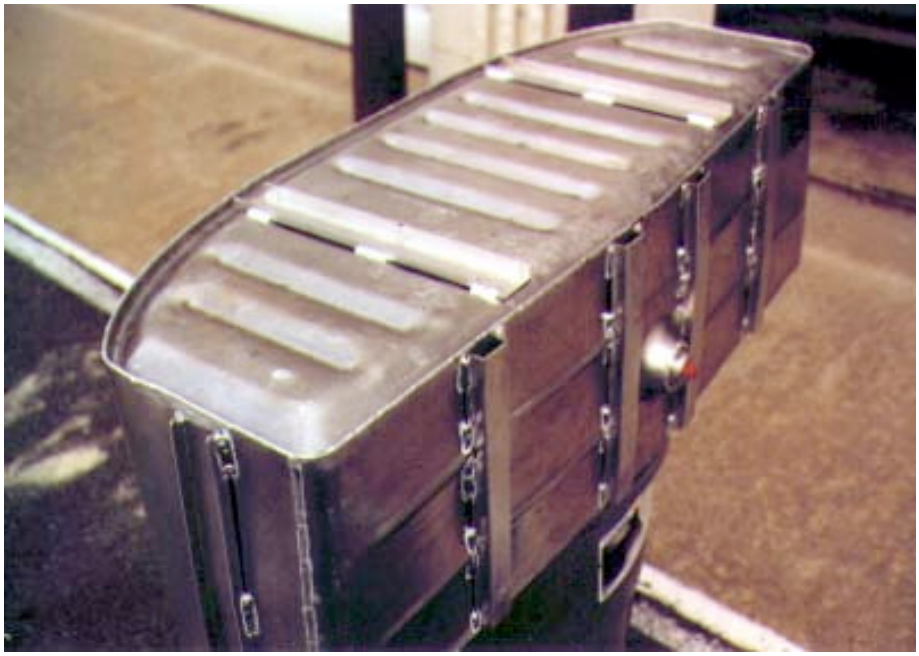


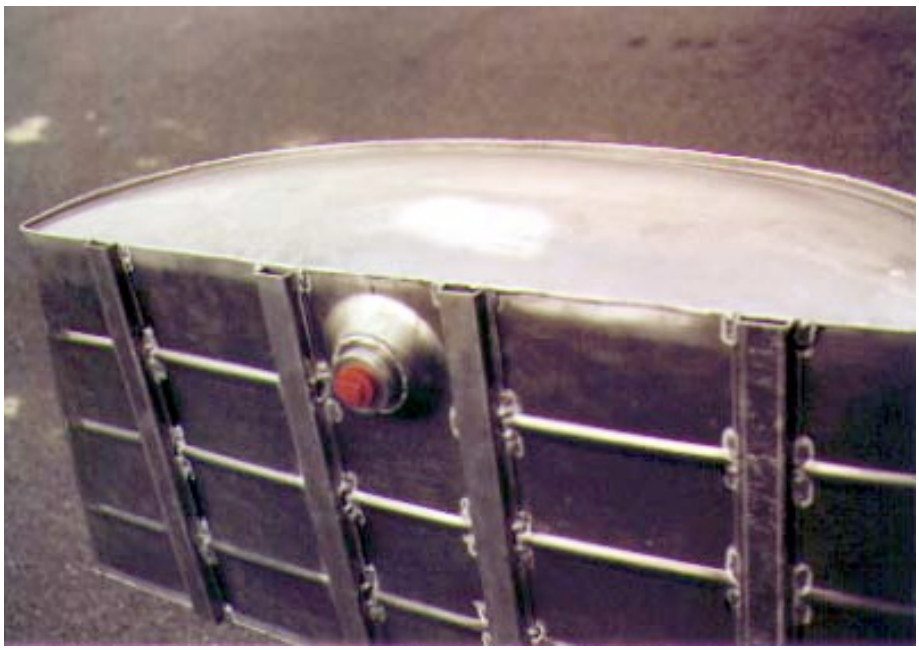
The slosh and vibration test rig with the forward fuel tank. A motor over the tank swings an eccentric weight on a shaft to provide the vibration, while a gear-motor with an eccentric arm connected to a pushrod provides the sloshing.

After the brace was installed, I put the tank in the test rig and fired it up. It was immediately apparent that the tank was not going to pass the test, because the flat bottom of the tank was pulsing substantially—and having seen this sort of behavior in the front tank, it was obvious that the tank would never go 25 hours.

So we stopped the test with only a few minutes of running and installed another hat-section brace on each side at B.L. 275. This time when we put the tank back in the test rig, it seemed equally obvious that the tank would pass the 25-hour test. No panel of the tank was vibrating abnormally, and the tank rode through the test without any noticeable noise.

At about 18 hours into the test, a small pin-hole leak developed at the end of one of the B.L. 75 braces. We continued to let the test run to 25 hours to see if the crack would propagate, and it did not. I concluded—and John Oliver and our





The aft tank passed the slosh and vibration test with these four hat-section braces installed on the bottom. The front fuel tank in this configuration survived 9 hours of the test and then failed. It will required 8 braces on the bottom.

tank fabricator agreed—that the leak was a fabrication problem and not a design problem.

When the hat-section brace was welded to the tank, a clamp was used to hold the brace in place and you could see at the weld that the seam along the bottom was 'dented' upward from this clamping pressure. We concluded that this created an internal stress and that is was also possible that the weld was stressed by removing the clamp prior to the metal fully cooling after welding. I also noticed that a similar crack was developing at the other end of the tank, on the same brace, but this had not developed into a leak.

As this was on the other end of the same brace—with the seam similarly dented—and on no other braces, we felt this was confirmation that the problem was one of fabrication and not design. Also, when a panel vibrates, it would normally fail the weld at the midpoint between braces, and not at the end of the brace. We all concluded that the aft tank had passed the test.

Since the aft tank passed with four open-ended hat-section braces on the bottom, I concluded that it was likely that the same four-brace solution would work on the front tank. So we had the braces installed on the front tank and put it back in the test rig.

I failed to mention that the aft tank test was interrupted when the pillow block bearings used for the vibrator shaft failed from fatigue, and it took several days to get replacements. You can be assured that this test is tough on equipment when a pillow block bearing fails.

The test of the front tank seemed to be a pro-forma test—certainly it would pass—and like the aft tank, it rode through the early part of the test without any strange noises or vibrations. But then at about 8-1/2 hours into the test, you could start to hear harmonic, 'under-water' sounds, and the tank developed a leak at 9 hours. This was a full-fledged, un-zip-the-weld, fatigue failure in the weld.

It took a while for me to understand the cause of the problem, but what was happening was that as the tank rocked left-wing low, the bottom of the tank on the right side started to pulse strongly. This was right under the radio box, and it was obvious that the same short-period amplification that had earlier afflicted the front face of this tank was now getting the bottom. Dave Thurston is right—this *is* a black art.

As I write this, the front tank is back in the shop getting additional braces installed. John Oliver figures that three braces on each side would do the trick, but since we've already proved that four braces on each side will work with end caps, we're just going to go with four braces. Although the pulsing problem is only on the right side, we are putting the same number of braces on both sides.

I'm fairly confident that this will solve the problem and that we'll have the tank problem finally solved in a week or so. We will get upgrade kits made up and shipped out as soon as feasible. This will include drawings and a complete report on the tests performed and the repairs necessary.

By the way, I've found that a lot of you are under the impression that the sloshing is part of the torture for the tank. Actually, the way the test works is that the vibration does all the damage, and the sloshing just makes sure you have a good distribution of the frequency possibilities. Obviously, you are not going to fly around with a wing down

15° all day, but the genius of the test is that the sloshing with a two-thirds-full tank simulates the operation of the tank with various levels of fuel.

Questions from the field. Richard Clements called the other day and asked about the aileron balancing. There wasn't any difficulty on his part in understanding the instructions, but he said he was getting unmerciful grief from all the local 'experts'. Everyone told him that ailerons must be 100% balanced, and if not they say "I want to be there when you fly."

The simple answer is that the plans are right, and the self-appointed experts are wrong. One of the most popular fictions among homebuilders is the need for 100% balance on the ailerons. I don't know where it comes from, but most probably it grows out of ignorance and somehow the notion that 100% balance is some form of perfection.

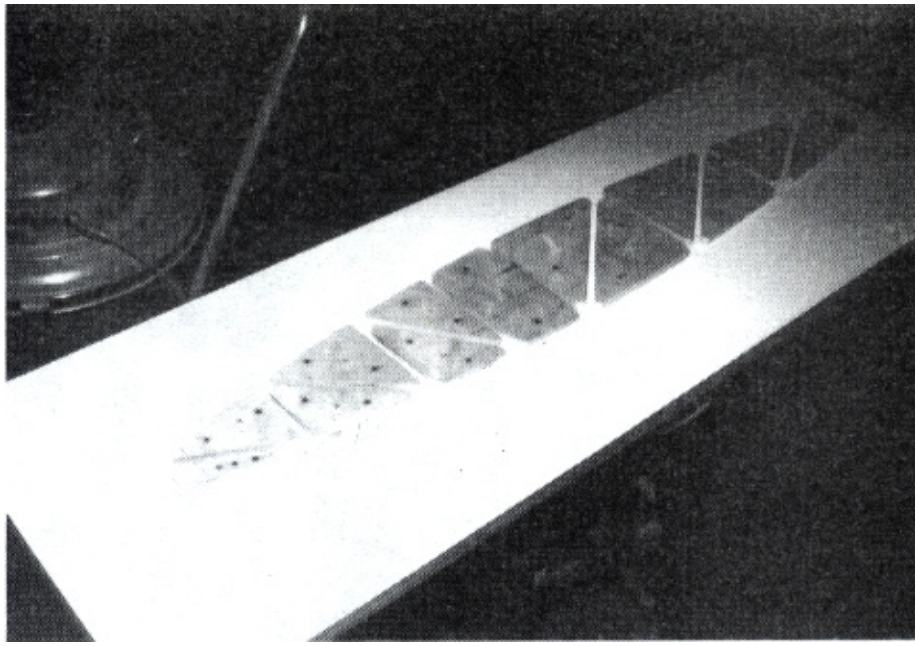
Aileron balancing is just one of many considerations about aileron flutter. And that's a very complicated subject, because flutter is an aero-elastic phenomenum, and the principal factors are the stiffness of the wing, the resonant frequency of the wing, the speed of the airplane, the tension of the control cables and the balancing of the controls.

From the standpoint of the overall weight of the aircraft, and also for the best feel of the controls, it's desirable to have as little balancing as possible. So what happens is that designers like Dave Thurston and Stelio Frati build up a level of experience with aircraft so that they basically know what will be required and then you test the plane to make sure.

The amount of aileron balance that we have in the Falco was also specified by Dave Thurston for the Bellanca Skyrocket II—which once held a world's speed record at something like 320 mph—and Karl Hansen has twice bombed through our redline. So the next time some 'expert' starts forcing his opinion on you, just be polite, thank the guy for his advice... and ignore it all.

Stephen Friend asked if anyone has found that frame No. 6 diagonal is the right shape, saying that his frame needed extra material at "10 o'clock" and "2 o'clock." I remember some years ago the shape wasn't right so I re-lofted it, and we've been using that shape for some time.

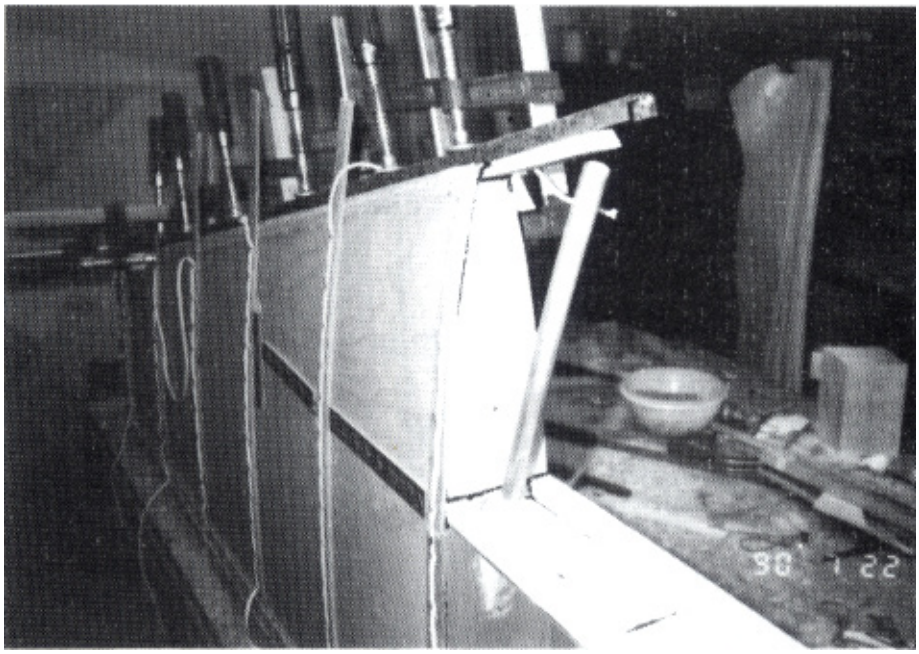
However, one of the difficulties with lofting this frame is that there are a number of different ways that you can loft it, i.e. do you consider the surface as a straight conical projection from the aft tail section? Or do you consider the theoretical fuselage parameters?



Top: A wing rib jig takes shape. The Baltic birch plywood blocks are positioned with dowel pins. Bottom: Stephen Friend's method of machining the fuselage frames to thickness using roller skate wheels to hold the frame against a fence.

I can find four basic methods of lofting this frame, because it isn't a matter of which one is correct but rather what shape do you want the fuselage to be? Just to check myself, the other day I re-lofted it again, using three different methods. The shapes are remarkably similar, and all of them confirm the shape we now use. Has anyone else had a problem? Or do you find frame 6 diagonal is right?

Stephen Friend also reports, "After reading about builder's difficulties assembling the retract gear box, I was congratulating myself about how well I had got the vertical shaft running against the forward mitre gear—nicely against the top and bottom bearings, no binding or backlash. Then I tried to assemble the mitre gear on the bottom shaft. The bottom mitre of the vertical shaft appears 4mm too low. The lower bearing is holding the miter gear 2mm below the housing but is itself cor-



Top: Stephen Friend thicknessing the fuselage rings on the inside. The roller skate wheel determines the thickness. Bottom: Stephen clamps the leading edge skin in place with a steel channel.

rectly seated in place. Do I take 4mm off the top of the mitre gear and will the vertical shaft take being cross-bored for the roll pin?"

We've had some other builders report similar difficulties. It's really a good idea to look one step ahead and make sure each gear will mesh nicely with its mate before committing yourself with a drilled hole. It's quite all right to sand or grind material off the hub of the lower miter gear to raise it up to mesh with the miter gear on the horizontal shaft. Best to do that before you drill any holes, but if you have to cross-drill the shaft, then that's all right, too.

Australian Stephen Friend sent along some photographs of a method he used to mill the fuselage rings to thickness. He used a router mounted under a table so that the router bit protrudes vertically out of the table top, and then mounts a fence the required distance from the bit. His method is a lot like using a table saw with a rip fence to mill the frames to thickness, but the cutter a 3/4" router bit instead of a saw blade.

The problem with this sort of arrangement is that it's quite easy to 'tilt' the fuselage frame the wrong way and take a gouge out of the frame. To keep this from happening, Stephen used some spring-loaded roller skate wheels and the skate's rubber blocks allow the wheels to provide equal pressure to the wood.

This worked out so well that he modified this method for thicknessing the rings on the inside. His wife came up with the method, and it involves nothing fancier than using the wheel of the skate as a rolling 'fence' to establish the thickness of the frame. He says that no anti-kickback device seems to be necessary as the rings are easier to control in this plane. See adjoining photographs, of which Stephen says "I'm sure the workshop safety people would be fascinated by both of these items."

And finally, Stephen says that "whatever I did, I didn't seem to be able to get the stabilizer, or fin, leading edge plywood to bend tightly enough. And then I remembered that I had some 16 gauge x 1" channel which, with clamps, was able to tighten the bend and still allow room for staples."

Al Dubiak said that he rigged up a nice steam jenny for bending the leading edge skins. For about $90, he bought a plumbers gas stove—one of those LP gas stoves that is used for melting lead for pipe joints—and put a five-gallon can on top of it with a half-inch hose coming out the top.

Al says that with only a few inches of water in the can and with the stove on full, you can really pump out steam and make the plywood let you 'have your way' with it. All woods become very pliable when heated to the boiling point of water, and one of the surprising things about this method is that it does not markedly change the moisture content of the wood.

Also on that subject Howard Benham writes, "One thing we noted in bending the leading edge was to put a wet towel along the bend line after soaking the skins for 3 or 4 days, then heat the skin with a steam iron. This works much better than just using the iron on the wet plywood. Once the plywood is hot, we clamp it in the jig and again apply the wet towel/iron for a few minutes prior to placing bags of lead shot along the bend line. We leave the skin in the jig for 24 hours, then remove the skin and clamp on the wing. This gives you practice at clamping the leading edge before the glue goes on

and allows the skins to dry in exactly the right shape. This might help some of the new builders as the 2.5mm top skins can be rather imposing when you first start working with them."

Steve Wilkinson is rapidly approaching the completion of his Falco and even threatens to take it to the airport shortly. Lately he's been hooking up his avionics and send along this note:

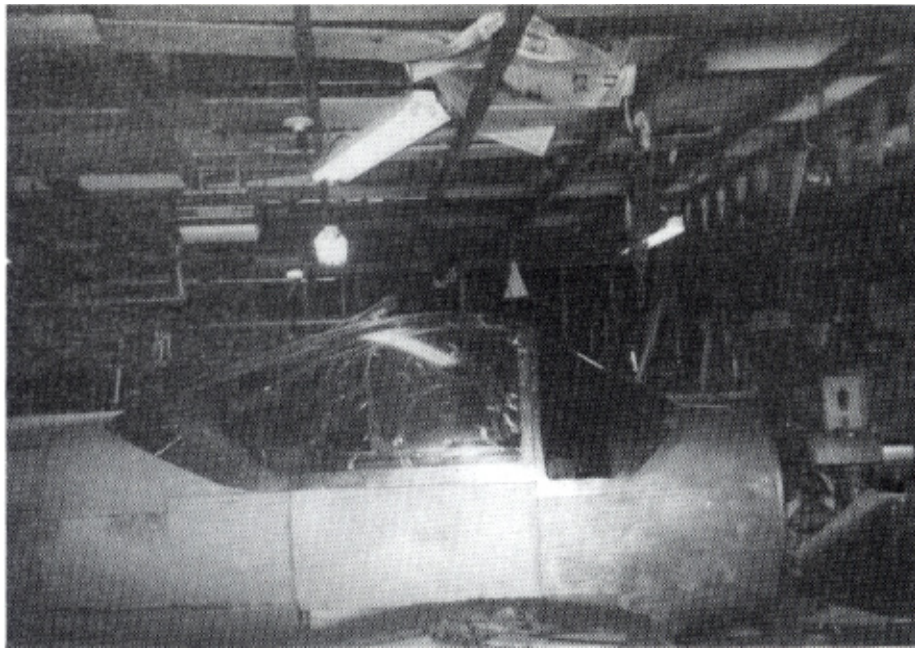
"Something you might be interested in, since the instrument-panel drawing mentions the clearance problem that exists if you use the various King VOR heads that have a converter as part of the box rather than within the navcom itself: I bought one KX-165 and one KX-155, and with the 155's VOR head there is indeed such interference, but there seems to me to be an easy way to fix it. I think a lot of Falco builders will opt for the 155s, since they're considerably cheaper and since the 165 offers very little extra for the money. (I bought one so I could wire my Northstar Loran directly into the CDI, which you can't do with a CDI that has an internal converter.)

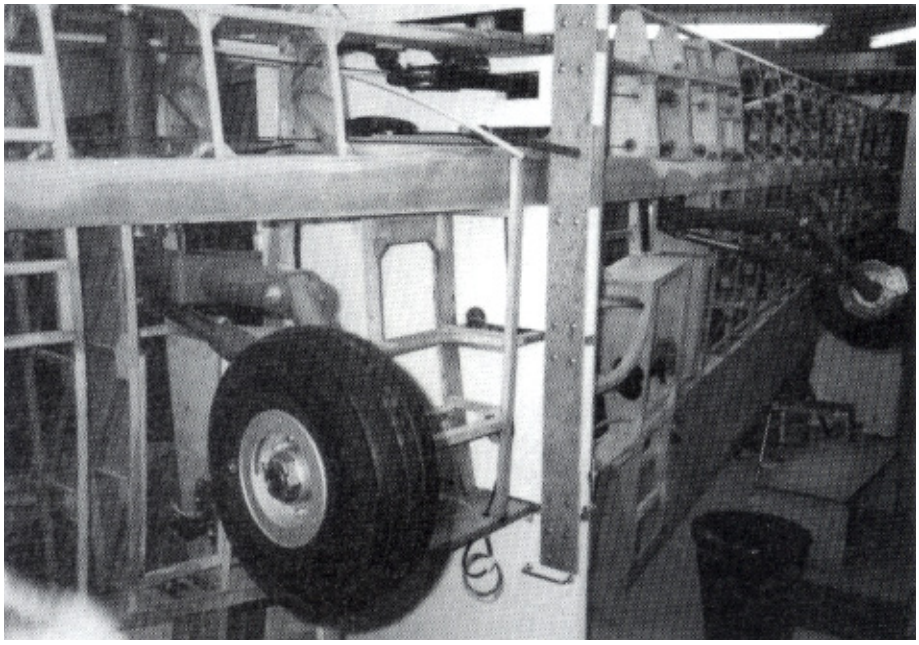
"I asked the shop that sold me the radios (Gulf Coast Avionics) to make up the harnesses with "right-angle connectors" or some other sort of space-saving plug at the back of the VOR head, but they'd never heard of any such thing and made up the harnesses conventionally.

"I measure 210mm clearance between the aft face of the panel and the rear of the fuel tank, based on the tank-installation drawing. However, the plug itself is a good 60mm in depth, and if you take the metal jacket off the plug, the internal part of the plug is only about 30mm long. I simply took the soft metal jacket off the plug body and cut it to remove it from the made-up harness, and now the VOR head, converter and plug are only about 190mm long.

"The only disadvantage of doing this is that the mechanism that clamps the external male part of the plug to the fixed female part gets discarded if you remove the plug shell. But there are plenty of ways of solving this, including inelegantly taping the two plug halves together with electrical tape, and I think it's infinitely easier than locating whatever a "right-angle plug" is and making up a new harness, if your KX-155 comes with a conventional harness."—*Steve Wilkinson*

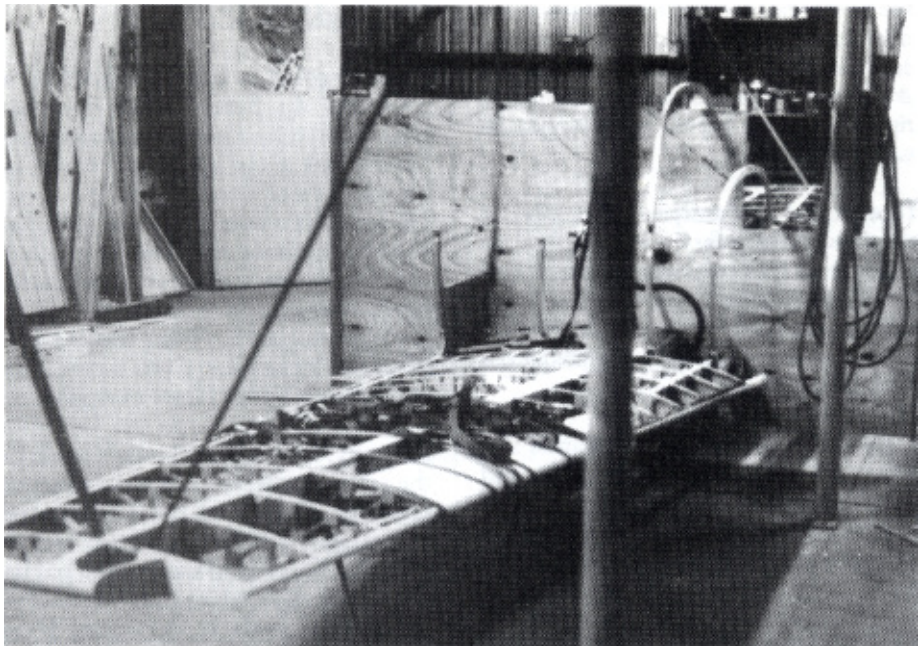
An electrical engineer friend of mine says that he's had great success at making 'short' connectors by completely discarding all of the protective shell and then using a hot-melt glue gun to squirt glue down between all of the wires and then mold the whole thing into the shape he was after. (In fact, he said in one dire-straits situation he actually made an entire 'connector' with nothing more than pin-ended wires by putting a piece of paper over the receptacle, shoving the pins through the paper and into the receptacle and then squirting hot-melt over everything to make a single molded connector of hot-melt.) You can also use silicone rubber RTV for the same purpose, but the nice thing about hot-melt is that the whole process is over in five minutes. God help you if you ever have to take it apart.

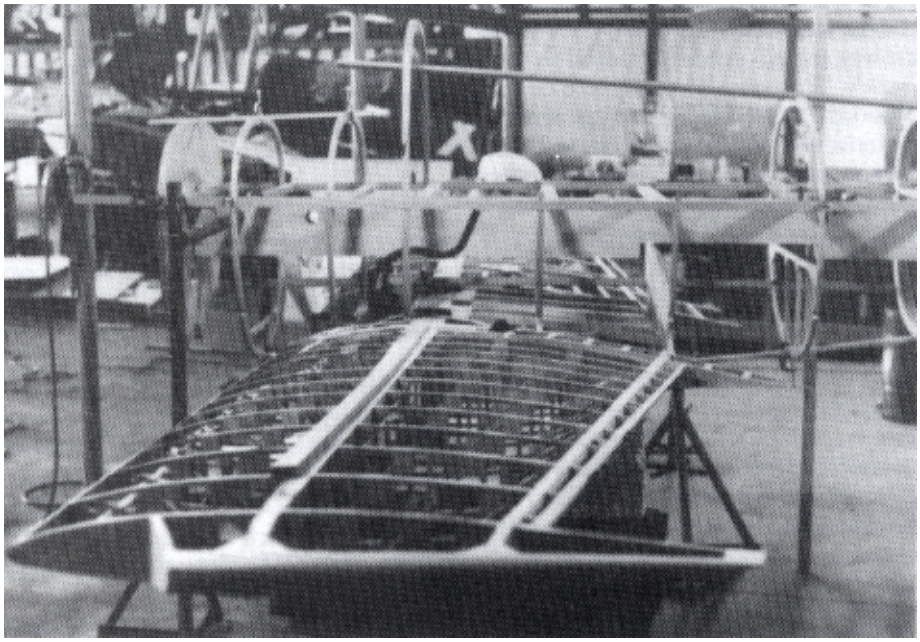




Top: Alan Hall's Falco "Miss Fitt" takes shape. Bottom: Howard & Marty Benham's wing in the jig. This Falco is destined for a flight to Australia one day and across the Atlantic, thus it will have under-wing tanks.

Steve Wilkinson also said that the topmost radio hits the diagonal frame No. 2, and that it requires taking a chunk about the size of a sugar cube out of the frame, and that until you do, you can't for the life of you figure out why the panel suddenly won't slide all the way home. He says "it feels like the radios are hitting the tank, but of course they aren't. Then





Tony Chamberlain sent along some photos of the Falco he is building for Guido Zuccoli. Tony says, "Our CAA have inspected the aircraft and are suitably impressed. We've been cleared to close everything."

you finally notice the interference, after hours of fiddling." Steve said that the interference that he encountered was only about 3/4" and that you only need to take that amount off the aft face of the frame—instead of cutting all the way through the frame.

Steve asks if anyone who has been through the final FAA inspection process has worked up a check list of all the things that you need to do before the final inspection. Things like ELT, name plate, aircraft logbook, whether the inspection panels should be on or off, etc. That sort of thing. Anybody got anything on that one?

Steve Wilkinson and Howard Benham are both working on installing a split bus so that they can have a separate avionics master switch. What you do is saw the bus bar in half at the avionics circuit breakers and then use a 'switch' to connect the two. There are two methods for doing this. By far the simplest is to use a 35 amp switch-type circuit breaker and some 8 gauge wire. That's the way Jim DeAngelo did it on his Falco, and my Falco has the same scheme.

The other method is to use a switch and a relay. That's what Beech does on all their planes, and Howard Benham is copying their system. You use a Cutler-Hammer 6041H53A relay and run the wires from each bus to the B1 and B2 terminals of the relay. That relay is a double-throw relay and by using the B1 and B2 terminals you are using the normally-closed terminals. This makes the system fail-safe because you apply power to the relay to turn the avionics bus off, thus any failure in the power to the relay coil restores power to the avionics bus.

Jim Petty asked about the installation of Fiberfrax insulation on the firewall and whether it should be installed under metal fittings. The answer is that you absolutely do not want to install the insulation under any structural metal component like the engine mount lugs or nose gear fittings, because it would contribute to loose bolts and could be very dangerous. It is less critical under such things as the bolt heads for the rudder pedal mounts and in situations like this and other minor screws and bolts you may do it either way, but most builders make a 2mm plywood pad for all fasteners and omit the insulation at those areas.

Jim also points out that the instrument post lights have hollow brass stems, and that it is very easy to break the lights by tightening the nut too tight. Many Falco builders have broken at least one post light this way. You only need to tighten the nut a little more than finger tight.

Finally, I should mention our method of drilling bolt holes in the main wing spar and how we use dowel pegs. We drill the bolt holes for the landing gear fittings in the spruce structure before we glue on the plywood. Before we glue on the plywood for the aft face, we tap short pegs into the bolt holes. These pegs are nothing more than half-inch pieces of 5/16"Ø wooden dowels. The purpose is to keep glue from running down into the bolt holes and making a mess of things.

We ship the spars with the pegs still in place, so what you are supposed to do is drill out through the pegs and the plywood. Then before you glue on the skin for the forward face, tap in the pegs we supply and then repeat the process of drilling from the other side. This method makes a nice clean hole without lots of complications with the glue—but if you cover up those holes before drilling out through one face, you are going to be in a world of hurt.—*Alfred Scott*

Low Ceilings and the Falco

by John Brooks Devoe

Not infrequently, as I flip through the pages of the *Falco Builder Letter*, I look with envy at those builders who appear to have facilities of grand proportions with respect to both square footage and height. Then we have Jim DeAngelo who made a T-hangar out of a mere garage, Bob Bready who threatens to knock down a wall in a furniture store (his own), and Steve Wilkinson with his ancient barn with limited egress, albeit he can nail stuff to the floor.

I have a broken-to-overcast sky at 83-5/8" in an area measuring 23'x34'. The area I have is adequate, and I do have an 8'4" garage door in my basement hangar. But height presents problems. Short of putting the vertical stabilizer on a fold-down hinge, I must find other ways to work around the limitations extant, since Alfred would never okay the hinge. Changes you know.

When the wing was put into cruise position from the upright jig mode, I built the supports under wing stations 6 low enough to accommodate the tail when attached to the fuselage. Before the six man/woman crew lowered the wing to the floor, I removed the main gear, since it could not be extended on the low stands.

The fuselage is now virtually complete except for some bottom skinning. The next step is to commit myself to the belief that you can cut a Falco in half—many of my friends have done so. Once so cut, I can set the tail cone aside and get the truncated wing/fuselage up on the gear.

The wing skinning procedure I used worked extremely well (described in Sept 88 FBL, page 8) and I did it in a heated shop during a New England winter. The shop is heated with electric radiant heating panels, thus there is no hot air blowing around. I took the further precaution of running two humidifiers constantly, both in advance (to acclimatize the plywood) and during the skinning. There does not appear to be a ripple anywhere, but the painting process will be the real test.

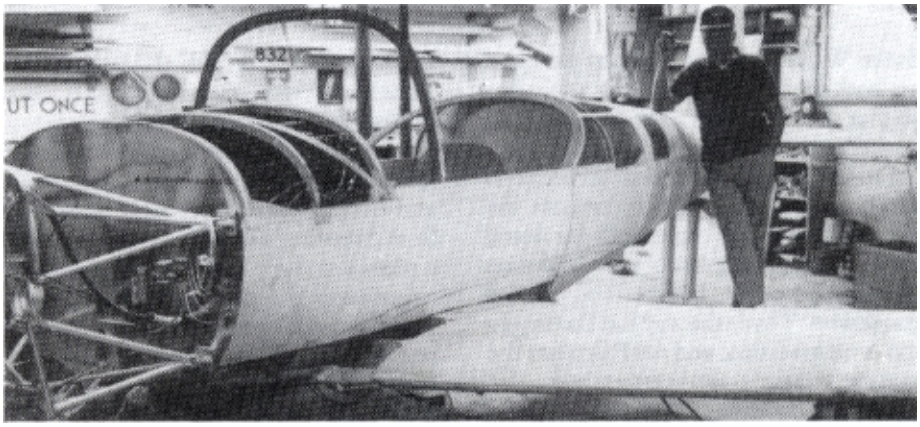
I continue to use the sequences described in the manual, going for the internal fuselage jig for space reasons as well as its relatively simple construction. I do not have Steve W's wooden floor, so I simply glued the post to my concrete floor with the ubiquitous West System epoxy.

I found the assembly of the frames and longerons quite without a problem, and once finished I glued the fuselage skins on dry. A good pneumatic staple gun, and a from-the-center-out stapling sequence did it.

The manual does not mention float-sanding of the fuselage—Alfred figures we're in the big leagues by this time—but I did it anyway using a system described by Bob Bready. Prepare a 4" by 4' piece of 1/4" plywood or Masonite by gluing an abrasive material of your choice on one side and then mount one 1"x4" dowel on the other side. With your spouse or other interested (?) party on the other end, you will find float-sanding the fuselage a lot easier than doing the same to the wing.

A cautionary note on skinning the tail cone. When you mount the finished empennage on the fuselage, you will note an easy tendency for the horizontal stabilizer to tilt. Unless you want a modified V-tailed Bonanza, the tail should be stabilized in a level position. Level the aircraft wing with a water level. Do the same to the tail. Next, run two stranded steel cables (of heavy picture-wire size) from the elevator hinges to the ceiling—a low ceiling is a benefit this time—with a turnbuckle on each side, and use these to 'fix' the level as you glue/staple on the skin.

Canopy is next. They say it's a cinch!



Brenda's Corner

I wasn't going to bring Oshkosh up so soon, but the Paper Valley Hotel has changed its rules about reservations so we have to talk about it. As in the past, we have a block of rooms. Starting this year (we have reservations through 1999) they must have names and dates by July 1, or they will release the rooms. This year the EAA convention runs from July 26 through August 1. Start making your plans and let us know if you want a room at the Paper Valley Hotel in Appleton.

Recently, we had new binders made for the construction manual and construction drawings. These binders have clear vinyl covers on the front for inserts, and we have had Nigel Moll's wonderful picture of Karl Hansen's Falco printed in color on sheets to use as the binder cover. If you should like to replace your old binders, now is your chance. The cost is $15 each. This price includes UPS charges. By the way, the binders have the square rings, and the rings are bolted to the back of the binder instead of on the spine so they lay flat, and the pages turn more smoothly.

UPS increased their rates effective February 18. They now charge a higher rate for residential deliveries, so if you can have your order shipped to a commercial address, it will save you a few dollars.

Jim Slaton called recently and asked that we tell everyone that he and Judy are hosting the West Coast Falco Fly-In the weekend after Labor Day. Jim and Judy's address is P.O. Box 562, McCall, Idaho 83638, and their telephone number is (208) 634-3016. Everyone is welcome. Please contact them if you are interested in attending. *—Brenda Avery*

Left: John Devoe. Above: Brenda's "knitting"—fifty electrical kits in the works means 80,000 feet of wire.

Mailbox

The new house and wife (not new wife, or first—but recent!) are both doing well. Racing cars is beginning to move farther to the background, and the Falco is getting closer to reality. The builders letter is of great interest, and I follow your efforts closely. Keep up the good work.

Bob McCallum
Willowdale
Ontario

I enjoyed our brief conversation at Oshkosh this year. Only wish I'd had more time. Once again I'd like to say that I appreciated your efforts with the EAA "flap." Looks like all will be well in the years to come.

As far as building an airplane—well, last year I moved to a 63-year-old log cabin in the mountains, and you can guess what that's been like. New plumbing, heating, electrical, insulation and so on. Why do we do these things to ourselves? The current project is focused on acquiring the neighboring property for the garage/hanger.

I do want to say that I enjoy the Builders Letter—the recent article about CAD/CAM was "right on." We seem to experience the same phenomena with software developers—one course in BASIC, and they're Systems Designers! Also particularly enjoyed your piece on introverts. Brought that one to the office and told the folks "Read this—maybe it will make my behavior a little more understandable."

Do hope to get started on the plane one of these days, but after seeing all the improvements you are making, I'm not sure I'm unhappy not being one of the pioneers.

Brian Dompierre
Indian Hills
Colorado

Lemme see if I got that straight. `Happy := not Unhappy(not(Pioneer = true));` *Right?—Scoti*

Re: this years "Great Oyster thing..." The last time any relative of mine was near the Rappahannock was in 1862. The occasion was not a pleasant one as he crossed that river in mid-December, though he did get promoted to commander of the Fifth Michigan Infantry in the skirmish that followed when the commander of the regiment was killed. Colonel Sherlock crossed another river, the Rapidan, on May 1st, enroute to Chancellorsville. My great-grandfather crossed over his last river on the morning of May 3rd when, astride his white steed and sword held high, he took a cannon ball in the left breast. Perhaps I should mount some 50's in the wings of my Falco before venturing that far south.

Moving along some 118 years later, I have a problem of much less consequence but nonetheless a problem. Subject is the wing fillets on the Falco. I am about to tackle the problem using plywood and wish to clarify a point with respect to the radii to be used. I have seen various figures given in the early versions of the manual and old drawings. I would appreciate your guidance.

A second, related question concerns the station #1 to fuselage area trailing edge. I have installed the bottom skin from the inboard side of the wing walk to a curved line on the bottom of the fuselage ending up at what would be the aft-most trailing edge of the fillet, just forward of station #8 (a somewhat sensuous curve which, to my surprise, was done without difficulty). The fairing comes down to meet this, but what happens on the top side of the area with respect to wing "skin" here? Should skin run from inboard of the wing walk to the fuselage before that area is covered by the fairing?

I found the index perpared by Steve W. to be helpful. I have kept a loose running index of sorts myself, but not nearly as complete. Worthy inclusion.

John Brooks Devoe
Stratham
New Hampshire

I hope your family has recovered from the loss! It's safe to fly this way unarmed, cuz we bagged our limit of yankees long ago and you can't get licenses for that kind of huntin' any more—although it was great sport while it lasted.

Fuselage station/fillet radii combos are: Sta 3 = 40, Sta 4 = 45, Sta 5 = 80, Sta 6 = 120 and Sta 7 = 160. And you don't 'skin' the upper area inboard of the wing walk—that's all covered by the fairing.

—Alfred Scott

News Flash: Van Nuys Aircraft Builder Discovers "Circus Wood". You have heard of "Circus Animals" capable of fantastic tricks, but "Circus Wood"? Yes, unfortunately I have discovered how to make wood do tricks! My most astounding trick is the Shrinking Fuselage Frame trick. You, too, can do this trick at home. Just following these simple steps, and you can produce beautiful, unusable parts for your aircraft.

1. Fabricate male mold for fuselage frame per normal methods.
2. Cut and soak spruce laminations per normal methods.
3. Clamp wet spruce around male mold and allow to *partially dry*.
4. Glue up *almost dry* spruce laminations around male mold per normal procedures.
5. Unclamp lamination when glue is set and remove from form.
6. Allow finished lamination to completely dry. This step is where you notice the "trick".

I did all this before I ripped the double-wide lamination and made the scarf joint to complete the circular lamination. What I hadn't noticed was that the glue lines and the contracting, drying spruce had acted just like a bi-metallic spring in a thermometer. The C-shaped lamination shrank substantially, and when I ripped and scarfed them, my finished circle was a full inch short in diameter!

True to Murphy's Law, I picked the only double bulkhead (station 8) to accomplish this miraculous feat. Yes, this particular lamination was wide enough to make both mating frames from, complete with plywood on both sides before I discovered what had happened. And last but not least... yes, I have successfully completed new, perfect #8 frames for my aircraft and have donated my bogus frames to our local EAA Materials & Techniques Display, since they don't care if they are the wrong diameter!

Rick Fitzwater
Van Nuys
California

I continue to work on my Falco, but progress has been much slower than I would like. Work on the airplane this last year was somewhat hampered by the fact that I refinished all of the kitchen and bathroom cabinets in my home. There were over 50 doors, drawers, panels to strip, sand and refinish. If I had the patience to complete that awful job, I have no doubt about my ability to finish the Falco. With all major projects in my home complete, I can now devote much more time to airplane building. I appreciate the support, help and encouragement you have given me this far and look forward to the day I can fly out to visit you in my Falco.

Dean Malstrom
Round Rock
Texas

Sawdust

• But what does it do for snake oil? According to literature published by Magnetizer Group Incorporated, their little gizmo increases the fuel efficiency of home heating furnaces and engines by passing fuel through a magnetic field. "Following exposure to a south pole magnetic field, the electron orbits of the molecule are altered such that the net charge becomes positive. Because the net charges of the hydrocarbon and oxygen molecules are both negative, there are repulsive forces, not attractive, forces present. When magnetized, the fuel's hydrocarbons are ionized to exhibit a net positive charge. The change in charge allows the fuel to aggressively attract and bond with available, negatively charged, oxygen. This creates a more comprehensive hydrocarbon molecule with its own oxygen supply. The end result is a more efficient and fully burning, explosive mixture...."

The FAA Technical Center recently evaluated this system on a Teledyne Continental 0-200 engine and—guess what?—it doesn't make any difference.

• Watch for this show in re-runs. [From *TV Guide*]: (A&E) "Living Dangerously"; 60 min. A history of Italian aviation.

• ATC Corp? In a fascinating editorial in the *Wall Street Journal*, Robert H. Poole says "For safer skies, privatize." He argues that "the best solution is to spin off the air traffic control system as a user-funded corporation. Outside the federal government, it would be outside the civil service system, outside the federal procurement process, and—most important—outside the federal budget process." There is ample evidence that such a system would work well. In 1972, the British converted their CAA into a self-supporting Crown corporation, and its National Air Traffic Services division provides efficient services to both civilian and military aircraft. Four years ago, New Zealand corporatized its ATC system, and the user-funded corporation shows a profit and is on the list of candidates for privitization. And Switzerland has partially privitized its air traffic control system, when Swiss-Control was spun off in 1988 with the major Swiss aviation interests becoming minority shareholders. And the Association of European Airlines released a 1989 study calling for the creation of a commercial company to take over the management of a streamlined, continent-wide air traffic control system. Says Poole, "We cannot afford to continue playing bureaucratic games with the air traffic control system. Too many lives are at stake."

• Our Benchmark performance analysis software has been evaluated by AzureSoft and is now carried in their Flight Computing catalogue. The April 1991 *Private Pilot* calls Benchmark the "ultimate in performance fine-tweaking."

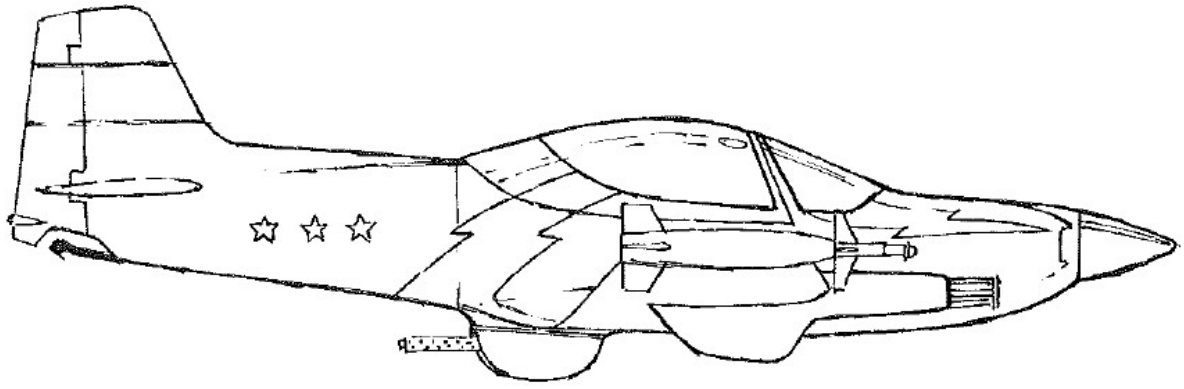
• Our own Falco builders Dan Dorr and Tim Baker have been busy in the Persian Gulf. Dan as a pilot of a C-141, and Tim flying a cargo plane hired out by Federal Express.

• Congratulations to Charles Gutzman whose Falco won the Grand Champion Plans-Built at the 1990 North Central EAA Fly-In.

• According to a recent edition of CBS "60 Minutes", Saddam Hussein and his family own 8.4% of Hachette, the French media giant that publishes a broad list of magazines including *Car & Driver*, *Road & Track* and *Flying*. Hachette officials deny that the Iraqis had any influence on their decision to launch such new magazines as *Desert & Tank*, *Not Flying*, *Foxhole Living* and *Iraq Today*. Senator Alan Simpson (R-at large—Wyoming no longer claims him) has called for a congressional hearing to look into charges that numerous *Flying* editors are "Iraqi sympathizers" and points specifically to the recent articles "Technicalities" (dealing with cease-fire violations) by technical editor Tahir Tawfiq and "Jonathan Livingston Scud" by executive editor Aziz Hollah.

• Media Watch. "Best Homebuilts" in the February issue of *The Aviation Consumer* rated the eight best kit aircraft and says, "Overall, we'd rate the Falco kit second only the the Christen Eagle in terms of completeness and precision." We recently received a copy of the Número 25, Año III issue of the Spanish magazine *Volar*, with spectacular photographs of Karl Hansen's Falco, including the butt-nude Falco on the centerspread.

• According to the *New York Times*, the F-117 Stealth Fighter accounted for 3% of the allied aircraft in the Persian Gulf war, yet it hit 43% of the targets. And not one of the aircraft received a scratch.



For the mother of all escapes: Stelio Frati's latest design, the SF.8PW/A 'Saddamizer', is being hurriedly designed and built to fulfill an urgent requirement for CISR (counter-insurgency stealth retreat) aircraft in Iraq. Designed to meet the personal requirements of Saddam Hussein, the all-wood Falco-based design features the latest in stealth technology to allow Mr. Hussein to escape from Iraq undetected by radar. The aft-facing CYA-50 "Bum Rap" machine gun is designed to provide protection from attacking aircraft while simultaneously supplying recoil thrust that adds 50 knots to the top military-emergency fleeing speed of the plane. The tail hook is provided for stealing shirts off the backs of unsuspecting Iraqis.