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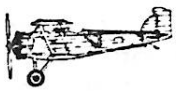
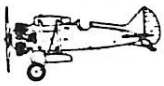
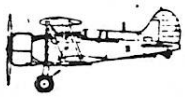


Boeing F2B-1



Berliner Joyce XFJ-1



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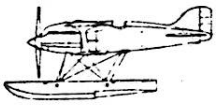

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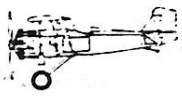

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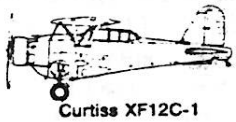
Curtiss F9C-2



Curtiss XF12C-1

MAX - FAX

THE NEWSLETTER OF THE D.C. MAXECUTERS

MARCH/APRIL 1983

MEMBERSHIP

Dues for membership in the D.C. Maxecuters is $8.00 per year for residents of the U.S.A., Canada, and Mexico, and $11.00 for all other countries. Your mailing label indicates the year and month of the last issue of MAX–FAX for your current membership. A red mark in the box below is a reminder that your current membership is nearing its end. Send a check, payable to D.C. Maxecuters, to the Treasurer.

DUES REMINDER ☐

MEETINGS

The D.C. Maxecuters hold meetings on the first Wednesday of every month at the College Park Airport, the oldest continuously operating airport in the world.

PRESIDENT

DAN DRISCOLL
2000 S. Eads St., #301
Arlington, VA 22202

SECRETARY

TOM SCHMITT
11014 Marcliff Road
Rockville, MD 20852

TREASURER AND NEWSLETTER EDITOR

ALLAN SCHANZLE
8311 Exodus Drive
Gaithersburg, MD 20879

UPCOMMING EVENTS

MAXECUTER INDOOR CONTEST : March 12 1983. See flyer in this issue.

KENNEDY H.S. FLYING DATES : Friday, March 25, April 1, 7:00 to 10:00 P.M.

CLUB NEWS

ALLAN SCHANZLE

THE FIRST ITEM on the agenda is to call your attention to the typing of this issue – it's compliments of my son, Chris, and his newly learned skills with an APPLE II Plus computer and word processing software. Many thanks, Chris.

IN THE LAST issue of MAX-FAX, Dave Rees gave an opinion of qualification" flights in FAC scale. I hoped to get some response, and sure enough, several of you took the time to write opinions, so here they are, in the order received.

QUALIFICATION FLIGHTS
Bob Thompson

I feel I must reply to Dave Rees' thoughtful letter. We put in that qualifying time because we found we were judging a whole slew of models which *never* flew! At first we wondered what the builder thought he was doing, entering this model which never flew, but then after thinking it over, w think we came up with an answer.... he was merely checking out his craftsmanship. He wanted to see how his model stacked up with those of the "experts" from an appearance standpoint. The result of having no qualifying time, *no matter how poor the time*, WAS THAT THE HAPLESS JUDGE SPENT MOST OF THE DAY JUDGING MODELS, and not running the meet, doing timing, starting the mass-launch events, or virtually even emerging from the tent! That spate of unflown models just kept him in the tent all day! And most of those models were never flown, and were probably rarely ever intended to fly.

It just comes down to human nature. Dave is looking at the event from the way it *now is*, and from that standpoint he is perfectly correct... the qualifying times tend to distort the events and their intent. On the other hand, if you eliminate those qualifying times, you will immediately get a spate of models to judge which will never fly in the meet, thus wasting the CD's time and day. You may get a lot of nice (and not-so-nice) models to look at, but having spent several days glued into that tent while all the other skysters are having some fun, I can tell you that it is far easier for the judge and CD to only have to spend his time judging the models which are there "seriously" and to FLY, not just there for a "peek". People are going to try to get away with what they can, and even FACs are no different.

Running the events once without the qualifying times won't show this up. It just seems to happen, incrementally, over several years. About the fourth or fifth meet the CD/judge will wonder why he's spending all this time in judging when he never used to, and then he'll look up on the tote-sheet and note that not half the planes he judged are even there for times! What happened? Simple... FACs were taking advantage of the free services th judge was offering. It's just like in politica. Something offered FRE immediately produces its own market. If you make them "work for it" (read FLY for it!), you immediately get control of the situation again.

This was our experience, but if you want to see for yourselves, then try it a few times. Watch the nice models that come out.... and then never fly.

QUALIFICATION FLIGHTS
Bill Bell

I must say I agree wholeheartedly with Dave. His points are well taken, and relaxing the rules for qualifying flights would be a boom to FAC flying.

Every guy who builds a scale model would like it judged just to see where he needs improvement even if it is not such a "hot" flyer.

The time element is also a large factor. By eliminating qualifying flights the static judging could be gotten out of the way first and then we could concentrate on the flying portion of the contest.

I think that there would be a lot more participation if this rule could be changed.

QUALIFICATION FLIGHTS
Don Srull

Perhaps we should use a similar technique as applied in the R/C Sport Scale events. Any plane may be entered, but static scores are available *only after the first offical flight.*

QUALIFICATION FLIGHTS
Allan Schanzle

I kind of like Don's idea noted above. But Dave also expessed concern over utilizing one of your offical flights as a "safe" qualification time. A simple solution could be to have just four officials. This gives you one qualification, and three "go for broke". Of course, this does nothing to help out when fowl or windy weather is expected in the afternoon. But then, everyone has to live with the same conditions, so no one has an unfair advantage.

My biggest concern with this whole question is that we seem to be trying to accommodate everyone, and that's patently impossible. If changes are made, lets's make sure that a contest is still fun for *all* and that means the rules must not cater to either the competition minded or the rank beginners. And for those who want to completly eliminate qualification times, well, let's just see how many of them are willing to give 3 hours of their contest time to do the judging.

THE FRIENDLY POST MAN also brought an interesting letter from Mark Fineman concerning our planned F.A. Moth event in September.

"I just finished absorbing my latest MAX FAX and was wryly amused to see you fellows are planning to have a Flying Aces Moth contest. In fact, I feel a bit like Mr. Bill, screaming "oh no!!" to a deafened populace in falsetto tones.

I am merely the most recent victim of the F.A. Moth syndrome here at Pinkham Field, having been preceded by the likes of Dave Stott, Bob Thompson, and others too numerous to mention. Almost everyone at one time or another falls in love with that plan and decides on the basis of the plan alone that it has everything going for it. It does indeed have everything going for it if you are a masochist. Every Moth I have ever seen has a decided tendency to loop on takeoff, usually making contact with terra firma at some point or other. The looping is so maddening that it has driven the Moth congnescenti to mount the stabilizer upside-down (you read correctly) in order to kill some of the loopiness. Even with an inverted stab, drastic incidence changes and an unconscionable amount of downthrust, takeoffs are still a breathtaking affair. Of course, once a takeoff is effected, watch out. Last summer I entered my Moth in an oldtimer meet and had two maxes followed by a flight of 90 seconds. To give you some idea of the competition, that was only good enough for fourth place; the other guys all had triple maxes and decided places with a fly-off.

This Fall I decided to try again at another O.T. meet. The week before I took the Moth out and made sure that it was properly trimmed. By the way, a properly trimmed Moth (possibly a contradiction in terms) should have a working DT. Well, sure enough, I took it to the contest, it had one nice flight and then promptly proceeded to crash straight in on the next flight, making a large mound of toothpicks. My impulse was to jump upon it furiously, but I restrained myself and gave it instesd to my friend Tony Farranda. We will see if he is still my friend after he repairs and flys (HA!) it."

Well folks, that kind of letter produces only one reaction on a true-blue kraut. Tell me I can't do something and I'll try darn near anything to prove you wrong. So...., I took the Moth out to the flying field the day before Christmas and tried some reasonable high powered launches. Granted, they were hand launched, but the 'ole Moth just didn't exhibit the looping tendencies noted above. But that's most likely due to two things - a rearward C.G. (40 to 50%) and a trim pattern for a spiral climb, the latter being nothing more than a "flattened" loop. Elsewhere in this issue you'll find an article taken from MODEL AIRPLANE NEWS , March 1941 entitled "LIFTING

OR NON-LIFTING TAIL". This will help demonstrate some of the problems involved, but not the whole story. This subject was being discussed recently at the local Roy Rogers with Don Srull and Tom Schmitt after a Jan. 29 flying session at COMSTAT. Yep, COMSAT- 5Ø degrees and relatively calm in January!!! Anyway, Don and I disagreed on some aspects of lifting stabs, but we did agree on one thing. The whole purpose of a stabilizer is to "stabilize", and it does this by setting up a force (moment) that compensates the moment of the wing lift with respect to the C.G. If you want to read about Don's ideas, drop him a note at 941 Kimberwicke Rd., McLean VA 221Ø1, and tell him to scribble some words of wisdom for MAX-FAX. (Now that's a dirty trick, eh Don. Call it editorial license)

IF YOU CHECK the plans in the last issue of MAX-FAX, Hurst Bowers asked for coments on his choice of models. Claude Powell wrote the following:

"Hurst asked for comments of his plans. I vote for more Bowers' plans and he can select the types, they are always interesting."

Claude, I agree with you, and Hurst, it will be great therapy.

THE FEATURE PLAN this month is really a honey. Actually, it's two plans of the Curtiss Hawk P-1 by Pat Daily, the Army (CO_2) and Navy (rubber) versions of this classic aircraft. And let me tell you, those little hummers really fly. We've also got a nifty idea from Claude Powell on how to improve the wing structure on notched leading edges. Tom Schmitt gives us some fantastic photos, particularly of Pat Daily's Hawks, and an interesting note on Bill Winter's Vought V-143. The 'ole Schanz' begins his series on the design and construction of large rubber powered scale models, and from MODEL AIRPLANE NEWS July 1931, we've light-fingered an article about a famous WW-I french pilot, Rene Fonck. So there is a little bit of everything for you in this issue. Happy reading, and be sure to come to the indoor contest on March 12.

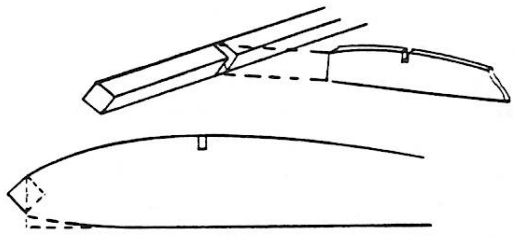
WING CONSTRUCTION HINT

Claude Powell

When building wings with notched leading edges, like this:

Don't!! Try it this way. Notch the leading edge with a sanding stick of the same size as the ribs. Leave the ribs with a flat bottom and blunt nose.

You achieve a much tighter fit (and easier to align leading edge) without trying to juggle/whittle the notches to fit.



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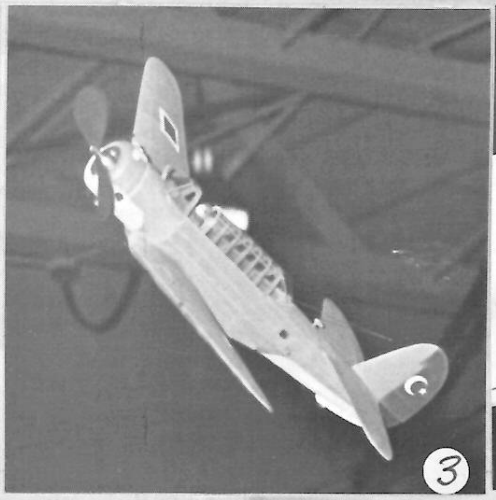
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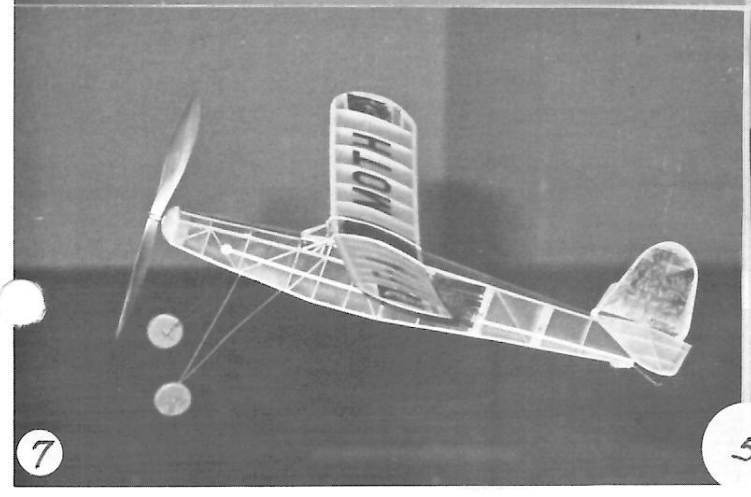
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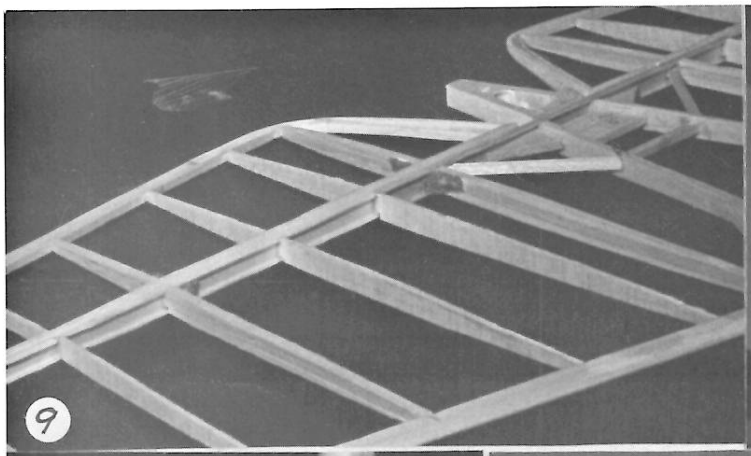
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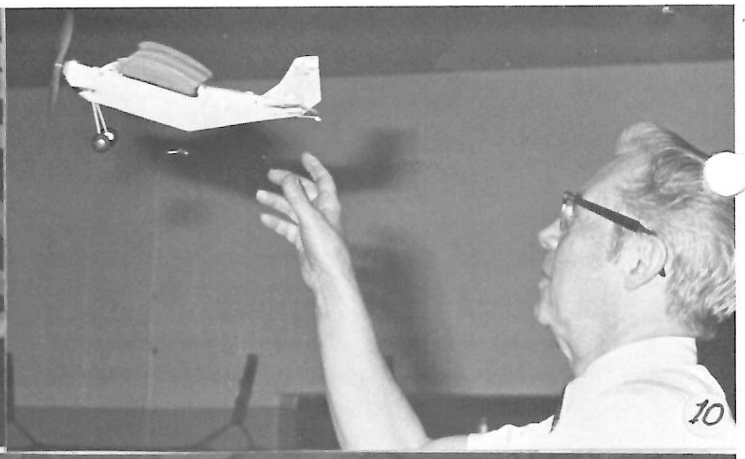
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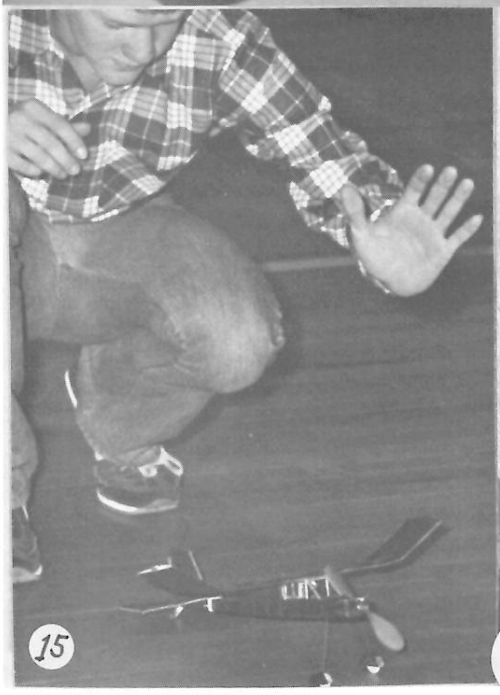
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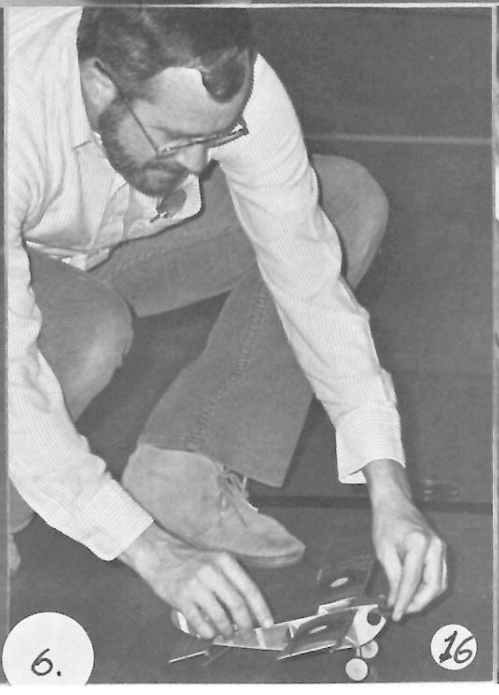
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PHOTO CAPTIONS
Tom Schmitt

1. The feature plan(s) of this issue; Pat Daily's terrific looking and flying CO_2 and Gumband Hawks - two for the price of one.
2. Glen Simpers limbers up for the indoor hand launch glider event at Andrews.
3. A Turkish Vultee peels off for a strafing run at the Kennedy bleachers; Allan Schanzle's entry for the Bill Winter Commemorative this comming summer.
4. Dudley Prisel busy trimming his new Corsair for Navy combat in March.
5. Dudley's pretty model of a beautiful airplane from Earl Stahl's commemorative.
6. Another view of Allan's Vultee: gear is removable for FAC events.
7. Allan's Flying Aces Moth Heads for the Kennedy rafters; a fine flying indoor model ready for next summer's special event- come on everyone, build one and outnumber the Gypsy Moths.
8. Impromptu Navy Peanut combat at Kennedy. Pat Daily and Dan Driscoll release Goshawk and Corsair.
9. A photo to demonstrate the use of basswood "I" beams for stabilizer spars. See article in this issue.
10. Rolfe Gregory demonstrates that a Lacey will fly in any condition- even with a collapsed rear fuselage. It looks as if Allan stepped on it!!!
11. Ed Chevinsky gets the lowdown on CO_2 models of ultralights from Joe Clements- thanks for the foam Joe.
12. Pat's Hawks closing formation under the Kennedy roof; both are consistent flying machines.
13. A tricky flying peanut, Embraer Impanema, by Allan Schanzle from Walt Mooney plan.
14. A Contestor by Randy Kleinert from our Baltimore chapter.
15. Bill McNeal releases his Peck Praire Bird at Kennedy.
16. Another ROG - a Loening Kitten peanut by Dan Driscoll.
17. The grand finale. Don Srull eats a prop while winding his peanut DH-6 for the nine thousand, seven hundred, and eighty first time. Your editor, obviously impressed, looks on with unequaled enthusiasm.

AN INVITATION FROM THE SMITHSONIAN
Allan Schanzle

The D.C. Maxecuters have been asked by the Smithsonian, via the Academy of Model Aeronautics, to hold a model contest sometime in the Summer of 1984 (*not* '83). The contest would be held on the Mall or the Washington Monument grounds, in downtown D.C. This in not an ideal location due to no ability for effective crowd control, relatively small areas, and I'm not sure I want to go chasing a model across Consitiution Ave., which is closely akin to the freeways in Los Angeles. With all the buildings in the area, there will probably be considerable turbulence. That's the bad side.

On the positive ledger, we could design the events so that super scale models would not be involved (say a minimum of 40 FAC scale points). If we had several mass launch categories (always a crowd pleaser) and limited the models to 13 inch span peanuts (they don't fly quite as well as the larger ones, and I'll step on any Lacey's and Fikes) then perhaps the lack of crowd control and restricted space may not be a deterent to building for such a contest. In essence, you should be willing to sacrifice any model you fly. This, folks, would be a true "fun" event.

Now for your contributions. Would you be willing to enter such a contest? What events would you suggest? How about some non-scale ones, like ROG? Would you send a model to be proxy flown? Would it motivate you if we could assure reserved parking for contestants? How 'bout a special tour thru the Smithsonian Air and Space library facilities? Finally, the Smithsonian has offered to display winning (and surviving?) models in the Air and Space Museum, and give gift certificates for good 'ole American dollars which could be used to purchase books in the Museum.

What-da-ya think? Please send your comments to the editor, so we could get a rough idea of how contestants would be involved. Thanks.

A NOTE ON BILL WINTER'S VOUGHT V-143

Tom Schmitt

Some casual browsing through old magazines revealed the comparitive side views of the Vought V-143 and its antecedents the V-141 and the Northrop 3-A. These were published in Air Enthusiast, October 1972 along with excelle side view photographs of the Northrop 3-A and Vought V-141. Now one o Bill's many unusual designs (see Now/Dec 82 MAX-FAX) is listed as the Vought V-143. However a quick comparison of his drawing and the side views illustrated here indicates that he probable designed a model of the V-141. The stocky character of the V-141 is inherent in Bill's rendition. Why not try one as something a little different for the commemorative event? I think I will!

AND A BIT MORE ON THE VOUGHT V-143

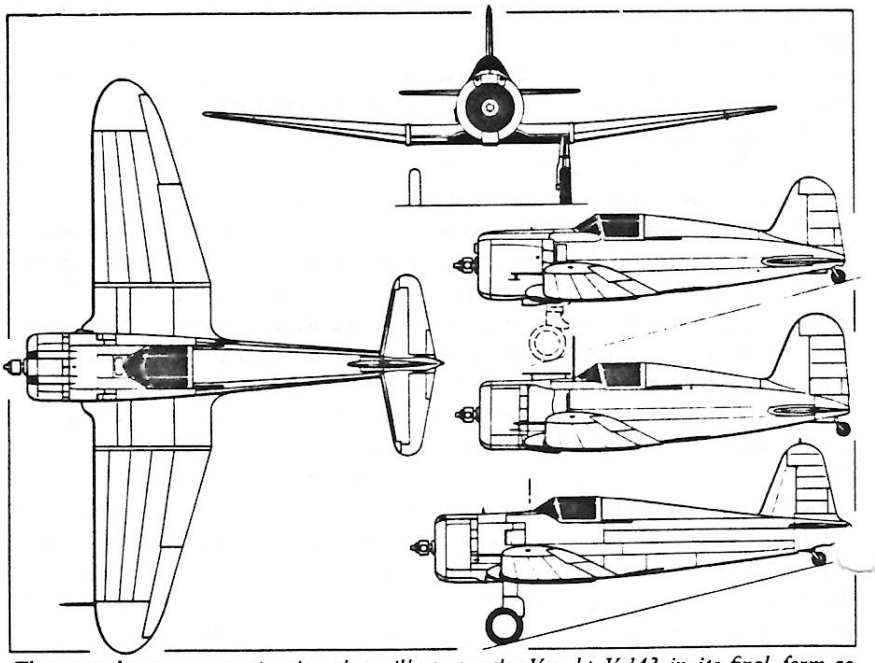
Allan Schanzle

The following was found in the journal of the AMERICAN AVIATION HISTORICAL SOCIETY, JAN-MARCH, 1957. The Editorial comment is that of the editor of the AAHS.

"The picture and remarks on the Vought V-143, in the AAHS Journal, were shown to me just when I had discovered the Army's flight test Report on that ship (Wright Field S.R. #4222, dated 23 June 1936). The ship on that report is designated V-141,the powerplant the R-1535-A5G of 750 h.p., and top speed of this version was 274 mph. This plane had been entered against the prototypes of the Seversky P-35 and Curtiss P-36, in the April 1936 pursuit competition. Magazine articles published later (like AERO DIGEST, October 1936, p.62) call it the V-143, and credit it with a 250 mph top speed with a Wasp Jr. of 525 hp. What power engine the ship had when it was shipped to Japan I don't know.

Ray Wagner
732 South 5th St., Philadelphia 47, Pa.

(Ed: This, plus the Wright Field Negative listing, seems to confirm once and for all that the photo (Vol 1 page 106), Negative #53970, actually shows the model V-141, and not V-143 as stated.)"



The general arrangement drawing above illustrates the Vought V-143 in its final form as exported to Japan in July 1937, the sideviews illustrating (top to bottom) the original Northrop 3-A, the V-141 as initially flown, and the V-143.

Rene Fonck, of France

By B. D. KNEEN

M.A.N. 7/31

"MOST perfect air duelist of the Great War." That was Rene Fonck. The Armistice left him as top ace of the Allies, and his official record of seventy-five victories is only five less than von Richthofen's total. However, Fonck brought down fifty-one more that for one reason or another could not be witnessed as required to be made official. His grand total of one hundred and twenty-six is accepted by all war pilots who knew him, and puts him in a class by himself.

Thus on one vivid day he brought down six enemies in two hours—probably the greatest single feat in aerial warfare. With such records as he made, it seems incredible that he never received a bullet in any part of his plane—not even through a wing—and was never wounded himself. Once, before he began combat work, he was brought down by Germany artillery fire while taking aerial photographs and directing artillery fire. His plane was riddled. However, as soon as he became a *chasse* pilot he dodged every bullet, "Archie" and "flaming onion," the Germans could fire at him. And that was plenty.

Fonck was born at Saulcy-sur-Meurthe, in the Vosges mountains, on March 27, 1894. About to be examined for a mechanical engineering course, he became interested in flying, decided to become a pilot, and had just taken his first flight in a Bleriot machine when war was declared.

Called to the colors, he trained in the Aviation Corps and on June 15, 1916, went to Escadrille C.47 at the front. He was cited for his hazardous flights in which, with Georges Wiest, sub-lieutenant observer, he located enemy batteries. Terrific firing from the ground riddled their machine, but they landed safely and kept up their death-defying work.

In 1917, while effecting the first laiason between an airplane and infantry, German ground fire brought him down but he escaped. Sent to the Oise, for seven months the Escadrille C.47 fought through combat after combat. Here Fonck perfected his air-fighting tactics and became an acknowledged master.

His citation for the Military Medal, dated August 6, 1916, reveals his astonishing ability and superiority in aerial combat. It reads:

> *"Fonck, Rene Paul. Adjutant pilot of Escadrille C.47. Remarkable pilot, brave, skilful and alert, having already taken part in a large number of aerial battles. August 6, 1916, he resolutely attacked two enemy aeroplanes strongly armed. He gave chase to one and by a series of bold and skilful maneuvers compelled it to come down intact within our lines. (Already twice cited in orders)."*

The amazing part of his feat is only hinted at. Fonck forced down his enemy without firing a shot! So masterful was he at maneuvering that he kept the German plane at all times in positions where the enemy gunner could not bring a gun into play, and in addition, the enemy had to continually dodge Fonck while he lost altitude before the Frenchman. The plane, a Rumpler of the latest model, was a two-seater, and landed without injury. It was flown by the Allies and proved very useful.

The captured observer was furious—he carried in his pocket a *permission* to go on leave that very afternoon: The crestfallen pilot admitted that he could do nothing but land.

On the Somme sector, fighting with the British, he was sent on artillery observation and other special work. While taking photographs on March 17, 1917, a German squadron dived to attack. The old and slow photography planes could not maneuver so effectively, but Fonck, in fifteen minutes, sent one enemy down in flames, and put the rest to flight.

FONCK was at once put into combat work with a fast Spad. Already he had earned four citations, the Military Medal, and a British decoration, and had been promoted to Chief Adjutant. He was then only 23 years old.

He began his real fighting career on May 1, 1917. He won his rank as "Ace," with five planes, in just twelve days! In August he shot down three in three days running. Such rapid victories were outstanding—but he was to far exceed this "output." In the fall of 1917, when he was named Chevalier of the Legion of Honor, he had eighteen victories.

On September 14, 1917, Fonck not only brought down his enemy but carried home the German's barograph as proof. The barograph registered a long flight that ranged far up into the clouds—20,000 feet above ground. Here it was that Fonck attacked!

The registering paper on the barograph showed a vertical stroke of ink crashing down, tapering away at 5,000 feet and showing the crash as the German struck the earth. Strangely enough, the delicate barograph was undamaged.

Guynemer at this time was the French idol, and was thought invincible. However, the German pilot Wisseman brought Guynemer down on September 11, 1917, and felt so self-confident after that victory that he wrote home he had nothing more to fear in aerial warfare . . . but that was before he met Fonck.

Nineteen days after Guynemer had been lost, Fonck met his slayer in the upper fighting world. Far above the clouds, nearly five miles up, Fonck's Spad whirled itself at Wisseman's Rumpler. The Spad was lighter, and Fonck was able to outmaneuver his heavier antagonist in the thin air of 24,000 feet altitude.

Swooping around behind the Rumpler, Fonck fired a burst of six machine-gun bullets. He aimed directly into the enemy's tail. The observer was shot, and suddenly was hurled from the machine as it turned over. His hurtling body, on its fall of miles toward the invisible earth, passed close to Fonck's plane.

The Rumpler itself, disabled and out of control, fell directly through Fonck's patrol far below—its wings grazing one of them as it whirled downward to destruction. The confident Wisseman had met his master, and Guynemer was avenged.

In spite of bad weather during October, 1917, permitting only thirteen and a half hours of flying, Fonck shot down ten enemies. He was credited with only four, the others falling out of sight of witnesses.

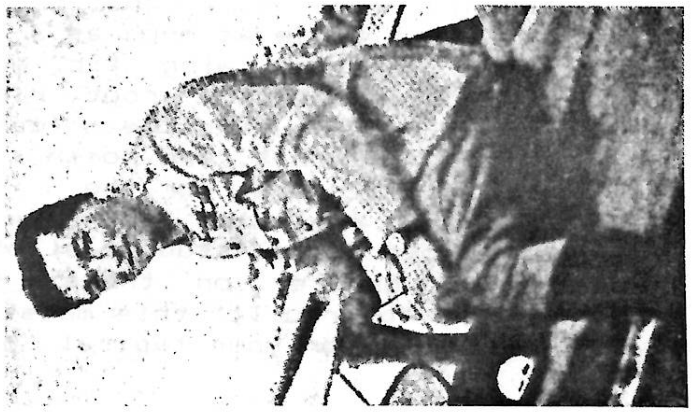
On May 8, 1918, he brought down three enemies with a total of only twenty-six shots. That afternoon he destroyed three more with only thirty bullets!

On September 26, Fonck, now 1st Lieutenant, shot down six Germans within two hours, near Montdidier. In his first combat of less than five minutes, he got two in the first ten seconds! He returned to his airdrome for an hour, then went out to the same region, shot down an artillery observer, then attacked a patrol of four Pfalz fighters, and picked off two of them in a few minutes.

Fonck was probably the greatest of aerial strategists. His coolness and tactical skill carried him through unscathed. He had two or three combats with the great von Richthofen himself, all ending in a draw. His methods were in direct contrast to Guynemer, who plunged headlong into battle and won by dash. Guynemer was eight times downed, had many shattered planes, and finally lost his life. Fonck was cool and invincible.

The Ace of Aces was with the famous Cigognes, greatest of French squadrons, when the war ended. In three months with this group he shot down twenty-four enemies.

Fonck never flew unless he felt in perfect condition. He kept in the best of health, used no alcohol and trained for his battles as for an athletic contest. With a cool head and a brain that was fast and accurate, he became the greatest fighter of them all—for he emerged from the war with his life and health.



DESIGN AND CONSTRUCTION OF LARGE RUBBER POWERED SCALE MODELS

Allan Schanzle

The last few issues of this bi-monthly trash wrapper have contained photos of my 6'6" span PT-19. Why, in the name of Hung, would anyone want to build a 5 1/2 foot rubber powered model? For one simple reason. Sever years ago, Bill Winter wrote in this rag about his early days in modeling, and in that article, he mentioned 5 and 6 foot rubber scale models,....even a few 8 and 9 footers. I clearly remember the first time I read that contribution to MAX-FAX and exclaimed, "Ya gotta be medium-well wack-oh to do something like that." This mental gyration was quickly followed by the realization that "medium-well wack-oh" was a perfect description of myself, and so the next thing I remember was a personal promise, "I gotta build one of those critters..." Once I took that pledge, it was only a matter of time before the mole-hole was cleared, plans strown all over, and a decision made to pursue the Fairchild PT-19.

Why the PT-19? Well, the way I see it, if I'm going to put out that kind of effort (and bucks for balsa!), I want to be sure the sucker will be stable and fly reasonably well. And what could be more stable than a primary trainer, which is what PT stands for?

I checked my files for PT-19 plans, and found one by Earl Stahl. After that, no other plans were given serious consideration, even those by Clarence Mather, which I know produces a great flying model. So the plans were decided upon. Now, how do we enlarge them to give the desired size?

Two things top my list entitled *"Least Favorite Things That Gotta Be Done"*-enlarging plans and portions of my annual physical examination. So natuarlly, I looked for an alternative. Have you ever heard of a Xerox 7800? Well, this little wonder machine will reduce or enlarge an origional by any scale factor up to 1.414 (square root of 2) on each run through the machine. Two shots through this little goodie will double your origional. Three times gives a 2.83 scale factor, and that's what we did for Earl's 23 1/2 inch origional plan. To get access to a machine like this, check your loc yellow pages for a Xerox representative, who should be able to lead you to the closest facility. The cost is rather high (depending on your specific area), but even $10 or $20 is reasonable when you consider the hours of time it would take to actually draw the plans. But then, maybe you're the type that looks forward to that portion of your annual physical where your doctor slips on the Playtex rubber glove. If so, then you would also be happy to spend 5 or 10 hours enlarging the plans. Me, I'll "grin and *bare* it".

My intentions here are to give you a series of discussions on some of the techniques I used for construction, and review those that survived the test flight stage as well as those that I recommend avoiding. It seems appropriate, however, to mention that the model has never been exposed to severe conditions. Flight testing was done this past October, and all flights have ended in uneventful landings. I can't recall a single time when the wing tip touched the terra firma, so the model has never been asked to absorb heavy loads, except on the landing gear. Perhaps this coming summer will demonstrate some additional short comings.

I should also note that the forces exerted on a 6 foot wingspan model can be at least twice as much as a 3 foot model. For example, if your 3 foot model lands on its' wing tip, you'll have a 1 1/2 foot moment arm for the resulting forces at the root rib. However, if your 6 foot model does the same thing, and assuming the 6 footer flies at the same speed and weighs the same (which it won't, and doesn't) the resulting force at the root rib will be twice as much as for the 3 footer, just due to the moment arm. Filter into this the realistic increase in weight and model speed for a 6 footer, and your forces for a "student pilot landing" will probable be *at least* a factor of 5 greater on the six footer. I guess what I'm trying to say is that maybe I "overbuilt" this monster, and many of the things I mention may *not* be necessary for your typical 36 inch jumbo model.

Another thing is worth mentioning. Whatever we do, for God's sake, let's *not* start another event for "biggies." We've got jumbo, and this falls into that category. Let's use it in it's broadest sense.

One final note before I offer the first construction hint. Some folks have asked what "monster" I plan to build next. Quite candidly, I doubt I'll ever try one this size again. A 36 or 42 inch model, maybe. This one evolved because of a commitment to myself, and of course, lots of ego to do something no one else in the metropolitan Washington D.C. area has recently done. Storage of a model this size is not an insignificant problem, and the upkeep (that is, cost of rubber motors) is also something to consider. And it flys like gang-busters...perhaps *too* well for our field at Comsat.

The following list contains the items I hope to discuss in this and following issues of MAX-FAX.

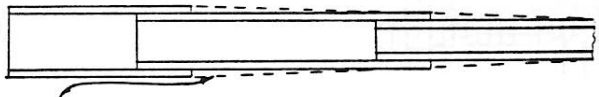
1. Stab spar structure
2. Fuselage structure
3. Wing structure
4. Plug-in wing design
5. No-No's for landing gear design
6. Prop design

You'll notice only one "negative" subject in the above list (#5). About the only things I'm able to suggest are "do nots". When a model gets this size and it lands in tall grass, the gear is subjected to severe stresses. Consider choosing a plane that had a retractable gear and build it in the "up" position.

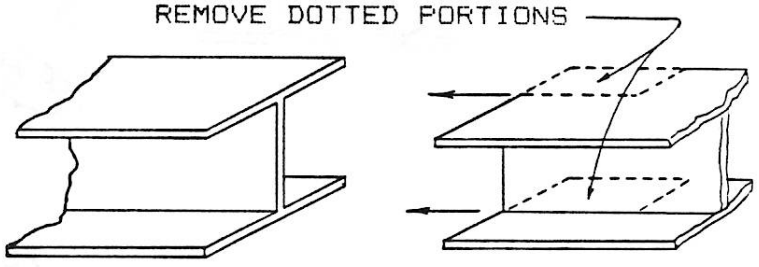
STAB SPAR STRUCTURE
or
"I dream of "I" beams with the light, clear grain."

About three years ago, Tom Schmitt and I made a sojern up to Gettysburg PA to visit my favorite hobby shop - Gilberts. They've got so much stuff, I still don't think I've seen 50% of it. True, 90% of their stock is for model railroads, but I even find that fun to examine. On this particular trip with Tom, I discovered machined bass wood for making railroad structures - rectangular shapes, columns, channels, and "I" beams. Now "I" beams are exceptionally strong in resisting bending from top to bottom, and these little suckers were incrediably light. Some were warped, so I picked through the lot to find the straightest ones. They came in many different sizes, resulting in a selection of 5 or 10 of each size. Most of us buy things we think are "neat", with no idea when, where, or how we'll ever use them, but I figured some day those "I" beams would be useful for something. Sure enough, when the PT-19 construction was begun, the "I" beams were examined for the first time in several years. Lo and alas!!! Do my peepers deceive me? Can it be true that by selecting the correct sequence of sizes that,.....that they "telescope"!? Great loads of 4 pound balsa - they do!!! What a natural way to get a tapered thickness from the stab root rib to the tip. All that is required is to remove about 1/2 inch of the upper and lower flanges on one side of the "I" beam, thus producing a "channel" structure, which can then be easily slipped into the next larger size "I" beam. Glue on some thin strips of 1/32 scrap balsa on the top and bottom to fill in the "step" from one "I" beam to the next. Sand to give a smooth transition. Now, try bending this little goodie up and down. Strong - hey what.

Tune in again next issue...we'll babble about fuselage and wing structures.



1/32" scrap, glued to top and bottom flanges. Sand to produce a smooth transition from one "I" beam to another.



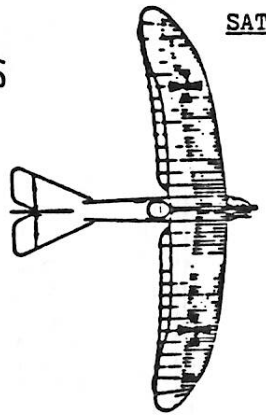
D.C. MAX MAXECUTERS

ANNOUNCE

THE 9TH ANNUAL CAPITAL INDOOR SCALE AIRCRAFT CONTEST

MARCH 12 1983

ANDREWS A.F.B. - NAVY RESERVE HANGAR



SATURDAY MARCH 12, 10:00 to 6:00 PM.

FAC SCALE: Judging begins at 12:00. You must have a qualifying flight by this time.

PEANUT SCALE: Mooney rules. Judging starts at 12:00. Ten (10) second bonus for R.O.G.

MASS LAUNCH:

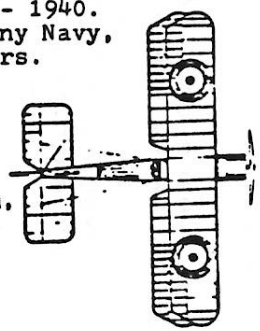
2:00 PM	WW-I:	Biplanes only.
3:00 PM	GOLDEN AGE :	1920 - 1935, plus non-military planes for 1935 - 1940.
4:00 PM	NAVY SCALE :	Any plane from any Navy, but in Navy colors.

NO - CAL: FAC rules.

BOSTONIAN: 14 gm. minimum.

NOVICE PENNY PLANE: AMA rules.

H.L. GLIDER: This event will be held provided independent flying space is available. Bring 'em, just in case.



ENTRY FEE:

$2.00 per event, $5.00 maximum.
Juniors under 16: $0.50 per event, $1.00 maximum.

CONTEST DIRECTOR:
Dan Driscoll
2000 S. Eads ST. #301
Arlington VA 22202

703 920-7671

12.

LAST MINUTE UPDATE !!

MAXECUTERS
1983 SUMMER MINI CONTESTS
at COMSAT

TIME: 7:30 ON THE FOLOWING FRIDAYS

MAY 20 1983: F.A. MOTH (PER PLANE IN JAN/FEB '83 ISSUE OF MAX-FAX.

JUNE 17 1983: 13 INCH SPAN PEANUT SCALE

JULY 15 1983: CO_2 SCALE, HAND LAUNCH GLIDER

AUG 19 1983: SCALE BIPLANES

RULES

1. Each event will be a *single* mass launch. Last one down wins.

2. FAC 40 point minimum for scale events

PRIZES

Winner gets free dinner at Roy Rogers after contest to be paid for by the loosers.

GEORGE TWEENY

LIFTING OR NON-LIFTING TAIL?

M.A.N. 3/41

FOR the past two years it has been almost universal practice among the model building fraternity to use a lifting tail on all types of models, both indoor and outdoor. There is no question as to the superiority of this type of tail over all others, but how many builders fully understand the simple theories and aerodynamics underlying this so obvious superiority? Suppose we delve into the problem for a few minutes and investigate the actions of the horizontal tail.

There are, obviously, only three different types of horizontal tails: One which produces lift in an upward direction, one which has a resultant force acting in a downward direction and one which has neither an upward nor a downward force; a neutral tail. Each of these types is shown in the diagrams and will be discussed in turn.

Figure 1 shows the reactions caused by a lifting tail. The lifting stabilizer is cambered on the upper side exactly the same as an airfoil or wing section and produces an upward lift or force, which is shown as F' on the diagram. This force in turn produces a moment about the center of gravity of the model which acts in the opposite direction to the moment produced by the center of lift located ahead of the center of gravity. These two moments are equal in magnitude and act in a manner opposite to each other, so that the net result is zero. Thus the two effects exactly balance one another. This is clearly shown in the diagram.

Now what is the immediate effect of lifting tail on the model's balance characteristics? First of all, it is a well-understood fact that in order to have a model fly at its best efficiency, or its best Lift/Drag ratio, the wing should be located as far forward as possible. The action of the lifting stabilizer in always trying to raise the tail has the effect of constantly lowering the nose of the model, which necessitates placing the wing further forward to balance this effect. This fact is clearly illustrated by glancing at some of the recent designs of indoor endurance ships. It would never be possible to get an indoor tractor to fly with the wing far forward on the motor stick, without the action of a lifting tail; and all of the recent record-breaking indoor ships surely have been flying with the wing far forward. Of course, on gas models, getting the wing far forward is primarily the result of the weight of the motor.

It is also true, that a lifting stabilizer has better "anti-stalling" properties than a flat tail of the same area. As the angle of attack of the tail is increased, which is exactly what happens when the model starts into stall, the lift of the cambered section is increased. Hence there is a tendency to dampen out the stall before it even has a good opportunity to get started.

For outdoor gas models the lifting tail has a decided effect in pulling the model out of a very steep climb with minimum loss in altitude. In order to get the longest possible flight with a limited engine run allowed, it is absolutely necessary to get the model to the greatest altitude while the engine is still running, then have it lose the least amount of altitude when the engine cuts. In this position it will be more liable to pick up favorable thermals and have longer total flight time. For this reason most gas models are designed and adjusted to climb at a very steep angle; when the model reaches the top of the climb it will be almost in a stalling altitude and, as we have just seen, lifting stabilizer tends to pull it out of a stall. In this way, as soon as the motor stops, the weight of the engine in the nose coupled with the lifting force of the cambered tail, will bring it into a level glide, with hardly any loss in altitude.

Obviously, an under-cambered stabilizer would not have this effect. The under-cambered stabilizer is quite an old principle, known for a good many years among all model builders. Ernest McCoy was the first to use it on an indoor tractor, back in 1928. He developed the so-called "Mystery Ship" which broke all existing records at that time and was characterized by its stable flight and long flat glide. The diagram explaining the reaction of this type of tail is shown in Figure 2.

In this case the center of lift is located behind the center of gravity and produces a forward moment as shown. To counteract this moment the stabilizer is cambered on the underside. This produces lift, or force F', in a downward direction and sets up a moment about the center of gravity which is equal and opposite to that moment produced by the center of lift. Thus the net result is once again zero, as shown by the equation:

$$F' \times d = C.L. \times D$$

Therefore, $(F' \times d) - (C.L. \times D) = 0$

The big disadvantage to an under-cambered stabilizer is the same thing which gives the lifting stabilizer its great advantage, except that it reacts in the opposite direction. When the tail is lifting down it becomes necessary to move the wing back in order to balance the model, and thus it does not fly at its highest L/D value; hence, not at its best efficiency. McCoy's tractor was very notable by the fact the wing was located very much towards the rear of the motor stick; in fact more than half-way along the length. Of course, had the model been equipped with a tail boom such as is done today, some of this effect would have been offset; but tail booms were not used at that time. However, this is still an outstanding disadvantage of the under-cambered stabilizer and for that reason it has been replaced almost exclusively by the lifting tail.

There remains one last type of stabilizer: the neutral or non-lifting tail. This force diagram is shown in Figure 3. A neutral stabilizer is one which is equally cambered on both top and bottom, or in other words, a symmetrical airfoil. Thus the force produced by the tail is zero and the net moment about the center of gravity is zero. This is also the case when the stabilizer is a flat surface, but this type of tail is rarely ever seen in model use. A neutral tail, however, is sometimes used on large plane designs, particularly the light, private-owner type of airplane.

Thus, we have seen that the lifting stabilizer, first used in modern type tractors in 1919, by Charles H. Grant, is the best type of tail to use for model use. With all its desirable features it is not hard to understand why it has come into almost universal use. Carl Goldberg has made what is perhaps the most unique application of such a stabilizer in his designs of indoor endurance ships. He has combined the features of the lifting tail with a rather frail leading edge on the horizontal tail, which will change the resultant force of the tail as the model assumes various attitudes of flight. For example, if the ship goes into a dive, no matter how shallow, the leading edge will bend down, increase the negative angle of the tail and bring the ship out of the dive. However, it takes quite a bit of experience and experimenting to find the proper strength for the leading edge structure. This is indeed a very ingenious application of the fundamental aerodynamical principles.

In conclusion it is well to remember that the moment of horizontal stabilizer about the center of gravity of the complete airplane is always restoring, or making for stability. The action of the tail is similar to that of a weather vane: If it is disturbed, the wind pressure on the vane, acting behind the point of support, sets up a moment which tends to restore the vane to its original position. The action of the airplane is exactly the same. For this reason it is important that the horizontal tail be correctly designed.

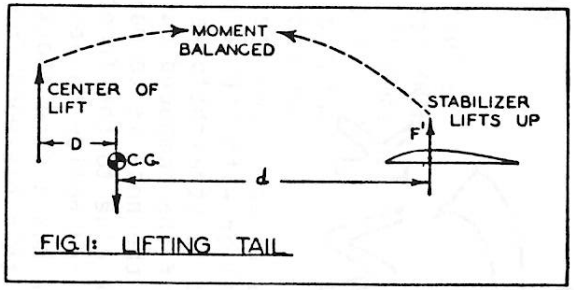


FIG. 1: LIFTING TAIL

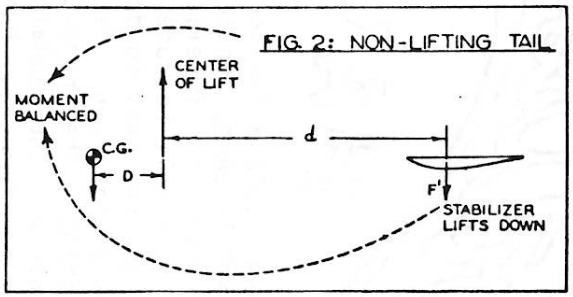


FIG. 2: NON-LIFTING TAIL

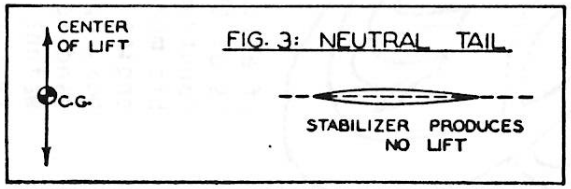


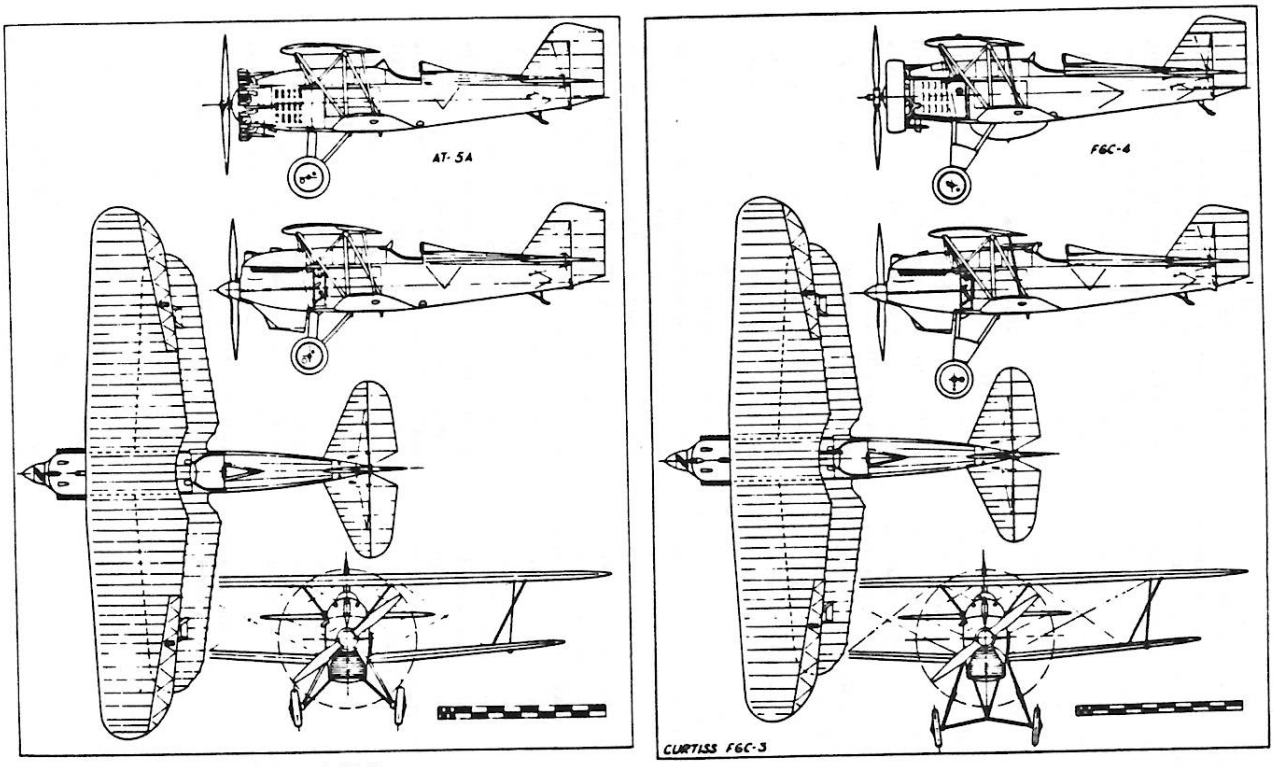
FIG. 3: NEUTRAL TAIL

Curtiss HAWK

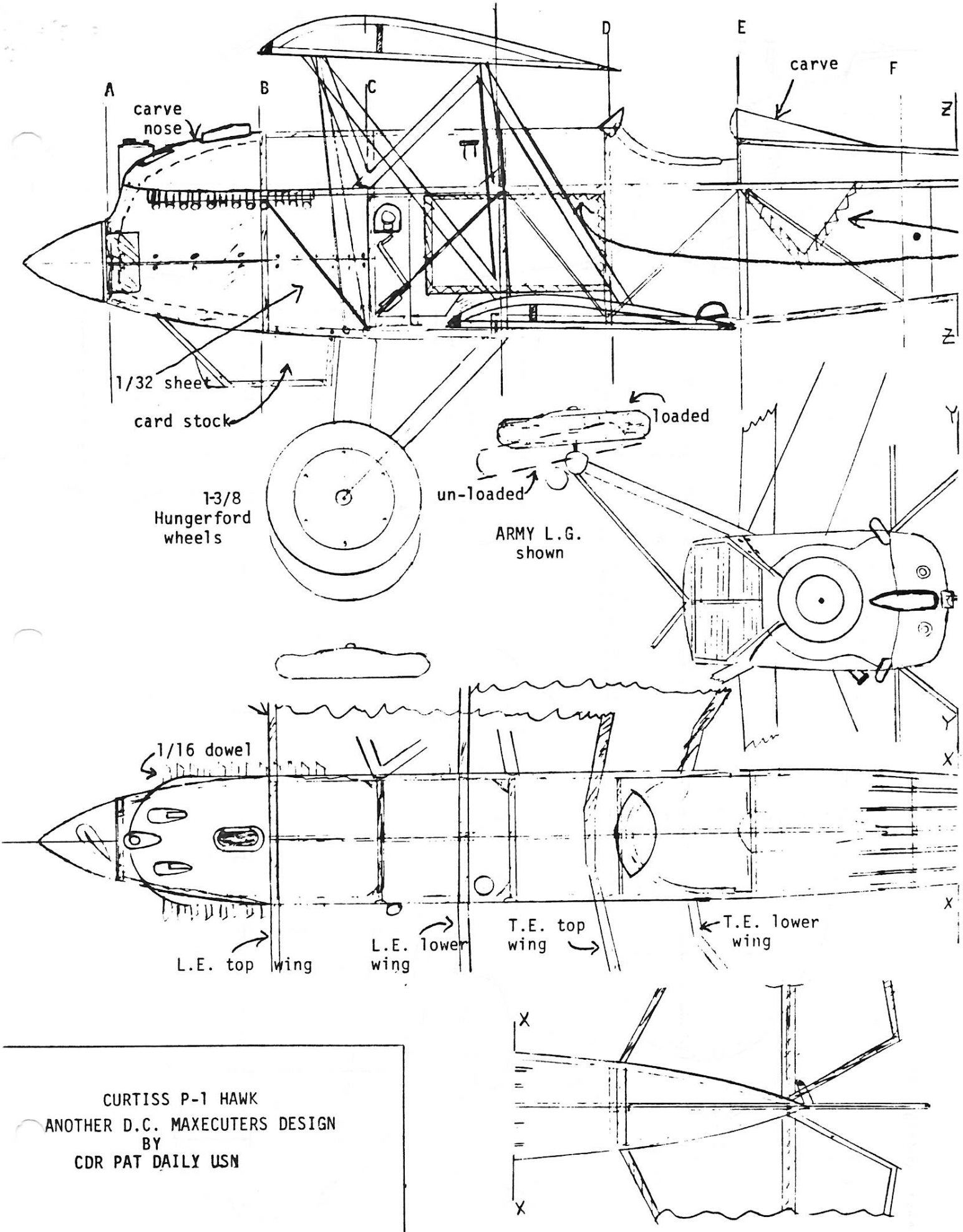
BY CDR PAT DAILY USN

The Curtiss P-1 HAWK was the first of the famed HAWK series that culminated in the P-40 series some 15 years after the first Hawk took wing. Of all the Hawks, the P-1 with its tapered wings, pointed spinner, large wheels and large prominent radiator was probably the niftiest looking of allthe bipeplane fighters to come down the pike. The model depicted in these plans is of the P-1A (Army version) or with little modification, the F6C-3 (Navy version). Construction of the fuselage is straightforward--i.e. a built up box. The nose is a bit more difficult because of the compound curves used to hide the big Curtiss D-12 engine. The best way to do the nose is to make a 5 sided balsa (very soft 1/4 inch) box, open at the rear. Tack glue to the front of the built up fuselage and carve and sand to shape. Then remove and hollow to about 3/32 thickness--you will need the nose weight anyhow. The radiator has a card stock sheeting wrapped around the front and rear radiator formers. Use thin basswood for slats up front. Wings are conventional sliced ribs and half ribs with tapered spars (1/16) as shown on the plans. Tail feathers and wing tips are laminated from 4 strips of 1/64 balsa of the appropriate thickness. Cover with plyspan and shrink. Note the differences between the Army and Navy landing gear lenths and shapes. The plans show correct decalage, dihedral and incidence settings. Use a jig to mount top wings and notch bottom of fuse for bottom wing which carries through. I used 1/16 washout in all wing tips. Please note- you should include an additional 3^{o} of downthrust over what is shown on the plans. My Navy version weighs 20.5 gms for rubber and the Army version is 27 gms for P-nut CO_2. Both fly great.

Color references: Army-- Profile#45, U.S. Fighters by Jones (Aero Pub), Curtiss Aircraft 1907-1947 by P. Bowers (Putnam), Wylam P-1 series drawings, Sterling p-6 kit. For the Navy version see Profile #116, U.S. Naval Fighters by Jones (Aero Pub), United ~~Sta~~tes Navy Aircraft Since 1911 by Swanborough (Naval Institute Press),and the Army references.

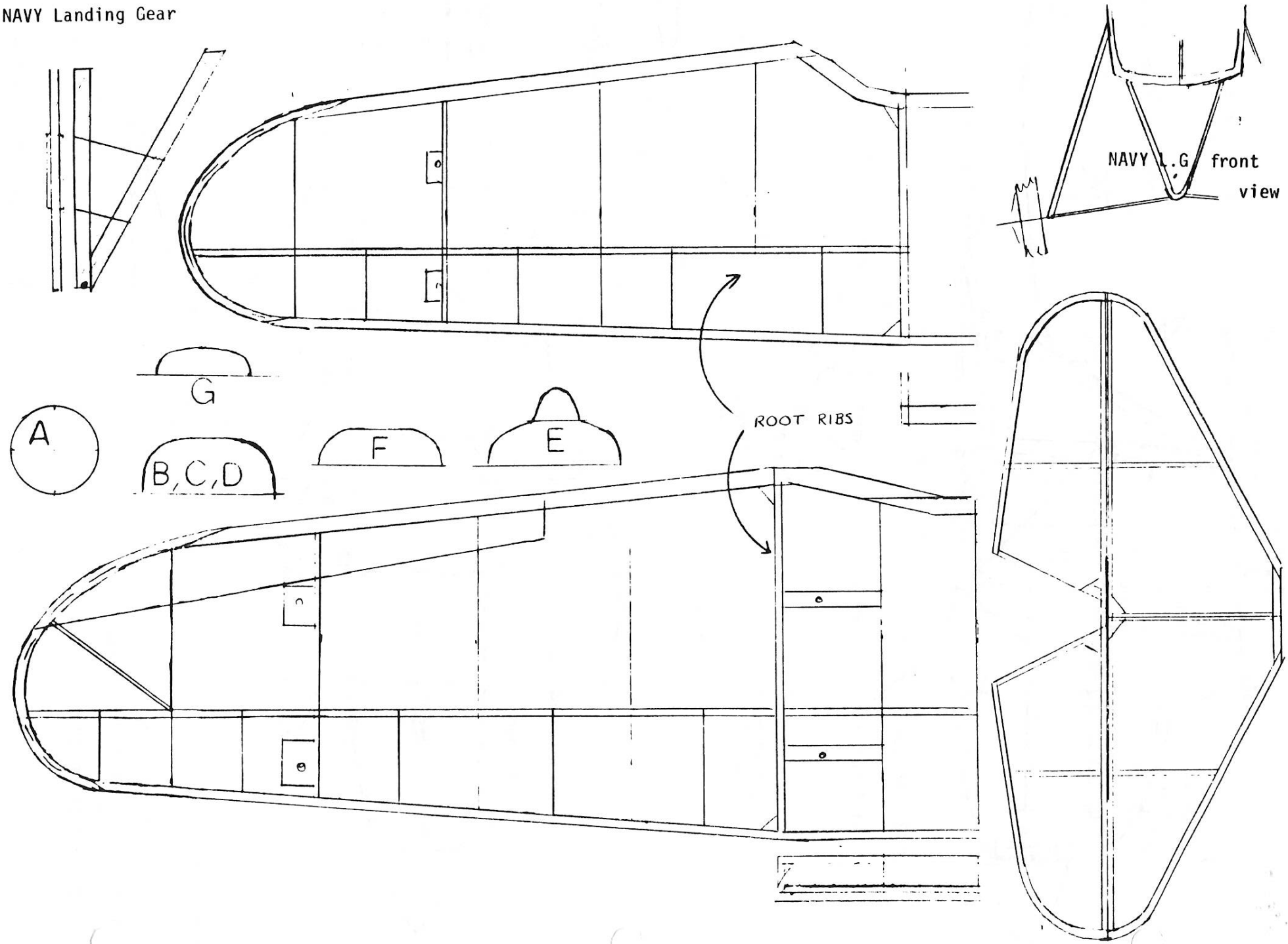


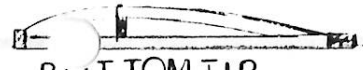
P-1A and AT-5A.



CURTISS P-1 HAWK
ANOTHER D.C. MAXECUTERS DESIGN
BY
CDR PAT DAILY USN

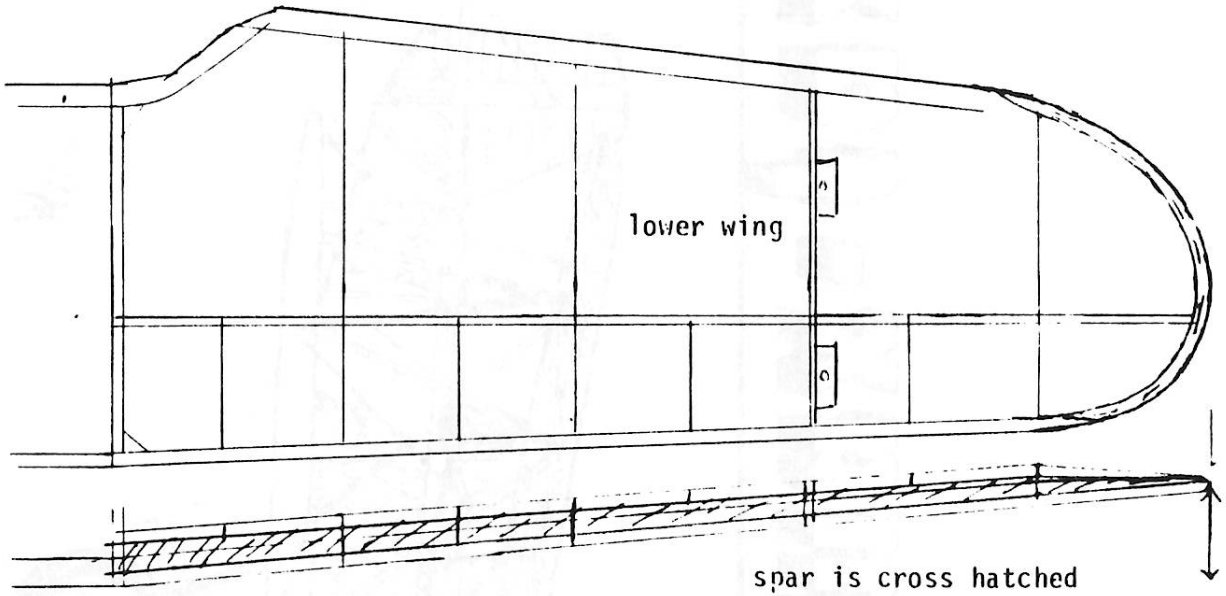
NAVY Landing Gear





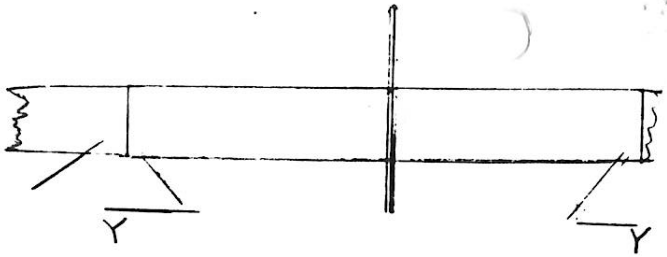
BOTTOM TIP

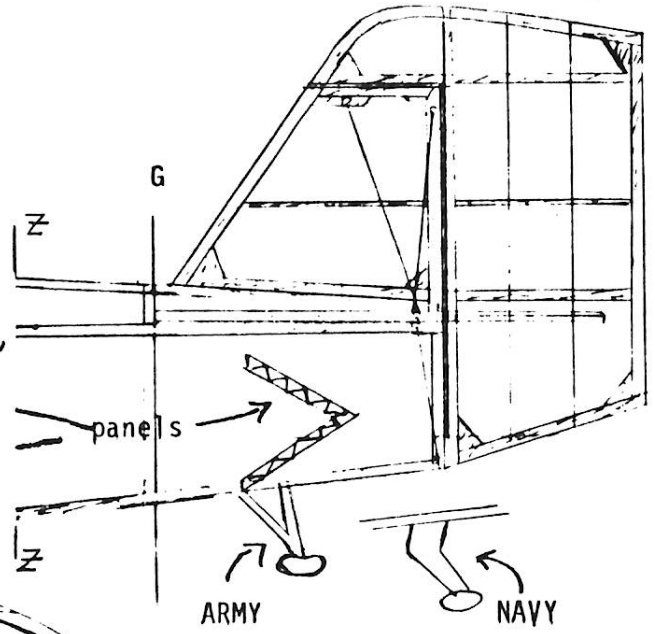
TOP TIP

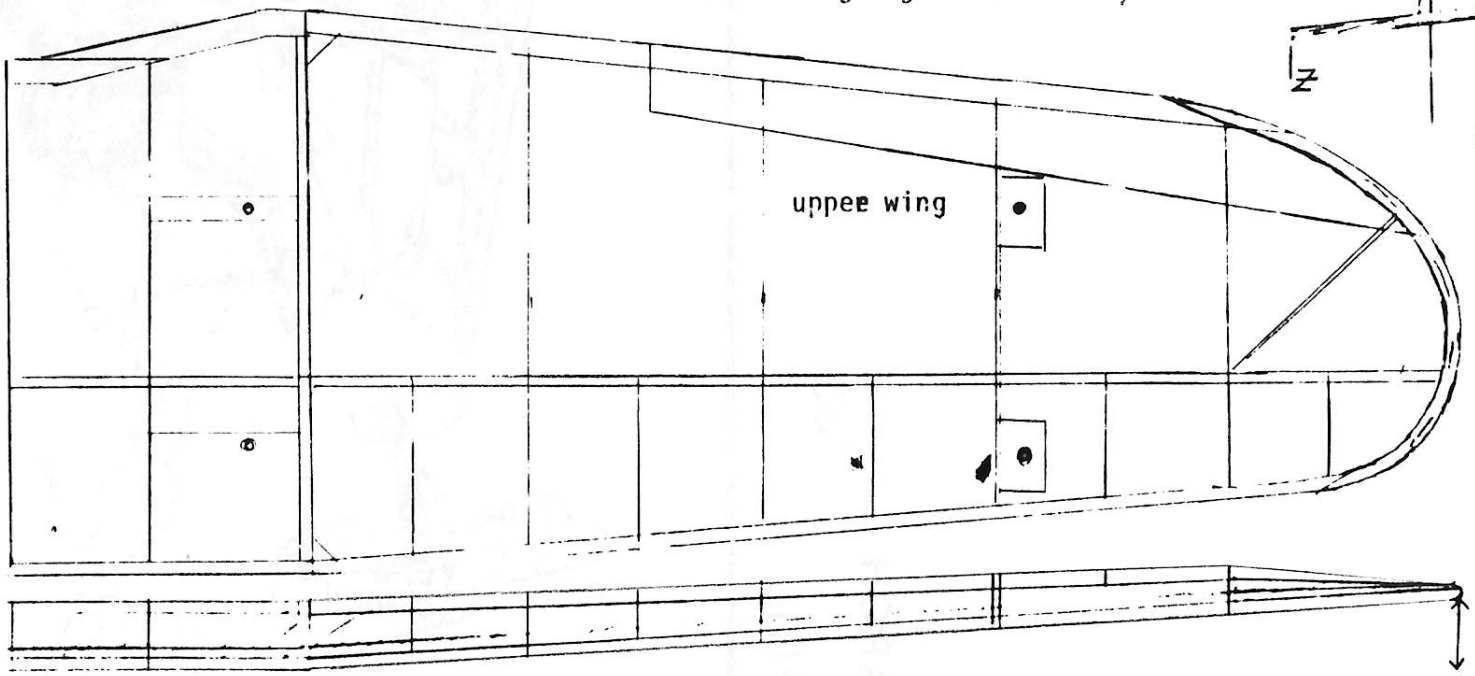


spar is cross hatched

for both wings Leading edge is clear

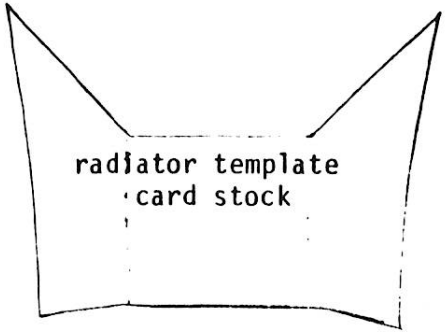






TOP ROOT

BOTTOM ROOT



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FIRST CLASS

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MARCH
APRIL '83

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