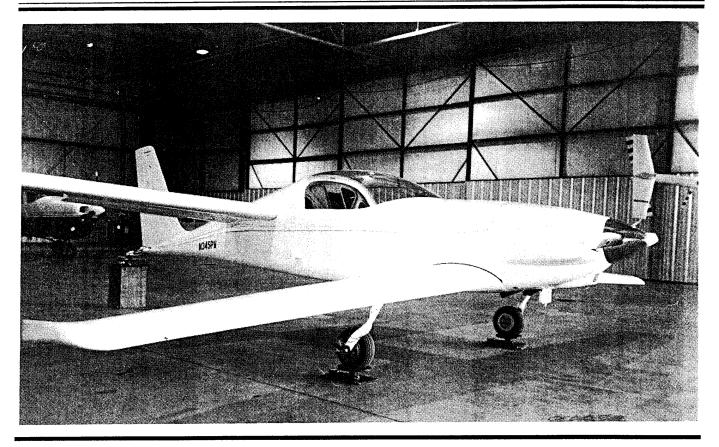
# DRAGONFLY SUIDERS AND FLYER NEW SLEINERS

THE OFFCIAL VOICE OF DRAGONFLYERS ALL OVER THE WORLD

**VOLUME 69** 

JANUARY - FEBRUARY 1997



# Phil Williams Mark II Dragonfly of Rego Park, New York

Hello Spud,

Sign me up for another year of DBFN. The newsletter continues to be very informative and I look forward to every issue.

As you can see things are getting

very close to that important day for Dragonfly N345PW - Plans serial number P848. We have it on the scales doing its weight and balance which looks good.

I would of hoped to be flying by now but over the last year I've made several repairs and changes that I felt that would make it an even better Dragonfly. The two repairs that I made were 1. A major fuel tank - now repaired and a subject of a future DBFN article. 2. Replace-

continued on page 5

# A Different Opinion!

Ground Hog Day 68 Shady drive Indiana, PA 15701 (412) 349-6604

Dear Spud,

I've got to tell you, the letters from the Mad Rocket Scientists have put me over the edge. First, whatever they're building is no more a Dragonfly than my Dragonfly is a Quickie. Come on, now! Bigger, wider (but not wide enough!) longer wings span, God only knows what airfoil, because these guys don't get, a 300# engine, a gross weight of 1450 #, and a top speed (or was that cruising speed?), a mere 40 mph above the structural red line of a Dragonfly! These guys have got to be nuts!

I suppose there going to go IFR with it, too. Perhaps nobody has mentioned to them that, though the Dragonfly is a lovely little sport cruiser, its scarier than hell in the clouds because it is sensitive (or perhaps twitichy is a better word) and it has no self-correcting tendencies, example the dihedral in the wing is canceled by the anhedral in the canard, so it won't self- level from a bank, and it has no horizontal tail, so a bump-induced pitch variation is a new direction. And, of course, it is light, so a slight movement of the pilot is fairly likely to send it somewhere! In short, with an ordinary airplane, if things get screwy you can let go of the yoke, but folks, that don't help us none on a Dragonfly!

Don't get me wrong-I love mine! But I'm not going to overload it, overspeed it, or overstress it. I will be interested in knowing what happens with this new experimental bird of theirs, but it doesn't have a lot of bearing on our experiences. Please-DON'T call it a Dragonfly!

I am a charter member of the Ifit-ain't-broke-don't-fix-it-club in a firm believer in the KISS rule. But, since I've flown mine (Mark I) for a while now and made some trips in it, here's what I suggest to a prospective builder. 1. Keep its light!

2. If you build a Mark 1 (see rule 1), use real brakes (Matco's work nicely) and think about making the wheel wells just enough bigger to take aircraft 5X5 tires, for the wider footprint than the tires from the plans. A 5 X 5 won't quite fit.

3. Cessna 140brakes can't be bored out to fit the plans rudder pedals, and are nice and light.

4. Check into the "T-tail Q-2" that was written up in the 1983 Homebuilt Aircraft Annual. It sounds as if it's just what the doctor ordered for pitch adjustment. In fact, if anyone out there knows where to get info, it would be much appreciated; my letter to Log-Aire came back address unknown.

5. Paint the top of the canopy white, too. Visibility is nice, but those summer days when you can't get up high for some reason will fry your brains, even with a white hat.

6. Don't screw around with safety issues. For instance, the header tank that the plans call for will give you forty-five minutes of fuel if the fuel pump quits. Why plumb in an extra fuel pump and all plumbing, as has been suggested? Remember, KISS.

The Dragonfly's mission is somewhat limited, but there are lots of airplanes out there for the folks who want something different. Try to figure out what you want before you start; don't put a Saturn V rocket engine in a Dragonfly.

### Curmudgeonly yours,

### Alan Luckey

I'll give my opinion on this subject in the next newsletter. I would like to have others to give us their views on this topic also- Spud Spornitz

# **MULTICOM!**

# • Them Racing Dragonfly's

At last falls Copperstate Fly-in in Arizona we had two fellow Dragonfly pilots do the group proud with their planes. The 351 mile race is called the Copperstate Dash and begins at Apple Valley, CA and finishes at Coolidge, AZ which is just south of the fly-in sight.

In the 75 horsepower and under category John Mason of Orange Cove, CA with his 2180 cc VW powered Mark II finished in 2nd place with a course speed of 153.58 mph!! Nate Rambo of Camarillo, CA with VW powered Mark II came in 5th place with a course speed of 123.02 mph. GOOD JOB GENTLE-MEN!!! SUPER CONGRATULATIONS!!

Quite a few of you people are familiar with John Mason's fast ship. He's the lucky guy that purchased Gene and Guy Evans super slippery Mark II.

### SUN N' FUN 1997

Sun N' Fun attendees. We have a Dragonfly forum scheduled for Sunday April 6th at noon. We would all dragonfly builder and flyers attend. I don't know which tent it is yet, just check the forum schedule board just outside of the forum area. See you there!

# An Epoxy Up-date

There have been lots of rumors floating around in regards to what is the proper approved epoxy for the Dragonfly. When Hexcel stopped producing what we all knew as Safety-Poxy I and II because they contained MDA, Hexcell came out with a replacement called Epolite 2427, PTM & W came out with a version called Aeropoxy PR2032/3660. Etc, etc. If you would like to review the previous information on this topic please refer to DBFN #52, pages 2 and 3.

### Multicom cont'd

At the top of everyone's list is the PTM&W Aeropoxy PR2032/3660. This is approved by Viking Aircraft and is also used by the Rutan Aircraft people and Nat Puffer of Cozy Development. The Rutan, Cozy people and myself have been receiving some complaints about the Epolite 2427. The Epolite 2427 in a higher than normal humidity situation is showing blushing problems and poor peel strengths. The Epolite 2427 should only be used in very dry climates.

There is another newer epoxy on the market that is called E Z Poxy. I don't know the mother company, but this epoxy is identical to Safety Poxy I or II. They have obtained the rights and formula from Hexcell to produce a Safety Poxy replacement. This epoxy is not recommended or approved for by Viking Aircraft, Wicks Aircraft or DBFN as it still contains the MDA that is considered to cause cancer in laboratory testing.

The West System by Gougeon Brothers is still highly recommended for all non-structural applications. And continues to very popular for weave filling.

Also back in issue number #52 we displayed a drawing that we pulled from the Wicks Aircraft catalog showing a modification that could be made to change over one Stick Stuff Dispenser from Safety Poxy ratio to the PTM&W ratio. The drawing showed a separation of 1.14, the correct measurement is 1.10 please make and note this correction

# • T-shirt Warning!

It's T-shirt time! We make a run of Dragonfly T-shirts ever other year and its time to start gearing up to make another run. Why do I call this a T-shirt warning...... well over the last 4 or 5 years we have been doing T-shirts we seem to have a hell of a time in getting everyone coordinated on this topic. That is why we have people order shirts before its time and we have people

order shirts 4 months after the fact. So take this as your official notice that in the next issue (DBFN #70) of the newsletter you will be sent a order blank for T-shirts. We will do as we have done in the past, everything is pre-ordered. This means that we will produce only what is ordered. We won't be running extra's, so please order when you get the form. I've had quite (gals particularly) people really get mad at me because I did have anv T-shirts available after the run. We will be using the same design as we have in the past. The T-shirt itself will be available in white only in sizes small through XXXL. As of this writing it looks like the price will be the same as before, \$11.00 each plus shipping (XXL is \$1.00 more and XXXL is \$2.00 more). So start counting heads and sizes.

# The 7th Annual Dragonfly - Quickie Fly-in - Goal 30 Aircraft!

Wow! This is our seventh year! There's been a lot of discussion on our little event in regards to, when to have it and where to have it. We've talked to a ton of people on the phone, folks have E-mailed and written us, we even had a survey on the internet. We have assembled all the responses, 72% of the people inputting want to keep the event on Labor Day weekend and almost 100% of the respondee's like the Kansas location. So it's official This years7th annual Dragonfly - Quickie fly-in is August 29th, 30th and 31st -Labor day weekend at Ottawa, Kansas. Mark those calendars and start making those plans! This years goal is 30 tandem wing aircraft!

# New phone and fax

We have a new phone (913) 397-0518. This new number goes right to my office and has a 24 hour answering machine and fax. I'm usually available in the evenings after 7:00 PM central time and weekends.

# Newsletter Input.

We can now handle your first flights, technical pieces, stories and articles easier than ever before. We can handle your input via E-mail, fax, 3.5" disk, 5.25" disk, CD's, typed letters, hand written, It doesn't make any difference how you do it. While we're on the subject of newsletter input......There is a bunch of you guys that have been holding back way too long. Some of you have been promising stuff for over two years! You know who you are and lets get with it. Remember this is "our" newsletter. Don't be just takers, ya also need to be givers. What you may be taking for granted may exactly what some of us are starving for. So lets get with and lots of photo's. Remember the old saying, a picture is worth a million words! - Thanks Spud

# Canopies and Mark III Gear Plans

I've had quite a few people inquire in regards to building or converting over to the Mark III (tricycle) style gear. Viking Aircraft offers these plans for the Mark III in an optional plans format. The Plans are \$65.00 plus \$5.00 postage. Canopies - Quite a few people have been contacting suppliers such as Aircraft Spruce, Aircraft Windshield and etc. looking for Dragonfly canopies. These canopies need to be directly ordered from Viking. They are available in clear. light gray, dark gray and green. These cost \$420.00 plus \$15.00 packing fee and are shipped freight collect. You may order either of these items by contacting Robin at Viking Aircraft - P.O. Box 646 -Elkhom, WI 53121-0646 Phone (414) 723-1048 or fax (414) 723-1049

# Jody Adams Dragonfly Webpage

Jody Adams super dragonfly Web page address has changed. His new addres is: www.ime.net/~jadams
If your on the net stop by and check it out!

# WHO'S ON THE INTERNET

Justin Mace, Arizonza. "imace@flash.net" Dr. Rich Goldman, Illinois "ARGoldman@aol.com" Mike Digangi, Nevada "gangster@hdc.com" Jon Finley, Minnesota "AMC-MSP@Minn.Net" Spud Spornitz, Kansas "DBFNSPUD@aol.com" Jody Adams, Maine "jadams@ime.net" Ron Triano, California "rondefly@aol.com" Phil Williams, New York " uptown@aol.com" George Gaston, Louisiana "Ggaston@aol.com" Dean Richards, California "drddr@aol.com" Bob Johnson, Utah "bjohnson@rad.med.utah.edu" Roger Enns, Ontario, Canada "renns@bserv.com" Robert Broberg, Ontario, Canada "broberg@asc.on.ca" Dave Morris, Texas "DaveMTex@aol.com" Ronald Geese, Ohio "rgeesec150@aol.com" Hans Graesser, Germany 100653,2415. Guenther Kaelberer, Arizona 75231,731 Nate Rambo, California "rambo@vcnet.com" Don's Dfly toys (Don Stewart) AZ. "siinc@computerlink.com" Tim Hughes, New Zealand "Tim Hughes@voyager.co.nz" Henry Erricson, Georgia "cerricsso@lasc.lockheed.com" Henry Roden, Washington "74667,3630" Matt Gunsch, Phoenix, AZ "N329DF@aol.com" Brad & Beth Hale, California bbflyers@juno.com



# **UNDERSTANDING REFLEXERS**

Last summer there were a number a messages flying back and forth on the Dragonfly internet serve-list concerning aileron reflexers. The effects of reflexer position on the flying qualities of a Dragonfly were not fully understood by all readers. Until then I had paid little attention to reflexers and I couldn't remember what had been written on the subject. My mental efforts to unscramble the whole picture were fraught with confusion. My MK II LS had no reflexer mechanism and was atypical of the breed as well: I couldn't go out and collect the stability and performance data needed.

Of course we all understood that reflexers could be used in lieu of the elevator trim mechanism to adjust the aircraft in pitch. As Justin Mace said "I haven't touched my elevator trim in years. Once I got the spring tension correct between the elevator and the stick I just left the elevator wheel alone." In my mind Justin (at least in part) was substituting the very effective reflexer function to replace an ineffective trim mechanism function.

Jon Finley, one of our Quickie/Q-2 friends and knowledgeable tandem wing pilot, submitted that while trimming for landing, the reflexers played an important role regarding lowering "the tail to setup a tail first landing". (From a ground handling aspect, getting that wheel on the ground is more important to the Q-birds than our Flys.). But not only did the higher nose attitude deter good forward visibility but Jon stated that in the case of his Q-2 "with the reflexers up you will stall the canard at a higher airspeed". Ugh! Did our Flys act this way?

One of Jon's most important pointers was that his reflexers permitted

him to adjust for best IAS at cruise. He indicated that the trick was to adjust the reflexers so that the fuselage attitude presented the cleanest or lowest parasitic drag angle to the air. (The drag of the wing system is also involved.) The fuselage attitude theory made a lot of sense particularly in the case of my Fly which has always flown very nose high and slow in both the MK I and MK II LS configurations.

With a little help from Spud and Don Stewart's DBFN Index, we referred to back issues of DBFN to see what had been written therein. Only two reports were found. First the Evans brothers had reported (DBFN 34) that "it takes very little adjustment with the reflexer to trim out the aircraft to the angle of attack that gives us the best speed. You then add pitch trim to reduce any control stick pressure." This report supported Jon's information. It made sense.

But then Richard Werner had written (DBFN 57), "I have found my stall speed and take off roll greatly effected by the up or down flex in my ailerons. My take off roll is as short as 400 to 500 feet with them flexed down, but the stall speed is up around 80 mph. With them flexed up, take off roll is 1400 to 1500 feet in a three point configuration but the stall is back to 63 to 65 mph." Wow! Richard's findings left himself and this writer with many questions; I decided (at least for now) not to use his information.

Before coming to any conclusions we needed some good quantitative flight data from other Flys deemed typical of the breed. Chris Walterson up in Geraldton, Ontario, kindly volunteered. Chris did an excellent job of getting the important data shown in the table. And his data gave me warm fuzzies.

From his top speed data we may conclude that Chris' Fly gains 3 to 8

MPH top speed and has better visibility over the nose just by adjusting the aileron reflexer setting (down). But his stall speed data were inconclusive to pronounce best landing setting.

Readers can help us all further understand aileron reflexers by conducting one or more simple flight tests. All is needed is a bubble angle measuring device to sit on the console and a piece of paper for recording the data. Tell us what your Fly does?

Nathan Rambo BSAE, EAA Flight Advisor 1158 Baywood Ave., Camarillo, CA. 93010

# CHART BELOW

# Williams cont'd from page 1

ment of a mixture control cable. The two system changes that I've done are 1. Changed the electrical system to incorporate a second battery and so forth. This was prompt by the excellent article by Waldo Born in issue #62. (I guess the plane will just get a little heavier). The final change that I plan on making is that we are just finishing changing over from the Hapi Supercarb to the Ellison My Mark II has a Hapi 82-D-EH and a Props inc. 54 X 44 prop.

Spud, The taxi testing so far has been going very well, consider this my reservation for this years fly-in at Ottawa, Kansas on Labor Day weekend. I'll be there in my Dragonfly -- FINALLY!

Phil Williams 63-53 Haring Street Rego Park, New York 11374 (718) 424-7242

# CROSS COUNTRY IN A DRAGONFLY!

### A female view

This isn't a technical discussion so I'm not sure if it belongs here but maybe it will be of interest to Dragonflyers who have been contemplating a long trip but haven't gotten around to it yet. Chris Walterson and I (Dorothea) are back from our cross country trip in Dragonfly FLYV. Chris is a Dragonfly & Quickie builder and a pilot, I'm just a pilot. We went from Geraldton, Ontario (YGQ) to Chilliwack BC (YCW). Geraldton is 125 nm northeast of Thunderbay, Ontario and Chilliwack is 50 nm east of Vancou-

cont'd on page 6

# Condition #1 - Weight 934 lbs, C.G. @ 61.4 inches Alt. and temp. unknown

| REFLEXERS | T.E. INCHES | TOP SPEED<br>MPH | ATTITUDE<br>DEGREES | STALLSPEED<br>MPH | ATTITUDE<br>DEGREES |
|-----------|-------------|------------------|---------------------|-------------------|---------------------|
| UP        | +3/16       | 140              | 0                   | 60                | 8.0                 |
| NEUTRAL   | +1/16       | 142              | +1                  | 60                | 7.5                 |
| DOWN      | -1/8        | 145              | -1.5                | 60                | 7.5                 |

# Condition #2 - Weight 1030 lbs. C.G. @ 63.3 inches Alt. and temp. unknown

| UP      | +3/16 | 140 | -1.2 | 65 | 10.8 |
|---------|-------|-----|------|----|------|
| NEUTRAL | +1/16 | 145 | -1.2 | 70 | 7.5  |
| DOWN    | -1/8  | 148 | -1.4 | 65 | 10.0 |

# CROSS COUNTRY IN A DRAGONFLY, A FEMALE VIEW! Cont'd

ver. Flying time was 28hrs round trip. We weren't in a big hurry so we took four days to go west and three to return. This was our first major trip in this plane (or any small plane). Chris did the flying and I did the navigating by map and GPS. We have the Garmin 90, wonderful little unit but we we were glad we brought along spare batteries. FLYV is very comfortable and economical. It has the 1835cc VW engine and averaged about 3.5 gallons per hour. You can't take much luggage in a Dragonfly but we packed carefully and didn't feel there was anything we needed that we didn't have. Concerning the canard in the rain: On our leg from Cranbrook to Grand Forks in the mountains of southern BC the weather was supposed to be possibility of cloud in the afternoon. We were following the VFR route which is mostly follow the road. When we turned north from Castlegar it was overcast but there was still a high ceiling (we were at 6500 and well under the clouds). Castlegar couldn't give us weather for Grand Forks but reported Kelowna (nearest weather available) was clear. Just before turning to follow the route south again to Grand Forks the canopy was misting over with precipitation that had not been visible before we were in it. FLYV flies fine in mist or light rain. There is a small difference in the feel of the controls but nothing too demanding. However, this is where we should have turned around and gone back to Castlegar. Instead, reasoning that since the weather to the south was better and that we were heading south once we turned into the passage leading to Grand Forks we thought we should be heading out of the mist shortly after we entered the passage. Wrong.

After we were in the passage visibility got worse and the mist turned to light rain but by that time we were

committed. We didn't want to do a steep turn in rain and we weren't sure that the rain hadn't gotten worse behind us. So we carried on. This is one of the few parts of the route that doesn't follow the highway so just to make sure we were in the right place (the GPS said we were) we were looking for our landmark of abandoned railway tracks. Chris located the tracks and negotiated a skinny pass in adequate but less than ideal visibility for inexperienced mountain flyers. We were through the pass and the visibility improved but the rain was not letting up. In fact it was getting steadily worse. Then the valley was before us and we could see the airport. As we descended (quickly) and prepared to land the rain became heavy. With no choice but to land (the rain covered the whole valley) Chris made an approach at 105. Any slower and the plane would threaten to porpoise. But the approach was a little too high for going that fast into a 4000 foot runway and to make it worse just as we were touching down I noticed the windsock that had been limp was now showing about a 3 kt. tailwind! The plane bounced on touchdown and there was no way to straighten out and stop the plane by the end of that very wet runway. So in spite of a vow never to take off in the rain again (Chris tried it once by himself ) we were on the go around. 90mph and stick full back we just cleared the trees at the end of the runway. We also discovered that we can do a 20 degree climbing turn in rain at 100 mph. to avoid flying into a mountain. Using a shallow approach (we were up close and personal with those trees again) Chris did a very hot (and very good) landing. On the ground an inspection of the wooden prop showed the rain had beveled the tip of one side.

Dragonfly mountain flying lesson: Just because it isn't raining in one valley doesn't mean that it isn't pouring rain in the one beside it even if they are at about the same latitude and no rain was forecast. You can't always see rain ahead. When in doubt RETREAT.

We stayed in Grand Forks overnight and flew uneventfully to Chilliwack the next day. By the way if you fly that route Grand Forks is a very pretty little town and a nice place to visit. When we were ready to leave Chilliwack the weather turned bad so we stayed an extra two days to wait it out. When it cleared we left early in the morning in bright sunshine. We followed the Fraser River to Hope and then straight across the mountains at 9500 ft. Wow. A perfect cloudless day, smooth air, a tailwind and a spectacular view of mountain tops off the wing tip. For me it was the experience of a lifetime. Putting up with three years of epoxy in the microwave finally paid off. This is a lot longer than I had intended. I'll conclude by saying that in spite of its limitations in rain (this was really only a problem in the mountains as everywhere else we waited out or flew around any rain we encountered) the Dragonfly is a lovely little cross country plane. It's comfortable, fast, cheap on gas and almost always an attention getter at airports. We talked to lots of interesting people and all the FSS personnel were friendly and helpful. Its a wonderful way to really see the country. It would be great to fly to Kansas in Sept. for the Ottawa fly in but alas we have run out of vacation time.

Best regards, Dorothea Keats



# HOW TO MAKE A WOOD PROPELLER

The article to follow was gleaned from the KR Newsletter. We preciation the sharing of information.

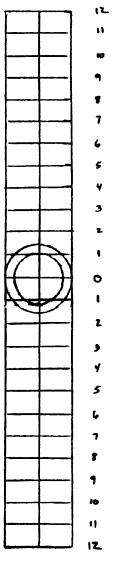
This article was submitted by John Cromwell, Tucson, Arizona. Author is unknown but he thought the information might be of interest.

### **HOW TO MAKE A PROPELLER**

THE WOOD: Some propellers are made of one solid piece of wood

being duplicated. Long straight grain wood fibers with no knots are the best.

LAYOUT: Draw lines on the propeller and on the piece of wood that you are going to make the propeller out of. Draw the lines the front and back side of the wood and also on the sides. The lines should be about 1 inch apart. Draw one line down the center of both, on both sides.



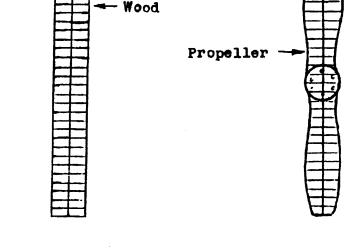


DIAGRAM #1 DIAGRAM #2

DIAGRAM #3

and others are made from lots of small strips of wood glued together. Custom cabinet shops usually have a large variety of woods and they can cut the wood needed to make a propeller. We make no recommendations on the type of wood to use because propellers are made of different types of wood depending on the size, width, length, pitch, etc. If you are duplicating a propeller, use the same wood as the one

Draw two circles in the center of the wood on both sides, one for the bolts and one for the propeller center. Number all of the lines. The line in the middle should be 0.

Starting at line 1, take a measurement from the center line to left edge of the propeller and to the right edge of the propeller. Put the measurement on line 1 of the wood. Use a pencil DOT to mark the

measurement on line one. There are two line one's, put the measurement on both lines. Do this over and over for every line.

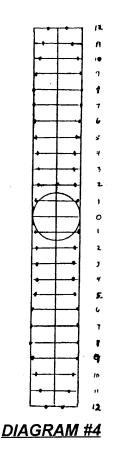
Check the angle or pitch of the propeller being duplicated on the back side only. On the end of the wood draw a line the same angle. If you want to change the angle this is the time to do it. You can make the propeller any angle you want. Next

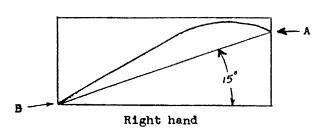
draw a curved line on the end of the wood to make the end view of the propeller look like the end view of an airplane wing. This is the time to make the propeller left hand or right hand, just change the direction of

ments for the DOT locations of lines A and B is to put the propeller on a flat surface like a table top or a work bench. Measure up from the surface of the table top to the edge of the propeller.

thickness as the propeller thickness. Do this for all the lines See diagram 8. Make all of these cuts on the front side of the wood.

Use a hand saw to curve the front





### DIAGRAM #5

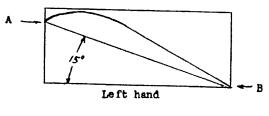


DIAGRAM #6

the curved line.

Draw a line down the side of the propeller from point A and point B. See the drawing on page 4. We will now call these new lines on the side of the propeller lines A and B.

Some propellers have the appearance of having been twisted. In that case line A and B will curve. Starting at line 1 on the propeller, take a measurement and put the measurement on edge of the wood using a DOT to mark the location. Do this over and over again for every line. Use a pencil and connect the DOTS to make lines A and B.

The best way to take measure-

With a pencil connect all the DOTS to make lines A and B. Also connect the DOTS on the front and back side of the wood to make a picture that looks like a propeller, see diagram 4.

On the back side of the wood, use a hand saw and make a cut on line 1. Saw into the wood until the saw blade touches line A and B. Cut only on the back side and do not cut through lines A and B. Make another cut on line 2 the same as you did on line 1. Then cut line 3 and 4 and so on until all the lines are cut. See diagram 7.

Measure the thickness of the propeller at line 1. Make a cut in the wood on line 1, cut into the wood until the wood thickness is the same side of the propeller by making cuts on all of the lines. Make the cuts come all the way down to lines A and B. Do not cut threw lines A and B. See diagram 9.

Use a narrow blade hand saw or a jig saw and cut on the dotted line of the wood on the front side. See diagram 4.

Next use a hammer and a wood chisel to chisel out all the wood pieces between all the cuts on the wood. See diagram 10.

Use a wood rasp to shape up the wood and remove all the rough Sand the new propeller smooth. Drill the bolt holes.

Place the new propeller on a flat surface like a table top or a work bench. Place a 1/4" inch wooden dowel or a round pencil under the new propeller at line O. The heavy end of the propeller will stay down on the tape top surface. Use a sander to remove some of the wood

again then varnish or paint it again.

Mount the finished propeller on the engine and run it at high speed for about 5 minutes to test it. Do not percent

Now that you have all the information on paper you can transfer it to the wood to make a propeller.

### FORMULA TO MAKE A SMALL PROPELLER FROM A BIG PRO-**PELLER**

Example: I have a propeller that is 40 inches long and I need one that is 36 inches long.

(length of large propeller) x length of small propeller = Multiplier

 $(40) \times 36 = .9$ 

The multiplier is the number that you use to multiply all the propeller dimensions by to make them smaller. In this case the multiplier is .9.

## FORMULA TO MAKE A BIG PRO-PELLER FROM A SMALL PRO-**PELLER**

Example: I have an 8 inch long model airplane propeller to use for a pattern. I need to make a propeller 36 inches long.

(length of small propeller) x length of large propeller = Multiplier

 $(8) \times 36 = 4.5$ 

In this case the multiplier is 4.5

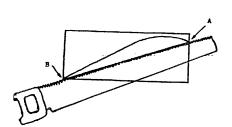
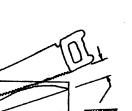
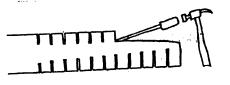


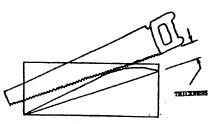
DIAGRAM #9

# DIAGRAM #7



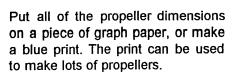


# DIAGRAM #10



stand at the side of the propeller, if it breaks you may be hit and killed by flying wood pieces.

### MAKING THE PROPELLER BIG-**GER OR SMALLER**



To make a propeller bigger or smaller, all the dimensions must be made bigger or smaller by the same

# DIAGRAM #8

on the heavy end. Balance the propeller again on line 0 to see if the propeller is still heavy on one end. Do this over and over until the propeller is balanced.

Varnish or paint the propeller and let it dry. Lightly sand the propeller



# THE 1997 PHOENIX TANDEM WING FLY-IN

Hello fellow DFers and Q-Folks,

Ah......I love the smell of aviation fuel with my hot dogs!

The Phoenix Tandem Wing Fly-In will be held at Phoenix Deer Valley Airport (DVT) on Sat/Sun, March 15/16, 1997. The event, including the Saturday PICNIC BBQ, is FREE to all canard aviation enthusiasts:

Composite Builders
Fliers
Wanna-be's
Could-be's
Thinking-about-it's
Maybe-if-the-wife-could-see-one's
I-never-actually-touched-one's
I-would-if-I-knew-they-were-real's
... you get the idea!

The event is sponsored by the Phoenix DragonFly Club, this one should be a keeper. Deer Valley airport isn't terribly busy, the tower is extra friendly to weird looking aircraft, the picnic area is adjacent to the tie down area and worksop hangars, everything is pretty casual with plenty of room.

Starting at 10am on Saturday morning, we will be offering several valuable workshops for the Pilot/Builder and wanna-be, and even a special discussion group for

Others' who attend.

'Significant

Our excellent chefs start cooking (BBQ burgers and dogs) around the noon hour and continue until everyone is rolly-polly and looking for a shadey spot to zzzzz.

The afternoon offers a few minutes for each pilot/builder who flew their project in to talk about some of their special construction features and tips that they learned in the process. And if time allows, there will be a

group meeting where the morning presenters can answer some more pilot/builder questions.

The Awards Dinner on Saturday evening will be held at the Hometown Country Buffet - good food, plenty of variation, all you can eat and priced under \$8 per person including food, drink and dessert. The restaurant is near the airport. You'll be able to hitch a ride with one of the locals if you fly in for the event.

While there are a lot of nooks and crannys to meander around, Deer Valley lacks any kind of serious kids' playground space or equipment (just wanted you to know).

The weather gods have promised perfect weather, as in the past.

There are several hotels/motels within the Deer Valley area (North Central edge of Phoenix in your AAA book) in various price ranges. Refer to the HOTELS LIST button on the Phoenix Fly-In Website at HTTP://WWW.SI-INC.COM/DRAG-ONFLY/PHOENIX/ (Shown in UP-PERCASE here for clarity. Be sure to type the whole address in lowercase for most browsers). While Deer Valley airport does not lend itself to camping, there MAY be an opportunity for mobile homes to park overnight, though. Please call Matt. at the number (or mail address below) before showing up with your camper or mobile home.

The Sunday schedule is pretty casual. There is a Fly-Away breakfast, but the time and place is set on Saturday evening by the majority of those who attend. The rest of the day is left to hangar flying and departures.

While the whole event is free,

please bear in mind, we're a small club, and if we get a HUGE turnout, well, it would be nice if a few wanted to chip a couple of Washington's into the pot just to make sure we have enough hot dogs and hamburgers for everyone!

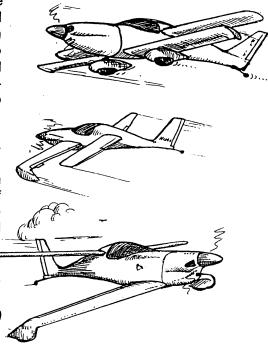
Larry Brown's dihedral canard Dfly is scheduled to be there as will Matt Gunsch's TriGear Dfly and Justin Mace's Subaru powered Dfly. Nathan Rambo will be there, maybe even with his laughing canard. I hope that you too will consider flying your project to the Phoenix area on March 15/16, 1997 for the rest of us to admire.

If you have ANY Deer Valley Air or Ground Operations questions, email Matt Gunsch at N329DF@aol.com, or give him a call in Phoenix at

Home: (602) 252-4720 Hanger: (602) 582-8344

If you want any general questions answered (all I know about is Generals), email Don Stewart at siinc@juno.com, or call me in Prescott, AZ at (520) 778-6988 (24 hours)

...and thanks!



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# THE CLASSIFIEDS

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Inboard Mark II "Hoop Style" Gear Plans - Full size hoop gear template drawings for making the mold and instructions on how to mount to the fuselage. \$14.00 (\$19.00 outside of U.S.) Mail your checks to Bill Spomitz, 1112 East Layton Drive, Olathe, Kansas 66061-2936

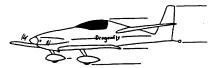
Wanted: I'm looking for a pair of "unused" Mark I wheel fairing halves from a Task Pre-fab kit. Also looking for a canard bottom fairing piece. Must be reasonably priced. Ask for Mark Carroll at (502) 759-3135 work or (502) 759-4740 home

Wanted: Used Cleveland or Matco wheels and brake assemblies (Chrome would be nice), Westach Instruments. Ask for Bob (407) 783-5090 Call collect

For Sale: Tri-gear Dragonfly, Terra com radio, transponder, encoder and Loran. Cleveland brakes. 90 hrs total time on airframe since ground strike. Selling less engine and prop. \$8000.00 VHS tape available.. Refer to issue #50 of DBFN. Dave Bastion (810) 659-7228

Wanted: Your extra materials, looking for canopies, 5" carbon fiber (for spar caps), bi or uni cloth, blue foam, Instruments, etc. Spud (913) 764-5118

For Sale: Dragonfly Project. Almost complete. Fuselage, wing, engine, instruments, wheels, radio and canopy. Needs canard and gear legs. Continental O-470 engine or other trades considered or \$3800.00 Cash. Ask for David (941) 772-3841



For Sale: Dragonfly Mark 1 kit w/Hapi 1835cc dual electronic ignition.many extras. Very close to completion. At least 85% More details available online at the Dragonfly web page. Call after 5:00 PM EST 207-324-6072 \$9.500.00

96 OTTAWA FLY-IN VIDEO: Over 7 1/2 hours of workshops, interviews, Fly-bys and the Awards Banquet. VHS. \$26.00 (FREE SHIPPING). DBFN INDEX: 84 pages, 8-1/2x11", spiral bound. Index of ALL DBFN newsletters to date, sorted by Subject, Author, Type and Issue #. Over 5000 entries. \$15.00 (FREE SHIPPING). Checks: Stewart Instruments.; P.O. Box 11929; Prescott, AZ 86304 MC or VISA: (520) 778-6988

For Sale: Dragonfly project, Hoop style tricycle configuration. Just at taxi testing stage. 2276cc VW engine, ICOM radio and transponder, basic VFR instruments, ready to fly. Going to larger four place aircraft. First \$13,000.00 takes it. Ask for Tom Harper - Home (813) 886-3842 office (813) 530-0714 EST

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# You may be a Redneck Pilot if ....

Your stall warning plays dixie.

Your cross country flight plan uses flea markets as check points.

You think sectional charts should show trailer parks.

You've ever used moonshine as avgas

You have mud flaps on your wheel pants.

Your toothpick keeps poking your mike.

You've ever just taxied around the airport drink-ing beer.

You wouldn't be caught dead in a grumman "Yankee."

You use a purina feed bag for a wind sock.

The side of your aiplane has a sign advertising your septic tank service.

Just before impace, you are heard saying "Hey y'all, watch this"

You constantly confuse Beechcraft with Beech-

You think GPS stands for going perfectly straight. You refer to flying in formation as "we've got ourselves a convoy."

Your matched set of luggage is three grocery sacks from Piggly Wiggle.

Pulled from the Internet via David W.S. King, Thank's David



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