MODEL BUILDER

APRIL 1975

volume 5, number 40

$1.25

EASY RIDERS

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ATLAS VAN LINES AVL-40

1" scale of winningest unlimited hydro in the Gold Cup Circuit. Pickle-forked bow provides maximum control. Sturdy birch and mahogany plywood construction. 36" long, for .40 engine. A good, basic competition hydro for .40 engine.

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This new stand-off scale model of the national unlimited hydroplane champ is 30" long, 15" beam, designed for .20 engine and radio control running. Rugged plywood construction. A great performer . . . even for the beginner!

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They don't come any faster, better designed, or better built. These kits are the leaders in stand-off scale as well as all out hydro-class competition. Stable and sure in the turns, and you can pull out all stops on the straightaway. ■ In calm or rough water, for fun or competition, Dumas has the easy riders . . . from hydro to deep vee. ■ **Now available: Pre-packaged hardware kits with everything you need for running. Props for all models also available separately. A hardware kit for every model.** See Your Local Dealer. If He Can't Help You Write Us. See your hobby dealer or send 50¢ for our complete catalog

dumas boats

Dumas Products, Inc., 790 South Park Avenue, Tucson, Arizona 85719

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Pictured is the new KPR-7MB seven channel receiver-battery combination, KPS-17 3-servo unit, and switch harness with charge plug. These are all that is required for a very lightweight, space-saving airborne system. Four individual servos may be added for more complex requirements.

These options represent only a small part of the most complete line in the industry. This is another reason why there is almost no other choice in radio control.

KPR-7MB

Weight:	5.25 oz.
Length:	2.78 in.
Height:	1.55 in.
Width:	1.36 in.

KPS-17

Weight:	4.7 oz.
Length:	2.42 in.
Height:	1.71 in.
Width:	1.87 in.

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A pattern junior/senior A pattern open, B pattern open, D pattern novice, D pattern expert (FAI Rules), Stand-off (sport) Scale.

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EVENTS (please check)

- ☐ A Pattern Junior/Senior
- ☐ A Pattern Open
- ☐ B Pattern Open
- ☐ D Novice
- ☐ D Expert (F.A.I. Rules)
- ☐ Stand-off (Sport) Scale*

*Send SSAE for Stand-off Scale rules.

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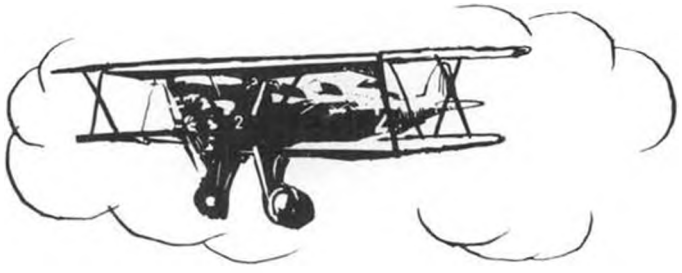
(Sorry no refunds)

Registration closes after 1st round of pattern event.

Airstrip will be closed Saturday and Sunday from 8 a.m. to 12 noon and 1 p.m. to 6:30 p.m. to air traffic for the meet.

Beautiful array of silver thru 3rd place. Prizes given thru 5th place, or farther if possible.



Choose accomodations from lodge rooms, cottages, or camping areas. For those who fly, 2500-foot paved airstrip is in the park.

For further information on reservations, write Rough River Dam State Park, Falls of Rough, Kentucky 40119 — or phone the park: (502) 257-2311.

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Fantastic Southern style banquet Saturday night for contestants and family at a reasonable cost.

MODEL BUILDER

APRIL

1975

volume 5, number 40

1105 SPURGEON, BOX 4336, SANTA ANA, CALIFORNIA 92702 (714) 547-3963

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CONSTRUCTION

Cover: If you can possibly take your eyes off delightful Debbie Ruff, you might notice the quite unusual aircraft she is holding. To the best of our knowledge, this may represent the first completely successful gas powered model autogyro ever flown untethered . . . or at least, by radio control. The designer and builder of the model, Skip Ruff (sorry guys, he's her husband), has provided us with a set of plans and a very informative construction article, beginning on page 7 of this issue. The model is an exceptionally stable flier, actually easier than many so-called beginner's trainers. Ektachrome transparency by Russ Hiatt.

from Bill Northrop's workbench

• • •

Ralph Fidance . . . 1971 Photo by Cubbage Brown

GOOD BYE "AIR TRAILS"

• It was saddening to learn of the recent demise of Potomac Publications, because it took with it a magazine which was over 40 years old and a part of the backbone of model aviation . . . we're talking about "AIR TRAILS," the name it had during the time when it held the most regard from modelers who knew it at its best.

Back in 1934, Bill Barnes Air Novels started as a pulp magazine, typical of that era, featuring the fictional escapades of a group of aviators who, month after month, protected the United States from a variety of foreign and domestic invaders and underworld characters.

As real model and full scale aviation information began to appear in its pages, the magazine name changed to "BILL BARNES Air Trails," then "AIR TRAILS with Bill Barnes," as still more modeling and general aviation features began to move in. By 1938, the name "AIR TRAILS" had taken over the masthead, and at the end of that year, the Bill Barnes novels came to a conclusion.

From late 1939, until late 1947, AIR TRAILS went to the large (10x13) format made popular by such former greats as Look, Life, Pic, etc., and featured many famous model designs.

In April 1954, the magazine started a series of name changes that would make one wonder how it kept *any* identity. First, it was "Air Trails Hobbies for Young Men," then in November 1955, it became "Young Men" (complete with articles on how to build bird houses and how to model Bobby Benson's ranch!). In December 1956, it became American Modeler. From 1963 through 1966, the magazine was pubilshed every other month, and the July/August 1966 issue marked the beginning of the controversial tie-in with AMA. This contractural arrangement was made behind closed doors and announced to the public *after* completion of the contract, and without permitting competitive bidding on the part of other model magazines.

Lastly (and some say "leastly"), beginning with the January 1968 issue . . . along with resuming monthly publication . . . the name was changed to American Aircraft Modeler, the name with which it finally went down the tubes in early February.

SO NOW WHAT?

Knowing that the AMA Executive Council was already scheduled to meet in Washington D.C. on February 15, and realizing that the magazine issue would now be a primary consideration, this writer addressed a letter to the Council. Naturally, the subject of the letter was the AMA/magazine situation.

Upon learning of the surprising decision that was made at that meeting, we investigated, and discovered that our let-

Continued on page 73

SO LONG, RALPH

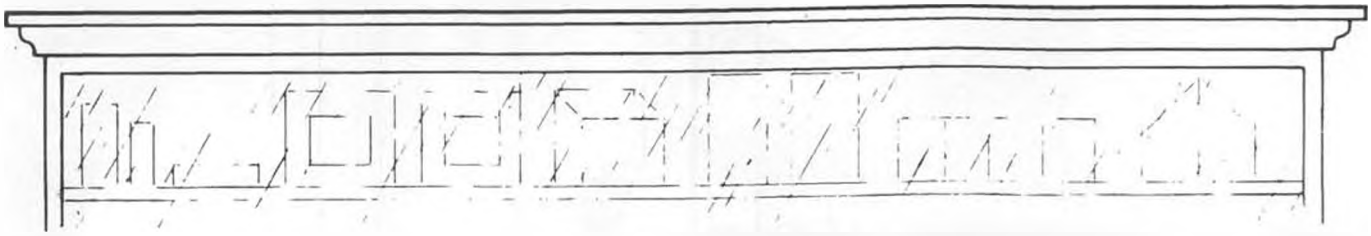
• One of my closest R/C flying buddies for many years in the Delaware R/C Club, Ralph Fidance, passed away on February 6, 1975, a victim of a bout with cancer. I wish to express my sympathies to his two daughters, and his wife Marge.

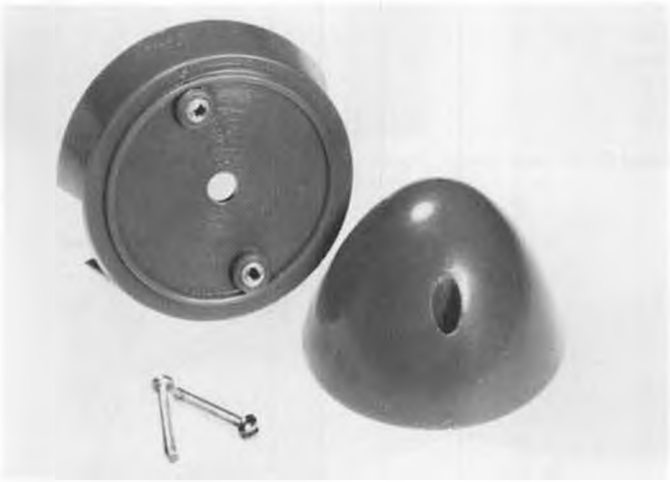
Ralph was a finish carpenter by trade, and it was obvious in the quality of construction of his models. Not only that, he was an originator, a real modeler who created many of his own original designs and scale projects. His 2 inch scale R/C Curtiss Wright Jr. (Dec. '71 MB) still ranks among the top 3 most popular plans ever published in MODEL BUILDER.

A quiet, unassuming man, Ralph Fidance was well liked by everyone who knew him. At the flying field, he was always willing to spend time helping newcomers, often so busy that he would never get his own ships airborne . . . and he invariably seemed to have on hand the tool or part you left home by mistake.

I haven't seen Ralph in over 5 years, since I said goodbye to him when moving from the East Coast. I knew we parted as good friends then, and I know we part as good friends now . . . So long, Ralph. •

OVER THE COUNTER





New Tatone spinners feature attachment by screws into brass inserts.

The "POKEY 808" by Dick Beltz. Standard Class R/C glider.

● "Pokey 808" is the name of a Standard Class R/C glider which was designed, and is being kitted, by Dick Beltz, R.D. No. 3, Box 169, Lehighton, PA 18235. The ship spans 99.8 inches, with 808 sq. in. wing area (thus the name), and weighs an average of 35 ounces.

Available direct only at this time, the kit features basic hardware, full length fuselage sides, all parts machine cut, ply nose doubler, and flat-bottom airfoil. Retail price is $35.95. The ship has already acquired a substantial win record in East Coast ECSS and AMA contests.

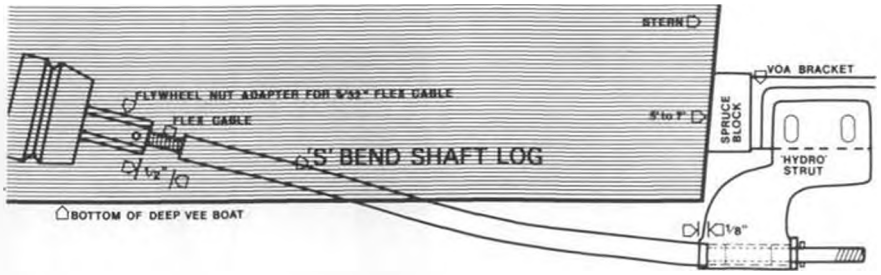
* * *

Midwest Model Supply, 6929 W. 59th St., Chicago, Ill. 60638, is marketing a new two-equal-part epoxy adhesive that is especially good for bonding to, and repairing fiberglass parts. Containing glass fibers, "Twin Weld," as it is called, has a pot life of 20 minutes, is paste-like in consistency and therefore does not run while curing to an off-white color, and remains permanently flexible.

Gerry Nelson, of Midwest, points out that Twin Weld, which comes in two 2 ounce tubes for $3.95, is particularly useful for attaching plywood firewalls, maple motor mounts, and hardwood wing hold-down blocks to polyester or epoxy fuselages. It is also excellent for bonding metal marine fittings to fiberglass or plywood boat hulls. Finally, it is handy for joining fiberglass to fiberglass, such as wheelpants, fuselages, boat hulls, etc. As such, it works well for repairing damaged fiberglass parts.

Try your dealer first and then write to Gerry and tell him we sent you.

* * *



"S" Bend Shaft Log by Marine Specialties, for flexible drivelines.

Marine Specialties, P.O. Box 588, Saratoga, CA. 95070, custom model boating hardware manufacturers, now offers a new "S" Bend Shaft Log, for use with .150 Flex Cable Driveline. Flexible drivelines, of course, permit a wide range of thrust angles, and eliminate the need of mounting the engine at an extreme angle to the hull bottom.

Prices of the "S" Bend Shaft Log run from $3.65 for an 8 inch unit to be used with .19 engines, up to $6.15 for an 18 inch unit for .60 engines. Write to Marine Specialties for further information.

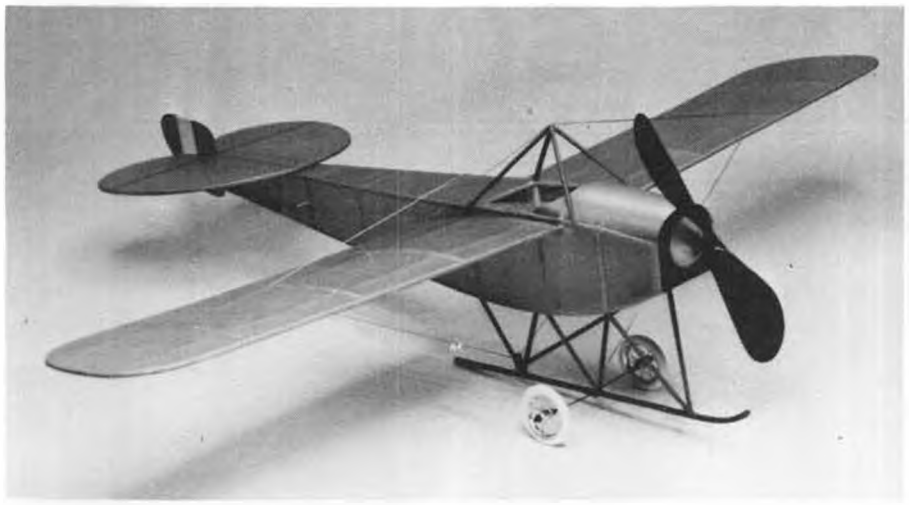
* * *

D & S Models (Davidson and Sica), 4080 Orange Ave., San Diego, CA. 92105, is offering a fiberglass and foam kit for the Rickey Rat, both in Formula I and Quarter Midget sizes. The Form I version is $89.95, while the QM kit goes for $55.00.

Both ships are building a string of wins, as flown by 18 year old Keith Davidson, and by Steve Sica, age 14. During the 1974 NMPRA racing season, the ships took 2nd and 6th in Standard Class at Bakersfield, 4th place and Fast Time at Sepulveda Basin, 1st and 3rd place at Whittier Narrows, and 11th place and Best Junior (Steve Sica) at the Lake Charles Nats.

* * *

Introduced at the Seattle, Washington RAMS Show in early February by Thesis, 6000 Ridgeview Way, Ferndale, Washington 98248, phone (206) 384-5783, the Digitach, a solid state optical tachometer, made quite an impression on those in attendance. Measuring a compact 1x2x7 inches, the instrument features accuracy of plus or minus 30 rpm from 0 to 30,000 rpm (plus or minus .02% at



Hannan-designed Nieuport is Peanut version of ancient Ideal product. Produced by Vintage Aero.

Peanut Ideal Nieuport framework follows original construction.

15,000 rpm), digital readout of five easy-to-read characters, and a one year full service warranty. A light shield over the display makes it easy to read in bright daylight. It uses C-mos digital circuits, solid state numeric indicators, sensitive photo transistor pick-up, single button operation, and dry battery power.

To be sold for $129, the company will be making first deliveries of the Digitach on April 1, 1975, and for those placing an order accompanied by a check or money order before May 1, 1975, it may be purchased for an introductory offer of $99.00, plus $2.00 for postage and handling. Dealer and distributor inquiries are invited.

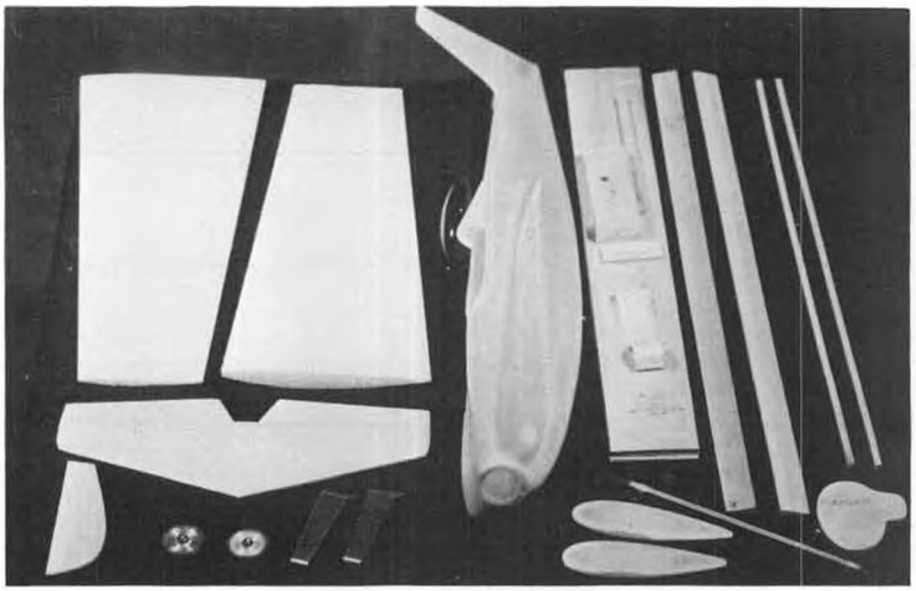
* * *

Vintage Aero, 1 The Glen, Tenafly, New Jersey 07670, (201) 568-7955, in its beautiful little $1.00, 24 page catalog, claims to be helping to set model building back sixty years! And indeed, many of the items listed go back farther than most of even the older modelers still active today. The drawings, and portions of the text, come directly from magazine and catalog ads dating back to World War I, when Ideal Model Aeroplane Company was THE model supplier for the hobby.

In the Vintage Aero catalog, you will find that you can order such items as: a 1913 Harper's reprint of assembly instructions for the "Ideal" Nieuport, Wright Biplane, Bleriot Monoplane, Curtiss . . . look out . . . Hydroaeroplane, and the Cecil Paoli Racer; a kit for the Bluebird Racing Aeroplane, a twin prop pusher of 22 inch span that will "mount to a height of 100 feet or more and make flights of over 300 feet"; a new Peanut version of the famous Ideal Nieuport, designed by Bill Hannan; a 1918 Ideal catalog reprint; compressed air engine plans; and many more.

Model supplies listed include such rare items as; "Ideal," Wright, and Langley type propeller blanks from 5 to 12 inch diameter; metal propeller "hangers," bass and spruce strips, various sizes of

Formula I "Rickey Rat" from D & S kit.



Contents of D & S "Rickey Rat" kit. Also available in Quarter Midget version.

reed and bamboo strip, bamboo paper in two weights, and how about this . . . "Ideal" ball bearing propeller shafts!

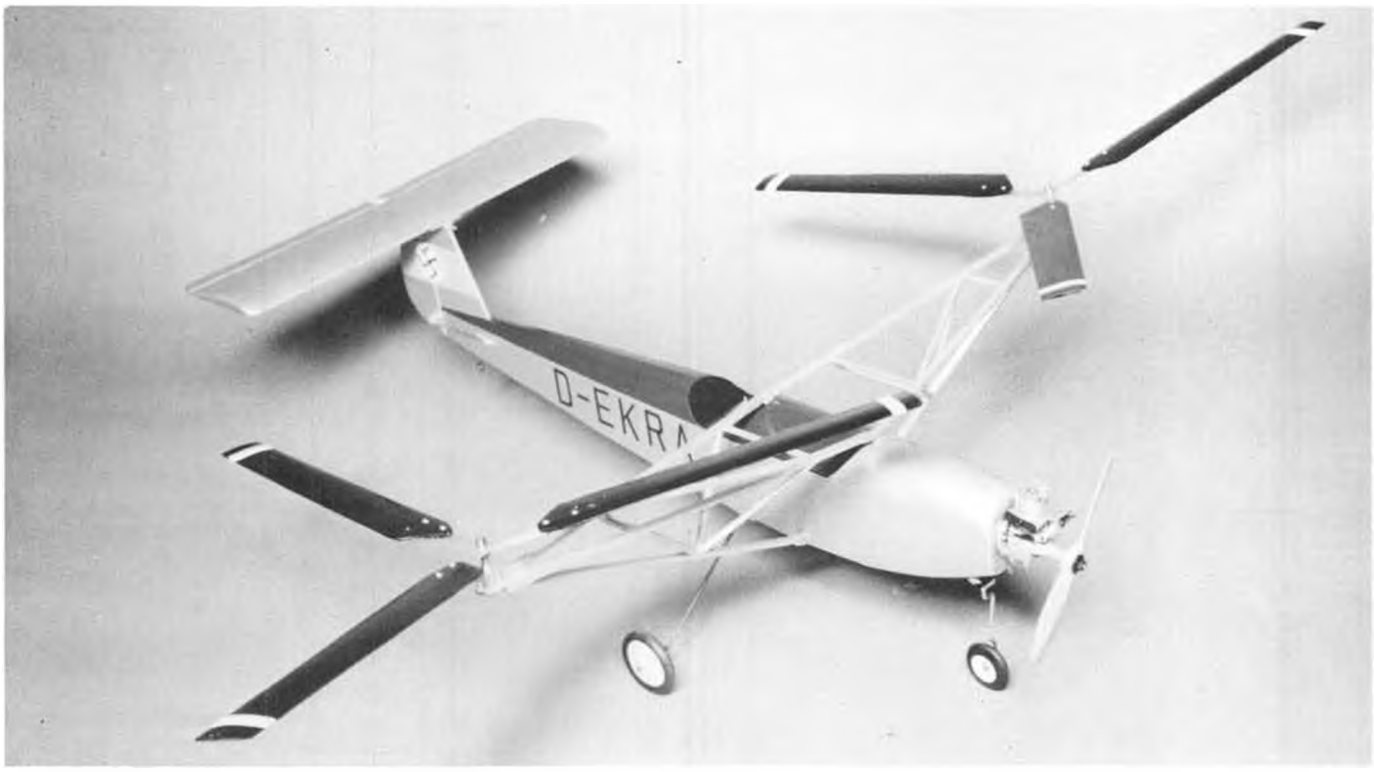
In short, send a dollar to Vintage Aero and order the catalog. Even if you don't buy anything, you'll just get a buck's worth of pleasure from perusing its pages.

* * *

"Super Glue" is a second generation Cyanocrylate adhesive. It is an industrial grade of the more commonly marketed type glues. Available from Model Specialties Co., 9117 La Barranca, Albuquerque, N.M. 87111, the glue is packaged in a one ounce bottle with Teflon applicator tube, for $7.95 postpaid.

Having a much longer shelf life than most, Super Glue does not require refrigeration. It will, as the label says, bond anything to anything, in seconds. Keep

Continued on page 80



PHOTOS BY BOB HOFFMAN & RUSS HIATT

FOCKE-ACHGELIS 61 RC AUTOGYRO

By SKIP RUFF . . . A real breakthrough in model aircraft design, this R/C autogyro is easier to fly than many so-called "trainers." It's also great for modelers who hate to build wings! Be the first in your block . . .

• This twin-rotor, semi-scale helicopter can be flown by anyone capable of flying a 3-channel trainer. The reason, of course, is that the helicopter is not really a helicopter at all, but an autogyro! However, before I confuse everyone, let me give a short history of the real FOCKE-ACHGELIS 61.

The F-A 61 was one of the first truly practical helicopters, and was the brainchild of Doktor Heinrich Karl Johann Focke. The machine made its first flight, lasting 28 seconds, on June 26, 1936. The first craft was built using the fuselage and engine of a FOCKE-WULF 44 basic trainer, with the tailplane mounted on top of the fin and the propeller cut down to the diameter of the engine cylinders to serve purely as a cooling fan. It gave no assistance in forward flight, although it probably fooled many authorities into believing that the machine, like the model, was actually an autogyro. The twin rotors, mounted on steel-tube outriggers on both sides of the fuselage, were fully articulated 3-blade assemblies with a blade angle that could be increased or decreased so as to provide lateral movement of the craft by creating a lift differential between rotors.

In May of 1937, the F-A 61 made its first autorotational landing. In 1938, the controlability was demonstrated by Germany's celebrated aviatrix, Hanna Reitsch, who flew the machine inside the Deutschlandhalle Sports Stadium in Berlin. These feats were all accomplished by the first prototype which was given the registration D-EBVU. Meanwhile, a second prototype, D-EKRA, from which my model has been copied, was completed and from 1937 onward established many records including the following:

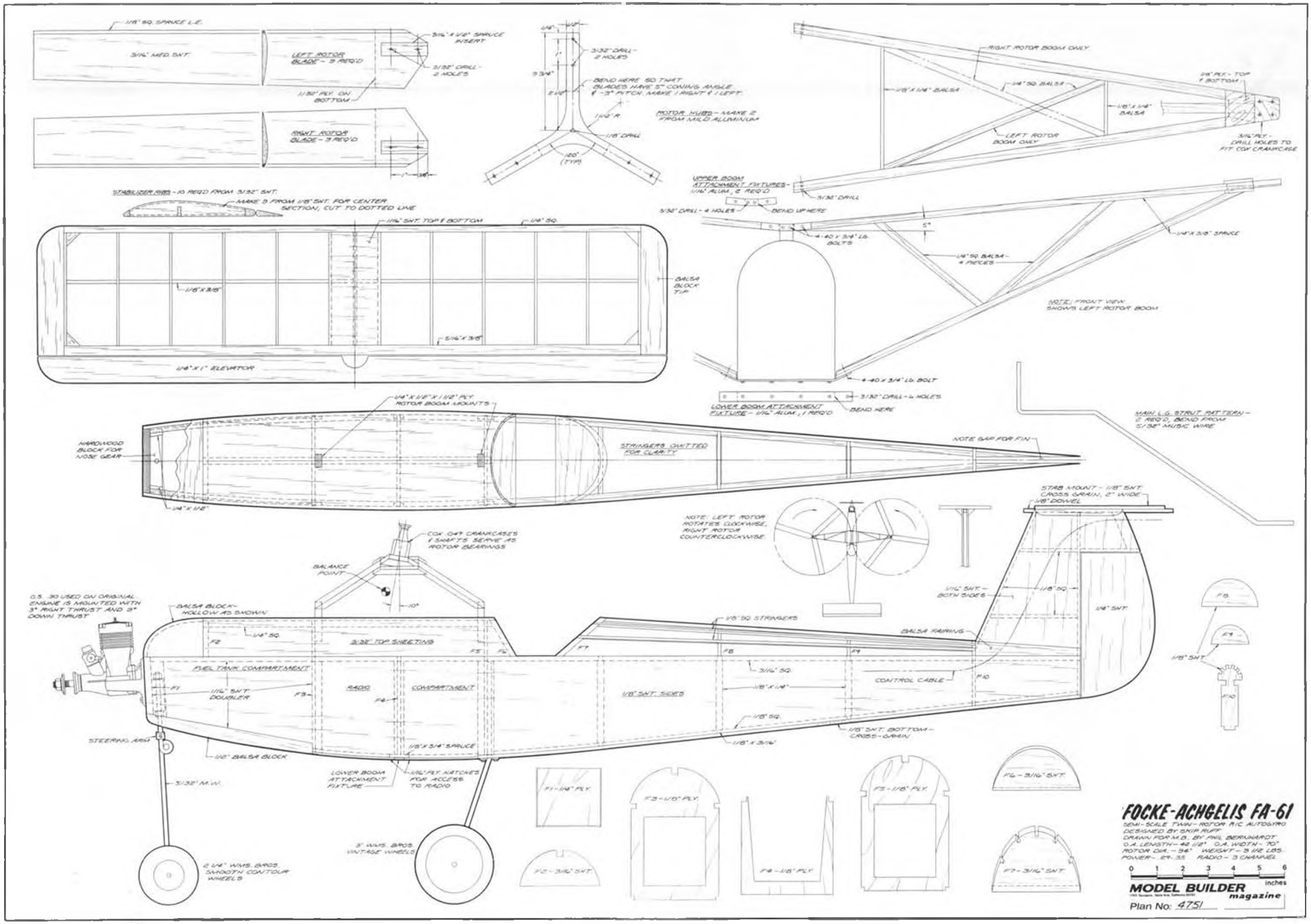
1. Distance: 143 miles on June 20, 1938.
2. Altitude: 11,243 ft. on Jan. 29, 1939.

You may be interested to know that this particular configuration is still in use today in several Russian helicopters, one of which I believe is gigantic, with two 114 ft. diameter rotors.

Specifications of the F-A 61 are as follows:

Rotor diameter (each) – 22 ft., 11-5/8 inches
Fuselage length – 23 ft., 11 inches

The author outlines complete trimming instructions for this out-of-the-rut model. Follow them carefully and you'll have all of your chopper flying friends green with envy!



FULL SIZE PLANS AVAILABLE – SEE PAGE 80

The FA 61 makes a slow pass overhead for the photographer. With full back stick, the ship will mush along at about 10 mph. Ship will even fly when out of trim, but looks strange.

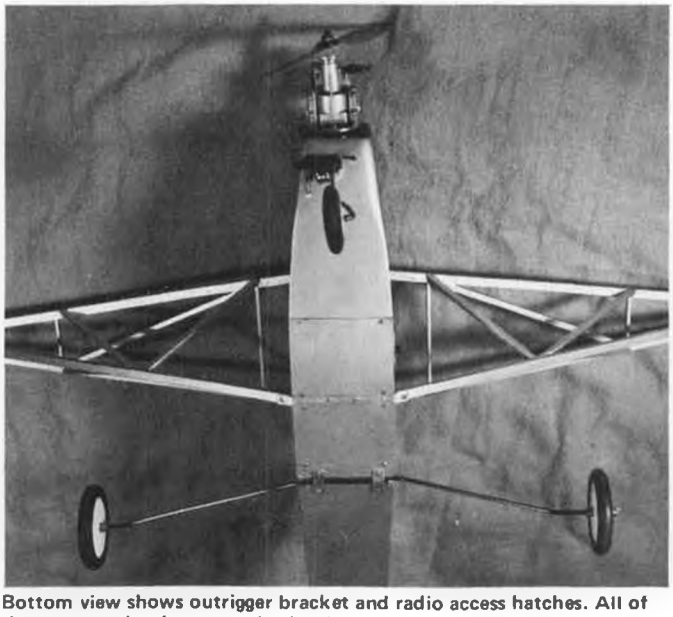
Height – 8 ft., 8 inches
Maximum weight – 2100 lbs.
Power – 160 H.P. Siemens-Halske 14-A radial engine
Cruise speed – 62 M.P.H.
Ceiling – 8600 ft.
Range – 143 miles

The model, of course, is actually an entirely different sort of craft. I have been experimenting with R/C autogyros for several years, and have never really had success until now. All the previous models were of single rotor configuration and all exhibited the same sensitivity to one thing, torque from the engine. To overcome this, I had to install small ailerons, and though the machines did fly, they were very erratic and not too stable.

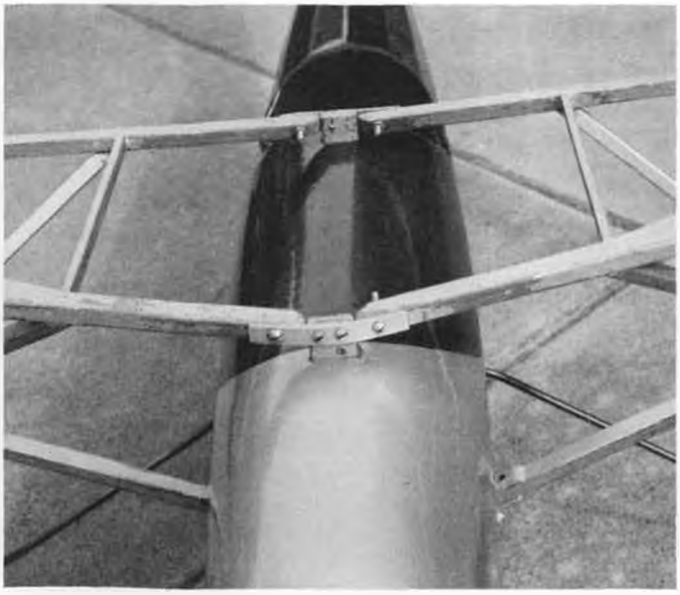
The idea of the twin rotor design came from an old Roy Clough article in a late 1940's AIR TRAILS. I thought that possibly, a stable craft could result from this configuration. Not being an engineer, I had to rely on my experience with free-flight gyros for blade angles, sizes, and rotor angles. For other dimensions, it was all hit and miss . . . fortunately for me, more hit than miss.

The first model I built using this configuration was nothing more than a highly modified FALCON 56. To my amazement, and everyone else's the model flew after only a couple of changes in center of gravity location and blade angles. A short time later, I came across a picture of the F-A 61 in an old Air Progress magazine, and thought it would make an ideal subject because of its configuration. Since no accurate 3-views were available, and to keep the model simple, I built it from photographs, using as basic a construction technique as possible.

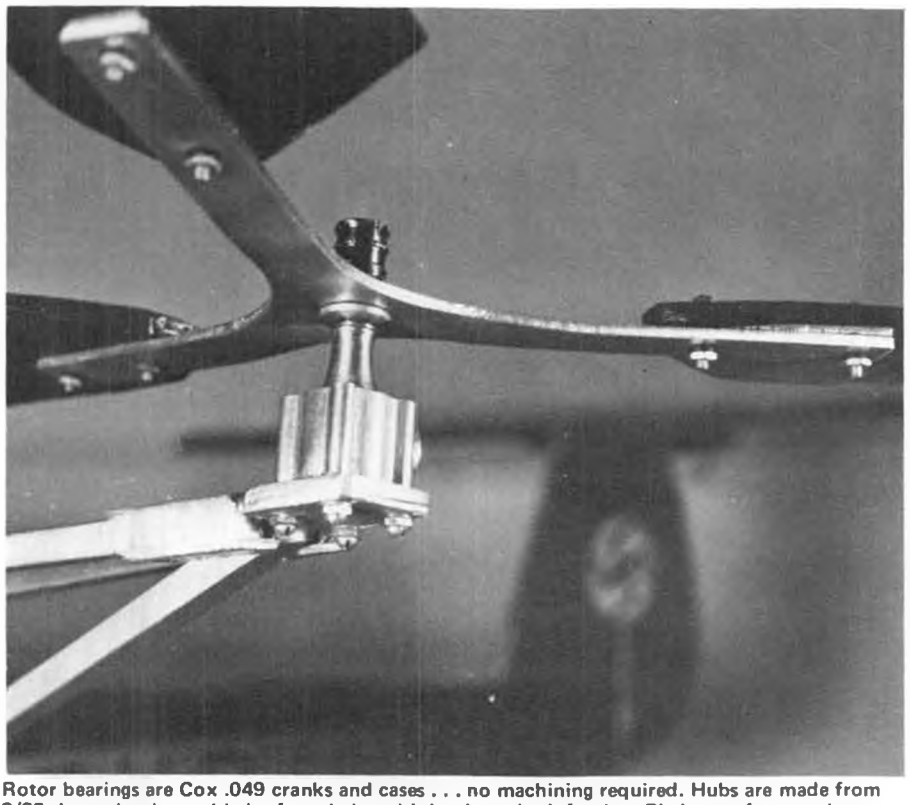
The model itself has a simple box fuselage with spruce rotor booms, and a T-tail. The rotors themselves are also simple. They consist of 3/16 sheet balsa blades bolted to hubs made from 3/32 aluminum. No complicated hinges or flapping mechanisms, just light simple rigid rotors. The rotor bearings should



Bottom view shows outrigger bracket and radio access hatches. All of the construction is extremely simple.



Upper outrigger brackets. Entire ship may be dismantled for transporting. Outriggers are made of spruce, with balsa cross-bracing.



Rotor bearings are Cox .049 cranks and cases . . . no machining required. Hubs are made from 3/32 sheet aluminum, blades from balsa with hardwood reinforcing. Blades are free turning.

also prove to be no problem. They are Cox .049 crankcases. Thus, the possibility of expensive and time-consuming machining is eliminated.

By now, you've decided to build it, so finish reading the whole article first before beginning construction. Once you read the section on flying. I'm sure you will be convinced that you will have to build one just to see if I'm putting everyone on!

CONSTRUCTION

Because the plans are pretty self-explanatory, and the model is simple, I'm not going to give a "glue stick A to former B" type of instruction. I will, however, explain things that are out of the ordinary or troublesome. Be sure to study the plans well before beginning construction.

RUDDER

Begin by laying down one side of the rudder sheeting on the plans. It extends clear to the bottom of the fuselage for strength. The 1/8 square framework is glued in place after having the appropriate pieces drilled for the elevator nyrod. I used the Pylon brand Golden Rod with .030 cable size. The elevator platform is a piece of hard 1/8 balsa, with triangular stock used as a fillet for strength where it is glued to the top of the rudder. The small tailwheel wire can be sandwiched in the bottom of the rudder.

FUSELAGE

Before we begin construction here, let me remind you of the importance of weight, especially on this model. This model is somewhat sensitive to weight and power relationships. Adhere to the material sizes shown on the plans. Excess strength is both unneeded and unwanted.

Construct the fuselage from two matched pieces of 1/8 sheet for the sides. Add the longerones and uprights and also the 1/8 doublers at the nose. Join the two fuselage sides at the nose and tail with the firewall and rudder respectively. Use epoxy on the firewall. Install the rest of the formers and nose gear and main gear attachment points now. The main gear attachment is familiar if you've ever built a Falcon 56. It also makes the rather wide gear removable (for you V.W. owners).

Before covering the top and bottom of the fuselage, you should install the fuel tank and locate the blind nuts for your engine mount.

While on the subject of engines let me say that the O.S. 30 has proven to be the perfect power choice for the model. The Sullivan 6 ounce tank gives long flights to the three and one-half pound craft. If you plan on using a muffler, however, a .35 may be needed. I don't think anything smaller than a .29 should be used. Mine flew with a .25 but was hopelessly underpowered.

The bottom of the fuselage is covered with 1/8 balsa. The top, from the cockpit rearward, is 1/8 square stringers over formers. Forward of the cockpit is 3/32 planking, and a small block at the nose. The bottom, from the firewall to the radio area, is 1/2 inch sheet balsa. Make the radio hatches out of 1/16 plywood and secure them with small woodscrews into the hardwood strips underneath. Leave 3/8 inch of space between the two hatches for the aluminum bracket that connects the bottom of the rotor booms.

ELEVATOR

Elevator construction is normal except for the cut-out portion that allows clearance for the rubber bands and dowel. Remember to make the center section ribs 1/16 narrower on the top and bottom because of the planking. Other than that, just try to keep it light.

ROTOR BOOMS

The rotor booms are made out of 3/8 by 1/4 spruce with 1/4 square and by 1/8 by 1/4 balsa crosspieces. Simply build them right over the plans as you would a wing, remembering to make a right and left side. The Cox crankcase mounts should be shimmed up approximately 10 degrees before being epoxied between the 3/8 by 1/4 spruce strips, remembering again to make a left and right side. Don't try to be exact, because we will make the fine adjustments later.

Now cut the rotor boom mounting brackets out of 1/16 aluminum and drill the appropriate holes in them. They are mounted with wood screws, to the stubs on top of the fuselage and to the space between the radio hatches on the bottom. Assemble the landing gear on the fuselage and attach the elevator with rubber bands. Set the model on a flat surface and bend the gear legs until the

Continued on page 66

They haven't built a car small enough to make you leave this one home! If necessary, the main gear can also be removed in a couple of minutes. Three channels will do it all. A .35 for power.

A familiar sight at wintertime R/C exhibit and trade shows; the thousands of admiring spectators and modelers getting to see it all.

The RAMS show in Seattle/Tacoma, Washington at the peak hour on Saturday afternoon. Many trophies were awarded.

'REMOTELY SPEAKING...'

R/C News, by BILL NORTHROP

RAMS 10TH ANNUAL NORTHWEST RADIO CONTROL MODEL SHOW

● Unlike the "Biggies" . . . WRAMS, Toledo, and MACS as they are now . . . the RAMS show in Seattle, Washington is reminiscent of these affairs when they were in their early growth stages. And for many of you who weren't there in those days, it was kinda nice. The atmosphere was more relaxed, you had more time to visit with old friends and new acquaintances, more opportunity to study new products, and a better chance to examine the exhibited models.

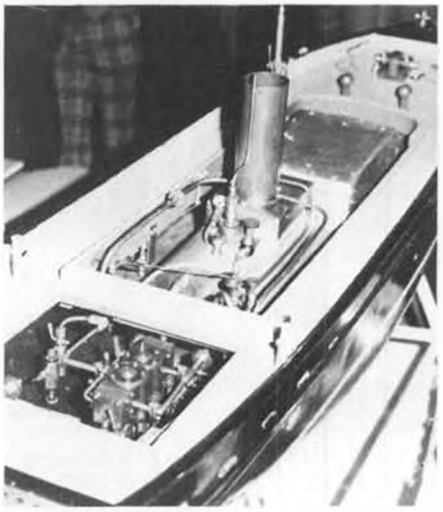
From a personal point of view, being our first visit to the area since 1944 . . . while a guest of Uncle Sam's "Yacht Club" . . . it was a particular pleasure to meet and talk with many MODEL BUILDER readers for the first time . . . A very self-satisfying way to pass the hours.

As a side benefit to its size, the RAMS show took place at the Seattle Airport Hyatt Hotel, meaning that those coming from out of town could eat, sleep, and drink, and attend the proceedings without venturing out of the building . . . which is especially nice if you're from Southern California and are faced with cold, blustery weather featuring occasional snow flurries! Matter of fact, we should have used the hotel shuttle instead of renting a car, driving to the motel, parking it for the weekend, and driving it back to the airport!

Around 20 manufacturers had exhibits at the show, including Kraft Systems, RS, Pro-Line, Orbit, EK, Ace, Dodgson Designs, Hobie Model Co., T&H Enterprises, John Simone, and Thesis.

To the best of our knowledge, ours was the only magazine represented.

Maybe it was because we had more time to examine them, but it seemed as though the model exhibit contained an unusually high percentage of clever and original designs. To us, the most unusual model creation was the pattern type aircraft with fully retracting twin floats



Steam driven tug was among many boat models at Seattle.

O&R 60 powered Playboy and engine display by Bill Kautzman.

Line up of R/C race cars and some of the trophies that were given out for best of show in various categories.

Fabulous battleship "Missouri," by Harvey Wagner, dwarfed the motel swimming pool. Endless number of working details.

Don Fisher collects his RS system, won in the big drawing, from RS's Carl Maas. RAMS Mike Moran (mike) and Bob Gruye on hand.

Cliff Weirick hands out the information on Kraft Systems. Radio manufacturers always seem to attract the most inquiries.

New miniature two-channel radio xmitter by RS was an immediate success at its premiere.

Jerry Holcomb's little tandem helicopter will appear in MB as a construction project.

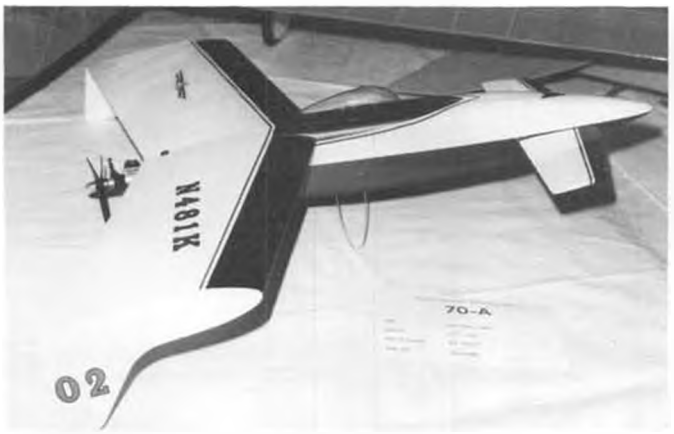
(shades of Kerry Keen and Bill Barnes!). Designed and built by Francis Reynolds, the model had many interesting solutions to rather tricky problems, i.e., the fuselage was only 1/32 of an inch wide at the point where the float steps retracted into the wells!

Talks and movies were held continuously on both Saturday and Sunday, and on Saturday, following a District XI meeting conducted by Vice President Homer Smith, a banquet was held . . . in the motel banquet hall . . . Following head table introductions by Conference Chairman Bob Gruye (Bill Lathrop indeed!), there was a fascinating talk, with slides, concerning a man-powered aircraft that had been built by M.I.T. undergraduates. Imagine ribs built up of 1/8 x 3/8 outside cap strips with 1/8

Orbit's Charles Spear carried the message to the Northwest.

Mr. & Mrs. Randy Holzapple, T&H Enterprises, with aerobatic "Hijacker" slope glider.

Clever "Seatract" by Francis Reynolds. Floats retract into fuselage sides. Huge hardwood "T" section joins fuselage and wing center → section. Outer panels plug in, like gliders. Radio is installed in removable turtle deck/hatch. Retract action is about 10 seconds.



How's this for a Half-A pylon racer? Designed and built by Dave Katagiri ("Cut-Less", Feb. '75 MB). Spec freedom can be fun!

Don Mygatt modified his Antic to this semi-scale Avro Avian, or what have you. Ship can be converted to Antic in half hour.

square and 1/8 x 1/4 diagonals, weighing a total of .8 of an ounce . . . and five feet long by a foot thick!

The evening was concluded by Johnny Clemens, who, though doused with Anti-B.S. spray from a can loaned to us by Ralph Brooke, managed to finish his talk while only mentioning Texas 21 times.

The RAMS Show provided a very pleasant weekend in early February, and we highly recommend it to anyone within reach of Seattle comes next year. It's a very cordial and comfortable affair. ●

Associate VP Dick Carson, and son, manning the Ace R/C booth. Big guys . . . little radios.

Phil Rumbold answered the questions about Pro-Line. T&H fuselages in background.

Bob Dodgson talks about the Dodgson Design Todi and Maestro gliders. They're winning!

"Kiwi", an interesting original design glider by Melvin Clarke. Of course it goes without saying . . . . "If it has two wings, it's GOT to be good!" We've asked for plans when the tests are done.

"Look out, Jonathon Livingston!" Interesting Hawk glider by Ken Stuhr. Slope soaring is very popular in the Northwest, with many sites handy. This one will have the real birds on edge.

The fancy looking "davit" is actually a Pet-N-Groom device for giving Fido a wash and set!

Bob King, Phoenix, Arizona, launching his original design "Professor."

PHOTOS BY TAYLOR COLLINS

CALIFORNIA NORTH/SOUTH CHALLENGE MEET

By TAYLOR COLLINS

• For the first time in the five year history of the California North/South R/C Soaring Challenge Meet, the Southern California team was victorious. Led by Rick Pearson, of the SFvSF Club, the South prevailed over the Northerners.

Competing in two minute precision, ten minute precision duration, and a 100 meter closed course distance run around pylons, Pearson seemed unbeatable, posting near-perfect scores from the start. Every flight had a spot landing bonus and Pearson missed only one landing circle, and that one was in gusting 25 mph winds. Rick and his Craft-Air Windrifter were first overall; followed by George Steiner, 2nd (North); Bob Gerbin, 3rd (South); Dave Shadel, 4th (South); and Don Edberg, 5th (South).

The winning Rebel team consisted of Pearson, Bob Gerbin, Mark Smith, Dave Shadel and Don Edberg. The Northern team, which flew extremely well (but not quite well enough) was led by George Steiner, Max Mills of Albuquerque, N.M. (that's in the North???); Dave Thornburg (another Albuquerquean); Rick Walters, and Bob Von Hellens, of Phoenix (Non-Californians could register to fly on the team of their choice).

The Scale competition was unique in several respects. This event was a test-bed for possible rules proposals to the N.S.S. It used stand-off type scale judging. The model was compared to photos and three-views of the full scale aircraft, and judged on control surface placement and size, markings, detailing, and general appearance. The scale judging was done by Ed Thunen of the South Bay Soaring Society and Dennis Strand of Fresno,

Overall winner, Rick Pearson and his collection of hardware. It's getting to be a habit.

Scale winner, Ben Clerx, age 16, won with a Soarcraft Libelle.

Top North scorer was George Steiner, who placed second overall.

The winning Southern California team (l to r): Bob Gerbin, Don Edberg, Rick Pearson, Dave Shadel, and Mark Smith. Sunny California was just a little bit cool and windy for the contest!

Roy Stowers' metalflake trimmed "Aquila", to be a new Airtronics kit soon.

Rick Pearson launching his Craft-Air "Windrifter." The inverted gull dihedralled individual timing is Dave Thornburg.

Dave (Southwestern Sailplanes) Thornburg scoring laps on the 100 meter distance course event.

California. These two men carefully scrutinized the twelve scale entries for nearly six hours. The scale entrants were then required to fly the identical tasks as the regular thermal planes. Competition points were awarded on the basis of one-third possible for static judging and two-thirds for flight performance. This differs from a "fidelity" type scale competition where static judging and flight points are split 50/50.

The real Cinderella story of the scale competition was the winner. Sixteen year old Ben Clerx, of San Jose, Calif., was overall scale winner with a Soarcraft Libelle 301. Ben got started in R/C Soaring without the benefit of R/C. For many weeks he flew a Graupner Cirrus without radio. He pegged the con-

Continued on page 63

John Baxter launches for Hugh Stock. It's Soarcraft's next kit, the 144 inch span "Magnum 12," fiberglass fuselage, spoilers, polyhedral, hot and cold running thermals, etc.

Rod Smith, NSS president, about to return his Windfree to its carrying case.

A model is a model, Old Timer or not. Jim Crocket's son launches a rubber job while Dad applies the body English.

The guy who made the Forster 99 famous, Sal Taibi, with his green Hornet, at East Colfax Airport, Denver.

PLUG SPARKS

By JOHN POND

• Red Barrows is at it again! This most progressive O/T modeler from San Diego has found another use for Old Timers. Red has been playing around with TV cameras and receivers quite a while now, as his Sanyo set has been giving excellent service.

Well, in less time than it takes to tell, Red built a huge 10 ft. Fiske Hanley Texaco type model and mounted a TV camera in it. So what? This has been done before, but only on super-expensive government military projects. How about it? Wouldn't you get a kick out of seeing what you look like to the model!

Tests show the model flies the same way radio controlled as the free flight version, i.e., immediately after takeoff, the Hanley makes a left turn, diving all the time, and at the last minute picks its nose up and continues on upward. Sure gave a Red a shock!

Best part about the TV setup is that the completed model only weighs out at 12 lbs. This model still floats beautifully. We'll give you more dope on this as the project develops.

ENGINE THREE-VIEWS

As promised a long (?) time ago, we are going to run a monthly three-view of an old timer engine. Surprisingly enough, when Bob Von Konsky suggested the idea and it was published, not too many answered. Lately, interest has picked up to the point that Tex Newman has volunteered to make drawings directly from the engines in his collection. Can't ask for more accuracy than that!

Naturally, the first engine to be featured would be none other than the famous Brown Jr. as designed by Bill Brown of Philadelphia. Between Brown and Maxwell Bassett, gas model flying was put on the map and launched a popularity that has been continued to this day.

The Brown Jr. enjoyed its greatest sales between 1936 and 1939. By 1939, the other manufacturers, notably Ohlsson, Atwood, and Bunch, had caught up and passed the Brown motor for power. Bill did attempt to come out with a Class B motor to compete with the Ohlsson 23, but the Brown E model (called "Brownie") failed to live up to expectations, and Bill had to fold up.

In later years Brown has been manufacturing little CO_2 motors that resemble their early big brother. These midget motors have been catching on as they allow use in models as small as Peanut scale. He has even produced a twin of .01 displacement! Talk about fly power!

MORE IGNITION STUFF

By now, you are probably getting downright tired of reading about ignition but when the writer can fly two Texaco R/C models all day and only use about 50¢ worth of oil and gas at today's inflated prices, ya gotta admit, that makes sense!

Well, we could talk about coils, batteries, condensers, etc., but what the heck good is that when you don't know what to look for when that confounded engine won't start. There are more darn ways an ignition engine can foul up, but here is a rundown on the most common occurrences:

1. Flooded engine: No doubt this is the most encountered of all troubles with ignition engines. If you have been using glow engines for a long time, it is almost automatic to choke the engine heavily, or put a large prime in the exhaust. With mentholated fuels, the glow engine generally spits out the prime

John Hammond spreads the "gospel" on Old Timers to a group of fifth graders.

R. G. "Brick" Brickner, editor of the SCIF newsletter, with his JASCO Floater, built for the Denver SAM Champs.

quickly, as much of the fuel doesn't burn. But gasoline mixtures are a different breed of cat. You simply can't crank the fuel out quickly, unless an electric starter is employed. Many ignition engines, such as the Baby Cyclone, will start just on the drop showing in the down draft intake! The needle valve is then closed and *not* opened until the engine begins firing. That's economy!

To properly clear the engine, invert it so that the gas in the crankcase will run down the bypass to the head. Rotate the prop with the exhaust port downward, and the fuel should pump out. Keep the needle valve closed and start cranking . . . again!

2. Dirty points: Generally speaking, with a hot battery, the engine will still fire but erratically. To clean the points, use clean gasoline (no oil mix) on the points in open position and blow clean. If you haven't got clean gas, take a calling card and rip off a narrow strip. Place between the points and close them by turning the prop until the paper drags. Pull slowly, blotting the oil and dirt. Repeat as necessary.

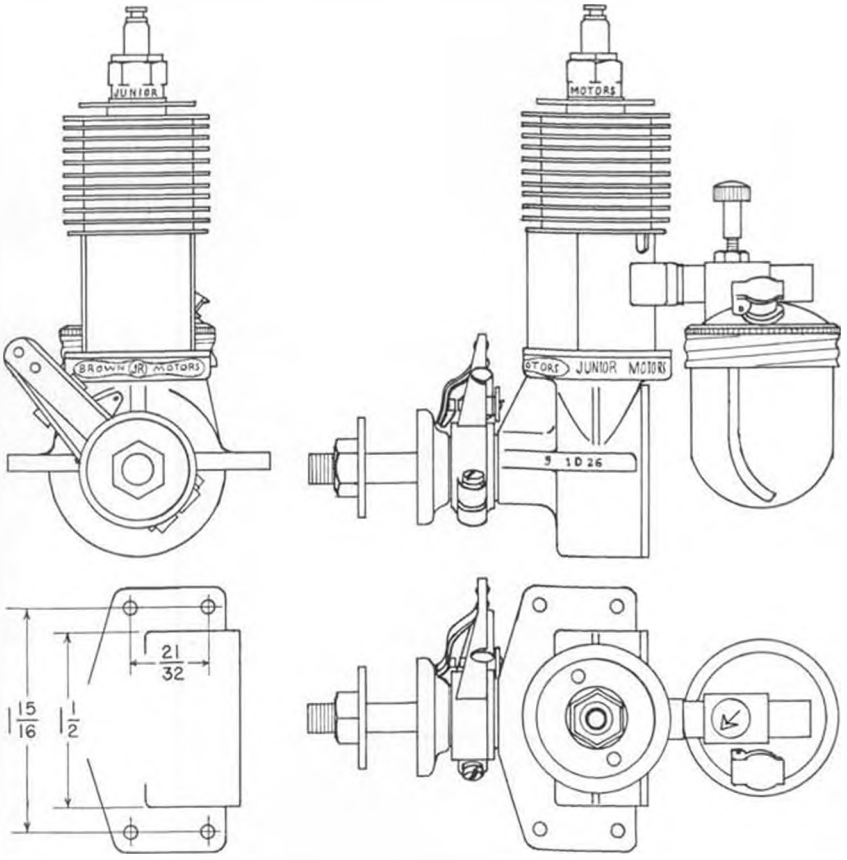
3. Weak Batteries: Probably the biggest villains of all are the booster batteries. One never stops to think that these could be low, although the modeler will take the same ones to contest after contest. Actually, a cheap ammeter should be used to check them. If you don't get over a 20 ampere reading, toss 'em out! Actually, 30 amps is marginal in my book. A good trick for starting a flooded engine easily is to add another battery, giving you 4.5 volts. This is only a temporary move. If the motor doesn't start promptly, don't fry your coil! My gumba, Sal Taibi, uses this trick quite effectively, generally starting in one or two flicks of the prop.

If you haven't gotten your motor started yet, we've got some trouble shooting to do. Stick with me next month and we'll get it going yet. More gems of information are yet to come.

HAPPY NEWS

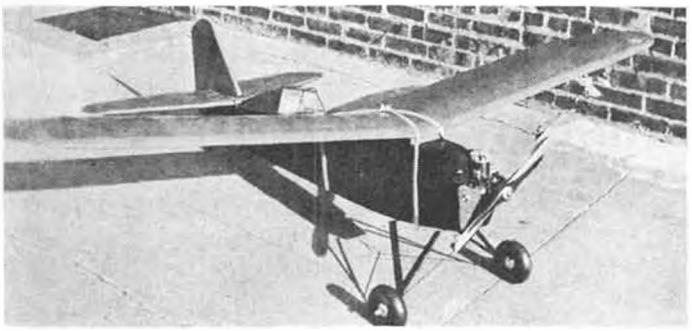
For those who have been looking for 1/4-32 spark plugs, Ted Brebeck of OK Engines, Box 40, Mohawk, N.Y. 13407, is now producing them in lots of ten at

The cause of it all! Bill Brown, holding the first engine he ever built, in his left hand. His CO_2's can't keep up with the demand today.



BROWN JUNIOR

Drawn by TEX NEWMAN



OLD TIMER Model of the Month

Designed by: Louis P. Loutrel
Redrawn by: Phil Bernhardt
Text by: Bill Northrop

First test flown in April, 1935, the "Sportster," by Louis P. Loutrel, was built as a test plane for the G.H.Q. "Loutrel" gasoline engine. Certainly, the G.H.Q. engine is better remembered than the airplane . . . though unfavorably by most . . . we'll leave it to engine collectors to comment on that.

The plans for the "Sportster," as presented in the July 1936 issue of Model Airplane News, were not really complete in detail. In keeping with our policy, we pretty much avoid showing our own modifications, prefering to allow the builder to "do it his way." We did, however, take the liberty of showing grooved hardwood landing gear stock for the two cross pieces involved.

The ship is extremely simple to build, and should be excellent for the Texaco event. Ribs on the original had four lightening holes; one ahead of the front spar, and three between front and rear, allowing diagonal bracing, as shown.

Conversion to R/C would be fairly easy. Simply pin down two 1/8x1/2 spars instead of one (for both the stab and rudder) leaving a 3/32 gap between.

$2.00 per plug ($20.00/box) plus $1.50 for postage. No limits!

PENNSY OTRC CONTEST – BIG!

The BARFS (Butler Area Radio Flying Society) proudly announces their annual Tri-State R/C Fun Fly Championships to be held on 22 June. Meet will run until it is dark!

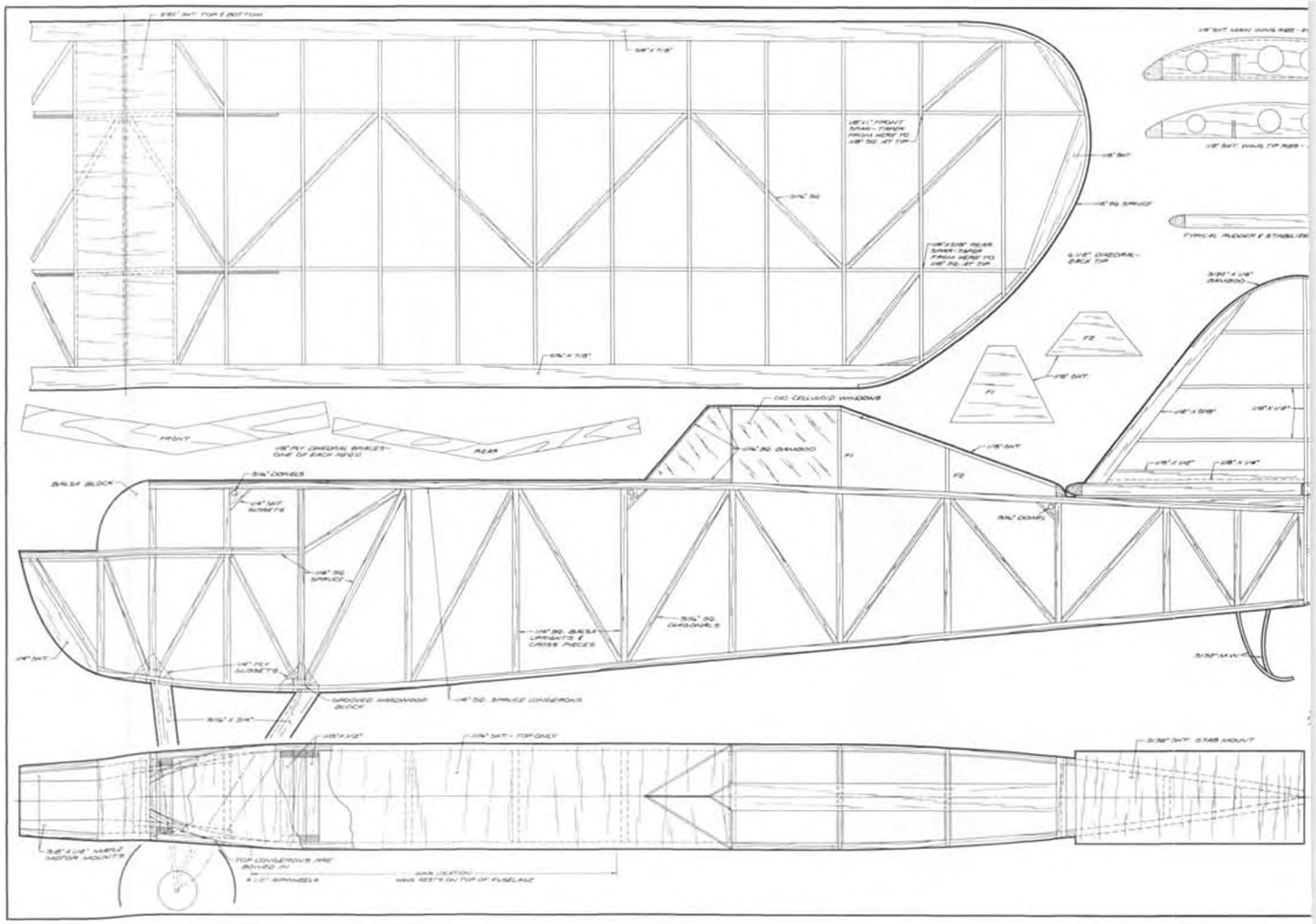
Featured will be Old Timer F/F R/C with 200 cash prizes awarded to fifth place, trophies to third. Plenty of merchandise to go along with this too! Looks like this is going to be a "really big shew." Everyone who enters will win a prize. Now, how about that?

To boot, a 1975 Kraft seven channel R/C set will be raffled off at the end of the contest. You don't even have to be a contestant for this one! Clarence Andre tells us there will be refreshments available, sanitary facilities, the works. Put this one down on your calendar. For further info and pre-registration, write Bill Henderson, 202 Williams Road, Butler, Pa 16001 or call (412) 287-7482.

JIMMY ALLEN CONTEST

After several pictures of Jimmy Allen models have appeared in this column, interest in those famous old models has developed to the point that the Kansas City, Mo. boys have decided to hold a strictly Jimmy Allen contest, very similar to what Skelly Oil used to sponsor in the thirties.

"What could be more natural," asks



Bill Waite, as the Jimmy Allen material emanated from K.C.. Bryan Wheeler, Jim Root, Marvin Mayo, et al, will work up the details of the contest. You can be sure this column will be the first to announce it. So, if you live in the Kansas City area, get out those old Jimmy Allen plans and start glueing some balsa wood together.

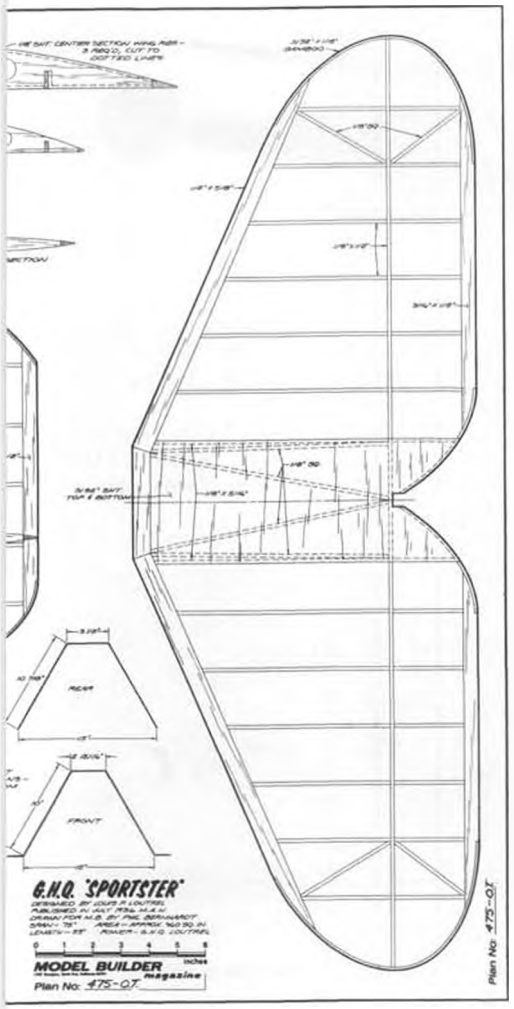
For others who are interested in staging a similar contest, we'll carry the details in the next issue. Maybe we can even make a postal contest of it. Are you listening Lin Haslan?

GOOD NEWS FROM BRITAIN

Through the efforts of John Haggart, a red hot old timer, English vintage flyers will be pleased to know there will be a revival of the old Bowden rules contest.

It all got started when John became interested in reproducing one of C.E. Bowden's designs, "Kanga Cub." To help verify the design and straighten out a few details, he contacted Col. Bowden. John generated so much enthusiasm, he received permission from the Colonel to stage a contest in 1975 featuring the rules of the original Bowden contest. Last time that contest was held occurred in 1937 when Herbert Fish of U.S.A. (in Europe for the Wakefield competition) won, flying a design by Carrol Krupp. This ought to be a real shot in the arm for avid old timers in England.

Continued on page 68



Larry Clark launches his 1937 Marsden Champ. It's a good stable flier.

SAM 1975 RC-O.T. RULES

Supercedes pages 5 and 6 of SAM Rule Book 1973-74. While also classified as a special event, the following is a complete set of rules for radio controlled assist old timer models.

SECTION I: Definitions and Basic Regulations

1. Old Timer and Antique categories are defined as model aircraft which have been designed, kitted, or plans published prior to December 31, 1942, or December 31, 1938, respectively.

2. Models shall be flown in one of the following categories:
   a. Antique (all classes combined)
   b. Old Timer Cabin and Pylon
   c. Texaco (all classes combined, a duration event, 1/4 oz. fuel per lb., maximum of 1-3/4 oz. fuel allowed. Longest of two flights scores)
   d. .020 Replica

3. All categories may be powered with either ignition or glow engines.

4. Engine run (Antique Class) seven seconds per lb. to the nearest lb. for glow, ten seconds per lb. for ignition. Example: 3 lbs. 14 oz. would be 4 lbs., and 3 lbs. 2 oz. would be 3 lbs.

5. Old Timer Cabin and Pylon models must weigh at least 10 oz. per sq. foot of wing area for glow, and 8 oz. per sq. foot of wing area for ignition.

6. All glow powered models must have a minimum of 225 sq. inches of wing area for each .10 cubic inch displacement.

7. Fuel for spark ignition engines must be gasoline only.

8. Builder of the model rule prevails.

9. Proxy flying is acceptable, but builder of the model is accredited with results.

SECTION II: Modifications

1. An Old Timer may be modified only in the following ways: minor changes to the thrust lines, i.e., upright instead of inverted; strengthening of structures and provision for control surfaces. Areas and moments may not be changed. All changes must be in the character of the original ship, i.e., substitution of sheet balsa fuselages for built up structures is not approved. Beef up the built ups! Flat airfoils may not be substituted for cambered foils. It is permissable to scale up or down an approved design.

2. It shall be the responsibility of the contestant to prove the validity of the model, and the fidelity to the design by submitting the actual construction prints to the contest director upon request.

3. No modification may be made which would prevent the model from making normal, unassisted ROG takeoffs. Therefore, no dropping gears, no VTO, and no catapault devices are approved.

SECTION III: Power & Classes

1. Old Timer Models may be flown with either ignition or glow engines.

2. Classes are the following engine displacement (in^3)

Class	Ignition
.020 Replica	.020
Class A	.001 to .200
Class B	.201 to .300
Class C	.301 to 1.20

Class	Glow
.020 Replica	.020
Class A	.021 to .200
Class B	.201 to .300
Class C	.301 to .61

3. Ignition engines above .65 in^3 displacement must have been in production prior to 1950.

SECTION IV: Flight Rules

1. Five contestants will constitute an event. Less than five contestants — classes may be combined at CD's discretion.

2. All models must land in an area designated by the contest director.

3. Maximum time of flights will be 10 minutes. All overtime is deducted. Example: an 11 minute flight will count as 9 minutes. All scoring is done in seconds. A perfect score would be 600 seconds. (10 min. flight x 60 = 600 seconds)

4. Engine run time will be 20 seconds for glow and 25 seconds for ignition, unless reduced by CD for field conditions. This rule does not apply to antique or Texaco classes. (See section 1 #4 for rule on antique class. See section 1 #2c for rule on Texaco class). All engines must stop, no idling.

5. Each contestant will get six attempts — his higest three scores count.

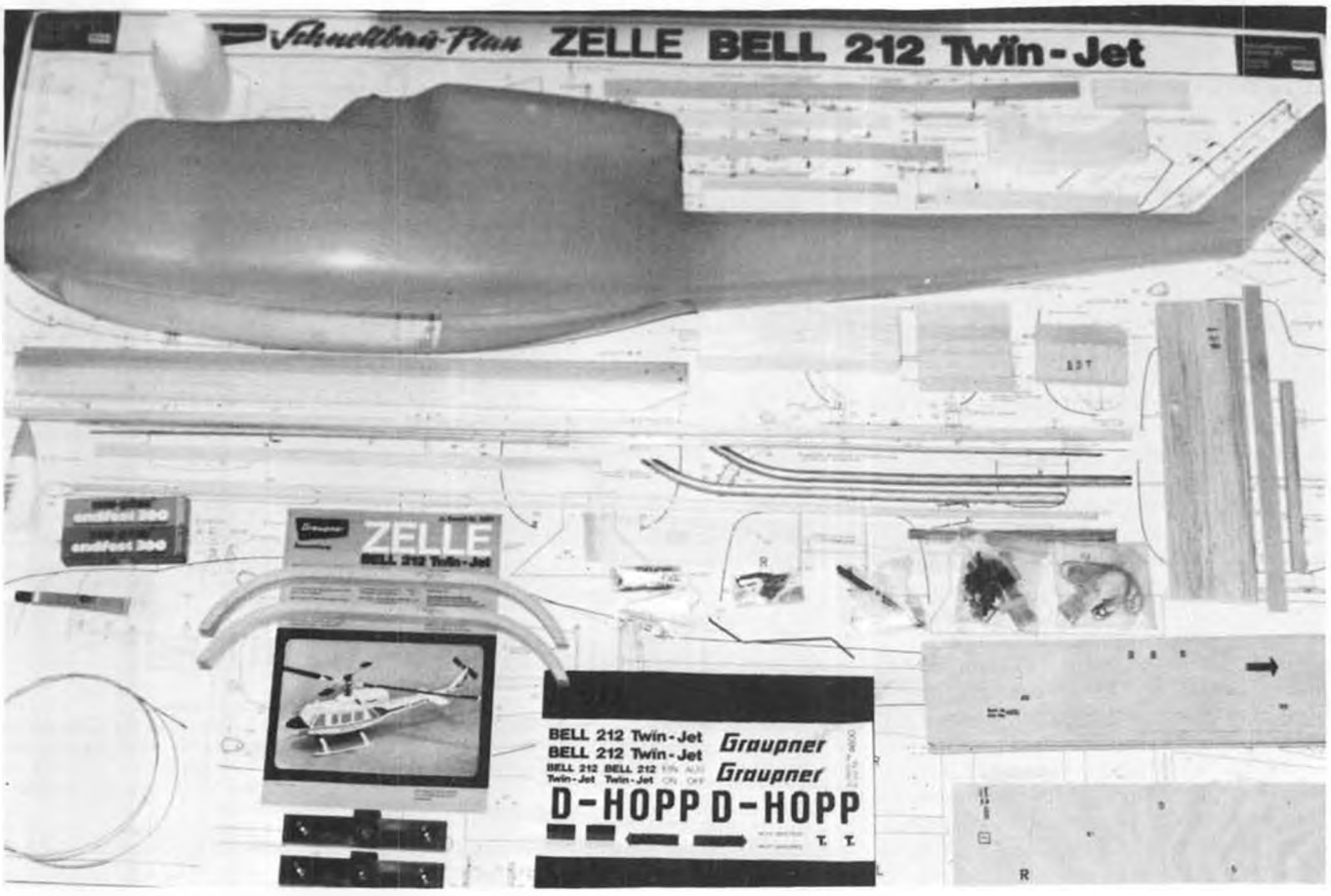
6. Plane must be airborn 4 minutes after timer is assigned. This rule will prevent delays in running the meet.

7. One contestant per plane.

8. Thermal aids will not be permitted in the Old Timer RC Movement. For example: thermal sniffers or mechanical aids of any kind.

9. Model leaving ground will constitute one attempt.

10. An engine overrun will be considered as 0 points for that attempt.



The Graupner Bell 212 Twin-Jet kit for the basic aircraft.

CHOPPER CHATTER

By JOHN TUCKER

• As I finished last month's article, I said to myself, "Better get busy on that Graupner 212 John, 'cause you're running out of newsworthy items." Well, you know the old story of feast or famine . . . this month there were so many letters and ideas, it seems as though the best plan of attack is to "chatter" for a while, and then get into the Graupner kit review. At this stage of construction, it appears that two, or maybe even three issues will be required to cover all the details of this little gem; introduction and familiarization, construction details, and finishing and flying, in that order. Because of the other items, I'll limit this issue to the contents of the kit and a review of the instructions.

Before we get on with it, let's lift-off with a few more names of new chopper builders and flyers:

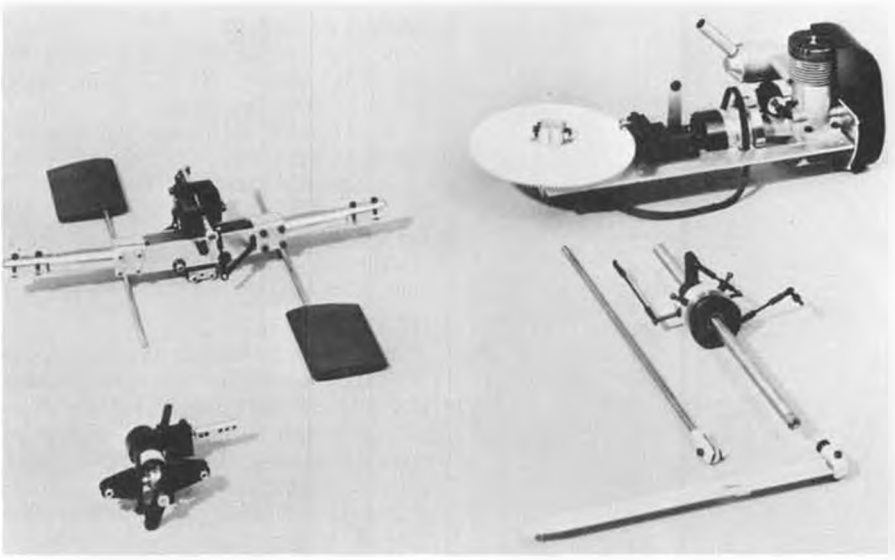
Chuck Fuller, Prunedale Del Mobile Park, Vierra Canyon Rd., Salinas, CA. 93901. (408) 372-7789. Hegi-Cobra. Will share instruction.

Alan L. Anderson, 1418 Newland Ave., Jamestown, N.Y. 14701. (716) 488-1064. DuBro Shark. Needs help in flying and trimming.

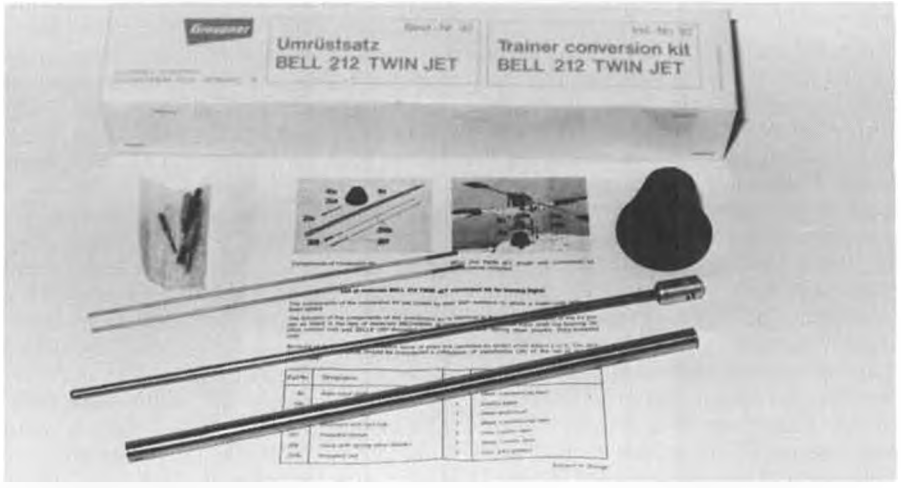
Steve Hammell, 517 Gonzales, San

Training gear kit for the Graupner Bell 212 Twin-Jet.

Graupner float kit to go with the Bell 212. Also makes a good training gear.



Mechanics for the Graupner Bell 212 Twin-Jet. Kit includes the .61 HB engine.



The Trainer Conversion set extends the main rotor location above the fuselage to improve clearance. Especially helpful to beginning fliers.

Francisco, CA. 94132. (415) 587-1974. Hughes 300. Wants to hear about modifications and improvements, etc.

John Benham, No. 402, 711 Finch Avenue West, Downsview, Ontario, M3H4X6. (416) 636-9309. Scratch building 4 blade rigid rotor scale model. Needs drawings of swash plate, clutch, main/tail rotor hub details.

* * *

I received a fine letter from Lloyd Wheeler, 702 Illinois Ave., Elgin, Illinois 60120, concerning the problems he had with his Cobra and "expert" collective pitch head . . . made me feel a little better to know that I wasn't alone with the problem! He suggests that a high rpm (75% power at lift-off) seems to stabilize the rotor head sufficiently to maintain steady flight. He also finds that with the collective pitch of the "expert" head, the lead and lag in the blades become a very critical problem (this lead and lag of the main rotor blades is a whole subject in itself, one that I'm not too familiar with. John Burkam is quite conversant with its aspects, and I'll pass on his data in a later issue.

Lloyd also mentions that he has flown both the Clark "Y" and the symmetrical blades with little difference between them, except that the symmetrical blades have a slight edge, with a smoother response. He has also drilled out the paddle-blades (per Schluter's instructions) to lighten them . . . It has a definite effect on the response time between the fingers and the chopper! This method is not recommended until you have a fair amount of experience, as the response can be almost instantaneous!

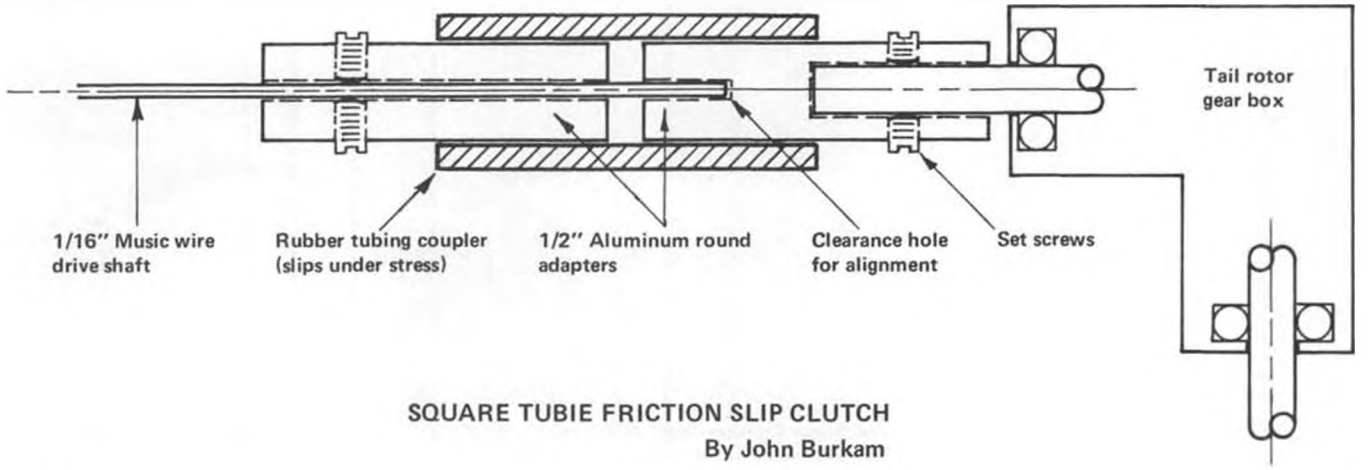
Lloyd's final words were in respect to a tail-rotor drive modification . . . the brass tubing from the main transmission to the tail rotor gear box was reduced in size by inserting a Nyrod tube. Then a standard speedometer cable was purchased at the local auto store, cut to length, and installed with the Gazelle kit (Schluter) couplers. Before the modification, he had poor response, but the new drive shaft is as smooth as glass. Sounds like an inexpensive way to replace the old shaft when it gets too worn to work. Lloyd offers to help anyone who wishes to contact him.

Thanks much for all that good info, Lloyd, let's hear from you more often!

* * *

As briefly mentioned above, I also had a very descriptive letter from John Burkam ("East Coast chopper hopper," to quote his letter!) who also was familiar with the wild gyrations of main rotor blades and the bending up and down of paddle bars. His letter explains both the reasons for it, and the cure! In fact, he sent so much data, photographs, and drawings, that I think I'd better save it for the next issue and make a feature out of it! So, you theorists will have to wait another month for his goodies to be published!

Before I get into the new products review, I want to pass on a "Burkam recommendation." On his Square Tubie helicopter, he has devised a friction slip-



SQUARE TUBIE FRICTION SLIP CLUTCH
By John Burkam

Our "Chopper Chatter" editor at work on the Graupner helicopter. Next month will feature an analysis of the construction.

clutch between the main rotor and tail rotor as a safety precaution and tail rotor "blade-saver," when one of them hits the ground accidently. He describes the device as a short piece of 1/2 inch diameter aluminum rod attached to the tail rotor drive shaft (which is 1/16 music wire) butted against another piece of 1/2 inch diameter aluminum rod that is attached to the tail rotor take-off. A piece of rubber tubing connects the two pieces and slips when the tail rotor hits something. The 1/16 music wire extends on into a clearance hole in the take-off side to preserve alignment.

Sounds like an excellent bit of advice! I hope the accompanying sketch correctly illustrates what I think John just said . . . If it's wrong, I'll take the blame and buy lunch the first time we get together . . . Ha!

LATEST R/C CHOPPER KITS

Expected to be released shortly in Germany is the latest child from Dieter Schluter Modelbau, the "Heli-Baby," an all metal version of the Hughes 300. It features a semi-rigid rotor system (ala' Schluter) of just under 40 inch diameter, is powered by a .40 engine, and weighs around 6 lbs. It is reported to be a single evening assembly project . . . Dieter does it in slightly less than one hour! The engine and drive assembly is mounted within a simple "sandwich" frame, with the tail boom attached to the rear and the clear bubble canopy attached to the front. Just wait 'till you see this dreamship, I'm sure you'll want one just for carrying around in the trunk of your car!

* * *

The Micro-Mold "Lark" is here! I know it's on the dealer's shelves, 'cause I just picked up my kit from Model Helicopters, in Tustin, California. This is another "cutie" kit for easy building with only basic tools. Designed for .19 to .25 engines, it spins a 42 inch diameter rotor. All metal parts are pre-drilled and tapped, ready for assembly. The basic parts includes clutch, drive pulleys, precision cut gears, and nylon swash-plate. The wooden parts are pre-cut, and the fuselage includes a formed plastic nose section, clear canopy, and cabin interior complete with pilot!! All hardware, linkages, fuel tank, excellent decals, and a really complete instruction manual, are included. The only extras needed are engine, cement and radio . . . I'd estimate it to be a week-end project from opening the box to lift-off. I can't wait to get started on this British kit, and rest assured I'll do a review on it soon! The best news is the price . . . $225.00, less engine.

* * *

There are other break-throughs on the way, new kits, and much lower prices! I predict we'll see at least 8 or 10 new chopper kits this year in the $200.00 price range. For instance, the following kits are already out, or are about to be released in the overseas markets at the approximate prices shown (in country of manufacture):

1. Strikingly beautiful Hughes 500 by Kalt (Japan) for .40 to .45 engines, about $285.00.
2. Bell-47G helicopter, (Japan) for .40 engine, $300.00.
3. Graupner Bell-47G (Germany, for HB .25H engine, 39-1/2 inch rotor, about $200.00, less engine.
4. Hughes 300, (Japan) "Bell-system" stabilizer, $300.00.
5. Kavan Alouette-2 (Germany), .19 to .25 engine, price not available at this time.

As soon as more data becomes available, I'll pass it on to you.

GRAUPNER BELL 212

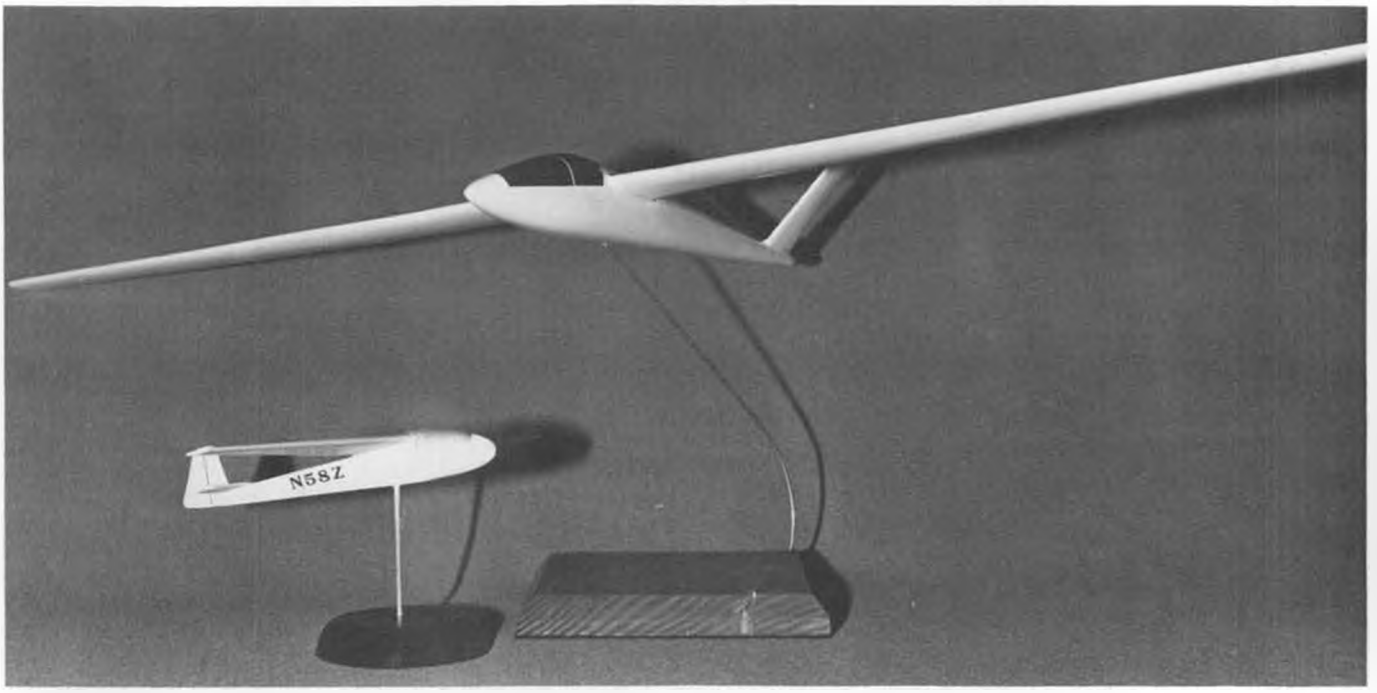
When first looking at the list price of this helicopter kit, one is apt to conclude that $525.00 is too much for any chopper, and turn away seeking something more reasonable. On the other hand, when you open the two massive boxes and examine what you get for that "chunk of greenbacks," you just might change your mind and realize it's one of the best bargains in the industry. The engine assembly alone (included in the kit) will more than make up the difference in price when compared to any other quality helicopter kit! The care in detailing all parts and instructions to the "Nth" degree is typical of all Graupner products, as any modeler who has built some of their kits will agree.

To begin with, the size of the Bell 212 is most ideal for the average modeler. It is small enough to be easily transported (and that's very important), but still large enough to handle any kind of wind or weather conditions you would care to fly in. The main rotor diameter is approximately 63 inches, tail rotor 12 inches, and the overall length is about 76 inches. With a little adjustment, you may experiment with rigid rotor, semi-rigid rotor, collective pitch, or no collective pitch, as you desire! Incidentally, at first thought I felt it might be better to teach the beginner how to fly without collective pitch, but after having done it both ways, I'm convinced it's easier for the tyro to start right in *with* collective. His altitude control is much better, and the learning time is reduced somewhat.

The kit really breaks down into two basic parts, each with its own set of instructions and components. The "Zelle"

Continued on page 70

The Dieter Schluter "Heli-Baby" helicopter is a bolt-together model for .40 size engines. To be available in the U.S. through MRC.



GLIDER PHOTOS BY CHRIS CHRISTEN
OTHER PHOTOS BY BILL HANNAN

The half-inch scale HP-14 built from Solid Scale kit hovers over aquarter-inch scale BG-12 from an Award Miniature kit.

SOARING looks at SOLIDS

with LE GRAY

Our soaring editor takes off on still another side track, but after all, it's about modeling, and in the long run, that's what counts the most. Do you remember "solids?" If not, it's high time you were filled in.

• In days of yore, before the introduction of silicone injections, and other advances for mankind from the wonderful world of plastics, there was a type of miniature airplane known as the "solid model." As the nomenclature implies, this type of model did not utilize a built-up structure, but rather, was of homogenous cross-section, usually balsa wood, made up of major sub-assemblies carved to appropriate external lines and contours. The solid model was also called a "shelf model" for obvious reasons, and served to decorate the bookshelves, coffee tables and desks within the homes and offices of aviation enthusiasts.

Numerous companies, in the U.S. and abroad, provided a large selection of balsa wood solid model kits. In the first years, the kits were comprised of rectangular blocks and sheet pieces, perhaps a strip or two of dowel, and a single page of three-view drawings with construction notes. Soon, the more deluxe kits included cast metal propellers, machine guns and radial engines . . . a real breakthrough for models of those many early-day configurations that sported big, uncowled, round engines . . . like most designs flying in the 1930's. The next big step forward was made by an imaginative organization . . . we don't recall who was first . . . that supplied ready-cut, two-dimensional contoured blocks for fuselage and wings.

Just as with fine models of sailing ships, solid model airplanes attracted a cult of craftsmen that has no parallel in today's hobby. Model airplane magazines carried several three-view drawings suitable for scratch building in each issue, and always featured portrait quality photographs and glowing descriptions of reader's objects of art. Many models were quite complex . . . though small at the standard 1/48 (1/4" = 1'-0") scale . . . with hollowed cockpit and cabin areas fitted with interior detail, movable control surfaces, simulated rib and fabric structure, and external flying wires and rigging typical of the era.

One of the major companies which specialized in solid-scale model airplane kits was the Hawk Model Airplane Co. In the early 1940's, Hawk supplemented its line of excellent balsa wood products with injection molded plastic construction kits. These were the forerunners of the thousands of fantastically detailed plastic kits available today in every city and hamlet in the country and from a limitless variety of retail outlets. The Hawk kits were of the Doolittle GB SuperSport racer, the Supermarine S.6B . . . direct predecessor of the Spitfire . . . complete with twin floats . . . and the Navy's Curtiss biplace racer.

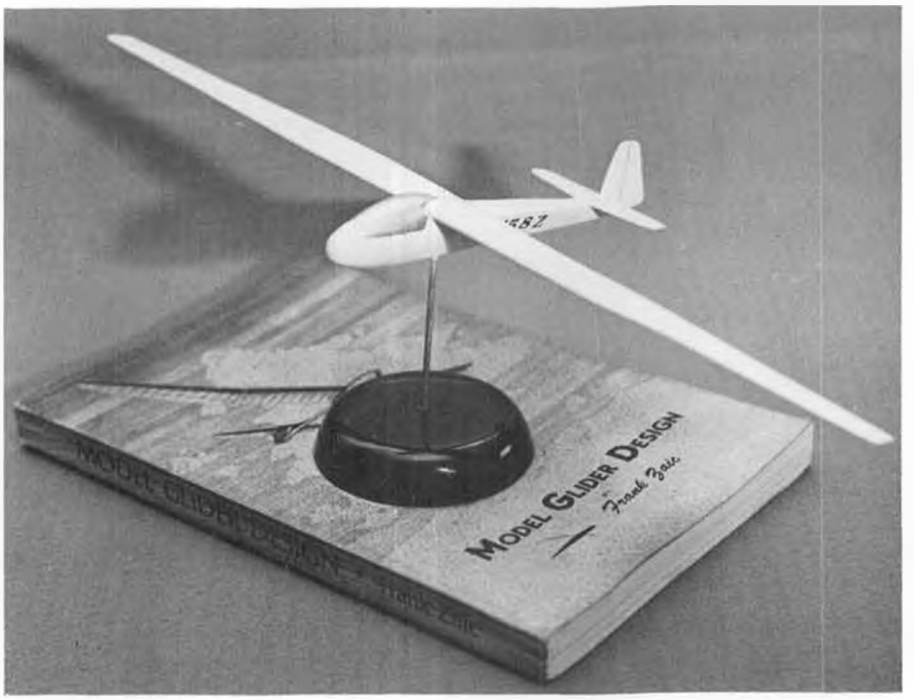
Bill Hannan's beautiful little 3/8 scale Fairchild 22, carved from basswood. Finish is acrylic lacquer. Note instrumentation in cockpits. Span is about 11-1/2 inches.

The molded detail in these revolutionary kits was mind boggling. They offered a quality to the average builder that normally could be attained only by master craftsmen. But there were technical problems with these new plastic marvels. The various parts were well keyed and fitted properly, but a workable adhesive was not readily available. Acetate glue was the only cement commonly known to modelers, and it was not suitable. Acetone, as a solvent, seemed to be the best answer. If the mating surfaces of component parts were softened with acetone, hopefully they could be assembled and, under light pressure, welded into a unit as the solvent evaporated . . . Sometimes it worked.

Another problem was painting. To the modeler of the day, paint was "dope," and the dope-plastic incompatibility was just as true three decades ago as it is today. Instructions in the kit made no suggestion that enamel paint could be used to good purpose.

The World War II years saw the solid model become a popular . . . though of questionable significance . . . aid in the training of the nation's airmen and aircraft spotters. Produced by the tens-of-thousands by school children and other patriots, these aircraft recognition models were built to a constant 1/72 (3/32" = 1'-0") scale in flying configuration . . . no extended landing gears or static propellers . . . and were finished all over in flat black paint. The idea was to simulate friendly and enemy craft as they might be seen in actual operation . . . from a considerable distance, without recognizable insignia or colors. Civilian spotters and military airmen were trained to see contours and identifying characteristics with, hopefully, instantaneous and accurate discrimination.

As with many talents and crafts, such as those of the wheelwright and hooper . . . creators of artisan quality . . . solid shelf models have dwindled. Plastics now dominate, and not without good cause. The ARS (Almost Ready to Set) plastic jewels permit easy completion of near-museum pieces by relatively amateur assemblers.



At 1/4 inch scale, the little Briegleb spans 12 inches. Finished with Aero Gloss sanding sealer, it was then sprayed by air brush with gloss white dope. India ink lines and transfer lettering.

Plastic parts require expensive molds and machinery that can only be supported by volume production and sales. Accordingly, plastic scale model kits, numerous as they are, can never cover the spectrum of aeronautica. The special interest enthusiast will never have his needs fulfilled by the plastics industry. There just isn't adequate volume to justify the required investment. Wonder what ever happened to the vice-president of a major plastic model firm who vetoed the development of a Lockheed U-2 kit on the basis that it would never be a well known aircraft? His decision was made only a couple of months before the Jerry Powers, over Russia shoot-down incident. Well, ya can't win 'em all.

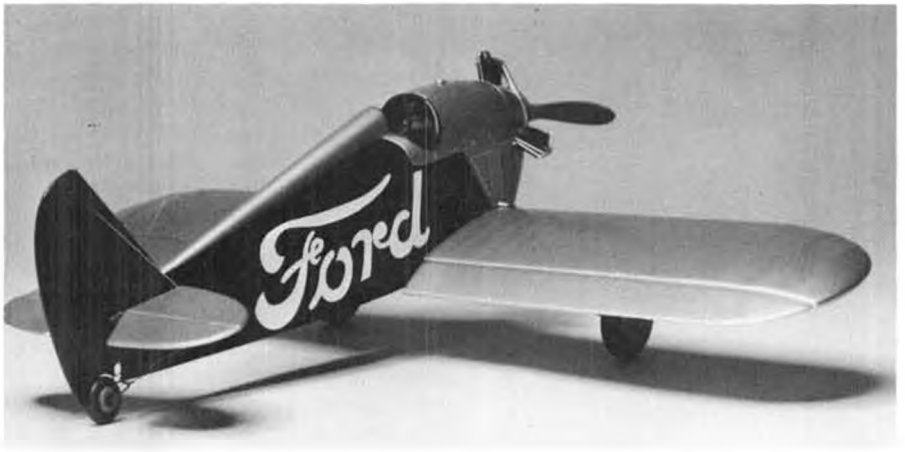
One of the great advantages of the "old time" solid wood models is that amortization of high-cost tooling is not a problem. Therefore, the special interest modeler can be served a quality . . . if not completely modern . . . product at a reasonable price. For instance, Solid Scale, a firm in Clovis, New Mexico is doing just this for sailplane enthusiasts.

Solid Scale is now producing a solid wood model kit of Dick Schreder's famous HP-14, as the first of a new series of 1/24 (1/2" = 1'-0") scale display sailplanes. MODEL BUILDER asked Chris Christen (designer/builder of the Briegleb BG-12 scale R/C sailplane, April 1973 MB) to build the Solid Scale kit, provide construction hints, and a review of the product. Following is Chris' analysis, based on his experience building the beautiful HP-14 in the accompanying photos.

"The Solid Scale HP-14 kit uses all solid pine construction. Pieces are supplied cut to both plan and elevation outlines. Rough shaping to the templates provided on the plan was done using a combination of a wood rasp, carving blade, razor plane and 80 grit sandpaper. After preliminary shaping was completed, a sanding block and progressively finer sandpaper were used on all surfaces to arrive at the final contours. All parts should be finished with at least 180 aluminum oxide paper before beginning assembly.

"At this point, it is a good idea to decide how the finished model is to be displayed. If as shown in the photos, drill a hole in the bottom of the fuselage with a tap drill for a 2-56 thread, but do not tap. Hole should be about a half-inch deep. Screw a threaded push rod into the hole. This will provide a convenient handle during all finishing steps, and may be bent to any form required for mounting the completed model.

"When attaching wings and V-tail to the fuselage, do not use quick-curing epoxy, as it does not offer adequate strength to withstand final sanding. Com-



Another of Bill Hannan's solids, the little Ford "Flivver." Engine detailing on a model this size can get you to wearing magnifying lenses.

Quarter-inch scale Schweizer 1-23 was scratch-built from balsa. Excellent photo background!

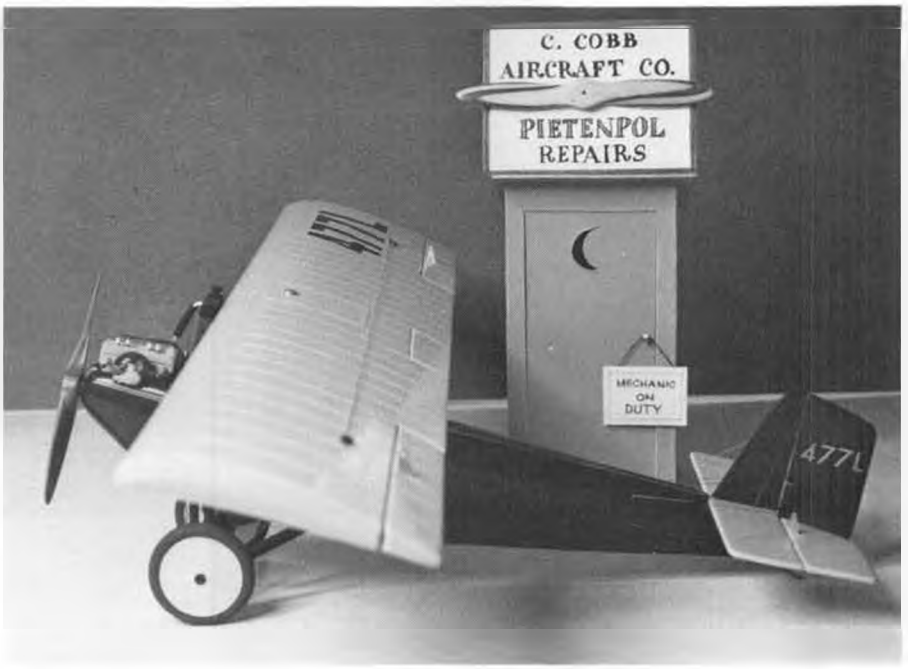
ponent assembly should be made with a good grade of finishing resin or with Hobbypoxy Formula 2. Pre-assemble wings to the fuselage, taking care that they are firmly supported at the proper position during cure. Some misalignment was evident in the wing hole-fuselage dowel pin mating as pre-fabricated by Solid Scale. Re-fitting of this joint was necessary. Also, about 1 degree of dihedral in each wing is suggested for appearance . . . rather than the 0 degree suggested on the plans. No-dihedral looks droopy, whereas 1 degree gives a flat appearance as desired. Allow the wing-fuselage joint at least 24 hours cure time before handling or attempting to attach the V-tail.

"The V-tail was epoxied to the fuselage using the wings as an alignment reference. It was found necessary to build a small jig to fit between the stab halves to hold them at the proper angle during assembly. This fixture need be only a scrap of 3/8 or 1/2 inch thick balsa, tack-glued to the tail surfaces. Again, assemble, using either resin or Hobbypoxy Formula 2. Allow at least 24 hours for curing.

"If final sealing and finishing is done with resin, it is not necessary to form a fillet at surface-fuselage intersections as recommended on the plan. The fillets will build up progressively as coats of surfacing resin are added.

"Finishing started with two coats of surfacing resin on all parts. This can be accomplished in one evening by using a first coat mixed to harden quickly (about 1 hour), and then a second coat mixed to cure slowly overnight.

"Smooth the cured resin with a single edge razor blade or Hobbypoxy scraper blade. After scraping all rough spots and high places, sand, using wet-or-dry sandpaper to at least 200 grit. When satisfied, apply two more coats of resin, brushing each coat out as thin as possible and still wetting the entire surface. When these coats have cured, sand with wet-or-dry paper with at least 400 grit. Great care should be taken at this point, because any carelessness will be evident in the final appearance of the model.



Another exercise in engine detailing by Bill Hannan. Note also the simulated ribs and the scale size rigging wire. The extra scenery helps to tell a story, rather than having just another photo.

"Color finish is three coats of gloss white enamel. Be sure that resin surface has been cleaned thoroughly before attempting to paint, because enamel will not wet where any oil is present . . . even from fingers. Canopy outline was masked and sprayed with flat black enamel. All control surface outlines were done using a ruling pen and indelible india ink."

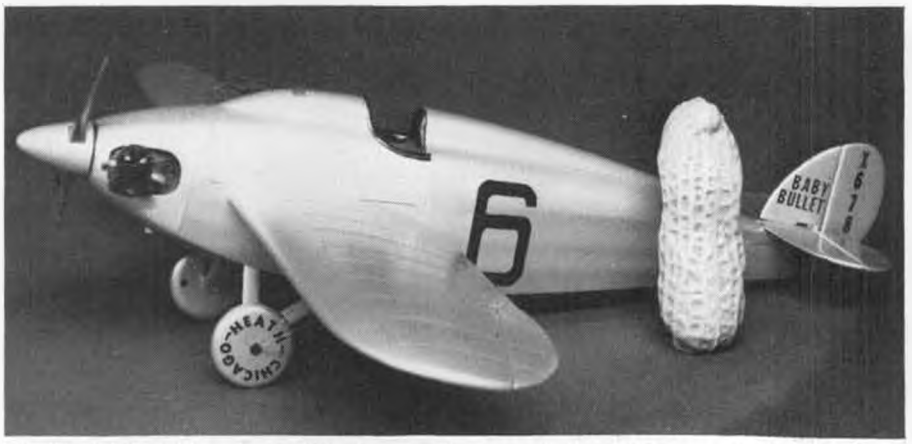
Chris' Briegleb BG-12 shelf model . . . and the inspiration for his R/C scale soarer . . . was built from an Award Miniature kit, utilizing medium weight balsa. Scale is 1/48 (1/4" = 1'-0") giving a span of approximately 12 inches. The BG-12 was built several years ago, and kits may no longer be available. The Briegleb was finished with Aero Gloss sanding sealer. The final white color coat was thinned, gloss white dope, sprayed on with an air brush. Registration numbers are dry transfer characters, and the control surface outlines are india ink applied with a ruling pen. Cockpit canopy was painted with flat silver dope.

The Schweizer 1-23 in the photos is an example of the flexibility offered to the modeler who is willing to perform a bit of scratch building. There is no kit available, plastic or wood, for a desk model of this craft. Note use of the term "desk model." This provides a generic description, without reference to material of construction, and is considerably more sophisticated than the antiquated "shelf model" terminology.

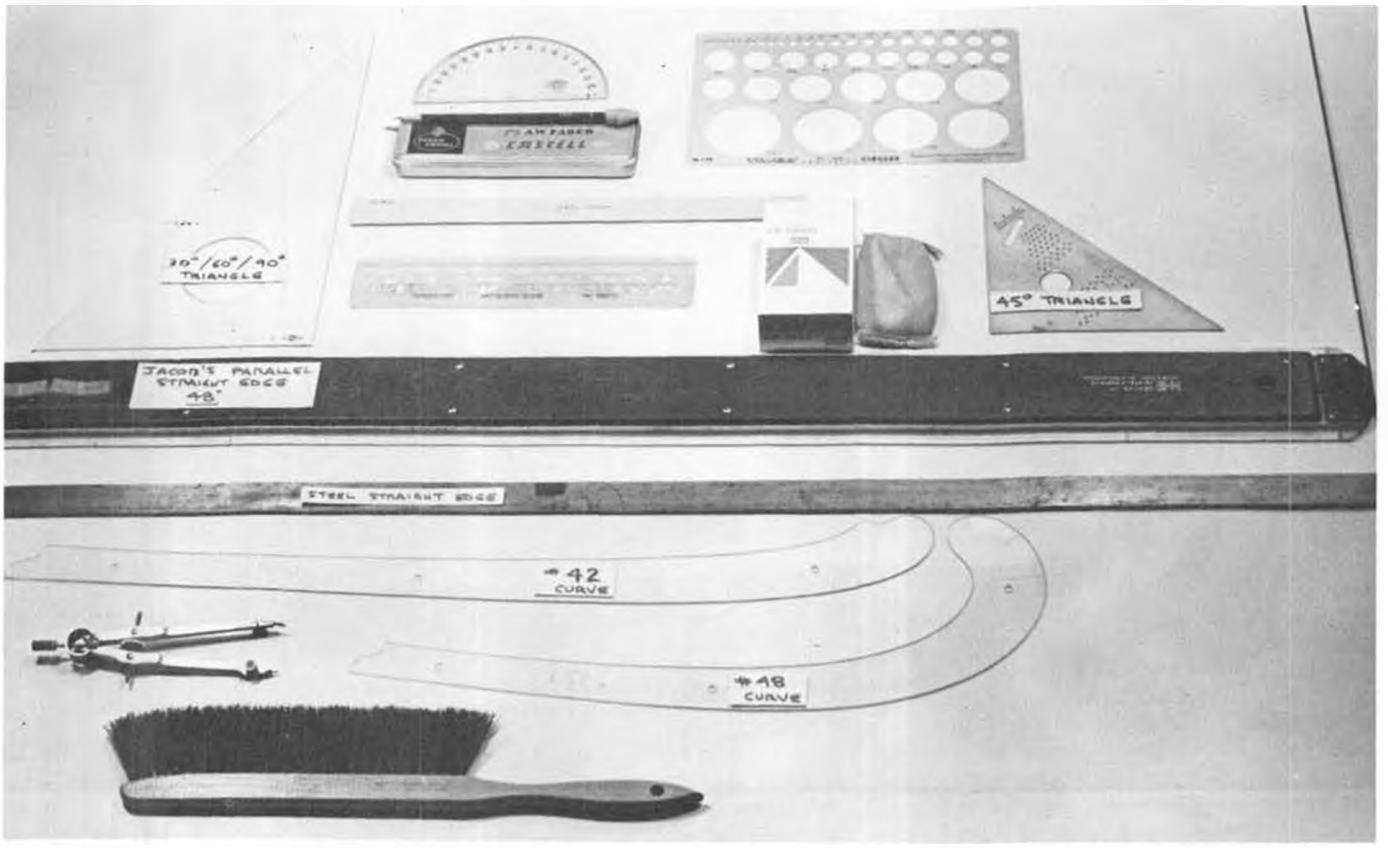
The 1-23 is scaled to the popular 1/48 size, and has a wingspan of 13-1/4 inches. Fuselage length is 5-1/4 inches. The fuselage is a balsa block, wings are 1/4 x 1 inch balsa strip, and tail surfaces are 1/16 bass or plywood sheet. Wings plug into 1/16 diameter aluminum tube, which extends through the fuselage, for support and alignment during assembly. Tail surfaces are butt-jointed to the fuselage.

The basic simplicity of most sailplanes provides easy modeling. A few lines . . . preferably light gray or off-white . . . to indicate control surface

Continued on page 64



The Heath Baby Bullet, in something less than Peanut scale, by Bill Hannan. Hand made solids somehow convey more character than the plastics.



Assortment of basic drawing instruments required. Local art supply stores usually carry this type of equipment. Look for K % E or Dietzgen brands for good quality. These items will last a lifetime.

HOW TO PREPARE ARTICLES FOR PUBLICATION

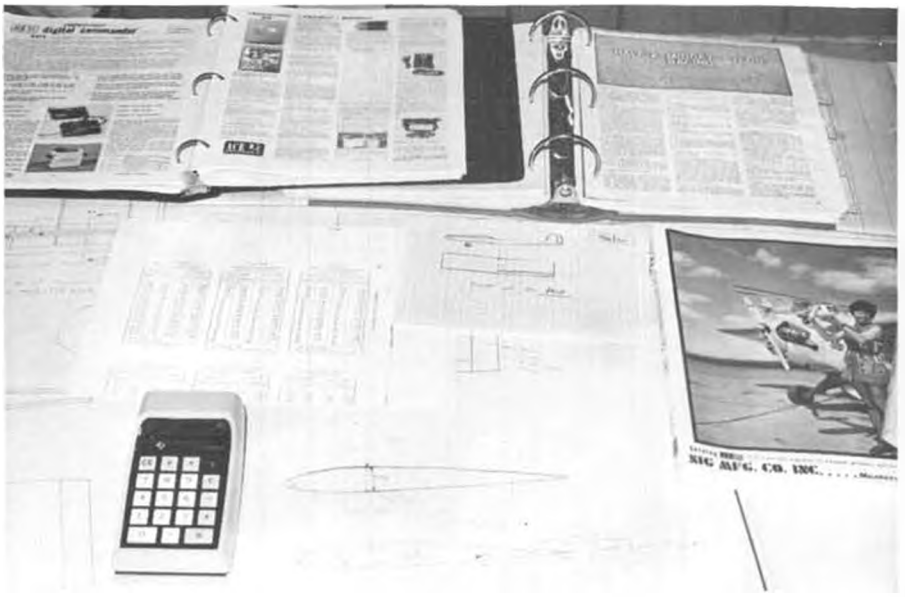
By BOB ABERLE . . . A good presentation is half the battle in submitting material that will attract an editor's attention. Here are some good hints on getting it all together. Try it. Make yourself famous!

• When you first start on a design, the initial drawing is called a layout. I usually leave the layout on the drawing board during the building and test flying stages. Any changes required are simply sketched on to the layout. While doing the design work, I find a small pocket-size calculator a great help in handling some of the simple, yet time consuming calculations. I also keep some basic reference material in front of me, including a list of standard balsa wood sizes, several comprehensive accessory catalogs (Ace, Sig, World Engines, Hobby Lobby, etc.), a book of airfoils (Theory of Wing Sections, Dover Publications, Inc., New York, $4.00), some magazine articles covering basic model aircraft design criteria, and a booklet of Peter Chinn engine write-ups, which supply performance data, engine weights and mounting dimensions.

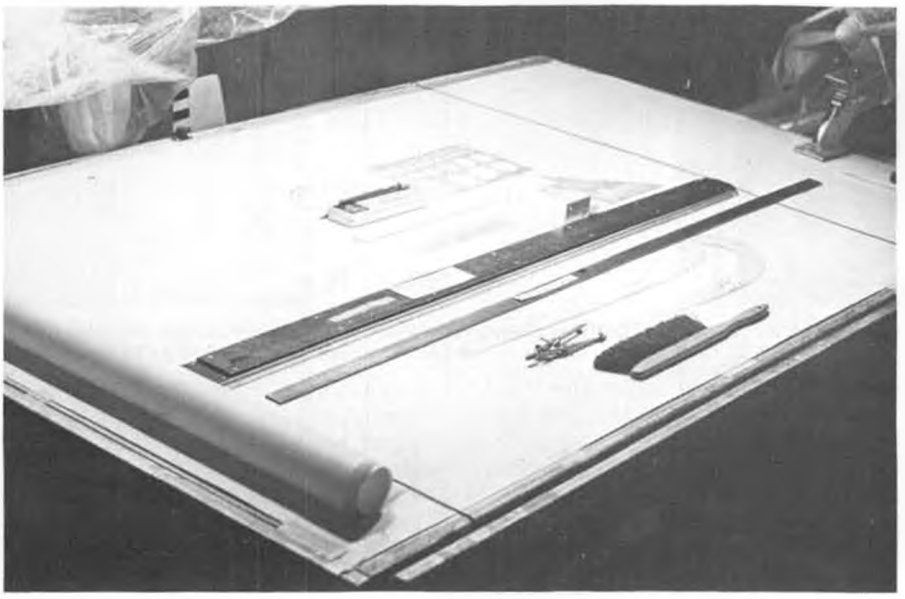
The author, hard at work on a text, is typing it triple spaced, which allows plenty of room for editing . . . most helpful to the proof reader.

I have a card catalog system which references full size aircraft articles which have appeared in the various magazines over the past six to eight years. My present file consists of over 2,000 index cards. This file was, of course, prepared over a period of time. It comes in handy when I decide to work on a scale project. If a scale model of a particular plane has been published in the past eight years I'll know about it. This system prevents duplication of effort. I don't particularly like modeling a plane that has already been published by someone else. Remember, this type of filing system only works with full size aircraft designations. It would be very difficult to make up a file like this on original model designs (but it could be done if someone had the time and patience).

The final drawing usually ends up being a tracing of the layout. It should incorporate all the design changes noted during the building and flight testing.



Typical scene during design of a new R/C plane. Reference material at hand, and a small calculator, which is especially handy when scaling from three-views.



Six foot wide Hamilton professional drawing table and Jacob's Parallel Straight Edge were picked up from local used office equipment supplier.

Camera equipment used by the author . . . less one camera which was used to take this picture! If you don't do your own photography, find a friend who does. It's very important for articles.

Organization of this final drawing is very important. Don't crowd everything in one corner. Provide section views as necessary to detail any difficult areas. I usually place the wing on the upper portion. If I'm pressed for space I sometimes draw only a wing half. This tends to upset some modelers, so try, when possible, to draw the full wing (right and left panels). Place the fuselage in the lower portion and towards the left border. *(Don't forget to leave room for the title block and magazine plan identification. wcn)* This will leave room on the right side for the stabilizer.

I generally use a 2H drafting pencil, which is a little harder than most draftsmen prefer. Actually, it would be better from a contrast standpoint to use an H grade pencil. *(Agreed! wcn)* All my lettering is done with a 1/4 inch stencil. This goes very fast, and produces an extremely neat and orderly looking drawing. Remember, you are trying to sell your design to a magazine editor. Don't overlook the obvious, i.e., the size and make of the engine used, wing rib sizes, type of fuel tank, etc.

Make sure you provide a scale of at least six inches, somewhere near the title box. A plane reproduced in a magazine without a scale, is worthless. *(MB's plan identification includes a six inch scale. wcn)* It's a good idea to list inside the title box some of the general specifications, for example; wing span, fuselage length, wing area, wing loading and total model weight. Use approximately 1/2 inch bold face, press-on lettering for the name of the plane, to make it stand out.

When the final drawing is completed I have a brown-line or sepia transparency copy made at a local blue print shop. I keep the transparency in my file and send the original off to the publisher.

One item which I failed to mention is the job of inking the drawing. Years ago, it was almost a must to supply the original drawing in ink. Even with modern ink material (Pelikan Ink, Rapidograph Pens, etc.) it is still a very time-consuming job for the amateur. Several of the magazines have staff artists, and actually prefer to do their own ink tracings for consistent results. I believe MODEL BUILDER has the ability to directly photograph good quality pencil drawings with some type of autopositive process. *(Yup. wcn)* This results in a drawing of equal quality (to ink) with a minimum of effort. This is a great idea, since on many occasions, data is omitted unintentionally during the ink tracing operation. In general, I feel sending the magazine a good quality pencil drawing is the best bet.

Now we better talk a little about photography. Photos can tell most of the story. The most essential item required is a good single-lens reflex camera (usually a 35 MM). With the single-lens viewing, whatever you see in the viewfinder is

Inexpensive file cabinet made from hardware shelves to which a masonite back and sides were added.

For home processing of black and white prints, Bob built this darkroom in a basement corner. Inexpensive panelling on 2x3's did it.

exactly what you get on your film *(You swipe that line from Fonda, Bob? wcn)* In other words, you don't have to worry about any parallax corrections, a problem common to separate rangefinder/viewing cameras.

Before getting into details, let's summarize what constitutes a complete construction article. Briefly, it's a full size plan, photographs of the model, and a text. We'll now take a look at what is needed to put all of these things together.

The first and most important item I needed to get started was a large drawing board. For years I simply made my own personal drawings on graph paper, usually spread out over the kitchen or dining room table. A brand new, six foot wide drawing board was certainly beyond my means. I searched through the yellow pages and located a supplier of used office equipment. Without much difficulty I was able to buy a Hamilton Professional Drawing Table for $50.00. The surface of my board had seen better days, but with a covering of thin cardboard stock material it was more than adequate for my needs.

To illuminate my small basement design area I mounted a double 40 watt, 48 inch long, fluorescent light fixture, directly over the drawing board.

The single most important accessory for the drawing board is the "TEE" square. Modern day designers and draftsmen tend to favor the use of drafting machines, which are quite expensive. Discarded drafting machines are usually in such poor shape that they are of little value. Instead, I went back to the used office equipment supplier and purchased a Jacob's Parallel Straight Edge. This device is attached to the drawing board using a series of cords and pulleys. No matter where you place the straight edge on the drawing board you will always obtain a parallel and horizontal line. Vertical line work is done with the aid of a triangle resting against the Jacob's straight edge.

Recent model magazine surveys indi-

If you get into doing your own printing, and even amateur work is usually better than the average "drug store" print, you'll need the basics shown. This is second hobby for many modelers.

Simple, but effective studio. Two reflector photofloods over drawing table. Trixter Beam old time radio ship was featured in June '74 MB.

Filing system maintained by the author for the past seven years, contains over 2,000 reference cards. He's local data supplier!

cated that the typical modeler is in his mid to late thirty's and has been active in the hobby for over twenty years. Well, I hate to admit it, but I fall into that category. I've been buying and reading all the model magazines for at least twenty years. As a young modeler, I had always dreamed of having a design published in one of the magazines, but never had the experience or facilities necessary for the job.

Several years ago I designed a high performance R/C glider which I felt would be interesting and worthy of publication. To actually produce that first article proved quite a challenge.

Key item for B & W darkroom is the enlarger. This one is a Meopta Opemus III.

Since that time, I have had many articles published and I've also learned a lot about the publishing business. I thought it might be appropriate to share some of my experiences with the hope that more modelers will take that extra step and submit their pet ideas to the magazines.

Next, I had to stock up on some drawing instruments and supplies. I didn't buy everything at one time, but instead, bought as I needed it. The following items I consider a minimum; two triangles (45 degree and 30/60/90), measuring scale (1/32 and 1/50 inch divisions), protractor, compass, lettering stencil (1/4 inch size), Copenhagen Ships Curves (numbers 42 and 48 are probably all you will ever need), circle template, 2H and H drafting pencils, eraser (good drafting quality, or better still, an erasing machine) and some masking tape to hold the drawing paper to the board. The drawing paper most used is a vellum or transparent material which enables ozalid or Bruning type reproductions. The particular material I use has a bluish tint to it and is known as Dietzgen 199M "Ageproof." *(Our office uses a paper with non-reproducing one-inch squares subdivided into eighths. Helps to line everything up, and keeps free-hand lettering straight. wcn)* To keep the drawing clean I usually shake drafting powder (K & E ABC Draftsman Dry Clean Pad #58-0660) over the drawing. This helps prevent smudging and also absorbs some of the natural oils in your skin which tend to discolor the drawing. When the drawing is complete, you simply brush the powder off. I also purchased a steel straight edge for drawing long, non-parallel lines. If I had to put a price tag on all this equipment I'd have to guess under $50.00.

It's a good idea to get accustomed to drawing on a 35 x 50 paper (border to border). A 20% reduction comes to 7 x 10 inches, which is standard size for the copy portion of a magazine page. Although not a firm rule, you will make life easier for the art director if you stick with this size. If I happen to be doing a large model I usually go to two sheets, each being 35 x 50. *(For smaller models, use smaller sheets in the same 7 x 10 proportion, i.e., 31-1/2 x 45, 28 x 40, etc. wcn)*

My first article was nearly a disaster because of my poor quality camera. Fortunately, Don McGovern (FM Editor) was patient with me. I took the proceeds of that first article and applied it, in part, to the purchase of a Konica Autoreflex T3 camera. Actually, any SLR camera with nothing better than an F 2.0 lens is good enough. Most of my shots are taken around F 8 to F 16, so a super (expensive) F 1.2 or F 1.4 lens really isn't required.

Of course, the camera purchase turned out only to be the start. The next item needed was a telephoto for that new camera. For good flight shots, a telephoto lens is a must. I chose a 135 MM tele for my Konica (because it was on sale). An additional $25.00 got me a 2 x (two times magnification) teleconverter, which extends my 135 MM tele up to 270 MM. Some clarity is lost with a teleconverter, but this is certainly better than buying an actual 270 MM lens

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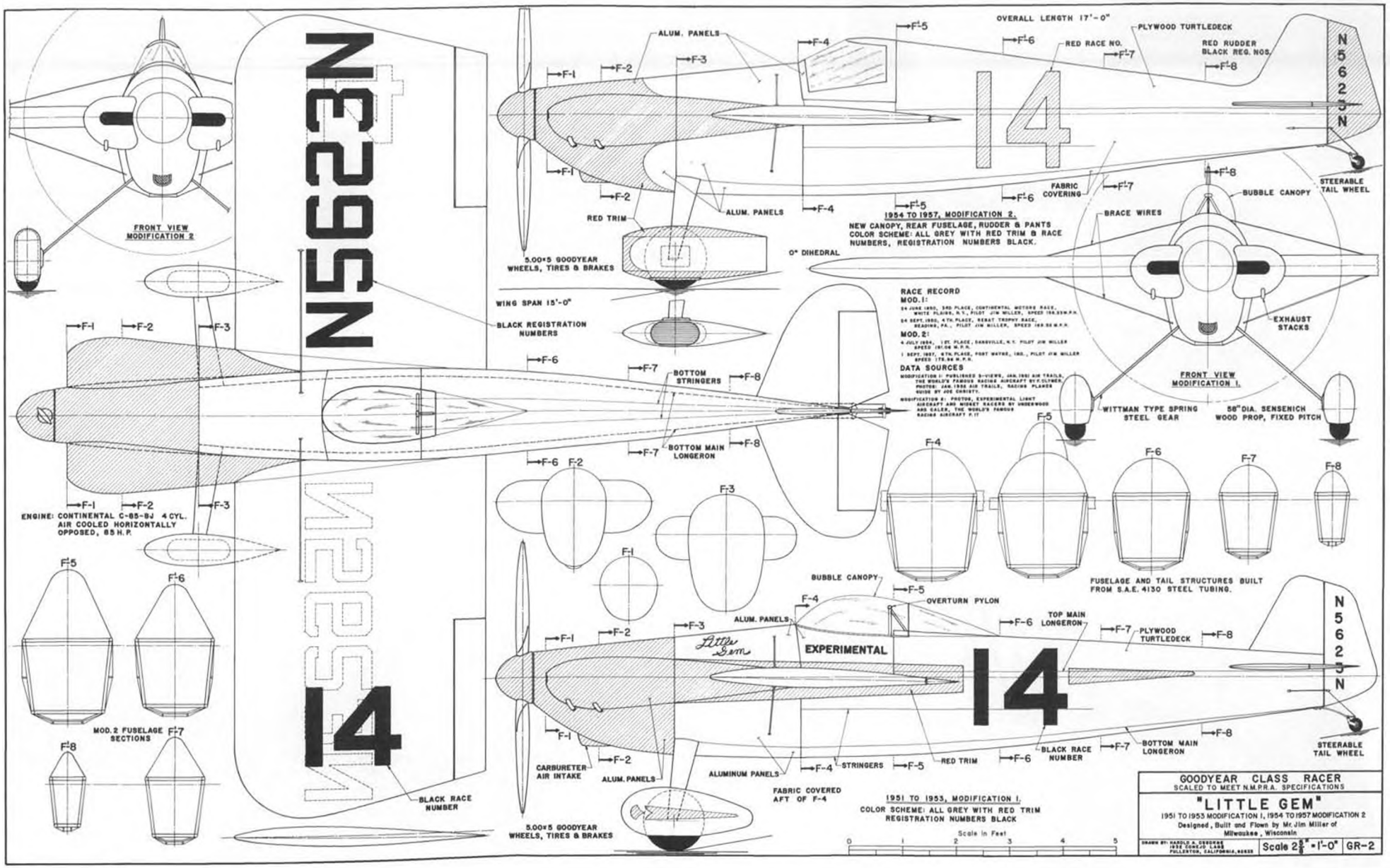


Full size copies of this plan are available direct from Harold Osborne, Box 2033, Fullerton, California 92633.

At 2"=1'-0" scale, wing span 30", wing area 300 sq. in., plan size 3 x 5 feet, price $2.00 (includes First Class postage).

At 2-5/8"=1'-0" scale, wing span 39", wing area 467 sq. in., plan size 3-1/2 x 6 feet, price $3.00 (includes First Class postage).

JIM MILLER'S "LITTLE GEM"

PHOTOS SUPPLIED BY BOB HIRSCH

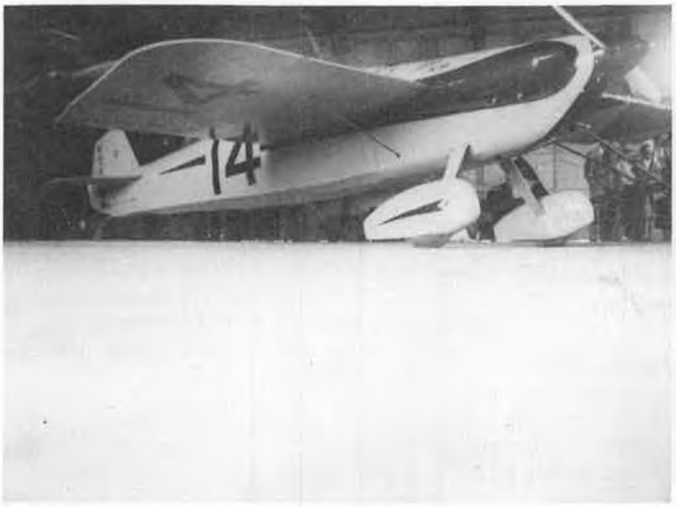
By HAL OSBORNE

● Racing aircraft are usually modified and changed greatly over their racing careers. There are many changes of ownership that generate different paint jobs. Crashes and the subsequent rebuild of the aircraft alter the configuration from year to year. Jim Miller's "Little Gem" went the full route.

Would you believe that the "Little Gem" of 1951 is now Bob Downey's "Ole Tiger"?

"Little Gem" Mod. 1, of 1951 to 1953, had two different paint jobs, wheel pants, and rudder shapes. Mod. 2 of 1954 to 1957 only had two paint jobs.

This makes the preparation of a drawing very difficult. You draw from the data you have on hand and hope that you don't have some expert ask you "what were you smoking when you made that drawing?" Even the late Willis Nye published an autogyro drawing with three blades going clockwise and one blade going counterclockwise! And he was one of the best aircraft draftsmen. ●



Jim Clem and son, Mitch, with both versions of the A/B Okie Bird . . . sub-fin and aft-fin. You pays yer money and takes yer choice. B & W print from Ektacolor photo by Rose Lea Clem.

OKIE BIRD

By JIM CLEM . . . Here's your Class A or B competition free flight ship for the coming season. Both the design *and* the designer come well recommended. Aft and sub fin models are shown on the plans.

• The A-B size Okie Bird for engines .15 to .25, is basically an enlarged version of the ½/A Okie Bird which was designed in 1970. Without much fanfare, the latter has compiled an impressive contest record, including two first place Nats wins; one in ½/A Open, the other in A Open. Its contest record is especially good considering that only a limited number of ½/A kits have been made available since 1971.

Inspiration for the A-B size stems from the success of the ½/A, and the desire of several modelers to fly an intermediate size. Dick Smith, of the Central Ohio Free Flight Club, has been an advocate of this design and has assisted in its development by his flight test reports. Dick has been concentrating on the aft rudder version, which is included as an option on the plan.

Let's take a close look at the A-B machine and briefly discuss philosophy of design. It's small enough (wing area 486 sq. inches) to be very fast in the climb with a good .15, .19, .23, or .25, and it's large and light enough to stay upstairs a respectable length of time after the engine quits. It could be referred to as a "compromise" ship; not too small to glide well, not too large to climb fast.

If you examine the plans closely, you will notice the thrust line is above the rudder, even on the aft rudder version. This puts the rudder in the right side of the prop blast, which produces a natural right power turn. Some pylon ships of similar design have a tendency to dip to the right immediately after launch, before assuming their intended upward flight path. This undesirable trait is eliminated by the use of left engine thrust.

The Okie Bird has a left glide turn which comes about naturally. Most modelers like to use wash-in in the right wing panel of a ship that climbs to the right under power. This keeps the right wing up going into the turn. When the engine stops, the plane naturally wants to go into a left glide because of the wash-in in the right panel and the left rudder tab.

If you're looking for an easy contest machine to build, give the A-B Okie Bird a try. If aft rudder is your thing, this option is shown on the plan. It should be pointed out, however, that the sub rudder will handle the power just as well. As far as performance is concerned, there has been no discernible difference between the two machines. The weight of the A-B Okie Bird will vary from 19 to 21 ounces.

WING CONSTRUCTION

NOTE: Build in 1/4 inch wash-in to the right inboard panel, or, add the wash-in during the covering procedure. See covering details.

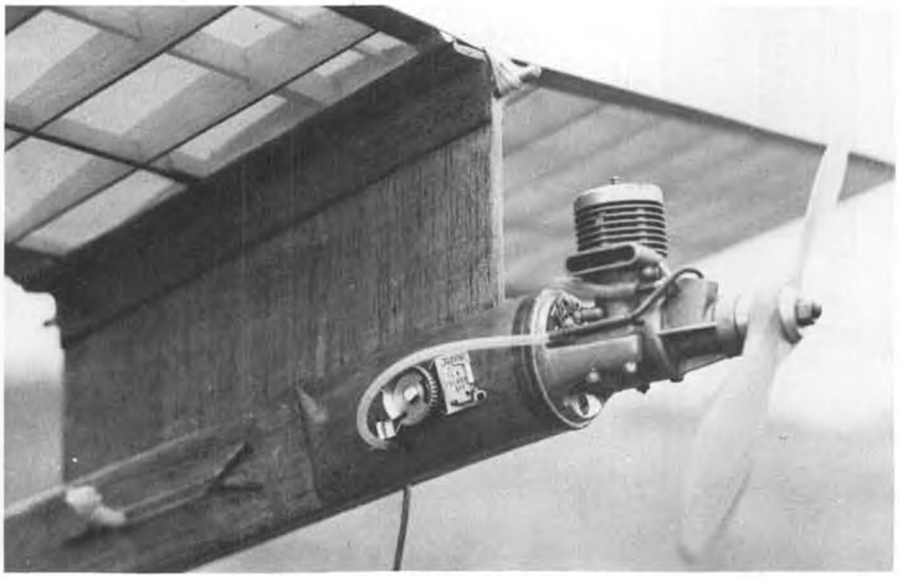
Begin construction by covering the plan with plastic film. Choose eight to ten pound (light-medium) 3/32 "C" grain for the main ribs. Use 1/16 "C" grain for the outer panel ribs. Cut out all of the main ribs, arrange them in stacks, and sand carefully to a uniform shape. Pin the 1/8 x 1/2 leading edge into place. Notch the 1/4 x 1 tapered trailing edge as shown on the plan. The notches in the outer panel trailing edges are only 1/16 wide. Pin the trailing edges in place. Glue the 3/16 x 1/4 leading edge strips to the 1/8 x 1/2 leading edge strips. The 3/16 x 1/4 L.E. should be offset 3/32 from the front of the 1/8 x 1/2 L.E., as shown on the plan.

Position the rear 1/8 x 3/8 spar on the plan and glue the 3/32 ribs into place. Be sure the rib notches at the dihedral joints are wide enough to receive the dihedral braces which will be installed later. Glue the main top spar and 1/8 sq. spars into place. Do not glue the 1/8 x 1/8 outer panel spars in place until the dihedral is installed. This also applies to the 1/8 x 3/8 top spar. Glue the 1/4 inch thick wing tips in place and trim to airfoil shape after the wing is dry.

The author prepares to launch. A Fox 25 leads the way.

Sub-fin version in the dethermalizing position. Clean, simple construction is a sign of excellent design work. Note left rudder tab on fin.

Aft fin version in DT position. In either case, the thrust line comes above the fin, giving a natural right power turn. Glide turn is to the left.



Business end of the author's aft-fin Okie Bird. Super Tigre .15 with flood-off system, internal tank. Note again the extreme simplicity, a function of thorough design.

Install the proper amount of dihedral as shown and glue the top outboard panel spars in place and install the wing gussets. Trim the leading edge to the airfoil shape shown on the plan and sand the entire framework thoroughly. Cover the wing with your favorite material and be sure to check the wing for the 3/16 inch wash-in in the right inboard panel. NOTE: If you did not build in wash-in, it can be added with an iron or heat gun if Monokote or similar material is used for covering. Have a helper twist the right panel slightly while you apply heat to the covering material. This will produce the necessary wash-in. Check the wing from time to time to make sure the warp still exists. The left inboard panel should be perfectly flat.

STABILIZER

Pin leading and trailing edges to plan and glue the 1/16 x 3/16 bottom strips in place. Glue 1/8 sq. strip into position at leading edge. Glue 1/16 sq. strip into position at trailing edge. Cut tapered spars from medium weight balsa, using the patterns shown on the plan. Glue the spars to the bottom strips.

Burnish the inner face of the 1/16 x 3/16 top strips with a smooth piece of plastic or pencil. This will produce a curvature which will make it easy to glue the strips over the spars at all points of contact. Glue the 3/16 sheet tips in place and add the balsa brace to the center section. When stabilizer is dry, trim leading edge to airfoil shape and sand entire stab thoroughly. Install the plywood hook as shown.

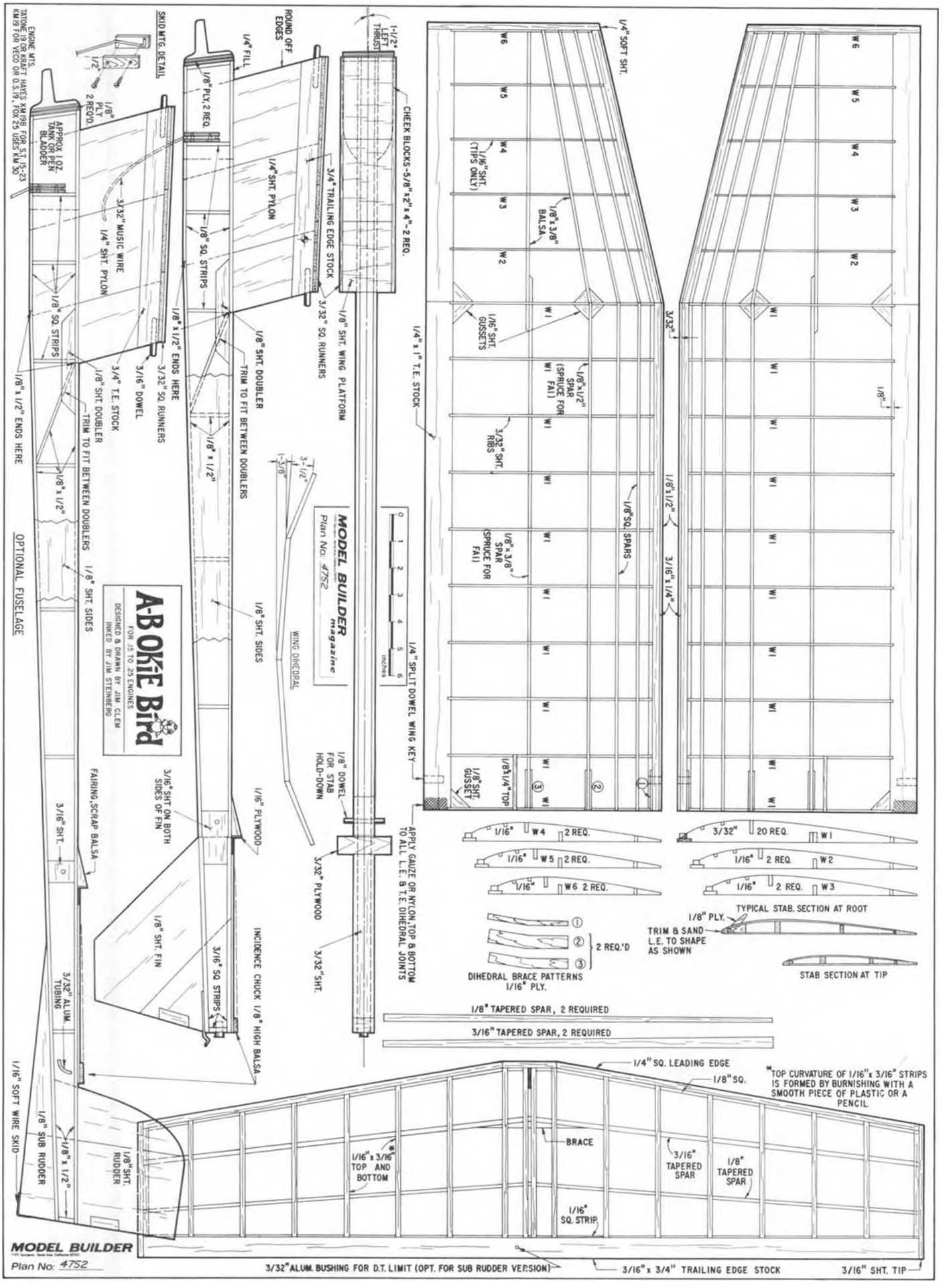
If you are building the sub-rudder version, install a DT hook formed of soft wire (large paper clip) to the trailing edge of the stab. If you are building the aft rudder version make a DT hole as shown on the plan.

SUB-RUDDER FUSELAGE

Cut out the pylon and rudder, and pre-glue all adjoining surfaces. Pin the 1/8 x 1/8 strips in place at pylon area. Pin 3/16 x 3/16 strips in place at rudder area. Glue the 1/8 x 1/2 fuselage top, bottom and vertical members in place. Add the 1/8 sheet doubler at the pylon area and glue the 3/16 sheet in place at the rudder area. The pylon and rudder are now glued into position. Be sure the pylon is in perfect alignment over the plan. Now, glue the 1/4 fill strips in place at the front end of the fuselage.

Glue the 1/8 x 1/8 strips in place at pylon area and add the 1/8 inch sheet doubler. Glue the 1/8 x 1/2 diagonal member in place. Trim the strip to fit between the doublers. Now, glue the 3/16 sheet in place at the rudder area. Install the landing gear wire as shown, unless you use the type of engine mount that provides for a wire skid.

When the fuselage is dry, remove from plan and use it as a pattern for the fuselage sides. Cut out and glue the two sides to the fuselage framework and weight down until dry.



FULL SIZE PLANS AVAILABLE – SEE PAGE 80

The stab did clear the author's head, barely (no pun intended), as he launched. Design had many hours of flight testing before being published.

Remove the fuselage from the board and construct the wing platform from 1/8 inch sheet (medium-hard) balsa. Glue the platform to the pylon and add the 3/4 inch trailing edge to both sides of the pylon. Install the 3/32 x 3/32 strip runners and install the 3/16 dowels.

Add the balsa fairing (stabilizer stop) and 3/32 plywood stabilizer platform. Cover the area behind the platform with 3/32 sheet balsa. Glue the DT hook in place and install the dowel through the fuselage as shown on the plan. Add the incidence block and glue a strip of 1/8 x 3/32 spruce to the front of the rudder. Install the gas tank (approx. one ounce) unless you plan on using a pen bladder or pacifier fuel system.

Cut the balsa nose blocks to the shape shown on the top view of the plan. Epoxy the two 1/8 plywood firewalls to the front end. NOTE: Blind mounting nuts may be required on the backside of the firewall, depending on what type of engine mount you select.

When the fuselage is complete, sand thoroughly, rounding off all sharp corners. Finish the sanding with a fine grain sand paper and add the 1/4 inch aluminum DT snuffer tube to the rear end of the fuselage. One end of the tube should be crimped.

Cover the fuselage with Japanese tissue and apply six or seven coats of thinned dope. Cover the nose of the fuselage with gauze, silk or nylon, to help keep the firewall permanently fixed in place. Coat well with epoxy.

AFT RUDDER FUSELAGE

Construction is the same, other than the tail section, which is considered self-explanatory.

FLYING

There is no substitute for a well adjusted model. The more you fly your machine, the better it will perform for you in competition. The best designs are no better than poor designs if they are not flight-trimmed properly. Take plenty of time to go through the trimming process. Many of the best contest flyers will fly a new machine 30 or 40 times before they are ready to take on competition. The more you practice flying (under windy conditions, too) the better you will know your plane and what to expect on every flight.

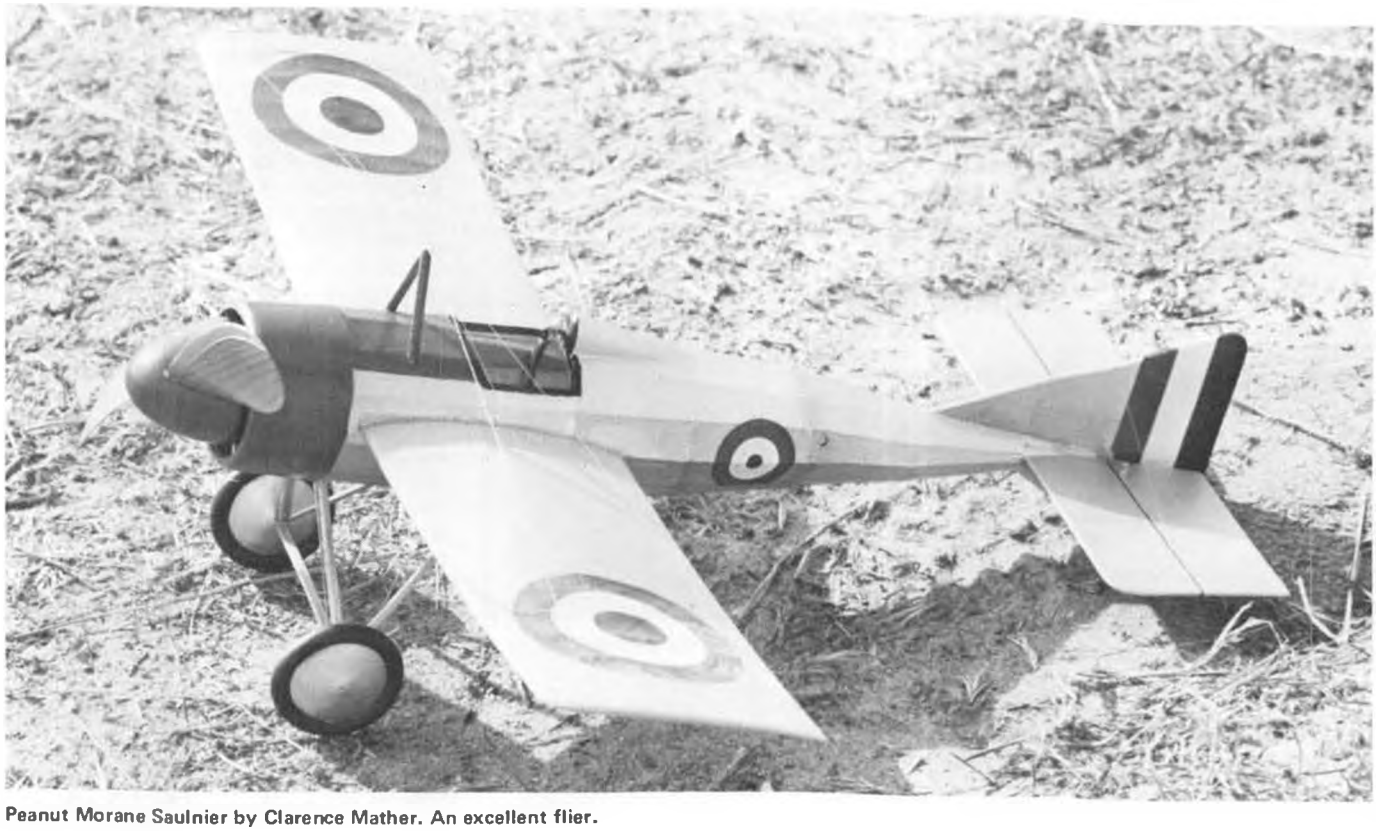
Before you test glide your Okie Bird, visually check all flying surfaces. They must be perfectly flat, with the exception of the right inboard panel, which should have about 3/16 inch wash-in. The stab should be tilted for a left glide turn, and the C.G. should be located close to the point shown on the plan. The rudder tab on the sub-rudder ship is 1/16 to 3/32 to the left. Begin with only 1/32 left rudder tab on aft rudder ship. Gently toss the model into the wind with the nose pointed slightly downward. If it stalls, remove balsa from the 1/8 incidence chunk until the stall is eliminated. The model should have a long flat glide with a slight left turn.

Make the first power flight at about three-fourths power, with a four second engine run. The Okie Bird should climb steeply to the right. If it turns too tightly to the right, add more left rudder tab. If it goes straight, at a steep angle, without any right turn, decrease the amount of left rudder. Gradually increase the power and engine runs until your plane is climbing to the right at about an 80 degree angle.

Here are some things to watch for while testing your plane. If it dips to the right under full power, then pulls its nose up and climbs, add a bit more left engine thrust. The additional left thrust should take care of the "dip." If the plane climbs properly to the right with the nose up and after the speed increases the climb flattens and the right wing drops, add more wash-in to the right inboard wing panel.

Correct the glide turn with stab tilt and correct the power turn with rudder tab; or in the case of a right dip as mentioned earlier, more left engine thrust. And remember, the rudder tab is very sensitive. Move it only 1/32 of an inch when making power turn adjustments.

"Well, after you've seen hundreds of designs, you almost automatically have an 'eye' for the right proportions."



Peanut Morane Saulnier by Clarence Mather. An excellent flier.

FREE FLIGHT SCALE

By FERNANDO RAMOS

• I want to thank all of you who have taken time to write. I appreciate your comments and suggestions for subject matter that you would like to see covered in this column. It is apparent from the mail that interest in F/F scale has really grown in all areas of the U.S. One factor which I feel has added to this growth is Peanut scale. This modeling art form can be accomplished inexpensively, and can be flown in most school yards and gyms. Interest is also stimulated by the plans and kits available, plus the numerous contests scheduled.

Many neophyte modelers go from Peanut to "regular" size scale models, usually rubber powered. Gas models, unfortunately, seem to be the least popular. I don't think it's all due to the fuss I hear about greasy and messy fuel, noise, etc. . . . there is simply more work involved,- particularly if serious contest work is considered. With the advent of electric motors for models, perhaps those who wouldn't consider gas engines because of exhaust residue and noise may succumb to electric.

I hope, through this column to generate sufficient interest so that gas powered F/F scale models will rise in popularity. In order to help in this direction, I plan to do a column on kit modifications for both a gas-powered monoplane and a biplane. I'll get this started in the next issue or two for sure. If you have any kits in particular that you would like to see modified, please let me know.

This month I would like to discuss wing building, particularly a few short cuts which may help make what I call a boring task, not so boring. I truly have a dislike for building wings, so any way I can conjure up to make it easier, I'll use it.

Wings for scale models have unusual features which differ from a non-scale model. That is, they have many more ribs (scale rib spacing), narrow trailing

Top F/F scale modeler, Jack McCracken, with his Hawker Fury. It's at 1-1/4 inch scale, for Jumbo Scale event.

McCracken's Fury from another angle. You have to see his work in person to believe it.

PHOTOS BY JOHN WILLIAMSON

Ray Behrens launches his Focke-Wulf A-47 Jumbo Scale ship. Not yet as well trimmed as his winning Skyfarer, however.

Walt Mooney, in typical launching attitude, releases his Russian Kalinan K-5 Jumbo Scaler.

edge, concealed spars, and tapering wing tips. Add to this . . . provisions for simulated wing gas tanks, separate ailerons for trim or appearance, control horns . . . and the list goes on and on. I haven't even mentioned rib stitching and tapes. Granted, many scale modelers build and fly for their own enjoyment and seldom, if ever, compete in contests. Therefore, I want to discuss the short cuts that would not necessarily apply to exact scale, even though many could be used.

Before actually starting the construction of the wing, a few considerations should be made. Should the wing spars be concealed? Will the wings be made to knock off, and if so, what method should be used?

The British designs most frequently use what is called a tongue-and-box method of wing attachment. This method is great once it is constructed, but I find that it is very time consuming to build and align from one side to the other, also, it is rather heavy. Another argument against this system is that the fit between the tongue and the box can become very loose over a period of time (however, when this happens a little tape or a few coats of dope will retighten the fit). The positive side of this method is that the wings slip on quickly and come off on impact, usually with no damage. The tongue-and-box is used most frequently with low wing models which typically have no other support (cantilevered).

Another method used is simple to build, easy to align, and will give on impact. It is the old tried and proven tube-and-wire plug-in (Restricted to wings with additional support from struts and/-or rigging.). When I use this method I start by cutting out the material for the template rib and butt ribs (As the name implies, a butt rib is one that is attached to each wing root rib or center section, and it is usually made from either 1/32 or 1/16 plywood. Very important to have when knock-off wings are used.). I prefer to use 1/16 plywood for these.

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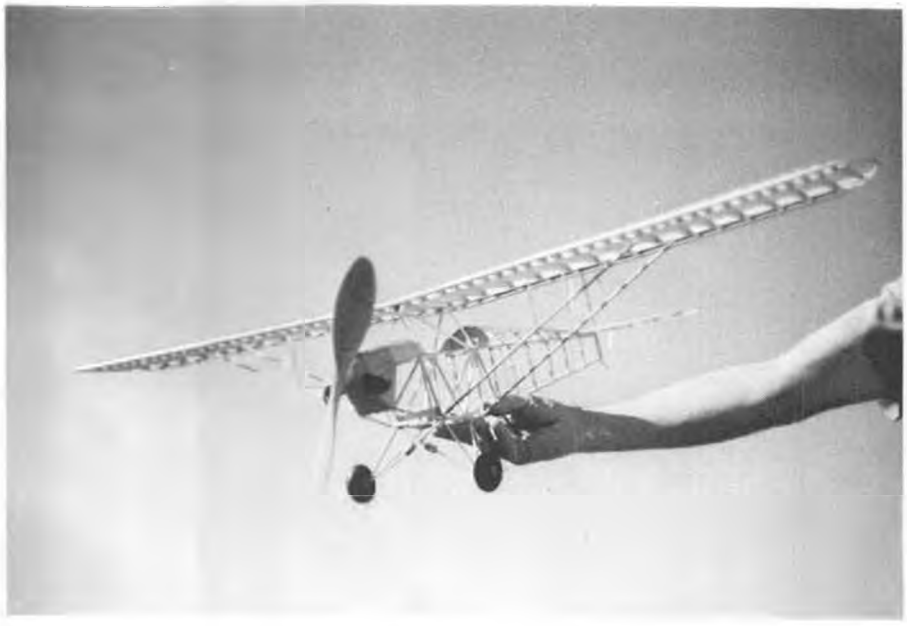
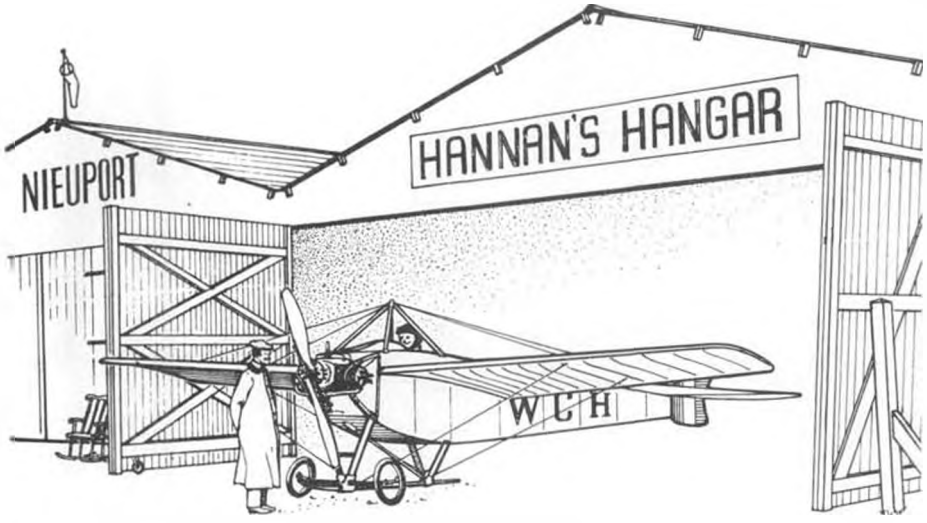
Dave Stott's Cessna CR-3. Might be from Modernistic Model plans. Little known design.



Tom Laurie's American Eagle "Eaglet" for Jumbo Scale. It will be a future MB construction project.



. . . advocating all avenues of aeroplane activities . . .

AN ELECTRIFYING EXPERIENCE

● Attended the Flightmaster-sponsored all-electric meet held in Sepulveda Basin near Los Angeles. Doubtless more complete descriptions of the proceedings will appear elsewhere, but the message was clear, even to the most casual observer. Electric powered models are here to stay! Aircraft of all types and descriptions ranging from tiny sixteen-inchers, clear through twin-motored "monsters" were flown successfully. Power plants ranged from modified R/C servo motors through industrial units that seemingly could have served as auto starters.

Commercial brands noted included Mattel, Vista Labs (Hytork), and Astro-Flight. In addition to the models themselves, quite a bit of interest was centered around the ground support equipment. Simplest of all were the charging cords which plugged into auto dashboard cigarette lighters. Others were more or less standard lantern battery arrangements. At the more sophisticated end of the scale, several units were seen which incorporated rechargeable motorcycle batteries, charging rate instrumentation, and electro-mechanical timers to prevent excessive charging of the airborne power-packs.

It is obvious that electric power units require a different approach as compared to other commonly used forms of propulsion. Needless to say, their chief advantages are their reliability and absolutely instantaneous starting capabilities, coupled with very quiet operation. On the negative side (no pun intended), they tend as a group, to be rather heavy for their physical size, especially when compared to glo engines. They also exhibit a greater sensitivity to propeller selection. Two schools of thought currently (sorry!) seem to prevail: One faction utilizes direct drive to the prop. The other approach involves the use of suitable gearing to permit the motor to turn at a faster rate than the prop. Both types were demonstrated successfully during the Sepulveda meet.

Flown were examples of free flight models (both scale and non-scale), control-liners, and radio-controlled types. Thus, the power form would seem to have application to virtually the entire spectrum of aeromodeling activities.

Progressive clubs such as the Rockwell International Flightmasters and the San Diego Orbiteers are showing the way by featuring special classes for electric models. In addition, the AMA permits this

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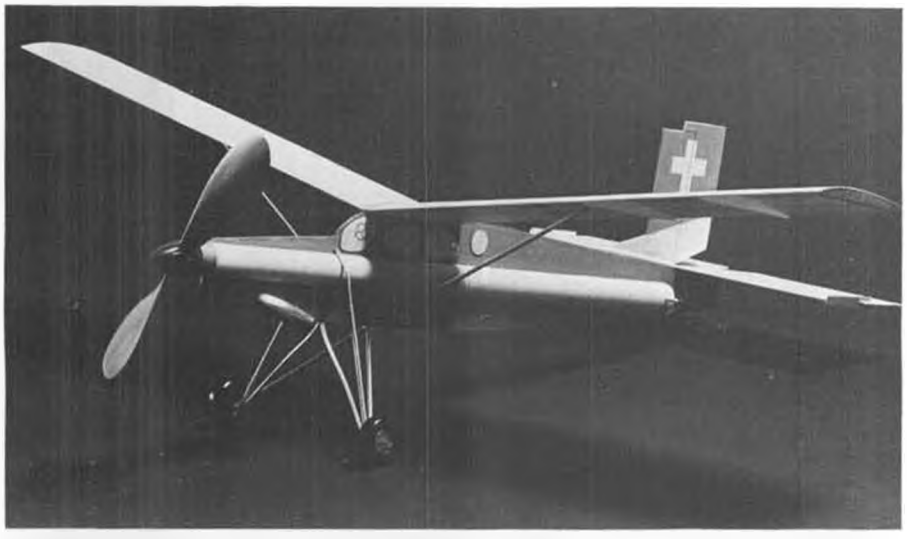
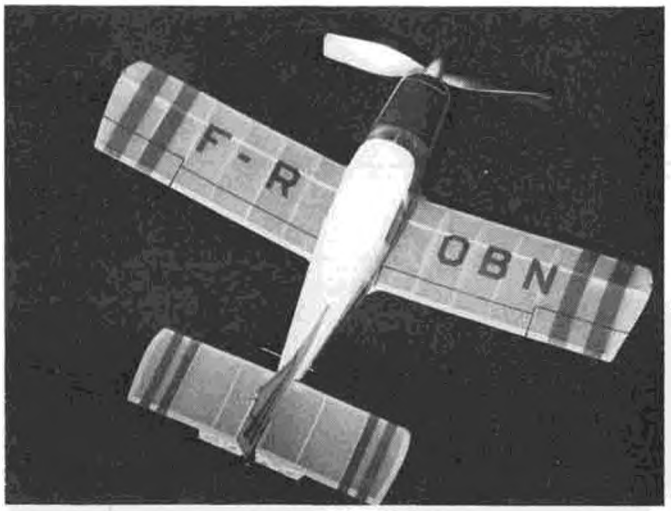


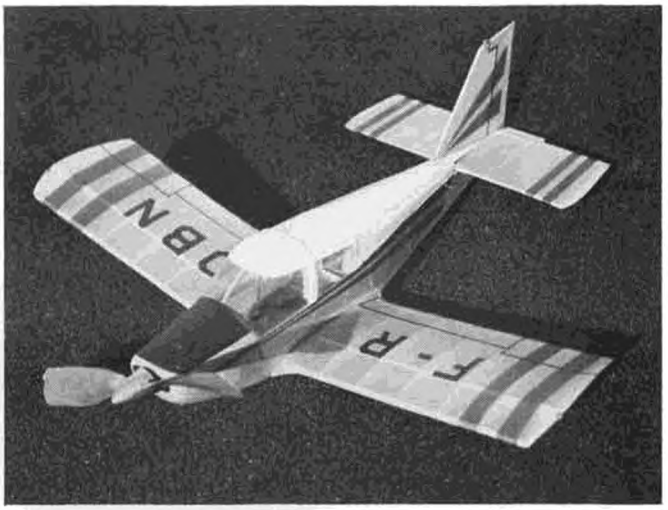
Simple, yet charming "No-Cal" Pilatus Turbo-Porter by photographer John Oldenkamp. Wing area is 128 sq. in. and it swings a 9-1/2 inch prop.

The woes of judging. Charley Roth at work during a Metropolitan Area Scale Group contest. Note several MB designs by Mooney.

Czechoslovakian modeler Alferi Antonin carefully winds his Nieuport. Mechanic is unidentified. Photo by Otakar Saffek, Praha.



The proportions that Mooney likes; low aspect ratio and enough dihedral. Stab was enlarged 20%.



The canopy may require some homemade forming, unless you can find something that comes close ready made.

Peanut Scale Robin HR 100 Tiara

FOTOS BY FUDO

By WALT MOONEY . . . Our Premier Peanut Potentate selected another French design for this month's model. Taking advantage of the optional hand launch, the Robin has put in 40 second indoor flights.

• When I finally received my copy of "The Observers Book of Aircraft," by William Green and Dennis Punnett, 1974 edition, I immediately thumbed through it to see if there were any three-views that would make up into a nice Peanut Scale model. The French Concern, Pierre Robin has just brought out a new model called the HR 100 Tiara. The Tiara name comes from the fact that because this aircraft is powered by a 320 hp Continental Tiara engine. The three-view showed that the Tiara would make up into a very nice Peanut. It has plenty of dihedral, a fairly low aspect ratio wing, and a good sized vertical tail. The horizontal tail might be large enough, but I enlarged it about 20% dimensionally just to be on the safe side.

Because I got my copy so late, December 20th, 1974, I had to put in a rush building job to get a model of the Tiara ready for the Vegas Vultures New Year's Peanut Scale contest. I built my model with its landing gear retracted, for two reasons; the good looking flight simplicity, and because Bill Warner always insists that we stick with the Peanut Hand Launched rules. I prefer R.O.G., but I figured I'd put myself into Warner's shoes by having a model that wouldn't take off.

The model justified my efforts and did 40 seconds, officially, under a 25 foot ceiling, to take second place. (I further claim that they had to go fly outside in order to get better flights . . . I'd already used up my attempts.) Actually I got beat fair and square, considering it's a fun contest and Vegas is a gambling town, and my sixshooter was at home.

This model is really a very simple airplane to build and won't require too much in the way of instructions. Being a modern airplane, it does not have a lot of external details (like a bipe), and therefore it is important to add what details are readily apparent.

The horizontal and vertical tails are simply built over the plan, using 1/20th sheet, the tips are firm 1/16th sheet, and all the other ribs are 1/40th sheet (DON'T GET SHOOK!! At the end of this article we are going to tell you where you can get special Peanut Scale wood in these dimensions). The fillets at the front and the trailing edge of the center section of the wing are solid wood.

The fuselage uses 1/20th squares for its basic box structure, and 1/40th sheet for its formers aft of the nose. Note that the prop shaft is above the upper cross brace locations. The technique I used to build the fuselage was to put in the upper cross braces slightly forward of the former positions. Then, when the complete fuselage structure, including upper stringers, nose cowl sheeting, side fill-ins,

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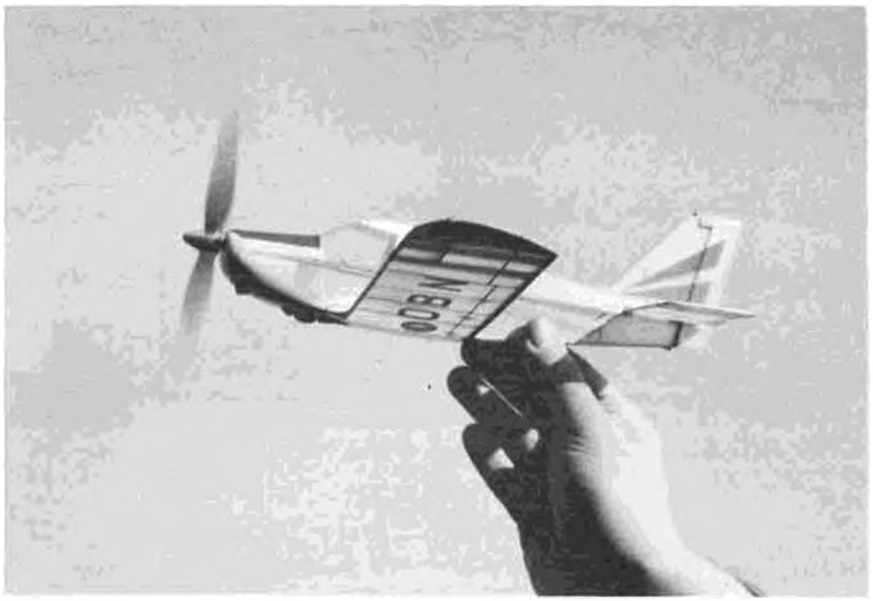
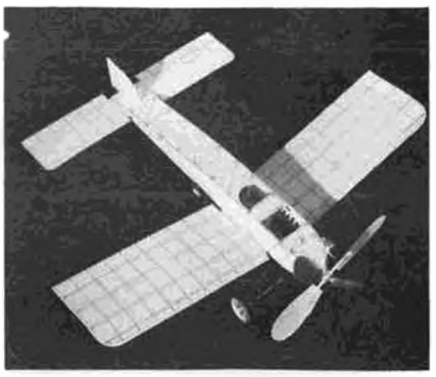
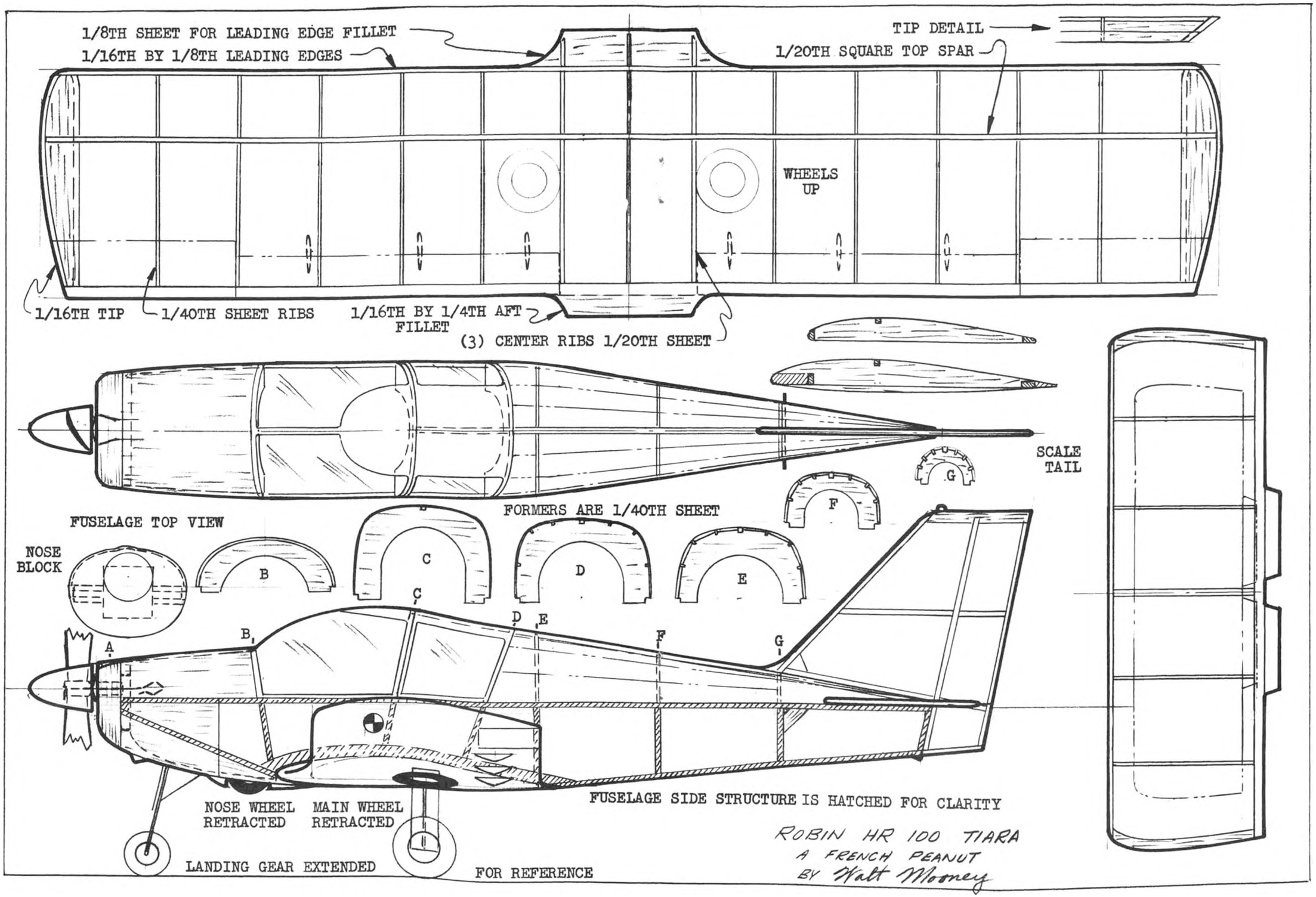


Since hand launching is usually allowed at contests, Walt decided to build this ship with the gear "retracted." Note slight washout in wing panel.



All sheet balsa Bleriot IV for next month. Note four-bladed prop!


1/8TH SHEET FOR LEADING EDGE FILLET
1/16TH BY 1/8TH LEADING EDGES
TIP DETAIL
1/20TH SQUARE TOP SPAR
WHEELS UP
1/16TH TIP
1/40TH SHEET RIBS
1/16TH BY 1/4TH AFT FILLET
(3) CENTER RIBS 1/20TH SHEET
SCALE TAIL
FORMERS ARE 1/40TH SHEET
FUSELAGE TOP VIEW
NOSE BLOCK
A
B
C
D
E
F
G
NOSE WHEEL RETRACTED
MAIN WHEEL RETRACTED
LANDING GEAR EXTENDED
FUSELAGE SIDE STRUCTURE IS HATCHED FOR CLARITY
FOR REFERENCE
ROBIN HR 100 TIARA
A FRENCH PEANUT
BY Walt Mooney

Rick Arland's version of Hugh Langevin's Osprey A/2. It's an NFFS Model of the Year design.

FREE FLIGHT

By BOB STALICK

• Last weekend, I attended the Strat-O-Bats Annual Misery Meet (held in the Tacoma, Washington area). At the end of the meet, when the prizes were being handed out, it was very gratifying to watch the speed with which MODEL BUILDER subscriptions were being taken, in lieu of some of the other awards available. I had the opportunity to query some of the winners about their choice, and I received some very lucid answers as to why they took MODEL BUILDER. The overriding answer was: "Walt Mooney's plans and all of the neat scale stuff." When pressed about other sections of the magazine they read, they proceeded to list the other wonderous features included in MODEL BUILDER. No one mentioned the Free Flight column . . . which considering all of them were free flighters, struck me as a bit odd. I found, however, that they felt that putting up with me in person several times a year was plenty, they didn't have to spend time and money reading me in print. I don't think I'll talk to them next time!

APRIL MYSTERY MODEL

Here's one for you magazine collectors. Check all of your 1946 issues and you probably won't find this one. It's from a source which is no longer publishing . . . but it's by a very famous modeler/designer. It's a Wakefield, and a beauty. Uncle Bill will send you a free subscription to MODEL BUILDER so you can avoid reading the free flight column, along with all of the fellows in the Northwest. First correct answer wins.

DARNED GOOD AIRFOILS . . .

Benedek B 6405b.

I've always liked this section. Gerry Ritz did quite a write up on it in a past series in Model Airplane News, and called it the ultimate Wakefield foil. Its extreme thinness will call for some ingenuity in construction, but a sheet top would be a good answer. I have built a Wakefield wing using this airfoil, of all sheet construction (light 1/32 sheet, with a single spar web). The wing has a span of 55 inches, projected, with a chord of 4.25 and a weight of 57 grams. I would suggest that 4.25 be the absolute mini-

Andy de Mello about to javelin his Half-Nog at Chicago Nats. NFFS Model of the Year.

Dixielander, another NFFS Model of the Year, by George Fuller, DT's back to earth.

mum chord size, not only for construction reasons, but also for aerodynamic efficiency. Coupled with a small area thin stab with moderate undercamber, this produces a very high performance aircraft, especially suited to calm air conditions. In fact, the airfoil is best suited to these conditions.

THE STILETTO III

Several months ago, I ran a picture of myself holding my Stiletto 1/2A power model. Surprise upon surprise, several people wrote and asked if I had any plans for the ship. So, here it is. You can draw it up right from the magazine plans . . . just like the good old days. It is very straight-forward and has no secret gimmicks. I use a pacificier fuel tank on a medium-sick T.D. 049, but the model still performs well.

With the size of the stabilizer at 38% of the wing, and a long tail moment arm, it is imperative that the Stiletto be balanced at 100% . . . and no farther forward. With this arrangement, it has a climb to the right and an excellent glide. Besides all of that, it is easy to build. Be careful, though, someone is likely to mistake it for a skinny Galaxie! If you decide to cover it with the iron-on types, it wouldn't hurt to put in slightly larger main spars (1/8) on the top to provide just a bit more spanwise strength.

So far, the Stiletto has placed in both contests it has been entered. First place in one and third in another. A good hot engine . . . like a series 75 T.D. . . . would really help out, too.

JIM CROCKET SCORES AGAIN

For an inflated 80¢ you can get positive fuel shut off every time by using Jim Crocket's new product, the flood-off switch. This little gizmo simply attaches to the front lug of your engine, and by way of a nylon line to the timer, puts the switch for the flood-off line within 2 inches of the engine venturi. Presto! Flood-off is instantaneous since the fuel has to travel such a short distance to do its job. I used to make my own switches, but no more. Jim Crocket Replicas is the place; 1442 N. Fruit St., Fresno, CA. 93728, is the address.

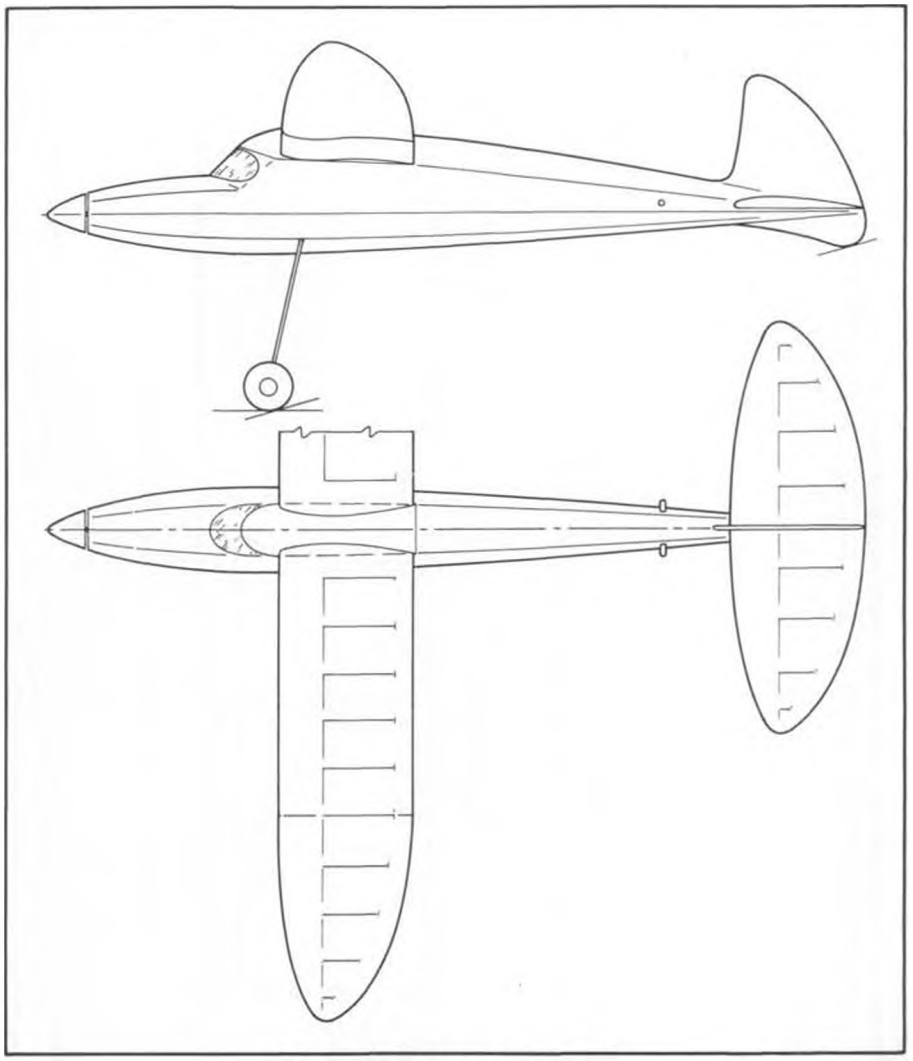
NATIONAL FREE FLIGHT SOCIETY

Some time ago, MODEL BUILDER made a full page available for NFFS, to keep its members informed and provided needed information for non-members. Since last fall, no material has been sent in for this column. Therefore, I have taken up the cudgel. First, here's Hewitt Phillips, editor of the 1975 NFFS Symposium:

"The response to the request for papers to be published in the 1975 Symposium Volume of the National Free Flight Society has been encouraging. Obviously a large number of modelers are not content just to copy the winning designs that have been developed to date. They want to design something better, even if a good deal of thought, analysis, and even computer programming is involved.

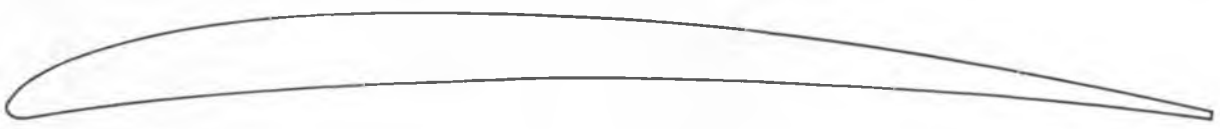
"In the field of indoor models, which is always a challenge to analysts because in this type of flying the effect of atmosphere factors is minimized, a number of interesting experimental and theoretical studies have been prepared. Ray Harlan of Wayland, Mass. is interested in how much bracing to put on indoor models. Bracing, in the form of thin dacron filaments or nichrome wire, greatly increases the stiffness of the structure, but it also adds drag and, in itself, a little weight. The weight may be measured easily, but the drag contribution has never been accurately determined. Ray hopes to run some experiments to measure the drag accurately. With this information, the best amount of bracing to put on a model will be calculated.

"Two papers have been proposed dealing with propellers for indoor mod-



APRIL'S MYSTERY MODEL

DARNED GOOD AIRFOILS — BENEDEK B-6405-b

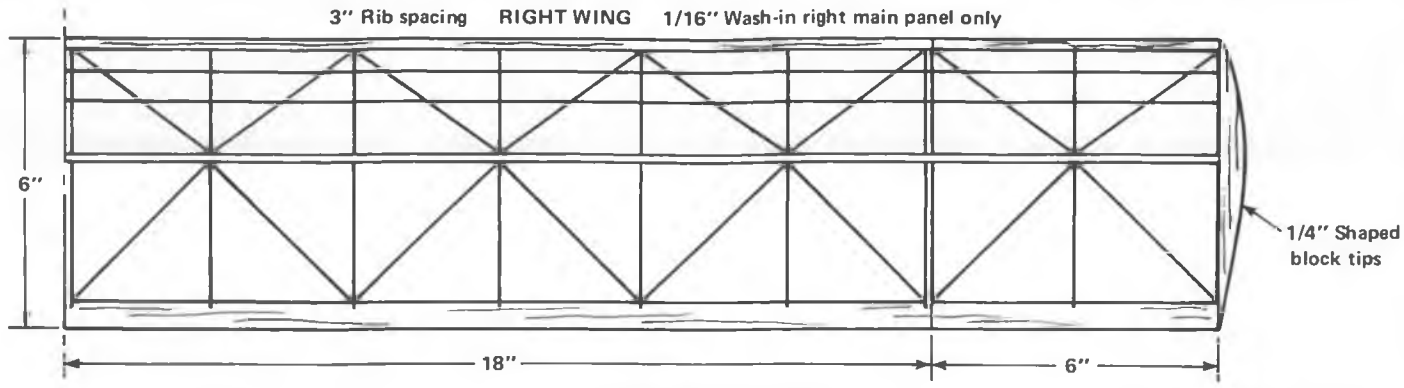


STATION	0	1.25	2.5	5	7.5	10	15	20	30	40	50	60	70	80	90	95	100
UPPER	.8	2.4	3.3	4.5	5.5	6.2	7.2	7.8	8.5	8.6	8.1	7.2	6.0	4.5	2.7	1.7	.5
LOWER	.8	0	.2	.5	.9	1.2	1.8	2.2	2.8	3.2	3.3	3.1	2.8	2.1	1.3	.8	0

STILETTO III
1/2A POWER MODEL
by Bob Stalick

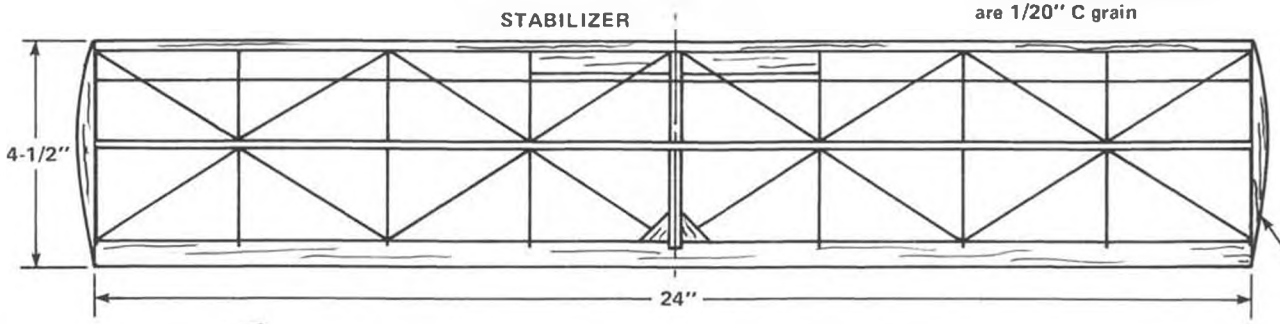
277 sq. in. Wing Area
108 sq. in. Stab Area

Designed: August, 1972
Weight 7.5 oz.



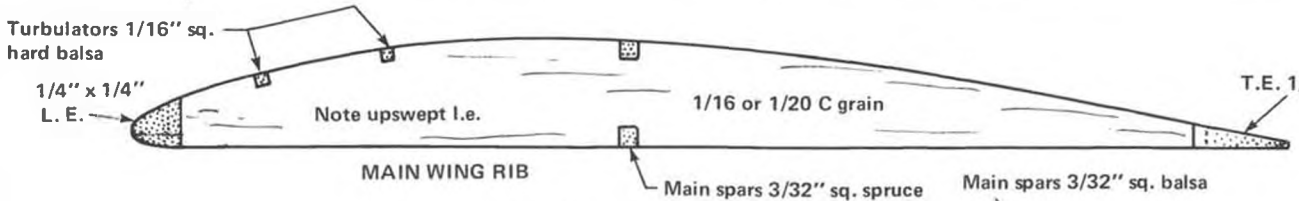
Wing and Stab geodetics are 1/20" C grain

Wash-out each tip 1/32"

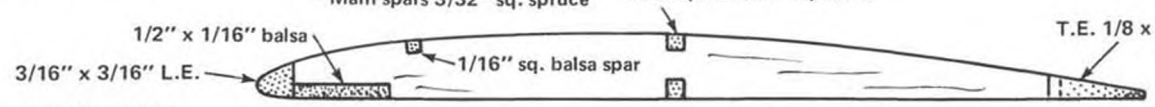


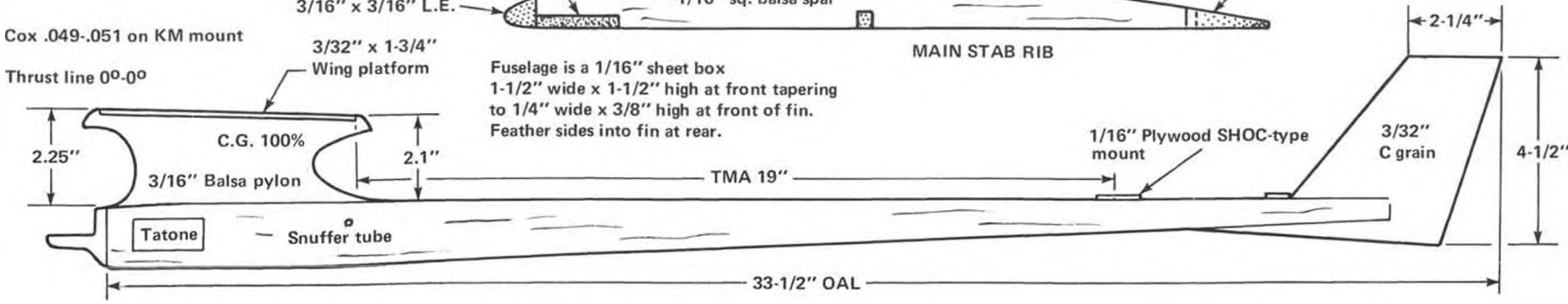
Dihedral: Each main panel: 1.25"
each tip (M.P. flat): 2.5"

Flight pattern:
Right power — 1 turn in 10 seconds.
Right glide using 1/16" right stab tilt & slight right rudder



SCALE: 1/4" = 1"





"Look! Up in the sky! It's a bird . . it's a plane . . it's SuperStalick!" Words and photo by the King of Kuwaite, David Whatsistrum.

els. Jeff Annis has made a study of an ingenious variable pitch indoor prop which is intended to increase the endurance by slowing down the propeller at the start of the flight, and Walter Lounsbery has made computer studies to determine the effects on efficiency of pitch and area distribution.

"In addition to purely theoretical papers, a number of presentations have been proposed on experimental studies, and on practical devices to improve the performance of models. Among these ideas is one proposed by Reid Hull for an automatic trim device for power models. Also, there are articles presenting the practical and historical aspects of models. Two of these are by noted experts in their respective fields; Frank Zaic, on 'Design of Simple Outdoor Free Flight Models;' and Pierre Chaussebourg, on 'History of Coupe d'Hiver 1946-1975.'

"Suggestions for articles are still coming in and abstracts will be accepted through March, 1975."

Copies of the 1975 Symposium Report will be unveiled at the 1975 Nationals, and will be available from NFFS Publications after that time. However, if you have not yet ordered previous issues of the Symposium reports, you can do so now by contacting Lawrence Jordan, NFFS, 5641 Diamond Heights Blvd., San Francisco, CA. 94131. The 1968, 1969, 1971, and 1972 issues are $3.50 for members and $4.50 for non-members. The 1973 report is $4.50 for members and $5.50 for non-members, and the most recent issue, 1974 is $5.00 or $6.00 respectively. Add 50¢ postage to your orders. NFFS also handles the "Top Ten Models of the Year" plans. These are models which have been selected by a team of active free flighters, who choose from the most innovative, most advanced, and/or most successful free flights during the current year. Such model designs run the gamut of excellent machines for all flight tastes.

Current "Top Ten" Plans in stock: Satellite 1300, Roamer Unlimited Rubber, TART Wakefield, Polly HLG, Ford Tri-Motor, Half-Nog Power Model, Pamyscaphe Coupe, Charisma Wakefield, Happy Hooker A/2, My Coupe, Jaeck's Penny plane, Night Train FAI Power, Dixielander Power Model, 1/2A and A-B Galaxie, Loening M-8 Scale, Strato-Lark Unlimited Rubber Model, Osprey A/2, Fast Richard Flash HLG, Bo-Weevil HLG, Sweepette 19 HLG, Andromeda FAI Power, and the Witch Doctor 800 Power Model.

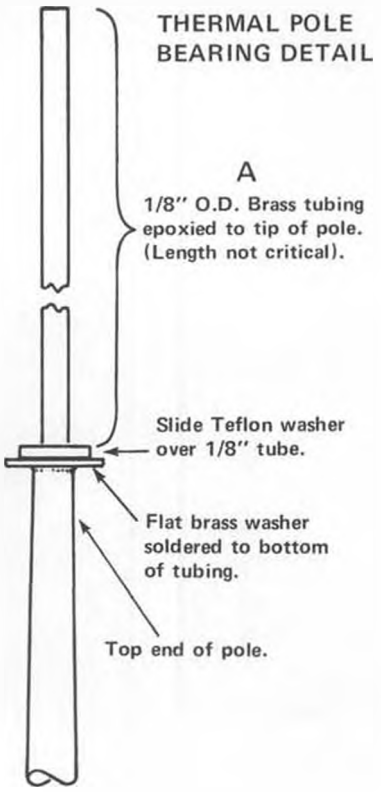
Now, as you look over this list of plans, you realize that it represents the cream of the crop in current model designs. Some of the above plans are in short supply, and will be sold only until the supply runs out . . . then there are no more. Plans cost runs between 75¢ and $4.50 per set.

There are other, less illustrious, but not undistinguished plans available from NFFS, and you can find out what they are by sending a stamped, self-addressed envelope to Larry Jordan. He'll forward to you a list of what's available in Symposia, as well as plans, and the other goodies which NFFS handles. Drop him a line.

THERMAL POLES AND OTHER THINGS

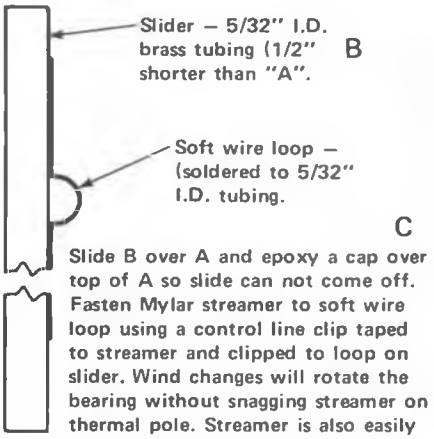
A recent issue of the Satellite newsletter sends along word that if you have ever wondered where to latch onto a telescoping thermal pole, you need look no farther than your 1975 Sears Boating and Fishing catalog. Fiberglass rods up to 20 feet long which telescope down to as little as 55 inches are available. Cost is dependent upon length, but the longest is only $15.49.

All along, I've been using a telescoping R/C antenna (from an old ground based carrier wave transmitter, which



Dick Smith goes for an official with Okie Bird, ST .19, pen bladder. See page 32.

gives you some clue as to when I stopped flying R/C) fastened to the top of several lengths of T.V. antenna mast. The mylar streamers for the top of your thermal pole can be obtained right from FAI Model Supply, at a cost of 50¢ for 20 feet of the silvery stuff. I use a rotating bearing on the top of my thermal pole to keep the streamer from getting all curled and wound up (see sketch).



HUMOR . . . OR SOMETHING

Earlier in this column, I mentioned the Annual Misery Meet, which is held in the dead of winter here in the N.W. Never (well, hardly ever) has the meet been cancelled because of inclement weather. It's not that the weather hasn't been inclement, it's just that the free flighters in the N.W. are a hardy lot, and snow, rain, sleet, sunshine, winds, and other meteorological phenomenon do not deter such souls from competition . . . except once.

Two years ago, the N.W. was blanketed with a snowy cover and Misery Meet weekend was fast approaching. Phone calls flew faster than FAI power models. Everyone was contacted and no one showed up at the field . . . or did they? Shortly after the contest, I received a letter from Grangeville, Idaho with the following account:

Continued on page 67

At Sepulveda Basin, Los Angeles, last fall, Flightmasters' Annual Scale contest. Larry Stephens' Focke-Wulf Ta-154 being released by Jack Mullen. Both are from Phoenix. Ta-154 was WW II German night fighter with radar.

control line

"FROM THE HANDLE"
By JED KUSIK

• I find it difficult to be cheery this month. I have lost a good friend. Dan Barker passed away suddenly while attending the 25th Annual Southwest Regionals at Buckeye, Arizona. Dan was a racing pitman with few, if any, equals. He pitted the first sub-5 minute Rat in California competition several years ago. I will miss you Dan. I'm sure others will also.

Perhaps a complete change of mood will help . . .

Mike Hazel, of the Eugene, Oregon Prop Spinners, will now provide us with the monthly wit and wisdom:

"For an easy and inexpensive way to check an engine's RPM, all you need is a stopwatch. Here is the procedure:

"Tune your engine to maximum speed. Next, insert your finger into the spinning propeller for exactly one tenth of a second. Now all you have to do is count the cuts on your finger and multiply by 600, which gives you the exact RPM.

"If you happen to lose your entire finger, don't worry about what the engine is turning because, man, you've got a winner!

"Whoops! Almost forgot. Besides the stopwatch, you might need some gauze and bandages. This method is what the British would call a 'bloody good tachometer!"

FAI CLAUS (F.A.I. Control Line Association of the United States.)

This is the association that was formed at the last Nationals for the promotion and organization of F.A.I. flying and team selection programs. We need this organization to prevent the indecision and foul ups that have characterized our team programs in past years. Please support the association, for the good of the USA teams. Send one dollar and your name and address to Jim Dunkin, 10411 E. 39th Terr., Kansas City, Mo. 64133.

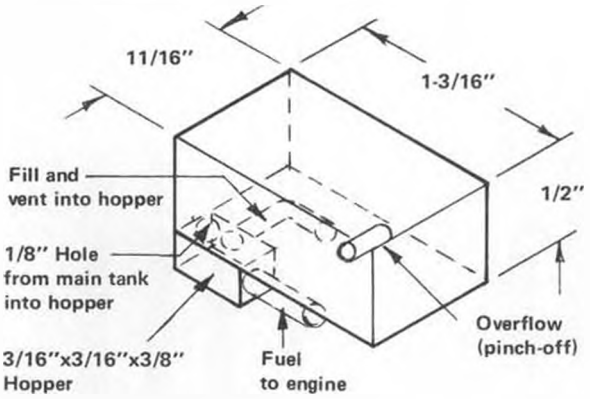
* * *

The late Dan Barker, in March 1974, doing his thing at Valley Circle Burner Meet, Sepulveda.

Len Price and Mark Knize, FAI T.R. team, San Jose, Calif. Kosmic diesel.

F.A.I. TEAM RACE TANKS

NO. 3



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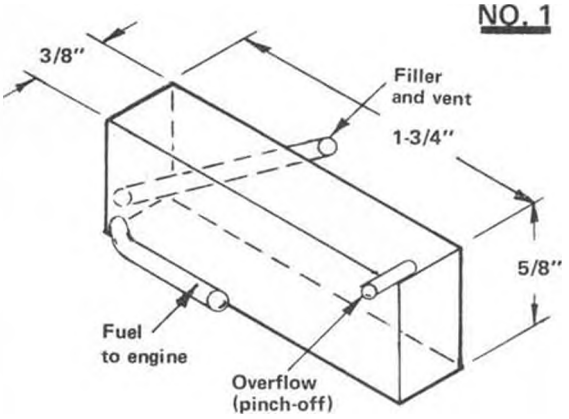
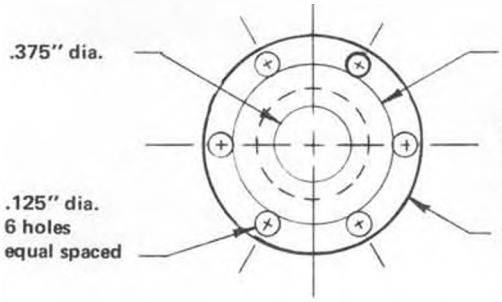
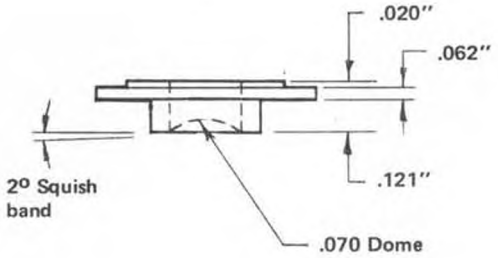




HEAD INSERT & CONTRA PISTON

Metal – copper, brass, alum.



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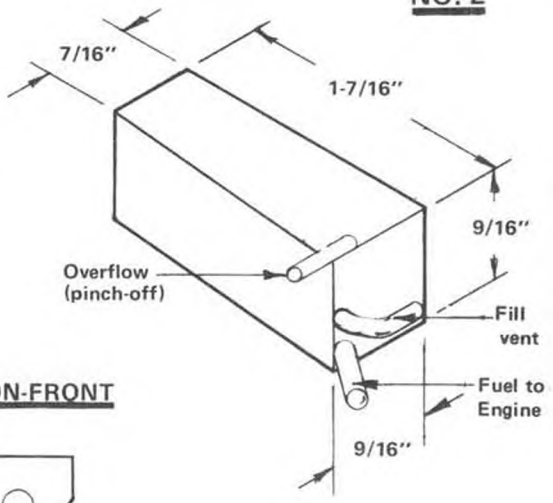
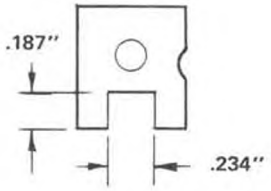
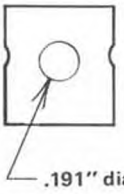


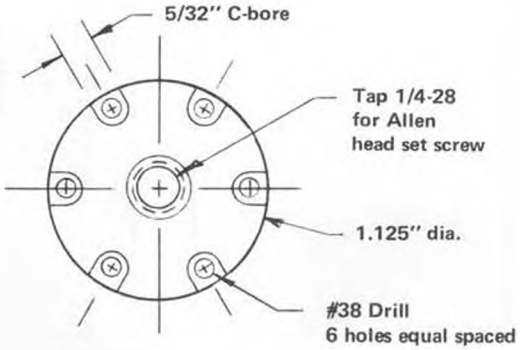
PISTON-FRONT

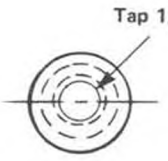


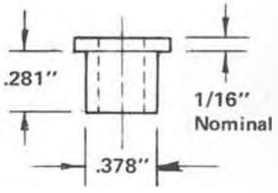
PISTON-SIDE

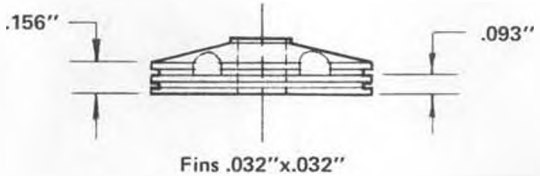


HEAD CAP METAL-ALUMINUM









NYLON INSERT FOR COX VENTURI

K & B .15
DIESEL CONVERSION

J. W. K.

Larry Barreckman was 1st in Open Stunt at the Southwest Regionals.

"Beware all ye who enter the Combat Zone!" San Jose, California, July 4, 1974.

They're doing it to us again! As much as they complain about the lack of support and participation in F.A.I. team programs in the U.S.A., the organizers fail to realize the need for, and benefit from, a team trials program coupled to the summer Nationals contest. All of last year's speed and team race team members, and all of the F.A.I. speed and team race competitors at the Nationals decided that the best way to promote those events was to tie in the team trials with the Nats. It seemed to have been decided. But now, probably by the time you have read this, certain individuals, who I am not allowed to identify in print, are organizing the team program to be held at a different site at a different time. When will they learn?

We need the publicity that the Nationals brings, and the convenience of a Nationals site. I, for one, cannot understand the reasoning that will require a serious competitor, and also persons wishing to learn from the experts, to make two separate trips from all parts of the country to attend these two important events.

In my own biased, personal situation, I cannot really afford two 2000 mile trips in six weeks time every other year. Yet I have saved and borrowed money for the past 5 years to do just that. Guess I am a real fool.

LOOSE ENDS DEPARTMENT

Since my first test and evaluation of the Cox ME-109 Stunter, in these pages many moons ago, Larry Renger, of Cox, has sent me two more improved 109's. First thing noted out of the box was a change in props from a 6x3 to 5x3. This was a change I recommended to obtain more RPM and power, which was needed. The horrible angled flat spot on the leading edge is straightened out and blended in better. Heavier hinge pins are used on the stab, but it is still too thin and flexible. The landing gear mount has been changed. The gear now stays on in flight and does not break loose on landing, even in wheel catching grass. Unfortunately, the wing mount and attachment is still the same. There is not enough holding area for the mylar tape, and the wing panels will separate from the body, never again to stick to the greasy plastic. Be not dismayed, however, those light weight foam wing panels make up into a super-performing 1/2A combat wing! Try it.

COMBAT: ON IMPROVING THE FIGHT

We had our first "by the rules" F.A.I. combat contest out here in So. Cal. recently, and suddenly discovered that the international method of starting the match provided more dual flight time. The first minute of the 5 min. match

Continued on page 76

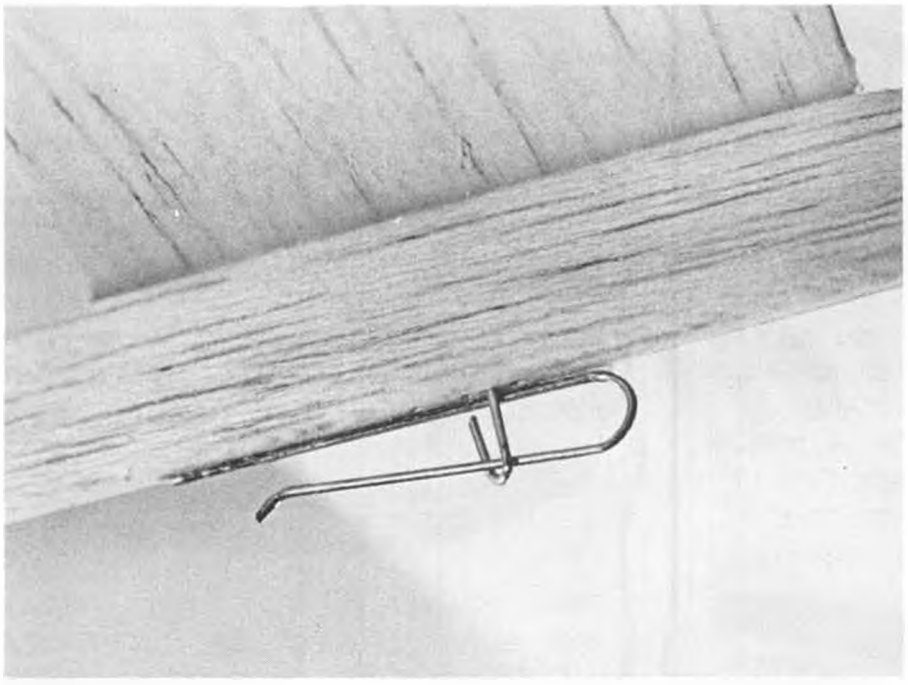
Half-A combat by Phil Cartier. Golden Bee with TD cylinder.

Phil Cartier (lt), with foam wing Bumblebee II and arch combat enemy Ivars Greigins. Both are from Minnesota.

Cindy Renger, author's wife, holds the M-N at the proper attitude for launching. Allow the towline to pull the glider from your hands, don't throw it.

MINI-NORDIC

By LARRY RENGER . . . For a sample of F/F towline gliding, try this one. Great for the budding competition modeler.



Closeup of tow hook before gauze reinforcement is added. Note that additional pin with hook on end controls towline position, allows easy adjustment.

• The Mini-Nordic represents an excellent starting point for getting into flying towline gliders. Although this model takes only about three hours to build, it is easily capable of hooking thermals for out-of-sight flights.

The plans give all the model construction steps, so let's concentrate on the techniques required to do a really neat job. The first thing you need is the balsa wood, so a word about how to select it. The important factors are grain cut and trueness of the wood. Look at the edge of a sheet for small light lines; these are known as wood rays. When the rays are within a 30 degree angle to the surface of the wood, you have "C" grain balsa. This is the cut of wood you want because it is more resistant to warping. Next, make sure the sheet you have chosen is not twisted, although a slight bow over the length of the sheet will cause no trouble.

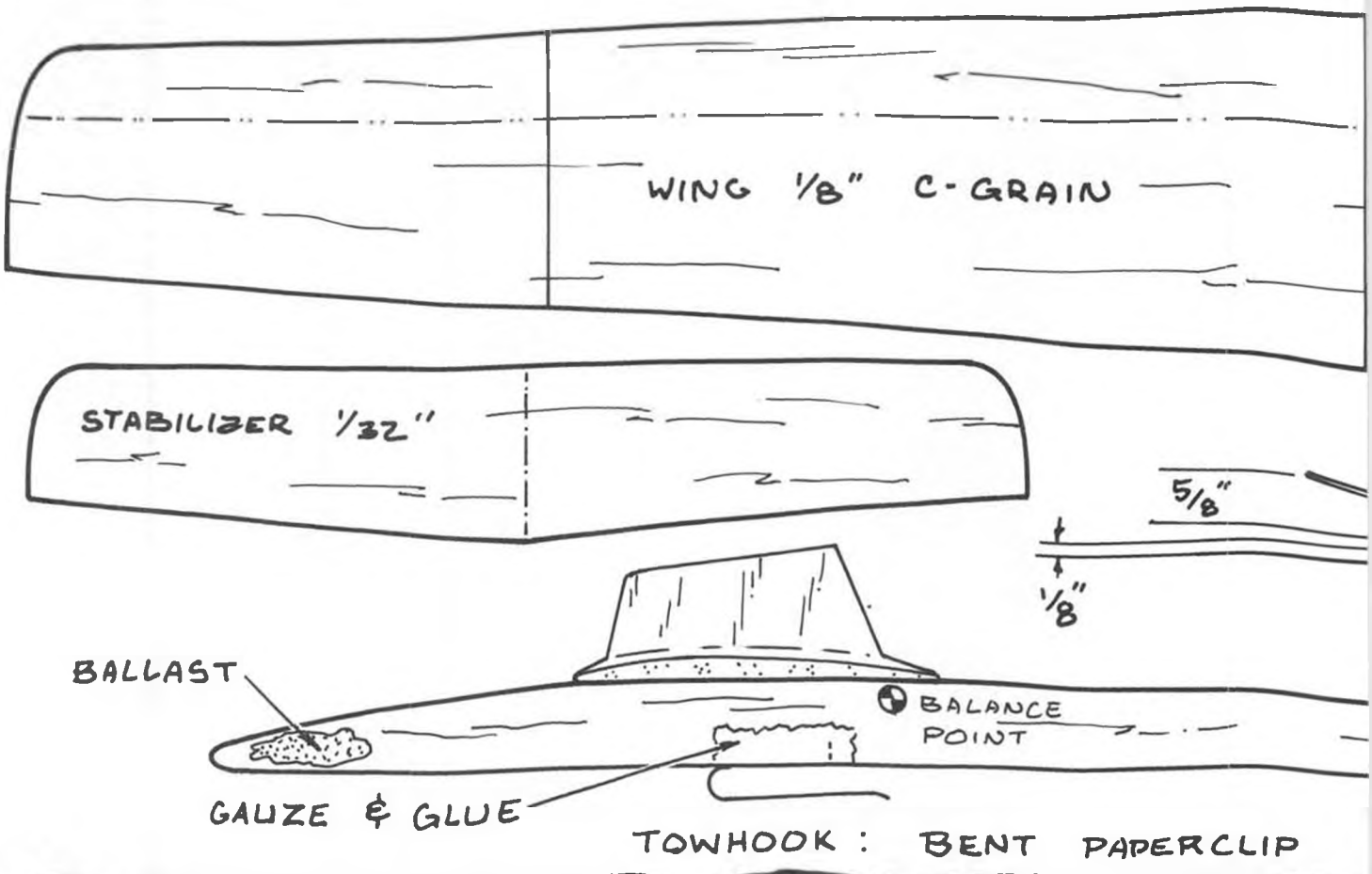
The most difficult task you face in constructing the Mini-Nordic is proper shaping of the airfoil to produce a smooth, consistent contour all the way from tip to tip of the wing. Wrap 180 grit sandpaper around a flat block of wood so the cutting action will be even. Sand a bevel in the front and one in the rear all along the wing. The bevels should end about one third of the way from the "high point" line so you can then sand the top and leading edge round for that smooth airfoil shape. Switch to 320 grit sandpaper for final sanding.

As you sand the dihedral break in, check the resultant wing angles. No one can make these cuts perfect on the first try, especially on a small, thin wing. A solid wing/fuselage joint may be made by cutting a shallow groove in the fuselage as a saddle. The alignment is critical, so check it carefully. An easy technique requires only that you measure that the front and rear of the center dihedral joint are centered on the fuselage width.

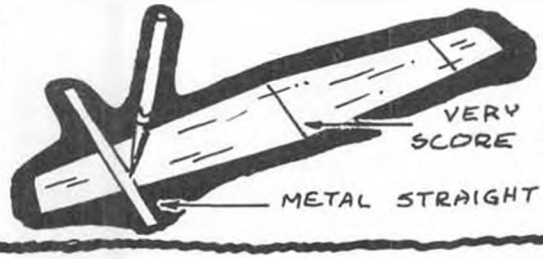
The towline is made by tying a few square inches of silk about three inches from the end of some light thread. The thread should end in a small ring bent out of light wire, or a small washer. The silk acts as a drag to pull the line off the towhook when you relax tension. The ring reduces friction between the line and the hook.

Now let's go flying. Initially, balance the model on, or just ahead of the point shown on the plans. Choose a calm day for flying, as this is a very small model. Adjust the trim by bending the trailing edge of the stabilizer and rudder in the direction you want the model to go. For example, if the model stalls, you want it to go down more, so you bend the stabilizer trailing edge down a little. Correct the trim until a quick straight ahead toss results in a shallow climb to the left followed by a smooth transition to a left glide. You may have to remove

Continued on page 60



1. CUT OUT THE PLANFORMS OF ALL PARTS FROM THE SIZES OF WOOD SPECIFIED. FLIP THE WING OVER AND GENTLY SCORE IN ALL THE DIHEDRAL JOINT LINES.



2. SAND THE WING TO AN AIRFOIL SHAPE. THE WING SHOULD BE FULL DEPTH AT THE DOTTED LINE.

ROUND ALL EDGES OF THE HORIZONTAL AND VERTICAL STABILIZERS.

5. GLUE THE WING ONTO THE FUSELAGE. CHECK THAT IT IS EVENLY ALIGNED IN BOTH VERTICAL AND HORIZONTAL DIRECTIONS. GLUE THE STABILIZER ON WITH A TILT. VIEWED FROM THE REAR, IT SHOULD BE PARALLEL TO THE LEFT INBOARD WING PANEL

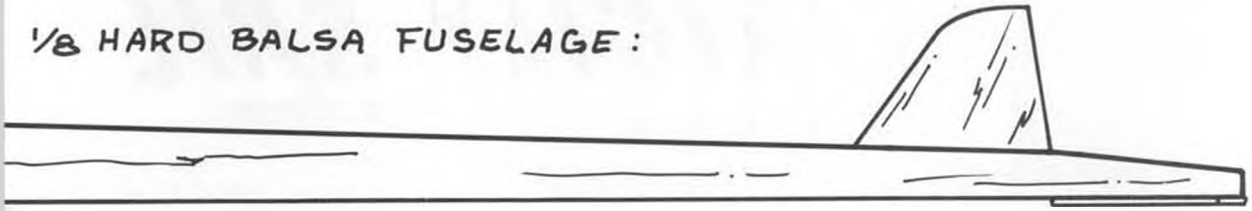
6. GLUE THE VERTICAL TAIL ON. CAREFULLY ALIGN IT BOTH IN VERTICAL AND LONGITUDINAL DIRECTIONS. TO CHECK: VIEW FROM NOSE.

YOU SHOULD NOT BE ABLE TO SEE PART OF EITHER SIDE OF THE VERTICAL FIN.

DIHEDRAL LAYOUT

VERTICAL TAIL
1/32 SHEET

1/8 HARD BALSA FUSELAGE:



3. CUT THE WING INTO FOUR PIECES ON THE SCORED LINES. SAND IN THE DIHEDRAL BREAK ANGLES

NOTE THAT THE PANEL SHOULD ONLY BE BLOCKED UP TO HALF THE TOTAL HEIGHT REQUIRED

4. SMEAR GLUE INTO ALL EDGES AND LET DRY. APPLY A SECOND COAT TO THE TIP JOINTS AND GLUE BOTH TIP PANELS.

BLOCK TIPS UP TO ASSURE CORRECT HEIGHT. WHEN DRY, GLUE THE CENTER JOINT TOGETHER AND BLOCK IT UP.

7. GLUE THE TOWHOOK ON. A BIT OF GAUZE WRAPPED OVER THE BASE ADDS GREAT STRENGTH.

ADD CLAY TO THE GLIDER NOSE TO MAKE IT BALANCE AT THE POINT SHOWN.

MINI - NORDIC

TOWLINE GLIDER

15" WINGSPAN 9:1 A.R.

BY THE LONE RENGER

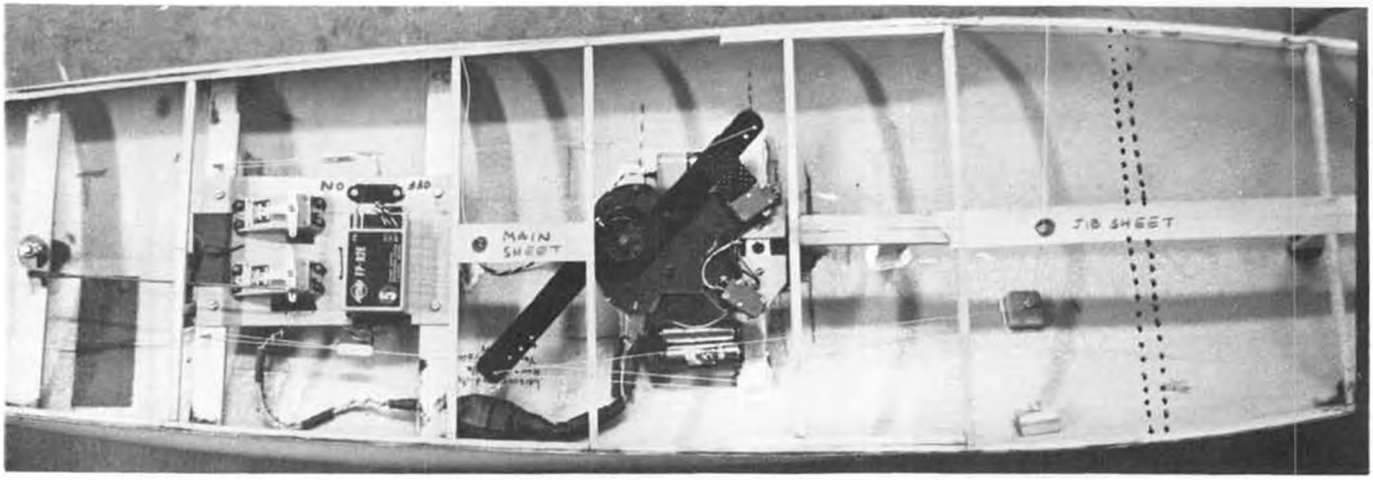


Photo No. 2: Interior of Yankee hull with sheets installed. Futaba radio and servos at left.

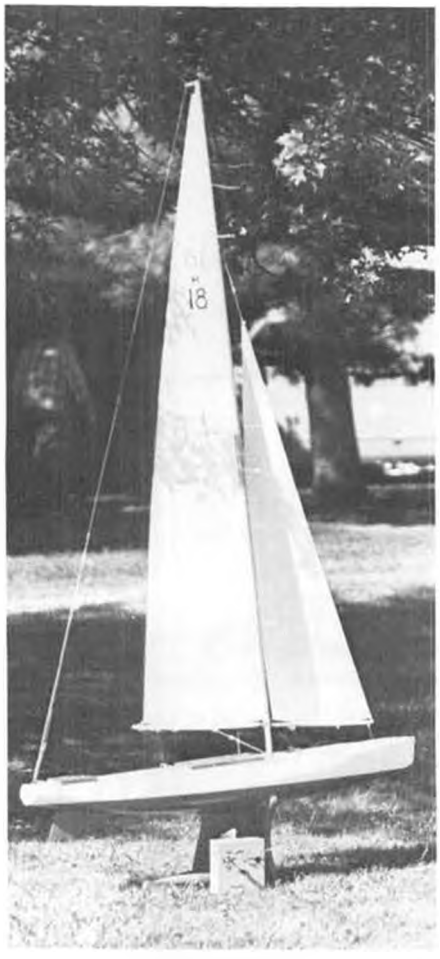


Photo No. 1: Chet Purdy's No. 18, the grandfather to our Yankee. Note high aspect ratio of sails.

STRICTLY SAIL

By ROD CARR

● Let me start this month by recommending yet another excellent reference for the racing skipper. This is a paperback written by Jack H. Feller, Jr., published by Spyglass Catalog Co., of 2415 Webster, Alameda, Ca. This little gem takes the NAYRU Rules and puts them in the order in which you will meet them when rounding the course. There is cross-indexing by subject and rule number. The drawings are clear, with only a couple of typographical errors. It is called, THE YACHT RACING RULES INTERPRETED, and goes for $3.95. I highly recommend it as an addition to your library.

Meanwhile, back at the filing cabinet, a flurry of early spring housecleaning turned up a picture which I have been looking for for over a year. Photo No. 1 is of 50/800 No. 18. This is the grandfather of our presently, under construction YANKEE. You can see by the shadow of the sheer towards the bow, that this design had already tended toward the full mid-body with sharp bow that we have in the YANKEE. I've now instigated a new method for filing my negatives and hope to avoid such embarassing losses in the future.

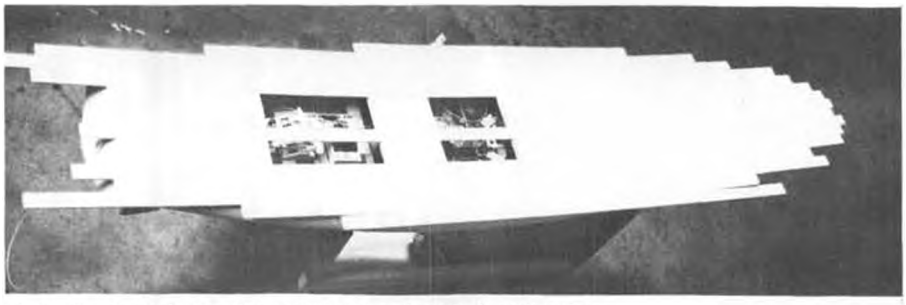


Photo No. 3: Deck planking completed and ready for trimming.

Returning to the YANKEE, we installed deck beams of 1/4 x 3/8 pine, as shown in the accompanying diagram. The mast block is pine, 3/4 inch wide, 4 inches long, and 3/8 inch thick. Underneath it, a 1/4 inch square mast compression strut transfers the mast load to the hull. I usually put a small 1 inch square piece of 1/8 ply under the strut to distribute the load. The jib block is of the same material as the main block, and is 11 inches long. Its after end is supported by a vertical strut much the same as the mast, though this strut will be in tension (i.e., an upward pull from the jibstay), so bed it well in thickened resin where it meets the hull.

As you can see in Photo No. 2., we put screw eyes in the after R/C beams to act as termination points for the main and jib sheets. Notice that each sheet terminates in a loop, the size of which is controlled by a flat bowser. This bowser can be reached through the R/C hatch, so that the close-hauled position of your sails with the winch close-hauled, can be adjusted easily. The main sheet runs forward through the winch arm, then aft to a sheet exit-guide (Fisher No. 566, $.35) which leads the sheet through the deck. The jib sheet leads forward (under the starboard winch arm) to an eye screwed in a pine block which is resined to the hull, then leads aft to the starboard winch arm, through the arm, and runs forward to yet another eye in a block (near the centerline of the boat and under the forward sheet exit guide), thence upwards through the sheet exit guide and out onto the foredeck.

One problem that exists with this boat is access to the area forward of the

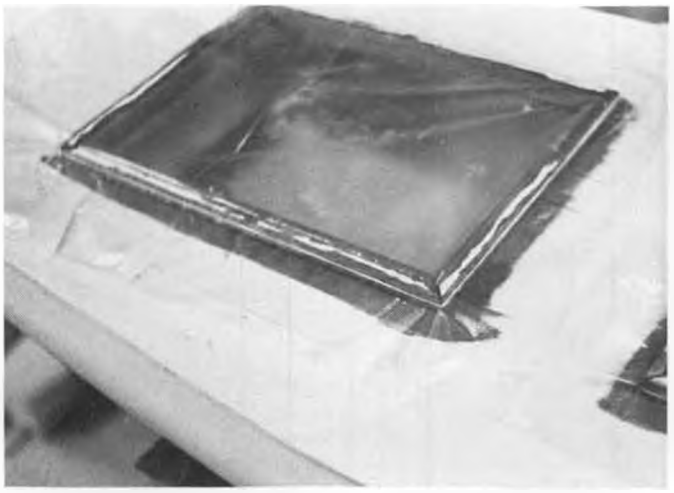


Photo No. 4: Hatch cover frame held around inner coaming by rubber band, with "baggie" between them to prevent sticking.

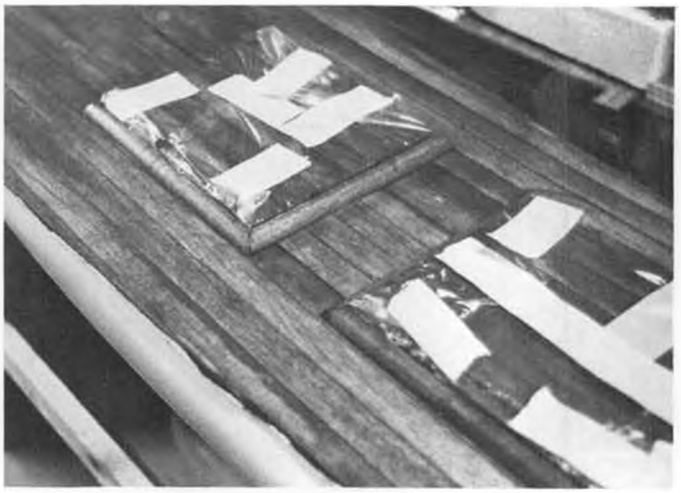
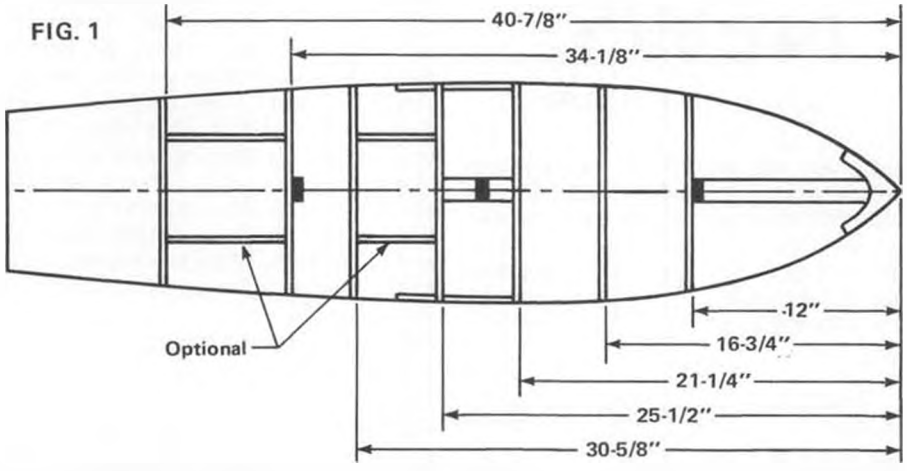


Photo No. 5: Outer coaming in place around "baggie"-covered hatch cover. Confused?

FIG. 1



winch in the hull. Make sure that the eyes in the blocks are well fixed to the hull. Replacement of a jib sheet should be done every now and then, BEFORE IT BREAKS. Merely tie the new sheet to the foredeck end, pull on the sheet back by the flat bowser until the old sheet is all out and the new sheet has shown up. Then redo the bowser arrangement through the open R/C hatch.

WARNING: I know of no way, unless you lead a tube down from the jib sheet exit guide to the forward eye, to reeve a new jib sheet that breaks inside the boat between the winch and the foredeck. Hence, replace your sheets often, and inspect them for wear before each sailing session.

A short vertical strut was also placed just forward of the 34-1/8" deck beam to assist in bearing the loads placed upon the main sheet exit guide by the main sheet. An extra 6" length of sheer clamp material was placed outboard of the two deck beams that flank the mast block. These will be used to mount the shroud plates that hold the side stays of the mast.

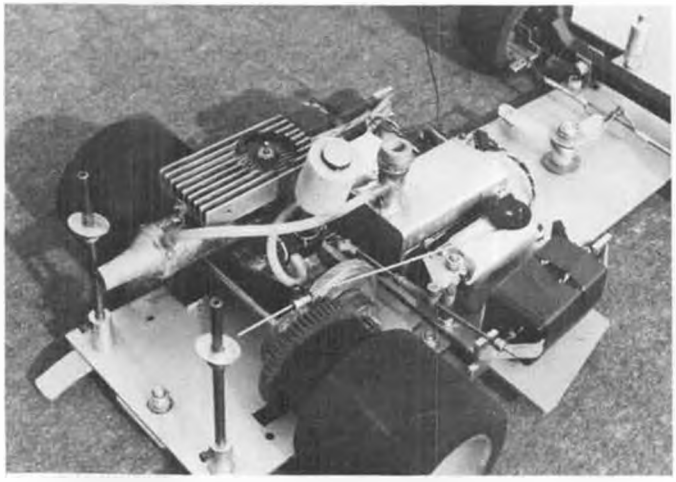
The winch wiring commences by fixing two micro-switches to a chunk of plastic using 2-56 machine screws. Two inch lengths of stiff wire are soldered to the levers of the micro-switches. These wires will extend through the hole in the servo arm and the assembly will be foam taped to the side of the servo. Check to make sure that the servo runs in the proper direction to activate the proper switch. By adjusting the position of the switches, you will be able to turn your winch on by a very slight movement of the transmitter stick. You will also be able to run your winch using finger pressure on the wires below the servo arm, without having to turn your radio on. This is very handy if you want to make adjustments while someone else is using your frequency at a regatta. The micro-switches used measured 3/8 by 3/4, and were "NULON #SL-2W1."

Solder the wires indicated to the switch assembly and terminate them in a male plug. This will avoid having a plug with voltages exposed across pins. The plugs I used happened to be 6-prong, and were polarized. That is, they can only be fitted together in one way. Got 'em at Radio Shack.

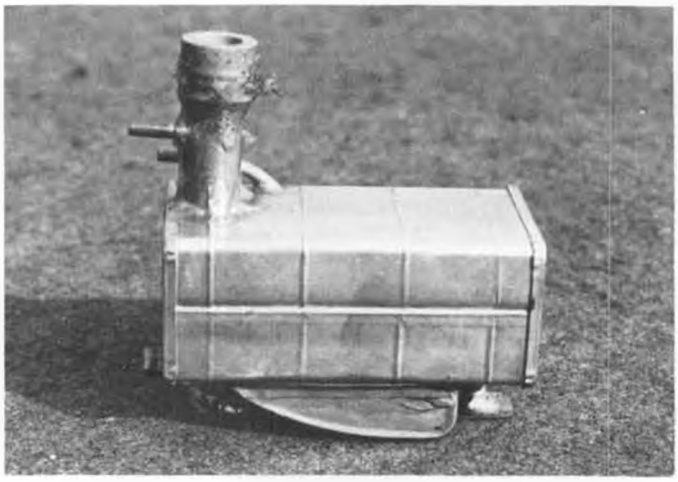
Wire up the Winch/Battery Harness.

Continued on page 70

Photo No. 3A: Deck planking just getting started. Center plank laid first for aligning the others. Spring type clothespins are a necessity in model boat building!



A muffler pressure fuel system installation. Note tank vent in filler tube.



Typical fuel tank by the author, showing the main tank and sump. Fuel pickup is at front outside of sump.

R/C AUTO NEWS

PHOTOS BY CHUCK

By CHUCK HALLUM

● Recently an article appeared in M.A.N. which described 1972 R/C car speed runs which established records for the .20 cu. in. and .40 cu. in. engine classes. These records were 40.00 mph for the .20 cu. in. class and 53.03 mph for the .40 cu. in. class. Since that time I have gotten post cards and phone calls which essentially say, "Is that all the faster those cars will go?" I think all the current racers know this is mighty slow and that current drag cars, formula cars and sports cars can go faster than this.

Anyway, this interest prompted me to request the Orange County R/C Auto Racers to sponsor a meet to establish records in all the existing car classes of ROAR, plus a special Land Speed Record car class. Currently OCRCAR is only considering 1/8 scale and 3.5 cc (.214 cu. in.) displacement records, since we may have too many entries otherwise. The only plans to date are that it will be held before July 1975. If you have any interest in attending and/or participating, write to me c/o MODEL BUILDER, and I'll send the particulars as soon as they are available. The general rules which were proposed for the LSR car class follow general ROAR rules and will be sent upon request. Hopefully, there will be 1320 feet of straight run available for acceleration and deceleration, and we'll time the cars over an 88 foot long trap.

* * *

I continue to get questions relating to fuel tanks . . . so I guess I'd better say a few words about them. One would think that the fuel tank is such a simple thing that nothing could go wrong. But experience has been that fuel tanks are important and can be the difference between a good car and a great car . . . They can also cause various sorts of problems.

With some of the early types of carburetors, it was very important to have a nearly constant fuel pressure feeding the carb at idle. This is where the "chicken-hopper" type fuel tank really did wonders. Then, as carbs got better, it wasn't so critical to set idle, but the "chicken-hopper" tank helped to maintain a constant full throttle setting. Now the pendulum is swinging toward exhaust pressure fuel systems. Exhaust pressure can push fuel to the carburetor and eliminate some of those acceleration flat spots. Both the "chicken-hopper" and exhaust pressure fuel tanks are described in this article.

CHICKEN-HOPPER TANK

The "chicken-hopper" tank uses the same principle as a device used to provide water for chickens . . . hence the name. *(I bet you thought it was something that jumped over chickens!)* Figure 1 illustrates the configuration of the chicken-feeder. In order to maintain the water level in the hopper, the pressure at B (a vacuum) is equivalent to the water height, h. That way, the pressure at B, plus the water pressure, equals the atmospheric pressure exerted on the water at A (mathematically this is expressed PA = PB + h). When the chicken,

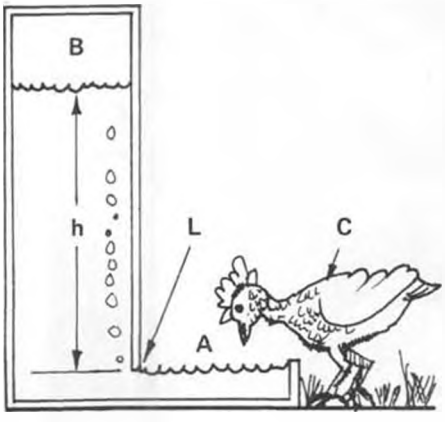
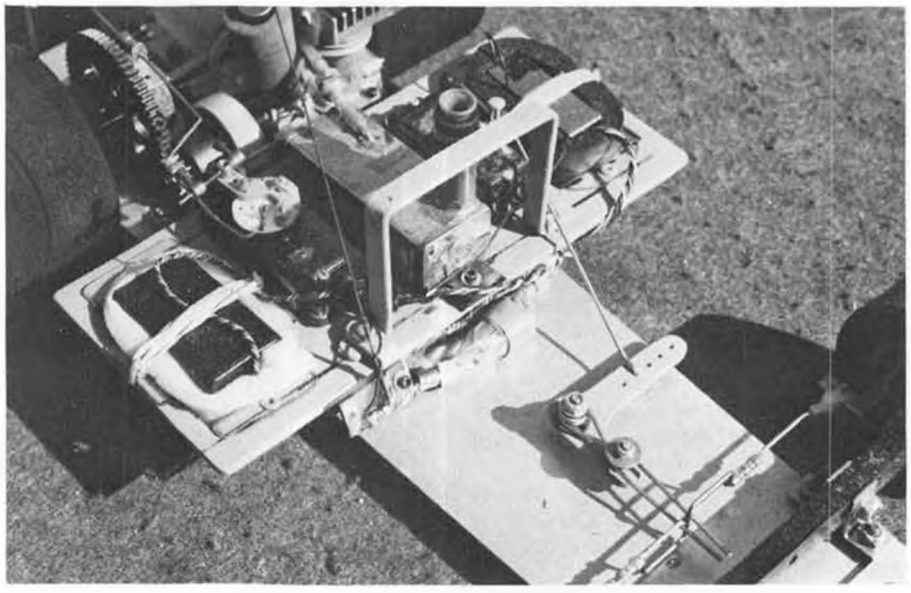


FIGURE 1



Chicken hopper tank mounted on radio board, uses rubber discs for vibration insulation.

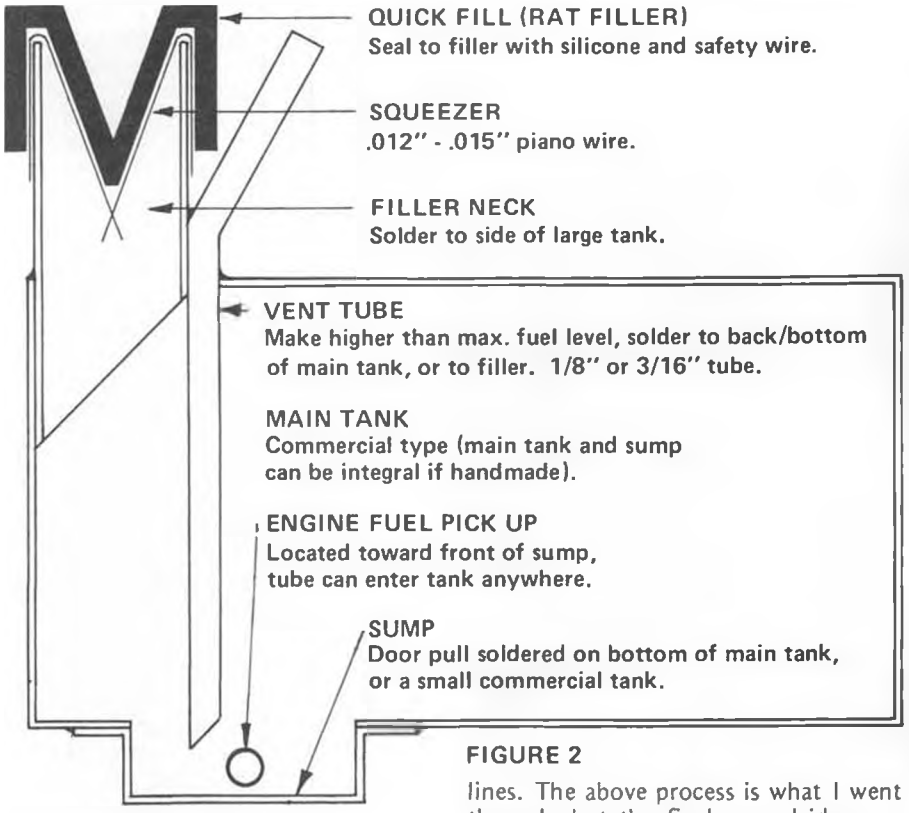


FIGURE 2

C, drinks water, the level drops below the lip, L, and some air bubbles go up to B and let a little more water flow into A. Hence the water level at A is effectively constant. All that happens is that the vacuum at B varies with the water height in the hopper.

There is an easy way to build a constant-pressure ("chicken-hopper") tank for R/C cars. A constant-pressure tank requires only one longer piece of tubing and the typical quick-fill modified to provide a positive seal.

I started running "chicken-hopper" tanks on my control line speed models in 1948. The tanks went through quite an evolutionary process. The first tanks were two separate units. Next the units were put together. Then there was only a separator, and finally one tank with the proper placement of the fill and vent lines. The above process is what I went through, but the final general idea was patented by someone as the "Uniflow" fuel tank system in about 1950.

When I first started with R/C cars in 1971 I knew what the constant pressure tanks could do. A "chicken-hopper" was used in my very first car with a Cox .15 and an O.S. Max. 15 carburetor. In about my first 10 starts I only had one DNF, and that was an engine failure. I also started with the tank in front of the engine, which I think is a big plus. Under load, the engines usually lean out. With the tank in front, during acceleration, a little extra head pressure (horizontal) tends to richen the engine a bit. So it seems the combination of the front fuel tank and the constant pressure (vertical) feature are quite well matched to R/C car engines.

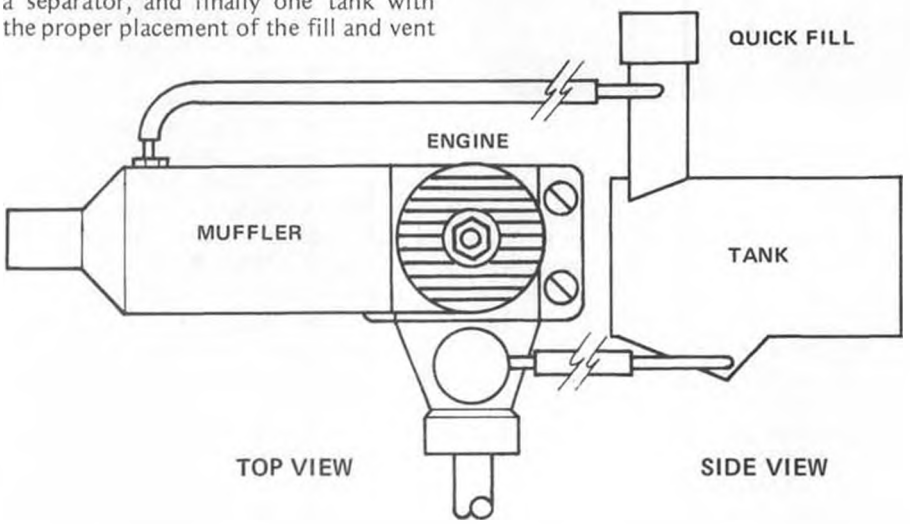


FIGURE 3: EXHAUST PRESSURE FUEL SYSTEM SCHEMATIC.

Willie Bennett, age 14, was in top four qualifiers at '75 Winternats, ran trophy dash. Full Winternats report next month.

Now let's get back to the constant pressure fuel tank. A sketch of what I consider a reasonable tank is presented as Figure 2. The two most important features of the tank are the placement of the tank vent tube, and the fuel pressure seal provided at the filler. The tank illustrated goes across the car just in front of the engine. The fuel pickup tube draws fuel from the front portion of the sump at the very bottom.

Let us fill the tank and start the engine to see how the tank works . . . I hope your imagination is as good as mine. When the engine starts, it draws fuel out of the tank. With the low vent location it really sucks the fuel out of the vent tube first and possibly the tank deforms slightly (a 1 to 2 inch fuel pressure decrease on the inside). When the tank pressure is low enough, bubbles start entering the tank via the vent tube. What we have now is a constant atmospheric pressure at the vertical location of the vent tube end inside the tank. The fuel pressure at the bottom, or fuel pickup, of the tank will remain constant until the fuel level drops below the vent tube location. I usually place the vent tube end 1/4 to 3/8 inch higher than the pick up. Don't put the vent and pick up closer than about 3/8 inch horizontally because you might suck air bubbles.

There are only a couple of reasons that the constant pressure tank will give problems. The filler may be leaky. The normal quick-fill was made for internal pressure . . . we run a vacuum. To make

Continued on page 65

How to . . . . . . *Continued from page 29* in the first place. An alternative to my approach is to buy a zoom telephoto lens which covers all magnifications from 80 MM up to 200 MM (or more). Some of the imported, replacement zoom lenses, can be obtained for around $150.00.

For indoor, studio type, photos, I've been using two photoflood bulbs mounted in clamp type reflectors. Using Kodak Plus-X (black and white) film, I obtain plenty of light. In fact, I can usually shoot pictures at 1/125 at around F 11 indoors, without flash. Floodlighting also gives you a chance to eliminate shadows prior to taking the picture. As of this writing, I still do not own a strobe unit (electronic flash), although I have a small flashcube unit, should the need arise.

Black and white film processing became a real problem. Almost all the film labs now specialize in color processing only. The few rare ones still doing B & W charge around $1.25 to $1.50 for each glossy, 5 x 7 enlargement. Magazine editors usually like a collection of at least 10 to 15 photos per article *(But almost* never *get them. wcn)* You can see immediately how costly this could become. Also, the time factor can be quite upsetting. I'd send out a roll of film for developing and proof prints. After a week I'd get the proofs, select the final shots, and then wait another week or two for the final enlargements.

The solution was to do the black and white processing myself. My first project was to build a very small darkroom (actually 76 x 45 inches). This was constructed out of 2 x 3 studs and the cheapest paneling available. The total cost, including a small pre-hung door, came to under $50.00. To save money I did not make any attempt to bring water and plumbing into the darkroom. I seem to manage by simply lugging a few buckets of chemicals and water over to the sink.

The single, most expensive investment for the darkroom was the enlarger. I chose a Meopta Opemus III, which cost under $100.00, and is really an excellent buy.

In addition to the trays, film tongs, developing tank, safelight, etc., I bought a ferro type (electric heating) print dryer. This $30.00 investment turned out to be quite useless. A local photo dealer, recognizing that I was a real novice, unloaded this white elephant on me. You see, over the past couple of years, a new enlarging paper has come on the market. It is known as resin coated (RC . . . where have I heard that expression?) paper. With this new paper you only have to wash the enlargement a short time (five to ten minutes is enough) and hang it up to dry. In several hours you will have a beautiful, even, high gloss print without the need for the old fashioned ferro-type operation. (You have just saved $30.00 by reading this!)

Black and white processing chemicals haven't changed much in the past twenty five years. For film processing, the old standby Kodak D-76 is used, diluted 1:1 (with water). Paper developing is done with Kodak Dektol, diluted 1:2. The fixer used in all cases is the regular Kodak powder variety (runs approximately 85 cents a gallon). On a do-it-yourself basis, 5 x 7 B & W prints will average around 15 cents per copy, which is a lot better than $1.25. Even if you amortize the cost of the equipment and the darkroom, you should break even after a year or so. The biggest advantage of doing it yourself is the flexibility of centering and composing each photograph exactly to your own liking. And, of course, you can produce a full set of photos in less than two days time. *(Strangely enough, photography seems to run a close second as a hobby among many model builders. wcn)*

I really didn't mention color film. Some of our magazines are now using color shots, mostly on a limited basis, to supplement an article, and on occasion, for a cover shot. For these shots, it is best to use regular 35 MM color slide film such as the new Kodachrome 25 or 64 (if you need a faster speed). In general, most magazines will accept 35 MM slides, though they prefer 4 x 5 or even 2-1/4 x 2-1/4, but the cameras for these sizes are expensive and quite frankly

not that popular anymore *(Not really. We purchased a used Yashica twin-lens reflex camera with built-in exposure meter and use if for all color shots. wcn)* Professional film processors can make 4 x 5 transparencies from your 35 MM slides, but at a cost of over $6.00 each. I wouldn't recommend doing that unless the magazine specifically asked for it.

We still have one more major item to talk about, the text. The biggest question is how much should be written? In general, 8 to 12 pages, double-spaced typed, seems to be the acceptable amount. Double spacing is important so that the editor can easily make corrections before submitting the material to the printer. Typing is very essential. It doesn't have to be perfect, for instance, spacing and margin locations are actually unimportant. If you make a typing error, simply "X" it out and proceed. Whatever you do, don't submit a handwritten text. Don't be too concerned with grammar and spelling. Do the best you can with the grammar and make an attempt to correct any misspelled words prior to sending off the article. If you have any teenagers around, it might be a good idea to let them proof read your text. They can be surprisingly helpful, and it also gives them a sense of participation.

I can't advise you on how to write. In general, if you are involved with an original design, it is a good idea to dwell on the design features for several paragraphs before getting into the construction. If it's a scale type model, you may want to include some back-up information on the real plane. A list of reference material is also helpful for scale projects.

As far as the construction description is concerned, I would only highlight the important areas for an advanced type model. If you're describing a trainer, then by all means go into exact details for the benefit of the new modeler. Describe the initial flight characteristics of the prototype model. What kind of trim did it need? How much control surface movement did you settle upon? By the way, don't forget to discuss the finishing of the model. So many authors simply say, "Finish the model using your favorite techniques." That's a real "cop out," if I ever heard one. The finishing is just as important as the building. Tell the reader how you did it.

Now that all the elements of the article are complete, how do you package it up for shipment to a magazine? I usually send two packages. One is a standard 9 x 12 envelope containing a copy of the text and the photographs. It is best to place the photos in a smaller envelope and include an identification list. Number each photo for identification purposes. Provide enough information so that the editor can figure out the meaning of each photo. The final item in this envelope is a covering letter to the magazine editor. In this letter, tell him what you have sent him and give him a basic idea of what the design or article is about.

The second package is actually a cardboard drawing tube which I use to mail the original drawing. Make sure that the tube is well wrapped and clearly addressed, since a lot of effort goes into that final drawing. It was unfortunate that my original drawing of the Trixter Beam (Model Builder, June 1974) was lost en route to Santa Ana by our Postal Service. Fortunately I had that brown line copy and was able to reproduce a print and send it out to Bill Northrop. Since that experience I have resorted to using the United Parcel Service (UPS) (which is considerably less expensive) and have never had a problem *(We later found out that it actually sat in the Post Office for two weeks, even though we asked about it several times. wcn)*

If this is your first article, you might be wise to include sufficient return postage in your envelope. Should the editor read your material and choose not to publish it, at least it will be promptly returned. If that should happen, try another magazine. Each editor has his particular likes and dislikes. In some cases you may receive some helpful advice on how to improve the material for a future submittal.

What can you expect to get paid? Well I'm not going to get into specifics. Each magazine has a different rate sched-

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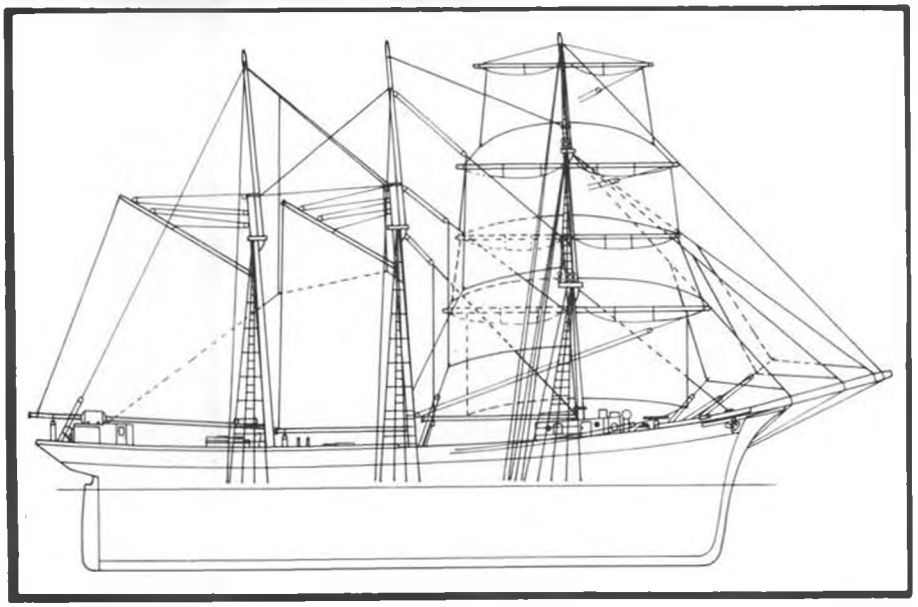

This 1883 Barkentine is the last Square Rigged Ship of the Portuguese Fishing Fleet, which yearly sailed to the Grand Banks. It is now a part of the Philadelphia Maritime Museum, and is permanently moored at its own Dock, Pier 15 North, Delaware River. Our Kit is relatively easy to build and features Step-by-Step Assembly, as well as Rigging. Plans guide you unerringly thru hours of pleasure. Exquisitely detailed Kit contains Printed Cloth Sails, Machine Carved Pattern Grade Pine (or similar) Tapered Masts and Yards, two colors two sizes Rigging Cordage, Authentic Decals and Flags, beautifully detailed Cast Metal Fittings, Mounting Pedestals and Base etc.

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ule based on many variables, i.e., number of words, number of photographs, num- of plan sheets, etc. In general, don't expect to make a living at publishing articles. If you divide the time spent by the amount received it probably works out to 50 cents an hour or less. About the best I can say is that I break even, and yet I'm still enjoying my hobby. Believe me, there is nothing better than the thrill of seeing your own creations appear in print. I sincerely hope that after reading this, more modelers will take up the challenge. There must be many modelers, in remote locations around this country, with truly original and unique designs. If they don't take that extra step, these designs will only benefit a handful of local modelers. Think about it!

In conclusion I would like to extend my thanks to my very good friend, fellow clubmember and neighbor, Nick Ziroli, who really helped me get started in the publishing aspect of this great hobby. Without his guidance, I probably wouldn't have completed that first article.

Peanut . . . . . *Continued from page 39*

and bottom block, were in place, I knocked all the upper cross pieces out of the structure, leaving plenty of room for the rubber motor. (That should be rubber engine? right, only the Electric powered planes have motors.) *(Why change after all these years!? wcn)*

The nose block is made up of two parts; a 1/4th inch thick nose and a 1/8th thick plug made to fit in the nose of the model. Note that both front cross pieces are out away so the plug can be inserted in the nose.

Cover the model with your favorite tissue and technique. This has been covered, forgive the pun, so many times in MODEL BUILDER that we'll leave covering unexplained here.

The aft canopy is a simple flat-wrapped sheet of thin clear plastic. The forward one must be formed either by stretching hot over a mold, or by doing the same thing with a Vacu-Form. The canopy on the model in the photos was made on a toy Mattel Vacu-Form. It is about as big as you can possibly do and took me three tries to get a *good* one.

Decoration and details come last. I used red and blue tissue for the stripes, black tissue for the numbers, (letters) and top of the cowl, and the simulated retracted main wheels. The nose wheel, fairings, flap hinges, and carburetor inlet, and tail bumper are scrap balsa.

For a source of Peanut Scale wood for this model send a self addressed stamped envelope to: Mike Taibi, 4339 Conquista Ave., Lakewood, Calif. 90713 for his price list.

Peanuts can be built lighter with specially cut wood, and a light Peanut flys better and lasts longer.

The model in the photos flew best in left circles. The wings had 1/8th inch of washout and the trailing edge of the rudder was warped slightly for a left turn. Power was one loop of 1/8th, 10" long.●

Mini-Nordic . . . *Continued from page 49*

wing warps to get the trim perfect. Just twist the warp out and breathe on the panel, then hold it for a minute for the heat and moisture to escape.

Trim in towing should need very little adjustment. Since most of the turn trim of this model is due to the stabilizer tilt, the tow should be quite straight. If the model weaves from side to side as you tow, the towhook is a bit too far forward. As shown in the photo a bent pin acts as your towline position limit stop. Make all adjustments no more than 1/16" at a time. If the model just veers off to one side, first recheck the wing for warps; if the alignment is straight, the towhook is too far back.

Towing the Mini-Nordic is only slightly more difficult than flying a kite. Have a helper hold your model, hook up the towline and run out about twenty paces of thread. Coordination in the launch is important. Your helper must take one or two steps with you as you begin to tow, then release the model smoothly with the nose pointed up at about thirty degrees. IMPORTANT: the launcher just lets go of the model, he must not toss or push it!

Tow only just fast enough to keep your glider climbing; slowly at first, faster as the model gets higher. To release, just stop running and raise your hand quickly. The patch of silk will drag the slack line from your glider.

Once you catch your first thermal with this little model, I think that towliners will have YOU hooked. ●

Hannan . . . . . *Continued from page 38*

type of power in the "gas" class of the outdoor free flight scale event, along with another option, that of CO_2.

Our guess is that ALL forms of propulsion will continue to be employed, and electrics will take their place alongside the traditional power sources, adding even greater freedom of choice to the modeler.

(It goes without saying, that for events requiring mufflers on the engines, this ruling should be by-passed for electrics. wcn)

WHERE DO WE STAND?

Frequently we receive questions from model builders living in remote locations. Many of these fellows are "lone wolves," not because they want to be, but simply because no one else in their area shares their interests. One of the problems of flying alone is that there is no convenient "yardstick" for performance comparisons.

Thus we are often asked: "What constitutes a 'good' duration?" "How far can a rubber-powered model be expected to fly?" And similar queries. Those of us who are fortunate enough to be living in active aeromodeling communities are apt to take such information rather for granted. Other questions received suggest that some think today's models must surely far surpass the performance of pioneer types. After all, the writers point out, there have been advances in aerodynamic knowledge, application of aerospace materials, etc.

In an effort to answer this, we conducted a bit of research into some older magazines, and came up with the following, from the November 6, 1914 edition of FLIGHT:

published by Verrill. However, this time the author was Dorthy Verrill, daughter of A. Hyatt Verrill. Fittingly, Dorthy reproduced some plates from her father's classic offering.

THE MEDIA

It seems presently almost fashionable to condemn "the media," particularly newspapers and magazines, for inaccurate reporting. And yet, to be fair, one must consider the total picture. For every misleading story, there are counterparts, written by competent individuals who take a sincere interest in their work, and create truly outstanding reportage.

BRITISH MODEL RECORDS (rubber powered)

PUSHERS:			
Single screw, hand-launched	Duration:	J.E. Louch	95 secs.
Twin screw, hand-launched	Distance:	R. Lucas	590 yards
Twin screw, hand-launched	Duration:	T.D. Chown	145 secs.
Single screw, r.o.g.	Distance:	W.E. Evans	290 yards
Single screw, r.o.g.	Duration:	J.E. Louch	68 secs.
Twin screw, r.o.g.	Distance:	L.H. Slatter	365 yards
Twin screw, r.o.g.	Duration:	J.E. Louch	2:49 mins.
Single screw, r.o.w.	Duration:	L.H. Slatter	35 secs.
TRACTORS:			
Single screw, hand-launched	Distance:	C.C. Dutton	266 yards
Single screw, hand-launched	Duration:	J.E. Louch	91 secs.
Single screw, r.o.g.	Distance:	C.C. Dutton	190 yards
Single screw, r.o.g.	Duration:	J.E. Louch	94 secs.
Single screw, r.o.w.	Duration:	C.C. Dutton	29 secs.
Twin screw, r.o.w.	Duration:	S.C. Hersom	65 secs.
Engine driven, r.o.g.	Duration:	D. Stanger	51 secs.

Note that many of these times would be considered quite credible today. Note also, the high performances turned in by the "twins." This type of model is extremely rare, presently. Perhaps the Buzzer Model Trophy for highest performance by a multi-engine Peanut will serve to generate some fresh interest?

HISTORY REPEATS ITSELF

Phil Koopman, of Vintage Aero, recently reprinted a portion of A.H. Verrill's "Harper's Aircraft Book," dealing with early Ideal Aeroplane & Supply Company models. This book, originally published during 1913, was written at the Antlers Hotel in Tenafly, New Jersey, the present-day location of Vintage Aero! During 1930, another book, entitled "Aircraft Book for Boys," was

For some reason, the average newspaper article dealing with model aviation seems to fall short of the mark. Thus, when an exceptionally interesting and accurate feature was brought to the hangar recently, we seized upon it as an example of what can be accomplished by a reporter who knows his stuff. Oddly, this item originated in Ipoh, Malaysia, and reached us very indirectly via Peck-Polymers, who had received it from Stewart Lohe. Published in THE SUNDAY MAIL, January 7, 1973 edition, the article occupies almost an entire page, and included a brief glossary of aeromodeling terms in addition to six photographs.

We have pulled a few quotations out of context, in the interest of providing

our readers with at least a "taste" of this rare bit of journalism:

"THE CHALLENGE begins in the building of these model planes with balsa, plywood, epoxy, etc., for any plane will only fly as straight and true as you build it. A warped wing or failure to ensure proper decalage can defeat even the most accomplished flyer. This is also why most aeromodelers tend to be perfectionists. They have to pay meticulous attention to every detail."

"A MAIDEN flight 'off the drawing board' is to the aeromodeler what a hole in one is to the golfer."

"In this hobby, even after one has won one's wings, camaraderie counts for more than competition . . . the esprit de corps will move members to offer, on loan or as outright gifts, spare engines and other equipment to their comrades."

"Switching off! Sunshine, fresh air and exercise. What better way to switch off at weekends . . . and put aside the problems of the boardroom and office!"

Our congratulations to the author of this most refreshing article, Ambrose Khaw.

SKINNY AEROPLANES, ANYONE?

Profile fuselage models date back to the "stone age" of model building, it seems. Over the years, large numbers of profile designs have been published, and quite a few have appeared in kit form. Most numerous have probably been ukies, with free flight types running a close second. Although some "serious" folks look down their noses at such short-cut efforts, profiles do offer some advantages worth considering: First and foremost, the simple flat fuselages can be constructed very quickly. Yet, the character of an aircraft can be captured to a surprising degree with this "shorthand" caricature approach. In addition to eliminating the need for laborious bulkhead cutting, stringer installations and the like, profile fuselages can permit great savings in weight.

This type of model can also serve as a very useful study tool in testing the flight potential of certain designs, prior to attempting their execution in built-up form; good insurance particularly in the case of unconventional platforms. A few hours spent in making such a "quickie" can be very worthwhile and revealing.

However, profiles also deserve a place in the aeronautical spectrum on their own merits, and we are happy to see renewed interest in these "cartoon models." Both the Bridgeport, Connecticut "Flying Aces," and the San Diego, California, "Orbiteers" clubs have been conducting contests for rubber-powered profiles which have been dubbed "Lo-Cal" scale models. Other clubs might consider trying the class as an added attraction. It was assumed at first that the appeal would be primarily to the juniors, but in fact, it has worked out otherwise, with many of the dedicated scale builders joining in the fun.

While some of the models have been of the built-up stick-and-tissue variety, most have been of all-sheet construction, with a few employing a mixture of the two. The traditional rubber-powered profile has a slot running down the center of the fuselage to provide clearance for the motor, but some of the newer types contain a rolled paper or balsa tube. Others feature an offset arrangement, with the rubber motor extending down one side of the body.

In the detail department, profiles run the gamut from very stark "Naked" examples, clear through some highly ornamented specimens. Typically, the minor details are of the applied variety; i.e., drawn on with felt ball pens, or doped on strips of colored tissue, whereas the more important details, such as spinners and wheel pants, are three-dimensional.

These models also represent a good stepping-stone for the novice designer, requiring much less skill than built-up types. We suggest that 3-view scale drawings, such as those published in this magazine, represent a good starting point. A size range of perhaps 10 to 16 inch span is common, although larger profiles have also proven successful. A certain amount of "fudging" is acceptable . . . even desirable, in the interests of improving flight performance. For example, the landing gear can be stretched for greater prop clearance, and dihedral can be increased. Rather than increasing horizontal tail area, it seems much simpler and more logical to simply decrease the wing area, by eliminating that portion of the span normally occupied by the fuselage width!

Plastic propellers serve well, being nearly crashproof, and helping to concentrate the weight forward, which is useful in particular on subjects with short noses. Elsewhere, weight should be kept to an absolute minimum, which after all, is the most direct approach to efficiency. So there you have it . . . another road to flying fun with a minimum investment in time and materials.

PEANUT POWER!

Results from two important "first-time" Peanut contests arrived this

month: Close on the heels of the well-attended French meet mentioned in last month's column, was the first Czechoslovakian affair, which was an added attraction along with indoor microfilm and their equivalent of Penny Plane. Evidently, some twenty-seven Peanuts qualified, which would be a good turn-out even in Southern California. And, as is the case with such events elsewhere, the variety of entries added greatly to the fun. Witness this partial list of types: Hergt Monoplane, Rapid, Nieuport Monoplane, Vilga 2, PA-18, Fokker D-VII, Waterman Racer, Fokker D-VIII, Volksplane, HST-550, MALYS, Bleriot, BD-4, Luton Minor, Druine Turbulent, Gabriel, and Antoinette. Top three adult placers were: Peter Petrousek, Lubomir Koutny, and Jiri Kalina. Among junior winners were: Antonin Alferi, Jan Kalina, and M. Pekarkova.

Other active participants in this premier activity were Milan Kacha (see photo in last month's column), Otto Saffek (editor of the MODELAR magazine), and Bill Northrop's 'ole flying buddy, Rudy Cerny.

METROPOLITAN AREA SCALE GROUP

Another outstanding Peanut event was sponsored by a group of enthusiasts from Northern Virginia, Maryland, and the District of Columbia, assisted by the D.C. Maxecuters. Our report, via Colonel Hurst G. Bowers, of Flyline Models, notes that approximately 60 Peanuts were on hand, of which 26 made the scale judging lineup. Categories were monoplane and multiplane, with winners as follows:

MONOPLANE: 1. Don Srull (Eastbourne); 2. John Preston (Farman Moustique); 3. Mark Srull (Huntington)

MULTIPLANE: 1. Don Srull (DH-6); 2. Pat Daily (Waco); 3. Ned Kragness (Sopwith Triplane)

Future events planned, in addition to indoor scale, include R/C "Schoolyard Scale" meets for models utilizing .020 and .049 power, with maximum for each being 36 and 48 wingspan, single-channel pulse and two-channel, respectively.

For additional details, contact: Colonel H.G. Bowers, Ret., 1649 Birch Road, McLean, Va. 22101.

PILOTS, MAN YOUR PLANES!

Now that occupants have finally become an accepted practice, especially in open cockpit models, we continue to encounter different ways of producing same. Paul Plecan's Paper Profile Pilots (see ads in prior MB's) offer an inexpensive and effective approach for Peanut size planes. Slot car driver heads have also been mentioned as possibilities. But now, Don Brown, of Tampa, Florida, has suggested a truly PERSONAL method of filling this need:

"Let's pilot our Peanuts! My personal pilots are profile color slides of my head and shoulders, taken from a distance which yields an image size compatible with the scale of the model I want to fly (vicariously). Most of us own or have access to a 35mm camera with a normal lens of approximately 50mm focal length." The following table will present data for producing pilots in the right scale in living color:

Scale of Model	Actual Head Height	Camera to Subject
1/4" = 1 ft.	3/16"	82"
5/16" = 1 ft.	1/4"	75"
3/8" = 1 ft.	5/16"	69"
1/2" = 1 ft.	13/32"	56"
5/8" = 1 ft.	1/2"	42"
3/4" = 1 ft.	5/8"	40"

1. Put on your flying headgear, etc., appropriate to the model.
2. Snap the photo.
3. Cut out the profile from the slide.
4. Put yourself in your Peanut! ●

North/South . . *Continued from page 15*

trol surfaces and hand glided the bird at the South Bay club flying site. After several weeks, one of the club members loaned Ben a radio and he learned to fly, this time WITH control. It must be quite a sight to see Ben arrive at the field with an airplane, transmitter, and high-start, all sticking out of a basket on the back of his BICYCLE!! Congratulations Ben, on a well deserved win. (No, he didn't pedal from San Jose to Bakersfield!)

At the Saturday night banquet, Rod

Smith, president of the National Soaring Society, spoke briefly on rules and proposed rules changes. There was some controversy about the number of control functions to be allowed on the Standard Class birds. As the N.S.S. rules stand now, there is no limitation on control functions . . . Flaps, spoilers, or whatever, are completely legal. There is growing support, however, for limiting Standard Class to a two control function airplane. Whatever your feeling is . . . let your N.S.S. District Board member *(and your AMA Contest Board member! wcn)* know how you feel. And if you are not a member of the National Soaring Society . . . Join NOW!!!

R/C Soaring is still in its infancy in the United States. We are in the perfect position now to establish uniform rules throughout the country. We have the finest Soaring Accomplishments program in the world in the form of the League of Silent Flight. Dan Pruss is president of the L.S.F. and is also our representative to the F.A.I. in Paris. Rod Smith is N.S.S. president. These two guys are in desperate need of your support and opinions. We can establish firm, meaningful rules for both national and international competition. But we have to do it now!! N.S.S. is the sailplane flyer's direct link to A.M.A. So join N.S.S. and let your N.S.S. district representative know how you feel. •

Solid Soaring . . *Continued from page 25*

hinge and outlines are about all that's required at 1/48 scale. Shallow grooves are even better, with natural shadows highlighting the detail, except that the required sharp-line crispness is difficult to maintain through the finishing process. Detailing beyond the control surface outlines . . . and maybe registration and competition numbers . . . can overshadow the basic simplicity and beauty of sailplane form and should be approached with caution.

The canopy can best be simulated by flat black over appropriate areas, as in the photos. Some of the readily available and easy-to-use casting resins could be used to fabricate a translucent canopy if the builder is willing to undertake the extra work.

The 1-23 utilizes a 1/2 inch length of 1/32 inch inside diameter aluminum tube for mounting on the 1/32 inch diameter music wire support. The base plate is an inexpensive wooden plaque blank available in most craft stores or departments.

Finish on the 1-23 was a few coats of Hobbypoxy sanding resin, before component assembly, rubbed out with wet-or-dry silicon carbide paper, used wet. Another coat or two were applied after assembly, again rubbed out with wet carbide paper . . . and fine steel wool. Care was needed to avoid "fillet" build-up at wing and tail surface intersections with the fuselage. Final finish started with automobile gray primer, sprayed from its aerosol can, followed with white enamel, sprayed from the can. The adage of "several light coats are better than one or two heavy coats" should be heeded. Each coat was rubbed out with fine steel wool.

Any craftsman can produce a creditable desk model of a sailplane . . . from Solid Scale kits or from scratch . . . quickly and easily, using the noted techniques. Balsa is easy to work and adequately durable, if resin or epoxy is used to provide a hard outer shell.

Three-view drawings are available for most current full-scale configurations from appropriate distributor and dealer outlets. A little drafting . . . or photo-enlarging . . . may be required to obtain the proper scale size. In the past, MODEL BUILDER has published 1/48 scale three-views and data on interesting sailplane subjects, and more are in preparation.

Of particular interest to the R/C soaring enthusiasts might be desk models of favorite R/C sailplanes. Why not a desk model to commemorate the sailplane that helped earn LSF membership . . . or Level V? For this application, the recommended scale is 1/8 (1-1/2" = 1'-0"). This would provide a 12 inch span model for an 8 foot span sailplane. Rib positions should be simulated with strips of thread or 1/64 inch wide tape. This will look most realistic when finished. Either models of models or of full-scale craft could be the basis of very attractive club trophies.

The basic techniques for any configuration sailplane model are the same: Prepare fuselage block to appropriate "square" dimensions. Cut block to side view outline, spot-glue scrap pieces in place to re-form block, and cut to top view outline. Whittle and sand to cross-section shape. Wings and tail surfaces are cut to plan form from sheet or strip stock. Again, whittle and sand to shape. Cardboard or thin plywood templates can help keep things in order . . . and the same from side to side.

Practice your whittling, and next month we'll cover the finer points of spitting and rocking . . . at the same time.

R/C Auto . . . . *Continued from page 55*

the quick-fill work, use .012 to .015 diameter piano wire and bend some light finger springs to press the filler lips together as shown in Figure 2. If the quick-fill is leaky, it will have a tendency to pump fuel out the vent.

A second possible problem is heat. If fuel is vaporizing in the tank at a faster volumetric rate than fuel is being used, the tank pressure can build up, richening the engine. Therefore, do not expose the tank to the engine exhaust gases. I haven't yet seen a problem due to ambient temperature and nitro or alcohol content.

The idea of a small sump added to another tank is good for R/C cars, and a necessity if you use commercially available tanks. During acceleration and cornering, there should always be some fuel in the sump while fuel is sloshing around in the tank.

So, to have constant pressure, you don't need a bunch of little magic volumes and tubes . . . just one properly placed vent tube.

EXHAUST (MUFFLER) PRESSURE FUEL SYSTEMS

A sketch of an exhaust pressure fuel system is given in Figure 3. Tubing connects the muffler to the fuel tank to provide exhaust pressure. When the engine is idling, there is essentially no pressure exerted on the fuel. As soon as engine speed picks up, exhaust pressure forces fuel to the carburetor and can eliminate the acceleration fuel lag. A couple of photographs of exhaust pressure fuel systems show you some typical installations.

One photograph shows a fuel tank for an exhaust pressure system. Tank construction is the same as for any standard vented tank or "chicken-hopper." The

only important thing, usually, is to put the vent (which is connected to the muffler) as high as possible so that it is in the air space above the fuel. If the vent is submerged in the fuel at any time, there is a possibility of forcing fuel out of the tank and into the muffler! For example, when running at full throttle the tank pressure is increased . . . if the engine is suddenly cut back to idle, the muffler pressure drops and the pressure in the tank could force fuel into the muffler, *unless* the end of the tube is above the fuel level. In the photograph, the vent is located in the filler tube which will be above the fuel level. Obviously if fuel is pumped into the muffler, it will be lost and apparent fuel consumption will increase.

With the exhaust pressure fuel system you have to be careful when initially filling the tank before the engine is started. When filling the tank it is possible to get fuel into the muffler and flood the engine so that it can't be started. The pressure line to the muffler can be squeezed off to prevent this, or you will have to dump the fuel out of the muffler before cranking the engine over.

Engine idle will lean out as fuel is used if the vent is placed above the fuel, so you have to be very careful in setting engine idle. Some racers are using the "chicken-hopper" vent placement at the bottom of the tank to get a constant idle setting, but they still run the chance of pumping fuel into the muffler. However, some of the low vent placement tanks don't seem to have poor fuel mileage. Possibly the exhaust pressure is not that high.

No special precautions, such as extra springs for sealing, have to be taken on the quick-fill when used with pressure. The internal pressure seals the quick-fills, since they were originally designed for pressure systems. To assure that the quick-fill will stay on the filler tube, it's a good idea to solder a small diameter wire ring around the top of the filler tube. Then tie or safety-wire the quick-fill below the ring, and also use silicone seal. The quick-fill should not pull off during fast pit stops if this is done.

Now you know about as much as I do about fuel tanks. You can now build the tank which you think is most suitable for your car. If you have any problems or questions write to me c/o MODEL BUILDER or to Chuck Hallum, c/o HRE inc., P.O. Box 4658, Irvine, CA. 92664. Remember, even in model cars, don't be fuelish! ●

Autogyro . . . . . *Continued from page 10*

model sits level. This can be determined by measuring to see if both ends of the elevator are the same height.

Next, place the rotor boom ends in their proper position on top of the fuselage and block them up until the tips are one and one-half inches higher than the attachment points on the fuselage. This will give 5 degrees of dihedral to each side. Now, with the booms blocked in their proper positions, cut the lower boom legs to the correct length and epoxy them to the boom tip and bolt them to the bottom bracket. Finally, cut and epoxy the balsawood crossbraces in position. This should give a set of booms that are true and very rigid.

ROTORS

The rotor blades are next, and should be made of medium 3/16 balsa. Cut 6 blanks and epoxy the hardwood leading edge, insert, and ply reinforcement to them, remembering to make 3 left hand and 3 right hand blades. Sand the blades to an approximate Clark Y (flat-bottom) airfoil. For a light finish, give the blades 2 or 3 coats of clear dope, followed by just enough color to cover the wood. I colored mine black. Do not use any of the plastic coverings on the blades as this adds considerable rotating weight and can cause the rotors to set up unwanted gyroscopic forces.

The rotor hubs are cut out of mild 3/32 sheet aluminum. Bolt the blades to the hubs, and before bending the hubs for pitch and coneing angles, bolt the complete rotor assemblies to the crankcases on the ends of the booms. The left side rotor turns clockwise when viewed from the top and the right rotor turns counterclockwise.

We are now going to adjust the rotor angles by wedging shims under different sides of the Cox crankcases until the rotors have the same backward and inward tilt. Again, with the model sitting on a flat surface, begin with the left rotor by measuring the height from the surface to the rotor tip as it is pointing straight forward. Now rotate the same blade 180 degrees and again measure its height off the flat surface. Do the same with the right rotor. The difference in height should be about 6 inches. This gives a rotor tilt equal to about 10 degrees. It doesn't have to be exact because the angles aren't critical here. What we *do* want is for the two rotors to be equal

in their angles to each other. That is important. Shim the crankcases with washers or thin cardboard until the rotors match.

The same procedure is used to check the inward slope of the rotors, except the difference in height is measured with the blades pointing directly at the fuselage and 180 degrees or directly away. A 5 degree angle will give 3 inches difference in height. Time spent here will help to insure that your rotors will produce equal lift when flying, and thus a stable aircraft.

The rotors can now have their pitch and coneing angles bent in. This is done by bending the aluminum hubs with pliers. A simple jig may be made out of an 18 inch 2 by 4, with a Cox crankcase on one end, and a plywood plate with a 3 degree angle on the other end, fitting in a slot cut in the board. Adjust the blades of the rotors until they all have a minus 3 degree pitch angle (trailing edge higher than leading edge).

Now put the rotors back on the crankcases to bend in the coneing angle. This can be done by sight. Each rotor has a 5 degree coneing angle. Therefore, when they are bent properly, the blades should be level to each other when the tips are closest to one another . . . while pointing directly at the fuselage. Bend the hubs by hand until all blades are parallel to each other and the same height, when 90 degrees to the fuselage. Taking your time and doing it correctly will guarantee success. The rotors can now be balanced by epoxying slivers of solder to the tips of the light blades.

FINISHING

Except for the booms and rotors, the model is finished entirely with Super Monokote. The booms were sealed with clear Aero-Gloss and then sprayed silver. The fuselage, on top, was covered with blue Monokote from forward of the cockpit to the tail. Except for the red band on the tail, the rest of the fuselage and elevator are covered with aluminum Monokote. The white disc and Swastika on the rudder are trim Monokote, as are the black letters on the fuselage. The red band and white disc are 2-1/2 inches wide. The letters are 2 inches tall and 1-1/8 inches wide.

Assemble the complete aircraft and install the radio, positioning it so that the craft balances about a 1/2 inch forward of the rotor center-line. The rudder should have about 1 inch of the total movement and the elevator about 3/4 inch total. My model required about 3 degrees of down and 3 degrees of right thrust. This can be added by washers, or by filing the mount. You may have to add or subtract from yours, so make it adjustable. I lube the .049 crankcases with a drop of STP every flying session.

FLYING

The model is now ready to fly, and you should have no problems if you've followed directions. I recommend using a 9x6 propeller. The higher pitched propellers seem to give the desired thrust easier than the low-pitch propellers. Start the engine and adjust the needle valve to give a slightly rich top end. A super-low idle is not required because the model will descend at anything less than half power. Make all takeoffs and landings directly into the wind to insure that both rotors reach flying speed at the same time. Taxi downwind, turn around, and head the ship directly into the wind. Slowly advance the throttle and taxi until the rotors begin to turn quite rapidly . . . it won't take long. Now, open the throttle all the way and feed in some up. The model should rise off the ground and climb away smoothly. If one rotor seems to lift more than the other, and the model crabs slightly, reduce the amount of negative pitch in the weak rotor blades until the model flies on an even keel. Mine has flown so far out of trim that it appeared to be flying in a 10 M.P.H. crosswind all the time. Yet it was still manageable.

You will be surprised at the stability of this strange craft. It banks as if it has ailerons, yet returns to level flight as soon as the rudder is neutralized. It will fly rock-steady hands off. It can be landed simply by reducing power and steering to the desired location, descending near vertically. It will fly along at a near 45 degree angle of attack at 10 M.P.H. It doesn't have the power to stunt, but it can make a 360 degree turn in almost its own length, while descending, and with practice you will be able to land it on the proverbial dime.

Now a word of caution. You will want to make all landings under power. If the engine quits, the model will autorotate down, however, forward speed is nil and it descends fairly rapidly. No damage will result unless, of course, the model lands on somebody or something. In this respect, it is very much like a helicopter and should be handled with respect when flown over and around crowds.

I hope that you have as much fun with your autogyro as I have had with mine. My dad and I have quite a time chasing each other through the sky with our two machines. They never cease to amaze new onlookers as to their flying ability.

I would appreciate hearing from others who have experimented with autogyros and would like pictures of this machine and other designs built by modelers. I will try to answer all questions. Write to me at 535 B St., Taft, Calif. 93268, or in care of MODEL BUILDER.

F/F . . . . . *Continued from page 45*

"The day of the Misery Meet broke bright and early for me. As I left Auburn, Washington, it was raining slightly but cleared as I neared Tacoma. Arriving at

7 AM, I immediately assessed the weather conditions. I was very encouraged, as the sky was slightly overcast, but no wind of any velocity could be measured by the Tareyton 100 smoke test.

"After a cup of coffee, I began to map my contest strategy. I knew that if I could fly early and put in some impressive times, it would put the pressure on the guys who arrive late. This game plan worked perfectly, as I had all of my flights completed by 9:30 AM. The pressure was too great for the late arrivals . . . especially the boys on the Columbia River, who are always late. It is rumored that some contestants didn't make it until March 12!

"One event that especially pleased me was winning the FAI Combo, with my new flapper Wakefield, which tips the scales at 296 grams. I am working on a scheme to detach the wing in flight, thereby reducing the model's weight to 230 grams. Lacking a winding stooge or assistant, I had to resort to finger twirling. By arriving early at a contest, one has plenty of time to wind by hand. It was well worth it as I only broke one motor at 200 turns.

"Here is a listing of the events I won:

FAI Combo: First, C.W. Drake, 196 seconds

Coupe/Unlimited: First, C.W. Drake, 60 seconds

Hand Launch Glider/A-1: First, C.W. Drake, 22 seconds

AMA Gas: First, C.W. Drake, 0:03.5 seconds

Best Finish Event: First, C.W. Drake – (Model Dental Floss)

"The contest was remarkably free from disputes of any kind. This can probably be attributed to C.D. Bud Nelson, who moved silently about the launching area, flawlessly performing the duties of the C.D. The meet was so well run that it was hard to criticize anything. The Army had even covered the field with a white camouflage substance that allowed for easy spotting of my orange, blue, yellow, and black models. The boys with the all white ships had some difficulty in retreiving, but I can't recall seeing any all white models.

"At the conclusion of the meet, it was proposed to return all entry fees to the first place winner. This was hotly disputed by the losers, but it finally passed with a unanimous vote. Speed Crash, of the S.O.B.s amazed me, as he had no caustic remarks of any kind and managed to fly in the areas designated. He was at his best-ever contest behavior, and my compliments to him.

"Everything considered, it was the greatest Misery Meet ever, and well worth my 7 hour drive from Idaho, in view of my outstanding performance. Thanks, you S.O.B.s (Strat-O-Bats, Misery Meet Sponsors).

C.W. Drake

P.S.: A postcard arrived in the mail Monday at my office informing me of the postponing of the contest until March 12."

Enough for now. See y'all next month.●

Plug Sparks . . . *Continued from page 19*

If it goes over big enough, we may even try it here!

NOW FOR THE BAD NEWS

No sooner had we gotten through writing the above paragraphs than we received two letters simultaneously from England, announcing John Haggart's death. John will be sorely missed by his friends, as he was always a live wire on O/T flying. This writer feels the loss quite personally, as he was planning a trip this year to see him. Rats! The good guys die young.

A third letter, from Ron Moulton, Editor of Aeromodeller, noted that John was the focal point for a great revival of Old Timer enthusiasm in Great Britain. Dying very suddenly in the early hours of January 1, John was not to know that his Buzzard Bombshell, entered in the flying aircraft class of the Annual Model Engineer Exhibition, won the Bronze Medal against strong opposition. Maybe he only got the Bronze award here, but this author is willing to bet he gets the Gold Star from the Master Model Builder in the Sky.

FOOD FOR THOUGHT

In a letter from Dick Johnson, Dallas, Texas, he states that his son is just finish-

ing a Strato Streak. When Dad Dick offered an Arden .09 for an engine, son Guy said, "No way! Garami used an Atom and that's the way it's gonna be!" The "new blood" that Bert Pond talked about at the Nationals O/T Banquet reflects what we hope will follow.

Interestingly enough, history can repeat itself, as Guy asked, "Dad, what are we going to do about this Atom when I go off to college?" Tough to get all the answers, isn't it?

SLAM CLUB DEVELOPMENTS

The latest information via the Utah State Aeromodellers newsletter, "Dope Bucket" is that SLAM (Salt Lake Aero Modelers, now SAM Chapter 18) has decided to obtain an AMA charter and operate as a separate club from the Utah SA-Group. However, they will be working very closely with the parent club in scheduling events, etc.

This should encourage those modelers who are "hooked" strictly on Old Timer flying. Mark Fechner indicates there are quite a few independents about that could be picked up.

The April Postal Meet held by the SLAM club will be for .020 replica and combined classes O/T gas. This should get a much better response than the first events, which featured gas models on skis! SAM rules prevail, 3 minute max flights in all events. Get your results in by the 10th of the following month. Lin Haslan also reminds the entrant to enclose the 50¢ entry fee. It goes for a good cause, the development of a Film Bank for Old Timer movies. Simply great! Write to Mark Fechner, 112 Clinton Ave., Salt Lake City, Utah 84103.

O/T CONTROLINE ACTIVITIES

Finally heard from John Laws, Hindsboro, Illinois, regarding the all stunt Old Timer U/C contest, held in late October. Seventeen modelers participated, with seven specializing in one O/T stunt event. Winner was a DeBolt All American, Sr. Seems as though this design has been winning for the last three contests.

John sez the secret of winning is dedication, lots of practice, and attention to detail. That could apply to any facet of modeling. However, that doesn't stop fellows like Bill Hubic, with his Smoothie, from having a ball. Don't care what phase of O/T modeling we are in, the name of the game is still "FUN."

HALF-SIZE O/T R/C EVENT:

Bruce Sheldon is proposing a half-size R/C old timer event very similar to the event this author used to run at the Nationals Old Timer Events. Matter of fact, Frank Ehling even put up a trophy for this idea. Looks like we may have a revival of the event.

Bruce claims this event would provide a low cost, entry level type competition that should attract new participants who have been reluctant to compete against those models powered with "super engines." This is eliminated as the largest engine one can use is the Cox .049 in stock condition. Best part is that the engine is readily available and does not cost a fortune to acquire, hence, this would encourage participation by younger members.

It will be interesting (if the event is adopted) to see if it catches on like the .020 Replica event did. That event brought the old modelers out of the woodwork!

WEST COAST OLD TIMER CONTEST SCHEDULE

Just received the latest SCIF "Flightplug" and SCAMPS "Hot Leads" newsletters, which list the old timer contest schedule for 1975. As usual, there are more contests than you can shake a stick at. Beginning with the SCIF-SCAMPS Kick-off meet on March 15-16, contests will be held monthly, ending with the Thermal Thumbers all rubber contest in December at Elsinore.

On top of that, the writer just came from the annual AMPS, of Northern California, meeting and no less than six contests have been scheduled here. If you like old timer competition, you will find at least 15 contests this year. Whew!

Rather than list all the meets, the writer offers the following Editors/Secretarys to write to for making inquiries about what's going on at any particular time:

SCIFS: R.G. Brickner, Editor, 4239

Centinella Ave., Los Angeles, CA 90066.

SCAMPS: Jim Dean, Editor, 2218 S. Ross St., Santa Ana, CA 92707.

AMPS: Dick Douglas, 5303 Calderwood Lane, San Jose, CA 95118.

Now, if we can just get some info from other parts of the country, MODEL BUILDER will truly be the major information medium for old timers. This is not to detract from the official SAM publication, "SAM SPEAKS," but rather to augment the old timer movement and extend the activities to those who have no direct connection with SAM. We'll gettum all yet!

CLOSING SHOT

Bob Oslan's photo of Lee Freeman, appearing in the December column, with his Varsity, looking for a "thermal," has been the subject for considerable hilarity among the O/T modeling fraternity. Freeman has been taking a tremendous heckling from fellow SCIF members. Perhaps the best epitaph for the picture was Raoul Brickner's clever bon mot, "If that photo doesn't set the old timer movement back ten years, then I'll eat a hot D-T fuse." Me too! Haw! ●

Choppers . . . . . *Continued from page 22*

is the airframe kit, and the "Mechanik" contains the power unit, transmission, main rotor assembly, and tail rotor assembly. The airframe kit includes a one-piece epoxy fiberglass fuselage which is very well finished and exceptionally light (only 15 oz.). It is neatly packaged, with all the necessary wood, excellent die-cut formers, etc., to complete the airframe. Without doubt, it is the most complete kit available today, needing only finishing paint and radio! Even three kinds of glue are supplied for special purposes.

Step One is to read the instructions over and over until you are absolutely sure which piece goes where. You might even have to take time to read how to read! No, I don't mean you have to understand German, since English instruction booklets are included for both kits. What I do mean is that there is a wealth of information available in the instructions; such as how to translate "notes" on the big plan, how to find out where any given part is packaged (numbered *and* lettered plastic bags), what each bag should contain, what are the standardized markings, which glue should be used on what parts, how to identify wood pieces by measurement, list of all materials, legends to illustrations, etc.

In addition to all of the above, there are the step-by-step instructions and complete details on finishing, test flying, general hints, cleaning, adjusting and a complete summation of the mechanics of helicopter flight (aerodynamics). Throughout the building, you will be impressed with the emphasis placed upon safety of flight and the need for careful building techniques.

Now that you are completely familiar with the drawings and instructions, you are ready to go to work. Be sure to correct your instructions according to the errata sheet enclosed with the booklet. The basic premise is to begin with the airframe, by constructing the interior mounting rails and formers, then installing the engine unit, then adding more parts to the fuselage, then more mechanical parts, and so on until you have combined all the parts of both kits into one unit. After everything is completed, you can disassemble, paint and fuel proof, then reassemble for the final touch.

In the next issue, we'll lead you through the step-by-step construction details, and hopefully, will have lots of pictures to help you over the rough spots. In the meantime, go out to your workshop and read, read, read the instructions to get a "feel" for this fine machine.

Maybe you too can set a cross-channel record with your "twin-jet." Until next month, BCNU! ●

Sailing . . . . . . *Continued from page 53*

Make sure that you have maintained continuity through the plugs. I have drawn the plugs as if you were looking at the end of each one. (Fig. 2)

You'll quickly find out that the polarity of the battery can be changed, and the blue and white wires can be switched on the winch limit switches to change the winch rotation direction. It's kind of a heads-you-win, tails-I-lose proposition, and is kind of fun to dope out when you are working up your own installation. I use 4 pencells for the pack in the YANKEE and get lock-to-lock winch runs of about 5.5 to 6 seconds. This is just about right for a trade-off between speed and fine control.

The R/C and winch batteries snuggle down on either side of the winch. To hold them down. I've resined Velcro tape on the hull and wrapped each pack with the corresponding Velcro component. You drop the pack through the hatch, and it stays where you press it. There is just no room for taping them down each time, and I think we need to

try to avoid further structure in order to keep weight down.

Since the termination of the rudder stock will be under the deck, a 2 inch square lucite observation port will be fitted in order to allow a view of the tiller arm. Rudders with 3/16 inch stocks and tiller arms are available from MODEL MASTERS, 6920 Braddock Road, Annandale, Va. 22003, for $5.50. The rudder measures 2.5 by 6.5 and has a nice cross-section that will operate well with little stalling at commonly used rudder angles. Making rudders is one thing I can't stand, so I'll be quite content with the one I got from Bill Huson at MODEL MASTERS.

The deck beam arrangement shows an extra beam at 16.75, which doesn't appear in the photos. This was done to reduce the span of 13 inches which exists without it. I'm going to have to retrofit one of these, and will wind up training my 7-year old to do the installation, as my hands are too big to get in there. A sheet plywood deck would probably not require the extra beam, but go ahead and put it in anyway.

Our boat wound up being planked with 1/8 x 3/4 pine strips. These were ripped off a clear white pine plank. To save weight, we didn't first put on a ply subdeck. The strips had a tendency to sag forward of the mast block and that is the reason for suggesting the extra deck beam. Also, when you rip off planks like this, always lay them down the same way after they are cut, i.e., the part of the plank next to the saw blade is put face up on the workbench. You will find that opposite sides of the plank will take stain very differently and produce a less even finish.

To lay the deck, scribe a centerline down the blocks and beams. Attach one full length beam to one side of the centerline using resin. Then plank the rest of the deck using pieces as shown in the photo. The full length beam in the center provides alignment for the rest. Be sure to have plenty of weights on hand, as the planks must be weighted in the center to take on the curve of the deck. Clothespins are handy around the hatch openings. The other photo shows the process just after it got started.

I've spent 4 years shutting my hatches with masking tape . . . crude but effective. For this project I decided to use a hatch method which appeared on Bob Harris' early 12-meter as well as Purdy's prototype YANKEE. It is not original, just chock full of common sense.

Before attaching structures to the deck, I sanded it and stained it. This prevents resin or glue spills from changing the stainability, but extra care must be taken to assure good bonding of parts. A little extra sanding to roughen a bond area using No. 60 paper seems to work well.

Fig. 3 shows a cross-section through the hatch. The outer coamings were dowel which was ripped into quarters and then lightened by cutting kerfs with the table saw. First the inner coamings are put down, holding with clothespins. Then a "baggie" is cut open and put

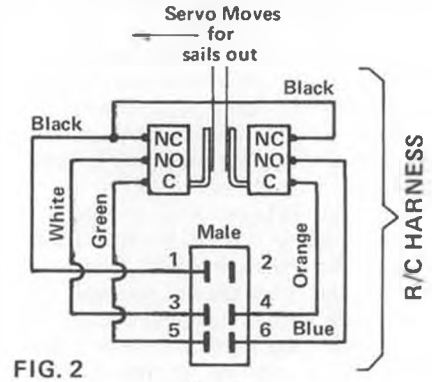


FIG. 2

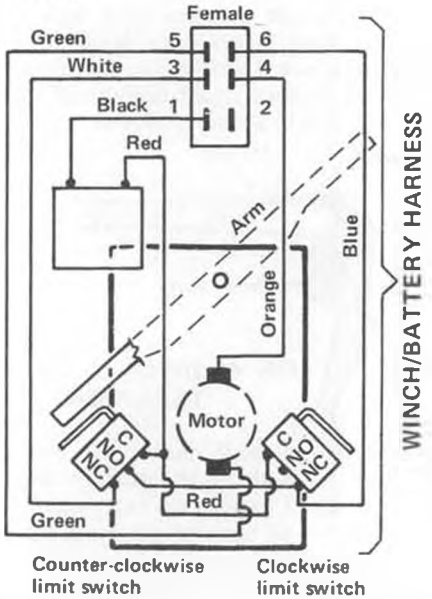
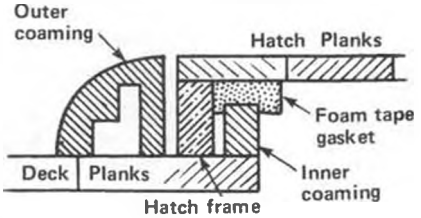


FIG. 3 SECTION THROUGH HATCH



down over the inner coaming. The hatch cover frame is put around the outside of the inner coaming and held with a rubber band (see photo). Then apply resin to the frame and put the hatch cover planking down. Remember to have the chosen side of the planking up so it will end up the same color as the deck.

Finally, put the hatch cover in a "baggie" and put the outer coaming down around it, as shown in the photo. You may find, upon replacing the hatch after everything has cured, that it is a super-tight fit. That is fine. Just carefully sand the hatch until it fits easily.

As an added measure against water entry, you may wish to put a bead of foam tape, as a gasket, around the inside of the hatch cover. You may then also wish to put a block and screw eye inside the hatch and a fairly weak rubber band from the eye to somewhere inside the boat for a positive hold down. I'm also going to put some sort of a handrail arrangement on top of each hatch to provide a grip for removing the hatch. Like the rest of the hatch, what ever you choose must be absolutely incapable of fouling a sheet. Sooo . . . keep it low and make sure it is rounded and smooth.

The hatch arrangement is certainly a matter of personal preference. I think the constraints are, first; that the hatches be as far inboard as possible, and second that they be as few as possible. You may opt for a third hatch over the rudder stock, or even a fourth over the jib sheet block in the foredeck. (Confidentially, I've always wanted to be able to take the entire deck off by unzipping a zipper which runs around the sheer!!)

The joint between hull and deck is always a knotty one. It is necessary to maintain watertight integrity, but there is a need for smoothness, strength and an eye to how the finish will be applied. Fig. 4 shows the plan, and next month we'll have a picture of the finished product. I would welcome your suggestions on such joints, and hope that enough of you will drop me a note and a sketch so that we could present all of them together in a future column.

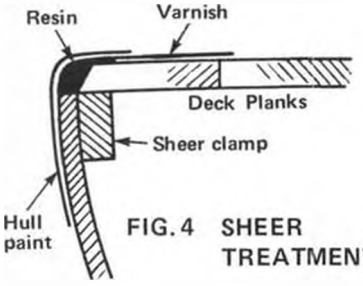


FIG. 4 SHEER TREATMENT

Next month we'll mount the deck hardware, finish the spars, and hoist the sails. If we don't have a cold snap, maybe I'll have some pictures of our model on the water. The list of recommended Fisher fittings is appended for your use.

Remember to mail in your $5.00 dues to AMYA Secretary, Bud Salika, 3917 Sunnyside Ave., Brookfield, Ill. 60513. The AMYA's Quarterly Newsletter is the second best source of model yachting information available today on a regular basis, and certainly worth the price of a year's dues. Besides, our fearless MB Editor is offering a 15% discount on MB subscriptions to AMYA members who provide him with their membership number. That is a good deal!

A new boat is being manufactured by Vanguard, Inc., 1251 East Wisconsin Ave., Pewaukee, Wisconsin 53072. This is for those folks who think a WC/12 is too small. The "J-boat" is 84 inches LOA, has 36 pounds of lead ballast, and sports a 9 to 10 foot mast. The jib on the beast is larger than an EC/12 main, and the head of the main is so far up in air that you'll need oxygen while fixing the main halyard! Still, it is a real effort being made to fill the needs of skippers with an eye for size!!! Write to Chuck Millican at the above address for details. The prices are quite reasonable, and bits and pieces can be purchased for the scratch builder. It is possible that a whole new AMYA Club will be formed using these big "J's" as their chosen boat. Heading up the effort is Roger Strube, 4775 S. Packard Ave., Cudahy, Wisconsin 53110. Roger is a member of South Shore Yacht Club and says that interest is running high for R/C sailing in the area. Contact him for further details.

List of A. J. Fisher Fittings for the YANKEE

Quan.	Stock No.	Description	Unit Price
3	245	Flat Bowser	$ .10
7	218	1 inch Spring Cleats	.25
2	566	Deck Fairlead	.35
1	562	4 inch Jib Rack	1.25
1	570	4 inch Mast Rack w/ 5/8 inch ferrule and pin	1.60
1	530	3/4 inch Full Band Gooseneck	2.25
1	595	Jib Club Swivel	2.75
1	231	One Eye Stay Plate	.30
2	226	Three Eye Shroud and Stay Plate	1.50
4	580	Swivel Turnbuckle, 3/4 inch take up	1.25
1	423	Sheet Hook	.05

A. J. Fisher, 1002 Etowah, Royal Oak, Mich. 48067

I'd also like to report that yet another AMYA club has received sanction. Club #43 is the WINDWARD MODEL YACHTING ASSOCIATION, and can be reached through the Secretary, Patricia E. Bird, 13161 S.W. 10th St., Miami, Florida 33144. These lucky people are sailing all year 'round in that warm summery sun. Don't us northerners just hate 'em for it?

I'm planning a column on spinnakers for the future, and would like to hear from you scale and cruising skippers who have experimented with them. It is a fascinating subject and one that I'll need your input to do properly. Write to me in care of MODEL BUILDER, or direct at 7607 Gresham St., Springfield, Va. 22151. ●

Workbench . . . *Continued from page 4*

ter had been buried in a pile of correspondence on the Hutchinson acquisition, all of which was distributed to the Council members late Friday night. The magazine question was then first on the agenda Saturday morning. Of the Council members we have questioned so far, none saw the letter before the meeting, as can be well imagined. Furthermore, our letter, and one from Hal Carstens, publisher of Flying Models, was never called to the attention of the Council. This in spite of the importance of the matter, and the fact that ours were the only two letters available to be considered. Also, this writer had asked that his letter be read aloud to the Council in order to assist them in determining what the next step should be. It was not. The letter was as follows:

"To: All Members of the AMA Executive Council, and the Executive Director
From: Bill Northrop, Publisher of MODEL BUILDER Magazine
Date: February 12, 1975
Subject: The latest magazine situation.
Gentlemen:

"With all the important matters that you had scheduled for discussion during your February 15 meeting, it goes without saying that you hardly needed the above subject added to your agenda.

However, in light of the 'Reno Happening.' it appears that you have no choice.

"The purpose of this letter is to discuss the current magazine situation, as briefly as possible, in hopes that it may help you in rendering a decision on the matter.

"First of all, it appears that you are almost back to a ground zero position relative to having a membership magazine. I say 'almost' because, although American Modeler is down the tubes . . . also your contract with Potomac Publications . . . you still have a comitment to existing and incoming AMA members who subscribed to a magazine with 8 pages of AMA news, for the remainder of 1975.

"Secondly, since you do almost have a clean slate it is very important that careful consideration be given the matter before making another commitment. I therefore will offer a solution to the immediate problem at the end of this letter in hopes that it will give you plenty of time to work out the long run situation.

"In the future, AMA has several ways to go relative to a membership publication:

"1. Non-profit newsletter/magazine supported by membership dues.

"AMA now publishes the Monthly Mailing for all members' households as a part of the dues, and Competition News, on a pay-extra basis. These are fine, and are really all that a member needs to keep in touch with AMA business and activities, as required by the constitution. They could be combined into a single 'House Organ.' The only problem is that they are 'inside' stuff . . . no one but AMA people see them, and therefore the AMA word doesn't get to non-members . . . the ones we want to add to our roster.

"2. Profit making magazine supported by special membership dues, 'outside' subscriptions, and industry advertising.

"If the AMA/AAM affiliation wasn't bad enough, this certainly would be. For that matter, could a non-profit national organization legally run a profit making (hopefully) business? This would really be bad treatment of the other magazines in the hobby. Support of AMA from them would be understandably non-existent. It would actually multiply the controversy caused by the previously untenable agreement with a magazine that literally stabbed its associate in the back. Enough is enough!

"If anyone on the council would like to know what it's like to publish a newsstand magazine, I'll be glad to fill them in. Leave it to nuts like me . . . you've got enough problems!

"3. Exclusive affiliation with an outside publication.

"If you missed the brass ring the first time around, do you want to try again? The only way this could even be half-way reasonable would be if the job was put out for bids.

"4. Affiliation with all outside publications.

"One way to spread the AMA word as wide as possible would be to have a 4 to 8 page insert for all magazines willing to include it. In return, the magazine would be declared an AMA affiliate, and its name would appear, as an equal choice with every other model magazine that agrees to carry the insert, on AMA's list of special price publications.

"To our way of thinking, this arrangement, along with AMA's own membership newsletter to all members (Monthly Mailing), would be the best choice the Council could make. Let the magazines fight for popularity while you hold their coats and benefit from the added publicity!

"What ever decision is made for the long run, you still have an immediate problem to solve . . . a commitment to AMA members who have paid for a special rate subscription to the now-defunct AAM.

"By way of this letter, MODEL BUILDER Magazine hereby offers to pick up the ball and fulfill AMA's 1975 commitment by carrying the 8 page monthly insert in all subsequent copies and sending MODEL BUILDER to the members who have subscribed through the membership/dues deal.

"The one big catch to this may be that you have forwarded all monies for the subscriptions to AAM. If so, it's down the Reno drain. However, we are still willing to discuss the matter and see if MB and AMA can work it out together.

"As I said before, even though I'm a magazine publisher, I'm also a concerned AMA member, and want to help. Obviously, because our magazine is fairly new and still growing, such an offer will result in benefit to us as well, both in increased circulation, which lowers the per copy cost of printing, and also in increased advertising revenue. If this is not an intolerable situation with you, I'm sure MODEL BUILDER can put up with it!

"Depending on how difficult the details may be, we could pick up the AMA ball as early as our April issue, and certainly in time for the May issue. As some of you know, our lead time is at least a month shorter than the other model magazines, and we publish on the first of the month that is indicated on the cover.

"I plan to be in Santa Ana for the weekend, and will be glad to answer any questions you may have on this matter, should you desire to call me at the office.

"See you at the trade shows.
Bill
William C. Northrop, Jr.
Editor/Publisher"

As you may or may not know by the time you read this, the Executive Council "voted" to accept the proposal made at the meeting, by the Executive Director, John Worth, to establish AMA's own publication . . . not just a membership journal . . . but a full-house newsstand magazine of approximately 90 pages, complete with construction articles, feature stories, industry advertising, four-color cover and ads . . . the whole shot . . . and, oh yes, AMA news.

It is not our intention to editorialize on the pros and cons of this Executive Council decision . . . at least not at this stage. We just hope that level heads will take a careful look at the facts, figures, legalities, and moral considerations of such a move, and if they find themselves in disagreement with the decision, that they will make themselves heard.

CORRECTION

Last month's Old Timer Model plan, Elbert Weathers' "Mystery Man," did not show the balance point or the dihedral. Actually, neither did the original plans, as published in Air Trails.

As stated in the text, the balance point, pretty much standard for that type of aircraft of the time, was 1/3 of the wing chord back from the leading edge, or 3 inches. As for the dihedral, this was automatically determined by the center section construction, to which the wing panels were attached by joining dowels and tubes. If you insist on measurements, the dihedral is 6 degrees in each panel, and the bottom of rib W-3 is 4-3/16 inches above the top of the fuselage at the cabin.

* * *

BULLETIN BOARD

Upon close inspection of Bill Hannan's advertisement, starting with our February 1975 issue, you will note that the mailing address has been changed to Peck-Polymers, P.O. Box 2498, La Mesa, CA. 92041. There is method in this apparent madness.

Finding himself inundated (how about "buried"?) in correspondence, along with orders for his plans, kits, Hungerford spoke wheels, and various accessories, Bill has now combined efforts with Bob Peck, of Peck-Polymers.

Under their new agreement, P-P will be printing and distributing the entire Hannan range of plans, scale drawings, etc. This arrangement will permit "one-stop shopping" for customers to obtain the most comprehensive array of small model products available from a single source.

In addition to extra customer convenience and faster service, this partnership will also provide the much-needed extra time for Bill to get back to the drawing board and research files . . . the better to produce more of his famous scale designs.

* * *

Michael L. (Beach's Flyer, Jan '75 MB) Beach, 41 Church St., Twickenham, Middlesex, TWI 3NS, England writes as follows:

"Dear Mr. Northrop,

Firstly let me say how pleased I was to see the article re "Beach's Flyer" in the magazine I have just received. I am honoured to have it in such a fine magazine. I formed the opinion some months ago that MODEL BUILDER hits just the right balance of articles . . . not obsessed with any one type of modelling, just a readable and informative mag.

"Now perhaps I can raise something with you that I think is VERY important. As you probably know, my main interest now lays in vintage spark ignition free flight, but recently I have been coming to the conclusion that we are missing something very important and that is vintage CONTROL LINE. Now it could be argued that C/L contributed more to modelling than any other new idea. It revolutionised engines, design, and introduced a whole new range of modellers. Could I make a plea through the pages of your magazine for something to be done about it? I would like to try and get together plans, articles, and possibly kits, so that somebody is making a positive contribution . . . we may owe it to history to do this before it is all lost.

"If any model builder has old plans, etc., can they please get in touch with me. Especially want; DeBolt aircraft, Skeeter, Snorky, Super Zilch, Fireball,

Tarpon, P.D.Q., Dreamer, Cyclone, Falcon Sportster, Rookie, Box Car Chief, Challenger, Green Dragon. I will try and collate the lot so that we can have some permanent record. I am getting together English C/L plans, but need all I can from the early spin dizzie days . . . I'm appealing as it all started in the U.S.A. Please can you help!

Sincerely,
Michael Beach."

* * *

According to a note from Randy Price, 2310 Roselawn Dr., Apt. 4, Lebanon, Indiana 46052, the Indianapolis Scale Race Car Club (I.S.R.C.C.) has been in existence for a year and has grown in membership from 7 to 30, at the present. Randy is club secretary, and has started a small monthly newsletter. Any other R/C auto clubs out there that would like to exchange news and views?

* * *

THINGS TO DO

The Soo Modelers Radio Control Club is hosting its annual Upper Great Lakes Aeromeet on Saturday, May 31, and Sunday, June 1, at Sinclair Park, Sault Sainte Marie, Ontario, Canada. Pattern and Scale will be contested. Entry fee for either event is $5.00. Preregistration would be appreciated, but isn't essential. Contact C.D. Jack Mertes, 44 Oregon Rd., Sault Ste. Marie, Ontario, Canada. Above info courtesy of Nino Campana.

The BARFS (pardon me) . . . Butler Area Radio Flying Society, Butler, Pa., is holding its First Annual Tri-State Fun-Fly on June 22. There will be classes for Novice, Intermediate, and Expert in modern, doing loops, rolls, spins, and spot landings. The Old Timer will be combined with Antique, all R/C guided, also doing loops, rolls, spins, and spot landings. There will be trophies, merchandise, and cash awards for all events. Write to C.D. Bill Henderson, 202 Williams Rd., Butler, Pa. 16001 or phone (412) 287-7482. Info sent in by the head BARF (pardon me again) R. Clarence Andre.

HMMMMM . . .

Could it be that there is an Old Timer modeler in the Department of Motor Vehicles, in Sacramento, the capital city of California? The 1975 registration stickers were mailed to car owners enclosed in a small plastic cover, and printed on one side of the cover was a sample license plate showing where the sticker should be applied. The sample license number? 1 SAM 123

C/L . . . . . *Continued from page 48*

is an engine starting and running period, with both engines required to be running at the end of the minute.

Pilots take their place in the center, helpers hold both running models, and launch simultaneously upon a signal by the flight marshal, who is sitting in the circle near the pilots. This is a much better position for him than outside, as he can talk directly to the pilots about procedure and conduct, and keep them centered. All other re-starts are "fair game," as in regular AMA. Four minutes of dual flight time is better than 2 minutes flying with 3 minutes of alternate team prop flipping. Try it, you'll like it!

* * *

James Carpenter, of Massachusetts sent in a drawing for his version of a Ringmaster modified for slow combat competition. I built one to his specifications and like it. Maybe I can work the plan into a future issue. James also does custom fitting and polishing on any .15 to .80 engine. Send S.A.S.E. to J. C. Performance Products, 24 Booth Road, Methuen, Mass., 01844, for the new scoop on this service. Tell him you saw it in MB.

ENGINE CHANGE

We are now allowing use of any .40 in Slow Combat on suction in So. Cal. The actual hull speed of the big long airplanes remains about the same. (You boating enthusiasts understand about hull displacement versus increased power not affecting forward speed), but the greater torque available makes the models less critical to fly. Also, engine choice is greater, since there are more .40's manufactured than .35's.

Brian Fairey of "E'Quipe Canada," 242 Bellehaven Dr., Waterloo, Ontario, Canada, wrote a fine letter regarding F.A.I. team racing. Seems they are developing their own R.A.M. TR diesel up there. Let's hear and see more about it, Brian.

BY THE BY

Anyone who sends in any information on how to do anything at all will probably see it in print here sooner or later. Don't be shy. Usually the simpler, seemingly insignificant bits of wisdom, are the ones that interest most people. Although you can be technical if you want to, I'll find someone to explain it to me. Of special need now is information on speed, stunt, scale and carrier. You might even want to try to top my sarcasm and humor. Don't say it. Put it in writing (it'll stand up in court better).

TEAM RACE TECHNIQUES

With team selection time rapidly slipping upon us, it is time to get down to serious business.

Trying to obtain a steady engine run from start to finish with the small 7 cc. TR tank is a problem that continually causes enthusiasts much grief.

If you stay with T.R. for long, you will discover a mounting collection of tanks that don't work just right. I have a whole box full of them. Just about every possible shape and style has been tried. Some of the very complicated and exotic shapes do what is expected, but if you are just getting started, then you have enough work ahead of you.

I have illustrated three tanks that

work quite well, and are not difficult to duplicate. Dimensions must be followed closely, as a small error will create untold grief. Undersize will cost you laps, and oversize will disqualify you! The tank should be constructed to hold about 6.8 cc., the remaining .2 cc. will be in the fuel lines and filter. Yes, all fuel lines and vents count for total volume.

The first tank is a rectangular uniflow style, with conventional rear side pickup. The uniflow vent must be placed very close (next to) and above the pickup tube to prevent end-of-flight engine variation. The second tank is a forward wedge uniflow style. Venting is the same as for the rectangular uniflow.

The third tank is a small cell chicken hopper. The fill and vent tube and the pickup tube both enter the small cell. A single 1/8 hole connects the small cell with the large (?) holding tank. Care must be taken not to fill the small cell with solder when attaching the tubes.

The fun really starts after the tank is finished. The proper tank position for your engine and model must be found. It is best to just wedge the tank in place with solf block balsa at first, so that movements can be easily accomplished. I will try to over-simplify what happens with various tank positions.

If the tank is set full to the inboard side of the model, the engine will tend to run rich and steady during the flight, but lappage may suffer. As the tank is moved outboard, the engine can be run leaner until a point is reached where it will cut out and possibly die when released. This is due to the sudden leaning out as speed is attained. If the tank is set level with, or below the carburetor, the engine will run lean on the ground and possibly not draw at all in the air. As the tank is raised, the engine will run richer on the ground and in the air until a point is reached where it will not lean out at all, but then lappage suffers again.

You want to try for a position that allows a steady but lean run for best laps, yet does not cut out when the model is released. Have fun!

Movement of as little as 1/16th in any direction will cause noticeable results, as explained. The sensitivity is due to the small volume of fuel in the tank. The same effects occur in other racing events, but because of the larger volumes involved (2, 3, 4 ounces), the tank must be moved a correspondingly larger amount. Also, the number of laps you are getting from your engine will determine how sensitive your tank will become. For 15 to 20 laps you can stick the tank just about any place it will fit. For 20 to 30 laps, tank position will be noticeable. On 30 to 35 laps, it becomes critical, and for 35 to 40 laps, the tanks are really impossible to locate properly.

Tank vent size also causes problems as the amount of available air pressure will greatly affect the feed properties of the tank. Fuel does not compress too much, but air will. Therefore, a small diameter vent is desirable. The best is around 3/32 or 1/16, but start with 1/8 and keep adding telescoping tube restrictors until things work right. An inside diameter of 1/8 is usually too much and 1/32 inside dia. is usually too small, but that is not a hard rule, just a tested suggestion.

And you all thought that tanks were just plain boxes to put Ford's fuel prices in!

TEAM RACE ENGINES

This is the real problem that faces all F.A.I. people. It is even more of a problem in the U.S.A. because we do not use diesels, and no U.S. manufacturer builds diesels. The few European manufacturers that build usable diesels do not export enough of them to the U.S.A. to be readily available. The limited production custom racing engines are not only scarce in the U.S.A. but also in the entire world, usually going only to known competitors. I guess nobody knows who I am yet, I don't have any custom European engines. Besides, the European customs go for $100 plus, which sort of keeps them scarce.

The only two factory diesels generally available are the British E.T.A., available only from the factory for about $50 (address in Aeromodeller), and the Super Tiger, which is usually available from World Engines and some better hobby shops. Both can be made to run quite well, but they will not out-perform the custom hand-built jobs. But what do you expect?

I generally prefer the Super Tiger; mainly because there are so many parts around that will fit them. Although I currently have a good E.T.A. that will run a 4:35 race, my best Tiger turned 4:18 at the Nats, and later 4:16 locally.

It is now time for a commercial folks.

I do special building and fitting of new Super Tiger diesels for T.R. at a

reasonable price. Write to me if you are interested (care of MB). If you would rather do it yourself, and have machining facilities available . . . lathe and mill, possibly a hone (very desirable) . . . then what follows might be of interest. You cannot do this work with a Dremel tool unless you are a real miracle worker.

The American K & B Schneurle .15 can be converted from glow to a very respectable diesel, suitable for T.R., after considerable modification and manufacture of new parts. I hope that my drawings show enough detail so that my work can be duplicated.

The easiest modification is the turning of a nylon insert for the back plate, drilled and tapped 1/4-32 for a Cox venturi drilled out to .120. Also, a Kirn-Kraft needle valve assembly should be used.

Next, the hollow crank pin must be pressed out and a solid 5/32 drill rod pin pressed in and ground to length. This is difficult in itself, as the main bearing is a tight shrink fit on the shaft and also fits tightly in the case. Next, a new rod must be machined, since the stock forged rods do not last too long under the heavier load of diesel running.

The cylinder should be honed lightly to ensure roundness and to straighten it out a bit. I did not do anything to the ports, but then I never do.

The piston should have openings milled into the skirt to match the bypass openings in the bottom of the sleeve. Also, the boost port opening is drilled open slightly. I also lap and polish the piston crown flat and smooth.

The final touch is a two piece head insert with a squish band and a movable contra-piston. This insert must be machined very carefully so that no compression leakage occurs. I know nothing about metalurgy, so I generally use any kind of brass I can find at the salvage yard. I have also used grey iron, copper, and even aluminum for the head inserts. Most anything seems to work if you make it fit properly. A very tight press fit is the best I can say, since I do not understand about interference fits. I just keep polishing with emery until it works.

The final item is a head piece to bolt the whole works together. My final K & B conversion runs 92 mph for 35 laps and starts reasonably well. Its best competition time is 4:40. If you are working with team racing, send in any information you have and I will pass it on to other readers.

The following is a list of some known suppliers of F.A.I. team race components:

Paul Bugl, Model Motoren, 8501 Moosbach 164, West Germany – (Bugle Team Race Diesel Engines.)

Alan Cooper, Team Race Components, Top Road, Hardwich Wood, Wingerworth, England – (Circular Bellcrank, Wheel Hub, Leg and Clamp, Finger Valve, Spinner Nut, Tank Mounted Cut-off/fueling valve.)

Gunter Schwartz, Tec Team Race Equipment, 7145 Markgroningen, Ludwig Heyd Str. 6, W. Germany – TEC Refueling and shut-off systems, TEC Motor Accessories, TEC T/R Model Accessories.) ●

* * *

FLASH!

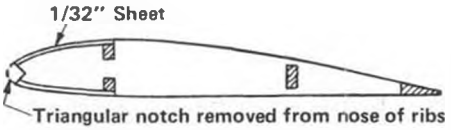
WAM has accepted coupled or tied lines in speed events for 1975!

* * *

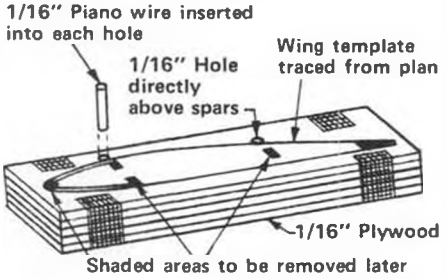
F/F Scale . . . . *Continued from page 37*

Let's take a parasol wing design as an example (the upper wing of a biplane would be similar). In this case there would be four butt ribs.

I cut out five rectangular pieces of plywood and use the fifth piece for the rib template. This, of course, will be used as a pattern to cut out the wing rib. On this fifth piece of material, the wing rib is traced from the plan. These five pieces are stacked on top of each other with the drawing of the rib on top. Tape these together.



Directly on top of each spar location, I drill a 1/16 hole, using a drill press. When these two holes are drilled, I insert a short piece of 1/16 piano wire into each. Now the tape is removed and the ribs are cut just along the outside edges with a jigsaw, and carefully sanded. The piano wire holds the material securely while being cut, and later becomes a guide for the wing/tube alignment. The rib template is removed from the stack and cut to its final form. That is, the spar and leading edge notches are cut out and trailing edge material is removed.



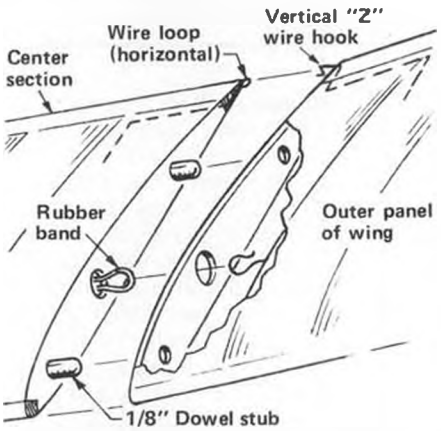
Take two of the butt ribs that will be used on either side of the center section, and locate and drill a 3/16 hole somewhere between the two spars. The butt ribs on the root of the wing panels will carry hooks in this same location to provide for a rubber band that will be stretched from wing to wing.

When the wings and center section are completed, the butt ribs are glued to the root ribs. The holes in these will locate the tube and wire plug-ins. The holes in

the center section above the spars will have to be enlarged to 3/32 inch to accomodate this size aluminum tubing. The wings carry 1/16 piano wire, glued and wrapped to the spars with thread for added strength. These in turn plug into the tube in the center section. Finally, there is the small hook on each wing root where the rubber band is secured.

This method is relatively quick to construct and is neat in appearance, and if the knock-off feature is sacrificed, can be used, with longer tubes and wires for self-supporting wings.

One variation of this system is used by top scale modeler, Jack McCracken. Jack installs a very small wire loop at the trailing edge of the center section of a wing or on the fuselage (depending on where the wings are attached). On the wing's trailing edge, he has a small "Z" shaped wire (see illustration). This "Z" shape wire is inserted into the loop and becomes a pivot point. Instead of wire plug-ins, Jack uses short stubby 1/8 inch dowels. The location of the rubber band which holds the two wings together is either in front of the forward spar or immediately behind it. The wings are then able to swing back on impact, but are restricted from swinging back to the point where the trailing edges could be smashed. Incidently, the loop and the "Z" shaped wire are small enough that they go unnoticed.



Most commercial plans and kits of scale models have very wide trailing and leading edges, and wing tips. Leading edges, if done correctly, would probably be close to scale since many, if not all, fabric covered airplanes have aluminum wrapped around the nose of the ribs. However, this is usually not the case. Most often, the model merely has heavy rounded off stock for the leading edge.

My starting point for wing building is to make a tag board template of the trailing edge and tip portion of the wing, cut 1/8 inch undersize. I then laminate the trailing edge and wing tip as one unit, using the appropriate size basswood. (I've gone into the merits of laminating and basswood so often that I won't go into it again.) For a gas model of 30 to 44 inch span, I will use four laminations of 1/32 x 1/8 material. These are soaked in water. After soaking, they are then glued together, taped to the template, and pinned down flat to dry. This system is the only one I use for all my models, whether they are Peanuts or gas models. It is strong and light and far more realistic than what is usually shown on most plans. This method is particularly suited for elliptically shaped wings like the venerable Spitfire.

When the laminations are dry, I sand the trailing edge portion completely. This saves much time and is easier to do now than when it is on the completed wing. I then pin it down on the plan, using a straight edge against the trailing edge to insure accuracy. As far as the leading edge is concerned, I prefer using the method that has a traingular notch removed from the nose of the ribs. (See illustration.) When the wing is completed, the leading edge is sanded round with little difficulty. This system also lends itself to sheeting, with little difficulty.

The wing ribs are individually cut out (usually from 1/32 sheet) using the template previously made. The question may arise as to how the wing tip ribs are made using the same template. The way I do it is simple and quick, and can be used for tapered wings as well. I'll take a regular size rib and cut the back of it to the exact length required. So that the trailing edge portion of this rib is the correct size, it must be marked for the same

height as the front portion of the trailing edge. Next, lay the template directly on the top of the rib, with the two leading edge notches in line with each other.

Pivot the template down toward the mark at the rear of the rib and cut along the top edge of the template. All of the remaining tip ribs are done the same way, then glued into place. If there are any irregularities (there shouldn't be) a little sanding when the wing is finished will take care of it. Semi-symmetrical ribs are treated the same way. Pivot down for top surface, and up for bottom surface. Many full size aircraft wings taper in thickness from the bottom up, or from both top and bottom. Trim accordingly. When the wings are finished and sanded you will notice how realistic they look, and they will also be light and strong.

I certainly hope that these suggestions will be useful, because I know how dull wings can be to make. *(Fine way for a biplane modeler to talk! wcn)* ●

**Counter . . . . . ** *Continued from page 6*

in mind that the material will not fill a gap or provide a fillet. Neat fitting joints are a must to take advantage of its qualities. It is colorless, and dries to an invisible joint in seconds, when spread to a thin film. Incidentally, nitromethane is a solvent for Super Glue . . . but try it on someone else's stuck together fingers!

* * *

Tatone Products, 1209 Geneva Ave., San Francisco, CA. 94112, is offering a new series of prop spinners molded in red, white, and black nylon. Made in two pieces, the nose cone is held to the rear base with two machine screws which run into brass nut inserts. Pin guides and alignment grooves are also molded into the spinners to allow quick and accurate assembly. Sizes and prices are as follows: 1-3/4, 2, 2-1/4, and 2-1/2 inch diameter for $1.75, $1.85, $2.00 and $2.25 respectively.

* * *

As mentioned in Walt Mooney's Peanut article this month, Mike Taibi, whose last name sounds kinda familiar, according to Sal, has formed Superior Balsa Co., P.O. Box 8082, Long Beach, CA. 90808, phone (213) 421-3935. The new company specializes in high quality, straight grained balsa strip and sheet . . . and good news for the Peanut and indoor flyers . . . can supply 1/64, 1/40, 1/32, and 1/20 x 2 sheets, and also 1/20 x 1/20, 1/32 x 1/32, 1/20 x 3/32, 1/20 x 2/20 (1/10), and 1/20 x 1/8 strips, in addition to the more conventional and larger sizes of sheet and strip.

Send SASE for catalog sheet. Manufacturers inquiries are invited. ●

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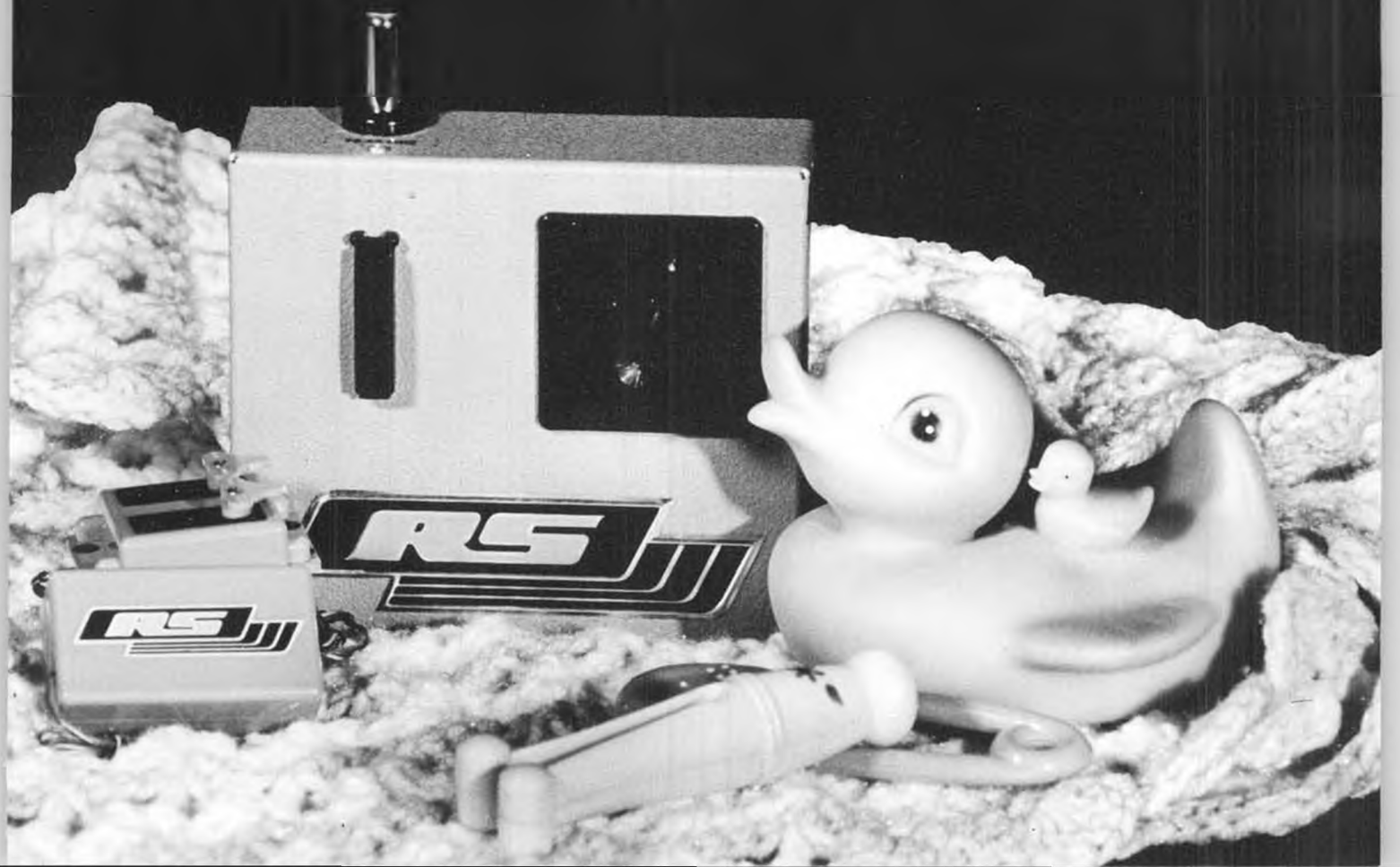

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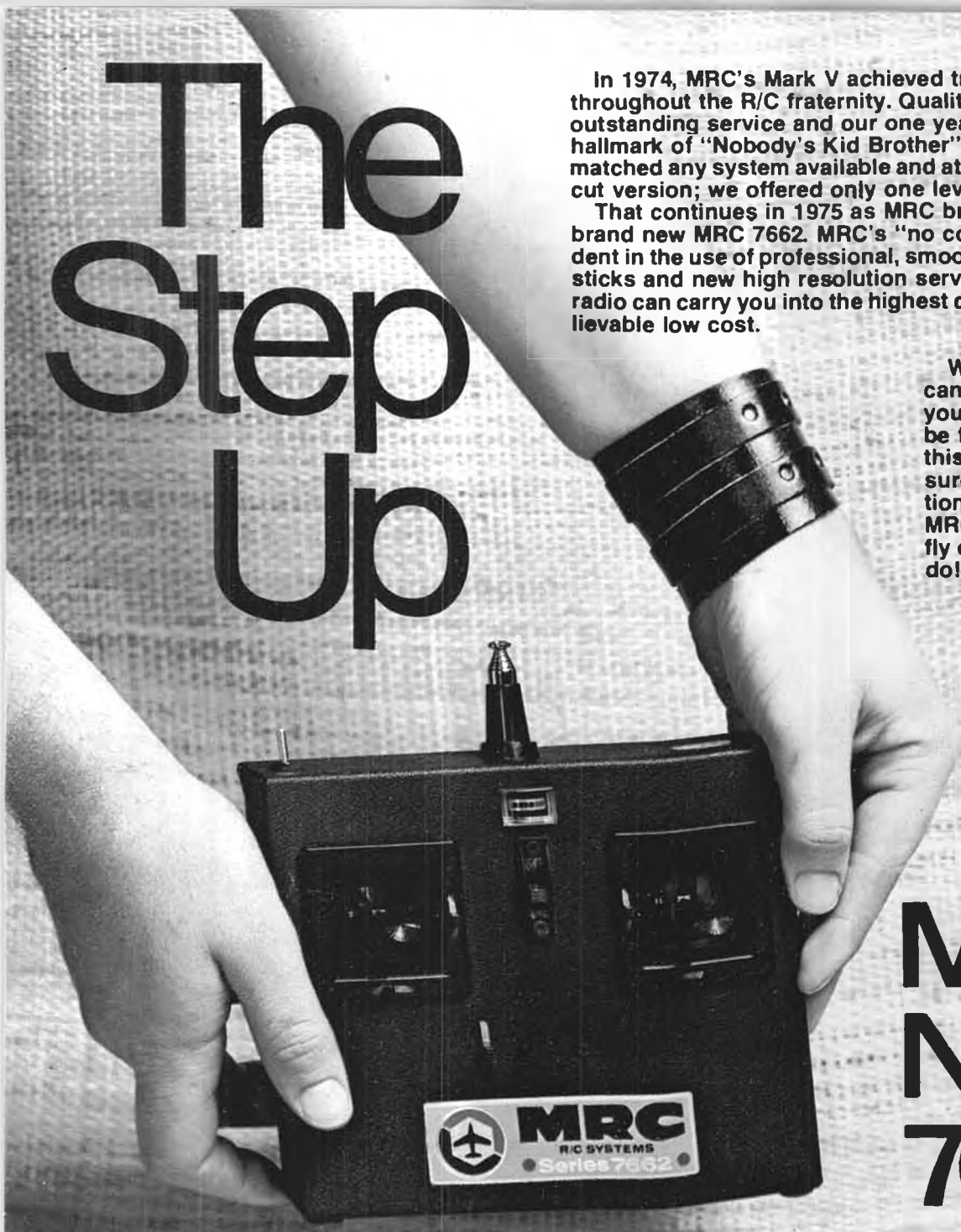

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