

DRAGONFLY BUILDERS AND FLYERS NEWSLETTER

THE OFFICIAL VOICE OF DRAGONFLY BUILDERS ALL OVER THE WORLD

Volume 96

March / April 2002



Although we had a hangar available for shelter, everyone was content to hang out on the flight line, as the weather was just about perfect.

Mountain States Fly-In 2002 - Laughlin NV *By Don Stewart*

No sooner had Debbie and I got checked in on Thursday night, when

we ran into Sam Kittle at the Flamingo buffet and had an enjoyable dinner.

Early Friday morning it became

clear that the Airport Manager had overextended himself with the guarantee that we were going to be able to park on the new tarmac under the

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Mountain States Fly-In 2002 - Laughlin NV, continued from page 1



From left to right: Kelly Poor's Tri-Q; Dave Carlson's Q2; Mark Snow's DF MKII; and Justin Mace's O-200 powered DF MKII

control tower. Somewhat confused tower personnel shuttled arrivals down to the FBO parking area. I apologize to all the pilots for the attitude of tower personnel, who apparently had no idea what was going on. Fortunately, Sarah at the FBO salvaged the situation by providing a clean tie-down area for our funny-looking airplanes, along with a free hangar, tables and chairs.

About six planes had arrived by Friday night, and by Saturday we had approximately 50 people and 13 planes, including four Dragonflies, one Q2, two Q200, two RVs, one LongEZ, one Rans, and a restored 152.

Attendees at the event came from California, Arizona, Nevada, New Mexico, Colorado, Utah Texas and



Although the weather was pretty much the highlight of this year's event, late Friday afternoon it was looking somewhat gloomy.

Idaho. Long-time supporter One-SkyDog (Charlie Johnson) was trapped in snow in Utah and couldn't launch, however his ground crew (brother Bob Johnson) arrived safely on four wheels. We were also joined by Jim Patillo and Bob Farnam's EAA chapter from Livermore California who arrived in various RVs and a LongEZ. Next year we want Jim and Bob to spread the word to their Chapter that we would like to have them park with us during the event (they're all so shy).

At the kick-off dinner at the River Palms on Friday night, Phil Williams had to ransom back his camera, that he'd left on the tarmac, by telling a joke to all the attendees, who would then vote on whether he

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Some opted to take shelter under a wing. I'm sure some people wished that they were at a 172 gathering.

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From left to right: Jim Patillo's Q200 Bob Farnam's Q200 Brad Hale's DF MKII Allen Tenerelli's DF MKII LongEZ from Bob Farnam's EAA Chapter. Not pictured: Jack Huston's 152 , Hal Stockman's Rans S-7 and a couple of Vans RV's also from Bob's EAA Chapter.



Don Stewart gets strapped in for a ride from Allen Tenerelli

got his camera back (after 3 jokes I realized I had created a monster). When they finally shoed us out of the restaurant, we left Dottie the waitress in Dave Carleson's company, spellbound by one of his flying adventures. We never saw either of them the rest of the evening.

After dinner, Kelly Poor (TriQ - Glendale AZ) announced that he'd be flying back to Phoenix Saturday morning to pick up his girlfriend to bring her out to the Fly-In. I'm not sure, but he may have wanted to check us out before introducing her to us. As per norm for the Laughlin Fly-In, the



Don Stewart fielding questions prior to the arrival of Pat Panzera to begin the "Corvair Confab".

Photo courtesy of Debbie Stewart

schedule was pretty much free-wheeling, with as much time allocated for flying and check rides as

possible. Something like 20 check rides were given throughout the 2 severe clear days. My thanks to Allen Tenerelli (Yorba Linda CA) for taking me up in his Dragonfly and graciously commending me on my marginal flying skills. I look forward to flying with him again.

The Saturday Corvair Confab was a huge success, lead by DBFN's editor Pat Panzera, and made all the more comfortable courtesy of Paul Shuman's (Dfly - Colorado) loan of 10 brand-new Wal-Mart lawn chairs, and refreshments provided by Sam Kittle (Angels Camp, CA).

Although Pat's engine was disappointingly quiet due to a mishap when installing a piston with an errant con-rod, we nevertheless had a

good discussion of the Corvair and experimental aviation, some more insight into Pat's latest and greatest mods to his Corvair engine, carburetors, William Wynne and a spirited discussion on risk analysis and single-point of failures in electrical systems.

By the time Pat fielded all the questions, it was time to congregate at the Hospitality Suite, hosted by Don and Debbie Stewart

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The hospitality suite, hosted by the Stewarts. Photo courtesy of Debbie

on the 12th floor of the Edgewater Hotel overlooking the airport. At Debbie's suggestion, Bob Johnson called One Sky Dog and we all said hello so he wouldn't feel left out (Debbie also planned to mail him the leftover pizza...). Most of the fly-in attendees consumed pizza and drinks and shared the camaraderie of their flying experiences until it was time for dinner at 7pm. We then carpoled over to dinner at Perkins Restaurant on the Bullhead City side of the Colorado, hosted by Pat & Veronica Panzera.

Dinner festivities kicked off with a Moment of Silence for the passing of Mark Snow's Dragonfly to its new owner, followed by a "hummm" in unison by the 35 or so in attendance for the benefit of Pat Panzera, simulating what a running Corvair engine sounds like.

Following dessert, we honored a few of the pilots with plaques: Longest Distance (approx 1150 SM - Carlsbad NM) went to Mark Snow; High Timer (most hours flown in his project) also went to Mark, but I think that it's possible that Dave Carlson was the real winner - I think he was still preoccupied

with last night's festivities and failed to announce his totals;

Red Badge of Courage (most number of check rides given during the event) went to Bob Farnam. He and Jim Patillo were flyin' fools all weekend, giving rides to anyone who would fit in their airplanes. Thanks very much for the support that you two fine gents give to the Fly-In each year; and Best of Show, this year went to Brad Hale and his Dragonfly - a smartly tailored airplane whose looks belie its years of service (even with the ice scraper scratch!). Congratulations Brad.

Recognition was also given to Hal & Dianne Stockman for Slowest Flight (lowest max cruise speed). They flew in a Rans S-7 and were awarded a CD to listen to on the loong flight home. The CD was donated by one of our attendees, performing artist Jordan Williams (Twin Falls, ID) who, together with his father Spencer Williams, are finishing up John Olive's (Apple Valley CA) former Dragonfly.

A huge "thanks" to all the pilots who flew their projects to Laughlin.

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Corvair Confab

By Patrick Panzera

As Don stated, I was not able to have my engine in running order as hoped. After 2 weeks straight of working till after midnight, and being up by 6am for work, I simply ran out of time. But I would not admit defeat at any point, I simply just kept moving my departure time later and later.

But as it was, I did come to a point where I determined that my engine was not going to be running at Laughlin, so I simply completed the building process, with a static display in mind. The point at which I knew I was not going to make it was the point at which I bent a piston while installing a wrist pin.

As some of you may be aware, I dismantled my engine to install a new set of connecting rods. I'm building the "early" engine, which has smaller rods than the later engines, and William Wynne insisted that I install the heavier, stronger, larger rods. (The rods are totally interchangeable as the bores are the same as are the distances between centers).

So when it came time to install the pistons on the new connecting rods, I followed William's directions, and heated the rods to 300°, in my BBQ. I used my newly acquired laser guided digital pyrometer to get the temperature right on.

I had everything all set up, including a custom made aluminum pin with which I could tap the pin home should I need some extra force.

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I was told that with the wrist pin at room temperature, and the rod at 300°, I'd have maybe 1.5 seconds to slide the pin in place. I was set up (with a helper) to where we figured we'd need half that amount of time.

So with helper in place, and a 300° rod in a set of pliers, we gave it a shot. No sooner did the wrist pin enter the rod end, it closed up. The pin didn't get any further than 1/16" into the rod and it was over.

We drove the pin out and decided that we may need more heat. So I turned up the BBQ and watched for 350°. I got sidetracked for a moment, and next check of the rod temperature showed 500°! So we gave it another shot.

This time the wrist pin went about half way before it got stuck.

So we started to second guess a few things... maybe the rods were not interchangeable. Maybe the wrist pins were too large for what ever reason... maybe the rod end was too small.

Out came the micrometer and specifications... no joy. Everything was dead on.

So with the rods still hot (about 300°, cooling from 500°) I began to press them in with my 12 ton press. At this point, I had sent my buddy on an errand, so I was working by myself. Using the press is a 5 handed job, and at last count, I have only 3 hands. The first 2 pressings worked great, the pin went right in, no problems.

The third piston... well that's another story. With my left hand balancing the connecting rod in position, the piston on it's jig, the

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Brad Hale, best of show

They are, in fact, the backbone of the event and without them the fly-in simply would not occur.

be seen, and Kelly Poor was thinking of staying over yet one more night in Laughlin with his girlfriend.



Justin Mace gives a demonstration ride to Q-200 builder Jim Patillo, who is interested in Justin's 0-200 EFI and EI.

When we left Sunday afternoon it looked like Jim Patillo and Bob Farnam were still giving rides, Dave Carlson was still nowhere to

Thank you to Pat Panzera for arranging the Saturday night dinner and leading the Corvair Confab.

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The "Corvair Confab" full house Photo courtesy of Debbie Stewart

I kid Pat a lot, but it is absolutely true that the effort that he made trying to get his CorvAircraft engine

together and running on a brand new engine stand in time for Laughlin was super human. We owe him a

connecting rod in place all aligned under the press ram, my right hand took a pump on the press. The first stroke brought the ram in contact with the wrist pin as per normal. The second stroke drove the pin into the rod and gave me some normal resistance. The third stroke felt normal, nice and tight, so I let go with the left hand, only to notice that the connecting rod was easily 15° out of whack!

I quickly backed everything off and saw that the piston was now bent in such a way that the wrist pin was going to miss the second hole by a good 3/16"!

Even if I would have installed all the pins correctly, it seems as if the goal was doomed from the beginning.

For those keeping track, the polished and painted engine had been built for a Q2 installation. After it's completion, I've since been working toward installing it in my Dragonfly rather

than the Q. All the progress I've made recently (the oil cooler and the headers) have been for a Dragonfly installation. My original plans were to have it running in Dragonfly trim, on a Dragonfly mount. The aluminum intake system I built last year, was built around a Q engine mount. This induction system is not compatible with the Dragonfly mount geometry. The plan has been to build a new set of intake tubes, made my modifying the Q tubes.

As time began to run out, I decided that I could save a lot of time by using the Q intake system, which would also necessitate the use of the Q engine mount.

As it worked out, the Q engine mount is not compatible with the remote oil system, and the location of the oil cooler is not compatible with the exhaust on that side.

Anyhow, the 7 hour trip to Laughlin was uneventful after the first half

great debt of gratitude for the energies he puts in to further not only the Corvair alternative engine, but also his efforts on behalf of the Dragonfly and Q aircraft.

And thanks to all of you who drove in and participated in the event. We're looking forward to meeting again next year and seeing new friends that we haven't met yet. As the airport gets used to us, the event will continue to get better. (And maybe Ground Control will be a little less testy.)

We also look forward to seeing everyone in August at the Livermore Fly-In hosted by Jim Patillo and Bob Farnam. Rumor has it that Pat's wife will be planning a day trip to San Francisco for "the gals."

Regards, **Don Stewart, AZ**

hour. As mentioned before, the design of my engine stand was so that the engine could be lowered for transportation, aiding in lowering the CG and reducing wind drag. Since I was working late Thursday evening, and had no help putting the engine in the lower position, I could hardly go over 50 mph w/o using almost 3/4 throttle!

I had an opportunity to pull over at a tire store, and enlist some help in lowering it. That made all the difference in the world! 75 was not a problem, except for the 16 mpg... Which isn't all that bad, unless you consider that I normally get 24 mpg, and have 11.5 gallons useable on board. So I slowed down to 65 and saw 19 mpg.

It was a really great turn out at the fly-in, the best to date. The engine forum was at record breaking capacity as well, with some great Q&A.

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Mountain States Fly-In 2002 - Laughlin NV, continued from page 6

No one seemed upset that the engine wasn't running, and there was a lot of sincere interest. There has been some concern lately over the strength of the header attachment I designed, and whether or not side load could be imposed w/o loosening the connection. I gave the gang a demonstration as to the strength, by grabbing the exhaust system and yanking it all over the place. I had the trailer really rocking.... The pipes are still there, they didn't move even a fraction.

As things would work out, the manuals that I promised to have with me, arrived at my house around 3 p.m. on Friday, about the time I was turning north out of Needles. The trip home was great, but the lack of sleep the proceeding weeks caught up with me as I got home. I'm finally recouped enough to be ranked among the living.

The plan now it to get a new piston, and pick up from where I left off, with the Dragonfly installation. The engine should be running shortly, but I'll be taking the next week or so off from engine work, to play catch-up at the office.

Pat



Pat's engine sits quietly on the mobile test stand

Photo courtesy of Debbie Stewart

Prop Clocking

Prop "clocking" or indexing,
By **David J. Gall**

Four-cylinder engines produce a yawing vibration with a primary frequency of twice engine speed. For a two-bladed prop, this means that the blades can be positioned to align with the horizontal (translational) motion of the end of the engine each time the internal engine forces are forcing this vibration, or the blades can be at some angle, even perpendicular, to the horizontal motion when the forces are at their peak.

An example: If you grasp a yardstick (meter-stick) in its middle and hold it vertically while shaking your hand horizontally, you will induce a strong bending load on the stick. With practice, you can find its natural frequency and get a significant amount of visible bending. However, if you hold it horizontally and perform the same motion, you will not induce any bending in the stick at all. The stick will behave for all intents and purposes as though you had a block of wood in your hand of the same mass as the stick, but compact.

While holding the stick vertically and performing the above experi-

ment, if you suddenly stop your hand, you will find that the vibrating stick tries to force your hand to continue vibrating as the stick dissipates its vibrational energy back into your hand.

Your hand

becomes the absorber of energy stored in the stick. This same process was occurring while you were driving the stick to vibrate, only you didn't notice it except, perhaps, as a cue to you to adjust your vibration rate to try to match the resonant frequency of the stick. That's how "practice" allows you to find the natural frequency of the stick.

Back to the absorber function, when your hand is driving the stick and the stick is reflecting some of its stored vibrational energy back into your hand, you'll notice that your whole upper body is shaking with the exercise, but your feet aren't. Somewhere between the hand and feet, the energy is dissipated in that soft, fleshy mass :-). This should give a clue as to what condition we want our engine mount rubbers to be in: soft and pliable, in correct proportion, of course, to the loads and frequencies they need to absorb. Old, dried out engine mount rubbers, then, are the first thing to check/change when tracking down a vibration problem.

Returning to prop clocking (you thought I forgot, didn't you!), you've no doubt already figured out that the prop should be bolted on to be in line with the cylinders when the pistons are at top/bottom dead center. (On four-cylinder engines, all cylinders get there at the same time.) Quoting from the "Sky Ranch Engineering Manual" by John Schwaner: "Historically, propellers are indexed 60 degrees ahead of horizontal so the propeller is in a convenient position for hand propping. However, if you do not intend to hand-prop the engine, this index configuration [horizontal at T/BDC] will minimize transmitted vibration levels."

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Prop Clocking, continued from page 7

Since the Ivo prop probably has a lower level of damping than a wood prop, it makes even more sense to index the prop correctly to minimize vibration.

As a side note, this has even greater applicability to two cylinder opposed engines like the Onan and half-VW engines, since these engines do not have the internal countering of forces that is provided by the other two cylinders in a four-banger. Six-cylinder engines have the least concern with prop clocking since they are almost completely primary- and secondary-balanced internally.

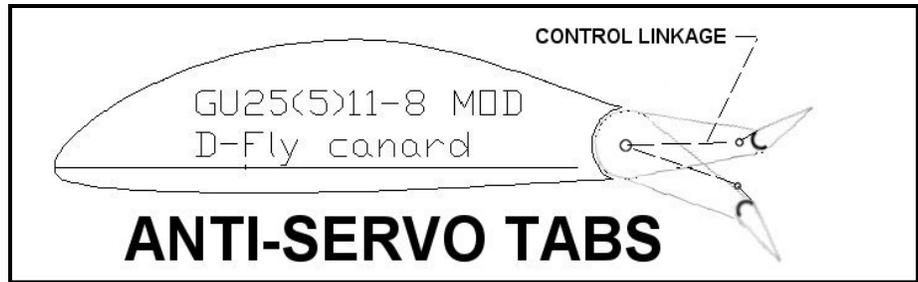
I have been told by a manufacturer of air boat engines that the small two-cylinder V-twins will break props if the prop is mounted to the PTO shaft, but that by placing the prop on the opposite side of the flywheel from where the cylinders are, they can be used direct-drive with no problems. This air boat manufacturer makes a prop hub just for the purpose of mounting to the flywheel of the Kohler 25hp Command Series engine, and they sell them to AIR-BOAT builders. They operate under the name Great Plains Aircraft Supply

Hope this helps,

David J. Gall

David Gall is an active member of the Quickie e-mail list, and is a recent graduate of the University of Central Florida where he received his Baccalaureate degree in Aerospace Engineering. The preceding was a copy of an e-mail he posted to the group, in response to the question, "How and why does it matter other than for hand swinging where the prop is in relation to #1 TDC?"

Servo or Anti-Servo?



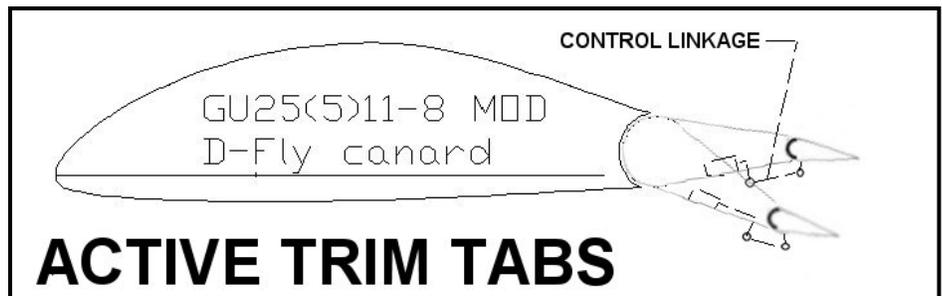
I think I got it straight now.

By **Drew in sunny Fl.**

As I now understand it, there are four real possibilities :

(1) An "active anti-servo" trim tab system :

This system of trim utilizes the "race ahead and help push it back" theory of trim. It does this by having the little trim tabs race ahead of the elevator in both directions of



travel and aerodynamically force the elevator back to equilibrium. The linkage basically connects the trim tab to a fixed part of the airframe (or servo motor attached to the airframe). The way you get reversed travel is to push on a lever that is ahead of the trim tab's pivot point. From a trimmed position, if you bump the stick, this concept aggressively returns the aircraft to its former state of flying. In general, the tab's position is always up to offset the aerodynamic loads of the elevator.

The tab travels farther up as the elevator travels up, and the tab travels down as the elevator travels down. Note: this is the most stable con-

figuration you can come up with. The trim settings (once established) would neutralize elevator forces to the control stick for a very small range of elevator travel. Once the pilot exceeds this little range of neutral (low) forces, the stick loads would load up fast.

(2) An "active" trim tab system :

This system of trim utilizes the "motorized bent metal plate" theory of trim. The little tabs are inert as the elevator goes up or down and do not

actively assist in returning the elevator to equilibrium.

The linkage connects the electric (servo) motor(s) to the trim tab at a point that is aft of the trim tab's hinge point. In general, the tab's position is always up to offset the aerodynamic loads of the elevator. From a trimmed position, if you bump the stick, this concept neither hinders or helps return the aircraft to its former state of flying. Return to equilibrium is achieved by a longer period porpoise effect as the aircraft "seeks its own" based upon power and drag.

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Servo or Anti-Servo? Continued from page 8

This type of trim tab system is only slightly better than the " fixed " version in that the servo motor can adjust the tab positions and affect a trim condition for the aircraft. The trim settings (once established) would neutralize elevator forces to the control stick for a small range of elevator travel. Once the pilot exceeds this little range of neutral (low) forces, the stick loads would load up fast.

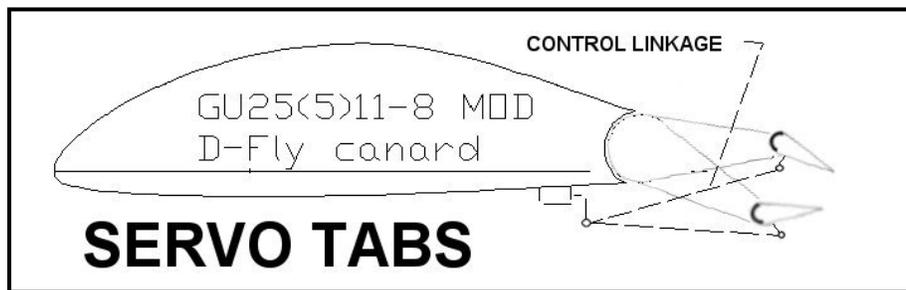
(3) A " passive " trim tab system :

Same as above except that this is just a bent metal plate sticking out in the breeze. It would be the same as above when the servo motors fail. You bend the tab once and it is good

(servomotor attached to the airframe) at a point that is aft of the trim tab's pivot point. In general, the tab's position is up if the elevator is down, neutral if the elevator is neutral and down if the elevator is up. The tabs travel up as the elevator travels down, and the tabs travel down as the elevator travels up.

Stick forces imparted by the elevator would be neutral the whole time. Note : THIS IS AN AERODYNAMICALLY UNSTABLE CONDITION. This would be a booster for ailerons or really, really big elevators that overpower the pilot's best efforts.

-Drew



for a small range of speeds and elevator settings. There is no pilot control of the pitch trim. Once the pilot exceeds this little range of neutral (low) forces, the stick loads would load up fast.

(4) An " active servo " trim tab system.:

This system of trim utilizes the "push in the opposite direction and help the elevator to go" theory of trim. It does this by having the little trim tabs work opposite of the elevator and generate aerodynamic forces that aid in the elevators travel. The elevator is helped away from equilibrium. From a trimmed position, if you bump the stick, this system aggressively pulls the aircraft farther into the perturbed state. The linkage essentially connects the trim tabs to some fixed part of the airframe (or



Another Laughlin story

By Kelly Poor

Those of you who were at Laughlin know that I flew back to Phoenix Saturday morning to pick up my girlfriend. She was ok through the whole flight but as I started my descent into Bullhead city she got a little sick. She had not had anything to eat so it wasn't to bad, I had not thought of it and had not brought

Another Laughlin story

any bags or anything so I took the blame for that one. But on the flight home I was prepared I brought several bags incase she got sick.

Same thing as the flight up there she was fine through the whole flight but on the descent got sick. I was on final flying the aircraft and was not paying much attention to what she was doing but thought she has got sick sacs so it will be ok. Well after landing taxiing in I could smell it but still thought everything was ok.

Well it turns out she missed the bags somehow. And the bad thing was we had a big bowl of shrimp cocktail before we took off. I was a little upset but I bit my tongue and kept it to myself. Found out the nice thing about plastic airplanes is that you can take the seat cushions out and wash em out pretty easy, (you still have to pick out the little pieces of shrimp that are to big to go through the drain hole). So I was thinking next year if any of you guys want some company flying to Laughlin you can take her. How about it Dave (Carlson)? I'd be happy to let her fly with you. See you guys at Livermore.

N33LQ TRI-Q

This issue of DBFN has been on hold, awaiting the article on the next page. It's very exciting news, and I wanted to get it out as soon as possible, not wanting to wait a month or more after the fact to get the news to you.

But before you turn the page and read the next article, I would like to suggest that you read an old newsletter article first. The article I'm referring to is found in issue #68, on page #7. It dates back to December 1996.
Enjoy!
~Pat

For the X-Files : Virtually Real Reality



By Andrew Aurigema

In case you haven't hear by now, I have flown real Raptor and brought it back down undamaged). That said, you just gotta know that I am going to compare it to the simulation. What did you expect, this is an X-Plane column.

The Army has a saying " fight like you train and train like you fight ". I cant emphasize enough how important my simulation training was to me my not killing myself on that first hop. Baby Raptor was cranky bad unhappy on a pre-flight taxi run and cycled into a deep stall (of the rear wing) 15 feet above the ground. Having stalled the simulated Raptor a zillion times, I knew what would not work and didn't bother with any of them actions. In the simulations if the aft wing stalls, you dump all power, center the ailerons and let the plane mush out till the canard stalls and drops the nose. This can be simulated by moving the Xcg about 2 inches aft of the rear most setting you determine to be safe.

I spent several hours that night checking the simulation and determined that the aft wing was just not making the lift we expected of it. Next day, with 3/8" downward reflexor dialed in to get some more rear wing lift, I just keep think-

ing..... fly it like the sim. I was prepared for my bird's clipped wing nasty handling responses long before they occurred. It is what kept me ahead of the plane. I learned from the simulation that the canard would over-rotate and smack the tail if I allowed the elevators to deploy more than 8 degrees on take-off, so I limited the rotation to that amount. The simulated yaw right and roll left showed up instantly as I left the runway. I was expecting it so I corrected for it and never let the plane get ahead of me. In every appreciable way, the real bird behaved like the sim.

Note : The Raptor simulation flies nothing like the DragonFly Mark II simulation.

I mean nothing like it. I so believed that I had created both simulations correctly, that I bet my butt on it. I only flew the Raptor simulation for training. If I had trained with the dragonfly simulation, I believe that I would have crashed on the first flight. The simulated D-fly is far more gentle and forgiving than the simulated Raptor. (excluding ground handling) In fact, the d-fly simulation is downright docile in comparison.

I have logged dozens of takeoffs in the sim and played with the CG ranging from "cant get the nose off

the ground way to far forward " to "deep stall aft wing just after rotation". Every electronic take off taught me something, even if it was just how the plane would respond to some impossible flight loading condition. With the simulation, you try lots of things and see that most of them do not work.

I always run the simulations on "max tricky" (no artificial math dampening). It is like flying a roller coaster with no tracks. The simulation is a bit too responsive, but it shows you how fast you can get into trouble if you let the plane get ahead of you. The real Raptor has mass, and responds slower to pilot control input and external forces than does the simulator. The sudden changes of the simulation are replaced with smooth transitions. The response envelope is the same, but a little bit damped. The real Raptor flies more like the simulation set at 3/4 "tricky" speed. In real flight, all the nasty handling behaviors that the simulation predicted are still there just waiting for you to fall behind the plane, but they happen a bit slower.

Since I could not fit in a dragonfly, I was forced to rely solely on the simulation. I would not recommend this in any way. Get real stick time (as much as you can) to supplement and qualify your simulated training. I believe that time spent training in an accurate X-Plane simulation would not be wasted. It would be a good start to a safe training program.

The bottom line is : The X-Plane sim of the Raptor worked, and worked well.

Drew in sunny Fl.

Look for a full first flight report from Drew in the next DBFN issue.

~Pat

**A note from Drew's wife,
Kathy Aurigema, to the
other ladies**

Hello Ladies,

I am looking forward to this year's swarming at Coffey County. My Raptor is ready and I can't wait to fly her out. I was thinking of us working on a scrapbook this year as part of the ladies get together. Not a formal sit down and talk group, but a bunch of ladies with a home base (in the air-conditioned upstairs room) and running around with disposable cameras and creating an impromptu scrapbook. That way we not only interact with everyone there, but we can also annoy the pilots (for those "significant others" who say we never take an interest in their hobbies). We could have a group trip to Wal-Mart for 1 hour processing and purchasing supplies, to create our scrap book for presentation at the Saturday night dinner and awards banquet. I think it would be a great to meet new friends, socialize with old friends and help the newcomers adjust to what their husbands are getting themselves into. If anyone has any ideas or suggestions, just send me an email or feel free to call me after 7pm Eastern Time.

Kathy Aurigema
aurigema@yahoo.com
(386)-345-1010.

Calendar

Aug 16-18 is the second annual Livermore CA fly-in. Look for more info in the next issue.

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. **Spud Spornitz** Olathe, Kansas (913) 764-5188

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 Savier 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: 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 hangared, 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: wdbtrsmn@aol.com

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

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