

DRAGONFLY NEWSLETTER
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The **DRAGONFLYER** IS THE ONLY METHOD FOR DISSEMINATING INFORMATION CONCERNING PLANS CHANGES FOR THE DRAGONFLY. ALL BUILDERS MUST SUBSCRIBE. A one years subscription is included in the price of the construction manual. The **DRAGONFLY** is based at Eloy, Arizona. Flight demonstrations are scheduled from time to time, but be sure to call first to check our schedule. You're welcome to drop by anytime to look over the aircraft and the engine factory.

ERRATA SHEET: Before each newsletter is published, the errata sheet is updated to include all the significant plans changes. This means that it is not necessary for new builders to have all the back issues of the **DRAGONFLYER** in order to obtain the current plans changes. This is not to say that the updated errata sheets contain each and every building hint, but they are an up to date source of plans changes and alterations. For the information of you non-plansholders, these changes are all of a minor nature such as dimension errors, typos, minor omissions, etc. They do not include major alterations to the airframe, nor do we anticipate any such changes. For you early plans purchasers, it is not necessary to have the updated errata sheet since all the plans changes are published in the **DRAGONFLYER**. Just be sure to keep your subscription current.

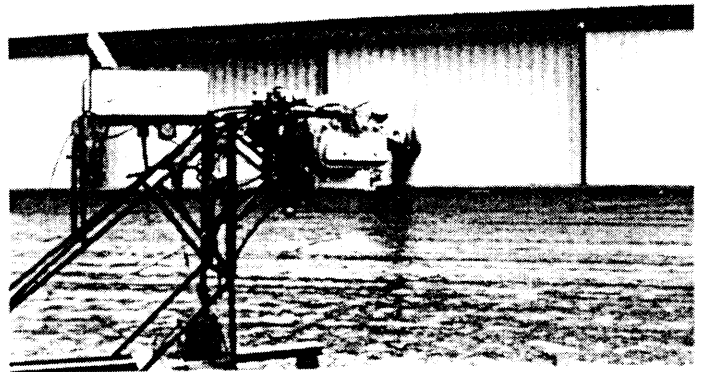
HAVE YOU MOVED? If you move, please notify us of your new address. We have lost track of one or two builders who have moved and can no longer be located. In case of a mandatory plans change, we must be able to contact you, so keep us advised of your address.

COMPANY MERGER: By now many of you are aware that HAPI Engines and Viking Aircraft have joined forces. For those of you who don't have such good "grapevine" connections, let me fill you in on the details. As you know, Viking aircraft has been a two person company since its inception (three if you count Floyd, the computer). This was done for a number of reasons. Primarily we wanted to let the homebuilder construct a nice aircraft at the lowest possible cost. In order to make this possible, we elected not to accept any royalty on materials and restrict ourselves to selling plans only. Without royalties, we were free to mention a number of companies and suppliers on our material procurement list that are able to meet our builders needs. A free market prompts friendly competition and keeps the prices lower than they would otherwise be. However, these advantages are offset by some inherent problems. Since the market for homebuilt aircraft is comparatively small, and since our only business was selling plans we didn't generate a lot of cash flow. Fortunately, the **DRAGONFLY** proved to be a successful aircraft. Nevertheless, we weren't pulling in the kind of money that would support a large staff so the business simply had to be small. While small is cheap, it is not necessarily efficient. Ching and I were faced with many of the same problems as any other corporation faces. We weren't big enough to justify a fancy accountant, bookkeeper, mechanic, advertising agent, test pilot, customer relations person, secretary, computer operator, promoter, etc. so we managed these jobs ourselves. For example, because Viking is a corporation, we have to file rather complex tax forms each quarter (including paying unemployment tax for ourselves if you can imagine that). None of these things are difficult in themselves, but they do take time and we found ourselves spending all our time

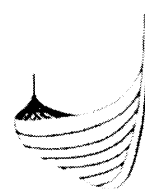
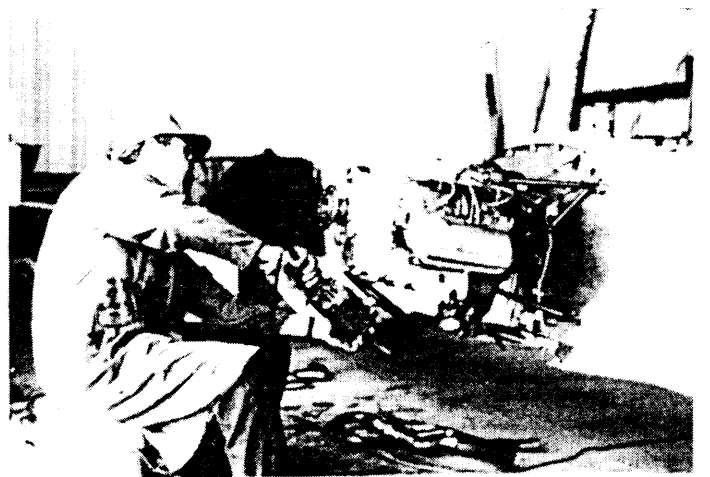
running the business. We just didn't have time to promote the aircraft as it should be promoted. We were not fully recovered from Sun 'N Fun this year when we had to get ready for Oshkosh. It gradually became clear that if we were going to attend more airshows, we must either let our friends and customers down by providing less service or take some other action. Naturally the last thing we wanted to do was disappoint our customers. We're quite proud of our policy of trying to give each and every inquiry an honest, complete, and timely answer. Folks tell us that this isn't the way to do business, and perhaps it isn't, but at least we don't have to hide from anyone when we go to Oshkosh. Of course, we could have continued working along at this pace, but I think the **DRAGONFLY** is a pretty neat airplane and it really wasn't getting the kind of exposure it deserved. Something had to change.

The deciding factor in our decision to join with HAPI was the increasingly strong position of TWA. Although I have been furloughed much more than I have worked, it appears that good old Trans World is getting ready to start recalling. Unfortunately, they only give you 2 weeks notice to report back to work. Obviously, it is impossible to make a smooth business transition in 2 weeks and we didn't want to get caught unprepared, so we elected to do something now rather than later. After looking at numerous options, Ching and I decided to approach Rex Taylor of HAPI to see what we could work out. My thoughts were that since Rex has a pretty large operation, his company was already doing most of things that we were doing as far as the day to day operation of a business. The big difference is that Rex has a competent staff to perform these functions which leaves him free to do things like attend airshows, figure out new ways to promote his products, develop new products, etc. In other words, his company didn't shut down like ours did when the head honcho left town for a few days. Every day that I took off over the past few years meant that Viking simply didn't operate for a day. Although I always leave Floyd plugged in, computers have absolutely no initiative, and I never noticed that Floyd did anything while I was gone. Well...it turned out that Rex was interested. Naturally, promoting an aircraft that flies on one of his engines is good for HAPI Engines. Our philosophy of conservative VW conversions matched nicely with his. Rex has a good deal of experience in the homebuilt field and is an honest and straightforward guy. His ability to inject a fresh outlook and some new energy into the **DRAGONFLY** is going to do a lot of good for all of us. The aircraft is going to get much better exposure, and with improved marketing a lot fewer people will be asking "what do you call that thing?".

Here's how things will work. Rex will handle all the day to day operations of Viking Aircraft at his plant at the Eloy airport in Arizona. The effective date of the transfer is 1 September, so by the time you read this, things will have already been changed over. "What about



REX TAYLOR IN ACTION



technical support?", you say. Don't worry! I will be on tap for any builder support that can't be handled by Rex. Frankly, most builder support is confined to telling builders what page to re-read, but once in a while someone asks a question that isn't fully covered. Direct all your questions to Rex at Eloy, but rest assured that if he can't answer your question completely for any reason, he will refer it to me and I'll give it my best shot.

I'm sure that this new system will prove beneficial to everyone. Rex will be running the whole show, including plans sales, newsletter, builder support, flight demonstrations, lecture scheduling, and all the rest, so address your mail to him to avoid unnecessary delays. The new address is: VIKING AIRCRAFT LTD, RR #1 BOX 1000, ELOY, ARIZONA 85231. The phone number is (602) 466-7538. Your newsletter subscription will continue on schedule, builder support will be as good or better than before, and you will have a much better chance to see the **DRAGONFLY** at your local airshow. Expect to see Ching and me at some of the airshows from time to time also, now that we will have a chance to dig out from under some of the paperwork. We hope to see a bunch of you folks at Oshkosh 1983.

OSHKOSH 1982: Once again we made the trek to Oshkosh along with what seemed like the entire western hemisphere. Ching drove the van full of plans and other assorted junk, and I flew in the **DRAGONFLY** as usual. We stopped in Memphis for a couple of days to visit Ching's Mom and then went on to the convention. The trip was uneventful except for the weather which was terrible. I tell everyone that I am the world's greatest instrument pilot, but only if I have an instrument. Since the **DRAGONFLY** doesn't have even a skid ball, I'm forced to land when the weather turns IFR. In truth, the weather caused a lot more concern than real problems, but I did have to make a stop in Paducah, Kentucky and wait overnight for a slow moving front to pass.

The convention was also plagued by poor weather including fog in the mornings and thunderstorms (with high winds) at night. In fact, a number of aircraft were turned over by the high winds one evening. Since I had pre-scheduled many of my afternoons and since the fly-by pattern was often closed in the morning because of weather, I only had a chance to fly the **DRAGONFLY** a few times. Lots of folks had a chance to sit in the aircraft and Ching and I must have talked to a couple of million people. At least it seems like we did. Unfortunately, no other **DRAGONFLYS** made it to the convention. Several were flying, but none had flown off their hours. Two different people told me that they would have done a bit more last minute work so they could bring their planes, but they were sure a whole bunch of aircraft would show up so they didn't worry about finishing up their test program.

It was good to see so many people at the forum on Tuesday. As usual, I began my lecture by dispelling the normal batch of rumors. In case you're weren't at Oshkosh I'll go over a couple of them again. No..... I didn't crash and

kill myself. No..... carbon fiber isn't hard to work with. No..... our good performance is not caused by a secret 2100cc VW. No..... the **DRAGONFLY** doesn't go out of control in rain. No..... the tail didn't break off on the way to Oshkosh. The broken tail thing is kind of funny. In 1981 at Oshkosh I did extensive taxi tests on rough grass in excess of the gross weight limitations. This cracked some of the filler where the tail skid joins the fuselage. The aircraft flew for 11 months like that, but every time some one noticed the crack in the filler, they would say, "Hey...did you know that your tail is falling off?". In order to put a stop to these questions, I made a repair of the filler just before going to Oshkosh this year. I ran out of time and painted the area with a spray can, rather than setting up my full painting rig and matching the color like I should have. Wouldn't you know it? Some jokers who spotted the paint repair said that the repair was proof that the tail fell off on the way to the convention. Some days you just can't win, but it goes to show you how silly some of these rumors are.

On Friday, Rex Taylor and I flew down to Fondulac airport so that I could check him out in the **DRAGONFLY**. I demonstrated one landing, Rex made a couple but he couldn't see since I didn't have enough cushions for him to sit on, so I got out, gave him my cushions and turned him loose. He made a few perfect landings and pronounced the aircraft one of the nicest ones he has flown. Rex has checked out in over 50 different types of light aircraft, by the way. Rex is writing a full article about his check out and flight home which will be published in *SPORT AVIATION* in the very near future. Keep an eye out for it because it should give a lot of builders a fresh slant on just how it is to fly a **DRAGONFLY** for the first time.

FLIGHT IN RAIN: Although we've covered flight in rain before, after talking to a lot of folks at Oshkosh I feel that it's appropriate to review what we know about it. First let's understand that the **DRAGONFLY** has a canard that is loaded heavier than the aft wing. In fact, we carry almost two thirds of the aircraft weight on the canard. This is a much higher percentage than an aircraft like the Vari-Eze, but since the Vari-Eze has a much smaller canard in relation to its wing, the proportional loading is almost identical. Not surprisingly, the reaction in rain is similar. The **DRAGONFLY** supports a great deal of laminar flow (that's how we get such good performance on a small engine). When this laminar flow is disturbed, the airfoils produce more drag and less lift. The drag increase causes a loss of speed of around 7 mph in the worst case and the loss of lift causes a pitch down because the canard is loaded heavier than the wing. Since it requires more aft stick for level flight under this condition, you reach the aft stick stop at a higher airspeed, which produces an increase in the minimum speed. Consequently, the landing speed is increased (about 8 to 10 mph in the worst case). This is the sort of thing that

the Vari-Eze people notice and is easily explained even in simple terms. It is of no real concern and should cause no worry to the average pilot. The problem is that I have experience with only one **DRAGONFLY** and so I cannot say that all **DRAGONFLYS** will react in an identical fashion. On top of that, not all the Vari-Eze aircraft react the same way. Some actually pitch up and a few do little or nothing. Burt Rutan (the Vari-Eze designer) and I had several discussions about this situation at Oshkosh. We agreed that what we are observing should not be considered dangerous, but Burt is very, very interested in more fully understanding this phenomenon. In fact, he is ready to publish a comprehensive article on the subject, but.....he freely admits that he doesn't have all the facts. Some aspects, such as the pitch up of several aircraft, are not easy to explain, but Burt will continue to gather data, as will Rex and I. If you have any significant information on flight in rain, please contact Viking Aircraft and let us know what effects you notice. Rex flew in rain on the way home from Oshkosh and found the same things that I had found in the past. That is to say, that flight in rain requires nothing more than a retrimming of the pitch system. The only potentially dangerous thing that I noticed is that if the aircraft is waiting for takeoff in the rain and has a good coat of wax on the airfoils it will produce giant sized drops that will completely destroy the laminar flow. The take off roll may be as much as 50% longer and if you are operating from a short runway it could prove dangerous. Once the aircraft is up to speed, and the huge drops blow away, the small drops will only produce the minor pitch change that we've seen before. Keep in mind that this is what we've seen on the **DRAGONFLY** prototype; however, based on the Vari-Eze experiences, your aircraft may react differently. Just to be on the safe side, use caution until you are sure how your aircraft will react in rain. By the way, the same thing that happens in rain, will happen if you pick up a load of bugs.

The biggest problem associated with flight in rain is the fact that there are several canard designs on the market that have apparently had some real problems. If an aircraft is very marginally powered, the drag increase associated with rain may prevent the aircraft from maintaining level flight. On the other hand, if an aircraft has sufficient power but suffers from a rather high wing loading to begin with, then the addition of bugs or rain may change an aircraft with a barely acceptable high landing speed into an aircraft with a shockingly high landing speed. Not a great deal of information is available so far, but more should be known in the future. Let me encourage you to let us know your experiences when you start flying, but since we have data from only one aircraft so far, please use a little common sense when you test fly. In other words, don't make your first test flight in the driving rain. Find out how the thing is going to fly in the dry first. I don't want to alarm anyone, because I feel that all **DRAGONFLYS** are going to fly just fine in the rain.



BUILDERS GROUPS: Builders groups are springing up all over the place now. Viking Aircraft encourages builders to release their names to us and keep in contact with each other. Getting to know your fellow builders and exchanging ideas on how and where to get materials is great. Trading builder tips is a good idea too; however, I am concerned over some of the things I've read and heard lately. The problem has to do with plans changes. We don't claim to have the only good way to build an airplane. The plans simply point out the way we made the prototype and there are a lot of good tips that may work better for you so that you can build your project easier and quicker. Fine, but be sure you can separate the tips from the plans changes. Some of the suggestions I have read lately may prove dangerous. Unfortunately, they are published in what may appear to be an official publication such as a builders group newsletter. Some editors send me copies of these newsletters, but none of them consult me in advance as to the suitability of these tips and suggestions. Remember that the **DRAGONFLYER** is the only official publication for plans changes. If you have a tip or change that you would like to suggest, please send it to Viking. If it is a good idea, we'll be more than happy to publish it. If it is dangerous we will not publish such information. I'll give you an example of something that went on at Oshkosh that concerned me a little bit. One of the builders groups had a get together that got a bit out of hand. One of the members, who is an ex NASA employee took over the stage, got on his soap box and gave an extended lecture on how dangerous canards are to fly in the rain. To my knowledge, this individual has never flown any kind of canard aircraft in clear air, much less in the rain. Nevertheless, he has strong opinions on the subject and does not hesitate to voice them. A number of people approached me after that meeting and wanted to know if they should build their aircraft using this fellow's new airfoils that were under development. Others asked me if they should forget about canards altogether since they were so dangerous! Although I wasn't at that meeting, I did discuss it with some level headed builders and

discovered that the individual doing the talking didn't actually come out and say that the DRAGONFLY uses dangerous airfoils or that there is something wrong with all canard aircraft, but he definitely left that impression with more than a few of the attendees. He was saying things that were simply contrary to the observed facts and this upset several people. A surprisingly large number of people came to me after the meeting and suggested that I "stop this guy". They could see that the speaker was way off base and they wanted me to do something about it. Well....I really don't like to put myself in a position to tell people what they can and cannot say. If Chicken Little says the sky is falling, I'm not going to shoot Chicken Little. However, I will tell anyone who will listen that the sky isn't falling and I'll do my best to explain why it isn't falling and I'll also try to put Chicken Little on the right track while I'm at it. But in the end, I would be the last person to keep Chicken Little from saying what ever he wants to. The point is, use a little judgement, don't believe everything you hear, and if you have any doubts, give Viking a call. We'll do our best to give you the right answers.

NEW CAM: Several builders have asked questions about the cam change. I was convinced that the new carburetor I was experimenting with was causing my problems. After fooling around with the carb, ignition system, fuel system, and just about everything else, I decided that something was wrong with the cam. Sure enough, the cam had the wrong profile. It was ground by a different company than the one who supplies HAPI and for some reason the cam lobes were not exactly the right shape. It produced symptoms that were rather mysterious, but after changing to the regular Scat brand cam, the engine runs great now.

EPOXY SHELF LIFE: A number of builders were wondering if the Safe-T-Poxy has a shelf life, how come it doesn't have a date on the bottle? Good question, so I asked the folks from Applied Plastics about it. It turns out that all the bottles now have a date sticker on the bottom with the following code: The first letter indicates the month (A for Jan, B for Feb, I'll let you figure out the rest) and the first number is the year (2 for 1982, etc.). The Epoxy should be good for at least a year under the worst conditions, but if you store it unopened under stable temperature conditions, it should be good for at least 2 years. If the hardner turns to jelly, or has a precipitate in the bottom, don't use it until you set in a pan of warm water for a while. Shake the bottle to make sure all of the hardner goes into solution and then proceed normally.

DOW FOAM: DOW chemical company has taken the position that they will not encourage the use of their products in homebuilts and if you ask them they will say that they are unable to comment on the suitability of their products for use in homebuilts. This does not mean

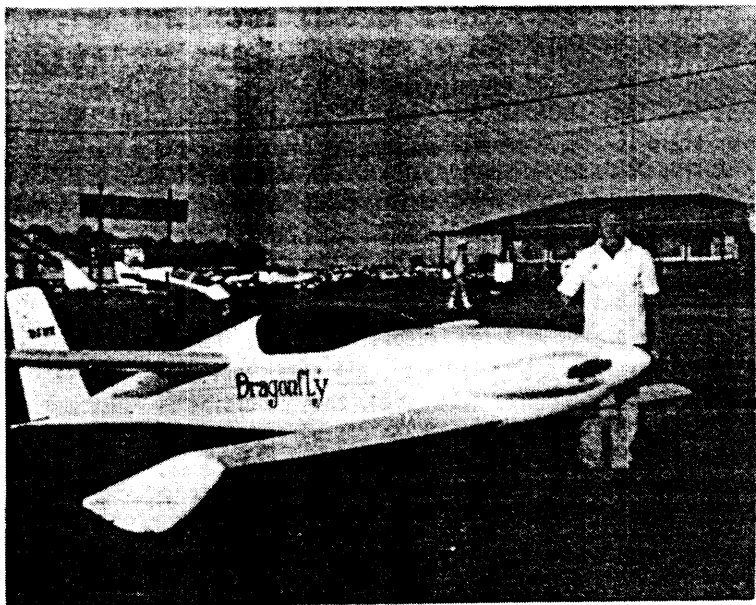
that the styrene foam is unsuitable, but only that the company doesn't guarantee that it is suitable since they have no control over how its used. Interestingly enough, I have seen a letter that DOW wrote with a long disclaimer as paragraph one, while paragraph two mentioned who the local distributor was just in case the customer wanted buy the foam for use in other than homebuilts! Neat huh? Don't be surprised if your local foam man gives you the same story.

MATERIALS SUBSTITUTIONS: We go through this every issue, but some guys don't seem to get the word. If you have any thoughts about using parts or materials not mentioned in the plans, please check with Viking. Do not use huge wheels, for example, just because you've got some laying around. The Canadian EAA is in the position of approving homebuilts in Canada by working with the Canadian DOT and is much more involved in these things than our EAA and FAA. They didn't want to be in a position of approving only one type of epoxy and they weren't in a position to evaluate alternate epoxy systems. They decided that if a licensed chemist would testify that one epoxy was exactly the same as Safe-T-Poxy, then they would approve it. Are you surprised that someone would be willing to sign such a document? I'm not, but I doubt very much if these folks selling epoxy in Canada have a product that is just like the stuff made by Applied Plastics. I don't want to say that Safe-T-Poxy is the only epoxy that will work, but is the best I've seen so far and the only one with which we have experience. I know for sure that a lot of common and slightly less expensive products will not work, but I don't know which ones will work for certain except the one we used. When someone says that Applied Plastics simply mixes up a couple of Shell products and slaps a label on the bottle, and when these same people say that they know this because they have analyzed the product using a spectrograph or some similar instrument, then you can be pretty sure that they are lying so they can make a buck. Finding out what is in an epoxy system is like finding out that a souffle is made of eggs, milk, butter, and flour. If you don't put them together right, you could make bread if you're lucky, or a big mess if you're not. I have been to the plant at Applied and they have this huge, smelly, machine that they claim is for reacting their products and they claim that even if another company discovered the process, it would cost a great deal of money to duplicate it. I have no reason to doubt that story. I suppose it's possible that inside this great big, stinking machine there are a bunch of illegal aliens mixing up some Shell epoxy, but I doubt it. If you could make this stuff by simply mixing up a few simple chemicals, why do they go through all that trouble? If some epoxy peddler tries to sell you an alternate epoxy that he claims is "just as good", or worse yet that he claims is the "same stuff" then ask him why he hasn't contacted me about it. I might point out that this year at Oshkosh I didn't even get a free beer out of the guys at Applied and when I built my aircraft I paid for all the epoxy that went into it.

They're nice guys, but they don't even send me a Christmas card, much less a royalty or kickback. What I'm saying, is that you should try to save money, but don't be penny wise and pound foolish by falling for some slick sales pitch. I don't want to see you guys disappointed by using the wrong stuff. That goes for all the products and materials in the plans.

COCKPIT HEATER: We do not have a cockpit heater in the prototype, since we found out a long time ago that living in a warm weather climate is lots more fun than fighting snow and freezing temperatures for a big portion of the year. For you folks who haven't gotten the word yet, perhaps you might want to look into a neat heater that was on display at Oshkosh this year. It's made by SOLAR A/A HEATER INC. 1704 S. 341 Pl. Federal Way, WA 98003 (206) 838-8124. Don't be fooled. It's not really a solar heater. It runs on electricity and the folks at SOLAR can make them in several sizes. I suspect that the 10 amp version will work well in the **DRAGONFLY**, but I haven't tested one yet. The price is still in the hundred buck range, but is expected to go up before the cold weather hits, so if you're interested, give them a call pretty soon.

MISC. NEWS: I got a cute picture from my friend Bud Evans (the VP designer) the other day. Several designers living in the San Diego area get together once a week for lunch. Bud sent me a picture of the whole group wearing "Build The Dragonfly" pins. Among the people in the picture were T. Claud Ryan (Ryan Aircraft), L. Pazmany (designer of the PL series) and, of course, Bud Evans. I really got a kick out of it. Along the same line, I got an interesting call the other day from a guy who wanted to buy a set of plans for my new car top boat. This isn't unusual, except that the caller in this case was Charlie Morgan. For those of you who limit your recreation to strictly above sea level, Mr. Morgan is the designer of the Morgan series of yachts as well as designer, skipper, and driving force behind the 12 Meter boat Heritage, probably the most beautiful 12 Meter ever built.



DRAGONFLY FIRST FLIGHTS: Several aircraft have made their first flights since the last newsletter. I wish I could report that all went perfectly, but such is not the case. Interestingly enough, all the problems can be related to violating the advice in the plans. I have asked for detailed information on several of these mishaps; however, pilots being what they are, these folks are not too eager to tell the whole truth. In fact, some of them want to pretend that nothing ever happened. For this reason, I am unable to make any comprehensive incident reports, but I have enough data from various sources so that I can re-emphasize some of the points that might keep future builders out of trouble. By the way, if you have any sort of difficulty with the operation of your aircraft, whether it is with the engine, ground handling, or flying qualities, please don't keep it a secret. If it's something that can be fixed with a plans change, we want to fix it. If it's simply a dumb mistake on your part, don't keep that a secret either. Sure it's embarrassing, but others may be able to learn from your mistakes. We won't publish your name, so only your friends will know who you are, and they already know, right?

First, and most importantly, do not taxi test on a short runway. At least one fellow is taxi testing on less than 2600 feet! Normal operations on 2600 feet should not be any problem for the average pilot, but be sure to taxi test on the longest runway available. If this means trailering the aircraft 40 miles, do it! I drove 40 miles one way to test my aircraft because the runway was nice and long. Guess what? I didn't have any problems and you shouldn't either if you use your head.

Once you have decided that the aircraft will fly in ground effect, STOP TAXI TESTING AND GO FLYING!! One person finished his taxi testing and then went and flew his aircraft, which flew great. Then he decided to take his wife for a ride, but she didn't want to get too high, so he elected to take off at one end of the runway, fly down the runway, and then land at the other end!! All this on 3000 feet! The interesting thing is that it worked a couple of times, and then the brakes got hot and he ran off the end of the runway into the boondocks and failed his canard in torsion. I wouldn't do runway flights near gross weight under any circumstances and never on a short runway. Why should you?

Another thing not to do is to stall the aircraft 10 feet in the air and let it fall to earth. One of our builders proved that this technique will turn your nice project into a pile of junk. He didn't get a scratch, but his project sure did. Fly the aircraft down to one or two inches above the runway with the power off and then simply let it land when it's ready. If the wheels touch down, don't worry. Just make sure you're pointing down the runway as the wheels kiss the pavement. Keep trying to fly a couple of inches above the ground. If you're not too fast this event will be so short you will hardly notice it; however, if you're 10 or 15 mph fast it make take what seems like quite a while. Don't do anything

stupid. Relax and think about keeping the nose pointed down the runway. Keep flying and don't try to force the aircraft down onto the runway before it's ready. If you get slow and are still more than a foot or two above the runway, don't just sit there, ADD A LITTLE POWER!! Keep flying the airplane. A little power will cushion the landing, but will also use up a little bit of runway. Don't worry because you are testing on a plenty long runway, right? If you can't get the thing down smoothly with 2000 feet remaining on your early test flights, then add power and go around for another try. Believe it or not, several of our early flyers were unable to do this because their engines were not running well enough to go around!!

Here's what some people have been doing. At least two folks have decided to use a 2100cc engine, against my advice. Sure enough, these engines experience cooling problems. Not only that, they will not run smoothly. In fact these engines are so bad that doing taxi testing is rather difficult, so the builders elect to just go ahead and fly! Luckily, the test pilot (not the builder) was experienced and managed to make his first landing a good one since the engine wouldn't handle a go around. This has happened more than once. Don't let it happen to you. You should be able to make your engine run perfectly on the ground before you go flying. If you can't hold full power for 2 minutes on the ground with the tail tied down without blowing up your engine, then you shouldn't even think about flying. I didn't design the **DRAGONFLY** to operate on the small size VW by accident. I did it on purpose because these "hot rod" style conversions have a terrible track record.

Be sure your ground handling is satisfactory. If you make an error on the tail pivot angle, then the tail wheel will have "anti-caster". In other words, if the bearing isn't angled far enough, the tail wheel will have a tendency to go into a turn and make the turn tighter rather than having a tendency to come out of the turn as it should. The last thing a tail dragger needs is a tail wheel with anti-caster. I got a call from one guy who said he was having ground handling problems and had almost run off the runway. To make a long story short, he didn't have any recent tail dragger time, and in fact, he had never flown any tail dragger, was not current in anything, was a low time pilot to begin with. But he made up for it by setting his tail wheel pivot up with anti-caster, testing on a narrow runway about 2600 feet long. He didn't want to drive 15 or 20 miles to a giant old military strip to taxi test. I convinced him that he was doing a whole bunch of wrong stuff and he was lucky that he had not damaged anything so far. He agreed to take his airplane apart, trailer it to the large field, and take some flying lessons. For some reason he changed his mind and decided to continue testing on the small strip. You can guess the rest. As luck would have it, he wasn't hurt, but the time and money necessary to repair the damage would have been better invested in a few flying lessons.

The point is, don't suddenly get stupid at the end of your project. Take your time and follow the advice in the

plans. I don't sit here and pound this word processor so that I can trick you guys into messing up. I do it so that you will have a few hints to make your project an enjoyable thing. Don't invest a lot of time and money in your airplane and then let a lack of judgement or training cause a real heart breaker or worse a real bone breaker. Get some recent tail dragger time, use a nice big runway even if it isn't convenient, make sure your airplane is put together properly, and make sure your engine is operating perfectly before you even taxi test.

AEROBATICS: I got a call from a friend of mine in San Diego not long ago. He reported that one of our friends may have just set a world speed record for the Vari-Eze.....straight down! The pilot, who has a lot of experience, was fooling around trying to do aerobatics and fell out of a loop. The 250 mph airspeed indicator hit the peg a long, long time before the aircraft reached the max speed. He didn't put enough "g" on the airplane when he realized he was in trouble, and a few seconds later he was going so fast he was too terrified to put on a lot of "g". He didn't have on a chute, but at least he had lots of altitude. He needed it too because the pull out took several thousand feet. The emphasis is on "a few seconds". Aircraft that don't have much drag will overspeed in literally a few seconds and the **DRAGONFLY** is no exception. The big difference is that an aircraft like the Vari-Eze is designed for high speeds (although I'm sure Burt Rutan gets a few more grey hairs when he hears of them going straight down at over 300mph) while the **DRAGONFLY** is designed to be a low speed aircraft. The **DRAGONFLY** is almost certain to experience severe (read potentially fatal) aerodynamic problems if you "fall out" of some maneuver. At least one of our builders (a low time pilot) is fooling around with aerobatics. Remember that I am the designer, not your mother. You can do anything you want to, but aerobatics in the **DRAGONFLY** is not safe, especially for low time pilots. I don't do any aerobatics in the **DRAGONFLY** and you shouldn't either.

THANKS: At Oshkosh this year, Ching and I were given a whole bunch of wonderful gifts, including hats, jackets, pins, prop covers, patches, etc. I tried to thank all the folks in person during the convention, but I know I wasn't very successful since most of the time I'm trying to talk to 3 or 4 persons at once. Let me take this opportunity to thank all of you again. Thanks also to all the builders who gave us a hand carrying stuff to and from the car and all the other assistance we got from the friendly folks we meet each year.

WEIGHT CONTROL: Most of the aircraft that have been completed are within a couple of pounds of what the prototype weighs. We're getting weights in the 607 to 618 pound range for many of the aircraft. A few people are using much heavier engines and other modifications that make the airplane weigh up to 670 or so. This makes your useful load go down and decreases performance across

the board, so avoid the temptation to add anything that will make your aircraft heavy. Really work on this point, and you will enjoy flying your project a lot more. It's real easy to rationalize a few pounds here and a few pounds there, but before you know it gets out of hand. Be careful.

BUILDERS LIST: The list of builders is getting so large these days that we've decided not to publish it in each newsletter. We plan to publish it every other issue. Currently we are including an up-to-date list with every info pack and plans set. If you need a list just send us a self addressed stamped envelope and let us know you want us to send you a builders list. We'll be happy to do so.

PLANS CHANGES: Viking Aircraft cannot enforce "mandatory" plans changes or modifications to your aircraft in the same way as the manufacturer of a certificated aircraft can. Each builder is the manufacturer of his aircraft and as such, he is able to heed or ignore any plans changes as he wishes (or he may follow or ignore any or all of the plans for that matter). However, in the interest of safety, it is strongly recommended that the changes or advice published in the **DRAGONFLYER** be carefully considered for incorporation into your construction manual and/or your aircraft.

✓ Chapter 7, Page 7, Column 1, Paragraph 2, Add: Attach the Phenolic bearings with 3 layers of 3 inch wide 10 oz fiberglass tape lapping onto both the fuselage cover and the forward bulkhead.

✓ Chapter 5, Page 9, Add: The radius of the semi-circle shaped cutouts in the fuselage forward floor is 1.5".

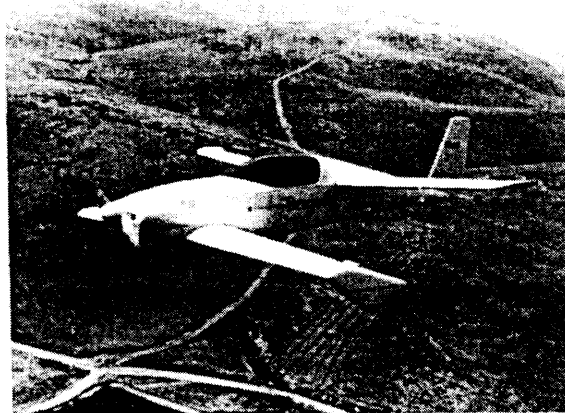
Chapter 15, page 3, Column 2, Paragraph 5, Add: The fuel filter at the electric pump should be changed every 50 flight hours or whenever fuel flow into the header tank seems sluggish.

✓ Chapter 2, Page 6, Column 2, Paragraph 3, Add: It is a good idea to locate the aft fuselage air exit just ahead of the 1/2" thick tail doubler. Make a shallow depression to form a sump so that any rainwater will easily drain out.

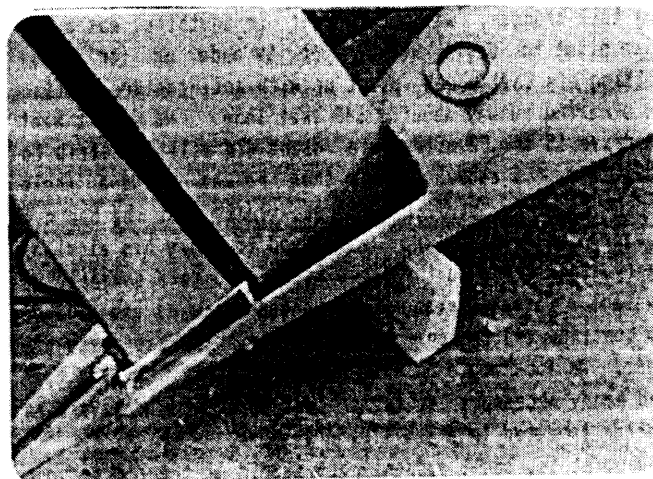
Chapter A, Page 2, Change: Change the cowling screws to 48-MS24693-S272, in other words, they should be 10-32 vice 6-32 screws.

LICENSING AGREEMENT: Please take the time to fill out your licensing agreement and send it to us so that we can issue you a serial number and release your name to other builders if you wish. Remember that the construction manual is a copyrighted document and as a builder you are licensed to build one aircraft only from each set of plans. If a project is sold, the plans go with that project whether it is completed or not. Don't get caught in a situation where an unscrupulous builder sells his project or aircraft to someone else and then sells you his used set of plans. We're more than happy to

provide builder support to registered plans holders, but naturally we're a bit reluctant to help out people who try to build two planes from one set of plans or who photocopy plans or allow their plans to be photocopied. Remember that you're doing yourself and your fellow builders a real disservice if you take part in something like this.



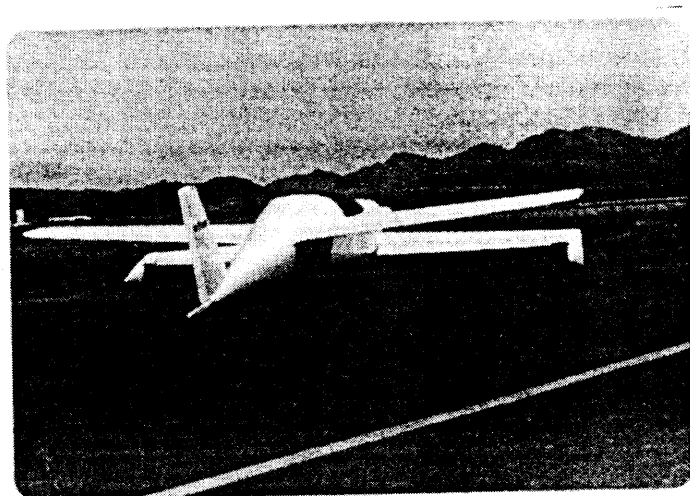
BURNOUT: Some builders have reported experiencing "project burnout". Don't worry. It happens to almost everyone at some time or another. Don't stumble along hating your project and putting in less and less time. Set the whole thing aside and take a break. For most folks it only takes one or two weekends of fishing and they start missing their project. Before you know it you'll be back on the right track. Whatever you do, don't rush the finishing steps to "get it over with". Re-read my finishing article in the Feb 1982 issue of **SPORT AVIATION** magazine. Coating your whole airplane with micro is bound to cause "burnout" so be careful how you go about finishing up your project. Remember, this is supposed to be fun.



ITEMS AVAILABLE FROM VIKING

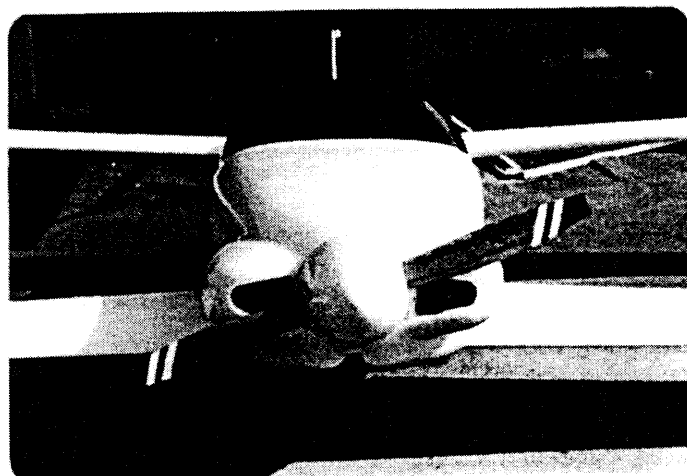
PLANS- \$175 (\$185 overseas) includes 1 yr. subscription to the quarterly newsletter.
 INFORMATION PACKAGE- \$7.50 (\$8.50 overseas) includes color lithograph. QUARTERLY NEWSLETTER- \$6.00/yr (\$7.00 overseas) ALL PRICES INCLUDE AIRMAIL POSTAGE. OVERSEAS CUSTOMERS PLEASE SUBMIT U.S. FUNDS ONLY.

contact:
 VIKING AIRCRAFT
 RR #1, BOX 1000
 ELOY, ARIZONA 85231
 PHONE (602) 466-7538



PERFORMANCE SPECIFICATIONS

CONFIGURATION	Canard
SEATS	2 side-by-side
CONTROLS	Dual side sticks
COCKPIT WIDTH	43 inches
CONSTRUCTION	Foam/Fiberglass
CANOPY	one piece molded
GROSS WEIGHT	1075 pounds
MINIMUM SPEED	45 mph indicated
RANGE	500 Miles
FUEL CAPACITY	15 gallons
WING SPAN	22 feet
TOTAL AREA	97 sq.ft.
WING LOADING	8 lbs/sq.ft. solo 11 lbs./sq.ft. dual
LIMIT LOAD	+4.4, -2.0
GLIDE RATIO	14.5 to 1
FUEL CONSUMPTION	3 1/4 gph at 155 mph
COST	As low as \$5000

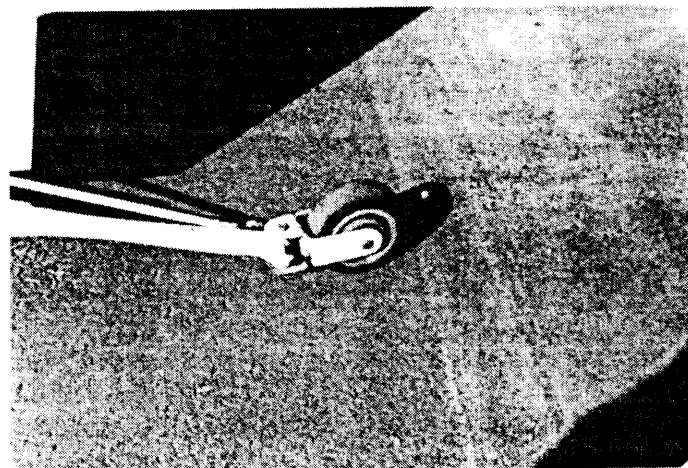


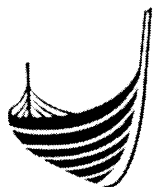
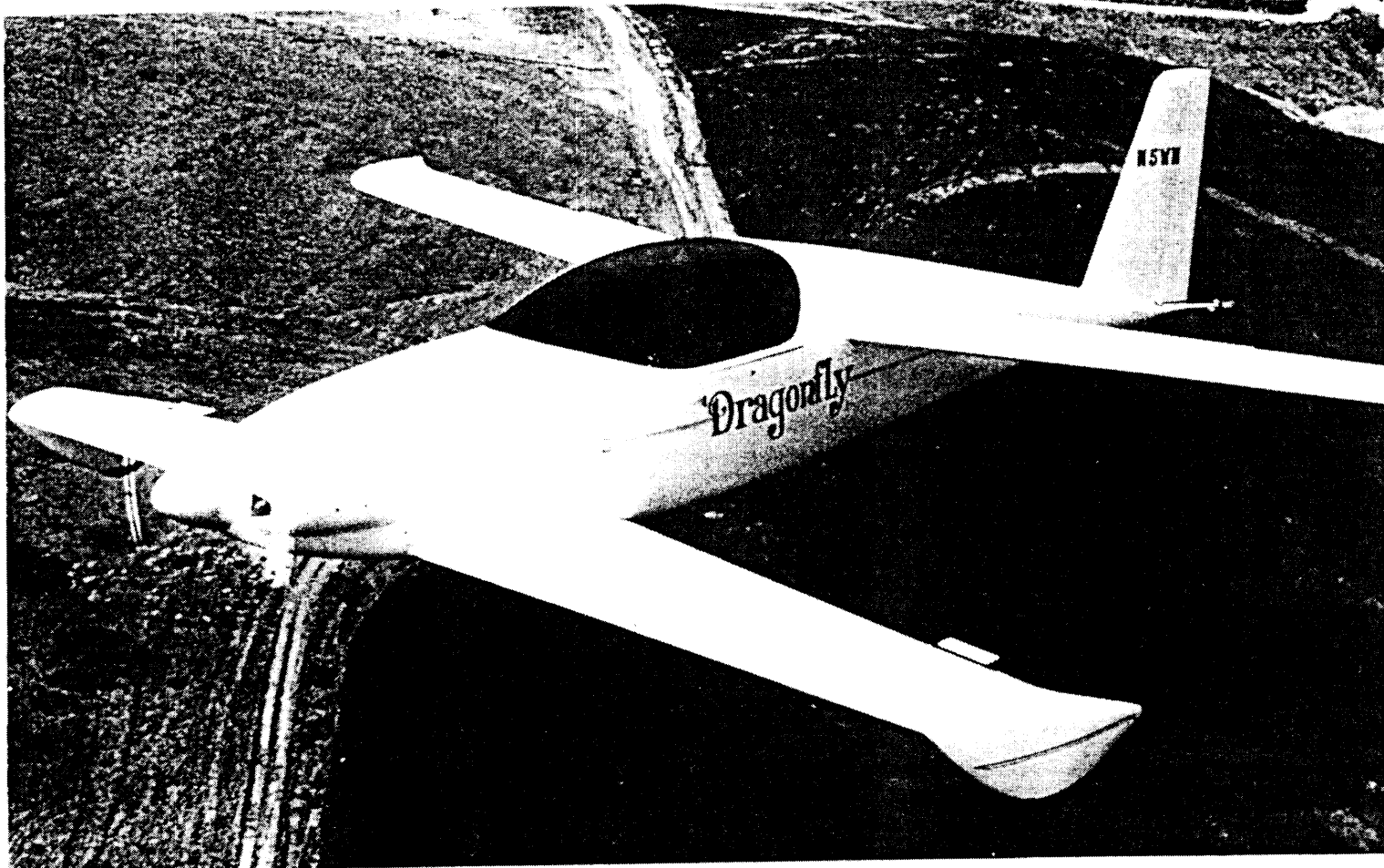
1600 cc ENGINE

POWER	45 hp
EMPTY WT.	590 lbs.
TAKE OFF	500 ft.
CLIMB	800 fpm solo 600 fpm dual
CRUISE AT 75%	155mph
CEILING	17,000 ft.
MAXIMUM LEVEL SPEED	158 mph

1835 WITH STARTER

POWER	60 hp
EMPTY WEIGHT	605 lbs.
TAKE OFF	450 ft.
CLIMB	1050 fpm solo 850 fpm dual
CRUISE AT 75%	165 mph
CEILING	18,500 ft.
MAXIMUM LEVEL SPEED	168 mph





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