

DRAGONFLY BUILDERS AND FLYERS NEWSLETTER

THE OFFICAL VOICE OF DRAGONFLYERS ALL OVER THE WORLD

VOLUME 62

NOVEMBER - DECEMBER 1995



JUSTIN MACE OF TUCSON, ARIZONA IS BACK IN THE AIR IN HIS SUBARU POWERED MARK II DRAGONFLY

I've had my Dragonfly apart for a time. I wanted to move the cooling system internally to help reduce some drag. It was also ready for a complete freshening up in regards to the paint in side and out. So I took it apart and brought it home to work on. The mission is accomplished and we are back in the air!

I think I told you the paint job was not my design. That's the kind of thing that happens when you get your wife involved with the project. The first time I painted I was told that the whole plane had to be white. OK, I believed. The second time I let Linda have her way, with the knowledge that the top surfaces had to reflect the solar heat. The result is the current paint scheme. One of these days I will get some more detailed photos of the plane.

The cooling is not quite to my liking but it would make a very good Canadian plane. The other morning I went flying with a man who is interested in getting into homebuilts. It was at 0630 & the outside temp was 48 degrees. The new heater using hot air of off the back side of the radiator worked very well. I soon had to cut it down to about 10% open. All of the cold country guys running water cooled engines have a definite advantage in the cockpit heat department.

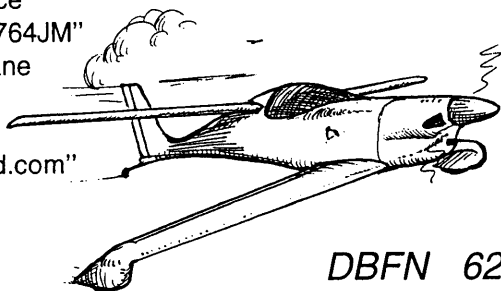
We had a pretty good "Copperstate" flyin. A few Dragonfly's showed up. The weather was, as usual in south central Arizona, quite warm, 97 degrees F. Stan and Joy Meleski were over from Chino, CA.. They had a flat tire as they taxied out to go home. It was one of those standard DF tires, the Chin Shen 3.50 X 4.10 X 5. We wound up calling the always faithful, Larry Brown

CG Calculations for Dragonfly NX764JM				
ITEM	Scale	Lbs Net	Arm in inches	In. lbs Moment
Left Wheel	386		50.0	19300.0
Right Wheel	381		50.0	19050.0
Tail Wheel	17		220.1	3741.7
AC Empty Wt	784			42091.7
		Design Ew CG	54.1	
		CG in inches	53.7	
Fuel	104		65.0	6760.0
Pilot & Pass	360		76.0	27360.0
Front Baggage	16		40.0	640.0
Rear Baggage	36		92.0	3312.0
TOTAL	1300.0			80163.7
		Max forward CG	58.7	
		CG in inches	61.7	
		Max Aft CG	63.5	

of Chandler, AZ. Larry just happened to have a spare tube! Stan and Joy finally got in the air at 16:10 hours on Sunday afternoon. Stan said he was going to put on Cleveland wheel & brake assemblies and use the 5.00 X 5 Lamb tire like so many of us have gone to. The one's I am using are from a Piper Tomahawk.

Please find the weight and balance calculations for my much modified Dragonfly. If anyone would like this spread sheet let me know, I can send it out in several different formats. As you can see the empty weight of my DF is a little heavy at 784 lbs., but I am sure that there are some VW powered DF's that are very close to my weight. My radiator inlet area of 17 sq. inches is just a bit to small. The temp of the engine is running about 215 degrees F at 140 mph at an outside temp of 90 degrees F. A little more experimenting is in order, however, it flies just great and will cool just fine until next summer heat arrives. By then I should be ready to tinker with it again. Spud, keep up the good work!

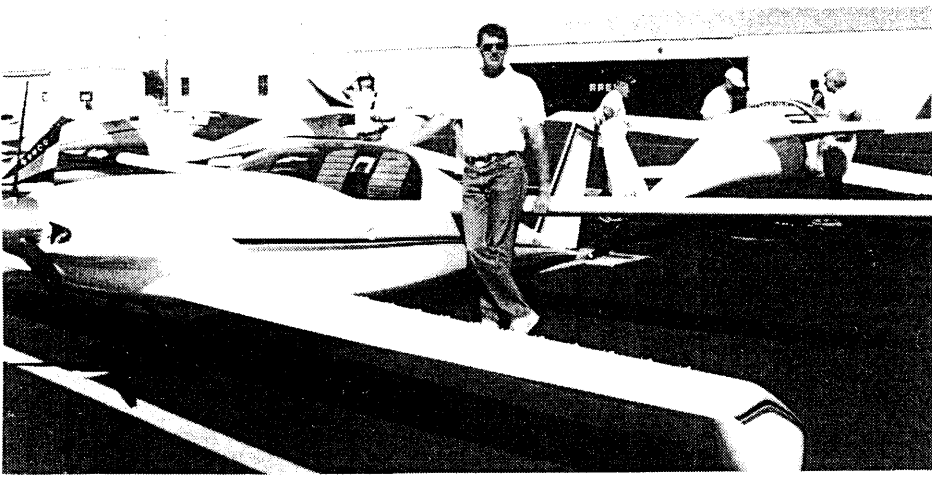
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 7541 N. Shirley Lane
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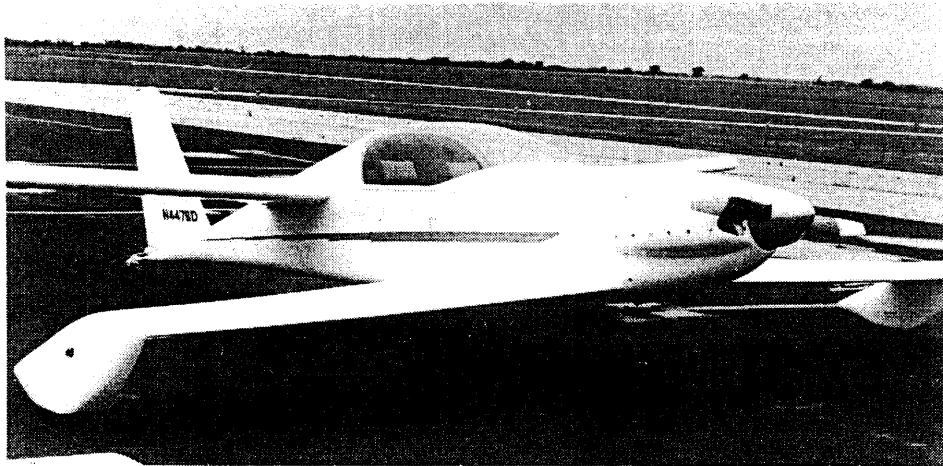
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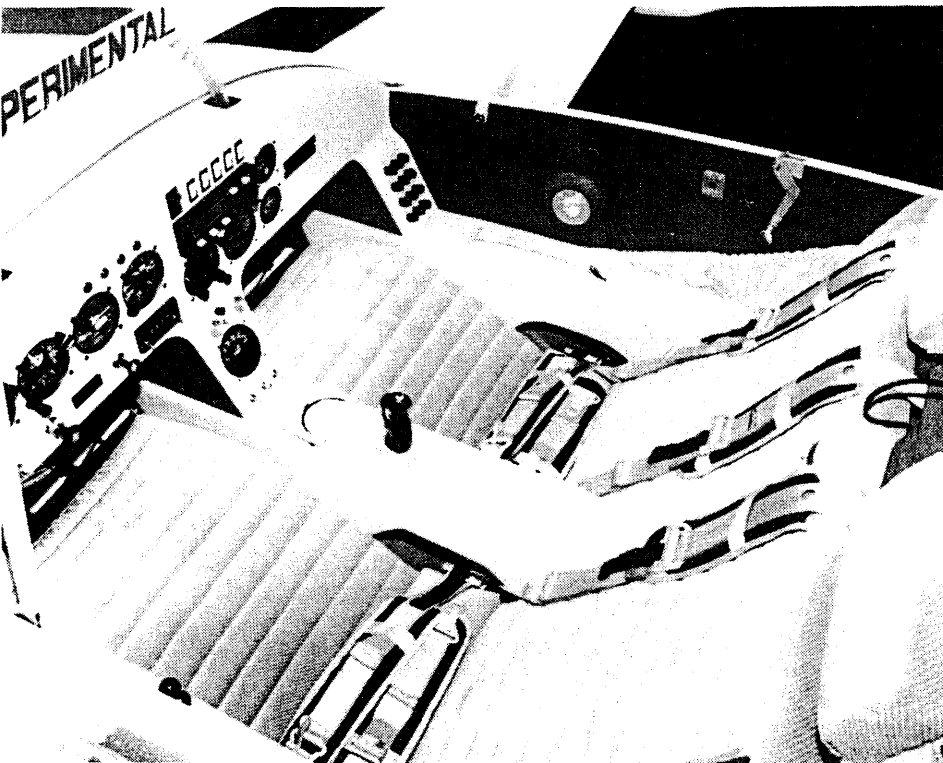
1995 FLY-IN!



Wayne Ulvestad's Best overall Dragonfly!



Bruce Dixon's beautiful Mark I



Bruce Dixon's Best cockpit interior!

This was our fifth year of having our fly-in at Ottawa, Kansas. The fly-in continues to get a little bit better every year. The weather even cooperated this year!

The birds started to arrive shortly after noon on Friday. Everyone just chatted and welcomed the arriving inbound aircraft. We tucked the birds away for the evening and headed for our traditional informal dinners at the Sirloin Stockade which continues to be one of the favorites for Friday evening. I lost count somewhere after 60 people. You just can't beat the camaraderie, it was great!

I arranged for a bus so the girls could go into Kansas City Saturday on a shopping spree. The trip lasted from 10:00 am until 4:00 p.m. and about 15 or 16 girls went. Boy was this a hit! The girls already had it scheduled for the 1996 fly-in even before they got back to Ottawa. During this trip the woman planned their own little presentation for that evening awards banquet. More on that later.....

We had 21 tandem wing aircraft attend this years fly in. Their statistic are on page 6.

Saturday started off with a bunch of flying. One point of neat interest is Jon Finley's efforts. Jon a Quickie single seat driver out of Minnesota. He worked all summer long on getting his other Quickie driver friends to attend fly-in in attempt to break an old record of five single Quickies at any one event at one time. He tied that record with five attending single seat Quickie, but did establish an all time record for having the most Q-1's in the air at one time, FIVE !!! And fly these guys did do! It was rather impressive to see 5 Quickie's abreast coming down the runway 20 foot off the deck! Thanks for the extra effort Jon! It was really Cool!

The forums were a hit again with everyone. You just can't find a larger assembly of tandem wing talent any where.

Much information was shared from engines tips to airframe construction techniques to the latest in landing gear set-ups. I particularly want to thank Steve Bennett of Great Plains Aircraft and Robin & Patrick Taylor of Viking Aircraft for attending and giving their specific forums.

The awards banquet was again held at the Ottawa University. We had 102 people attend this years banquet and this part of the fly-in continues to be one of the big hi-lights of the event.

The awards were given out in these areas:

Best Overall Dragonfly: Wayne Ulvestad - South Dakota

Best Dragonfly Interior: Bruce Dixon - Kansas

Dragonfly-Longest Distance: Grayson Starner - Pennsylvania - 950 miles

Dragonfly-Hi-timer: Wayne Ulvestad - South Dakota - 550 hours.

Best Overall Single Quickie: Terry Crouch - Iowa

Best Overall Q2/Q200: Paul Fisher - Illinois

Best Overall Q2/Q200 Interior: Ernest Martin - No. Carolina

Q-bird Longest Distance: Kimbal McAndrew - Alberta, Canada

Q-bird Hi-timer: Sam Hoskins - Illinois - 749 hours

Don & Debbie Stewart who do the video on the fly-in every year were there with some additional "Special Awards" They were as follows:

Shortest Distance flown to the Event - Nathan Peck, KS - 28 miles

Low Timer at event - Bruce Dixon, KS - "O" flying hours

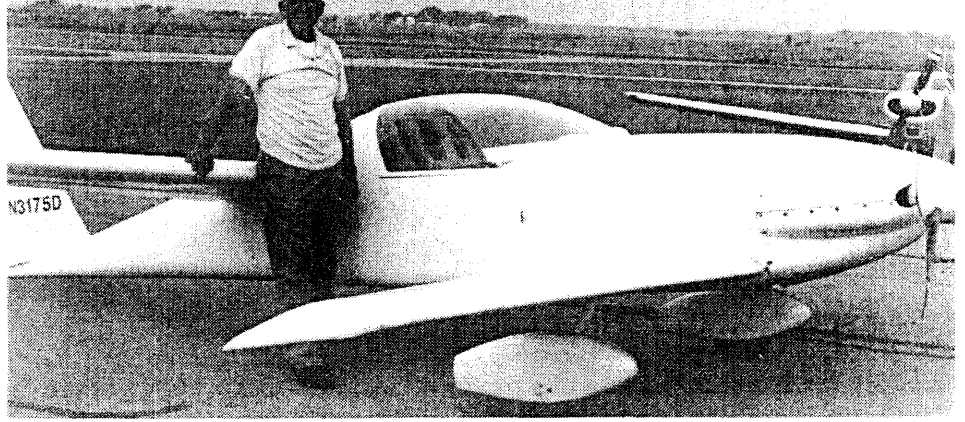
Longest Distance to the event on four wheels - Henry Roden, Olympia, Washington - 1900 miles

The Plane with the most "Charisma" - Allen Perkins, MI

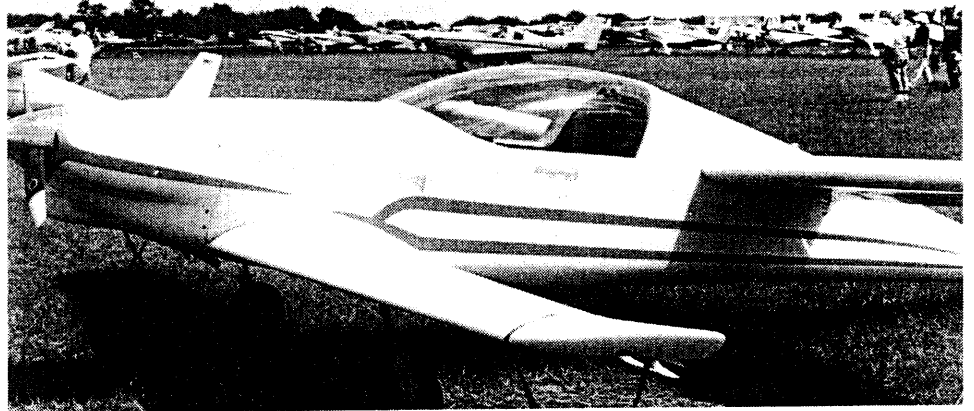
The Messiest Cockpit - Grayson Starner, PA

Tough Luck Award - Howard & Nancy Hardy, CO

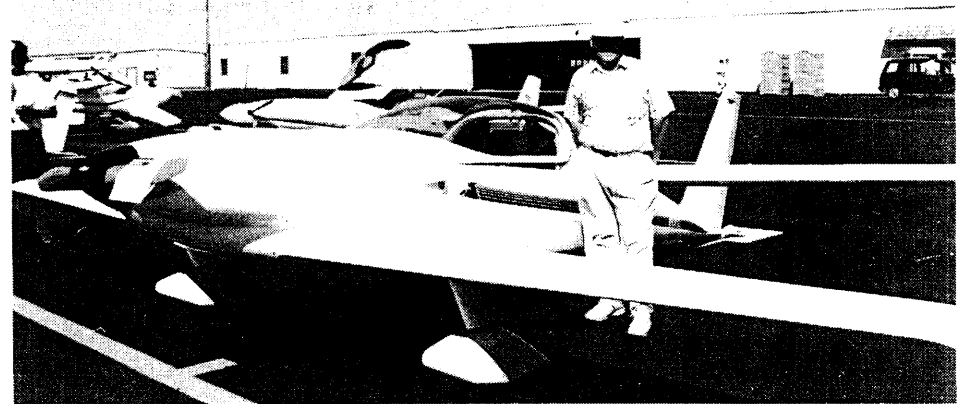
Greatest Deviation from Plans - Butch & Kathy Hernandez, CO - (Velocity)



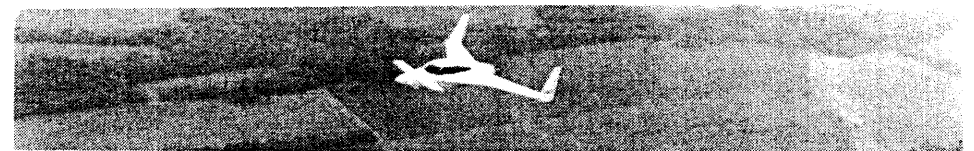
Grayson Starner of Pennsylvania



Fearless Fred Wiebe of Illinois

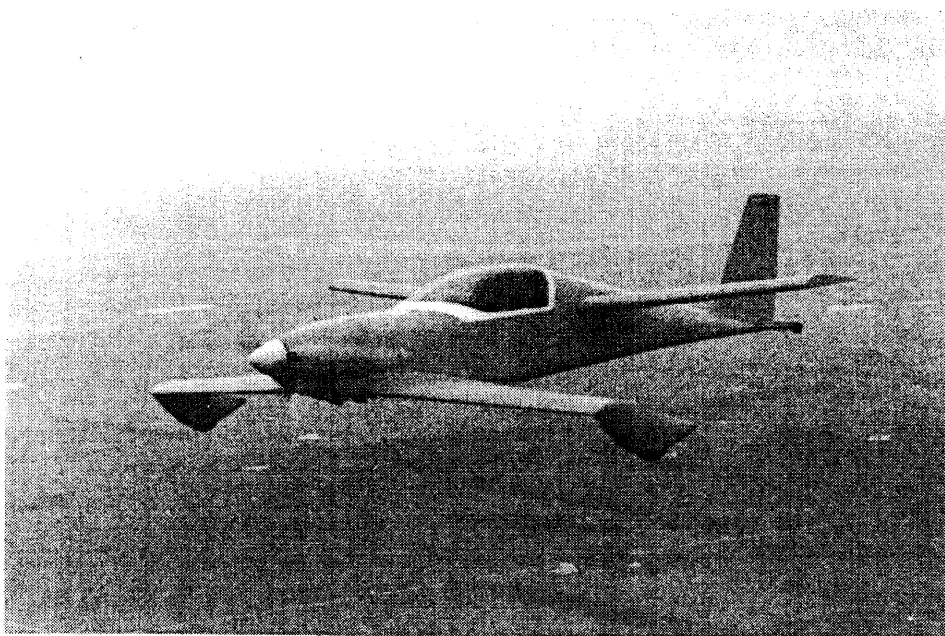


Steve Larabee and his Mark II



Largest deviation from DF plans - Butch Hernandez





Allen Perkins doing what he does Best!



Chow and Chatter at the awards banquet



Right after Don & Debbie's presentation just as Jimmie was getting ready to start giving away the door prizes Mary Masal comes to the podium and sends Jimmie back to his chair. She then "Takes Over" the podium & microphone. Jimmie reluctantly returns to his chair looking rather perplexed. Well what had happened was that all these woman started to share their own stories about their husband's plane building adventures. Then the "Ring Leader Mary Masal" proposed that they make up their own special awards..... The banquet hall was roaring with laughter for the next half hour as the special husband and boy friends were bestowed their awards. A few hi-lights from that presentation is as follows:

HONEY IT'S A BARGAIN AWARD - to Rick Markle, TX who found a Quickie for \$500.00. Borrowed his wife's car to tow it home. Total her car on the way home, but didn't hurt the airplane!

LEARN TO SAY NO AWARD - Waldo Born, IL. Waldo purchased a flying DF. took it apart and now is to busy helping others to get it back together.

THE CLOCK AWARD - Jimmie Masal, TX. People keep sending him props with nick tips and he keeps them all because he's going to make a clocks out of all them

LET THE FAMILY DRIVE AWARD - Jon Finley, MN Jon flew his Quickie to the event and let his wife drive 40 miles with the three young kids.

REAL SHORT CANARD AWARD - Butch Hernandez, CO. X-Dragonfly owner built a Velocity.

TOOTH PICK AWARD - Wayne Ulvestad, SD. Nicked prop on landing with his wife on board, did a go around, during which they ended up heading straight for a semi truck.

MOST TIME ON THE PHONE TALKING ABOUT AIRPLANES - Spud Spornitz, KS

I want to thank Wick's Aircraft, Alexander Aircraft and Great Plains Aircraft for the

door prizes that they supplied for our awards banquet. I hope everyone reciprocates by doing business with the suppliers that support us!

OWNER	ST	ACFT	N#	ENGINE	EW	HI	TT	MTB
CROUCH	IA	Q-1	N14TC	ONAN20	340	114	130	120
PECK	KS	Q-1	N21PR	ONAN22	294	95	70	24
BOUNDS	NE	Q-1	N41RB	RTX503	335	145	235	36
HARDY	CO	Q-1	N7NH	RTX503	340	140	255	66
FINLEY	MN	Q-1	N54JF	VW1835	385	165	300	24
FISHER	IL	Q200	N17PF	O-200	730	180	400	87
JEWETT	KY	Q200	N2AM	O-200	676	198	579	90
HOSKINS	IL	Q200	N202SH	O-200	640	208	749	??
HILDEBRAND	MO	Q200	N93PL	O-200	722	205	57	108
HARDY	CO	Q200	N6NH	O-200	688	185	176	72
MCANDREW	CAN	Q235	CFQQQ	LYC235	727	200	330	30
HALLORAN	MN	TQ2	N4832L	REV	690	195	400	??
CONLIN	TX	TQ200	N8242K	O-200	675	175	450	30
MARTIN	AL	TQ200	N479E	O-200	718	175	263	24
ULVESTAD	SD	MK1DF	N69DF	HAP60	648	137	550	72
DIXON	KS	MK1DF	N447BD	HAP75	742	120	0.5	60
PERKINS	MI	MK1DF	N192AP	HAP60	660	180	507	48
STARNER	PA	MK2DF	N3175D	VW1835	690	130	90	60
WIEBE	IL	MK2DF	N561W	HAP78	702	160	260	78
LARRIBEE	IL	MK2DF	N88SL	LIM70	671	160	300	11

(HI=highest level speed; MTB=months to build;
EW=empty weight;TT= total time)

Wayne Ulvestad's Best Overall Dragonfly. His Dragonfly has won this title before at Ottawa. It continues to be a real beauty. It is not all loaded down with a bunch of this or that, but is a very clean, very streamlined and detailed Dragonfly. Wayne enjoys flying his Dragonfly as you can see he also won the Hi-Timer award with 550 hours. Wayne just can't get enough of the Dragonfly, you see he's well under way on his second Dragonfly. This one is a pre-fab kit and has the bulkhead in and the fuselage halves together and taped. This one should be a real show stopper. He also plans to make this new DF a Mark I also.

Bruce Dixon's Best Interior. Bruce's airplane is every bit a show stopper as Wayne's DF. The only thing that stopped him from winning Best Overall is that he had not flown the plane as of yet. His interior is SUPERB! When you get down and look close the details really start showing up. The best for Bruce came Sunday morning. Fred Wiebe of Illinois flew Bruce Dixon's for its first flight ever. It was an exhilarating event! It took off smooth as glass, not even a dip or a wobble. Fred flew it for about 25 minutes and then came back for a landing that was better than the take-off. A real squeaker! More on this in an upcoming issue of DBFN.

Now for the downer of the event. Sunday morning around 10:00am most folks were on the ramp checking out the plane and saying good by to there old & new friend until next year. Everything was just perfect even the weather. A gentleman in a Starduster (aerobatic biplane) at stopped by to use the bathroom and get a drink. They frequent Ottawa quite often as there is a aerobatic "practice box" about 4

miles east of the airport. This gentleman departed south-bound and proceeded to come downwind again on the west side of the runway. At about the mid field he proceeded to pull up to do what looked like the beginning of a hammer head. He seemed very low and slow, started at 1700 to 1800 feet. At the top of the hammerhead instead of rolling over on it's side it flip over inverted and ended up into an inverted power on spin. I feel the he was momentarily disorientated as he had left the power on for five rotations before reducing power. It rotated two more times, he didn't have enough altitude to recover. He impacted inverted in the field on the west side of the runway. We jumped in the van and went to the scene. I'm sure he died on contact.Hey gang! Let's be careful out there! -- Spud Spornitz



RENEWAL DUE FOR 1996!

It is time to renew your subscription to Dragonfly Builder and Flyers Newsletter. Everyones subscription expires as of this issue! If you'll remember at the beginning of 1995 we advised everyone what funds were needed to be sent in to extend their subscription through 1995. Most of you did very well in renewing except for a few of you "last minute Louie's".

The newsletter has grown in subscribers, amount and quality of information. The Dragonfly itself has grown over this last year also. Patrick and Robin are seeing increased demands for information, plans, Pre-fab kits and parts for the Dragonfly. There are more & more people everyday that think the Dragonfly is the airplane for them to build based upon good looks, building flexibility and it's excellent after completion economics.

Let's take of that renewal right now: Don't be part of that 10 to 15% that has to be set a reminder notice everytime. Many, many of you have been very complementary of the newsletter this year. You can say a thanks by handling this renewal in a timely manner. The subscription rate for 1996 (6 issues) will remain the same as follows:

Inside the U.S. subscribers \$18.00
 Canada, Alaska subscribers \$20.00
 Foreign First Class mail subscribers \$29.00
 Make your checks or money orders payable and mail to:
 'Bill Spornitz - 1112 Layton Dr., Olathe, KS 66061

If you had sent in your remittance and your "last issue" notation is #68 or higher please disregards this reminder

DON'T FORGET!!!!

THE BEST NEW TOOL!

The Best New Tool of 1995 for the Dragonfly builder and pilot is Don Stewart's new index for the "Dragonflyer" and "Dragonfly Builders and Flyers Newsletter" Newsletter's.

We have had other people prepare indexes before of the Dragonfly newsletter and they were very helpful. We do appreciate those contributors efforts....Thanks! When Don asked me if there was a need for an index, I said "Sure, it constantly needs to be updated, so yes." I didn't think more about it. Don said "I'll do one". When Don said that I had no idea that he was going to take such a "Quantum Leap" forward.

I've had my copy here for about a week and have used several times. Wow! Now The more I use it the better I like it. Don has "out done himself" here with his new 80 page index!!!!The first thing I noticed about the index is that this index includes all newsletters Dragonflyer and DBFN, all the way to number one! Next, if any of you are like me when you want to reference back to a topic, or to a "how to section" or newsletter comes the next problem. What happens, I can remember a name or part or have a guess

about what newsletter approximately something ran, but I can never remember exactly where. The way Don designed this index to work will surely get us onto the subject much quicker than ever before. Some people with for "other plane type" newsletters produce an index designed to be used on a PC computer. Not everyone has a computer nor would I want to crank up the computer every time I wanted to use the index. I keep my index with the newsletters out in my personal aircraft construction facilities (The Garage!).

The index is broken down in to 4 categories:

1. By content.
2. By article type.
3. By author.
4. By issue number.

The index is multi ring bond for easy updating. The index is designed to be updated on an annual basis, which Don intends to supply the group on a ongoing bases.

The price of the index is only \$12.00 and once you purchase the initial one, renewals are only \$6.00 in the following years for another complete index..

I've shown several examples of the different categories below.

DragonFly Builders & Flyers Newsletter Index Sorted By ARTICLE TYPE

(C) 1995 Stewart Instruments, Inc. 520-778-6988

CONTENT	TYPE	AUTHOR	ISSUE	PAGE	NOTES
Mark I vs II Handling Chars	Article	Rex Taylor	28	3	
Mark II Canard Tips	Article	Rex Taylor	18	8	
Mark II DFLY	Article	Rex Taylor	21	4	
Mark II Disc Brakes	Article	Rex Taylor	18	8	
Mark II Elevator Horns	Article	Rex Taylor	20	2	
Mark II Gear	Article	Rex Taylor	29	9	
Mark II Gear Design	Article	Rex Taylor	14	1	
Mark II Gear Leg Conversion	Article	Rex Taylor	28	2	
Mark II Gear Legs	Article	Rex Taylor	28	6	
Mark II Gear Legs	Article	Rex Taylor	31	5	

DragonFly Builders & Flyers Newsletter Index Sorted By CONTENT

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CONTENT	TYPE	AUTHOR	ISSUE	PAGE	NOTES
\$1000 Propeller Challenge	Article	Rex Taylor	18	6	
100 Hour Inspection List	Article	Rex Taylor	20	5	
100LL Only	Article	Justin Mace	26	6	
1981 Oshkosh Report	Article	Bob Walters	4	4	
1981 Ramona Airshow	Article	Bob Walters	5	8	
1982 Cafe 400 Report	Article	Bob Walters	7	11	
1982 Sun N Fun Report	Article	Bob Walters	6	2	
1983 CAFE 400	Article	Rex Taylor	12	1	

NEWSLETTER INPUT

At this years annual fly-in during the Dragonfly forum I stopped long enough to ask if there is any suggestions on how we could improve the newsletter in anyway.

Several people had a few good suggestions. There was a couple of people that were fairly critical in regards to what we put in the newsletter. They also felt that there was possibly other people that had not attended the fly-in that shared their same concerns. Let's look at those concerns and I'll try to explain how and why we do things the way we do.

The first gentleman felt articles like the bow style gear and the air brake / belly board were to lengthy, detailed and consumed to area of the newsletter. He also pointed out that the air brake / belly board wasn't necessary on any Dragonfly.

First off, And please everyone understand this clearly. If I did not put this type of information in the newsletter for your REVIEW, you then would never have the opportunity to evaluate the information to see if you wanted to apply that new info to your Dragonfly.. You could never so NO because you never knew about! I can't believe that everyone wants this.

In regards to the air brake / belly board this gentleman went on to say the Dragonfly did not need the air brake because the Dragonfly slipped just lovely and thus didn't need it. This is true, the DF does slip and will sink like a rock. What the gentleman did not take into consideration is that you can't land (touch down) with a Dragonfly in this slipping configuration. Soon or later what you have to do is straighten that nose out and point it down the runway centerline (well hopefully). This is where the air brake comes in quite nicely, you can be pointed straight down the centerline and you still have the DRAG benefit of the airbrake. This will reduce your total ground roll out up to 200 to 300 feet. We must remember that not all Dragonfly pilots have the luxury of flying off a 3000 foot and up runway. We have people flying off grass, and several are flying in & out of 2000 foot or less. Believe me, that extra 200 to 300 foot reduction looks pretty darn attractive to these specific people. Now we do have several DF pilots that are landing there DF very short without the use of the airbarke, they have their landing numbers on their DF down pat and that's great, but not all pilots are Bob Hoover or Chuck Yeagers. The landing can be a very busy time and maybe some pilots would prefer not to be slipping their DF's and would like to have the air brake deployed somewhere earlier in the landing pattern. It's sorta like the saying....."Is the glass half full or is the glass half empty!" This information was put in the newsletter for your review

to see if it is something you want to install on your particular Dragonfly. It's sorta "ALA CARTE" You choose!

There has been some things that I have restricted from coming into the newsletter. One gentleman had drawn up a linkage control system that would change the elevators and ailerons into something like flaperons. What this would do is change both the ailerons & elevators at the same time into extended lowering flaps for more lift during take-off and particularly during landings. I don't like restricting things, but I felt that this may not be safe (read that as scary!) and was beyond the scope of the newsletter and most builders.

One gentleman pointed out that nothing should be put in the newsletter unless it was test flown and had at least 40 or 50+ hours before newsletter release. One other gentleman said nothing should be in the newsletter unless formally tested and approved by Pat Taylor of Viking Aircraft. Don't think so.

Let's look at it in several different lights. 1. We are building an experimental airplane. The whole idea of the experimental category is to build an airplane for ourselves, this whole process is intended to be a learning experience. 2. If you read the experimental rules and reg's we really have very little restrictions and it is "our right" in this flight category to in fact "experiment". 3. Viking Aircraft's position is that they sell you a set of plans to build one Dragonfly aircraft per plans and/or errata sheet and that's it! Please review your original plans, if no one had never taken the next step what would you have. You still would have a nice airplane (and lighter!), but would it be just what you wanted? 4. Most everything evolves or maybe we would be all still flying model "A" powered Pietenpol's. 5. Look at it this way.....Just think if people like Burt Rutan or Ken Rand didn't have "THE STONES" to build a plastic airplane. Just think how crazy everyone must of thought those two guys were way back then. Here it is 1995 and when I have an non-aviation friend over to the house and looks at the project. You tell him it's plastic.....The next thing is "Your not really going to fly in it are you?" Then you jump in there and say "Yes, and it's got a Volkswagen engine on it too!" They still think we are crazy!

I am very interested in hearing others input on this subject area. If you never tell me what you want I'll never know!

My job here is to supply the group with all information via the newsletter, good or bad. My job is to keep you informed, motivated, entertained and smiling. You pick and choose what you want out of it.

Very Best Regards

Spud The Dragonflyer!



What is the Health of your DF Dual Electronic Ignition, OR How Overloaded is Your Electrical System??

By Waldo Born -- Charleston, IL.

The original Dragonfly design concept was a simple, light, relatively inexpensive and reliable sport airplane. The engine employed magneto ignition. The electrical system was nonexistent (like the original J-3 Cub). A need for position lights, some flight and engine instruments and simple communications and navigation radios led to incorporating a 20 ampere ("motorcycle") alternator in the flywheel. The alternator does not reach full 20 amperes output until engine RPM is about 3200 RPM, roughly cruise RPM, if you are using the correct propeller. The original voltage regulator often did not regulate to a full 14 volts charging voltage and the aircraft battery could not be fully charged. Adding other goodies: more radios, strobe lights, landing lights and an electronic ignition system drives the amperage requirements to the limit of the "motorcycle" alternator IF it is turning at 3200 RPM.

Now, suppose your battery is weak and it will barely turn the engine over. You put in on a charger for maybe 30 or 45 minutes. It turns the engine over and it starts. You have dual electronic ignition of the Hapi variety drawing 7 amperes. You are ready to taxi. You turn on your radios and maybe position lights (possibly strobe lights, too) , and broadcast your intentions on the radio. While taxiing your RPM may average 1500 RPM. Probably you are not charging the battery; in fact, you may be draining it. Suppose it takes 10 minutes to get to the runway and check out the machine before takeoff.

You start out with a marginal battery and your operations up to this point might be satisfactory even if the spark is weak because you are using relatively low power. Now comes the takeoff at maximum power. As you break ground the engine gives a hint of roughness. At 100 feet it backfires several times in rapid succession and you reduce power to get it to smooth out - it takes a fairly large power reduction; not enough left to continue climbing. You do the best you can under the circumstances and try to stay within the field boundary (avoiding any built-up areas) and nurse it back to a runway. If one can not be reached (because of a need for steep turns), then you put it on the ground in the nearest level area - like a freshly planted bean field. After touchdown, the machine did not go very far before the right gear folded followed by the left gear a moment later. The machine was not badly damaged - broken prop, dirt inside the cowl, scratched undersurface, abraded right canard tip, both gear legs failed and messed up the wheels and brakes sliding in the dirt, PLUS, the load on the right canard tip caused the bolt in the left drag fitting fastening it to the bulkhead to pop out. THE BOLT HAD BEEN BADLY

STRIPPED AT SOME POINT DURING INSTALLATION OR OPERATION MAINTENANCE PRIOR TO THIS FLIGHT.

The moral of the story is that the flywheel alternator, single battery, dual electronic ignition system that many DF builders/owners have is deficient. What is the solution? The airplane needs two batteries, a system battery and an ignition battery (or, two batteries with one powering each ignition set) with both charged by the alternator. The ignition battery must not be used for anything else. The system battery can be used as an emergency electronic ignition power source. This does not solve the alternator problem. If you start out with a fully charged battery and are sure the alternator voltage regulator combination produces a full 20 amperes at 14 volts at 3200 RPM, you can get by with judicious management of your electrical power consumption - meaning that you must know how many amperes each component in the system requires and stay within power system capacity to keep from discharging either the ignition battery or the system battery too much between engine start and takeoff. Furthermore, make sure both batteries are fully charged before flight and keep them fully charged during flight. This means that you may be limited in the electrical goodies you install because the system can not support them. There is an answer to the power limitations dilemma too. Install a belt driven alternator with a capacity of perhaps 40 amperes and a proper voltage regulator so that the batteries can be charged at rpms as low as 1000 - 1500.

There has been a lot of information published regarding Dragonfly electrical systems and electrical and electronic ignition systems in general. I started with the Dragonfly of Spring 1988(DF # 29) and reviewed them through the latest (DF # 59) (Spud started with DF # 32; Sept/Oct/Nov 1990). There are several articles on electrical and electronic ignition systems - mostly problems, but some with counsel. I've listed them below. Even Spud put in his counsel in DF # 54 (Jul/Aug 94) to either install two batteries with your dual electric ignition system OR use one mag and one dual electronic ignition.

DF # Article -- Content -- Author

#33 Jan/Feb 91 "Insufficient output of alternator voltage regulator limited to 14 volts - battery never receives full charge - Leonard Griffin, Silver City, N.M.

#37 Sep/Oct 91 - Emergency landing - engine failure. Ted Givens, Orleans, Ontario

#38 Nov/Dec 91 - Problem: Master switch failure; Battery /Alternator. Ted Givens, Orleans, Ontario

#39 Jan/Feb 92 - AC & DC switches are different - AC switches ratings must be reduced over 90% if used for DC application means DC switches for the same rating cost 3 times as much as AC switches. Art Bianconi

#45 Jan/Feb 93 - Two electronic ignition system wiring option. -Ted Givens, Orleans, Ontario, Canada

#45 Jan/Feb 93 - Another idea. Len Griffin, Silver City, N.M.

#48 Jul/Aug 93 - Install battery and alternator solenoids keeps high amperage circuits off control switches in cockpit. - Phil Williams Rego Park, N.Y.

#49 Sep/Oct 93 Old aphorism "Feed an engine fuel and electric it will keep running." Nate Rambo, Camarillo, CA

#52 Mar/Apr 94 - Battery breaker (switch) 25A failure; changed to 2 batteries, main & emergency. Chuck Ufkes, Ocala, FL

#53 Jul/Aug 94 - Hapi electronic ignition demand 6-7 amps whether engine running or not; new MSD system (El Paso), demand 4 amps at 3500 RPM and « amp when engine not running; Also, has auto advance. Need battery redundancy. Mark Snow, Carlsbad, NM

#53 Jul/Aug 94 Need two batteries with your dual electronic OR one mag and a single electronic ignition. Spud Spornitz

Also, Kitplanes and particularly Sport Aviation carried a number of articles on this subject. I have listed pertinent ones below. Note that one of the most prolific writers on this subject (and a familiar Forum speaker at Oshkosh as well) is Robert L. Nuckolls. He has even published a "Book" - actually a 3-ring binder of some 200+ pages of down-to-earth builder and operator "stuff" that is easy to understand and apply. I have attached an information sheet out of one of his recent bulletins (with his permission, of course) so that you get some idea of what Bob Nuckolls is about, what is in the "Book", and if you want a copy, how to get it. First time subscriber cost is \$42. This is not an advertising pitch for Bob, BUT, since I have a copy of the "Book" and think it is the best compendium of info I have ever seen on the subject, I would have to characterize this as "highly endorsing his effort"!!!!

Other References:

Bob Welch, "Handling Electrical Loads", Kitplanes, Sept 1992, pg. 76 - 78.

AND, a number of Sport Aviation articles:

Bob Nuckolls (EAA 205021, AeroElectric Connection), "Aircraft Electrical Systems - A Philosophy for Reliability", Feb. 93, pg. 80 - 83.

"Fuses or Circuit Breakers?" March 93, pg. 87.

"Brushes for Aircraft", April 93, pg. 62.

"Solid State Light Dimming", June 93, pg. 50 - 53.

"Magneto Switch Options", July 93, pg. 57 - 59.

"The Batteries are Coming!! The Batteries are Coming!!" Aug. 93, pg. 90 - 91.

"Crowbar' Over-voltage Protection", Dec. 93, pg. 68 - 69.

"Ignition Battery Manager - Reliable Aircraft Operations with Battery Powered Ignition Systems", 1-94, pg. 84 - 85.

"Failure Mode Effects Analysis: Confidence by Design", June 94, pg. 83 - 85.

"Ignition Battery Management Module - Revisited", Aug. 95, pg. 99 - 100.

Lloyd Hartenberger (EAA 175723), "Battery Voltage" (two battery, dual electronic ignition systems), June 93, pg. 83.

Peter Brooke (Canada Aeromotive), "Computer Dual Electronic Ignition System", Dec. 93, pg. 55 - 60.

Klaus Savier (EAA 258013), "Electronic Ignition for Aircraft", Feb. 95, pg. 70 - 72.

MULTICOM

Super Thanks for the kind words.....Quite a few of you have called, written or E-mailed with your concerns about my son that was shot over the high school football back in September. The very kind words, concerns and prayers for him were very welcomed. We have him pretty much back to normal (98%) and back in school. Thanks many times. Now things are just getting back to normal.....let's talk airplanes and start building some parts!!!!

Canadian Fuel Deal!!!! Hi Spud. Let the gang know that I am the Esso Aviation fuel dealer at the Dryden Airport (YHD). Anyone stopping in a Dragonfly will get a hell of a deal on fuel! Vaughan Cochrane - Dryden, Ontario, Canada

Thanks..... Just a note to thank you and Masal for all your work putting on such a nice event. I know it's a lot of work and I hope you know how much we pilots and builders appreciate it. That fly-in is one of the high points of my year. Over the years I've found that one of the things I enjoy most about this aviation hobby is the people involved in it. They are the finest people on earth! By the way, the little Quickie hauled my tail home in fine shape. The ride was smooth and weather fine. As I was humming along looking over the countryside I was thinking it was like that beer commercial, it doesn't get any better than this! Thanks again Spud. Bob Bounds - Nebraska Letters like this one just make it all worth it -Thanks Spud

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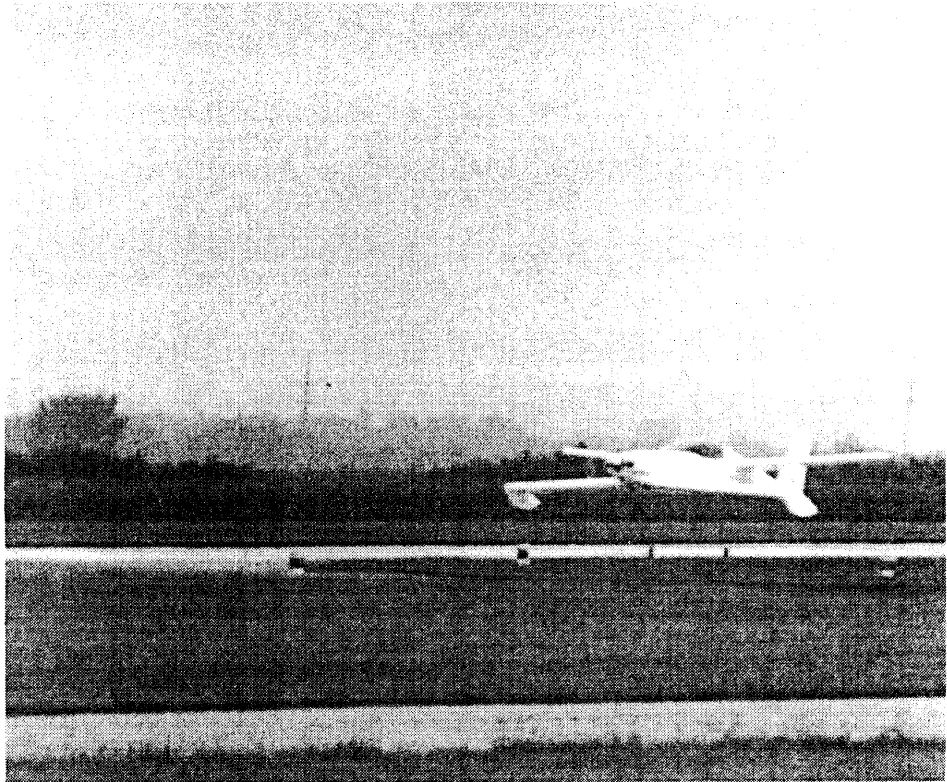
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