

Falco Builders Letter



Torbjørn Eide had about three hours of piloting heaven, then this...

Slow Boat to Oslo

by Torbjørn Eide

I first saw the Falco many years ago and in my eyes it was the most beautiful airplane ever designed.

I still think so. I followed Tony Bingelis articles on the Falco in *Sport Aviation*, and it was on my top list of aircraft to build or buy. In 2004 the price of dollar fell to a level where I saw that I could buy a Falco from USA. I found one that I liked, that was John Devoe's nicely US AIR FORCE painted Falco. I communicated with him by email and called him a couple of times, but it never materialized.

I discussed the matter with my wife, I got a veto from her, and I gave it up. Then the price of the dollar started to rise again and I saw that my window of opportunity was

about to close. I found a Falco in Britain that I went to see, but the wings had been rebuilt after a minor accident and I didn't like that. The instrument panel wasn't very impressive. A sign on the instrument panel said max 4.5G aerobatic so something was wrong there. So the years passed on,

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and I started looking at other airplane types. I went to Switzerland to look at a Lancair. It was nicely instrumented and a beautiful aircraft, but it wasn't a Falco, so I dropped it. I regret that today. Not that the Lancair is a better airplane, but because I would had been flying my own airplane the last 10 years if I had bought it. In 2011 the price of dollar dropped again, and I saw a new opportunity to get myself the dream plane. No veto from my wife this time, and in the spring I was on my way to check out a Falco, built and for sale by Kim Mitchell of Jefferson, North Carolina. The Falco was beautiful. A little rough on the outside. The paint had started to come off at some places, but I had planned to repaint it anyway. The instrument panel was great. A Garmin 430 GPS, radio, autopilot and all the round beautiful gauges. I went home to think about it, but I had really made up my mind already on the drive back to Dulles



Airport. I brought with me a copy of the building logbook which I had to present to the EAA and Norwegian CAA. Without the building log it would be impossible to have it registered in Norway.

The CAA accepted the building log and all was set for a great adventure.

I made a good deal with Mr. Mitchell, and I went over to Jefferson, North Carolina to have it disassembled and taken home in a container.

The Falco was disassembled by myself and Mr. Mitchell. We started on June 12th. A warm beautiful day. I took as many pictures of the engine installation as I could to help me in the reassembly of the airplane. We marked all loose ends and separate pieces, and put screws and smaller pieces in plastic bags. That day was also an airshow at Ashe County Airport, so some people came in to have look at what we were doing. Among them were two boys age 12 - 14 years. The younger smaller boy, who was the more bold type, asked me what I was doing. I explained what I was up to the best way I could. Then he looked at me and asked in his broad southern way: "What accent do you speak?" I told him that I came from Norway and that I have a Norwegian accent. "What accent do you speak?" I asked him, expecting the answer "American" He looked at me with a big grin and said: "I speak Redneck!"

When I flew to USA and North Carolina I did so via Dulles Airport in Washington. I

rented a car and drove to Jefferson, which was a six hour trip through the Shenandoah Valley and into the Blue Ridge Mountains. I could hear fellow pilot John Denver in the back of my mind most of the way. This time I wanted to go to Kitty Hawk to see where the Wright brothers made their first flight. A holy place for us pilots. So I planned for a day extra after the container was stuffed and I had seen it well off. Unfortunately the truck with the container was delayed for one day, so I lost that opportunity. Mr. Mitchell took me for a sightseeing around in the area that spare day. A few hundred years ago Ashe County was Cherokee country, and that was exotic enough for me as I have a past both as a Cowboy and an Indian in the woods where I grew up. We also went to the county museum where a large portion of the exhibition was about the Civil War. It is a good day when you learn something new.

In my mind the truck company would come with the container, put it on the ground for us to stuff it, come back, pick it up and leave. Not so. The truck arrived and the driver waited for us when we loaded it. There was one problem. We didn't have a crane and the container stood on the truck four feet above the ground. So we needed help. Luckily Mr. Mitchell had a good friend who owned an orchard where he employed a lot of Mexicans. He made a call to his friend and then we suddenly had the tarmac full of Mexicans. How many, I don't remember. Enough. They picked

up the centersection of the Falco and slid it into the container. There was approximately five mm left until it touched the top of the container opening. Had Stelio Frati planned this?

The engine was put in and secured with wooden blocks to keep it from moving. All the parts were thoroughly braced and secured with ropes and wooden blocks nailed to the floor. So I left for home.

I had a wonderful stay in Mr. Mitchell's house; days I was very grateful for.

The *Falco Builders Letter* is published roughly four times a year by Falco Aircraft Association, LLC. Duane Root, President. duaneroot@netzero.net David Leslie, Treasurer, david.s.leslie@gmail.com. George Richmond, Newsletter editor. ctp.george@gmail.com Alfred Scott, Ignoramus Emeritus. (804) 353-1713 or (804) 690-4591 Publication dates are the 10th of March, June, September and December.

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

The *Falco Builders Letter* is available at www.seqair.com and by email—please supply your email address.



When the container arrived I rented a long trailer big enough for all the parts. I got great help from the people on the transport company and everything was loaded and secured for the one hour drive to my home-base, Jarlsberg Airport. The most famous Norwegian cheese has got its name from there, if anyone recognizes the name. But they make it 650 miles away.

When I was halfway home a friend met me and we made a stop at a truckers' restaurant and had a cup of coffee. My daughter's house is nearby so I called her to hear if she wanted to have a look at Dad's new toy. She answered, and I could hear that she was in some kind of distress. She was in Oslo, and she said that there had been a terrible explosion in the middle of the city. There was a lot of chaos, and she was on her way home. The date was July 22nd. Seventy-seven people were killed that day in the explosion in Oslo and the subsequent shooting in the youth camp at Utoya. I will always remember the date when I took my Falco home.

My friend and I started to reassemble the Falco right away. I put the tail section on and mounted the engine. It looked like a Falco right away! Then started the long and winding road towards the first flight. More long and winding then I have ever expected.

The first item on the list was to have the engine checked for corrosion. So I sent the engine to a local workshop and expected this to be no problem. Unfortunately the cylinders were corroded and needed honing. But the cylinders had been honed before and were below the limit for any more honing. I needed new cylinders. I called Mr. Mitchell, and he relayed my order for four new cylinders to the company that rebuilt the engine. He kindly paid for one of the cylinders. But all this took time and the overhauled engine wasn't joined with the Falco before the spring the following year.

Then I wanted to reassemble the Falco myself. The way to do this, according to regulations, is to apply for a permit of restoration. So I was told. And then I needed an A&P mechanic to supervise me. But to find a mechanic who was willing to do this turned out to be quite difficult. Then my wife and I decided to split up. Not because of the Falco, but my project it was definitely a catalyst in that process. So I needed a new house, and with all the fuss and bother, the Falco stood lonely waiting for its master for another year. Luckily I had a well-paid and stable job in oil rig engineering. Not much happened for a while, so let's fast forward to 2015. The price of oil plummeted and there was a crisis in oil service companies. So I started the year

2016 with no job. At least I had lots of time to fix the Falco. I was lucky to find another less expensive hangar and moved the Falco there. It was a big house with a small hangar on the first floor and rooms to let on the upper floors. These were used by the parachute club for their jumpers who came from far and near.

Our flying club had hired a Lithuanian EASA certified mechanic. He seemed to be good and not very expensive. I asked him and we made a deal. Then I called the CAA to get the details on how to apply for a permit of restoration, but then the inspector told me that I could simply reassemble the Falco myself (!) with no supervision (!), have an annual inspection performed, and then apply for a certificate of airworthiness. Eureka! I finally put the Falco puzzle together. And the mechanic checked everything. At least I thought he did. He did not ask for an annual checklist, I assumed that he was professional and didn't need that. When he was finished he did all the paperwork, signed all the component cards and all was well. But there are always rotten apples even in paradise. The mechanic was suddenly fired from our flying club and his license was revoked by the CAA. He had a drinking problem and they suspected him for doing maintenance while drinking. Back to square one! There are not so many workshops around where I



The main wing spar sits on top of the bottom center longeron, so it is not damaged at all, but this does show that an external wear strip on top of the skin would help a lot.

live, and I called them both to hear if they could do the annual. That should be straightforward. But one company said that as long as the Lithuanian man had worked on it, they wouldn't touch it. The Lithuanian mechanic was their competitor, he could do work for a third of the price. I asked another company on the other side of the Oslofjord. They were willing to do it but they wanted the Falco flown to their premises. I asked the CAA if I could have a temporary permit to fly it to another airport, but as I expected, the answer was no. I didn't want to disassemble it again and take it on a trailer.

We had now come to the summer of 2017. I was relaxing in my daughter's summerhouse by the sea. Then the phone rang. It was the owner of the hangar where my Falco was placed. The house was on fire! Luckily they had evacuated both airplanes that were inside so my Falco was safe. But it sure woke me up from my cozy sun bed.

I had one little missing link in the paperwork. When I asked for the engine to be overhauled, I asked them to mount the propeller to the engine. But I couldn't find that this was signed anywhere. And knowing the CAA I had to have it. I went back

to the workshop that did this, which now had another name and new owners, asked if they could sign out this minor detail. Sorry, they couldn't. And the man who did it had retired. But you can call him they said, and he could probably sign out the propeller. I called him and filled him in on all the details, warts and all. And I asked him if he could do the annual. He could. And he did! New paperwork was made, sent in, and CAA came for a visit. They found a few minor things which I quickly fixed. So I expected to have the Permit of Airworthiness in the mail any day. But then my Flight Manual was not accepted. And I had to change the annual checklist. Twice. And I had to submit a 100 hour checklist and a 50 hour checklist. It might look as though they are excessively bureaucratic, but they are professionals. I am not. So I am happy for what I have learned, and I sure have learned a lot.

One day the Certificate of Airworthiness dropped into my mailbox. Champagne tastes good, even on a cold winter evening!

It is not easy to find work in the oil or mechanical industry at the age of 63. But I got a job in a Pilot Flight Academy as an Operational Manager. At least I am in a great

business. Lots of young eager students, and I can fly one of our DA40s if I want to. I have just renewed my SEP rating and ready to go. But the Falco is still on the ground. As I write this, the airport is closed due to snow. I suspect the budget for shovelling the runway is drained. But the spring and warmer weather is coming, and I am soon going out flying.

What did I do wrong? If I would do this again, I would have the engine and the airplane fully checked in USA. Then I would have flown it home over Canada, Greenland and Iceland. Or better still, hired a professional pilot to ferry it across to Britain, and from there I could have flown it home myself. I would have the airplane flying from day one, and it would have been much less costly. That was in fact the original plan. But I was married then.

... Maybe we can call this the 'everlasting story'? I have added a sad chapter to my story last week. I have had 3.5 wonderful flying hours and then I managed to make a gear-up landing!

So it is back to square one! I am now waiting for the insurance company's verdict and then I am going to fix it. I was 3.5 hrs in paradise, and I want to go back! The damage was mainly on the engine and propellers. The fuselage was not much damaged. The inner portions of the flaps split open and the belly was scraped. I have to take the engine off and take the whole thing home to my garage and have it fixed.

If I get the engine and propellers fixed by the insurance company, I can have it in the air in a very short time.

I did seven touch-and-goes the day before and I made myself a very good routine on the landing procedure. But I never heard the gear alarm. I tested it on the ground and it worked but it didn't on my last landing. Next time I will check that it really works in the air.



A Dangerous Thing

A little knowledge, that is...

by Alfred Scott

When we operated Sequoia Aircraft, we never had a forum for the Falco. Two reasons: When someone was confused about something, we wanted them to come to us so we could deal with it, add to the drawings, manuals and instructions. And most forums are filled with self-appointed experts — benevolent blowhards who have an opinion and theory on everything. Never in doubt and a hero of their own John Wayne movie: *Me! The Clever Designer!*

In our case, the Falco was designed by the legendary Stelio Frati. It was his eighth design and the first one where he really got it right. His airplanes are of course fast and beautiful, but it's the handling of his designs that set them apart from all the rest. An English writer flew the Falco and reported "Nothing I have ever flown flies like a Falco" and the Brazilian writer Fernando Almeida flew one and wrote an article entitled "The Best Airplane in the World." His test pilots friends at Embraer didn't believe such a thing was possible, flew to Oshkosh in 1985, got rides in a couple of Falcos and walked away in disbelief. "Fernando was right."

To design an aircraft, you have to be able to calculate the applied loads on all of the components, the lift of the wing, the landing gear, retraction system, etc. It's one thing to design each part so that they all fit together, but quite another to be able to have a goal of the control pressures and then work out all the geometry of the cables, pushrods and hinge geometry to get the handling Stelio Frati was seeing in his mind. He had already written a book on all this in 1943 called *The Glider* in which he described the whole process and the math behind each calculation. Frati is often revered as a genius, but he understood the formulas for the whole design to give him the handling he was looking for. On the first flight of the Falco, the test pilot told him, "Congratulations, Mr. Frati, you will never do that again." Almost all designs require minor adjustments, but in this case, none was required.

Sport aviation has come a long way from the wild teenage years when amateur designers would bring their creations to Oshkosh, and reported with breathless amazement in the magazine and then often followed a few months later with reports of accidents and obituaries. Aviation is cruelly intolerant of error and all it takes



Juliano Napole



Juliano Napole

Juliano Napole's Falco takes shape in Brazil.

is some little thing nobody thought was important to have it all come to grief.

The dumbest thing we ever did was to sell a set of plans to a well-known experienced homebuilder who then wrote articles and books on how to do it his own way. Wonderful man, as all old-time EAAers are, but over the past thirty years of dealing with people building Falcos, I've come to see experienced homebuilders and engineers as the most dangerous of builders: the good ol' boys of aviation's lunatic fringe.

Over time, many of their creations have come to grief. Good ol' Tony's Falco destroyed in a landing accident. Good ol' Larry's Falco crumpled up, too. A Falco built by an experienced homebuilder which had an incident of flap flutter where the flap departed the airplane in a bang, and then the same thing happened five flight hours later. A Falco built by a Ford engineer who used to go on and on at Oshkosh about the changes he had made, each one cascading to creating another change. Then when the airplane years

later was on short final in New Zealand, there was a bang on short final that left the plane with the controls locked in up-elevator. This would have been a fatal accident except that the 747 pilot had been trained on how to fly an airplane with a locked up-elevator. A Falco built by an experienced homebuilder and sold to a man from Holland, who had engine failure over a lake in Ontario and swam to the shore. Only a few hours later he would have been over the Atlantic. This from a broken control arm on a carburetor heat box.

All aircraft manufacturers and kit companies can tell you endless nightmare stories about dealing with people like this. In our case, none of these resulted in a fatality, but certainly other kit companies have had fatal accidents followed by litigation. Everyone in aviation knows what 'Oshkosh fruitcake' means.

Yet when I look at the list of builders who have finished their Falcos, I see a completely different person. All of them with a lot of humility that they know almost nothing of the engineering or

design, but extremely careful on every detail, and always quiet, soft-spoken men.

Some years ago Andrea Tremolada flew his Falco across the south Atlantic from Capo Verdes off the tip of Africa to Recife, Brazil. Andrea is an expert pilot with plenty of time in Learjets. His Falco was built in furniture factory by a couple of men who knew woodworking and were so terrified of making a mistake that they had trouble sleeping. Halfway to Brazil Andrea encountered extremely violent weather, when a sudden updraft threw Andrea from 8,500 feet to 15,000 and back to 12,000 in a couple of minutes, at times registering +6 and -4gs as he was slammed into his seat and hung from his seatbelt.

For six hours he endured cockpit mayhem. Violent turbulence. Water and gasoline in the cockpit. Three hours without avionics. Blasting rain. Andrea admits at times he was crying. Yet through it all the 180 hp Lycoming chugged along as though it were on a Sunday drive in the park. All parts of the airplane functioned as normal. Nothing broke or failed. It didn't happen because monkeys at a typewriter got lucky and completely different outcome from the airplanes of Oshkosh fruitcakes and the good ol' boys of the EAA.

Instead of an accident report and obit, the most memorable thing about the flight was when Andrea beat up a customs official in a foreign country. You're not supposed to do that.

And then there is my old late friend Walter Marsh. He was one of most brilliant (and eccentric) people I've ever known. He could reverse engineer anything and could tell you how things were made, from oil drilling bits to beer cans. When the voltage regulator went out on his Beech Sundowner, he grabbed a rheostat and twiddled the knob as he flew along. I've written about Walter before.

He had a degree in mechanical engineering and was a self-taught electrical engineer and programmer. He could program everything from an IBM System 32 to a PC, to a controller chip for embedded systems. There's hardly a mechanical device that Walter was not intimately familiar with.

Walter worked for years at Philip Morris, designing machines to make cigarettes, and then moved to another company that made street-sweeping machines. Walter could, and has, designed almost anything. He's eccentric, with few social graces,



Juliano Napole



Juliano Napole

almost no patience for slow-witted people, and everyone who knew him regarded him as a genius.

When Walter got his mind on something, there was no stopping him, and he would become so focused on his current project that he barely noticed the rest of the world. When I designed Gonzales, our spar-milling machine, Walter wired it and hooked up all of the motor controls. It's all a big mystery to me, but routine stuff for Walter.

When this project was going on, Brenda Avery was sitting at her desk one day when Walter came to see me. She said it was the most amazing sight. Looking for all the world like a poorly dressed, white-male Whoopi Goldberg, Walter sort of fell through the door and stumbled headlong into my office with an arm-load of wires — right through Brenda's office and by her desk. "He didn't even see me!" she said. "He wasn't being impolite not speaking to me — I didn't even exist."

You get the picture of what this guy is like? Well, some years ago, Walter and

a couple of friends built a two-place Quickie. As they were working on the plane, Walter developed a contempt for the design of the airplane. Much of the systems design was left to their imagination in the first place. He designed a dual-bus electrical system with redundant 14-volt systems that were joined in series for a 24-volt starting cycle — something like that. It was very sophisticated, and also heavy, which rendered the Q-II effectively into a single-place machine. Walter was at home with such things as levers, pulleys, control systems and electrical circuitry.

But it's also remarkable how blind he was to obvious things. They got an experienced Q-II pilot to do the first flight, and the airplane was so badly out of rig that it required full right aileron to keep it level. They only learned about this after getting it airborne, and the pilot was able to turn in one direction only, completed a quick circuit and landed. Then Walter proposed twiddling with the turnbuckles on the control cables to move one aileron up and the other down, to correct the rigging problem. I explained to him that

this would simply move the position of the control stick, and it wouldn't do a thing to correct the problem.

So they heated the wing, twisted it into position and let it cool — aren't thermoplastic airplanes wonderful! — and then Walter was ready to take the plane up himself. He sat in my office one day as I explained to him that 95% of all accidents on first flights of homebuilt airplanes were related to problems with the fuel systems. I could tell that Walter was hearing the words, but not really taking it all in.

A week later, a much humbler Walter Marsh came to my office, sat down and said, "Tell me about fuel systems."

"What happened?" I asked.

Walter then explained that he had three complete engine stoppages on his first flight in the airplane. And with a VW engine, the propeller does not windmill. Walter had been able to get the engine running again with the starter, but it was a frightening experience.

We then went through the design of the fuel system. Like most people, Walter had heard that you should have a 'low point drain' and that the gascolator should be installed on the firewall. So he ran the fuel line through the firewall, located the gascolator down at the bottom of the firewall, right next to the exhaust pipe, and then back up to the engine.

The obvious problem was that the heat from the exhaust pipe was boiling the fuel, creating a vapor lock. It was an easy problem to diagnose and fix. (Even so, Walter continued to have so many problems with the engine quitting, that the plane has been permanently retired.)

I recite all this, not to embarrass Walter, but to demonstrate that even the brightest of people can make the most basic mistakes in a field that they don't completely comprehend. I've seen this same syndrome occur over and over, with the Falco and with many other airplanes.

There's a built-from-Falco-plans airplane in Canada that has 6:00x6 tires, hydraulic retraction system, Mazda engine and fixed-pitch prop that's ready for flight. People who have seen it say that it barely resembles a Falco and appears to have clipped wings. It's reported that on the attempted first flight the plane would not get off the ground and over-ran the end of the runway.



Juliano Napole



Juliano Napole

There's an all-metal Falco-like plane somewhere in Texas that was started by an eccentric lumber-mill owner in Alabama who thought the Falco should have been designed in aluminum, so he hired an engineer to crank out a set of drawings. The basic structure is done, but he lost interest in the project and sold it to an arrogant know-it-all homebuilder in Texas who told me with supreme confidence that the plane would easily handle a 300 hp engine — he could apparently tell that by simply looking at the design — but wanted our assistance in working out the retraction system mechanism. Fat chance. We should remember that there are also a lot of lawyers out there and that we live in a litigious society. Because of this, all companies who offer kits are forced to have a policy regarding modifications. Without such a policy, you would have a free-for-all and the wild diversions in design would come back to haunt all of us over time. It's

been my experience that the builders who engage in these modifications have little understanding of the legal consequences and the potential for destroying the company.

With the Christen Eagle, before you bought the kit, you had to agree in a written contract not to change the design in any way and that you would use the specified engine and propeller model number and no other. We have had a policy as well, and we refused to sell components to anyone who made major modifications to the Falco. We were always open to suggestions and changes, of course, but we would expect anyone changing the Falco design to put the proposed change through the normal process of engineering review and analysis. John Oliver did this with the front fuel tank, as did Howard Benham on underwing tanks. We had no problem with either one of these, because

they did the normal amount of engineering that any responsible company would do.

Homebuilt airplanes today are a quantum leap from the designs of the 1980s when we introduced the Falco. There were only a few homebuilts with retractable systems and many of the designs were very poorly designed. I wrote an article on the Porsche PFM engine and then "Lite Engineering and the Myth of Simplified Certification." The articles were in reprinted in other magazines.

The Christen Eagle, Sequoia Falco, Van's RV series, Chris Heintz's Zenair designs, while having dramatically different design goals all have been meticulously designed to the same engineering standards as fully certified aircraft yet they sometimes have followings of internet chatrooms and forums where people are spouting off theories and design ideas simply because they have been issued a mouth and an email account. These forums can be hostile to the company behind the design.

Dick VanGrunsvan says that "forums can sometimes misinform the lesser informed. That is, those presenting 'better ideas' either directly or by implication, give the impression that the kit designer's method is inferior. The more 'better ways' that are presented, the greater will be the readers' assumption that there is always the need to seek a better way and to change things. The reality is that the designers' method has been time-tested to be adequate or better. The new/alterd design may or may not be adequate or better. Thus, while I support the builders' right and freedom to experiment, I admonish builders to take very seriously the safety of not only themselves, but their passengers. Thoroughly analyze and test any design changes to assure that you do not place yourselves and your passengers at greater risk."

All this freedom to experiment is just wonderful, but Arthur Dovey is alive today only because of his training and quick reactions and Simon Paul is alive today only because of sheer luck in having his engine failure over a lake and not the Atlantic. Had it been otherwise, this would have been manslaughter by incompetence.

I suppose it's only a matter of time before some child perishes in an airplane that 'grandpa designed with some suggestions from Stelio Frati.'

There has been a Falco forum going for a long time, dominated by scratch-builders



Juliano Napole

who have had an endless supply of their design ideas and plans for how they think the Falco should be built, hayseed philosophies and little thought of the consequences of what might happen if they got something wrong. In the U.S, we have a terrible problem with litigation and personal injury attorneys, so when someone (who never bought a single thing from Sequoia Aircraft) posts a note about buying kits "from Alfred" it exposes me to potentially devastating litigation. Such litigation would not succeed, but the game played by these attorneys it to keep the litigation going, typically for a year or more, until you settle by paying them to go away.

When I protest, the forum administrator, who has deleted many of my posts, blocks me from reading the forum for a month or so. If the forum administrator is happy to inflict such damage on me, then I want nothing more to do with the guy or the forum and advise you to do the same.

In the U.K. and many other countries, the licensing authorities require that the plane be built to the Sequoia Falco plans and specifications, such is the reputation of the design and the tendency of homebuilders with fiercely independent minds to go off in all sorts of directions. And Craig Gunder will not make a part that is not shown on the Sequoia Falco plans.

Two Airborne Emergencies

by Doug Henson

Vacuum Pump Failure

The summer of 2007. Life was great. I retired in June and immediately loaded up the Falco with my wife and snorkeling gear, then launched off on a three-week trip to the east coast and the Bahamas. We are always looking for exciting things to see and do, so on the way home we decided to stop in Tupelo, MS. Yep, that's right, we wanted to visit The King of Rock and Roll's hometown.

It was to be a casual two-hour flight between Macon, GA, and Tupelo. There were quite a few summertime buildups and cloud layers around, so it required me to file IFR. We were in and out of those cloud layers throughout the entire flight. As some of you Falco pilots already know, the Falco is an outstandingly stable airplane and easy to fly in IMC. That was the case here, and I was "in the zone" as we progressed.



Shirley is totally comfortable flying with me in any and all conditions. She had been reading a good novel but had nodded off to sleep just prior to starting the descent and approach into TUP.

From here on, my memory is crystal clear. It was one of those events that captured my undivided attention and will be with me forever. The controller had given me a descent from 4000' to 2500'. He was vectoring me to the ILS for runway 36. Things were going well, and I was locked onto the instruments. One last check of the Garmin 530 and I was satisfied the cockpit was set up and ready for the approach. I was not using the autopilot at the time.

During the descent, my crosscheck noted a vertical velocity of 1500 fpm which is way more than I safely fly during IMC. Hmm . . . the attitude indicator shows slightly nose low. Something is wrong. These things were happening in milliseconds. I then expanded my crosscheck to the tiny instrument in the upper left corner of my

instrument panel – the vacuum gauge. Wow, it shows zero vacuum!! Well, that explains it.

Without hesitation I transitioned to partial panel instrument flying to reduce our descent rate, threw on the autopilot (has its own attitude sensor), and informed Memphis Center that I was declaring an emergency. The controller was very calm and asked for a few details. He didn't distract me with all of those silly questions like how many souls on board, etc. He wanted to know the nature of the emergency and what I wanted to do.

In as cool a voice as I could muster (although I think my voice increased at least one octave above normal) I asked to continue the present approach until I broke out, at which time I would transition to a visual approach. The bottom of the deck was slightly lower than the 2500' assigned altitude, and I was beginning to see the ground in a few spots through holes in the deck, so I broke rules and descended another few hundred feet. I saw the runway, breathed a sigh of relief, then woke Shirley to prepare her for landing.

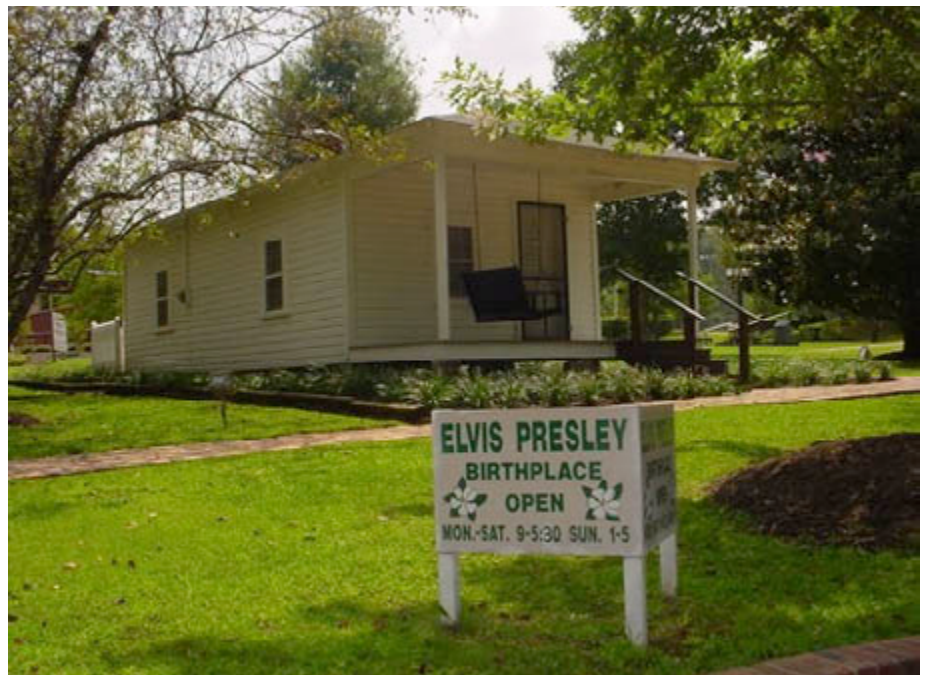
During rollout on the runway, she asked what all of those emergency vehicles with flashing lights were doing along the taxiways. I filled her in on why my adrenaline level was a bit high. Not being a pilot, she was underwhelmed with a simple "oh." I also called the tower and apologized for not cancelling the emergency after I descended into VFR conditions. In a manner and dialect only a true Mississippian could convey,

he casually said "No problem, that's what we're here for, and it gives us a chance to practice our procedures. Welcome to Tupelo."

The lesson I took from this event was that all of my Air Force and civilian instructor pilots who forced me to practice partial panel and emergency IFR situations was for a good reason. Yes, things happen, and some are not good. Luckily I was able to rely on that training without hesitation and landed safely.

There's an interesting back story here. A few months before this event, I had installed a new vacuum pump. Sigma-Tek had certified and marketed a completely new pump design called the AEON Piston Air Pump. It included a five-year/2000 hour warranty. That attracted me but prior to buying it, I contacted Sigma-Tek to discuss it with their technical folks. I'm an engineer, so I was looking for solid information that would convince me of its reliability. After all, the warranty on this new design was a significant step up from the two-year/1000 hour warranty of their standard rotary vane pump. My career had taught me to be skeptical about major changes like this. Why is the new one so much better? I was comfortable with his description of the design, bought one, and installed it.

It had 130 hours on it when it failed. I contacted Sigma-Tek after we got home (all VFR, of course). They offered to provide me with a new rotary vane pump with a warranty that covered the remainder of the



five-year/2000 hours. But, by the way, you must return the AEON pump in order to get a replacement. “What’s this all about” I wondered. I pushed for the complete story on the piston version, but only got the answer that it was off the market with no prediction on its future qualification and FAA certification. It was a noticeably guarded conversation so I concluded other pilots must have experienced similar failures and the FAA had gotten involved. Now, 12 years later, the design is nowhere to be found.

Fuel Leak in MP/FP Gauge

Fast forward about 11 years through lots of emergency-free Falco-flying across the U.S., Canada, Bahamas, and Mexico. Last fall my manifold pressure gauge which had been operating flawlessly for more than 2300 hours had a noticeable lag in response to power changes. I contacted an instrument repair station and found out that was indicative of debris and/or aged sticky lubricant in the mechanism. Recall that this instrument which is part of Sequoia’s kits includes manifold pressure in the top half and fuel pressure in the bottom half of the dial. I sent the instrument for overhaul, then reinstalled it in the panel. The MP and FP lines are connected with nylon fittings into the rear of the instrument. After installation and several ground checks to run-up power, I decreed all was well and signed off the log book.

A few days later I decided to take my hot-rod airplane out for a spin. I usually don’t fly on the weekends because Livermore traffic can get very busy with lots of weekend flyers. This particular Sunday was no exception, but I needed to go. Start, taxi, and run-up – everything is normal.

“Falco 48EL cleared for takeoff runway 25L, left downwind approved.”

I’m on the roll. Manifold pressure looks fine, acceleration is normal. A few seconds later, cowlng on the horizon and I’m airborne. Gear is coming up, but *oops what’s that smell?* Avgas is gushing out of the instrument panel just below the MP/FP gauge! I’ve passed the end of the runway, so what’s my next step? Again, my mind is working in milliseconds or faster when it hits me that that instrument had just been overhauled. But I have a serious problem now, and I can solve that mystery later.

“Tower, Falco has an emergency, and I’m coming back.”

The pattern for both runways 25R and 25L are saturated with other aircraft. Like Tu-



MP/FP gauge

fuel pouring out of this area

pelo, the controller didn’t ask me a single question. He knew I was probably pretty busy in the cockpit. Without distracting me he immediately started issuing instructions to multiple other aircraft in the pattern. He was directing them to go around, turn out of the patterns, etc. Basically he was clearing the airspace for me and my Falco. No one else mattered at that time.

As soon as I arrived on downwind at a very low altitude, I pulled the power back and the fuel seemed to either stop or at least slow down. Another of the great attributes of the Falco is that it doesn’t need much power to maintain level flight at pattern speeds in clean configuration. Fuel pressure is only a few PSI when power is at 15” MP. I’m feeling better now but still pondering next steps. Silly me, the thought even crossed my mind I wish I had an ejection seat in case things start burning.

About the time I rolled wings level on

downwind, the tower cleared me to land “either runway.” That sounded good. It was uneventful from that point on. During subsequent flights I recorded fuel pressures for idle vs full power. At idle, the pressure is in the one-two psi range. At full power, it reads on the other end of the scale.

I removed the gauge to figure out what went wrong. There were no visible cracks in the instrument, fittings, or hoses. It must have been a low torque on the fitting which held at low pressure, but passed gas at high pressure. I removed the fitting, cleaned it, wrapped the male threads with Teflon tape, and reinstalled it snugly. Further ground testing at much higher power than standard run-up indicated it was holding at those higher pressures. It’s now back in service with about 50 leak-free hours, so I believe my installation error has been fixed.

Whew! Life is fun and exciting in a Falco.

The Tree Flies

by Angus Buchanan

Having claimed that “I bought 400 drawings from the US and a tree from Canada”, I can now report that the tree flies ... like no other tree in the sky!

My machine left the shed at home in June 2018. Just a few weeks to deal with those things that could only be done in the hangar, and I'd be in the air. Well, it doesn't quite work like that does it? I normally fly from a grass strip five minutes from home, but decided that a huge asphalt runway was a better way to go for the Falco, but this was 40 minutes away – and took a degree more organisation to go there, stay there and be away from home there. While I may have been there, often my tools were not. Instead they were on a workbench 40 minutes away. Eventually I sorted this but was then unable to fix anything around the home!

I had postponed extracting the Falco from the shed, on purpose, to keep the airport time to a minimum. And had gone to some lengths to ensure that I tested the maximum amount of components and systems at home. However, knowing something works and rigging it “for real” are two separate things. This was perhaps the most frustrating time of my 25 year build. Every time I came home the list grew with “and there's another thing.”

However, it does come to an end and eventually the list was blank. Even the paperwork had been to those that needed it and came back signed off. So, on a pretty still November day I set off with inspector and test pilot. I decided a long while ago that test flying was



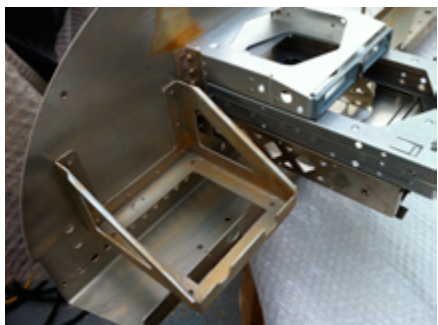
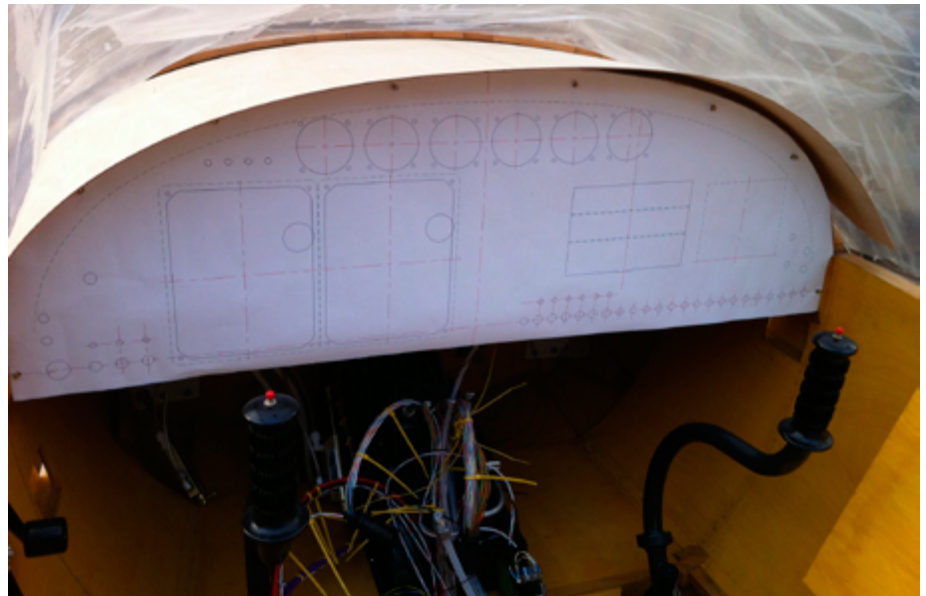
a technical issue and that I certainly was not the best person to undertake this task. My flying has been almost exclusively tail-wheel and in an old biplane for the last few years. I therefore have a 50-80 kt brain, a stick, throttle and rudder bar. Test pilot and friend, Dave Evans, enthusiastically volunteered for the task and had prepared himself with considerable detail – absorbing anything and everything relevant.

I'd love to report that the first flight was one of the all-time emotional experiences of my life – but it wasn't! All I could really think about was what I may have forgotten on the list. It seemed inconceivable that everything was, in fact, done — that the build had actually come to an end. The only thing that I really recall a year later is hoping Dave would return safely – this was the emotional bit!

While I may sound a little detached, the post-flight experience was indeed euphoric. I had progressed from being the slightly odd guy who spent a shocking amount of time in a shed, to a person “that had built an aeroplane.” The astonishingly expensive collection of parts suddenly had some value, I had taken my tree and made it fly. The quiet sensation of having embarked upon a mission and made it to the end is immense.

Of course, it doesn't end there! The flight was a success, but the gear had not been up and down, the flap breaker had popped and the smoke in the cockpit had to be sorted! I don't think I had an unusual number of snags to solve, but I was back into the airport travelling cycle: think about the problems, visit the next weekend to confirm my proposed fix, perhaps buy parts, then fit, and re-organise test pilot time. However, my pretty rapid inclusion in flights as “observer” made for more excitement. Still, there was no connection between “I built” and “now I am flying” this machine. Instead, the task was to learn to fly a new aircraft. Still a technical issue: how to, what's the routine, I'm going to have to do this on my own at some point!

This phase was a further eight months until the permit was signed off – a year from taking













Richard Foord



CB and Angus on a high

the aircraft to the airport. Eventually, there was no excuse, and I soloed the Falco – another task, skills to learn, another hurdle to master – emotion still pretty contained.

As the hours have built in my Stampe bi-plane I am a pretty confident pilot. But I have found the prospect of the Falco quite daunting. Retrospectively, it's strange that this has been such a mental block now that I have more solo hours. The actual flying is more involved with its speed and gear, etc. But I now perhaps recognise that the enormity of the whole process has been the source of my nervousness. It has been a long time in the making, and that final step has been bigger than I realised. Along with that does come emotion! It's a thrill to see the aircraft from a distance rather than close-up as it was when building. Taking my oh-so-patient wife cross country at speed has been a huge moment. And sharing my obsession, at the end of 5,000 hours of solitary shed confinement, is magnificently rewarding.

For those of you who have done it, I'm now there with a satisfaction only us few can probably appreciate. For those still building, not that I ever had any doubt, it is certainly worth it!



Richard Foord



Richard Foord



Richard Foord



Richard Foord



Richard Foord



Richard Foord



Richard Foord

Top: Sequoia Falco #101 polishes the English air. Above: I built an aircraft (Angus Buchanan), I flew it (Dave Evans —Test Pilot), I inspected it (Phil Chapman —LAA Inspector).

Too Much Power?

Scoti to Letti:

Eduardo, I would be interested in your description of the takeoff performance. I've always thought that the 160 hp engine is the right engine for the Falco. It accelerates smartly and tracks straight down the runway and flies off smoothly. It's stable through the whole process.

When I've flown a 180 hp Falco, I've always had a panicky feeling on takeoff that this is *too much power!* and the plane momentarily shakes left and right. It's clearly directionally unstable at that moment.

I'm curious how your Falco behaves. As I recall, you have a 180 hp engine that has been ported and polished to now produce 193 hp.

I've always imagined that if I owned your Falco that I would just feed in enough power to accelerate smoothly and comfortably into the air and not go through the yaw-shaking phase.

The reason this comes up is that we have a builder in the UK who has bought a 200 hp engine with a counterweighted crankshaft. I view this with alarm, and I've told him (and the UK LAA) I think this is a big mistake.

I've also noticed that in a high speed descent that the Falco would hunt left and right slightly. I'm curious how your Falco behaves.—*Alfred Scott*

Letti Replies:

I've flown both the 160 hp (Jim Petty's N627SF) and the 180 hp Falco N1443D which has the higher compression pistons, flow matched, polished and ported cylinders giving it 193 hp.

The biggest difference is of course shorter take-off run, higher climb rate and higher cruise speed for the 180 hp version.

Regarding directional control on takeoff, I see no problem with the 180 hp version. It tracks down nicely while accelerating on the runway. Maybe the Falco you flew had some free play on the nose gear links?



Top: Oscar Colombini and Guglielmo Leggeri have a 200 hp engine in their Falco I-DRIM. **Above:** Eduardo Letti checks out the Furio.

Hanging a 200 hp engine on a Falco might be possible with some adjustments to the cowling and engine mount. However it will make it look ugly in my view. The beauty of the Falco lies in its fluid and almost perfect lines made possible by Frati. Plus the bigger and heavier engine will make the aircraft nose heavy. N1443D was already nose heavy with the 180 hp engine, metal prop and Christen inverted kit. The GT composite prop fixed this problem as it shaved 10 kilos (22 lbs) off the nose and moved the CG a couple of inches back. It handles much better now. With wide open throttle, at 5000 ft, N1443D cruises well inside the yellow arc, which requires a reduction of power when flying through rough air. I think I sent you some videos when I was breaking in the engine with the airspeed needle pegged at 180 knots! I suspect this will be even more pronounced with the 200 hp version. I mean this guy will be cruising close to VNE!

On high speed cruise and descent the Falco exhibits a small continuous left-right oscil-

lation around its vertical axis. It's subtle, and you have to really pay attention to notice it. But it's there.

Not sure where it comes from. Prop slipstream hitting the tail? Lack of lateral area of the fin and rudder? Maybe the test pilot guys can chime in on this.

On the Furio, Giovanni Nustrini increased the fin area by a small percentage. I flew the Furio with him in New Zealand a few years ago, and it felt solid and stable. The Furio has more internal space and more fuel capacity than the standard Falco. The model I flew had the 180 hp engine and was not faster than a wooden Falco though. Not sure why the carbon kit version did not succeed selling in the US? Could it be that builders are still skeptic in building with composite? But then how do you explain all the Glasairs and Lancairs out there! Perhaps the finished price of the Furio (250K for a well equipped version) pushed builders away to the RV league. Maybe? Just my guess.—*Eduardo Letti*

GT Composite Propeller for the Falco

by Eduardo E. Letti

After a seven-year search for a good Falco, in 2009 I came across N1443D built by the late Alvin Dubiak. A meticulous craftsman, Alvin did a superb job creating a masterpiece that earned him the Bronze Lindy award at Oshkosh in 2003. I really consider myself privileged to own such a beautiful and well-built aircraft. The full story of how that happened can be found in the June 2009 FBL.

N1443D is equipped with the IO-360-B1E engine, a two-blade Hartzell propeller and the Christen inverted oil system. This combination gave excellent performance and aerobatic capability to the aircraft, but it also placed its CG a little bit towards the forward end of the envelope. This made the aircraft slightly nose-heavy, which increased its pitch stability. Nothing wrong with that, after all we learn early in flight school that a forward CG is more desirable than the opposite. However, it reduced the Falco's in-flight maneuverability and, on final approach with low power setting, full flaps, I would almost run out of nose up trim to neutralize stick force.

After flying it for 50 hours, I started to give some thought on how to address this issue. One way would be to modify it and install a larger and more powerful elevator trim tab. However, that would change the originality of the design and open up an opportunity for flight control balance and flutter issues. Add weight to the tail? Nah, you don't do that to a Falco. So the only option was to take off weight from the nose. However, I certainly did not want to sacrifice the aircraft's functionality or mess up with the beautiful job done by its perfectionist builder. It was about this time that the Sequoia website posted an article by the iconic Italian Falco builder-owner Andrea Tremolada,

(<http://www.seqair.com/Hangar/Tremolada/NewProp/NewProp.html>)

In his relentless search for more speed, Andrea was experimenting with a composite propeller on his machine, equipped with a high performance IO-360 developing 212 hp.

A composite prop has several advantages over one built from metal, the two most significant being less mass, and less gyroscopic rigidity. Regarding mass, we should not confuse it with weight (mass x gravitational force). Mass is commonly expressed in Kg. or Lbs. Initial reports by



Top: N1443D High Performance engine (193 hp) – Built by Mena Aircraft Engines
Middle: GT V29 composite blade. Above: N1443D high performance engine and GT Composite propeller.

Andrea indicated that the composite prop he was testing had 10 kg (22 lbs.) less mass than the Hartzell metal prop previously installed. Less mass translates to less moment of inertia. The definition of inertia is found on Newton's First Law, which states that objects in motion tend to stay in motion and objects at rest tend to stay at rest (friction ignored). It follows that, the higher the mass of an object, the higher its inertia (either to speed it up or to slow it down). That's easy to understand on a linear motion. However, with a propeller we are dealing with a rotational object around an axis, which leads us to the concept of *rotational moment of inertia*.

To better understand rotational moment of inertia, think of two merry-go-rounds, one empty and another with people sitting at its border. It is easier to accelerate and stop the empty one due to its lower mass. Conversely the one with people, due to its higher mass, requires more force to accelerate and to stop it. The general formula below represents the most basic conceptual mathematical expression of rotational moment of inertia. Therefore, for any rotating object, the moment of inertia can be calculated by taking the distance of each particle from the axis of rotation (r in the equation), squaring that value (that's the r^2 term), and multiplying it times the mass of that particle. You do this for all the particles that make up the rotating object and then add those values together, and that gives the moment of inertia as the sum of the product of mass times radius squared, where the radius is the distance of the mass from the axis of rotation.

$$\text{Rotational Mass Moment of Inertia } (I) = \sum m_i \cdot r^2$$

Okay, but you might be asking why is less mass moment of inertia a desirable characteristic for a propeller? Every time a cylinder fires in the engine, the linear motion of the downward piston converts to a rotational force on the crankshaft, which accelerates (no gear box in this case) the propeller. The moment of inertia of the propeller causes it to resist this acceleration, exerting torsional loads on the crankshaft. The higher the mass moment of inertia of the propeller, the higher the torsional loads on the crankshaft (remember the merry-go-round example?). These loads are transmitted through the engine, and airframe thousands of times per minute during flight in a typical light aircraft setup. Therefore, the lower mass moment of inertia provided by a composite propeller contribute to less overall stress on the engine, engine mounts, airframe, and lower vibration levels. After testing with the composite prop, Andrea reported it



Top: Detail of blade hub and spinner. Above: Ready for test flight.

felt like he was flying behind an electric motor.

The second desirable characteristic of a composite propeller is its lower rigidity. First, it is important to understand that a spinning propeller becomes a gyroscope. Rigidity (also known as gyroscopic inertia) is defined as the ability of a gyroscope to maintain its axis pointing in a fixed direction in space, unless subjected to an external force. This is the principle behind all attitude and directional gyro instruments. Rigidity is proportional to the number of rotations per minute (gyro rpm), mass of the rotor and its radius, thus it can be

increased or decreased by varying one or more of these factors. Because of its lower mass, a composite prop has lower rigidity and exhibits less resistance to changing its axis of rotation than a metal propeller. This is particularly beneficial to engine mounts and propeller flanges of aerobatic aircraft, as they frequently and abruptly change the propeller axis of rotation while maneuvering. Have you ever wondered why the majority of aerobatic aircraft have composite propellers? Well, now you know at least two good reasons.

Okay, enough math and physics. Simply stated, a lighter composite propeller could

be the solution to N1443D forward CG issue, while also increasing its pitch maneuverability. True to tradition, Andrea had chosen GT propellers, (<http://www.gt-propellers.com>) an Italian composite propeller manufacturer located in Riccione, on Italy's beautiful Adriatic coast. Not knowing the brand, I researched GT's website and quickly noticed they were not a beginner company. In business since 1969, GT has

an EASA production certificate, has built more than 30,000 propellers from a catalog of more than 200 propeller types, including custom built designs for warbirds like the Spitfire. I also got positive feedback from other users, most of them in Europe flying Tecnam and RV aircraft.

My interest grew stronger as I got the reports from Andrea and GT engineer, Alex

Tonini, as they progressed with the tests with different blade designs and diameters, searching for the sweet spot among speed, mass (weight?) and engine RPM. Using Andrea's Falco I-BARO as the test bed, the end result was the GT V29, a custom designed prop for the Falco. The GT V29 is built from wood and carbon fiber, which is very light and delivers great performance. Andrea reported an increase in



Andrea Tremolada and the new GT propeller on I-BARO

speed, rate of climb and a lot less vibration. He also praised the craftsmanship (astounding in his words) and excellent factory support. Another huge advantage of the GT propeller is that the blades install on a normal Hartzell hub and spinner saving time and money, because you don't have to mess around with a new spinner, back plate, governor, etc. I found this to be of great importance, as it does not change the Falco's beautiful streamlined nose lines carefully designed by Mr. Frati.

So while N1443D engine was at Mena Aircraft Engines getting a tune-up with higher compression pistons, balanced to within one gram with corresponding connecting rods, along with ported and flow-matched cylinders, I placed an order with GT for the second set of GT V29 propeller for my Falco. Delivery was spot on, within 30 days after the order. Following the detailed instruction book provided by GT, Sullivan Propellers of Hayward California assembled the blades to the Hartzell hub. Propeller installation to the engine was straightforward and performed by my A&P. Alex had also sent the instructions on how to adjust the governor, an important step, due to the lower mass (weight?) of the blades. Okay, it was now my turn to have fun.

On May 5th, 2016, after a detailed pre-flight inspection and run up, I pushed the throttle full forward and accelerated N1443D down the runway. According to Robert Mena, the engine was developing 193 hp at 2700 RPM. It all happened very fast, and I was flying. Gear up, flaps up, left full power and adjusted the prop to 2500 RPM. At 85 knots the rate of climb was 1700 fpm. I lowered the nose, the Falco accelerated to 110 knots, and the rate of climb was still 1500 fpm. I leveled off at 5500 ft., and still at full power (for engine break-in) and 2500 RPM. With this setting, the indicated airspeed stabilized at 180 knots for a TAS of 202 knots. The high performance engine and the new GT composite propeller really made a difference. Andrea was right, there was significantly less vibration and engine operation was super smooth. After a few minutes flying straight and level, I tried some steep turns and immediately noticed much lighter pitch forces on the control stick. On final approach with full flaps, I still had plenty of nose-up trim left after trimming out stick force. I repeated the same flight profile two more times on that day.

Overall I am very pleased with the GT composite prop on N1443D. The aircraft

is 22 lbs. lighter, it accelerates better on takeoff, climbs more, cruises faster, has less vibration, the CG shifted aft, and its maneuverability is how it should be for a Falco. After flying more than 60 hours and three annual inspections later, the GT prop continues to perform. Maintenance is simple, comprised of a detailed visual inspection for cracks and erosion, and the normal lubing of the hub. For those of you wondering, these improvements were obtained with half the money I would have spent for a comparable MT prop solution which would have required a new hub, new governor, new spinner, etc. I am thankful for Andrea Tremolada, Alex Tonini (GT Propellers), Mena Aircraft Engines and Sullivan Propeller for their participation in this project. I still have the Hartzell blades carefully stored, should one day I decide to return it to the previous configuration. However, right now, I don't have a good reason for doing it.

P.S. GT is developing yet a new blade inspired on the Spitfire for the Falco. Based on the original OEM RA10046 by Rotol in UK, the new blade is called GT2V46 .

Alex is searching for a Falco owner to try this new design.



Alex Tonini showing the new GT2V46 blade design based on the original Rotol Spitfire propeller.

Falco CC-PZE

Falco CC-PZE began life as the Chilean Air Force Falco, then passed to Daniel Milas Orvalle, who painted the Falco red, and it's now owned by Francisco Ruiz-Clavijo (falcored@gmail.com), and it's operated by a flying club south of Santiago.



Martha's Corner

Saying hello from Craig and Martha of Gunder Restoration & Design in our little corner of the world here in south central Pennsylvania. After a long hot summer we recently woke up to some cooler fall weather. Mums and pumpkins abound everywhere in this region although our tomato plants are still thriving.

We do hope that 2019 has been a blessed and prosperous year so far for everyone as it flies by quickly. We have finally gotten moved into our new residence after a flash flood made our home unliveable on Labor Day of 2018. We lost our 14 year old black lab in May and are now permanently dog-less which allows for our four felines to get all the attention. Our first grandchild together is closing in on two years old, and we have had lots of fun times with this precious little girl. She recently took a trip down the Hudson in her daddy's Bonanza. If you look at the picture you can see that she didn't quite grasp the significance of it all.

We remind everyone we are here for all your Falco needs whether for new builds or parts for repairs. Please never hesitate to reach out to us with any questions or concerns or complaints even. Many aspects of this endeavor have been a learning curve, and we are always open to suggestions. Many thanks goes to Alfred Scott for his continuing support and technical assistance. It has been a wonderful experience in the last couple years to have met some of you personally. Craig and his sons had a great time having dinner and hanging out with the Falco gang at Oshkosh this past July!

We had the pleasure of meeting and delivering parts to builder Ross Wilson of Switzerland when we rendezvoused in Washington DC a few years ago while he



Top: Martha packing a fuselage frame kit. Above: Craig with a fuel tank he makes for the WWII Taylorcraft L-2 liaison airplanes.

was at a business conference. Together we toured the Air & Space Museum and had a delicious totally American lunch at a great hamburger joint in DC.

We also got together with Garry & Brenda O'Leary from down under. Garry and Craig toured the Air & Space Museum at Dulles Airport while Brenda and I went on a successful shopping adventure in search of a winter coat for her! We consider Ross and Garry and Brenda to be special friends and feel now that we have accommodations and hosts if we would ever get to Switzerland or Australia! Of course we haven't told them this yet but they need not worry as the likelihood of either destination for us is not in the near future.

I have enclosed a picture of our little aviator, Ava Grace and — see next page — a picture of fall foliage over New England by Jonas Dovydenas, taken when he was still flying his Falco which now belongs to Jurgis Kairys, the famous World Class Lithuanian aerobatic pilot and aeronautical engineer. I sometimes feel like I am in the company of greatness when I talk to or hear of Falco owners like these two men and so many others. Definitely a breed of their own.

A reminder as well that we still have beautiful full color 60th anniversary posters available for anyone interested at \$15 or two for \$25.

Happy building and flying!

Craig & Martha

Jurgis Kairys, Swing-Wing No More

The Falco re-paint seems to be complete. Jurgis said he wants to drop the canopy a couple of inches. The interior is new leather. This is a very superior looking bird, compared to when it wore the mil-spec crate livery it had for 25 years. I expect to be in Vilnius in November; I hope to go up with Jurgis in the new, improved Falco. I'll keep you informed.—Jonas Dovydenas



Jonas Dovydenas



Jonas Dovydenas



Jonas Dovydenas

Mailbox

Very good to hear from you! We do wonder from time to time how you are getting on. Have had a quick look at the website and will read more soon.

Our Falco is in good hands in West Australia and Airell, who bought it, keeps in touch. We still have a very small flying club here – on the farm – but most pilots drive in! They enjoy talking of the good old days when there was less bureaucracy.

Apologies if I have sent these photos before. The Falco is just taxiing off the end of our strip with cape weed in the foreground and canola (rape) in the background and some wheat in between. The cake was almost two years ago!!

Very best wishes to you from us both – and keep in touch.

*Juliet Ferguson
Dookie, Australia
jferg@activ8.net.au*



Good to hear you are restarting the Falco builders letter, and interesting news. Maybe one day we can time a USA visit for one of the Falco fly-ins.

I have forwarded your letter to a couple of Ozzies I couldn't see in your email list, particularly Drew Done, who will in turn distribute to the Falco "enclave" they have down south at Merimbula. Unfortunately Stephen Friend, due to health reasons, has or maybe has sold his Falco.

My Falco VH-NVA is still going strong, been flying now for 13.5 years. Time flies — I just had a brief local flight over the Gold Coast this afternoon.

To add to the toys I have also built a 22' caravan (travel trailer in your language) plus a strip



Top: Ian and Juliet Ferguson taxi in. Center: Neil Aitkenhead on short final. Above: Martha Gunder and Ross Wilson.

plank cedar canoe ... very USA/Canada style.

Still working at 76 so difficult to fully use all the toys ... also still the president of the Southport Flying Club, YSPT, with approx. 150 full members, a fully licensed aerodrome and all the usual facilities, that is also a busy job.

Anyway life is good.

I will attach a photo of VH-NVA on a landing approach at a local grass/sandy airfield.

*Neil & Gwyn Aitkenhead
Main Beach, Queensland 4217
Australia*

I have the sad job of informing people of the passing of Stephen Friend. Stephen finished his Falco VH - SBD in about 1995 I think, and it now has just over 600 hours on her. Over the last few years he had a battle with the dreaded cancer and finally lost the fight in September.

*Drew Done
Merimbula, NSW
Australia*



Stephen and Annie with more friends

Thank you for your email and condolences which are much appreciated. The Falco was such a large part of Stephen's life – literally the years reading about the plane, then the building of it (which left me a habitable part of the house!) the traumas and triumphs of it all, but you know all this from your many other builders – all I can say is thank you Alfred for the years of pleasure Stephen enjoyed.

Yes, unfortunately the plane is for sale and bless Drew, he is handling that for me (another great friendship with him and Judy through the Falco). Again thank you Alfred for years of Stephen's pleasure.

*Annie Friend
Breadalbane, NSW, Australia*

I hear good news that you are relaunching the newsletter as a quarterly.



David Austin



David Austin



Afternoon tea at the George: Mike and Kaye Jerram

I hope all is well with you and yours. Kaye and I soldier on, though our 70+ years are starting to tell. I'm still cranking out news, accident reports and many other things each month for 'Pilot' magazine, now 45+ years since my first contribution when James Gilbert had just arrived as Editor.

*Mike Jerram
Spalding, Lincolnshire, UK*

I am enclosing two photos. One is a good Frati photo taken at The Old Timers Fly-in at Schaffen-Diest, Belgium 2018, showing CYLL next to BYLL in its Dutch registration PH-FCO with a Picchio alongside and SF 260's in the background from the Belgian display team. PH-FCO is now owned by Flip Philips.

The other is from the LAA Rally at Sywell last year 2018 with a possible caption "Two beauties designed in the same decade, never ask me to choose."

*Neville Langrick
Holmfirth, Huddersfield, England*

I was wondering if you had any opinion on using Hysol 9340 for building the Falco. The shear strength at 180°F of 1850psi should be okay for spruce (1200-1400 psi).

Do you know of any testing that have been done with this glue? What type of margin of safety would be required for a glue joint?

*Arnaldo Leon
London, UK*

I haven't heard of it, but it certainly looks good.

When you talk to anyone in the aerospace business who really knows composite construction, the first thing you hear from them is that there are a lot of snake-oil people in the epoxy business, and you really have to be careful believing the claims of manufacturers, with the exception of a few companies: 3M, Ciba Geigy and Dexter Hysol. You can rely on their published information, so you can take the Dexter Hysol product literature and stake your life on it.

I haven't heard any builder mention this, so I doubt we can find someone else, but I think this is worth pursuing. This sounds similar to Araldite AW 134 from Ciba-Geigy that many builders have used with success.

I've added a link to Hysol 9340 in the Falco Skunkworks/Glues—Alfred Scott

Very good to hear from you and great news that you are keen on rekindling spirit in



Top: At The Old Timers Fly-in at Schaffen-Diest, Belgium 2018 showing CYLL next to BYLL in its Dutch registration PH-FCO. **Middle:** Shirley Langrick with G-CYLL. **Above:** Angus received the LAA's top award at the annual rally — the Prince Michael of Kent Concours d'Elegance — and flew to collect.



Why Jewish husbands rarely cheat

the Falco! Things have been rather quiet since you and Susan relinquished your day-to-day involvement in Sequoia. The website you established is still first rate.

I attach a couple of photos of my aircraft G-CWAG, originally built by Charles Wagner in Scotland, whom I never had a chance to meet before he died. I bought it from the next owners, Ivan Court and his syndicate partner, after they and a retired dentist, David Nowell, had done a fine job of finishing off the aircraft and re-painting it in a fetching bright red with an eagle or falcon logo painted on the fin.

These gentlemen had also built and owned a concours-winning, cream-coloured Falco with an injected engine (G-OCAD). When I last checked the publicly accessible G-Info website run by our Civil Aviation Authority (<https://siteapps.caa.co.uk/g-info/>) the aircraft had been sold and is now owned by a David Vale whose address is given in Derbyshire.

Every year I receive an invitation to take part in a Fly-in for owners of the Falco and Stelio Frati's similar designs. The event takes place in August at Diest Aero Club in Belgium though I've never actually been there! It would be interesting to ask via the resurrected newsletter whether anyone has flown their Falco into the event and what they think of it, with photos. It might goad me into using the aircraft more!

*David Austin
Hertfordshire, UK*



Top: Ulrik Lawson is building a Falco in Jacobstowe, Devon UK. **Middle:** Howard Jones and Eduardo Letti. **Above:** Evie and Strother Scott with Neil Johnston in Dublin. Neil sold the 'Corporate Disgrace' Falco to Alfred Scott many years ago, and he is responsible for the paint scheme.