

This aircraft was built by Lazlo G. Kiss of Storgaten 22D S753 31 Uppsala, Sweden.

It is powered by a HAPI 60-2DM engine.

Has flown over twenty-two hours out of grass strips.



**DRAGONFLY
NEWSLETTER**

Dragonflyer

#25 SPRING

**SUBSCRIPTION PRICE \$15.00 A YR. U.S., CANADA AND MEXICO
\$20.00 A YR. ALL OTHER COUNTRIES**

I expect some of you have been wondering when the next newsletter was going to come along. There are four newsletters a year, but that doesn't necessarily mean that they are quarterly. I write a newsletter when things worthy of mentioning in the newsletter have stacked up and it's done in my spare moments. Lately there haven't been a whole lot of spare moments.

Anyhow, here it is newsletter time and in this particular newsletter, we've got some good news and some bad news. So let's get the bad news out of the way first and then we'll go ahead with the good news.

AIRWORTHINESS ALERT !!!!!

PROBLEM: We have had the second incident of elevator flutter in flight.

HISTORY: Over a year ago it was reported to us indirectly, never directly, that a builder with a pre-fab tri-cycle gear Dragonfly (gear was his own design) had encountered elevator flutter at approximately 140 mph according to the second-hand information we got. We never had access to what happened, why it happened, never had our hands on any of the hardware, never were allowed to examine the aircraft afterwards, so we were very much in the dark about that case of flutter. We did

note that the builder was at the last Dragonfly swarming here, talked to the group and said he was building a new canard, doing everything exactly like the old one and didn't expect to encounter any problem.

Last Saturday, Justin Mace's pre-fab Mark II, with 53 hours total time, encountered elevator flutter while Justin was flying solo at an air speed between 135 & 145 mph in turbulent air. The aircraft pitched down violently with elevators fluttering on both sides. Justin immediately closed the throttle and pushed hard full rudder. The flutter stopped and the aircraft stabilized at 90 mph. He flew the airplane back to the airport here approximately 25 miles. We immediately inspected it to find out why this had happened.

INSPECTION REPORT: It was apparent from wear tracking in the paint on the elevators and the canard that the elevators had moved far beyond their normal limits of travel, but everything on the aircraft appeared normal at first glance. We then began checking the integrity of the control system. We immediately noted that when the right elevator was immobilized by holding it, that the left elevator could be moved up and down approximately 2 1/2 inches at the

trailing edge, with only a slight drag through the control system.

Checking the control system elevator horns, torque rods and such through the fuselage between the elevators and attached to the joy stick, disclosed that virtually every junction where there is a tube inside a tube with an AN-3 bolt through it to tie the tubes together and stop any movement tube to tube, had elongated holes and the tube was loose inside the other tube allowing a lot of free play.

Most of the movement present after the incident we feel was a result of the flutter.

PROBABLE CAUSE: Justin and I spent considerable time going over all the details leading up to the incident in the previous few flights and the last flight. I asked if he had noted any trim changes in the airplane. He said yes, he noticed in the last few flights, it had begun to have a tendency to turn to the left a little bit, but he didn't have a cause. After thinking and rethinking, we believe we know what happened. We surmise that one or more of the tube within a tube joints in the control system loosened up due to in flight use and ultimately one or more of the tube within a tube joints allowed movement (read that as slop) of the elevator independent of the control stick. We're not sure at this point if the right elevator came down to produce the left turn or if the left elevator came up to produce the left turn, but one or the other of the elevators apparently loosened, probably the left elevator.

Justin was flying between 135 and 145 mph in turbulent air, so the airspeed indicator was fluctuating quite a little bit. He hit a little bit of turbulence, excited that surface enough to start the flutter, apparently it in turn excited the other one.

To further verify this synopsis I have talked to Tom McCutcheon who also flies a Mark II and had mentioned to me about a year ago that he thought that one elevator had buzzed one time, although he didn't get a fully developed flutter. I called Tom in Oregon. We discussed the problem and what we felt was a probable cause. Tom verified that he had had a lot of slop in his control system. When he got the buzz he had redone his control system and eliminated all the slop and has had no further problem with it.

We checked the Prototype aircraft, which now has over 1600 hours on it, with over 600 of that being on the Mark II canard and the control system in it has no slop and it has never shown any indication to do anything that it's not supposed to do.

CONTROLLING THE PROBLEM: Effective immediately, upon receipt of this newsletter, we urge all Dragonfly builders to ground their aircraft and thoroughly check the control system to assure that no sloppiness or excess motion is present in the system.

We further urge any Dragonfly builder who knows another Dragonfly builder to make sure that that builder, especially if he's flying, be made aware of this problem and the need for a thorough inspection of the control system.

Many Dragonfly builders, unfortunately, do not subscribe to this newsletter. Guys, it's the cheapest form of insurance you're ever going to be able to buy. If something goes wrong, we're going to let you know about it as soon as possible. Our problem is, we don't know where all the flying Dragonflies are, who has them, so it's impossible to immediately notify everybody. Fifteen bucks a year to get a little bit of information that just might keep you from busting your buns is a cheap price to pay.

At the present time, we feel that inspection of the control system to assure it is up to design standards will effectively stop any future flutter problems that is caused by slop in the control system.

Our next step will be to redesign the control system so that we're not dependent upon the friction between the tubes gained by the clamping pressure of the AN-3 bolts and maintain the integrity of the control system. We're going to redesign that and replace it with a better system.

We feel that some redesigning of the elevator control system is going to be necessary to totally eliminate the possibility of this happening again. We're also in contact with one of the country's leading flutter dynamacists (retired from Lockheed) and in the next few months, we will be exploring the possibilities of adding mass balance weights to the elevator and verifying whatever new design we come up with by a new series of flutter tests.

We strongly caution you at this point to realize that flutter is something that can happen and has happened to many airplanes. Beech has been fighting an incipient flutter problem on the Bonanzas for years and hasn't been able to completely eliminate it in spite of the dollars they have thrown at the problem. Piper had the problem on some of the Comanches, apparently solved it and it has also been found in several other airplanes.

Don't go out in left field and start designing a fix on your own and hanging a lot of counter weights and such on there

without the engineering know-how, the aerodynamic background and the verification by flight test that something is going to work, because you very likely will create a problem that's a lot bigger than this little problem we have now.

We don't feel at this point, that Dragonfly is necessarily flutter-prone, except in those cases where there is excess play in the elevator control system, essentially allowing the elevator to fly completely free just streamlining itself in the slip stream. Without the damping present of being a solid part of the control system a problem can start. Once it starts, it amplifies.

We'll be working on this problem on Justin's airplane, putting it back in the air as a test vehicle for the reworked elevator control system. As soon as we've gotten it designed and PROVEN BY FLIGHT TESTING, the details will be made available in the newsletter.

In the meantime, for safety sake, we recommend that you use the pre-flight walk around procedure that Tom McCutcheon uses on his airplane. As part of your pre-flight inspection; 1 - Hold the pilot control stick firmly and immobilize it with your right hand. Then, holding the trailing edge of the elevators, put a firm pressure on it and see if there is any movement, slop, or slippage in the system. If so, ground the airplane until you fix it. 2 - Go around to the right side of the airplane and repeat the procedure holding the right elevator with your right hand and the stick with your left hand. If there's any slop or movement, ground the airplane. 3 - If you have someone to help you or have a passenger who's going flying with you, have him hold the right elevator immobilized while you try to move the left one. If there's any movement, any slippage or slop in the control system, ground the airplane until it's fixed.

We've never had any problem whatsoever with the ailerons, but the same sort of control system check on the aileron circuit would spot any control system deficiency there. If slop is present, ground it and fix it.

By best educated guess, we have approximately 170 Dragonflies flying in nine nations around the world and we have no knowledge of any incidents except the three aircraft just reported here. We believe this problem is fully controllable by proper maintenance on your aircraft and thorough pre-flight checking. So far this problem has only shown up on Mark II aircraft. We simply don't know if it is unique to Mark II's, but we believe that it can happen to

any Dragonfly. Certainly control system slop is not recommended in any airplane.

SUN'N'FUN THIS YEAR

I've been to Sun'N'Fun on three previous occasions and had lousy weather. I've heard it called variously, "Mud'N'Crud" by some, "Sog'N'Bogg" by others, for me it has been "Rain'N'Pain", but this year it was "Sun'N'Fun".

I left Eloy late Thursday afternoon. Went non-stop to Midland, Texas, stayed overnight with a builder there leaving about ten o'clock the next morning and arriving Monroe, Louisiana at about 3:30 in the afternoon to visit my good buddy Neil Sidders. Saturday morning Neil and I jumped in our birds. He flies a Sonerai II-L, (with HAPI engine of course), and boogied on down to Sun'N'Fun arriving there about four o'clock Saturday afternoon.

We had some beautiful flying that day. We were able to trim out and fly in very tight formation, each one of us taking pictures of the other guy, airplanes flying completely hands off, the air was that smooth.

We stayed at Sun'N'Fun through late Tuesday afternoon, then went over towards Tampa, Florida to visit Bob Berube, who has a beautiful new Dragonfly Mark I just about ready to make its first flight. We did get a weather front moving through on Wednesday, so we elected to stay there and play airplanes with Bob, taking off Thursday morning and going back to Neil's place in Monroe, LA. I got out of there on Friday and came on home.

SEALED COWLING

We've been looking for a way to demonstrate trouble-free, maintenance free flying, so I had Ken Brock of Gyrocopter fame come by on his way to Sun'N'Fun and seal my cowling so I not only couldn't open it, I couldn't even check the oil. I arrived at Sun'N'Fun with the cowling still totally sealed and after I had done my engine forum on Sunday, several of you builders came out to watch me uncowl the engine. Oil was still up at the full mark and there wasn't any reason to take the cowling off, except to let people see the engine. I don't consider running twelve hours without checking the oil any big deal. We normally run it twenty to thirty hours here between times of pulling the cowling, but anyhow, it's pretty good proof you don't have to tinker with these new Magnum engines, all you have to do is fly them.

While at Sun'N'Fun I had a chance to talk with several builders down there. The only other Dragonfly that showed up at

Sun'N'Fun was Gary Conrad out of, I believe, Flint, Michigan. Gary's airplane is about two years old and well over 300 hours, I've forgotten the exact figure. Gary gets in it and goes places. It's a traveling machine. He's been all over the Eastern United States and down to Bermuda. I don't know where else, but he uses the airplane for what it was intended for.

FLIGHT TO MEXICO

Due to this little flutter problem showing up that's going to require a lot of my time to work out, the flight to Mexico in May has been cancelled. Troy Burris was scheduled to go. Jack Shafer had indicated a desire to go. Ed Cunningham of Las Vegas had planned to go and there were four more possibles. We'll get a handle on this control linkage problem and get that straightened out and hope maybe to make a flight down there this fall when everything's a little more stable.

Those of you who are interested might read the article I did for Kit Planes in the issue presently on the newsstands about a couple of different flights that I have taken down to Mexico recently and there's some pictures there. These Dragonflies are traveling machines and you guys who have got them and are not getting the bugs worked out of them so you can get in them and go places are really missing a lot of enjoyment.

OSHKOSH PLANS

We have just made reservations with EAA headquarters for our space at the convention this year in Oshkosh. We're going to do something a little different this year. Both the Prototype Dragonfly and the Cygnet will be there, but they will be in the aircraft display area on the north side of the exhibit buildings near the forums tents. I plan to fly the Prototype Dragonfly back there. My son, Pat, will fly Cygnet. We will have a 10 X 20 tent there with a VCR and TV so you guys can see some of the things that have been happening here on video tape. Of course there will be a display of engines and some of the other goodies that we make, but perhaps more importantly, I believe it will be a lot less hectic. We'll have table and chairs so that Dragonfly builders and engine customers can come in and sit down out of the heat or the rain, as the case may be, where we can have the time and can give each person some individual attention and get a little better acquainted. I think it will work out a whole lot better for us and I believe our customers are going to enjoy it to. We look forward to seeing you there. My wife,

Phyllis and daughter-in-law, Robin will be driving the van back and bringing the grandkids, Jaime and Jason, so the whole family will be there for the first time in several years.

Little Jason, two years old, talking like a phonograph, growing like a weed, thinks the two best things in the world are flying in the Cygnet and ice cream. I've gotta get that boy broke in to the Dragonfly, but he sure does like airplanes.

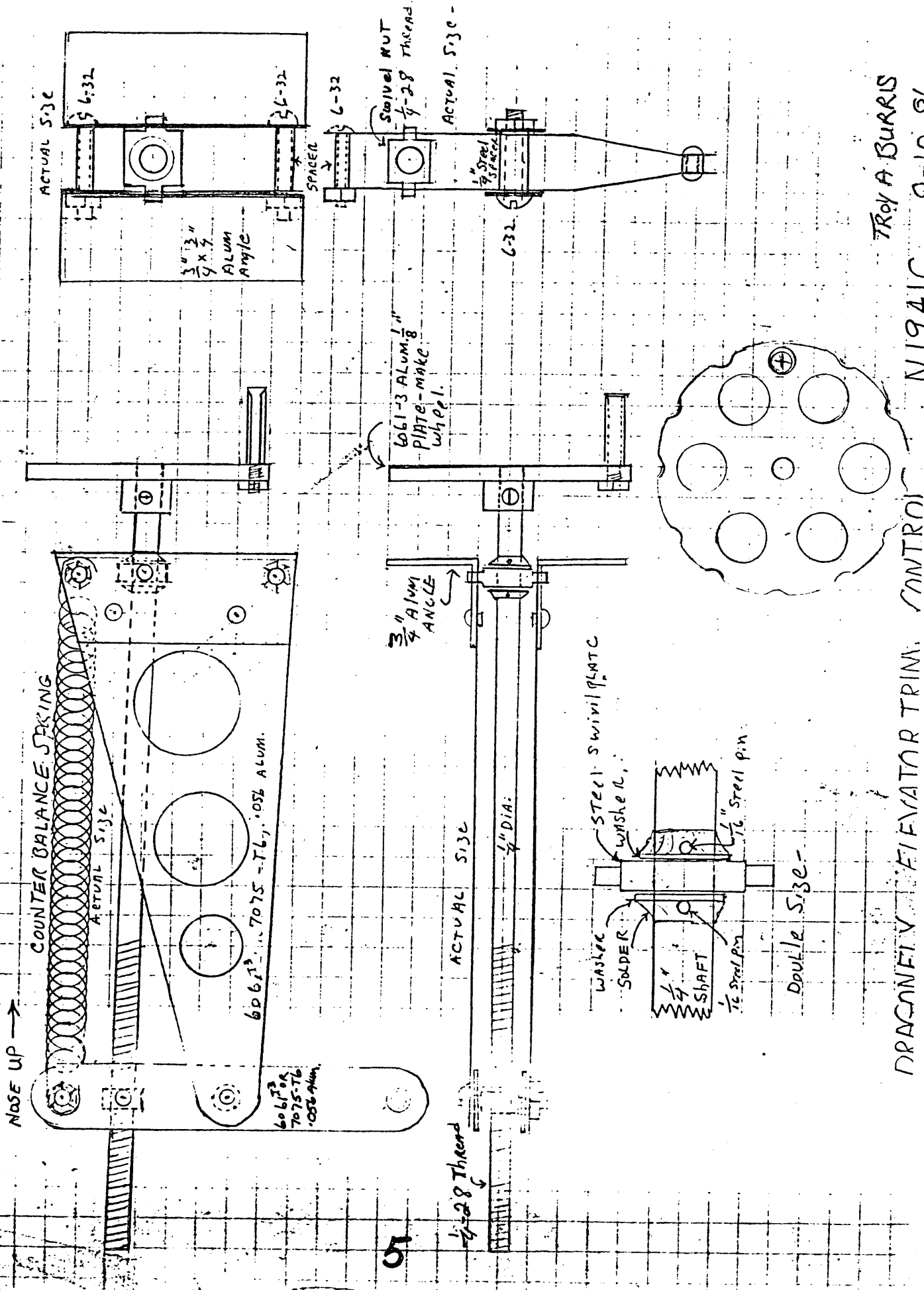
We do plan to have a Dragonfly builders get together there at Oshkosh and I'd really like some input from you guys as to which evening of the convention might be most appropriate so we can get the greatest number of our Dragonfly builders in one spot at one time to swap stories about the triumphs, the trials and the tribulations of building and flying a Dragonfly. When we've had these little get-togethers in the past, it's been enjoyed by everybody, so give me some input as to what night might be the best for the majority of you builders. It's even possible that we could do it at some restaurant and have dinner if you'd like to do that.

TRIM ACTUATOR

A couple of years ago I worked up a better elevator trim actuator for the prototype than what was originally put in it, one that gave me a nice vernier type of control. I did it quick and dirty and it has worked well ever since, but it's not perhaps the prettiest thing.

Troy Burris of California saw mine and liked it and went ahead and improved on it quite a little bit making his go in and mount up to exactly the same holes that the original trim mechanism mounts to and it works out very well. Enclosed here find a drawing of that elevator trim control as Troy worked it out and I strongly recommend it. We have no plans of ever producing the things in the future, but it will be a worthwhile addition to your airplane should you decide to build one.

**PLANS FOR TRIM
ACTUATOR ON NEXT
PAGE.**



DRAGONFLY ELEVATOR TRIM CONTROL N1941C TROY A BURRIS Q-10-81

BEWARE OF SUBSTITUTE MATERIALS

Jim Mills, a Los Angeles area Dragonfly builder, brought to my attention the fact that the discount house is selling a three-ply cloth that they represent apparently as being equal to what HAPI is selling for covering the wing and canard on the Dragonfly. I don't know if it is or it isn't. Jim said he had covered his canard with our three-ply cloth and then helped a friend cover his canard with the substitute cloth. Jim said the stuff was terrible, with a totally different weave and pattern than what we used, so it produced a canard he's not sure is airworthy. It's certainly got a lot of surface imperfections and is going to be very hard to finish.

On the manufacturers specification sheet this substitute cloth may (that's a very questionable MAY), appear to be a direct substitute for what we use, but the simple fact is, no one has ever built and tested a canard or a wing built out of this stuff. We put approximately \$6,000.00 of labor and money into building and testing a canard out of our three-ply cloth to prove that we had a material that was strong enough and workable enough to produce a sound airplane and not compromise any of the design integrity.

I don't know if this substitute cloth is good or not. All I know is, it is untested. You may remember we had a cloth that was substituted by Ira Hale at Alpha Plastics some years ago, claimed to be a direct substitute for 7715 and in fact, it was about 18% deficient in strength. Ultimately the cloth was taken off the market and you guys were either reimbursed in money or given genuine Hexcel 7715 instead of the stuff they had originally supplied.

We go to a lot of work and a lot of expense to qualify these materials when we do something to try to keep you guys on the safe side. We haven't made it known what the material is or who our supplier is for the simple reason we spent a lot of money to qualify the cloth, when we sell it, we recover some of our expenses and some day we might even make a profit. A profit for us is wages. I had a supplier of glass cloth call me recently and ask me what it was and why I wouldn't tell him what it was, so they could discount it and sell it to you guys a whole lot cheaper. Well, that's lovely for you, but if we don't get something for our efforts somewhere along the line, I'll guarantee you that there will be no new engineering done, in fact, Viking aircraft will dry up and blow away without being supported by the builders along the way.

There's no way we could continually upgrade the design, take care of problems like this control system problem we have now, write newsletters, keep you guys informed, unless the dollars come in from somewhere. Every time you spend a dollar with a discounter because he can give you something that isn't the right material, but give it to you a little cheaper, you're undermining our income and you're cutting your own throat, guys. If you want to eat the fruit, you've got to make sure that the tree gets the water.

We don't particularly want to be in the fiberglass business. If somebody wanted to come along and offer us a little commission to offset the engineering and development costs, we'd be tickled to death to get out of the fiberglass cloth business. Until then, though, if you don't get it from us and you get the stuff that is supposed to be just as good, just remember the 7715 fiasco. You may or may not be getting something that's as strong and you are betting your life on the strength of those flight surfaces.

Substitution of glass or resins for the designer approved materials in a fiberglass airplane is about equivalent to Russian roulette. When one of these jokers wants to sell you a substitute material saying, "Oh, it's just as good as what the designer specifies, or better", demand that they put it in writing that it is equal to or better than the designer approved material and further that it has been tested and proven adequate for the application. I'd bet a lot of money that you can't get anybody to give you such a document, but if he does, put it in a safe place if you're going to do a lot of material substitution, so that if something fails your widow might have it for evidence if the substitute material proves to be the cause of the accident. I am constantly amazed at how blithely builders will substitute one kind of fiberglass for what's specified. The attitude seems to be, "What's the difference? Glass is glass."

If the set of plans called for aircraft grade spruce in a spar, the same builder wouldn't think of deviating from it and substituting sugar pine, when in actuality a look-alike glass might compromise the strength more than the sugar pine would in the wooden airplane. Think about it, guys, it's your lives and you've only got one of them to lose.

POWER FOR MOTORGLIDERS

About four months ago we had a man named Don Hall from Borrego Springs contact us about upgrading the engine in his IS-128-M2 Lark Motorglider. This aircraft was

built in Romania in 1977, spans 57 feet and weighs 1150 lbs. empty, grosses out about 1600 lbs. It's a big airplane. It's powered by a modified Volkswagen and had a best rate of climb Don said, on a good day of 200 ft. a minute, which made it marginal at best in the climb department.

A friend of mine had told Don about us and our engines. Don wanted to know if we could give him more power than he presently had. We said yes and quoted him a price.

He flew over here to Eloy. We pulled his modified Volkswagen out of there, rebuilt it to Magnum Plus specifications and reinstalled it in the aircraft. We used exactly the same Hoffman three position prop that it flew in here with, got it bolted back together one afternoon. Don was in a big hurry to get home, so we just fired the engine up, it seemed to run well, we cowled it and Don flew around the pattern and then headed for home a little over 200 miles away.

I got a call from him about a week later and he was very happy. He reports that his rate of climb had gone from 200 feet a minute to between 450 and 550 feet a minute. He had never been able to turn that prop faster than 2900 rpm and he was now turning it 3400 rpm. Don said he was really happy with the performance and finally had an airplane that climbed like it should.

Another month or so went by and I got a letter from Don saying that he was really enjoying flying the Lark having a lot of fun with it and I'm just going to quote from his letter. He says, "The Lark is flying real fine now and I am very pleased with the engine. Last week we installed a tow hook on the Lark and I tow Wade Steward in his single place sailplane. The Lark climbed out well and surprised many people."

Our new Magnum Plus engine we flat rate at 82hp continuous at 3400 rpm and it DOES deliver 82 real world, honest to goodness horsepower to the prop.

The modified Volkswagen engine that we took out of Don's airplane and made into a Magnum Plus was a Limbach SL1700E rated by Limbach 68hp at 3550 rpm. In fact, the best it could turn that prop was 2900 rpm, so it was probably getting at best about 55 real life horsepower out of it, certainly not putting out anywhere near the 68 advertised horsepower.

Don is very happy now with dual electronic ignition instead of a single old-fashioned magneto, lots of power and cylinder heads that stay cool even pulling around his heavy motorglider plus another glider behind it. That's moving a mass of about 2000 lbs. at take-off and getting two airplanes into the air and frankly we're

kind of tickled about it, because it's the first time we have been able to get into a situation where we can graphically prove that our engines are putting out just a heck of a lot more horsepower than other people are and more importantly, horsepower that can be measured by performance.

Just recently had a Dragonfly builder who put one of these 68 hp? Limbach 1700cc in his Dragonfly. I checked him out in the Prototype before he flew his airplane the first time and then he went on and put the first flights on his aircraft. I talked to him very recently and his comment to me was, "How much will it cost me to have my Limbach upgraded to a Magnum Plus? My airplane doesn't perform anywhere near like yours."

The plain and simple truth is Troops, our 60hp 60-2DM, the 1835, will put out a lot more horsepower than that Limbach will.

When you look at horsepower figures, ours or anyone else's, the horsepower without a qualifying rpm gives you only half of the equation. Look at the horsepower output. Look at what rpm you have to turn to get the horsepower, then compare that rpm to a real life situation where you've got a propeller on the airplane. It doesn't make any difference if the engine develops 1,000 horsepower at 5,000 rpm if your propeller is only good for about 3,000. Find out what it develops at 3,000 rpm, that's what you're going to have to live with.

If you compare the real life horsepower of our Magnum engines, compared to the fact that nobody else in the industry can offer you hydraulic lifters, dual electronic solid state ignition, individual custom-built aircraft cylinder heads, custom intake manifold designed specifically for Dragonfly (in fact all the other accessories, motor mounts, exhaust pipes, all the goodies), full-flow oil filter, ultracarb carburetion system. All those goodies are standard equipment and the most important piece of standard equipment that we offer is a three year factory warranty on Magnum Plus engines. I note that our competitor Limbach wants you to sign a release of liability to buy one of their engines and our competitor Revmaster has a kind of a funny warranty on their engines. Let me quote it directly from their catalog. If anybody's really interested, I'll send you a xerox copy of it. "Revmaster guarantees the workmanship and material 100% prior to installation and also exercises the company good will warranty program on engines that have been run." In other words, it's 100% guaranteed until you install it and run it, after that, maybe it is, maybe it isn't.

A guarantee's only going to be as good

as the company that stands behind it. We've been in business 10 years. Like any company, we've had good times and bad times and I like good times better, but we have continually grown and we're a good stable, financially sound company. Before you spend any money with anybody for an engine, they ought to give you a guarantee and the company ought to be sound enough to back up that guarantee and give you some assurance that that company's going to be around for a few years. Our references are as follows and I'd suggest, if you are going to buy an engine, you ask for references from anybody else who wants to sell you an engine. We've got several Dragonfly builders who have bought bargain engines that are now orphans because the people who built them are out of business.. They've got problems. No parts are available. Those engines weren't such bargains after all.

FUN FLIGHT CENTER

Up until early last summer, '86 that is, we had a lot of people coming in feverishly building their airplanes in the Fun Flight Center. After the first initial group of builders, the amount of builders we had became sporadic so we couldn't keep the place busy fulltime and it was requiring two extra full time employees. We were constantly plagued with back-order situations. It seemed Pat and I were spending half of our time on the phone trying to find parts, paying premium prices for air freight or whatever to get them here so that we could have the parts in house at the right time. You see, just like our customers, we have to live with back-order situations too and many times it has absolutely nothing to do with money. A part simply isn't available because of some reason nobody has any control over and it causes a lot of problems.

After operating the Fun Flight Center for a little over a year, building a lot of airplanes and I think, some real good airplanes, we sat down and took a long hard look at the books, talked with our accountant and decided we had to close it. Initially we had thought we might be able to reopen it someday, but we've now decided that the Fun Flight Center is a thing of the past. We are not building any more Dragonflies under the supervised atmosphere as we formerly did.

Contrary to popular opinion the airplane business is not a quick road to riches. One has only to look at the advertisements in the trade magazines of four years ago compared to the present ones to see how many people in this business have gone under and how few of us are left.

We have always done pretty well in engines, but we found ourselves in a situation where we were making a few dollars in engines and losing it in the Dragonflies. So we simply had to put a stop to those areas where we were losing money.

This is going to bring about some changes to the Dragonfly builders. Some things that we formerly supplied we simply can't supply in the future because we can't afford to lose money to supply them.

DRAGONFLY HARDWARE

A large share of the Dragonfly Hardware, such as motor mounts, a good share of the control system parts, Mark II landing gear systems, exhaust pipes are all made in house and we will continue to make those parts.

Some control system parts are of necessity going to become obsolete. The rudder horn is a good example. The rudder horn is made on a punch press die and I simply can't get a price on them without ordering at least 100 of them of out which I would probably sell maybe 20 in the next two years if I was lucky. I'd have to sell at least 60 of them to even get to the break even point on the profit structure, so it's easy to see why we can't afford to stock rudder horns anymore.

We do have a complete machine shop. We are willing to make any of these parts that you builders who don't have the facilities to make your own might need, on a time and material basis. But we simply can't afford to carry a large inventory of parts, many of which will never be sold.

You may note in the hardware list that there's considerable of the hardware for the mechanical brake system on the Mark I still in inventory. I'd be tickled to sell that stuff at 25 cents on the dollar to anyone who wants to build a mechanical brake Dragonfly. Incidentally, we do have some pretty good mechanical brakes available now. We have every intention of continuing to supply, support and in every way help our Dragonfly builders get their airplanes finished and in the air, but we do have to stay in business and continue to make a living in order to be of service to our builders and I'm certain that most of you understand that.

One thing that would help us greatly and I think avoid a lot of frustration on the part of some of the builders, is if you guys would plan your projects, order the things that you need considerably in advance of the date that you actually need them. We're not asking you to send money, just simply send the order along with your 8 mastercard or Visa number and tell us at

what point in time you'd like to have that order shipped. This gives us time to work it into our work schedule, acquire whatever specialized material might be involved and you'll stand a much better chance of getting the part you need at the time you need it. The whole system would work a whole lot better for everybody. Your card will not be charged until the goods are shipped.

If you'll note in the price list with our catalog, there are little boxes preceeding a lot of the parts numbers with a number in that square box. It might be a six, which simply means allow six weeks lead time for that part to be made. I really believe that if you guys will pre-plan your projects a little bit, pre-plan your needs, that we can work with you in such a manner as to get you the part when you need it so that it won't hold you up on your project.

TRI-FLY PROJECT

Due to a lack of interest, the tri-fly project has been totally discontinued. We sold the prototype airplane to Al Lopez of Upland, CA who is finishing it up and it probably will be flying pretty soon, but we have absolutely no plans to produce the tri-cycle landing gear system. As we indicated in previous newsletters, we needed 25 firm commitments from builders who wanted the landing gear system to make it economically feasible to tool and produce it. We didn't get the 25 firm commitments. We got only 12. In the case where builders did send us checks, all those checks have been returned uncashed and the project is a thing of the past.

We're very sorry that we couldn't continue with the building school program. We did something new. It worked out beautifully for the builders and the builders that did go through this program have been just super enthusiastic in their praise of the project. Unfortunately, it did cost us a lot of money and we took a pretty severe loss on the building school project. There is one thing I would like to point out to the builders, though, concerning HAPI and Viking which are both owned by the Taylor Family. While we did take a financial loss on the kit building program, **EVERY BUILDER WHO BOUGHT A KIT RECEIVED A KIT.** While the Taylor family took a loss, no builder took a loss in dealing with us and quite frankly I have been more than just a little bit burned up at the rumors going around the country, most of them started by our engine competitor friend up in Palatine, IL, to the effect that HAPI is going under.

Well, let me just put an end to that rumor. HAPI took a bath on the Dragonfly kits, but HAPI is not going under and I really couldn't suggest in more firm terms that anybody who wants to buy an engine or buy anything, go to your local banker and have him check out our references. You'll find that we haven't a thing to hide. In fact, I'm very proud of our references.

Not too long ago, Dr. Richard Goldman of Chicago, IL was talking about buying an engine, but he couldn't quite make up his mind. I finally asked him why and he said, "Well, you know what the rumors are", and he told me what the rumors were. I gave him references. I said, "You check out HAPI's references, if you find even one single negative thing, don't you buy an engine from us." Richard called me the next morning and said, "I wish my bankers would talk about me the way your bankers talk about you." Richard has since ordered a new Magnum Plus. It's been delivered to him. He has it bolted on the front of his Dragonfly and it should be flying pretty soon.

Anyhow, the bottom line is, we took our lumps last year. We're still here. We've been here ten years and we expect to be here for a considerable time to come, so if somebody comes along and says, "Hey, HAPI's having trouble", you've got the references, all you have to do is check them out. While you're at it, check out our rivals too. You just might find some interesting information.

Wells Fargo Bank, El Centro, CA
First Interstate Bank, Eloy, AZ
Arizona Bank, Casa Grande, AZ
Bank of Casa Grande Valley, Casa Grande, AZ
Eloy Chamber of Commerce
Better Business Bureau, Phoenix, AZ

DRAGONFLY CONSTRUCTION TAPES

By the time you get this newsletter I'm sure that all of you who have ordered the Dragonfly construction tapes that were shot here in the building center during the process of building the last couple of Dragonflies that went through here will have received your tapes. They are composed of approximately six hours of viewing on three video cassettes and sell for \$89.50. You guys who are just now starting building your airplanes will find, I believe, that it's one of the best investments you can make. You will find several ways on the tapes of saving yourselves far more than the \$89.50 that the tape cost, not to mention the amount of time it will save you. Perhaps most important, you'll learn how to do things right the first time so that you

don't have to go back and redo something you've screwed up.

We are currently in the process of finishing another Dragonfly all the way through to installing instruments, preparing it for paint, priming and actually doing the painting and doing all that sort of thing. And that should be available about 4 to 5 months down the road.

We're still working on the Dragonfly flight test video tape. It has taken a little set back because of the flutter problem on Justin Mace's airplane, but that may in essence be an asset, because now we'll go back and redo the flutter tests on camera to verify that we have got a fix for the problem.

As I write this final few paragraphs of the newsletter, we are fabricating the last few parts of the new control system and should have them welded up today so that they can be installed in both the tri-fly and Justin Mace's airplane within the next couple of days. We fully expect to be into the flight test program on this new control system very quickly.

The control system is designed to retro-fit into all previous Dragonfly, will require probably 2 or 3 days of work and modification, but we believe it will completely eliminate the problem with slop entering the system through wear or lack of maintenance. We're also building mass balance weights to go on the elevators, but at this point in time the design on those is not as far along as the design on the linkage. As soon as the linkage thing is done and tested we will get out another issue of the newsletter. It may be a short one, but it shouldn't be too long forthcoming. My guess at this point, it will be the latter part of June.

CHANGE OF PLANS

The original intention was to finish this newsletter and follow with another one in very short order, detailing the changes in the elevator control circuit. However, those plans got changed for me.

Many of you who have been here, particularly those of you who were here and went through the building school program, know that my average working day is from 6:30 - 7:00 in the morning until 7:30 - 8:00 in the evening and I've been doing this for a lot of years.

In the last couple of weeks I have been having some problems with my stomach that have resulted in a severe case of hiccups. Isn't that ridiculous? (57 years old with hiccups). At this point in time my doctor doesn't know whether it's simply stress

related or whether I have a physical problem.

Between my doctor and my family I've been told to get the heck out of here for two weeks. Go down to Mexico and relax and forget about this place and that's exactly what I'm going to do.

I had intended to fly down there. That's one of my joys in life, but they've got me on medication so I'm going down on a big tin bird like the rest of the tourists.

In the meantime Pat will be here running the place and is fully capable of handling just about the complete thing, except that he doesn't fly the Dragonfly and give any of the demo rides and things that I do. I have some 5000 plus hours and Pat has only a little over 100 hours.

Until such time as I get my little problem taken care of and get off this medication, I am grounded, so there won't be anyone to give demo rides, pilot familiarization rides or that sort of thing. Hopefully it's going to be a very temporary thing. I'll be back on line as usual in the near future.

In the meantime I hope that all of you builders will really cooperate with Pat. One of the things that would just help us tremendously is if you would observe the builder support hours of between 3:00 and 5:00 PM our time. We are a small organization, with only eleven employees counting Pat and myself. We do come in very early in the morning and try to get eight hours work in before 3:00 in the afternoon at which time we can sit down and answer those builder support questions that are so important to you.

Consider this; we're out in the shop cranking handles and we do work every day. We are not executives sitting behind a desk doing nothing but answering the phone. We are out there working hard in a "hands on" atmosphere to make things happen and there are a lot of jobs in this shop that only Pat and myself are capable of doing. When we get called away to the phone to answer questions, then that job doesn't get done and maybe some other customer is very desirous of getting that particular part. Many of you have been in that position. While we're talking on the phone on other than normal builder support hours it's simply stealing our working time.

Please do cooperate with us and help us to confine the builder support time to between 3:00 and 5:00 in the afternoon Arizona time.

I think one of the things that is causing me considerable stress and problems with my stomach is simply that I find it

almost impossible to go out in the shop and start a job and get the job finished without having to get up and go answer the fool phone two or three times before the job is done. Many times I come down here to the shop at night, coming in here at 2:00 or 3:00 in the morning and getting work done that has to be done. Even if the phone does ring then I flat refuse to answer it **OR** I can't get a job done that has to get out of here.

When I do come in that early in the morning, that doesn't excuse me the rest of the day. I'll still be here six o'clock in the evening that same day.

I love this business. I love airplanes. I love working with you builders and helping you. I'll do anything I can for you to try to help you get your airplanes in the air, but I'm finding out that I'm not a Superman and its quite apparent that my old body is telling me that I simply can't run on this kind of a schedule any more. . So please do work with us and I think things will work out a whole lot better for everyone.

BARGAIN ENGINES

We do, however, have a few bargain engines available. We've got three Dragonfly builders with brand new 60-2DMs with test stand time only on them. These engines have never been run by the builders and they want to trade them in on new Magnum Plus engines.

It is not economically feasible to tear down an engine that is already built up, redo it and put it back together again. It is cheaper to sell it off and just build a new engine from scratch. These engines are available and guys, the 60-2DM flew the Prototype for many years and does a real good job on it. It's not as powerful as the new Magnums, but it's no weak sister. It's a heck of a lot more powerful than a Limbach and it'll hold its own with a Revmaster too. There are three of those engines available at bargain prices and as a help to the builder, we'll pass on the original warranty, one year or one hundred hours, whichever comes first from the time that the aircraft is issued its airworthiness certificate by the FAA. So you know you are getting a quality piece of merchandise that is backed up by warranty. It might get you an engine at a bargain and it'll help these guys get into the Magnum Pluses that they want.

FOR THE FOREIGN BUILDERS

In some foreign countries there are very high import duties on new engines coming into the country, but we've found

that there are little or no import duties on a used engine coming into the country. The Magnum Plus engine that is now in the Prototype has a little over 200 hours total time and I'd be willing to sell that engine, motor mounts forward, because my motor mounts are not the new ones, including all the baffling, carburetor heat box and everything for the same price as a brand new Magnum Plus without the extra goodies. That might be a help to some of you foreign builders, because that engine could then come in to your country with a brand new engine warranty on it, but quite legally as a used engine and save you that 25% to 35% import duty. The first guy to say he wants it and put some money on it is the guy that gets it.

NEW ELEVATOR LINKAGE DESIGN

We will be continuing to work on the new elevator linkage design and for those of you guys who want that material just as soon as we've gotten it developed, we're already cutting and welding parts for it, send in a stamped self-addressed envelope that we can put the drawing in. Put in a \$10.00 bill to help offset the engineering costs, new flight tests and such and we'll send you out the drawings for all the metal just as soon as we have the details in hand, which shouldn't be more than 30 to 45 days. The prototype will be equipped with the system at Oshkosh and you can see it there assuming that I can get my belly back in shape so that I can fly it there.

I hate to have to charge you for new engineering, but the plain simple fact is, the engineering is being done with HAPI money. We bought the original design from Bob. Some of you guys are going to get financially hurt by having to change the hardware. We're going to get financially hurt with a whole bunch of hardware in stock, but that's not the meat of the problem. The problem is we want to get something in there that we can be sure will eliminate this problem ever showing up again. My guess is it's not going to cost more than about \$100.00 per airplane to redo them, plus 2 or 3 days of work. As soon as we get the hardware tied down, most of it is made of common punch press stamping, we'll have a die made and have those stampings made, so it isn't really going to be all that much of a problem to go in and redo.