

FLYING ACES

Club
News

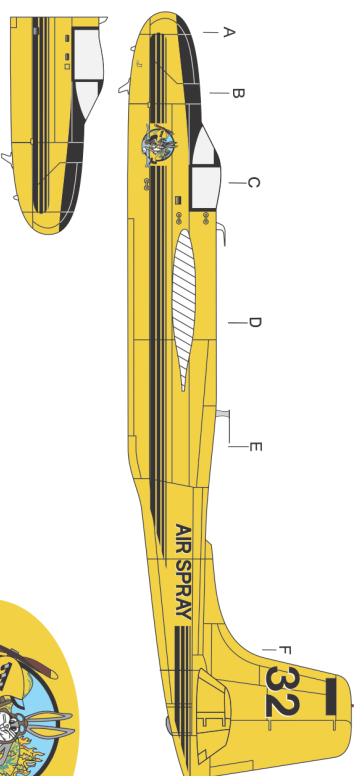
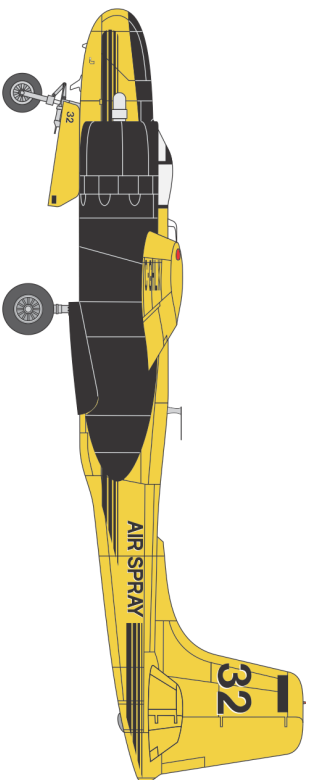
No. 264

Mar/Apr 2012

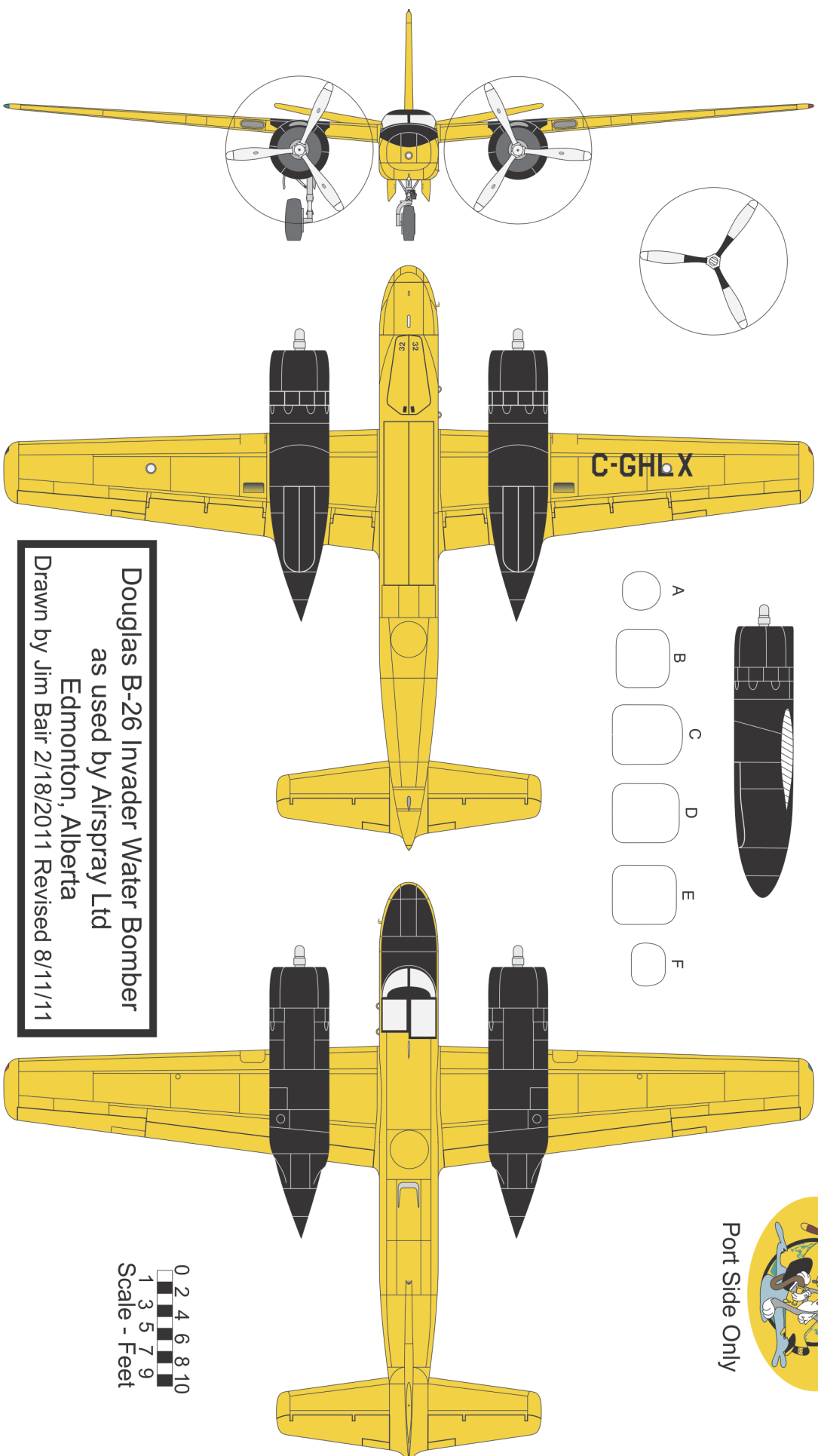
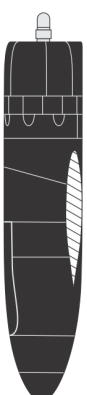
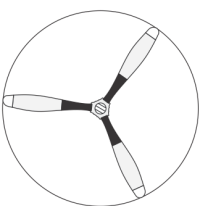


Wally Farrell waits for the signal to wind his Martinsyde Elephant for the WWI mass launch event at the the Gathering of the Turkeys Contest last Fall.

Photo by John Blackie and used with the permission of the Pensacola News Journal.

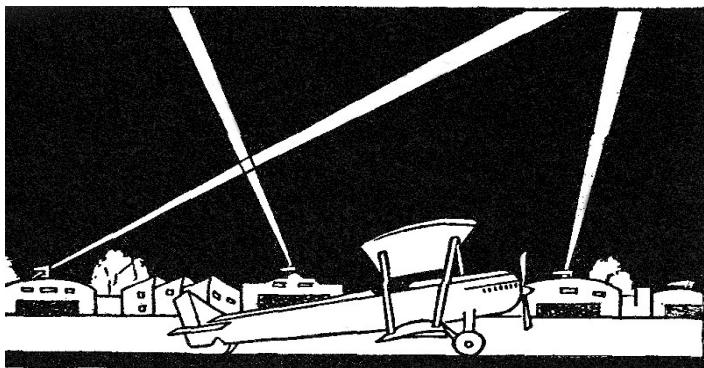


Port Side Only



0 2 4 6 8 10
1 3 5 7 9
Scale - Feet

Douglas B-26 Invader Water Bomber
as used by Airspray Ltd
Edmonton, Alberta
Drawn by Jim Bair 2/18/2011 Revised 8/11/11



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Plans - The Fairey Fulmar was one of Dave Rees' best designs for WWII competition. It's presented full size here with plenty of overlap between the sections. The Auster Mk.III from Derek Buckmaster will need to be enlarged by 145% to get it back to 24" span, but it should work at any size. From the archives we have a Jimmy Allen ROG, and a Guillow's 14" span dimer of a "Waco Biplane" which looks suspiciously like a Model 10.

Membership Information

- Membership brings you six issues of the **Flying Aces Club News**, and all the grins that come with being a Junior Bridman.
- When the **Dreaded Red X** shows up in that circle next to your address label, it is time to renew your membership. Please note: the **DRX** is the only notice you will receive. Memberships will not be back dated so any missed issues of the newsletter will have to be purchased. (For back issues, see below.)
- Your renewal date will be printed on your newsletter mailing label so the **DRX** won't sneak up on you.
- If you would like to use the **PayPal** option to send your dues, go to: **flyingacesclub.com** and click on "membership." The PayPal button is at the bottom of the page. This will set up an automatic payment profile, which will insure that your dues arrive on time every year. If you'd rather handle it yourself, you can cancel the profile and rely on the DRX to remind you.
- You can still send a check through the good old mail service. Use the form below, or a reasonable facsimile. Please make checks payable to: **Flying Aces Club**
- **Canadian and Overseas members**, please use PayPal (preferred) or send checks payable in US dollars.
- **Change of address** or any other questions about your membership should be sent to: **Flying Aces Club, 9154 Eldorado Trail., Strongsville, OH 44136**

or email to - join@flyingacesclub.com

The post office does not forward bulk mail so be sure to handle this promptly or you will miss an issue!

FAC News **BACK ISSUES** in limited numbers are available for \$5.00 each. Send orders for all back issues to:

Blake Mayo, 3447 Adelaide Drive, Erie, PA 16510

Flying Aces Club Membership Form

Name: _____

Address: _____

City: _____

State/Prov: _____ Postal Code: _____ Country: _____

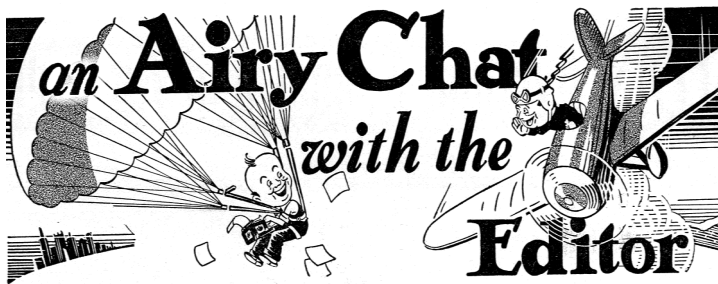
Email: _____ Phone: _____

Annual dues in \$US:

- \$20 USA
- \$28 Canada
- \$40 Overseas

Please make checks payable to:

Flying Aces Club and send to:
9154 Eldorado Trail
Strongsville, OH 44136



Greetings Junior Birdmen,

It isn't often that we get an original plan along with a whole packet of well researched documentation. Jim Bair has put together a great package on a colorful subject. You can see the first installment on our inside front cover. Jim's artwork shows a Douglas B-26 Invader water bomber eat artwork that graces our inside front cover. Jim has completed a model of the B-26 water bomber used by a Canadian outfit. The plan and some photos will be published in these pages in an upcoming issue. He wanted to get some air under the model before turning the design loose on the Free Flight world, but once the flying weather arrives, we should be in for a real treat.

Speaking of plans...the DC Maxecutors and GHQ continue to hammer out details for this year's FAC Nats at Geneseo, NY. We had to hold up sending this issue to the printer while we waited for the final word from SUNY Geneseo on accommodations there. You'll find the registration form in the center fold of this issue. I hope you'll send it in early to help out our hard working volunteers.

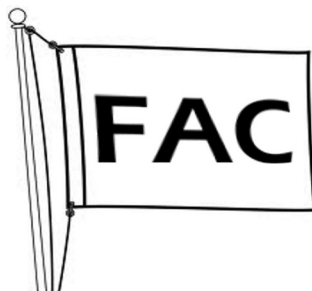
See you on the flying field!

Rich Weber "Wingnut"

Last Call For New FAC Flag Designs

A reminder to all our heraldry fans out there: The club flag design contest is underway. Here are the guidelines: 3' X 5' rectangle, or triangular "pennant." Verbiage must NOT include any reference to a specific "MARK" as that info will be on a smaller, separate banner.

Submit your artwork to GHQ via post or email by May 1, 2012. It need not be 100% perfect, as a professional artist will be used for the final proof. Be creative, have fun, and I'm looking forward to your designs. - The CinC.



News On the Wing

Ross P. Mayo, CinC



I would like to congratulate Paul Stott as the newest member of the FAC Council. Paul's wisdom and experience are valuable assets to our club, and we're glad to have him on the team. Welcome aboard!

I would also like to congratulate Bob Brown as the new President of the AMA. No Clubsters, not the American Medical Association, but the Academy of Model Aeronautics. Bob is a regular at FAC contests within driving distance from his home state of Ohio. Yep, he is a big supporter of the FAC. As most of us belong to the AMA as individuals we should support Bob as much as possible. Watch for his column in MODEL AVIATION. And Bob, if the FAC can help the AMA in any way, please let me know.

The FAC Hall Of Fame nominations are due April 15th along with your Federal tax returns. Ouch, but I bet you won't forget either now, will you? The nominations will appear in the May / June issue (# 265) of the FAC News. Voting deadline will be July first.

Thanks to the investigatory skills and supernatural abilities of FAC Council member George White...the **Grumman F7F Tigercat** is now eligible for WW II Combat. George found a lengthy article written by L. Dan Sheridan, Jr., a F7F pilot who flew secret photographic missions in September of 1945 along the coast of north China and Korea. The article appeared in a 1988 issue of an AMERICAN AVIATION HISTORY SOCIETY magazine.

Dan reported that a squadron of radar equipped F7F's arrived in Okinawa 30 days prior to his photographic squadron. He refers to "a lucky few" of those night-fighters who flew a handful of missions against Japanese night bombers in August of 1945. The night fighters had very powerful radar units in the nose, but were identical in outward appearance and armament to the day-light fighters without the radar unit.

So who will be first to enter an Ironworks F7F in WW II Combat? Best of luck my friends!

Ross CinC, FAC



FAC Book Nook

There's a rumor going around that many FAC members enjoy reading aviation related books. If there's any truth to it, it might be a swell idea to spread the word on the good ones. If you've got an old favorite, or a newly discovered tome that has captured your aviation imagination, why not send along the info so the rest of the clubsters can take a look. You don't have to do a "book report," but a one line summary wouldn't be out of place. No one will be using a red pencil around here!

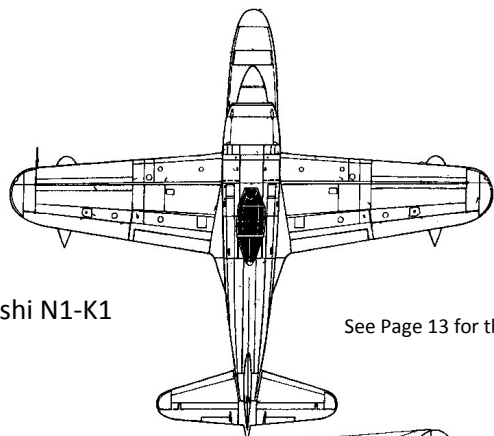
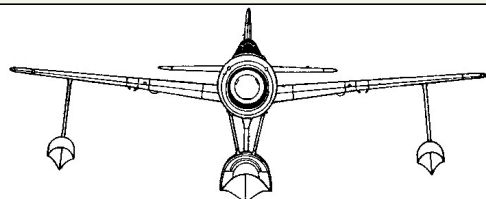
Here's a good one submitted by Tom Hallman:

First Light by Geoffrey Wellum

After reading this fine autobiography, I bought the DVD of the same, a BBC production. I highly recommend getting the book and the DVD. Some of the best flying of a Spit in a movie I've ever seen. Equally as enjoyable as Piece of Cake. Add to that, the film has the current day Wellum talking about his experiences scattered throughout.

Send along your favorite aviation book title to the editor.

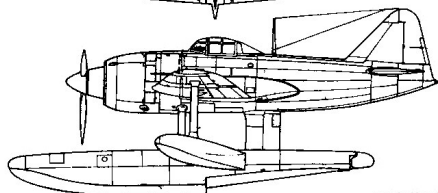
Bonus Point Quiz



Kawanishi N1-K1

Kyofu

See Page 13 for the answer



S.O.S.

- Paul Grabski is looking for a copy of the plans for the **Halton HAC-2 Minus**, a 21 1/2" wing span model. The Minus plans came with Flying Aces Plan Packet No.5. He has that plan packet, but the Minus is MIA. If you can help Paul, contact him at:

312 Forest Hills Dr.
Cantonment, FL 32533

Or email: gollywock01@yahoo.com



- We got this from Al Timko in NJ:

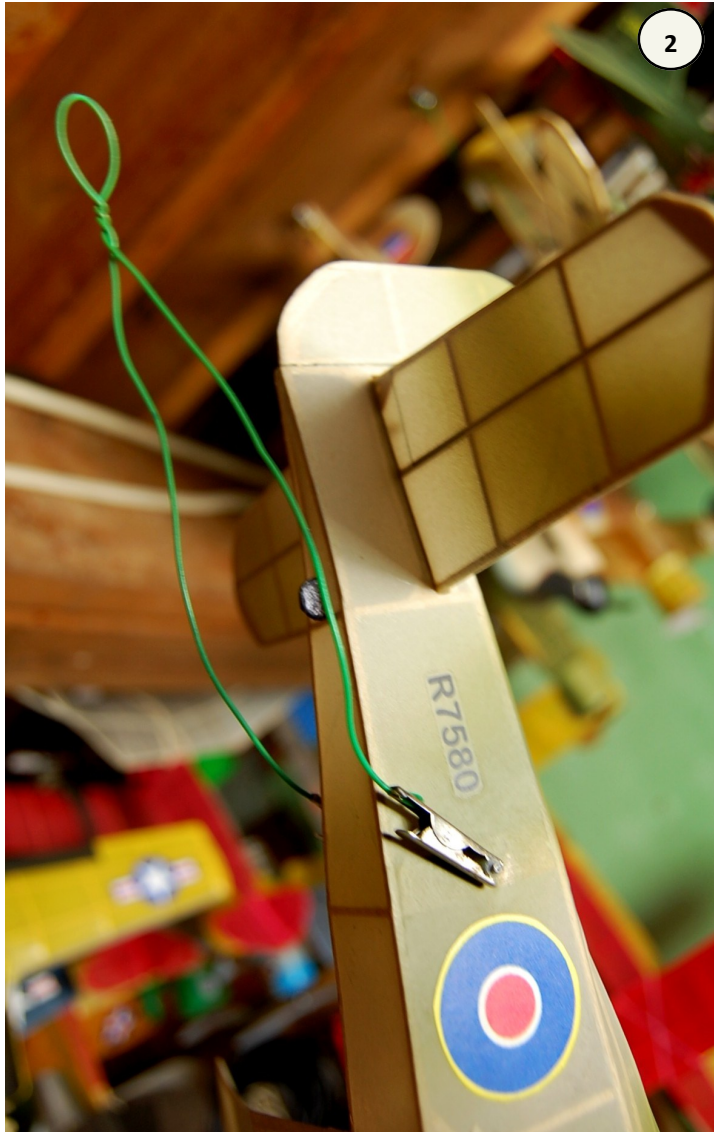
Flying Field in need of fliers! - Our club, which is located in NJ, is the Crossing Free Flight Group, AMA Charter #920 which has its origins in the original Trenton Free Flight Club going back to 1935. The CFFG is insured under the AMA charter. We are totally dedicated to free flight and have 14 members, all of which belong to the AMA, many to SAM, and three of us also FAC members: Bruce Foster, Alan Mkitarian and myself. We fly OT Rubber Cabin and OT Stick, electric, towline glider, P-30, Coupe, and gas freeflight. The CFFG has permission from the NJ Department of Environmental Protection, Division of Parks and Forestry, and the USAF to access our flying site which is in a remote area of the New Jersey Pinelands. The DEP has two Cessna's, a cropduster and a helicopter at the site for monitoring forest fires and flights over the coastline for water quality monitoring. The USAF Delaware Air National Guard uses the site for drop zone practice. The site is an active airfield to which we have access on weekends. We have been using this field since the 1970's, which is deep in the Jersey Pinelands about 10 miles from the coast in Ocean County, New Jersey. The field is a 2 minute maximum field, most of us shoot for 90 second flights. The field is secured and locked down, only our three club officers have keys to access the site. The site is also accessed by the NJ State Police, astronomer groups and an RC club. We are looking to increase our numbers and we who are FAC members would like to start our own FAC squadron within our membership. Contact with our group for interested flyers is with me as follows:

Al Timko
1891 Pennington Road
Trenton, NJ 08618

phone 609-902-5654
e-mail atimko1@comcast.net



The photos show a simple model storage system. Although I have a basement with overhead beams, which makes the technique easier, one could adapt it to an overhead string or line.



For each model, make up a gadget from hookup wire and two small alligator clips (Photo 1). Bend in a loop at the top. Attach the alligator clips to either side of motor peg (Photo 2) and hang from a nail or pushpin in the beam. Models can be stored quite close together, making maximum use of limited space (Photos 3 and 4).



My First Thermal

Chris Starleaf

During the Summer of '89, I lived in Groton, CT; actually "Old Groton" as our rented duplex was right next door to Fort Griswold, the site of a rather bloody revolutionary war battle. Our place also overlooked the Thames River. We could watch the nuclear Submarines coming and going from both EB (the shipyard) and the Sub Base. Very interesting area, drenched in history. Freshly discharged from the US Navy, I was able to get a job with a local Defense contractor in Waterford, CT. I certainly didn't make much money, but I was young, and happily married with two small children.

It was during this time that I rediscovered a hobby I had enjoyed as a kid; Stick & Tissue Scale model airplanes! My entire modeling world consisted of visiting a few Hobby shops and Drug stores; Comet, Guillows, and Sterling production kits were really all that was available. My enthusiasm was also stoked by Earl VanGorder's *Flyin Things for Fledglings* columns in Flying Models magazine, and also Bill Hannan's column in Model Builder magazine, along with classic building articles by Dave Reese and Don Srull. Both these magazines could be found on a grocery store or 7-11 magazine rack back then! Hard to believe today. I was still a couple years away from even knowing that the Flying Aces Club existed. I had gotten a few of the bone stock Guillows and Comet kit models to fly maybe 20 seconds or so.

During the spring of '89 I remember visiting a small hobby shop somewhere in the New London, CT area and seeing an 'Easy Built' kit for the first time (I had never heard of them) and I was really impressed with a 35" span 'Airacobra' kit. I bought the model and started building it that evening. To me, at the time, a 35" span rubber scale model was HUGE, and much more serious than a typical 18" span Comet/Guillows design. The Easy Built model seemed to be much more lightweight and simple in design.

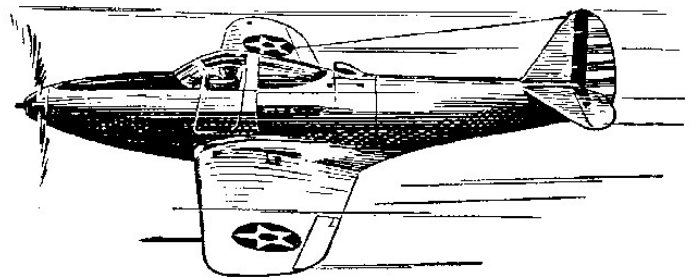
I was able to build and finish the model quit nicely, and for the first time (ever) I actually painted the model and added some detail panel lines. I misted the whole airframe with Pactra spray can silver enamel. Then I added a simple masked camouflage pattern over this with Pactra flat leaf green. I decorated the model with some French roundels (decals from a Guillows WW1 kit) and some other insignia. The finish looked very "military," but was just made up, not actually "scale."

I had some very high hopes for this newly constructed model! I wanted the model to look as cleanly

finished and exotic as the models I read about in the magazine contest reports, however my learning curve was very steep. The first couple of powered flights from the model resulted in smashing off the left wing panel... twice! And my artfully created prop spinner was shattered and destroyed.

I regrouped; repaired the model and tissue good as new, and did some 'research' via magazine articles at the local library (YES, libraries had model airplane magazines back then!) and I learned that people tamed the nasty torque issues on rubber powered model airplanes by shimmying in plenty of RIGHT and DOWN THRUST? I remade and altered the whole nose of my model Airacobra to accommodate my new found knowledge.

This Thrust line adjustment discovery was one of the first 'watershed' breakthroughs I had with freeflight scale models. Within a few weeks I had my Airacobra model flying very nicely, doing stable and pretty 40-50 second flights. The flights were damage free and repeatable! I was hooked.



My flying "field" was a stalled housing development about 3 miles from work on the other side of the freeway (I-95), a five minute country drive during my lunch break. It was a pretty good sized open area that was basically overgrown with weeds, and deserted. A neighborhood had been plotted out and graded, but no homes had been sold or built.

Anyway, I believe this was late July or early August because it was HOT and steamy! I dashed over to the field during my lunch for a quick couple of flights. I often did this when there was little or no wind, and I kept a couple of planes in the trunk of my car.

This particular day I was wearing some pleated dress slacks and a white dress shirt. (I removed my clip-on *power tie* for flying.) I held the rubber peg of my awesome flying 35" "Airacobra" with my socked feet, as I totally packed in a massive 400-500 turns into the dry, un-

lubed 'SIG' rubber with a Peck 6:1 ratio brown plastic winder.

I was STUNNED to watch the model climb straight up to an insane altitude! I could not understand how the model continued to climb and fly after the turns in the rubber motor were clearly spent. All I could do was gawk and chase after the model. I remember clambering over a couple of wire fences/property lines and crashing through some rough brush in my business attire, yet the model still left me behind.

The mixture of emotions that comes over you in times like this become etched in your brain: This was MY model... My *property*... My *BABY*... My *artwork*... 500 feet up in the summer sky! Drifting toward a busy, crowded Freeway!?

It was a sense of incredible joy that for the first time I watched a model that I had built and trimmed, actually FLY for several minutes! Just like I had read about in the magazines, countless times! But now I was at the edge of also having my prized model/baby/artwork brutally removed from my possession!

Finally, when I had reached a rocky barrier that prevented me from proceeding any further, I could see that the model was beginning to come down. She was clear ACROSS the busy I-95 freeway, but skimming the tops of a jagged distant tree line. I watched the model disappear from view and I did my best to mentally 'mark' the last location.

All I could do was walk back to my car and clean myself up as best I could. I was sweaty and dirty, heart pounding, crawling with ticks. My elation was replaced with the cruel reality that my prospects for retrieving my (now cherished) model airplane were plainly Dim. And I NEEDED to get myself back to work ASAP!



Later that evening, with the help of my wife and two small tow headed children, I was able to hunt for and retrieve my model from a low hanging branch of a tree, undamaged. It actually turned out to be fairly easy to locate. The model was flown several more times that summer, but she returned back to her usual 45-55 second flight pattern and was not to ever max out again. She was eventually destroyed during a move.

It wouldn't be until a couple of years later at a whole different part of the country, with a different job and a different model airplane, that I would finally experience my next Thermal. -----



Worthwhile Website

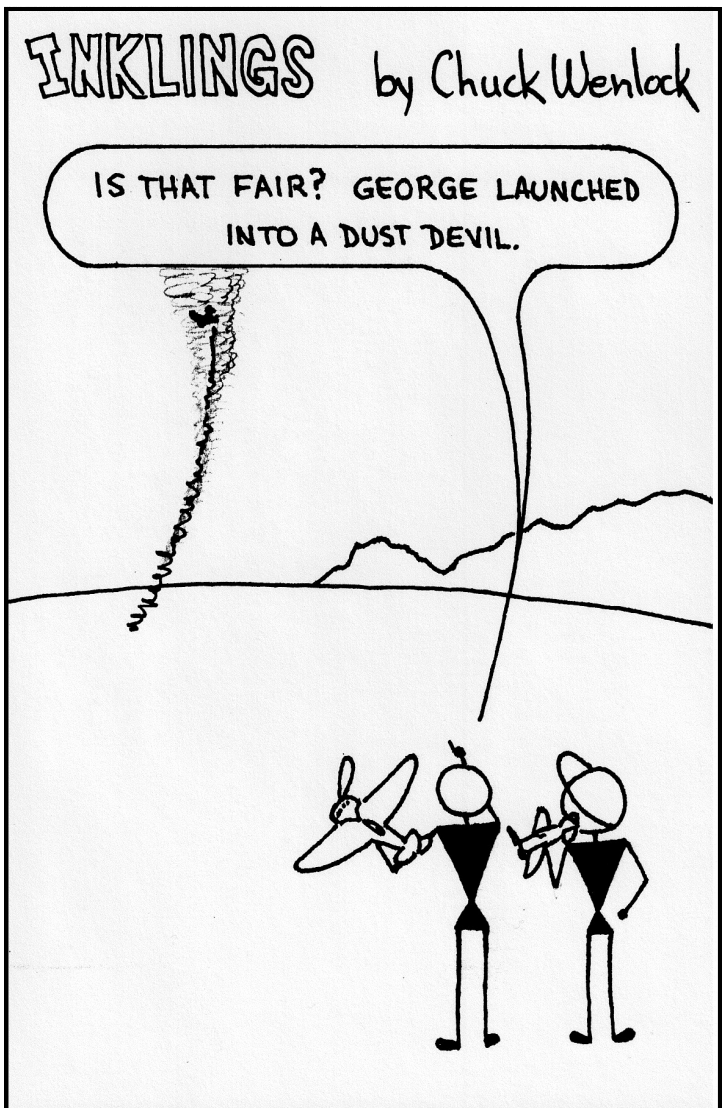
If you haven't visited the website of the Pensacola Free Flight Team, you're missing one of THE great modeling resources. George White has put together an amazing collection of how-to articles that cover every facet of the craft. Whether your interest is flying endurance ships or scale modeling, you'll find a lot of very useful info. There's even an index! Keep this one bookmarked, and refer to it often.

<http://www.pensacolafreeflight.org>



INKLINGS by Chuck Wenlock

IS THAT FAIR? GEORGE LAUNCHED INTO A DUST DEVIL.



National Air and Space Museum Launches "How Things Fly" Online Exhibition

What makes an airplane fly? How does a spacecraft stay in orbit? Why does a balloon float in the air? These and many other questions are answered in the *How Things Fly* website, (<http://howthingsfly.si.edu/>) a companion to the physical exhibition at the Smithsonian National Air and Space Museum in Washington, DC. In this interactive online exhibition, visitors can explore the flight environment, aerodynamics, propulsion, structures and materials, flight dynamics and see the forces of flight in action

"The *How Things Fly* website is based on the Museum's most popular hands-on exhibition," said gallery manager Michael Hulslander. "By integrating animations, videos, games and social media we hope users will learn complex aerospace concepts in a way that is fun and engaging."

The website is the Museum's first interactive offering specifically geared toward students. Some of the key features are:

- Interactive animations that engage students in exploring the forces of flight
- Short educational videos explaining complex ideas of flight such as Bernoulli's principle, how propellers work and supersonic flight
- Downloadable hands-on activities that can be used in the classroom or at home
- Fun facts and quiz questions

The website also includes immersive educational and social activities that allow users to interact with their friends via email, Facebook or Twitter:

- Forces of Flight—build an airplane and learn about the four forces of flight
- How Wings Work—examine the evidence and identify the largest lift to drag ratio on different airfoil shapes
- Controlled Flight—explore the control surfaces of three different types of airplanes and pilot them through obstacle courses
- Create a Paper Airplane—design a paper airplane that users can print, fly and share with friends online
- Join the Distance Challenge—fly a virtual paper airplane to friends around the world and with their help, see how far it can fly
- Ask an Explainer—get all your flight-related questions answered by one of the Museum's high school and college-age educators

Half Price! New Member* Offer

Two-year memberships \$58 now \$29

*new members (U.S.), or members who've lapsed for 12 months or more.
International dues: \$37.50; Youth dues (18 and under): \$9. Expires 1/1/13.

National Free Flight Society

Preserving, enhancing and promoting the art, sport and science of Free Flight Model Aviation in all its forms.

Membership includes access to the NFFS Plans Catalog of over 800 plans, scholarship and volunteer opportunities, rulebooks, committee support, and 6 issues/year of *Free Flight Digest*, the world's most respected journal of its type. Each 40+ page bimonthly issue includes in-depth content on building and flying all types of Free Flight models: indoor and outdoor rubber, electric, glow, glider, duration, scale, Old Timer and more!

☐ **Yes!** I love Free Flight and I've not been a NFFS member during the past twelve months. Please sign me up at this special 2-year price of \$29 (International: \$37.50; Youth: \$9).

Name _____ D.O.B. ____/____/____

Address _____ AMA# _____

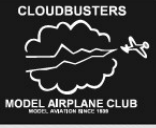
City _____ State _____ Zip _____

Country _____ Email _____


Card# _____ - _____ - _____ Visa / M.C. Exp. Date ____/____/____

Make checks payable in U.S. dollars to NFFS and mail to: NFFS Membership Office, 118 Gentry Circle, Lafayette, LA 70508. Email: <carl.bakay@yahoo.com>.

Secure Online payments at <www.freeflight.org>



The Cloudbusters & The Balsa-Bugs
In conjunction with
The Michigan Indoor Aircraft Association
Present
The 2012



Indoor Fling

An AMA Sanctioned Class AAA Contest
AMA Category III Ceiling

Contest Director
Dan Olah 248-542-8144
danielolah@wowway.com

Event Managers
FAC- Mike Welshans 248-545-7601
mbwelshans@aol.com
AMA - Paul Crowley 586-294-1236
usa2298@comcast.net

Sunday, May 6, 2012
Ultimate Soccer Arena
867 South Blvd E, (20 Mile Rd) Pontiac MI

Flying
9:00AM- 5:00PM*
Flying Floor split in half.
South End for FAC - North End for AMA*

AMA EVENTS

Standard Cat Glider*	218
Unlimited Cat Glider*	219
Hand Launched Glider*	212
Manhattan Cabin	205
Limited Penny Plane	208
Penny Plane	207
Bostonian	215
F1L Easy B	217
Mini Stick + MS ML	220
Inter Stick	202
F1D (no rounds)	203

* Glider flown only 9:00 AM - 10:30 AM at the same end as scale

PHANTOM FLASH FOR BEGINNERS
Phantom Flash kits Available at

Prop Shop Hobbies, Inc. - "Your Complete Model Shop"
23736 Van Dyke Ave. Warren, MI 48089
586-757-7168 propshophobbies.com

Carlton Hobbies - "We make hobbies affordable."
8194 Cooley Lake Road
White Lake, MI 48386
248-360-4910 carltonhobbies.com

Flight Line Hobbies
1192 S Lapper Rd. Lake Orion, MI 48360
248-514-5359 www.flightlinehobbies.com

or direct from the manufacturer
Retro RC - Vintage & Retro Model Airplane Kits
PO Box 197 Keweenaw Harbor, MI 48320
248-212-9666 - retro-rc.com

FAC EVENTS

- 1 FAC Peanut Scale
- 2 FAC Scale
- 7 FAC Golden Age
- 16 FAC Dime Scale
- 17 FAC No Cal
- 18 FAC Phantom Flash
- 19 FAC Embryo
- 20 FAC Jet Cat Glider
- 25 FAC WW-I ML
- 26 FAC WW-II ML
- 29 FAC 1/2 Size Wakefield

All FAC Events flown to 2012 FAC Rules



A wonderful site with a 72' center ceiling and 40' at the walls.
The Arena is on South Blvd. E. (20 Mile Rd.) just west of Opdyke Rd. on the northwest corner.
Food Services on Site.
Floor area is equal to a full size soccer field plus!
No need for tight circles here, widen them up and enjoy the whole field!

WESTFAC... Hello from the Folks out West

Roger Willis

With the help and guidance of GHQ, we have formed a new FLYING ACES Squadron in Arizona. FLYING ACES Squadron 72 will be called the **ARIZONA CONDOR SQUADRON**; So named by all of the new Squadron members. The story of this new group of great guys follows and we hope it encourages other FLYING ACES builders and flyers to implement the same strategy. It works!! Here's the background of how this occurred.



Tim Kimsey with his new Flying Aces Moth

It began by a very insightful comment by Vic Nippert. In an article in NFFS Digest. He discussed why free flight needed to use some “new thinking” about how to grow both in membership and in fun. I read that article several times and recognized the great sense in what Vic was proposing. In a nutshell...try some new thinking about membership and growth or we will simply slip off the age curve and disappear.



Another new Moth, this one by Chuck Michalovk.

In thinking about this opportunity, it seemed that one of the new ideas might be to re-think the demographics of where new potential builders and flyers might reside in fairly large numbers.

When Blanca and I sold our home and moved to Arizona, we built a new home in one of the many “Active Adult Communities” here. Here was a large group of folks that included many who had built model airplanes in the past. Here was a place that provided facilities to meet and build together. Here was a place that had a centralized message and announcement system to get the word out very quickly. Hummmm.... However, we had no flying site. The closest FAC Squadron was over 80 miles away. The local Free flight club in the Phoenix area was a great club, but their flying sight was even further away and they were focused on AMA and FAI events. Great club, too far, no FAC focus.



Tim Kimsey and John Eppich at the CG test session.

We were new to the community, but there seemed to be a responsive City Council and a community active Mayor, so we made an appointment at Town Hall and met with the Mayor to ask for a new free flight flying site. Lot's of folks thought we were wasting our time, but the Mayor almost immediately said he would help. Two days

later, we received a call from one of the large local farmers who invited us to come out and talk. We packed a FLYING ACES MOTH and a French Caudron Fighter into the car along with some picture of mass launches at Geneseo and drove out to his farm which turned out to be 10 minutes from our clubhouse in the community.

The farmer turned out to be a pilot with his own plane, landing strip and hanger. This Mayor had a plan too. The farmer asked what we needed. We asked for over 300 acres of his alfalfa..... and he said “ its all yours”. Wow, we had a new free flight field that you could trim new models in without damage...a dream come true.

We sent out a message email to the entire active adult community announcing a new Model Airplane Building and Flying Class. We received many responses and set up a craft room to conduct the class once a week for 4 hours. The rest is history. The guys in the class all built the FLYING ACES MOTH, a perfect model for learning all the basic building and trimming skills. Everyone who joined the class finished. No drop outs! Using the new field, we have formed a new FAC Squadron, the ARIZONA CONDOR SQUADRON and are in the process of getting our members FAC memberships and AMA memberships.

The pictures in this article show some of the members of the new squadron and their work to build and fly their first model airplane. They are now working on their 2nd model. Most have decided to build a JIMMIE ALLEN and some have begun their first rubber powered scale model.

Vic was right. When you venture to try something new, you can grow our wonderful hobby. We hope some of you will try. It's a lot of FUN...!! -



Efrain Arroyo with his first model airplane.



Nick Tucci watches his Moth climb away on a trimming flight as Roger Willis looks on.



The new CONDOR Squadron in front of the Clubhouse where the building classes were held. Standing L to R: Nick Tucci, Tim Kimsey, Bob Martinez, Efrain Arroyo, and Dave Sparks. Front Row Kneeling L to R: John Eppich and Chuck Michalovk. All photos by the author

The Reverse “S” Hook

Step by Step - by Chris A. Boehm

The Reverse “S” (RS) hook prop shaft is designed to keep the rubber motor of a plane centered on the prop shaft. By centering the motor, the RS keeps the motor from “walking” around the prop hook and at minimum inducing a lot of wobble to the motor, and at worst, walking off the hook entirely. Some guys have suggested that it is a black art to bending a RS hook. It is not. Follow these procedures and practice, it is fairly easy, and well worth the time to learn.



For learning, it is best to use 1/32” music wire. It is easy enough to bend, yet stiff enough to get it correct. Do not use really soft wire such as a paper clip or copper wire, it is too easy to get it bent into the incorrect shapes and not be able to see what went wrong. It is also best to use a really good pair (read as stiff, and not too long of nose) of needle nose pliers.



Step 1. Start with a wire that is much longer than what is needed for the prop shaft. It can be cut down to size later. Grip the wire with the tip of the pliers about 1 inch from one end of the wire.



Step 2. Bend both ends of the wire around the tip of the pliers. If your fingers are not strong enough, press the wire up against a block of wood, or use another pair



of pliers. After removing the pliers, the wire will look like a RS, with very long ends. Use the pliers to close up the curve of the RS. Both the top and bottom of the RS should be about equal, with equal curves. However, the curves do not have to be exact, just close. Look at them again. Maybe a little tighter on the RS. Finish Step 2 by turning the RS flat and squeezing it flatter. All of the wire of the RS should be in a single plane at this point. Look at it flat on. If it is not straight, straighten it now.

This is probably a good time to point out that all directions here, such as away from, right, left, up, or down are all from the pilot’s point of view.

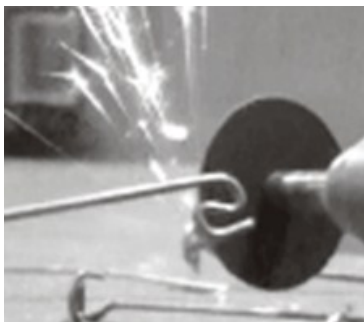
This is where most of the mistakes are made while making RS hooks. Pay attention! Look at the wire. A backwards “S” should be visible, not an “S”. (That is, so long as a right-handed prop is going to be used.)

This Not This
2 S

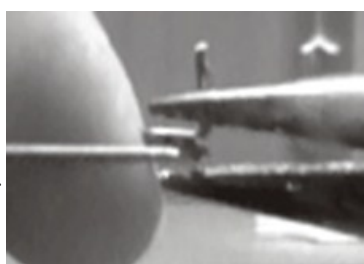
Step 3. Grab the RS again with the pliers, bend the one inch side away from you. Bend it a little more than 90 degrees to the flat plane of the “S”. Try to keep the “S” full, only bend the end down. After this bend, the wire can be rotated to where the one inch side is pointed down, as pictured here. This one inch side can now be cut down or off. The length does not really matter too much. Some people get rid of it completely. However a good rule of thumb is to cut it to the same length that the “S” is tall. Cutting it off can be done with a pair of side cutters, the cutters on the pliers or best, a rotary tool with a cutoff wheel. In any



case the end should be polished and all burrs removed. This is where the rubber motor, or “O” ring will be slipped onto the prop shaft. A sharp edge on this part of the wire can be disastrous to the motor or “O” ring. If a Crockett hook or “T” hook is used between the rubber motor and the prop shaft it is not so important to deburr the end, but it is still a good practice. Stay tuned to future newsletters for details about Crockett hooks and “T” hooks.



Step 4. Grip the RS with the pliers again, this time, bend the long end of the wire in the same direction as the short end. That is, if looking at the RS, bend it forward. In this picture it is up. This bend is going to be more than 90 degrees. It needs to be bent where it will cross a line drawn from the center of the RS forward. It should meet that line about one “S” height forward.



This picture shows that a little more clearly. Notice that the long side almost touches the short side.

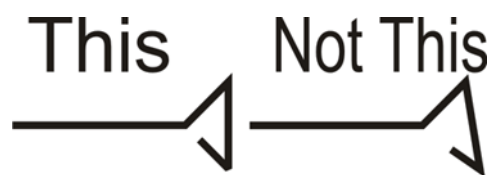


Step 5. The last bend takes place at the point where the long end crosses the line forward from the center of the RS. Grip the long end at the point where it crosses the center line from the RS and bend it to that line. The long end of the wire should now be perpendicular to the RS and should be pointing directly at the center of the RS.

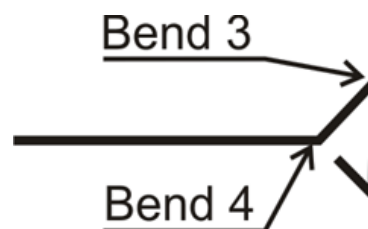


Chances are, it will not be perfectly lined up. The goal is to have the RS perpendicular to the long part of the shaft and centered on the shaft. Two tests will confirm this.

First Test. Hold the shaft pointing left to right and spin it. It will be very easy to see if the RS is perpendicular to the shaft. If not, bend it a little until it is.



Second Test. Point the shaft forward, look through the RS to the shaft. Spin the shaft. A dark spot will develop in the center of the RS. If the dark spot seems to rotate around the center, it is not lined up with the shaft. This usually takes a little tweaking at bends 3 and 4. After this second test, repeat the first test.



For a cool video of this go to YouTube.com and do a search for merlin2360, look for the Reverse “S” Hook video.

Happy Wire Bending!

From the Cloudbuster’s Newsletter Mar/April 2012.

BP Quiz Answer

We picked this one because it was a classic borderline case. Using the front profile of the fuselage, which includes the canopy, the Kyofu *just* makes it into low wing territory. (The new guide in the rule book shows the way to visualize this. You might get a different result using a different drawing. We used the one on page five.) That gives it 10 points for low wing, and another ten for being a float plane for a total of 20 BPs.

We’re looking for more ideas for the BP Quiz. Send along your puzzler to the editor!

GRANT ON DOWN THRUST

Free Flight Wisdom from Charles Hampson Grant - Part IV

Compiled by George White

The following is a discussion by Charles Hampson Grant in his 1941 book "Model Airplane Design and Theory of Flight." This is an exact copy of his discussion.

At almost any contest, when a model does not perform properly, "down thrust" is freely advised. If the model does not climb, "down thrust" is recommended; if it stalls - "Use down thrust."

This seeming cureall requires definition, and the nearest that be established is as follows: "down thrust" is the negative angle between thrust line and an arbitrary base or reference line established when building the airplane. It appears quite simple, but the measure of down thrust according to this definition depends entirely upon the position of the base line relative to other aerodynamic factors of the airplane. Builders, therefore, are actually determining the degree thrust relative to a line whose position is not definite

This contention may raise objection that this line has been drawn in a definite position after calculating the other factors (as angle of incidence and tail angle) in relation to this thrust line; but the objector will have failed to see that the position of such a line is purely arbitrary. In one model it may run from the top of the fuselage nose to the lower rear corner; or, it may start at the lower front and run to the upper rear corner.

This base line is an elusive aerodynamic factor and is hardly the proper basis for designing a mechanically accurate model. It is the result of specious thinking, visualizing models as concrete structures of balsa wood, paper, wire, etc., instead of considering them as combinations of dynamic forces — the only way a designer should visualize a plane to understand what takes place during flight.

Down thrust should be determined and measured relative to the aerodynamic force setup, or to a structural factor which is related to the force arrangement, and not as a function of the top longeron or any other irrelevant structural unit.

To illustrate: in Fig. 96 a base line is drawn from nose to tail of the fuselage. The wing is set at 2° angle of incidence to this base line; stabilizer is set at zero, or parallel to the base line. To prevent the ship from stalling the builder usually decides to give it 4° down thrust; so he draws in the thrust line 4° negative to the base line as shown in the figure. Feeling he has followed all the rules of design, he then proceeds to determine plane speed, and the blade area, pitch or other propeller characteristics on a basis of 2° wing angle of incidence.

This designer could not have made a greater mistake. For suppose the base line is changed to the position shown in Fig. 97, all other features of the plane remaining in their same relative positions. This second base line is 2° more negative than in Fig. 96. Now we have the same airplane with a 4° wing angle of attack, and a stabilizer set at 2° positive. The negative thrust is 2° .

Which setup is right? Which should form the basis for calculating level flight speed and propeller characteristics?

Both models will perform alike, for none of their characteristics has been altered to affect aerodynamic force setup; but the down thrust in each model is different. It is apparent, therefore, that down thrust, when established relative to an arbitrary base line, cannot be a measure of aerodynamic effect.

The inference should not be taken that there is no such thing as downthrust; but the contention is that it is a misnomer. To give further credence to this, turn the plane clockwise about c.g. so the thrust line is horizontal, Fig. 98. The plane is the same in all respects in as the one in Figs. 96 and 97. The true aspect of the situation now begins to appear, and with a little thought one must come to the unavoidable conclusion that the flight path is parallel to the thrust line when the plane flies at minimum level flight speed. In this position there is no down thrust relative to line of flight. This proves that actually in relation to aerodynamic factors there is no such thing as down thrust; and to calculate it relative to some arbitrary con-

struction line is misleading and complicates a simple problem.

Examine the aerodynamic setup in Fig. 98. Thrust line being zero, the wing angle of incidence is $+6^\circ$; stabilizer angle $+4^\circ$. With this system, characteristics of the essential factors of the plane can be determined by merely considering three of these factors. It is not necessary to create a fourth — the arbitrary base line.

The fuselage is not horizontal; but this is unimportant because; it only affects flight through parasite resistance. On the basis of down thrust, as taken in the first example, some visualize the fuselage as passing through the air in a horizontal position. This is incorrect, for, as shown in Fig. 98 the fuselage at minimum speed in level flight travels "tail low." So, although the design is based on a misconception, aerodynamic forces are in the correct relative position and practical results are those desired — even though acquired indirectly.

Every model should be designed to give lowest resistance during climb; apply, then, the system just explained, assuming that thrust line is horizontal and that there is no down thrust. Then assign the proper wing angle of incidence and stabilizer angle; the value of each is an accurate measure of the effect each will have upon performance. An excellent setup for efficient climb is 5° wing angle of incidence measured from thrust line, and a stabilizer angle of $+2\frac{1}{2}^\circ$. This arrangement allows climb at the assumed angle of incidence, the angle with greatest lift-drag ratio. Lift-drag ratio is the measure of flight efficiency; the greater it is, the higher the climb.

In this setup there is the added advantage of a positive stabilizer and it actually carries part of the load, supplementing wing lift. So, instead of calling this arrangement "down thrust," a more correct name would be "positive stabilizer."

Still another benefit derived is its effect when gliding. Normally, with horizontal stabilizer parallel to the thrust line, the c.g. should be located $\frac{1}{3}$ of the chord back of the leading edge for proper flight balance. When the stabilizer is given a positive angle relative to thrust line it generates lift; but to prevent nose-over and to insure correct flight poise, the c.g. must be shifted farther back. With 1° stabilizer angle of incidence, the c.g. must be 50% to 55% of the chord length to the rear. Often the

c.g. is at the trailing edge, where the stabilizer angle should be $2\frac{1}{2}^\circ$ to 3° positive, relative to thrust line. This of course is based on the assumption that wing angle of incidence is 1° or 2° greater than the stabilizer angle. The total weight, acting at c.g., is carried in part by the wing and stabilizer.

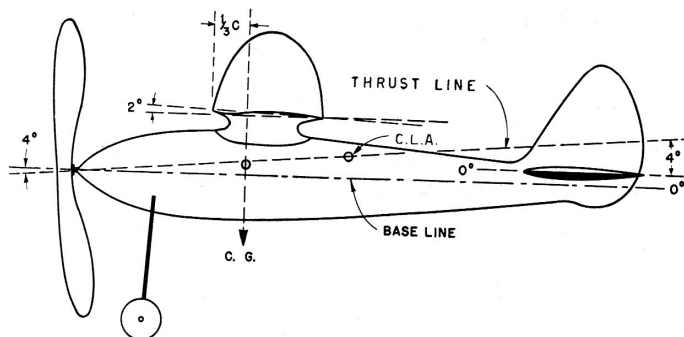


FIG. 96

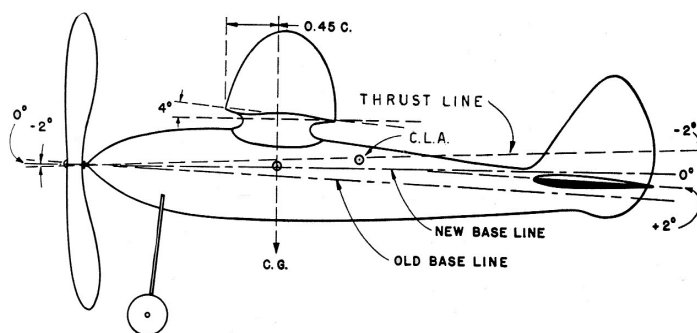


FIG. 97

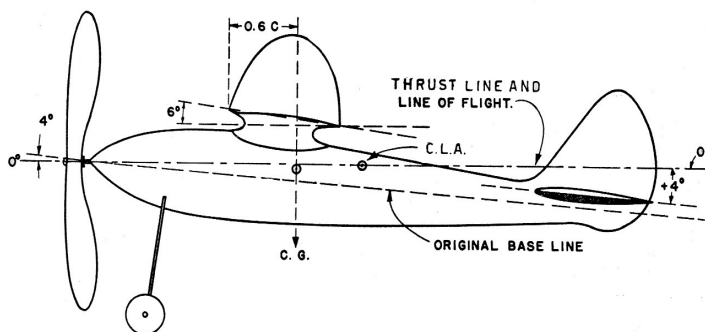


FIG. 98

Whereas the stabilizer acts at a positive angle under power, it is at zero angle without lift when gliding; c.g. being back of the wing c.l. After visualizing or drawing a sketch of this, one cannot fail to see that the ship will have a tendency to nose up due to the pull of c.g. to the rear of c.l.; this prevents dive-in and fast glide. It creates floating tendency that enables the plane to take advantage of the slightest thermal.

The numerous advantages of positive stabilizer may be more fully realized from the following: in Fig. 97, by dipping the thrust line — or in Fig. 98 lowering the rear of the fuselage so thrust line is horizontal — the thrust line is above c.g. If thrust line were coincident with base line it would be below c.g. Fig. 96 shows the center of lateral area, c.l.a., considerably above c.g. — a bad condition when thrust line is not negative to base line because it causes spiral diving under speed in horizontal flight. In Fig. 98, by placing the thrust line in position shown (misnamed "negative thrust") the c.l.a. will be on a horizontal line with c.g.

Here stability is assured by down thrust. Briefly, if thrust line is above c.g. there is less tendency to stall. With a c.l.a. on a horizontal line with c.g., or slightly above it, spiral stability results. It is evident, therefore, that if a model has these unfavorable characteristics they may be corrected by merely dipping the thrust line; this is one of the reasons it appears a "cureall" for difficulties resulting from primary design deficiencies. -----



Western New York Free Flight Society

SPRING HOBO MEET

May 19 & 20, 2012
9:00 AM – 4:00 PM

1941 Historic Aviation Group Museum

Geneseo, NY



EVENTS

Saturday May 12

- ☐ 1/2 A Gas NFFS One Design
- ☐ 1/2 A Gas
- ☐ FAC Dime Scale
- ☐ FAC Modern Civil
- ☐ FAC Phantom Flash
- ☐ FAC No Cal Scale

Sunday, May 22

- ☐ FAC Embryo
- ☐ FAC Golden Age Combined
- ☐ FAC Two Bit + 1
- ☐ FAC Dime Scale

Rules for Western New York Free Flight Hobo Meet

- Field use fee: \$5
- FAC events will be flown to 2012-2013 rule book unless otherwise noted.
- 1/2 A Gas, any previous NFFS One Design - follow NFFS One Design event rules for your model
- CD for FAC events: Mark Rzadka
- CD for 1/2 A events: Brad Bane
- Event schedule is tentative and subject to change based on the weather or other field conditions during the meet.
- Event schedule is subject to expansion based on flyer interest.
- Valid AMA or MAAC Proof of membership required for all flyers
- Max times are subject to CD's discretion based on field conditions
- Check in at CD's table for latest in field rules



Spring will soon be upon us. Upstate weather will be unpredictable; winds are frequently gale force and the flying field may be covered with waist high grass or completely saturated with rain. Does that matter? Of course not, this is the first official opportunity to fly outdoor at the HAG Museum field, so clean out that flight box, finish those new models and wrap up the repairs on the old ones. The outdoor contest season will be in full swing before you know it. The WNYFFS Spring Hobo meet is a chance to fly at one of the best flying sites in the North East. The event list is short on purpose to keep it simple and give everyone a chance to tune up whatever models require attention. No prizes or awards, just good friendly competition.

Contact Brad Bane (windwhip47@aol.com) for information on the 1/2 A events or Mark Rzadka (wnyffs@rochester.rr.com) for information on FAC events.

Come on out and have a good time,

Mark C. Rzadka



McCook Field Squadron- FAC

Final 2-9-2012

ANNUAL FF CONTEST

Dates: June 23 & 24, 2012

Location: AMA site, Muncie, Indiana



Saturday- June 23 (8am-5pm)

FAC Rubber Scale
FAC Golden Age-combine
FAC 2Bit + 1 OT Rubber
McCook Field Watson Unlimited Challenge
FAC OT Rubber (cabin)
*** AMA HL Glider (Jr), (Sr, O)
FAC Old Time Gas Replica
* Eric Daily Times (one-design event)
FAC Jimmie Allen
Phantom Flash (ROG)

WW I Combat Mass Launch – 11 am
Greve Race Mass Launch – 12:30 pm

Sunday- June 24 (8am-4pm)

FAC Peanut Scale
FAC Embryo Endurance
FAC Dime Scale
FAC No-Cal Profile Scale
FAC OT Rubber Stick
FAC Jet Catapult Scale
FAC Modern Civil Scale
**AMA Catapult Glider (Jr), (Sr, O)
1/2-a-Wake (not FAC official)

Twin Pusher Mass Launch – 10 am
WW II Combat Mass Launch – 11 am
****Cloud Tramp Mass Launch-12:30 pm

CD: Dan DeAngelo
937-760-0886
DAD4584@woh.rr.com

CD: Tom Ersted
937-456-1908

CD Emeritus: Frank Scott
937-335-3057

General info: Stu Cummins- secr., stucummins@woh.rr.com

CD REQUEST: PLEASE TURN IN TIMES PROMPTLY AFTER EACH FLIGHT

BOM rule applies (except Cloud Tramp below). (FAC General Rule 1)
Three Models by three different builders must be entered with each making a qualifying flight for the winner to be awarded a "Kanone". (FAC General Rule 6)
The FAC 2012-13 Rule Book will be used for all FAC events.
FAC only events may be added during the contest, provided the conditions of Rule 1 & 6 (above) are met. Any scoring disputes must be filed on the day of the event.
*Eric Daily Times per plan - 3 flights, max 120 sec, min 20 sec.
**AMA Event 142 rules. Best 3 of 6 flights. (Jr), (Sr, O)
***AMA Event 140 rules. Best 3 of 6 flights. (Jr), (Sr, O)
***Grant MIMLOC rules. No BOM rule.
In event of ties in endurance (3 -120 sec maxes) -- add 30 second, i.e. 150, 180 etc.
Watson Unlimited Challenge Rules: (McCook Special event)
Model must be propelled by 24" length of 1/8" rubber. (Supplied)
Timing is total of best 2 of 3 flights, no max. There are no other rules!

Entry Fee: \$10. Current AMA License required.

Plaques: 1st Place, Certificates: 2nd, 3rd.
Kanones awarded



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.018 - .125" sizes.



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PEANUT SCALE



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Perfect for SO competition.
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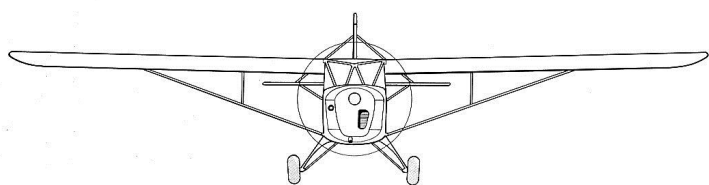
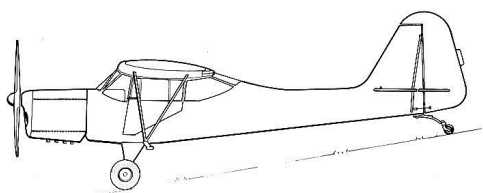
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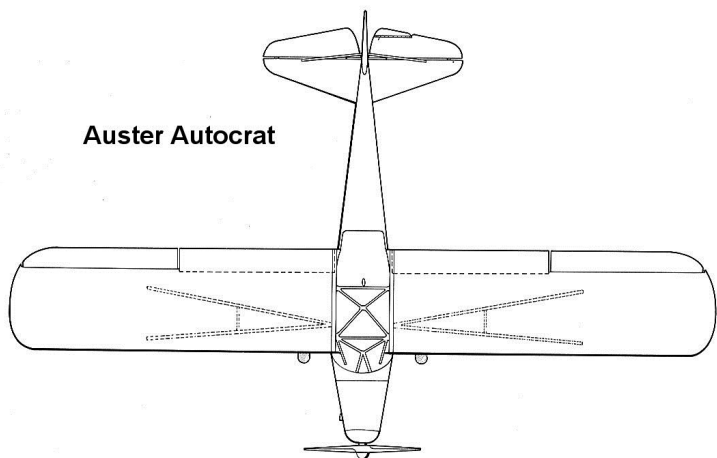
Who is that dashing young RAF flier? None other than FACer Lindsey Smith, seen here with his trusty Auster. He recently wrote to Tom Hallman: "I am beginning to live on my memories(!), and here is one dear to my heart. Me and my faithful steed way back in Detmold Germany in 1958."

We've included a nice plan for an Auster Mk.III in this issue, from D. Buckmaster in the Land Down Under.

The Auster was an Angli-cized version of a Tay-lorcraft so we know it will be a nice flying model. There are many versions and color schemes to choose from, both military and civvy.



Auster Autocrat



The **Auster Autocrat** is one of the many variants in the Auster family. It was a 1940s British single-engined three-seat high-wing touring monoplane built by Auster Aircraft Limited at Rearsby, Leicestershire. As the end of the Second World War approached, the designers at Taylorcraft decided to develop a tourer version of the robust and reliable Taylorcraft Auster Model J AOP.V observation aircraft series. An Auster 5, registered G-AGOH, was modified to take a 100 hp (75 kW) Blackburn Cirrus II engine for trials.

The photo above shows an Autocrat wearing a robin's egg blue paint job, with dark blue markings and a silver cowl. Looks like a model waiting to happen!

Gone West

Dave Rees Memorial Address Delivered by Dave Mitchell on January 28, 2012 at the Madison Ave. Baptist Church, Goldsboro, NC

It is my great honor and privilege to say a few words about Dave Rees on behalf of the National Free-Flight Society, the Flying Aces Club, and most especially the DC Maxecuters, the Washington DC area chapter of the FAC with whom Dave and Marie were closely associated for so long.



Our hobby involves the designing, building, and flying of free-flight model airplanes. The free-flight community was first comprised of the children of the 30's and 40's, people who were coming of age in the days when the experience of looking up and seeing an airplane fly overhead was still a source of wonder and inspiration. That wonder, that inspiration, is what drives our hobby even today, no matter the age of the member. To say it is our passion would be correct, except that sounds much too serious. Basically, we're all just a bunch of folks who find endless pleasure in seeing our creations lift out of our hands and take flight. We wind our models up, let them

go, and hope they come back. Most of us have never completely grown up, and Dave was one of the best and brightest kids of all.

His history with Free Flight modeling reaches back to his youth in Pennsylvania, but deepened the mid 1970's around the time that he joined the Maxecuters. After moving to North Carolina, he started the Kudzu Flying Corps, and for the past 25 years he and Marie hosted a contest in Raeford, NC called the Kudzu Classic, a staple of the Mid-Atlantic free flight contest calendar and a must-go event for all the Maxecuters. While this was, and remains, a great event, the most fun was to be had the day before the main contest, when we would all gather at the Rees' house in Goldsboro to lunch and swap stories and see what Dave and Marie were up to in the shop. We'd then pack up Dave's canoe and trek over to the community lake where we would try our hand at getting our models to take-off from the water. The fun was all in the trying-it's devilishly difficult--and created memories that will last a lifetime for all of us.

Dave participated in countless other FAC contests around the US during this time, including at the Maxecuter's home turf at the Comsat field and at the Pax River NAS Hangar in Maryland, and at the National Building Museum in Washington, DC. There he competed against the best builders and flyers in the US. His 185 victories ranks 6th on the list of all-time FAC wins, and he was elected in 1998 to the FAC Hall of Fame. I should mention here that Marie has 18 FAC victories to her credit, no small feat!

What truly distinguishes Dave Rees, however, is not what he achieved for himself, but rather the gifts he gave to Free-Flight modeling. It would be difficult, I think, to find a member of the FAC who has not been touched in some way by his genius.

He applied his professional skills as an engineer to develop a simple device with which to wind our rubber motors. When you consider that we are often putting upwards of 1500 winds in any given motor, you may appreciate the significance of this! The ubiquitous 10:1 Rees Winder is found in practically every Free Flight modeler's field kit. Just remember to wind counter-clockwise....

Dave was also an early advocate of electric powered free flight, at a time when electric power was considered an impractical novelty. In no small part due to Dave's promotion through his company HiLine Models, electric

powered free flight gained a toehold in the hobby, and now dominates the field.

But it is in the area of Free-Flight model airplane design where he perhaps made his most lasting contributions. Dave's development as a model designer can be traced through the progression of his extraordinarily beautiful plans. A Dave Rees plan is not just a guide to structure; it is a distillation of dreams and an invitation to excel. From his first, published in 1977, to his last, he was consistently pushing the envelope of how light and yet still strong a model could be made. The audacity of his innovative structures made a major impression on modelers, many of whom followed his lead, and it is now a common thing to hear designers talk of "Reesifying" a structure---making it lighter, stronger, and BETTER. It should be said however that very few of us have ever managed to meet his standards! His outstanding design for the 36" wingspan General Aristocrat was voted the National Free Flight Society Model of the Year in 1996. This model weighed barely more than two ounces and was capable of flying so slowly it could be trimmed to fly indoors in a room 90' square. It was a marvelous collection of slender sticks---a bit like Dave himself. This design---along with at least 50 others--will inspire modelers for as long as free-flight exists as a hobby.

One might get the clear impression from all of this that Dave Rees must have been a fierce competitor, constantly pushing himself in the pursuit of excellence. And that would be true, except that outwardly you would never suspect it. You could not imagine a more calm, gracious and engaging man.

Marie, on behalf of the Maxecuters and the worldwide Free Flight modeling community, in your time of grief we offer you all the love that our hearts can hold. Dave was a great friend. And while the flying field will not be the same place without him, know that every time a Dave Rees design lifts gently into a thermal on its way to another max flight, we will remember him.

Editor's note: The D.C. Maxecuters have set up a photo page on their website to remember Dave:

<http://dcmaxecuter.org/photos.html>



Rocky Russo 1948 -2012

Long time member of the FAC Rocky Russo will be fondly remembered by his many friends in the Utah State Aeromodelers club, all those that had the pleasure of his company at modeling events around the country, and those who knew him as "Professor Fate" in the online forums. In the finest tradition of the Flying Aces Club, he was more interested in seeing models fly than in winning contests, and he was always ready to help a new modeler.



The following is taken from a message that Rocky had recently posted on one of the online Free Flight forums. It seems to be especially appropriate now.

I see a kit, motor or whatever and I see a movie in my head about how it will look/sound, how much fun it will be to build. That is the first 'payoff!' If I never do anything else, I still got my money's worth. If I build it, extra credit. If It flies well, extra credit again. If I give it to a younger guy while he learns to fly, extra credit again.

And if I realize someone in the club wants it, dreams about it, and I have not built it, I give it (or sell it super cheap depending on their pride). I am not so greedy that I must be the only builder/flyer of any bit I see. If I got the dream, I have been rewarded. If someone else shares the dream, just as good.

I think all of us have a plane we have flown built by a now dead friend. We fly in their memory. But I have come to realize that I get the same thing from handing a bit to someone.

Reed Fuselage Formers

John Regalbutto

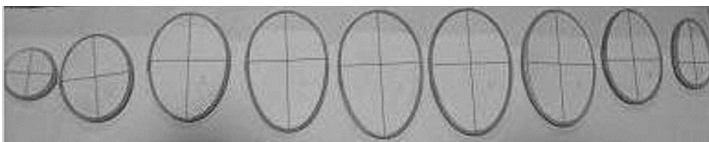
Most rubber scale fuselage construction comes in one of two basic types: the traditional “half-shell” found in most of the early kits and designs from the 1930s up until the present; and the “box with formers” style, which came into vogue as modelers became more concerned with the relationship between model weight and flight duration. Beyond these two basic categories, there are probably as many other fuselage construction schemes to retain strength and build in lightness as there are modelers.

My particular venture into an alternative fuselage construction method was prompted by a fellow club member who brought in a lifetime supply of reeds, which he got at a local craft shop. The reeds had a circular cross-section, about .070 in diameter. Their light weight, flexibility, and strength got me to thinking about how they might be used for round or oval fuselage formers for those sleek WWII designs that I love.

To enhance the naturally flexibility of the reeds and allow them to be bent to a very small diameter, I decided to soak them in water. I have some plastic tubes which used to house 36” lengths of piano wire and have plastic end caps, so the reeds were stuffed into the tubes, the tubes filled with water, and everything just allowed to soak away until needed.

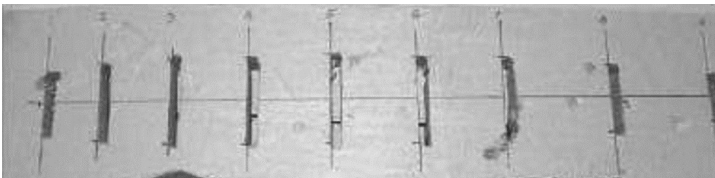
The construction method I developed using reeds has very distinct steps to it, so I’ll try to describe each step clearly enough so that anyone can duplicate the process. Hopefully, the accompanying photos will also help. Before starting, the materials you will need are a sheet of 3/16” foam poster board (white foam overlaid with cardboard on both sides); a piece of 3/4” blue foam insulation a bit longer and wider than the fuselage you intend to build; a length of .062 music wire as a skewer for the bulkhead assembly; and, of course, a supply of .070 reeds.

Step 1: I use a simple CAD program to draw the cross-sections of each bulkhead and mark them with vertical and horizontal center lines for the important alignment process to come. They are then printed out, and pasted onto the 3/16” poster board. My little jigsaw cuts them out to size, leaving room for the .070 reed, and the balsa stringers. A bit of touch-up sanding evens out any saw kerfs or waviness.

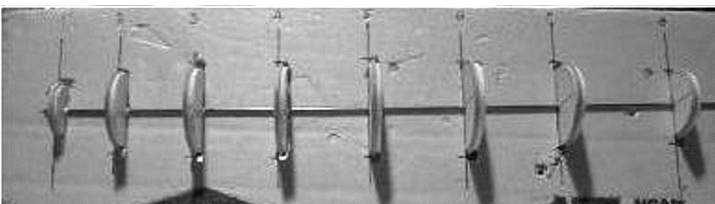


Step 2: The reed is wrapped around each bulk-

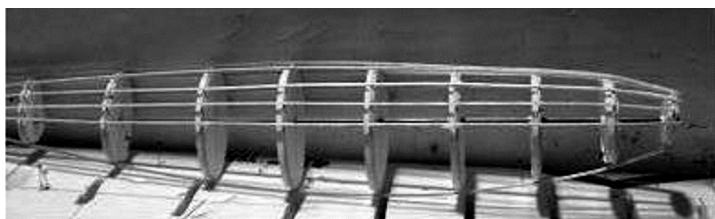
head and marked where it overlaps. It is then taken off the form and a diagonal scarf joint is used to glue the reed into a closed circle. It is put back onto the form to fully dry. If it is too loose, it is removed, re-cut and re-glued to get a slight “push fit” back onto the form. If it’s too tight—well, you have plenty of reeds! Note the vertical and horizontal lines important in the alignment process before stringers are attached.



Step 3: Using the blue foam plank as a platform to hold the bulkheads in alignment, I draw a centerline and perpendiculars at each bulkhead location. I use my bench drill press as a router and fabricate a slot for each bulkhead. The blue foam gives good perpendicular support to the bulkheads as you begin adding the stringers.

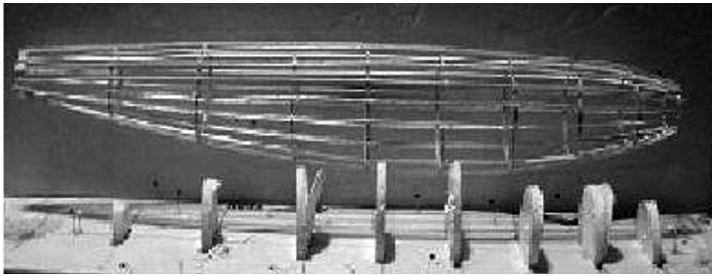


Step 4: I spear the center of each bulkhead with the .062 music wire, and then insert the bulkhead “shish kabob” into the slots in the blue foam platform. The music wire skewer is pinned to the foam for stability, and the bulkhead horizontal and vertical centerlines are lined up.



Step 5: Now comes the rewarding part. The jiggled assembly allows me to pin down and glue in place the centerline side stringers, so at least I start with two perfectly straight stringers along the centerline of the model. After the top half of the stringers are installed, the assembly is pushed out of the foam base. By now, it’s pretty rigid and the remaining stringers are added “in the air”. In the picture above, you can see that the fuselage has the top stringers in place and has been removed from the foam platform

although the Note the straight fuselage centerline stringers that are installed first as a reference for the addition of the other stringers, and to keep the assembly straight. Note also the down thrust built into the nose bulkhead at the far right, and the bulkheads and music wire skewer are still in place.



Step 6: When all stringers are installed, the music wire skewer is removed and the bulkhead forms are freed from the reed formers. There may be some glue spots that have to be dealt with if too much CyA was used initially, but the reed is very strong and can be used as a prying surface to the foam board forms. The scarcity of structure is evident in this photo, and as a plus, strength has been increased because of the toughness of the reed formers.

So far, I've done a fuselage for a 24" span *Macchi-Castoldi MC-72* Schneider Cup Racer (the fuselage weighed six grams), a *Henschel p87* pusher canard bomber, and a *P-39 Airacobra* using this method, and I'm pleased with all of them.

At one point I tried sanding the reed to a flat-sided cross-section after it was joined and before it was put on the form. I was able to save a grand total of 1/2 gram on a total of 10 formers, which seemed futile, given the care and effort needed to complete the sanding process. As I noted in the opening paragraph, there are multiple methods of fuselage construction that have become favorites of individual modelers. This method lets me work with simple tools and materials and feel confident that I can make a light, strong model every time. -----

All photos by the author.

This article first appeared the the NFFS Newsletter.



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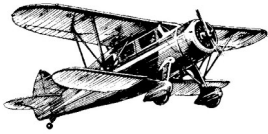
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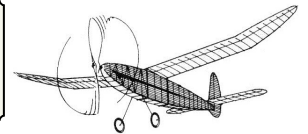
Pete Azure
Fred Gregg
Tom Nallen I
Tom Nallen II
Mike Nassise
Bob Schlosberg

*Note - Names in **bold type** are FAC Board members.

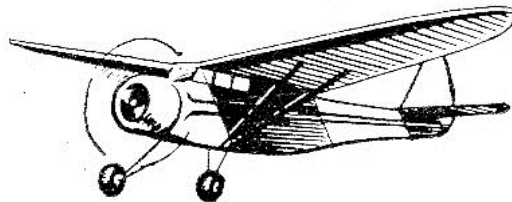
When contacting FAC officers via email, please be sure to include "FAC" in the subject line so that your message isn't overlooked.



FAC Contest Calendar



Winthrop, MA	Mar 31	Stealth Squadron Indoor Contests	Richard Zapf	978-352-8331 evenings
Dunwoody, GA	April 21	PEACH STATE INDOOR CHAMPIONSHIPS	David Mills	davidmillsatl@gmail.com
Kent, OH	April 15	Cleveland Free Flight Society Indoor Contest - KSU Field House	Michael Zand Don Slusarczyk	imzand@hotmail.com don@slusarczyk.com
Flint, MI	April 22	CLOUDBUSTER'S FAC FF MEET	Chris Boehm	merlin236@comcast.net
Winthrop, MA	April 28	STEALTH SQUADRON INDOOR CONTEST	Richard Zapf	978-352-8331 evenings
Pontiac, MI	May 6	Cloudbusters Indoor Fling - Ultimate Soccer Arena	Dan Olah	348-542-8144 danielolah@wowway.com
Geneseo, NY	May 19, 20	Spring Hobo Meet - WNYFFS	Mark Rzadca	wnyffs@rochester.rr.com
Wawayanda, NY	May 19, 20	Glastonbury Modelers and the Pinkham Field Irregulars	Fast Eddie Pelatowski	epelatowski@gmail.com
Flint, MI	May 20	CLOUDBUSTER'S FAC FF MEET	Chris Boehm	merlin236@comcast.net
Elyria, OH	May 20	CLEVELAND FREE FLIGHT SOCIETY FF MEET	Jim Gaffney	jamesfgaffney@hotmail.com
Elyria, OH	June 3	CLEVELAND FREE FLIGHT SOCIETY FF MEET	Jim Gaffney	jamesfgaffney@hotmail.com
Raeford, NC	June 2, 3	DAVE REES MEMORIAL MEET	Stew Meyers	stew.meyers@verizon.net
Flint, MI	June 9	CLOUDBUSTER'S FAC FF MEET	Chris Boehm	merlin236@comcast.net
Rocky Hill, CT	June 10	Glastonbury Modelers and the Pinkham Field Irregulars	Never Ready Eddie Novak	
Muncie, IN	June 23, 24	McCook Field Squadron Annual FF Contest	Stu Cummins	stucummins@woh.rr.com
Flint, MI	July 7	CLOUDBUSTER'S FAC FF and PICNIC	Chris Boehm	merlin236@comcast.net
Geneseo, NY	July 18-21	FAC NATS	Stew Meyers	stew.meyers@verizon.net
Elyria, OH	July 29	CLEVELAND FREE FLIGHT SOCIETY FF MEET	Jim Gaffney	jamesfgaffney@hotmail.com
Geneseo NY	August 10-12	Pirate Caribbean Cruise at the WNYFFS - Practice Meet	Mark Rzadca	wnyffs@rochester.rr.com
Geneseo NY	August 24-26	Pirate Challenge at the WNYFFS Empire State Free Flight Champs	Mark Rzadca	wnyffs@rochester.rr.com



BUILD...What you really like

FLY...All you can

WIN...Just let it happen





Charlie Shepherd sent along this photo and caption:

The Blue Max was presented to Bob Nichols at the annual Florida Modelers Association picnic. Our local FAC club is called the Swamp Squadron & it has just been revived after years of inactivity. Bob Nichols accepts congratulations from me while an unknown (but obviously quite happy) bystander looks on.

Below: Dave Rees with a pair of his winning WWII designs; the Fairey Fulmar (plan included in this issue) and the Vultee V-11.





The wonder of flight...

Above: Marin Houck went to the King Orange contest with her father Mark, and did more than spectate. Below: Tim Kimsey, with Roger Willis providing support, sends his new Flying Aces Moth on its first flight. It was a great start for the newest squadron in the FAC; the Arizona Condors.

FLYING ACES Club

9154 Eldorado Trail

Strongsville, OH 44136

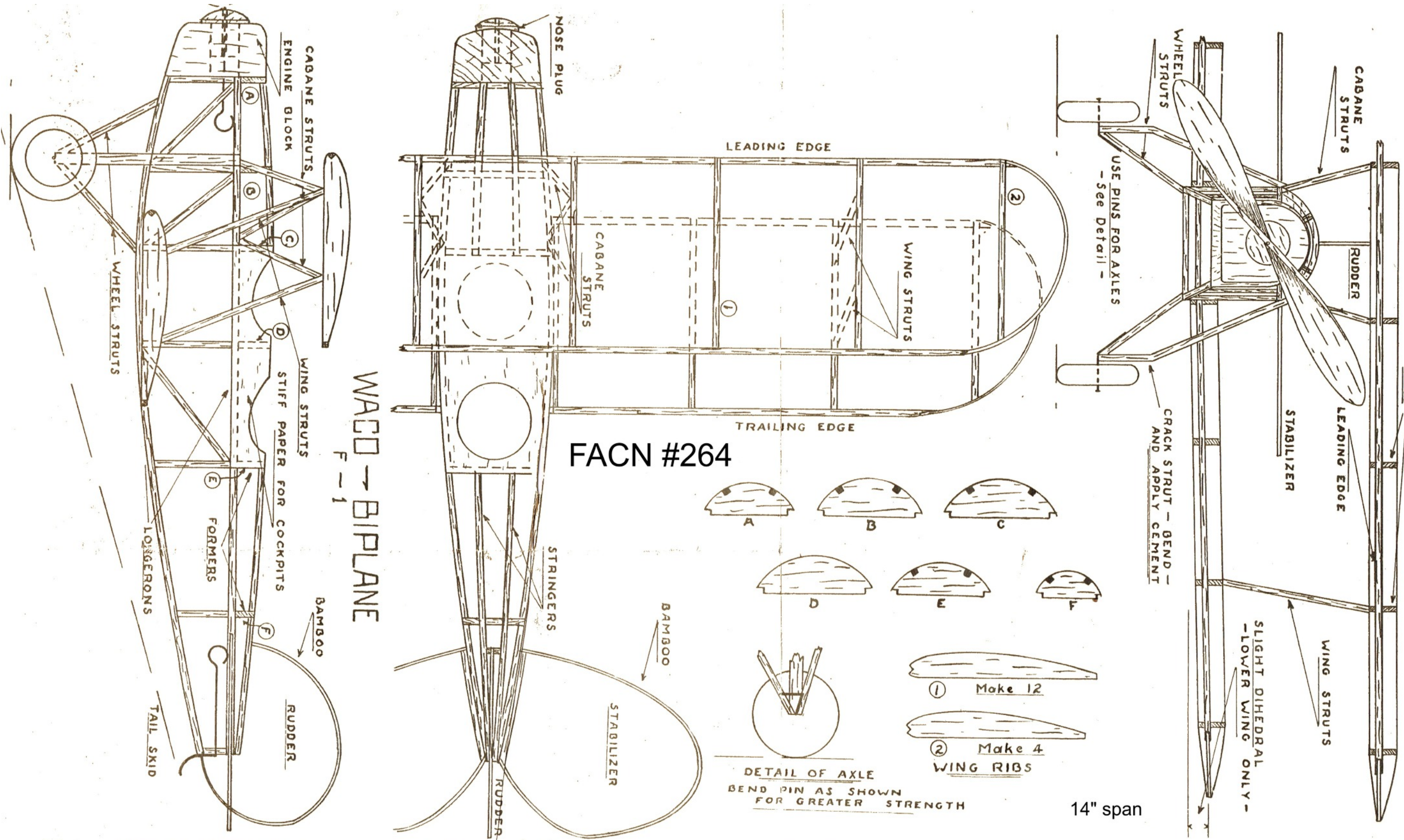
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DIRECTIONS FOR BUILDING YOUR FLYING MODEL

Good Flying Models depend on (1) careful construction of the various parts, (2) accurate alignment of the model, (3) correct balance and (4) proper adjustment of the wing and tail surfaces. Good-looking models cannot be had unless printed parts on the sheet balsa are cut out accurately or unless you follow carefully the outlines of the drawing when assembling the various parts. This is especially true of the fuselage which will appear lopsided if you are careless. Your airplane will not fly well unless great care is used on the assembly. The wings and stabilizers must be parallel to the line of thrust or you will be in trouble. If your plane is not in balance it will fail to rise or else it will rise too rapidly. Finally, the wing and tail surfaces must be warped slightly for good flights.

PROCEDURE: Tack your plan sheet to a working board. Fasten a sheet of wax paper over it as a protection from the cement. Cut the "spray balsa" apart with a razor blade. This will give you a generous supply of 1/16" squares. The printed parts on the sheet balsa can be cut out later while you are waiting for other parts to dry. In general the procedure will be (1) construct the various parts, (2) to assemble the airplane, (3) to correct the balance, and (4) to adjust the wing and tail surfaces.

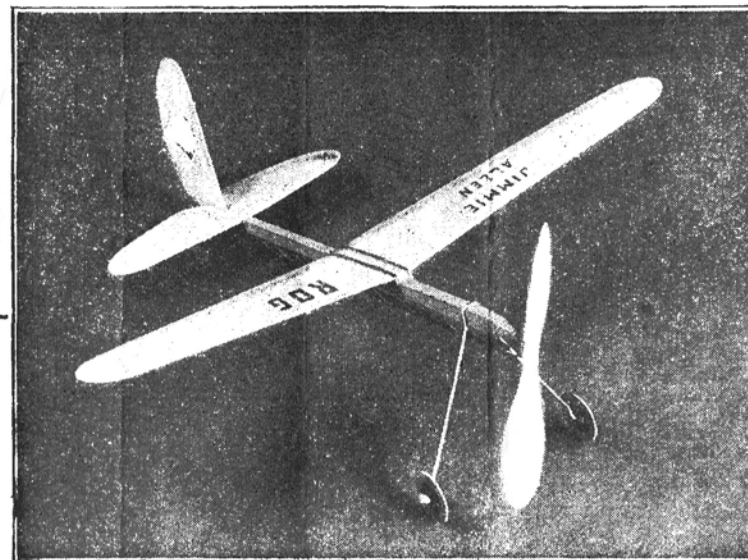
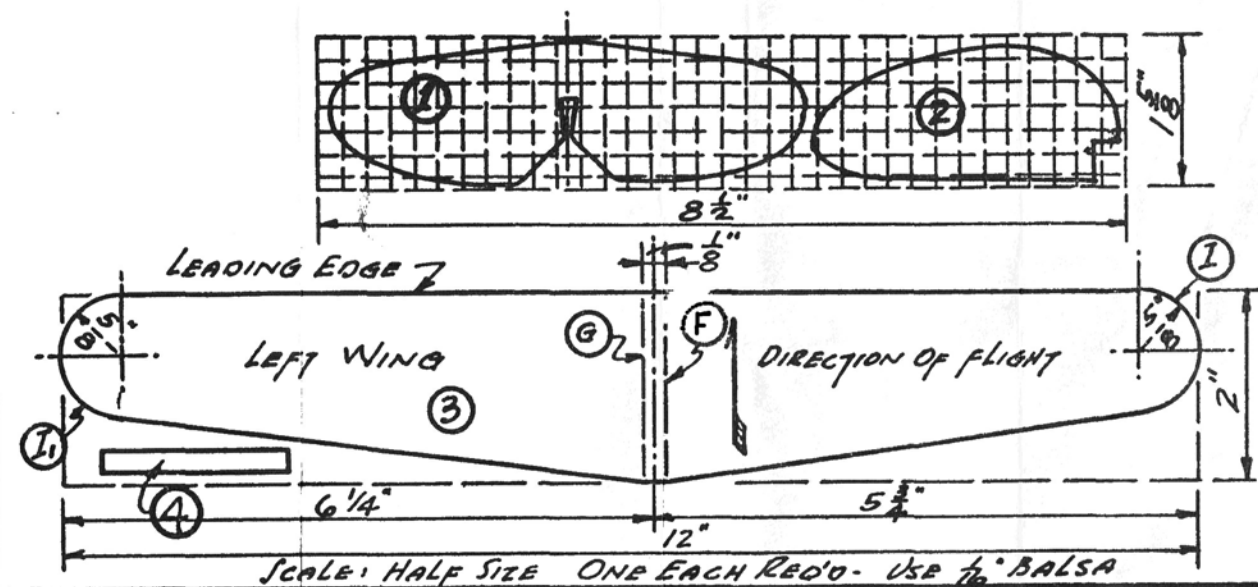
PARTS CONSTRUCTION: (1) The Fuselage. Place your wood strips on the side view of the fuselage. Use pins to hold the longerons (stringers) in place. Cement the upright and diagonal braces to them. Build the second side on top of the first. When dry separate the two sides with a razor blade except at the tip of the tail. Work from the nose to the tail and put in the top and bottom cross pieces or formers, as shown in the top view. Then cement any remaining stringers to the formers. Bend the tail hook and cement in place. It is very important that it be placed in the exact position shown in the side view of the drawing. Then carve the nose block and cement in place. Cover the fuselage with dark tissue. Leave the bay at the tip of the tail open so that the tail hook is accessible. (Special Instructions for Construction of Fuselage for F-5, F-7, F-8, F-10, and F-11. Cut out the formers accessible. (Special Instructions for Construction of Fuselage for F-2, F-3, F-4, F-6, F-9, F-10, and F-12. Make the wheel pants as follows: Cut the in square or oblong patterns. After you have fastened these to the formers go ahead with the rest of the stringers.

Cement the nose block in place. Bend the tail hook to shape and cement in place and then do the tail skid. Cover the body with dark tissue. Leave the bay at the tip of the fuselage open so that the tail hook is accessible. (2) The Wings. Place the spars in position on the top view of the wings. The forward spar in this case forms the leading edge, the rear spar the trailing edge. Cement the ribs in place. Put on the wing tips. When bamboo is used for wing tips it can be bent to shape by holding it over a candle flame. Cover the wings with light-colored tissue. (Special Instructions for F-2. Do not cover the wing fillet section until after the wings have been fastened to the fuselage and the struts fitted in. See instructions under Airplane Assembly for directions how to put on wings.) (3) Tail Surfaces. Build the tail surfaces directly on the plan, the stabilizers on the top view and the rudder on the side view. Do not cover with tissue until they have been fastened to the fuselage. (4) The Propeller. The sawed balsa propeller is made ready quickly by smoothing with sandpaper. Pierce a hole for the propeller shaft. Insert propeller shaft first through the nose plug, then through the washers and finally through the propeller. Bend wire over the propeller and cement in place. (Special Instructions for F-2, F-9, F-10, and F-12. Make the wheel pants as follows: Cut the fillers and sides from the balsa sheet, cement together and sand to shape.)

AIRPLANE ASSEMBLY. Before assembling your model, study the plan carefully and note the exact position of the various parts in relation to each other. (1) Wing Assembly for F-2, F-4, F-6, F-11, and F-12. Attach the wings to the body after carefully noting that the bottom of the wings is parallel to the line of thrust. You can find the line of thrust by drawing a line on the side view or your drawing from the center of the propeller hook to the center of the tail hook. Then check your assembly with the front view of the plan to see if you have the proper dihedral in the wings. Attach the wing struts. (Special Instructions for F-1, F-3, F-5, F-7, F-8, and F-9. Cement the lower wings on first. Make sure that the wings are parallel with the line of thrust. Locate the line of thrust on your plan by drawing a line from the center of the propeller hook to the center of the tail hook. Check also with the front view to see if the wings have the proper angle with the body. Then cement the interplane struts to the wings and let dry in the right position. Cement the top wing in place. Finally put in the cabane struts.) (Special Instructions for F-10. Cement the top wings in place. Fasten wing struts to bottom of top wings. Cement lower wing to struts. Then put in cabane struts.) (2) Put on the stabilizers. Make sure that they are parallel with the line of thrust. Then fasten the rudder in place. Cover the stabilizers with light color tissue; the rudder with dark tissue. Cover one side only of the tail surfaces. (3) The Landing Gear is next. Then do the tail skid or wheel. (4) Hook up the propeller by catching the rubber motor over the propeller hook, drawing the other end through the body by means of a long wire hook or string, and then hooking it on to the tail hook. (5) Shrink tissue tight by spraying the model lightly with water except for the tail surfaces. Water is used instead of dope on light models as dope makes the models too heavy.

AIRPLANE BALANCE. The point of balance of your model is about one-third back from the leading edge of the wing. If the plane is nose-heavy, correct by adding weight to the tail or by reducing the nose weight; if the model is tail heavy, correct by adding weight to the nose. BB shot makes good nose weights. Airplanes that are tail heavy will stall quickly; those that are nose heavy will lose altitude rapidly when hand-launched.

FLIGHT TESTING. This type of model flies best in light air or a calm. Be sure that you have plenty of room, free of trees and other objects. Remember that your airplane will not be likely to fly well unless it makes good glides. Hence, the first thing to do is to glide your model. If it noses down too sharply as you glide it, correct by raising the trailing edge of the stabilizers slightly. Make these adjustments by breathing heavily on the stabilizers as you bend them. If it stalls correct by lowering the trailing edge of the stabilizers. If the plane turns to the left, correct by giving it opposite rudder; if it turns to the right, correct with a little left rudder. If the airplane makes a circular dive to left, correct by "washing-in" the tip of the left wing. Do this by gently warping the trailing edge of the wing. Now for the first flight. Hold your model by the nose block, as you wind the propeller. Wind the propeller clockwise until you have a row and a half of knots on the rubber motor (about 50 times). Launch it carefully from the hand by thrusting it forward gently as you release the propeller. The model should be pointing down slightly and the wings parallel with the ground when you release it. As it goes forward note whether it flies up or down, left or right, forward, etc. Make whatever adjustments are necessary before flying it again by warping the wings or tail surfaces or by correcting the balance. Fly again. Once the model is properly adjusted, wind the motor fully and fly again.



Picture of completed model.

Instructions for Assembling and Flying the Jimmie Allen R. O. G.

The Jimmie Allen R. O. G. (rise off ground) is a simple miniature airplane capable of taking off and flying under its own power. All supporting and control surfaces are made of balsa wood, the lightest commercial wood known. To secure best results the model must be constructed and flown in exact accordance with these instructions. Your kit should contain the following items: One instruction sheet. One piece stamped balsa, 1/16x2x12". One piece stamped balsa, 1/16x1 1/2x8 1/2". One piece of balsa, 1/4x1/4x9". One rubber motor. One length aluminum wire. One propeller and bend. Two 7/8" black wheels. Four 1/2" red wheel discs. One motor bearing.

IMPORTANT NOTE: Read these instructions thoroughly and study the diagram before you attempt any assembly work. In making cemented joints use any good grade of colorless quick drying glue or cement. If desired a tube of Country Club Wood Weld may be purchased for 15c postpaid from the Country Club Aero Supply Co., Kansas City, Mo.

Assembly

1. Sand the 1/4"x1/4" balsa motor stick on the two opposite sides to a tapering size, as shown by top view 5, starting the taper at Point A, which is 5 inches from the front end of the motor stick. After tapering, shape the extreme rear of the motor stick to a wedge shape, beginning at Point B, which is 7/16 inches from the rear end of the stick. This wedge shape may be cut by using a single edged razor blade. Next cut a notch 1/16" deep on the top of the motor stick, as shown at C. This notch is 9/16" long. Now shape the front end of the motor stick as shown at D. Smooth out all unevenness by lightly sanding with fine sandpaper. The bottom of the motor stick is not cut or shaped, but remains perfectly flat. Now Wood Weld or cement the motor bearing 12 to the motor stick as shown and wrap several turns of silk thread around the stick and bearing. Allow to dry. Cut a short piece (1 1/4") of aluminum wire and bend to exact shape as shown to make the rear motor hook 10. Sharpen the straight part of this hook 10, as shown at R, push into the motor stick and Wood Weld and allow to dry. Motor hook 10 should be located at a point on the motor stick where it will keep the rubber motor from sagging. You can find this point by looping the motor band over the propeller hook when it is in place and laying it along the bottom of the motor stick. The approximate position of the rear motor hook is indicated in the side view of the motor stick.

2. Bend the landing gear wire 6 to the shape as shown on the drawing, which is full size. Put in position on the motor stick at Point E, which is 1 1/4" from the nose of the motor stick. Cement and allow to dry. The wheels, 7, are made from the discs by gluing a red disc to each side of the black ones. The center holes in these discs can be kept in line by putting a pin through them while the glue is drying. After drying, put them on the axle. Cut two small pieces of 1/16" balsa to the shape as shown at 9 and glue them to the axle ends. You are now ready for the wing and tail surface.

3. Cut out wing section 3 and incidence block 4. Use a sharp razor blade and cut on the lines as stamped on the balsa. Smooth the leading edge with fine sandpaper and sand the trailing edge down to a tapering shape, starting the taper about an inch back from the leading edge. Your wing must have dihedral, as shown by View 3A. To do this lay the wing on a flat surface, View 3B. Place a straight-edge, such as a ruler or the back edge of a kitchen knife, along Line F, press down firmly, then GENTLY lift up wing tip, I, until the balsa wood CRACKS SLIGHTLY along line F. Now crack the balsa along line G in the same way as was done along line F. The straightedge you use in this work should not be over 1/4" wide. Hold down wing section between lines F and G firmly on a flat surface, and adjust wing tips I and II so that wing tips are 1/4" above the flat surface. Now put Wood Weld along lines F and G, both top and bottom of the wing, and allow to dry. Next cut balsa piece 4 to a tapering shape as shown at 8 and Wood Weld thick edge to leading edge on the bottom of the wing between lines F and G. This tilts the wing upward when on the motor stick and gives you the "angle of incidence."

4. Cut out the rudder, 2, to the lines indicated on the balsa wood, taper the trailing edge and sand as was done for the wing. Cement in place at rear end of motor stick, being sure to keep the rudder in a straight position while the glue is drying.

5. Cut out the stabilizer, 1, and taper the trailing edge in the same way as was done for the wing. Smooth the leading edge also. The stabilizer is now fitted to the motor stick, the wedge-shaped slot fitting around the wedge end of the motor stick and in the notch, C. Glue in place.

6. Put the bead, 13, on the propeller shaft, 11, and put shaft, 11, through the small hole in the motor bearing, 12, as shown.

7. You will find two Blue Flash insignia and the name Jimmie Allen R. O. G. printed on this instruction sheet. These are to be cut out and the Blue Flash insignia glued on the rudder as shown on the photograph. The Jimmie Allen R. O. G. name is also cut out and cemented on the top of the wing section. In order to make your plane have a nice appearance,

we suggest that you paint the motor stick blue, the propeller aluminum with the tips in blue and the wing, rudder and stabilizer in aluminum.

Flying Instructions

1. Make all of your test flights outdoors in a large, level grass-covered area free of trees at a time when there is very little or no wind. If you test-flight your plane on a windy day it will be very difficult to determine the correct wing and rudder positions.

2. Place a drop of Puro Household Oil on the propeller bearing. Lubricate the rubber motor by rubbing it on a piece of very soft hand soap and then wipe off all excess soap. It may be necessary to close the propeller hook slightly in order to keep the rubber motor from climbing off the hook as the rubber motor is wound.

3. Put about thirty or forty turns on the propeller, winding it clockwise when looking at the plane from the front end, and let it run down. See that the shaft runs true and that both propeller blades have the same pitch and cut the air at the same angle. If the shaft is not true or the propeller is out of balance, it will cause the plane to vibrate while in flight.

4. Loop the small rubber band around the motor stick and slide the wing between the loops and the top of the motor stick. The rubber loops should lie in the creases on the top of the wing along the motor stick. Slide the wing along the motor stick until the leading edge is about 3 1/2" behind the front of the propeller bearing. Make a pencil mark on the side of the motor stick under the leading edge of the wing. This pencil mark indicates the approximate flying position of the wing.

5. Using the thumb and first finger of the left hand, grasp the model by the motor stick IN FRONT OF THE WING and wind the propeller up in a clockwise direction with the first finger of the right hand. Put about 125 turns on the propeller for short test flights. Shift the model from the left to the right hand and grasp the motor stick from underneath with the right thumb and forefinger BEHIND THE WING. During this operation prevent the propeller from rotating by holding the left forefinger against it. Release the propeller and launch the model gently into the air from a horizontal position. A gentle push by the right hand is desirable, the ideal speed of launching being that of the flying speed of the model.

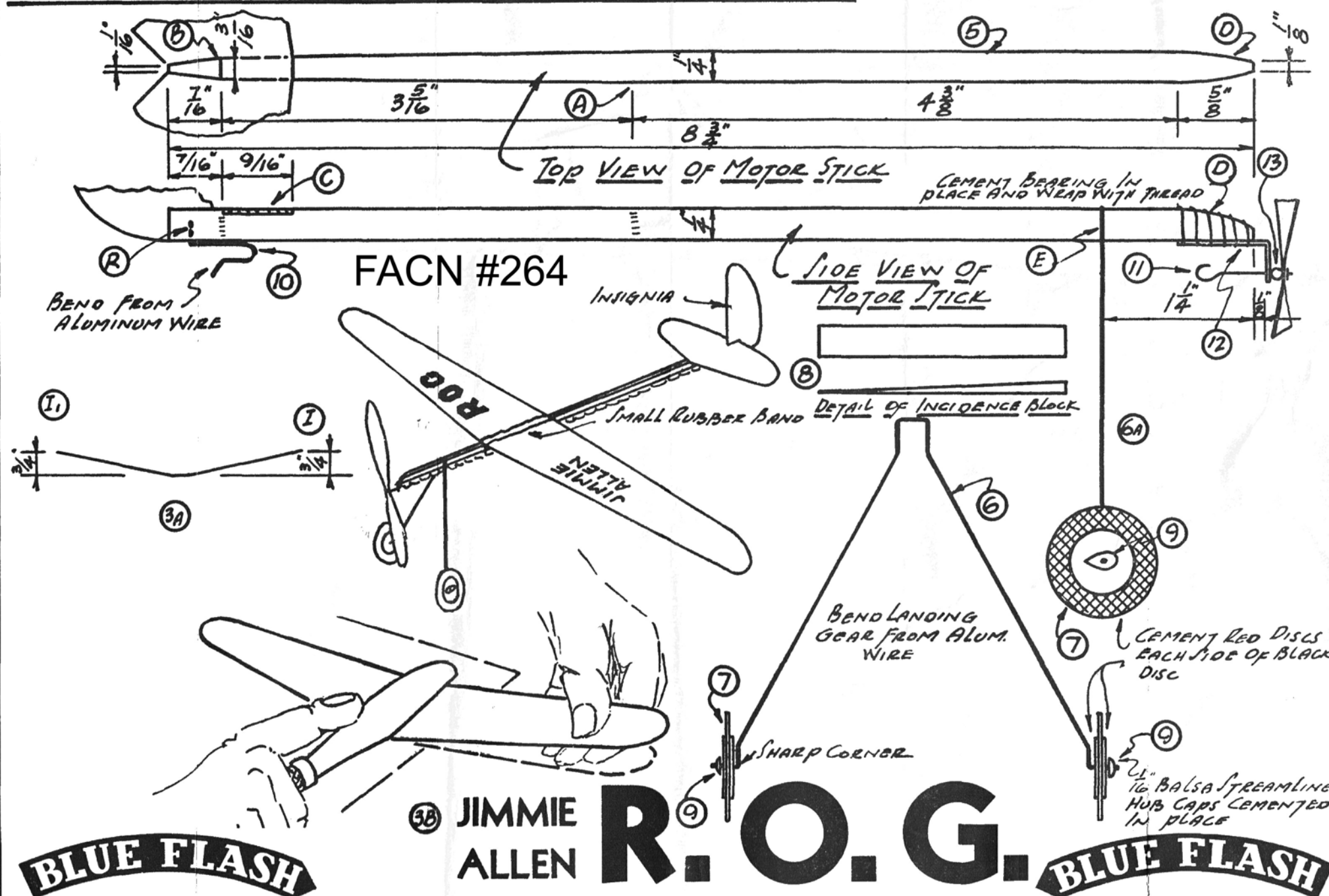
6. Due to variations in assembly, the model will seldom fly perfectly on the first attempt. If after launching, the plane climbs steeply, then hesitates and falls off to one side or the other, it indicates that the wing is too far forward and the model is stalling. The wing should, of course, be moved backwards slightly. If after launching, the plane dives quickly to the ground, it can be made to gain altitude by moving the wing forward. Before each flight and when moving the wing forward or backward, always refer to your pencil mark on the side of the motor stick as outlined in Paragraph 4 (Flying Instructions). A variation of 1/16" either way from this mark for the wing position will greatly affect the flying qualities of your model.

7. The most desirable flight is a straight line hop with a gradual climb. The left wing of your model has purposely been made longer than the right one to counteract the propeller torque which tends to raise the right wing. If not counteracted, the propeller torque would always tend to turn a model to the left. There are two ways to make your plane fly in a straight line. One is to warp the rudder slightly to the right or left as required and the other is to increase or decrease the "angle of attack." The "angle of attack" is decreased or increased by warping the trailing edge of either wing upward or downward. Usually a combination of slightly warping one side of the wing and rudder will produce best results. In order to warp balsa wood it is necessary to moisten it slightly and hold it in the desired position for a few moments. In extreme cases it may be necessary to steam the wood for a short while, by holding it in front of a steaming teakettle spout. Likewise, the pitch of the propeller may be increased by the same process. Greatly improved flights may be obtained by increasing the propeller pitch or angle at which it cuts the air, within reasonable limits. Experience is the best teacher and experiments with various rudder and wing positions will prove most interesting.

8. Your rubber motor when not lubricated will stand about 200 turns. If lubricated as outlined in Paragraph 2 (Flying Instructions) 300 turns may be safely applied. However, if the motor is wound to its maximum point for each flight it will not give satisfactory service for more than 75 flights, and it will be necessary to replace it. Two extra rubber motors may be obtained for 5c from the Country Club Aero Supply Co., Kansas City, Mo., as well as any other repair parts desired.

9. After the wing is properly located the model can be made to take off by heading it into the wind and winding up the motor fully. It can also be made to loop by moving the wing forward on the motor stick for about 1" or 1 1/2" ahead of the normal flying position.

10. Don't discard your model if you should happen to crack a wing, rudder or stabilizer. A little cement properly applied will usually fix it up as good as new.



HOT BENT

RED

1/20 SQ. SLICED RIBS

1/16 x 1/4 TE

1/20 SQ. TYP

2" DIHEDRAL

BLUE
RED

TOP OF WINGS

FORMERS ARE MADE OF 2 PLY
1/32 BALSA. GRAIN RUNS AT 90°CANOPY IS BUILT UP OF .003 THK.
ACETATE SHEET SUPPORTED BY
BAMBOO HOOPS.RUDDER FRAME: 4 GM
COVERED 7 GM.

ALL STRINGERS 1/20 SQ

CUT OUT
FOR
STAB1/8 DOWEL
KEY3°
DOWN
THRUSTWHT
SOFT
BALSA
BLOCK.
FACE W/1/32
PLYWOOD
RING.FILL
PLANK
W/1/20
SHT.1/32 SQ. BAMBOO
3 HOOPS

RED

WHT

RIB 9

BLACK

ROYAL NAVY
X8559BLUE
WHITE

RED

1/32 SQ

1/20 x 1/4

.015 MUSICWIRE
1/2 DIA. x
1/8 WIDE
FOAM
WHEEL

FACN #264

12.5" HOOK TO PEG LENGTH

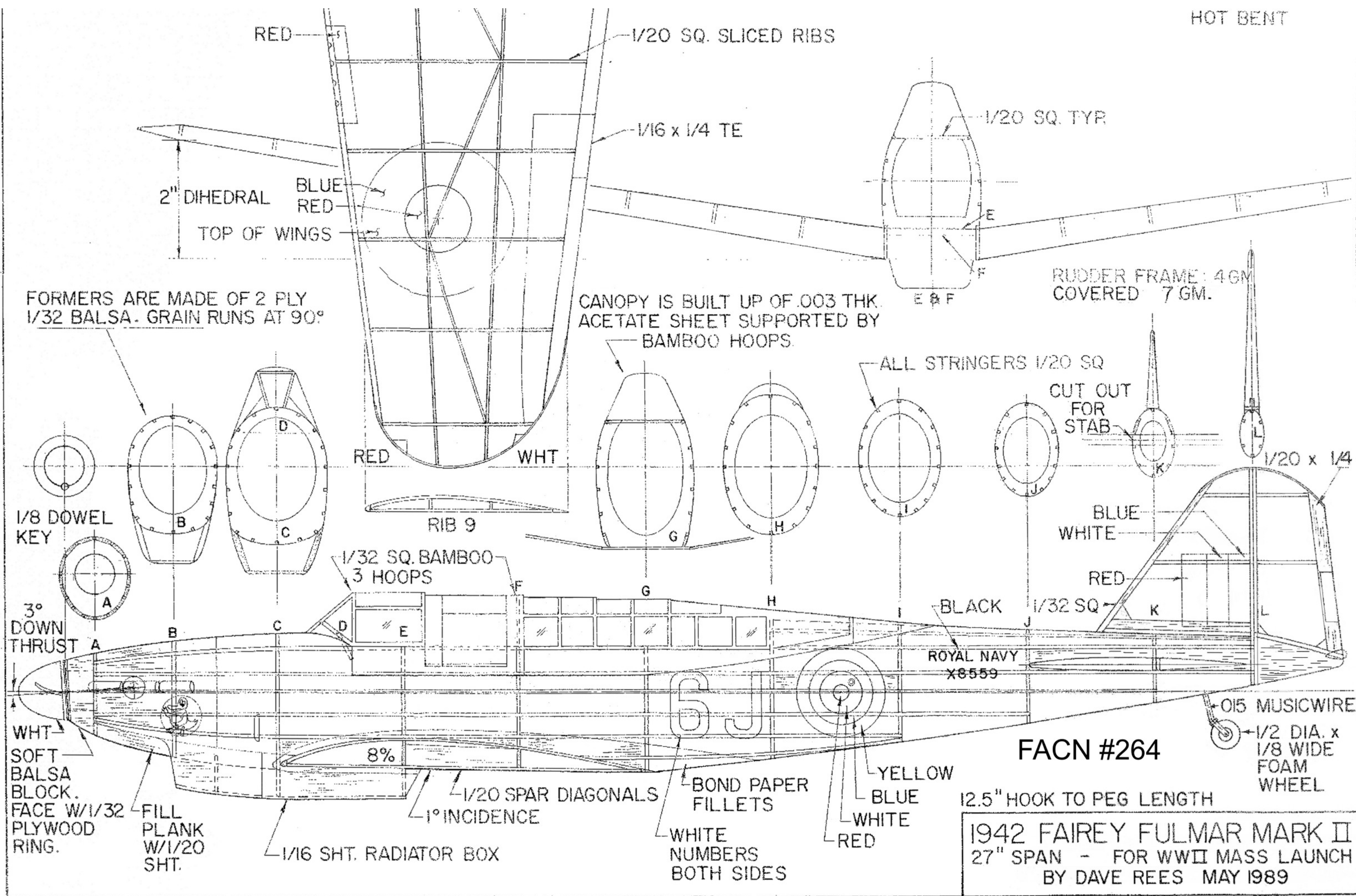
1942 FAIREY FULMAR MARK II
27" SPAN - FOR WWII MASS LAUNCH
BY DAVE REES MAY 1989BOND PAPER
FILLETWHITE
NUMBERS
BOTH SIDESYELLOW
BLUE
WHITE
RED

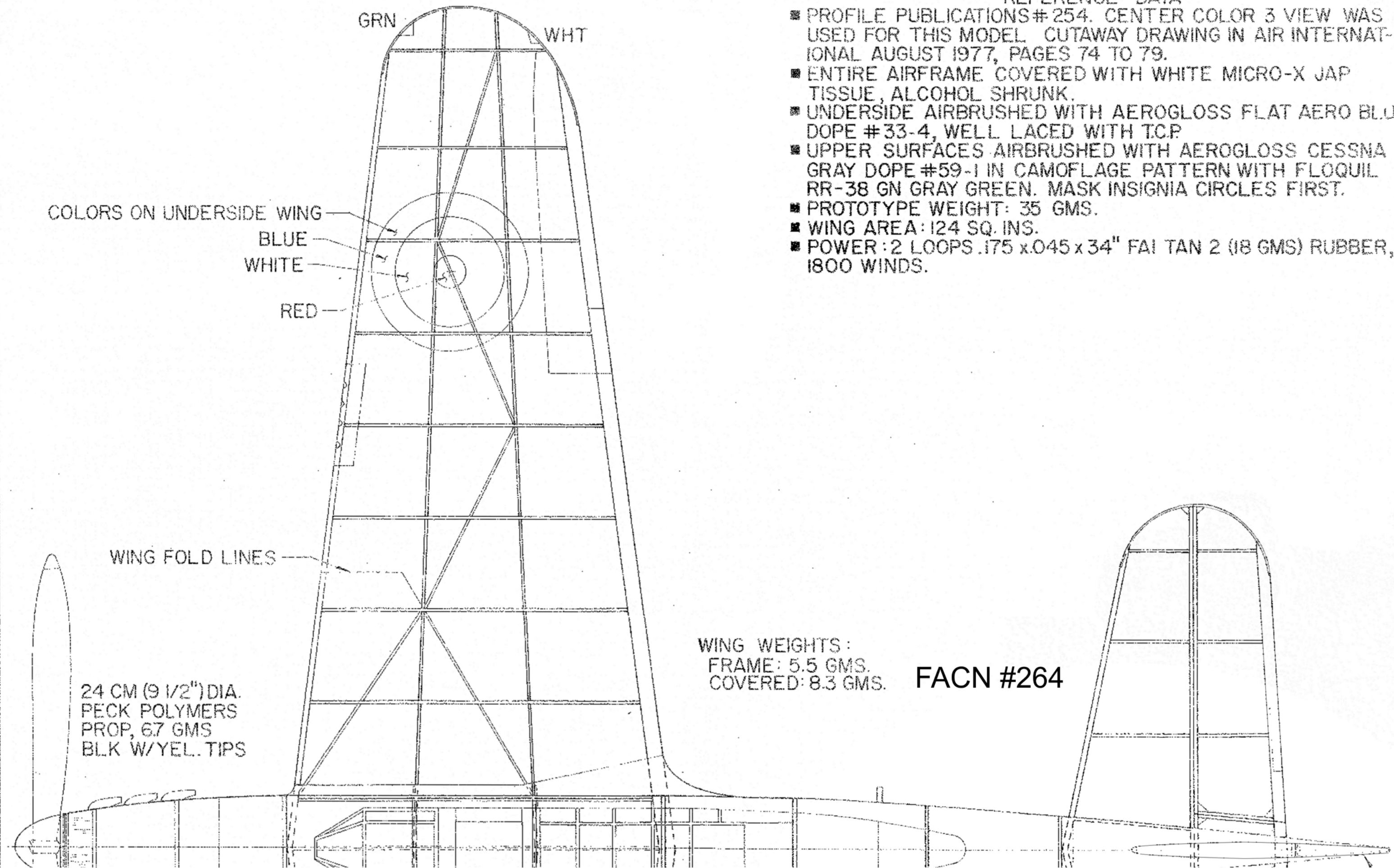
1/20 SPAR DIAGONALS

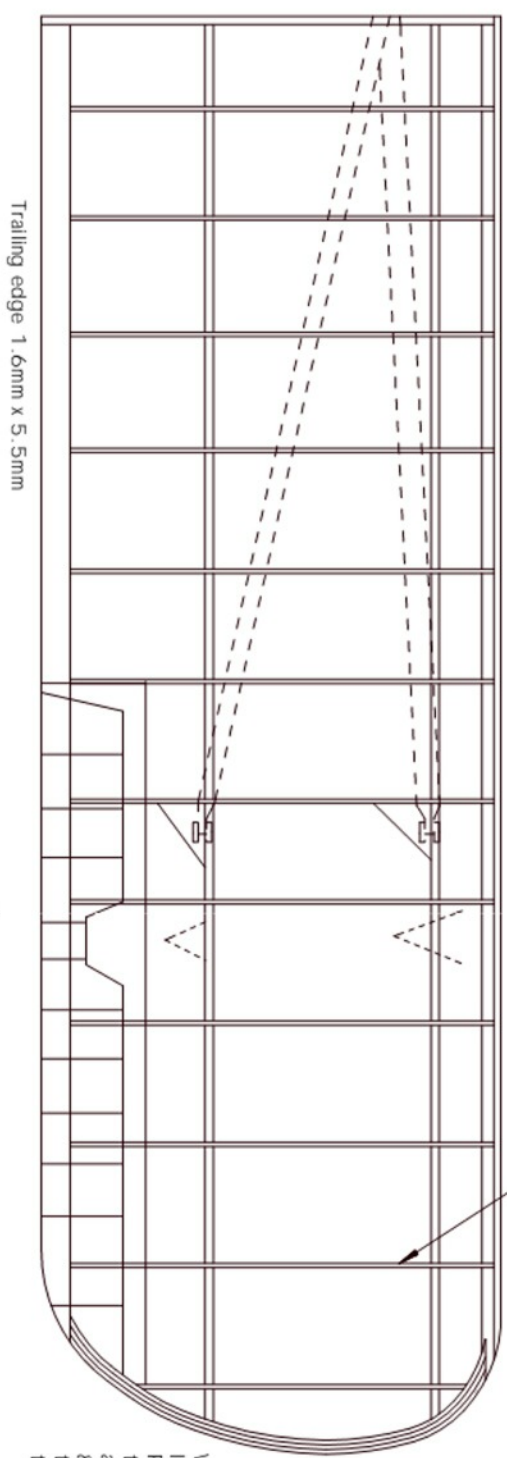
1° INCIDENCE

1/16 SHT. RADIATOR BOX

8%

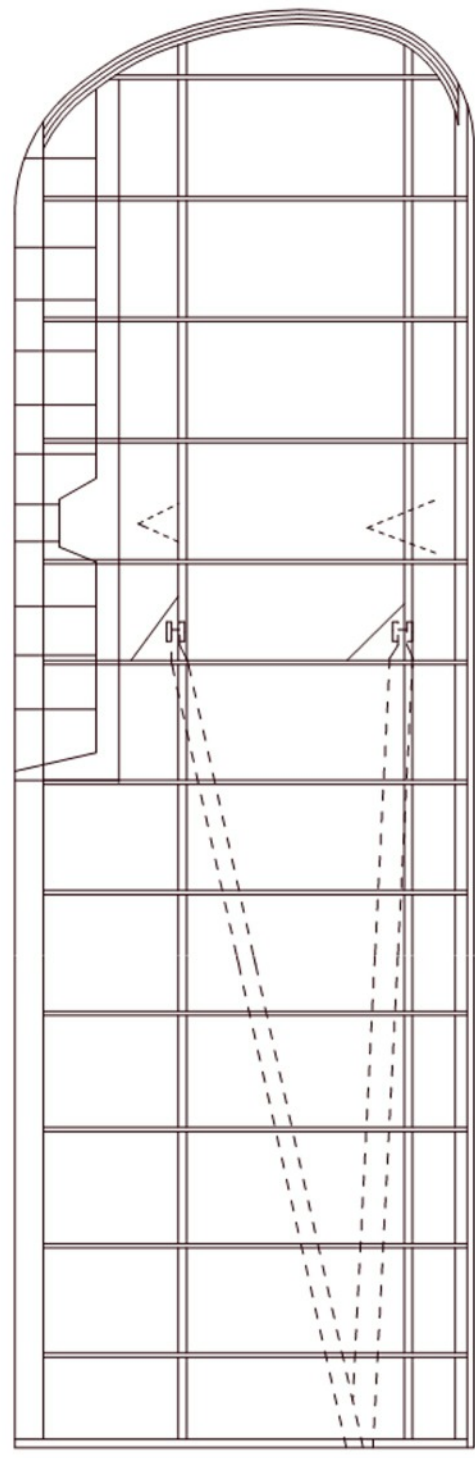
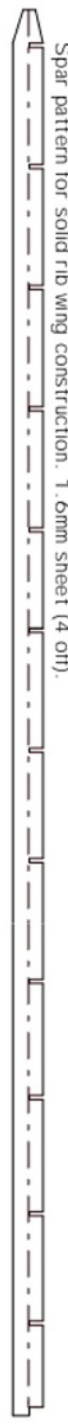






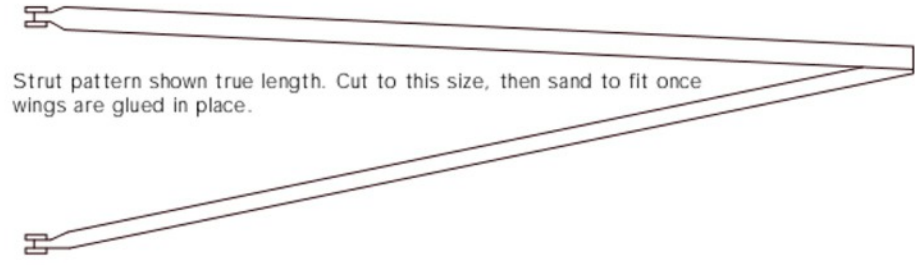
Rib and spar locations are same as full sized aircraft.

Dihedral: 8.4mm (11/32") under second last rib



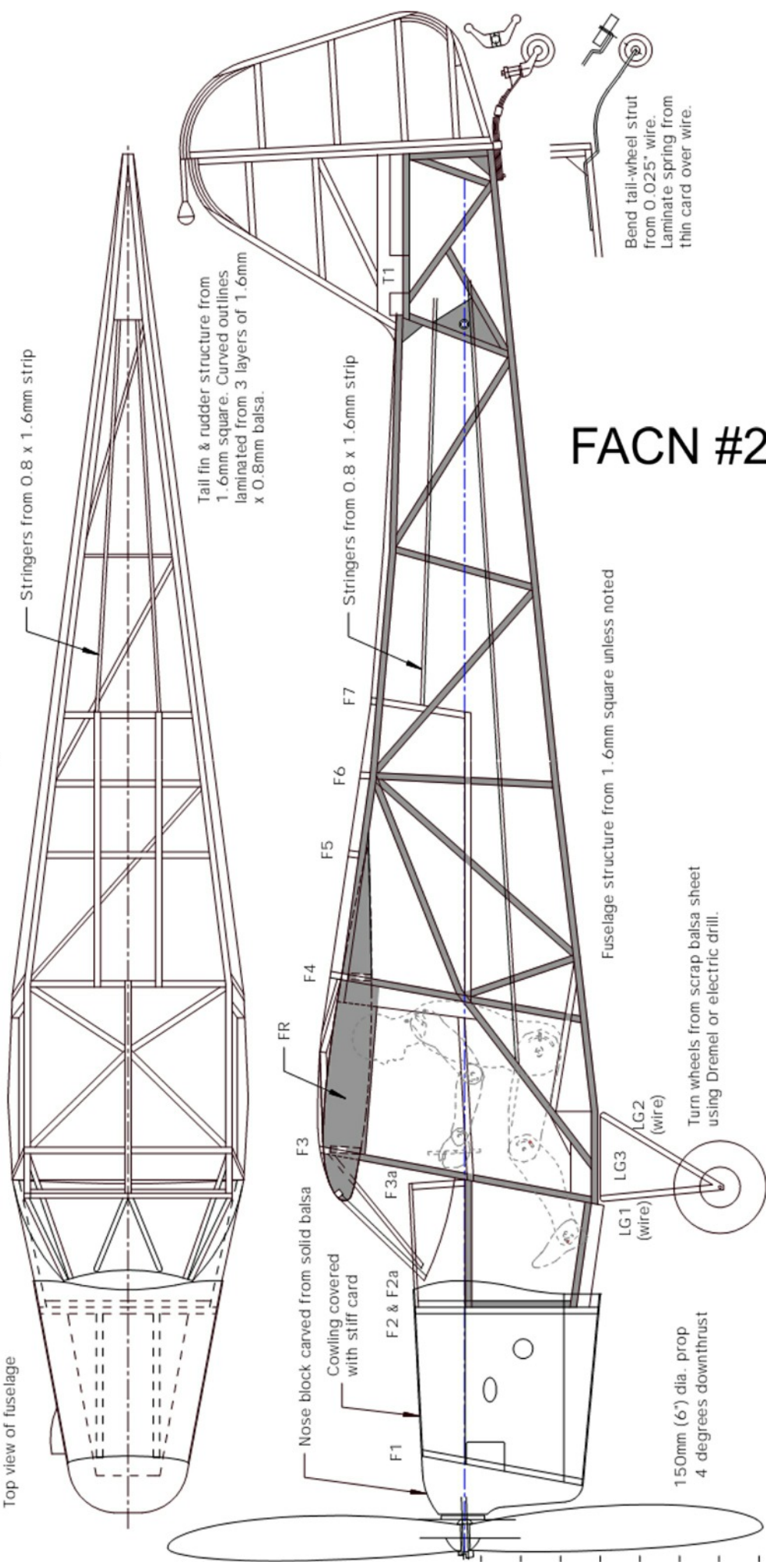
Reference scale in cm

FACN #264



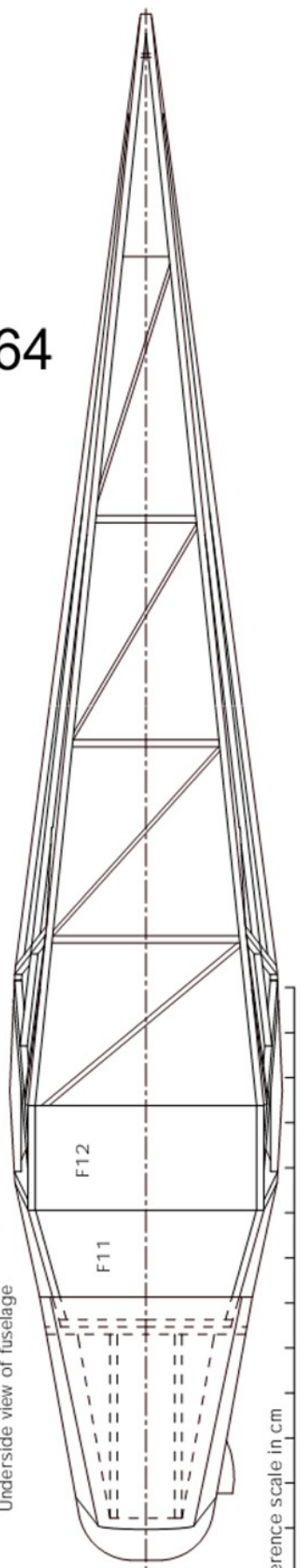
Wing tips are laminated from 3 layers of 1.6mm x 0.8mm balsa. Photo-copy the plan, then glue it to a piece of scrap balsa to make a template. Soak strips in water & white glue, tape them around the template, then leave overnight to dry.

Top view of fuselage



FACN #264

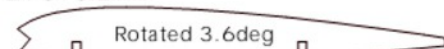
Underside view of fuselage



Reference scale in cm

Construction sequence: solid rib construction:

1. Cut ribs from sheet. 2 off 1.6mm and 24 off 3.2mm.



2. Cut and notch spars, then place on building board over plan. Support spars on 1.6mm shims, and use several ribs (without glue at this stage) to position spars.



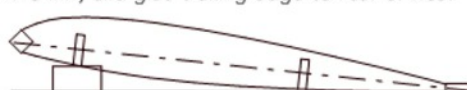
3. Slide ribs into position in slots and glue in place.



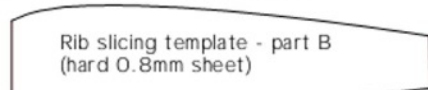
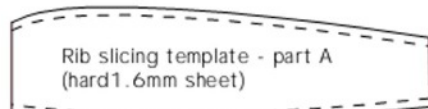
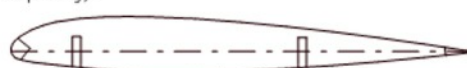
4. Add 3.2mm square leading edge.



5. Raise front of wing (pack front spar up by 4.8 mm) and glue trailing edge to rear of ribs.

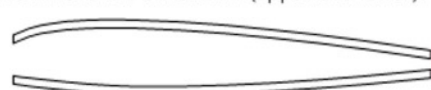


6. Sand LE and TE to shape (TE is sanded on top only).



Construction sequence: sliced rib construction:

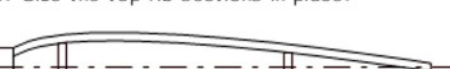
1. Slice upper & lower rib sections from sheet using the templates shown on this plan. 2 off 1.6mm and 24 off 3.2mm (upper and lower).



2. Place the LE directly on the building board, and shim the spars up by 0.5mm



3. Glue the top rib sections in place.



4. Turn the wing over and glue bottom rib sections in place.



5. Turn the wing upright again, and raise the leading edge (pack the forward spar with a 6.4 mm shim). Sand a slight angle on one side of the TE to match the rear edge of the ribs, then glue the TE in place.



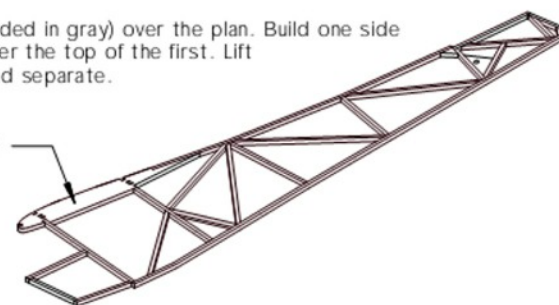
6. Sand LE and TE to shape (TE is sanded on top only).



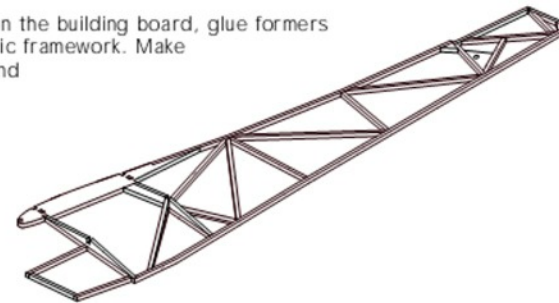
Fuselage construction sequence:

1. Build basic side frame (shaded in gray) over the plan. Build one side frame, then build a second over the top of the first. Lift these frames off the board and separate.

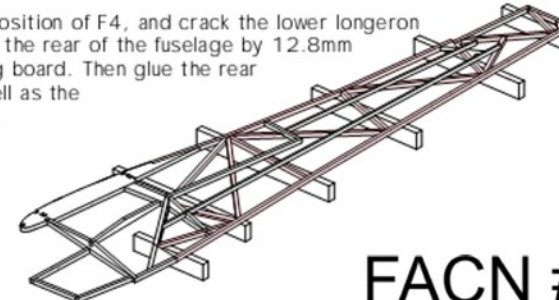
FR



2. With each side frame flat on the building board, glue formers F3S, F4S and F4L to the basic framework. Make sure you make one left side and one right side frame!

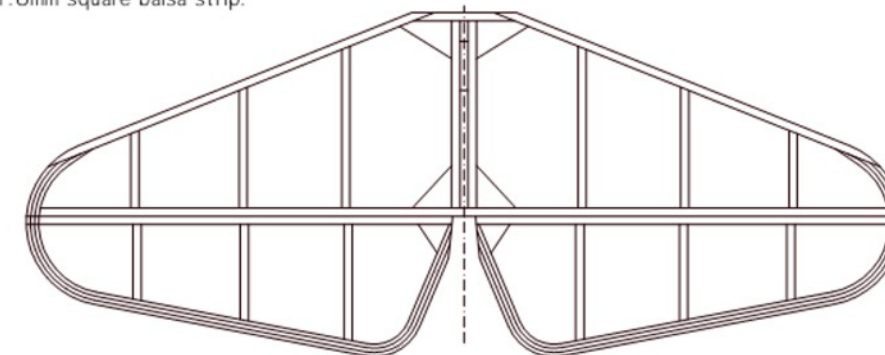


3. Carefully crack FR at the position of F4, and crack the lower longeron at the position marked. Raise the rear of the fuselage by 12.8mm lower the front to the building board. Then glue the rear window frames in place, as well as the rear stringers (0.8 x 1.6mm).



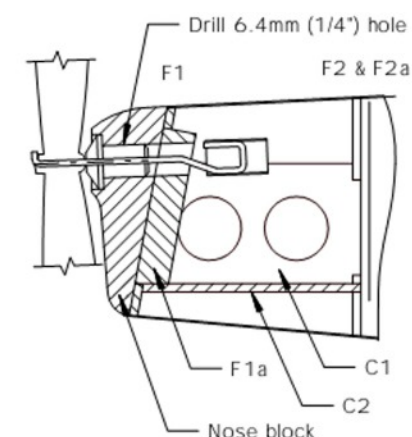
FACN #264

Tail-plane ribs and spars from 1.6mm square balsa strip.

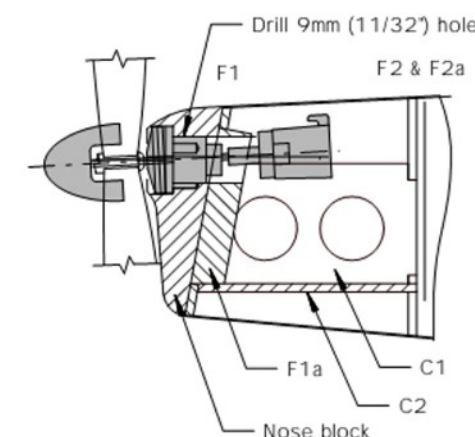


Tail-plane outlines laminated from 3 layers of 1.6mm x 0.8mm balsa. Structure follows full size aircraft.

Nose cross-section using Peck Polymers style thrust button (large):



Nose cross-section using Gizmo Geezer Precision Free Wheeler:



T1 1.6mm sheet



F3S 1.6mm (2 off)



F11 soft 3.2mm



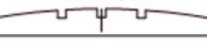
F12 hard 1.6mm



C2 1.6mm (1 off)



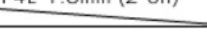
F4T 1.6mm



F4S 1.6mm (2off)



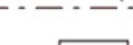
F4L 1.6mm (2 off)



F3A 1.6mm



C2 1.6mm (1 off)



F4T 1.6mm



F4S 1.6mm (2off)



F4L 1.6mm (2 off)



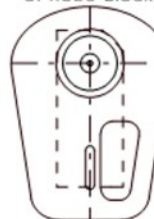
C1 1.6mm (2 off)



F4L 1.6mm (2 off)



Front view of nose block



F1 1.6mm



F2 1.6mm



F2a 1.6mm



F1a (nose-plug) 6.4mm



LG3 1.6mm sheet (2 off)



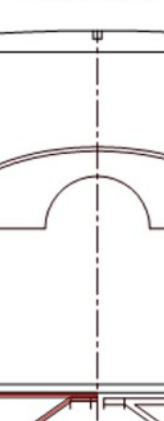
LG1 0.025" Plano Wire



LG2 0.025" Plano Wire



Section at F3



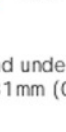
Section at F4



LG1



LG2



Bend undercarriage from 0.81mm (0.032") gauge wire.

Taylorcraft Aeroplanes Auster Mk III

Dimensions:	Prototype:	Model:
Span:	10.97m	610mm (24.0 in)
Length:	7.11m	xmm (x in)
Wing area:	15.7 sq. m	4.82 dm ² (74.9 in ²)
T/O Weight:	871 kg	40 g (1.4 oz)
Scale:	1 : 18	
Model designed by Derek Buckmaster March 2002		



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www.hotkey.net.au/~ue626

