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F.8L FALCO PRODUCT LETTER

INTRODUCTION

This product letter has been prepared to supplement the information in the Falco brochure, to answer frequently asked questions and to provide up-to-date information since the Falco brochure is printed in large numbers and is not easily revised.

STATUS OF PLANS

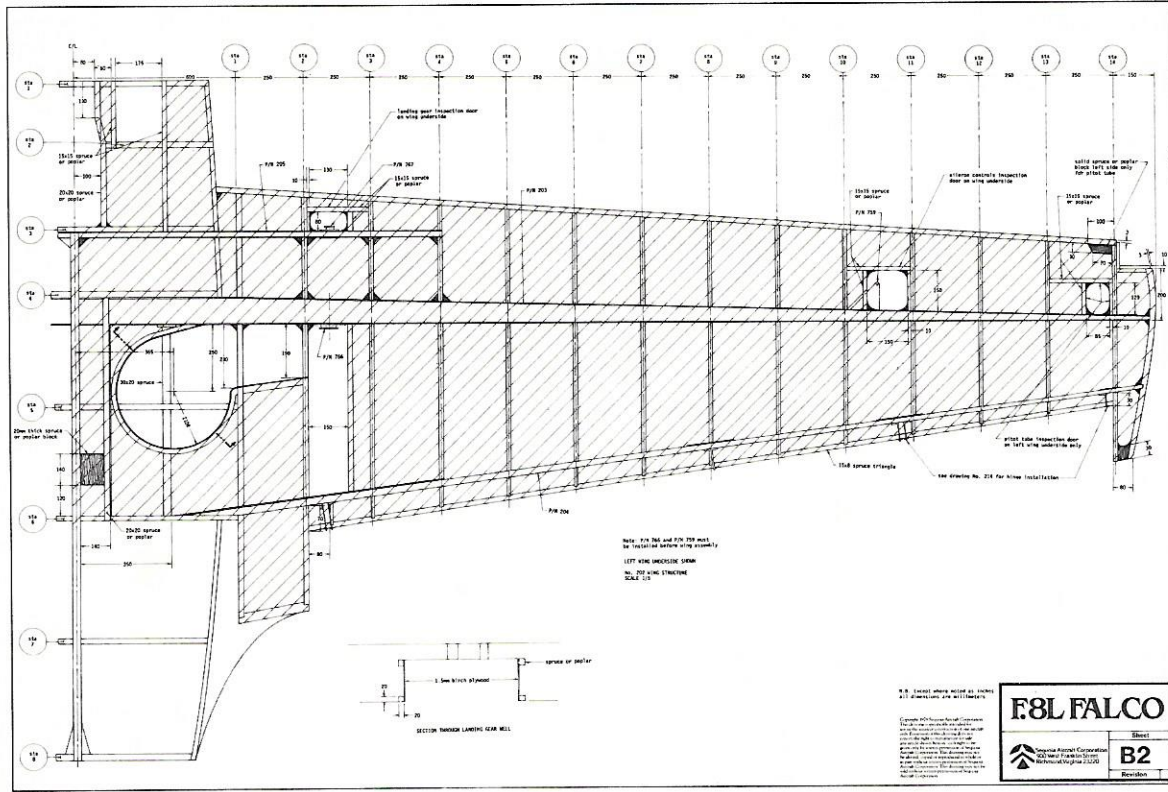
The original plans for the Falco were drawn on approximately 250 individual sheets, all of various sizes. It was completely impracticable to attempt to print the plans as they were originally configured, due to the high cost of printing them and the obvious problems of handling such an enormous number of sheets. Many of the drawings were quite old and as a consequence, they were badly faded. Additionally, the plans were noted in Italian, and the "language of lines" used on the drawings is not the same as most Americans are used to and might present a problem in interpretation by the builder. Accordingly, the plans have been completely redrawn.

This redrafting has been an enormous task, and it is not complete at this time. Each of the the drawings are carefully redrawn with ink on mylar with all notes and dimensions typed for best legibility. All of the information contained on the original plans has been retained, and the plans faithfully copied. In some cases several smaller drawings have been combined on one large sheet, but the information is the same as in the original plans. Most of the smaller drawings will be printed by offset and sent to you in a notebook. When complete, we expect the Falco plans to total about 80 large sheets and about 150 smaller printed sheets.

There have been some minor changes in the plans. When the Falco was first built, it was built in a "production run" of ten aircraft. It is difficult for most of us in the U.S. to appreciate how little the Italians had available to them. While a standard AN44 eye bolt is readily available to all homebuilders in the U.S., the Italians made their own! The Falco plans had a number of such things, and we have revised the plans to incorporate off-the-shelf items. As a result, a considerable amount of work has been taken out of the airplane. All plan changes have been approved by Mr. Frati.

Also the plans for the Falco are metric. All that is required of the builder is that he buy a metric ruler. When a dimension is a nominal English measure size, then it is given in inches so that the builder need not do any conversions. Anyone who is skeptical about working with metric plans (as we were) will find them much easier to work with than English measure since you are almost always dealing with whole numbers.

At this time the plans for the fuselage, vertical fin, rudder, stabilizer, elevator, wing, flaps and ailerons are complete. The remaining plans should be ready by the end of July and will be released as they are completed. Since we knew a lot of builders would be interested in starting now, we have decided to release the plans now, and we will forward the other sections of the plans as they are complete.



Sample Plans Sheet

CONSTRUCTION SUMMARY

FUSELAGE: Fuselage frames are laminated bows of wood reinforced with plywood, blocks and cross braces. The bows can be made in (or over) a form or on a jig board with blocks like a rib. A lot of time would be saved by purchasing the fuselage frames (or at least the bows alone) as a finished item from a supplier. When completed, the fuselage frames are placed on a simple jig, which is shown in the plans. Longerons and other braces are glued in place, and the skin fitted. The compound bends in the skin on the fuselage are formed by wetting the plywood and clamping it to the frames, and the skins are glued in place when dry. The Falco fuselage is made in two parts, a center section and a tail cone, making it easy to build and store in a small shop. If desired, the fuselage may be made in one piece.

WING: The Falco wing has a one piece main beam of box spar construction. The spar is roughly 26 feet in length and must be made on a flat surface. The main wing spar requires many clamps and a simple jig to hold the spar caps in position as the laminations of spruce are glued in place. The main wing spar is the most time-consuming part in

the airplane to make. Aside for the patience and care demanded of all parts, the spar is simply the largest part in the plane and requires more room, clamps and work, but there is no special difficulty factor -- just more work. Wing ribs are truss type ribs made on a board like any aircraft modeler has done -- not a difficult task at all, and most builders find that they can turn out two ribs in an evening once they get the hang of it.

FIN AND STABILIZER: Just a scaled down and simplified version of the wing. The beams are quite simple and easy to make and the ribs are modified truss type ribs with a plywood facing on one side and gussets on the other.

EMPENNAGE: You have a choice of wood or metal. The wood ribs are solid spruce and are sawn out to shape, sanded and glued to the simple beams. The leading edges are covered with plywood for torsional stiffness and plywood is used in strips on the trailing edge ribs and trailing edge. Fabric is doped on, and no stitching is required. The sheet metal empennage is standard with a single spar, and leading and trailing edge ribs. Only the rudder beam construction is out of the ordinary, and it must be formed on a form block instead of a brake. The choice of construction is up to the builder, and it will usually be a matter of what the builder is most comfortable working with.

HINGES, FITTINGS, ETC: These parts vary in degree of difficulty. Those of you with machine shops available would find the work quite simple. The experienced builder could do the work in his own shop, but the vast majority of builders would be best advised to purchase these parts from a supplier.

LANDING GEAR: This is sophisticated work requiring a machine shop and welding. The work can be easily accomplished by any machine shop, but most builders will find it cheaper to purchase the parts from a supplier who is making the parts in quantity.

FORMED ACRYLIC: The canopy and windshield can be done by a homebuilder, but we recommend purchasing these from a supplier for best optics.

ENGINE MOUNTS: Due to the jiggling requirements almost every homebuilder buys an engine mount from a supplier, and that is what we recommend for all Falco builders.

KIT SUPPLIERS

It is not our intention to get into the kit business with the Falco, principally because we have enough to keep our hands full with the Sequoia and Kodiak kits. Instead, we will be working with suppliers, appointing them the exclusive suppliers of certain kits. We will be giving them the exclusive right to produce certain parts mainly to insure that there is a meaningful market for each of the suppliers. At this early date, we have just begun to work with the suppliers, and we will keep each builder up to date on the availability of kits through the Falco builder letter. Purchases of the kits will be direct from the supplier, and there are no "side deals" for royalties to Sequoia Aircraft.

WOOD KITS: Bellanca Aircraft Corporation has expressed an interest in producing kits of the more difficult wood parts in the Falco. Bellanca has extensive experience in wood aircraft construction, and their wood shop that builds the wing for the famous Viking would be making the kits for the Falco. A final decision on producing Falco kits

will not be made until mid-summer and will be dependent on the number of builders who express an interest in these kits. Builders are asked to complete the application and indicate their interest in kits. At this time, it appears that the wood kits that would be offered first would be (1) the main spar, (2) complete fuselage frames and (3) fuselage frame bows, requiring completion of the frame by the builder.

LANDING GEAR, ENGINE MOUNTS, AND MACHINED COMPONENTS: These Parts will be produced by Underwood Aircraft Corporation of Gardena, California. This company makes many of the parts for the Sequoia, including the formed sheet metal parts for the wing and complete welded fuselages. Additionally, Underwood Aircraft produces kits for the TA-16 Trojan amphibian. This company does superior work at a reasonable price, and builders of the Sequoia and Trojan aircraft have been delighted with their work. Prices for many of the parts will be available in July, and some parts will be on display at our booth at Oshkosh.

FIBERGLASS PARTS: Fiberglass cowlings, nose bowls, and assorted fairings will be available from Fred Jiran Glider Repairs in Mojave, California. This company is renown for its superior workmanship and produces parts for the Sequoia as well as a number of other homebuilt aircraft. These parts will require expensive tooling and this tooling must be made before the parts are produced. Because few builders will need these parts in the next year, the parts will not be made until a number of aircraft are nearing the point in construction when they are needed.

FORMED ACRYLIC: Formed plexiglass windshield and canopies will be available from The Airplane Factory, Inc. in Dayton, Ohio. This company has a reputation for excellent optics. The Swiss firm of Mecaplex has also expressed an interest in providing canopies and windshields for European builders. They would need an initial order of 10 to 15 canopies and windshields to arrive at a reasonable price. Mecaplex supplies the canopies for most of the German sailplanes, and they are world renown for their superb optics.

FORMED SHEET METAL: No supplier has been selected at this time. We will want to know from the builders if they would like to have these parts made for them, or if they will use the wood and fabric empennage.

CONSTRUCTION SEQUENCE

We ask that all builders try to follow the same sequence of construction and begin work on the woodwork in the wing, fuselage and tail first. This way we can keep everyone working together, and the faster builders can pass on their suggestions on construction to the other builders through the Falco builder letter. This will also make it easier for the kit suppliers as the flow of parts will be more predictable. If you prefer to have your fuselage frames built by a supplier, then you should begin with making wing or tail ribs -- or some other easy task. We know from experience with the Sequoia how important it is to have all builders following the same general construction sequence, and builders who charge off on their own usually find themselves making costly mistakes.

BUYING A FALCO

The British-registered Falco, G-AVUJ, which is featured in our literature is offered for sale by its owner, Mr. Michael Shield, B. H.

Shield & Co., 78 Cross Hill, High Street, Ecclesfield, Sheffield S30 3WU, England (telephone: Ecclesfield 2104/5). The aircraft is a Laverda Series IV Super Falco, 450 hrs TT with 160 hp Lyc O-320-B3B with 1/2" valves and constant-speed prop. Equipment includes 2 nav/coms, ADF, TPX, intercom, MKR and strobes. Offered at 14,000 pounds sterling (about \$28,000) the aircraft can be ferried to the U.S. Interested parties should contact Mr. Shield direct. After selling the Falco, Mr. Shield plans to buy an SF.260, and he is quite choosy about who he sells the Falco to.

QUESTIONS & ANSWERS

Q: Could I install a Lycoming 180 hp or 200 hp engine in my Falco?

A: You could, but we don't recommend it for a beginner. These engines are a little heavier than the 160 hp engine, requiring the airplane to be rebalanced, and the airplane should be placarded to slightly-reduced g limits. There is also a problem of getting everything to fit, and you will have to work it out on your own. While the production Falcos never used the larger engines, one aircraft was modified to accept a 180 hp engine, and the plans for the engine mount are included in the plans. A 180 hp Falco would be about 2.3% faster than a 160 hp Falco, and 200 hp would give an increase of about 2.9%.

Q: Would it make sense to consider a turbocharger?

A: Possibly. Putting a turbocharger in an airplane will normally give you an increase of about 14% with your new maximum cruising speed up where you will need oxygen. You cannot expect this sort of improvement in your Falco, since the exhaust is already working for you thrusting to the rear through four exhaust pipes; so you will probably get only 5 to 10% improvement in maximum cruising speed, while sacrificing some low level performance due to the extra weight of the turbocharger and oxygen system. Unless there is some over-riding need for a turbocharger, we would advise against it.

You can increase your altitude performance by installing nozzles on your exhaust pipes. These NASA-developed devices have the effect of raising your maximum cruising speed and your best cruising altitude -- typically from 8,000 feet to 11,000 feet. Based on the same technology that brought about the variable nozzles on jet fighters, the nozzles are only effective on aircraft like the Falco, which make use of the thrust available from the exhaust.

Q: Can I certify my Falco in the Standard Category, as opposed to the Experimental category?

A: Not at this time. Although the Falco is a certified aircraft, the FAA will not presently license it in the Standard category. The reasons given by the FAA are ridiculous in the extreme, but there are minor technical problems with the language of the regulations -- on which the FAA bases its refusal. We would like to see this changed, since the idea behind certification -- safety -- is not served.

Q: I live in a foreign country with restrictive regulations on homebuilt aircraft. Will I be able to license a homebuilt Falco in my country?

A: Depending on the country involved, most countries have some minimum requirements which are abbreviated certification-type requirements. Since the Falco has been certified (and is well-known in

Europe), you should have very little difficulty in even the most restrictive country. Contact your local aircraft regulatory body, and if they have any questions, we will be happy to assist.

Q: What sort of help can I get from Sequoia when I am building?

A: A lot. We make a point of answering all letters from one of our builders the same day it is received. Most of your questions will be answered in the construction manual, which will be updated to include those things that continue to confuse the builders.

Additionally, we will provide a Falco Builder Letter at least bi-monthly. Initially, this will be free, and we hope to keep it that way, but we may be required to have a nominal charge in time to cover expenses. In time this will be expanded to include a Falco Register, a listing of all airworthy Falcos, their equipment, and the value the owner puts on the plane or the asking price if it is for sale. Actual sales will also be reported. This sort of thing has been done with other aircraft, and it has a remarkable effect. Frequently the owner of a rare aircraft has little idea of its real value and tends to sell too cheaply. With the Falco register, all owners will know the value of their aircraft and no one will be giving one away at too low a price -- which helps everybody.

We will also have maintenance manuals and flight manuals available by the end of 1979 at the very latest. We have the manuals for the production Falcos now, but we would like to set new type and redraw some of the drawings for clarity.

Q: I have some ideas for modifications to the Falco structure. Will this be permitted?

A: Yes, but you may not sell or give the plans for your modification without the express written consent of Sequoia Aircraft. If you have a good idea that passes muster with Mr. Frati or another aeronautical engineer we like, then we'll gladly give you permission to sell or give your idea to others, but we are dead-set against the many half-baked modifications we have seen developed and sold by amateurs. If you have a good change you will find us easy to work with; but if it's not sound in our view, then we will be tough about it. This applies only to structural modifications and does not apply to cosmetic changes which do not affect the strength of the aircraft. We would prefer to avoid lengthy correspondence with potential builders concerning their modification proposals since we have found that the more a potential builder talks about changing a design, the less likely he is to build anything.

Q: Will there be any "Airworthiness Directive" notices issued by Sequoia Aircraft?

A: Yes. We will maintain a complete list of all builders, and promptly notify you when a problem comes to light and when we know of the solution. Since your Falco will be issued an Experimental airworthiness certificate, these notices will not be mandatory in the eyes of the FAA; but we would encourage you to treat them as if they were mandatory.

Q: I don't have the time to build a Falco. Could I hire someone to build one for me?

A: It's not entirely within the spirit of the law, but it is done all the time. The FAA is mainly concerned with safety, and most inspectors are happy to see the critical assemblies done by a top-notch

workman; however, if your project started to look like a small production line, you could expect some trouble. The worst that could happen to you is to be licenced in the Experimental, Exhibition category, where the flight restrictions are virtually identical to those for the Experimental, Amateur-Built category.

Q: Is the Falco suitable for competition aerobatics?

A: Yes. The normally-equipped 160 hp Falco with an inverted fuel and oil system would be highly competitive in the Sportsman and Advanced category.

To be competitive in Unlimited World-Class competition, the Falco would need to be stripped of all unnecessary weight including the electrical system (battery, alternator, starter and wiring), all avionics, flap and landing gear motors, most flight instrumentation, the passenger seat and the rear tank. In that stripped condition and with a 200 hp engine, the Falco would have a power/weight ratio of about 6.7 pounds/horsepower -- similar to that of a Pitts S1. A Falco so prepared would probably be suitable for the most advanced aerobatic contests -- and monoplanes have been the winners in the last two World Championships -- but the ability of the Falco to win in world-class aerobatic competition must be characterized as an interesting speculation until it is proved. It's clear that a Falco so prepared would be an incredibly exciting and thrilling airplane to fly -- but there are structural and aerodynamic improvements that should probably be made for contest flying.

Most production aerobatic trainers are in fact only semi-aerobatic when both seats are full. Like the Zlin, the CAP-10 and the Pitts S2A, the Falco is a completely aerobatic aircraft for two. As an aerobatic aircraft, the Falco is unique in also being a superb cross-country aircraft with speed, efficiency and comfort.

Q: How safe are homebuilt aircraft?

A: The accident rate for homebuilt aircraft is exactly the same as those of production aircraft. Interestingly, the great majority of the accidents of homebuilt aircraft are powerplant-related, caused by inadequate maintenance by the builder, the use of run-out engines in need of overhauls, and the use of converted automobile engines. In general, the airframes of homebuilt aircraft are built with greater care than any factory-built aircraft.

Q: Can I get insurance on my Falco?

A: Yes. In view of the fact that the accident rate of homebuilt aircraft is no different than that of production aircraft, a number of companies are not only insuring homebuilt aircraft but are actively seeking the business.

Q: What could I do to improve the speed of my Falco?

A: There are a number of things you could do. You can fill and block-sand the wing like contest sailplane pilots do, and this can give you a substantial reduction in wing drag. You can install wheel well doors -- these have been designed and were installed on the first series of Falcos but were not installed in subsequent production series. You can seal the canopy and engine compartment for unwanted air leaks. Leaks are a little-known contributor to drag, accounting for 10% of the drag of some aircraft. You can use individually tuned exhaust pipes directed to the rear used on the earliest production Falcos. You can install exhaust nozzles for increased performance with altitude. You can seal the ram air carburetor intake so that the the device works as

designed -- rather than leaving a 2 inch gap between the scoop and the carburetor intake as was done on the later production Falcos! You can also install all antennas internally. Careful workmanship will pay big dividends in speed, and a host of little perfections will pay off in speed as well as pride of ownership. The 150 hp Falco of Luciano Nustrini is an excellent example of the speed that the Falco is capable of when it is cleaned up. His airplane has been timed at 228 mph.

Q: I don't have a pilot's license yet. Would it be practical to take my flight instruction in my Falco when it's completed?

A: Very definitely. Aside from the substantial savings in not having to rent an aircraft, you'll become a better pilot if you learn in a high-performance aircraft. After all, that's the way most military pilots are trained. You'll also benefit from learning in the same plane that you will be flying later on.

CONTACTING SEQUOIA AIRCRAFT. We will be happy to assist with answering any questions that you might have, but we have a few request. First, please write in your questions. We find we can handle questions faster and more completely by mail, and we usually will get a short note out to you the same day. If you feel you must call, then try to remember that we are busy most of the time, and we don't have time to chat, swap flying stories and the like. It's not that we mean to be unfriendly, it's just that there are a lot of you out there and only a few of us.

WARRANTY. You have all read of the lawsuits brought against the major manufacturers for alleged defects. We would like you to understand clearly that when you purchase a set of plans for the Falco you are not paying for a warranty which would give you this right of legal recourse, and you are not getting it. If we were to assume this liability the cost of the plans would be much more than the price we ask. Because of the price we think it is fair to the builder to offer the plans without implied warranties, and it has nothing to do with the qualities of the Falco you build. As far as we know, all other plans for amateur aircraft are offered without implied warranties, but we want the potential builder to understand this clearly. In plain English, the lack of express and implied warranties means that you will build and fly the Falco entirely at your own risk. Any accident resulting in bodily injury, loss of life or property, no matter what the cause, is not the responsibility of Sequoia Aircraft Corporation.

OTHER AIRCRAFT AVAILABLE FROM SEQUOIA AIRCRAFT. Sequoia Aircraft Corporation is developing the Sequoia and Kodiak aircraft. The Sequoia is a 2+2 aircraft with a bubble canopy and the rear seats facing aft, and the Kodiak is a full four-place version of the Sequoia with a normal cabin-type cockpit. All metal construction and engines from 235 hp to 300 hp are featured. The Sequoia and the Kodiak are expected to fly in the Fall of 1979. Anyone interested in either of these two aircraft should send \$5.00 for our brochure on the two aircraft.

SEE US AT:

July 28-August 4. Oshkosh, Wisc., at our Falco display booth.
July 29. Oshkosh, Wisc. Falco Forum, 3:00-4:15, Forum Tent 2a.
September 14. Washington, D. C., EAA Chapter meeting, 8:15-10:00 PM
at the hangar at College Park (Maryland) airport.