

# Falco Builders Letter



*Jim Slaton and Barbara McMurray over McCall, Idaho.*

## Around the Falco Patch

### Oshkosh

This was the first Oshkosh show in recent memory that had that wonderfully cool Wisconsin weather and billowing white clouds lording over the field that for so many years characterized the show and which played such an important part in making Oshkosh a success.

We had four Falcos show up. Pawel Kwiecinski came up from Chicago on Sunday for the day. Mark Reichen and friend brought Steve Wilkinson's Falco in its yukko-beige primer and camped under the wing. Mark is entranced with the handling of the Falco and says "I don't care if I ever fly another aluminum airplane." It's ruined his Mooney 201 for him. He used to like the plane, but after flying the Falco, the old Mooney has no appeal any more.

Mark stayed for a couple of days and headed home on Saturday, only to land gear-up in Boston. Not his fault, it turned out, and except for a ruined prop and broken flap, the damage was very minor. (For a complete discussion of this incident,

please see "Construction Notes.")

Charles and Theresa Gutzman showed up, and their Falco was a star of the show. This is as flawless a Falco as you are likely to see, and there was much talk about it being in the running for Grand Champion. It's a spectacular airplane, with a striking paint scheme, beautiful upholstery, and an instrument panel any IFR pilot would kill for.

The workmanship is superb, and it's very hard to find any flaws. But if you look closely—the way the Oshkosh judges do—you can find a tiny sag in the paint

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### In This Issue:

- 10 Construction Notes
- 15 HP-32 Programming
- 16 Bending the Wing  
Leading Edge Skin
- 18 Sawdust
- 19 Brenda's Corner
- 19 Goings On at Sequoia
- 19 Mailbox

here, a less-than-crisp edge on a white stripe there, and a tiny fleck of rust on a bracket in the engine compartment. These are things that require automatic mark-downs in the judging, and as a result they received a Champion Plans-Built award (that's a "third place" award shared by seven other planes).

That's a remarkable achievement when you consider that the Falco was not built as a show plane intended to gather trophies and do little else. To win Grand Champion at Oshkosh, you not only have to build a beautiful airplane with flawless workmanship, you also need to know the judging standards that are used and must work hard to eliminate all automatic mark-downs for screw-head alignment, perfect fits of cowling doors with the cowling, and other compulsive detailing.

There are two things about the Falco that the Gutzmans are not too pleased with. The Nustrini canopy looks gorgeous, but Charles and Theresa both find it confining. Charles is mumbling about taking it off this winter and installing the 'high Nustrini' canopy.

Their other complaint is the cabin air inlet. Although it's only slightly smaller than ours, it's installed higher up and farther aft. Everyone who has our cabin air inlet reports that it supplies copious amounts of air—indeed Mark Reichen was complaining that the flow was so great that the cabin air valve won't stop the flow. I wish I could tell you that I carefully studied the flow over the fuselage and arrived at the one-and-only place where the vent would work, but it was nothing like that. Some years ago when I was in Italy, I noticed that on the Picchio, they had used a NACA inlet for cabin air. I just used the same size vent and located it for clearance with the instrument panel.

Jonas Dovydenas showed up in his black-primed Falco which was quickly tagged "The Stealth Falco." To keep the plane from getting too hot, Jonas sprayed the top of the wing and fuselage with some shake-and-spray white lacquer. Parked next to the Gutzman Falco, it made the

red machine look all the more spectacular. Jonas put a sign in the plane that said "Please don't judge me, I'm not yet finished" but that did not stop some smart-ass from putting a "Please stay for the awards dinner" note on the dash!

I noticed that Steve's Falco had the least control-system friction of any homebuilt Falco I'd seen, easily a third of the Gutzmans' Falco—which is spectacularly light to start with. The difference is certainly in the paint. If you get paint on the ends of the bushings of the control system hinges, you are going to increase the friction. Steve had taped them off and was running oiled bronze against bronze.

It was interesting to watch the crowds gathering around the Gutzman Falco. When Dave Aronson first brought his spectacular Falco to Oshkosh, people would not believe that the airplane was made of wood, or that he painted it, or (at normal airports) that he built it. They would refuse to believe the answers, and keep asking the same question over and over, as though Dave simply did not understand the question or know the answer. They would average seven repetitions of the same question before giving up.

The situation has changed dramatically. People know the Falco now, and people also know that it's made of wood. One man asked Charles how he finished the wing, and before Charles could answer I told the guy the plane was a plastic machine. Oh no, he said, *I know the Falco is a wood airplane.*

That tells me a lot about where the Falco is in the eyes of people. I can land at almost any field and people recognize my plane as a Falco and know all about it.

Our Oshkosh booth is a form of marketing, and Oshkosh is great for product introduction, particularly when people want to play touchy-feely with parts, and look us over before deciding on the plane. But the more successful you are at getting the word out on the plane, the less effective a booth at Oshkosh becomes. We only get a few people each day who wander in and ask us to "tell me about this airplane." The rest know all about the plane, the quality of the plans, the kits, builder support, etc., and they ask more detailed questions.

The Oshkosh booth is an expensive proposition, totalling nearly what it costs to



**Top: The Gutzman Falco at Oshkosh. Above: Charles and Theresa Gutzman.**

advertise for a year in *Flying*, and we won't be having a Falco booth at Oshkosh any more. I'll most likely fly out to the show, and we'll probably have a builder dinner, but phasing out the Oshkosh booth is something that has been long planned around here. Frank Christensen said that he could only justify the expense and trouble of the Christen Eagle booth for five years, and after that everyone knew the plane and the kits. Pitts had much the same experience some years before.

### The Power of Face

One reason that we went back to Oshkosh this year was that after the EAA audit, we didn't want it to look like we had tucked our tail and left town. I'm proud of what

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**Top: The Gutzman Falco has almost everything there is installed in the panel.  
Bottom: Mark Reichen with Steve Wilkinson's Falco at Oshkosh.**

I did, and I was curious to see for myself how the organization had developed and evolved in the wake of the audit. I was pleasantly surprised by what I found.

Unless you go to Oshkosh, it's not possible to see for yourself what dramatic changes Tom Poberezny has brought about in the organization. A criticism that has been laid at Tom's door is that he has been standing in his father's shadow, that he allowed Paul to dominate him—or as one man said, "If only he could learn to deal with that dad of his." While Paul was running things, Tom had little choice, but over the past year there has been a complete reversal in the roles of the two men. They argue a lot, and Tom now

wins all the arguments.

A few years ago, Tom nearly left the EAA. He had some job offers, and he sought advice from friends. The way the EAA was run, he said, was foreign to his instincts, and he felt powerless to change things. And even though Paul had picked his son as the heir apparent, he gave him little support. Paul's former secretary says that Paul is jealous of Tom, of his education and personal polish, and wants to see Tom fail. I've heard innumerable reports of Paul publicly humiliating Tom, who clenched his teeth and took it all stoically. Ed Tripp said that Paul once tried to hire him and spent a lot of time complaining about Tom. And I've heard

of Paul—always the manipulator—down on his knees in front of directors with tears streaming down his face crying that Tom didn't have the spirit of the EAA. Right.

Tom is running the show, and more important than anything else is a change of culture that he has brought to the organization. A year ago I visited the mother and step-father of the woman who had been sexually harassed, and they were hurt, confused and outraged that the board had shown so little interest in their daughter's complaint. They both work at the EAA, and this year they talked with almost parental pride of the changes they had seen in Tom and of how he is running the place. Another woman who had received similar treatment from Paul—and who a year ago was terrified of losing her job—now smilingly says she only sees Paul every two months or so. Paul no longer has an office at the EAA, and he only comes in every two weeks or so to answer his mail. Paul's fear machine is gone, and no one is weeping.

Paul's role among the directors has also changed. He is still a director and chairman of the board, but in reality he has become an honorary chairman and spends little time in the meetings, just as Verne Jobst has lost face among his peers and is fast becoming a nominal director. And the directors, many of who had a knee-jerk defensive reaction to the audit and its revelations of Paul's management, were very embarrassed about what had been going on and have quietly worked to change things. If Tom were to die tomorrow, I doubt a single director would allow Paul to run the place again, even temporarily, after what they have learned about him.

At the show, they unveiled a 108%-life-size (75%-girth!) bronze statue of Paul that had been approved long before the audit. Some directors were openly bitter about it, "Let him have his statue, to put with all of his medals." (The museum shop has three-foot copies for \$6,000 a copy if you'd like one. Sales to date: zero.) Other people just marvelled at the ego. "God-a-mighty, he's not even dead yet," huffed one Falco builder. "Have you seen the statue?" asked a lady in disbelief.

Paul complains that I and others have destroyed his family's reputation. That's nonsense. Tom Poberezny's reputation has soared. A couple of years ago, a lot of people close to the EAA were convinced Paul was a crook. Now they just think he's stupid, and any damage to Paul's reputa-

tion comes from his actions, not from the runaway stories that surrounded him. At Oshkosh, Paul appeared to many people to be on the road to self-destruction. He lashed out at meetings at “the director who had demanded my resignation,” clung to the fiction of “misunderstood hugs and kisses”, and talked in paranoid terms that Al Aitken (of all people!) and I were going to come to the annual meeting to stage a coup to “take over the EAA.”

It was clear to me that the situation had come full-circle and that Tom had achieved in a year what optimists thought might take several years. Everyone recognizes that Paul has accomplished a great deal. He started a wonderful organization that serves the membership well. He set the culture that emphasized the individual over the corporation. His organization founded a museum that is second only to the National Air & Space Museum in Washington. And, of course, there’s the Oshkosh show which has become such an important part of today’s aviation culture, and which lends such credibility and political influence to the homebuilding community.

People who accomplish such things inevitably have major flaws in their personality, and it’s unrealistic to expect them to be normal, well-adjusted people—indeed, a normal person couldn’t possibly have pulled it off. It’s precisely the distortion of personality and inability to know one’s own limits that makes great accomplishments possible. And it’s important to judge people on their overall accomplishments, not just on the flaws. History will remember him well.

I was struck by a complete absence of suspicions. A year ago, suspicions lingered in the minds of many people, and I remember one man who had tears in his eyes as he thanked me for causing the audit but thought that “they didn’t get it all.” I assured him that all would be well, and offered to send him ‘the package’, but he was inconsolable. This year he stopped by to offer an apology. He had read the package, and it had put the whole thing to rest for him.

At the show, I made a point to go around and introduce myself to the directors. You can learn a lot about what people are made of this way, and I found it a very enjoyable process. Most were very gracious and friendly. “Gee, where are the horns?” asked one smiling broadly, while another grinned furtively and said “I’ve en-



**One of the houses on the lake at McCall. This is not an apartment project.**

joyed your letters.” Sun ‘n Fun’s Billy Henderson was effusively friendly, bless his heart.

My friend, Jack Amos, came along to the show, and Jack was one of those who followed the whole audit thing blow-by-blow. He had come to the conclusion that the EAA’s membership had outgrown its officers and directors, but he changed his mind at Oshkosh. He went to the EAA Family Forum that Tom and Sharon gave, and popped up to ask some questions. He asked Tom if his father with his strong personality tried to continue to run things or if he stayed in the background and let Tom run things. Tom’s answer was interesting, “Actually, he tries to do both.” Tom said that he listens to what Paul has to say, but that Tom makes the final decisions.

Jack and I went to the annual meeting, mainly to watch the election of directors. I had already decided that it was time to be magnanimous, particularly because of what I had been hearing about Paul’s deteriorating condition. I wrote a short speech the night before and also notes to Paul and Tom to tell them I wasn’t going to cause any problems but I did have something very friendly to say about fence-mending, and I asked Tom to call on me when he thought it was appropriate.

I gotta tell you that the EAA annual meeting is a hoot-and-a-holler, every bit the wild mixture of zany fruitcakes and wonderful people that you see on the flight line. One guy raised a big stink about two of the directors having submitted their ap-

plications after the deadline. Then later after the election, he tried to have the results voided because some of the people there—including himself—had voted after signing their proxies to management and thus had voted twice.

It was interesting to watch Tom in action. He’s very good on his feet, and handled the guy easily. Another man pleaded that the EAA should embrace modern engine technology and as he spoke I realized that *this* was the guy who had cornered me last year with his engine that ran on ionized chlorine and nitrogen and which recycled the exhaust back into the fuel tank so that you never needed to fuel it again.

The body language of the directors said it all. Paul had his chair slid back between two other directors, and Jack said that Verne Jobst looked like a man in “extreme pain from constipation.” Tom ran the meeting, except for a rather lengthy and complete financial report by the treasurer, John Beetham.

The financial report was interesting. In fiscal 1990, the membership equity increased by about 30% in one year, or said another way, the organization’s equity increased by about \$4.30 per member. For an economy in recession and an industry in a depression, that’s a remarkable performance, and one that we should all be delighted to see.

The ‘new business’ part came at the end of the meeting, and there was an endless parade of little speeches about changing this, working harder at that, appreciation





*The McDonald's franchisee of Idaho put a big "M" in logs at the front door.*

for Paul, Tom and the directors, that sort of thing. Paul can't stand personal confrontation, and he's famous for getting others to go after people. He's very good at the business of conjuring images of some awful wrong about to take place, and easily manipulated, impressionable people do his bidding.

It fell to Ray Stits to defend Paul from the 'coup', and as he rose to speak it was apparent that he was visibly angry and ready to do battle. He began with the usual "If it hadn't been for Paul" preamble, and he talked about all the work that went into organization in its early days. Then he said, "Now over the years there have been three attempts to take over the EAA." There was a group down in Texas, in the fifties, that thought they could do a better job. And then in the sixties, a group out in Grass Valley, California, tried to "steal the EAA", and he mentioned the name of one or two of them.

Tom interrupted him, "Please, Ray, let's not personalize it." But Ray was like a Pit Bull with his teeth sunk in, and he persisted. And over the next minute or two, there was a most remarkable contest of wills between Tom and Ray. It was obvious where Ray was going with this, and equally obvious that Tom was not going to permit it. Ray would start back on the same tact, and no sooner had he begun a phrase, Tom would stop him, with a long series of "Ray, there's really no point in this," "Please, Ray, let's not get into this," "Ray, I really think we should leave all this behind", and so on.

Ray just kept at it. He talked about the latest attempt coming out of Virginia, said something about Al Aitken (who was back in Virginia). Something about "if Alfred Scott is here today." He wagged his finger at Lance Zellers on the stage, said "you called for Paul's resignation", and castigated us about what we had done for aviation. That's when Tom finally shut Ray down and got him to go back to his seat.

The meeting drifted on, and some time later I decided it was probably time for me to make my little speech, so I got it out and began reading it over. As I was doing this, a guy got up and made a little speech about how he had approved of the audit, but that he was beginning to hear some criticism, and he thought it should stop.

This seemed to be the perfect time for me, and as the man was returning to his seat, I started to get up, but Tom held me back with a subtle hand gesture and then went into a little speech that was music to my ears. "We should not condemn criticism," he said. There's always a question of whether the glass is half-full or half-empty, and he talked about how "criticism is good for us" and "makes us stronger". And then Tom looked at me and gave me another subtle hand gesture that it was my turn.

I got up and made my little speech, and I have to confess that during it I got a terrible case of mike-fright. What actually came out of my mouth, I'm not completely sure, but here at least is what I had written down:

"One of the very special things about the EAA is the feeling of camaraderie that has existed among us.

"During the last two years, the organization has experienced some growing pains. And for those of you who don't know me, I'm the EAA member who called for the audit.

"During that painful process, friendships have been strained and there are still many emotional wounds among us. We should not allow these to turn into scars—especially with you, Paul—and we should all make a concerted effort to restore the feeling of fellowship and camaraderie that has existed in the past.

"Nothing so becomes a person as the ability to put past differences behind you. I'd like to encourage all of you to seek out old friends and to try to restore the feeling of warmth and friendship that has existed in the past, but which has been strained in the past few years.

"For my part, I have been seeking out directors and introducing myself, but I've missed many of you, and I'd like very much to shake hands with all of the directors before we leave here today. And if it will help to mend fences, I'll even let Paul hug me!

"Thank you, Paul, for being who you are and for starting the EAA. And thank you, Tom, for being who you are and for being here to lead this wonderful organization into the next century. I see nothing but good things ahead. God bless the EAA."

It got a good reaction, though Paul left the stage half-way through. Shortly after, the election results were announced, and the meeting broke up. I had a chance to meet quite a number of the directors. It was all a very pleasant experience, and we had some very nice conversations. Some of the directors avoided me, and I was particularly curious about how Verne Jobst would react. He was only a few feet from me, and I was making my way toward him when someone stopped me. We had a short chat, and when I looked up, there was no sign of Jobst anywhere around. Poof.

Standing to one side, I noticed two men wearing khaki outfits that looked for all the world like military uniforms, with crisply ironed creases, epaulets on the shoulders, brass belt buckles, Ray-Ban sunglasses and "EAA Director" stitched

over the breast pocket. I walked over and stuck out my hand, and the man smiled condescendingly and said “No, I’m sorry. I can’t shake your hand, not wearing this uniform.” Former director Jerry Walburn, now EAA vice president for government policy, then gave me a patronizing little lecture about the terrible pain I had caused. Same guy who with three others interviewed the sexually harassed woman and who showed not a great deal of concern for her welfare—one of them actually *yelled* at the woman. Not wearing this uniform!

And standing to his side was a Foundation director of the same mindset, with stone face, arms tightly crossed on his chest, and eyes staring fiercely straight ahead. Same guy who, when charged by the boards to interview the sexually harassed woman, managed to twist her tale of a private hell into “misunderstood hugs and kisses.” Same guy who investigated the Jobst tee-shirt thing, used the ‘reasonable doubt’ legal standard to whitewash the incident (reasonable doubt is used for criminal cases, preponderance of evidence in civil cases, and you would hope that a higher standard might have been used for a fiduciary)—and *then* lined up with other directors to press their credit cards on the store manager for things *they* had ‘forgotten’ to pay for!

I had already concluded prior to the election that even if you reduced the board down to nothing more than these semi-fascist, personality-cult types—and who arrogantly define “doing something for aviation” in their own self-serving

terms—the abuses and mistakes of the past would never be repeated. The changes are irreversible, and the embarrassment level for the directors is simply too high.

Paul always claimed that he consulted the directors and then voted the proxies accordingly, but no director I’ve talked to has ever been consulted or has even heard of anyone else who was consulted. Many have wanted to see the election handled as a more democratic process, and Tom did precisely that. On the day before the election, all the directors who were not up for election attended a meeting. All of them expressed their opinions, and the meeting was exceptionally emotional, indeed many left with tears in their eyes.

The subject of all the emotion was Lance Zellers, the director who had confronted Paul about the sexual harassment. Some of the directors suspect him of telling me all of the details of the infamous ‘misunderstood hugs and kisses’ meeting, but in fact he was as tight-lipped as a snapping turtle on a muskrat’s paw.

Jobst was re-elected, Lance Zellers was not. His seat was taken by Jack Harrington, a respected attorney with high ethical standards. While you or I might not care for the outcome of the election, it was a democratic process, and the election did reflect the will of the board. If Lance Zellers provoked such emotion among the board, perhaps everyone is better off with a period of calm, and besides Lance was becoming a bit weary of the ostracism. For my part, I admire the man for what he did. I’m proud to know him, and I

hope that if my daughters ever run into a Paul there will be a Lance Zellers there to help them.

I come away from it all with a renewed appreciation for humanity, and I find the whole thing rather heart-warming. The reason the organization has recovered, evolved and improved itself in so many ways, has everything to do with the type of people running the place and their good intentions. The audit, the *Aviation Consumer* article and the entire crisis was an exceptionally painful experience for many people, but it was also a *very* good thing for the organization. Scrutiny is a good thing, sunshine is still the best disinfectant, and an organization is never hurt by disclosure.

And the other day, Jack Amos—who has followed the entire episode and who knows all the ‘dirty laundry’ details—joined the EAA. What changed his mind was what he saw in Tom’s attitude and leadership. Hey, I think it’s great.

## Riding Out Bob

Our family went up to Squam Lake in New Hampshire in early August, and I took the Falco along, of course. After Squam, I stopped by to see Steve Wilkinson, and later Jonas Dovydenas and got my first ride in his Falco.

With the standard canopy and our seats, his Falco has a bit more headroom than my production Falco. There is certainly a remarkable difference in the acceleration and climb with the 180 hp engine and constant-speed propeller compared to my bird. We took it up and wrung it out, and it’s a Falco all right!

I pulled off my headset to check the noise level, which was reasonably loud. Jonas said he has a sound pressure meter, and that it’s quiet under the panel. The loudest noise is down behind the seats, and he thinks the noise is coming up through the wheel wells.

The cabin air vents provided plenty of air, and I played with the valves I had designed. When they close, the air still pushes through. The problem is due to the stiffness of the metal. This is easily solved by going to a thicker piece of aluminum or by installing some hold-down screws which will press the two plates together. Other than that, I think the valves are fine—they are easy to install on top of upholstery, and they don’t take up any cabin space.

**At McCall: Stuart Glemba, Gene Glenn, Bernita and Ben Burgoyne, Richard Clements, Dave McMurray, John Harns, Jim Slaton and Cecil Rives.**





At one point we were diving the airplane, and the speed had built up to 180 knots indicated when a rumbling noise started somewhere in the plane. The airplane was handling fine, but we quickly landed and went looking for the source of the noise. We couldn't find anything wrong, and Jonas has since traced it conclusively to the rubber seal on the back of the baffling. The seal normally 'leans' forward, but there's enough space in his Falco for the seal to push aft at high speeds. This sets up a rumbling noise when the rubber is flapping. It's harmless and can be cured by a variety of measures.

I left Jonas to join up with Meredith and the girls at Fisher's Island where we were going to stay for a few days. I landed at the barren, wind-swept airport and asked the woman in the lone shack where I should tie the Falco down. She asked me how long I was going to stay, and I said two or three days. "Good Lord!" she exploded.

She explained that a hurricane was forming off Hatteras and was expected to move up the coast. This was news to me, but hurricanes don't normally move very quickly, so I figured I would take a look at it in the morning and bug out if it was heading our way.

When I got up the next morning, there had been a coup in Moscow and Hurricane Bob was nearly upon us. The winds were building up, it was raining heavily, and the ceiling was a low overcast. I was nearly out of fuel, so I threw five gallons of autogas into the Falco and flew across Long Island Sound to Groton, Connecticut.

I topped it off with fuel and was making preparations to file instruments for Syracuse, initially unaware that they were actually evacuating the airport as I talked to flight service. Syracuse was clear, and I could easily skirt the weather to the west to get home, but there were two problems. First, there were many reports of severe turbulence all the way to Albany. Second, a line of embedded thunderstorms was 25 miles southwest and moving rapidly northeast. Hmm. I decided to take my chances on the ground.

At that time, the eye of the storm was 150 miles south of Montauk, and the wind was really picking up. Simply tying the Falco down, I was soaked to the bone for the first of many such times during the day. When I got back to the building, there were only a couple of people there. Everyone else had evacuated the airport.



*Larry Black and Dan Martinelli at McCall.*

Initial reports were for the storm to come ashore anywhere from Groton to Martha's Vineyard. It's a bit tense to ride out such a storm and wonder if you will end up watching your airplane tumble across the ground and be destroyed. Despite excellent television coverage of the storm elsewhere, we had extremely limited information about the location of the storm. The only television at the place didn't work, and the few local radio stations that were still on the air were mostly talking about which shelters were open and what to do to hunker down for the storm.

I tracked the few reports on the location of the storm on a map, and by 11:00 AM it was clear to me from the change in wind direction that the storm would pass to the east. At the peak, the winds reached about 55 to 60 mph, and we had about 8 inches of rain. Miraculously, there was almost no damage to any of the airplanes. At Fisher's Island, only ten miles to the east, there were 100 mph winds and huge trees were toppled. Had I not moved the plane, the Corporate Disgrace would have ended up on the bottom of the ocean.

By 3:00 in the afternoon, the weather had cleared up, but the winds were still too strong for flying. Curiously, the winds died down to 25-30 mph and then as the sky cleared, they built back up to 55 mph. By 5:00, things were slowly getting back to normal, the airport was officially reopened, and I took off for Virginia.

The first thing I noticed after taking off was that the airspeed indicator was having a few difficulties. The needle wandered

all over the place, and it was obvious that the pitot-static system was filled with water—confirmed by fogged dials for the ASI, altimeter and rate-of-climb.

It was also clear that I could not get back to Richmond by sundown. It took an hour to reach the other end of Long Island, only 100 miles away. I put down at Princeton, tried unsuccessfully to blow the pitot line clear and then went on to Wilmington where John and Midge Oliver kindly put me up for the night.

The next day I flew to Richmond, and I was interested to find how easy it is to land the Falco without an operating airspeed indicator. We all talk about how you don't need to trim the Falco, but in reality there's a noticeable change in stick pressure, and you have to pull on the stick in slow flight. Simply because the pressures are low does not mean that they are not there. You always hear people talk about flying attitude and seat-of-the-pants, but I've never related much to that kind of talk.

What I did—and it worked very well—was to slow the plane by pulling the power back to the usual rpms, wait for the plane to settle down in level flight and then drop the gear. In the pattern and on short final, I gave little pulls on the stick to feel how much elevator authority remained. When you're at cruise speed, a little tug on the stick brings the nose up crisply, but as you slow down, this responsiveness disappears. By simply pulling on the stick and observing how the airplane responds, you can quite easily see that you have

enough elevator power to flare, and thus plenty of speed.

I found to my surprise that I landed the plane almost as well without an operating airspeed indicator as I do normally. If anything, I only had a very slight excess of speed when I flared—certainly nothing more than 5 knots.

### Somewhere West of Jackson

I work too much, so I decided to take a few days off and fly out to the West Coast Falco Fly-In in Idaho. I've rather enjoyed the couple of times I've taken the Falco out west, but I'm not sure I would be on speaking terms with anyone who went along with me. It's hours and hours of noise and boredom, and I prefer to do such flying alone. Besides, Meredith had little interest in spending 30 hours in the Falco for one day in Idaho.

But that's what I did. It was eight hours to Wichita where I stayed with Howard and Marty Benham. It was an uneventful flight. The first three-hour leg was to Piqua, Ohio, three more hours to Moberly, Missouri, and then two hours to Wichita.

Count the Benhams as genuine Falco fanatics. Their entire life revolves about the Falco. Howard works at FlightSafety in charge of the Beech 1900 training program, and Marty spends her day at the Kansas Aviation Museum, which is in the process of being started at the old Wichita Airport terminal building.

But when the evening comes, it is all Falco. Their house was chosen for its shop out back. The guest room bed is normally covered with Falco parts—elevator, rudder, flaps and ailerons. And the instrument panel sits like a religious shrine at one end of the dining room. Howard has worked on electrical equipment all his life, and the wiring of the panel is exceptional, with all of the wires formed into neat little bundles that turn sharp corners with the precision of a military parade.

The Benham's Falco is a little different in that it's been their goal to build an airplane to fly around the world. They have installed brackets for under-wing tanks and have also made provisions for an HF radio to be installed in the battery compartment. To make room for this, the battery will sit in a box that is fitted into the battery compartment floor, so that the top of the battery is roughly flush with the floor. And the floor of the box extends all the way across to the right side. This



*Karen and Cecil Rives.*

way, the HF radio can be installed on the right side of the plane, and you can install it by reaching across the battery.

When I was there, they were in the process of installing all the little strips of wood needed to pick up the inside cockpit skin. I remember some of the earliest builders saying that it took 500 hours to install these after the fuselage had been skinned, and Howard said he could well believe that. Even with everything open, there's plenty of work putting all the pieces in, and it's insane not to do it all early in the game.

They are doing a beautiful job, and while sipping on a beer and probing around the Falco, I was struck by the notion of how absurd it would have seemed to a 36-year-old Stelio Frati laying out the Falco in war-torn Italy that one day a man and his wife might actually be building one of these planes in Wichita, Kansas, USA, how wonderful it was that it was actually happening some 35 years later, and how incongruous it all is. Funny the way the world turns.

The next day I flew to McCall, Idaho. It was three hours to Cheyenne, two hours to Jackson and two more to McCall. I think Jackson Hole is the most beautiful spot in this country, and no matter how many times you've been there, it's always such a visual surprise. You spend hours crossing the flat farmland of Kansas and Colorado. Out of Cheyenne, the hills rise into low mountains. From the air, at least, it is exceptionally barren, a wasteland of old mining roads and scrubland that looks for all the world like a giant acid-waste dump.

As you approach Jackson, the hills rise, and you start to see trees once again. Then, over a hill, you can finally see the Tetons, an absurd, sue-that-incompetent-doctor transplant of the Matterhorn and other pieces of the Alps into the hills of Wyoming. If it weren't so abominably cold in the winter, the entire world would move there.

The back side of the Tetons is not nearly as spectacular, and there's a wide valley that swings down to Pocatello and west to Boise. That's the safe way to get to McCall: follow the valley and then drive up from Boise. Do that, and you avoid all the mountains. It's also the most boring way, and takes you a hundred miles out of the way. But on such a trip, there's also a question of artistry. Like a skier choosing a line through the powder, you ask yourself which route you should take simply for beauty, the majesty of the mountains, the secrets of the valleys... across what part of this scenery do I draw my brush? I went over the mountains, a grotesque earthen corduroy that extends for hundreds of miles.

The peaks are around 10,000 feet, but you're supposed to get up to 14,000 for navigation reception. You follow your progress on the sectional map and note that the mountains are littered with airfields, but they're nearly impossible to find. They're all located at the bottom of deep gorges and accessible only by helicopters and 300 hp Super Cubs. Fat lot of good they'd do in an emergency.

McCall is located at the south shore of Payette Lake, a large glacial lake surrounded by evergreen-covered mountains. It's



about 80 miles northwest of Ketchum, the old haunt of Ernest Hemingway and home of the famous Sun Valley resort. There's a lush valley extending south to Boise with trout streams and another, larger lake south of McCall.

It's a beautiful spot, and Jim and Judy Slaton moved there to escape the madness and crowds of southern California. "I don't miss California one bit," says Jim, as he shows you a photo of a brown bear cub that was climbing a tree in their yard two days before. Jim and Judy live in a log building backed up to a rushing stream that feeds out of the lake. When I arrived, the place was crawling with Falcophiles.

John and Pat Harns, Ben and Bernita Burgoyne, Dave and Barbara McMurray, Dan and Fran Martinelli, Larry and Ann Black, Richard and Catherine Clements, Cecil and Karen Rives, Ray and Sherry Purkiser, relatives, friends and a couple of intense possible Falco builders who were there to see for themselves. John and Midge Oliver made it as far as North Platte, Nebraska, where Midge announced that she had all she could take of the weather so they turned back. Per Burholm was trapped in San Diego with terrible weather and couldn't make it.

Throw all ideas of what a "fly-in" is out the window. These west coast Falco things are as much a weekend-long social event as anything else, with an occasional trip to the airport to get a hit on your habit, with us Falco-bimbos giving people rides and then basking in the praise of the newly-initiated. On Saturday morning, most of us went on a tour of the smoke jumper school, which was all the more relevant because a forest fire in the hills overlooking McCall was in the last stages of being extinguished. A couple hundred firemen were up fighting the blaze and all day long helicopters ferried water and people back and forth. And an assortment of oddball heavier aircraft lingered about the field and occasionally lumbered down the runway, barely clearing the hill at the end of the runway. A turboprop DC-3. An old DC-6 with a belly pod. An antique 4-engine, wrinkled-skin, empty-turreted eunuch of a bomber converted to water-bombing.

And after lunch we all went on a boat ride around the lake. McCall has a year-round population of only 2500 that moves in such a slow pace that when Jim Slaton called on a local lawyer, the receptionist who showed him into the man's office had to shoo his two dogs off the sofa so Jim

could have a seat. But in the summer the population swells to 18,000 as the rich and famous of Boise and California escape the pace and heat of the real world and the SEC.

The lake is ringed by a surprising number and variety of homes, many so close together some neighbors share the same roll of toilet paper, but with prices of lakefront lots at \$4,000 a front foot, you can understand why. The money that has been spent on some of the houses is astonishing—Jim said one of the houses on the lake cost fourteen million to build. I couldn't tell which one it might have been. The excessive opulence in log construction, golf-course-smooth lawns, helicopter pads, and swimming pools built right out into the lake rivaled the gaudiest that southern Florida has to offer. MacMansions for the Dan'l Trumps and Kitty Helmsleys of Idaho, and our tour guide told us how they all made their money.

That night the faithful gathered for a banquet at the Shore Lodge, an evening of camaraderie and an opportunity for the modest ones among us to remind and congratulate ourselves that the quality of the airplane that brought us all together was exceeded only by the quality of the people interested in it, and damned if they were ever going to fool with Oshkosh again when they have this sort of get-together to take its place. Jim and Judy Slaton laid on a wonderful event for everyone. Next year John and Pat Harns will host the event at Coeur d'Alene, Idaho, on the weekend after Labor Day.

I headed back on Sunday. There was nasty weather to the east, so I flew down

the valley and over to Pocatello. Gobs of clouds covered the mountains from Big Piney to Jackson, so I followed the road under the overcast down to Ogden, then scooted across the swale at Rock Springs and into Cheyenne. Then on to Des Moines, Iowa, and a short hop to Cedar Rapids where I bummed a bed off Ed and Karen Tripp and helped drink all their wine. The next day was an easy flight back home, with an hour on the gauges over the mountains again.

The first thing I did when I got back was to rip my panel apart. When I first got the Falco some years ago, I had great plans for the panel. I had put post lights in the panel and had installed a turn and bank, but had never hooked them up. Then the radios were installed, and suddenly it was no longer easy to get all the pieces of the panel out—in fact, when I finally did it, I had to cut wires to get things out, such is the unbelievable chaos of the electrical system of my Falco.

But on the trip the airspeed indicator and altimeter remained with droplets of water on the inside of the glass. The DME wasn't working, and on the way into Cedar Rapids, I found myself unexpectedly caught by sundown, no lighting on the panel and with only one pathetic flashlight. It's stupid to get caught in a situation like that, and it's time to hook all that stuff up. Besides, a Sony GPS will fit perfectly in my Falco, and even if it doesn't have the database features of the better lorans, I like the idea of navigating direct to little airports I've had to search for—sometimes uncomfortably low on fuel—and having a navigation system that will continue to operate even in the event of total electrical failure.—*Alfred Scott*

**John Harns has closed up the openings on his cowling by 1.5" and gained 5 knots.**



## Construction Notes

Occasionally builders ask us how we get the lettering on our instrument panel, either to add more custom lettering to a kit-built airplane or to make a panel from scratch. The instrument panel display we take to Oshkosh is always a big hit, and you'd be amazed how many Glasair/Lancair/RV6 builders take pictures and make notes.

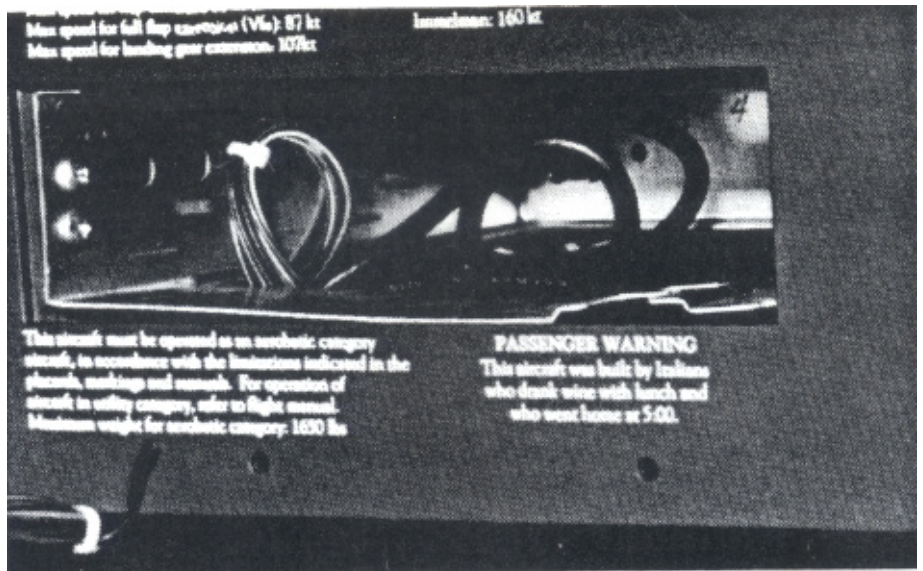
To begin with, our panel is made of painted aluminum. While black is a traditional color for people with no imagination, the dark gray panels used on corporate jets are much more attractive, and they make for a very professional-looking panel. When I first designed the panel, I researched a variety of gray paints to find one that looked just-right. I found the perfect color in Pactra 20017 Asphalt, a flat dark gray with a hint on blue in it. Unfortunately, when I sprayed a protective coating over the paint, it became almost black.

Recently, I've been fixing up the panel of the Corporate Disgrace, and I went looking for a paint. My local model airplane store no longer carries Pactra paints, but I found a Testors paint that is the same color; it's Testors P/N 1960 Panzer Gray, and Testors has a neat system of giving the Federal Standard color numbers for the paint. Panzer Gray is FS 36076, so if you want that color in the paint of your choice, just take that number down to your local paint store and ask them to mix some up.

My panel had been painted in shiny black, so the first thing I did was to sandblast it all off. Then I used a light coat of automotive sanding lacquer primer—because if I understand things right, you should always use a primer for good adhesion. Then I sprayed the Panzer Gray.

The lettering that we use is simply rub-on lettering which you can buy in any art store. It comes in various colors (we use white), but the problem with using standard lettering is that you can never get the characters lined up properly. So we get custom Letraset lettering done for us. We simply had the type set, did a paste-up of all the artwork and sent it off to Letraset to produce the sheets that we include in our kits.

Letraset has a minimum order of 50 sheets, so this is not practical for an individual builder, but there is a way to get this done. The first thing you do is to get your hands on a Macintosh computer and type out



*The Corporate Disgrace panel with dry transfer lettering for placards and warnings. The type style even matches our brochures.*

all the lettering in the type face of your choice. I used our CAD system to draw all the lines, circles and arcs I needed. (By the way, for switches, circuit breakers and the like, we include an alignment circle at each hole in the panel in the artwork. It costs nothing to do this, and it makes aligning the lettering a snap.)

Any large city will have 'stat' houses, which specialize in camera work for advertising agencies and printing firms. They produce stats and many other forms of art reproduction used in the layout of advertisements—for our newsletter photos, for example, we use 85-line-screen, half-tone position prints with the picture reduced or enlarged as needed, paste them on the page and then just xerox that sucker.

One specialized product that a 'stat' house can produce is a Chromatec "INT" dry transfer, which is available in any PMS color you want and also metallics. It's really just a custom photographic process that converts your artwork into rub-on artwork. Artists use this type of thing all the time. For example, when Lu Matthews was doing the air-brush illustrations of our paint schemes, there was no way to do the Sequoia logo or lettering by hand. So he just had the type set in a larger size, shot our logo down and then had dry transfers done.

So that's all you do, just lay out your artwork, get a custom dry transfer done (it'll cost about \$30.00 per letter-size page), and rub the stuff on your panel.

The last step is to spray a clear protective coat over the lettering. You have to be

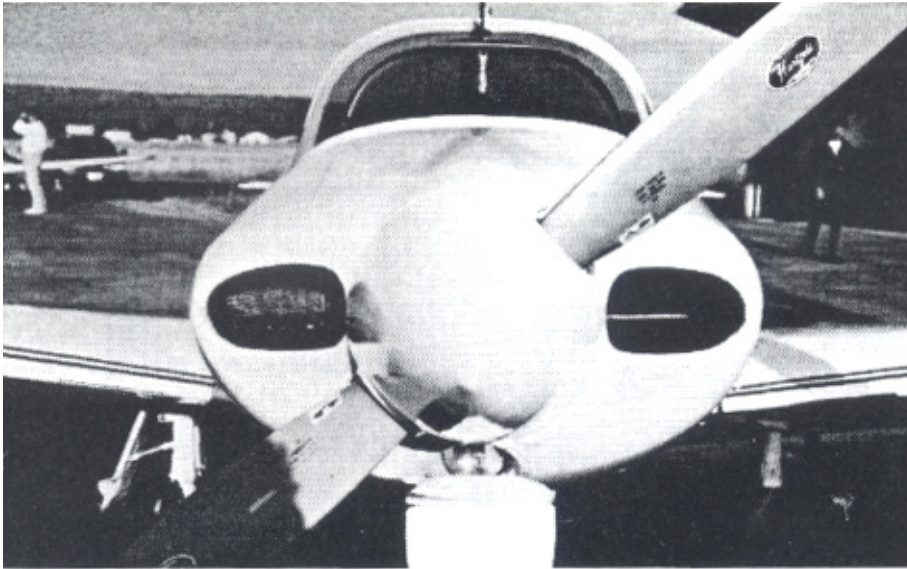
careful to test this coating to make sure it won't attack the paint or lettering—more than one Falco builder has watched in anguish as the paint and lettering curled up. Letraset makes a product called Matte which is a sprayable protective coating for their lettering.

I decided to experiment and tried Letraset Matte and Testors P/N 1960 clear flat lacquer. Maybe it was an unfair test because the Letraset can was a number of years old, but in any event the Letraset was noticeably yellow, while the Testors was not. I used the Testors product and found to my surprise that it did not darken the paint on the panel. Since it's a lacquer, you should just fog on a very thin coat, let it dry and then fog on a few more very light coats—this is because lacquers have a tendency to attack enamels. All clear coatings will yellow with age, and the thinner the coating, the less yellowing you will see.

At the McCall Fly-In, Richard Clements mentioned that he found a bean bag to be a great addition to a shop. When working on the bottom of the airplane, he just shoves the bag under there, and then scrunches himself around on it until he gets comfortable. When working in the cockpit, he just throws the bag into the plane and does the same thing.

Larry Black said that when he bolted the tail cone on his Falco, he wanted to seal up the crack so you wouldn't see it and still have the ability to take it apart. He used automotive drip-check seal for the joint. This is something used on the little 'gutter' on the top of a car. 3M makes one such product, and you can





*Here are the cowling air inlets that John Harns closed up by 1.5" and which give him 5 additional knots.*

get it at an automotive store. Larry just ran a bead around the frame and bolted the tail cone on. The sealer squeezed out, and he wiped all the excess off with a paint solvent. The sealer is paintable and dries to a flexible substance.

At McCall, I was interested to see John Harns's installation of the engine breather tube. Like many other builders, he's run the breather hose into the exhaust by welding a 3/4" stainless steel tube into one of the exhaust system tailpipes. This way, any oil that pukes out during aerobatics goes out with the exhaust. It has put an end to oil on the belly of the plane.

The thing that interested me was the length of the tube. Others have told me they used a three-inch-long tube, but when Steve Wilkinson tried that, it burned the hose. John Harns had a tube that was about 7 to 8 inches long and hasn't had any problem with the hose overheating.

John Harns has also modified the front of the cowling in two ways. As previously reported, like Karl Hansen, he has closed up the gap behind the spinner. He did this by gluing rigid foam to the front of the cowling, shaping it and then filling in the 'pores' with an epoxy/microbial-foam mixture.

This whole thing was something of an experiment because the engine moves around a considerable amount during aerobatics, and over the years with other airplanes there have been some rather distressing 'events' when the spinner hit the cowling—essentially the spinner destroys the cowling, all of

which makes the flight a bit unpleasant. But by keeping the 'filler' as a frangible foam-and-microballoon piece, any contact would quickly wear the filler block away. At least that's the theory.

John has closed the gap down to 1/8" and so far has not seen any contact during aerobatics—and John does a lot of akro. During one cross-country flight, he picked up some ice, and apparently as the ice melted and slid aft off the spinner, it cut a groove into the foam. That's the only mark made yet on the filler block, which is painted like the rest of the cowling, so it looks quite normal. John says this closing of the gap behind the spinner is worth about 5 knots.

John is the first Falco builder with our cowling to close up the air inlets for the engine. (Tony Bingelis once made some plugs to close things up, got a speed increase but also a worrisome climb in oil temperature.) John closed up the bottom of the inlet by 1/2" essentially by extending our 'ramp' straight forward, and closed up the top of the inlet by 1". He said it gained him about 5 knots. The temperatures are increased slightly, and he thinks he could close it up even more and still have good cooling. John has the 160 hp engine.

On my way out to McCall, I finally tracked down the source of the low, soft whistle you often hear in a Falco on approach to landing. I had thought it was something to do with the wheel well being open, but it's actually the canopy seal along the sides. Mine are glued to the canopy tracks and they don't quite touch the tubing of the canopy. At cruise, the suction

that builds up pulls the seal close to the canopy frame tube, and you don't get any whistling noise.

On approach to landing or when climbing out, the speed is too low to pull the seal shut. It's during this time that the whistle builds up, and it's quite easy to prove by just pushing on the seal and hearing the noise stop.

This problem is made worse on my Falco by canopy rollers which don't roll. I abuse the poor Falco and have replaced the factory rollers from time to time. I never took the time to lubricate the rollers or to make sure they were turning easily. I've noticed on some of the Falcos, these rollers are lubricated, and they're 'happy' enough with the installation to turn freely. It's quite a difference the way the canopy slides back on these planes. The preferred lubrication seems to be Tri-Flo oil.

I mention this because if the rollers don't turn, then what happens is that the canopy frame just wears the plastic away. Mine are nearly gone, and I have large flat spots where the raised 'side' of the roller is nearly worn completely away. Let this problem persist and one day you will hear a popping noise after takeoff and then you can look back at the aft canopy support and have a nice view of the ground. The canopy pulls out a couple of inches. It's unnerving, but at least in my experience it was uneventful.

Steve Wilkinson reported that the stall strips on his Falco weren't giving him the sort of warning I get on my Falco, so the other day, I measured the stall strips on the Corporate Disgrace. They have an included angle of about 55° and are 25mm on each exposed face. They are planted on the leading edge of the wing with no noticeable up or down cant.

The big problem with Steve's Falco, of course, was the gear-up landing that it suffered on the way home from Oshkosh. The accident occurred on July 27 at Hanscom Field, near Boston, Massachusetts at approximately 9:30 at night. The pilot was Mark Reichen and a friend, Jeff Jones, was the passenger. Neither were injured.

Subsequent investigation showed that the aircraft was landed with the gear up because of a seized screwjack to the left main landing gear. Mark Reichen remembers selecting gear-down, but admits that he doesn't remember seeing a red gear-in-transit light or a green gear-down light.

The propeller blades were both curled, but damage to the aircraft was minimal. The weight of the aircraft was carried on the nosewheel and the flaps. The inboard end of the right flap spar was torn from the flap. The fairing for the right side load strut was scraped, as was an area of the bottom of the fuselage.

The aircraft was placed on jacks and all attempts to lower the landing gear with the motor and hand crank failed. The mechanic removed the left main screwjack sleeve/screw/universal joint combination from the airplane and was able to break it free by putting a screwdriver in the taper pin hole and cranking over on it. The screwjack released with a 'snap' and then turned easily by hand. The mechanic reported that there was plenty of grease on the screwjack, and later also mentioned that there seemed to be grease on the end of the screwjack as well.

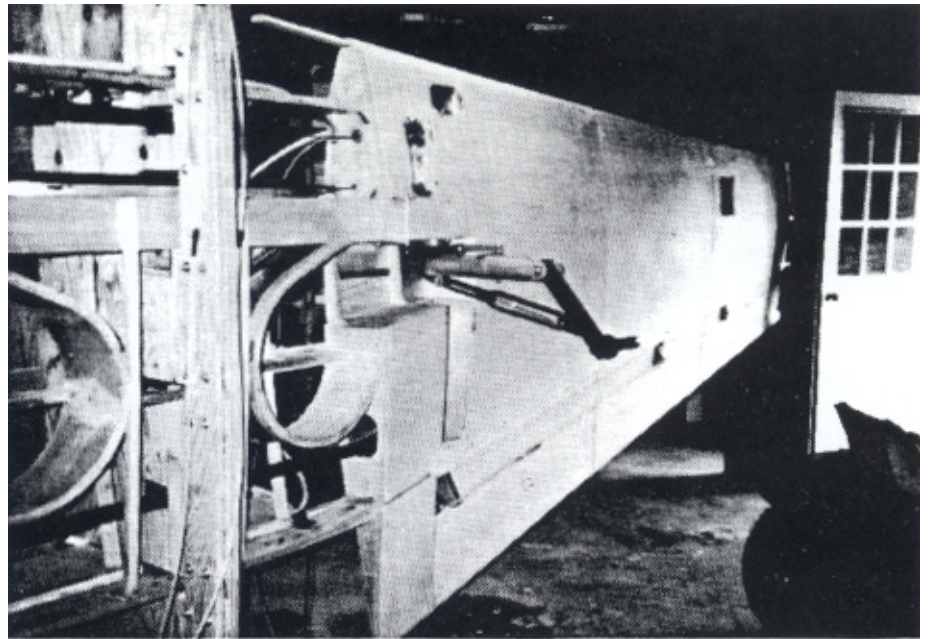
This accident reveals a mode of failure that we had not considered before and which could result in other seized screwjacks with any of the Sequoia Falcos. There are several factors to consider:

1. The best bearing surfaces are with two metals with different hardnesses and ductility. This is the reason for using bronze against steel bolts in the hinge system of the Falco, and for using bronze against steel in this screwjack system.

2. The screwjack sleeve is made of .75"ODx.049"wall 4130N steel tubing and when it bottoms out, it will contact P/N 623 bushing inside the universal joint. Some of the contact will be bronze-against-steel, which is desirable, and some will be steel-against-steel, which is not desirable and (now that we are thinking about it) is conducive to seizing if no lubrication is present. If you calculate the diameter of the screw, it works out to 1.57" and with 10 threads per inch, this results in a 1.57"-wide by .10"-high wedge. That's a 1/15.7 slope or 3.64° wedge that is jammed.

3. When a screwjack is turning and then bottoms out against something, the inertia of the rotation will greatly increase the torque of the motor. With this system making 100 turns in 7 seconds, the rpm is above 800. I'm told that the increase in torque from this inertia is 7 to 10 times, at a minimum.

4. The greater the diameter of the contacting faces, the greater the speed of the contacting metals, thus there is a greater



*Howard and Marty Benham's wing in the jig.*

tendency to gall the metal. Indeed, you can actually weld pieces this way—it's called friction welding. We would not be getting into the heat required for welding here, but you see the point of a greater diameter increasing the tendency to seize.

5. Moly grease is used for screwjacks because the particles of molybdenum disulfide act as little ball bearings. Under a continuous load, the grease would squeeze out. The particles of moly prevent a total squeeze-out. When the part starts to turn again, the particles act as tiny ball bearings until grease starts to smear over the part. The moly particles prevent seizing for this reason. Moly grease is good stuff, but it is not such a miracle product that it could prevent steel-against-steel seizing.

We believe that the screwjack seized at the steel-tube-against-steel-bushing interface because of steel-against-steel contact. Mr. Frati agrees with this as the cause of the seizing. He is adamant that the screwjack should never bottom out against the bushing and that the limit of the gear-up travel be determined by contact between the main gear leg and the wing structure at Sta. 1 and by contact between the nose gear and fuselage frame No. 1. Mr. Frati recommends a minimum distance of 3-5mm between the end of the screwjack and the universal joint to prevent screwjack seizure under any conditions.

To keep this from happening again, we recommend:

1. Shorten the screwjack sleeve so that 3

to 5mm of clearance exists between the end of the screwjack sleeve and the end of the universal joint when the landing gear is in the fully "up" position. If the screwjack sleeve is shortened by sanding, completely clean the screwjack with solvent to insure that all sanding grit is removed.

Note that all ground retraction tests will be with 12 volts while the 14 volts of the electrical system will cause the motor to run 17% faster (the motor speed is directly proportional to the voltage) and thus will coast slightly more. For this reason, we suggest that you do *not* rely on a few thousandths of an inch clearance as adequate.

2. For any installation where a minimum of clearance exists (i.e. less than 3mm), we recommend: (a.) Lubricate the end of the screwjack and the bushing in the universal joint with Aeroshell 7 grease—the same moly grease used on the screwjack. (b.) Chamfer the end of all screwjack sleeves (preferably with a file to keep sanding grit from getting in the screwjack nut) so that the screwjack will bottom out with bronze against steel.

By the way, Mark Reichen was sweating bullets over being cited by the FAA for flying the Falco out of the practice area prematurely. With about 46 hours on the plane at the time of the accident, anyone who could add could figure out that he must have left for Oshkosh before the required 40 hours were flown off. When he finally turned up with the log books fully prepared to stonewall and say nothing that



might incriminate him, the FAA inspector blew up when he found the restriction in the logbook, not at Mark but at the in-training Teterboro inspector who wrote the silly thing in the logbook in the first place. The Teterboro guy clearly didn't have the slightest idea what he was doing, tell him so for me, and have a nice day.

Charles Wagner had a number of questions on the wheel well doors. First, he asks for confirmation that the doors should be made of 3 layers of glass top and bottom—6 layers total. That's right. Second, he asked for the reason for the long rivets. Answer is that I don't remember the reason for the rivet length, but it's almost certainly an attempt to give you a rivet that is at least long enough to accommodate the thickness of the fiberglass—which I was unable to know with any certainty. You should always cut such a rivet off so that it sticks up by one-and-one-half diameters above the surface before driving it. Finally, he asks if washers should be used under the head of the rivet when riveting fiberglass. No washers are necessary. With fiberglass, you should always use soft "A" rivets of pure aluminum, rather than the harder alloy "AD" rivets normally used in aluminum sheet metal structure.

If you are installing a Davtron clock in your panel, you'll notice that they have a keep-alive battery that's attached to the clock. This has to be replaced every two years or so. Problem is that the battery is something you have to send off to Davtron for. They put some batteries together, solder leads to them, and then install the battery in heatshrink tubing for a nice, tidy affair.

It isn't the cost of the battery (\$8.00) that I object to, but rather the necessity to pull the panel out, figure out what I need, call Davtron and then wait for the thing to arrive. Karl Hansen had mentioned that you can make up your own battery from Radio Shack parts, so I called Davtron and asked them how to do it. They were very nice, and explained that for my clock, you just need to put four AA batteries in series. Radio Shack sells a little battery holder plus leads that you can clip the thing on with. I made the switch, and now when I need to change the batteries, it's no big deal, and if I need to steal some batteries for a flashlight, they're right there.

I guess everyone who works with epoxy has discovered PR88 hand creme. It's great

stuff, you rub it all over your hands and it dries to a barely noticeable film. You can work with epoxy or paint and then just wash it all off with water.

PR88 is made in Germany, and a company in the U.S. has cloned it. The new stuff is called Series 8 cream. I bought some because Wicks and Aircraft Spruce no longer carry PR88, and as far as I can tell, it's the same stuff except for a slight change in the fragrance.

I've been getting some reports that the internal transponder antenna has only marginal performance. Terry Smith, Charles Gutzman and Steve Wilkinson have all reported that the antenna would not work in all directions. Steve mentioned that Boston Center picked up his transponder fine going one way, but on the way back the same route, the reception was intermittent and they found if you raised the wing it would work fine, but did not with the wing lowered. It appears that the signal is getting blocked by something.

As a result, Terry Smith and Charles Gutzman have installed a 2" external antenna on the metal access panel outboard of Sta. 2. They say this works most of the time. Anybody else have anything to report on this?

I get questions about what to use instead of the Silver Fuelgard, which has been discontinued. As far as I know, there are two other models which come in the same size instrument, the Shadin Miniflow and the Alcor TruFlow. The Shadin instrument is available with a loran interface, dunno about the Alcor. Other than that, I think the features are essentially the same—both use the same fuel flow transducer, so there can't be any difference in the accuracy.

The canopy cover on the Corporate Disgrace has been slowly deteriorating, to the point where it's been ripping. I had the thing repaired with fiberglass reinforced packaging tape, but this summer it was obvious that it was time to abandon the thing.

Because I have this personality deficiency of waiting until the last possible moment to deal with things like this, I found myself days before departing for Oshkosh with not one thing accomplished on this project. In a mad few days, I made a cover myself.

The first question is the material. Some

people get very carried away by creating a cushioned and waterproof helmet for the airplane. As far as I'm concerned, the purpose of the canopy cover is to (a) protect the interior from the sun, (b) to keep rain from getting into the cockpit if the canopy is not tightly closed, and (c) to make people think the airplane is locked and thus not start snooping about what they might steal. The canopy cover that came with my Falco was made of a very light material, much like a bedsheet. I chose to make the new cover out of the same type of material.

The material that I got is used for curtain linings. It isn't waterproof, but it is mildly water-resistant. During Hurricane Bob, the canopy cover became completely saturated with water, but you just squeeze and shake it out.

Material like this is frightfully cheap, and all I did was to lay the cloth on the canopy, tape it in place with masking tape, cut the pieces grossly oversize and pin the pieces together with straight pins. Then it was back to the sewing machine to sew it all together. The sewing is disgraceful, but, hey, this is a functional cover and nothing else.

Because it produces a few bumps on the exterior of the airplane, few of you would do what I did, but my canopy cover is held along the windshield with six snap fasteners. That's the way the old cover was done, and it's very simple. The windshield screws are replaced with snap buttons already installed on screws. On the canopy cover, all you do is install the snap grommets, and I was astonishing how easy it is to install those. The kits you get at a hardware store include all the instructions. No big deal, you just locate the grommet, punch a hole in the fabric with a leather punch, then assemble the two pieces of the grommet on each side of the fabric, put all this in a die-and-punch set supplied with the kit and slam it with a hammer.

At the aft end, my canopy cover is held to the canopy skirt with little steel hooks. Again, there are six of them, and they are little quarter-inch wide straps of steel formed into a hook. They are much like the hooks used for hanging pictures on the wall, and there are two little holes drilled in them so that you can sew them into the canopy cover. Once you have the snap grommets in place, then you locate the hooks so it will hold things tight and start stitching away. The whole thing looks pretty flimsy, but two weeks after

making it, my cover endured the 55-mph winds and rain of Hurricane Bob without a tear. In all, I think the canopy cover cost me about \$35.00, and in the bargain I learned to use a sewing machine—how many of *you* know how to draw up a bobbin thread?

Couple of notes on the construction manual. We get questions about the torque tube that connects the nose gear screwjack to the gearbox on the aft face of the spar. We've made a change in the tube where the tube connects to the universal joint at the aft end. Originally, this tube had ends on it which reduced the diameter down to 1/2".

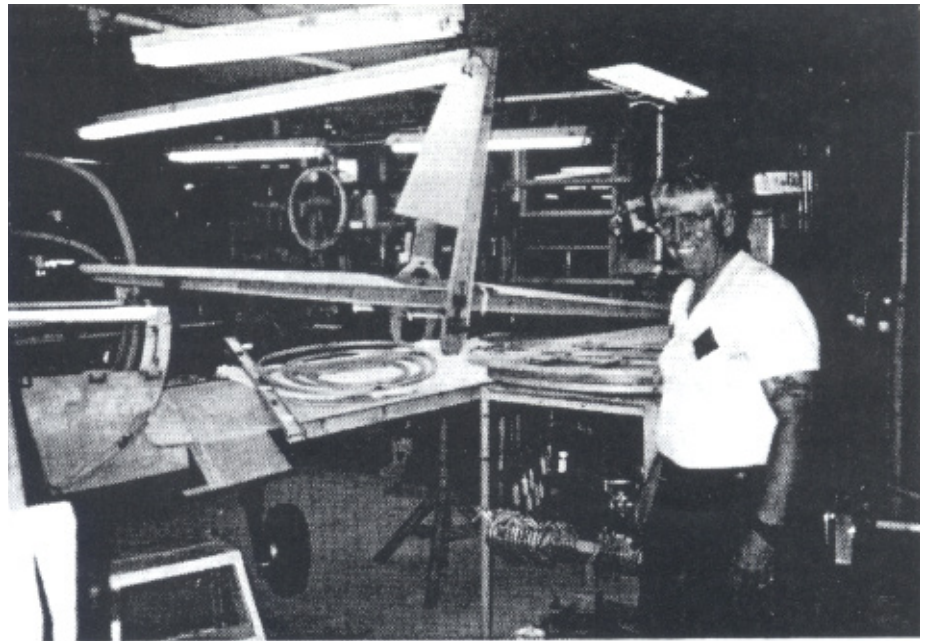
We use a 3/4" universal joint and have to step it back up to 3/4" with a bushing. Because the torque tube is already 3/4", we no longer put a step-down end on the tube, instead we weld a piece of tubing inside to increase the wall thickness of the tube and insert it directly into the universal joint with any bushing at all.

It will all be clear to you when you put it together, and the new method is lighter, cheaper and simpler than the old method. The only thing you need to remember is *not* to Loctite a bushing in this universal joint, because you don't need a bushing there at all.

Got a question today about the main battery wires that come through the main wing spar and then go through the holes in fuselage frame 3. There's a problem with the wires wanting to hit the control stick torque tube. This is the reason that we have you drill the holes in frame 3 and the forward wing spar at an angle, so they will dive down below the torque tube. In the end, you install a block on the fuselage skin and clamp the wire down to the block.

Stephen Friend is installing the "high" Nustrini canopy. He reports, "Fitting the canopy skirt fairing was, in fact, the horror that I had been lead to believe it would be, but only because it is an 'unnatural' material and much trial and error was required—I don't think I would make a very good plastic aeroplane!"

"I have chosen to build the 'high' Nustrini and wanted to fit the skirt without it interfering with the battery box. Before I attached the dorsal fin, I placed the skirt in position so it just cleared the battery box opening with the canopy closed, and fitted the two forward-most screws (clecoes actually) to the canopy and



*Home for Howard Benham is the shop out back.*

canopy frame. This allowed the trailing edge to rest nicely against the fuselage but required the addition of about 25mm of extra fiberglass—it 'hinges' down—in the center and about the same amount on the forward ends to meet the side aluminum strips.

"In order to make the side and rear edges fit against the fuselage without gaps, I contact-glued a small foam filler against the underside of the skirt fairing, and laid up two layers of 10 oz. glass and West epoxy. After it had started to gel, I covered the fuselage with plastic (to keep the epoxy from sticking to it) and placed the skirt in position and stapled the floppy edge to the fuselage.

"You may wonder how this ponderous description looks. The curve of the rear of the canopy is continued to the fuselage, and a straight edge resting between the skirt and the canopy still shows 5mm of daylight at the line of screws."

Several of our builders have pointed out that the construction manual does not say when to put the blocks of wood in the bottom of the airplane that support the flap torque tube support and flap motor supports. Nor does it say when to install these metal fittings.

I haven't had time to study this one—and if anyone has a notion about when the best time would be, I'd appreciate knowing about it—but it appears from the way we build the wing, and then the fuselage that there is no good, ideal, now-is-just-right time to install the things.

It looks like one of those things that will always be difficult. But because of the difficulty in drilling the holes in the wood blocks, you might consider drilling the holes in the wood blocks first, and then fitting the blocks into the airplane, shimming and cutting as necessary. In reality, as long as you get them glued in to their neighboring longerons or frames, that's fine, because the important joint occurs when you glue on the skin.

Also, I'm told our construction manual does not say when to install the steel anchor plates that back up the engine mount lugs. What you normally do there is to fit them when the plywood skin is glue in place on the sides—i.e. from upper side longeron to lower side longeron—but before the upper or lower fuselage skins are installed. This way, you can clamp the parts in place, mark the places with a transfer punch, take the pieces over to a drill press, drill the holes and then install them on the airplane. You can also start drilling the holes for the screws which go through the sidewalls by drilling the steel plates. Later after the fuselage is completely skinned, you can climb into the airplane and drill the holes through the wood.

And Howard Benham points out that the floor supports (see Figure 20 of Chapter 23) on the forward face of fuselage frame No. 3 should not be permanently installed until P/N 717 is installed. That's because you have to put P/N 717 in upside-down to drill the holes (see Figure 6 of Chapter 27).

—Alfred Scott



## HP-32 Programming

I'm a fanatic about Hewlett-Packard programmable calculators with their RPN notation. At Oshkosh, someone broke into our van, and one of the things we lost was my HP-11C calculator. They don't make that version any more, and I was heartsick at the notion of having to learn a new one. I bought an HP-32SII calculator and eyed the unfamiliar device with reluctance as I started to read the manual. Why did they have to change such a nice thing?

Two hours after reading the manual, I had started to warm to the new calculator, and after six hours, not only did I have it completely programmed, but I didn't even want the old one back. The principal advantages are that instead of having five programs which you could call with the A-E buttons, the new machine has more memory for programs, and you have

A-Z buttons to call the programs, which makes it much easier to remember. The calculator is faster, and it has a nifty way of handling the entry of fractional numbers—it's quite easy to multiply  $5-13/64$  by  $2-27/256$ . When it sees a second decimal, it knows you're talking fractions.

In case you're interested, I've listed below the programs I have in my machine. Programs I and M convert between inches and millimeters. Programs C and S are something I use when doing a drawing at an odd scale, C stores the constant and S multiplies the x-register number by that constant. Programs A, B, X and Y are the Falco fuselage curve. H, T, D and V are electronic E6B functions. Use H and T to enter pressure altitude and temperature, then use D to get the density altitude and V to convert indicated airspeed to true airspeed. K and P convert between knots and mph.

—Alfred Scott

## Cheat-Sheet

To remember what these do, I print out a little cheat-sheet and glue it on the back of my calculator. Here's my cheat-sheet:

```

I : mm -> inches
M : inches -> mm

C : store scale constant C
S : scale (X * C)

Fuselage Curve
A : enter A (horizontal)
B : enter B (vertical)
X : for given Y, solve for X
Y : for given X, solve for Y

H : enter pressure altitude
T : enter temperature in °F
D : solve for density altitude
V : Vias -> Vtas

K : mph -> knots
P : knots -> mph
    
```

### Program Listing

#### Variables

A : A of fuselage shape  
 B : B of fuselage shape  
 C : scale constant  
 H : pressure altitude in feet  
 S : sigma (density ratio)  
 T : temperature in °F  
 V : Vias scratch variable  
 X : X of fuselage shape, scratch  
 Y : Y of fuselage shape, scratch

#### Programs

A : enter A of fuselage shape  
 B : enter B of fuselage shape  
 C : store scale constant  
 D : solve for density altitude  
 H : enter pressure altitude in feet  
 I : mm -> inches  
 K : mph -> knots  
 M : inches -> mm  
 P : knots -> mph  
 S : scale (x scale constant C)  
 T : enter temperature in °F  
 V : Vias -> Vtas  
 X : for given Y, solve for X of fuselage shape  
 Y : for given X, solve for Y of fuselage shape  
 Z : solve for density ratio sigma

```

A01 LBL A
A02 STO A
A03 RTN

B01 LBL B
B02 STO B
B03 RTN

M01 LBL M
M02 0.03937
M03 ÷
M04 RTN

I01 LBL I
I02 0.03937
I03 x
I04 RTN

X01 LBL X
X02 STO Y
X03 1
X04 ENTER
X05 ENTER
X06 RCL Y
X07 RCL B
X08 ÷
X09 -
X10 SQRT
X11 -
X12 X^2
X13 -
X14 RCL x A
X15 RTN

Y01 LBL Y
Y02 STO X
Y03 1
Y04 ENTER
Y05 ENTER
Y06 RCL X
    
```

```

Y07 RCL A
Y08 ÷
Y09 -
Y10 SQRT
Y11 -
Y12 X^2
Y13 -
Y14 RCL x B
Y15 RTN

C01 LBL C
C02 STO C
C03 RTN

S01 LBL S
S02 RCL x C
S03 RTN

H01 LBL H
H02 STO H
H03 RTN

T01 LBL T
T02 STO T
T03 RTN

Z01 LBL Z
Z02 6.87535E-6
Z03 RCL x H
    {H is pressure altitude}
Z04 +/-
Z05 1
Z06 +
Z07 5.256
Z08 Y^X
    {there's delta}
Z09 459.688
Z10 RCL + T
    {T is
    
```

```

    temperature}
Z11 518.688
Z12 ÷ {there's theta}
Z13 ÷ {there's sigma}
Z14 STO S
Z15 RTN

D01 LBL D
D02 XEQ Z
D03 RCL S
D04 .235
D05 Y^X
D06 +/-
D07 1
D08 +
D09 145500
D10 x
D11 RTN

V01 LBL V
V02 STO V
    {scratch variable}
V03 XEQ Z
V04 RCL V
V05 RCL S
V06 SQRT
V07 ÷
V08 RTN

P01 LBL P
P02 1.1515
P03 x
P04 RTN

K01 LBL K
K02 1.1515
K03 ÷
K04 RTN
    
```

## Bending the Wing Leading Edge Skin

by George Barrett

*Some builders bend the wing fore—er, leading edge—skin on the wing. Others prefer to pre-bend the skin to avoid distorting the wing and fighting with spring-back in the plywood. George Barrett's method, described below, uses a precise form to shape the bend.—Alfred Scott*

A form is made duplicating the wing leading edge. I used three 12-foot lengths of obeggee wood: one 2 x 3 and two 5/4 x 4. These were glued up to form an "A"-shaped frame internally braced by eight spaced equally triangular pieces (Fig. 1). The frame was then clamped to a long table and planed to the airfoil shape. Each of the 14 stations is marked and the proper curve at each verified by templates made from the rib drawings.

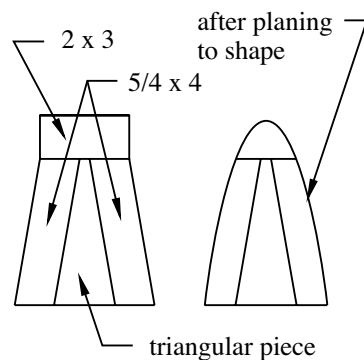


Fig. 1, The "Form"

I used obeggee wood for the form because it is a soft wood that planes quite easily.

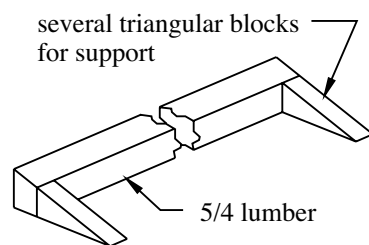


Fig. 2, The "Seat"

A 12-foot, angled "seat" was made upon which the form was set on the long table (Fig. 2). This seat was uniform in size throughout its length and is screwed to the form using four two-inch drywall screws. The exact location is determined by measuring or estimating the position that the to-be-bent plywood sheet's edge will occupy when locked to the leading edge form. There must also be clearance

for the lock bar to fit snugly on the leading edge of the form and grip the leading edge of the plywood sheet evenly (Fig. 3, 4).

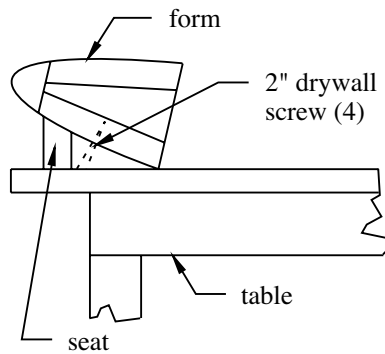


Fig. 3

A straight, hardwood lock bar, approximately 1 x 1 x 52 inches, is screwed to the form so as to grip the plywood sheet leading edge evenly along the leading edge of the form. I drilled four holes equally distant along the lock bar, each 10mm from the top edge.

The lock bar is carefully placed on the form so that its top edge follows the line on the wing's leading edge where you wish the sheet's leading edge to rest. The lock bar is screwed to the form so that it will snugly grip the plywood sheet in the exact position you want. When you back off the screws a bit, there will be a 10mm slot into which the sheet's leading edge is set for bending (Fig. 4).

The form is then clamped to the edge of the table so that the sheet will lay reasonably parallel to the table top when the bend is completed.

The lock bar will be relocated for bending sheets at the three sections 1-6, 6-10 and 10-14. The form will be reversed and rescrewed to the seat when topside sheets are bent. In total, there will be two sheets bent at each section on each side of the form. This will require a minimum of 6 moves. You should mark locations of the critical lines on the form and seat.

Before bending, the leading edge of the sheet to be bent is soaked for two days.

I measured each sheet on the wing and precut it to the exact shape for the section to be covered (e.g. lower right 1-6). The critical angle is that of the leading edge to the rib line. I drew a line along the inside of the leading edge of the sheet where it meets the aft edge of the leading edge strip (Fig. 5).

I drew a line on the leading edge strip where the edge of the sheet is to sit. This is the "estimated" line a bit over the middle which will angle slightly inward as you move toward the wing tip.

Using a cardboard strip, I measured the distance between the aft edge of the leading edge strip and this "estimated" line (Fig. 6, 7). This distance was marked at its respective places on the sheet using the "inside" line as the index. The sheet was laid on a table and the two points connected by a line. This "estimated" line will be the line for the sheet's leading edge.

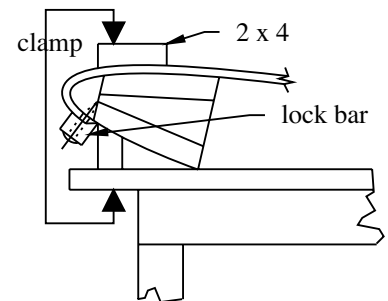


Fig. 4

I drew another line 10mm farther forward. This gives you the 10mm area to be gripped by the lock bar when bending the sheet (Fig. 6, 7). I cut off the excess plywood freehand on my bench saw. I have a large saw table arrangement with "roller horses" to permit easy maneuvering of plywood sheets in the cutting process. I use a 6" Sears 200-tooth fine cut blade which is excellent for cutting these thin sheets.

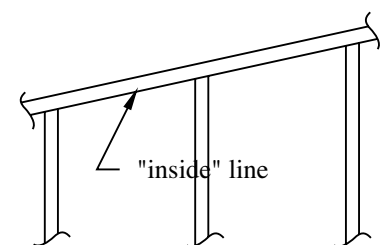


Fig. 5

The soaking trough was designed to hold approximately 4 gallons of water as this was all I could boil at one time on my basement stove. I put a spigot at one end to permit draining through a hose to a floor drain. The trough was 52" by about 10" high.

To hold the sheet in the best position on the form, I used a 50-inch 2 x 4, one face of



which was chambered—or hollowed—out a bit to form a concave curve to fit more closely on the form (Fig. 4). A similar chamber can be put in the 1x1 lock bar.

When you are ready to bend, drain the water in the trough and replace it with boiling water. For the 2.5mm 1-6 sheets and 2mm 10-14 sheets, I added an intermediate step of 4 gallons of hot household water before the boiling-water step. How much this helped, I do not know. Let the sheet soak 12-15 minutes in the boiling water, then remove and insert the leading edge to be bent into the slot between the lock bar and the form. Be sure you have the inside surfaces against the form.

Tighten the four screws to secure the sheet firmly in the lock. Then press down on the sheet carefully bending it back over the form. This went surprisingly easily on all but the 2mm upper 10-14 sheets. Be sure the edges are rounded snugly on the form. I laid a 2x10 on the sheet to hold it down while I placed the 2x4 upper lock on

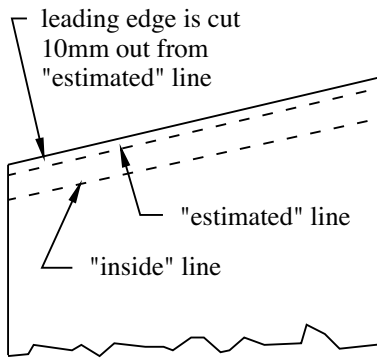
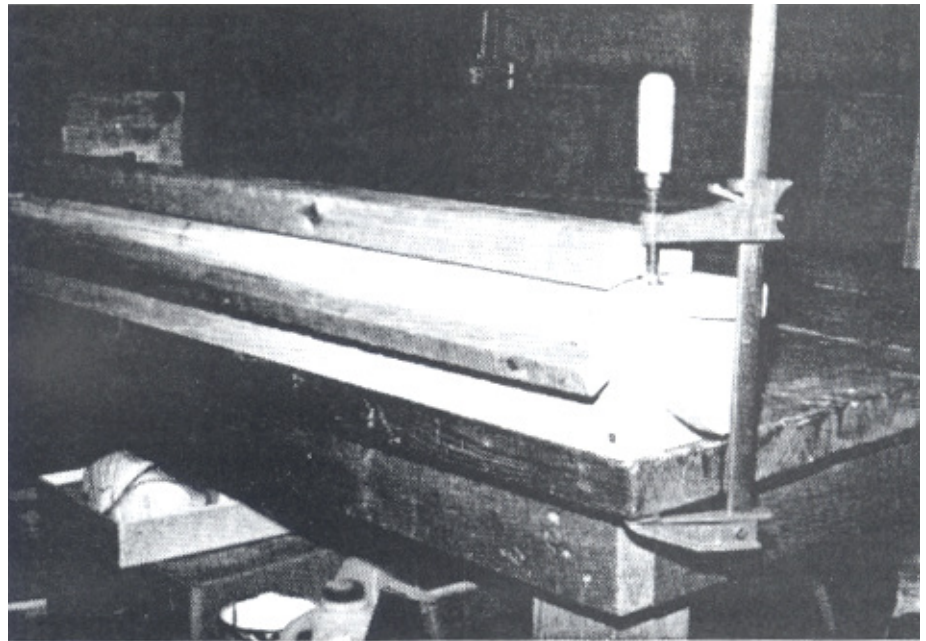


Fig. 6

the form so that it will lock the sheet firmly on the form. Clamp this in place. I used five 12" Jorgensen clamps along the face, clamping against the front edge of the table (Fig. 3, 4).

Initially I did not plan to scarf the edges along the ribs before bending as I feared that even a small error in the leading edge angle would misalign the edges with the ribs. But, it turned out that the alignment was better than I expected. I scarfed these edges before bending as this saves a lot of work, and the scarfing table does a much better job. If you are off a little, it is much easier to correct a scarf by taper-sanding than doing it from scratch.

If you scarf before bending, you must have the sheet close to the correct width beforehand. But, you can play it safe by leaving the sheet about 25mm too wide and cutting off one side if you discover



Here's the whole thing set up. One form is used for both wings.

misalignment after bending when you fit the skin on the wing. You can then realign if necessary and scarf after bending, which involves at least some hand scarfing on the curved edges. My experience was that

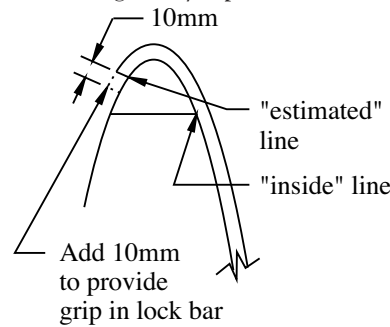


Fig. 7

all the sheets fitted well on the ribs with no more than 2 or 3mm variation which was acceptable.

By trial and error, I found that you must let the 2 and 2.5mm sheets dry at least 5 days, the others 4 days. This is usually sufficient to retain the curve until you glue on the skin. By proper sequencing, you can set up an assembly-line affair, fitting, cutting, scarfing and soaking skins while the previous one is drying, and gluing them on in the lulls.

The main advantage of bending on the form is that you avoid distortion of the wing, which can be caused by bending on the wing, and it is much easier to bend and clamp the sheets on a flat table than in the air on the vertical wing. The disadvantage is that you risk misalignment of the rib edges if the leading edge angle is not correct. Once you have the form

made and set on its seat on the table, the whole process goes rather easily.

Making the station 14 bend on the 2mm upper skin is the most critical. I cracked the first one. The second effort was successful. For this I applied additional heat with a steam iron held against the wet end of the sheet adjacent to the lock bar, and made the bend slowly.

You can use the skinning sequence in the construction manual, which involves 12 shifts in the seat on the form. This can be cumbersome. Alternatively, you can install all the lower skins first, beginning with 1-6, 6-10 and 10-14 on one side. This required only 4 changes in the seat setting. It also avoids the long wait before installing the upper skins after bending, during which the bends will relax a bit, even over one day. But, it requires a different method of "sketching" the framework on the skins, unless you trace all of them before you install any skin. This can be done, but there is some risk of slight misalignment.

The alternative "sketching" is done after the top skin is bent and actually fitted onto the wing and "pinned" with 2 nails. Measure the location fore and aft of each rib from an index line. For skin 1-6, this index is the inner edge of rib 1. For 6-10 and 10-14, the index is a line drawn on the previous skin along the new skin's overlapping edge. You "eyeball" the spar and the leading and trailing edge lines. You can check the lines with a small mirror on a stick, or a dental mirror if you have one. □

## Sawdust

- Trophy hunters. Congratulations to Charles Gutzman who won Champion Plans-Built (that's third place) at Oshkosh. And at the PFA Rally at Wroughton, England, Bjoern Eriksen won the best kit-built aircraft award, and also *Pilot* magazine's *Concours d'elegance* award. Said Eriksen, "The response to Falco LN-LCA was rather amazing, and I have a feeling that we stole the show." No kidding, every Brit I've talked to has been raving about Eriksen's Falco.

- High-Diddle-Diddle. Mariano Facciolo of Italy gave a new meaning to the term "hot mike" recently when he and his female "co-pilot" joined the metric mile-high club. Italian officials have relieved Facciolo of his license for practicing "dangerous maneuvers and broadcasting his steamy exploits." Shocked tower controllers listened to the moans and groans and at first thought someone was in great pain. Just as they were preparing to declare an emergency, they suddenly heard a woman's voice say, "Oh, Mariano!" This episode continued for 45 minutes with the aircraft on autopilot. The controllers said, "The sounds went on for a long time, then we heard the man say, 'Oops, I left the mike on. Sorry, honey.'" Yeah, right. It was 15 minutes before lover-boy Mariano came back on and requested permission to land.

- Earth to earth, dust to dust. At Oshkosh, *Aviation Consumer* contributor Brent Silver stopped by for a chat. He's an aviation safety consultant and the writer who wrote the milestone whistle-blowing series about the inflight failures of the V-tail Bonanzas. No lover of wood in aircraft construction, Brent said he considered wood "an intermediate step between dirt and dirt." Don't say we never warned you.

- Holy moly, it's a Sony. Everyone agrees that global position systems (GPS) are far more accurate than loran, and that GPS will replace loran once the price gets low enough. With prices inching down to \$3000, all pundits agree that the systems are starting to get interesting. At Oshkosh, Sony had a booth showing off their GPS system, a cute little 2.5"x2.5" box that's only 2" deep with an upside-down butter plate for an antenna that you can clip to the top of the GPS receiver or hide somewhere. It's a basic 100-waypoint system for general use (hiking, supertankers, bicy-

cles, motorcycles, airplanes, speedboats, camels—Sony doesn't care what you use it on) with none of the aviation database features or autopilot/fuel-flow-computer interfaces that you find on the better lorans. But this sucker has four AA batteries which will keep it running for 8 hours after your electrical system fails, and when they get more satellites up there, it will also tell you the altitude. Available in October, the Sony GPS will have a list price of "under \$1500" which means that you'll probably be able to buy one for around \$1200. This thing is going to stand the loran/GPS industry on its ear.

- Northstar a-rising. Speaking of lorans, it appears that the favorite among Falcopersons is the Northstar. Slaton, Wilkinson, Dovydinas and Burgoyne all have them, and everyone says that it's by far the easiest to use. Most people have it mastered in an hour—even Ben Burgoyne who once got lost on the way to the bathroom—and Deep Microphone says he can shoot a better ADF approach with his Northstar than he can with an ADF.

- Start your own war. This airplane should get you an award for the most unusual warbird. Stelio Frati's twin-turboprop Condor is for sale, sans engines. The bubble-canopied twin was intended as a military trainer, counter-insurgency (that's military jargon for strafing citizens who don't like your dictatorship) and gunnery/rocket practice. With rocket launchers and machine gun pods below the wing, this little baby is great for settling property disputes and personal vendettas—and it's much cheaper, more satisfying and loads more fun than just using lawyers.

- Media watch. Charles Gutzman's Falco made cover of the September issue of *Sport Aviation*, and there's a nice article about the plane inside. See the September issue of England's *Pilot* magazine for Steve Wilkinson's "Building a Falco, Part IV" with Bjoern Eriksen's Falco on the cover. There's a wonderful article by Steve on moving the Falco to the airport in the October issue of *Air & Space* magazine—which incidently is becoming a terrific magazines, with articles by some of the best writers in aviation today. And there was some nice coverage of the Falco in the August issue of *U.S. Aviator*. A recent issue of *Interavia* reports that Sabliner has agreed to cooperate with Agusta to manufacture the SF.260E currently being proposed to

the USAF as a replacement for T-41s. See the October issue of *Air Progress* for an article on the Promavia Jet Squalus.

- More on Jackie. The filming of "A Woman Named Jackie" at our house was exceptionally painless for me—I was in *Oshkosh*. But Sara, Kakee and Meredith had a real day of it, with nearly a hundred people in our house and yard. Most of the scenes were at night, so they covered up all the windows with black fabric and then put spotlights behind them to get the right shade of night. And that pastel portrait of Caroline is actually Sara Scott. Look for Meredith Scott as one of the secretaries in the White House press office when Jackie announces that Marilyn Monroe has died. Watch the October NBC-TV listings for this B-rated mini-series starring a soap queen as Jackie Kennedy.

- Oysters and Falcos *do* mix. The 11th Annual Great Oyster Fly-In and Gathering of Stelio Frati aircraft will take place at Rosegill Farm Airstrip, Urbanna, Virginia on Saturday November 2. The Oyster Festival parade starts at noon so it's best to arrive a couple of hours before that. If you've never been to the Great Oyster Thing, you don't know what livin' is all about.

- Woodn't it be nice to have a 120-lb speedbrake? Stelio Frati's F.22 Sprint has a 160 hp engine, constant-speed prop, retractable gear, two seats, and is very similar in layout, design and appearance to the Falco, except that the Sprint has a longer tail arm and a swept tail. Empty weight is 1,332 lbs and top speed 190 mph. Hmm... maybe wood *does* have a few advantages.

- World's slowest and least-aerobatic Falco. While FlightSafety is tied up making simulators for airliners and corporate jets, the Koreans, of all people, have finally got it right. They're building a Falco simulator at the Korea Aerospace Research Institute in Daejun, Korea, using Falco kit parts for pretty much everything.

- Phast Phalco? Marcel Morrien of the Netherlands stopped by the other day on a vacation trip to the U.S. One problem he's contemplating is the 'PH-' call-sign of his Falco, which is coming along nicely. Marcel owns a drug store and is thinking about PH-ARM, which is doubly cute because *arm* is Dutch for "poor". Or what about PH-AST? Or PH-ALC. PH-UNN? Now don't get naughty.



## Brenda's Corner

Once again, Alfred wanted to tell you that I had nothing to say. Sure, Alfred!

Well, I survived my eighth (count them eight) trip to Oshkosh and actually, it wasn't so bad. The anticipation of going and getting everything ready was the worst part. The weather was wonderful. We had only one day of rain. Rainy days are the worst—that's when all the loonies come in and want to change the Falco to a four-place, composite airplane with a Ford engine. You just smile and shake your head no.

The best part of Oshkosh is seeing all you Falco builders and your families and friends who make the journey year after year. I really feel that we are old friends, and that's the only thing I will miss about not going to Oshkosh. Of course, I have promised to go the year Bob Bready flies his Falco, but I think I can count on a few uninterrupted summers until then.

Stuart and Viv Gane made their way over from England again this year. Every year before Oshkosh, they tour some part of the United States. I had been telling them how beautiful Virginia is, and they should really make that part of one of their trips. This year they did, and it rained. And it rained. And it rained.

But they arrived at Oshkosh smiling, saying they had brought me something all the way from England. As I was expressing my thanks and saying you really *shouldn't* have done that and thinking to myself, boy, this is really special that they should bring me a present, Viv was digging into her backpack. She finally finds "my present" and pulls it out—the landing gear motor.

Special note to Stuart and Viv—Falco builder dinner—July 29, 1992, at Martini's Restaurant in Appleton, time: 7:00 p.m., please allow time for personal hygiene.

An annual reminder if you are going to order the prop and spinner before the end of the year, Hartzell increases their prices as of January 1, and the price is based on the delivery date not the order date. To be safe, you should order as soon as you read this.

—Brenda Avery

## Goings On at Sequoia Aircraft

Hardly anything of any interest to report. We've spent much of the summer cranking out wood parts, finishing up the tail group spars and ribs for fifty planes. That's nearly all done, and we're clearing the tables in preparation for wing ribs.

I'm still cranking away cutting up pieces for the wing ribs. I simply cannot describe to you how boring this is. It takes about one week of evenings to do a single rib. I've got the whole process down to a science, and it's just a matter of staying at it. As I write this, I am working on wing rib 12, having started at station 4. So now I have left ribs for 13, 14, 1, 2, 3 and 2.5. Next fifty sets, I'm going to hire a summer student to cut up the parts, but I don't want to trust anyone else with making the cutting fixtures.

Although it is certainly quick by production standards, there are about 3.5 hours of cutting braces in every wing rib kit. That doesn't count cutting the gussets, bending the capstrips or assembling the ribs. I hate ribs.

We have a change coming up on the oil pressure sender and instrument cluster. Long ago, our instrument supplier decided to switch from the rheostate-type senders for some of their gauges to a solid-state potentiometer-type transducer for a wide variety of their senders. They had some kind of fight with the supplier of the transducers and are switching back to the old type senders.

The only problem is that the senders are not interchangeable. The instrument and senders that we have been using have three wires. There are three wires on the back of the gauge, and the sender has a three-wire connector.

As long as you have matched pairs of gauges and senders, you're fine, but if you only have the gauge, we will have to switch that with you. I think we know all of you who need attention, but if you have only an instrument cluster and no oil pressure sender (it's in the electrical kit), then please let Brenda Avery know.

The parts for the B-model gearmotor have arrived, and we should be getting those out shortly to those of you who want to switch.—Alfred Scott

## Mailbox

Well, Project 1149 is now well under way and progressing satisfactorily. Our team comprises Navid Nowill, Clive Garrard and myself. To date we have manufactured all the wooden components for the tail section other than the elevator and stabilizer spars, and it is here that we encounter our first query. On these components, it is permissible to scarf-joint the material or must it be in one piece?

Art Crabb  
East Goscombe  
Leicester  
England

*Yes, of course you can scarf the spar caps of the tail spars. You can always use a scarf joint but you must always obey the standard rules about scarf slope, good gluing practices and location of scarf joints to each others in adjacent layers.—Alfred Scott*

Thanks for the copy of your recent newsletter. The airplane part of it was fascinating. The EAA comments were interesting. Your correspondent, Foster, was off base in most of his comments, and his generalizations were unfair. Your observations were well taken. Big changes have been made. There is still work to be done.

Dean Hall  
Fullerton, California

*Apologies to Dean Hall and other EAA directors for not explaining that Ray Foster's comments were from the vantage point of a number of years ago. After reporting to Ray what I saw at Oshkosh (see "The Power of Face" elsewhere in this issue), I'm delighted to report that Ray sees things very much as I do.—Alfred Scott*

I am pleased to advise that the Falco F8L has now been approved by our CAA as satisfying Australia's CAO.101.28 Amateur-Built Category type acceptance requirements. As I noted in my letter to you on 17 December 1990, I consider your technical support data for the F8L is the best I have had to process over the past 30 years. It seems that CAA in their letter also support this view.

Walter J. Watkins  
Victoria, Australia

*So now it's official. The Falco is approved for construction in Australia.—Scott*

Hello from Australia! The Falco has the engine fitted and wired. It is on its gear with the canopy on. I have begun wiring the Falco airframe, and I've finding

everything so easy, an idiot could do it!  
That's why I've got the job!

*Tony Chamberlin  
Toowoomba, Queensland  
Australia*

I had a great thrill when I met Bjoern Eriksen and saw his fabulous red Falco. I do hope he gets over to your Oshkosh, and hear how you all over the Atlantic feel about his beautiful finish. It has greatly spurred on my efforts to build a creditable machine. At present I await spruce for the main wingspar, all wing ribs are made, and I have the tail all ready for the fin and stabilizer to be covered. The elevator and rudder are finished except for the tail light fitting. All fuselage frames are made and waiting for the completion of a frame to start the construction.

Bjoern was very generous with his time, talking of his building experience and showing me various small details that would help me. I met several Falco builders and the owner of an original production Falco, in black, which visited our PFA rally. I managed to get him parked very near Bjoern's Falco, one bright red, the other black with a yellow and silver Magister in between. I guess everyone was talking about the 'red Falco' at the show.

*Dick Marks  
Bridewater, Somerset  
England*

To all you fortunate few who have finished your Falco: does anyone have an assortment of clamps, etc, you would like to sell? Tell me what you have (or send a picture of it all) and how much you want for it.

*Wayne Rampley  
3208 Phoenix Dr.  
Muskogee, OK 74403*

First business trip in the Falco is history. Brook and I went up to Burlington, Vermont, yesterday to see Dean Martin, the guy who sells MiG-21s. He had three live ones in the hangar, plus a couple of Mig-17s.

Disregard my conclusion that the actual forward CG limit coincides with the published one. I checked my up-elevator deflection, and I'm probably only getting 70 percent of the full 22 degrees, so I have to grind the elevator stop a bit and will thus get more elevator effectiveness.

The engine has burned one quart of mineral oil in 25 hours. Apparently,



*Jonas Dovydenas's Stealth Falco takes off.*

Cermichrome overhauls work. At this point, the oil level just sits on 7, hour after hour. CHT's are all virtually equal and halfway up the green. Oil temp is two-thirds green, maybe just slightly more. I'm surprised, however, how little cabin heat there is at 10,000 feet on a warm day. After the initial rush of hot air, it quickly becomes tepid, probably due in part to the 19" of manifold pressure that the engine is putting out up there.

The loran works superbly. The signal-to-noise ratio is in the mid-90s, with 100 perfect and anything over 50 considered usable, and I wasn't particularly obsessive about bonding every piece of metal. I did the hinges in the tail and wing, the trim-tab tube, the battery box door, and I think that's it, aside from whatever else is bonded through the negative bus bar.

My brakes, which I thought would be a weak point, work splendidly. I haven't tried holding it against a full-power runup, but they're certainly more than adequate for everything else.

Yesterday, I had the airplane into Jim Catalano's 1,800-foot grass strip in a direct, turbulent mountain crosswind that on my first approach slapped me into a 45-degree bank on short final, prompting a go-around. I'd already gotten a 5G whack from a little mountain wave while descending over the top of Mt. Marcy. Landed the next time—and after several short demo and fun-of-it flights thereafter—and never needed the brakes.

The runway dead-ends in Jim's hangar. He was terrified, riding though one subsequent landing with me, because his Cub and Aeronca don't even cruise at 80 knots, much less approach at such a speed, and he'd never seen his familiar little strip pass

under the nose at such a rate.

The right wing is growing increasingly heavy, puzzlingly. It's a definite progression, for Mark was able to fly the airplane hand-off for 10 minutes at a time one day en route to Boston, and the next day it would go into an uncontrolled steep spiral in less than 30 seconds. All I can think is that the aileron cables stretched a bit and that the ailerons are consequently unbalanced. Flaps seem okay.

*Stephan Wilkinson  
Cornwall-on-Hudson  
New York*

*The problem with the heavy right wing turned out to be the autopilot servo access panel. It was in the process of pulling open and finally departed the airplane. When the door was replaced, the airplane returned back to a well-trimmed airplane.—Alfred Scott*

I have been spending much of my time flying G-OCDS, my own production Falco, the black one. I have now had some 150 hours PIC and had many great flights. We have had many small problems with it, most of which I feel sure that the current version would not suffer from. These relate mainly to the undercarriage, tyres, wheels and the lousy braking system.

The Wroughton Fly-In was attended by Bjoern Eriksen's airplane. It stole the show. Now everyone knows what a Falco is over here! It was absolutely immaculate; the finish was superb.

*Pete Greenslade  
Clifton, Bedfordshire  
England*

*When he is not flying his Aviamilano Falco, Pete Greenslade is building his own Sequoia Falco, poor fellow.—Presidente Alfredo*