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THE OFFICIAL VOICE OF DRAGONFLY BUILDERS AND FLYERS ALL OVER THE WORLD

DRAGONFLY BUILDERS AND FLYERS NEWSLETTER

Getting Close....

Bob Johnson has been the recipient of the unofficial longest time spent building a Dragonfly at every tandem wing fly-in that I have ever attended. Bob has a great sense of humor and laughs right along with everyone when he talks about his build time, but pretty soon we are going to have to find someone else to pick on….Bob is getting VERY close to flying his MK-II. Below is an article that Bob wrote about the building of his Dragonfly. I will include more detailed photos in DBFN 123.

Jeff

Dragonfly MK-II N211DF

This story starts in 1978 when I met Ken Mitchell at the University Hospital where I was employed as a Biomedical Equipment Repairman. I was working the graveyard shift with Mike Pratt. Mike first met Ken who was working as supervisor of the housekeeping department. Ken was an interesting individual and turned into a very good friend. He had a Ph.D. in Constitutional Law, and had taught at many University's. He had retired from teaching and was working at the hospital while his wife finished her career as a nurse. He had built a number of aircraft the latest of which was a BD-4 that was finished in Guam. It was built in the bedroom and the wall was cut to the floor on either side of the window and laid down to get it out of the room. He had given Mike a ride in his airplane and Mike told me of it and introduced me to Ken. Ken offered me a ride and I took him up on it as I had once gotten a ride when I was in fourth grade in Casper Wyoming. My teacher had arranged for the class to go to the airport and we got to ride. Me being taller than the other students that went with me I got to sit up front. I never forgot the ride and always wanted to learn to fly. I thought that because I didn't have a lot of money and could not afford to buy an airplane it would never happen. I remarked to Ken after the ride I would like to have a plane but it wasn't in my reach, as I couldn't afford to purchase one. He said "well build one". I said I couldn't do that. He remarked "How do you know, have

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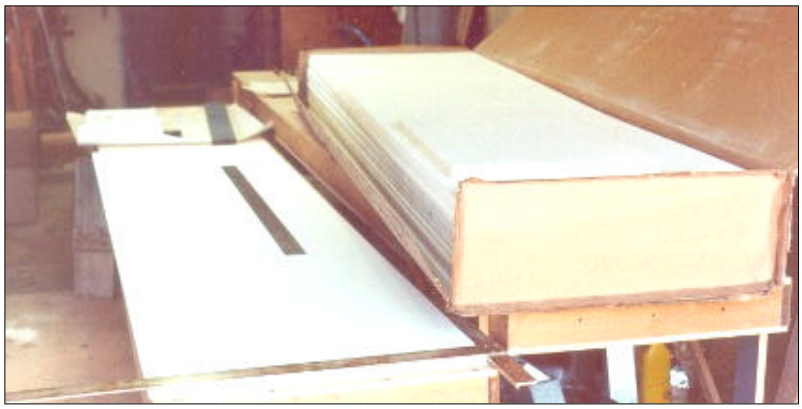

FUSELAGE IN A BOX

you ever tried." So at that time I started looking for a plane to build and about that time Popular Mechanics had an article on the Polliwagon which looked like a great plane. Ken was thinking about building another plane and was thinking about doing a composite aircraft and started looking at the Q2 and the Dragonfly. He went and looked at both planes and said that the Dragonfly was the better plane by far. I looked at the flyers and fell in love with the bird's look and decided to pursue the Dragonfly over the Polliwagon. I purchased the plans and got serial number 211.

LEFT SIDE READY TO GLASS, RIGHT SIDE ON WALL

I then started to get the materials together, as there was no kit for this design and read the plans from start to finish. Having never done any fiber-glassing, I had to learn it before I was able to start on the plane. The plans were geared to a person that had no experience with these materials and the first chapter had you build many sample pieces to learn how to do this.

In 1983, once I had enough material i.e. the foam, glass, epoxy and had built the workbench to build the plane on. This bench was two feet wide and twenty feet long I started to build the pieces for the fuselage. The fuselage is made from Clark foam, which is white urethane foam in varying thickness', one quarter, one half, and three quarter inch being the majority of the foam. It came in sheets two feet by eight feet and was glued together with micro, which is a mixture of epoxy and micro balloons. The sides consist of one sheet split on the diagonal and glued to another sheet then three-quarter inch doubler was glued around the edges. This was then glassed on the inside with staggered layers of glass from tail to front increasing in the number of plys. I wasn't sure if I could do this by myself so I incorporated the help of my brother, Charlie, who was into hang gliding at the time. After the first side I made the rest of the fuselage pieces by myself.

BOTTOM READY FOR GLASSING

I continued to build the bulkheads and hot-wire the wing and canard cores for the next year. Then in 1985 I built the main wing, building the shear web myself then when it came time I enlisted the help of Charlie and a few other people to do the bottom skin. It took us about eleven to twelve hours to do the glassing on the spar and skin. At that time I was working in a single car garage that I had

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built from a carport and added a shop on the end. It was eleven feet wide and I knocked the wall between the garage and the shop to get a room long enough to build the wing and canard. It was very crowded and I had the fuselage pieces hanging on the wall and supported beneath the bench.

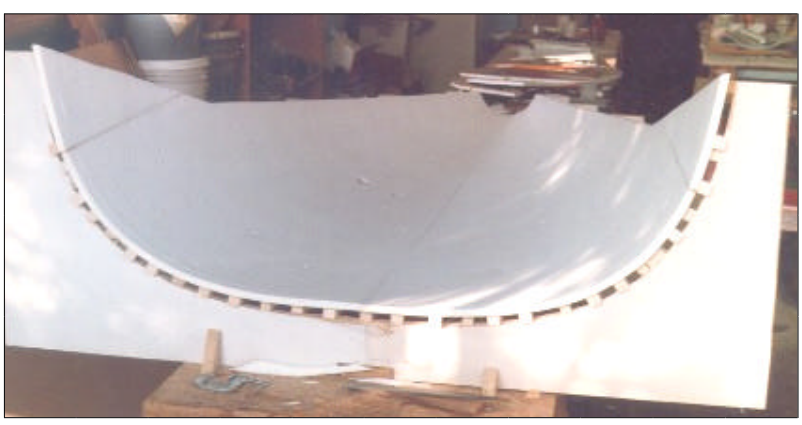
When the wing was done I built a bracket to hang the wing on the wall and started to build the canard, about this time they came out with the inboard gear, but it was not available for a period of time so I put the canard away. I purchased the materials for the inboard gear when they became available. This included a piece of aluminum channel, quarter inch plywood, and two molded gear legs. In the fall I built the canard and then started putting the fuselage together still collecting bits and pieces and when an instrument became available on sale I would purchase it.

By the end of 1986 I had the fuselage assembled and glassed on the outside. I then spent the next year putting in the controls and starting on the panel work. The panel has gone about three iterations before the current panel came to be. The last part of that year I designed the electronics for the switches and the dimming circuits. The label for the switches light up when the master is turned on with BI-color LED's behind them. They are red when off and green when on and they are dimmable.

In 1987 I had visions of GRANDURE thinking that I would be flying very soon I applied for the N211DF registration number. I continued this work and completed and installed the control surfaces through the next years. Started filling and sanding the fuselage in the garage, then about mid 1990 I rented a hanger and moved it out to the airport. I filled and sanded the wing outside that summer, and started on the canard in the fall. Wet sanding with cold water I had to call it quits for the rest of the winter. At that

WING CORE WITH SHEAR WEB - note jig blocks for glassing.

CANARD, WING GLASSED FUSELAGE pieces on wall and hanging from ceiling.



MOLD FOR REAR DECK READY FOR GLASS INSIDE

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ASSEMBLING THE FUSELAGE

FUSELAGE ABOUT 1987

time I had a chance to get a hanger by putting in cash and sweat labor, but could not pull it off by myself so I asked Charlie if he would be interested in going in on the hanger. That winter and next spring we built the hanger that we are in. Once we had the interior finished I moved the plane to the new hanger and started filling and sanding. Charlie also moved his boat in and repaired it then I painted it to learn how to paint. My sanding and filling went on until about 1996 when I painted it. I then started to complete the engine installation and during the next three years I figured out that the alternator did not put out enough juice for all the electronics that I had installed. I installed dual electronic ignition; HAPI split heads, geared reduction starter motor, Geo Metro alternator, vacuum pump.

Then decided to Fuel inject the engine. I just about had it ready to install on the plane again when in the end of 1998 my position went away at the hospital. This was disastrous as my salary took a nosedive.

I received an offer from Fuji Film Medical, which I accepted but it put all work on the airplane on hold. In 2003 that job went away but I was in better shape and went back to the University at a lower salary but this allowed me time to work on the plane. I spent about two years learning about fuel injection trying to adapt a GM controller to run on the engine. I purchased components from C B Performance, which was a little better but still not good enough. I finally came to my senses and took Justin Mace's advice and purchased SDS controller out of Canada and was able to get it to run as well as I wanted it to.

After finally getting all of the little details completed I had my Airworthiness inspection on 18 July 2006 and passed with two squawks. I had my name on the nameplate first last and it should be last, first; and a couple of wires that he wanted isolated from the engine mount. As soon as I get the

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nameplate engraved I will send him a notarized letter and will have my Airworthiness in hand.

I have received the airworthiness certificate and have about 15 hours on the engine taxing around the airport**.**

DRAGONFLY N211DF COMPLETED

ROBERT "DESERT BOB" JOHNSON WITH HIS MK-II DRAGONFLY—N211DF

Bob is a really good sport with all the ribbing about how long he has been building, but the bottom line is that he has stuck with it when life threw him some big curves. Most people would have given up and moved on to something else. Bob has built a beautiful Dragonfly that he should be very proud of. Charlie is going to conduct the first few flights for Bob. I hope that Bob and Charlie will both be flying their Dragonfly's to the Field of Dreams Fly-In in 2007!!

Jeff

Rennick Dragonfly

by Jeff LeTempt

I had the privilege of meeting Wally and Marlys Rennick from Saint James, MN (AZ in the winter) at the Field of Dreams (FOD) Fly-in at Burlington, KS back in 2002. They are, as most Dragonfly enthusiasts are, VERY nice people. My wife really enjoyed meeting Marlys and spending some time with here while the boys talked about airplane stuff. They did not make it to any of the FOD fly-ins that I organized at Sullivan, but fortunately they did make it to the most recent FOD fly-in at Emporia. Wally is a retired shop teacher and is doing some really nice work on his MK-IIH Dragonfly. Wally loaned me a bunch of pictures of his project at the fly-in that I scanned in and mailed back. Maryls sent me a nice letter the other day….

Jeff,

Thanks for sending the Dragonfly newsletters, they arrived in fine shape. Wally has skimmed through them all and found some good ideas and information. This week we painted all the small parts—the cowling, elevators, ailerons, rudder, wheel pants, and some trim pieces. So we only have 3 pieces left to paint in the spring when we get back from AZ...the fuselage and 2 wings—HA!

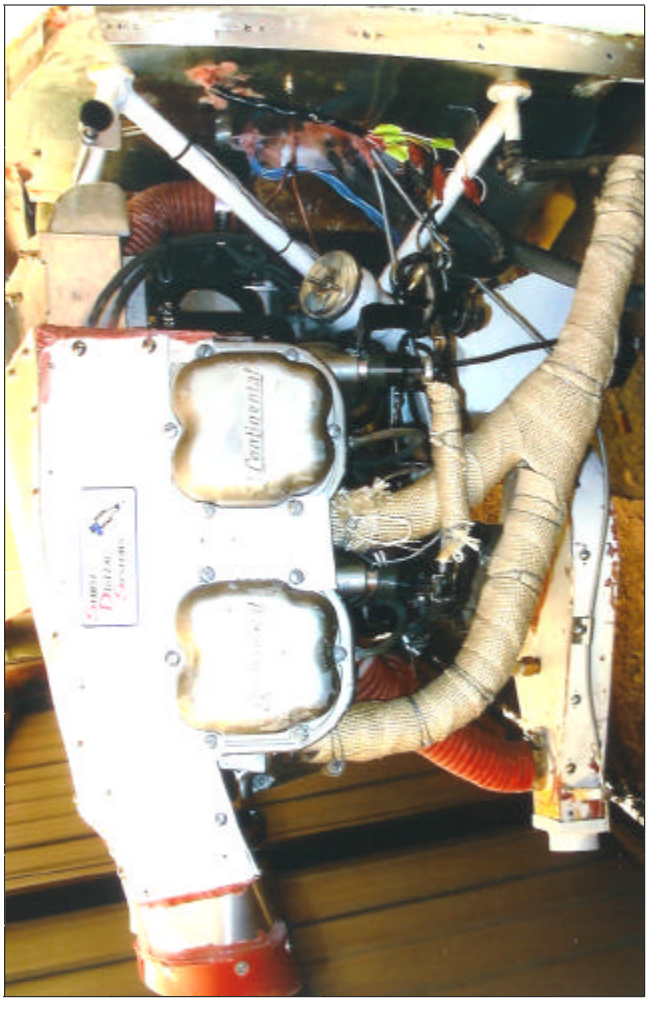
We enjoyed the get together in Kansas. He got several good ideas to implement on his plane and was out working the next morning on his plane.

Thanks again,
Wally & Marlys Rennick

P.S.—Hope to fly our Dragonfly to the fly-in next year!

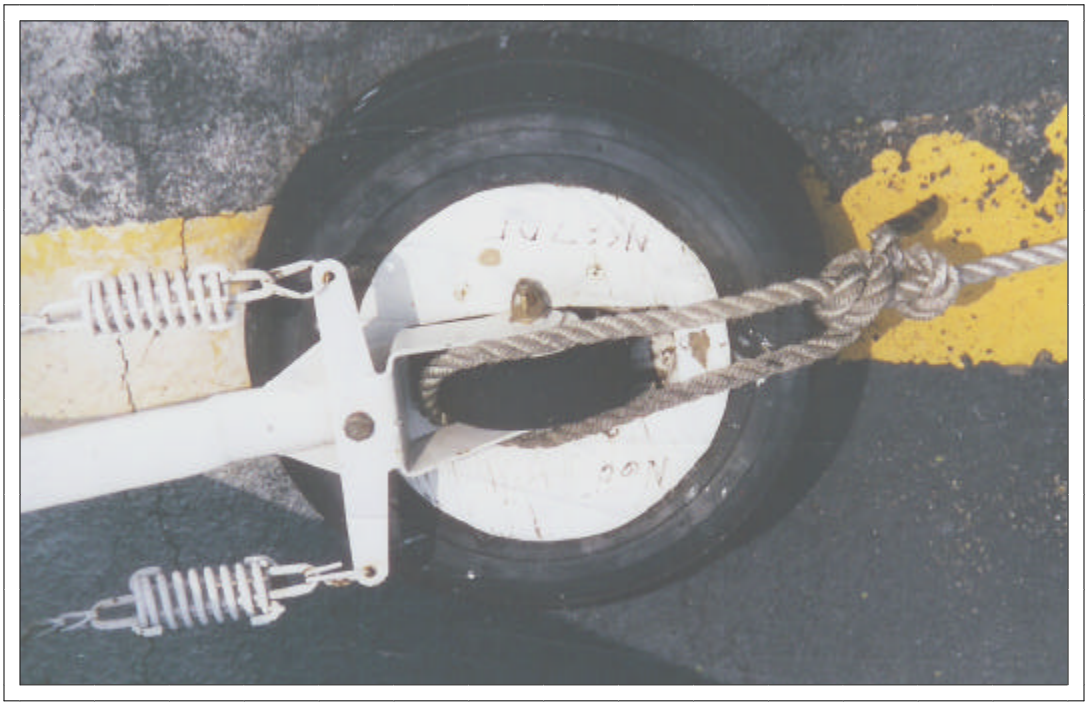
Wally has incorporated a lot of really neat features, but he is also paying really close attention to the weight and chances are his aircraft will weigh less than mine. Some really neat features in Wally's airplane include elevator anti-servo tabs, a glove (or pubs if you prefer) compartment, a set of very comfortable seats from (as I recall) the back seat of a wrecked Buick, a Continental O-200 that has electronic fuel injection (EFI) and a carburetor (only used as a back-up in the event of an EFI failure), a magneto and electronic ignition (EI) , and automotive style air filter. Wally has incorporated wing fillets, a forward access hatch, auxiliary aft fuel tank, full width header tank, and a forward hinging canopy. I can not wait to hear how everything works out and I really hope to see Wally and Marlys fly their Dragonfly to the FOD fly-in next year!!!!


EXPERIMENTAL


Continental

Builder Tips

A few issues ago I asked (make that begged) you guys to help me out with some newsletter article contributions….I will continue to ask (I mean beg) for builder tips, profiles, Dragonfly flying stories, or basically anything that you feel the other subscribers might find helpful or entertaining. Al Dziminowicz from Poughkeepsie, NY sent me a few tips that builders and flyers alike might find useful, and a watchful eye might pick up on something of interest. I love looking for things in the background of photographs for the less obvious things that may be more useful that the primary purpose of photograph….you never know what you might see.



In the photo above Al wanted to demonstrate what he has done to keep the tail wheel off the ground when he ties his Dragonfly down on the ramp, but this would also be a very effective wheel chock. It is just an old aircraft tire, two 1/2" plywood circles (one on the top and one on the bottom), and three wood blocks between the plywood circles. Cut a square hole in the top plywood circle for the tail wheel. Everything is screwed together with wood screws.

Something else you can see in this photo is the simple double spring tail wheel control system. The double springs will decrease the sensitivity of rudder control inputs when the tail wheel is on the ground. When I first started flying my MK-IIH with the plans specified tiller rod set-up I found that it was easy for me to over control the rudder while the tail wheel was on the ground during the take-off and landing roll outs. This very simple modification works very well and my entire tail wheel control system cost less than $5. I bought a couple dog leashes at the dollar store (for $1 each) that had double springs, a couple feet of window sash chain (for about .50 per foot), and six "s" hooks (for about .30 each).

Something else that every Dragonfly builder and flyer (if he does his own maintenance) will have to tackle at some point is how to safely jack and support the airplane. You will certainly need to jack up the airplane once in a while to repack wheel bearings or replace tires, but the plans did not include a hard point for jacking. It does not take a rocket scientist (no pun intended Drew) to understand that you need to distribute the forces of the jacking device unless you want a hole in the bottom of the fuselage or canard, but if you bought an already

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flying Dragonfly you might not realize how important this is. I recently had a need to jack up a Dragonfly that I was working on and I had boards and foam blocks stacked up and it was not the best way to do things. If you just have to jack the airplane up an inch or two to change a tire and you have a helper, it is probably not a big deal to just rig something up. If you need to jack the airplane up high enough to remove a MK-II gear leg, you need to come up with a safe solution. Al sent me a few pictures of a fixture that he built out of some scrap lumber to support an ordinary inexpensive hydraulic floor jack that most of us have in our shops.

In the upper left photo you can see the fixture and the piece of lumber that Al uses to distribute the load. I use a piece of plywood about 12" x 12" with a piece of 1/4" thick foam pad to keep from scuffing the bottom of the canard. In the upper right photo you can see the notches cut in the deck to keep the wheels from rolling around. In the lower left photo you can see the rig in operation with a support structure that serves like a jack stand. If you are removing your MK-II gear legs (or a variety of other tasks) you will want to make sure that you can safely keep your Dragonfly from falling off the jack stand if you happen to bump up against something. Al built a nice plywood box (probably out of scraps again) and put a piece of foam on the top to keep from scuffing the paint on the bottom of the canard. This is an excellent way to support your Dragonfly while you are working on it...much better than the wood and foam blocks that I recently used.

I really appreciate the tips that Al provided, hopefully many of you will find them useful—THANKS AL!!! Al provided me a few photos, a couple of hand drawn sketches, and some text to describe what he was showing me. This is the kind of stuff that makes the DBFN yours. I would ask for each of you to take a few minutes and send me an email or letter with a few photos telling me what you are up to with your Dragonfly. It might not make it in the next DBFN, but if I think it will help other builders or flyers you can bet that it will make it in a future newsletter. THANKS AGAIN AL!!!

Jeff

Hard Copy DBFN Archive

I have found a cheaper and hopefully more professional way to do the hard copy back issues of the DBFN. I have found a local source that will print and bind the newsletters with a spiral binding. There will be a total of 6 volumes to keep the thickness of the documents manageable, all total there is almost 1400 pages of newsletters. Volume 1 will contain issues 1-31 (269 pages), volume 2 will contain issues 32-46 (220 pages), volume 3 will contain issues 47-65 (226 pages), volume 4 will contain issues 66-88 (217), volume 5 will contain issues 89-106 (218 pages) and volume 6 will contain issues 107-124 (216 pages). The obviously useless information has been deleted to reduce the cost.

This will be much better than me standing at the copy machine (for hours) and it will even be cheaper and more useful since the newsletter will have a spiral binding. The volumes will have a clear plastic front cover and black vinyl back cover. The old newsletters have some very interesting and useful information; a complete set of newsletters should be part of your library if you are building a Dragonfly.

Since several people have expressed an interest in the archive, a mass-purchase price is going to be less than I originally quoted. The introductory price is going to be $120 USD (just 97 cents per issue) plus shipping for all 124 DBFN issues. I say all 124 DBFN issues, but as of today only 122 issues have been published. I hope to have enough material to get #123 out the door before 20 NOV and I am going to do my best to get 124 completed before 15 DEC. To take advantage of the cheaper media mail rate for guys in the US, I will probably have to split the shipment into 2 different packages to keep the weight below 10 pounds.

This introductory price is only good for this initial mass purchase. After this initial offering is complete, the normal price (as of 18 OCT 06) is going to be $135 plus shipping for all 6 volumes. I am a very trusting guy, but I am not going to go out and purchase these newsletter archives that I have not received payment for. I do not want to spend my money on something that is just going to take up space and collect dust. Please email me at jeffrey.letempt@us.army.mil or call me at work (573) 596-0165 or at home (573) 364-2545 ***(before 2030 central time please***) with your address and I will calculate a total delivered cost for you. There are several people who are chomping at the bit to get their back issues so I do not want this to drag out for several months. The deadline for this special offer is going to be 31 DEC 06, so if you want to take advantage of this offer you better not drag your feet. Once I get at least 5 orders I will send off the order to the print shop.

I want to make sure that everyone knows that the reproduction quality of issues 1-31 is not perfect. Many of those early issues were printed on pastel colored paper, all were (probably) done on a typewriter in a small font, and most of the pictures were dark. They did a good job with the technology they had (except for those pastel colors). What this means is that most of the pictures in these reprints will not be of much use since they are so dark. All of the text is readable and all of the line drawings are completely usable, just the photos (very little technical value) are basically worthless. Ok…some of the pictures are ok, but I want you to know right up front that most will not be of much use (there were not all that many photos in these newsletters).

Personal checks and money orders are ok. I can not accept credit cards, but I can gladly accept PayPal payments for an additional 2.9% + 30 cents (this is what PayPal charges me). You can use PayPal to pay with your credit card. Of course I would encourage everyone to take this opportunity to renew their DBFN subscription for 2007 at the same time.

Before the next DBFN comes out I hope to have the details of the DBFN electronic archive worked out.

Jeff

Classifieds

For Sale: Dragonfly MK-IIH. Engine: Modified HAPI/VW with pulley driven alternator, Airflow performance fuel injection, etc. Engine and airframe 170 hrs. The aircraft is located in Norway, all ways hangared and in good condition. For more information, pictures etc. contact Torvid Lensebakken via email lensebakken@telefonica.net

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 (801)-479-7446 or email OneSkyDog@aol.com

For Sale: Composite spinners for the Dragonfly $180.00. Call Tim at 310-386-8354 or email dflypilot@yahoo.com

For Sale: Polystyrene Blue Foam For Sale – Make offers – Some of the foams have already been professionally hot wired - canard, wing, rudder, elevator etc. Some are blank/uncut. Also have ½ " Clark foam Located at the South Lakeland Airport (X49) in Florida. Pictures and more detail available via email request. (863) 646-2612 or email at cgentry12@msn.com

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. (863) 646-2612 or email cgentry12@msn.com

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 stieggrinding@aol.com

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