

WINTER 88"
ISSUE #31



DRAGONFLY SWARMING

This years get together was I believe the best we have ever had; certainly with more Dragonflys in attendance than we have ever had before. Counting the two already based here there was a grand total of nine (9) Dragonflys here this year.

Most of the guys came over from California. From the Chino based gang we had Troy Burris and Jerry Scott. Jules Geiger's airplane was sitting in the hanger all fueled up and ready to come here but his daughter picked the same time to produce Jules a new Grandchild, so Jules didn't make it this year. I am sure the new Grandchild was worth missing the trip for Jules. Congratulations!

From central California were the Evans brothers Gene and Guy and their beautiful Dragonfly. This is the second year for them here, and Jack Shafer showed up third year in a row with his father and co-builder holding down the right seat. It's really great to see a father and son team like this, first building the airplane and then enjoying it together. Jack and his father are partners in a farming operation in Parlier, California.

Jack had a little bit of excitement on the trip over here, it seems that climbing from Bakersfield, California to come through the Tehachapi pass they were just about ready to go through the gap in the mountains when Jacks' engine suddenly quit

with no warning. Jack immediately turned back and set up a glide for the valley and started going through a cockpit check trying to figure out why it quit. After pushing and pulling several gadgets, the header tank gauge caught his attention showing the header tank was empty. Then the light bulb between the ears came on! Jack had installed a separate switch on the fuel pump and had forgotten to turn the fuel pump on at take off in Bakersfield, so after 20 to 25 minutes of climbing he ran out of fuel.

Jack said that he turned the pump switch back on and in a matter of about 5 seconds the engine, which was still windmilling, was back on line and putting out power so he was able to turn around and go back the other way and continue the rest of the trip to Eloy without any further incident.

Later in this newsletter we will have a sketch of a little "no fuel flow" warning light that you can put in that line between the fuel pump and header tank that will come on BRIGHT RED if there is no fuel pressure. i.e. you run out of gas, or you are running out of fuel on the main tank or perhaps just forgot to turn on the fuel pump.

Also had Justin Mace of Tucson here in his Dragonfly; of course it's here most of the time anyway. Larry Brown from the

Phoenix area was down in his modified Dragonfly that sports a kind of a inverted gull canard. It looks pretty nice! Didn't get any details on how it flies but it is out of restriction now.

Nate Rambo was here for, I believe the 4th time in his Mark I, one of the first few Dragonflies to be finished.

We did have a great time at our annual get together, some of the builders having arrived here as early as Thursday. Most of the airplanes flew in on Saturday morning and left again noon on Sunday. As has been their habit for the past years that these guys have been coming here, Troy Burris, Jack Shafer, the Evans brothers, Jerry Scott, and Justin Mace kept their airplanes going up and down almost like yo-yo's giving different builders and 'would be' builders rides in their airplanes. I don't know how many separate flights were flown in the two days here, but I am sure that each airplane probably hopped from 15 to 20 different people.

I certainly want to take this opportunity to thank the guys who do come every year and are so generous with their time and with their airplanes in giving everybody rides. It helps the enthusiasm of the builders that have yet to finish their airplanes and I noticed the builders usually pick out the airplane in the bunch that they would like to pattern their airplane after and try to get a ride in that particular airplane.

Justin Mace's airplane has the seat back bulkhead moved back 4" and the gas tank moved back for Justin's extra 6'4" height, so we tended to put all the real tall guys in that airplane.

Almost all the Dragonflies that were here are heavier than the prototype which now weighs in at about 635 lbs. We have other Dragonflies here weighing empty as high as 740 lbs. So guess who got all heavy guys? I wound up with all the heavy guys in the prototype, the heaviest one admitting to 260 lbs. and those that were here will tell you that there wasn't anybody climbing out at any steeper angles than I was or getting off the ground any quicker. I think Dragonfly demonstrates pretty well that the airplane is quite capable of carrying weight and some of the guys are running engines that are quite a bit bigger than what I am running. I am running the very first of the Magnum Plus engines, which is a 2.2 liter, and many of them are running engines that are 2.3 liters.

We had, all totaled, about 150 people show up of which 135 stayed for the banquet

on Saturday night.

This year we did quite a bit of flying and a lot of just sitting and exchanging ideas. As the Dragonfly movement develops the airplanes are constantly being modified with the builders incorporating their own ideas and innovations into the airplane. Some of the ideas are good ones, and some of them don't work as planned. We had a really good session with different builders talking about what they've done that works well, and sometimes what they've done with the airplane that didn't work and caused them problems.

Justin Mace, you may remember from reading in an earlier newsletter, had a flutter problem in his Mark II that brought about the complete redesign of the elevator control system to prevent the possibility of that happening. Justin did tell those assembled that the prime reason for the flutter was in his words "sloppy workmanship". I don't believe I would have put it that strongly, Justin is a better than average builder, but did slip up in that area and as a consequence had a flutter problem. We tried to design that possibility out by getting rid of all the bolts holding torque connections, welding everything up solid and I believe it has worked.

A great many words were said about sanding and finishing these airplanes. As many of you have found by know, building it doesn't take nearly as long as sanding and finishing and everybody wants to have an airplane that looks like a piece of molded plastic when it is all done.

The Evans brothers' Dragonfly certainly has to rank as one of the best finished Dragonflies I've ever seen and I've gotten some good input from Gene Evans on finishing. Since the Dragonfly was first designed back in 1979 and 80, there have been a lot of materials improvements and a lot of knowledge gained in how to sand and finish these fiberglass airplanes with the least amount of effort to produce the best finished results.

Dragonfly plans call for the use of micro balloons mixed with Saf-T-Poxy as a smoother and filler. Many of you who have sanded this combination know that it is sometimes very tough to sand, particularly if it is not 100% cured.

The Gougeon Brothers West System epoxy is much better for this purpose than is Saf-T-Poxy and is recommended by Viking Aircraft now for all external finishing and sanding operations.

At this point in time we are still recommending that Saf-T-Poxy be used for all the structural lay-ups simply because

we have no experience or test data using the West System epoxy for major structural lay-ups such as spars, wing, canard, etc. We do understand that Rutan is using the West System extensively, but until we have some solid data that the West System is equal to or perhaps better than Saf-T-Poxy for structural lay-ups we believe that you should stick with the Saf-T-Poxy. Perhaps we can obtain that data by the time of the next newsletter.

I don't know how toxic the West System is compared to Saf-T-Poxy. You should use all kinds of precautions and take every measure you can to protect yourself from any epoxy system. Failure to do so can result in an allergic reaction to that can make you very sick! A lot of builders have come to a screeching halt in their projects because they got bitten by the epoxy.

I personally am very allergic to Shells Epon Epoxy that used to be used in building up KR-2's. I can't even mix a batch of it with absolutely no skin contact without getting a violent reaction; however, Saf-T-Poxy doesn't bother me in the least. I understand that other people are allergic to Saf-T-Poxy. What this tells me is that not all epoxys are alike. Possibly the ingredient in Shells Epon that I am allergic to does not exist in Saf-T-Poxy. Perhaps the ingredient that some of you might be allergic to in Saf-T-Poxy does not exist in the West System. I don't know the medical and chemical answers to some of these questions. I simply know that one kind bites me and the other doesn't. It could be the same for you.

I'm kind of rambling on through this newsletter but several thoughts came up at the Swarming that I wanted to touch on.

Included in this newsletter is a list of the Dragonfly builders who were here at the Swarming. Many of them have been here several years in a row. This past Swarming was the 6th Annual Swarming. Several people have attended every one.

There still does seem to be builders around the country who are groping around in the dark, and I've heard that some state they can't get the information they need to build the airplane. I just read about one recently in Kitplanes having some problems installing a set of Mark II Landing Gear. The builder couldn't figure out how to put the gear legs in a Mark II and said he didn't know who to ask about it.

A lot of the projects have changed hands and the current builder is not the original builder. Perhaps the new builder doesn't realize that builder support is available to all Dragonfly builders whether they were the original plans purchaser or

not. There is a plans transfer fee to cover what many times involves going back over the same builder support questions that we already answered for the original plans purchaser, but nobody building a Dragonfly is ever denied access to builder support.

BALONEY DEPT.

We are still hearing stories of how a Dragonfly won't slow down for landing and that it takes 15,000 ft. of runway to get it down and stopped and all that sort of baloney. If any of you have those kinds of doubts in your mind you might get in contact with anybody who was here at the Swarming and ask them if they saw any of the Dragonflies that were here having to use a lot of runway to either take-off or land. You might also ask them about the ride that they got in the Dragonfly. What did they think of it? Did it perform as advertised? Ask any question that might be bothering you.

It's not at all unusual for me to get somebody in here interested in the Dragonfly; give him a ride in the prototype and the guy will just be amazed that the airplane operates very nicely in 1600 ft. of runway, is quite capable of steep final approaches and doesn't take a Superpilot to fly it.

I particularly enjoy getting the kind of pilot who has been filled with bad information, usually by someone who has never flown in a Dragonfly or even knows a pilot who understands how to fly a Dragonfly. Because after a ride I can send this guy out as an emissary who's been there and he will tell people in his particular area what it's really like.

Again, I invite any of you guys who are building a Dragonfly and have any doubts or misgivings to come over here to Eloy, even if you live clear across the United States. If you buy your tickets ahead of time, airline fares are super cheap. Fly into Phoenix, rent a car for about \$15.00 a day and come down to Eloy. If you prearrange it and let me know when you are coming, I guarantee you I'll be here. We'll put you in the prototype and put it through it's paces from extremely slow speed flight to very high speed flight. I guarantee you'll go away AMAZED at the capabilities of Dragonfly, but best of all, you won't have to be wondering anymore, "Am I building an airplane that has been misrepresented or is too much for me to fly?"

DRAGONFLY FIRST FLIGHTS

At this point in time, I have checked out 43 Dragonfly builders, helping them get

ready to become Dragonfly pilots. Of those, only one has ever seriously damaged his airplane. Jack Shafer, a low-time pilot at the time, got out into a gusting wind situation doing high speed taxi tests and the airplane got off the ground. Jack got a little behind it and he broke his Mark I canard. Jack's letter describing the whole incident in detail is in Newsletter #15. Jack's flying a Mark II now and has a couple of hundred hours on it. The important thing is, pilots who get checked out in the prototype are not breaking their airplanes.

I don't know if you've tried to buy any hull insurance on an airplane lately, but the prices of it are astronomical, if you can even find somebody willing to sell it to you. I still believe that the best hull insurance you can have on an airplane is a qualified pilot at the controls. We're here at Viking to give you pilot training in the prototype Dragonfly. Such a service to our builders is absolutely unique in this industry; absolutely no other manufacturer has ever done this before and I don't see anybody doing it now.

For several years now, I have taken you guys in the Prototype and given you flight instruction to the point where you can go out and fly your own Dragonfly knowing how the airplane should fly, how it should take off, how it should land, how it should look from inside the cockpit and how it should feel. The program has worked. The guys who have come here and had the training aren't breaking their airplanes.

I beg you guys, before you get ready to fly, spend a few dollars. You've already spent thousands of dollars to get that airplane to flight ready status. Now spend a few dollars, even a few hundred if that's what it takes to get your 'bod' out here and into the prototype. Let me check you out so you don't break your investment. It's the cheapest insurance you're ever going to be able to buy. Dragonfly is a high performance airplane. Most of you guys that I have flown with have never flown a high performance airplane. It's easy to fly, but it is different from what you are used to and you need to get some background and understanding of the aircraft you're getting into.

It is interesting to note that I have flown with a lot of different pilots, some of them with low time or no time, and some of them very high time pilots. The guys that have several thousand of hours of experience, such as military pilots, airline pilots and such, are the guys that will take the opportunity to get a check-

out ride in the airplane, even though they have thousands of hours experience in perhaps dozens of different kinds of airplanes. They will always take the check-out ride if it is available, because they know that's the way to avoid having an airplane humble them.

CABIN HEATER

The late Del Bradley worked out a clever way to make a very effective little cabin heater. It doesn't put out a great amount of heat, but I've found in flying the prototype that you don't need a great deal of heat. The nature of the foam/fiberglass sandwich is such that it works like an insulator and you get a lot of solar heat from the canopy. I have flown at 12,500 with the outside air temperature minus 10 degrees for a couple of hours and had only my feet get a little bit chilled.

When I bought and flew Del Bradley's airplane out here to Arizona from Missouri last year, I got a chance to use his little cabin heater that picks up air circulated through the oil cooler, then uses that heated air ducted through a control valve near your feet to warm the cabin.

Justin Mace has just finished installing one in his bird and it seems to put out more heat than Del's does.

The sketch shows the makeup of the valve, a push/pull cable of the automotive choke type is used to actuate the valve from the instrument panel.

A little fiberglass duct that you need to make to go behind the air cooler covering approximately half of it is made quite simply.

Take a piece of blue foam. Cut it and contour it until you have the exact shape that you want for your duct, covering half of the oil cooler, then necking down into a round section that will just fit inside a piece of 2" aeroduct tubing (available from Aircraft Spruce and Wicks).

After you've got the shape you need, cover the whole outside of the blue foam with masking tape, putting it on as smooth as you can. Over the masking tape apply a very thick coat of paste wax (I use Treewax, available at most grocery stores). Now you do a layup over the outside of the masking tape and wax, about three layers of six ounce cloth will be quite adequate. Let that cure, dig out the blue foam with a screwdriver and then peel away the masking tape on the inside of the ductwork and Presto!, you have a nice little duct for your cabin heater. That same little trick with the blue foam and masking tape can be used to make all kinds of little odd ball shapes that you might need in your airplane.

NEW DEVELOPMENTS

The Dragonfly has undergone quite an evolution in the eight years the plans have been marketed.

The aircraft was originally designed to be powered by 1600cc modified Volkswagen engine and weighed in at 600 lbs. empty weight. Designer Bob Walters built it very simply with minimal daylight VFR instrumentation, one little radio, no lights and very few creature comforts.

The first thing the builders wanted was starter, alternator and dual ignition. Of course, that added about twenty pounds to the engine weight. Most everyone wanted more radios and goodies in the cockpit along with plush upholstery and such...more weight.

A lot of the builders build some pretty wet layups and leave a lot of resin in there and some of them improve and strengthen the airplane even though it isn't necessary... more weight.

Then we designed the Mark II canard with the fiberglass spring legs, hydraulic brakes and such. Made a nicer airplane out of it, but..more weight.

The net result is that far too many Dragonflys now are weighing in at 700 plus pounds empty weight, which is equivalent to having the weight of a person sitting in the right seat even when you are flying solo. It's quite common now for the overweight airplanes to be sporting big engines and they do perform beautifully on them.

As a result of these bigger engines, we are now pushing these airplanes faster than ever; in fact, some are capable of near red line speeds in level flight.

Justin Mace and I were flying from Tucson back here one evening in his aircraft when indicated 175 mph would put the true airspeed at about 185 mph in level

flight.

We are installing a new Magnum Plus in a super nice Mark I now and expect that airplane to be possibly the fastest Dragonfly ever.

WORDS OF CAUTION

Because our speeds are getting higher; in fact, much faster than the airplane was designed to go or expected to go, we have to start looking again at the airframe itself. In Justin Mace's airplane we added mass balance elevators some months ago and we have just added fully mass balanced aileron.

Justin's airplane has also had heavy aileron control forces and we are experimenting with servo tabs on the ailerons to reduce the control stick load and provide a more harmonious balance between elevator and aileron input. See the picture. We'll let you know in the next newsletter how these servo tabs have worked out, whether good or bad, AFTER test flying it, adjusting it and then putting enough time on it to feel secure in offering it to you.

We have a couple of more new ideas that are going to be incorporated in Dragonfly in the next few months. We think there's no airplane so good that it can't be improved and it is the nature of these beasts that they do get continual improvement over the years. It is our policy when we do come up with an improvement, to build it, install it on the airplane and put lots of hours on it to prove that it does work before we offer it to you.

MARK II LANDING GEAR LEGS

There's getting to be an awful lot of Mark II Dragonflys flying now, either new airplanes that were fitted out originally as Mark II's or Mark I's that have been retrofitted with a new canard or simply the Mark II gear leg system.

With that many Mark II's out in the field, it is inevitable that some people are going to break gear legs. Now, don't let that alarm you. The Mark II gear leg was designed to break under an extreme load, providing a weak link and saving the canard.

The first set of Mark II gear legs were put into a drop test fixture, the fixture was then loaded down with lead to simulate the weight of the airplane and the gear leg assembly raised in the air to a height of 27 inches. A greased steel plate was placed under the gear leg wheel and tire assembly so that when the assembly was dropped the tire would come in contact with

the grease plate allowing it to skid out in any direction.

The Mark II gear legs were designed and tested through FAR part 23. The drop tests were repeated until the gear leg ultimately failed at 1.7 times FAR part 23 requirements. The leg did fail in the transition area where it changes from a straight shank and bends over to go around the wheel. Subsequently, the field failed legs have broken in the same place. To my knowledge no one has ever damaged a canard when they broke a gear leg.

We are certain that the gear leg is more than adequate for the job as designed. I personally have flown a little over a thousand hours on the prototype without having any gear leg breakage problem, in spite of the fact that I have trained, I believe, 42 different pilots to fly in it and the airplane has been treated brutally without damage. I think that gear leg failures in the field are caused by two reasons, both of which can be eliminated.

On a couple of gear leg failures that we have seen, we note that the gear legs have not been properly wrapped with bi-directional cloth and perhaps more importantly they have not been well sanded before the bi-directional cloth was put on, so here are some steps that are absolute MUSTS in installing the gear legs:

A. Round all the corners on the gear leg to a 1/8" radius and thoroughly sand with 240 grit sandpaper to remove ALL traces of the mold release wax that's used in the manufacturing process on the gear leg.

B. Cut strips of 6 oz. bi-directional 8" wide and wrap the gear with two layers getting three sides from the top side, then turn it over, repeat the procedure getting three sides from the other side. (See the sketch) The net result is you'll have four layers of six ounce on two sides of the gear. If you're really concerned that you're going to land hard and break something, you could wrap carbon fiber around the goose neck area on the gear leg. BE AWARE THOUGH: If you strengthen up the gooseneck too much, and make a hard landing, you run the risk of tearing the gear box out of the airplane, which is a very expensive repair. A broken gear leg costs you \$150.00 and a little bit of work. A broken canard is \$2500.00. That's the main reason we went to the Mark II gear leg in the first place.

The second reason for breaking Mark II gear legs is just simply inadequate preparation for flying the Dragonfly. Believe me, guys, you do need to be checked out in the airplane before you start your test flying program. If you can't get out

here to Eloy, find somebody who has a Dragonfly and get a bunch of right seat time in it.

I've noticed that almost every 'would be' Dragonfly pilot I have flown with tries to land the airplane sideways. It appears that the novice Dragonfly pilot tends to try to line the side of the nose up with the runway and since the side of the nose is at a pretty great angle, we wind up with a pretty great angle with the runway, touching down going sideways and from the reports I get, this phenomenon is responsible for a couple of gear leg breakages.

To counteract this problem, when I'm checking out someone in Dragonfly, I take a strip of black vinyl tape, put it right in front of him down the nose, parallel with the centerline of the airplane so that he has a visual reference point to gauge by, so that he can know that the airplane is straight with the runway.

I have instructed people in Dragonfly with absolutely no pilot time in any airplane up to airline pilots with thousands of hours. The airline pilots are used to flying airplanes by the numbers and when given the airspeeds for take off, approach and landing, and after having been shown the proper attitudes, they don't have any problems with the airplane. I've also found that very low time pilots or no time pilots who don't have deeply imbedded habit patterns ingrained in them from having been taught to DRIVE a Piper or Cessna in the so-called flight training schools are easy transitions.

Wayne Ulvestad was a good example of that. Wayne didn't have a whole lot of hours, was just a fresh pilot and his habit patterns were not so deeply imbedded but what it was easy to teach him different ways of doing things in this particular airplane.

There are three things you have to learn how to do to land a Dragonfly properly. First of course, is to control your airspeed and attitude down final. If you have the attitude right, the airspeed right, and you're not wandering off the heading, you're lined up on the runway and everything is rock solid and steady, all you have to do is take care of the second step. Which is; flying down smoothly to the runway, then leveling off with the wheels no more than two feet above the runway, pulling all the power off, if you're still carrying a little power, and then maintaining your position right over the centerline and your altitude at one to two feet above the runway until the airplane dissipates what's left of its' flying speed. It'll touch down smoothly every time if you do this. If your attitude is right, it will touch down on all three wheels at the same time and will be all through flying the first time it touches down.

This is why I spend so much emphasis in transitioning pilots in good approaches and conditioning them to not break the rate of descent as their Cessna and Piper trained habits dictate, 15 feet above the ground, but stop the rate of descent at about 5 feet above the ground, then leveling at two. Most all of the Cessna and Piper pilots tend to flare way too high and many times in Dragonfly they wind up stalling the airplane 10 feet in the air and of course, it is going to drop hard then.

A very good exercise to prepare you for flying a Dragonfly, whether you have a taildragger available to you or not, is to repeatedly practice making approaches, no flaps, coming down and stabilizing whatever airplane you're flying, holding the wheels two feet off the runway and flying the length of the runway, maintaining that altitude and staying over the centerline. If you practice doing that in whatever you're flying to the point where maintaining your position above the runway and your altitude has become second nature, you'll have very little problem in flying a Dragonfly.

The bottom line is this, guys. There's absolutely no reason for you to be afraid of this airplane. If you don't have taildragger time, get some before getting into it. If somebody were to give you an old Luscombe, you'd get yourself a check out pilot and get thoroughly checked out before you soloed it wouldn't you? It's a very foolish thing to build an airplane that you're emotionally involved with and then get into it and try to test fly it if

you've never flown an airplane of the same type and particularly if you don't have any taildragger time.

If you've never flown in a Dragonfly you'll have no idea of how the thing should look and feel from the cockpit in the air. In other words, you'll have no frame of reference to know what is normal and what is abnormal, so you really cut yourself a big job and stacked the odds against yourself, if you don't get some check out time and don't get yourself properly prepared with taildragger experience before you try to make that first flight.

I strongly recommend to all of you that you consider letting somebody else test fly your airplane if you have a good experienced Dragonfly pilot in your area and he's willing to do that. He'll know what it should feel like and fly like and not being emotionally involved, he'll be able to analyze things objectively and will quickly pinpoint any problem that your new airplane might have.

Most new airplanes do have trim problems to some degree on the first flight. Any first flight, regardless of how smoothly it goes, will put its' test pilot in a high stress situation. The pilot with considerable Dragonfly piloting experience though, will be under a lot less stress than an owner/pilot with no Dragonfly flight experience.

I have test flown twelve new Dragonflys in the past few years. I find that based on my experience in flying Dragonflys I can spot an out-of-trim condition sometimes before actual lift-off and shut it down, if it's a pitch axis problem and immediately after lift-off if it's a roll axis problem. In either case, I simply shut the airplane down, land and we've gained a lot of information without putting me in danger or putting the airplane in any danger. I'm not saying that I'm real smart, I've simply got enough experience in the airplane to recognize a problem very quickly and I'm sure anybody with a couple of hundred hours of Dragonfly flight experience could do the same. Think about it guys. You've put a lot of time and effort and money in these airplanes and I've never heard anybody say that fixing a busted bird is fun. Let's try to avoid breaking them because of lack of experience.

LETTER FROM DOWN UNDER

Dear Rex,

How are you? It's probably been 5 years since I last wrote.

For some months now I have been planning to build a new canard with inboard

undercarriage during 1989. This has now been brought forward due to an unfortunate accident with my Dragonfly.

On 6th August '88, my Dragonfly suffered engine failure on take off at Proserpine, Nth Queensland. It was 8:00 A.M., 7 /c O.A.T. and 90% humidity. Unfortunately, my inexperience in flying in sub-tropical climates came through as I didn't recognize the signs which should have told me to use carby heat. Carby ice caused the engine failure when I was about 2 ft. off the runway and 55 knots. My Dragonfly dropped onto the runway and began bouncing. Without power to get out of this situation, I felt helpless knowing it was going to break.

The damage my Dragonfly incurred was a broken canard, broken propellor, split tailspring, damaged rudder and a scrape under the fuselage.

I am about to build a new canard. I would like to ask your opinion on building the canard flat on the bottom rather than flat on the top. By building the canard flat on the bottom, I could retain the aesthetic appearance of the anhedral canard.

You are quite welcome to use my letter in your newsletter if you wish to do so.

I hope to hear from you soon.

Len Dyson
Victoria, Australia

CARBURETOR ICE

Please note where Len's engine failed him due to carburetor ice just at the point of lift-off. Carburetor ice apparently is not well understood by a lot of homebuilders, and Volkswagon engines with the induction system hanging down below are particularly susceptible to carburetor ice. Carburetor ice very often shows up just about the time you are at the departure end of the runway. I've had it on the prototype several times when I've been over in the coastal areas. We don't often have that problem here in the desert. I got a real scare in Del Bradley's airplane bringing it home from Missouri when I got carburetor ice just at the departure end of the runway in Joplin, MO over a bunch of gravel pits and trees. That will pucker ya!

I've had people that live near the coast, where they have a lot of moisture in the air, cuss our carburetors and call me everything but a white man because the engine sputters shortly after take-off. I am virtually positive in most cases that this is simply carburetor ice and can be remedied by using carburetor heat.

When I'm around the coast I taxi with carburetor heat on. If there is any doubt in my mind about the moisture content in the air I take off with carburetor heat on. I don't need the 100 RPM that pulling carburetor heat costs me to get off and climb out very steadily. If I turn off the carburetor heat I open the door to the possibility of carburetor ice.

Carburetor throat temperature gauges are not that terribly expensive and if I lived in a area where humidity was usually present I'd certainly install a carburetor throat temperature gauge in my airplane so I wouldn't have to guess about the possibility and probability of carburetor ice.

FIRST FLIGHT REPORT

Dear Rex & Phyllis,

I think it's about time that I write you a letter about my Dragonfly N69DF. Since it was early March when I was out to visit you and now it's Sept., time FLIES when your having fun!

Enclosed are some pictures of N69DF which my father and I built over a period of 6 years and 2 months of spare time. We took N69DF to the airport in Oct. 1987 and did some taxi testing before winter set in. Then in March I visited you for a check ride which was well worth the time and money.

I'm a low time pilot with no taildragger experience until I got into N69DF for taxi testing and boy, let me tell you it's a real eye opener if you have never flown a taildragger. It seems it wants to go everywhere except where you want it to go, but after some time it finally comes to you.

When I got home from Eloy, winter still wasn't over in S.Dakota, so I took the time to enlarge the inside of the wheel pants so I could fit some 500x5 tires on the 5" wheels which gave me another 1" of wheelpant and prop clearance. Looks better than the Lamb tires did on it too.

The first flight was on April 15, 1988. I was out 2 evenings before, taxiing and was very tempted when the tail came off the ground, but the sun was just setting so I resisted the urge and put it away for another day.

THE BIG DAY ARRIVED -- I taxied out to the runway, did a run-up and checked everything. Taxied onto the runway, pushed the throttle ahead and the tail lifted at 45 mph and lifted off at 65 mph. I cleared the runway and wondered what I was doing in this fiberglass coffin. Well, after all

the excitement, I kept on climbing out at 110 mph, everything in the green. I went up to 3500 ft. to see where it would stall. It indicated about 45 mph, but there was no indication except a rate of descent, so I figured if I came over the fence at 75 mph I would be OK. Well it took me 5 approaches before I felt confident to land, had no problems whatsoever. I did everything Rex taught me to when we flew Justin Mace's MkII at Eloy. (Thank you, Justin, for letting Rex and I use your Dragonfly.) (NOTE Wayne was too tall to fit in the prototype)

I now have 58 hours on N69DF with only 2 problems. First I kept losing elevator tabs. The first set blew off at about 140 mph and boy, that puts some stick force in your hand. They were built out of basswood and 1/8" plywood. I built the 2nd set as per plans balsa and 1/8" plywood and they came off at about 130 mph. The balsa flexed too much causing the 5 minute epoxy joint to break loose. The 3rd set I built out of basswood and 1/8" plywood and made a wider shoe area where it glues onto the bottom of the elevator and haven't had a problem since. The second problem was discovered at about 30 hrs. on the HAPI 60-2DM engine during a routine valve clearance check. The exhaust valve clearance was .015. Checking further I found the exhaust valve stem tips were dishing, a phone call to Rex solved the problem. He said, "you have a case of soft valve stems", and he had a fix for it. Boy! was I relieved! Rex sent out 4 hardened valve stem caps at no charge (Rex stands behind his engines). I installed the caps, set the valves, and was back flying in no time at all.

Other than those 2 problems the plane works and flies great.

I have been to a couple of air shows and always come home with an award for Best Homebuilt, must have done something right!

My wife, Deb and I recently flew to Spearfish, SD which is on the other end of the state (400 miles) to their airshow. I had a fellow come up to me and question me if it was a prefab kit. I told him I built it from scratch. I don't think he believed me. Come to find out he was one of the judges and I won the Best Composite Homebuilt Award.

Spec's on N69DF:

Empty weight - 648 lbs.

Engine - Hapi 60-2DM

Fuel - 3 1/2 gph

3000 rpm - 127 mph indicated

3200 rpm - 140 mph indicated

3400 rpm - ?

N69DF is built as per plans and we haven't had any troubles with it. My advice to other Dragonfly builders is to get a check ride in one before you fly. The airline ticket and motel are a lot cheaper than rebuilding the airplane. It's frustrating to read about builders in the newsletter (still) breaking their canards because they didn't take the time to get checked out in someone else's Dragonfly.

Sincerely,
Wayne Ulvestad

P.S. Thank you Rex and Phyllis for your hospitality while I was in Eloy, and thank you Rex for taking time out to give me a check ride in Justin Mace's airplane. It was worth it!

LOOKING FORWARD TO 1989

The past year has been a super busy one for us. Just continuing to survive in the homebuilt industry is no small accomplishment in itself. 90% of the other businesses that were around when we started are long since gone.

With the costly lawsuit concerning the original partnership between Bob Walters and Al Nelson that we got involved in and has cost us so much for so long, we have finally won beyond any appeal and it appears that the court will order Nelson AND his attorney (yeah, we got some good tort reform laws in Arizona) to reimburse us for the legal expenses they've caused us to bear.

Expect to see some brand new mind blowing things on a new Dragonfly, not the Prototype, in 1989. Now that the hubbub is all but over, we're going to reactivate Viking and the Dragonfly and forge ahead. (No, it's not getting a Honda engine in it)

This newsletter is running a little late; the next one will run a little early. Be expecting it about the end of January or first of February. Until then, my family and our employees appreciate the confidence and support and your patronage over the past eleven years. We're going to try our best to make 1989 the best year ever. We hope your 1989 is great too!



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