

Falco Builders Letter



This is our first look at John Oliver's Falco after it has been painted.

The Frati/Sequoia Falco F.8L

by Peter Underhill

This "Editor's Air Test" appeared in the June 1990 Popular Flying, published by the Popular Flying Association, England's equivalent of the EAA. The Falco tested had one year before won the PFA's Best Homebuilt Award.

The F.8L Falco first became available in kit form, and thus to the notice of PFAers in the early 1980s. Prior to that event few UK aviators had paid much attention to the work of a man who is one of the most gifted and talented of small aircraft designers, Stelio Frati. Whereas the talents of those equally gifted Frenchmen Delemontez and Joly have become widely known through the popularity and large production volumes of the various Jodels and Robins, Frati's designs seem to have been almost completely overlooked, as few have ever been built in serious quantities. Considering their exceptional performance on low-powered engines, their superb handling, general overall efficiency and absolutely *gorgeous* classic Italian styling, on a par with the finest

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Goings On at Sequoia Aircraft

Bill Knight sent along a lengthy analysis of the Falco's turbulent air penetration speed following an hour or two discussion with Bill Welch, the author of the article on the subject in the April issue of *Kitplanes*. It seems the reason I couldn't understand the article is because the formula was printed wrong.

We don't show a turbulent air penetration speed because it was never part of the original flight manual, and I didn't know how to calculate it—nor did I understand the distinction between this speed and maneuvering speed. As best I can under-

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Around the Falco Patch

We've had our first incident of aileron flutter in a Falco. It happened under some unusual circumstances. Jim Martin's Falco was sold to Joel Bottero, who died of a heart attack after flying the plane only 15 hours. Mrs. Bottero turned the airplane over to some local people who knew relatively little about the plane and who, I think, did a rather poor job of selling the plane. Bottero had paid \$75,000 for the plane and had added one radio, and they were asking \$85,000 which is a fair price and one that they should have gotten without too much trouble.

But the plane was left at the airport without a canopy cover and sand would blow into the cockpit. This turned buyers off, and a number of buyers who arrived with check-in-hand turned their backs on the plane. Finally, the airplane developed aileron flutter at 125 knots. The right aileron would start fluttering, and the wing would pivot and flex wildly.

The sellers had become terrified of the plane when a sly dog from Louisiana figured out the problem and offered \$50,000 on the spot for the plane. John Bolton was already rebuilding two bullet-ridden SF.260's that had been purchased from Nicaragua, knew the Falco was a well-engineered airplane, and was looking for something to fly until the SF.260s were flying.

The Falco, which had been built in Pennsylvania, had been sitting out in the sun in 110° heat in Southern California and was drying out. John said, "you could see a gap of about the thickness of a washer under the aileron hinges." Since he was going to take the plane back to humid Louisiana, he decided not to tighten the bolts. Instead, he hosed the plane down with water, intentionally spraying water in behind the hinges and in general "gave the plane a steam bath."

The next day, John got in the plane and flew it home and—along with his partner,

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The Frati/Sequoia Falco F.8L

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Ferrari or Lamborghini, this is a sad reflection on the Italian general aviation industry.

Stelio Frati was born in Milan in 1919. Since childhood, he has been “plane-crazy,” and became Italian National Champion free-flight aeromodeller in 1940 whilst studying at Milan Polytechnic between 1938 and 1943. Because there was no aeronautical section, he qualified as a mechanical engineer and contributed to the design of various sailplanes, the AL12 military glider and the wondrous *Assalto Radioguidato*, a kind of “flying bomb” powered by a radial engine. The pilot was supposed to perform the take-off, jettison the undercarriage, bail out and leave the “aircraft” to be directed towards the target—Allied shipping in the Med—from another aircraft by radio control.

In 1944, after the war in Europe finished, Frati returned to his old school—now with a aeronautical section—as deputy to his old professor, before becoming a freelance designer in 1954. His philosophy was similar to Delemontez and Joly, namely to produce and refine a design, then to sell production licences to any company that wished to take them on. Compared to the French, the Italians are not quite so air-minded so, with a few notable exceptions, few of his designs went into serious production. Whether some were just too esoteric for the marketplace or too labour-intensive to allow profitable production can only be a matter of speculation. This lack of “product visibility,” prior to Alfred Scott’s launch of the homebuilt Sequoia Falco kits and plans, undoubtedly contributes to the fact that contemporary discussion on the Falco invariably centers around Scott’s involvement. If Frati is mentioned at all, it is usually to wonder what else he has done.

Yet so many of Stelio Frati’s designs have such style and panache that one wonders why more attention hasn’t been paid to his creations. For truly, no-one else—including Burt Rutan—has managed to create such a wide variety of smooth and beautiful aeroplanes capable of such speed on such low power. His early ventures began—leaving aside a rather ugly motorglider—with the F4 Rondone. An all-wood 2 seater with a Continental C85 engine, the prototype F4 was capable of 160 mph. Approximately twenty were



Christopher Langrick, Bill Natrass and Neville Langrick.

built by Aeronautica Lombarda and Ambrosini using the uprated C90 engine, and one example held several world speed records in the early '50s, achieving 169 mph over 100 km distance! Only two remain airworthy today, but what a superb homebuilt it would make, being rather simpler to build than the curvaceous Falco.

The prototype F.8 Falco (the name is Italian for “Hawk”) first flew in 1955. It was originally designed around that omnipresent Continental C90, but production versions (designated the F.8L—the L for Lycoming) had more powerful engines. Several manufacturers built small number of variants, almost all with government subsidies, which were supposed to be returned if a Falco left Italy. More than one intending purchaser of a second-hand I-registered Falco has experienced total frustration at the hands of the Italian bureaucracy whilst trying to discover to whom he owes the subsidy repayment.

For those PFAers who have neither the time nor the requisite *lire* to contemplate such an action, but who still want to possess a Falco, the appearance on the scene of Alfred Scott and his Sequoia kits must have seemed a god-send. If anyone who bought one in those early days was taken in by comments like “easy to build,” the story of G-BYLL is a salutary lesson. It took almost six years of hard graft by three men to reach the stage at which it won the coveted award at Cranfield.

Neville Langrick first became interested in the Falco some 15 years ago, after a trip in a production version. In 1982, together with Bill Natrass, he purchased a

set of Sequoia plans, and the project commenced. Bill made much of the hardware in his shed using a vintage Myford lathe, whilst the woodwork was also homemade. Later, as the aircraft progressed, the duo were joined by Ray Holt. He took on the finishing task, spending many hours “rubbing and filling” and designing the beautiful and unusual paint scheme which uses a General Motors 1965-vintage “stone beige” with dark brown stripes. The finish is to Rolls-Royce standards, and this extends to the use of Connelly hide, West of England broadcloth and Wilton carpets in the interior! The aircraft is powered by a Lycoming O-320-A3C and is very comprehensively equipped in the avionics/instrumentation area. It finally tipped the scales at 1280 lbs, about average for a homebuilt Falco.

The aircraft was registered G-BYLL in recognition of Bill Natrass’s contribution,

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The 1989 winner of the Popular Flying Association's Best Homebuilt Award.

and first flight took place from Sherburn-in-Elmet on June 7, 1988, in the hands of ex-Lancaster pilot "Jacko" Jackson. It became the 16th Sequoia Falco to fly world-wide. Unfortunately, testing and paperwork were not completed in time for an attendance at Cranfield that year, but offsetting that minor disappointment, the trio were able to avoid the usual rush which often precludes a "first appearance" at our premier event.

During the autumn of '88 and the spring of '89, many enjoyable hours were flown to gain confidence and familiarity. In June 1989, Ray Holt took the Falco to the Malta Air Rally, arriving back only a few days before Cranfield, where several thousand PFAers were able to see for the first time the beautiful, sleek, curvaceous and just downright sexy lines of G-BYLL!

Some six weeks after Cranfield, the seemingly impossible simultaneous combination of the Falco, a suitable camera plane and pilot, photographer Gordon Bain, and a whole heap of perfect cloud-scapes, all arrived in the same place at the same time, and I was able to conduct my evaluation of the Falco, and also give Gordon the opportunity of some air-to-air photography during the test.

So how does the UK's first homebuilt Falco perform? In a word—magically!

Approach the Falco like you were courting a beautiful lady, slowly, and with mounting anticipation of the pleasure to come. Take in the sleek bend of the fin to the fuselage and on along to the nose; appreciate the altogether *rightness* of the proportions of

the design. When did you last see a Lycoming so tightly and beautifully cowled, like a long, slim leg encased in the finest nylon stockings? The stubby, tapered and glass-like wings projecting only about 11 feet from either side seem too small for their job, but are in perfect proportion to the rest of the aircraft. The whole impression is one of promised speed, crisp handling, and overall beauty. Now move closer.

Stand on the port wingwalk. Explore her more intimately.

Slide back the snugly fitting, 180° all-round vision canopy. It moves as smoothly as any factory job. Look around inside the cockpit. Smell the leather and new paint. Settle into the very comfortable seat, and let your feet relax on the carpet, fitting perfectly into the rudder pedals. Study the layout of the panel. Almost everything you need for IFR flight is present and falls easily to hand or eye. The finish, and the panel layout, communicates a feeling of professionalism and craftsmanship.

Two beautifully curved control sticks, with push-to-talk buttons, project up from leather gaiters on the floor. They move as if made from oiled silk. In the full aft position, each travels in a wide slot in its respective seat cushion. Mounted centrally at the base of the matt black panel is an engine control quadrant with *three* levers. This beauty has a constant-speed prop—not too common on a PFA homebuilt. Look further at the panel, and you'll see a little wheel poking out of the upper left-hand side. Retracting undercarriages are another complication not usually indulged in by homebuilders.

There also an intriguing knob marked "ram air," as well as a complete set of annunciator lights along the top. The radio stack, switches and circuit breakers fall towards the right side as do a couple of engine health gauges.

Starting is very easily accomplished, simply a case—the engine was warm—of turning the ignition key, as for a motor car, and the whole aircraft comes to life. Gauges dance, gyros erect, radios fizz into life, lights come on. Slide the canopy shut and latch it. G-BYLL doesn't rattle, smell or vibrate. It hums politely through the sound deadening. But then, wouldn't you be disappointed to find your sophisticated lady had false teeth, halitosis or spots, once things begin to get interesting? Only the left-hand set of rudder pedals have toe brakes and taxiing the Falco rather reminded me of my very first few miles, at the tender age of 23, in a new V12 E-type Jaguar I'd borrowed for a weekend. You know the power is there. You can feel it. You just don't use it—yet. Steering through the rudder pedals is light and positive with little kickback over the taxiway joints.

At the holding point, put down 15° of flap. Roll onto the runway, push the noise-handle smo-o-o-thly forward and ... does it go! From brakes off to leaving the ground is a matter of only a few short seconds before lift-off occurs at 57 kts with the stick just aft of neutral and a degree of right boot applied. It is then necessary to set climb power and revs, bring up the flaps, establish positive rate of climb, un-dangle the Dunlops *and* peg the speed at 90 kts for best rate of climb, all in very short order. And, I'm sorry to admit, I was so busy during the first half-minute, I completely forgot to start my stopwatch, and don't know what the climb rate was—except that I very soon arrived at 3000', already discovering an aeroplane as light as a Lotus, as fast as a Ferrari, and as responsive as a racing car. I dialled up 2300 rpm with 23" of manifold pressure and "ram air" selected, let the aircraft settle down at a cruise of 125 kts and prepared to have *fun*!

Having explored the three primary axis controls for weight, harmonisation and effectiveness, the next thing to check was the stall. Clean, the Falco stalled at 59 kts with the stall warning horn blaring at 65, and a gentle nibble on the stick just before she broke, left wing down due to the uneven weight of me on one side. Two-up the Falco will let go either way, but you've got to be a bit of a dumbo not to know the

stall is about to happen. The warning is excellent, and the recovery instantaneous with forward stick and power. I didn't try a spin, but I'm told they spin nicely and with standard recovery achieving rapid return to balance flight.

Gear and flaps down give a nose-down pitch, easily corrected on the large centrally-mounted trim wheel, and the stall occurred at 51 kts. Bear in mind, though, that I was nowhere near the max gross for my flight. I cycled the gear again to find it moves quickly, taking only 7 seconds to drop and 8 to retract. In the event of an electrical failure, there is a fibreglass cover just aft of the trim wheel allowing access to a small hinged crank, enabling manual undercarriage retraction or extension. Although the annunciator lights show the gear "up", "in transit" and "down", there are also two small drawing pin-shaped mechanical indicators which pop up into the slipstream above the wheel-wells (for the main wheels) and an indicator rod just forward of the firewall (for the noseleg). Very comforting.

Having established when and how G-BYLL was going to bite (I tried several stalls, both straight and level and in turns, and discovered no major surprises), I then set up a rendezvous with the camera ship, and settled down to some serious—and close—formation flying. It is this exercise which, more than any other, shows up any deficiencies in the control harmonisation and general ease of flying of an aeroplane. In something with slow control and throttle responses, the stick must be waved around the cockpit like an oversized gear-lever, whilst the throttle goes from full power to idle and back again, often several times a minute as you try to keep everything in the same place relative to the camera ship. In calm conditions, it can be difficult. In turbulence in a badly coordinated, poorly-handling aeroplane, it can be damn nigh impossible. In a Falco, it's like taking a walk in the park.

Nothing I have ever flown handles like a Falco. Having previously flown a production version, and the larger (and surprisingly, even more responsive) big brother, the F.14 Nibbio, I was not totally unprepared for G-BYLL. But if all you have every "driven" is a "spamcan" with soggy American control responses, the improvement is like getting out of a Morris Minor and into a Ferrari sports car. And I use the comparison deliberately. Just look at the pictures of the machine in

the air, gear up. It just looks so sleek and fighter-like. Alive. Fast-moving. Able to be placed within inches of where you want. It is just like driving that Italian classic supercar at speed on a deserted road or closed circuit, able to clip apexes within fractions or effortlessly hold angles of drift out of corners to within parts of a degree with the throttle.

The ailerons are incredibly responsive. The stick can be moved—even during aerobatics—with the finger and thumb, transmitting the feel of the airflow to the pilot. The elevators are light, effective, and equally responsive. The rudder isn't just the usual tacked-on appendage for crosswinds. It needs just the slightest pressure to ensure perfectly balanced turns, even at the steepest angles of bank. The engine answers the smallest throttle movement at any speed, and the whole aeroplane is as near-perfect as any you're

Peter Underhill:

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ever likely to fly—anywhere. It is almost like piloting a tiny jet. The Falco is cleared for the basic aerobatics and, as neither Ray nor Neville has had any training in much maneuvers, they were happy that I should "wring out" their creation. After the photo sortie, I did.

Loops are nice, starting at about 160 kts and requiring just the right amount of pull to end up inverted with sufficient inertia to come down the back side without approaching Vne or pulling excessive "g". Rolls, either to the left or the right, are very rapid—I started with a slight diving entry to gain speed to 135 kts, pulling up gently and just letting her roll about a point with almost no need for forward checking and negative "g". Satisfied with those, I settled for a few more exuberant wing-overs and chandelles before returning to Bourn's empty circuit. Overhead at 1500', I demonstrated two more loops and finished off with a couple of victory rolls for the benefit of Ray and Neville, who

were waiting patiently on the ground for me to return their "baby".

In the circuit, the slippery Falco needs a degree of forward planning. Flap-limiting speed is only 95 kts, but the gear can be extended at 105 kts, giving a degree of drag before 20° of flap can be put down. As the speed bleeds off, full flap is called for at about 90 kts. Thereafter, she flies down the slope as if on rails. You hardly need a whisker of trim change, and I flew finals at just under 90 kts coming back to 80 over the hedge with a trickle of power to cushion the sink rate, she touched down at 75 kts. With practice, I could probably have done it more slowly, depending on conditions—which were just right on that day. The nosewheel can be supported with aft stick—on a grass field such action is essential—and brakes if required can be applied hard without worry.

Ray routinely operates G-BYLL out of a 500 metre grass strip up in Yorkshire, so her short-field performance is good. I tried one more takeoff from a standing start and "guesstimate" the roll took no more than a couple of hundred metres of dry tarmac. With gear-up and flaps-up immediately she was airborne, she climbed away steeply and obstacle clearance would be no problem. A short-field landing, approaching at under 85 with a smidgen of power, she could be down and stopped in comfortably less than 400 metres. As I discovered at altitude, aileron control is effective right down the speed range, too, and she's "pointy" enough to have good gust penetration in turbulent conditions.

Taxiing back, I was almost tempted to turn around and go off again for another hour! A Falco does that to you. Even your first landing will turn into a roller. After all, how can you let such a gorgeous, responsive and thoroughly sexy lady—sorry aeroplane—go without attention for very long? To those PFAers who are building one: keep at it, you guys. You're in for an absolute orgy of flying pleasure when it's finished. Oh, and if you're looking for someone to do the initial test flying....?

The Sequoia Falco—it's the sexiest looking, nicest-flying homebuilt aeroplane around!

(My word-processor apparently agrees with me. Running the spellchecker after completing this article it balked at the name *Falco* offering me *phallic* instead. Who says computers aren't intelligent?)

Around the Falco Patch

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Guy Jones—has been tearing up the sky with acrobatics and hasn't had a single nibble of flutter since.

Ben's Big Slide

Ben Burgoyne has achieved the embarrassing and expensive distinction of being the first to land gear-up in a Falco. In our system, gear retraction on the ground is prevented by a pitot-pressure switch which does not permit the gear to come up until 68 knots is achieved, and this same system blows a warning horn if the airplane is slowed below 68 knots with the gear switch in the 'up' position. To allow for gear retraction on jacks, you install a jumper wire to over-ride the pitot-pressure switch, effectively signaling 'above 68 knots' to the system.

Ben had left this jumper installed when he was flying the Falco and after he retracted the gear, the gear actuation circuit breaker popped (Ben didn't notice this until later) before the gear was completely up. Then when he came back to the field for landing, he selected 'gear down' but became distracted by some construction machines on the end of the runway and failed to notice that the gear did not extend. The airplane landed on its belly. The damage was limited to destroying the propeller and sanding a square-foot patch of plywood off the belly.

On reflection, I'm not sure what, if anything, the jumper cable had to do with this accident. With the gear switch in the down position, the warning horn would not have been sounded by the airspeed dropping below 68 knots, however the flap and throttle position switches should have operated normally and should have blown the warning horn and turned on the gear warning light. Also the green gear-down light would not have been on. As Ben readily admits, it was just a mistake, and fortunately he emerged with nothing damaged but his manly pride and his wallet.

Oshkosh

I flew out to Oshkosh with Jack Amos, freelance art director and designer of the Falco brochure, and on our way out we attained new heights of immaturity for the things we did to the tops of clouds.

Oshkosh was an off-year for excitement, except for the Stealth fighter there wasn't much that was new, and bad weather on the opening weekend kept many people



Our first sneak peek at Bjoern Eriksen's Hansen-red Falco in Bodoe, Norway, which should fly any day now.

away, including Charles Gutzman and his spectacular new Falco.

I found the show a fascinating study in humanity in the way people reacted to the recent controversy of "the EAA thing" and particularly how those intimately involved handled themselves. For myself, I made a point to be very visible, I shook a lot of hands I ordinarily wouldn't have, and—from the time I arrived until I left the show—I never once brought 'the subject' up.

I had never met Tom Poberezny and on my arrival I sought him out and introduced myself. Tom handles himself very well, and we talked as easily as anyone.

Paul Poberezny was a different story. I had difficulty catching him one-on-one and kept getting reports of Paul grumbling, "What's this guy Scott look like?" Finally on Saturday, I was able to say hello. Paul was talking to someone, and I stood to one side waiting my turn. He

shook hands, turned smiling to me and plopped his hand in mine as I said, "Paul, I'm Alfred Scott." His face fell, and he said, "Oh, well, we probably shouldn't talk about things," to which I replied, "Well, Paul, I just wanted to say hello and wish you a happy airshow." He was as nervous as a cat, nodded, shook hands and quickly left.

And then on Sunday night, the most remarkable thing happened. Each year, *Flying* magazine has a party for advertisers, and I was moving from group to group when I suddenly found myself facing a very pretty girl who put out her hand and said, "Alfred, I'm Sharon Poberezny"—Tom's wife. She had a nice, natural smile on her face, and I was so stunned, flustered and impressed by it all that I gave her a kiss on the cheek and told her how delighted I was to see her. Now, wasn't that neat of her?

And during the show, despite predictions that there would be fist-fights, I was treated

very well, and the whole thing was very easy to handle. I had one man point his finger at my tummy and told me he was very unhappy with me, but that was the only negative reaction (to be fair, sympathetic people are much more likely to talk to you). I had an average of about ten people a day come up to me and say, "I just want to shake your hand..." , "I just want to tell you how much I admire what you did..." , "I want to thank you for starting the process..." , etc.

They seemed to fall into two categories. The first group had either heard the rumors or simply disliked the authoritarian management style, had read only *The Aviation Consumer* article, and harbored further suspicions.

The other group had read the entire package, including the lawyer's report and my response to the board. I have been very interested to hear the opinions of people in this group, particularly those who come to the matter with a neutral bias.

Among these people, I've found a remarkable unanimity of opinion. That the transactions were stupid and were bound to create suspicions. That the EAA "walked right up to the edge" of what is ethical and proper. That the directors are primarily to blame for their lack of diligence. That it's sad to see this happen to Paul after a lifetime of worthy deeds, but that he has no one to blame but himself. Most see Paul's personal life as nobody's business, but they don't care for the hypocrisy of a mom-and-apple-pie public relations image when the reality is so different. Nobody's particularly scandalized by the alcoholism and drinking-and-flying but see it as a problem the directors must deal with to protect the organization. Everyone is offended by the long pattern of mountain-man-primitive sexual harassment that at least five women have endured.

The president of a large EAA chapter in the Chicago area told me that they devoted an entire meeting to reading out loud *The Aviation Consumer* article, the special committee's letters to the board and to me, the law firm's report, and my letter to the board. Four of the members were lawyers, and when they came to the part in the committee's letter to me warning me "to consult your attorney" in the future, the lawyers howled, "What a stupid thing to say!" In the end, he said 95% of the group agreed with my analysis and conclusions, and they saw the investigations as a good thing for the EAA and for Tom.



Jackson Hole airport sits at the base of the Grand Teton mountains, easily one of the most beautiful spots in North America.

Everyone, including the most strident Paul-accusers, agrees that Tom Poberezny acted with distinction during the little crisis. Indeed, many people think this exercise may end up being one of the best things that has happened to Tom, because it gets him out of the shadow of his dad. Tom is quietly making a lot of changes, and they're all for the good. (During a forum on Tuesday, Tom announced that when Paul's flight in the Foundation's P-51 the previous day was his last flight in an EAA airshow—"Just time to retire.")

The audit ended up costing the EAA about \$50,000 and subjected the organization to a lot of embarrassing publicity, so you would expect the directors to be on their best behavior, but there is at least one slow-learner among them. On the Tuesday night before the show opened, one of the directors (Vern Jobst) was observed by two EAA maintenance men leaving an EAA shop with an armload of merchandise and then two days later when the store manager approached him on the subject and asked him to turn in the tags on the merchandise, he admitted taking the things for his wife's birthday, but refused to turn in the tags or pay for the merchandise. Now if you or I had taken the merchandise, people would conclude that we were stealing. (This matter was quickly cleared up after I squeezed off a cute little note to Jobst.)

This petty act of tee-shirt Saddamy perfectly illustrates the form of mental snake-bite that inflicts some of the directors. That rules are made for others. That we should pay for merchandise, but they

don't. That no passengers are allowed to be carried in an airshow fly-by, yet a few days after his midnight merchandise raid, Jobst (who is in charge of enforcing such airshow rules) carried five women in a fly-by in an EAA Foundation airplane, crashed it and barely escaped with his life (which proves that God helps him who helps himself). That all EAA employees must submit itemized expense reports from their trips, except Paul who just gives the total. That no food or drink is allowed on the flight line, yet—until a few years ago when his conscience got to him—it was one director's job to sneak a stash of booze out on the flight line for Paul and some other performers.

These acts and attitudes are rapidly becoming a thing of the past, and I believe many directors are embarrassed by the events of this past year and are determined to be more vigilant in the future (indeed this spring a director demanded that Paul resign from the board because of the sexual harassment) and to ensure that appearances are managed as well as the airshow.

I came away from Oshkosh with a reinforced view that the organization is going to be much better for having gone through this little crisis. While it's never been a big part of my life, I'm very bullish on the EAA and what lies in the future. I think Tom's doing a good job, and he certainly has my support. The organization has many wonderful people who work at headquarters and as members, and I think you'll find the whole thing a more democratic organization. And it's also



Judy and Jim Slaton at Jackson, Wyoming.

nice to know that sport aviation's first lady is herself quite a lady.

At one point in the show, a man approached me, congratulated me on the EAA affair and said that he, too, had experienced some difficulties with Paul. He was interested in engines, and this distinguished-looking man talked so knowledgeably about engines, engine design and fuel efficiency matters that I judged him to be an engineer with one of the major companies.

He talked extensively and, as he continued, the things he said became more theoretical, well-into-the-future concepts and then he began to describe the design of his new engine. Very light weight. Very few moving parts—in fact there are only three, two main bearings and the crankshaft which employs a disk which passes through an annular combustion chamber.

The fuel is ionized chlorine and nitrogen, and you needed relatively little fuel because they had discovered a way to recycle the exhaust back into the fuel tank. Through this fuel recovery, they had achieved a 200-hp engine that only weighed 20 lbs, and you only needed to put fuel into the tanks once when you first installed it. I inquired about product literature, engineering samples, and then I began to notice the most alarming number of little pieces of trash on the floor of our booth....

After Oshkosh, I headed west to Jackson, Wyoming, to join Meredith, Sara and Ka-

kee for a week's vacation and to correct a personal deficiency by spending a week at a dude ranch—even though my saddle interface became somewhat tender, I am now a Dude.

Frank Christensen lives in Jackson, and we flew down to Afton one day where Frank gave me a tour of his factory. Christen Industries makes the Pitts Special, the Christen Husky and Christen Eagle kit-planes. It's interesting to see how they have integrated a relatively small-scale production line with a just-in-time manufacturing system by highly computerizing the management of parts production and purchasing.

It's a very efficient and well-managed operation, and it's interesting to note that the Husky—a modernized Piper Cub clone, as dead-simple an airplane as you could imagine—begins with a bill of materials of parts and purchased items of \$33,000 factory cost and requires 800 hours of assembly at a shop rate of \$26.00. It's not hard to see why airplanes cost what they do. The Pitts takes about 900 hours to build and although you don't hear much fuss about the Eagle any more, they still sell about \$600,000 in Eagle kits each year supporting the builders in the field.

Frank sees product liability as a part of his daily life, and over the years his company has been sued about twice a year for some kind of claim. For the most part, the suits are legal shadow-boxing, depositions and the trading of letters. He's never lost a suit—if I recall correctly, not one has ever gone

to trial—but they are expensive and always worrisome. He worries, as I do, about how fiberglass kit manufacturers are going to handle things when their planes pass through three owners and sit out on the ramp for twelve years.

Also in Jackson, I got a chance to see another Falco. Jim and Judy Slaton have moved to McCall, Idaho, and they flew down for lunch. Jim and I went for a ride in his bird.

Jim's Falco is a real beauty, and it's got full gear doors, a High Performance engine and is probably only one or two mph slower than Karl's—possibly the same speed.

We took off and cruised over Jackson. With the Nustrini canopy, I'm scrunched way down in the cushionless seat and even then I'm not terribly comfortable, but the Falco is relatively quiet and performs very well. The ailerons seem to me to be slightly more responsive than other kit Falcos I've flown. With an oxygen bottle in the back, we don't try any acrobatics, but it has beautiful handling.

I push the nose over to descend for landing, and the speed builds up. I pull back on the throttle—no change in speed—then pull back still more. Still no difference, and with a plane like this you're tempted to wonder if the throttle linkage has broken altogether. That's the way these really fast Falcos are; once you get one truckin' downhill, a power change makes almost no difference unless you put the prop in flat pitch.

One problem I have with these Falcos is that all the sensory cues—the seating position, stick position, engine controls, the windshield view—are so vastly different from my Falco that I don't shoot an approach well. I come in low and then give it back to Jim who does a normal landing.

For a guy who started flying in P-51s in the Air Force, the Falco is turning out to be a wonderful airplane for Jim. He's sold his A-36 Bonanza and doesn't miss it one bit, particularly when he's doing acrobatics. Jim and Judy have flown the Falco all over the western part of the U.S., and they've had the Falco down into Mexico on a few trips. There's one thing about the Falco that he'd like to change: he'd love to squeeze just a couple more miles-per-hour just so he can pull away from Karl Hansen.

—Alfred Scott

Goings On at Sequoia Aircraft

Continued from First Page

stand it, turbulent air penetration speed has to do with not damaging or excessively fatiguing the airframe while flying in air with mil-spec gusts around.

Under CAR Part 3, the gust is an instantaneous 30 fps gust, while the newer Part 23 regs specify an attenuated 50 fps gust. Using the information he got from Bill Welch, Bill Knight calculated the following Part 23 turbulent air penetration speeds.

At an Aerobatic-category weight of 1,650 lbs, the turbulent air penetration speed would be 198 knots, meaning that at this speed a 50 fps gust will produce 6.0 g's.

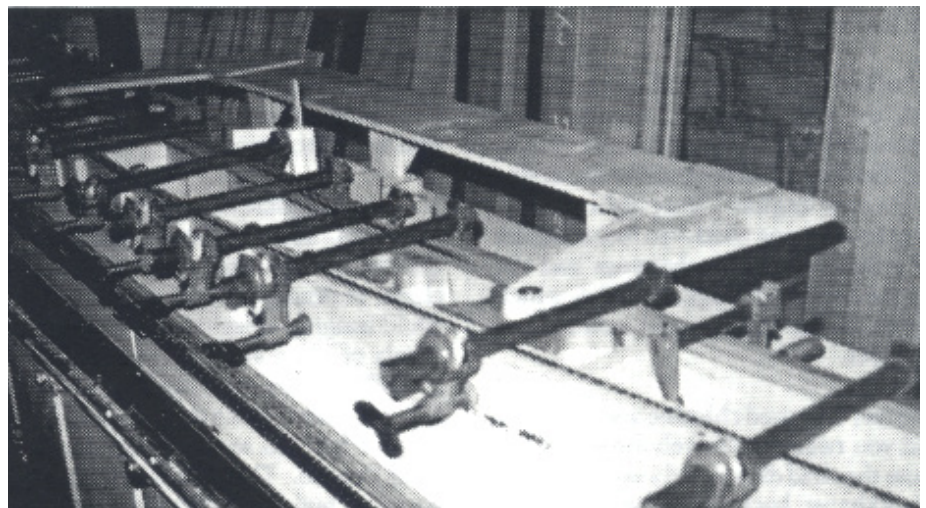
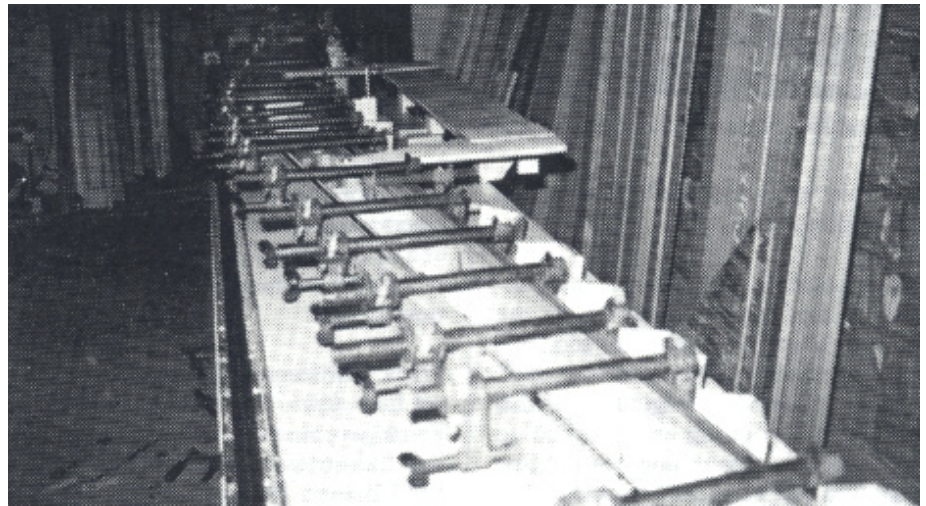
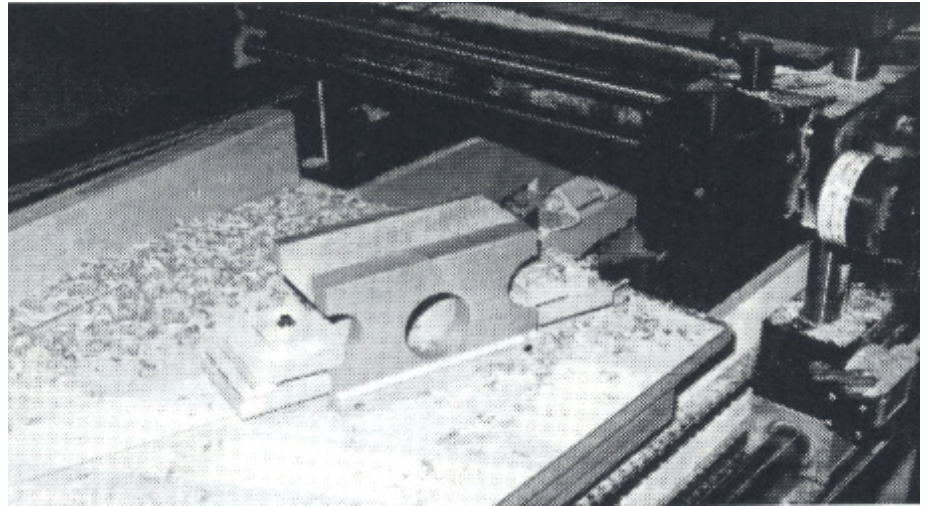
Using a Utility-category gross weight of 1,880 lbs and a limit load of 4.4 g's, the speed works out to be 149 knots, which is very conservative, because when you calculate the strength of the plane based on the Aerobatic weight of 1650 lbs, you can see that the plane actually has a strength of 5.26 g's ($1650 \times 6 \div 1880$) at 1,880 lbs, and calculated this way, the speed works out to be 187 knots.

And for those of you who plan to fly the Atlantic with huge tanks, if you increase the gross weight to 2,250 lbs (where it will be in the Utility category and good for 4.4 g's), the speed works out to be 172 knots.

Most of the news to report around here is more work on the main wing spar. One thing that I have noted over the years is that I have never been right about what something would cost or how long it would take to do something. I proved this ability once again when I talked about shipping the first of the main wing spars in July. It was, in fact, the first part of September.

When we last left off, we had finished laminating the spar booms, had then tapered them in thickness and I had begun work on the assembly jig. The jig consists of simply a fence along the upper surface of the spar. I wanted a clean surface on which to slide the pieces around, and thus had to devise some method of positioning the blocks in the spar without adding some raised surface to the jig.

I accomplished this by making up some plywood blocks which clamped against the upper spar boom, had one face which positions the blocks in the spar, and has a flat bottom with a steel dowel pin. The

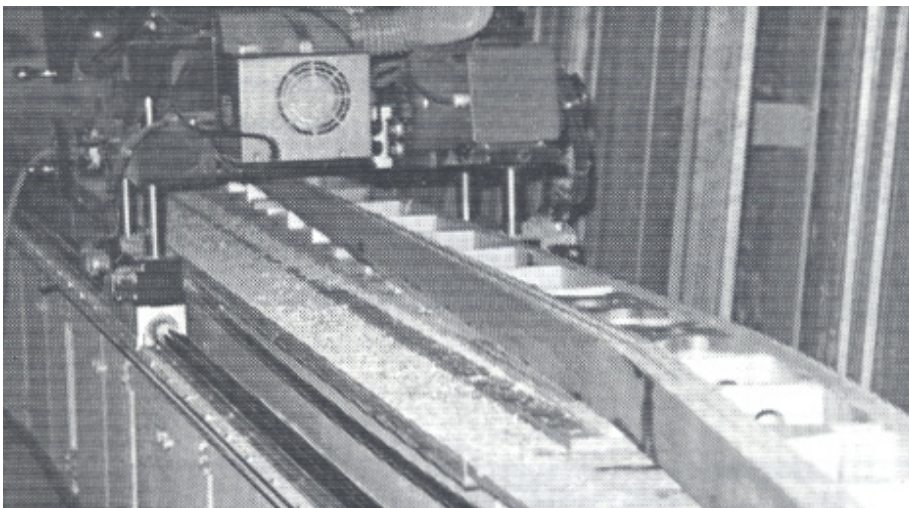
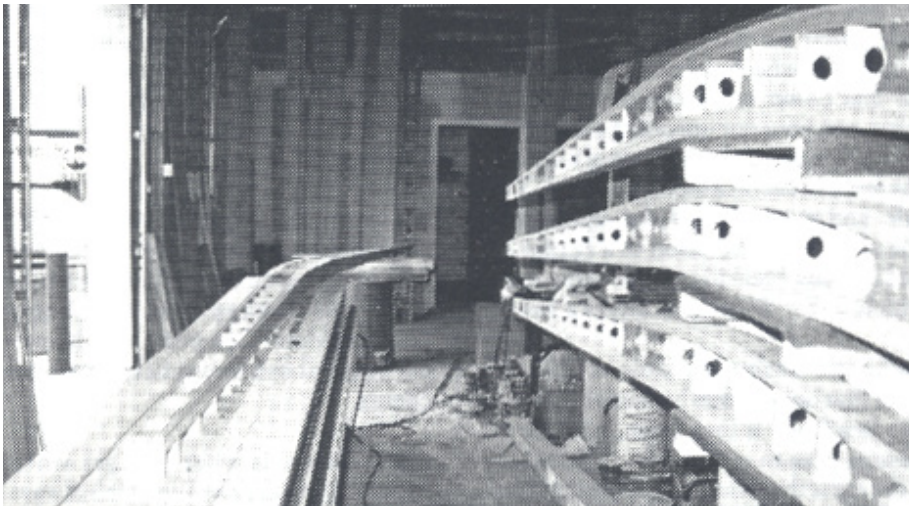
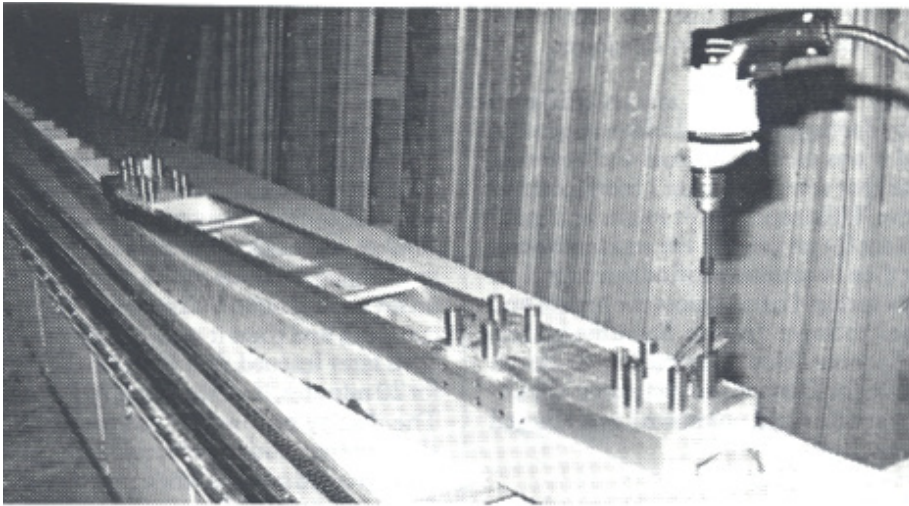


Top: Milling the angle on one of the wing spar blocks. **Center:** Gluing up the spar. **Bottom:** A close-up of the spreader bar.

dowel pin protrudes out by about a quarter of an inch on the bottom and fits into a hole in the jig. This turned out to work even better than I had imagined, because once you put the upper spar boom in place, these blocks trap the spar boom against the fence and eliminate the need for a lot of extra clamping.

Because I planned to drill the spars for the

landing gear fitting bolts, it's important that the wood blocks through which the landing gear passes be positioned accurately. There was some delay while the drilling jig was made by a machine shop, and I changed the design mid-process to include a method of aligning with the blocks. I suddenly realized what a nightmare it would be for a builder if I drilled the holes but did not have them



Top: The drill jig for the landing gear holes is made of aluminum and uses four-inch drill guides. **Center and Bottom:** Milling the taper on the front face.

accurately located relative to the hole through the spar—this could add days of frustrating work with a rasp while you attempted to move a 2-1/2"Ø hole a few millimeters to one side.

So what I did was to change the drill jig to incorporate a 2-1/2"Ø hole, and the machine shop made up some matching plastic plugs. Once the jig was made, I

then made a spreader-bar of plywood with two of the plastic plugs attached to each end. The spreader-bar was glued together with the plugs in the original aluminum drill-jig, so it was an exact match.

Then when we glue up the spar, the spreader bar automatically positions the landing gear fitting blocks relative to each other, left and right, and yet 'floats' up and

down as we clamp up on the spar.

With all of these jig pieces made, the actual glue-up of the spar only takes about a half-hour. When the clamps are removed the next day, we take a quick clean-up-the-top cut with Gonzales. When all the spars are glued up, we remove the assembly jig from Gonzales and mill the spars to 98mm thickness. Next comes the drilling of the holes for the landing gear, which takes about five minutes for each spar.

Finally, the spars are tapered in thickness front-to-back. This operation did not go as easily as I had hoped because of the time it took to get a clamping method worked out, and then we found that there was a slight error in the jig which required a three-hour precision milling with the router to correct.

Then we tap short wooden dowels into the bolt holes to keep glue from spoiling the holes and glue on the plywood. I'm not at all happy with the way we clamped the first one and will be making a clamping fixture to make the process less awkward.

In this whole process, it's amazing how much time goes into making really good jigs, and then how little time goes into making the actual parts. By the time a spar is ready for crating, I think we have about 7 hours of labor in building it—and then it takes 3 hours to crate—even though it is spread out over a relatively long period. There are times that a single step only takes 20 minutes but that's all you can do in one day because the glue must dry.

Overall, I'm very pleased at how the spars have come out. Our first batch of five spars is nearly done, and I am now in the process of finishing the other wing spars. The basic assembly jigs for these are already done, but you still have to make jigs to cut all of the little pieces and install integral clamps. I'm nearly finished with the forward wing spar now, and I expect the aft wing spar and aileron/flap spars to go fairly quickly—but remember that I'm always wrong!

After that, the main work that I have ahead of me is the wing ribs and fuselage frames. The wing rib jigs will be very similar to the tail rib jigs—so at least I'm not having to invent methodology—and it's my intention to use the old fuselage frame jigs except for frame No. 1.

—Alfred Scott

Baby Bootlegger

There are times in the development of machines when civilization might be better off if we halted progress. Just stopped everything and agreed among ourselves, "That's it!" and sent designers off to work on other problems. Think of how much better things would be if warplanes had been limited to piston engines—we'd inflict far less damage on each other, and we would all have much more fun flying Bearcats, Spitfires, P-51s and Sea Furies.

I'd stop the development of competition aerobatic planes with the Bücker Jungmeister. Why not? Aerobatic competition is supposed to be a measure of pilot skill, and the Jungmeister is a wonderful, funky-looking machine with a radial engine and the loveliest handling imaginable.

At Oshkosh, I had another attack of this concept when I looked at the Stealth fighter next to the F-16—lordy, that thing is ugly. I mean, if we're going to kill each other with jet planes, then let's stick with aircraft that *look* like something, not like a silly plywood mockup that someone painted flat black out of embarrassment.

You can carry this type of flawed, reactionary thinking to all sorts of machines—Pierce-Arrows, Bugattis, the Morris Minor, J-boats, Offenhauser and Merlin engines—and when you see fiberglass muscleboats screaming across a tranquil lake, you wonder where race boats should have been frozen in time.

The answer, for me at least, is with *Baby Bootlegger*.

About five years ago, I saw an article on *Baby Bootlegger* in *WoodenBoat* magazine, and it was such an unusual and beautiful boat that sometime later I mentioned to Steve Wilkinson that it might be a good subject for an article. He was interested, but then I was unable to find the magazine. This spring, I came across the article and sent it to Steve. In June, Steve made a trip to Laconia, New Hampshire, to do an article for *Connoisseur* magazine (publication date is still unknown), and I tagged along.

Baby Bootlegger is perhaps the most beautiful wooden boat ever built, and it's worth noting that we did not arrive in style. Wilkinson, who has been the editor of *Car and Driver* and executive editor at *Flying*, can pour out unending paragraphs on the merits and weaknesses of a design. The feel of a car on a mountain road. The style and execution of the upholstery. The surge of acceleration of a Ferrari on an *autostrada* streaking past all of the lesser vehicles. Yet Wilkinson drives a wreck.

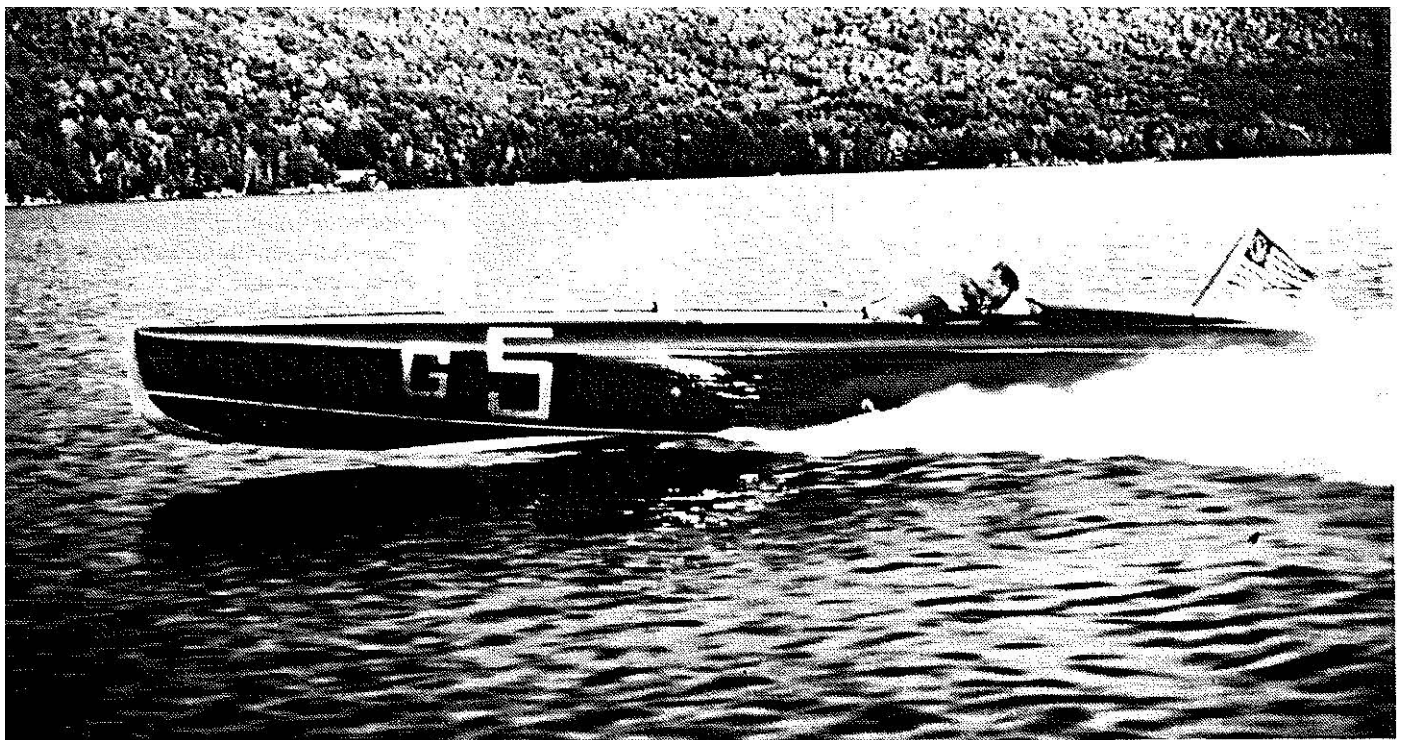
It's an old Saab with close to 200,000 miles that he professes he is unable to kill. The headliner is long gone, and the oil pressure goes to zero at idle. The beauty of the car is that when you drive it to New York City, you don't have to worry about anyone stealing it. Steve parked it and fought with an automatic teller machine

while I waited in the car. The parking lot was not quite level, and the compression was so low that the car eased forward every 15 seconds or so.

Then we got into the Corporate Disgrace, popped up through a small hole in the low overcast and settled down to a comfortable ride to New Hampshire over a solid blanket of clouds while Steve attempted to navigate with my radios. The display on my second radio flickers when you first cut it on, and then it goes completely off (I've later learned that if you leave it on for 20 minutes, it works fine all day long). The display on my first radio had been slowly deteriorating; selected segments of the digits had stopped working altogether. This is no problem because you can easily tell from a process of elimination what the frequency is by turning the knob—"See, this is a 4 because (twist left) that has to be a 3, that (twist right two clicks) must be a 5, and (twist right) that can only be a 6."

But we arrived in Laconia safely, rented a car and drove to an industrial section of Laconia, where we met Mark Mason, who owns *Baby Bootlegger* and New England Boat and Motor Company, which restores old wooden boats for a variety of passionate clients.

Mark Mason is what you get when a hyperactive kid grows up. He's always in motion, and if you leave him for a minute at a restaurant, you'll find him on the telephone when you come back. Old racing boats have been a passion for



him since childhood, and while others traded baseball cards, Mark spent his time in the library researching old racing boats of the twenties.

He is persistent beyond measure and thinks nothing of answering—as he recently did—a 1938 classified ad for a pair of V-16 Packard Sweepstakes marine engines advertised by “J. Styne, Hollywood, California” and managed to end up on the phone with someone at Universal Studios who remembered selling the engines to Guy Lombardo. Styne, it turns out, was a doctor whose passion was music. He started a little sideline business (as agent for Lombardo and others) called Music Corporation of America which had subsequently purchased Universal Studios. Mr. Styne is chairman, and Mason had located him through the Jules Styne Eye Institute at UCLA, which he had endowed.

Mark Mason had bought, restored and sold many of the old racing boats of the twenties, but the one that he had always wanted to own was *Baby Bootlegger*, which had won the '24 and '25 Gold Cup race. Today, the Gold Cup race is an unlimited class with *Miss Budweiser* and other powerful boats. The race began as a free-for-all in the early part of the century, but the boats developed into grotesquely overpowered creatures with three and four V-12 Liberty engines. The race was changed in the twenties into a class with a requirement for four seats, one engine and a limit on engine size. It was to be a ‘gentleman’s run-about’, and *Baby Bootlegger* was the pinnacle boat of this group.

Baby Bootlegger was designed by George Crouch—a man whose bespeckled American Gothic countenance more resembled that of a dry-goods clerk than the pre-eminent speedboat designer of his day—for a wealthy Wall Street bachelor named Caleb Bragg who, among other things, put money into Broadway musicals. (His secretary, Ethel Zimmerman, had the job of typing resumés for Bragg’s many ladyfriends who wanted to try out for parts—until she begged Bragg to let her try out for a part, became an overnight success and dropped the ‘Zim’ from her last name.)

Mark gave us a tour of his restoration shop. There was a mahogany speedster in the paint booth for varnishing. Another was in the shop to have her hull corrected for a twist that a previous restorer had introduced—“It doesn’t want to turn. Doesn’t want to go straight,

either. It hops and porpoises.” In the back of the shop was *Imp*, another Gold Cup winner being restored for a wealthy owner, and Mark is just starting work on *Impshi*, a replica of another Gold Cup racer but with an old supercharged 730 cu. in. Miller V-16 engine. The Miller company went bankrupt, but the assets and designs were bought and successfully marketed by the shop foreman, named Offenhauser, so this engine is essentially four Offenhausers on a common crank and produces about 1,075 hp with 15 lbs boost at 5,000 rpm.

But we’d come to see *Baby Bootlegger*, so we headed across the lake to see her in another old mahogany speedboat, a 30-foot 1929 Hacker Craft that had been kept in spotless condition from the day it was built. The original 1,000-cubic-inch V-12 Lycoming engine had been replaced by a modern engine, and the seats had just been recovered in green leather. At last we were riding in style.

One of the difficulties of owning a boat like *Baby Bootlegger* is simply finding a private boathouse that can accommodate her 30-foot length. It’s a half-hour ride across the lake. We docked the Hacker Craft, walked over the *Baby Bootlegger*’s boathouse, and Mark unlocked the door.

I was struck by an eerie sense of *déjà vu* when I first saw *Baby Bootlegger*, and I later realized I was in real life revisiting one of those dreams where you imagine an impossibly over-simplified and totally beautiful machine. She’s a thirty-foot pontoon of varnished mahogany glistening with the reflections of 60,000 brass

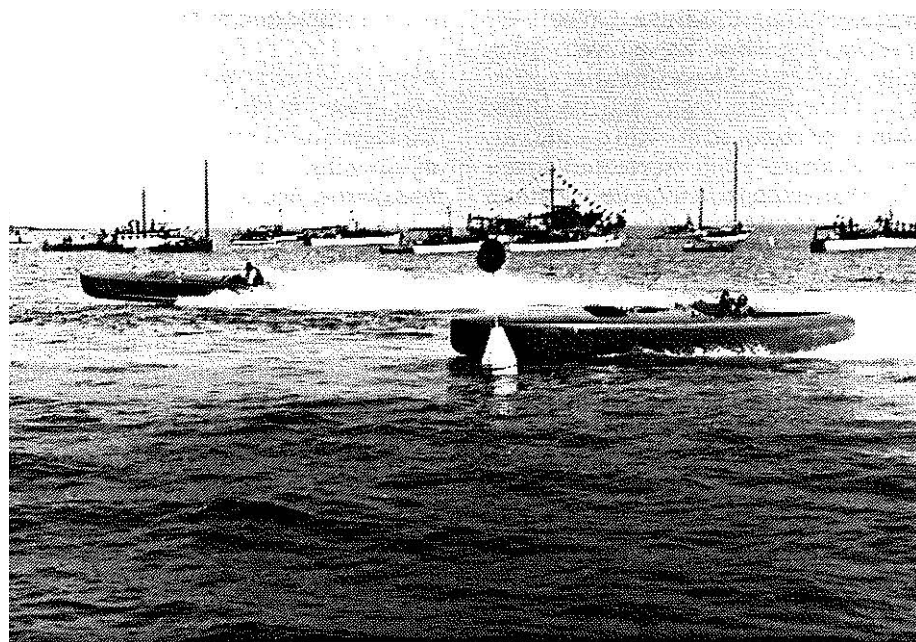
screws and copper rivets that have been filed absolutely flush with the surface and varnished. Except for the open cockpit way in the back, it is an unbroken stretch of mahogany.

Baby Bootlegger had three technological innovations. First, the classic boat design has a ‘hardsheer’, which means that there’s a sharp angle between the deck and the sides of the hull where they meet. *Baby Bootlegger* was the first boat to have a ‘rolled sheer’, with the deck smoothly rolling over to meet the hull.

Second, until *Baby Bootlegger*, the ass-end of the boat was either a straight or wide-vee transome. At the waterline, *Baby Bootlegger* has a standard transome, but immediately above the water there is a long overhang. This is essentially a large fairing that takes the hull shape back to a sharp point. This combined with the rolled sheer makes the boat look exactly like an upside-down canoe. There are good aerodynamic reasons for this design, but it was seen by many as a matter of styling, and soon after a number of cars were built with varnished mahogany and tulipwood aft-decks: the Stutz Blackhawk, various Hispano-Suizas and Isotta-Fraschinis, Duesenbergs and the Auburn Boattail Speedster—all emulating *Baby Bootlegger*.

And third, the rudder was a 4° wedge, like the X-15’s controls, instead of the usual airfoil shape, which would wallow in a neutral band of marginal control before it took effect. Not only was this the first application of a wedge rudder on a boat, but it

Baby Bootlegger hugs a turn in the 1924 Gold Challenge Cup race in Detroit.





For a beautiful collection of color photographs of this and many other classic boats, get a copy of Wood, Water & Light, Classic Wooden Boats by Benjamin Mendlowitz and Joel White.

wasn't until 20 years later that it was tried again.

As with an airplane, weight was critical, and a racing boat was considered a success if it won the race and yet sank on the way back to the dock. Inside there's a predictable airplane-like structure of bulkheads and stringers, an engine, a bench seat, and nothing more.

The engine is a water-cooled Hispano-Suizo V-8 marine engine, which except for the water-jackets is essentially the same engine that powered Eddie Richenbacher's Spad. The aircraft engine produced 220 hp at 2000 rpm, but *Baby Bootlegger's* engine has the compression ratio boosted from 5.1 to 7.5 and probably produces 300 hp at 3000 rpm. Unlike V-8's of today, the Hisso has an even firing order, and Mark Mason fires the engine up. It's horribly loud, and the little boathouse begins to fill with a white vapor of exhaust while Steve and I pace about pretending to look at the boat from a new angle when we're each actually maneuvering for fresh air and an escape route when the others start to drop from asphyxiation.

Although the boat officially seats four, it's really designed to be perfectly balanced with two, so Mark takes us out one at a time for a ride in the boat. The engine is just in front of your feet—and in full view—and it seethes, stumbles and sputters as Mark piddles with the fuel pump switch until he gets it up and running with a throaty roar as we rumble across the lake at about 50 mph. Fully race-tuned, *Baby Bootlegger*

will do 70 mph flat-out and won the races in the twenties at 50-something around pylons.

The trees on the shore slide by as you peer over the long stretch of varnished mahogany, your eyes tear up from the blast of air, the waves sparkle in the sun and blur in your peripheral vision, and then mad Mark Mason—or is he Toad?—clad in 1920's race goggles slams *Baby Bootlegger* into a tight turn. An ordinary boat would skitter across the water, but not *Baby Bootlegger* which carves around a turn as eagerly as a starving bobcat after a rabbit. Most of the old race boats were terribly unstable, and Mark was astonished to find that, in addition to being a stunningly beautiful boat, *Baby Bootlegger* has the best handling he's seen in any boat.

Mark had already owned all of the other great boats of the twenties, and *Baby Bootlegger* was the boat he couldn't get out of his mind. It was the Stewball of speedboats, and after it won the Gold Cup races, it passed through a number of owners who continued to race her. The last mention Mark could find of the boat was in the forties, but he found a few leads and became obsessed with pursuing the legendary boat. By running up an enormous telephone bill, he was able to locate the family of the last owner in Montreal, but the man had run off with his secretary and his children didn't even know where he lived. Mark would not be deterred and finally, through the man's stockbroker, located the last owner in Florida.

He had kept the boat in a warehouse for

years after he had stopped racing her, and then when he sold the warehouse, he tried to sell her but no one was interested, so he called in a scrap metal dealer to take her away and burn her. "You're too late," the man said. "She burned."

But Mark is persistent to a fault, and called back to ask, "Did you see it burn?" and "Did the scrapper actually *tell* you he burned it?" Well, no, he couldn't say that he knew it for a fact, and then Mark kept at it until he was able to locate the scrapper.

Baby Bootlegger had not been burned. Instead the scrapper and a friend had studied the boat and were struck by its appearance. The friend offered, "I don't know anything about boats, and I particularly don't know anything about wooden boats, but you should not burn this boat." So they put the boat in a corner of the warehouse, covered it with canvas and left it there for 25 years. When Mark Mason finally arrived to pick it up, the old scrapper said with a twinkle in his eye, "I knew that one day you would come for this boat, but I didn't think you would take so long."

That was ten years ago, and Mark walked away from his three-generation family business of estate planning (read: life insurance), restored *Baby Bootlegger* and has since operated New England Boat and Motor Company as one of a handful of this country's best restorers of old wooden boats. He's yet to laugh his way to the bank, but he loves what he is doing and keeps the doors open with a constant demand for his services. There's one financial problem that he doesn't even like to think about, but it has to do with *Baby Bootlegger*. He paid \$2500 for the basket-case boat and then put around \$100,000 into restoring the boat ten years ago. Today with greater interest in old racing boats, he's watching clients spend \$600,000 and more to restore lesser boats in his shop, and it's obvious to everyone that *Baby Bootlegger*, the Bugatti Royale of raceboats, is more valuable.

Such are the problems that come with owning jewelry so fabulous that you can't afford the insurance to wear it for a single evening—but to hell with such thoughts, and we trundle into the old Hacker Craft, pop a few brews and regally hum across the lake. It's a great day to be alive, and a good time to remind yourself that sometimes it's best to judge people by their madresses and obsessions than for all the sensible, mundane things they have done.—*Alfred Scott*

Construction Notes

Garry Wilburn writes, "I have come up with a possibly innovative method of machining these components. After laminating, I screw a lamination down to the 3/4" jig board, screwing through the future longeron cut-outs, and countersinking the head below the finished surface. After machining the first face, I simply turn the lamination over, and screw it down again using the same holes, now countersinking the other side.

"The actual machining, except for a final light sanding, is done with a router with a 1-1/4" carbide bit. The router subbase is fitted with a 12"-square, 3/8"-thick plexiglass base, which is fitted with 3 good-quality furniture casters, so that it can be maneuvered at an adjustable height above the jig board. I find that with a bit of experience, it's easy to machine within 5 thousandths of an inch!"

Steve Wilkinson has discovered that the governor control cable bracket, when mounted to the new McCauley governor, comes dangerously close to the left magneto P-lead terminal, and that if it touches the terminal, it would ground out the magneto and thus 'turn off' the magneto. I don't remember ever seeing this problem with the Woodward governor and can only warn you to look for the problem and fix it however you can until I can come up with an 'official' fix for you. Steve is talking about notching the bracket, reinforcing it and riveting on some type of insulating material (like phenolic, or a wood block) which will bump against the magneto and keep it from hitting the terminal.

I meant to look at the magneto/bracket relationship on Jim Slaton's Falco but forgot. I think it would be a good idea for everyone to take a look and see if this potential problem exists on your airplane.

Steve has also been struggling with the nosewheel tire: "After having gone through three nosewheel tire tubes during the course of construction, I have concluded that the tire-installation instruction in the manual are not the way to go. Covering a tube with talcum, dishwashing detergent or whatever else is a fine way to mount a conventional tire, but it simply doesn't work with a split-wheel mounting. My technique *had* been to inflate the tube enough to get it snug in the tire, deflate it by taking out the valve core and then mount the tire/tube assembly on the wheel

using dishwashing soap as an anti-pinch aid. Three out of four tries, it didn't work, and the tube got nibble to death by the knife-edged split between the two wheel halves.

"Now I've tried a new technique, and it works perfectly: Namely, leave the tube in its totally flat, *totally* uninflated state, as it comes from the supplier (or suck the air out of it somehow to achieve the same flatness) and the put it into the tire, valve stem properly located, and assemble the wheel. In such a flat condition, the "inside diameter" of the tube is considerable greater than the diameter of the wheel-seam, and there's no chance of pinching and no need for talc or soap in any case."

Hmmm. The method we suggest is pretty much the standard method used by mechanics and in that method the tube is inflated enough to round it out but not so much that it starts to expand. This makes it difficult to pinch, and I've used the method without difficulty. Dunno where Steve got the notion about deflating the inner tube unless he misunderstood our instructions about doing this after the wheel is assembled. The normal procedure is to inflate the tire and then completely deflate the tube to remove any folds that may have occurred in the tube.

A recent Gougeon Brothers' *The Boat-builder* newsletter has an idea for a simple, cheap clamp that's usable with light clamping pressure is needed. The clamps are simply split rings of plastic pipe. You cut the pipe into rings and then split them open. When pulled open one inch, the resulting clamp will provide about 8 pounds of pressure. The inventor of these clamps, who used them for clamping the gunwhale strips together, says that both 2" and 3" plastic pipe works well. There's some question about the material used. The clamps shown are probably ABS, judging from their dark color, but are identified by the author as PVC, which is white.

And if you've read *The Boatbuilder*, then you've probably been keeping up with the progress of Don Spaulding who is building a pedal-powered boat which he intends to pedal around the world, solo. Seems like a long way to go to feed a Great White.

—Alfred Scott

Sawdust

- The national aerospace industry of Peru. From the 1989-90 *Jane's All the World's Aircraft* (literally!): "An entry for Indaer-Peru, that nation's sole aircraft manufacturer, last appeared in the 1985-86 *Jane's*. At that time, financial constraints had compelled abandonment of plans to assemble, and eventually manufacture, MB-339A jet trainers under licence from Aer-macchi of Italy. It has since been decided to restart with a more modest programme based on construction of the Light Aero Avid Flyer kitplane...."

- England's foremost Falco expert, Andrew Brinkley, says that he's discovered that a tire made by Tost Aero in Germany fits the production Falco's nose wheel. This tire—dunno the exact size—is used on high performance sailplanes.

- Calling all Falcos: The Great Oyster Fly-In will take place on November 3 at Rosegill Farm, Urbanna, Virginia. The Oyster Festival parade begins at 12:00 noon, and it's best to arrive by ten o'clock. John Oliver, Joel Shankle, Terry Smith and Jonas Dovydenas are sure things, so we ought to have a good group going. When the weather's good, it's the most fun you can have on a November Saturday without drinking, and if the weather's bad there's plenty of beer.

- Media watch. There's a nice article in the August '90 issue of *Automobile* magazine on the state of light aviation covering, among other things, the Swiftfury and the Falco ("the *real* 'flying Ferrari'—a superb piece of sculpture and one of the best-handling light planes ever.") and includes a photo of Ray Purkiser's Falco. The September '90 *Light Plane Maintenance* had an article on Benchmark and concludes "If you're serious about wanting accurate performance charts for your airplane, Benchmark is a must-have program. For some people, in fact, it will justify the purchase of a \$1,200 Macintosh." Look for an article by Steve Wilkinson on building a Falco in an upcoming issue of *Business Week's Assets* magazine.

- Ray Purkiser won "Best Wood" award at the Oregon State EAA Fly-In at Medford. The chapter newsletter reported "There was more excitement on the airport as Ray Purkiser came very close to the runway without his gear down before pulling up and going around. He said later that he had three green lights indicated and thought all was well till he heard 'gear, gear, gear' on his headset."

- Falco for sale. Well, kind of. Terry Smith asks that we pass on word that he'll entertain offers on his Falco. He doesn't need two planes, and Mae prefers the luggage space of the Turbo Arrow for golf clubs and luggage. Terry loves the plane and would prefer to fly it for another year before parting with it, but if you're interested in Italian wings now, please contact Terry Smith, 415 River Street, Forty Fort, PA 18704. Telephone: (717) 288-6288.

West Coast Falco Fly-In

by Karl Hansen

The first Falco West Coast Fly-In happened on the 7, 8, 9th of September 1990. Our hosts were Ray and Sherry Purkiser assisted by Rex and Margaret Hume. Parked on the line were the Falcos of Ray Purkiser, Rex Hume, John Harns, Jim Slaton, Per Burholm and Karl Hansen. A beautiful sight to behold.

Shirley and I left Lincoln Field at 1:42 PM Friday and 1:24 and 11 gallons later buzzed Josephine County Field at Grant's Pass, Oregon. This airport is in a valley surrounded by pine-studded hills, a very pretty sight. Except for the hills, it is very remindful of the Farmerville, Louisiana, field the SF.260's work out. I had expected to beat John Harns there, as he was waiting for his #1 radio to be returned, but due to a threatening Sigmoid, he left early without his spare and circumvented the weather, so there on the line were five Falcos waiting for me. So much for the chance to bounce John on the way in.

Our host had schedules waiting and a busy two days was in store for us. After hangar-flying for a couple of hours, we adjourned to "Our Haus", a restaurant overlooking the Rogue River. Twenty-six people attending for our builders and flyers dinner, eat your heart out Alfred. Attendees were: Ray and Sherry Purkiser, Rex and Margaret Hume, John and Pat Harns, Jim and Judy Slaton, Ben and Bernita Burgoyne, Karl and Shirley Hansen, Per and Lena Burholm, Craig, Phyllis and Ashley Bransfield, Dave and David McMurray, Frank and Eloise Spysma, Robert and Janet Brantley and guest, John and Alice Tyler. You may notice that almost all of the wives were there.

Saturday morning we gathered for a breakfast flight to Cave Junction airport at Illinois Valley. We set up a formation flight of four airplanes, the rest flew at will, one twin and a Piper plus the extra Falcos. Ray Purkiser was #1 (some said it was so we could keep an eye on him), I was #2, Jim Slaton was #3 and John Harns brought up the rear (slot). He let us know about it constantly.

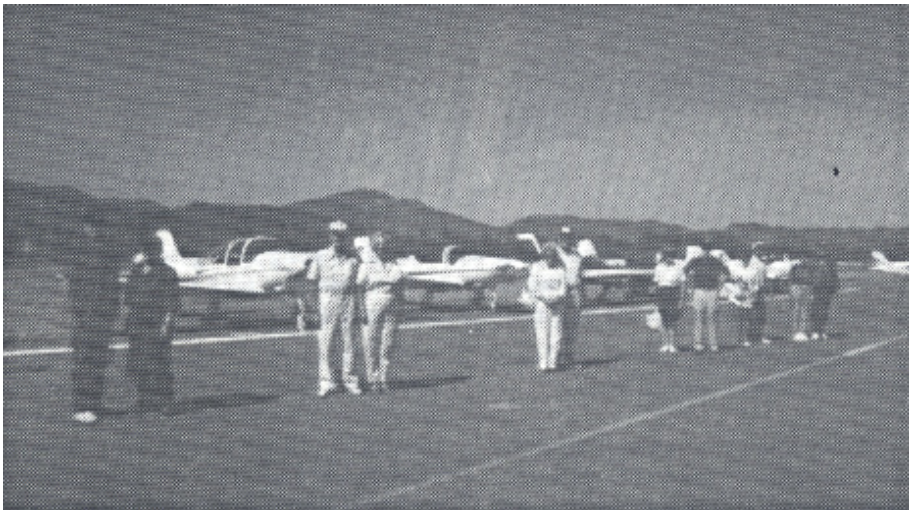
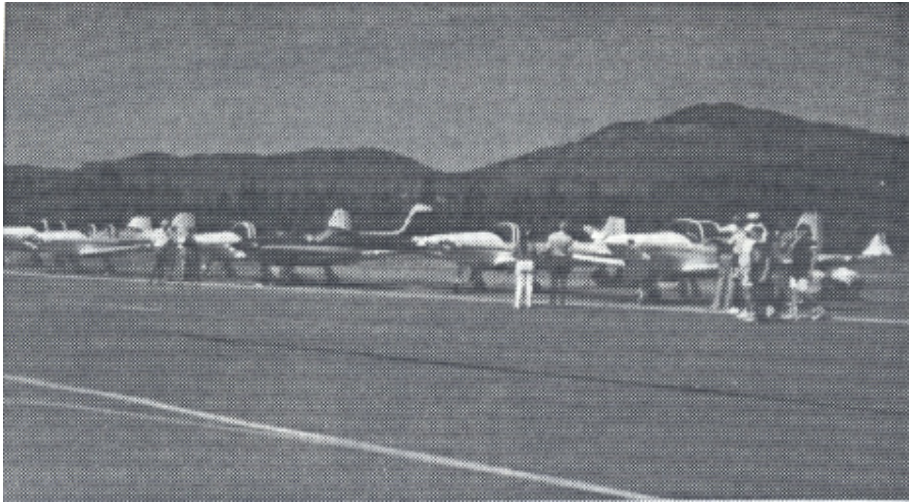
This little airport is kind of 'backwoods', but it has a very nice family restaurant just starting up. What a nice breakfast. Then formation takeoff, and back to home base, a couple of formation buzzes and trail landing. We got some good diamond-formation



tion pictures, but don't have them ready for you yet. Ray put on a Falco Forum at 3 PM which was attended by about 26 people, about half of them visitors. Meanwhile the ladies had taken the credit cards and gone to a historic mountain mining town, Jacksonville, had a delicious lunch in an historical hotel and did some shopping. They got back just in time for the steak barbeque on Saturday evening.

After another get-together Saturday eve-

ning, we met Sunday for the jet boat trip down the Rogue River—about a four-hour trip to Hell's Gate canyon and return, with an outstanding brunch before the return trip. Our boat was 14 feet wide, about 50 feet long, held about 50 people with 1,100 hp, three engines and a top speed of about 50 mph. We were running the rapids at 35 mph or so. Pretty hairy. The boat has amazing maneuverability, will turn in its own length at about 35 mph. I know because he showed us three times



at places in the river not more than two boat-lengths wide.

There were many good things about this Falco Fly-In. We had excellent and well-prepared hosts. We had the most beautiful aircraft on the field. The field was not crowded or commercialized. The Falco-people association was outstanding. Beautiful surroundings. And beautiful weather.

Next year, Jim and Judy Slaton have consented to be the hosts at McCall, Idaho—a beautiful place, 5,000 ft elevation, with lakes, pines, river and an excellent airport. I can vouch for the hospitality. The following year will be at the Harnses', wherever they are—somewhere in Northern Idaho, as they are contemplating a move. The only thing that was missing was you, Alfred.

But we talked about you.

Brenda's Corner

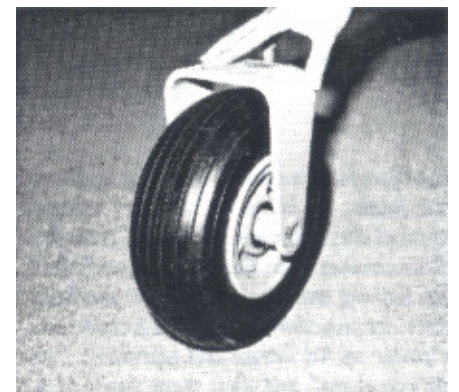
This was my seventh year at Oshkosh, and I have already told Alfred I'm not going next year. Although, now that I look back, this year wasn't so bad. My niece, Kim Williams, made the trip with me this year. Kim rode out with me last year but flew home the day after the show opened. This year she signed up for the whole thing. Adrian Amos, Jack Amos's 14-year-old son, also came along for the ride. It was neat having the two of them along, it kept things lively. Kim is a cheerful person even in the mornings—I'm not! "Good morning, Aunt Brenda, it's a beautiful day, the sun is shining, the birds are singing..." All this before I had my first cup of coffee. I didn't have this problem with Adrian.

Don't forget that the price of the propeller and spinner goes up on January 1. To get the current price, you must order by the first part of October as Hartzell bases the price on the delivery date, not the order date.

For you bargain hunters out there, we have a nose gear fork with wheel and tire mounted on it. The bearing spacing is about 2mm less than standard and requires a spacer, which is included. The only squawk is that the axle is difficult to remove, other than that it is perfectly normal. Let me know if you are interested, and we will quibble over the price.

We order Aerolite in thirty-pound kits. When we got the first order in, we opened the box, and there was this big clear plastic bag of white powder. We wondered what people might think if they peaked through the windows, and saw this bag of white powder. So we decided it would be wise to keep it closed up in a box under a table. The only new customers we are interested in are Falco builders.

—Brenda Avery



Mailbox

I flew Steve Bachnack's Falco the other day. If mine flies half as good, this will be one happy Dutchman.

*Elmer Kunse
Clare, Michigan*

I was honored to meet all of you at Oshkosh, and I appreciate the time you afforded me during all of my stop-bys.

You've undoubtedly been told this a thousand times: I think the Falco is an absolutely superb piece of design and engineering work. The styling is outstanding, and what I've seen of your workmanship sets a standard of excellence that other companies would be wise to follow. Of all the kit planes at Oshkosh, I became most aware of the Falco, but for different reasons than other show-goers. The people at your booth were so attentive and courteous to everyone who stopped by, unlike many manufacturers who seems to treat prospects as if they were a lot of trouble. I especially want to thank you for your genuinely warm reception.

I have bragged to a lot of people about the high quality of your manual and other printed documentation. In fact, on the back of your card I wrote, "The best assembly manual in the business!" Also, in a newsletter that I send to clients and small manufacturers, I've said, "If you want to see a 'super manual,' drop by the Falco booth next time you're at a fly-in." I just can't say enough about the work you've done in this area.

One kit manufacturer candidly told me, "The reason we didn't bring our manual to the show is that it would probably scare prospects away!" Another kit company (very well known, I might add) said, "We don't have a manual, but so far none of our builders have had any trouble. Our plane is very easy to build and our customers know what they're doing." At least six other kit companies said, "We haven't done our manual yet... we just haven't had the time."

*Bruce Bingham
Gulfport, Florida*

Bruce Bingham is a naval architect, author of three books on boats and a very talented technical illustrator who came to Oshkosh to sell his services as an illustrator. Poor fellow, after looking over the drawings in our blueprints, construction manual and kit brochure, he threw up his hands and admitted, "you don't need me" and then spent much of the show at the Falco



Brenda Avery and George Barrett pose with our first wing spar going out the door. Since George only lives 60 miles away, he wanted to pick up the first spar, so he piled two ladders on top of a truck and strapped the spar to that.

booth 'talking shop' with Jack Amos and me.—Alfred Scott

My compliments on your handling of the Paul P. episodes. I agree with your conclusions about his drinking problem, and I think your efforts have cleared the air for Tom (and maybe gotten Paul out of things so Tom can impose his own personality on the organization). As you know from your experience in Al-Anon, we're all human, and I was particularly impressed by the *lack* of arrogant posturing (in fact, any holier-than-thou nonsense) in your letters. A damn fine job, Alfred!

I agree that Paul sounds like a typical alcoholic. Having been a "friend of Bill W.'s" for the past six years, I could see a lot of my former self in his behavior.

Name withheld

Bill W. was the founder of Alcoholics Anonymous.—Alfred Scott

Thank you for sending me the file on your action with the EAA. I found considerable interest in the reading thereof, and then the rereading of certain selected portions!

It is apparent that a number of directors don't appreciate the favor that you have done them and the entire membership in causing the audit. Some never will. The entire membership will probably

not be told of the events of which I now know. I appreciate what you did, and there is no doubt in my mind that your actions were justified. Those people who serve in confidence and trust of others, few or many, must avoid even the appearance of impropriety, much less actual wrongdoing. So thanks again, for doing it, and for letting me know the outcome.

Back to Falco-building! I'm still working on fuselage frames and am putting in 20 to 25 hours per week into it these days. I've now completed the laminations for 8 of the 15mm-thick stations, and have finished machining them to thickness.

*Garry Wilburn
Clarksville, Virginia*

Garry Wilburn's auto license tag is EAA-LM, for life member. If you use his method of machining the fuselage frame, be sure to use brass screws, because a carbide bit will explode if it hits a steel screw, particularly a case-hardened drywall screw—Scoti

Thanks for "lighting the fire under the bottoms of the EAA directors." Maybe there will be a combined effort to ensure that the board of directors and executive committee be made up of "member-loyalists"—not only "Paul-loyalists"—in the future.

*Bob Thomas
Brookline, Missouri*