

Falco Builders Letter



Mel and Wanda Olson. Mel's Falco took 2-1/2 years to build.

Flight of the Soul

by Wanda Olson

How I got finagled into writing this reminds me of how Mel convinced me he had to order the Falco plans! On June 9, 2001, he completed his hero's journey when he took his first flight. Elation and excitement were quite evident when he got the airworthiness certificate from the FAA inspector (he was hopping around like a little kid), but after that first flight, he just grinned and said the usual technical comments about the flight, landing speeds, nice flying aircraft, very sensitive compared to the Citation (which he flies for a living). Now, I see more reaction when he is looking at his album of his project. I certainly had a thrill when I saw that plane leave the ground the first time.

It was and is his project, and we discussed this when he ordered that tail section back in November/December of 1998. My plate was full with medical transcription seven hours a day, gardening, and taking care of him and he was on his own. Course, how could I refuse when he needed a third hand here and there, and I swore we were going to wear out the manual gear retractor before he got the landing gears/flaps adjusted to his liking!

This journey began back in the 1950s when he saw an article in *Mechanix Illustrated* on a homebuilt airplane... the Baby Ace. To be a pilot was the first goal. Mel came from a ranching background and was told he could not make a living flying airplanes—I think he has convinced his father and uncle otherwise by now! He had to go through the very normal sequence of the high school sweetheart and then off to the air force in 1961 (married that farm girl on a leave from the military in May 1961). While the family was evolving in those early years, Mel managed to get his private license while at Hill AFB in Utah. He was so delighted that he could take me

In This Issue:

- 5 With Hostile Intent
- 6 The Glider, Part 19
- 9 Falcos Unite Down Under
- 10 Construction Notes
- 12 Goings On at Sequoia
- 14 Susan/Angela's Corner
- 14 Calendar of Events
- 16 Mailbox

up on my first airplane ride. The instructor's wife watched my three babies while I embarked on my first flight in a Cherokee. Mel demonstrated a controlled stall and there was a deafening silence as the airplane shuddered a bit and my life flashed before my eyes—I just knew my babies would never see me again! Of course this was a normal procedure, but I did not know that. He later agreed he should not have done that on my first flight. I still prefer straight and level flight.

Mel's first job after the military was at Combs at Stapleton in Denver, pumping gas! Now night school to get the A&P license, and he was on his way. The first job was in Moab, Utah, flying tours over the canyonlands. We lived in a trailer at the fixed base operation, and I loved it.

Now, I could go into the history of Mel's aviation career, suffice to say we moved 13 times in 15 years. We would have most likely moved less if we had stayed in the military... but the experiences and travels have been most enlightening!

The first homebuilt attempt was in the 1980s when Mel had a lot of time on his hands while flying mostly weekends for an oilman out of Grand Junction, Colorado. He had met Nate Putter and saw the Cozy. After a few modifications on the drawing board, the Cozy started to take shape in a detached garage by our house with lots of epoxy and fiberglass. This project came to a halt in 1988 when unemployment forced a move to the Eastern Slope/Denver. Well that Cozy is still with us; wings hang up in our outside shed and the fuselage is on wheels for ease in moving. I believe that unfinished Cozy helped spur Mel on to finish the Falco in approximately 2-1/2 years.

Mel took me on a 1/2-hour flight as the first passenger after the 25-hour flight requirement (July 26). It was great! We circled our house which is southeast of Centennial Airport and then flew out over Elbert County. We decided to make our first long trip to Montana so I could see my mother who is recovering from a stroke and his father also lives there (retired from the ranching business). We left at 5:27



Above: June 9, 2001, strapping it on for the first flight. Left: Airborne on the first flight at Centennial Airport in Denver area. Left below: Immediately after the first flight.

am on August 17, nice and early to take advantage of the smooth ride one gets at that hour. We watched the sun come up as we entered Wyoming. The GPS is very entertaining to watch as it dials up the local points of interest along the way. It was difficult to get good pictures due to the smoke haze from the forest fires in the West. Visibility was about 30-40 miles and then it was a strain to make out the local landmarks. We flew over my brother's ranch (which is where I grew up) and then on into Lewistown. As Mel was making his approach, I managed to get a terrific

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Above: Approaching Lewistown, Montana. Right: Mel's father's house. Below right: Near Billings, Montana. Shows airspeed and altitude at 23°C. You do the math. 190 kts true.

picture of his father's house (ranchette on 20 acres).

Over Friday and Saturday, we had to take several trips to the airport and show off Mel's baby. Even my mother managed to let go of her walker, get loaded in the car and go see the creation! Mel's dad had trouble climbing in, but he rode with Mel while the plane was being taxied from the fixed base operation into the hangar on the day we arrived. We left on Saturday afternoon at 4 p.m. The ride was not nearly as smooth, but the Falco rides through turbulence in great fashion... course that experienced pilot probably had something to do with that! I got smart on the trip home and took my shoes off and got comfortable. Mel watched me like a hawk on the way up... kept asking if I was doing okay (I wiggled around a bit after a couple of hours), but he relaxed a bit on the way home as he knew his pride and joy had passed the test!

The best part is the time savings. It takes 11-12 hours to drive from Denver, Colorado, to Lewistown, Montana, and to do it in three hours is phenomenal! This, of course, was one of the main selling points back in 1998 when Mel convinced me that we needed to finance this venture so he could get all his kits at once and go for it.





Top: Sunrise rising out of Denver. Center: Tony Kuhry's ranch in Montana. Above: Jake when we got back from his flight over the mountains.

We seldom realize how our accomplishments affect others; enclosed is a letter our son Jacob wrote to his father on Father's Day.

Mel Olson,
Father, Pilot, Creator,

I don't think I expressed just how inspiring your flight was last Saturday. Not just the flight, but the whole process by which you've created a vehicle to slip the mundane bonds that tie so many of us to the earth.

As the power was poured into the airplane, it began to race down the runway, as did my soul, racing with inspiration and hope for my own future. Seeing the airplane being lifted into the air for the first time left me without words, without thought, yet something more, something much more than I'm accustomed to in my everyday mundane world. Along through the few years since I first found myself lifting off the runway for the first time, I've found other vehicles to help me slip the mundane bonds, like Tai Chi and engineering, but there is something missing in these vehicles. You showed that something to me over the last few years as you've been creating your aircraft but especially on Saturday morning. Flying is something in my soul that does not dissipate.

I have never been so inspired by or proud of someone my entire life than on Saturday. I can see you now trying to downplay the experience or the whole process as something you just wanted to do or something that needed to be done. Well, I understand that aspect as well. That's part of the inspiration and pride, but it is only part of it.

My father, who with my mother created and nurtured my life, created within me a spark that has never been extinguished. It has been reduced at times, as I've needed to concentrate and focus on my other vehicles, but never extinguished. I was burning inside Saturday and still finding myself burning with the desire to continue what I once started.

So when I say I love you dad, it's like saying I love myself as there is so many aspects of you within me that I am so very proud to call my own. Thank you. Thank you for all of the inspiration through the years.

*Piece by piece
Staple by staple
Creation envisioned
Creation embodied.*

*Something to be experienced
Something to inspire
Flying to work
Flight of the soul.*

Your son, Jacob

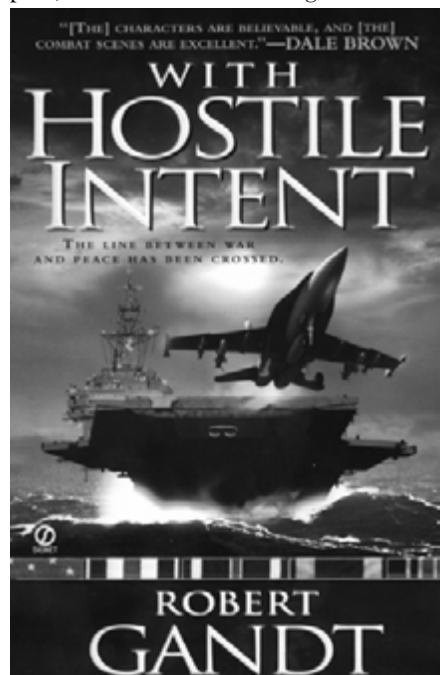
Book Review: **With Hostile Intent**

by Robert Gandt

384 pages, \$6.99, softcover, a Signet Book,
published by new American Library

Robert Gandt is the best writer who owns and flies a Frati airplane—a beautiful red-and-black SF-260, in his case. And I'm not saying that because I'm a writer and regretfully sold my Falco two years ago. It's an honor Bob has long held. His book *Skygods: the Fall of PanAm* is right up there with the work of Ernest K. Gann as an evocation of what it's like to work for a full-of-itself yet incompetent and ailing airline. (Gandt was captaining 727s out of PanAm's Berlin base at the time he started writing it.) *Bogeys and Bandits* is a fascinating, intimate account of the training of a group of Navy F/A-18 Hornet pilots. And *Fly Low, Fly Fast* is the best bunch of words ever written about the arcane world of unlimited-class air racing. What a strange coincidence that Ernie and Bob should have such parallel names.

Now Gandt has—as Gann did—moved into the world of fiction, and though I rarely read make-believe, I consumed his newest work in two sittings, time out for lunch. *With Hostile Intent* is the story of a small group of cock-of-the-walk Naval aviators aboard the supercarrier *USS Ronald Reagan*. It's the tale of their rivalries and hatreds, loves and lusts—yeah, there are a couple of women sticks who launch right along with them—while fighting an undeclared war with Iraqi MiG-29 pilots. The *Reagan* is fiction, as are hairball gun-fights with Baghdaddies with a bone to pick, but that could all change tomorrow.



Bob Gandt has written a novel that could quickly turn to truth.

Nor is this just an adoring Tom Clancy paean to Our Military. The most despicable character in the book is a *Reagan* pilot, and even the Iraqis are treated with some sympathy rather than just being portrayed as raghead simpletons. But you do have to hope that the reasons why Killer DeLancey boresighted squadronmate Brick Maxwell and poked a Sidewinder at him do remain fiction. Read the book, but I will tell you that Brick goes to guns.

It's difficult to write about air-combat maneuvering, because it has become so complex and multi-dimensional. Gandt does it with the advantage of experience. He started his flying career as, briefly, the youngest aviator in the Navy. (He was 20 when he got his wings, a mustang ensign who came up through the hawsepipes.) He flew A-4s during the pre-Vietnam 1960s from a variety of carriers and survived 301 traps before going ashore to be a weapons test pilot.

Gone are the days of tail-chasing and rat-racing, now it's a deadly game of energy management. Chuck Yeager might today need a degree in physics with a minor in math to figure it out, and all I know about it is having taken one of those shoot-and-barf courses in a T-34. But it gave me the tiniest insight into the spatial-relationship struggle that is a dogfight. Everything you have ever seen in a Hollywood film before *Topgun* came along is stupid and phony, and Gandt does a superb job of describing the game of energy management that today is air-combat maneuvering.

I once spent several days aboard the *Nimitz* while writing a film for the Association of Naval Aviation, a quasi-private group that lobbies on behalf of aircraft carriers (and sponsors the much-maligned Tailhook festivities). Our film was supposed to make it clear to Congress that carrier battle groups were the best way to combat brushfire wars and were not, in an era of eye-in-the-sky satellites and ship-killing Exocets, particularly vulnerable.

I don't know if we succeeded, since I frankly had my doubts about the concept of anything that moves at 35 knots and is as big as Hoboken being safe from even Billy Mitchell's bombs, but it did give me a rare look into a world that few ever get to see. Gandt knows the world well, but it was a stunning experience for a rookie.

Ships were nothing new—I'd spent two years on deck aboard tankers and freight-



ers in my randy youth—but the concept of landing enormous airplanes aboard one was shocking. My first-ever landing in the left seat of a jet, which happened to be a Sabreliner, was on the southwestbound runway at LaGuardia, which begins well out over the water—like a carrier's—and ends abruptly at the Grand Central Parkway some 7,000 feet later. I feared for the witless commuters sitting bumper to bumper on the highway. (As did my North American demo pilot in the ohmygod seat, who, I noticed, spilled most of a Martini simply from the shakes when we got back to White Plains and dove into some see-throughs to signal the end of the flying day.)

Well, the first dudes I saw trapping aboard the *Nimitz* were doing it at night, in F4s that made a Sabreliner look like a Cessna, and in about one-twelfth the distance of my LaGuardia “deck.”

My admiration for Naval aviators has been limitless since my days on the *Nimitz*. Tempered, I must admit, by the fact that most of the airmen I met on the boat were about as condescending and contemptuous a bunch as I've ever been forced into. With good reason, I'm sure, but it soon became obvious that my being “a pilot” was about as relevant to them as the fact that I had a pulse and could fog a mirror. Which is as it should be. After all, Naval aviators purposely call carriers “boats” rather than ships to show that they're equally contemptuous of sailors.

Bob got his SF-260 in the mid-'80s, when Harry Shepard talked Gandt and Carl Pascarell into joining him to form a three-ship formation team, the Redhawks. Today, Gandt still flies the -260, out of Spruce Creek, near Daytona, as a member of a six-ship Balbo that performs as the Marchetti Mavericks. His airplane has a number of mods, including a hot-rod'd 320-hp engine. As well as a long history: it had been rescued from the Congo, where first the Belgians and then the Zaireans had used it as a ground-attack airplane. Gandt swears that some of the damage, when the Marchetti arrived for restoration at Frank Sanders' shop in Chino, “looked suspiciously like spear holes.”

Now *that's* energy management.

—Stephan Wilkinson

The Glider

Part 19 of a Series

by Dr. Ing. Stelio Frati
translated by Maurizio Branzanti

Chapter 8 Aircraft Design

In this chapter we will try to offer some comments about the design of the aircraft and its components, and in particular the geometric section of these elements. And in the design process, we have to constantly be aware of the construction demands. For instance, when designing the wings and fuselage, it is done in such a way that the various components may be developed into surfaces that are straight and flat. Since these will be covered with plywood, we know that plywood does not adapt well to shapes that have double curvature. Only a slight amount of shaping is permissible, but even this requires very specialized work.

47. Wing Design

For simplicity of construction, it is preferable that the design be made with straight outlines except for the tip. Here, for aerodynamic reasons as well as for aesthetics, the contours will be curved. To lay out these wing tip curves, which are also used in the tail section, the most practical method is to draw a parabola by using tangent lines.

Generally the curves of the wing tips and tail section are drawn on paper to scale and free-handed. The difficulties arise when the same curves have been reproduced in the construction stage. Even in the case of a simple curve like a circular arc, drawn simply with a compass at the design stage, we realize the task may well be difficult, not to mention the difficulties encountered when trying to use other irregular curves. Laying out of parabolic lines by tangent lines is, however, practical and the reproduction at any scale is feasible, therefore it is possible to get harmonious and very pleasing curves.

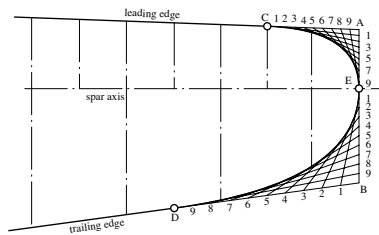


Figure 8-1

Let's look at, for example, the outline of a wing tip. The first step is to design a square

wing, like the line AB in Figure 8-1. On the leading edge, a point C is selected at a distance of about one half the length of AB. On the trailing edge, a point D is selected at a distance of about 1.2 times the length of AB. A third point E is chosen at the intersection of the line AB with the spar axis. Points C, E, and D are the tangent points of the curve that will be drawn from the leading edge, to the wing tip, and to the trailing edge.

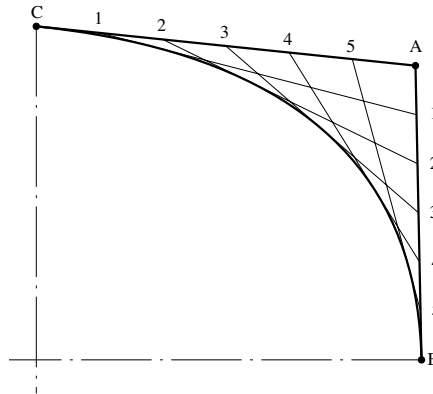


Figure 8-2

To draw the curve, we must first divide the segments CA and AE into equal parts, in our example six, and these points are then joined as we can clearly see in Figure 8-2. If we draw a curve tangent to all of these lines, these will result in a parabolic arc. The operation is repeated for points E, B, and D. For design simplicity, points C and D are made to correspond to the wing ribs, or at a distance from A and B of an integer value. Point E, as we mentioned, can be on the axis of the spar. It is possible that the points C, E, and D, following the first design, may be adjusted in order to give a more pleasing curve to the eye. It may take a few attempts to find the right location that gives the best results. The tail section and even the fuselage may be drawn using the same methods.

48. Design of Wing Airfoil

In the design of the wing, the airfoil is of fundamental importance.

Wing with constant chord. In a wing where the airfoil is kept constant throughout the full span, the design of the various airfoil sections is relatively simple. A section of Chapter 6 Applied Aerodynamics is dedicated to the design of the proper airfoils. [The tables of the 1946-era airfoils are omitted here.] In each table, there are three columns of numbers: X, Y_s and Y_i , and these values relate to a unit length of the airfoil. In other words, they are percent values of the airfoil length.

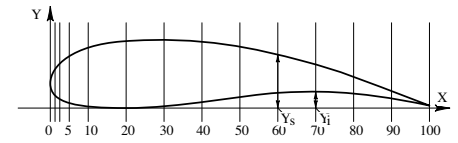


Figure 8-3

The X-values are the horizontal distance (abscissa) and the Y-values are the vertical distances (ordinate). The length of the airfoil is subdivided into ten parts, and the first part is again subdivided into five to six parts in order to obtain greater precision near the leading edge. We have, therefore, values of X at 1.25% to 2.5%...10% to 20%...100%. From these points we draw perpendicular lines, and on these we trace the values for Y_s and Y_i , (Figure 8-3). By connecting the newly found points, we obtain the shape of the airfoil. To determine the values for X, Y_s and Y_i for a particular length, all we have to do is multiply the values found on the table by the desired length and divide by 100. This way we can obtain the proper airfoils in relation to their length.

Wing with varying airfoil and angle of incidence. As we have seen, the wings of gliders rarely are of constant airfoils, and they vary from section to section. At the fuselage, for reason of construction, the airfoils are thick and designed for greater lift, while at the tips, for increased efficiency and stability, the airfoils are much thinner and may even be at a negative incidence angle in respect to the sections near the fuselage.

If we are given the two fundamental airfoils, we can design the intermediate ones. Only wings with a linear sweep will be considered, this way, the airfoil variation will be linear, and this linear variation can be determined either analytically or graphically.

Graphic Method. On an horizontal reference line T, we trace the location of the ribs in a selected scale (1:10, 1:5). If A and B are the location of the ribs at the extremes, which have a known airfoil, we mark on them the upper, Y_s , and lower Y_i , values for a chosen percentage of the chord, let's say 30%. We connect these points with a line.

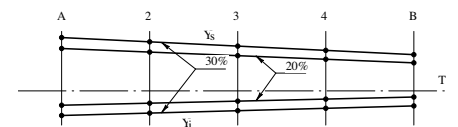


Figure 8-4



Redhawks Aerobatic Team.

The intersection of this line with the previously traced lines representing the ribs location, will give the upper and lower values of all the intermediate ribs at that particular percentage of chord. The schematic seen on Figure 8-5 show this type of construction. Repeating this operation for all the percentage on X , we'll have all the required values for all the intermediate ribs.

Since the process has to be repeated a number of times, (usually 14), if we continue the use of the same line T to generate the expected values, a lot of these will be too close together and even coincide, making the operation very difficult and cumbersome.

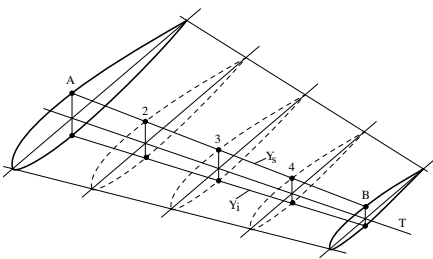


Figure 8-5



Redhawks plus Bob Gandt at Frank Sanders' shop in 1985. Spear holes repaired.

In order to eliminate this, and the possibility of errors, the design will have to be repeated separately for every percentage value. We understand how long and laborious the operation will become.

For this reason and also for the poor precision expected from the graphic method, it is preferable to calculate the required values by means of the analytical method.

Analytical Method. Let us consider again the airfoils A and B and the intermediate airfoils 2-3-4. At each percentage value of X , (30% for instance), we find the difference between the value of A and the value of B. Dividing this difference by the number of ribs less one, which is the same as the number of spaces between the ribs, we find the difference in value that exists between adjacent ribs. This is only true if the distance between the ribs remains constant, if not a difference may be calculated proportionally. Adding this difference to the value of rib B, or subtracting this difference from the value of rib A, the same amount of times that there are spaces, we obtain the value for each intermediate rib.

Example. Let's use a practical example to better understand the principle. Let us consider the upper value Y_S at 20% of the chord. For A, $Y_S = 40\text{mm}$. For B, $Y_S = 20\text{mm}$. The difference between the two is $40 - 20 = 20\text{mm}$.

This divided by the number of spaces, four in our case, gives us the increment between two adjacent ribs:

$$20 / 4 = 5\text{mm}$$

Adding to the value B or subtracting from the value A we have the values for ribs 2-3-4:

- Y_S for B = 20 mm
- Y_S for 4 = 25 mm
- Y_S for 3 = 30 mm
- Y_S for 2 = 35 mm
- Y_S for A = 40 mm

To verify we see that the value of Y_S for A = 40mm. With the same procedure we obtain all the other required value at all the percentages of the chord.

Roll Your Own Engine?

It was bound to happen, I suppose. Over the years, to the chagrin of Lycoming and Continental, Superior Air Parts has slowly produced replacement parts for aircraft engines and offered them at competitive prices to overhaulers. First there were valve guides and little things. Then cylinders. Now they've cloned the entire engine and are offering it all as a kit.

Superior has just introduced its SL360 engine, a 180 hp near-copy of the Lycoming O-360. The engine is offered in both carbureted and injected versions, and it arrives in a box full of every piece you need to build an engine. It isn't an overhaul where you tear down and replace things, but rather a complete engine delivered in pieces.

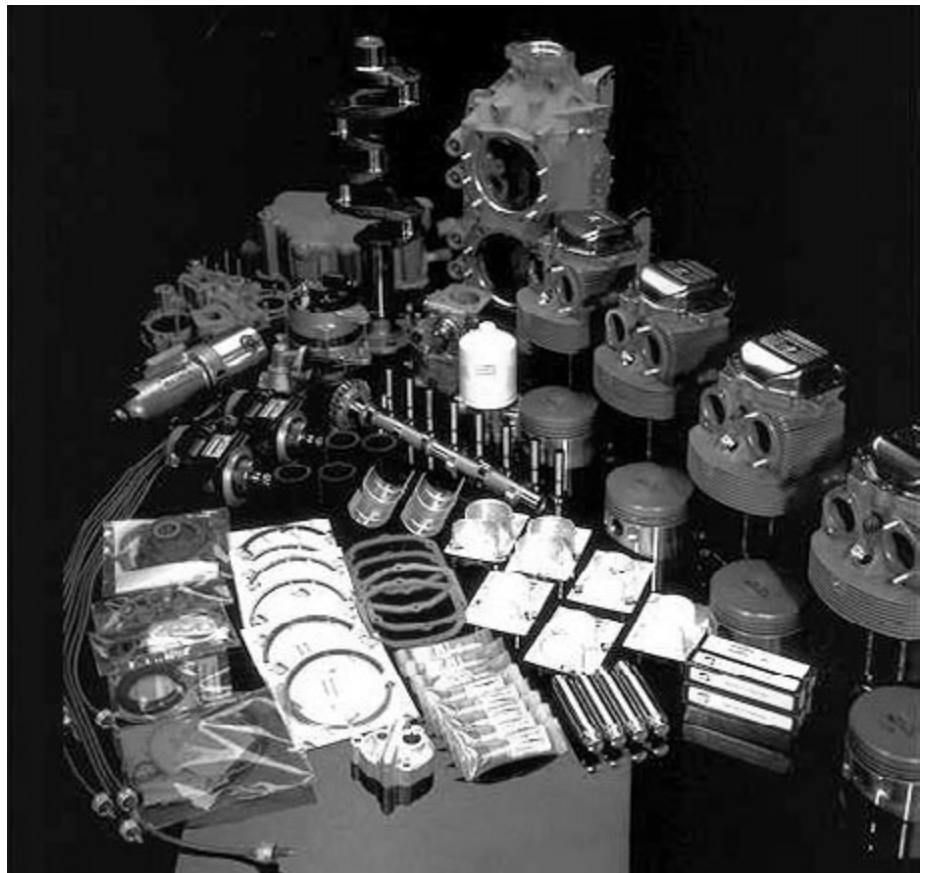
The base price of the engine (\$16,990) does not include the magnetos, carburetor, starter and other accessories, but you can buy that in another kit for \$3,200. But it does include the tuition for a one-day session at Mattituck's Build & Technical School. You'll have to get yourself to Mattituck way out on Long Island, New York. And classrooms are being set up in Florida and California soon.

Superior also offers an injected model of the engine for slightly more and an additional kit includes the injector, magnetos, starter and other accessories. The bad news for Falco builders is that this engine has an updraft induction system, so you'll have to swap and horsetrade for the parts you will need to install the aft mounted injector we use.

The Mattituck school basically demonstrates building an engine. It consists of a classroom with an engine stand in the middle and a circle of chairs around it—the instructor simply builds up an engine and answers questions while doing it. It takes just one day, and a good technician can assemble a complete engine in two to three hours.

The engine-building course is not open to non-buyers, and the price of the course and support is built into the engine price. You can use it or lose it, and it is in no way required that you use Mattituck's support. It's worth nothing that Mattituck has produced an excellent engine-building video, and there may be others as well out there.

Is this a direct, exact clone of the 180 hp Lycoming? Superior's James Towle says not. "What we've done is design an engine that's similar in model—we have our own model designations—but we're able



Superior's engine comes as a box of parts—visit www.SuperiorAirparts.com for details.

to offer a better engine at a price that's competitive to what they're offering." On the other hand, the differences they cite are small, and most of the parts are directly interchangeable with Lycoming's.

So what does this mean to Falco builders? Maybe only that there's one more option available, particularly to those of you who like to do everything yourself.

—Alfred Scott

Falcos Unite Downunder

by Juliet Ferguson

The meeting in Toowoomba Queensland was over a weekend in November 2000. Stephen and Annie Friend flew in from Goulburn, NSW, Ian and I from Yabba North in Victoria and Lynette Zuccoli and Wayne Milburn were there in Toowoomba with Lynette's Falco to greet us. At this stage there were only three Falcos flying in Australia. Falco builders Drew and Judy Done, Neil and Gwyn Aitkenhead, Graham Lean and Rob Phyllis also came—Rob from Western Australia, which even by Australian standards is a long way from Toowoomba.

We left home in fine, humid weather flying over large areas of flooded country then the jagged Warrumbungle Ranges and were gradually pushed lower and lower by cloud as we approached the Great Dividing Range in light rain and turbulence. Things improved again and as we approached Toowoomba the sun was shining between long cloud streaks. Toowoomba is a moderate sized town on a plateau which drops steeply away to the east. The airstrip is bitumen in a brilliant green field studded with beautiful purple Verbena (not beautiful says Lynette—it's a weed).

Our aircraft were housed in the immaculate Zuccoli hangar among an extraordinary and colorful collection of aeroplanes including Sea Fury, Fiat, Boomerang, Trojan and Harvard. A wonderful site for the first Australian Falco meeting.

Above and overlooking the collection is a balcony with kitchen, chairs and table where one can sit and ponder over the aircraft while eating and drinking, which we did quite frequently as Lynette produced meal after meal.

The weather was beautiful. We did a bit of flying and a lot of talking. On Saturday evening we had drinks at Wayne and Anthea's place near the edge of the plateau. This was followed by a celebratory dinner at the motel where we were all staying. The next day Wayne chased us all over the sky in Lynette's Falco, then we all went home. An excellent meeting which we plan to repeat.

Some of us did in fact meet again a few months later—at Mangalore over Easter. Lynette and Wayne were busy displaying the Boomerang in New Zealand—but again there were three Falcos—the third this time was Drew and Judy Done's completed at last and close to perfect—well really, it is perfect and won the prize for the best all wood aircraft.



Top: Annie and Stephen Friend. Center: Falcos among Zuccoli warbirds, and Ian Ferguson with Judy and Drew Done at Mangalore. Above: Group photo.

Construction Notes

I would like to pass on a technical problem to the other Falco flyers. I have had a couple of problems with the manifold/fuel pressure gauge that Sequoia furnished in the instrument kit. The first is when I installed the gauge the manifold pressure side worked fine for the first 25 hours of flying then it would only indicate atmospheric pressure and not change the pressure reading even at a closed throttle setting. I flew several hours using no gauge at all. I pulled the gauge and returned it to Sequoia Aircraft to have it repaired. The gauge is from United Instruments, and we both thought it was still under warranty. It was not! The warranty was from the date of manufacture and not the date of installation. Something to think about.

Their repair facility said there was nothing wrong with the gauge except that the manifold gauge dampener screw was too tight and that might have caused the gauge to stick. With our move to Missouri, I needed to fly the Falco back to our new home state. In order to have a manifold/fuel pressure gauge for the flight back I purchased an overhauled gauge because the repair shop could not return the gauge in time for the flight. The overhauled gauge has worked fine and when I can I will put the original gauge back in to see if it does work.

The second problem is that the fuel pressure side of the gauge would indicate off the scale at full throttle. The gauge was plumbed as per the Falco plans with the feed line coming from the fuel flow divider from the fitting hole that is marked "Gauge" and the vent line going to the tee from the static port lines. The gauge seems to be indicating double the amount of pressure that it should be indicating. I was told by the engine rebuilder that the fuel pressure at the 'spider' should be between 5 and 7 pounds psi and that the engine could not run at a pressure that was that high. Sorry, but the engine does run fine and at all throttle settings

Thinking that the gauge was at fault, I checked the fuel pressure with a certified gauge from my local FBO. That gauge read 17 psi at full throttle also which is the same as the original gauge. The interim overhauled gauge indicates the same higher pressure. Back to the drawing board.

If anyone has had a similar experience with an errant fuel pressure gauge and found a fix to the problem please let me and Sequoia know.—*Bob Brantley*



Top and above: Bill Russell's Bronze Lindy Falco.

This has been a frustrating thing for both of us, and we've been caught between a Falco builder and a manufacturer. United Instruments said they put the instrument on a bench, found it worked fine, adjusted one screw and recertified the instrument. Thus, because there was nothing wrong with it at all in their view, it was perfectly good instrument that was returned to them for no reason that they could see and warranties did not even enter into it.

My theory is that there is some material loose inside the instrument that causes the 'venting' side of the instrument mechanism not to work, and that this is the root cause of the problem. Until it's found and diagnosed, there is no way to know what went wrong, so United Instruments could be right that the instrument is just fine, and the problem may well appear again when

the instrument is returned to the airplane. Stuff happens.

David Carroll asks about the speeds for an airspeed indicator, as he is getting a true airspeed ASI made. For our instruments, we have a stepped white arc for flaps at 53 to 87 kts (flaps full) and 53 to 97.5 kts (flaps 20°). Green arc is 65 to 161 kts. Yellow arc is 161 to 208.5 kts. Red line is 208.5 kts. We also mark our gauges for maneuvering speed, acrobatic, at 135 kts, maneuvering speed, utility at 122 kts, and gear speed at 108.5 kts.

Kerry Bedsworth asks about what to do with Aerolite powder that has solidified into a solid block. He was advised to grind it up and use it. I think that's terrible advice, and I think the only responsible thing to do is to throw the glue away. My lord,



Bill Russell's panel. Alfred Scott, Robert Cumberford, Bob Bready and Cecil Rives.

you will one day take a member of your family for a ride in the Falco, and the idea of using glue that is marginal in any way is unthinkable.

George Richards asks if most builders put a UV barrier on their Falco. The answer is that it's not necessary at all. When the fiberglass is the airframe, it's another matter, but that's not the case here. Just use primer and paint.

Dave Bouchette asks about the elevator leading edge ribs at station 5.5. No vent holes are shown, and should there be? My wiseacre answer was "Do the drawings mean what they say when they say what they say?" Seriously, the idea is to vent the air internally into the trailing edge of the control surface. We don't put any vent holes in the leading edge ribs because we don't want to invite moisture into the con-

trol surface. And there are plenty of parts of the airplane where it's not necessary to vent the air at all because the volume is small or the compartment is rigid.

Jeff Morriss recommends a Fien detail sander to trim fiberglass. This power tool (www.FeinUS.com) has a triangular sanding disk that vibrates, and you can substitute a diamond saw for the sanding disk. Because it works with small vibrations, it's a very safe tool and you can hold your hand against the 'saw' and do nothing more than tickle your hand.

A Falco owner just completed an annual on a Falco he bought, and he says the right wing is heavy. Would it help to adjust the turnbuckles on the controls to lower one aileron and raise the other one? The answer is that adjusting the turnbuckles sim-

ply moves the control stick relative to the ailerons, and it will accomplish nothing as the ailerons will seek their own level.

John Oliver reports a problem with the oil temperature gauges reading too high. The problem started after an engine tear-down following a gear-up landing. He replaced the oil temperature sender and it had no effect. John checked the ground of the sender to the engine and that was fine. Attempting to locate the problem, he flew the Falco at 3000 feet, and with a normal power setting, the oil temperature indicated above red line (John thinks that the oil temperature is normal and that the indication alone is wrong). After landing, and with the engine off, but still hot, he turned on the master switch. The oil temperature indicated about about 30% of the green arc, but when he turned on the alternator switch, the oil temperature jumped about 40%.

The only person I know to call in a situation like this is my genius friend, Walter Marsh, who thought about it for a moment and concluded that it sounds like the negative side of the alternator is not getting grounded to the engine and back to the battery. With the master and alternator switches on and with the engine off, he said to meter-test for voltage between the alternator case and the engine, and also between the engine case and the negative terminal of the battery. If they are properly grounded, then there should be no voltage.

Art Domingues has been burning up the skies with Quentin Rench's Falco, using it as a regular corporate transport on his sales rounds. He flies the Falco often at night, and has been replacing the landing light every ten hours or so. Recently, he has replaced the standard bulb with a Lopresti Boom Beam (www.FlyFast.com) with costs about \$900.00, but the bulb has no filament and this is supposed to last 'forever'. Sounds like a lot of money, but don't ask Art how much he has spent on light bulb replacement!

At Oshkosh, Dave Nason reported that he had made a minor adjustment to the engine baffling that he recommends for anyone. He has a digital four-cylinder CHT, and found that his right front cylinder was running about 25 degrees hotter than the left front cylinder. On the right front engine baffling, at the cylinder head, the baffling has a turned-up flange in front of the cylinder head. He reduced this to a height of about 5/16" and the temperatures of his two front cylinders both came down and ended up at the same temperatures. This is the turned-up flange for the cylinder head, not the cylinder barrel.—*Alfred Scott*

Goings On at Sequoia Aircraft

Funny thing happened the other day. I sat and watched Angela Winstead and Susan Stinnett swap jobs again. Angela and Christopher Stanley (her fiancé / my nephew) bought a music store, and she's been helping out there part time. Plus they are getting married in a month, and she has been trying to juggle too many things. Angela is also an extrovert, and she really belongs in an office environment where there are a lot of people.

Susan Stinnett left in December to go back to Maine. She loved the little town, but she missed her family so much she moved back to Richmond. Angela was being pulled in five directions at once, and Susan said she would love to come back. It was a completely amicable thing, and something that works out best for everyone.

In the last few months, we have been in an inventory restocking cycle, and we've received new batches of canopy frames, landing gear legs, nose gear trunnions, etc.

It was a real treat to go to Oshkosh this year. We had hoped that Andrea Tremolada would fly over in his Falco from Italy, but he cancelled at the last minute because of delays in getting the airplane inspected and approved. But we had a great time anyway, and in all we had six Falcos show up: Dave Nason, Cecil Rives, Bill Russell, Steve Backnak, Glyn Russell and Pawel Kwiecinski. Dave Nason was hoping for a shot at Grand Champion, but he had developed a few scratches on the plane in the last year and there were a few perfect airplanes there—the way the judging works, you can only move up in the award hierarchy. But Bill Russell arrived home to find that he had won a Bronze Lindy at Oshkosh. It's a beautiful airplane that he built.

It's been a real pleasure to watch the changes and improvements in the EAA over the years, as it has grown from an organization of homebuilders to the vast scope that embraces all aspects of aviation. It's always been a well-run air show, but it just seems to get better every year. The traffic control is so good, you wonder if they turned it all over to the Walt Disney Company. Take a tour through the museum, and you're struck by how well everything is displayed. Most aviation museums are dimly lit hangars with a few signs in front of the airplanes, yet at the EAA museum you are never aware of how they achieve their displays or how the air-



Top: Dave Nason prepares his Falco for a fly-by. Center: Interior and panel of Dave Nason's Falco. Above: John and Dave Nason are identical twins.

planes are lighted, but when you walk away you're left with a feeling that you don't get anywhere else.

But the thing that strikes me the most, and which leaves the most lasting impression is

the attitude on the part of the EAA employees, volunteers and members. Once a quirky band of us-against-them homebuilders, wherever you go in the EAA today, you see people working together smoothly and with a sense of teamwork and mutual cause.



Top: The tail of Steve Bachnak's Lunchwaffe Falco and Glyn Russell's Falco. Center and above: Cecil Rives and his Falco, a Bronze Lindy winner at Oshkosh 2000.

They are not doing it for the EAA, or for someone else, but they are there because they are doing it for themselves and it's where they want to be. It is a case of bringing out the best in people. It is a very rare thing to see, experience and appreciate.

Watch the pages of *Sport Aviation*, *Kitplanes* and *Flying* for a new advertising campaign for the Falco. At this time, we have not selected the photos, but we are out to give a fresh look to the advertising and, in particular, to drive traffic to our website,

where we can tell the story of the Falco in a way that can't be duplicated in print or any other medium.

Starting with the December *Sport Aviation*, we will begin an aggressive marketing program to find a new owner for the Falco kitplane operation. We will have advertisements in *Sport Aviation* and the *Wall Street Journal*, as well as press releases and information on our website. The half-hearted 'search for a successor' isn't going to do the job, so we will be putting together a prospectus on the Falco operation.

I don't know how long it will take, but I'm very confident we can find someone to take over the Falco. I hope to always be involved, but I'm one of those people who likes 'climbing a mountain.' For twenty years or so I worked obsessively on the Falco, the drawings, putting the kits together, working out the systems, electrical, baffling, engine installation, etc. Often I worked eighteen-hour days, plus weekends, totally driven by passion.

But like many men, I'm happiest in pursuit of a goal, not in achieving it—indeed there is almost always an emotional let-down when you finish something. Your passions change, and airplanes no longer excite me to the extent that they once did. I may be burned out on airshows and airplanes, but I'm not burned out on people, and I love the world of the Falco and the people in it. Most of all, I want to find someone burning with the passions that I once had so that the Falco will live on long after I'm gone.

We remain a small, low-overhead, no-debt operation with a large inventory of Falco parts and kits, so don't worry about us. And I remain in good health and still have my natural hair color without aid of a bottle!

Meredith and I will be in Berlin Nov. 20-21, to Bremen on Nov. 22, to Copenhagen Nov. 25-29. If we will be in your area, please get in touch so we can get together.

Minor change to one of our kits. In the past, we've included the Cleveland wheels and brakes as part of our Kit 810-1 Main Landing Gear, and we have purchased the wheels and brakes direct from Cleveland on an OEM basis. Cleveland now requires that orders be placed through a distributor, and this increases our cost to the point that it makes sense to eliminate this from the kit and have you order the components direct from Aircraft Spruce, Wicks or any other supply company.

—Alfred Scott

Susan's Corner

Yes, I have returned from Maine. It was a tough and painful decision to come back, but the pull of missing my family was greater than the love of my geographical location.

I really did love where I was. Nice small town of about 6,000 people, two stop lights in the whole town and only 1-1/2 grocery stores! I was right on Penobscot Bay, which I could see from my front door... certainly no complaints in that area. I've always lived on the East Coast somewhere, but this was the best place of all. The sense of community in a small town is so vastly different from the big cities, and it was a real pleasure to have people know me at the bank, post office and all the small, locally owned shops in town. I do still have family there, so will certainly go back to visit as often as I can. We did have a great winter though—several storms that left us with 16-20" of snow at a whack! I certainly did enjoy that part of my stay.

In any case, I'm now back in Richmond and back at Sequoia and that seems to be working well for everyone involved. I'm hoping to settle into a smooth running routine here pretty soon, so if there's anything I can do for any of you, please feel free to give me a call.

I certainly wish Angela the best in her new endeavor with Christopher and the music store. And getting a wedding together on top of that is quite an undertaking!

I have not had access to a computer for the past 10 months, so I haven't been able to stay in touch with anyone, but I'm certainly here now if anyone would like to reach me, either at susan@seqair.com or support@seqair.com. I've missed all of you. You're a great bunch of builders and a special group of people to me. It's good to be back.—Susan Stinnett

Angela's Corner

It hasn't been long—nine months and I've learned a lot. I am grateful for the opportunity I was given to work at Sequoia and meeting all of the interesting people associated with the Falco.

Oshkosh was a real pleasure. I am amazed at how many people are passionate about aviation, I had no idea! I was a bit overwhelmed while at the show and after returning home, I had the time to process all that I had seen. The air show, with all of the formation flying, aerobatics, racing



Angela Windstead and Susan Stinnett swap jobs again. A load of landing gear legs.

and warbirds was spectacular. I especially enjoyed seeing the finished Falco projects that attended. All were beautiful in their own way, and it was nice to see the individuality in each one.

In July, my fiancé, Chris, and I bought a music store, Southern Music. I have been juggling both working there and here at Sequoia as well as trying to plan our wedding. Something had to give for me to keep my wits about me. My heart is at Southern Music, starting and building a new life with my future husband.

As I have stated so many times before, it has been a great experience and to all of the people I came in contact with whether

it be in person, over the phone, or via e-mail I want to say thank you for your patience and understanding during my short term.—Angela Windstead

Calendar of Events

West Coast Falco Fly-In. September 27-30, 2001 at Galveston, Texas. Contact: Bill Russell (713) 952-7771, email: Falcowr@aol.com or Cecil Rives (713) 467-9894 email: Falco@flash.net

21st Annual World's Only Oyster Fly-In and Gathering of Stelio Frati Aircraft. November 3, 2001. Rosegill Farm Airstrip. If you've never been, you've never lived.



Judy Done practicing. Neil Aitkenhead. Ian Ferguson in Grumman Avenger.

Andrea Tremolada (with Marne) has repainted his Falco. Now red with blue stripes. Stephen Friend flirts with another Italian lady, this one a Fiat.

Mailbox

The airplane is upside down, and I'm just finishing off the airframe wiring. When this is complete, I'll skin the underside and prepare it for fiberglass. When this is complete, I'll flip it right side up and complete the instrument panel and instrument installation along with engine controls, cabin heat, etc.

*Gord Cook
Surrey, BC
Canada*

N988RP update. I now have 40.2 hrs. on her with no major problems, and I have been taking Wednesdays off as a hangar day doing small maintenance chores and flying when weather permits. She also has a new home in her own hangar at the Mountain View (MNF) Airport in South Central Missouri. I had an offer to buy a hangar at, what I felt, was a very reasonable price.

*Bob Brantley
Mountain View
Missouri*

I now have 117 hours on my Falco and won the same trophies of 2000 again, this year at our EAA Venue. I use the Falco weekly, weather permitting, to commute between my home and my new laser-clinic at Nelspruit near the Kruger National Park, a round trip of 300 nautical miles.

*Fanie Hendriks
Standerton
South Africa*

My Falco is still ensconced in its hangar in Portland, Oregon. The ferry pilot disappeared off the radar in March, and I have been unable to contact him since.

*Bob Hendry
Portland, Oregon*

Bob Hendry, who now owns Steve Wilkinson's Falco, has moved to Australia and plans to have the Falco flown across the Pacific. Just as soon as he can find someone to do it.—Alfred Scott

I had a chance to fly Tom Buttgenbach's Falco (Gutzman Falco) after helping him complete some small repairs following a bird strike. Due to liability concerns and possible violations of the endangered species act, I will not go into detail regarding the extent of the damage to the plane, nor of the health or species of the large bird in question.

Even though I am intimately familiar with the construction of the Falco, I don't have much time in type. I flew with Parke



Top: George Richards' Falco takes shape in Auckland, New Zealand.

Center: George Richards. **Above:** Three Falcos at Lynette Zuccoli's air strip.

Smith years and years ago, and again with Ray Purkiser at a West Coast Falco thing in Auburn, CA, for a total of 3/4 of an hour in type. One flight was enough to know I made the right decision in choosing the Falco for my project but not enough to really appreciate the design. That has now changed. I have added two takeoffs, two landings, four loops and countless rolls to my experience during my recent 1-1/2 hour flight with Tom. The Falco is a truly awesome machine. Tom's Falco has

a CD player wired into his intercom with an automatic over-ride on the com radios so you don't miss calls from ATC. What a cool thing! Just picture this in your mind: a severe clear California sky with plenty of altitude, I am flying left seat in this bright red work of art with Matchbox 20 in my headphones. I have never danced with a more agile partner. I am still smiling.

*Rick Fitzwater
Van Nuys
California*