Falco Builders Letter

Fernando Almeida takes Marcelo Bellodi's Falco for a spin.

Falco F.8L
Bravíssimo

By Fernando Almeida
Photography by Fernando Machado-Aero-magazine. Translated by Sylvester Chávez and Edilberto Tasca

An enormous hawk glides majestically over the cane field, riding a thermal. The bird of prey is not startled, instinctively flexing her wings slightly as she feels the wind eddies created by the swift passage of a white dart a few feet away. That's because both are winged members of the same family: A bird of prey and our white Falco, tail number PP-ZMB. Both exist to fly, pleasure in which they indulge freely this warm summer afternoon.

In the cockpit of the machine I capture this moment and salute the meeting with an aileron roll commanded by fingertips on the stick following a very gentle movement of my wrist resting on my thigh. At this moment I am fully conscious that I am at the controls of one of the most beautiful flying machines ever created by man, a paradigm of design and harmony of controls since 1955, the year of first flight of a 90 hp F.8 Falco.

The Falco F.8L is the masterpiece of a genius named Stelio Frati, an Italian aircraft designer who for the past 48 years has influenced the development of high performance single engine aircraft all over the world.

As James Gilbert, famous pilot and journalist, wrote in his book "The Great Planes":

"All of Frati's designs are variations on a single theme; they all resemble each other, and each is instantly recognizable at a glance as "a Frati." They are finished as smoothly as mirrors, as though needless drag were more evil than the devil. They have the feel of tiny fighters, for you sit under a fighter pilot's sliding teardrop canopy, gripping a fighter pilot's stick, and the thing will be halfway round an aileron roll even before you've entirely made up your mind to do one. There is no superabundance of room in a Frati airplane, and they are all extremely noisy, but you will come down from your first flight in one with an unbelieving stare. It is much like the first time you ever drove a Ferrari; a damnation of all lesser vehicles for eternity. For the controls are so light, so delicate, the visibility so like falling free through space, and the airplane's stability even in turbulence so arrow-straight and intransmutable that you feel a fool for not knowing that light airplanes could be like this."

One hundred and one Falcos were built in Italy between 1956 and 1968 by three different companies: Aviamilano, Aeromere and Laverda. Its all-wood construction and specialized building methods finally doomed the Falco due to the elevated labor costs of highly skilled woodworkers. Since 1964, Stelio Frati diverted his attention to the design of his first all-metal aircraft, the advanced trainer F.250; negotiations with SIAI-Marchetti culminated in the production of a 260 hp powered version.

More than 600 SF.260s were built and went to serve in the air forces of 12 countries as advanced trainers and tactical support fighters—such as our Universal T-25 in Brazil. Marchetti also had a civilian version.

Going back to the F.8L, its production was stopped in 1968, until the beginning of the 1980s, when Sequoia Aircraft, of Richmond, Virginia, U.S.A. acquired from Stelio Frati the original blueprints for the F.8L Falco. Alfred Scott, president of Sequoia and the owner of an original Falco, converted the entire design in electronic form into a CAD (Computer Aided Design) system, introducing enhancements along the way aimed at the commercial production of the aircraft in "kit" form that would include all metal parts and assemblies plus other fabricated components, allowing the customer to do all the wood work. Shortly thereafter, Scott complemented the kit with the cockpit interiors, instrument panel, wing spars and ribs and totally finished frames. The result: A Falco F.8L reborn as a homebuilt, ready to accept

In This Issue:

a Lycoming powerplant of either 150, 160 or 180 hp, constant speed propeller and a Christen kit for inverted flight.

There are over 70 Falcos built from Sequoia kits, thanks to Alfred Scott's efforts towards excellence in the quality of the supplied materials and assembly instructions, lightening the enormous workload involved in the construction of a wooden structure designed over 50 years ago.

The aircraft we tested, tail number PP-ZMB, is the first Falco assembled in Brazil. Her builder has flown to Oshkosh with her and the airplane has now flown 500 hours of trouble-free joyous flight, with absolutely no problems whatsoever.

Let's get some technical data on Zulu-Mike-Bravo before we engage in the test-flight: The Falco is a two-seater sport plane of conventional configuration, low wing and side-by-side seats, retractable tricycle landing gear. In the specific case of PP-ZMB, the primary structure was built following the CAD design from Sequoia but, instead of the traditional spruce, called *freijó*, a native Brazilian ash wood was used, along with high-quality aircraft-grade plywood.

The semi-monocoque fuselage is built with wood frame structure covered with plywood, glued with Araldite epoxy and with internal anti-fungal and anti-rotting protection. Manufacture is in two parts: A central section that includes the wings, and an aft section with the empennage. This highly robust structure was calculated to be certified for +6G/-3G in the aerobatics category (maximum gross weight 749 kg or 1,651 lb) or +4.4G/-2.2G in the utility category (maximum gross weight 854 kg or 1,880 lb), with a safety margin of 50% over the mentioned structural load values.

Since *freijó* is about 10% heavier—and stronger—than spruce, we can conclude that Zulu-Mike-Bravo is more robust than the Italian or other Sequoia Falcos.

With an empty weight of 1,283 lb (582 kg), it is 150 lb (68 kg) heavier than Falcos built with spruce. The Falco's wing, of one piece construction and attached to the central fuselage, has a main spar that spans from wingtip to wingtip, a secondary aft spar and traditional wing ribs and plywood skin. The wing is thin, with an aspect ratio of 6.4 and wing area of ten square meters (107.5 sq ft). The airfoil is a laminar flow design NACA series 64$_2$212 in the root and tapering to 64$_2$210 towards the wingtips, with a 3° washout and 5° dihedral. Frise-style ailerons are built of aluminum and controlled by stainless steel cables. The flaps are slotted, also made of aluminum and actuated electrically by a jackscrew. Main landing gear is of the trailing link type with shock absorbers and traditional toe-pedal actuated hydraulic disk brakes. The gear retraction is electric with a manual emergency backup system.

The powerplant is a 180 hp Lycoming IO-360 with a Christen kit. A constant speed twin-bladed metallic Hartzell propeller hangs on front. The fuel is carried in two fuselage tanks, one in front of the cockpit and a second in the aft fuselage, with a total capacity of 40 gal. There's also a two gallon header tank for inverted flight. The backsliding canopy is the low-profile model designed by Luciano Nustrini in 1958 for his competition Falco, the most beautiful and fastest of all Falcos, winner of many competitions and speed records

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with a 150 hp engine and a fixed-pitch prop. That airplane flew as fast as 370 km/h (200 knots!) in straight and level flight! The Nustrini canopy contributes to the overall beauty of ZMB, but it has its drawbacks, as we will see.

We are at the Usina Santa Adélia airport (SDUD), near Jaboticabal (SP). Runway 07/25 is located at an altitude of 2,000 ft, has a hard surface made of asphalt and is 1,000 m (3,281 ft) long by 18 m (59 ft) wide. The white Falco F8L is pulled out of its hangar, capable of inducing in any pilot that rush of anticipation that precedes the change of lights from red to green right at the beginning of a Formula One race.

The quality of the exterior finish is exceptional, and the aesthetic delight is such a pleasure during the pre-flight inspection that it almost clouds our objectivity during a critical evaluation of the airplane.

Atmospheric conditions consist of a thin overcast of stratus-cirrus, with the occasional window of blue here and there. We will take off with two on board, our estimated takeoff weight is 874 kg (1,927 lb).

The air-to-air photo ship is PT-VQI, a Seneca skillfully flown by Captain Boaretto. Access to the cockpit is easy since the wing is very low. I sit on the left seat and buckle the five point aerobatic restraint system after adjusting longitudinally the seat mounted on rails. The pedals are too close together, squeezed by the nose wheel well. The panel, supplied by Sequoia, suffers from some ergonomic problems. The flap lever and its position indicator are kind of hidden under a console with other controls. Same can be said about the three-position fuel selector (F/R/Off). The trim wheel is placed too far forward in the console between the seats, but the trim indicator is very visible. This console also houses the parking brake actuator, a long horizontal lever. The landing gear switch is all the way to the left of the panel, which makes us do some hand shuffling while activating it.

The instrument panel arrangement is good, with engine gauges below the classic arrangement of flight instruments: airspeed indicator, attitude indicator, altimeter, turn coordinator, directional gyro and vertical speed indicator. The airspeed indicator is quite poor, with a minimum of speed indications, but it shows 80 knots for approach speed with the pointer up and the cruising speed of 160 knots with the pointer down.

We have a combination manifold pressure and fuel pressure indicator (which could be used as a fuel flow indicator), tachometer, voltmeter. Outside air temperature (OAT) and exhaust gas temperature (EGT) indicators complete the engine instruments. We also find a magnetic compass and a G-meter.

The avionics include a Bendix-King KX-125 nav-com, Trimble TNL 1000 GPS and a Garmin 100 GPS as a backup, along with a transponder.

Getting ready for departure I put my headphones on, and I have the unpleasant surprise to learn that, with the Nustrini canopy closed, we can hit our head on the Plexiglas (a sure problem in aerobatic flight!).

I appreciate the left (optional) throttle, and I realize that the control stick is too tall, forcing me to grasp it with my fingertips (index and thumb) below the stick grip. The injected Lycoming starts with the usual priming with the boost pump and full mixture. Visibility during taxi is good in spite of the nose-high attitude caused by the long nose gear. Steering with the rudder pedals is easy even with the pedals so close together. How much foot space should you demand for the privilege to fly a winged sculpture like the Falco?

Pre-takeoff check at 2,000 rpm, entering runway 07, neutral trim, 15° flaps. Lined up and throttle pushed softly forward, and we are on the takeoff run without too much right rudder needed.

At 45 knots I softly raise the nose. At 65 knots we rotate with a 10° positive pitch, and we allow the plane to further accelerate, retracting the gear at 80 knots followed by the flaps, with no need to re-trim the Falco. Setting manifold pressure to 25 inches at 2,500 rpm, this flying Ferrari holds 1,500 fpm on the VSI, at 90 knots. The nose of our aircraft, well above the horizon, suggests left and right turns in order to see what's ahead.

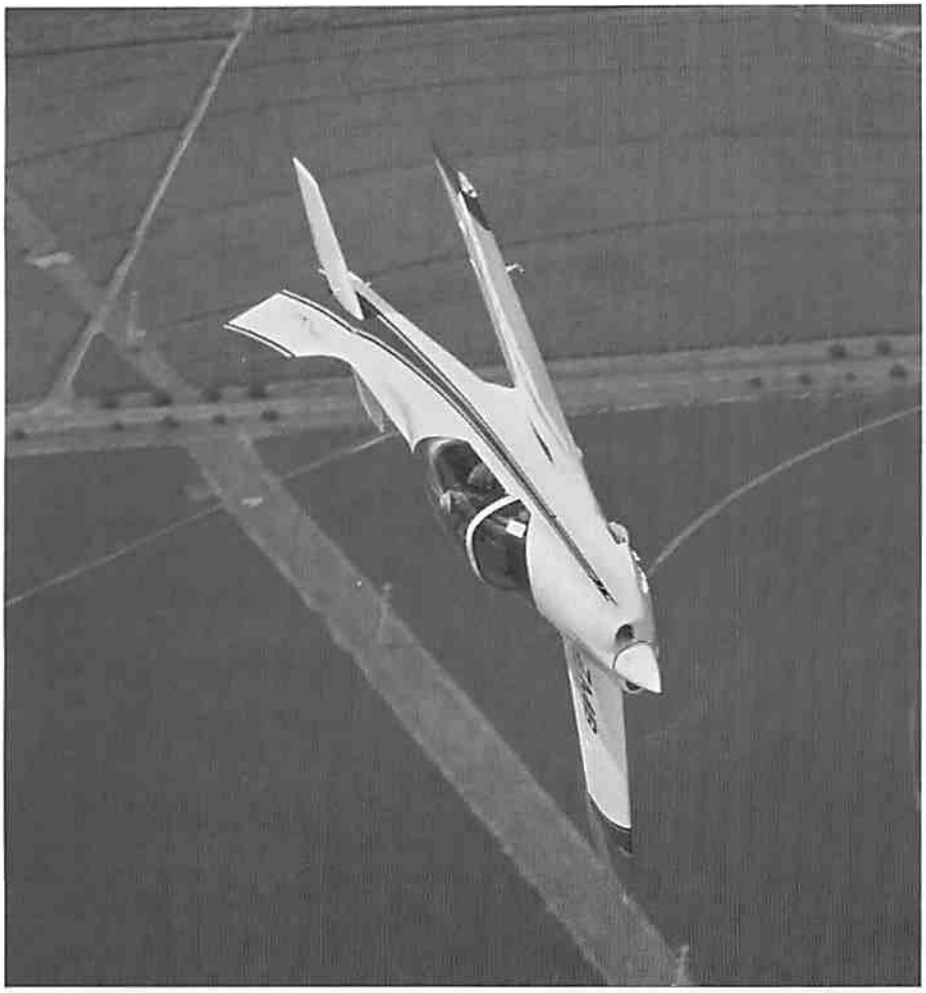
We level off at 5,000 ft enjoying the light, precise, and harmonious controls, which allow for the easiest formation flight with the Seneca, playing a bit with the throttle to position the plane according to our photographer's request. The front windshield bow is bent backwards, interfering with my view of the chase plane. The canopy, on the other hand, allows for a spectacular 360° visibility, and could use an anti-UV sunshield to increase comfort under a strong sunshine. When flying through turbulence, the Falco reacts firmly and easily maintains its trim, pretty much as an executive jet would.

After the photo shoot, we go on to the stability evaluations at altitudes between 4,000 and 5,000 ft. In pitching, we get positive static stability from the Falco, with slight decline under 80 knots, with a tendency towards neutrality. Dynamically, a phugoid oscillation (up-and-down roller-coaster-type oscillation) dissipates after four oscillations. In roll, the airplane is perfectly neutral; it stays at the imposed bank. In yaw, under dynamic inputs, the Falco behaves like an arrow: three quickly dissipating oscillations and that it it.

It is during maneuvering that our plane shines. The stick force gradient is quite light in pitch and roll, working in perfect harmony with the rudder pedals. The ailerons are light and precise, the elevator is a bit heavier, the rudder has a perfect relationship between a slight rudder pedal deflection and the yaw response. During turns, adverse yaw is well under control, and there is very little tendency to climb or descend during entry or recovery from turns.

This superb behavior is also found at 100-110 knots, and it is a delight during aerobatic maneuvering. Loops are initiated at 160 knots, with 100 knots on top. Aileron and barrel rolls between 125 and 140 knots. Sequencing maneuvers proves irresistible, reminding me of the french CAP-10B. The maximum rate of roll is around 120°/second when the rudder is used to help.

Marcelo Bellodi and his Falco, which he once flew to Oshkosh.



The Nustrini canopy, although beautiful, is a great nuisance: You hit your head on the Plexiglas at the first minor hints of negative Gs!

I now climb to 5,000 ft and, at and OAT of 30°C, we have a density altitude of 8,000 ft. I set the manifold pressure to 25 inches at 2,500 rpm, lean the mixture using the EGT to get 75% power. Our well-trimmed airplane, in straight and level flight, is held in the low-drag 'bucket' of our NACA laminar flow wings. I register 175 knots (324 km/h) average GPS speed during flight in opposite directions. Fuel consumption is 10 gal/h.

With a setting of 21" of MP at 2,400 rpm, the speed falls to 160 knots (296 km/h), burning only 9 gal/h. Under this setting, we can expect a range of 1,200 km (648 nm) in four hours of flight, with reserve.

The addition of full landing gear doors and other minor modifications to reduce parasite drag could result in a gain of about 10 more knots, as was my experience when flying two other Falcos (both with 160 hp) in Oshkosh.

At 70 knots, the Falco still shows good control response in all three axes. The stall with the airplane clean happens without warning at 57 knots. PP-ZMB has the tendency to drop her right wing, but recovery is immediate. In the dirty configuration with full flaps, the stall again comes without warning and dropping the right wing at 53 knots. I think this behavior could be due to the position of the stall strip on the right wing, and it could be corrected.

During a 2G turn and with considerable buffeting, the Falco shows this same tendency during an accelerated stall, but the recovery is almost immediate with minimum loss of altitude.

After some aerobatics, we begin our descent for landing. The low gear extension speed at 108 knots requires good planning to slow down before entering the traffic pattern. Trim adjustments are small after changes in configuration and power. This is good since the trim wheel is beyond reach with the aerobatic restraint belt tightened! The hand shuffling necessary to lower the landing gear is not a problem, since the Falco reacts benevolently with its almost neutral pitch stability.

Turn to base for runway 07, lowering a touch of flaps and maintaining between 80 and 90 knots; final approach stabilized with full flaps (45°), we get 80 knots by setting 15" of MP, holding the airspeed indicator pointer vertical and the climb at 500 fpm. Easy correction of a left crosswind, we cross the fence at 70 knots, flaring with a very nose-high attitude and the touchdown is just too gentle, very well handled by the excellent trailing link main gear. We taxi with an open canopy, park in front of the hangar and shut off the Lycoming with the mixture.

I sit there, silent, for a long time, meditating about this machine I just flew. I think of the fortuitous encounter with the hawk, and I smile when I realize that the F.8L is also a member of the Falconiform Order, Accipitridae Family, which includes the smallest of hawks to the majestic eagle.

Bravíssimo, Signore Frati!

Fred's Falco Finally Flies

By Fred Doppelt

I guess that every builder's first flight finally does happen. On 15 October 2002 after waiting for over four months for the FAA to send me the aircraft registration, the inspector finally arrived. In fact, I was at home when the call from the airport came. It took me 45 minutes to get there and when I did it had already happened and for the next two hours paperwork was what was the order of the day. What an anticlimax. I learned nothing from the inspection other than it cost $350 and that the paperwork was prodigious! Thank goodness for the Falco inspection list which had taken an A&E and me over two weeks to perform—a truly *great* list, thank you Alfred Scott.

Of course, it took a few days to put the airplane back together again and assure it was in flyable order. Ruth and I have traveled to the aborted 12th annual Falco Fly-In with the expressed purpose of getting some Falco flying time and talking over with the pros the appropriateness of doing the first flight myself. Well, Galveston didn't happen, but Cecil Rives and Bill Russell were kind enough to roust out their two beautiful Falcos, give me some tips and flying time in Bill's gorgeous red aircraft. We specifically had a skull session on what to do on first flight and how much of the Falco Flight Test Cards to use.

That fly-in was especially worthwhile for me, not only for the flying time in Bill's machine, but for all the last minute technical advice they managed to cram into my shaking head. I must also say that each of the fly-ins have been critical to making the Falco, from our first at Eureka till this last one. John Harns, Dave MacMurray, Dave Nason, Larry Black, thank you all for your great patience and Falco flying opportunities.

Back in Durango I checked out in a 172 (biennial currency) and ran the flight test cards on the 172 as if it was the Falco. I must say a 172 is not much of an airplane at 10,000 ft—that's the altitude required for the majority of the test requirements.

On 21 October 2002, Ruth and I got up early and drove to the airport. It was a perfect day, cool, sunny and calm. The plan was to do all the taxi tests, return and do an aircraft review and then decide about calling in someone to do the first flight. We pulled N532FD out of the hangar, did a careful preflight, and commented on when we would be able to fly to a paint shop (none at the Durango airport), I climbed in set up and started the engine (sounded and felt great). No one was in the air that time of the morning, so I announced my intentions and proceeded to do the three suggested brake lining break-in tests.

Top: Startup and taxi tests. Above: Fred after the first flight.

Then for the real stuff. I had the test cards in a large ring attachment with a red crayon set by it in a holder stuck to the instrument panel so I could easy check everything that was done, including the start-up check list, etc. The three directional control tests went easily, with superb nose-wheel steering and rudder control at the 20, 40 and 50 knot speeds. At 50 knots, it really felt like it wanted to fly so I slowed down quickly. I wrote up my comments and returned to the runway to begin the aileron control tests. These were very interesting, as holding the aircraft on the centerline while holding full left or full right aileron with neutral elevator was a neat exercise in nose-wheel steering, which incidentally is extremely sensitive and accomplished with the slightest of pedal pressure especially as you get up in speed.

The opposite wing began to rise at the suggested 20/30 knots. I really sweat this one out—I knew that if the wings didn't rise at low speeds then I probably would have a control problem and I would abort the taxi runs, call the pros to discuss what to do and call in a test pilot. But everything was apparently in order and the five runway tests felt like I had a real airplane! The last called-for taxi test was elevator control, i.e. full aft stick, ailerons neutral and accelerate to 50 KIAS keeping from taking off while doing it. Gosh, I was all but airborne when I hit the 50 knot mark. Off the runway, I wrote my comments and began to return to the hangar. As I approached I noted that Ruth was surrounded by a very large crowd. We had told no one so that this could all be done without the pressure of onlookers, and here was the entire bloody airport crowd cheering on.

Top: A happy man "Hurray, I did it." Above: The instrument panel.

I turned to the next test card which was Flight Test, filled out the suggested data, went to the run-up area, punched the clock, put in 15 degrees of flaps, ran through the run-up checklist again and applied throttle smoothly to full and down the runway I went till 60 knots, checked 2700 rpm and 25 inches mp (Durango is nearly 6,500 ft), and took off. I kept 8-10 degrees up-attitude till 85 knots and 8000 ft, took in the flaps and continued climb to 10,000 ft checking all instruments, EGT, CHT, oil temp/pressure, etc. I did some gentle turns left and right on the way up and decided that I had a super Falco. Leveled at 10,000, I accelerated to 120 kts (gear down), did 30 degree turns and remained over the airport watching the instruments carefully to be sure everything stayed in the green. I was amazed as I began to feel comfortable at how easily it handled, very slight fingertip stick control, once trimmed for cruise 2500 rpm and full throttle 23 inches. After about 20 minutes of shear joy, I went to the descent and climb chart, recorded the manifold pressure required for 500 and 1000 ft descents and how it did the climbs at 100 kts (gear down and flaps up).

With no surprises up to this point, I went to the next flight card, Slow Flight. This called for 80 KIAS, gear down and 20 degrees flap, 15 degree turns, 500 and 1000 ft climbs and descents—no sweat at all. Level flight engine check and then the dreaded Approach to Stalls flight card. Having previously discussed this with Bill and Cecil, I was leery of doing a 30 degree full-throttle approach-to-stall on first flight. However the 12 called-for configurations all passed with little effort as buffet occurred nicely and full stall was avoided in each instance. I guess the stall strips were in the right place after all.

The Stalls flight card was a snap after the last one and clean stall from idle and full power, flaps up, straight ahead occurred and 60 knots on the nose and with 20 degrees of flaps at 55kts. So I had my 1.3 x 55 or 72 kts approach speed setting (good thing I had brought along my 12th annual Falco Fly-In calculator with me, thank you Cecil and Bill). So on to the Practice Landing Approaches card. I made the two approaches over the runway (at 8,500 ft) re-checked all engine instruments and with 20 degrees of flaps came around and did a beautiful landing.

The crowd was still there, as was the red carpet and a big kiss and little balling out from Ruth for not returning for ground check after taxi tests were over. It took one hour and 20 minutes. I have to say that I felt good, the aircraft performed very well and to my surprise did not appear to need any trim tabs as she flew straight and level when asked to. Also the performance at 10,000 ft with gear down was better than I had dreamed it would be, no doubt due to the wonderful engine built by Barrett Performance Engines. They put in high compression pistons, flow balanced, ported, etc.

As Ruth was going to town to shop, after a complete aircraft check, it was airborne again to do the gear-up flight check. This went well, with no hitches, the entire flight test protocol was done again, as was three landings to full stop. Wow, what a speed demon with the gear up! This called for another 1 1/2 hours, at which time I called it a day, and what a day it was. I flew nearly two and one half hours that first day. As I write this some days later, I'm still all excited about having done it by myself!

All I can say is that after nearly 9,000 flight time hours in general aviation aircraft these nearly three hours were easily the most fun and memorable that I've ever had! I don't recommend first flight for all builders, and I was very concerned about doing mine, but I can say that the Falco Flight Test Cards are the best that I've ever seen and are truly up to Falco standards of excellence.

I've now got nearly 10 hours accumulated and just finished my high speed runs, up to 17,500 ft. Great new oxygen system by the mountain high folks that works wonderfully, and is hardly noticeable, a terrific improvement over the Nelson Oxymizer system I'd previously owned. At 17,500 ft, I showed an IAS of 116 knots with climb of 700 ft/min at 90 knots indicated still remaining (I couldn't get clearance to go higher). The GPS ground speed at that altitude was 172 knots on a two-way one-mile run, main gear doors and all hinge covers on and with 16 inches manifold pressure. It handled well at that altitude. I did power off stalls and 30 degree three-

Flight to Papua New Guinea

By Ian Ferguson

Juliet, being fond of travel/adventure decided to take a job for two months as a medical officer with an Australian aid organization in Kiunga on the Fly River in the Western Province of Papua New Guinea.

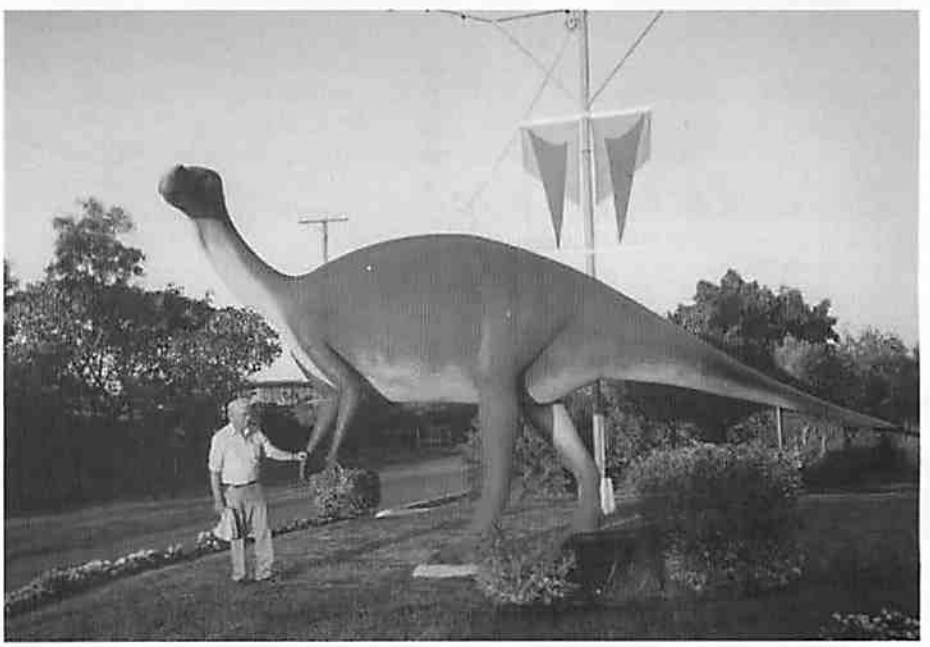
Rather than do the trip twice we decided that she would travel commercially on the way North, but that I would collect her for her return journey in the Falco. This gave me plenty of time to arrange flight clearance, maps and other travel documents appropriate for the northern part of the trip.

The clearance proved to be no trouble once I lodged the application. It arrived in four hours by fax. Topographical maps of the Western Province were another matter. Specialist map stores in Adelaide and Melbourne were unable to help. No doubt I might have been able to obtain an ONC chart from somewhere had I tried long enough. I finally found a TRC (Tactical Reconnaissance Chart) that covered the area. These charts are 1/500,000 military charts, and had been withdrawn from public sale for security reasons! The one I found was an old one. The map showed our track across PNG to be over forest and swamps with an occasional clearing marked in the forest. No roads, because there are no roads between the coast and Kiunga, all traffic goes by boat up the Fly River.

Cunnamulla

A few days before I was due to leave, a friend from Coleambally in central New South Wales rang and asked if he could come! How are you going to get back? He said he would find a way.

I left home on 22 Aug. and picked up Rudy from a crop-duster strip about 90 miles north at Coleambally. From there we tracked direct to Cunnamulla in Queensland for fuel. We traveled 493 miles over brown, dusty drought stricken



Top: Picking up Rudy at Coleambally. Center: A river in Queensland. Above: Ian with dinosaur in Cunnamula.

Top: Approaching Cooktown. Center: Horn Island.
Above: In Torres Straight.

country all the way and more of the same onward to Hughenden another 448 N\ nautical miles north for fuel and the night. Hot and dry. A taxi took us to a motel near the main street, a $16.00 bed and breakfast. In the morning before departure we admired a full sized dinosaur in the main street before departing for the aerodrome. The area is famous for the fossilized record of a dinosaur stampede.

On to Cooktown on the coast of North Queensland above Cairns. This leg was more varied, taking us over mountainous and forested tropical areas with few potential landing grounds apart from the occasional station strip. Distance 335 miles.

Cooktown was named for Captain James Cook who sailed into the estuary of the Endeavour River in 1770 for repairs as he had struck a reef off the coast nearby. It is a very picturesque town with wonderful fishing.

The aerodrome here is green and pleasant, in contrast to the country we had recently left. Large trees shade the terminal building.

The fuel man was refueling a helicopter on our arrival. He offered to call a taxi for us, as the aerodrome is a long way out of town. I thanked him, and said that that would be good if this gentleman (the helicopter pilot) can't give us a lift. The man said "Oh well it's on my way so OK." We were dropped next to the main street.

Next morning, on arriving at Cooktown Aerodrome, we requested fuel only to be told we had to buy by the drum, 44 imperial gallons, rather more than we could fit on board. I asked that the drum be stored suitably marked for my return.

The next segment was to Horn Island a further 352 miles north. This is an island off the tip of the Cape York Peninsula and our last port on Australian Territory.

The flight to Horn was over forest and hills and along the coast with blue and green seas and reefs in sight. We passed Lock-

hart River with a very large metal strip and a very small settlement. This and other strips, including Cooktown, were built during the war as stepping stones for warbirds on the way to battle. The jungle and hills in the area contain the wrecks of some of those who became lost on the way. Then we passed over Bamaga another long sealed strip related to an aboriginal settlement.

Horn Island was a wartime base from which aircraft fought over New Guinea. The jungle on the island was littered with wrecks of aircraft, most of which have now been removed. Rudy and I took a ferry to Thursday Island, an old pearling port a few miles away, for accommodation, unnecessary as it turned out. We marked time for a couple of days until clearance into Papua New Guinea became valid on 26 Aug.

From Horn Island our path took us over blue and green seas, and many of the Torres Straight Islands and reefs to Daru in PNG to clear customs. A mere 106 miles. No bother here. We stayed only long enough for the formalities and then went on 206 miles to our destination, Kiunga on the Fly River. The terrain on this leg was even more forbidding than usual as it consisted of swamps and timber with only an occasional village on lakes in the distance, there are no roads and the only available radio contact is with aircraft that happen to be in the air.

We over flew the town and landed to be greeted by Juliet, and half the Catholic Diocese of Kiunga/Daru.

Transport to Kiunga is exclusively by air and by river. The pervasive drought in Australia had lowered the level of the Fly to the extent that heavy shipping could not use it cutting down the availability of

Top: Fly River in Papua New Guinea. Center: Customs at Daru. Above: Falco with security guard in Kiunga.

Top: Ian and friendly native. Top Right: Rudi, Juliet and Ian. Center: Kiunga comes out to greet the Falco. Above: Ian and Juliet at Daru on the way home.

food (and beer) in Kiunga. There is a road from Kiunga to the Ok Tedi mine further north at Tabubil.

While the aircraft was on the aerodrome during our stay we had to arrange a 24-hour guard, not so much to prevent malignant interference as to stop the ignorant from fiddling.

Juliet during her stay brought medical assistance to many outlying villages as well as to Kiunga itself. To reach these villages it was necessary to travel for up to two days at a time, by river or stream, on foot or by flying in the Cessna of the Missionary Aviation Fellowship. Only a few villages could be reached by road. Most had never before seen a medical doctor.

Prior to our departure we were able to obtain some avgas from the MAS making it unnecessary to buy another whole drum. They supplied it with some reluctance owing to legal problems. The long arm of the lawyer has even reached that far.

On 31 August Juliet and I left Kiunga on the route south. We traveled the same route as I came up but stayed a night at Horn as well as a few extra days at Cooktown doing some fishing, and generally relaxing. I was able to use most of the remainder of the drum of fuel, as I didn't refuel at Horn Island.

Ian and Juliet's farm and airstrip.

Falcos Formate Downunder

By Drew and Judy Done

The 2nd Bi-Annual Downunder Falco Get-Together was held in Toowoomba (Australia) during November with a good complement of builders and flyers having a great weekend together. It was held in Lynette Zuccoli's hangar which provided a great backdrop of immaculate warbirds and other interesting airplanes to look at as a break from Falco talk. Some lucky people even got to fly in the Harvard and Trojan.

Ian and Juliet Ferguson, Stephen and Annie Friend, and Drew and Judy Done flew in from their respective homes, having to fly through dust storms, lightening, bushfires, rain and lots and lots of cloud—dedicated lot aren't we! On average it took four hours Falco flying time.

Other builders came from near and far—Neil Kowald from Adelaide, Neil and Gwen Aitkenhead and Graeme Lean from Queensland, and what was an exciting addition to our group—the New Zealanders came over for a few days—Giovanni Nustrini and George & Vicky Richards. It was great to meet up with them, and by the sound of it, we may all be going to New Zealand for a Falco Fly-In sometime in the future.

One of the builders was flown over from Adelaide by Ted Knight in his Lancair 360 (which we made him hide round the back of the hangar). Drew suggested he come for a fly in his Falco to feel what a *real* plane feels like, and after landing we joked that we may soon see ads for a second-hand Lancair for sale.

So what about this Falco formation? Over the last few months, Ian, Stephen and Drew have been completing their formation flying endorsement, so it was a great opportunity to join with Wayne Milburn in Lynette's Falco and get in some practice. Up until now the boys had just been practising in their three Falcos together, so they weren't so sure how they would go with another Falco *and* a Harvard as lead and camera plane. Juliet is an avid photographer, so was only too happy to go up in the Harvard to be our Falco photographer.

So after an initial briefing they set off with some trepidation, and found themselves 'all over the sky', realising that this wasn't going to be as straightforward as they thought. Juliet's initial photographs prove this. Before the second flight an in depth discussion took place, and Wayne (who has had much more experience than the others) suggested a change of reference points. This turned out to be a great idea as their formation was much more compact and tidy.

Unfortunately the Harvard wasn't included in this flight, so the resulting photographs are of only three Falcos, with Juliet in with Ian in the lead plane. Wayne's experience showed through when he told us that, as one reference for power changes, he was using the on and off flicker of the gear warning light in Drew's plane ahead of him.

Neil Kowald, Wayne Milburn, Stephen Friend, Giovanni Nustrini, Kylie Sharp, George & Vicki Richard, Ian ferguson and Matt Handley.

The rest of the weekend was taken up with talking, eating, talking and more eating. The hospitality shown to us by all at Aerotec was amazing—just ask the others about Anthea's cheese muffins and lemonade scones!

It is get-togethers like this that inspire builders to go home and get stuck into their projects, and for those of us who are flying our Falcos, it cements relationships with other flyers and reinforces our pleasure in flying these beautiful machines.

The Versatile Syd Jensen

By John King
This article appeared in the Summer 2003 issue of New Zealand Sport Flying.

Every now and then somebody comes along and makes a mark on a wide range of activities. Countless people put their stamp on a particular field, but only a few are prominent across a broad spectrum even in a country as small as New Zealand, and their names tend to live long after them.

Such a person was Syd Jensen, pilot, aircraft builder, businessman, engineer, racing driver and motorcyclist. Not only did he participate in all these varied activities, but he was also among the top in whatever he did.

"Syd didn't boast, but he knew how good he was, and he knew what he wanted to do," recalls Peter Stone. "He was a meticulous mechanic. His bikes and his workshops were all clean and gleaming."

One of the things the young Syd Jensen wanted to do was fly. His military career during World War 2 started in the army, but he transferred to the RNZAF and was ready to go to Canada for the advanced phase of his training when the war ended.

His father, Harold, had been a champion racing cyclist, but the young Syd had mechanical devices in mind for his sporting activities and bought a 1939 Triumph Tiger 100 road machine.

He rode it to victory in the first postwar meeting at Cust, against a large number of specialist racing motorbikes, which set the scene for his short career.

"He was an incredibly good rider," says Peter. "He had absolute determination."

Such skills attracted the attention of the governing body, the Auto Cycle Union,

Neil Cribb

Syd Jensen wore many hats, including his pilot's helmet in ZK-BWE, the first New Zealand Druine Turbulent.

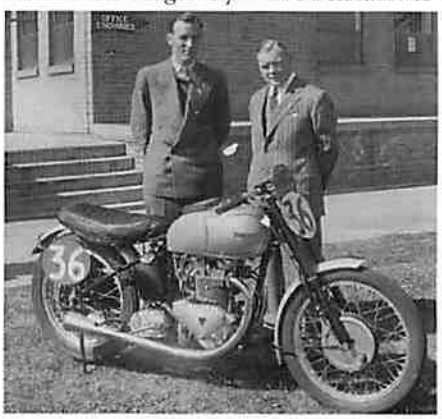
which chose the young Syd to be part of the New Zealand team at the 1949 Isle of Man TT, the mecca of all motorbike racing. The arrangement was similar to the four-wheeled Driver to Europe scheme which resulted in the international careers of the likes of Chris Amon, Denny Hulme and Bruce McLaren but was long before the days of sponsorship. The NZACU raised money by subscription to pay for a promising rider's return fare to England and if he qualified for the appropriate TT race in a satisfactory time the UK ACU equivalent gave a further £100. Motorcycles to ride were the riders' responsibility, and they were expected to compete in the Continental circuit after the Isle of Man.

Syd Jensen traveled to Europe with his parents and Rod Coleman, a privateer who also made his mark on motorcycle racing and would win the 350cc IoM TT event two years later. The pair each rode an AJS 7R in the 1949 Junior TT, while Syd competed in the Senior TT on a Triumph GP500 loaned to him by the renowned Auckland motorcycle dealer Bill White. Syd's fifth place on the notorious sprung-hub Triumph was the highest achieved by any of that make up to that point, and a delighted Edward Turner of the Triumph factory asked Bill White if he would mind if they presented Syd with the bike.

For 1950 he was one of three riders, with John Dale and Jim Swarbrick, to represent New Zealand on behalf of the NZACU on the Island and the Continental racing. Again Syd went with his parents, but this time he also had his wife Jeanette with him. For his racing mount he chose a 500cc Triumph engine in a 7R frame, a combination approved by both factories as AJS was firmly in the 350cc class and Triumph was interested to see how its engine would go in a full duplex frame with acknowledged better handling.

But no good results came of it, and the summer of 1950 was not a good season for Syd. Back home, however, the bike had an exceptional record. "Nothing could touch it," says Peter Stone.

Having conquered motorcycle racing, Syd Jensen turned his attention to four wheels. In his first event, at Dunedin in 1953 in a 500cc JBS owned by Ron Frost, he achieved a worthy fifth place. Later progressing to a Mk VII Cooper powered by 498cc Norton, he finished sixth, the first New Zealander across the line, in the 1955 Grand Prix at Ardmore which was won by Prince Birabongse. Syd's was a notable ef-



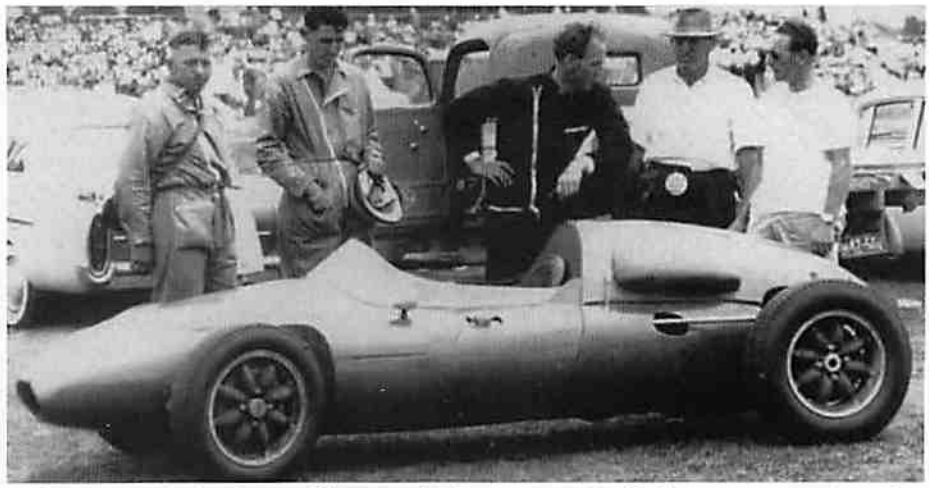
fort as the little Formula 3 Cooper followed some fairly exotic heavy metal in the form of Ferraris and Maseratis, plus drivers of the caliber of Peter Whitehead and Jack Brabham, and he was third at Ohakea. In a Mk IX Cooper with 525cc Norton engine he was seventh in the 1956 Grand Prix, third at Dunedin, fifth at Wigram and second at Levin, the circuit he had promoted and built up with his father Harold, Ron Frost and others. An idea for a racing drivers' school at Levin never took hold.

Syd stayed with Coopers for his racing cars over the next few years. In 1956 he imported a Mk X from which he built another with a locally built chassis and some kitset parts, and in his hands it was actually more successful than the original. He also bought a Climax-engined T41 in England and later, accompanying Bruce McLaren back to England, put together a T45 Climax himself at the Cooper factory during 1958. Syd had some success with it, including a win at London's Crystal Palace, before shipping it home and doing well in local events, including a win at Levin. In 1960, after winning the Gold Star championship with a string of wins plus a fourth in the New Zealand Grand Prix, Syd sold the Cooper to Angus Hyslop who took it back to England with him as Driver to Europe and, for reasons of paperwork, officially had it built up to later specifications at the works.

Syd's business interests tended to reflect his sporting activities. In his motorcycling days he ran a bike shop in Palmerston North, then owned a car sales and BMW import company, managed by somebody else, in the same city. Then he returned to aviation, having had his civil flying licence since 1947, and in 1956 started Aerocraft (NZ) Ltd, an aircraft maintenance company.

The Jensen family farmed on the outskirts of Palmerston North, and the Kairanga property of Syd and Jeanette sprouted a strip and Aerocraft's hangar, now the base of Hallet Griffin's Griffin Ag-Air. During the latter half of the 1950s Syd obtained a set of Druine Turbulent drawings from the PFA in England and proceeded to produce both complete aeroplanes and kitsets for local sale. ZK-BWE first flew on 8 December 1959.

"He made three or four ready to fly, plus prefabricated parts for kitsets in New Zealand, including engines," says Peter Dyer. "I built the first kitset here, ZK-CAF, and was effectively his demonstration pilot in the South Island. Jim Muir, a Canberra pilot, would come over from Ohakea and flew BWE as the North Island demonstration pilot.



Syd Jensen with the Cooper Climax at Ardmore in 1959. Syd came in seventh in this race which was won by Stirling Moss in a Maserati.

"Syd was an effervescent character, very positive in his ideas and very definite. He made a rattling good job of buying parts, but when dealing with amateurs he found it hard to recoup his costs."

There was a bit of friction on both sides. "Syd was trying to set up an organisation for ultralight aircraft, as they were then known," says Robin Hickman. "But he was more interested in selling his aircraft, so this was more of an owners club and not too much help for the homebuilder.

"One of his aircraft, ZK-CAG, I managed to beat in the heats at the air race at the opening of the new terminal building at Hamilton. His was all bright and shiny, and mine had a soft compression in one cylinder, but I had a slightly coarser prop so I had him in the straights. Rodney Hicks, the owner, was not happy about that."

Syd Jensen understandably, in the light of his experience with racing engines, concentrated on the engines, buying new VWs and modifying them with twin ignition and other Fittings. Aerocraft's woodworker was Dutchman Zeger van Klij who, according to all who knew his work, was a real craftsman who could make scarf joints by eye with absolute accuracy. As a new immigrant he also learned all the swear words first!

In the course of promoting his Turbulents, including strapping Tony Glowacki of the CAD into one at the first Paraparaumu fly-in, Syd flew ZK-BWE to many events. Neil Cribb, who worked for him in the early Aerocraft years, recalls a time when Syd returned home from Taupo, dodging cloud across the Rangipo Desert by closely following the Desert Road. His ground crew, less daring, was stuck in Taupo for days with a Tiger Moth.

But "the Turbulent idea was a bit ahead of its time," Neil thinks. "Syd went a bit cold on it. He would get enthusiastic about something, just get it going and then there'd be something else."

Aerocraft held its own as a business, maintaining general aviation aircraft and assembling the first Auster Agricola to be imported. By 1966 the company had grown to two bases, at Kairanga and the Aerial Farming hangar at Palmerston North airport, and was maintaining 30 - 40 fixed wing aircraft.

Some of those were Bölkow Juniors. sporting little two-seat trainers of which Aerocraft imported 10 in 1964. The first couple were completely built up by Messerschmitt-Bölkow-Blohm in West Germany, while the rest were "green" airframes to be equipped, assembled and painted at Kairanga, with Rolls-Royce O-200 engines imported direct from England. The fleet is unusual in that all 10 are still flying almost 40 years later, a survival rate unmatched by any other type in New Zealand.

The first example went to Middle Districts Aero Club, with others going to clubs and flying schools. Four Bölkow Juniors stayed on as Syd Jensen started the Palmerston North Flying School with Brian Milne as CFI and assistant Graham Leach. As well as the four Bölkows, the school operated a Rallye, 180 hp Sud Horizon, Cessna 180, 150 hp Super Cub and, yes, a Turbulent. The top Bolkow flew some 1200 hours a year.

Jim Evans joined Aerocraft after finishing his apprenticeship with Aerial Farming,

Syd and a shiny new Druine Turbulent in December 1959. The airplane is still flying today in Whangarei.

and rose to become chief engineer. "Syd built the house at Kairanga using spruce beams as he'd bought spruce logs in bulk," he says. "Some was later cut up for aircraft construction, and we rebuilt an Aeronca Champ wing using the spruce for spars.

"He said he had one rule—never start a business and use your own name in its title, although both his motorcycle and car sales were named Syd Jensen. Over the years, working for different outfits, I found that he was my best employer. He was always fair and honest."

Part of that might have arisen from an experience Syd had in England, a story he often told. During his time readying a motorcycle for racing at the factory, all the workers knocked off for smoko, so Syd, wanting to get on with the job, used a welding plant to do some welding on his own machine. That nearly led to a major industrial dispute as he fell foul of the strict union demarcation found in all British labour at the time, and things were smoothed over only with difficulty.

Syd also started a Cassutt single-seat racing monoplane, but that project was sold unfinished. Ie and Jeanette moved to Kerikeri in 1978, and it wasn't long before he started on another aircraft building project. Back in 1958 he'd had a ride in one of the early Stelio Frati-designed Falcos in Italy, and when kits became available from Sequoia Aircraft in Richmond, Virginia, he had to have one of these high-performance two-seaters and put in his order. Building started in May 1980, and with the help of Zeger van Klij again he was soon making such progress that it led to delivery problems.

As Sequoia president Alfred Scott tells it in the June 1990 Falco Builders Letter: "The progress he made in those early days was astonishing, even when you consider that he had a hired assistant. That was the time when we were best prepared to assist a slow builder, who took so long a-building that we had sufficient time to get the kits out. Syd and friend ripped through the basic woodwork in record time and would probably have been flying in 1983 if we had all of today's kits available then. But what actually happened was that Syd and friend ran us down and the project then entered a long and mutually frustrating wait-for-kit, install-it, wait-for-next-kit process.

"During this process Syd would take on odd business ventures of little subdivisions and these would take up a lot of his time. Syd could easily have flown in 1984, but he didn't rush the plane and then one sad day—literally as he was beginning taxi tests of the Falco—he found himself in the cardiac ward of the hospital. He didn't have a heart attack, but all of the alarms went off on the diagnostic machines. Syd had a triple bypass operation and within months was able to report that he felt better than he had for the past 20 years, but the New Zealand authorities considered bypass surgery as a ground-for-life event."

Lindsay Wheeler helped in the project with fuselage frames, the canopy and wiring, and also helped install the engine, a Lycoming IO-360 with helicopter pistons for higher compression and more power. Falco ZK-TBD did fly, and Syd flew it to Taupo in 1990 (with backup pilot) when he and Jeanette moved there from Kerikeri. Peter Dyer, at the time also living in Taupo, flew it a few times and also demonstrated it to its second owner, Graham Hodge, who took it south to Canterbury and housed it at West Melton.

Enter the Italian connection. Luciano Nustrini obtained one of the first production Falcos from the factory in Italy and extensively modified it for racing, a big part of Italian aviation. I-ERNA had a lower windscreen and canopy and everything not really essential for flight stripped out, including the electric landing gear motor, headsets and intercom. The entire Nustrini family would pile into the back of the Falco and accompany Luciano and his wife Giuliana to race meetings. The house in Florence grew full of elegant silver trophies as the Falco was almost unbeatable, even as the handicaps grew ever more impossible as race organisers tried to counter its increased performance which grew close to 200 knots.

The Nustrini family moved to New Zealand, bringing I-ERNA with them and, after much bureaucratic wrangling, persuading the CAA that it was real, even if somewhat modified from the 1954 design, and registering it ZK-RNZ. They set up the local Tecnam agency and were active in promoting Italian/New Zealand relations, especially in yachting. Alas, Luciano and Giuliana died when their Falco hit the sea in February 1999 while farewelling a solo Italian sailor in the outer Hauraki Gulf.

Giovanni Nustrini then returned to New Zealand with his own family and continued the Tecnam agency with notable success, but all his life—and especially since learning to fly in 1983 with the Auckland Aero Club—he had wanted to own a Falco. ZK-TBD was the only other example in New Zealand, still owned by Graham Hodge but not seeing much flying, and it didn't take long for the ebullient Giovanni to persuade Graham to sell.

Earlier this year Giovanni and George Richards, nearing the end of his own Falco ZK-SMR project, flew airline to Christchurch, obtained type ratings and flew the Falco that Syd built back to Ardmore. Externally tidied up and painted yellow, and with some work on the engine, it now sits in the Tecnam hangar, ready to be taken out and flown at a moment's notice.

Syd Jensen died in July 1999, but his legacy remains. The Jensen name is remembered in a wide range of activities—racing motorcycles and cars, BMWs (from before they became commonplace), business and aviation. The Turbulents may not have been the fastest things around, but they helped set a homebuilding trend which is still with us today and were followed by Bölkow Juniors and a special Falco, one of the fastest two-seaters in the country and commemorating the sporting side of its builder.

Construction Notes

Trim Tab Control Wheel Play. I have been bothered by the amount of "slop" or play in my trim tab control wheel. It seemed to be about 1/8 of a revolution in either direction before there was positive movement of the trim tab itself. I determined that the problem was in the right angle gear box to which the control wheel is attached. There appeared to be considerable play inside the box itself and by applying tension on the screwjack I discovered that the play could be almost entirely eliminated.

The screwjack can be removed from its shaft by driving out the roll pin that secures it to the shaft of the gear box. With it removed I placed three AN960-416L washers on the shaft and reinstalled the screwjack. This eliminated almost all of the play. The operation of the control wheel now is much more positive. Your gear box may require more or less than three washers so you may have to experiment as to what works best in your case. The roll pin is not too difficult to remove, however if you try to do it with the gear box in place the shaft/screwjack should be supported in some manner.—*Cecil Rives*

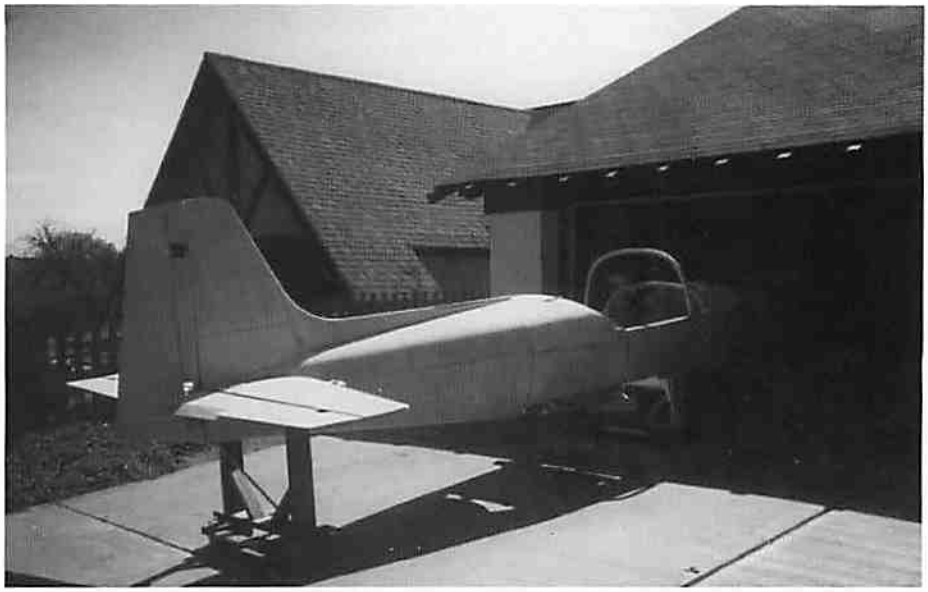
Reference Drawing 160 & 161 ferrite-foil antenna assemblies for the VHF Nav and the #2 VHF Comm antennas installed in the outer wing. I know that each side (dimension "a" on Drawing 161) must be the specified length, but does it matter where the "bend" occurs in the tips? Can the "bend" on one half of an antenna be longer than the other, provided that "a" is identical? Also, is it OK for one half to be straight and the other half to have a bend in it? In my case it would be simpler to have the outer half straight and the inner half bent, but I wonder what effect this would have on reception.

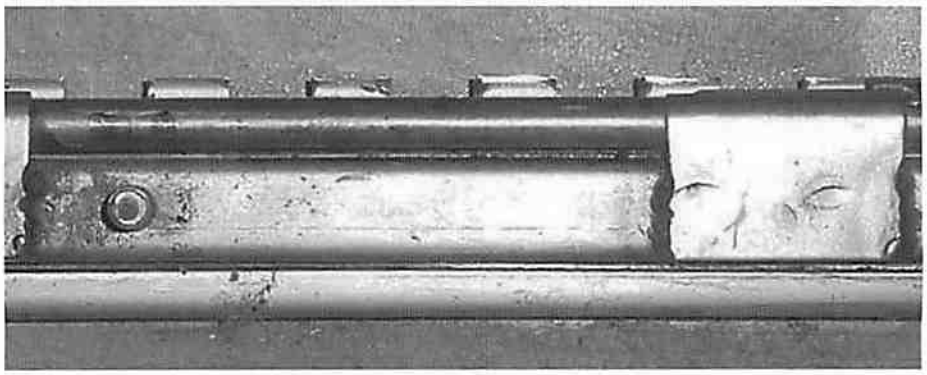
—*Wayne Rampley*

The answer to all this is that it doesn't matter where you bend it, so you can do any of the things you suggest above.

—*Dr. Ing Alfredo Scoti*

I'd appreciate some advice about the wheel well laminate rings. I've looked on the web, but find that most people show off finished stages rather than divulge the intermediate process. I plan full doors and therefore have made hockey stock laminates. On the bottom hoop, at the inboard end do I cut an 'L' shape so that the laminate hooked underneath the 20x20 stringer, or does it just butt up against the 20x20.—*Angus Buchanan*





Top: Gayl Boddy takes his Falco out for some sunshine.
Above: Stuart Ganes' seat track.

It's not terribly important, but I would butt it and then when you get plywood on it, everything will be very strong.—*Scoti*

On the top 'hoop', at the other end I'm a bit confused about the notch in the frame.—*Angus Buchanan*

Again, it's not terribly important, but the hockey-stick laminate follows the shape of the upper wing skin and you notch frame 5 where they cross. The intent here is to get a laminated piece of wood to glue to the upper wing skin (in the fuselage) and the wheel well wall.—*Scoti*

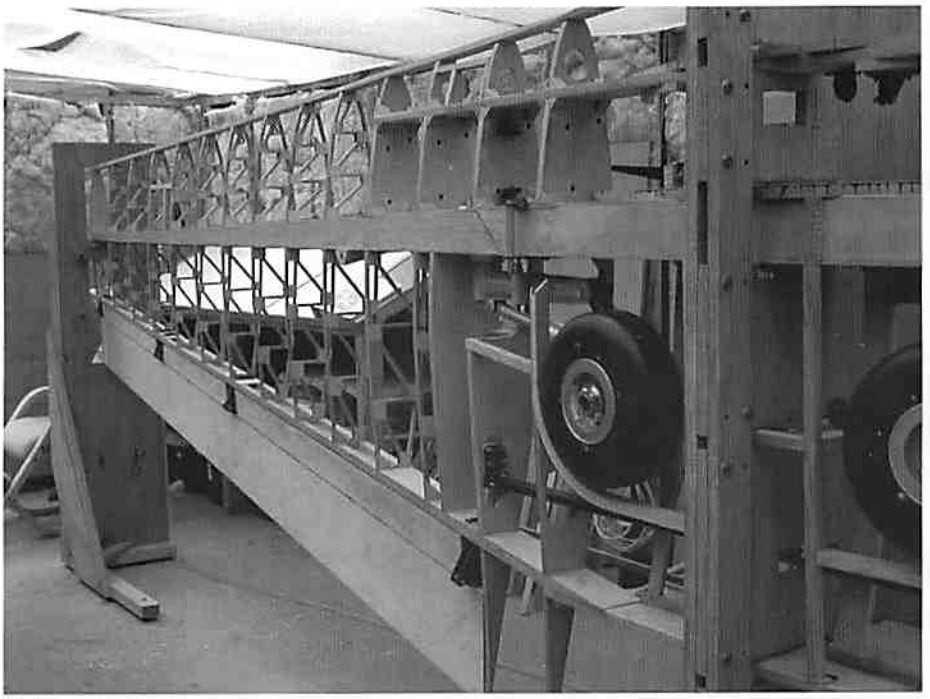
And I'm confused about its shape and its connection with the 'hoop'. (Not so easy to explain.) The frame 5 top outboard notch was cut vertically and horizontally. However the rib sits against the frame at right angles to the dihedral. The resulting hole is therefore not a nice square for the hoop to sit on (with its own notch, too). Instead the hole is a trapezium with the inboard corners 90 degrees. Should I 'improve' the frame 5 notch to suit the hoop, or have I missed something more fundamental about the geometry?

—*Angus Buchanan*

It's the same answer as above. I would notch frame 5 to the size shown, then position the lamination so that it will sand to the contour of the upper wing skin in the fuselage. This will mean that you will notch the lamination where it crosses frame 5. You are getting into sculpture here, but just remember that the intent is to create a curved gluing block that joins the wheel well wall to the upper wing skin in the fuselage.—*Scoti*

I have managed to seal the front tank now, and found four real 'pin holes' only evident when fluid was in the tank and it had about 3 psi pressure, they just 'drizzled'. But I can just imagine the smell of fuel had I not found them.

I used a weird stuff to seal the holes. It's is called 'Technoweld' over here (amongst other names). It was apparently developed in the US in the last war as a form of field repair for 2024 aluminum airplanes that suffered battle damage. It is an alloy that melts at about 750 degrees, so it can be used with propane torches. Obviously, the tank takes a lot of heating, but as it is used in a similar way to solder, it really does make a great way to seal tanks, provided



Top: Angus Buchanan's wing takes shape.

that they haven't had fuel in them! When solidified, it is tremendously hard and can be ground, filed and machined to a really great finish. —*Alan Powell*

I made the mistake of switching the leads to the battery the other day, and I didn't realize my mistake until I turned on the master switch. The first thing I noticed was the smoke from the diode at the master relay. There were also two popped circuit breakers (gear indication and intercom). After I replaced the diode and swapped the battery leads, I tried to test the gear retraction, and it would not retract. Before I embark on a mission to solve the problem, I though I'd ask you in this has happened before, and if so, maybe you know what has gone wrong (maybe a relay needs to be replaced). I do have the jumper installed to bypass the pitot pressure switch. Any ideas?—*Dan Dorr*

First, you would not damaged a relay by getting the leads backwards. The power just goes to a coil in an electro-magnet and that doesn't care which way the electrons flow.

Since one diode blew, I would take all diodes off completely and then see what happens. As I recall, we have more than one diode in the system, and when you start blowing these things or getting them hooked up backwards, very strange things happen. It's a little bit like trying to trace through what went wrong at every step when your computer crashes. Best to simplify the situation before you tackle the problem.

Then I would break out the gear logic drawings of the electrical system, pick the one that's appropriate to what you are trying to do. You can start at either end and confirm that power is getting through or not. Then you close in on the problem until you find the location where power has stopped getting through.—*Scoti*

I learned today that an AD was issued in 1997 regarding the fuel pressure line that comes from the spider to the back baffle, which Cecil and I replaced with a flex hose. It is an AD issued by Lycoming and I believe the # is 93-02-05. I don't know if it is applicable to Experimental aircraft, but I think the guys out there should really give this change a thought!—*Bill Russell*

The wiring bundles down the left side of the aircraft are a tight squeeze and won't make it through the 1.25" dia hole through frame 6. Since this hole only goes through the plywood faces, is it permissible to enlarge it to 25x50 mm to match the cutouts through the spar? We're also thinking about running the coax cables on the right side through the tunnel to keep them isolated from the wire bundles and especially the strobe wiring.—*Bill Nutt*

Oh, sure. That would be fine.—*Scoti*

What are your thoughts on using electric gyros? Seems to me, electric gyros were prohibitively expensive, but now that vacuum system component prices have skyrocketed, cost is no longer an issue and gains can be made in reliability, simplicity, and weight savings. From a certification standpoint, would an alternate power source satisfy the FAR? —*Bill Nutt*

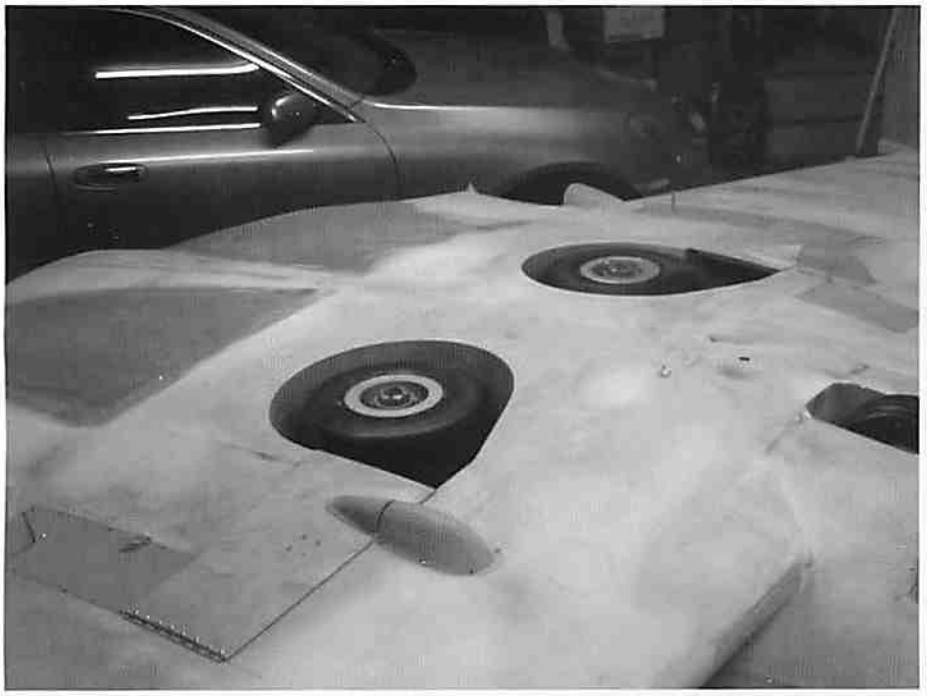
I'm not sure about this. I've always understood that the value of the dual system was that if the electrical system failed, then the vacuum system would keep on going. I'm sure there's nothing wrong with the idea of an alternate power source but, of course, it has to be designed and installed properly.—*Scoti*

I had to abort two successive takeoffs today as a result of the pilot's seat sliding back rapidly as the aircraft accelerated from a standstill, leaving me unable to reach the rudder pedals and brakes. I just managed to regain some control before the aircraft left the runway by immediately closing the throttle and then rapidly releasing the seatbelts in order to be able to slide down the seat to apply the brakes.

I considered at the time the reason for the seat giving way was because I had not ensured the seat adjustment was properly seated in the keeper. I taxied back to the hold for another departure and had plenty of time to check and recheck that the seat was secure by pushing back really hard with my rear end against the back of the seat. Reassured that everything felt fine, I lined up for departure, applied full throttle, as the aircraft accelerated the thrust pushed my body back hard against the back of the seat and once again the seat shot back leaving me unable to reach the pedals. This time, however, I was ready and very quickly slowed the aircraft down, abandoned the departure and made my way very sheepishly back to the hangar.

Once back at the hangar I removed the seat and discovered that the keeper was badly worn at the point most frequently used. Why I have related this in detail is that the second time I did check carefully that the seat was fixed in position securely. It seems that simply pressing one's butt against the bottom of the seat is not sufficient, you need to push and lean back in the same way our body is forced to when full throttle is applied. In the future, I shall be doing that and also I will be checking at the annual inspection for wear on the keeper.—*Stuart Gane*

Stuart's first inclination was to replace the keepers, but I suggested just filing them square again, and that is what he has done. Stuart said that it was his practice to slide the seat back every time he got out of the plane, and this is clearly why it has worn so badly. From now on, Stuart is going to abandon that practice.—*Scoti*



Top: doug Henson skins the bottom of his Falco. Above: Neil Aitkenhead gets some stick time in his Falco.

I didn't see this updated on the website, but it seems a company called Gluelines (www.gluelines.co.uk) is now the Aerolite distributor. He sells them in six-pack kits or 375 grams each—I guess about five pounds.—*John Kahrs*

On the electric fuel boost pump there is an inlet, and outlet and a vent of some sort. What is that for exactly?—*George Richards*

I hae always assumed that the vent was there in case the pump broke a seal and started to leak. We plumb it to an overboard vent line.—*Scoti*

Susan's Corner

Spring has sprung again here in Virginia, and there are many reasons I'm thankful of that fact.

It's been a tough winter for us, in more ways than one. We had a lot of rain, ice and snow and even for a native Yankee like me, I've had enough. I'm ready for sunshine and blue skies.

It's also been slow here due in large part to the horrible economy and the trouble in the Middle East, so Spring has brought some good changes on several fronts.

Tax time always seems to make everyone a little antsy, and now that tax time is over, the Falco building is picking up again. The economy seems to be improving a little bit and thankfully things have quieted down in Iraq some, so on all fronts we're getting back into the swing of things.

I do know for a fact that we're not the only ones that have had a few slow months because several of our vendors have experienced the same trials and tribulations. I guess it's at least nice to know that we're not alone.

I've been waiting (as have you) for the arm and oleo pins to come in from the manufacturer and hopefully we'll have those in-house very soon. I have also just received all the correct parts for the parking brake valve assembly, so those of you that have them on backorder should be receiving them very soon, if you haven't already gotten them.

Once again, on a personal note (and I must admit I'm feeling a bit like a used auto), I have to go "back in the shop" (the hospital) for more "repair work," and I will be out of the office for the entire second half of May. I won't be able to drive for a while, but I may have someone bring me into the office a couple of times, once I get back on my feet, for a couple of hours, just to make sure that Alfred isn't slacking off and to handle any emergencies that may come up. So, if you don't get an immediate response to your e-mails, calls or requests, at least you'll know why. And thanks in advance for your patience.

That's about all I have for now. I know we've missed a couple of Builder Letters in the last year or so, so I've added a couple of quarters to everyone's subscription time.

Let us know how you're doing and keep the letters and pictures coming. Safe flying and blue skies to everyone.

—*Susan Stinnett*

Calendar of Events

West Coast Falco Fly-In. September 11-14, 2003 at Sonoma County Airport in Santa Rosa, California. Contact: Dan Dorr (707) 537-1860, email: dandorr@earthlink.net or at 1440 Nighthawk Drive, Santa Rosa, California 95409

Mailbox

A few weeks ago I was told that there was a Falco parked a Gillespie Field not too far from my hangar. Yesterday I spotted the red Falco and my curiosity took over. The tail number is N1001A. That didn't tell me too much, so when I got home I looked it up on the www, then I got the whole scoop from your excellent web site. The ID plate said that the Falco was built by Charles Gutzman. I have not yet met Thomas Buettgenbach, the registered owner.

If that Falco stays here and Gayl Boddy gets his Falco parked here, we will be three Falcos at Gillespie Field. Gayl is a very fine craftsman. His Falco will be super. It seems like every builder raises the quality bar a notch.

Per Burholm
La Jolla, California

N212SF is nearly complete with an O-320-B3B and a Hartzell constant-speed prop and Aeromere factory colors. I'm working towards full certification based on one-time field approval of the engine and propeller complying with the original Falco of America type certificate.

Marc Stamsta
Hardland, Wisconsin

I became the EAA Young Eagles Coordinator for our South Central EAA Chapter 1218 late last year. The Young Eagles is one of our club's priorities. One of our members flew the most YE's in the month of September. More then anyone in the US. He now has of total of 152 YE's flown. SB should consider taking on the program.

The Falco has become a very reliable craft. The last annual, December, found no problems whatsoever. Last March I started the FAA Wings program and received my first level wings. I hope to continue to all 20 levels, God willing.

Janet and I flew the Falco out to EMT, El Monte CA, to visit friends in Whitter over the Super Bowl weekend. We have been getting together for the game the last twenty three years. Odd years we visit them and even years they visit us. We decided if weather permitting we would fly out ourselves and not mess with the hassle of a commercial flight. This was the longest cross country for Janet in the Falco and mine except for the flight to bring the plane to Missouri.

We had planned to leave early Friday morning but with the weather cold at 10 degrees I was only able to flood the engine but not get it started. We moved the plane back into the hangar and with the help of a friend's torpedo heater, we warmed the engine for half an hour and also put a battery charger on to. We finally left around 11:30 a.m.

It's about a nine hour flight to CA including the fuel stops. We were able to make it to Winslow, AZ with the setting sun. We flew on to El Monte on Saturday. We landed with temps in the eighties. I must say that cold temps, under the 30's, seem to be harder on things.

We headed back to Missouri the following Tuesday. Our plan was to stop again in Winslow for fuel and then on to Clinton, OK for the night. Wednesday we awoke to a 200 ft. ceiling in fog, not a SB exclusive we have found out, and had to wait around till 2:00 p.m. before we had broken skies with enough it blue to fly in.

Our destination was reporting 200 ft. in fog but we had hoped that by the time we arrived it would be improved. It wasn't to be. All of southern Missouri was under fog with no let up in sight. We could see that most of the area to the north of us was broken or clear and with the help of Kansas City Center we headed for Coffeyville, KS which was reporting broken 700 ft.

We spent and enjoyable evening there and again woke to fog and 200 ft. ceilings. Another wait at the airport till 2:00 p.m. before takeoff but this time all of Missouri was clear also.

Total time was 19 hours for the roundtrip. Total time for the Falco is now 122 hours.

The photos are of the Falco with the stripes applied, I think it helps to break up the mass of yellow.

Bob Brantley
Pomona, Missouri

I've attached 2 pictures taken recently—currently working on getting something together to put on the workshop although it hasn't been a high priority. As you can tell, Charlie and I are making slow but steady progress and it was fun to sit in it and make airplane noises after we installed the seats last week. We have it set up for the high Nustrini canopy and with both of us at 6'2" and 190 lbs, we found we had adequate headroom and shoulder room (but not much extra!).

Bill Nutt
Magnolia, Delaware

As promised a while ago I include an update on the grand project. The winter has not been a great period of progress but with a bit here and a bit there I believe you can see there has been a small march forwards. The addition of wheels has had a big psychological effect and activity towards skinning should now commence. Most people seem to complain about the huge sanding experience. However, I found the sculpting involved for the tail etc. quite satisfying. I'll let you know whether the larger task has the same appeal.

Angus Buchanan
Biddenden, Kent, UK

Brian Nelson's Falco takes shape in South Africa.

It must be two years since I last communicated with you in respect of Fanie's aeroplane (he now has about 180 hours on it), and I thought the time way overdue to let you know how my Falco is doing, expecially as the website shows pictures from a good 12 years ago.

The engine overhaul has just been finished and the motor mounted. The attached pictures should be self explanatory.

As this year is the centennial of manned powered flight I thought it appropriate to target my first flight in 2003.

This Falco will have a wooden fixed pitch prop as the CS version is out of my reach. The Lycoming O-320B3A has an Ellison throttle body (which I had had delivered to the Appleton hotel when I was with you in 1995).

Seat upholstery is complete but flight deck (!) carpeting etc. has still to be done. There will not be any glassfibre covering of the wood.

Total cost to date (bearing in mind we have had a horrible exchange rate for some years and the dollar amount thus looks crazy) is approximately $20,000 US. I have to spend about another $2,000 US. For those who don't know, this Falco is scratch-built and the kits used were canopy, cowling, seats, retract motor/gearbox housing, trim tab and wing fittings. Total

time to-date is 2,750 hours; estimate 300 to go. As you will see in the photo, the panel is somewhat simplified as I have used combined switch/circuit breakers of German manufacture.

I should like to stake a claim for a place at the 50th birthday in 2005, if the event is still on, wish you both the very best of health and hope to hear something from you soon.

Brian Nelson
Randsburg, South Africa

I've finally gotten a house with a three-car garage, built a 16-foot workbench, and started opening up the tail kits. As I mentioned to Steve Wilkinson yesterday in an email, there seems to be no reason not to start, except perhaps that life is short. Seems like entire Falcos have been built and flown since I ordered the first kits.

The purchase of the spars from Larry Black's friend Stan is turning into quite an ordeal. They're exquisitely crafted, but just not finished. Pulling staples out of your ribs is one thing, but this is a whole other ordeal. They have to be tapered, and I'm building a slotted router jig out of melamine for a flat-cut bit to mill the survace according to his advice. What a deal I got on these, huh?! [*John has since ordered our tail spars!*]

Well, building the jig is giving me a place to start increasing my level of accuracy, which I realize, after talking to Larry, must now be highter than I've ever attempted before. Larry said to me, "I flew my airplane for the first time 11 years ago, and I've seen a lot of Falco projects since then, and I can tell you right now with absolute certainty: mine is the best." If I haven't seen his plane in person, that would probably sound like a pretty lofty claim, but I think it's true. Besides, I took it almost as a challenge.

John Kahrs
Lafayette, California

I sent pictures of my Falco project, in February and September 2002, which you put on your Internet site. This is an update set. I took pictures of the project outside of the garage, with the tail feathers. I started the construction in March 2000. I started the fuselage in December 2001.

Everything in my garage is on wheels which works out real well for needed space. The aircraft has been on wheels since I started with the fuselage beam. I used 4x6 blocks to support the plane when I don't want to move it. It worked well.

Top: Bob Brantley. Above: Charlie and Bill Nutt check out the cockpit.

I have the skin on, up to frame 1 on both sides, and I have the NACA ducts roughed in. I'm holding off on the top and bottom front skin until I do the wing work. I have the nose wheel compartment lined with stainless. The firewall is on with 1/8" thick ceramic matte behind the stainless panel.

This weekend I fabricated the aileron ribs. My wife said "What, more Barbie crutches?" Your construction manual and drawings are very complete and easy to follow, which makes the project a real pleasure.

Gayl Boddy
Santee, California

Barring hurricanes and terrorist attacks, this year's West Coast Falco Fly-in will be held Sept. 11-14 in the California wine country of Sonoma County Airport (Charles M. Schultz Airport) in Santa Rosa, California. The weather should be clear, and the scenery in the local area is spectacular. There's plenty to see and do, and hopefully there will be several Falcos in attendance (including my own) for viewing and flying.

Alyson and I hope to see you all in September!

Dan Dorr
Santa Rosa, California