

Falco Builders Letter



Cipriano Kritzinger's Falco is the 78th Sequoia Falco to fly.

The Fulfillment of Perfection

by Cipriano M. Kritzinger

Flying was my dream since I was a kid. My first encounter with a Falco was in Augsburg, Bavaria in 1971. I saw a Falco flying down the runway with tremendous speed then zooming into the sky. It was quite impressive. A few days later the airplane was in the hangar, and I admired its beauty. Nine years later I read about Sequoia Aircraft in Richmond, Virginia selling plans for the Falco. I ordered it right away. But initially I could not make the effort to build one since I had other priorities.

There was a German builder who never started building and sold his kit. It seemed to be a bargain, but the quality of the woodwork was poor, and I discarded the parts. A small company in Germany made them. The fuselage rings including tail group parts are from Sequoia and of superior quality. In 1994, the fuselage empennage and the wing were complete. Due to other activities in aviation beside my airline job, progress was rather slow.

Later I was involved in flight operations management, and I had no more time for my Falco at all. Since the end of the 1999, I'm back as a line pilot again, and I had time to continue on my Falco.

My second-hand kit included the inverted fuel system. I would exclude the inverted system next time because of the installation problems in the narrow engine compartment. Initially I used hoses with integrated fire sleeve, but I had a hell of a problem to get them around the corners without exceeding the limit radius. Finally

In This Issue:

- 6 Angle-of-Attack Indicators
- 8 Stelio Frati Flips Over Falco Builder's Wife
- 10 Across the Tasman Sea
- 16 Construction Notes
- 20 Gordon Cook Moves
- 22 Sawdust
- 22 Susan's Corner
- 23 Mailbox

I removed the hoses and installed the standard hoses with re-usable fittings.

I realized the marginal headroom after the interior was finished, and I had to cut down the seat cushions to half the thickness. I had also not enough space between the seats and the sidewalls. In order to avoid damage to the sidewall leather lining from the harness gear, I modified the seats as well. Sometime a tight fit causes problems.

I don't know how other builders solved the nose gear door problem. My door is firmly attached to the strut. But with the gear extended, nosewheel steering is prohibited because the rocker arm touches the strut door. I solved the problem by cutting off one inch of the forward end of the strut door. The small strip is cut in half crosswise and attached to the door again with two simple hinges on the centerline. A spring on each side holds the tiny flap in place, and the rocker arm can deflect either flap with the gear extended. Now with the gear retracted, the lower cowling is completely closed. Maybe there is a simpler solution.

I have full clamshell doors for the nose gear, which also covers the wheel. I use a small silicone p-strip to close the gaps. The Nustrini spring solution is elegant, but I made several of them and there was quite a lot of adjustment required till it worked without problems.

I used Aerodux glue. It is an excellent resorcinol glue resistant to almost everything. It has no gap-filling characteristics consequently good workmanship is important. After the structure was finished, I closed all nail holes with Aerodux glue mixed with sawdust. There are no nails in the structure at all. Before I covered the airplane with e-glass, the airplane was sitting in the garage for almost five years wrapped in newspaper. I had no time for my Falco, but there might be one benefit: the wood was well conditioned before e-glass covering.

Preparation time for painting took almost one year, and it is dirty work. Thereafter I covered the whole airplane with thin e-glass. I used an epoxy-talcum mixture as



Above: Ready to taxi for the first flight. Below: Cipriano in the cockpit of his A330.



filler. With a large putty knife, I squeezed the filler into the tiny holes of the cloth. The stuff is not sprayable, and I wanted to keep down the weight. It was done up to five times and a light sanding was required after each application.

Using polyester filler would be a lot faster, but I did not want to use it due to the

The Falco Builders Letter is published 4 times a year by Sequoia Aircraft Corporation, 2000 Tomlynn Street, Richmond, Virginia 23230. Telephone: (804) 353-1713. Fax: (804) 359-2618. E-mail: support@seqair.com. Publication dates are the 10th of March, June, September and December.

Subscriptions: \$16.00 a year, \$20.00 overseas. Available only to Falco builders and Frati airplane owners.

Articles, news items and tips are welcome and should be submitted at least 10 days prior to publication date.

shrinking and cracking problem. Working with epoxy is a mess. Unfortunately, I used latex gloves. They are good for biohazard but the small toxic molecules can penetrate through the latex. In final phase I became allergic to epoxy.

The interior of my Falco is according Sequoia's recommendation. I used blue-grey colour high-quality leather and lightweight anthracite carpet. The instrument panel looks great as well with a dull black turtle deck and glare shield. Right now the interior including the instrument panel is removed to solve some minor problems, pictures of the interior will be available in a few weeks.

After the paint job was completed, I looked for a suitable airport. An appropriate airport was 90 miles away from my home. On most airports around my home working on your own plane is not permitted, even moving the airplane in the hangar is done by airport personnel. There are some former military airports around but there is generally opposition against airports in Germany. Several of them have been closed down.

Land for homes is barely available in Germany and often there is cheaper land available in noisy areas. But after buying homes close to airports people start protesting, and the results are drastic restrictions. On some airports you pay a tremendous landing fee unless you have an appropriate *noise certificate* that is difficult to obtain with a conventional engine and propeller.

With a fuel price of \$7.40 a gallon for AVGAS, flying become unaffordable in Germany. There is tax on AVGAS, it was invented about 20 years ago. General aviation is declining in our country. There is some homebuilt activity but compared to many other countries Germany is of secondary importance.

If somebody plans to build an airplane, the German Experimental Association OUV takes care of the homebuilder. There are similar constraints and restrictions; the process of certifying a homebuilt is somewhat different.

We have to present a flight handbook in German language because you can sell your airplane and the new owner may not be able to read the manual. The Sequoia handbook is perfect and the translation is easy with today's tools. In addition, I added electrical drawings and technical schematics including pictures of the instruments controls, etc. The manual has to be according GAMA specification.



My Falco has empty weight of 1,313 lbs. Omitting the inverted oil and fuel system, full wheel well doors including clamshell doors for the nose wheel and lighter interior lining would save some weight. The wood inside is completely sealed with polyurethane. Saving at least 50 lbs would be possible, but I rather keep my own weight down so we both look good.

I planned to fly after five years building time. I missed the target quite a bit. Actual building time was around seven years. A few weeks ago, I started with high-speed taxi tests, on two occasions I was intentionally airborne for about five seconds.

I carried a parachute on my first flight as recommended. The weather was acceptable with 10 knots headwind light gusts. The takeoff run and directional control was normal, I lifted off at 55 KIAS, at 3:42 PM on August 16, 2004.

I had the feeling that I was faster and during climb-out I realized soon that the speed indication was faulty. It was obvious that I was faster than indicated. I retracted the flaps; the gear remained down as planned. Everything else was normal except IAS reading. After an extended pattern I started the approach. Over the fence I had about 65 KIAS and flared down the runway 1000 ft until the airplane settled down.

During the taxi in, I suspected the water drain in the pitot line was leaking. It was a requirement I had to fulfill for the LBA. From experience every junction in the pitot line is a potential leak source. I removed the bottom panels and the water drain valve.

It's a simple device, which consists of a one-inch long brass tube pushed over the segregated pitot line with a hole on the bottom to remove water from the system. To shut the hole a polyurethane hose is pushed over the brass tube. The tube was too soft, and it was leaking a bit even at low pressure.

I used a stronger hose and took off again. It was a lot better, but the indication was still faulty. I checked the pitot system step by step, every connection I had minor leaks but the real one was on the instrument itself. The pitot and static access ports required an NPT adapter. I did not check the plans yet if there was an adapter required, but I installed one now. The leak rate was over 40 kts per minute before fixing the problem, and I reduced it to the limit of two kts per minute now.

[Cipriano reported that the poly-flo tubing was cracking. It is obvious that his real problem is





that he has some of the 'bad batch' of poly-flo tubing that we had some years ago.—Scott]

I wrote a test program using the available information from Sequoia and other sources. The program must include all items laid out in the JAR 23 (similar to FAR 23). It is a lot of work. It is divided into seven flight test phases the last phase is reserved for noise measuring. I have the permission to make flight-tests myself which is possible if you have sufficient experience. Performance testing will be done next month, and I will update the builder letter ASAP.

Making the first flight with your homebuilt is a great feeling. I was waiting for it to happen for many years. The first takeoff with my Falco gave me a feeling of pride. I have flown many airplanes, but there is nothing like the Falco. The Falco is the fulfillment of perfection. □

Angle-of-Attack Indicators

by Cecil Rives

In 45 percent of all fatalities in experimental aircraft the final killing event is uncontrolled flight into the ground due to stalls and spins. That's according to James Frantz, inventor of Proprietary Software Systems' Angle-of-Attack indicator. AOPA's Air Safety Foundation states that "stall/spin accidents tend to be more deadly than other types of GA accidents, accounting for 10 percent of all accidents, but 13.7 percent of fatal accidents. Overall, around 20 percent of all GA accidents result in fatalities, but stall/spin accidents have a fatality rate of about 28 percent."

The higher rate of fatalities in experimental aircraft can probably be explained by stale piloting skills, poor design or construction, lack of a stall warning device and low time pilots performing first flights on their pride and joy. (See Alfred Scott's article "How To Kill Yourself In A Homebuilt Aircraft") The ASF study also found that stalls/spins are most likely to occur in maneuvering flight such as: aerobatics, low passes, buzzing, pull-ups, aerial applications, steep turns to reverse directions or engine failures after take-off with pilot trying to return to runway.

One might also add steep turns to final approach when trying to correct an overshoot from base to final. As you know, most airports have a traffic pattern altitude of 1000 feet above ground level and some even lower than that. A NASA study in the late 1970's found that a Piper Arrow requires about 1200 feet of altitude to fully recover from a spin. Obviously, recovery from a spin on final approach in most high performance GA aircraft would be unlikely.

A number of articles have been written recently on the effects of angle-of-attack



Daniel Ovalle has now repainted his Falco, originally built by the Chilean Air Force.

(AOA) and extolling the virtues of AOA instruments. I have listed some of these at the end of this report as most of my comments are based on the information contained in those articles. In them you will also find a more in-depth study of AOA, particularly the two by Ed Kolano.

I know most of you are familiar with angle-of-attack, but it may be helpful to review what it is and what it does.

The AOA of any wing is the angle between the chord of the airfoil and the relative wind. Relative wind is the direction of flight. Lift is determined by the shape of the airfoil, wing area and AOA. As the AOA increases so does lift, provided the airflow over the wing does not separate from the wing's surface. When the airflow separates due to excessive AOA, lift decreases and a stall occurs. This is called the critical AOA and is about 14 degrees in most general aviation aircraft.

Now, it is exceedingly important to remember that a wing will stall at any air-speed, at any altitude, at any power setting, and it always stalls at the same AOA. Fuel weight, 'G' loading or angle of bank have no effect on AOA. Airplane weight and accelerated maneuvering affect stall speed but not stall AOA.

Ed Kolano's article (AOA) in the April, 2001, issue of *Sport Aviation* gives a com-

parison of an aircraft weighing 1000 pounds which results in a stall speed of 41 knots. The same aircraft when loaded to 1400 pounds has a stall speed of 49 knots. The stall AOA, however, remains the same.

There is one instance where the AOA of a wing will change and that is with the application of the flaps. Lowering of flaps changes the configuration of the airfoil and produces a corresponding change in the chord line.

If your first flight instructor was like mine you probably still have scars on your head from his pounding away with "Watch your air-speed! Watch your air-speed!" And, that was good advice as it was probably the only instrument you had that gave you any information as to the lift of the wing. Unfortunately the ASI is not very reliable and gives very little information about the lift conditions of the wing. Also, as speed decreases the error of the pitot-static system increases. In addition, it has considerable lag at any speed.

So, what is reliable? If the critical AOA is constant in nearly all conditions of flight and if AOA can be measured to provide a value of lift then an AOA indicator should be one of the most valuable instruments in your airplane. And that is precisely what an AOA indicator can do!

The Wright brothers had only one instrument on their first airplane—a stick pro-



Falco owner Oliver Barth had a little angle of attack problem in this Stearman.

truding from the nose of their craft with a piece of yarn attached to it. So, the use of an AOA indicator has been with us since manned flight began. It is amazing that one hundred years later it is not a common instrument on GA aircraft. (The FAA does require stall warning devices on certificated aircraft). Most airliners have indicators installed but sometimes only connected to the autopilot. The information is not readily available to the pilot. According to Frantz, in 1957 the U.S. Navy and Marines cut their fatality rate in half in one year after they perfected and flew AOA in carrier landings. He says they ignore airspeed completely.

What can an AOA indicator do for a pilot? Well, for one, it can assess lift under any flight condition, at any speed or altitude and at any wing loading. The instrument is very sensitive at any airspeed and changes in AOA are immediately apparent.

Kolano states that there is an AOA that gives maximum range regardless of weight and a stall number that is correct whether you are straight and level or in a tight turn. He goes on to say that there is a specific AOA unique to every airplane that ensures the optimum speed and maximum range for every airplane weight and that your airplane will cruise farthest when you fly at its maximum L/D. (The maximum L/D, maximum endurance, V_x and V_y are all functions of AOA).

Frantz agrees that V_x and V_y do not occur at fixed IAS, but they do occur at the same AOA, respectively. He says that using the same pitch attitude for low and high density take-offs may put you in the "region of reverse command" and that by flying the proper AOA on rotation will insure a proper attitude regardless of density altitude or gross weight. Also, he feels that all approaches should be flown using a fixed AOA regardless of gross weight, bank angle, turbulence or density altitude.

About two years ago I purchased a Sport Model AOA indicator from Proprietary Software Systems for \$895. (This is by no means the only indicator available. There is the "Bacon Saver" by O'Neill Airplane Company; then Safe Flight Instrument's; Controlled Flight Mechanisms has one called "Huntington Lift Reserve Indicator; HCI AOA Indicator; Rite Angle 111b AOA and there are probably others). I picked Frantz's because I had seen it displayed at Oshkosh and liked the idea of no vanes or other protrusions sticking out from the wings or fuselage and there are no moving parts. The system is fairly simple. There are two ports (.040-inch holes) one on the top of the wing and one on the bottom. (At Station #11 on the Falco's wing; just outboard from the bellcrank inspection panel.) These are connected to 1/8" tubing that connects to the C.P.U. Pressures from the aircraft's pitot-static system are also fed into the C.P.U. and the result is

a calculation that gives you the coefficient of pressure at the ports in the wing. There is a unique variation of the coefficient of pressure with AOA.

The installation during construction of the Falco would be very easy and for the most part that is true when retrofitting it in a completed Falco. Except for one thing. That is the routing of the 1/8" tubing out to Station 11. There is a 1/2" plastic conduit through which the wing tip strobe and navigation lights cables are routed. I used that for the tubing and found it very difficult to pull it through. There is quite a bit of friction between the tubing, cables and the conduit. No amount of soap, silicone grease or talcum powder seemed to work. I finally pulled as hard as I dared and then held the pulling line static until the tubing "caught up".

Perhaps someone might have a better method of installing the tubing. The C.P.U. is mounted on the aft side of Frame #6. The display is mounted as near the ASI as possible. (For a more detailed description of the installation, calibration and operation of the unit you may go to P.P.S.'s website: www.angle-of-attack.com).

After installation the unit is calibrated in the air during a short flight. There are two modes in which the AOA is measured: Flaps up and flaps down (15 degrees or more). Both are set at 1.15 x stall speed. At those speeds, the audio warning "Angle! Angle! Push!" will sound.

I have flown with it now for about 100 hours and feel that I have greater "peace of mind" than I did before. I suppose you could call it a security blanket. I make my final approaches a little slower (65 knots over the fence), and I think make better landings. AOA is controlled by the elevator and rate of descent with the throttle. (I still keep one eye on the ASI, though). There have been a couple of instances when the aural warning of "Angle! Angle! Push!" has been heard on my headset. Nice to know someone is monitoring the AOA.

References:

AOPA-Air Safety Foundation: Stall/Spin-Entry Point for Crash and Burn? Frantz, James: Proprietary Software Systems Website, www.angle-of-attack.com Goyer, Norm: AOA Indicators, *Custom Planes*, 12/99 Kolano, Ed: AOA, *Sport Aviation*, 4/01 Kolano, Ed; Goin' the Distance, *Sport Aviation*, 5/01 Langewiesche, Wolfgang: *Stick and Rudder* Lindstrom, Rick: Proprietary Software Systems, *Kitplanes*, 2/02

Stelio Frati Flips Over Falco Builder's Wife

by Mary Wilder

The Falco is almost finished. It's hard to believe—four and a half years of almost constant work. I am in awe of anyone who would take on such a task. I have watched this “work of art and passion” throughout those years as Duane, my best friend and during the last two years also as my husband has thrown himself heart and soul into this “project.” It is finally coming to fruition as he installs the interior with great excitement.

When Duane first showed me the construction plans I thought he must be crazy. What a task to take on. But knowing his ability to stay focused, almost to an obsessive state, if anyone could complete it, he would. What I didn't realize is how much admiration and respect I would gain for him over the years.

When we decided to get married a little over two years ago, we started looking for houses that would be a nice fit for a blended family of six as well as a garage that would accommodate building the Falco. Since Duane had started the tail and fuselage in a small one-car garage in his previous house, we needed something quite a bit larger for the wingspan.

Even though our new home has a two-and-a-half car garage, he still needed to cut a large and fairly deep hole in the cement to stand the fuselage on end in order to build the wing. Needless to say our new neighbors wondered what kind of people moved into their quiet little neighborhood.

We received some incredulous stares as we moved the tail out to the hangar at the airport. You just don't see pieces of planes riding around in the back of a pickup truck in the city very often. Soon we'll be moving the fuselage and wing on the back of a flat-bed truck with much help from family and friends. I can only imagine the looks!

The Falco has expanded our friendships as well. We were fortunate enough to have gone to Italy in June and met some wonderful people because of the commonality of the Falco. First in Tuscany, we met Antonello Gattai, who is the owner of the oldest Falco flying. It's the second production Falco built back in 1956. We were able to visit him at his villa and stay for lunch. He has a beautiful bed and breakfast accommodation with all rooms named after planes designed by Dr. Stelio



Antonello Gattai and Duane Root.

Frati. He also has a swimming pool built in the shape of a Falco!

A few days later we arrived by train in Milan where Ernesto Valtorta, one of the kindest men you could ever meet, picked us up to take us to visit with Dr. Frati. Initially Dr. Frati had not been feeling too well. His knee had been bothering him, but he was so gracious to accept our visit anyway. I only wish that we understood Italian better to make our communication easier.

What an honor to meet the designer of the Falco at his office in Milan. He was so kind, giving us gifts and signing Duane's glove compartment door with “Buoni Voli” [happy flying], Stelio Frati.

We also met Napoleon, his beloved cat, who after tripping Dr. Frati was actually the cause of his knee discomfort.

Because of the admiration and esteem I have for Dr. Frati, I am not entirely comfortable describing the next events of the day....

When we left for Italy, Duane had me read the article that Alfred had written about his ride with Dr. Frati. When he picked us up at the train station, we told Ernesto that we weren't totally comfortable with the idea of getting in a car with Dr. Frati behind the wheel. So when we were told that we were going to visit an airplane factory with Ernesto and Dr. Frati, our eyes widened. Seeing our reaction, Ernesto told Dr. Frati of our ‘slight’ fear of riding with him, so they decided to take separate cars. Then I was afraid that we might be offending this very nice man—and with high gas prices it seemed wasteful. So, I told Ernesto to tell Dr. Frati that we were really okay about riding with him.

We didn't realize that we were actually riding out of Milan to Asti, which is about an hour and a half away. To say that Italians are aggressive drivers is an understatement! I tend to get carsick somewhat easily. The constant quick acceleration and sharp braking gets my stomach and head spinning. It's not that Dr. Frati drives any dif-



Mary Wilder, Duane Root, Ernesto Valtorta and Stelio Frati.

ferent than any other Italian in that regard, it's just that being in the backseat of his 1988 Audi was a little nauseating for both Duane and me.

Anyway, the ride was really fun in that we were able to witness these two Italian men in the front seat, so animated, gesturing with their hands and their voices getting excited as to how to get to the factory. The autostrada was a very fast drive to say the least! Then into the countryside heading to Asti, where the factory was located. We were driving on winding roads through beautiful vineyards when it happened.

While we were negotiating some hairpin turns, Dr. Frati went straight, right into one of the vineyards. The car careened through the vineyard and rolled into a grassy ditch on its side, only to be stopped short by a cement block that came out of nowhere.

The two Italians were somewhat stunned, and they wondered about the smoke that

was coming in through the vents. Duane spoke up to say that the car needed to be turned off quickly. We extricated ourselves vertically from the wreckage with some help from nice landowners.

As he pulled himself from the car, Dr. Frati said "I hope Alfred Scott never hears about this!"

Only bruised and a little battered, we all stood in disbelief as the mortally wounded Audi was pulled from the ditch by a quick responding tow truck. The car was totalled.

Dr. Frati was throwing his arms in the air pointing to the cement block. He was sure that if it had not popped up out of nowhere, he could have made it back onto the road. Not!

Duane was beaming with excitement that we had actually been in an accident with Dr. Frati in the beautiful Italian countryside, saying "Wow, what an adventure!" I could have kicked him.

We asked Dr. Frati if he was feeling okay, and he said that his knee actually felt better!

His main concern was that if Alfred Scott found out, he would have a heyday with the story. In fact, we were not going to tell Alfred, but he was so happy to hear that we had actually gotten to meet with Dr. Frati, his enthusiasm got us going and soon we were divulging information like suspects in a police interrogation. Dr. Frati, as you read this, please know that we love you and would be happy to ride with you again—just maybe not to Asti.

[Mr. Frati, I'm glad to hear that you all came through this unharmed, and I hope you don't mind Mary's account of this unfortunate accident. It just seems like a little bit of Falco history here.—Alfred Scott]

We rented a car, and when we finally arrived at the airplane factory, Dr. Frati was right back at work. The factory workers stood in admiration and with full attention as Dr. Frati explained why they were having problems with the aerodynamics of their airplane and how they could correct them.

Later that evening we arrived back in Milan hoping to take Ernesto and Dr. Frati to dinner for providing us with such an entertaining day. Dr. Frati respectfully declined as he had enough excitement for the day. As he walked off pondering what his next vehicle might be, we joined Ernesto for dinner. He took us back to our hotel and then the next morning, even though he doesn't live in Milan, drove all the way back to the city to deliver us to the airport. What endearing people the Italians are!

When we came home from Italy, Duane went to work on the nose gear doors, not having an easy time of it. Finally after many adjustments they fit, and I watched several times as he raised and lowered the landing gear, always with a smile on his face. He then went to work on the adjustments for the windshield and canopy. I couldn't count how many times we have taken that canopy on and off. I am always a little nervous.

Now in the final weeks of finishing the Falco, it's down to what colors of paint does Duane want and how is it going to be transported. I am filled with excitement and some trepidation about his first flight, but I know how meticulous he has been, so that eases any nervousness I might have. I know that it is going to be a breathtaking and heartwarming moment when he is finally airborne. □

Across the Tasman Sea

by Ian Ferguson

During the last meeting of the Falco group at Toowoomba, George Richards and Giovanni Nustrini let it be known that they were interested in holding a gathering at Ardmore, in New Zealand in alternate years. In order to support that idea, Juliet and I began to plan to fly over there.

The route involving the shortest over water legs, though rather a long way round, is via Lord Howe Island, an Australian territory, and Norfolk Island. The latter is a semi-independent territory with its own customs regulations. From Norfolk Island we would travel to Auckland to clear NZ customs, thence eight more miles to Ardmore.

The distances involved were to Taree on the Australian coast, 417 nautical miles, to Lord Howe Island 336, and then to Norfolk Island 484. The distance to Auckland from Norfolk Island is 585 nautical miles, around a third of that over land.

While it would be possible to make the journey on the standard tanks, they would not provide sufficient margin for a safe flight, so I set about the manufacture of a fiberglass tank to sit on the luggage shelf. This was not really a difficult job once the tricks needed to make the tank fuel-proof were mastered, with some professional help. The instructions in Tony Bingelis' book proved inadequate. [As he was building his Falco, Tony published many articles on how to do it his way. He wrote an article about building the fuel tanks of fiberglass, then threw the tanks away and made them of aluminium.]

Once the tank of 75-liter capacity was installed testing time came along. After a couple of short flights locally, we arose one morning and flew to a local town, Wangaratta, to fill up. We took off from there at around 10 AM and flew direct to Townsville on the Queensland coast, 1040 nautical miles to the North. Using economy power settings, we arrived there seven hours later with an hour's reserve left. Our average speed was around 149 knots with a fuel consumption of 28.5 liters (roughly 7 US gallons) per hour. On return we used higher power settings and traveled a less direct route, but we still arrived home with adequate reserves.

We left home on Thursday 4 Mar. in good weather flying over the bare and drought-stricken inland, and later the Blue Mountains West of Sydney. These mountains are not high, but are very rugged. I would prefer to land in the water any time. It was many



Top: Before departure. Center: The packed aircraft. Above: Ball's pyramid and Lord Howe.



Top: Lord Howe, Ball's pyramid and Admiralty Islands. Center: With luggage at Lord Howe. Above: Mts. Lidgbird and Gower.

September 2004

years after settlement before explorers were able to cross them to the inland plains. Soon we were landing at Taree and preparing for a reasonably early start in the morning.

Friday morning was bleak and windy. We packed up and left about 10 AM heading direct for the Island. We flew mostly above cloud until nearing our destination. We had a TAS at this stage of around 170 knots, but a ground speed of as low as 91 knots at times. This gave us some cause for thought regarding conditions at our destination. The engine hummed along beautifully with no sign of 'automatic rough.' Lord Howe has a reputation for producing extreme turbulence in the circuit due to strong winds and the terrain around the runway. Our aerodrome guide says "Certain wind COND. May generate SEV.TURB on the approach to the RWAY & preclude a safe LDG. The only safe course in such cases is to return to a mainland AD."

Around forty miles out we came down to 1500 feet or so. We were soon greeted by a friendly voice calling "Yankee Bravo November, are you receiving? This is Lord Howe Maritime." There followed a dialogue which gave us to understand that the weather was CAVOK, but there would be turbulence on approach.

It was good to see the mountains of Lord Howe appearing out of the mist. On arrival the strip appeared on a narrow neck of land between the mountains to the South, and a series of ridges to the North. It was short (not for us) at 886 M or around 2,900 feet. There was a quartering cross-wind from the left on runway 10 of an indefinite number of knots. The socks were horizontal. Maritime advised us that the further into the strip we land, the less turbulence we would meet. We compromised a bit with the distance and wrestled ourselves onto the ground safely if not elegantly.

Lord Howe is a quiet and picturesque subtropical island. It almost seems that all the grass is mown regularly. Our stay was marred by high winds and rain. We got all our gear wet, and we were not able to dry it properly during this visit. The terrain is undulating with the exception of Mounts Lidgbird and Gower at the Southern end of the Island. To the West of the central part of the island is a coral lagoon enclosed by a reef. During the war a Catalina suffered engine trouble and attempted to land on the lagoon from North to South. For some reason they failed to clear the ridge at the Northern end and crashed. The remains are still on the South slope. There was only one survivor.

The preferred method of transport for visitors is bicycle; they even have a few three wheelers for the less active, or confident.

We cycled back to the aerodrome to refuel the day after arrival. We lacked the necessary cash and our cards were not acceptable so the fuel man said that was OK, we could pay on the way back. Very accommodating.

Lord Howe has a small local community of around three hundred people, mostly dependant on tourism. There are some lovely beaches, and the locals assured us, no sharks. On Ned's beach an old fellow has been feeding the fish with scraps at 4.00 PM every day for the past 20 years or so, and a mass of fish come in at around that time. They are not mere sardines, but are mostly large fish of two or three feet or more in length. There were Blue fish, Yellow Tailed King Fish and some mullet but, surprisingly, no sharks. Tourists swim among the fish with goggles and snorkel.

Our stay was not blessed by fine weather. It rained and blew the whole time of our stay. We got wet and never managed to get properly dry. On our return journey the weather was fine.

On Monday, we loaded up in rather bleak weather with a considerable wind, as usual, and departed to the North-East from one zero. Climb to cruise at 8500. We were over cloud much of the way, but after all there was little scenery. We never saw any form of vessel on the ocean at any time during our trip to NZ and back. According to the GPS we were managing 4.6 to 4.9 liters per 25 nautical miles (27 mp Imperial gal). At 250 miles the ADF locked on to Norfolk NDB—a comforting sight. It turned out that the VOR was out of service.

Norfolk Island appeared out of the mist ahead—again a very welcome sight. The contour of the island is rather flat but surrounded by 300 foot cliffs. The aerodrome is large with two long runways. We had a nervous moment when the undercarriage failed to extend, and we had to go round. On cycling the gear it extended normally.

The weather was much improved at Norfolk, and we spent a few days sight seeing. We hired a car for our stay there for A\$50.00 per day. The Island is noted for its Norfolk Pines; very straight trees that the early Australian colonists thought would make excellent ship's masts. The timber proved unsuitable, but the government in Australia established a penal colony there for the most hardened



Top: Giovanni Nustrini with Fiat and Falco. Center: In the Tecnam hangar. Above: Ian and Juliet on arrival at Ardmore.



Top: The Falco group at Ardmore. Center: George Richards' Falco. Above: Three Falcos in New Zealand.

September 2004

of the convicts originally exported to Botany Bay (Sydney) from England. Their treatment there was extremely harsh, with frequent floggings. Many of the old prison buildings can still be seen. We visited the cemetery where jailors, prisoners and others were and are buried to the present time. The late 16th century burials are mainly men with some children and women, mostly under twenty-five years of age, except one man who died age 105 years. That provides some food for thought.

Around the end of the 17th Century Captain Bligh, a British admiral, visited Polynesia on a voyage to collect breadfruit. He was a pretty tough sailor, and his crew decided they liked the island ladies better than they liked him, so they mutinied and put him overboard with the loyal part of his crew in the ship's long-boat. In a famous nautical feat he managed to navigate his open boat three thousand miles or more to Timor, and returned to England from there. He later became a governor of the penal colony of New South Wales. Meanwhile the mutineers lead by Fletcher Christian settled on Pitcairn Island. This eventually became unsuitable, and they all moved to Norfolk Island just after the closure of the penal colony there. There are still Christians and other descendants of the mutineers living on the island. This story was told in the film "Mutiny on the Bounty" starring Charles Laughton and later Marlon Brando in a remake.

We stayed on Norfolk for three nights, leaving in the morning of Thursday 11th March.

Our onward flight was uneventful with good weather until we were over New Zealand when it progressively deteriorated. We elected to fly in controlled airspace as the easiest way to negotiate the various restricted areas and military airspace. It seems the smaller the air force the greater the airspace requirement. We flew at 3500 feet in rain showers and quite severe turbulence. Eventually we were vectored onto final for runway 23 at Auckland. We contacted ground control and asking for guidance to customs and quarantine. The controller found this difficult and after parking us for a while he directed us to a ground handling agent who drove off and collected the necessary officials in his automobile. After the required formalities we boarded the aircraft and asked for clearance to taxi and to Ardmore. "You are cleared to make a Karaka departure to Ardmore."

"What is a Karaka departure?"

I wasn't equipped with all the New Zealand AIPs. I had to go back to the handling

agent and obtain a photocopy of Auckland departure clearances for the eight mile journey. On takeoff we turned left to Karaka and then left again to Ardmore. It later proved to be an expensive visit to Auckland Airport.

On arrival Ardmore we were welcomed by George and Giovanni to the latter's facility. It is a very comfortable setup with two Falcos to admire.

The only aircraft failure we had was that of the power unit for the strobe lights. Ardmore is a very very busy general aviation airport with no tower and a very mixed bag of aircraft from warbirds to helicopters, singles twins and ultra lights. There is no tower, but there is an efficient unicom. I would have liked the strobes to be operating.

Giovanni loaned us a car, and we traveled to near central Auckland, a distance of around 25 kilometers to a motel in Parnell. This is a pleasant area and is home to numerous excellent restaurants which we appreciated. There was a bit of a mix-up about the motel bookings so we moved down the street in the morning, and were able to do some washing at last.

Friday was spent quietly. We hired a car in downtown Auckland and in the afternoon drove out to Ardmore with the hire car and Giovanni's Fiat (naturally). We had dinner that night with George and Vicki.

Out to the aerodrome in the morning for the meeting proper where we met Drew and Judy Done, Stephen and Annie Friend, Neil and Gwen Aitkenhead and Graham Lean all from Australia. From New Zealand there were George and Giovanni, of course, together with Troy Tiller, and Matthew McCarty and his sister, interested New Zealanders. The latter has now begun to build.

Two Falcos (George had not flown off the probationary period); a Tecnam and a Cessna were used to ferry the people to Whitianga on the Coromandel peninsula for lunch. A very pleasant expedition blessed by beautiful weather. Giovanni did several trips exhibiting a spirited circuit technique each time.

Ardmore is a very interesting aerodrome, home to many warbirds and ultra lights as well as the usual mix of GA aircraft. With only one major active runway, apart from a parallel very short strip suitable mainly for ultra lights, it is very busy. I missed my strobes.

On Sunday we went late to Ardmore. Giovanni showed us a film of Luciano



Top: YBN East of Ardmore. Center: Whangaroa Bay and Harbour, in North Islands, New Zealand. Above: Ian and Juliet en route.



Top: Mutton Bird Island. Center: KariKari peninsula, near KeriKeri where Syd Jensen built his Falco, now owned by Giovanni Nustrini. Above: Back home.

preparing for and flying in a race in the early days. No wonder he won so many races. His preparation and execution of his plans was meticulous. Lunch was a Nustrini special pizza—delicious.

In the afternoon the Friends and the Dones went off to see something of New Zealand. The others departed for home.

The following day Juliet and I visited Ardmore again. George and Giovanni flew YBN, and Juliet and I had some experience flying a Tecnam Golf. Certainly a well mannered and capable small aeroplane, classified as an ultralight. One of the models is actually being used for towing gliders.

The remainder of the week we spent fishing for trout in the Taupo area with only moderate success.

We finally departed Ardmore on 22 March with the intention of visiting the Bay of Islands, made famous for its big game fishing by Zane Gray between the wars. He was also famous as a writer of novels about the American Wild West.

On leaving, we tracked out to sea and below two thousand feet, for some distance to avoid controlled airspace and the large military restricted area. We flew past the Bay and up the coast to the northern tip of the North Island admiring the many beautiful hills bays and river mouths before turning and returning to Keri Keri, the aerodrome associated with the towns of Keri Keri and Paihia on the Bay of Islands.

We stayed in Paihia for a few days, cruising on the bay, and doing a little small game fishing, with some success.

There was a minor hitch on leaving Kerikeri, as the only fuel supply was by swipe card, and neither of our cards would work the fuel pumps. This was finally fixed by the loan of a card belonging to the local aero club.

The return journey to Australia was uneventful and blessed with fine weather, even at Lord Howe.

On departing Lord Howe on Monday, we were able to travel home non-stop via Coffs Harbor on the coast. The scenic contrasts were amazing. However, it was good to see the the arid surroundings of home.

Total distance flown about 3844 nautical miles at an average speed of around 150 Knots. It is difficult to be exact owing to scenic detours. □

Construction Notes

Ian Ferguson has replaced his Lycoming engine with a new engine from Superior Airparts. I believe this is the first such installation. Ian reports:

"My new Superior Airparts Engine is installed and going well now that final adjustments are complete. I bought a carburetted engine kit from Superior and sold the carburetter. Then we attached my old sump with all the injection gear, making it a BIE. In this country, so long as all approved parts are used, and the engine is assembled in an approved workshop, the engine is regarded as fully approved, that is, not experimental. In effect I have the same old engine with its data plate but most of the parts have been replaced by new. When the old core is sold with the new sump, the whole process becomes relatively economical."

George Richards asks "My Falco Fuel system works fine as per the plans and that is great. But I read in a lot around the place and my inspector also mentioned it, that an injected engine should have a tank return line. In fact my inspector was surprised that the Falco didn't have one. What is this all about? I'm just curious."

I'm afraid it's been a long time since I working on all of that. I have a vague memory that Continental engines have this sort of thing. Certainly it is not required on our Lycoming engines.—Scoti

Bill Hoffman bought Aerolite powder from Skycraft in UK, but they could not ship him the hardener. They did, however, give him a recipe for making your own hardener from a mixture of formic acid and distilled water.

From Skycraft: "The formulation for the GBPX hardener varies slightly to the set time required. The base formula is 20 to 35% formic acid diluted with distilled water. (Do not use tap or rain water). For the faster, more commonly used hardener get 85% formic acid from your local drug store and dilute 1 to 1 with distilled water. This then gives you an acid content of 35%. Should you want a slower hardener, increase the water content. Ensure you complete sensible sample tests before you use on anything structural."

The next step was to find a source for formic acid. I decided to go on a search. It's easy to get if you want to buy a 55 gallon drum, but I made a number of calls and finally got the product manager for formic acid with BASF on the phone, and told



Top: David Silchman and his Falco. Center: Vicki Richards gets her first ride in George's Falco. Above: G-OCAD in the air.

him I was looking for a source in small quantities. After a lot of conversation, he suddenly said that I just needed to contact a laboratory supply company. He gave me

three names to try: Sigma-Aldrich, in St. Louis (www.sigmaaldrich.com), Fisher Scientific (www.fishersci.com), and Puritan Products, Bethlehem, PA,



Top: Nick Abbott's Falco. Center: Simon Paul sent of this photo of his old Falco. Above: Mike Wiebe at the Oyster Fly-In in November.

I found an on-line catalogue for the acid at that offered a case of four ten pound bottles for \$49.80. It isn't clear if that is the price for one bottle or one case of four bottles.

My suggestion is to buy a supply of four bottles. If you end up on the telephone with someone, for God's sake don't say "airplane," or they will panic and hang up on you. It's

for your chemical laboratory, you're a high school teacher, and you just ran out...

Bill Hoffman found a guy who sells to tanners and beekeepers. He got four quarts of 90% formic acid pretty cheap, at \$10 per quart, although he had to take a two-hour drive to pick it up. Apparently, shipping acid is a problem. He did find a local drug store who would get the acid for him but quite a bit more expensive, \$150 for four liters.

We have full information on all of this at the Falco Skunkworks on our website at Glues->Aerolite Sources.

Neville Langrick reported, "My PFA Inspector has asked me to investigate the service life of Nylo Seal Tubing when used with avgas in the fuel lines. Nylo-Seal have not responded to my enquiries. Can you help with any info."

I suppose you can break this down to compatibility with avgas and service life. Regarding the compatibility with avgas, I remember asking Harry Zeisloft about this many years ago. He was an EAA director and in charge of the EAA auto fuel project. Harry is a towering figure in the engineering world, having been head of research at the AC Spark Plug Division of General Motors. The EAA auto fuel project went no where until Harry came on the scene and took it over. Harry said that nylon is unaffected by avgas, and in the past 30 years, I've never heard anything to the contrary.

As for the service life, I'm afraid I don't have a clue. I'm not aware of any general problems with nylon over time, like you have with fatigue and metal. You might do a search on the internet. I'm sure if there is any information available, you should be able to find it. Sorry if I'm not much help.—Alfred

Drew Done reported a problem with his landing gear retraction. "In a nutshell, just about every time that I do a retract the circuit breaker pops with about two or three turns to go on the emergency handle. I have tried holding different climb-out speeds, all with the same results. Recently I put new tyres on the mains, the problem was happening fairly often before these but went to nearly every time after. Put a marking paste everywhere proud in the wheel wells to no avail. There is no sign of the front tyre hitting on the front bay walls either. I have tried cleaning the screws and putting on clean grease. Even tried cleaning and using motorbike chain spray lubricant. Will say that this usually gives me 2 or 3 retracts before it pops again. After the typical setting up problems in the initial flights with the gear down limit switch I

have had no problems whatsoever with the circuit breakers in that direction i.e. down. Only in the up direction.”

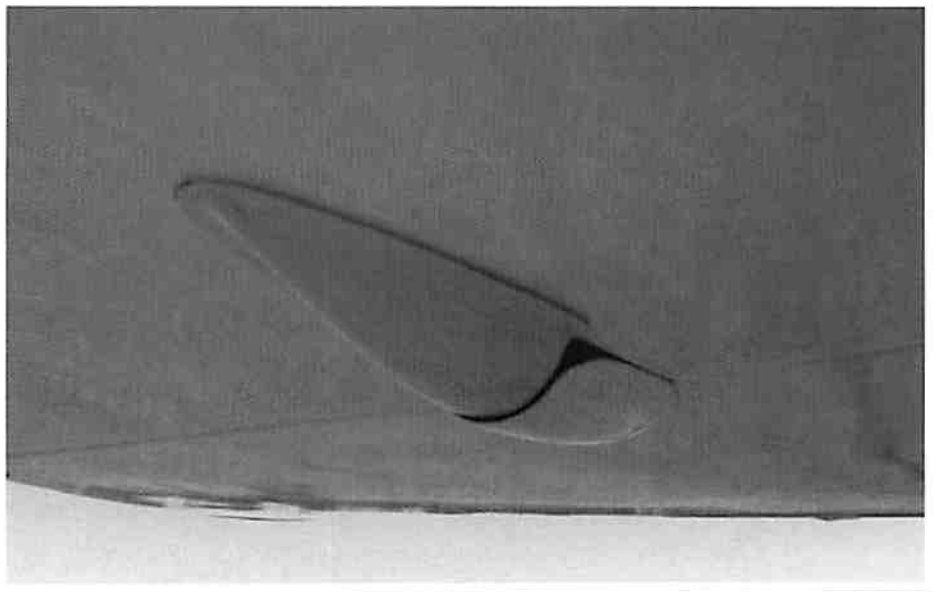
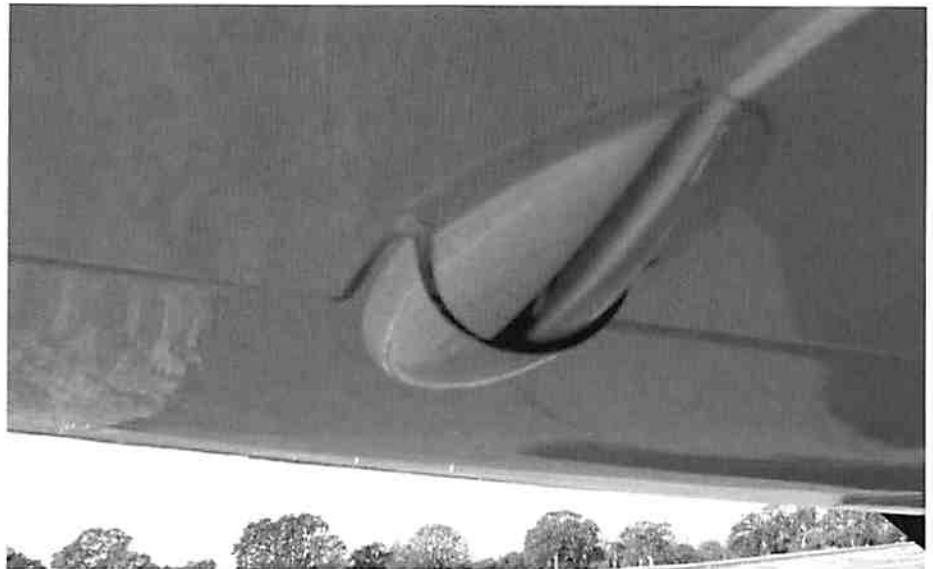
“I have the fast motor in mine for I haven't used the full doors, only the round wheel well holes. Can't say it happens everytime but I often see a flash of the white voltage light just before it pops. If the breaker is pushed back in, 50% of the time it will finish its cycle without popping again. We have had it up on jacks to check that the leg doors are closing correctly, and I think I'm right in saying that it didn't pop while it was on the jacks. There is no obviously bent screws that I can see. In short it has me stumped, and I hope you may have some ideas on what next to check. VH-DJD has 350 plus hours on the clock in just over three years, it also does a lot of short flights, obviously meaning a lot of gear cycles. A lot of these, 40-50% would be off grass.”

Obviously, what is happening is that the electrical load of raising the landing gear is so high that the circuit breaker is popping. Because of air loads, landing gear retraction involves more work in the air than on the jacks.

I note that it's summer here and thus winter there, but I'm not sure if it gets very cold where you live. In any event, you definitely want to be using the correct grease, which is essentially unaffected by temperature. You might get some temporary relief by using a light weight lubricant, but that's not going to do anything for you. You definitely must be using the Aeroshell 17 grease, which is black because it contains molybdenum disulfide. Don't mix this grease with other types of lubricants.

Assuming the lubrication is done right, next you should turn to the electrical system. I'm assuming you have the electrical system installed as per our latest revision. When we first designed the system, we had the landing gear relays on the aft face of frame No. 6 and with a smaller gauge wire than we now use, and everyone had the problem you are describing. We changed to a 20 amp circuit breaker, 12 gauge wires and moved the relays to the forward face of frame No. 5. We were being killed by the phenomenon of voltage drop, which is a function of wire size and length. To minimize voltage drop, you make the wires larger and reduce the wire length.

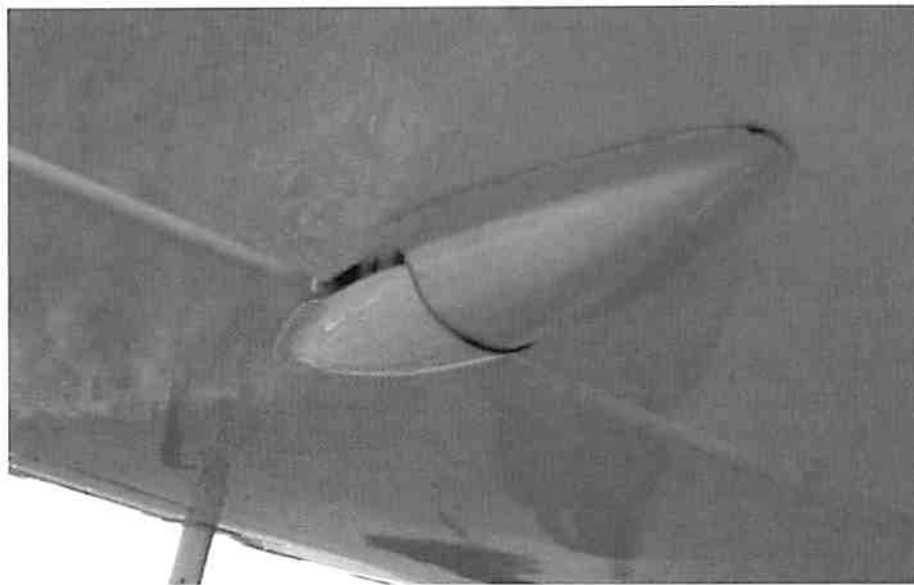
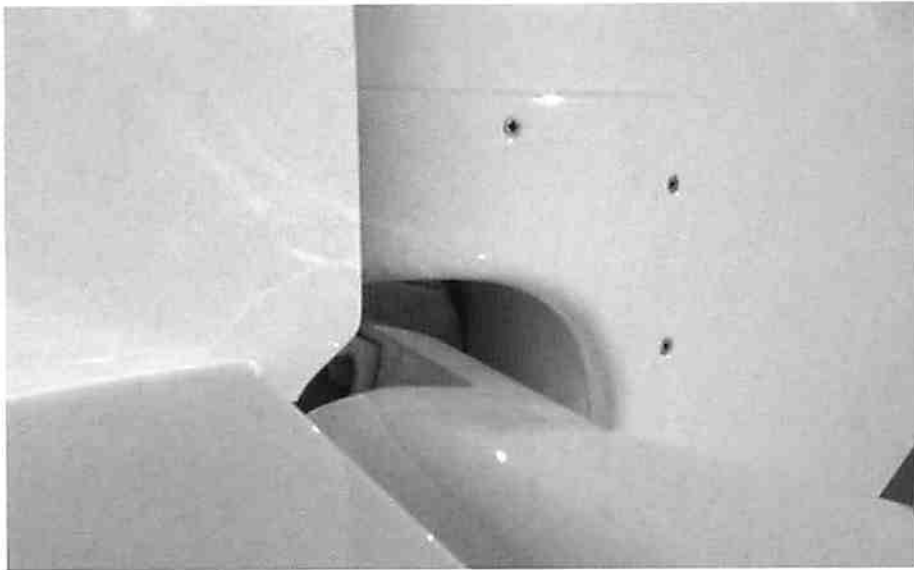
If your installation is up to our current standard and the lubricants are right, then you might consider increasing the wire size. The first thing I would try is to double up on the 12 gauge wires, that is, run two wires in parallel from each pin and socket. This would reduce the voltage drop and it might keep the circuit breaker from popping. Or you could



Top four photos: Larry Black's fairings gave him a sizeable speed increase.

just go to the next largest wire size and use the appropriate circuit breaker to match the wire. Remember, the purpose of the circuit breaker is to prevent a fire in the event the wire over-

heats, so you can safely use a too-small circuit breaker with a wire of any given size, but if you increase the circuit breaker size, you must increase the wire size as well.—Scoti



Above: Daniel Millas has a new paint job on the Falco built by the Chilean Air Force.

Drew replied that his relays are on frame 6, but with 12 gauge wires and the 20 amp circuit breaker. He now remembers reading about the frame

move, but he didn't do it at the time. I think that's a big mistake. The length of the wires has a huge impact on voltage drop.

Drew shifted the relays as well as upping the thickness of the wires, and found that it was all to no avail, in fact, it appeared worse, i.e. it popped with about 20 turns to go. On jacks, the load-reading ammeter showed 40 increasing to 80 amps before it popped on the way up, and showed 40 to 50 amps on the way down.

"The mechanic drenched the threads with a solvent / lubricant called "mouse milk", waited a few minutes and tried again. This time it pulled 20 increasing to 40 on the up and 20 to 30 going down. Cycled it a few times with it getting easier each time and not popping at anytime. Our analysis was that the grease I used (a moly grease) was drying or gumming, building up and binding. Because I have the round holes there is very little thread showing on the mains to be able to clean easily before re-greasing. I will be putting inspection doors in the wheelwells tomorrow."

Of course, the increase in the amps is what is causing the problem. Voltage drop can be very, very significant in this sort of thing. I don't remember all of the factors, but it's one of those things that can get exponential in its effect on things.

Your analysis of the grease problem may well be right. I don't know what sort of grease you were using in the first place, but we only use the synthetic moly grease specified. You may well fix your problem by using a thin solvent / lubricant like "mouse milk" but over the long term, it's going to be a problem and could lead to a seized system with even worse consequences than the inconvenience of a circuit breaker that popped.

Please remember that the moly is very important. When the aircraft sits for a long time, the oil or grease molecules are squeezed out by the continuous pressure. Without the moly, you can be down to metal-on-metal. Molydenum disulfide is not a lubricant, but rather little round balls that act like ball bearings. When the screwjacks stop and the pressure is on them, the little balls of moly keep the metal from getting right down to metal-on-metal, so some grease molecules are still in there. The molecules are very much like worms. When the screwjack starts to turn, the moly balls roll between the metal as the grease molecules are smeared back into place and then take over the lubrication work.—Alfred

Drew also mentioned that he has just finished putting in a Trutrak two-axis autopilot with vertical speed. He is still in the throws of doing the initial setting up, but so far it is working brilliantly. He promises an article on the installation in the future. □

Gordon Cook Moves

by Gordon Cook

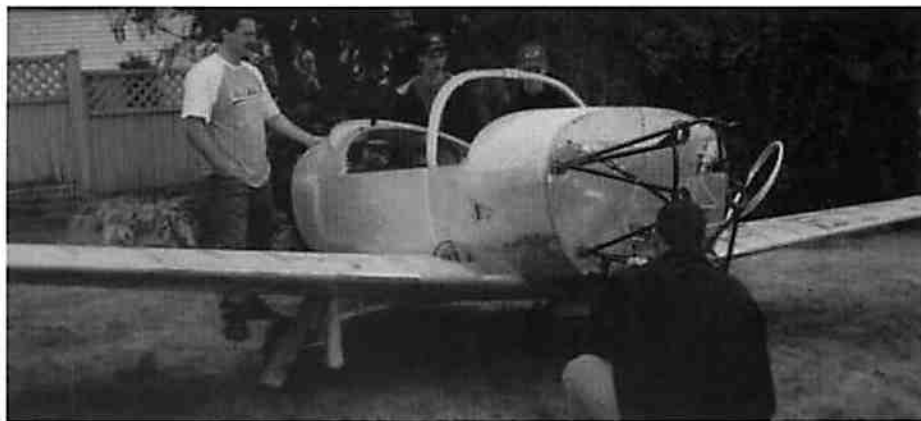
The housing market in the lower mainland area of British Columbia has been red hot of late and I decided to cash in on the equity I have in my home in Surrey and purchase elsewhere at a much reduced price. I tell our friends here I have to sell the house to finish the Falco. Not quite true, but it's not going to hurt having a few extra bucks. We chose Trail BC because my wife and I have friends (including Dan Martinelli, a Falco builder) in the area and hanger rent is less than it is in Surrey not to mention house prices.

This move was the fourth for the project since I started, and it's going to be the last, at least the last on the ground. I have to move it to a hangar because I've gone as far with the project as I can at home and need the extra space to assemble it. The first move came with a change in jobs, a move from Langley to Gibsons, about 60 km or 40 miles. This one was easy since all I had were spars and ribs constructed. The next was a little more difficult with the fuselage being in one piece and the wing unskinned. This move was from Gibsons to Surrey, also a change of jobs. The plane went to a high school in Langley where they had an aviation class. The reason it went there was I had no place to put it at home. As part of their course they were to work on it and be marked on their work. Since I was assured by the teacher that no unsatisfactory work would be allowed it seemed like a good opportunity to see progress on it until I had a place at home for it. Unfortunately they did far more damage than work and when I finally got it home (another move, but not very far) I spent several months doing more fixing than building.

The planning for this latest move started in February 2004 and I quickly realized

Below: Gordon Cook.

Right: Doreen Cook at the summit.



the most difficult part was moving the airplane. I've got to admit I was very concerned about moving my baby since it had grown considerably and put on a bit of weight since the last move. After

much weeping and wailing and gnashing of teeth I came up with a plan. On June 14, I rented a 5 ton moving van (for the size, not the weight) to move the tail section and other bits and pieces. The next day we set



off for the Trail airport. Since we packed everything very securely the trip was quite uneventful. However the next move, that of the forward section complete with the wing, was going to be more difficult. It was

too big for the van and heavier than the tail (570 lb.) so an open trailer was chosen as the moving vehicle where it would ride tail down like an Apollo rocket ready for launch. Fortunately a friend has a pick-up

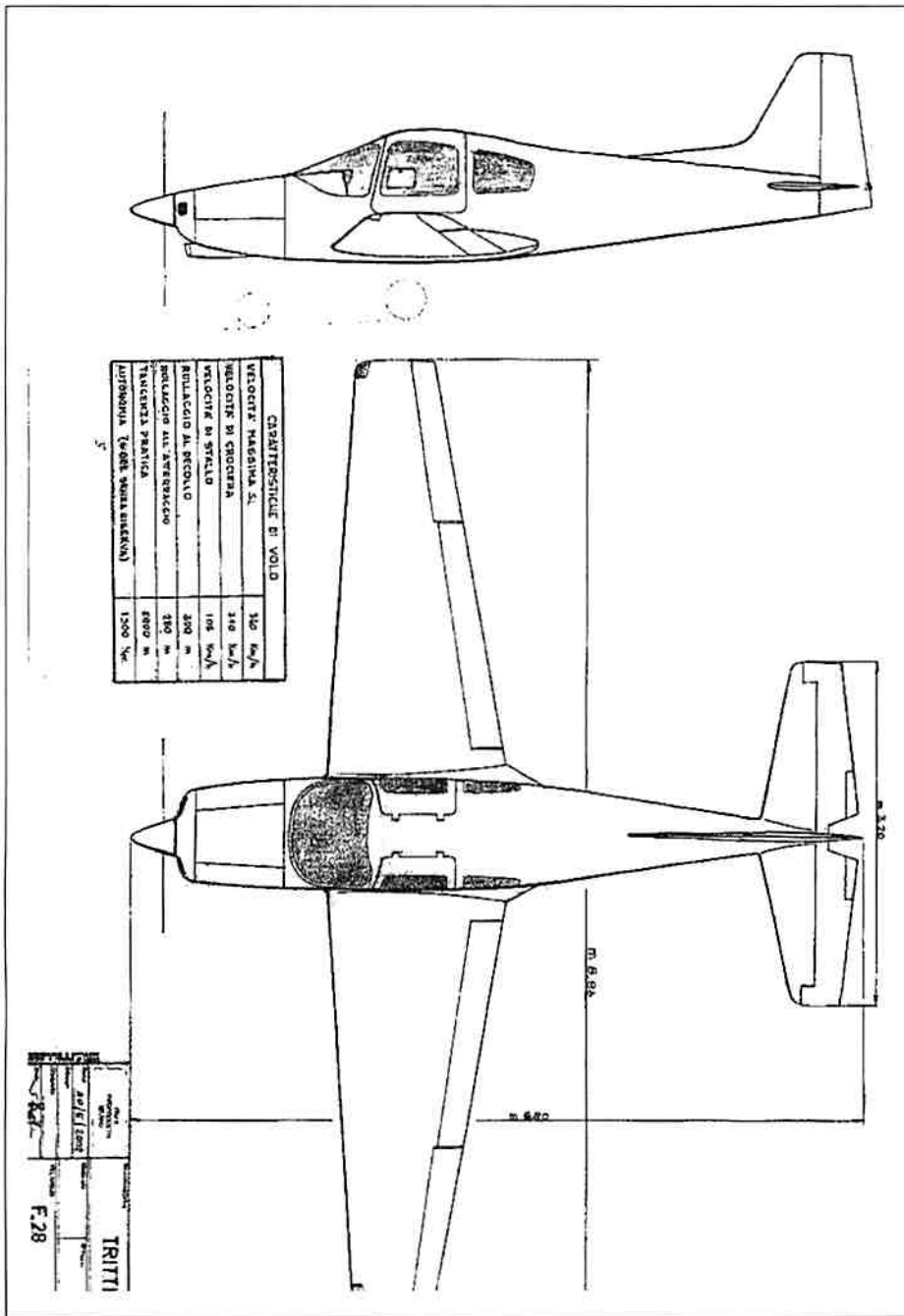
and a trailer designed for hauling cars and also very fortunately he offered to loan it to me for the trip. I bolted a 4' X 4' piece of 3/4" plywood to the aft end which would be fastened to the trailer deck. It took eight men to load it onto the trailer and then two of us tied it down with the same web clamps that I used to skin the fuselage.

June 19 at 0700 we left Surrey bound for Trail 600 kms or almost 400 miles away. I was on pins and needles at first but after the first couple of hours on the road and a few load checks with no problems I began to relax a bit. The route from Surrey to Trail includes six mountain passes, the highest at 1575 meters or 5160 feet, is Nancy Greene Summit and is about 40 kms from Trail. Probably the most spectacular climb is a little better than half way, at the town of Osoyoos, where the highway winds up side of Anarchist mountain. Part way up is a place to pull off the road and survey the vista below, which is what we did. The Osoyoos area is the only desert area in Canada and is home to some of the finest vineyards and wineries in the country.

We arrived at the Trail airport at about 1700 and began the unloading procedure. The plan was to back the trailer into an aircraft shop and use their ceiling hoist to lift the Falco free of the trailer by the engine mount, pull the trailer out of shop and slowly lower the plane while three of us pulled on the aft end lowering it gently to the ground on it's wheels. Robby Burns said it best when he said, "the best laid plans of mice and men gang aft a gley".

The door was too low to allow the trailer and plane into the shop, so now it's plan B. The problem was we didn't have a plan B so had to quickly develop one. There was a large John Deere tracked back hoe at the airport but no keys for it. After looking for about an hour none was found so there goes plan B. Plan C was to get a crane truck the next morning and pluck my little bird off the trailer. This is the plan that finally worked even though it cost about \$170. The little one is now safely in a hangar at the Trail airport along side Dan Martinelli's Falco so it's in good company.

I have to thank my friends in Surrey (especially Bruce Langille, supplier of the truck and trailer) who did such a wonderful job of loading the bird and the guys at the Trail airport, whom I had just met, for their efforts in unloading. Without their generous help I would still be wondering how to get from here to there—and my wife says, "and getting crabber by the hour". □



Stelio Frati's F.28 design is a four-seat tourer.

Sawdust

• Stelio Frati never stops designing. As reported in *Today's Pilot* magazine via Mike Jerram, "This sketch shows the F.28, his latest design. The four-seat tourer, which bears a close resemblance to Frati's 1950s-era Falco and Nibbio, may be marketed as a kit in Italy. Projected performance includes a maximum speed of 168kts, cruising speed of 135kts and maximum range, with reserves, of 810nm. Frati's other current projects include the F.1000 'Piccolo Jet', a two-seat, single-turboprop trainer/personal jet, and F.2500 twin-turboprop utility transport. Further in the future are a four-five-seat twin jet and a small JAR-VLA/Ultralight-category sports aircraft."

• Now there's a 0-place Falco. A company in Italy, Meteor, one of the "Galileo Avionica Companies" has a Falco, but it's a UAV, designed for military purposes apparently. Find it through the Unmanned Vehicles magazine website at www.uvonline.com

• At Oshkosh, Jim Quinn spotted (below) what he thinks may be the follow-on to the famous Swing Wing Falco. Top this, Jonas.



Susan's Corner

It's been a busy several months now. In the last couple of builder letters, Alfred hasn't left me any space, so this time I told him he had to let me get a few words in or everyone would think I'd been washed away in the latest flood. Well, I'm here and all is well.

As far as news goes, we have a new warehouse manager on board, who answers to the name of David. In fact, he does much more than manage the warehouse. He's taken over keeping track of the entire inventory, and he has been instrumental in getting the warehouse organized and the inventory in tip-top shape. He's even taken over the ordering of parts we need, so that's been a big help to me. He's already very good at reading the drawings, so if you call and need something and you can't get me, he will definitely be the next best thing (other than Alfred, of course). We're very glad to have David on board.

We haven't had much of a summer here in Virginia, but rather more of a monsoon season. And rumor has it that we now have two more hurricanes headed our way. I certainly hope that any of you that live in the southern and mid-Atlantic states haven't been hit by the massive damage that some residents have.

We've just about been washed away in the last few months, for any of you that are following the weather. We've had so much rain that everything in my garden has drowned. I may have picked a total of six tomatoes, but nothing more than that. I think we had about 11 inches of rain in barely six hours from one storm, so you can imagine what it looks like around here; ponds where there didn't use to be ponds and rivers that are much wider and deeper than they should be.

Once again, we have the holidays looming ahead of us (much closer than I like to think about), and before you know it, 2004 will be (unbelievably) over with. I honestly don't know where the time has gone, but I'm beginning to believe that the saying "the older you get the faster time goes" is true. In any case, we certainly wish you all a peaceful and happy holiday season.

Calendar of Events

World's Only Oyster Fly-In and Gathering of Stelio Frati Airplanes. November 6, 2004 at Rosegill Farm Airstrip. Contact: Dr. Ing. Alfredo Scoti (804) 353-1713, email: alfred@seqair.com

Oshkosh 2005. Plan now to attend the 50th Birthday Party for the Falco.

Mailbox

I wonder if I could ask you for Steve Wilkinson's email address. I was reading Peter Garrison's column in *Flying* last month and discovered that Steve had written a book about the Porsche. I also realised that I quite missed his style in the FBL.

So now I find that I'm not even finished his story and have become very frustrated with him—I have to read so slowly in order not to miss any of the little Wilkinson-isms. Peter is noted but not by name, and I notice that you don't get of (scott) free.

Steve was very helpful when I was having ADF troubles, and I'm not sure that we should allow past builders to disappear without trace.

Two Australian Falcos should have Trutrak autopilots by now. I have to get a proper GPS before I take the plunge.

Stephen Friend
Breadalbane, NSW
Australia

Steve can be emailed at stephwillkinson@earthlink.net. I agree, it should be illegal for people like Steve to disappear from the Falco scene.—Alfred

My name is Daniel, and I wrote you after I bought my Falco. Since then, I've read many times about this extraordinary wonder and about you. I'm very happy to own this Falco, especially for all the support that you give to all Falco owners and builders.

I'm very proud of having this wonderful bird, and I'm beginning to feel confident with some aerobatics, and its behavior in all segments of flight.

I was wondering if it is a problem to use metalized paint. I have found a great metalized red that I would like to use on my Falco.

Daniel Millas
Chile

Daniel now owns the Falco built by the Chilean Air Force. Metallic paints are fine, but if you have internal antennas, they can seriously degrade the antenna performance. Production Falcos were painted with a gray metallic paint. One of our first advertisements for the Falco featured Per Brüel's Falco with a metallic gray paint scheme. One person wrote us an outraged letter when they got the brochure and discovered the plane was made of wood! As if we had deceived them.—Scott



At Oshkosh. Mark Stamsta now has the second production Falcos in the U.S. flying. Long-time Falco builders may remember Charlie Yates, who once owned this Falco, which had been wrecked in Germany.

I have the cowling plug almost ready for lay-up, engine installed, exhaust system built and ready for ceramic coating. I might take the trophy for the longest plans-built (no kits) project—but I'm still having fun. I got in some time in Dave Nason's beautiful bird last summer. What a magnificent machine in all respects, and an absolute dream to fly.

William Roerig
Kaukauna, Wisconsin

I met and flew short flights with Dave Nason and John Harns in March. I'm hoping to connect with Dave McMurray at some point as the Raised Nustrini canopy configuration is my preference. I saw Joel Shankle's, and I really liked the look and fit. I'm 6' 2", turning 50 in April and still waiting to start shrinking.

Geoffrey Woodard
Wilmington, Delaware

I am currently refurbishing Falco EI-BCJ here in Ireland. I am now into the old paper = weight of aircraft scenario, even though (I hope) I am a year away from getting the aircraft in the air. The aircraft was fitted with a fixed-pitch Hoffmann prop which I now proposed to change to your C/S unit. The original engine (O-320-A2A) has been zero-timed and all relevant ADs incorporated. Luckily it has a hollow crank and appropriate accessory case, etc. so the whole thing should/does fit.

To date, I have managed to unearth the four Italian ADs applicable to the Falco (all very minor). On the British CAA AD register, CAP 474, is has a note about the

AD which forbids the original Aeromatic prop and allows the Hartzell to be fitted. Now to the rub: The note mentioned that the Hartzell HC/C2YL-1 can be fitted if carried out in accordance with Laverda Service Bulletin No. 2. Do you have a copy, or can you suggest where I might get my hands on a copy as Laverda, I believe, are long gone. I have no doubt that some smart guy in the IAA (read FAA) over here will notice the note and demand that the installation is so implemented. It is interesting to note that the type certs allow the above prop, but hey I'm sure it won't be that simple!

Mike McLoughlin
mmcloughlin@franklinandrews.ie

I've never seen the Laverda service bulletin. Even if you find all of this old stuff, I doubt it will be much help. The production Falco was certified with an engine/propeller combination that doesn't work any more. The original engines were the O-320-A1... which were used with constant speed props and which had 3/8" prop bolts (from memory) and these proved troublesome. So Lycoming went to 7/16" prop bolts and the engines became the O-320-A3... or O-320-B3... engines. The props were the steel hub props from the Apache. It's absurd to use them today, and I'm not even sure you can get them. You'll have to see if you can get the authorities to go along with this. The most knowledgeable guy in the UK is Andrew Brinkley, Brinkley Light Aircraft Services, 441-462-813664 or andrew@brinkleyaviation.com. If you can't get your friendly CAA guy to go along with you, then you're better off sticking with the original prop. I survived flying behind one for

years. True, it doesn't do much for you on takeoff, but it is simple.—Alfred Scott

Just a short note to keep you informed that G-BYLL is still flying and 16 years this weekend since maiden flight, approx 800 hrs TT. We just returned from our two yearly visit to the International Aerospace Exhibition in Berlin, I.L.A. 2004, last week where the Falco was again much admired.

On the final home landing, I had a flat tyre caused by tyre creep, approximately one third of the circumference. I have recently installed Dunlops sourced by Bob Brantley and suspect as designed as a tyre for Lynx helicopter with high working pressure, standard aircraft pressures are insufficient. Now monitoring carefully at higher pressures.

Neville Langrick
Huddersfield, England

My Falco with 215 hrs on the clock is still doing very well. I have encountered a problem though while inspecting the landing gear, the other day. With the Falco jacked up and the pitot pressure switch bridged out as usual, no retraction wanted to take place, only the siren and warning light came on, on selecting gear up.

I double-checked the bridge, terminals and continuity, but no result. I flew the plane again and experienced no problem after takeoff. I then jacked it up again and repeated all the steps and still just get the warning light and siren. I have now removed the instrument panel and check the wiring between the terminal on the pitot pressure switch and the terminal block. There is continuity and the bridge works on the multimeter. Where else can I trouble-shoot while the instrument panel is on the work bench?

Fanie Hendriks
Standerton, South Africa

I don't have a good idea about what the problem is. If I understand correctly, the gear works fine when you fly the plane, but you can't get the gear to retract on the jacks when you put the jumper wire in there. It does sound like you just put the jumper wire at the wrong location. If you did that, they system would react as you have described. Remember that we have a series of gear logic drawings in the back of the electrical manual. These are critical when you are dealing with a problem.—Alfred Scott

I am in urgent need of a wing tip lens cover for the port side of the aircraft and would be grateful if you would forward the same.



The reason for the urgency is that we have (fingers crossed) sold G-CWAG, and we need to ensure the aircraft is in tip top condition prior to the new owner collecting. Don't worry though, we will still have a Falco, as we are purchasing G-OCAD from Clive and Gordon who are giving up flying (I can't think why!).

Clive has told me about his visit to the office and how impressed he was with the organisation, so well done and keep up the good work.

Ivan Court
Leicestershire, England

I'm flying my Falco to Alaska this summer. Can I use autogas in the Lycoming B1A in

an emergency situation? Anyone had any experience with that? I think I remember reading somewhere that autogas has an additive that destroys the gaskets. Do you remember?

Glyn Russell
Hartselle, Alabama

I remember looking into autogas for the Falco years ago, but I don't remember very much. My guess is the local pilots up there have a lot of experience with it. The most immediate danger is, of course, pre-ignition which can destroy the engine in a minute or so. If I were forced to use autogas, I would limit the power settings and run the engine at partial throttle, even on takeoff. The EAA may have more up-to-date information.—Alfred