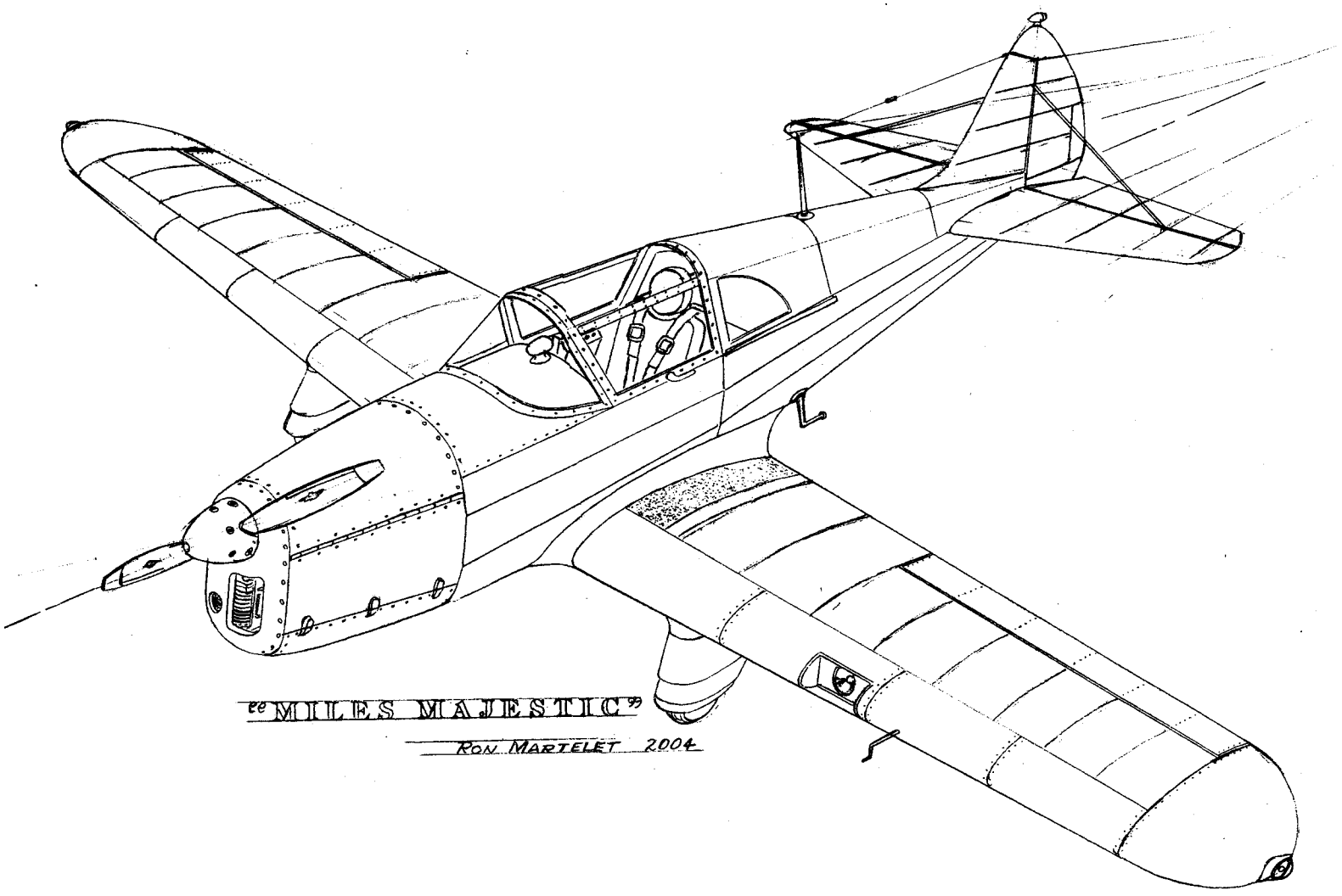
FLYING ACES

Club News

ISSUE #221-147

Jan./Feb. 2005



The cover credit for this issue goes to Ron Martelet. We thank Ron for art work and look forward to more of his fine renditions of aircraft.

The plans for this issue came from the following; John Blair (Georgias Special), Duke Horn (The Contester), Roger Aime, from France, (Besson MB 411), Michael Heinrich (Junkers F-13) and Nate Sturman (Nanchang CJ-6). We thank them and all others who contributed to this issue.

Now for some news on the up-coming FAC Non-Nats at Geneseo, N.Y. this coming July. The entry form is on the last page of the newsletter and we will accept entries starting now. We have added a couple of new events this time around. By popular demand we have added the Low Wing Military Trainer to the agenda. This will be a mass launch event and will follow the regular mass launch format except there will be no wing-span limit and the models must be in military colors and markings. The other new event is for models built from old magazine or old kit plans that were published prior to 1946. Models must be built according to plan with these exceptions; tail surfaces may be enlarged, dihedral may be increased, no foam or vacuum /plunged parts and no laminated outlines. Built according to plan means that if the plan shows wing and tail lights, steps and pitot tubes, etc. they must be on the model. Color schemes may be changed to a more scale like appearance to your model if you wish. The only proof of scale you must have is the plan you built it from. Your final score will be the total of three official flights plus FAC bonus points will be awarded to each official flight. You may enter two models in this event.

The only other thing left to tell you at this time is that the Contra-Prop event will be flown as a mass launch event and the only models eligible will be models of military aircraft.

The Kanone list is presented in this issue and all Kanones are recorded that were sent in by January 1st 2005. If your name is not listed with the correct number of Kanones or if you should be on the list for the first time contact your contest director, it is most likely his fault for not reporting contest results properly or not at all! For the contest directors convenience we have included another sample form of the Kanone report that is to be sent to Ross Mayo, 4207 Crosswinds Dr., Erie, Pa. 16506.

BUILD---FLY---WIN.....EFF--AA--CEEE!!!!!

Col. Lin Reichel, CinC, FAC

The FLYING ACES CLUB

is a society of unique individuals with a common interest that at times borders on a passion. It is our intent to preserve and promote the traditional building and flying of free flight stick and tissue model aircraft. Although competitive at times, the sharing of innovations, assistance and camaraderie is second nature to all that believe in the unique spirit of the FLYING ACES CLUB

AIR MAIL

Dear Lin,
First of all, thanks to you and the others who are the sparkplugs of the Flying Aces Club. The work you do is worth its weight in gold to me. I'm an oldtimer who started building "10 cent" kits about 1938, influenced by my older brother.

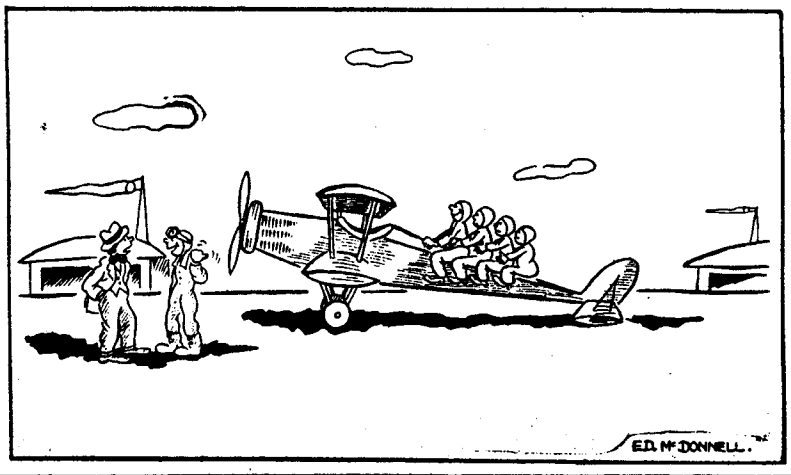
I've never been deeply involved in model airplanes but have built kits all down through the years whenever a job and family allowed me some spare time. To show you how far back I go, did you ever hear of anybody heating a piece of coat hanger wire red hot and using it to bore a hole through a nose block? You could get pretty accurate after a few tries. You sanded out the scorched wood with a rolled piece of sandpaper. How far we've come in 60 years! Who could afford a drill during the depression?

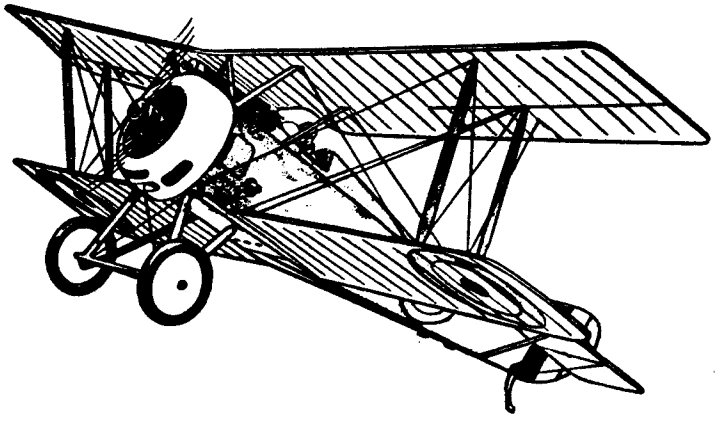
Also, how many of us built our first models on bread boards? Every household had one. Your Mother rolled and kneaded her dough on a breadboard and was not pleased when she found wing panels pinned down to her board while the glue dried. They were made of clear white pine. I've never found a better building board.

Who used banana oil to stick tissue to wood? What is banana oil? I think it was called banana liquid before it vanished from the hobby shopshelves in the late 40's.

There's one other thing I'd like to touch on before I leave, one thing that nearly put me off model building years ago was my inability to get a smooth covering job with Jap tissue. I struggled for a long time until I found out that tissue will not fit smoothly on a compound curve. It was a long time before I understood that frames had to be sanded so that each piece of tissue had a flat surface or a simple curve to fit on. Young modelers should have this explained early on.

Sincerely, Van Smith (Ed. note, Van, I think most of us oldtimers went through what you did.





If the box on the right has the dreaded RED "X" in it, it is time to renew your membership which includes the newsletter. Cost is $15.00 per year in the United States per year. Cost in Canada is $20.00 per year. Overseas the cost is $25.00 per year. All in U.S. dollars. Six issues per year, published approximitly every other month. Please make checks payable to; Flying Aces. Send to; FAC-GHQ, 3301 Cindy Lane, Erie, Pa. 16506.

COURTESY OF MARY REGALBUTO JONES' FAMILY

Mary Regalbuto Jones, shown on the wing of an AT-6 advanced trainer in 1944, was a test pilot with the Women's Airforce Service Pilots during World War II. She learned to fly at Frank Sanzo's Flying School in Lake County and received Army flight training in Sweetwater, Texas.

She never lost her love of flight

One-time WASP earned an aviation science degree at age 75

CONTINUED NEXT PAGE

John Regalbuto will be sponsoring the AT-6 event at Geneseo, N.Y. this July in honor of his sister, Mary Regalbuto Jones. Read Mary's story on this page. She was quite a remarkable woman. John will also be sponsoring the Contra-Prop event again this year. This time the event will be for military types only. John has the contra-prop mechanisms still for sale. Contact him at; John Regalbuto, 11 East St., Georgetown, Ma. 01833 for prices.

ALANA BARANICK
Plain Dealer Reporter

Mary Regalbuto Jones was flying her 1941 Navy N3N-3 biplane trainer to an air show near Seminole, Okla., seven years ago, when her plane began losing oil pressure and altitude.

She quickly turned an Oklahoma field into a makeshift airstrip, where she deftly landed the craft upright and undamaged. But the wheels sank in the mud. The nose dropped forward. The plane appeared to have crashed.

"The thing that perturbed her most was that the local reporter came out to cover the 'crash' and asked her age," said Jones' brother, John Regalbuto. "She was 74."

The former Gates Mills resident, who died Oct. 2 at age 81, began flying at Willoughby Airport in 1941 and served with the Women's Airforce Service Pilots, or WASPs, during World War II.

WASPs handled duties previously performed by Army airmen, who had been sent overseas for combat missions. Jones tested advanced trainer planes and basic flight trainers that had been repaired. She then delivered the good ones to airfields across the country for the War Department.

Of the approximately 25,000 women who applied to become WASPs, about 1,300 were accepted, and Jones was among the 1,074 who graduated. She had to wait until her 21st birthday to apply. A year later, the program was disbanded.

"She was in one of the last classes of WASP and not able to do as much flying as other classes," said Nancy Parrish, director of the National WASP WWII Museum in Texas. "But, boy! She sure flew beyond the WASP!"

Jones, a Cleveland native, grew up in the Little Italy neighborhood near University Circle. She was the sixth of eight children born to an Italian couple who had emigrated from Sicily. Her father was a bricklayer, her mother, a seamstress.

The 1941 East High School graduate became enamored of flying when a good-looking male co-worker at Higbee's department store invited her to go for an airplane ride at Willoughby Airport. Within a year, she was working at the airport office and taking flying lessons. She had a pilot's license before she could drive a car.

"She gave me a ride in a Piper Cub after she soloed and was able to take up passengers," her brother said. "The second ride she gave me was 50 years later in Bartlesville, Okla., in an N3N-3."

Jones gave up flying after the war. She worked for the federal government in personnel and administrative departments. For the last eight years of her career, she was executive director of the Cleveland Federal Executive Board, which coordinates activities of various federal agencies.

She also helped lead a successful, albeit lengthy, lobbying campaign to have WASPs recognized as veterans. The women finally received veteran status and honorable discharge papers in 1979.

Her WASP experience "had the most impact on my life," Jones told an interviewer two years ago for the WASP Oral History Project at Texas Woman's University in Denton, Texas. "Besides giving me the self-confidence, why, it just opened up a whole new world of activity."

After retiring, Jones moved to Tulsa, Okla., to enroll at the Spartan School of Aeronautics and be recertified to fly. She also became involved in recreational aviation groups. She helped start the National Biplane Association's Fly-In in Bartlesville in 1987.

She was executive director of the association until 1991, when she resigned to go back to school. She earned a bachelor's degree in aviation science from Oklahoma State University in 1997.

In 1993, Jones received the Clarence E. Page Memorial Trophy for outstanding contributions to Oklahoma aviation from the Oklahoma Aviation and Space Hall of Fame. She was instrumental in having every WASP who ever lived in Oklahoma inducted into the hall of fame in 2002.

"She really did some extraordinary things," Parrish said. "She dreamed big things and made them happen. She continued to do meaningful things with her life. She didn't stop."

To reach this Plain Dealer reporter:
abaranick@plaind.com, 216-999-4828

COURTESY OF MARY REGALBUTO JONES' FAMILY

Mary Regalbuto, the bride, married Erwin Jones, an Army Air Forces pilot, in 1946. A member of their wedding party is shown behind them near her family's home in the Murray Hill area of Cleveland. Her husband died in 1979.

COURTESY OF NATIONAL WASP WWII MUSEUM

Mary Regalbuto Jones wore her WASP uniform to various aviation-related functions in recent years.

Mary Regalbuto Jones

- Nov. 16, 1922 — Oct. 2, 2004
- Memorial service will be at 7:30 p.m. Friday at Holy Rosary Catholic Church, 12021 Mayfield Road, Cleveland.
- Advice to young people: *Aim high, stay the course, be true to yourself.*

A Life Story is a regular feature in Monday's Plain Dealer introducing you to some Northeast Ohioans you most likely never got to know.

GONE WEST

We recently lost three of our members. Louis Marden from Maine, Ed Zapolski and Hurst Bowers from Virginia have passed away. Our condolences to their families and their many friends. It must be a very bad time for the D.C. Maxecuters for not only have they lost Ed and Hurst they lost Bert Phillips as we reported in the last issue.

"Hypotwisted" Props, Hung's Preferred Alternative to "The Airscrew"

Bruce Holbrook

Part 2: Twisted Science

Let's take it from the top. -- Don't worry: it can be done almost math-lessly.

A prop is a number of "blades" -- much more accurately, wing-panels -- which are swung through the air by their roots and "attack" the air at a positive angle to direction-of-rotation so as to lift, aka "thrust", in oppositely directed reaction to their pushing-of-air vertically to direction-of-rotation. Therefore a prop is subject to two basic vectors which are at a right angle to each other. The panel's rotational speed is greatest at its tip and least at its root, and its basic forward speed, since it is that of the airplane (what else?), is the same from root to tip. The closer to its root, then, the more is the "static angle of attack", angle of blade to direction-of-rotation, "washed-out" by forward travel to yield a dynamic angle of attack. For convenience we may borrow a qualifier from the NASA Web-sub-site on this subject, and call this effect of vectors "alpha-washout".

There is also "beta-washout", which alone obtains when the prop runs but the plane is still. As the blades push air aft they also pull air toward themselves, at speeds basically determined by radial blade-station (the closer to the tip, the faster) and by dynamic angle of attack per any alpha-washout (the steeper the dynamic angle, the faster). So basically, dynamic angle of attack equals static angle of attack minus the sum of alpha-washout and beta-washout.

Beyond that there are at least three factors, already indicated, which non-predictably alter dynamic angle of attack from what the cybernetic feedback-loop of alpha-beta-washout would predict. But by combining a range of realistic assumptions about the unknowables with inferences from the knowables, a useful albeit approximate picture can be drawn. Of course, in view of the combination of rubber power's curve and the continually changing demands on thrust of continually changing attitude, all variables in question have to be averages. ... It's all, ultimately, about more hitting and less missing.

The picture is: on a helical prop. dynamic angle of attack does approximately double as radial station is halved. So we do indeed have a dynamic airscrew, albeit an imperfect one. We therefore also have an "air*screw-up*". As explained, in providing for steepest angles of attack at slowest (rotational) airspeeds, such design is comparable in Efficiency to an X-Acto knife-blade applied dull-side down to carve a prop.

Let me specify that, as far as I can. Because lift varies as does area and velocity-squared, almost all thrusting occurs between 50% and 100% radius, wherefor the region around 75%-radius is called "the sweet-spot" and the entire sector from 50% radius to tip here is called "the sweet-sector". "Fuzzy" ranges of dynamic angles of attack in the outboard and inboard subsectors of the sweet-sector, then, are a negligibly over-simplified set of data for the whole prop. They tell that a typical helical prop's average dynamic angle of attack in the inboard sweet-subsector is about 1.4 times that of the adjacent outboard subsector. So there is about 1.7 times average angle per average speed in the inboard subsector as in the outboard one. And with constant chord the inboard sweet-subsector delivers about 18% more thrust (when it isn't stalling) at the price of considerably more than 18% more drag; more of each when blade-planform tapers.

So helical twist guarantees that while some very-small sector of the blade flies with maximum possible Efficiency, the average rest of it flies with much less, due to stalling and/or lesser "L/D".

You are probably thinking, "This makes a lot of sense, but how could it be, that those most professionally qualified to design and explain propellers -- and who profess concern about "partial bladestalling" -- have 'screwed-up' for generations?" Two of the more interesting reasons are: 1) Where the exact values of the dynamic interactions between a propeller and the air around it are as elusive as the cause of human perversity, it is easier for a scientist to imagine s/he knows something -- say, dynamic angles of attack and their radial distributions -- than to recognize that s/he doesn't. 2) As propagandists know too well, people normally question the validity of what is meant by someone's sentences, but -- an advanced Degree in this or that not-at-all withstanding -- they very rarely question the truth-value of the meanings of the words themselves -- here, "the airscrew" in English and *'l-helisse'* ("the helix") in French. The "basic building-blocks" of communication and systematical thinking are tacitly treated as true, and regiment minds, until someone may blow the whistle on those who invented and popularized them in the first place.

Part 3: Hypotwisted Prop-Design and Test-Results

Now let's explore for invisible silver if not gold. We'll "use what we do know to get-at what we don't", as the Chinese philosopher Juang-Dze put it where-when Science was appropriately humble vis-a-vis Nature, including its human transformations.

The ideal would seem to be to "trim" our props for max L/D in faithful accord with Bizarro-World parameters. Dynamic angles of attack would vary as do rotational speeds per radial blade-stations: the farther toward the tip, the steeper. Then, every square nanometer of blade would deliver maximum possible Thrust per Drag. Thrusting would cease at every station simultaneously -- no *partial* blade-stalling here!, but its sum-total per totality of revs would be much more than with a helical configuration, so Efficiency would be a whole lot greater.

Once I saw that, I got excited, and designed and built a certain form of "anti-helical" propeller. Common sense advised that if too-far a step were taken toward the "Bizarro-World configuration", tip-ward boundary-layering would become problematic; most of the prop's work -- if it didn't snap -- would be performed quite near its tips so that (there being no Thrust without Drag) torqueover would be impractically huge; and the thrust-differential during the "power-burst" would require too much downthrust for subsequent buoyancy on the part of a model which spends a good portion of its flight in the "cruise": make the model "fly too hot" post-burst, as our too-soon-departed Benefactor, Bob Thompson, with poetic economy used to put it.

It stood to reason, then, that some cross between a helical and "Bizarro-helical" configuration was indicated. In-effect, a helical blade would be partially un-twisted and restored to its original static angle of attack at its 75%-radius, center of the "sweet-sector", or to somewhat more than that angle, to accomodate its greater efficiency (as specified in Part 4) .

I conducted numerous "minimal-pair" experiments that pitted various formed or carefully sculpted props of such hypotwisted design against first-class helical ones equal-to or comparable-to them in "sweet-chord" P/D. For its relative amenability to exact measurement, I initially used a rubber-powered tethered car with a typical model airplane's dragging-profile and weight,

Being unable to determine dynamic angles of attack, I could only know that they were fractions of the static ones, and that relative to helical parameters I was increasing the ratios of those at the tip to those at 50%-radius, probably in some cases to greater-than-1. But that was all I really needed to know.

Per the car-experiments, my hypotwisted props excelled comparable helical ones by 7-to-8%; and by less controllable experiments with outdoor airplanes, more like 10%. That seems little until you realize that it means 8 momentous seconds counted v-e-r-y s-l-o-w-l-y after the mass-launched model which will place Second or Third with an 80-second flight has landed. Of course there is unknowable room for improvement. And others more favored inspirationally by Hung (Whom we should now suspect is Chinese -- Sounds like it) may already have found better versions.

I specify a special and colorful case, because it best supports the hypotwisted design-strategy, as one of success (in powered, not also gliding, flight) via extreme violation of helical convention. My apparently most efficient prop, an adventure into the liminal zone between This- and the Bizarro-Worlds, like a kiddie-prop was not at all twisted, but unlike a kiddie-prop was set at a 45º static angle of attack. For stiffness it was undercambered, 10 degrees on-average, and for minimal drag with very-wide tip-chords, the blades were of formed laminated card like Mark Fineman's display-props. At its 87.5%-radial "sweet-spot" -- it was fan-shaped to compensate for its short span, P/D far exceeded maximum conventional high-ceiling indoor magnitude, at a sacrilegious 2.75.

At Pinkham Field I had launched a prototype Embryo propelled by two such, counter-rotating, fans. It caught Dave Stott's eye, then Airdevilishly astute ear; and he observed, " You can *hear* them pumping the air." Its climb was the steepest I've ever seen on the part of a rubber-powered non-Wake non-helicopter, and its pre-glide altitudes certainly were extraordinarily high even in view of the greater-than-usual ratio of motor-weight to total weight that its torque-over-less counter-rotation afforded. ("The Transcender" was privileged to be photographed and written-up by that master of both forms of communication, Dave Dodge, whom I also thank for patiently and informedly guiding me through said NASA site. See his Web-site, "Twin Pushers and Other Free-Flight Oddities".

"WHY"

Many times my friends have asked me
"We know you like to fly,
But why this loving interest in
Those antiques of the sky?"

Well, the answer's very simple,
It is really nothing more
Than a wish to feel a kinship
With those mighty men of yore-

Who rode to fame on flimsy wings
Of wood and wire and glue
Who laughed at death and danger
When all the sky was new.

They flew Jennys and the Standards
Yes, they daily placed their lives
In trust to spruce and linen
And their cranky OX-5's

I love the stench of castor oil
In wheezing rotarys
And the Spads that fought the Fokkers
Long ago across the seas

Yes, I thrill to see the Waco's
Eagle Rocks and Parakeets
Heaths, Kari-Keens and Fairchilds,
C/2's and Kinner Fleets

Travelairs and Curtiss Robins
I could name them by the score
What a pity we have let them
Rust and rot to fly no more

So I'll dedicate my talents
And all my life I'll try
To save for loving restoration
These relics of the sky

Let me hear that OX roaring
Steel wires singing in the sky
Then I'll be with the planes and men
Who taught the world to fly.

Anonymous

S.O.S.----S.O.S.

Has anyone heard of Harold (Pop) Schreber? He was the proprieter of Model Aircraft Institute, a model shop in Kansas City, Mo., and owner of Country Club Aero. If anyone knows his whereabouts please contact; John Sperry, 11115 Lillian Highway, Pensacola, Fl. 32506.

WANTED; Some FACers in northern Ca., near the Oregon border to form an FAC Squadron. Contact; George Popa, 411 W. Center St., Yreka, Ca. 96097.

* * Stability * *

Mumbo Jumbo #118 from the Glue Guru

Adequate longitudinal, or fore and aft stability, has been achieved by most of us. Those annoying nose up and down (phugoid) oscillations have been licked with a combination of a forward C.G. and a larger horizontal tail. The usual formula of a tail area equal to at least 25% of the wing area meets the test of reality, though 30-33 % is even better. True scale tails, at about 15 % just won't do.

Why aren't full scale tails made larger? Surely pilots would appreciate the greater inherent stability–approaching that of an auto-pilot–or would they?

There is a catch. Greater inherent stability implies reduced maneuverability. At about the 25% point the aircraft becomes reluctant to dive steeply, no matter how much force the pilot applies to his controls. When employed by the BE2c, a WWI Royal Aircraft Factory design, complaints were fierce. Men died because they were unable to dive away from attacking German aircraft. Upon investigation, the BE2 was officially declared a "non-diver". The commotion strongly influenced full scale design thereafter. Result: tails are small.

Model designers know this. Making the tail bigger is an obvious and necessary step. The problem is a tendency to make the vertical tail larger as well. Doing so maintains a sense of scale–if only the horizontal tail is enlarged, the vertical tail seems too small. The catch is that making the vertical tail larger will probably lead to spiral instability.

We struggle with two basic forms of lateral instability: that sensed under power and that developed in glide. These differ because the prop blast itself is a powerful factor in lateral stability; prop blast presence or absence has much to do with the result.

The blast doesn't go straight back; it spirals, reflecting the motion of the prop. The usual affect of a too large vertical tail, taken together with the motor torque, is to force the model into a left bank. Unless corrective action is taken, the final result may well be a spiral dive into the ground. Fortunately, for most models the cure is simple: offsetting the prop a few degrees to the right, or adding right thrust.

When in glide, with torque and prop blast no longer significant, oversized vertical tails can produce a delayed spiral dive either to the left or right. Because the disturbing force is small, it sometimes takes many seconds for the instability to become clear. In some models, only a lengthy thermal flight will force the slight "divergence" to reveal itself.

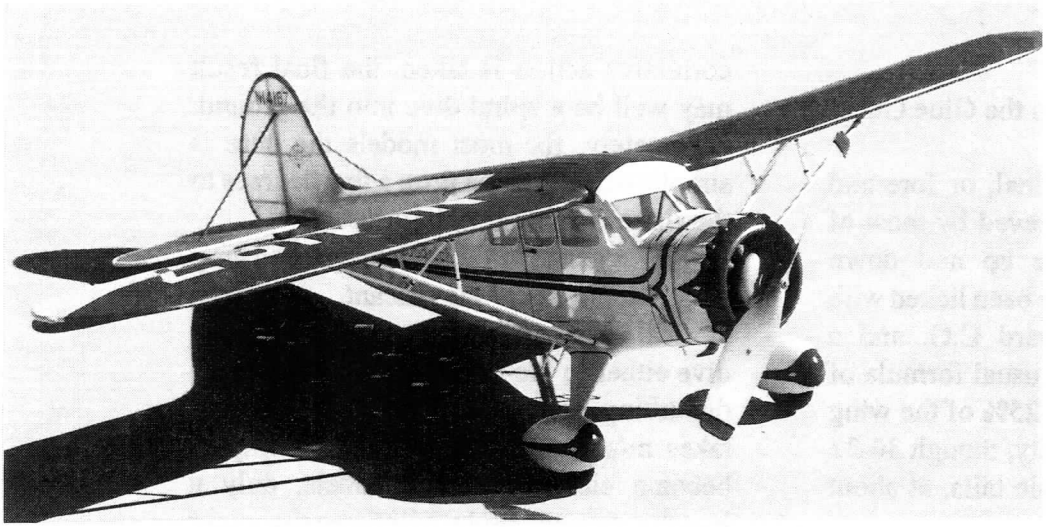
We tend to write off such late flight oddities as flukes, owing to some peculiar gust. Sometimes this is the case, but sometimes not. If you see it on two separate flights, the chances are that the instability is real.

As to the cure, some believe in potent combinations of washin and washout. I don't. There will always be some gust/breeze/thermal combination that will unravel those washin/washout settings to freshly recreate exactly that unwanted spiral dive.

Instead, I think the only genuine solution is to chop the vertical tail down in size to something acceptable. It should be less than scale in size–certainly never more. Unfortunately, the process is no fun. Removing the vertical tail is not easy and reworking it is a nuisance. When all is said and done, it will seem too small.

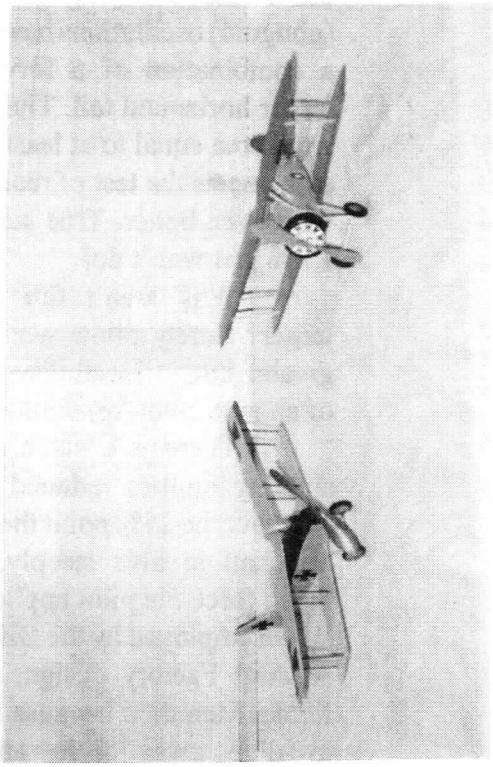
Can this resizing be overdone? What happens if the vertical tail is made too small? A new form of instability then arises, called Dutch Roll, in which the model rolls slightly clockwise, then counterclockwise, etc. This happening is rare; I've seen it exactly once, and then only by flying a model after having removed its entire vertical tail. As a practical concern, we needn't worry about this one.

With full scale vertical tails so large, most real aircraft are spirally unstable. Oddly enough, pilots don't complain. They like that feeling of being in control, granted by a large vertical tail.



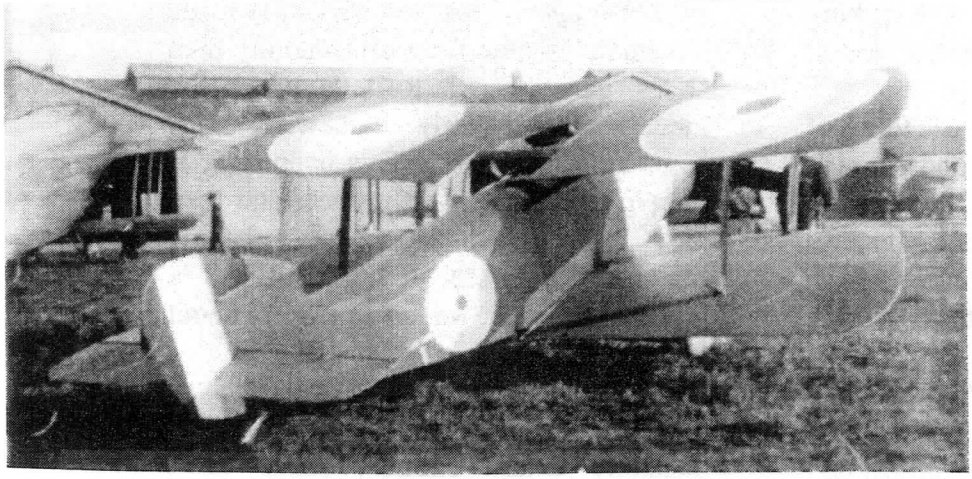
Bob Schlosberg's CO/2, 31" span Stinson SR-5,
A real beauty! Bob's photo.

Two models by Ron MacDonald, a Halberstadt and a Thomas Morse.



Harvey Pastel sent this pic of Juanita Reichel
and her great flying O.t. Rubber ship, Commander.

Pete Azure and his
Jumbo Stinson SR-10.
Photo from Mike Zand.



Here is a photo of the real Sopwith "Sopwith "Bee"
from Al Backstrom. Plan in a recent issue.

CACTUS SQUADRON KANONE QUEST 2005

CONTEST DIRECTOR – BOB SCHLOSBERG (480-941-8778)

CACTUS SQUADRON FIELD
S.W. Corner Power Rd & Elliot Rd in Higley, AZ.
07:30 – 13:00 SUNDAY APRIL 10

SEVEN EVENTS (FAC RULES APPLY TO ALL EVENTS):
THREE JUDGED EVENTS:
1. FAC SCALE – NO WINGSPAN LIMIT (MUST BE OVER 13" SPAN)
2. FAC PEANUT SCALE (NOT OVER 13" SPAN)
3. FAC POWER SCALE – JUDGING TO FAC SCALE RULES

THREE MASS LAUNCH EVENTS: MINIMUM 45 SCALE POINTS.

1. WW-1 MASS LAUNCH (Multi-wing only)
2. EARL STAHL MASS LAUNCH (Any Earl Stahl Scale Model)
3. WW-2 MASS LAUNCH

ONE THREE FLIGHT TOTAL EVENT:
1. MODERN CIVILIAN SCALE – 3 flights total, minimum 45 scale points.

NO AMA LICENSE REQUIRED!
ENTRY FEES:
ALL JUDGED SCALE EVENTS - $ 5.00 EACH ($10.00 MAX).
FLY MASS LAUNCH EVENTS FOR ONLY $5.00 TOTAL.
MAX ENTRY FEE - $ 15.00

ALTERNATE CONTACTS:

JOE MCGUIRE	480-924-4313
LARRY SEALS	480-855-0197
DAVE SMITH	480-892-0935

PANEL LINES, HATCHES, ETC. by Vance Gilbert

For drawing panel lines and other details on models with fine point pens I make up what I term "phaux rulers and templates". For example, here's what I do when I want to draw lines around cowls, nacelles, etc. First, I layer up a few long, thin strips of blue masking tape (the low tack stuff from your local hardware store) so that the edges are even and the tape stack is about 1/32" to 1/16" high. Next, I apply the tape so that the edge runs around the oval model section right where I want to draw the line, then I draw the line against the edge. After the ink has dried, I carefully remove the tape and there is my nice, clean ink line just where I wanted it.

Access panels that are square with the edges rounded off, or other odd shapes are done by making a template out of the same blue masking tape, cutting the shape out with a sharp knife blade, applying it to the model, and then drawing away as described earlier. It's a very simple technique, but one that produces excellent results. I'm not a good photographer, but hopefully the following snaps of my new twin-engine DeHavilland D.H. 95 Flamingo that I flew at the Nats illustrate this just a tad. "Thoimals!"

(First appeared in the Tailspin newsletter)

X - AIRCRAFT

by
Fran Ptaszkiewicz D. S. M.

The 'X' designation has long been used to identify the various airplane designs which were proposed and in many cases had prototypes completed. If successfull test programs were achieved, it would at times, lead to full blown production contracts.

The XP, XB, XO, XS, as well as many other X type markings and combinations such as XSOC, XSBU, would be assigned to a design and follow it thru the full test program. If all was satisfactory to the purchaser, a contract would be awarded, the X designation dropped and the model begin its way down the assembly line, then out to the various service units or other buyers.

For as many aircraft to have completed this scheme, there were as many which fell by the wayside after one or two test aircraft were completed. Some times as a result of unsatisfactory performance, failure to reach design parameters or unable to justify further research due to production aircraft of other designs rapidly improving and in some cases beginning to exceed the new X plane proposal.

There would be other problems plauging these new and sometimes radical departure's. The largest would many times have to do with the X plane being designed around a new engine that was in many cases attemptimg to be developed concurrently with the new airplane. The failure of which would force the airplane design people to scramble and secure a less powerfull or inadequate engine that would doom the design before it had a chance to prove itself.

In December 1939, the USAAC announced a new fighter design competition. The Vultee Company went to work and submitted an unconventional, advanced design with an estimated speed of 510 m.p.h.. This interested the USSAC and in early January 1941 ordered a prototype which they designated XP-54. At the same time, Curtiss Company was given an order for the XP-55 and Northrop for its XP-56, both also of some what radical configuration.

The Model 78 which was the Vultee Company designation, had been designed around a new Pratt & Whitney X-1800-A4G liquid cooled engine of 1,850 hp that was then in the process of development and promised great things. Unfortunately, the engine was cancelled forcing Vultee to fall back on still another experimental engine, the Lycoming XH-2470-1, a 24 cylinder liquid cooled turbo-supercharged engine of 2,300 hp.

On January 15, 1943 the "Swoose Goose" took off on its first test flight lasting 31 minutes. It handled very well but the high speed realized was only 381 mph, far short of the hoped for over 500 mph.

It was an extremely interesting although unorthodox fighter. The XP-54 was a twin boom inverted gull-wing monoplane with a four-bladed pusher propeller. The cockpit was in the center of the bullet-shaped fuselage which used magnesium-alloy in its construction. Access to the cockpit was thru the bottom of the fuselage under the cockpit canopy.

The seat would be lowered and once the pilot was seated in it, the seat would be raised to the normal flying position. If a bail out situation

would occur, the process would be reversed at speed and the pilot automatically released downward clear of the four-bladed propeller. A tricycle gear was utilized with the nose wheel retracting forward into the nose of the fuselage, while the main gear retracted into the wings. The engine was rear-mounted in the fuselage and the nose contained the 37 mm cannon and two fifty caliber machine guns.

The XP-54 completed 86 test flights totaling 63 hours, 10 minutes of flying time. A second XP-54 was ordered in March 1942 and completed, it made only one test flight in May of 1944, following which the entire program was cancelled.

With the abandonment of the Lycoming engine project, which was a fallback from the original engine, a proposal was made to adapt a Wright-R-2160 Tornado 42 cylinder radial engine to the airframe redesignate it the XP-68. Sadly the production of this engine was discontinued and actually never built.

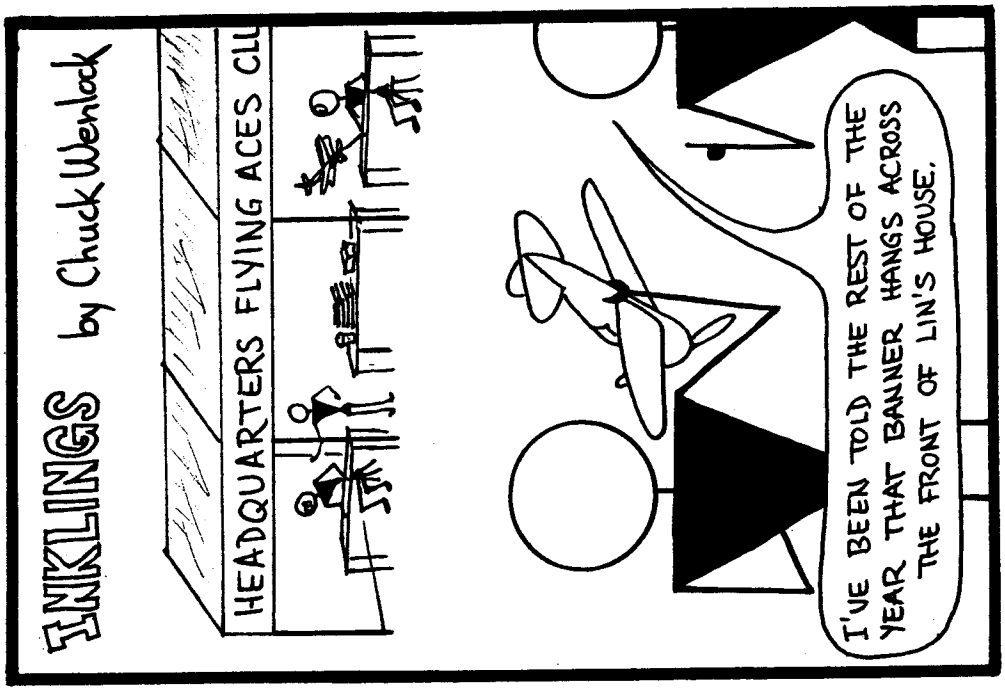
Like so many other radical aircraft that had potential and were designed around engines being similarly in development, the XP-54 was the victim of two promised powerplants either of which may have created a very effective fighting machine.

Specifications were; Wingspan 53'-10"; Wing Area 456 sq. ft.; Length 54'-9"; Height 14'-6"; Cruising speed 328 mph; Maximum sea level speed 290 mph; Maximum speed at 28,500 ft 381 mph; Landing speed 110 mph.

The accompaning three view drawing of the XP-54 is by William Wylam and is from the May 1945 issue of Model Airplane News which also featured a cover drawing of this airplane by Jo Kotula. An Earl Stahl designed rubber rendition also appeared in this issue, wingspan 13-1/16". I have over the years subsequently learned that this and two other designs by Mr. Stahl were published in a somewhat reduced size by the magazine people. The original wingspan as designed was 18-11/16" and this as well as the original size plan are available from one plan supplier with a 25" wingspan version being offered by another.

NEW FAC SQUADRON

The latest group to request FAC Squadron status is in Long Beach, Ca. Anyone in that area who would like to join them will be gladly accepted. Contact; Clint Brooks, 2231 Vuelta Grande Ave., Long Beach, Ca. 90815. The new squadron is called the Scale Masters, FAC Squadron #70.



FAC KANONES
as of 1/1/2005

AIR MARSHALL

ROBERTS, GORDON 526
WECKERLY, STU 323
MCGILLIVRAY, JACK 271
SRULL, DON 224
GRIEBLING, STEVE 189
ZAPF, RICHARD 183
REES, DAVE 176
LIVESAY, DAVE 157
MILLER, JIM 140
MIDKIFF, MIKE 123
NORMAN, DENNIS 121
THOMAS, MIKE 116
HALLMAN, TOM 113
STOTT, DAVE 110
BRIEHL, DAN 108
COX, PHIL 108
BOYANOWSKI, PAUL 107
PORTER, JERRY 107
FINEMAN, MARK 106
NALLEN, TOM JR. 103
ZAND, MIKE 103
STARLEAF, CHRIS 95
LAWTON, AL 89
MACENTEE, RICH 82
BREDEHOFT, GEO. 75
PELATOWSKI, ED 73
ROWSOME, FRANK 71
NIEDZIELSKI, DAVE 70
HOUCK, JOHN 67
FARRELL, WALLY 65
KANE, DAN 62
MATHER, CLARENCE 61
KOTHE, HERB 59
MEYERS, III GEORGE 58
NIPPERT, VIC 58
HENN, BILL 57
MAYO, ROSS 57
SCHLOSBERG, BOB 57
STOTT, JOHN 57
WUNSCHE, FRED 57
GROENING, TOM 55
SMITH, DAVE (AZ) 55
KRUSE, LARRY 54
LOUCKA, LARRY 53
BUKOWSKI, CHET 52
HOWARD, DICK 52
SCHANZLE, ALLAN 52
SCHOBLOWER, CHAR 52
MOSES, JACK 51
SMITH, DAVE (SC) 51
BROCK, WAYNE 50

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JOSEPH, JOE 50

AIR VICE MARSHALL 48.5

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SMITH, GENE 48
GILBERT, VANCE 46
MEYERS, STEW 46
BROWN, RUSS 45
EGGERT, WALT SR. 45
LEWIS, GEORGE 45

45

GENERAL

45

PERES, VIC 44
LANG, DON 43
NASSISE, MIKE 43
STOTT, PAUL 43
DRISCOLL, DAN 41
FINLEY, BRUCE 41
KOPTONACK, JOHN 41
LIKELY, AL 41
SLUSARCZYK, DON 41
KACIAN, JACK 40

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LT. GENERAL

40
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BOJANOWSKI, BOB 39
TRIVIN, WAYNE 39
BENTON, OLIVER 38
BLAIR, JOHN 38
DELOACH, DON 38
MILLER, RICH 38
SANFORD, CURT 38
DOCK, TED 37
CHAPPELL, HOWARD 36
MCLELLON, BOB 36
NUNEZ, GEORGE 36
SIEDENTOPF, BOB 36
KESHISHIAN, HARRY 35
KUTKUHN, JIM 35
LOEHLE, CARL 35
TUDOR, JOHN 35

MAJOR GENERAL 34

CLEMENS, BOB 34
DUNMIRE, DICK 34
OBARSKI, DICK 34
BEARRY, GLENN 33
KUENZ, RALPH 33
NALLEN, TOM SR. 33
DAILY, PAT 32
DECOOK, DON 32
DIETZ, BILL 32
PEAVEY, LARRY 32
PITTMAN, TERRY 32

REED, DON 32
ARONSTEIN, DAVE 31
BUXTON, JIM 31
THOMPSON, BOB 31
BOLLINGER, NEWT 30
MCGINNIS, DEAN 30
POWELL, CLAUDE 30
SUGDEN, BOB 30

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BRIGADER GENERAL 29

29

AZURE, PETE 29
BURDSAL, LES 29
IVERS, RICHARD 29
KLIENERT, RANDY 29
MARETT, JOHN 29
PARENT, CHRIS 29
ISAACKS, BOB 28
BRUNING, PRES 27
ENGLERT, JEFF 27
NOVAK, ED 27
DALEY, JIM 26
HILL, CHARLES 26
ORPHAN, WILLIAM 26
SCHLOSBERG, JANE 26
WELLS, MILLARD 26
BACOM, STEVE 25
BALUNEK, DEL 25

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COLONEL

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BARLOW, PHIL 24
GILBERT, SIDNEY 24
MACDONALD, TIM 24
MATHIS, PETE 24
ADAMS, DICK 23
BACKSTROM, AL 23
BOYLES, RED 23
CARSON, BUD 23
HIRLEMAN, FRANK 23
LANDRUM, BILL 23
ZBASNIK, PETE 23
CLEAVE, AL 22
DELOACH, ED 22
HAWLEY, RICK 22
MCDONALD, DAN 22
SHARBONDA, KEVIN 22
TISINAI, JACK 22
BOEHN, CHRIS 21
DERBER, TOM 21
DOBBERFUHL, SCOTT 21
MCGUIRE, JOE 21
PAISLEY, JERRY 21
SMITH, OSCAR 21
EWING, FRED 20
GILLIS, RICH 20

HINES, MIKE 20
LEFFLER, GEORGE 20
PASSARELLI, BILL 20
REICHEL, LIN 20
ROPAR, NICK 20
ROSS, LINCOLN 20
THOMPSON, MIKE 20

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LT. COLONEL

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BOJAN, ED 19
DONOHUE, JERRY 19
FRANKS, DAVID 19
HEYN, ED 19
LINSTRUM, DAVE 19
MCGOWAN, MEGAN 19
MORROW, MIKE 19
PHILLIPS, GEOFF 19
SCHMITT, TOM 19
WEBB, JASON 19
FIKE, JACK 18
HELMAN, PAUL 18
HURDLE, JOE 18
ISERMAN, MIKE 18
KLUIBER, RUDY 18
LANGLEY, TED 18
MOORE, ROYALL 18
PARTIN, GENE 18
STEEB, DON 18
BARKER, JOHN 17
BOURKE, ROY 17

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CAPTAIN

17

GAMBLE, CLIVE 17
HUMMEL, RON 17
HUTCHINSON, BILL 16
IVERS, DICK SR. 16
KAGEN, JOHN 16
NIED, TOM 16
ODOM, TOM 15
PHILLIPS, BERT 15
SCOTT, FRANK 15
ARNOLD, TOM 15

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MAJOR

HUDSON, NEAL 14
HUNTER, GARY 14
KRAMER, JOHN 14
THORNTON, JIM 14
ARMSTEAD, GEORGE 13
BEAL, PETE 13
BRIMMER, DON 13
BROWNHILL, CHRIS 13
CAMPBELL, DON 13
DECOOK, ALLAN 13

HYKA, JIM 13
LAVENDER, TIM 13
LIONBERGER, FRED 13
MOULTON, BOB 13
SLUSARCZYK, CHAR. 13
CUMMINS, STEWART 12
SHERMAN, LEN 12

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BARLOW, MARK 11
COLSON, STAN 11
DETAR, JAMES 11
GRANT, JIM 11
HOUCK, MARK 11
MILLER, DON 11
MUFFELMAN, BILL 11
NEFF, VERN 11
O'LEARY, JACK 11
RUSSELL, TED 11
RUSSO, ROCKY 11
SHIELDS, ALLEN 11
CHOATE, RICK 10
COX, VIC 10
ENGLERT, DAVE 10
ESCALANTE, MIKE 10
HUDSON, RALPH 10
HUTCHINSON, JOHN 10
KAITERIS, PETER 10
SCHMIDT, WILFRED 10
VOLLMER, AL 10
WELSHANS, MIKE 10
WHITEMAN, JIM 10

9

CAPTAIN

9

GAMBLE, CLIVE 9
HUMMEL, RON 9
HUTCHINSON, BILL 9
IVERS, DICK SR. 9
KAGEN, JOHN 9

9

LIEUTENANT

9

PHILLIPS, BERT 9
SCOTT, FRANK 9
ARNOLD, TOM 8
BARFIELD, DAVID 8
BENDER, BOB 8
BREDEHOFT, JACK 8
HANNAY, DOUG 8
MARCHESE, BOB 8
SCOTT, CHRIS 8
SIMPSON, WILLARD 8
THOMAS, PHILIP 8
VANDORN, STUART 8
WARNER, BILL 8
ANDERSON, ERIC 7
ASSEL, DON 7
BATIUK, GEORGE 7

BLANCHARD, STEVE 7
BROMM, KARL 7
BUTSCH, ROBERT 7
FEDOR, MIKE 7
FRAUTSCHY, HENRY 7
HARWOOD, DON 7
JACKSON, TIM 7
KAMODY, RON 7
KONEFES, ED 7
O'BRIEN, TOM 7
PAILLERON, A.J. 7
SMITH, DAN 7
TECHUK, ALEX 7
ALDERSON, LEN 6
BOEHN, PRESTON 6
BRAUER, SAM 6
GALLO, GREGG 6
GARAFLOW, DON 6
GUNN, WADE 6
HARWOOD, ERNIE 6
HENDERSON, BILL 6
HOPKINS, HARVEY 6
MCCONNELL, KEN 6
MILLER, WILLIAM 6
MORTON, GARY 6
POLENTO, JOHN 6
PRISEL, DUDLEY 6
REGALBUTO, JOHN 6
RICE, JACK 6
ROBELEN, DAVE 6
RZADCA, MARK 6
SMITH, HOMER 6
STEED, CHARLES 6
TAKAGI, FUDO 6
TAYLOR, BARRIE 6
WEISENBACH, WARREN 6
WHITING, JOE 6

5

LIEUTENANT

5

BARISH, JOE 5
BARNA, JOE 5
BATTERSON, REG 5
BUCHANAN, MIKE 5
BUCHER, TIM 5
BUKOWSKI, BILL 5
COURTNEY, ROY 5
DRELA, MARK 5
HARDING, BILL 5
HARLEIN, RAY 5
HUNT, BOB 5
KOMP, HENRY 5
KUEHNE, LAVON 5
LANE, RANDY 5
MOSKOW, MIKE 5
NICHOLS, BOB 5

NUSZER, JOE	5	FOSTER, BRUCE	3	DITRICH, BRIAN	2	WAGNER, JERRY	2	DOTEN, ART	1	LEONHARDT, WALT	1
PHELPS, JACK	5	GORMAN, DICK	3	DITRICH, MIKE	2	WALES, TED	2	ECKERSON, EARL	1	LIDBERG, AL	1
PRICE, BRUCE	5	GRABSKI, PAUL	3	**DIVIS, ROY**	2	WARMANN, BOB	2	**EIMERT, DICK**	1	LIGARSKI, STAN	1
SANDOR, TOM	5	HERR, TOM	3	EVERSON, WALT	2	WATTS, RON	2	ELLIS, D.	1	LOATES, FRANK	1
SCHICK, EARL	5	HUGHSTON, TOM	3	FLESHER, AL	2	WOODS, FRANK	2	ENGLERT, DOUG	1	LUZZI, KRISTINA	1
SEALS, LARRY	5	KNIGHT, MARION	3	FUGIKAWA, STEVE	2	WORMLEY, JOHN	2	EPP, BRIAN	1	MAGERS, CHARLES	1
SHIRLEY, HERB	5	KRANIS, DAN	3	GARRISON, BOB	2	**ZEIGENFUSE, JERRY**	2	ESPIL, JOE	1	MANKOWSKI, JIM	1
SOTICH, CHARLIE	5	**KWASINSKI, MARK**	3	GRIGGS, DOUG	2	**ADAMS, RICHARD**	1	**FAHEY, RICHARD**	1	MARCHESE, MATT	1
STEIN, HARRY	5	LEWARS, JOHN	3	HAAAKONSEN, ERIK	2	ALABACK, JIM	1	FAGS, K.	1	MARKSON, JERRY	1
TALACKO, RAY	5	LOVETT, GRANT	3	HARRIS, JIM	2	ALBRACCIO, BUD	1	FEDOR, JEFF	1	MCBRIDE, JIM	1
TALBOT, RICHARD	5	LUZZI, MICHAEL	3	HEDLEY, CARL	2	**ALLEBONE, TED**	1	FERGUSON, BOB	1	MCELVEEN, JACK	1
TOMCZUK, S.	5	LYONS, BOB	3	HEINRICH, MIKE	2	ALLEN, TERRY	1	FLETCHER, BARRY	1	MCGEE, DUSTIN	1
VIGGIANO, LOU	5	MALTZ, ENRIQUE	3	**HODSON, GARY**	2	ALLISON, MARK	1	GEARING, GEORGE	1	MCKINNEY, MIKE	1
WALLACE, PETE	5	MCBRIDE, DUNCAN	3	JAMISON, BOB	2	ALVIS, BUNNY	1	GILES, RICH	1	MCMAHON, JIM	1
WOODS, JIM	5	MITCHELL, DAVE	3	KING, GARY	2	ANDERSON, ART	1	GREGGS, FRED	1	MELLANDER, ELMER	1
BRIEHL, JEFF	4	MOSELY, JIM	3	KNUTSEN, NEIL	2	BAGALINI, LARRY	1	GUMM, TERRY	1	MIDGETT, RON	1
CERESA, BILL	4	NELSON, BOB	3	**LEHNERT, KEVIN**	2	BAIRD, TEX	1	HAGEN, AL	1	MIDKIFF, RICK	1
COLLINS, DAVE	4	ODOM, LOUIS	3	**LEHRMAN, JIM**	2	BARKER, JACK	1	HAIGH, BOB	1	MINO, CHRIS	1
EGGERT, WALT, JR.	4	OLM, ORVILLE	3	LEIFER, LOUIS	2	BARNES, LOU	1	HAIGHT, BOB	1	MONTEATH, ALAN	1
FACTOR, R.	4	ORZECH, HENRY	3	LEMON, KENT	2	BARR, BILL	1	HALES, STEVE	1	**MORTON, LYNN**	1
FARANDA, TONY	4	OSBORNE, BOB	3	LINARDIC, VLADIMER	2	BAXTER, D.	1	HANFORD, BOB	1	**MURRAY, PAT**	1
FINK, STAN	4	PACK, CHARLES	3	LUNDBERG, BOB	2	BECKER, NORMAN	1	HANFORD, RIP	1	MYERS, GREG	1
GARBER, LES	4	PAYNE, RAY	3	MANSFIELD, GEORGE	2	BENNER, DAN	1	HARDING, HAROLD	1	NACIN, DICK	1
GUERRA, OMAR	4	RAKOW, RAY	3	MARCELLO, ED	2	BETHEA, JIM	1	HASLAM, LIN	1	NALLEN, JOE	1
HARLAN, DAVE	4	REICHEL, JUANITA	3	MASTERS, RICHARD	2	BETJEMANN, ROBERT	1	**HATZ, LYMAN**	1	NALLEN, KAREN	1
HASKELL, CURT	4	RODEN, BOB	3	MCDANIEL, HAP	2	BETZ, CLIFF	1	HAWES, DICK	1	NEARING, LARRY	1
HAUGHT, DAVE	4	SAVAGE, TOM	3	MCDONALD, TIM	2	BETZ, PRISCILLA	1	HAYWOOD, TREVOR	1	NEDS, GEORGE	1
JOHNSON, KEN	4	SEAMSTER, JIM	3	MCDOW, BILL	2	**BOTTICELLO, CARME**	1	HENDERSON, JOHN	1	NOLL, JACK	1
KEPPLER, JIM	4	SHAW, BOB	3	MILLER, DICK	2	BOWERS, MIKE	1	HENDRICKSON,CHAR.	1	NUNEZ, JONATHAN	1
LAMB, ED	4	SIEDENTOPF, MIKE	3	MITCHELL, BILL	2	BRAKE, DICK	1	HENSEL, RICH	1	ODOM, DOT	1
LAYCOCK, JOHN	4	STALEY, BILL	3	MOON, ROGER	2	BRAUN, DAVE	1	HERBST, PAUL	1	ORTIZ, ELLIOT	1
LORIMER, HAL	4	STROUT, REGGIE	3	MUNN, DON	2	BRAUNLICH, MARK	1	HINTON, BILLY	1	OSALZA, DON	1
MASTERS, BOB	4	TELFORD, TONY	3	NUNEZ, JORGE SR.	2	**BUBOLZ, DAVE**	1	HODES, ROBERT	1	PAFIOLIS, ALEX	1
MCCOY, TOM	4	ZAPOLSKI, ED	3	OSLAN, ROBERT	2	**BUCHELE, ELVIN**	1	IVES, DAVID	1	PARK, JIM	1
MILLS, DAVID	4	ZEMECK, LEN	3	PAPIC, FERRIL	2	BURNS, MICHAEL	1	JESSUP, ARTIE	1	PASTEL, HARVEY	1
NEWELL, KEN	4	ALLEN, DICK	2	PEDERSON, JOE ED	2	BURRY, CLAUDE	1	JOHNSON, BILL	1	PAVEK, BILL	1
PETERSON, AARON	4	ANDERSON, WAYNE	2	PISHNERY, DAVE	2	CARLS, JOHN	1	JOHNSON, GARY	1	PEACOCK, DON	1
PETRINEC, BOB	4	BALCER, WALT	2	PORTER, CHUCK	2	CASAZZA, DAN	1	KANE, KATHLEEN	1	PELATOWSKI, LARRY	1
PHOENIX, ROCKY	4	BARBER, LES	2	PROULX, T.	2	CASGILL, WALDO	1	KEAR, KEN	1	PENNY, WILL	1
PLACHY, LAD	4	BARRETT, KEVIN	2	PTASZKIEWICZ, FRAN	2	CAVE, ED	1	KEHR, WILLARD	1	PHILABAUM, RICHARD	1
REDDING, HERB	4	BAUMGARDNER, KEM.	2	RECKER, GERD	2	CAWTHORNE, JOHN	1	KELLEY, WARREN	1	PHOENIX, GOEFF	1
RUHLAND, D.J.	4	BELL, BILL	2	REUTER, BILL	2	CERVIONE, MIKE	1	KERZIE, MARK	1	PIERCE, FRED	1
VOORHEES, JOHN	4	BENNETT, LEON	2	ROAD, JOHN	2	CHAFE, WARREN	1	KING, LES	1	POLLARD, JIM	1
ANDERSON, DICK	3	BLACKHAM, RICH	2	ROTH, BRIAN	2	CHRISTIE, DAVE	1	KING, STAN	1	POWELL, CHUCK	1
ANDERSON, JAMES	3	BLAIS, TIM	2	RUSSELL, BOB	2	CLUTTON, ERIC	1	KOHFIELD, DICK	1	PROFFITT, ALEX'DRA	1
BAECKE, AL	3	BOWERS, HURST	2	SAKS, DAVID	2	COLLINS, DAVID	1	KREMPETZ, KENNY	1	**QUIER, TONY**	1
BAECKE, FLORENT	3	BRADLEY, PAUL	2	SAUTER, CHARLIE	2	COLT, GILBERT	1	KRUSH, JOE	1	RAMOS, FERNANDO	1
BARBER, DOUG	3	BROCK, PAM	2	SEATH, DAVE	2	COPEMAN, KEN	1	KURTENBACH, JOUR.	1	RANSOM, MIKE	1
BAUGHMAN, GARY	3	BROCKS, PETER	2	SHAW, DICK	2	CORLETT, NORM	1	LANDHUIS, ROBERT	1	RASH, FRED	1
BIRD, LES	3	CALDWELL, BILL	2	SIEFRIED, DICK	2	COSLICK, LARRY	1	LANG, JOEL	1	REYNOLDS, BILL	1
BURKE, SAM	3	CAMPBELL, LEE	2	THOMASIAN, HARVEY	2	DAVIS, CHARLOTTE	1	LANGEVIN, LEO	1	RHODES, BILL	1
COFFEY, WENDELL	3	CLARKE, BILL	2	TRITTLE, PAT	2	DAVIS, GREG	1	LARSEN, TIM	1	**RICCI, ANDREW**	1
CORNELIUS, DALLAS	3	CRAWFORD, DOHRMA	2	TUECHER, ALEX	2	DEHAAS, BILL	1	LEAH, DAVE	1	RICE, DAN	1
DOCH, ZACH	3	DAILEY, JIM	2	VANDEN BOSSCHE, R.	2	DOCK, DENNIS	1	LEE, JIM	1	**ROCHA, JERRY**	1
ELLIS, ART	3	DERBER, DAN	2	VANDERLINDE, DAVE	2	DODGE, DAVE	1	LEHR, ROGER	1	ROBERTS, MIKE	1
ENGLERT, PAULA	3	DIEBOLT, JOHN	2	VON BUEREN, KARL	2	DONNA, GORDON	1	LELONG, HENRY	1	ROSS, DON	1

ROSS, RICHARD	1
RUBRICH, CHRIS	1
RUHLAND, E.	1
RUPPERT, CONRAD	1
RUSSO, GUY	1
SANDERS, TOM	1
SANDUSKY, RUSS	1
SATTERTHWAITE, BA	1
SCHUELER, CARL	1
SCHUTZEL, EMIL	1
SCHWAN, HAL	1
SEAVER, TED	1
SEBASTIAN, JOE	1
SENNET, BOB	1
SEYMOUR, JOHN	1
SHEPHERD, CHARLES	1
SMALLEY, RALPH	1
SOLMONOFF, GEORG	1
SOUTH, STEPHEN	1
SPIESS, MIKE	1
SQUEGLIA, RALPH	1
STEINMAN, ELVIN	1
STONE, RICHARD	1
STONECIPHER, RICH	1
STOTT, PAUL D.	1
SWANSON, GEORGE	1
SYLVIA, ED	1
TARANGO, GLENNA	1
TAYLOR, BILL	1
THOMAS, GREG	1
THOMAS, VET	1
TIPPS, LEE	1
TOMASCH, WALT	1
TRABBIC, RAY	1
TRACY, DAVID	1
TRIANA, JORGE	1
TROUTMAN, JIM	1
VALLS, JOHN	1
VARGO, E.	1
WALTER, BUCKY	1
WEBSTER, LEE	1
WEIDNER, JIM	1
WHITACRE, DON	1
WHITE, ROY	1
WIENKLER, CLIVE	1
WIENKLER, GRANT	1
WILLIAMS, JAY	1
WOJTKIEWICZ, CHUC	1
WURMAN, BOB	1
YANOSKY, TOM	1
YODER, MARVIN	1

BOLD NAME =
FIRST YEAR ON LIST

UNDERLINED COUNT =
PROMOTED IN 2004

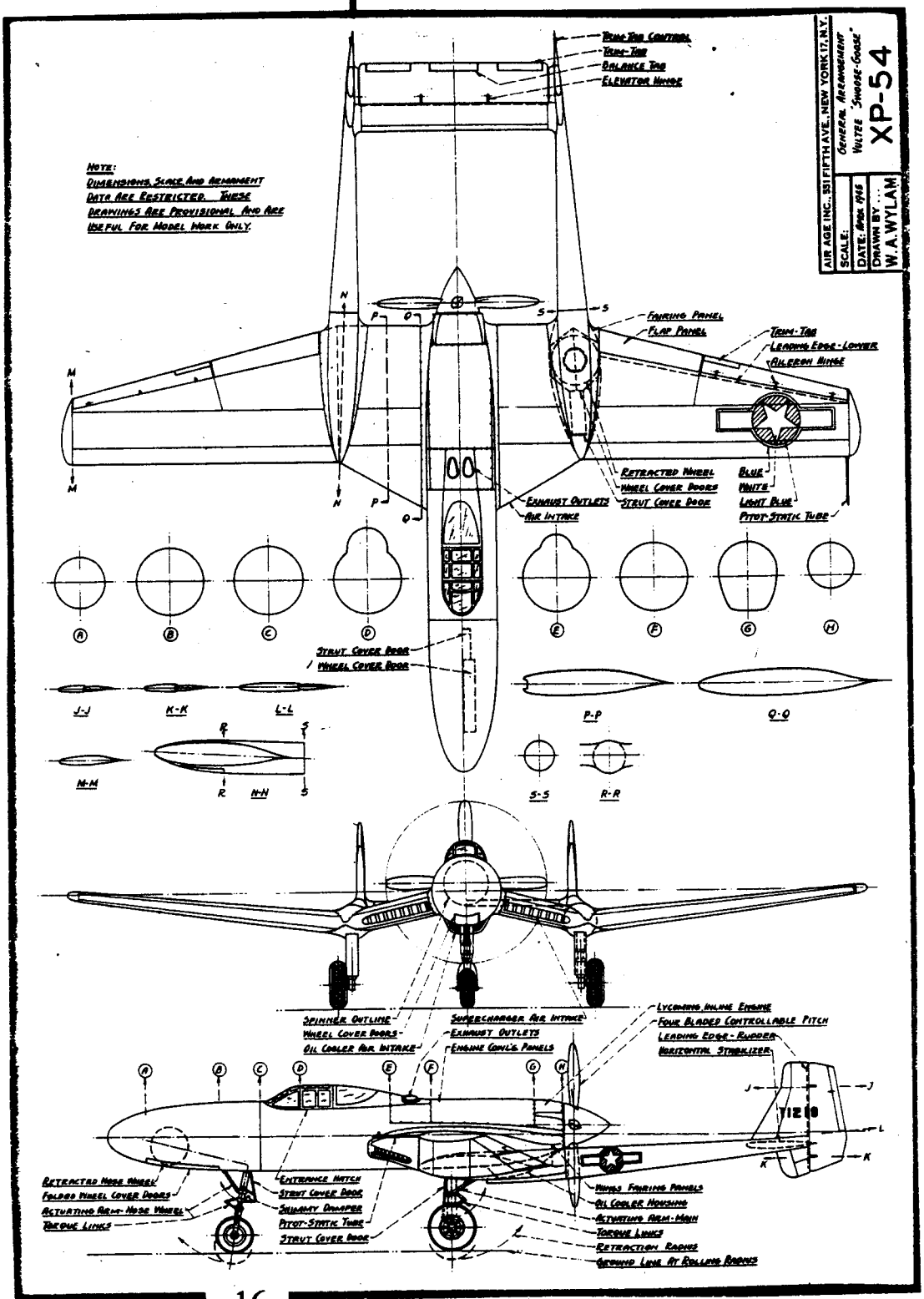
BOLD NAME & COUNT =
BLUE MAX IN 2004

Manuel Cisneros of 26 Club Drive, San Carlos, Ca. 94070 is looking for someone to fly with in the San Francisco Bay area. If you would like a flying buddy contact him.

Frank Womack, 3478 Brook Valley Cmns., Chico, Ca. 95928 is looking for FACers in the Chico, Ca. Area.

NEW PLANS FROM FAC-GHQ

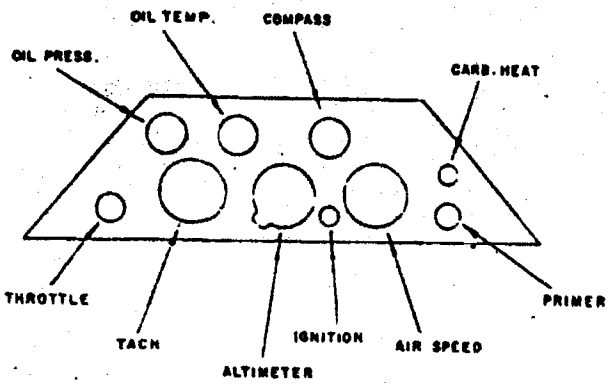
Three new plans for sale. The Messerschmitt BF-109E by Michael Heinrich and Rocky Russo for the FAC-Nats, 22 inch span. Bill Henn has given us his plan of the Swiss EKW C-3603,25 inch span and we have the Spartan Executive of 29 inch span. Original drawing by Alan Booton and redrawn by Ralph Kuenz. The BF-109E includes a color profile and a short history of the aircraft. All plans should make good flying models. All 3 plans sell for $6.00 each postpaid. Send to; FAC-GHQ, 3301 Cindy Lane, Erie, Pa. 16506.



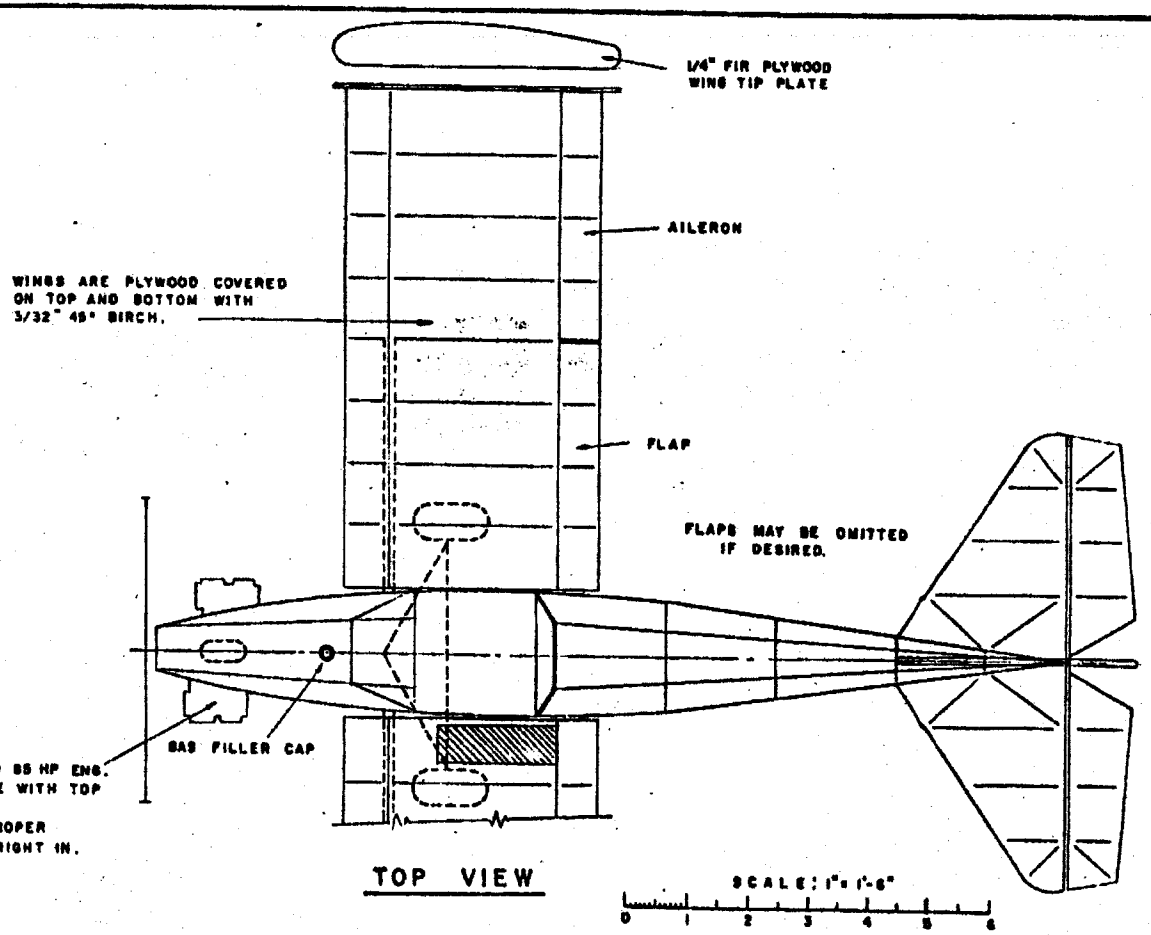
the Contester

ALL WOOD, FOLDING MID-WING MONOPLANE

DESIGNED AND CONSTRUCTED BY LEON TEFFT E.A.A. NO. 5532
CHICAGO ILLINOIS



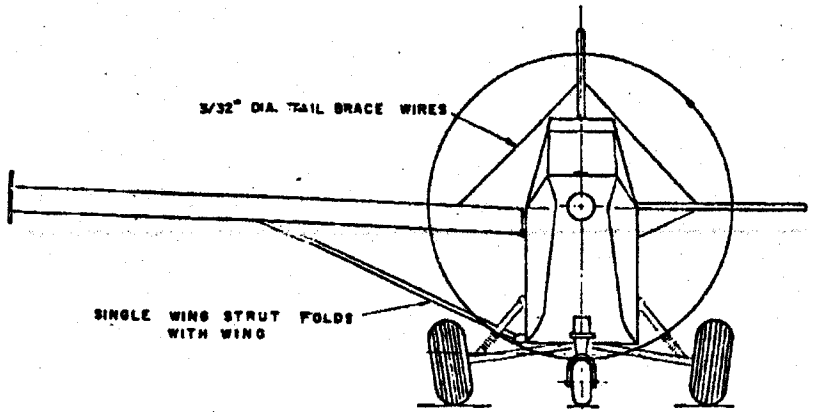
INSTRUMENT PANEL LAYOUT



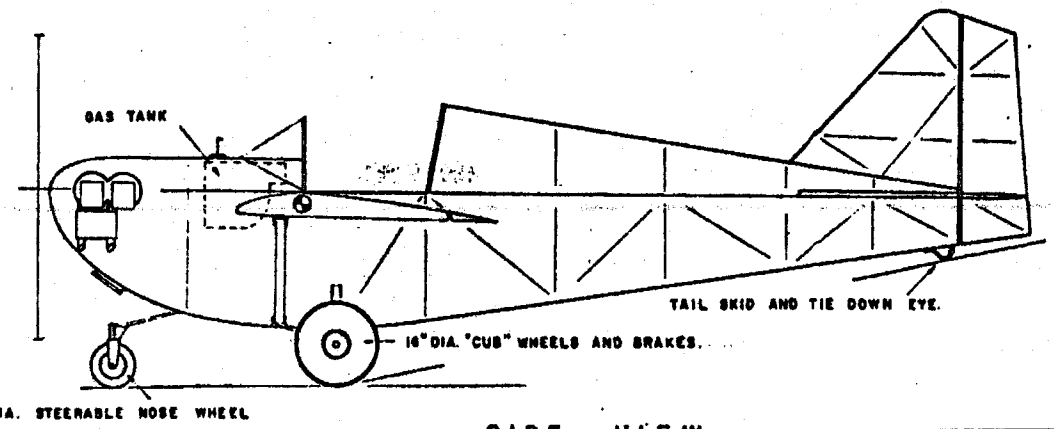
TOP VIEW

SCALE: 1" = 1'-0"

NOTE:
PLANE MAY BE POWERED WITH ANY 65 TO 85 HP ENG.
CENTER LINE OF ENGINE SHOULD BE IN LINE WITH TOP LONGERON.
AERONCA "CHAMPION" ENGINE MOUNT HAS PROPER AMOUNT OF DOWN THRUST AND SIDE BUILT RIGHT IN.



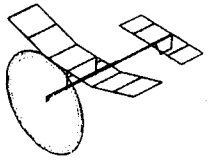
FRONT VIEW



SIDE VIEW

THE CLEVELAND FREE FLIGHT SOCIETY

A.M.A. sanctioned Indoor Contest



SUNDAY, April 10, 2005 Kent State University Fieldhouse
8:30 a.m. to 5:00 p.m.

SCHEDULE of EVENTS (AMA & Jetco)

8:00 a.m. -- Building opens (test flying)

8:30-11:30 a.m. 1. *Standard Class Catapult Glider.* AMA Rules

8:30 a.m. to 4:00 p.m.
2. *EZB* - Scoring is the best of five officials. 30 seconds minimum. Two attempts/flight.
3. *Limited Penny Plane*
4. *Mini-Stick* - - Best flight of 5 officials. 20 second minimum. 2 attempts/Flight.

9:00 a.m. to 3:00 p.m.
5. *Seven Gram Bostonian* - A.M.A. rules.
6. *Jetco R.O.G.* - CFFS Rules.

F.A.C. EVENTS

10:00 a.m. to 4:30 p.m.
7. *W.W.II Combat* - Flown at 12:01 p.m.
8. *Hi-Wing Peanut*
9. Peanut scale *All other* except pioneer models.
10. *W.W.I Peanut Biplane Combat* - 4:05 p.m.
11. *Golden Age Scale*
12. *Dime Scale*
13. *W.W.II No-Cal Combat.* Flown at 4:20 p.m. **Minimum weight - 6.2 grams without motor.**
14. *No-Cal Profile Scale* (3 flight total) **Minimum weight - 6.2 grams without motor.**
15. *Phamtom Flash* - Best two of five officials. Two attempts equal one official. Official is 20". seconds.

Please Note:
No event for pioneer models and they may not fly in other events.

For Your Information

1. All events are JSO combined.
2. Steering of Models: as per A.M.A. rulebook.
3. Entry Fees: - *Open* - $30.00 - *Junior* $1.00 (includes AMA Lic.)
4. **VERY IMPORTANT** - You must provide your own table and chair.
5. KSU Fieldhouse is a non-smoking facillity.
6. **No Indoor RC flying permitted during the contest and all flyers must have a valid AMA license.**

Science Olympiad event will be scheduled if this activity does not conflict with regional or state S.O. competitions. S.O. flyers are encouraged to fly in any of the events at this contest.

AWARDS There will be two Contest Grand Champions based on the following criteria:
3 points for a first place
2 points for a second place
1 point for a third place

Award Categories

1. AMA events and Jetco ROG 2.FAC events including Phamtom Flash

Prizes will be awarded for 1st, 2nd, and 3rd in each category. There also will be certificates. There must be 3 flyers in an event to earn points.

Contest Directors

Michael C. Zand
5803 East Ash Road
Independence, OH 44131
216-524-3480 *imzand@hotmail.com*

Larry Mzik
117 Sycamore Drive
Painsville, Oh 44077
440-357-7361 **lmzik@core.com**

Jetco R.O.G Rules

1. Build from plan with no structual changes.
2. Any commercial plastic prop may used. It may be cut down to 5¾". Prop may be altered by sanding and/or cutting to size.
3. Tissue covering.
4. Model must R.O.G.
5. Unlimited attempts. Official flight is 20". 2 attempts equal 1 official. Best of 5. An attempt is an R.O.G.
6. Any prop bearing or prop hangar may be used.
7. Center section of wing may be flat.
8. Minimum weight of model without rubber is 3.5G.
9. No camber(baggy tissue on wing)

Phamtom Flash Rules

1. Model must be built according to plan. Wheels must turn and any type of prop may be used.
2. Markings must be on model, either cut from the plan or similar paper.
3. Rubber band to hold wing is optional, but model must weigh a minimum of 3.5g without motor.

Scoring - Total of 2 qualifying flights (20" official).

Glue Guru on the Fokker Triplane—
Here's a new book spelling out the Red Baron's mount with all its virtues and flaws:

Three Wings for the Red Baron

SPAD's Triplane effort was a disaster. MIT proved the concept inherently slow. Sopwith's Triplane was set aside as mediocre. The Curtiss attempt was a flop.

Yet Richthofen saw great merit in three-winged fighters, betting his life on Fokker's design, despite its inferior engine. Why? What did he see in three wings?

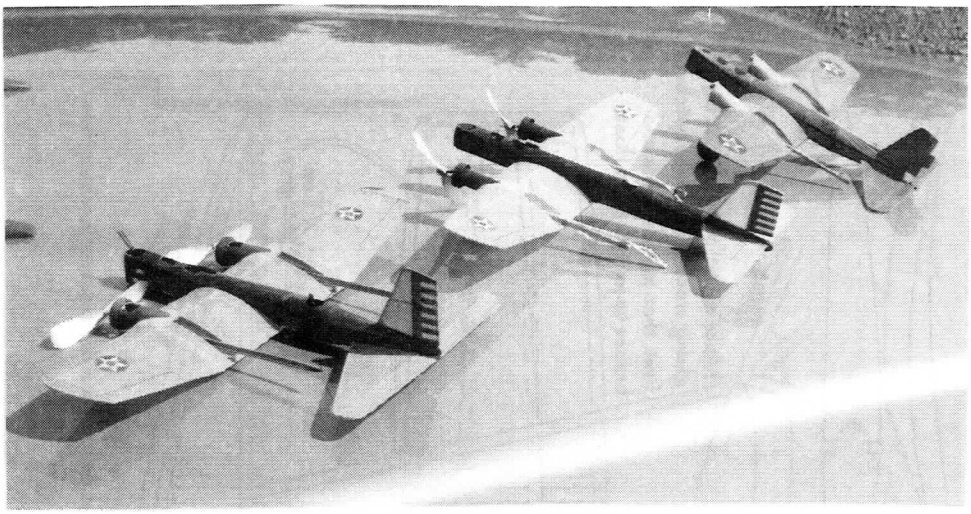
Wounded and depressed, was he merely grasping at straws while engaged in denial? Was his death, in a Fokker Triplane, a chance event or one more proof of three wing inadequacy?

The answers are here, backed by solid research in London, Munich and Berlin. Some 240 illustrations are offered, including rare wartime 3-views of the Curtiss, Sopwith and Fokker Triplanes.

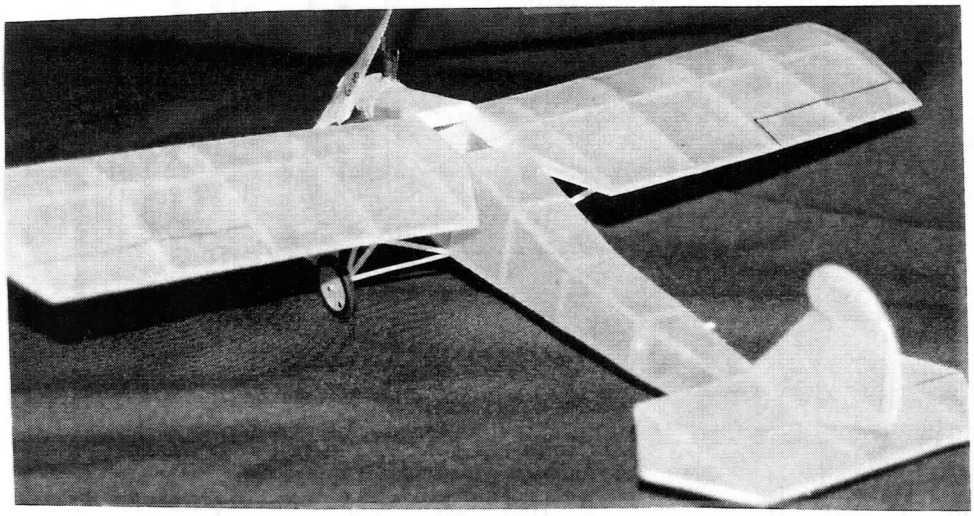
The treatment is straight Glue Guru–aerodynamics with a certain verve. I think you'll like it.

The book is available through Barnes & Noble, Amazon, Borders, Books-a-Million and private bookstores as well. Price varies a bit, with Amazon offering the lowest price, but B & N supplies a faster delivery. You can examine some 15 pages without charge by reaching Amazon.com on the internet and then requesting "Three Wings for the Red Baron". In return, you can inspect, or even print out, the first chapter.

Check it out!



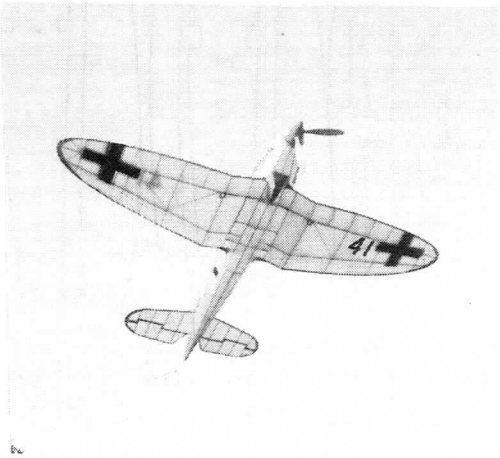
Dave Stott sent us this photo of Boeing B-9 models built by; left, Jack Chambles, Dave Stott and NRE Novak. Plan in the Nov./Dec. 2004 issue.



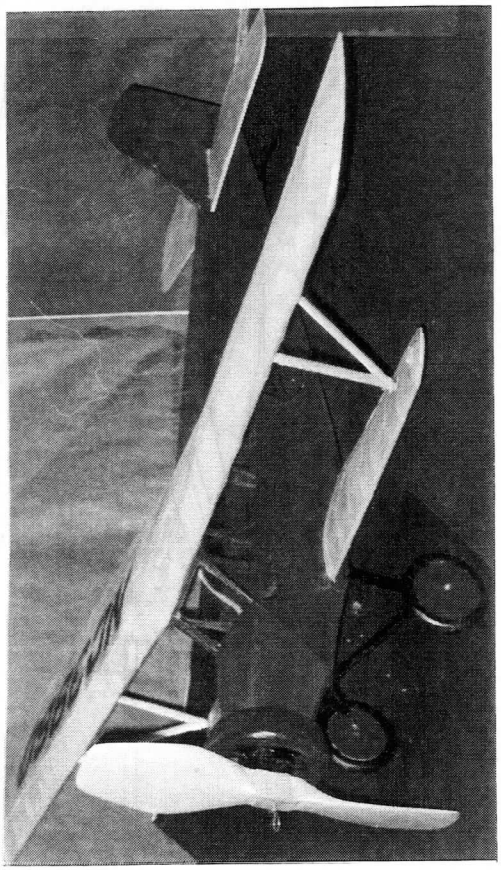
Here is a pic from John Blair of his Dime Scale Longster which appeared in plan form in a recent issue of the newsletter.

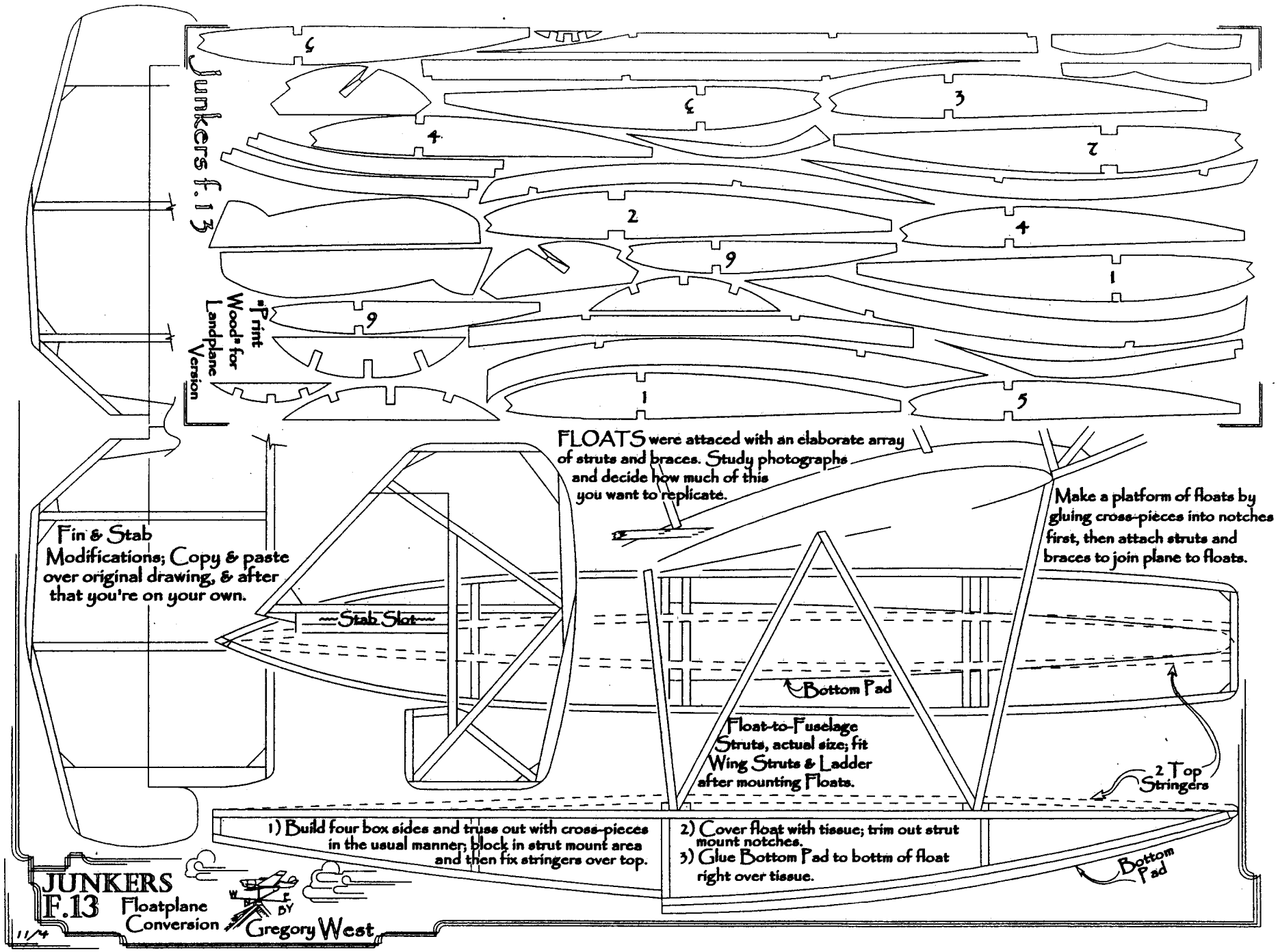
Here we have Susan Gardner holding Bill Henn's Swiss Fighter C-3603. Plan Available from GHQ.

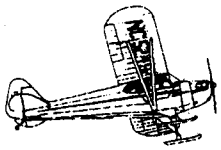
This is a Heinkel He-112 gliding by. Built from an Ace Whitman plan by Kent Whitehill.



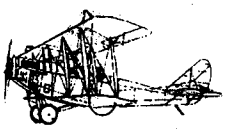
Sim Wilson sent in this pic of the Buhl Airsedan. Sim built it from an old Aero Modeler plan.




Junkers f.13
"Print Wood" for Landplane Version
FLOATS were attaced with an elaborate array of struts and braces. Study photographs and decide how much of this you want to replicate.
Make a platform of floats by gluing cross-pieces into notches first, then attach struts and braces to join plane to floats.
Fin & Stab Modifications; Copy & paste over original drawing, & after that you're on your own.
Stab Slot
Bottom Pad
Float-to-Fuselage Struts, actual size; fit Wing Struts & Ladder after mounting Floats.
2 Top Stringers
1) Build four box sides and truss out with cross-pieces in the usual manner; block in strut mount area and then fix stringers over top.
2) Cover float with tissue; trim out strut mount notches.
3) Glue Bottom Pad to bottm of float right over tissue.
Bottom Pad
JUNKERS F.13 Floatplane Conversion
Gregory West
11/4

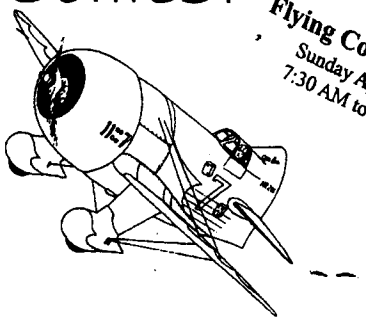


Scale Staffel



2004 Annual Contest

Scale Judging Potluck Dinner
Saturday April 24 6 PM to ?
Note: Out-of-towners are *NOT* to bring food!



Flying Competition
Sunday April 25
7:30 AM to Noon

Events:

- Power Scale
- Jumbo Rubber Scale
- Rubber Scale
- Peanut Scale
- Old Time Rubber
- Biplane Mass Launch
- WWII Mass Launch

All events will follow FAC Rules

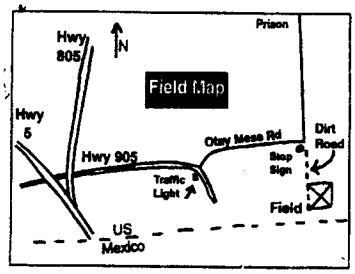
Fees: Open: $3 per event - $6 minimum / $9 maximum
Junior: $.50 per event - $2 maximum

CD: John Hutchison
619-669-0146

Dinner to be held at:

7945 Michelle Dr.

(Directions and map elsewhere in this issue.)



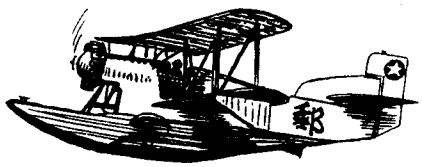
NEW FAC T-SHIRTS

We now have the FAC Outdoor Champs T-shirts in stock. This shirt features the Spartan Executive. Another design by Bob Bojanowski. We have all sizes in stock and ready to go! Small med., lge., X-lge., [redacted]., and XXX-lge. Nice in silver & green.

We still have the Boeing F4B-4 shirts in all sizes. This may be our all-time best seller! Also still in stock is the 2004 FAC-Nats shirt in all sizes. This one is of the Messerschmitt BF-109.

The Boeing shirts also come in youth sizes of small, medium and large.

Prices for all shirts is $15.00 Postpaid, send your order to; FAC-GHQ, 3301 Cindy Lane, Erie, Pa. 16506.



T-SHIRT CLEARANCE SALE

The following T-Shirts must go at a reduced rate to make room for our new shirts. Shirts and sizes are as follows;
HALL BULLDOG, small, medium, large and Extra large.

Seversky SEV-2, small, medium, large.

These shirts are priced at just $10.00 each postpaid. Send your orders to; FAC-GHQ, 3301 Cindy Lane, Erie, Pa. 16506.

BUILDING TIP

Marking and fitting canopies. I've been doing some of the old Comet kits and I take the printed black line drawing for the canopy, clean it up--no splatters or dirt--color the divisions appropriately. Then take it to your local copy center and have them copy it as a transparency on the color machine. If you have only black lines use only the regular machine. Try it, you'll like it!

Bruce Conway

Also from Bruce, an S.O.S., My Comet Hawker Fury kit #X-9--Box blue and silver--from 1935 needs some help. If you have the kit please contact me. Also, Comet Blue/White kits, the 5500:1.98 Series. Need the P-51, P-38 and the A-26. Also, looking for any solid warship kits for sale or trade.

Bruce Conway, 3850 Marburg Ave., Cincinnati, Ohio 45209.

BACK ISSUES

Back issues of the newsletter are available at a cost of $2.50 per issue. Some issues are in short supply. Send orders to; FAC-GHQ, 3301 Cindy Lane, Erie, Pa. 16506.

189-115	Sept./Oct.	1999
191-117	Jan./Feb.	2000
192-118	Mar./April	2000
193-119	May/June	2000
194-120	July/Aug.	2000
195-121	Sept./Oct.	2000
197-123	Jan./Feb.	2001
200-126	July/Aug.	2001
201-127	Sept./Oct.	2001
202-128	Nov./Dec.	2001
203-129	Jan./Feb.	2002
204-130	Mar./April	2002
206-132	July/Aug.	2002
207-133	Sept./Oct.	2002
208-134	Nov./Dec.	2002
210-136	Mar./April	2003
211-137	May/June	2003
212-138	July/Aug.	2003
213-139	Sept./Oct.	2003
214-140	Nov./Dec.	2003
216-142	Mar./April	2004

POSTAL CONTEST

This postal contest starts now and will continue until May 30, 2005. Entries postmarked after May 31, 2005 will not be accepted.

We will have four events, Indoor Peanut, Outdoor Peanut, Indoor No-Cal and Outdoor No-Cal. Fly and enter as many models as you wish. Every time you better a score with a particular model send it in. Contest times count too.

Send entries to; FAC-GHQ, 3301 Cindy Lane, Erie, Pa. 16506.

FLYING ACES PLAN SERVICE

These plans are from the FAC contests at Geneseo N.Y. and Muncie, In.

Aircraft	Span	Designer	Price
Erie Times O.T.	24"	Engstrom	3.00
Westland Lysander	25"	Studiette	4.00
Northrop Gamma	36"	Bruning	5.00
Fairchild PT-19	24"	John Low	4.00
Curtiss Gulfhawk	24"	Wilkey	4.00
Boeing P-26	18"	Wilkey	3.00
Waco C-7	22"	Boyanowski	5.00
Laird Solution	14"	Tom Nallen, Sr.	4.00
Waco "D"	24"	Bruning	4.00
Lockheed Orion	24"	Tom Nallen, Sr.	6.00
Monocoupe	24"	Canada M.C.	3.00
Seversky SEV-2	22"	Tom Nallen, Sr.	6.00
Gee Bee QED	24"	Tom Nallen, Sr.	6.00

FAC KANONE REPORT   FAC CLUB NAME ______________________   CONTEST DATE ___/___/___

CONTEST DIRECTOR ______________________ **Email address** ______________________ **SQUADRON #** __________

PLEASE LIST THE TOP 4 OF EACH EVENT. **You may indicate the total number of flyers in each event if you wish.**

EVENT

CONTESTANT'S FULL NAME	MODEL	FLIGHT TIMES or HEAT ROUNDS for ML EVENTS 1	2	3	TOTAL FLIGHT SECONDS OR BEST SCALE FLT. FACTORED	BONUS POINTS	SCALE POINTS	TOTAL	PLACE	FAC member? Y N

EVENT

CONTESTANT'S FULL NAME	MODEL	FLIGHT TIMES or HEAT ROUNDS for ML EVENTS 1	2	3	TOTAL FLIGHT SECONDS OR BEST SCALE FLT. FACTORED	BONUS POINTS	SCALE POINTS	TOTAL	PLACE	FAC member? Y N

EVENT

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EVENT

CONTESTANT'S FULL NAME	MODEL	FLIGHT TIMES or HEAT ROUNDS for ML EVENTS 1	2	3	TOTAL FLIGHT SECONDS OR BEST SCALE FLT. FACTORED	BONUS POINTS	SCALE POINTS	TOTAL	PLACE	FAC member? Y N

SEND COMPLETED FORMS TO: ROSS P. MAYO, KEEPER OF KANONES, 4207 CROSSWINDS DRIVE, ERIE, PA 16506

REGISTRATION FORM----FAC NON-NATS GENESEO, N.Y.
JULY 16 and JULY 17, 2005

Name _____ Address _____ Jr._____Open _____

City _____ State _____ Zip _____ AMA or MAAC No. _____

Entry fees at $25.00 each (flies all events) _____ $ _____

Banquet tickets at $22.00 each with no dormitory reservations _____ $ _____

Reservations for double occupancy with meals and banquet at $175.00 each ____ $ _____

Reservations for single occupancy with meals and banquet at $220.00 each ____ $ _____

Total enclosed $ _____

No entry fee for contestants under 18 years of age. All contestants must be members of the A.M.A. or the M.A.A.C. Please remit entry fee by June 15, 2005 to ease paper work on the field. Mail entrys to; Lin Reichel, 3301 Cindy Lane, Erie, Pa. 16506. We will be unable to refund cancellations after June 20, 2005. If you plan to share a room with someone please indicate their name so we can direct the University to set up the proper arrangements. _____

Awards through 3 places in all events. Contest times are as follows;Saturday July 16, 8:30 till 5:00 and Sunday July 17, 8:00 till 4:00

WAIVER: I/we hereby release the Historical Aircraft Group, Inc., Austin Wadsworth, the State University of New York (Geneseo), The Flying Aces Club, all other persons and other organizations connected with this contest from any liability whatsoever for accident incurred while participating in this contest. I/we also agree to abide by all flying and field rules in force at this contest.

SIGNATURE _____

Your meals at the university will include dinner on Friday July 15th, breakfast and dinner on Saturday July 16th and breakfast on Sunday July 17th and July 18th. The banquet will be at the Days Inn on Sunday July 17th.

Scale judging will take place at the Days Inn, 4242 Lakeville Rd., Rte. 20A, Geneseo, N.Y. on Friday July 15th starting at 2:00 PM. Bring your models there to be judged. Giant and Jumbo models will be judged on the field. No one admitted to the judging room before 2:00 PM. Vendors may set up at 12:30 PM.

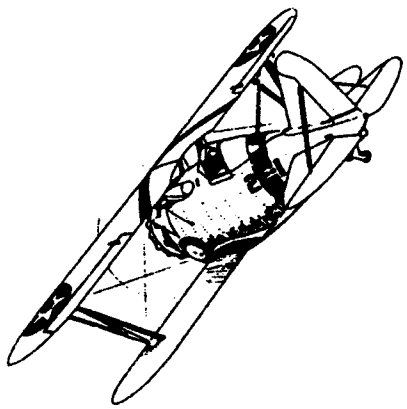
Plans must be presented in the Fairchild "24", Dime Scale, Two Bit O.T. Rubber and the new FAC O.T. Plan/Kit Scale events. All radial engined models in mass launch events must have at least a paper engine inside the cowl. All military models in mass launch events must have armament built into the model, no painted on guns, etc. No slab sided models unless the real aircraft was slab sided. Have proof of scale for all mass launch events.

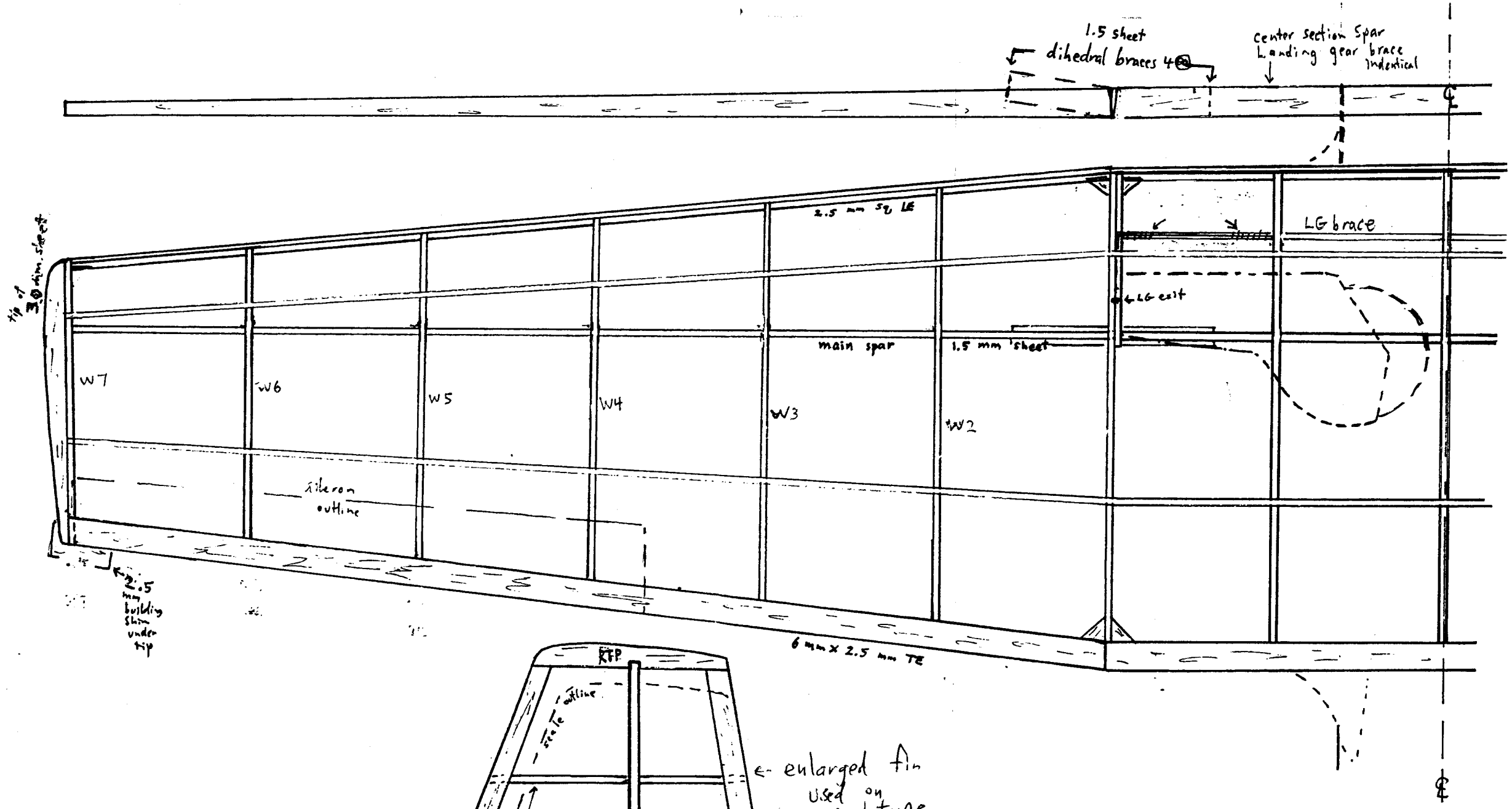
Saturday July 16 8:30 untill 5:00 pm.

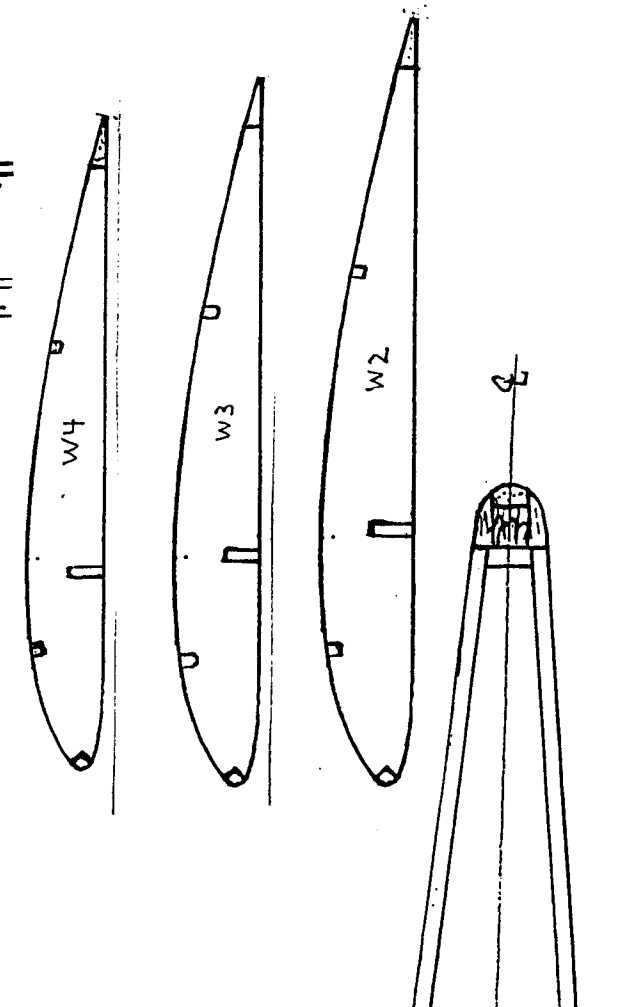
Giant Scale May be flown either day
Jumbo Scale May be flown either day
Power Scale May be flown either day
FAC Scale
Hi-Wing Peanut Scale
Old Time Rubber
Greve Race *
World War One Dogfight *
Golden Age Civil
Modern Military
Embryo Endurance
AT-6 *
Phantom Flash
No-Cal Scale
Contra-Prop Scale *
Fiction Flyers

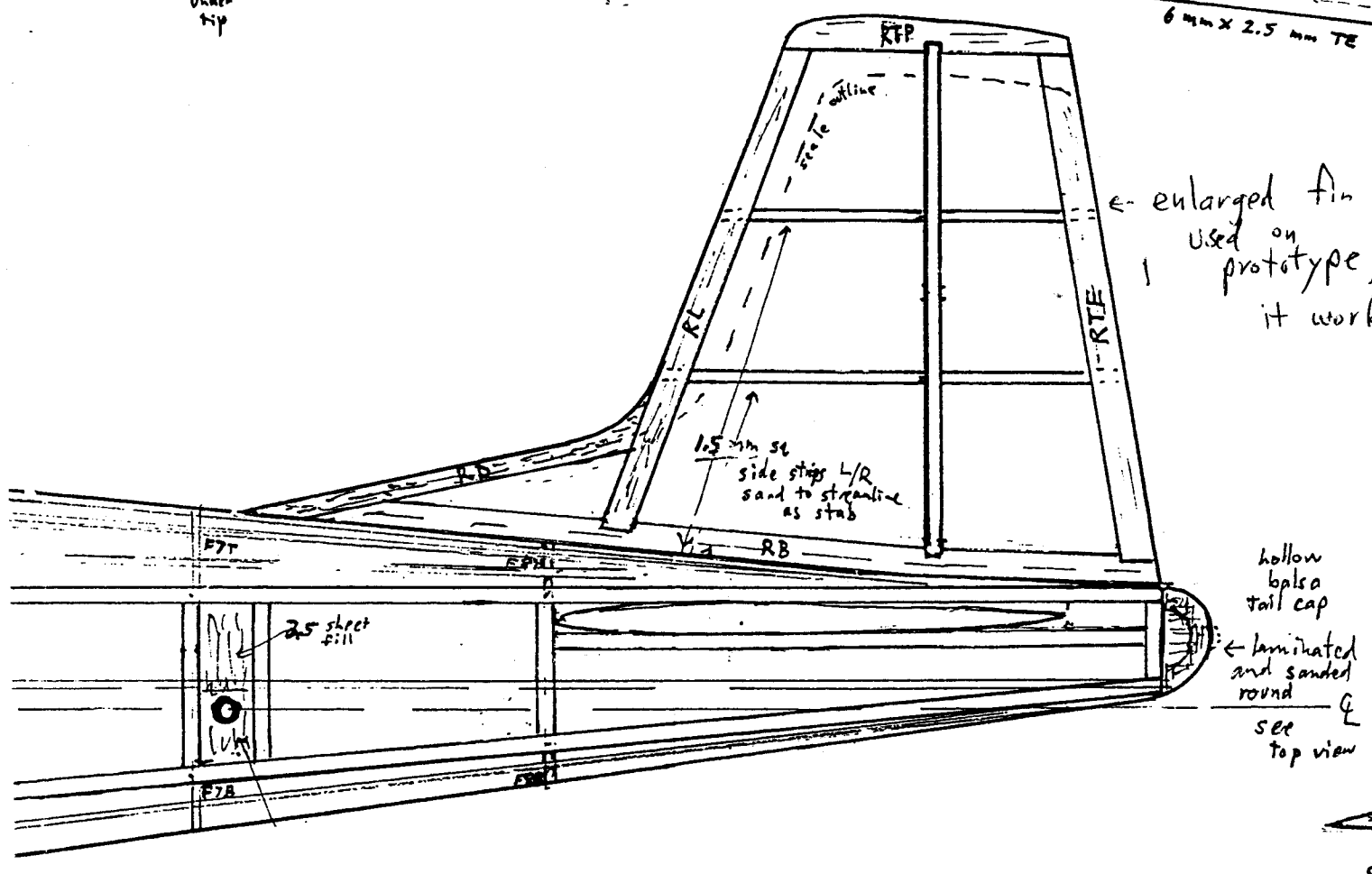
Sunday July 17 8:00 untill 4:00 pm.

Pioneer Scale
Old Time Stick Rubber
Jimmie Allen
Thompson Race *
World War Two Combat *
FAC Peanut Scale
Powder Puff Scale
Modern Civil
Golden Age Military
Two Bit Old Time Rubber
Old Time Gas Replica
Fairchild "24" *
B.L.U.R. Race
Dime Scale
Low Wing Trainer *
FAC Old Time Plan/Kit Sca

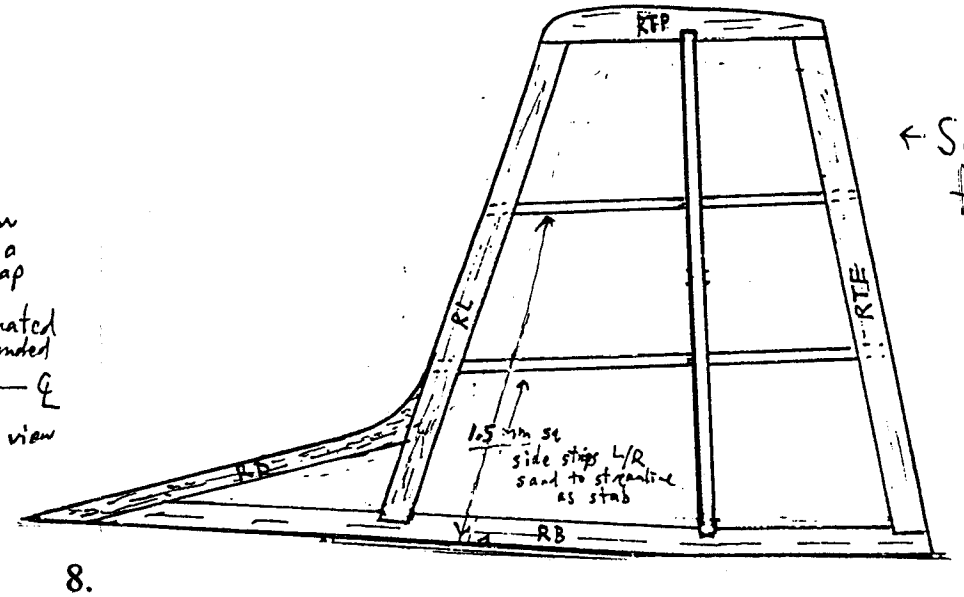




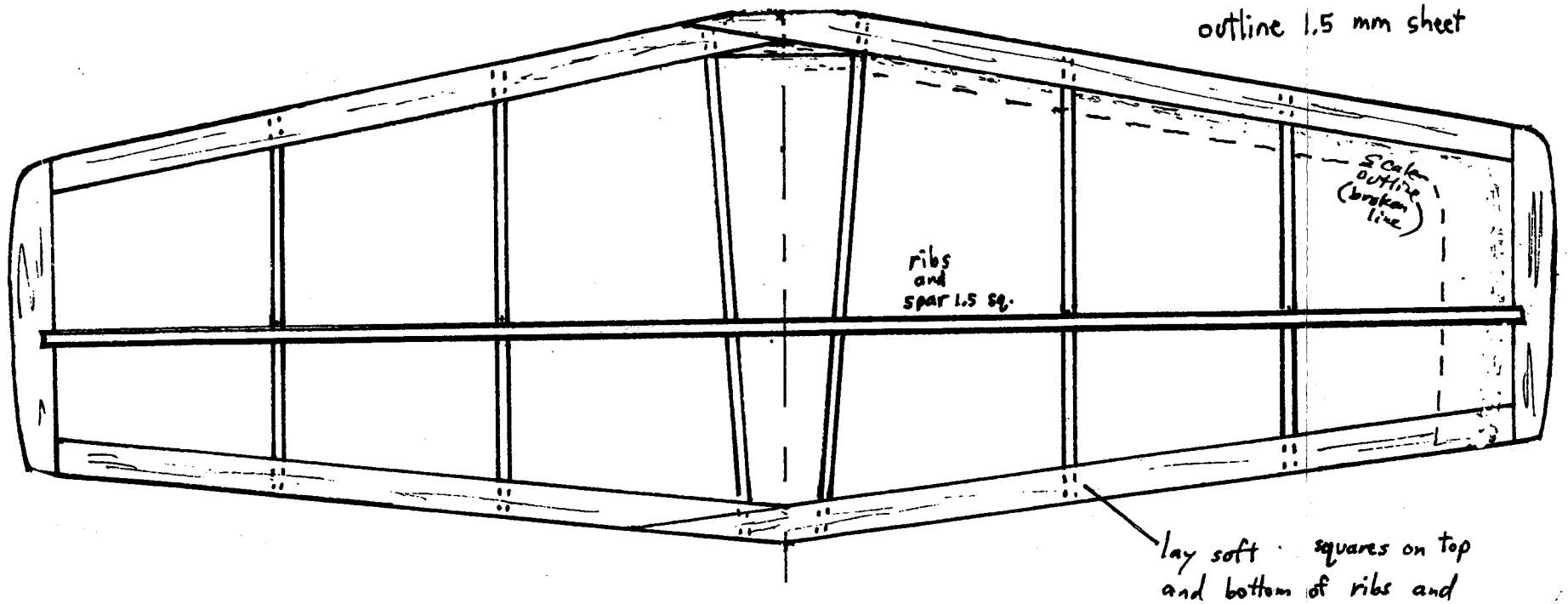


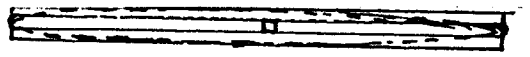


NANCHANG CJ6 Chinese Air Force Trainer
by Nate Sturman.

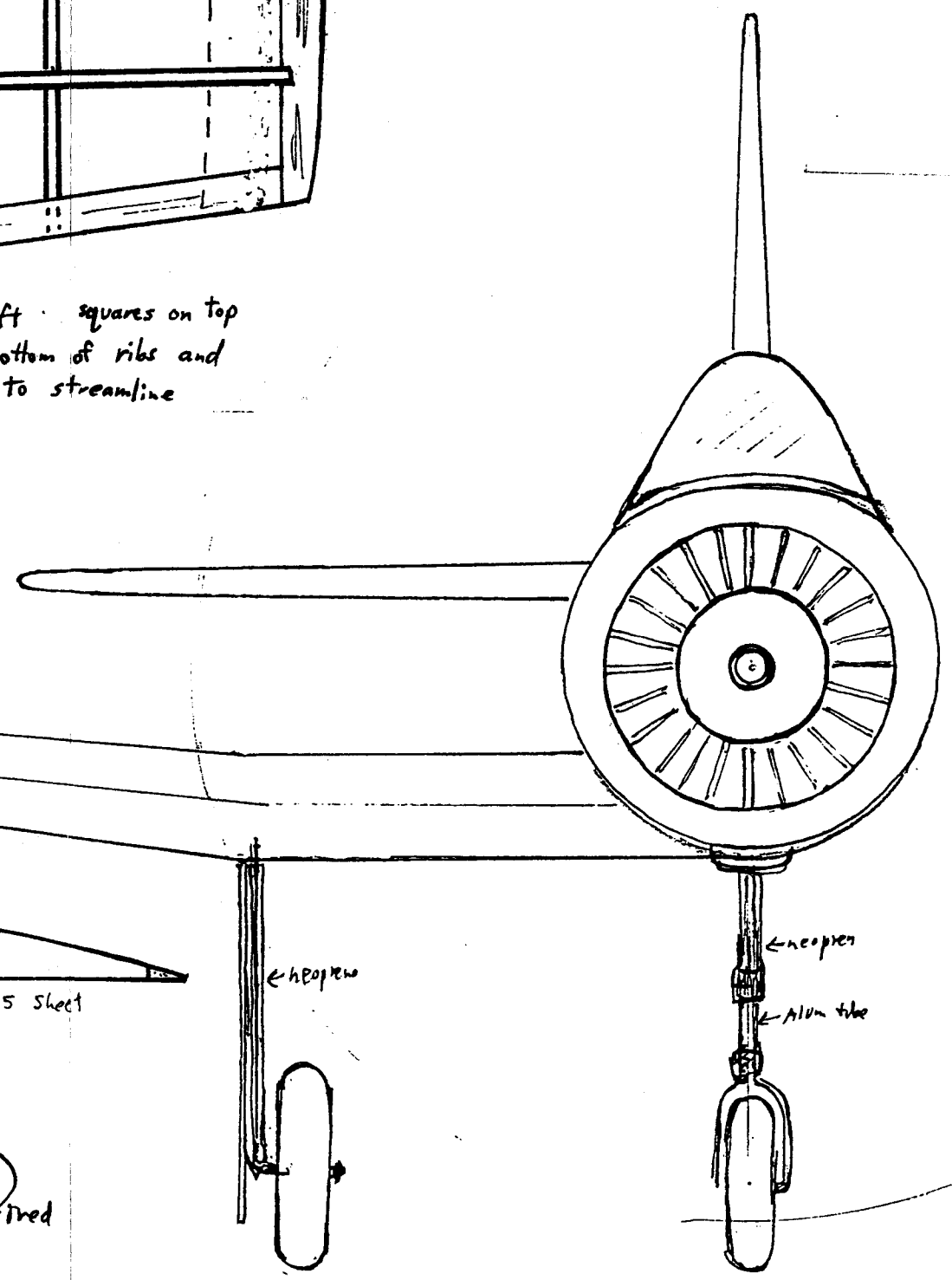


← Scale sized
fin
(recommended)



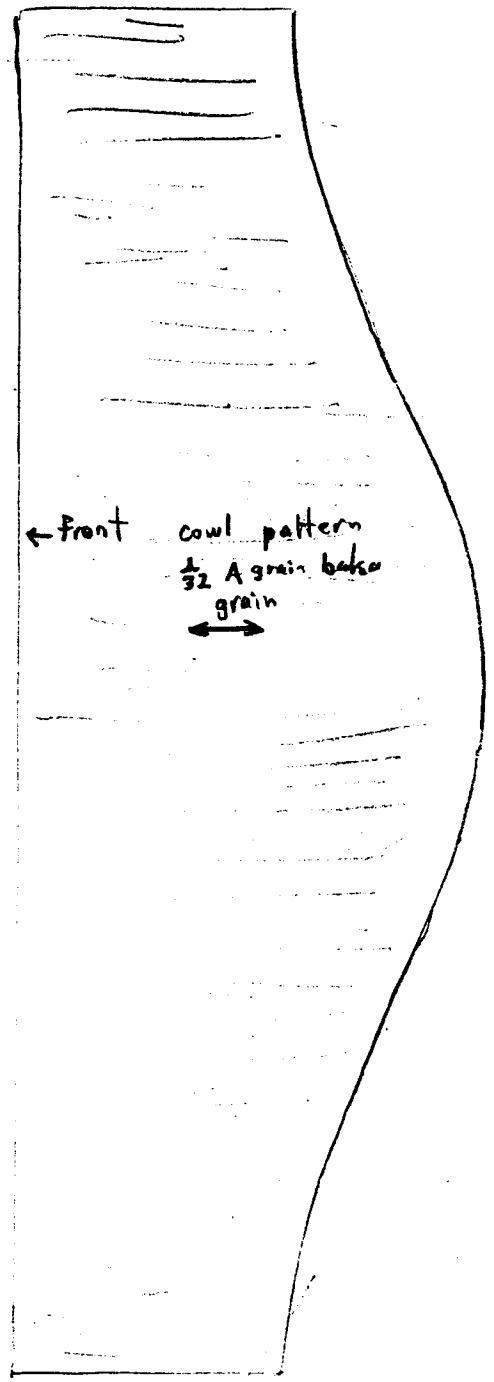


(Alternatively, build stab of 2.5 mm sheet and squares and sand to streamline. The above sandwiching of 1.5 mm structure gives greater warp-resistance and better appearance when finished, and lighter weight.)



props up to 9.5" on 24" model

lengthen or omit undercarriage as desired.



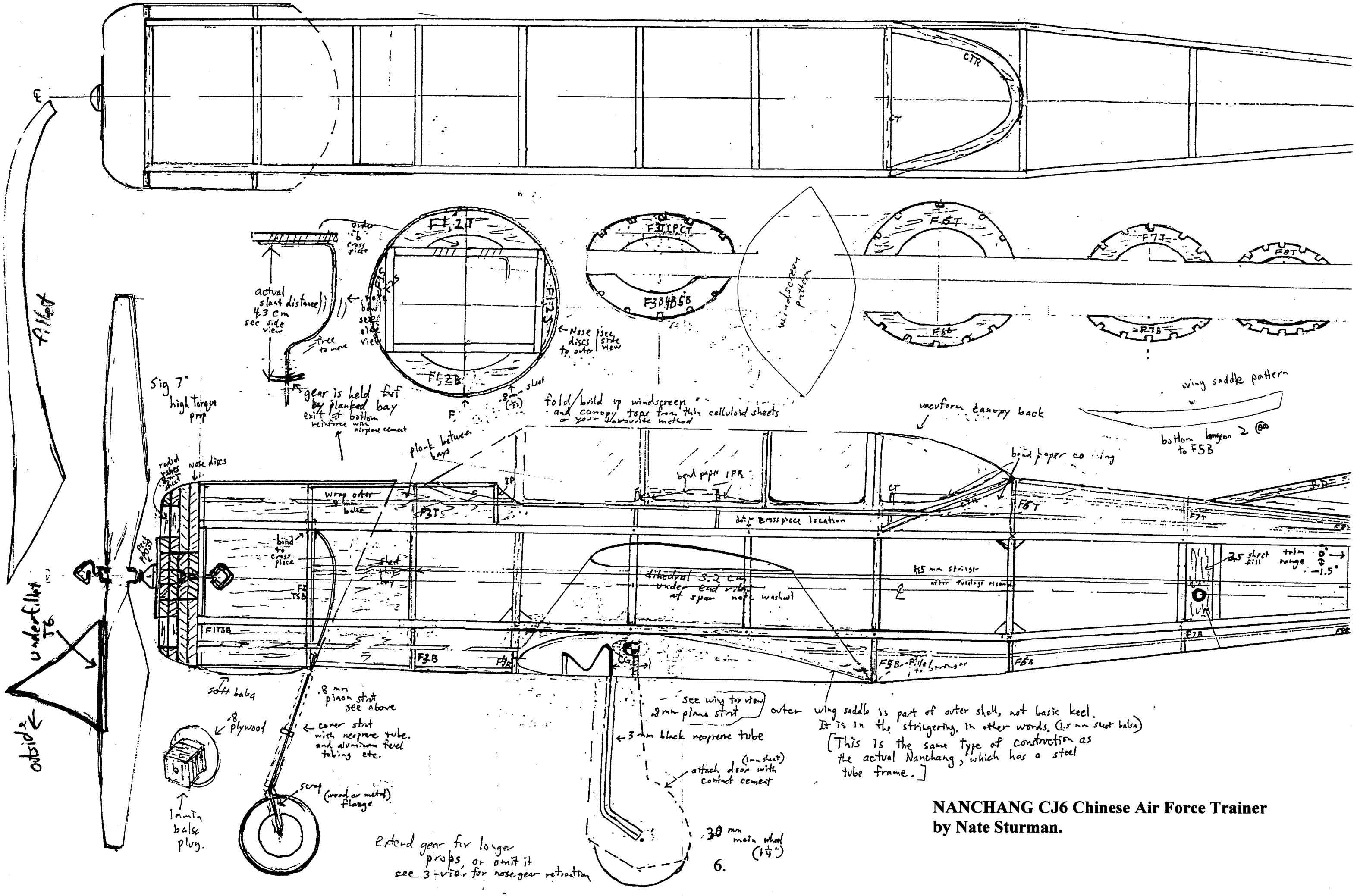
Nate Sturman's

NANCHANG CJ6 · CHINESE A.F. TRAINER and popular civil aircraft abroad. app. 24" (60 cm) span, (30", 36" if desired) scale to

For rubber power.

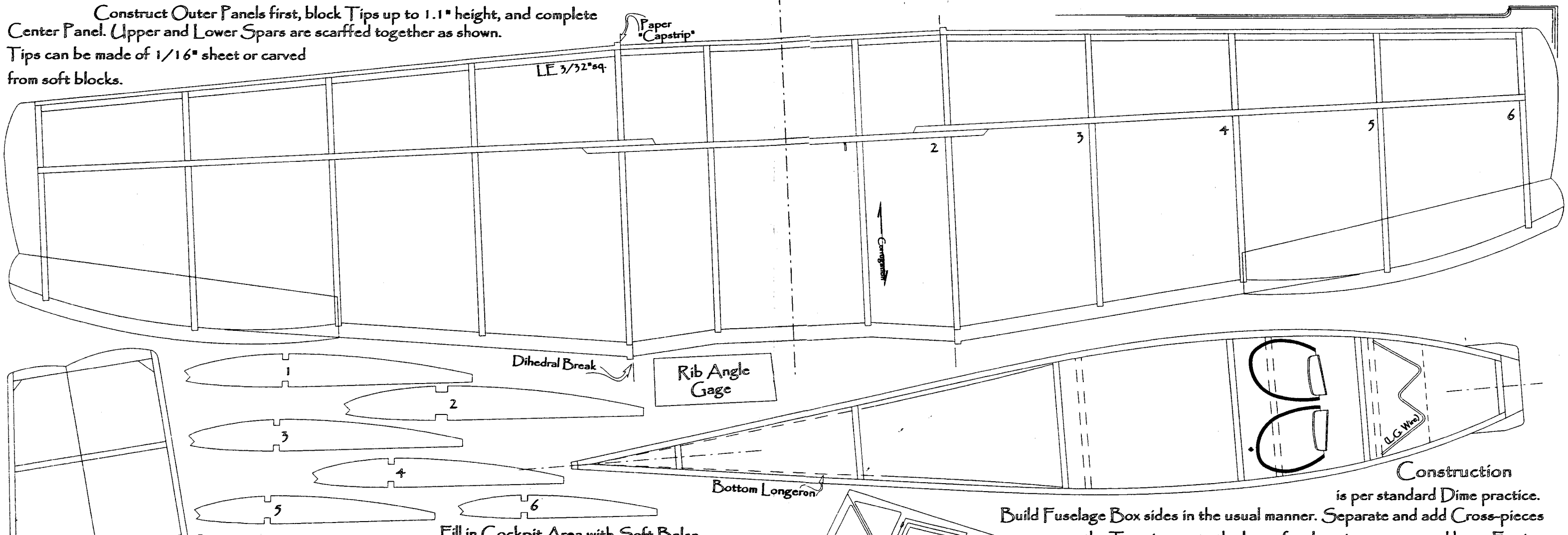
N. Sturman 9/15/97 Gunma, Japan

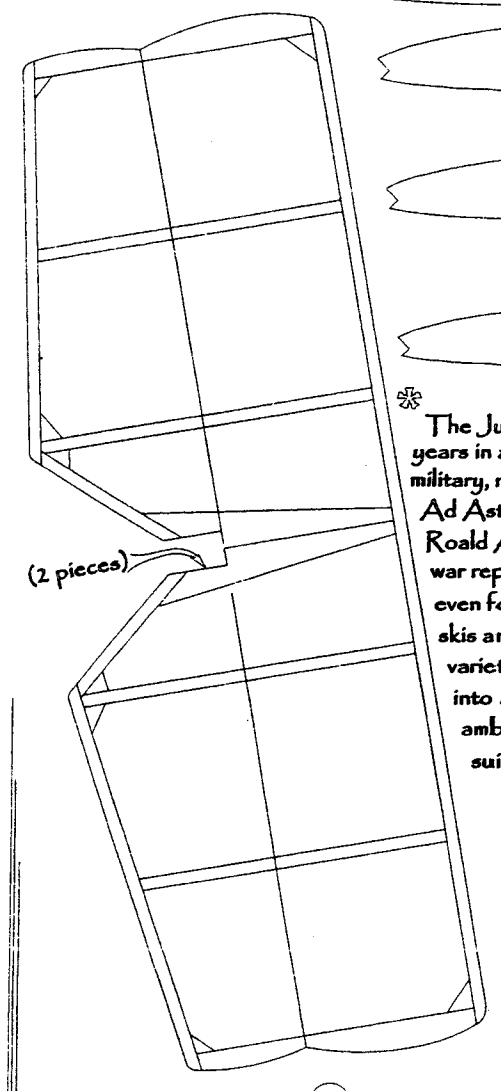
60.5 cm (24") Span



NANCHANG CJ6 Chinese Air Force Trainer
by Nate Sturman.

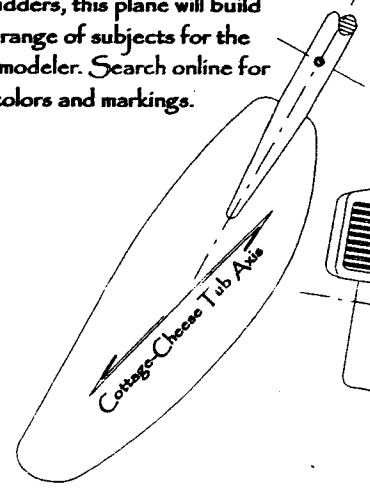
Construct Outer Panels first, block Tips up to 1.1" height, and complete Center Panel. Upper and Lower Spars are scarffed together as shown. Tips can be made of 1/16" sheet or carved from soft blocks.

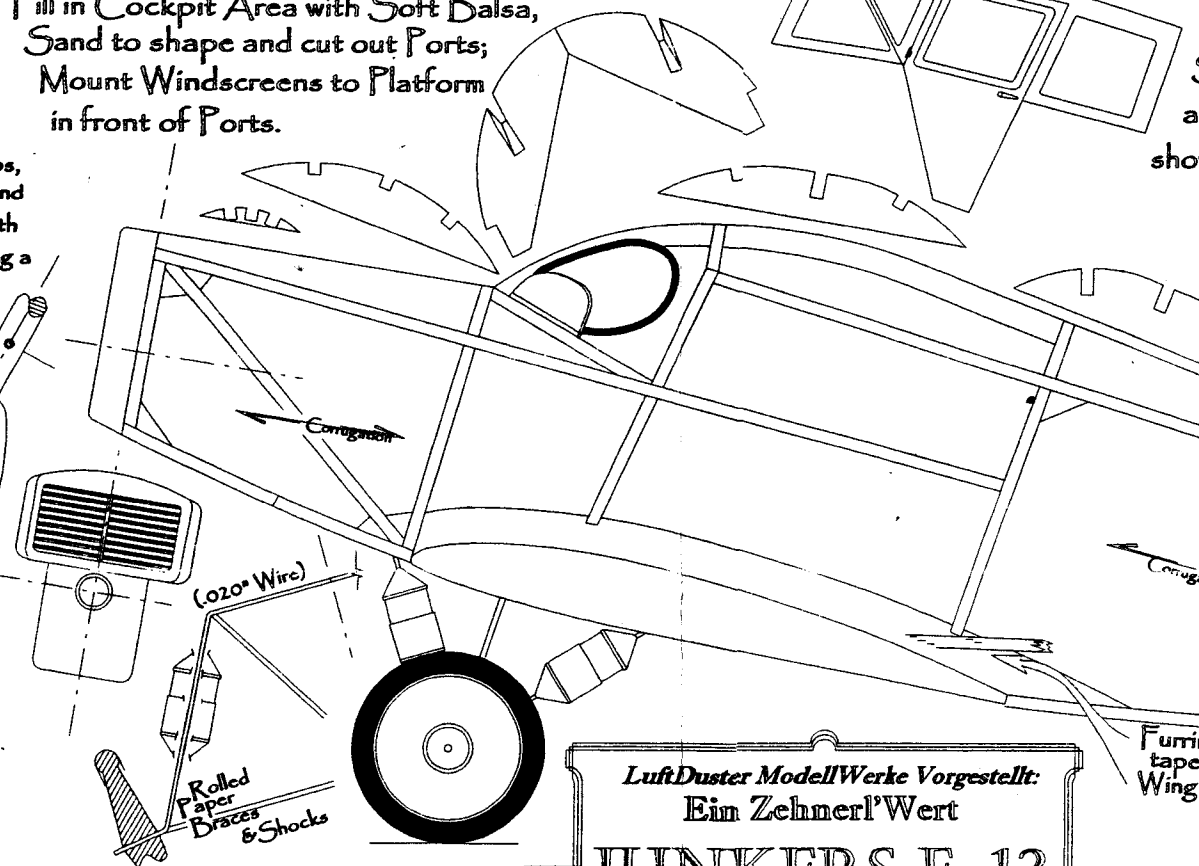




Fill in Cockpit Area with Soft Balsa, Sand to shape and cut out Ports; Mount Windscreens to Platform in front of Ports.

The Junkers F-13 served for over thirty years in a number of commercial, and some military, roles. Early airlines like Lufthansa, Ad Astra, and Aeronaut flew them, as did Roald Amundsen; they figured in failed coups, war reparations, starred in stage & screen, and even fought as gunships in WWII. Fitted with skis and floats as well as wheels and sporting a variety of rudders, this plane will build into a wide range of subjects for the ambitious modeler. Search online for suitable colors and markings.





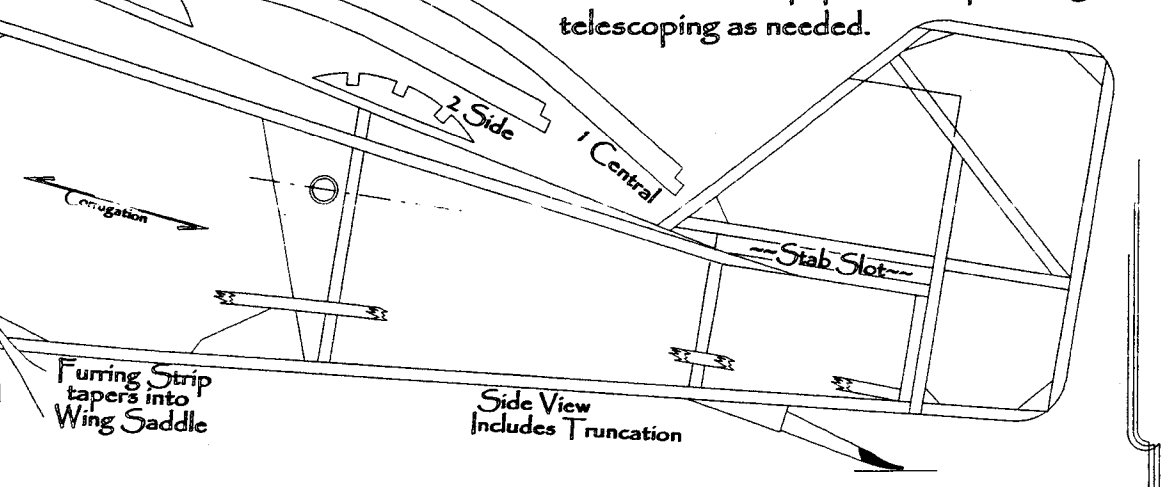
Construction

is per standard Dime practice.

Build Fuselage Box sides in the usual manner. Separate and add Cross-pieces as per the Top view; note the lower fuselage is narrower, and has a Furring Strip running from Wing to Sternpost. Glue in Formers for Top Surfaces, and Platform which defines boundary of Cowl to Cockpit. The three Keels shown above Formers create rounded Cabin.

All surfaces except Side Windows and Doors (see detail to left) should simulate corrugated aluminum; direction of corrugation is shown by arrows.

Landing Gear is made of one Wire bent to shape and all other members of paper or scrap, flexing or telescoping as needed.



...and Thanks to John Ernst for Research!

LuftDuster ModellWerke Vorgestellt:

Ein Zehnerl'Wert

JUNKERS F-13

von Michael J. Heinrich

"...Zur Zeit war es Eine GUTE IDEE..."

W2

W1

-2

ailerons point

1/16 x 1/20

1/16

1/64

+1

1/8 x 1/16

7mm Dihedral

Propeller balsa

38 mm.

10 mm.

40 mm.

15

5

20

1/64

C1

7S4-8

1/16 sq.

1/16

1/16 sq.

1/20 sq.

C1

All light blue grey silver nose in front cockpict. White lettering. signal White, black, yellow

W1: 10 off 1/64
W2: 2 " 1/16

float in Styrofoam

1/20 sq.

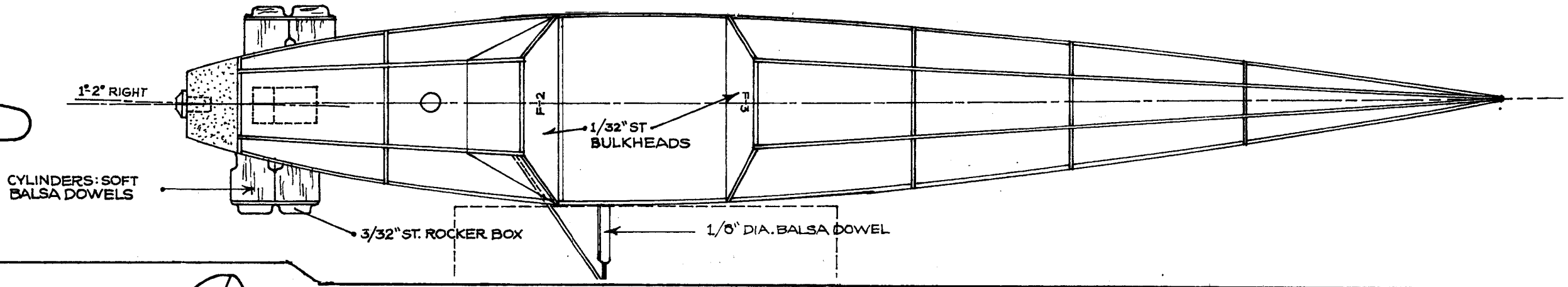
Documention of "Musée de l'Air Paris"

28-6-86

BESSON MB 411

Peanut French Seaplane
Drawn by Roger Aime France

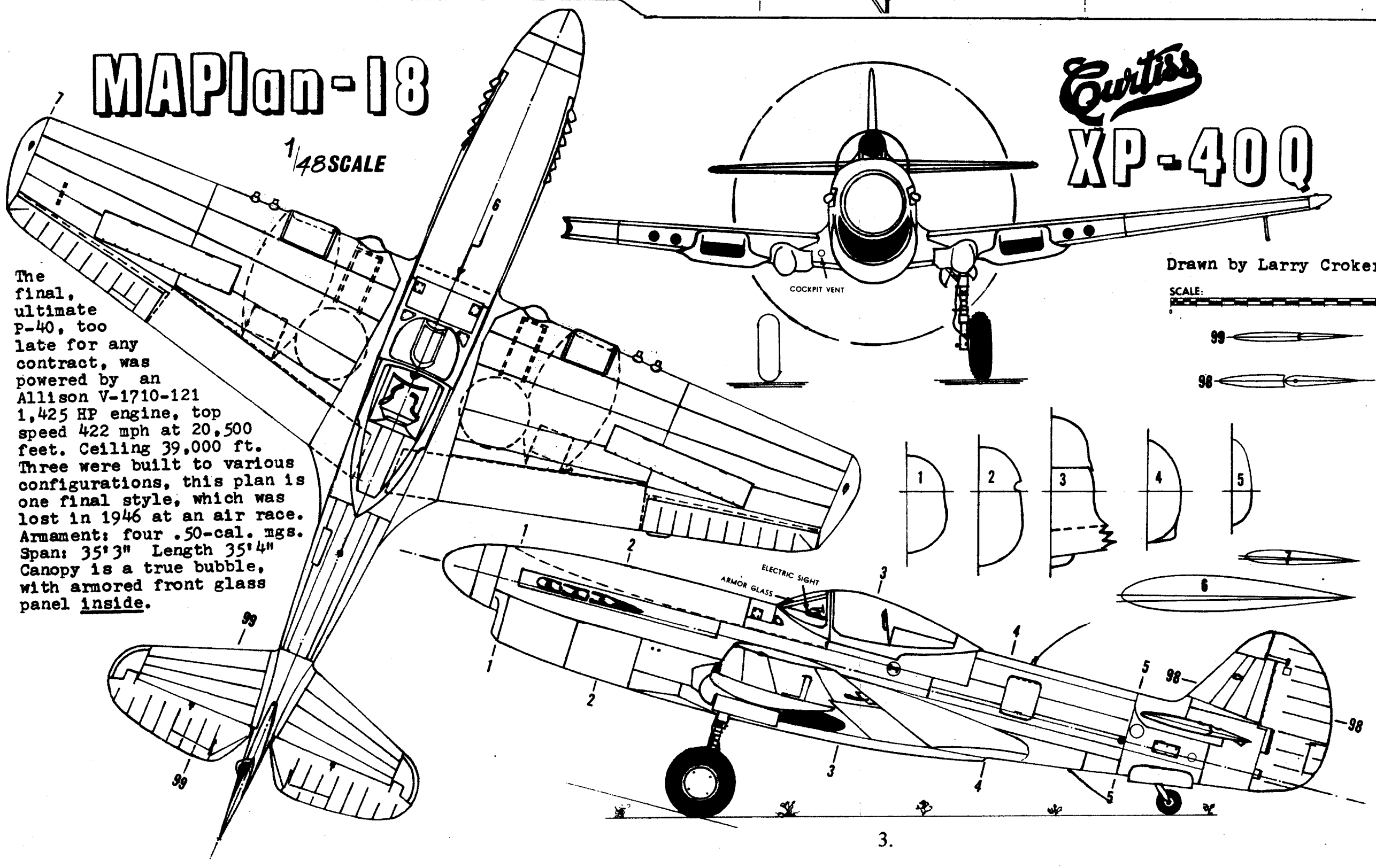
Contester



MAPlan-18

1/48 SCALE

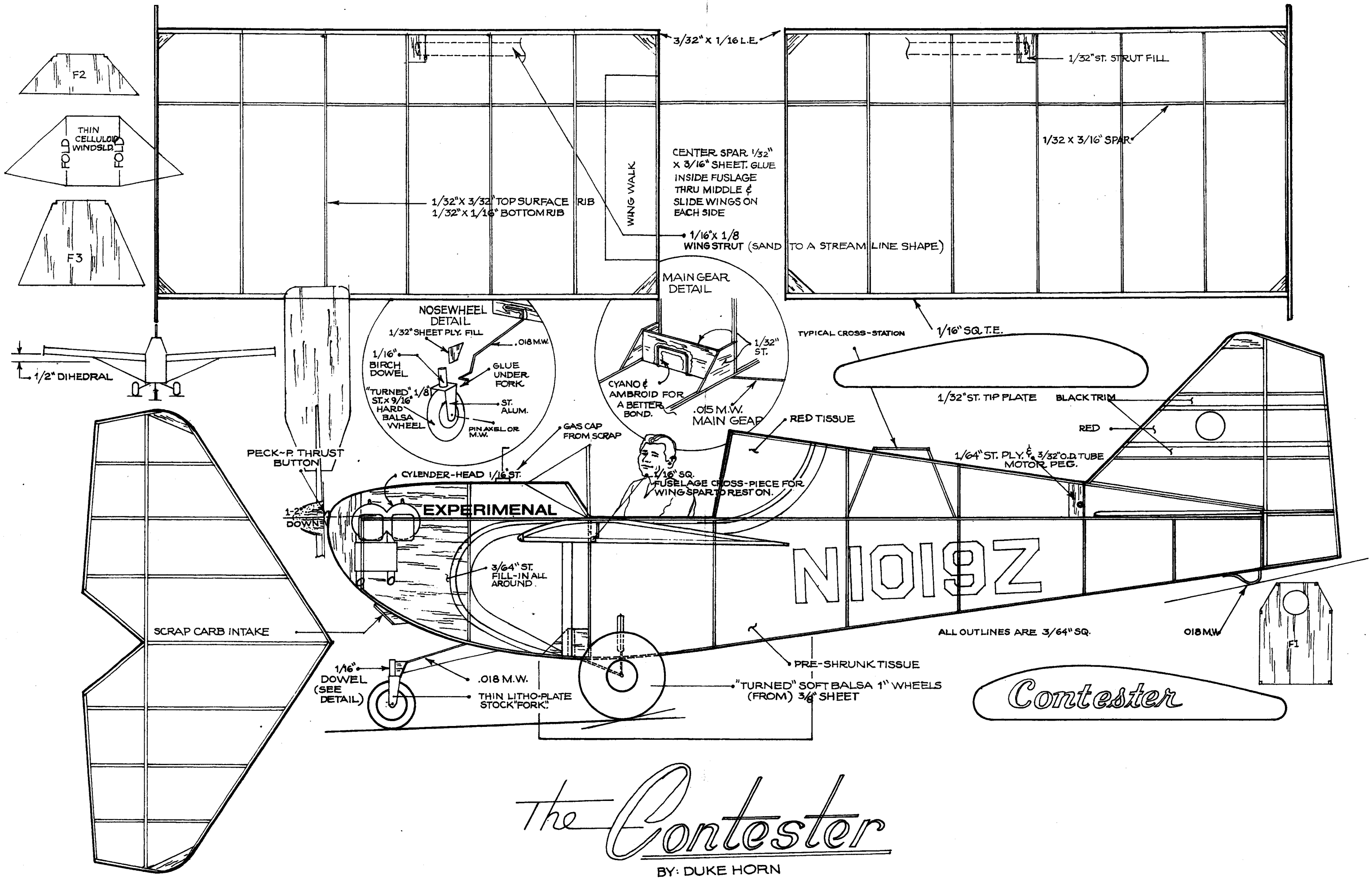
The final, ultimate P-40, too late for any contract, was powered by an Allison V-1710-121 1,425 HP engine, top speed 422 mph at 20,500 feet. Ceiling 39,000 ft. Three were built to various configurations, this plan is one final style, which was lost in 1946 at an air race. Armament: four .50-cal. mgs. Span: 35'3" Length 35'4" Canopy is a true bubble, with armored front glass panel inside.



Curtiss XP-40Q

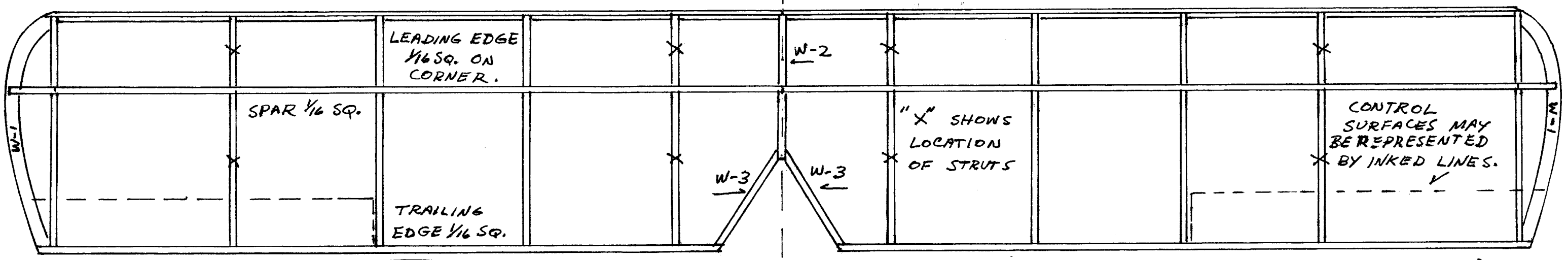
Drawn by Larry Croker

SCALE:

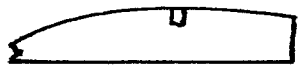


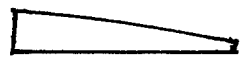
The Contester

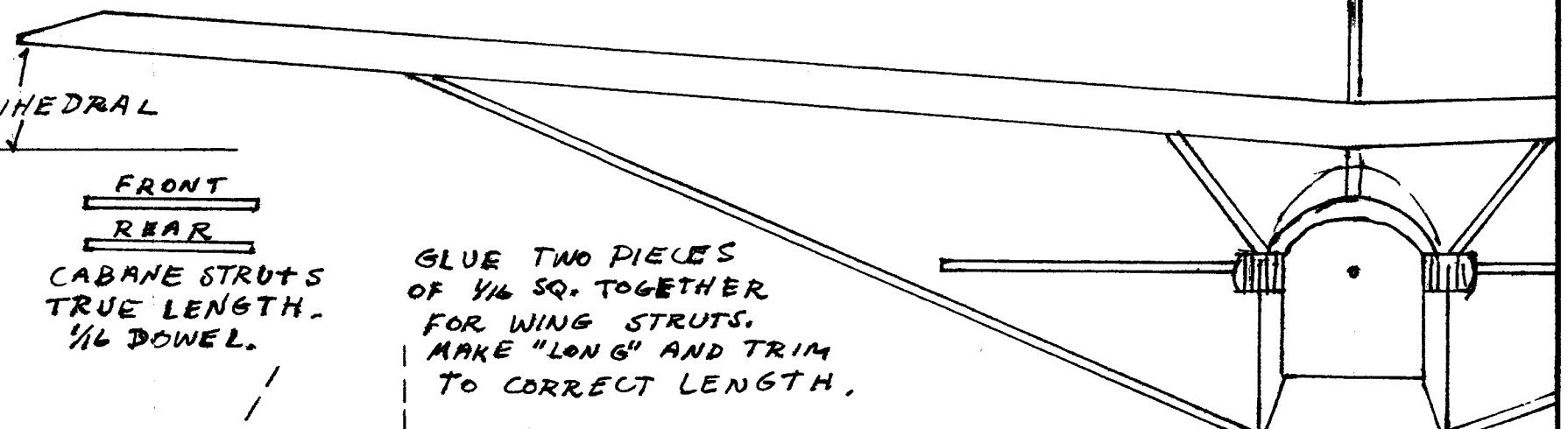
BY: DUKE HORN

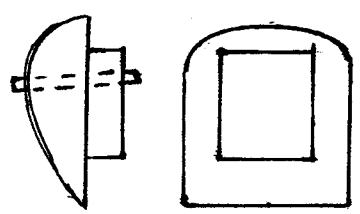


WING RIBS 10 OFF 1/16 SHT.





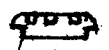




NOSE BLOCK FROM BALSA. 1/16 TUBE BUSH.

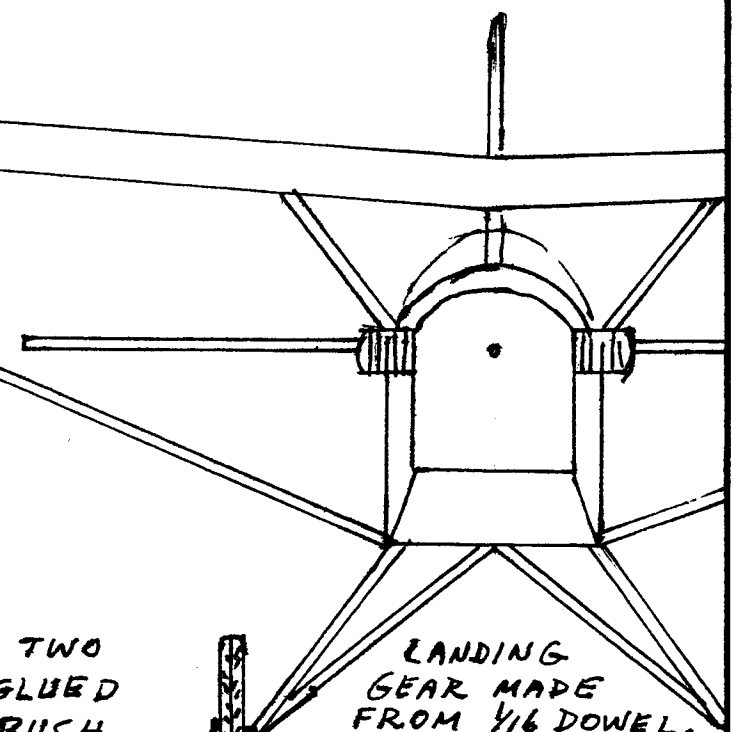
ALL FORMERS 1/16 SHEET.

COVER TOP OF FUSELAGE WITH BOND PAPER BACK TO FORMER 4.

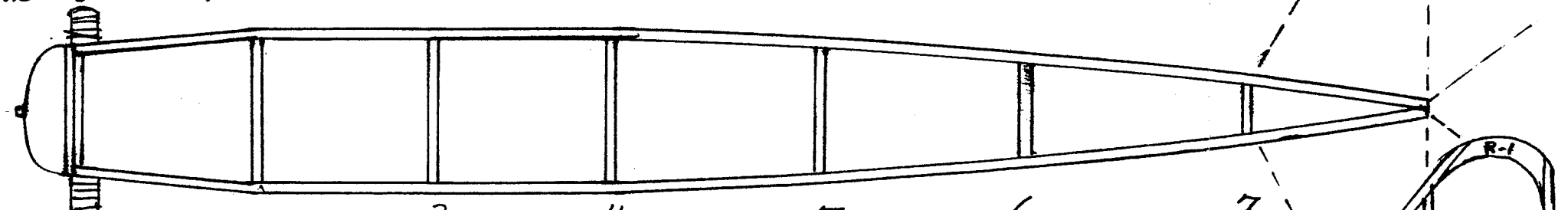


CABANE STRUTS TRUE LENGTH. 1/16 DOWEL.

GLUE TWO PIECES OF 1/16 SQ. TOGETHER FOR WING STRUTS. MAKE "LONG" AND TRIM TO CORRECT LENGTH.

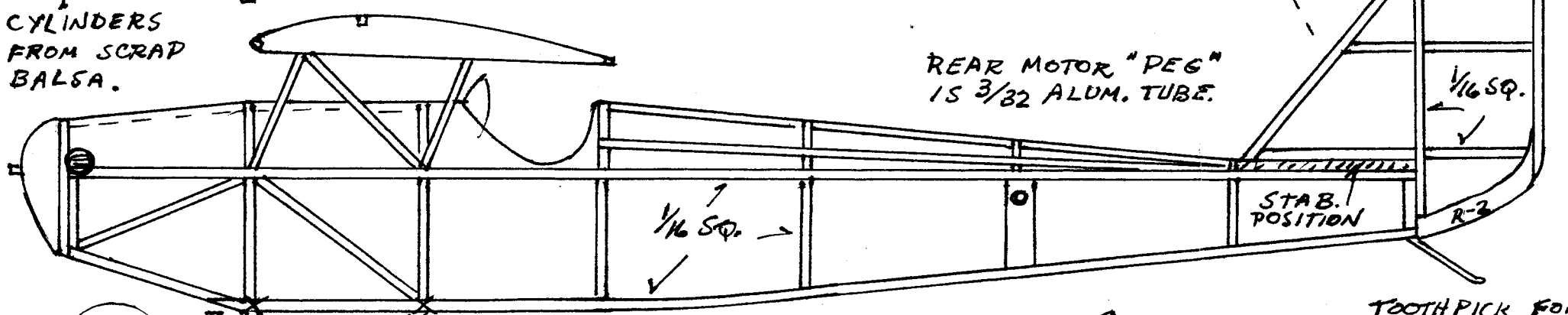


WHEELS FROM TWO PIECES 1/16 SHT. GLUED CROSS GRAIN. BUSH WITH 1/16 O.D. TUBE.

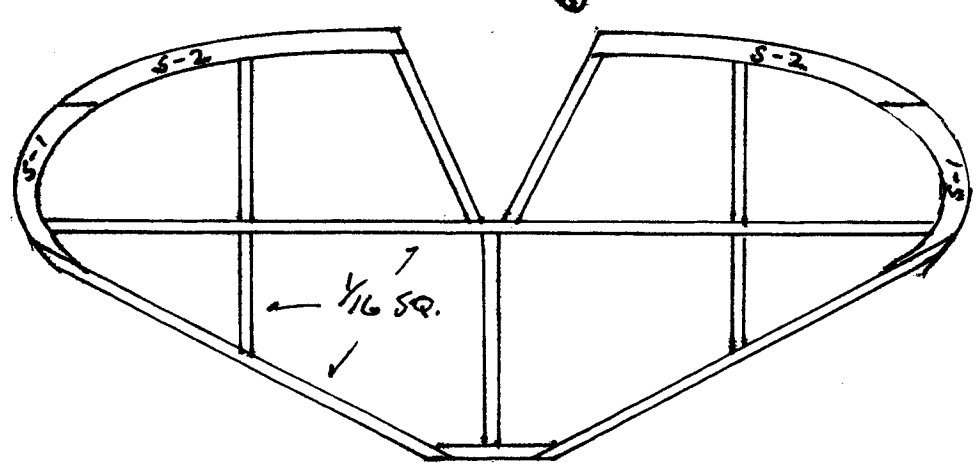


CYLINDERS FROM SCRAP BALSA.

REAR MOTOR "PEG" IS 3/32 ALUM. TUBE.

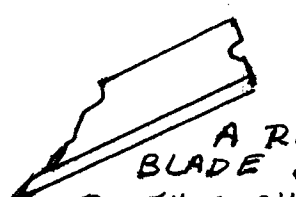


TOOTHPICK FOR TAILSKID.



SPLICE

THE "GEORGIAS SPECIAL" WAS A HOMEBUILT PLANE. COLOR SCHEME IS YOUR CHOICE. NO LICENSE NUMBERS ARE REQUIRED.



A RAZOR BLADE BROKEN TO THIS SHAPE MAKES A GOOD TOOL FOR CUTTING OUT PARTS.

GEORGIAS SPECIAL
SERIES: PSEUDO KIT NO. 5
SPAN: 16" LENGTH: 10½"
DRAWN BY: JOHN BLAIR