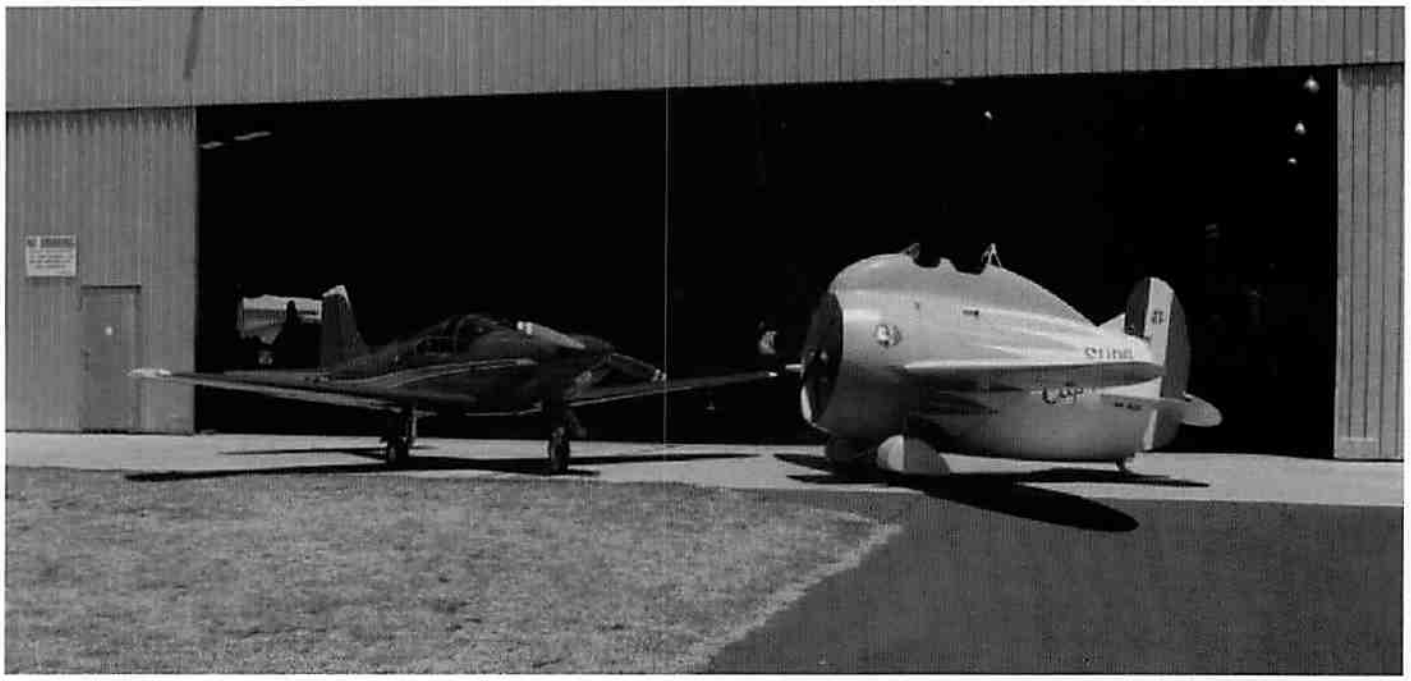
Falco Builders Letter



Beauty and the Beast. Falco sleeps with fascist Gee Bee.

Legends in Our Own Lunch Times: The Stipa Caproni

by Lynette Zuccoli

Sitting around our lunch table about six years ago, our usual subjects of discussion, sex, rock 'n roll and anything politically incorrect, was interupted by Guido, who had found a picture of the most bizarre and ugly plane we had ever seen. It was published in a book by Giorgio Evangelisti.

The aircraft was the Stipa Caproni, designed by Luigi Stipa and built by the Caproni factory in Italy. We were all astonished when Guido announced, "We must have one of those!".

No-one we knew wanted to build it. So we sought someone who was creative, imaginative with not a great sense of embarrassment, and Bryce Wolff was the chosen one.

Work was commenced shortly after using the available information at hand, then in January 1997, Guido was lucky enough to personally meet with Count Gianni Caproni. He generously gave us information and plans, although very scant, we were able to proceed with the project.

Sadly, Guido left us in March 1997, but his dreams and purpose were strong, and we were motivated to carry on.

We purchased the Italian Simonini racing engine, a bit ironic as it was for a very slow aircraft. The engine was suitable for the 65% scale replica of the original, which we did not consider building as it went into the "too hard basket" as we did not have "Experimental Category" in Australia at that time. Also, the original was rather large, with the fuselage standing at over 12 feet tall and wing span at about 50 feet.

With some research, we were able to find the original paint scheme of ivory and blue, very '30s, and the original fascist decorations.

As time went by, the Stipa took shape and seemed to be an endless source of jokes and mirth for onlookers. Most people thought we were going into the wine industry, making wine barrels.

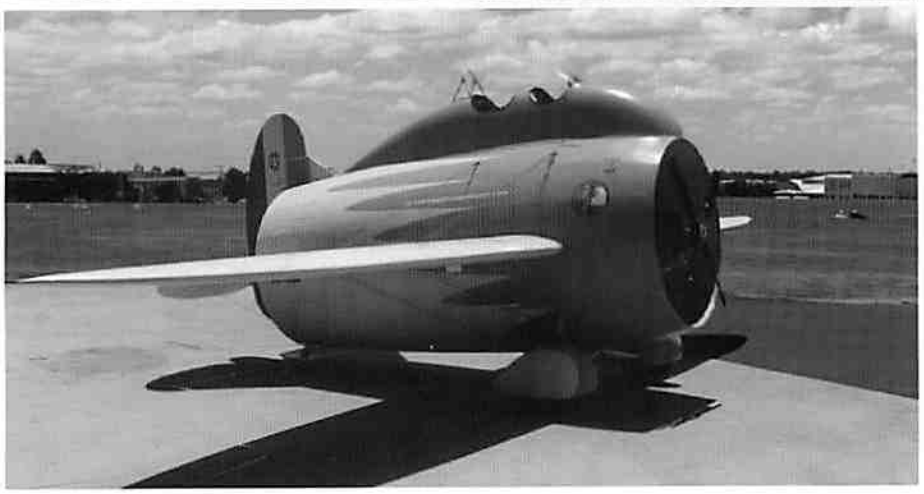
The general consensus was that whatever it was, it would never fly.

Bryce bravely pushed on and then last October, 69 years to the month, the Stipa took to the air with Bryce at the controls. Two directional flights were completed approximately 600 metres at 6 or so metres high.

We joined the Wright Bros and the Spruce Goose in history. We have photos of the flight taken by Craig Justo which show Byrce in his test pilot mode, calm and in control and able to report that the aircraft flew much as the original reports had stated.

I am proud of the Stipa and its history, the

In This Issue:



Consenting Aviators: Lynette Zuccoli and the Stipa Caproni. There are some things in life you can't blame on other people. The Zuccolis willingly and voluntarily did this.

first jet, a contribution to the world of aviation and our little bit we did.

Luigi Stipa died a few years ago a bitter man, believing he was unacknowledged and his concepts stolen. I like to imagine if he and Guido are looking on from another dimension, they would have smiles on their faces. □

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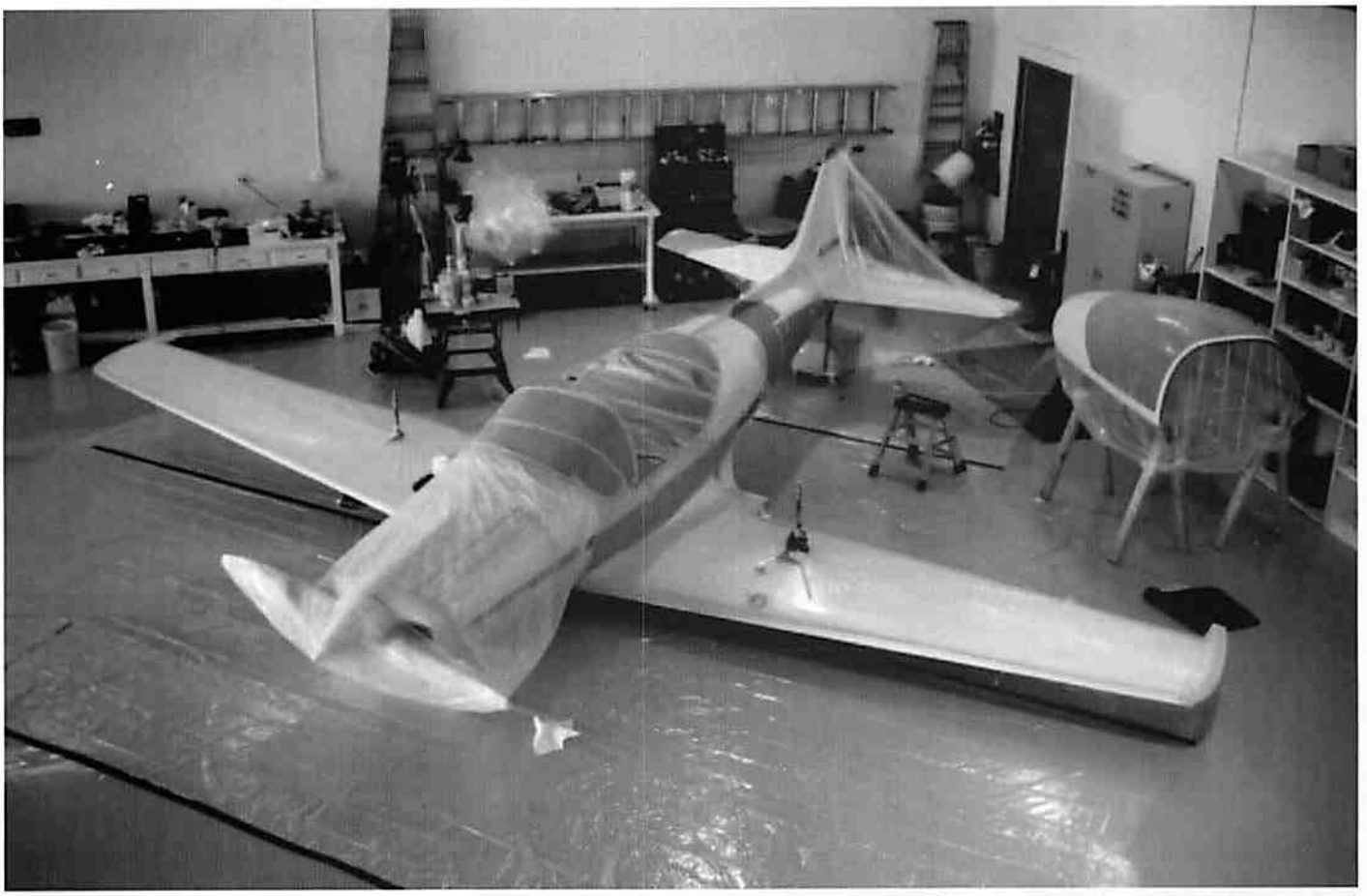


Mel's Tailstand Incident

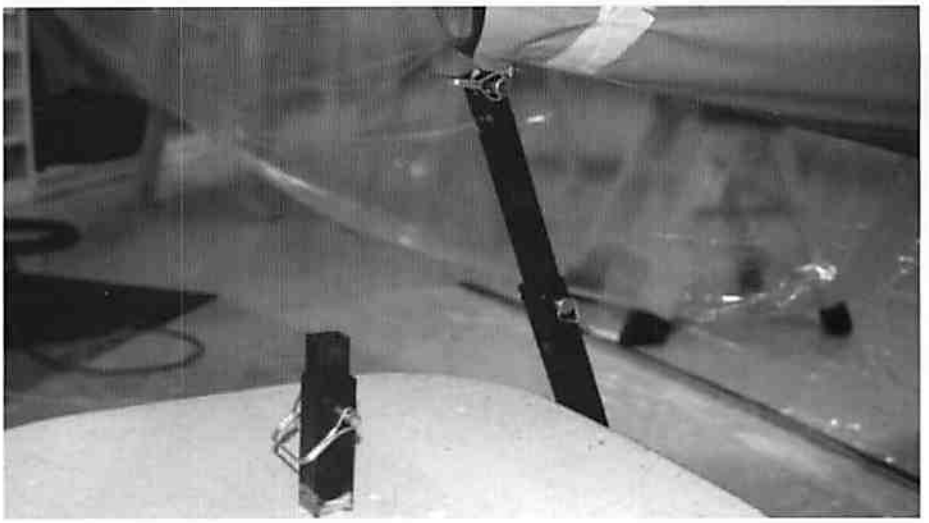
by Mel Olson

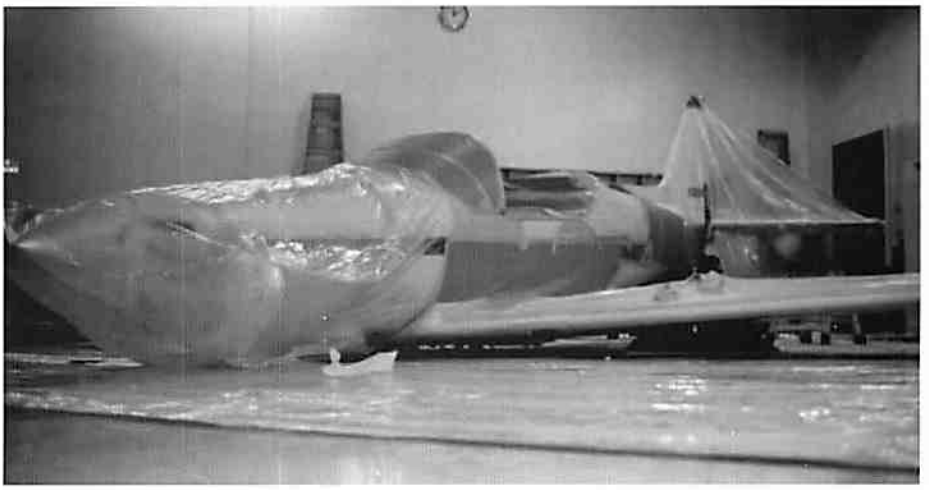
On October 29, 2001, while my son Mike and I were detailing the aircraft paint job, the tailstand broke and the aircraft nosed over, fell off the jacks and onto the floor. When the tail came back down, I was standing underneath it and received a cut on the top of my scalp worth 28 stitches.

After picking myself up off the floor and looking at the airplane, that is when I had one of the most indescribable sinking, sickening feelings I can remember. There it was, a jack protruding through each wing.

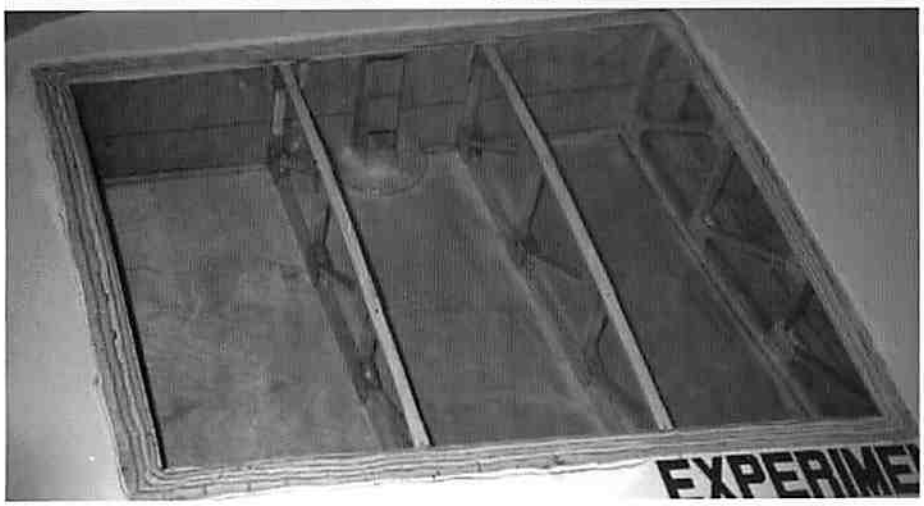
After an ambulance ride, three hours in the emergency room, and 28 stitches later, I returned to the hangar in spite of protests from my wife and son. Thank God, my son Michael was not under the aircraft when this happened (where he had been 15 minutes earlier).

With the help of two flight line personnel and my son Mike, we lifted the aircraft off the floor using car jacks and removed the





While Mel was at the emergency room getting 28 stitches, Mike took these photos of the plane and the broken tailstand.



aircraft jacks from the holes in the wings. We placed the aircraft back on the aircraft jacks, chained down the tail, and then lowered the gear. The gear had been retracted to facilitate touching up paint spots on the belly and landing gear doors.

On further inspection, the nose gear doors were damaged, the bottom cowling damaged, bent baffling on the engine, and bent spinner. The jacks had penetrated the wings, damaging the lower and top skins and ribs #4 and #5 in both wings.

The nose gear doors were damaged to the point they had to be rebuilt. The lower engine cowling had a 10.5-inch crack that had to be repaired. The engine baffling was bent, and the engine oil cooler mount was cracked and bent. The spinner was dented, and Hartzell recommended replacing it.

The toughest job was repairing the wing damage. The top and bottom skins of left and right wing were replaced from rib #3 to rib #6, from front spar to aft spar. Scarfing the wing panels on the aircraft was a tedious/difficult chore. Ribs #4 and #5 were damaged and had to be replaced from main spar to the aft spar, both wings.

The wing ribs were built up from the prints from the main spar to the aft spar section only. I sealed the top and bottom panels with deck cloth before putting them on the

aircraft as it is extremely difficult to fiberglass upside-down.

The nose gear doors were built using the patterns for the original doors, starting out with foam cores, sanding to shape, glassing the outside, then hollowing out the inside and glassing the inner surface after installing spruce strips for attachment hinges and then fitting to the aircraft.

The lower engine cowling was repaired by laying up multiple layers of fiberglass on the inside and blending the edges of the fiberglass to the cowling. The outside was then sanded to the new layers of fiberglass and then adding additional layers of fiberglass and sanded to shape, filled, and painted.

At this time, unless I showed you exactly where the repairs were made, you would not be able to locate the repaired areas. The aircraft looks great and flies great. The entire incident was caused by a faulty spot weld on the aforementioned tailstand, something that should never have happened, but I am amazed did it not happen sooner as the tailstand was in use for approximately one year.

The entire operation, with my son and I working together, took about 900 man-hours and that includes the finishing paint job. We started the repairs on October 29 (day of incident) and flew today, January 15, 2002. □

Construction Notes

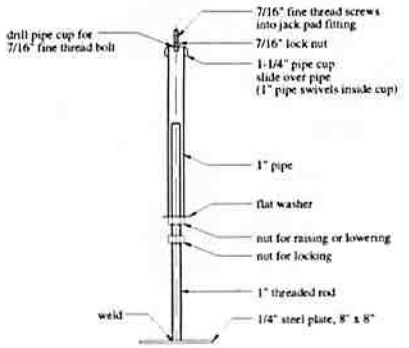
Neil Aitkenhead asks, "The various bronze bushes in the brackets are specified in the drawings as SAE 660. To date the various engineers I have spoken to cannot identify this grade of bronze. Could you please advise an alternative spec. or the composition of the metal recommended?

SAE 660 bronze is a very common bronze alloy here, probably the most commonly-used commercial type. I did a search for SAE 660 at www.Google.com, and within seconds found my way to a page described it as a leaded bronze particularly suited to the manufacture of bearings and suitable for all free running medium to heavy load bearings. It also gave the composition as well.—*Scoti*

From Doug Henson. "There are two 20x20 stringers on the bottom of the fuselage between frames 4 and 6. The instructions say that they are glued to the wing spar at the forward end. Should I make a 20x20 groove in the bottom of the wing spar for these?"

NO!

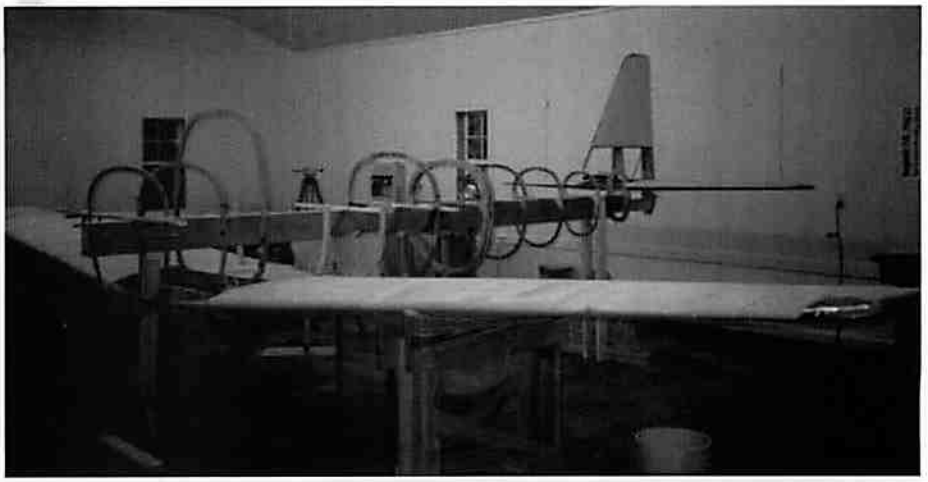
"Or are they glued to the bottom surface, then shaped to the outer fuselage contour? If the latter, there would only be about five millimeters remaining after contouring. I can't find this detail anywhere in the drawings."

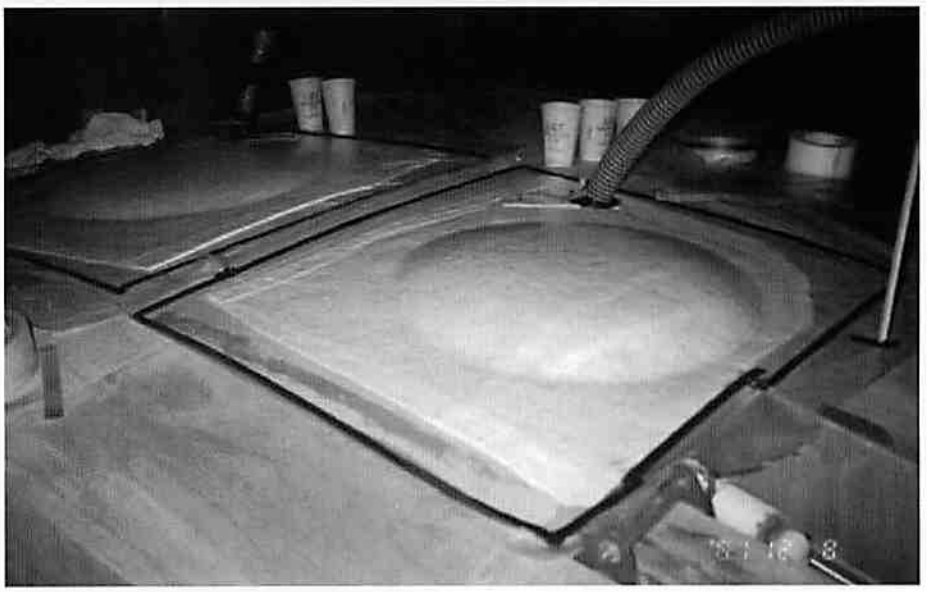


Larry Weldon's low-cost aircraft jack.

That's right. If you wish, you may cut the stringers to fit against the main wing spar, so that they have a larger cross-section aft of the wing spar.—*Scoti*

From the Netherlands, Niels Kinneging asks, "I am presently building the fuselage frames. Do I need to oversize them so I can sand them in the jig, or should I stick to the exact outside measurements as they are in the drawing? If all the frames are drawn with a forward view, then the fuselage frames number 1, 2, 3 and maybe 4 might, after sanding them for the plywood covering, be too small on the forward face. Is this a problem, or can I disregard this?"





Top: Larry Weldon's Falco project complete with his low-cost aircraft jacks. Above: Gord Cook vacuum bagging the wheel well doors.

Make the fuselage frames exactly to the sizes shown, but you may want to make the forward frame No. 8 slightly oversize. That's how we do it.—*Scoti*

Kim Mitchell asks, "When I installed the engine cowling, I did not get a good fit of the cowling doors. Air flow through the cowling exerts a strong force lifting the aft end of the cowling doors. This exerts a force on the top cowling where the hinge attaches to it."

"The top cowling is starting to show stress fatigue. I have reinforced the cowling with more layers of fiberglass, but this seems to be only a temporary fix. Now I have made aluminum straps, held down by the screws which attach the cowling to the firewall, and extending over the back edge of the cowling doors. This seems to solve the problem, but now the straps have to be removed to open the cowling doors. Any ideas?"

I don't have any good answers for this. From what I know, others have had a minor problem with the doors pushing up and some have installed screws on the aft end of the cowling door. It works fine in terms of holding the door closed, but the screw has to be removed before you can open the door. *If I* owned a Falco like that, I would have constant nightmares that someone would try to pop open the cowling for a quick look at the engine.

I would be inclined toward the solution of reinforcing and stiffening the existing design so that the doors would hold their shape and stay closed without benefit of extra screws or fasteners.

Part of this problem may be coming from the fact that plenty of you out there with Falcos are getting a lot of speed out of your birds. Cecil Rives has his Falco really cooking and he's talking about trying the idea of a plenum over the engine, similar in design to what Swearingen did with the SX.300. I have no idea if it's a good idea or not. It

does contain the air, but it creates clearance problems with the cowling, and it's a problem getting to the engine to work on it. Like all pioneering, I would not want to be the first on my block to try it.—*Scoti*

Charles Nutt asks, "We have a question on terminal block 5 located in the tail. There are only four terminals, but five wires (three for the strobe and two for the nav light). We didn't see anything in the plans regarding the hookup. Are we to assume that the black wires go together or is there something we're missing?"

I'm embarrassed to say that I don't remember. I remember I put the terminal block in there so you could hook up the tail light wires and disconnect them. You should not mix the ground wires of the strobe with the ground wire of the nav light, because they use dramatically different voltages. One is 12 volts. The other is a spike of very high voltage (over 1000 volts) of very short duration.

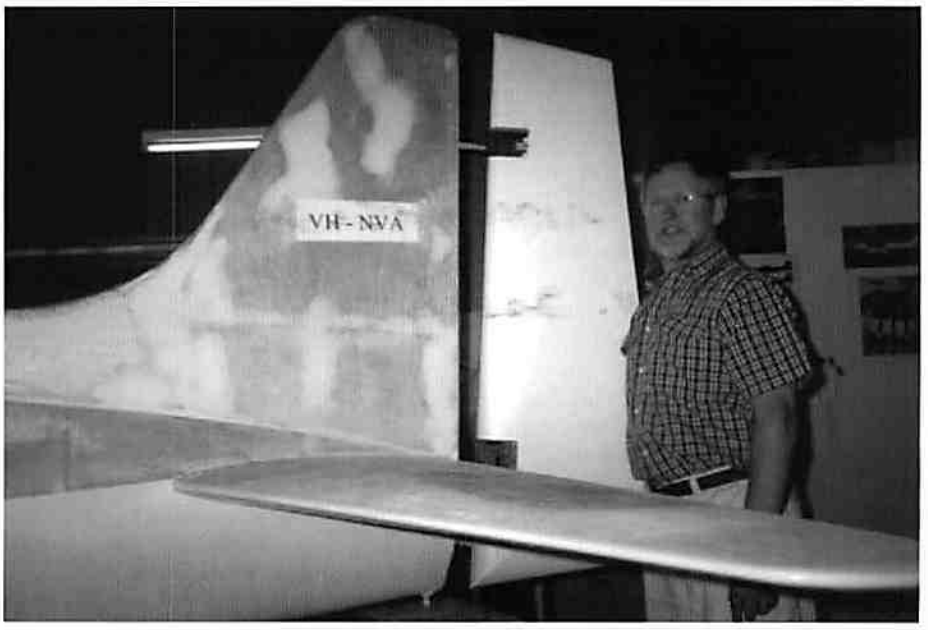
I think a simple solution would be to use one of the mounting screws as a terminal for the nav light ground wires.—*Scoti*

Bob Brantley said he did this. "I used the shielded three-wire cable that comes with the Whelen hook-up kit for the tail strobe and the wiring kit wires for the tail light (black and yellow, I think). I used the four-wire terminal block on the front face of the forward fin spar and hooked the ground (black) wire from the three-wire cable to the right mounting screw (facing forward) through the Amp connections, the four wire terminal block can be used as a six using the mounting screws."

From Gord Cook. "My drawings show six layers of nine-ounce glass cloth for the gear and wheel well doors. Is this six layers per side or three layers per side for a total of six? A friend in the business seems to think that six layers for each side of the door is a little on the heavy side. He thinks that three layers would do it. Also what type of resin do you recommend, polyester or epoxy?"

The drawings mean three layers per side for a total of six, and you should use epoxy resin, not polyester.—*Scoti*

Walter Monk asks about the grain direction of the spruce in used in making the various spars, capstrips and longerons. He has read in a book that flat-grain wood is sometimes considered superior and more desirable that cross-grain wood. By flat-grain, he means that the grain of the wood would be parallel to the wing skin, when



Above: Neil Aitkenhead and his Falco project at Main Beach, Queesnland, Australia.

you looked at it in cross-section, rather than roughly perpendicular in the case of cross-grain.

From a design standpoint, it is fine to have the grain as cross-grain or flat-grain. As a practical matter, you have no choice since all spruce is supplied as quarter-sawn wood, and is therefore cross-grain always. That's what we use. For the rib capstrips and longerons, either way is fine. It makes so little difference, I don't think it's worth a moment's thought.—*Scoti*

In our last newsletter, we had a long report from Bob Brantley about his problems with his manifold/fuel pressure gauge. Drew Done sent us this report:

I thought that I would send a quick note to you in response to Bob Brantley's comments/problems in the latest FBL. I have had exactly the same problems.

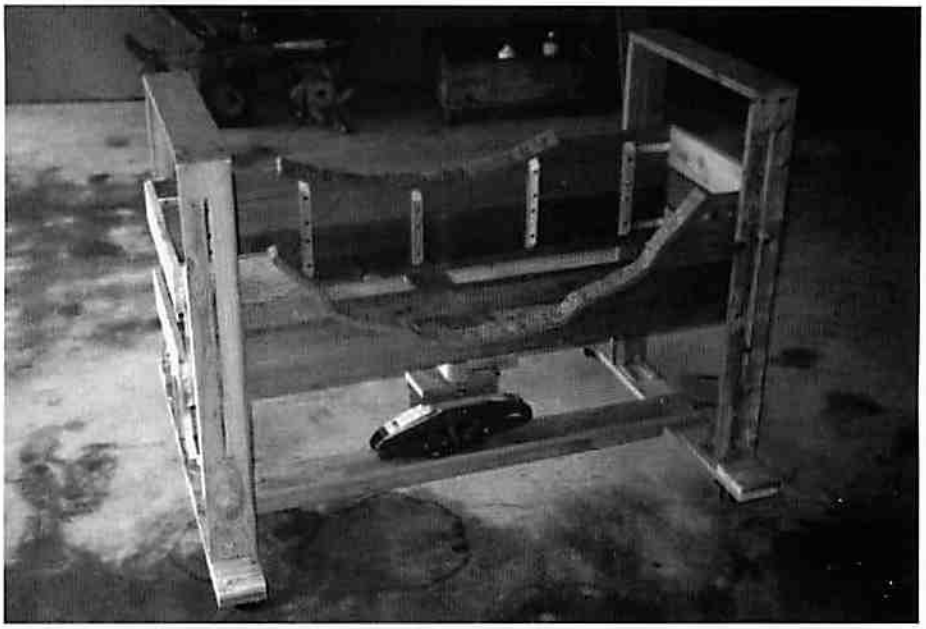
First, my manifold pressure gauge read perfectly—from idle to full throttle the indicator needle was smooth and positive. When the engine was shut down, the needle would return to atmospheric pressure immediately. After about 45 hours, the needle response became slower and slower to the point that I wasn't using the gauge at all and was using fuel pressure and fuel flow as my indication.

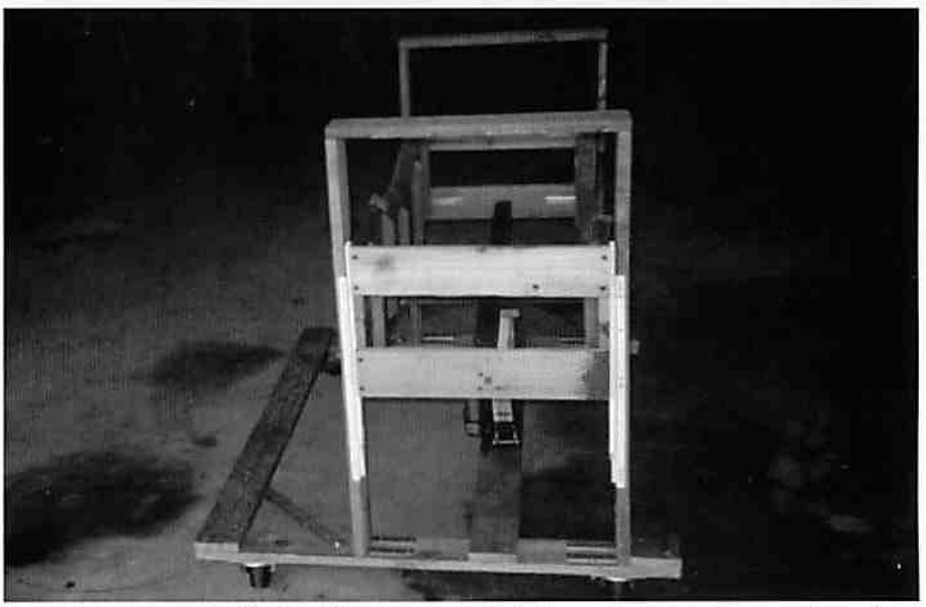
On pulling the gauge out we thought we found a tiny piece of rubbish behind the dampener screw. After bench testing the unit I reinstalled it just to find that with the engine running that the needle was going to vibrate itself to pieces. So out again and back to the instrument shop. With a small amount of tightening of the dampener screw everything was fine for about another four to five hours, then the whole process started to slow down again. By this time I was getting rather sick of pulling the panel around to get the gauge out, to say the least.

The long and the short of the saga is, I hope, that the dampening screw is very slowly vibrating itself in tighter till it blocks the air flow completely. When I last pulled the gauge out the needle was stuck on 23".

The solution was to again thoroughly clean the inside and then put a couple of drops of thread holding Loctite 222 on the dampening screw thread, tighten it, test for response, back off a quarter of a turn at a time till the response is right but not too sensitive.

We did this about 10–12 hours ago and so far everything is fine and hopefully will stay that way. At least it has taught me how to get the gauge out without moving the panel forward at all.





Cecil Rives got tired of looking for someone to help him every time he wanted to take the cowling off, so he came up with this gizmo.

Bob's second problem of the fuel pressure gauge indicating off the scale at full throttle is exactly the same as mine. I plumbed the gauge as per the drawings to the fuel flow divider and on takeoff the needle is well passed the markings of maximum pressure, but as soon as I pull the power back to 25" the fuel pressure needle comes back to around four psi. Seeing as everything settles down quickly and that my LAME isn't worried about it, I have decided not to worry too much about it either. If we are totally wrong with these assumptions, somebody please let me know.

VH-DJD now has 67 hours on the clock all of which have been fantastic fun. We are consistently showing a TAS of 176 to 178 knots at 7500 feet. Two more knots would be great for it would make the math easier, but I'm just being picky. If there is anyone out there who needs a hand making some ribs or whatever give me a call, my workshop looks rather empty at present, and I hate TV.—*Drew Done*

It's good to know that I'm not the only one with that problem, misery loves company sort of thing.

With 44.5 hours now the reinstalled gauge is still working fine and with the new fuel gauge plumbing setup so is the fuel pressure gauge.

I have been fitting the main landing gear doors and have finished making the final trim tabs. Plan to have the trim stripes

painted early next year. If all goes as planned will see you all in Oshkosh.—*Bob Brantley*

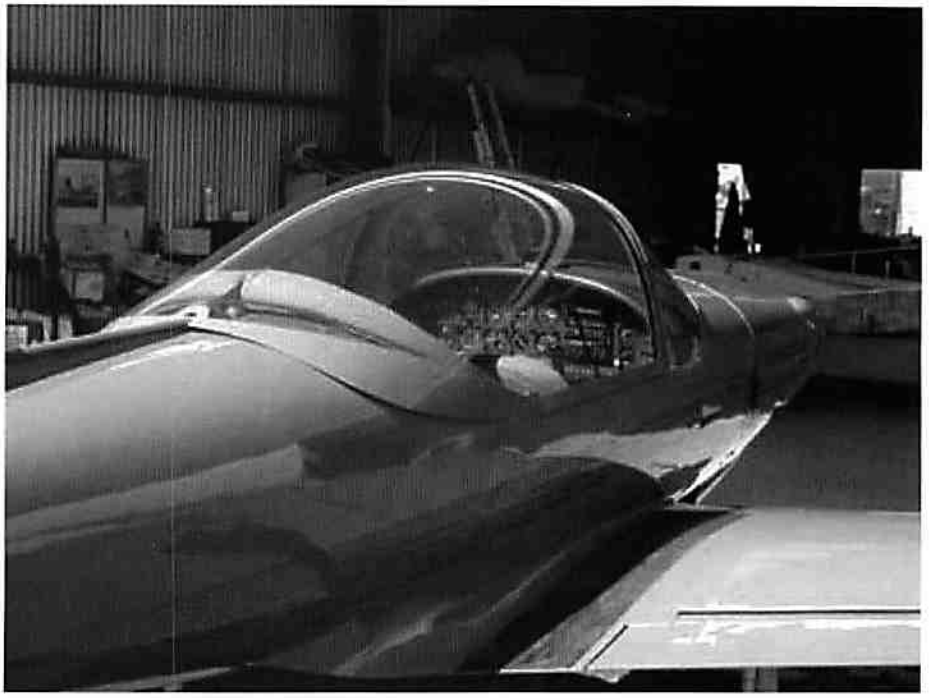
Glyn Russell's artificial horizon died on him, and he went looking for a new supplier. He dealt with Aircraft Quality Instruments, 2649 S. Custer, Wichita, KS 67217. They are a rebuilder and they charge $225.00 per instrument to do the rebuilding. Glyn asks that we pass along this information to other Falco builders who might neeed help with instruments.

From Gord Cook: The attached photo shows the vacuum bagging method of constructing the wheel well doors. I started the procedure by building a plug around the tires making sure I left sufficient clearance to ensure the proper retraction of the gear. The plug was made up of ordinary pink insulating foam and drywall filler. With the plug as smooth as I could get it I put several coats of latex paint on it (I was afraid an oil base paint might have a detrimental effect on the foam) and when it was dry waxed it thoroughly with a mold release.

I then wetted three layers of 9 oz glass cloth and placed it over the plug making sure there were no air bubbles present. Over the glass, I put a special nylon cloth (available at most fiberglass product outlets) and over that I place a soft cloth to soak up any excess epoxy (also available at your favorite fiberglass outlet). Over all this I placed a piece of two mil plastic which was sealed to the plywood with glazer's tape (a soft two-sided black tape about 1/4" wide and 1/16" thick) to form an air tight seal around the wheel well door. A small cut was made in the plastic sheet and a vacuum cleaner hose was attached with the same glazer's tape and the machine turned on. I left the vacuum on about four hours since I had used a slow-curing hardner.

I constructed all my wing fairings and gear doors using the vacuum method prior to doing the larger wheel well doors. If anyone would like more info just drop me an email.—*Gord Cook (gord_cook@telus.net)*

Cecil Rives is always looking for ways to make his Falco faster, since fast women are out of the question, and he investigated the idea a plenum cooling system. The plenum is a box that fits over the top of the engine and keeps air from leaking out through the baffling, starting ring and upper cowling. It's a type of system used on the Swearingen SX-300, and it makes the top of the engine inaccessible, but if you're an anything-for-speed type, then you don't care about that.



Ian Ferguson's Falco in its hangar.

It's hard to say if a system like this is worth the effort and cost. After investigating it, Cecil decided against it, in part because it would require the relocation of the oil cooler. If you are interested in looking into this, contact Sam James, 12185 Schooner Lane, S.W., Moore Haven, FL 33471. Telephone: (863) 675-4493

Since I finished my Falco I have always had the devil of a time removing and installing the lower half of the cowling. With no one around to help it bordered on the impossible.

The contraption I built and that is shown in the photos really makes a simple job of it. I made it almost entirely of 1 x 4 western red cedar. The only exception is the cradle frames that contact the cowling. These are made of 1 x 8's cleated together and then cut out to fit the profile of the cowling. The cut-out edges are lined with 1/2" felt strips to protect the paint finish. The red cedar material is widely used in fence construction and is readily available at lumber yards or fence companies.

The cradle moves up and down guided by cabinet drawer slides. The up and down travel is about 12 inches. (The slots you can see in the photos may be disregarded as they were originally made with the thought that the cradle could be guided by some long pins sliding in them. This didn't work as the cradle would bind in them.)

The hydraulic scissors jack is obviously over-kill. It's just that it had been sitting around in my garage for years without being used for anything. I would imagine that a simple lever arrangement would work as well.

The entire carriage moves around on four swiveling wheels.—*Cecil Rives*

Swiss Falco builder Andrej Cakmak asked about using Aerodux 185, a recommended glue in Switzerland for wood aircraft, and asked us to compare this to Aerodux 500. It's a difficult question to answer for the simple reason that I don't know the difference.

Andrej says, "After reading all I was able to find about these glues, Aerodux 185 belongs to the same family of resorcinol glues, but the resin is liquid and the hardener is in powder form. Aerodux 500 have both components liquid and quite inflammable with 'flash points' for one 31°C and the other 38°C—consider keeping it in refrigerator! The mixing ratio is not the same—Aerodux 500 is 1:1 and for 185 it's 5:1. The 185 is somehow faster drying (but not as fast as Aerolite 306), and less indicated for wood-ceramics or wood-porous surfaces gluing, but as they say extraordinary good with wood-wood glueing and water resistance.

I think that I am going to investigate a little more with Dynachem factory who seems to make both glues. In fact, I would use Aerolite 306 or Aerodux 500, but it seems very hard to find in France or Switzerland, and many English providers refuse to ship them, except as 'dangerous stuff'!"—*Andrej Cakmak* □

The Glider
Part 20 of a Series

by Dr. Ing. Stelio Frati
translated by Maurizio Branzanti

49. Wing Twist and the Wing Reference Plane

We have seen how to obtain the various airfoils of the intermediate ribs between the root and tip ribs, but we have done this without consideration of their relative orientation to each other, created by the twist in the wing.

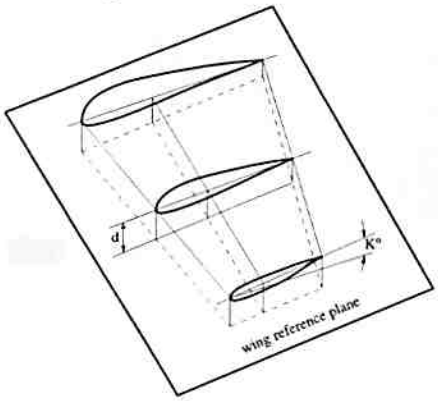


Figure 8-6

For the proper wing construction, we need to have the exact orientation of each airfoil in relation to the other. It is useful therefore to refer to each airfoil, not to its chord, but to a common plane that we call the wing reference plane.

This arbitrary selected plane is chosen outside the wing. This is done in order to keep all the dimensions of the various airfoils positive, and thus to simplify the calculations.

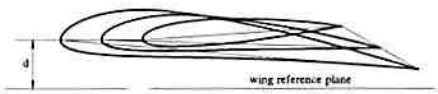


Figure 8-7

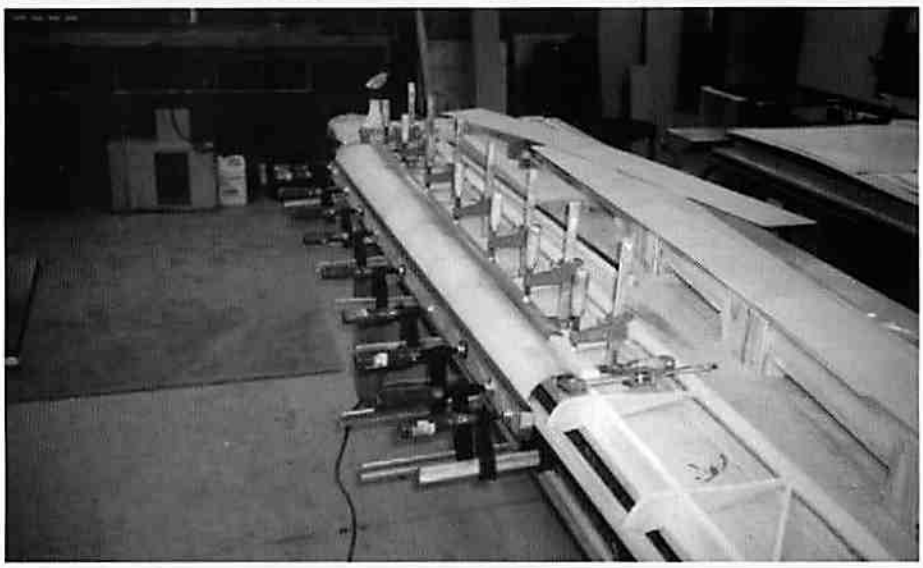
To obtain the desired twist, generally, the airfoil sections are rotated around their leading edge so the leading edge remains straight.

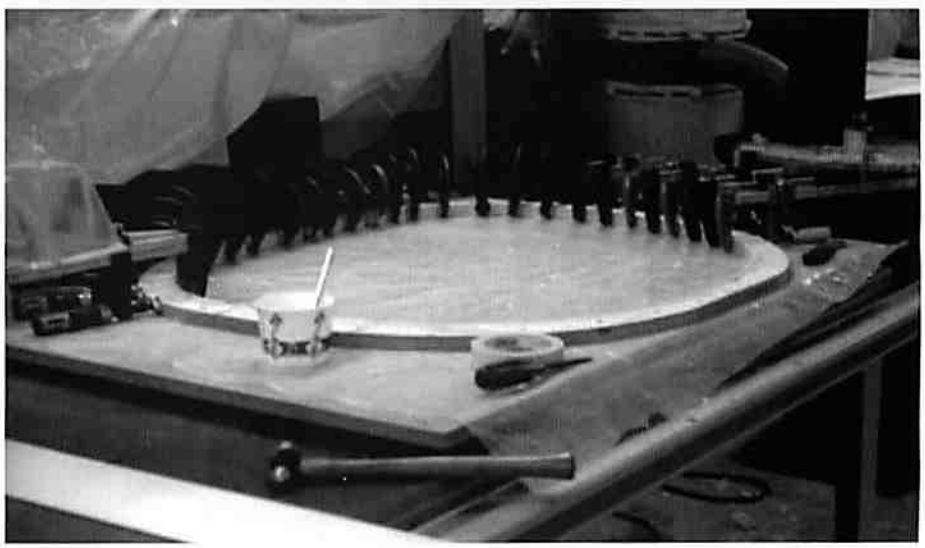
Figure 8-8

The wing reference plane is generally fixed at a distance of 15-20 cm below the leading edge.

The airfoils for the wing root and tip are drawn in reference to their chord or tangent depending on the type of airfoil table used.

It is now necessary to refer to the angle of incidence of the wing in relation to the fuselage axis.



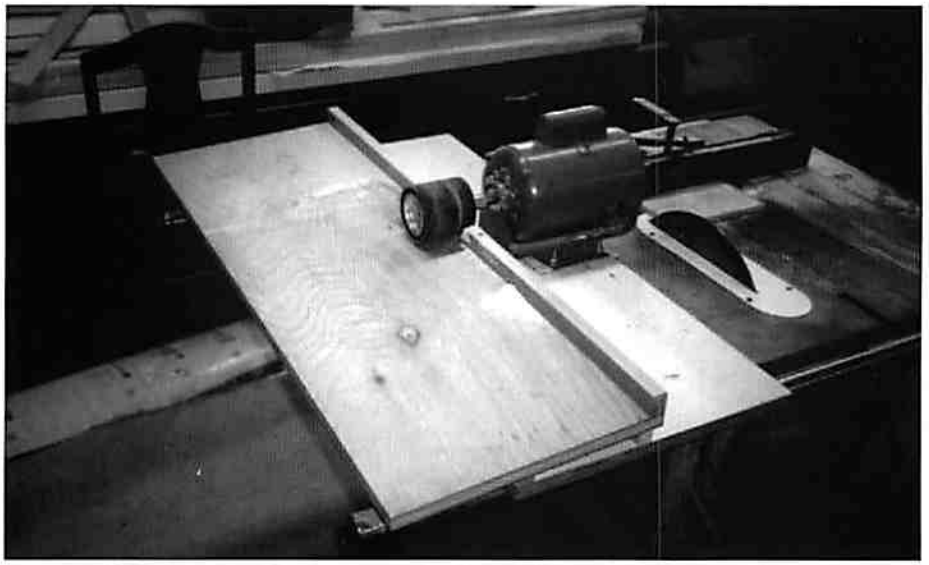


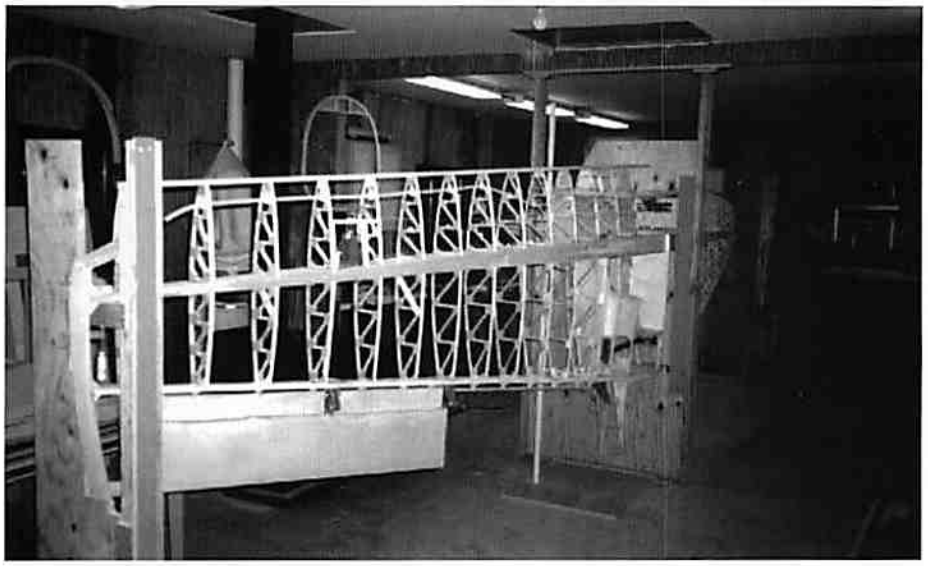
Jeff Morriss and his Falco project. Jeff is an engineering manager at Intel.

For this we draw a horizontal reference line at a distance from the leading edge by the same amount of the earlier chosen distance to the wing reference plane, and at an angle equal to the angle of incidence.

To clarify this let's use an example.

Let the wing reference plane be parallel and at a distance of 150 mm from the leading edge. Let the wing twist be –5 degrees, and the angle of incidence of the wing in relation to the fuselage be 3 degrees. The airfoil at the wing tip will then be –2 degrees in relation to the fuselage.





Jeff is building essentially everything himself, and he is obviously doing a beautiful job.

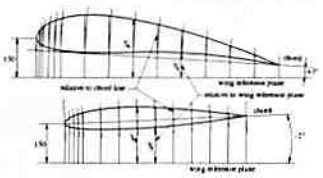


Figure 8-9

Having drawn the basic airfoil in relation to its chord, we trace a horizontal reference line at a distance from the leading edge of 150mm and having an inclination of 3 degrees at the fuselage and –2 degrees at the wing tip.

We reference all of the airfoil data to this line.

We then trace from each point of division of the chord lines perpendicular to the horizontal reference line. On this line, we read the Y_s and Y_i values of the airfoil in relation to the horizontal reference line.

The basic airfoils are therefore then defined by the exact points.

For the basic linear variation between them we proceed as we seen earlier. The intermediate airfoils will all be referred to the wing reference plane with an angle of incidence based on the wing twist.

Virtual and Real Airfoil for the Wing Tip. Up to now we have only considered a straight wing all the way to its tip. We know that the wing tips are rounded for aerodynamic reasons as well as for aesthetic design, and we have already seen how these curves are designed.

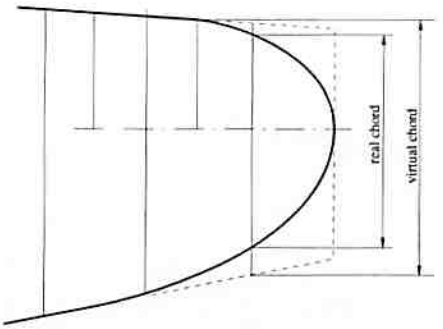


Figure 8-10

We will now look at how the airfoils in this region have to be modified.

The values Y_s and Y_i of these airfoils need to be multiplied by the ratio of the real and virtual chords. This ratio that will diminish towards the tip, and it will always be less than one.

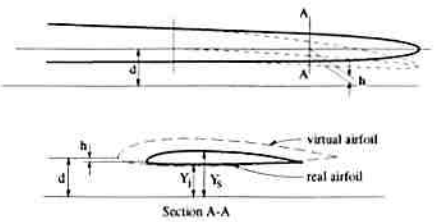


Figure 8-11

We thus obtain airfoils with the chord, thickness and angle of incidence desired, but closer to the wing reference plane. The leading edge therefore in this region is no longer straight. We need to adjust this distance back to the original distance. To do this all that is required is to add to the values Y_s and Y_i the difference h found between the leading edges of the virtual and real airfoils. □

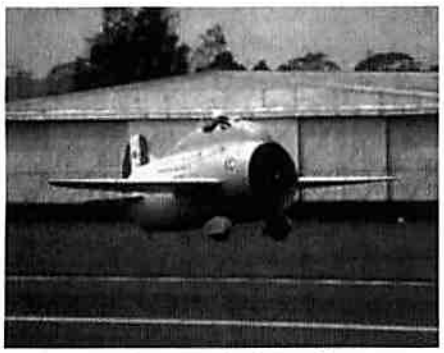
The Very Latest on the Caproni Calamari

Desperate as we are on the latest news of the Stipa Caproni, its handling qualities, etc., I asked Lynette Zuccoli for more news, and suggested that it was okay to make it colorful. This is her report.—Dr. Ing. Alfredo Scoti

Are Aussies colourful? I know that we, the pilot, Bryce, Chief Engineer, Wayne and myself were red while waiting for the first flight of the Stipa, white when it flew and a natural tan some time after the event.

Bryce says that while he felt terrified during the short flight of approx 600 metres, he was also thrilled, testing the unknown by and large and trying to apply all of his skills to keeping the aircraft aloft and stable.

In actual fact, Bryce was able to confirm that the Stipa performed much as the original reports had stated, that is the difficulties of the attitude references and the good stability of the aircraft overall.



Gulping in the air, the Stipa Caproni lifts off on its first flight.

The strangeness of the seating position of the pilot which is like sitting on top of a huge barrel and requires agility of foot just to get in the aircraft. When Bryce is in the pilots seat onlookers peering through the empty void of the fuselage (venturi tube) often wonder if he was legless, but due to ingenuity of construction leaving very little room for the pilot to breath heavily.

We were able to construct the aircraft true to its concept and intent. We don't really know what's ahead of us now. There are little adjustments to do to the aircraft which Bryce thinks may improve handling etc. But our 'contract' is really finished in a philosophical and practical sense, and we may well quit while we are satisfied with results as they are now.

We have found that mugs with pictures of Bryce flying are in big demand so perhaps we may have a business venture in that field. Viva Aviation!—*Lynette Zuccoli*

Susan's Corner

Whew! This is going to be quick. We have been so incredibly busy that I barely have time to stop for lunch anymore. I'm not real sure what's happened to the economy, but we've been shipping kits out of here hand over fist, and I've had six new builders just in the first half of January!

A couple of things I do want to mention though, are wire payments and the additional piece of hose for the inverted fuel system.

On the wire payments (and this probably applies mostly to the overseas builders) most banks charge a fee (usually anywhere from $12 to $25) for wiring funds to us, and it frequently leaves the builder with a $12 to $25 balance due, which can sometimes be difficult to get paid, since it's such a small amount. My suggestion would be to check with your bank about fees and just add that amount to whatever your payment should be. I know it's frustrating for you to go to the trouble of wiring the funds to us, only to find out later that you still have a $25 balance.

Also, on Kit 817-7 Fuel System & Engine Hoses, the extra piece of 3/4" hose in the Inverted Package may have been cut too short on some of the kits that have been sent out. In checking them, we found that some of the hoses were only 24" instead of the 36" that the inverted package calls for, so if you've purchased that kit recently, please check the length of the additional piece of hose. If you have gotten the shorter length, let me know and I'll get a longer piece out to you post haste.

Spring has not yet sprung here in Virginia, but it's sure been different from last winter when I was in Maine... and had snow up to my nose. It has been good to be back here at Sequoia though, and I've certainly enjoyed being back in touch with all you builders. You guys are my buddies, and looking back, it's sometimes hard to remember why I left in the first place. Oh yeah... life changes, and it's sometimes quite challenging, but I guess that's what makes us tough.

As always, keep us posted on your progress and send us pictures when you can. Back at'cha in the Spring.—*Susan Stinnett*

Top right and above: Ian Ferguson and his Falco.

Sawdust

• Interesting concept. A psychotherapist friend made an 'interesting' observation the other day. He said that falling in love and the pursuit of passions are both essentially psychotic experiences. Hmmm.

• Jonas gets email. Dear Jonas. I enjoyed viewing your photographs and reading your articies on the web. You are an excellent photographer. I have a question about the photograph entitled "Nose Gear Door Art," however.

Perhaps I am wrong, but this photo seems to portray an obscene jesture with Mickey Mouse holding up his middle finger. This is certainly not something I would expect to see from a Disney character, nor as part of your collection. To be quite honest, the photo appears very offensive, and I must ask you to explain the nature of it.

—*Judy Allen*

Jonas has some explaining to do about this artwork—very un-Disney.

• Quick-Build Falco. I want to thank you for the information package on the Falco. I was very surprised when it showed up today. On your website you indicated that you wanted photos of recently completed Falcos so I'm including a photo of mine as an attachment.

Now I've heard of quick-build kits before, but this one really takes the cake. It took about 30 seconds to download the plans from your website and then just two evenings to prepare all the parts and create the subassemblies.

Two more evenings were required for the final assembly and waiting for the glue to dry, and it was finished. The FAA inspector would not issue the aircraft an airworthiness certificate because he said that they didn't have a category for micro ultralites. Oh well, I guess this one will just have to be a "hangar queen" and wait for its big sister to be built.

The Quick-Build Falco Kit took only two nights to complete.

Thank you again and I am looking forward to the time when I can start on the full size version.—*Joseph R. Semeraro*

• Caproni Calamari. The Zuccoli's Stipa Caproni has inspired many observations. We went fishing on the Internet to see what people would say. Here are a few of their reactions:

Yikes! A beheaded, de-tentacled calamari with (only just) wings! That pretty little Falco doesn't stand a chance.—*Nigel Moll*

I have already complimented Lynette on the Stipa Macaroni. It is a wonderful project. And you know my high regard for all the Zuccoli group. At first, I thought it was just one of the better looking RV-4s, but I then concluded that it is a barrel without a proper bung, that got skewered by a surf board.—*Dean Hall*

That is so cool! Remember Bruce McCall's and Brock Yates's totally un-PC Playboy Magazine article in the '70s about ethnic warplanes? The Italian fighter was double-ended, with cockpit and engine at each end so that it could change allegiances instantly. The Russian bomber looked like a locomotive with wings. This thing would have been a perfect addition, though I'm not sure in which category.

—*Stephan Wilkinson*

It's actually not an airplane; it's a really cool concept car for Gen Y-ers. You can keep your beer cool in the big air duct. I wouldn't wanna fall off the cockpit.

—*George Larson*

Flying used to have a category in the spec box called "entry-exit ease". Looks like a zero.—*Peter Garrison*

So that's what happened to the TravelAir Mystery Ship that went to Italy and pigged out on pasta and pizza.—*Mike Jerram*

Alfred has told me many times in response to my Falco questions, "These planes were built by people who drank wine for lunch, and then went back to work". So then, is this what happens when one starts drinking quite a-ways before lunch?

—*Duane Root*

And more: Looks like a runway vacuum cleaner disguised as an airplane. What do you get when you cross a falcon with a pig? At last, Snoopy gets a real plane! The Falco meets the bastard child of a Gee Bee racer and an Antonov An-226. I have tried Gas-x and Beano — but if I ever pass this gas, I will be a jet and will fly with an endurance of at least four hours till my next Burrito. The craftsmanship is magnificent. But when was his last eye exam? Sex-on-wings meets safe-sex-on wings. For God's sake, WHY? Monica Lewinsky reborn as an airplane. Bill Clinton's worst nightmare. It's amazing what you can do with tempra paints and an ordinary toilette paper roll!

Mailbox

My Falco project is alive and well, as is its owner. I hope to tone down the job overtime and start working on the project again soon. I have renewed my IFR pilot's license and have found a 'flying buddy' so we can practice under the hood.

Craig Bransfield
Bakersfield, California

I have been making steady progress but not a lot of visual progress lately. All the fuselage and wing woodwork is finished, and while I have it upside down, I have finished all the underside right through to finished paint work.

For the last few months, I have been making various components like all the fibreglass centre console and wing fairings. I am currently making various metal fittings for the fuselage and control system.

Up until last week, I have had the whole aircraft upside-down and took the opportunity to finish the underside right through to finished paintwork. While I was in paint mode, I also finished all the control surfaces. I used Dupont's Imron 6000 system, and epoxy undercoat. Seems to be fairly user-friendly for a novice. The colour is a silver-white pearl. I wanted a cool colour for our climate but something more than just plain white. Will finish it with probably the dark blue stripe system.

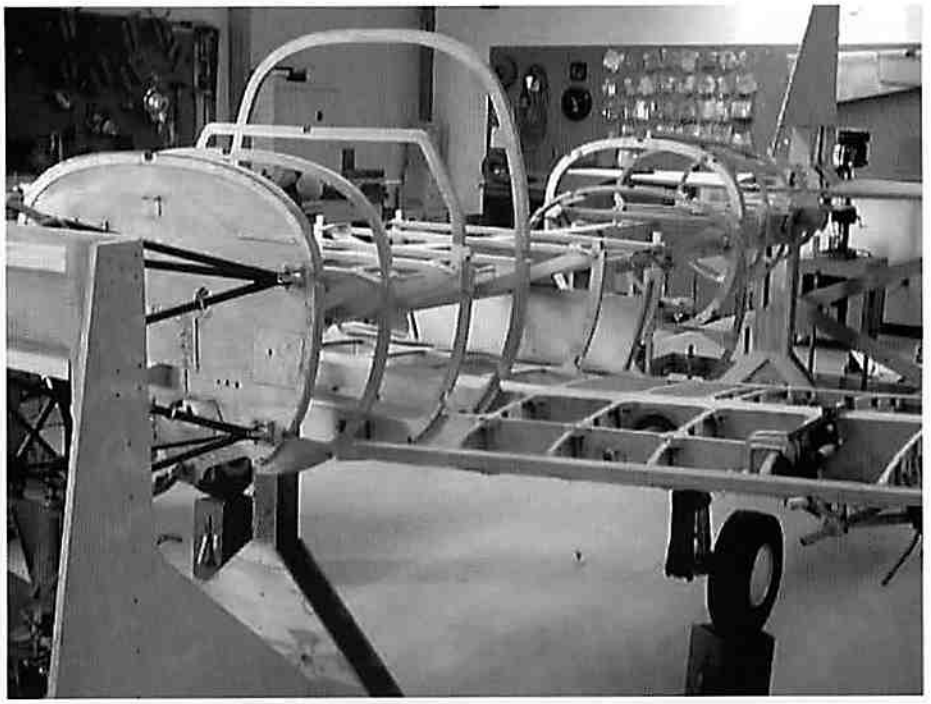
Most of the progress over the last few months has been manufacturing various fuselage, control and engine mount hardware, plus moulding the fibreglass centre console, nose wheel well cover, wing fairings, etc. All the woodwork is basically finished apart from gluing on the top skins to the fuselage from frame 1 to 3.

I keep a watch on your website which is very good, and it keeps us all up to date with the various Falco goings-on around the world including our own Falco 'Down Under' get-together last year. Well done.

Gywn & Neil Aitkenhead
Main Beach, Queensland
Australia

I'm the mystery man between Wayne Milburn and Lynette Zuccoli in the photograph in the "Down Under" section of your website. Juliet Ferguson couldn't remember my name for the caption, although she almost got it right in the text!

I've had the plans (no. 1373) since mid-2000 but due to lack of a suitable building space have not made a start in earnest,



Here's a recent photo of Craig Bransfield's Falco project. That's Craig on the right with his hangar buddies.

other than some 2024 fittings. The situation is about to change as I have secured hangar space at nearby Jandakot airport and am now looking forward to making some sawdust.

Due to the crippling exchange rate, I'm having to make all that I can so have been reading everything I can find in the Skunkworks and elsewhere to learn from others who have gone before me.

I note an entry from yourself which was printed in the Dec. 1990 FBL wherein you describe your intentions to investigate doing away with numerous fiddly parts in the wing ribs and replacing them with solid spruce. As an engineer myself, I'm all for elegant design without compromising strength, and your ideas have struck a chord in this regard.

The changes you mentioned did not make it through to my plans, some ten years later, so I was curious as to whether you have had second thoughts on this method of construction.

It would also lend itself readily to the horizontal stabilizer and fin ribs, as these are very slim and don't seem worth the infinitesimal weight saving afforded by using the cap strip/internal truss type construction.

My thought on fabricating these was to make them from 10mm thick spruce, cut lightening openings with a router and then entirely cover both sides with 1mm ply. The ply will add very little weight but will form a strong membrane over each side to prevent any tendency for the spruce to split horizontally along the grain.

Rob Phillis
Perth, Western Australia

Thanks for the note. I have changed the "Down Under" section to get your correct name spelling. Sorry about that. It's usually men who can't remember women's names, so there's got to be some justice in this!

In our kits, we use solid spruce ribs for the elevator and rudder trailing edge ribs, but we make these 6mm thick. Building the ribs of 10mm spruce with plywood on each side is overkill and too heavy. Just stick with 6mm solid spruce, perhaps with a lightening hole in the very largest ribs.

In the wing, we make the leading edge ribs for stations 1-4 from solid spruce. These are the sections of the ribs forward of the forward wing spar. We also make the ribs symmetrically left/right, so for those ribs where there was solid plywood in the inboard face and gussets on the outboard face, we use solid plywood on both sides of the ribs.—Scoti

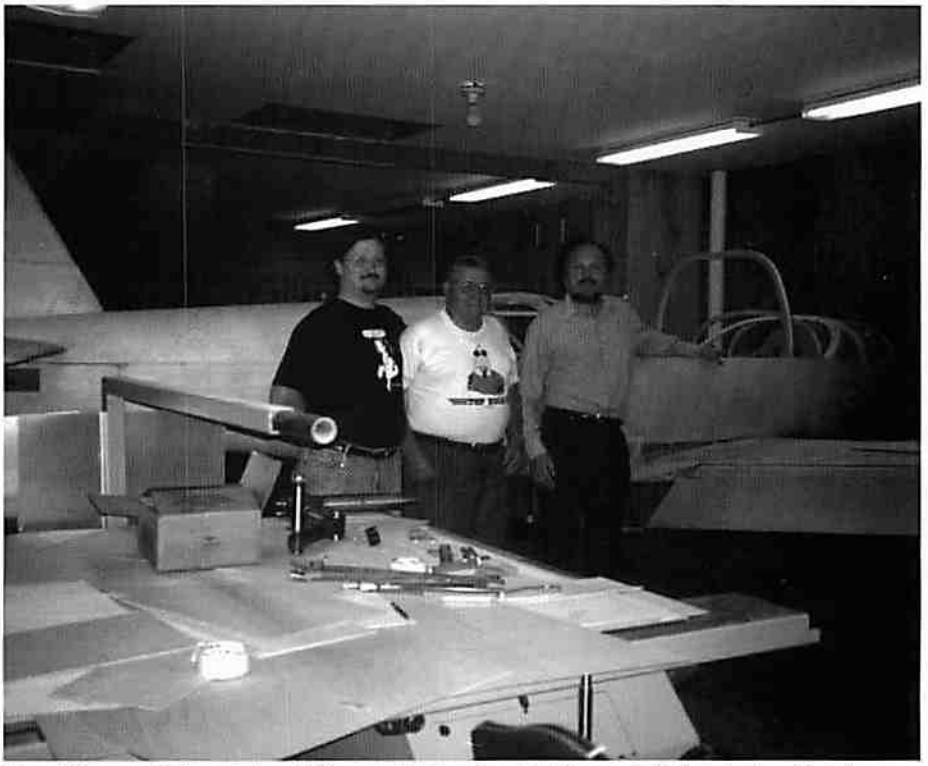
My Falco is now at Ardmore (the local GA airfield) and parked in the same spot that Luciano used to park his Falco. His son Giovanni owns the hangar so it didn't take much persuading to get the spot.

I know I've been bloody slow, but I've got big plans for next year. I've just bought the engine (IO-320-B1A) from Aussie which should arrive in the new year. Around March some time I hope to buy a lot from you to get things moving along despite a terrible exchange rate.

George Richards
Auckland, New Zealand

The Falco now has cowling installed, but not painted as everything else is. I have a UK registration number which is G-RJAM. I had wanted G-AMRY, but it was already in use. 'R. J.' were the initials of the designer of the Spitfire, our useful fighter and R. J. Mitchell was known to his many friends as 'R. J.' These are also my initials.

The 'A' is for my very patient wife Angela. Over our married lives together, I have built numerous boats, ending up with a 32-ft yacht that took six years to complete. The Falco to date has taken 2001 – 1990 = 11 years. No! I'm sure it can't possibly be that long. I am so enjoying myself.



Top: Giovanni Nustrini and George Richards with George's Falco in Auckland. Above: Three generations of propeller heads. Jeff Morriss on the right, his stepson David on the left and his father Fred in the middle.

The seats have been covered in leather by a fellow pilot friend, who is also doing the lining of the cockpit and the paint job. White with a green stripe either side and wing tips and top of rudder. My workshop is only big enough to join the tail to body, leaving no room to do anything else but admire the machine.

The engine now sticks out into the garden in a covered extension with a transparent roof. Most of one side of the old boat shed will have to be taken down to get the plane out, but that would be just yet. Some odds and ends of wiring—battery installation, etc.—so next year.

G-RJAM is having the cowling fitted, just cut out the air intake in lower starboard cowling. The fuel mix box has to go to be overhauled, but I installed it while installing various bits.

The heat box on the exhaust is giving me some trouble. I made it as diagram, but Stuart Gane reckons that I need to make the cold incoming air pass up and down inside the box to get really warm. To achieve this I have made three narrow strips of stainless steel to be fitted to and fro inside the heat box making the air pass up, down, up, then out. Holes at alternate ends create a maze type effect.

The only trouble is, that the round stainless steel plates are very difficult to drill, so I will have to get them welded.

Richard Marks
Bridgewater, Somerset
England

Drilling holes in stainless steel is very difficult. Believe it or not, stainless steel is about the

same strength as aircraft aluminum. The reason it's difficult to drill is that it is not a conductor of heat, so heat builds up very quickly, dulls the drill and the steel work-hardens.

To drill stainless steel, you have only one shot at it. The drill must be sharp, and you use very hard pressure from the instant you start. Also get some cutting oil on it as this carries off the heat. A desperation move is to get it in a drill press, do all of the above and pour cold water on it as you drill.—Scoti

I've visited your site a number of times over the past few years and consider it one of the best. It's not the fancy graphics, but rather your writings and "philosophy" that have been most appealing. Your site is an inspirational kick-in-the-ass to get going and do something useful. I've always wanted to build an airplane (the Falco would be a great choice), and I am at a stage in life where work and family eat up most of my time and resources. (There are days I can relate to your article on depression.)

Why am I telling you this? I think there are a lot of us out there who live very average lives and want to do something extraordinary—like building an airplane, but are too "financially chicken" and "brain dead busy" to figure out a way to do it. I believe your articles provide an inspirational element that can get some of us going.

The old quote "Most men lead lives of quiet desperation" is sure true in my eyes. Whatever you do after Falco, keep in mind your ability to reach people with your own special words. You may be able to develop a whole new business centered on helping people climb out of mediocrity and into a better and more fulfilling life.

Perry Kuznar
Eau Claire, Wisconsin

The restoration of my production Falco Series IV is making progress. The rear part is restored including the painting, and I am now working on the forward fuselage/wing part. You will get some actual photos later. I was lucky to get in touch with Dr. Valtorta. He will come up from Italy next month to see my Falco and to give me some advice and help on the fixing of the nose gear being slightly damaged. There are increasingly other contacts with members of the "European Falco Family". The bird has a great social value!

Max Riner
Schinznach-Dorf, Switzerland

I've been looking over your fantastic site for the past year and a half, and yes (unfortunately), I'm still drooling.

Al Dubiak's Falco in early December. The interior is almost complete. Al reports, "I took my dad to Oshkosh today. We had that 200 dollar hamburger."

I have looked at every page (many more than once) and believe that I now know the in's and out's of being a Falcophile. Some of your builders really enjoy building it (as is very visible by their workmanship). I can understand Stelio Frati's penmanship and appreciate all of the work you have done on it (including with Thurston—whose Sequoia was on my hot-list in the later 70's). I know where you got the urge for flying Ferrari's.

I'm an aerospace quality professional now at 45 years of age. I started working on my pilot's license here in Canada back in my college days, when I was studying aeronautical engineering. Unfortunately, a chemical (pesticide) accident nearly cost me my eyesight and well, my plans took a sudden turn.

But now, my eyesight having stabilized at an "acceptable level". I believe that it may yet be possible. If I had had that little piece of paper, I would have been one of your clients long ago. But, I'll try my darndest to get at least a recreational permit.

I eagerly look forward to each and every update on your site. However, I felt today the urge to let you know that even as a (present) non-client, your work does not go un-noticed. Keep up the good work and may we hopefully one day come to the same table.

Mattias Inhoff
matti@flightcraft.ca