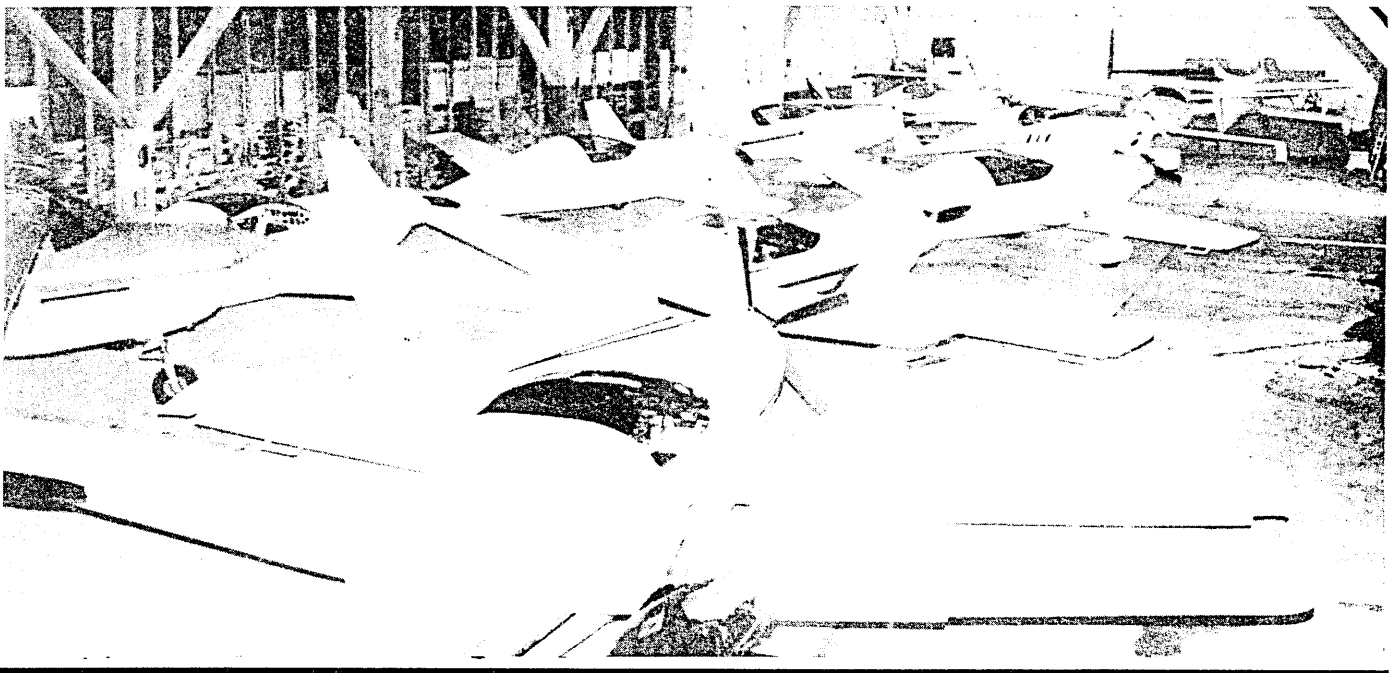


# DRAGONFLY BUILDERS AND FLYERS NEWSLETTER

THE OFFICAL VOICE OF DRAGONFLYERS ALL OVER THE WORLD

VOLUME 48

JULY - AUGUST 1993



## *Eleven birds tucked away for the night, Ottawa, KS. 1992*

The picture above was taken at last years fly-in in Ottawa, Kansas. Dragonfly's, Q-2's and Q-200's all tucked away prior to that evenings banquet. This shot for some reason has been very popular to those who see it. I guess it represents what it's all about, the plane, the camaraderie, the work, the fun! As I write this, the fly-in is only 45 days. We have all ready have received quite a few registration for this years event. Last year we had 27 aircraft! It surprised all of us last year and hope to have as good a turn out again this year. It's important that you fill out the enclosed registration form and mail it today! (Please! I need to know as soon as possible to set up the banquet) Let's support our sport and our tandem planes. There's a big difference between well said and well done. Be there!

### **A FIRST FLIGHT!**

First Flight

Hi Spud!

I just wanted to write to let you know that I just made my first flight in MY DRAGONFLY!. I must say it is singly the most exciting and rewarding thing I have ever done! Wow! It all becomes worth it INSTANTLY! Let me give a little information about the plane. I purchased the plans in 1983, s/n 705. Construction didn't start until 1987 and the first flight was July 7th, 1993. The initial flight was

was with a little heavy left wing and the pitch trim was perfect. This is not a hard airplane to fly! If you can't get checked out in another Dragonfly, some time in a Eagle or a Pitts would help.

Empty weight - 679 lbs., Hapi 60-2DM with Great Plains A/C geared starter and secondary ignition, 52"X42" Tennessee Props, carb & cabin heat, 5" Cleveland brakes, basic VFR flight instruments, CHT & EGT all cyls.

You'll notice that I incorporated a few of the popular mods and a few of my own. They are; forward hinging canopy with struts, shock mounted instrument panels, veneer engine controls, center control stick, notched outer arm/consoles, forward and rear access hatches, extended dorsal fin.

I don't have any solid performance figures yet, they'll follow later. N4388D shares hangar space with a 1948 Stinson stationwagon and with dollies under the gear they both fit with room to spare!

The interior is very spartan, maybe later I'll dress it up later. Way to busy flying!!! I won't have my flight hours flown off before this years fly-in, but I'll be there in 1994 in My Dragonfly!

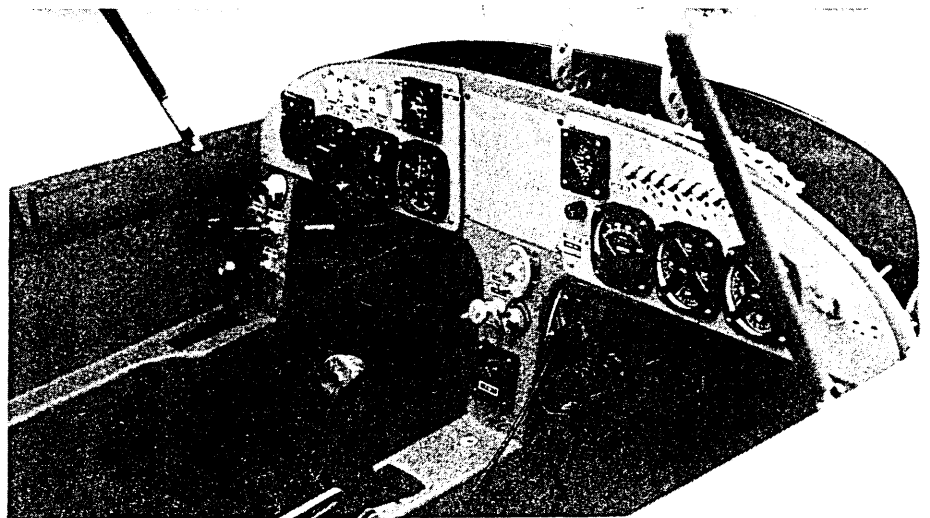
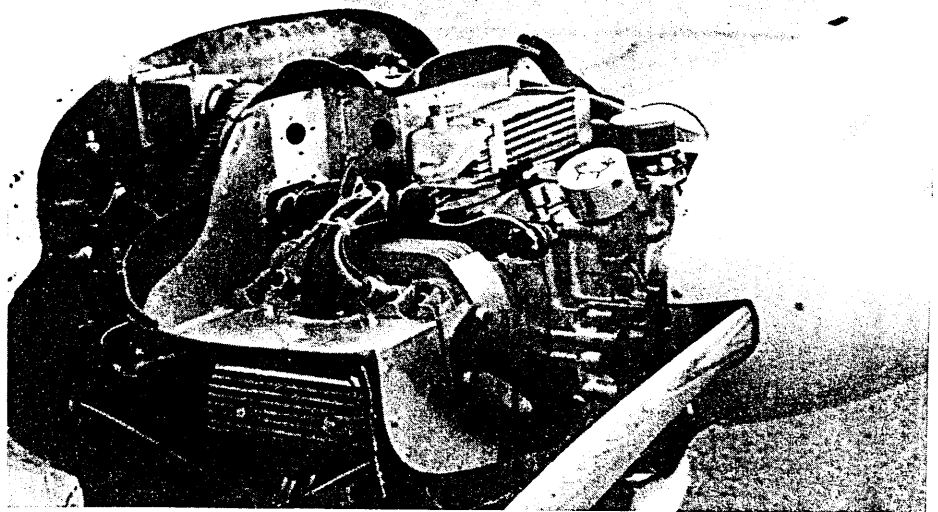
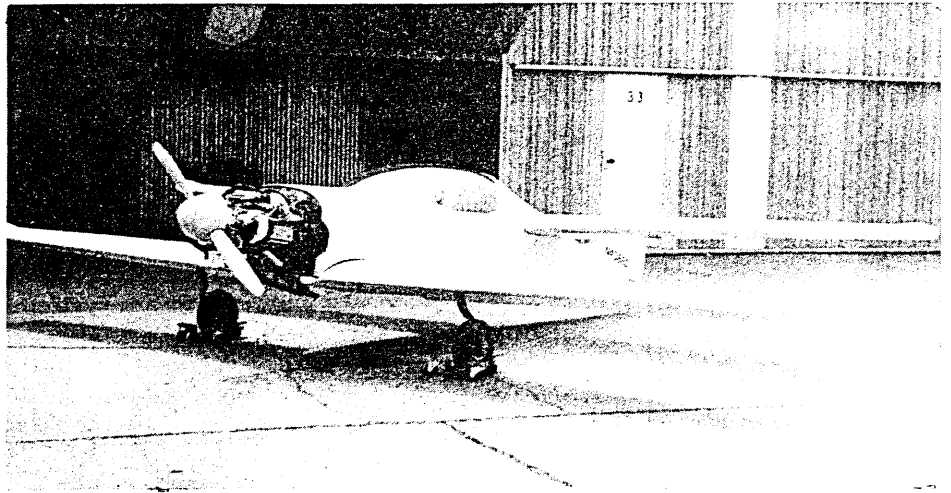
Dan Blaskie

10656 3 Mile Rd.

East Leroy, MI 49051

### **Another First Flight**

Fred Wiebe of Marseilles, Ill. has made his first flight! He has 7 hours on it now. He says he's too busy having fun flying his Dragonfly. He promises that soon as he gets some more hours in and gets his wheel pants installed (such modesty!) he'll send in an official report and some photo's. Congrats Fred!



# ANOTHER ALTERNATOR WIRING OPTION

Hello Spud

One of the area that called for improvement was the Dragonfly alternator system wiring circuit. Pulling the full alternator output through a switch (most of which are DC rated) is not my idea of safe practice. Note what happened to Ted Givens when his switch ground wire burned out. All standard wiring systems control the alternator by controlling the field circuit through a panel switch & 5 amp breaker.

On my plane I've routed the alternator output through a 40 amp, small (1" cube), inexpensive (\$4.95), solid state lightweight (1oz.) solenoid. These solenoids are used by many of the auto alarm installers and are available in both versions N.C.(normally closed) and N.O. (normally open) output contacts. I've chosen to wire mine normally closed. That is, when the engine is running the alternator is hooked into the buss circuit via a 35 amp breaker. If you want to shut down the alternator you energize the solenoid (turn the panel switch on). It can be hooked up to run "switch on-alternator on" by using the other contact. The following wiring diagram illustrates my layout. I do believe it's simple, safe & inexpensive. Any of the builders that may have difficulty finding this solenoid I can help out. See you all at Ottawa 1993.

Regards

Phil Williams

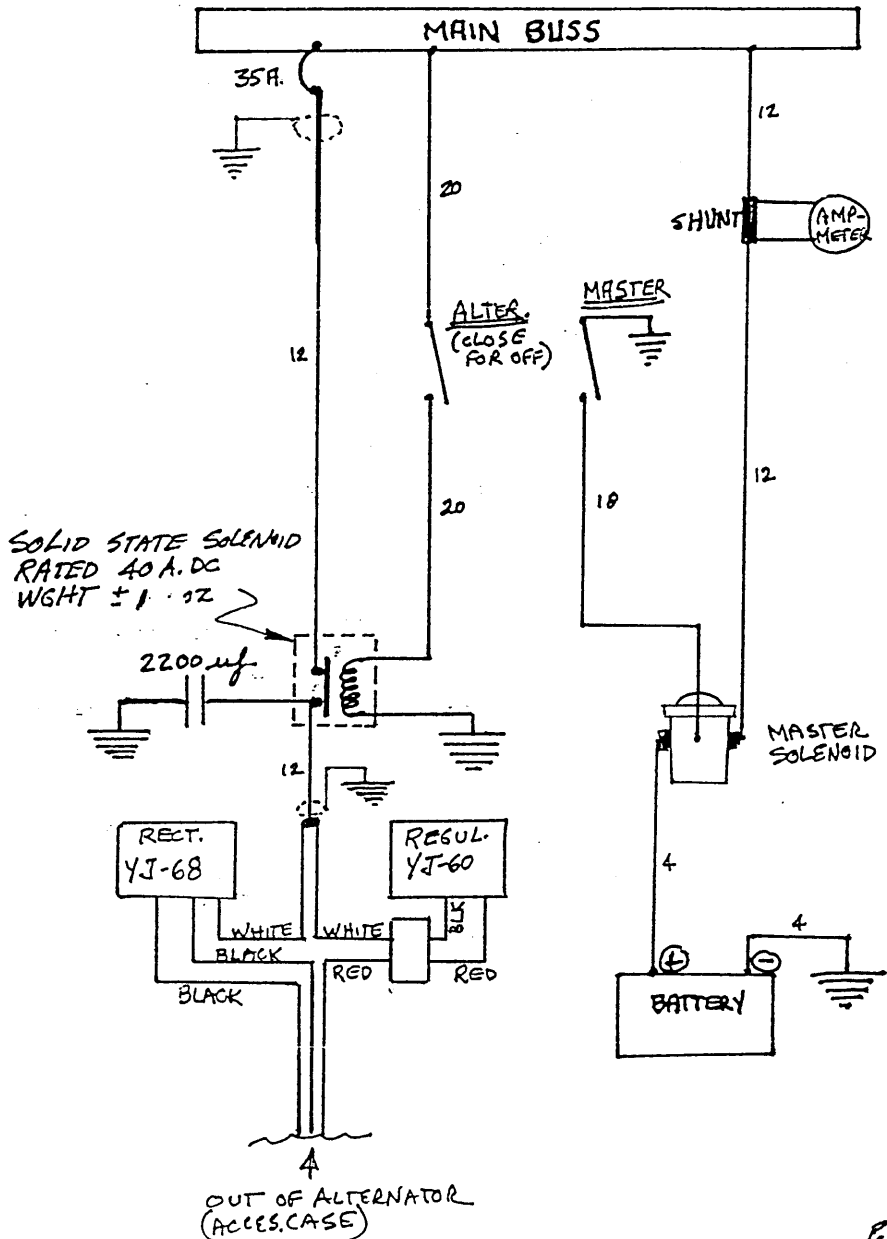
63-53 Haring St.

Rego Park, NY 11374

Day (212)722-3677

Nite(718)424-7242

## ALTERNATOR & BATTERY FEED CIRCUIT N 345 PW



P. WILLIAMS  
6-10-93



## LETTERS AND LETTERS

Spud!

You're doing a great job with the newsletter. They just keep getting better & better! They are keeping the dream alive for me. I now have my neighbor interested in building. We each are raising families on single incomes so building money is scarce, but we are doing what we can. Keep in there for us! Thanks, Ken

We are "Little Guy Aviation at it's best!" Thanks for the support. - Spud

### • Justin Mace checking in

The Legacy engine / Ross drive now has 170 flight hours and 176 total hours since first start. I now have a spinner for the five blade prop, looks OK I guess. The speed didn't change with the addition of the spinner, I thought it would go up a couple a mph at least.

This last winter I finally got tired of brake problems and designed a set of new 5160 steel gear legs. They were very easy to make and cost about \$58.00. I then installed 5" Cleveland brakes. This is the same set up that Piper uses on the Tomahawk. You can never have toooo much braking power. I can now land as short as most other Dragonflys.

My DF with the large engine (never enough power) and the new gear and Cleveland now weighs in at well over what it should be.

I will be attending the big bash at Ottawa again this year. I hope to have a 6 foot long muffler insatllled by the time of the flyin. I will have the quietest DF around as well as the first to gross over 2000 lbs (just kidding!).

Here is a photo of my project. Its the small white one on the left (photo on back page).

Keep up the good work!

Justin "Hollywood" Mace

### • Walterson of Canada

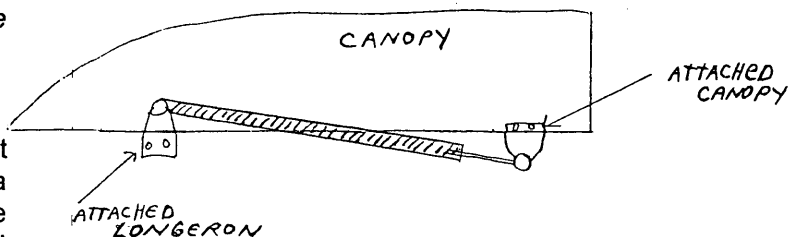
Hi Spud

Must be time to write. I should be flying soon, as long as I get my inspection on time. My Mark II is all finished, only have to transport to the airfield and the final assembly. I'm also going to put a light coat of paint after assembly. When you think you've found all the pinholes, you'll always find some more!

Here's some things that I found when building my Dragonfly that should be of interest to the other builders. Front hinging canopy; I tore apart more hydraulic cylinders trying to get the pressure lower. I

even welded a valve stem so it could be adjustable (looked like hell!). What I finally found was the cylinder from the cap door off a small pickup (Nissan, Dodge D50, Ford Courier, Etc.). This cylinder was rated at 28 lbs., Perfect! 45 lbs. cyls. on the bigger caps are to strong and the canopy warps when closing. If you can get the brackets, they work well also. You can attach them so when the canopy closes the last 2" of closing is past center & canopy is held closed. See sketch below.

For the front attach make a form from side to side in



front of the canopy out of 4130 tubing. Make a V shaded or curved form to act as the hinging mechanism. You cannot just hinge the front or it will bind. The hinge has to come up and out similar to the hood of a car. Sparrow strainers; Make support arms and airfoil as plans, but the arms are a bit bigger. Position everything in place to get the 30 degree relative angle. Drill two holes each side front and back on the support arms. With a Dremel, route out the same screw positions in the airfoil. Put tape on the arms, mix some flox and put it in the airfoil holes. Put the arms in place and slowly insert a 8-32 screw through the arm into the airfoil. Once everything has set, disassemble, clean it up and reassemble. Make a form to hold the assembly 30 degrees relative to the top of the elevator. Flox and glass arms in place. Now if the 30 degrees proves to be wrong for your DF, you can take out the front screw, and elongate that hole with a Dremel. Sketch below.



## MORE GOOD NEWS ABOUT GAP SEAL

Elevator bellcrank; If you are building a Mark II, wait before you extend the arms. Sometimes 2" isn't quite enough. Brake lines; When building the canard and installing hydraulic brake lines. Instead of embedding the actual brake lines, floc in a 1/4 to 5/16" I.D. metal or PCV tubing. Then slide the line thru tubing. If you ever have to replace the line it will solve major problems. Radio location; If you have a center stick system mount your nav/com directly in front or to the left. This makes it a lot easier when you're flying. I made a glass/foam form that sits on top/rear of the wing and follows the inside shape of the turtle deck. This allows me to stuff thing on top of the wing for storage and I don't have to worry about things falling back into the ailerons bellcrank assembly.

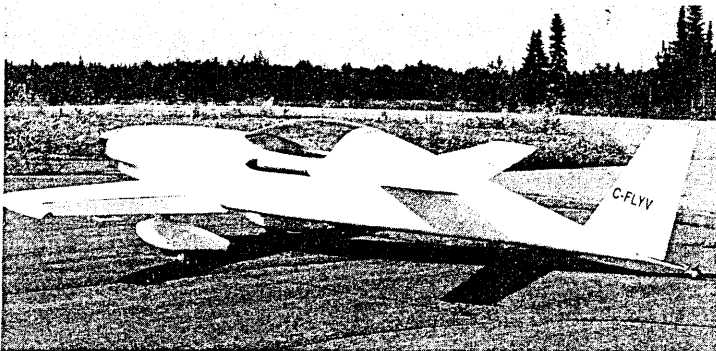
One tool I used during construction was a "Smart Level", it is digital and accurate to 1/10th of a degree. It work out perfectly for setting the wing incidence.

My plane also has a front access cover, oil check access port, com antenna and pitot tube is in vertical fin.

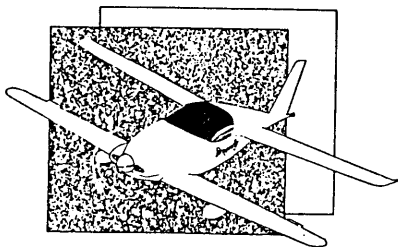
I can go on forever. I hope some of these ideas are hopeful to the builders.

Happy Flying

Chris Walterson Geraldton, Ontario Canada



# DRAGONFLY



Dear Spud

I have some important news to share with all the DBFN readers.

Since completing my Mark I Dragonfly in 1985 I have had a number of nagging concerns with an otherwise very fine aircraft:

1. In the rain (which is rather frequent in Vancouver) my Dragonfly pitched down rather severely and the stall speed went up about 10 mph, making it unsafe to land on anything less than a 5000 ft. runway and almost impossible to take off safely.

2. Bugs degraded the performance almost as much as the rain.

3. Landing distance, dry, was excessive due to the higher stall speed and poor brakes.

4. Roll rate was low and roll forces very heavy.

Recently, I installed the elevator gap seals as described in DBFN #43 and the aileron servo tabs as described in DBFN #40. **Wow!** The change in the performance was truly amazing and has dramatically increased my satisfaction with the Dragonfly!!!! There is no longer any pitch down in the rain. In fact there is a very slight pitch up, but very slight! The stall speed went down about 10 mph indicated, both wet and dry. The servo tabs reduced aileron forces so that the roll is much better balanced with the pitch forces (read that as equal feel). The roll rate is now about double to what it was previously because with the lower force the ailerons now can be moved through there full range of travel at cruise speed.

I had been considering installing Vortex generators on the canard, but the gap seals have proved so effective I no longer need to. I strongly encourage anyone with a pitch down problem with rain and/or bugs to try this fix. It took only about a half hour to install. I would like to thank Reg Clarke for sharing the idea in the newsletter. If he would not of shared that information in the newsletter, I would have never thought to try it. I guess this is why we have the newsletter.

Peter Judd

Vancouver, BC Canada

# MULTICOM

## • Clark Foam Shortage

During this years forum at Oshkosh a gentleman in the audience said he had heard that Clark Foam production had stopped. No one had heard one way or another. Later in the day I asked Jerome, the General Manager of Wicks Aircraft if he had heard anything. Jerome did confirm that Clark has stopped shipping the foam in the dimension that has been used in homebuilt construction over the years. He said there would be several other foams that would work but would not ship until Viking had made the appropriate test and tell them of the new approved material. Jerome felt that Wick's has enough Clark to last thru the end of 1993. We will check deeper into all of our options and will share them wit everyone in future issues of DBFN.

## • Direct Drive Turbo Subaru

Or Reg Clarke is at it again! Hello Spud, I have some interesting information for the Dragonfly group on my EA81 1.8 liter twin carb-turbocharged Subaru engine installation.

Time on the system is 35 hours,. We put on quite a few of these hours on flying down to Arlington 93 where it performed just great.

The unit is a direct drive (No Reduction!), uses a three blade Warp Drive Prop. Climb is very good at 1400 fpm. Cruise depends on where I set the wastegate and the pitch of the prop. Performance is 140 kts at sea level, 155 kts at 6500 ft. and at 12000 ft don't know - fast!. Weight gain was only 30 lbs.. So far it has proved to be smooth, quiet and fast. I haven't dared open it all the way up, I need to work on the cooling system some more. When I get everything debugged and finished I'll send in more solid numbers and some pictures.

Yours Truly

Reg Clarke

Box 6896 T9A 2G5

Westaskiwin, Alberta, Canada

## • West Coast flyin

The Porterville fly-in was a lot of fun for the Dragonfly, Q-2 and Soneri pilots attending. We had four Dragonflies, three Q-birds and about twenty other interested pilots, builders and interested people who spent a lot of time in our camp talking dragonfly. Jerry Scott two time DF builder from Chino showed up in his brand new RV-6.

The Porterville fly-in had about 400 aircraft show up, so it is quite a gathering. We had the opportunity to do some group flying and give some rides on Friday evening and Saturday morning. P-ville is right on the base of Sierra Mountains so we had lots of beautiful scenery, good weather and smooth air.

Gene Evans

Visalia, CA.

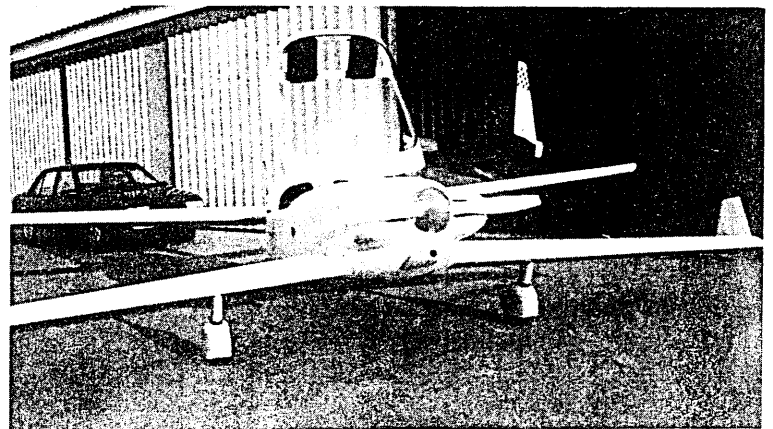
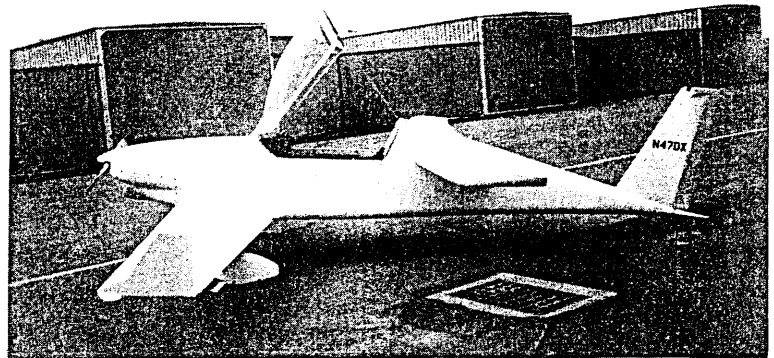
## • Ray Parker's Type IV DF

Hi Spud

I finally got around to sending you some pictures of my Dragonfly. I purchased it from John Rounds of Chino, Ca. in 1991. It has an 85 hp Type IV engine with dual electronics ignition, Ellison throttle body carb, 52 X 47 prop. Winglets on the canard, forward hinging canopy It cruises at 160 mph.

Ray Parker

Citrus Heights, CA.



# COAST TO COAST IN A MK1 DRAGONFLY

Hi Spud,

I have decided to stop procrastinating and write about a wonderful trip my wife, Elizabeth and I took in our Dragonfly in November from Boca Raton, Florida to Sacramento, California. I have enclosed fuel and time enroute data for comparison with other Dragonflies and for those interested in the Dragonfly as a cross country airplane.

Imagine, flying every day in beautiful weather through area with diverse and beautiful topography. We started on a crisp clear day with a headwind which stayed with us throughout the trip both west and east bound. We certainly proved out that old definition of a headwind, which for those of you that haven't heard - it is the wind that blows from you destination! The wind was so intense at times the smoke exiting the smokestacks was horizontal as it exited the chimney! But I really didn't complain as these winds were associated with high pressure in the atmosphere and really nice weather. It is always better to be a little slow than waiting on the ground somewhere for the weather to clear.

We were able to reach Galveston, Texas on the first day of the trip. While we had hoped to make it to Corpus Christi that day, I decided that it was getting too dark to continue. I had just installed my nav lights and was not current for night flying. We made it to Corpus Christi early the next day. We spent all together three night in Texas, one attributable to visiting the in-laws and the balance due to the southeast wind which was blowing a lot of moisture into the area.

After leaving Corpus we were delayed at Beeville (just miles of Corpus) due to weather for a couple of hours and then only made about another hour of flight before having to land at Hondo once again to wait out the weather. Hondo is where USAF provides primary training for pilots and since the weather was keeping everyone down we had about 50 students and a few instructors surround us with inquiries. We left Hondo after half an hour and climbed above some thick clouds to arrive at Ozona with picture perfect weather. We stopped for the night at Van Horn, Texas where we were given a courtesy car and directed to the best food and hotel in town. The next day we made it to El Paso and landed in the rain; this was the last of our foul weather and completed our trip to Sacramento and back to Boca Raton with unlimited visibility. We spent the day in

Tucson and arrived the next day in Sacramento.

We left Sacramento for our return trip on November 26 and decided to fly near the Golden Gate bridge in San Francisco and follow the coast to Santa Maria; then on to Bakersfield and follow the highway through Tehachapi pass and eventually to I-10 and to Florida. Leaving Sacramento we tasted the only real tailwind for the entire trip. From Sacramento to San Francisco we saw ground speeds in the excess of 160 knots on the Loran. But once we turned south things started to get normal. It was a cold day in California and I couldn't help thinking of an emergency landing near the coast. The thought of the cold water made me shiver in the plane, but the beauty of the coast was worth the chance I took. We experienced a dust storm as high as 7500 ft. between Santa Maria and Bakersfield. As we crossed the Tehachapi pass the headwinds and the dust storm ahead worsened and we decided to land at Mojave to check the weather and perhaps get lucky and talk to Burt Rutan. The winds were right down the runway at Mojave so it seemed to be the best place to land. But I didn't realize how bad the winds were until the tower told me to land at my own risk! I decided to try it and landed in the shortest length of runway ever, just like an ultralight airplane! During taxing the tail would rise with slightest power. After parking the plane securely they brought out a big fuel turn in front of the plane to break up the wind and, you guessed it, stayed the night and never got to talk to Burt Rutan.

We went to Scottsdale the next day and stayed two nights for some sightseeing. We drove to the Grand Canyon for one night (it was too cold to fly the Dragonfly since I didn't have heat in mine). We made it to Junction, Texas the next day, then to Pensacola, Florida for the night and to Boca Raton the day after. Our trip legs were shorter on the way back since we lost daylight.

Throughout the trip the Dragonfly and the Limbach performed flawlessly. The engine burned less than one pint of oil for the entire trip! This was an incredible trip that will stay in my memory for ever.

The following is the summary of each trip:

All times local

1. Boca Rtn., FL 11/17 7:30AM - Cross City 10:26 10.7 gal.
2. Cross City 10:45AM - Edwards, AL 12:15PM 9.6 gal.
3. Edwards 12:57PM - Jennings, LA 3:15PM 9.0 gal.
4. Jennings 3:50PM - Galveston, TX 5:05PM 5.0 gal.
5. Galveston, TX 11/18 11:00AM - Corpus 12:40AM
6. Corpus 11/19 9:15AM - Beeville 10:25AM 5.5 gal.
7. Beeville 12:25PM - Hondo 1:30 PM no fuel
8. Hondo 1:50PM - Ozona 3:17PM 8.4 gal.
9. Ozona 3:35PM - Van Horn 5:25PM 6.9 gal.
10. Van Horn 8:55AM 11/20 - El Paso 9:20AM MTN time

# PITOT-STATIC PLUMBING

*By Nate Rambo*

For a long time I have been troubled by the greatly divergent reports on DF performance. One builder claims a top speed of 135 mph while another claims 185 mph. I've looked at horsepower effects and induced drag due to overweight. There has been no simple answer.

One thing I keep asking about is instrumentation. Perhaps you yourself have been flying on you buddy's wing checking airspeed and altitude and two of you don't agree on the numbers. Well, if that's the case then you might look at pitot-static system before arguing a lot or running a calibration on instruments.

There is little to be said about the DF pitot installation. If built per the plans it should work. I might mention that the size of the plumbing is relatively unimportant because there are no flow dynamics to be concerned with. But the pressure integrity is of great importance. There must be no leak in the line from the ram air probe to the IAS instrument. (The working pressure at 160mph is only about 0.38 PSI).

I do have one minor gripe with the pitot installation as designed. It concerns the location of the probe. Mine was always getting bent and I carried plug-in replacement tubes. A number of builders have changed the location for better protection. I finally just shifted to a "Rubber Duckie" type pitot probe in lieu of the rigid aluminum tube. A 6 inch long 3/16" O.D> plug-in plastic tube was selected to be rigid enough to hold shape in the air stream but flexible enough to defy accidental destruction by persons walking to close. It works great!

Let's look now at the static side of the pitot-static system. Some DF builders have found cockpit ambient pressure okay for instrument source. Other have reported instrument errors induced by not having a separate static source.

Static ports usually don't work well when installed any where on the fuselage near the nose. This is partially because of the turbulence associated with the propeller scrubbing losses which can dissipate over 35% of the engine power. After trying various unsatisfactory static port locations I found one that worked on my DF. I installed a port on each side of the fuselage several inches above the bottom aligned fore-and-aft approximately below the rear wing leading edge. A sixteenth inch hole was drilled all the way through from the outer skin at each location. The inside skin and foam were

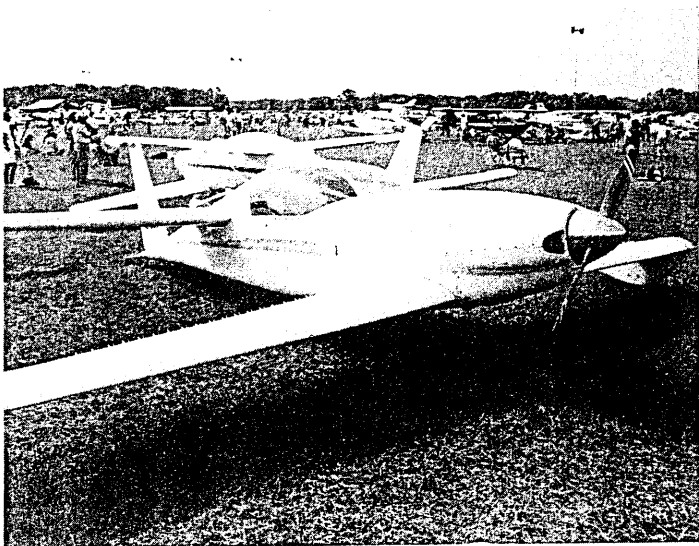
- 4.2 gal.
- 11.El Paso 10:25AM - Cochise, NM 12.25PM 8.1 gal.
- 12.Cochise 12:50PM - Tucson, AZ 1:30PM 2.5 gal.
- 13.Tucson 9:50AM 11/21 - Blythe,CA.11:05PM Pacific time 8.5 gal.
- 14.Blythe 11.30AM - Delano 2:16PM 10.7 gal.
- 15.Delano 3:02PM - Sacramento 5:05PM 8.2 gal.

**Total time: 33.2 hours Total fuel:103.3 gallons**

**RETURN TRIP**

- 1.Sacramento, Ca 11/26 9:10AM - Santa Maria 11:20PM 7.5 gal.
- 2.Santa Maria 1:00PM - Mojave 2:20PM 5.1 gal.
- 3.Mojave 11/27 10:30AM - Blythe 12:25PM 7.4 gal.
- 4.Blythe 12:45PM - Scottsdale,AZ 1:10PM MST 5.0 gal.
- 5.Scottsdale 11/29 8.12AM - Deming,NM 11:12AM 11.2 gal.
- 6.Deming 11:47AM - Fort Stockton, TX 3:35PM CST 9.9 gal.
- 7.Fort Stockton 4:00PM - Junction 5:43 PM 6.4 gal
- 8.Junction 11/30 8:30AM - Hawthorn, LA 11:12AM 10.2 gal.
- 9.Hawthorn 12:10PM - Golfport 3:00PM 10.0 gal.
- 10.Golfport 3:30PM - Pensacola, FL 4:30PM 4.30 gal.
- 11.Pensacola 12/1 10:50AM - Ocala 1:40PM 11.5 gal.
- 12.Ocala 2:30PM - Boca Raton 4.43PM

**Total time: 26.4 hours Total fuel: 96.5 gallons**



***Rob Kermanj's Mk 1 Dragonfly***



then relieved with a 1/4 inch drill and a short piece of 1/4 inch aluminum tube epoxied in place on each side. These tubes were "T" plumbed to the instruments using plastic tube obtained at the hardware store. The whole business took about an hour. It weighs just a little.

After installing such a system I sat scratching my head trying to figure out how to know if it was working properly. Then an easy way to make a rough check came to mind. In fact this check should be run (cockpit vents open and closed) before bothering to install a static source. It may not be necessary.

All one has to do is taxi onto a nice long flat runway with altimeter needle set straight up on zero (or at some convenient setting to observe). Apply power and accelerate while glancing at the altimeter. Hold the ship on the wheels as long as possible before breaking ground. The altimeter should not vary. (A variometer, if available shouldn't show any reading either) Oh, yes, don't "crash, burn and sizzle" trying to watch the instruments, Ace!

An error of 20 feet altitude at lift off speed is significant. My back-of-the-envelope calculations show that this would cause the IAS to be in error by 4.6 mph at lift-off. Vance Jaqua's computer simulation concurs and shows that about 5 mph (power on) error would also exist at cruise speed.

Poor results can be best corrected by changing the orifice locations. Improvement can also sometimes be achieved by placing a three layer masking tape "trip strip" about 1/8" inch wide just ahead of orifice.

Respectfully submitted by Nathon H. Rambo, III

## 1993 ANNUAL FLY-IN

As of this writing the big fly-in is only 30 days away! The pre-registration are coming in and telephone is ringing off the wall!

Again I must urge anyone that is planning on attending, PLEASE send in your registration form ASAP! I would not push anyone if it was not for the Banquet. I must give them estimates 10 days in advance and a final on the Monday before. Yes, we have an over & under allowance, but everyone can not wait to the last minute!

Last year we had 27 aircraft! Can we beat that? I don't know, I guess it's up to the guys with the planes!

See you all there! - Spud

## OSHKOSH 93

Here's a quick summary if this years Oshkosh;

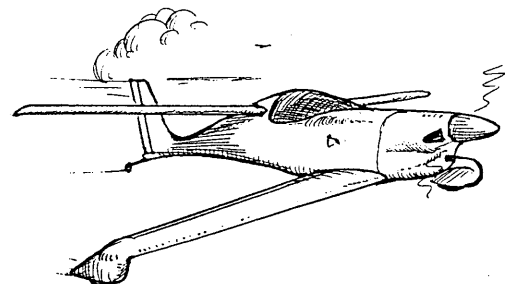
First thing Thursday we setup the new poles and ropes we had made to share with our Tandem Wing brothers the Q-guys. We all felt it gave us a more professional appearance and it showed the rest of the aviation community just how proud we are of our planes.

We had a Dragonfly forum Friday morning at 10:00 AM. The attendance was approx. 70. It was about 2/3 current builders & flyers and to my surprise about 1/3 potential new builders looking for more information on the design.

Friday evening brought our first annual combined Quickie/Q-2/Q-200/ Dragonfly banquet at Butch's Anchor Inn. The food was excellent and the attendance was 84! They had us in a open room, which got a little noisy, they promise to have us a private room for next year.

Saturday morning we had the Back porch of the Homebuilder Corner Building reserved. This was purely a informal "show & tell" period and was enjoyable with about 20 builders.

I came away from Oshkosh this year with very mixed emotions, I found myself trying to analyze where we are headed as a group? What kind of a job have I been doing? Where is the support from Viking? Where are the Dragonflies? Is all this work for nothing? One thing that troubled me is that we had only 2 Dragonflies at Oshkosh, One was on the flight line for Thursday-Friday and had to leave early Saturday. The other one was back in the aircraft camping down by the ultralights which nobody saw except the people visiting the ultralights. So on Saturday and Sunday there was basically no Dragonflies for the people to see, But there was THIRTEEN Q-2' & Q-200's. I guess I must give credit to the TWO Dragonflies that did show up! I guess I need to ponder this whole deal a little bit and will comment further after the Swarming, hopefully we'll have a good turn-out for the Swarming. If we have a poor showing for that, I guess that will answer most of my questions, won't it. - Spud



# REMOVABLE STRAINERS AND MORE FROM GERRY PRICE OF THE U.K.

I have been meaning to pass on the information below for about a year or so, but I have excellent excuses!! I got made up to Check Captain on British Airways Boeing 747's, and that course took a while, then we moved to a new home in November so the Dragonfly has been very much on the back burner in 1992. Anyway, here's the info:-

1. Gene Divincenzo's gear must be the way to go now, but my MK II gear lets the airplane sit up nose high, so I get all three wheels on at the same time, and the deceleration after landing is very good.
2. Over the years I've found that if can walk into the pitot tube, sparrow strainer, or whatever, they will! I made my strainers removable using the camera flash-gun 'hot-shoe' principle, the gun being forward end of the strainer, and the shoe being epoxy glued to the bottom trailing edge of the elevator, facing forward.

Use thin plastic corner molding to make up the 'T' section on the forward end of the strainer leg, and when set - remember to get the strainer angle right, relative to the airflow - temporarily glue the 'T' to a smooth surface (I used a Formica kitchen worktop). Smear the 'T' and surrounding area with your favorite release agent, and cut out 3 or 4 rectangles of 10 oz. BID - per shoe; 1 1/2" X 2" worked for me, but they could be bigger to give a larger surface area to

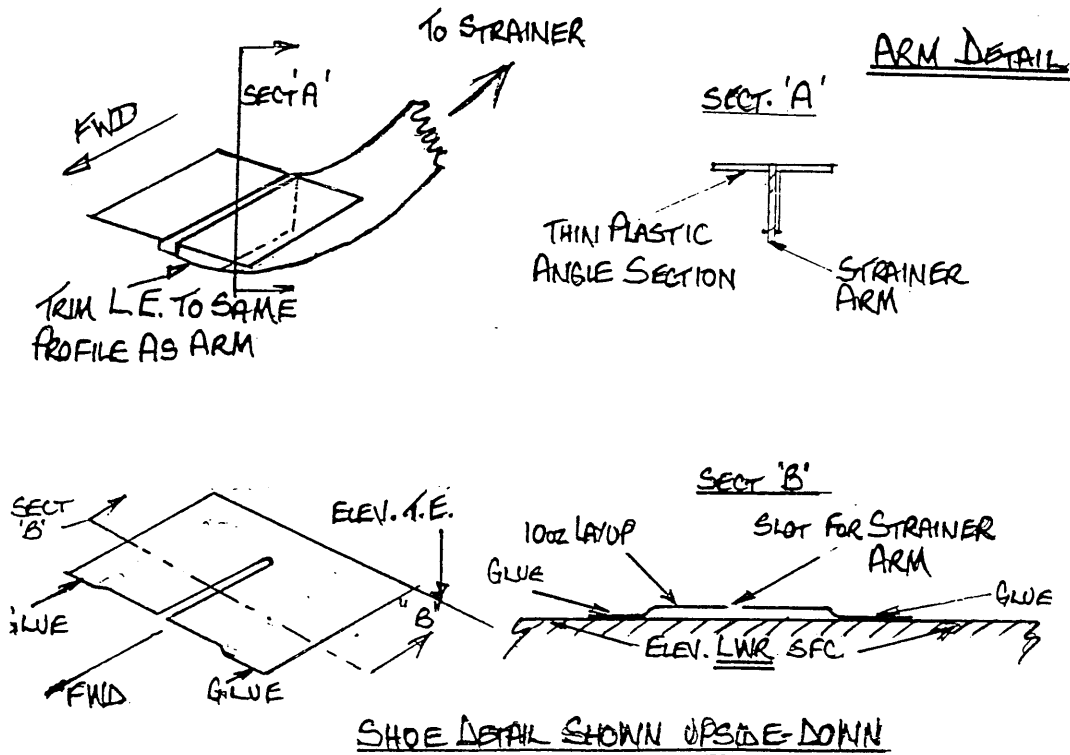
epoxy to the elevator. Cut a slot mid-span in the cloth, running 3/4 depth of the cloth, from the front, to allow the gun, or the 'T' on the strainer arm, to slide in from the front in use. Trim the shoe to your dimensions when green, allow to cure fully. Sand the flat face to give good adhesion to the elevator, which should also be sanded at the adhesion location. Epoxy the 'shoes' to the T.E. IN PAIRS with the slot facing FORWARDS: After cure you will be able to remove the strainers by pushing forwards. Mark them left & right and lay them over the throttles, ignition switch or control stick so you'll remember them during preflight. Make the 'shoe' real thin, and you'll get a strong, light low-drag job. Also remember to think up a good story for the glue-marks on the kitchen worktop!

I've built up, run and installed the Great Plains Aircraft 2180cc, and will get some solid numbers to you once we've fully de-bugged, initial flights show some excellent improvements. I must, again, praise Steve Bennett of Great Plains A/C -he's a good engineer, and a straight-shooter! Your article on engine possibilities for the Dragonfly come to the same conclusion that I have reached - build it light with the Gene d's hoop style gear, servo tabs on the ailerons, Len Dyson airbrake and a Great Plains 2600cc Type IV, possibly with a Hoffman 2-position prop, and you have the best looking, highest performing most cost-effective airplane - period!! We've come a long way, and it may well get better yet.

As usual, my thanks to both Kris and you for putting together the newsletter, and I wish you, and all the Dragonflyers happy flying in 1993

Regards

Gerry Price



## THE CLASSIFIEDS

**For Sale:** Complete VDO gauge set - 8 gauges+, Autometer #2642 4000 rpm - 270 degree sweep tachometer, Hourmeter, Exhaust Temp., 70lb. oil pres & sender, Voltmeter, Fuel gauge & sender, 300 degree oil temp. & sender, Cylinder head temp. all 11 pieces for \$290.00. KC hilites Quartz halogen landing light #1734-\$10.00, New tailspring w/tailwheel yoke-\$20.00, Black & Decker "Dremel style" tool w/power supply - \$35.00 Bill Brutsman after 7:00 pm (913)888-8942

**For Sale:** Brand new unassembled 2167cc VW engine, split port heads( Scat), Revmaster accessory case, exhaust manifolds and prop. \$4400.00 invested in 1986 dollars, have receipts. \$2500.00 for everything. Call Chuck Kaplan - Walpole, Mass. (508) 668-4784 /

**For Sale:** Mark I Dragonfly 840 hrs. TT. 525hrs on 80 Hp Limbach engine. Cleveland brakes, Aileron reflexor, Vortex generators, Quality workmanship. \$11,000 less radios, \$13,500 with Terra digital Com, King transponder, Narco encoder, David Clark intercom, Apollo Flybuddy loran and ELT. Ask for Rob, evenings (407) 395-9267

**For Sale:** New Viking "new style" engine mount for Revmaster or Diehl accessory cases (not Hapi)-\$100.00 New Viking/Mosler Dragonfly VW exhaust system - \$175.00 Chuck Kaplan - Walpole, Mass (508) 668-4784 -

**For Sale:** Mark II Dragonfly airframe - complete and painted. Cowling needs painting. Revmaster 2100D mounted, 10hrs TT approx.. Also includes Prop, inboard gear, tachometer and quad instruments from Westach, basic flight instruments, strobes, center stick, reflexor, tires and brakes. All \$7800.00 Bob (214)980-3733 days & 934-3529 nights/weekends <47/48>

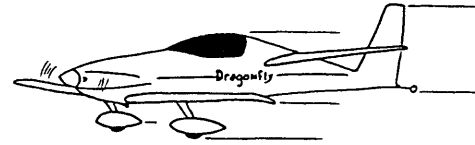
**For Sale:** "Zero Time" rebuilt Continental O-200 - 100hp complete with Mags, harness and carburetor with log books - \$6500.00 outright no exchange. New Cessna 150 prop \$1200.00 ask for Gene after 6:00 PST (209) 733-8358

**Wanted:** Mark II gear legs only or entire gear leg kit, Must be very inexpensive. Ask for Spud after 7:00 PM (913) 764-5118

**For Sale:** Dragonfly project 90% complete, all instruments and controls less radio, Loran & transponder, 82 HP Hapi engine. All for \$8900.00. Flybuddy with central U.S. data card -\$1190.00, Narco Com 810 radio - \$935.00, Narco AT150/AR850 transponder/encoder - \$955.00 Temper foam for Dragonfly/Q-2/Q-200 seats and head rests - \$385 Tom Thompson 5209 Gates Dr.,

The Colony, TX 75056 (214) 370-1822

**For Sale:** Props Inc. propellor-\$175.00 Fiberglass engine cowling-\$170.00, Misc uni & bidirectional clothes-make offer, David Hoover-Jackson, Tenn., Call me or leave message (901)427-6243



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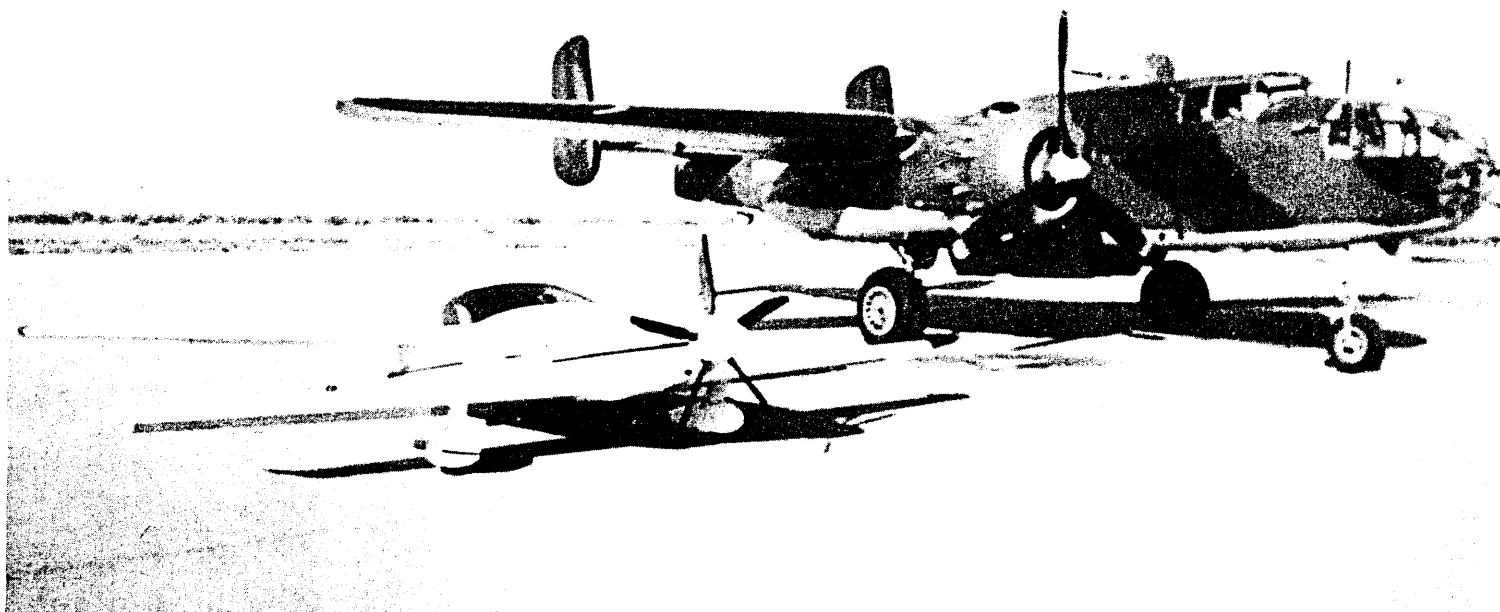
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**PHONE (913) 764-5118**



***"My plane is the one on the left, the white one with the new spinner!"***

***Justin Mace, Tuscon, AZ***



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**Registration form enclosed - Please fill out and mail immediately!**