

DRAGONFLY BUILDERS AND FLYERS NEWSLETTER

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Dave Morris checking the wing incidence of Wayne Ulvestad's Jabiru powered MK I

Dave Morris - February 2002
Last year I was faced with the challenge of figuring out a way to align my wing and canard to the fuselage

without level boards. I had bought the wing from one Dragonfly builder in California, and the canard from a different builder in Nebraska,

and neither of them had left the level boards installed. So, when it came time to align the wing and

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Checking Wing and Canard Alignment without Level Boards, continued from page 1

canard to the fuselage and drill the holes in the various lift and drag bulkheads, I had to get inventive.

Many years ago, the DBFN newsletters contained a lot of talk about the "Incidence Jigs", which were made up from core templates that had bubble levels installed on them. Apparently, these jigs were being passed from builder to builder to check their work. These would have been perfect for aligning my wing and canard, but they seem to have vanished somewhere (probably in the same parallel dimension that the finite element analysis of the original DF prototype disappeared into!).

The builder of my canard had left the tips flat, so I was able to take the plans template for the foam near the canard tip, lay it over the tip, and recreate the level line. I then used a SmartLevel™ (a digital level that reads down to 1/10th of a degree) to level it with respect to the fuselage.

But the wing tips were shaped, and there was no way to draw a line and hold a level against the curved wingtip. So I had to come up with a different way of determining the true level attitude.

I dug out the plans for the wing core template for BL-18, the station closest to the fuselage sidewall. I measured the angle between the bottom skin and the water line with a protractor on the plans and found it to be 5 degrees. So, according to the plans, if the bottom skin of the wing, measured at the trailing edge of the wing airfoil, right where the aileron begins, was aligned to a 5 degree angle with respect to the waterline of the fuselage, the wing should be perfectly aligned.

In order to check my work on the canard, I made a similar measure-

ment of the canard plans at BL-14.5 and found it to be also 5 degrees with respect to its level line. And sure enough, when I measured the angle of the bottom skin, right at the fuselage sidewall, at the trailing edge of the canard where the elevator begins, it was a perfect 5 degrees from level.

either the canard or the wing, or both! Instead of introducing dangerous flight characteristics, a misalignment of the canard and/or wing of this amount seems to only cause minor variations in speed, stall, trim, and landing performance. These performance variations are borne out mostly in anecdotal discussions



Not satisfied, I decided to bring my SmartLevel™ with me to the Ottawa 2001 Field of Dreams fly-in and check everybody's Dragonfly, to reassure myself that I was not making some huge mistake. As an easily accessible indicator of the waterline of the aircraft, I chose the armrests. That turned out to be a mistake, because some people installed their armrests randomly with respect to the plans location. So I also measured the angle of the bottom of the fuselage, just ahead of the fuel tank at the canard drag bulkhead, where it is relatively flat.

Boy, was I surprised with what I found! Apparently a Dragonfly will indeed fly with a variation of a degree or so from proper alignment on DBFN 94-95 PAGE 2

of performance and not in actual measurements, because we have not yet been able to get a good comparison of performance. But here are the alignment numbers that I and others have measured using the same basic measuring technique, and which I published in the DragonflyList Yahoo eGroup (message #2418).

As you can see from the table on the next page, the alignment variations are all over the map, with the difference between the wing and canard varying anywhere from -1.5 degrees to +2.6 degrees. The angle between the canard (or wing) and the armrest

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Dave checking John Read's MKII

(and thus the fuselage) varies from -5.2 degrees to -3.9 degrees.

Wayne Ulvestad's alignment seems to be the closest to the plans. But since he has a Jabiru engine with higher horsepower, it is difficult to compare his performance with that of a VW-equipped aircraft.

Allan indicated that Richard, with a wing angle higher than the canard, was flying a little slower than he was, and that he had some problems trimming for level flight. Charlie Johnson also said he did not like the rigging and, after seeing these angles, decided that his problems were

definitely related to the wing being at a higher angle.

So, until someone 'fesses up and digs the incidence jigs out of their closet and puts them back into circulation, if your Dragonfly flies too slow or lands too fast or can't do a three-point landing or lands tail first or nose first or does anything else that you don't think it should do, go get yourself a SmartLevel and check your wing and canard against the measurements that other Dragonflies have taken and draw your own conclusions.

Dave Morris

N-Number	Owner	Armrest	Tank	Wing	Canard	Difference in angle Wing-Canard
N764JM	Justin	?	-2.5	-5.0	-6.0	+1.0
N157JG	Charlie	0.0	-4.3	-1.6	-4.2	+2.6
N69DF	Wayne	0.0	-4.9	-4.8	-4.8	0.0
N100HK	David	0.0	-2.8	-2.2	-3.9	+1.7
N561W	Fred	0.0	-4.6	-4.1	-5.2	+1.1
N413PH	John	0.0	-5.8	-5.5	-4.0	-1.5
N5TD	R Ryan	?	0.0	-4.1	-3.9	+1.2
N59RJ	Allan					-0.4
N931BE	Brad					-0.5
N85MT?	Richard					+0.7

The Following is the e-mail message Dave referred to earlier in this message. I've reprinted it for those who don't have internet access. ~Editor

Some of you may have seen me crawling under the airplanes at Ottawa this past weekend. I was taking some unofficial measurements of wing and canard angles for comparison. I am particularly interested in these, because I bought my wing and canard from other builders after the level blocks had been removed, and I have to rely on alternative techniques for aligning them now.

Note that these are NOT "incidence angles" nor "angles of attack" nor any other such official measurements. They are, however, interesting because we have all discovered that various airplanes fly differently. Some of you guys are able to land tail-wheel-first. Others could never pull that off. Some of you require reflexors and some of you have never installed them. Some of you have serious problems when there are bugs or raindrops on the canard, and some of you never notice the difference.

So, here are some of my findings. All measurements were made with a Digital SmartLevel™, calibrated once at the very beginning, and then made by holding the level in the designated spot for several seconds,

aimed to within a few degrees of parallel to the centerline of the aircraft, pressing the "hold" button after the level stabilized, and reading the numbers.

Canard readings were taken on the bottom of the canard, just forward of the

Continued

Checking Wing and Canard Alignment without Level Boards, continued from page 3

elevator hinge, with the level right next to the fuselage side. On your plans blueprints page 11, you will find the template for a location close to this one, BL-14.5, where you can measure that the desired angle should be -5 degrees with respect to the waterline of the canard.

Wing readings were taken on the bottom of the wing, just forward of

I also took a measurement on the bottom of the fuselage, right underneath the tank, close to the edge of the fuselage side, just behind the canard drag spar. This part of the fuselage bottom is pretty flat and should be similar on most airplanes, and can serve as an additional reference point, in case the armrests were not aligned with the waterline.

these measurements. It looks like 2.6 degrees would do it.

Based on a measurement of the angles given in the plans, it would appear that Wayne's (69DF) angles are the closest to perfect. So it would be interesting to get his cruise/stall/landing speed information and see how that compares with what others have gotten.



Dave checks takes a reference off Wayne's fuel tank bottom, While Drew watches in amazement.

the aileron hinge, with the level right next to the fuselage side. On blueprints page 6, the template closest to this point is BL-18, which shows the angle here should be -5 degrees with respect to the waterline of the wing. The armrests, according to the plans, should be at 0 degrees with respect to the waterline. I have adjusted all the other angles so that the armrests are at zero, for easier comparison.

(Justin (N764JM) says his armrests are at an arbitrary angle, so you need to compensate for that when looking at his numbers.)

Conclusions? For one, there is this myth that incidence angles have to be within a few tenths of a degree or your airplane will fall out of the sky. As you can tell, these planes have a maximum of 4.1 degrees of variation in the wing/canard angle differences, and none of them fell out of the sky.

However, your stall speed and max cruise speed may suffer if they are out of alignment.

Charlie Johnson (OneSkyDog) has commented that he always felt his wing needed to come up another few degrees, and this is borne out by

Caveat:

Use of these angles assumes that each builder constructed his wing and canard according to the plans. You can't assume that the bottom trailing edge of the airfoil is necessarily a perfect indication of the angle of incidence of the rest of the airfoil, especially if even a few hundreds of an inch in variation were introduced when it was hotwired or sanded.

Dave Morris

N55UP under construction

Be sure to read Richard Terry's related story on page 14. ~Ed

Reg Clark Checks in

Hi Pat

Here is another demo I did on the canard at different airspeeds. 60° wing tips (canard) tufts about 3" long.

I was doing the shooting and flying. Actually it wasn't really that hard, the air was smooth and I could trim the airplane into the different speeds.

I was trying to film the airspeed indicator in the same shot, as you can see it didn't work real good, so I took the second set picture (next)

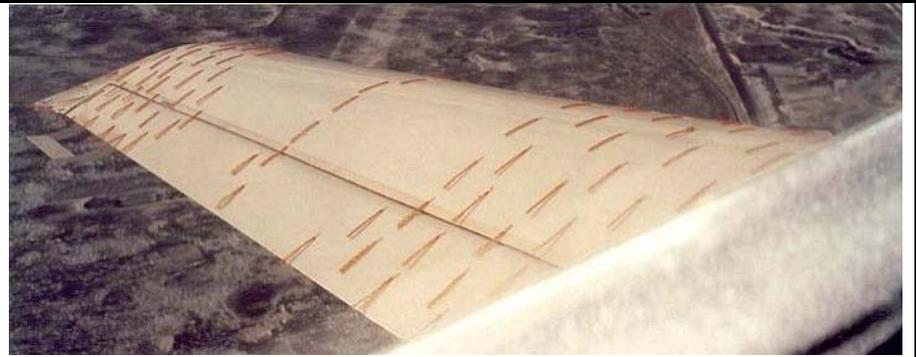
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Reg Clark Checks in with tuft test photos of his canard, continued from page 4

after one of the canard. I'm not an aeronautical engineer, but I found it interesting what the air is doing when you can see it working.

I'll send you all the info in case it's better to use negatives for reproduction.

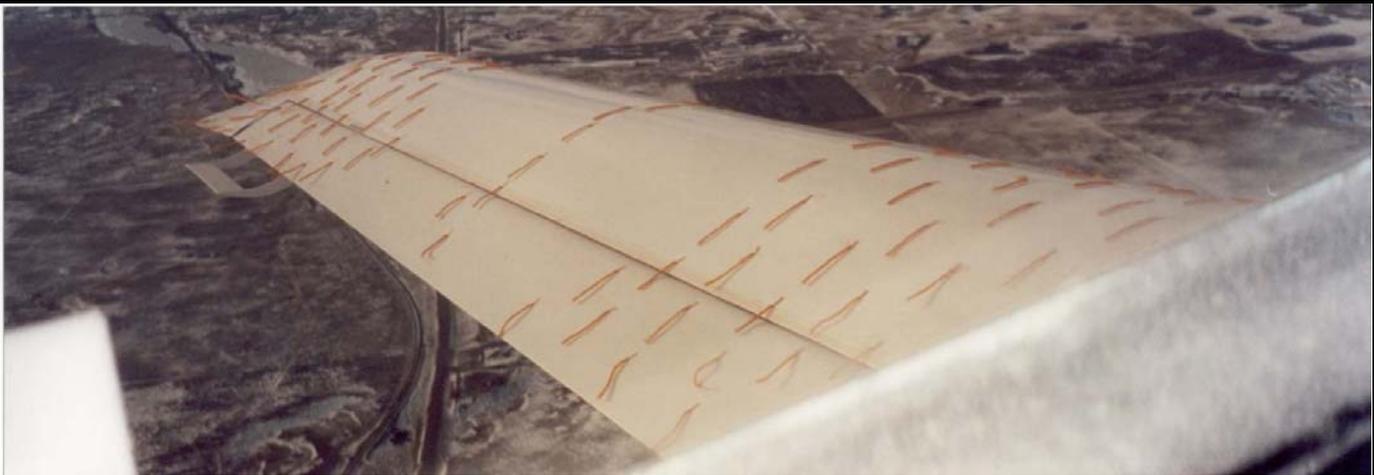
Best regards,
Reginald Clark.



150 KTS we can see that the yarns are quite straight and for the most part, well attached.



At 120 KTS, we start to see a tiny bit of separation, and the elevator is just below trail.

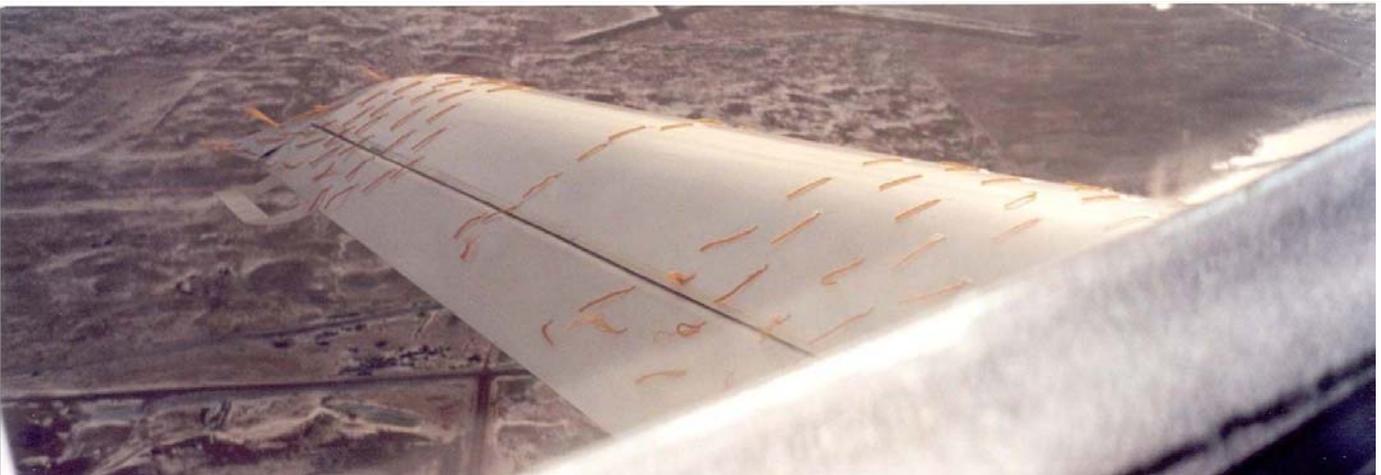


At 90 KTS, we start to notice some reverse flow inboard, but outboard seems unchanged.

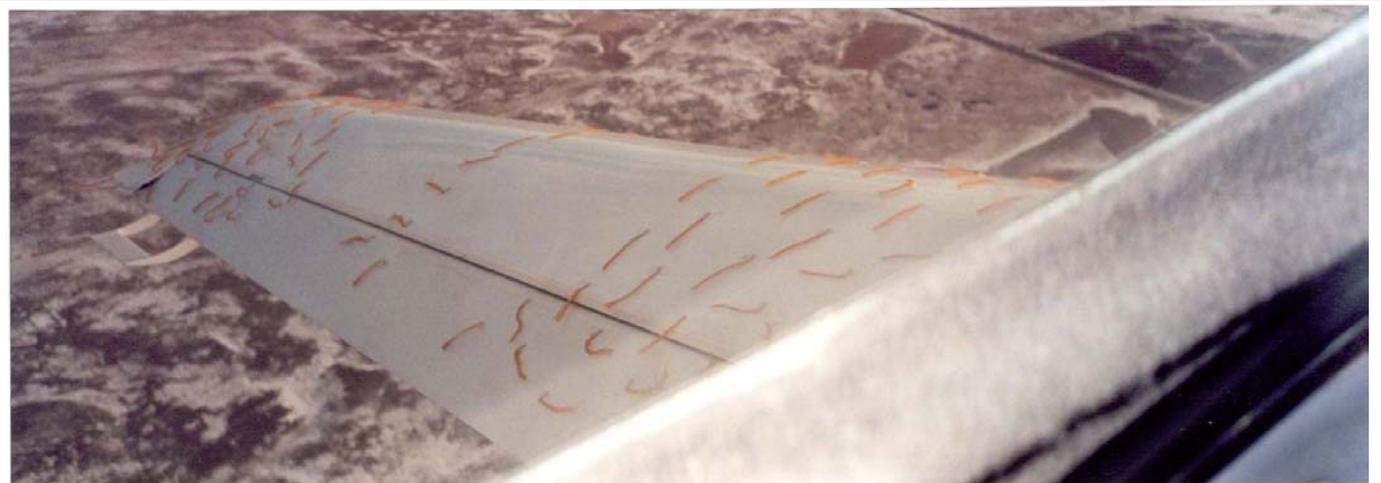
Reg Clark Checks in with tuft test photos of his canard, continued from page 5



At 80 KTS, we see some definite reverse flow inboard, and the yarn on the wing tip is starting to come alive. Notice too that the elevator starting to be quite a bit below trail.

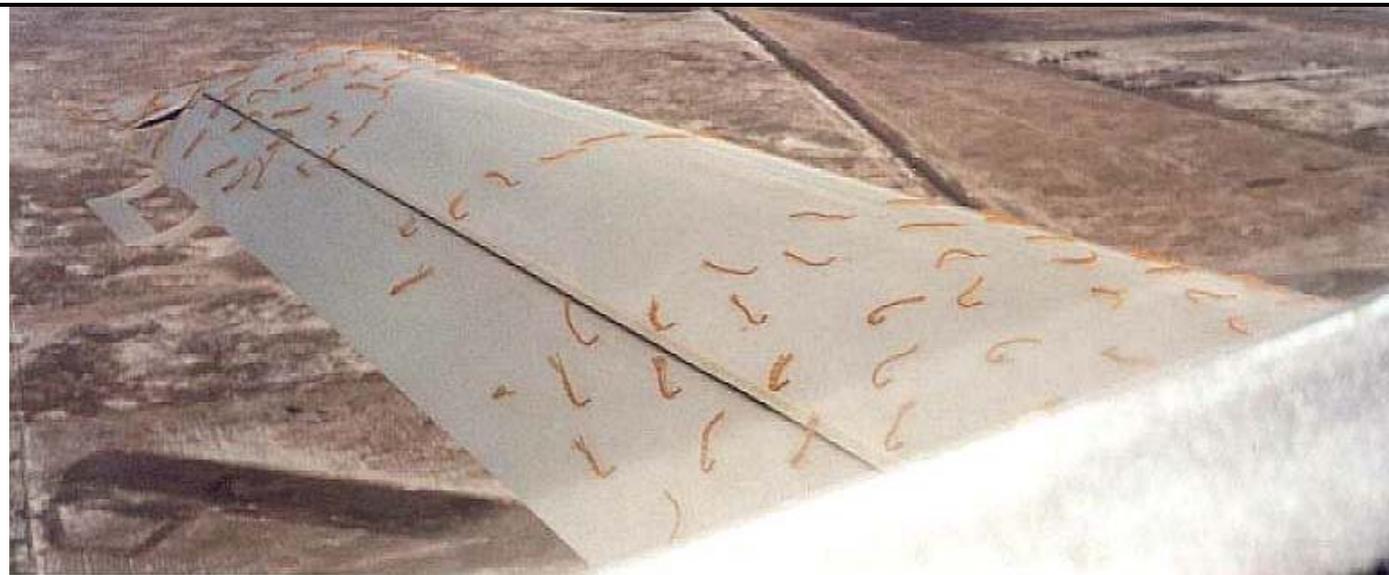


At 72 KTS, we see some the reverse flow all across the trailing edge. We also see some yarns on the tip, at the chord's thickest section, standing almost vertical.



At 63 KTS, we see much more disturbance all across the airfoil, from about mid chord to the trailing edge. The elevator seems to be almost to the stop, judging by the gap at the tip.

Reg Clark Checks in with tuft test photos of his canard, continued from page 6



**And the final shot in the series shows us what's happening at 53 KTS.
The elevator appears to be at the stop, and the yarns are all over the place.**



Ok, so I lied. The photo above is not the last in the series. Each shot of the canard that Reg took, he also shot a photo of the airspeed indicator. Problem was that he couldn't get both the yarns and the ASI in focus, in the same shot. In this photo, you can clearly see that the yarns are all over the place, and the airspeed is well below both the white and green arcs.

Will Ottawa be Ottawa any more?

Hello Everyone,
Spud Spornitz here in Olathe, Kansas, one of your hosts for this year's 12th Annual Field of Dreams Tandem Wing Fly-in. Some exciting changes are forth coming, but

more on that later...

Wow! Can you believe that our annual fly-in has been held in Kansas for 12 years! It's been a long time since Dale Guimond, Jimmy

Masal and I stood the Ottawa airport said. "If we just pick a date and say we're having a Dragonfly and Quickie fly-in, do you think they'll come, come out here, in the

Continued next page

middle of no where?" Well they did, and they've been coming ever since! I guess this is when we started calling it the "Field of Dreams", just a field, out in the middle of nowhere in Kansas, where some people come every year and talk, touch, learn and visualize how to build and fly their Dream...

Gentlemen, how fortunate we are to be able to build and fly our own airplane, it just doesn't get any better than this! The fly-in continues to do what it was originally designed to do and that is bring fresh ideas to the builder and pilot, but the most important thing is that it motivates people to complete their planes, period!

Before we get into brief overview on this years event I would be remiss if I didn't take a moment to thank **Don and Debbie Stewart** for hosting the fly-in over the last four years. What a wonderful job they have done! (Not an easy task to do remotely from Arizona!). They have both given up vacation time and business time [*not to mention wedding anniversaries. ~Ed*] to ensure that the event continued to go on without a hitch. Don and Debbie, I'm sure that I speak for everyone, **Thank You very much for the superb job!**

The dates for this years fly-in are: **Friday, Saturday & Sunday September 27th, 28th & 29th.** The most dramatic change is that **the fly-in will no longer be held in Ottawa, Kansas. The event has a new home, Coffey County Airport, Burlington, Kansas!** Now Coffey County has all the country charm and freedom that Ottawa offered us, but with much newer, more modern and larger facility. So where the heck is Coffey

County Airport, you say? The town that the airport is associated with is Burlington, Kansas. The easiest reference is that it is 25 mile

west of Ottawa, 7 miles north of Burlington and 7 miles south of Interstate 35.



Here's our new home

west of Ottawa, 7 miles north of Burlington and 7 miles south of Interstate 35.

Some basic stats on the airport are: The airport identifier is "UKL", The runway is north – south (18-36) hard surface 5500 feet X 75 feet. It's outside of the Kansas City traffic area (" Type B" airspace), Non-controlled towered field – Unicom 123.00, fuel; 100LL is

than fifteen years old (and clean as a whistle). They have supplied us with a large meeting room that can easily handle 70 to 80 people comfortably "Inside" upstairs of the main building (Not in the hangar!) I mean heat, air, and lights too! and we can look down at the airplanes. No more competing with the aircraft engine noise!!! Also there is a large pilots lounge that will be for our use that overlooks the main



ramp area that is equipped with two nice sofas, two recliners, multiple chairs, TV and VCR's that to relax in a more quieter setting.

While we are on the subject of the forums, these too are already shaping up quite nicely. Jimmy Masal will be on deck handling the Quickie forum and the

Master of Ceremony duties at the awards banquet. Joining Jimmy with the Quickie forum will be

\$1.50 per gallon with sales tax! Lots of room with two large hangars (100' x100' and 100' x 80') for parking overnight, looks like we could handle 30 to 35 Q's or DF's inside with plenty of outside air-

Master of Ceremony duties at the awards banquet. Joining Jimmy with the Quickie forum will be

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A view out the window to the flight line below. Is that snow we see piled up around the edges?



Another view of our new meeting room

Dave Richardson of Q-talk fame. Yours truly will be cranking up the Dragonfly forum along with Pat Panzera, the Dragonfly newsletter chief and Corvair guru. Bob Nuckolls of Aeroelectric has confirmed his attendance along with Todd Keorner of B & C Specialty Products (The starter, alternator, electrical component guys) will be joining him to give you one hell of a good aviation electrical forum.

Steve Bennett of Great Plains Aircraft has also confirmed that he will be there to bring all the VW gang up-to-date. Pat Panzera will be on

track to bring us up-to-date on the very latest on the Corvair conversion forum along with William Wynne who as tentatively planned on joining us.

Andrew Aurigema has pledged to be at Coffey County "in the Raptor" to give us a forum on it and the X-plane computer simulator.

We have the dinner set up for Friday evening for the famous "Friday night social". We have a private facility all set up and locked in for the Saturday evening banquet.

Bob Horne will be back with his "Chuck Wagon" to keep our hunger pain in line starting Friday afternoon is all scheduled. (Bob is the Gentlemen, Coffey County has really rolled out the red carpet and given us the keys to the airport for our annual event. They've made it very clear that they want us to come, enjoy and

stay and call Coffey County our new home. I've never felt more welcomed at an airport. I hope you feel the same way as I do.

On behalf of Jimmy Masal, Pat Panzera, Dave Richardson and myself we are honored to once again be your hosts for your 12th Annual "Field of Dreams" Tandem Wing Fly-in for 2002 at Coffey County Airport, Burlington, Kansas. Mark those calendars right now for **September 27th, 28th & 29th**. We'll have more in the next newsletter on motels, banquet details, etc. I can't wait to see everyone there!

Very best regards,

Spud Spornitz
Olathe, Kansas



Check out the web site:

<http://pages.sbcglobal.net/bspornitz/fly-in2002.htm>





Part-Maker : Behind the magic

Well by now you either have the X-Plane simulation up and running or have written off this column. Lets take a look at what makes this an aerodynamic properties simulation and not a game. So put down the joystick for a few minutes and lets dig into the nuts and bolts of the program a bit.

X-Plane no more understands what an airplane is than your tummy knows what an apple is.

Your tummy only knows that if something that looks (chemically) like a bit of fructose (apple sugar) comes along, it pounces on it and breaks it down so some other part of you can use it. X-Plane is the same. It is hoping

that data will come along that it can recognize as useful so that it can pounce on it and process it for output to the screen.

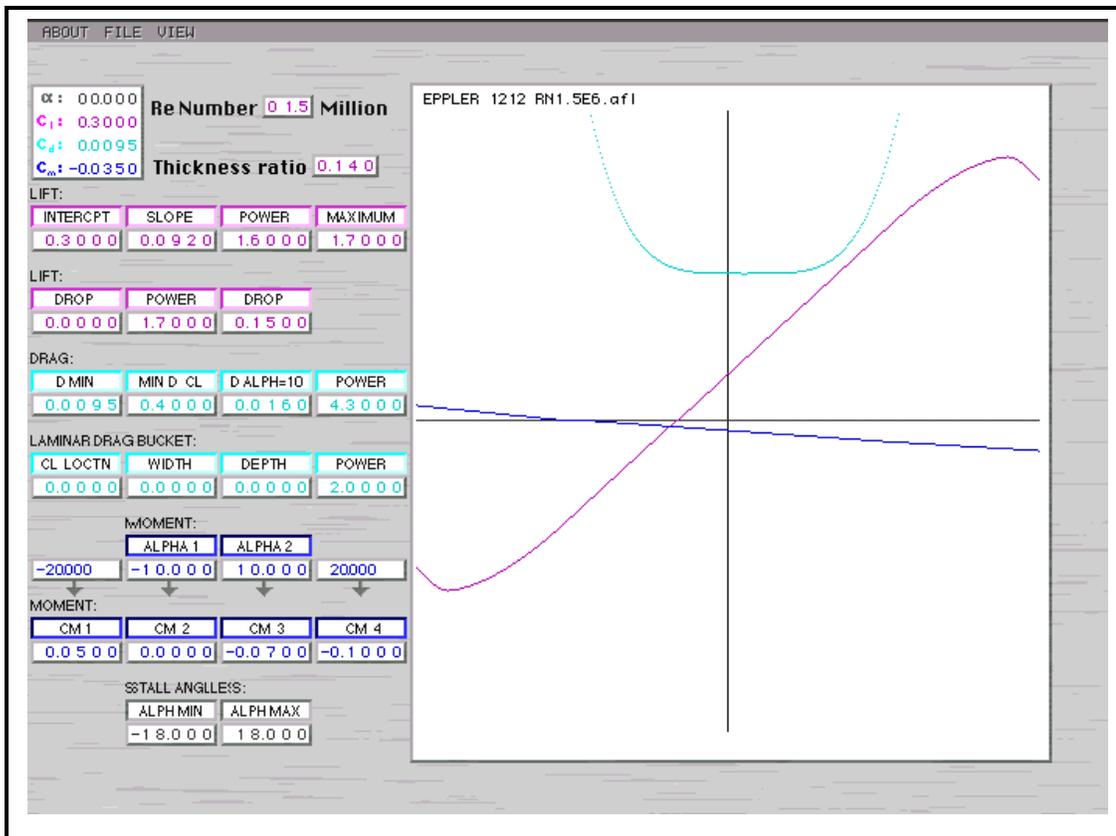
Initially, the X-Plane program is looking for data from the airfoil files and shape files you created (or downloaded from the net) and supplied to it. The format and structure of the data is not important to god like end users, so we will ignore those trivial details. What is important is that you need to remember : “garbage in gets garbage out”. You lie to the program (either intentionally or by mistake) and it will lie right back to you. It is up to you to separate the truth from the fiction.

The core of the data needed is supplied by a program called Part Maker. This little helper is a digital airfoil maker program. If you open this program up, it will show you a black screen with a few lines and curves on it. Pretty un-exciting would be an overstatement of its charm.

Get past the idea that this boring little screen is telling you nothing. It is actually telling you everything that is known to man about the wing that you want to use in the simulation. Lift, drag, moment, RN, range of AOA, its all there.

More importantly, it is laid out just like the “Theory of

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Wing Sections" bible. That is to say, you see information the way it is printed on the pages of the book. You can make the program screen look just like the pretty data curves in the book. The computer then translates its screen into algorithms that X-Plane can recognize and use. In effect, this is a friendly, graphical user interface into the black art of aerodynamics.

You click on the little boxes to the left and the curves on the right change. If you raise the CL max, the electronic wing will make more lift. If you lower the Coefficient of drag, the electronic wing will make less drag. You are in total control of the aerodynamic performance characteristics that the computer responds to. If you use this divine power to make your digital wings perform just like the NASA publications say they did in the wind tunnel testing, then the computer will reward you with real world flight characteristics during the simulation.

So what you think of that boring little screen now ???

Drew in sunny Fl.



T shirt Time!

Ok gang, here comes spring and I'm putting together an order for T-shirts.

It's important that everyone understand that we are "Pre-selling" these, that is we need to know what sizes you need, how many of each size and then the payment for the "shirts and the freight charges" needs to be mailed in with the order. We will not be running any extra's, so please don't count on us having any at Oshkosh or at this years annual fly-in at Coffey County, Kansas. Everyone needs to get their orders in as soon as possible and don't drag their feet, as we are going to wait 30 days after the newsletter is mailed and then we are turning in the order. If everything goes smoothly, you'll get your shirts in 6 to 8 weeks after you receive this latest issue of DBFN.

Here's a picture of what they look like, most people have been very complementary about the design. Also last time we offered colors, we are going to simplify things a little bit by staying with white T-shirts only!

The shirts will be "Gildan" 100% preshrunk cotton which is a much higher quality than the Fruit of the Loom - Beefy-T series of shirts we've had in the past.

It's been five years since we ran the last batch of shirts and it maybe a while before we run them Again, so please take advantage of this opportunity!



Pricing will be as follows:

**Small thru XX-Large \$14.00
XXX-large \$15.50**

Shipping charges will be \$4.00 for the first shirt, plus a \$1.50 every additional shirt after the first one.

Canadian charges will be \$6.00 for the first shirt, plus a \$1.50 for every additional shirt after the first one.

People wanting to ship orders overseas contact me by e-mail and I'll obtain a quote from the post office.

If anyone has any additional questions please don't hesitate to contact me by phone or by e-mail.

Make your checks payable:

Bill Spornitz,

Mail to:

**1112 Layton Drive,
Olathe, Kansas 66061.**

Phone:(913) 764-5118

E-mail: bspornitz@sbcglobal.net

Spud Spornitz
Olathe, Kansas

Mattoon Canard Wing Fly-in 2002

<http://www.si-inc.com/MattoonFlyIn>



Coles County Airport (MTO)

Mattoon - Charleston, Illinois
Friday-Sunday, June 7-9, 2002

The Coles County Airport likes to have groups use it for flyin's and will give us free use of a big (and I mean "big") hangar. Airport will provide free hangar space and tie-downs for our airplanes. You do not need to bring tie-down ropes.

MTO has two wide and long runways. The ramp area can hold 100 airplanes. Use right hand pattern for 6 and 11. The restaurant on the airport is open 7 am to 8 pm, 7 days a week. Non-controlled field Unicom at 122.7Mhz and AWOS is on the VOR at 109.4Mhz.

This is really a one day event, but plan to fly or drive in on Friday afternoon or Saturday morning for an all day, full throttle, Quickie and Dragonfly fun get-together. There will be dinner Friday and Saturday night at a local restaurant. Plan to depart some time Sunday after a hearty breakfast at the airport restaurant.

Contact persons:

Shannon Youakim, airport manager, 217-234-7120, dyouakim@aol.com

Steve Larabee, Air Boss, 217-345-2633 cfsfl@eiu.edu



Mattoon from the air

The troops check in

The following is a copy of an e-mail exchange I recently had with an excited new owner. ~Ed.

Pat,

I had contacted Spud Spornitz and he informed me that you are now in charge of the DBFN Newsletter. I have recently purchased Dfly MKIIIH N7044E From a gentleman in Scotia N.Y. I would like to receive the newsletter in order to stay abreast of developments. Please send subscription information to lizdrnch@yahoo.com

Thanks and hope to hear from you.

Regards

Mark Cooley---Amarillo, Texas---
Lizzard Ranch Ironworks

I responded to his e-mail, and then received this note from Mark: ~Ed

Pat,

Thanks for the subscription information. I will send a check and hope to receive my newsletters soon. I have issues 33-78 and will contact Spud for the issues I'm

Continued on next page

The troops check in, continued from page 12

missing. Attached are a couple of photos of N7044E.

Regards,
Mark Cooley--Amarillo, Texas
lizdrnch@yahoo.com.

The photos Mark attached to his e-mail are shown on this page. After seeing them, I e-mailed Mark back and complimented him on his new purchase. The following is his reply ~Ed

Pat,

Yes she is a beauty. She was built by Robert Miller of Wellsville, Ohio. N7044E is in a hanger in Scotia N.Y. at this time. The aircraft hasn't flown for two years because of a fuel tank problem that the previous owner was unable to fix. I am trying to get the problem repaired and the aircraft inspected for flight to my location in Amarillo, Texas. I have had no luck in finding a person in N.Y. who is willing/able to repair and inspect her.

There was a small fuel leak on the main tank, which the previous owner tried to repair. He opened the tank at the left inspection port, brushed a fiberglass tank sealant on the affected area and reglased the port over. The repair fixed the fuel leak but now fuel will not flow from the main to the header. I suppose some of the sealant got into the fuel screen and plugged it up. I have no experience with fiber

glass/epoxy and I am apprehensive about attempting the repair myself. If you know of any Dfly builders/pilots/A&P in the general area of the aircraft that would be willing to give the repair a try, I would be willing to pay a fair price and expenses. I hate to disassemble such a



beautiful aircraft to get it home when the repair/inspection will most likely be easy for a person who could build such an aircraft. Any help you can provide to me will be greatly appreciated.

Warmest Regards,
Mark Cooley



Hi Pat,

This is basically what I did concerning the AOA of the rear wing.

I love my MK I, but flight testing showed that it was slower than the other DFs here at Chino, climbed much slower, and most importantly, was difficult to trim hands off in level flight. I finally solved the trim problem with enlarged sparrow strainers set at 38° relative to the top surface of the elevator, very heavy springs on the nose up trim and a ¼" up reflex on the ailerons.

This didn't help the speed/climb problems however and made the plane very pitch neutral at aft CG/gross weight. I was giving serious thought to installing an aileron Reflexor to get rid of the reflex at those conditions, then I read the report from Ottawa concerning wing AOA differences.

We made the same checks on Allan Tenerelli's, Brad Hale's & my planes. Allan & Brad were both 1.2 to 1.4° less than mine. This led me to decide to fix the problem rather than fix the results of the problem. Comparison to the plans wing template at BL18 and my plane at level indicated about 5/16" difference in the wing chord line. I made new rear wing drag tabs that were 5/16 to 7/16" longer (slotted attach hole) & returned to ailerons to neutral in trail. I then flew flight tests at forward, central & aft CG.

The aft CG test was at gross weight. I found that the plane was now trimmable with only light springs in the trim system, the level speeds at 3000 rpm & 3400 rpm were up from the low 120s to around 136 to 140mph. The climb improved at all speeds, especially above 90 mph. (before I had to

climb at 75 -80 to even get a few hundred fpm above 4000 ft). Now I can get 3-400 fpm at 95 - 100 mph.

I then made the cosmetic changes necessary. (The tests were flown with the aileron-to-fuselage fairing misaligned, the under and over wing cutouts with large gaps and the rear wing cover raised up about ¼". These were all corrected and one more test flown. The speeds/climb improved even more by a little.

It was a real pain to do, but I am pleased with the results. Maybe I can get high enough to get over the mountains to the north now before I get to them! Before, I was still climbing as I approached them. I am looking forward to the coming fly-in season and hope to attend several of them.

Richard Terry N85MT

Dear Pat,

Yes, there is life after Dragonfly. In my case, there isn't much; but at my age I can only thank God for that which he has given me. I miss the Dragonfly gatherings and you good people.

I was quite unhappy to find that both Gene Arthur and Ken Brock had died. Gene was the greatest good-old boy I ever met. He just loved to fly and fly. He could fly from Texas to California in the worse weather than I could fly the pattern. He was fun to be around and had the real homebuilder's outlook on our pursuits.

Ken Brock was certainly another hero in my world. I had many contacts with him and his delightful wife Marie. Ken's death was a loss to us all.

I feel you are doing a fantastic job on the newsletter. We all look forward to each issue. You and Don Stewart are keeping the movement alive.

Please make me a paying subscriber hereafter.

Very respectfully,
Nathan Rambo

When I took over the newsletter, I assumed the responsibility to ensure that several "subscribers" received free issues for life. The list included individuals such as Bob Walters and Rex Taylor. I included Nate Rambo. Nate is equally responsible for this "movement" which we are keeping alive. I sent Nates check back to him with a very kind thank you..
~Ed

Patrick P.

I apologize for taking away another few minutes of your good time. However, since my last letter regarding "newsletters" 93 & 94, the postal service has just delivered 1/2 of a chewed up Newsletter with their apologies.

So there you have it. I need a complete #93. I will wait patiently for that and #94.

One more thing. At our last Ottawa KS, I noticed Justin Mace's extensively altered bird with a sanded (rough) upper 1/4 chord of his canard. He told me that this is in lieu of vortex generators. It seems that sailplane people know all about this technique. Well, we don't know about this, anyway I don't. I do wish that you can get Justin and all those other guys to offer their inventions, innovations, alterations

Continued next page

and brainstorming ideas and submit them for an inclusion in our newsletter.

Sincerely,
Richard Dudkiewicz
Freeport Illinois

You and me both Richard! Submissions from the readers, builders and flyers is what keeps this publication alive. But at times it's like pulling teeth to get submissions. I'm not above begging, which I find myself doing on a regular basis. Ok Guys, consider this MORE begging, get those ideas to me, PLEASE!!! ~Ed.

Pat,

I really think you are doing a great job with the newsletter. Spud was doing a great job and you picked up right where he left off and then stepped it up a notch. Once I get to working on my plane I promise a story or two for your consideration for publication. I am going to try a few things when I convert my MK I to a MK II-H and my calculations and simulation testing has been very positive. Drew has been helping me, and keeping me in line.

Jeff LeTempt

Pat,

Here is my dues for another year. Also, here is a picture of my Dragonfly.



It was built by John Rounds of Chino CA. I don't know if the winglets make that much of a difference. It's the only Dragonfly I've been in

Ray Parker

Rparker6@cinci.rr.com

N74DX

Type 4 engine, 145 mph cruise.

Ray's photos are shown on this page ~Ed

It's time once again to renew your subscription to the Dragonfly Builders and Flyers newsletter! You may fill out the enclosed form, or download one off the internet. You can also subscribe and make

your payment all at once electronically. The web address is:
http://www.angelfire.com/ca2/Dragonfly/Newsletter_Form.html

I've fulfilled most of my goals for the first year, the most important one being creating an electronic version of the newsletter. Since issue #89 (my very first issue) your newsletter has been available on line, in Adobe™ PDF. Those who wish to download those files, and future files may do so at this website:
<http://groups.yahoo.com/group/DBFN/>



You will have to jump through a few hoops to gain access, but those who have done so already, really seem to enjoy the electronic version. The benefits are that you get the newsletter sometimes 2 weeks before the printed version arrives, you can do key word searches

Continued next page

Subscription renewal time! Continued from page 15

through the issues, and best of all it's in **COLOR!** If you download the electronic version, but still want a printed version, you can simply print it out on your own printer.

Although many people have been receiving the electronic version, and have told me to not send the mailed copy, I've yet to do that with any subscriber. I figured that if a person paid for 6 issues in print, that's what he should receive.

But with at the start of this new 2002 subscription year, all the cards will be on the table. Anyone can opt for any of the delivery options, and expect to receive just that.

There will be 3 basic delivery options;

- 1) Mailed hard copy only.
- 2) Electronic copy only.
- 3) Both hard copy and electronic version.

It was hoped for that with the electronic version only option, I could charge less than with the mailed version. At this time I don't think I can do it, and not charge more than \$21 for the mailed version. I'm actually operating in the red for 2001 as of this mailing, and postage is about to go up. I just can't seem to get as good of a deal on the printing that Spud was able to get, without the quality going down.

So the subscription fee for 2002 will remain the same as the 2001 fee, but those of you who are willing to accept just the electronic version, you will be helping keep the cost down for those who don't have internet access yet, for what ever reason they might have. Perhaps 2003 can be different.

You might have also noticed that this is a double issue. It serves as the end of the 2001 subscription year, and the beginning of the 2002 year. Not only is it a double issue, it's contents are doubled. Hopefully you'll agree with me that this will fulfill my 2001 obligation, with the understanding that this issue is also the first of 6 for the 2002 subscription year. I've come to realize that this is about the only way I can catch up and get the newsletter back on schedule, and ensure the expected value of both the 2001 and 2002 subscription years.

I hope this is clear to everyone, and I certainly hope that I've not offended anyone in any way.

Respectfully,
Patrick Panzera.

Calendar

There's a lot of events coming up very soon. The first of them is Sun 'n Fun, April 7-13.

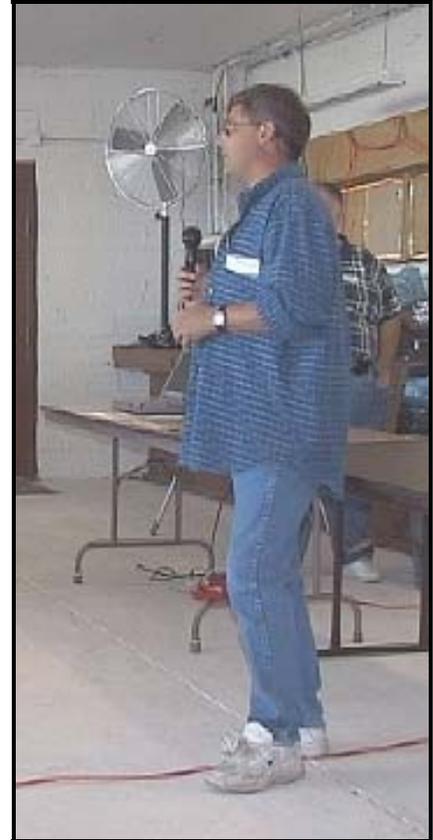
Right after that, April 19-20 is the Mountain States Fly-in at Laughlin. PLEASE try and make it this year. It's really shaping up to be a great event.

For those interested, May 25-27 is the Corvair College, in Daytona Beach FL. Contact me for more info.

Then there's Mattoon, June 5-7, and OSH, July 23-29.

Aug 16-18 is the new Livermore CA fly-in, and then there's the former Ottawa fly in, now located in Burlington, Sep 27-29.

John Read remembered



I'm saddened to announce the loss of another Dragonflyer. John Read, perhaps the newest member of the DF flying community, was killed in an aviation related accident in December, but not while in his Dragonfly. John was at the 2001 Ottawa fly-in, where he spoke on his aircraft and the aluminum gear he installed.

His sister Linda Van Dam was going through his things and found my e-mail address in a newsletter. She e-mailed me about assisting her in the appraisal and subsequent sale of his Dragonfly.

During our conversations, I mentioned that he was at the Ottawa fly-in and that I had several photos of John and his plane. I sent her all I had, and she was quite grateful. If you might have any photos to pass along to her, it would be wonderful. Her e-mail address is henri.vandam@home.com

The Classifieds

Classified ads are published free for those who are current newsletter subscribers. All ads must be renewed after 2 issues.

For Sale: Dragonfly MK II N189SM, with 80hp Continental A-80. 250-hrs SMHO by Skeezix Adkisson, and dual Xavier electronic ignition. 3 blade Warp Drive prop w/ Gary Hunter blades. Curses 145-150 mph on 4.9 gph. 21+ gallon fuel capacity, dual throttles, hydraulic brakes, ELT, cabin heat, oil cooler and filter. Garmin 195, vortex generators, electric pitch trim. Asking **\$23,000** or possibility trade for 2 place side-by-side, tri-gear with turbo or bigger engine. See photos in a recent KITPLANES® magazine, featuring details on electronic ignition. Call 618-594-2681 and ask for Terry, or e-mail: troneill@midwest.net

For sale or trade: NEW Cleveland 500-5 wheels and brakes, a pair, with mounted new Lamb 11x4.00-5 tires w/ tubes, a \$550 value. Will sell, or trade for 'like new' Cleveland 600-6 wheels and brakes, no tires. troneill@midwest.net; tel: 618-594-2681 or e-mail: troneill@midwest.net

For Sale: Too Many Projects! Not Enough Time! I have a dragonfly project for sale everything completed and is now at the filling/sanding stage. Tricycle gear, but could easily be converted to inboard gear if preferred. Inboard gear leg boxes are installed in canard, decided to go tricycle after originally building as a Mark II. Includes test run time only 2180 VW with Force One prop hub, external oil filter, Ellison throttle body, HAPI electronic ignition and Diehl case with magneto. Props Inc. wood prop, spinner fitted and installed. Some instruments included, AS, tach, oil temp, oil pres. New 5" Cleveland Wheels & brakes. \$8500 firm which is less than I have invested not to mention the time! Project is located in central Illinois. If interested e-mail at ingram.r@att.net

For Sale: Dragonfly MK II. Excellent workmanship. Complete plane except the canard and gauges. Everything to complete a new canard except the landing gear. The canard is on the table, awaiting final lay-up. The spar is laid up, the gear leg boxes are installed and all cloth / carbon fiber to complete the project is included. The aircraft has always been hangered, and it comes with a HAPI 1835 cc engine, with dual electric ignition, and latest mods. New Props Inc. 52/42 prop, spinner included. Beautiful red cloth seats. Fuselage is complete with new forward hatch cut

out, but not finished. The wing and the entire paint job are both in excellent condition. I would entertain splitting up the engine from the airframe. Priced for quick sale **\$4800.00** Call Bill Brutsman at 913-888-8942, Lenexa KS, Fax: 913-599-1290 e-mail: wdbrtsmn@aol.com

For Sale: Dragonfly Firewall Forward Package HAPI 60-2DM with 6 hours test stand run time on the engine. Includes motor mount, Warneke prop, exhaust headers, and Posa carb. The engine is still on the test stand so you can see and hear it run. Send your e-mail address and I will forward pictures of the engine to you. **\$2500 OBO** Call Terry Bailey, (home) 706-778-2462, (cell) 770-654-1663 or e-mail: baileyt@hemic.net

For Sale: Dragonfly Covers constructed of TYVEK® marine fabric made by Dupont®. Superb UV protection, dirt and dust protection, easily handled and stored, soft inner lining. Straps are (4) behind and in front over wing, and in behind canard and around cowl. Very light and compact. **\$195.00 US** Shipping to US is \$15, overseas in \$25. personal checks drawn on a US bank account are accepted. AIRRYDER Aviation and Flight Center, PO Box 1990 Hanna, Alberta, Canada. Phone/Fax (403) 854-4541 or e-mail: airryder@telusplanet.net

For Sale: Carbon Fiber NACA Inlets and Spinners. Spinners are \$250 each, including back plate, but w/o front bulkhead. Inlets are \$30 per pair, set in glass. Contact Charlie Johnson, 2228 East 7875 South, Ogden UT 84405 (801)-479-7446 or e-mail OneSkyDog@aol.com

For Sale: Dragonfly Firewall Forward Package: Balanced 2180cc VW engine package, not yet removed from aircraft. All systems go with the package - Intake, Ellison throttle body alternate air box, cabin heat muff, exhaust system, baffling, 40 amp alternator, geared starter, oil cooler, spin-on oil filter, bendix mag, electronic ignition, aluminum finned (cast iron sleeve) barrels, extra heavy heads, force one prop hub, Dragonfly Task cowl, engine mount, hydraulic lifters, chrome spinner and Great America prop. This is a bolt-on and fly program. Price **\$5,000**. I am installing a very special C-85 engine in my Dragonfly. You may contact John Mason by phone @ 559) 626-4491 or

e-mail: jmason@lightspeed.net

For Sale: Canard and wing ready to install, new with complete documentation of manufacturing process. Info at: <http://home.t-online.de/home/hans.graesser/prefab/index.htm>

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Patrick Panzera,
PO Box 1382 Hanford CA 93232-1382

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For issues #88 and back, send \$3.00 for each issue to: Bill Spornits, 1112 Layton Drive, Olathe, Kansas 66061 (913)-764-5518

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panzera@sierratel.com



Mountain States Canard Wing Fly-In 2002

<http://www.si-inc.com/MSFly-In2002>

**Bullhead City/Laughlin International Airport (IFP)
Fri/Sat April 19/20, 2002**

The Mountain States Fly-In has traditionally been a meeting place for Canard Wing experimental aircraft (typically Dragonfly, Quickie and their derivatives), owners, builders, and wannabe's who live too far away from Ottawa, Kansas to attend the Annual Ottawa Field of Dreams Canard Wing Fly-In in October.

This year I am moving the date of the event to the weekend following the date (April 15) that your personal income taxes are due to the IRS. After they take their bite out of us, we will be ready to party in Laughlin! The emphasis for the past few years has been on the Corvair Confab held during the event. This year will be no exception. Pat Panzera (and others) will host the annual Corvair Confab on Saturday, April 20.

Weather will be Severe Clear - Early enough to miss the desert heat, and late enough to miss the winter cold. I guarantee there will be NO snow in Laughlin on April 19/20! We'll all get together at the Mountain States Fly-In Hospitality Suite at the Edgewater Hotel in the late afternoon on Saturday for drinks and munchies, and arranging transportation so no one is left out of The Dinner. Room number will be announced on the Tarmac on Saturday. Pat Panzera is looking into arranging The Dinner for Saturday night.

There are two rental car agencies at the terminal, but several of us will shuttle those who need it back and forth from the Casino Hotels, the airport and The Dinner restaurant.

The Fly-In is free to the participants (The Dinner is an extra-cost item), however a donation is cheerfully accepted to help pay for the Award plaques, drinks and munchies at the Hospitality Suite.

Don Stewart



Po Box 1382
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