

# Falco Builders Letter



*Dave Aronson's Falco*

## Goings On at Sequoia

### Our Computer Died

Behold our new look! The change in appearance of our builders letter is the result of the death of our trusty IBM word processor. We had already bought some Apple Macintosh computers for office use, so you will be seeing us from now on through the bytes of the Apple. As soon as it is available, we will be adding a laser printer, which will produce much clearer copies. This should be available in the spring.

One of the nice things about this machine is that we are able to do simple drawings and have them printed as part of the text. The drawings are necessarily "pixel-based"; that is, they are composed of medium-sized dots. Thus, a diagonal line will have a stair-stepped appearance. We hope that the laser printer will overcome this.

Much of my time over the past few months has been in work on the new construction manual. Over the past few years, you have had to refer back to old copies of the builders letter for comments on the construction of the Falco. I am now in the process of bringing all of this information to one place.

At this time, I have done the first 16 chapters which takes you through the assembly of the tail group. As we had run out of the old construction manuals, we have printed this up in small quantities and shipped them with the plans going out to our most recent builders. Also, when we are aware of a builder just starting the assembly of the tail group, we have shipped the first part of the manual.

The new construction manual will be a milestone event for the Falco. Many of the questions faced by early builders will be eliminated. The manual is quite ex-

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pensive to print (it would cost us about \$5,000.00 just to send you all what we have done to date), so I would prefer to get it to a point that it should have relatively few revisions before committing it to volume printing.

The manual as it now exists is still just a skeleton of what I propose to bring out. I would like to bring all of the information from other books into the construction manual. For example, many of you have purchased ANC-18 and ANC-19. These are the Bibles of aircraft woodwork, but only a portion of the books are relevant to the construction of the Falco. I would also like to heavily illustrate the new manual, but we are waiting on new software to do the illustrations.

If you are just starting the construction of the tail group, please let us know and we'll send you a preliminary copy of the manual as it now stands. If you don't plan to start the construction of the tail group for a few months, wait, and we'll send you a better manual when you are ready.

### Wing Assembly

I have begun work on the chapters dealing with the wing and fuselage assembly. These will require a number of changes before I will release preliminary copies. Until we are ready to release the manual, you may like to know a few particulars.

The primary message I have to give you is that I have come to the conclusion that it is best to assemble the wing before you start the fuselage. Karl Hansen has now used the vertical wing jig all the way through and found that it works very well. At the time he assembled the wing, Karl already had the fuselage assembled but with the bottom center longeron left out. This meant that he had to build the wing to match the fuselage. This he accomplished by careful measurement. In the end, there was a 2mm error, which he was able to correct by installing a 2mm plywood spacer. While this has worked for Karl, I don't much like the idea since you are too exposed

to error. What if you were 2mm too long? Where do you cut off the 2mm?

In the end, fuselage frames No. 3, 4, 5 and 6 are all glued into the wing as an integral unit. For this reason, I think it makes more sense to build them all as one unit. This will allow you to built the wheel well bays while the wing is in the vertical jig.

Essentially, the order of construction is this. There are several preliminary steps that are taken before the wing is actually assembled. I would like to see the hinges installed on the ailerons, flaps and aft wing spar first, then the ailerons and flaps built as one unit. The landing gear fittings are installed on the main and forward wing spar along with all other parts installed on these spars. Frame No. 4 is glued to the main wing spar and frame No. 3 is glued to the forward spar. These are installed in the jig along with frames No. 5 and 6. The leading edge ribs are installed, then the trailing edge ribs, then the trailing edge spars with the ailerons and flaps.

Joel Shankle has built his wing in this manner except that he did not glue the fuselage frames in place until the wing was assembled and skinned. The primary reason for not installing the fuselage frames early was that Joel felt that they might get in the way during skinning. Joel did install all of the fittings early by clamping the frames to the spars and drilling. I can see the arguments for doing it his way, but still I would like to see the fuselage frames glued in place early.

### **Fuselage Assembly**

Obviously, to do all of the above, you must have the fuselage frames at the time of the wing assembly. While the wing assembly is going on, you may be working on the preliminary assembly of the fuselage.

Many of the lessons that we have learned have come from the "school of hard knocks"—problems earlier builders have had. I would like to see the engine mount and nose gear installed very early. Many builders have waited until the fuselage was assembled before installing the engine mount. Those who had the engine mount lugs already installed on the fuselage frame have found that their measurements did not always match those of the engine mount. Lesson learned: install the lugs on the engine mount and then install the lugs on the frames. It is always best to drill such

holes with a drill press, so this means that you should install these parts before the frame is installed in the fuselage.

Second lesson: install the nose gear before the firewall frame is installed on the fuselage. A number of builders have found that their nose gear was not centered on the nose gear bay. This meant that they had to go at their nose gear bay with a rasp. It is quite obvious to us all that it would have been better to have built the nose gear bay around the nose gear and that the firewall frame could have been accurately positioned so that the nose gear was centered on the aircraft.

In the past, I have harped on the need to install the many pieces for the inside cockpit skin before the fuselage was skinned. The need for all of this is quite obvious, and it results in a much quicker construction if you do this. There is one additional point. I would like to see the inside cockpit skins cut and fitted before the outer skins are installed. I think it would be a good idea to install small alignment blocks on these skins that will insure the skins being installed in the correct location. Four small blocks glued at the four "corners" of the opening formed by the frames, longerons and flooring will allow the skin to be installed in only the correct position. Thus, the skins may be marked for varnishing and scarfed at the required joints. After the side skins are installed, these skins may be quickly installed with a minimum of fuss. If the upper front skin is not installed, the inside cockpit skins may be installed by reaching down from the outside of the airplane. This is a small thing, but the savings in time must be obvious.

### **What's Next?**

In the next few months, I will be working on the construction manual and also on a new set of drawings for the tail group. There are a number of details which have been left to your imagination and these will all be cleared up. I plan to eliminate the drawings for the metal control surfaces. In addition, I will be bringing many of the details which are scattered throughout the plans to one section. This will make the plans much easier to use. For example, all of the airfoil contour information will be brought to one drawing. All of the dimensions needed for a single rib will be shown on the rib drawing.

### **Tail Light Installation and Wiring**

One of the more frustrating details of the tail group is the routing of the wiring to the tail light. I would like to see the tail light installed just below the rudder rib at Sta. 0. This will make the routing of the wiring through the rudder spar the easiest and most direct. There is only a very small "window" for the wiring to enter the fuselage. The wiring must be above the bottom rudder leading edge rib, below the lower rudder hinge bolt and below the lowest fin hinge. This is tight!

The difficult lies in where to install a connector so that the rudder may be removed. Karl Hansen buried two AMP Matenlock connectors in the main fin spar by cutting out the flange of the lowest fin hinge. Since the connector would not pass through the rudder spar, another connector was required aft of the rudder spar, and that required an access door in the rudder.

I have wrestled with this thing and have decided to let it win. I have concluded that the best solution to the connector problem is to eliminate the connector. What I propose doing is installing a terminal block on the forward face of the forward fin spar, just inside the access door. The wires for the tail light will be routed through a plastic conduit. This plastic conduit (3/8" Poly-Flo tubing, already included in the fuselage kit), will be installed just under the channel-nut for the lowest fin hinge. It will be installed at a slight tail-up angle and will daylight at the aft face of the main fin spar. From the fin spar forward, it will be routed down along the bottom center longeron and then up and around the left front of the forward fin spar and clamped above the rudder pulley support (the clamps may be installed on the two 3/16" installation bolts). The wires for the tail light will be extended into a long pigtail which will be fed through the conduit. To remove the rudder, the ends of the wires will be disconnected from the terminal block, and the wires pulled through the conduit. Because of the size of the tubing, it will not be possible to use ring terminals on the wires.

Because of this, I think it would be a good idea to have an access door on both sides of the fuselage at this point. I think it would be rather difficult to install the wires without two hands inside the airplane.

### **Loran Antenna Installation**

A number of builders have requested

that we work on the installation of an internal Loran antenna in the Falco. As in the past, we have worked with Jim Weir of Radio Systems Technology. As it turns out, the installation of the Loran antenna is a very simple affair. The details for the antenna installation are included in our new construction manual. The antenna is a wire (any wire will do) that is run up the aft face of the main fin spar. The antenna coupler will be installed on the forward face of the forward fin spar.

The antenna coupler is sold with the Loran receiver and is matched to that particular unit. The best Loran for the Falco is the Apollo II. This unit is extremely compact, and as a result does not take up a lot of panel space—as most Lorans do. In addition, the Apollo II has a lot of very nice features. To cap it off, RST sells the Apollo II at the lowest price available. I should emphasize that I had already decided that the Apollo II was the best unit for the Falco before I found out that RST carried the unit. We have added the price of the Apollo II to the price list for RST.

#### **Francis Dahlman**

Those of you who have been dealing with Francis Dahlman at Trimcraft may be saddened to hear of a serious accident that happened to him recently. Francis was sawing spruce on his table saw and very nearly cut his left thumb off. He was rushed to the hospital, and the doctors managed to re-attach the poor digit. Francis is recuperating nicely and now has feeling in the entire thumb, but he will not be able to bend the thumb at the knuckle. Francis says that it is remarkable how many things require two thumbs! By the time you get this, the pins in his thumb should have been removed, and Francis will be back up to speed. Francis reports that he has had a real surge in business this fall. Francis normally keeps all of the kits in stock so he can give you quick delivery, but you should be aware of the fact that he makes the wing spars to order, and you should order well in advance.

#### **Instrument Panel Paint**

John Oliver recently asked for the paint that we recommended for the instrument panel, and this reminded me of some things I had been meaning to discuss in the builders letter.

As you may recall from a few years ago when I was working on the design of the instrument panel, I had some comments

to make on the appearance of the instrument panels on most homebuilt aircraft. Many builders were thinking about using a wood veneer. Now I love the appearance of some of the darker woods, but I don't think they belong on an aircraft instrument panel. When I have seen them, they make an already-busy panel look absolutely frenetic. The last issue of Sport Aviation has an article on a modified Swift whose panel veneered of Carpathian elm burl is living proof of my opinion.

I prefer the rich dark grey used on many of the executive jet aircraft. Prior to painting our panel display I went on a search for the best color paint. I settled on a model airplane paint, Pactra 20017 "Asphalt", which is used on model airplane camouflage paint schemes. The paint comes in small cans and is a beautiful color that works very well with the black bezels of the instrumentation. (I tried painting the bezels with the paint ,and it didn't look good.)

Dave Aronson used this paint on his panel, and his came out a little darker than my display panel. One thing that I failed to consider was that when you apply the custom Letraset lettering, you must spray a clear fixative over the panel to protect the lettering from abrasion. The clear fixative had the effect of darkening the panel, although it is still quite attractive. Accordingly, I would suggest going to a lighter shade of grey. I haven't the time to work on this sort of thing right now, but you can check with your model airplane shops for a matte finish grey, or use one of the grey primers sold in spray cans at local paint stores.

Some of you may chuckle at all this little finickyness, but those of you who have seen Dave Aronson's panel can attest that it is one of the best-looking panels on a light aircraft. Dave's panel has a black naugahyde covering to the glareshield, and this extends forward to the windshield to prevent reflections on the inside of the windshield. Additionally, the black naugahyde was glued to the forward, aft and inside surfaces of the windshield bow, and only the outer 1/8" was painted the exterior white. It makes for an exceptionally crisp appearance. The canopy frame and underside of the canopy fairings were also painted with this black Imron, as were the control sticks. The effect is very nice.

There's only one little picky thing. His center console panel is painted with the

"Asphalt" grey. This grey center pedestal extends all the way to the cockpit floor. The center console covers are painted with a dark red Imron to match the red interior. These are attractive, but there seems to be no good place to break the grey color into the red where the center console covers meet the pedestal. This is an extremely minor thing that you don't notice when you sit in the airplane, but one that you might want to consider when you are planning your interior scheme. It might look best if the nose wheel bay cover were painted the same grey color, or if all of the center console covers had the same grey (this would be my choice). One other solution might be to paint the bottom of the pedestal the same color as the center console covers and break the color at the bottom of the quadrant cover. Picky, picky.

#### **Syd Jensen Next?**

It looks like Syd Jensen will be the next to fly. Syd lacks only the cowling and engine baffling, both of which should reach him before you get this letter. Look for Syd to fly around Christmas or shortly thereafter.

#### **Then John Harns...**

John Harns should be the next to fly. John will be receiving his cowling at the same time, so I hope John will get his Falco flying before the next builders letter is out. Jim DeAngelo could fly at the same time, but Jim has built a previous airplane and seems content to let me work out all of the little details.

#### **And Then?**

Jimmy Shaw must fly by March since he gets transferred from his present assignment with the USAF at that time. His Falco may have more than the usual consignment of baling wire in it.

Then there is Tony Bingelis who should fly this spring. Tony name, by the way is pronounced "BING-e-lis", not "BINGEL-is" as most people think. It's a Lithuanian name—not Mexican—and he has a Massachusetts accent to confuse matters.

Peter Oriani, a Falco owner from Italy, was through here last month and spend the day. Peter loves his Falco. "The Falco is a butterfly", he said, comparing it to the SF. 260. Peter said that he had heard that Herbert Müller had finished his Falco but had not flown it yet. Herbert sends me a photo every year or so with a very brief description. I wrote Herbert

the other day and hope to hear about his Falco shortly.

### **Oshkosh 85**

It's not too soon to start making your plans for the Oshkosh show. My mother was in Italy a few months ago and visited Mr. Frati. She said it was the highlight of her trip and said that Mr. Frati and Renato Cairo of his office were both planning to come. We will all be staying at the Paper Valley Inn at Appleton, which is the nicest hotel in the area. Make your reservations now since they are usually booked by January 1.

The dates for the Oshkosh show have been changed. It is now a Friday to Friday event. The show opens on July 26 and ends on August 2. We will have our annual Falco builders dinner on Tuesday, July 30, so make your plans now to see Tony Bingelis in his hand-embroidered Falco dress shirt!

If you've never been to Oshkosh, I would advise arriving Sunday evening and seeing the show on Monday, Tuesday and maybe Wednesday. The first weekend is usually too crowded.

### **Exhaust System**

In our last builder letter, I mentioned that the exhaust system on Dave Aronson's Falco was close to the cowling. The exhaust pipe is about 1/2" from the cowling at one point on each side. The cowling must be insulated from this, and I suggest that you install a small piece of stainless steel on the inside of the cowling for this purpose.

John Harns wrote that he was going to order the exhaust system but wanted to hold off on this until I had come out with a change to the system. At this time I do not have the time to devote to such a change. I do not regard the situation as a problem that requires a fix. The 1/2" clearance is the same clearance that we have on the baffling. It is a very major operation to work out the changes to the exhaust system, and I don't think there is much room to move the system anyway. As it is, we have the tailpipes about as far inboard as we can get them. If we raise the tailpipes, we will be bringing the cross-over tube closer to the oil pan. As it happens we plan to use this tube for the heat muff. Between the heat muff and the oil pan, there is not a lot of room, so I don't envision making much of a change there.

We could have made a change to the

shape of the cowling. This would require that we extend the exhaust fairings forward by about 6 inches to get some additional space for the exhaust pipe. This would not add to the appearance of the cowling. It is my view that you builders would rather live with a close pipe than an ugly cowling. So... there won't be any changes to the exhaust system any time soon, and I doubt that I will make any change at all.

I have the hope that the production cowling will clear the exhaust pipe by a little more than it did on Dave Aronson's Falco. The reason for this is that the cowling on Dave's Falco was a pre-production cowling that was snatched prematurely from the mold. The joggles on his cowling did not fit well with the result that the upper cowling was pulled down excessively. I am suspicious that the lower cowling was also pulled up slightly at the same time. If that is the case, then we have some hope for greater clearance with the production cowlings.

Dean Cochran will be making one small change to the exhaust system. Originally, we planned to have the exhaust tailpipes welded to the ball joints. Because of difficulties in accurately jiggling the exhaust system for the correct position of the ball joint (and therefore the position of the end of the tailpipe), Dean will be shipping the exhaust systems with a clamp joint at the ball joint. This will allow the builder to adjust the length of the tailpipe as necessary. Instead of welding the tailpipe to the ball joint, the tailpipe will be held in place with a clamp and a clevis pin. The clevis pin drops in a hole and is trapped in position with a clamp.

### **The Cowling**

At long last, we have completed all of the work on the cowling. We will have made the first shipment of these cowlings by the time you get this letter.

By my calculations the cowling will require a small blister for the right front cylinder for the 320 series engines. Dave Aronson's cowling did not have this blister and apparently he is able to do without it. On the first cowling door we supplied, we had a blister on the door. It was too large and extremely ugly. Since the door was inadvertently cut too short it was replaced. The new door did not have the blister.

The cowling for the 180 hp 360 series will require blisters for both front cylin-

ders. In the interest of time and keeping builders happy (everyone wants to avoid blisters) we are not installing blisters on any of the cowling doors at this time. We will leave it up to the first few builders to install what minimum blisters are necessary. Following that, we may install the blisters that are necessary.

The cowling kit came in at \$1,632.00. The fiberglass parts come to \$976.00, about half of which is tooling amortization. The rest of the cost of the kit is made up of the many metal pieces: the hinges, hinge support angles, cowling supports, exhaust port horns, exhaust port shields, landing light lens and hardware. We now have the cowlings in stock but are still missing the landing light lens, exhaust port shield and exhaust port horns.

### **The Baffling**

We have also shipped the first two sets of the engine baffling kits to Jim DeAngelo and Syd Jensen. Jim DeAngelo is using the 160 hp IO-320B1A, while Syd Jensen has a 180 hp IO-360B1E. We had hoped to install a pre-production prototype baffling system on Dave Aronson's Falco but a breakdown with the computer-controlled milling machines prevented that. The baffling system for Dave's Falco was made of sheet metal cut by hand. As such, it did not prove out that all of the dimensions on the drawings were correct relative to each other.

To prove out the dimensions, we have run a series of five baffling kits for the 320 and 360 series engines. So far, the errors are extremely small, and I doubt that anyone would notice them. I am very confident of the fit with the cowling, but I would still like to see this confirmed. Some of the parts for the baffling have been run in full quantities, but for most of the parts we have only run 5 parts.

I would prefer to ship no additional baffling kits until we have the steel rule dies for the rubber baffle seals made up. If we get quick feedback from Syd Jensen and Jim DeAngelo, we should be able to ship the baffling kits by the end of January. If you must have the baffling before then, let me know and I will cut out the seals by hand.

### **New Drawings**

We receive a number of inquiries regarding drawing sheet A26 and A27. These drawings have been finished, but we have not shipped them yet as

we are waiting until we have a large enough package to send at once. For your information, sheet A26 covers the pitot-static system installation and sheet A27 shows the vacuum system installation. In addition, we now have two new sheets, A11E Engine Baffling Installation and A13E Cowling Installation. These drawings will replace the tail group hinge installation drawings, which details will be moved to the tail group drawings.

### Articles

Most of the magazines have carried photos of Dave Aronson's Falco. Jack Cox of Sport Aviation did a long interview with Dave Aronson at Oshkosh and will run an article on the plane sometime during the course of the year. Steve Wilkinson was here recently doing a story on our operation and that article—including some photos on Joel Shankle's Falco—should appear shortly in Pilot magazine in England. We have somehow let our subscription slip, so I would appreciate an extra copy that anyone has. Steve is formerly the editor of Car & Driver and twice the executive editor of Flying. Steve plans to start construction on a Falco this spring.

Beginning with this issue we will have a new feature, Brenda's Corner. Many of you have found out that Brenda is the real reason that things get done around here! She is a valuable addition to the team and you will find that Brenda is the best one to contact if you are missing a part from one of the kit, corrections on invoices, etc. My office is usually a rat's nest of stacks of paper and drawings, none of which I ever seem to conquer. With all that I have to do, I sometimes drop the ball on little details. Brenda is also handling a lot of the calls we get and this frees me up to get on with the other work that I have to do.

Due to the hectic schedule around here, we won't be getting any Christmas cards out this year. Merry Christmas to all of you and may your Falcos fly in 1985!

## Brenda's Corner

Alfred has invited me to say a few words starting with this issue, and since I'm sure none of you have ever known a woman to pass up that opportunity, I will take him up on his invitation.

Before I came to work here, I had no idea that people actually built their own airplanes. I suppose I thought you could only get an airplane from a factory cabbage patch, or something. In the past months, I have become fascinated by the entire business. Even with my limited knowledge, it quickly became obvious to me that the Falco was something special. Alfred, being the unprejudiced person he is, thought it would be a good idea for me to go to Oshkosh so I could see the competition first hand. He tried to prepare me for what Oshkosh was like, but he was talking to someone who had never even been to an airshow. Well, Oshkosh was something else. I loved it! What a thrill it was to see Dave Aronson's Falco and it was especially nice to be able to meet a number of Falco builders. It makes my job so much more interesting now that I can put a face with a name. And most importantly, I discovered that Alfred was absolutely right, the Falco outclasses any other homebuilt airplane (and some others too).

Please be sure to notify us of any address/telephone changes. We constantly have potential builders asking us for builder names and telephone numbers. If you have a preference as to where they contact you (home or office), please let me know.

Some of you may have noticed that we are no longer sending UPS orders freight collect. Instead we are notifying you of the charge when we send your invoice to you. I hope this makes getting your orders a little easier.

If any of you have any suggestions as to how I could assist you, please let me know.

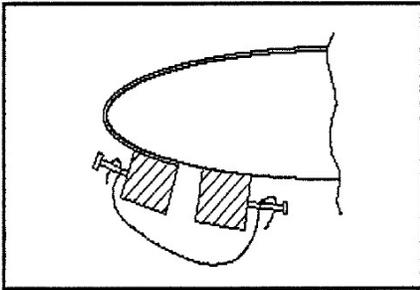
Merry Christmas!

—Brenda Avery

## Tool Talk

Karl Hansen reports that the #1 tapered reamer specified for the taper pins in the retraction system is too small and that the #3 reamer is correct. This is the first we have heard of this and the #1 reamer is specified in the hardware manual we have. We are surprised that no one else has had this problem and would appreciate hearing from anyone on this.

In our last builder letter we discussed the method that John Oliver used for clamping on the leading edge skins. Karl Hansen has come up with a nifty method using 1" wide rubber bands made by cutting an inner tube into strips.



*Karl Hansen's Leading Edge Clamping Method*

When gluing on the skin over a leading edge, Karl glued a piece of 1"x1" piece of scrap wood the the plywood, which had extra overlap for the purpose. A series of nails were driven into this strip to hook the rubber bands over. Another strip of wood (again with nails) was clamped and nailed to the ribs to give him something else to hook the rubber bands to. To bend the plywood, Karl soaked the wood and then strapped it in place with rubber bands. The rubber bands pulled the plywood down into place. When the wood was dry, Karl used the same method to glue on the skin, then cut the extra strip off. The nails were spaced every 3 or 4". See illustration above. In the illustration the rubber band is drawn by a single line. Also, you can see the quality of the computer type of printing of this simple sketch.

We have failed to point out the need for transfer punches in the past. A transfer punch is a specialized type of center punch, but it exactly fits inside a hole. If you have already drilled a hole, say 1/4" diameter, and want to drill a matched set of holes through another piece, you would use a 1/4" transfer punch which would center-punch the exact center of the hole.

Transfer punches are used any time you are drilling through wood into metal. The six anchor plates on the aft face of frame No. 1 and the three seat belt anchors on the forward face of frame No. 6 should be drilled on a drill press after using a transfer punch to locate the holes. If you do not use a transfer punch, you run the risk of having the drill wander on you. This happened to Joel Shankle recently on the installation of the nose gear upper drag strut supports. You will need a 3/16" and 1/4" diameter transfer punch. You should be able to get one at a local machine shop supply company, or you could order them from Travers Tool.

## Roll Call

This report respectfully submitted by son, David, who is logging construction whilst Father completes his retirement home (including built-in 40'x40' Falco workspace). I am progressing rapidly toward completion of hinges, straps and fittings. What with a new builder (Howard Kahn) in the immediate vicinity, it will be a challenge to keep pace with his progress and vice versa. I anticipate, as my next project from H.Q. acquiring and rebuilding a run-out IO-320 160 hp engine.

*Garlington and David Wilburn*

All wood components, except main spar made, fuselage & tail section assembled and sheeting commenced. No construction problems met. Biggest problem is cowboy Reagan's interest rates kicking the hell out of the European money market and effectively doubling the cost of your kits. In two years of building the dollar to pound has gone from \$2.20 to \$1.24!!!

*John Anziani*

1001 reasons for not yet starting project. Talking with several builders at Oshkosh, it seems that the hardest part is the "go" decision. The Falco at Oshkosh was a sight to behold. We all owe Dave our thanks for pushing so hard to get it to Oshkosh even though it still needed some "fine tuning" to become the show-piece it really is.

*Clarence R. Zink*

Since 2 finished ribs and fuselage frames took summer off to build a work area on my house. Just ordered wood for spars. Keep up the terrific job.

*Gary Rene*

Wing and tail ribs 99% complete. No progress since returning from Saudi Arabia in July 1984 due to lack of time and other commitments. Timber for fuselage frames received—will start on these early 1985 (hopefully).

*Martin Bennett*

Flaps and ailerons are still one piece but all bottom skins are on and everything still straight. I finally decided to manufacture them in the wing, and it is working out fine. Originally, I didn't think I could put the 2mm bottom skin on before the curved top skin but with the rubber strapping, which I will use I won't need clamps on the leading edge. At this time I am happy with the flap situation. Gear and retraction: with the wheels retracted level, which looks high enough, the retraction mechanism worm and gear is about 1/16" too long to allow the gear to be drawn up that far. I corrected mine by machining about 1/8" off from the universal joint and bushing. Also, I put the brake cylinders forward to eliminate interference with the No. 5 fuselage frame. By the way, I've seen several Falcos with the gear retracted, and they are not up to a level position. I think for two reasons: interference with the brakes and/or the retraction mechanism slightly long. I am amazed that the early builders haven't fed back more information.

*Karl Hansen*

## Mailbox

I think I have solved the problem I had with the flap torque tube center support. When I got the modified support from the weld shop, I rechecked everything before final installation. I found the torque tube was bent. This probably occurred when I operated the flap actuator with my fingers on the rubber coupling. I had measured the center support (57mm) height with the bent torque tube in place. Using the string method, I measured 61mm. The 4mm difference (61mm vs 65mm) can easily be explained by slight inaccuracies in installing the bearing supports at ribs No. 2 and the location vertically of the 20mm spruce support.

Another suggestion for your construction manual is presented for your consideration. I installed the spruce mounting blocks (those with the lightening holes) on the 10x20 stringers very early in the game using the dimensions given on sheet A19. The aft tank did not fit and I had to do some arduous trimming of the blocks in place.

I believe it would be a much better procedure to support the aft tank in place with belt clamps and temporary blocks. Then measure for the correct block dimensions and make the blocks to fit. The blocks could then be test-installed and then glued in place.

I am now skinning the Falco fuselage (ambient air temperature permitting) and should have it cut in half and inverted in time for Spring weather.

John Oliver  
Wilmington, DE

*I agree with John's suggestion. The dimensions for this block were taken from a production Falco. I have not checked the dimensions and plan to work out the final dimensions. Until I do, I suggest a trial fit before gluing as John suggests.—Alfred Scott*

I ordered the Falco plans and then spend the next 10 months studying them, in fact, this intense study led to a state of near panic. I was committed to build this aircraft, despite the fact that I possessed none of the

skills that many homebuilder have. I could not stop studying because I would then have to start construction. In other words, study was an excuse to avoid getting started. I was confronted with a situation that I felt I could not overcome, I could not get started. For reasons unbeknownst to me, I went to the workshop and worked feverishly for the next twenty-five days and completed the tail ribs. I realize now, that the wooden canoe that I built while studying the plans was simply an excuse to avoid getting started.

After finishing the tail ribs, I went into another state of procrastination. I could not get started on the wing ribs. I started to study again and went into a mild state of depression. After about two weeks of this, again I suddenly started to work and completed rib 1 and 2 with very little difficulty... my jig board was large enough for two ribs. After completing the first two ribs, I got into the doldrums again. While agonizing the beginning of construction of ribs 2-1/2 and 3, I began to realize something. Each time that my actual construction is interrupted, for any reason, I go dormant for a couple of weeks and have great difficulty getting started again. I built another jig board and began construction of ribs 2-1/2 and 3. While these two ribs were under construction, I started ribs 4 and 5 on the other jig board. When 2-1/2 and 3 were complete I started 6 and 7 on that board. In other words, I did not allow myself to reach another point or plateau that I had to get started gain. My problem had been solved. Now I try to keep at least three projects or areas of construction going at one time.

I feel that a potential Falco builder's greatest problem is getting started. Once this problem has been overcome, keep working, arrange jobs in an overlapping manner. When one area is completed, another area is 2/3 complete and another area is 1/3 complete, then start another. Each time a job is complete and another start-up is required, it is more difficult, and, in my opinion, will eventually terminate construction in a surprisingly short period. Make it easy, start only once.

Jerry Ward  
Greensboro, NC

I have heard consistently from many builders that the single most difficult part of building a Falco is getting started. Many builders have no problem, but this problem strikes many builders. It seems that T. Roosevelt was right when he said that "the only thing we have to fear is fear itself". If you want to build a Falco, then get the required materials or kits and put them together. Do something, even if it's wrong, but do something!—Alfred Scott

Thanks so much for sending the photos of the first Falco built in the U.S. What a beauty! And what pleasant memories it stirred in me.

What is this GP-4 clone? It looks like a Falco with the sex appeal left out. The panel is rudimentary and the gear retraction goes back to early Mooney. Has he no shame? And "borrowing" from a fellow Italian too!

Charlie Yates

Many of the early builders will remember Charlie Yates who helped me so much in the beginning. Charlie had rebuilt a Falco in Europe and knew all of the intricate working details of the Falco.

Charlie was in the process of restoring another Falco—a basket case he had shipped back from Europe. During all this time he was President of Yates Industries, a leading manufacturer of copper foil for printed circuits and a New Jersey state senator. Charlie kept the busiest schedule I've ever seen. One day he was in Yugoslavia, the next day in Japan and the next back in New Jersey spending 2 hours with me on the phone on some piddling little detail I didn't understand... then off as a member of the U.S. delegation to Tito's funeral.

Charlie's Falco involvement came to a halt when giant Square D company purchased Yates Industries. The price was right so Charlie "let them have it". Charlie threw himself at the new job with Square D and in a period of a year or two emerged as the Vice Chairman of the Board. The Chairman was seventy, and no one would tell Charlie when he was going to retire. Faced with an indefinite period of playing second fiddle, Charlie walked away from it all.

Charlie can now be found riding the Boston city bus to class with his books on his lap. He's at M.I.T. taking a degree in Quantum Mechanics ("just curiosity") something he never understood. It's nice to see the good guys win.—*Alfred Scott*

Once again the winter 'chores' are done and its time to get on with the Falco. My hat's off to you for all the help you gave to Dave to get him to Oshkosh. I'm really disappointed in *Sport Aviation*, not a picture, not a story, not even any mention, how come?

*John Harns*  
St. Maries, IX

*Dang if I know. Let me know if you find out.*—*Alfred Scott*

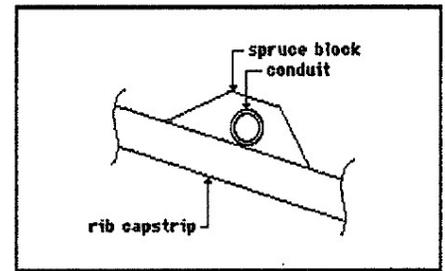
## Questions & Answers

Q: Do the washer head screws that attach the engine mount anchor plates to the fuselage fit on the outside of the plywood skin? I assume they do but want to be certain.

A: Yes. All of the production Falcos had the screw head on the outside of the fabric as well, probably for easier replacement if necessary.

Q: If plastic tube conduit is installed for the wing tip lights, what size tubing is needed? How frequently are clamps installed to support the tube?

A: The conduit is 3/8" O.D. Poly-Flo plastic tubing. We supply 26 feet of this tubing in the wing equipment kit. Support the tubing at every rib. To support the tubing you may use hose clamps, nylon tywraps or wood blocks as shown in the illustration below.



Conduit Installation