

Dragonfly Ground Accident



Mark's Dragonfly on the ramp at the 13th Annual Tandem Wing Field of Dreams Fly-In at Sullivan, MO. Photo courtesy of Spud Spornitz.

By Mark Beres

I have been meaning to write something for the newsletter for some time now about my ground mishap. I have been so busy with everything that I just haven't had the time to write. Here's a rather brief description. There are a host of details and a very organized photographic tour of the rebuilding of my Dragonfly at <http://www.canardaviator.com>

On November 18th, 2003, I was flying my Dragonfly (N636AA) from my home in Gulf Shores, Alabama to Albuquerque, New Mexico. The weather going through Louisiana and Texas was horrible – I should have just not went or turned around,

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but I pressed forward thinking that, based on a careful assessment of the weather forecasts, the weather system that I was stuck in the middle of would dissipate as I headed further West. I was correct in one sense, but very wrong in another – remember, as a cold front passes, it leaves in its wake a vacuum of sorts, causing wind and varying degrees of turbulence. I should have known better, and did, but for some reason I kept heading West. The aircraft was flying perfect, handling the bumps with ease, and getting me to where I needed to go – I love traveling in the Dragonfly, it's a wonderful aircraft.

I stopped for the night in Corsicana, Texas to wait out a passing violent wind storm (uhh, was mother nature trying to tell me something?). The FBO there was kind enough to let me store my aircraft in their hangar, and, had I not, it would have been torn to shreds by the 60-mph winds and driving hail that passed through Corsicana that night. Yes, folks, that should have been a warning, but forward I went. Being a seasoned combat pilot and having flown military aircraft for years, I am <sadly> used to flying in crappy weather, driving winds, and marginal to no visibility. It's awkward (but necessary) to switch gears from a high performance special operations helicopter to a VFR-only equipped Dragonfly with a handheld GPS!

When I woke up the next morning, the sun was shining, the ground was wet, but the sky was clear and the forecast called for clear skies all the way to New Mexico. Good deal. But there was one problem – the wind was forecast to blow all day. I lived in Oklahoma years ago, and I should have had a better appreciation for these prairie winds, but I didn't, so on to Abilene I went.

Now, when I got to Abilene, I had about an hour's worth of fuel left. Much to my chagrin, the only runways in Abilene were North-South, and the wind was a direct westerly crosswind at 20 knots gusting to 30 knots. Holy crap, batman – I was screwed. Even moreso, I started looking on my map for divert options and I found that there wasn't an East-West runway ANYWHERE within a 45-minute flight of Abilene. So I was left with a dilemma – how was I going to land this thing (a taildragger, no less) in a stiff crosswind 1,200 miles from home? Well, I held. I established a high orbit for 30-minutes, waiting for a break in the wind. I was in constant contact with the control tower, and they told me the winds were a steady 20 knots with little gust at the moment. I was either going to have to land on a highway (to align me into the wind) or land at Abilene or a nearby airport (there were a few short fields). At the time, the best option I saw was to attempt the crosswind landing at the longest hard-surfaced runway around that had crash/fire/rescue help immediately available in case I balled it up, and that field was Abilene Regional.



Here is the underside of Mark's canard showing the damage from the impact with the sign—ouch.

So, with little fuel remaining, I set up for a long final to runway 35R. I was crabbed into the crosswind something fierce, and there almost was not enough rudder power to maintain the slip (that should've been a go-no-go point, but hindsight is 20-20), but I was able to maintain ground track with moderate difficulty, maneuvering the controls for an extreme wing low condition as I descended on a choppy glide path toward the landing surface. I knew, after all, that when I neared the ground, the winds would dissipate somewhat (surface boundary layer effect), which, in my flawed thinking, would ease the difficulty I was having in maintaining the slip. I was correct in one notion, wrong in another. I was right that the surface boundary layer would ease the full strength of the crosswind, but I forgot to consider that when my air-speed decreased, my rudder's directional control power would lessen (for all you aero geeks, it de-

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creases proportional to the square of my forward velocity, so that makes a bad thing even worse in this scenario) considerably.

Well, it did indeed. I was actually able to squeak the aircraft onto the ground and made a very nice 2-point landing. When the wheels touched the runway, I immediately jammed the stick full forward to kill the lift of the canard and keep me 'stuck' to the runway like Velcro. I thought I was home free, enjoying another smooth rollout. Well, I got optimistic way too soon. As my forward speed decreased on rollout, the nose began to track left as my little Dragonfly weathervaned into the crosswind. I attempted to correct with opposing rudder and break, but at that precarious speed, I couldn't reef on the brakes or I would surely ground loop, and as I was slowing, the rudder was quickly becoming ineffective at keeping the nose aligned with the runway – a little fact that was readily obvious when my right rudder pedal was jammed full to the bulkhead. Bottom line guys – it was easy to see that I was headed off of the runway and going 4-wheeling. Time always slows down in these scenarios.



Here is the really bad news

I remember thinking to myself, "hmm, I wonder what I am going to crash into?", as my Dragonfly dashed off of the pavement and onto the sod. Well, weathervaning has its benefits, because when the aircraft left the runway, my nose (and empennage, more importantly!) was now aligned with the relative wind, giving me my rudder authority back. I killed the engine immediately and coasted rather gently through the short grass, thinking all was going to be well after all. I was headed for a crossing taxiway, and I thought I'd simply bounce up on the taxiway and come to smooth stop. I was going about 15 mph at this time, not too fast. Well, as Murphy's law would have it, there was a runway information sign right in my way. I steered to avoid it, but the left outboard section of the canard's leading edge hit the sign. My Dragonfly still had the old canard installed (with anhedral), so there was little clearance between my canard and the ground – which didn't help me any here. I heard a loud "crunch" sound, and felt a shudder, as I abruptly bumped up on the taxiway. I was fine, but shaken, but I quickly got out of the Dragonfly to assess the damage.

Sure enough, the sign had taken a chunk out of the leading edge. But the showstopper, as if that wasn't, was that the canard's top fiberglass skin had buckled slightly in compression at the root. The 45-degree cracks, tell-tale sign of both a shear and bending load in unison, showed the skin failure.

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Here is Mark's Dragonfly loaded up and ready for the trip back to Alabama. You might notice the engine is still installed on the plane. In the past many people have commented about removing or supporting the engine prior to ground transport. Mark's plane was not damaged on this trip, but I would recommend that you either remove or support your engine during ground transport.

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My tail spring was also cracked. I was you-know-what'd. I was able to taxi the aircraft, strangely enough, and parked it at the base of the tower where I went up to talk to the guys. They said they thought I "had it made", too. I had landed my Dragonfly in a 15-knot crosswind before with not much headache, but 20 was simply too much on this day.

I spent the afternoon on my cell phone with my insurance company coordinating for an adjuster to fly out from Dallas and ascertain the damage. The aircraft was in perfect condition except for the canard and the tail spring. Everything else was without even

a scratch. I coordinated with the FBO there to store the aircraft in an enclosed hangar for as long as necessary before I could come back and retrieve it.



Mark is well on his way to having his new canard completed

My trip to Albuquerque from Abilene is another complete story unto itself, and I'll save that for another day, but it involves a lot of hitch-hiking and near death experiences in some of the most heinous bus stations you've ever seen!

In March 2004, my friend and I hitched a trailer to my pickup and drove to Abilene to retrieve my Dragonfly. I'm happy to announce that N636AA is safely tucked into my hangar here in Gulf Shores. The new canard is well-underway, and I have detailed every step in both word and photos in my website at <http://www.canardaviator.com>. My insurance company was very gracious, and Tom Hall out in Tucson has been helping me tremendously with understanding the plans and getting this thing going.

Lessons learned? A lot. Don't ever push the weather – never, never, never, never. Get a hotel, go to Shoney's, whatever, but stay put if the weather ain't great – the Dragonfly is simply not an all-weather machine, no matter how proficient of a pilot you may be. Be careful in crosswinds, and consider either diverting or landing on a cross taxiway instead. At Abilene, and in hindsight, I could have successfully landed on the cross taxiway had I requested it. There is no shame or anything wrong at all in declaring an emergency and asking to land on a taxiway – none, nada, zippo. If you have to do a precautionary landing, try to do it if it's at all practicable at a major airport. God only knows what I would have had to do had I done this in podunksville. In Abilene, there were plenty of smart people and enclosed hangars!

Until next time, fly safe out there. I hope to have my Dragonfly back in the air by early Summer.

Mark Beres
N636AA
Gulf Shores, Alabama

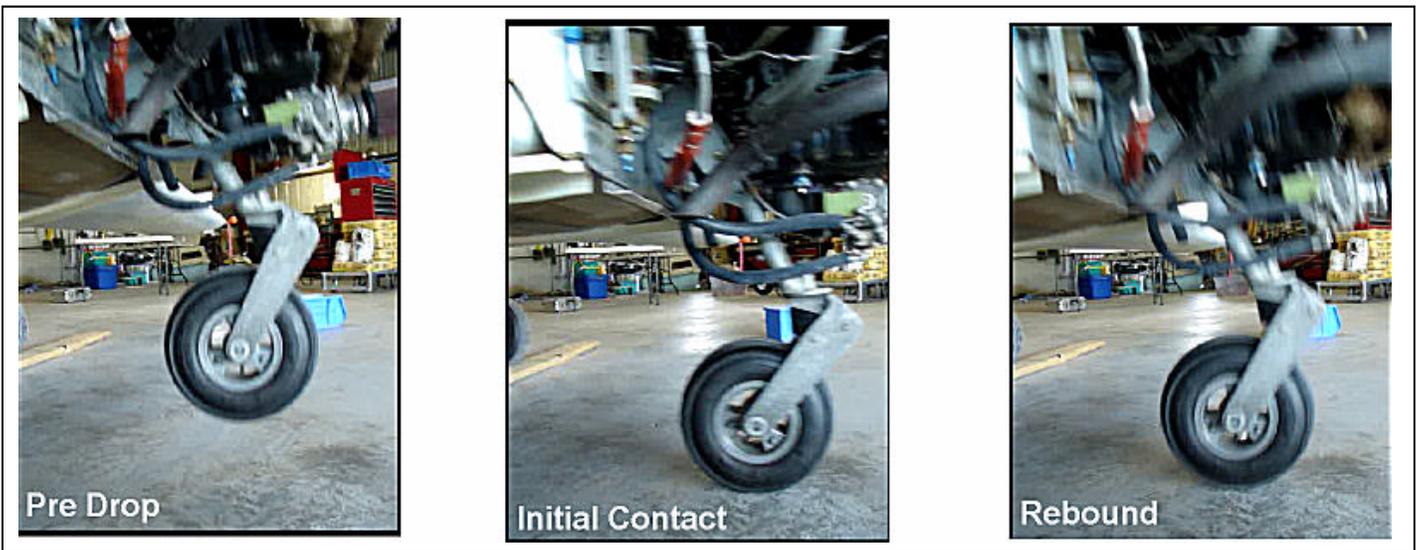
Raptor Nose Gear Drop Test—Part 1 of 2

By Drew Aurigema

For those of you that have the desire to drop your dragons onto their gear just to see if anything will break, I have a suggestion or two. On second thought, this is a family newsletter so perhaps I should refrain.

However, I do have the drop test of the Raptor to tell you about. Engineering note (1): if you plan on re-manufacturing your integrated engine mount / nose gear support make the new one look like the old one. **DO NOT LISTEN TO YOUR STRUCTURAL ENGINEERING PARTNER AND LEAVE OFF THE LATERAL SUPPORTS THAT TIE THE NOSE GEAR TO THE CORNER MOUNTING POINTS OF THE ENGINE MOUNT.**

But I get ahead of myself and the test. Rich and I looked at some Canadian testing requirements for gear loads and such (not finding much in the FAA sources) and decided that the closest we could come was to drop the Raptor on its nose and see if it bounced.



The testing parameters were pretty much defined by the aircraft layout itself. Neither Rich nor I were dumb enough to be inside the plane during a drop test, so the weight over the nose during test drops was at its maximum of about 350 lbs. The drop distance is 7 inches since that is how high the nose gear can get before the tail skid hits the ground. In a worse case landing, the tail would hit and snap the nose down from the bounce. Well that is not the worst case I can think of, but I only have one Eos Raptor and don't plan on hoisting it up for a 36" drop test like Boeing would do.

The mechanics of our test went like this: one of us pushed the tail down till the stinger was touching the ground (raising the nose up about 7 inches) and then let go of the tail. The nose of the plane came crashing down onto the nose gear and the guy out front holding the camera hoped for the best while taking the movie.

Now this was not as reckless as it sounds, well maybe it was, but the plane survived and this is my story so I can fib all I want. Prior to full drop testing we secured the engine to the overhead steel beams of the building with only enough slack to allow the gear to flex. If the gear failed, the steel building would catch the motor before it hit the ground. We also snuck up on the dropping by doing warm up drops an inch at a time.

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The final drops were from 7 inches and let the full force of 350 lbs. do its best to destroy the gear. Tests were run with the gear in trail, at 45 degrees left/right and 90 degrees left/right. The results were mixed. The gear took everything we threw at it in the trailing position with no visible damage or bending. It flexed but did not deform. In the images on the right, 100 units equals 4". The recorded deflection was 6 units or about 0.25 inches. The pictures have been cropped and rotated to get some useful info.

The drop test with the wheel at 45 and 90 degrees was less successful. In fact it was down right predictable. Post drop inspection showed the gear moved to the side about 1/4 inches and stayed there. Dropping the gear from the other direction straightened it out but that just meant something was moving. The test showed that the aluminum brackets we used to deliver the loads to the firewall were stronger than the firewall and the holes were elongating.

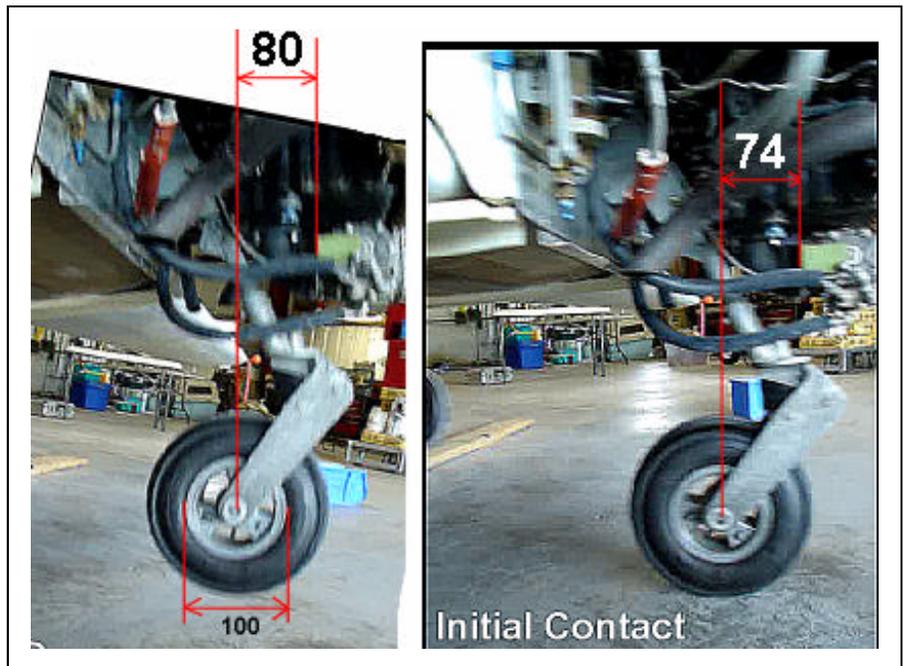
So now we get to weld lateral supports to the nose gear leg and the engine mount attachment supports (just like we had on the previous version of this motor mount). This will introduce some new issues that will have to be looked into and tested but it should solve the main problem. After the welding we will run the test again and hopefully the lateral flexure will be controlled.

Moral of story: don't run a test if you are not prepared to do whatever is required to fix the problems it may discover.

Engineering Note (2): See the support straps on the top of the motor. Even if the gear were to fail totally, the engine was in no danger.

Safety first, fun forever.

Drew in Sunny Florida (Team Raptor)



Tandem Wing Fly-In Update

By Jeff LeTempt

Mountain States Canard Wing Fly-In

The Mountain States Canard Wing Fly-In was held at Bullhead City/Laughlin International Airport (IFP) on March 19-20, 2004. According to participant reports, it appears that there were 10 tandem wing planes at the event (5 Dragonfly's and 5 Q's). Unfortunately, I could not get anyone to write up a fly-in report for the newsletter. I am sure a good time was had by all who attended the event. Pat Panzera provided me a few photos that he took at the event.

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Justin Mace's and Charlie Johnson's Dragonflies on the ramp at Bullhead City/Laughlin International Airport



Brad Hale's, Tim Iverson's, and Allan Tenerelli's Dragonflies on the ramp at Bullhead City/ Laughlin International Airport

Sun 'n Fun EAA Fly-In

We had one Dragonfly fly in for Sun 'n Fun this year. David Bourque from Abbeville, LA flew his MK-II to the event. Spud Spornitz took this picture of David's plane at the event. Looking good David!!!



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South Africa's EAA Air Week

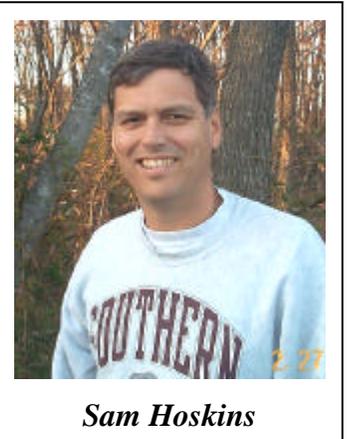
From April 28-May 1, 2004 the South African equivalent of Air Venture took place. In attendance was a MK-II (originally a MK-I) owned by Charles Leeming. This was the first Dragonfly completed and flown in South Africa.



Mattoon, IL Tandem Wing Fly-In

For a variety of reasons, the Mattoon, IL Tandem Wing Fly-In will not take place in 2004. That is the bad news. The good news is that Sam Hoskins, Q200 owner and builder, has stepped up to the plate and will host the event this year. Last year at the Field of Dreams Tandem Wing Fly-In at Sullivan, MO Sam's very fast Q200 recorded a speed of 198.546 MPH over a three leg 101 mile course. Sam participated in the EAA Air Venture Cup Race in 2002 and 2003 completing the race in 2nd and 4th place respectively.

Sam is going to host the fly-in at Southern Illinois Airport (MDH). The airport is located between Carbondale & Murphysboro, IL. The event will be held on June 11, 12 & 13. For detailed information about the airport and the surrounding area you can visit: <http://www.airnav.com/airport/KMDH> A partial list of area hotels is listed at the bottom of the page. This is a really nice airport with lots and lots of runways.



Sam Hoskins

Southern Illinois Airport (MDH) is home to Southern Illinois University's (SIU) Aviation Technologies (A&P school) and flight school, though there will be very little school activity since summer school doesn't start until June 14th. Information about the Universities aviation programs can be found at <http://www.aviation.siu.edu/> The air traffic control tower will be operational (even though school is not in session), but local traffic will be very light.

We will likely have access to the SIU Aviation Technologies hangar. We can either push the B-737 out of the hangar, or just park under the wings. <http://www.aviation.siu.edu/facilities/737/>

There are several hotels and plenty of restaurants in town. We might be able to establish a regular food run to Subway or some such place. The 17th Street Bar & Grill has the best barbecued ribs in the world <http://www.4-17th-rib.com/17thst.htm> this should be a must for Friday or Saturday night.

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Murphysboro Tourism web site:

<http://www.murphysboro.com>

Carbondale Tourism web site:

<http://www.cctb.org>

This all came about so fast that more detailed information was not available before this issue was due out. Contact Sam via email at shoskins@mehsi.com if you have any questions. I hope to see you at the event!!!



Sam's very fast Q-200

EAA Air Venture

No need to waste much space talking about Air Venture. The event will take place from July 27-August 2, 2004.

Livermore Tandem Wing Fly-In

Bob Farnam and Jim Patillo are planning the Fourth Annual Tandem Wing Fly-In at Livermore Airport (LVK) in northern California (near San Francisco) on August 20-21, 2004. All tandem wing airplanes, owners, builders, and "I got to get me one of those" people are invited. The fly-in will get started on Friday afternoon and evening with a no-host dinner at Beeb's Restaurant on the field starting at about 6:00 pm. This is an informal fly-in aimed at getting to know some of the names you've seen in the newsletter and email list. There will be rides, lots of talk about these birds and why they are so wonderful, and a late afternoon and evening BBQ on the North side of the airport.

Bob has an event web site with lots of details located at:

<http://www.farnamengineering.com/LivermoreTandemWingFlyin.html>

14th Annual Tandem Wing Field of Dreams Tandem Wing Fly-In

If you attended the 13th Annual Tandem Wing Field of Dreams Fly-In that I hosted last year at Sullivan, MO you will probably remember me telling you I would not be able to host the event in 2004 due to the fact that I was scheduled to move overseas. For those of you who don't know, I am a Chief Warrant Officer 4 in the US Army currently stationed at Fort Leonard Wood, MO. My career manager decided that I should spend my last year in the Army in Korea so he put me on orders to report for a 1 year unaccompanied tour on 15 JAN 04. With that in mind I talked to Spud and he told me that he would gladly host the 2004 event in Ottawa.

So what am I doing writing this article from Fort Leonard Wood if I was supposed to report to Korea on 15 JAN 04? I have been having some problems with my back for the last 18 months or so. I kept visiting the doctor and they tried different things.....none of which helped at all. Finally after about 1 year of complaining (I really feel they did not believe I had anything wrong with me), they decided to do a MRI. Come to find out I did have something wrong with lower back. I have a bulging disc, degenerative spine condition, and something called spondylolysis. I have been undergoing steroid injections (5 series so far). I had to go before a medical board and they gave me a 6 month probationary period so that I could receive treatment. At the end of that 6 month period I have to go before another board. I know this is a long and boring story.....bottom line is I will likely just get to retire from the Army this December with 20 years of service.

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This means that I will be in the States the last weekend of September (no matter what happens with my treatment) and I will be able to once again host the Field of Dreams Fly-In in Sullivan, MO. Sullivan is really a great place to host the fly-in. They have a really nice airport with great facilities (the parallel taxiway will be the complete length of the runway this year) and all of the support stuff (hotels, restaurants, interstate highway) are within about 1 mile of the airport. The airport manager was great last year and has welcomed us back again this year. The fly-in will be held from 24-26 September 2004.

I still have the event web site from last year up and running, complete with several hundred photos. Most of the information will remain unchanged except for the schedule of events. You can visit the fly-in web site at:

<http://www.fidnet.com/~letempt/index.htm>

I welcome you to join the Tandem Wing Fly-In email list on Yahoo Groups if you would like to provide input about the event. The group is located at:

http://groups.yahoo.com/group/TandemWingFly_In/

Last year we had 19 tandem wing planes (20 if you include the Long Eze) and about 10 conventional airplanes that flew in for the event. I think we could see 25 tandem wing planes show up this year if the weather cooperates. If you have any questions about the event you can email me at jeffrey.letempt@us.army.mil or call me at (573) 364-2545 before 9 pm CST.



Editor Ramblings.....

First off I would like to welcome and thank our new newsletter subscribers.

Craig Steffen
Tom Hall
Chris Gentry
Lee Meyers
Ron Wise
Charles Vancey

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Randy Reil
Greg Bruns
Randy Hamilton
Frank Crowther
Jay Stewart
Bart Morgan

Thanks to everyone for supporting OUR newsletter, but this is not all good news. Even with 12 new subscribers we are down from 116 paid subscribers in 2003 to only 73 paid subscribers in 2004. I would ask you to tell all your Dragonfly buddies what you think about the new Dragonfly Builders and Flyers Newsletter. Maybe we can get the subscriber base back where it should be.

Which brings me to my next point....I need your help with articles. I would really like to see technically oriented articles about how you solved a particularly difficult task (or something similar), but I would gladly publish just about anything Dragonfly related.

Longtime Dragonfly builder/owner/supporter Chris Gentry has graciously given me a few Dragonfly goodies to use as I see fit. Thanks Chris!!!! What I am going to do is award one genuine Dragonfly hat pin to the best newsletter contribution that I publish (one pin for each issue). At the end of the year I will put all the winner's names in a hat and select one that will be awarded a free subscription (6 issues) to the Dragonfly Builders and Flyers Newsletter. A hat pin is on its way to Dave Richardson for his contribution to DBFN 107.

So sit down at the computer and get to work!! Not only will you have a very good shot at getting the newsletter for free, you will also be helping out other Dragonfly builders and flyers. If you have "been there and done that", please share your experiences with the DBFN subscribers.

Why I Want to be a Pilot - by a 5th grade student

Pilots don't need much school. They just have to learn to read numbers so they can read their instruments. I guess they should be able to read a road map, too. Pilots should be brave so they won't get scared if it's foggy and they can't see, or if a wing or a motor falls off. Pilots have to have good eyes to see through the clouds, and they can't be afraid of thunder or lightning because they are much closer to them than we are.

Pilots make more money than they know what to do with. This is because most people think that flying is dangerous, except pilots don't because they know how easy it is. I hope I don't get airsick because I get carsick and if I get airsick I couldn't be a pilot and then I would have to go to work.

Maintenance Complaints

Some actual maintenance complaints submitted by US Air Force pilots, and the replies from the maintenance crews.

Problem: Target Radar hums
Solution: Reprogrammed Target Radar with the lyrics

Problem: "Left inside main tire almost needs replacement."
Solution: "Almost replaced left inside main tire."

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Problem: "Test flight OK, except autoland very rough."
Solution: "Autoland not installed on this aircraft."

Problem: "The autopilot doesn't."
Signed off: "IT DOES NOW."

Problem: "Something loose in cockpit."
Solution: "Something tightened in cockpit."

Problem: "Evidence of hydraulic leak on right main landing gear."
Solution: "Evidence removed."

Problem: "DME volume unbelievably loud."
Solution: "Volume set to more believable level."

Classifieds



For Sale: Dragonfly MK II N90003, HAPI 1835 engine installed, plus all the parts for a Corvaire conversion. All parts William Wynne sells right down to the dual ignition, installed in a box, new throttle body carb, complete engine cleaned and ready, plus LOTS

of extras. In excellent condition. I have lots of pictures if you're seriously interested. Hangared. Asking \$11,000 for everything. My wife prefers our Cessna 150 (Go Figure). Call Fish Fischer (503-861-7034) or e-mail: fishhole@pacifier.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



For Sale: Dragonfly MK II N142JE, total time 775 hours. Airplane is hangared at KVIS Visalia Muni Airport, CA. VW 2180 cc engine balanced with hydraulic valve lifters and Ellison TBI carb. Too many features to list here. To see detailed photos (more than 30),

<http://homepage.mac.com/jwmason/PhotoAlbum2.html> For further questions and price contact John Mason at (559) 626-4991 or e-mail John at jmason@lightspeed.

Subscriber's Information

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