Falco Builders Letter

Jim and Gail Martin's Falco is the 17th Sequoia Falco to fly.

First Flight: Jim and Gail Martin

Jim and Gail Martin's Falco flew for the first time on August 13th in Butler, Pennsylvania, making it the 17th Sequoia Falco to fly. Doing the honors was Robert Bassinger, a local instructor with lots of time in the CAP-10. The first flight lasted for about 45 minutes, all done with the gear down. With everything working well, Robert then took Jim up for a short ride.

I'm delighted to see builders like Jim Martin, Pawel Kwiecinski, Neville Langrick, and Richard Brown getting someone with more experience to do the first flight. It is an act of intelligence for a decision too often based on emotion. Jim Martin had done most of his flying in a Skyhawk and was not prepared for the Falco. It didn't hurt Jim's feelings that Robert Bassinger fell in love with the airplane. Jim says he is "like a kid with a toy. I can't get him out of it."

After the initial test flights were finished and confirmed that everything was working well, Robert checked Jim out in it.

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Around the Falco Patch

Luciano Nustrini came to Oshkosh as planned, but not via Europe as he had intended. There was a change in plans, and he booked a flight to Los Angeles and hoped to catch a flight to Oshkosh. Karl Hansen was going to come to Oshkosh in his Falco and Shirley was coming along since she didn't want Karl (three tours in Vietnam!) to go alone. Karl had been talking about offering Luciano a ride and so we arranged this at the last minute. Nustrini changed his flight to San Francisco, Karl picked him up and on Saturday morning they departed for Oshkosh.

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In This Issue:

A Visit with Frati

If anybody ever suggests you go visit Frati "in Milan," as Alfred Scott did when he heard I was going to be in Italy writing about the Piaggio Avanti turboprop, here's my suggestion: get Alfred to pay the cabfare. If you can't do that, buy a car. A small Fiat will do, and it'll probably be cheaper than a cab.

I leapt off the train from Genoa at Milan's central station and plunged straight into a waiting taxi. "Via Trieste Vente-Quattro," I said in my best non-Italian, and about $15 later, that's exactly where he took me—24 Via Trieste. Quiet urban residential street... relatively upscale... odd place for an airplane factory....

Actually, there *was* no number 24. We found a phone booth, and my cabbie was nice enough to tackle the Italian telephone system on my behalf. He called Frati's number, and I knew I was in trouble when I saw him perform the classic application of heel of hand smartly to forehead, as though trying to jar loose a subdural hematoma: the Via Trieste that I wanted, it turned out—a street that apparently is the Italian equivalent of "Oak Lane" or "River Avenue," with at least one in each town—was in *Pioltello*, not Milan. I had done the equivalent of asking for an Arlington address in "Dallas," or somewhere in Berkeley by requesting "San Francisco."

By the time we got there, the driver was steaming, the taximeter was smoking, and the total looked roughly like a loran lat/long readout. (Don't ask about the trip back: I had to pay for the cab *both* ways on that one.)

Was it worth it? Absolutely. Stelio Frati was in fine form, his staff seemed delighted to devote most of a day to a guided tour for me, and his delightful redhead of an assistant Carla Bielli was nice to me even though I got an F in her quiz. Bielli adores the United States, has traveled extensively here, and knows more about the country than most of us.

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Jim and Gail Martin

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"I'm glad he did," says Jim, who admits that he did not fly it well at first. He was accustomed to the slower approach speeds of the Skyhawk, and he initially let his speeds get too low. Then he would flare too high, as if he was landing in the Skyhawk. And once he managed to stall it before flaring. The left wing dropped sharply. Fortunately, they were only two feet off the ground.

Jim now has learned to fly the plane and feels comfortable landing the Falco, but it did take a period of adjustment. "I love the airplane," he says.

Jim reports that the Falco indicates about 150 knots at 2,500 to 3,500 feet at 75% power. The Falco has a 160 hp engine with a standard canopy. It weighed in at 1,231 lbs empty.

Everything on the Falco has worked well from the beginning. The only glitch has been a minor oil leak. Initially, they thought it was at the crankshaft oil seal, then in the propeller itself. The latest theory is that a loose fitting for the propeller oil pressure line might be the culprit. Jim has had the prop off three times, and this oil leak has been the only mechanical problem.

Jim said he thought we should install a stall warning system. He said his Falco stalls with absolutely no warning and with the left wing first. It turned out that he did not have the stall strips installed, and after reading to him what Mr. Frati said of anyone who did not have the stall strips installed, he said with a touch of chagrin that he was going to put the strips on right away.

Mr. Frati feels that the stall strips should be adjusted to tune the characteristics before they are permanently installed. I have advised many of you to go ahead and just put the things on the plane. I had always looked at the stall strips as turbulence generators to create the buffet on the tail and in that sense I could see little to be gained by playing with the position of the strips. I had been told that they should be tuned to the individual airplane, but concluded that this was probably one of those things where theory and practice seldom meet.

I doubt, for example, that the production Falcos were done this way, and those homebuilt Falcos which have had the stall strips just plastered on the front of the wing have all had admirable stall characteristics. And there is always the desire to paint everything before the first flight—everyone wants the stall strips to be painted as part of the wing.

So given the choice of installing a stall strip, painting the wing and go-fly-it, versus painting the wing and *maybe* putting a stall strip on later, I still say stick'em on the wing ahead of time. Mr. Frati is technically correct, but I'd rather see stall strips that have not been tuned than no stall strips at all—which is the more likely outcome. If you are going to fly the plane in primer, then just tape them in place and fiddle with them until you get things the way they should be.

In Jim Martin's case, the left wing stalls first. The first thing he should do is to put stall strips on the wing with duct tape and see how it flies. If the left wing still drops, then you want to induce the right wing to stall a little earlier, so you would raise the stall strip on the right wing. Then test it again.

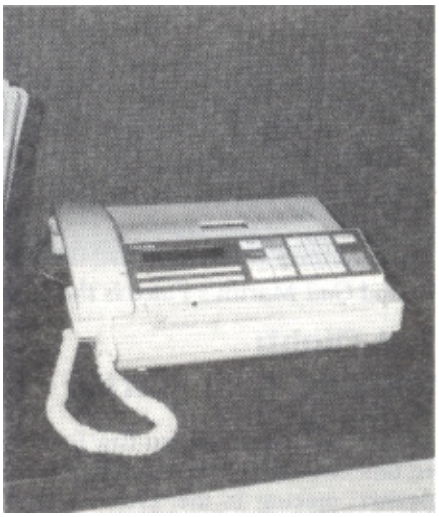
Jim Martin bought the Falco plans in October 1980 and began construction shortly thereafter. He built the plane from kits, working on the plane for a while and then pulling off it for a spell. Jim's wife, Gail, kept her distance from the airplane, but as it took shape, she suddenly took an interest in it. Since then she has worked side-by-side with Jim on the plane. The "dynamic duo" is what she calls the team.

They took some time off to build a house—again both of them did it. Finally it was time to finish up the plane and like so many before them, the final stages took longer than expected. Jim had once offered the guess that they would be flying in October of last year, and here they are nearly a year later with the bird in the air.

About time, too, because Jim is retiring from the power company on September 30, and they are moving to Turlock, California, immediately after that.

The Falco is painted off white with metallic brown and metallic burnt orange stripes. It's painted in Imron and the dynamic duo did that, too. N146SF has a very nice interior that Gail did. The seats are upholstered in off-white shearling sheepskin, with salt-and-pepper carpet, and plush velour for the sides. The luggage compartment is upholstered like a seat, so everyone thinks the Falco is a 4-place airplane. There are no radios in the plane. That's something Jim is waiting for later. In the meantime he would rather cruise along without having to talk to anyone.

Jim had previously rebuilt a wrecked Grumman American, and most of his flying has been in humbler fowl than the Falco, and he is a bit nervous about flying such a valuable airplane. So he is willing to listen to offers for the Falco, though he's not going to give it away. As I write this, they have 12 hours on the plane. Jim says that "Everybody who flies the airplane falls in love with it." In the meantime, Jim and Gail are going to settle down in California, get things in order and spend a little time *very carefully* puttering around in their Falco.—*Alfred Scott*



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A Visit with Frati

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She showed me an aerial photo in *Aviation Week*, which had just arrived, and asked me to identify it. It was a turn point for some oil-burner route, I think—Sedona or Sonora or Soccoro or something. She'd been there. I hadn't, which she thought suspicious for somebody who claimed to be an American.

Stelio Frati's small but surprisingly active R&D company, General Avia, is an Italian version of Burt Rutan's Scaled Composites. At least it's what Scaled Composites might be if Rutan were in his mid-60s and a classicist committed to traditional design and materials. Frati's best-known design is, of course, the Siai-Marchetti SF.260, still the fastest normally aspirated piston single in production anywhere. Over 900 have been made, Frati says with modest pride. ("But the Falco is his favorite child, you know," said Bielli.) Few of Frati's designs have seen substantial serial production, but between the SF.260 and the Falco—both the original factory-built models and the Sequoias—the "Fratis" currently flying number well into four digits, which compares well with Rutan's own output.

General Avia builds only prototypes, on contract to a variety of outside manufacturers, and when it's finished with one airplane, it moves on, itchy-fingered and full of ideas, to the next. "Anybody who works at General Avia is a bit of a fantasist," says Frati's longtime associate, a handsome, bearded young aeronautical engineer and pilot, workshop director Renato Cairo. "We could never go into production here, because we'd keep changing things, modifying a design. We could only produce if we made parts—ailerons, say, or tail sections. Never an entire airplane."

General Avia is housed in an anonymous industrial-park building several miles from Linate Airport, a small complex of office rooms in front and two large shop areas out back. The office cat prowls the halls lethargically—"He has been out last night looking for girlfriends," Bielli tells me—and the office lavatory seems largely devoted to catfood bowls. Were it an American company, General Avia would be cranking out lawnmower parts, aluminum screen doors or mobile-home pieces—anything to keep the machinery operating and the shop busy. The pace in Pioltello is slow, craftsmanlike, ruminative, however.

Parked on the shop floor are prototypes past, present and future—some coated with layers of dust and grime, others with aluminum still shiny, yet to be skinned. There is a tip-tanked light twin up on jacks with empty nacelles—one of the early-1970s six-seat F.20 Pegasos—for nobody here leaves wheels, tires, engines, instruments and avionics sitting around in grounded airplanes when they could be employed elsewhere or exchanged for more useful parts. An equally gutted turbine twin with a swing-back bubble canopy is parked nearby—the Condor, a recent quasi-military Allison 250-powered prototype that was put aside when more pressing work came through the door. In the next room is a structure that makes it look as though perhaps General Avia has changed its mind and indeed is going into the mobile-home business: the cabin section of a large, as-yet-unfunded commuterliner. Next to it is the abuilding fuselage of the number-two prototype of General Avia's current project, the Jet Squalus.

The most recent Frati to enter production is the Canguro—the Kangaroo, an appropriate name for a small utility/commuterliner that hops from place to place. The Italians have never been one to sieze the moment, and the Canguro has been a source of some disappointment to General Avia, for the design is already 10 years old yet is only now being put into production by Siai-Marchetti. And at that, it's preceded by decades by the Britten-Norman Islander, for which it was intended to be a turboprop replacement. (One of the first Canguros to go into line service, with an Italian commuter, is registered I-SLAB, an appropriate description of its Islander lookalike shape—not the prettiest Frati design to ever take wing.) One would think that whatever market exists for the Canguro has already been well-tilled by the Turbine Islander, the GAF Nomad and the various turboprop Partenavias.

The Squalus (Shark) is a stone-simple jet trainer commissioned by a brand-new Belgian manufacturer, Promavia, as an economical version of the USAF's since-abandoned T-46 new-generation trainer. Frati thinks that an important role for the Squalus could become that of an *ab initio* schoolship for airlines suddenly faced by pilot shortages as the lure of that career fades amid the financial hardball of deregulation. Put a baby pilot through a couple of hundred economical hours in a Squalus, Frati says, then pop him or her into a straight-wing Citation for a quick multi-engine syllabus and you've got a new 737 copilot, God help us.

True to Frati's tradition of designing airplanes with superb handling qualities, the Squalus's forte seems to be aerobatics; he plies me with snapshots of the prototype looping and rolling and shows me flight-test reports from a variety of military and air-transport pilots, all of whom rhapsodize about its handling. "When the Squalus comes to America soon, you must fly it," he says, not knowing how quickly aerobatics stimulate my gag reflex. Cairo tells me the standard Squalus maximum-performance demo concludes with a landing approach that turns into a go-around, followed by an immediate loop, a touch-and-go at the bottom of the loop, then a roll and a full-stop landing. All in one pass, within the length of an ordinary runway.

The Squalus's engine is a tubby little Garrett fanjet, the F-109, developed at a cost of $109 million (Do they number them in dollars?) by Garrett and the USAF, for use in the T-46. The F-109 is less than a meter long and weighs barely 400 pounds yet will eventually be uprated to 1,850 pounds of horsepressure. Says Cairo, "The Air Force was not happy that some people use an engine they paid so much money to develop," but after a seven-hour briefing he gave a bird colonel at the Garrett plant in Phoenix, Arizona, General Avia got an engine and full support.

The number-two Squalus prototype is

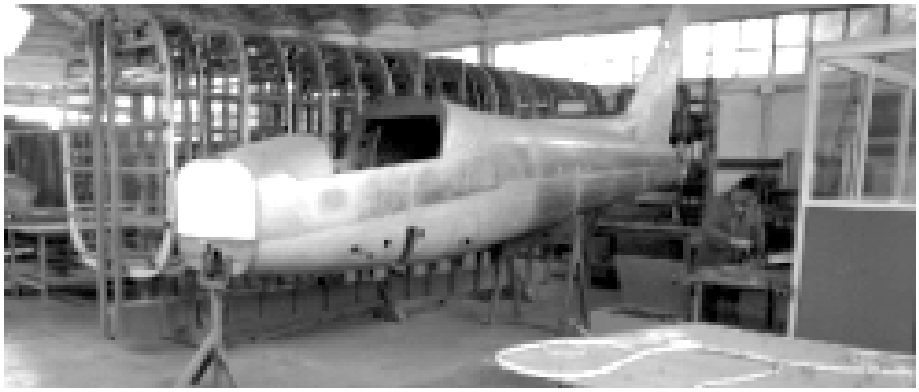
scheduled to get an 1,800-pound-thrust Williams FJ44 fanjet. The Squalus is a splendidly simple little airplane, which suggests that our own Air Force could do worse than ask Frati to crank out a few designs for its own gold-plated inventory. (When I tell Frati that during my earlier visit to Piaggio, I'd learned that the Italian manufacturer had paid $3 million for wind-tunnel-model tests of its Avanti business turboprop design, his eyes widen behind his heavily tinted glasses. He says, "With $3 million, I could pay for the entire Squalus program—development, two prototypes and all.")

Crawl up through the big ventral engine-access hatch and you'll see the fuselage contains no ram-air turbines, APUs, ECUs, FLIRs, tailhooks, miniguns, bang seats or aerial-refueling packs. There's little but the engine, fed by a Y-shaped Kevlar internal duct that leads from a pair of detachable fuselage-side airscoops (also Kevlar) and a single fuel tank behind the cockpit. The tank is hell on crashworthiness, but perhaps the Italians follow the dictates of Ettore Bugatti: they make their vehicles to go, not (suddenly) stop. Frati likes the tank because it's uncomplicated and not oddly affected by unusual attitudes or aerobatics. Besides, he says, you don't need more than 90 minutes' fuel for training flights.

What's penciled in next on Frati's calendar? "The big one," he says: a high-wing, twin-engine, 19-passenger turbo*fan* commuterliner that currently exists only as the boxy section in Frati's shop.

Says Cairo, "There is a difficulty on the commuter: money. The project will be an expensive one, and getting financial support will be difficult. But a new concept we see is a short-haul aircraft of such a sort. The next step for European aviation is connecting towns such as Genoa and Milan (75 miles), Turin and Florence (200 miles). There are dozens of flights a day between Milan and Rome but almost nothing to any other domestic destination. We need small aircraft to connect such towns exactly as a bus does."

I believe it. To reach Milan from Genoa after my Piaggio visit, I'd intended to do exactly what any good American traveling between two major cities does: wander out to the airport and snag the next commuter. Fortunately, an Italian friend laughed and said there was only one flight a day at best, and it went to "Milan's" Malpensa Airport, which is so far from the city it might as well be Zurich's.



The Squalus fuselage is completely skinned, then the holes for the jet engine intake and exhaust are cut out. The school bus behind it is the commuterliner.

There's a lot of publicity in Italy about icing dangers, as the result of a recent domestic ATR42 crash, so Frati is quick to point out that while turboprops fly at the critical-icing altitudes, turbofans climb quickly through it. He also understands that passengers need comfort and quietude if they're to buy tickets. It took aviation a long time to figure this out, and as a result, much of the American public's negative attitude toward "those miserable little prop jobs" is the legacy of the dreadful Fairchild-Swearingen Metroliner, an assumedly efficient and fast little torturebox that nonetheless has come to typify uncomfortable commuterliners.

Frati pored through the packet of in-progress photos that I'd brought of my Falco. He seems stunned and fascinated by the concept of somebody setting out to homebuild this little airplane of his, but it secretly pleases him, too. Frati quickly noted that I was installing stall strips, for he feels that to not do so is idiotic. He wonders if the Aronson and Brown accidents might have turned out any differently if those airplanes had carried stall strips. He insists that the stall strips cost zero knots, and he pointed out that I actually ought to locate the strips after flight testing rather than simply sticking them on the nose of the chord. (Scott disagrees, saying the location isn't that critical.) Finally, Frati formally presented me with a pair of Official Signature-Model Stelio Frati Stall Strips—aluminum and intended for an SF-260 but identical in size and shape to the Falco's.

I asked both Frati and Cairo about Scott's having experienced substandard roll rates in several kit-built Falcos, and Frati said that without knowing exactly in what quadrant of the roll the rate is slow, what speeds are being flown and the like, he suspects the problem is caused by too narrow a gap between wing and aileron. Apparently, an adequate gap is required in order to keep the airflow attached to the aileron. He also says that whatever the evidence provided by the malformed wing of Scott's Corporate Disgrace, a straightedge placed atop the wing should just touch the top of the aileron; there is absolutely no need to have a properly built aileron protrude above the wing profile.

Frati also warns that correct control-cable tension is critical in order to achieve the proper roll rate; if the aileron-cable tension is too low, the rate will suffer.

Cairo's advice was to try the old yarn-and-tape-ridge trick, which he'd used with excellent results on a four-aileron, symmetrical-wing Pitts that had a dismayingly slow roll rate. Build a small ridge—2mm high is plenty, he says—by stretching a length of yarn spanwise under a strip of tape, trying it first on the ailerons themselves just aft of the wing and if that doesn't work on the wing itself just ahead of the aileron. Being an engineer and a proper conservative, Cairo recommends doing it one side at a time and doing first the outboard *half* of an aileron, then *one* full aileron, flight-testing in between. He doesn't recommend tape-ridging the full span of both ailerons and then going up and slapping the stick into a corner.

So I've made my pilgrimage to the Lourdes of Lightplanes, and I'll die happy. Something tells me I got there just in time, too: Frati showed me his new CAD computer, and just before my visit was over he pointed out the Collins EFIS boxes that had recently arrived for installation in the number-two Squalus prototype. Imagine: a Frati with electronic flight instruments.

Good Lord: next he'll be making airplanes out of plastic!—*Steve Wilkinson*

Around the Falco Patch

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You all know Luciano Nustrini as the pilot who cleaned up his white Falco and created an epidemic of sore necks among Falco pilots, but he is a remarkably well-rounded man. He was a member of the Italian national ski team and was scheduled for the Olympic try-outs when he injured his ankle. He flew in the post-war Italian air force, training in Fiat G-59's and then moving up to P-51's. He is an architect specializing in airport design and designed a molded plywood chair which received the 1957 *Compasso d'Oro* award for the best piece of Italian design. This annual award is given for several categories of design, and only two years before Mr. Frati had won the award for the Falco.

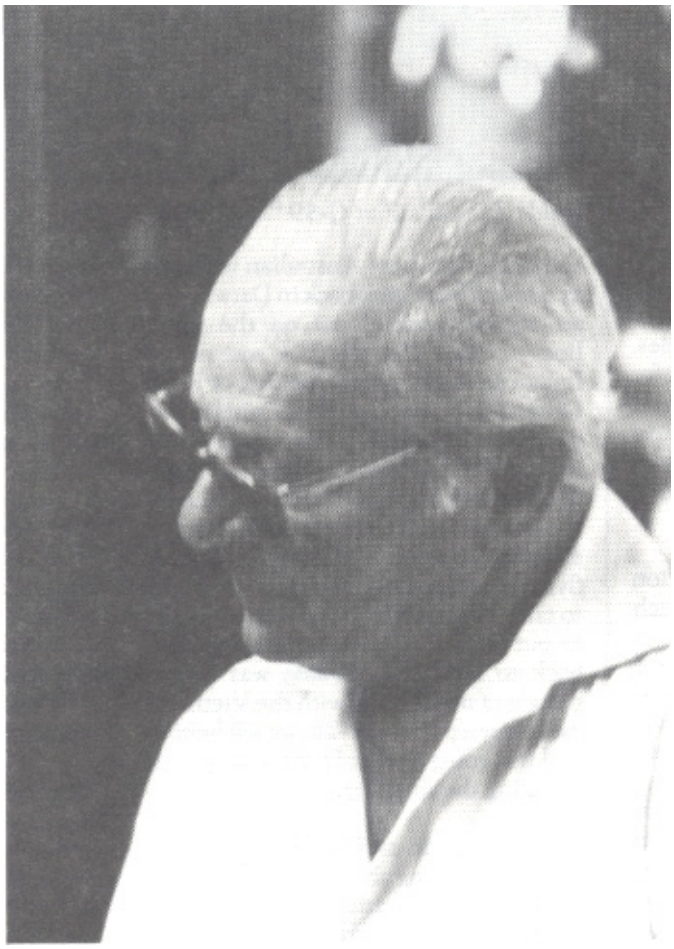
An expert pilot, Nustrini has flown better than 130 different aircraft designs and has served as a test pilot. He flew a number of Mr. Frati's aircraft for the first flight and was the first westerner to fly one of the Russian jet airliners as part of the certification for service into the west.

Nustrini is also an avid camera buff. When I was in Florence in 1982, Nustrini showed me his collection—one of almost every camera made. There were several hundred of them and when I took pictures of his Falco, Nustrini took pictures of me taking pictures! He sold about 130 cameras to buy a telescope for his observatory in New Zealand.

Perhaps it's not surprising to find that Luciano Nustrini is a quiet, soft-spoken man. He's a thinker who will sit quietly by himself and then introduce a thoughtful question only when everyone else has quieted down.

A lanky fellow without an ounce of fat on him, Nustrini has the flexible frame of a contortionist. When he sits in a chair, he collapses in such a dishevel that the various parts of him drape over the furniture as if he had no skeleton. An arm conforms to the contour of the back of the sofa. His head is over by his right shoulder, and his legs sprawl and bend at impossible angles. It is as if he were a snake covered with a rag-doll disquise, and he smiles wryly as if pleased to pull off the illusion.

So what does he think of Karl Hansen's Falco? "I think..." he says haltingly, "the new Falco... is better." He confesses not to know whether his Falco or Karl Hansen's is faster, but they are very close to each other in speeds. He was curious why I chose to name the paint schemes after the industrial city of Modena and not the more beautiful Firenze—"Florence" in English. I explained that I did not want to use *numbers* for the paint schemes, and I decided names of Italian cities would do nicely. I then picked the names strictly by the sound of the name as spoken in English—names plucked from an atlas that evoked images from the sound of the word—nothing else.



Joseph Kovács at Oshkosh

Wandering among the Lancairs, Glasairs and other homebuilts on the flight line, he said, "These aircraft are experimental, but the Falco is not." He is a friend and ardent admirer of Stelio Frati, and he does not think that much progress beyond the Falco is possible. Nustrini was overwhelmed by Oshkosh and thought he would be back and could persuade Stelio Frati to come again. (He did—as we go to press, Mr. Frati writes that he is planning to come to Oshkosh '89 with Carla Bielli and Giancarlo Monti.)

Pawel Kwiecinski brought his Falco to Oshkosh and was very generous at giving people rides. Richard Clements had done him a favor in sending Pawel a propeller, and knowing that Richard was a former fighter pilot with some recent time in a homebuilt, Pawel said, "If you want to fly it, just go ahead and take it up." Richard lit up on that one and a day later he did indeed solo the Falco from Wittman Field.

Fernando Almeida was back, accompanied by a few friends who badly needed a ride in the Falco. Last spring, Fernando wrote an article, since reprinted on these pages, describing the Falco as the best airplane in the world. "Fernando," his friends said, "you exaggerate." He brought with him Marcos Tabacnik, a test pilot for Embraer, and Joseph Kovács.

Mention the name Joseph Kovacs to an aviation journalist, and you'll get a blank stare. Who? But mention that Kova'cs designed the Embraer Tucano, and you can watch the eyebrows elevate, for the Tucano is a superb aircraft—arguably the best turboprop trainer ever built. Kovács is as famous in Brazil as Lopresti is here. Rightly or wrongly, Kovács's career has been closely associated with that of Stelio Frati. Fernando Almeida says that Stelio Frati was young Kovács's idol and that in engineering school, Kovács would sketch aircraft as he imagined that Stelio Frati would design them.

Joseph Kovács was born in Hungary and moved to Brazil 38 years ago. His first aircraft was a glider, of which 5 or 6 were built. Then he worked on the Neiva Regente, a high-wing single which flew first with a 180 hp engine and which was produced with a 145 hp engine. The Regente design had already been started by Neiva, and Kovács completed it. The next major project was the T-25 Universal, a 300 hp military trainer which bears a striking resemblence to the Falco. The proportions are so similar it is difficult to

believe that there is no connection.

I asked Kovács about the Falco connection. He smiled and said that "Fernando says so," but that he studied many aircraft and evaluated their characteristics before deciding on the configuration of the airplane.

Kovács's masterwork is the T-27 Tucano, which has been selected by the RAF and many other air forces as a basic pre-jet trainer. The latest design is the K-51 Nemere II, a 150 to 200 hp fixed gear taildragger tandem two-seater aerobatic machine. Almeida and friends call it the Mini-Tucano for its Tucano-like canopy and seating arrangement—the aft seat is higher and the instructor looks over the head of the student in the front, and a single bubble serves as windshield and canopy.

Kovács is a quiet, stocky man who is something of a statistician. He carried with him a thick book of studies he had done, cross-plotting characteristics of aircraft design, performance and sales. He was very anxious to fly in the Falco, for even though he had admired Stelio Frati for years, he had never actually flown in a Frati aircraft. Karl Hansen took Kovács for a ride while Pawel Kwiecinski took Marcos Tabacnik in his Falco.

They managed to do some formation flying and then they broke off and each explored the handling of the Falco. Stalls, stability in all axis, aerobatics, performance, etc. Both emerged from the Falcos shaking their heads. "Fernando was right," Kovács said, "It *is* the best airplane in the world." Kovács was rather stunned by it, having thought that there was always a trade-off and that for everything that you got, you also gave up something. The Falco, he told Karl Hansen, was completely outside the normal distribution curve. Tabacnik just kept muttering, "Fernando was right."

Nustrini told the story of the first flight of the Falco. The test pilot, Ettore Wengi, got out of the aircraft, walked over to the 36-year-old Stelio Frati, shook his hand and said "Congratulations, Mr. Frati. You will never do that again." The controls were right on the first flight. This was not easy for Joseph Kovcs to hear—it had taken him two years to get the handling of the Universal right.

Stick around the Falco booth, and you'll see the darndest people drop in. A friend stopped by and introduced Guido Zuccoli, an Italian-born Australian who had a couple of Sea Furies back in Darwin and an unusual warbird out on the flight line—a Fiat G-59, which is sort of the Italian equivalent of the Spitfire or P-51. Originally powered with a Daimler engine and with only 90 gallons of fuel (Italy is a narrow country!), Guido has a Merlin in it now and a couple of drop tanks under the wings. He stuffed it in a container and shipped it to the U.S. for five days of flying and then on Tuesday he was going to take it back to Frank Sanders at Chino to put it back in the container to ship back to Australia. Guido was in the process of negotiating with the Vietnamese to buy a passel of T-28s we left behind and was going to give Frank a couple for handling the shipping.

Guido Zuccoli's Fiat G-59 "Cino Bella"

Anyway, Guido said he knew Mr. Frati and was thinking about building a Falco. He took an infomation package back to his plane, sat under the wing and read it all. He returned the next day to ask if we could get an entire Falco kit to California on Tuesday so he could ship it back with his Fiat. *What?* This was Sunday. *Brenda, could you come here a second!* We finally figured out that Guido actually meant next Tuesday, right after Oshkosh was over. I was going to be in New Hampshire, and besides I can't find anything in our warehouse. But Brenda said she could do it and on Monday afternoon the air freight truck picked it all up. It was in California the next day and the boxes were pushed into the container with the Fiat, thus creating a nightmare for customs officials—American-made parts for an Italian-designed airplane going to an Italian living in Australia who flies a couple of British fighters and packed with his Italian warbird with a Rolls-Royce engine.

Oshkosh is such a bizarre mixture of airplanes and people. There was an ultralight in the Fly-Market called the 5151, a P-51 look-a-like with a two-stroke engine, retractable gear and the most horrible workmanship imaginable—chainsaw sculpture has come to aviation. Wander through the warbird area, and you can see the most beautifully prepared machines imaginable. T-28's. P-51's galore. A spit-shined Bearcat that would pass a white glove inspection.

The Lopresti-Piper tent was showing the Swift, now dubbed the Swiftfire, in numerous configurations. One with an Allison turboprop. Another with a 180 hp and a cowling with 42 (we have 90—too much) square inches of cooling air inlets. The Lancair 320 has 16 to 18 square inches for the same engine we use.

There were about five SX-300's there, all of which flew for the first time within a two-day period in July. Wendell Taylor and Dan Garn had helped their friend Jack Butler finish his SX (the only one of the five that has not had the gear fold). Jack is an experienced builder who loves the airplane. He said it took him over 6,000 hours to build. Another SX builder, Clyde Bourgeois (no kidding!) also an experienced builder, said he built the plane in 6,700 hours, of which about 1,500 hours were spent on the telephone with the factory sorting out

Fernando Almeida and Pawel Kwiecinski

problems with plans errors and kit deliveries. SF.260 pilot Jack Rouse, husband of the infamous Cindy "Tip Tanks" Rouse, showed up with a Glasair III which was built for him by two mechanics in 3,700 hours.

The SX-300 and Glasair III seems to appeal to that special type of male ego that has to have the fastest machine around. One hormones-for-brains pilot told me with glazed-over eyes that the Glasair III was "engineered" and had been flutter-tested by Boeing to 700 mph. It turns out the flutter testing was a computer simulation. As for engineering, the Glasair III is certainly a huge improvement over the original Glasair. It's reasonably well-proportioned and reportedly flies well, but I look for telltale signs of engineering design. On the SX-300, I see elegant design and all the hallmarks that clearly reveal a master designer at work. On the Glasair III, I do not. Instead I see piano hinges on the ailerons and rudder, and a main landing gear half-fork attached to the plate on the bottom of the oleo strut with four quarter-inch screws tapped into the fork. Threads in tension! No kidding.

The pudgy little Venture was there again. Designed by Jim Griswold, who also designed the Malibu, the short-coupled Venture is viewed with suspicion by aviation writers and the public alike. It flies well, so *they* say, but they have not yet let an aviation writer fly it, and all the writers I talked to were anxious to be spared that experience. One afternoon, after the airshow, I found myself in the hot tub with lady with the Venture who confided to me that they had attained 300 knots with the plane, in level flight. Right. I decided to have a little fun with her, and I told her there was a rumor going around that Jim Griswold had not designed the Venture. She rose up out of the suds and announced that she was *Mrs*. Griswold and had been right there when he did all of the work. Well, I told her that I had heard that the plane was designed by Cabbage Patch Kids. She took it with good humour, and I got splashed.

You learn a lot in the hot tub at the Paper Valley Hotel. I am often counseled that we should have posters and videos of the Falco. "You can sell these to your builders" is always the reason. Toward the end of the show, I found myself in the hot tub with a photographer from California who was not feeling particularly good. A few years ago, he fell in love with the Falco but couldn't afford one. He now had his heart set on the Lancair, and he had it all figured out. He had spent $5,000 producing a large color poster of the Lancair. He showed up with 3,000 posters for sale at $15.00 each, figuring with the half-million people at Oshkosh—surely—there'd be no problem with selling them all, and he would have the money for his Lancair. When I saw him on Thursday, he had $300.00 in the till and had reduced the price to $1.00 each. (Lancair had a video, and they had sold 12 at the show.) I told him we would be delighted to have him produce a Falco poster. He did not take it as cheerfully as I hoped.

We had an eclectic collection of people at the annual Falco/SF.260 dinner. Luciano Nustrini. Roy, Peggy and Curt Lopresti. Fernando Almeida, Joseph Kova'cs and Marcos Tabacnik. Karl Hansen, Pawel Kwiecinski and friends and lots of Falco builders. Aviation writer Peter Lert attended and told of his plans to fly an SF.260 from New Zealand to Louisiana via Europe. He planned to see Nustrini in Auckland, Guido Zuccoli in Darwin, and Mr. Frati in Milan. Peter predicted engine problems in Bali.

At the dinner, everyone takes turns to say who they are and what they are doing with Falcos, SF.260's or whatever. One confused soul admitted he was just a Rotarian and had thought this was Wednesday. It turned out to be Jonas Dovydenas.

Frank Strickler brought along a drawing of Mr. Frati's latest design, 160 hp trainer proposal for Siai-Marchetti. The aircraft is called the F.22 Penguina (Penguin), but Frank pinned the three-view drawing on the wall and announced in a loud voice, "When I was in Milan last week, I told Dr. Frati that Penguins do not fly!" Pointing to the title block, he added, "So as you can see the airplane now called the Tritico." Frati usually names his airplanes after birds, and I had never heard of a Tritico. What does "Tritico" mean, I asked Nustrini, who replied "three-view."

You should have been there to hear Fernando Almeida tell about his experience of flying a Mitchell Wing. The airplane(?) was a terrible machine—two of his friends were killed in Mitchell Wings—that was unstable in pitch and would exhibit aileron reversal if you gave it too much aileron. One day, Fernando was happily flying along at 4,000 feet when he flew through a swarm of tiny bees. He was wearing a helmet and the bees were packed in around his head. The bees were stinging him while he was attempting to get them out of his helmet without losing control of the airplane. It lives on in his memory as his worst flight ever.

Look for Luciano Nustrini to come back another year. It was all too much to take in, particularly after seeing the modern Falcos. At one point Falco brochure designer Jack Amos found him sitting in our booth quietly talking to himself. "I've got to go home and modify my Falco," he said. "What are you going to?" asked Jack. "I don't know. I'll have to think of something."—*Alfred Scott*

Construction Notes

We are now shipping the induction air scoop with Kit No. 817-2. I don't yet have a proper installation drawing, but we do have a preliminary drawing that shows this. This is a real time-saver and is an easy installation, but the order of assembly is important. First, you must assemble the scoop, filter and funnel. Drill for the bolts, install the nutplates in the scoop and trim off the excess fiberglass.

Then position the whole assembly in the cowling. The engine and cowling must both be installed on the airplane. You should also have the electric boost pump installed on the firewall. You will find that the induction scoop/filter/funnel assembly will only go one place. The upper flange of the scoop will fit against—and parallel to—the joggle for the cowling door. The funnel will just touch the engine mount tube on the bottom. The three-inch Aeroduct tubing should take a smooth bend into the injector.

The only problem is with the throttle cable. It crosses the top of the Aeroduct tubing and presses against it. Some builders have raised the throttle cable by a half-inch by making a two-hole Siamese washer to move the cable up. One hole of the washer is bolted where the throttle would have been, and the throttle is installed in the other hole.

Once you have the assembly located properly, drill a couple of holes through the flange of the inlet and the cowling to hold the assembly in place with screws or Clecos. Cut the opening for the inlet to match the scoop and then epoxy the scoop in place. I think it is a good idea to put at least one layer of fiberglass over the flange all the way around. The Aeroduct tubing is a short section of fairly stiff tubing, and it will be yanked around a bit by the engine on startup and shutdown, so the installation should be quite rugged.

Here's a neat little trick that Larry Black has to offer. When you scarf and splice two boards together on the bench, put a piece of masking tape about an eighth of an inch back from the edge of the scarf on both sides of both boards. Then when you clamp the boards together with a plastic block over the wood, the glue will squeeze into the area between the masking tape and then squirt out at the sides. When you remove the clamps and blocks, zip off the tape and you will find a quarter-inch ridge of glue that is easily removed with a scraper.

Larry also cautions to only use 3M masking tape. He is in the auto painting business and has tried them all. "Forget all about the other brands" he says. The tape for this purpose is just a 3/4" wide crepe paper masking tape.

John Devoe says he used a method of bending the plywood for the leading edge that worked beautifully. He got the technique from Tim Baker. You soak the forward 12" of the skin in water for 3 to 5 days, then staple it to the wing spars and ribs, right up to the leading edge strip. At each station, you make a clamping block, cut to fit against the leading edge radius. This block clamps the skin to the leading edge strip. Tim pulled the skin over, put the blocks in place, put a two-by-four over them and then clamped all this with bar clamps to the main wing spar.

John said he heated the skin with a high-powered heat gun and then let it sit for a couple of days. He was worried that the skin might pucker and buckle between the blocks at each rib, but it did not. Instead, when he removed the clamps and blocks, the skin showed no springback. John can just barely get his fingernail between the leading edge strip and the skin. And because the skin is stapled to the rib, there is no buckling or pulling up. The only problem is that you have to pull all those staples out for the final gluing of the skin, but he says the method is very easy and works beautifully.

Since I've been working with fiberglass a lot lately making molds, let me talk about the process. Just in case any of you want to do the same. The process that I will be describing is what you go through to make a production mold. This process is much more involved that of a quick one-off part.

The first thing you do is to make the shape you are looking for. Ordinarily, you work in foam and fiberglass to get the shape. Once you have a rough approximation, you use body putty, which everyone calls "bondo." Bondo is a heavy mixture of polyester resin, industrial talc, and sometimes microballoons. You mix it with a cream hardener and spread it on. In a few minutes, it starts to harden and when it reaches a cheese-like hardness, you shape it with a Stanley Surform "cheese-grater." It gets rock hard in 15 minutes, and you can sand it. It is always easier to add more bondo than it is to take it away. You don't want to use bondo on your airplane—the stuff is frightfully heavy, but it is much easier to work and shape than epoxy and microballoons.

When you get very close to the final shape, there are a number of methods that can be used to get the final smooth shape. You can continue to work with bondo, but you will go crazy. If the area is large and very smooth, I prefer to use Featherfill or one of the equivalent products. Featherfill is a sprayable polyester resin with industrial talc. You add a clear MEKP hardener and then spray or brush it on. If it's the first coat, just brush it on, but spray once you get close to the final finish.

Once the Featherfill is hard, it will sand easily. Use a sanding block, or a piece of thin plywood with sandpaper over it. You should use an open coat sandpaper on Featherfill. Start with 80 grit and work up to 180 grit. As you sand, play a bright light over the surface and locate the low spots. If they are substantial, squeegee in a little bondo and work it down flush. Then spray on some more Featherfill and sand it smooth. The last fifty-thousandths will drive you nuts.

Once you think you have it finished, then I prefer to move to a black lacquer automotive sanding primer. Automotive paint stores sell the stuff in spray cans. It's neat because you can spray on a layer and sand in five minutes. I use 180 grit paper at this stage. High spots are easy to see because the sandpaper hits them and misses the low spots.

Fill in the low spots with surfacing putty. This is also a lacquer and dries quickly if you don't get it too thick. Surfacing putty is also sold at automotive paint stores. It comes in a large tube, is normally red, and you get a little black rubber squeegee to apply it. You go through a lot of sandpaper when you sand this stuff, since it clogs the paper badly. Spray on another coat of black lacquer sanding primer and sand it out. When you are pleased with the results and consider it finished, put on one last coat for final sanding with 220 and 400 grit paper.

It is now time to coat the part with a release agent. If you are making an epoxy mold you can use Freekote 1711 (Plast #17), which is a silicone spray. This is very convenient for small parts, but silicone sprays can cause a lot of trouble with painting. It is difficult to remove from a lacquer finish, and I'd suggest you stay away from the stuff unless you have a good reason to use it. Don't try using Freekote 1711 with a polyester. It will "fish-eye" .

Instead, use the wax/PVA method. I'm careful to use the waxes that the professional shops use and have no interest in experimentation with release agents. I use Mequiar's Mold Release Wax No. 8 in the gold can (Plast #118). Put several coats of this wax on the plug, buffing each out to a shine with a soft cloth. It is best to wait about an hour between coats of this hard carnauba paste wax.

Next you put on a couple of coats of Costa Chemicals Parting Wax No. 2 (Plast #11). This is a soft green wax that is compatible with PVA. If you don't use it, the PVA will not coat the part smoothly, and I find it is best to put a fresh coat of this wax on just before putting on the PVA.

PVA stands for polyvinyl alcohol, a green soapy solution that forms a very thin film over the mold surface. It acts as the parting layer between the plug and the mold. This is the green coating that you may find on the fiberglass parts you get from us. It is water-soluble, so you can easily wash it off with water. Apply the PVA (Plast #13) with a brush or by spraying. A foam brush works best. You only want to drag a very thin film over the part, but I always do more than that. I've very happy to sand out the mold and don't want to risk permanently bonding the mold to the plug.

Now comes the messy stuff—it is time to make the mold. The first layer to go down is tooling gel coat (Plast #78), and it is applied in a single coat by spraying or brushing. Brushing is high-risk, but I do it anyway with small parts because spraying the stuff is so much trouble. Always protect your hands with PR-88 hand creme and/or wear rubber gloves.

You want to get a heavy spray coat of tooling gel coat down. Get it too thin and the next step will cause "alligatoring". Get it too heavy, and it will crack and lift from the shrinkage. If you spray, wear a mask. Keep the mask on as you clean up the gun, then take a deep breath, take off the mask and get the hell out of the shop. If you wear glasses, immediately go over them with rubbing alcohol to clean off the little droplets that inevitably fall on the lenses. Take a shower and keep a polite distance from your family—even with all of this, you won't smell too good!

Polyester resins do not completely cure in the presence of air. (Laminating or "finishing" resins contain wax, which floats to the surface and causes the resin to cure completely. You do *not* want any wax in the resins used in your mold.) The polyester resins only cure when they are covered by another layer. Polyesters also have a fair amount of shrinkage, so they are not used for the entire mold.

When the tooling gel coat is set up—usually overnight—the next step is to put on a couple of layers of lightweight fiberglass cloth and a tooling polyester resin such as Plast #74. For the cloth, just use the 9 ounce bi-directional cloth (BID) sold by Aircraft Spruce and Wicks. It has an open weave and will wet out easily.

If the tooling gel coat was applied too thin or if it was inadequately catalyzed, you will witness the horrible sight of tooling gel coat "alligatoring" and this will give you some hint into the phenomenon of unexplained suicides among moldmakers. The polyester resin contains styrene, which attacks the gel coat. If the gel coat is too thin, it will crinkle. Small areas can be repaired on the inside of the mold, but if the damage is extensive, just let the stuff set up, rip it all off and start all over.

There is a way to cheat and get around this problem. When the tooling gel coat is still a little tacky, you can go over it with a brush coat of epoxy. This will give you good adhesion with the gel coat and will promote the complete cure of the gel coat.

After the polyester/glass or brush coat of epoxy is cured (usually overnight), you put on two coats of BID and epoxy and then 5 or 6 layers of epoxy and woven roving (Plast #223), but first scuff-sand the polyester surface with 40 grit sandpaper to give the epoxy some tooth to hold on to. For the epoxy, you can use any epoxy that is a laminating resin. Safe-T-Poxy, Plast #88/87 or West System are all fine. Do not use one of the gummier wood adhesives, such as T-88.

The moment of truth comes when you split the mold from the plug. You will need lots of little wedges. Professionals buy soft polyethylene wedges (Plast #64 & 66), but I make my own out of scrap pieces of wood. Getting started is like trying to open a terrified clam. You just have to keep hunting around with a knife until you can get a little crack started, then you tap in a wedge and work in more wedges. Some parts come out easily, while others require leverage with a two-by-four. One of the nice things about using the black lacquer is that if you screw up on the release, you will pull off the black lacquer—the plug will not be totally destroyed.

Wash out the PVA with water, and you should find a perfect mold of the plug. You will need to sand out the mold to get it really smooth for the production of parts. Start with 220 grit and wet-sand the mold until it is smooth and you see a consistant dull, sanded finish. Mix up a little white lacquer with MEK or lacquer thinner so it will put just a wash coat on the mold. Add a lot of thinner to do this. Take a paper towel, dip it in the mixture and wipe it all over the inside of the mold. Now when you wet-sand with the next-finer grit, you will be able to see any places you missed. Sandpaper makes scratches in the surface and each grade must completely eliminate the scratches of the previous grit. Work your way up to 600 grit.

If you are really determined to make beautiful parts, you buff out the mold with Meguiar's Machine Cleaner (Plast #111), followed by Meguiar's Machine Glaze (Plast #118), then use the two mold waxes and PVA as before.

I use West System epoxy, buy BID cloth from Wicks, but I get the rest of the materials from Fibre-Glast Developments Corp, 1944 Neva Drive, Dayton, Ohio 45414-5598. Telephone: (800) 821-3283 or (513) 274-1159. Their products are all listed as "Plast" part numbers above. This is a neat little company that caters to the small fiberglass fabrication shop. They have a great little catalogue and ship promptly. They have a 2-ounce plain weave fiberglass cloth that is just right for covering the plywood on a Falco.

The actual production of the fiberglass part is something I have little interest in. If you're like me, by the time you have gotten this far, you have developed such a hatred of fiberglass that you can't wait to ship the tooling off to your fabricator.

Does anybody know if the glue joint is weakened if you thin Aerolite (or any other urea-formaldehyde glue) beyond the recommended proportions? Has anyone done any tests? Or does anyone understand the chemistry involved in the urea-formaldehyde reaction? For example, is a required amount of water needed for crystal formation, or is the water simply a medium in which the two compounds react? We got any experts out there?

—Alfred Scott

Goings On at Sequoia Aircraft

Every time we reprint our brochures, we have revised the Falco brochure to include photographs of the Falcos that have been built from our plans and kits. Even with these changes, I have wanted for some time to completely re-write the brochure. Reprint time finally arrived just before Oshkosh, and we got the brochures finished in the nick of time—they arrived by Federal Express on the morning of the first day of the show.

If you are prone to bouts of Falco lust, you should not see this brochure. Finally, we show the modern Sequoia Falco for what it is. There are photographs of the Hansen, Bingelis, Taylor/Garn, Langrick, DeAngelo, Kwiecinski, Shaw and Aronson Falcos. On the "Construction" page, that's Jerry Walker on the top left, Joel Shankle in the top center, Steve and Karl Hansen on the top right and John Oliver's Falco project on the bottom. On the "Engineering" page, it's John Shipler's garage and Falco on the top right. On the back cover, that's Wendell Taylor on the top right, Tony Bingelis's Falco in the center, and that's Jim, Sharon and Jeremy Shaw on the bottom right. The rest of the airplanes should all be recognizable to you.

I just sat down and wrote a new brochure. Jack Amos, a free-lance graphics designer, laid out the booklet and then we jointly picked the photographs from the rather large collection I have here. Jack did a spectacular job with the design, and I can't think of a thing to do to improve it. If this doesn't get your aeronautical hormones flowing, you're sick.

It wasn't cheap either, but that's the nature of color printing in small quantities. The whole job of 3,000 brochures came in at $6.50 each, just for the Falco brochure alone, so I'll ask you to excuse me for not sending you all a free copy. If you would like a copy, why don't we just call it $7.00 with postage?

Next on the adjenda is a new Flight Report for our information package. I plan to combine the Gilbert, Wilkinson, Harns and Almeida reports in one booklet with black and white photographs. By the way, some people think that we make money on the brochures. That's a silly notion—the $12.00 price probably comes close to covering the cost of printing and postage, but not the advertising. We are in the process of increasing the price of the brochure to $15.00 and $18.00 overseas. Even then, brochure sales only partially cover the costs associated with them. Like everyone else, we have to charge because of the disproportionately large number of lookers to buyers, and also because we have long ago discovered that anyone bothered by the thought of paying ten to fifteen dollars for a brochure is not a potential Falco builder.

What do you say to a Falco owner who asks you about a repair scheme on this Falco? We advised to build a new wing.

(I once had a big-spending Texan stop by here. He insisted I show him around the warehouse, and he made me open a brochure package and show him what was in it. After 45 minutes of questions, he said he was getting "real interested" in the plane, and he was going back to Texas to think about it. After he thought it over some more, he said that he *might just* send in for "this twelve dollar dealie"—thumping the brochures. I nearly hit him.)

I had been debating the idea of getting a fax machine for some time, because we have a lot of overseas builders who have a long turn-around with letters. When he bought an entire Falco kit, Guido Zuccoli wrote down his address, telephone number and fax number. I realized that with his fast construction, I owed it to him to get one of the machines. So now we've got one. It sits right behind Brenda's desk and is on all of the time. Our fax number is 804-359-2618, so if you need to get through in a hurry, it's a great way to communicate. Even Mr. Frati has one—I can write him and have an answer in 30 minutes. Lord, I wish these machines had been around when I started working on the Falco plans! It's probably only a matter of time before they have them for light aircraft so you can have a current weather map faxed to you while you are flying along.

I have continued to work on fiberglass molds. This is a much more tedious process than you might imagine. Richard Clements sent me his wheel well doors to copy, but I found the doors were not the same on both sides and had to be re-shaped. I then decided to rework the contours of the inner part of the door to give the door greater stiffness. I have increased the height of the stiffening parts to about 30mm around the tire. The height under the bracket for the pushrod is the same as before, and these shapes are blended together.

This should make a dramatic difference in the stiffness. I plan to construct a simple test jig—a couple of two-by-fours that will support the door along the hinge and the forward edge at the spar, hang a twenty pound weight from the unsupported "corner", and measure the deflection. Because we are dealing here with stiffness, the only way I know to measure it is to treat the door like a spring. I will glue up one of these doors and see how it does compared to Richard's or anyone else's. We will have to wait and see the test results, but I think this door will be extremely stiff in fiberglass along and a "bridge" in carbon fiber. Tim Baker has offered to check the door out, and then I'll get the doors into production.

Joel Shankle finally finished the wing fillet molds. You can't imagine the amount of work he put into these. I can tell you that he got the shape I was after with microscopic precision. Joel did a beautiful job of making the molds, they are unbelievably smooth and flawless. Joel's son Mike, also an airline pilot, saw the wing fillets, whistled softly and said "the molecules are going to like this!"

The fillets are quite large, and we will make them in three pieces. The upper wing fillet will split near station 4, where the radius is rather constant for about six inches, so you can install the front piece (which wraps around under the wing leading edge) and then cut the upper aft piece to fit. This will allow for some variation in wing size, though there shouldn't be much from one aircraft to another.

The third piece will be on the bottom of the wing, covering the open area from fuselage frame six to the curved trailing edge of the wing fillet. Joel and many other builders have covered this with plywood, but Joel found that you can't skin the bottom and hope to match the intersection with the upper surface. I also noticed that the only not-so-smooth surface was on this section, and I am having to rework that part. The joint at the trailing edge will be simply a matter of laying a bead of epoxy/flox along the trailing edge and then holding the two pieces together with tape or spring clamps while it hardens.

I have no idea what these parts will cost, but the tooling has been cheap since neither Joel or I have enough sense to charge for our time. I may invent a new kit to put a lot of naggy little pieces into. Things like the wing fillet, wing tip lenses, jack pad fittings, flap and aileron hinge fairings, access doors, and the like. I don't have all of the tooling for those little fiberglass parts done yet and if the parts are made individually, they will be very expensive. I would like to gang a bunch of them on a board and make an entire shipset in one layup, and leave it to you to cut them out.

But I have much to do! A lot of my time in the next year will be taken up with the wood kits. Ever since he started making wood parts for the Falco, Francis Dahlman has been talking about "retiring". I frankly think he is going to go crazy with inactivity, but Francis is, in fact, now retiring. There are a number of things that brought this on. Their house is rather large, and Wanda Dahlman has wanted to sell it and move to a smaller house. Francis is eligible for social security in November and must watch his reportable income. Francis also admits that the newness of making the parts has worn off, and he is rather tired of the "fussiness" of the exacting work.

I've known for at least two years that Francis was going to retire, and I have considered various options. One of them was to find someone else to do what he has been doing. This means that not only must the kit supplier have the space, time and equipment to make the parts, he must also invest in the tooling and inventory, answer the phone when it rings and develop the same reputation among the Falco builders. I have concluded that there is only one Francis Dahlman, and that we should not continue in the future in the same manner.

The only logical company to offer the wood kits is us, and that we will do. Francis has a good inventory of kits built up so that we will have time to get our own parts made. We are getting some of his jigs and making a few of our own. Although I wish Francis would go on forever making Falco wood kits, in some ways I am really looking forward to working on this.

For one thing, Francis Dahlman's method of making parts has depended to a great extent on craftsmanship, he cuts and fits things for each airplane. I'd much rather invest the time and money into machinery and tooling that will make a series of parts to exacting tolerances. There is nothing at all mysterious about this—that's the way all of the other parts for the Falco are made. So I'm going to take a perverse pleasure in working on methods and tooling for the wood parts.

I'll tell you some of the things I will be doing. The parts that you get from us are made by a large number of companies who do the work for us. We get a price, they get a purchase order, we get the parts and they get paid promptly. There is such a diversity of parts in the Falco that it would be crazy to do it any other way. You don't know who these people are. Do you care who made the steel rule dies for the rubber seals for the engine baffling? Or who makes our castings, stampings, fiberglass parts, weldments, machinings, or nitrile cork washers for the throttle quadrant. All anyone cares about is a quality part in the bag.

The wood parts are going to be the same. You won't be told who is doing the work. It will just get done and put in a box. Some of the work will be done here. Some of the work will be done by highly skilled local woodworkers who do far more exacting work every day. And some will even be done by a few of you, after all, there is no one in the world who knows more aircraft woodworkers than me! (If you are interested in making parts for us, please drop me a line.)

I am particularly interested in methods of making high quality parts, with machinery, in the minimum amount of time. Francis has tended to make the kits in sets of ten and the wing spars two at a time. I much prefer to make much larger quantities so that you can get

Jonas Dovydenas and his Falco project.

some production efficiency, put the parts on the shelf for same-day delivery to the customer. I see nothing different about a wood part. Parts is parts!

I plan to make twenty wing spars at a time and will begin work on that shortly. I will be making our own tooling for the spar, since I plan to make it in a slightly different process and order of assembly than Francis has used. Francis made a sanding table for the main wing spar, but it is a slow and dusty procedure. I am designing and shortly we will be making a key piece of equipment, a 27'-long, 24"-wide traveling head planer using 45° helix cutters normally used on a horizontal milling machine. Such a cutter will cut side grain as smoothly as with the grain.

The cutting head will be microscopically adjustable, with calibrated indicators so we can raise and lower the head to within a thousandth of an inch. There will also be a router mounted on the thing, mainly for leveling the table top by milling it and just-in-case we need it. After all, once you have a head moving up and down over 27 feet, you might as well put a router on a cross-adjustable leadscrew.

Once we get the machine set up, it will be an important piece of machinery for milling the spars flat and the booms to a taper (mounted on a tapered bed and held in place with dog-down clamps or a vacuum pump). It will be an expensive machine, but very essential. I have been calling the machine "Gonzales", so if you hear me talking Gonzales, it's not a person.

We have a very specialized kind of router to make all of those odd-shaped solid spruce ribs for the ailerons, flaps and leading edge of the rudder and elevator. These are just small little parts, but they can give you a nightmare if you are thinking of making a bunch of them. Francis has been making them by tracing a template, cutting them out and sanding them to final shape. One by one. I have made most of my router

John Oliver and his Falco project in August.

templates. They are nothing more than quarter-inch plexiglass pieces. I sand the plexiglass with 180 grit sandpaper so you can draw on it like Mylar, draw out the part on my drawing board, then saw it out and sand it down to precise shape. Mounted on a piece of plywood, with little pins holding the spruce in place, I can make the parts for 100 aircraft in an evening or two. That's exactly what I am going to do, as soon as I get the filthy fiberglass parts out of my shop. It's a very expensive router, but it will make these little parts with no difficulty.

I want to make all new tooling for the ribs, with a precise cutting jig for every little piece, so that you are cutting against stops. This kind of jig is not difficult to make, and once you have the jig you can cut a couple hundred pieces just as fast as you can push the pieces through the saw. You have a set-up for every cut. Every part is precisely the same. It is the only way I can see to do it without succumbing to the labor-intensive fussiness that got Francis and still stay within the very low prices he has been charging. Have you ever figured out how much the wing ribs are per station? It's about $28.00, and there are a lot of little pieces in there. I'm probably going to make the ribs for 100 aircraft, just out of sheer orneriness.

We are bringing the wood kits here, so from now on you will order from us. We have a good supply of everything except the main wing spar, of which we only have one. I would guess that it will be spring before we get the spars made in quantity for prompt shipment, but I'll work for earlier shipment than that.

I am also planning to re-structure the wood kits into two kits and to include more of the assorted odds and ends that most kit builders get from Trimcraft anyway. What I am thinking about is changing it to two kits. One would be the tail kit of spars, ribs, leading and trailing edge strips, tip bows and plywood. The other kit would be the wing spars, wing ribs, fuselage frames, longerons, wing leading edge strips, trailing edge strips, wheel well rings, wing tip bows and all the plywood you will need. It only seems to make sense to ship long things like the longerons with the main wing spar. It will take me a while to get it all figured out, so for now we are staying with the old kit specifications.

I have a few other things in mind. One is to pre-drill the main wing spar for the landing gear fittings. With the proper jig, we could drill those holes in a few minutes. Another is to pre-bend that nasty piece of 2mm plywood in the elevator. If I can figure out a way to do that easily with a bending jig, I'll just do it.

So we say goodbye to Francis Dahlman. His workmanship has won the praise of

EI-BCJ is now owned by Sammy Bruton, Abbeyshrule, Ireland.

everyone who had dealt with him, but he is also a very special man. He has been an important part of the Falco program and without his kits, there are a lot of beautiful Falcos which would not exist.

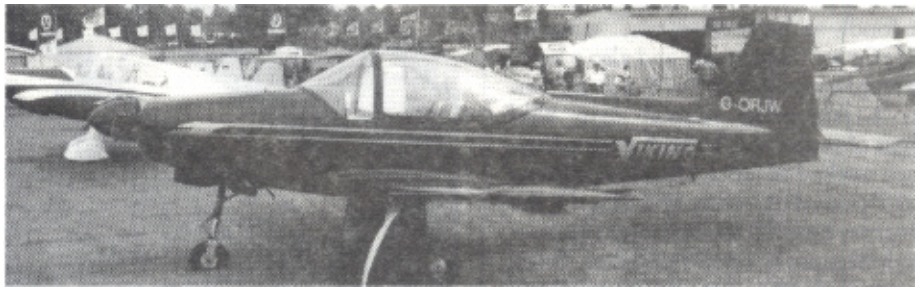
Mitchell Instruments has earned the praises of builders who have bought from them. Only the accelerometer has proved to be a problem. There were some delays in shipping these, but they are now being shipped. Instruments and Flight Research has taken more than a year with orders for the accelerometer, and then just sent the money back. I recently got one of the Mitchell accelerometers in here for our instrument panel display. Pawel Kwiecinski needed one, so I sent him ours, and he bought us a replacement.

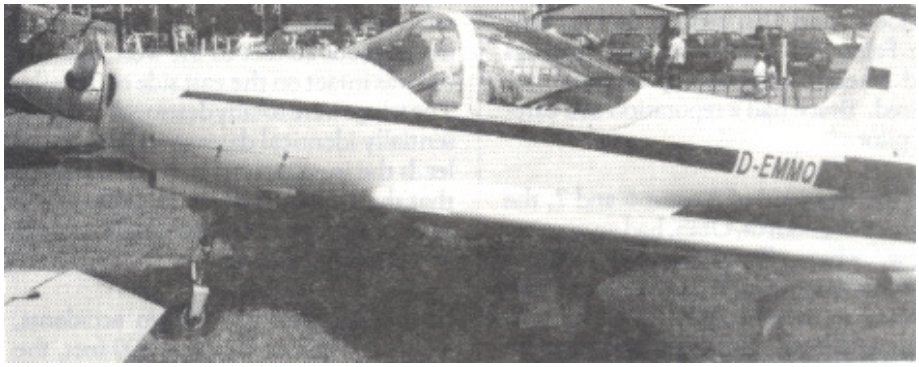
Our instrument panel has been widely praised for its appearance. One of the things that makes a panel look right is to have all of the instruments marked with the same color. Look at any production aircraft, and you will see this. There are two color schemes in wide use. Mooney and Piper use "Nasdar" colors, while Cessna and our panel use the Switzer Bros. colors. Our instruments are detailed in a document called "F.8L Falco Instrument Specifications", which includes the specifications for the instrument dial colors. Thus, if you are delivered an instrument with the wrong colors, you have every right to return the instrument for one with a correct dial.

The colors that we use are precisely the same as Cessna's color chart, so no instrument company should have any trouble understanding or delivering dials which match that very common specification. There is a distinct difference in the appearance of the colors. The Cessna/Falco colors are vivid, 'day-glow' colors that are quite bright. The Nasdar colors are substantially duller.

The accelerometer that Mitchell supplied had the Nasdar colors, and I am returning it for a replacement dial. This may only be an isolated case, but if your instruments don't match the colors on our tachometer or engine instrument cluster, you should send the instruments back. Early on, we went through this with Instruments and Flight Research, until they realized that the specifications were intended to be followed. I think matching instrument dial colors are important to the appearance of the panel.—*Alfred Scott*

Right: Falcos at Diest, Belgium.





Aftermath: N69WD

The Wendell Taylor/Dan Garn Falco crashed on August 7, killing the pilot and passenger, Bruce "Noah" Pounder and Katy Pounder.

By all accounts, Bruce Pounder had an extremely high intelligence. In the service, he could copy down fifty words per minute of Russian code. Friends describe him fondly as "quite eccentric," "a macho kind of guy," "a neat guy and also a bit of a cantankerous (*bleep*)" with a short stature, a larger-than-normal ego, wild swings of mood and Type A personality. Bruce worked as an electronics engineer with Rockwell Collins and also in the university hospital as a registered nurse—simply because he liked doing that. Bruce Pounder helped his friends, Wendell and Dan, wire their Falco. Bruce and Katy were married only five days before the accident.

Until recently, Bruce had owned a Bonanza and had about 450 hours of flying time, including about 2 hours in the right seat of the Falco. Dan Garn checked him out in the Falco on the day before the accident, and Dan reports that he flew the Falco well, executing four landings and takeoffs without any coaching required. Bruce had a reputation as a careful pilot.

On the weekend of August 6 and 7, the town of Wendover, Utah, had an air race/show, where Frank Sanders, Dennis Sanders and Chuck Lischer were performing in their SF.260's. Wendell took a friend's Pitts. Dan took the Falco on Saturday but couldn't take the Falco on Sunday. So Dan checked Bruce out in the Falco and gave him the keys to the airplane and the hangar.

Bruce worked at the hospital on Saturday night and got off work at 11:00. He got a weather briefing at 6:00 AM, took off at 7:00 and climbed to 7,400 feet. He crashed at 7:22 in the desert at 4,500 feet, 3/4 of a mile from an interstate highway and 46 miles west of Salt Lake City. The weather was VFR. The radar took a sweep every 45 seconds and a replay of the tapes showed a straight flight path and then no radar return.

When he did not show up at Wendover, Wendell and Dan were worried. On returning to Salt Lake City, they found Bruce's truck at the hangar and the Falco gone. A search was begun the next morning and, as coincidence would have it, it was Frank Sanders who found the wreckage.

The Falco hit the ground at a very steep angle; the FAA investigator estimates it to be in excess of 60 degrees. The airplane hit with the canopy facing west. The engine was buried about 24 inches in the relatively soft earth. The battery was found about 20 feet to the west, and the tail was intact on the east side of the pile. The wings were totally destroyed. The essentially identical damage to both wings leads the investigators to the conclusion that the airplane was not in a spin at the time of impact. The rest of the aircraft was totally destroyed.

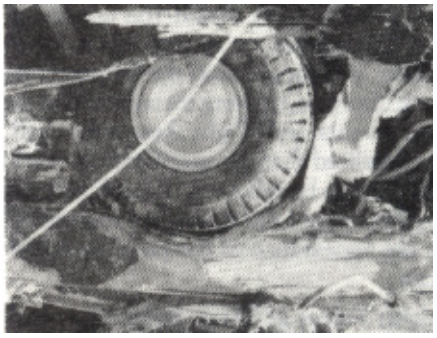
In the Aronson and Brown accidents, where the planes stalled at 300 feet, the tail section from frame 8 aft and one wing were largely intact. The fuselage was reduced to a pile (about 3 to 4 feet high) of crushed matter, but there were many parts (aft fuel tank, main landing gear, nose gear, etc.) that were usable.

This accident bears no resemblence to the others. The vertical and horizontal tail were largely intact, but little remained of the fuselage. The ailerons and flaps emerged largely unscathed, but the wings were gone. The main wing spars were completely cleaned off. The spar center section was crushed to unrecognizable splinters. The spar was broken just outboard of the left aileron bellcrank, and the wing trailing edge ribs outboard of this break were largely intact. All other trailing edge wing ribs were gone.

Dan Garn recovered only two usable parts from the pile, the main gear arm/axle assemblies. The damage to the main landing gear leg and oleo is astonishing. At the time of the crash, the gear was in the retracted position. The gear leg was bent forward so that the knee of the gear crushed into the main spar, bending the upper side load strut. The tire made a half-inch deep impression in the main wing spar. The shock absorber was bent, but the paint was not scratched, so it appears to have been bent by the inertia of the impact, not by being hit by something. The retraction motor was ripped from the gearbox above it and the P/N 520 housing was broken in two—the lower half remained attached to the screwjacks.

The aft fuel tank was about 30 feet from the crash site and shows what appears to be the imprint of the instrument panel. The bodies were very badly dismembered. (The shoulder harnesses were not worn, but the seat belts were being used and did not fail.) All of this leads me to conclude that the impact speed was very high.

The Falco had 20 gallons in the front tank and 7 gallons in the aft tank when it was hangared the night before, and the fuel gauges were found indicating approx-



imately those amounts in the wreckage. Both tanks were ruptured and no fuel was found at the site, but the soil was sandy and the wreckage was about 36 hours old when the investigators arrived. Fuel was found in the engine-driven pump and the aft tank had a bulge at the front all around, indicating the presence of fuel at the time of impact. The throttle was in the closed position. The mixture was full rich, and the landing gear was up. Scratches in the propeller indicate it was turning at impact. A complete inspection by the FAA, including a tear-down of the engine, shows no evidence of mechanical failure prior to impact.

The autopsy showed a presence of 30 milligram percent of alcohol in Bruce Pounder, but no evidence of heart failure or any drugs. Blood alcohol is expressed in a number of confusing ways, but in this parlance, drunk driving in most states is 100 milligram percent. The medical examiner explained that 30 milligram percent is the approximate equivalent of drinking a beer before takeoff, is enough to impair judgement and to give some euphoria, and could have resulted from a few drinks the night before. It could also have resulted from the putrification of the body after 36 hours in the Utah desert in August. No one knows.

The only thing that anyone is very sure of is that the airplane was in good working condition at the time of the accident. The Falco had recently returned from a trip to Canada, and it had about 150 hours on it at the time of the accident.

From the beginning, some form of incapacitation was suspected. There were reports of an angiogram being performed on Bruce Pounder, and while this turned out to be true, the test was conducted about five years ago at the insistance of Pounder who liked to deal in facts and wanted to know if some chest pains were heart problems. The angiogram revealed no heart problems, and since he had been examined and found free of problems, he was cleaner than the rest of us who only assume our health. The medical examiner thinks the angiogram is of no consequence, and knowing of the questions raised, he looked for evidence of heart attack and found none. Pounder was 39-40 years old.

Wendell, Dan and friends continue to suspect incapacition, but that theory, however kind to the memory of the pilot, is not substantiated by any medical evidence. And I think it is contradicted by the evidence at the wreckage. The throttle was closed. Wives have a remarkably good record of safely landing aircraft after their pilot-husbands have died at the controls. To put a Falco into a wings-level, throttle-closed, sixty-degree nose-down angle requires a conscious effort.

A more likely explanation is that Bruce Pounder attempted a roll or some other aerobatic maneuver. While he had no experience or training in aerobatics, a friend had shown him a few rolls in a two-place Pitts. He had heard Wendell, Dan and Jack Butler describe aerobatics in the Falco, and how easy the Falco was to roll. He had a couple of hours in the right seat of the Falco.

And so a few seductive ingredients came together. A sleek, red, *aerobatic* machine. A bride of five days in the right seat. A male ego in the left.

Do you remember your first ride in a really fast sports car? I remember mine. My brother had a twelve cylinder XKE Jaguar and thinking me a cautious, conservative driver, he tossed me the keys. I motored sedately out of view and then—*kaboom!*—I let the hammer drop and that afternoon there was a gray streak on the back roads of Virginia. A friend remembers the day a buddy

stopped by in 1955 with a shiny red Porsche and suggested they tear up the mountain road. They did, and today he wonders how he lived through it all. We've all done it. No wonder so many Porsches are wrecked on the way home from the dealer.

And it's no mystery to me how a roll in a Falco could go bad. I've seen it happen countless times when I give someone a ride in the Falco. Wanna see a barrel roll? Sure! I do a couple of rolls. Wanna try one? Okay! I usually have them grasp the stick while I do a roll or two, so they'll get the feel of it. Then I let them try it on their own. Children actually do the best, they pick up the nose and slam the stick over, usually on verbal cues from me. Pilots with no experience in aerobatics usually botch it. They are already well-psyched into the notion of being gentle with the controls of the Falco, so they pull the nose up meekly, gently give it some aileron and pull back on the stick.

This happens in at least three-quarters of the cases. The pilot in the right seat has deftly rolled the airplane over and pointed the nose straight at the ground. I take over the controls, chop the throttle, and pull out. The ability to recognize unusual attitudes has not been learned, and they are invariably surprised to be told that they have just pointed the airplane straight down. I have no idea what would happen if I did not take over the controls. How long would it take for the pilot to react? What would he do?

So I think the normally careful Bruce Pounder decided to show Katy a barrel roll and lost it. If there was a little alcohol in his system, it didn't help—either in arriving at the decision or in reacting to the situation when it went wrong. That's my theory, and the FAA investigators are of much the same mind, but the truth is that we'll probably never know.—*Alfred Scott*

Brenda's Corner

Today we received a letter from a Falco builder stating that he was missing some parts from a kit that he ordered over a year ago and wanted us to send them as soon as possible. As all the kit buyers know, when a builder receives a kit and discovers a part missing we supply the part with few questions asked. We do ask if the box was damaged in shipment because there have been instances where UPS scattered parts from the road to the doorway. When you receive an order from us, please check it immediately against the shipping ticket and let us know if something is missing. Claims should be made within 30 days after receipt of shipment. Claims after that will be subject to review, and you may be asked to pay for a replacement part.

For the past three years, Alfred has done a "Falco News, Oshkosh Edition" flyer to use as a handout during the airshow. If any of you would like some of these to hand out at your EAA metting, give to your dentist to replace his old magazines in the waiting room, or to give to your friends when they can't understand why you are staying home working Saturday instead of going to the football game with them, we will be happy to send you some.

Speaking of Oshkosh, those of you who have met Alfred and seen him in action should have been there on Sunday after the airshow. *Flying* magazine has a little dinner party every year for all of their advertisers, and Alfred and I were invited. Since Karl Hansen and Mr. Nustrini were traveling to the airshow with us, we had to make arrangements to get them back to Appleton. Bob Bready agreed to trade vehicles with us and drive the van back, and let us drive their rental car since Bob, Joe, Chester, David, Karl and Mr. Nustrini could not all fit into the little VW.

As it happens they had been lucky enough that morning to park on the last row of the parking lot (which except during Oshkosh is a cow pasture). We finally got to the car while enjoying the fragrance of the surrounding area and got in line to get out of the parking lot. Traffic was bumper-to-bumper and not moving at all. After sitting in the same place for about 20 minutes, Alfred decided to hike up to the road to see what was going on.

Fifteen minutes passed and the line out to the road started to move a couple of car lengths at a time. When I arrived at the road, there was Alfred in the middle of the road—directing traffic. Arms waving. Fingers pointing. Hand stretched out in a stop-that-car position. All he was missing was a whistle and a badge. When I turned out of the parking lot and onto the road, he looked around, smiled and jumped into the car. With that, people all around started applauding and blowing their horns. One guy said it was the balliest thing he had ever seen anyone do, and if Alfred ever needed a job, come see him.

Please remember if you are going to order your propeller and spinner soon the prices go up the first of the year. Plus, Hartzell bases the increase on the *delivery date*, not the order date. So even if you order in October, chances are the delivery date will not be until January, and you will have to pay the increase. To be safe you should place your order before October 1.

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

Sawdust

• Mandatory muster of SF.260s—the annual gathering of the self-styled Fortunate Few—will occur at the home of Fox 51 in Denton, Texshus, on October 28, 29, 30. Frank Strickler just has to show everybody his new hangar. Denton is north of Dallas, outside of the TCA, so Farmerville-style free-for-alls are probably not advised. But these guys know how to have fun! And even though their women are great looking and the poor things are defenseless when the guys are out flying, they still want all Falco pilots to come. For details contact Homer Woodard at (318) 263-8482 on the world's greatest pig-out on Frati airplanes.

• Nine months after triple-bypass surgury and thinking he would have to give it all up, Larry Wohlers passed his physical and is back in the air with his Falco.

• The Great Oyster Fly-In, Gathering of Stelio Frati Aircraft and General Socializing of Falco Builders will be held at the Rosegill Farm Airstrip on November 5. The Oyster Festival parade begins at 12:00 noon, and it's best to arrive by ten o'clock. There is nothing like it in the entire world. Where else can you eat an oyster and watch Falcos and SF.260s fly to the sound of bagpipe music? Escape the agony of watching football and put a little fun back in your life.

• Anything for airplanes. Kevin Walker had already built a couple of airplanes and was starting on a Christen Eagle when his company transferred him to New Hampshire. After seeing Jim DeAngelo's Falco and thinking about New Hampshire weather, Kevin decided to build a Falco instead. He was in the process of getting married, and just to make sure there were clear skies ahead for him, he wanted to make sure his wife-to-be agreed that he could continue to fool around with airplanes. "That's fine," she said, "but I have a condition, too—it's about this male chauvinistic name business." Please welcome our latest Falco builder, Kevin Baranski-Walker.

• The short-coupled, pop-riveted—CAD-CAM!—Prescott Pusher has been sold to an Australian concern. The demise was blamed by a Prescott spokesman on a variety of problems, including lack of "government aid and support." Right. Nothing to do with the merits of the design.

• While every homebuilder has a first-flight fantasy, almost everyone has the good sense to know better. But a Glasair builder in the San Diego area recently lived out his fanstasy—rolls, loops, the works, capped off with a 240 mph low pass, slow roll on the deck, and circle for landing. One of the local homebuilders, who had witnessed the whole thing, shook the pilot's hand, congratulated him on a successful first flight, and then *decked* the idiot—who is so stupid he can't figure out why the guy hit him.

• Another magazine for woodworkers, Better Homes and Gardens' *Wood* (Locust at 17th, Des Moines, Iowa 50336) is directed to the home woodworker. Kitchen cabinets, simple furniture, tool reviews, first-aid for dull saber-saw blades, sure-fire cure for wobbly chairs, etc. Nothing about airplanes. Yet.

• The way they did it, it was almost cheating, but the America's Cup was won by a catamaran with a wing for a sail. The wing was built by one of our Falco builders, Mark Millbank, who lives in Greenwich, Connecticut, and normally builds world-class racing sailboats in wood.

Mailbox

I want to thank you again to have made me so welcome at Oshkosh. Everything has been so interesting, but I especially appreciated your talent to be able to give everyone the possibility to build a Falco, also better than mass-produced ones.

Luciano Nustrini
Auckland, New Zealand

I have just primed the bottom and will soon be ready to turn it upright and finish covering the wings and tail feathers. I am using the West System epoxy with 2-oz. cloth. I came up with a lot of pinholes. I believe two coats of resin would be good enough and would eliminate most pinholes. I am using mostly Aerolite glue (the best, I think). I am also using a Senco stapler which works really well.

I still work six days a week, but when I retire (in about three years) I plan to go ahead and finish my Falco. I have gotten a great deal of satisfaction out of seeing the Falco take shape.

J.W. Hofler
Sunbury, North Carolina

I was planning on taking the Falco to the airport this fall but still have too much work left. Easier to do in in my home shop than drive to the airport (30 miles) each day. I have the instrument panel installed for fit check. The King Nav/Com rack connectors are hitting the canted frame and the KI-209 indicator (straight back shell) hits the fuel tank. Probably will remove the back shell.

Metal cowling should be ready for fit and finish around 9/1/88. I foamed and plastered a plug on the engine and laid up a fiberglass shape for the metal bender. Then I laid up a fiberglass cowl for backup and fitting the air scoop and nose gear strut door. I have installed an O-320-A1A 180 hp engine with the carburetor on the bottom. The installation is complete except for cabin air and carburetor heat muffs.

I was interested in the problem in the last builders letter about the nylon brake lines popping out. The same thing happened to me trying my brakes here in my shop. I solved my problem by using aluminun nuts and sleeves with a standard single flare. I flared the line and with it clamped in the flare tool, I put enough heat on it with a torch to get a permanent set. Seems to work.

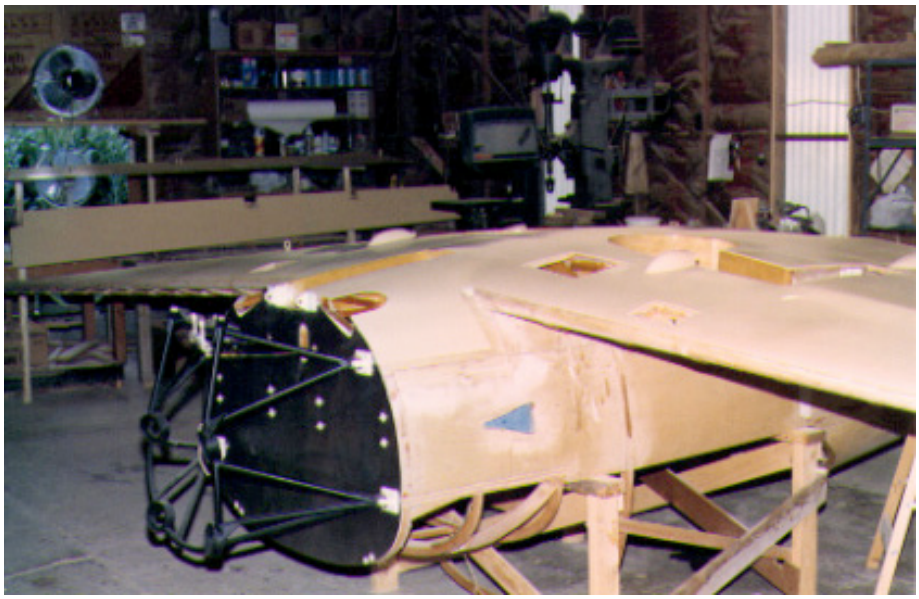
Rex Hume
Williams, Oregon

I'm now about to start building a hangar for my Falco and move it to the airport. No engine yet!

Jan Waldahl
Sandane, Norway

I have not started building yet apart from making a rib bending jig and making some test blocks of 2" by 1-1/2" Sitka spruce for the Aerolite glue. Having mixed the glue, as in the manual, I then left the blocks for about two days. The blocks are about 6 inches long. I then set above them with a four pound hammer. What happened next was to amaze me. After a lot of hammering, the blocks broke into several bits. The glue joints never gave. What a confidence builder. With a bit of luck, I should start by the end of the year.

J. W. Hofler's Falco takes shape in North Carolina.



If anybody living in my local area, that is Hampshire or Sussex, there is a very nice Falco at Goodwood Airfield near Chichester. It is for sale and the asking price is around forty-eight thousand pounds. It's an old one with a new paint job, so it might be worth a trip.

R. J. Barker
Fareham, Hampshire, England

If that's G-ORJW, a Series IV red Falco with gold stripes and "Viking" on the side, then it is now in the hands of a new owner in the Netherlands.—Alfred Scott

In earlier drawings, when I was installing the brackets for the foot pedals, it showed the fuel pump on the left side—pilot's side on the right pedal. Drawing A3 shows it on the far right. Any preference?

Ben Burgoyne
Arlington, Washington

My plan had been to install the fuel pump as earlier shown in the construction manual, but I found when finally working out details on the fuel system that the best location was on the far right (as now shown in the "pre-release" copy of A3 that you have) because the routing of the hose into the engine driven pump worked out much better.—Alfred Scott

Working slowly. The bottom of my Falco is finished and primed with DuPont Corlar, and the airframe is once again upright. I am installing some of the systems and preparing to close the top of the wing, after which I will finish and prime the top of the airframe. I found some interference between the tire and the lip of the wheel well on the mains (my fault), but a bit of sanding has opened the lip clearance out to at least 1/4" with the tire at 10% over rated pressure. This looks to be the same as the print clearance, so I assume it's sufficient.

Jim Petty
Dayton, Ohio

Tires actually grow slightly when they are used, mainly from stretch in the fabric plies. Most designers talk in terms of 3/8" to 1/2" clearance with the tire in its normally inflated condition. This is a difficult thing to be precise about, and I confess not knowing the precise answer, except that I'm comfortable at a half-inch or more. If you are down to this little clearance, you might want to make a quick-and-dirty plywood gauge to slip over the tire to check it for diameter. A few European Falcos bellied in after installing boat trailer tires with the same nominal size but a deeper tread. Poor guys got the gear up, but couldn't get it back down.—Alfred Scott

Ferrucio Guaducci, Sculpturer

You may not be familiar with the free-form sculpture of Ferrucio Guaducci. Neither was I, until Meredith went on a shopping spree in Provincetown and dropped a small chunk of change for the piece you see here. It was called "Flight of Fancy", and she thought it would look great in the back yard.

This past Saturday the truck arrived. We unpacked the thing and then set about the business of trying to decide where to put it. There are two mirror-image pieces, and we tried leaning them against a tree and then finally put them back-to-back in the flower garden against a hedge of holly. Sara and Kakee struck artistic poses with the flowing shapes.

Someone said they looked like dolphins, another thought they looked like shower heads, and I thought they looked like a logo for a diving camp. Interesting shapes.

When you get something like this, you never know how your friends will react. As it happened, we had a dinner party that night for the board of TheatreVirginia, which regards itself as the cultural center of theatre in these parts. We decided to say very little and see what people said.

Most of them kept their silence, but they all later said they had noticed the sculpture, "liked it" or "wondered what it was." The museum director, who would probably have felt called upon to say something serious about it, did not come, fortunately. But the set designer, a totally uninhibited artistic type, flew into the back yard with his arms high with "Oh, *yeah*! I love it!"

And a public relations man was equally as enthusiastic, yelling "Neat!" and he immediately told Meredith it was in the wrong place. It belonged in the middle of the yard, and he ran down toward the thing for a better view. When he got about twenty feet away, he stopped, paused and came back up the hill, saying with a smile "I'm not going to get too close to that thing."

He smelled a rat, and rightly so, for these are in fact the Falco wing fillet molds made by Joel Shankle and stuck in our back yard in a bit of devilment proposed by Meredith. As the evening was breaking up, I brought one up to the porch and explained what they were. No one got their feelings hurt, and everyone liked them just as much when told what they really are.—*Alfred Scott*