



# Stetson Flyer

Stetson Flyers Model Airplane Club

November 2006

## Table Top Hit Wire Cutter for flat sheet foam cutting



Here's a quick, cheap and a little bit dirty hot wire cutting table based on the portable Wonder Cutter tool available from Foamfly.com for \$13.50. The tool works with two "D"cells and the wire draws about 1.25A so a pair 1250ma. cells should last more than an hour. Scrap wood was used and a 2-1/4" U-bolt form my junk box.

Table is 14" x 8" and this is really a bit too small. When you do a 16" wing half you need some table hold it flat when cutting the tip. Probably 12" X 24" would be better. Also screw it together with sheet-rock screws which is far better than nails and glue. Most of the guys here seem to prefer screwing to gluing.

Note the 1-1/2" space around the wire which seems to be necessary to have good air flow above and below the piece being cut to prevent the wire from getting hotter on the bottom then the top.

From a thread on RCGroups.com by John Forstall

## Coming Stetson Events...

Nov. 28 <sup>th</sup>	Regular Meeting
Jan. 1 <sup>st</sup>	First Flight of the New Year
Jan. 30 <sup>th</sup>	Regular Meeting

## Next Meeting

Tuesday, November 28<sup>th</sup>  
7:30 pm

## BUDGET MEETING

*Don't forget your "Bring'n'Brag"!*



Ford Somerville, our new treasurer, shows off his plane at the October meeting.

Our website address: <http://www.stetsonflyers.com>

## Club Officials and Contacts

<b>President</b>	Scott Clarke	613-824-5114
	president@stetsonflyers.com	
<b>Vice-President</b>	André Matte	613-747-4810
	vicepresident@stetsonflyers.com	
<b>Secretary</b>	John Jackson	613-445-5726
	secretary@stetsonflyers.com	
<b>Treasurer</b>	Ford Somerville	613-283-9096
	treasurer@stetsonflyers.com	
<b>Membership</b>	André Matte	613-747-4810
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<b>Chief Flying Instructor</b>	OPEN	
<b>Webmaster</b>	Simon Nadler	
	webmaster@stetsonflyers.com	
<b>Newsletter</b>	John Jackson	613-445-5726
	editor@stetsonflyers.com	

### **Mailing Address:**

The Stetson Flyers Model Airplane Club  
P.O. Box 456, Orleans, ON, K1C 1S8

### **Web Page:**

<http://www.stetsonflyers.com>

### **Dues:**

\$70.00 per calendar year; \$30.00 for students under 18

### **Meetings**

The Stetson Flyers meet at 7:30 on the last Tuesday of each month, except for December, June, July or August. The meetings are held at the Canadian Aviation Museum in the Bush Theatre.

**Use the back door to the museum!** To get to the back door follow the roads around to the extreme left side of the museum. Pass through the gate in the fence and proceed to the back door.

To receive the newsletter by email, send **your** email address to:  
[editor@stetsonflyers.com](mailto:editor@stetsonflyers.com)

## Please visit our web site at

<http://www.stetsonflyers.com>

Our web site is hosted as a community service by



**Magma Communications**  
EXCEPTIONAL INTERNET

## Newsletter Questions and Answers

### **Receive this newsletter via email!**

Instead of sending a printed newsletter by Canada Post, we can send you an email notice with the web site address where you can download the newsletter each month. The file is an Adobe Acrobat PDF file, which means that you need to use a FREE Acrobat Reader software to view or print the document. There is a link to the Adobe site to get the FREE software on our web site.

The benefits to you are faster delivery, colour pictures, less cost to the club, and environmentally friendly to boot!

### **How do I open the electronic newsletter?**

You *the latest version* of the free Adobe Acrobat Reader software installed on your computer. You can download this from:

<http://www.adobe.com/products/acrobat/readstep2.html>

If you are using a dial-up modem, this may take about 30 to 40 minutes to download.

### **Why do I get errors opening the newsletter?**

Most likely you have an older version of Acrobat – perhaps version 3 or 4. Please the install latest version as described above. It usually fixes all the error messages when printing or opening the newsletter.

### **I used to get emails about club events, but now only get a printed newsletter – what happened?**

Mostly likely your email address changed or failed and we were not given a new one. When this happens we revert to printed newsletters. To get back on to electronic distribution, just send an email to [editor@stetsonflyers.com](mailto:editor@stetsonflyers.com). By default, those with email addresses will be notified when the electronic version is ready for download. You can ask to

## Meeting Minutes October 31, 2006

Meeting opened at 7:45

22 paid members in attendance – quorum was established

Motion to open the meeting by Mike Gratton was seconded by Bob Butterworth, all were in favour with 1 abstention,

### Minutes

Motion to accept the minutes as published in the newsletter by Dan Murphy was seconded by Wayne Smith, all were in favour with two abstention.

### Treasurers Report

Our bank balance was \$5837 with no bills outstanding. The GIC balance is approximately \$7200.

### Webmasters Report

There is no webmasters report since there is no webmaster.

### Field Report

All were in agreement that the grass cutting at the field was the best that it has ever been, and there was agreement that the club should award the contract to Benny Reuter next year if he is available. The costs were around \$1200 which was more than last year but less than budgeted.

### Old Business

The motion from the last meeting was brought forward. A motion to amend the motion was made by Gerry Nadon and seconded by Mike Gratton to replace the words “such as” with restricted to. The final motion reads:

:Have membership fees waived for those members who participate in the running of the club through elected and appointed positions restricted to:

- President
- Vice President
- Treasurer
- Secretary
- Newsletter Editor
- Webmaster
- CFI

### New Business

A motion was made by Bill Pryde to extend free membership to all members over 70 years old. There was no seconder, so the motion died without a vote.

Scott Clarke gave a brief summary of the AZM including Annual Zone Fun Fly in Smith Falls at the airport, the idea to have a zone auction with funds returned to respective clubs.

### Elections

Sergeant at Arms – Peter Barnes

President	Scott Clarke
Vice President	Andre Matt (nominated by Gerry Nadon)
Treasurer	Ford Summerville (nominated by Gerry Nadon)
Secretary	John Jackson (volunteered)

Gerry Nadon moved that the nominations be closed, seconded by Stu Poulin. Unanimous vote. Since no positions were in contention, the slate of officers was acclaimed.

### Appointed positions:

John Jackson will continue doing the newsletter unless someone else would like to volunteer.

Simon Nadler has volunteered to be webmaster.

Andre Matte volunteered to be Membership Chairman.

The position of CFI remains open.

Motion to close the meeting by Gerry Nadon was seconded by Mike Gratton at 8:25.

## The reason for balancing LiPo Cells

Each cell, individually, needs to be kept between about 3.2V on the low end and 4.2V on the upper end. (NOTE: these are approximate values that vary from battery to battery, especially on the lower end. What's important to realize is that these are the approximate points above/below which some sort of damage can occur.)

Regardless the type of cells you are using, to be safe, it is best to periodically check the voltages of the individual cells. This is best done when the packs are charged or nearly charged. If, when checked, the packs are out of balance, you need to do whatever is necessary to bring them to the point where they match closely (within a couple of hundredths of a volt, hopefully).

Read the whole article on LiPo Cell Balancing at:  
<http://www.rcgroups.com/forums/showthread.php?t=599287>

# WHERE ARE THE WARBIRDS

## By Wayne Smith

Warbirds are generally considered to be planes of WWII vintage, but in recent years have moved from the piston driven types to now include jets and bi-planes (e.g. Gladiator, Swordfish) in existence in the late 1930's and 40's. Collectors are now buying up some very recent jets, as they become available. a

Many of you know, that I have a passion for those planes of glory now known as warbirds. This passion was developed in my early years, the 1940s, as the result of several minor happenings.

As a young boy, my father who worked for Canadian General Electric, in Peterborough, Ontario, would come home from work, at 12:00 noon. (There was a whistle which signaled the start and end of the work periods.) Living a short distance from the CGE, I would from time to time, go there and meet him and we would walk home together. On one occasion, a pilot flying what I believe to be a de Havilland Mosquito, made a pass, between the buildings. This had to be shortly after WWII. The sound of those two Rolls-Royce Merlin engines became indelible in my mind and to this day, when I attend events where Spitfires, Mustangs, Hurricanes, and others appear, I can't help but fight off a tear or two in my eyes.

A ride in a Tiger Moth, was something I was exposed to at an early age, so early in fact, that I don't remember it, but my father had a friend who took me up, on my dad's lap, strapped into the front hole. Hence, my present day quarter-scale moth.

Watching Harvards (from Trenton?), doing acrobatics over Peterborough, gave me many moments of pleasure as I prostrated myself on the lawn and gazed longingly at the clear blue sky.

In the 1960s, Airfix (English) were manufacturing 1/72nd scale plastic planes, which came in a cello type bag, but long before that, I was introduced to small (approx. 1/72nd scale) wooden warbirds, by an older cousin. They came in a box and the kit was composed of a block of balsa wood and some sheets of 1/16th balsa. We would cut out the side view from the plans and glue it to the side of the block, then with our trusty Gillette razor or one edged Valet razor blade, carve the side view shape. The procedure was duplicated for the top view, and then we sanded down the block to give it the oval shape from the front and rear. Wings were made in the same way by gluing the plan to the sheet balsa and then, cutting them out. After all the parts were ready they

were then glued together using Lepage's Model Airplane glue. It was very fast drying and not fuel proof. These airplanes, naturally, didn't fly. I built several, but the first was a Messerschmitt Bf 109 and the second a Spitfire. So, into the wonderful world of modeling, I did venture. It also put me into a world of having blue jeans with thighs hardened from wiping my gluey fingers on them and many cuts from the razor blades. Mum must have really appreciated that!

Next came my first exposure to building an elastic powered Cessna 140. Yes, Cessna is that old! This kit I believe was a Guillows kit and I shared the building of it with the brother of the above-mentioned cousin. Did it fly? I doubt it!

Finally, a warbird! Dad had a co-worker who's brother had a kit that he didn't want. He offered it to me, so Dad brought it home. This kit for those of you too young to know of these things, was manufactured during the wartime, I suspect. There was no balsa wood in the kit. I believe it was being used in the war effort, in the Mosquito. All the stringers (longerons) and spars were made of a hardwood (maple?) and all the ribs, formers and wingtip parts were made of a very tough paper (cardboard). In those days, wingtips were made of several little pieces, glued together. Covering was tissue, which we dampened with a wet cloth. When it dried, it shrunk. We glued it to every spar, leading edge, trailing edge and rib, in the wing, and every longeron and former of the fuselage. Needless to say, there were lots of pulls in the corner which couldn't be taken out with a heat gun, as can be done today. The most serious problem with this was warping from the wetness. Clear dope could also be used to tack the tissue to the frame members. Again, the dope for these rubber band powered aircraft did not need to be fuel-proof. Getting back to the kit, it was a Westland Lysander, with a thirty inch wing. (The British used this plane as a short field aircraft to smuggle agents, dignitaries, etc., in and out of Europe. It also could carry eight small bombs attached to racks installed on the landing gear struts.) I had this model from about age eight until I left home at the age of eighteen.

This was soon followed by such types as Bf 109, F4U Vought Corsair, North American P-51, and a Lockheed Hudson. I was, you might say, "hooked on warbirds". Many more would follow.

Naturally, I joined the air cadets and was exposed to trips to Trenton where we flew in Expeditors, Daks, and even an S-51 helicopter. I was also fortunate to get a ride in a Mitchell, through a friend. These years

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exposed me to a greater number of types including a Lockheed P-38 Lightning that was posted to Spartan Airways at the Oshawa airport, where I was getting my private pilot's license. Field aviation had a Canso and there was a Chipmunk there also. If my memory serves me correctly, there may have been a Mosquito there. There were also many other non-military types that are seldom seen today, such as the Culver Kadet, Puss Moth and Aeroncas.

Having left home, I was not in a good position to be transporting model airplanes from posting to posting, so I left them there for my folks to enjoy. I guess they enjoyed them for two years before they got rid of the entire lot, knowing I would never be home to live again. I was devastated.

Now we fast forward to the 1960 era. A friend and I, became involved in control-line. I was stationed in Surrey, B.C., at the time. Although we built scale models, we also, like the combat flyers of today, would build combat aircraft with .049 engines. The rule was that the aircraft had to be made from one piece of balsa, one-quarter inch thick by three inches wide, by three feet long, plus a hardwood motor mount. There was no ribbon cutting, you had to knock each other out of the sky, by collision. Last one flying was the winner.

Seattle, Washington, is where I bought a thirty-three inch Mustang. It is a Top-Flite kit and has molded balsa (one-piece panels) for each side of the fuselage. Around that time I built a 30" Nieuport 24, tissue covered and a Great Lakes bi-plane. I still have all three of these, hanging in my basement. The Great Lakes, was all painstakingly hand painted including the checkerboard bottom of the wings, the sunburst pattern on the top of the wings and all the pin-striping. Unfortunately the years have not been kind and the tissue is brittle and has many holes in it. I have however, no intention of re-doing it as it brings back some very fond memories. For a little .049 size aircraft it was a very good control-line flyer. 1972 saw me transferred to Regina, Sask. No time for the hobby. I was busy coaching hockey, curling and flying (full scale).

Kids!!! I had to drop out the hobby, only building plastics (I still do!) until arriving in Ottawa in 1977. With still no time for the hobby until approximately 1980 something, my first wife bought me, at R&M Hobbies in Elmvale Acres, my very first R/C aircraft, a Tiger Moth. It was quite a project to take on, especially after so many years out of the hobby.

The kit, manufactured by Bud Barkley, had some older technology. Torque rods to the ailerons, which

I changed to servos, in the wings, but I have retained the pull-pull systems for the rudder, tail-wheel and elevators, in the interest of authenticity. At the skeleton stage, my life took another twist of fate when my wife of thirty-one years passed away and once again, I stepped out of the hobby. Working on the plane, brought back too many bad memories.

However, a few years later while in Florida, I re-kindled my interest, while visiting the flying field, near Punta Gorda, with a friend. On the return trip, my wife suggested that I finish the "Tiger" and so I did. Now, I was committed to learn how to fly it. Hopefully, if I can get it running (Ryobi 31) and fly it in the spring or summer of 2007. As a warbird, it is not what you would consider a true fighter aircraft, but it did contribute much to the training of future pilots. I believe also, that some actually saw some combat! Flying by the seat of my pants (you might say) I laboured away and learned about using fabric coverings, which I prefer to the new Mono-Kote type coverings.

Finally, I decided it was time to build another real warbird, so I purchased plans from Roy Vaillancourt, in the U.S.A., for my Hawker Typhoon. There is nothing like taking on a major project, to keep one's mind away from the trials and tribulations of everyday life. In spite of the many models I have built over the years, this project, I must admit has been very challenging, fraught with problems, and as relative newcomer to R/C, it has offered me many new and exciting things to learn.

The plans were not perfect resulting in different spacing between wing ribs and in fact a different length to each wing, which of course had to be changed. So, the first thing I learned, is check the plans, make sure that things are symmetrical when they're supposed to be. Other firsts, for me as a builder, where such things as "crutch" construction of the fuselage, installation of retract systems, kill switches (I hadn't at this point put one on the Moth), use of different bonding materials (epoxy glues, CA, Goop, Elmer's Ultimate, a polyurethane; canopy glue, sequencing valves, fiberglass cloth and finishing epoxy. All of these were new to me as the best I had used in the days of control-line, was Ambroid cement... remember?

The challenge of painting the camouflage colour meant acquiring a compressor and attachment for painting. I also experimented with different ways to overlay the colours so that I had feathered lines between the colours of the camouflage and hard lines where they should be. Making straight lines on a tapered and oval shaped body such as the coloured

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band ahead of the tail fins presented yet another challenge.

It also offered me the chance to experiment with different methods and using different materials. For example, I filled many of the polystyrene plastic parts, such as the cannon shrouds, with the foam used to insulate windows. It glues itself to the plastic, then offers a larger surface to affix two halves together, rather than trying to glue along the fine edges. This can be done with very little added weight. New hinges for control surface also demanded some investigation in terms of strength for this heavy aircraft. This build, took over three years of immense enjoyment and although it is far from being a perfect model, I am quite happy with the final result.

With a one piece wing of eight feet, it does present a problem getting it from place to place. One huge problem has been the landing gear doors. Every time I take it out I seem to break off the corners, so I am presently making aluminum "clam shell" inner doors and I plan to reinforce the "corners" with aluminum also. To me it's worth it though, especially when I take it to the museum and speak to some of the old vets who are familiar with the type.

Speaking of old vets, I have been able to make contact with some members of the Typhoon Pilots Association and must thank both Harry Hardy (His aircraft has been the subject of plastic model kits and colour diagrams. All four of the aircraft he flew bore the squadron marking I8\*P and had the name Pulverizer I, through IV) in Burnaby, B.C. and Ken Hanna, of Greely, Ontario who have been most co-operative in supplying me with historical data. As time passes, these men will pass on, just as their aircraft have passed on. After WWII, only one Typhoon was saved for posterity. How foolish the Brits were, in my estimation. With the rising interest in warbirds, what a sight it would be to see a Tiffie in the air again! When one can now see more than one Hurricane and many of other different types, it makes you appreciate the restoration of these wonderful aircraft. To see the Halifax, the only one, that has been restored, in Trenton's museum and to understand the painstaking effort, the enormous cost, and the love of those (many of whom are vets) who worked on the restoration, helps to understand the importance of conserving our history. Like I said, the wonderful sound of a purring Merlin or the deep throaty growl of double rowed radials as used in many of the navy fighters, is music to my ears. I know I'm not alone.

Since my introduction to R/C, I have been exposed

to Caps, Giles', Extras, pattern and an assortment of other great flying aircraft, some scale, some not. As a modeler, I'm partial to scale aircraft, be they Piper Cubs, WWI bi-planes, jets, or my first love (aviation wise) warbirds. I must confess my disappointment at the lack of interest in these historic aircraft from the past, When countries like Great Britain take steps to destroy planes after they are finished with them, then they are lost. We as modelers can do some thing albeit in a small way (no pun intended) to preserve aviation history in miniature. Where are they?

Wayne Smith

## Life Expectancy of Lipo Batteries

An interesting forum discussion about how long LiPo's are expected to last referred to some specifications on the FlightPower packs. The forum discussion viewed this data as accurate and applauded the manufacturer for providing honest data.

From the data presented at:

<http://www.modelflight.com.au/flightpower.htm>

- ◆ 1C Charge 20C average Discharge, cycle life expectation: 50 Cycles to 80% Capacity. This will only affect the craziest EDF projects and must be factored in as the normal running cost of such applications.
- ◆ 1C Charge 10C average Discharge, cycle life expectation: 200 Cycles to 80% Capacity. This represents the limit of normal RC use and most users should regard 200 Cycles as a minimum expectation to 80% retained capacity, of course the pack will normally continue to function well beyond this point.
- ◆ 2.5C Charge 10C Discharge, cycle life expectation: 100 Cycles to 80% Capacity. Fast charging at 2.5C is possible with the FlightPower EVO 20 packs in exchange for a reduction in cycle life. This is recommended "in case of need" and use

## LiPo Safety TIP:

Always charge your LiPo batteries in a fireproof container. I have seen several variations in the past year: fire safes, pyrex dishes, clay flower pots upturned onto a clay saucer, clay drainage tiles, wood boxes lined with firebrick, etc. I have also seen pictures of workshops burned out from a misbehaved cell blowing up. In my workshop I have installed an extra smoke detector and fire extinguisher in the area of my battery chargers just in case.

# Setting up your own RC build project-using laser cut parts!

By Ken Park

(Designer of the Orville .25 and SHARK-E)

Eeeek... I've never designed parts or drawn in CAD before. This laser cutting stuff seems so confusing? Well its not really all that hard, so if it is something you are interested in, please keep reading. I think everyone has seen the fantastic quality and fit of laser cut parts. What you should be asking yourself is "Would it be easier if I used some, or all laser cut parts?" The end result of this thinking is "Wow this project was fun because it simply snapped together in no time at all."

Let say you got some plans for a neat little plane, and everyone in your entire club wants to build one. You have 20 guys who have signed up so what we need is to make 20 copies, Fast!. You study the plans and see the only labour intensive parts are the 10 ribs needed for the wings. "It sure would take a while to cut those all out by hand, but what if we got them laser cut?" Great idea! How do we do that?

The parts you want made must be first drawn in a CAD format (DXF, DWG, PLT, or CDR.) The laser-cutting program reads this format and directs the laser to cut the parts on the cutting table. (In most clubs these days you can find at least one or two guys who can draw your parts for you in a CAD format. ) I myself have an old drafting 2D program "Ashlar Drawing-board" that lets me export my drawings into Auto-Cad .DXF

If you want to try drawing some parts in CAD yourself, here is an easy way to do it. Use the drawings below and follow the steps.

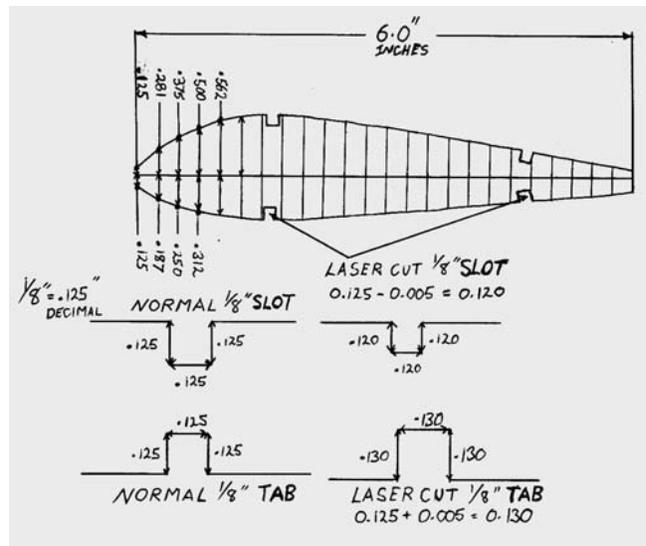
#1 First trace-draw the rib on a sheet of paper full size and then draw a centerline horizontally from tip to tip. Next mark off vertical lines every  $\frac{1}{4}$ ". Carefully take all the measurements you can. Horizontally from tip to tip the rib is 6.0" Measure all the  $\frac{1}{4}$ " - .25" spaced lines above the centerline in decimal form and then do all the bottom vertical lines.

#2 Next open up your computer-drawing program and transfer the measurements you made. Draw a 6.0" horizontal line and bingo! The centerline is drawn. Work from front to rear drawing all the .25" spaced vertical measurements and then repeated for the bottom. You should be able to use the program to connect all the end points together and there you have it an exact airfoil outline as you had originally drawn it on paper. Delete all the internal horizontal and vertical lines.

Note: The laser will burn/remove about  $\frac{5}{1000}$  of an inch or a .005" decimal thickness of wood material when it cuts, so if your worried about a super exact fit subtract that .005 from all inside drawn lines. Example lets cut a  $\frac{1}{8}$ " - (.125") square notch for the top/bottom stringer. So what should be an open ended 3 sided box drawn with all lines .125" become?  $.125 - .005 = .120$ " sized box on 3 sides centered.

I used to go to great lengths to make it exact as possible and have found its not a really a big factor in fit as long everything is drawn to the same range of accuracy.

General rule is this: For inside cut edges/circles subtract .005". The opposite is used for outside edges. Example you want to draw a  $\frac{1}{8}$ " - (.125") external square tab that sticks up above the rib. You then add  $.005 + (.125)$  to make your tab 3-sided = .130. When the laser cuts around the tab, it should be back at .125.



#3 Using this knowledge, you can go ahead draw in all the final details needed for your airfoil. The good thing with drawing programs is you only need to draw the tabs or notched box once then you can copy and paste them as many times as needed. So go ahead and draw all those tabs, slots and lighting holes.

Now comes the part that will let the laser company take your file directly to the cutting phase saving you a ton of set up time that is normally charged at very high value per hour. You simply need to understand the layout required.

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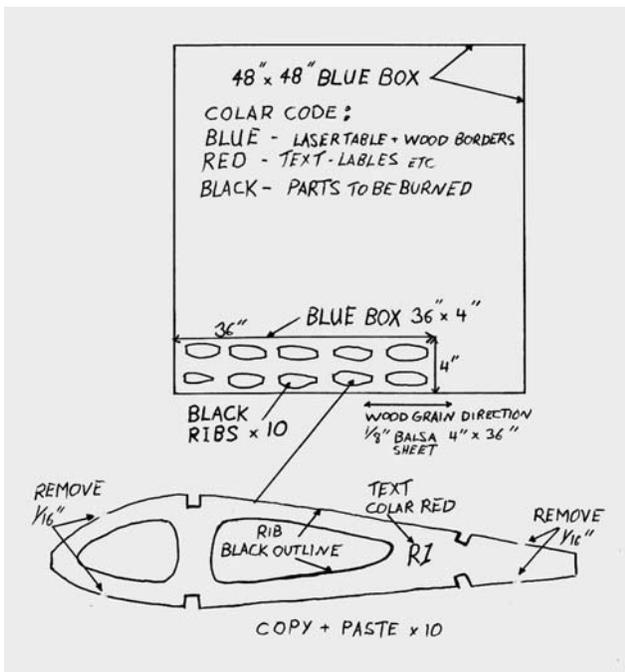
#4 A: Draw a **BLUE** pen colored box 48"x 48". This blue box is the border size of the laser-cutting table. So all wood parts must fit in this box. Simple!

B: Draw inside this big blue box – **Standard size blue boxes that match the standard sizes of store bought sheet wood.** So for our 10 ribs I can get them all copied to a single sheet of 1/8" balsa wood " 4" wide by 36" long. This new blue box would be a typical standard size you could buy from a hobby store. So I would draw 1 x 4"x36" blue box and place it inside the bottom left corner of the border 48" x 48" box.

Note: sheet sizes longer than 36" long may cost you more to ship!!!

C: Next drag your **black** colored pen airfoil your made next to your new 4" x 36" blue box. If you wish to label your part "R1" then used the text tool and use a **RED** pen to print on your part. The laser will then etch the letters/number on for you. This is great way to label or indicate glue lines or cut lines for the builder to follow.

D: Your part is almost 100% complete, but if the laser were to cut it now it would simply fall out of the 4" x 36" sheet. You need to remove a few tiny sections say 1/16" or 1/8" wide along the outside edges (tabs) so the laser stops hops over 1/16" and starts cutting again. When you get the wood sheet you only need cut 1/16" to get the part out. I normally use 1/8"-.125" for balsa and 1/16"-.062" for ply.



## 2006 Ottawa Valley Zone Annual Zone Meeting

