

Falco Builders Letter



Above: Herbert Müller's Falco

First Flight: Herbert Müller

Another Falco has flown. Herbert Müller flew his Falco, D-EHDA, for the first time on Monday, November 11, 1985 at the Vilshofen Airport near his home in Passau, West Germany. Herbert Müller thus became the tenth homebuilder to fly his Falco.

Herbert Müller bought his plans in September 1980, and then showed up at Oshkosh '81 with photographs of the wood structure nearly complete. He had some help. First, in the photographs there was an older man who was working on the project—apparently full time—and Herbert pitched in when time was available. Secondly, Herbert had purchased a wrecked production Falco. The previous owner had been caught in bad weather and had run into a heavily forested mountain. The aircraft was totally destroyed, and the pilot suffered serious injuries to his back, but he survived.

Then every two years or so, I'd get a brief letter from Herbert with a few photographs of his project. Herbert's letters are invariably short so there is not a great deal to pass on. Reporting his first flight

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Around the Falco Patch

By now everyone should have seen Nigel Moll's article in *Flying* on Karl Hansen's Falco. Nigel wasn't too happy with the printers since the red on the Falco came out rather weak. Karl's Falco is so red that it looks like Santa Claus died and came back as an airplane, or—to use a *Car & Driver* quote—“so red even Stevie Wonder can see it.” In any event, it's a lot redder than it looks in the article. Our advertisement in the March issue is much more like it.

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Flying the Falco

by John Harns

Dear John: If you have the time, I think it would be a good idea if you could write a short thing for our next builders letter. With all those builders out there, there are a lot of guys who hunger to know what it is like to fly a Falco. They've read all the stuff that we have put out and James Gilbert's flight report, but I think many of them would like to also hear the raw, uncut stuff right from the mouth of a guy who built one. Try to put yourself in their shoes and remember all the things you would like to have heard when you were working on your Falco but had never seen one, much less flown in one.—Alfred Scott

There are a lot of reasons why people who build airplanes select certain models, but one look at the Falco says it all. Undoubtedly, the performance specifications may have had influence, but an airplane with the lines, balance and beauty of the Falco just has to fly as well as it looks. I admit the publicity and attendant comments by numerous well-known aviators in the “Flight Report” on the Falco piqued some interest, but it was flavored with a grain of salt. Not until the day of the first ride in Alfred's “Corporate Disgrace” did I realize how true those comments were.

For justification and qualification of my following comments, I have been flying for 40 years; 30 years gratis with the Navy, in everything from J3s to F-14s including all between, mostly single engine.

The first flight in my Falco more than justified all those hours, frustrations and expenses—besides, it flew better than the “Corporate Disgrace.” Acceleration is impressive... not exactly like a Bearcat but not bad for 160 horses. Climb to 10,000' isn't done in 90 seconds like the F-4, but again 500 seconds isn't too shabby for a four-banger.

Many say that flying the Falco is like flying a little fighter—that's not totally

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Herbert Müller

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he said "I took two rides without any problems. All systems work very well and the aircraft flies and looks like a little fighter." By mid-December, Herbert had put in 8 hours on the Falco. He promises more pictures and information later on.

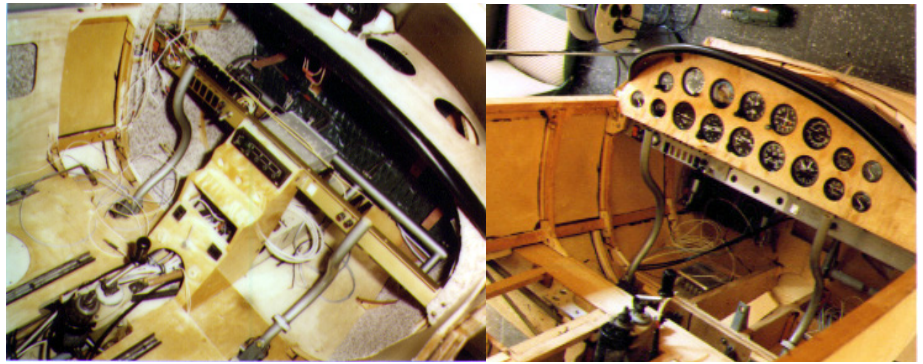
The engine is a 160 hp O-320-B3B, the same as the production Falcos, and the cowl is a production version as well. I don't know where the canopy came from, but my guess is that it is adapted from a German motorglider. The fin has a teutonic radiused look. If you study the fin, you realize that it is very nearly as drawn. Only the tip has a more rounded appearance.

There are other little things that are unique to this Falco. The wing fillet has a different appearance to it since the trailing edge is shaped differently—nothing wrong with it but it contributes to a different look.

You can't see it in the photograph, but the entire tip of the wing is molded Plexiglas—from the leading edge to the trailing edge—enclosing a Whelen combination nav/strobe/tail light.

Herbert also has full wheel well doors. I can tell from looking at them that he has not yet discovered The Secret of the Wheel Well Doors. The outboard doors are too long and will drag the ground with a low strut.

And then there is the instrument panel. The panel is made in two pieces. The



top piece supports all of the gauges and is installed on the aft face of frame No. 3. This part of the panel is veneered with a blonde wood—probably birch—and varnished. There are no radios in this upper panel—only gauges—and it is removable.

Below it there is a three-inch high aluminum sub-panel which is mounted on the forward face of frame No. 3. This provides the mounting surface for switches and fuses.

Fastened to this and extending to the floor is a center console panel—a stylish terraced affair veneered in the same blond varnished wood. At the top there is the transponder, next terrace down are the engine controls, below that another terrace for a single nav/com, and then a down-and-aft slope containing the fuel selector valve, carb and cabin heat controls.

All in all, it's a handsome, intriguing panel design. It's obvious to me that someone with a lot of experience had a hand in all of this, and that things were thought out very well. Remember, Herbert Müller

Top: The instrument panel was installed early in the construction.

Above: The terraced center console includes the engine controls, transponder and a single nav/com.

was completing this Falco at the same time that I was working on our instrument panel design. Our design wasn't ready in time for him, so he plowed on working out the design problems himself.

And this is an object lesson for those of you who don't understand how much is involved in working out these little details. At the rate he began, it looked to all of us at Oshkosh '81 as though Herbert Müller would be finished in six months—but it took nearly four and a half years more. It is a lot of work!

Herbert's Falco is painted white overall with three fine gray stripes down the side. The national flag of West Germany is on the tail.

Herbert Müller hails from Passau, on the eastern border with Austria where the Danube flows into Austria. And it's home for a newly-born Falco too.

Nicely done, Herbert!—*Alfred Scott*



Below: Herbert Müller's instrument panel is made in two pieces, with the top half removable.

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Articles, news items and tips are welcome and should be submitted at least 10 days prior to publication date.



Above: Karl Hansen's Falco now with the nose gear fully up.

Around the Falco Patch

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And you shouldn't miss the article in *Kitplanes*, which is a total of 8 pages. Karl put his nose gear door on just before taking Kitplanes's Dave Martin for a flight. He has finally gotten the nose gear retracting the right amount. (See photo above.) Karl sent in the following note.

"I had my grandson up with me a few days ago. It was a foggy overcast day so only went up to about 2500'. I used 2500 rpm and about full throttle—about 28"—and the thing ran up to 180 knots indicated. I didn't nose down to pick up speed and when I let off of the throttle it seemed to be still picking up. The way it acted I think with a bit more cleaning up it will do it at 6000'. I never thought I'd see 180 knots IAS. Apparently the nose strut cover and the flap hinge covers underneath the flap made some difference."

Karl is now in the process of installing all of the gear doors. We know that the main wheel well doors are worth about 10 knots, and I'm guessing that the nose gear bay door will add 6 to 8 knots. Karl had his Falco up to 218 mph at a high cruise before installing the nose gear door and the nose gear door added about 5 knots. I think Karl will be capable of cruising over 230 mph.

Ray Purkiser is slowly working the bugs out of his Falco. Ray had not noticed that the nose gear axle has a couple of safety screws to keep them from coming

loose. The result was that the nose wheel axle nut departed the airplane. The axle displayed true grit and stayed in place. The tire was rather badly cut up from hitting the fork, but no other damage was done. Ray was lucky to get by with no serious damage.

With 12 hours on his Falco, Ray reported that he was indicating 190 mph at full throttle and 2650 rpm—altitude not reported. Ray is going to install full gear doors and took the unusual step of installing the nose gear bay door first (this is the door aft of frame No. 1), and he picked up 8 mph.

John Harns had his Falco down for his first 100 hour inspection. He found out why the airplane was slowing down—the nylon line into the pitot tube was split. Now fixed, John is back up to the old indicated speeds. It's been too cold in the Pacific Northwest to do much work on his Falco, but John plans to

Below: Jim DeAngelo's Falco

install full gear doors as soon as the weather warms.

There are now three Falcos in England. For a long time there, Peter Hunter was the only one, but then Derrick Simpson and friend bought a Falco that had previously been imported from Belgium. Then another friend decided he had to have one too, so they went over to Germany and found one. Derrick is now in the process of installing our windshield, canopy and seats in his airplane. He says the new bubble is far superior to the old one. He should have the Falco up and around in the spring. Peter Hunter has the same Sequoia parts for his Falco. This now makes four production Falcos with our canopies.

Next issue we'll have some news on Jim DeAngelo, Tony Bingelis, etc., providing they send us something!

—Alfred Scott





Flying the Falco

Continued from First Page

true, but it's as close as you can come on my pocketbook. Herein lies the Falco's greatest characteristic: it is a pilot's airplane with sensitive, responsive controls. I have flown few planes that have better, more equally balanced controls for quick, agile maneuvering. A Pitts it is not; but for sheer enjoyment, acrobatics in the Falco is a dream.

Visibility in the Falco is unmatched; you are literally sitting on top of the world in its cockpit. For a small aircraft, comfort in the Falco is a pleasant surprise. The cockpit is relatively roomy, better than a 172, and the seats are designed well enough to allow my 1.5 rear end to last over 5 hours. There is virtually no vibration or slipstream/canopy noise or leakage. All controls and switches are exactly where you'd expect them to be. The Sequoia Falco is a quantum improvement over the "factory Falco"—believe me, I've flown both.

The Falco is an outstanding cross-country machine. In addition to its speed—I normally file for 165 kts/190mph TAS and 4-plus-hour legs—it will carry two with baggage for a month. My bird is fully IFR and in addition to sun has flown in rain and snow with a few limited excursions into thunderstorms and ice. I've gotten airborne, with little degradation in performance, at a density altitude of 6,800' with a full gross load. And it's a lot of fun to brief inquisitive ATC controllers on what a Falco really is. They all are very curious about the Falco, and a lot of them know the bird. They all ask what I've got under the cowl—especially when I'm truing at 165 kts/190 mph and ground-

ing at 190 kts/220 mph with a tail wind.

We recently flew to San Diego—had a good flight and the Falco performed flawlessly. Most of the trip was IFR, and I found out that it will carry quite a bit of ice. We got into some light rime—I guess about 1/4", with the windscreen completely iced over—but we soon got a lower altitude and lost it. It didn't seem to decrease the airspeed or performance. My attitude toward

John Harns

"I have flown few planes that have better, more equally balanced controls for quick, agile maneuvering."

ice is get the hell out of it; it's about the only thing I really fear about flying in the light stuff. On the trip home we got a 4.7 hour leg with 3.5 gallons remaining, because we were bucking a 45 kt headwind right on the nose. We

ran the aft tank dry—I had Pat glued to the fuel pressure gauge—but it took about 35 minutes after the gauge read empty. It's reassuring to know I've got a good 4.5 hours with IFR reserve.

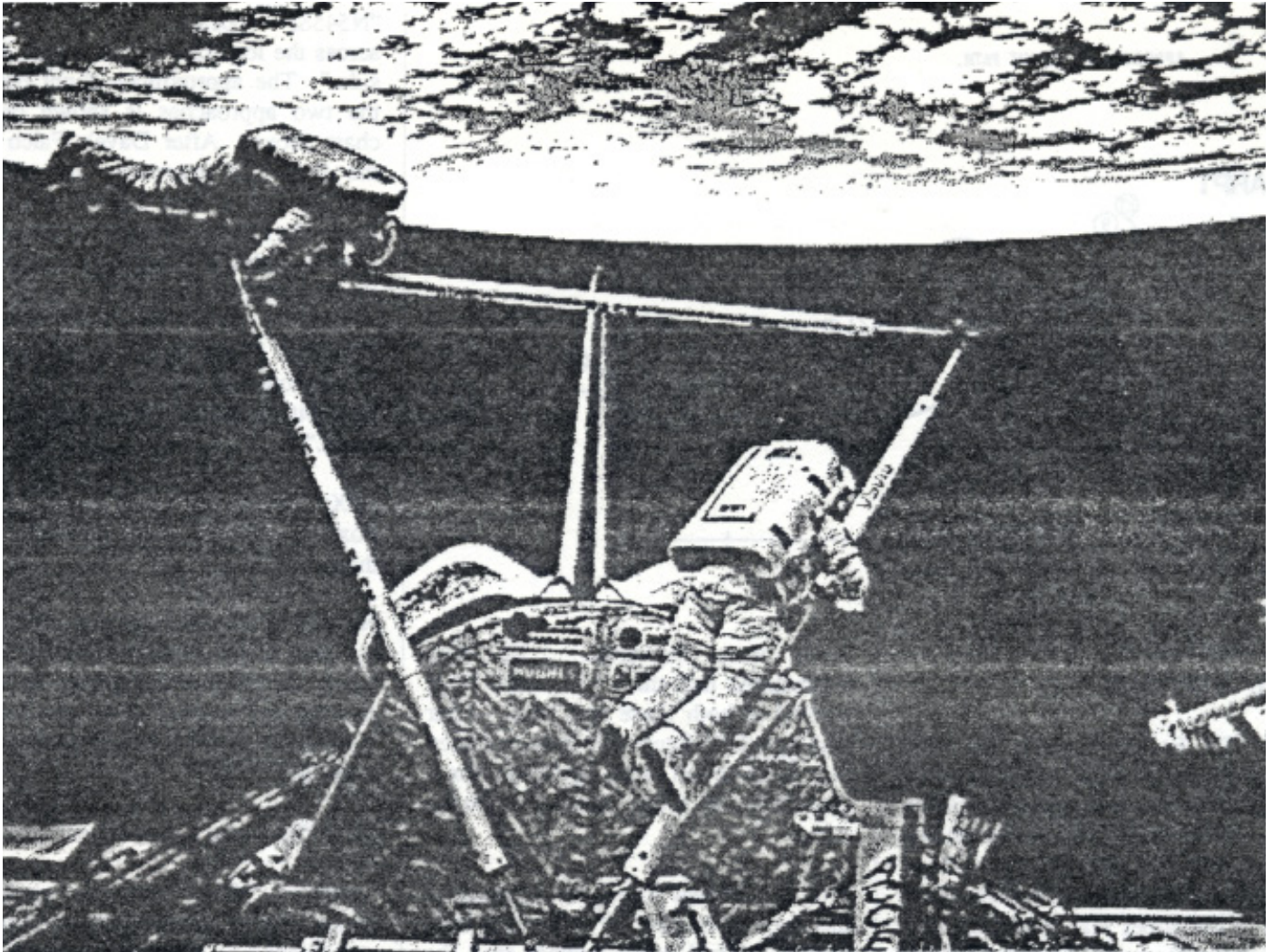
My only complaint is heat. It was -42°F at 12,000' going over the Cascades. We had longies, boots and gloves, and we survived, but I've got to put some coiled wire wrap in the heat muff to increase the heat transfer.

When we arrived in San Diego Montgomery, a gent was standing there and said "How was the trip from St. Maries, John?" I didn't know him, but it turned out that he was the airport manager and had the tower look up the tail number on their computer to find out what it was, who owned it and from where. It does draw a crowd—we even had the official photographer from the San Diego Aerospace Museum taking pictures.

For a relatively high performance aircraft, the Falco has no real bad habits. Things happen a little faster than in Wichita stables, and the stall is sharp. It is sensitive—as you'll find out flying IFR in the soup for an hour without autopilot—but not overly sensitive. It is subject to lateral trim changes with changing lateral loading, i.e. one passenger vs two, and an aileron trim would be nice. Yet, it is relatively insensitive to longitudinal trim changes as long as you're within CG range. It gets a little "bouncy" in rough air but not uncomfortable and well within the G loading. You really have to work at it to screw up a landing in the Falco. The panel is professional as well as functional with the only bitch that the warning lights should be on a dimmer for night flying.

To sum it up, I don't know where else you can get so much in one package as in a Falco. Put that in your pipe and smoke it!





Tinkertoys in Space

Before he started work on his Falco, Bob Wolf decided to practice his skills on NASA. An engineer now working at the Space Systems Laboratory at M.I.T., Bob and several students designed and built the hardware for the Experimental Assembly of Structures in Extravehicular Activity (EASE) experiment that flew on the space shuttle Atlantis in November.

NASA has this idea of building large orbiting space stations. Since the pieces have to be assembled in weightless orbit, the EASE experiment was conducted to see if the parts could be assembled in space. The "Erectable Space Structures" consist of long aluminum tubes that assemble into a space frame of triangles and pyramids of these oversized Tinkertoys.

But could they be assembled in the weightlessness of space? That was the point of the experiment, and the parts were assembled under water in Houston and then again in space in

November. They could and they did. Other points that Bob has to offer:

"Many of the components were fabricated by students, although we sent the job out to local machine shops when we needed more than a few of a given item. All of the hardware was assembled by students, with final bolt-torquing and the like witnessed by a government quality control inspector. Be glad you don't need this level of government controls for homebuilts.

"Except in size, our workshop is put to shame by many aircraft homebuilder's shops. The Falco is a much more intricate machine than our experiment hardware—we had approximately 60 drawings.

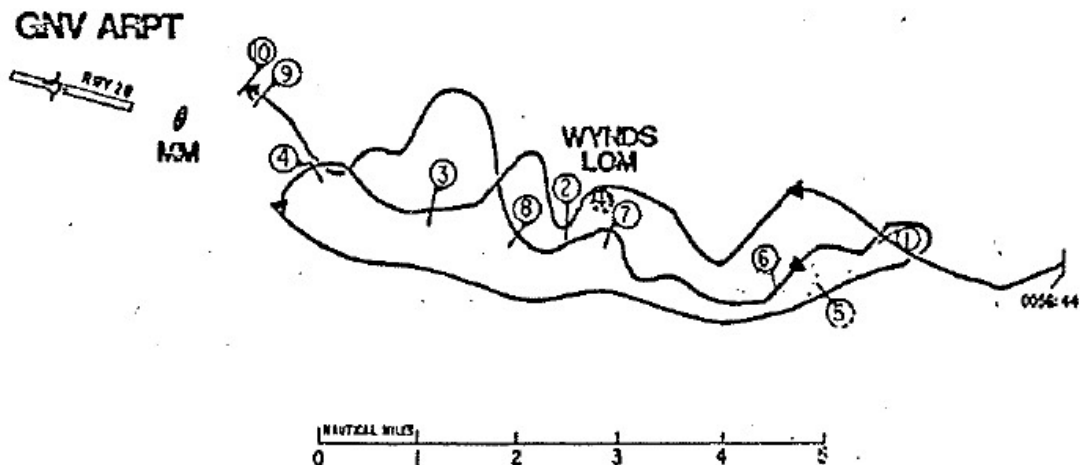
"As for myself, this project taught me almost everything I know about working with hardware, from the detailed design to procurement, manufacture, quality control, dealing with subcontractors (not too bad) and with the

NASA bureaucracy (groan! pass the Tums, please!). All this is after three years as a USAF flight test engineer. All I can say to my fellow Falco builders is jump right in and get to work! Don't worry about being ignorant at first, you will learn as you go along." Bob and Julie Wolf live in a two-bedroom apartment with their three-year old son. Bob reports that he is now slowly working on his Falco in the school's workshop, with permission to build only parts that will fit in a closet.

With M.I.T. being one of the high-tech centers in the country, Bob is taking a perverse pleasure in building a wood airplane. Bob's boss is also a homebuilder working on a 'glass airplane—but then the poor fellow has been around the physics labs so long he's hopelessly neutrino-riddled and has developed an unstable baryon number. How *could* he have good sense?

—Alfred Scott

APPROXIMATE FLIGHT PATH.



**More Aftermath:
Dave Aronson**

The NTSB Factual Report has been released for the accident that claimed the lives of Dave Aronson and John Holm. The probable cause will be determined by the board at a later date. We have reproduced part of the 118-page report below in the hopes that there may be a lesson to be learned. As you will see, this makes for a chilling read.

First off, we have a correction and an apology to offer. Dave and John were not drunk. The information regarding their blood/alcohol levels was accurate, but the interpretation of the data was not. Drunk driving in many states is .010. Dave Aronson's alcohol level was .010%. The "percent" sign moves the decimal point two places, thus Dave's level was one-hundredth of the drunk-driving conviction level. Dave and John were dead, cold sober.

Prior to our receipt of the accident report, all of the information that we had was from discussions with the NTSB investigator in Miami, Mr. Andrew Alston. Mr. Alston was very helpful and cooperative. After the accident, we had a number of conversations, and we provided some information and drawings to assist him.

On one occasion, someone had suggested to me that Dave and John were incapacitated from carbon monoxide. I immediately called Mr. Alston, who explained that the CO levels were negligible. He then volunteered that there was some ethyl alcohol in both

Dave and John. After reading off the figures, he then explained that these levels were sufficient for a conviction of drunk driving in many states.

This was all new to me, but I discussed this with a number of knowledgeable people. I had some doctors read the report, and they saw nothing wrong. Others would immediately say "that's drunk driving" when you mentioned the figure of .010%. Just last week, there was an article on drunk driving in our local paper, and the reporter got more than half of his numbers wrong—putting a percent sign on the end of numbers that should have none. He used the percent sign as though it meant nothing.

I called the Alcohol Safety Officer who was featured in the article to clear up the misunderstanding. He agreed that the reporter made a number of mistakes—but then he began to do it himself, saying that drunk driving is "0.10%" and that Dave and John must have been drinking at lunch to have had a reading of .010%. This is nonsense, and I only repeat it to show how easily even "experts" get confused.

The accident report contains transcriptions of the radio contact between Dave's plane and the various flight controllers. Jacksonville approach handled the plane and the controller reported on the first approach "N545SF appeared to be S-turning across the localizer within a mile either side." The approximate flight path of the two approaches is shown on the

chart above. After Dave's Falco shot the first ILS approach, the pilot of N545SF—it is not known who was flying the Falco—radioed for the missed approach (this is at the point marked "4" on the chart):

N545SF: "This is Five Sierra Fox. We've screwed up the approach here a little bit (unintelligible). Gonna try it again."

JAX: "November ah Five Four Sierra Foxtrot, climb and maintain two thousand."

N545SF: "Ah, Jackson (unintelligible) we need to get I think vectors in rather quick ah ah (unintelligible) ah we're running low on fuel uh the head winds have taken us a lot longer than we had expected."

JAX: "How much fuel do you have sir?"

N545SF: "We're probably good for about twenty minutes uh and we uh should get in in a hurry."

The Falco was then vectored for a second approach and crashed 12 minutes after this broadcast. During the second approach the controller reported that "As the aircraft was getting closer to the airport, the target jumping was increasing and I was not sure of his position." Jacksonville Center then asked for N545SF's position:

JAX: "November Four Five Sierra Foxtrot, do you show yourself North of the localizer?"

N545SF: "Uh, I'm not positive we're left of the... we're... we're uh right of...."

JAX: "Okay, which side is the needle on?"

N545SF: "Needle's on the left side."

JAX: "On the left side."

N545SF: "Roger"

JAX: "Fly heading on uh two nine five."

N545SF: "Two niner five. Do you wanta help us get in here, we're having"

JAX: "Yes, sir. I understand. You can begin your descent now to uh five hundred" then, shortly later, "November Four Five Sierra Foxtrot, you're two miles east of the airport now and they have the uh lights on full intensity."

N545SF: "Uh, thanks, Five Sierra Fox."

JAX: "November four five Sierra Foxtrot, say altitude now."

N545SF: "We're at uh Five hundred and fifty feet."

N545SF: "five hundred feet."

JAX: "Four Five Sierra uh Foxtrot, descend to your approach minimums now."

N545SF: "Roger."

N545SF: "Okay, we're right over the airport here."

JAX: "Do you have it in sight?"

N545SF: "We're about... we're right on it, uh except that we're passed it already here can we go around and do (unintelligible) well (unintelligible) give us a suggestion here."

JAX: "Four Five Sierra Foxtrot, if you can just maintain your altitude and uh turn back to a heading of about zero niner zero maybe you can stay in the pattern (unintelligible)."

JAX: "November Four Five Sierra Foxtrot, can you stay below the clouds?"

N545SF: "Yeah, we're below. Five Sierra Fox."

JAX: "Okay, keep the airport in sight, and you're ah cleared to maneuver as necessary within the airport area. There is no other traffic."

N545SF: "Five Sierra Fox. Thanks."

JAX: "Four Five Sierra Foxtrot, say your heading now, sir."

N545SF: "We gotta go around and do it again here we missed."

N545SF: "Come in the other way on two eighty or is there too much ground?"

JAX: "No sir, you can put it down on any runway that you uh feel comfortable with."

N545SF: "Thanks, Five Sierra Fox, okay now we got it."

The last transmission from the Falco was one minute and 45 seconds from the "Okay, we're right over the airport here" transmission. Because of the problems N545SF was having with the approach, the Jacksonville Center supervisor was monitoring the approach on a separate radar screen and talking to Gainesville tower.

JAX: "Gainesville"

TWR: "Yeah, he just flew by down the runway here. He's below the stuff. I don't know whether he's goin' to try to circle or what but (unintelligible) I just lost him now back in the stuff (unintelligible) and looks like he was plannin' on circling back around here and probably try to stay below the stuff. I'll let ya know."

JAX: "Okay, thank you."

TWR: "(initials—unintelligible)"

JAX: "Gainesville tower eleven"

TWR: "Yes, sir."

JAX: "Okay, do you see anything of him?"

TWR: "Uh, I see him. He's flying all around."

JAX: "Okay"

TWR: "God, he just crashed." (This transmission is 14 seconds after

N545SF's last transmission.)

JAX: "Oh my God."

A couple of minutes later, they were back on the line.

JAX: "Okay, did he hit the ground or hit a tower?"

TWR: "I don't know. He was turning there and he just (unintelligible) flying below this stuff and I just saw him bank and then he (unintelligible) hit the ground so."

JAX: "Is he on the airport?"

TWR: "I don't know. The fire trucks are out there looking for him now."

The controller in the Gainesville tower filed this report: "I saw N545SF approximately one-half mile north of runway 28 going westbound, in and out of the clouds. N545SF turned southwest bound and crossed the west end of runway 28 (threshold end of runway 10). N545SF continued in a turn eastbound and disappeared into the clouds approximately one-half mile southeast of the control tower. I next saw N545SF southeast of the control tower northwest bound. After crossing runway 28 adjacent to the control tower, N545SF, in the vicinity of the CFR building, began a left turn toward the threshold of runway 10. I saw N545SF impact the ground south of the runway 10 threshold at approximately 0114 GMT and immediately activated the crash phone."

I sent a copy of this report to Mike Hrdlicka, Dave Aronson's business partner and good friend. Mike feels, as I do, that Dave Aronson was the voice on the radio. This is entirely a subjective judgement, based on the way he expressed himself—I remember Dave using words like "gotta" and "wanta" quite frequently.

Mike also said that the thing that made the biggest impression on him was that Dave was really scared. He said he could sense throughout the transcriptions that Dave knew he was really in trouble. I can sense some of this, but not as well as Mike. This may explain the difficulty in interpreting the localizer indication— this was not a back course approach —and the excessive heading changes during the approach. Remember too, Dave Aronson was in the right seat.—*Alfred Scott*

Private Airports

It isn't every homebuilt aircraft that has a writer among its builders. Steve Wilkinson continues to crank out Falco fare, and we'll continue to reprint it. This article appeared in the "Letter from America" section of the February 1986 issue of Pilot (England).

The FAA counts a remarkable total of just over 16,000 airports—that's sixteen thousand—in the United States, but what's even more interesting is that over 10,000 of them are not open to the public. They're restricted, company-use only, private or otherwise not accessible (except in an emergency) to itinerants. Most of them are on the aeronautical charts—an airport-symbol circle with an 'R' in the middle—because, in our litigious society, you're better off meeting minimal FAA notification requirements and saying one's personal strip is officially an aerodrome "but you can't land here" than you would be in presenting the curious with the sight of what is obviously a runway, then having them land and hurt themselves on what the law can deem to be a kind of "attractive nuisance".

Two such aerodromes are in the hands of friends of mine, and they've shown me that one of the great delights of flying in the U.S. is having your own runway. Next summer, I'll report on printmaker and artist James Catalano's annual Fourth of July fly-in, Saab display and counterculture gathering at Catalano Airfield, a splendid little one-way strip in the Adirondack Mountains of New York State; but now it's time to tell you of the equally annual Falco Fly-In and Oyster Festival, hosted by the beautiful Meredith and amusing Alfred Scott at their seventeenth-century country manse and airstrip, Rosegill Farm, on the banks of the Rappahannock River of Virginia. (Scott, as readers of this department have perhaps tired of hearing, is the purveyor of my favorite airplane, the Falco.)

The excuse for Scott's party is "the biggest small-town event on the East Coast," as local boosters call it: a gathering of about every fire engine in eastern Virginia for a siren-wailing parade down the main street of Urbanna, the little town just across the inlet from Rosegill Farm. Arriving last year—my first in attendance—on the morning of the parade, it looked from the air as though somebody had broken an immense, glittering necklace all over the roads leading to Urbanna. Either that or a disaster of

incomprehensible magnitude had struck the tiny yachting/fishing village, for the country lanes were lined with flashing red strobes and winking beacons atop pumpers, hook-and-ladders, tankers, ambulances and highly polished emergency vehicles of every sort.

The parade, accessible from the Scott's dock by oarpower, is one of those grand old sit-on-the-curb specials full of foolish Shriners, black marching bands—integration hasn't entirely come to Virginy yet—pipers and yes, fire engines. Fahr injuns, as they're referred to locally. (A careful and reputable U.S. magazine recently quoted a Southern liquor-distilling magnate as saying that as a boy, his first drink of bourbon whisky "sent me afar". A poetic and not entirely inaccurate description to be sure, but as the magazine abashedly reported in a succeeding issue, what the man had actually said was that he'd downed the little devil and it "set me afire".)

The Oyster Fly-In

"Here, lemme show ya how to do that," say an endless variety of semi-pro shuckers who then proceed to lance their palms.

Back to Rosegill after the parade for the 'air show,' which in the past has consisted largely of a genial, white-haired Virginia gentleman, Parke Smith, doing low passes and high aerobatics in his CAP 10, and impresario Scott giving rides in his elderly Falco. Meanwhile, Meredith heats up shoals of lasagna, and whoever has the touch shucks oysters. ("Here, lemme show ya how to do that," say an endless variety of semi-pro shuckers who then proceed to lance their palms.)

Scott's Falco is a production F.8L model built by Aeromere in 1959 and referred to by Scott as "the Corporate Disgrace": a chipped, tattered and Bonded old bird that was skinned too dry, the plywood visibly drooping between the wing ribs. It makes any potential kit Falco homebuilder think, "Lordy, I can do better than that."

Smith on the other hand, has a reputa-

tion of considerable magnitude. Having joined the RAF early in the war when our still-picky Air Corps wouldn't have him, he flew Hurricanes in North Africa before his unit got into Spits. When their first Spitfires arrived, Smith, who was deemed to have had the advantage of attending a demonstration by Supermarine test pilot Alex Henshaw, was sent aloft to wring out the new bird. Never realizing that Spiffy Henshaw's patented through-the-hangar low passes and spectacular vertical rolls were flown in a stripped and specially lightened airplane, Parke boomed aloft and after a few minutes got enough confidence to pull up into a series of Henshaw vertical rolls. He got through about three before he and his armor-plated airplane prematurely invented what he swears was the Lomcevak: an utterly uncontrolled tailslide and tumbling that took Smith as near death as anything that happened in the war.

Fortunately, his squadron-mates all thought the maneuver was intentional, and like the neophyte who generally drinks Gallo but inadvertently guesses the vintage of the wine at dinner, Parke Smith was thereafter burdened with a stature slightly larger than life.

But unfortunately, this year's Urbanna fire-engine parade—as well as ten feet of the Rosegill Farm shoreline—was washed away by torrential rains. So was the first U.S. Falco Fly-In that would have featured an actual homebuilt Falco; but the faithful gathered by the river the following weekend to toast what might have been. Parke Smith arrived by Volvo rather than CAP 10, a promised Jungmeister never showed, the Corporate Disgrace stayed in Richmond with a flat gear strut and Falco-builder Jim DeAngelo had too heavy a schedule to come down from Connecticut.

But was it fun? You betcha. Bill Jackson ferried spare ribs and 100-octane barbecue sauce from his Richmond restaurant in his handsome burgundy Twin Comanche, Hunter Freed showed up in a splendid Steen Skybolt to provide "the air show" and the Falco-building Wilkinson and John Oliver families came in their Pipers to pore over blueprints and discuss jigs, fittings, gluing techniques, paint schemes and all the other why-didn't-I-think-of-thats that most builders discover too late.

Someday, I'm going to have my own airport. It's the only way to fly.

—Stephan Wilkinson

Goings On At Sequoia Aircraft

The new wing drawings—discussed below—are complete replacements for the previous ones. Turning out these drawings is a big job, and it is expensive to print and ship them. With the new tail drawings, we paid for all of the costs. Now, with the wing drawings, we are going to charge for the drawings—but only for the printing and shipping costs. There will be two exceptions: if you purchased the plans after January 1, 1984 or if you have bought one of our complete kits, there will be no charge. Thus, if your builder number is below 826 and you have not bought any kits, you will need to send us an order with payment.

The blueprints cost us about \$0.80 a sheet, and I expect that the package will contain about 25 new drawings when it is shipped. (Shipping costs for the plans are getting frightful—we've spent \$220.00 to send plans by air to France, \$140.00 to England—yet it cost only \$350.00 for the ocean freight for a 500 lb. shipment to Norway.) The price of the new plans including shipping costs is as follows: United States: \$22.00, Canada: \$25.50, Central America and Carribean: \$26.50 by surface or \$29.50 by air, Europe, Africa and South America: \$26.50 by surface or \$36.00 by air, Australia, Asia and New Zealand: \$26.50 by surface or \$43.50 by air.

You have all seen the new tail group drawings. The new wing drawings are the same sort of thing, and you would be crazy not to get them. The wing drawings are finished now, but I want to do a few more drawings to go with them before we ship them. We will also send a matching revision letter with the plans, and probably a new price list as well. Instruments and Flight Research has apparently raised their prices, but we have not yet received these.

A number of builders have asked about getting large poster prints of a Falco for their bedrooms and workshops. Nigel Moll has graciously given us permission to make prints of the picture shown on the top of page 53 of the February Flying. Of all the pictures we have of the Falco, this is the one you want. We can get 16"x20" Cibachrome matte finish prints made for \$25.00. Due to the numbers involved, we have to standardize on one size and type, so there will be no exceptions. We will

need your order and payment by April 4, and we can send the print rolled up with your wing drawings.

The Little River Aircraft people, whose Falco garments we sell, would like to move some merchandize and have asked us to offer the following "Pre-Season Sale": Purchase a jacket and get a cap free. Purchase a golf shirt and get any two patches free. Purchase two tee shirts and get half off on a third. And there is a Patch Kit (a large patch, two cap patches, two small jacket patches and 3 little patches—normally \$10.40) for \$7.25. Sale ends June 1.

Much of the last six months or so has been taken up with the new wing drawings. These are now complete and will be sent out in about a month. Most of the notes which follow will make more sense when you actually have the new drawings in hand.

The new wing drawings are complete replacements for all of the "B" series of drawings. In all, there are 21 new sheets. These drawings bring almost everything to do with the construction of the wing into one place, but in doing this we are effectively replacing—but not yet officially eliminating—a few other drawings. Thus, you will find some duplication between the new and old drawings. Please bear with this confusion, and it will be cleared up as soon as I can.

The most fundamental change is with the wing reference plane. I never cared for the old system of having the wing reference plane below the wing. It wasn't much use to builders working on the wing—builders all wanted something in the wing. There is also the dimensional confusion on how to make the main wing spar: despite it's use for 30 years, the wing spar drawing did not clearly specify where the wing was.

What I have done is to "re-define" the wing with a new system of dimensions. The wing now is essentially the same as it is specified on the fuselage draft and wing draft—I say essentially because there is a little round-off for convenience but it is only .006" to .015". If you look at Sheet B8, you will see that the main wing spar is now dimensioned from a line that is the intersection of the wing rib chord lines with the aft face of the main wing spar. This is the key to the new definition of the wing. I consider it our new wing reference

plane, but you needn't concern yourself with that. Just remember that this line on the aft face of the main wing spar is your principal point of reference and it is the common thread that ties all dimensions in the wing together.

Each wing rib drawing now shows the wing rib chord line. The ribs are dimensioned with a horizontal reference line, which is the old wing reference plane, but on the aft face of the main wing spar, you will see that there is a dimension from the wing rib chord line to the horizontal reference line at various key places. Compare the dimensioning for the main wing spar to wing rib No. 1 on Sheet B10. On the aft face of the main wing spar, note that the 84mm dimension is the common one. The horizontal reference line is located 121.56mm below the chord line.

I had the choice of simply creating a new wing reference plane and dimensioning the wing ribs from it. It is a simple enough process, on Sheet B10 you would move the horizontal reference line up by 121.56mm. This would have created a messy drawing and would have created a dimensional nightmare. As it is, the wing rib contours are dimensioned to the tenth of a millimeter, but when you subtract 121.56 from each dimension you get a heavily decimalized drawing. Best to leave it alone and think of the horizontal reference line as a line 121.56mm below the "real" wing reference plane.

If all this sounds confusing, I think you will all find the new system much easier to work with and that it will come more naturally to you than it sounds in this description. Worry not... it's easier than it sounds.

For those engineers who like to work with precision numbers, you can now find any point in the wing by first starting with B.L. 587, W.L. -464 (see Sheet B8). The chord line intersection at the aft face of the wing spar can be calculated as shown, but it is easier just to work out the angle, which is 5.51°. I consider all wing ribs to be normal to this line (or plane as I think of it). Just go to the rib you want, drop down to the rib's horizontal reference line and then back up to the point you are seeking.

This new system is simply fantastic for chasing down needed dimensions. Few of you will need to do any of this, but the calculations are essential for the work that I have done to re-do these

drawings. For your information, I have not just retraced the drawings in a new and different way. What I have done is to “build the wing on paper”. I have checked all of the dimensions, and all of the dimensional mystery of the wing is now gone.

You will note that many dimensions are given in tenths of a millimeter and some even in hundredths. I know that none of you can work to such close tolerances, but it is best to leave the round off to be done at the actual construction.

This is an appropriate time to list all of the dimensional errors that I found in the wing. I have previously mentioned the dimensional incongruity of the main wing spar. Because of that, I am now showing the main landing gear installation at a point relative to the main wing spar and not as a W.L. dimension (although the theoretical W.L. is shown in reference). The reason is that we don't want anyone drilling a big hole in the spar cap for the main landing gear.

Ron Sorensen discovered an error in the “C” dimension of the old wing draft. You can easily see the problem by measuring things on new Sheet B7. The original “C” dimension was based on the combined dimensions of the hinges, but since they are installed at an angle, this cannot be. The corrected dimensions are 119.0 at Station 2, 69.1 at Station 14 with equal divisions in between. The “M” dimension changes by the amount of change to “C”, and there is no change to the “R” dimension. A glance at any wing rib drawing will show you these new dimensions.

The wing contours check out very nicely. For your information, the wing airfoils are developed by using NACA 64 series airfoils at Stations 6 (12% thickness) and 14 (10% thickness). Thus, the wing is about 12.6% at Station 1. Working from these stations, I have found a few tiny roundout errors and have corrected these as well as abandoning hundredths of a millimeter for all but the .625% chord station. Beyond these insignificancies, the only contour “error” was Station 12, where 51mm is actually 50.1mm at the 50% chord station.

Other trivia: The original wing drawings used the aft face of the main wing spar as the principal reference point, ignoring the fact that the plywood is

thinner toward the tip. The new wing rib drawings allow for this change in thickness.

The rest of the wing turned out to be amazingly accurate. I had worried that the chord station spacing for the aft wing spar and aileron/flap spar might be approximations, but they are not. The 253mm spacing of the aft wing spar is in reality 253.07mm, so we can stop worrying about that!

My biggest surprise came when I discovered that the aft wing spar and aileron/flap spars are not straight. They are made as symmetrical, straight spars, but after they are installed in the wing and sanded to the airfoil contours, they take a slight bow. It's obvious, if you think about it, since these spars are not parallel to the wing chord stations. The bend is not severe, but it's helpful to know that it is there.

I've always felt that the aileron and flap hinges should be installed on the spars before the wing is built. It is much easier to do this when you can drill the holes with a drill press. Unfortunately, the original drawings did not give you the dimensions to do this, but we now have them for you. Now, let me give you a quick guided tour of the new drawings.

Sheet B1. The wing assembly is shown on four sheets, and this is the first. All of the parts in the wing have been given new part numbers, so none of the old numbers apply. The fuselage is now shown in an accurate manner, so you can see what really happens where the wing leading edge runs into the fuselage. I have shown the seat track bolts so that you can see where they will be.

There are a few minor details that may not be clear from these drawings. These are all in the center of the airplane, where the fuselage and the wing come together. Bear with me on this. There will be additional details shown in the fuselage drawings, and I'll talk you through these points in the construction manual. The bottom of the wing is confusing, but you'll get it. Note that the autopilot servo installation is now worked out.

Sheet B2. The spruce shims on the bottom of the main wing spar are to bring the wing skin up-and-over the bottom center longeron. You can see these on Sheet B5, at the autopilot servo installation, and on the new

landing gear retraction system drawing. The shim on the forward wing spar is to make the wing fillet work out right and to keep the plywood skin inboard of wing Station 1 from becoming a compound bend.

The access panels and control hinge fairings are shown as new part numbers. In all likelihood, I will not finish those drawings in time to send out with the wing drawings. Also, I have decided that the most sensible installation of the access panels is with screws into an aluminum insert. This is an extension of the riv-nut solution that Jim DeAngelo worked out. At some point, we will have a kit with all of those things in them. In the meantime, just install the access panels with No. 6x1/2” TRA screws. You can install the inserts later on.

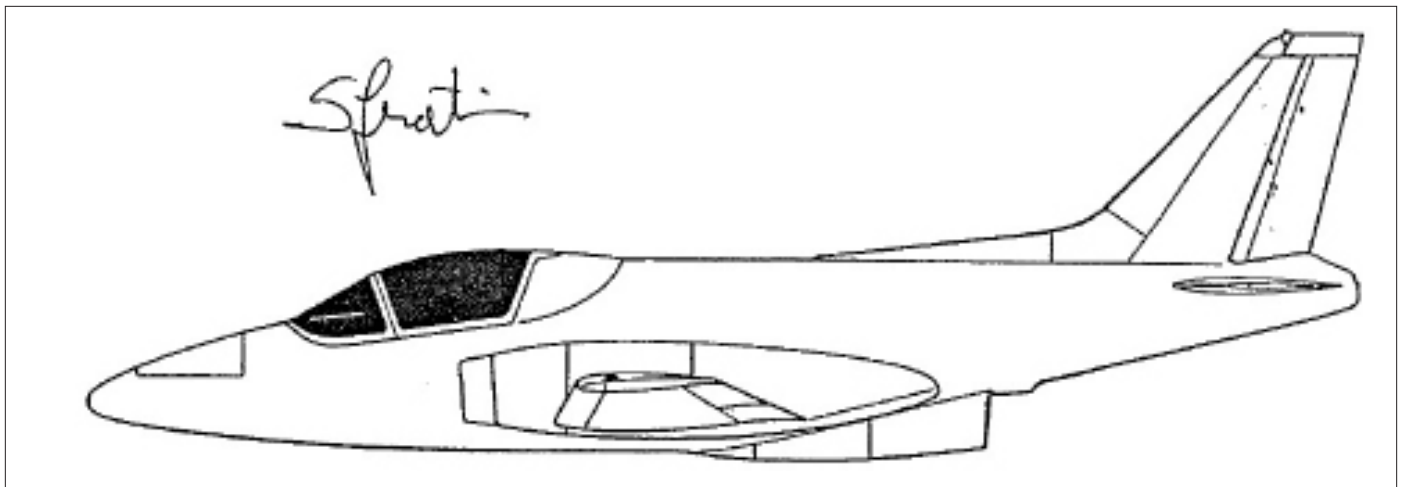
As you can see, the wing skins are called out on this drawing. Thus, the old covering draft drawing is nearly obsolete. That's Karl Hansen providing the “inspiration”. It's an ink drawing done from a photograph, and I thought I'd stick it on the drawing to fill up some blank space!

Sheet B3. To do these drawings, I had to work out all of the curves for the wing fillet. Before I forget, here are the radiuses for the top of the wing. Station 3: 40R, Station 4: 45R, Station 5: 80R, Station 6: 120R and Station 7: 160R. I had intended to make the wing fillet and supply it to you builders, but Karl Hansen was able to make the fillet of foam and fiberglass in very short order—16 hours or so. With good dimensions and instructions, you should be able to beat that time, and it just doesn't make sense to make the part if you can work that quickly.

Sheet B4. You have seen all of these things before. Instead of having separate drawings for the aileron controls and flap controls, these are shown as details for the wing drawings. There are only a few new details.

Sheet B5. Additional details. There shouldn't be any confusion about the wing tip bow now, and I have detailed out the wheel well rings and the autopilot servo installation. To fit the curve of the wing skin, the wheel well rings are made extra thick and are trimmed down at installation.

Sheet B6. The aileron and flap assem-



Above: Stelio Frati's Jet Squallus trainer.

bly is now shown as a single assembly to be cut apart after installation in the wing. The skinning is entirely with plywood, and I'll put a section in the construction manual for fabric covered ailerons and flaps.

Sheet B7. The previous aileron and flap hinge installation drawings gave too many dimensions. In these, only those dimensions that you need are shown. Note that Sections A-A, B-B and C-C show you where to install the hinges relative to the straight, uncountoured spars.

Sheet B8. The race-track-shaped holes in the main wing spar have been enlarged to 25x50, which have the same area as a 1.50"Ø hole. The rudder cable holes need only be 3/8"Ø.

Sheet B9. The cut line for the aft wing spar is now specified, and the holes needed for the flap and aileron push-rods are shown. The seat supports are something you could use a drawing for, and they should be made as matched pairs for easiest construction. Leading and trailing edge strips are shown so that you can at least know the rough dimensions for purchasing the wood.

Sheet B10. Station 1 wing rib. The intent here is to give you a view of the wing rib as it is installed in the wing. Thus, there are more details here than on our previous drawings. All you need to know about making this rib is shown on this one sheet. The spars are shown both in their finished, contoured shape as well as in their original squared-off shape. This will make it easier for you to contour the wing spars prior to wing assembly. Because the landing

gear will require that the rib be cut away for clearance, we have extended the spruce back farther, but those of you who already have your ribs closed should not get concerned about this. If you wish, you can reinforce the ribs externally, but there has never been a problem with the old ribs. It just seems to make more sense to reinforce the rib in anticipation of the cutout.

Even as we go to press with these new drawings, I have a few things that might be changed. There seems to be some question as to whether 3/8"Ø plastic tubing is large enough for all of the wiring, so you may want to buy some 1/2"Ø tubing and increase the size of the holes in the ribs.

There is also the question of the plywood reinforcements of the holes cut in the ribs. I have asked Mr. Frati about this, and he confirms that this is a desirable but not essential feature if the edges of the plywood are smooth at the holes. The reinforcements are a good idea and probably worth the extra effort.

I should also mention that the locations for the conduit holes insure that there are no low points in the conduit, thus water will not collect in the conduit in the wing.

Sheets B11 through B21 show the rest of the wing ribs, so I will mention highlights only. There are a few new ribs which were not previously shown. These are the diagonal aileron and flap ribs.

In the past, I have cautioned against making ribs from the drawings, but the new tail group drawings and these

wing drawings are drawn with the best accuracy I could muster. Thus you can use these drawings as patterns, but you should be careful to check dimensions to see if the paper has changed due to changes in the humidity—a 5mm change in length is common. The longer wing ribs are too long for the paper, so the drawing is split in two. This means that you will have to cut the drawing and splice it together.

—Alfred Scott

Construction Notes

In a recent letter Mr. Frati mentioned that at Oshkosh he noticed the way some builders have installed the wing on the fuselage, building the wing and fuselage as separate assemblies and then gluing the wing spars to the appropriate fuselage frames. Mr. Frati does not care for this procedure since the critical glue joints between the wing spars and fuselage frames are not made under optimum clamping conditions.

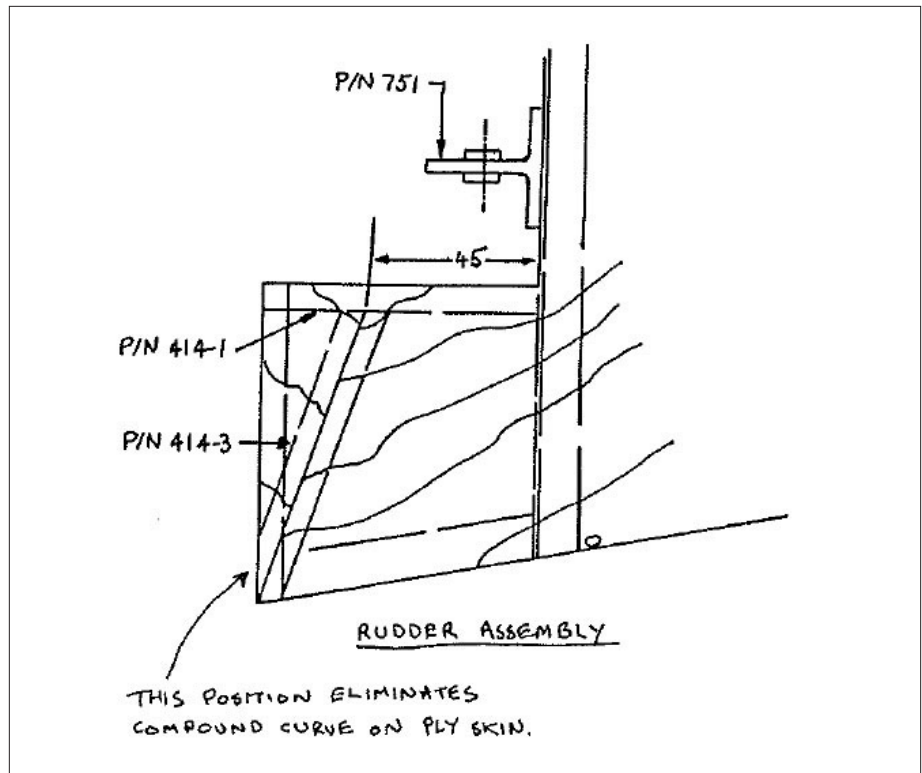
The method that Mr. Frati recommends is this: The wing is built on the wing jig and skinned on top. The front, main and aft wing spars are glued to the appropriate fuselage frames before putting them in the fuselage jig. The wing-and-fuselage-frame assembly is placed in the fuselage jig and aligned with the other fuselage frames, then you proceed to skin the bottom of the fuselage and wings. This is the method used to build the Falco during production.

Mr. Frati emphasizes that the bottom center longeron must be continuous and if any joint is required, it should be located outside the central part of the fuselage, where the loads are lighter.

Mr. Frati also suggests that when gluing the aft wing spar to fuselage frame No. 6, you consider using one bolt and large washers. This is not necessary for strength, but it may assist in clamping the odd-angled joint, and you may leave the bolt in place. It will also serve as an alignment pin.

Mr. Frati says that this procedure is the only method that will give the proper structural strength to the assembly. "Any other procedure, due to the unavoidable tolerances, may result in a weak or overstressed glue joint, that may considerably reduce the structural integrity of the joint."

I still prefer the method of gluing fuselage frames No. 3 and 4 to the wing spars before the wing is assembled. It seems to be easier to align these two fuselage frames when the spars can be clamped to each other. Some builders prefer to align the frames and drill all necessary bolt holes, and then leave the gluing of the frames until after the wing is assembled. But either way, the message is that the glue joint will be better if the fuselage frames are glued to the wing spars before they are assembled in



the fuselage.

The normal procedure that our builders have used is to skin the bottom of the wing first. Thus, any masking mistakes will be on the upper wing skin, out of reach of standing water. I believe that the method described by Mr. Frati was used to avoid turning the Falco over any more times than necessary. I may be wrong in this assumption, but I think that Mr. Frati is talking about doing the initial fuselage assembly and wing bottom skinning with the airplane upside-down. Take a look at the construction photo in our booklet *Stelio Frati, a Designer's Portfolio*.

Jim Dowe suggests a small change in the position of the diagonal rudder rib (P/N 414-3) to aid skinning—see the sketch below. He says "this gives the extra gluing surface as originally intended and also does away with the plywood going round a compound curve." I'm afraid I can't quite visualize what happens to the skin in this case, but you might want to try it. We could use some builder feed-back on this.

Steve Wilkinson writes that he had trouble with the primer adhering to his instrument panel. He used a primer known as Ferrothane Surfa-Bond #52, a shake-and-spray primer intended for aluminum and galvanized metal surfaces. After he had the instrument panel

finished—painted with a Citation-gray Cook & Dunn enamel and completely lettered—Steve found that the paint chipped off easily. He experimented with the lower center pedestal part of the panel painting the metal as received, carefully washing with detergent and hot water, and removing the entire alodine coating by scrubbing an area with Ajax. Only the Ajax-cleaned area held the primer.

First off, most spray can paints seem to adhere poorly, although I have friends who have used Krylon successfully. Some people say that a part should be painted within 24 hours of being alodined, which may be the case with some quirky primers. You will have good results if you use DuPont's Corlar primer, and it seems to make no difference if the alodining is months old.

I was quoted in the Kitplanes article about some changes I planned to make to the control stick. I had always been under the impression that the control sticks for the production Falcos were different from the ones we make. Gar Williams checked them against the drawings, and they are precisely the same.

The grease fittings for the main landing gear mounts have given builders fits. It's all my fault, so you can bring your grease fittings to Oshkosh and throw

them at me! The grease fittings on the production Falcos were flush fittings which seem more appropriate to the reproductive processes of birds than to lubrication. All you could do was push a grease gun at the thing. There was no fitting at all on the forward landing gear mount.

We have supplied grease fittings which can be installed, but it's impossible to get a grease gun on the things. For the aft mount, the solution is to use a 45° fitting such as a Lincoln 5212. The grease fitting is made in two pieces, with a tiny grease fitting installed into the base at 45°. You have to unscrew the little critter—it's been Loctited, so it's hard to break loose—then after the base is installed you apply Loctite to the threads and put the little grease fitting back in.

This method can be done to the aft mounts, but it won't work with the forward ones as they were originally designed and made. The best procedure is to install an Allen head setscrew, then when you want to grease the fitting, remove the setscrew and use a needle tip on the grease gun—just shove it in the hole and pump. McCulloch chain saws are now made with a blade that requires greasing, and they make a special grease gun for that purpose. It's perfect for this fitting. It has a screwdriver-like handle that you pump to introduce grease.

We'll have new drawings for the landing gear mounts which are slightly re-designed to provide for the use of the 45° grease fittings on both forward and aft mounts.

A recent builder question: "On the original drawing for the forward fin spar, the spar was shown with no particular grain direction for the 1.2mm plywood. However, when we received the new set of drawings, the grain is specified at 45°. Is this necessary on a vertical component? And what is the action for my friend who has already completed this component. I notice that the ribs in these new drawings imply 45° grain direction but is not annotated as such."

Sorry to have caused some panic. The original production drawings did not specify the grain direction nor did our first drawings. When I was drawing the latest set, I specified 45° out of habit. Thus, it is not essential but 45° is stronger and a good idea. As for the

ribs, the grain direction depended on where my right elbow was when I drew the drawing.

—Alfred Scott



Above: Mrs. Bjoern Eriksen working on a fuselage frame. This photo was taken in 1983 and this Falco project in Norway is now taking shape rapidly.

Tool Talk

"My advice to anybody considering building the *Fine Woodworking* handy-dandy breadboard moisture meter is, forget it. The thing is labor- and money-intensive enough that it could only appeal to the kind of dingie that would build a \$50,000 airplane out of, oh, let's say wood, in order to save money. Crazy.

"I tried it and spent not the \$30 the magazine said it would cost but more like \$40 by the time I was through getting a little box to put in into, a cheap plastic screwdriver to cut the handle from in order to make a probe, and a few other little things—to say nothing of about 20 miles of driving to two Radio Shacks to round up the materials plus

a third trip by Susan to an electronics store in the city for an IC.

"Did the thing work when I was done? Nope. Deader 'n (*bleep*). Not a flicker. Could have been my soldering skills, which are ordinary but sufficed for several Dynakit amps and tuners. Could have been a 10-cent Tandy diode or resistor made in Singapore and I'm sure subject to probably a five-percent mortality right out of the box. Could have been a microscopic arc of solder that bridged a circuit. But the end result was \$40 wasted trying to make a device that I can buy for no more than three times that amount."—Steve Wilkinson

John Oliver reported that he had great difficulty tapping the 4-40 threads for the safety screws on the nose gear. The taps kept breaking off, no matter how careful he was. He then discovered something known as a "gun tap". This is just like a normal tap but with two flutes rather than three, so it's much stronger. You get them at the same machinists supply houses that sell regular taps.

"I think scarfing is more easily done with a radial arm saw by using the rigid (8"?) disc sander, turning the head so that the disc's face is horizontal. The small drum sander has the sandpaper backed by a foam-like material which allows for fluctuation and an uneven scarf. Bob Bready agrees and uses the disc (with appropriate jig). Also the DeWalt radial arm mounts a bit at the back end (much as for the drum sander you mention) and if the wall against which the saw is set is over 26' wide, it would be used for the main wing spar drilling...a horizontal borer. There are radial arm saws and radial arm saws...all are not equal with respect to function possible and quality, the latter having a lot to do with the accuracy. My DeWalt is twenty years old—the original radial arm. Even those now called "DeWalt" are not the quality of old. I think B&D bought them out. As for Sears, I never buy anything from them with moving parts! Excellent suggestion in one of your newsletters on a small sander. I bought the Skil "Sand-Cat" and it is just great for the sculpturing of the spars, tips and so on. Very light, and does not tire the hand."

—John DeVoe

Brenda's Corner

Now that February is finally over—you can't convince me that it's the shortest month in the year—you can start thinking about Oshkosh. The dates for Oshkosh this year are August 1 through 8. Alfred's forum will be on Monday, August 4, at 10:15 AM in forum tent number 4. As in the past, the Builder Dinner will be on Tuesday night at the Midway Lounge in Appleton. For the past two years, I have tried to make notes of things we should have in the booth the following year. This past year Quentin Rench mentioned that it sure would be nice to have a plans index handy when someone was asking a question about the plans. So, that is something I will bring along this year. If any of you have any suggestions along this line, please pass them along to me.

We regret that in the future there will be a 4% surcharge on all kit/parts orders of \$100 or more charged to Visa or Mastercard. When we originally started accepting credit cards, we did it mainly because we were using an ad response agency for brochure orders. We decided that since we were accepting credit cards for brochure orders, we would give Falco builders the option of using credit cards for ordering kits, etc. The bank charges us for every credit card sale they process. The rate charged by the bank depends on the volume of your sales and since the majority of our credit card sales are brochure orders, our average sale is below \$50, so our rate is high. They charge us 4% (just reduced from 5%) on each credit card transaction we deposit. So you can see, it really gets costly on big dollar transactions. Since few Falco builders had used credit cards for their orders, we were not too concerned about the cost until we received a \$4,000 order to be charged to a credit card. As you can figure out, it would cost us \$160 to process that order on a credit card. If we continue to get kit/part orders that are charged on credit cards, our average transaction amount will go up, so our rate should come down. If it does, we will certainly reduce the surcharge accordingly.

You wouldn't believe some of the telephone calls we get. Someone called a couple of weeks ago and wanted to buy a "Nustrini" canopy to put on his car. I thought I had heard everything, but Alfred topped me on that one. He had a call one day from someone who wanted one for his motorcycle.

The remarks that come in with brochure orders continue to entertain me. The other day we got a brochure order with a note on the back of the envelope which said "I got so excited I forgot to include my address with my order." Then there was the gentlemen who wrote that after reading Nigel Moll's article on Karl Hansen's Falco four times, he decided he'd better order the information packet. Comments like these certainly make the job of preparing the mailing labels a lot more interesting.

Please let me know if I can assist you in any way.—*Brenda Avery*

Sawdust

- Fastest Falco builder yet? Richard Brown is probably going to set a new record for the time to build a Falco. He started last June and now has his Falco nearly complete. He had an advantage since he bought Bret Miley's project, but Mr. Brown has been working full time on the project. If he keeps up this pace, Mr. Brown could fly this summer. Not a pilot, Mr. Brown will have a friend do the initial flights and then take lessons in the Falco.

- Al Dugas is another builder to watch—he is retiring to North Conway, New Hampshire, to build his Falco. Al tried retiring once before but went stir-crazy "sitting around the pool". Al has just finished building a shop for the Falco. He did all of the work himself, pre-cutting all of the wood at home in Salem, Massachusetts, and then trucking the pieces up to New Hampshire. The entire shop is held together with screws, so the construction site has been exceptionally quiet—no sawing or nailing. Al has painted all of the plywood for the walls and ceiling before putting them up. One day while Al was down on the floor painting a piece of plywood, a neighbor stopped by and asked "What're you doing?" "Painting the ceiling" says Al. Then, a long silence.

- Rather than trust their Falco kit shipment to the normal processes, Chris and Vanessa Barnes popped over from England for the day. After an evening of Richmond's finest spaghetti and a half-day of Falco builder chat, they

sailed back to the geese, goats, cats and Falco project at Primrose Cottage, Basingstoke. A pilot with BOAC, Chris gets one free trip a year, and we was it for 1986.

- Any Falco builder in the U.K. who has not yet received the new tail group plans should contact Doncaster Sailplane Services. To save on the postage, we made a bulk shipment of the drawings for subsequent mailing by Doncaster's Brian Fox.

- The CAFE 400 should see its first homebuilt Falco this year. Karl Hansen is definitely going to enter, Ray Purkiser is thinking about it, and John Harns is pondering from a distance. It's on June 27 and 28 at the Santa Rosa, California, airport. With the latest formula, the Falco is competitive. Karl Hansen calculates he might have come in 4th overall in last year's event.

- John and Pat Harns are planning a trip to Pensacola on May 1 for the 75th anniversary of naval aviation and a squadron reunion.

- Wanna buy a Falco? I-ROVI, a Series 2 Falco, is for sale for \$65,000.00. The Falco has a 160 hp engine and constant speed propeller. No other details are known, but if you're interested contact Mr. George Chiola, Via Bardonecchia 29, Torino, Italy. Office telephone: (11) 761-572 or Telex 224-233. Mr. Chiola is interested in a new airplane—one of our kit-built Falcos.

- Syd Jensen reports that he still has not flown his Falco, although he has moved the Falco to the airport and has had the engine running. Real estate development work has kept him so busy the first flight keeps getting pushed off till "next week", and the weeks have been adding up. During the construction of the Falco, Syd let his pilot's license lapse, so he has also been putting in some dual time to get current again. He may just ask Luciano Nustrini to come up and fly the thing.

- With ten Falcos flying, it's time for the Alfred Scott foot-in-the-mouth prediction of the next ten to fly. So here goes nothing: Syd Jensen, Joel Shankle, George Neuman, John Shipler, Per Burholm, Jim Martin, Dan Garn, Richard Brown, Jim Slaton and Paul Miles. Paul Miles recently bought Earl Edwards's Falco. It is possible that all ten of these could fly in 1986.

Mailbox

All wooden tail components except stabilizer spars finished. Wing ribs started. Could you get some poster pictures of completed Falcos printed, to keep the slower bretheren's morale up! I'd paper my bedroom with them!

Robert D. Dell
Melton Mowbray, England

Please see the note in "Goings On At Sequoia Aircraft" for details on ordering Nigel Moll's "Stevie Wonder Can See Again" photo of Karl Hansen's Falco.—
Alfred Scott

All ribs, spars, bulkheads completed. Project on hold hoping for Canadian dollar to strengthen. Still very interested in completing the plane.

Ralph W. McWhinnie
Nepean, Ontario, Canada

Tail ribs complete. Tail group spars purchased and fuselage frames in progress.

David Cooper
Victoria, B.C., Canada

An early evening in summer in Connecticut with the sun setting long shadows across the grass at a country airport can be a pleasant sight; add to it a blue and white Falco on its maiden flight and the evening is complete. I was there when Jim DeAngelo rolled down the runway 19 June of '85, and it was quite an experience.

Saw the article in Flying this month... great. New plans, much improved over the old on the tail section, congratulations. I have just come up from the factory having very nearly completed the float sanding of the stabilizer/elevator and fin/rudder...time consuming but satisfying. Getting ready for skinning it, called the FAA in Portland..."Call us about four weeks before you are ready to fly, have the W&B figured out, plans available, sales slips. Nothing else in the way of inspection is now required."

I have numbered my newsletters and annotated them. I find it helpful in locating items of possible future interest. I can refer to them thus: NL 13-5 (i.e. newsletter #13, page 5) is easier than the date. I put the number at the bottom right. Could this not be typed on the page? New format as well as contents of builders letter has shown great improvement. It always has been good, now even better.

As I clamped the forward and aft fin spars in place preparing to build the fin, I observed the taper that would eventually be needed on the lower (longeron portion) of both of these spars. I measured it to be about ten degrees. As I prepared the skin supports for this area, it became apparent that they also would need the same taper. Before any gluing, I put the taper on the lower portion of both spars and all of the curved skin supports with a one-inch bench belt sander. Jim DeAngelo says I saved myself a lot of hours down the road. I also made the skin supports of solid spruce. Once the forms are cut for the longerons there is no severe curve to any of them, so I say no need for lamination. I also tapered the longeron cuts in both of the spars.

John Brooks DeVoe
Stratham, New Hampshire

The builder letters go back a long time, so what you consider #13 is Tony Bingelis's God-knows-what. Our notebook of old builders letters is about three inches thick. What I am trying to do is to incorporate all of the construction notes of the builder letters into the construction manual.—
Alfred Scott

I took the fuselage, forward of frame 8 down to my warehouse while I made the main spar and fitted it. I left it there till November when I realized that it was not getting the attention it needed. It was a hell of a thought having reached home, having eaten, fallen asleep in front of the TV, then to trail out even the short distance to the warehouse to work. Now that the wing is diagonally across the double garage, in spite of having to climb under the spar to reach the other side, I do manage one or two hours some evenings and time at the weekends.

I am currently getting everything ready to attack the assembly of the wing. The project continues to be immensely therapeutic, and a great source of contentment.

Charles C. Wagner
Glasgow, Scotland

My latest order is a compromise between buying everything or training for an airline transport rating. The company I'm flying for is considering a twin for night ambulance operations, that's why I need an ATP. We now operate seaplanes only (Cessna 206). I will spend some time in the USA this year training for the ATP, then I might

knock on your door.

I now have close to 5000 hours building this bird, and I can't say I'm fed up yet. It gets more and more interesting the more I work on it. People think I'm crazy. Maybe I am. At least I'm going to ruin myself before this bird is flying. I will probably have to rob a bank, or fly a season in Alaska. Maybe you know somebody in Alaska who would employ a crazy Norwegian bush pilot!

For the past few months I have been working inside the cockpit. Everything is finished except for the upholstery of the seats and the sidewalls. I will use suede. I like the smell of it. The rest of the Falco is nearly covered with epoxy-fiberglass. Some sanding left to do. It's hard to sand, but I'll soon start spraying Featherfill & primer. Received it from Aircraft Spruce in California—it took nearly six months. Norway is not the best place to build an airplane, as most of the parts have to be imported from your country. I have even received one instrument from IFR. I ordered most of them in July '85. Received the artificial horizon in October, and I have an invoice for the rest, but no instruments yet.

I still have some skinning left to do on the control surfaces. They will later be covered with fabric (Stits). The canopy and windshield is installed, and I'm using flush head screws and Tinnerman washers all over. One day I tested the strobe lights. I have a Whelen 3-light system and remote power unit. It was a great moment, flashing new energy into my soul. I have no engine for my Falco yet. The only Piper Arrow in Norway is still flying, so it's engine is probably not for sale. I'm going to use the 180 hp B1E. That's all for now. Hope you can rush my order across the pond, so my Falco can sit on it's gear this spring.

Jan Waldahl
Sandane, Norway

Bottom of wing is ready to fly. Fuel tanks complete, gear kit ordered, then ready to finish skinning top of wing. Working on flaps, ailerons and wheel well doors.

Rex Hume
Williams
Oregon

Making elaborate preparations for an adequate workshop (8m x 8m) now complete. Heating and lighting to go. Retiring from commercial life next

week and hope to start by 63rd birthday (March 28, 1986). Still learning for my P.P.L. and doing nicely—no fool like an old fool but we'll show 'em yet! Have just secured 22-1/2 acres of suitable land for a strip (1500 ft).

Your newsletters get more and more professional, I must learn to read and write! I like the new layout, all very informative and full of interest.

Sydney Clifford
Whitley, near Melksham
England

To date all the tail group ribs are complete and most of the components for the main U/C legs (not welded). Construction did not begin until November last due to commitments on other projects. Also a lot of time was spent soaking up all the information on the drawings. We also have enough material to keep us going for the next year. Metal work will be an ongoing task by Bob, my target being for this year all ribs, all fuselage frames and all spars except the main spar. We are coming up to our first year of the project which we have thoroughly enjoyed, and hopefully we will gain a little more pace from now on.

I have developed a "C" program to produce the fuselage frame former co-ordinates in both rectangular and polar form. The data can be used to plot the stations manually. There is also an option to produce a file to drive a Hewlett-Packard plotter. This was a somewhat academic exercise (based on the formula in the manual) to check the former jigs—at the end of the day it's still the path produced by the bent fuselage laminations that produce the final outline! However if you or anybody else is interested, I will forward either the data, the program or both.

Jim Dowe & Bob Wesley
Ipswich
England

We've had a number of builders who have used personal computers to produce the fuselage frame coordinates. I imagine that most builders who already own programming languages could easily write the program to generate the numbers, while others will use a spreadsheet program. I have it on my list of things-to-do to make up a table of the coordinates. Even with all of the computers we have here, I still find I only use my Hewlett-Packard HP-11C calculator.

—Alfred Scott



Above: Sara Scott, Kakee Scott, Brook Wilkinson & anonymous piper.

Bagpipe Boogie

Ah, that wonderful photo of me in *Flying!*

It all began when Nigel Moll asked if I had any color slides of me playing the bagpipes. I didn't, so Steve Wilkinson shot a roll while at the Great Oyster Fly-In. The best of the shots had my daughters, Sara and Kakee, and Brook Wilkinson dancing around me in a Pied-Piper-of-Hamelin scene. (Recently learned trivia: "you have to pay the piper" comes from this famous story—the Piper got rid of the rats but the mayor wouldn't pay as promised, so the Piper piped the children away as revenge.)

Through all this, I was worrying if these photos might make me look like a nut—after all, you wouldn't want the whole world to know!

At the builders dinner at Oshkosh, I asked my brother, Fred, and Steve Wilkinson to take photos of the evening,

and then we gave these away to those who were in the photos. Nigel was in some of them, including a couple of shots of Nigel and me—both of us schoolboy nervous—addressing the dinner audience at the beginning.

Flying's art director wanted to crop out the dancing ladies, but that would be unfortunate since bagpiping renders your face into the most unlikely object: quilted cheeks, bulging eyes and a turtle-like expression on your mouth. With all of the bagpipe shots rejected, Nigel turned to his package of photos from the builder dinner. No good deed goes unpunished! Despite predictions, dentists have not been calling to offer their assistance.

So it falls to the *Falco Builders Letter* to publish one of these shots and deliver on a promise to three little girls that they would appear in *An International Magazine*.—Alfred Scott