Falco Builders Letter

Bored with beachballs and badminton? When you are at the seashore, do you miss your Falco and wish you could have it with you all the time?

Bad Day at the Races

Derek Simpson's Falco emerged from a winter's-long refurbishing with new windshield, canopy and seats from Sequoia Aircraft and a mirror-smooth finish of ebony black with gold and red trim. Even Peter Hunter—whose Ferrari-red Falco has been the most-coveted European Falco—was envious. So lovely, in fact, that it appeared on the front page of the Sunday Times *as part of the coverage of the Schneider Trophy Race. Alas, on the day before the race, Derek's Falco took a bird up the snoot. There are only six Frati aircraft in England; nevertheless, on the following day an SF.260 sucked a bird up the carb at precisely the same spot but was able to stumble back to the field. Here's Derek's account:*

One of the highlights of the British Handicap Air Race Season is Digital Equipment's Schneider Trophy Air Race. Held in June of each year, it's 150 miles of low level racing around a course on the south coast of England. The race attracts up to 80 entrants of which a maximum of 60 are allowed to compete. Last year I raced a Cessna 170 and came in 33rd. This year I entered my Series II Falco G-OCDS and hoped to do considerably better.

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Goings On at Sequoia Aircraft

On their way back to New Zealand from a vacation in Italy, Luciano and Giuliana Nustrini stopped by for a visit. We were spending the weekend with our family on a mountain near Charlottesville. The Nustrinis arrived at an unfortunate time for them: brother Fred was measuring and displaying a rattlesnake (50 inches and 13 rattles) which I had killed that morning while playing hooky from "family prayers." He then proceeded to skin it, and the sight of the carcass inspired him to propose it for lunch. Thus it was that the Nustrinis travelled halfway around the earth to be treated to a lunch of fried rattlesnake and pasta salad.

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Around the Falco Patch

Karl Hansen was able to install the main gear wheel well doors in time for the CAFE 400 race in June. The installation of these doors had been a real problem for earlier builders, but Karl was working from the new drawings. He made everything exactly according to the drawings and before installing the pushrods he adjusted each to the exact length shown on the drawing. Miracle of miracles, they were exactly the right length, and the doors closed at precisely the right time with the gear up and down.

To see what the doors did for the plane, Karl did a speed check and got 228 mph at full throttle at a density altitude of 6000 feet. Karl feels that these doors are good for an additional 5-7 mph at cruise—more at the top end.

Karl entered the CAFE 400 with the Falco and placed 10th in class and 18th overall. The average speed was 172.6 mph with 26.06 mph for a score of 1,458,301. Son Jeff navigated and kept track of the power settings. The performance was very good, and the Falco beat out a lot of "faster" planes. With a little improvement in speed and technique, the Falco should be able to beat the Mooney 201s. Brien Seeley, founder of the CAFE race, stopped by at Oshkosh and commented that Karl had done surprisingly well for his first time in the race. Most people do about 10% better the second year.

On the way home from the CAFE 400, Karl flew in formation with George Pereira who said that the trailing outboard edge of the wheel well doors were pulling open 1/2" or more at 180 knots indicated. This will require that the doors be stiffened or made with some built-in twist. (Isn't it nice to be talking about the problems you are having at 180 knots *indicated*?)

During the period between the CAFE

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Goings On at Sequoia Aircraft

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The Nustrinis moved to New Zealand several years ago. An architect whose specialty is airport planning, Luciano now works as a professor at the University of Auckland. He is an avid camera collector—he had hundreds of cameras when I last saw him in 1981—but is reduced to "only about 125" cameras now. The rest were sold to buy a 14-inch telescope which resides in his backyard observatory. And when he gazes at the stars he sits in a chair he designed years ago and for which he won the coveted *Compasso d'Oro*, the annual award for the best piece of Italian design which was later awarded to Mr. Frati for the Falco.

Most of you know Nustrini because of his association with the Falco, but he is also an accomplished test pilot. He was the first westerner to be issued a Russian pilot's license when he flew the Yak-40, a 32-passenger three-engine jet transport. Nustrini did the certification test flights so that the plane could be flown in western countries.

In all, Luciano has flown about 120 to 140 different planes, but he talks mainly about his favorite, the Falco; the P-51 is his second favorite. I asked him how he liked the SF.260. He likes the airplane, but he prefers the lighter controls of the Falco. The Falco he said, grabbing his shirt to illustrate the point, is "like clothing; something you wear, not something you have to fly."

We talked at length of all of the things we have done to get additional speed. They are essentially the same things he has done, but he did emphasize the importance of aileron and flap gap seals. His aileron seal is "plastic paper" held to the wing and front of the aileron with double-sided tape. He has skinned the "cove ribs" in front of the ailerons and flaps, and this is really required if you want to install the seals. The flaps were sealed in a similar fashion, although using a strip of sticky-back foam stuck to the lower aft side of the aft wing spar is easier and just as effective. Nustrini said that the seals made a dramatic difference in speed—6 to 10 mph—but he puts them on only for racing since they increase the landing speed and hurt the rate of roll.

Above: Ray and Sherry Purkiser at Oshkosh

One of his more bizarre techniques is his practice of dusting the leading edge with talcum powder before a race. He said it gave him 2 to 3 mph. Sailplane pilots have long ago discovered that a lightly sanded leading edge is better for laminar flow than a polished finish. He tried sanding the leading edge, but it always was dirty, so he developed the talcum powder technique instead. (Before the CAFE 400 race, Karl Hansen sprayed his leading edge with a dry Teflon spray. The Teflon powder doesn't offer any "lubrication" with the air, but the slight roughness would be similar to a lightly sanded leading edge. It has the additional advantage of making it more difficult for bugs to stick to the wing.)

It must have been quite a change to move from Italy to New Zealand. In Florence, the Nustrinis lived in a second floor walkup apartment, parked their car on the street, and splashing sounds occasionally echoed from the interior of the building—which may explain why no one swims in the Arno. Florence is beautiful, but it is bee-hive busy with cars and trucks madly careening among teeming masses of people.

New Zealand, on the other hand, is

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quiet. With roughly the same area, New Zealand has only a tiny fraction of Italy's population—heck, Italy has more people than New Zealand has *sheep*. The Nustrinis live a few miles west of Auckland in lush tropical greenery without another house in view. The airport is a moderate drive, but no one wants to race. There's a new SF.260 in Wellington, and Syd Jensen's Falco has been ready to fly for a year... but if only there were *more*.

The Nustrinis hope to make it to Oshkosh next year. We'll leave it up to Tony Bingelis to bring the rattlesnake.

Do you ever have people ask why you are building a wood airplane when you could build a "modern fiberglass" design? Do you sometimes wonder if they are right? Each year I come away from Oshkosh amazed at the naïvete of the public and rather disturbed at the lack of ethics by so many in this business. But there is more to Oshkosh than that. If you look and listen, you'll find some real experts.

Each year I run into an engineer from Sikorsky. When it comes to composites in aircraft structures, Sikorsky is easily the most advanced in the field. In addition to their helicopters, Sikorsky makes composite parts for all of the major aircraft companies. Wherever you turn in advanced composites, Sikorsky is there. They have also done more in the field of crashworthiness than any other company—pilots and passengers of their Blackhawk helicopters have survived some of the most incredible crashes.

This said, you may be interested in my friend's opinion of fiberglass homebuilts. In a nutshell, he says that homebuilders should not be using composites for the load carrying structure of an airplane unless they are working with controlled conditions, and bonding under pressure and elevated temperatures. His principal concern is that quality control is almost impossible. "For structure, forget it."

For room-temperature-cure laminates, the bonding to the foam and between layers is difficult to verify, and voids act as "sending units" for vibrations and are the starting places for cracks. If there are voids in the glass, the "possibility for failure is very good." Elevated temperatures are important to ensure a consistent cure throughout the resin.

I've been told that the techniques of homebuilders could result in a five-to-one variation in structural strength. In other words, because of variations in techniques and conditions, the strength of a part may be five times stronger—or weaker—than the same part made by another builder. Was this true? "Yes. Five-to-one or greater. You don't know what you are getting."

And what of the reports that even Sikorsky, with their sophisticated equipment and expertise, still had a high rejection rate of parts? It's true. Sikorsky has a continuous testing program, testing batches of cloth and resin as they are received, and then testing sample parts to destruction. This testing is the only way they can be assured of good parts, but a lot of materials and parts are rejected in the process.

I've always been told to be very skeptical of the claims of sales literature for epoxy resins. This, too, is true—"Test everything." Sikorsky uses Dexter-Hysol adhesives about 80% of the time and has found their literature very reliable, but Dexter-Hysol is one of the exceptions. I told him of Chem-Tech's claim that the room-temperature-curing T-88 had a shear strength of 1,000 psi at 180° F. "No way. The numbers don't match." Everyone in the field knows that room-temperature-cure epoxies won't do that.

They worry a lot at Sikorsky about field repairs using room-temperature-cure epoxies and hand layups. "The systems are too new" and not enough is known about them. He worries about the longevity of the materials from UV and predicts that "unfortunate results with the Longeze and Varieze" will create a resurgence to conventional materials in the next five years.

What about the ability of fiberglass structures to withstand a crash? "There *is* no crashworthiness." The material provides no "load attenuation or shock attenuation" and shatters on impact. Sikorsky uses carbon fiber and Kevlar almost exclusively, and even with those materials the design of a crashworthy structure is achieved only with "triple redundancy", special devices and careful design. For a homebuilder to achieve the same crashworthiness with fiberglass, it would "need 400 hp just to get off the ground."

My friend is no homebuilder-hating reactionary. He actually built two Longezes—one was a Project School Flight he helped with, and the other was for himself—and a Heinz Zenith. The Zenith has been sold, but the Longezes were actually dismantled—all parts were removed and the airframe was destroyed—since he had so little faith in the longevity of the structure. Next project is a Falco.

He is not alone in his views. When fiberglass homebuilts were first introduced, there was much excitement at Sikorsky, but now virtually every engineer at Sikorsky shares the same opinion. Seek out the real experts on composites at McDonnell Douglas or Boeing, and you'll hear the same thing over and over. So, next time someone asks why the Falco isn't made of 'glass, you can give them this to read while you go back to work on your antiquated wood airplane.

The long-term longevity of composite structures is a concern that is shared by many knowledgeable people in the aviation community, and there are other disturbing patterns: the ridiculous claims of performance, strength, "engineering" and building times. It's interesting to hear aviation writers use unrepeatable profanity to describe an aircraft they just gave a favorable review. Not all aviation journalism is like this, thus it is a pleasure to see Peter Garrison's "Kits: Questions of Integrity" in the September *Flying*. (This article has created quite a controversy since Peter didn't give names. The "most dangerous airplane" is the Polliwagon, and it's the Lancair who's spar is questioned.)

Because of concerns of liability Dean Cochran is getting out of the exhaust business. It's my fault, since there was an early question about whether carbon monoxide had anything to do with Dave Aronson's accident. It didn't, but the suggestion just "scared the hell" out of Dean. Cochran Aircraft is a corporation, and there has never been a problem with the exhaust systems that they have made, but Dean is just worried about a lawyer coming after him.

Dean actually got into the exhaust business because the workmanship on the systems being sold to homebuilders was—and still is—so attrocious. There isn't any problem in getting someone to make exhaust systems, the problem is to find a company that does the same high-quality work. Jim DeAngelo put me on to Kevin Murray's Frame-Up Engineering, Inc., which does the ex-

Above: While he is restoring his Falco, Walter Gockenbach has an F.15B Picchio to fly. Walter runs Flugwerft Biberach, in Biberach, West Germany.

haust systems for the Lake Amphibian, Extra 230 and makes systems for various homebuilts. I'm sorry to see Dean Cochran get out of the exhaust business, but I don't have any reservations about putting the exhaust systems in the hands of Frame-Up. They will do the same quality work, and they already have the Falco exhaust systems in stock. We hope to have the heat muff ends welded in place on the new systems.

Speaking of Dave Aronson, the National Transportation Safety Board determined that the probable causes of the accident are: improper in-flight planning/decision—pilot in com-mand, improper IFR procedure —pilot in command, fuel exhaustion, inadequate fuel supply—pilot in command, airspeed not main-tained—pilot in command, and inadvertent stall/spin—pilot in command. Factors relating to the accident were determined to be: unfavorable wind, clouds, low ceiling, fog, delayed flight to alternate destination—pilot in command, and dark night.

If you are looking for an oil cooler for your Falco, you might want to contact Southwest Cooler Services, Inc, 3939 Platinum Way, Dallas, Texas 75237. Telephone: (214) 330-7214. They have the Harrison oil coolers we use in stock both new at $285.00 or overhauled at $245.00. Our baffling system is designed for the Harrison oil coolers and the holes are precise matches. You may use the Stewart Warner oil coolers—also sold by Southwest—but the holes are not an exact match. If you haven't heard, the Harrison Radiator Division of General Motors sold its entire aviation line to Lori, which is not making the model we use.

There's a new lightweight starter being made for the Lycoming engines. Made by B & C Specialty Products of Newton, Kansas (316-283-8662), the starter weighs 10.2 lbs, which is 6 lbs lighter than the Prestolite direct-drive starter and 8 lbs lighter than the Prestolite geared drive. Lycoming still supplies the Prestolite starters, which are likely to be the standard for years to come. If you don't have a starter, this is a good way to save some weight, but if you already have a starter, it's expensive. The Prestolite starter is $720.00 new, $363.00 (exchange) overhauled and add $150.00 if no exchange. The B & C starter is $550.00. Before you order, count the teeth on the starter ring and tell them if you have 122 or 149 teeth. It appears that the starter will install in the Falco without interference, but I can't assure you of that since I don't have an installation drawing yet. Competition acrobatic pilots are using the starter since they are always interested in shedding weight; most do it by eliminating the starter and battery completely.

We receive calls each week from people who want to buy a completed Falco. There are an awful lot of people who want one but who don't want to build an airplane —some of them have bought SF.260s. Karl Hansen has been approached by a man who wanted to buy his Falco. Karl told the gentleman the Falco wasn't for sale, and if it was he "wouldn't talk to him for less than a hundred thousand." The man left his card and asked Karl to call if he decided to sell it.

In the past, I have not encouraged the practice of "professional builders." Since there was so much "think time" involved, it did not make sense to pay someone by the hour. With the construction manual, this is no longer the case. While the construction manual isn't finished yet, the fuselage assembly is relatively obvious since so much has already been done ahead of time.

It's difficult to say how long it would take a talented, speedy builder. Richard Brown says he could build another Falco in six months, and it's obvious he wastes little motion. We have a Falco project starting now that should be completed, if not flying, by the Oshkosh '87. The professionally-built Falco is a coming thing, and some of you who are now building Falcos might want to consider taking on such a project. We are frequently asked to suggest possible builders, so if you are interested in being a "builder for hire" please let us know. All of those who are presently being considered are experienced craftsmen. Remember, the airplane you are now building will be your best advertisement.

There is a new book out on the subject of gluing and clamping. Steve Wilkinson just bought a copy and says it covers nearly every conceivable glue and clamping situation. *Gluing & Clamping: A Woodworker's Handbook* by Pat Spielman is published by Stirling Publishers. Gougeon Brothers raves about the book and carries it. It's a magazine-sized soft-cover book with 255 pages and lots of illustrations. And at $12.95 plus postage and shipping, it's a bargain. To get a copy, call Gougeon Brothers at (517) 684-6881. The book is their catalogue No. 002-180.—*Alfred Scott*

Around the Falco Patch

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400 and Oshkosh, Karl installed the exhaust port horns and nose gear bay doors. We had made up one set of the horns to see if they do anything for speed, but since they were installed at the same time as the doors, we don't have any good data. We think the nose gear doors are good for another 4-5 mph at the top end.

Karl keeps accurate notes on his speeds and sent along some numbers from the Oshkosh trip—see "Karl's Numbers" on the right. Comparing these with some earlier speed runs, it appears he has picked up about 12 mph at the low-power cruise settings he uses. The earlier speed runs were not at full gross and for the Oshkosh trip Karl and Shirley had loaded the Falco with luggage, so the speed increase may be slightly in excess of 12 mph. This speed increase is due to the main gear wheel well doors, the two clam-shell doors for the nose gear bay and the exhaust port horns.

The gear doors did create a new problem. The landing gear motor and circuit was designed around the torque requirements of the system without full doors. The doors add to the load on the motor, and Karl's circuit breaker started to pop just before the gear was all the way up. As a result, we have made some changes in the electrical system to shorten the wire run and increase the wire and circuit breaker size. This will reduce the voltage drop to the motor and allow it to develop more power.

The nose gear doors are apparently reducing the excess extraction of engine cooling air. On the way home from Oshkosh, Karl said his CHT was 380-390° in cruise-climbs and 325° at cruise. That's warmer than it has been in the past. Lycoming would like to see it at 350-375° at cruise, and High Performance Engines argues for slightly higher temperatures for a better flame front. Karl has experimented with taping over two rows of the oil cooler to get the oil temperatures up. It worked, but he took the tape off for the Oshkosh trip. Warmer oil means less friction in the engine, and that means power to the prop.

Karl and Shirley Hansen went to the Dayton Air Show the weekend before Oshkosh where they were presented with a trophy and given the royal treatment at the Wright Brothers mansion. After that they took the Falco to visit relatives in North Dakota and to kill time before Oshkosh.

My own arrival at Oshkosh was by a circuitous route. Meredith and the girls had driven to a camp in New Hampshire, taking a leisurely drive through Cape May, New Jersey, and then to New York City for a couple of days. My plan was to fly up on Saturday and meet them in New Hampshire. I decided to stop over to see Steve Wilkinson and his Falco project. The flight to New York started out peacefully enough, but the last 30 minutes were among the least pleasant I've ever had in an airplane: a white-knuckle special with 3g turbulence in IFR that left me not terribly anxious to launch again that day. And with the thunder-storms that settled in, it wasn't even possible.

Steve and Susan live in a glade with their house, writing studio and barn on the edges of the little pasture-in-the-woods. It was pouring rain when I arrived, and it was strange to look across to the barn's open door to see the bottom centersection of the Falco wing, leading edge up, in the wing jig. You could easily mistake it for a California-kinky wood sculpture.

Steve's barn is a cozy old red barn with an uneven floor, and the smell of spruce shavings mixes with a lingering odor of horses. Steve's ancient Shopsmith is now supplemented by an air compressor, staple gun, electric drills and various hand tools. The barn is a hop-across-a-brook from the studio, so when Steve gets stuck on a paragraph he works on the Falco for a while until the words

Karl's Numbers

Karl Hansen sent along the following performance numbers from his Falco. The first two speed runs were with all doors except the nose gear bay doors. The rest of the speed runs were on the Oshkosh trip, with all doors installed and at full gross.

MP	RPM	GPH	IAS kts	TAS kts	TAS mph	Pressure Altitude	°C	Density Altitude
25	2450		165	182	210	4,000	29	6,500
26.75	2800	14.6	180	197	228	3,800	28	6,000
23	2000	6.1	148	158	182	2,500	26	4,500
23	2100	6.8	149	169	195	6,500	26	9,100
23	2200	6.8	150	170	196	5,700	28	8,500
24	2050	6.7	150	171	197	6,700	19	9,000

Above: Karl and Shirley Hansen at Oshkosh.

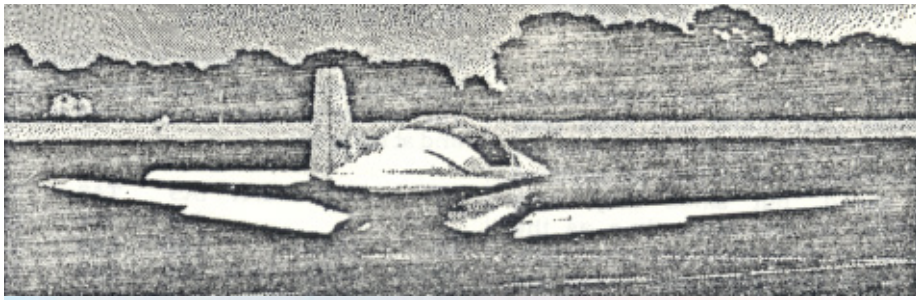
come to him—no wonder so many of them are about the Falco! We spent much of the next day puttering around the barn working on the Falco until the weather cleared enough for me to fly to New Hampshire, which was a good place to get into mental low-gear—except for one terrifying moment when a wild skunk scurried under the sofa on which I was sitting. A stationary low settled into New England and kept me there a day longer than planned, but Brenda Avery set up the booth at Oshkosh. I finally got to Wisconsin on Thursday, and I left the "Corporate Disgrace" at the Appleton Airport. In fact, the old bird is not quite as disgraceful as in years past. The leading edges of the wing are freshly painted, but with the weather I flew through this summer, part of *that* is peeling away already.

We had three Falcos at Oshkosh this year. Ray Purkiser, Jim DeAngelo and Karl Hansen's machines were lined up in a row on the flight line. When I first saw Ray Purkiser's Falco, I was able to sneak up behind Ray and ask "Say, is this airplane made of fiberglass?" Ray wheeled around in horror and a flurry of denials until he realized it was me.

Ray Purkiser's Falco is a real beauty. Nit-pickers and flaw-finders had a frustrating time finding things to criticize on this plane. If you judged it by the standards that are used for the various Oshkosh awards, this Falco would score higher than any other Falco that has been at Oshkosh. There is a consistent high quality to the workmanship, and the airplane is totally devoid of the flaws that only judges notice: little scratches and chips of paint that are on almost every airplane.

I was particularly impressed with the ingenuity of little details. The cowling latches are devilishly clever, although Ray is not entirely happy with them and plans to switch over to the type we use. The glareshield cover is a two-screws-and-you-yank-it-out affair. Neat.

The upholstery, seats and instrument panel all work together to give the airplane a feeling of elegance and quality. Ray and Sherry Purkiser have been flying in a Swift for years, but it's been sold, and you don't see any regrets in their faces. One Swift pilot later told me he asked Ray how the Falco compared to the Swift. He said Ray started to say something, and then put his hand on his shoulder and said in a kind voice, "I can't do that to you."



Top: Jim DeAngelo and Bob Bready prepare to take off for home. Above: two views of Ray Purkiser's Falco at Oshkosh '86.

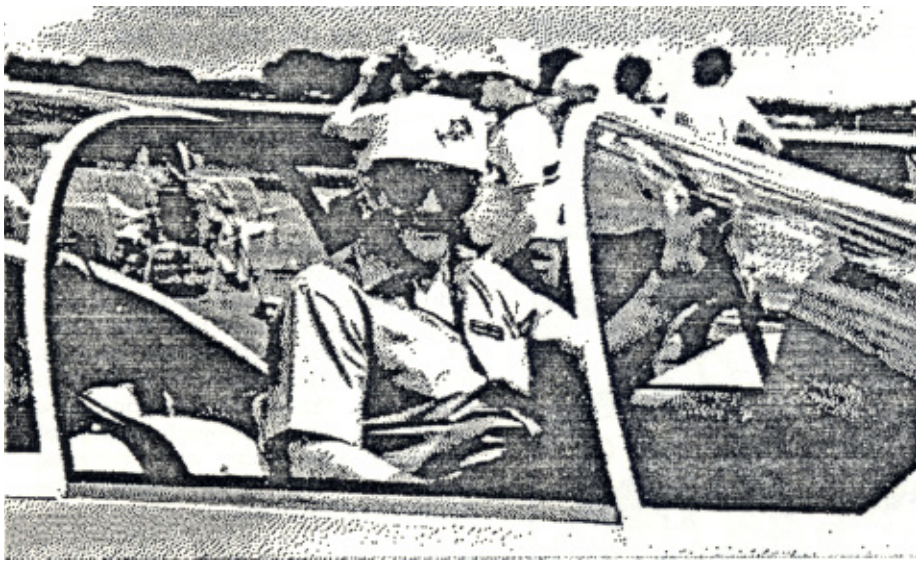
Ray won't say how fast his Falco is, but he will tell you about making it to Hillsboro with a ground speed of 233 mph with a reported 6-8 knot headwind. Some headwind! Some Falco!

It's well to remember what an accomplishment this is. This is Ray's first airplane. He did much of the work himself, and while he enjoyed the project, Ray probably put in three to four times the number of hours that Karl Hansen or Richard Brown have in their kit-built Falcos. This is partly because he made so much himself, and partly because he was one of those early Falco builders who learned the lessons that have been passed on to later Falco builders.

Does his Falco have any flaws? Absolutely. I don't know what they are, but any Falco that nice has a finicky owner, and I have no doubt Ray has a list of things he is going to work on.

Jim DeAngelo and Bob Bready flew to Oshkosh in Jim's Falco, slogging through IFR both coming and going. There was a time once when I was the only one in the country flying a Falco, but it's nice now to see so many people with a fair amount of time in the Falco. It's one thing to go for a short demo ride and get gee-whizzed with the controls. It's quite another thing to see how the airplane grows on a pilot. While there are differences in the appearance, all of the Falcos handle exactly the same in the air, and I've never heard of anyone that did not love the handling of the airplane.

In addition to the acrobatics that Jim spends much of his time doing, both he and Bob now have a fair amount



Top: Karl Hansen briefs Fernando Almeida on the engine installation. Above: Fernando Almeida in heaven.

of stick time in the clouds. Jim agrees that an autopilot is the thing you want for that—which is *perhaps* the reason he brought Bob along!

Finishing the Falco was a big push for Jim, and after getting the Falco flying he had a number of things he wanted to do to the Falco. Jim said he found himself on an emotional "downer" in his attitude toward working on the plane. He enjoyed flying it but couldn't get up to work on the airplane. Now with a year under his belt, Jim is beginning to work on the airplane again. Gear doors are planned, and Jim returned from Oshkosh with a Loran for his Falco. And as for Bob Bready, he's sticking with his standard canopy, and the autopilot servo is already installed.

And what about Karl Hansen's Falco? I'm pleased to say that the plane is just as nice as we all thought. Oh, there are little nicks and scratches, but overall the airplane is a hit. It was the airplane that the editors gravitated to. Peter Lert flew the Falco for an *Air Progress* story while Budd Davisson did the shooting with his camera. Later, Peter and Budd held a forum in which they fielded questions about various homebuilts. Someone asked about the Falco's handling. "It's perfect" said Peter, "next question?"

Karl took the Brazilian writer, Fernando Almeida, for a ride in the Falco. Fernando has been a fan of Stelio Frati since his days in engineering school. Flying Karl's Falco, he said, was "an aerial orgasm." On a scale of one to ten, he gives the Falco's handling a 9.9. There is nothing that he can find to criticize, "but you always have to leave room for something that might be a little bit better." Fernando has flown an enormous number of airplanes and says that the Falco is the best he has ever flown.

One of the very special things about Karl's Falco is the finish of the wing. It is exceptionally smooth. While there are other Falcos that have wings that are equally as smooth, none have as little filler. "The finish is *under* the skin" says Karl, and then he describes the extra time he spent float-sanding the wing for the plywood. As a precaution against using too-dry plywood, Karl wiped both sides of the plywood with a damp cloth an hour before skinning. He covered the plywood with a layer of lightweight fiberglass and then, to fill the weave, a single spray application of Featherfill, almost all of which Karl sanded off. There isn't more than 6 ounces of filler on the plane. Then it was primer, sand and final coat. Karl bought two gallons of Ditzler Durethane and has most of one gallon left. You can build up weight with paint in a hurry, and Karl *didn't*.

The Oshkosh trip was the Hansen's first long cross-country flight and both Karl and Shirley found it very comfortable. One of the things that Shirley likes is that the instruments are well-lighted at night. At the power settings Karl uses, his Falco can get very good range and endurance. With his 43 gallon fuel capacity, 6-7 hour endurance is possible, giving him an ultimate range of 1300 sm or more, but the Hansen's averaged more comfort-able 3-hour legs.

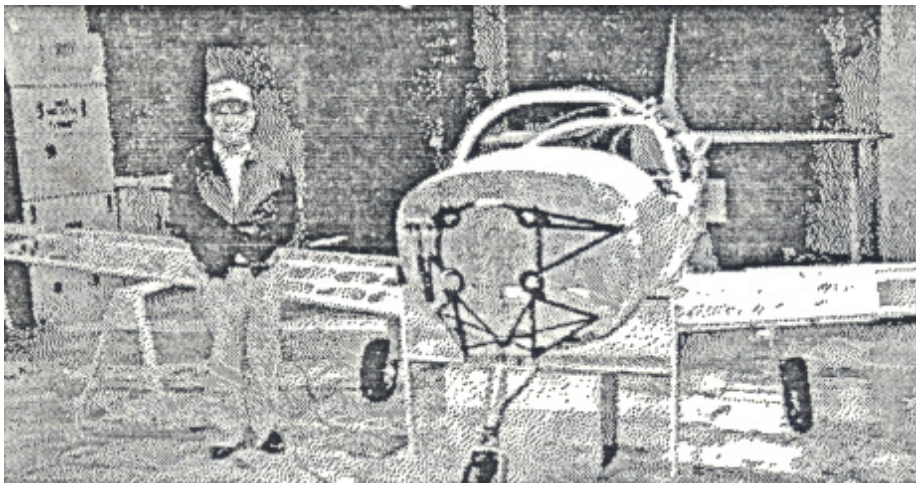
Karl has been the one Falco builder who has continued to tweak his Falco for additional speed. All of the little things have produced results to the point that I'd wager his airplane has a sea level top speed of 235 mph or more. While everyone wants to know "what'll it do?" Karl prefers to cruise at very low power settings. If you look at the power settings in "Karl's Numbers" on page 5, you'll notice that all but the first two are in the 45-60% range.

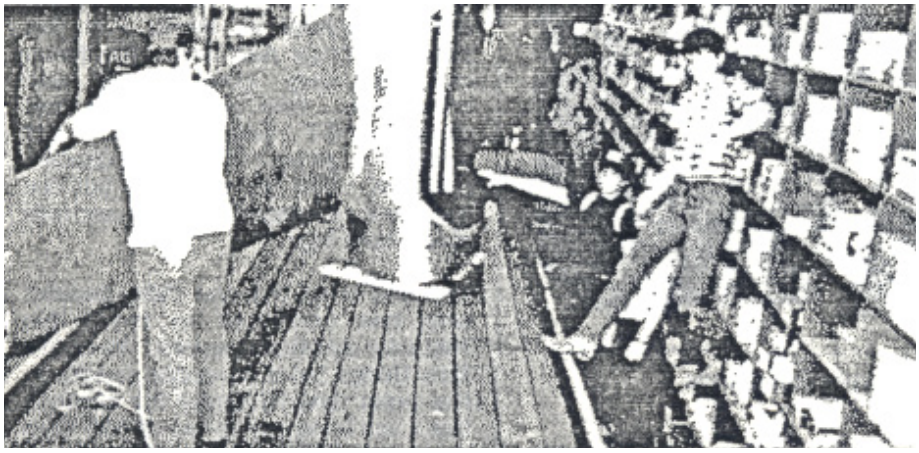
Karl is getting ready to start some of the performance flight testing procedures, and out of this we should have a much better idea of the proper power settings to use for maximum efficiency. I have not yet finished the flight test guide which spells out the test procedures, but it's a fascinating branch of aeronautical engineering with which very few people are familiar.

Now that Oshkosh is over, Karl is working on a few small things. He has replaced the inside cockpit walls from frame 5 to frame 6, making it wider at the

bottom as now shown in the construction manual. This cures a problem he was having with the seats hitting the side wall. Karl is also installing a curtain for the nose gear screwjack. He has found that the nose gear throws up quite a bit of dust and dirt on the screwjack, and I suggested that he make a nylon curtain and hold it in place with Velcro.

Karl is planning to install some aileron gap seals to see what that will do for his speed. He already has flap gap seals installed. He still has some work to do on the main wheel well doors to stiffen them so that they don't pull open. Steve and Karl Hansen are thinking about getting High Performance Engines to polish the ports on their cylinders. There's not much left after that except to tweak the engine cooling.





Top: Richard Brown and his Falco project last fall.
Center: Richard Brown built his Falco in a loft above his East End Building Supply Co. In this view, the Falco is being taken out of the store.
Bottom: I-ROVI is a Series II Falco that has just been imported to Ireland.

The three Falcos made quite an impression on people at Oshkosh. One of the more telling comments was by Kadir Hattat who looked over the Falcos and then wandered down the flight line to see the SF.260s. He returned to describe the SF.260 as "a cheap imitation of a Falco!" —which he meant only as a compliment of the quality of the three Falcos, not as a criticism of the SF.260. In fact, Kadir plans to get an SF.260 to tide him over while his Falco is being built for him in Turkey.

After Oshkosh, Steve Bachnak told me that he got each of the Falco builders off by themselves and asked them about the plane. What impressed him was that each of them said exactly the same thing, "You'll never regret that you chose the Falco."

The annual Falco/SF.260 dinner was a pleasure as always, although we didn't have the large crowd of last year. Frank Strickler had been with Mr. Frati prior to Oshkosh, and he brought greetings from Mr. Frati, who asked that Frank tell everyone how much he had enjoyed being at Oshkosh last year and meeting everyone associated with the SF.260 and the Falco.

We had the usual short speeches by SF.260 owners and Falco builders. One comment sticks in my memory. Talking about his SF.260, Homer Woodard said "it is the nicest thing I've ever done for myself."

After Oshkosh, I stopped in Traverse City, Michigan, to see Jerry Walker and his Falco project. I had called ahead to make sure that the invitation was still open. It was, so I told Jerry I'd announce my arrival by strafing his house. Jerry and Kathy Walker live on a large lake, and their house is easy to spot since there's a Cessna 185 on floats moored in front of their house.

I bombed, strafed and rolled the Falco until it was clear that Jerry wasn't going to get in the seaplane to meet me at the airport until the airshow stopped, so I started circling. Jerry fired up the 185, we formed up in the air, and then landed at the municipal airport. Jerry had never

flown in a Falco, so I took him for a spin. He later wrote, "I really enjoyed flying N304SF—it flies like something that has been in my fantasies. I hope my Falco flies as well."

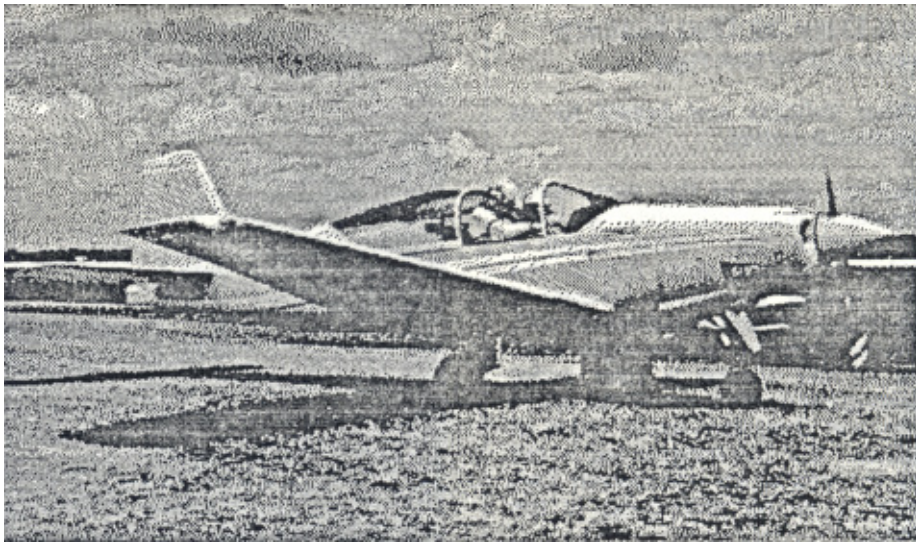
We flew back in the seaplane and landed at dusk. It is an eerie feeling climbing up, up, and *up still more* into the airplane and then looking down at the aluminum overcast you are in. And it's amazing that the airplane is so stable. You'd think touching down on water would throw the plane forward, but it's smooth all the way in.

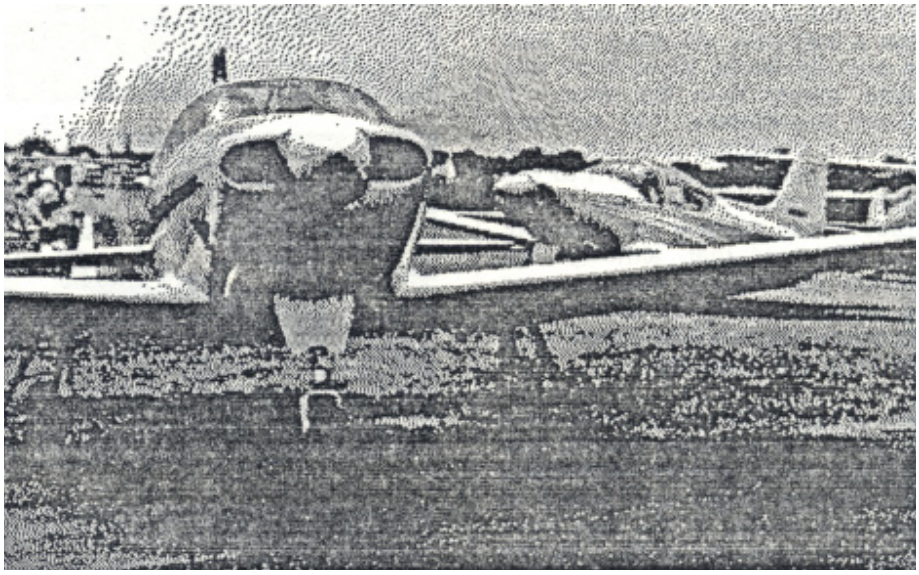
Jerry Walker is a petroleum geologist working in oil exploration and drilling in Michigan. I never knew there was oil in Michigan, but there's a large basin there. Building an airplane was something Jerry had always wanted to do, and he built a large shop behind his house just for the airplane, which he later picked to be the Falco. There were many things that sold him on the Falco, but the wood construction was the real clincher. He is doing a beautiful job of building. Jerry works on the airplane every day, and he says he gets depressed if he doesn't.

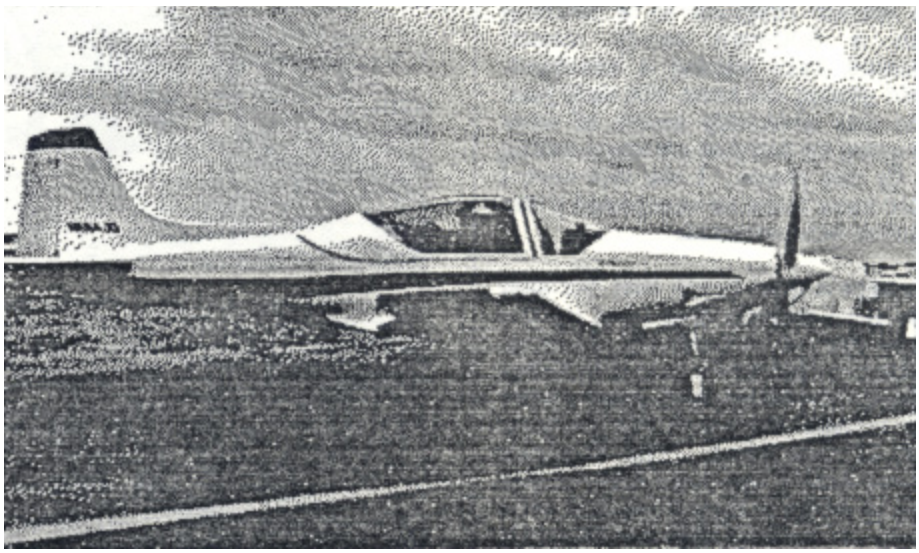
The *real* center of attention at the Walker household is Mindy, a 98-pound Malamute. That night a line of thunderstorms moved through and since my bedroom door was the only one open, Mindy picked me. She made a landing with all the grace of a Navy carrier pilot short on fuel and with each clap of thunder changed her position to get closer to me. Whoever coined the term "two dog night" never met Mindy!

Weather forecasts were the same as I'd heard on much of the trip. Apparently the lawyers have gotten to the weather service now, since you can barely make out what the weather actually is with the torrent of warnings they heap on you. I was halfway back to Richmond when I finally woke up to what was going on. New Hampshire was okay but CHANCE OF ARMAGEDDON, VFR NOT RECOMMENDED! I decided to listen only to the weather and for the second time on the Oshkosh trip I could only conclude that the warnings meant that there were a few clouds in the sky.

Next day Kakee and I flew in the Falco to Owls Head Airport at Rockland, Maine, where we visited with Charlie Yates and family while Meredith and Sara motored their way to join us. Long-time Falco builders will remember Charlie Yates, who had owned a Falco in Europe which he had rebuilt. Charlie subsequently imported a basket-case Falco which he was in the process of rebuilding, but he sold it—Gar Williams now has it—when his company was bought by a larger firm. Charlie took us all on a two-day jaunt on his boat up to Bar Harbor.







Above: Three view of Jim DeAngelo's and Karl Hansen's Falcos at Oshkosh '86

Then it was back to Richmond and back to work. Mindy, old girl, I'll never forget you!—*Alfred Scott*

Bad Day at the Races

Continued from First Page

Under the rules of the race, each competitor must complete at least one practice lap. After flying a number of photographic flights—the Falco always generates interest—I took off to fulfill this requirement with my wife Christine in the right seat. Most of the course is over water following the north coast of the Isle of Wight and then the south coast of England. But the longest leg is out over the sea to an abandoned fort, similar to an oil drilling rig, in the Solent.

We had just started this leg and were about a half-mile off shore at 500 feet and 150 knots, when there was a solid *thump* from the front. I realised immediately that we had suffered a birdstrike and put out a "pan" call intending to return to the airstrip to inspect for damage. I had already turned towards the shoreline when I realised that, although the propeller was turning, engine power was conspicuous by its absence! I then transmitted my first—and I hope only—"mayday" radio call.

None of my efforts to re-start were successful, so a forced landing was inevitable, but... *where?* Although I had sufficient height and speed to reach the shore, I did not have enough to clear the cliffs. All the beaches in view were rocky, and I was almost resigned to a ditching when a 500-yard sandy stretch appeared from behind a headland, within gliding distance, but only just. Chris was obviously aware of what was going on but just sat there letting me fly the plane. I am not sure I would have been as composed if the situation were reversed.

We made a final check that our seat belts were secure, and I set up the Falco for a wheels-up landing, working on the basis that it is better to land wheels-up and slide rather than wheels-down and flip on your back in wet sand. To Murphy's famous law, I can now add "If you have to make a forced landing on a beach, somebody will be taking a stroll along it with their back to you." I glided past a young couple and then jinked over to the sandy area—by this time at a height of 5 feet. As there was only 250 yards of beach left terminated by some very hard and unfriendly looking rocks, I decided to start the undercarriage cycling in the hope that the extra drag on the sand would help in the deceleration. It must have worked:

we stopped with two feet to spare.

I was amazed to discover that I could still raise the tower at Bembridge on the radio, so I told them we were down without injuries, cancelled the "mayday" and asked them to inform the appropriate authorities. And there I sat for an hour keeping curious holiday-makers and incontinent dogs at bay. Never have I been so photographed, which I didn't particularly mind except when asked to smile.

I had no idea where we were until one of the spectators recognized me from the hotel bar the previous evening and told us we were on the private beach of our own hotel. As the only access to this beach was by a narrow, steep path, recovering the plane could be a problem. I then realised that I had landed below the high water mark and when the tide came back in I would have a very expensive dinghy instead of a Falco. Chris departed up the path to use the hotel's telephone while I stayed to guard the plane. Half an hour later, everybody arrived at once: the police ("excuse me, sir, you can't park here") the hotel staff and—thank God—Andrew Brinkley and his crew.

Andrew is the boss of Brinkley Light Aircraft Services and is the man responsible for the immaculate condition of my plane, having carried out a complete rebuild and respray during the winter. He also maintains it and every other British Falco, as if they were his own. His skill, patience and ingenuity are impossible to praise too highly.

Andrew proceeded to demonstrate his skill by telling Chris and me to go get drunk while he and his crew removed the engine, split the fuselage and, with the help of volunteers, carried the now-dismantled Falco up the narrow path to the hotel lawn—all in the space of 3 hours, on a Saturday and while on holiday. He subsequently arranged the recovery back to home base and has completed the rebuild in record time.

The engine failure was caused by a Belgian racing pigeon penetrating the carburetor grille and hot box, and lodging in the carburetor throat. The carcass was still there when we stripped the engine, and feathers were found in the number-one cylinder. Damage sustained was a shock-loaded engine, ruined propeller blades, and buckled undercarriage screwjacks, gear doors and cowlings; but airframe damage was minimal, mainly scratched paintwork.

Many people have helped in rebuilding the Falco, particularly Neville Langrick, a Falco builder who loaned us his plans, Alfred Scott of Sequoia for his advice and encouragement, and Andrew Brinkley, not only for his work but also, unbelieveably, loaning me his plane, a Falconair, to continue racing.

Finally I would like to thank my wife, Christine, who did not bat an eyelid during, or after, what must have been from her point of view, a very frightening experience but who still navigates for me during air races. To her must go the final word. After we had come to rest on the beach, I asked "Are you okay?". "Yes, fine" she replied, then after a few seconds, "You can get your twin rating now if you want."
—Derek Simpson

Construction Notes

Jerry Walker has an interesting technique for marking his plywood skins. He uses dressmaker's tracing paper, which is a type of carbon paper, but it comes in larger sheets which are folded. Jerry first tapes a number of legal pad sheets together with scotch tape—although a roll of drafting paper would be better—and he marks the outline of the ribs and spars on this paper. Jerry then places the tracing/carbon paper on the plywood, covers this with his assemblage of legal pad sheets and goes over each line with a pencil, and the lines are transfered to the plywood by the tracing/carbon paper. After the plywood is cut out to shape, Jerry turns the legal-paper-assemblage over and uses the tracing/carbon paper to mark the other side of the plywood. Slick trick.

Serendipity strikes again. Jerry also showed me how he drilled the holes for P/N 717—that's the nose gear screwjack support that goes in the aft end of the nose gear bay. Drilling the four 3/16"Ø holes through the right side of the nose gear bay can be a problem if you don't approach the task in the proper way. The trick is to clamp P/N 717-2 bracket—*without* P/N 717-3 retainer riveted in place—on the outside of the nose gear bay wall and upside-down. As luck would have it, the bottom of the part—now at the top—can be aligned with the cockpit floor to properly position the holes. You need a long 3/16" drill. I didn't take note of how long Jerry's drill was, but it appears that 14" or longer would be ideal. A 12" drill might work, but it looks like it would be awfully tight.

You should drill these holes before you install any of the flooring supports, or you will box yourself in. Drill the holes early, and remember: do not install the P/N 717-3 retainer until the holes are drilled!

There are three ways to form the compound bends of the plywood for the sides of the fuselage. The simplest method is to wet the plywood and clamp it to the frames. This is the method used on the original production Falcos and by most Falco builders. Everyone agrees it's easy, but some builders haven't had good results since the plywood doesn't always take a smooth bend.

The alternative has been to bend the plywood in a jig. Larry Black was the first to do this. We published a drawing of his bending jig some time ago, and I'll put it in the construction manual. Everyone says this method works well.

Above: Jerry Walker and his Falco project.

The third method is to install the skin dry. I don't really understand this, but Jerry Walker did it and said it was easy and worked very nicely. I mentioned this to Tony Bingelis, and he said that he had done the same thing. Jerry said he just worked the plywood into shape by using his pneumatic staple gun to staple the skin to the frames. When he got through the skin was in place and all buckles were gone. Strange. I don't know what else to tell you except that I've seen Jerry's Falco, and the side skins are beautiful.

If you are getting ready to make the pushrods for the wheel well doors, drop me a note, and I'll send you a new drawing for P/N 861. The new pushrod is not adjustable and eliminates the need for the AN165-16S.

I am also working on a number of new drawings for such things as the nose gear doors. I hope to have some new drawings out by December as well as some additional chapters for the construction manual.—*Alfred Scott*

Sawdust

• Stelio Frati's F.1300 Squalus made its debut at the Farnborough air show and is expected to make its first flight in October. The August 25 issue of *Aviation Week & Space Technology* confirms that Rockwell International signed a memorandum of under-standing in April to be a partner in the proposed sale of the aircraft to the USAF. The Fairchild T-46A trainer has been cancelled as the replacement for the T-37. The main goal of the design is to provide jet performance at low cost. The Squalus will have a normal operating speed of 300 kts and a maximum speed of 315 kts. Stall speed is 67 kts. The price of the aircraft is about $1.6 million each and direct operating costs of about $170 per hour. The USAF version would have an improved tactical navigation system, better ventilation, a service ceiling of 40,000 feet instead of 25,000 ft and an ejector seat. The USAF version would sell for about $2 million.

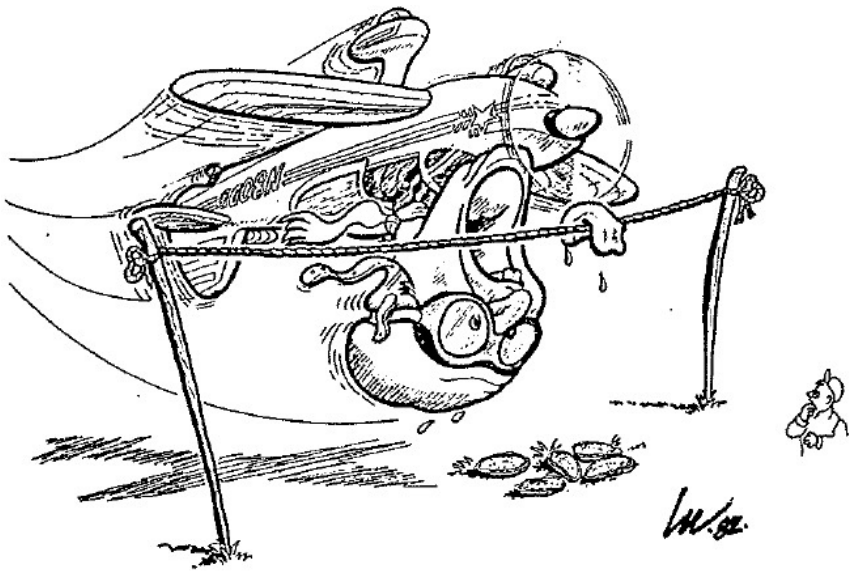
• George Neuman expects to fly his Falco in September. The aircraft is at the airport and is in final assembly now. All painting, upholstery, engine installation work, etc. has been done.

• Richard Brown also expects to fly in September. The painting went more slowly than planned, but Mr. Brown reports that the extra effort was worth it. Richard Brown has completed his Falco in record time—we neglected to mention in the last builder letter that he lost three months due to an injured finger.

• Syd Jensen is presently recovering from a triple-bypass operation in May and is doing nicely. Syd's Falco has been ready to fly for a year now, but he decided to get all radios installed first. Some real estate development work diverted his attention, and then health problems flared up. Present plans are for Luciano Nustrini to do the initial flights—time-table uncertain.

• Frati's Finest Fly-Off, the balls-to-the-wall race between a Falco and an SF.260, did not take place as scheduled. Frank Strickler was all in favor, but the SF.260 scheduled to fly did not make it to Oshkosh, and all others declined the invitation. It would have been close. In comp-aring best indicated airspeeds ever, Karl had a 9 knot advantage, but his airspeed was off at Oshkosh because of a faulty ignition lead and dirt collection on the wing.

• COME ONE! COME ALL! to the Great Oyster Fly-In and Gathering of Stelio Frati Aircraft at the Rosegill Farm Airstrip on November 1. The Oyster Festival parade begins at 12:00 noon, so plan to arrive by 11:00 or so. This year's airshow will include even more daring and unique oyster-related acrobatic maneuvers: Bill Mahaffey will EAT 16 RAW OYSTERS while doing a ROLLING THREE-SIXTY in his Staggerwing Beech, José V. Martin will DO THE UNSPEAKABLE to a poor wing-walking oyster in his German Bücker Jungmann biplane, and Parke Smith's ever-popular INVERTED OYSTER BITE in his French CAP-10 aircraft. For refreshments, Sara Scott, Katherine Scott and Brook Wilkinson will serve their famous Oyster Lemonade. Accommoda-tions: freshly-cut grass awaits your tents and sleeping bags. In case of rain, tentless campers should be prepared to supplicate and grovel before Meredith Scott. For the evening entertainment, we will have the Oysterettes, the famous troupe of belly-dancing oysters.



Above: Parke Smith and his AMAZING INVERTED OYSTER BITE. See it all at the World's Only Oyster Fly-In and Gathering of Stelio Frati Aircraft on November 1. Doubters and non-believers haven't been!

• His Falco isn't finished yet, so Paul Miles brought his F-14 to Oshkosh instead. As part of the Navy's three-plane team, Paul and his friends put on quite a show. Paul flew in the "missing man" formation with the WWII Grumman fighters and reports that it was a thrill of a lifetime. Trivia: with a takeoff weight of 56,000 lbs, the F-14 is the equivalent of thirty Falcos.

• "Canard canard" from the August 1986 issue of *Aerospace America* cites the case of several studies which sought to prove the superiority of the canard. In one such study, the "computer-based analysis program kept telling them to increase the size of the canard and reduce the wing area. When they were through, the optimum design featured a canard that was roughly five times the size of the wing." The article concludes that the "supposed advantages of this nose-mounted airfoil have proven largely illusory for light aircraft."

• Tony and Morine Bingelis sold an entire truckload Tony's latest book at Oshkosh. *Sportplane Construction Techniques* is the latest addition to the collection of superb books Tony has written on the techniques and practices of building an airplane. *Sportplane Construction Techniques* is $20.95. Tony's two previous books are still available. Add $2.00 postage per order. Airmail U.S. $5.00, Overseas $20.00. Texas residents add 6-1/8% sales tax. Available from Tony Bingelis, 8509 Greenflint Lane, Austin, Texas 78759.

Brenda's Corner

It was good seeing so many of you at Oshkosh. Those of you who couldn't make the builders dinner missed a lively time.

It was a thrill for me to see the Falcos at Oshkosh. I must admit that I am as bad as all the other people who come by the flight line—I have to touch! Without a doubt, the Falco is the most beautiful of all the airplanes there. It's hard for me to believe that people have to think twice when they make the decision about what airplane to build. It seems to me all they would have to do is to take one look at the Falco.

I am still catching up from Oshkosh. Our warehouse clerk quit the end of June, and I decided not to replace him right away. I have been working in the warehouse filling orders as well as doing the things I normally do, so if any of you have requested something from me and haven't received it, please feel free to rattle my cage. Also, if you receive a order that has something missing, you know who you can blame it on! Just remember, unlike most women, I don't take criticism especially well.

Some of you may have seen the 1987 "Homebuilt Aircraft" calender at Oshkosh. Karl Hansen's Falco is featured as "Miss November". It is the same Nigel Moll photograph that was in the February issue of *Flying* magazine. The calendars are $9.00, and the 10"x14" photographs are beautifully printed and perfect for framing. We have a limited supply, so if you would like one just drop me a note.

We are doing some periodic mailings to people who have purchased the information packet. If any of you are going to have your Falco at a local airshow, give us some advance notice, and we will do a mailing in your area and let people know there is going to be a Falco at the airshow.

One of the questions I get asked the most is "what's the advantage of wood construction over composite?" I usually give them the stock answers: durability, repairability, time proven, etc. Now, thanks to Karl Hansen, I just tell them you can't paint a plastic airplane red!

—Brenda Avery

Tool Talk

"My tool talk involves discovery of an excellent float-sanding device, vastly better than the auto-bodywork sanding tool I'd previously touted. DG Products (Box 292443, Dayton, Ohio 45429, 513-294-1192) makes a line of Perma-Grit lifetime sanding tools that I use (tungsten carbide grit bonded to metal flats and various-shaped round and curved stock), and they recently introduced a new super-thin set designed to be affixed to sanding blocks. The steel stock to which the carbide is bonded is only .008" thick, so it's thinner than sandpaper.

I bought four flats—two of 120 grit, two of 60 grit—and glued each pair side-by-side to its own sanding board about 30" long and 4" wide, after sanding just the slightest depression in the area of the board to which I glued the steel tools to compensate for their very slight thickness. (Each of the Perma-Grit pieces is 2" wide and 11" long.) I then put a pair of drawer-pull knobs on the back side, one near each end—you can use any kind of convenient hardware-store handle, pull or knob—and it makes a convenient-to-hold piece that chews into spruce like nobody's business. It removes wood *far* faster than any sandpaper of equivalent grit, and it has none of the problems of paper—no lifting of the corners with consequent ruining of the entire piece if you catch the lip of the paper, no tearing of the edges, etc.

If you try to glue the tools on the wood with epoxy, by the way, be sure to first remove the paint on the back of the tool.

The items are FXT-103 (120 grit) and FXT-104 (60 grit). I'd order two of each and mount them side by side. DG Products' special mail order price "Good For You and Your Friends," according to the most recent flyer I got, is any two of these tools for $7.90 (normal retail price $6.95 each) plus $1 postage per order. Any friend of Frati's is a friend of mine, so go for it.

"Incidentally, if anybody has a good moisture meter that they're through with and wants to sell it, give me a call: (914) 534-7601."

—Steve Wilkinson

A growing number of Falco builders are now using moisture meters to ensure that the plywood is the proper moisture content before skinning. I'm not up on which exact make-and-models are being used, but the one I'd suggest is the Gann Electronics meter with the digital LCD display. Gann Electronics, 12265 West Bayaud Avenue, Lakewood, Colorado 80225.

Bill Wink and several other Falco builders pointed out the inexpensive KWB plastic dial calipers being sold at Oshkosh. These Swiss-made measuring instruments are surprisingly nice and just the thing you need for checking the thickness of plywood and pieces of spruce. I bought one and now have a second one thanks to the generosity of Bill Wink. Jerry Walker has used one for a year now and likes it. These calipers look just like a normal caliper, but they are molded plastic with 65% fiberglass—probably made from re-cycled Bisquick bombers!

There are three models: P/N 5921 is the metric one you want with 0.1mm dial graduations, P/N 5932 is the inch equivalent with .001" dial graduations, and P/N 5941 is a forgetable mixture. At $16.50, plus 1.50 postage and handling, they are a bargain. USA distributors are Swiss Precision Instruments, Inc., at three addresses: 450 Barrell Avenue, Carlstadt, N.J. 07072; 2206 Lively Blvd., Elk Grove Village, IL 60007; and 2425 S. Eastern Avenue, Los Angeles, CA 90040, or General Hardware Mfg Co., 80 White Street, New York, N.Y. 10013. Include the appropriate sales tax if within the state. Bill Wink also supplied me with the name of: Accurate Tool Supply, 1675 Shoreline Road, Hartland, MI 48029. Telephone: (800) 544-1574 ext. 764. European builders may write Kunstoffwerk AG., 9470 Buchs, Switzerland.

I was in an auto paint store the other day and noticed that 3M now makes their Tri-m-ite open coat sandpaper in three (or was it four?) inch wide rolls. If you are using sandpaper for making sanding sticks, this seems ideal.

—Alfred Scott

Mailbox

I have spent most of the last several months TDY to Montana, North Dakota, California and Texas. In addition to flying the Falco, in the last 14 months I have become a father, moved four times, sold one house and built another, and upgraded to Aircraft Commander in the KC-135 and two models of the EC-135 aircraft. I am currently flying an EC-135 as a member of the 4th Airborne Command and Control Squadron at Ellsworth AFB, South Dakota.

Update on N132FL. Needless to say, I was proud to have the third Falco to fly. Due to time and money constraints, I haven't been flying since the ferry flight from Phoenix to Rapid City. My Falco is still trimmed out in its khaki-colored sealer coat that is about as smooth as 60-grit sandpaper. None of the fairings or gear doors are installed. I enjoyed being able to look over my right knee and under the instrument panel and watch the ground go by. The interior is unfinished and due to a very slow fuel leak at the fuel selector, some floor wood will need to be replaced. So as you might say, she ain't pretty but she flies good!

She is by far the lightest aircraft on the controls of any I have flown, which includes the T-37, T-38, AT-38, F-111, KC-135 and EC-135, Pitts, and of course your standard Beech and Cherokee clans. This phenomena led to some interesting first-time applications of crosswind controls. I soon learned to replace my muscled aggressiveness with light finesse.

As you once said, N132FL got airborne with the help of baling wire and bubble gum. This winter I plan to give her a complete workover to correct the aforementioned problems. So maybe by Oshkosh '87. Of course, I won't be able to start all this until I get back from a two-month TDY to Alabama. Such is Air Force life.

Jimmy Shaw
Rapid City, South Dakota

Although our recent trip was good in terms of the Falco, I've had nothing but trouble since! First, the gear would not retract or extend electrically. The indicator circuit breaker kept popping. I traced all wiring and finally pulled the panel and still couldn't find the problem. I had an "expert" electronics helper and we finally, by accident, found the problem: a shorted hot wire to the gear-down micro switch. I had pricked the wire long ago when I was testing the circuit at a solder joint and evidently it was just enough to finally make contact and short the system. Now works fine, but I would sure hate to pay myself $20/hr.

Our first look at the third homebuilt Falco to fly, Jimmy Shaw's Falco

I noticed a little fuel stain on the engine mount and traced the leak to the fuel pump. A new seal in the pump fixed that problem but kept me down for a few weeks waiting for the part. Next, I noticed an excessive mag drop and pulled, cleaned and re-gapped the plugs. The only way I could get a good mag check was to really lean the mixture control. After consulting with the A&P who overhauled the engine and the company who overhauled the fuel servo or injector, I determined that the servo was running rich due to a leaky diaphragm. Another couple of weeks of repair, and I was back in business. Can't believe I had so many fuel problems.

Got to the Arlington Fly-In after all the problems, and the Falco did create quite a stir. The grass was really beaten down around the bird from people walking around. Lot of questions and quite a few west coast builders were happy to see the bird. I haven't installed the gear doors yet. Still get 150 kts indicated at 6500' and 24/24. Was glad to hear Karl did so well at CAFE. Next year! I've tried spin recoveries using the Beggs method and agree they are slightly faster with aileron but not dramatically. 195 hours on the bird.

John Harns
St. Maries, Idaho

I am really impressed by the Falco program. Your transformation of the 1950's vintage F.8L into today's Falco is a real tribute to your hard work and high standards. I know that when I begin my Falco I will benefit greatly from the experience of those builders' efforts who leaped while I have only looked. Keep up the great work!

Jim Jessup
Woodinville, Washington

I have not yet started to build as I have spent most of my spare time building a workshop. The new plans for the tail section are excellent. I hope to start building very soon.

Roy Barker
Fareham, England

If anybody cares about my progress, it can be summarized as: Empennage complete. Ailerons and flaps complete. Wing, wheel wells and fuselage centersection completely framed and ready for skinning. Instrument panel wired and ready to be repainted. The reason for the last is my use of a highly touted but inadequate hardware-store primer. Unfortun-ately, its fragility became apparent only after the finish coat and all legends and lettering had been applied: the primer (plus the finish coats, of course) chipped far too easily for real-world use. Repainting won't be much fun, what with all circuit breakers and warning lights already in place.

The wing would have been nicely skinned by now except for two things: a temporary financial bind that made it impossible to buy the skinning plywood

far enough in advance to let it pick up New York moisture and season properly (I work in a barn that's kerosene-stove heated for survival only, so Aerolite/resorcinol season will be over soon), and a broken arm that took me off the project nearly completely for a month and a half in the middle of the summer.

Steve Wilkinson
Cornwall-on-Hudson, New York

The fuselage is out of the jig awaiting RLD (FAA) inspection. All wing ribs are completed. All hinges are completed, and the instrument panel and central panel are finished. I am starting to build the spars, fuel tanks, components on the firewall, etc. and to finalize it this winter. Not very fast progress but I enjoy it very much. RLD is still a difficult partner to work with but after the years they have seen the project growing the more they believe in it.

B. W. van Steÿn
Lelystad, Netherland

I am very interested in building one of your homebuilt airplanes. The only problem is that in every one of your advertisements, I see only bottom wings. Please advise if you do have kits for top wing airplanes. If that is the case, I will forward my $10.00 for complete information on same. Many thanks your cooperation and we await your advices.

Joseph Der Bleyker
Little Ferry, New Jersey

Wing in vertical position for fitting diagonally into two-car garage. Progress spasmodic. Left hand wing ribs glued in position. Looking at flaps/ailerons. Your own contri-bution in terms of information is verging on the prodiguous. Does your family recognise you when you meet? Do you meet?

Charles C. Wagner
Glasgow, Scotland

The Falco project has been laid aside for a while. I'm chapter president of EAA Chapter 45 for the last year and the next two. It takes quite a bit of my time. I just completed rebuilding a damaged 1981 Skyhawk II and must build a new wing for my BD-4. We have taken on a chapter project to build a new design of an airplane, and I'm also deeply involved in that project. God, how I'd like to drop everything else and get on with the Falco. When I complete it, I'm getting rid of all the others.

Ernest S. Lanyi
Elizabeth,
Pennsylvania

My garage is 80% done and tail still in the works.

Nick Tramontano
Brookfield, Connecticut

No progress yet. Still searching for funds, I'm afraid! After perusing all the latest entries in the homebuilt arena, it's obvious that the Falco is still the only show in town. Incidently, I thought the comments in the last builder's letter on the Nustrini canopy were right on. I can't stand the canopy either. It makes the Falco look as though it were built only for speed and not also for fun. Congratulations on the construction manual. We continue to be impressed by the quality of work coming out of the lil' ol' aircraft company in Virginia!

Bill Nedell
Palo Alto, California

Just transferred to Hartford from Kansas City. Most of the shop equipment is still boxed up or in storage. I hope to get organized this fall. I have been looking over the new drawings and now the construction manual. What an excellent effort!! Falco builders sure have an advantage over the competition. The Builders Letters are great. Keep 'em coming.

Brian Skupa
Weatogue, Connecticut

Progress report: Stabilizer assem-bled with lower side skinned. The elevator is assembled and skinned on the bottom. The rudder is assembled and the leading edge is skinned. I should be closing the main wing spar by the end of June.

Mark Perle
Naperville, Illinois

The new "repair scheme" is working very well. I can almost say I have moved back in time some 15-20 years, and I am told improvements can be noticed for the next 2-3 years. I am now negotiating with our D.C.A. for the renewal of my license. Up until now they have only accepted single-vein grafts; as I have had a triple graft they are being a little difficult. The Falco is still "crouching" in the hangar. We'll get the flight testing done as soon as I get time—have had plenty of offers of help.

Syd Jensen
Kerikeri, New Zealand

I have been busy attending Watsonville, Porterville, Sunset, North Bend and Ashland air shows and fly-ins. Finally satisfactorily installed the nose wheel doors using the spring design you sent from Nustrini. Works well.

Like Tony, I am not saying too much about my speeds, but... I had to be at Hillsboro FAA office before 2:00 PM for the sign-off of the Falco, and the weather was so bad I did not get airborne at Grants Pass until 12:48 PM. I landed and was parked in front of the Hillsboro FAA building at 1:42 PM—54 minutes over a distance of 210 statute miles, for 233 mph with reported 6-8 knot winds on my nose. I am very satisfied with the bird.

When I went to San Jose to pick up my son for the Watsonville Fly-In, I did a few rolls over Clear Lake. Hope Bob Esau was watching! The manual looks very complete, and I think I could build No. 541 much faster if I decide to.

Ray Purkiser
Rogue River, Oregon

I have gone through the plans and the construction manual and must whole-heartedly say you have done a fabulous job. I work with blueprints for a living, and the clarity, sequence and detailed simplicity of your drawings puts some of our drafters to shame. Keep up the fine work. The construction manual is a major advantage. Please continue to keep this current in the Falco program. Also, it is a pleasure dealing with Francis Dahlman of Trimcraft Aero.

Ernest A. Mack
West Hollywood, California

No recent progress, but don't give up on me. I have now got Hydro-Gro, Inc. started up and look forward to completing purchase of kits and restarting construction. Congrat-ulations on the construction manual. I believe it to be excellent!

Gary Wilburn
Clarksville, Virginia

I already have a few ideas that should score better at the CAFE 400. I feel I can get at least another 5 mph on cooling drag. Very likely we'll do the High Performance valve porting routine. If that gives another 8 mph or so we'll be in Fat City.

If we do the cylinder work and the other things I have in mind, I think we can get about another 15 mph over what it will do now. I tell you one thing, it's some cross-country airplane. There's not many cruising faster and on 7 gph. I found myself very comfortable under the Nustrini canopy. Shirley also found it very comfortable. It's nice having half of the fuel left after a 3-hour 600-mile leg.

Karl Hansen
Roseville, California