Cloudbuster membership and subscription to the newsletter is $15.00 per year ($6.00 membership without subscription). All memberships expire on Dec. 31. Subscription membership includes all Newsletter issues for the year.
Red 2012 on label means this is your last issue.

Send subscription money to:
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25436 Wareham Drive
Huntington Woods, MI 48070

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The Cloudbusters meet at 8pm. on the third Tuesday of the month at
Drayton Ave. Presbyterian Church
2441 Pinecrest Avenue
Ferndale, MI 48220 The meeting room is #309
No meetings in June, July, or August.

Be sure to visit our web page to get the summer 2012 handout. If you do not have access to the web or a printer, contact a member who does and get your copies for handout today.

Cloudbusters Model Airplane Club
25436 Wareham Drive
Huntington Woods MI 48070

Cloudbusters NEWSLETTER

Cloudbusters Model Airplane Club of Michigan, Inc.

Our 74th Year — Jan/Feb 2013

MERRY CHRISTMAS

Ramblings from the Editor

Yes, it is that time of year already. Merry Christmas and Happy New Year. Don't get too confused. You just got the January / February Cloudbuster newsletter a little early. Consider it a Christmas present. If you are like me, you get all warm and fuzzy, and excited when you receive it. As you read through it and gaze upon the plans and pictures, you look forward to new adventures in building and flying, and remember past fun times with your friends and airplanes. How many of you though, can remember your first official FAC contest flight? Don't you wish you had a picture of that wonderful time, other than in that foggy thing called your brain? Well, maybe here is that wish come true for one of our newest contestants - Marie Moore. Picture by George Bredehoft at the Cloudbuster outdoor FAC contest from October 7, 2012, with proud dad Winn Moore timing.

In this issue please find the PT-19 trainer by Earl Stahl. This one plane will qualify for the Earl Stahl events, Low Wing Military Trainer, Simplified Scale, Scale, and there is even some evidence, with the correct color scheme, it could be flown in Golden Age, pre WWII as a Fairchild M-62A.

Many of the issues about building an Earl Stahl plane from the old Air Trails magazine have been removed for you. Our editor has done some photoshopping and has put both wing halves on the plan, as well as putting the full stabilizer on the plan. Earl Stahl's complete write up from the magazine is even included to help with the building.

What are you waiting for? Open up the plan and get to building, so you can join in on all the fun with the Earl Stahl Events planned this year.

This issue also includes from the hands, and mind of Bob Bienenstein, a standard class Indoor Catapult Glider named The Little Shooter. The Little Shooter holds the AMA category III record with a time of 121 seconds. Just think, that is a glider, not a powered flight lasting more than two minutes.

If you do not know who Bob Bienenstein is, here is a brief resume obtained from the AMA web site specifically
www.modelaircraft.org/files/BienensteinRobertBob.pdf

I would have put the whole impressive autobiography here, but I did not have permission, and besides it is nine pages long. Go to the site above if you want to be impressed.

Bob Bienenstein

Career:

National Perpetual Trophies
- 1947, 1949, 1993, 1996, 1997 and 1999: Mulvihill
- 1954: Wakefield Aero Cup
- 1947, 1954, 1960: Stout Indoor

1996 National Records
- Outdoor, Free Flight Moffett, 43 minutes

Consultant & Designer for Manufacturer
- Midwest Model Company

Consulting Work
- Did consulting work for Education Development Center, Inc. and Society of Automobile Engineers for Aero Science Program for 8th graders in public schools

Contest Director
- 1971, 1976, 1984, 1987: Committee member for MI State Meet
- 1994: Director for U.S. Indoor Champs
- 1995: Director for a US FAI Team Sel. Program, Muncie, Indiana

Honors:
- 1985: National Free Flight Society Hall of Fame
- 1990: AMA Outstanding Award, World Champs
- 2000: Model Aviation Hall of Fame
- 2000: Society of Antique Modelers Hall of Fame

Lastly, this issue also of course includes some great tips and techniques, but a little reminder, DUES ARE DUE! Remember that all Cloudbuster memberships expire in December and the last newsletter you receive is the Jan/Feb issue of the following year without renewal. If you have not already paid, there will be a RED 2012 on your mailing label. Remember, also that the dues are a very big part of what keeps not only the newsletter, but the whole Cloudbuster operation going. It is also a great time to increase our membership. If you know of someone who is into airplanes but is not a member of the Cloudbuster, share us with them. Just think, if every Cloudbuster was able to get one new member to join this year, we would double our membership. That sounds like a worthy goal for 2013. How about it Cloudbusters, can you bring in one new member this coming year?

Chris A. Boehm

POWER - 8 STRANDS 1/8" RUBBER

BAMBOO PIN

8-B

7-B

NOSE PLUG

THE NOSE IS "FILLED-IN" WITH 1/16" SHEET; SECTION FROM 3 TO 6T COVERED WITH 1/32" SHEET

CRASH PROTECTOR

1/2 WINDSHIELD PATTERN

6T

7T

8T

9T

6B

FORMERS 1/16" SHEET

STABILIZER POSITION

1T

2T

3T

4T

5T

6T

STRINGERS 1/16" X 1/16"

7T

8T

9T

NOT COVERED

1S

2S

1B

2B

SCALE DIHEDRAL 1 7/8"

FILLET POSITION

6B

3/32" X 3/32" LONGERONS

1/16" X 3/32" CROSS MEMBERS

8B

7B

3B

W-R

NOSE BLOCK

SECTION FROM 3B TO 6B FINISHED ONCE WING IS FITTED

OUTLINES CUT FROM 1/16" SHEET

FORMERS CUT FROM 1/16" SHEET

1T

1B

3-4-5

2T

2B

3-B

1S 2S

COCKPIT SHAPE

BALSA COVER

LANDING GEAR DETAIL

.040 MUSIC WIRE

RUBBER TUBING COVER

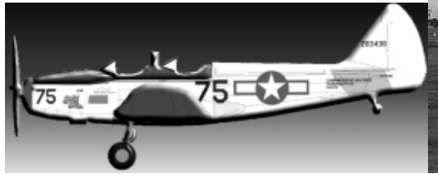
4 @ 1 7/8" = 7 1/2"

1 3/8"

7/8"

7/16"

PROP BLANK
7/8" X 1 3/8" X 7 1/2"
HARD BALSA



FAIRCHILD PT-19
by
EARL STAHL

FAIRCHILD PT-19 ARMY TRAINER

BY EARL STAHL

A "natural," either in the air or on the ground, your PT-19 model will be a standout.

Designed to meet the rigid requirements for training planes of the United States Army Air Corps, the Fairchild PT-19 is of a design similar to the majority of combat planes, yet it possesses the flight and strength characteristics required of training aircraft.

This two place, low wing monoplane is powered by a Ranger engine of 175 h.p. which gives a speed of 135 m.p.h. Construction is conventional, wood, metal, and fabric being used; the cantilever wing is plywood covered. A high degree of visibility, an important factor in all training planes, is achieved by the use of the inverted, in line engine and the open cockpits.

From the modeler's point of view the PT-19 affords a fine subject for a flying scale model. The test model was built to exact scale except for a slight modification of the stabilizer area and, of course, the enlarged propeller; it is capable of making flights of about one minute. Because of the plane's simple, efficient design, it is not difficult to construct an authentic, sturdy model from the full size plans, which are presented here.

CONSTRUCTION

The fuselage under frame is constructed first. Work directly over the plan and make two side frames. The longerons are 3/32" square, while the uprights are 1/16" x 3/32" balsa. When dry, the side frames are inverted over the top view of the fuselage and the cross pieces are cemented in place. Check frequently to assure proper alignment.

Formers are cut from soft grade 1/16" sheet balsa. It will be noticed that a number of the formers do not have notches for the stringers; where this is true, the stringers are to be attached directly to the sides, as shown. Cement the formers to their respective positions and then add the 1/16" square stringers. On the bottom of the fuselage between Sections 3 B and 6 B the stringers are omitted, since the wing is later placed in the recess. Stringers which run along the sides are cemented directly to the under frame.

To represent effectively the metal engine cowling of the real Fairchild, the nose forward of Section 2 should be "filled in" with pieces of 1/16" sheet. Accurately cut the individual pieces so they will fit neatly within the space between the stringers and formers. The nose block is cut from a medium grade piece; cut out the square hole, as shown, for the rubber motor to pass through. Cement the roughly cut block to the nose and then sandpaper the whole nose to a smooth, attractive shape. If desired, the nose can be covered with thin sheet balsa instead of the suggested method.

The top of the fuselage from 3 T to 6 T is covered with soft sheet. Space limitations prevented making a complete pattern of this part but the cockpit shape is indicated. A piece 1/32" x 2" x 4 9/16" is required; check the plans for the exact position of the cockpits. Cement the covering in place, using pins to hold it fast until dry. Finish the section between 2 T and 3 T by "filling in" with sheet balsa as before.

It is necessary for the wing to be of sturdy construction since the landing gear is attached to it. Ribs are cut from 1/32" sheet with the exception of W 4 which is 1/16" thick; two of each are required. A full size left wing plan must be made. The various parts are assembled directly over the plans. Sizes of the various spars, et cetera, are noted on the plan. The 1/16" x 1/4" hard balsa spar to which the landing struts are attached is not placed until the dihedral is added. Scale dihedral of 1 7/8" proved satisfactory on the original model, but to those not interested in exact scale, we recommend an increase of about 1/4" in each wing for an added measure of stability. The wings must be joined together accurately and solidly. Attach the 1/4" deep spar and reinforce the junction necessitated by the dihedral. Trim and sandpaper the leading and trailing edges as well as the tips.

Any excess weight in the rear of the model must be balanced by additional weight in the nose, so exercise care to prevent any unnecessary weight in making the stabilizer and rudder. Both are constructed in a similar manner; the outlines are cut from 1/16" sheet and the spars and ribs are 1/16" square medium stock. Light strips are cemented to both sides of the ribs and when dry they are cut and sanded to the streamline shape indicated on the plan. Surfaces constructed in this manner are light yet they will not warp readily.

The landing gear struts are fashioned from .040 music wire. The wire is bent in such a manner as to join the spar provided for that purpose and Rib No. 3. Attach the struts in place with thread and plenty of cement; use a needle and sew right through the rib and about the wire. Be sure to make a right and left strut. The balsa and rubber tubing covers are added after the wing is covered.

Wheels are made from laminated disks of balsa, or they may be purchased. Bearings should be cemented to the sides so they will revolve accurately and smoothly.

A neat, attractive covering is necessary for any fine flying scale model. The frame must first be prepared for the covering by lightly but thoroughly sanding every part to remove all flaws and roughness. Blue and yellow colored tissue is used. Cover the fuselage first using the blue tissue. Thin dope or banana oil is used as adhesive to stick the tissue to the frames. Grain of the paper should run from the nose to the tail. Numerous small pieces of tissue must be used to prevent wrinkles; individual pieces should be lapped neatly. The nose and other wood parts should be covered with tissue, too. The wings and tail surfaces are covered with the yellow tissue; the grain runs spanwise. Attach only the extremities of the area being covered. Tips, et cetera, require separate pieces. The parts are lightly sprayed with water to tighten the tissue, but they are not doped until the model is assembled.

The various parts should now be assembled. Cement the wing in place; if the structure has been reproduced accurately the angle of incidence will automatically be correct. Finish the under section from wing to fuselage with pieces of 1/16" square. Wing root pieces W R are cut from 1/16" sheet and attached between the wing and fuselage. Fillet pieces to be cut from 1/64" sheet are shown on the plan. The pattern indicates the shape of the fillets on the original model, but since more miniatures will vary a little, paper patterns should be made to fit your model exactly before the sheet balsa ones are cut. After the fillets are cemented in position, they are covered with blue tissue, as is the uncovered portion under the wing. It will be necessary to cut the rear of the fuselage temporarily to admit the stabilizer, which is attached at the exact angle indicated. Offset the rudder a bit to counteract torque. Tissue fillets are placed between the stabilizer and rudder. Any wrinkles in the covering should be moistened with water and permitted to dry before the entire model is given a coat of clear dope. Dope should be applied in a dry room to minimize the chance of "blushing."

Numerous details can be added to improve the model's appearance without harming the flight ability. Streamline covers at the top of the landing gear struts are made from pieces of balsa, while the lower part of the strut is covered with rubber tubing of the correct size. Washers soldered to the ends of the axles will hold the wheels in place. The stars, rudder stripes, U. S. ARMY, et cetera, are made from colored tissue and the effort required in making them will be amply repaid by the snappy appearance they add to the model. Control surfaces are outlined by thin strips of black tissue. The pylon between the cockpits, which protects the pilots in the event of a turn over, can be made from thin pieces of bamboo. Celluloid windshields, the tail wheel and other details should be added.

For best flight performance any flying model must have an efficient propeller. Select a hard block 7/8" x 1 3/8" x 7-1/2" and cut out the blank as shown. Carve a right hand prop with a bit of undercamber in each blade. The spinner is made in two pieces and glued to the sides of the prop. Cement a washer to the back so it will revolve smoothly. A freewheel device of some sort should be used to help improve the glide. Sand the propeller and color dope to a nice finish.

The removable nose plug is shown. A disk of 1/32" plywood forms the front while the back is laminations of balsa. Fix the thrust line by cementing washers to the front and back of the plug.

For the prop shaft .034 music wire is used. A loop to which the winder can be attached should be bent on the front of the shaft. Place several washers between the propeller and nose plug.

Eight strands (four loops) of 1/8" brown rubber are used to power our trainer. Hook the rubber to the prop shaft and with the aid of a weighted string; drop the other end through the fuselage. A bamboo pin holds the motor in the rear.

FLYING

To prevent damage to the model at this crucial stage, test flights should be made over deep grass. The descent from a hand glide should be flat and smooth, a small corrective weight may be required to obtain the desired results. Once the glide is good, all further adjustments are made at the nose plug. Right or left thrust will control the amount of circle, and a bit of downthrust will correct a tendency to mush or stall.

The author's PT-19 has been flown many times and proved to be an excellent performer. When winder wound it climbs in large left circles until the power is exhausted and then it descends in easy right spirals. It is tough, too, having emerged from encounters with trees and other model catchers with only minor tears in the covering.

Notes from the President

Hello fellow Cloudbusters. Well, here it is a new year already. Hope everyone's building projects are coming along good or at least as well as expected.

A few quickies for your information. Remember that the January 2013 meeting on the 15th will be the Club's annual auction. Volunteers to act as part time auctioneers are welcome. Balance of 2013 meetings, prior to the summer break, are February 19, March 19, April 16 and May 21. Mark your calendars now so you don't miss any meetings this spring.

Also remember that we are still flying at Heritage School the following Friday nights. January 4 and 18, along with February 1 and 15, and March 1 and 15. If you don't have email and the weather is suspect, be sure to call and verify that the school is open.

Also, indoor flying at the Ultimate Soccer Arena complex on Thursday will go on through April followed by the 2013 Indoor Fling contest on May 5. If you don't have email, be sure to call and verify that we have not been displaced by a Soccer Tournament, especially around Easter week.

Noticed an absence of Cloudbuster Vice President and Newsletter Editor Chris Boehm during November? Chris, for those who don't know, is the Maintenance Supervisor for a Senior Citizens Apartment Complex in the Flint area. Well, Chris was recently honored by Michigan's **GLAStar** (*Great Lakes Area Star Awards*) honoring excellence in the Michigan Apartment Industry. Our VP Chris was awarded the "Michigan Maintenance Person of the Year" award. We know the old folks living there think that, but now you know the rest of the story! When you see him, offer congratulations. It is a big deal in this state.

Mike Welshans

Cloudbuster Election Update
November 20th Meeting;

Officers for 2013

President - **Mike Welshans**
Vice President - **Chris Boehm**
Treasurer - **Dan Olah**
Secretary - **Davis Gloff**
Safety Officer - **Bruce Thoms**

Club Perpetual Trophies -
All nominees with winner at end in bold.

Each winner is followed by one of the nomination letters that justifies their victory and let's all know what it takes to be nominated and receive these awards. Space does not permit posting all of the nomination letters. One has to attend the meetings to hear them all.

Bill Adams For Service To Model Aviation

Joe Hass
George Bredehoft
Chris Boehm

I nominate Chris Boehm for the Bill Adam's Trophy. Chris has injected his building innovations into a superb newsletter that has raised the standard and image of the Cloudbusters during his very successful time as editor of our club newsletter. The newsletter has been his vehicle for conveying a stream of contributions to all of us who enjoy model aviation. Chris has been a bright light and an impetus to us all to participate in our hobby and broadcast its merits to all we meet. He is a worthy and exceptional candidate for consideration of this award.

George Lewis For Service To Cloudbusters

Davis Gloff
Dan Olah
Mike Welshans

I nominate Mike Welshans for the George Lewis Trophy for excellence in running our club in a very professional manner and not a single detail escapes his attention. He well deserves this award.

Dave Dulaitis For Promoting Scale Modeling

Paul Boyanowski
Paul Smith
Mike Welshans
Pres Bruning

I nominate Pres Bruning for the Dave Dulaitis Trophy. Pres Bruning has spent more of his precious hours contributing to the advancement of scale model building than anyone else in the world community of scale airplane enthusiasts. I would wager that he easily outruns all other authors in the production of scale model airplane plans that exist in the world today. It would be impossible to estimate the hours of enjoyment and fruitful effort he has provided the modeling community and hobby we love. His advantage of being part ELF notwithstanding, he is a unique individual who has proffered his talents in our direction for our benefit beyond measure. He is a worthy and exceptional candidate for the consideration of this award.

Ron Sears Top Gun Trophy For Contest Results

Mike Welshans

RIBS CUT FROM 1/32" SHEET 2 OF EACH REQ'D

1/8"X 3/8"

3/32" SHEET TIPS

W7

W6

1/16"X 1/16"

W5

W4

W3

W2

W1

THE LANDING GEAR STRUTS ARE ATTACHED BY THREAD & CEMENT

3/32"X 3/32"

1/16"X 1/4"

1/8"X 3/8"

W1 W2 W3 W4 W5 W6 W7

1/16"X 1/16"

3/32" SHEET TIPS

1/16"X 1/4"

3/32"X 3/32"

W2

W3

W6

W7

W4 1/16 SHEET

W1

W5

W8

FAIRCHILD PT-19
by
EARL STAHL

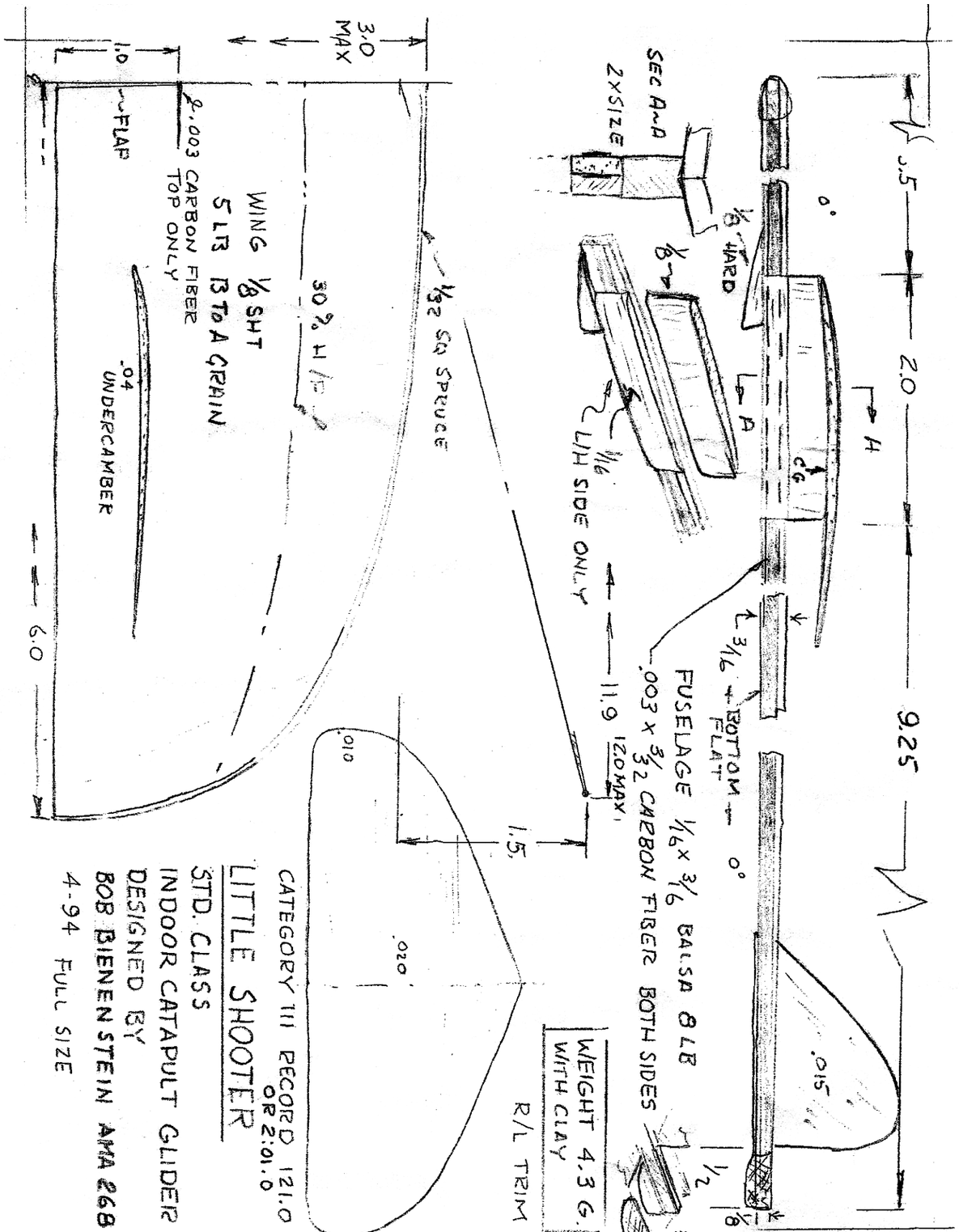
WING ROOT PIECE W-R

1/64" THICK FILLETS 2 REQ'D

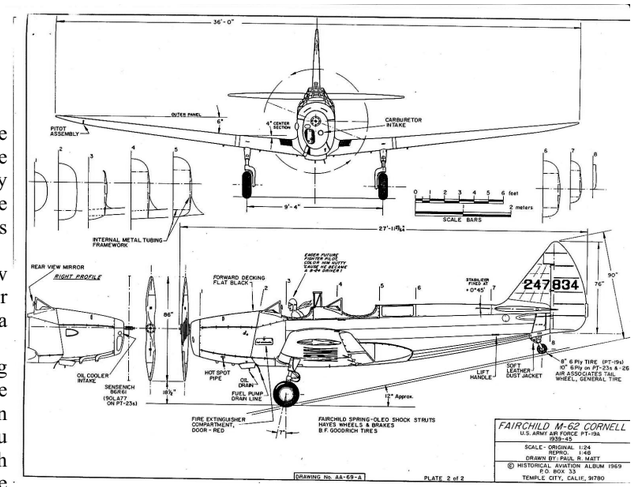
SCALE

TYPICAL SECTION

THE STABILIZER IS BUILT IN ONE PIECE



Little Shooter
Standard Class Category III
Indoor Catapult Glider
1994 National Record Holder

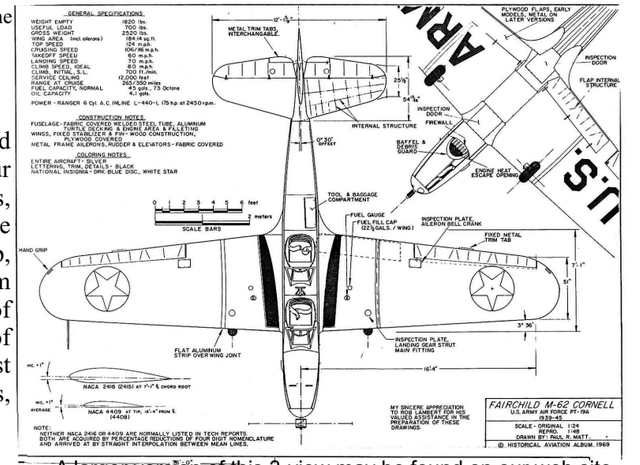


The plan is fairly self-explanatory. All parts are assembled with Tite Bond aliphatic resin except for the carbon fiber strips on the fuselage which uses thin cyanoacrylate. It's important to keep the tail assembly light as this greatly affects the rollout capability of the model. Most of the wood is in the four to five pound range except for the fuselage which is eight to ten pounds.

I have been flying variations of this design since 1985, mostly low ceilings. Highest ceiling flown 79 ft. The first designs were super sensitive to adjust before going to the present design adding the pylon ala Stan Buddenbohn.

If you are not familiar with the pylon trimming method, start by gluing the pylon to the wing, warp flaps down approximately 1/16". Then tape wing to fuselage at location shown. Add weight for C/G location shown on plan. Adjust incidence angle by sanding bottom of pylon. When you can firmly hand-launch the glider in a level launch and get a smooth recovery you can try a couple of launches with the pylon taped to the fuselage. Don't worry, the tape will hold. When you are satisfied with the trimming, you can glue the pylon to the fuselage. Good Luck!

Bob Bienenstein



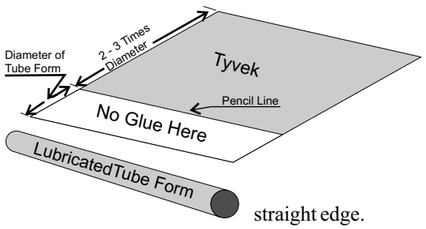
A larger version of this 3-view may be found on our web site
http://cloudbustermac.tripod.com/home.html

Hey Cloudbusters. If you don't think that your loved one, your kids, your grand kids, your significant other, or your friends are not getting you what you want for Christmas, check out our hobby suppliers below. I am sure that they have something that you might want for Christmas. Call them up, visit them on the world wide web, or drop them a letter. I am sure that they will be happy to send you what you want, (of course for a price). They will even gift wrap it for you, but of course their gift-wrapping paper, I think, they get it at the post office or UPS. Remember, it is not the wrapping that counts, it is what is on the inside.

A New Idea in Blast Tubes.

I don't know about you, (not Chris), but I was struggling finding blast tubes, the same diameter which would fit several planes, but they were all different lengths, or the diameter would be wrong and the small enough ones were too short. I have solved this problem by making custom fit tubes for each plane using Tyvek, the stuff they wrap houses with, to keep out drafts and moisture.

The process I use is pretty much like making a rolled motor tube without the waiting for the balsa to dry. I start by finding something to use as a form. Copper pipe, cardboard tubes, or pvc pipe can be used. Anything that is in the diameter I want. I then decide how long I want it, and cut it to length. The factory roll of Tyvek is three feet wide and forever long so you are pretty much unlimited for size. I cut the piece of Tyvek to length using a straight edge and razor. I also cut the end I'm starting with so there are no frays and I have a square edge to work with. Laying the Tyvek out on a flat surface with the printed side up, I roll my form (pipe) once around and draw a pencil line where the edge meets the sheet. Continue to roll the form until you have the desired number of layers, 2 or 3 are plenty and mark your end. Unroll and cut the end with razor and straight edge.



Now with the sheet print side up, again flat on the table, paint or brush on a heavy coat of thinned wood glue from the first line you drew to the end of the sheet. Try not to get any glue below the line on what will be the inside of the tube or it will stick to your form. I then put some form of release agent on the form, silicon lube or Pam will work. Roll the sheet onto the form as tight as you can, with a long tube extra hands help, until you reach the end. Wipe off any extra wood glue and seal the end with CA, holding the seam down until you get a bond. I like to slide the tube off the form at this point, just to make sure I can, and put another coat of release agent on before putting the tube back on the form to dry. I set it aside for a couple of days for the wood glue to cure, as the Tyvek is pretty air tight. I then remove the tube and trim to my finished length, running a thin bead of CA around the ends just to keep things tight. I also will make sure there is nothing sharp to damage the rubber. The tubes are fairly rigid at this point, but still have some flexibility which is nice when you are putting round things into square holes. You can stiffen them up as much as you like by coating the outside with a couple coats of polyurethane, thinned epoxy or finishing resin. I have tested one tube that was made of two layers, I wound 16 strands of 1/8 until failure and the tube just jumped a little with no change in diameter. Needless to say I now have a specific blast tube for the majority of my planes.

Winn Moore

Last Minute Note from the President

Hi all,

Here is an update for scheduled indoor flying the balance of this month.

Ultimate Soccer Arena;

Thursday, December 20 from 1:00 to 2:30 P.M. As always $10.00 per flier and spectators are free.

There WILL BE NO FLYING on Thursday, December 27 as Ultimate has Holiday Soccer Tournaments the week between Christmas and New Years.

The next session will tentatively be Thursday, January 3. If anything changes Amy or Dawn will let me know and I will forward the updated information via email.

Heritage School;

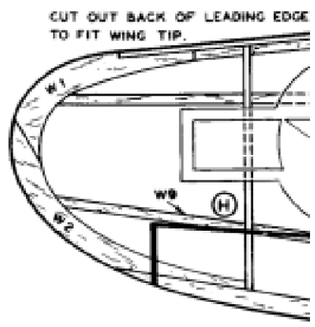
There is currently flying scheduled for Friday, December 21 from 7:30 until 9:30. The flying will include Blatter 40 and the normal FAC events, No Cal and Phantom Flash, plus whatever you want to fly for fun. Any changes and I will let you know.

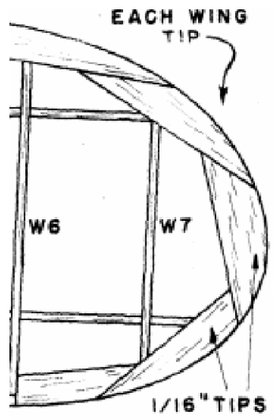
Mike Welshans

Rounded Wood Parts

I have seen many a modeler who just will not build a plane that has rounded wing tips, fins, or stabs. Yes square is easy but there are so many great planes out there with rounded parts. Those modelers are missing out on a lot of fun. The secret to building rounded tips is to find a way that you like and practice it until you get good at it. I guess, just like everything else in life, practice makes perfect, or at least makes better. Now if you are building to say, Dime Scale Rules, and a few other rules, you have to build the plane to the plan. Whatever way the designer drew the round parts, that is the way you have to build them, but in all of the other contests or if you are not competing with the plane, then build it the way you like. As most of you know, I do not recommend one way or another here. I try to share with you a few ways of doing something, then you figure out which way works best for you, then do it that way. But, to be sure you like one way over another, try some different techniques, maybe combine some of the techniques to find a way which is better for you.

The first way here is one of the oldest ways and you will find it on literally thousands of plans. It is using small parts glued together to make big parts that allow you to have the wood grain sort of following around the curve. Many builders work like they are building from a kit with all of the little fiddley parts to glue and pin together, but there is a much easier way.



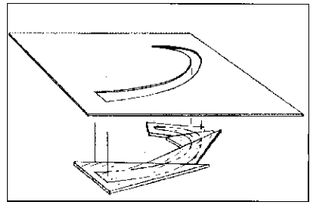


Glue together big triangular parts first, then cut wing tip to shape. Better explained with this article from pensacolafreeflight.org

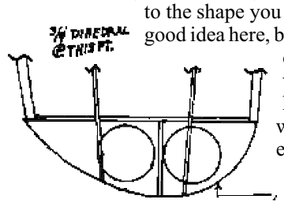
WING-DING TIP ON *WING TIPS*

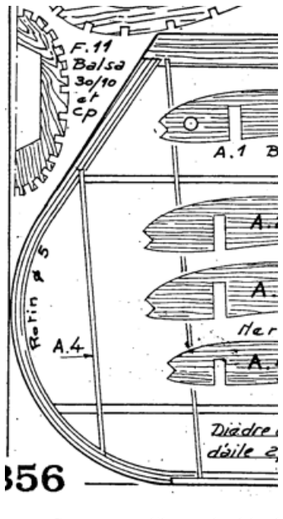
A very worthwhile article published in the March 2006 issue of NFFS Digest, Walt Rozelle, Editor
Jim O'Reilly Contributing Editor
at LargeBel Aire KS
[From the November 1985 *issue of* Digest.*-Ed.]*

Several years ago I decided to build Ed Lidgard's Eugene II. I wrote him and he suggested that Eugene might be a better flying ship. He offered me the use of his plans and templates. I accepted. What popped out of the mailbox several weeks later was a package containing more templates than plans. The only wingtip information in the bunch was a piece of light cardboard with a wingtip-shaped cutout in it. Hmmm . . .For years I had been carefully — and inaccurately — cutting out funny crescent-shaped pieces and gluing them together to form wingtips. Sometimes — but most times not — they even resembled the original intent of the designer. With Lidgard's templates you just glue up some oversized pieces of triangular shaped sheet stock, without worrying too much about the locations of the glue joints. Slap on the template, carefully trace around the edges of the hole with a sharp blade. . . Presto! Finished tips. *[And the genius of Ed Lidgard (now departed) visits us yet again.-Ed.]*

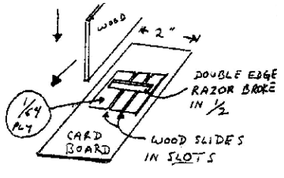


Another way, which is very simple, is to just use sheet wood and cut it to the shape you need. Lightening holes are probably a good idea here, but do not have to be used. The next way of making rounded wing tips or whatever, I will not try to cover in detail here. There have been so many articles written about it and published everywhere, but I will cover it a little because it is a great way of making rounded items. It is laminating. A simple concept, but oh so much to learn. Basically, wetting small strips of balsa or whatever, until they become pliable, and wrapping them around a form. Then glue them into place. Let's start with the form. It can be made out of card stock, balsa, plywood, plastic, metal, or even just a bunch of pins stuck into your building board. However, smoother on the edge where the wood is going to be formed is better. The thickness of the form should be about the same as you want the finished part. If you have it thinner, the strips may not form around it as well, and if you have it thicker, it may be a little more difficult to keep the strips lined up. Now you need to make sure your laminated parts are not going to stick to the form. You can coat the edge of the form with wax from a candle, or maybe your silicone rubber lube, or maybe even wrap it with wax or parchment paper. Whatever you prefer, but something to keep the parts from sticking to the form must be used.

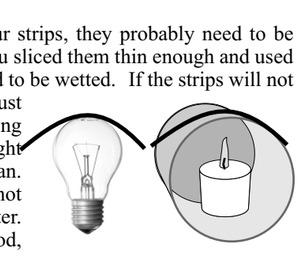




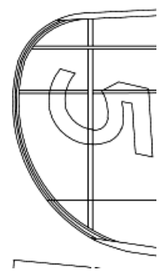
Now that you have your form, you have to decide on what size of wood to use. Some guys like to double the "height" of the wood, then cut to half the height so as to make two tips at one time. Most guys go only the height they need, some go a little bit more so they can sand the tip down to what is really wanted. As far as the thickness goes, the thinner the wood is, the easier it is to bend, and the more layers you can have, which is more strength, but more glue and weight. My choice for getting these strips is the Jim Jones balsa stripper, but they can be sliced by hand with a straight edge and razor knife, or you can buy any number of balsa strippers, or make your own. The following idea from Glenn Bearry, was published in the January 2005 issue of the Windy Sock, newsletter of the Alamo Escadrille, Joe Joseph editor. Glenn's jig shown below will yield 1/64 thin strips of wood. The jig shows 1/16 and 1/32 slots, which need to be exact in width. The blade must be secured by CA as close to the edge of the slots as possible to minimize flexing of the blade. Add as many strips, which you've made this way, together to get the right width for a laminated wing tip, stab, rudder or fuselage former. The article did go on to say that the cardboard base should probably be replaced with something harder such as bass or plywood.



Anyway, now that you have your strips, they probably need to be wetted. I say probably because if you sliced them thin enough and used soft enough wood, they may not need to be wetted. If the strips will not bend around the form, then you must help them. You can do this by heating the wood with a soldering iron, or light bulb, or some heat source inside of a can. DO NOT put wet strips of wood on a hot light bulb! It will probably shatter. Most builders do not use this method, but it does work with even relatively thick wood, even bamboo or oak. Most builders prefer to wet the wood. Here is another part that can get complicated. What to use to wet the wood? Some guys like water, some hot, some cold, and some boiling. Some guys like to use ammonia, such as in Windex. Some like to use saliva. Which works best for you? Well, try them all and see what is BEST for YOU. How long do you wet the wood before bending it? Well, how hard and thick is your wood? I have heard everything from soaking the wood for days, boiling it for hours, spraying it and letting it stand for a few minutes to running it through your lips and tongue and it is ready. May I suggest wetting it until it is easily bent, whatever time that takes. Some guys say that the ammonia does some bad things to the wood, but many others still swear by it. Have enough strips for a little practice, if it breaks, wet it for a longer period of time.

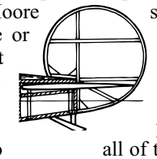


Now that you have your form and your strip wood, what glue to use? Here again are some choices for you. You can use any number of water based glues to run the strips through before applying them to the mold. Some guys like to thin the glue, but others say the water on the strips will thin the glue enough. Probably whatever glue you like to use to put the rest of the plane together will work for you. I have and have seen others recommend waiting for the strips to dry, or not wetting them at all, just put them around the form, then lightly apply CYA on the strips. That may not be the lightest and it certainly makes the part harder to sand, but it does work, and it is fast.



There is always the question of how to bend the strips around the form. Some guys do one strip at a time. Others bend them all at once. I have tried both and like to bend them all at once. When using the water based glues, I stack the strips up with glue in between each strip, and gently bend the whole stack around the form. The next big question is to push or pull. Some modelers say that if you push the strips around the form there is less chance of kinking the wood. Many others say to pull the wood. Pulling the wood has worked best for me, but there is a knack that you must learn. You do not just pull the wood around the form, you pull the wood as though you were trying to stretch it, and gently lay it around the form. It really is not that difficult.

There is another way of laminating the wing tips that might be of interest to some of you. I have never seen it written about, but that is not to say that someone has not already done this. I have used it many times and it works great. You start by making your own plywood. It is easier than it sounds. Say for 1/16" thick wing tips, glue two 1/32" sheets together, cross grain, then cut out the whole wing tip in one piece. Using a form to cut with such as in the Ed Lidgard's article above makes the cutting part very easy. The cross grain does not have to be at 90 degrees, just enough so the two grains are not parallel. This type of wing tip does not have to be as wide in cross section as the traditional put together multiple pieces method, so it can still be very light. Winn Moore suggested that you could even add Tyvek, tissue or bond paper in between the 1/32" sheets to make it even stronger. Of course for thicker wing tips you can stack more sheets up. Think about it. Many full scale aircraft had wing tips such as this with plywood.



I know, I did not go into all of the ways to make rounded tips, but my point was not to cover all methods or all variations of the methods. My point was to stop some modelers from avoiding models with rounded parts. Go ahead, it really is not that hard to have some fun, build that model with the neat rounded wing tips, or that model with that round fin. Experiment with the different methods shown here. Modify the methods to suit your building style or likes. Look at that next set of plans on your building board, see if any of these techniques might help you to build easier, better, faster, lighter, stronger, or whatever is your reason for trying new methods.

Chris A. Boehm