
R/C
RADIO CONTROL
MODEL BUILDER
volume 10, number 105
$2.00
OCTOBER 1980
ISSN 0194 7079
● UDET "FLAMINGO"
R/C Sport Scale Biplane
● OHMSICK ANGEL
Small R/C for 020 electric
● STINSON RELIANT
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R/C MODEL BUILDER

OCTOBER

1980

volume 10, number 105

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CONTENTS

FEATURES

CONSTRUCTION

Cover: Jimmy Cushion, Liverpool, England, built this version of World R/C Aerobatic Champion Wolfgang Matt's earlier design, "Super Star." We'd build one too, if it would give us the opportunity to meet Christine Gray! Photo by John O'Donnell, Cheshire, G.B.

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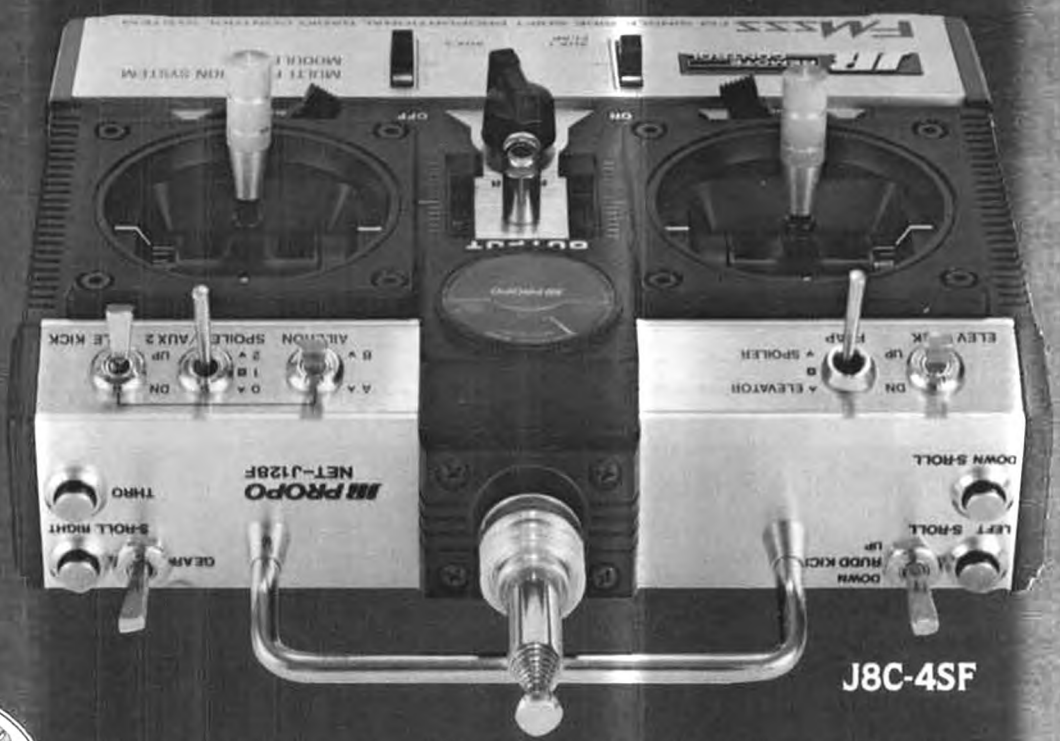

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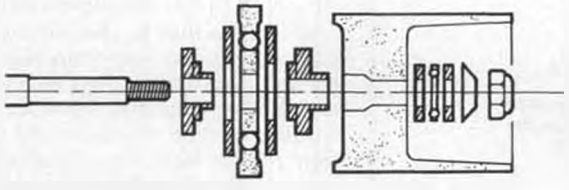
An insider's look at a Factory RC12E. Full weight-saver treatment, super Reedy rewind power and our slick, new VariLoc differential. (Body-1/12 Ferrari 312P)

SPEED SECRETS OF THE TEAM

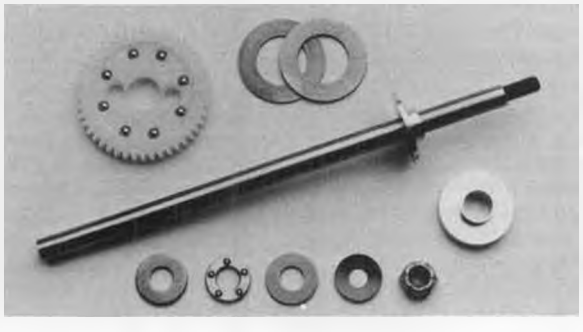


Our VariLoc differential delivers total performance. Fits all RC12E's with no modifications and allows precise fine-tuning for maximum traction.

A full winter's testing and a spectacular debut in the Western Regionals. The Team's top-secret differential was a winner right from the start.

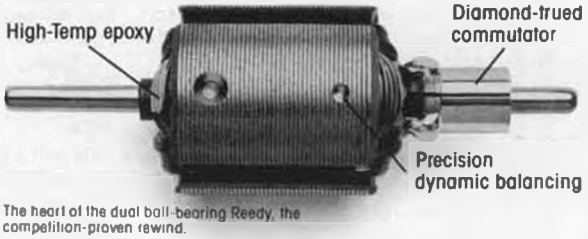
Our VariLoc is the proven racing differential for 1:12 scale electrics, featuring adjustable limited slip action, light weight and easy maintenance.

Simply installed on any RC12E, the VariLoc puts all of your power to the ground, all of the time. And the increased efficiency of the VariLoc increases your run time significantly.



The power for the Team comes from the Reedy Modified 05... already twice the National champion.

More than just rewinds, the hand-built Reedy's are individually blueprinted to racing tolerances to provide Modified class drivers with canned dynamite. Each Reedy is also dyno-tuned, then bench run to perfectly seat the brushes and eliminate the need for "break-in."



The heart of the dual ball-bearing Reedy, the competition-proven rewind.

High performance products like the VariLoc diff and Reedy motors can give your RC12E the competitive edge you need. That's why they are standard equipment on the Team's factory race cars.

ROAR Nationals Expert Class 1:12 Scale Electrics				
		Production	Stock	Modified
1978	4cell	No event	MRP	**RC12E**
	6cell	No event	**RC12E**	**RC12E**
1979	4cell	No event	**RC12E**	No event
	6cell	**RC12E**	**RC12E**	**RC12E**

TEAM ASSOCIATED

Call or write for your free copy of "Racing with the Team," Official Newsletter of Team Associated.
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Glen Sigafoose takes off in his Pitts Special to perform aerobatics during an intermission at the 6th Annual Sig IMAC Championships, just 5 weeks prior to a flight in the same aircraft that resulted in his death. The name "Sig" has become a household word used by modelers all over the world, and his loss is a shock that will be felt by thousands.

from Bill Northrop's workbench . . .

• The following editorial was written by Mr. Harold E. Martin, editor, and published in "The Montgomery (Alabama) Advertiser," date unknown. It was repeated in the *Carrier Wave*, newsletter for the McDonnell Douglas Radio Control Model Airplane Club, St. Louis, Missouri, Tom Walker, editor. It is well written, and suggests a direction you can take with the next person who attempts to put you down for "playing with toy airplanes."

A feature story on radio-controlled model airplanes in The Advertiser *Wednesday was captioned "Big Boys Play With Little Toys."*

This may have caused some irritation to men of virtually every profession who build, fly, and sometimes crash their highly sophisticated radio models. But it shouldn't have.

In the sense that it is kid stuff, they are not little toys. Construction is precise and demanding. Learning to fly them through all the intricate maneuvers is, in some way, more difficult than flying a real plane . . . as pilots of both can attest.

HOWEVER, the headline was true in the larger sense and goes far beyond this particular hobby. Big boys do indeed play with toys, big and little, if by toys it is meant something that is fun and has no practical value.

Big boys play with boats, sail and power, which are nothing more than big toys. They play with sports cars, which are far from functional. They chase golf and tennis balls, invest huge sums in hunting and fishing for sport. They buy trail bikes, expensive photographic equipment, and fancy garden tractors they want but don't need.

When they fly real airplanes for fun and not essential transportation, these too are toys. The list of adult toys is endless.

In fact, it has long been our belief that the annual statistics on the "toy market" are grossly misleading. They include only toys given to children, when in fact the American adult male is the biggest toy consumer in this or any country, although he will rarely admit it.

Those power tools he bought . . . lathes, drill presses, saws and so on . . . may on occasion perform some useful purpose around the house. But chiefly they are toys. So is a large element in a man's choice of an automobile. Transportation is essential, but all the gadgets . . . engines of far more power than he could ever need, stereo decks, etc. . . . are part of the toy pattern. If they are not essential, they are toys.

The commercial world recognizes this but wouldn't dare classify all the gadgets and gear men buy as toys. It's classified under "recreation," to spare them needling at home. Of course, it is recreation, if it brings some pleasure, pride of accomplishment or even status. We aren't knocking it. Life is short. Anything that brings happiness is good.

BUT, it cannot be denied that American men spend more on toys (in the broader sense) than their wives often do on clothes. And they have successfully conned women into believing that their new power boat, set of golf clubs and accessories, workshop, or whatever, is their pleasure, is somehow functional, or at least therapeutic.

The last is usually true, but it does nothing to alter the fact that the "toy market" is a lie, excluding the biggest consumers of all, men. And particularly men over 30 who want and need some break from the workaday world.

Any hobby or sport, reduced to the irreducible minimum, seems pretty silly to those of other interests. It seems silly to some that grown men would spend hours following a little ball around an elaborately laid out golf course. Or spending $100 or more per pound of fish caught, birds shot, or deer felled.

Some years ago, The New Yorker *magazine ran a cartoon of a burly truck driver looking down at a tweedy and aging executive type in one of those flashy sports cars. The caption read something like this: "And what else did your daddy give you for Christmas, sonny?"*

Continued on page 102

NEWS FLASH!!

Results of the R/C Scale World Champs

PRECISION SCALE

1st	Jean Rousseau, France	5082.4 •
2nd	George Rose, USA	5081.9 •
3rd	Mick Reeves, GB	5068.0
5th	Bob Underwood, USA	
6th	Bob Wischer	

Team

1st	USA
2nd	GB
3rd	Canada

SPORT SCALE

1st	Lars Helmbros, Sweden
2nd	Mikael Carlson, Sweden
3rd	Graham Smith, GB
8th	Harold Parenti
10th	Bob Karlsson
11th	Ralph Jackson

Team

1st	Sweden
2nd	GB
3rd	USA

*Note only half a point between 1st and 2nd place in Precision Scale!

L. GLEN SIGAFOOSE

"SPEAK SOFTLY, AND WE WILL LISTEN . . . . "

• On Sunday, July 20, 1980, while performing low-altitude aerobatics during an air show in eastern Iowa, Glen Sigafoose, co-owner with his wife, Hazel, of Sig Manufacturing Co., Montezuma, Iowa, crashed and lost his life. His single-seat Pitts biplane failed to pull out following two consecutive snap-rolls. The extremely hot and humid weather conditions which had prevailed all over the Midwest during the month of July, causing a death toll of over a 1000, were believed to have been contributing factors. Heat and humidity affect engine performance and also reduce the lifting effect of flying surfaces.

Funeral services were held in Montezuma on Thursday, July 24. Befitting his desire to sponsor and support the participation of young people in model aviation, a Glen Sigafoose Memorial Scholarship Fund is being established, to be administered by the AMA Scholarship Committee. The scholarship will contribute cash toward college expenses for the young modeler selected by this committee. Contributions to the fund may be made payable to: "Glen Sigafoose Memorial Fund," c/o Sig Mfg. Co., Montezuma, IA 50171.

* * *

In 1971, when we were making our first attempts to launch *Model Builder Magazine*, one of the few people who we consulted for constructive advice was Glen Sigafoose. However, Glen took his friendly help beyond the talk stage. In fact, it's safe to say that he made the single most significant contribution to *Model Builder's* start; a complete mailing list of Sig Mfg. Co.'s active dealers. With this list, we were able to immediately establish our first contact with the best sales outlets all over the country.

Actually, our earliest association with Glen Sigafoose was around 1958, when we established a basement hobby business to service the needs of R/C modelers in northern Delaware. Sig was one of a few suppliers who accepted our request to buy materials at dealer rates, which led to a business association that lasted for about 10 years.

If it seems that we are injecting too much here about our personal connections with Glen, please understand that we are not just giving out cold statistics about the death of a leader in the hobby industry, but that we are also saying our last farewell to a good friend.

Glen was a shy, quiet person, who preferred to stay in the background. Extremely soft-spoken, you either shut-up and listened to him or missed what he had to say. Why shout if someone's not going to listen anyhow? A philosophy well worth admiring.

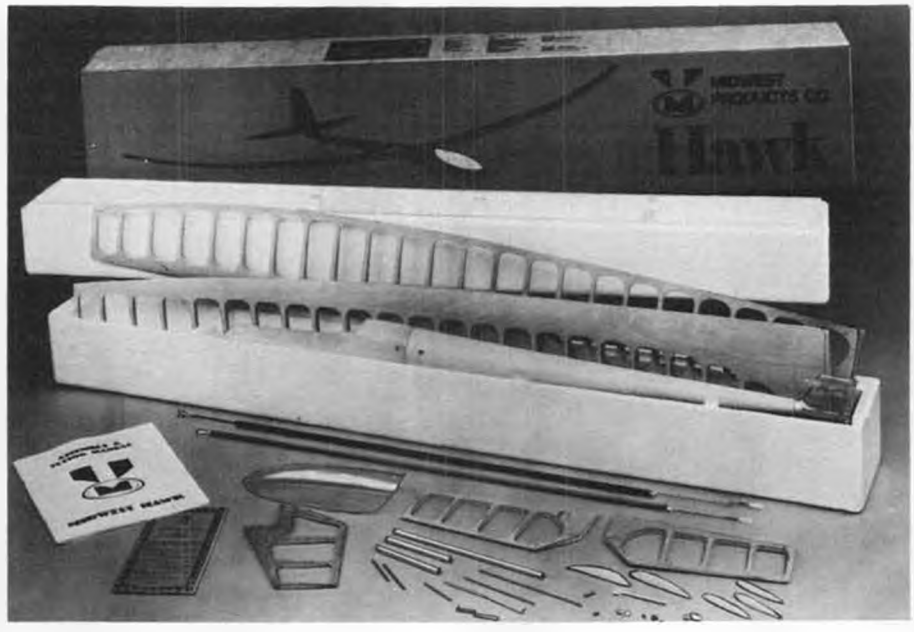
When we say Glen preferred to stay in the background, it certainly should be made clear that he wasn't this way to avoid work. His quietness disguised strong leadership and the ability to get things done. From a small beginning in 1951, cutting balsa sheet for mail order selling, Glen built a major hobby supply company employing up to 140 people and occupying 82,000 sq. ft. of manufacturing space.

But now we are getting back into the facts and figures, and we wanted this to be a farewell to a friend. The whole story of Sig's accomplishments will be found elsewhere in this issue, in an article that was already underway before his untimely passing.

Right now we simply want to say goodbye. Glen Sigafoose, we are thankful for having known you for the last two decades. You left your mark on many of us. Now rest in peace. . . •

OVER THE COUNTER

All material published in "Over the Counter" is quoted or paraphrased from press releases furnished by the manufacturers and/or their advertising agencies, unless otherwise specified. The review and/or description of any product by R/CMB does not constitute an endorsement of that product, nor any assurance as to its safety or performance by R/CMB.



The Midwest Hawk is back in production again, much to the delight of glider guiders.

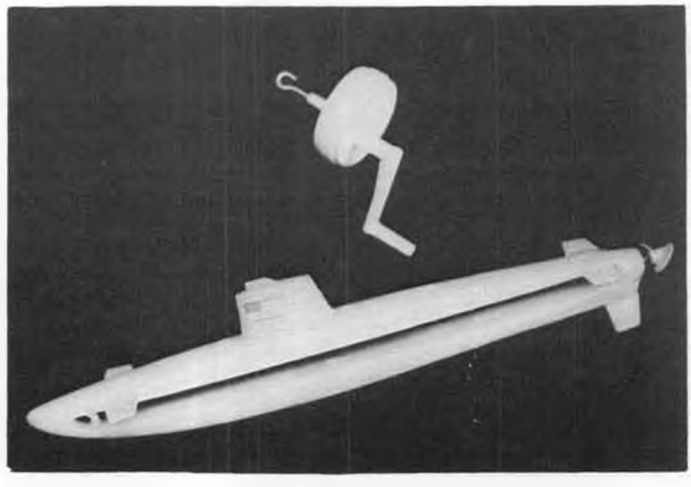
• Midwest Products heads the list of new modeling goodies this month with the announcement that the Midwest Hawk (actually the old Hobie Hawk) is back in production after a brief layoff. The wing and tail parts on this graceful soarer are made from a high-density foam core with plywood sheeting on top and bottom, making a reasonably light and incredibly strong structure. The fuselage is made of polyethylene, fiberglass, and lexan parts. As the photo shows, the wings and tail surfaces are supplied uncovered and the fuselage is unpainted. Kits include pushrods, instruction manual, and a foam shipping and carrying case. Wingspan is 99 in., wing area 590 sq. in., and the weight is 30 oz. less your R/C gear. Replacement parts are also in stock.

The Midwest Hawk sells for $175 and can be purchased only direct from the Customer Service Department at Midwest Products, 400 S. Indiana St., Hobart, IN 46342.

Also being made available by Midwest are three sizes of inlet cowls designed for the Midwest Axiflo series of ducted fans. The cowls are used with external fan installations, such as pod-mounted units, and will greatly improve the efficiency of your fan. The inlet cowls fit the RK-049, RK-20, and RK-40 fans and

This Aeronca Champ is the first in the new "KID" series of small rubber models being produced by Sterling.

The new (black) and old versions of the Slim Line Sport Scale II muffler.



The fully-operational rubber-powered submarine and its associated winder, from Gaylord Plastics.

are priced at $5.95, $6.50, and $6.95 respectively. They are molded from urethane foam and can be painted. One more accessory, this one for the RK-20B, is a larger fuel tank with a 6-1/2 oz. capacity for longer flights. Suggested retail is $3.95. As with the Midwest Hawk, these Axiflo fan accessories are available from the Customer Service Department at Midwest Products.

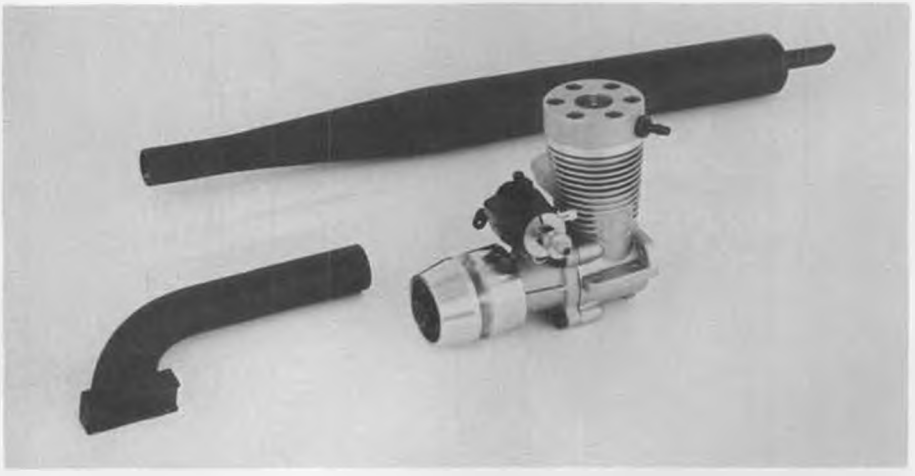
* * *

R/C boaters will be happy to learn that Bavarian Precision Products, importer of the Austrian-made H.B. engines, is releasing a new version of the H.B. .21 P.D.P., set up for marine use. The H.B. .21 P.D.P. Marine has such features as Perry Directional Porting, double ball bearings, chrome-plated sleeve, and comes complete with water-cooled head, flywheel, and Perry carb. Optional accessories are the exhaust stack and tuned pipe shown in the photo, supplied with all required mounting hardware.

The new H.B. marine engine weighs 11-1/2 oz. and is said to put out .83 hp at 25,000 rpm, mighty impressive figures for a non-Schnuerle ported engine! Those numbers are with the pipe attached, no doubt.

Interested boaters can learn more from Bavarian Precision Products, P.O. Box 6, New Canaan, CT 06840.

* * *



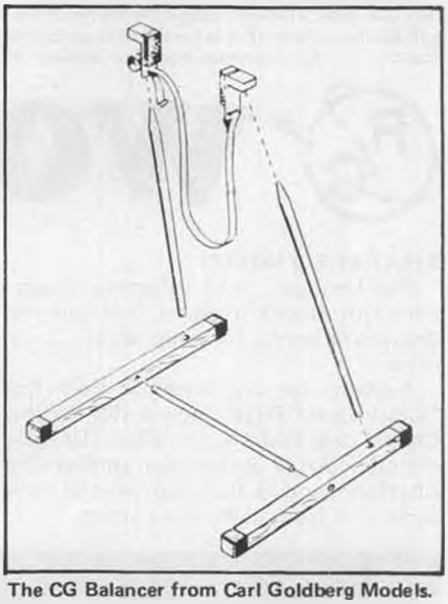
Newest boat engine comes from Bavarian Precision Products, the H.B. .21 P.D.P. Marine.

Sterling Models is bringing out a series of small rubber-powered free flights designed especially with the raw beginner in mind. The series is called the "KID" series and presently includes three models: an Aeronca Champ, Luscombe Sedan, and an apparently non-scale ship called the "Sonic Turtle." The Champ shown in the photo appears to be of all-sheet construction; we assume the same to be true of the others also. The kits feature die-cut balsa parts, colored tissue, plastic prop and wheels, rubber motor, acetate for the windows, hardware, and decals. Also supplied are full-size plans and a separate printed sheet explaining balancing, trimming, and flying techniques. "KID" series models are claimed to be so easy to build that the kit box has the statement "Reading skill required" printed on it, which the manufacturer feels is the most

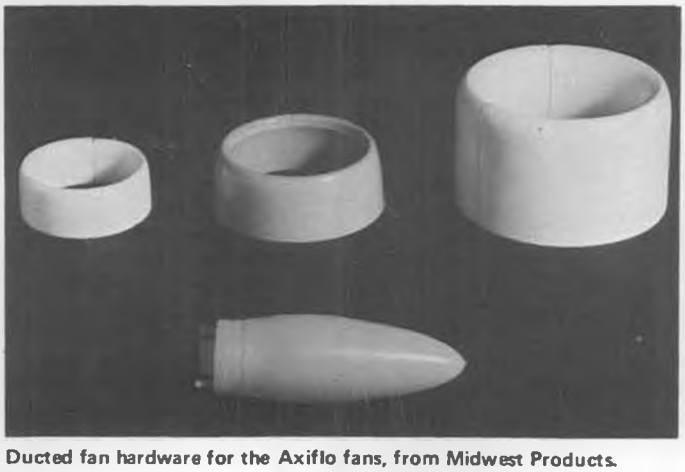
Continued on page 91

Tatone's scale instrument kits are available again and in more sizes, too.

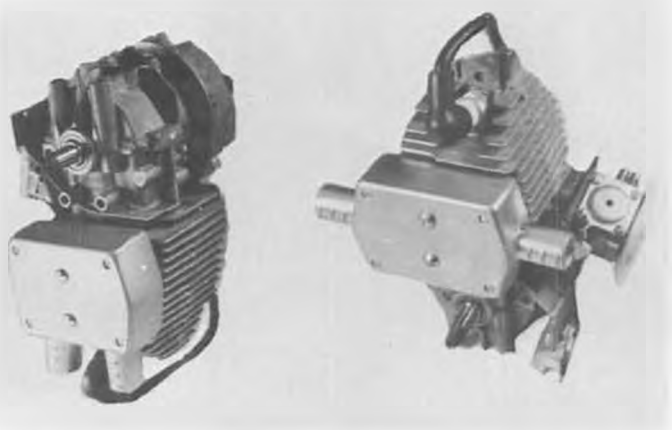
The fully-adjustable trim tab for high-performance boats, by Aeromarine Enterprises.



The CG Balancer from Carl Goldberg Models.



Ducted fan hardware for the Axiflo fans, from Midwest Products.



Two new styles of mufflers for the popular Quadra engine, from Quarter Headquarters.

Why didn't it fly? This model of a proposed 6 to 8-passenger aircraft had terrible takeoff characteristics and Dutch-rolled like a fool until its builder, Col. Bob Thacker, whose flying we *know* is *impeccable*, modified the design. The full-scale designers were impressed, and so were we, and it will be the subject of a future article with construction plans. Wing area 1031, canard area 148, weight 11-1/2 lbs., K & B .61 pumper, and the radio . . ? . . Orbit transmitter, Ace receiver, Hobby Lobby servos, and Lord knows whose batteries!

R/C WORLD

By BILL NORTHROP

RELATIVE TO WHAT?

The famous . . . or infamous downwind turn is with us again. This time the discussion seems to make sense . . . or does it?

Anyway, we are taking it from the "Gold Coast Flyer" newsletter of the Gold Coast Radio Controllers (Florida) edited by Art (P-38) Johnson and his wife Charlotte, and he'll explain who he took parts of it from as he goes along.

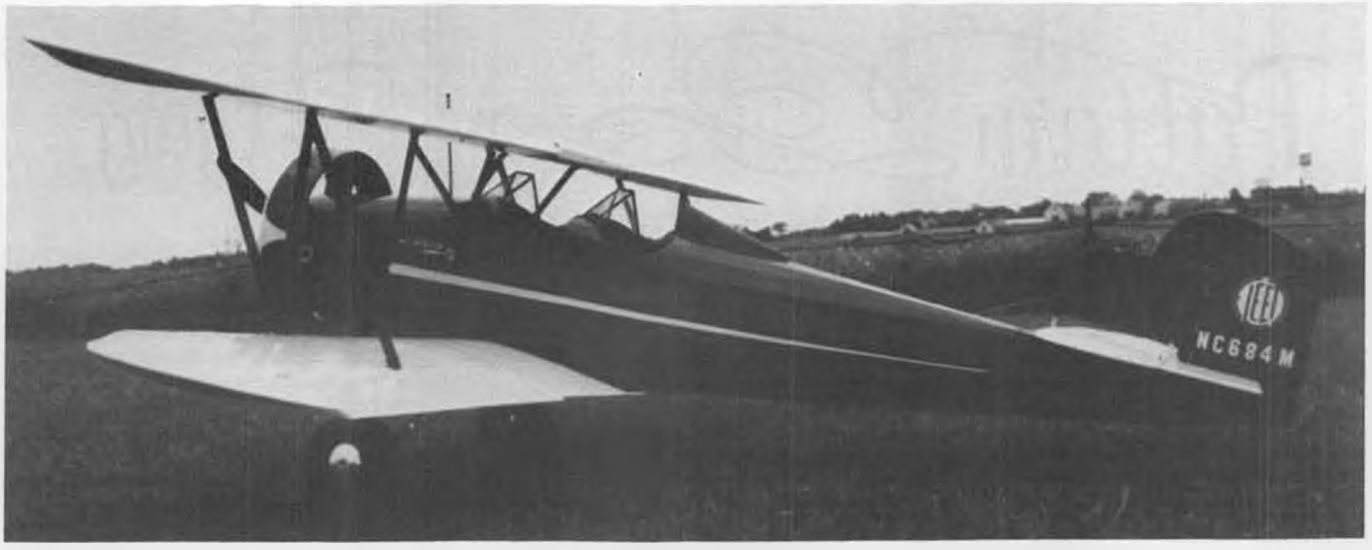
The following comments on wind were extracted from John Preston's article in the Northern Virginia RC Club newsletter, as he in turn pulled them from the Lehigh Valley RC Soc. news.

His key statement that you may also have heard from me at times: "wind has no effect whatsoever on the reactions of an aircraft in flight," *vertical turbulence from wind shear excepted. The reference is to constant wind velocity across the ground.*

"Wind really affects your aircraft only while it is in contact with the ground. Once safely airborne, your plane no longer feels the wind and will respond to the signals you give it exactly the same as if it were in still air."

The article uses an aircraft carrier as an example to illustrate wind effect. (I knew Navy carriers were good for something.) "The wind is blowing at 30 knots. The

Hank Iltzsch, Seekonk, Mass., designed and built this 4" = 1' scale 1924 Dormoy Bathtub, based on Mike Kimbrel's plane which appeared in the Sept. '77 *Sport Aviation*. Span 8 ft., 12 lbs.



Another Hank Iltzsch project, this 1/4-scale Concept Fleet, modified to a Model 7. Quadra powered, the model flies well at 21 pounds.

carrier is moving straight down wind at 30 knots. You are standing on the deck with your R/C model and the air around you is perfectly still. Zero wind velocity. You can take your model off in any direction as though there were no wind blowing. Now you can fly it up and down in front of you or across the deck. Either way there will be no wind effect from where you are standing."

"Whatever you choose to do, will your aircraft heading make any difference? Can an aircraft have good or bad crosswind characteristics? Obviously 'no' to both."

So how come we keep hearing statements like . . . "I was doing a stall turn and the wind blew it on its back." "I couldn't pull out of the dive because I was going downwind." "This plane has a lot of dihedral which gives me a problem in a crosswind."

The NVRC article stops there, but a little further look will show you how you can get in trouble with the wind.

First, if you are flying an amphibian from that carrier deck, don't try to land it 90 degrees to the carrier direction! It will make a perfectly normal no-wind

Continued on page 89

Joe Bridi's latest pattern ship is this biggey which spans 65 inches with 975 sq. in. wing area. It's 70-1/2 inches long, weighs 11 - 2.

Art Johnson, designer of our very popular P-38L , has come up with another classic, this 90-powered P-40. Watch for it in the future.

Here's Joe Bridi's new ship sitting next to his U.F.O. for size comparison. He had named it G.B.A. for Great Big Airplane, but when Walt Schroder first saw it, he exclaimed "Mama Mia!" and the the new name stuck. It's extremely smooth in the air, and surprisingly fast, though not a bomb.

Pattern × Flying

By DICK HANSON . . . Part 7: Double Immelman and Four-Point Roll.

• It's June 30th as we write this set of descriptions.

I mention this because I recently received my 1980-81 rulebook from AMA, and we now have excellent drawings of all the maneuvers in the book (with a few minor technical exceptions). We hope all of you will obtain a copy by hook or crook and take a good look at the changes from the 1978-79 guide. Please note that a couple of changes in the new rules allow some significant variation in flying styles.

Example No. 1: NO "scale-like" performance criteria.

Example No. 2: 60° framing from judges' position.

Although the emphasis is on accuracy rather than scale, the new framing rules (60° up and 120° left to right) allow the use of scale-like ships, which need a little more "operating room" to look smooth.

We have been working with different basic designs to try to establish what is really necessary to achieve pattern ship performance with a scale type model. The votes are not all in yet, but the biggest single requirement we've found so far is an engine which will pull very hard under a heavy load. The engines which have to unload on a very small prop just won't get it. Also, very light flying weight seems mandatory at this point.

Our 800 sq. in. designs at 9 lbs. seem to be a practical size limit using the .60 engines. This size model, oddly enough, must be as light or lighter than the current 700 sq. in. types because the drag of the bigger plane creates a load worse than the drag induced by flying a smaller plane with a lot of weight. We'll keep you posted on any progress.

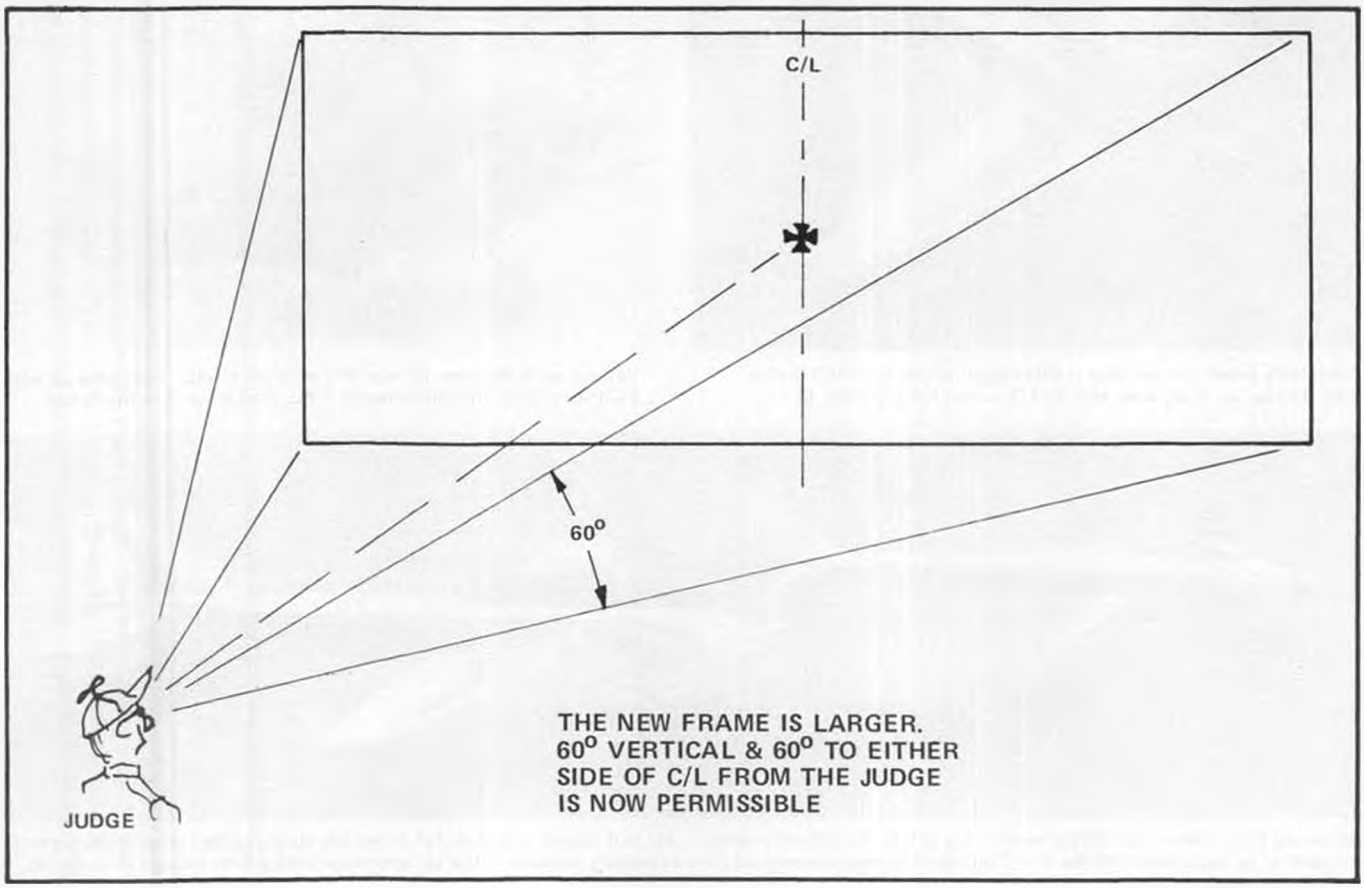
The two maneuvers we will dissect this month are the Double Immelman and the 4-Point-Roll. If you are currently flying a plane with bad flight characteristics, fix it now or resolve to get a good, well set up ship before you learn the reflexes necessary for these maneuvers.

THE DOUBLE IMMELMAN

Take a good look at the diagram in the book and then read the rules. Note the second rule calling for a half-roll immediately after the half-loops. This maneuver is very impressive done slowly and should be in fairly close to use the full 60° frame. It is, however, safer to learn it out further and at a higher starting point. Let's go through it and look at the possible screw-ups.

Start upwind, parallel with the flight line. Just before the center point of the frame call "starting now," continue for approximately one second and pull into the first half inside loop. (Note: If the wings tilt during the half-loop you will change heading. Use rudder to hold against the wind.) Just as the plane is approaching level inverted flight, the half-roll to upright should start. (Note: Release all rudder and elevator deflection a split second before banging in full aileron. If you fly with up or down held in to compensate for a problem with the plane you will be darn lucky to get the half-roll correct. The ailerons, when fully deflected, should give a rapid *axial* roll in any attitude with no elevator deflection being held.) You now have one second to insure level flight (level wings important!) before tucking under for the half outside loop. Depending on the wind, reduce throttle slightly as you push through to the vertical position. Again, balanced up or down elevator sensitivity is desirable to insure you keep the half-loops the same radius. Try bringing the nose slightly above the horizon at the bottom of the loop before

Continued on page 70



A portion of the kit assembly area at Sig Mfg., where accessory items are being bagged or bubble-packed. All printing of the display cards and molding of the bubble-packs is done at the Sig plant. The work atmosphere is clean, relaxed, and friendly.

MODEL BUILDER VISITS... SIG®

By BILL NORTHROP . . . We've been wanting to visit the Sig factory again after many years, and we're glad we didn't wait any longer . . . .

• As mentioned last month in our report on the 6th Annual Sig IMAC Championships, this "Model Builder Visits" article was scheduled as a follow-on story. Unfortunately, with Glen's sudden and tragic passing (page 7), the article becomes somewhat of a monument rather than a report. Be that as it may, the visit with Sig Mfg. Co must be told, and we hope it does not appear irreverant in a time of great sadness.

Sig Manufacturing Co. is located in the small Iowa farm town of Montezuma, about 60 miles east of Des Moines. Geographically, it is situated near the center of the USA, making it a particularly practical place from which to ship by mail, freight, or UPS to all parts of the country. And this is what Sig Mfg. does a lot of, as it is the largest manufacturer of model aircraft kits and suppliers in the U.S.

You might think it was planned that way . . . being centrally located, that is . . . but it was just a happy coincidence. As an experienced linotype operator, Glen Sigafoose came to Montezuma in 1941 to become plant foreman and linotype operator for a small printing company that produced a weekly newspaper. Already a modeler, he had designed and produced some kits while still in school during the 1930's, and sold

The "paperwork" office. Hazel is seated second from right, checking invoices. Office Manager, Jacque Watts, far right, holds a pilot's ticket, flies a Cessna 172.

This is the ad that started it all. Clipped from a 1952 M.A.N., the only change in the address is to add the 50171 zip code. "Great oak trees from small acorns . . ."

A new kit coming soon will be a 1/4-scale version of Hazel's Clipped Wing J-3 Cub, seen here in a test flight at Sig Field. Molded engine detailing will please every 1/4-scale Cub builder.

Mike Gretz test-hopped the Cub in the photo at left, with Hazel doing the back-seat driving!

them through magazine ads. (Glen's interest in aviation was inevitable. His father designed, built, and flew the 1910 Glen Sigafoose Hang Glider!)

Glen's future wife, Hazel Hicks, also came to work at the printing plant in 1941, and he taught her how to operate the linotype. They were married in 1942.

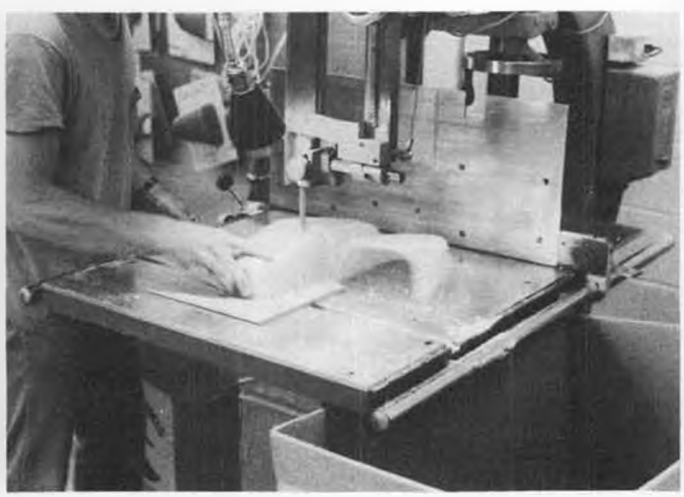
Sig continued his model aircraft designing and building, but found it necessary to drive 60 miles to Des Moines for the supplies he needed. In those days, there were few, if any sources of model materials by mail. Sig decided to do something about that, and purchased 120 board feet of bulk balsa which he cut into the most popular sizes and sold through small ads in *Model Airplane News*. This, in 1952, was the beginning of Sig Manufacturing Co., which grossed $5,000 in its first year of operation.

Today, the company employs up to 140 people, occupies 82,000 sq. ft. of manufacturing space covering two city blocks, and processes 500,000 board feet of balsa per year. For the consumer, Sig Mfg. offers one-stop shopping by

In this building, the wood is pre-sorted and labled prior to making up kits. A run of Smith Miniplanes has just been completed.

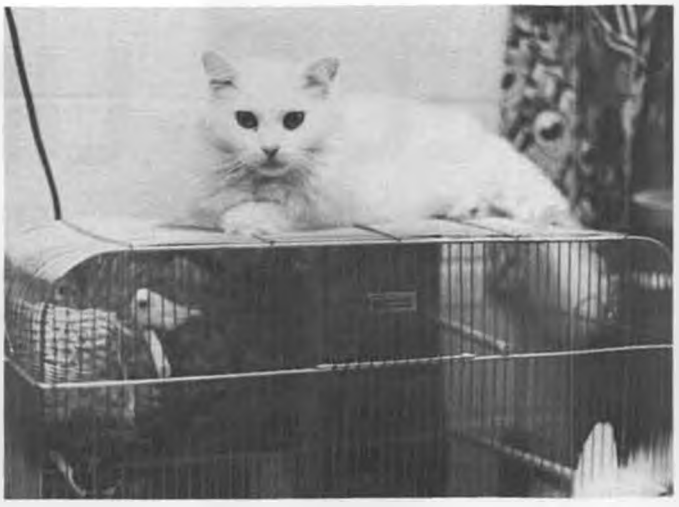
Part of the printing and box cutting area. The ceiling is completely covered with prototype and experimental models.

These heavy molds serve as saw-guides when the plastic molded parts are trimmed to size. Sig kits don't leave this job to you!



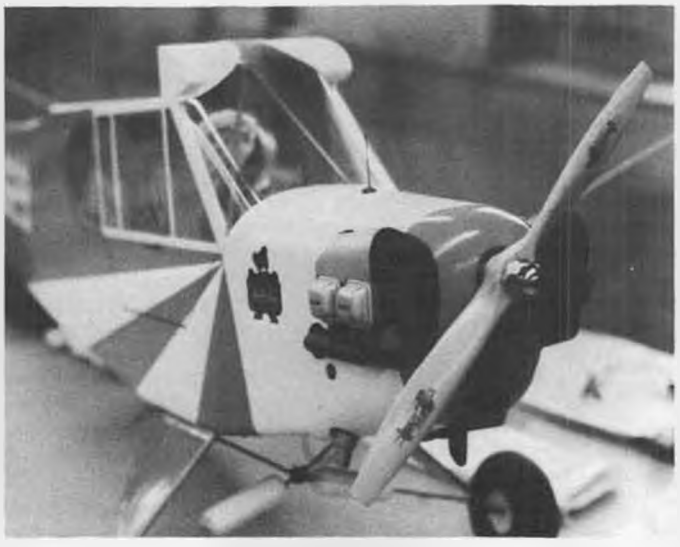
Here's a mold guide in use, cutting two halves of the Bonanza cowl. Many types of clever gimmicks like this speed up production.

Hazel and "Perky", her pet cockatiel that travels with her on most trips around the country. Rex Perkins, Las Vegas, raises them.



And here's "Bunny Rabbit", making sure that no harm comes to the finches in the cage. One of four cats who run the Sig office.

A portion of the Research and Development department. Future kit designs are built here. Note 1/4-scale Cub wings on wall.



Close-up of molded cowl and engine detailing for the 1/4-scale Cub. Both will be available separately. Long and short-wing versions coming.

mail (it is not a discount house, which Glen hated with a passion because of their affect on the small, grass roots hobby shops all over the country), not only for the individual model hobbyist, but also for the hobby dealer and manufacturer. Supplementing its own huge variety of modeling supplies, Sig's 120-page catalog carries many items produced by other manufacturers, from Ace R/C to Zona saws.

Glen specialized in making his company as independent as possible, using very few outside suppliers. "We do everything in Montezuma, except screws, nuts, and washers." The company does all of its own die cutting, injection molding of plastics, vacuum molding, metal work, and wire forming. It prints its own catalogs and kit model

Continued on page 94

No exaggeration, these two photos show only a small portion of the huge inventory of model aircraft kits, both by Sig, and by other manufacturers, that are ready for shipping. With its huge dealer network ordering constantly, nothing stays here very long, and must be replenished.

FUEL LINES

JOE KLAUSE
P.O. Box 2699
Laguna Hills, CA 92653

OTTO BERNHARDT
17119 S. Harvard
Gardena, CA 90247

Send in your questions, relative to glow or ignition engines, and these experts will give you the correct answers.

KLAUSE

• At one time or another, most all of us have read engine operating instructions which usually contain a statement something like, "It is very important that you use a solid engine test stand . . ." Unfortunately, the instructions usually don't tell you *why* it is so important, nor do they provide you an illustrative example. Here are a few comments and photographs to help fill those voids.

The primary reason for using a sturdy test and engine break-in stand is to absorb vibration. A weak and flimsy stand will shake about like a jackhammer. That simply means undue stresses and strains on an engine which, in turn, cause wear and lead to failure of parts. At the other extreme, a "rock of Gibraltar" stand can also cause problems. The conversion of linear motion to circular motion in our imperfect engines creates imbalances and thus vibration. Even the smooth V-8 automobile engine is mounted on hard rubber blocks to help absorb vibration. Otherwise, many parts of the car would fail rather quickly due to metal fatigue induced by engine vibration.

Need a good engine test stand? The Black & Decker Workmate may be just what you're looking for. Very sturdy, reasonably priced.

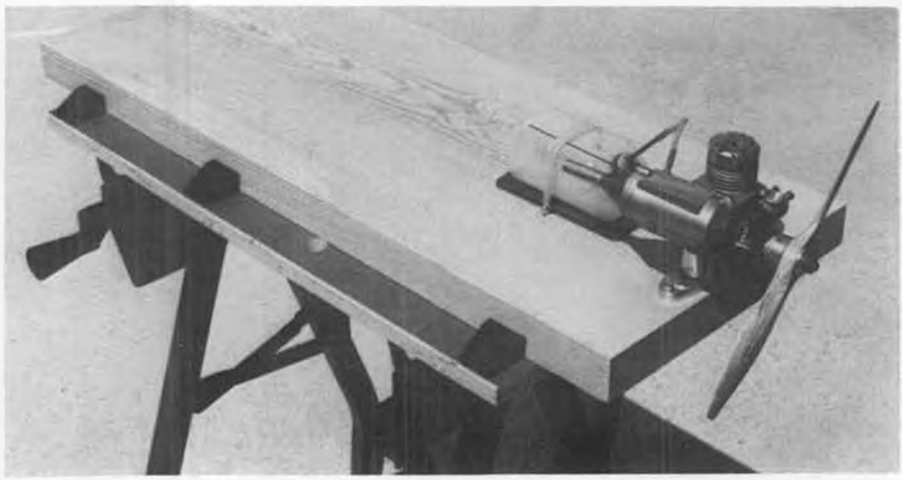
Ideally, a stand should be sturdy enough to prevent harmonic, multiplicative vibrations, but yet have some "give" to dampen vibration. Fortunately, for our purpose, wood will do the job very well. Just go build a hefty wooden test stand. Fine, but when you're through, where are you going to store it? In the sewing room? Not likely. So, there are other criteria for a good test stand.

Basically, it should be easy to set up and store, and it must be readily transportable, even in compact cars. After all, it is considerate of the neighbors to go off into the boondocks to test and run-in engines. Here's one solution you might consider.

Shades of serendipity, this concept developed during one of those browsing trips through a super-size hardware store. As chance would have it, a company representative was demonstrating the Black & Decker Workmate portable workbench. It was quite convincing . . . especially the sturdiness, almost instant set-up and compact foldup for storage. Besides all that, it was on sale! So, it didn't take much imagination to figure out a way to adapt it into a fine engine stand. As you can see in the accompanying photographs, about all you'll need is a heavy board, a Tatone engine mount, a few bolts and screw eyes, etc. The board shown is Douglas fir, and actually measures 1-1/2 x 11 x 28 inches . . . solid, and big enough for any current piped engine. Just clamp the board in the Workmate, and you're in business.

How about cost and justification? This Workmate is model No. 79-003, and the sale price was $35.00. The Tatone engine test mount and tank costs $12.00. It'll be a very serviceable test stand for many years, and you can even use the Workmate for a lot of those happy household chores. If you're desperate you might even suggest it, ". . . for my birthday, honey . . . so I can help you better." From there on, you're on your own.

About a year or so ago, I did a series of articles on modifications and tuning of 1/2A engines. Since then, there have been quite a few requests for another expanded series of articles on various subjects. Sounds fine to me. I have only one reservation, and that's about perhaps getting too basic. So, to get a better feel for your interests, I'm asking you to deluge me with postcards and/or letters. Let me know what subject you would like to read about in this column. If you want more basics, similar to this article, say so. If you want something more technically oriented, such as tuned pipe theory, let me know. My address is at the head of this column, or, if you wish, call me at (714) 830-5162. Thanks, and think safety. •



The Workmate with Tatone engine mount and board clamped in place. Board is long enough for tuned pipes. Note that the tank height can be easily adjusted with scrap wood shims.

Workmate folds up for easy, convenient storage and transportation.

PHOTOS BY AUTHOR

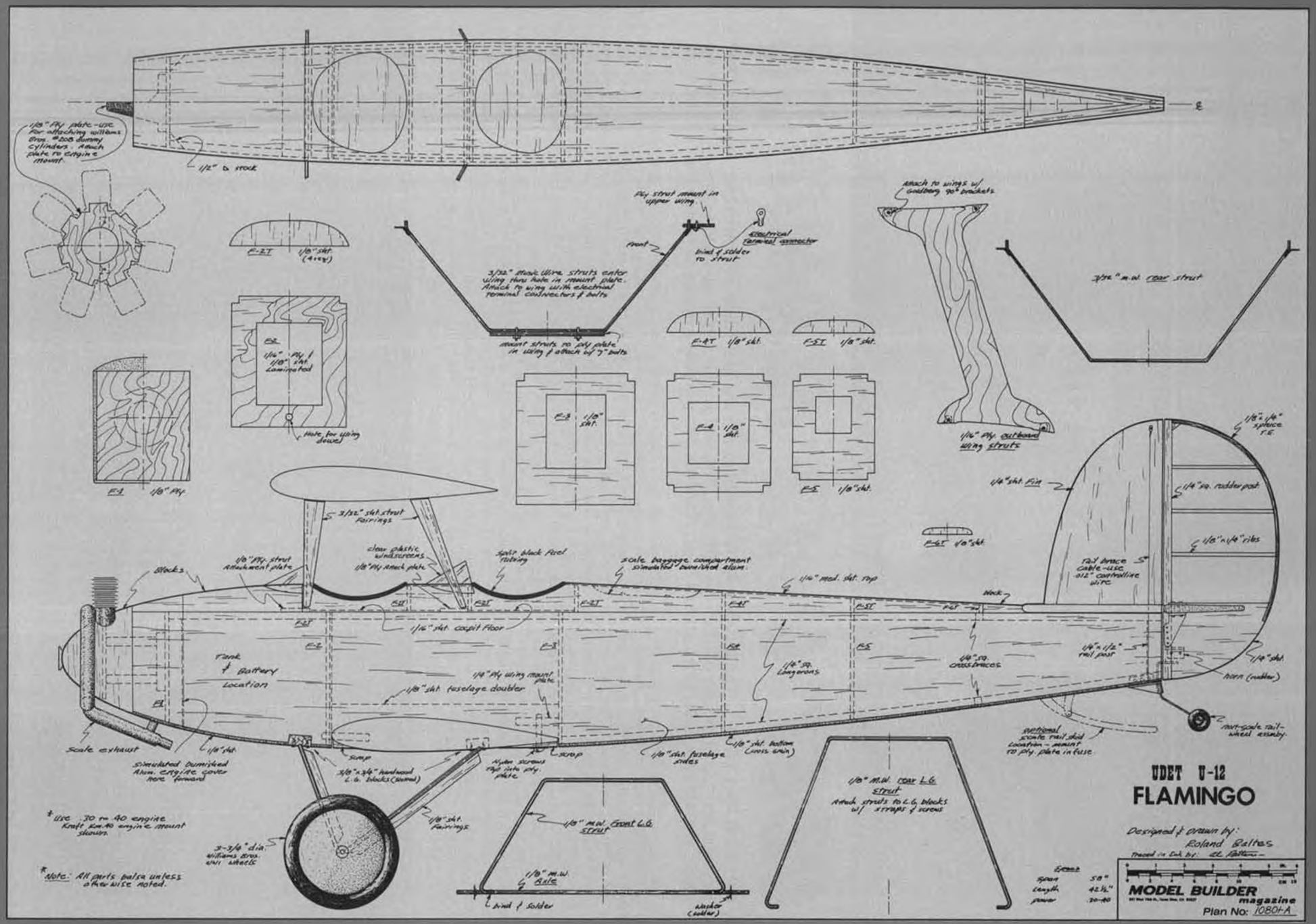
UDET U-12 FLAMINGO

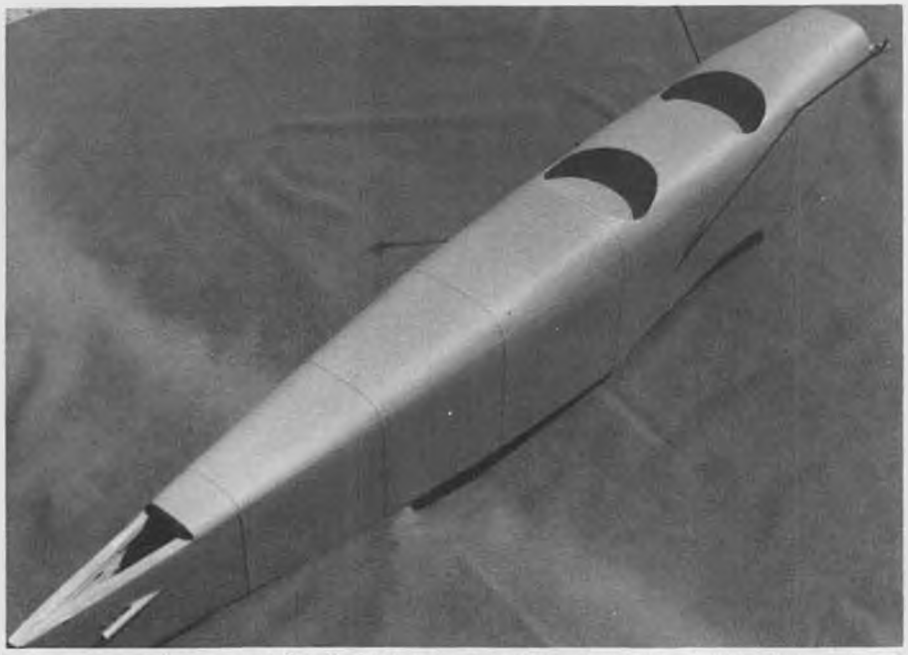
By ROLAND BALTES . . . The sprightly U-12 Flamingo was the brainchild of Ernst Udet, legendary WW-I German ace and top aerobatic pilot of the '20s and '30s, and to this day is regarded as one of the best light aerobatic aircraft ever built. Our author's Sport Scale version has performance to match the full-size ship.

• If you are a WW-I aviation buff, the name Ernst Udet probably rings a bell, as he was one of the famous German fighter pilots of that war. That he was involved in aircraft design and building in the 1920's may not be such common knowledge. Were it not for Aircraft Profile No. 257, I seriously doubt that the Udet Flamingo would ever have made my list of models to build someday. Like many scale modelers, I have over the years collected a large library of scale information, including most of the Profile Publications. These booklets, which unfortunately may be hard to find nowadays, are a real boon to scale modelers since they provide a wealth of info including a colored 3-view and lots of pictures. The impetus for actually building the model came as a result of a flying buddy having built a Concept Models "Fleet" Barnstormer, which meant that I had to have a bipe also, plus a discussion with ye ol' editor, whose eyes lit up when the word "Flamingo" was mentioned. He also happens to be a pushover for biplane articles, which in this case took longer to prepare than actually building the model.

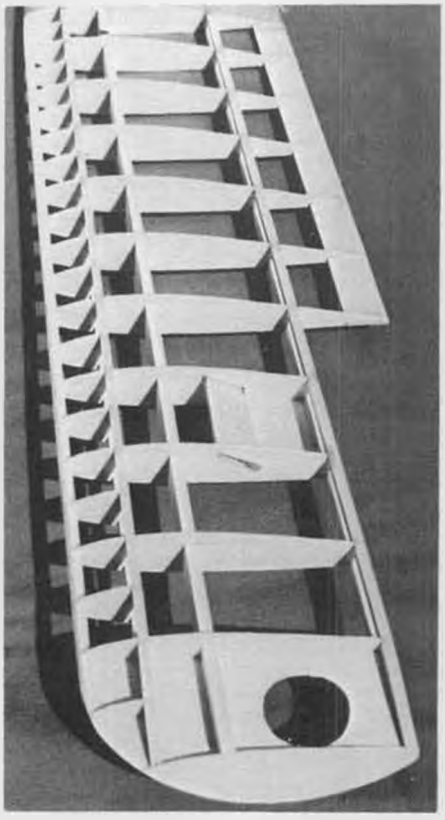
Getting back to the real thing, the Udet Flugzeugbau (aircraft factory) recognized the need for a training bipe in the mid '20s and produced as a result the Flamingo. More accurately known as the U-12 (Udet's 12th design), it came in a variety of versions, including a sea-plane with twin floats. Over 300 were produced, apparently including some in Austria, Hungary, and Latvia. This info plus lots more can be found in the aforementioned Profile, or the book *Messerschmitt; Aircraft Designer*, by

From all angles, the Flamingo looks "right." Udet was famous for his ground-floor aerobatics in the U-12, once bet actress Mary Pickford that he could pluck her handkerchief from the ground with his wing tip. He won the bet and the handkerchief act became the highlight of his routine.


1/8" Ply plate - use for attaching Williams Bros. #208 dummy cylinders. Attach plate to engine mount.
1/2" D. stock
Ply strut mount in upper wing.
Front
Electrical terminal connector
Bind & solder to strut
3/32" dia. Wire struts enter wing thru hole in mount plate. Attach to wing with electrical terminal connectors & bolts
mount struts to ply plate in wing & attach w/ 3" bolts
F-2T 1/16" sht. (4 req'd)
F-3 1/16" sht.
F-4 1/16" sht.
F-4T 1/16" sht.
F-5T 1/16" sht.
F-5 1/16" sht.
F-1 1/16" Ply
1/16" Ply & 1/16" sht. Laminated
Hole for wing dowel
Attach to wings w/ Goldberg 90° brackets
1/16" Ply outboard wing struts
3/32" m.w. rear strut
1/16" x 1/4" spruce F.E.
1/4" sht. Fin
1/4" sq. rudder post
1/16" x 1/4" ribs
Rod brace Cable - use .012" control line wire
3/32" sht. strut fairings
1/16" Ply strut Attachment plate
Blocks
clear plastic windscreens
1/16" Ply Attach plate
Split black foral tubing
scale baggage compartment simulated burnished alum.
1/16" med. sht. rap
Hook
1/16" sht. cockpit floor
Tank & Battery Location
1/4" Ply wing mount plate
1/16" sht. fuselage doubler
1/4" sq. Longerons
1/4" sq. cross braces
1/4" x 1/2" tail post
1/16" sht. horn (rudder)
sectional scale tail skid Location - mount to ply plate in fuse.
mini-scale tail-wheel assembly.
scale exhaust
1/16" sht. simulated burnished Alum. Cowl/Air cooler here forward
strap
3/16" x 3/4" hardwood L.G. blocks (slotted)
Nylon screws rap into ply plate
1/16" sht. fuselage sides
1/16" sht. bottom (cross grain)
1/16" sht. fairings
3-3/4" dia. Williams Bros. wire wheels
1/16" m.w. Front L.G. strut
1/16" m.w. Axle
bind & solder
washer (rubber)
1/16" m.w. rear L.G. strut
Attach struts to L.G. blocks w/ straps & screws
* Use .30 to .40 engine. Kraft Km-40 engine mount shown.
* Note: All parts balsa unless otherwise noted.
UDET U-12
FLAMINGO
Designed & drawn by: Roland Baltas
traced on CAD by: ace flatter
Specs
Span 58"
Length 42½"
Power .30-.40
MODEL BUILDER magazine
Plan No: 1080-A



Fuselage is all balsa, covered with Super Coverite. Panel lines are simulated with narrow striping tape, applied before spraying on the paint.



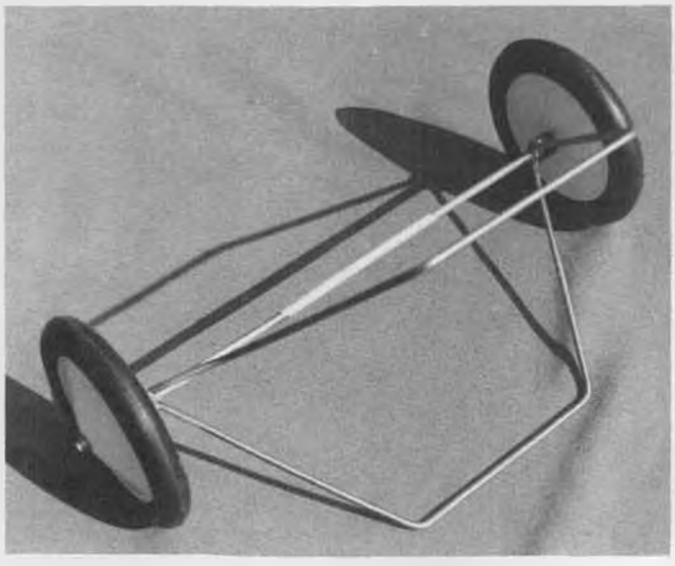
Wing construction is conventional throughout. Combination of dihedral and sweepback call for extra care when joining wing panels, to maintain proper alignment.

Armand van Ishoven (Doubleday & Co., Inc., Garden City, NY, 1975). How Udet and Messerschmitt are related from an aircraft building/design standpoint makes for interesting reading. This book, by the way, also has a bunch of pictures of the Flamingo.

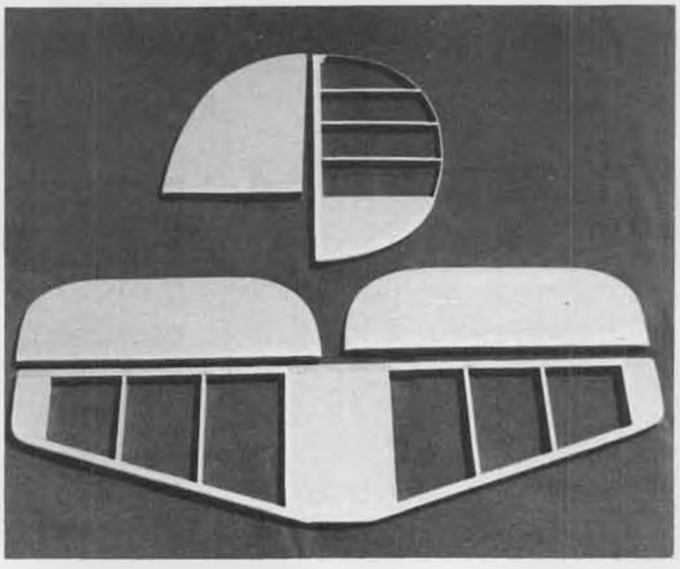
(Udet established fame as an aerobatic pilot between WW-I and II, flying at many air shows in Europe and the U.S.A. For some period of time, he was flying a Bucker Jungmeister. In fact, it was his Jungmeister that was being brought to the U.S.A. aboard the Hindenburg in 1937. Obviously, that was its last "flight." wcn)

The model was scaled up from the 3-views provided in the Profile and is from an outline standpoint as accurate as one can make it by using dividers. Without using any scientific approach, I elected to enlarge the 3-views nine times, which seemed to make the model about the right size for a .40 engine. Besides, it makes it about 2"=1' scale (1/6-scale), allowing the use of various commercial components such as wheels, pilot, etc. Only one concession was made. I incorporated a simplified steerable tail wheel instead of the prototype tail skid. Both are shown on the plans, so take your choice. Being my first R/C scratch-built Sport Scale ship, I was obviously anxious about how well it would fly. Some taxi tests on the driveway revealed excellent ground handling qualities, meaning no nose-over tendencies. Really had to resist the urge to pour the coals to her for an off-the-street takeoff! Sanity prevailed, however, and the maiden flight was made (with family in tow for encouragement) at the local model airdrome. Flight performance turned out to be excellent, which really isn't surprising considering it only weighs 5-1/2 lbs. with about 900 sq. in. of wing area, putting it into the trainer category. I've had lots of flights with it, including several contests where it gathered 92 and 90 points in static and placed 2nd overall in one. For power I use a K&B .40 with Perry carb and DuBro muffler, which is more than ample power. Neat would probably be the Saito (sold by Hobby Shack) FA-30 4-cycle glow engine, which with its unique sound would be most appropriate.

I don't think the original designers had the modeler in mind when they came up with the real one, even though the fuselage is nothing more than a box. Only real difficulty (if you want to call it that) is caused by the dihedral and sweepback of the wings, which need

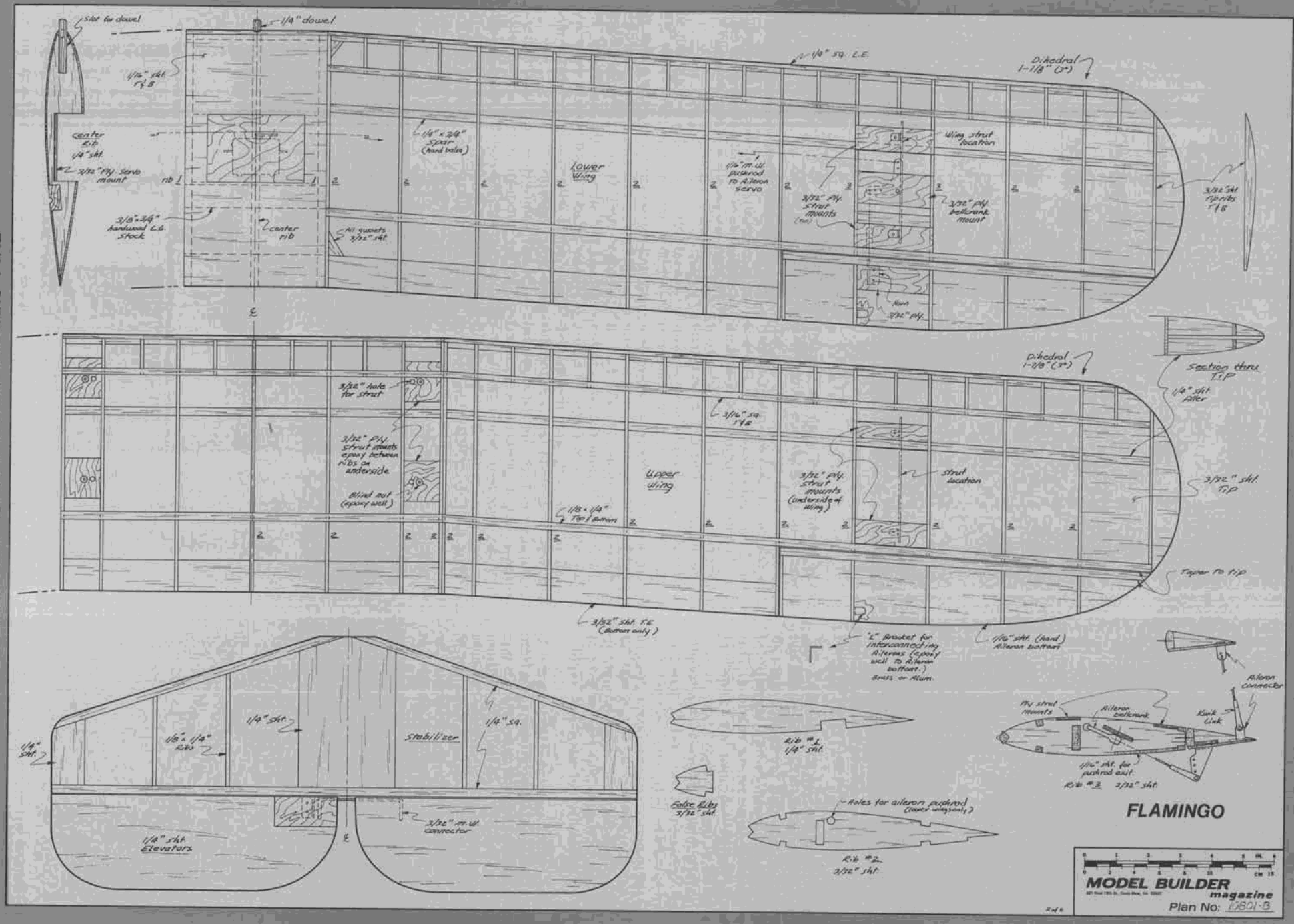


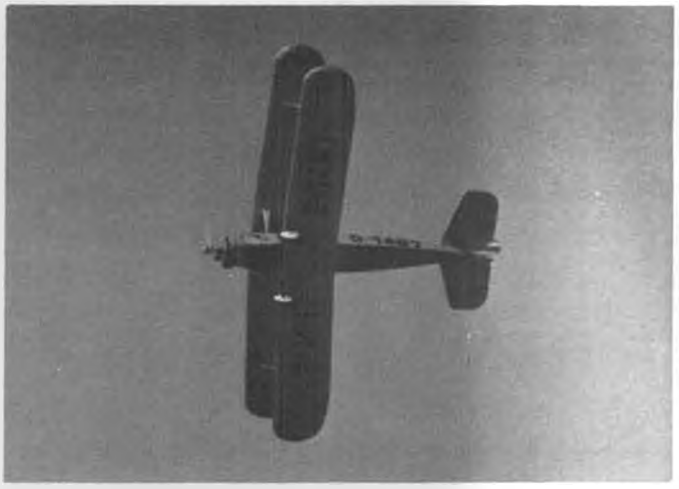
The finished landing gear . . . well, almost finished. Still needs the hard balsa fairings added to the strut legs.



Tail surfaces make use of lots of 1/4-in. sheet balsa. Rudder outline is a piece of spruce, or can be laminated from balsa strips.

FULL SIZE PLANS AVAILABLE — SEE PAGE 100





In flight the Flamingo handles as easy as anything. Total wing area of 900 sq. in. and 5-1/2 lb. flying weight put it almost into the trainer class. K&B .40 has more than enough power . . . proportionately more than the real ship with its 100 horsepower.

some care to insure proper alignment. Outer wing struts are extremely simple, while the cabane struts (between fuselage and wing) require some care in installation, again for alignment.

The numerous wing ribs are a nuisance but typical of a vintage bipe. I made most of mine during idle time on a camping trip, after having made a master pattern from 1/8 plywood. Since both upper and lower wing panels are about the same (except for length), one has only to be careful of making a left and right version. The sequence is similar for all wing panels, that is, pin down the bottom front and rear spars and trailing edge, slide the ribs onto the main spar, then pin down over spars. Add the top front and rear spars and then the leading edge. By the way, most strip material used is stock size and can be either hard balsa or spruce. Hot Stuff was used mostly, with Ambroid cement applied at critical joints. Add the various plywood plates for strut attachment, wing tips from sheet balsa, and all the false ribs between the leading edge and upper and lower spars. The upper wing center section can also be built similar to the main wing panels.

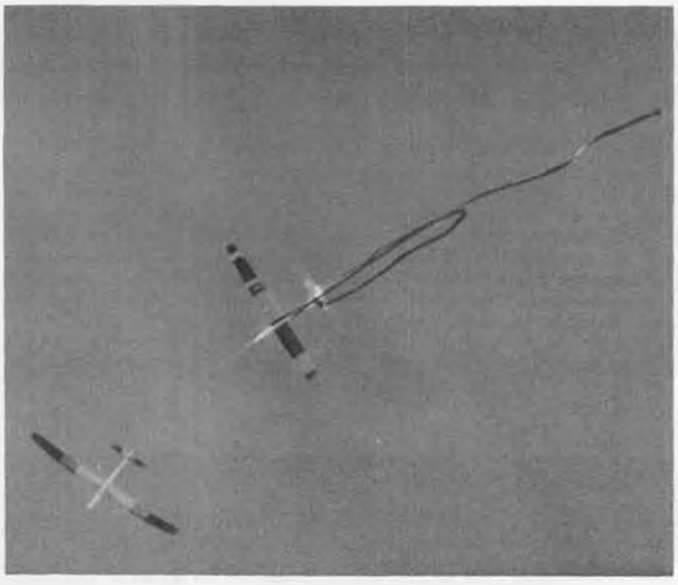
Two sets of ailerons are needed, the undersides of which are from 1/16 sheet balsa, then built up with leading edge and ribs. Lower ailerons require plywood plates for aileron horn installation. Tabs for connecting the upper and lower ailerons can be bent from sheet brass or aluminum. A small hole is required in each tab to later allow installation of the aileron connecting rods. These tabs need to be installed pretty solidly; use epoxy and scrap balsa. A lower wing center section is also required and incorporates the wing hold-down dowel, rear gear strut support, and provision for mounting the aileron servo. I used a Kraft style three-servo tray bolted to a plywood plate.

After all wing panels are complete, join them with the appropriate center section panels. Insure that the proper dihedral and wing sweep are maintained. Epoxy all joints and reinforce

Continued on page 72

The author used Williams Bros. Le Rhone cylinders to duplicate the Siemens radial on the full-size aircraft. That prop is strictly for display and was put on for these photos (that's why there's no AMA safety nut). Udet's flying scarf is about due for a replacement, we think.

Large numbers on wings and fuselage were masked off and sprayed with Aerogloss dope, while smaller markings such as those on the fin are done with rub-off transfers from art supply stores.



Get 'em! Frank Cox and Corey Hellman go at it hot and heavy with their Midwest Hawks, during a game of aerial combat.

Junk. Aerial combat doesn't always have its winners and losers; looks like both fliers were losers during this round.

R/C SOARING

by Dr. LARRY FOGEL

PHOTOS BY AUTHOR

• Before taking you on a European jaunt, let's see what's new on the local scene. Bob Grove has been flying his "Nonstop" at Torrey Pines, a design that falls well within the One-Meter Class. Two tiny Kraft KPS-18 servos do the trick. This plane cuts the mustard at less than a dozen ounces. Bob has also been exploring the handling quality of his new Bob Smith Sea Breeze, the first all-fiberglass sailplane offered by an American firm. Bob's artistic painting accents the beauty of this bird.

Carl Schwandt has been flying his newly created conversation piece, the Canard Square Soar. He increased the rudder area of the Square Soar, moved the stab forward, gave it an airfoil that provides some lift, and moved the C.G. to 1/2 inch before the wing. Carl is attending the Navy Sonar Maintenance School here in San Diego. I hope his next assignment will also be in sight of a great soaring site.

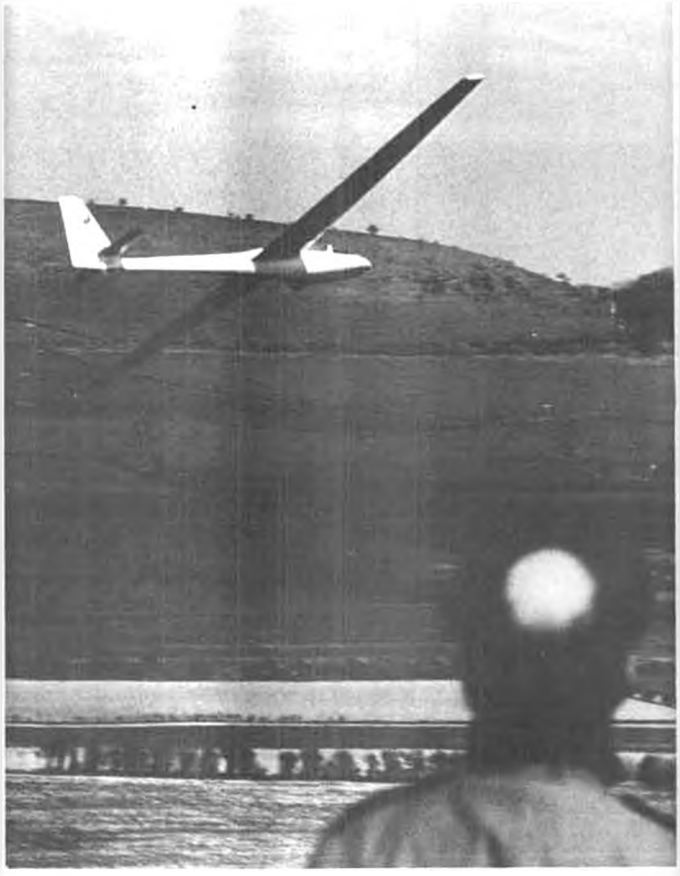
Frank Cox, Corey Hellman, Steve Manganelli, and other stout-hearted men often challenge one another to aerial combat. A crepe paper streamer is taped to the tail of each plane before it's tossed into the lift. The longer the streamer, the easier it is for another plane to capture the trophy. You soon learn to keep moving your control stick or you're out of the action. By defini-

Latest mini-glider at Torrey Pines is the "Nonstop" by Bob Groves, spans three feet.

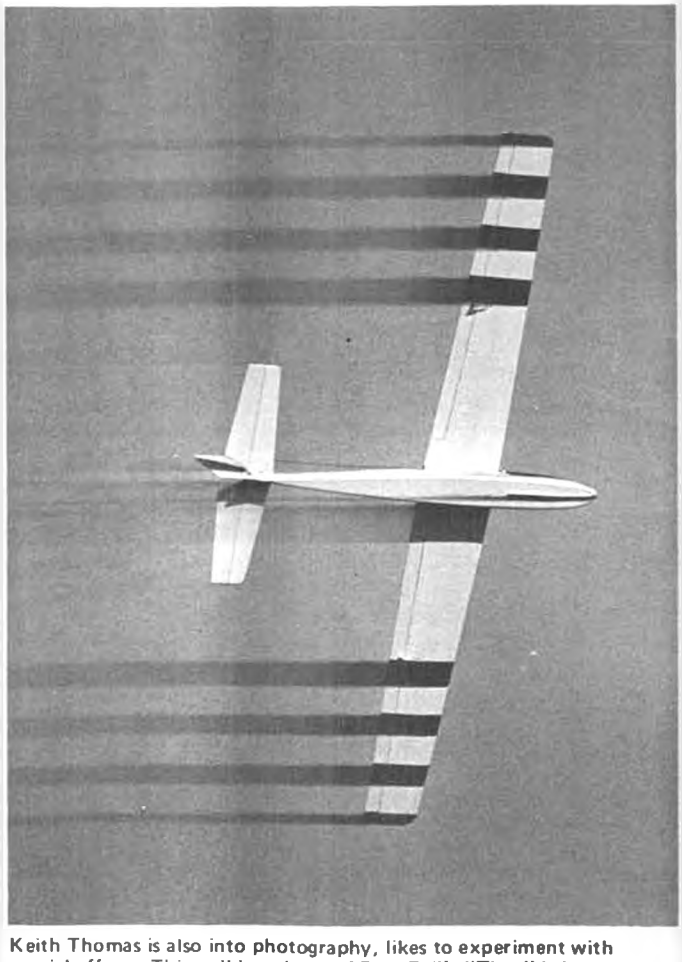
Bob's "Nonstop" weighs under 12 ounces, doesn't take much of a heave to get it flying.

Carl Schwandt has a real attention-getter in his canard version of the Square Soar (maybe he should call it the Soar Square?).

In addition to his "Nonstop," Bob Groves also flies this nicely finished Sea Breeze from Bob Smith R/C Aircraft. Ship is of all-fiberglass construction, spans 99-3/4 in.



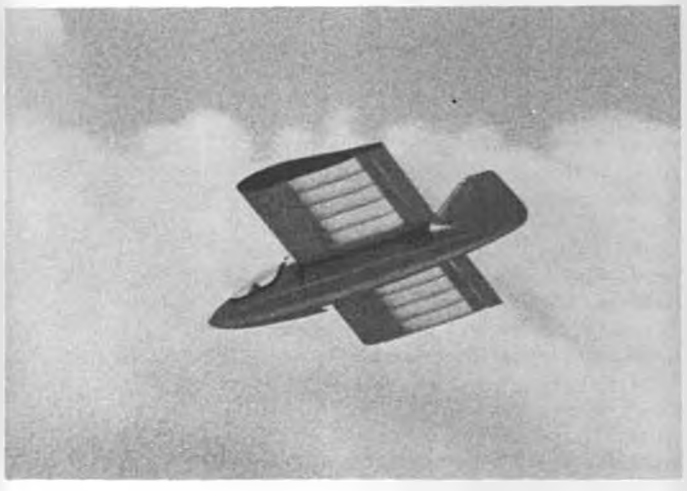
English modeler Keith Thomas makes a close, fast pass with his CE-75 Silene, described in detail in the Dec. '79 issue.



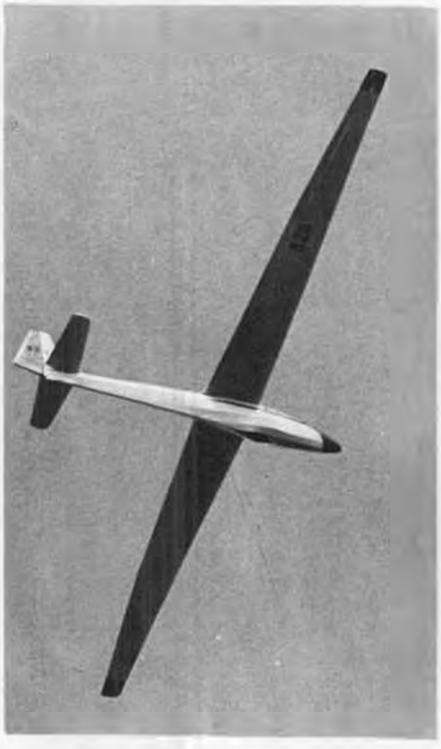
Keith Thomas is also into photography, likes to experiment with special effects. This striking photo of Pete Fell's "Tiger" is just one example of his work. A very talented fellow.

Dave Fewing's DG-100 was built from the German Robbe kit, was doing 50-60 mph when this photo was taken.

Colorful Pilatus B-4 is Tony Doman's first attempt at scale. A great aerobatic performer, just like the full-size ship.



Ken Herridge's "Wing Thing", a real wild machine. Our columnist says the model is available in kit form, should be popular.



Cliff Charlesworth's 1/4-scale (157-1/2 in. span) ASK-18 was published about a year ago in the English model mag *RCM&E*, has won several scale glider contests. These big birds are a common sight in England.

tion, a "stool pigeon" is a "friend" who stands a few feet away and tells your opponent what you're doing with the control stick. And it's wise to avoid the pilot who considers a mid-air as an "acceptable cost." The action is hot and heavy . . . a real crowd pleaser. Sooner or later there *is* a mid-air, and then it's "time out" till the glue dries. Oh, sure, the pilots remain good friends . . . but, just wait until the next combat session!

There are many fine soaring sites in England. Wherever you go, you find large athletic fields covered with soft green grass, and there are hills that face in whatever direction you like. They're also covered with greenery . . . and souvenirs of the four-legged creatures that call these pastures home. It's unsafe to watch your model as you walk about the flying site. Keith Thomas lives in southwest England, near Wales, in a town called Frome (traditionally pronounced "Froom"). He was more than happy to introduce me to the soaring activities of their White Sheet Radio Flying Club. Their most recent scale competition required static judging, flying each plane in a manner reflecting the capability of its full-scale counterpart, then flying a precision pylon course through a gate and return in exactly two minutes. Each pilot was himself required to judge the elapsed time while flying the course.

Of the twelve contestants, Cliff Charlesworth placed first with his four-meter span ASK-18 weighing 7-1/2 pounds. Keith Thomas took a well-deserved second place with his Silene, a

Continued on page 93

Typical action at a typical slope in Merrie Old England. That's Roy Cox's 1/4-scale Jantar I in the judging circle; static judges have to stay outside the string circle marker.

One of the smaller entries in a recent White Sheet R/C club scale contest was this sleek 1/6-scale Salto, flown by Pat Haxell. "Salto" is German for "somersault," giving an indication of the full-size ship's aerobatic capabilities.

Alan Brind's Mini-Nimbus is an exact scale replica of the full-size supership, is equipped with operating trailing edge flaps/airbrakes as per the original.

A potent handlaunch machine is this modified Drifter II by Peter Esherick. Mods include narrowing the fuselage and putting the wing hold-down dowels inside. Drag reduction important!

Peter shows nice form while flinging his Drifter into the blue. Site is the Sonoma (California) State College flying field.

R/CHLG UPDATE

By DAVE THORNBURG . . . If the rather unlikely sport of physically tossing R/C sailplanes into thermals still sounds like a crazy dream, here are a few success stories to allay your doubts. It *can* be done!

• When the first column on R/C handlaunch gliders broke in the March 1979 issue of **RCMB**, I got grumbles from all over the country about it. Most of them sung the same tune: "Come off it, Thornburg. Tossing gliders into thermals is just another California sport, like surfing. We can't do it here in Gasoline, Texas, and you know it."

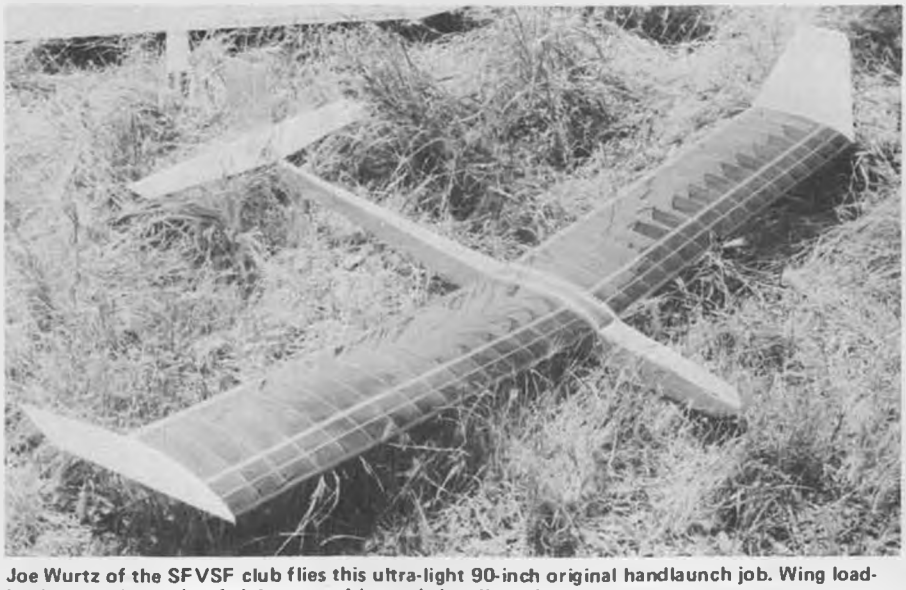
The best answer I can make is to quote a letter from Allan Scidmore up in Madison, territory of Wisconsin. Here's Al:

"I had to write you to correct an impression left by your September 1979 article on the handlaunch R/C contest. One of the photo captions says 'first-ever-contest.' Well, we just had our *third* glider contest in which R/C handlaunch was one event. I am enclosing a photocopy of an old issue of *MARCS Sparks*, our club newsletter, describing the Madison Area Radio Control Society's 1978 contest. . ."

And sure enough, those rascals held a "Glider Day" back in August of '78 that offered three events: hi-start, powered glider, and handlaunch! Now I know how Columbus felt when they broke the news to him about Leif Ericson! Al says they had around nine entries in handlaunch the first two times the event was scheduled. The third time was windy, and only one flier, Keith Scidmore, entered. Keith averaged a darn respectable 57 seconds per launch, without lift. Unfortunately, Al didn't mention what kind of ship Keith was flying, but I suspect . . . and I hate to admit this . . . that it was a 99-inch airplane!

As more folks get into handlaunch, it becomes more and more obvious that big airplanes do better, competitively, than small ones. Not that this is a total surprise; even the experts agree that model airfoils fly more efficiently as their Reynolds numbers (i.e., their airspeed and their chord width) go up. Still, I happen to be a lover of small models, both in power and soaring, so

Continued on page 81



Joe Wurtz of the SFVSF club flies this ultra-light 90-inch original handlaunch job. Wing loading is around 4 oz./sq. ft.! Joe won this year's handlaunch contest.

OH NO!! Gloria Mills caught her husband Max's R/C HLG just as the right wing folded. Plane is 72-inch, V-tail original.

Photo No. 1. The Model Museum Flying Club, SAM Chapter 1, is alive and kicking. That huge flying space is located just outside of Denver, Colorado. See text for names.

Photo No. 2. Karl Spielmaker and Tim Banaszak make like long-lost buddies at the SAM booth at the 1980 Toledo show.

PLUG SPARKS

PHOTOS BY AUTHOR

By JOHN POND

• This month's column will not feature any big meet, any new events, or any of the contest oriented material that we have used to lead off this column for the past five months. Instead, we are going to feature clubs, people, and models that make up the great majority of Old Timer fliers and associated organizations. Such a club is the one we have in mind when we review the first SAM Chapter: The Model Museum Flying Club, SAM Chapter No. 1.

Photo No. 1, as sent in by Jim Thomas (Executive Manager for the Independent Bankers of Colorado), reflects what we are trying to point out. This club, under the aegis of Tim Dannels and Harley Elmore, was responsible for organizing and running the first few SAM Championships. It's impossible to give too much credit to this club and its hard-working members for the establishment of the SAM O.T. Nats and for proving the meet could be a practicality.

The last great Champs put on by this club was in 1975 at the Old East Colfax Airport, with Tim Dannels running free flight and Woody Woodman on the R/C end of things. It was truly the last hurrah for the Model Museum Club, as things rapidly fell on hard times.

The first blow was the loss of Harley Elmore, then Secretary-Treasurer of the newly born SAM organization. This was followed in rapid succession by the loss of Tim Dannels, Rocky Mountain Vice-President, along with several fellows such as Al White, Dick Schliem, and worst of all, the loss of the East Colfax Airport and surrounding area. The club was truly in trouble.

Jim Thomas, the Secretary of the club, then proposed an attempt be made to secure a suitable area from the Colorado State Land Board. After many false starts and hopes, Thomas, in his letter of June 12, was greatly pleased to announce the lease had been finalized and executed. Jim says it is an area jointly held by the

Photo No. 3. Bob Oslan did one of his usual superb building jobs on this Pete Bowers "Fly Baby," which held the 1941 Hydro record. Covered in silk and dope, of course, and equipped with a Cox Tee Dee .09 with 77 Products ignition conversion.

Model Museum Flying Club and the Magnificent Men Free Flight Club, located on the largest block of undeveloped land adjacent to the Denver metropolitan area . . . 17 sections in all!

This great field is noted for its lack of trees (the nearest is 3-1/2 miles away) and very little cacti. Best part of the deal is that the lease is a very nominal price! So, shown in that photo are the happy faces of Jim Thomas and Les Payne (kneeling) and rear, l. to r., Bud Warren, Warren's grandson, Wendell Browning, Wally Lieper, and Chuck Warren.

Things are looking so good again for SAM Chapter No. 1 that they are actually looking forward to bidding for the 1983 SAM Champs when the Rocky Mountain area turn comes. Won't that be great! Any of you who attended the previous Denver Champs know what I mean!

Monthly meetings are held at 1635 Platte, Denver (Exit 212c off I-25) on the second Thursday of the month. With all the planned activity, prospective members in the area can reach Jim Thomas at (303) 455-7744 during the day. Another success story!

Photo No. 2, taken at the SAM booth at the Toledo Weak Signals Trade Show, shows Karl Spielmaker and Tim Banaszak hamming it up. While it goes without saying, Tim Banaszak, as Secretary-Treasurer of SAM, has donated many hours of his time to keeping the SAM records straight. Matter of fact, Tim has been the Sec.-Treas. so long, no one remembers anyone else except Harley Elmore!

Photo No. 4. Lots of activity at the rubber model processing table at the '36 Nats. Note Copeland's Wakefield entry, and how about that pusher in the foreground? Bruce Lester photo.

The photo of Karl Spielmaker brings to mind another success story in rescuing a SAM Chapter in trouble. Karl, known variously as "Krazy Karl," "Bearing von Spielmaker," etc., has organized a group known as MAM (Michigan Antique Modelers) that specializes strictly in O.T. free flight.

As mentioned in the previous issue, Karl put in three days of work at the SAM display booth. It is this kind of dedication that keeps the SAM organization rolling, and the best part of it all, it's fun too!

Photo No. 5. It's award time at the annual C.I.A. Banquet and Bob Larsh gleefully hands the "Crash and Burn Award" to Harry Murphy. Also note their Silver Max awards.

Photo No. 6. Here we see Ken Hinton readying his M-G, held by son Mark, for an official flight at last year's English SAM Champs.

Photo No. 7. Not content with one Porlock Puffin, England's Dave Baker built three! Little one is F/F, middle one is single-channel R/C, and the biggie has three channels.

Photo No. 8. Anyone for "Old Ruler" R/C? Bruce Thompson built this seven-foot original with O.S. .40, says it flies just fine.

Photo No. 9. The unbeatable pair from Ft. Worth, Bruce and Leslie Norman, ready to post a max with Leslie's O.S. .15 powered Ranger.

Karl also sends the M.A.M. Newsletter that is practically a panic to read. This writer has heard of all sorts of excuses for misspellings, typos, etc., but Karl takes the cake when he says his wife, Betty, knocked the typewriter off the table. Ever since she put it back in its place, the darn thing has never spelled right! Ain't that a kick in the head!

Spielmaker says the Gentleman's O.T. Hand-Launched Glider event idea may still get off the ground. This sounds like fun for all those old glass-armed modelers born prior to 1941.

The best item in the newsletter is typically Krazy Karl, when he says, "Don't believe the rumor going around that the only reason Spielmaker won rubber was because he cut Charlie Sotich's rubber motor in half with a Zona saw. Don't you believe it, I used a coping saw. It has bigger teeth and cuts quicker!"

Well, we probably could have published the results of the MAM Three Rivers Contest (they need the publicity!), but it's sufficient to say a great time was had by all. Those modelers in the Michigan area who want to get into this Old Timer kick should write to Karl Spielmaker, at 4690 Burlingame S.W., Wyoming, MI 49509. You won't be sorry!

Before moving on to other subjects, we might give Karl a plug for his most admirable attempts to produce a good running O.T. type ignition engine. At present his Golden Eagle (or is it the Spielmaker .60?) is being produced in small amounts. If interested, write Karl for price and availability.

Another club starting to look real good is SAM 39, the Northern Ohio group that scheduled six O.T. R/C meets this year! This ambitious undertaking was due, in part, to the acquisition of a good flying site at the Plum Brook NASA Site. As has been repeatedly pointed out, no club can survive long without field activities.

To help spur the membership, SAM 39 put on a static display at Midway Mall in conjunction with the Lorain County R/C Club. As Ralph Turner said, "The Old Timers displayed seemed to stand out from the new era models with their plastic sheens and quick-built appearance. You just can't hardly find that kind no more."

Photo No. 10. Gordon Codding is at it again! One of his most recent customized O.T.'s is this Miss America, complete with wheel pants molded from brown paper tape!

Photo No. 11. Dave Sweeney gets a nice clean launch on his Ohlsson .60 powered Playboy Sr. Flew in Nats O.T. events last year. Photo taken by Larry Kruse.

Interestingly enough, the winners in the O.T. display were selected by public voting, a different way of choice. Of course, there were complaints over this method, but as Ed points out, we had as many complaints under a standard judging system at the Randall Mall. Ya can't win!

Winners at Midway Mall were:

1) Ralph Turner (MG)
2) Jim Dever (Dallaire)
3) Chet Lanzo (Bomber)

Also included in their newsletter was a sketch of a pressurized fuel system using a Tatone cut-off valve. They get around the vibration that used to cut off the fuel prematurely by having the valve closed all the time and releasing the spring for

"flood-off" action to stop the pressurized engine promptly.

ENGINE OF THE MONTH

This columnist is willing to bet the average modeler is not aware of the tremendous talent, ability, and prolific output of William W. "Bill" Atwood, model engine man supreme.

Just about the time World War II broke out, the advertisements for Atwood designed motors filled the model magazines. After getting away from the Curtiss-Wright Institute in Glendale, California, where Major C.G. Moseley ran things (Baby Cyclone and Super Cyclone), Bill immediately went into production of a series of front rotary valve engines. Among these were the Hi-Speed, Phantom, Bullet, and Torpedo (yes, the Torpedo of today owes its existence to this one). Not content with this, Atwood had a flock of .60 size engines known as the Red Crown, Silver Crown, etc., about four boat engines and one aircraft engine. In between, he found time to come up with the Atwood Champion.

This month's engine, the 1941-1946 version of the Phantom, known as the Phantom P-30, is another Atwood engine that became the property of someone else. It certainly was amazing the way Bill could design an engine, put it in production, and them promptly sell off the design and manufacturing rights.

Although the Phantom engine dates back to 1938 (we'll run the old engine one of these days!), the complete redesign in 1941 was called the Phantom P-30. One of its claims was that it was the first engine to feature the "impinging column."

The new 1941 Phantom featured a split crankcase, cast of aluminum in two halves. The exhaust stacks were "clamp-on" type, this style being carried over to 1946 with a change in shape from square to dual exhaust. The entirely new design featured a long stroke, small bore combination. This "new" principle of bypassing was claimed to give at least 20% more power. The square valve was supposed to increase power by another 10%. We didn't know how good we had it in those days!

The P-30 was a typical good-looking Atwood engine with features like the needle valve angled back to clear the propeller, a dual method of mounting the engine (beam or radial), and clear plastic gas tank. Also, claims were made that the new patented principle of bypassing to eliminate the piston baffle was the better way to go.

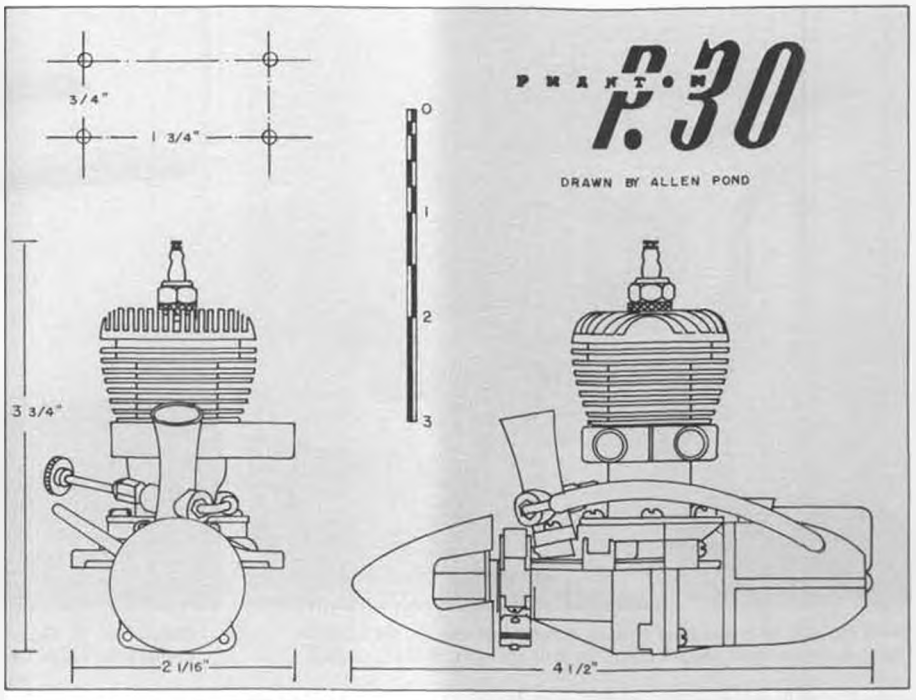


Photo No. 12. Carl Goldberg will get a kick out of this photo of his original 1938 Zipper (also referred to as the Gas Bird), as beautifully restored by Jack McCracken.

Photo No. 13. Here's another old Bruce Lester photo, showing Barney Snyder's original Miss Tiny at the famous Rosecrans and Western (Los Angeles) site.

Phantom P-30 engines featured a bore of .715 in. and stroke of .750 in., giving a cubic inch displacement of .295. The original weight in 1942 was listed at 5-1/4 ounces but the lightweight Dow metal castings proved to be entirely too weak, so 1946 saw the return of aluminum castings with a consequent increase of weight to 7-3/4 ounces. Horsepower rating was 1/5 (same as a Brown Jr!).

Strobatac tests as run by the *Air Trails* test division showed the P-30 turned 6,700 rpm with a Flo-Torque 12-inch low-pitch prop, 7,500 rpm with a Ritz 11-inch medium pitch, and 6,800 rpm with a 10-inch Hi-Thrust high-pitch prop.

Photo No. 3 shows the very successful Pete Bowers "Fly Baby" as built by Bob Oslan. This model flies better than it looks!

Bob is one of those meticulous builders who make the rest of us look like a bunch of hackers; hence, we simply can't resist running pictures of his

Photo No. 14. Humble Karl Hatrak, Captain of the So. Cal. Czech Team, demonstrates proper form for launching an R.O.G. model.

Photo No. 15. Don Bekins is justly proud of his 50-inch M-G, did 44 minutes in 1/2A Texaco at recent Sacramento O.T. meet!

models. This particular model was lost for almost seven months at Taft, and just about the time Oslan gave up hope, one of the Taft people turned it in.

It has since been refurbished and flies as well as ever, much to our chagrin. This model, interestingly enough, held the 1941 seaplane record for duration, proving it flies well both ways. Bob employs a Cox .09 converted to ignition to power this model (of course, it is a 77 Products conversion by Otto Bernhardt).

Photo No. 4 was kindly sent to us by Bruce Lester of Toronto, Canada. Bruce attended many of the old Nationals and took many pictures. Of course, many of the negatives have gone bad, but not so bad that you can't make out the details. We will be running a shot every month of the 1936 through 1938 Nationals. These old pictures have never before appeared and are priceless from a historical standpoint.

The photo, taken at the 1936 Nationals, shows Robert Copeland's beautifully built Wakefield being processed. The 1936 British Wakefield team was particularly outstanding for their well constructed, streamlined models. Strangely

Continued on page 76

S-4

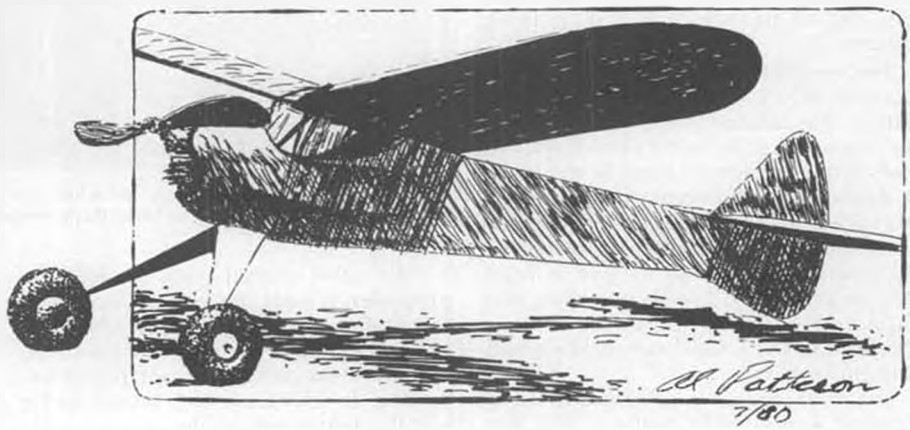
"Shrimpo"

OLD TIMER Model of the Month

Designed by: Malcolm Abzug

Drawn by: Al Patterson

Text by: Phil Bernhardt

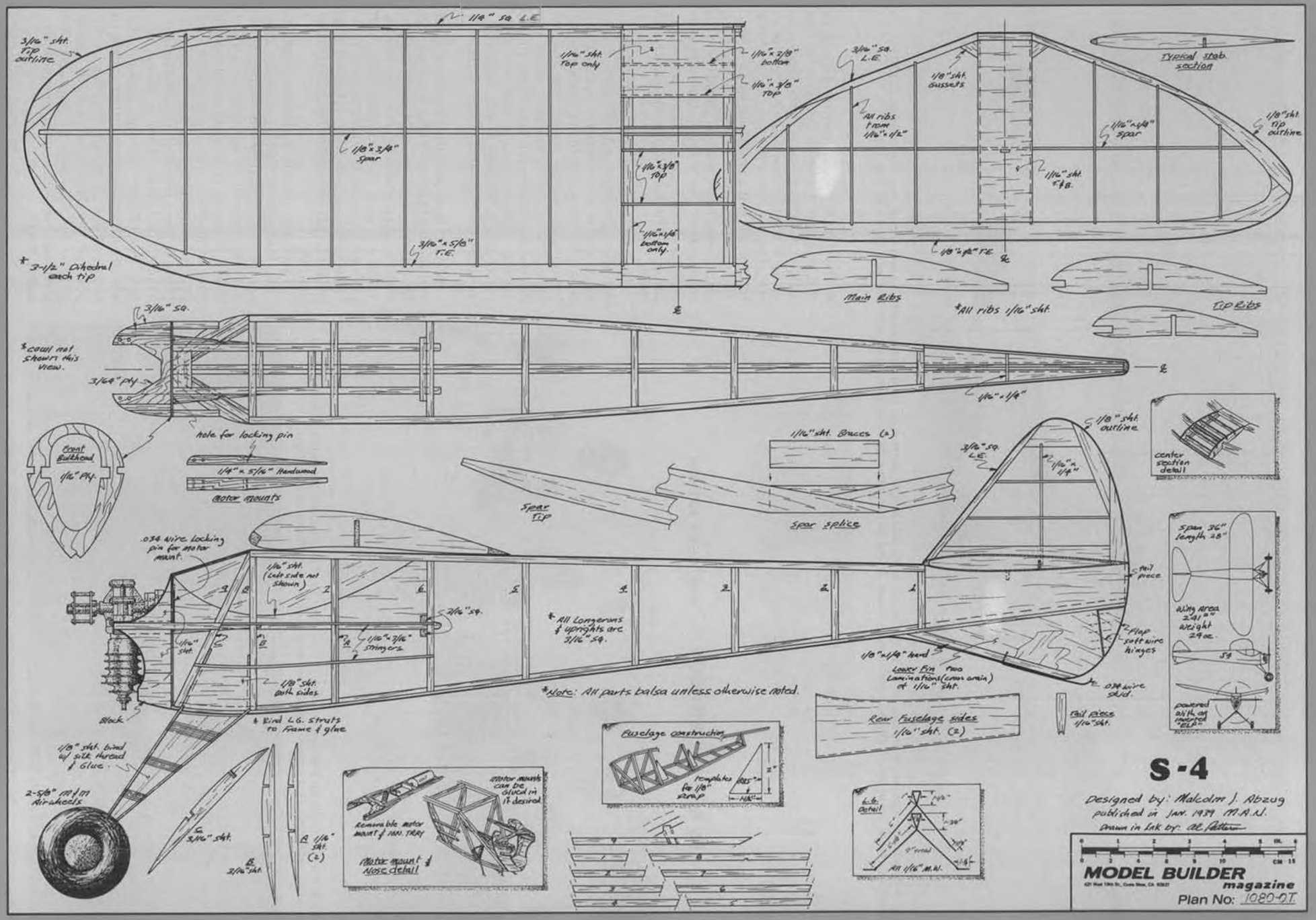


• No nickname was given to this neat mini gas job designed by Malcolm Abzug and published in the January 1939 issue of *M.A.N.* It was billed in the original text simply as the S-4, the "S," we found out later, standing for "Shrimpo." Unlike the great majority of published gas models of the period the S-4 was not claimed to be a hot performer or a guaranteed contest winner. Instead, the main selling point was its small size and resulting low construction costs, ease of transport, high dependability, and the ability to survive crack-ups with little or no damage, as compared to a larger ship. Abzug admitted that his midget model couldn't start to compete with its bigger brothers in the performance department, but felt that this was outweighed by the advantages just mentioned. Apparently he was not a very competition-minded fellow.

The S-4 follows pretty much standard construction practices except for the fuselage, which has a distinctive triangular cross-section along its entire length. Another noteworthy feature is the removable engine mount/ignition tray, held in place by two music wire locking pins located flush with the back side of the firewall. The airfoil is the ultra-thick, high-lift Grant X, the same section used on the big KG-2 and Lanzo Record Breaker . . . not the sort of thing you'd expect to see on a little three-footer that weighs under a pound! It turns out that this particular section was chosen for a reason, and that was to make the model fly slowly (20 mph, sez the text), probably by generating a ton of drag.

The original S-4 was powered by an Elf .09, but those few fortunates who own an Elf these days will want to leave it on the shelf and use something a little more common, like an Arden .099, or an Atom. A Cox reed valve .049 would be a good choice if you don't want to go ignition. For R/C, use something with a little more poop, like a Tee Dee .049 with throttle.

The S-4 spans 36 inches, has 241 sq. in. of wing area, and must weigh at least 13.4 oz. for SAM events. Maximum size engine for R/C events is a .10. •


1/4" sq. L.E.
3/16" sht. tip outline
1/16" sht. top only
1/16" x 2/8" bottom
1/16" x 3/8" top
1/8" x 3/4" Spar
3/16" x 5/8" T.E.
1/16" x 1/8" bottom only.
* 3-1/2" Dihedral each tip
3/16" sq. L.E.
1/8" sht. gussets
All ribs from 1/16" x 1/2"
Typical stab. section
1/8" sht. tip outline
1/16" x 1/4" Spar
1/16" sht. T.E.
1/8" x 3/8" T.E.
Main Ribs
*All ribs 1/16" sht.
Tip Ribs
3/16" sq.
* cowl not shown in this view.
3/64" ply
1/16" x 1/4"
Front Bulkhead 1/16" ply
hole for locking pin
1/4" x 5/16" Hardwood
Motor mounts
1/16" sht. Braces (2)
Spar Tip
Spar Splice
1/8" sht. outline
3/16" sq. L.E.
1/16" x 1/4"
center section detail
.032 wire locking pin for motor mount.
1/16" sht. (Left side not shown)
3/16" sq.
1/16" sht.
1/16" x 3/16" stringers
1/8" sht. both sides
* All Longerons & uprights are 3/16" sq.
1/8" x 1/4" hard
Lower Fin two Laminations (Cross grain) of 1/16" sht.
.032 wire bent
Tail piece
Flap soft wire hinges
Span 36" length 28"
Wing Area 241 sq. in. weight 29 oz.
powered with an inverted "ELF"
*Note: All parts balsa unless otherwise noted.
Rear fuselage sides 1/16" sht. (2)
Tail piece 1/16" sht.
Block
* Rind L.G. struts to frame & glue
1/8" sht. bind w/ silk thread & Glue.
2-5/8" M & M Air-wheels
3/16" sht.
B 1/16" sht. (2)
B 3/16" sht.
Removable motor mount of 1/16 TRAY
motor mounts can be glued in if desired
Motor mount & Nose detail
Fuselage construction
Templates for 1/16" strip
L.G. detail
All 1/16" M.M.
S-4
Designed by: Malcolm J. Abzug
published in JAN. 1939 M.A.N.
drawn in ink by: Al Pastore
MODEL BUILDER magazine
Plan No: 1080-0T

One of the most impressive models to fly at the recent Mint Julep scale contest, at least in terms of size and sound, was this massive C-130 by Skip Mast, done up in colorful white and orange Coast Guard colors. Span must be around nine or ten feet. Photo by Bill Topp.

1 TO 1 SCALE

By BOB UNDERWOOD PHOTOS BY AUTHOR

Harold Parenti picks up his winners loot at Spirits of St. Louis annual Warbirds contest. Those are some prizes! Second placer Wayne Nenninger at far left. Photo by Joe Lunt.

Parenti's mount at the Spirits Warbird meet was this well-detailed P-39. Models at this contest are static judged, then raced over a standard pylon course. Interesting!

• The date is June 27, much too close to the first of the month deadline for this article. A flush of excitement begins to grow in the Underwood's household as the date to leave for Ottawa and the Internats is just a couple of weeks away. The new Hiperbipe is not quite finished, since some small cockpit details remain to be added. The "pilot" (a Daryl Dragon doll) has to be bionic-ed into one piece, since now he has a foot here and a hand there.

The model has flown and tracked its way through loops and rolls, some knife-edge, and inverted flight. It ticked along at a nice speed with its Kraft engine swinging a 16-inch *scale* prop at 7,500 rpm. The sound is fantastic, since the engine explosions are very close to the number a four cylinder puts out. The club turns 1,750-1,800 at idle. No torque to speak of when you bring the throttle up.

So the long months of preparation and waiting draw to a close. Soon we will be locked in battle with some of the most fantastic models in the world. Some will perhaps fly better. Some will perhaps be more detailed and well built. Hopefully, we will have achieved that balance that will make the model competitive.

There are so many unknown ponderables in this game. Different judges, new competitors, and different flying conditions all contribute to make it a great guessing game. If all goes according to past experience, you'll see some very steady, beautiful flying from the French. There will be excellently detailed models from the English. There is always that one model that no one expects but which suddenly appears, unheralded, to take everyone's breath and be in the position to take all the marbles. On to Ottawa for the 20th of July and that wonderful international competition.

MINT JULEP

It occurs early in the year, since April can be very chancy in the Midwest, but

the Mint Julep gave all indications of continuing its reputation of being one of the biggest, if not the THE biggest, all-scale contests. The practice of having two divisions in each of the two classifications, Sportsman and Expert Sport Scale, allows a great diversity of models to remain competitive. The Division I class includes the "heavyweights" in the form of options such as multi engines, retracts, flaps, etc. Division II allows one option of a mechanical nature and attracts a variety of biplanes, etc.

The entries included the following numbers: Sportsman, Division I: 13. Sportsman, Division II: 16. Expert, Division I: 11. Expert, Division II: 4. There were only two Precision entries in the form of a P-51 by Skip Mast and the old D-12 "Bonzo" of your writer. While there was no formal competition, there were some very nice big models.

This contest was one of the qualifying meets for the Scale Masters in September, and five Sport Scalers have the privilege of attending. They are Bud Atkinson, Skip Mast, Bob Underwood, John Foreman, and Hank Pohlman.

In light of the condition of many meets this year, with attendance down due to high fuel and housing costs, it is interesting to note that scale entries are up some 20% or more. A lot of those models that used to hang from the ceiling are showing up at the field. A very healthy sign.

Joe Naber's Sea Fury looks plenty powerful with that big five-blade fan up front. Placed 3rd at Warbirds contest. Racing with these birds is a lot more realistic than with Q-M's and F-1's!

Scratch-built Spitfire would no doubt have done very well for Phil Sibille at the 1980 Mint Julep, but engine problems kept it out of the winner's circle. Cathy Underwood photo.

EIGHT THE HARD WAY

For a number of years we have labored with flying an eight in our mandatory pattern that stretches out into the next county, since the axis is perpendicular to the runway. I cannot ever recall talking to anyone who thought the maneuver was of any value. Fliers hate it because the model winds up so far away. Judges hate it because there is practically no way to accurately judge it, since the backside part of the eight, if it's the right size, looks wrong and the crossover has no reference point. The contest management hates it because of the distance it carries away from the flight line, and half the time the final part of the eight winds up right over the judges' heads. So why haven't we done something?

In the case of last year's Nats and each of the contests we've attended this year, we have flown the FAI 8, which places the axis of the 8 parallel to the flight line. As a result, the 8 stays closer to home, the two loop portions are easier to judge, and if you do it right, the crossover is right out in front of you.

So why not a rules proposal? It has been submitted for the next rules cycle. There are, of course, other possibilities. For instance, we could drop it altogether and go with six options. At any rate, you will have an opportunity to speak to this as the rules cycle progresses.

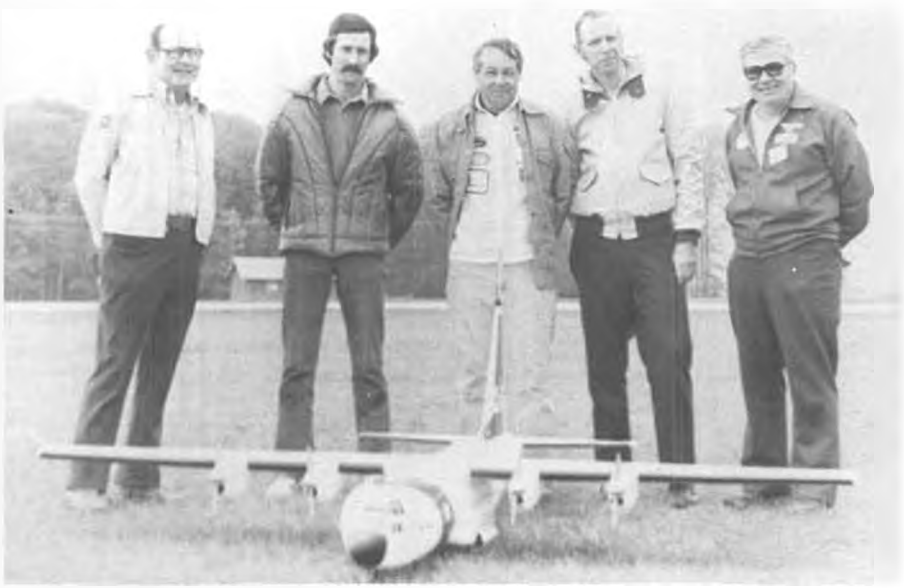
Keep in mind that the deadline for rules proposals is September 1, 1980. For complete information, see pages 90-93 in the August 1980 edition of *Model Aviation*. If you have some ideas for rules changes or additions, please submit them; don't just spend two years complaining about the fact something

The Mint Julep contests have always been known for their fantastic prizes, and this year was no exception. Five categories attracted a total of 46 entries.

Quarter Scale winners at this year's Mint Julep, from left: Bill De Verna, Best Scratch-Built; Vince Marianni, Best Sport Scale and Best Kit-Built; and Bonnie Marianni, Best Original Design.

Mint Julep 1980. How many total hours of work do you suppose went into all those models?

Top: Skip Mast's C-130 on a fly-by. Above: A P-39 from a Top Flite kit, built by either Dick Nutting or Dick White and in the process of taking off or landing, take your pick. Both photos taken by Bill Topp.



Top Sport Scalers who qualified for the upcoming Scale Masters competition, from left: Bud Atkinson, John Foreman, Skip Mast, Hank Pohlman, Bob Underwood. Cathy Underwood pic.

wasn't done.

NASA

The Scale Association once again assumes the responsibility of awarding the Flight Achievement Awards at the Nats in Wilmington. Six very attractive plaques are involved with two for Precision Scale (C/L and R/C), two for Sport Scale (C/L and R/C), and two for Free Flight (Indoor and Outdoor).

The patch sales were quite rewarding, with the final accounting yet to come. It would appear that somewhere in the neighborhood of a thousand dollars will be realized when all funds are in. Of course, since the Internats are on this continent, the expense for the U.S. team will be considerably lower this year. At this point, funds from the patches were used to outfit the Sport Scale team in shirts and jackets. The F4C team (Precision) had these provided, as in the past, by Sig Manufacturing. Some of the patches remain and will be used by the team members as exchange items, as the competitors traditionally exchange mementos of the event.

Jamie Gielens, who put together the original Source Guide, has gone through a couple of moves during the last year and, hopefully, will have an opportunity to update the Guide in the near future. Because of some communication problems, it might be that you have never received yours. If this is the case, *please* drop me a card and I'll get it to you as soon as I get your notice.

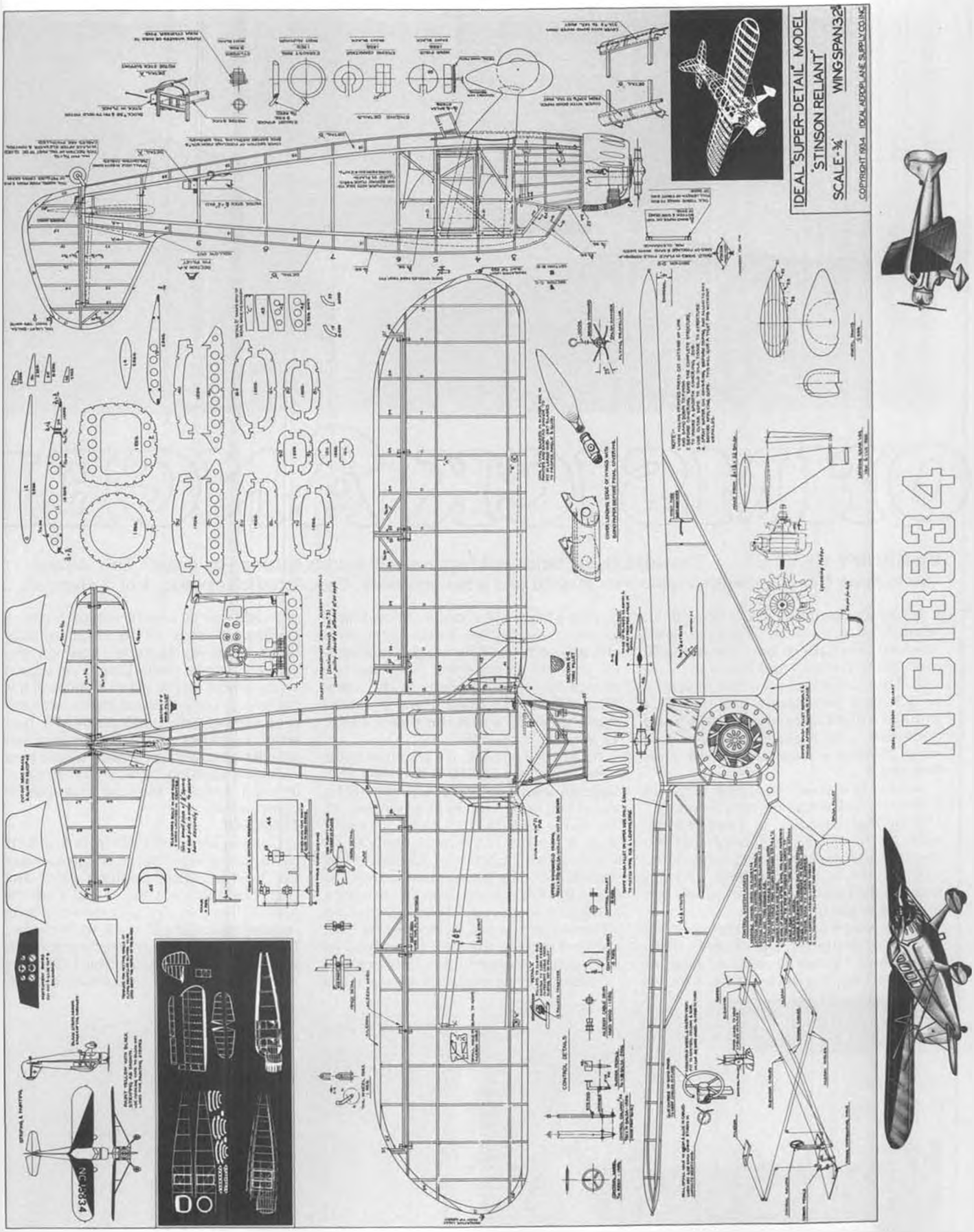
A last note on NASA is that as of the first part of June, the Sec./Treas., Noel Allison, asked to be replaced due to the pressure of many activities on his available time. As a result, Noel has been replaced by John Preston, who ran for that office last December. Please direct any requests to John in the future. John Preston, 7012 Elvira Ct., Falls Church, VA 22042.

SOME LITTLE THINGS

I needed some piping to put around the foam cushion seats of the Hiperbipe and discovered that plastic-coated single-strand wire provided the necessary material. By cutting a short section of the insulation off the end and holding the wire firmly with pliers, I could slip the plastic insulation off the wire in rather long lengths. This can then be glued to the cushion edge to simulate the seam. It can be painted, if necessary, to match the cushion covering.

Door closing mechanisms for Sport Scale retract gear can be actuated very simply. Cut a rubber band and glue it to the inside of the door with the cut edge facing toward the outside edge of the door. The band will arch upward into the retract opening and then is fixed to the other door. When the gear comes up the leg or wheel will then pick up the band and pull the doors closed. Some experimentation will probably be necessary to determine the amount of pressure required to hold the door closed behind the wheel. It's simple, works well, and doesn't detract from the model's appearance.

Continued on page 88



It's hard to believe this drawing was made 46 years ago, and though there is no credit line here, or in the 1934 Ideal Aeroplane & Supply Co. ad appearing in a June M.A.N., we understand the model was designed, and the plans drawn, by Steve Kowalik, who taught MB's editor about model building right about that time. Conveniently, Ideal included bulkheads and ribs on the plans, so printwood was not needed to give you this reproduction. Now get this . . . Mert Bollman, an aeronautica collector living in Torrance, California, just recently received these plans, folded and tucked into some model magazines sent from a friend in Czeckoslovakia. Very little work was needed to prepare them for copying.

FULL SIZE PLANS AVAILABLE – SEE PAGE 100

PHOTOS BY AUTHOR

OHMSICK ANGEL

By RANDY WRISLEY . . . Crowded flying fields and high modeling costs getting you down? This distinctive looking free-flight-with-a-radio-in-it may be just what you need. Uses Astro 02 electric, 1 or 2 channels.

• It's Sunday morning at the flying field. Beautiful day, must be 50 people here! As usual, the pattern boys are doing 90 mph maneuvers up and down the runway. The club scale buff in the next pit is busy tuning his Quadra-powered B-24 prior to a flight. Admidst all the din and confusion you realize there are only nine people waiting to fly on your frequency . . .

Sound like your situation? If so, an Ohmsick Angel may be your ticket out. Electric flight is quiet, so quiet you can now fly in the local schoolyard! No noise, no crowds, no mess. Even if you can only fly at the club field, you can usually fly before the gas models are allowed to start.

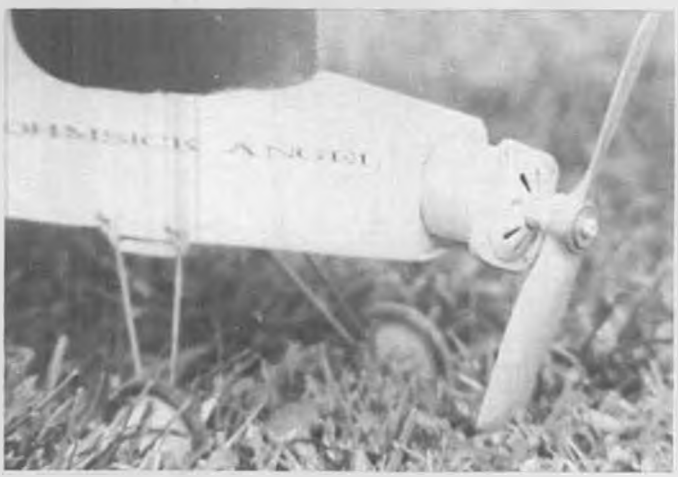
Once you make the investment for the motor, batteries, and charger, that's all you buy. No more fuel, glow plugs, or mufflers, ever. I saved even more by not buying a fancy $50 charger. All you have to do is modify an Astro Flight auto charge cord by adding a second connector in series with the first. Now you can charge two 4.8-volt packs at the same time. Since you don't have an automatic shut-off, watch the time closely; 15 minutes is the limit.

As for the aircraft, it's a simple sport free-flight type with a two-channel Cannon radio to keep it from flying away. The design traces its origin back to the early PAA-load models of yesteryear. It weighs 15.5 ounces ready to fly and has a wing loading of 9.5 ounces per square foot. The powerplant is an Astro Flight 020 R/C system. Don't let the large lifting stab scare you; I believe in making all the surfaces work. By moving the C.G. aft, and making the stab lift instead of just stablize, you get better performance.

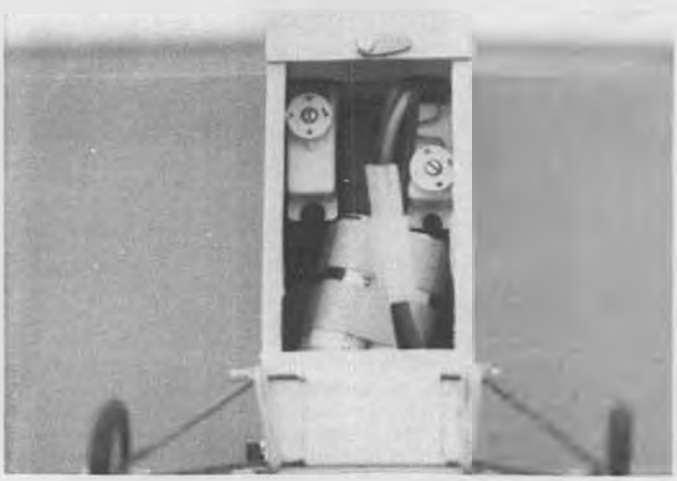
In keeping the model simple, I did not provide for a whole lot of battery cooling. After a six to seven minute flight, I let my batteries cool on the ground before recharging. I've shown an air-scoop on the plane if you feel it is necessary. Long thermal flights with the prop freewheeling will cause the batteries to get hot, too. An internal on-off switch rigged to the elevator would be a welcome addition. Now, if you're ready, let's get down to the nuts and volts of construction . . .

FUSELAGE

Cut two identical sides from firm 1/16 balsa. Using Super Jet or the like, install the 1/64 plywood doublers front and rear. Build formers No. 2 and 3 on the plan. While they dry, glue the remaining square and triangle stock to the sides. Pull the tail together and cement formers No. 2 and 3 in place. Cut the 1/8 square cross-pieces to size and install them aft



Astro 020 motor is a tight fit in a 1/64 ply tube, held in place by four screws. Quickly removed if necessary.



Motor battery and all radio gear fits between the two main fuselage bulkheads. Servos mounted with foam tape.

of the cabin. The best way to cut the holes in former No. 1 and the motor mount is to do it before you cut the pieces to size. Plank the top of the fuselage with 1/16 sheet, applied cross-grain. Cut two each of cabin formers A and B from 3/32 balsa. Cement them in place and plank around them with soft 1/16 balsa to form the front and rear of the cabin. Make up and install the pushrods before you plank the bottom. Don't forget the belly hatch; it provides easy access to the motor batteries. Bend the landing gear from 1/16 music wire. The spacer is 1/16 ply, Jetted in place to keep the gear from squeezing together under load. Williams Brothers 1-1/2 inch Vintage style wheels fit nicely.

Epoxy the spruce wing hold-down block in place, but don't add the landing gear dowels until the fuselage is covered. Cut a strip of 1/64 ply the width of your motor. Wrap it one time around the motor and cement. Epoxy the tube into the motor mount. Enlarge the hole in former No. 1 enough to slide the unit in place. The finished mount is held on with four small screws, which allows for thrust adjustment. Sand the fuselage smooth and set it aside.

WING

Make a template of the main wing rib. Cut 14 ribs from 1/16 balsa. The center section ribs have 1/16 of an inch trimmed from the top and bottom. Cut a blank that fits between the l.e. and t.e. at each tip rib section. Using your trusty template, slice the top off each blank to create the proper airfoil. Pin the l.e., t.e., and bottom spars down on the plan. Cement the ribs in place. The 1/8 square on the t.e. helps hold the ribs in place. When all is dry, raise the tips two inches off the board and cement the polyhedral braces in position. Next, raise the inboard panels one inch and epoxy the center section brace in place. Install the spruce top spars. Epoxy the spruce wing hold-down block in place before you plank the center section. Add the remaining gussets and the tips before giving the wing a final sanding.

TAIL SURFACES

The stabilizer is a repeat of the wing, but smaller. The elevator is firm but light 1/16 balsa. Cut the fin and rudder from 3/32 sheet and round all but the bottom edges.

COVERING

Use plastic film for simplicity, or tissue and dope to save weight. Take care not to warp the structure with too much dope.

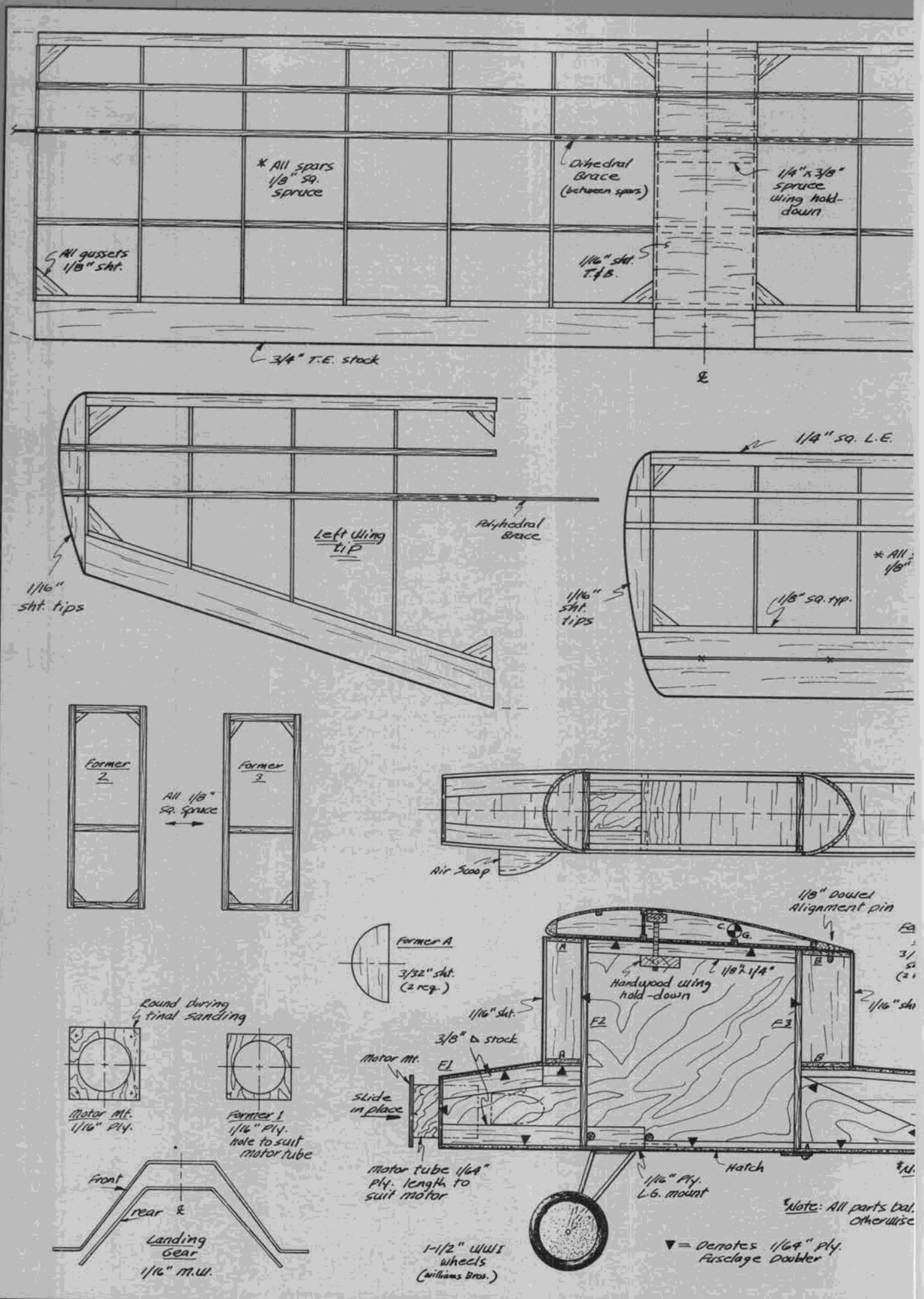
ASSEMBLY

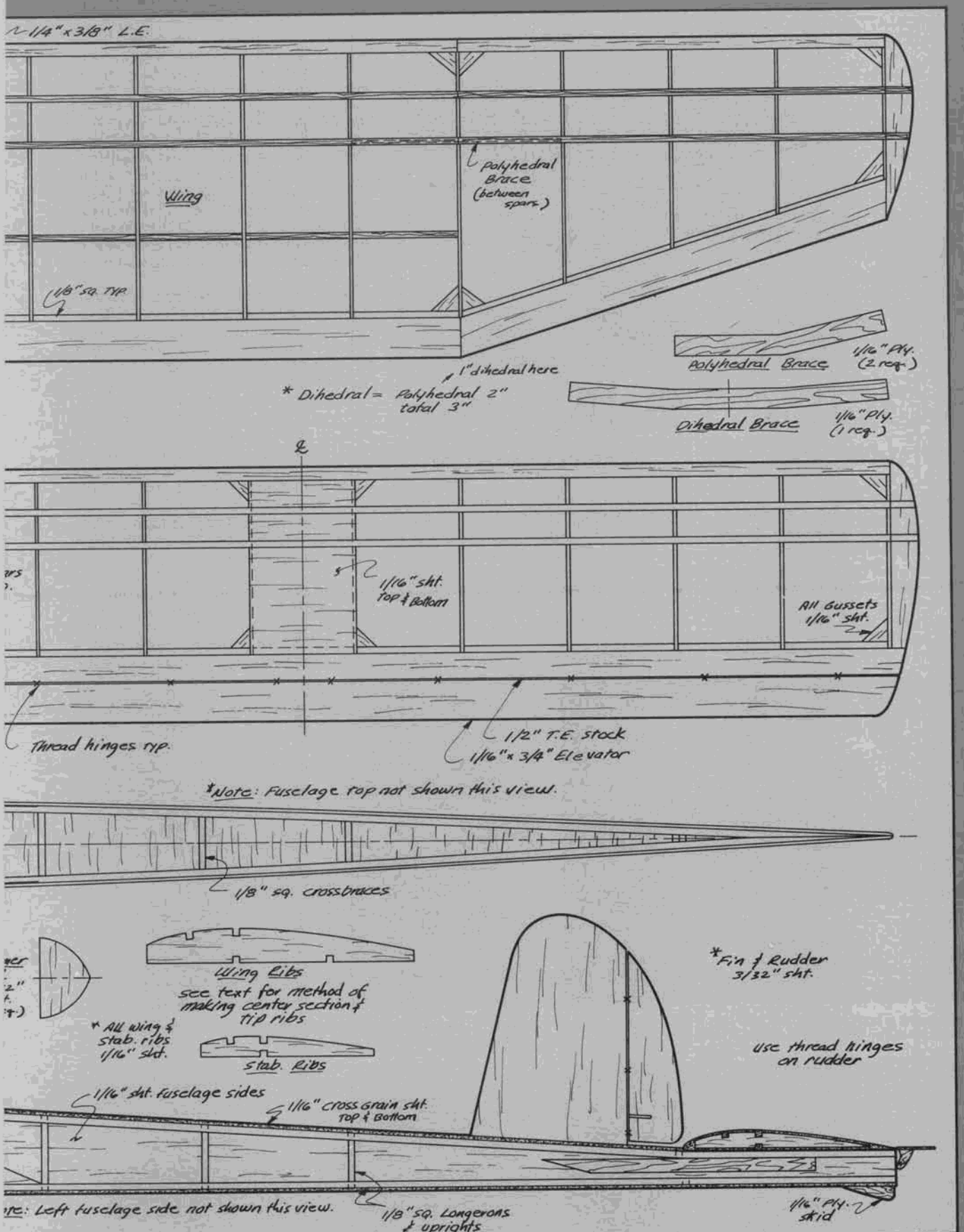
Epoxy the stabilizer and fin in place. Hinge the control surface in place with sewing thread. Square the wing on the fuselage and drill the hole for the wing hold-down screw. Next, drill the 1/8-inch hole for the alignment dowel through the t.e. and clean into former B. Jet the dowel into place, then remove the wing. I used scraps of 1/32 ply for control horns. Mount the servos, then slide the rest of the components into place. Don't forget the motor battery! Slide the movable stuff around until the model balances at the *rear* spar. Mount the switches, charge the radio and get ready to go flyin'.

FLYING

Before you launch, are all the surfaces moving in the right direction? If so, bump in some left trim. That's right, left trim! Ohmsick Angel is a pylon model, and as such will want to turn to the right under power. Launch the model smartly into the wind. When flying speed is reached, add up trim until the model is climbing in large right-hand circles. Once you have the power pattern set, it will continue on with no further assistance from you. If it isn't too windy, give the transmitter to your ever faithful wife/girlfriend and tell her not to touch anything! Now you can sit back, relax, and just watch your Ohmsick Angel fly! Watch out for thermals; that's how the prototype got its name. Hope you get a charge out of flying yours! •

Ohmsick Angel is so easy to fly that wives and girlfriends should have no problem driving it around the sky. Author's wife, Irene, flies this one regularly, does just fine.


* All spars 1/8" sq. spruce
Dihedral Brace (between spars)
1/4" x 3/8" spruce wing hold-down
All gussets 1/8" sht.
1/16" sht. T.E.
3/4" T.E. stock
Left Wing tip
Polyhedral Brace
1/16" sht. tips
1/4" sq. L.E.
1/8" sq. typ.
Former 2
Former 3
All 1/8" Sq. Spruce
Air Scoop
1/8" Dowel Alignment pin
Former A
3/32" sht. (2 req.)
Hardwood wing hold-down
1/16" sht.
3/8" △ stock
Motor Mt.
F1
F2
F3
Slide in place
Round during final sanding
Motor Mt. 1/16" Ply.
Former 1 1/16" Ply. Hole to suit motor tube
Motor tube 1/64" ply. length to suit motor
Hatch
1/16" Ply. L.G. mount
Front
Rear
Landing Gear 1/16" M.W.
1-1/2" WWI Wheels (Williams Bros.)
▼ = Denotes 1/64" Ply. Fuselage Doubler



Ohmsick Angel

Designed & Drawn by: Randy Wrisley

traced in Ink by: de Fellows

Specs.

Span	43"
Area	232 sq. in.
Length	26"
Weight	15.5 oz.

MODEL BUILDER magazine
621 West 19th St., Costa Mesa, CA 92627

Plan No: 10802

FULL SIZE PLANS AVAILABLE – SEE PAGE 100

PHOTOS BY BOB HINES

PRODUCT$ IN U$E

THE MRC/TAMIYA "ROUGH RIDER," by LARRY VAN OSTEN

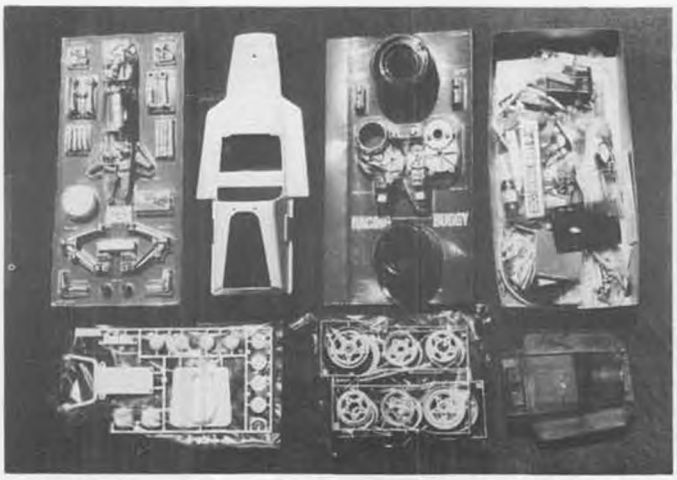
• Once upon a time, at the H.I.A. show at the Anaheim Convention Center, I was walking through the multitude of displays and exhibits in search of something new and exciting to help boost sales at my little store, when I came upon a large gathering of people crowded around one of the MRC demonstration exhibits. As I was making my way through the crowd to see what the center of attraction was, I heard reactions like, WOW! NEAT! FANTASTIC!! coming from up front. When I finally reached a spot to get a glimpse of what was attracting the attention of the crowd my first comment was WOW! NEAT! FANTASTIC!

It seemed as though MRC/Tamiya had done it again.

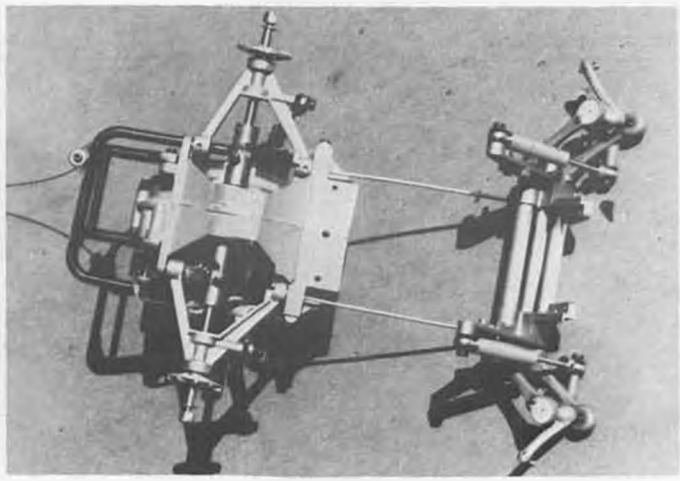
There before my eyes was a very detailed and realistic appearing 1/10-scale off-road single-seat buggy. Just watching it run was enough to make me vow to have one, but upon a closer inspection of the finer details I knew I must have one today, *right now!* So I cornered one of the friendly MRC reps to find out how, when, and where?

Much to my dismay, I was told that this was a prototype shipped over just in time to make the show and that the availability date was about three months away. It's like showing a kid an ice cream cone and telling him he has to wait three months to taste it.

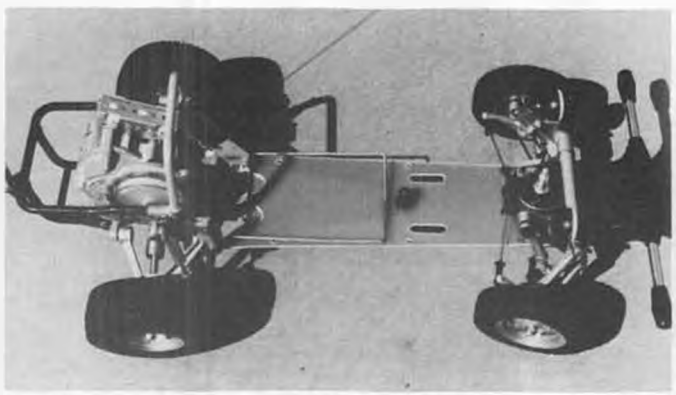
So, after spending the better part of an hour trying to talk the rep into a deal on his old used demo, I went home empty-handed and heavy-hearted. For the next couple of weeks I was a good boy, making sure to eat all of my vegetables, brushing my teeth and saying my prayers every night before I went to bed. It all paid off in a big way, for one day out in front of my store there appeared a cheerful, smiling little old man with white hair and a white beard but no reindeer or sleigh, which figured because it was the middle of June. When he came into my store I knew for sure it wasn't the little fella from the North Pole but instead it was my good neighbor from down the street, Walt Schroder of **R/C Model Builder.** Under his arm was tightly tucked an MRC/Tamiya RA 1015 Rough Rider kit. After the good morning greetings and all, Walt asked me if I



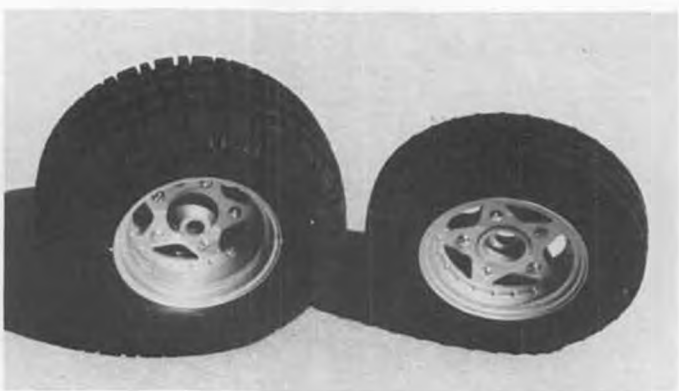
Excellent packaging is typical of all MRC-Tamiya kits. Smaller parts are drawn full-size in the instructions for positive identification.



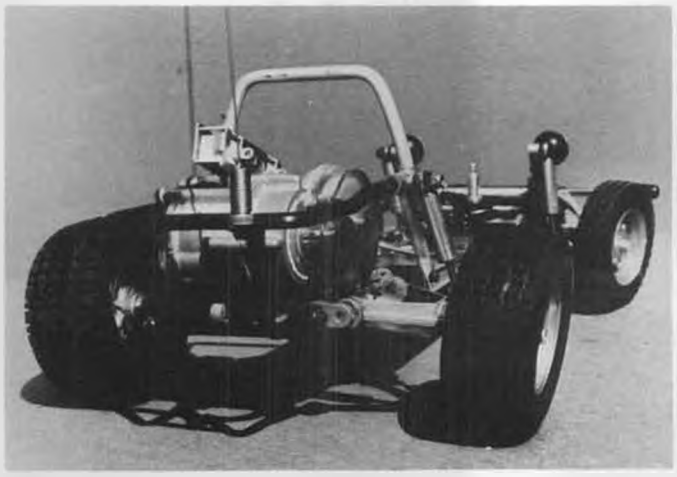
Bottom view of front and rear assemblies showing axles and U-joints. Front end is close copy of real VW unit.



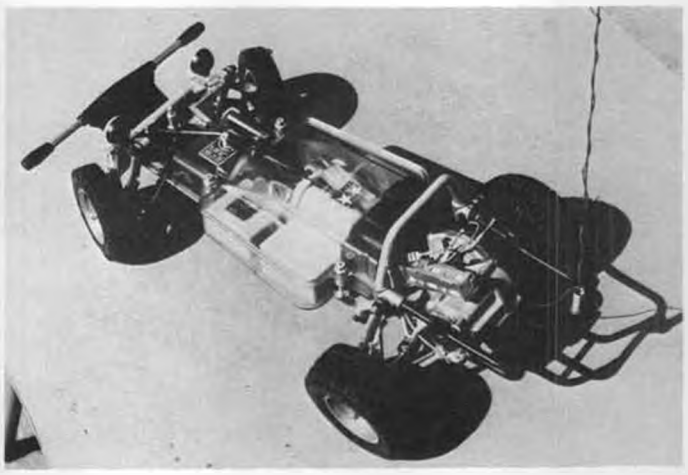
Completed chassis minus the radio box. Epoxyglass plate has aluminum stiffener underneath. Note servo saver up front.



How realistic can you get? Each wheel is actually three pieces, held together with five machine screws and nuts.



Suspension on all four wheels is via springs and oil-filled shock absorbers. Motor and gear train are completely waterproof.



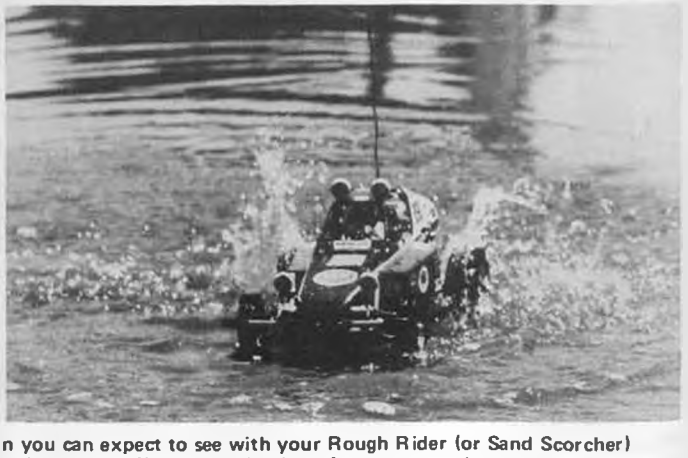
Radio box is also waterproof, lid is held on with four 1/4-turn cam lock fasteners. MRC 2000 two-channel used here.

could and would assemble the kit and write an article on what I thought about it. After thinking it over for a while (about two seconds) I told Walt that I would give it a try . . . just because he is a good neighbor, you understand. I wasn't able to start on the project till quite a while later . . . must have been about 36 seconds after Walt walked out the door.

The packaging is well laid out, and shows you at a quick glance some of the major parts such as the front end assembly, body, and tires, all individually bubble packed. It is obvious that Tamiya spent some time on merchandising; it is rare to see a product so thoughtfully displayed. The buyer can see exactly what kind of quality he is buying.

Continued on page 86

Excellent body painting and detailing work was done by Frank Killam. Body shell is molded from styrene plastic, same as a plastic display model. Decals are pressure-sensitive.



These incredible action shots, taken by the author, show the kind of action you can expect to see with your Rough Rider (or Sand Scorcher) off-road cars. Now you can see why the radio box and gear train are dust and waterproof! Use a garden hose for post-race cleanup.

Cox has two new ARF 1/2A low-wingers, one of which is this Piper Arrow with rudder/elevator/throttle controls. Construction is foam and plastic. Engine is the relatively new R/C Bee .049, with oversize fuel tank and clunk pick-up for positive fuel flow when doing aerobatics.

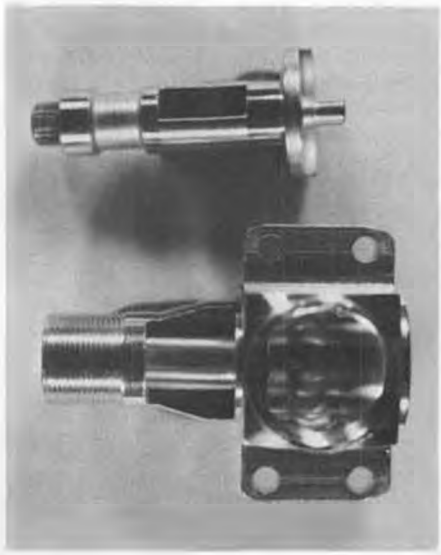
The 1/2-A SCENE

By LARRY RENGER

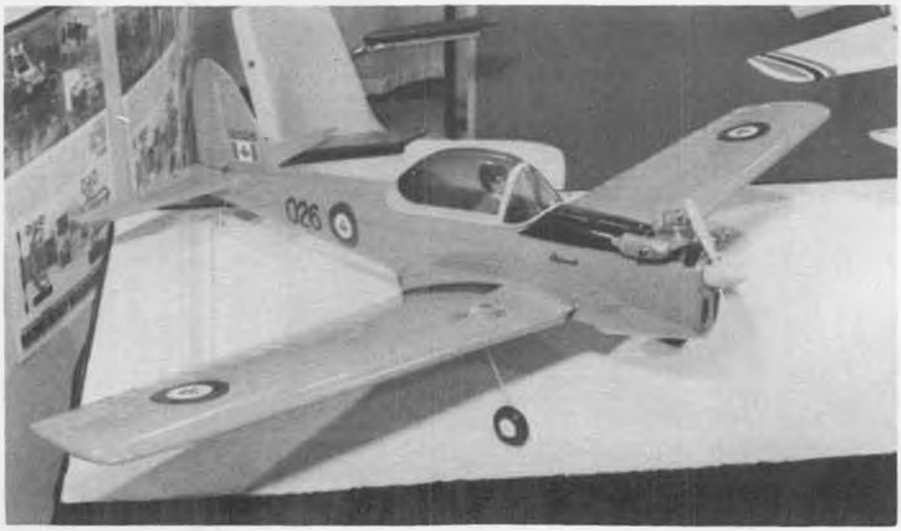
PHOTOS BY AUTHOR

• A question for the assembled multitude: "Is 1/2A fading from the modeling scene?" I really don't know the answer to this one, but my impression is that in the last year or two, there has been almost no activity in new kits below the .20 size, and even less below the .10's. Another peculiarity is that, although engine sales seem OK, the kit sales are slow. On the other hand, Sterling brought out a new 1/2A stunt model this year, and Cox has its new Piper Archer and Arrow ARF's to offer. In the car field the 1/12-scale engine powered car has essentially disappeared in favor of the electrics.

The great number of manufacturers who made just one or two 1/2A kits have gone by the wayside, and even such relatively large manufacturers as GMC Models have disappeared. Fortunately, House of Balsa has continued to produce its line of scale models, and Flyline is even continuing to expand. Stalwart of the 1/2A scene, Ace R/C hasn't brought out a new kit in quite some time. There again, they, Carl Goldberg, and Top Flite continue to support our phase of the hobby by maintaining the line they have. An interesting new kit which bears investigation by the less experienced R/C'er is the "Piece O' Cake" by Craft-Air. It is a powered glider done the easy way.



What looks like a stock Cox shaft and case are actually reworked units; Gene Hempel chrome plated the shaft and then honed the case to match. See text for details on other goodies and services Gene provides.



MRC has a new line of .10 size R/C models. This semi-scale Chipmunk features foam fuselage and wing and plastic cowl. Said to be easy to fly, too.

I gather from the newsletters I receive, that 1/2A control line racing is a healthy sport, and at the last Nats, there was an increased number of Open entrants in the Cox sponsored 1/2A Precision Aerobatics event. In the Southern California region there is no apparent 1/2A R/C Pylon activity. (If I am ill informed on this, please let me know when and where you fly!)

As I said in the beginning of this article, I don't know the answer. Why not write and let me know if you are aware of, or participate in, organized 1/2A activity. Also, I welcome and publish (eventually) news of new products appropriate to the sport and the

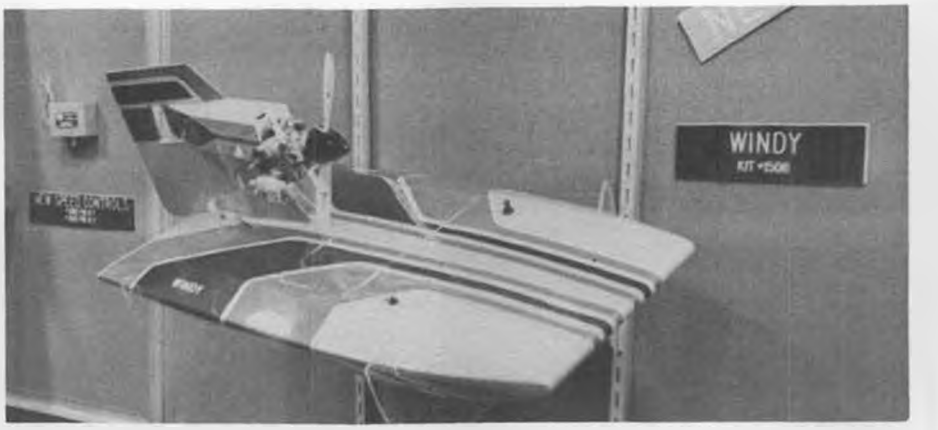
1/2A modeler.

For those of you interested in 1/2A R/C pylon racing, there is a newsletter available. I have an issue which contains good advice on a variety of engine topics and a complete plan for Vince Caluori's "Quicksilver" design. If you're interested in obtaining this kind of regular information, the newsletter is known as the *Willi News* and is published by Al Scidmore, 5013 Dorsett Dr., Madison, WI 53711. A SASE with your inquiry would be advisable, as newsletters are generally a negative profit operation.

I just got the latest Hobby Shack catalog. They handle all the major brands of kits in addition to importing a variety of Pilot models from Japan. After removing my socks so I could count high enough, I found they have fifteen kits of their own models for .10 or smaller engines. Ace has nine kits listed, while Astro Flite has one, a Velie Monocoupe. The listing doesn't show all of Cox's kits; they have seven kits and ARF's that I can think of. Craft-Air has the one kit I mentioned earlier. Joe Bridi has at least three kits in this range, and Estes Industries has just come out with a 1/2A size free flight! Carl Goldberg's page shows a nice mix of control line and R/C, with seven kits shown. House of Balsa has seven kits listed also, all stand-off R/C scale. Bud Nosen doesn't make it at all, unless you want to gear sixteen .10's to fly his eight-foot-span P-51 and have an authentic sound. Midwest lists three models, but I know they have at least seven, including R/C, F/F, and U/C models in a variety of expertise levels. It is reputed that the Skyhawk A-4D is now available, but I have not seen one yet. Sterling's page lists only three small models, but they have an extensive line of stick-and-tissue models which are eminently adaptable to F/F, U/C, or R/C and 1/2A power. In addition, they have the new "Vixen" stunter, a boat, and a "space" car. Top Flite has at least seven U/C and three R/C kits for 1/2A flying. Sure Flite is the last manufacturer listed, and they show a very nice ARF J-3 Cub in bead styrofoam.

So, even knowing that I have not toted up such kits as those of Flyline, Model Merchant, Peck-Polymers, Mile-Hi Models, etc., we come up with at least seventy-five kits in the current line-up. I guess we will survive on that for a little while, anyway. The kits cover all skill levels, from trainer to expert, in all phases of the hobby. I suppose you couldn't win the Nats in Open 1/2A Aerobatics with a kit model, but you probably could win in Junior, and certainly place in either Junior or Senior.

I mentioned in my recent tirade on light weight that you should consider covering your models with tissue or silk in order to have a minimum weight finish. Lo and behold, you can get a pamphlet from Pactra on finishing systems, which condenses about fifty years of "how-to" articles into 16 pages. It covers each of the possible finishing systems and compares their merits for various applications, then goes into a detailed how-to on the proper technique for use of each system. WOW, what a project! The author is Jerry Schwartz, and the book may be obtained from Pactra Industries, 7060 Hollywood Blvd., Los Angeles, CA 90028, for the minimal sum of $1. Although the products mentioned are always Pactra's own (surprise!), the book is valuable as a guide even if you happen to own a can or two of Brand X. Oh yes, the point I started to make is that they have a detailed "how to tissue and silk cover" section with the slickest technique for doping I have seen. I can't wait to try it!



Airboats are the easy way for all you airplane types to go play in the water. Use your standard R/C .10 on the new Dumas "Windy." Super Tigre X-11 shown in this one.

TV invades the model field! First it was Pappy Boyington's Corsair, now it's the Buck Rogers "Starfighter." Dale Kirn had a hand in the design.

First photo this month is the one of a Tee Dee crankshaft and matching crankcase. I have been meaning to work this photo in since early this year, so please accept my apologies for the delay. Gene Hempel runs the P&G Metal Shop and he offers a variety of goodies and services which are especially of interest to the 1/2A modeler. He sells Cox parts, including left-hand crankshafts and blank cylinders. He will chrome plate your crankshaft and then hone your crankcase to match. He says that both longevity and rpm are increased dramatically by this operation. He can also

Continued on page 82

Midwest Products sells the kit for this all-balsa Miss San Bernadino, designed for 1/2A scale racing or even as a C/L trainer, as it's a smooth, stable flier.

PHOTOS BY AUTHOR

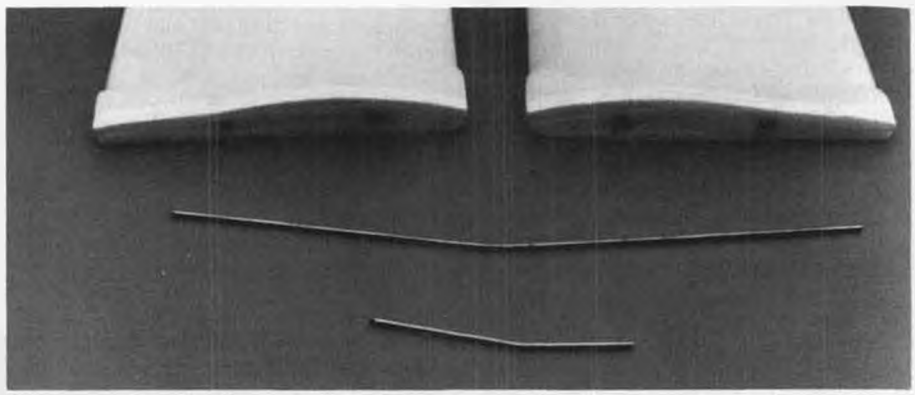
The electric-powered Cessna Cardinal sold by Kraft Systems is one of the best ready-to-fly electrics on the market. But the almost-flat wing can make the plane a bit slow to turn, sometimes, and so our Electric Power columnist suggests adding more dihedral for a faster roll rate (see text).

ELECTRIC POWER

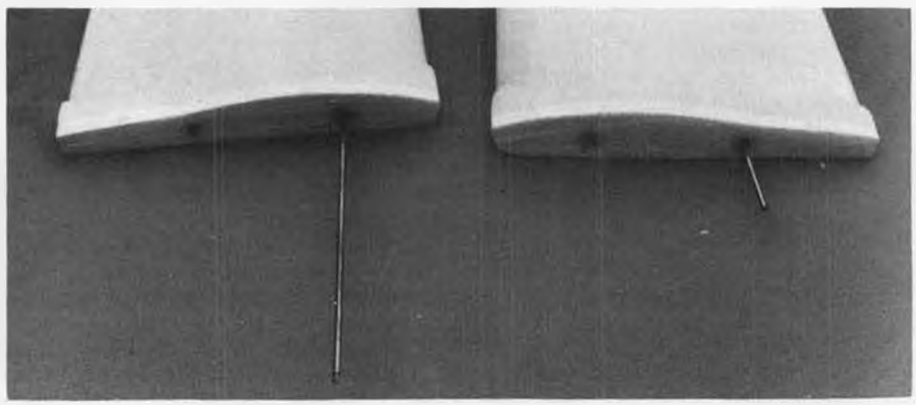
By MITCH POLING

• The Kraft ready-to-fly electric plane, the Cardinal, is an excellent flier, and it has become a "regular" in my flying stable. The design is well done, and its sturdiness combined with good aerodynamics makes it a winner in my book. The motor is husky and well made, the size of an Astro 075, and protected by a fuse. The batteries are GE 550 mah cells, also used by Astro Flight. Only six cells are used, which surprised me at first, but the fast climb and good maneuverability show that six cells is exactly the right choice, and it does make possible very fast charging from 12 volts. I charge it in eight minutes with no problems. This must be done with an ammeter, shut-off timer, and a rheostat or resistor (at least ten watts). Let the motor run down to almost no power, then set the charge at three amperes and the shut-off timer at eight minutes. I am so pleased with the performance of the Cardinal that I plan to try it on floats as a seaplane. The all-foam construction lends itself well to water flying, since it dries out quickly. I have been flying Bob Boucher's design (soon to be kitted by Astro Flight), the Astro Sport 05, quite successfully on my own design floats. It weighs 35 ounces with the floats and has 300 square inches, quite similar to the Cardinal, so the Cardinal should work as a floatplane too.

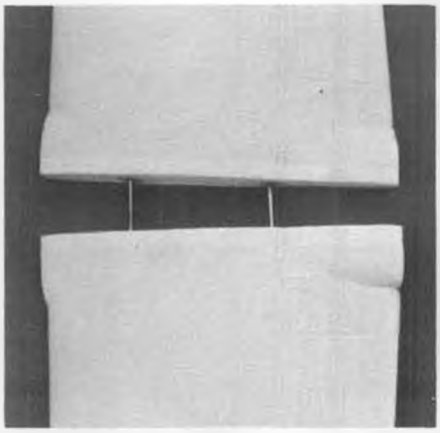
There are always improvements to be made on any design (we modelers can always think up "improvements"!), and I made three modifications to the Cardinal which make it even better. I installed a push-on/push-off switch (available from Astro Flight or Radio Shack) instead of the motor toggle switch, and placed it in the fuselage so the elevator servo can turn it on or off with full down control. Why full down? Because full up tends to stall the plane, and full down can be done so fast the plane does not even dip its nose. I also removed the plastic and cardboard cover from the battery to improve cooling. The last modification is the one I think is the most important: I added more dihedral to the wing. I had been having problems with running out of rudder on landing approaches or when quick, positive turns were required. There were times when I had the rudder hard over and it took much too long for



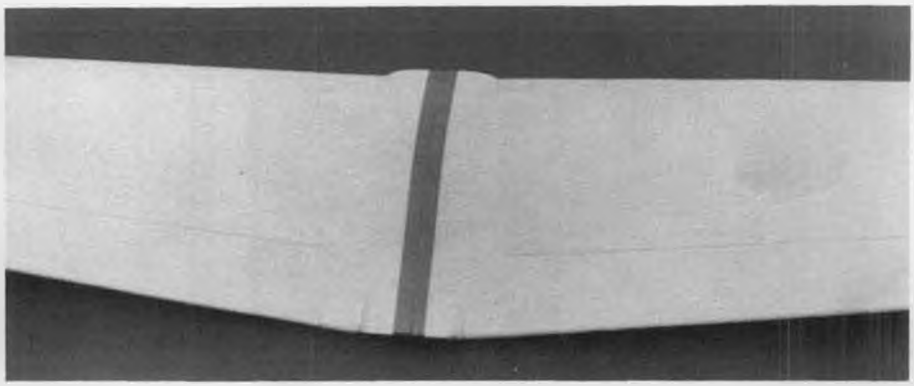
First step in increasing the Cardinal's dihedral is to cut the wing in half, then drill holes in the foam for a piece of sharpened brass tube. Wing wires are 1/8-in. piano wire.



Wing wires are bent to the desired dihedral angle, can be re-bent as necessary to suit the individual flier. Tubes are held in place with 5-minute epoxy.



Accurate line-up is important when drilling the holes; make a plywood template to use as a guide.



Wing halves are held together with vinyl tape, allows for quick adjustment of the wing wires.

the plane to respond, even with generous rudder throw.

The cure for this is more dihedral. The stock dihedral is two inches under one tip when one panel is flat on the table (about one inch under each tip if the wing is level); I increased this to four inches under one tip when one panel is flat on the table (about two inches per tip). This made the plane responsive and a real pleasure to fly even when "dragging it in" on landing approaches. The photos show the modification. I cut the wing in two, then drilled two six-inch-long holes lengthwise in each panel. I used a piece of 5/32 O.D. aluminum tube (sold in most hobby stores) as the drill, with the ends sharpened inside with a knife. The holes were drilled by hand so the foam would not be torn. The tubes were then cleaned out and glued in the holes with five-minute epoxy. The dihedral wires are 1/8-inch music wire ten inches long, bent to give the right dihedral. I did not glue the panels together; instead, I did as I do on my gliders and used tape to cover the center seam. This has worked well through even the wildest maneuvers. I do strongly recommend the dihedral modification if you have a Cardinal and have noticed slow rudder response.

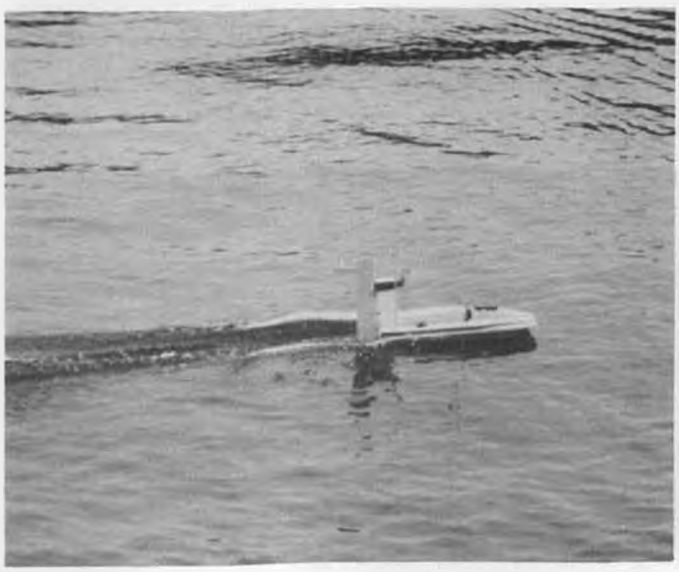
Ron Noreen runs this early MRP airboat with an Astro 05. Faster than the gas version!

The only other modification I would make is on the nosegear. This takes a terrific beating on the grass field I fly from. I have not thought of a way to keep it from breaking off, so I just keep patching it back on. This is the reason I build my own planes as taildraggers. Of course, those who fly from paved fields will find the tricycle gear more convenient. The Cardinal makes excellent ROG's from hard ground or pavement. Anyhow, in conclusion, I highly recommend this plane to those who want a quick and easy introduction to electric flying. It has given me a lot of pleasure and fun.

For those who like the small ones, another fine combination is the Dick's Dream (kitted by Ace R/C) and the Astro 020. The photo shows Hank West with his Dick's Dream, which puts in superb flights year after year. Hank uses the flat-bottom Ace foam wing (the Guppy wing), which shows a definite climb advantage over the standard semi-symmetrical wing included in the kit. Hank regularly gets 500 to 600 feet with the flat-bottom airfoil, about 200 feet more than with the semi-symmetrical wing. It thermals very nicely, too. Hank covered everything including the wing in Solarfilm, for a flying weight of 15 ounces with an Ace single-channel radio. The new Cannon Super-Mini two-channel radio would also give about this flying weight if you prefer two channels.

Awhile ago I wrote about the MRP electric boat, which uses an 05 motor and six cells with inboard drive. This is a well-designed boat, and a lot of fun. It

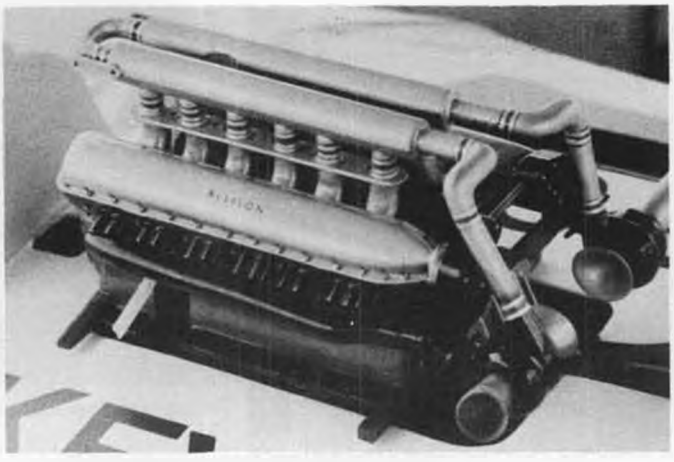
Continued on page 86



Ron's MRP boat moves along at a good clip, about as fast as the inboard electric version. Looks like fun!

Hank West shows off his modified Dick's Dream (an Ace kit), with Astro 020 and Ace single-channel R/C. Good flier.

One of the lesser-known hydros is this Shakeys Special, driven by Mike Deming to 3rd place at recent Lake Prado race in So. Cal.



Mind-boggling engine detail in Deming's Shakey Special. Not many fellows go this far when detailing their boats.

R/C POWER BOATS

By JERRY DUNLAP

A FINANCIAL COMMITMENT FOR MODEL BOATING?

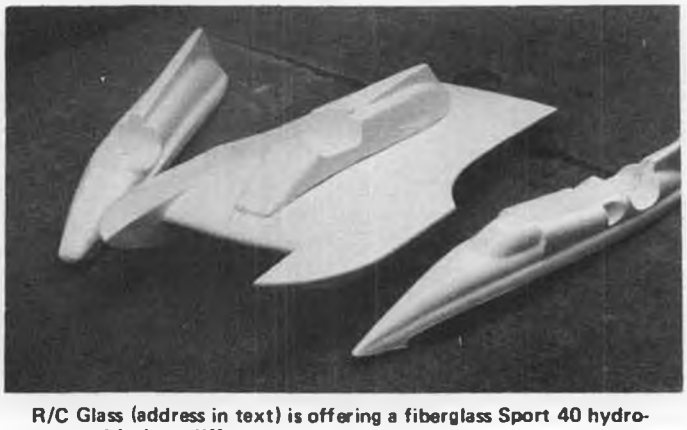
While talking boats at the local hobby shop the other day, I asked the owner about one of our club's newest members whom I hadn't seen around recently. I had given this new model boater some help and even provided a set of plans for a .21 size deep-vee. The last time I'd seen the new member, he was ready to paint two new boats and had an outboard tunnel he had entered in a few races. The hobby dealer's answer was typical of one I'd heard before. The new model boater had been in the shop about a week earlier, asking how much he could get for all his equipment. He told the hobby dealer that he just couldn't afford the hobby of model boating and needed to sell all the equipment he had bought in the last four months.

This situation is not atypical. It has happened many times in the years I've been involved in the hobby. People are always coming and going in this hobby, and I expect a certain amount of turnover each year. But what bothers me about some of the individuals who get in and then decide to get out is the lack of consideration about what is involved financially when getting into R/C model boating. Like many other hobby or recreational pursuits, R/C boats is an expensive way to spend one's leisure time. Especially if one wants to build and race power models. And I know there are many established model boaters who are reading this and saying to themselves, "He's telling me this hobby is expensive? I already know that!"

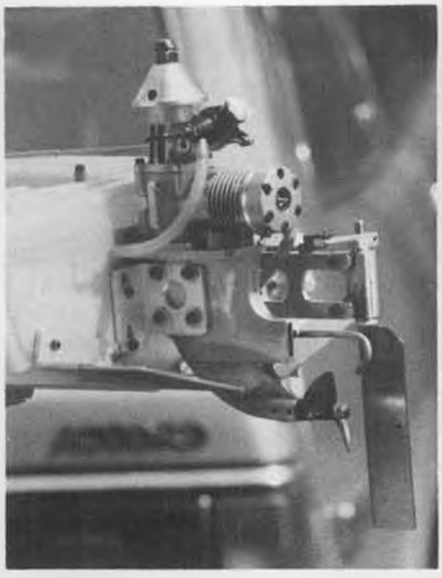
Let me take a little time to develop this topic, because it just might help some new person just entering or considering entering the hobby. I think the biggest problem when trying to figure out what it will cost to become involved in R/C power boating is something I'm going to call the "hidden costs." The "obvious

John Perry, owner of Perry Aeromotive (manufacturer of the much-liked Perry carbs), drives this 1978 version of the Miss Circus Circus hydro.

Norm Teague's very fast Prather Tunnel runs in the Stock Outboard Tunnel class, is currently No. 1 in District 19.



R/C Glass (address in text) is offering a fiberglass Sport 40 hydroplane with three different cowling options.



Using a rigid mounting for his K&B Outboard, Ed Fisher set two new NAMBA records with his Prather 31-inch deep-vee. Note extra large ride plates, separate rudder.

Ray Powell, Fairfield, Connecticut, sent these photos of his Excaliber II Outboard Tunnel built from RCMB plans, cowling from R/C Glass. A beautiful job!

costs" are those which are required to get from the hobby shop to the pond. These costs are marked on everything from the boat kit to the engine, radio, accessories, and paint. People are always asking me what it costs when they see me running my boat at the pond. I've come up with the figure of $400 for my .21 size boats and add $100 for every size increase in engines. But that $400 price tag was the obvious costs.

What is not included in that price quote was the fact that this year I will spend close to $350 just for fuel to run my boats and probably over $100 just for glow plugs. The costs of rebuilding my engines probably will reach $150 this year. A conservative estimate for my mileage to and from boating events would be around 2,500 miles. It is not unusual to spend anywhere from six to ten weekends away from the house to attend out-of-town races. Gas, motels, meals, and entry costs are all part of the "hidden costs" that usually are never considered when someone thinks, "Gee, that sure looks like a fun activity to pursue."

Granted, one does not have to become involved to the extent that people like myself have allowed themselves to get involved. However, it often seems like one of the main reasons people get into R/C power boats is the interest in racing. Competition is a big part of the initial reason many decide to build an R/C boat.

The financial demands of competition are most often the item that causes the problems. In the case of the new model boater I referred to at the beginning of this article, he was newly married, worked at a job that didn't provide a whole lot of extra money once the basics were paid for, and he and his wife had a baby only six months old. He really enjoyed the racing aspects of the hobby and was having to pay the price of broken equipment as he learned how to race his boat. He then began building a Sport 40 and the .21 deep-vee. Both of these projects were draining money from an already limited supply. He simply overextended his financial capacity to pay for the hobby and meet the daily requirements of home and family. He is now rather disillusioned because he cannot get as much money back from his investment as he originally spent. Unlike real estate, model boating investments do not appreciate in value.

Those of us who have been around this hobby for awhile should do more in the way of counseling new model boaters about this financial commitment. For those of us nearing the top or at the top of our earning capacity, the financial commitment is not nearly as draining as it would be for a young person. Our hobby needs new people to keep up the growth we have experienced in recent years. The more experienced model boater knows about the dollars that will need to be spent once the initial purchases have been made. We can be of great value to the beginner in many ways. I have started talking about dollars as well as how to make a start on the clock to the new model boaters I meet.

Curt Weston gets some help from his pit crew, the Hamm's Bear, in holding the Silver Cup which Curt's Hamm's Bear hydro won on April 13 at Kent, Washington.

Les Ruggles won his 4th Diamond Cup in Spokane, Washington, on July 5, driving his efficient-looking Notre Dame with Picco .65.

NAMBA DISTRICT 19 RESULTS

Lou Foschi and Jack Garcia sent along some race results from the Southern California area. Lou reports that the District 19 Points Race held over the June 7-8 weekend at Legg Lake was very well attended. The Prop Nuts were the host club and 106 boats entered the six different events. Entries came from as far away as Tucson, Arizona, and the Needles River Rats fielded a well-rounded team. Some of the other clubs represented were: the Blue Dolphins of Bakersfield, the Modeleers, Pacific Coast Racing Team, Ron's Drain Lines Racing Team, Fish & Chips Racing Team, Cavitators, Alii Racing Team, and the San Diego Argonauts.

The results of the Saturday mono-plane classes are as follows:

A-MONO
1) Gary Russell
2) Joe Jusak
3) Karen Baptist

B-MONO
1) Jon Holland
2) Terry Prather
3) Diane Semler

C-MONO
1) Doug Nystrom
2) Al Prather
3) Mike Shelhart

Sunday's hydroplane results are as follows:

A-HYDRO
1) Mike Wisniewski
2) Sid Ford
3) Jim Lawson

B-HYDRO
1) Rich Swech
2) Ron Wheeler
3) Wray Freitas

C-HYDRO
1) Ralph Henry
2) Joe Monohan
3) Steve O'Donnell

Jack Garcia, who happens to be the District 19 NAMBA Director, sent along the results of their Powerboat Magazine Outboard Series through four races. They still have three events remaining to complete this series. Jack reports that the stock OPC Tunnel is the most popular. The outboard deep-vee class started off slow and is now beginning to show increased interest. A special North/South Outboard Championship race is being scheduled for the weekend of September 27-28 around the Fresno area. The idea is to bring together the outboard racers in Districts 9 and 19 for a big race.

Here are the results through four of the seven races:

STOCK TUNNEL CLASS

1) Norm Teague	955
2) Frank Hu	869
3) Joe Monohan	732
4) Tim Hess	700
5) Rich Hazlewood	696

MODIFIED TUNNEL CLASS

1) Rich Hazlewood	895
2) Jack Garcia	830
3) Norm Teague	690
4) John Brodbeck	600
5) George Campbell	522

Continued on page 83

Racing action at the Spokane Diamond Cup. Jack Haugen's Notre Dame on the left, tied with Gale Whitestine's Circus Circus, and Bill Smiley's Pay N' Pak brings up the rear.

Roger Newton's Miss Budweiser leads the ill-fated Miss Bardahl of Butch Melewski to the start of a heat at the Diamond Cup. The Miss Bardahl later sank and was lost.

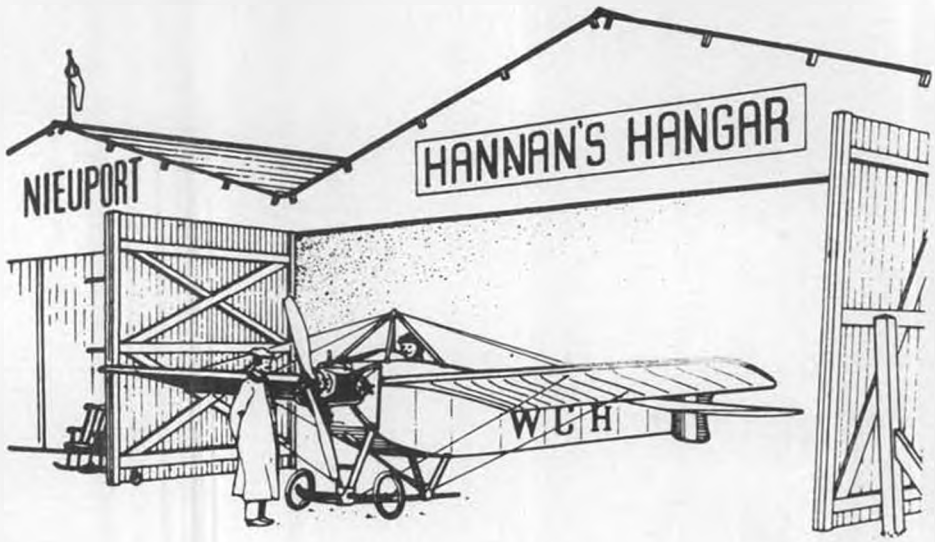
Mike Schoeff had a very quick Dumas Atlas Van Lines entered in the Sport 40 class at Spokane meet.

Third place at Spokane Diamond Cup went to the Miss Esquire driven by Joline Fridel. Boat was run over during a qualifying heat, apparently with no damage.

NAMBA's R/C Unlimited Chairperson, Roger Newton, had his new 1979 Miss Budweiser running very well at Spokane. Qualified for final heat race, but didn't finish.

Factory photo of Ryan PT-22, somewhere along the Pacific coastline, probably between San Diego and Los Angeles. Can anyone pick the spot and date?

FREE FLIGHT AND CONTROL LINE



"Genius does what it must, and talent does what it can."

This happy fellow is Alain Parmentier, well-known French scale modeler, shown holding his revolutionary Farman 1020 Peanut. No shortage of wing area here! No flight reports to date. Photo by J.F. Frugoli.

• Our lead-in line this month is from Victorian writer Edward Robert Bulwer Lytton (1831-1891).

NEW AVCOMEDY?

Now receiving advance plugs on local television is a movie entitled "Airplane." It is billed as the funniest spoof of airline movies ever made, but we'll reserve judgment until we've seen it. It does feature an impressive all-star cast including Robert Hayes, Lloyd Bridges, and Robert Stack.

TIME FLIES

Hard to believe, but the Peanut Scale concept is now (appropriately enough) 13 years old! A Latin motto for the class has been suggested: *Multum in Parvo*, which someone, probably Dr. Martin, has translated to mean "a lot in a little space."

Our resident "French Connection," Georges Chaulet, mentions that while Peanut models are generally touted as being the cheapest thing going in Scale models, he is beginning to have doubts: "I'm considering the expense for my Peanut PA 19 Autogiro intended for a Paris indoor contest. To the cost of materials must be added the following unexpected ones: a can of special spray paint; a package of ping-pong balls (I needed only one for part of my cowling); and a pair of new tennis shoes (which are obligatory in the gymnasium where the contest is held). Only the devil knows what kind of strange things a Peanutist must buy! But it's worth the expense, right???"

Georges also mentions the subject of tissue covering: "I use one volume of white glue to four or five volumes of water *all over* the tissue. Then I moisten the balsa structure and apply (delicately) the paper over it. So I just have one operation, with no further shrinking with alcohol or dope. The paper is slightly impregnated with the glue, and is more strong and less porous. There is no effect on the color."

FROM THE WEST COASTER:

"Teach your inch-worm metrics!"

RAY BERENS TROPHY

Results are in for the First Annual Perpetual Jumbo Rubber-Powered Scale Model event, which was recently conducted at Taft, California, during the U.S. Free Flight Championships. In first place was Hal Cover with his 48-inch span Evans Volksplane; in second was Loren Williams, flying a 36-inch span Gordon Israel "Redhead" racer, and in third was Bill McConachie's 38-inch Douglas 0-38, which vanished from the scene after a 24-1/2 minute flight!

HUGHES FLYING BOAT

While the fate of the full-size (oh boy is it full-size!) "Spruce Goose" continues to hang in the balance, Carl Hatrak reports on a model of it newly completed. Constructed by Leon Starr, of Simi Valley, California, the model spans 19 feet and contains some wood from the original source. Evidently it is intended for display use only.

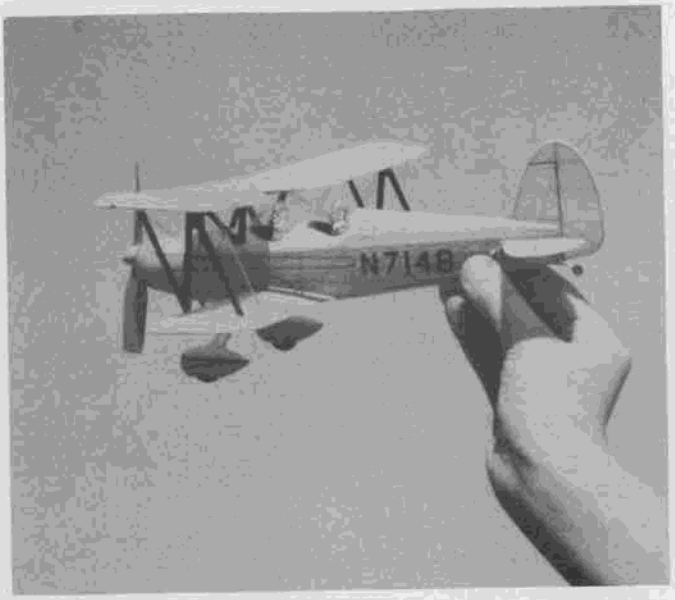
PLAYTHINGS?

Model builders who still grimace at the general public's reaction to their "childish" hobby may appreciate this:

Continued on page 99

Chris Scott flies this surprisingly efficient "Flapper" ornithopter. Air Force Museum buildings in background.

Dr. Piero Romagnano's grandniece, Beatrice, all suited up for a hop in a giant scale Bucker Jungmeister. Both from Italy.



PHOTOS BY AUTHOR

Marquart MA-5 'Charger'

By DON BUTMAN . . . Gee Bee replica builder Ed Marquart designed this pretty bipe in 1967, has been winning at EAA fly-ins ever since. A good-flying Peanut.

PEANUT SCALE

• "If it's got two wings it *has* to be good!" Well, this probably wasn't in Ed Marquart's mind when he designed the MA-5 Charger, but he came up with a winner nonetheless. Ed's Charger was 95% complete when Oscar Tombolato flew his Charger for the first time. Oscar started construction in 1967, completed it early in 1971, and won "EAA's Big Event" at Oshkosh, Wisconsin, in August 1971.

The Charger has since proven itself to be a winner wherever it has been shown. It has a 24-foot wingspan and an overall length of 20 feet, with a 160-hp Lycoming engine turning an Aeromatic prop.

Surprise, Fernando! RCMB's Phil Bernhardt snapped these photos of "F/F Scale" columnist Fernando Ramos's Charger at Corona Airport. Bill Noonan in the front pit. More in text.

Construction of the model is typical "sticks n' pieces" with only a couple of exceptions. The wing tips and vertical and horizontal stab outlines are made from laminated 1/32x1/16 pieces formed around cardboard outlines. The wheel-pant/landing gear strut assembly can be made from blocks or vacuum formed using .015 sheet plastic. This forming method works very well (with practice!) and produces a strong and light assembly.

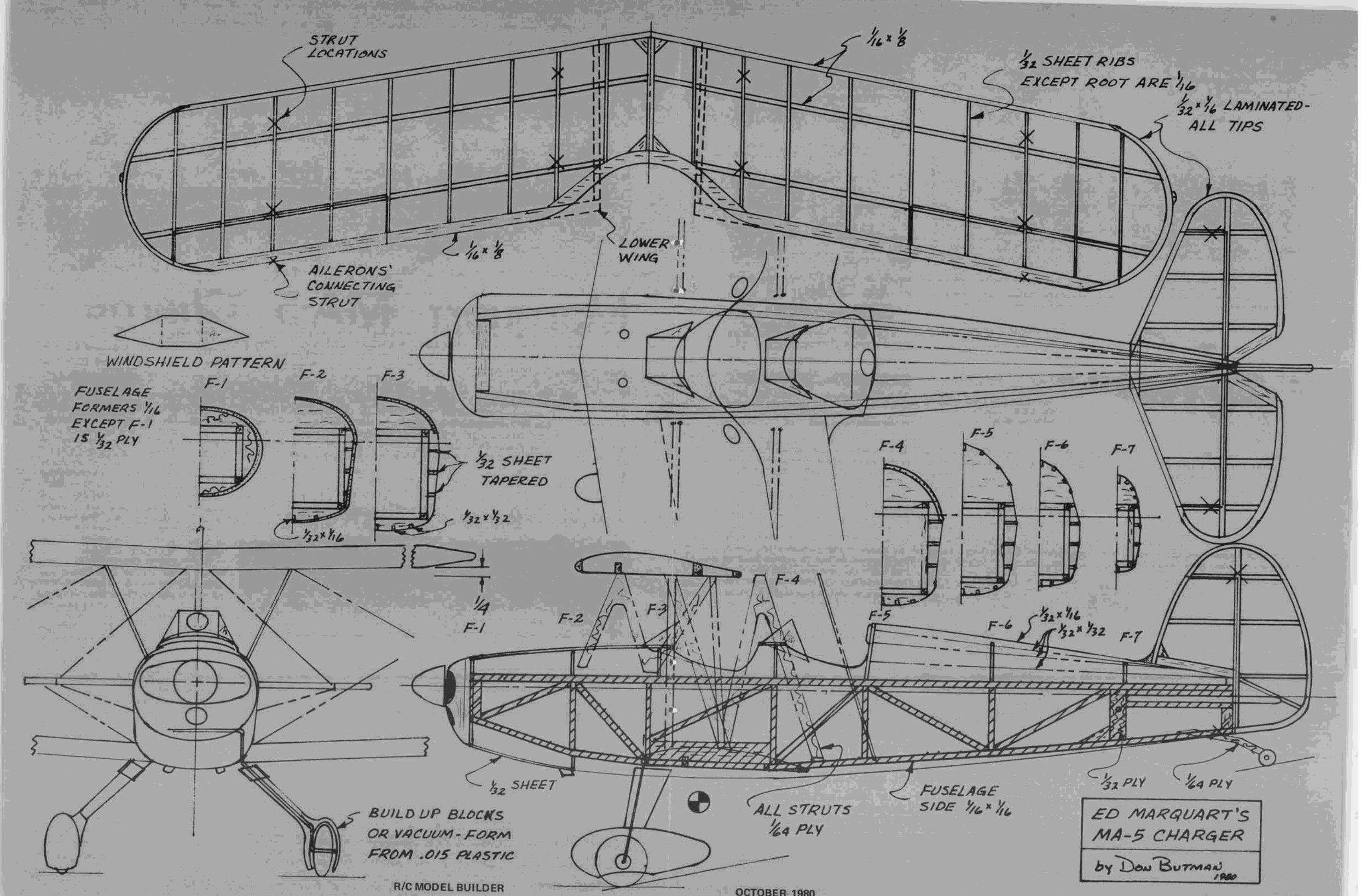
The model is covered with yellow tissue lightly shrunk with water, followed with a couple of coats of THIN nitrate clear dope. The striping was done using a Rapidograph drafting pen, but any good felt-tip pen can be used.

A 12-inch loop of 1/8 flat rubber has been used and gives flights of 25 to 30 seconds. No adjustments were required with the incidences set up as shown on the plans. Good flying! •

ADDENDUM —
by Phil Bernhardt

Some of our readers may not be aware of the fact that Fernando Ramos, our "F/F Scale" columnist, is the proud builder and owner of a Marquart MA-5 Charger based at Corona Municipal Airport, near Riverside, California. Fernando spent 5-1/2 years on the project, every minute of which was time well spent, for the finished machine is indeed a real beauty. For those who wish to duplicate it using Don Butman's plans in this issue, the overall color scheme is a glossy, slightly dark shade of red with a

Continued on page 94


STRUT LOCATIONS
1/16 x 1/8
1/32 SHEET RIBS EXCEPT ROOT ARE 1/16
1/32 x 1/16 LAMINATED - ALL TIPS
LOWER WING
1/16 x 1/8
AILERONS' CONNECTING STRUT
WINDSHIELD PATTERN
FUSELAGE FORMERS 1/16 EXCEPT F-1 IS 1/32 PLY
F-1
F-2
F-3
1/32 SHEET TAPERED
1/32 x 1/32
1/32 x 1/16
1/4
F-1
F-4
F-5
F-6
F-7
F-2
F-3
F-4
F-5
1/32 x 1/16
1/32 x 1/32
F-6
F-7
1/32 SHEET
ALL STRUTS 1/64 PLY
FUSELAGE SIDE 1/16 x 1/16
1/32 PLY
1/64 PLY
BUILD UP BLOCKS OR VACUUM-FORM FROM .015 PLASTIC
ED MARQUART'S MA-5 CHARGER
by DON BUTMAN 1980

Israeli modeler Itzhak ben Itzhak was best man on Wakefield day at the '79 World Champs, but his models were not really top performers, according to Paul Lagan's overview of the meet (see text).

New Zealand's Paul Lagan all set to post a max at the '79 W/C. Photo by Will Nakashima.

Roger Simpson, world-class Power flier, suffered misfortune at W/C, won Sierra Cup the week after. Here he launches for a max at 1974 Pierre Trebod meet.

FREE FLIGHT

by TOM HUTCHINSON

PHOTOS BY AUTHOR

Tom Hutchinson's new address:
20518 S.W. Leeds Ct.
Aldha, OR 97005

USA WINS TEAM AND INDIVIDUAL CHAMPIONSHIPS AT INDOOR WORLD CHAMPS!!

Erv Rodemsky is the new World Champ in FAI Class F1D (Indoor), beating out Jim Richmond, reigning world champ, in the closing hours of the contest held in the Atrium of Northwood Institute at West Baden, Indiana. The American team took first overall, finishing ahead of Switzerland and Great Britain. Third place individual was Butty of Switzerland. Lots of flights over 35 minutes, with several totals over 64 minutes, according to Jim Scarborough, who provided this news. Film at 11?

DARNED GOOD AIRFOIL: Hagel F1C

This is another airfoil you might try for the "new concept" FAI Power models discussed last month. Last month's DGA (Night Train) was more conservative than Hagel's section, which has more undercamber. Hagel won in 1971 under almost pure "dead air" flyoff conditions, by out-gliding Koster's first flapper. At the 1973 championships, Hagel had trouble with climb patterns, but the model went on to max every flight except one, from not much altitude (as did Koster's flappers, which were more impressive in the glide than the climb, too, that year!). Earl Thompson built an FAI with this section and was very impressed with the glide displayed. The deep undercamber may make for some problems in trimming the climb, however. Hopefully, you don't have to be a World Champ to use it.

Gene Bartel likes 'em BIG!! He scaled up Jim Clem's 1/2A With Hawk to 1200 sq. in., power by OPS. Gene was runner-up for Grand Champ at U.S. F/F Champs this year.

A WORLD CHAMPS OVERVIEW by Paul Lagan

Paul Lagan has always been one of the most astute observers of the world free flight scene. When he speaks out on a topic, whether reviewing the state of the art in Wakefield, or in describing circle tow tactics, it's usually worth your while to listen. Reprinted here from *South Island News* are his reflections on the past World Champs at Taft, along with some good advice for those of you out there aspiring to world champ status in the future.

The more one flies free flight, the more one realizes that there is far too much emphasis placed on the model. New Zealanders, and I suspect all aeromodelers, tend to want to believe that if they build the model as used by last year's World Champion then they will be tops. This is a lot of rot! The model is

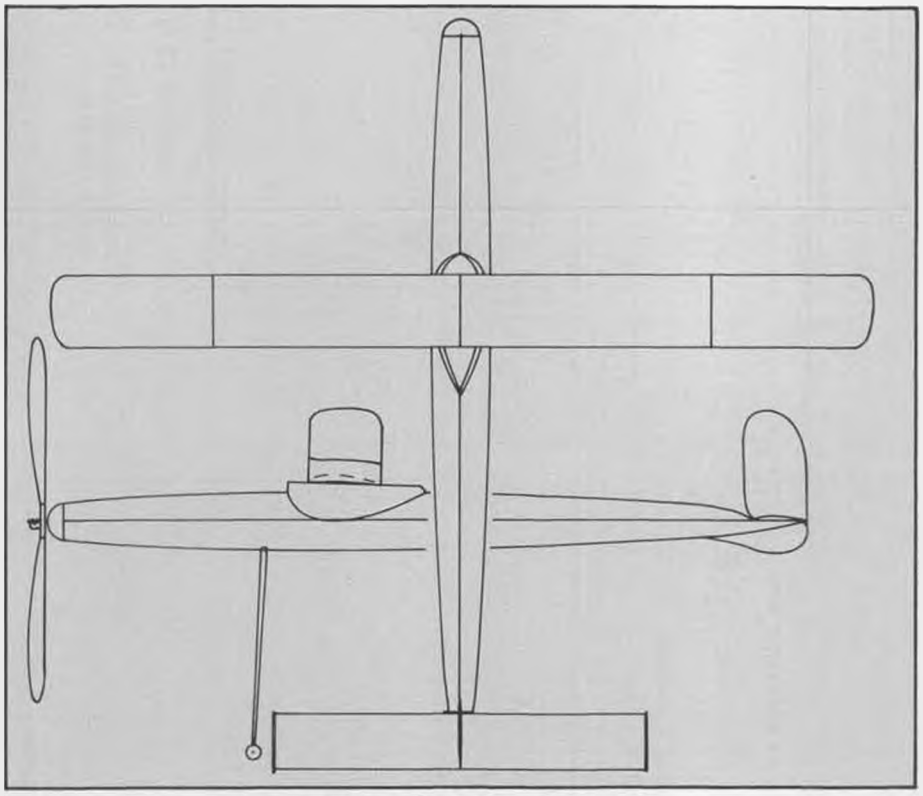
only a part of a combination for success, and the proportions of 40% model, 40% flying skills, and 20% good fortune pretty well summarize the chances anyone has, at ALL levels of F/F. Even accepting those sort of proportions, one must also accept that within that model 40%, a lot must be credited to workmanship and accuracy, which may well leave the importance of "design" as mattering only around 15% of the total success formula. I thought before the World Champs (and now am convinced, after it) that it is firstly necessary to have performance and skills to a certain level, then to have that little bit of good fortune. The "certain level" is hard to determine, but I am convinced that many NZ'ers are at that level (and many U.S. fliers, too. TH) and that they have no need at all to chop and change designs to strain for more performance when all they need do is practice to minimize mistakes, then a bit of luck to get to the top.

NZ'ers tend too much toward building a different model each time they build a new model. We are prone not to start with a basic design and develop it. Most of the world's top F/F'ers develop their models and ignore wholesale changes. There is no doubt that there are trends in design that are worth taking note of, but the worst thing that one can do is to blindly follow those trends at the expense of cutting off development of a line of models just because they have ceased to conform to that latest trend.

My approach with F/F from now on is to develop what I have and what I know to be up to that "certain level" in basic performance (3-1/2 minutes or more at sunrise for Wake and Power; about 150 seconds for Gliders). I will stay with the Kiwi 2c for a rough weather A/2 (for NZ conditions) and will develop the AL-29 (Lepp design) for my decent weather A/2. Similarly, I will make more Rasputins for the still-air Wakefield (improving its stability in rougher air) at the same time as improving the 1978 Wake design. I won't set to and build completely different gliders and Wakefields, as that would be a backwards step. If I were serious on Power, I would start with Roger Simpson's Zell Eagle and see what I might do to improve it. (I suspect very little!)

Even with good models and good flying techniques, one must take F/F events as they come. It is very necessary to have a "good" day to become a World Champion. Taft was no exception. The little bit of good fortune for Koster came with having to launch late in that crucial flyoff round. The Israeli Wake winner was the best man on the day, but his models were not really top performers. Rocca in Power certainly had his best flight of the day on that crucial last flyoff round. No doubt in my mind that the best men on the day won their respective events, but there is equally no doubt that the models and fliers with best potential did NOT win! Look at Bob White; the best he has ever been and his worst WC placing. Tom Koster, current World Champ and probably better than he was in 1977, and he missed the flyoff. Roger Simpson, possibly the most dedicated and capable FAI F/F flier ever; he suffered a cruel downdraft (after suffering a mysterious one-minute overrun earlier, when going up in good air. TH) and missed the flyoff. It's a hard game where the best man in the world might try for decades and never come out on top on that particular World Champs day.

If you want to become the world's best, then you must be prepared to persevere and to practice, no matter what the class. You must also be prepared to suffer the setbacks philosophically and press on . . . one day may be your day. Who knows?

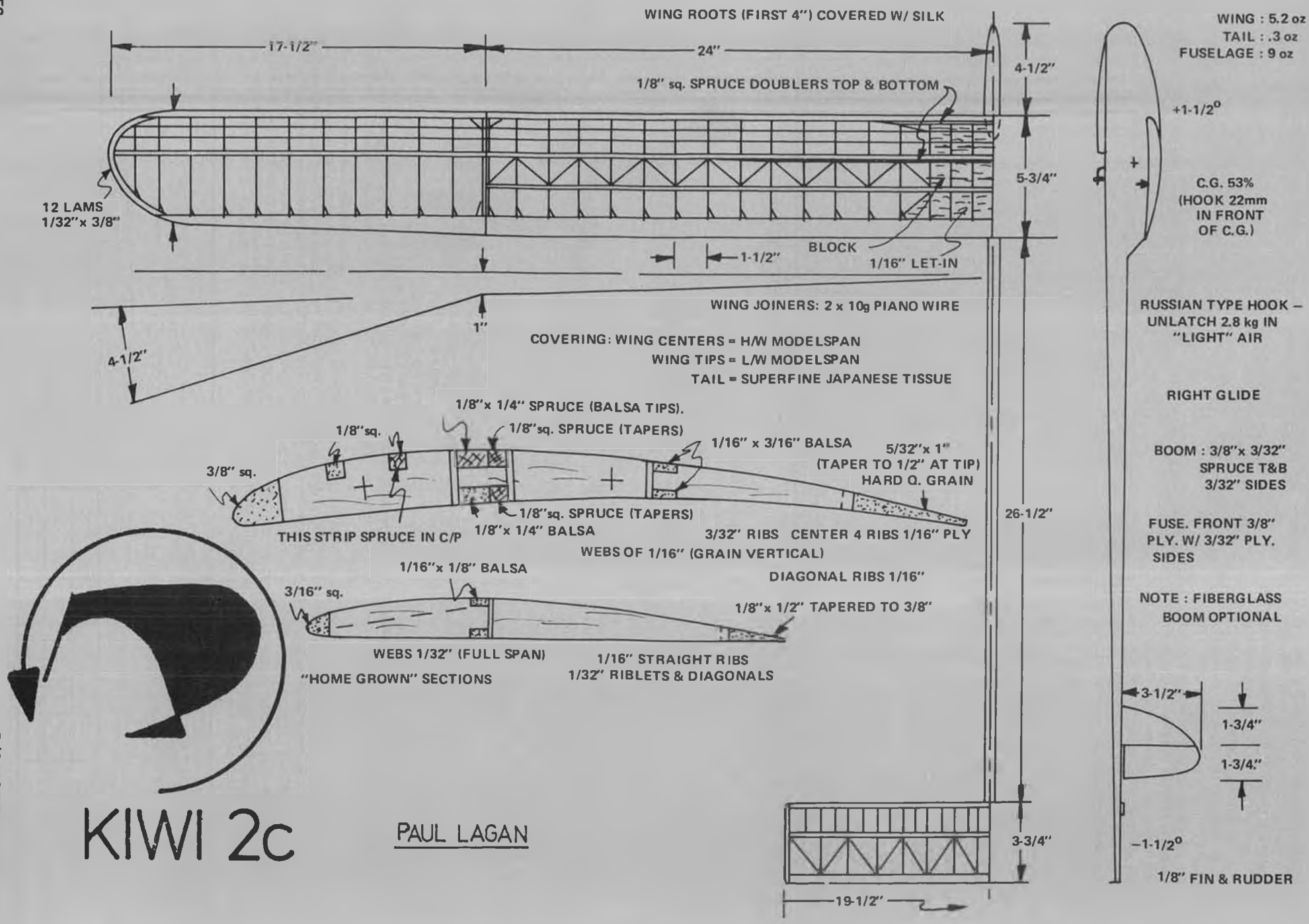


OCTOBER MYSTERY MODEL

Junior/Senior Flier of the Month is Paul Munana, an engineering student at UC Santa Barbara. Paul took High Time at U.S. F/F Champs with Starduster X built in 1977. Photo by Will Nakashima. (Younger fliers are invited to send black-and-white photos of themselves with a favorite model, for use in this feature.)

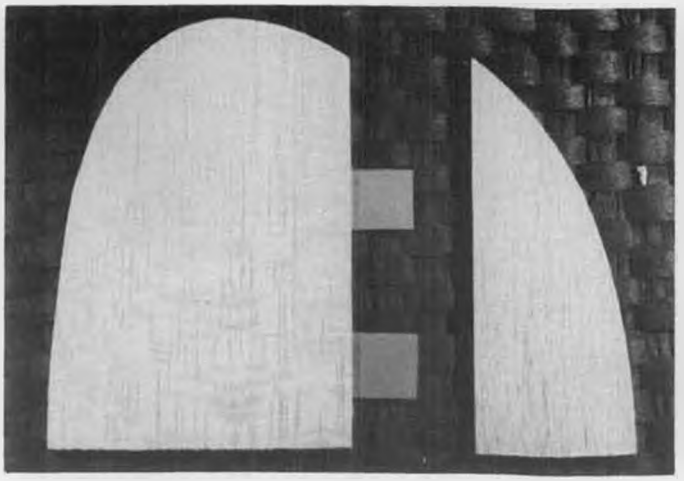
DARNED GOOD AIRFOIL – HAGEL FAI POWER

STATION	0	1	2	6	8	10	15	21	25	30	40	50	60	70	80	90	100
UPPER	1.3	2.1	3	5	5.9	6.5	8	9.1	9.6	9.9	9.9	9	7.8	6.4	4.6	2.6	0.5
LOWER	1.3	0.7	0.4	0	0	0.3	0.5	0.9	1.2	1.5	1.9	2.2	2.1	1.7	1.0	0.5	0

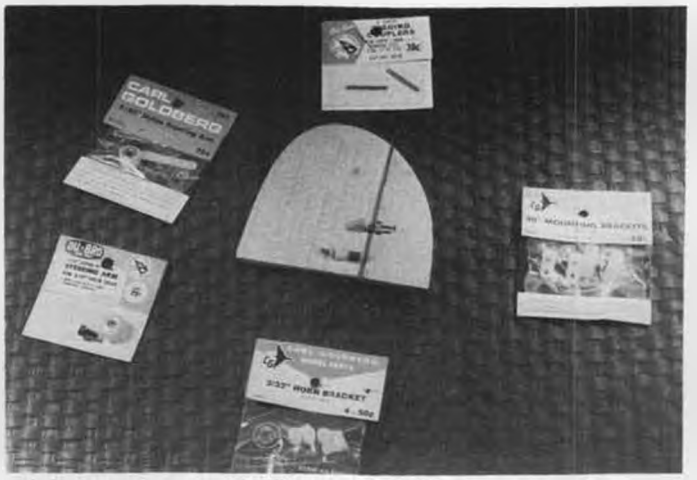


KIWI 2c

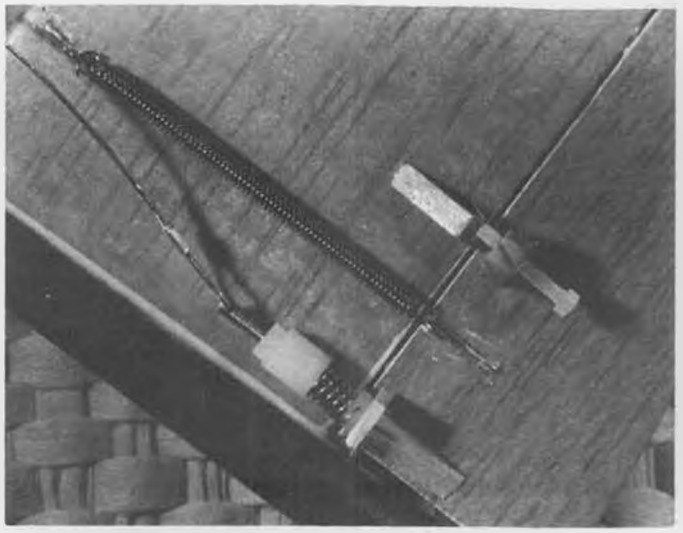
PAUL LAGAN



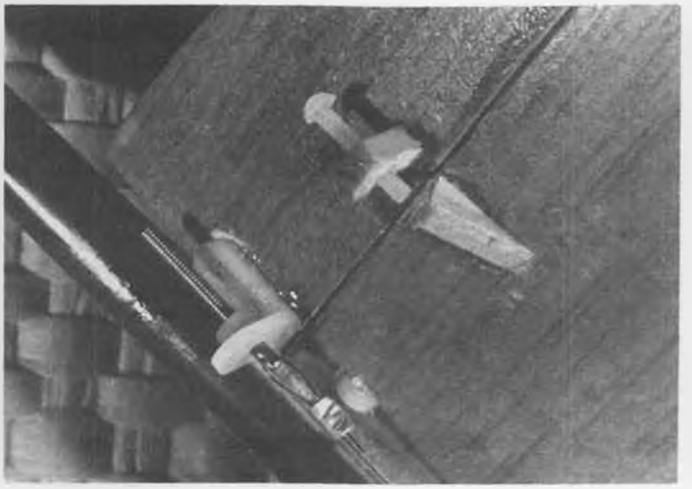
Auto-rudder hinges made from strips of drafting mylar, Hot Stuffed in place, make light, strong hinges, ideal for circle tow systems.



Thanks to R/C (ahem!), all parts for a circle towhook system are available at your local hobby shop. Wear a false nose and beard disguise when you go to buy it . . . wouldn't want your buddies to see you buying *R/C* stuff, would you? Of course not!



Close-up of circle towhook system on a Nordic rudder. Text tells exactly what to buy and where to buy it.



Other side of rudder reveals threaded coupler and nut for adjusting length of AR line.

It might be well to mention here that Paul had the best individual performance of any flier at the World Champs, dropping only the first round in glider and finishing 4th in the Wakefield flyoff, missing a chance for the final flyoff by a mere three seconds. With a bit of the good fortune that seems to hang around Tom Koster's shoulders at every World Champs, these words of advice could have been written by a double gold medal winner.

MODEL OF THE MONTH:
Paul Lagan's Kiwi 2c

Kiwi 2c is a development that started back in 1966, after my experiences with Mike Woodhouse's "Wichita" designs. The Kiwi 2 designed at that time was, naturally, a straight tow model. Many have been built in New Zealand, and many have had success. Unfortunately, the old Kiwi 2 wouldn't take much of a zoom launch before the wings clapped hands, and so the model has been redesigned to make the wings stronger in bending and more rigid in the centers to prevent flutter. Torsional rigidity is provided by the diagonal bracing and double tissue over light modelspan on the relatively thick wing section, a development of the Mike Burrows' 1961 section.

The old good towing and thermaling characteristics have been retained, and with slight thinning of the section by lowering the top camber, the still-air potential is increased. The flat-bottomed tail is a concession to fast launch speed for circle tow.

Kiwi 2c has the strength to make it a good contest machine for New Zealand contest conditions. Launched in the same evening air as my AL-29, the Kiwi 2c typically glides for around 10 seconds less, due mainly to the added zoom height from the Russian model. In strong lift, though, the Kiwi is easier to "spot" during tow into the best air, and it behaves very well in thermals, tending to center well in all strengths of lift.

This sounds like a potent contest machine for a wide variety of conditions, especially for the windy Midwestern Nats that have become the tradition. The simple, strong construction is an added asset. I like the looks, but then I'm partial to this style Nordic. If you'd like a set of full-size plans, write to Paul Lagan, 8 Bermuda Dr., Christchurch 4, New Zealand. (He also handles subscriptions to *South Island News*, published every three months; $4 to overseas subscribers, and worth it.)

John Lenderman is making good recovery from serious burns suffered in freak gas station accident, here stalking a thermal at Hawks Spring Opener.

Continued on page 97

Asymmetrical Blohm & Voss 141A-0 is an unusual modeling subject, looks weird both on the ground and in the air. Mik Mikkelson's bird.

Ken Johnson built this Stinson 105 for the Jumbo Rubber event. Very light construction reflects Ken's indoor background.

PHOTOS BY AUTHOR

FREE FLIGHT SCALE

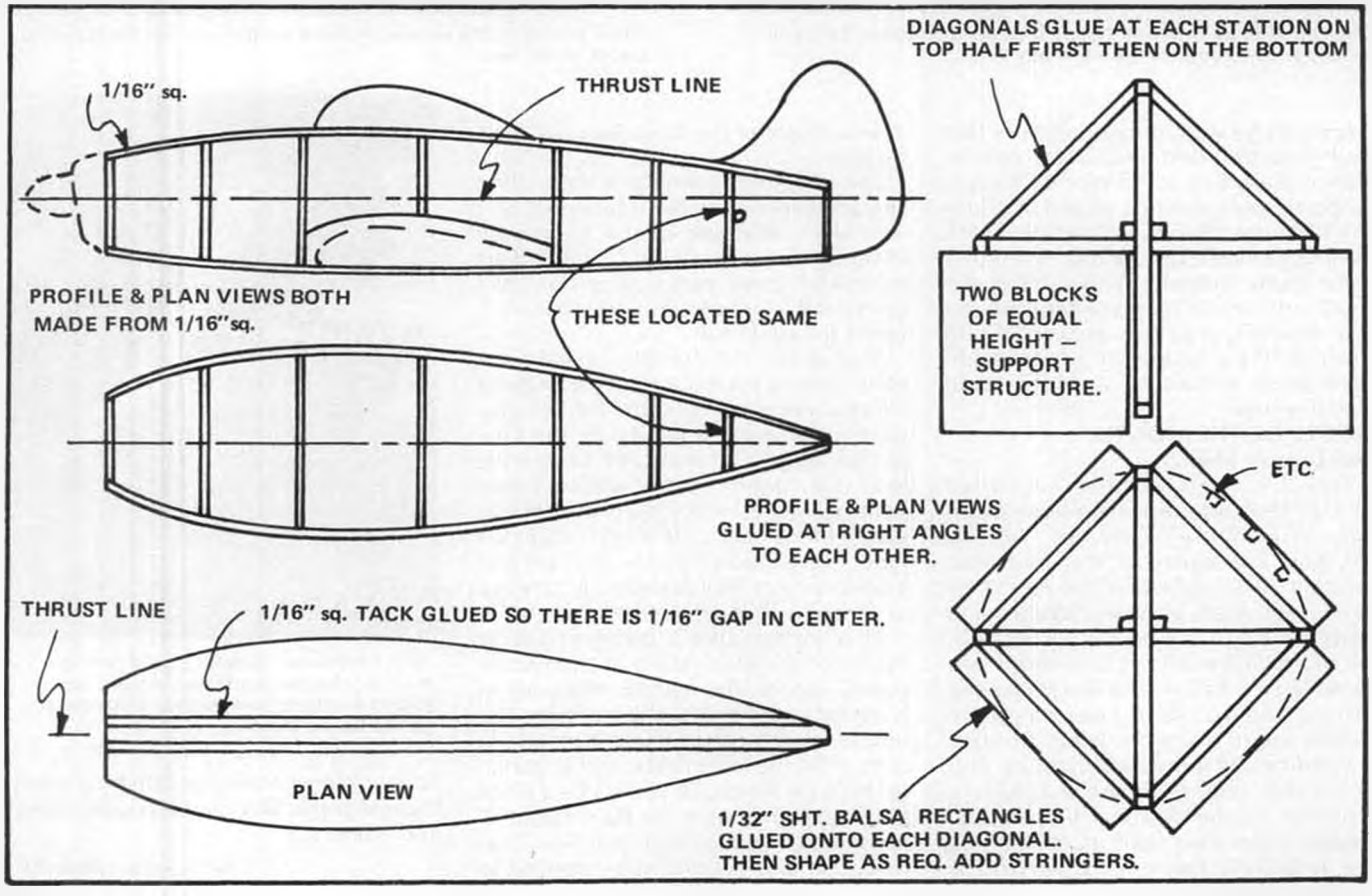
By FERNANDO RAMOS

• I swore long ago that I would never prepare for another contest by burning the midnight oil. This undoubtedly is the worst way to prepare for any contest. Yet, here in early July, I'm doing just that! I have five airplanes in the works for the FAC Nats this summer in Ohio, and it is taking considerably more time than anticipated.

Admittedly, I haven't spent every spare minute over the workbench. Jack McCracken and I have flown to several weekend EAA fly-ins around the state. This, of course, eats up a great deal of time, but both Jack and I have found that those events inspire more good model building than anything else. There are so many fantastic subjects that one can choose to build, and with camera in hand, half of the battle is over. The number of antique aircraft is plentiful, with the only question being which one appeals to you the most for modeling.

One subject that really excited me was a genuine DH Moth Minor. We saw this little jewel at the Merced fly-in. This overall silver airplane is rather diminutive, having a high aspect ratio wing with a severe taper. The inline Gipsy Minor engine gives the airplane a most distinctive look, along with the typical DeHavilland shaped rudder. Apparently, someone has been given the rights to build these in Australia, at the prospective cost of $35,000! Not chicken feed by any means, but I would much rather have one of these than a comparable modern type airplane. At any rate, these fly-ins are great inspirational fun!!

Since the advent of the Flying Aces approach to flying F/F Scale, i.e., rules favoring the unconventional, I have found that as I look over prospective airplanes to model, neither high-wing monoplanes nor parasols are looked at with any consideration. Only low-wing or biplanes are scrutinized as possible subjects. There's certainly nothing wrong with building the other types, but we all need a challenge once in a while to give us some motivation. I've talked



Start of a WW-I Mass Launch flight at Flightmasters meet at Mile Square. Last man down is eliminated from each successive heat until only one flier is left. Exciting!

about this before, and I think it is worth mentioning again. Too often, we get into a rut thinking that all good flying models have to look like a Piper Cub. Things have changed. There are so many wild designs being built and flown by scale modelers today, models that a short time ago would have been considered impossible.

In part, this can be attributed to a couple of reasons. One is that modelers are building lighter and stronger than ever before, and are making the necessary changes to make flying a sure thing. These might include the enlargement of the stab and rudder, increased dihedral with washout at the tips, and perhaps, a more careful choice of airfoil design. None of these changes detract from the basic appearance of the airplane.

Don't get me wrong, I'm not advocating this design approach in order to eliminate pure scale in F/F. It just happens to be another way to look at F/F Scale. I enjoy building models that fit into the FAC rules as a change of pace, yet I still prefer exact scale as the ultimate challenge. As a case in point, I'm finishing a diesel-powered Avro 504 at 1"=1' scale with as exact measurements as I can make. Nothing has been altered, incorporating scale airfoil and

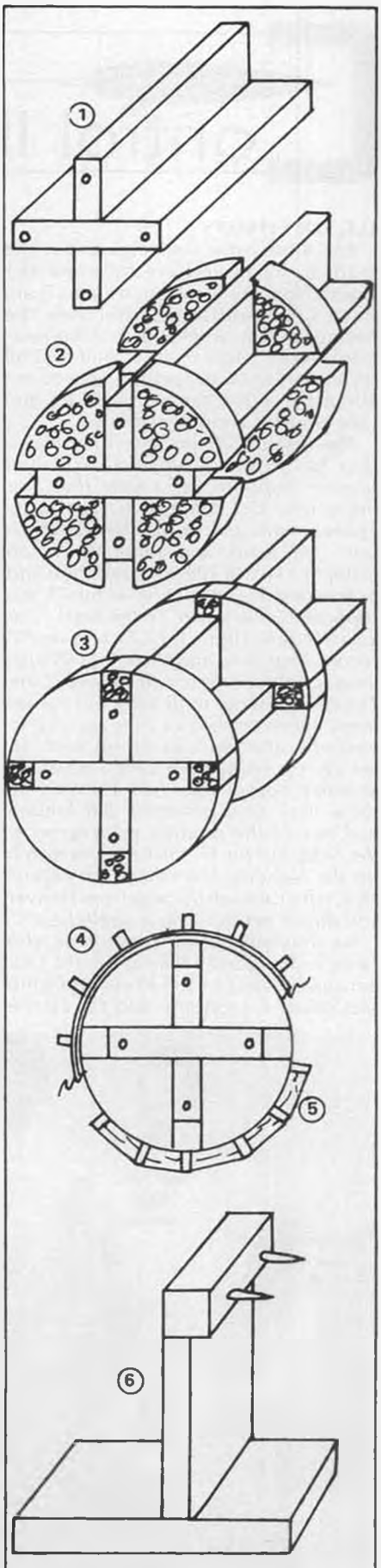
Talk about the crowded sky! Despite close flying, there are surprisingly few mid-airs.

wing incidence. The only drawback is that the Avro is a double-bay biplane . . . talk about a pain!

Well, enough of that! As promised last

Continued on page 95

Ken Smith built this very attractive Lindberg Morane Saulnier for Flightmasters Stahl/Lindberg contest at Dominguez Hills College. Features silver color scheme overall.



DAVE GIBSON'S METHOD OF FUSELAGE CONSTRUCTION

Control line

By "DIRTY DAN" RUTHERFORD

U.S. T/R CHAMPS

For those who can't figure out the lead-in, what we have here are the results from the first United States Team Race Championships, held over the Memorial Day weekend in Albuquerque, New Mexico. My buddy Phil (Whipper) Shew dropped a note to me about the T/R Champs, so I'll let him take over for a moment or two. . .

The first U.S. Team Race Championship has to be classified as a limited success. Support was a little thin, but those who did come to fly got to fly against some real world-class competition. Jed Kusik and John McCollum brought two MK 100 powered ships and proceeded to show everyone how T/R is supposed to be flown. To the best of our knowledge, their 3:32.75 is a world record heat time and their 7:31.45 final time is right in there with the very best. The rest of us got to fly until our equipment either crashed or gave up. Unfortunately, attrition caught up with Elledge/Cunningham and Smedley/Smedley before they had a chance to show their true potential. Bill Melton had one of the prettiest team racers at the field, but his ST-15RV was no match for the Nelsons. Then there was Fagan/Hail, who came all the way from Denver and didn't get to finish a single heat.

We sincerely hope that everyone who came had as good a time as we did. Our personal thanks to Jed Kusik and John McCollum for coming and for all the information and advice they provided, as well as the enthusiasm generated.

Plan now for next year, the second U.S. Team Race Championships, Memorial Day weekend, 1981, Albuquerque, New Mexico.

A Who's Who combat directory, from left: Jim Mathis, Jordy Segal, Bob Burch, Paul Curtis, Dick Imhoff, and Neal Rose. Photo by the California Flash, taken at last year's Nats.

THE UNITED STATES TEAM RACE CHAMPIONSHIPS RESULTS

	1	2	3	4	5	6	7	200	100 ave
1. Kusik/McCollum	3:44.66	3:46.66	3:52/67	3:45.39	3:45.66	3:40.23	3:32.75	7:31.45	3:44.04
2. Pardue/Shew	4:07.71	4:12.63	4:01.22	3:55.76	4:02.94	DNF	—	8:52.68	4:04.00
3. Elledge/Cunningham	4:25.11	DNF	DNF	—	—	—	—	—	4:25.11
4. Smedley/Smedley	6:55.53	5:35.89	6:06.57	6:02.44	4:26.26	5:51.85	5:08.51	—	5:49.75
5. Cunningham/Elledge	DNF	6:29.23	—	—	—	—	—	—	6:29.23
6. Melton/Malone	7:40.52	—	—	—	—	—	—	—	7:40.52
7. Fagan/Hail	DNF	—	—	—	—	—	—	—	—

Cleveland, Guthomson, and Plunkett (1-2-3 in Fast Combat at '79 Nats). Nothing new in model design, when Cleveland wasn't flying his "Force" he used a couple Big Ottos and an Orbit Ace.

Even though Phil did mention it, the accomplishment of Kusik/McCollum deserves a bigger punch. Of course I am talking about the heat time they turned in the 7th round, a very fast 3:32.75. Like Phil, I am not sure this is a world record time, but suspect it might be. I do follow this type of racing, even though I am not an active participant, and can remember times in the low 3:40's being done a few times, but the quickest time to come to mind is a 3:39, although I cannot remember what team did it, or even at what contest. What I am quite sure of is the fact that it was turned by a European team and at a large meet in Europe.

We are all well aware of what happens to the level of competition when you get a bunch of hot fliers (or teams, in this case) going for it at contest after contest. Times go down at almost every big contest, with everybody scratching to go even faster next time out. So this situation, enjoyed by the world class T/R fliers in Britain and Europe, helps them tremendously, where Kusik/McCollum are literally going it alone in their struggle to come up with equipment equal to the world's best.

As a competition-minded modeler, I can imagine a lot of things as being possible, but would never consider trying to be competitive at the world champs level in Team Race unless I lived on the other side of the pond, preferably in Britain. Many congratulations to Jed, who preceded me as **MB's** Control Line columnist, and to John McCollum.

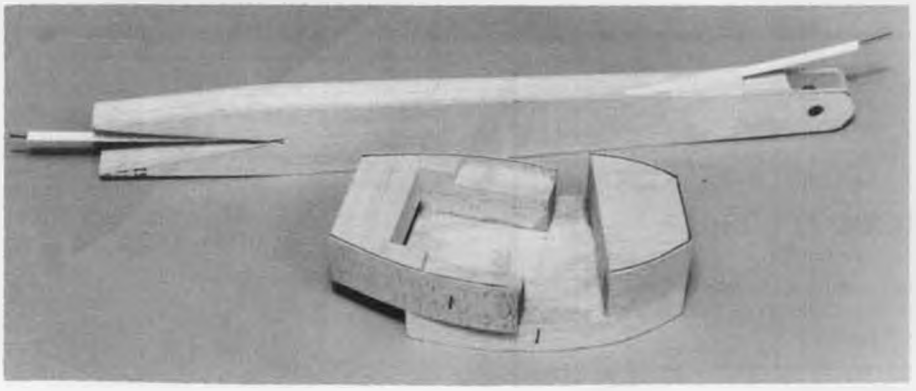
MONOBOOM AMA

Last month I promised pictures of the MonoBoom AMA kit, and you ought to be able to find a couple close someplace. Now maybe you can see why I was so enthusiastic about the kit. Just look at all of the Good Stuff, all precision machined to close tolerances from hand-picked wood. A close-up shows the boom assembly just as it comes in the kit, with the rod-in-a-tube pushrod running down the center of the ply/balsa/ply laminated boom. Also notice the motor mount/nacelle assembly. In manufacture these two pieces were evidently tack-glued to each other and then machined, resulting in a perfect fit. And as mentioned last month, the mounts have recesses machined in so the recommended Fox 36 Combat Special slips right in. Really beautiful work of the highest order in the kit manufacturing business of today.

Best thing for you to do right now is to write to the Hoffelt Group, P.O. Box 99774, San Diego, CA 92109 and ask for a catalog. Or just call Mike at (714) 488-6745 and ask him to shoot you a kit or three. You won't be disappointed.

FORMULA 21

A new C/L Speed event, appearing in the '80-'81 AMA rulebook for the first time, is Formula 21, an event designed to be the equivalent to Formula 40, but of



Above and below, just some of the neat stuff included in the Hoffelt Group Monoboom AMA kit. Hardware is also provided although not shown here. Photo below shows detail on boom and motor mount/pod assembly. Really nice work like this makes the price right in line with any other C/L kit. See text for more info. Photos by Dirty Dan.

Dave Elledge of Glasswerks fame, with Team Racer at U.S. T/R Champs. Plane is Dave's design with multi-piece epoxyglass shell, Nelson AAC power, John Gray prop. Pic by Whipper (Flipper's husband).

"Listen, you won't start winning till you get your head screwed on straight."

somewhat less awe-inspiring performance and so restricted to Juniors only. Personally, I would like to see Formula 21 open to all age level fliers, with Juniors flying profile models (as the rules now state) but with Senior and Open fliers allowed to fly unlimited type designs, as allowed in Formula 40.

I won't go into pushing for another Speed event when the emphasis currently is to eliminate low participation Speed events, not add new ones. However, I do hope to see Formula 21 catch

Continued on page 66

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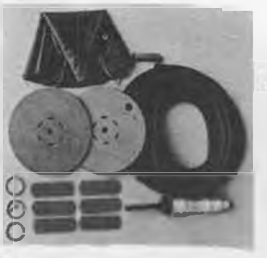

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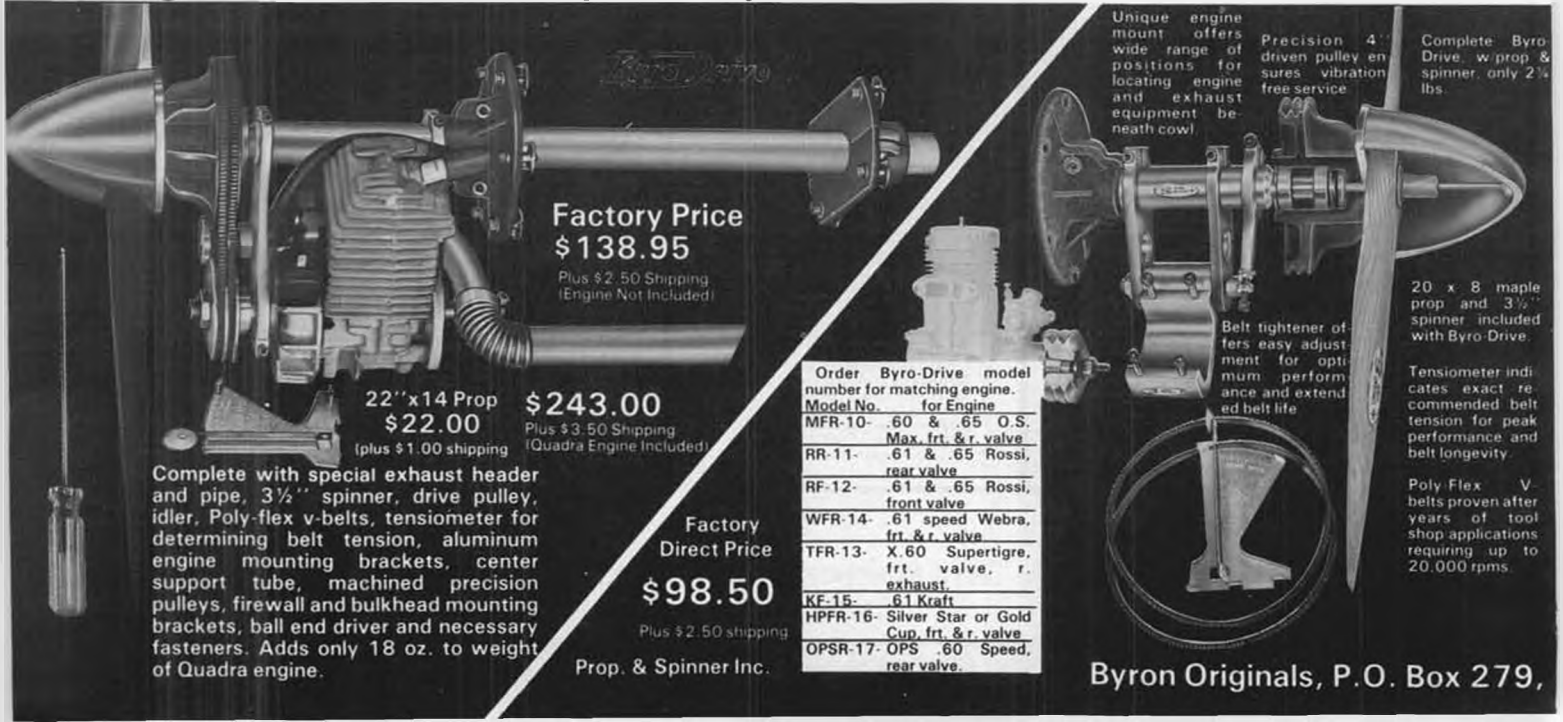

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TFR-13-	X.60 Supertigre, frt. valve, r. exhaust.
KF-15-	.61 Kraft
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Complete Power Package Included in Kit Price!
- Complete drive unit & mounting
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Wing Span - 85"
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___ 1. Chinese ___ 2. Russian Aero. Team ___ 3. Russian ___ 4. Czech Aero. Team

B. Determine engine to be used and check accordingly
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___ Webra .61 Speed #1030 Front valve, side exhaust
___ O.S. Max .60 & .61 FSR, Front Valve, S. Exh.
___ Rossi .61 & .65 ABC Rear Valve, Rear Exh.
___ Webra .61 Speed #1024 F. & R. Valve, S. Exh.
___ H.P. .61 Gold Cup Rear Valve, S. Exh.
___ O.P.S. .60 & .65 Speed, R. Valve, R. Exh.
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on well enough that the Speed fliers themselves will at least consider opening up the event to Senior and Open fliers.

And I feel that Formula 21 will indeed catch on. For a couple of reasons. First, the K&B .21 is a very high performance motor that works quite well without fiddling, it is widely available at quite decent prices and parts are not only reasonably priced but also widely available. Many a Speed event has suffered, simply due to parts for the dominant engines not being available at any price. This won't happen with Formula 21.

The other reason is that a lot of hop-up parts are available for the K&B .21. I'll explain that a bit further in a moment, but the reason for this availability of special parts is that the K&B .21 has been the dominant engine in R/C car racing for several years now. When an engine is so widely used in an event where pure, raw power can be of paramount importance, specialty parts soon become available. In this case, Dick McCoy (yes, *that* Dick McCoy) has for years supplied car racers with many engine parts, dealing currently almost exclusively in K&B .21 replacement parts.

I have here in front of me a recent order form from McCoy, and scanning over the list I see such trick things as hard-chrome faced backplates, 3/8 x 4-40 cap screws with drilled heads (for lock wire), special rear bearings, McCoy manufactured cylinders, pistons, rods, cranks, crankpins and so on. Notice that

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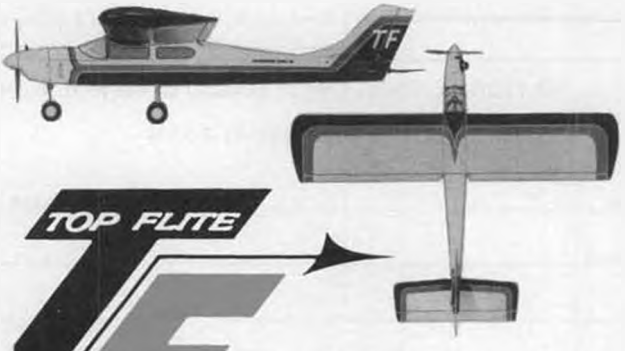

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the just-mentioned pieces are made by McCoy, although they drop right into a stock-case K&B .21. The cranks offered deserve special mention, as there are a bunch of ways to go. A heat treated, alloy steel crank is offered and looks much like a stock unit. But also available is a crank with a fully enclosed counterbalance ("stuffer crank," most of us would call it) and it is also available with an epoxy-filled port opening as well as an oil-return groove cut in. If you want to run a left-handed engine, using the torque to work for you instead of against you, these are also available in heat treated steel plain version, with the full-circle feature and also with the oil-return groove and epoxy filling. Or if you are one of those who think you have a better idea as to port timing in the shaft, Dick offers a full-circle crank that is finished except for the port opening. You can cut your own window to whatever timing or engine rotation you would like.

A moment ago, when first talking about hop-up parts for the K&B .21, I hinted at an explanation. And that is that the K&B .21 truly is a high performance motor, done so well that I have yet to have it proven to me that any of the old time engine tricks, or even new tricks, done with hand-held grinders (such as Dremel tools) actually result in any more power than is produced by a stock, yet well fitted motor. In car racing, something I do quite a lot of, there are always stories about so and so's trick motor and how fast it is, yet another that has simply been set up properly as far as mechanical fits, dialed in with head clearance, plug heat range and running the proper amount of nitro for that particular engine will be just as powerful, if not more so, than the hacked-on trick motor.

Many of the McCoy engine pieces are simply items that will go a long way toward making a Formula 21 motor that will not only make power, but be very reliable as well, even when run right at the limit. Best thing for you to do before setting up your Killer Formula 21 motor is to write to McCoy Model Engines, 10767 Monte Vista Ave., Ontario, CA 91761. If you prefer to call, try (714) 627-3696.

Before leaving the subject, it is important to mention that K&B has several versions of the .21, and all that are meant for use in an R/C vehicle of some kind now have standard non-pipe timing on the exhaust ports. If you prefer later closing times, the best bet is to buy the standard .21, supplied with the usual spray bar assembly used in C/L and F/F. Besides, this engine is a lot cheaper, as you don't have to buy the R/C carb and muffler. And getting back to the left-hand rotation touched upon earlier, notice that the K&B .21 outboard turns back'ards, so wrong-way shafts can also be had straight from the K&B parts bins. What you will do about left-hand props is in some doubt, but possibly they will be made available soon.

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STILL MORE ON SPEED

I will admit that I have not had much to do with C/L Speed in my C/L modeling activities and must say that I have had even less to do with Scott Newkirk, local Speed Freak, in fact about the only Speed guy left in the Seattle area. Scott has persisted in Speed for a number of years, always working with engines, trying to get more and more power out of them. Finally, he has followed this path to the logical conclusion, that of designing and producing his own engine, the Newkirk .15. I haven't seen one of the engines yet but an ad in a recent *Flying Lines* newsletter says there are three versions available: open exhaust nitro, open exhaust alcohol, and piped exhaust alcohol. Common to all three version are ABC piston/liner sets (with AAC available), 12mm crank, advanced four-port Schnuerle porting, and light weight. The open exhaust ABC motors will sell for $155, open exhaust AAC will be $175, and a piped ABC motor will cost you $190. It takes $25 to reserve a place in line, and I assume this is deductible from the purchase price.

Also available from Scott are glass props. He has quite a selection, most recent listing showed the 6.6 x 5.5 Ballard Goodyear prop at $4 in glass and $6 in carbon fiber, the 6.6 x 5.5 Willoughby Goodyear at the same prices, and the 8 x 8-1/4 Rat prop, $5.50 in glass, $8 in carbon fiber. I know there are more, among them Team Race props, as well as certain custom props. Write for more information on either the props or the Newkirk .15 to Scott Newkirk, 9543 N. Interlake, Seattle, WA 98103. If you want to call, try (206) 522-2231. •

Pattern . . . . . . *Continued from page 12*

starting the roll. Again, release all elevator and rudder, if used, then bang in full aileron to roll to upright. Fly on out for approximately two seconds from the roll before calling "complete."

You may also want to try finishing the roll with the engine at reduced power and then slam in full power. This works with some planes, but an improper thrust set-up can cause a bobble.

Now let's look at the framing.

1) Did you use the full frame? If not, pull it in until you do, if you want the maximum opportunity to show your stuff. If you feel safer a little ways out, do not forget the one second straight flight rule. The judges may know the rules!

2) Did you center the maneuver? Call "start" before center of frame no matter how far out you fly.

4-POINT-ROLL

If you have a plane that tucks or rolls with rudder application you will have to be darn good just to make this one recognizable. Some fliers trim in up elevator, then fly with down stick pressure just to get this maneuver to stay on line. That's an awful disadvantage to compete with!

This maneuver deserves some dissecting before stringing the various pieces together. Let's start by establishing a hands-off flight path directly into the wind (yes, *into* the wind) at approximately 200 feet altitude and 300 feet out, while climbing ever so slightly at full power. Now, without adding any rudder or elevator, roll to knife-edge and watch which way the plane goes for about one second. Be prepared to roll back to level and recover because the nose may drop like a rock and/or the thing may change directions horizontally. Do this a few times until you are certain which way the flight path deviates. If it simply drops in a slight arc and maintains heading left to right, you have a good chance that the 4-point will develop nicely.

Now try adding top rudder as soon as the roll to knife-edge is complete. Use only as much rudder as necessary to hold altitude. Excessive rudder simply slows the plane and can cause an otherwise well set up plane to "stall" in knife-edge and roll-out.

We have some of our planes set up so that they will fly indefinitely on knife-edge, but it requires some aileron fiddling to hold in after the first pass. After you're comfortable with this knife-edge business and have figured out what up trim, down trim, aileron trim, and C.G. shift can do to knife-edge flight, you're ready for the rest of the maneuver.

While in knife-edge, roll to inverted as you release rudder and touch a little

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down elevator as you reach inverted. Now practice this until you can get the transition smooth from one position to the next. A little "leading" of each control input may be required to give smoothness, but watch out for adding the rudder too early, it will change your heading. Some designs require a tiny amount of up elevator as you go into the first roll, but it's really best if you can learn on a plane that has no built-in problems.

Once you've gotten to the inverted section of the 4-point, the rest is less nerve-racking. Roll to knife-edge from inverted and add top rudder. Again, use only enough to hold position. The final roll to upright requires care to prevent a swerve or a wiggle as the rudder is released too early or too late respectively. Although the rules apparently leave positioning up to the flier, it must be remembered that the positioning clause in the judges' guide calls for centering and symmetry whenever possible.

Now let's fly the maneuver downwind as intended. Start as far out as necessary to get a solid heading (try about 300 ft. out from the flight line and 150 ft. altitude). Change later to suit yourself.

This sequence eats up lots of distance in a hurry, so call it as soon as you have a heading established. Wait one second and roll to point No. 1. Wait one second and roll to point No. 2 (inverted), one more second to No. 3, and one more second to point No. 4. A final one second count to the "complete" announcement, and with luck the model is still in the same county. Modify the distance out and the starting position to give a five-second sequence, having the inverted flight portion directly in front of the judges (and yourself).

A passing thought here. The maneuvers in the Advanced class as well as the other classes are becoming more complex through the years. They are no more difficult or in some cases as difficult as rolling circles, tailslides, etc., but they concentrate on basics which are strung together to form complex maneuvers which can be judged on precision. The tailslides, multiple snap maneuvers, etc. are high "luck factor" maneuvers.

Precision *is* the name of the game now, so read the book and don't leave anything to luck. •

Flamingo . . . *Continued from page 21*

with scrap balsa fillet pieces. Installation of the aileron control system should be next. Temporarily mount the ailerons to the lower wing and install the servo so that the proper pushrod length can be determined and installed. Set the wings aside before covering and turn your attention to the fuselage.

The fuselage sides are from sheet balsa and need to be accurately laid out first. Install the plywood firewall with triangular filler stock, then glue the rear of the fuselage together with a 1/4-in. balsa spacer. Install the remaining formers

and fuselage doubler at the lower wing saddle. Cabane struts are bent from 3/32 music wire and attached to plywood plates with "J" bolts. These wing strut plates need to be firmly mounted to the top of the fuselage sides, so reinforce them with balsa triangle stock. Add the cockpit floor, then the fuselage top formers. Plank with soft 1/16 sheet balsa. The underside of the fuselage is covered with 3/32 sheet balsa applied with the grain running across the fuselage.

Nothing much needs to be said about the tail surfaces. The fin and elevators are made from 1/4-in. sheet balsa, while the stabilizer and rudder are built-up construction. The elevator joiner can either be a piece of music wire or a commercial elevator horn. Before joining any of the tail surfaces together or mounting to the fuselage, it's best to cover the parts first. However, before doing so, make sure all nicks, dents, and scratches in the balsa parts are filled in and sanded. Round off any sharp corners on the wings, fuselage and tail surfaces.

Super Coverite (antique color) was used on the fuselage and fin but also required paint subsequently to get to the right shade of tan to duplicate the aircraft that I was building. Wings and tail surfaces other than the fin were covered with silver Permagloss Coverite as is.

After covering, the stabilizer and fin can be attached to the fuselage. Now install the tail wheel bracket (if used) and hinge the elevator and rudder using any commercial hinges such as DuBro or Klett. So far I have had a lot of success with using Wilhold white glue, which seems to have tenacious sticking qualities for installing hinges. This avoids having to pin the hinges and its associated dilemma, i.e., install before covering or after.

When covering the wings, leave the top wing center section for last. This is done to allow access for drilling and installing the blind nuts for the cabane strut hold-down bolts. Being my first bipe with a removable top wing, I really struggled to come up with a scheme to attach the top wing. If you have something better or simpler, go to it. My solution was to drill holes for both front and rear struts in the plywood plates on the underside of the top wing. The struts are free to slide into these holes and are then attached by soldering electrical connectors to the struts themselves, which are then bolted to the plywood plate. The neat part of this is that accurate top wing incidence adjustments can be made while soldering on the connectors. If this doesn't make sense write **RCMB's** editor, he knows it all.

Install the lower wing to the fuselage with nylon bolts, which pass through the gear mount and are tapped into hardwood blocks epoxied to the interior of the fuselage sides. The landing gear struts are bent from 1/8 music wire, wrapped and soldered together, then installed to the slotted landing gear blocks with metal or nylon straps. The outer wing struts are made from 1/16 plywood and installed with Goldberg 90° mounting brackets.

Final finishing consists of mixing up a mustard-tan combination from Aerogloss paints for the fuselage. Medium blue and yellow stripes are used on the rudder and elevator. Large lettering and markings were applied by cutting stencils from contact paper and spraying on flat black Aerogloss. Small lettering was done using press-on letters. The sheet metal around the cowling and over the baggage compartment door was simulated by using self-adhering aluminum foil tape (from auto supply stores). The burnished look was achieved by chucking a pencil eraser in a drill press and lightly contacting the aluminum tape with the eraser. Windshields were made from thin butyrate plastic. To get the desired curvature, heat the material until soft, then quickly drape over a cup or can. Install them with Hot Stuff or Super Jet. Cockpit coaming is made from large black rubber fuel tubing, split open and installed with white glue. The pilot is a two-in. scale bust from Williams Brothers, equipped with a scarf as per suggestion from my wife, who thought it would look neat. The dummy engine is also from Williams Bros. and consists of two-in. scale LeRhone cylinders mounted to a balsa/plywood crankcase. The whole assembly is attached with sheet metal screws to the front of the

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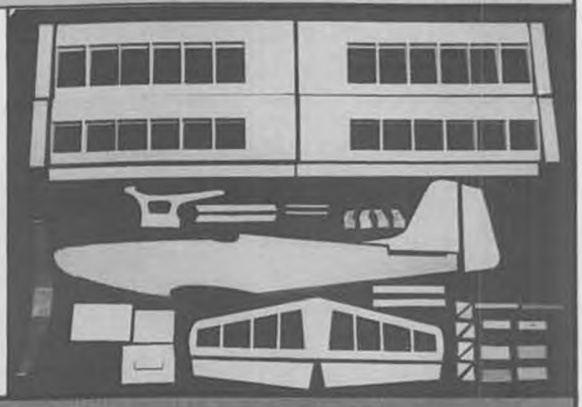

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30mm $2.25
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52mm $3.25
62mm $3.75

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Kraft engine mount. To further enrichen the Williams Bros. treasury, their wheels were also used.

Unless you just intend to admire your model, the radio gear obviously needs to be installed. As a final touch, the wing and tail wires can be added using thread, fishing line, or as I did, control line wire (.012). Unless your tail assembly came out real heavy, little nose weight should be needed. Balance as shown on the plans. Control surface movements are 3/8 in. up and down for ailerons, 1/2 in. up and down for elevator, and 3/4 in. left and right for rudder. The best technique for takeoff is to slowly apply power with the elevators at neutral until the tail lifts by itself, then add more power and up elevator. Takeoff into the wind is essential; as a matter of fact, with the large fin and rudder, it will weathervane by itself. Overall flying qualities are extremely tame, so have lots of fun. ●

Plug Sparks . . *Continued from page 30*

enough, the semi-box design by Albert Judge won the cup back for the British. **Model Builder** featured plans for this model in the March 1975 issue (Plan No. 375-O.T., $3.00).

Before closing off commentary on this photo, notice the single-stick pusher in the foreground. The only drawback is the glide, which can be upset by the rearward drag of the prop. However, in those days almost all the major rubber-powered stick records were held by pushers or canards. Last one this columnist saw was two years ago when his buddy, Charlie Werle, of Werlewind Products, had a pusher with a two-minute motor run! Makes ya think, huh?

FORTY YEARS AGO, I WAS. . .

The recent writeup on the Gwin Aero engine brought out quite a few memories for Ken Hamilton, of 29432 Quailwood Drive, Rancho Palos Verdes, CA 90274. Let's hear what Ken has to say:

I enjoyed reading your attempt to unravel the Danner Bunch engine history in **R/C Model Builder**; *the Mighty Midget, Gwin Aero, Tiger, and the Cleveland marketed version, also Bud Warren's version. As I told you earlier, I worked part-time after school at the Bunch Model Airplane Co. on Hoover Street at the time the Mighty Midget engine was just being started up. I was given a pencil drawing, on manila paper, of the complete engine. This plan was much annotated, erased, and worked over, and from this, I was asked to break out and detail each individual part of the engine on a separate drawing. This would allow several machinists to work on the engine parts at the same time.*

This was all accomplished in the "back room" store next door to the retail store. Next to me was the prototype engine run-up bench and beyond that, a machinist making more test engines. They actually ran the engines there and the air would become unbearable from oil and exhaust fumes. No one thought of cross-ventilation.

I never did understand where the name "Gwin Aero" came from. I am glad to learn from your article what Howard Broughton's job was. He was always there, mostly in the retail store, dressed formally in jacket and tie, in contrast to Danner's attire of informality.

Once in a while, Howard would wander into the back store to see what we were doing. I learned a lesson from talking to him. He was looking over the drawings I was making and I remarked that Danner had asked me to ink the drawings.

I could do it, but I felt the plans could be changed easier and they would make perfectly satisfactory blueprints if left in pencil. Howard eased out of the room back to the retail store and it wasn't long

SIG BALSA

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STICKS - 36" Lengths

B-001	1/16 x 1/16	.09
B-002	1/16 x 1/8	.11
B-003	1/16 x 3/16	.14
B-004	1/16 x 1/4	.18
B-005	1/16 x 3/8	.22
B-006	1/16 x 1/2	.25
B-007	1/16 x 3/4	.34
B-008	1/16 x 1	.42
B-009	3/32 x 3/32	.12
B-010	3/32 x 1/8	.13
B-011	3/32 x 3/16	.15
B-012	3/32 x 1/4	.18
B-013	3/32 x 3/8	.24
B-014	3/32 x 1/2	.29
B-015	3/32 x 3/4	.39
B-016	3/32 x 1	.48
B-017	1/8 x 1/8	.13
B-018	1/8 x 3/16	.18
B-019	1/8 x 1/4	.22
B-020	1/8 x 5/16	.25
B-021	1/8 x 3/8	.28
B-022	1/8 x 1/2	.32
B-023	1/8 x 3/4	.44
B-024	1/8 x 1	.53
B-025	3/16 x 3/16	.22
B-026	3/16 x 1/4	.27
B-027	3/16 x 3/8	.32
B-028	3/16 x 1/2	.39
B-029	3/16 x 3/4	.48
B-030	3/16 x 1	.59
B-031	1/4 x 1/4	.32
B-032	1/4 x 3/8	.37
B-033	1/4 x 1/2	.44
B-034	1/4 x 3/4	.62
B-035	1/4 x 1	.74
B-036	5/16 x 5/16	.40
B-037	5/16 x 3/8	.50
B-038	5/16 x 1/2	.59
B-039	5/16 x 5/8	.72
B-040	5/16 x 1	.83
B-041	3/8 x 3/8	.55
B-042	3/8 x 1/2	.65
B-043	3/8 x 3/4	.77
B-044	3/8 x 1	.94
B-045	1/2 x 1/2	.75
B-046	1/2 x 3/4	1.00
B-047	1/2 x 1	1.24
B-048	5/8 x 5/8	.87
B-049	5/8 x 1	1.29
B-050	3/4 x 3/4	1.21
B-051	3/4 x 1	1.43

TRIANGULAR CUT BALSA 36"

B-416	1/4 x 1/4	.39
B-417	3/8 x 3/8	.47
B-418	1/2 x 1/2	.60
B-419	3/4 x 3/4	.76
B-420	1 x 1	1.00

STICKS - 48" Lengths

B-061	1/8 x 1/8	.18
B-062	1/8 x 1/4	.25
B-063	1/8 x 1/2	.41
B-064	3/16 x 3/16	.29
B-065	3/16 x 1/2	.48
B-066	3/16 x 3/4	.64
B-067	1/4 x 1/4	.42
B-068	1/4 x 1/2	.56
B-069	1/4 x 3/4	.80
B-070	5/16 x 5/16	.52
B-071	3/8 x 3/8	.70
B-072	3/8 x 1/2	.84
B-073	3/8 x 3/4	.99
B-074	1/2 x 1/2	.96
B-075	1/2 x 3/4	1.30

48" AAA SHEETS

B-388	1/32 x 3	.98
B-389	1/16 x 3	1.10
B-390	3/32 x 3	1.28
B-391	1/8 x 3	1.49
B-392	3/16 x 3	1.84
B-393	1/4 x 3	2.12
B-394	3/8 x 3	2.79
B-395	1/16 x 4	1.60
B-396	3/32 x 4	1.82
B-397	1/8 x 4	2.05
B-398	3/16 x 4	2.58
B-399	1/4 x 4	3.00
B-400	3/8 x 4	4.25
B-401	1/16 x 6	2.85
B-402	3/32 x 6	3.25
B-403	1/8 x 6	3.60
B-404	3/16 x 6	4.15
B-405	1/4 x 6	4.69
B-406	3/8 x 6	5.95

TAPERED CUT SHEETS - 36"

B-430	1/4 x 3	1.55
B-431	1/4 x 4	2.30

LEADING EDGE - 36" Lengths

B-085	1/2 x 3/8	.63
B-086	3/4 x 5/8	1.09
B-087	1 x 3/4	1.42

36" ROUNDED EDGE AILERON & ELEVATOR STOCK

B-441	1/4 x 1	.84
B-442	3/8 x 1	.98
B-443	1/4 x 2	1.32
B-444	3/8 x 2	1.49

LAPPED EDGE BALSA SHEETS

B-610	1/16 x 3 1/4 x 36	.96
B-611	3/32 x 3 1/4 x 36	1.14

SHEETS - 18" Lengths

B-173	1/32 x 2	.25
B-174	1/16 x 2	.28
B-175	3/32 x 2	.34
B-176	1/8 x 2	.39
B-177	3/16 x 2	.49
B-178	1/4 x 2	.62
B-179	3/8 x 2	.69
B-180	1/32 x 3	.37
B-181	1/20 x 3	.39
B-182	1/16 x 3	.41
B-183	3/32 x 3	.48
B-184	1/8 x 3	.56
B-185	5/32 x 3	.61
B-186	3/16 x 3	.69
B-187	1/4 x 3	.80
B-188	5/16 x 3	.95
B-189	3/8 x 3	1.06
B-190	1/32 x 4	.54
B-191	1/16 x 4	.64
B-192	3/32 x 4	.69
B-193	1/8 x 4	.79
B-194	3/16 x 4	.97
B-195	1/4 x 4	1.20
B-196	3/8 x 4	1.49

SHEETS - 36" Lengths

B-134	1/32 x 2	.51
B-135	1/16 x 2	.55
B-136	3/32 x 2	.67
B-137	1/8 x 2	.76
B-138	3/16 x 2	.97
B-139	1/4 x 2	1.24
B-140	3/8 x 2	1.36
B-141	1/32 x 3	.76
B-142	1/20 x 3	.79
B-143	1/16 x 3	.83
B-144	3/32 x 3	.96
B-145	1/8 x 3	1.14
B-146	5/32 x 3	1.23
B-147	3/16 x 3	1.38
B-148	1/4 x 3	1.59
B-149	5/16 x 3	1.89
B-150	3/8 x 3	2.12
B-151	1/32 x 4	1.08
B-152	1/16 x 4	1.29
B-153	3/32 x 4	1.38
B-154	1/8 x 4	1.59
B-155	3/16 x 4	1.95
B-156	1/4 x 4	2.42
B-157	3/8 x 4	2.99
B-158	1/16 x 6	2.20
B-159	3/32 x 6	2.45
B-160	1/8 x 6	2.75
B-161	3/16 x 6	3.15
B-162	1/4 x 6	3.55
B-163	3/8 x 6	4.55

BLOCKS - 3" Lengths

B-251	1 x 1	.14
B-252	1 x 2	.26
B-253	2 x 2	.35
B-254	1 x 3	.35
B-255	2 x 3	.48
B-256	3 x 3	.75

BLOCKS - 6" Lengths

B-266	1 x 1	.27
B-267	1/2 x 2	.36
B-268	3/4 x 2	.42
B-269	1 x 2	.50
B-270	1-1/2 x 2	.60
B-271	2 x 2	.69
B-272	1/2 x 3	.45
B-273	3/4 x 3	.55
B-274	1 x 3	.69
B-275	1-1/2 x 3	.83
B-276	2 x 3	.95
B-277	3 x 3	1.50
B-278	1/2 x 4	.69
B-279	3/4 x 4	.77
B-280	1 x 4	.85
B-281	1-1/2 x 4	1.09
B-282	2 x 4	1.32
B-283	3 x 4	2.09
B-284	1/2 x 6	.98
B-285	3/4 x 6	1.16
B-286	1 x 6	1.36
B-287	1-1/2 x 6	1.88
B-288	2 x 6	2.08
B-289	3 x 6	2.92

BLOCKS - 12" Lengths

B-299	1 x 1	.52
B-300	1/2 x 2	.69
B-301	3/4 x 2	.82
B-302	1 x 2	1.00
B-303	1-1/2 x 2	1.20
B-304	2 x 2	1.37
B-305	1/2 x 3	.88
B-306	3/4 x 3	1.09
B-307	1 x 3	1.37
B-308	1-1/2 x 3	1.65
B-309	2 x 3	1.98
B-310	3 x 3	3.00
B-311	1/2 x 4	1.37
B-312	3/4 x 4	1.54
B-313	1 x 4	1.70
B-314	1-1/2 x 4	2.17
B-315	2 x 4	2.64
B-316	3 x 4	4.17
B-317	1/2 x 6	1.92
B-318	3/4 x 6	2.32
B-319	1 x 6	2.72
B-320	1-1/2 x 6	3.75
B-321	2 x 6	4.15
B-322	3 x 6	5.84

BLOCKS - 18" Lengths

B-333	1 x 1	.77
B-334	1 x 2	1.50
B-335	2 x 2	2.05
B-336	1 x 3	2.05
B-337	2 x 3	3.00
B-338	3 x 3	4.50
B-339	1 x 4	2.55
B-340	2 x 4	3.95
B-341	3 x 4	6.25
B-342	1 x 6	4.10
B-343	2 x 6	6.25
B-344	3 x 6	8.75

BLOCKS - 24" Lengths

B-354	1 x 1	1.05
B-355	1 x 2	2.00
B-356	2 x 2	2.75
B-357	1/2 x 3	1.75
B-358	1 x 3	2.75
B-359	2 x 3	4.00
B-360	3 x 3	6.00
B-361	1 x 4	3.40
B-362	2 x 4	5.25
B-363	3 x 4	8.35
B-364	1 x 6	5.45
B-365	2 x 6	8.30
B-366	3 x 6	11.65

AIRFOILED SHAPED SHEETS

B-111	3/16 x 3 x 36	1.49
B-112	1/4 x 3 x 36	1.70
B-113	1/4 x 4 x 36	2.53

TAPERED TRAILING EDGE 36" Lengths

B-097	1/8 x 1/2	.37
B-098	3/16 x 3/4	.48
B-099	1/4 x 1	.61
B-100	5/16 x 1 1/4	.74
B-101	3/8 x 1-1/2	.86

BAGS OF BALSA

B-524	Bags of Balsa	2.79

ODDS & ENDS PACKAGE OF BALSA

B-534	Packages	1.95

BULK BALSA - 3" x 36" Not Stamped or Sorted

B-508	1/32 x 3	.56
B-509	1/16 x 3	.63
B-510	3/32 x 3	.74
B-511	1/8 x 3	.88
B-512	3/16 x 3	1.06
B-513	1/4 x 3	1.20
B-514	3/8 x 3	1.59

MODEL BUILDER'S ASSORTMENT

B-600	Balsa Wood Assort	9.25

PLANKS - 36" Lengths

B-206	1 x 1	1.54
B-207	1/2 x 2	2.05
B-208	3/4 x 2	2.40
B-209	1 x 2	3.00
B-210	1-1/2 x 2	3.60
B-211	2 x 2	4.10
B-212	1/2 x 3	2.62
B-213	3/4 x 3	3.25
B-214	1 x 3	4.10
B-215	1-1/2 x 3	4.95
B-216	2 x 3	5.95
B-217	3 x 3	9.00
B-218	1/2 x 4	4.10
B-219	3/4 x 4	4.60
B-220	1 x 4	5.10
B-221	1 1/2 x 4	6.50
B-222	2 x 4	7.90
B-223	3 x 4	12.50
B-224	1/2 x 6	5.75
B-225	3/4 x 6	6.95
B-226	1 x 6	8.15
B-227	1 1/2 x 6	11.25
B-228	2 x 6	12.45
B-229	3 x 6	17.50

36" C GRAIN AAA 8 - 12 LBS

B-470	1/32 x 2	.56
B-471	1/16 x 2	.60
B-472	3/32 x 2	.72
B-473	1/8 x 2	.81
B-474	3/16 x 2	1.02
B-475	1/4 x 2	1.31
B-476	3/8 x 2	1.41
B-477	1/32 x 3	.81
B-478	1/16 x 3	.88
B-479	3/32 x 3	1.01
B-480	1/8 x 3	1.19
B-481	3/16 x 3	1.43
B-482	1/4 x 3	1.64
B-483	3/8 x 3	2.17

VH - VERY HARD

B-493	1/16 x 3	.88
B-494	3/32 x 3	1.01
B-495	1/8 x 3	1.19
B-496	3/16 x 3	1.43
B-497	1/4 x 3	1.64
B-498	3/8 x 3	2.17

CONTEST BALSA - 36" Very Light 4 - 6 Lb Stock

B-454	1/32 x 3	.84
B-455	1/16 x 3	.91
B-456	3/32 x 3	1.04
B-457	1/8 x 3	1.22
B-458	3/16 x 3	1.46
B-459	1/4 x 3	1.67
B-460	3/8 x 3	2.20

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CHAMPION "FAI" 0% Nitro

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CHAMPION "10" 10.0% Nitro

CF-021	Pint ...	$3.50
CF-001	Quart ..	$5.25
CF-002	Gallon	$14.95

CHAMPION "25" 25.0% Nitro

CF-015	Pint ...	$3.95
CF-016	Quart ..	$5.75
CF-017	Gallon	$19.50

CHAMPION "5" 5.0% Nitro

CF-012	Pint ...	$3.25
CF-013	Quart ..	$4.75
CF-014	Gallon	$12.95

CHAMPION "15" 15.0% Nitro

CF-022	Pint ...	$3.75
CF-011	Quart ..	$5.50
CF-010	Gallon	$16.50

CHAMPION "35" 35.0% Nitro

CF-006	Pint ...	$4.50
CF-007	Quart ..	$6.50
CF-008	Gallon	$21.95

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thereafter that Danner "just happened" to drop by to see how the drawings were coming. In the course of comments ventured, he guessed it would not be necessary to ink the drawings after all!

*Thereafter, I saw to it that I got the cost reduction or improvement ideas directly to Danner. This idea always stuck with me as I did at Danner and other later employment. Now don't you go printing any of that (*fat chance, he has*), this is for your amusement.* (Yeah, but we're going to share it with the other fellows.) Great Stuff!

SILVER MAX, NOT BLUE!

Trust Bob Larsh to catch this reporter red-handed in a first class boo-boo. The annual awards given out at the C.I.A. (Central Indiana Aeromodellers) banquet looked just like the Pour le Merite, known commonly as the "Blue Max." Not so, says Bob, we call them the Silver Max and they are highly prized.

However, Picture No. 5 shows an award that no one especially tries to win. Shown is Bob Larsh after handing Harry Murphy the "Crash and Burn" award. This prize is generally handed to the C.I.A. member who, by act of God, quirk of fate, or downright stupidity, becomes the unwilling recipient. This results in a great amount of humor, laughter, and general all-around kidding.

Larsh reports the figure at the top of the plaque is a beautifully sculptured sky diver taking a flying leap. It couldn't be more appropriate, sez Larsh, as he really doubled up in laughter when he found it in a trophy shop. Now all we have to do is to find out what crime old Dirty Harry is guilty of. That ought to be more fun!

Photo No. 6 was taken during the English SAM Champs at Sculthorpe AFB last year. Mike Granieri will be tickled pink to see his M-G design being used in England by Ken Hinton. The model, incidentally, is being held by Mark Hinton, an outstanding O.T. free flight man.

Photo No. 7 is another shot from England, showing Dave Baker's collection of Porlock Puffin models in all sizes. This Colonel C.E. Bowden design is so stable that when the writer flew Baker's big model under radio control, he wasn't sure whether he was flying the model or whether it was flying him.

Baker has been heavily instrumental in the organization of the Old Timer movement in England. Starting with a basic ten-member chapter, he has expanded SAM Chapter 35 to over 130 members! This terrific interest in Old Timers had prompted many to call for their own English Old Timer organization. Baker has cleverly answered this problem by calling the new organization SAME (SAM-England). Tricky, eh wot?

Those modelers who read this column in England would do well to contact Dave Baker at 22 Ellington Rd., Muswell Hill, London N10, to get acquainted with what is going on in the Old Timer game.

Switching back to North America again, Photo No. 8 shows Bruce Thompson, Toronto, Canada, with his latest version of what he thinks an Old Timer should look like. Bruce has taken a page from the SCAMPS F/F "Old Ruler" event and built a good looking O.T. model conforming to the 1940 AMA rules. Wing is much like Struck's New Ruler with an NACA 6412 airfoil. The model employs an O.S. Max .40 engine. With a seven-foot wingspan the model thermals quite well. Who knows, maybe the idea will catch on for an "Old Ruler" event in O.T. R/C.

SAM 7 SALLIES

Just received the latest SAM 7 "Yankee

Flier," and I'll be darned if Herb Wahl hasn't done it again! If the reader will recall last year's writeup on SAM 7, you will remember that Herb donated a brand new Brown to the High Point winner of 1979 (turned out to be George Armstead).

This year, Wahl has switched a little, offering a Wahl-Brown Jr. to the *Junior* High Point winner. This will be determined at the SAM 7 East Coast Champs and the Fall Rally. Of course, to do it up brown, Herb will present the engine at the Annual SAM 7 Dinner.

Herb is to be commended again and again for his generous donations to keep the Old Timer movement alive, particularly in the Junior areas. For those who are unaware of his abilities, Herb runs a small business that produces Brown Jr. motors in three models, somewhat similar to the old Model B, C, and D Browns.

For further information on obtaining Brown Jr. motors (or Hurleman engines, he makes these too!), write to Herb's Model Motors, Box 61, Forksville, PA 18616.

Photo No. 9 shows Bruce and Leslie Norman on the free flight side of the field with Leslie's O.S. 15-powered Megow Ranger. This "dynamic duo" really racked the boys in Ohio in 1976, when they won 17 trophies between the two of them.

Unfortunately for the O.T. R/C boys, Bruce Norman has become quite interested in R/C and won very heavily at the 1979 Salt Lake SAM Champs. To show it was no fluke, he promptly won Sweepstakes at the West Coast R/C SAM Champs. In queries to Leslie why she wasn't flying R/C, she replied she preferred free flight.

You free flight boys who have been smiling since Bruce went over to torment the R/C fliers are not off the hook yet! If the Normans show up at Dayton, watch out!

Photo No. 10 demonstrates that a penchant for good lines is practically an inherent quality with Gordon Codding, of 3724 John L. Avenue, Kingman, AZ 86401. His latest, a modified Miss America, shows what can be done with a little imagination. You don't have to go out and win a flock of trophies to enjoy this Old Timer kick!

Gordon has made a few minor changes to this old free flight, one being a slight enlargement of the fin to maintain correct C.L.A. location with those big wheel pants. Model is to be painted white with gold trim. This ought to make some of the free flighters crane their heads.

We've mentioned it before, but Gordon runs a plan business which stocks full-sized drawings of old WW-I airplanes plus lots of flying scale drawings, plus a pretty fair selection of Old Timer plans. Gordon has been extremely active in the practice of converting old standards such as the Pacific Ace or Ohlsson Pacemaker into very good looking biplanes. This is something worth looking into . . . a new field of fun with O.T. biplanes!

THE VAMPS "GENTLEMEN'S EVENT"

Just as soon as we said we weren't going to publish any more new varieties on the 1/2A Texaco event, along comes the Vegas Antique Model Plane Society (VAMPS) and puts out a set of rules designed to lose another flock of models (at least at any other place outside of Henderson Dry Lake).

The "Gentlemen's Event" turns out to be a fuel allotment event limited to .051 cu. in. motors and below. 1) Only Antiques are eligible (Dec. 31, 1938 cutoff date); 2) Models can be to any scale and size; 3) Type construction in original shall be the same in the reduced version. This goes for the airfoil, too. 4) Only commercial fuel can be used (unaltered, of course); 5) 1/2 ounce of fuel is the allotment for all models; 6) Only reed or rotary valve *glow* engines (no diesels); 7) No weight restrictions; 8) R.O.G. only; 9) No max flights; 10) Three flights with combined total time of all to count.

This writer notes that subsequent rules allow the use of two models. Should be three if you have to get three officials in! With 1/2 ounce of fuel, the attrition rate should be pretty high.

Photo No. 11 is a real classic in that it shows a completely unassisted takeoff of an Ohlsson .60 powered Cleveland Playboy Sr. The model was built by Dr. Dave Sweeney, of Dallas, Texas, and was

flown last year at the O.T. Nats events at Mead Missile Base.

Sweeney has been extremely active in O.T. free flight activities and rarely misses the Old Timer events held at the AMA Nationals to compensate those modelers who are unable to make the SAM Champs.

Many people have asked this columnist if Old Timer events are going to be staged at the Nationals this year. Because of the SAM Championships just prior to the AMA Nationals at Wright-Patterson AFB, the events become redundant this year. As previously announced, the only Old Timer events that will be held at the Nationals will be the O.T. C/L Stunt events at Wilmington (two classes, glow power and ignition power).

C.I.A.

Harry Murphy did it again in putting together the Third Annual Old Timer Issue of the Central Indiana Aeromodellers (C.I.A.) newsletter, *"Informer."* This newsletter, when it concentrates strictly on Old Timers (and now Nostalgia events), is the kind of reading anyone can enjoy.

Harry reports the recent 3rd Annual C.I.A. meet was run by Bob Larsh (SAM Champs Manager) and Meredith Chamberlain (SAM Champs F/F C.D.) as a "shakedown" for the upcoming SAM Champs at Wright-Patterson AFB. Everything went off so good that Murphy figures the 14th Annual SAM Champs are going to be as good as the previous one held by COFFC in 1976. Great stuff!

From Bruce Lester again comes a great shot (Photo No. 13) of Barney Snyder's original Miss Tiny at the old Gotch Airport (the Western and Rosecrans site). The kit of this model proved to be one of the most successful designed around the Ohlsson .23. Barney sold a mint of these models in the L.A. area, as it fitted the precision rules beautifully.

Photo No. 14 shows Carl Hatrak, the Captain of the Southern California Czech Team, demonstrating the technique of flying a rubber-powered R.O.G. Hatrak modestly admits that he is probably the premier Czech R.O.G. flier in the USA . . . no, make that the world. For those skeptics who doubt the foregoing, we refer you to the last issue wherein the Team Challenge demonstrated beyond a doubt who was the superior flier. If you continue to doubt, just ask Hatrak, he'll tell you!

SAM CHAPTER 8 DOINGS

Tom Cope reports that the tireless worker, Dave Knight, has got SAM 8 on the ball, scheduling no less than four meets in the Great Northwest.

For those who have been reading the paper about the volcanic eruption of Mt. St. Helens, the recent SAM 8 contest at Hart's Lake enjoyed more than its share of fallout. Contestants who were monitoring the radio to keep current on the eruption, noted a fine gray dust accumulating on the cars, recording tables, and most everything else. However, as Tom sez, you can bet your ash, fallout or no fallout, SAM 8 flies on!

SAN DIEGO STIRRINGS

Have been receiving monthly SAM 41 newsletter reports from George Wagner, Editor, 2879 Marathon Drive, San Diego, CA 92123. No question about SAM 41 being a going concern, now under the old respected name of the San Deigo Aeroneers.

George reports that quite a bit of flying is going on at their San Marcos field, along with several monthly contests. Alfie Faulkner, who stopped by to visit the writer in San Jose, also is quite enthusiastic about the future of this club.

For those people looking for some real fun and a relaxing time in Old Timers, contact George at his home. According to Wagner, they can never get too many members. The more, the merrier!

Murphy also notes the successful contest had more than a few beauty models entered. Probably the most unusual was Ed Konefes' "Cloud-snooper," which turns out to be a big So-Long. Bill Hale has learned a new way to gift wrap his model, as his mylar streamer (used for thermal detection) swung into his prop and before you could say "Merry Christmas," 20 feet was wrapped around the model.

Photo No. 12 shows the original Diamond Zipper as built by Carl Goldberg and beautifully restored by Jack McCracken. The model, sometimes called the Gas Bird, still has the original Dennymite motor in it. The writer

checked this engine and found it is still in great running shape. Super compression.

FLORIDA FLASHES

Just received a couple of quick letters from Terry Rimert to remind all Floridians that there will be a big District 5 Free Flight Championship over the Labor Day holidays. Didn't say where, but suspect the meet will be in the Pensacola area.

Terry, after seeing the Fiesta of Five Flags Contest at Pensacola, is absolutely flabbergasted at the energy of Bryton Barron. Won again with his Playboy! Good thing he isn't quite as active as he used to be or there wouldn't be anything in the other events left either!

Photo No. 15 is of Don Bekins displaying his very successful M-G, scaled to 1/2A size by Mike Granieri. There was a bit of doubt as to the correct size for the 1/2A Texaco event, but as it turned out, the model flew quite well and hit the best thermal of the day at the recent West Coast R/C Champs . . . 44 minutes!

For those who are interested in Don Bekins' experiences and have questions on how he is such a consistent winner, write to Don at 85 Bellevue St., Belvedere, CA 94920. Don is quite cooperative and willing to share with anyone. So, if you want to be a winner, talk to Don!

THE WRAP-UP

Back in 1937, Chet Lanzo won the Ed Roberts Trophy for the best flying radio model with his R/C stick model (see *Air Trails*, December 1937). In all these years, Chet has proudly kept his trophy.

Recently, Chet has offered this trophy to SAM as a perpetual trophy. This columnist immediately seized upon this opportunity to create a new O.T. R/C Texaco Perpetual Trophy. Since the inception of R/C Texaco in 1974, the event has constantly gained in popularity.

The trophy has been sent to Tom Sutor, the deluxe trophy man, to have a new base put on it plus the winners of the R/C Texaco event for the past six years. This should give this perpetual trophy immediate status!

The trophy was sent by Chet Lanzo in a box that has never been opened by this writer. When Lanzo awards this trophy to the Texaco winner at Wright-Patterson AFB, this trophy is going to be as great a surprise to me as it is to you! We'll see you all at W-P!! •

R/C HLG . . . . *Continued from page 25*

I'm always one of the last to admit to this big-plane advantage.

One of the people who continually shatter my illusions about my small gliders is Jay Williams of Santa Rosa, California. Jay is 14, and he tosses a mean handlaunch. Lately he's been flying a stock Goldberg "Gentle Lady," and it's all I can do to keep up with him when the lift is weak and bumpy, as it usually is on warm damp summer mornings north of San Francisco. Like me, Jay isn't particularly strong in the shoulder or bicep, but he makes up for it by flying low, weak lift extremely well.

Whenever Jay and I share the same air, it becomes obvious that the 78-inch Gentle Lady has an efficiency advantage over my 54-inch Sunbird, partly because of its larger wing, and partly because of its extra mass. Jay's Lady weighs around 22 ounces to the Sunbird's 12, and this extra mass helps to iron out a lot of the early-morning bumps and potholes in the air . . . turbulence that tosses the Sunbird around like a Dixie cup doesn't seem to rattle the Lady. So I find myself continually having to dive to recover airspeed after each gust upsets me, while Jay is busy making big, smooth circles around me, often with less net altitude loss.

In conditions like this my only hope is to find a single thermal large enough to circle in . . . and, of course, one that's too small for the Lady! If I try to incorporate two or three small lift areas into one big circle, the way Jay does, the turbulence and down air between thermals will eat my lunch.

Unfortunately there isn't much room inside the little Sunbird for ballast, and this is a definite flaw in the design. In these violent, early-morning conditions (and in the wind) a couple of extra ounces of lead on the CG would sure help. I've been threatening to build a new wing with an internal ballast box, but so far I've been too lazy to do it. What works almost as well is to slip on a

heavier wing from an earlier version of the Sunbird. This wing is made from solid sheet balsa, using a simple undercambered airfoil (see the article on sheet-balsa wings in the August 1980 **RCMB**). I picked the wood for this wing very carefully, using a set of gram scales, but it still finished out almost two ounces heavier than the built-up wing shown on the Sunbird plan. Noboby likes heavy wings . . . they handle like dogs . . . but as my friend Buzz Averill points out, you can get back a lot of lost responsiveness by just increasing the polyhedral slightly.

* * *

This month's photos show handlaunch activity in three different parts of the country. Sadistic rascal that I am, I just love the shot of Max Mills chucking his neat little 60-inch vee-tail up into the turbulent, signal-jammed vile gray yonder; his wife Gloria caught the action just as the right wing panel is giving up the ghost. A true handlaunch flier's nightmare! But the story doesn't end there. Max rebuilt the beast, hooked the controls up backwards this time, and promptly stuffed it again!

Max and Gloria (they're from Albuquerque) were both hyperactive in soaring during the middle seventies. Lately they've taken to dressing up in buckskin and shooting at paper turkeys with black-powder rifles. And our neighbors think *we've* got strange hobbies!

The photo of Joe Wurtz's R/C handlaunch is another case of handwriting on the wall. Joe tossed this 90-inch beastie to a solid first place in the most recent handlaunch contest in the Los Angeles area, held at Magnolia High School field down in Orange County. Taylor Collins, who directed the affair, reports that a truckload of San Fernando Silent Fliers showed up and copped the first four places! Rules were just like last year: six launches per round, two-minute max per launch. Second place went to Mike Regan, flying Chris Adams' neat pod-and-boom original. Chris was off in Reno working on a PhD instead of tending to (modeling) business.

The last two photos show Peter Esherick of New Mexico on a late spring visit to my cave in gloomy, sunless Northern California. Peter brought his highly modified Drifter II out in a specially built airplane box for a week's stay in the San Francisco area and was met at the airport by leaden skies and brisk breezes off the always-chilly Pacific. He managed to break a minute several times by tossing high and keeping the Drifter's nose (and his own) into the breeze. Almost looked like dynamic soaring. If he made even a single circle he would fall like a brick, but as long as he weathervaned he could scoot laterally back and forth across the field and take advantage of every little shot of lift that came screaming through. And all this at less than fifty feet of altitude!

* * *

If you have anything interesting happening in R/C handlaunch in your area . . . new rules, new events, new tips on how to squeeze the most out of a toss . . . drop me a note care of **RCMB** and I'll slip the info into an occasional update article like this one. Photos (3 x 5 black-and-white prints) are always welcome, can't do much with color.

And if you have any questions about handlaunch that I can help with, drop a note. The address is 236A Pennsylvania N.E., Albuquerque, NM 87108. Unreliable correspondent that I am, I'll do my best to answer handlaunch mail immediately. As you've probably noticed, the fine art of tossing gliders into thermals is one of my strongest passions.●

Half-A . . . . . *Continued from page 43*

chrome plate pistons. For information, a price list and answers to your questions, send a SASE to 301 N. Yale Dr., Garland, TX 75042.

Next we see a peculiar model, the Buck Rogers Starfighter as modeled for .049 U/C flying by Cox. I understand that Dale Kirn was heavily involved in the design of this pusher canard vehicle. I'll bet you could easily scale it up for R/C flying and even sneak in the Midwest 1/2A fan unit instead of a visible prop.

Another new product from Cox is the Piper Arrow three-channel model. The engine supplied is the new R/C Bee with throttle and muffler combination and integral clunk tank. Wingspan is 41 inches and the model requires only the most minimal assembly, as is typical of this series from Cox.

Dumas, which has now completely abandoned the aircraft end of the

business, has been expanding its boat line extensively. The boat pictured is the "Windy." This one is for .10 size engines, and that results in quite a sizable boat. Airprop powered boats represent the easiest entry to boating for the aircraft modeler. One other advantage of this type of boat is that it withstands even the worst water weed conditions. I had a friend who always ran his boat up the wet grass right to his feet! No wading for him!

MRC showed a Chipmunk for .10 engines and four channels at the HIA show in Anaheim early this year. The construction is bead foam and molded plastic cowl. Easy to build, and reputed to be a docile sport model for those interested in building a low-winger.

Finally, we have a U/C model to show. The "Miss San Bernardino" is an all-sheet Goodyear model designed by Russ Sandusky and Jerry Kasmer. Midwest makes the kit, which includes the bell-crank, lead-out wire, wheels, engine mounting screws, T-nuts, formed aluminum landing gear and decals. You add the engine, glue, and paint. Midwest also has several racers in its line, along with 1/2A combat and sport models.

Well, that's it for the month. I am moved in to my new abode with my new wife, and actually have my workbench set up, and the storage racks set up in the garage. You can even get both cars in! Who knows, I might even do some building sometime. •

Boats . . . . . *Continued from page 48*

OUTBOARD DEEP-VEE

1)	Jack Garcia	1025
2)	Norm Teague	919
3)	Rich Fish	733
4)	George Campbell	727
5)	Craig Glascow	707

The Southern California Scale Thunderboat Association held an R/C unlimited race at Lake Prado on June 29. The results of this event are as follows:

1) Joe Monohan, Miss Van's PX
2) Ralph Henry, Country Boy
3) Mike Deming, Shakey Special
4) Jack Bishop, Miss Bardahl
5) Red Blackford, Valu-Mart
6) Fred Gale, Barney Armstrong Machine

DISTRICT 8 POINTS STANDINGS

District 8 Points Races have now been held at Longview, Portland, and Tacoma. The four remaining races will be conducted in Spokane, Kennewick, Medford, and Kent. The standings after three races are as follows:

A-MONO

1)	Jerry Dunlap	738
2)	Jack Peters	696
3)	Dave Austin	599

A-HYDRO

1)	Jerry Dunlap	1100
2)	Randy Seiser	697
3)	Chuck Rudorfer	507

A DEEP-VEE

1)	Jerry Dunlap	1200
2)	Vic Drew	619
3)	Jesse Shehan	525

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E-Z Bo .A, Al Vela.
Peanu d Fliver.
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Shoes SOLD OUT R/C QM.
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SPORT 40

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ED FISHER'S OUTBOARD RECORDS

The Prather 31-inch Deep-Vee that we reviewed in the August issue now holds both the Outboard Monoplane and Deep-Vee oval records for NAMBA. Ed Fisher established the new marks on June 21 at the District 8 race sponsored by the Puget Sound Model Boat Club at Lake Waughop, Fort Steilacoom Park. The new record time for .21 Outboard Monoplane is 118.28 seconds for .9 mile. The Deep-Vee outboard record is now 121.45 seconds for the same distance. To establish the records, Ed used a specially modified lower unit that was locked in place on the transom (see photo). The boat was turned by using a rudder like that used on an inboard deep-vee. Rideplates extending three inches from the transom were used to help keep the boat stable.

THE FOURTH DIAMOND CUP

Although he was leading in drivers' points going into the Diamond Cup for R/C Unlimiteds held in Spokane on July 5, Les Ruggles had not won a race during the first half of the District 8 R/C Unlimited season. As a three-time former winner of this event, Les seems to have the tricky Spokane River course mastered very well. Driving a Picco .65 powered version of the 1972 Notre Dame, Les was the top qualifier for the winner-take-all final. The final heat featured a fierce battle between Les' Notre Dame, the 1975 Notre Dame of Jack Haugen, and the 1979 Miss Budweiser belonging to Roger Newton. The first three laps found these boats side-by-side going for the lead. The Budweiser then quit, the Notre Dame of Haugen's hooked and lost speed, and Jerry King's Smoother Mover took second place. Joline Fridell finished in third place after having her boat run over in one of the qualifying heats.

The current and deep water of the Spokane River claimed Butch Melewski's Miss Bardahl when it filled with water and sank during one of the qualifying heats. Despite the efforts of a scuba diver, the checkerboard hydro was not found. Prior to its sinking, the Miss

Bardahl had won the Portland R se Cup and the Thunderboat Regatta held in Tacoma. Butch's model boating friends have provided him with extra parts in hopes that he can get another boat together. All model boaters need to be constantly aware of the possibility of a boat sinking if there is not sufficient positive flotation in the hull when it fills with water. The loss of the fine running Miss Bardahl only serves to further emphasize this point.

NEW SPORT 40 HYDRO

R/C Glass, 1628 Corona, Medford, OR 97501, is presently making a new fiberglass hydroplane for the Sport 40 class. The hull is of picklefork design and features the choice of three different cowlings. The cowlings offered are patterned after the new Circus Circus, the Notre Dame, and the old Squire Shop. The boat sells for $150 and comes completely joined with the motor mount installed. Add 10% for cost of shipping. Vic Drew, owner of R/C Glass, has used this boat to compete very successfully in the Sport 40 class races held this spring in the Northwest. Contact Vic for more information on this boat.

NAMBA NATS

As I write this article, the 1980 NAMBA Nats are three weeks away and it appears that we are going to have an excellent turnout of model boaters. There should be close to 120 individuals and 400 boats participating in this year's event. Complete coverage of this event will be featured in the December issue. I just hope I can still stand the thought of writing about the event after serving as the director! •

MRC Review . *Continued from page 41*

The first thought was how good are the instructions? That was soon answered as we opened the 16-page instruction book. I said "we" because by this time a friend and fellow 1/12-scale racer, Mike Dunn, had wandered into the workshop and was reading over my shoulder with interest. The instructions are very clear, with plenty of pictures and actual size drawings of each part, a feature with which anyone who has done a Tamiya kit before will be familiar.

As we began assembly, starting with step one, taking notes and keeping time on each step, it was soon obvious that each step was very simple for anyone with any experience. In fact, we never once encountered a problem with parts aligning themselves or poor quality of the castings, whether they were metal or plastic.

The kit includes a tool kit, silicone sealer, servo tape, lube grease, liquid thread lock, and oil for the shock absorbers. (You read it right! The shocks are oil filled and are an important part of the suspension, which is all independent. There are torsion bars and shocks on the rear and a scale version of a VW front end up front with shocks and an adjustable spring on each trailing arm.) Additionally, you will need a soldering iron, solder, small standard screwdriver, needlenose pliers, and wire cutters. A small flat file and some fine sandpaper would also be useful.

Both body styles, a VW Baja Bug and a single-seat type buggy, are very detailed and realistic. Adding to the realism is a very authentic selection of mylar transfers that I'm sure will find their way onto other models too. The kit that we assembled was the single-seat buggy, which only differs from the VW bug in the body style and tire-wheel combination. The single-seater has nobby tires in the rear and a tread type in the front, whereas the VW has paddle tires in the rear and smooth type up front.

Wanting to do justice to the fine detail of the kit, and knowing my own ability (or should I say lack of ability) for painting, I called on an expert model painter with many first place concourse trophies for his paint and detail work, Frank Killam, of Killam Kreations, to do one of his outstanding paint jobs. This way I would spend more time on the assembling of the kit and have the paint job all done by the time I was ready, and I would get to go play sooner. Well, all of my planning worked out just right. The kit went together very smoothly with a total assembly time of about six hours, however, I feel I could do the next one in about three to four hours. Shortly after the car was assembled and I had installed the MRC 2000, two-channel, two-stick radio system, Frank showed up

with the body shell done up in a shiny red, white, and blue paint job. He had taken some time and effort to paint the fine features on the driver's figure, which is a work of art in itself.

After debating about where the test was to be run, we decided on a section of the city park where there was some construction in progress. With radio, car, and camera in hand, we headed out to see if this little jewel could handle as good as it looked. Were we surprised! It handled even better, which is saying a lot. For the test we installed the 15-tooth motor gear and the 70-tooth rear end gear, which gives a gear ratio of 4.67:1 which is the slower combination but gives the best torque at slow speeds, for climbing hills and so on. The other ratio provided in the kit is a 20-tooth motor gear and a 65-tooth rear end gear to give a ratio of 3.25:1, best for high speed, harder and flatter type surfaces.

After making a few hot laps to get familiar with the handling characteristics of the car in the dirt, which is new for me (having raced only 1/12-scale cars on asphalt road courses), we started looking for the bumps and jumps, which is what off-road racing is all about. Well, we found some real honeys, and did the little car handle them well! Just like its big full-sized brother. Wow! It handled the little jumps, the big jumps, the whoop-dee-doo gullies, hard dirt, soft dirt, and anything else we could find . . . even water puddles. I did not mention it before, but the complete radio box and motor is waterproof, so you can run it in water, mud, snow, everything but your swimming pool. After a dirty, dusty day of racing all you have to do is hose the car off and you're all clean and ready to go again.

The power source is an .05 electric motor run off of a six-cell sub-C rechargeable ni-cd battery pack. With the battery pack offered by Tamiya you get a slow (overnight) trickle charger, which is good to build up your pack so that all cells are equal. Also on the market are several good 15-minute chargers that you'll want, especially if you are going to enter any race events. The speed control in the kit gives you two speeds, plus forward and reverse. The car will run about 15 to 20 mph, depending on the gear ratio and terrain.

Either car, the bug or the single-seat, make for a lot of fun at the beach, in vacant lots, your back yard, at the desert, in the snow, or any place you choose. The biggest problem with the car is that it attracts crowds . . . if you can call that a problem.

There are some clubs in the area that have been putting on some organized off-road races, so I decided to drop in and take a look at what off-road racing R/C

style is like. The one I happened to attend was being held at night, which made it even more interesting. As I walked around looking at some of the machines and talking to the drivers, the Tamiya cars seemed to be the main topic, with everyone wanting to see how they would run with the other cars.

After a few practice sessions it was clear that the Tamiya was a real performer. As the sun went down some of the Tamiya drivers who had made their headlights functional (which is easy to do) turned them on, and the crowd loved it. After watching a full night of racing I decided that next month I'll be out there mixing it up with the boys.

As I said at the beginning of the story, I was looking for something new and exciting in R/C hobbies to help boost the sales in my store. I can tell you that MRC/Tamiya has come up with just what the doctor ordered. The longest any of the RA 1015 Rough Rider ($142.95) or RA 1016 Sand Scorcher ($149.95) kits has stayed on the shelf is about three days. Both are available in most hobby shops or directly from MRC, 2500 Woodbridge Ave., Edison, NJ 08817.

I would like to stay and tell you more about these great little off-roaders, but you should go down to your local hobby shop and take a close look for yourself. Besides, there is a dirt field not too far away that I've had my eye on for a while now, and my Tamiya battery pack is all charged up, so I'm gonna hang out the CLOSED sign and go do some more testing!

(By the way, my shop is called Radio Controlled Hobbies and is located at 653 W. 19th St., Costa Mesa, CA 92627. Stop by if you're ever in the area.) •

Electric . . . . . *Continued from page 45*

owes much of its design to an earlier airboat marketed by MRP for the Cox .049 engine. Ron Noreen, Seattle, Washington, decided to try the original design with an Astro 05. The results were well worth it. The performance is great . . . in fact, better than the gas version. The speed is about 12 mph with a 6x3 prop, about the same as the inboard version presently marketed by MRP. We plan to do some racing and see which is faster; it looks like it would be close. Ron uses the Jomac speed control with a Cannon radio, for an all-up weight of about 34 ounces. Ron found that the air rudder should extend a little way into the water for positive turning, especially at low speeds, and to prevent skidding in the high speed turns.

I think MRP may still offer the airboat hull for those who have an Astro 05 and would like to try it. The MRP address is 13115 N.E. 124th St., Kirkland, WA 98033, phone (206) 823-0800. There really should be a racing class for these 05 boats, they are a blast and just beg to be raced. Till next time, enjoy electrics! •

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1 to 1 Scale . . *Continued from page 34*

One problem for the scaler is the duplication of insignas, little decals, lettering, etc. Sometimes even something as simple as an American flag can cause a problem because of size. While this technique may not be satisfactory for a Precision Scale model, it works well with Sport Scale. Combine available decals or parts of them with painted material. On a recent model no available flag was close enough in size to fit the tail. I borrowed a blue field with stars from a decal source and combined it with painted red stripes. Covered with clear later on, it made a most effective flag. The same method was used to duplicate the aerobatic shields on the fuselage sides.

Rub-on letters, of course, can be used for necessary lettering. Many sizes and styles are available. I would caution you that they do age and get harder to remove from their backing. Over soft balsa, take care not to push too hard and dent the surface. The sheets can also be obtained with many other shapes such as arrows, etc. The sheets are *not* inex-

pensive, however. Make certain you have enough letters to do the job *and* to have spares for later repair, etc. You must put some type of clear over them when finished, since they are not fuel proof.

WARBIRDS

The Spirits of St. Louis R/C Club held its second annual Warbirds contest in St. Louis. A combination of scale and racing is an interesting prospect and attracted a few more entries this year than last. The models are judged by regular Sport Scale rules, fly a preliminary flight, and then race over a regular pylon course. The fastest is not necessarily the best, in that it is a combination of static score, options, and speed that wins.

The big winner this year was Harold Parenti with his P-39, followed by Wayne Nenninger with a Martin Baker, and Joe Naber with a Sea Fury. It is hoped that the concept will grow in the future, since it is a very good spectator event and requires a combination of several types of skills. In addition, team type efforts are allowed with a different flier and builder.

Back to the Hiperbipe and on to Ottawa. Assuming we can get it all together, next month's column will be the Internats report. I've got just two days before deadline when we return!

Fly scale! •

R/C World . . *Continued from page 10*

approach to the water. On contact, the water will hit it from the side at the thirty knots that the water is moving by the carrier. Ugh!

What it boils down to is that you, the carrier, and the air you are flying in are all moving together over the surface of the earth (water) at the same speed. No problem as long as you don't have to mess with the earth's surface.

If you stop that carrier, the plane will fly the same way, but now it moves away from you at the 30 knots that the air is moving, regardless of the heading or attitude. It is when you try to make the plane look like it is flying in air that is not moving over the ground (wind) that you get in trouble. You speed up like crazy upwind and slow down going the other way. It is the slow down, sometimes to the point of stall, that leads to all the fallacies about wind effects. It is what you are doing, not the wind, that starts your problem.

Think about that one for a while! We believe what Art is saying is true. But now that we're convinced, we still have to transition from a moving air mass to a stationary earth mass every time we land. Maybe all airports should be equipped with endless-belt landing strips that can be rotated to the wind direction and made to run at any given air speed!

WHAT'S YOUR FREQUENCY?

"About 3 times a. . ."

"Oh, shut up!"

A news release has just come from AMA Headquarters, indicating that a plan to support a request (whatever *that* means) for 50 frequencies for R/C aircraft [only], and 23 for cars and boats [only] was approved by AMA's Frequency Committee during special meetings in Washington D.C., on July 1 and 2, 1980.

"The information is to be submitted to the Federal Communications Commission (FCC) and is based on data gathered during the past few months, with the help of RC industry inputs and research. The frequencies are in the 72 to 75 MegaHertz range and are sandwiched in between existing frequencies, using narrow bandwidth technology to accommodate more channels in less space. FCC approval, however, is probably at least a year-and-a-half away, allowing for typical governmental rules change procedures.

"According to the committee, the new RC frequencies would be phased in over a 10 year period, after which time, use of currently existing frequencies would be discontinued. The committee's plan envisions availability of 50 channels on 72 MHz for model aircraft RC equipment immediately upon FCC approval, although only 19 of the channels (7 current and 12 new) would initially be used. Equipment on the existing RC frequencies would no longer be manufactured after 3 years, could not be sold after 5 years, but would be useable for 10 years from the FCC approval date. After the 10 year transaction period, only the new 50 channel equipment would be allowable for model aircraft use. The same time factors would apply to the new 23 channel 75 MHz non-aircraft RC operations, in regard to phasing in and out of new and old frequencies."

Read the following part of the news release carefully. It seems to be the least understood by many modelers.

"It was noted by the AMA committee that not all of the new frequencies would be expected to be used simultaneously at any one place. However, due to interference problems, it is necessary to have many to select from to assure interference-free operations at

any given time in a particular location. It was also noted that it is necessary for safety, to more effectively separate model aircraft from boat and car operations, which currently use similar R/C equipment and can cause crashes to occur."

ROTTEN CLUB AWARD

The following two letters were published in a club newsletter earlier this year. All names and places have been changed, for reasons that will become obvious as you read them. The remainder of the letters are unchanged. "Jim Tunnel" is a member of the club which published the letters.

George Baker
Greenville, Kansas

Dear George,

I would like to solicit your club's response to a request made in behalf of the Pine Tree R/C Club.

As you may know the Pine Tree Club has been without a field for 2 years. The club has held together even with this hardship. Last year there were no club flying activities other than a fall contest, held at Smith Field. I am attempting to promote at least one club contest this year and would like to have it at Jones Park. This would only be possible if your club would be willing to give up flying for one Sunday at your field, (Jones Park). For a definite date, I propose the following: Sunday, June 1 with a rain date of June 8.

The above would of course be contingent upon the Greenville Park Board approval also. If you require further information please contact me. If Sunday would be highly objectional, perhaps a Saturday would be more acceptable. Thanking you in advance for your club's consideration in this matter, I remain, A fellow R/C Flyer.

Jim Tunnel

Mr. Tom Sloane, President
Pine Tree R/C Club
Blueville, Kansas
Dear Mr. Sloane,

Enclosed please find a copy of a letter our club received from your Jim Tunnel relative to your proposed contest to be held at Jones Park, Greenville, sometime in June, 1980.

We discussed this matter at our February meeting in some detail, however, our membership voted unanimously to reject the proposal. It is not my intent, nor that of our club, to relate this answer to you in a harsh negative manner for we wish no ill feelings with yours or any other R/C club. Therefore, allow me to briefly explain our club's position.

Generally speaking, our club is not contest oriented. During 1979, on a trial basis, we did hold contests almost every month, but at our first meeting of 1980 it was decided to eliminate them. We are a congenial group of R/C modelers who are very dedicated to the hobby for the purpose of building and flying for our own pleasure, as well as helping those who accept our invitation to do likewise. Due to the varied hours that our members work at their various trades and professions, our field is in demand seven days a week. Our rules are strict but fair in order for us to completely abide by the AMA Rules as well as the wishes of the owner of our field. Our recent reorganization was made to better insure these aims for the serious modeler.

In that reorganization, unfortunately, there were those who did not try to understand, and in many cases did not wish to abide by our rules or further our aims. They no longer represent us. We are aware that some have made attempts to cloud our image. Considering the sources, we have chosen to ignore them.

It is my hope that through this letter you and you club might better understand our status. Again, our chief goal is the enjoyment of the hobby for the individual. It is possible that sometime in the future there may be some way to consider a proposal such as yours.

With Best Wishes to You and Your Club, we remain,

Very truly yours,
Greenville R/C Club
Ronald L. Filbert, Secretary

The true name of the "Greenville R/C Club" will remain anonymous, as will the name of the unfortunate "Pine Tree R/C Club," but the Greenville club's "generosity" should not be anony-

mous, if only to call everyone's attention to the fact that bad deeds, as well as good deeds, have a way of coming back. We wish the "Pine Tree" club good luck in finding its very own flying field, and as for the "Greenville" club . . . a great big, juicy, Bronx raspberry! •

Counter . . . . *Continued from page 9*

important talent needed to be successful with these little fliers. The "KID" series models are scheduled to be in most hobby shops by October 1st.

From Sterling Models, 3620 G St., Philadelphia, PA 19134.

* * *

It turns out that the Midwest Hawk isn't the only modeling product making a comeback. After a two-year absence from the market, the much-liked Tatone scale instrument kits are being made available again. In addition to a general upgrading in quality and workmanship, three new sizes have been added for use in large scale models. Each kit contains five machined metal instrument cases, polished and plated and with matching lens and back plate, along with a sheet of 20 typical instruments. The eight different sizes and their respective prices are as follows: 1/4-in., $4; 5/16-in., $4; 3/8-in., $5; 7/16-in., $5; 1/2-in., $5.75; 5/8-in., $7.50; 11/16-in., $8.50; and 13/16-in., $9.50.

The Tatone instrument kits should be available in most hobby shops by now, or you can order direct from Tatone Products, 1209 Geneva Ave., San Francisco, CA 94112. If ordering direct, add $1 for postage and handling. Also, California residents have to add 6% sales tax.

* * *

Aeromarine Enterprises has an interesting new item for power boaters: a molded plastic, infinitely adjustable trim tab that should prove to be a big hit in boating circles. Each trim tab is a one-piece black nylon molding of reasonably realistic shape, making it suitable for all types of high-performance racing boats, scale or otherwise.

The Aeromarine trim tabs come two to a package and are complete with mounting hardware and adjustable brass turnbuckles, which add to the scale appearance as well as provide for very small adjustments. Unlike most trim plates now on the market, these are narrower and longer (1-1/4 in. wide by 1-3/4 in. long). Quoting from the press release, the logic behind this design philosophy is that "A trim tab is no more than a lever, and everyone knows that if you want to move an object using a lever, the longer the lever, the less effort or drag it takes to move the object." Sounds good to us.

The new trim tabs sell for $9.95 per pair, at your dealer or from Aeromarine Enterprises, 709 Longboat Ave., Beachwood, NJ 08722.

* * *

Quarter Headquarters has announced the release of two new mufflers designed expressly for the popular Quadra gasoline engine. One is for upright engine mounting, the other for inverted, and both feature dual exhaust stacks. The inverted type muffler, Cat. No. QM-TT2, has both pipes exiting out the bottom and is just the ticket for Pitts or Cessna type cowls. The upright muffler, No. QM-TT3, has exhaust pipes coming out of both sides and is more suited to inline engine models. Both mufflers are supplied with two lengths of heat-resistant, fuel-proof neoprene tubing, plus nylon hose clamps, to get the exhaust out of the cowling if necessary.

Price of the new Quadra mufflers is $19.95. If your local shops don't stock the units you can order direct from Quarter Headquarters, P.O. Box 12321, San Francisco, CA 94112. If ordering direct, be sure to add $1.50 for postage.

* * *

Latest item from Carl Goldberg Models is not a kit, but rather a handy building aid that can be used on all types of model aircraft and even boats. It's called the CG Balancer (don't know if

that "CG" stands for Carl Goldberg or Center of Gravity), and what it is, is an adjustable stand that will support your model at the desired fore/aft balance point, leaving both hands free to move the R/C gear around or add weights, or whatever else is required to get your ship to balance correctly.

The CG Balancer is of all-wood construction and consists of two basic parts: the base (which disassembles for easy storage) and the support sling, an adjustable-length nylon ribbon with two L-shaped balance blocks on either end. In use, the model is placed in the sling, with the balance blocks resting on the two pointed dowels fastened to the base. As you can well imagine, this system is much more accurate and "professional" than suspending the model from your fat little fingertips, which can cover 1/2 inch or more of area and thus throw your balance readings way off.

The CG Balancer will safely hold models up to 12 lbs. in weight; heavier than that and you're on your own. Assembly takes only a few minutes, as all parts are pre-finished at the factory and require only minimal fitting and couple of gluing jobs.

Cost is just $5.95. From Carl Goldberg Models, 4734 W. Chicago Ave., Chicago, IL 60651.

* * *

Jim Leonard, of Slim Line Mufflers, advises us that the Sport Scale II series of mufflers has been redesigned a bit, and sent along a sample of the old and the new for direct comparison. The photo shows the two mufflers together; the differences are readily apparent.

The redesign was done in order to improve the muffler's appearance, make it operate more efficiently, and to facilitate a more efficient exhaust flow. The new version has tubes with rounded ends (actually metal spun) instead of the pressed-in plugs used in the old style, and the front tube radius now conforms to the inside tube; both of these mods result in a better appearance and more efficient exhaust gas flow. Most obvious change is the black anodized finish, and we think that if you compare the old and new styles carefully you'll see a marked improvement in workmanship, too.

Not even the muffler strap got away without being upgraded; the new one is attached differently and has done away with all spot welding, greatly reducing the chance of breakage. The new strap design also permits a much smaller mainfold, another plus in the appearance department.

The new style Sport Scale II mufflers are now available in hobby shops, or contact Slim Line Mufflers directly at P.O. Box 3295, Scottsdale, AZ 85257.

* * *

Dick Seifried is one of the more prominent F/F scale fliers in the Southern California based Flightmasters scale club. He is also Vice President of Gaylord Plastics, and recently sent us a sample of his company's latest product, an inexpensive 5-2/3:1 rubber winder that looks perfect for indoor and small outdoor rubber models. The gears and case are molded from high-impact styrene plastic. Operation is very smooth, and the total weight is under an ounce. Going price is only $3.95 postpaid.

Now that you've got the winder, you need something to wind up with it. And Gaylord Plastics has just the thing: a rubber-powered, operational miniature submarine! The sub is about a foot long and has adjustable rudder and diving planes, plus a variable-position ballast

bar set flush with the hull bottom. Full instructions are supplied for setting the sub to run submerged or on the surface.

The hull is molded from a high-visibility orange plastic that has a strange, "soapy" feel to it. The stuff must be quite buoyant, because after hefting it and casting a concerned eye at that heavy brass ballast bar, you'd swear that the first time you try it, the thing will make a beeline for the bottom and stay there. It does float, though, and rests in the water with just the conning tower above the surface.

The "Deep Dive" sub comes with rubber motors and winder (described above) and should provide lots of entertainment for kids of all ages. Cost is $13.95 plus $1 postage, direct from Gaylord Plastics, 1643 19th St., Santa Monica, CA 90404.

* * *

PanaVise Products has a new eight-page, fully illustrated catalog presenting the full line of PanaVise holding tools and explaining in detail how they can be used. The product line is broken down into four "phases," dealing with the selection of heads, bases, base mounts, and accessories. An exploded diagram inside the front cover shows very quickly the staggering number of different combinations available to PanaVise users.

Since no price was quoted in the press release, we assume these catalogs to be freebies. They're available from PanaVise Products, 2850 E. 29th St., Long Beach, CA 90806. Tell 'em you want catalog No. 180. •

Soaring . . . . . *Continued from page 24*

model that previously won significant honors. I can personally vouch for the fact that this beautiful bird handles exactly the way it should. Russell Goff, who builds the fiberglass fuselages for Trewest Designs, entered a 1/5-scale ASW-19, while Mike Gay flew his 1/5-scale Janus (the only plane with flaps . . . and, boy, did he need them when the lift died!).

I also want to pass on Keith's suggestion regarding flap control on the left (throttle) stick. Neutral position is set with the stick full forward and trim all the way back. Flaps down (positive) then corresponds with the stick movement, while flaps up (negative) is produced by moving the trim forward. Clever! Another way to regulate the flap positions is to attach a metal or plastic detent plate with positions for the stick suitably chosen, but this method works only on a rudder/elevator or aileron/elevator model with flaps; that is, you must be willing to lose one stick function, as the detent plate no longer allows side-to-side motion of the left stick. By the way, Keith earns his way by translating technical German into English, primarily in the field of Aeronautics. He's also into photographic printing techniques; witness his interpretive photo of Peter Fell's 50-inch Tiger. Sure gives the feeling of speed.

This part of England is picturesque and historic. The nearby town of Bath was named that by the Romans who used the natural springs for their health and pleasure. One evening we had dinner at The George Inn (Norton Street, Philip, Somerset), a pub that's been open ever since 1397. The tales of the Inn could fill volumes.

In this region, the topsoil covers a layer of white chalk. Once the chalk of a sufficiently steep slope is exposed, it remains uncovered for centuries. Long-forgotten artists have decorated some of the important hills with representations of large animal silhouettes. The White Horse slope, near Westbury, is so marked. There's a fine picnic ground on top of this wonderful soaring site. There I watched Ken Herridge fly the Wing Thing, a highly aerobatic flying wing available in kit form with a preformed plastic fuselage. And, there were many other more conventional planes. If you stay close to the slope, the lift is tremendous. If you venture out over the valley, you're bound to meet a thermal or two.

What problems can you expect to face when flying in England? Well, at times, hang gliders compete for the same airspace, but when I was there the wind was too strong for them. Citizens band

radio interference (in the 27 mHz band) is becoming a problem. Most roads are narrow, and you *must* remember to drive on the left side. It generally takes a lot longer to cover the same distance than it does in the States. Worst of all, the price of everything is about twice the U.S. price. On the positive side, there are wonderful people who are anxious to share the enjoyment of our hobby/sport.

There's much more to say about R/C Soaring in England, but all that will have to keep till next month. See you then!•

MB Visit . . . . *Continued from page 15*

plans. It is equipped with four offset presses and four letter presses, plus a new Compugraphic 7500 Editwriter for high-speed typesetting. It also has its own silk screen system for making decals. Glen recently built, almost from scratch, a machine which automatically fills, folds, and crimps Sig-Ment glue tubes at the rate of 15 a minute.

Both Glen and Hazel took up full-scale flying in 1957. Glen accumulated over 5,000 hours, while Hazel is into the 6,000's and holds an instructor's ticket. We also noted from some early photos on the walls of Sig's office that they were both into motorcycles. Little Montezuma was sure kept alive by Sig's activities!

They have a 3,000 foot mowed grass strip about a mile-and-a-half south of town, officially named Sig Field, which appears on aviation charts. It is lighted, and includes enough 'T' and rectangular hangars to house the "Sig Air Force" plus a few other aircraft. In true farm country fashion, the field is bordered by hay bales, barns, and cows. At one time, it also had the inevitable power lines at the approach end. After many complaints by the Sigs, and a few total wipeouts of the lines by visiting aircraft, the power company finally put the wires underground for the appropriate amount of clearance!

Incidentally, there's an interesting story about the blue and white paint job on Hazel's Clipped Wing Cub. The Cub is a total rebuilt job, done by Maxey Hester. When it was ready to be painted, Hazel wanted it yellow and white, Glen wanted it red and white, and Maxey wanted blue and white. Maxey did the paint job . . .

Sig Manufacturing Co., though out in the country, off the beaten track, is continually visited by modelers. During the summer, they have an average of eight tours a day through the plant, and visitors are always welcome. But you had better like cats! Some years ago, Hazel and Glen found that they spent so much time at the factory that they practically lived there . . . so they converted part of the office into a two-room apartment, and moved in. And with them they brought their family of felines. At the present time, there are four regulars; soft, white "Bunny Rabbit," big, bushy grey Persian "Molly," black-and-white short-haired "Katy," and "Casey" the big orange and white tomcat. They rule the roost, and are usually keeping watch on all the business proceedings from the top of the file cabinets, desks, drawing boards, or even bird cages! Believe it or not, they're all quite compatible with "Perky," Hazel's cockatiel, which has been traveling with her since she acquired it last January.

Anyway, if you're in the area, just drive 8 miles off of I-80 to the south, between Des Moines and Iowa City and say hello to the gang. •

Peanut . . . . . *Continued from page 51*

cream stripe down the fuselage and on the wheel pants, and cream registration numbers N77FR on the rudder. Powerplant is a 125-hp, six-cylinder Continental taken from a 1946 Globe Swift. Builders who need more details can write directly to Fernando at 19361 S. Mesa Dr., Villa Park, CA 92667. Like all homebuilders, he's more than willing to tell you all about his pride and joy!

The photos of Fernando's Charger accompanying this article were taken at Corona. A buddy and I were returning from a model flying session at Lake

Elsinore and decided to stop at the airport and see if our flying columnist was there . . . that, and to do a little airport bumming in general. We found Fernando's hangar locked and a little while later were sitting on a park bench, taking in the usual Sunday afternoon airport action, when we spotted the familiar red bipe on final approach and watched it touch down three-point in front of us. It was then that it suddenly occurred to me to get a couple of photos of the airplane without Fernando's knowledge and include them as part of Don Butman's article, which we already had on file at the **RCMB** *office. So that's what happened. Like the photo caption says, Surprise, Fernando!* •

F/F Scale . . . .*Continued from page 59*

month, I told you that I had still another way to build a scale fuselage with a minimum of effort. I thought I would be able to have photos of a fuselage that I had built using this technique, but my schedule did not permit it. However, the sketches should provide enough information for anyone interested in trying it out. This idea came to me by George James. George can build about as fast as anyone I know, and to help himself move things along, he came up with this idea.

For those of you who cannot draw up your own drawings to work from, it might be a good idea to take an old Guillow or Sterling drawing and use that plan as a starting point. The first step is to make a structure of the fuselage outline using 1/16 square balsa as illustrated. Vertical members are placed wherever a bulkhead is desired. While this structure is drying, do the same with the plan (top) view of the fuselage. The cross-members of the structure should be located in the same place as on the profile one.

The next step is not necessary, but I believe it will help ease the construction. On the plan view, lay and pin a 1/16 square stick on dead center (thrust line), the entire length. DO NOT GLUE! Tack-glue two 1/16 square sticks on either side of the one pinned on center. Pull the center stick out while the other two are drying. When these have dried, cut out the little bit of material between the two remaining 1/16 square sticks. In essence, you will end up with two halves.

On the profile structure, draw two lines 1/32 of an inch above and below the thrust line, entire length. These lines provide the location of the two halves of the plan view. Glue these two halves onto the profile on center and at right angles to the profile (see illustration). To help support the structure for the next step, I would sandwich the lower half of this structure between two equal size blocks. Next, cut and glue 1/16 square diagonally from the upper edge of the profile to the outer edge of the plan structure as illustrated. This is done at every station, both top and bottom. By now you can see a distinct form starting to take shape.

Balsa rectangles are cut from 1/32 sheet and are glued on top of each of the diagonals. Once these are dry, sand them to shape, being careful not to oversand them. By sighting from the front, you can pretty much tell what the shape should be at a particular station. By taking a stringer and letting it flow across the now-bulkheads, you can determine whether more sanding is necessary. Once satisfied with the entire shape, you can make notches to receive the stringers. That's all there is to it. What George likes about it is that basically the entire structure can be built entirely in your hands.

Naturally, a bit of planning ahead of time will facilitate the building. Some items to consider would be to locate the stations where they would not interfere with the mounting of the wing, landing gear, and to place one where the motor peg should be. Other than that, have at it!

You think I'm finished talking about fuselage construction . . . nope! Dave Gibson sent me the following outline for building round fuselages. This isn't solely for scale models, but can be applied to old time rubber models as well.

1) A central structure is made using bass, ply, or hard balsa.

2) Foam former patterns are glued to the central structure.

3) Foam pieces are glued in place to complete the form.

4) Thin balsa strips are laminated together over the form, and stringers are run along the fuselage.

5) An alternative is to run the stringers along the fuselage and gluing small pieces between the stringers.

6) Two holding devices are used to hold the form during construction of the fuselage. Of course, the foam and central structure are removed when finished.

William Schlabach of Canton, Ohio, sympathizes with me regarding wing building, and has sent me his clever way of doing it. His method applies to both tapered or constant chord wings. It simplifies construction and insures accurate results at the same time. Here's an example using the Flyline Luton Minor wing:

1) Cut out all ribs *roughly*, allowing at least 1/32 inch extra all around.

2) Sand each bottom edge off to the line on the printed wood.

3) If there are one or more spars on the bottom, make a notch in each rib for the largest only. Do this by means of gluing sandpaper on the edge of a piece of plywood of spar width. When this isn't possible, gang the ribs next to each other, held together by the spar in the notches, and carefully sand in all the other notches taking care that they are accurately located *with respect to the plans* and are parallel to the main spar.

If notches are made in the tops of the ribs, it's important they be deep enough to allow for the trimming to come later.

4) Again, by sanding and carefully checking against the plans, the gang of ribs is trimmed to fit properly between leading and trailing edge stock, making certain that the two outside ribs are *exactly* the same length.

5) If these steps have been done properly, it's a cinch to frame up the wing over the plans. Tip ribs should also be cut oversize on top, and fitted in carefully between the tip outline. If leading and/or trailing edge stock is not pre-shaped, just lay it in as is.

6) When laying in top spars, if any, try to make sure they are properly seated and as straight as possible.

7) For the next step, you need a flat surface a few inches longer than the wingspan and exactly maximum chord width. It should also be fairly thick (1/4 or 1/2-inch foamcore ideal).

8) The wing panels (and center section, if of the same profile) are fixed firmly to the surface, making certain that the leading and trailing edges of each element line up exactly. (Leave extra leading and trailing edge stock for this purpose and simply tack-glue the panel down by means of them.)

9) Now, break out a couple of straight, substantial pieces of stock at least as long as the combined span of the pieces on the foamcore. For larger ships, use good old 2x4's. These have various grits of sandpaper affixed to them; double-sided carpet tape works well for this purpose.

10) Starting with about a No. 100 grit and with the entire ensemble firmly fixed to the workbench, the whole top surface, leading and trailing edges included, can now be carefully sanded to the proper profile. Use the outboard ribs for reference; if these are of the proper profile, all the others in between will be, too. You must sand *chord-wise*, at least at first, to avoid splitting ribs. Leading and trailing edges are shaped as part of this procedure. This step, so vital to a clean, accurate wing, really takes little time and insures a smooth covering job.

11) The panels are then removed from the foamcore, and finished and assembled in the normal manner.

If you're still with me, I think you'll readily see that step No. 10 takes care of everything so far as shaping is concerned. Gussets are always flush, joints of ribs and spars perfectly even, leading and trailing edges true, spars tapered if necessary, etc.

Pretty slick, huh? I'm ready to try a set of wings using Bill's technique.

For you modelers using CO2 motors, Tom Sanders has come up with a device that will warm the cockles of your hearts! He has developed a very small

device that can be soldered between the engine cylinder and tank for easy removal of the engine. The way CO_2 is now, you have to either destroy your existing model or unsolder everything to use the engine on another project. With this, you can also solder the unit directly on the head, making removal a cinch. At this writing, I do not know whether Tom is planning to market these (at approximately $3.95 per unit) or to sell the drawings necessary to make your own . . . or to let me publish the drawings in this column, which I now have. I'll find out, but in the meantime, I've whetted your appetite.

See you in Ohio!! •

F/F . . . . . *Continued from page 57*

AT YOUR HOBBY DEALER NOW: THE $1.98, ARF, 95% R/C CIRCLE TOWHOOK!!!

I wrote the following prediction in the 1973 NFFS Symposium (discussing the Russian circle towhook system which received a Top 10 award that year): "It should not be too long before some person puts it all together and comes up with a simpler, cleaner, lighter system . . . then, perhaps they will be available in plastic, for $1.29 plus tax, and we'll all be using one." Well, that day is here (and I wasn't too far off on the price, either!). Thanks to the proliferation of R/C accessories, it is now possible to go down to your local hobby shop and pick out off-the-shelf components for such a circle towhook. The hardest work you'll have to do is opening the packages and keeping track of the pieces. When you're finished, you'll have a Twanger towhook system that will perform all the functions of the more complicated and expensive towhooks now in use, for a very small expenditure of time and money. (I wrote a detailed description of the Twanger system in my August 1979 column, which appeared under Bob Stalick's byline by mistake, so I won't bother describing the system again, except to tell you which parts go where.)

The swinging arm which connects the movement of the tow ring to the rudder is made from a Goldberg 5/32-in. Nylon Steering Arm (SA-532 or No. 151) or DuBro 1-1/4 in. Long Nylon Steering Arm (No. 166). I bush the inside with short pieces of brass tubing, Hot Stuffed together, so that I can use a piece of 3/32 I.D. tubing for my hook pivot. A 2-56 screw goes through the ply fuselage sides and this pivot to hold the hook in place. Several holes are drilled in the fuselage sides to permit moving the hook forward or back.

The plunger assembly on the rudder pulls the glide circle stop out of the way during circle tow. The plunger arm is a 2-56 threaded coupler (DuBro TC-111, or Su-Pr-Line BC-049). I like the DuBro Rigging Couplers (RC-30), since they already have a hole drilled in them for line attachment, but these may no longer be available. You can also solder or crimp your plunger line in the end part of regular threaded couplers. The plunger rides in a bearing made from a Goldberg 3/32-in. Horn Bracket (No. 249 or AHB-3). Cut a small slot in the rudder for the flat mounting tab, then Hot Stuff in place. A couple of 2-56 nuts and a short piece of a ballpoint pen spring complete the plunger assembly.

On the other side of the rudder, the rudder horn is made from a Goldberg 90° mounting bracket (No. 275 or NMB-1). I epoxy the long side of the bracket to the rudder (the two holes make for a secure mount) and drill a 3/32-in. hole on the short bracket arm. Another threaded coupler goes through the hole, secured by a 2-56 nut. The auto-rudder line connects the coupler and the swinging arm in the fuselage, so that full forward is the straight tow position and the rudder goes into circle tow position when the arm swings back. The threaded coupler and nut permits adjustment of line length for straight tow.

The rudder lines should not change length with temperature or humidity. I use nylon-coated steel cable for these; the nylon coating allows easy movement, while the steel inner core will not stretch. Prather Products No. 7060 Nylon Coated Cable is ideal for this use. Proctor makes Rigging Cable No. 202, and Control Cable, No. 203, which should work too.

On your way back from the hobby shop, stop at the local discount hardware store and pick up a 1/2-inch

diameter split ring from the fishing section. (You might also be able to pick up the nylon-coated steel line here, too; look for Berkey Steelon or Sevalon in 25-foot spools.) You might also stop at Radio Shack; they've got 2-56 nylon nuts and screws in small quantities at reasonable prices. The nylon nuts are especially nice . . . light in weight and fit snugly enough so they don't vibrate loose. Good luck and happy twanging!!

AUTO-RUDDER HARDWARE

Auto-rudders are now in wide use on other types of models besides Nordics, so let's take a closer look at some of the details of the system I use for auto-rudder stops and hinges. Maybe you can adapt them to your own purposes.

Auto-rudder stops should be light, easy to make, and permit fine adjustments of rudder settings on the field. They should also not be easy to knock off or otherwise have the trim disturbed once they are set. I prefer to have screw-adjustable stops on my auto-rudders, but the typical U-shaped bracket as used by Ritz is too easy to knock off. I use a bar on the rudder to carry the screws, which bear against stops glued to the fin. (If you mount the screws on the fin, they are more likely to get knocked off.)

In the past, I have used 0-80 or 1-72 screws, running in a tapped hole in a plexiglas bar, which I found very easy to drill and tap, and fairly light in weight. You could use aluminum, magnesium, or even spruce, if you hardened it with Hot Stuff before drilling and tapping. My latest rudder stops use some more R/C technology for the best set-up yet. I use a piece of 1/8x1/4 spruce for the bar, then drill 1/8-in. diameter holes for the screws. A piece of the inner tubing from a Sullivan Gold-N-Rod is Hot Stuffed into each hole. The inner hole of the pushrod material is just the right size to take a 2-56 adjustment screw. It's a very snug fit, so there's no need to use locking compound to keep the screw from vibrating loose . . . ideal for a power model! Nylon screws are even lighter and fit tighter than metal screws for precise adjustments.

Auto-rudder hinges have been a problem for me until now. Cloth or sewn hinges were difficult to make look good; wire and tubing hinges came loose at the wrong times; and R/C type hinges were too big or heavy for my taste, and were also difficult for me to install. I thought I'd found the solution when I ironed on a Monokote strip on one side only of both fin and rudder, since it was light and completely sealed the hinge gap. Unfortunately, it wasn't strong enough to withstand DT landings on Taft's hard surface, and started splitting. (Maybe a double thickness would work.) The latest method is to use strips of drafting mylar as hinges. I cut a slit in the rudder and fin with a No. 11 X-Acto blade and stick the mylar strip inside. A drop of Hot Stuff is applied, and PRESTO, the hinge is firmly attached. I tried pulling the hinge apart; the balsa tore out first. The mylar I use is about .004 in. thick, frosted on one side. If you don't want any hinge gap, you could use a full-length strip for a hinge.

MYSTERY MODEL

It should be fairly easy to identify the designer of this month's mystery ship . . . the fin shape and constant chord flying surfaces are sort of a trademark for his rubber models. The only trouble may lie in figuring out which of his many published designs this was. It was a Wakefield, designed for the unlimited rubber weight rules and crack-of-dawn contests. The use of geared motors and the diamond fuselage, plus the fact that it was on the U.S. team, should help to pin it down. If you think you're right in your identification, send the answer to the **R/C Model Builder** office to see if you're the winner of the free subscription.

PRODUCTS OF NOTE:
Hand Launch Gliders

You probably get more flying time per dollar out of a simple HL glider than any other type of model. If you feel like flying something, especially for fun, the easiest way to do it is to grab a few gliders and make a trip down to the nearest schoolyard on a calm summer evening. To make sure you have something at hand to grab, consider a few items which have arrived in my mail recently.

Blue Ridge Models (P.O. Box 429, Skyland, NC 28776) produces some very prefabricated HLG kits. Dihedral joints are already mitered at the correct angle, triangle airfoil is already sanded in, all hardware and instructions included, plus an excellent grade of wood in the sample I saw. The "Super Chuck" ($4 plus $1.25 shipping) is for Open fliers; the "Would Chuck" ($3 plus $1.25) is smaller for Junior size arms. Two kits can be shipped in the same box for the same shipping as one.

Campbell's Custom Kits (P.O. Box 5996, Lake Worth, FL 33461) features the "Thermal Piglet," a contest-winning outdoor HLG, six years in development. Kit includes pre-cut parts, shaped wing T.E., and all parts for DT are included for $4.98 plus $2 shipping.

Or maybe you'd like to see how they did it in the old days? Bob Larsh (45 S. Whitcomb Ave., Indianapolis, IN 46241)

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is offering plans for 31 kinds of Old Time (pre-1943) HLG designs. This is a popular event sponsored by several Midwestern clubs at their contests, and sounds like a lot of fun. (As does the "Gentlemen's OT HLG" event proposed by the Michigan Antique Modelers . . . a "gentleman" being defined as someone born before 1943.) Send Bob $1 for a list of available plans, and he'll include a sample plan with his catalog. •

Hannan . . . . . *Continued from page 50*

During a recent PBS television documentary devoted to a native tribe, one was asked why he was carving a wooden bird model. His answer: "These are toys for our souls."

TONY NACCARATO

Another model building great has departed, with the passing of Tony Naccarato Senior. Born, auspiciously enough, in 1903, the year of the Wright brothers' powered flights, Tony's life was inextricably linked with aviation in all its facets. Although a pilot, he was particularly devoted to modeling, and his specialty was innovation. Equally at home with free flight, control line, and radio control, he seemed particularly fascinated with unorthodox types, including flying wings, autogiros, and

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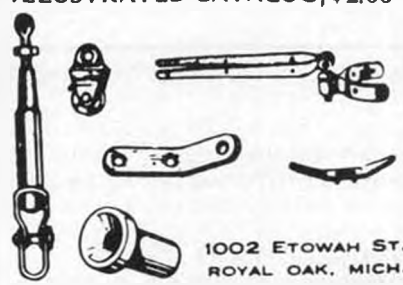

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helicopters. With his wife and family, he operated T & A Hobby Lobby in Burbank, California, which continues today to be one of that state's most renowned shops. Our condolences to his family and wide circle of friends.

BOSTONIANS

The Bostonian indoor model event continues to grow in popularity, and the West Coast variation, as sponsored by Walt Mooney, is even being flown as an outdoor class. The semi-scalish models appear to be attracting semi-scalish names as well, and the punsters are having a field-day. Witness these creative(?) examples (and their inspirations) by Carlo Godel, as featured in the *Black-sheep News:* "The Fake G" (the Fike E); "The Beachnut Bonbon" (Beechcraft Bonanza); "The Piker Club" (pretty obvious), and last but probably least, the "Cesspool One Nifty" (Cessna One Fifty).

INFLATION?

How high is high? Well, according to Florence Bakken, of Eugene, Oregon, she recently saw an antique stamped-metal toy aeroplane on sale at a doll show, bearing a price tag of $1,000. But then Dave Gibson sent in an advert from the *Wall Street Journal*, offering 18 "museum quality" ship models at prices ranging from $3,200 to $25,000!

EQUAL TIME

Writing a magazine column is, to say the least, an interesting proposition. In this rather unusual one we try to present a potpourri of items to inform, inspire and (hopefully) entertain. We intend no malice or discrimination towards any individual or group, but like turtles, we occasionally stick out our necks. (The use of the editorial "we" in this column is justified, on the grounds that our inputs are manifold.) Many originate with readers or other publications, and extra effort is made to extend proper credit where credit is due, wherever feasible. However (and here we switch from we to I), there are failings.

Back in the March, 1980 **RCMB** "Hangar" appeared an item entitled "THE REAL ENERGY CRUNCH?" with commentary regarding the high taxpayer's cost for the Department of Energy and its lack of proven results. I must first offer apologies for not stating the sources of my information. They were: *Nation's Business*, December, 1979, page 77, "Few Backers for Federal Energy Corporation"; *Dune Buggies & Hot VWs*, November, 1979, page 14, "Government Excesses"; and *Car Collector and Car Classics*, October, 1979, page 11, "No Shortages of Oil; Rather a Surplus of Government." Each article differed in its interpretation of the Department of Energy budget, ranging from a low of $10 billion to a high of $18 billion. The figure given in our item represented the middle amount of $12.3 billion. As published, the insinuation was that the expenditure went to the federal bureaucracy.

Mr. Donald E. Dahm, an engineer with the U.S. Coast Guard, took strong exception and presented his case in part, as follows: "I feel it is unfair to attack any group of people for their way of making a living, basing the attack on generalities or emotions without a firm knowledge of specifics. As far as federal employees go I feel that we have had more than our share of these unfair attacks." Mr. Dahm backed up his complaints with official DOE documents, running to some 200 pages, which he mentions "took some time and doing" to obtain. Quite frankly I would not attempt to reduce this massive quantity of information to a brief summary, but interested readers are invited to refer to the *DOE Budget in Brief*, January 28, 1980; *The DOE Amended FY 1981 Budget*, March 27 1980; and the *U.S. Department of Energy Project Book*, January, 1980. From the *Budget in Brief* "Overview," we have abstracted the following: "The FY 1981 Department of Energy budget totals $12.6 billion in budget authority and $11.1 billion in budget outlays. The budget authority being requested consists of $10.3 billion in new authority and $2.3 billion reappropriation of expiring funds for the Strategic Petroleum Reserve."

One of Mr. Dahm's strongest points was that the Departmental Administration portion of this budget as shown, consisted of only 362 million dollars. He adds: "As a side remark I might say this: don't knock the people hired to admini-

ster legislation, knock the legislators who introduce and pass it!"

According to the June 27, 1980 issue of *The Christian Science Monitor*, of the Department of Energy's budget, some 87 percent is disbursed to contractors and consultants outside the federal government, and some members of Congress are currently investigating certain aspects of how federal agencies are spending their allocated funds. Obviously now is the time to convey opinions pro or con directly to the elected officials in Washington.

I feel that Mr. Dahm has offered the best possible closing for this topic: "Dear Messrs. Northrop and Hannan. I think you publish a good magazine and column respectively. I enjoy the time I can spend on model building and I believe a segment of the population benefits immeasurably from our hobby (we use a lot of energy, human and petrochemical; I don't know that we produce any). Let's keep it non-partisan, non-political, friendly. Sincerely yours, Donald E. Dahm."

CONTEST, 1937 STYLE

Sears McCorrison, of Massachusetts, favored us with some Junior Birdmen of America contest bulletins, from which the following excerpts were culled: "Once again the time has rolled around for a big New England championship model plane tournament and YOU ought to be in it."

"Gliders, hand-launched stick models and R.O.G. cabin models will make up the three events, with two hours devoted to each one and as many flights as you can make within the period allotted."

"The high point scorer will win the silver wing trophy and an all-expense-paid trip to Atlanta, Georgia, to compete in the national contest for the national title and $400 in prize money. He'll also get a week's entertainment in Atlanta, including a night baseball game, banquets, theaters, swimming meet, sightseeing tours and military demonstration by army planes, tanks and ground forces."

And among the handy hints presented in the contest manual, we thought this one rather unusual and significant: *"Watch Your Weight.* Models entered in Junior Birdmen competitions may no longer have weights added to them to bring them up to weight requirements. All weight must be embodied in the construction of the model. Nails, gum, putty and other excess materials are taboo. So be sure to build your models heavier this year."

Sears McCorrison remembers attending the meet, and recalls this incident: "During the contest two boys showed up at the edge of the field with a gas job. L.F. Ross, the local Wing Commander, got on the public address system and announced that gas models were bad and anyone who went near those modelers would be immediately disqualified from the contest."

NEW PRODUCTS

Long-time modeler Dick Seifried has recently announced two items of possible interest for rubber-power enthusiasts. The first is a plastic submarine, about 13-1/2 inches long, ideal for use in a swimming pool. Rubber-driven, the craft features an adjustable rudder, ballast, and diving fins. Setting them will permit surface running, shallow dives or deep ones, and in straight lines or a circular course. Simply and ruggedly constructed, it ought to have a long, useful life.

Also available is a compact rubber motor winder. Although designed specifically to "power up" the submarine, the unit is equally suitable for model aircraft use. Featuring approximately a 5:1 gear ratio, is will wind in either direction.

The submarine sells for $13.95 including winder and rubber motors, while the winder is available separately for $3.95, postage extra on either item, direct from Gaylord Plastics, Inc., 1643 19th Street, Santa Monica, CA 90404. Tell 'em **R/C Model Builder** sent you!

RELAX

Enjoy. Remember *these* are potentially "The Good Old Days" to be fondly recalled in 1990! •

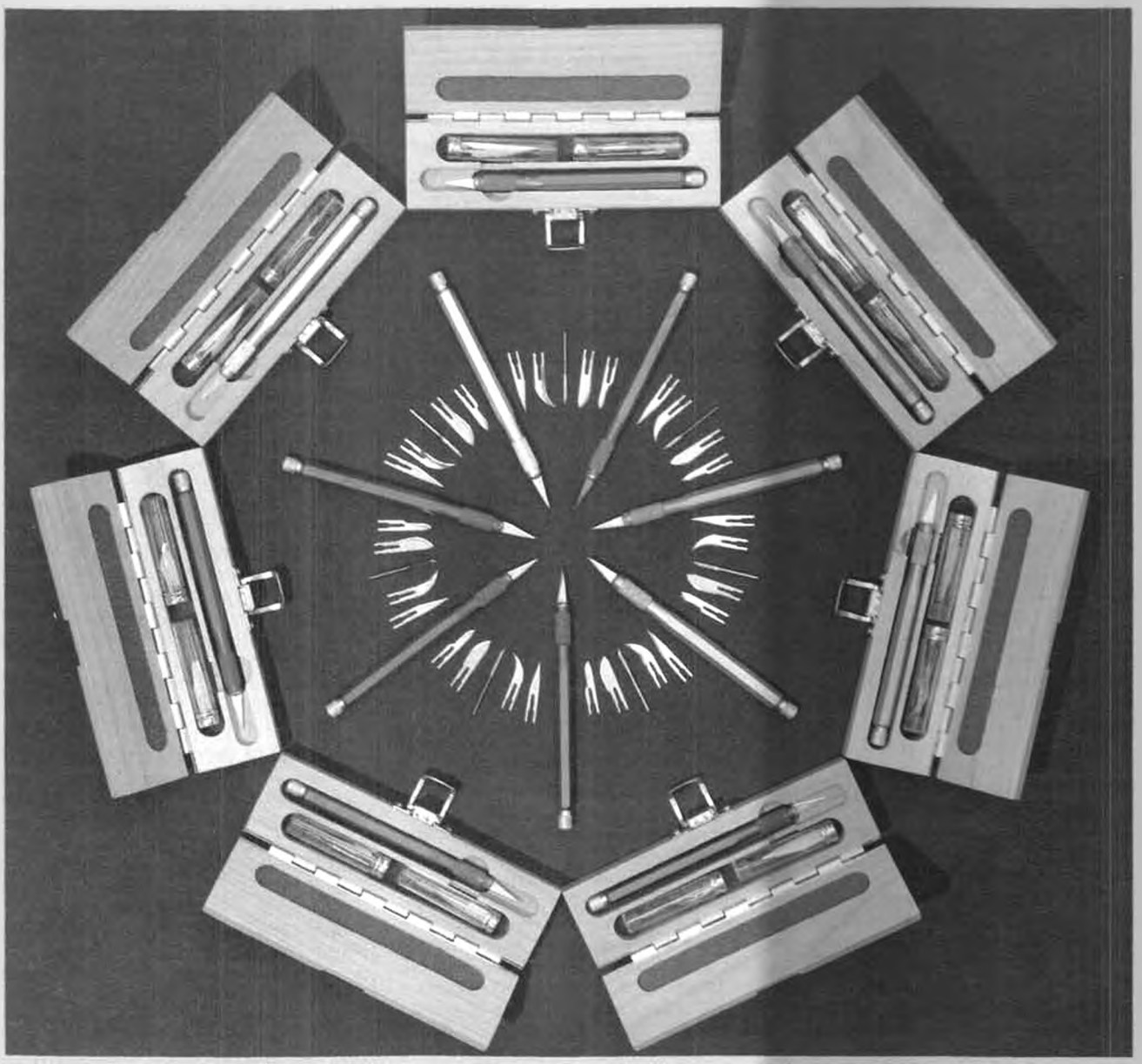
Workbench . . *Continued from page 6*

Unrevealed, however, was that this contemptuous driver probably went home, uncorked a beer and headed for a place where he could roll large balls down a hardwood alley at a bunch of wooden pins. One man's folly is another's achievement.

Size has nothing to do with the definition of the adult toy. Aristotle Onassis and other wealthy men play with ocean-going yachts. Big toys, but still toys.

MEN WHO LAUGH at the sports and

IN THE BEST CIRCLES, IT'S **über skiver**



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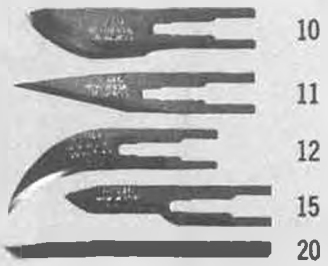
- *Safe, Rear Draw-Bar Clutch*
- *Precision, Instrument-Quality Materials*
- *Strong-Holding Advanced Collet Design*
- *Non-Rolling Hex Cross-Section*
- *Deeply Knurled, Non-Slip Grip*
- *Long-Life, Stainless, Surgical Steel Blades*



Available in seven satin anodized handle colors: silver, blue, red, green, gold, copper, violet. Complete set in fitted hardwood case; includes uber Skiver, together with two vials containing four No. 11, and one each of Nos. 10, 12, 15, and 20 . . . . . $14.95
Individual handles (specify color) $5.95
Vial of 6 blades (No. 10, 11, or 15) $2.10
(No. 12 or 20) $3.30

See your dealer, or order direct.
Dealer inquiries are invited.
All direct orders sent postpaid in U.S.
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U.S. Scale Masters Championships

First all-scale Championship selection program in R/C Precision and Sport Scale. The best fliers will do battle in an event specifically for them.* Only the cream of the crop in Scale from around the country will compete in the premiere Masters Championships this October.

1980 U.S. SCALE MASTERS CHAMPIONSHIPS
OCTOBER 3, 4, 5, AT MILE SQUARE SITE
(Fountain Valley, CA)
HOSTED BY SO. CALIF. SCALE SQUADRON

REGIONAL FLY-OFFS

TANGERINE: (Event already flown
Participation is invitational only for this year)

MINT JULEP (April 26-27):
Dale Arvin, C.D.
3428 Charles Town Pike
Jefferson, IN 47130
Phone: (502) 588-9109 (O)
(812) 283-5719 (H)

MATTY SULLIVAN MEET (June 7-8):
Melvin Katz, C.D.
9200 New Bustleton Ave.
805 Cabot
Philadelphia, PA 19115
Phone: (215) 676-7618 (H)

WESTERN SCALE NATIONALS (August 16-17):
So. Calif. Scale Squadron
Bert Baker, C.D.
15712 Graham Ave. #1
Huntington Beach, CA 92649
Phone (714) 893-3364

MILWAUKEE FLYING ELECTRONS (August 23-24):
Russell Knetzger, C.D.
2625 E. Shorewood Blvd
Milwaukee, WI 53211
Phone: (414) 271-1862 (O)
(414) 962-0637 (H)

AMA NATS
(Check with AMA for rule book to be used)

PRE-REGISTRATION REQUIRED AT ALL MEETS — CONTACT THE APPROPRIATE REGIONAL C.D.

For more details on the U.S.S.M.C. program, contact:
Harris Lee, U.S.S.M.C. Coordinating Chairman
c/o Scale Squadron
24742 Meridian
Dana Point, CA 92629
Phone: (714) 760-9466 (O)
(714) 493-8083 (H)

ALL EVENTS WILL USE THE 1978-79 AMA RULE BOOK.

*This program is designed not to compete with the AMA Nats, but rather to complement it.

hobbies of others would be well advised to consider their glass house; and to remember also the aphorism of one with playful insight into his own diversion: The main difference between men and boys is the price of their toys.

Little that men do for sport or recreation escapes that definition.

Some years ago, one of the best sailors in this area dropped by to invite us up to the lake for a ride in his Olympic class sailboat. It was a Saturday night and we protested that Sunday we had to go out to fly a radio-controlled model (now our secret is out). He demanded, with derision in his voice, to see it. We showed it to him and his voice dripped with contempt: "But that's a toy!"

And what, we asked, was his boat? He sputtered and fumed at the sacrilege. He talked of wind and weather, of concurrent forces, of jibes and tacks, of race strategy and all that.

We listened courteously and replied in kind . . . the aerodynamics of flight, wind and weather, complicated equipment . . . using all his arguments for his interest as applied to a different one.

He was furious and unconvinced. (We think sailing is a fine sport, by the way, and boats pretty toys.)

IN THIS and other pursuits, we have had the same treatment from golfers, fishermen, hunters and the rest . . . each trying to defend his sport or hobby and denigrate ours, utterly uncomprehending that what he does for kicks may appear ridiculous to others.

The mass of men, Thoreau said, lead lives of quiet desperation. But not if they have a consuming interest outside their jobs. It doesn't matter how stupid it may appear to others. Live and let live, we say.

Is there anything really wrong with the fact that many men remain boys at heart? What they spend on their toys, they usually save in medical bills.

MINI-AMERICA'S CUP 1980

Speaking of big and little toys . . . The Mini-America's Cup is put on in conjunction with the famous big sailing yacht race, and will take place this year in Newport, Rhode Island on Sept. 10 through 14, 1980. This year, 15 U.S. sailors have qualified to vie for the defender title, and will face foreign challengers from Australia (Neil Bennell, Max Lewis, and Ric Doorey), England (John Cleave), and Canada (George Wilkins).

At present, the U.S. qualifiers include Don Biggens, Bill Miller, and Richard Finlay from Florida; Larry Breault from Pennsylvania; Ed Niles from Iowa; Chris Jansen from Illinois; Robert Harris, Joe Schoonover, and Ron Stephanz from Virginia; Ivan Layton from Maryland; Manny Costa, Hank Bouchard, and Anthony Lombardi from Rhode Island; John Decker from Massachusetts; and Carter Cain from South Carolina. Alternate qualifiers have been selected to fill in for any of those listed above who will be unable to attend.

For additional information, contact Rich Palmer, Coordinator, 69 Route 46, Fairfield, NJ 07006, phone 201-575-7766.

TWO-METER WORLD CUP

A cup for another medium of travel, air, will also come up for competitive grabs in January of 1981. The Second Annual "Two Meter (R/C Glider)World Cup" competition is slated for January 10 and 11, 1981, somewhere in Southern California not yet designated.

Sponsored by the San Fernando Valley Silent Flyers and the Antelope Valley Soaring Association, the competition will include speed, distance, duration, and combination tasks. For further information contact CD's Doug Ford (SFVSF) 213-360-6213, or Sam Brown (AVSA) 805-942-4956, or write to: Two-Meter Cup, c/o Doug Ford, 18630 Nau Ave., Northridge, CA 91326.

POETRY CORNER

After all the above serious stuff, it seems appropriate to close with the following bit of verse, sent to us by Ed Barsditis, Monroeville, PA. As far as we know, he originated it.

"There once was a guy from Tulsa
Who claimed to have invented a
"new balsa."
He spoke too soon,
And sang the wrong tune.
I think he should have named it
"Falsa."

By the way . . . Does anyone know the translation for our favorite Latin slogan? "Non Illigitimi Carborundum." ●

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OUR READY-TO-FLY FLEET IS TAKING OFF . . . In case you haven't noticed balsa building and time consuming hours of assembly are yesterday's news. MRC has built an eye-popping, powerful ready-to-fly fleet. Everything that once took you weekends of construction, hours of patience and countless dollars to assemble is now available ready-to-fly.

EASE AND CONVENIENCE Each of these meticulously designed craft can be assembled ready-to-fly in one or two hours depending on your skill.* And that means complete with engine, fuel tank, fuel tubing, pre-bent control rods and horns factory installed. And what isn't installed is included, all you need is your radio.

POWER AND BEAUTY Each one is as powerful as it is eye appealing. Take the Trainer Hawk, for instance, here's a stable, maneuverable trainer with 48" wingspan, .15 TV installed, steerable nose gear and full throttle control. It's magnificent. Or maybe your taste runs to a 1/10 scale Messerschmitt with smooth as glass, WWII, authentic paint job, or our stunt-filled aerobatic Chipmunk with it's slick, yellow finish and color coordinated decals.

SELECTION AND PRIDE The point is we have it all, including an almost-ready-to-fly sleek foam glider with 63" wingspan. And not one of these is an underpowered toy. They're powerful, meticulously finished, complete, and made for the serious hobbyist at budget pleasing prices you'll find hard to believe. It's the new wave in ready-to-fly. Take your choice and take off with MRC's ready-to-go air force.

*Young Star Foam Glider requires 5–7 hrs. to assemble depending on your skill.

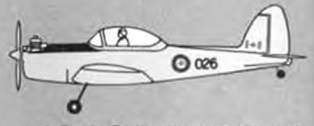
MRC

MODEL RECTIFIER CORPORATION,
2500 Woodbridge Ave.,
Edison, NJ 08817

Piper Cherokee

Cessna Cardinal


1/10 Scale Messerschmitt (ME-109E)



1/10 Scale DeHavilland Chipmunk

Trainer Hawk II

MRC Eagle Trainer

Young Star Glider