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First Dragonfly Long Cross Country

by Allen Peterson

It was May 29, 2006 at 3:00 a.m. when I rolled out of bed from a near sleepless night from the excitement and anticipation of flying to Thief River Falls, MN from Tucson, AZ, a distance of 1206 nm. It was vacation time and time to visit family.

It had been at least 9 years since I last flew this trip in my Beechcraft Musketeer. I had checked and rechecked everything I could think of in preparation. Weather report was showing to be good the whole trip. I had the day before preflighted/fueled the airplane and packed my luggage. At 4:00 am I was at the airport with the engine running, it was still dark and no one else around. I took off and headed East for my first checkpoint, Grant, NM.

As I departed Marana Airport, the first thing I noticed was my new Garmin 296 was giving a terrain alert for mountains in my path, so I flew northward until it stopped alerting and continued onto my course to Grant. I leveled off at 11,500 feet and decided to try my Navaid wing leveler connected to the GPS and AlTrak altitude hold and see how it held the course. There were very light winds, it was smooth flying at the time and every-thing worked great. Reaching Grant, NM, just as the sun came up I proceeded northeast, next checkpoint So-corro, NM and onto Las Vegas, NM for fuel stop.

Having a 20 gal main tank and 6 gal header tank sure is great. I can fly 4 hours very comfortably before needing to refuel and on this trip 2 fuel stops were needed. Ground speed was 150 mph on most of the trip until nearing South Dakota. It started to get very rough and had to fly by hand and slow to 120 mph.

Just before Fargo, ND, I could see a front with solid clouds. I was on top and the air had smoothed out and continued the trip. I was starting to regret that I had stayed so high as I approached my destination, because the cloud cover was solid. Then I saw a hole that was about 15 miles from the airport. I double checked the SkyWatch to see if there were any aircraft close it was picking up, and saw nothing. Ι pulled the power back, aimed for the hole, and guess what? I MISSED!!! I went right over and into the clouds. Now to remember what my instructor showed me, 10 years ago, on concentrating on the artificial



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horizon and keep the wings level, check speed, oh my, another OOPS, 180 mph and climbing!!! Pulled back on the stick and before I knew it, out of the clouds 9 miles from the airport, the winds were at 30 mph but they were right down the runway. TOUCHDOWN!!! Total flying time was 10 hours!!!

Now, June 12th already here and vacation is about over and have to head back to Tucson. AZ. Plans again were to leave at 4:00 am, in the dark. However, weather did not look as good this time. Forecast was for clouds with rain showers except about 100 miles south of Aberdeen. SD it was clear sky all the way. When I got to the airport, there were no winds, cloudy but no rain. Since it was pretty typical for Minnesota to have cloudy days with no rain, I decided to give it a go. I climbed to about 10,500' at first and was up for



about an hour when the sun came up and could see. Eeegads, I was just barely below the clouds and started to see lower ones ahead of me and rain showers all over, so I decided to go to 8,500 and before I knew it, there was WATER on my Dragonfly!!!

I was so glad Justin Mace had convinced me to put VG's on my canard. There was no pitch down and no sign the airplane was having any problems, the visibility was down to about 2 miles and was raining pretty hard. There was no lightning anywhere and I was traveling about 125 mph ground speed with 140 indicated. I reached Aberdeen, SD and the rain had pretty much stopped, but it was very hazy. As I flew further south I had to keep descending to keep out of the clouds. I decided that I wasn't going to go any lower than 4,000' and if needed I would turn back to Aberdeen.

Sure enough, I hadn't gone 10 miles and had to turn back and land at Aberdeen. That turned out to be a very nice place to be stranded. I was offered a car if I wanted to go into town and lunch and got two videos as I waited. I was told that the clouds south were at ground level and there was no indication when they were lifting. It did not look good since the previous day they had the same weather all day. Well, it was only a 4 hour wait until I was informed the clouds had lifted and were at about 2,000 feet AGL. That was my cue, I topped off the tank and away I went. I stayed just below the cloud layer at about 2,000' AGL and cruised at about 145 mph ground speed. I sure was happy having the Garmin GPS tell me where all those large towers were.

Since Tucson has so many mountains around, I have little experience flying low and fast and that was very exciting!!! It was a little less than 100 miles I had gone when there was the line of clouds ending and bright sunshine. GREAT!!! Time to climb, now why is it getting so bumpy and my speed is dropping? Poo, now I am down to only 100 ground speed and I am all over the place. I climbed, I descended, trying to find smooth air with no luck. This really goofed up my plans for fuel stops.

When I got to Raton, NM there was a thunderstorm just to the southeast of the airport and winds were at 30 mph with gusts to 60 mph. As I was just touching down on the runway a left cross-wind hit. This pushed the airplane to the right and I could tell if I didn't do something quick I was going to be off the runway. I jammed the throttle in, pulled hard back on the stick and gave it left rudder. The airplane jumped off the runway and it seemed like forever I was just hanging there and I thought I was just going to drop onto the ground, but it just kind of hung there and I kept working the elevator to keep it off till I got some speed up. So now, scared to try it again I decided to try the other runway, I thought maybe it was more into the wind but it was a lot shorter (4,400'). I got it down without further incident.

The airport manager was at his desk and looking at the wind speeds when I was landing, that is how I found out what kind of winds I had just fought with. At this point, feeling tired, shaky, a little nauseas, and even dreading trying to take off again. After fueling I decided to hold off a bit, ate some home made free cookies and coffee. (Don't you just love small airports!!!)

I noticed the thunderstorm was gone and the wind had dropped considerably. So, away I went, into the headwinds with several other small thunderstorms to avoid. It was dark at 8:00 pm when I got to Grant, NM airport and time for fuel again and I sure could tell I was tired. It took me 4 go-arounds because I just could not get the airplane speed below 100 to land. Finally...I got it stopped and parked. No one around, no pumps for fuel...I scratched my head wondering what to do next. If needed, I was going to sleep in the airplane then I spotted a building with a door that said pilot lounge, luckily it was open!!! It was great, TV to watch, I had my dinner with me, and a nice sofa to sleep on (did I say, I love small airports!)

The following morning I had breakfast with a friend that lives close to the airport, fueled, and made the rest of the trip in calm air to the Marana airport. However, about 40 miles out, my trafficwatch started alerting traffic, I looked at the distance and was showing 4 miles and closing very fast. When it switched to Collision Alert!!! I got real nervous and double checked to ensure all external lights were on and blinking!!! It was down to about 1 mile away and still I could not see any other aircraft around and then it just went away. Arrival time at Marana airport was 10:00 am, with a total flying time of 14 hours. Overall I had a great time, loved the experience, glad to have a Dragonfly with a Continental 0-200 engine, and hope to do it again come the end of this next May.

Allen Peterson N360KK

Allen really has a nice very capable Dragonfly. This cross country flight provided what I am sure were a few very tense moments for Allen, but he is going to be making the flight again in a few weeks. I originally featured Allen's plane with an article about his first flight in DBFN 119. Allen is having a lot of fun flying his Dragonfly and the O-200 is working great!! Maybe if we twist his arm a little we can get him to fly up for the TW FOD Fly-In this year.

The picture on the cover was taken by Justin Mace...Allen's hangar mate with his MUCH faster (according to Justin) O-200 powered MK-II Dragonfly. Tucson, AZ has become the hot-spot for Dragonfly activity with 5 (YES 5!!) Dragonfly's based at Marana Regional Airport (KAVQ). Justin has the high time Dragonfly on the field with something like 1,200 hours.

Justin has written a brief introductory article for this newsletter about all the modifications that he has incorporated on his beautiful, reliable, and capable Dragonfly. The plan is to detail each one of these modifications (if they have not previously been detailed) over the next several newsletters.

2007 FOD Fly-In

by Spud Spornitz

Hello Everyone,

It is my pleasure to be your host again for this year's "17th Annual Field of Dreams Tandem Wing Fly-in". The event is being held in Emporia, Kansas on September 21st, 22nd & 23rd 2007.

We have a web-site set up for the event: <u>http://www.tandemwing.com/fodfly-in.htm</u> You'll find information on registration, motels, airport information, event schedule, directions, etc.

Emporia, Kansas is 100 miles southwest of Kansas City on Interstate 35. They have a 5000 ft. north-south hard surface runway and 3900ft east-west grass runway. 100 LL and mogas are available on a 24 hour basis. There is an over abundance of room for our workshops, forums and lots of room for the girls. You can find additional information on Emporia at <u>www.airnav.com/airport/KEMP</u>

Event plans to-date are:

Friday:

The event will officially open Friday at noon (this could be earlier if we want to add some Friday builder forums, more on this later).

The traditional welcoming & reaquatance dinner is scheduled for Friday evening at a private room at the Golden Coral.

Saturday:

Things will start off with a fly-in pancake breakfast put on for us by the local EAA chapter. They'll also be running the lunch-time chow wagon, so they'll be plenty chow on site.

We'll be doing the "poker run" again this year for the attending aircraft to see if they can't make a little "Gas Money" for that trip home. Last year, I think we paid out almost \$250.00

We are not going to have a full day of forums on Saturday as we have had in the past. We are going to keep it to 1 or 2 on Saturday with the main one being Bob Nuckolls of the Aero-Electric Connection early in the afternoon. We will have the Quickie and the Dragonfly group forums scheduled for late Friday afternoon/early evening.

The traditional "Performance "Not-a-Race" Run is scheduled for late in the day Saturday (with an alternate time of Sunday morning).

The awards banquet will be Saturday evening, of course there will be lots of door prizes along with a couple of grand prizes for the builders only and that card will be handed out for the poker run.

The aircraft awards. This is where we can honor the great planes, the pilots/builders that brought their craft to the event.

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Sunday:

Final review and goodbyes until next year. Noon: Event closes.

Things in the works: (Things I need answers to??????)

Is there a desire to have a Friday "Construction Training day" in areas such as?

- 1. Epoxy/construction techniques? (as in years past)
- 2. Gas and/or TIG welding metal components?
- 3. Engine overall maintenance.
- 4. Aircraft painting?
- 5. Whatever else???

I need a lead and a couple of volunteers to head up the Performance run. (*I volunteer to head up the perform-ance run—Jeff*)

I'll be giving an update in Dragonfly & Quickie newsletters, on the groups email list and on the web site listed earlier. All suggestions and comments are always very welcome. We'll have more details and the official schedule of events in the next issue of the newsletter. You can also check in occasionally at the fly-in website for the very latest in details or changes.

You can contact me at: spudspornitz@att.net Evenings (913) 764-5118 Cell (913) 484-0508

Very Best Regards, Spud Spornitz -- Olathe, Kansas



Modifications as per Justin Mace

by Justin Mace

The Dragonfly started life as a very simple/cost effective plane. Over the years builders have wanted a few changes to the design. The original design, like most aircraft, have had some modifications to make the plane safer and some to add versatility.

Since the Dragonfly design has attracted quite a few new pilots/ builders and the information about modifying, and what constitutes a proven modification is spread over many issues of the DBFN newsletter I thought I would state a few that have



worked well over the years. The following modifications have been made to my plane. These are not the only modifications to the design, just the ones I have found to be useful on my plane. These modifications have been proven in well over 100 hours of flight. Some of them have been proven in over 1,000 hrs of flight. They WORK!

- 1. MKII landing gear configuration per Viking/Slipstream plans. This mod has ended the broken canards that were common with the MKI. Over time the original MKI canard design will sag and can cause prop damage on a poor landing.
- 2. MKII steel gear legs. The steel gear legs solve a problem with broken glass gear legs & solves a torque steer problems associated with the glass legs when using real aircraft brakes. (*Different versions are discussed in DBFN 82 and 53. I will get some details about Justin's gear for a future article—Jeff*)
- 3. Seat back moved aft 3 inches. This allows more room for normal sized pilots and allows larger 6'2"+ pilots the ability to "fit".
- 4. Larger/thicker rudder horn with aft facing arm screwed to aluminum block floxed in rudder. (per errata sheet). This will stop the original thin rudder horn from cracking. This has been a problem on some planes.
- 5. Bottom rudder bearing and attach bolt permanently installed. This mod allows easier access to rudder removal for maintenance.
- Larger full span header tank with "<u>larger</u>" diameter drain line back to main tank. The larger drain is needed because the 3/8" line under pressure will flow much more fuel than the same size line under gravity pressure. Some planes will allow fuel to be pumped over board under certain conditions. (DBFN 66—Jeff)

- 7. Mandatory elevator modification. This is a mandatory plans change. There have been several early planes that have experienced elevator flutter. This mod has solved that problem. (*DBFN 42 has the "official modification. Alternatives are listed in DBFN 56 and 67—Jeff*)
- 8. Cleveland master cylinders & brakes. Matcos have also been used. The original go-kart brakes have been problematic from the start. Real aircraft brakes will solve this problem an will require minimal maintenance. {I have changed one set of pads in 800 hrs.}
- 9. Cleveland 500x5 disc brakes. See above.
- 10. Control stick elevator rod ends mounted horizontally. This mod will alleviate some binding that occurs with the original design.
- 11. Reflexor. This mod allows the pilot to use the ailerons as pitch trim as well as compensating for weight distribution, as in flying solo or with a passenger. Three point landings can be done solo or at gross weight without moving ballast around. (*DBFN 34, 69, 101, and 113—Jeff*)



- 12. Servo tabs. This mod acts as a aerodynamic power steering for the Dragonfly. The aileron forces needed to turn the airplane at 160 mph are VERY heavy. This mod lightens the forces somewhat. (*DBFN 51 and 124—Jeff*)
- 13. Forward hinged canopy with gas struts. If you have ever gotten into the passenger seat of a Dragonfly with a side opening canopy you will understand that this mod is almost mandatory. (DBFN 14 shows original forward canopy design from Viking—Jeff)
- 14. New style motor mounts. Much simpler design. (DBFN 13 and 70—Jeff)
- 15. Access cover installed in forward fuselage cover. This allows access to the Cleveland master cylinder for maintenance as well as the new style motor mount bolts & canard lift fitting bolts. You do check them during annual don't you? (*DBFN 29 and 32—Jeff*)
- 16. Removable (*or hinged—Jeff*) cover over the main wing. This allows easy access to the aileron controls as well as the main wing bolts. (*DBFN 29 and 32—Jeff*)
- 17. Tie down eye threaded blocks installed in underside of spar caps/canard skin. If you ever leave your hangar and need to tie your plane down outside this is very handy. It is very low drag to be able to remove the tie down eye bolts while flying. (*DBFN 23—Jeff*)



18. External aircraft radio antenna on the wing cover with internal screen wire ground plane. Internal antennas are fine but the human body will attenuate RF signals and can cause reduced signal strength in the direction needed to talk to ATC to get clearance to enter Class B airspace. I have no problems talking 100+ miles at altitude. I did before making this mod.

- 19. Conduits installed in canard for Nav/Strobe lights and brake lines. Self explanatory. Easy to run electric lines as well as brake lines.
- 20. Large automotive fuel filter, not the tiny glass filter w/replaceable element. These little glass filters are responsible for more experimental aircraft making forced landings than any other single item I know of. (DBFN 55 and 109—Jeff)
- 21. Vortex generators. Over the years there has been much debate about the suitability of the GU-25 mod canard on the Dragonfly. If you are using this original front wing the vortex generators will solve a contamination problem from bugs or rain and will keep the landing speeds from going way up as a result of contamination. These need to be mounted at the 50% cord point rather than the commonly accepted thickest part of the wing. (DBFN 111, 112, and 116—Jeff)
- 22. Added Carbon fiber wrap under the tail fin landing gear spring to prevent cracking. There have been a few Dragonfly's that have developed a crack in the skin under the fin where the tail spring is. Adding a couple of carbon fiber plys to this area will stop the cracking.
- 23. Move the pitot tube from the front wing to the top of the vertical fin! If you have ever walked around a Dragonfly with the pitot on the front wing and walked into it, this mod will make the pain go away.
- 24. Give the ailerons additional travel! The plans call for 36 degrees total. Rex Taylor made the change on my plane and recommended all subsequent Dragonfly's be built with 55 degrees total travel. Try to do a full cross controlled slip with the 36 degree travel aileron, 55 works much better.
- 25. Nav and strobe lights moved to canard tips to reduce flash on aft side of canard. The strobes mounted on the tip of the rear wing will cause the back of the canard to "flash" and will cause vertigo. You will not be able to fly at night using the strobes mounted on the rear wing tips.
- 26. Glare shield for the instrument panel, with optional instrument lights. I have flown at least three other Dragonfly's besides my own and these all had no glare shield. If the sun is behind you and on the panel you will see the instruments backwards in the canopy. It can be quite hard to see traffic if you have to deal with glare also. At night, lighted instruments make it impossible to see out. A proper glare shield will stop these problems.
- 27. Install a "real" aircraft engine. I went through two VW's with all the associated maintenance head aches. I also installed an EJ-22 Subaru. Great engine but it was heavy and

was water cooled with a very complex cooling system. Did I mention heavy? I have been flying behind a Continental O-200 for the last 300 hrs and it is by far the best engine I have had in the Dragonfly. This aircraft flies well on 100 hp.





Justin's canopy mounted glare screen

with built-in LED panel lights

- 28. Move and/or increase the number of the NACA cockpit ventilation inlets. I have 4 inlets in my Dragonfly and it provides good cooling even on those frequent 100+ degree Arizona days.
- 29. Install a real aircraft fuel cap on the side of the fuselage to fill the main tank.
- 30. Install landing/recognition lights in the leading edge of the canard. (DBFN 64 and 103 (DBFN 103 describes how Drew installed landing lights in the wing of the Raptor, but I would install them in the canard for the same reason Justin listed in item 25 above) Jeff)

Some of these are mandatory plans changes, the rest are changes that were made to make the DF fly better or give better maintenance availability/reliability. It has taken me 21 years of flying my Dragonfly to come up with these changes. If they are built into the plane from the start you will not have to make these changes later.

I have found that it is much better to incorporate these changes while building rather than retrofit them.

Many builders have found other ways to enhance & personalize the Dragonfly to suit them, some have worked others have not. As stated above the listed items do work.





Justin Mace N764JM

Justin has been doing this Dragonfly stuff for a long time. He is one of the few early Dragonfly builders who is still actively involved with the design. He has tried lots of modifications over the last 20+ years and 1,200+ hours in his Dragonfly....but that doesn't mean that the old dog (so to speak) can not learn a new trick, VG's are a perfect example. Justin had flown his Dragonfly over 1,000 hours before he decided to install his VG's.



I visited Justin in February 2003 and got my first practical hands-on landing and take-off practice in his Dragonfly (see DBFN 101 for the detailed report). Wouldn't you know that I just happened to be there during the Arizona monsoon season, it actually rained 2 days in a row....I think they got their entire annual rainfall while I was there. At about 50' of the runway during an approach we started picking up a little light mist and it increased the pitch buck speed enough that Justin helped me "rattle it on". VG's have to-tally eliminated the possibility of some knuckle head rotor jockey repeating this in the future.

Justin has been a great friend and mentor for me over the last several years. I have had lots of great help

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from some truly terrific people with my Dragonfly adventures, but few people have done more to keep me safe than Justin. I really appreciate all your help Justin!!! I owe you big time.

Justin's modification list is not "THE LIST". I am sure there are modifications that others have performed and documented in the DBFN (or maybe not). I welcome any newsletter contributions detailing a modification that you have on your Dragonfly. Flight proven modifications are preferred, but you don't have to have 1,200 hours on your plane before you will get an enthusiastic reply from me :<))

Jeff

International Dragonfly Week

I received some good feedback about the International Dragonfly Week idea, but only a few of you have sent me any information about what you did during that week (or general timeframe). I would appreciate it if you could please take a few minutes to sit down and send me a short note (or detailed article!!!) and a few pictures about what you are doing with your Dragonfly. It can be a paragraph or two or a page or two.

I will be publishing the articles and photos that I have received in DBFN 127 so you have at least one month to get me your submissions. I think that everyone likes hearing about what other Dragonfly builders and flyers are up to. It doesn't matter if you made the first long cross country trip in your Dragonfly, you worked on some innovative and unique modification, you spent the 1,000th hour sanding, you just finished airing up your tires, or made a few trips around the traffic pattern.

You may have the most beautiful Dragonfly in the world or it might be an ugly duckling, we just do not want it to be a hangar queen just sitting there collecting dust. If we encourage each other to complete our Dragonfly's and then get out and routinely fly them...everything will be good in the Dragonfly Universe!!! Now take 30 minutes away from building and flying and send me a note (with pictures) telling me what you are up to.

Jeff

Hard Copy DBFN Archive

The hard copy archive looks great!!! The archive consists of 6 volumes and includes newsletter #1 through #124 (NOV-DEC 2006 issue). The price is \$135 plus shipping for all 6 volumes. Please email or call me with your address I will calculate a to-tal delivered price for you. My email address is jef-frey.letempt@us.army.mil or call me at work (573) 596-0165 or at home (573) 364-2545 (*before 2030 central time please*). Personal checks and money orders are ok. I can not accept credit cards, but I can gladly accept PayPal payments.



Classifieds

For Sale: NACA Flush Inlets designed for 1/2" sandwich structures. These make a good looking functional inlet to replace the hand carved per plans ones. Inlets are \$40 per pair, plus \$4.00 shipping. Note: Spinners no longer available. Contact Charlie Johnson, 2228 East 7875 South, Ogden UT 84405, phone (801)-479-7446, or email <u>OneSkyDog@aol.com</u>

For Sale: Composite spinners for the Dragonfly \$180.00. Contact Tim Iverson at 310-386-8354 or email <u>dflypilot@yahoo.com</u>

For Sale: Dragonfly Fuselage For Sale -- \$600 Firm -- This includes fiber glassed sides, bottom, front and rear turtle decks, fuel tank/seat, engine cowl, motor mount and bulkheads. This would be a good start for someone. Just start putting it together. Located at the South Lakeland Airport (X49} in Florida. Pictures available via email request. Contact Chris Gentry at (863) 646-2612 or email <u>cgentry12@msn.com</u>

For Sale: Dragonfly MK-I converted to hoop gear. Porsche 1800 engine (big VW) converted to 2400 with parts from Great Plains. Airframe complete & wings & control surface mounts are finished. Cleveland wheels & brakes. Ed



Sterba prop. Nearly complete. Asking \$10,000. Call 815-397-1533 or email <u>stieggrinding@aol.com</u>

For Sale: Dragonfly MK-I completely built and assembled. All controls installed, light weight factory built honeycomb fuselage, servo tabs on ailerons & canard. Electric Ray Allen servos on all tabs and reflexor. LYC 0235 engine 800 HR since major, Jeff Rose dual electronic ignition, remote oil filter, light weight starter. Complete Terra radio system 760 Com, Nav w/loc and G/S ELT, Narco TR-50 transponder. 2 Lorans; one Fly/Baby and one 360 round, both with full databases. Heated pitot w/angle of attack orifice. Hyd toe brakes, engine instruments, and 25 years of aviation parts etc. Price \$16,000. Contact Phil Tinlin, 84 Panuard Ln. Hartsel, CO. 89449, phone (719) 836-0213, or email pc.tinl@juno.com

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Jeffrey A. LeTempt 1107 Murry Lane Rolla, MO 65401 (573) 364-2545 jeffrey.letempt@us.army.mil

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Patrick Panzera PO Box 1382 Hanford CA 93232-1382 (559) 584-3306 panzera@experimental-aviation.com

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