RCMW-FSP
March 2016

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Roland Friestad
1640 N Kellogg Street
Galesburg, IL 61401
USA

For the Model Bulder and Flyer - March 2016 Issue

Cloud 9
RC Micro World

Full Size Plans

RCMW is in the process of switching to a new version of the website software. Not being what you would call a website software expert I expect that there may be a few glitches and problems along the way. Please bear with us.

One thing that will affect our subscribers is the requirement that they re-register on the website. This is a bit of a pain but the reason for it is because the passwords are encoded so that we don't know them on this end. We know your name, username and address but have no way to access your passwords. The software is configured this way as a security measure and the subscribers are the only ones who each know the passwords.

We do have a record of the time remaining on each subscription and once you have re-registered then we can go in and set the expiration of each subscription using the information from the previous website software. Please bear with us for a week or so.

We have a new design by Bob Aberle, but it's an electric powered free flight and not an RC model. It's for a newly proposed E-20 competition using electric power and a timer to shut down the motor. An electric dethermalizer can be used also. Try it, I think you'll like it.

Bob's new model, the CIVY BOY 20 is loosely patterened after an older commercial model, the CIVY BOY 24 which was a Midwest kit. We've included the plan for the Midwest kit here also.

Also in this issue is another design from the prolific worktable of the late Vic Smeed known as the PAAGEBOY. From his description it sounds like a contender for not only sport flying but a real threat in several classes.

How about a UC Stunter ? We've included the MARK 30 ZILCH, a Berkely kit design for .09 to .15 engines. Might as well do some UC work now that the FAA is making RC flying more difficult with new regulations.

But, just in case you want to build an old timer of an RC model we've included the plans for the DeBolt LIVE WIRE CLIPPER. I think it calls for an .09 engine also. I'd bet it would be a good flier now that the need to carry all those heavy batteries to run the RC equipment aren't needed.

A bit of history is included with some photos we found on the internet of the 1909 Aeronautical Exposition held in France. Very interesting old stuff.

Why not cut 1/16 square strips of basswood instead of balsa ? It's a lot easier to handle and not that much heavier - John Jennings shows us how.

From an early issue of Air Trails comes Frank Ehling's design for EASY, a whole series of UC stunt ships that can be powered by .020 to .60 or larger engines. A neat idea.

Our downloadable full issue this month is the Flying Models 1950-1960 publication known as A DECADE OF DESIGNS.

Keep 'em Flying,
Roland Friestad, Editor

Working Scale Model of US Government

A working scale model of the U S Government. This is an excellent replica of our government at work. It's very complex, makes a lot of noise, sounds dangerous as all get out, always needs lots of maintenance … and does absolutely NOTHING!

CLICK HERE TO SEE IT RUN

New Kit from Diels

Diels Engineering, Inc. Announces the Combo 11 kit package. It is made up of Kit # 46-LC, Vultee P-66 Vanguard, and Kit # 47-LC, the new P-66 kit.

You can order the Combination Kit or single kits of either kit or both if you don't already have the Vanguard kit which was introducted in late 2014 but has not been advertised much due to the collapse of Flying Models Magazine.

Both kits will feature our new Align-O-Tab construction. This new construction idea allows you to more easily build former-on-keel models with faster and easier location and alignment of parts. You can also build them the traditional way if desired.

CLICK HERE TO GO TO THE WEBSITE

CLICK ON THE PHOTOS TO GO TO THE VIDEO OR WEBSITE

For a look at some fantastic craftsmanship take a look at the
Miniature Engineering Craftsmanship Museum
Click on the photo to visit but even better would be to see it
In person at Carlsbad California
The Museum usually has a display and competition at the
North American Model Engineering Society Show also

Several Minutes of Piper Cub Flying
Don't Try This At Home!

What Really Happened When NASA
Landed on Mars

CIVY BOY E-20

by Bob Aberle

An Electric Powered Free-Flight model intended for the new E-20 Contest Rules. Span 20 inches, Wing Area 65 sq.in., Weighing only 1.1 ounces.

BACKGROUND

This little plane is going to have a big story to tell. Unlike all my other designs that have appeared in RCMW over the past ten years, this plane is NOT radio controlled. It is in fact an electric powered free-flight model.

Provisional rules have appeared recently covering a new contest to be known simply as "E-20". The reasoning behind this name is simple, "E" for electric power and "20" the maximum wing span (in inches) allowed.

Before you start any building you should get familiar with the provisional rules for this proposed new free flight contest. The following website provides all the contest rules as of February 2016.

https://www.freeflight.org/competition/E-20ProvisionalRules.pdf

You will note that the aircraft must weigh AT LEAST 1.0 ounce, Motor run time is limited to 20 seconds. The glide portion of the flight should run 70 seconds giving a total of motor run and glide of 90 seconds.

The motor, prop and battery are all stipulated in these rules. The aircraft design need not be a replica or nostalgia free flight type. It can be virtually anything, except a biplane, which is expressly prohibited.

MY CHOICE FOR AN AIRCRAFT DESIGN

Having started in the hobby flying free-flight models back in 1951, I certainly had many choices based on the many planes that I built and flew back in my teenage days. But the one plane that was always my favorite was Paul Gilliam's CIVY BOY.

This particular design first appeared around the late forties. It set the pace for an entire new breed of free-flight models. What Paul did was make the stab extremely large, like 50% of the wing area.

This added considerable lift during the glide portion of a flight. Because of the large stab, the CG could be moved back to the trailing edge of the wing. The concept worked well and for years to come it became the plane to beat in any free-flight contest.

I built CIVY BOYS in several sizes in my early years. Recently my old friend and fellow club member of the Long Island Gas Monkeys free flight club, Larry Davidson, sent me a photo of a CIVY BOY-66 that he had recently built for the nostalgia free-flight contests.

Following is the photo of Larry (who is a member of the AMA Hall of Fame and many times SAM NATIONAL CHAMP in both free-flight and RC) holding his "big" CIVY BOY. This plane has a 66 inch span, 650 square inches of wing area and is powered by an OS MAX .29 engine.

Now you know about the aircraft, let me explain in depth how I adapted this CIVY BOY design to conform to the new E-20 contest rules.

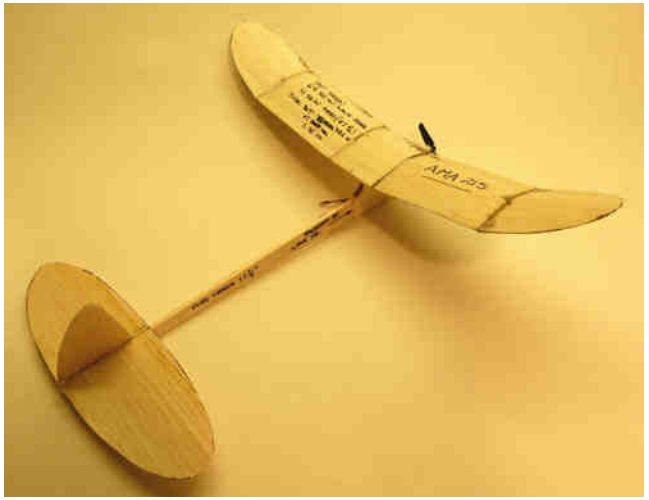
As I indicated the CIVY BOY was published or kitted in many different sizes. The smallest known CIVY BOY had a 24 inch span and was intended for a K&B .020 Infant engine for power. The kit was offered by the old Austin Craft Company.

Editor's Note - Since we had the original Austin Craft plan for the CIVY BOY 24 in our archives we decided to include it as one of our fullsizeplans in this issue also.

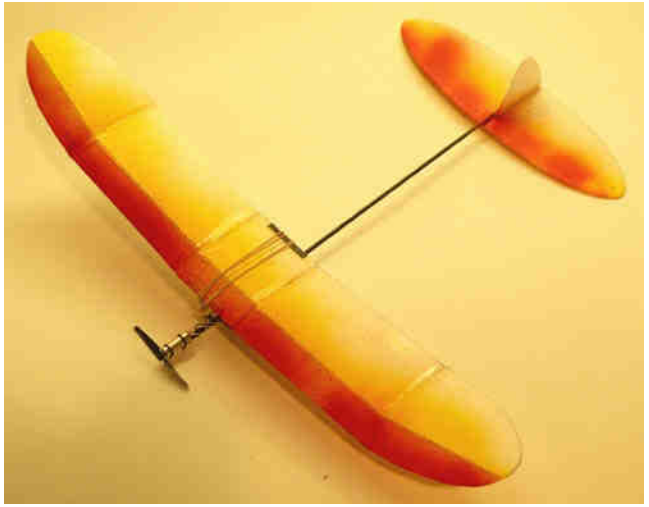
I asked my Canadian friend, Chris Moes if he would reduce the 24 inch span plans ever so slightly down to 20 inches to meet the E-20 rules. The final plans that go with this article include several enhancements of the raw CIVY BOY-20 plans.

For example the nose was slightly extended. Also the original had open structure, with covering. I substituted both sheet balsa or sheet foam flying surfaces. This made for much easier construction and lighter total aircraft weight. The final version had a carbon tube fuselage.

So this was my starting point. To explain where this article is going let me tell you that I first built a wood mock-up of the CIVY BOY-20.



Then I went on to my final design that employed foam flying surfaces and a carbon tube fuselage.



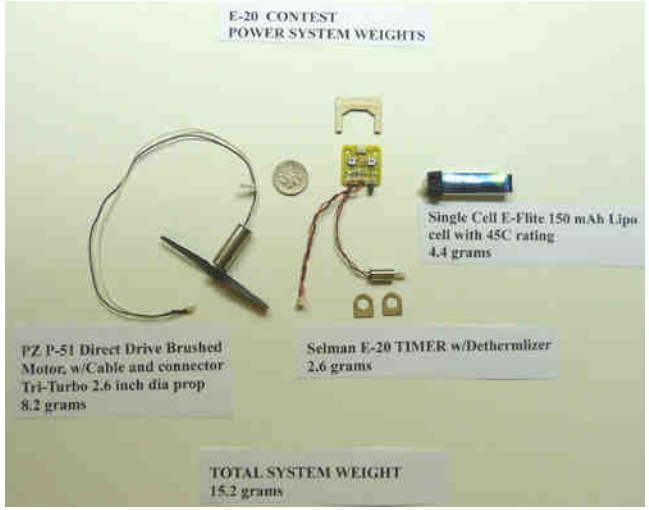
Before I get into the construction, let me describe all the items employed in the power system. This is important because many modelers are used to RC system hook-ups, but not familiar with motor timers for free-flight applications.

The heart of this or any E-20 aircraft design is the use of a solid state timer. Remember, with no RC system present, you must have a way to start and stop the electric motor. Bob Selman of BSD Micro RC, LLC came up with this tiny, light weight timer

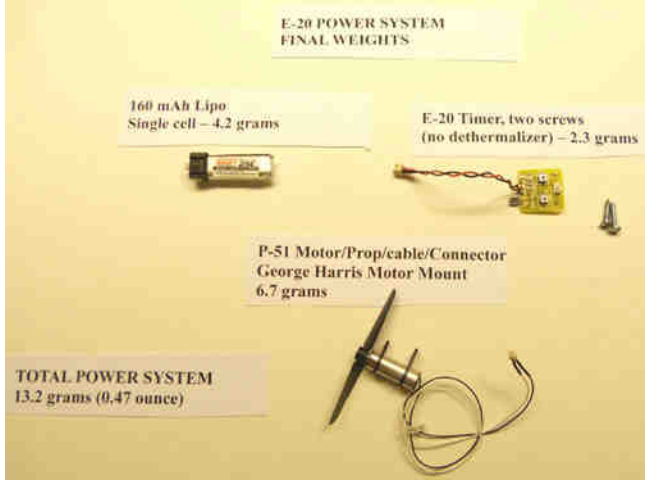
http://www.bsdmicrorc.com/index.php?productID=1048

The PC board measures 3/4 inch by 3/4 inch. The motor plugs into a connector at the top, left. The battery plugs into the cable. The little pager motor, at the right, operates a dethermalizer. That motor will allow the stab to pop up, which will bring the plane down softly and at a slow rate.

For my initial flying I chose not to hook up a dethermalizer and therefore removed the motor to save weight. This is the total power system with the dethermalizer motor. Keep in mind that the power system basically consist of the flight motor, battery and timer.



These are the same components, except that the dethermalizer motor has been removed.

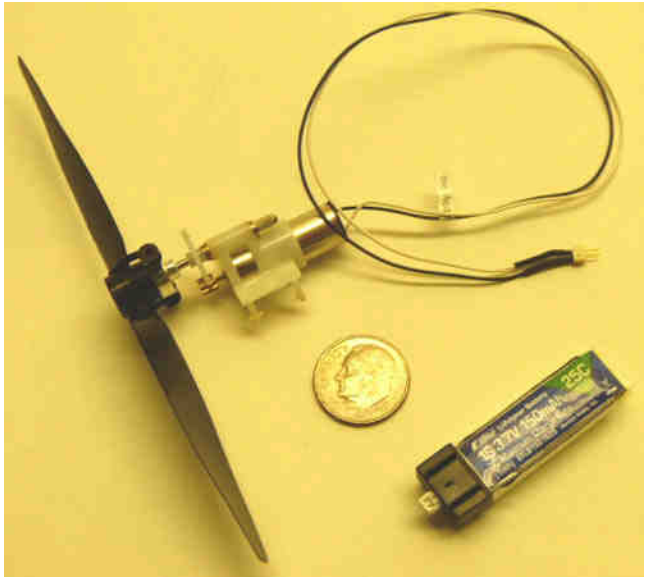


In all fairness, Bob Selman has competition when it comes to motor timers in the name of Nick Leichty from Sarasota, FL. Nick's timer can be found at this website:

http://microflierradio.com/Timers.html

The motor stipulated in the E-20 rules calls for a ParkZone P-51 8.5 mm X 23 mm length coreless brushed motor that must run direct, no gear trains allowed. You can buy this motor from many sources. I got mine from Bob Selman and it does come with a pigtail lead and a two pin connector that plugs into his E-20 timer.

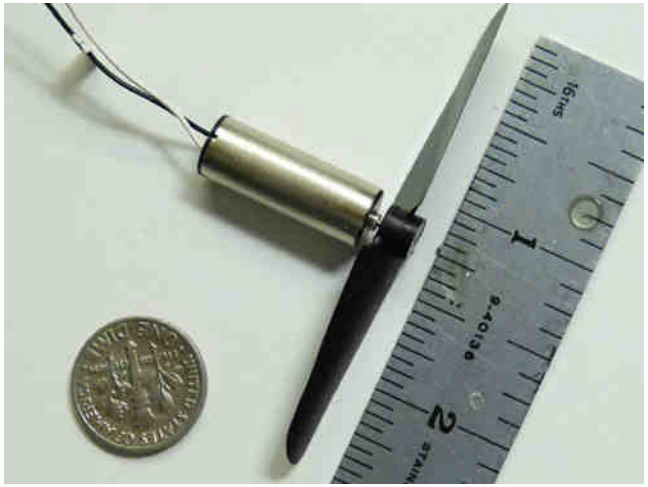
http://www.bsdmicrorc.com/index.php?productID=1052



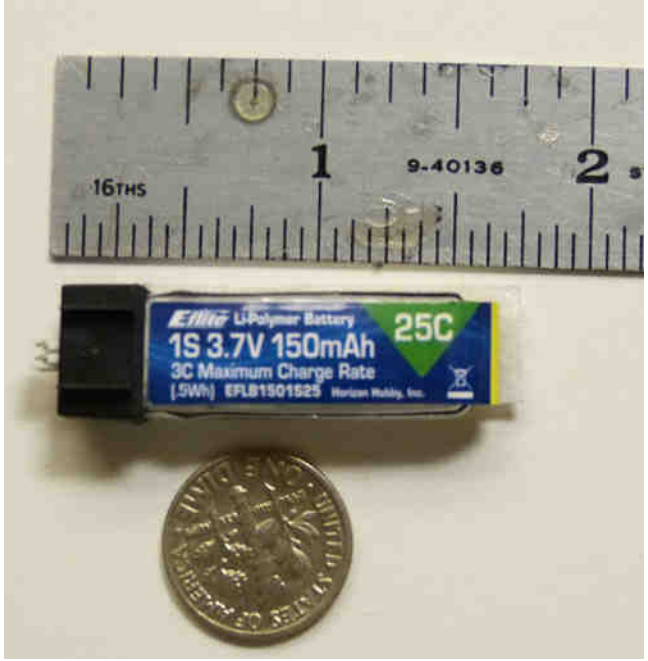
This is a photo showing the motor and the single cell battery.

Equally important is the choice of a 2.6 inch diameter Plantraco Tri-Turbo prop. This is also available from Bob Selman. The little prop is simply pressed on to the projecting motor shaft.

http://www.bsdmicrorc.com/index.php?productID=654



The single cell Li-Po battery is limited by the rules to a capacity of 160 mAh. Pictured here is an E-Flite 150 mAh cell. The Thunder Power 160 mAh cell works very well. Unfortunately the rules don't allow for the very popular Max Amp 170 mAh cell. These cells work well and can be obtained at an excellent price. Possibly the rules could be amended.



The battery connector is the common type that comes with most E-Flite/ParkZone micro RTF models.

I like to know my motor current, no matter what the size of the plane. Even with a free-flight, such as this I wanted to know. This is my motor current measuring set up.

I used an Astro Flite digital meter, that is configured to work down to a single cell voltage. I made up connectors that allow the battery cell and motor to be connected to the meter. A small digital scale was used to record the weight of each cell tested.

On the next page is my chart of the results of the five single cells that I tested. I kind of ruled out the 70 and 110 mAh cells. True, they are lighter in weight but I felt I needed more capacity. The E-Flite 150 mAh, Thunder Power 160 mAh and the MAX AMP 170 mAh all worked well producing motor current in the order of 2.47 to 2.63 amps.

P-51 DIRECT 2.6" TRI TURBO PROP

MOTOR CURRENT CHART

CAP. (MAH)	BRAND	WT. (GRAMS)	AMPS.	VOLTS	WATTS	STATED "C"	ACTUAL "C"	
70	EF	2.7	2.43	3.22	7.8	14C	34.7C ↑	
110	PZ	3.4	2.25	2.97	6.7	?	20.5C	
150	EF	4.3	2.47	3.06	7.6	25C	16.5C	
160	TP	4.1	2.57	3.28	8.4	25C	16.1C	
170	MAX AMP	4.3	2.63	3.44	9.0	?	15.5C	
								ONLY (2) I WOULD RULE OUT IS 70 AND 110 MAH.

BOB A 1/12/16

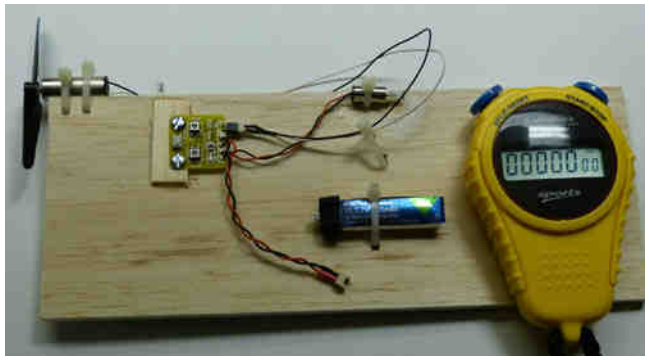
MOST LIKELY – IF ALLOWED MAX AMP – 170 MAH (4.3 GRAMS)

The final thing that I wanted to do with the power system was to assemble it as it would be when installed in an aircraft. This is more like a small breadboard.

I used the timer to check motor runs. The tiny pot controls are a little tedious to set. You will need a very small screwdriver and possibly a magnifying glass. When you connect the battery to the timer a red LED will light and slowly flash. That means the motor is armed and ready. Then you press the operate button and hold for about two seconds and the motor starts its timed period that you set. If you choose to use the dethermalizer motor, its timed period is set with the pot control to the right of the operate switch. Instructions provided with the timer are excellent.

CONTRUCTION NOTES - MOCK-UP

Building a free flight model after so many years made me start at square one. To verify size, weight and balance, I cut out representative pieces of the wing, tail and fuselage from balsa wood. I weighed the three major power system components (motor, battery and timer) and then cut out lead weights locating them as they might



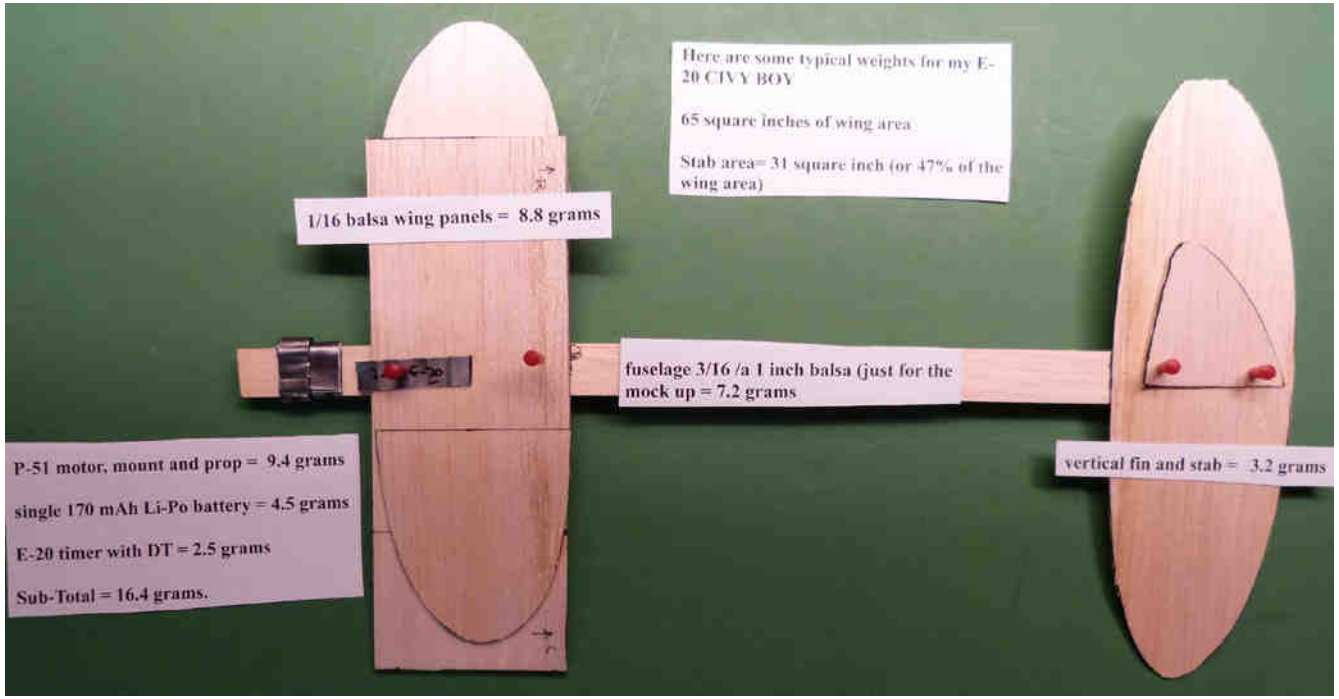
be on the finished model. The surfaces were just pinned together, so I could easily move them around. The strip lead weights came from a sporting goods store. They are used by golfers (believe it or not). At this point everything checked out.

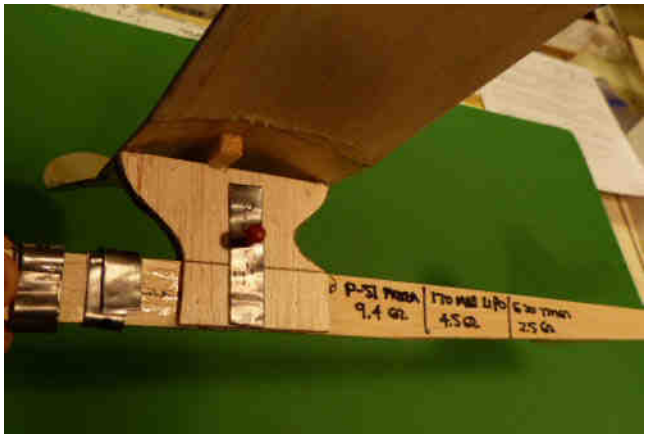
Next I actually assembled the balsa wood mock-up and was able to perform some hand gliding tests. I went up on a slight hill at a local athletic field and gave it a toss. I managed about a 10 second flight making a gentle left hand turn. I was ready to proceed.

FLYING MOCK-UP

With my initial success I decided to build up a powered flight version of my wood mock-up. The wing was constructed from 1/16 inch sheet balsa. The stab and vertical fin was made up from 1/32 inch balsa. And the fuselage was cut from a length of 3/16 X 1 inch balsa (tapered towards the rear).

To achieve a reasonable airfoil shape, I placed the five wing panels on my building board, slipping a length of 5/16 inch square balsa under the point of maximum wing camber. I pinned the panels to the building board.

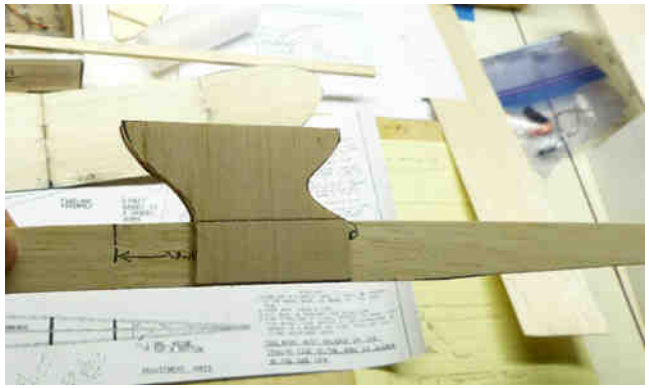




Then I sprayed the panels with Windex. I also used denatured alcohol which worked about the same. I let this sit overnight and thoroughly dry out. When I removed the wing panels from the building board the next morning I had a very acceptable airfoil shape.

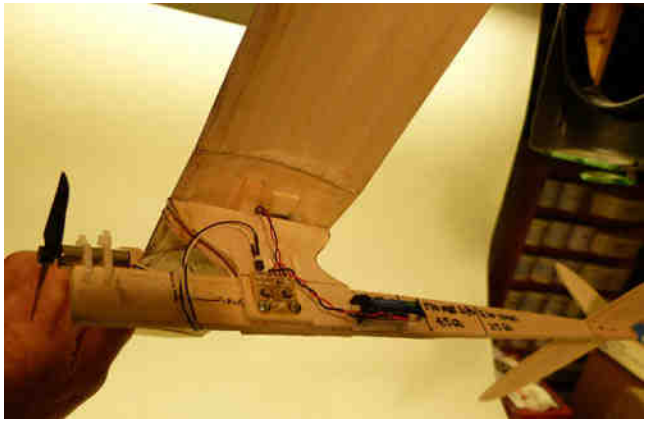
Next came the fuselage and the mounting of the stab and fin.

The wing panels were blocked up for the prop dihedral and polyhedral. Keep in mind that the center section panel is flat. Also there were no ribs employed at all.

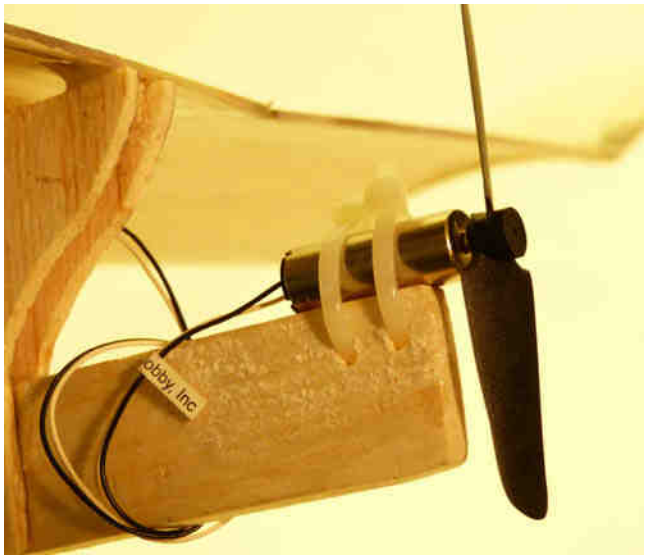


The wing pylon was constructed from two pieces of 1/16 inch sheet balsa. I used a spacer at the top and bottom. Then the pylon assembly slips over the fuselage.

For this wood mock-up I cemented the wing to the pylon to save time. But later, when I went to increase the wing incidence, I had no means of adjusting the incidence angle. So you will see in the final version my wing is attached to the pylon with rubber bands and it is removable.

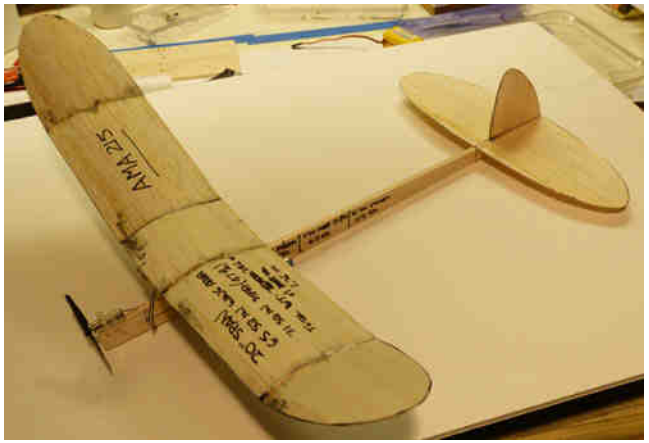


The timer is attached to the left side of the pylon with two small sheet metal screws.



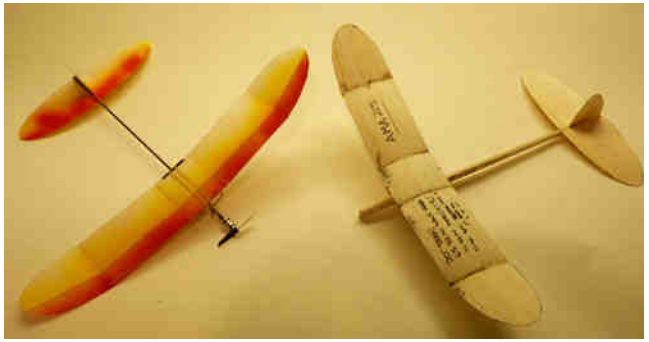
The motor was attached to the fuselage with the help of two small nylon ties. I have something much better for the final version.

This is the completed balsa wood flying mock-up. Total weight ended up at 1.3 ounces, which is only 0.3 ounce above the 1.0 ounce minimum weight per the rules. Because of my preliminary work with the rough mock-up and the weighted equipment, my CG turned out to be perfect, right on the wing trailing edge.



I made a series of test flights with about a 10 second motor run. The P-51 motor has plenty of power. On a 10 second run I could gt up about 75 feet altitude. Then the glide lasted an additional 35-40 seconds. I was pleased.

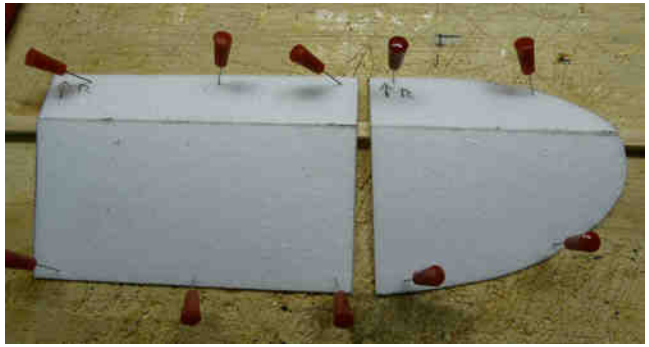
COMPETITIVE FLYING VERSION



Now I was ready for the "real thing". The plane I could enter in E-20 contests and seriously compete. This is what it looks like, in comparison with the wood mock up. This final version was made from sheet foam flying surfaces and a carbon tube fuselage. Final flying weight was down to 1.1 ounces. Just about perfect!

Lets start out with the Depron foam sheet material. I selected the 2 mm thick variety from RC Foam. I was able to purchase ten sheets of this foam, at 10 X 30 inches, for $8.00 plus shipping. I was very pleased when it arrived in four days time. Here is a link to the website

http://www.rcfoam.com/depron-and-epp-foam-suppliers/foam-for-electric-rc-airplanes/2mm-white-depron-10%22-x-30%22-sheets-%2810-pieces%29-p-493.html

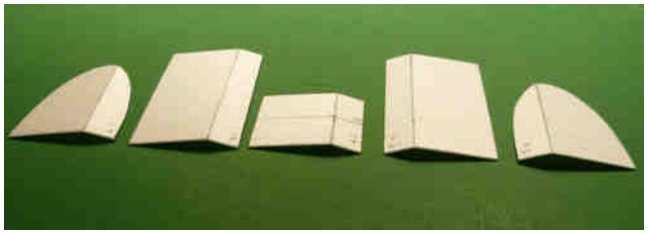


I first cut out the five wing panels from the 2 mm Depron sheet foam. I placed a 1/4 square balsa stick on my building board and then applied the foam with the 1/4 square stick right under the maximum point of camber of the airfoil.

I pinned the panels down and decided to apply heat from my heat gun. You couldn't use Windex as I did for the balsa version. I was not going to use my kitchen oven to heat up the foam.

So to make life easy, I took my X-Acto knife and made a cut on top of the wing right along that maximum camber point. Then I pinned the panels down to the building board. Keep in mind that 1/4 square stick is right under the panels.

I then applied a coat of foam friendly cement along that cut line. Don't forget when using foam friendly CA to also use foam friendly CA accelerator. What I ended up with was a Jedelsky type wing section with a maximum camber of about 7%.



This is the resulting five wing panels before final assembly.

And this is the wing assembled with the proper dihedral and polyhedral. You will see on the plans that I added a strip of 1/4 X .007 carbon fiber laminate to the bottom of the wing, at the max camber point. It runs out to the mid point of the two mid panels.

It is applied with the foam friendly CA cement. I buy this Carbon fiber tape from Aerospace Composite Products (ACP). This is the website:

https://www.acpsales.com/.007-Unidirectional-Carbon-Fiber-Laminates.html

I usually strip down this material into 3/16 to 1/4 inch width.

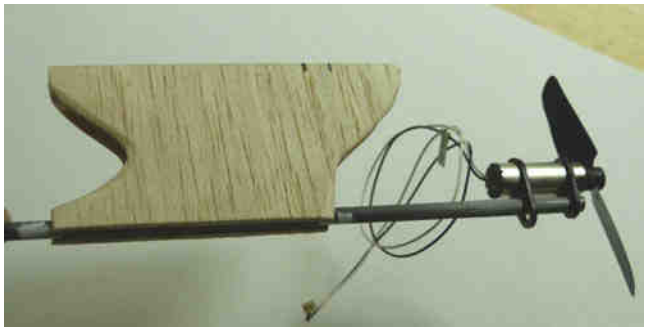
Now we get to the carbon fiber fuselage tube. After a lot of searching I found exactly what I needed. It was obtained from Stan Buddenbohm. The easiest way to get one of these tubes is from, naturally, Bob Selman. This is the exact website.

http://www.bsdmicrorc.com/index.php?productID=1054

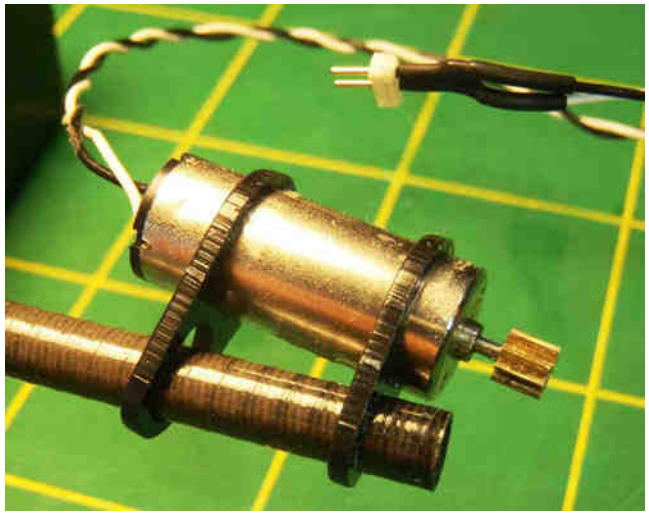
It comes in 20 inch lengths, which requires just a little trimming at the rear. This tubing is tapered. At the nose of the fuselage it measures 0.156 inch diameter. At the tail end of the fuse it is only 0.120 inches in diameter.

Take my word for it, it is extremely strong. Total weight is only 3.8 grams. So you get very light weight, strength and it results in very low drag. However, you will have to pay $9.00 plus postage. It's still worth it.

In the next photo you will see the forward section of that fuselage tube, with both the balsa wood pylon attached as well as the motor.



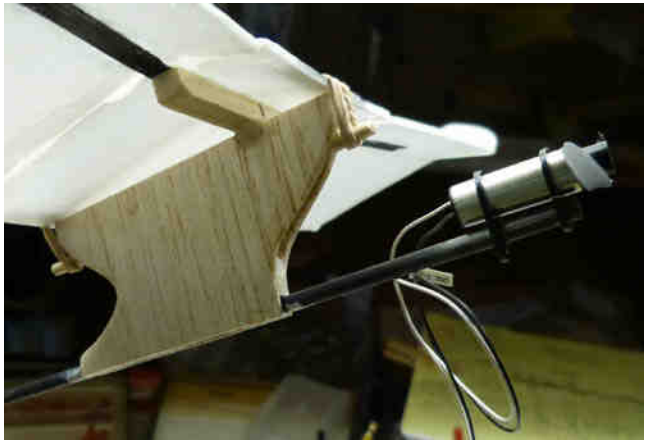
The next item of interest is the motor mount. George Harris has come up with a beautifully made two piece motor mount specifically for the P-51 motor. The fit is snug. The mount will let you introduce down thrust or side thrust to the motor.



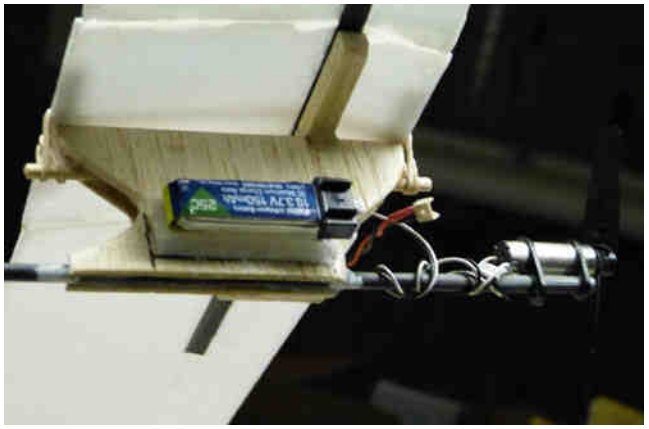
You can adjust the motor with a few test flights and then George recommends that you put a few drops of Loctite Epoxy Plastic cement on the mount and the motor casing to hold it permanently in place. I was able to purchase that cement at my local Home Depot store. Once again this motor mount is available from Bob Selman at this website:

http://www.bsdmicrorc.com/index.php?productID=1053

In the next two photos you can see the pylon in place and a wing rest which is made from hard 1/4 inch square balsa. It is located right at that point of maximum airfoil camber. Two 1/8 inch diameter dowels accept the rubber bands that hold the wing to the pylon. You can also see the carbon fiber laminate reinforcement strip under the wing, right by the wing rest.



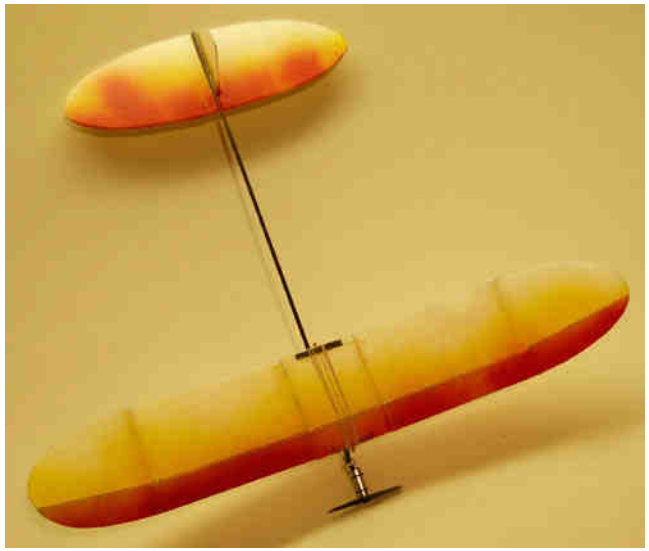
The E-20 timer is mounted to the left side of the pylon with two small sheet metal screws.



The single battery cell is mounted to the right side of the pylon, opposite the timer. I used Velcro tape to anchor the battery in place.

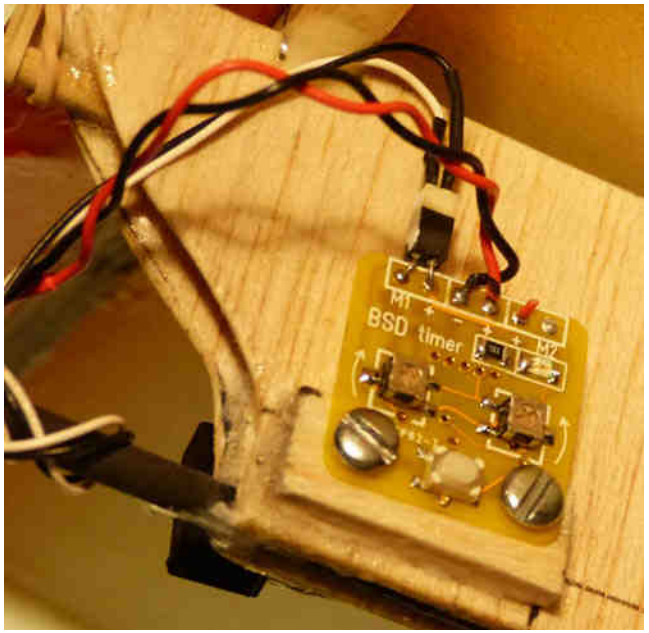
At this point I cut out the stab and vertical fin also from 2 mm Depron sheeting. You will note that I added more of the carbon fiber laminate to the bottom of the stab for a little extra reinforcement. Remember, this is a very big stab.

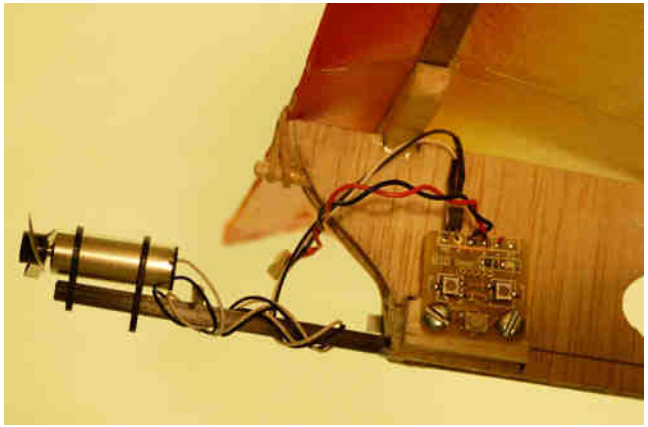
Finally the last assembly step, installing the stab and vertical fin to the carbon tubing fuselage. I lined up both surfaces with respect to the wing and then tacked them in place with foam friendly medium CA. After that I applied a thin coat of 5 minute epoxy cement to the stab, fin and wing pylon.



We are done and ready for those first flights. Just to put a little color on the model I used Krylon Short Cuts in the small 3 ounce spray cans. I first misted a coat of yellow along the leading edge of the wing and stab. Then I applied red a little further forward so that one color blends into the other. This particular paint works very well on foam surfaces.

This is the under side of the CIVY BOY. You can't ask for any less drag than this plane has, especially with that tiny fuselage cross-section.

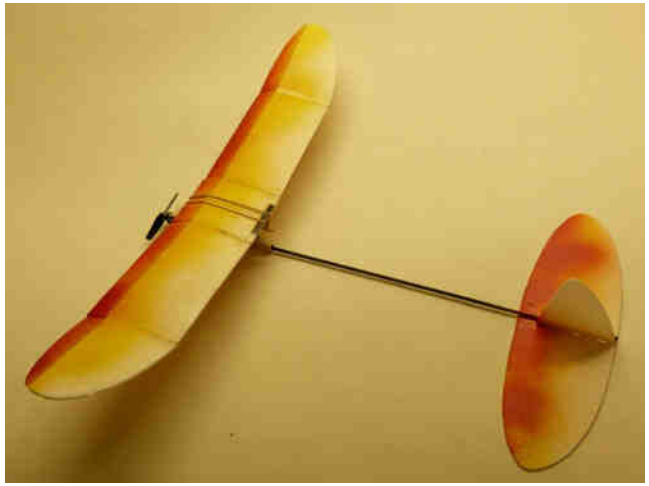


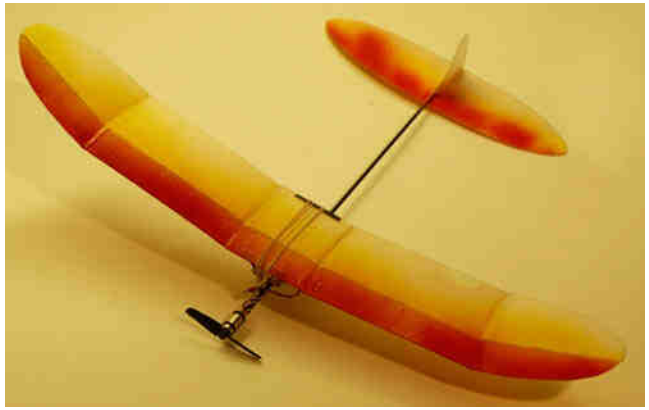


I thought I would re-visit some of the important areas one more time. These shots show the timer and motor in place.

Then the right side of the pylon showing the single cell battery.

Two last individual shots of the CIVY BOY E-20. Keep in mind that I chose not to install a pop-up tail dethermalizer. I have a feeling I might be sorry with that decision. I just may construct a second final version plane with a pop-up tail. Most of my micro friends, like Bob Selman and Paul Bradley have all indicated that they are going to use a dethermalizer.





Just to give you a size comparison here is a shot taken in my basement showing me holding both versions of the CIVY BOY E-20, one balsa the other foam!

FINAL CG

My CIVY BOY E-20 came out ever so slightly nose heavy when using the very back end of the wing trailing edge. I would say that is an optimum position. You can always adjust or fine tune the CG location by moving the battery fore or aft. There is plenty of battery cable length coming out of the E-20 timer.

FLYING

First I must apologize for not having any flight photos. The week I finished this plane we had 26 inches of snow on the east end of Long Island. I was able to use a school gymnasium, but it was way too small for a plane like this. I kept hitting basketball hoops, walls and bench seats.

But even at that it was obvious that this little plane has some excellent flight capabilities. I originally set my timer for the full 20 second motor run. Then on the first few test flights, I would count 10-12 seconds with the motor running, and then launch. That will give you a rough idea as to how the plane is going to fly.

As pointed out, motor thrust adjustments are easy when using the George Harris spacial mount. I ended up needing a little down thrust and right thrust. With the wing held in place with rubber bands it is easy to shim the wing to increase or decrease the incidence angle. You can also shim one side or the other which effectively tilts the stab, with respect to the wing. This will allow you to obtain a nice circle in the glide portion of the flight.

One thing I noticed is that the little 160 mAh battery can handle two 20 second motor run flights. But after that you should re-charge or swap in a freshly charged battery.

When I attempted a third flight on a charge I noticed that the motor didn't run the full 20 seconds. I made the decision that during a contest I would only get one flight per charge so I will keep about a half dozen charged batteries with me all the time. I might also advise you to get several extra props. They do break on occasion.

Based on how well your particular plane flies, you may want to consider setting up the dethermalizer. Remember, there is no radio control present. So you must consider walking after the plane on each and every flight. The dethermalizer can help eliminate a lot of walking.

SUMMARY

This is probably the first of many E-20 contest designs that will appear in print. Bob Selman has a E-20 kit called the "Micro Pearl E-20" that will be ready for sale by the time you read this article. I know Bob has other designs planned.

Brian Malin of BMJR Models has two new kits ready for shipping. One is his KIWI E-20 at $24.95, the other is the SKY DEMON E-20 at $19.25. This is his website:

http://www.bmjrmodels.com/free-flight/e-20

Bill Stevens of Stevens AeroModels has promised several E-20 kits. I suspect some may appear as construction articles in his new Balsa Builder magazine. Try his website:

http://www.stevensaero.com/

Keep a watch on Paul Bradley's bi-monthly column that appears in Model Aviation, the AMA magazine. I'm sure Paul has several designs in mind. He also has done some beautiful 3D sketches of typical E-20 designs showing the detailed location and mounting of the power system and dethermalizer.

Last but not least we have to get the contest trail going for the E-20 event. It is hoped that a trial E-20 contest will be held at the SMALL gathering in Arkansas early this June. Hopefully we will have more info on this by the April issue of RC MICRO WORLD. You can always keep in touch with the latest E-20 info by contacting Bob Selman at:

bselman@ecarthage.com

The last suggestion is to establish a "postal contest" where modelers could compete with each other from all over the world. We need an experienced modeler to put this kind of event together. It was a popular contest years ago when we only had postal mailing available to us. But today with e-mailing, this should be an easy task to set up. Any takers?

Bob Aberle
baberle@optonline.net

SPECIFICATIONS

Model -- CIVY BOY – E-20

Designed originally in the late forties by Paul Gilliam from Texas. Civy Boy's appeared in kit form and plans from 24 inch span up to 84 inches.

Type: An electric powered free-flight contest contender

Wingspan: 20 inches
Wing Area: 65 square inches
Length: 18 inches
Weight: 1.1 ounces
Wing Loading 2.44 oz/sq.ft.

POWER SYSTEM USED

ParkZone (P-51) 8.5 mm coreless, brushed motor running direct drive, 2.6 inch diameter Plantraco Tri-Turbo carbon prop, BSD Micro RC, LLC E-20 timer and an E-Flite single cell 150 mAh 25C Li-Po battery.

POWER SYSTEM PARAMETERS

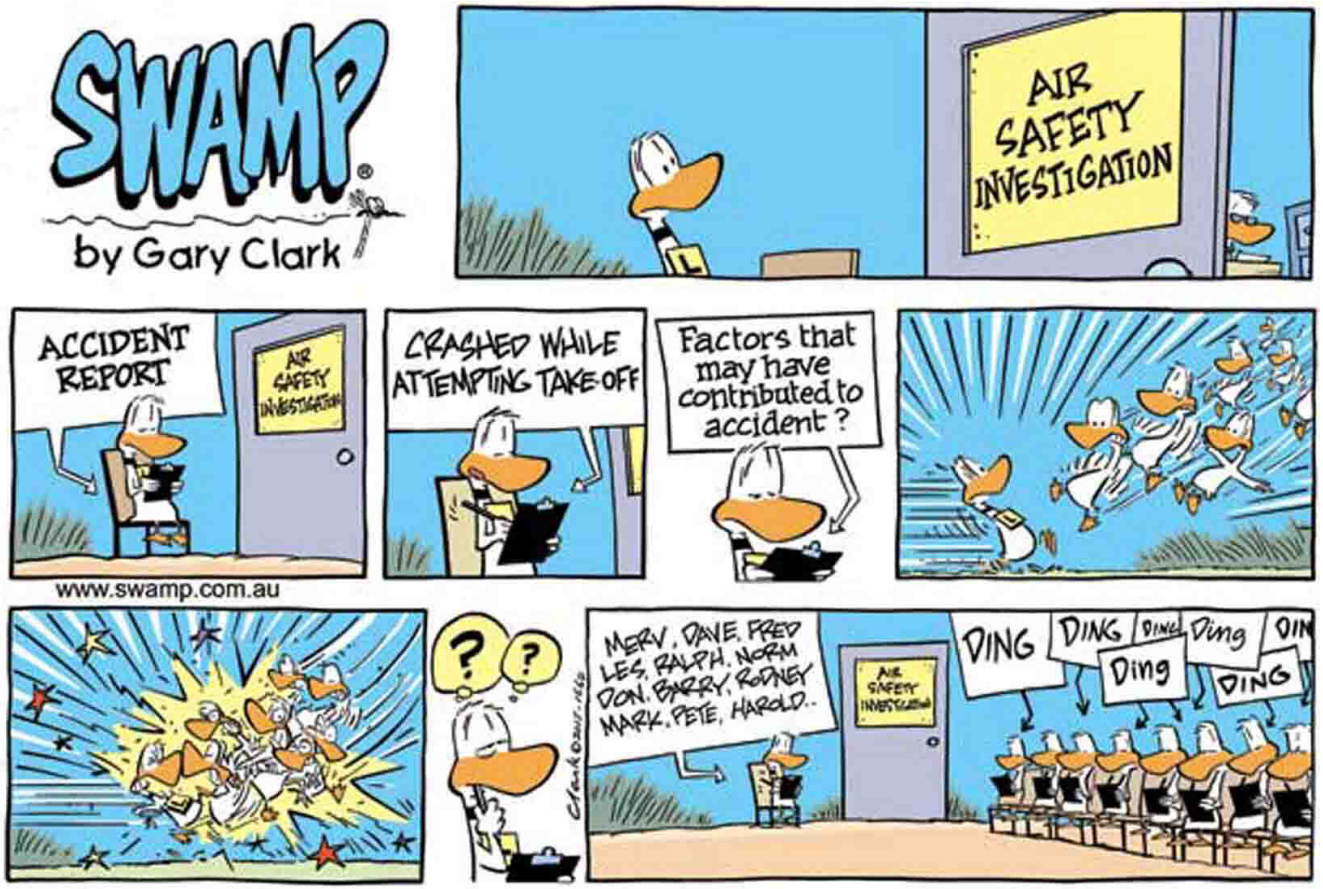
Prop: 2.6 inch diameter Plantraco Tri-Turbo (from BSD Micro RC, LLC)
Motor current: 2.47 amps
Voltage: 3.06 volts
Power Input: 7.6 watts
Battery Loading: 16.5C
Power Loading: 110 watts/lbs
Flight Time: 3.6 minutes

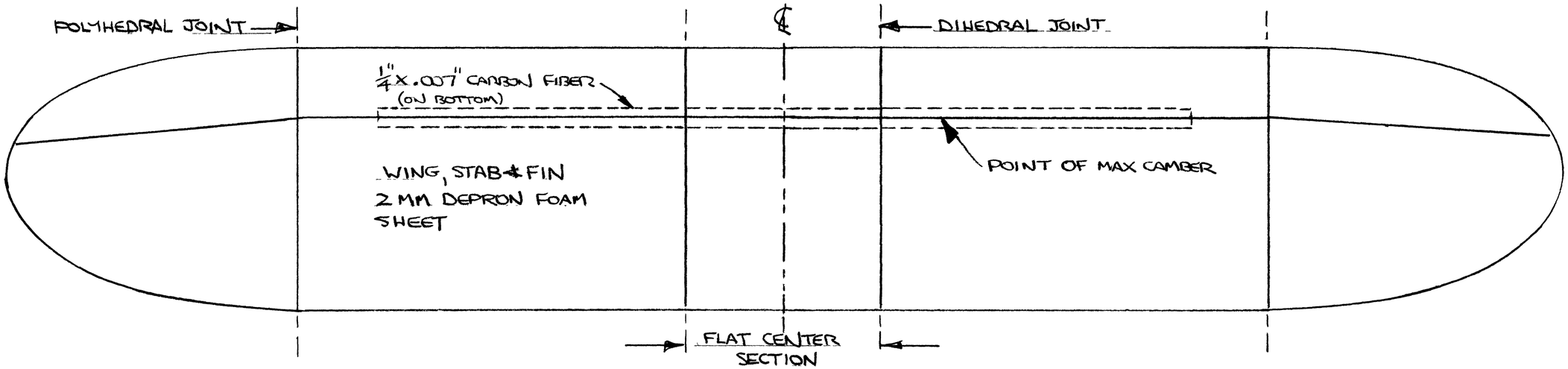
SOURCE INFORMATION

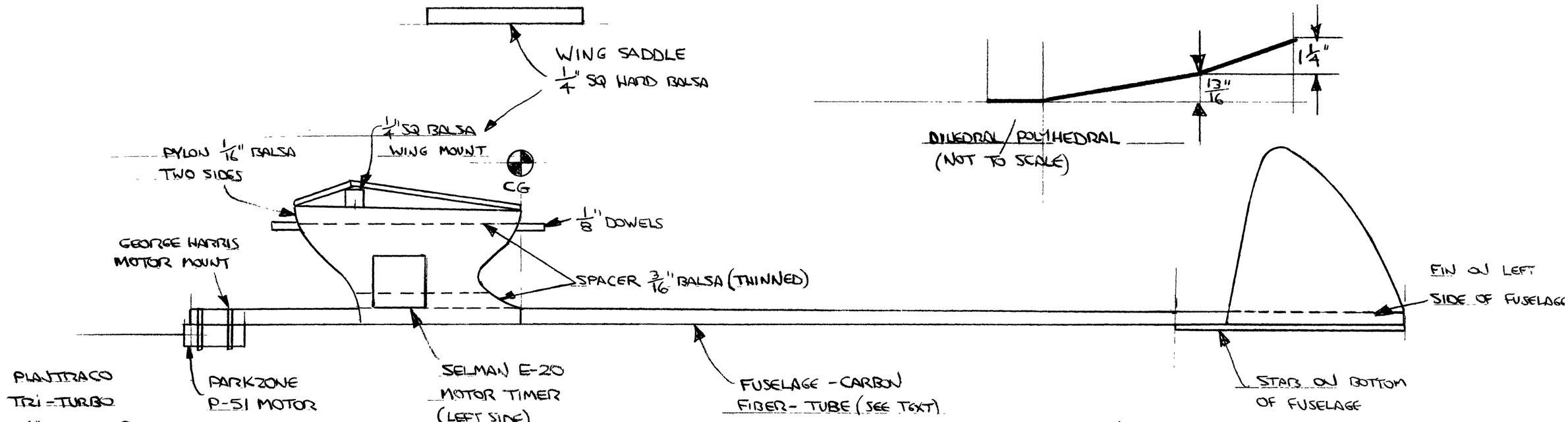
BSI - Foam Friendly CA -BSI-127 and BSI -151 Accelerator
http://www.bsi-inc.com/hobby/super_gold.html

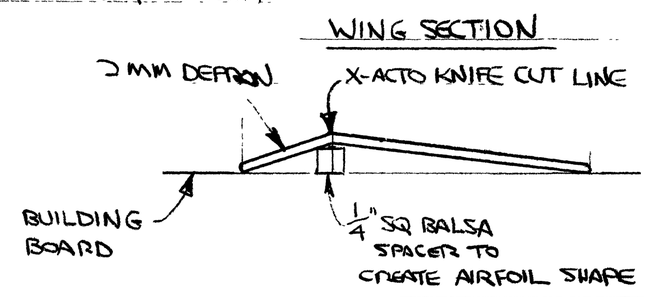
BP Hobbies (Parbond 150-5 Minute Epoxy Cement)
https://www.bphobbies.com/view.asp?id=A3067635&pid=C3501978

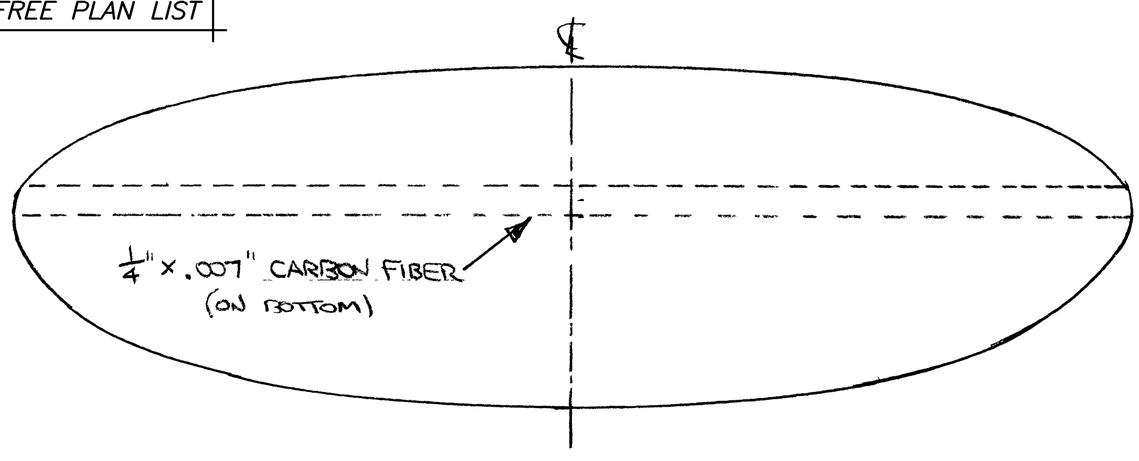
Krylon Short Cuts - Spray paint, foam safe – colors Red Pepper and Sun Yellow - select Gloss
http://www.michaels.com/krylon-short-cuts-flat-enamel/M10170188.html









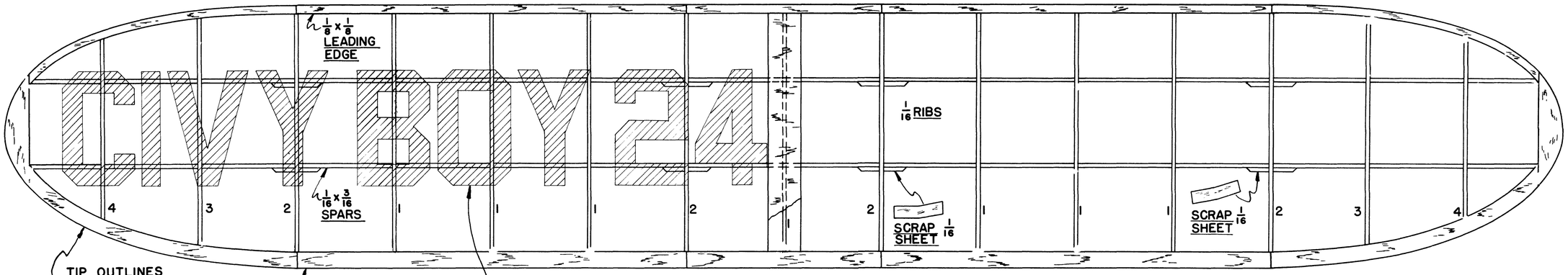


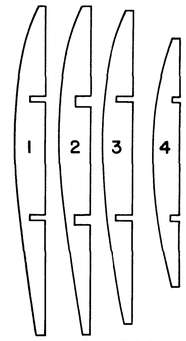
CIVY BOY
E-20

SPAN - 20 INCHES	AREA - 65 SQ IN	WT - 1.1 OZ

POWER INPUT 94 WATTS – BOB ABERLE 2/6/16

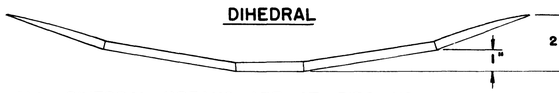
0 1 2 3 4 5 6



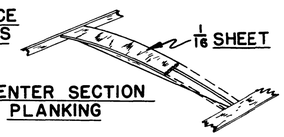


RIB SHAPES

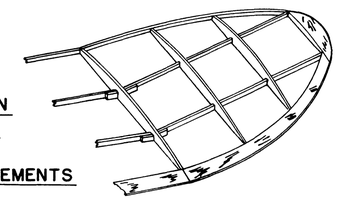
SPARS SHOULD BE TRIMMED DOWN TO 3/32 FROM NO. 3 RIBS OUT



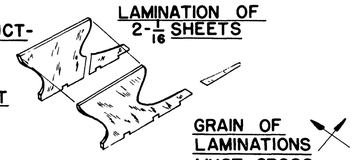
ALL DIHEDRAL BREAKS ARE AT RIBS NO. 2



CENTER SECTION PLANKING

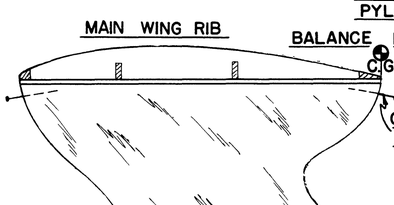


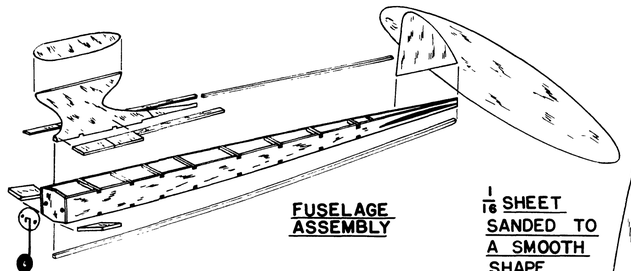
WING TIP CONSTRUCTION & DIHEDRAL BREAK REINFORCEMENTS



CONSTRUCTION OF PYLON

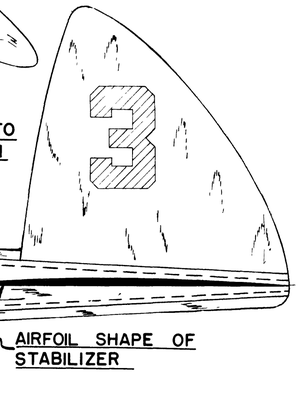
GRAIN OF LAMINATIONS MUST CROSS

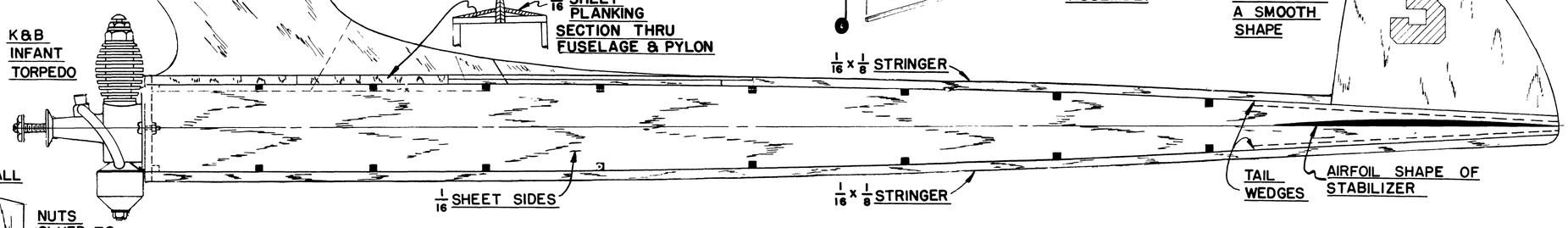


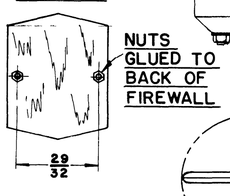


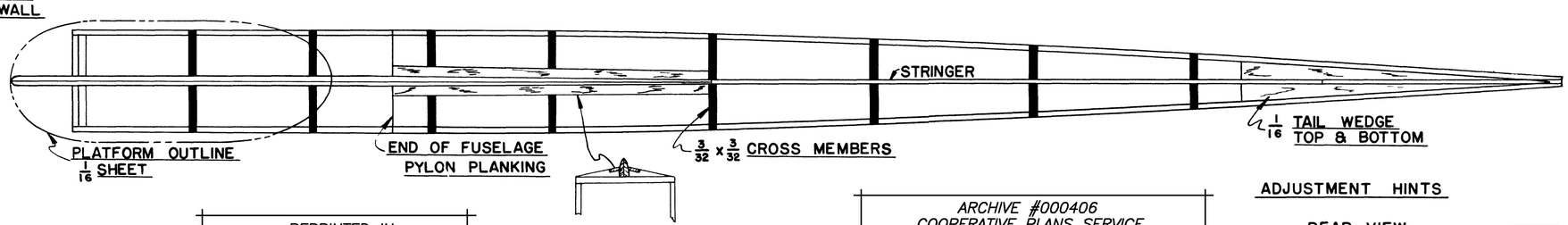
FUSELAGE ASSEMBLY

1/16 SHEET SANDED TO A SMOOTH SHAPE









INSTRUCTIONS

TO BUILD FUSELAGE & PYLON

1. CUT OUT NOTCHES IN SIDES OF FUSELAGE FOR CROSS-MEMBERS.
2. SHAPE FIREWALL AS SHOWN BY SKETCH, DRILL HOLES AND GLUE NUTS TO BACKSIDE USING PLENTY OF GLUE
3. GLUE FIREWALL & (2) TAIL WEDGES IN PLACE AS SHOWN IN TOP & SIDE VIEWS
4. CUT CROSS-PIECES TO SIZE, & GLUE INTO PLACE BE SURE TO MAINTAIN ALIGNMENT
5. TO ASSEMBLE PYLON, GLUE LAMINATIONS TOGETHER CONSISTING OF THREE PIECES, AS SHOWN BY SKETCH, SAND TO A STREAMLINED SHAPE, GLUE TO CENTER OF FUSELAGE & MUST BE VERTICAL
6. PLANK IN FUSELAGE AROUND PYLON, GLUE BOTTOM STRINGER IN PLACE, GLUE IN BOTTOM NOSE PLANKING
7. SAND RUDDER TO A SMOOTH SHAPE & GLUE ON
8. LINE UP TOP STRINGER WITH RUDDER & PYLON & GLUE IN PLACE
9. ADD PYLON PLATFORM & USE A GENEROUS GLUE FILLET UNDERNEATH
10. FUSELAGE IS NOW READY TO SAND, COVER, AND DOPE
12. STICK COMMON PINS IN PYLON FIRMLY, THESE ARE USED FOR STRAPING ON THE WING WITH RUBBER BANDS

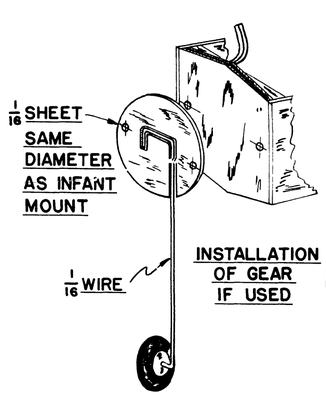
WING ASSEMBLY

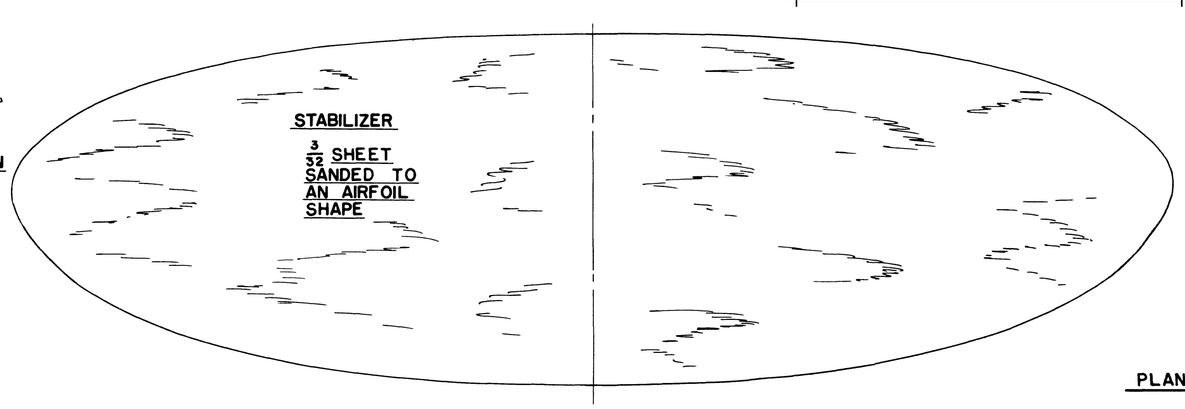
1. PIN SPARS IN PLACE, TRIM DOWN SPAR TIPS AS GIVEN BY NOTE
2. PIN & GLUE DOWN TIP OUTLINES, LEADING & TRAILING EDGES
3. GLUE RIBS NO 1,3,4, INTO PLACE
4. WHEN DRY, CUT SPARS, LEADING EDGE, TRAILING EDGE, AT DIHEDRAL POINTS
5. BLOCK UP ACCORDING TO DIHEDRAL PLAN
6. GLUE IN RIBS NO 2 & DIHEDRAL REINFORCEMEMTS
7. PLANK CENTER SECTION
8. TRIM DOWN LEADING EDGE, TRAILING EDGE & TIPS
9. SAND THOROUGHLY, COVER WITH TISSUE & DOPE

STABILIZER

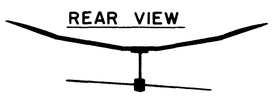
1. STABILIZER IS A PRECUT PART, IT MUST BE SANDED TO AN AIRFOIL SHAPE AS SHOWN BY THE SIDE VIEW
2. COVER WITH TISSUE & DOPE.
3. CUT SLOT IN FUSELAGE FOR STABILIZER
4. GLUE STABILIZER IN PLACE, KEEPING IN MIND THAT THIS MODEL FLIES BETTER IF THE STABILIZER IS COCKED IN A MANNER AS THAT GIVEN BY THE FLYING ADJUSTMENT HINTS

THIS MODEL MUST BALANCE ON THE TRAILING EDGE OF THE WING AS SHOWN IN THE SIDE VIEW



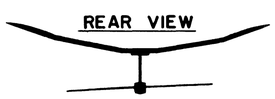


ADJUSTMENT HINTS



REAR VIEW

WITH TAIL TILTED FOR LEFT TURN



REAR VIEW

WITH TAIL TILTED FOR RIGHT TURN

PLANS ARE FULL SIZE

PAUL GILLIAM'S

CIVY BOY 24

DRAWN BY FLOYD RECK

SPECIFICATIONS

WEIGHT.... . . . 2 OZ. TOTAL
AREA .. .. 88 SQ. IN.
SPAN ....24 IN.

AUSTIN Craft
431 S VICTORY BOULEVARD
BURBANK CALIF

PLAN FROM THE DAVE SHIPTON COLLECTION

PAAGEBOY

Vic Smeed was one of the most prolific designers of sport models in England, if not the world. Here's his PAAGEBOY, intended for either Pay-load competition or sport fun flying. His designs were usually easy to build and look at and flew very well.

THE idea underlying Pan American World Airways' sponsorship of a free-flight payload event is that a separate and unrelated freight shall be moved, the aircraft taking off in one place and landing in another. This is what a full-size aircraft is expected to do, and the contest thus encourages models which resemble full-size jobs in many respects. We have chosen to interpret this as covering appearance too, so that our first consideration in this design was that it should be semi-scale.

Now, the carrying of a payload weighing four ounces in a model merely means, apart from certain minimum dimensional requirements in the fuselage, an increase in minimum required weight. The model using a 1 c.c. motor must weigh at least 6-1/2 ozs., or 10-1/2 ozs. in flying trim with dummy.

From here on one's approach depends on one's ideas of wing-loading, power/wing area relationship, and strength. It is doubtful whether adequate strength could be built into an airframe of 3-3/4 ozs. (i.e. less 2-3/4 ozs. which is the usual weight of a 1 c.c. diesel) since the dummy's inertia can be quite considerable, and a total weight of at least 7-1/2 ozs. including motor is probably as low as would be practicable for all-weather flying.

A small model could be built, having a wing area of, say, 1 sq. ft. and a consequent loaded wing loading of 11-1/2 ozs./sq. ft., which would have a fast climb and glide and a fair rate of sink, although, of course, it would have reached a region of stronger thermals (which accelerate as they rise) in the 20 sec. power run allowed.

F.A.I. minimum loadings for a model of this weight (with dummy) would mean a model of approximately 300 sq. ins. wing area (33 % tail) which would normally be powered with a 1-1/2 c.c. motor. However, the glide of such a model would be far superior due to the increased R.N. as well as the lower wing loading, and this would probably compensate for the reduced rate of climb. Slower flight and better glide also render trimming easier and increase the chances of staying in a thermal.

Turning to dummy-less flight, it occurred to us that a model could be made to minimum F.A.I. loadings and still have a good performance with the dummy added. The idea of a dual-purpose model of this nature appealed. Minimum weight of 7.06 ozs./c.c. fits in well with our practicable minimum, and maximum total area would need to be, for this weight, about 250 sq. Ins.

However, we like lowish wing loadings if possible, and a loading of 8 ozs./sq. ft. would seem as much as would give the type of glide we like, with the dummy in place. Juggling a few figures suggested a wing area of around 250 sq. ins. with a 33% tail would be a successful compromise.

F.A.I. weight would have to be in the region of 9-1/4 ozs., which is not unreasonable for a model and motor of these sizes. Final built weight came out at 9-3/4 ozs., giving wing loadings of roughly 5.6 ozs./sq. ft. empty and 7.8 ozs. /sq. ft. Loaded.

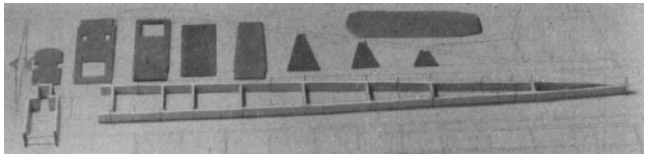
It was apparent from first glide tests that these loadings gave a floating, "thermal-conscious" glide in conjunction with the wing section used. Initial power flights showed a near-vertical climb empty, and a fast-climbing right-hand spiral loaded.

Properly trimmed, with an efficient prop, the empty performance is up to normal 1 c.c. contest duration standard, while the use of harder balsa to increase weight to 10.6 ozs., plus a 1-1/2 c.c. motor with a little downthrust, would produce quite a potent F.A.I. contest model, despite the semi-scale lines.

A .5 motor in the standard light airframe (empty) would prove a fine sport model, with either slightly lengthened bearers or a small amount of nose ballast. Loaded performance as a 1 c.c. payload job is approximately 7 % lower than when empty, and compares very favourably with current American top performers in this class.

CONSTRUCTION

A crutch-built fuselage is employed in order to obtain maximum strength below the level of the dummy. Quite soft balsa may be used except for spars. The crutch should be built on the

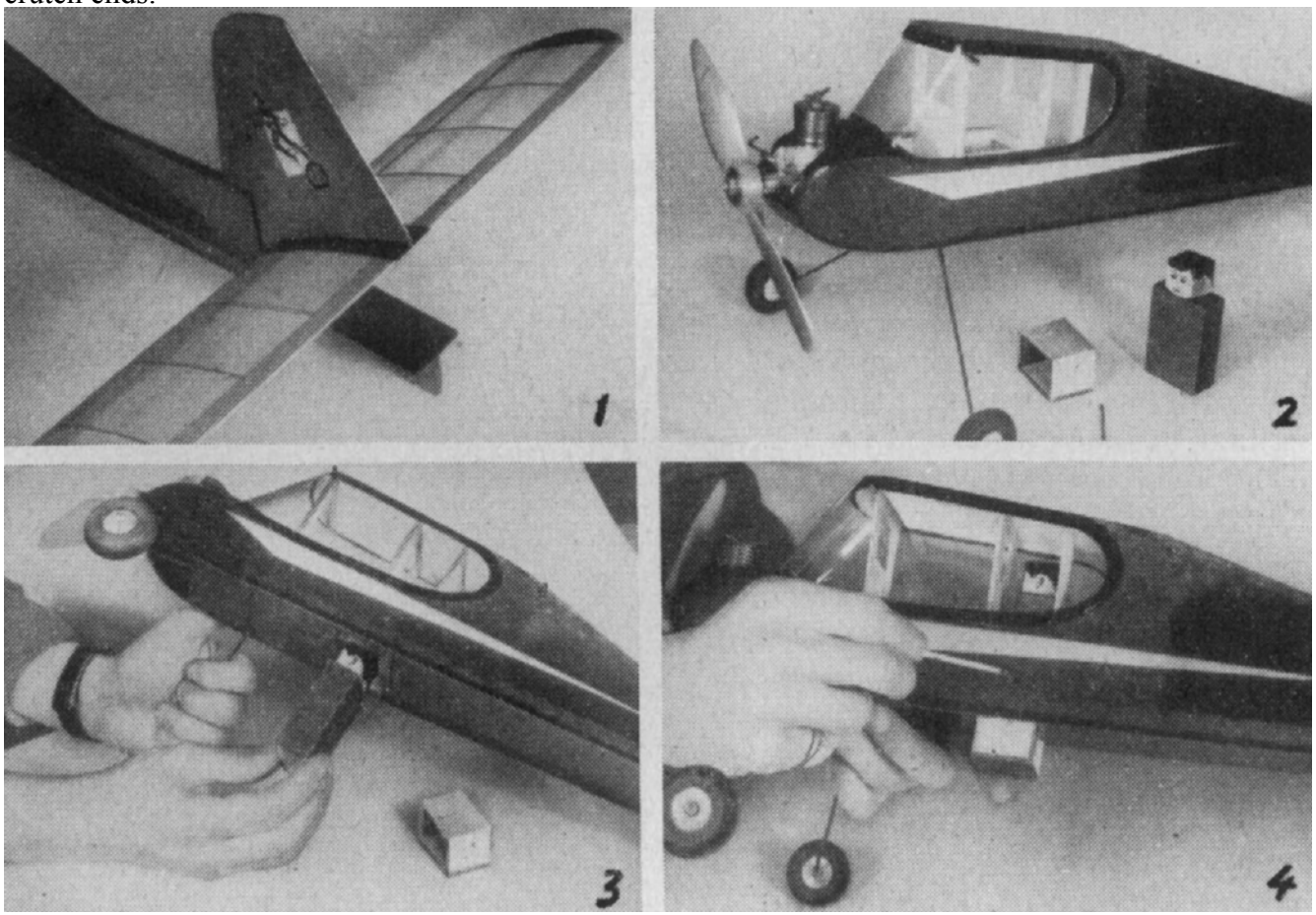


plan as illustrated (Fig. 1), and the formers can be cut while the cement sets. F3-8 and the 1/4 x 1/4 in. spine can be cemented in place before the crutch is removed from the plan. F2 has the undercarriage bound in place before being positioned, after which the bearers and soft 1/4 in. sheet side panels can be glued in place, followed by F 1.

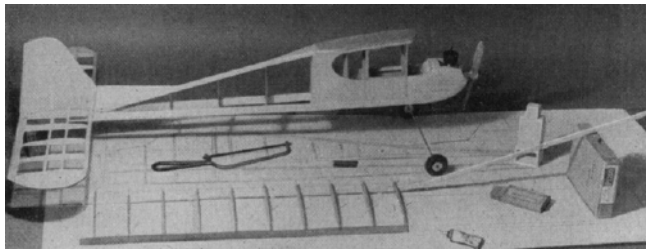
The side panels require a 1/8 x 1/2x in. rebate in the lower rear outside corners, to receive the crutch ends.

For the E.D. Bee, space the bearers 1/16 in. further apart, sanding 1/32 in. off each side panel after assembly. Drill choke holes in F 1 and the starboard side panel if re-quired. Check that the bearers are at right-angles to F2 and that F2 is vertical. If an integral fuel tank is to be used on the motor, cut a small circle out of Fl to receive it. Add cabin roof and spine fairings (Fig. 2).

The fuselage side and bottom sheeting can now be fitted ; 3/16 in. sq. stiffeners are run along the top edges of the side sheets between F2 and F3 and across F3 at this level. 1/16 x 3/16 in. strips abut the cabin roof on each side, and a 1/16 in. and 1/8 in. lamination thicken the roof in front of F2.

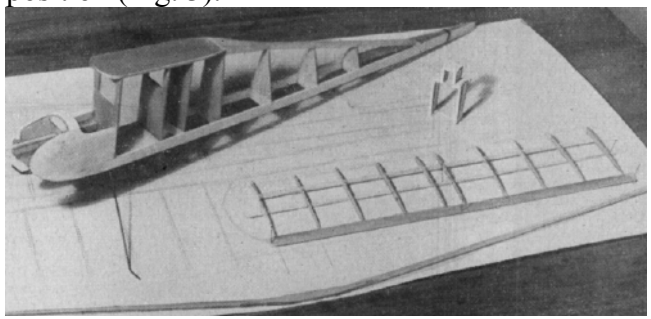


3/16 in. sq. lengths also reinforce the top rear of F2 and top front of F3.

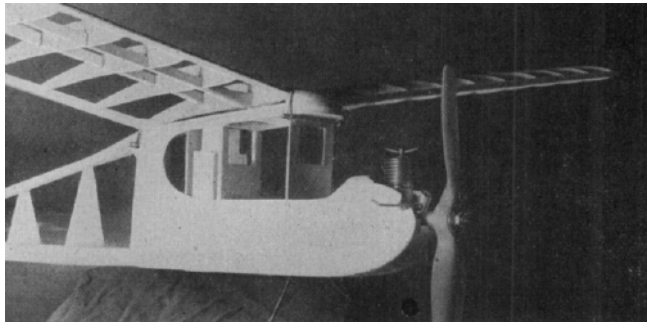


The tailplane seating and the dorsal fin can now be attached. The latter is composed of two 1/16 in. sheet sides spaced on 1/8 in. cores, the rear end being left open as shown to admit the fin LE when the DT is in operation. Place engine bolts in position and tape or bind them in before sheeting underside of nose. Gussets and dowels complete the fuselage with the exception of the dummy and box. Both of these are constructed of in. sheet, the dummy to the minimum dimensions given and the box so that it fits accurately into the fuselage. The box floor forms part of the fuselage undersurface, but the whole box must slide in and out for removing the dummy. It is dowelled in place for flight.

The tailplane is conventional and should be built flat on the plan (Fig. 2). The 1/8 in. sheet fin has an 1/8 x 1/4 in. stiffener inset across the grain andis provided with a small trim tab. It should be cemented in a slot cut in the tailplane centre-section sheeting and should just engage the dorsal fin slot when the tail is in the normal flying position (Fig. 3).



The front mainspar of the wing is assembled to its correct dihedral (use a straight table or paper edge to check) with dihedral brace, and allowed to set before commencing wing construction (Fig. 2). When dry, pin down and build one wing half at a time (Fig. 3), packing spars as required and completing centre-section and tips last. A small fairing should be built up on the center section LE, using scrap 1/8 in. Laminations.

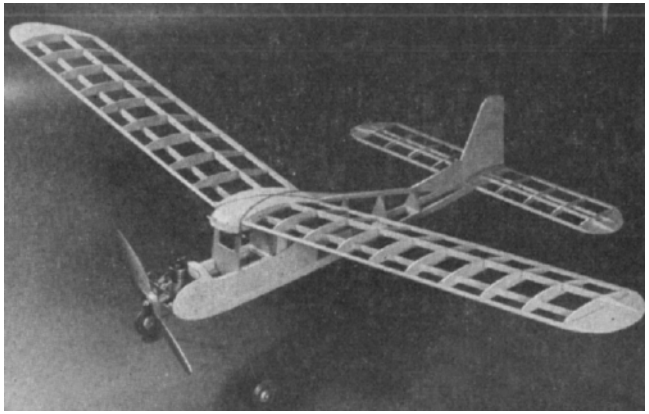


Sand model all over, bringing cowling to a rounded shape, and re-cement all joints. Thoroughly fuel-proof inside cowling and next bay back.

Cover with lightweight Modelspan and give one or two coats of clear dope, then add cabin celluloid and colour trim if required. F2 may be backed with a 3/16 in. sq. upright each side to assist cabin covering ; note that the side windows clear F3 and F4.

Install motor either dead straight or with a slight amount of left thrust, and check line-up of completed machine. Everything should fit square and the balance point should be beneath or fractionally in front of the rear spar.

Test glide without dummy. The latter should be brought up to 4 ozs. by filling with lead and sealing up, and should, when inserted, make no difference to the balance point. 1/4 in. play is



allowed between F3 and F4 and the dummy should be packed in with scraps of sheet in the position giving the correct balance point. Test glides should remain exactly the same though a little faster. Initial power flights may be made with or without the dummy, but should use reduced power. A tendency to turn right under power is evident, and on the prototype best trim was obtained by using left thrust and rudder in small quantities.

MATERIALS
2 - 1/8 x 1/8 x 36 in. med. soft.
1 - 1/4 x 1/4 x 36 in med.
1 - 1/8 x 3 x 36 in soft.
2 - 1/16 x 3 x 36 in soft.
3 x 8 x 1/16 in. Ply
3 x 12 x 1/4 in soft balsa
6 x 10 in celluloid.
6 inx. 1/8 in. Dowel
3 - 3/16 x 3/16 x 36 in med.
1 - 1/8 x 3/16 x 36 in med.
3 - 1/8 x 1/2x x 36 in med. TE.
4 - 1/8 x 1/4 x 36 in med.
8-1/2 x 1/4 x 3/8 in bearer
15 in 14 s.w.g. piano wire.
3 sheets Modelspan.
Dope, cement, wheels, bolts.

A 42" SPAN PAYLOAD OR SPORT MODEL FOR SMALL DIESELS

PAAGEBOY

DESIGNED BY

VIC SMEED

4/6

THE AEROMODELLER PLANS SERVICE

38. CLARENDON RD. WATFORD. HERTS.

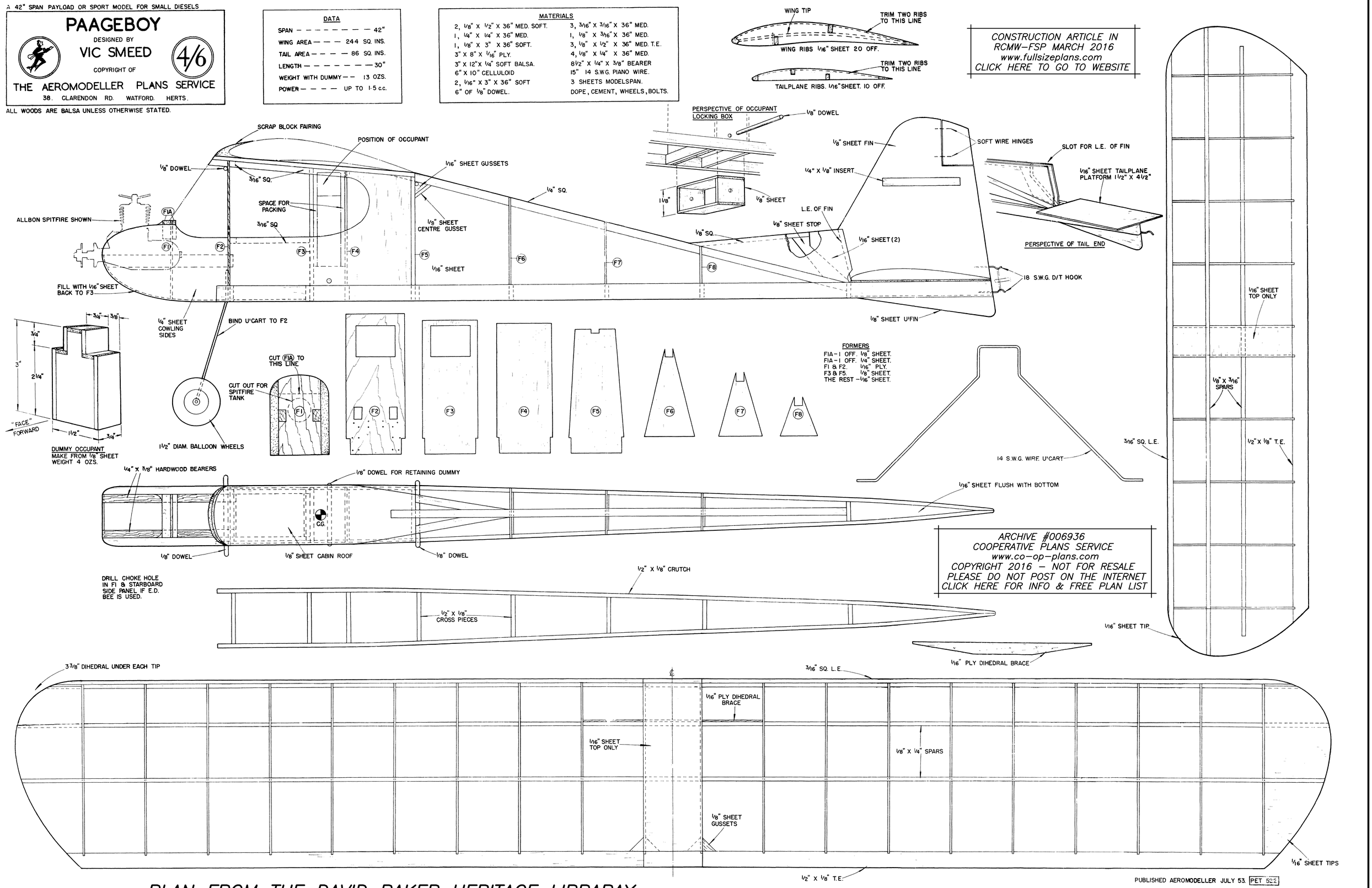
ALL WOODS ARE BALSA UNLESS OTHERWISE STATED.

DATA

SPAN	42"
WING AREA	244 SQ. INS.
TAIL AREA	86 SQ. INS.
LENGTH	30"
WEIGHT WITH DUMMY	13 OZS.
POWER	UP TO 1·5 c.c.

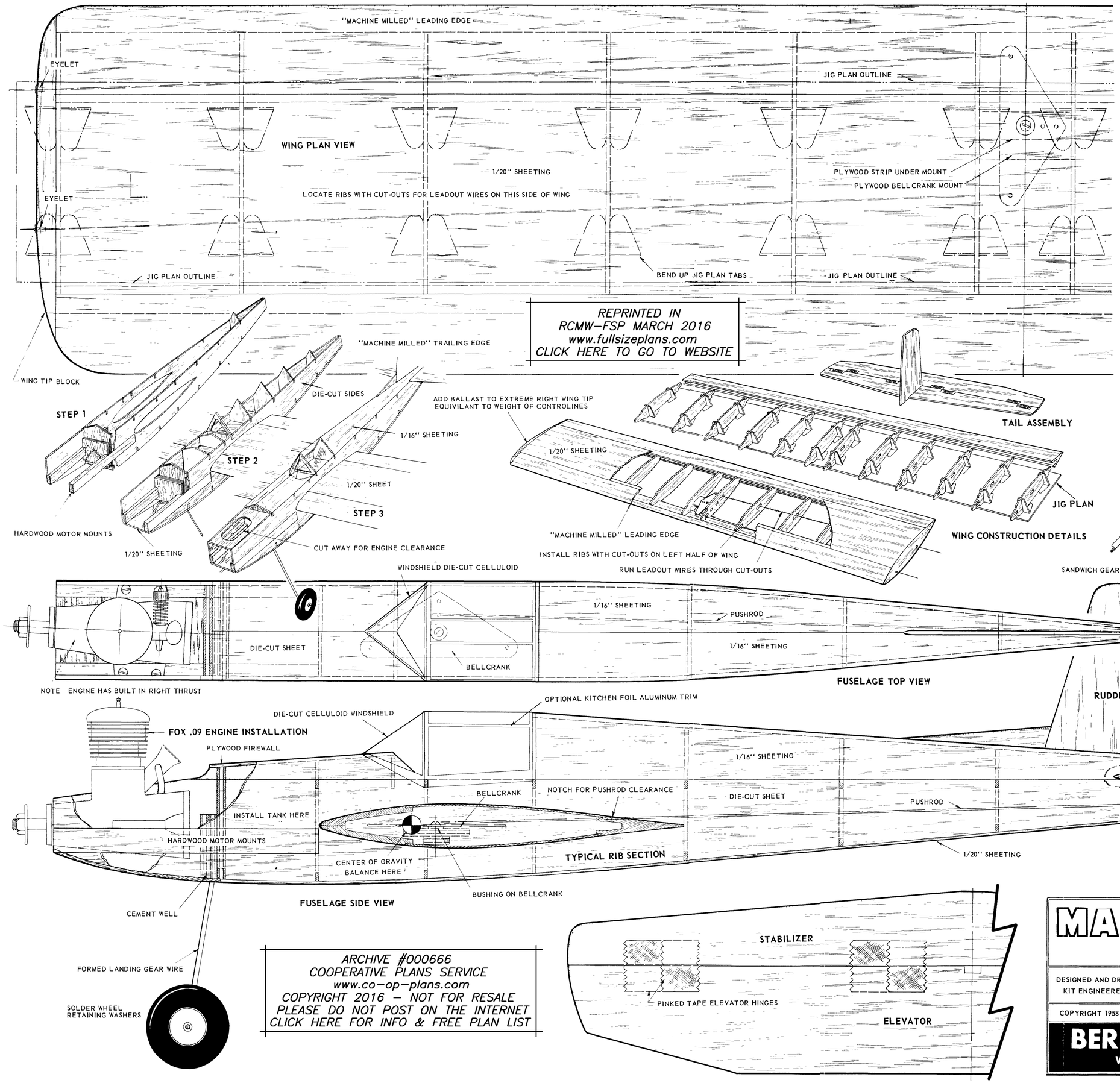
MATERIALS

2, 1/8" X 1/2" X 36" MED. SOFT.	3, 3/16" X 3/16" X 36" MED.
1, 1/4" X 1/4" X 36" MED.	1, 1/8" X 3/16" X 36" MED.
1, 1/8" X 3" X 36" SOFT.	3, 1/8" X 1/2" X 36" MED. T.E.
3" X 8" X 1/16" PLY.	4, 1/8" X 1/4" X 36" MED.
3" X 12" X 1/4" SOFT BALSA.	8 1/2" X 1/4" X 3/8" BEARER
6" X 10" CELLULOID	15" 14 S.W.G. PIANO WIRE.
2, 1/16" X 3" X 36" SOFT	3 SHEETS MODELSPAN.
6" OF 1/8" DOWEL.	DOPE, CEMENT, WHEELS, BOLTS.



PUBLISHED AEROMODELLER JULY 53. PET 522

PLAN FROM THE DAVID BAKER HERITAGE LIBRARAY



ASSEMBLY AND FLYING INSTRUCTIONS

The Mark "30" Zilch Stunt Controline design is an extremely easy model to assemble, and features all balsa construction, with "machine milled" leading and trailing edges In the air it is a top performer, rugged and reliable.

Familiarize yourself with the plan and kit contents as the first step Remove all parts from the die-cut sheets, trimming or sanding if necessary. Most parts are easy to recognize, and the remaining few which might puzzle you will position themselves as you proceed

Start construction with the tail assembly Sand the die-cut parts smooth and bevel edges as seen in the side view Locate elevator horn, and hinge elevator to the stabilizer with the pinked tape provided Keep cement off hinge edge for best results

The fuselage sides are next joined with the firewall (Plywood) F-1 and bulkhead F-3 and F-4. Align and allow to dry well before pulling fuselage together at rear Install remaining formers in place, position pushrod, etc., as you proceed.

Install motor mounts flush in fuselage sides and reinforce below mount with die-cut 1/16" sheet doublers.

We now focus our attention on the wing. Bend the tabs of the wing jig up as indicated, and insert each rib into position The trailing edge is next installed, followed by the plywood bellcrank mount and the bellcrank itself. The leading edge units are now cemented in place. When dry, remove from the wing jig The lead out wires, 1/20" sheeting and the wing tip blocks complete the structure Sand with course, then medium, then fine sandpaper.

The wing is now inserted into the fuselage notch, and the pushrod slipped through the formers Check for freedom of action Install landing gear in plywood sandwich at this time The fuselage may now be sheeted top and bottom at this time, with the material provided. Align the fuselage sides carefully as you cement the wing in position.

The sheeting fore and aft of the cabin is installed next. The celluloid canopy is easy to cement in place and is scored to facilitate bending. Cement rudder in place, offset as indicated.

The engine of your choice determines the cowl size. Mount your engine and fuel line.

Sand entire structure, apply clear dope and wood filler if desired Clear dope and color to suit your desires Solder retaining washers on either side of wheels, and you are ready to roll

Choose a dead calm day and a smooth field for your first flights Take-off down wind on 35' or shorter lines, with engine wide open. Keep your arm stiff at the elbow and wrist to prevent over controlling at first The movement of your stiff arm up and down will give you good control of the model Once familiar with the characteristics, you can really go to town stunting your Mark "30" Zilch

After you have mastered flying your Mark "30" Zilch, you can move the pushrod position to the outer hole in the bellcrank. If you are a real expert at stunt you can cut away ribs to allow full travel of the bellcrank

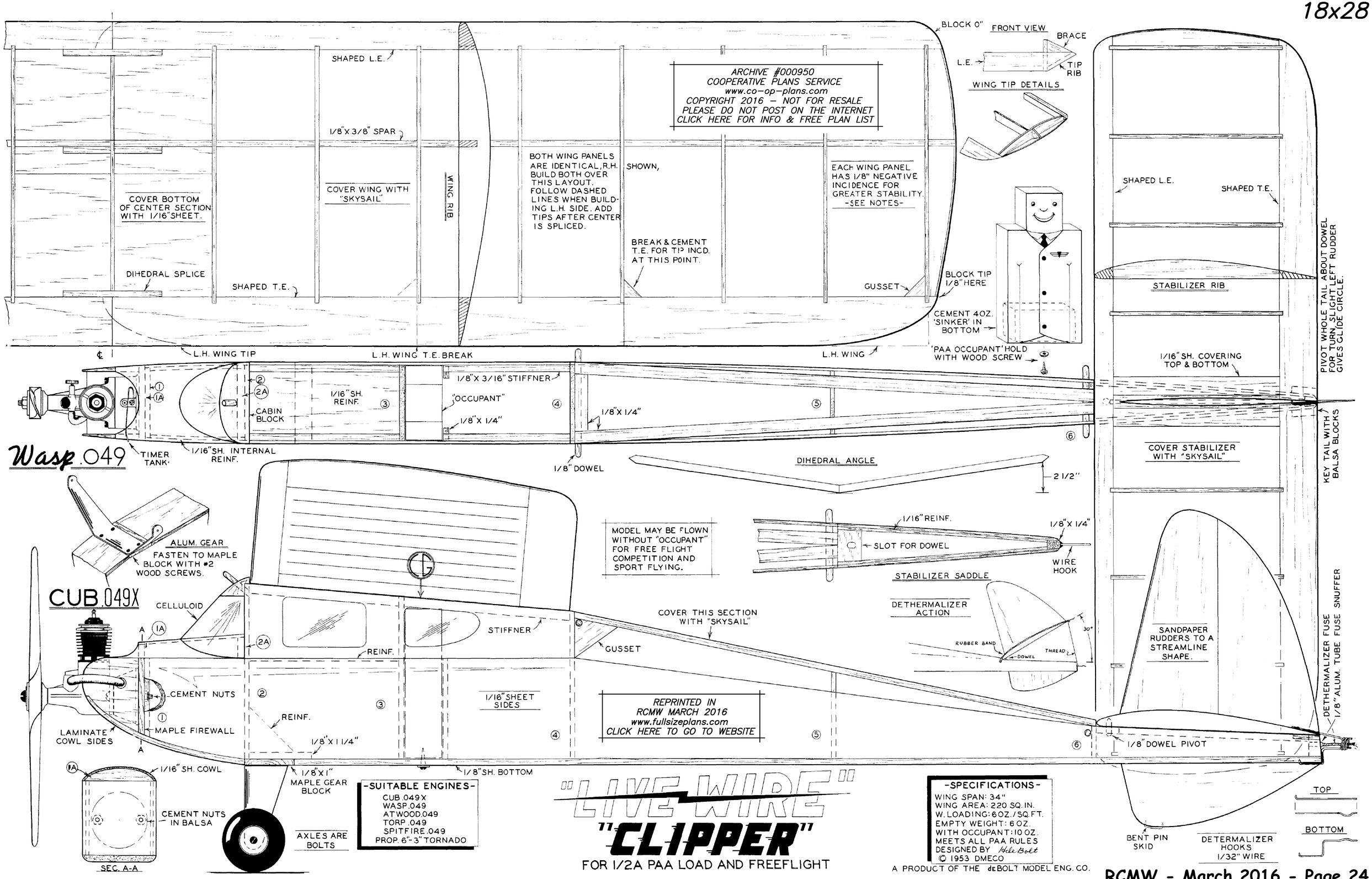
MARK 30 ZILCH
Stunt Controliner

DESIGNED AND DRAWN BY DON McGOVERN KIT ENGINEERED BY BILL EFFINGER	FOR 09 ENGINES FULL SIZE PLANS	30" WINGSPAN KIT NO 12-6

BERKELEY MODELS INC.,
WEST HEMPSTEAD, NEW YORK, U.S.A.

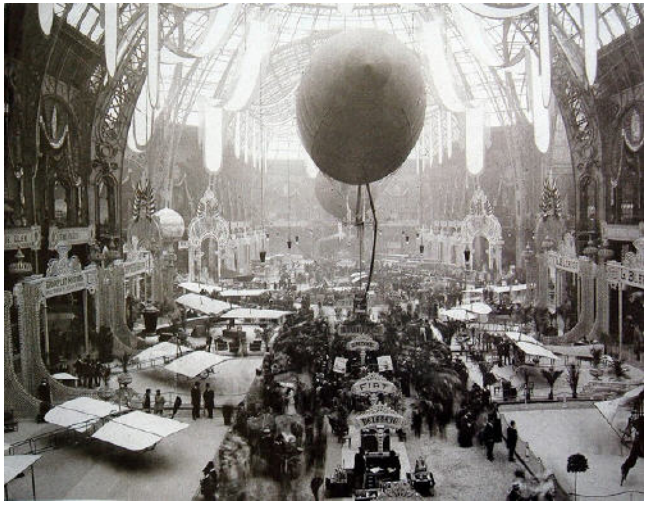
PLAN FROM THE DAVE SHIPTON COLLECTION

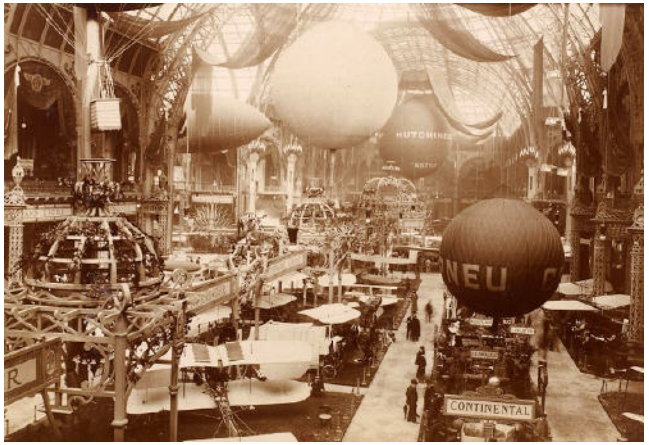
18x28



1909 AERONAUTICAL EXPOSITION
Rheims, Francs
August 22, 1909

These photos were found while searching on the internet and I felt they were too interesting not to show here. Sorry I don't have more information, but I'd bet Wikipedia does - Editor





Basswood Stripper

By John Jennings

I got tired of breaking the 1/16 Balsa square stringers on my models. While plundering through the Balsa at Hobby Lobby, I discovered some 1/16 x 3 x 20 Basswood planks.

The weight difference between Balsa and Basswood was not that great and the Basswood was considerably stronger. I bought a piece of Basswood to experiment with.

I got out my trusty Master Airscrew Balsa stripper, set it carefully and went to work. Some of the resulting stick was 1/16 wide, some of it was 1/8 wide and a little bit of the stick was really thin. The Xacto #11 blade tip wandered a lot!

I tried breaking off about ¼ inch of the #11 blade tip and tried again. Same results. There had to be a better way. I tried using multiple passes with a #11 blade and a straight edge. Same result. The fibers of the Basswood seemed to turn the blade tip.

It was obvious that I needed a strong blade, a way to keep it from flexing and a way to space the cuts accurately. I had some 1/16 x 3/4 aluminum bar stock left over from another project. I had a piece of approximately 1/8 x 1 x 10" aluminum angle that I got from a glass shop. In other words, I used what I had on hand, cutting the aluminum pieces to length with a hack saw and filing the edges.

Except for the Logan 270 Mat cutting blades and the thickness of the spacers, substitutions can be made for everything else. Amazon sells Logan 270 blades, 10 for $5.87. C & H 1200 mat cutting blades are the same thing.

These blades are flat with no backing, 3/4 x 1-3/4 with a hole in the center. They hold an edge very well. One can probably buy a single blade at a local picture frame shop just to try this.

I laid out the hole locations on the on 1 of the 3 pieces of 3/4 x 2-1/2 aluminum spacers with a ruler and a scratch awl. Then tapped the awl lightly with a hammer to center punch the hole locations. If you do not center punch, the drill wanders all over.

If you know you will only use this for 1/16 stringers, you will only need 2 of these pieces of aluminum. I thought I might want some 1/16 x 1/8, sticks, so I made 3 aluminum spacers. I glued these 3 pieces into a stack with a glue stick. When I was through, I parted the aluminum strips with a wood chisel.

Using the ruler, I carefully lined up the bottom edge of the spacer stack to just clear 1/16 from the bottom of the aluminum angle, then glued the stack of spacers to the aluminum angle.

I clamped this whole stack to the edge of my workbench, using a pair of small C clamps. I put a piece of scrap wood under the pile so I would not drill into the workbench. After applying a few drops of oil, I drilled the #29 holes through the whole stack.

The #29 bit was so I could tap the hole for the 8-32 machine screws I used. A drill press would have been nice, but I didn't have one. The holes still came out reasonably straight.

After separating the spacers from the angle piece, I drilled the 3- 2-1/4 x 3/4 spacers with a #19 bit for clearance before separating them. A 5/32 bit will work, instead of a #19 for clearance of the #8 screws. A 3/16 bit will be a little loose, but acceptable. Numbered bits and taps are available from Lowes.

I used 8-32 x 1/2 flat head machine screws because I found them in my screw drawer. I had a counter sink, so I sank the flat heads flush with the inside of the aluminum angle.

I actually had to buy the knurled 8-32 nuts but I did not want to go looking for a wrench every time I needed to make an adjustment. Using the knurled nuts finger tight is enough. I admit to being lazy, call it a character flaw, or maybe a weakness.

As mentioned earlier, there is nothing magic about my choice of materials, 4-40 screws would work fine, or screw wood screws into a hardwood block. Any hard 1/16 thick material will work for spacers. I do not think card stock would be hard enough to prevent the blade from flexing, but styrene plastic or birch plywood might work.

The aluminum angle does not need to be 1/8 thick, that's just what I had on hand. Thinner aluminum angle would work fine as long as it is wide enough. There is no need to counter sink the screw heads and if I had it to do over, I probably would have used round head screws and threaded

the holes in the aluminum angle. There is nothing magic about the hole sizes. They were chosen because of the #8 screw size. Use what you have.

Between the drawing and the photos, you should not have too much trouble.

The blade does not flex in this baby. Set it to just less than 1/32 from the table surface. Run your cutter along the edge of your piece of Basswood, flip the plank over and run it on the other side. You should get a nice straight 1/16 stringer.

After using the Basswood striper for a while, experience has shown that the same fibers that turned the Exacto blade, cause considerable drag when using the stripper, much more so than one would expect in Balsa.

Fear not! Nothing is wrong and the blade did not get suddenly dull. Basswood is just tough, which of course, is why you are cutting it into strips, right?

BILL OF MATERIALS

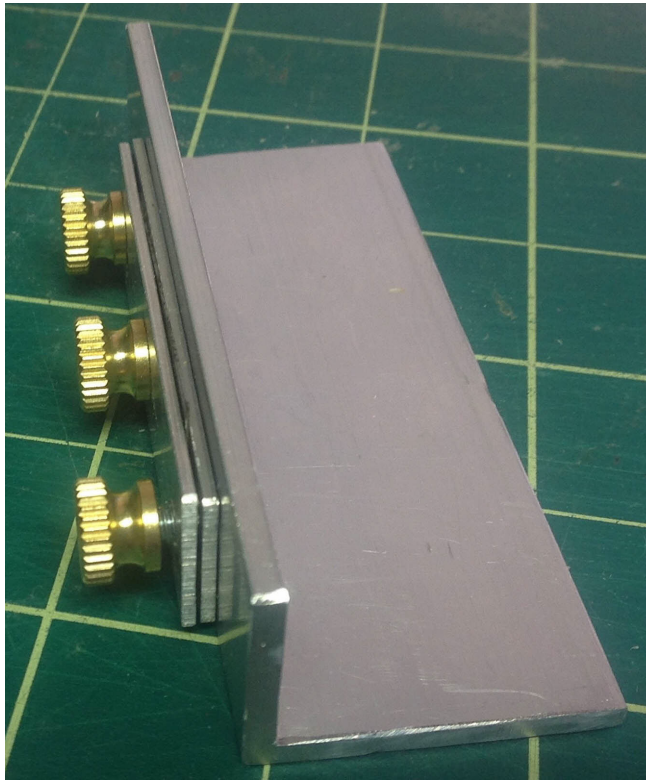
1 - 1-1/2 x 1 x 4 inch piece of 1/8 Aluminum angle, purchased from a glass company.

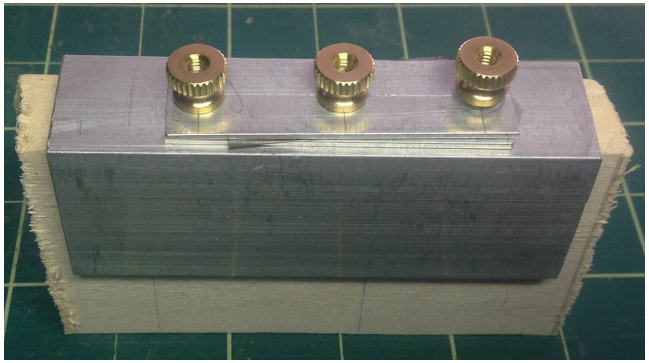
From Lowes home improvement store
3 - 3/4 x 2-1/2 x 1/16 Aluminum spacers
3 - 8-32 x 1/2 Flat head machine screws
2 - 8-32 brass knurled nuts

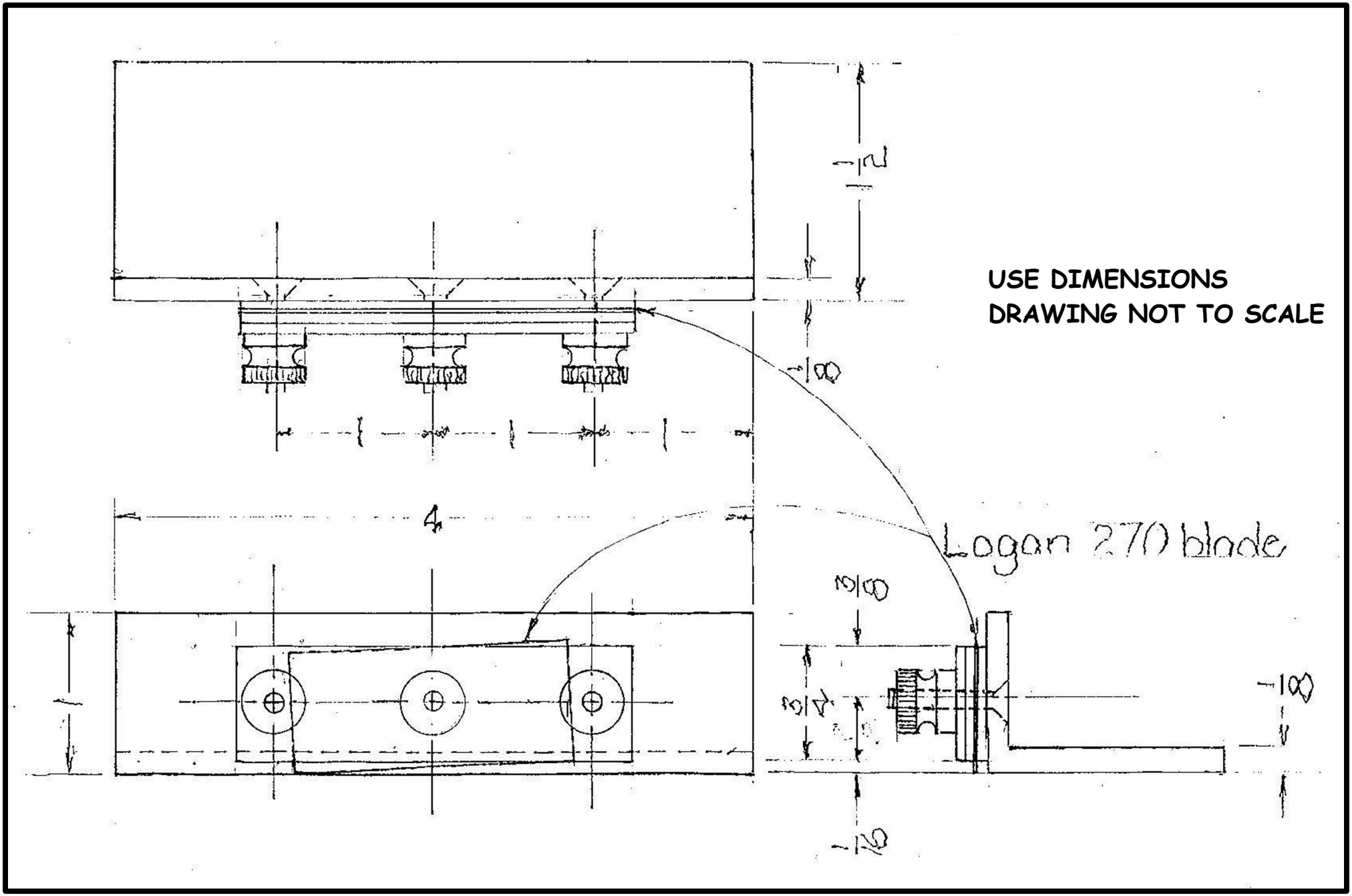
From Amazon
1 Logan #270 or C&H 1200 mat cutting blade

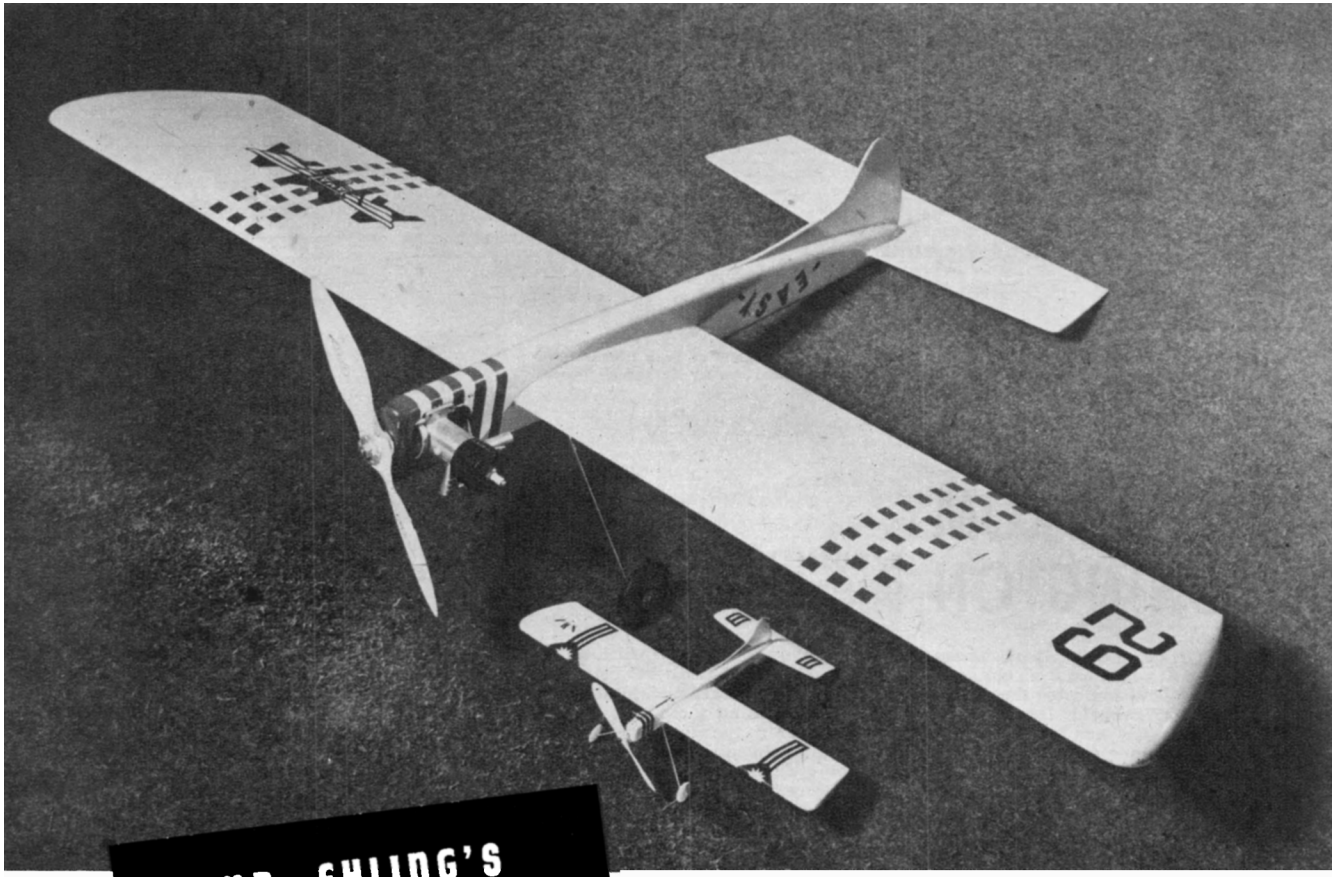
TOOLS USED

3/8" Variable speed electric hand drill
"C" clamps
Work bench
Glue stick
Wood chisel
#29 and #19 high speed twist drill
8-32 tap and wrench
Countersink
Hacksaw
10" flat file






USE DIMENSIONS
DRAWING NOT TO SCALE
Logan 270 blade
4



MR. EHLING'S "Easy" STUNT MODEL

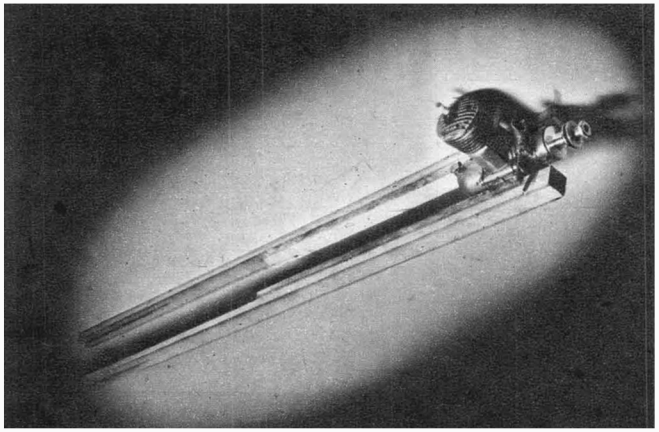
● Big and Little Easy (E-1 and E-7 on chart, pg. 42). Campus CO_2 powers small version; Ohlsson 60 is used on Cl. D stunt ship.

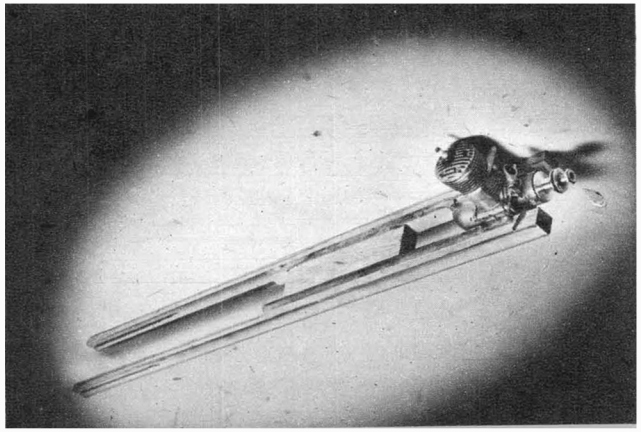
Suppose you wanted to turn out 24 control-line stunt models for use as Christmas gifts. You wanted an original design and, if possible, something other than a flat, slab fuselage. That was the problem facing Frank Ehling and the Easy was his solution.

So remarkable is this method of quickly building an attractive, good flying stunter, that Air Trails presents it for the consideration of all modelers. The various steps are illustrated in photo form by the Smith-Coda team of aviation and model aviation photographers.

Wing is constructed around center block which is sized to fit between motor bearers. After block dimensions are determined from motor mount spacing, the wing is constructed around it. Fuselage longerons are cemented at the front, then slipped over the block and drawn together at the rear.

● Mount engine on bass bearers (left); cement these to balsa longerons (#5); don't cement wing block ("N" length) to bearers.





This interesting way of creating a range of U-Control stunt models that are rugged, attractive and easy to build appeared in the April 1949 issue of Air Trails

THIS DRAWING IS NOT TO SCALE - SEE CHART FOR DIMENSIONS.

POSITION OF AIR TANK ON CAMPUS CO_2 VERSION

CRINOLINE HINGES

PLYWOOD

FUEL TANK

IGNITION

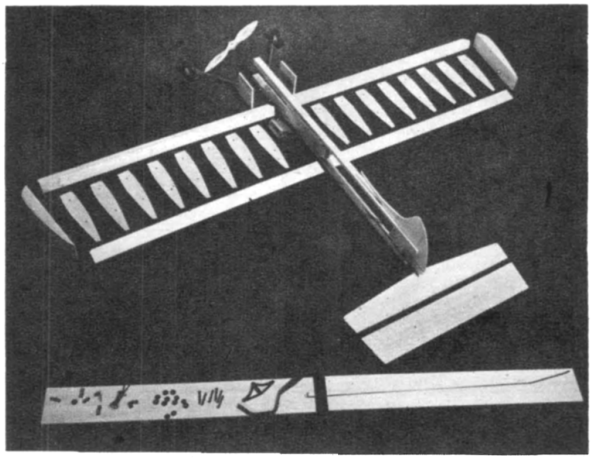
PLYWOOD

BALSA

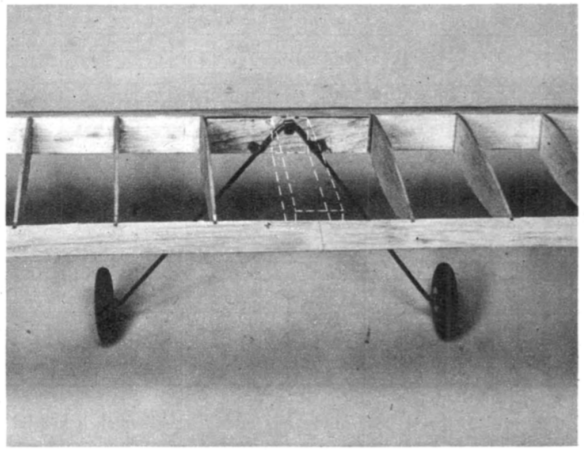
BASS

ELEVATOR HORN

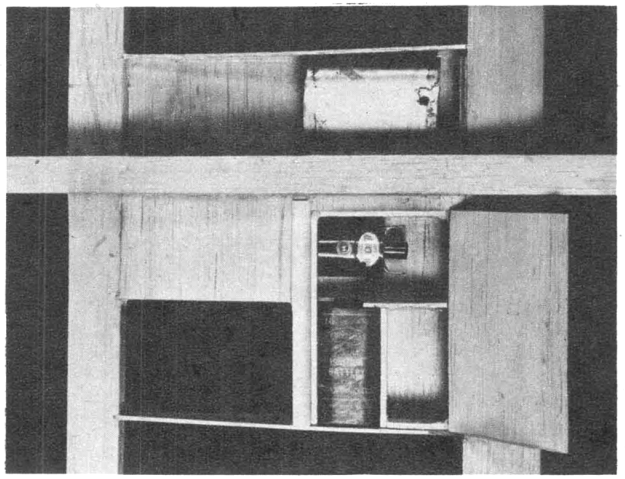
A B C D E F G H J K L M N 1 2 3 4 5 6 7 8 9



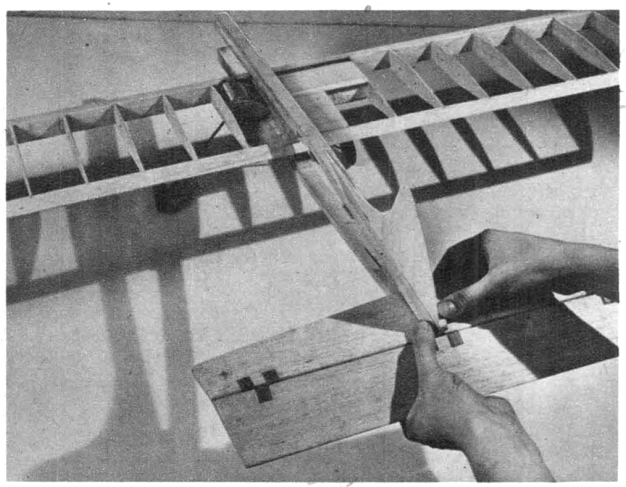
● All parts of Easy are displayed here. Note wing center block between longerons which determines height of symmetrical airfoil. Maeco tanks are used on all but smallest version, where Campus tank is in wing against fuselage and running parallel to leading edge.



● Wing is constructed after airfoil dimensions have been determined. Landing gear is bolted to plywood cemented to rear face of leading edge. Fuselage-wing block is then cemented securely in place (as in dotted lines). Fuselage pieces cemented against this.



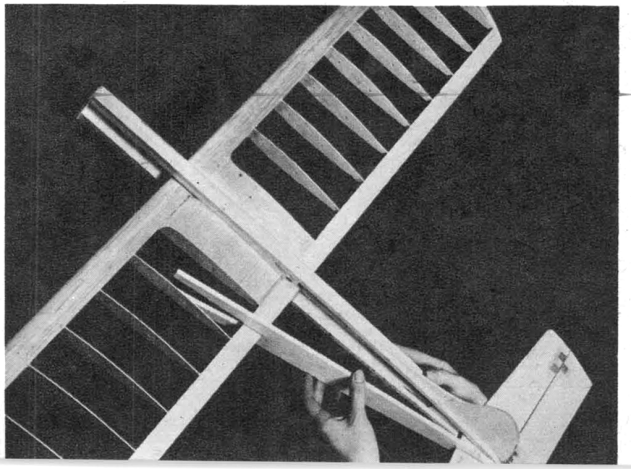
● Fuel tank and ignition components (if glow plug engine is not used) are attached in wing next to fuselage. Cut down center ribs to make planking flush with airfoil shape. Tank is mounted on outer wing in relation to the direction in which the model will be flown.



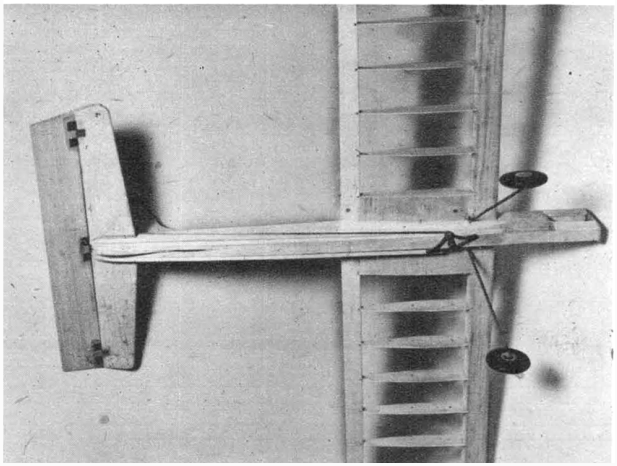
● When wing is assembled, fuselage front is fixed by cementing plywood in place. Longerons are slipped over wing, bent together at rear and cemented. Tail surfaces are then attached. Longerons are slotted to take rudder for distance "L." Fit dorsal fin on top.

	E-1 A-100	E-2 0-.09	E-3 .09-.199	E-4 .199-.299	E-5 .299-.36	E-6 .36-.49	E-7 .49-.65
1	15/32" SQ.	11/16" SQ.	13/16" SQ.	15/16" SQ.	1" SQ.	1-3/16" SQ.	1-1/4" SQ.
2	7/32" X 3/8"	1/4" X 1/2"	5/8" X 1/4"	5/8" X 3/4"	3/8" X 1"	1/2" X 1"	5/8" X 1"
3 & 4	1/16"	3/32"	1/8"	3/16"	3/16"	1/4"	1/4"
5 & 6	3/32" X 1/4"	1/8" X 5/16"	3/16" X 5/16"	1/4" X 5/8"	5/16" X 7/8"	3/8" X 3/4"	3/8" X 3/4"
7	1/32"	1/16"	3/32"	1/8"	3/16"	1/4"	1/4"
8	5/8"	3/4"	1"	1-1/2"	2"	2-1/4"	2-1/2"
9	.040"	1/16"	3/32"	3/32"	1/8"	1/8"	1/8"
A	12-1/2"	20"	26"	32"	38"	45"	50"
B	7-1/4"	13"	16-1/2"	21"	24"	29"	32"
C	1-1/2"	2-3/8"	3-1/8"	3-7/8"	4-1/2"	5-3/8"	6"
D	2-3/4"	4-5/8"	5-7/8"	7-3/8"	8-3/4"	10"	11"
E	4-1/2"	7-1/4"	9-1/2"	11-1/2"	13-1/2"	16-1/4"	18"
F	1/2"	7/8"	1"	1-3/8"	1-1/2"	1-7/8"	2"
G-H	3/4"	1-1/8"	1-1/2"	1-7/8"	2-1/4"	2-3/4"	3"
J	1-1/4"	1-1/2"	1-3/4"	2"	2-1/4"	2-1/2"	2-3/4"
K	2-1/2"	3-1/2"	4-1/2"	5-1/2"	6-1/2"	7-1/2"	7-1/2"
L	1-3/4"	2-3/8"	3-1/2"	4-3/8"	5-1/8"	6"	6"
M	1/2"	3/4"	15/16"	1"	1-1/8"	1-3/8"	1-1/2"
N	1-3/4"	2-7/8"	3-5/8"	4-1/2"	5-5/16"	7"	8"
TREAD	3"	6"	8"	9"	10"	11"	12"

● Next step is to add fuselage side pieces. Two sections are used for each side. These meet at the wing center. Wood thickness varies as indicated on chart. After sides are attached fuselage corners are sanded round. Add control system, mount motor.



● Bellcrank is attached to fuselage bottom as shown. Push rod is connected to elevator horn. Note extra wing tip rib (on plans) which is added to carry control-line guide. Model is covered, doped. Use Jap tissue on small Easy. Decorations are decal sections.



Back Issue
MAGAZINE ARCHIVES
By Roland Friestad

Here's the next in our monthly complete magazine available for download to subscribers. Although this isn't really a magazine this time, but a collection of published plans put out by Flying Models in the 1960's

As you can see it is called "A DECADE OF DESIGNS" and while it doesn't have every design published by the magazine during the 1950's it does have a good selection so that you can see what they provided during those years.

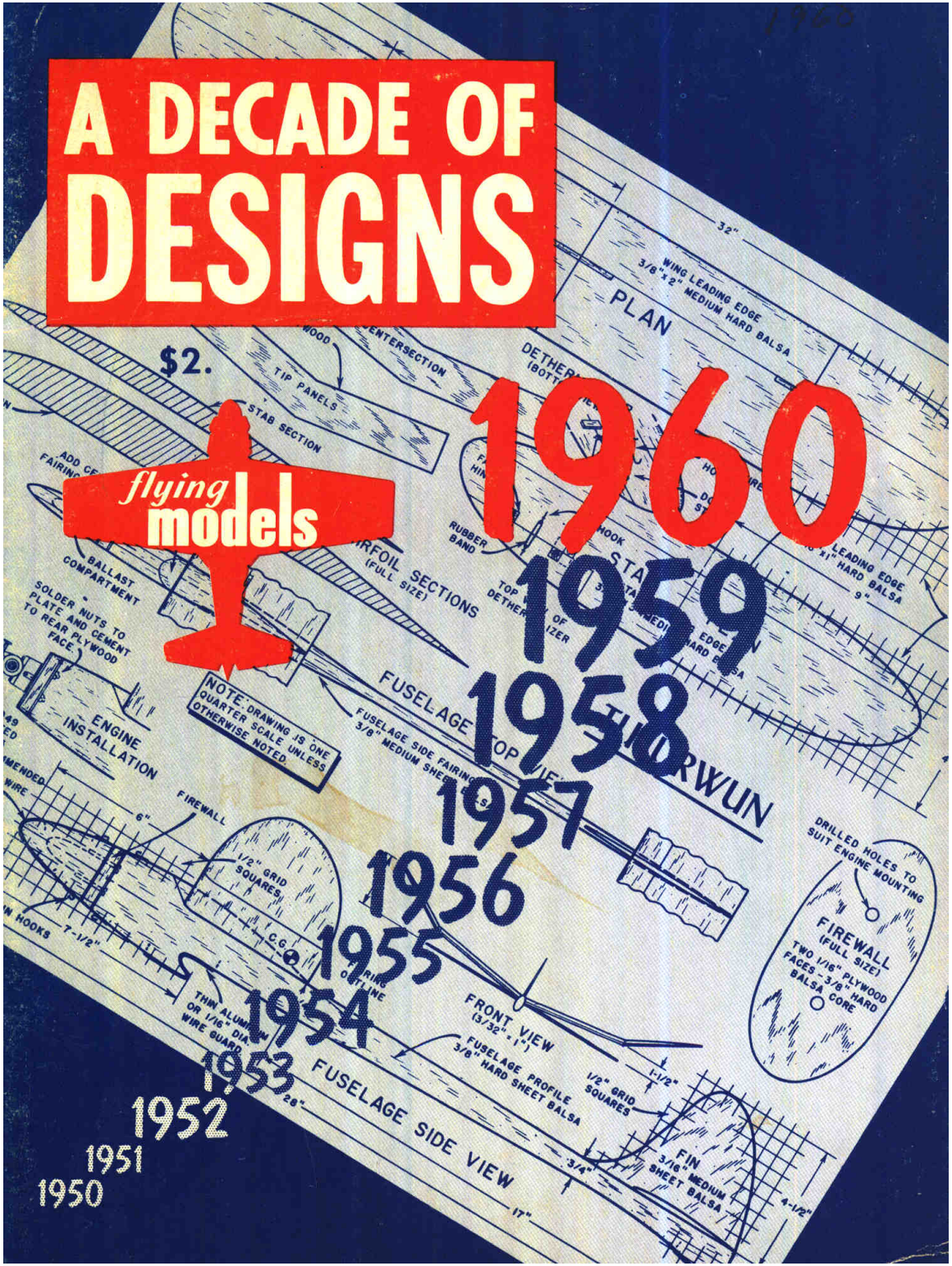
There were several other issues of plan collections published during the 1960's and 1970's and we have quite a few in our archives. They will be digitized and made available over the next couple of years.

To get your copy, just go to the following link and click on the download button that after a short time will appear in the upper right corner of your browser screen. The issue will be downloaded as a PDF file and you can read or print out any or all of the pages as you choose.

-- CLICK ON THIS LINK PLEASE --

This download link will be expire on June 1, 2015, so if you'd like this issue for your own collection, better do it now.

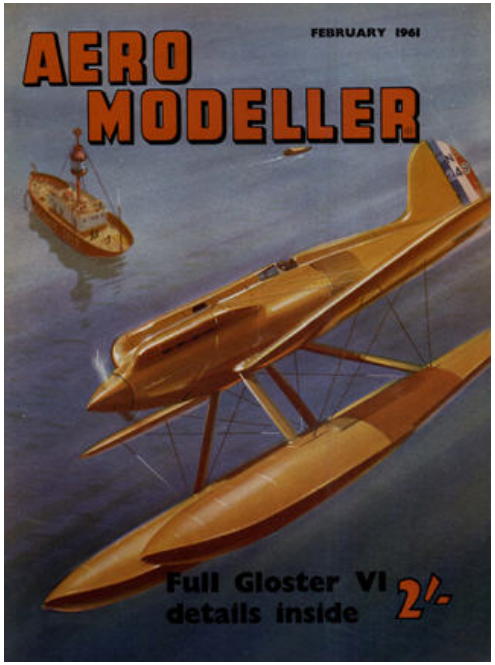
As a note of interest, this issue is stored in the "cloud" that you see mentioned as one of the latest of the buzzwwords used by the computer folks. I use a service called Mediafire which can easily handle very large files that would otherwise cause problems with downloading.



At Last! - The first batch of the AEROMODELLER digital collection. All 240 copies from the 1950's and 1960's. Now working on 1935 through 1949 - Vol 1 No 1 cover below.

To get the 1950's-1960's set, send $75US via PayPal to cardinal.eng@grics.net - For Check or money order send to Roland Friestad - 1640 N Kellogg Street - Galesburg, IL 61401

Cover from Vol 1, No 1 - Nov 1935



Back Issues Model Airplane Magazines

If you're like me, you enjoy paging through model airplane magazines and plans, sometimes to find a project to build, to research a particular aircraft, or to just spend some pleasant time away from the daily grind.

If you like to build models, the magazines of today don't offer much since they are primarily expensive catalogs of ready- to-fly models. There's nothing wrong with RTF or ARF models but they don't offer much to interest model BUILDERS.

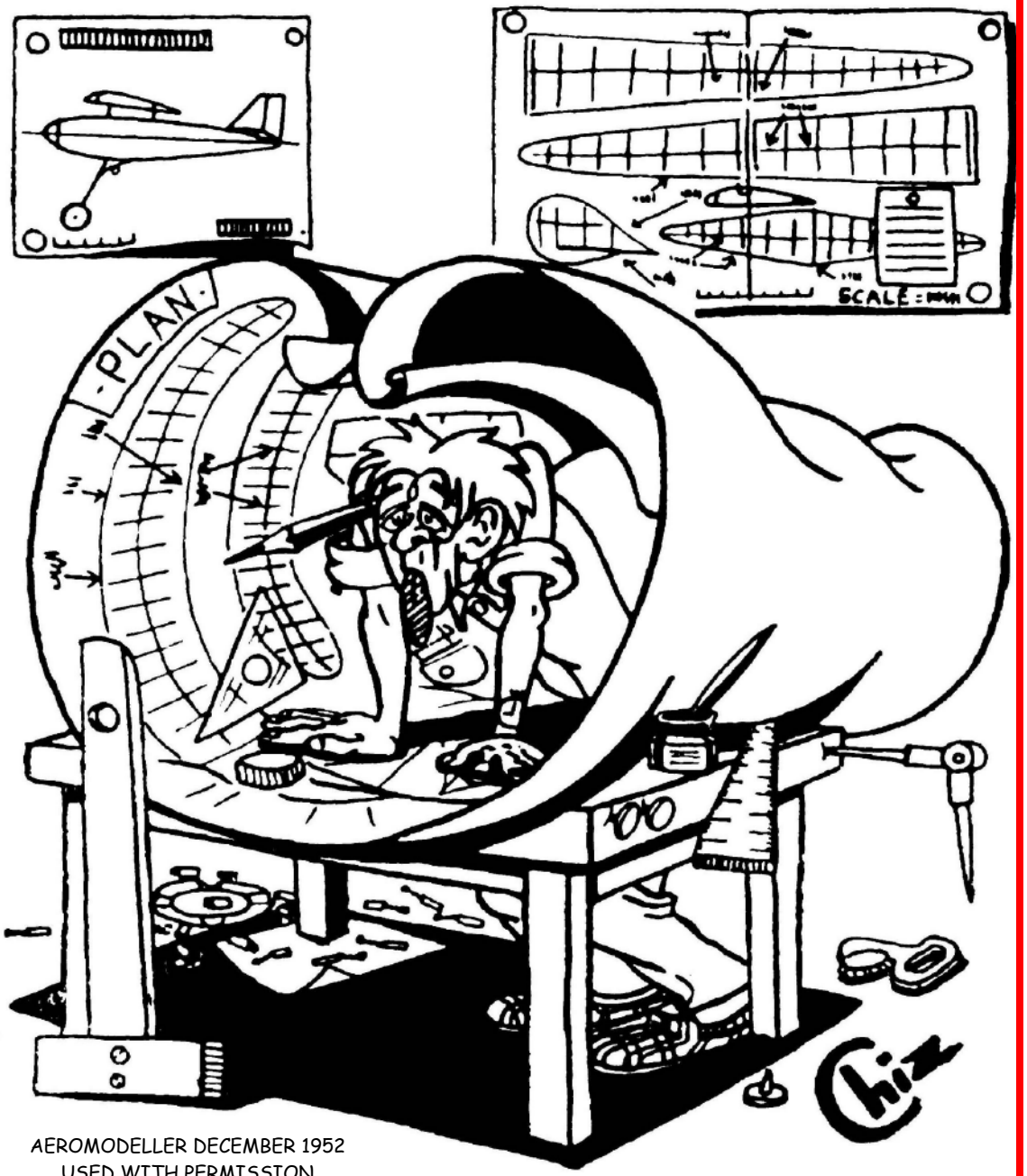
That's NOT the way it was in the past, when you had to build a model before you could fly it. If you're an old-timer, as I am, you have fond memories of Air Trails, Flying Models, Model Airplane News, Aeromodeller and many of the several other magazines available "way back when".

If you're a relative newcomer to modeling and want to learn how to build them, those old magazines can provide a wealth of useful information, plans and how-to-do-it articles.

There are several problems with those old magazines. They are sometimes hard to find, often in bad condition, and in many cases they are so fragile that they can fall apart just by turning the pages. This is because they were often printed on pulp paper, also known as newsprint. Newsprint is inexpensive, but has residual chemicals that cause it to deteriorate when exposed to the air and particularly to sunlight. Your wife or "significant other" might also ask "When are you going to get rid of all those smelly old magazines?"

I admit to being a bit of a "nut case" but have been collecting these magazine for over 50 years and now I am trying to digitize them to preserve them for other modelers. They are now available as digital PDF files. See the details on the next page.

Keep 'em Flying - Roland Friestad



AEROMODELLER DECEMBER 1952
USED WITH PERMISSION

All collections are furnished on custom USB Flash Drives

AEROMODELLER is now available !! - 240 issues covering all of the 1950's and 1960's - $75US via PayPal - Postage Paid worldwide. See page 31 of this issue of RCMW

More to come including MODEL CRAFTSMAN, FLYING ACES, POPULAR AVIATION, MODEL AIRCRAFT (British) Watch this space.

AIR TRAILS - This magazine went under several names. The final issue was published in March of 1975. There are 435 monthly issues included in the complete set and priced as follows ---

D001010 - January 1937 through December 1943 - 84 issues - $50

D001011 - January 1944 through December 1950 - 84 issues - $50

D001012 - January 1951 through December 1961 - 132 issues - $50

D001013 - January 1962 through December 1971 - 96 issues - $50

D001014 - January 1972 through March 1975 - 39 issues - $25

AIR TRAILS ANNUALS -
D001009 - 1938 through 1969 - All 25 issues - $30

D001015 - SPECIAL - Complete set including the annuals - $200

MODEL AIRPLANE NEWS - The first issue of this magazine was published in July of 1929 and it is still being published. We have the following collections currently available ---

D001002 - July 1929 through December 1942 - 161 issues - $50
D001004 - January 1943 through December 1952 - 120 issues - $50

MODEL BUILDER - This magazine ran from the first issue of September~October 1971 through the final issue dated October, 1996 -

D001001 - The complete run - 295 issues - $75

FLYING MODELS - The first issue of this magazine to use the name was published in June of 1947 and it is still in publication. We have the following collections currently available ---

D000013 - June 1947 through December 1963 - 123 issues - $50

RC MICRO FLIGHT & RC MICRO WORLD - The complete run of RC Micro Flight, 1999 through 2004 and all issues of RC Micro World, 2005 through 2012 are available - D001016 - $30

NEW - Now available is a digital collection of the first 10 years of RC Modeler magazine, starting with the first issue published in October of 1963 through the issue of December 1972 - 109 issues in all on a single USB drive card. - $50 - Postage paid world wide

All prices include postage paid worldwide

Send payment using Paypal to
cardinal.eng@grics.net

Or check or money order to
Roland Friestad
1640 N Kellogg Street
Galesburg, Illinois 61401
USA

Makes a Great Gift for Modelers
Circle your interests and give this sheet to someone who has a hard time finding you a gift

Effective Nov 1, 2015 - Subject to change without notice