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GP-4 BUILDERS & FLYERS NEWSLETTER

April 2006
GP4BFN50

News for builders of fast wooden aircraft!

NEW SERIES DEBUTS

This issue we start an exciting new series, called "Flying The GP-4", authored by Mike Traud.

Obviously this is something we all want to be doing someday, and the sooner/safer the better.

Mike has 200 plus hours in many GP-4's, including George's prototype. He has checked out several pilots in the GP-4 (using Darry Capp's aircraft) many times in the past. He has also test flown new GP-4's.

Mike is an FAA Designated Pilot Examiner (DPE) and Master Certified Flight Instructor (MCFI, an FAA/EAA recognized designation), and holds seven type ratings, including the DC-3 and B-25 Mitchell bomber and has over 11,000 hours of flight time.

Plus he has a bunch of time in aircraft with the performance characteristics of the GP-4.

Mike wrote the 3 part article on "Building the Canopy", and is currently working on his fuselage.

Inside this issue:

HYDRAULIC GEAR PLANS NOW AVAILABLE

The prototype GP-4 uses a manual landing gear retraction system. After numerous repeated requests from builders, George developed an electric hydraulic gear for the GP-4.

The advantages of the hydraulic system are obvious, Flip a switch and fly the airplane. The disadvantages include extra weight, possible electric/hydraulic failure, a back-up system, and maybe some more expense.

No machine work is required for any of the components. Plans are available for $150 from Osprey Aircraft. You can find the address and an order form on the website and on the last page of this newsletter.

GEORGE'S CORNER

BY GEORGE PEREIRA

Fellow GP-4 Builders:

I have received a few inquiries about the shock system in the main gear of the GP-4. If you weigh the simplicity of the gear system against how efficient it is, we come out pretty good.

If you look at drawing #34 it shows the telescoping main gear struts with the 1200 pound compression spring, a Danley Die Set # 9-24-40-36. It's true, there is no dampening that an air-oil strut gives, however I have not noticed any problem with rebound that you get with the Cessna type aircraft. If it has any shortcomings, it may be the amount of travel of the inner strut to the outer strut. I find that the 1 1/2" of travel in the prototype is adequate and should work for you as well.

...I found keeping drag reduction down around the windshield canopy juncture on the GP-4 a major concern.

Corrosion in the struts is not a problem if you pack the spring area with the water resistant blue grease used in boat trailer wheel bearings. I carry 35 to 40 pounds of air in the main 500x5 tires and 50 to 60 pounds in the nose tire. The Danley Die Set address and phone # shown on drawing #34 is the manufacturer. If they won't sell you the springs, they can give you the nearest dealer to contact.

GP-4 Canopy:

First I want to congratulate Mike Traud on his excellent article constructing the GP-4 canopy, (Newsletter 47,48 & 49). The canopy installation is one of the more challenging parts of building your GP-4, so please check out Mike's article.

Speaking of challenges, I found keeping drag reduction down around the windshield canopy juncture on the GP-4 a major concern. Using the standard T-18 canopy and a highly raked windshield, I was able to keep a nice attached flow of air over the low profile into the aft fuselage section. The yarn tuft tests did bear this out during flight test evaluation. I do have a point in mentioning the canopy drag factor. It's for you big guys who want to raise the canopy higher to accommodate your stature. Please don't do it! Call me and I am sure we can make a modification to get you seated comfortably.

I understand that Bernie Griffen is well over 6 feet. Take out your old August 2003 copy of Sport Aviation and view Bernie's GP-4 side view photo. I think you will get the picture.

Regards to all,

George

Now that had to turn some heads !

FLYING THE GP-4

PART 1 IN A SERIES

by Mike Traud, Gold River Facility

Most of the articles and features in the GP4BFN are devoted to the art and skill of building a GP-4. Rightly so, as the aircraft is not something one just slams together in a weekend or two. Those of us in the building process no doubt are taking much time and effort to get their machine completed and in the air. In a similar manner, we should take time to learn the GP-4 and acquire the skills to fly it safely. Without question, acquiring experience to fly your GP-4 is well worth the effort you spent to build it. This series will speak to flying a GP-4 and the experience, techniques and abilities one must have in order to fly it with safe and fun outcomes each time you fire it up.

As an experienced (builder and) pilot of the GP-4, I can tell you first hand that the aircraft is not for the uninitiated pilot. You simply cannot fly this airplane without some experience in high performance aircraft. (Such aircraft might be a Mooney or Comanche on the production side or perhaps a Lancair or Glasair on the experimental side.) In flying numerous GP-4's over the years, I have seen many anomalies crop up that would give most of us a start: Complete brake failure, complete flap failure, unlatched canopy, fuel vent problems and propeller overspeed just to name a few. Each of these events ended up successfully because they were handled smoothly and with diligence. Of course, the GP-4 is certainly not prone to any of these problems, however, everyone of us in the GP-4 game can fly the aircraft and deal with such problems if a reasonable level of piloting experience is available to lean upon. If we do not approach the GP-4 with this mentality, then we will invite consequences into the game that are not very attractive. (Sadly, we all have seen this before and it does no good for our effort to promote the total coolness of the GP-4 and other similar machines.)

Rather than approach flying the GP-4 from the usual standpoint of start-up, taxi, takeoff, cruise, approach, landing and shutdown, lets start by getting in the air and taking a look at how it performs right off the bat. (This series does not consider those GP-4's and pilots who have installed autopilots; I am keeping the discussion relative to hand flying the airplane.)

So, we are sitting in the cockpit of the GP-4 with the power set at 24 inches manifold pressure and 2400 rpm. We are cruising at 5,500 feet msl with an indicated airspeed of 175 knots in smooth air. (Keep in mind that your indicated speeds are a function of how true your airframe is, the efficiency of your induction system and of course, outside atmospheric conditions.) The entire airframe feels solid as if it was one piece of wood.

Man is this a cool ride. You will notice quickly that you sit a little low in the cockpit, slightly supine. Your hand rests on your upper leg in a comfortable position to take the stick. The visibility out the canopy and windshield is very good with no apparent obstructions from the windshield and canopy bows. (The visibility out the GP-4 has been of some concern due to the bows. Because of the large bubble canopy and windshield design, there exists very little obstruction of view. This is a function of how you sit in the cockpit and the low wing design of the GP-4.)

Sweet. OK, lets fly it. You take the stick *lightly, with three fingers*, and immediately feel the responsiveness. It's unbelievable, literally. The machine goes where you point it. You immediately notice that if you grab the stick with your entire hand, you'll bang your head against the canopy or be slammed in the seat. The GP-4 is very pitch sensitive. George Pereira designed the aircraft to be very nearly neutrally static stable in pitch. What does this mean? Well, it is not like a Cessna where it will dampen pitch oscillations and eventually return to a steady state condition (i.e. level flight) – this we call positive stability where the aircraft returns to a stable condition. It is not the opposite where

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the aircraft will pitch with divergent oscillations increasing in amplitude – this we call negative stability where the aircraft unwinds itself and the pilot. (Bad characteristics unless you have digital fly by wire or some other sort of stability augmentation system on your side.) The GP-4 is right in the middle. (Note: The paragraph below discusses trim characteristics of the GP-4 as well as variations on trailing edge finishing and how that affects stick forces in the airplane.) Taking the stick, you point the nose where you want to go and it goes there right now. Turns are just the same: Very neutrally static stable in roll with no apparent adverse yaw tendencies. (Note: During testing of the prototype, George Pereira tried unsuccessfully to "un-port" the fuel from the wing tanks during steep turns by keeping the rudder neutral. It was discovered that the aircraft demonstrates little or no adverse yaw. This is due in part to the efficiency and very low drag of the 64 series airfoil incorporated in the wing design.) So, to fly the GP-4, you use the *"Kid Glove"* approach. As mentioned above, three fingers on the stick with a light grip (otherwise you're all over the place and your passenger is pissed). When you adopt this technique you can very smoothly fly this plane into the sunset all day long.

Mike Traud preparing to take John Reinhart up for a familiarization flight in Darry Capps' GP-4, s/n 1. Mike is an 11,500 hour pilot with Master Flight Instructor and FAA Pilot Examiner designations. He has over 200 hours in GP-4's having flown several and has performed numerous checkouts of pilots in the GP-4. He can be reached at traud@hotmail.com

Maneuvers like steep turns are a piece of cake when you take the stick lightly. Mild aerobatics are a breeze using the same technique. It is very important to note that if you "dish out" of a roll or descend with power on in the GP-4 *you will exceed the Vne limitation*. (Airspeed limitations are printed below for your review and reference.) Too many times I have started to descend in the GP-4 only to find the needle tapping the red radial line on the meter. George Pereira has flown the GP-4 to speeds above the design Vne limitation, however, this was during the test phase to prove the design (and for flutter testing). Like any other aircraft, we must adhere to the placarded (airspeed) limitations or we are pushing a bad situation.

If we are up flying on a day where the air is turbulent, the same technique applies to flying: A light grip on the stick and the aircraft will take the bumps well with reasonable penetration and dampening. This is due to the moderate wing loading of the GP-4 (about 19 pounds per square foot at gross weight. By comparison, a Cessna 182 has a wing loading of 17.5 pounds per square foot at gross weight. Pilots flying the GP-4 have to be careful when focusing their attention away from the stick –

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you will notice significant altitude loss or gain by just by looking outside or away from the peripheral view of the stick. This is a problem because as pilots, we always should be looking outside as a part of safe flying practice. So, give yourself a little time to adjust to the sensitivity and performance of the plane.

During your aircraft's test phase, you may have to trim out a heavy wing due to irregularities in construction. Usually it is not a problem with the exception that any trim inputs to enable the aircraft to fly straight usually result in a drag penalty. I have flown GP-4's which had fairly high (roll) trim input due to significant differences in the left and right wing construction (i.e. one wing was considerably heavier than the other and irregularities existed in the chord lengths between each wing and significant gap distances between the wing and control surfaces [flaps and ailerons]). Also, the roll responsiveness is a function of the trailing edge of your wing: A radiused trailing edge will yield a lighter response than a trailing edge which is squared off. In other words, the difference is a slightly stiffer response with the squared trailing edge. If you are in the building stage, give this some thought as to how you want your machine to *"feel"* in roll. Pitch response is not as sensitive to the trailing edge of the elevator and pitch trim usually is not a factor in cruise. The pitch trim feature of the GP-4 comes into play more significantly during approach and landing.

A GP-4 in cruise is a going concern and for that reason, some planning is required to get yourself set up for the descent phase of your flight. Thermal conditions (i.e. cold shocking you engine) need to be considered in the descent planning process. This is a very common practice amongst pilots of aircraft with reciprocating engines. Be sure to keep the needle in the green arc (airspeed) in case you run into turbulence on the descent. While it is a blast to fly at the top (yellow caution range), this should only be done in smooth air. (The GP-4 was originally designed with cowl flaps to modulate cooling air through the engine compartment. These were eventually removed and deemed unnecessary because the design of the cowl and very efficient engine baffling was such that engine temperatures were satisfactory and thermal shocking tendencies were minimized.)

Some other considerations in the cruise configuration include fuel planning. Most GP-4's have three (approximately) 18 gallon (120 pound) fuel tanks. Left and right wing tanks and a center or fuselage tank. Be sure to note the quantities in each and plan your fuel usage accordingly. The center tank should always be used for takeoff and landing because of its gravity feed characteristics. The wing tanks are used in cruise with an awareness of keeping the quantities fairly balanced. Another consideration during cruise flight are engine temperatures and mixture leaning. It is interesting to note that in addition to air and oil, fuel mixture is a way to keep the engine cool. Proper leaning techniques (one tried method is 50 degrees rich of peak EGT)

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will result in optimized fuel flow, engine efficiency and cooling.

The following are airspeeds for the GP-4. These speeds are in knots and represent the designer's limitations for the aircraft.

V Speeds for the GP-4

Vso 54 KIAS - The stalling speed or minmum steady flight speed in the landing configuration.

Vs 64 KIAS—The stalling speed or minimum steady flight speed at which the airplane is controllable. This speed is calculated in the clean con-figuration.

Vref 83 KIAS—The speed at which the airplane is flown, in a stabilized condition, after the final approach fix is passed while conducting an instrument approach procedure, or during a visual approach (2.5 to 3.0 degree glidepath), to the point where speed is reduced for flair and touchdown.

Vf 100 KIAS—The design flap speed.

Vfo 100 KIAS—The maximum flap operating speed.

Vfe 100 KIAS - The maximum flap extended speed.

Vle 100 KIAS—The maximum landing gear extended speed.

Vlo 100 KIAS- The maximum landing gear operating speed.

Va 180 KIAS- The design maneuvering speed as calculated at gross weight (1900 pounds). Note: This speed decreases, somewhat linearly, as weight decreases.

Vdf 223 KIAS—The demonstrated design diving speed.

Vne 223 KIAS- The never-exceed speed.

As mentioned above, you took *a lot of time* to build your GP-4. Use the same philosophy when approaching flying. If you don't have experience in a high performance aircraft, go out and get it. Not just one or two hours, get several to understand the level of performance you are dealing with.

Seek a seasoned flight instructor who can pass on techniques and procedures you can translate to the GP-4. These procedures might involve systems you are unfamiliar with such as constant speed propellers, retractable landing gear and low wing design. Other areas may involve flight planning issues such as when to descend from cruise or the use of more complex checklists including emergency procedures. All of these and a host of others are involved in flying a GP-4. If these areas are lacking in your logbook, then you owe it to yourself to get out and log some time with a qualified flight instructor who can pass on this level of flying.

If you are nearing completion of your GP-4 and don't have the experience to test fly it, get a test pilot to help you – there are many highly qualified individuals who will avail themselves to further your efforts and get you in the air safely. With this in mind and with practice and patience, you will be able to master this skill and capitalize on the fantastic performance of this little speedster.

Part two of this series will discuss startup, taxi, takeoff and climb techniques for the GP-4. We will go into the differences in gear systems (manual or hydraulic), some important checklist items and other considerations for this phase of flight.

Mike Traud

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N59GP and N713PS

HOW TO KILL YOURSELF IN A HOMEBUILT

by Alfred Scott

This article first appeared in the March 1992 issue of the Falco Builders Letter.

Whenever there's an accident in an airplane, there's a natural tendency in all of us to dismiss the mistakes that others have made as something we would never do. We sagely recount the unfortunate pilot's error-he ran out of gas... tried to take off with... tried to do a roll-all things that somebody else did. And if it's in another type of airplane, then we sneer at that, too.

But there's a harsh reality we should all face up to, with so many high-performance homebuilts now flying, there's a pattern of accidents that's undeniably there, and any designer, kit supplier or pilot who tries to paint this problem as a 'Brand-X' problem-you know, that other design-is simply over-exercising his arrogance.

So let's take a look at the problem, see what lessons can be learned, and ask how all of us can make a difference.

In the case of the Falco, we've had three fatal accidents out of the first thirty or so Sequoia Falcos to fly. In two of these, the pilot was on literally his second flight in the plane. One took off with essentially no fuel in the tanks and then attempted to turn back to the field when the engine stopped. The other appears to have attempted aerobatics. In the third accident, the pilot was on his first instrument flight and ended up low on fuel, shooting a back-course approach from the right seat, on a rainy night that was right down to the minimums. They were obviously quite scared and ran out of fuel right over the field, tried a sharp turn to the runway, stalled and crashed.

The Smythe Sidewinder has lost more than 30% of its fleet to stall-spin accidents, yet the airplane has a perfectly normal configuration and with no obvious flaws. But it was the Glasair III that finally got everyone's attention. With about 38 flying, during one six-month period six airplanes were totaled. There's simply no way to ignore such things.

What got me started on this was a conversation with Dave Noland of *The Aviation Consumer*. We were talking about the accident rate among high-performance kitplanes, and Dave mentioned the experience of the Grumman American Yankee. Some years ago, he had done a story on the plane, which had a *terrible* accident rate-the worst of any production single by a country mile.

And when they looked at the statistics, one thing stood out: almost without exception, the accidents were occurring to pilots who had very little time in the Yankee. Total time in all airplanes made very little difference. It didn't make any difference if you had 100 hours or 5,000 hours in other planes-what mattered was whether you had only a little time in the Yankee. (By 'Yankee', I mean all of that family of airplanes, from the original stubby-winged Bede design to the LoPresti-cleaned-up 180-hp Tiger.)

The American Yankee Association did something about it, and the results are astonishing. About three or four years ago, they started a pilot familiarization program. There are about 20 to 30 check pilots, who must be CFIs, scattered around the country who take a pilot through a familiarization program. The curriculum is standardized and focuses on the peculiarities of the Yankee-the castering nosewheel, the sensitivity in pitch and roll, the need to be 'on airspeed' on approach (particularly with the early models), porpoising on landing, etc.-but there is no required number of hours for the program. It is up to the check pilot to say when the pilot is comfortable with the airplane.

Complete this familiarization program, and you will qualify for a

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10% discount on your insurance. That's nice, but the real payoff is in the accident rate, which has gone to essentially nil since the program began.

Avemco's vice-president of underwriting, Jim Nelson, confirmed that this is the same syndrome that they found with the Glasair III. Many of the airplanes were professionally built and then test-flown by the owner who found himself at the stick of a very high performance aircraft.

The Glasair III is a very-high-powered, high-wing-loading airplane. It was like jumping into a P-51 without proper training. Lose an engine, and you come down at 2600 fpm.

And worse yet, in the opinion of many experts, there was a lot of bad advice floating around on how to fly the plane. Pilots were being told to fly steep approaches which caused landing accidents. You fly the plane like a turbine corporate twin, say the experts, with a normal approach angle and carrying a bit of power right down to the pavement.

Avemco also became worried about the quality of the construction. Stoddard-Hamilton told *The Aviation Consumer* that one recently totalled Glasair was deemed unrepairable simply because the airplane had been too ineptly constructed to make restoration viable. There are concerns about contaminants in the fuel tanks, overall construction quality, and of course everyone is concerned about modifications.

In order to provide insurance, it was necessary to find a way to ensure that the aircraft was airworthy, repairable, and that the pilot was trained to fly it. The Sport Aircraft Manufacturers Association, Stoddard-Hamilton, and Avemco put together a program to make insurance available under certain conditions.

First, they require an initial inspection for overall quality. They want to know from the beginning it is built right and can be repaired if crashed-you can bet that Avemco has insured its last not-worth-repairing Glasair. This inspection is in addition to the FAA inspection, and it typically takes 30 to 40 hours of labor.

Second, they wanted to be sure that the pilot could fly the aircraft. Working with PIC (Professional Instrument Courses), they established an initial and recurrent training program. Pilots are required to take annual recurrency training. The training covers slow flight, stalls, problems with gear extensions, etc.

Do all this and Avemco will insure you. Don't comply, and you can buy your insurance elsewhere, thank you very much.

This approach is definitely the coming thing. The initial inspection will vary with the aircraft, and will probably only be required with certain aircraft where the insurance company has concerns about the ability to repair the airplane and to find someone who can do the work. The conventional methods of construction-steel tubing, fabric-covering, wood, and aluminum-are all things they've dealt with for years.

And the requirement for a formal training program will initially apply only to the Glasair III, but owners of other high performance, high powered airplanes-Lancair IV, Venture, SX-300, etc.-can count on it.

But just because an airplane like the Falco has a moderate wing loading and average approach speed is no reason to relax. The Yankee was considered 'real sporty' in its day, but the Falco has much lighter controls, a faster rate of roll and greater sensitivity in the controls, even though it may be easier to land.

Avemco would like to see a training facility for every high performance airplane, and you really can't argue with the benefits of a such a program. Insurance-enforced training already exists for a number of complex twin-engine aircraft, and we're going to see more of this sort of thing with high-performance homebuilts.

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I love the idea, myself. Insurance companies make decisions based on their experience in the field. Some years ago when I owned an old Victorian apartment building, we found it was the insurance companies who really laid down the law with us on safety issues-not municipal building inspectors with their building codes. Insurance companies were free to lay down a new list of requirements each year, they were always tough on us, and I always found them to have good reasons. (In fact, I hold the opinion that if the FAA got completely out of the certification business and left it all to the insurance companies, we'd have safer airplanes.)

Overall the safety record of homebuilt aircraft is not greatly different from production aircraft. There are slightly fewer fatalities per aircraft (which is slightly deceptive because homebuilts have fewer seats on the average) and slightly more accidents. The mix is different: lots of low-altitude buzzing accidents, not many weather-related mishaps, and aerobatics are thought to be a factor contributing to the slightly higher rate among homebuilts.

But here's the predictable part: approach the transition to the Falco with the same rather cavalier attitude that's been practiced in the past, and some of you reading this will die as a result.

If that's not appealing to you, then here's what we can do. Let's start by recognizing that it's smart to get checked out in the Falco by an experienced pilot. Builders who have finished their Falcos have been quite good about giving people rides, but let's recognize that it's not just a matter of being nice—it's saving lives.

I think it's time we put together a familiarization guide for the Falco, a syllabus of all of the things that are different about the Falco, and a formalized curriculum to introduce pilots to the Falco. I'd love to have suggestions and contributions from any of you.

THE TEST PILOT

by Alfred Scott

This article appeared in the March 1994 issue of the Falco Builders Letter.

All homebuilders of aircraft have the same fantasy. After years of working in your shop on your beloved creation, lavishing care and taking the craft of building an airplane to a new high, it is finally time to fly the plane. You take the airplane to the airport, check it out carefully, and then launch it into the air. It will fly as perfectly as it looks. The handling will be perfection, even exhilarating. The speeds will be even better than promised, and as the sun goes down, you will turn, dive, roll and loop in an orgasm of aerobatic poetry. It will all be perfect.

It's also nonsense. And unlike fantasies about winning the Indy 500, climbing Mount Everest, winning the Presidency, or scoring with Kim Basinger, this is one fantasy that could kill you because you might actually attempt it. Homebuilders seem driven to do their own first flights, as if their manhood were at stake. Some see it in terms of a christening or wedding night. They built the airplane, and *of course* they are going to fly it!

But let's take a look at this decision in a coldly rational way by listing the major points involved.

1. The aircraft has been built by an amateur who has never built an airplane before. Let's face it, putting aside all the personal pride you may have in your work, you've never actually built an airplane before. The machine is most certainly not something that has come out of a series of accurate, proven production jigs and fixtures.

2. Most homebuilders don't do a lot of flying while they are building the airplane, in fact, many stop completely. Very few builders, at the time of the first flight, are current to the point that normal flying is instinctive, much less current enough to deal with serious problems on a first flight of a new, unproven airplane.

3. The aircraft, even if properly built, will have flight characteristics which will surprise you if you are not completely checked out in that type. All homebuilts aircraft have some exceptional flight characteristics. Many of the best ones simply have responsive controls, but others have high landing speeds or require unusual landing techniques.

We all know that the Falco is a great classic airplane with legendary handling, but it is also *not* an airplane that a Cherokee/172/Mooney pilot should just get in and go fly, much less flight-test. It takes quite a bit of getting-used-to before you can comfortably land the plane.

Frank Strickler

The Glasair III is a very high-performance machine that requires an unusual landing technique. Frank Strickler once told me, "I have now test-flown three Glasair III's on the first flight, and I'm never going to get my hieney in one of those machines again." This is a former Air Force instructor who flies SF.260s and numerous warbirds in his time off from his regular job of flying airliners. If this jet-jockey and P-51 pilot is uncomfortable with a popular kitplane, how is the average homebuilder with very few current hours going to fare in the machine?

Or take the Kitfox. Here is a slow-moving, conservative design that everyone likes and rightly so. The engine is on the front, the tail is on the right end, and it lands and takes off in no space at all. But the Kitfox has distinctly different handling characteristics, so much so that one experienced Kitfox pilot has written a short book about flying the airplane. When you flare the Kitfox, it is so light that it lacks the inertia to keep flying, so it's quite easy to flare and drop it in hard. Fully 25% of the Kitfoxes in England have been totalled -- thankfully without any fatalities due to the slow flying speed of the plane.

Don't get me wrong, I really *like* the Kitfox and in particular I think that Phil Reed, who owns the company, is the best new face to hit sport aviation since Frank Christensen brought out the Eagle. But anyone who says, "Aw hell, it's just a Kitfox. I'll fly it for you!" is being grossly irresponsible. It's an airplane that can crash like any other. Before you fly one-and especially on its first flight-you need to be checked

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out in a Kitfox just as you would a Falco, SX-300, Glasair III or anything else.

4. By far, the largest number of accidents in homebuilt aircraft occur on the first flight of the pilot in that aircraft. In 1992, 14% of homebuilt accidents occurred on the pilot's first flight in the aircraft, and 5% on the second flight. In all, 24% of the accidents occurred during the takeoff or landing phases due to inadvertent stalls, rolls or veering off the runway, thus 40 to 50% of the accidents seem to indicate a lack of familiarity with the flight characteristics of the aircraft.

This pattern of accidents in homebuilt aircraft has been confirmed by insurance companies (see "How to Kill Yourself in a Homebuilt Aircraft", *Falco Builders Letter*, March 1992), who now insist on pilots being checked out in many types before they will sell insurance.

These statistics are for the pilot's experience in a given aircraft, and they do not isolate the first flight of the aircraft. However, there is nothing to suggest that a test pilot with no previous experience in the type would be less prone to have an accident than the general statistics indicate.

5. Flight testing is a dangerous activity. We all instinctively know this, but we need to remind ourselves that the streets of Edwards Air Force Base are named after dead test pilots. Over the years, a lot of pilots have died flight-testing new aircraft.

In the early days of aviation, the military would simply let their most skillful pilots have-a-go at a new aircraft, but it didn't take long to notice that a lot of the pilots ended up dead. Since those days, they've learned and have developed a methodology for flight testing to minimize the risk.

If you put all of these factors together, they bring you to a very sobering conclusion that test-flying a homebuilt airplane is potentially a very dangerous activity, and any rationale that says otherwise is just wishful thinking. If stupidity is doing the same thing over and over and expecting a different result, then the decision of a builder to do his own first flight really comes down to emotion and ego, not intelligence.

If nothing goes wrong on the first flight, then almost anyone can do it, but how quickly would you react if the engine quit on take-off? On a first flight, you have to assume that the worst will happen. The airplane will be badly out of rig, the cockpit will fill with smoke from an electrical fire and the engine will quit. You need a pilot at the controls who can calmly put the airplane back on the runway. In short, you need the best pilot you can get your hands on, and if that pilot isn't you, then you are letting your ego and emotion do your thinking, not your brain.

BUILDER'S RESOURCE

BY BOB FOSTER

Many GP-4 builders who have completed their fuselage have installed Jim Weir's antenna kit. Jim has many more "can't live without" electronic designs that will save you beaucoup bucks or as he says, "A champagne panel on a beer budget." He has published a full panels' worth of designs in Kitplanes for several years, from about 1996 to present. I have listed all the publications and subject that I have, perhaps someone else could fill in the blanks

Kitplanes Magazine

Jan 97, pg 87, Coaxial cable

Mar 97, pg 69, Extending landing light life

May 97, pg 72, ELT antenna

July 97, pg 79, Wire rack

Oct 97, pg 62, Radio Connectors

Feb 98, g 86, Radio "stuff"

Apr 98, pg 20, Altitude chamber

June 98, pg 86, Auto Am FM Radio

Oct 98, pg 60, Inexpensive intercom

(I missed most of 1999 & 2000)

Dec 99, pg 115, VHF nav antenna

Oct 00, pg 49, LED position lights

Nov 00, pg 65, GPS

Jan 01, pg 88, Dim Bulbs

Feb 01, pg 61, Antennas

Apr 01, pg 61, lamp dimmer

Aug 01, pg 68, Aviation software

Feb 02, pg 43, Engine monitor

Apr 02, pg 79, Battery sulfate buster

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CLASSIFIEDS

For Sale:

Pre-Fabricated composite components for the GP-4. Cowling, Exhaust Blisters, Inlet Ramps, and Tailcones. Individual parts or complete packages available.

Cowls are constructed with West System ProSet 125 Resin and 225 Hardener. They are hand lay-ups of 4 layers of 6 oz cloth, and 2 layers of 10 oz cloth.

I get great discounts on shipping and I pay for the packaging. For current pricing, please call or send me an e-mail.

Bob Ringer

Halifax, Canada

Ph: 902-876-2871

Cell: 902-483-4611

E-mail: bobringer@eastlink.ca

For Sale:

Quality Custom fabricated metal components for the GP-4. State of the art equipment used by a certified welder to construct parts on the jigs obtained from Darry Capps.

Raymond Beazley

Dartmouth, Canada

Ph: 902-465-6141

Cell: 902-497-4187

E-mail: ray1beazley@accesswave.ca

- order by the piece, sub assy or pkg
- Parts tagged for identification
- All parts are cleaned and primed
- Small items within a week, complete packages up to six weeks

Project For Sale:

All spruce, ply & steel kits. Fuselage framed, nose gear installed. Horizontal stabilizer and elevators done.

Located—Leonardtown, Maryland

Lots of metal work done.

E-mail me for more info:

david.mckeen@wylelabs.com