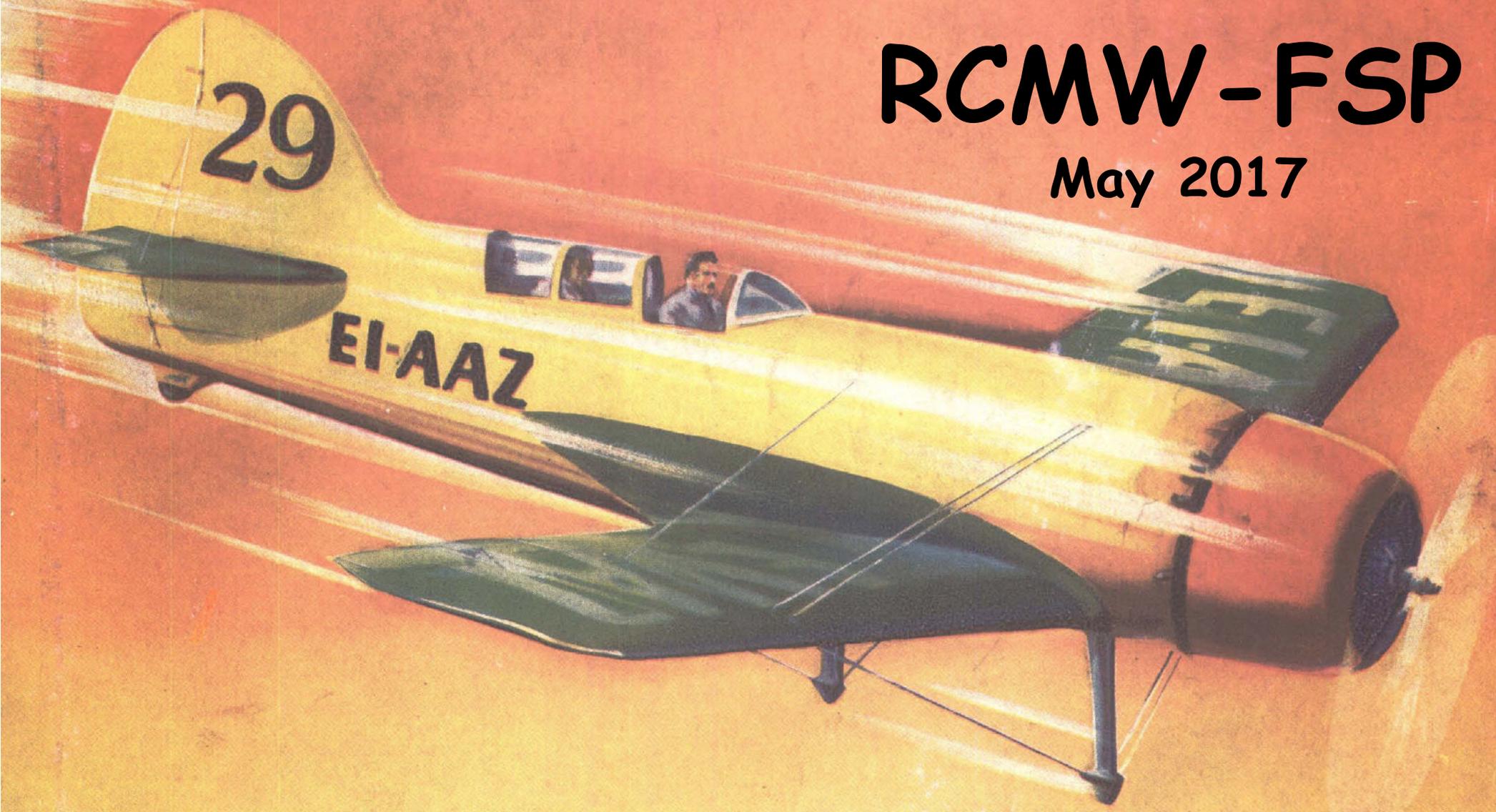


RCMW-FSP

May 2017



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Bellanca IRISH SWOOP
HI THRUST VIKING FF
PATRIOT Nordic Glider
RYAN SC Scale FF
Download RCM April 1970



Cover - Bellanca IRISH SWOOP
January 1935 Model Airplane News
Art by Joe Kotula

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ON THE COVER

THE JANUARY 1935 ISSUE OF MODEL AIRPLANE NEWS HAD A NICE COVER PAINTING BY WELL KNOWN ARTIST JOE KOTULA - THE BELLANCA IRISH SWOOP WAS THE FAVORITE IN THE BIG AIR RACE BUT WAS DISQUALIFIED AT THE LAST MINUTE DUE TO A TECHNICALITY

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Roland Friestad
1640 N Kellogg Street
Galesburg, IL 61401
USA

For the Model Bulder and Flyer - May 2017 Issue



Full
Size
Plans



Spring has really “sprung” here with lots of grass, flowers, and growing things. Unfortunately this time of year is also so blustery that the winds make flying models a questionable and often unrewarding experience. So you might as well keep building until the winds quiet down later on in the late spring or early summer.

In the meantime you could be building one of the models in this issue, whether you are interested in RC Sport, FF Scale, Glider Competition or a classic winning Free Flight Endurance model, there is something for you in this issue. OOPS, I forgot to mention a nice drawing that could be printed out and framed for the wall of your model building room or “man cave.”

Bob Aberle has provided a slightly reduced scale version of his NEXT STEP model using modern Micro RC equipment and electric power. The original was published in the March 1981 issue of *Flying Models*. Bob has been doing this for a long time !

The PATRIOT Nordic glider appeared in the May 1961 issue of *Model Airplane News* and was designed by Stan Colson. OK you glider fans, build one for when the spring winds stop gusting.

The IRISH SWOOP is one of those little known aircraft designed by Guiseppa Bellanca and his engineering crew for the 1934 MacRobertson Race from England to Australia. Considered the likely winner it was disqualified at the last minute due to technicalities. Later on a total of over 40 were built that served as a light bomber in conflict in Spain, China and even with the Mexican Air Force. A nice framable drawing by Bjorn Karlstrom is included.

One of the “winningest” free flight models of the 1960’s and on into the 1970’s was Carl Goldberg’s HI THRUST VIKING. Plans appeared first in the May 1961 issue of *Model Airplane News* and later a great many kits were sold. Build one from the plans in this issue and re-live your lost youth. But better find a grandson or local neighborhood boy interested in models as a chaser.

Our complete back issue of a model magazine to download this month is the April 1970 issue of *RC Modeler*. As often the case the cover features a nice photo of a model airplane along with photos of several other models. Lots of content too including three model designs and technical information including how to design and make your own printed circuit boards.

The RYAN SC, a very pretty low wing aircraft is represented in this Half-A scale free flight design of about 40” wing span. It was originally shown in the August 1972 issue of *AAM* and is reprinted here.

Finally, the last three pages of this issue, as usual, is devoted to the digital collections of back issues that we offer. Very soon the digital collection of *Aeromodeller* covering the 1943 through 1949 years will be available. We are only missing the December 1943 issue to make the collection complete. Stay tuned for more info. After that watch for more digital collections of *Flying Models*, *Model Airplane News* and *RC Modeler*.

Keep ‘em Flying,
Roland Friestad, Editor
cardinal.eng@grics.net

NEXT STEP

200

by Bob Aberle

This is a reduced size version of THE NEXT STEP trainer aircraft that was originally designed by Bob and published in the March 1981 issue of *FLYING MODELS*.

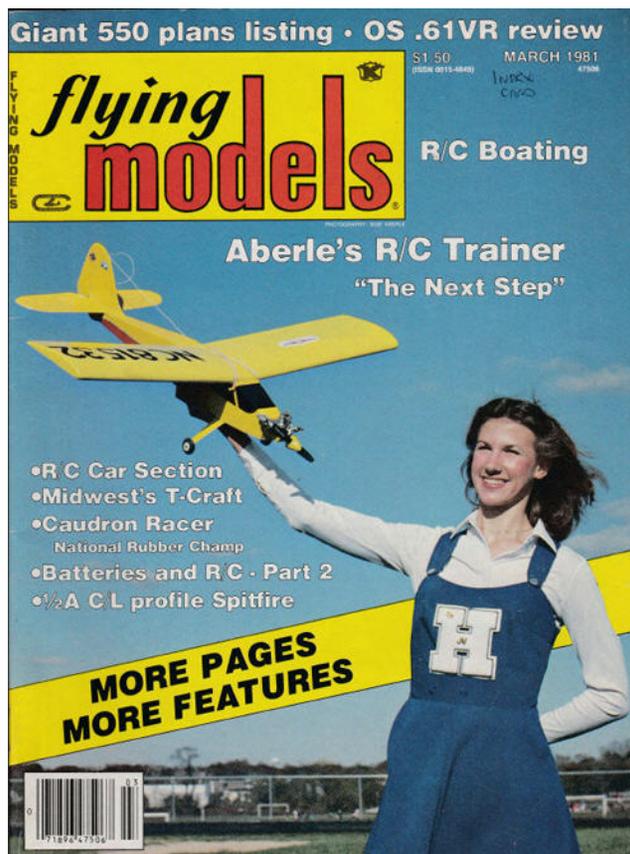
BACKGROUND

This article resulted from a reader request submitted to me by an Australian reader, Andrew Burston. Andrew reminded me of a design that I originally published as a construction article in the March 1981 *FLYING MODELS* magazine. I called the plane, "The Next Step".

As a matter of fact my daughter, Patti, appeared on the cover of that issue holding the plane. Patti was only 16 at that time and now is 51 -- hard to believe!

The theme of that early version was to have an easy to build and fly plane that was intended as a trainer or general sport flyer. It wasn't called a "Park Flyer" back then, because that name had yet to be "invented."

The original NEXT STEP had a 279 square inch wing, weighed 27 ounces and was powered by an Enya .09 glow engine. Although the original had just rudder and elevator flight controls, the design lent itself to easily adding aileron control. And that was why I named the plane, "The NEXT STEP."



You start with rudder and elevator control and then add the ailerons later on. The concept worked and many modelers over the years learned to fly and advance in our hobby with this design.

DESIGN CONSIDERATIONS

Years ago I quite arbitrarily selected 200 square inches of wing area as my "target" size. Many of the 72 designs I published in *RC MICRO WORLD* have been that size. So in this case the original 279 square inches of wing area was reduced only a small amount down to an even 200 square inches.

As usual the nose had to be lengthened to help eliminate a tail heavy situation. Despite the fact that this reduction in size was minor, I ended up with a final weight of just 16.9 ounces (down from the original 27 ounces). That old Enya .09 must have been really heavy.

Here are a couple of photos of the finished NEXT STEP-200.



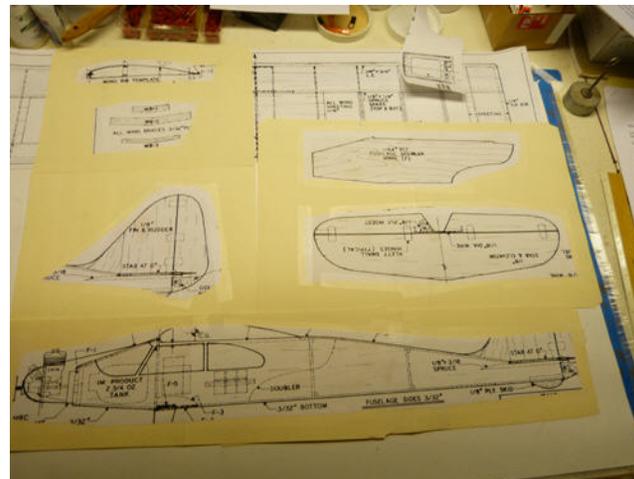


I duplicated the original color scheme using a typical Aeronca Champ as my guide. The next to last photo in this sequence shows my new Spektrum DX-9 transmitter which is quickly becoming my favorite.

CONSTRUCTION NOTES

I always start out by making a set of building templates. I make a second copy of my plans and cut this up into pieces which I paste onto common manila folders. Rubber cement works well, along with some 3M brand Magic Tape.

After the glue dries I cut out the plans pieces. The outlines of the various parts are then traced on to my balsa and plywood sheets.



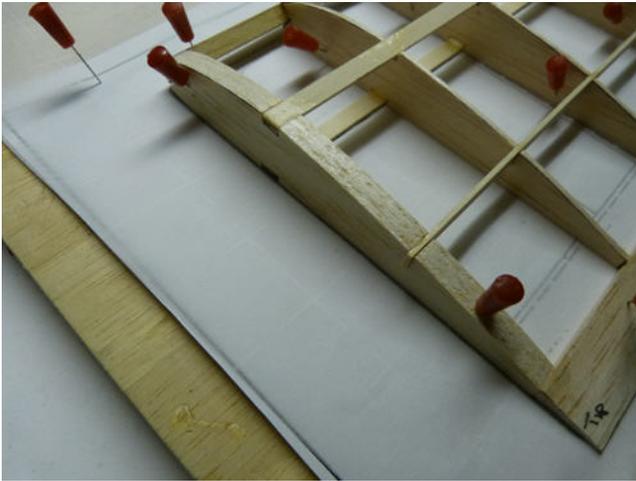
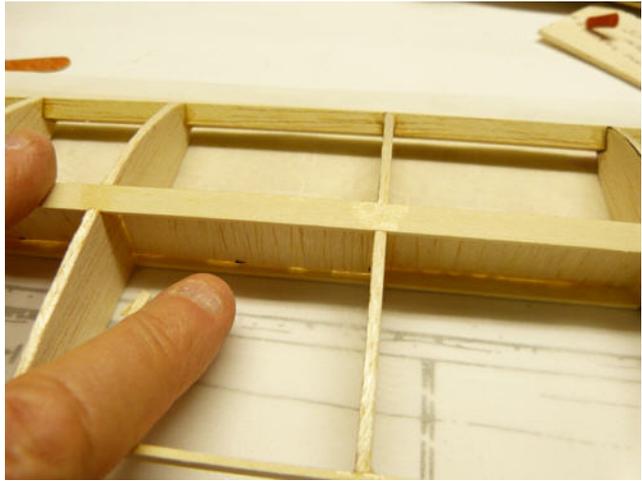
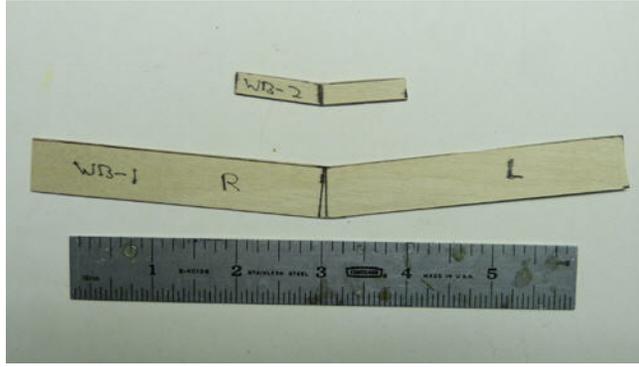
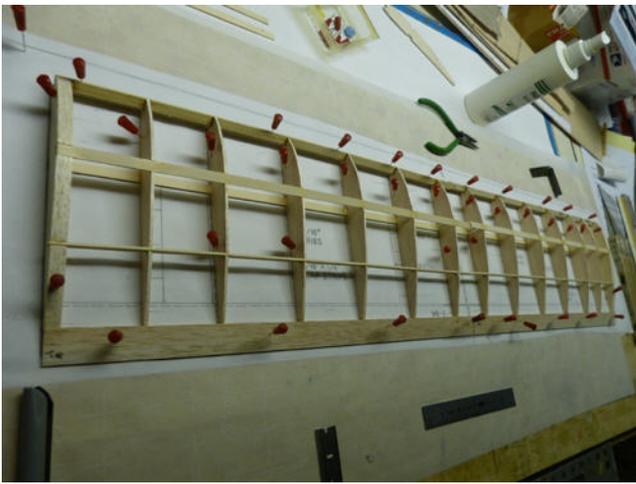
I like building the wing first. The ribs are widely spaced which cuts down on the number of ribs necessary. The wing spars are all fashioned from basswood or spruce. Please do not use balsa for the spars.

To add additional strength to the wing structure I added vertical grain shear webs between each rib and the top and bottom main spars. You can do this all the way out to the wing tips, or you can limit yourself to only half way out on each wing panel.

If you care to install ailerons, you should eliminate most of the dihedral, which makes the wing almost flat. Strip ailerons can be fashioned from 3/16 X 3/4 inch trailing edge stock. I like to use a separate servo on each aileron. That makes adjustments easy and also will allow you to set up for flaperon operation, if your transmitter has that feature.

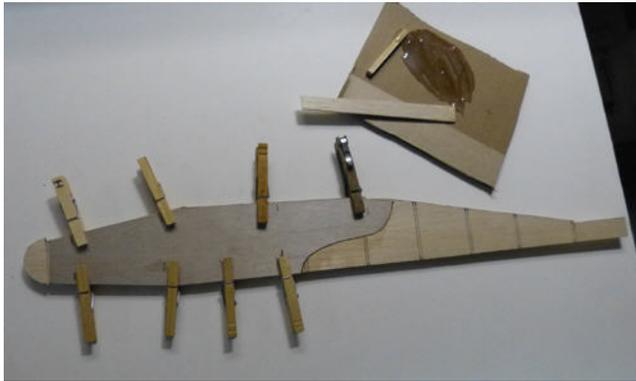
Please note that I decided on just one wing brace (WB-1), not two as shown in that one photo. This brace is made from 1/32 inch plywood. Here is the basic wing assembly photo sequence:



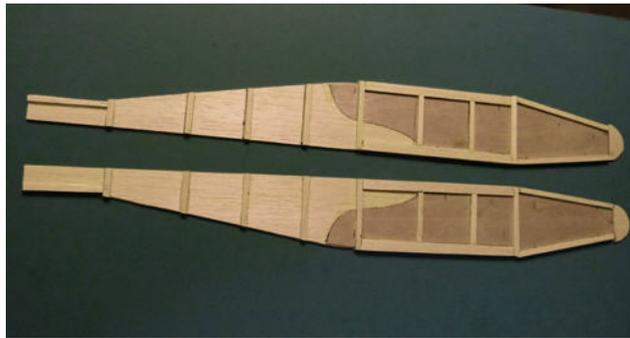
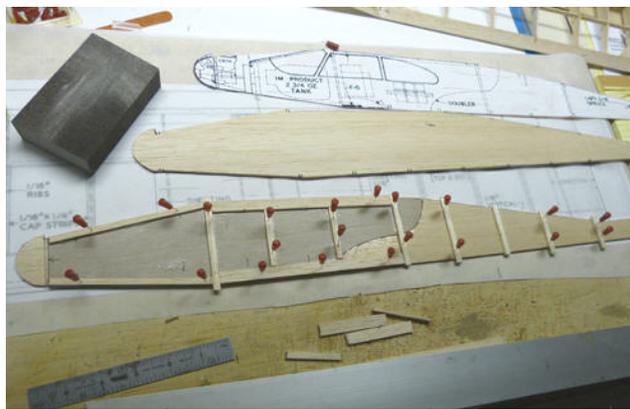


Next comes the fuselage assembly. The sides were cut from 4 inch wide 3/32 inch medium sheet balsa. As a point of info I purchased all of my balsa and plywood from Balsa USA.

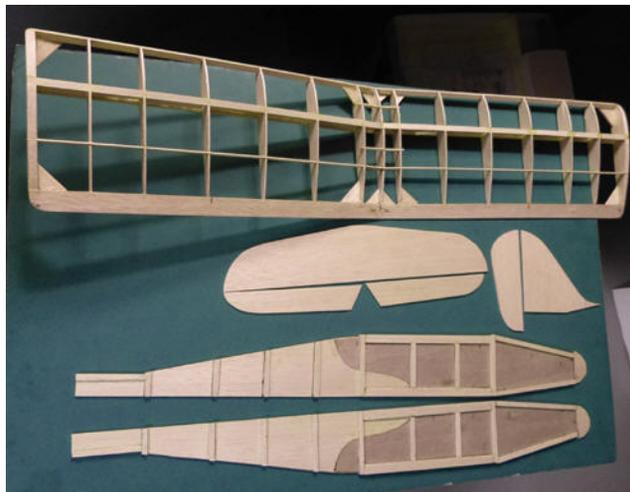
The very first step is to cut out the two 1/64 inch ply fuselage doublers. This imparts a great deal of strength to the fuselage. These doublers are attached to the sides with 5 minute epoxy cement. Note that I employed a lot of clothes pins to keep everything aligned until the cement cures.



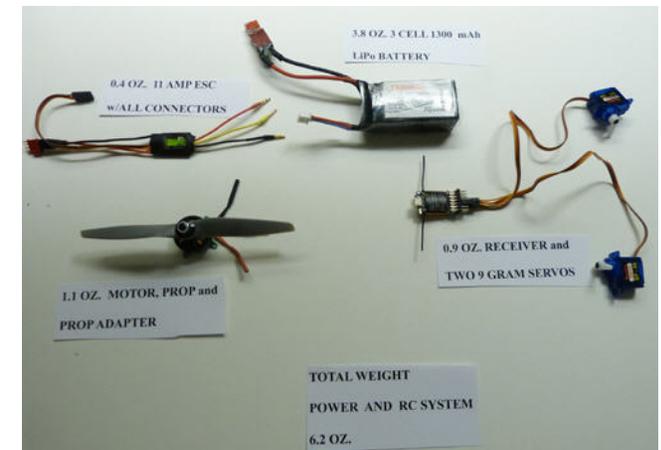
The longerons and stiffeners come next. These are all cut from 3/32 inch balsa. Always remember to make one left and one right fuselage side.



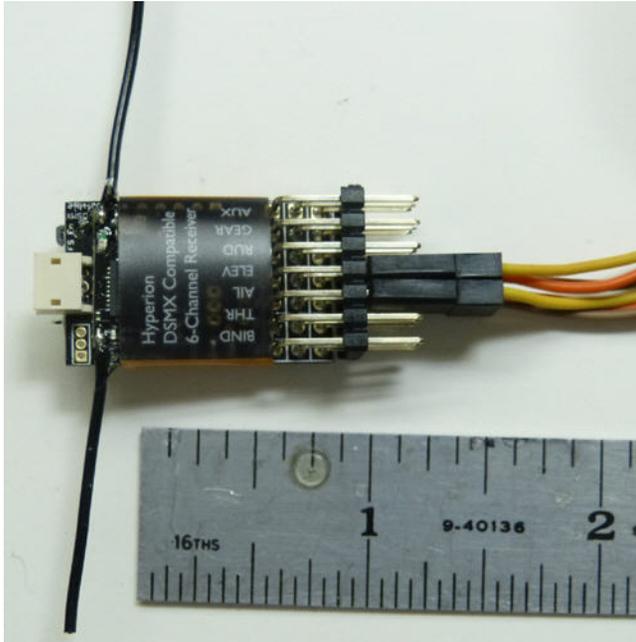
At this time I cut out the sheet balsa tail surfaces (stab, elevator, vertical fin and rudder). This is a progress photo showing what is completed so far.



Now the two fuselage sides can be joined. That will be a lot of cross pieces from the front to the rear. I never use a fuselage assembly jig, I just eye-ball it.



Lets take a break and let me describe the power and RC systems. Total weight of the electronics was 6.2 ounces. That includes the 3.8 ounces for the three cell 1300 mAh Li-Po battery pack.

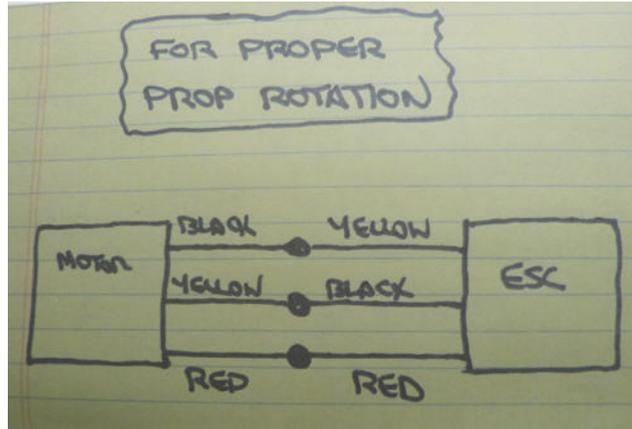


The receiver is a real gem! I buy them from Aircraft World of Japan. It is a Hyperion DSMX compatible with 6 channel function. Best of all it costs only \$16.95. It is also a full range receiver that can handle up to the largest models. This receiver weighs only 0.27 ounce (7.7 grams)

For a motor I chose the Innov8tive Designs Cobra C-2204/40 which will produce around 90 watts input power on a 3 cell battery pack. It is used with the companion Cobra 11 amp ESC.



The wires that exit the motor and ESC are color coded RED, BLACK and YELLOW. You would think that red goes to red, black to black and yellow to yellow. Well be advised that is not the case. If the colors all matched, you motor would likely run backwards. So follow this next chart, and your motor will run in the correct direction.

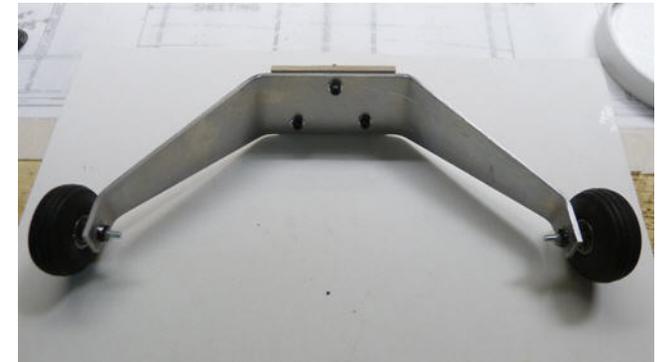


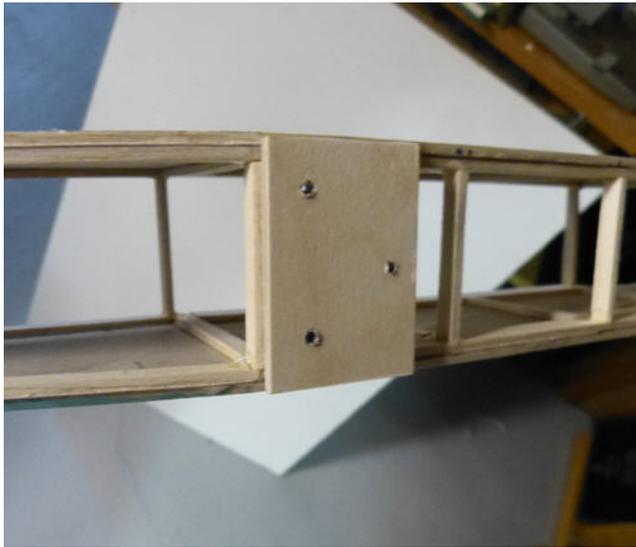
The landing gear was an important consideration. Many modelers hate to bend up wire into landing gear struts. I personally like the aluminum (Cessna type) gears that were sold years ago by the Hallco company.

I recently found a good substitute for the Hallco units which are available from Tower Hobbies/Great Planes and are called their dural landing gear. They offer these gears in six sizes from .09 power up to 1.5 cu.in.

For my NEXT STEP I selected the smallest gear, intended for .09 glow power. It is designated as catalog number L 1/2-GPMQ1800. They aren't expensive.

The wheels are attached with 6-32 or 8-32 bolts and nuts. The gear is bolted to a 1/8 plywood former using 4-40 hardware and "T" nuts. I spray painted my gear to match the yellow covering in the forward fuselage area.





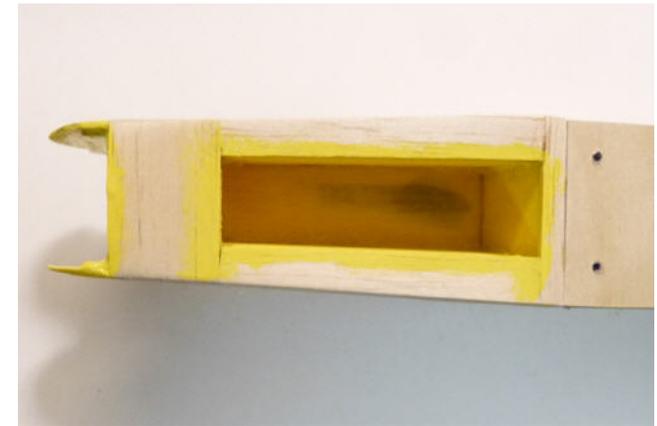
The battery pack is accessed from the bottom, forward fuselage. This looks better than having the battery sit on top. The battery compartment is constructed from 3/32 inch medium balsa. Two 1/8 inch diameter wood dowels and several rubber bands holds the battery in place. It is still very easy to remove for charging purposes.



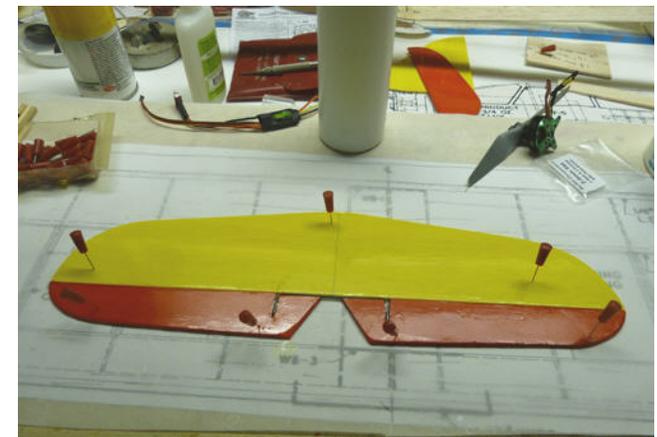
A 1/4 square hard balsa strip is placed at the wing leading edge position to prevent the wing from moving forward.

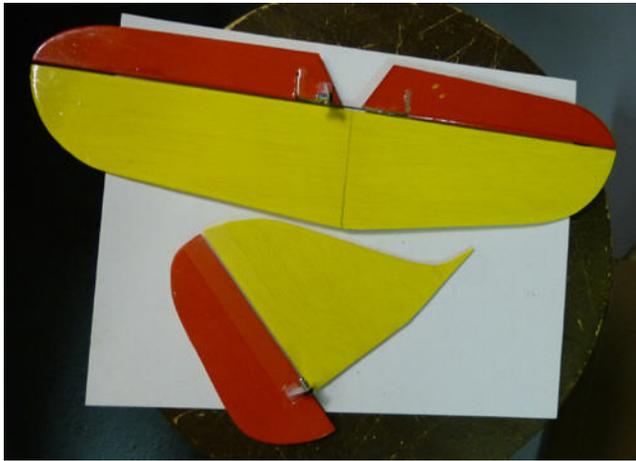
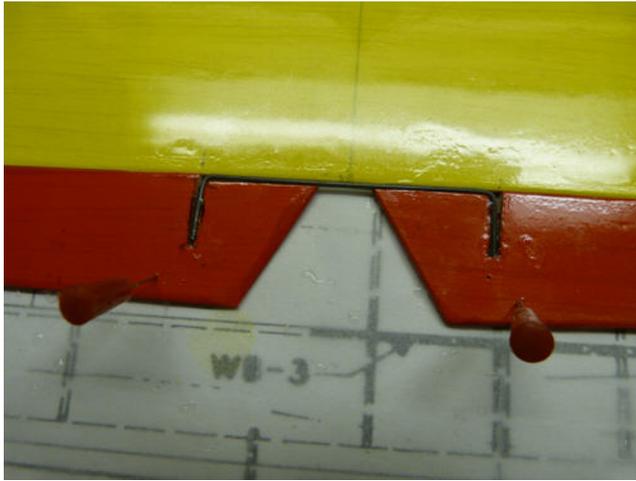


I spray painted around the firewall and the inside of the battery compartment. That is much easier than trying to apply iron-on covering material. I selected a yellow that exactly matched the shade of my Solite covering.

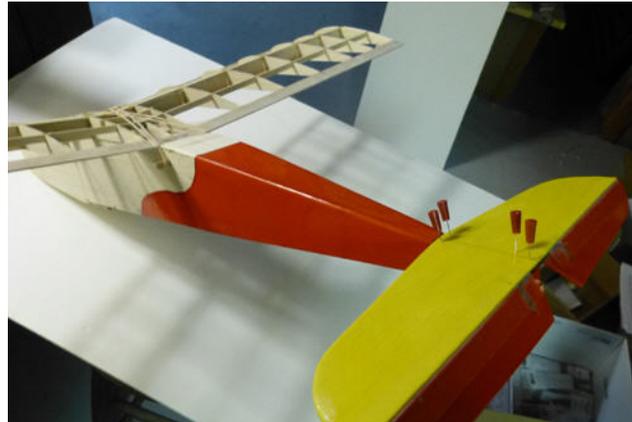
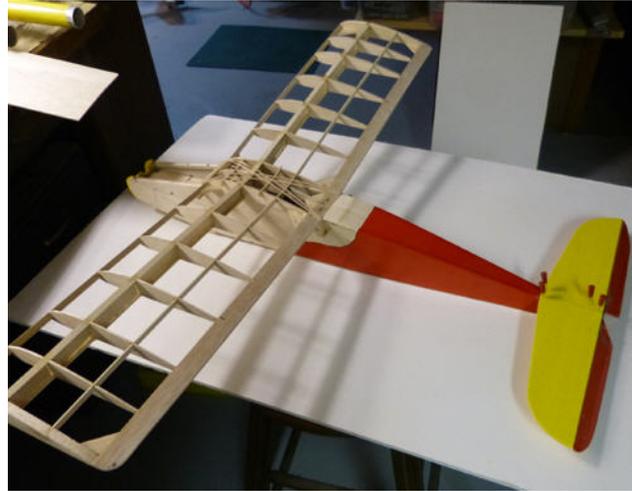


I now concentrated on finishing off the tail surfaces and installing them at the rear end of the fuselage. First step is to cover all the surfaces with the Solite material (in both opaque red and yellow). The two elevators were joined with the help of .047 inch diameter wire and 5 minute epoxy cement. The elevators were then attached to the stab using DuBro Electric Flyer Hinge Tape (#916). The same was done to install the rudder to the vertical fin. At this point you can add the DuBro Micro Control Horns (#919) to the elevator and rudder.





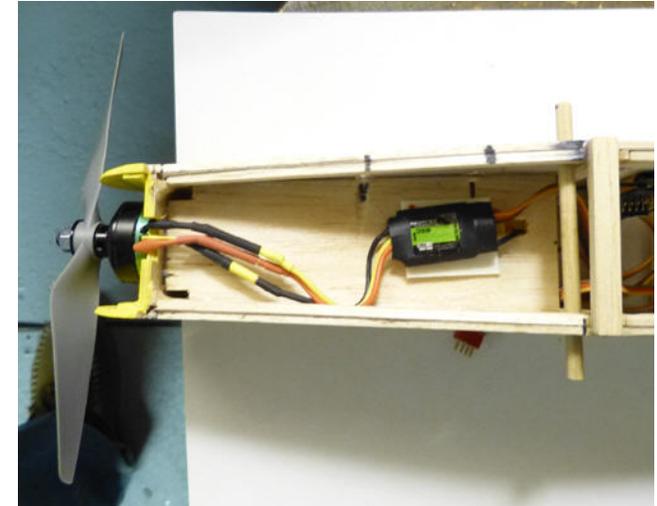
Next I partially covered the rear portion of the fuselage with the red Solite covering material. The wing must be mounted to the fuselage with rubber bands. This is done so that you can align the wing with respect to the stab. Pin the stab in place. Apply some CA cement to hold it in position. Then apply 5 minute epoxy. Next add the vertical fin and rudder and make sure it also aligns to the wing position. Again finish up with 5 minute epoxy.



The two Altitude Hobbies 9 gram servos operate the elevator and rudder. Both are attached to the fuselage sides using 3M brand double sided tape and then a little Permatex clear RTV Adhesive Sealant. Control rods are .025 inch diameter wire that runs inside Steven Aero Models .073 ID yellow Teflon tubing. The wire is attached to the servo output arms using DuBro Mini EZ Connectors (#915).



The 11 amp ESC sits on top of the battery compartment. Like the servo, it is held in place with 3M double sided tape and the RTV adhesive sealant.



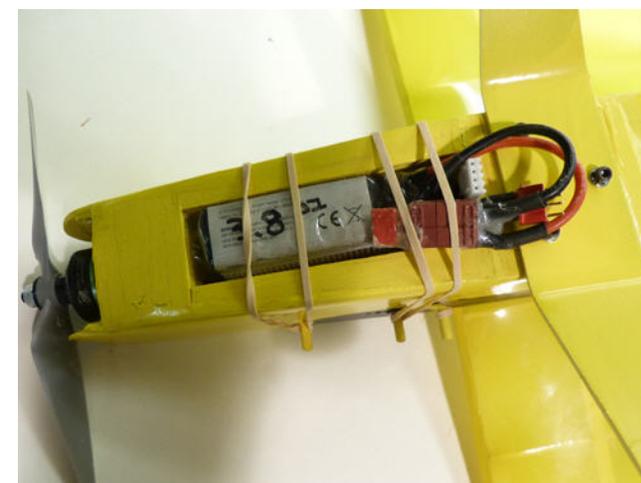
With the ESC in place cover the top of the fuselage between the wing leading edge and the firewall with 3/32 inch balsa.



This is the Krylon Short Cuts spray paint that I use inside my battery compartment and around the firewall areas of the fuselage. The color is KSCS036, Sun Yellow. This matches the Solite yellow covering material.



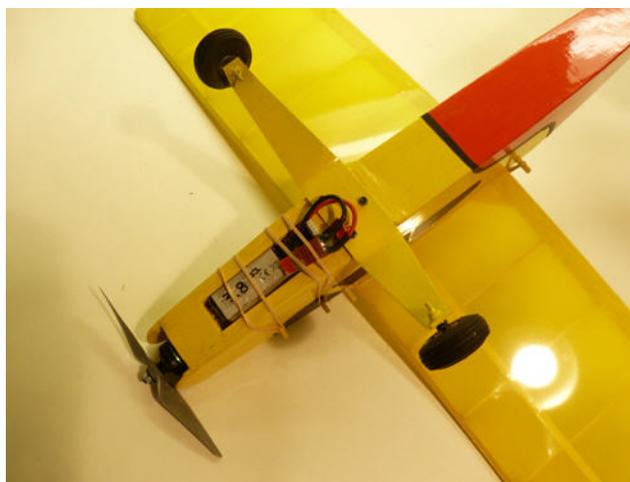
The motor is held in place with four wood screws that are provided. Prop is an APC 6 X 5.5E



Battery is in place and the cables are easily accessible.



DuBro Micro Tail Skid (#852)



Next are three photos of the finished NEXT STEP ready for its first flight. Total weight 16.9 ounces.



I almost forgot to mention the simulated windows that I cut from black self adhesive contact shelf paper. This really adds a lot to the finished model. I found a good source for this material which is available from Amazon. This is the website:

<https://www.amazon.com/Magic-Cover-Self-Adhesive-18-Inch-24-Foot/dp/B000VYGMLG>

FINAL CG and CONTROL THROWS

The finished NEXT STEP balanced perfectly when using the stated 3 cell 1300 mAh Li-Po battery which weighs 3.8 ounces. You can feel free to swap battery sizes to achieve the proper balance. I provided plenty of extra room in the battery compartment just for that purpose.

Elevator travel was 1/4 inch either side of the neutral position while the rudder moved 1/2 inch either side.

FLYING

We have had some really bad weather here lately on the east end of Long Island. As such there have been few opportunities to fly RC planes. The NEXT STEP's first flight session has

been on hold for almost two months time. My flying partner, Tom Hunt and I finally managed a few flights at a local school athletic field (with lots of snow on the ground).

Flying the NEXT STEP is much as expected. I designed it as a trainer and sport aircraft. And that is exactly how it flies. With all that snow on the ground we had to resort to hand launching.

If anything, with 90 watts input power, the NEXT STEP is probably over powered. It can be comfortably flown at half throttle which will allow a lot more flying time per battery charge.

I did add in some 30% expo rate control to both the rudder and elevator. That made flying a lot more relaxing, especially at higher speeds. It can be slowed down considerably for landings yet has no tendency to stall. All in all just about anyone can handle it.



In the previous photo Bob is holding the plane to give you an idea of the size. Note the snow in the background.

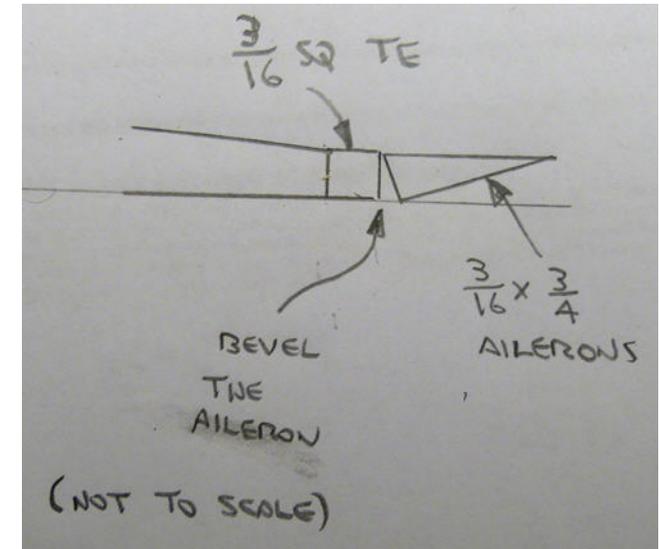
And here are some flight shots.



SUMMARY

I wanted to add two comments in my summary. First of all if you are comfortable flying the NEXT STEP with rudder and elevator control, I think you should consider building a second wing and add strip ailerons. As already mentioned, I prefer using two separate aileron servos.

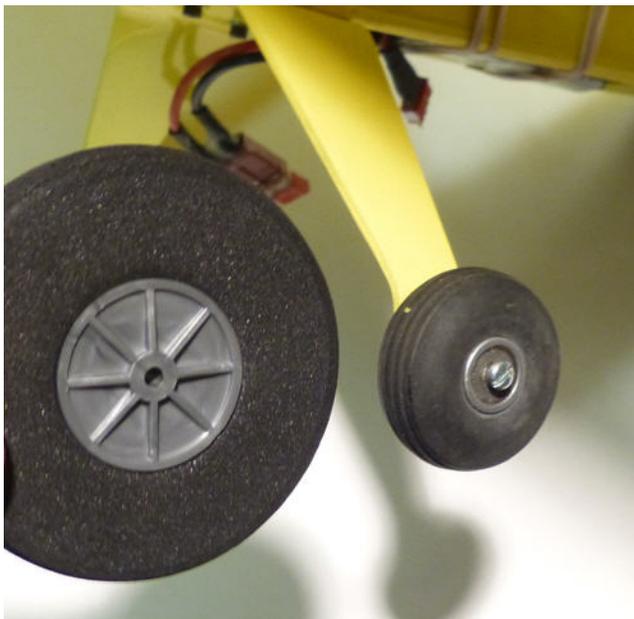
Also make sure that you reduce the dihedral such that the wing is almost flat. I would suggest that you add a $\frac{3}{16}$ square trailing edge and then add $\frac{3}{16} \times \frac{3}{4}$ trailing edge stock for the ailerons.



Second, we did find that the 1 1/2 diameter wheels that I used on my NEXT STEP were really too small. DuBro recently came out with a new series of wheels designated as Super Slim Lite Wheels. They only offer at this time 2.75 and 3.00 inch diameter sizes. The 2.75 wheel weighs only 8.6 grams.



Despite the light weight it is a very firm rubber that should support model weights upwards of four pounds.



But you can see that the 2.75 inch diameter wheel may prove too big for the NEXT STEP. I think a more realistic size might be 2 1/4 inch diameter. I've asked DuBro to look into offering more sizes for this new series of wheels.

I hope you enjoy the NEXT STEP if you choose to build one. Please let me know if you did and tell me how well it flew and send me some photos. Have fun!

Bob Aberle
 baberle@optonline.net

SPECIFICATIONS

Model: "NEXT STEP-200"

Designed Originally by Bob Aberle and published in the March 1981 FLYING MODELS.

Reduced in Size to 200 square inches and now with electric power.

Type: A parking lot size RC electric powered sport/trainer aircraft.

Wingspan: 31 inches

Wing Area: 200 square inches

Length: 26 inches

Weight: 16.9 ounces

Wing Loading 12.2 oz/sq.ft.

RC GEAR USED:

Spektrum DX-7 transmitter operating on 2.4 GHz spread spectrum, Aircraft World Hyperion DSMX6RX receiver and two Altitude Hobbies 9 gram servos operating the rudder and elevator.

POWER SYSTEM USED:

Innov8tive Designs brushless outrunner motor (Cobra C-2204/40), APC 6 X 5.5E prop, Cobra 11 amp brushless ESC and a Tower Hobbies Flyzone 3 cell 1300 mAh 15C Li-Poly battery (3.8 ounces).

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: 6.8C

Power Loading: 92 watts/pound

Flight Time: 9 minutes (at full throttle) with the 3 cell 1300 mAh battery

SOURCE REFERENCES

Aircraft World --
Hyperion DSMX6RX receiver
<http://www.aircraft-world.com/en/p1587770-hp-6rxdsfr>

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

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

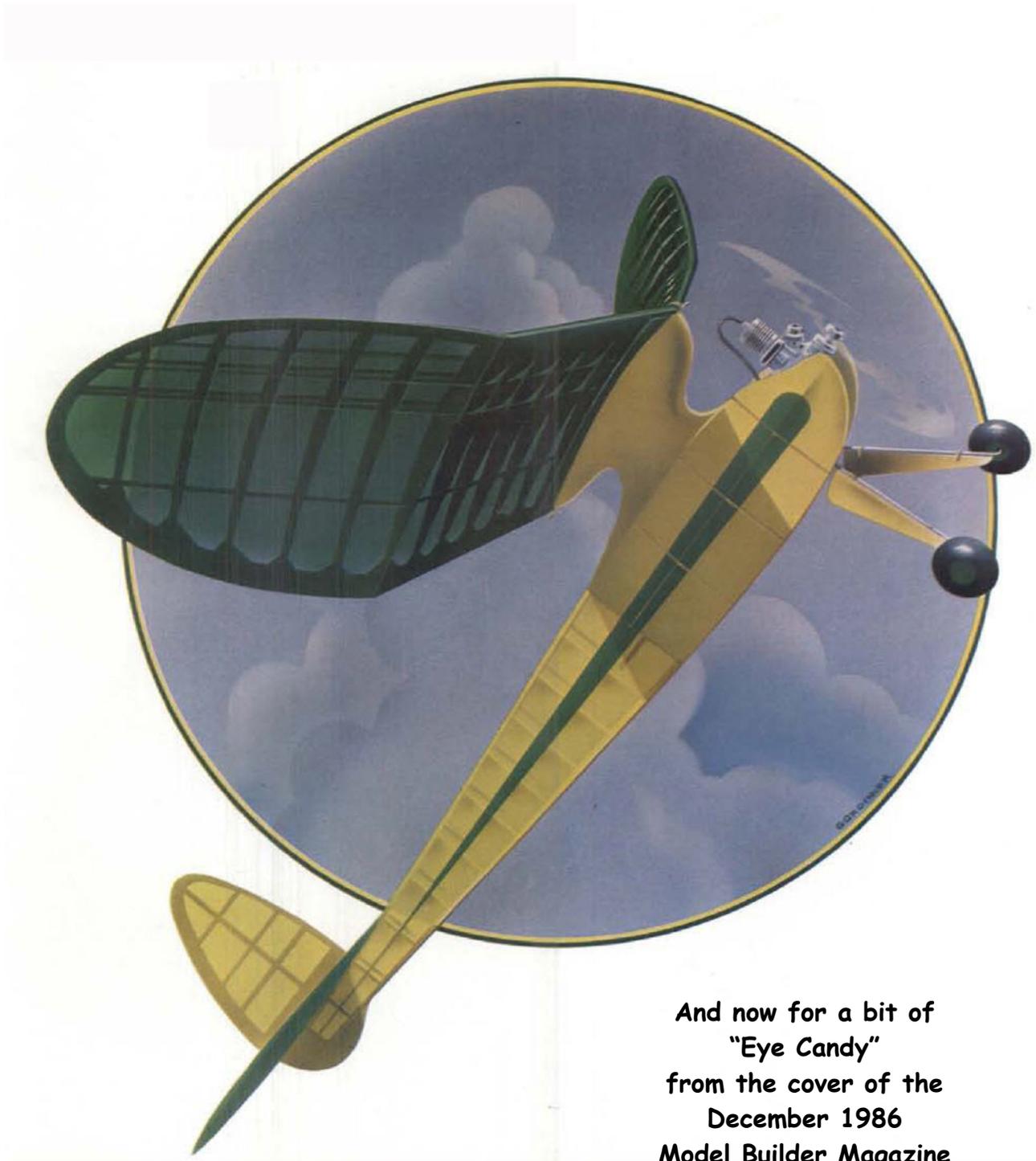
DuBro --
Micro control horns, mini EZ connectors, electric flyer hinge tape, micro tail skid and 1 1/2 inches diameter wheels
www.dubro.com

Horizon --
Spektrum DX-9 transmitter
www.horizonhobby.com

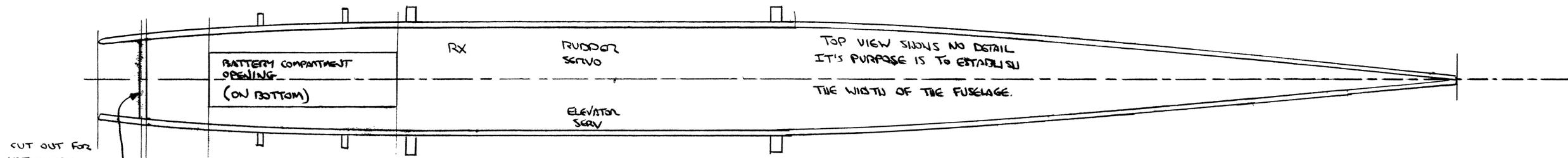
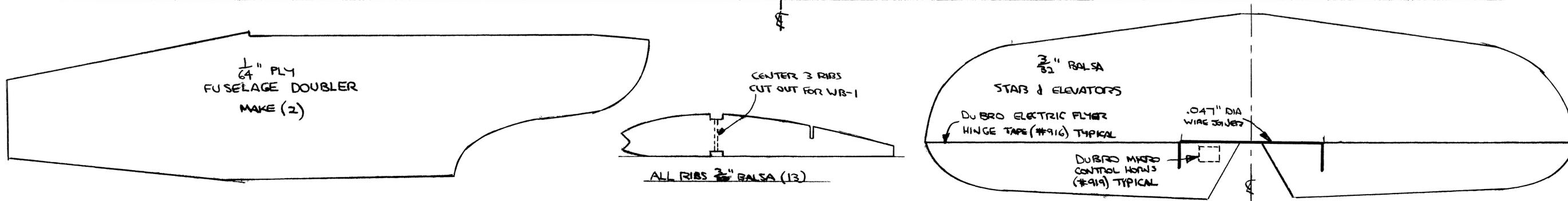
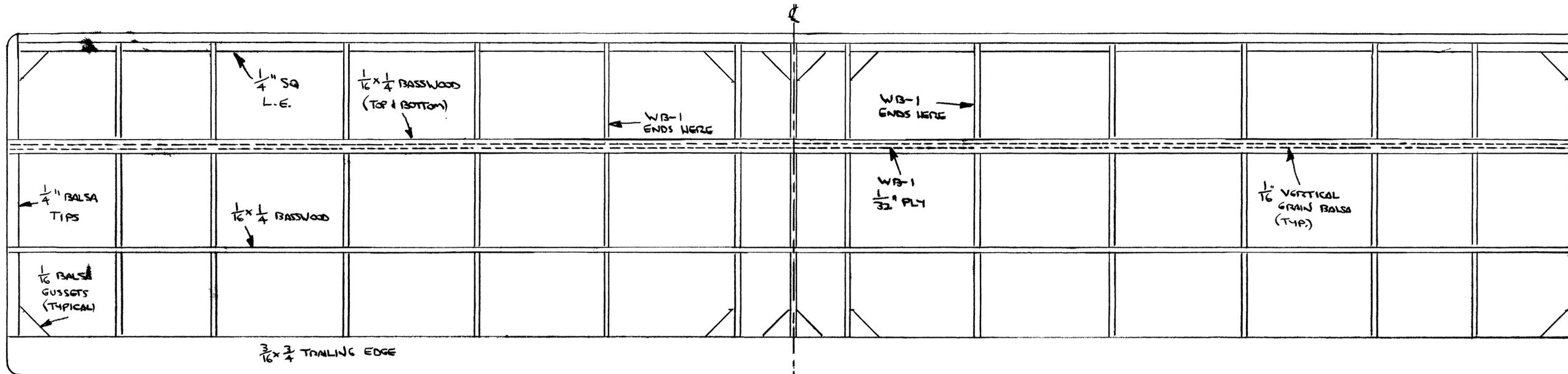
Innov8tive Designs --
Brushless motor and ESC
<http://innov8tivedesigns.com/catalogsearch/result/?q=2204%2F40>

Stevens Aero Models --
.073 inch OD Yellow Teflon tubing for the rudder and elevator control rods
http://stevensaero.com/shop/product.php?product_id=16639

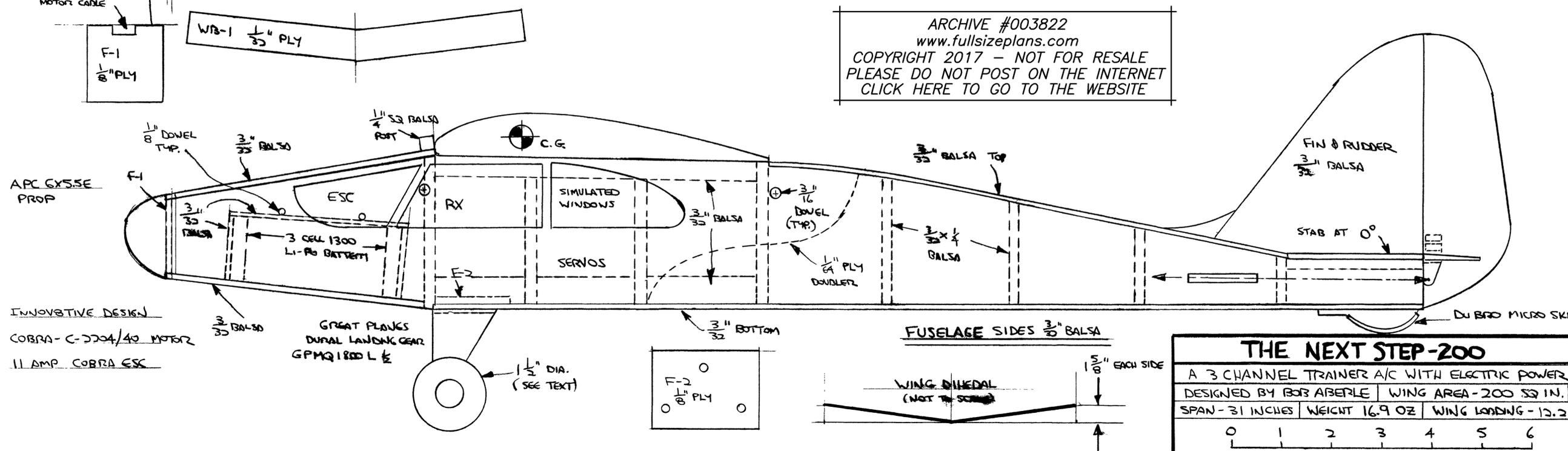
Tower Hobbies/Great Planes --
.09 dural landing gear P/N L 1/2 GPMQ1800
www.towerhobbies.com



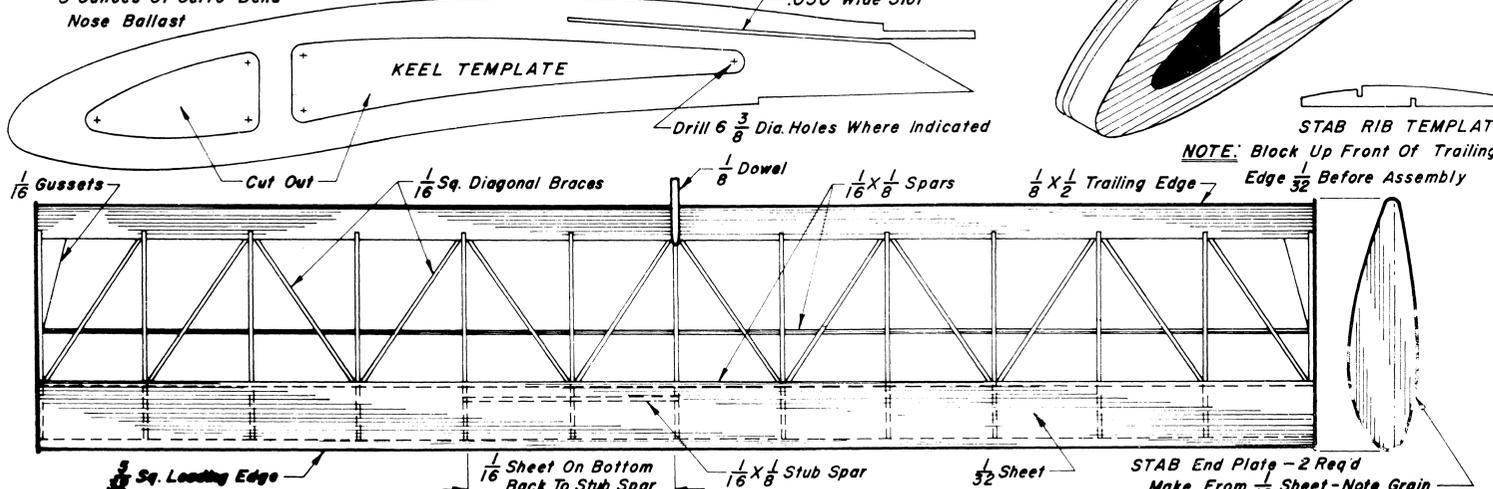
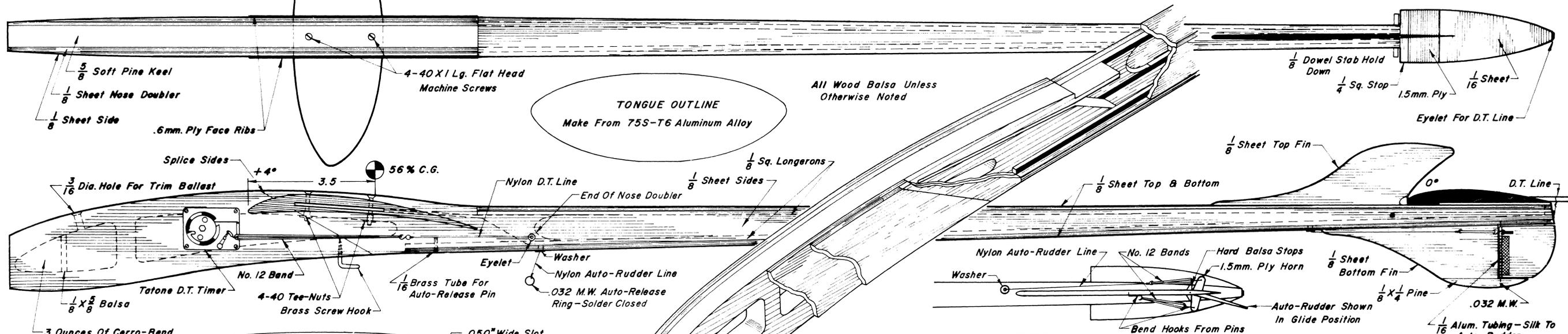
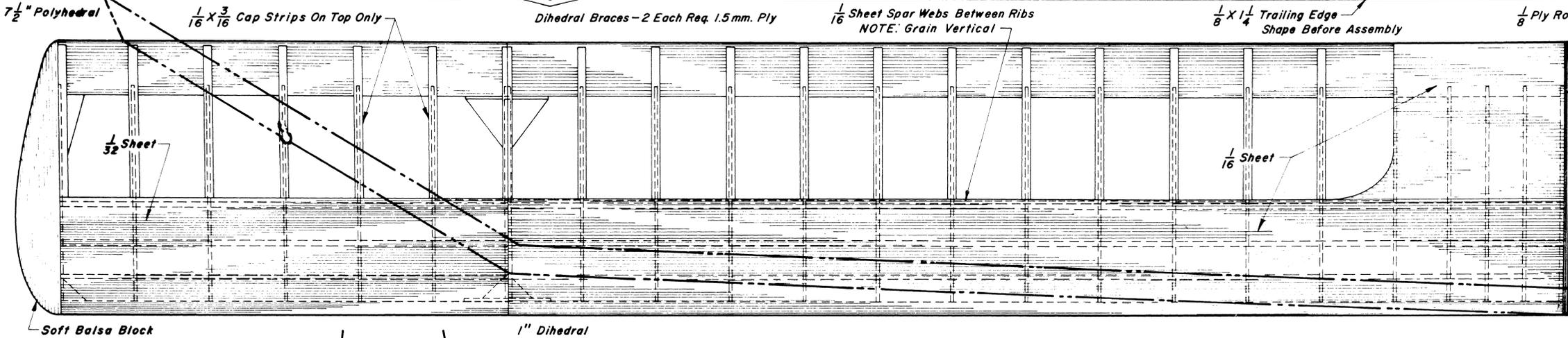
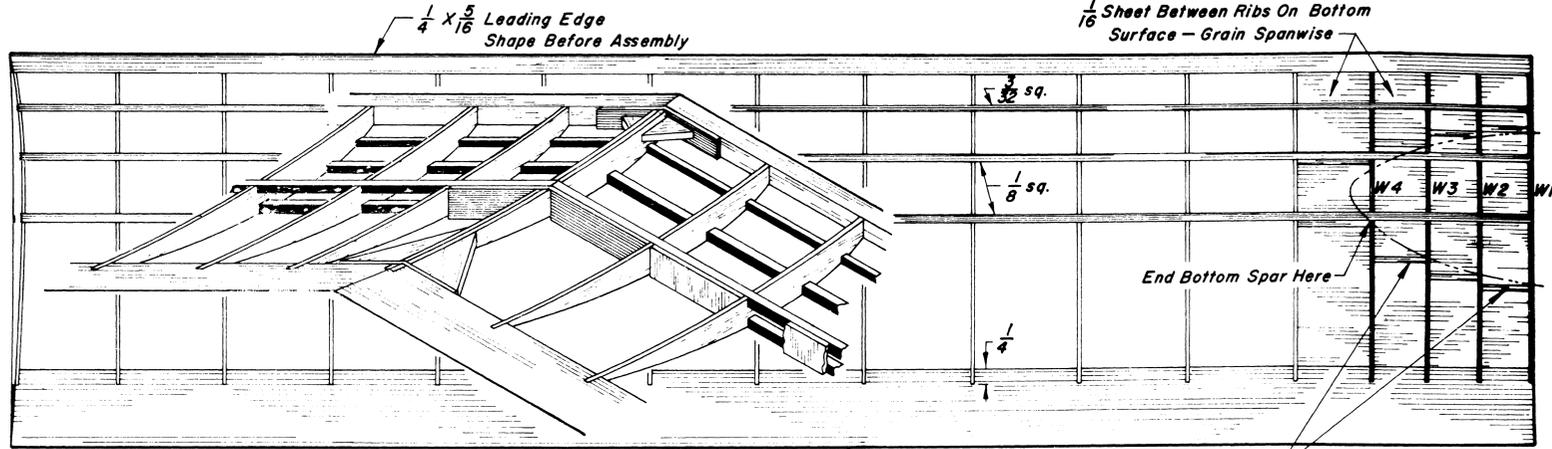
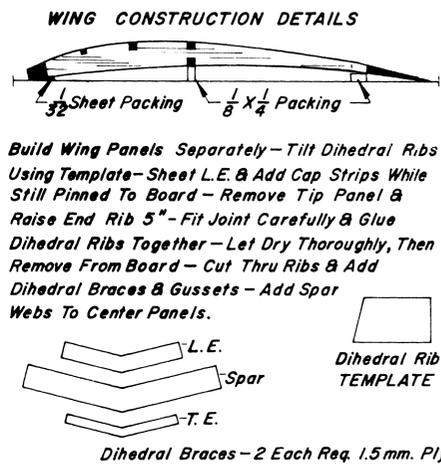
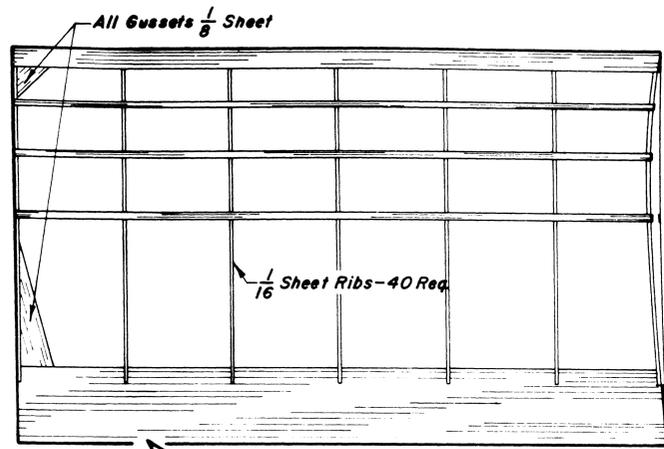
**And now for a bit of
"Eye Candy"
from the cover of the
December 1986
Model Builder Magazine**



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THE NEXT STEP-200						
A 3 CHANNEL TRAINER A/C WITH ELECTRIC POWER						
DESIGNED BY BOB ABERLE		WING AREA - 200 SQ IN.		LENGTH - 26 IN		
SPAN - 31 INCHES		WEIGHT 16.9 OZ		WING LOADING - 12.2 OZ/SQ FT		
0	1	2	3	4	5	6
						Feb 27/17



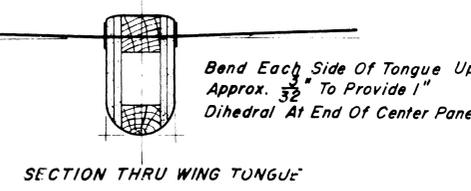
WING SPAN:	72.7" FLAT
	68.8" PROJ.
PROJECTED SURFACE AREAS	
WING:	4.42 sq.in.
STAB:	82.5 sq.in.
FINISHED COMPONENT WEIGHT	
FUSELAGE:	250 gms. - 9.0 oz.
WING:	145 gms. - 5.2 oz.
STAB:	10 gms. - 0.4 oz.
TOTAL:	415 gms. - 14.6 oz.

PATRIOT

NORDIC A-2 GLIDER
by STAN COLSON

A 1961 **NEWG** DESIGN

DRAWN FOR MODEL AIRPLANE NEWS BY LEE RENAUD



THE IRISH SWOOP

by Editor

This article started as a reprint of the text and 3-Views that originally appeared in the August 1972 issue of American Aircraft Modeler. But looking around on the internet turned up more photos and history of this interesting aircraft. Searches led to several Russian sources but with deeper digging it appears that most information resides at the Smithsonian and at the aviation museum in San Diego, California. Photos are primarily from those two sources. The 3-View by Bjorn Karlstrom was enlarged from American Aircraft Modeler.

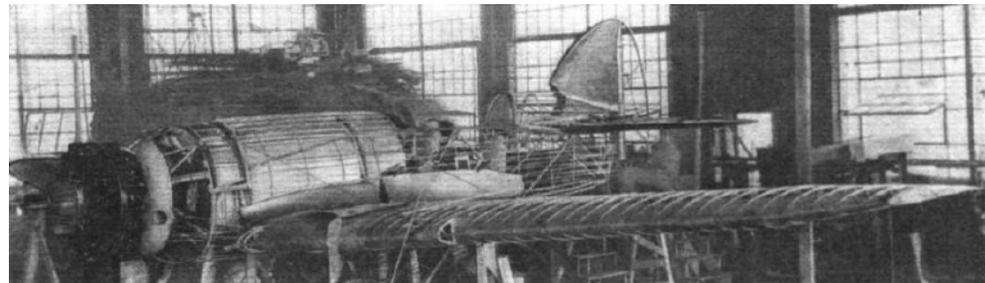
Performance and efficiency were long the qualities for which the late Guisepppe Bellanca was known all over the aviation world. Had it not been for a disagreement between Lindberg and Bellanca supporters it is very possible that Lindberg would have used a Bellanca instead of his Ryan Spirit of St Louis for his epic flight.

Bellanca was renowned for the novel ways he achieved performance and efficiency. Like wide-chord lifting struts, and a tri-motor transcontinental racer with two Menasco engines and one Ranger engine!

Because of Bellanca's reputation for being able to do things better by doing them differently, an order was received in the late spring of 1934 for an airplane to win the up-coming MacRobertson Race from England to Australia.

The pilot, Col. James Fitzmaurice, was sponsored by the Irish Hospitals Trust and wanted an airplane capable of flying 3000 miles non-stop at 235 mph. And he wanted it to be ready to start the race in less than five months! Such was the confidence he had in the name of Bellanca.

Construction began early in June, 1934 and the first test flight of the Model 28-70 (for 280 sq. ft. of wing, and 700 hp) was made three months later, on September 1.



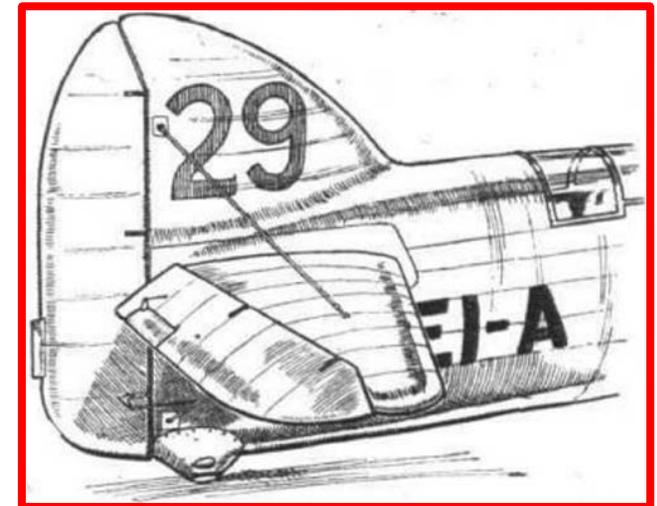
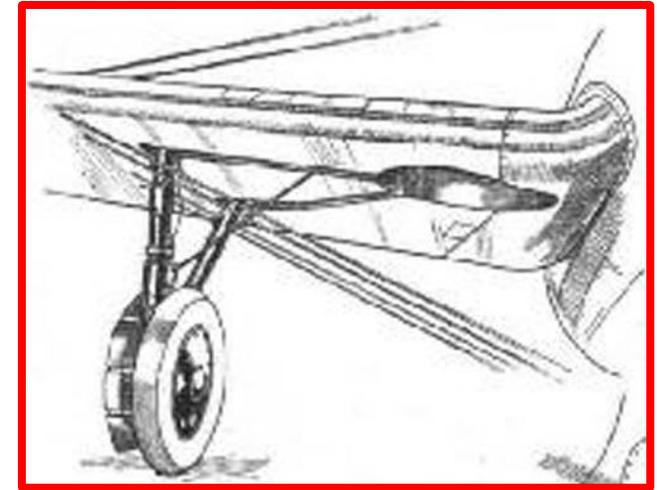
There may be others but this is the only photo I could find of the IRISH SWOOP under construction

After some delays in shipping the prototype, it finally reached Mildenhall aerodrome (now the site of a USAF base in England) just four days before the October 20 scheduled start of the race. Named the "Irish Swoop" and licensed in Ireland as EI-AAZ, it was all ready to race. Then the officials stepped in, as they still seem to do at unfortunate times.



The photos on the left, provided by Eut Tileston, show the IRISH SWOOP being weighed in and prepared for the race.

Below are some sketches of details that appeared in the magazine FLIGHT at about the same time.





Because of limited testing, the airplane had not been cleared at its maximum design loaded weight of 8350 lb. which was to have included some 600 gallons of fuel, weighing 3600 lb.

The officials refused to let it take off at more than 5350 lb. which would have limited it to just over 100 gallons and forced it to make about 20 refueling stops. Fitzmaurice felt he would thus have no chance to win the race under such a restriction, and so he withdrew.

The Model 28-70 was returned to the factory, was slightly modified with an improved engine cowling, and then was seriously damaged in a landing accident during the continuing test program.

It wasn't again flown until 1936, when it was rebuilt with a 900 hp Pratt & Whitney R-1830 Wasp engine in place of the original 700 hp P&W Twin Wasp Jr.

The designation was changed to 28-90 to reflect the increased horsepower, and it was registered in the U.S. as N190M. At this time, a central skid was added to the bracing posts under the fuselage.

Re-named "The Dorothy," it was purchased by English long-distance flier James Mollison, who immediately set a new record from New York to London of 13 hours, 17 minutes, or about 260 mph. This was in October of 1936.

A month later, Mollison headed south from London with the intention of breaking the record to Capetown, at the southern tip of Africa. A broken fuel tank forced him down along the banks of the Nile River, unfortunately, and the flight ended there.

Sometime in 1937, he flew the airplane to Madrid and sold it to the Spanish Republican government, which apparently used it for high-speed reconnaissance during the Spanish Civil War.

Even before they bought Mollison's prototype, however, the Spanish had ordered 20 of Bellanca's Model 28-90, by now called the "Flash."

The order was made in the name of Air France, in order to get around the Neutrality Act which then forbade the export of military aircraft to certain foreign countries at war.



Here is a photo of the aircraft, now called the FLASH, done up in Air France livery.

The planes were painted up in Air France colors, even though it was common knowledge they were headed for Spain, but before they could be delivered, the law clamped down.



Despite the fact that the Chinese-Japanese War was in full swing, the neutrality rules somehow failed to cover China, and the 20 Flashes were shipped to Shanghai.

Military equipment was installed in China, but most of the airplanes were destroyed by the Japanese before they could be sent into combat.

The previous three photos from the San Diego museum archives give you an idea of the status of the Chinese facilities at the time.





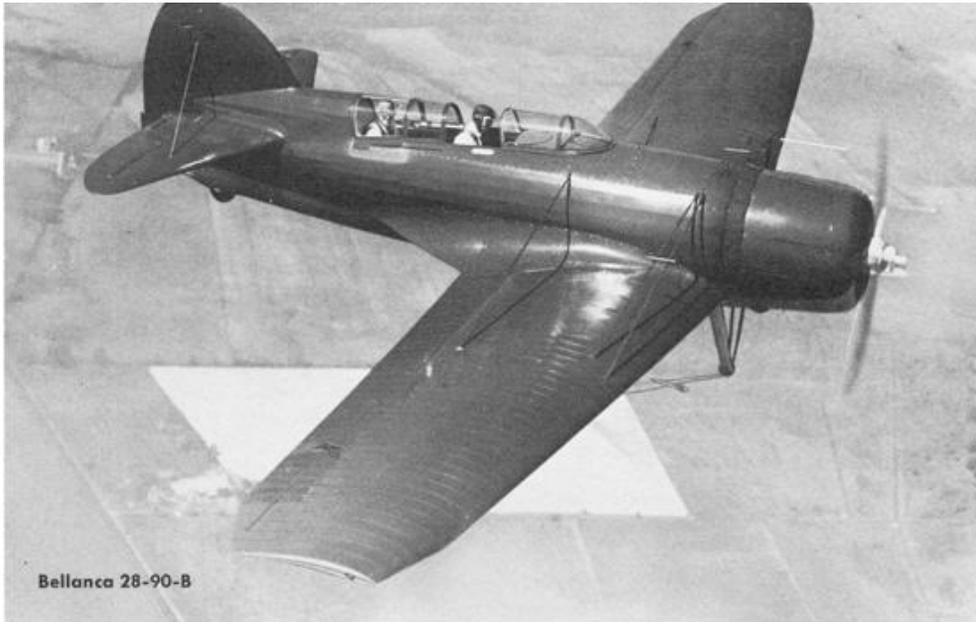
A total of 43 aircraft were eventually built and some even found their way into the Mexican Air Force and a few ended up in South America as well.

The previous two photos show the FLASH as it was when utilized in the air force of Mexico.

As an airplane that was ahead of it's time in many ways the IRISH SWOOP - DOROTHY - FLASH enjoyed a brief but colorful career. It's too bad that, as far is as known no examples still exist.

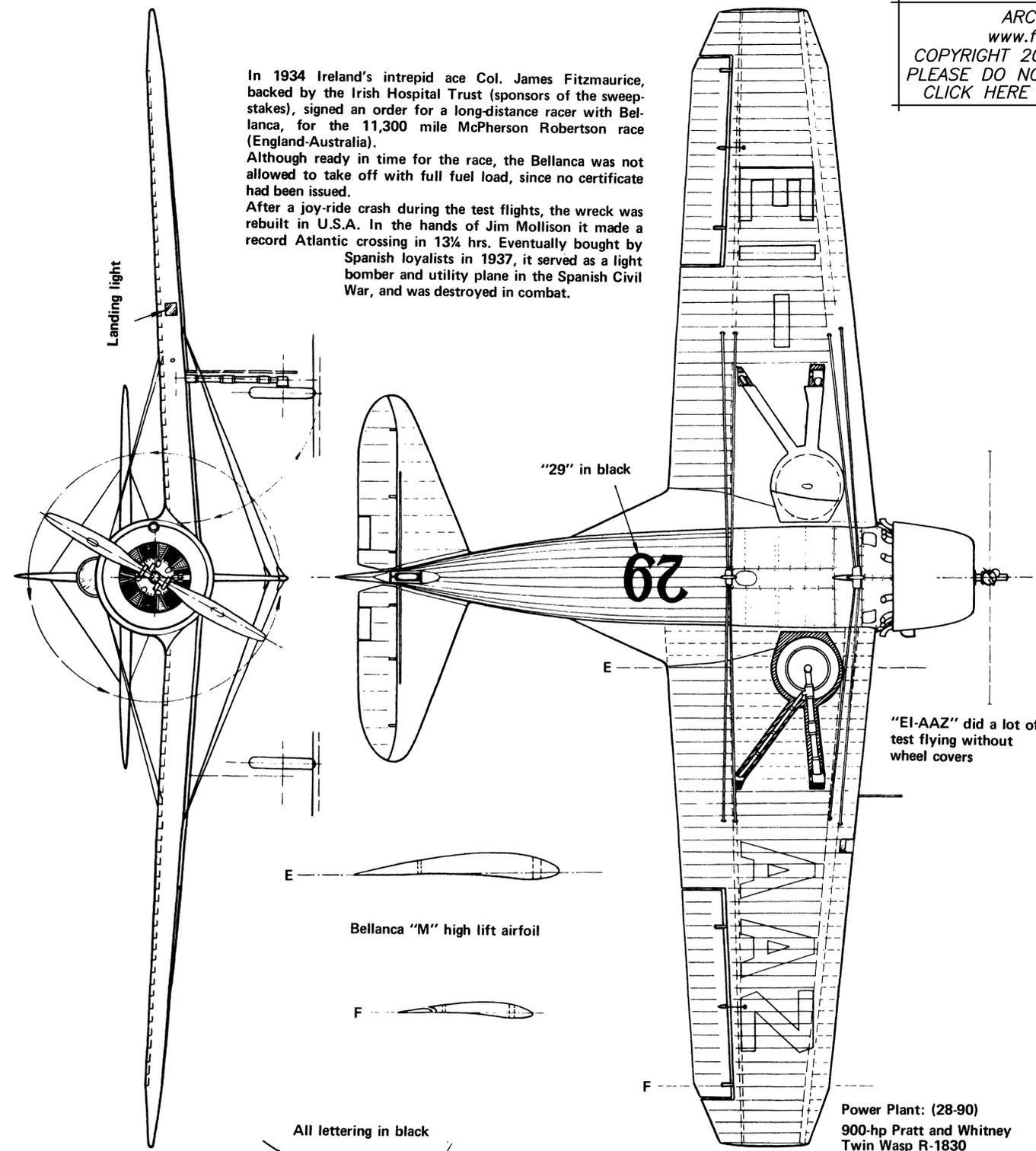
The folloing page is an enlargement of the Bjorn Karlson 3-View (Actually a 5-View) that would make a nice framed picture of a unique and little known aircraft for display.

It's a bit short-coupled and the stabilizer appears quite a bit too small to make a stable rubber powered scale model. Although with RC it might be feasible. Remember that this was designed originally as a racer and not an aerobatic machine.



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In 1934 Ireland's intrepid ace Col. James Fitzmaurice, backed by the Irish Hospital Trust (sponsors of the sweepstakes), signed an order for a long-distance racer with Bellanca, for the 11,300 mile McPherson Robertson race (England-Australia). Although ready in time for the race, the Bellanca was not allowed to take off with full fuel load, since no certificate had been issued. After a joy-ride crash during the test flights, the wreck was rebuilt in U.S.A. In the hands of Jim Mollison it made a record Atlantic crossing in 13 1/4 hrs. Eventually bought by Spanish loyalists in 1937, it served as a light bomber and utility plane in the Spanish Civil War, and was destroyed in combat.



Bellanca "M" high lift airfoil

F

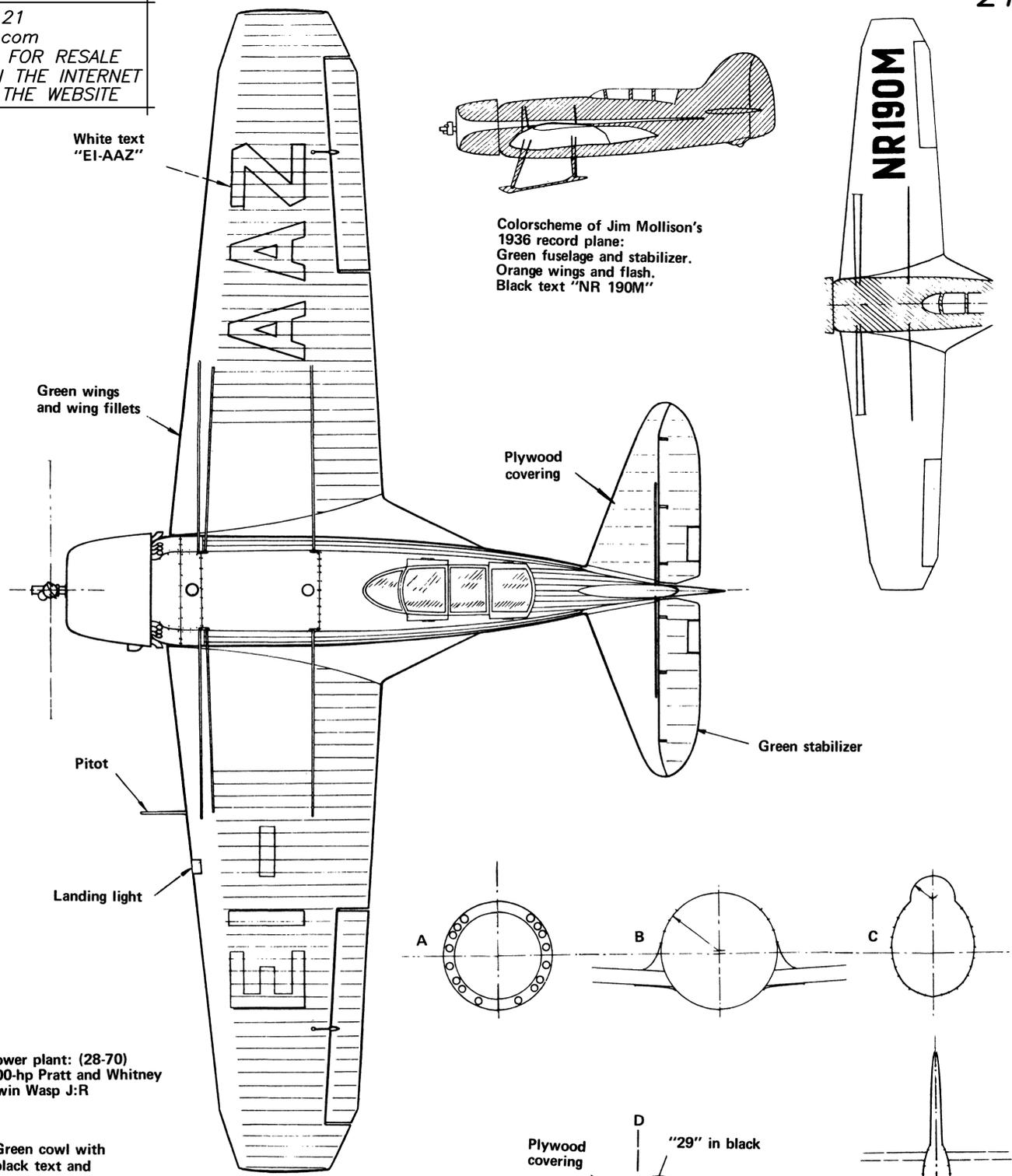
Power Plant: (28-90)
900-hp Pratt and Whitney
Twin Wasp R-1830

"The Dorothy" (after actress Dorothy Ward) in black

All lettering in black

BELLANCA 28-90
The Dorothy - 1936

The only external difference between the Irish Swoop and The Dorothy was a central skid attached to the kingposts



Power plant: (28-70)
700-hp Pratt and Whitney
Twin Wasp J:R

Green cowl with black text and horseshoe

White fuselage

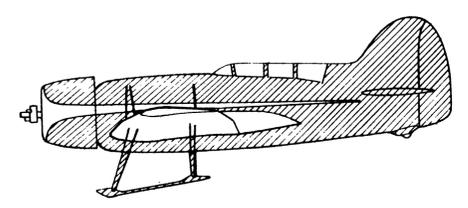
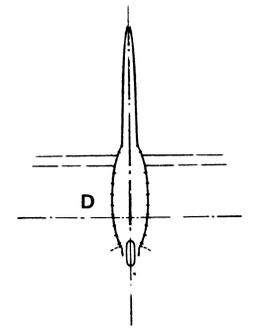
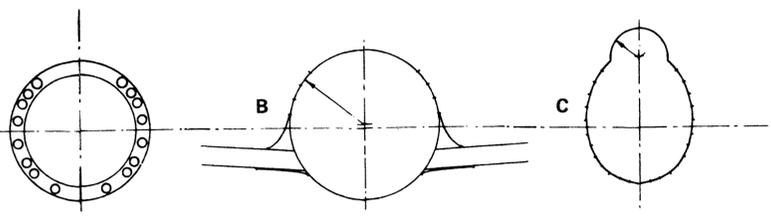
Plywood covering

"29" in black

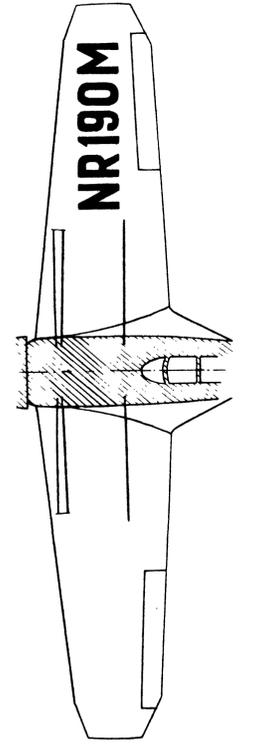
Green lettering

Black wheel disc

Step

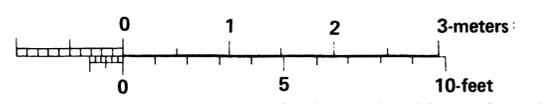


Colorscheme of Jim Mollison's 1936 record plane:
Green fuselage and stabilizer.
Orange wings and flash.
Black text "NR 190M"



Green stabilizer

BELLANCA 28-70
THE IRISH SWOOP - 1935



HI-THRUST

VIKING

by Carl Goldberg



This Goldberg design was pretty much the dominant 1/2A and A Free Flight model starting in the early 1960's. It would be interesting to know how many kits were sold and built ?

The outstanding development in the free-flight models of recent years has been the "high-thrust" type of ship. The great advantage is the ability to get away from the looping tendency of normal pylon models.

Of course, this can be done with a lot of down thrust, too, and some very successful designs have proven this to be a good, practical answer. However, in order to avoid forces fighting one another, causing excess drag, it seems logical that the thrust line should not be at a great angle to the wing. A high thrust line position allow's a small angle.

Surprisingly, the idea of high thrust line is not new at all. It was tried from time to time over the years by many modelers. In fact, early Model Airplane News editor Charles H. Grant showed

this idea more than 25 years ago, and I built a small indoor model to try it out at that time.

Strangely enough, for a long time the merits of this feature, were unable to make a deep impression on modelers generally. Stan Hill's Amazon and Walt Schroder's Jersey Javelin in 1940 were among the first to create interest.

Then, about six or seven years ago, during an FAI spring elimination meet in Chicago, Jack Greene of South Bend, Indiana, flew his high thrust job, and it aroused the interest of Russ Hansen and Gerald Ritz.

They discussed it with Jack, and then proceeded to develop the basic ideas. T-Bird and Hot Head were early results. About the same time, Hal Roth wrote an article in Model Airplane News about his experiments in high thrust line.

Personally, I watched these developments with considerable interest. It was clear that this new-old idea was at last on the right track, and was important enough to be considered a great "new truth."

However, there were several points which didn't seem to me to be working out quite right, and it wasn't until the summer of 1960 that my thoughts finally jelled and I built my first contest high thrust ship.

The design is based on my conventional 1/2A Blazer, but is larger and completely reworked. From the start, I felt the ship would be easy to handle despite high speed performance—and so it proved to be.

Its first flights were made on 1/2A day at the Nats, and on engine runs of about 13 seconds hand-launched it made a 3-flight total of 13:44. The next day in Class A, I tried VTO and got 13:21 for third place. Later, at a contest in Marion, Illinois, the model made seven maxes in a row up to the end of the meet, winning first in A. As a not too active flier, I can only give the ship the credit.

The only difficulty the ship showed was quite persistent—the pullout after engine run was poor. I tried many things but nothing seemed to help much. It always wanted to end the climb pointed up at a severe angle, followed by a long dive.

Sometimes, the remark was heard, "What do you care how far it dives, look how high it still is!" But obviously, it should be corrected.

Meanwhile, a number of other ships were built from the plans, and we had a chance to see what the general characteristics were. In every case, the ship was able to reach full "Hot Hornet" power safely the first day.

Stan Peterson's had the rudder on the bottom, and slightly less dihedral. Chuck Phelan's was about



like mine. Arnie Zimmerman's also had less dihedral and the rudder on top.

To make a long story short, the ships with less dihedral got better pullouts. Rudder on top or bottom made no difference in flight.

We experimented with left thrust, right thrust, incidence, and changing rudder area. The ship was decidedly not sensitive. It gradually became clear that the original dihedral was a bit too much. Also, with a slightly larger rudder, the ship would be able to hold a gentle bank from which it could slide out after the engine quit.

The airfoil used on the wing is my G-9071, a seven percent section with one percent undercamber. This section gives high speed and penetration, and is good on a clean, lightly-loaded ship. However, I doubt that it would be right for FAI, because of the high loading required. If FAI is what you are seeking, the 6409 or G610 section would be the answer.

The glide of the ship was good, but I felt it was just short of the best. The wing area has therefore been increased from 300 to 330 square

inches, and the rest of the ship blown up accordingly.

The structure is quite simple, yet has proven its sturdiness. Any free-flight modeler should have no trouble building it. However, it may be worthwhile to mention a few points.

In building the fuselage, the formers and pylon are cemented to the bottom, then the sides are attached and finally the top. Note that the fuselage, though slim, is not as narrow as some. Too thin a fuse breaks too easily.

The skid at the front underside helps to prevent damage when landing on concrete runways, and the nylon wrapping protects against bumps on rough ground.

The dethermalizer system is simple, practical, and very convenient. Re-setting for the next flight takes only 10 seconds. On release, the solder lug stops the rubber band, holding the tail at about 45 degrees. The D/T timer can be shifted to help get final balance, before cutting out the fuselage side for it. Both timers are held in by tight fit; some like to use thin sponge rubber to reduce vibration effects.

The wing is made in two halves. Leading edge, trailing edge and tip panel ribs are set down first, and the spars inserted. Then the inboard panel ribs are added, followed by the spars.

For the stabilizer, the leading edge, trailing edge and all ribs except S8 are set down. Spars are slid in from the ends, then cut off, and the tip ribs and tips added.

Flight adjustments are simple, but the high speed must be remembered. Take out all warps

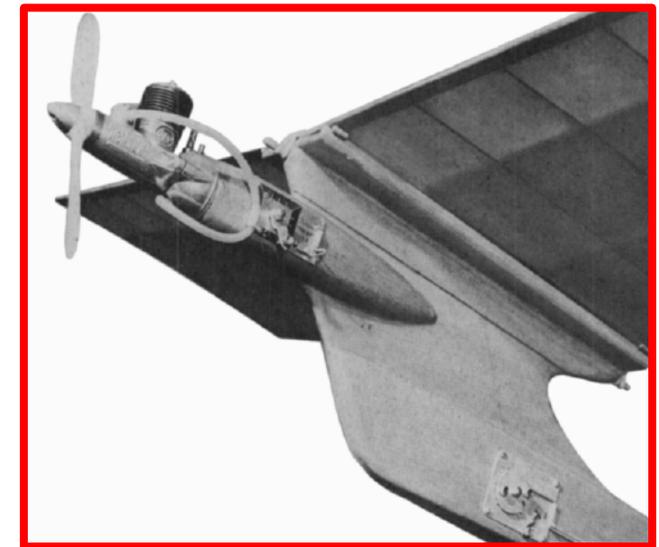
with heat lamp or steam. Location of the center of gravity should be followed—if necessary add weight, as correct C.G. helps far more than the extra weight can hurt. Check thrust line ' for zero-zero, as well as wing and rudder.

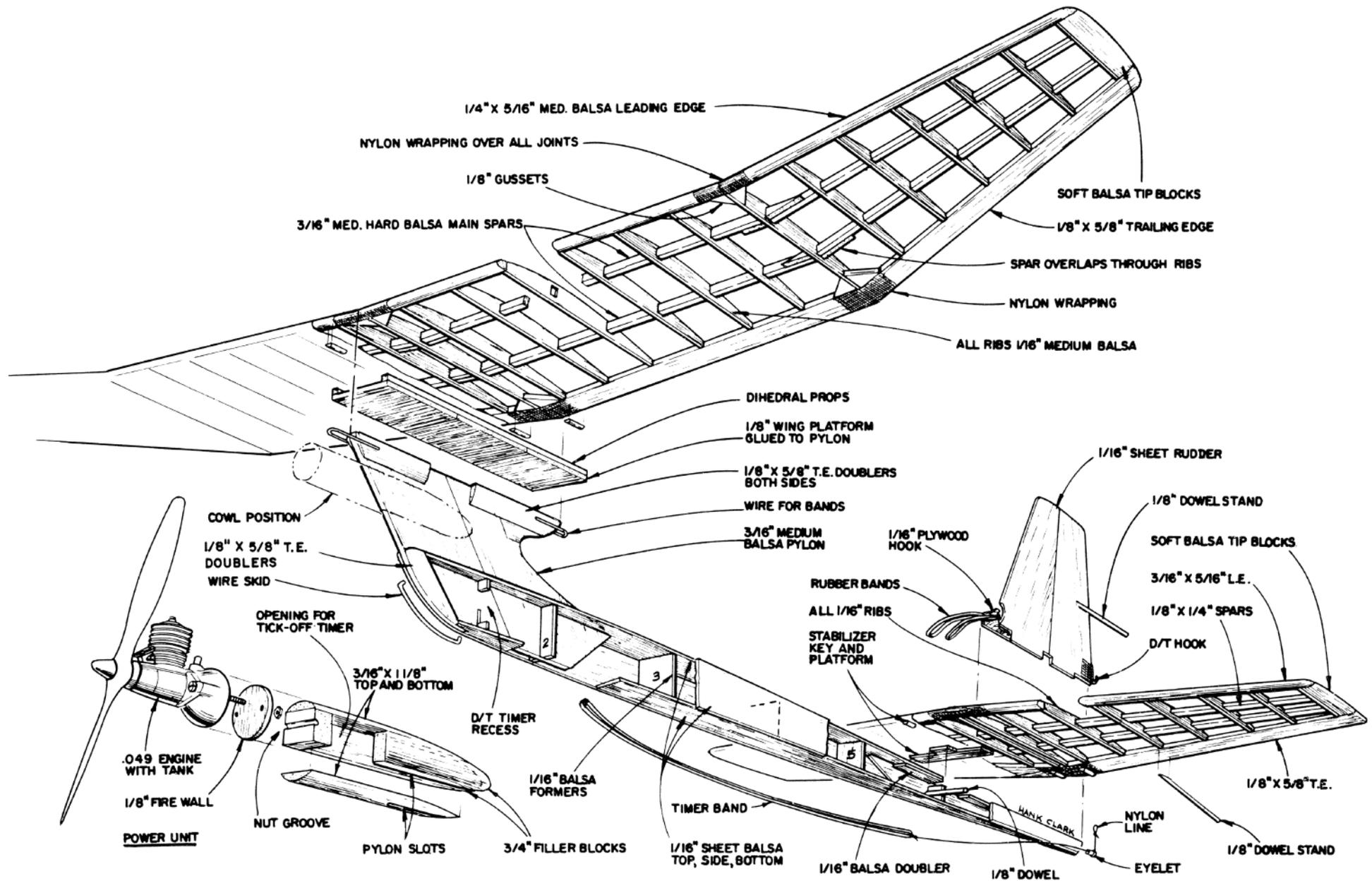
Shim stab up or down until glide is satisfactory. Correct any cause of strong circling, before first power flights. Use medium power and 7 seconds engine run for first attempts. Make any adjustments indicated, and when satisfied begin increasing power. Begin lengthening engine run only when ship handles full power safely on 7 seconds.

Normal hand-launching is no problem, as the ship does not have to be pointed up at very high angles. VTO into the wind or with the wind works well either way.

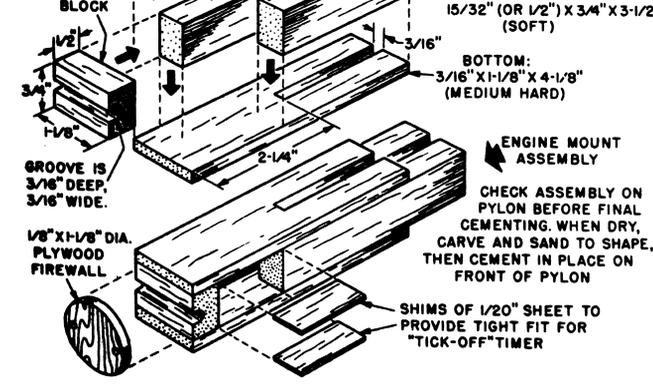
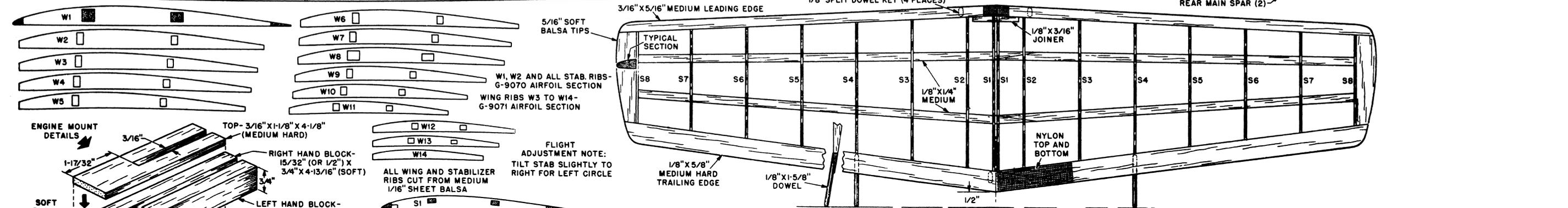
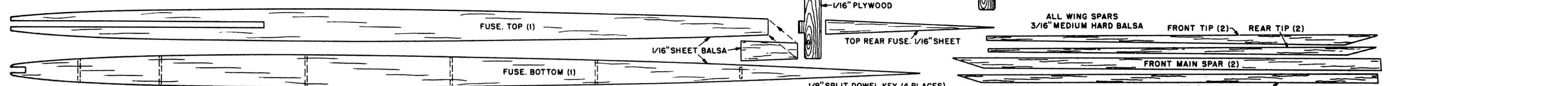
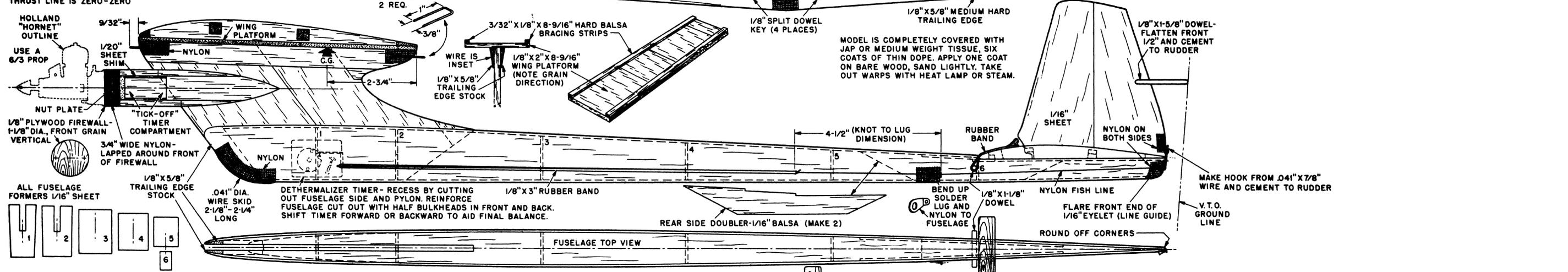
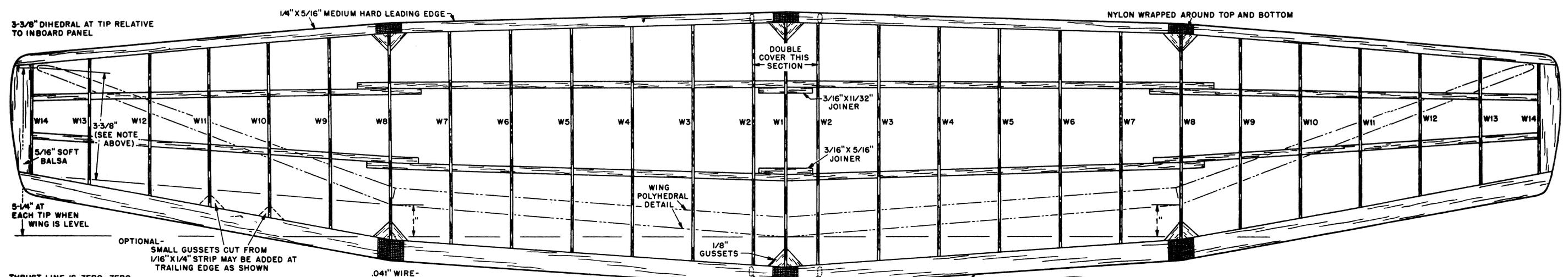
In conclusion, may I say that .it may be nice to have a good ship, but it's pretty hard to beat the modeler who does a lot of practice-flying. Somehow, he manages to get a little good luck.

So—good luck to you!





Here's a good perspective view that will clarify some of the assembly details - Since the design was so popular It is likely that kits can be found on eBay or from some of the "kit cutters" - If any of our readers know of sources For kits please let us know and we'll publish them in a subsequent issue.

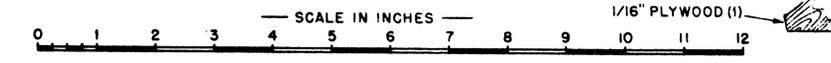


DESIGNED BY - CARL GOLDBERG

DRAWN BY - F.C. McVICKAR AND J.H. HARRIS

TRACED AND INKED BY - PAUL PLEGAN

FINAL WEIGHTS:
 FUSELAGE (INCLUDING TWO TIMERS, ENGINE AND PROP) -- 6.05 OZ.
 FINISHED WING ----- 2.05 "
 TAIL SURFACES ----- .90
 TOTAL --- 9.00 OZ.



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Back Issue
MAGAZINE ARCHIVES
from the Digitek Books Collection

Here's the next in our series of monthly back issues of model airplane magazines available for download to subscribers. This month's selection is the April 1970 issue of **RC Modeler**, also sometime known in our house as "**RC Playboy**" for obvious reasons.

This issue contains several designs including full size plans for a small RC biplane, Ken Willard's Sunday Flier column and quite a bit of electronic info including an article on designing your own circuit boards.

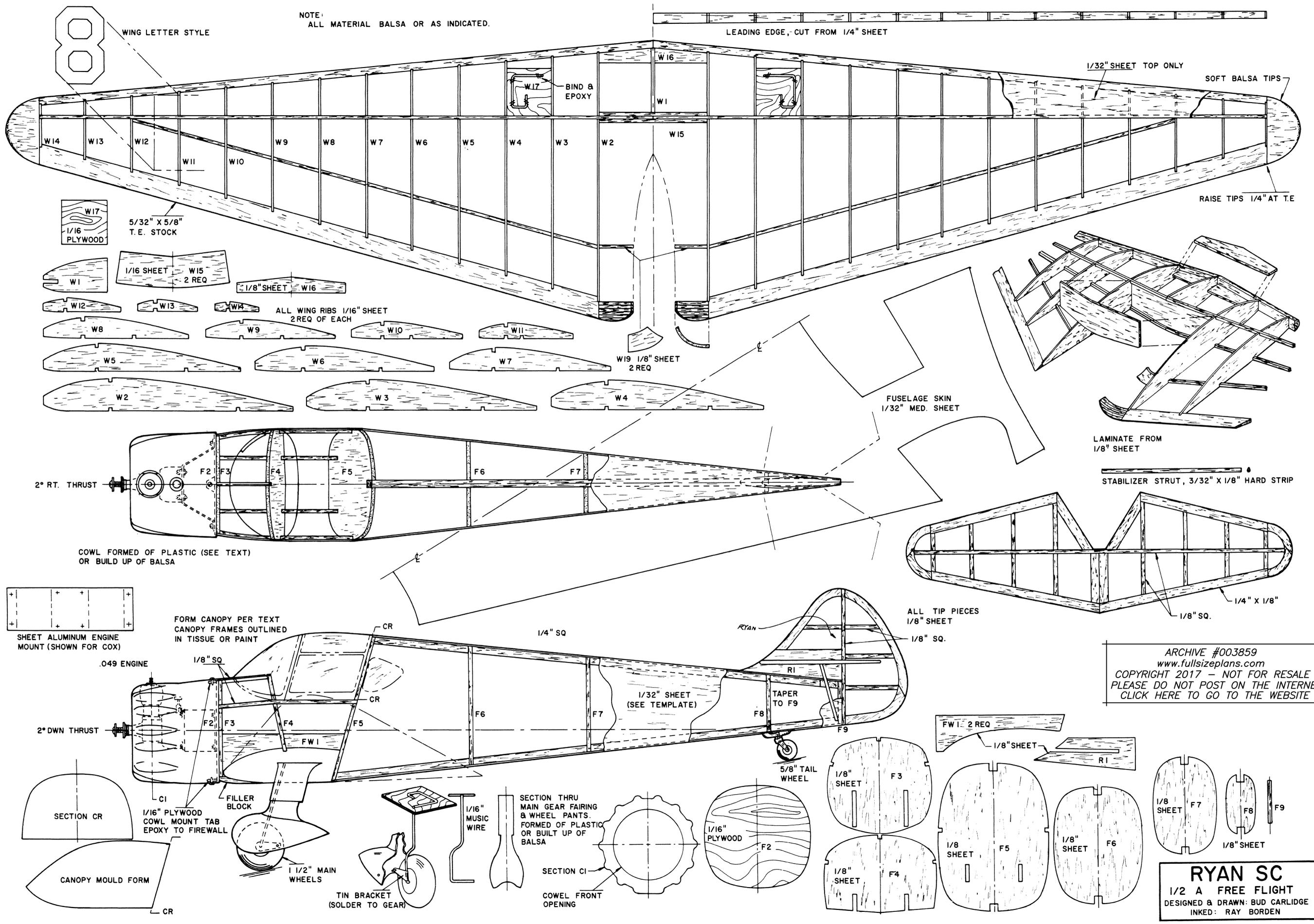
We only have about the first 120 issues of RC Modeler digitized and available as a collection at the moment, but over the next year we will be adding additional collections the newer issues of this series until we have the complete run of the magazines available. Watch for it in the digital collection brochure that is always at the end of each issue of RCMW.

[-- CLICK ON THIS LINK PLEASE --](#)

This download link will be expire on August 1, 2017, 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 buzzwords 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.





NOTE: ALL MATERIAL Balsa OR AS INDICATED.

8
WING LETTER STYLE

LEADING EDGE, CUT FROM 1/4" SHEET

1/32" SHEET TOP ONLY

SOFT Balsa TIPS

RAISE TIPS 1/4" AT T.E.

W17
1/16 PLYWOOD

5/32" X 5/8"
T.E. STOCK

BIND & EPOXY

FUSELAGE SKIN
1/32" MED. SHEET

LAMINATE FROM
1/8" SHEET

STABILIZER STRUT, 3/32" X 1/8" HARD STRIP

COWL FORMED OF PLASTIC (SEE TEXT)
OR BUILD UP OF Balsa

SHEET ALUMINUM ENGINE
MOUNT (SHOWN FOR COX)

FORM CANOPY PER TEXT
CANOPY FRAMES OUTLINED
IN TISSUE OR PAINT

ALL TIP PIECES
1/8" SHEET

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RYAN SC
1/2 A FREE FLIGHT
DESIGNED & DRAWN: BUD CARLIDGE
INKED: RAY BORDEN

Back Issues of 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.

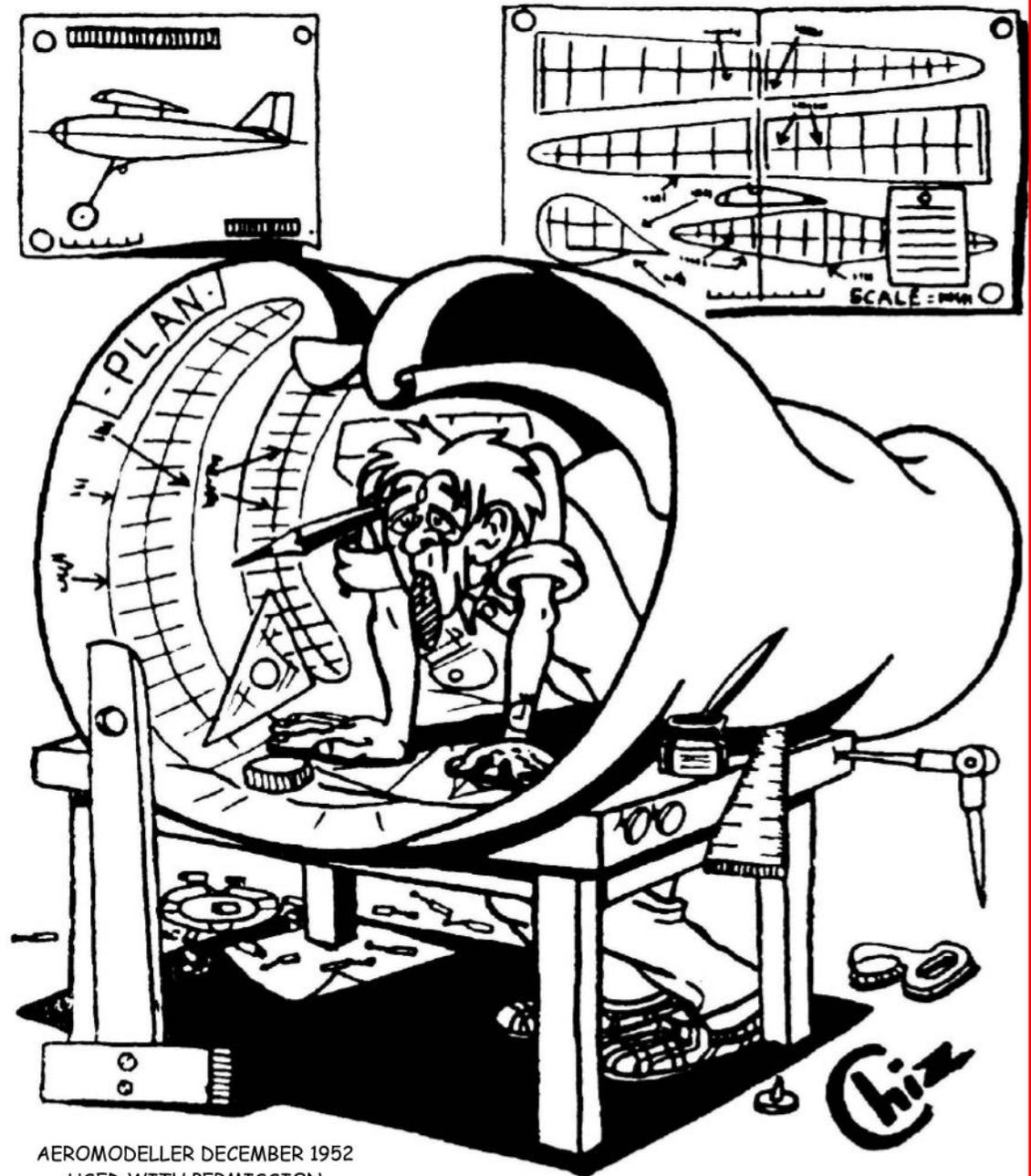
That's NOT the way it was in the past, when you had to build a model before you could fly it. If you're an old-timer, as I am, you have fond memories of Air Trails, Flying Models, Model Airplane News, Aeromodeller and many of the several other magazines available "way back when".

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

Great Gifts for Modelers

Digital Magazines on USB Flash Drive Cards



AEROMODELLER, the premier British model airplane magazine is being digitized. **Ready now are all 240 issues from 1950 and 1960** including the full size plans that were sometimes included in each issue. On the left is a reproduction of the November 1935 cover of Vol 1, No 1. All of the earlier issues will also be available later in 2016

Catalog # D001033 - \$75 - Postage Paid

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

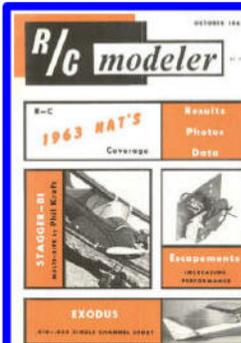
MODEL BUILDER - This magazine ran from the first issue of September~October 1971 through the final issue dated October, 1996 -

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 no longer published. We have the following collection 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



RC MODELER - Now available is the digital collection of the early issues of this magazine. The collection includes all issues from Vol 1, No 1 (October 1963) through December 1972. 109 issues all on a single USB Flash Drive.

D001017 - \$50 - Postage paid

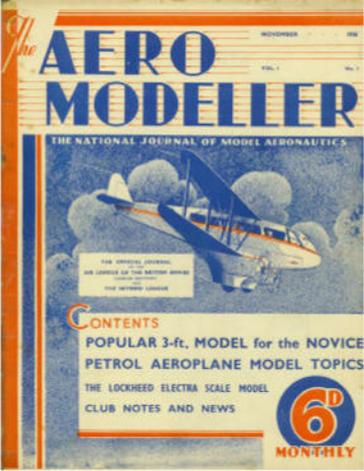
All prices include postage paid worldwide

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The early issues of
AEROMODELLER
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Now, after several months and hundreds of hours of work, we have available high-resolution digital copies of the British Aeromodeller magazine starting with the very first issue dated November 1935, shown above, and through the December 1942 issue. These issues are extremely rare and hard to find. These early issues are from the late Ivor F collection in Australia, with thanks to his son Tahn Stowe.

Furnished on our custom made USB Flash Drives this collection is priced at only \$60 US, postpaid world-wide. PayPal, Money Order or check drawn on a USA bank. Catalog number - D001047 - 85 issues -

Roland Friestad
 1640 N Kellogg Street
 Galesburg, Illinois, 61401
 USA
cardinal.eng@grics.net

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