

DRAGONFLY BUILDERS AND FLYERS NEWSLETTER

THE OFFICAL VOICE OF DRAGONFLYERS ALL OVER THE WORLD

VOLUME 36

JULY - AUGUST 1991



James Harris of Woodville, Texas Dragonfly

Hello Spud

Here's a picture of my Dragonfly Mark II serial number 656, N345DH. I started on the project January of 1984 and finished it up March 1991. 1st flight is planned to around the 1st part of July. The engine is a Hapi Magnum 75-2DEH with a Ellison carb, Warnke 52x46 prop. She weighs in at 710 lbs.. Some of the modifications from the original plans are as follows; Front hinged canopy, Cleveland brakes, 5.00 X 5 tires, removable 8"x18" front hatch, removable wing cover, pressurized fuel system and steel landing gear. I had started my taxi testing and discovered that the steel gear legs were way too flexible. I

have had the legs retempered. No Positive statement can be made at this time, will let you know later - Good or Bad..

James H. Harris
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aircraft by changing the control effectiveness.

Divergence (D): This is a static instability of a lifting surface. At a speed above the wing divergence speed the wing elastic restoring force is overpowered by the aerodynamic moment and the wing continues to twist and bend until failure occurs.

Control Reversal (R): At a given speed the control surface effects are nullified by the elastic deformation of the structure. At speeds above the control reversal speed the control effects are reversed; left roll aileron deflections would result in a right roll because of the wing twist effects caused by the aileron deflections.

In dynamic aeroelastic phenomena all three forces combine to create the following effects:

Buffeting (B): This refers to the transient vibrations of an aircraft component caused by the wake from other components such as the wings. These problems are normally associated with high speed, highly loaded aircraft. These problems can not be accurately predicted and are usually found during flight testing.

Dynamic Response (Z): This is the transient response of the aircraft structure to gusts and turbulence. Frequently, in larger aircraft the structural requirements are dictated by the dynamic responses.

Effects on Dynamic Stability (DSA): As in the static case the aircraft dynamic stability is effected by the elastic bending, twisting and deformation of the structure.

Flutter (F): This is a self excited dynamic instability usually involving the coupling of separate vibration modes of a structural component. One of the classical cases is the coupling of wing bending and twisting commonly referred to as wing bending-torsion flutter. At speeds above the flutter speed the dynamic instability increases and structural failure can occur.

The next article will discuss control reversal, divergence and flutter in more detail. If there are any questions, send me a letter and I will try to answer the questions in following articles.

Ted Givins, P.Eng
6318 Fortune Drive
Orleans, Ontario
Canada, K1C 1Z1

MORE T-SHIRTS

This T-shirts project has been a interesting one! When we first came out with the T-shirts in the newsletter we had a very hard time coming up with enough people wanting them. Well, we finally got there and had them printed.

Now that there out and everyone has seen them. Now everybody wants them ! I even sold everyone of mine. The "straw that broke the camels back" was when I took back the one I gave my wife to ship to a builder. **You got it!** We are now printing more T-shirts.



Here is a picture of what they look like. I feel the art work turn-out pretty good. It will be this design on this printing & next year we will do a new design for 1992.

We are having colored T-shirts & sweatshirts run this time and this is it until next year. Everyone thought a \$1.00 more for a colored T-shirt was a good buy! T-shirts & sweatshirts will be "Fruit of the Loom" 100 % preshrunk cotton shirts.

Color choices for T-shirts & Sweatshirts will be;

Yellow - Light blue - Pink - Aqua

Pricing will be;

Colored T-shirts - \$10.00

Colored Sweatshirts - \$16.00

Shipping charges will be \$3.00 for the first shirt and \$1.00 for every other shirt shipped inside the United States. Canada orders add a flat \$3.00 to the above fees.

Overseas shipments are \$7.00 for each shirt. In the countries that have large DF communities like Australia & France. If someone in those countries would "pool" their orders, we could save you a lot on the postage.

We are going to do it just like last time. We are "PRE-SELLING" these shirts, that is you have to send in

your order in advance of the printing. We will be taking orders thru the 1st of September. We are not printing any extra's. So get those orders in. - Spud

NEW SUPPORTING VENDOR

We have a new supporting vendor join us with this issue. **Great Plains Aircraft Supply of St. Charles, Il.. Steve Bennett - owner.**

Steve has been in business building Volkswagen based engines for homebuilt aircraft all over the world since 1977.

Great Plains can supply you a VW based engine ranging in horsepower ranges of 62, 65, 68, 75 & 96 HP's assembled or in kit form.

As I look thru Steve's 50 page catalog, I find that it's more than a catalog, in the engine section I found lots of technical stuff, like how to figure compression ratio's, fuel octane to compression ratio requirement charts & etc. and then onto some electronic goodies like strobes, wheel pants, brakes, spinner & props.

Steve has also developed a manual for the people that want to build there own 2180CC VW engine, called "Building a 2180cc VW aircraft engine" . First off this 40 page manual (with 81 pictures!) would be handy for a reference piece for anyone building or maintaining a Volkswagen engine. Even if you have purchased a completed engine, sooner or later the engine will probably need some type of mechanical surgery. This manual is worth the \$10.95 for the engine nut & bolt torque values, formula charts, maintenance schedules and normal engine operational ranges alone! The Great Plains engine & parts catalog at \$3.00 and the "Building the 2180" manual at \$10.95 (which includes postage) would be one of the smartest \$13.95 investments you can make in the powerplant department.

Steve also sent along the current copy of his newsletter called the "Beetle Flyer". In it I found some interesting items. They have available engine mounts for the Hapi/Mosler, Revmaster or Diehl accessory cases for \$175.00 (this is a bargain). They also had several items on sale thru July 25 th. Force One prop hubs - \$179.95, Slick Mags at \$399.95, Gascolators with primer outlet - \$24.95, Deep drill any crankshaft with the extra long bolt - \$25.00.

Steve is also planning on supplying some stuff for the "Engine Shop" department of our newsletter.

Again join me in welcoming Great Plains as one of our new supporting vendors.

Great Plains Aircraft Supply - P.O. Box 304 - St. Charles,

WALTER TRIPLETT'S DRAGONFLY

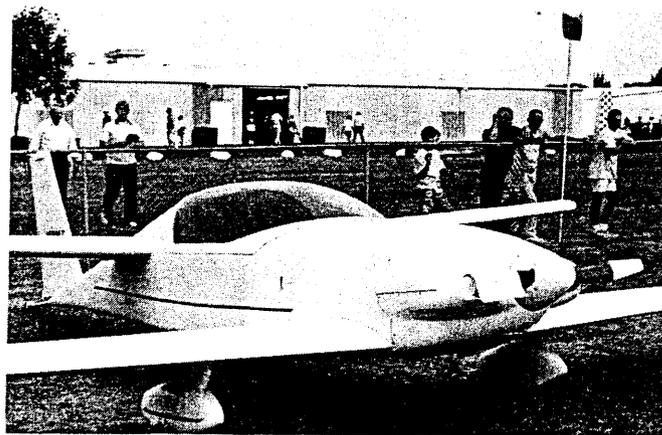
Hi Spud !

Thanks for putting the "DBFN" together and for your enthusiastic approach.

Aviation has been in my blood since building model airplanes in the thirties, and six years of service in the Army Air Corps during WW II. This included a tour of duty flying B-25's in North Africa. Since then I am grateful that I've been able to enjoy at least some flying ever since.

I built my hangar and shop next to my grass strip ten years ago just for the hopeful satisfaction of a long time dream of building a home-built plane. My first retirement project has been the completion of a Dragonfly project which I acquired from a former builder.

My DF, N19WT, a converted MK II, made it's first flight in October 1987. It was an exhilarating and joyous experience. The real fun was just beginning as engine tuning and trim adjustments were all to be learning experiences for me.



Improving the engine's performance was to be my first priority. The right bank of cylinders were running lean & hot and the left bank was running rich & cool. The engine was running rough and this was driving me crazy. Patrick Taylor came to my rescue and advised me to move the vertical portion of the intake manifold rearward 1 1/2 inches and to add a "swirl" in the manifold just aft of the carburetor. This worked! However I did have to do a valve job on #1 & #2 cylinders as a result of them being lean & hot. I would recommend that DF builder have temperature readings for each cylinder.

I have experienced some canard vibration and flutter but with no damage. I believe, and Rex Taylor concurred, that the rough engine contributed to this. I was very much concerned by this and because I have not yet conducted any high speed flutter tests, I imposed, I think, a prudent red line of 145 mph on my bird for now. As a comparison,

Justin's Subaru - DF Flies !

my B-35 Bonanza is red lined at 144 and that does not bug me. I consider the performance of My DF to be fantastic with only 60 HP. I enjoy cruising at 135 indicated on up to 7 or 8 thousand feet. That's almost as good as my Bonanza !

I felt the pitch stability could be improved. Rex loaned me his Incidence Jigs and the angles were found to be pretty close. Rex advised me to only make small adjustments. First by raising the ailerons a little, then by decreasing the wing incidence a little. The results were very pleasing so I finally increased incidence of the canard just a tab. These small changes helped the stability of my DF without much effect on its' stalling speed. The little ship is still not as stable as most of the conventional planes that I have experienced but I feel much more comfortable with it now.

I have had some wonderful trips in the DF - Oshkosh 1987, Sun N'Fun 1988 and many others. Also , I flew it to the 1988 Fly-in at Titusville, Florida where I suffered the embarrassment of pranging my prop. I flared out for a landing there thinking that I had plenty of airspeed but the little bird hit hard and again, no better. (It was so uncharacteristic for this docile ship!) I added full power for a go around and then noticed some vibration with the realization that I had a prop strike. But was too late to make the landing ahead so I gingerly flew the pattern with the least amount of power. Upon landing I found a bad crack in my prop. The DF builders in the area were terrific support in helping me check and repair my plane. P.S, Tell our builders to be wary of Florida love bugs. They are big and juicy ! They fly United ! and they can embarrass an unsuspecting DF pilot !

My bird has kick panels which, as Bruce Dixon of Lawrence,KS mentioned in his letter, makes the cockpit look so much cleaner. Mine are not very elaborate as they are made out of 3/4" insulation, painted dull black, and are attached with velcro. Bruce has alot of other great ideas that I wish I had used.

I particularly like Chuck Ufkes' of Ocala, Fl. panel layout with his stick on the left and the push/pull engine controls under the center dash. I am right handed and find it awkward holding the stick with my right hand and working my maps, etc. with my left free hand.

Ted Givins and I must agree that the sparrow strainer could be adjustable for fine tuning the trim. Also I believe Ted is on the right track in trying to improve the aileron stick pressure. I'll be looking forward to reading his reports.

With kindest regards to you and all the DF group.

Walter Triplett

Rt. 2, Box 5548

Cordova, SC 29039

To follow is a summary of several letters and phone calls from Justin Mace, Tucson, Az

Dear Spud:

My conversion is now back on track and the engine has 1 hour run time with only a few small problems noted. One of the problems was a prop that was severely out of track. A new prop will be made for free. This engine may be the answer to many of the lower hp homebuilt problems.

Lou Ross has just run a stock Legacy on the test stand. By stock I mean, just like it came out of the car. Fuel purge canister and all. It pulled a 69" X 69" Great American Prescott Pusher Prop 2350 rpm. I am told that is what the 160 hp Lyc. will pull the same prop static. Maybe I have too much engine for the DF. At any rate the project is back on track. I expect to fly sometime in July.

2nd letter

The new Subaru Legacy engine that I have installed in my DF appears to be a big mistake on my part. It has about 75HP more than the VW I was running. That is way to much power???? My computer program that I took from Sport Aviation indicates that the DF will fly 168 mph top speed on 60HP., just as designed. The same program says that with the new engine the top speed will be 219 mph with 130 hp and 228mph if the engine puts out 150hp. Needless to say that I will use the 180 mph as Vne, and will use 170 as normal cruise /solo and will hold that to 160 dual just because the gross weight will be up with some of the heaviest DF. If I ever decide to push the speed up one time be assured that it will be at 10,000 agl and I'll have a chute on. I'm basically a coward so I will never look for the high top speed. My goal was to come up with a bullet proof engine. I think these stock Subaru engines are it.

I know of at least three other people that are installing Subaru power plants. Two should be flying this summer/fall. Mine should be in the air the second week of July. For those of you that are interested in the Subaru for your DF let me know, I have all the systems working and the ground cooling at power is good. The engine water runs at 210 degrees, the oil temp at 180, during a 5 minute run 20" MP. That's not long but that's without any ram air for the heat exchanger (radiator). If I can overcome the teething problems associated with this new design I will be at the Swarming for sure in September. Wouldn't miss that ! I'll be glad to show everyone my installation and answer all your questions at the swarming. See ya there!

It Fly's

Justin just called and he flew his Subaru Dragonfly this morning and as you can well imagine was very excited!

We have a few details and he promises more in up

coming issues.

Justin's Subaru - DF fly's cont'd

His Dragonfly now weighs in at 843 lbs. (665 lbs. before conversion). He was very surprised on how his CG turned out. The heat exchanger is in the rear below the wing, he placed a car battery in between the wing attach bulkheads, and then placed his flying tool kit of 13 lbs. in the same area. The CG came out right on the money. The flying characteristics are unchanged other than the stall speed has increased about 7 or 8 mph which puts it at 69 or 70 mph.

Initial climb is about 900 feet at "1/3 throttle", he estimates the climb to end up being somewhere around 1800 foot per minute after he changes his prop again. As you know he has a 3 blade 54" diameter & 68" of pitch. It is no where enough. He having a 54" & 100" pitch made.

His other problem area is in oil temperature, around 240 - 250 degrees. He has the problem narrowed down to inadequate airflow through the engine compartment and his exhaust header basically wrap around the entire oil pan. He is adding two NACA duct in the lower cowling in front of the pan area and two vents on top of cowling. I also sent him enough Thermo Tec to wrap his entire exhaust system. With these two modifications he expects to drop the temps back in line.

He didn't push his first flight because of the oil temps. The prop is way off. But he still flew around the pattern at 17" - 18" MP at 125 to 130 mph indicated.

This should turn out to be a very interesting project and I can't wait to here more about it. I will keep everyone informed on all info I receive from Justin. - Spud

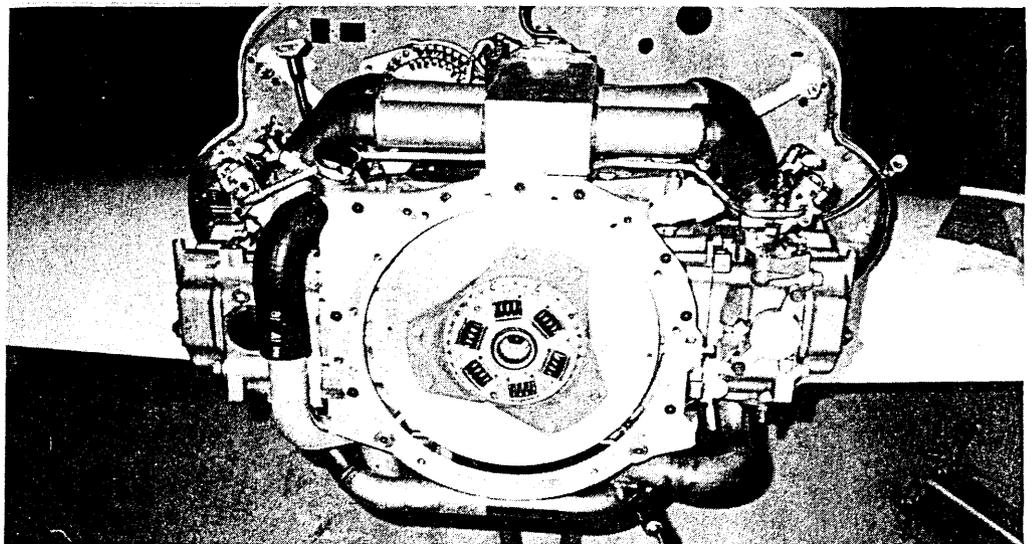
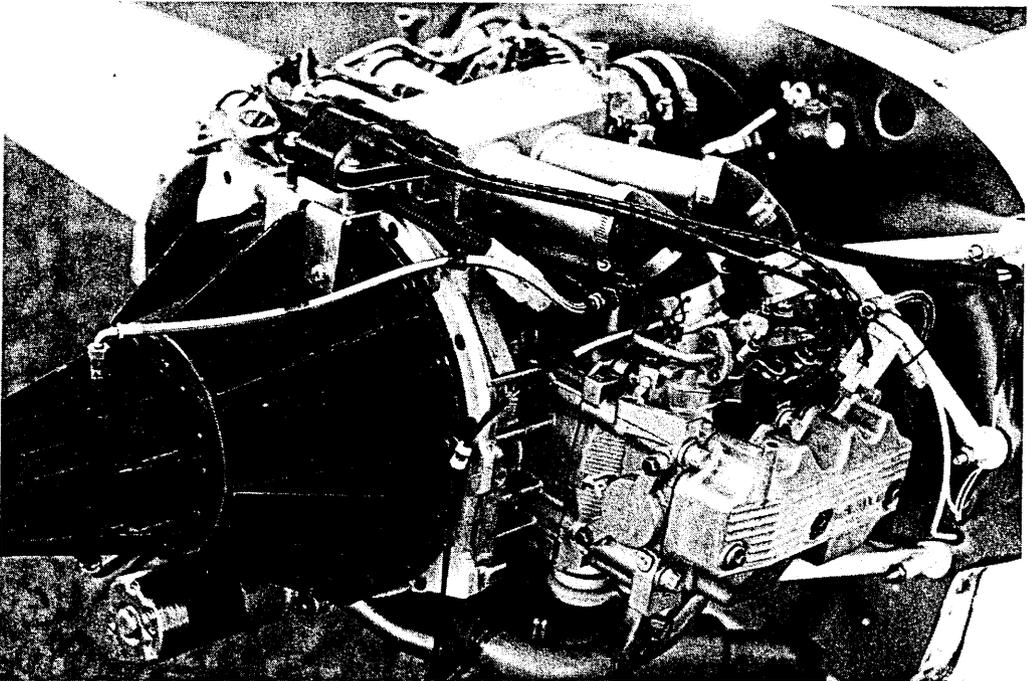
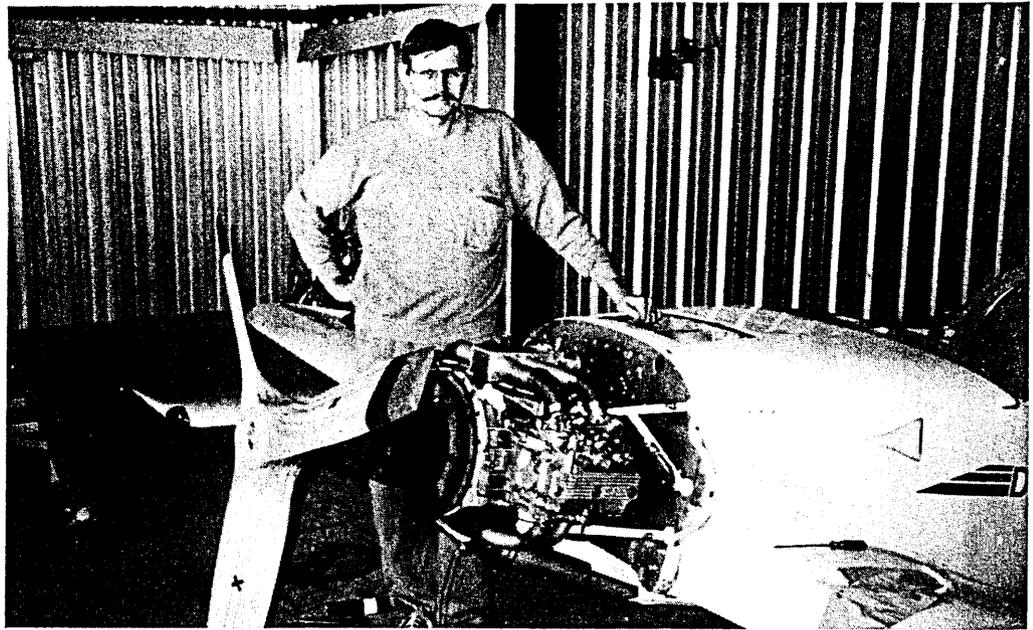
Congratulation Justin from all of us !

Justin Mace

7541 N. Shirley Ln

Tucson, AZ 85741

(602) 744-3532



THE ENGINE SHOP

A letter from Great Plains

Hello Spud

I have really enjoyed reading the back issues of DBFN that you sent me. I have reviewed "The Engine Shop" department of the newsletters very carefully and for the most part they are right on the money. Chris Barber has done a excellent job.

There is one area that I believe to be incorrect and some clarification is in order to help the group truly understand. Chris Barber stated in DBFN # 33 "This hub (standard taper) has been inadequate for stroker crankshafts". I cannot speak for Mosler/Hapi or other hubs, but I can speak for Great Plains Hubs. Long before we developed our Force One Prop hub, we used our standard taper hub on all of our crankshafts, 69 through 82mm. When ever we use a standard taper hub on a stroker crankshaft we "DEEP DRILL" the crankshaft so the entire load is not taken on the small 3/4" or so of the crankshaft that is tapered. Many of our customers order our 82mm crankshafts machined this way.

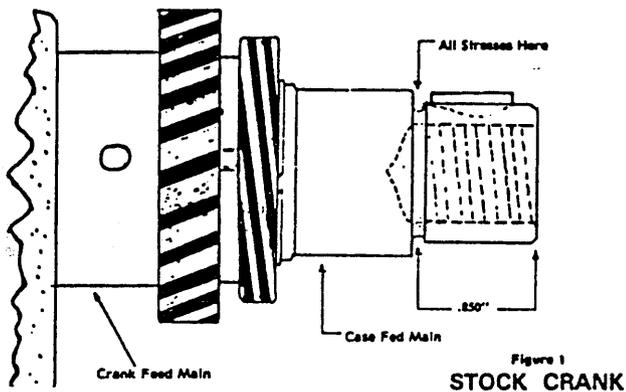


Figure 1
STOCK CRANK

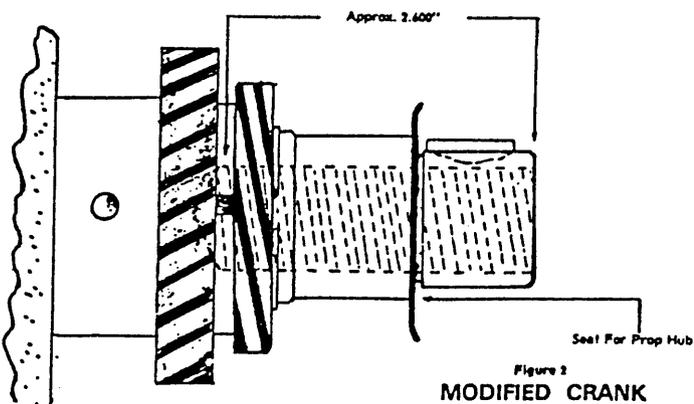


Figure 2
MODIFIED CRANK

I have found that most crankshaft - prop hub failures can be the result of several different fatigue modes.

1. Soft prop hub washers. If the washer deforms under torque, chances are it will lose the torque value initially

applied during assembly over time. Great Plains manufactures a prop hub washer that will fit most hubs including Hapi?Mosler hubs. The washer is made out of 4130 steel and is heat treated to Rockwell 42 - 45.

2. Improper taper. If the taper between the prop hub and the crankshaft are not matched the prop hub may not run either true or parallel to the taper. As a taper is in degrees, minutes and seconds, it is important to match the taper of the crankshaft to that of the prop hub. We always set the grinding/cutting tool on the lathe to match the taper on each hub.

3. Propeller strikes. Prop strikes, no matter how minor should be taken very seriously. Many times, the key way in either the crankshaft or prop hub will crack. Over time, again the prop hub will lose its torque value and spread or the crankshaft may develop a longer crack and ultimately fracture and possibly break. Great Plains can machine in a round bottom key way to any VW crankshaft. We do this 180 degrees from the standard keyway. Any time a VW engine has a prop that strikes the ground we recommend engine disassembly with special attention to the prop/crank keyway and prop face runout.

The development of our Force Prop Hub actually came about as the result of our design goal of wanting to use the Type 4 engine. The stock crankshaft simply was not strong enough at the nose to support the prop/hub propeller. As it is very successful, we offer it as an option on our Type 1 2180cc engines.

The stock shrink fit hub has also proven very successful on the stroker crankshafts with very few exceptions. Monnett Experimental Aircraft sold hundreds of 1850cc engines (76mm stroke) and 2180cc (82mm stroke). I personally do not know of any prop hub/crankshaft failures that were the result of the prop hub itself. An example, Ed Sterba has over 800 hours on his shrink fit prop hub that is on the end of a 76mm stroker crankshaft. Great Plains does not recommend the use of the shrink fit hub on stroker cranks for the simple reason that the shrink fit hub will sometimes damage the crank when removed. At \$500.00 a crank, it does not make it cost effective.

If I can help anyone in the Dragonfly group with their engine needs please don't hesitate to call. I look forward to meeting you all at Oshkosh this year, please stop by our booth and say hello. Also watch for our forum scheduling in Sport Aviation, you are all welcome to attend.

Sincerely

Chris Barber transfers his articles to DBFN by computer disk. I couldn't get my computer to read it. We should have everything corrected by the next newsletter. Thanks for your patience - Spud

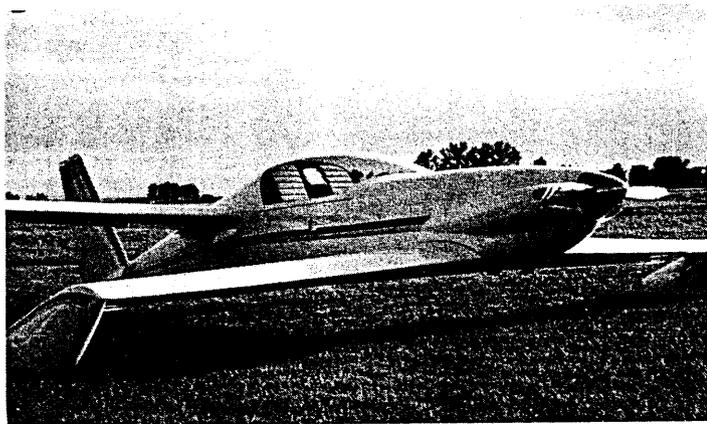
Letters, Letters, Letters!

From Wayne Ulvestad, Volga, SD

Hello Spud,

My Dragonfly N69DF's first flight was April 15th, 1988. The first flight was uneventful but it did take 5 attempts to get the technique down to properly land it. Since then I've put 260 hours on it without any real problems.

Some of the improvements I've made are, Hapi disc brakes and installed lights for night flying. The installation of lights involved installing a retractable landing light in the bottom of the engine cowling and running wires through the back of the wing. As of this writing I've made several night flights. What a Thrill !!!



I might build another Dragonfly in the future but would like to find a prefab fuselage.

Dragonfly N69DF Mark I

Plans # 125

Empty weight - 648 lb.

Engine - Hapi 60-2DM

Cruise - 130 mph indicated at 3000 rpm

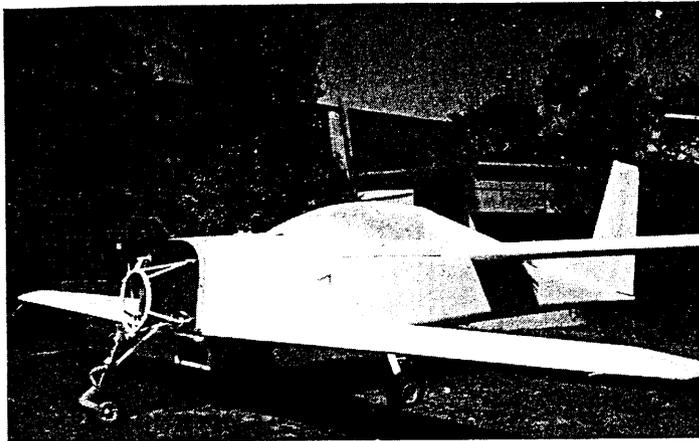
Best Regards

Wayne Ulvestad

From Ian Kinross,

Hello Spud,

Here's a photo of my Dragonfly. Just getting ready to install a 90 HP Norton Rotary with a 3 blade electric variable pitch prop. I have been working on this project for three years. I keep you posted on its performance after I get some flight time on it.



Ian Kinross

23 Olympic Ave

Cheltenham 3192

Australia

From John Owens, Davidson, NC

Hello Spud

The status of my plane is as follows: My plane was built as a Mark I and was finished it in late 1986. I was never happy with the ground handling. A experienced tail dragger pilot friend of mine flew the plane in mid 1987. He found the ground handling very poor as well. Over the better part of 1988 I converted it to a Mark II, using steel gear legs. Didn't find the handling much better, it seemed that the steel legs wouldn't keep the wheels straight due to excess flex in the 90 degree bends. The plane wasn't flown in this configuration. In spring of 1989. I broke the plane down and brought it home to begin a 990, I did tri-gear conversion thru 1989 and early 1990. I did the conversion very similar to the Tri-Q's.

In March of 1990, I was found to have a medical condition such that I could not renew my FAA medical. The plane has remained stalled in my garage since that time, with very little work done on it. So you can see, it has been quite an experience!

My Dragonfly, N39DF flew extremely well back in 1987. My only problem was in its ground handling.

I've decided to sell my DF, If anyone is interested please give me a call.

John Owen RT 1, Box 870cc Davidson, NC 28036 (704) 786-4906

From Buck Buchanan, Torrance, Ca.

Spud:

First, In reference to Chuck Kaplan's mention of possible corrosion problems in the buried metal fittings, I'm enclosing a copy of an article (sorry guy's way to long for this newsletter-Spud) from the February issue of Aviation

Consumer on corrosion block ACF-50.

According to the article, this material is not only a miraculous corrosion fighter, but will not harm any other materials, such as plastic, etc., and it has excellent lasting ability. There are numerous spots on the DF - particularly the control surface hinge assembly tubes and tailwheel unit, for instance, that could greatly benefit.

I have some on order (Aircraft Spruce lists it on page 191 of their 1990 catalog , in 2 1/2 oz. & 13 oz spray cans (it ain't cheap). Since I don't have it yet, I can't guarantee that it won't bother polystyrene foam, from which the wings are constructed. and if it doesn't , someone can invent a method of delivering ACF-50 to the wing & canard attach fittings buried in the spars. (It's possible the ACF-50 could be no problem on the foam, but the propellant might be). At any rate. ACF-50 appears to be worth everyone checking out.

The other item is in reference to Bruce Dixon's mention of canopy lift cylinders.

A few years ago at the Dragonfly Swarming at Eloy,Az.. I noticed that someone's plane had modified lift struts which featured a metal valve installed to allow the pressure to be adjusted. Unfortunately, I didn't know the brand name of the lift struts, and my experimenting was a waste of time (and money!).

Last year, a friend lent me a pair of small struts he had ordered from Spring Lift Corp. in Arkansas. These units were obviously too small, being about 17" in total length (cylinder diameter was 5/8"). However their pressure rating was only 20 pounds and this was intriguing. I attached them to the canopy to see what would happen. Of course, the piston movement was too short to allow the canopy to go high enough, but the function of the units was absolutely perfect! The lifting force was as thought they had been designed for the Dragonfly canopy.

I immediately called Spring Lift and explained my problem to John Altom. He explained that the longer units have 3/4" diameter cylinders and require greater pressure for actuation triggering, and he felt that the 20 pounds that I wanted might not allow the unit to work properly. However, he promised to load one to 20 pounds and send me a pair to see if it would work. In a few days I received a set of units (about 26.5" in length between attach bolt centers). The only short coming of this low pressure level is that the damping force that softens the stop at full extension is not triggered. However, I can easily accomplish this with my hand. A pressure setting of 25 pounds might allow this damping while still being low enough to be the right strength for the Dragonfly canopy.

The struts are about \$25.00 each, and I think they're the greatest thing since gunpowder. The address is

Spring Lift Corp.

P.O. Box 238

Monticell, Arkansas 71655

(501) 367-8114

Best Regards

Buck Buchanan, Torrance, Ca

Camarillo Fly-in

Nate Rambo III dropped us a note and a picture of the Camarillo Fly-in. See back cover.

The Camarillo EAA Chapter 723 held its annual fly-in the first week of May. There was seven Dragonflys there. Yes, we outnumbered every other type of homebuilt. They looked nice all parked together. The Evans brothers came in from Visalia. The Chino squadron brought five ships (Scott, Rounds, Burris, Moleski and Moon) And Rambo taxied all the way from his hangar on the field. It was a super day for 'Flys!'

Hope to see everyone at Oshkosh!

Bye and regards.....Nate Rambo

EDITORS CORNER

Hello Gang !

I hope everyone is doing well. I want to thank all the people that have sent in their renewals and took a moment to say all those super nice things about the newsletter. It really does help offset all those hours of work. But the person that really deserves the "**Attaboy's**" is my dear wife Kris ! We both have full time jobs, but she's the one that still takes care of three kids, does all her chores, takes care of all my chores when I'm working on this newsletter, takes & picks up all the stuff from the printers and then cheerfully helps fold the NL's. So next time you say "Boy have we got a neat Newsletter" don't thank Spud, but thank Kris Spornitz, she's pretty special stuff. So, next time you feel like making a complement about the newsletter, send a card or a note to "Kris", she'd be pleasantly surprised. Many thanks to all - Spud

Oshkosh 91

Oshkosh is only a few weeks away! I can't believe it already here. Those of you that are planning on attending should have all of your plans set. Those of you that would like to camp with the gang at "**Camp Dragonfly**" they are more than welcome to. Bruce Dixon will be there and setting up the camp midday on Thursday. We are not just giving general direction to the camp in that it's on private

property right along the airport. I gave the owners my word that only people associated with the Dragonfly group would be on their premises and that I would be 100 % responsible for everyone actions. Anyone arriving early may meet Bruce at the Dragonfly / Quickie, Q-2 area at 7:30 Thursday evening and he will take those interested back to the camp site. I'll be there Friday morning and we'll pick a couple times during the day & evening to take people back. By Saturday we will have plenty of people then that will be familiar site.

Cheap Avgas on the way to Oshkosh !

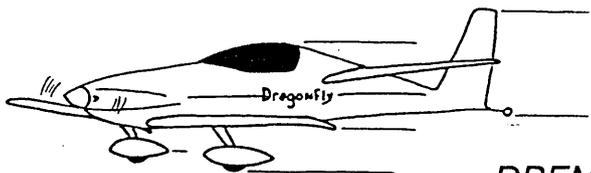
For those of you flying in from the south & west to Oshkosh. I suggest you stop for gas at Ottawa, KS. it is 85 miles S.W. of downtown Kansas City, out of the TCA. They only charge \$1.68 a gallon which includes the Federal, plus local 5.25% tax. Tony Le Masters is the FBO there and has been a EAAer all his life. His Dad use to own the Ford Tri-motor that the EAA now owns and uses for rides at Oshkosh. Super guys! Plus it would be good practice to come to the Swarming. The new Kansas sectional is "Wrong". Their Runway is - 17 & 35, 4400 X 75 ft., their Unicom Freq is 122.8, NOT 123.0.

Oshkosh stop-over - Anyone Heading for Oshkosh early and get close to Olathe (So Kansas City). We will still be home the evening of Wednesday, 24th and anyone wanting to lay over in Olathe, I'll pick you up and put you up at my house for the night. Same goes on those leaving and heading home. We will be back the evening of tuesday the 30th, so anyone headed home after that date, they are welcome to stop and we'll put you up for the night. - Spud

Forums - Our first DF get together is at the Homebuilders Corner building on Sat. the 27th between 10:00 AM to 12:00 Noon, they have a special meeting tent around back. This meeting is just a bull session, get acquainted with each other and make any plans to do this or that.

Sunday morning, we have a little bit of a whoops. They Have Rex Taylor scheduled 8:30 to 9:45 AM, Tent # 7 with a forum on the Dragonfly. Rex is not coming! He has asked me and Mike Starkey to head up this one up. It will be discussing current status of Viking Aircraft, plans & parts availability and so on. Keep a eye on the schedule of this one, because Rex is not coming the EAA might bump us if they are running tight on space.

Sunday evening, 8:00 to 10:00 PM tent # 7, This the Dragonfly builders group forum, And I would like evryone to attend. Now in this one we'll get done to the nitty gritty. We will discussing all sorts of building technics, see what we should address in the newsletter for the next coming year. We will be giving our awards to the winners in five categories. After this forum we usually head over to one of the restaurant continue on with whatever comes up.



DBFN 36

Oshkosh 91 Dragonfly Awards

We will be giving awards in these categories.

1. Hi-Timer at event
2. Longest Distance Flown to event (close calls will be decided by Loran)
3. Best Engine Compartment
4. Best Cockpit/interior
5. Best Overall Dragonfly.

When we started the awards program I thought the best way to select these winners was to take a vote by all the Dragonflyers that attended that event. That didn't work, now plan "B". I'm going to select a group of people (4 or 5) to do the voting. It won't be anyone that has a DF at the event. A good example would be Ralph Bradshaw of Alexander Aeroplane. And of course myself. You will need to be there before 3:00 on Sunday to be included. Anyone leaving early on Sunday needs to let me know, so we can evaluate your DF before you go. You do not have to be there to win.

Dragonfly "Swarming" Fly-in, Sept. 20,21,22 1991

First off ! This event is open to everyone. I especially would like to invite everyone that is building or flying a Quickie, Q-2, Q-200 or Tri-Q. We are all blood brothers and it's hi-time we start getting together. If you know a person that is from the "Q" community make sure they know they are invited. But any homebuilt or commercial plane is welcome to come!

We have moved the event from Olathe, KS. to Ottawa, Ks which is only another 30 miles SW of Olathe. As we started to set up all the details things got pretty expensive. Industrial Airport decided that they wanted an additional million dollars worth of insurance, that was \$500.00. Then the big tents, table, chairs & chairs, porta-pottys and etc.. Well the long & short of it, we ended up with \$1200.00 in expenses before we could have the first plane touch down. You got it plan "B"again! Now let me tell you about Ottawa. First off. Ottawa is completely out of the Kansas City TCA, Non-control tower field, 4400 X 75 foot hard surface runway, 17-35, full length taxiways (3 intersections) and lots of room. They will have a seperat mowed spot to park & display our aircraft (bring your tie-downs, covers, gust locks & etc.), we are renting their large hangar for our meetings & forums. We even have on the field camping privileges for those who would like to camp (no charge). There will be 24 hour security, someone will be camping with the Dragonfly's Friday & Saturday nights. Cheapest gas in the area, \$1.68 a gallon.

Some of the events & things that are planned so far; ground and aerial photo's available, airspeed calibration checks, familiarization rides, fly bys, Poker Run, on going forums Saturday afternoon, big banquet and awards

PAGE 10

presentation Saturday evening.

I surveyed several people in regards to the banquet, one gentleman from the NE said. "There's three of us coming 1400 miles and your asking us what we want, Spud! We want you to put on the works"..... OKAY! The Banquet will be at the Ottawa University's main hall (more room than we'll ever need).

It goes like this:

8:00 PM Punch and hors d'oeuvres

8:30PM Dinner - Buffet style

Main courses - Baked Cod and Prime rib

potatoes, broccoli & cheese,

4 types of salads & etc.,

deserts, 3 kinds of cheese cake.

After dinner, guest speaker and award presentation.

Event funding - This is a self funding event and we need to share these expenses. So we are asking for a preregistration of \$7.00 in advance or \$10.00 a person when you arrive. Children 15 & under are no charge. We need your support for this event! Registration fees are non-refundable after September 13th.

Banquet Fees - Saturday evenings banquet fees are \$15.00 a person including all gratuities. Banquet fees are non-refundable after September 13th.

Ground transportation - For those who fly in, there will be transportation to & from the hotels and the banquet (no-charge).

Hotels - There is two hotels in Ottawa that I will recommend. They are 3.9 miles from the airport. **Best Western Hallmark**, intersection of I-35 & 59 - pool, laundry. 1 Queen/2 people = \$41, 2 dbles/ 2 people = \$45, 4 people \$51, local (913) 242-7000 nationwide reservations (800) 528-1234. **Econo Lodge**, intersection of I-35 & 59 - no pool, two persons \$34 to \$42, \$4 per extra person. local (913) 242-3400, nationwide (800) 424-4777

Photos - Aerial photos: must be scheduled for a time slot (there will be a briefing). Cost - \$25.00. Preregistration is highly recommended. Others will be handled on a time available basis. Ground Photos: \$10.00, sign up for time slot on arrival. A professional aerial photographer will be doing the work. His pictures are beautiful!

Tentative "Swarming" activity schedule

Friday, Sept.20, 1991

Afternoon: Arrivals

Bull sessions

Evening : No formal activity, informal dinner a Sirloin Stockade at 8:00PM, bring your photos

& videos, there will have a VCR & TV

Saturday, Sept.21,1991

Morning:

8:00 to 9:30 - Familiarization rides, Aerial & ground Photos, Fly-bys.

9:30 Poker Run

10:30 first forum

12:30 second forum

2:30 third forum

4:30 to 7:00 rides, photos, flybys.

7:00 to 8:00 open - Rides to hotels & banquet

8:00 to 8:30 Social - hors d'oeuvres

8:30 to ??? Banquet - Guest Speaker - Awards

Sunday, Sept. 22,1991

8:00 to 1:00 Open - Rides, flybys, Photos, bull sessions

1:00 Final goodbyes, plans for next year.

In the back of this issue is your registration for the fly-in and the Banquet. Please fill out as soon as possible and return by mail with your check for registration and the banquet (banquet is optional)

Maps and detailed directions will be in the next issue of DBFN.

This is were everyone can show there "colors". Plan to make this **Very Special Dragonfly Event Today !** Fly or drive - Be there!

MULTICOM

I pulled this out of the Beetle Flyer - Spud. On the calendar for this fall is the KR gathering. The date is the weekend of September 13. The KR folks decided to add a special invitation this year to all who flying or building a VW powered homebuilt, Sonerai's, VP's, Cygnets, Dragonfly's, Q-2's, Etc... Those persons interested in staying overnite, room reservation can be made by calling Kentucky Dam Village State Park. The rate is \$52.38 per night for a 2 bed unit.

From Nate Rambo of Camarillo, Ca. - Spud, I have been helping Rich Trickel the designer of the new KIS (it' a real cutie) with some para-engineering matters and have logged about 10 hours in the plane. The little 80HP Limbach L2000 is great. It's Solex carb is completely altitude compensating. There is no mixture control. I took it to 11000 density altitude and it never misbehaved. Rich later got it to 12500 pressure altitude which was close to

14000 density. Same results. I wonder if the Solex would be of value to the DF boys? If anyone in the group has some info on this carb it would be nice if they would forward it to the newsletter.

Nate is also going to write a series of articles on testing and evaluation. Nate has a 33 year background in T & E. His expertise in this area will be a real plus to the DF group. - Spud

From Dave Bastion, Flushing, MI - I have a friend of mine who flies a Long Eze. He has a electric prime on his Long and he ran a hot wire from the primer pump to his ignition switch (on the start side of the switch). This way the prime couldn't be left on & would only work when the engine was cranking. He also has a electric switch from Rutan that only opens when the primer pump is on and closes when it stops. The small hand operated valve on the one in the newsletter would be O.K. but with the electric switch valve you wouldn't have to fool around opening & closing the Manual valve.....

Your right Dave, Chuck Ufkes of Ocala, Fl. has one of these on his DF. I did some checking and it is available thru a company called Nitrous Oxide Systems, they make Nitrous systems for race cars. Its basically a electrical solenoid that is gas rated. Their's are 75.00 and up. I'll try to find something that is more economical but it has to be fuel rated. Is anyone in the group familiar with the Rutan style? Price? Availability? - Spud

From John Smart, Reading, MA. - Here's something that I wasn't aware of and I thought it might be helpful to the gang. I goofed and made a mix of 1 to 1 Alpha Epoxy & glass balloons to use as filler for the weave. However, 24 hours later or better it was balling up on the sandpaper badly. I got it smooth but it was always tacky to the touch. Alexander Aeroplane Co. had an ad in the June Sport Aviation saying to call Ralph Bradshaw with any composite questions. Called Ralph and he told me to wash the tacky part with warm soap & water. What was on the surface was uncombined stuff. I did exactly that and it worked excellent. I'm very grateful for his advice. See everyone at Oshkosh. - John Smart

From Ted Bacon, Lovettsville, Va. - One subject that I would like to see addressed in future issue of DBFN is that of "Ground transport". What are the problems in moving a completed(or partially completed) components to a new home? Has anyone come with an acceptable trailer design? - Ted Bacon

From Spud - I noticed when fellow Dragonfly DeWayne Flint had sent in for his subscription to the DBFN he sent his card. He sells Porta Steel Structures in Columbia, Mo. So if anyone is planning on putting up their own hangars it might be a good idea to give DeWayne a call. His work number at Porta Steel is (314) 443-7818 - Hm (314) 442-4876.

From Spud - I'm sure most of you saw Gene DiVincenzo's of North Lima, Ohio Dragonfly in the "Completion"

section of the July Kitplanes. Gene and DBFN has had a tremendous request for information on his plane. He wanted me to tell everyone that he will be giving us a full report in the near future on how he did gear and how it changed the handling of the Dragonfly.

From Len Griffin, Silver City, NM - Spud, Great job on the T-shirts. I'm working up my external alternator setup driving off the rear gland nut, almost have it perfected. Will fill everyone soon.

From Bob Verriest, Allen Park,MI. - Spud you had some questions on Cabin Ventilation. I've never been happy with ventilation on hot sunny over 90 degree days. When below 120 mph IAS you can sweat to death. I added a 1 inch diameter tube to the front of the engine pointing out the front of the engine cowling. This was used to cool the electronics and works just great, lots of air for the radio, no noticeable increase in engine noise. I thought of adding a larger tube 1.5 to 2 inch diameter for cabin ventilation, however, figured this might not be a good idea. Wouldn't this rob the engine of too much cooling air? So instead I made 2 little aluminum air scoops and added them on top of the NACA scoops. They stick out .5 inch and are as wide as the NACA scoop. They look ugly and are very draggy but they work very good. Can't really tell if they slow down the top speed. Also enlarged rear exit hole to .75 X 3.00 inches.

From Bill Mason, Virginia, Mn. - The article about the valve guide clearance and pushrod interference on the individual cylinder head Mosler engine was timely for me. My engine did have the heavy valve springs and the exhaust pushrods on cylinders #1 & #3 were contacting the tube springs. Mosler turned my heads around in two weeks (no charge) and I adjusted the rocker arm spacer and heads to gain the pushrod clearance.

From Justin Mace of Tucson, AZ. - I have been contacted by a builder about testing his fuel tank for leaks. He said that someone recommended that he use air pressure and soap to test for leaks. Sounds good, a lot of leak tests are performed by a pressure and soap method. However, if you stop to think how many square inches of surface area are on the inside of the standard DF fuel tank, this method of testing could be very dangerous for the tank and maybe for any bystander.

The DF main tank is 19.2" X 42.5" on the bottom. This totals 816 sq inches. The top is 12" + 4.4" + 4.6" + 5.6" = 26.6 X 42" or 1117.2". The ends will add another 190 sq inches. 816+1117+190 = 2123 square inches interior surface area. Some folks have a much larger tank. If by accident 5 psi were to get into the tank (is the test gauge super accurate) then the interior of the tank will be subject to a pressure of only 10,516 pounds. That is a lot of needless stress on a part that will never see that kind of stress in flight. A full tank of gas weighs only 78 Lbs 78 X 10 G's is 780 Lbs.

There are two Aero engineer types that are flying DF's maybe they or someone else can find fault with my reasoning or numbers. If not, maybe you can alert anyone contemplating exploding the fuel tank to just use a couple of gallons of gas and a match, it's a lot quicker and the stress will show up prior to any flight.

Also I went through the last newsletter, interesting how many people are having problems with the VW engines, I also have had the pushrod tubes rub, interesting! The continuing articles on the rebuilding the VW by Chris Barber are very good. My question is that with these problem areas he refers to, with this engine design why would any one consider such a delicate engine to power a aircraft ?????? I know that they are light, but that may be part of the problem.

*Bill Mason's DF
Newsletter Index*

Bill Mason of Virginia, Mn. took the time to compile a index for the "Dragonflyer" / DBFN" newsletters. Everyone should find it very handy. Thanks a million Bill! Also Bill's DF is at the airport awaiting FAA inspection and hopes to fly in July. He won't make Osh this year but maybe he will make the Swarming in it.

Dragonfly Newsletter Index

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- There you go guys! All we need now is a index to tell us what issue this index is in!!!!!! - Spudley

CLASSIFIEDS

For Sale: Dragonfly with 1835 Hapi, converted to Tri-gear, originally flown as a Mark I, Cleveland wheels & brakes, VFR instrumentations, ELT, to be sold complete, as parts. John Owen, Rt 1 Box 870cc, Davidson, NC 28036. (704) 786-4906 evening and weekends, \$6500.00 or interesting auto trade of equal value. \$10,000 + pus many, many man hours invested.

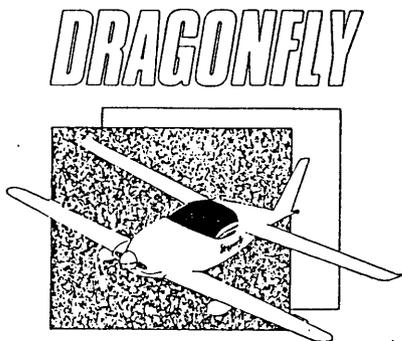
For Sale: Selling 1 Limbach 2000DD engine , o hours,80H, completely installed with double ignition, suction pump, engine mount for DF, prop extension, Muehlbauer prop(fixed), spinner, electronic tach, 4cyl head temp gauges, etc. Ready to bolt on. Price is \$8000.00 plus shipping. Hans Graesser, Marktstr 56, D7057 Winnenden, Germany, Tel Germany 7195 63684 day central Europe, Fax 7195 8180

For Sale: Dragonfly 70% complete with most components to finish including many new instruments, New 1835 made with Hapi components. Has dual ignition, one electronic & one magneto (new Slick), New Posa Carb. Would sell engine separate for \$2800.00, will sell Plane seperate for \$2800.00 or both for \$5600.00. William White, Fredricksburg, Va (703) 659-6619 after 6:00 eastern, anytime weekends. Reason for selling? taking the short-cut, buying a completed Dragonfly.

For Sale: Dragonfly Mark II, engine made up mostly of Hapi engine components, single ignition, 720 nav/com, intercom, It received second prize at 1985 San Diego show. first \$5000.00 , retiring from flying. R.L. Creedon, 3175 Old Bridgeport Way, San Diego, Ca. 92111 (619) 560-1083

For Sale: I'm 75 and I don't have time to build my DF. I never started, I have plans, Clark foam, canopy and most evreything to build. If anyone thinks they would like to buy these items please write or call. Roland Elwood, 6525 Alcantara Ave., Atascadero, Ca 93422 No phone given.

For Sale: Mark II, 85% complete. Wing,canard, fuselage, control surfaces are all almost ready to paint. All controls installed. Canopy hinged forward, access panels front & rear. Hapi 60 DM wngine with mount. \$4500.00. Evan Stroup, Grand Rapids, Mi. (616) 538-9296



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Anytime evenings or weekends (913) 764-5118

Mailing address: 1112 Layton Drive - Olathe, Kansas 66061

Ottawa, KS

1991 Dragonfly Fly - in "Swarming" September, 20, 21, 22, 1991

PLEASE FILL OUT THIS (ENTIRE PAGE) FORM AND RETURN IT TO "DBFN". WE NEED THIS INFORMATION TO PROPERLY PLAN OUR EVENT AND MAKE IT MORE ENJOYABLE FOR EVERYONE.

Name _____ Building? _____
Street _____ Flying? _____
City/state _____ Type? _____
Number of people attending _____

Flying in, Y _____ N _____ In your DF. Y _____ N _____

Driving, Y _____ N _____ Camping Y _____ N _____

Hotel Y _____ N _____ (make your own reservations)

If you can "estimate" your arrival & departure (flying or driving)

Please!complete, Arrival-date/time _____ Departure-date/time _____



Registration fees for the Swarming/fly-in is \$7.00 per person in advance or \$9.00 per person when you arrive. (children under 15 no charge)

Dragonfly Banquet / Awards dinner will be \$15.00 per person. Must be prepaid.

People attending Dragonfly Fly-in, Qty _____ X \$7.00 = _____

People attending Banquet/Awards, Qty _____ X \$15.00 = _____

Total enclosed = _____

Fees for the fly-in and Banquet are non-refundable after September 13th, 1991

Make your checks payable: DBFN
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Dragonfly's at Camarillo, Ca.

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