

RCMW-FSP

AUGUST 2015

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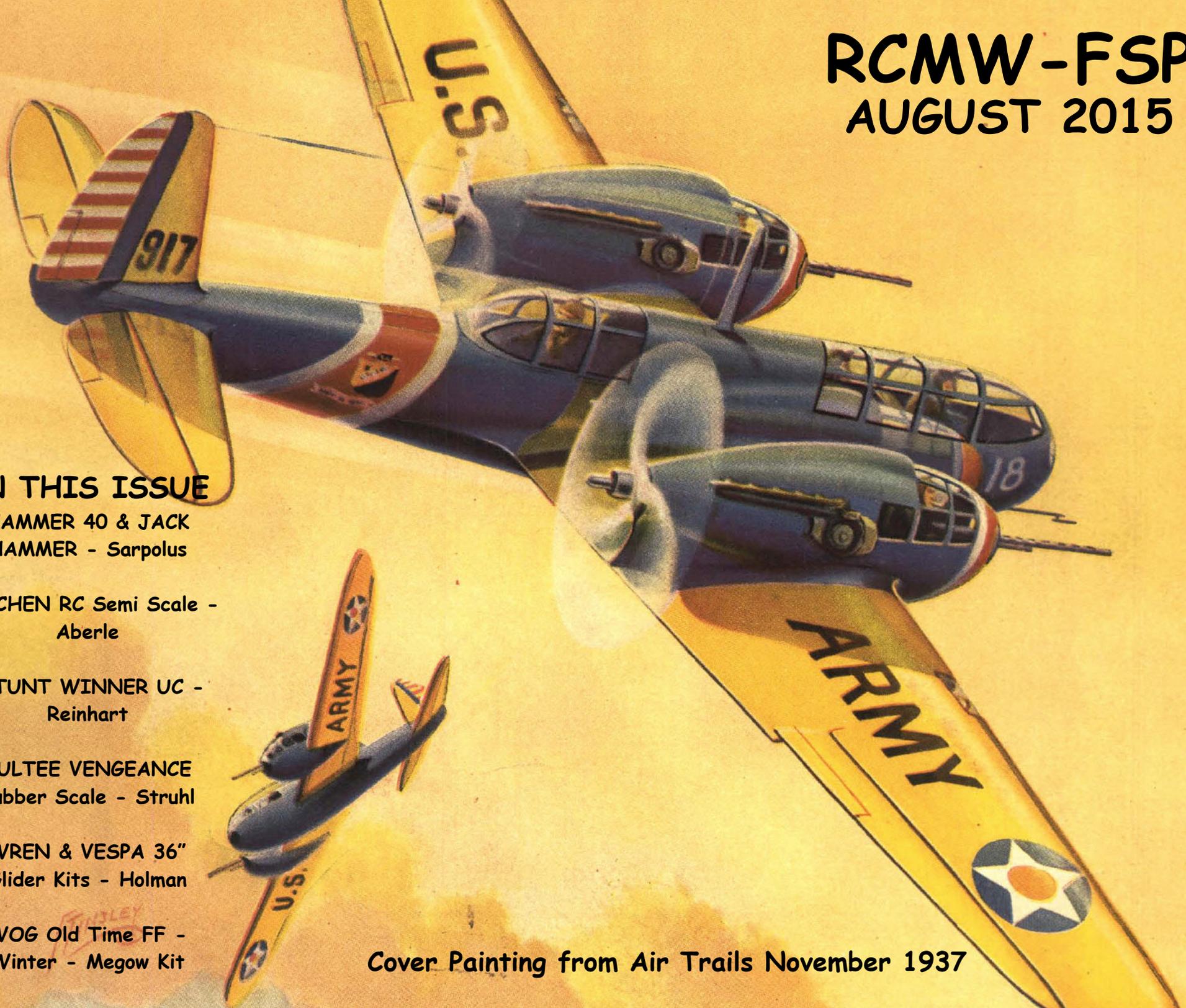
VULTEE VENGEANCE
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WREN & VESPA 36"
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WOG Old Time FF -
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Cover Painting from Air Trails November 1937



For the Model Bulder and Flyer - August 2015 Issue



Full
Size
Plans



The flying season is in full swing and here I am slaving away at the computer for another issue. Oh well, as I tell my wife, it keeps me off the streets and out of the bars. But it also keeps me from the flying field.

This month we kick off with the first of the HAMMER series of RC Pattern models by Dick Sarpolus. His HAMMER 40 is a 60 inch span design sized originally for .40 to .50 glow engines. It appeared in the May 1985 issue of Flying Models and is reprinted here

Next up is the construction article and plans for Bob Aberle's newest offering, the PATCHEN EXPLORER. It's a Park Flyer semi-scale rendition of a full size aircraft that saw very limited production, possibly only one example and it is still flying in South Africa. This is Bob's first go at an onboard video camera and we'll report on how successful it is in future issues.

Page 17 has a call for back issues of Aeromodeller magazine that we are missing in our efforts to digitize the complete run and preserve them from loss. Take a look and see if you can help in the project.

Our U-Control offering for this issue is an attractive design by Harold Reinhard that was a winner in the early 1950's. It's from the January 1951 issue of Air Trails magazine. Build one for a smooth flying trip down memory lane.

Another of the Sarpolus HAMMER series, this time the TACK HAMMER, a 1/2A version of his larger pattern ships. Originally published in the December 1989 issue of Flying Models, I'd bet it would make a nice little electric powered RC flyer.

And here's a good flying jumbo rubber powered scale model, the VULTEE VENGEANCE by Sidney Struhl that appeared in the January 1942 issue of Air Trails. I'd like to build this one myself as it should make a good competitor for the SAM free flight scale event.

Everyone has heard about the Junior Birdmen Club and about Bob Hoover, one of the finest pilots ever known. Read about both the Birdmen Club and Bob Hoover on Page 26. There is a great DVD available about Hoover. I've ordered a copy for myself.

Bungee (Hi-Start) launched 36 inch wing span gliders are rapidly gaining in popularity, particularly on the west coast. This class is started in England, has come to the US and is providing lots of fun and low-key competition. Bob Holman and Jim O'Reilly have combined to come up with plans and laser cut short kits for two nice models. See the plans on pages 27 and 38.

The WOG, a Bill Winter design appears on page 29. From the 1945 issue of Air Trails, it then became a Megow kit. Distinctively shaped and now eligible for SAM competition with the changes in rules.

See our usual ad for digital back issues of model magazines on pages 30 and 31. The September issue may be a bit late - We're taking a long awaited trip to Alaska for nearly 2 weeks the end of August.

Roland Friestad, Editor

NEWS & STUFF

You know you're
getting old
when you fall down
and wonder what
else you can
do while
you're down
there.



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HELP - PLAN NEEDED

Back in 1941 Scientific came out with a nice looking Free Flight model named the FLAGSHIP. We recently came across an original Scientific printed plan but it is in such bad shape and had parts missing that we couldn't digitize it. We do have the wood patterns.

If any of our readers happen to have that old Scientific plan and would lend it to us so that we can preserve it and publish it for our readers. Contact me for info. A loan of the plan would mean a year added to your current subscription.

Roland Friestad - cardinal.eng@grics.net

THE HAMMER HISTORY

Two of the six Dick Sarpolus HAMMER RC Pattern designs appear in this issue. They are the HAMMER 40 on page 4 and the TACK HAMMER on page 21.

The six designs were published over a period of 23 years, all except for the last appearing in the late Flying Models magazine. Here's a list of dates and brief specs.

HAMMER 20 - 7/83, 50" span, .20-.30 glow
HAMMER 40 - 5/85, 60" span, .40-.50 glow
JACK HAMMER - 9/90, 90" span, 35cc-60cc gas
TACK HAMMER - 12/89, 32" span, .049 glow
SLEDGE HAMMER - 10/88 FM, 74" span, .90 - 1.2 glow
3D HAMMER - 9/05 Model Aviation, 38" span, electric

Let us know if you would like to see more of the HAMMER series

PECK POLYMERS IS BACK!!

The company started and run for many years by Bob and Sandy Peck carried lots of the little needed parts for rubber powered model builders.

Started in 1971 and run after Bob Peck passed away until 2007 when it was purchased by Tim Goldstein of A2Z. Tim closed it down last year and Chuck Imbergamo bought it in early 2015 so all those needed goodies are again available.

I just bought some of their Super Sport rubber strip using their website shopping cart and am looking forward to again having it available.

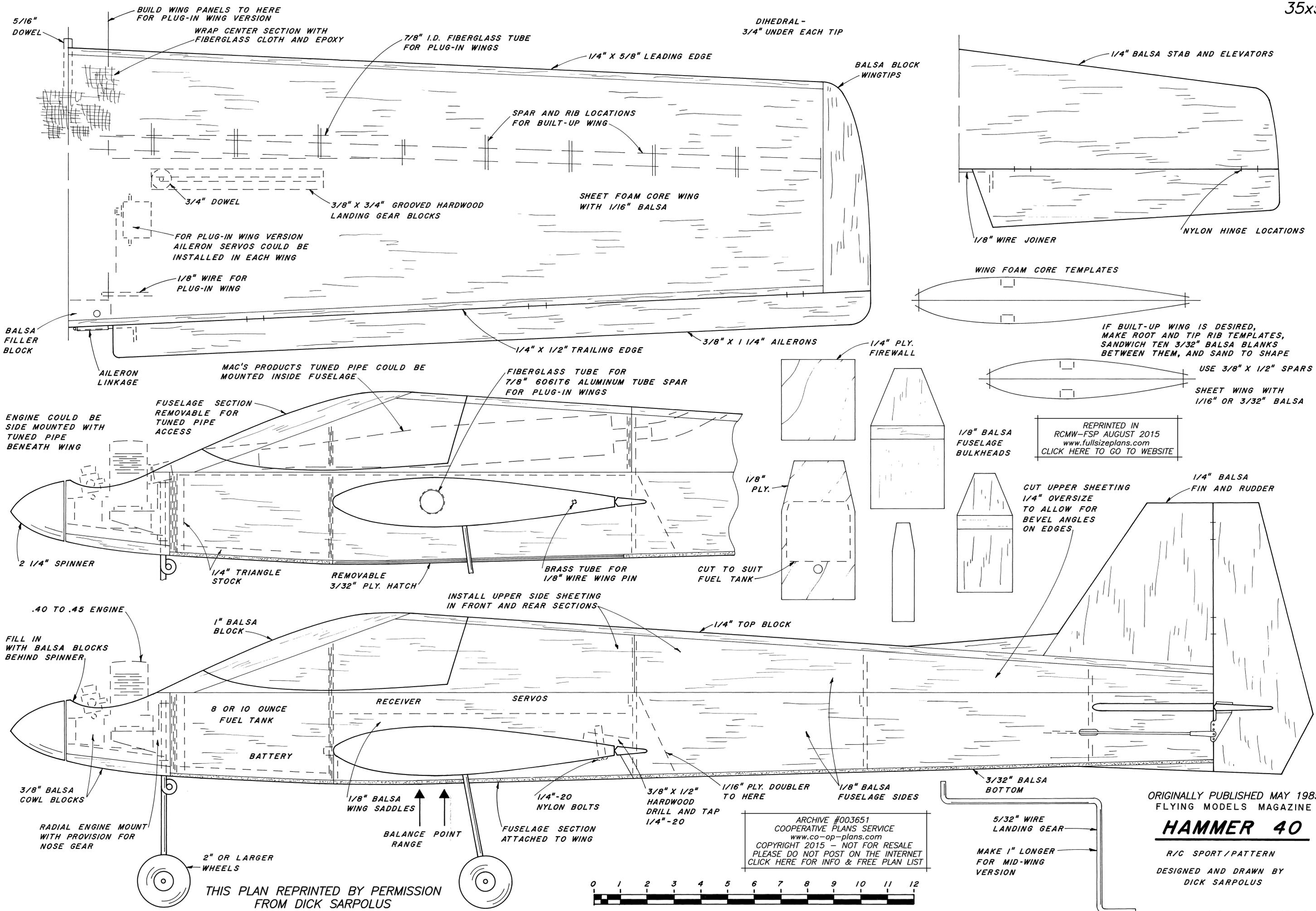
Check their website at --

www.peck-polymers.com

Sounds like it's going to be a nice family business so let's support their efforts and keep these needed supplies available.

To contact us send an E-Mail to - cardinal.eng@grics.net





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www.fullsizeplans.com
CLICK HERE TO GO TO WEBSITE

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THIS PLAN REPRINTED BY PERMISSION
FROM DICK SARPOLUS

ORIGINALLY PUBLISHED MAY 1985
FLYING MODELS MAGAZINE
HAMMER 40
R/C SPORT/PATTERN
DESIGNED AND DRAWN BY
DICK SARPOLUS

PATCHEN EXPLORER 200

**by
Bob Aberle**

Bob's newest offering, an RC electric powered fantasy scale model of 200 square inches wing area, 20.5 ounces, sporting an on-board digital video camera

BACKGROUND

There is considerable history associated with this particular aircraft. Let me start at the beginning.

When I was working at the Grumman Corp back in the eighties one of my fellow engineers showed me a photo of a most unusual full size aircraft called the "EXPLORER".



The photo shows the full size EXPLORER that is still being flown currently at the South African Air Force Museum.

Besides being unusual I learned that the full size aircraft was designed by Dave Thurston. Over the years Dave worked on Long Island at both the Grumman and Republic aircraft companies.

At Republic Dave designed the amphibian called the "Seabee". At Grumman he designed a lightplane called the "Kitten" which was hoped would sell commercially after the end of WW-II. Another Thurston design was the popular Lake Amphibian.

The Lake design eventually led into the "TSC-2 EXPLORER" which had the engine mounted on a sort of pylon on top of the wing. The EXPLORER is still in flying condition today as part of the South African Air Force Museum.

This website is a good starting point to learn more about the full sale EXPLORER:

<http://www.pilotspost.co.za/arn0000224>

You will see several references in this article to a "Patchen" EXPLORER. Although the EXPLORER was designed by Dave Thurston, the actual prototype I believe was built by a Marvin Patchen. The website just referenced should have more details on this.

Early in the year 2000 I finally settled down to design a model of the TSC-2 EXPLORER. At that time we were just starting to get serious about electric powered model aircraft. I decided on a 300 square size model and selected one of the popular brushed motors of the day, the SPEED-480.

At that time we really didn't have inexpensive brushless motors as we do today. For batteries we had to resort in heavy ni-cads or Ni-MH cells. As a result my plane weighed a very heavy 35 ounces. It flew well, but was kind of sluggish in the air. Even so the resulting construction article appeared in the October 2000 issue of *Model Airplane News*. Below are two of the few remaining photos of the model.



More recently I wondered about re-visiting the EXPLORER using modern brushless motors, Li-Poly batteries and lightweight 2.4 GHz spread spectrum RC systems.

Then several months back a reader, Chuck Cawthon of Garland, Texas, e-mailed me and included photos of a series of all foam planes that he designed around the blue foam available from home improvement stores like Home Depot and Lowe's.

As luck would have it, one of the planes in Chuck's fleet of "foamies, was his version of my TSC-2 EXPLORER. The next two photos show Chuck's EXPLORER, before and after the final paint job.



I expect to cover Chuck's foam planes in my FAQ column that should appear in the December 2015 issue of the AMA *Model Aviation* magazine. In the mean time if you have any questions concerning Chuck's foam building techniques you can feel free to contact him. With Chuck's permission this is his e-mail address:

cdchawk926@yahoo.com

Now we get down to the subject of this construction article, my latest version of the TSC-2 EXPLORER. Although I just mentioned an all foam version, I decided to stick with balsa construction. I wanted more of a parking lot size, so I reduced my original 300 square inch wing area, down to 200 square inches. I also reduced the fuselage width which saved weight and bulk.

The resulting model, with the latest power and RC equipment, came out to 20.5 ounces total. Power input is approximately 100 watts, so there is plenty of power to get this bird off the ground.



The constant chord, flat bottom airfoil makes for easy construction. On the other hand getting the "T" tailed elevator to work properly takes a little time.

Also with the motor on top of the pylon you must feed the three wires down through the wing, into the fuselage and finally plug them into the ESC.

I used separate aileron servos mounted in the wing. So both cables had to be routed to the center of the wing. Then a "Y" harness was used so that both aileron servos plugged into the single aileron port on the receiver. It probably sounds a little complicated.

My prototype aircraft took me about four weeks of part time effort to design, build and fly. By following my plan you probably can build this same model in half that time.

Finally I discarded the idea of a steerable nose gear. But to my surprise, the large rudder made the plane easy to maneuver for both take-offs and landings.

WHAT ABOUT A CAMERA?

Back 15 years ago I did have an idea of placing a camera up on the nose of my first EXPLORER. The smallest camcorders at the time were the 8 MM variety that weighed about a pound and cost upwards of \$1,000 so that was out.

But like everything else, things improve with time. The latest rage for on-board cameras involves the tiny "Mobius Action Cam". This camera cost me \$70, plus an additional \$30 for a memory card. Best of all it weighs only 1.5 ounces. At the end of this article I will provide more info on the camera.



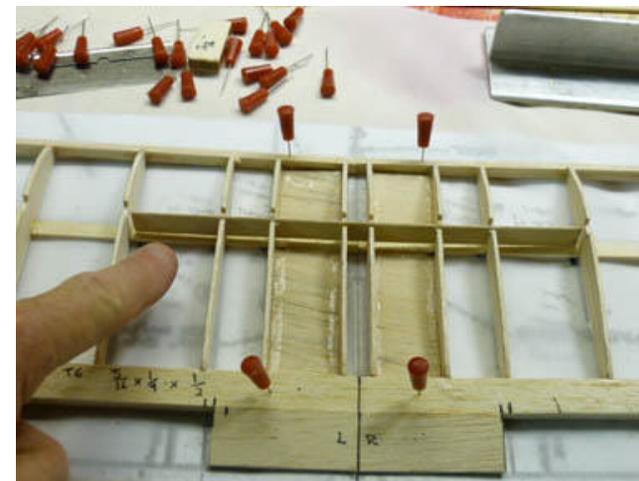
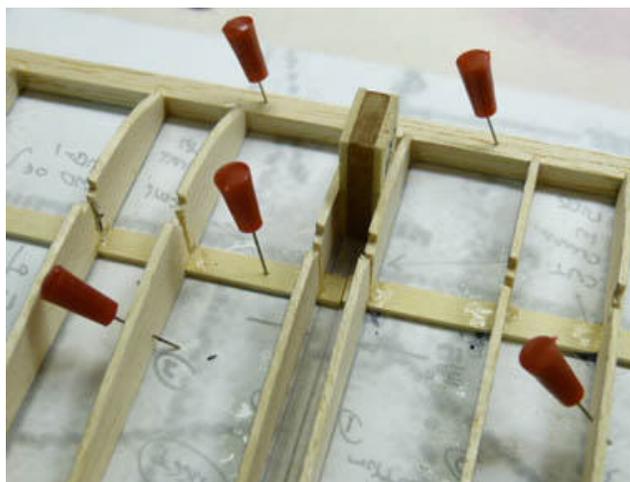
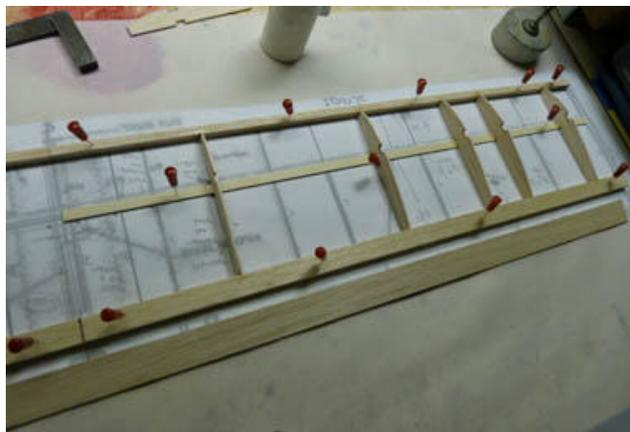
Here's a shot of the Mobius digital video recorder attached to the nose of the new EXPLORER with Velcro tape.

CONSTRUCTION NOTES

As usual, my photos should tell most of the story. I actually take many more photos than is necessary for my articles. If you get hung up on any point, just drop me an e-mail and I will try to find a few back-up photos that might help you out.

The ribs are essentially all identical, except the center ribs have a slot cut to allow for the 1/32 inch ply wing brace.

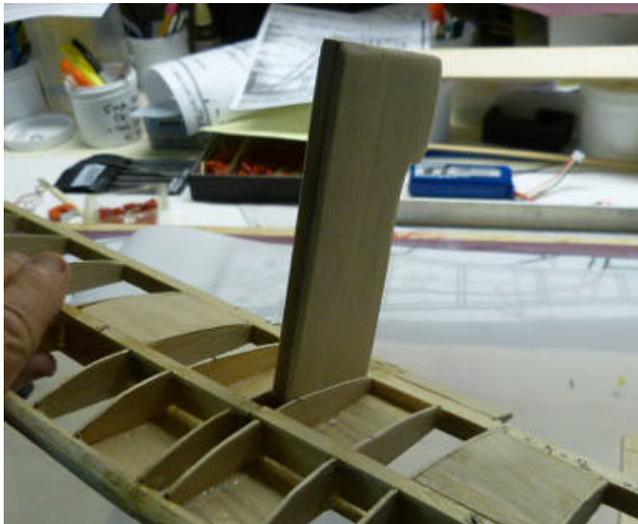
I put a very small dihedral in the wing, 1/2 inch under each tip. I do this so the wing doesn't look like it is drooping. Make sure you space the two center ribs so that the motor pylon is a firm fit.



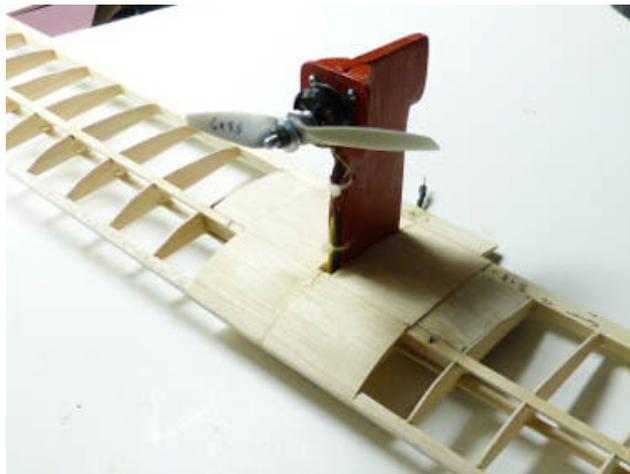
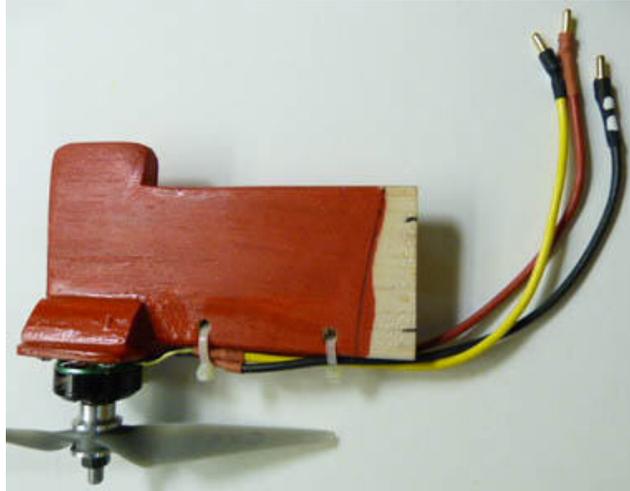
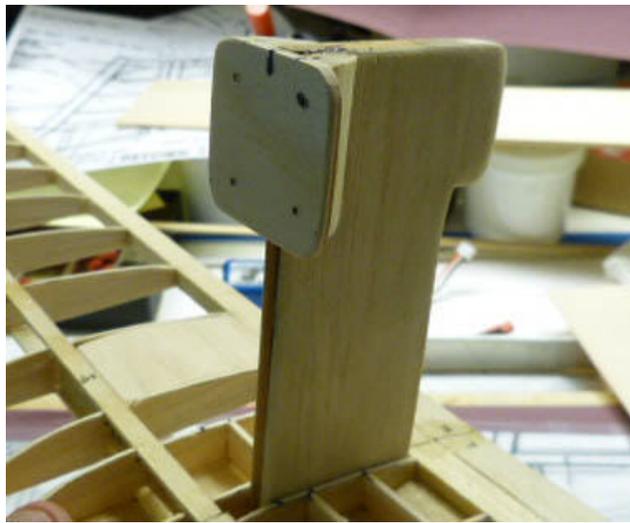
The motor pylon is next. The center core is made from 3/16 inch hard wood such as like spruce or basswood.



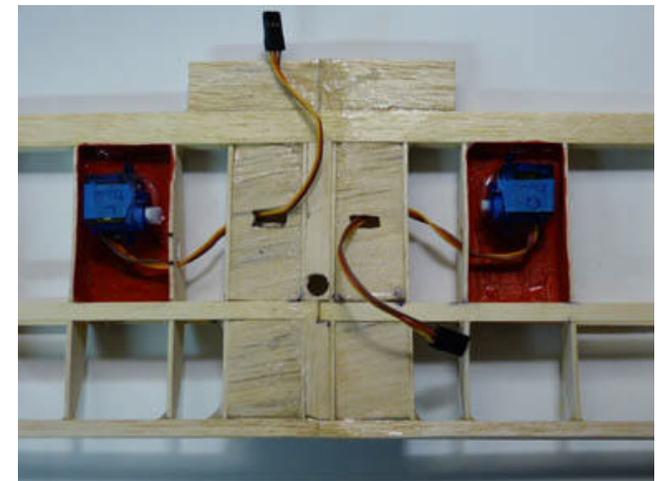
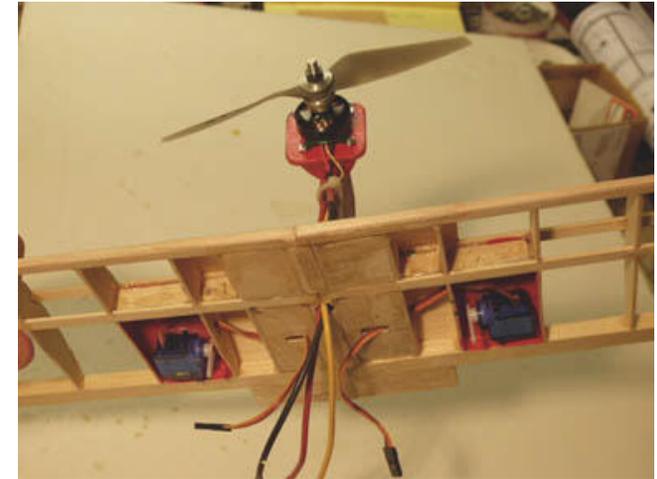
Then both sides of the core are covered with 1/16 sheet balsa. This make the motor pylon a total of 5/16 inch thick. The pylon does not get installed until after the wing is covered.



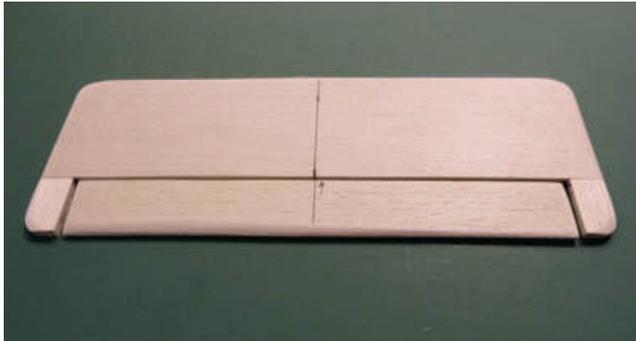
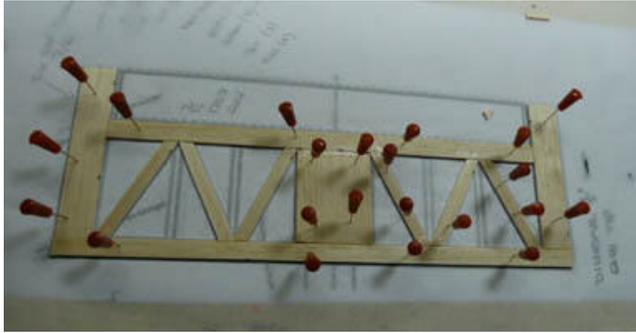
The firewall (F-5) is made from 1/8 inch plywood. You will note that the three motor wires are run on the outside of the pylon along the leading edge. I pre-painted the motor pylon at this time.



The motor cables and the aileron servo cables exit out the bottom, center portion of the wing.



The stab and vertical fin has a built-up center core with 1/16 inch balsa sheet on either side. This is the way the stab goes together. The elevator is made from solid 3/16 inch sheet balsa.



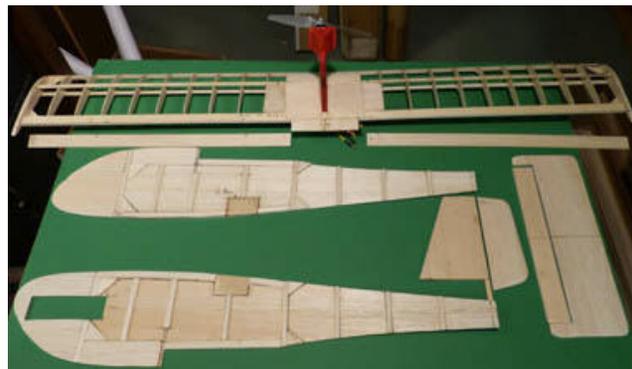
The elevator control hookup initially gave me a problem. I tried using my usual Stevens AeroModels yellow Teflon tubing with .025 inch diameter running inside the tube. But the problem was that the necessary bends in the tubing tended to bind up the control and stall the elevator servo.

The fix on this was to install the elevator servo on top of the vertical fin. I made a channel in the center core of the fin so that the elevator servo cable could pass down through the fin, into the fuselage and forward into the receiver. This was easy and worked well.



Note that the trailing edge of the vertical fin center core was made from hard wood that goes all the way down to the bottom of the fuselage.

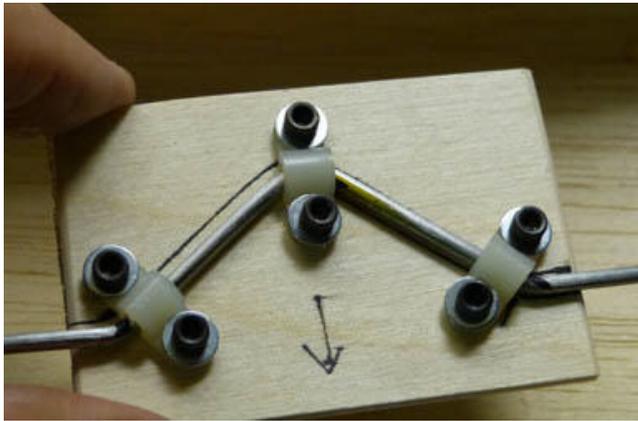
Here are most of the parts before final assembly and covering. There are many stiffeners and doublers that are added to the inside surfaces of the fuselage. All the stiffeners are cut from 1/16 inch balsa.



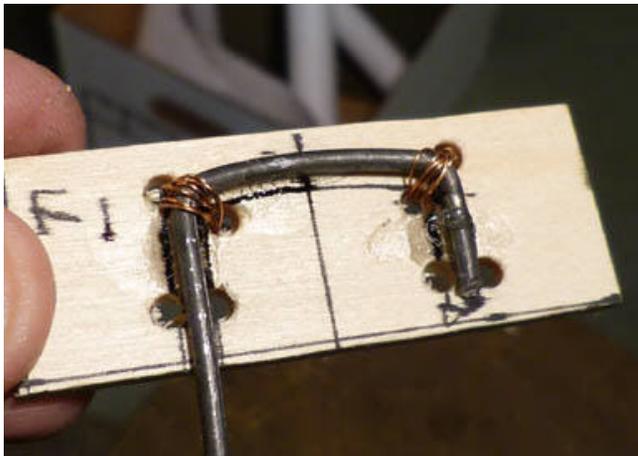
I employed two large wooden blocks to help me keep the fuselage sides in alignment during assembly. All the cross pieces are made from 1/16 X 1/4 inch balsa.

Note the large opening on the left side of the fuselage for the 3 cell Li-Poly battery pack. This opening allowed me to use either a 1400 or 850 mAh battery depending on whether I installed the camera or not.

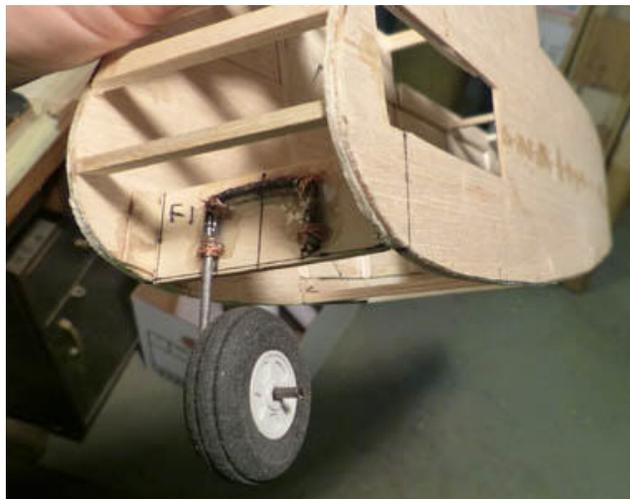
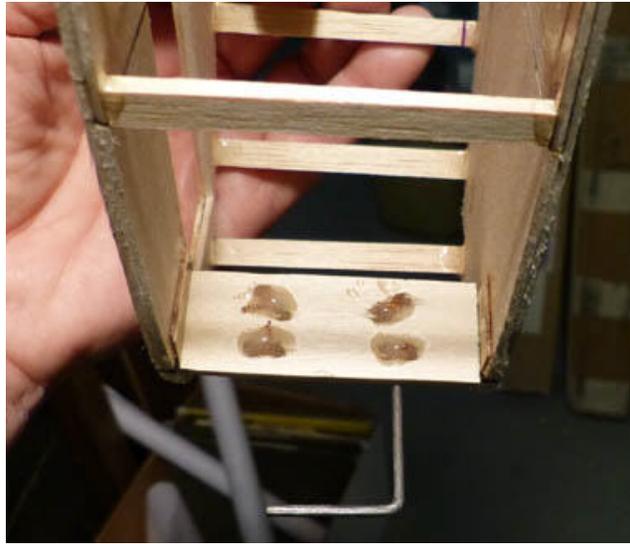




The main landing is made from 3/32 inch diameter wire that is held to a 1/8 ply former (F-3) with the help of DuBro nylon brackets and 4-40 hardware.



The nose gear was also fashioned from 3/32 inch diameter. Again 1/8 ply was used for the former F-1. The NG strut was attached to the plywood with the help of soft copper wire and 5 minute epoxy cement.

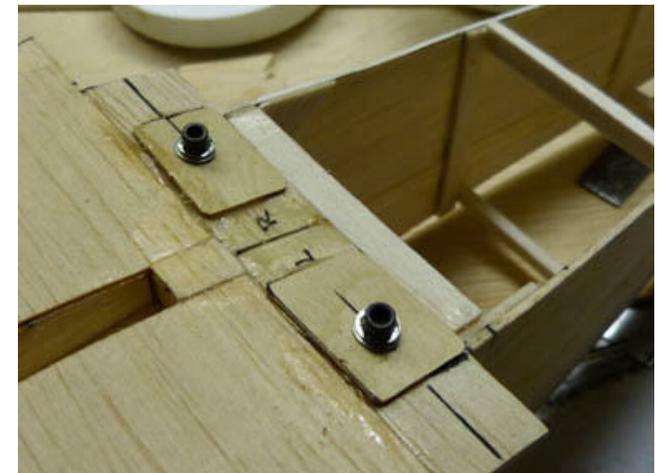


Then former F-1 is epoxied in place up in the nose of the fuselage.

A length of 3/16 inch wood dowel is epoxied to the bottom, forward portion of the wing. This dowel penetrates into the plywood former F-2 and holds the wing down.

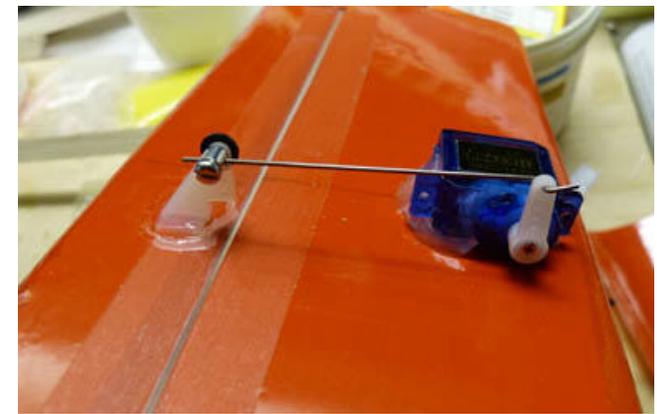
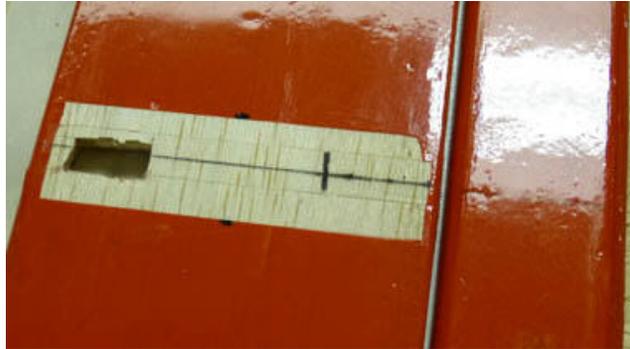


The wing trailing edge is held in place with two 4-40 screws that penetrate the 1/8 ply former F-4.





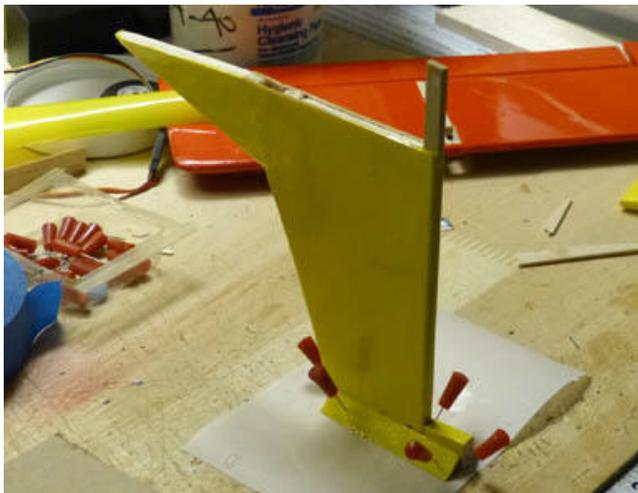
Assembling the vertical tail fin to the stab. The surfaces were pre-covered with Solite covering material, prior to assembly.



Note the very large battery box opening on the left side of the fuselage. The battery box itself is fashioned from 1/16 hard balsa.



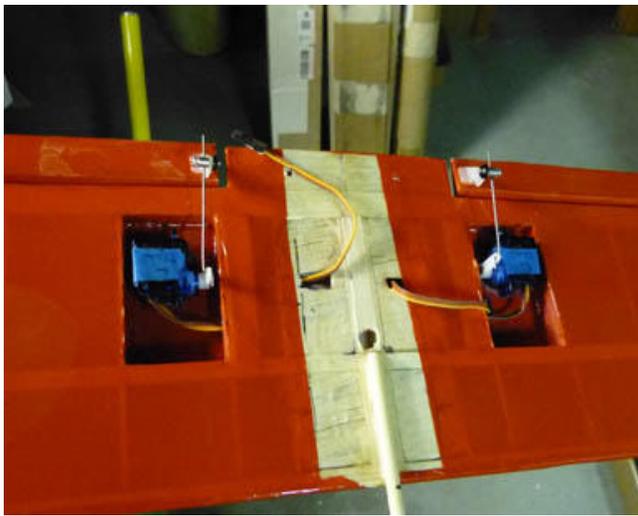
One last check before finishing the covering of the wing and fuselage using Solite iron-on material.



This is the elevator servo installation on top of the stab. DuBro EZ connector and micro control horn used.



The rudder control connection.

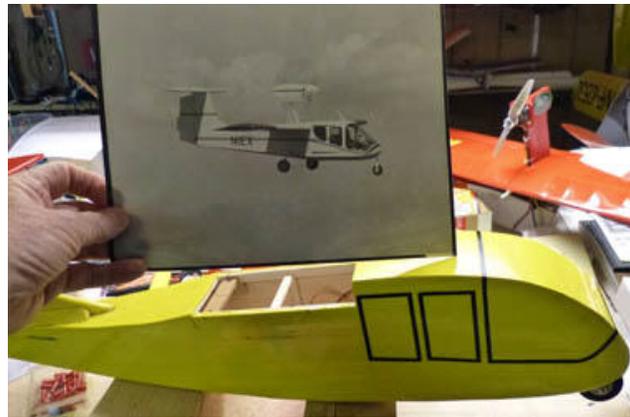


Both aileron servos in place. The compartment that they are seated in was pre-painted in red so that covering material was not necessary in that area.



The motor pylon was epoxied in place at this time. The three wire motor cable ran along the leading edge of the pylon and was anchored in place with two nylon ties.

After having covered the rest of the aircraft, it was time to add the simulated windows and windshield. I've never really been satisfied with contact adhesive backed shelving paper. So this time I tried something different. I outlined the windows with 1/8 inch wide automotive striping tape in black. I got mine at the local Pep Boys Automotive store. Working from a photograph of



the full size EXPLORER, the outline process was easy. After that I filled in the window areas with Krylon Short Cuts gloss black. This comes in a spray can. I just spray the paint into a bottle and then brush it on.



And now you get to see the completely finished TSC-2 EXPLORER ready for its first flight.



The bottom of the fuselage was first covered and then the main landing gear strut was bolted to the 1/8 ply wood former F-3. I added a DuBro micro tail skid (No. 853) to prevent scraping of the lower rear end of the fuselage.





Here is a final shot showing the EXPLORER sitting next to the Airtronics RDS-8000 transmitter for size comparison.

FINAL CG and CONTROL THROWS

The CG location worked out to 1.5 inches back (or 25%) from the wing leading edge. This is where the plane balanced when using the 3 cell 1400 mAh Li-Poly battery pack.

When the 1.5 ounce camera was added, the plane got nose heavy. In that case I switched to a lighter weight 3 cell 850 mAh battery, to maintain roughly the same CG location. Would it have flown nose heavy? I'd say yes, but haven't tried it to date.

Control throw worked out as follows: ailerons 1/4 inch either side of the neutral position, elevator 1/4 inch either side and rudder 7/8 inch either side. I did use about 30% expo rate on the elevator and ailerons.

FLYING

This new smaller size version of the EXPLORER proved a better performer all the way around. I suspected 15 years ago that with a smaller size, lighter weight and more power, this

design could prove an excellent all around sport aircraft. Well that proved out!

Our SEFLI (Silent Electric Flyers of Long Island) flying field has a rough grass and dirt surface. Smaller planes never fare well. But to our surprise, the EXPLORER got off the ground in about 20-30 feet.

The large rudder made ground steering acceptable without the need for a steerable nose wheel. I was even able to maneuver the plane back to the pit area, with just the rudder control.

I was curious as to how the essentially flat wing would work out. A half inch of dihedral at each wing tip is practically nothing. Yet the plane was very smooth in the air and the resulting aerial videos were a delight to watch.

Tom Hunt was able to do a few slow rolls while the camera was on. It's fun watching sky and ground alternately, as the plane revolves in flight.

All of these flight shots were taken at the SEFLI Field, Calverton, NY. Tom Hunt was on the controls, while I was on the camera





SUMMARY

I expect to have this plane at our big NEAT Fair next month in upstate New York. You can find more info here:

www.neatfair.org

Another possibility would be to install a set of twin floats on this model for some hydro flying. Unless you turn it upside down the motor will never get wet. If you build this plane I would love to see your photos and read your comments.

Bob Aberle
baberle@optonline.net
(even when in Florida)

ABOUT THE CAMERA

I'm still new at this camera, so what I'm about to tell you is kind of like "start-up" information. The official name is: "Mobius Action Camera 1080 HD Mini Sports Cam". This particular website will get you to a good starting point:

<http://www.amazon.com/Mobius-Action-Camera-1080P-Sports/dp/B00DP1WYD2>

On this site the price of the camera is stated as \$85.00. In all honesty I paid only \$70.00. Unfortunately I can no longer find that reference. It is my understanding that Hobby King offers a comparable camera. I'll leave that up to you.

The camera measures: 2-3/8 inches long by 1-5/16 inches wide by 3/4 inch thick and weighs exactly 1.5 ounces.

Besides the camera itself you will need to purchase separately a micro SD memory card. In my case I visited my local Best Buy and purchased a PNY 32 GB card with a rating of "10".

Experts told me that in order to obtain the best resolution I need a speed of at least "10". That card cost me around \$32.00, so the total outlay for camera and card was approximately \$100.00.

One of the first things I learned is that this camera does not have a viewfinder. The camera has a wide enough angle lens so that visual pointing is not necessary.

I mounted my camera to the front windshield of my plane using regular Velcro tape. To date the camera has not fallen off the aircraft in flight.

You want to set the camera with a slight downward angle, like maybe 30 degrees. This way when the plane is in level flight the camera is picking up the ground that the plane is flying over.

You can separate the Velcro and move the camera up or down, to achieve exactly the right angle for your purposes.



The camera comes with a Li-Ion battery which can give you up to one hour of recording time. A fully deplete battery will take about two hours to recharge.

You receive a cable with the camera that acts as a charging cable or as a video download cable. In either case the cable goes from the camera to a USB port on your PC. If you bring your laptop out to the flying field, you are able to download your videos right after each flight.

Getting the best out of this camera will require a certain learning experience on your part along with considerable patience.

There is supporting software available to work with this camera. One program is called "Movie Maker" and it will allow you to edit your videos.

Keep in mind that when ready for a flight, you check out your aircraft controls, turn on the camera and then proceed to take off. After landing, you go to the plane and turn off the camera. So there is a lot of wasted video time at both the beginning and end of the flight that you will want to edit out.

Besides taking action videos, you have the option of selecting a still photo mode that will take something like one photo per second throughout the flight. I haven't mastered that technique, but the capability is there.

The bottom line is that you will get excellent quality aerial videos, the very first time out. You can enjoy those videos or you can learn how to enhance your videos to obtain professional quality results. ENJOY!

ACKNOWLEDGEMENT

I wanted to personally thank my friend, Chris Moes from Richards Landing, Ontario, Canada. Chris helped me tremendously during my early stages of learning how to use the Mobius camera. Without his help, this project would not have been possible.

SPECIFICATIONS

Model: "Patchen EXPLORER-200"

Designed Originally by Bob Aberle and published in the October 2000 Model Airplane News.

Reduced in Size (with an on-board digital video recording camera) by Bob Aberle (2015)

Type: A fantasy scale parking lot size RC model with electric power

Wingspan: 36 inches

Wing Area: 200 square inches

Length: 25.5 inches

Weight: 20.5 ounces (without the camera which weighs 1.5 ounces) (when using camera reduce battery capacity from 1400 to 850 mAh, to prevent a nose heavy situation)

Wing Loading 14.7 oz/sq.ft.

RC GEAR USED

Airtronics RDS8000 transmitter operating on 2.4 GHz spread spectrum, Airtronics No. 92824 receiver and four Hobby King 6 gram micro servos operating the rudder and elevator and two on the ailerons, (one on each wing panel).

POWER SYSTEM USED

Innov8tive Designs brushless outrunner motor (Cobra C-2204/40), APC 6 X 5.5E prop, Cobra 22 amp brushless ESC and a Hobby Partz Gens Ace 3 cell 1400 mAh Li-Poly battery (when not using camera) and a China Hobbyline.com 3 cell 850 mAh Li-Poly battery (when the camera is on-board).

POWER SYSTEM PARAMETERS

Prop: APC 6 X 5.5E

Motor current: 8.8 amps

Voltage: 11.1 volts (under load)

Power Input: 98 watts

Battery Loading: 6.3C (for 1400 mAh battery) and 10.3C (with the 850 mAh battery).

Power Loading: 77 watts/pound

Flight Time: 9.5 minutes with the 1400 battery (or 5.8 minutes with the 850 battery).

SOURCE REFERENCES

Airtronics (RDS8000 transmitter and companion No. 92824 receiver

www.airtronics.net/index.php/radios-receivers/2-4-ghz-aircraft-radios-1.html

BP Hobbies - CA cement, CA accelerator, Solite covering material, 5 minute epoxy cement and APC props,
www.bphobbies.com

Callie Graphics - AMA license number decals
admin@callie-graphics.com

China Hobbyline - 3 cell 20C 850 mAh Li-Poly Battery

www.chinahobbyline.com/ProductShow.asp?id=2268

Dave Brown Products - Lite Flite wheels, 1-1/2 inch diameter for the nose wheel and 2 inch diameter for the main wheels

www3.towerhobbies.com/cgi-bin/WTI0001P?I=LXB921&P=8

DuBro - micro control horns, mini EZ connectors, electric flyer hinge tape and 3/32 inch wheel collars
www.dubro.com

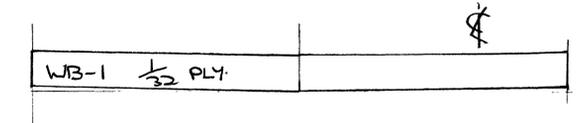
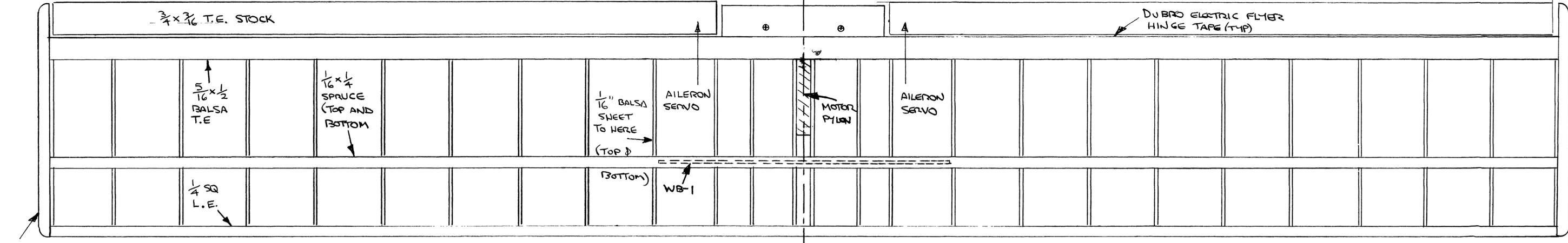
Hobby Partz - Gens Ace 25C 3 cell 1400 mAh Li-Poly battery

www.hobbypartz.com/98p-b-25c-1400-3s1p-trx.html

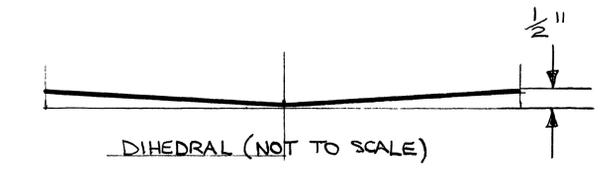
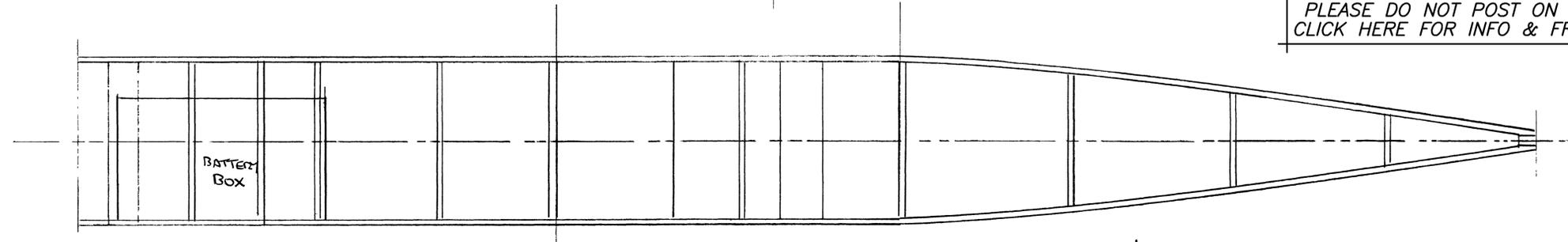
Innov8tive Designs - brushless motor and ESC)
www.innov8tivedesigns.com/catalogsearch/result/?q=2204%2F40

Stevens Aero Models - .073 inch OD Yellow Teflon tubing for the rudder control rod.

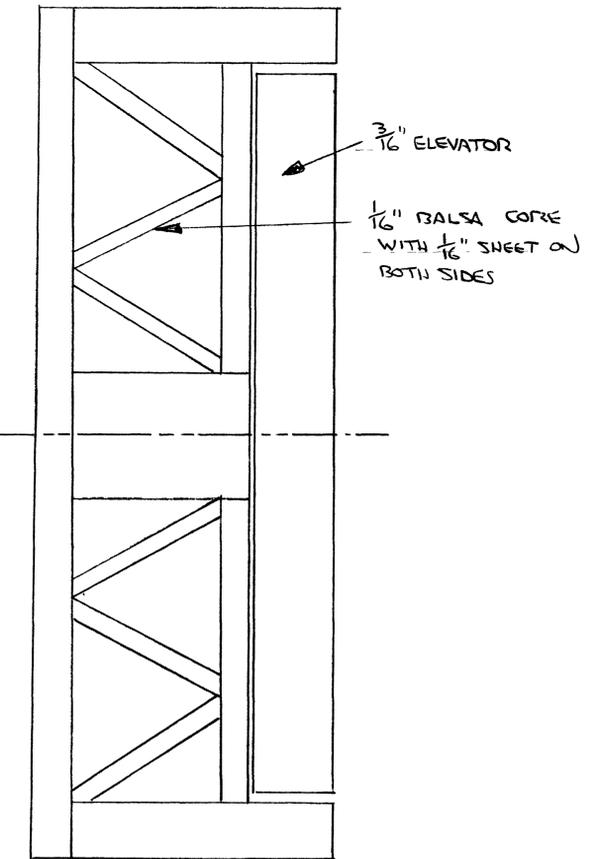
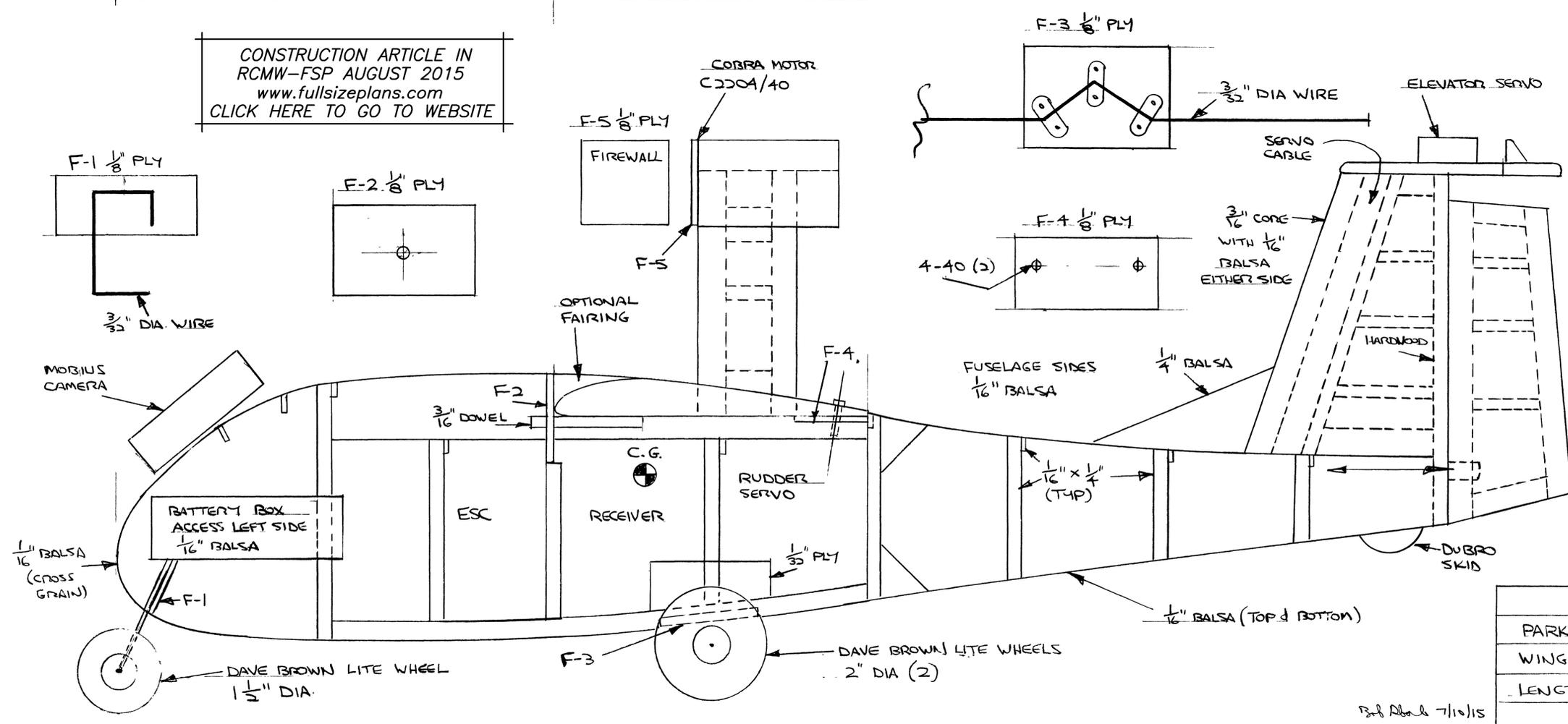
www.stevensaero.com/shop/product.php?productid=16639



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PATCHEN EXPLORER			
PARKING LOT/ SPORT AIRCRAFT BY BOB ABERLE 2015			
WING SPAN - 36"	AREA - 200 SQ IN	WEIGHT - 20.5 OZ	
LENGTH - 25.5"	W/L 14.7 OZ/SQ FT	POWER INPUT 77 WATTS	
0 1 2 3 4 5 6			

Bob Aberle 7/10/15

Cleaning Old Engines

by
Roland Friestad

At the 2014 and 2015 Toledo shows I brought a bunch of glow and diesel engines that had been hanging up in Dave Shipton's Model Museum for 30 to 50 years.

They had become seriously gummed up with solidified castor oil, dirt, dust and whatever else had accumulated in about a half century of exposure to summer and winter conditions in the unheated upper floor of the barn that served as Dave's Hobby Hideaway hobby shop.

After Dave went to that final thermal his son and daughter asked me to see if the engines and hobby shop supplies could be sold which I did. Several hundred engines and boxes of supplies were sold at the last two Toledo shows and the proceeds went to the estate. Lots of bargains.

Several of the really "gungy" engines didn't sell and I brought them back to my own shop rather than just discard them.

At about the same time there were a series of messages on various Yahoo model airplane groups with questions about methods to clean up old engines, maybe from buyers of Dave's old engines ? - Who knows.

At any rate there were many suggestions including cooking in a crock-pot with various chemicals, softening the gunk in an oven on low heat, and the use of several chemical solvents like acetone and even straight ethylene glycol anti-freeze.

Oven cleaners have been used for this for years but the main chemical is Sodium Hydroxide or Lye which can be very dangerous. It is after all the main chemical in Drano drain cleaner and can cause serious chemical burns. It also aggressively attacks aluminum and so isn't the best choice for model airplane engines.

One approach that caught my attention was the use of citrus bases household cleaners. One of these that seemed to work really well was something called Dawn Power Dissolver. But it has apparently been removed from the market and is no longer available. You might know that a product that works well disappears from the market, sort of like Ambroid glue.

The citrus type cleaners seemed a good choice, particularly since they are not nearly as dangerous as the more aggressive chemicals. A little research showed that the main working ingredient was derived from orange, lemon and grapefruit peels. I located the manufacturer ordered a gallon as a sample to use for testing.

Unfortunately it got lost in shipping and just arrived yesterday, not in time for a report to be included in this issue of RCMW.

Watch for a complete report in the September issue and if this stuff lives up to its reputation it will make engine cleaning an easy project.

Aeromodeller

On Your Computer

If you refer to the ads on the last two pages of this issue you can see that we have digitized several of the old model magazines and can furnish them on USB Solid State Drives.

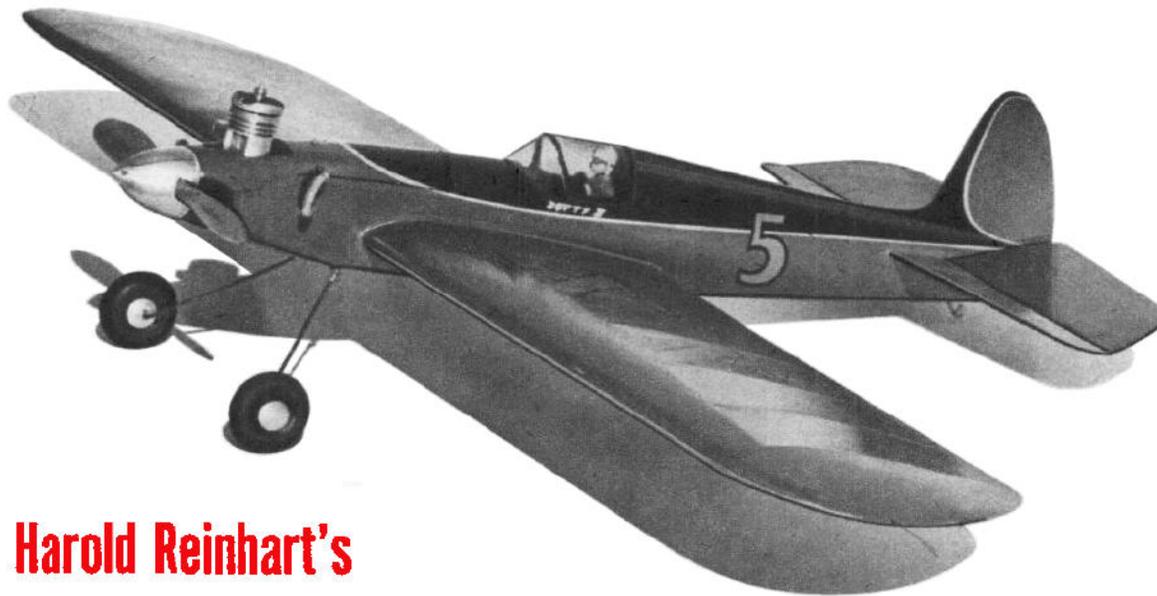
We're starting on doing the same thing with the British magazine Aeromodeller, but need some missing copies to make up a complete set. We have everything from 1942 to the end of publication a few years ago but are missing many of the issues from the beginning in 1935 through 1941.

If any of our readers have these old issues or know of someone who does, we would be interested in either borrowing them or purchasing them.

Too often when old model builders pass away their families only want to get rid of "Grandpa's Model Junque" and it just disappears.

My project to digitize as many of the old magazines, plans and books as possible before my own passing is an effort to preserve this for future modelers before it's too late and it gets lost.

Remember, you can't take it with you so why not insure that future generations of modelers can have it available ?



Harold Reinhart's

International Stunt Winner

This attractive UC Stunter from the January 1951 issue of Air Trails magazine should make a nice, smooth flying Ukie for a trip down memory lane.

This ship was not designed to be just a "hot" airplane; it was built to fly the AMA flight pattern, and do smooth, not necessarily tight, maneuvers.

The construction is started with a ten-rib pattern. Cut out the ribs and stack them together. Pin them and sand well. Notch out the leading edge for the 1/4" square. Draw lines across the ribs 1" and 3" from the leading edge, as in Fig. 1.

Pull out the pins and stack the ribs evenly as shown in Fig. 2, so that the 1" mark on outside ribs lines up with the 3" mark on the center ribs. Pin together and cut at dotted line as shown in Fig. 2 with a very fine blade on a coping saw.

Cut the spar from medium balsa. It is 1" x 3/16". Mark off the center and all rib locations. Cut spar halfway through and break to shallow "V" shape.

Add the front halves of the center ribs and the outside ribs, then add the 1/4" square leading edge. Add the rest of the ribs, as shown in Fig. 3.

Add the trailing edge ribs and the bottom half of the trailing edge. Put in the trailing edge

fill-ins, sand, and add the top half of the trailing edge (Figs. 4 and 5). Cut and install the 3/4" x 1/2" center-reinforcements.

Make up the control system and slide it into place. Cut away the bottom brace to clear the bellcrank bolt and nut. Cut away the ribs so the bellcrank can swing freely.

Cut away the ribs and add the extra layer of sheeting in the center. Sand the entire wing, then add the leading edge of sheeting and center sheeting.

At this point, check the wing for warps, then add the cap strips and sand the wing smooth. Next cut the tail surfaces from medium sheet. Sand well, then add hinges and control horn. Cover area around horn with silk.

Cut out the motor mount sides and bottom plate, and cut the mount to shape as shown. Glue and screw the mounts to the plywood pieces. Line them up on the wing and glue them in place.

Before the glue sets, glue and screw the bottom plate in position. Be sure the motor mount assembly is straight, for this lines up the entire fuselage. Make up the tank mount and glue into place ("x" on Fig. 6).

Now make the tank as shown. The swivel joint should not wobble but move easily. Add the tank lugs, and match the tank into the motor mount. Drill a 3/16" hole in the plywood side where the vent goes through.

Make sure the tank mounting is secure, then drill holes for engine. Make the tin plates and screw them to the bottom of mounts.

Remove the tank and engine and drill holes for landing gear. Bend gear to shape and bolt in place. Be sure that the bolts are flush with top of mounts. Add the wheels, then cut out the fuselage sides from medium sheet, slide them over the wing and glue to plywood.

Add former #4, then glue sides securely to the wing. Bend the end of the pushrod and slip on four pieces of 1/16" plywood (pushrod guides). Glue one against former #4, then slip pushrod through control horn and solder on a washer.

Drop tail assembly into fuselage (do not glue yet). Add formers #5, 6 and 7. Slide a plywood guide onto each former as it is glued in place.

Join the back ends of the sides, then securely glue the tail horizontal surfaces. Add the rest of fuselage formers. Make and glue in the tail-skid, and glue in the bottom sheeting. Add the bottom block in the front. After it has dried, sand to shape.

Glue on the front plywood ring (in one piece). Add the top sides and the planking (1/4" x 3/32"). Spot-glue the engine cowl in place.

When all is dry, sand the entire fuselage. Sand and glue in place the rudder and fairing.

Cut away the planking around the cockpit, and glue in the cockpit floor. Cut away the hatch and engine cowl. Carve out inside of cowl and cut away to fit engine.

Make and install the cowl hold-down. Install tank and make certain hatch fits over it. Add hold-down peg, then make the hatch hold-down and solder onto tank.

Carve and add the wing tips. The inside tip is cut in half and hollowed, then cemented in place. Add the brass tubing, and bend lead-outs. Outside tip is left solid.

The ship is now ready for covering. Its entirety is covered with Silkspan. Brush on about four coats of clear dope, sanding between each coat. Paint inside of cockpit, install pilot, then add the celluloid canopy.

Trim to your liking, and brush on two coats of fuel-proofer. The tank was made removable in case of a leak or dirt getting in.



The wing construction may seem a bit radical, but the strength is in the center, where needed. There is little weight at the tips to add leverage to break the wing in case of a crack-up.

This idea was developed by Walt Hughes of Carteret, NJ, and has been widely copied by Eastern modelers. We think if you once try a stunt wing of this type, you'll find it hard to go back to any other type of construction.

Once again check the wing for warps. The original ship was flown on about 65-foot .010 lines. You, yourself, must determine the best fuel and propeller to suit your particular engine.

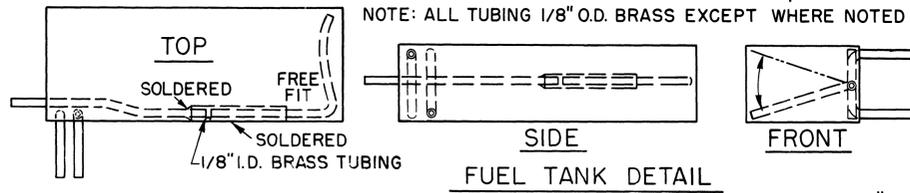
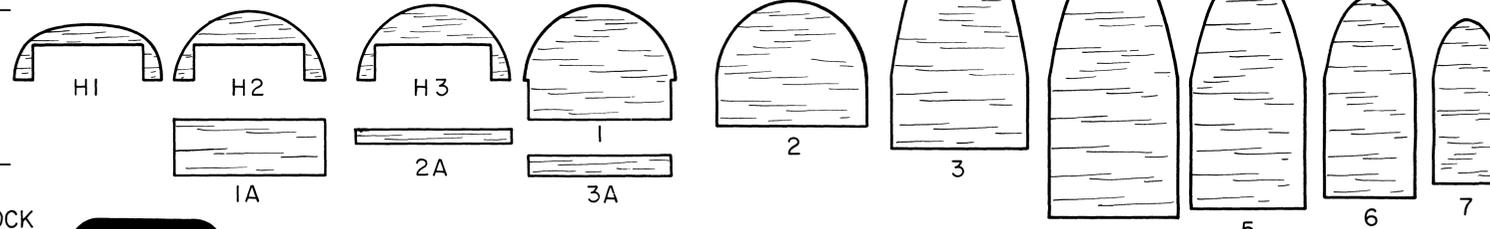
A Fox "35" was used on the plane which took top honors in the big Plymouth International meet last August in Detroit.

Any similar sized engine such as the O&R 33, the Forster and the Veco 31 should work out well. You may have to "fudge" the fuselage to make a good installation.



NOTE: ALL FUSELAGE FORMERS 1/16" SHEET (NOTE GRAIN DIRECTION)

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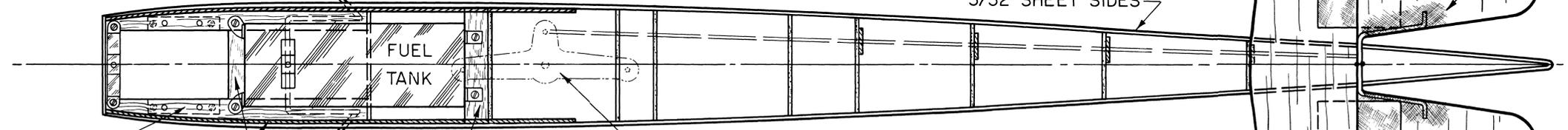


1/8" SHEET

3/32" SHEET SIDES

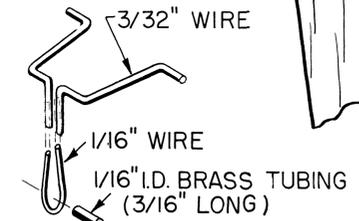
COTTON TWILL TAPE HINGES

SILK



TOP VIEW
(TOP PLANKING OMITTED FOR CLARITY)

NOTE: FUSELAGE CONSTRUCTION SHOWN FOR FOX "35", K&B "24", "29", "32". FOR NEW FORSTER "29" & "301" MOVE TANK & FORMERS H3 AND 1 BACK 3/4"



NO OFFSET

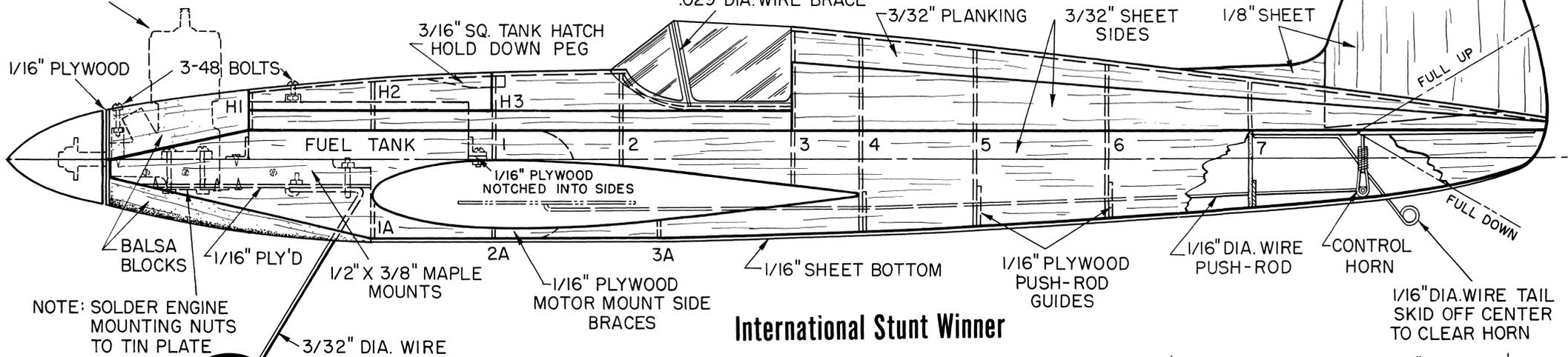
FULL UP

FULL DOWN

1/16" DIA. WIRE TAIL SKID OFF CENTER TO CLEAR HORN

CONSTRUCTION ARTICLE IN RCMW-FSP AUGUST 2015
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FOX "35"

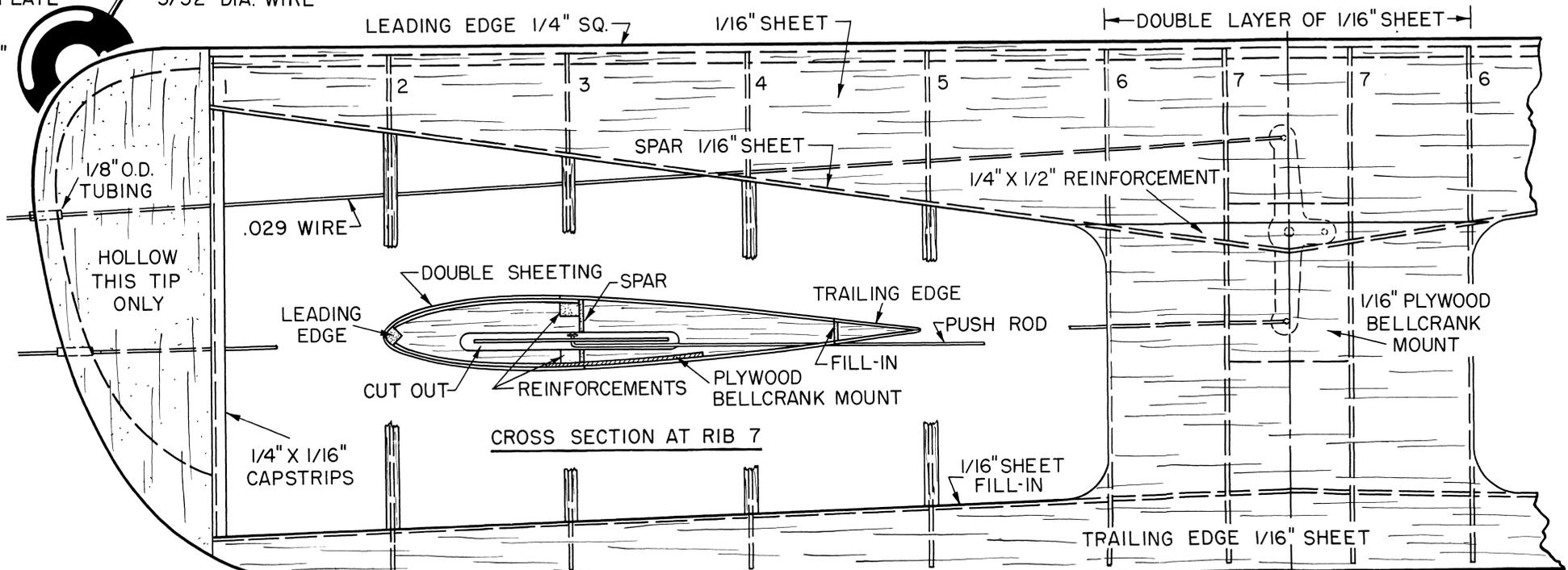
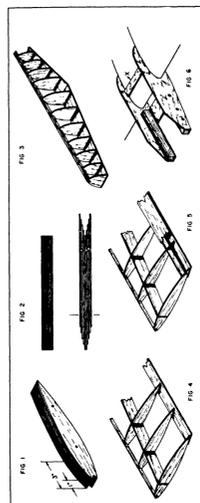


International Stunt Winner

NOTE: SOLDER ENGINE MOUNTING NUTS TO TIN PLATE

ORIGINALLY PUBLISHED IN AIR TRAILS JANUARY 1951 ISSUE

2" DIA. "BANNER" WHEELS

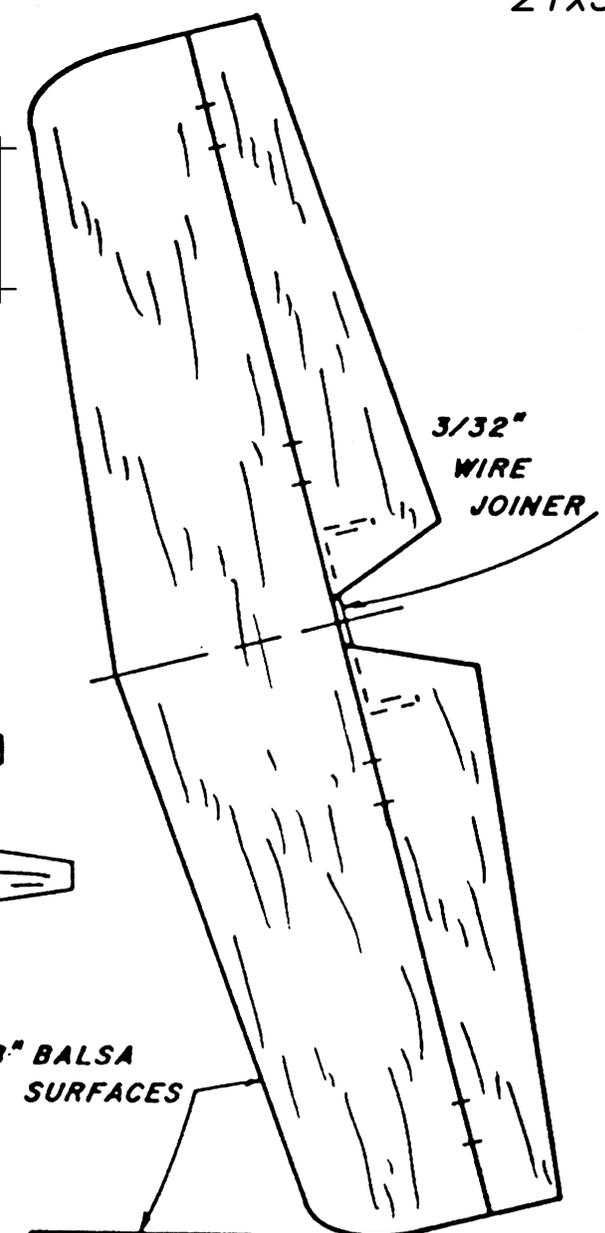
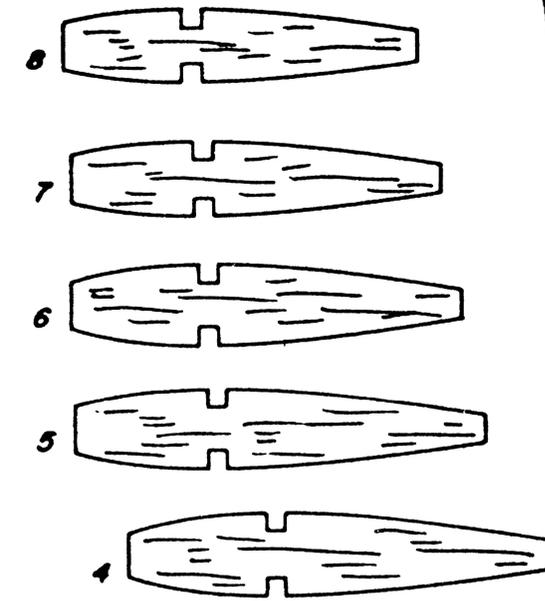
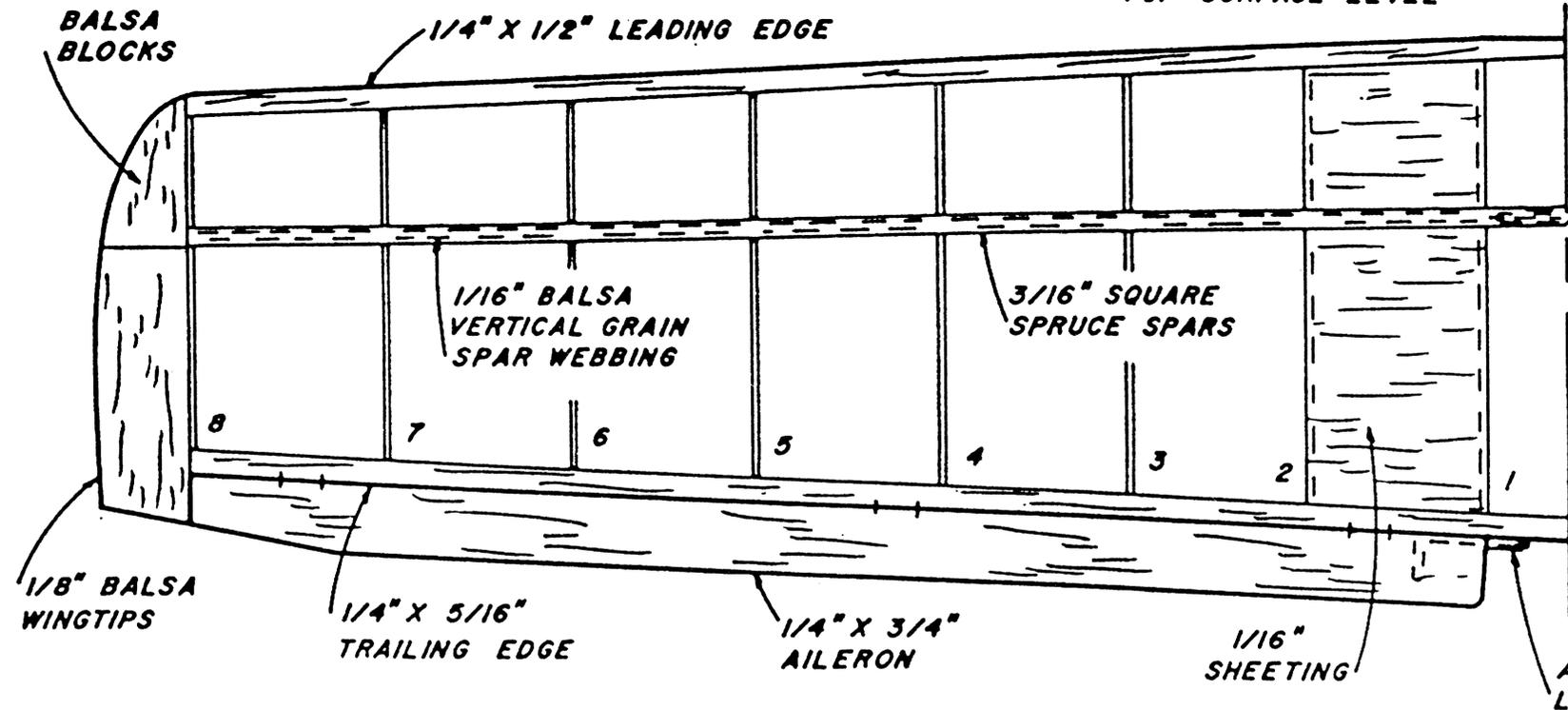


PLAN FROM ROLAND FRIESTAD COLLECTION

DIHEDRAL-WINGS JOINED WITH TOP SURFACE LEVEL

1/8" PLYWOOD WING JOINER

REPRINTED IN RCMW-FSP AUGUST 2015 www.fullsizeplans.com CLICK HERE TO GO TO WEBSITE



ALL RIBS 1/16" Balsa

ONLY 2 SERVOS USED - AILERON AND ELEVATOR CONTROL

3/32" PLYWOOD FIREWALL

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1/8" Balsa FORMERS

1/8" Balsa TAIL SURFACES

COX TEE DEE .049

ACE 1 5/16" SPINNER

1/4" Balsa

WING IS GLUED INTO FUSELAGE

3/16" Balsa

1/16" Balsa SIDES AND BOTTOM

ORIGINALLY PUBLISHED DECEMBER 1989 IN FLYING MODELS MAGAZINE

Balsa BLOCK COWLING

1 OUNCE FUEL TANK

BATTERY

RECEIVER

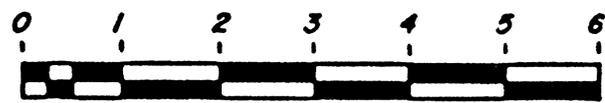
SERVOS

BALANCE POINT

REMOVABLE HATCH SECTION

1/64" PLY. DOUBLER TO HERE

The TACK HAMMER



VULTEE VENGEANCE



BY SYDNEY STRUHL

Sidney Struhl was a regular contributor to Air Trails magazine and this model appeared originally in the January 1942 issue. I've thought about building this one for a long time and maybe if I ever get caught up with producing each issue of RCMW I'll give it a try - It's on my "Bucket List" (along with many others)

SEARCHING for an airplane that could match the performance of the German Stuka, England cast her eyes toward American manufacturers to see what they had to offer. And in answer to John Bull's problem, Vultee comes crashing through with its latest creation—the Vengeance.

The Vultee Vengeance is a two-place dive bomber of the most striking design. Perhaps the most unusual item in that design is the wing. The odd-shaped wing was created especially for slowing the ship in a vertical dive to obtain the maximum accuracy with the bomb load.

The bomb is carried inside the fuselage and is swung into position for release by a special arm.

Of course, much of the performance figures of the Vengeance are still a much-guarded secret. We do know, however, that power is supplied by a 1,700 horsepower Wright Cyclone engine, the range is 1,000 miles, service ceiling is 27,000 feet, and the climb is 2,900 feet a minute for the first five minutes. Due to the wing, design, the diving speed is less than the maximum horizontal velocity.

As a flying-scale model, the Vultee Vengeance is a pippin. Flights are rather fast but exceedingly stable. Flights of two minutes were very common in still evening air. The glide is really something to behold, and when the ship comes floating in for a landing—well, it sure looks like the real thing.

The construction is not too difficult, and if the plans are studied carefully beforehand, you should find no trouble in completing your Vengeance.

CONSTRUCTION

Use the half-shell construction method for making the fuselage. This is the best system for a fuselage of this type, since there are so many straight lines in the fuselage.

Cut the fuselage bulkheads to the exact shape as shown on the plans. Now pin the top and bottom 1/16" x 1/8" center stringers in place, then the bulkhead halves on the plans in their proper locations.

Now add the remaining fuselage stringers. These are all 1/16 x 1/8" strips of balsa. Put two coats of cement on each joint and be sure that the cement has set firmly before you remove the frame from the plans.

Note that bulkhead K is made from three pieces of 1/16" sheet glued cross-grain. This strength is needed to hold the rear hook. Bend the rear hook from .049 music wire and cement very firmly in K.

Cement the remaining fuselage halves to their corresponding members, allow to dry and then add the rest of the fuselage stringers.

Cut the cockpit from 1/16" sheet and cement in place. Add the 1/16" sheet fill-in around the wing joint and the soft 1/8" sheet fill-in to simulate the cowling. Shape the tail block from a very soft block of balsa and cement in place. Add the tail wheel of balsa.

The tail surfaces are rather simple to construct and are made directly on the plans, the various member sizes being obtained from the plans. Pin the stock in place on the plans and cement the joints firmly. Cut the tips from soft 1/8" sheet balsa. Note that the root rib of the rudder is 1/8" x 1/4".

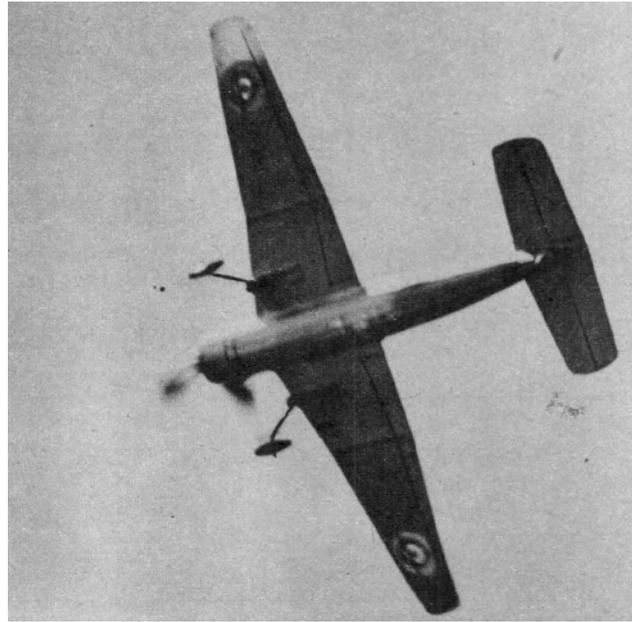
Sand the leading edge and wing tip carefully to form an airfoil section. The trailing edge may be trimmed with a razor and then sanded.

Cover the tail surfaces with tissue or Silkspan, as you prefer. Spray with water, allow to dry and then brush on two coats of thin clear dope.

Two very thin coats of color dope may be added if you wish. The author used thin silver dope to color his model, but "sand and spinach" camouflage is very appropriate.

Like the tail surfaces, the wing is simple to construct and may be made directly on the plans.

Cut two ribs from 1/16" sheet of each rib shown in the plans. Pin the 5/32 x 1/2" trailing edge and the center spar in place on the plans.



Place the ribs in their proper locations and cement them to the center spar and the trailing edge. The leading edge must be cut from sheet balsa because it is tapered.

The leading edge is cut from 1/4" medium-grade sheet balsa. It is 1/16" high at the center section and tapers to 1/4" x 1/4" at the tip. Pin the leading edge in place, blocking it up as required, and cement it to the ribs.

Now cut the wing tips from 1/2" soft sheet balsa as shown in the plans and glue in place. Carefully sandpaper the leading, trailing edge and wing tip to conform to the general airfoil shape.

Cut halfway through the wing spars and crack the joints so that you have 2-1/2" dihedral at each wing tip. Cut four wing gussets from hard 1/16" sheet balsa and cement one on each side of the wing spar to brace the dihedral joint. The wing is not covered until the landing gear is installed.

Study the drawings of the landing gear very carefully before you attempt to make it. You will note that each landing-gear leg is composed of two pieces of .049 music and a cover piece of 1/16" sheet balsa.

Bend the wire struts to the required shape and cement the strut to the back of the leading edge and the bracing strut to the wing spar. Use at least five coats of cement on these joints, and they may even be bound with silk thread.

Now bind the two struts together, running the thread all the way down the strut and applying several coats of cement. Cement the landing-gear cover plate on the inside of each strut.

Construct the small box formation to fit the bottom of the wing. The two sides are cut from 1/16" sheet and cemented right on the paper. The leading-edge portion is cut from a soft balsa block and is cemented on the leading edge of the wing directly in front of the landing-gear strut.

Cut the 2-1/4" diameter wheels from soft balsa. Several sheets of balsa may be glued together to obtain the required thickness of the wheels. You will notice that you will only be able to install the landing gear strut after the wing is slipped through the fuselage. A drop of cement at the end of each axle will keep the wheels in place.

The fuselage may now be covered. It is advisable to use wet Silkspan in covering the fuselage because of the ease afforded in covering compound curves. Treat the covering in the usual manner. Cover the cockpits with heavy celluloid. The tail surfaces may now be cemented in place.

A three-bladed propeller was used to keep the scale and to keep the landing gear down to scale size. If you aren't up to carving a propeller, you may purchase two 12-1/2" machine-cut props, cut them in half at the hub and thus obtain three finished prop blades with one blade to spare.

However, a more efficient propeller will result if you carve the prop yourself. Obtain three blocks 1-1/4" x 6-1/4" and lay them out as shown in the sketch in the plans. Pin each to the bench and assemble as shown before carving.

Strengthen the hub by carving and installing the large prop spinner. Carve the prop in the usual manner, rounding the tips after this operation has been completed.

To balance the three-bladed propeller, point one blade directly down. Lighten the one that descends to balance the third blade.

The blade that was originally pointed down, (and this should be the heaviest to facilitate the task), is then balanced in a similar manner against one of the other blades. Although a free-wheeling device is not required, its use is advisable to obtain longer flights.

Make the nose plug from two disks of 3/8" sheet balsa glued cross-grain. Now cut a small square of balsa to fit snugly in bulkhead B and cement it to the back of the nose plug.

Cement large-faced bushings to the back of the prop spinner, to the face of the nose plug, and a washer to the back of the plug. The prop shaft is bent from .049 music wire. Use a ball-bearing washer between the propeller and the nose plug.



The power is supplied by eight to ten strands of 3/18" flat brown contest rubber, depending on the weight of the finished model. The rubber is worked onto the rear hook by the use of a long wire hook manipulated through the front of the model.

FLYING

If possible, test your Vengeance over grass to prevent damage during this stage. Otherwise, test your model ROG on a few turns, increasing the winds as the balance is ascertained.

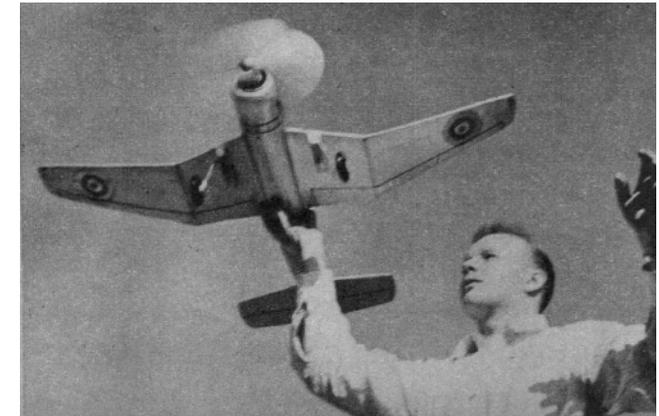
If you have followed the plans carefully you will need very little adjusting to make your ship behave. A small weight may be used to balance it if necessary.

Do not warp the tail surfaces, as they tend to change their setting from time to time. The original model needed only an adjustment of off-setting the prop to the right a bit to obtain a circle against torque in flight.

When you lube up the motor, stretch it out and start winding with a strong winder. Then look out, for when you launch the ship you're going to think you just sent off a Wakefield model, the way it gets up in the blue and stays there!

LIST OF MATERIALS

- 18 - 1/16 x 1/8 x 36
- 1 - 1/8 x 1/4 x 36
- 2 - 1/16 x 1/4 x 36
- 1 - 1/4 x 1/4 x 36
- 2 - 1/4 x 3/8 x 24
- 3 - 5/32 x 1/2 x 36
- 3 - 1/16 x 2 x 36
- 1 - 1/8 x 2 x 18
- 1 - 3/8 x 2 x 24
- 3 - 1-1/4 x 1-3/4 x 6-1/4
- 2 - 2-1/4 diameter balsa wheels
- 1 - 3/4 diameter balsa wheel
- 36" - .049 music wire
- Small length - .038 wire
- Scrap balsa blocks
- 4 sheets light Silkspan
- Washers, cement, dope, sheet celluloid





The Junior Birdmen of America, begun in the early 1930's experienced rapid growth and by 1937 boasted over 575,000 members. They provided plans, lessons, books and contests. You could also get your "wings", Junior Birdman lapel pins. Karl Gies found this link to an excellent website with lots more information --

www.vintagekidstuff.com/jrbird/jrbird.html



Here's a frame from an online video of Bob Hoover pouring iced tea into a glass while doing a roll in an Aero Commander. He's nearly upside down as shown by the mountain in the upper left side of the windshield.

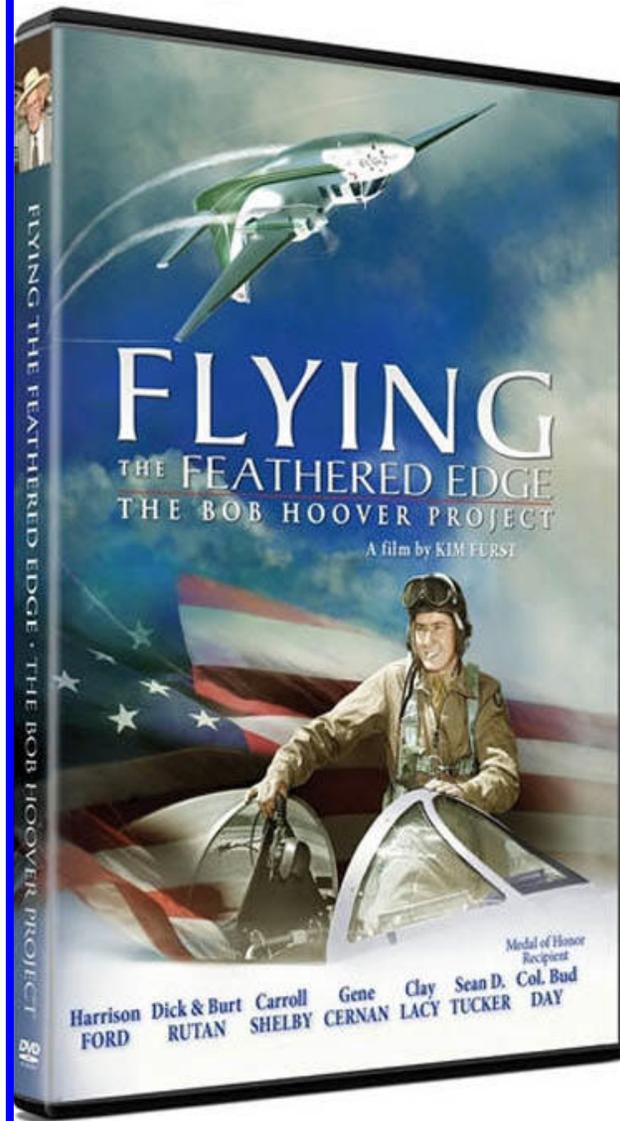
www.flixy.com/bob-hoover-flying-ace.htm?utm_source=nl

FLYING THE FEATHERED EDGE

This professionally made movie gives the history of one of greatest living pilots in the world, Bob Hoover. A fitting tribute to this legendary aviator and fine gentleman.

You can order it (\$28.95) from the website located at ---

www.thebobhooverproject.com



There is a lot of interest in 36 inch span bungee launched gliders, particularly with the west coast modelers. The idea apparently migrated from England and is gathering proponents in this country.

Bob Holman and Jim O'Reilly have come up with two new plans and laser cut short kits for this class of models. The bungee launch eliminates running with the towline and makes it an easy job to launch these little models.

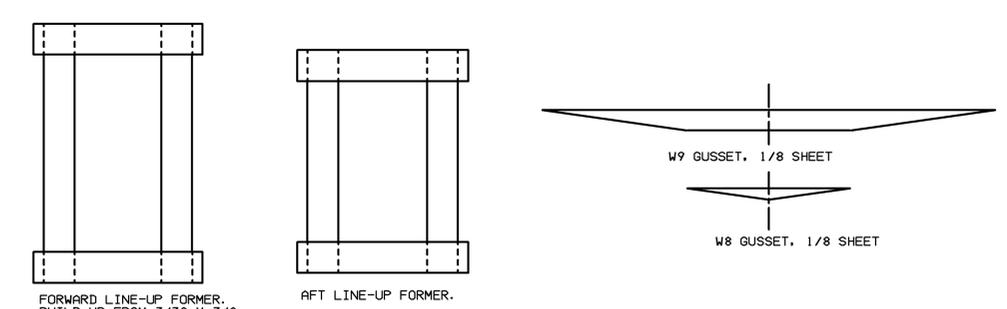
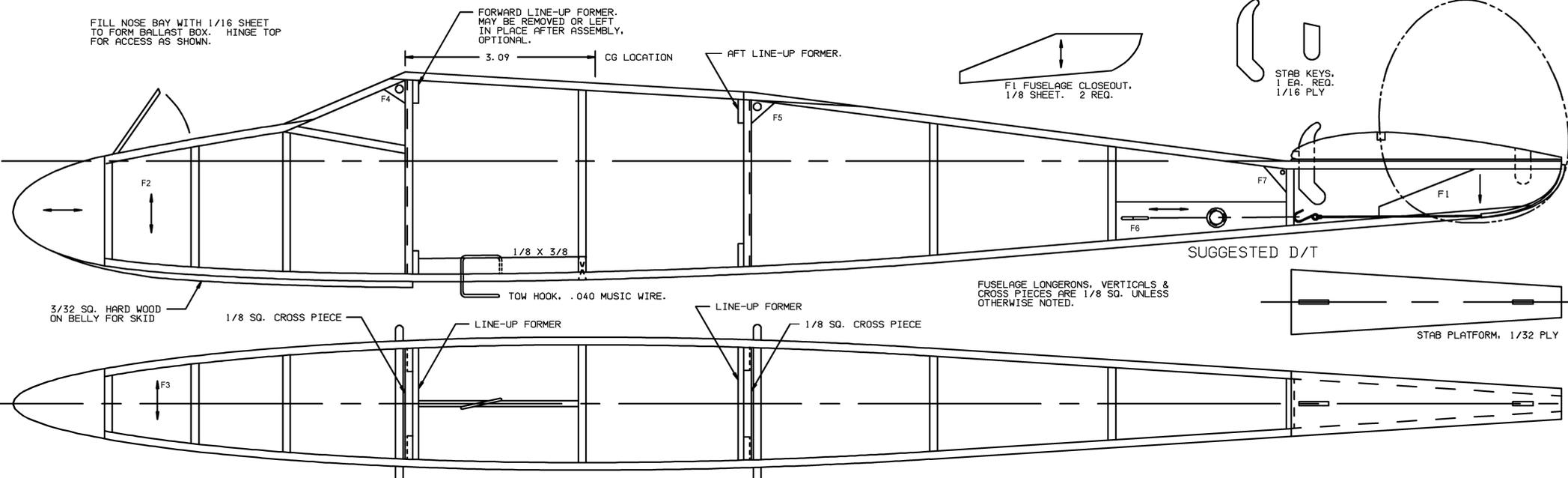
On the following two pages are plans for designs that have been resized to 36 inches and which are now available from Bob.

The "bones" shown below are for their 36 inch version of the Frog WREN but without the twin rudders on the stabilizer. (Probably waiting until the model has been covered.)

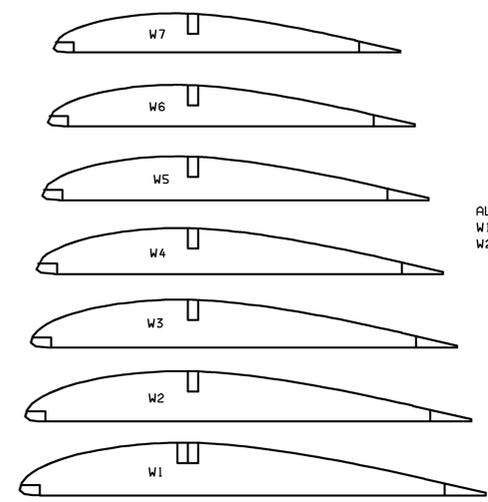
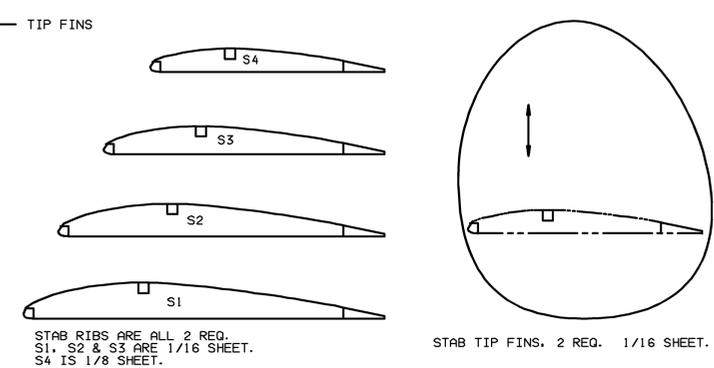
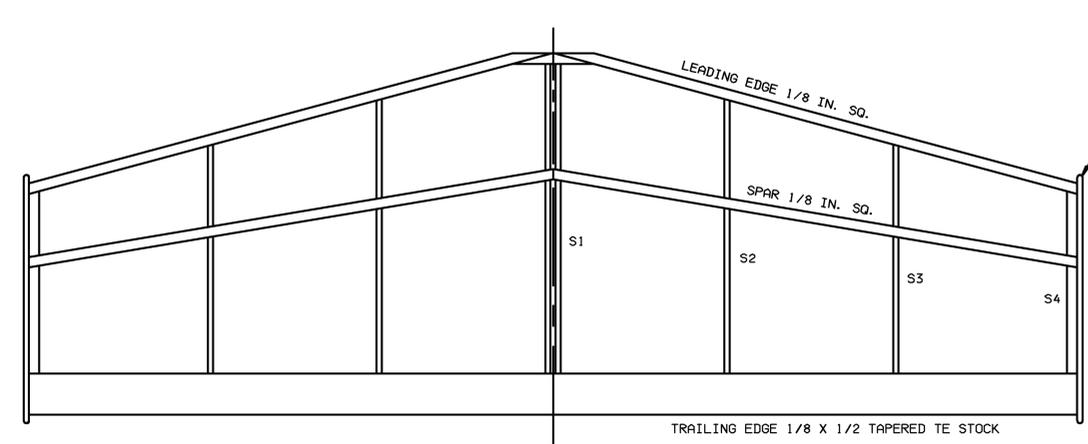
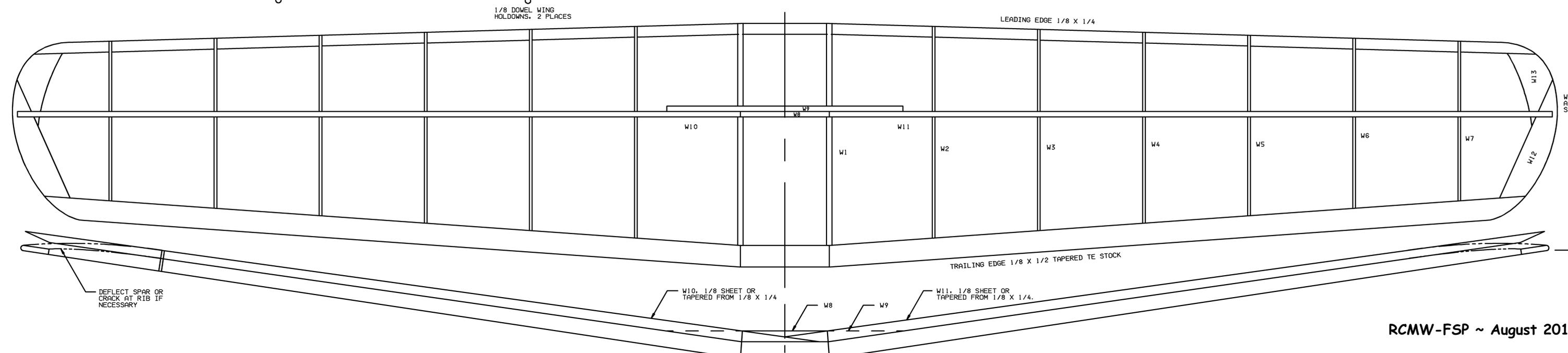


Give it a shot and see if flying these little 36 inch models is as much fun as our California model builders say it is. Contact Bob Holman for details and prices on the kits.

BHPLANS@aol.com



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ALL WING RIBS ARE 2 REQ.
 W1 IS 1/8 SHEET.
 W2 THRU W7 ARE 1/16 SHEET.

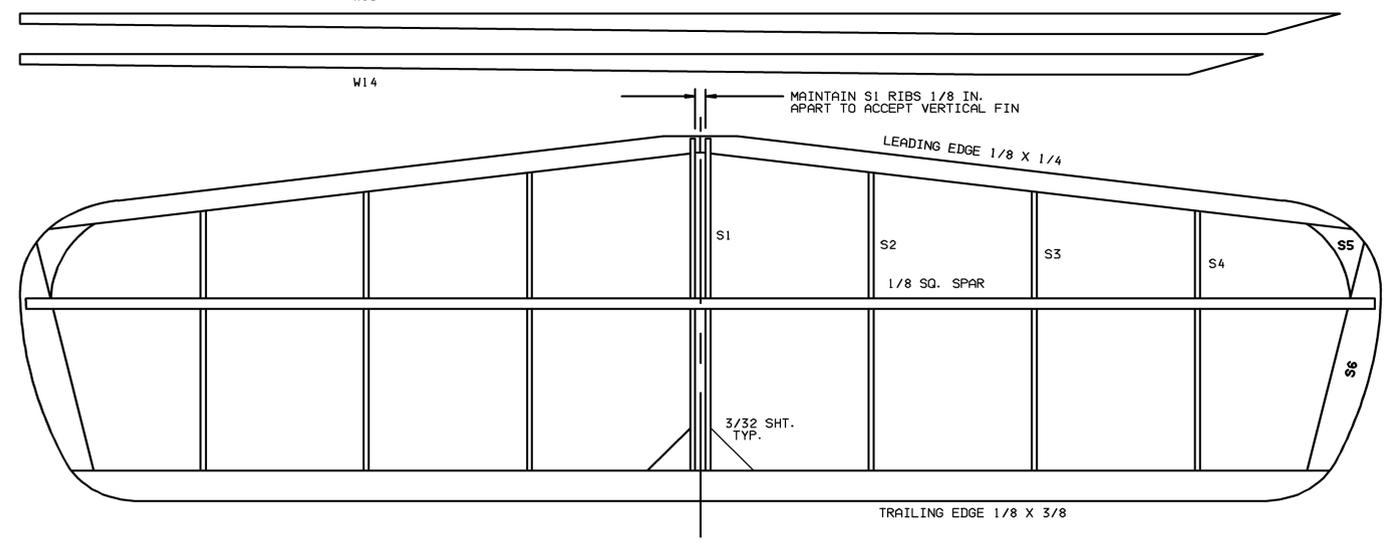
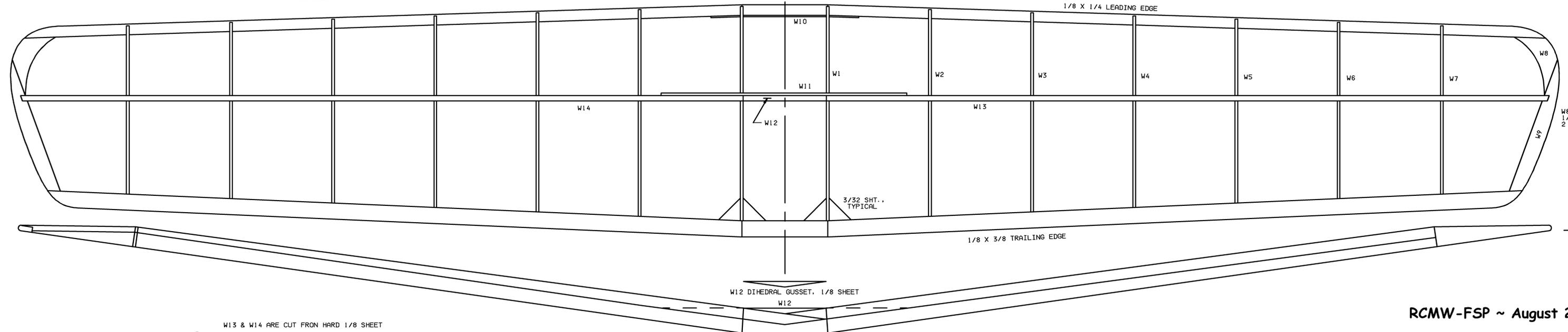
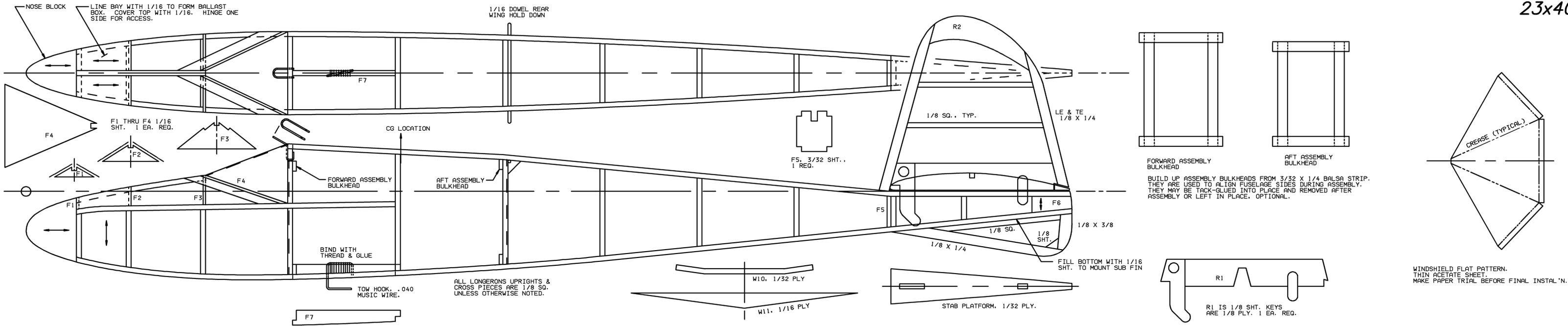
- NOTES
1. ALL DIMENSIONS ARE IN INCHES.
 2. ALL MATERIAL IS BALSA UNLESS OTHERWISE NOTED.
 3. GRAIN DIRECTION IS INDICATED BY: →

BOB HOLMAN HAS
 PRINTED PLANS AND
 LASER CUT PARTS
 FOR THIS GLIDER
 EMAIL TO --
 BHPLANS@aol.com

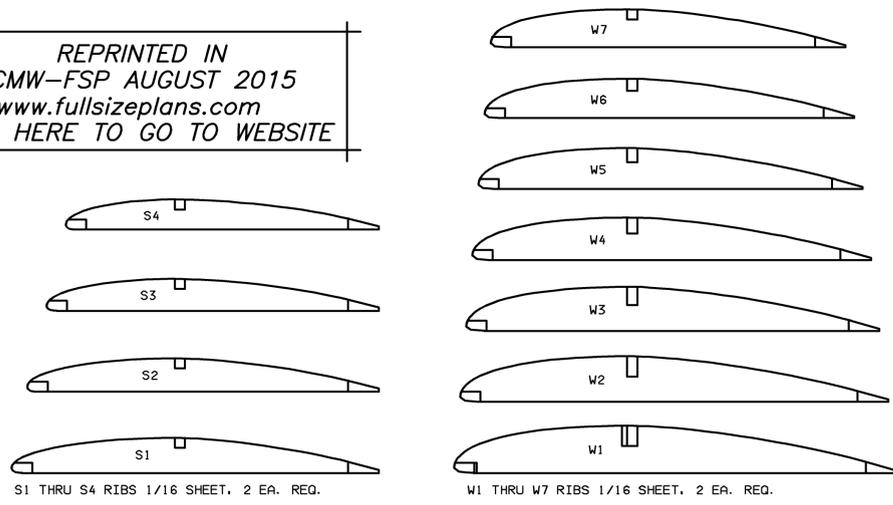
FROG "WREN"
 BRITISH LIGHT WEIGHT SAILPLANE
 SCALED TO 36 IN. WING SPAN

WING SPAN: 35.6 IN. (PROJ.)
 36.0 IN. (FLAT)

CAD: Jim O'Reilly, April 3, 2015



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FROG "VESPA"
BRITISH LIGHT WEIGHT SAILPLANE
SCALED TO 36 IN. WING SPAN

WING SPAN: 35.6 IN. (PROJ.)
36.0 IN. (FLAT)

CAD: Jim O'Reilly, June 5, 2015

Old 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.

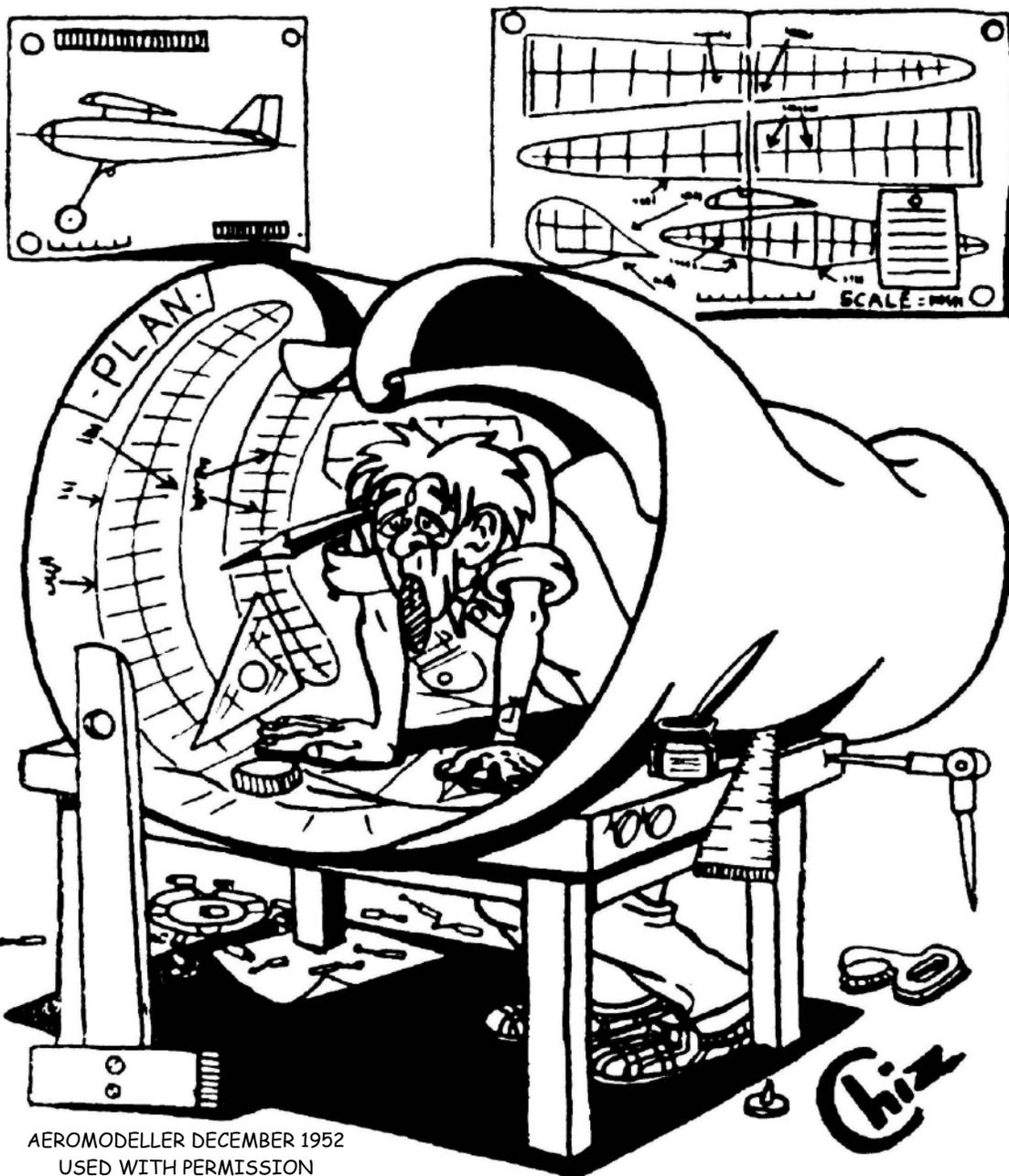
That's NOT the way it was in the past, when you had to build a model before you could fly it. If you're an old-timer, as I am, you have fond memories of *Air Trails*, *Flying Models*, *Model Airplane News*, *Aeromodeller* and many of the several other magazines available "way back when".

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

Now Available - RC Modeler
First 10 years - 1963-1972

We have switched to USB Memory Cards Much More Reliable

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

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 in publication. 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**

Currently being digitized are complete runs of RC MODELER and AEROMODELLER. RC Modeler is coming along and is scheduled to be done by March 2015 - Aeromodeller should be completed by the end of 2015 - Prices have not been set yet -

The digitizing of several other magazines will follow including MODEL CRAFTSMAN, FLYING ACES, POPULAR AVIATION, MODEL AIRCRAFT (British) and others. This is a long term project. Many thousands of hours and dollars are represented in these collections.

All prices include postage 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**

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November 30, 2014 - Prices & Specifications subject to change without notice