MODEL BUILDER

JULY 1975

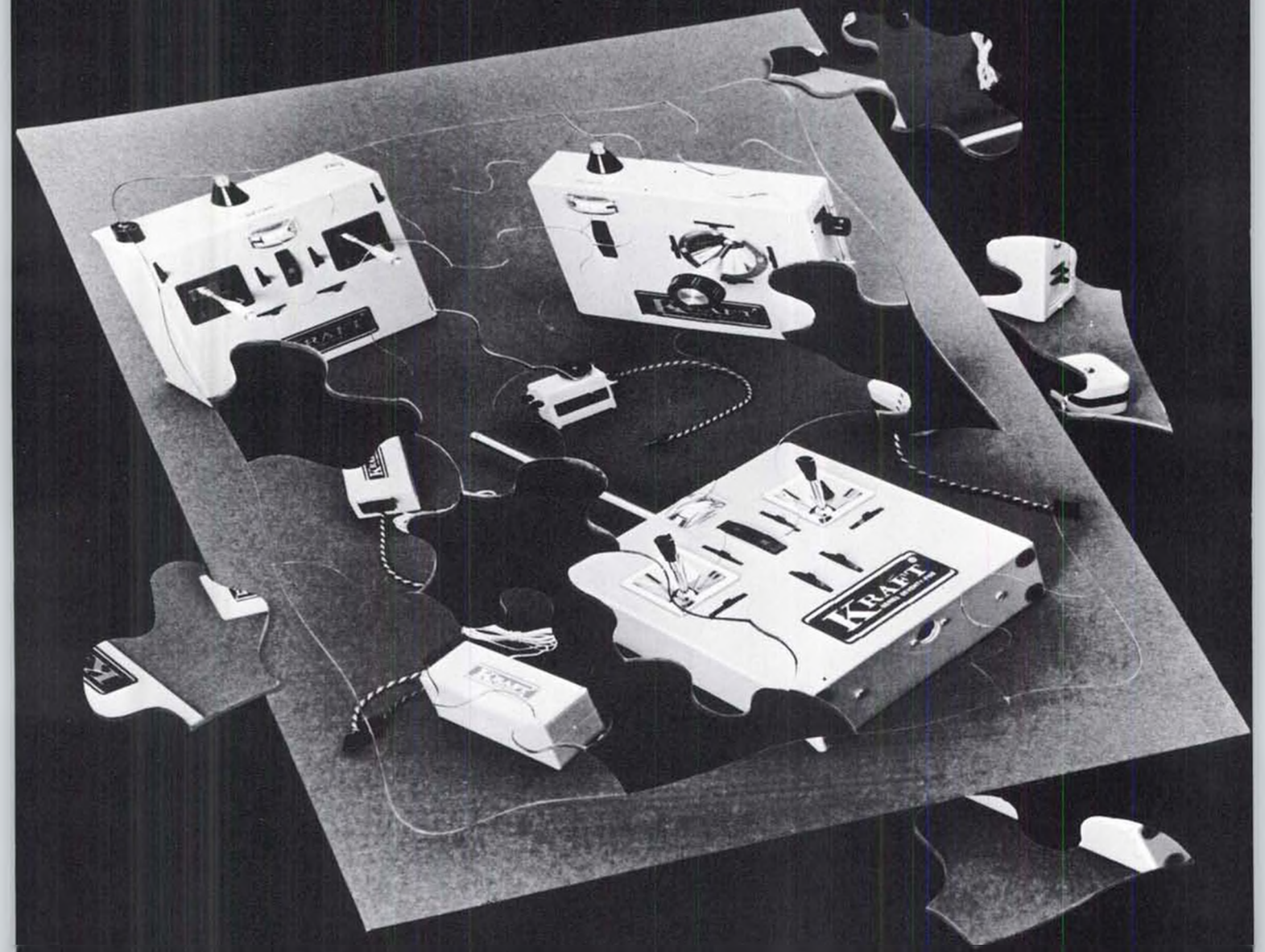
volume 5, number 43

$1.25

FLASH ! 1975 NFFC WINNERS Page 49

PUZZLED?

If you are new to radio control you may wonder how the pieces fit. Our free catalog will help you solve your problems. It provides details on the industry's most complete line, offering the best value in every price range and backed by our unapproached reputation for quality and service. Simply stated, you can't go wrong buying a Kraft product.



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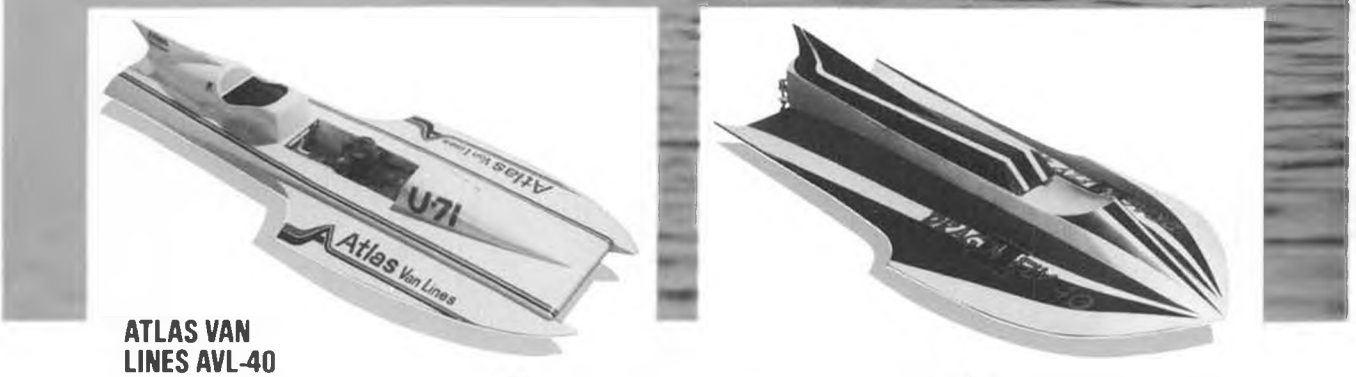

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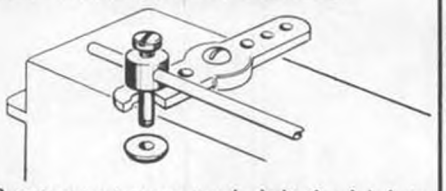
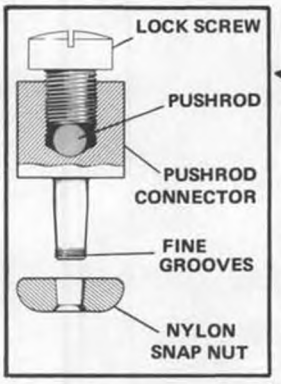
PUSHROD CONNECTORS





Once again, a CG accessory turns a tough, irritating job into a breeze! Our new Pushrod Connector requires NO SOLDERING or PEENING! Tough Nylon Snap Nut snaps easily over fine grooves, yet requires a knife blade to pry it off. Can be re-used over and over. **PC1, 2 sets 98¢**

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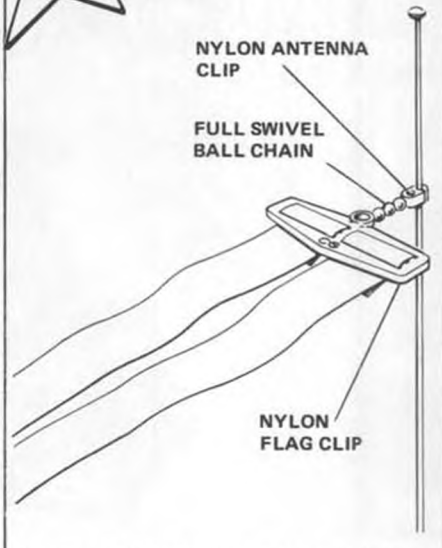
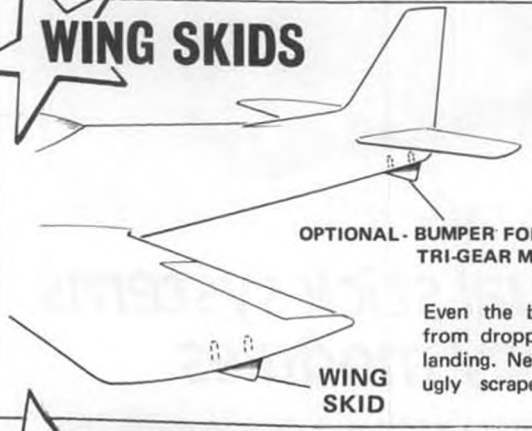
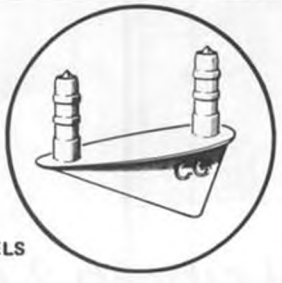


At last, really effective and beautiful frequency flags! Your choice of 7 popular color combinations. Nylon clips are joined with full-swivelling ball chain for free action. Antenna clip allows full collapse of thin final antenna segment to prevent damage. See your dealer! **FF1 98¢**

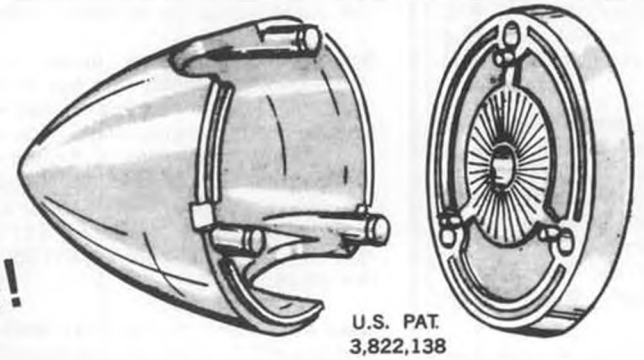
WING SKIDS

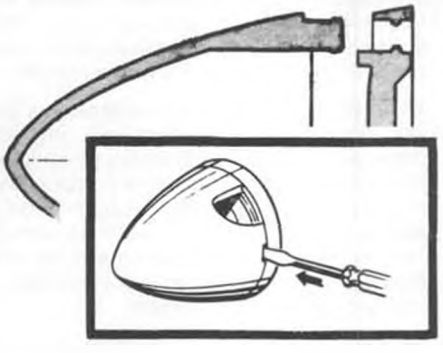




Even the best of flyers can't keep gusty winds from dropping a wing tip to the runway while landing. New CG Nylon Wing Skids help prevent ugly scrapes and scratches. Simple to install. **WS1, 3 for 50¢**

NEW "SNAP ON" SPINNERS!





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For best service, see your dealer for items you want. If not available, write direct, add 50¢ per item ($1 outside U.S.). Minimum order $1.

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I am sending 25c for 8 pg. illustrated Catalog with Basic Explanation of R/C Equipment and Radio Control Definitions

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the instant way to change frequencies

New 5 & 8 channel single & dual stick systems have 17 plug-in frequency modules.

No more wasted flying time, standing around at the field waiting for your frequency to open up. With Heath's new GD-1205 and 505 Pack-17 systems you can operate on *any* of the 17 R/C frequencies with just one transmitter and receiver. Just plug the Pack-17 for any open frequency into the transmitter and receiver. In an instant, you're ready to fly.

All Pack-17 transmitters and receivers are compatible . . . you can even interchange frequency modules. And you'll enjoy these deluxe features as standard equipment . . . 4 of the channels have trim adjust, relative power meter, trainer-link socket, nickel-cadmium batteries for transmitter are included, plus a charger that handles all batteries simultaneously. The great new receiver has full 8-channel capability and uses Pack-17 modules. The new servos have stronger cases, sturdier gearing, and gold-plated contacts.

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Save even more on complete systems. $44.70 on 5-channel systems with modules for one frequency and $49.60 on 8-channel systems with modules for two frequencies. All four systems include the receiver battery pack.

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MODEL BUILDER

JULY

1975

volume 5, number 43

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

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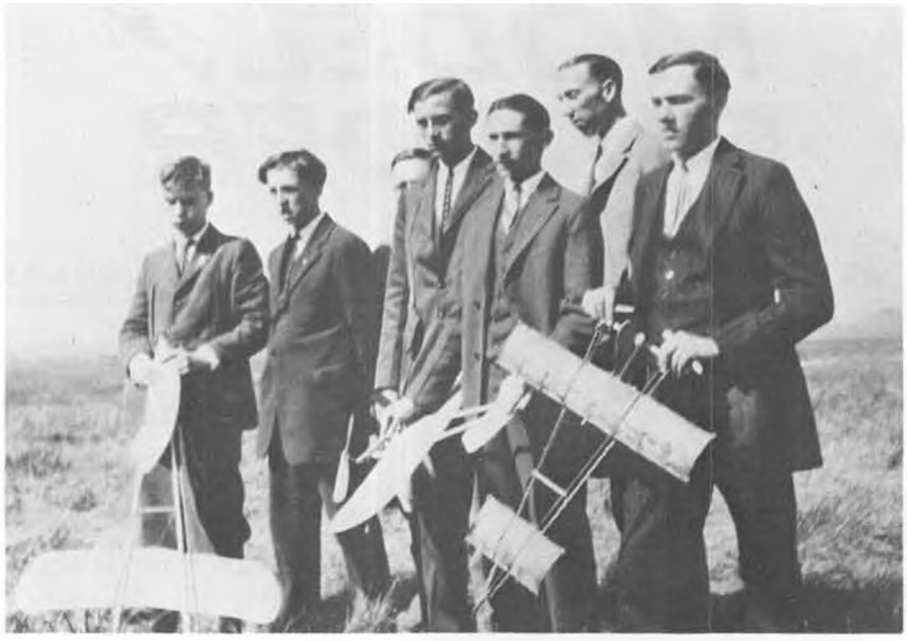
CONTENTS

CONSTRUCTION

SCALE VIEWS

FEATURES

Cover: The tension and excitement of F/F night flying is caught in this photo by Taylor Collins during the 1975 Memorial Day Weekend National Free Flight Championships at Taft, California. Randy Secor, a Senior, and '74 Nats F/F Category Champ, as well as '74 NFFC Sweepstakes winner, launches his ST .46 powered Tarter (a 1975 Ten Models of the Year winner designed by Red Johnson) as Vic Cunnyngham, Jr. supplies the ground illumination. Strobe flash stopped the action, but the slower camera shutter picked up the airborne light bulb as a streak, just behind the '7' in Randy's license number.



Some contestants at the really first Nationals, held in 1923, not 1928. Jack Laughner, far left, later won the Nationals in 1926. Third from left (only his forehead shows) is Merrill Hamburg, and the second from right is Major R. W. "Shorty" Schroeder, an NAA contest committee member, and a great booster for model aviation. For more info see text on Bert Pond's comments.

from Bill Northrop's workbench

• Though you won't be reading too much about it in the other model magazines, the country's largest and oldest model airplane meet, sponsored by the publishers of "MODEL AVIATION," will take place in Lake Charles, Louisiana, August 4 to 11, 1975. It is to be the 48th in a row . . . or is it? Considering some of the sponsoring organization's actions in recent months, nothing should come as too much of a surprise, but try this one on and see how it fits: The American Muddling Association claims that this national contest has been going on since the "first" one in Detroit, 1928, yet the big event actually took place for *five years previous* to that, starting in 1923!!

In a letter sent to this editor in 1972, Bert Pond, a well known Old Timer modeler from Longmeadow, Massachusettes, states that the Junior Flying League of the National Aeronautic Association, in conjunction with the 1923 International Air Races, St. Louis, Missouri, held the Mulvihill Model Trophy Duration Race for model airplanes on September 30, 1923! An Edward Lange was the winner, and Bert himself, placed third.

To support all of the above, Bert sent us Xerox copies of rules, contest committee reports, contest announcements, prize list, a program, and a contestant's pass. In the Contest Committee report for the fiscal year beginning Oct. 3, 1923, the N.A.A. stated that Mr. William B. Stout had offered a trophy for R.O.G. models, and the first contest for this trophy was held in Akron, Ohio.

Continued on page 82

This would have been a great "mystery modeler" photo if it hadn't been for the rather large addresses on the boxes. See text for "Hardly's" run-down on free flight at the Nationals.

No. it's not Pop Art. Read about "Suds City Soar-In," co-sponsored by Old Milwaukee.

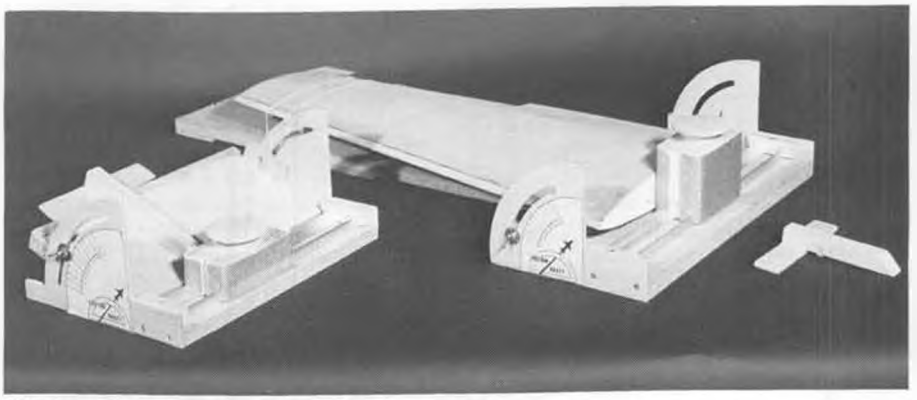
OVER THE COUNTER

• Jim Crocket Replicas has added three new items to its ever-expanding line of handy hardware for free-flighters. Crocket's offerings include a cast aluminum flood-off switch bracket. The aluminum bracket bolts to an engine mounting lug. A monofilament "lasso" passes around the fuel line and connects to the flood-off timer. When the timer releases, the tension on the line is relaxed, flooding the engine. This clever bit of hardware was designed by Dave Parsons, of the Oakland Cloud Dusters. Crocket has also introduced a cast Jetex 150 mounting plate. This unit is threaded to accept the Jetex mounting clip, and one side of the flat plate is "dimpled" heavily to assure a good bond with epoxy. A lug is provided to allow attachment of a safety wire. The third new item in the Crocket Replicas line is a package of ten stainless steel coil springs. These small springs should find lots of usage by tinkerers in all phases of modeling (not to mention saving the usefulness of the family ball point pens).

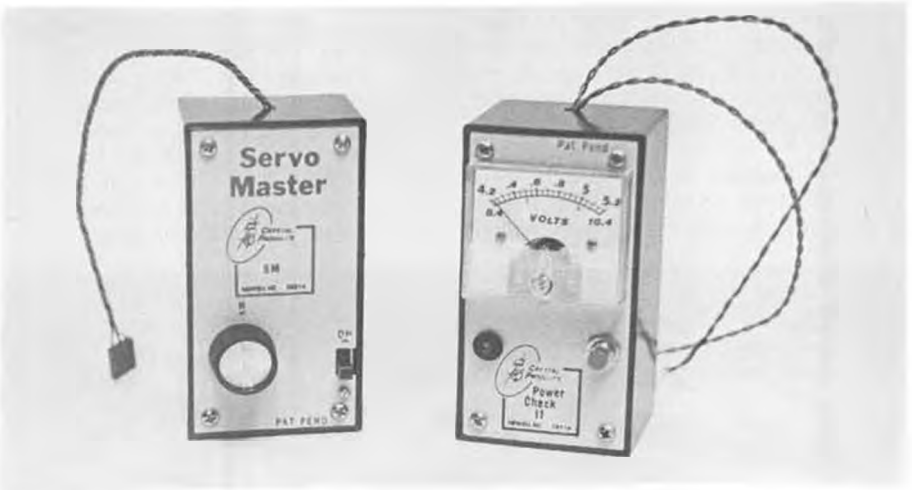
The CR-120 Flood Off System Kit retails for $.80. The Jetex 150 Motor Mount kit, CR-123 sells for $1.50, and the CR-124 Stainless Steel Springs sell for $1.00. All are available from Jim Crocket Replicas, 1442 North Fruit Ave., Fresno, California 93728, or your local hobby dealer.

* * *

Kraft Systems, Inc., 450 West California Ave., Vista, California 92083, at

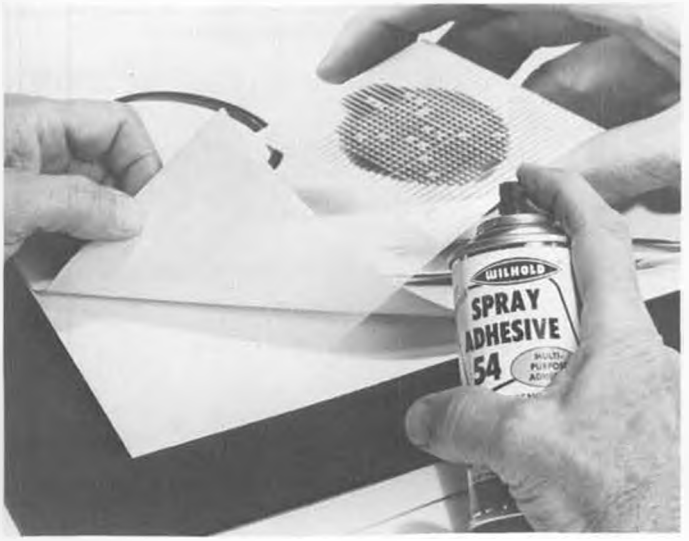


"Amazing Miter Sander" by Custom Craft Products.



Servo Master and Power Check II by Crystal Products.

Wilhold's Decorator's Glue for arts and crafts.



Spray Adhesive 54, by Wilhold Glues, Inc.

Stainless steel springs for all uses, by Jim Crocket Replicas.

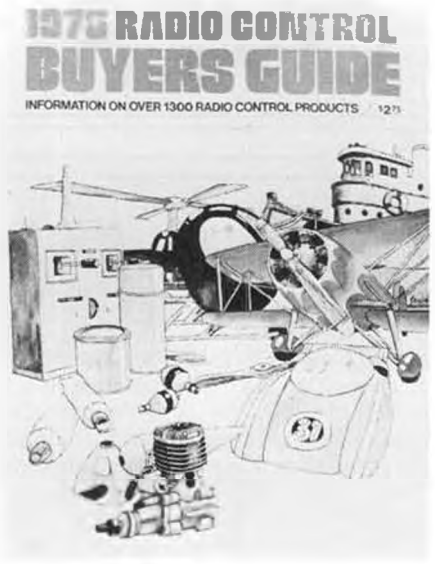
long last has their Schnuerle ported R/C .61 engine available. Billed as the most powerful R/C engine available, the Kraft .61 comes complete with muffler. Weight of the ball bearing engine, with muffler is 18 ounces. The specially designed carburetor is equipped with twin needle valves to control high speed and idle independently. This feature provides smooth running and linear throttle response at all speeds. Introductory price for the engine is $99.95.

* * *

Gene Thomas Studio, producer of the 1-1/2 inch to-the-foot and Peanut scale planes for the Heath Baby Bullet, is now offering a twelve page documentation booklet on the Baby Bullet. Gene Thomas really did his homework on this one! The booklet is jam-packed full of reproductions of factory drawings, flight manual drawings, and a complete history of Edward Heath's famous racer. There are many excellent photographs of the plane, showing different paint schemes, and construction details. The center spread drawing, which shows several different versions of the aircraft, is also available as a brown ink on buff stock print. The quality of Gene's artwork is such that this would make an excellent wall hanging. Also included in the booklet are reprints from Aero Digest and the Modern Mechanics Flying Manual. The booklet will retail for $2.00 plus .25 postage. The center spread print is $2.00 plus .75 for First Class postage (mailed in a large diameter tube) and both are available together for $4.00 (First Class postage included). The booklet makes interesting reading, even if you don't build a model. The booklet and print can be ordered from Gene Thomas, Thomas Studio, 16 Scott Drive, Huntington Station, Long Island, New York 11746.

* * *

LSD usually refers to a turn-on or a high . . . in this case, you get "turned-on" to getting "high" with an LSD Ornith sailplane. This 138 inch scale soarer is being imported by Windspiel Models, 835 Piner Rd., Santa Rosa, California 95401. The deluxe kit for this 1/5 scale reduction of the full size bird includes an epoxy resin fiberglass fuselage, pre-cut

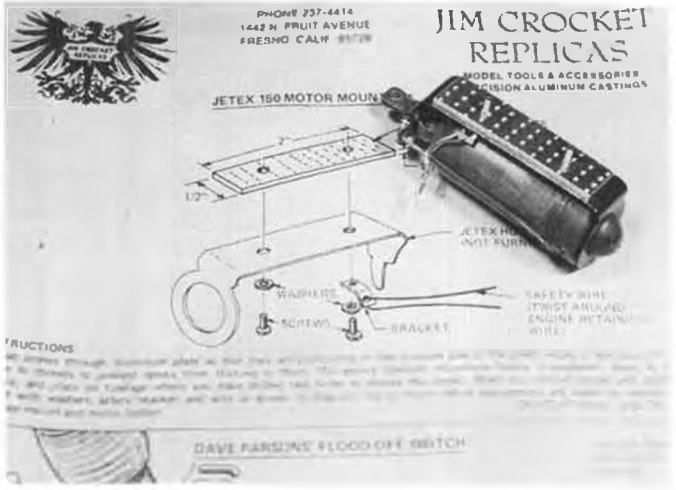


Buyer's guide has all R/C items.

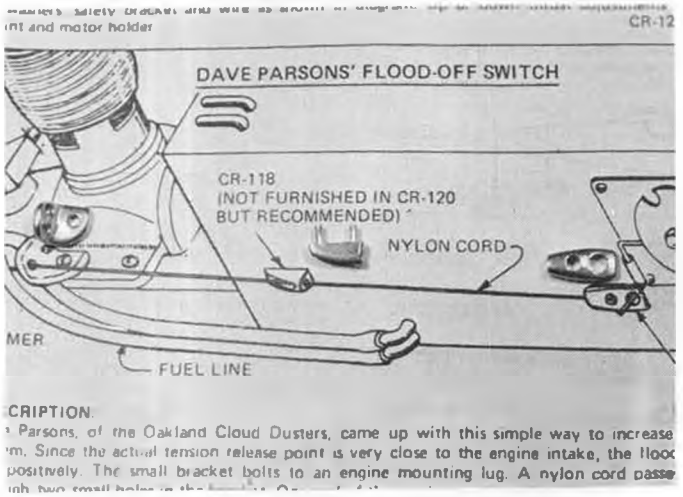
ribs, and all necessary hardware. The plane can be flown with two channels operating elevator, rudder and coupled ailerons, or the modeler can go "full house" and add spoilers, flaps, releaseable water ballast, and releaseable tow hook. You can also add all scale cockpit details. Provision for all of these items are shown on the plans. The progressive airfoil changes from an Eppler 392 to an NACA 3412 at the tip. The mid-wing configuration with ailerons has no dihedral on the ground. In flight the wings flex to provide about 3° dihedral. Unfortunately, we did not get a picture in time for this issue . . . (Whoops! It just arrived!) Retail price for this superb scale soarer is $150.00.

Windspiel Models is also importing from Japan a Strobo-Flasher unit for night flying use. This is a true "strobe" type light, similar to the lights used on full size aircraft. Powered by two AA pencell batteries, the two strobe bulbs are very bright when covered with their colored transparent housings. With the housings removed, the light is nearly blinding. With fresh batteries, the flash rate is about once per second. The 4 ounce weight of the complete system is

Kit for the LSD Ornith is imported by Windspiel Models.



Jetex 150 Motor Mount by Jim Crocket Replicas.



Cast and polished aluminum parts for flood-off switch, by Jim Crocket.

Hi-Start reel from Craft-Air.

"light" enough for most any R/C model, and most larger free flight models. The flash oscillator and connecting wires are shielded to prevent radio interference, however, the manufacturer recommends that the leads be kept away from the radio receiver antenna. The system consists of three parts . . . the battery pack, the oscillator, and light tubes. One strobe light unit may be used by itself to save weight.

* * *

With the advent of the ultra-high performance racing engines that are so common to control-line and R/C pylon racing, ear damage is becoming a grim reality to modelers. To alleviate the problem, Aerotique, 19900 Ingersoll Drive, Rocky River, Ohio 44116, has made a series of "ear inserts" available. These soft molded plastic plugs are good in protecting against hearing loss from overexposure to noise in the 90-110 decibel range . . . that includes screaming model engines, as well as anything louder than a subway. Aerotique stocks a complete range of safety equipment for modelers, including helmets, face shields, goggles, and respirators.

To get a pair of ear plugs that will be effective, they must fit. To get ones that fit you must know the size of the opening in your ear. To measure this you need an ear gauge. Naturally, Aerotique offers just such a gauge. Kind of a one shot item you say? Not true . . . after you've measured the opening in your ears, the molded nylon gauge serves as a dandy fillet forming tool! The different diameter balls can be used to smooth epoxy and other filler materials into smooth, uniform fillets. Just pick the radius you want and run it over the fillet. The nylon material is easily cleaned . . . Make sure you do. Who wants epoxy in their ears?

* * *

Wilhold Glues, Inc., 8707 Millergrove Dr., Santa Fe Springs, Calif. 90670 has introduced a rubber based spray adhesive which is ideal for use in sheeting foam wings. Wilhold Spray Adhesive 54 is sprayed onto the foam in one heavy coat. The wing skin is then pressed down while the glue is wet and tacky. This will produce a lightweight permanent bond.

Still another handy adhesive from Wilhold is their Glu-On Fixture Adhesive. This heavy-base contact cement type material is useful for gluing servo rails and bulkheads into fiberglass fuselages. Unlike most epoxies, this Glu-On material is fairly flexible and shock resistant. Glu-On is completely waterproof, and will bond to most any material, including metals, fiberglass, and wood. It should be most handy for boaters and car enthusiasts.

* * *

The 1975 Radio Control Buyer's Guide features pictures, descriptions,

The Kraft 60 R/C Schneurle ported engine.

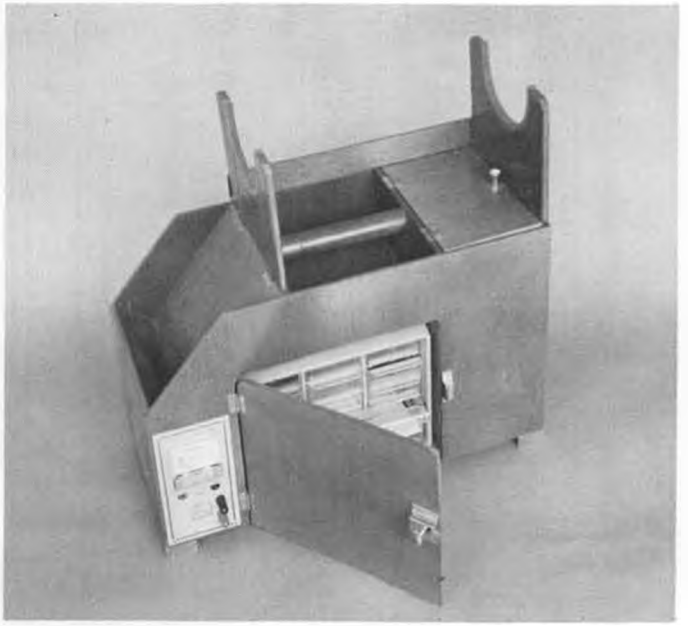
and suggested retail prices of more than 1300 radio control model products. Categories include: radio equipment, tools, model airplanes, powerboats, sailboats, cars, helicopters, engines, finishing materials, hardware, accessories, and much more. The 168 page catalog is available for $2.75 at better hobby stores, or for $3.00 postpaid direct from: Radio Control Buyer's Guide, Suite 210D, 8001 Forbes Place, Springfield, VA 22151.

* * *

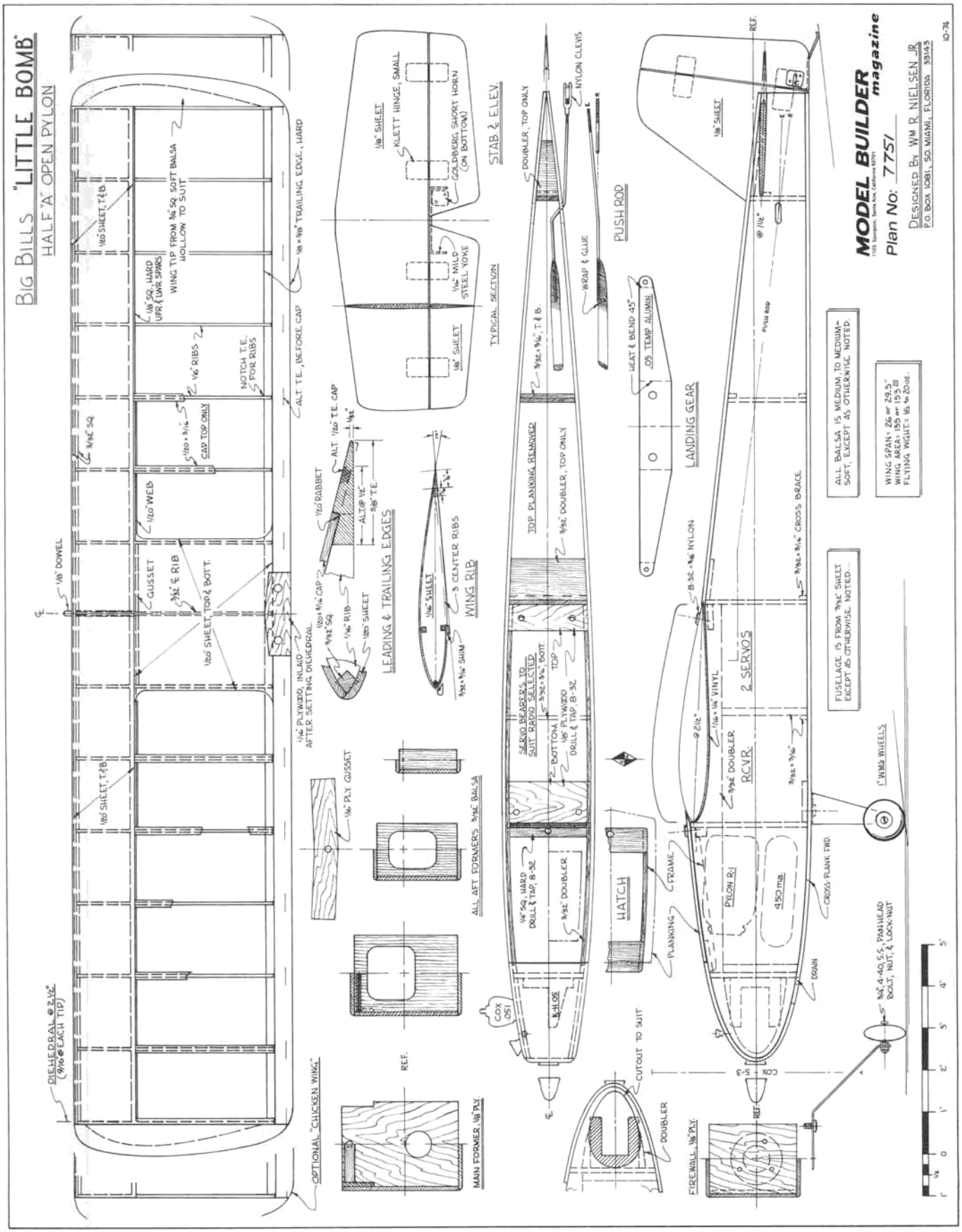
Aer-O-Scale, P.O. Box 3413, Granada Hills, California 91344, offers a brochure for 25 cents, which features greatly reduced reproductions of the company's scale aircraft plans. According to the brochure, and where noted, some of the plans are scaled from actual aircraft, and dimensions have been measured and verified. Other material is based upon best available scale data. As they appear in the brochure, the plans are highly detailed and indicate suggested construc-

Continued on page 79

Ear plugs sold by Aerotique allow normal conversation, yet stop harmful noise. Measuring device assures exact fit.



Versatile field box by Crystal Products.



FULL SIZE PLANS AVAILABLE – SEE PAGE 88

How to make a Cox .049/.051 look big . . . put it in a small airplane!. The fuel line looks like a smile on "Little Bomb."

LITTLE BOMB

By Wm. R. Nielsen, Jr. . . . If you want to give Half-A Pylon Racing a try . . . and you really should, here's a fast building, fast machine for minimum wing area rules. There's a bigger wing if you have some doubts . . . .

• Most modelers are by now familiar with the most well known of Murphy's laws, "Anything that can go wrong will go wrong." Few realize that Dr. Murphy, after intense study and lengthy application, went far beyond the simple basics for which he became so famous.

One of Murphy's lesser known laws is especially applicable, as well as intriguing. This law states, "Man, at some stage of his existence, is INVERSELY related to HIS PHYSICAL MASS." This is the only logical explanation to Jack Spratt, who could eat no fat, while his wife could eat no lean; the little guy with the monstrous car; and the Midget who builds the ten foot models.

Being a rather massive beast, I find myself especially susceptible to Tiny Toys, and .049 models seem to be a growing weakness (my wife calls it "obsession").

Advantages of the weakness (obsession) are that at least the smaller models are less expensive to build, require less construction time, and are less likely to receive damage in a poor landing. If you can avoid tearing them up, they also require far less storage space, and use little fuel. They are, however, more difficult to fly than their larger brethren . . . and possibly even more fun.

Here in South Florida, where we fly year 'round, we hate to spend too much time building, so small airplanes seem a natural answer. I have been flying these things for several years, and finally managed to interest some of my buddies in joining the class activities. We call this Class "1/2A" Open Pylon and it not only challenges building and flying skill, but is also exciting to the spectator as well as the flyer, with little hazard to either.

Okay, so we need RULES. Well, we have 'em and we follow them to the letter!!!

Rule One: No engine shall exceed .051 cubic inches.

Rule Two: Aircraft must R.O.G. (Rise off ground).

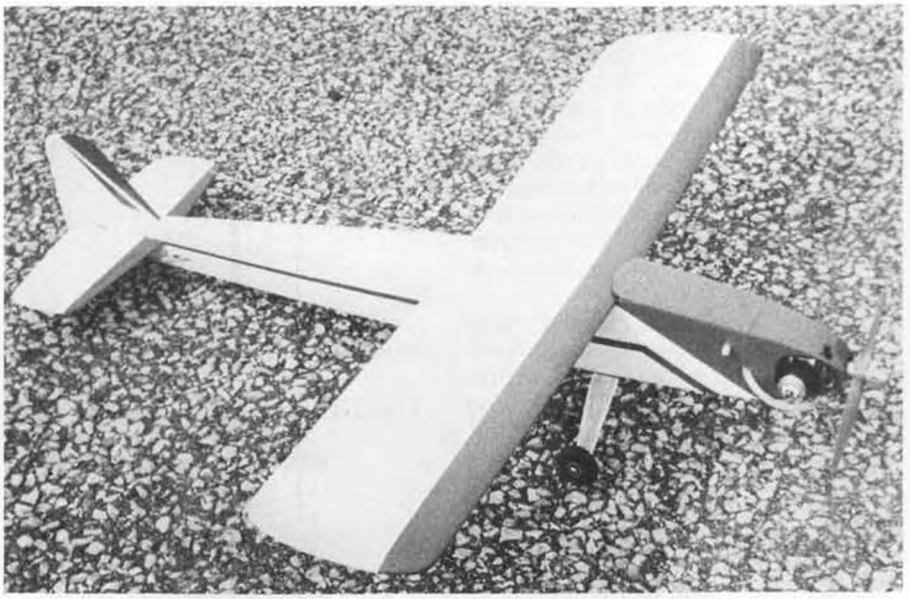
Rule Three: Aircraft must remain *reasonably* intact throughout the heat.

The present course is two-thirds that of Quarter Midgets. We may increase this to three-quarters, as it tends to get a little tight at times, but then, since it adds to the fun, why change? Excitement is what we are looking for, isn't it?

Herewith are plans for one of these little beasts. You will notice they show a wing with optional panels (Chicken Wing) for a less sensitive machine, but hardly a docile one. The shorter wing is for the more practiced flyer, and the smaller radios. It is for the guy who wants things to MOVE, and it will! It will also snap, roll as though with ailerons, spin, fly inverted, and about everything else except knife-edge. All this on only elevator and rudder!

Fuselage construction is simple; a basic box with formers, and pretty much standard. Noteworthy exceptions should be considered. After cutting out the

Continued on page 58



Clean and simple lines of the "Little Bomb" are evident in this overhead shot. Long tail moment and forward balance point assure solid, groovey flight path . . . essential in racing.

How to Race and Place a Slow Airplane

By DANNY DOUGHERTY

FLASH!! ROSSI .15R/C NOW LEGAL FOR QM PYLON ! ! !

• Read the title again. Isn't that what we are all trying to do? Every day someone finds a way to go faster. We are all racing slow airplanes. What I am going to present here is a system to win. The system is one that has moved me from a consistent non-finisher to a third place, QM trophy at the Nationals in '74. The basic ideas should be of some help to all racers. It is not the ultimate, or I would win all my races.

The ideas have come from a lot of fellas at a lot of races. The key to winning is not speed, but consistency. How many really fast planes finish consistently? Very few. What hurts them? Most win every race they fly, but, they don't fly every race. You can capitalize on consistency to put your plane in the money at the Nationals and other races. The best time at the Nationals was 1 minute, 47 seconds. My best flight for two days was 2 minutes . . . I was flying a slow plane.

Let's freeze your plane design and type of engine . . . we will work on *how* we race, not *what* we race. We work hard at our jobs, but sometimes we do not use the same care and thought at our hobby. You may say, "But it's only a hobby!" You're right but you want to win or you wouldn't be reading this article. We hobby for relaxation and enjoyment. Do you remember how relaxing and enjoyable it was the last time everything went right at a contest? Proper preparation can make all our contests like that.

Let me quote the master, and one of the founders of QM racing, Austin Leftwich, who raced Formula 1 quite successfully before QM. He says, "You gotta get around ten times, outside, every race, to win, and forget about going faster." He is the thinking man's racer and most of the preplanning ideas to follow are his.

Remember we are using what you have now. Stick with it. Do not change airplanes or designs until you get everything you can from it. If you crash, build another like it. Why learn a new machine? You know where the last one was weak . . . beef it up. You know where there was extra weight and material . . . take it out. You know the "feel" of how it flys . . . don't throw that experience away. Anything new should be suspect unless it solves a known problem. Let the other fellow sort out his shiny new plane while you are making ten laps outside with "ole reliable."

Rule No. 1: Solve your problems at home. Do not race with a known problem. Set your idle at home. Adjust only slightly at a race if you have a change due to climatics (temperature and humidity).

Technical Tip No. 1: Super Tigre .15's do not idle with a loose baffle. It must seal. Light sanding of the brass throttle bushing will retighten a loose baffle. See Figure A.

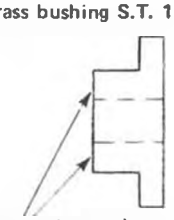
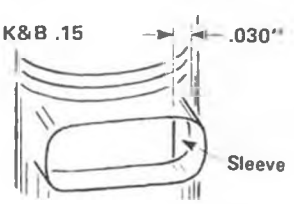


FIGURE A



Technical Tip No. 2: According to Mr. Brodbeck, K&B missed the boring of the ports very slightly on the sleeve of their .15 Schnuerle. To achieve a reliable idle, the sleeve must be rotated clockwise in the crankcase as viewed from the top with the head off. You should see about 30 thousandths of the sleeve on the right side when looking in the exhaust. The idle is reliable as long as you have a good piston/sleeve fit. See Figure A.

Another problem to solve at home is ground handling. Main gear on a tail dragger should be one to two inches forward of the C.G. You can make this change on most planes easily. For positive steering, your tail wheel should be angled back at 45°, with a long tail wheel wire (1 to 1-1/2 inches). Holding some up elevator will keep pressure on the tail wheel and maintain steering longer.

Technical Tip No. 3: There are as many as 1000 rpm in how the head bolts are torqued. Incorrect torquing will distort the case and cause minute binding that kills rpm.

Protect your investment in engine and time at a race by sizing your plugs and testing them before you race. Plugs are not always threaded correctly and you can strip out your head if you do not re-thread your plugs. The proper size is 1/4-32 (no misprint). Get a die of this size and re-thread your plugs before race day.

Technical Tip No. 4: Change your plug every race. Modern glow plugs last a long time, but racing is hard on them. A new plug is worth up to 400 rpm on the first run. A lean run will usually ruin a plug element. Test your plugs *after* you re-thread them. The reason for

Southeastern Air Crafter's new p-51 for QM racing (314 Lamplighter Ln, S.E., Marietta , Ga., 30062). Created by Tom Atkins, designer of the T-2A pattern ship.

this is that the element is welded on the outside lip of the plug body and re-threading occasionally breaks this weld. See Figure B.

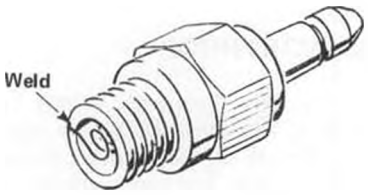
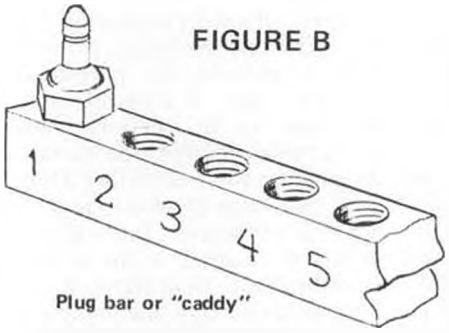


FIGURE B



Plug bar or "caddy"

Now that we have sized and tested plugs, we must handle them carefully. We need a holder made from 1/2 x 3/4 inch hardwood, about 3 inches long. Drill and tap it (1/4-32) and number the holes. *(Or purchase a "Plug Caddy" as marketed by SonicTronics. wcn)* I have several of these. On race day I find out how many heats there are and fill one plug bar accordingly. I take the plug out of the engine and put it in a box of plugs I raced once. I use these for practice and general running. The plug in the number one hole goes into the engine. After the first heat, No. 1 plug goes back in No. 1 hole, etc. Now we have a mechanical means of remembering whether we have changed plugs or not. It really is not as expensive as it sounds. I buy a couple dozen plugs at a time, wholesale, by mail. An 8 heat race weekend costs roughly $3.50 in plugs and saves many flameouts and "no-starts." Dinner that evening will cost more, and we are out to win, remember?

Preventative maintenance is the key to stopping a lot of grief, but "preventative installation" precludes the need for a lot of maintenance. Put silicone sealer on motor mounting screws. You can take them apart if you need to, but they will not vibrate out as quickly. Always use lock washers, and Locktite or epoxy where you do not anticipate a need to disassemble. Use silver solder in place of regular solder wherever you can on linkages and landing gear. The secret is in the flux. Sears-Roebuck sells a package of both for less than two dollars.

Rule No. 2: Standardize everything. I try to fly two identical airplanes. I make a spare of everything as I build. My usual three flying partners have standardized the hardware we use. Our landing gears all have the same spacing and mounting holes. This has bailed all of us out at one time or another. It also means one fella doesn't have to carry his whole workshop. Standardize on wheels, mounting, spinner, tank, etc. It all helps, and you don't have to modify your plane in the field to fit something you borrowed.

On race day, you want to get there in plenty of time to try the fuel for idle. Remember, if you set your idle at home you do not have to adjust much when you get to a race. Cover your engine with a rag to keep it clean. Try to make your fueling system easy to operate. I use one pickup and one vent. I plug the two together after fueling. This keeps the nitro from absorbing moisture from the air (that costs revs), keeps dirt out, and mostly, it avoids flooding the engine.

Rule No. 3: You must start every time to place. Sounds pretty elementary, does it not? How many starts have we all missed? Figure C shows the starting battery box I use now. It is similar in principle to several commercially available starting battery meters, but it has a couple of advantages for racing, and it has helped me keep from missing a start for over two years. If you have trouble on the line, time is at a premium. With this box, instead of carrying two batteries, you can just flip a switch for a fresh battery. You need not disconnect or unravel more plug wires. A bad meter indication on both batteries means a bad plug. You have not wasted a lot of time finding a second battery, etc., so you have time to change the plug. If you use only one battery, you will always have a "hot start" when you need it. I have a spare plug, threaded finger tight into a hole in the battery box, where it is handy. Try it, you'll like it. One lead just wraps around the meter. The meter picks up the current by induction but does not add any load to the battery. The meter is not wired into the circuit. If the meter reads backwards, wrap the lead in the opposite direction. The meter is an old transmitter R.F. meter (Kraft, Proline, etc.). The batteries are "D" cell nickel cadmiums.

Carry only a small box, with a starter and battery, spare prop, starting battery, wrench, glow plug and screwdriver, to

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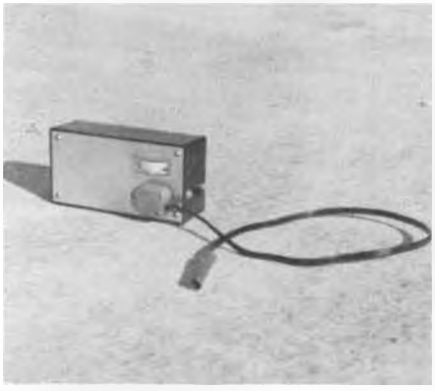
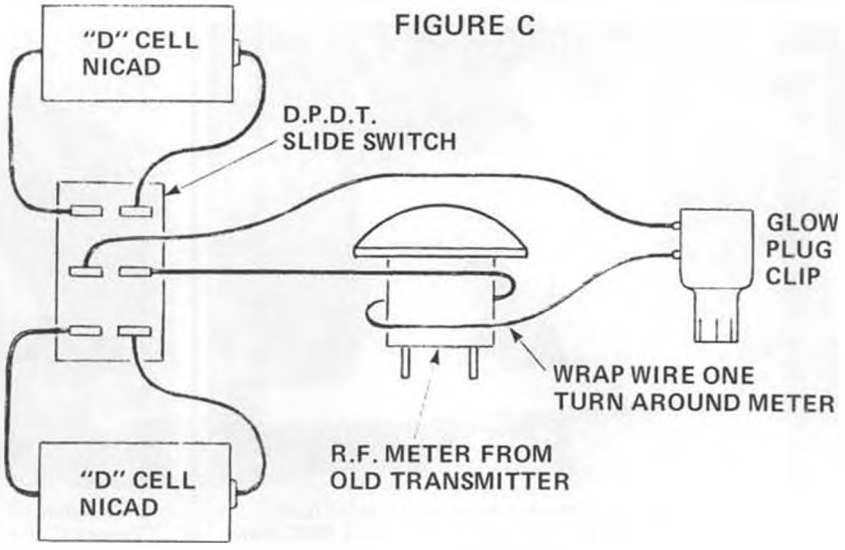


The author's twin-battery starting box with built-in plug tester. See text.

FIGURE C



Slightly enlarged Ace Pacer kit, reworked by Izzy Canales, of the Stone Balloon Hobby Shop, Kansas City, Mo. The lapped piston ST .15 has pulled the ship along at better than 100 mph, flown by TWA pilot, Don Frazier. Uses Ace Digital Commander servos. Photo by Michael Newburger, also of the Stone Balloon.

'REMOTELY SPEAKING...

R/C News, by BILL NORTHROP

No matter what kind of frequency control you use at the local flying field, short of having an armed guard at the entrance gate who confiscates transmitters as you come in and only gives them out upon receipt of a permit slip, in triplicate, someone sooner or later will shoot down another flier by mistake . . . It's human nature to experience momentary memory lapses. The only thing a frequency control system can do is improve the odds on the risk we all take when flying R/C.

At *most* organized contests, frequency control is quite efficient. Transmitter impounds, coded clothespins, the registration of contestants and their frequencies, all of these factors improve the odds tremendously. The real danger lies at the home field during informal flying activities. There is (usually) no impound, no registration, and often times, no clothespins.

When used for informal flying, the coded clothespin system is pretty effective. Most clubs, however, have the same problem about this. Where do you keep the pins and the pin rack when it's not being used? If left at the flying field, this equipment usually gets stolen. If one club member assumes the responsibility of taking care of them, the pins will only be there when that member comes to fly. And the most common problem, no matter *where* the stuff is kept . . . someone, sooner or later, inadvertently walks off with a pin, or loses it in tall grass, or whatever.

The best solution we have seen to all of this is for the club flier to have his own frequency clip . . . When you've finished rolling on the floor with laughter, pull yourself together and read on . . . The idea has been adopted by the Forest City Flyers, of London, Ontario, Canada, and is described in their May 1975 newsletter, edited by Larry and Ruth Barrett. Here's how it works:

Each club member makes his own color coded frequency clip, and to be uniform, a standard construction method is specified. When he is at the field, the member hangs his frequency clip on a designated frequency control board, fence wire, pole, or whatever any time he is using his radio . . . to fly or to test. As other fliers arrive, they check the clips on display before using their equipment. If their frequency is not being used they add their clip to the display. If it *is* being used, they contact the other flier(s) on their frequency and proceed to take turns.

Obviously, all colors used should be uniform. Different shades of blue and red could be mistaken for purple and orange respectively. This might be an excellent item for an accessory manufacturer to make available. The standard item adopted by the Forest City Flyers is a 1-1/2 by 3 inch plywood tag glued to a wooden clothespin. The entire assembly is then painted in the color(s) of the individual's frequency. If one type became universally standard, a visiting flier to a club could join the group without any frequency confusion.

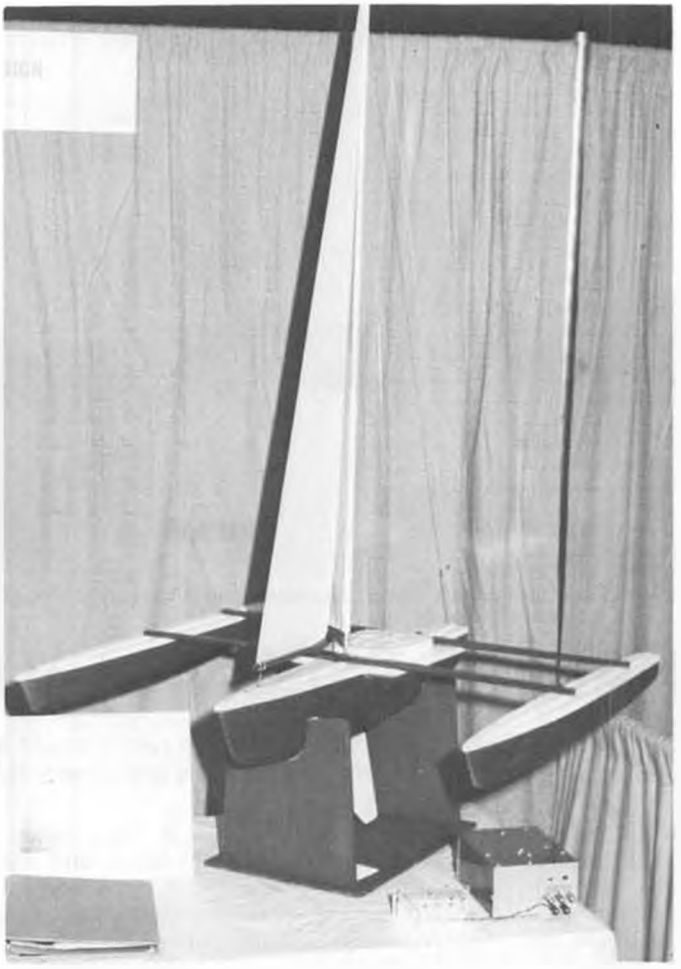
* * *

While on the subject of frequencies, it comes to mind that the radio bands used by R/C modelers, particularly 72 mHz, are available because of the efforts of the AMA/Frequency Committee. With the help of this committee, and our "man in Washington," Jeremiah Courtney, constant pressure is being applied to protect these bands, and also to

Jack Stafford "hefts" the experimental super-light molded foam wing core produced by Matty Sullivan. Scene is the 1975 MAC show.

Ernie Huber (lt) and Mike Bosch "hover" over the new Kavan "Alouette". Both flew demonstrations at the MAC show.

Vern Ahlberg, Oregon City, Or., checks his Midwest kitted Pitts Spcl., powered by Ralph Cooney-built custom 60. Bob Yorkson photo.



The Trident II, by Probar Design, Escondido, California, is cleaning up in 36-600 class R/C yacht races. Styrene hulls and decks.

find new, safe bands on the frequency spectrum that can be set aside for R/C.

Although the Frequency Committee members are volunteers, and do their part on a free basis, Mr. Courtney is a lawyer who has been retained for a fee to act in our behalf and carry our desires to the FCC. "For a fee" means money . . . and to the best of our knowledge, all of this money has been contributed by aircraft modelers.

By no stretch of the imagination, R/C aircraft modelers undoubtedly represent something in the neighborhood of 70 to 80 percent of the users of radio control equipment. The other 20 to 30 percent is comprised of car and boat enthusiasts. Judging by the rapid increase in popularity of power and sail boating, and the slower but steady increase in R/C auto racing, it is hard to fix the exact percentages.

No matter what the ratio of usage, it seems to us that the R/C car and boat hobbies have undoubtedly gained enough in relative size that they should now make an equally significant contribution to the frequency maintenance effort. We'd like to suggest that organizations such as ROAR, NAMBA, AMYA, etc., budget a certain percentage of their dues income toward this worthy cause. Remember the old "United we stand" bit. The total power of all of our organizations combined in a single effort should make us much more effective.

We invite the heads of all non-aircraft, R/C oriented national organizations to contact us on this matter. Send us your comments and suggestions toward the idea of joint support of our Frequency Committee.

NSPA = MABA

The most recent newsletter from the

Continued on page 88

Winner of Sport Scale at Henley was this J-3 (Sig kit) by Orrin Crooks. Owner of big one wanted to make even swap!

Winner at last year's Henley Aerodrome scale rally (see "Workbench") was this Bucker Jungmann by Monty DeMara, Kelowna, B.C., Canada.

Try this on your Formula I racer! A group of Half-A's get off to a flinging start. A Quickie 200 grabs the lead from 3 Half-A Sticks.

HALF-A PYLON at Valencia

By LARRY RENGER . . . Half-A pylon racing could be the most popular R/C sport to come along since gliders started their upswing. It's for the grass-roots R/C clubs . . . and that's where most of the action is.

• Up the San Diego freeway from L.A., toward Bakersfield, is a lovely area called the Valencia Valley. There are a few research type companies tucked away there, and even Magic Mountain . . . sort of a Disneyland North. Also lurking in the underbrush is the Valencia Valley Headwind Model Club and its private model airport, with a 300 foot paved runway. Once a month these pleasant gentlemen get together and fly 1/2A Pylon racers. And therein lies our story.

The rules they use for racing are exceedingly simple:

1. Engine displacement must be .051 or smaller

The pit line-up: Upstart, 3 Half-A Sticks, Upstart, Mr. Mulligan, and another Stick.

2. Hand launch and fly 10 laps to the left around two flags 300 feet apart.

3. Have fun!

It makes for very pleasant contests . . . there isn't anything to protest!

This particular race day, May 18, 1975, there were seventeen fliers, and most of them flew four heat races apiece. That's a lot of flying! Despite the high level of activity, the race went off very smoothly and you never in your life saw so many racing pilots actually enjoying themselves!

Racing starts at 9:00, so an early drive from Orange County was required. Your correspondent arrived at 5 minutes to nine, and was pleasantly surprised to find the contestants ready to go right on time. After the first heat race, won cleanly by Ed Noulin with a superfast GMC 1/2A Stick, we scouted around to see the sights.

Only a very few of the models were scratch built. Numerically, the 1/2A Stick kit was dominant, with six of them entered. Next most popular model was the Ace Upstart, with three entries. Ron Clem had a couple of his new Tigercat models out, and the Quickie 200 also showed up in a pair, flown by George and Bobby Baker.

Some of the scratch built models present were a Pusher Tigercat built by Bob Finch, a very fast Mr. Mulligan built by Bob Selman from Fred Reese's design, and an unnamed original by Tony Naccarato. A very pretty transparent yellow and "Plumb Crazy" Miss Dara was brought by Phil Smith and flown by Pat Joyner.

Although a club race, there were "factory" reps from Cox, GMC, Clem, RCM, and of course your own "Man from Model Builder" present.

Racing throughout the day showed a level of real excellence. The howl of high nitro-pressurized Tee Dee engines and the sight of fast laps being flown completely dispelled any suspicions that this was an event for hackers. Peeking over shoulders, the best flyers seemed to be pulling 21,000 out of their engines on trimmed 5-1/2 x 4 props. Nitro content was as high as 65%! Plugs were good for only one flight the way they were using them.

One truly neat feature of 1/2A racing is that there is only one engine made

Ron Clem and the Tigercat, a glass and foam machine. Cap ribs over foam core, then cover.

Winners at Valencia (l to r): Tony Naccarato, Bob (LIAHO) Janiger, Ben Strasser (holding model), and Dene Jones. Sorry we didn't get name of young man with Ben.

Four beautiful wire sculpture trophies donated by GMC Models' George Chabot.

that is useful, and that costs well under $20. We are speaking, of course, of the Cox Tee Dee .049. Many sported Kirn-Kraft needles and backplate pressure conversions. At least one racer used a pen bladder for fuel supply, and quite successfully too! One unique modification was the addition of a ball thrust bearing for George Finch's pusher engine.

The fastest two aircraft on the field were the Tigercats. A super-clean design with a glass fuselage and foam wing; it is now available as a direct order kit from Ron Clem, 13001 Rose Ave., L.A., Ca. 90066, for $25. Despite super speed and smooth flying, the Tigercat didn't take home any hardware. Ron flew into the lead by as much as a lap and a half, then ran out of fuel at 9-1/2 laps . . . in three heats! Talk about frustration! Still, an incredible performing plane.

Continued on page 77

Dene Jones prepares to launch Bob Selman's Mr. Mulligan. It looks bulky, but was quite rapid in the air. Fred Reese's design.

A fairly large bunch of people turned out for this Halh-A race. An indication of its rapidly growing popularity.

Built from a Tigercat kit, this pusher had a ball-bearing engine. Owner George Finch was very careful when hand launching!

Yellow and "Plum Crazy" purple Miss Daragets its nose twisted by builder Phil Smith. Pat Joyner was the pilot.

This Lockheed L-286 took first place in the helicopter class at the 1975 MAC Show. It was built by Don Harris, who also made the fiberglass fuselage. It is based on the Schluter "Gazelle" mechanics. A beautiful machine.

CHOPPER CHATTER

By JOHN TUCKER

• A few weeks ago, I was overjoyed to receive my copy of the new MicroMold "Lark" helicopter kit, and immediately started a review of this cute little bug. Because of an extremely heavy workload with the airline business, I managed to "con" my son Kim into building it for me. "Con" isn't exactly the right word for it, since he really insisted he tackle the project . . . otherwise, I'd have to do all the loading and unloading of our equipment for the next few months on our weekly outings at the local flying site! Being of sound mind and lazy attitude, I acceded to his wishes and let him build it! I'm a little sorry now 'cause it's such a fine flyer and I have to tell the spectators that someone else put it together. Anyway, here's the story without going into construction details:

MICRO-MOLD LARK

At first glance, you wouldn't believe that a complete helicopter (including fuselage) could possibly be packaged into such a small box . . . Usually, the mechanical parts are packaged in a huge carton and the fuselage is "crated" separately. The Lark, however, is neatly tucked into partitions, including a plastic parts tray. The construction phase was started by carefully reading the well-written instruction booklet and checking off the parts and pieces against the list in the back of the book. Everything checked out fine except for a small piece of balsa wood and the timing belt, which was missing. A quick call to the dealer (Model Helicopters, Inc.) immediately

Mike Bosch came from Germany to astonish the spectators at the MAC Show. Kavan Jet.

Cliff Cottrell's Bell UH-1C, based on the Graupner twin jet 212 kit.

Ernie Huber demonstrated the new Kavan Alouette, soon to be available.

"Hold 'er, Mike, she's a rarin'!" Mike Bosch sets trims before demonstrating long periods of hands-off flying with Kavan Jet Ranger.

Graupner's latest, small helicopter , the Bell 47G, is a shake-the-box type, quickly assembled kit. This type is becoming very popular.

solved both problems with replacement, and Kim was off and running! He didn't hurry the building in the least and completed the project in less than a week of evenings, about 10 to 20 hours of easy assembly, and painting.

The radio installation consisted of a new Futaba FP-R5D, second generation radio system, with four FP-S5 servos. We chose this system for two prime reasons . . . first, I had been extremely pleased with my Futuba single-stick transmitter, which has been in constant service for the past two years. Secondly, Mr. York Daimon, of Futaba Industries, Compton, Calif., had exchanged my early model receiver and servos for the later version IC compact and the new high output servos, with the request that I try the rugged system on my next chopper. Needless to say, the complete installation was perfect for this small size cockpit, and the radio has performed absolutely without flaw during the subsequent dozens of blade-flapping, ground-slamming flights. I guess I'd better explain this latter bit . . . the completed chopper has proven to be so easy to fly and so difficult to hurt, it has been used as a basic trainer for checking out many would-be chopper pilots. In this role, it really takes a beating, but comes out on top every time!

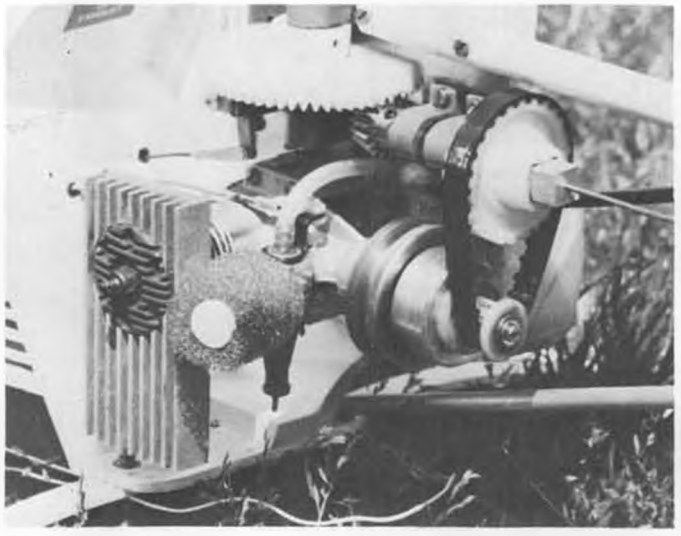
According to Kim, the only difficult part of building was the identification of the British (system) machine screws and nuts. We later secured the data which explained how they numbered their screws, but only after it was too late. Actually, it wasn't much of a chore to use common sense and fit the correct size screw in the proper place. On the other hand, if you're the type of builder who always ends up with a round peg for a square hole, you might do well to ask a machinist friend to help out (like we did!).

Within a few days of starting the kit, my good friend and expert chopper pilot, John Gorham, of Thousand Oaks, Calif., called me and said he had just completed his Lark and was flying it around in his back yard. The real reason

Continued on page 61

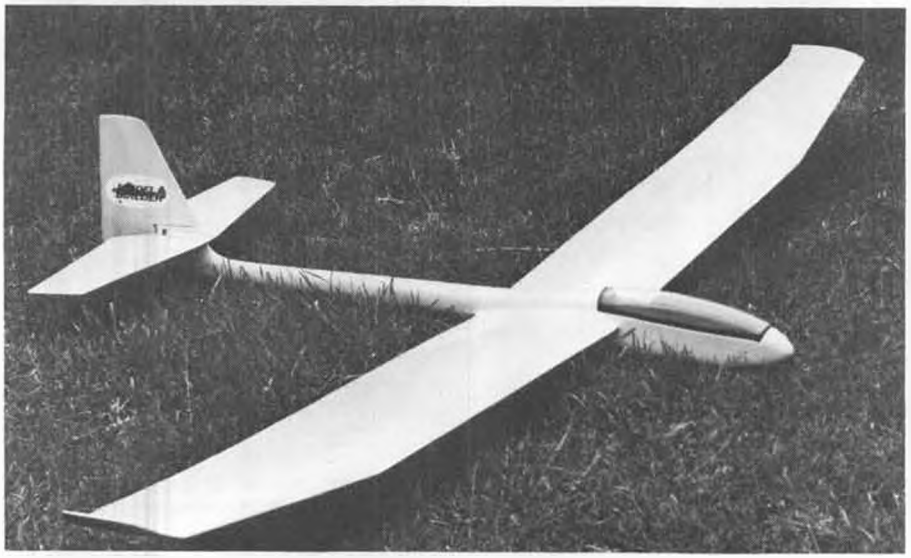
Our "Chopper Chatter" editor hovers the Lark as his son, Kim, watches. Very stable machine.

The little Lark is from an English kit. Power is hopped up Veco .19, Futaba radio.



Close-up shot showing the drive mechanism of the Lark. Cooling fin attachment appears to be from race car accessory line.

Super-simple head mechanism of the British-designed Lark certainly should keep maintenance to a minimum.



The completed Airtronics "Aquila". Test ship is finished in all yellow, paint and Monokote. New red, white, and blue MODEL BUILDER decal on the rudder.

Futaba FP-6EN transmitter, comes with meter, ratcheting trim levers, buddy-box button, and interchangeable crystal arrangement.

PRODUCT$ IN U$E

AIRTRONICS "AQUILA" and the FUTABA FP-6EN RADIO SYSTEM

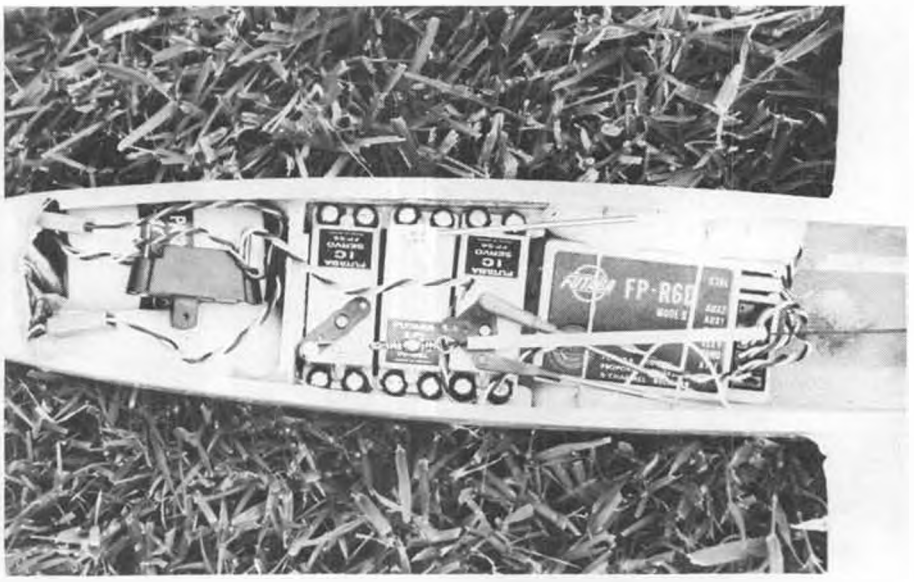
By TAYLOR COLLINS

• When I first saw a prototype of the Aquila (Spanish for eagle) it was love at first sight. The large, thick winged, low aspect ratio, standard class birds were winning contests, but purely by virtue of their astounding performance on tow . . . their sheer size gave them a decidedly higher launch than the more graceful, thin wings of some of the old standbys. The Aquila appeared to be a good compromise between the two design types. It uses all flying tail surfaces for both elevator and rudder. This, coupled with a fairly long tail moment, provides a stable, yet easily controllable thermal plane.

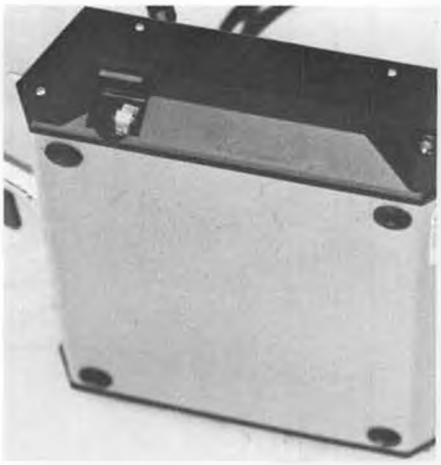
The wings use a fairly standard 'D' tube type construction, employing spruce spars, spruce leading edges, and 1/16 inch balsa sheeting on the upper surface leading edge. The bottom surface is sheeted at the center rib bays, but the remainder uses full chord cap strips rather than leading edge sheeting. The balsa shear webs, which are used both in front and behind the spruce spars, come precut, requiring only minor trimming to assure a perfect fit. I assembled the wing one bay at a time, using the shear webs at the trailing edge web to determine rib spacing and assure a tight fit. Both wing panels were built, ready to cover, on one *rainy* Sunday. (Incidentally, the quality of the Airtronics kit was such that the entire airplane, including all sanding, painting, covering, radio installation, everything . . . was done in a motel room. I did take pity on the room maid and borrowed a vacuum cleaner to sweep up the sawdust!).

Wing tips are carved from balsa block, to achieve the upswept, inverted Hoerner anti-vortex effect. I'm not going to plunge into the E.B.S. (a Le Gray term) involved in the wing tips, but I will say that they do look very nice, and they are not hard to do. A curved piece of 1/8 inch wire is epoxied onto the trailing edge of each tip. This wire determines the curvature and insures that you won't ham-handedly sand off the whole tip. Then, with a piece of sandpaper wrapped around the cardboard tube that Super

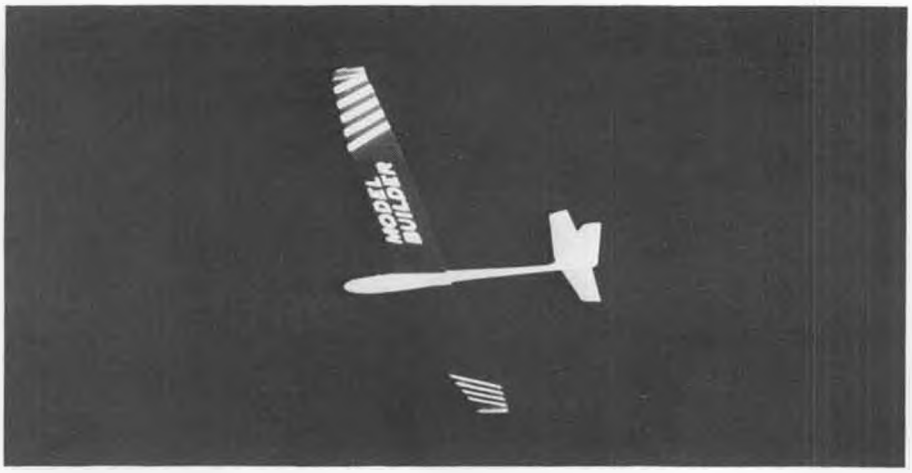
"Diamond" tail surface construction is strong, yet light and warp-proof.



Futaba radio installation in Aquila. Third servo activates spoilers and releasable tow hook. Servo rails epoxied to glass fuselage. Note removable crystal. Twin Golden Rod pulling rudder cables.



Trap door for interchangeable crystals in the back of Futaba transmitter.



The Aquila drifts overhead during a night flying demonstration. Stripes and lettering were cut from "Scotchlite" pressure-sensitive sheet. Spotlight really turns it on!

Monokote comes wrapped around, you sand the concave top of the tip. Presto . . . instant sex appeal! (The tips aren't hard to cover. . . with the help of a heat gun that is!)

The wing is slightly poly-hedralled . . . that is to say there is very shallow tip dihedral. The brass tubes in each plug-on wing are angled so that a straight 1/4 inch music wire is used to join them through the fuselage. This is a very nice feature. You can tell immediately, by looking at the wire, if your dihedral has changed due to overloading on tow, or from various types of aerial gyrations that you have stumbled through. There is no guessing if your dihedral is changing from flight to flight.

The wing is equipped with spoilers (which are included in the kit). To be perfectly honest, although I have the third servo mounted in the plane, I haven't hooked them up. I had originally thought that I would wait until I had the plane trimmed out before I hooked them up . . . now, after having flown the plane for an hour or two, I don't really feel the need for them. The Aquila handles quite well at all speeds, and is no problem to land accurately, without any sort of glide path control. Sometime in the future I may hook them up, but that will be more out of curiosity than need.

The fuselage is incredibly light, but is strong as cast iron. The full length, machine cut sides are of poplar plywood. The bottom, from the noseblock, to aft of the wing, is also poplar ply. The noseblock itself is bandsawed to shape from pine (complete with a hole predrilled for noseweight!). The top sheeting is 3/8 inch balsa, which allows enough thickness to do considerable sanding, giving a much more pleasing round shape to the fuselage. (Boxes are nice for mailing and burying things in . . . but not to make sailplanes out of!)

The tail feathers are built up from strip balsa with spars on the outside of the structure (ala Taurus . . . remember that?). They are quick to build, strong, and VERY light in weight. The all-flying fin is hinged with molded nylon aileron linkage type hinges, and the all flying stab is pivoted on 1/8 inch music wires, working through a molded bellcrank installed in the fin. All of the fin assembly pieces are precut, allowing smooth fillets to be made, and making a finished fuselage that looks as though it were molded in one piece.

Incidentally, since the initial introduction of the Aquila, Airtronics has made an epoxy resin fiberglass fuselage available. The mold for this fuselage was taken from an actual wooden fuselage, making the two versions interchangeable. The glass body is very strong and flexible, and due to the lack of internal formers, is somewhat more roomy. A freak crash on MODEL BUILDER's prototype wiped out the wooden fuselage. A call to Lee Renaud brought a replacement glass unit, and the Aquila was back in the air after three evenings of work. Weight of the two versions is about the same, but obviously, the glass fuselage can be completed in a shorter length of time.

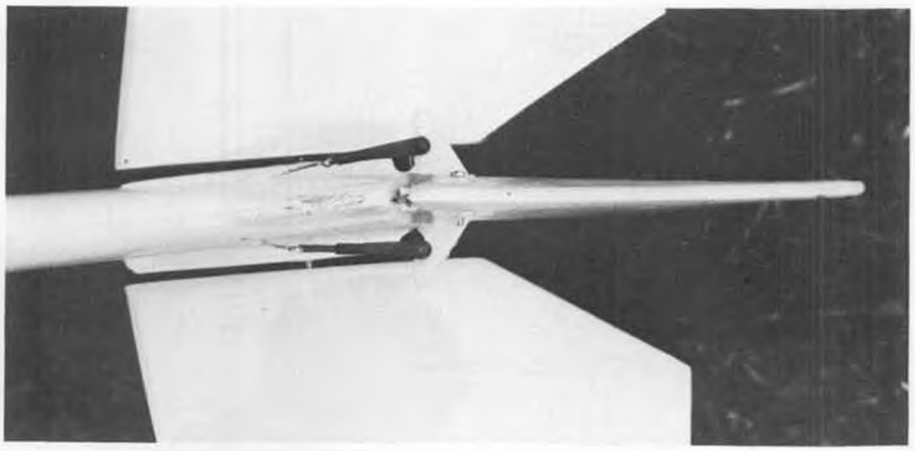
The kit comes complete with a molded, pressure sensitive adhering rubber skid, and an Airtronics Deluxe adjustable towhook which is recessed into the bottom of the fuselage.

I can't say the Aquila flew right off the board, because it was built on a bartop in my motel room . . . but it did fly without any corrections. It is one of the best handling 100 inch sailplanes that I have flown . . . and that's no E.B.S. . . . or I'll eat my flying hat, L.S.F. badge and all!

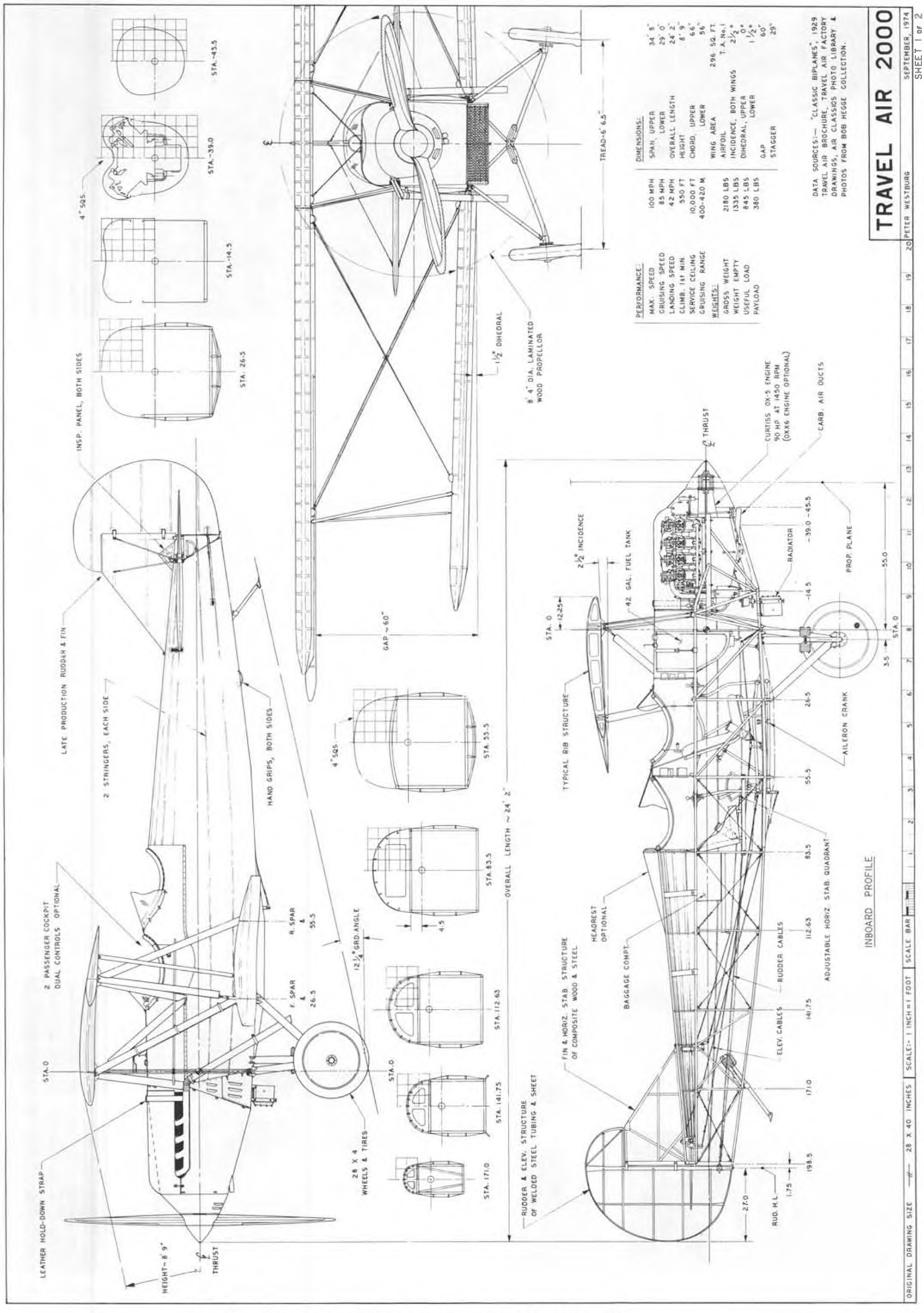
The Futaba FP-6EN Six Channel Radio system is styled after some of the more exotic European radio systems. It comes with a neck strap, angled transmitter configuration, and interchange-

Continued on page 66

E.K.Products R/C releasable tow hook. Very helpful for competition flying.



By using twin "Brass Cable" type Sullivan Golden Rods, both pulling, the rudder control can be made extremely precise and positive.



To order full size prints of these drawings, see ad on page 72.

Travel Air N-5290 after restoration. Note saxaphone exhaust and primitive airspeed indicator. Photo by Bob Hegge

TRAVEL AIR 2000

By PETER WESTBURG

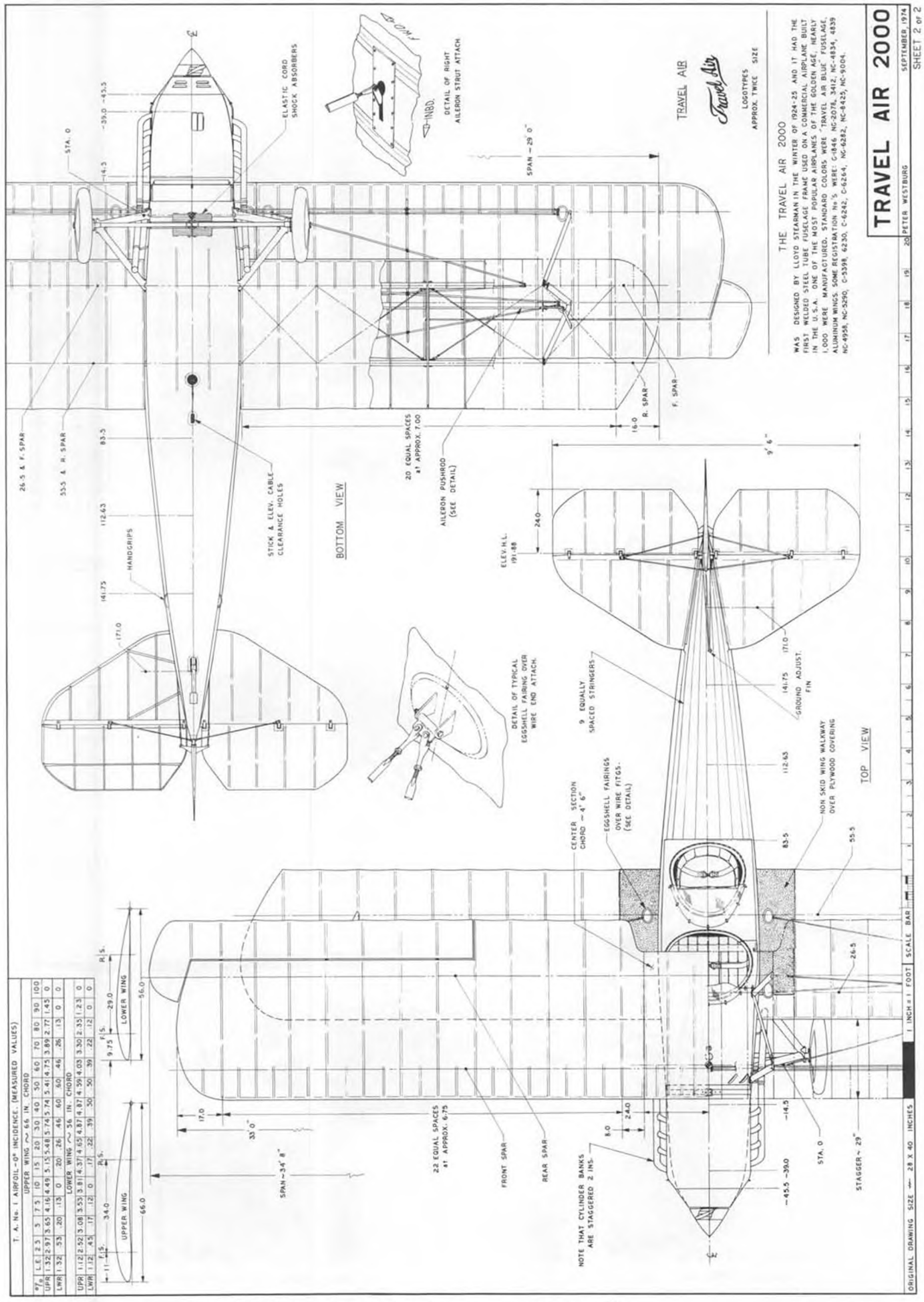
• TRAVEL AIR . . . the very name conjures up images of ancient biplanes floating out of the mists of yesteryear into our nostalgic dreams. The name was suggested by Walt Innes to Lloyd Stearman and Walter Beech; the three having formed a company in Wichita, Kansas, late in 1924, to manufacture a three-seat airplane calculated to make Jenny owners wish they had one.

From the beginning, the airplane was a success, the first one being bought right off Lloyd Stearman's drawing board. It was called the Model 1000, and it was quite conventional, with a 90 hp OX-5 engine, two staggered wings, and a straight axle landing gear. It also had

BEECH AIRCRAFT PHOTO

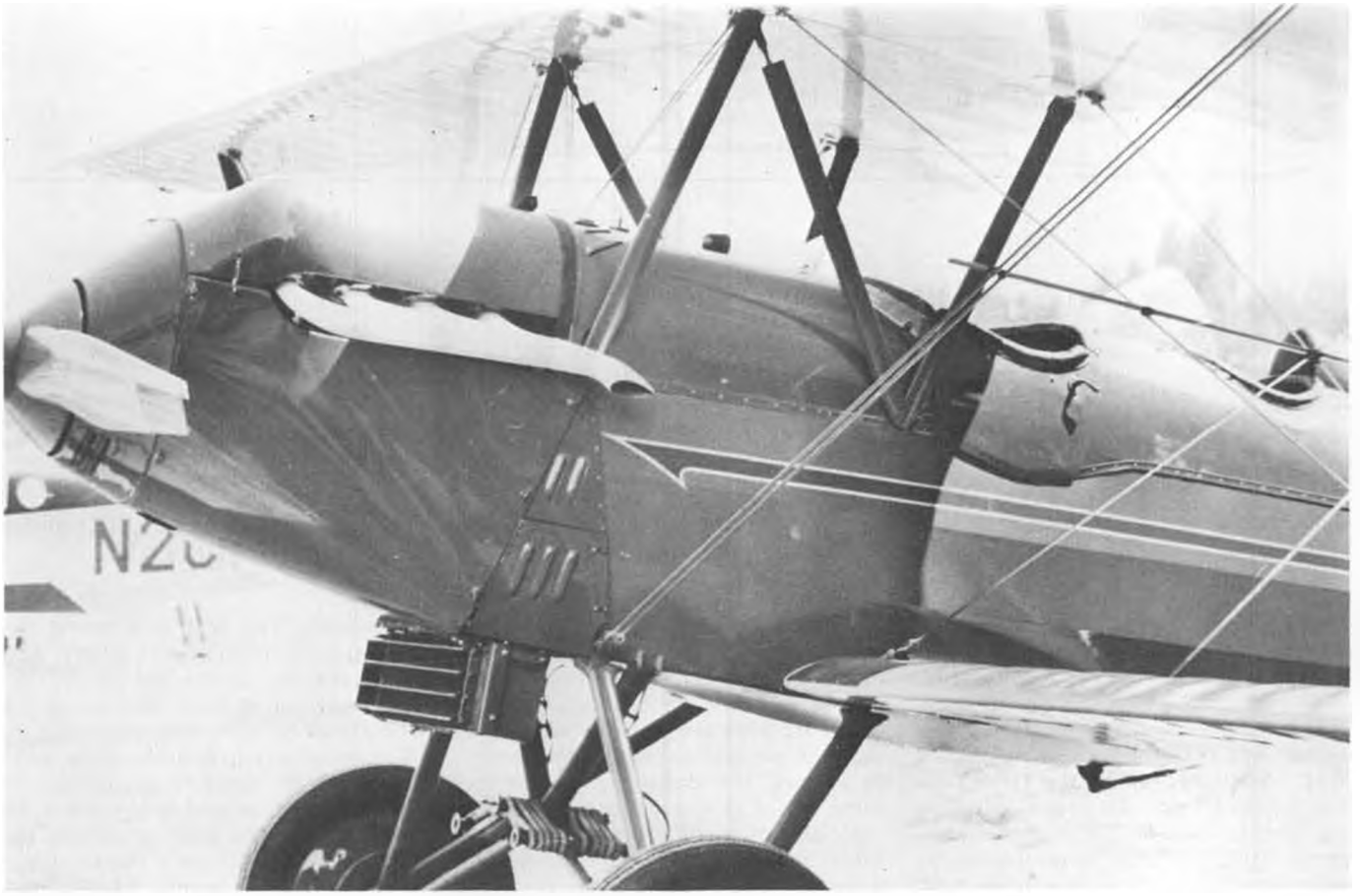
This restored 2000 is one of the most authentic of the resurrected Travel Airs. N-6282 is finished in medium blue on the fuselage, vertical tail and landing gear, while the remainder is silver.

The first Travel Air, the only 1000 model. Designed by Lloryd Stearman, it had a straight axle landing gear, and the first welded steel tube fuselage designed for commercial airplanes in the U.S.A.



%	L.E.	2.5	5	7.5	10	15	20	30	40	50	60	70	80	90	100
UPR	1.32	2.97	3.65	4.16	4.49	5.15	5.48	5.74	5.41	4.73	3.89	2.77	1.45	0	
LWR	1.32	.53	.20	.13	0	.20	.26	.46	.60	.60	.46	.26	.13	0	
UPR	1.12	2.52	3.08	3.53	3.81	4.37	4.65	4.87	4.59	4.03	3.30	2.35	1.23	0	
LWR	1.12	.45	.17	.12	0	.17	.22	.39	.50	.50	.39	.22	.12	0	0

To order full size prints of these drawings, see ad on page 72.



Close-up for detail on a restored T.A. 2000. Note the rear control stick protruding from the bottom. Also, this one doesn't have the "eggshell" covers over the rigging terminals. Gotta say it . . . this is the MB editor's favorite biplane!

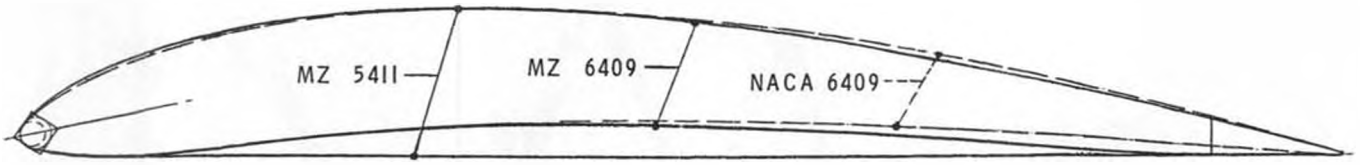
two features deliberately designed into it to remind pilots of the Fokker D-VII of WW I fame, then as now, a highly regarded airplane (and at that time, only 6 or 7 years old!). It had overhanging balanced ailerons . . . but even more eye catching was the hook-shaped rudder. The overall appearance of the 1000 was intentionally reminiscent of the Fokker, and it soon became known as the "Wichita Fokker."

Only one Model 1000 was built; Stearman made so many improvements that the next airplane was called the 2000. It is the best remembered Travel Air of the many produced by the company, nearly one thousand being manufactured. The 2000 had a wider fuselage and a split type landing gear. The wings were also rigged with more stagger to improve balance, and many minor improvements were made.

Standard colors for the fuselage, em-

Continued on page 85

A Hisso powered T.A. 3000 in its movie make-up as a Fokker D-VII for "Men With Wings." Even before this, the T Air had been designed after the well-known D-VII, a highly regarded airplane among pilots of all eras. Appears to be a Fairchild 51 in the background. MB has plans for both.



R/C SOARING

This month we are visited by the Dean of Model Design, who explains the reasoning behind the JASCO glider airfoils that we have been taking for granted these many years. **By FRANK ZAIC**

• Have you ever wondered how a particular airfoil gets into circulation? Here is the background on the NACA 6409.

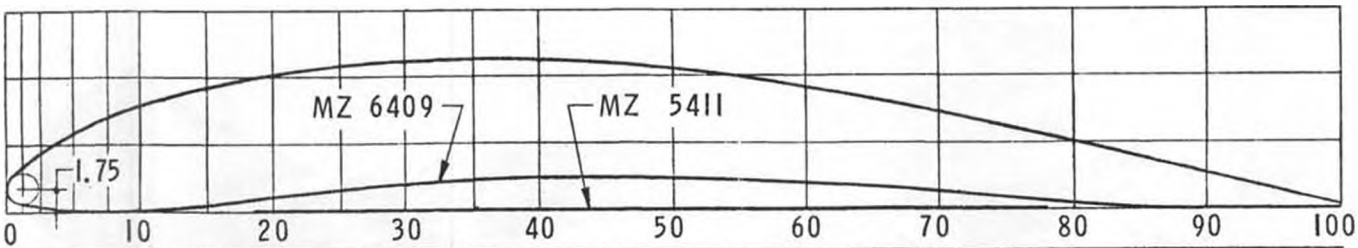
NACA 6409 airfoil was one of many shown in the NACA Report No. 460 which was published in Nov. 1933. I first saw this report in the New York Library, and I added it to my collection by sending 15 cents (!) to the Government Printing Office. While looking it over for what we could use for models, one of my friends, J. P. Glass, remarked that 6409 looked good. And so, 6409 was introduced to model builders in the 1935-36 Year Book, which was published in 1935 . . . In retrospect, the 6409 was a good selection, as its basic characteristics, small leading edge radius, generous camber and slim section, are now the rule on free flight models which depend on thermal activity for duration.

I wanted to use the 6409 on the Thermic series of glider kits which I was developing in 1939. But I realized that because of its slim and angled trailing edge, 6409 was not the easiest section to duplicate, especially if the potential builder was a newcomer (In kit design, one must assume that the model may be built by someone who may have never built or flown a model before.). So, I modified the trailing edge by having it lie flat on the building board and merged the undercamber to fit. This change was fine for sections having a chord of 6 inches or more which provided ample spar room. But for narrower chords, the cambered section became too slim for good strong spars, especially if made from balsa. Under such circumstances, I decided to modify it still more by making the bottom flat.

The modified 6409 now looked almost like a Clark Y, but it had a much smaller leading edge radius, and the slope of the upper front portion was more gradual. This shape made it possible to use square stock (set in diamond position) for the leading edge without having deep depressions between ribs. Note the edge spar location on the 12° base line to obtain almost symmetrical outline with only slight edge projections which need not be removed, and which may act as turbulators. This modification of 6409 made it possible to use simple and basic "ladder" type of construction without penalizing the performance. The front spar is located at about 30% of chord and rear spar at 60%.

When you modify or "zip" your own airfoil, you always wonder how it compares with those that were tested in a wind tunnel. Basically, as you may have found out, any outline that "looks" like an airfoil will behave like an airfoil. There may be very small difference between what you have home made, and a tested airfoil which looks similar to yours. In fact, as long as you use a flat bottom type, you can't go wrong. But when you start to use a deeply undercambered variety, you may have stability and flying problems which could be most unusual. With a flat bottom 6409 looking like a Clark Y, it should have similar characteristics . . . or does it?

Sometime in 1973, I heard rumors of a low speed windtunnel operating somewhere in Italy. I was going to check for it through my Italian connections, but before I did that, I received a note from Le Gray asking for particulars on obtaining year books for someone in Italy. I am not sure how it happened, but the person interested in the books was Ferdinado Gale (pronounced "golly"), who was president, at that time, of the "Unione Sportive Aeromodellisti Lombardi." (Ferdy Gale was visiting the U.S. on business. He is the European representative for an American company headquartered in Palo Alto, California.



% CHORD	0	1.25	2.5	5	7.5	10	15	20	25	30	35	40	50	60	70	80	90	100
UPPER	1.25	3.30	4.35	5.80	7.0	7.8	9.2	10.1	10.7	11.0	11.25	11.15	10.3	9.0	7.2	5.0	2.6	.2
LOWER	1.25	.50	.25	.10	0	.20	.50	1.10	1.60	2.00	2.25	2.30	2.25	1.90	1.30	.50	0	0

MZ 5411: Flat bottom from 10%C to Tr. Edge.

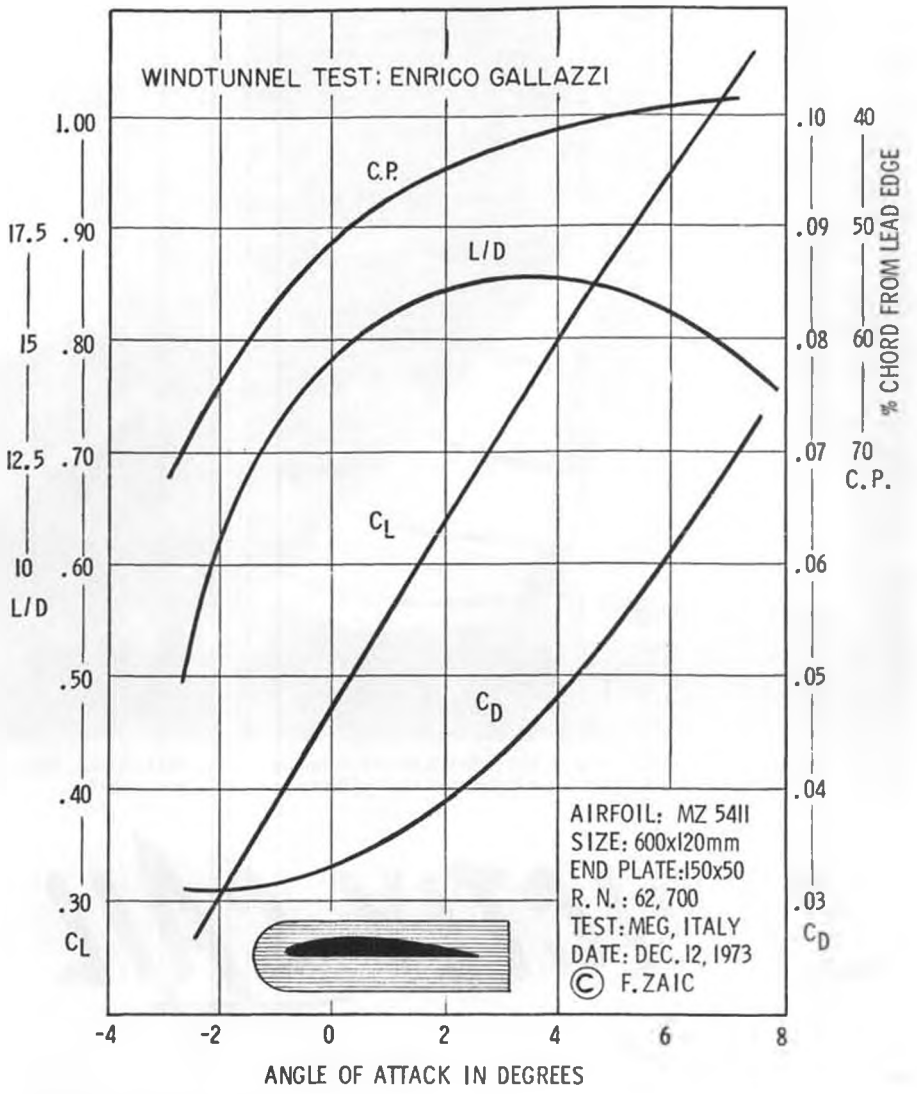
He's a strong LSF member, and official coordinator of LSF activities and PR in Italy . . . Very active in development of the task type competition for Italian soaring, almost identical in concept and quite similar in detail to current U.S. AMA tasks . . . although this was done without knowledge of U.S. activities. LG.) Some of the USAL members made and operate the low speed tunnel I heard about.

It was not long before we were talking about testing the flat bottom 6409. Normally, the charge for testing a new airfoil was about $50.00, plus. This included the test wing. A most generous bargain! However, in my case, we traded year books and FLOATER G-110 kits for the tests. In the meantime, Mr. Gale sent me the ASA Report 03-72, which featured wind tunnel results of 16 popular airfoils, including the basic NACA 6409. This particular report can be had, but those of you who are used to the NACA system of showing the airfoil characteristics will have to learn a new style, which is not difficult to pick up. (From Associazione Sportiva Aeromodellistica, Via S. Giovanni Bosco 21, 20081 Abbiategrasso, Milano, Italy. Ask for "Airfoil Sections for Flying Models," A.S.A. Test Report 03-72. It includes the Clark Y, Eppler 385, Eppler 387, Eppler 392, Fukada 10, Gott 496, Gott 500, Gott 546, Hill SR2, NACA 0009, NACA 0012, NACA 4212, NACA 4412, NACA 6409, NACA 6412, and BO 545-310. Check on current availability and price first. The price in 1973 was about $7.00.)

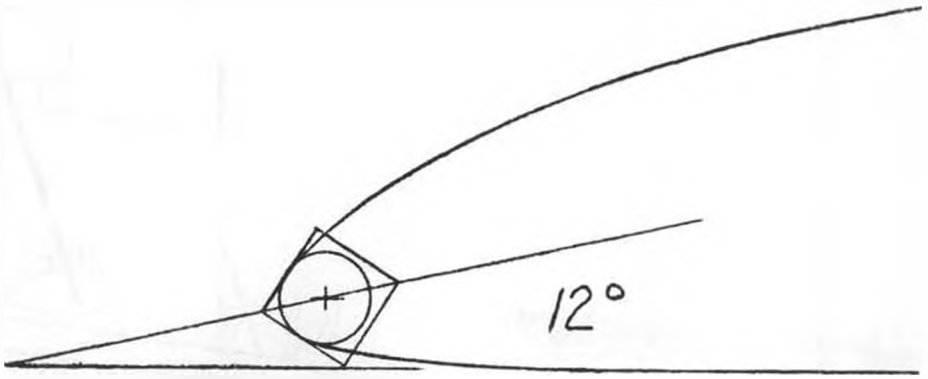
The report on the modified 6409 was made in Dec. 1973. The results were presented in their system. I converted them to NACA system as shown. I had the NACA method checked by Mr. Enrico Gallazzi, who did the wind tunnel tests and he found the "translation" good.

In checking the modified 6409 against the Clark Y (which was published in the ASA report and thus having same test standards), it was found that the values are almost similar. The Clark Y has a bit higher values of Lift and Drag at same angles of attack as the Modified 6409. In fact, a degree of shift of Clark Y to the right would superimpose the values. This difference is very likely caused by a slightly thicker Clark Y, which would increase the zero lift angle . . . So that we can say that the two sections are almost similar. The main advantage of the Modified 6409 is that it is more adaptable to model plane construction to obtain true airfoil shape without sheeting, etc.

In reality the 6409 has been modified to a point at which it could not be traced to the basic 6409. For that reason, the flat bottom version has been designated as MZ5411 . . . And to follow the trend, the version with undercamber, but flat trailing edge, is designated as MZ6409. The new coordinates are given. Also note the difference between the basic 6409 and the modifications.



In practice, MZ5411 is a good all around airfoil for R/C gliders and powered models. It is not as good for light thermal activity as the MZ6409. The undercamber type has better L/D values at 5-6°, at which most of the gliders have minimum sink. But when you have a bit of a breeze, MZ5411 is the one to use. This difference was demonstrated by Jim Baugley and Percy Pierce, of Suffolk, Va. They slope soared at Kitty Hawk dunes with a Thermic 100, which has MZ6409, and Floater G-110 which has MZ5411. They found that the Floater would gain headway in a 20 mph wind, while the Thermic 100 could only do so at 15 mph. ●



A "How not to" photo. Foxy Lady II, the author's EC/12, showing effects of too short battens, a slack main leach, and sagging jib stay.

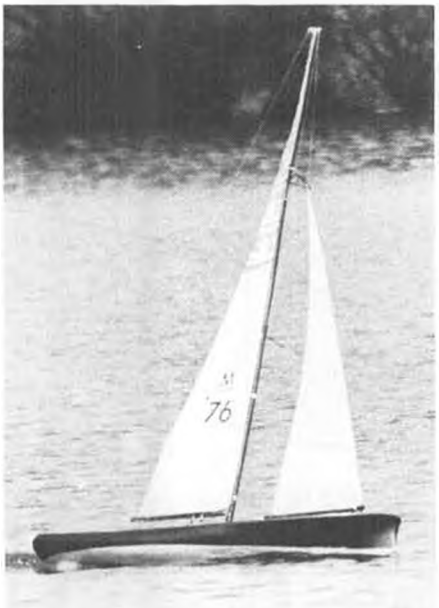
Maxi-Roach. Main has corners which make reading leach shape a challenge!

STRICTLY SAIL

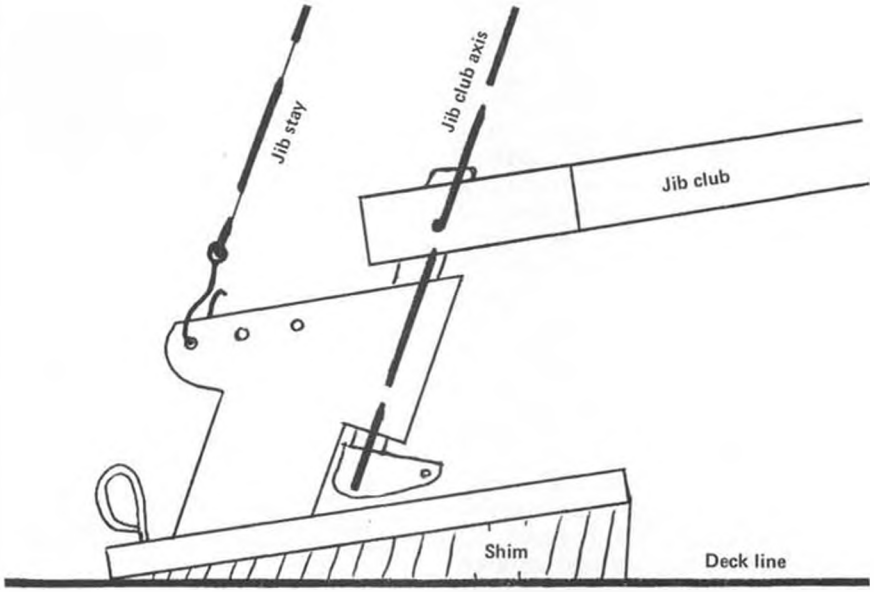
By ROD CARR

• As sailing has grown more and more, special needs of the skipper are being met. The latest on the list is the availability of special battery packs from Chip Bullen, 9921 Haitian Drive, Miami, Fla. 33157. Chip tells me that lots of competition oriented types are ordering winch and radio battery packs configured to slip down into hollow keels, or to nestle low in the bilges of their boats. This allows the center of gravity of the vehicle to be lowered, and also to be trimmed without extra weight being put aboard. It also allows a much larger capacity winch battery to be used so that you never need have fear of running out of juice in the middle of a regatta. It sounds as though you could run a whole season on some of the monsters Chip told me about. He is also capable of providing packs for the scale minded who often have special requirements from the standpoint of space and size. All the packs are custom made to the skipper's requirements, so discuss your specific needs directly with Chip.

Southern skippers will be happy to learn of the formation of the Atlanta

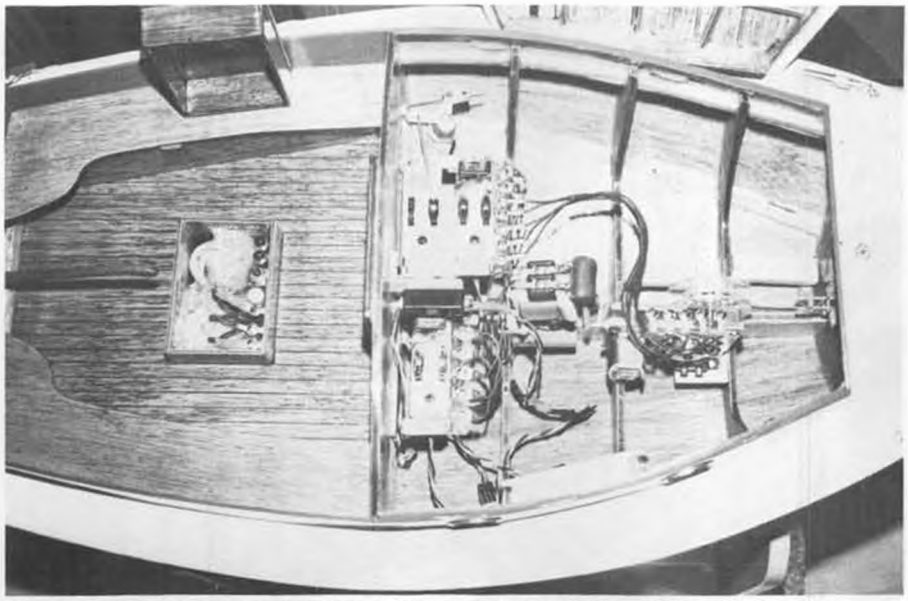


Here it is again, the author's Yankee on a close reach.



JG Products' radial jib fitting. For proper operation, the jibstay and the axis of the jib club swivel must be parallel. On the Yankee, this required a shim, as shown.

Fred Noesner's Cat-Boat. Was seen at the 1975 WRAMS R/C Show. A real beauty.



The internals of Fred Noesner's Cat-Boat. Drum winch is up front, with sheet exit guide on deck aft of the mast.

Model Yacht Club. Contact Gene Landers, 243 Ponce de Leon Ave., N.E., Atlanta, Ga. 30308, for information on classes and meeting dates. From the list of charter members I saw, this will be one of the biggest clubs in AMYA before long. They will be sailing with the Savannah/Tampa/Miami clubs and should be well represented at the EC/12 ACCR on Aug. 2 and 3 in Savannah.

Our YANKEE entered its first regatta. This was the first of the Capital R/C Model Boat Club's 50/800 series for 1975. In winds of an honest, steady 20 knots, with measured gusts to 30, she managed a solid third place, only a 1/4 point out of second place. (It might be noted that we assisted in the earlier repair of the second place boat. No lack of sportsmanship at our lake!!!!!) We moved all available batteries into the stern in order that planing could commence as early as possible.

The only problem encountered was a general hesitancy of the boat to tack. This was traceable to two causes. First, the chop existing on the lake made it quite hard to maintain boat speed while tacking, since the plumb bow of the YANKEE acts like a wall to the advancing waves. One definitely had to pick a time to tack when the waves were smaller and the wind not gusting. The second problem was the sheer size of the rudder. It is just too small for that kind of weather. We substituted a SOLING rudder on the following day, and had no trouble tacking in 25 knot gusts when ever we pleased. For winds under 20, the stock rudder is just fine, and for light air, it is a necessity in order that wetted surface be kept to a minimum. The hull should be ballasted nose down for the same reason. The tip of the rudder still has enough grip on the water to handle her well under those conditions.

In order to acquire better control on the main leach tension, I have put an 18 inch main boom on and have exited the main sheet through the deck, aft of the after hatch. I have a tendency to think that we will eventually fit a traveler to both the jib and main on this boat. We'll have plans for a simple traveler to build

Continued on page 77

Look at the size of that hinged, barn-door rudder! Propeller for auxiliary drive appears in this photo.

Production Huson 36/600. Looks like a IOR half-tonner. Can't imagine who it belongs to! Will have to ask Rich Palmer.

It's Hadley Field, Plainfield, New Jersey, at a Kresge sponsored contest in June, 1939, and Al Hellman, now president of the SCIFS (So Cal Ignition Fliers), was there with his Megow Flying Quaker. In front of him was Jack Findra and son. Can you identify any of the others?

PLUG SPARKS

By JOHN POND

• TEXACO! What memories that name brings back! Best part of it all is that the SCAMPS have successfully revived and continued this wonderful event.

For those who are a little in the dark about this event, a short historical sketch is in order. Maxwell Bassett showed up in 1932 at the Atlantic City Nats with the first gas powered model to be used in competition. The model was rather small and fast. Despite this, Bassett placed fourth. Of course, the glide was terrible and most rubber modelers were smug enough to figure they could outglide the gas model anytime.

In 1933, the boys really got a shock when Bassett won everything; the Moffett Memorial Trophy, the Stout Outdoor, the Mulvihill, and the brand new event for gas models based on the 1932 showing. What the boys overlooked was that when Bassett needed a longer flight, he simply put in more gas. Needless to say, gas models were banned from all rubber events thereafter! This left the Texaco Trophy, as sponsored by the Texas Co. as *the* gas trophy to win.

In March 1934, the new rules for gas models came out, which specified a 1/4 ounce of fuel per pound of model, up to a seven pound limit. These are the rules that have been preserved, although the Texaco Event did reduce the allotment of fuel in later years.

Just to show that he could also do it on fuel allotment, Bassett promptly won the 1934 Nats! The win was followed by Leo Weiss in 1935, Frank Flush in 1936, Fiske Hanley in 1937, and again, Bassett in 1938, for a fitting wrap-up of the event. In 1939 the fuel allotment event was abandoned in favor of limited engine runs. The Texaco Event was withdrawn and lost in the files until the SCAMPS decided to revive it.

Newcomer to SAM 21, Vernon Schultz, Sacramento, and his first R/C Texaco model, Miss Philadelphia VI. Real pretty job.

Another SAM 21 member, who won Class B on his first try at a contest. Tom Bristol and his . . . see next page!

Dave Deadman and Mike Beach (Beach's Flyer, Jan. '75 MB) collaborated on this 1935 Col. Bowden "Mouse." Dave's 1925 Austin 12/4 provides a classic background for a classic model! What dihedral!!

The "dynamic duo", Stephanie and George Perryman, with Gollywock and Calif. Champ. Tough competition all around!

The writer was contacted in regards to finding the whereabouts of the original trophy. After considerable digging, he found that he had contacted Frank Ehling, a week too late, as Frank had tossed the old trophy away in a cleanup of AMA Headquarters, where the trophy had resided for many years. In less time than it takes to tell, the SCAMPS reproduced the trophy. John Keller (now deceased) was the first winner of the modern revival. Hardly seems possible that it was nine years ago!

Although plagued with bad weather at Taft (probably the only field suitable for Texaco), the ninth SCAMPS Texaco Event was staged in the early morning of April 6. Actually, by way of explanation, the original SCAMP Texaco Event was run all day, with Sal Taibi staging a "Dawn Patrol" Event. The Dawn Patrol became so popular that the Texaco Event was run only during that time. No longer were one hour plus flights possible, as the thermals simply weren't that strong at that time of the morning.

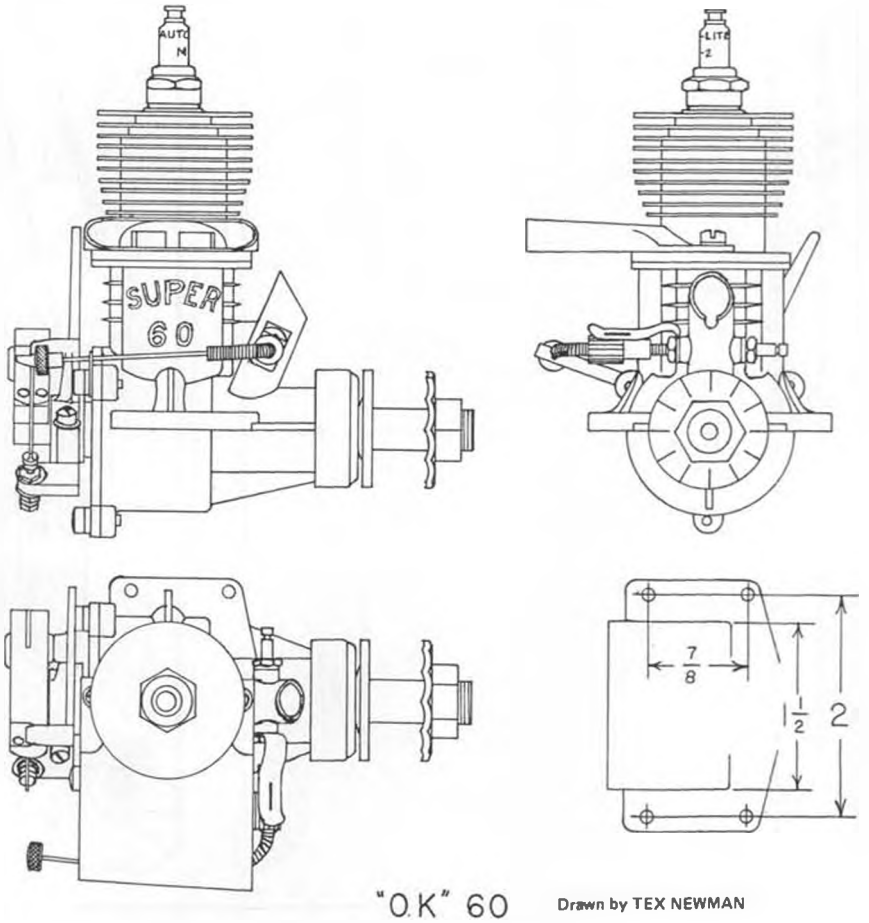
This year, Jim Adams won for the third time, with his Ehling Contest Winner, Mighty Midget powered . . . a surprisingly good combination. His 27:05 flight was followed by Pond at 19:13 and Al Hellman with 17:07. Incidentally, Al Hellman is getting to be a real hot shot, by taking Sweepstakes in the regular portion of the SCAMPS meet with a first in Class A and second in Class B. In the next contest, the Ocie Randall Memorial, April 19-20, Al Hellman placed second in Class A, and second in 30 second Antique, to again walk off with Sweepstakes honors.

Wotta President! The SCIFS have got themselves a real hot dog!

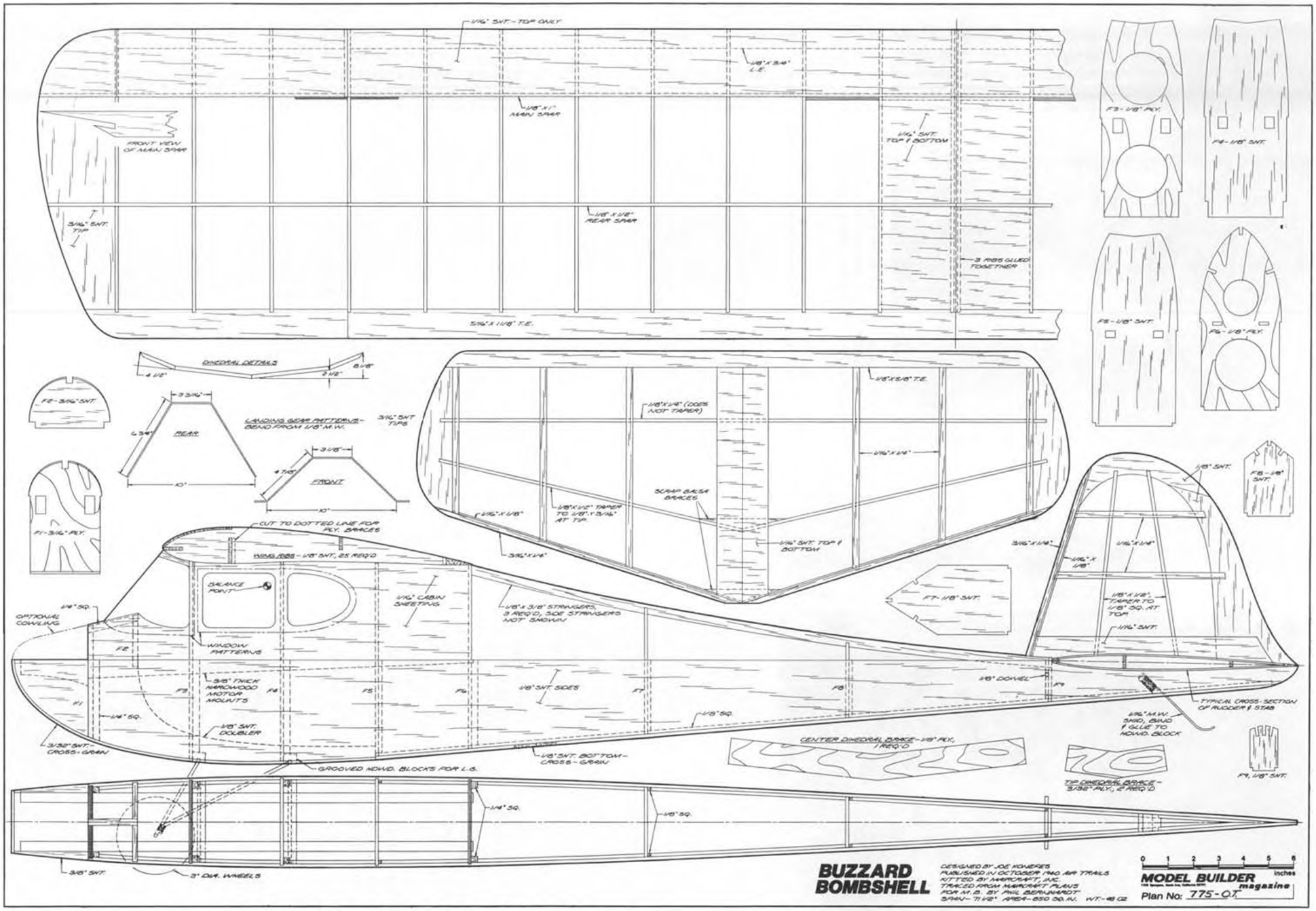
ENGINE THREE-VIEW

This month's engine 3-view features the OK Super 60 motor as manufactured during the post-World War II years by the Herkimer Tool and Model Works.

According to the story, Charles Brebeck, Sr., a highly successful business man heading up an auto parts and truck repair company in upper New York, was interested in manufacturing another product. When his boy, Charles, Jr., showed



"O.K" 60 Drawn by TEX NEWMAN



FULL SIZE PLANS AND STICK'EM PATTERNS AVAILABLE — SEE PAGE 88

Andrew Kovacs, Norwell, Maine, built this R/C version of the famous Bombshell, our OT of the month. It's a beauty in black and red with yellow trim. Power is an Enya .35R/C.

A Cannon radio supplies the "returning urge" for Andrew's Buzzard. Note watch on Tx.

BUZZARD BOMBSHELL

OLD TIMER Model of the Month

Designed by: Joe Konefes
Redrawn by: Phil Bernhardt
Text by: Bill Northrop

• The Buzzard Bombshell has become such a common sight at Old Timer contests in the past couple of years that we simply felt there was no need to offer plans for it. However, requests keep coming in, so why fight it? Based on its popularity, we've also decided to offer the very handy "Stick 'em Patterns." You'll find full particulars on page 88.

Although it had already begun to make a name for itself in local Mid-West contests, Joe Konefes' Buzzard Bombshell really came on strong at the great 1940 Nationals in Chicago. Incidentally, the 1940 Nationals had 1400 entries, and there were no control line events (Stanzel's "G" Line models were the only manufactured model airplanes available with a "string attached"), and only a few radio controlled models . . . everything else was free flight gas, rubber, and glider. The Bombshell design took 1st, 3rd, and 5th in Class C, with Joe's own model appropriately taking first on the strength of a tremendous single flight of 49 minutes and 40 seconds, all within the bounds of the flying site!

The BB was an anachronism in design trends. Starting with Carl Goldberg's Zipper in 1937, gas powered competition models had begun to look less and less like an airplane; with almost no nose moment, wings propped up on tall pylons, and pencil-like fuselages supporting huge stabs. For at least a brief moment in history, Joe turned the trend around with the Bombshell. Here was (and still is a model that the non-modeling public could recognize as an airplane; a fuselage with cabin and windows, a wing sitting on top of that fuselage, tail surfaces in normal position, and a two wheel landing gear. And from the everyday modeler's point of view, it was something anyone could build . . . sheet sides, bulkheads, stringers, constant chord wing, lots of room and access for ignition system.

All original Bombshells were balanced at one third of the wing chord from the leading edge. Glide was corrected with elevator trim. Three washers (under rear engine lugs) of downthrust and three degrees of *left* thrust were used to produce a solid left climb under power, with rudder set for a right turn in the glide. A Brown B and 14 inch prop were used on the original model. •

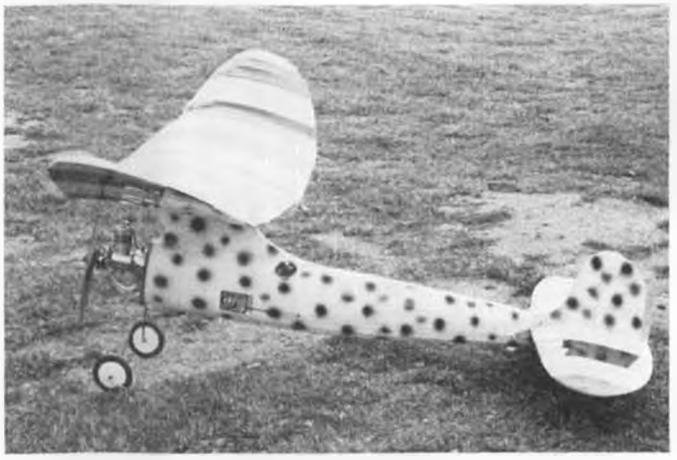
Spiro Nicholaw caught in the early morning with his Ray Heit "Scram." This was a Flying Aces plan.

Jim Adams has won the Texaco Event three times with this Ehling Contest Winner. It's an appropriate name.

him one of the early engines, Brebeck Senior went to work and produced a new engine in two weeks that was comparable (and superior in many respects) to anything being manufactured at that time.

Improvement followed improvement as various models were produced. The Super 60 shown in the three-views was introduced in 1946. This garden variety was widely distributed under the advertisement "A Snap to Start." Properly wired and hooked up, the OK 60 did start easily, but was prone to give the operator a sharp rap across the fingers for improper operation, such as flooding, timer advanced, etc. OK 60 motors ran well on 14-6 and 13-6 propellers, their power being as good, if not better, than contemporary engines.

The popularity of the OK engine was limited, as most modelers preferred to have the timer more readily accessible in the front, despite its inherent danger. OK engines have enjoyed a modicum of success to this date, and as pointed out in previous issues, O.K. parts for most post-war type motors are still available from Ted Brebeck, Box 40, Mohawk, N.Y. 13407.



Spiro Nicholaw went ape with the red and blue spray cans on his Comet Goldberg "Zipper." Hope it isn't catching!

Dave Coates about to launch his Megow Ranger at the 1974 King Orange Internats. Cochran photo.

Incidentally, having started these three-views to assist modelers in determining what engine to use in their jewel, based on size and mounting arrangement, the writer has received several "suggestions" that an engine review ala Peter Chinn would be even better. We don't have enough space for that type of thorough report, but if you'll suggest the specific information you'd like on every engine we'll try to fill the bill.

Also, in addition to many inquiries as what comparable size glow engine to use in place of the original ignition engine, a good rule of thumb is to take 1/3 of the ignition engine displacement. For instance, a "So Long" flew great on an Ohlsson 23. It will also fly beautifully on a Torpedo .09. For years, the writer's Gas Champ, originally powered with a .60 Cyke, won many contests using a Torpedo 23 glow engine.

Now engines converted from glow to ignition are another thing. Despite those who have claimed conversion doesn't make that much difference, *it does!* The writer suggests for easier handling models you drop down one class, i.e., a Class C Pacer will fly fine on a Class B converted engine such as a Fox 29, etc. A Comet Clipper belonging to the columnist flew fine on a Torpedo 29 converted to ignition, whereas it was originally powered with an Ohlsson 60. Note that the above ratings are approximate, and care should be taken not to overpower your model!

BILL BROWN – PEEPULS CHERCE!

When this writer featured 3-views on a Brown Jr (Model D), any remarks made at that time were not to detract from the great pioneering work done by Bill and his Brown Jr motor.

Herb Scarsdale recently took the writer to task for comments about the Brown E, stating that it was Ed Roberts, President of Junior Motors Corp., who made the decision to go with this motor. When this ill-advised action was taken, Bill had already left the corporation and was only acting as a consultant.

It was during this time that Bill designed and built a .12 cu. in. motor that was eventually produced under the name of Lykens Brown. Also, a little known fact was that Bill had a 5/8 bore, 9/16 stroke engine using a modified loop scavenging system. However, the real development was a .60 with 15/16 bore and stroke with what is now called original Schnuerle scavenging! With a compression ratio of 7:1 and a rotary valve crankshaft intake system and rear venturi intake, this engine, featuring the spark plug inserted horizontally into the finned head, would have set a new standard for the motor industry. Truly a shame this radical engine never got off the ground!

MB's editor and his Comet Clipper. K&B .29 Green Head was never used, and still needs breaking in. Full right rudder trips engine shut-off. Silver fuse and rudder, trans orange Monokote surfaces.

Bill's biggest problem in engine development was financing. He surely would have been number one a lot longer! I know Bob Scarsdale told me to keep my big mouth shut, as Bill is still a very modest fellow. However, this writer thinks credit should be given where due, and believe me, Bill Brown is still the greatest in my book!

MORE ARC TO YOUR SPARK!

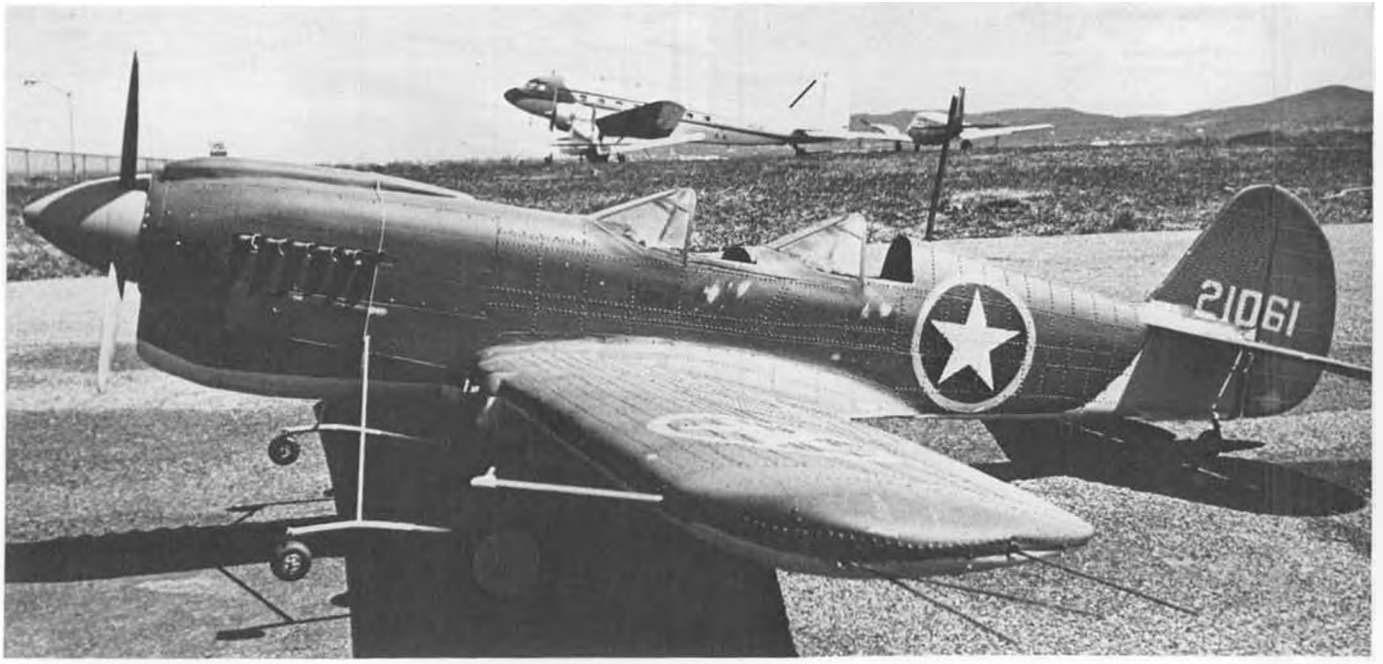
Received an excellent letter from Keith Bartram, of Quebec, Canada, who reads the Plug Sparks column (that makes two!) with interest, and no small amount of nostalgia. He agrees with most that has been written, but would like to add the following for anyone being exposed to an ignition engine for the first time.

Keith emphasizes the fact that whether your engine is glow or ignition, a good hot electrical system works wonders for ease of starting. He does take exception with trouble shooting ignition problems in the spark plug, where this columnist recommended removing the plug and checking the spark in open air. Naturally, the plug may spark reliably (this is not a bad way to go), but when the plug is installed, the pressure inside the cylinder makes the charge act as an insulator. Here is where a top shape ignition system helps! Keith offers the following advice on better starting qualities.

First, Keith says to disregard the usual advice of gapping plug electrodes at .015 inch, and instead, drop the gap to .008 to .010 for more reliability. For those lucky guys owning OK Twins and the like, the gap is even more important. Keith does not use more than .008 in. gap here. This reduces the possibility of the spark jumping down the outside of the plug.

Secondly, use nickel-cadmiums for battery power. Carbon-zinc cells do not have the same life line characteristic, being a linear degradation. Nickel-cad-

Continued on page 68



Try this one on your aviation history fanatics! The TP-40 was developed during early WW-II, when green pilots kept nosing over and breaking hard-to-get props. Field mechs cut in an extra cockpit and added the nose wheels. Researching this one was a bit difficult. The plane was built by Stan Sands. Span 66, Fox 60 power, with throttle control. Photo and info by Bob Diefenderfer. Both members of Flying Dutchmen, Reading, Pa.

Control line

"FROM THE HANDLE"
By JED KUSIK

• So what's new this month? Very little, if anything at all. It's been a ho-hum, non-descript month. At least for me it was. I attended two contests and just watched. The trade show at the Anaheim Convention Center failed to impress me with all the new R/C equipment. The only spark of light for me at the show was a new .15 speed and racing engine from Japan called the HGK-1, and being imported by Shamrock Imports. It is Schnuerle ported and claims 30,000 rpm. It was quite interesting, built a little different from most. I'll save comment on the rpm, as I have to see it on my tach to believe it.

Considering my general lack of interest in model airplanes this month, I went motorcycle racing instead. Everyone should have a second hobby of equal interest to them personally, it really helps keep the spirit alive. If it were not for my good friends who supply me with information, I would be finished writing now.

M.A.C.A. COMBAT STICKIES

The Combat Association now has an emblem in decal form. It's very attractive and belongs on all good combat planes. (It wards off evil bellcrankings.) The emblems are available from Tom Southern at 2207 Paul, Longview, Texas

Neal White and his own design combat ship, Bosta. Photo by Tom Zon.

Gary James (lt) and Greg Turpin are co-designers of the Shrika II. Tom Zon photo.

C/L editors original profile Curtiss "Swift", designed from 3-views in Air Force historical book. Span 42 inches, Fox Combat .35.

Dale Long, Riverside, Cal., pitted for Ken Mogi in Slow Rat at San Jose contest.

75601. Price is 10 for $1.00.

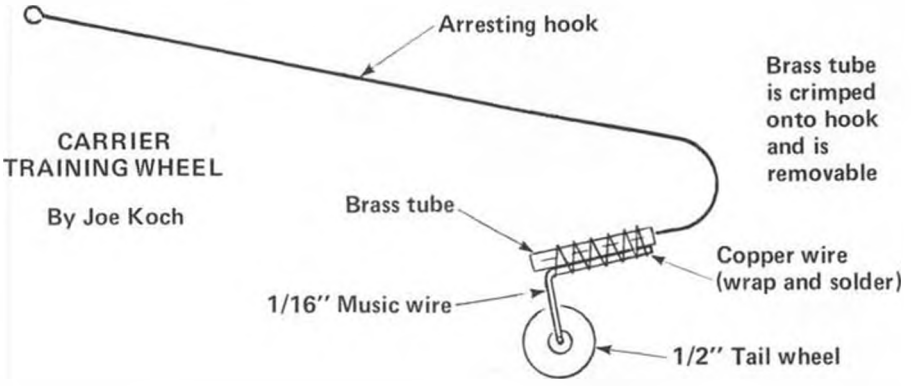
Rich "Von" Lopez, the combat director for the Western Associated Moddelers has provided all WAM member clubs with specific instructions for making streamers. That way, hopefully, all WAM contests will have well made streamers in abundance.

"There should be 250 A and BC streamers. These guys take a long time to make up properly, so plan to make them way ahead of time. Do not do it alone; 3 or 4 people should work together on this project. Allow yourself 4 or 5 hours to make them.

"Materials and tools required to make all of these include: yard-stick, felt pen, large and small shears or scissors, one roll of 1-1/2 inch masking tape, one hole puncher, stapler and extra staples, enough thin cardboard to make 250 cards (1-1/2 inch square), 22 packages of good quality crepe paper (Dennison), 1,250 feet of kite string (Northern Pacific #5131 or comparable type). Make sure you get good quality crepe paper, it has to be the close weave type. The large open weave type is no good for our purpose, it shreads while being pulled along. Get as many different colors as possible.

"The streamers should be made in this manner. Using the yard-stick and felt pen mark the sheet of crepe paper at 1-1/2 inch intervals. Using the large shears or scissors cut them at these intervals. Cut the thin cardboard into 1-1/2 inch squares. Fold the streamer around the 1-1/2 inch cardboard square and staple a 1/4 inch from the top. Next wrap the cardboard square, streamer, and staple with the masking tape. Using the hole punch, make a hole 1/2 inch from the top, directly below the staple. Tie 5 feet of string through the hole. Roll up the streamer and wrap the string. Repeat this procedure 249 times and you are done."

FAI Combat will not be an event at the 1976 CL World Championships. Frank Ehling received the announcement in mid-April and informed the MACA organization. This has to be a big disappointment for many who have been working toward preparing a U.S.A. combat team. Maybe it will all come together next time.



CARRIER HOOK UP . . . (OR DOWN)

Most Carrier pilots practice Carrier without the benefit of a proper deck, and probably have the same problem I had when I played with the event some 10 years ago. The problem was that the hook would hang up on grass and weeds, or rocks and cracks in pavement, and it was not possible to touch-and-go many times without a helper to release the hook from the trash.

Joe Koch, of Levittown, Pa., sent in a super simple cure for this problem. He attaches a tail wheel to a piece of brass tubing with a m/w strut, it is bound with copper wire and soldered. The tube is then slipped onto the arresting hook and crimped in place. As the hook retracts on landing, the wheel rolls and allows a normal landing and takeoff. Very clever and very simple.

Joe receives the "Oh, by the way" commendation for this month.

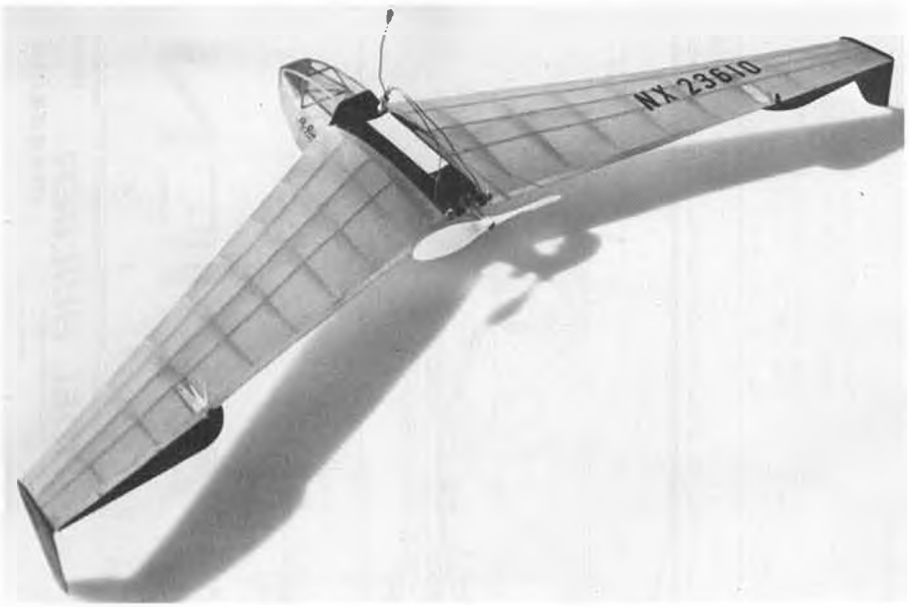
NEW PROPELLERS FOR '75

Rev-up is getting better! Hard to believe because they are already the best. The new '75 props are thinner and slim-

Continued on page 56

	HP 40F	K&B 40S	MAX 40SR	OPS 40SLA	OPS 40SLP	HP 40RR	K&B 40F
Bore (Inches	.8268	.840	.8346	.850	.850	.8268	
Stroke (Inches)	.7323	.720	.7244	.701	.701	.7323	
Intake Open ABDC*	44°	33°	27°	40°	45°	43°	30°
Close ATDC**	43°	58°	67°	45°	64°	63°	52°
Duration	179°	205°	220°	185°	199°	200°	202°
Exhaust Duration	140°	156°	156°	154°	154°	140°	150°
Main Bypass Duration	120°	126°	118°	130°	130°	140°	150°
Boost Port Duration	108°	116°	114°	126°	126°	114°	---

Note: *ABDC means after bottom dead center
**ATDC means after top dead center



the ALIEN

By DANIEL WALTON

An interesting experiment in the use of pendulum control to maintain stable flight in a somewhat tricky design. A total success!

• The initial concept for the control system incorporated in the Alien was the result of a term paper. The system's purpose is to correct for the tendency of higher aspect ratio types of tailless aircraft toward spiral instability. Although two years lapsed between the term paper and the construction of the Alien, it was always felt the concept was viable if the mechanism could be kept light enough. Since none of the stock items available were acceptable, the system must be custom made. It may seem to be a time consuming extra to make, but if done well, it works like a champ. When flying, it can be upset by some fairly stiff gusts and correction is almost immediate. Pattern is a wide gentle left climb and glide, and flights average about one minute on a full liquid charge.

CONSTRUCTION

The keynote of this ship is simplicity, because a simple plane is usually a light one. The Alien is no exception, with a total finished weight of 1.3 ounces, trimmed and flying . . . so when building, keep it light.

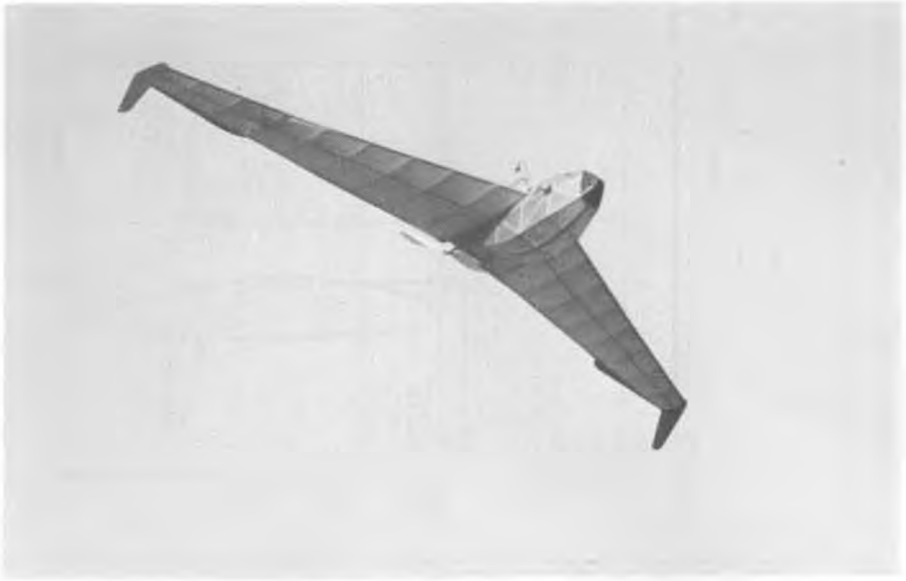
The only things which should be of stiff, hard balsa are the L.E., 40% spars, keel, and main longerons of pod. These really take a beating, especially the keel area. Pod is basic box type, although you may wish to sheet the bottom (1/32 sheet) for added durability.

Because of this simplicity, only the pendulum movement will be elaborated upon. The mechanism itself must be as free from friction and binding elements as possible. Otherwise, more weight will be required on the pendulum. Here is one of those rare cases where it pays to have a little slop in a system rather than a tight fit.

Start by constructing the two bellcranks from 1/64 plywood and 1/16 dia. aluminum tube, as shown on the plan. Tubing should be secured with epoxy, being careful not to get epoxy in the tubing. Make sure the axis of the tube is perpendicular to the plane of the bellcrank. While this is curing, form all of the wire parts. Tails on the "Z" bends which go into bellcrank should be rather long so as not to hang up on slot in R-7. The washers on main pushrods are affixed with silver solder; also, note the bend, which is important.

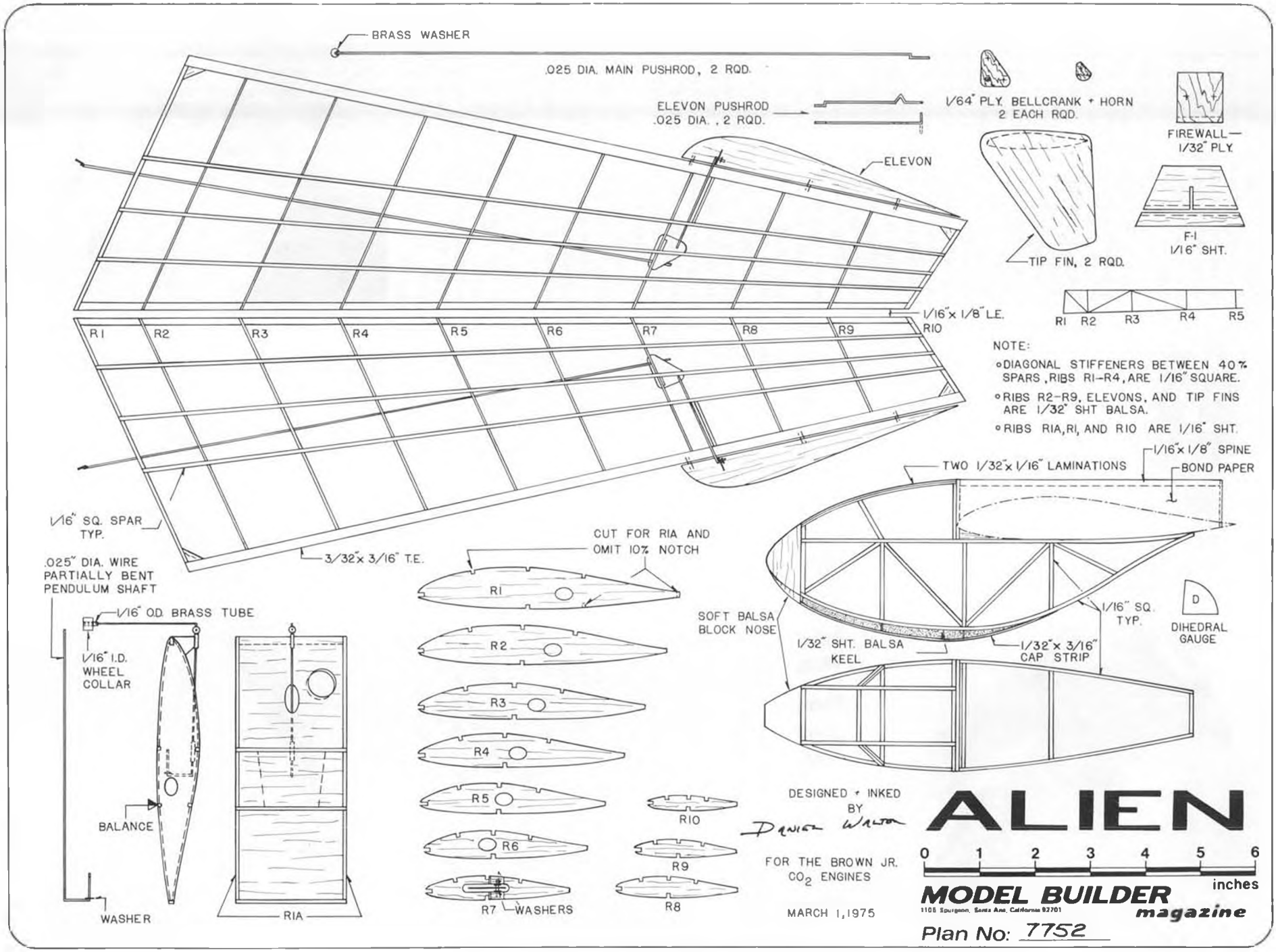
When the bellcranks have cured, attach them, along with washers, to R-7 as shown on plan, being careful with the glue. They must move very freely and success or failure is very dependent upon this operation. Once the glue is dry, the outer wing panels may be built in the normal manner, starting with R-7 pushrods attached to bellcranks. Then slide each rib on over the rod, like a control line model. Also make sure R-1 is jigged for dihedral, using template "D". Washout is automatic because of the tapered wing. Just pin it 3/16 off board all the way along T.E.

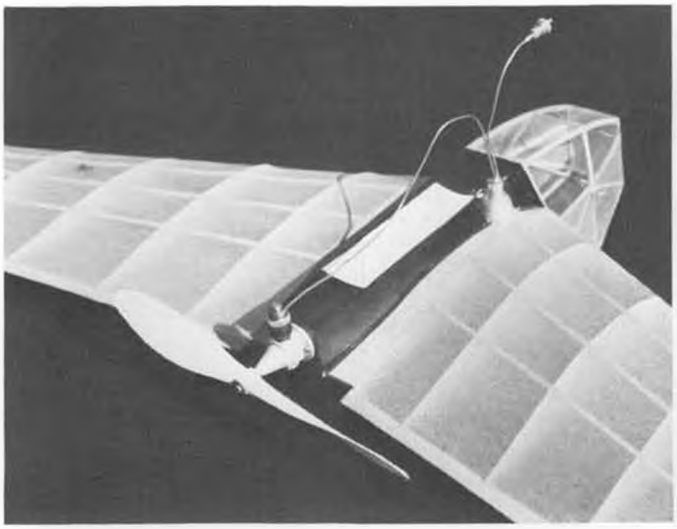
Center section is built over plans, removed and then sheeted on top side only. Now glue on front support and cut out pendulum shaft hole. Next add front and rear 1/16 dia. aluminum tube bearings to assembly using epoxy, again being careful not to get epoxy in tubing. At this point, insertion of a piece of straight .025 piano wire will aid greatly in maintaining alignment during cure. Allow this assembly to cure at least five hours. The pendulum shaft should be partially bent so it resembles the letter



The Alien glides back to earth after a pendulum contolled power flight. Hmmm . . . wonder how he got the prop to stop in a horizontal position?

Close-up of cockpit reveals wheel collar pendulum weight and CO_2 fuel tank.


BRASS WASHER
.025 DIA. MAIN PUSHROD, 2 RQD.
ELEVON PUSHROD
.025 DIA., 2 RQD.
ELEVON
1/64" PLY. BELLCRANK + HORN
2 EACH RQD.
FIREWALL—
1/32" PLY.
F-1
1/16" SHT.
TIP FIN, 2 RQD.
R1 R2 R3 R4 R5
1/16"x 1/8" L.E.
R1 R2 R3 R4 R5 R6 R7 R8 R9 R10
NOTE:
∘DIAGONAL STIFFENERS BETWEEN 40% SPARS, RIBS R1–R4, ARE 1/16" SQUARE.
∘RIBS R2–R9, ELEVONS, AND TIP FINS ARE 1/32" SHT BALSA.
∘RIBS R1A, R1, AND R10 ARE 1/16" SHT.
1/16" SQ. SPAR TYP.
3/32"x 3/16" T.E.
1/16"x 1/8" SPINE
TWO 1/32"x 1/16" LAMINATIONS
BOND PAPER
.025" DIA. WIRE PARTIALLY BENT PENDULUM SHAFT
1/16" O.D. BRASS TUBE
1/16" I.D. WHEEL COLLAR
BALANCE
WASHER
RIA
CUT FOR R1A AND OMIT 10% NOTCH
R1
R2
R3
R4
R5
R6
R7 WASHERS
R10
R9
R8
SOFT BALSA BLOCK NOSE
1/32" SHT. BALSA KEEL
1/16" SQ. TYP.
1/32"x 3/16" CAP STRIP
D
DIHEDRAL GAUGE
DESIGNED + INKED BY
Daniel Walton
FOR THE BROWN JR. CO_2 ENGINES
MARCH 1, 1975
ALIEN
0 1 2 3 4 5 6
inches
MODEL BUILDER magazine
1108 Spurgeon, Santa Ana, California 92701
Plan No: 7752



Total weight of the ship was held to 1.3 ounces, making it an easy job for the little Brown CO_2 engine to take it up.

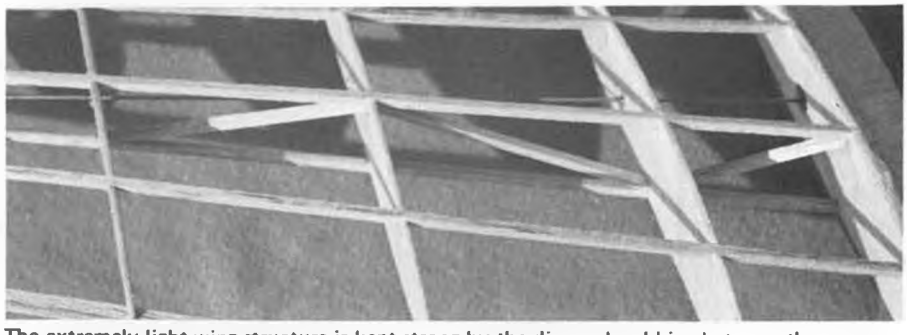
The pendulum controlled aileron is hinged with "figure 8" thread hinges . . . no friction! Note pushrod from pendulum.

"J". Add the washer as shown on plans. This is very necessary to keep the main push-rods from climbing the shaft. Install by inserting into rear bearing from T.E., with a slight bowing of shaft, and running through to front bearing. Now the bottom is sheeted.

Assembly of center section and panels is done by inserting push-rods into center section through holes in R-1A and gluing R1 to R-1A with Titebond. When dry, push pendulum shaft back far enough to hook both push-rod ends, pull back, add bead and bend shaft down, making sure short and long arms are parallel. About 1/16 inch end play is also very desirable. Solder on 1/16 dia. brass tube and add wheel collar.

At this point, the wing is covered with tissue paper. Shrink with rubbing alcohol and dope assembly. Finally, attach elevons with thread hinges as indicated. They should move freely.

As for mounting the engine, Mr. Brown now has a single and a twin cylinder engine available. The Alien has been flown with both types, but you may wish to mount a second tank. Twin cylinder models seem to run 20 seconds maximum with a single tank. The second tank should be mounted on the left side of the pendulum shaft, mirror image fashion. Because of its ready accessibility, provision should be made for easy engine removal. One of the new Crocket engine mounting rings is well suited for this. The firewall is marked for single cylinder type engine. Twin will require 90° rotation of hole position. The discontinued single cylinder model with 3 hole mounting would also work on this model, but the engine itself is shorter and the firewall would have to be moved aft.

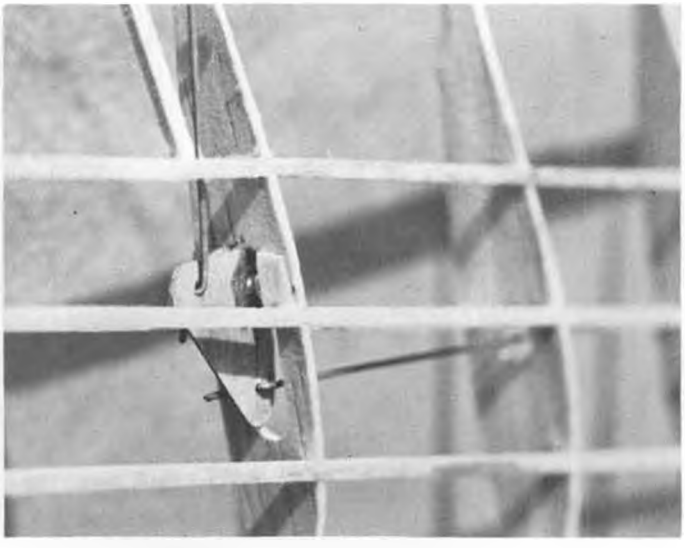


The extremely light wing structure is kept strong by the diagonel webbing between the upper and lower spars. Don't leave these out. Note wire pushrod.

FLYING

Flying should present no problems whatsoever, if the ship has no visible warps. The original flew "right off the board" and was trimmed for optimum performance on the first day. Bank is controlled by differentially adjusting the "V" bends in elevon push-rods, and C.G. should be as marked on plans, at the 60% position of the center section.

Linkage from aileron pushrods to pendulum crank.



Aileron bellcrank is fabricated from 1/64 plywood.

Polikarpov PO2, by David Deadman, Surrey, England. Scale is 1/12, and the rubber powered model has achieved close to a minute in calm air.

FREE FLIGHT SCALE

By FERNANDO RAMOS

• As a change of pace, I'm going to start this month's column with a letter written by Tom O'Brien. Tom wrote the letter to Bill Northrop, and I personally feel that you would enjoy reading it. In fact, the ideas presented have led me to convince the Flightmasters that they should hold a Thompson Trophy event along with their regularly scheduled scale speed meet. The particulars on this event will be found at the close of this column. "Dear Bill,

"I'm writing in praise of the WW II Rubber Scale Book ("Flying Scale Models," $7.95 at your dealer, or direct from MB) and clamoring for more rubber scale books. My favorite period is the 1920's and 30's. Such a colorful era which includes the National Air Races, early airliners, classic military and naval aircraft, and many private aircraft.

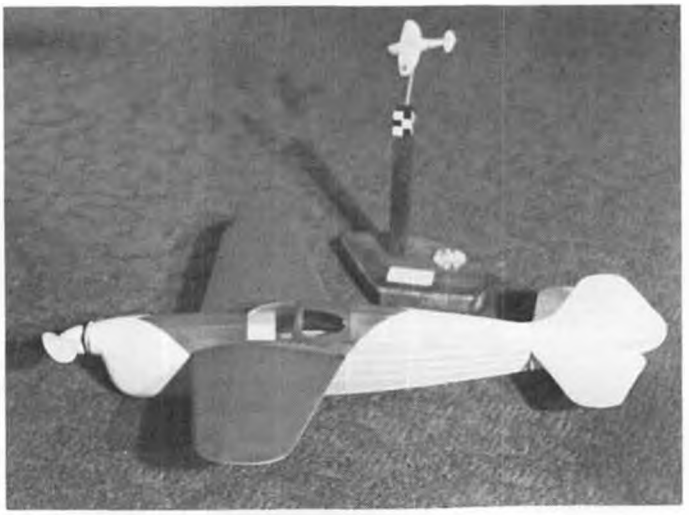
"Picture 'Miss Los Angeles,' Travel Air Mystery, Wedell-Williams, Lockheed Orions, Vultee V-1's, Curtiss P6-E, Vought biplanes, Wacos, Stinsons, Staggerwing Beech's, and on and on!

"You must have a soft spot for the little gum-banders. We rubber scale nuts are devoted to Fernando's column, Hannan's Hangar, and Walt Mooney's peanuts. Imagine that much rubber scale material every month, plus other construction articles and sometimes even two peanuts!

"We'd like you Westerners to know that rubber scale is alive and well on the East Coast. In October, the Flying Aces fall meet at Durham, Connecticut drew 49 entries and 87 airplanes! Six rubber events, only one of which (Embryo Endurance) was non-scale. The Glastonbury Modelers this year have held and will hold 3 indoor and two outdoor meets, which will include F.A.C. events.

"We see a lot in MB and other mags about the Western contests at Sepulveda and Lake Elsinore, which is natural since all *(Oh? wcn)* the editors live there, but we'd like to see our meets covered a little better and we know rubber scale is flown a lot in Pennsylvania, Ohio, and the Midwest, and we'd like to see what those guys are up to as well. Can't speak for these areas, but as far as we're concerned don't say 'you never send any material' because we have, much of which was ignored. Some pictures were published in MB and AAM (Walt's column) over the last year or so, but no photo credit and no mention of the meet in the text. (Good point! Please send text and photos directly to me. Another factor that often enters in is that many photos that are taken do not have the quality to be reproduced in the magazine. An error that modelers make when sending in photos, is that they sometimes use a felt marker or ball point pen on the back to identify the picture. This ink transfers

Royal Moore and his geared rubber Gee Bee, which won the Thompson race at the F.A.C. Fall Meet in Durham, Conn., 1973.



Tom O'Brien's Folkerts SK-2, from Cloudbuster plans. Span 20", length 24". Typically gets over a minute on two loops of 3/16 Pirelli.

Don Garofalow's Caudron C-460 makes a beautiful sight against the sky as it streaks by.

How's this for realism in modeling?! Bob Bender's Howard "Ike", Chet Bukowski's Chester "Jeep", and Don Garofalow's Caudron, in a last-one-down-is-the-winner type event.

onto the next picture, making it useless . . . Fernando Ramos, 19361 South Mesa Dr., Villa Park, Ca. 92667).

"Well, this isn't supposed to be a complaint, because some stuff Dave Stott has written was published by MB. We would like the world to know about some of the great events we fly, and what others are doing as well . . . Not the winners names in lights so much, but what kinds of times they get, the type of airplanes that are flown.

"The premier F.A.C. event was written up in Walt's column, Handicap Rubber Scale, which gives bonus points to low-wings, racers, multi's, unorthodox, etc., to encourage variety, and it works! Sometimes high wing cabins win, and sometimes a Supermarine S-6B (on floats!) or a tandem winged Mouboussin will win. This is a far more interesting event than AMA rubber scale.

"Then we have the Pre-War National Air Races and WW I Peanut Dogfight. Instead of a stop-watch, these events use a different concept . . . head to head elimination. Everybody launches at once, and the first one down is out, then do it again and again 'till the winner is left. If you blow a motor, or damage the airplane, you're out.

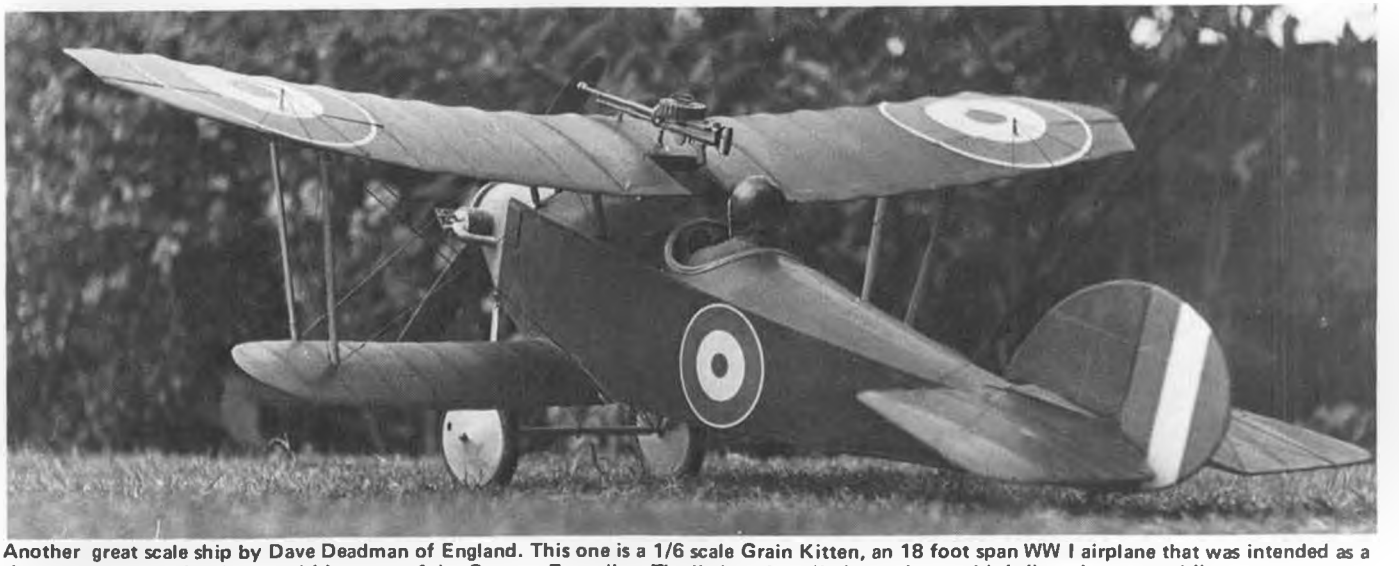
"The Flying Aces run the 'Shell Speed Dash' for qualification. It is now the total time of two official flights (used to be three) and the top ten get to fly in the Greve and the Thompson. Only pre-war racers, 24 inch span or less, with no undercamber, no parasols, or high wing cabins. The variety angle works here too. Royal Moore has won this event with a Gee-Bee Z! He now also has a Gee Bee R-1. How many good flying rubber powered Gee Bee's have you seen? The time Royal won, he nosed out Tom Nallen Jr. and his Marcoux-Bromberg by a whisker! Tom Nallen Sr. has a Keith Rider 'Suzy' that has won both Thompson and F.A.C. Scale. We have also had a Caudron C-460 and Art Chester's Jeep win and Dave won the Greve with a Chambermaid. Ever see a rubber powered Hall Springfield Bulldog? It flies smoothly but not too much duration, it belongs to Bob Bender. Ed Wynn has a pretty Brown B-2 'Miss Los Angeles,' and Bob Thompson has a Laird Solution, which I believe has won once. So you can see what I mean by variety. Would you ever see guys bring out this sort of stuff for an AMA rubber scale meet? I would like to see the Western modelers fly sometime and would love to have them come to one of our meets. (Maybe this could be the start of a postal contest for this type of model. The West against the East? This might be something to think about . . . F.R.)

"We have been blessed with beautiful weather at the last four F.A.C. meets and the Fall Glastonbury meet, so I suppose we're about due for a disaster. The Spring of '73 F.A.C. meet will live forever in the memories of the contestants. Deep blue skies, a few wisps of cirrus to make it picturesque,light wafting breezes and fabulous buoyant air. A low-winged Mig 3 stayed up seven minutes and landed only a hundred yards from where it was launched!

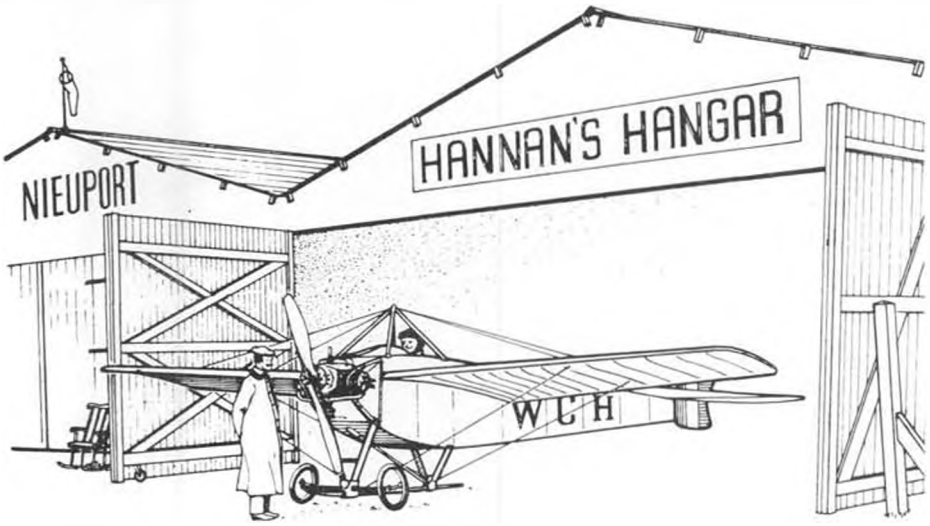
"I must sound enthusiastic . . . would you believe I flew R/C for a few years before I "graduated"? Well, I would do more R/C, I like it, but just don't have the time now. Rubber Scale has captivated my interest.

"A sort of philosophy of rubber scale is beginning to emerge. It is fundamentally different from power scale (F/F, R/C, or U/C) in that duration rather than realism in flight is scored. It's also a different medium. Chet Bukowski and I have both made the same analogy; it is like a water color painting, where the others try to be more like a photograph. Bill Hannan said something very similar in the FSM book, pointing out that marble or bronze sculptures don't depict the color of the subject, but are none-

Continued on page 72



Another great scale ship by Dave Deadman of England. This one is a 1/6 scale Grain Kitten, an 18 foot span WW I airplane that was intended as a cheap way to get a Lewis gun within range of the German Zeppelins. The little twin cylinder engine couldn't "cut the mustard."



. . . being an aeronautical catch-all . . . of sorts

"Put yourself in the cockpit!" Don Typond sculptured himself for his scale-like R/C glider.

THE BEST KIND OF COPILOT

● Mike Midkiff contributed one of our photos this month, showing his charming wife Linda, who has chosen to join him in his hobby: "Linda says her interest in building and flying rubber scale models started with her accompanying me to various contests. She was impressed at seeing the low-key contest attitude, with the emphasis on good clean simple fun. This, plus the fact we are "blessed" with good building weather in this area, caused her to spend more and more time with me at the building bench. It was just a matter of a little coaching and time, before she was hooked." So there ya' go fellas, an inspiration for us all.

HANDY HINTS DEPT.

Flightmaster Warren Shipp, newly transplanted from the East Coast (New York) to the West Coast (Rancho Bernardo), near San Diego) offers the following tips:

Another source for bamboo is the party favor departments in some stores, where they are sold as "Fondue sticks."

Some yardage and sewing stores offer "Elastic Tinsel Cord," Silver, #1091, useful for simulated rigging on flying scale models.

HUGHES BIRDS

Although the final fate of the HK-1 flying boat seems uncertain at present, the H-1 Racer should by now, be settled in its new home in the Smithsonian Institution. Included are the spare set of wings, which enabled the machine to be quickly converted to either long-distance or short-course configuration. The craft has been kept in good order, and although it will doubtless be completely restored prior to being put on public view, it looks as though the addition of fuel and oil would almost make it ready for flight again.

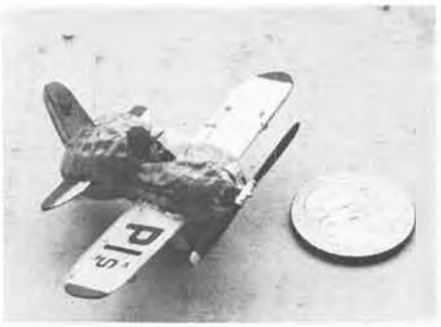
For many years it was stored in an old hangar in Culver City, and hasn't been flown since the 1940-41 era, when Otto Timm contemplated its purchase. World War Two cancelled his plans. Earlier, during 1937, the Japanese government had shown more than a passing interest in the machine, but their offer to buy was not accepted.

In addition to the actual racer, the Smithsonian has reportedly received the wind-tunnel model which is nearly seven feet long, and evidently in good condition. We all look forward to seeing these historic items on display.

CACAHUETES, AGAIN

That's French for Peanuts, Charlie! In a previous column, we reported upon the highly successful contest held in Fayence, France, at the instigation of Jacques Pouliquen. On the sixteenth of March, another Peanut event was con-

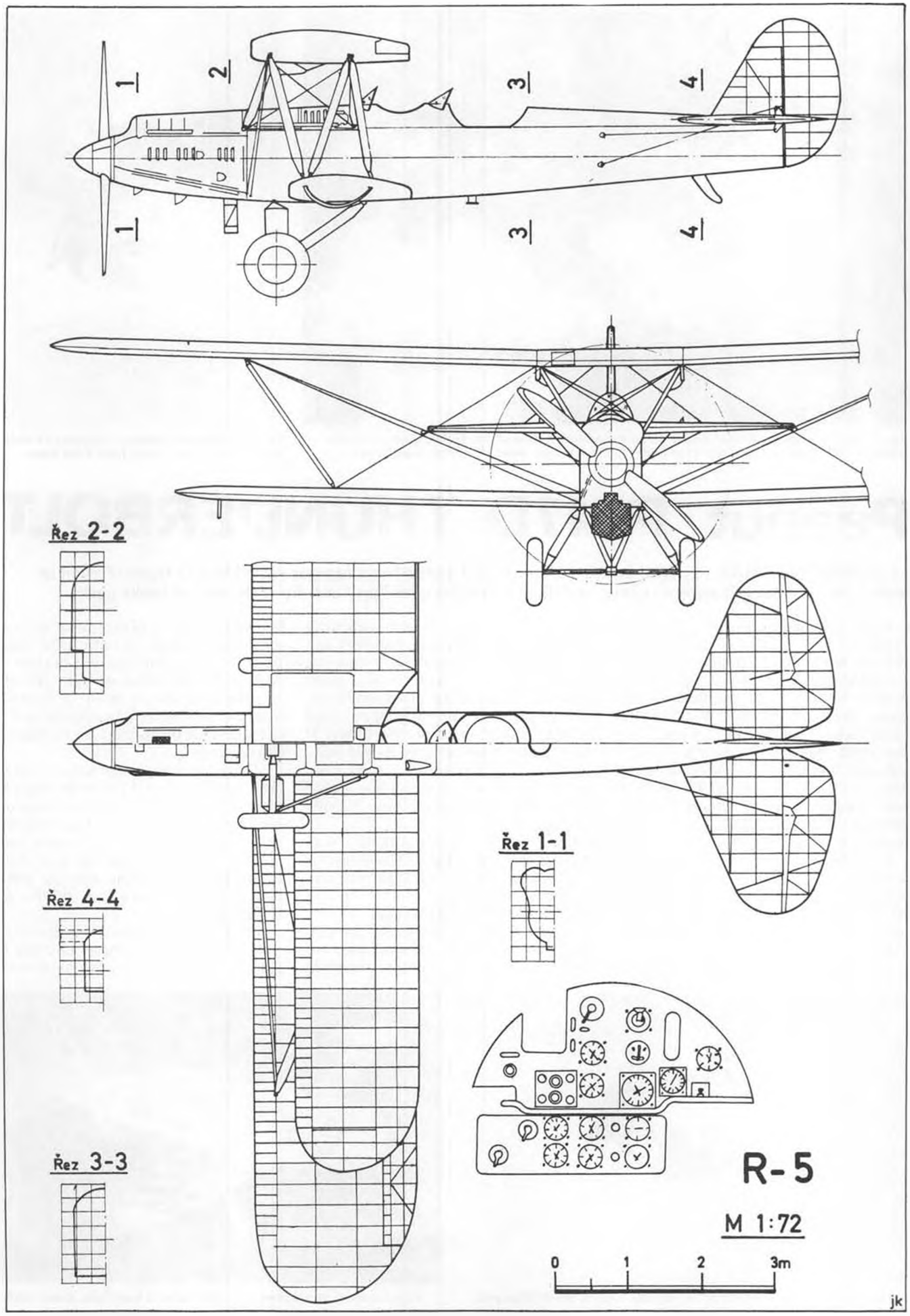
Continued on page 85



Steve Warmath, Clemson, S.C., entered this Peanut Peanut since he couldn't finish a 13" one in time for our proxy meet. Results will be published next month.

Linda Midkiff, Erie, Pa., built this 23" span Bristol Brownie rubber powered model.

Business end of the famous Hughes Racer, snapped by Mel Duke shortly before it was shipped to the Smithsonian Institution, where it will go on display.



POLIKARPOV R-5. Scale views courtesy of the Czechoslovakian model magazine, Modelar.

The author launches his Peanut P-47D under the watchful gaze of Jim Hyka, another Peanut enthusiast. This was at Cleveland Free Flight Society indoor meet. Photo by Russ Brown.

We have a trophy winner! Entered in a static scale contest, the "Jug" took First Place.

Peanut P-47D THUNDERBOLT

By DENNIS NORMAN . . . Who can resist the rugged lines of this famous World War II fighter? Even in Peanut form it doesn't appear dainty or delicate. Put the gear "up" and fly it the way it looks best.

• Most flying scale buffs will agree that "flight points" usually go to the guys with the high wing monoplanes. This is particularly true with peanut types. Even so it is hard to resist the sleek, glamorous, aircraft of World War II. The "razorback" Thunderbolt is a subject I have built many times in many sizes. Although flight times never equal those high wing jobs, I have caught 16 inch span Thunderbolts in thermals, and believe me, it is as exciting as any free-flight experience.

With the popularity of the peanuts I had to try a "razorback" with a 13 inch span. My first effort was so over-decorated (the model weighed 21 grams!) that flights never exceeded four or five seconds.

Returning to the proverbial drawing board, I built a second version with strict attention to weight saving. Not only was the structure lightened, but also the model was decorated with tissue as much as possible. A friend (who remains anonymous for his own protection) provided me with one sheet of pre-World War II silver Japanese tissue. This proved quite light and gave the model a good basic color. Further weight saving was gained by the use of colored tissue for the markings, etc.

Construction is conventional, with emphasis on low weight. The model is built almost entirely of 1/32 medium, straight-grained, balsa.

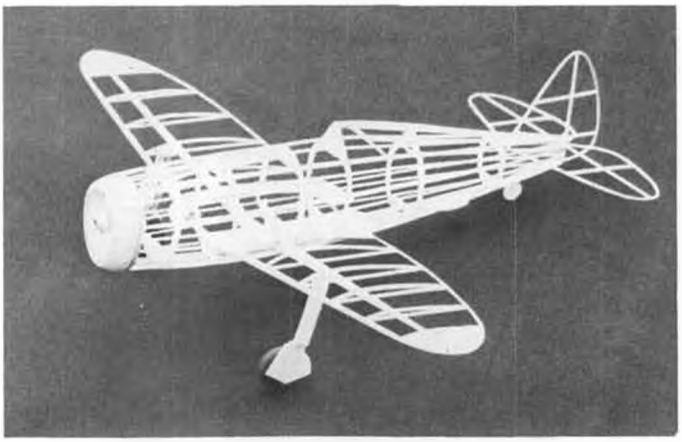
FUSELAGE CONSTRUCTION

Begin fuselage construction by cutting the top, bottom, and side longerons from 1/32 sheet. The formers (shown in half section on the plan) are cut as single units. Having done so, place 1/32 square balsa braces at the top and bottom of each former for added strength. Notches for longerons should be cut in each former, but stringer notches should not be cut until after the formers are in place on the longerons.

There are several approaches to fuselage assembly, but I prefer to begin by placing the top and bottom longerons on the plan. These are held together with scrap pieces of 1/32 square balsa at the nose and tail. Having done this, I lift them off and then slide the individual formers in place and add the side longerons.

Once the basic assembly is dry, make the 1/32 square stringer notches by gluing a 1/32 wide strip of medium

The ship has been designed with "retractible landing gear!" You pull the struts out of their sockets and put 'em in your pocket!



Framework shot discloses how the model is kept light. Long fuselage provides room for plenty of rubber, and a long motor run.

Walt Mooney decided he wouldn't risk mailing his Peanut entries for the MODEL BUILDER Proxy Peanut contest, but found hand delivery had its complications also. Linstrum photo.

weight sand paper on the edge of a small piece of 1/32 plywood making, in effect, a very small emery board which will "notch" neatly and rapidly. As the wing halves will be joined directly into the fuselage, the stringers passing in the wing root area should be omitted until after the wing is in place.

Strengthen the cockpit for later attachment of the canopy by adding short pieces of 1/16 square strips below the stringers between formers F-4 and F-5. Also, build up the supercharger from either scrap balsa, or styrofoam and, of course, add a motor peg support just ahead of former F-7. The nose is carved from block balsa and hollowed as shown. The prototype was tail-heavy, so leave the nose block fairly thick until you see how the finished model balances.

WING CONSTRUCTION

The wing ribs are cut from 1/32 sheet. The leading edge is also cut from 1/32 sheet and tapered from a width of 3/32 at the center to 1/32 at the tip. The wing tips and trailing edges are formed by soaking 1/32 square balsa strips in hot water and then bending them around a 1/16 cardboard form. The wet strips are attached to the form with small pieces of masking tape and baked in an oven at 250 degrees for 15 minutes. The wing tips are reinforced by filling in the area beyond rib W-6 with scrap 1/32 sheet.

A dihedral stub spar is cut from 1/32 plywood and glued to the spar of the right half of the wing while it is still attached to the plan. The stub spar is then attached to the left half of the wing, after the two halves are joined with the fuselage. As shown on the plan, the wing's leading edge should touch former F-3 and its trailing edge should rest on small supports glued to either side of the bottom longeron. With the wing in place, add the remaining stringers and fill in the wing root area with 1/32 sheet. The Thunderbolt's wing root did, of course, make use of small fillets, and these may be built up from soft sheet balsa once the wing is in place.

I prefer to hand launch peanut types, but the landing gear is useful for both display and stability. My preference is gear of the plug-in type so that it can be removed (again saving weight) when flying. The sockets, you will note, are made from 1/32 sheet, and are positioned on the inside of ribs W-3

TAIL SURFACES

Both horizontal and vertical tail surfaces are built entirely of 1/32 square. The outlines are made like the wing tips; thoroughly soaked strips are formed around cardboard templates and then baked. Build over the plans, adding spars and ribs.

LANDING GEAR

As noted the landing gear is of the "plug-in" variety. Use 0.015" wire for the main gear and a pin for the tail wheel. The main wheels are laminated from sheet balsa or styrofoam with 1/16 outside diameter aluminum tubing for a hub. Excellent ideas on making scale wheels can be found in the book *Flying Scale Models of World War II*, published by MODEL BUILDER.

COVER AND FINISHING

As mentioned, I built this model twice. The first version was covered with white tissue which was then sprayed with olive drab and gray. This proved

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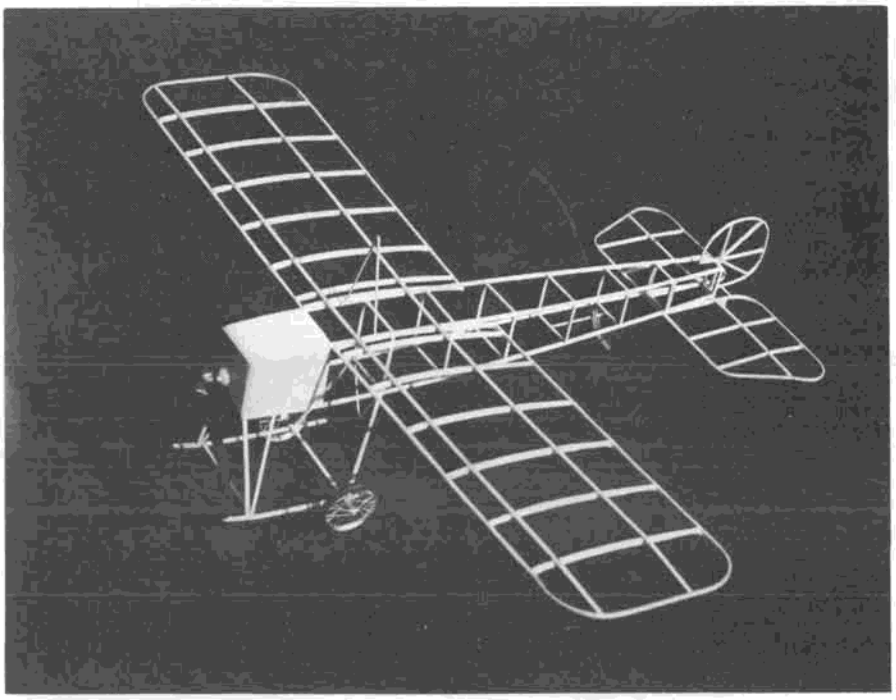


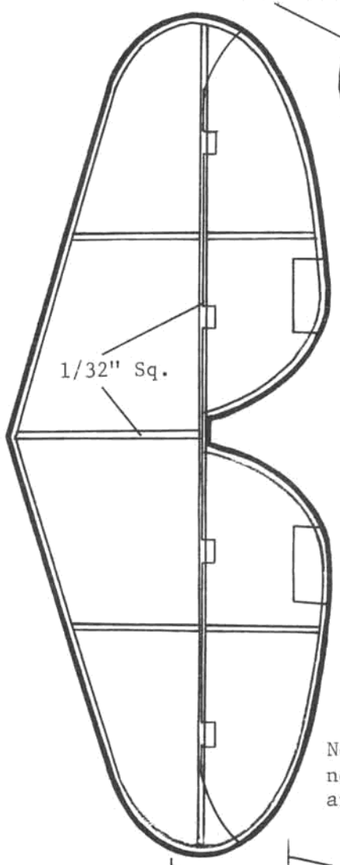
Here are the bones for next month's Peanut, the Uruguayan Castaibert IV. How's that for coming up with something unusual!? Design shows Bleriot influence. By Walt Mooney, natch.

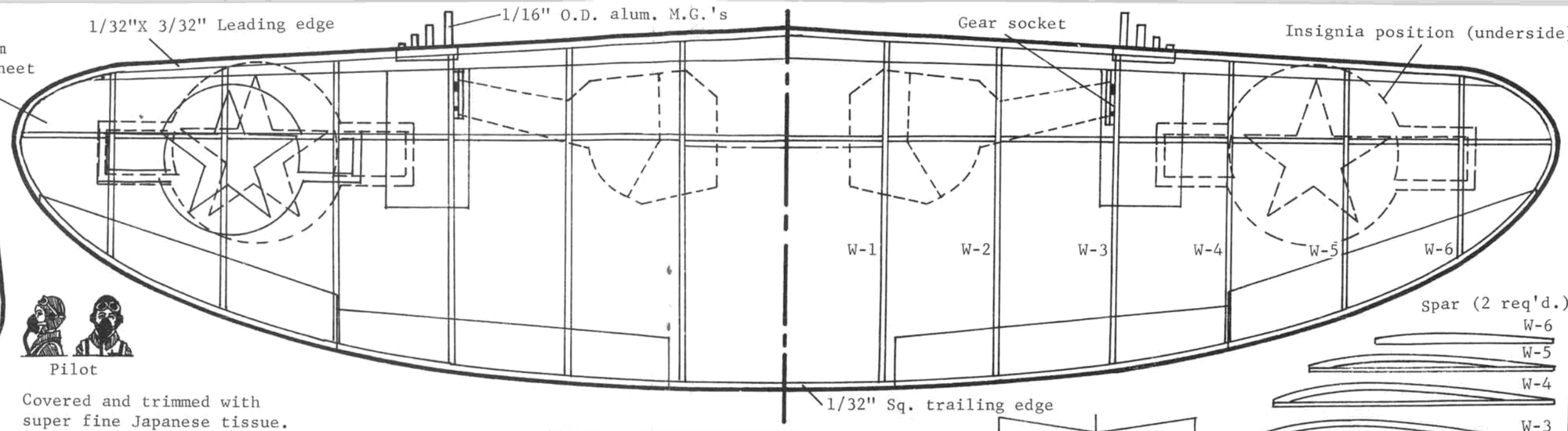
P-47D THUNDERBOLT

Designed and Drawn for MODEL BUILDER

A Peanut Scale Model

by Dennis O. Norman January 10, 1975



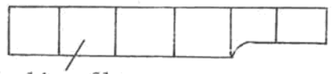


Pilot

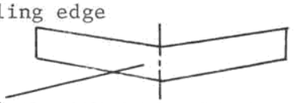
Covered and trimmed with super fine Japanese tissue.

Power: one loop 1/16" Pirelli 15" long (indoor)
two loops " " " " (outdoor)

Color scheme: all silver or olive drab upper and light gray lower surfaces.

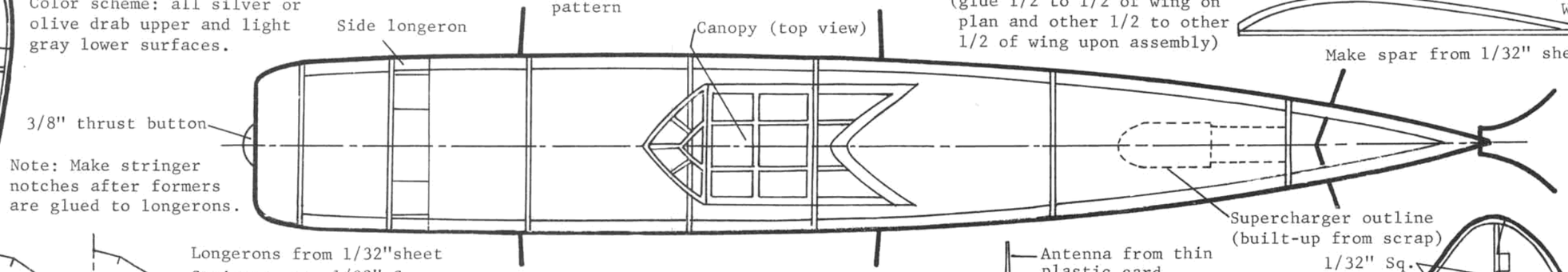


Cooling flap pattern

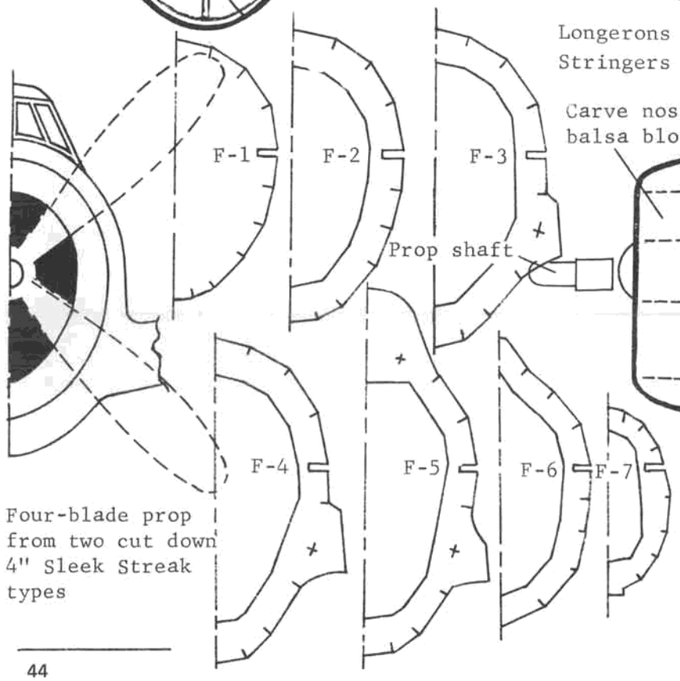


1/32" ply dihedral stub spar (glue 1/2 to 1/2 of wing on plan and other 1/2 to other 1/2 of wing upon assembly)

Make spar from 1/32" sheet



Note: Make stringer notches after formers are glued to longerons.

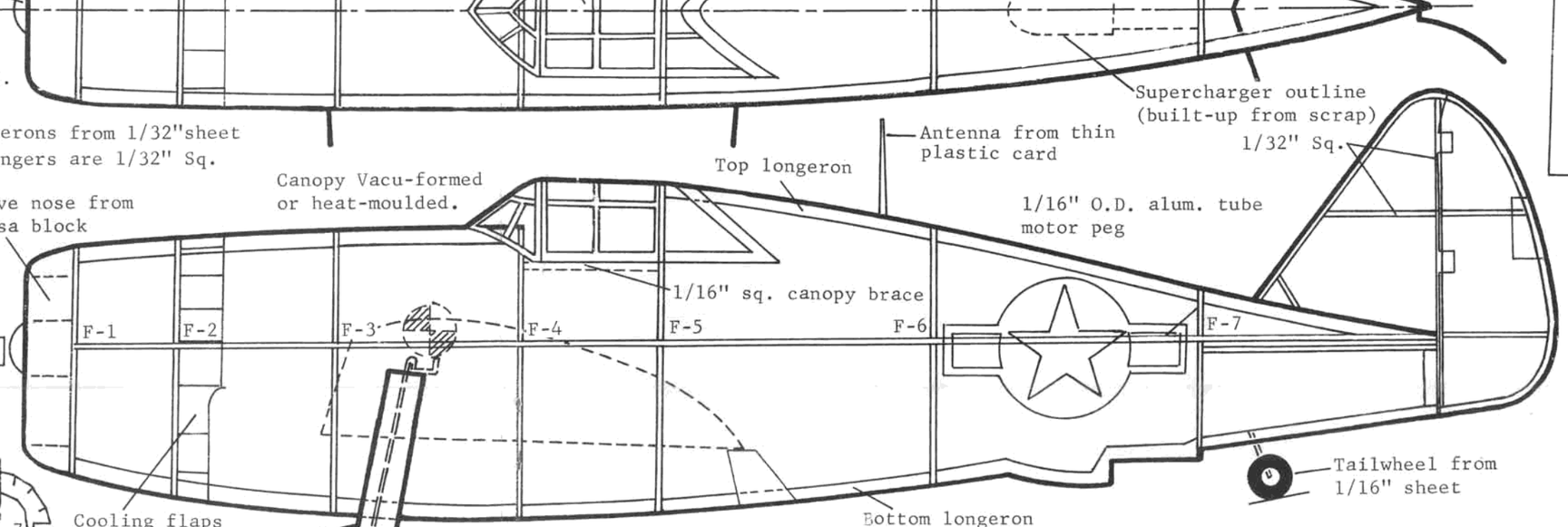


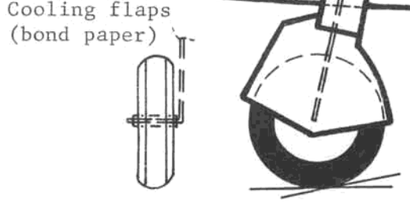
Four-blade prop from two cut down 4" Sleek Streak types

Longerons from 1/32"sheet
Stringers are 1/32" Sq.

Carve nose from balsa block

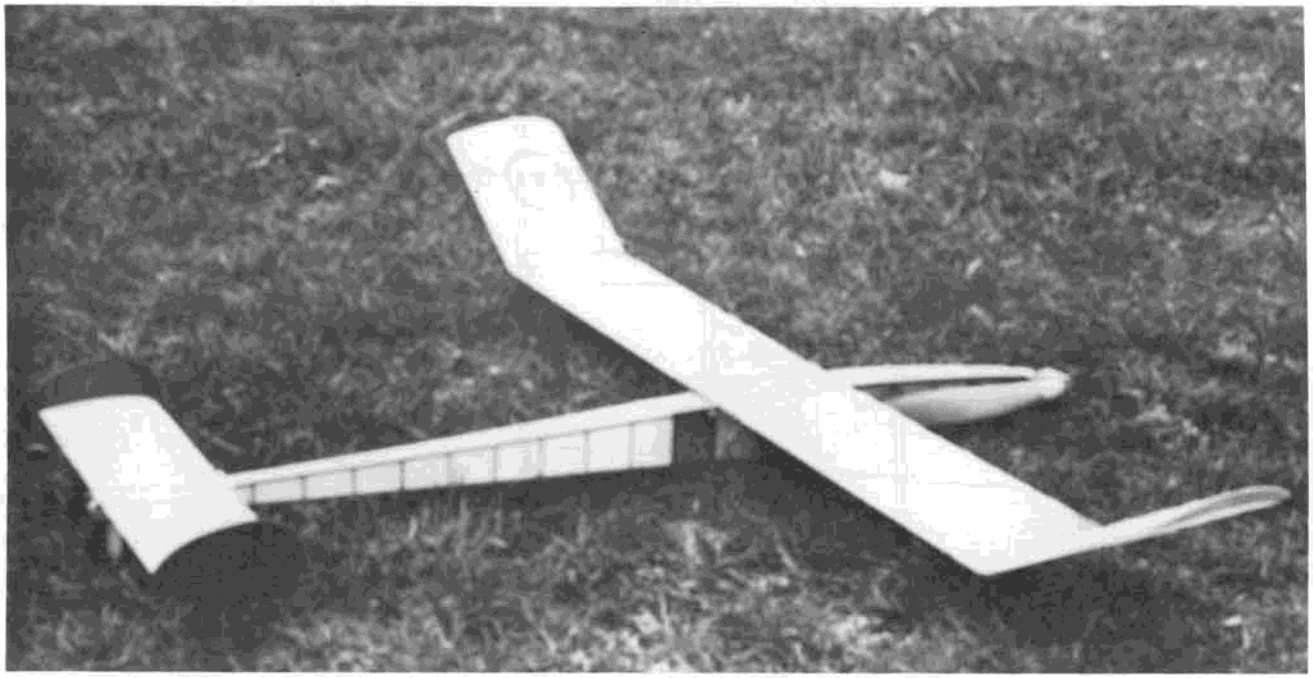
Canopy Vacu-formed or heat-moulded.





Landing gear shown full size (plug-in type).

Wheels laminated from balsa sheet 1/16" O.D. alum. tube center



Coupe Model of the Year for 1975 is Roger Garrigou's "Garricoupe." This French design is a consistent performer, and winner of the International Coupe Competition.

FREE FLIGHT

By BOB STALICK

• All around the country today it is probably sunny and wind-free. But here, in the great N.W. it is raining and windy. Gives one cabin fever. On top of it all, I get a call from Dave Linstrum, who tells me he's going back to the land of sunshine and calm Saudi Arabia. Rub it in, Dave. The one bright spot has been that I have received several letters from modelers around the U.S.A. and Canada saying that they read the column and, contrary to what was stated in April, they like it. Rain and wind notwithstanding, these kind folks have made my day, so let's get on with it.

JULY MYSTERY MODEL

I'll bet that quite a few of you out there built this ship at one time or another. Powered by a K&B Infant .020, it was featured as one of the first free flights designed to handle this "power packed, fist full of dynamite." All balsa, and with lotsa thrust offset, this 11 inch wingspan ship would climb like a rocket . . . Glide, however, was not so good . . . kind of a loose spiral near-dive brought it back fast, so no DT was really necessary. Good Ol' Bill N. will send you a neat MB goody for being the first one to identify the model.

DARNED GOOD AIRFOILS:

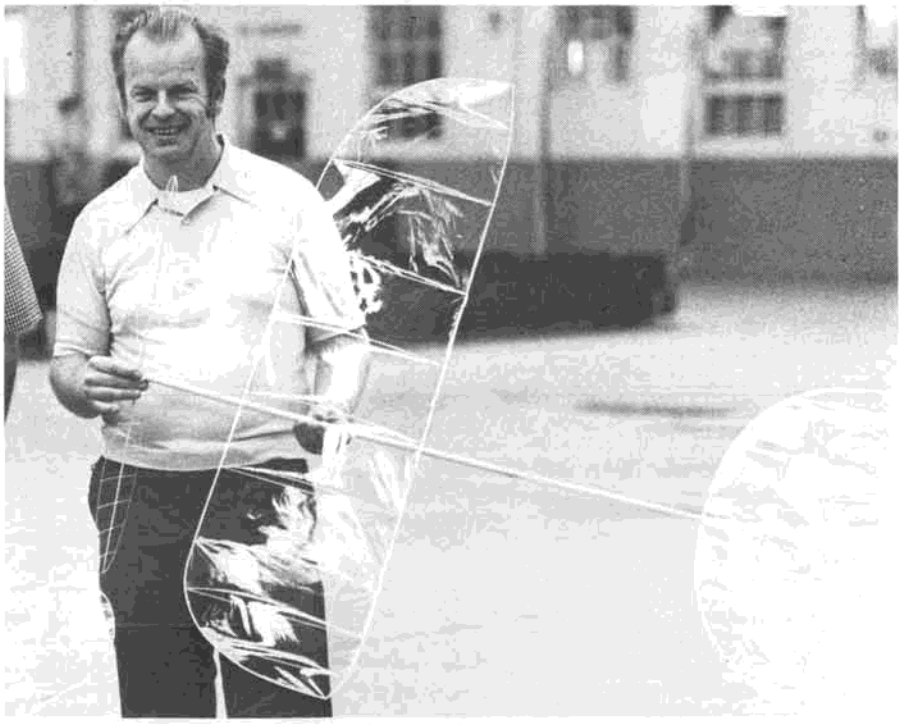
Benedek B-7457d2

Another one of the fine developments from Georges Benedek. This one has a reputation for being able to handle turbulent conditions with ease, but is not aimed at all-out calm air performance. Significant models have used this section with success, among them: Norm Ingersoll's "Harbinger" A/2, which twice made the U.S. FAI Team, Frank Monts' "Wydawake," and Jim Walters' "Go-Bird" A/2, which placed first at Taft last September during the U.S.A. team selection finals. For all around performance, this section is worthy of consideration.

INTERN 1/4A

This month's three view features a design which was developed specifically for the Vancouver, B.C. 1/4A class of duration gas models. With the burgeoning of the Replica .020 event in the Old Timer circles, there has been a revival of interest in .020 designs for AMA events. This month's ship, The Intern, was designed by Nigel Tarvin, of the VGMC (Vancouver Gas Model Club), and here's what he says:

"This little ship, so far, has shown very good performance. Note the amount of up-thrust. This is used because of the large stab. If you are not familiar with this idea, I will explain. The faster the plane is moving, the more the stab lifts, which makes it nose over. So, with the



Another winner of Ten Models of the Year for 1975 is this monstrous microbubble, all 600 square inches of it, with its designer and builder, Erv Rodemsky.

right amount of up-thrust to counter it, the model will go straight at whatever angle it is launched. Obviously, you let it go at a very steep angle. When the engine stops, the stab takes control and the model noses over into level position, and by this time it has lost all that speed from the motor run and stays in a flat level glide.

"So if you want to build a good flying, inexpensive airplane, try this one, you'll like it."

Along the same line, Dave Toduruk has written, 'Case for .020 Power' in the VGMC Newsletter, 'The Hot Head.' He says:

"Have you ever wondered how a particular power design would perform? I have. You put off building that ultimate power ship because you may have second thoughts as to moment arms, areas, trim techniques, etc. Have you thought of all that building time and the cost of material, and does it leave you cold?

"Well, the answer could be miniaturization. Scale that monster machine down to a manageable size. I know what you may think; small airfoil sections don't tell you what the real ship is capable of (Reynolds numbers and all that). *Don't believe it!*

An FAI Power ship, scaled to .020 size (but not FAI weight), will give you scale performance without having to spend up to $100 for a hot Rossi mill. Trimming techniques derived from your .020 size screamer will be the same as for the full size ship. Material cost and engine cost is negligible. Most .020 size power ships can be built out of your scrap balsa supply.

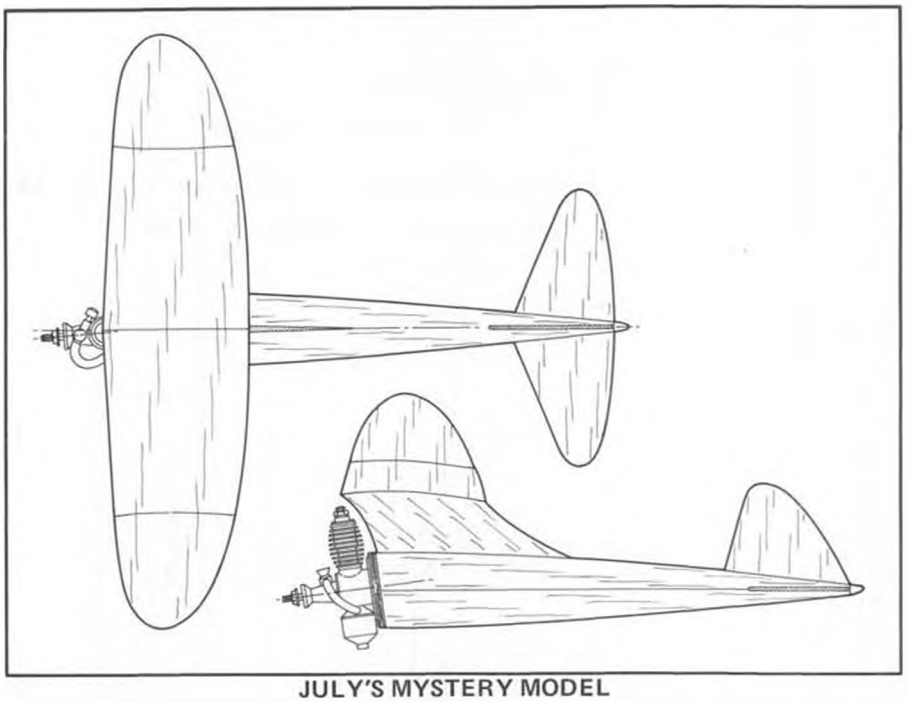
"Over the past 5 years, I have scaled down many power designs, ranging from Satellite to Starduster. I have been constantly amazed by the consistency of performance as exhibited by the full size counterpart.

"The SCIFS .020 old timer event is indicative of this type of thinking. Who has the time to cut out all those parts anyway, or find an ignition engine. And this event is very popular down south. Also, I see where Reid Simpson has published an .020 rendition of his Tornado recently, so with shortages, etc. this may be the way to go.

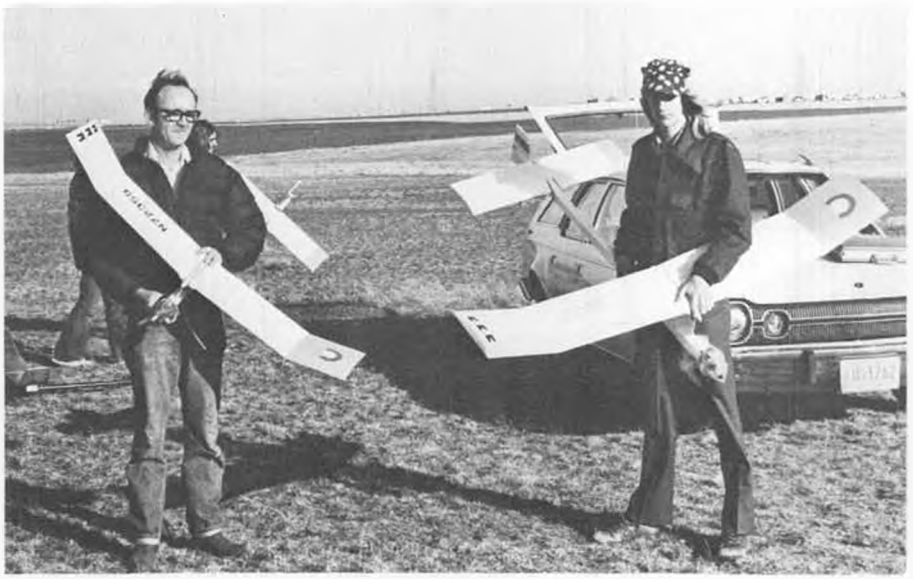
"Tips for scaling to .020 size: Try for 150 to 180 square inches of wing area. The best method is to select a magazine plan or a design from Zaic's Year Books. Take it to a printer and have him enlarge the plane to the size required. Wood sizes are then evident. Structure may be changed to suit your personal preference, but try to keep the weight between 3-1/2 and 5-1/2 ounces, including engine and timer.

"So far, I have scaled down the following designs for .020 power: Satellite by Bill Hunter . . . 34 inch wingspan; Dixielander by George Fuller . . . 32 inch wingspan; Trigger by Dick Mathis . . . 34 inches; Mini-Pearl by Bill Chennault . . . 24 inches (This one is a real screamer); Shocer by Mel Schmidt . . . 32 inch wingspan."

Boy, the thought of a 24 inch Mini-Pearl with a hot Cox .020 up front really



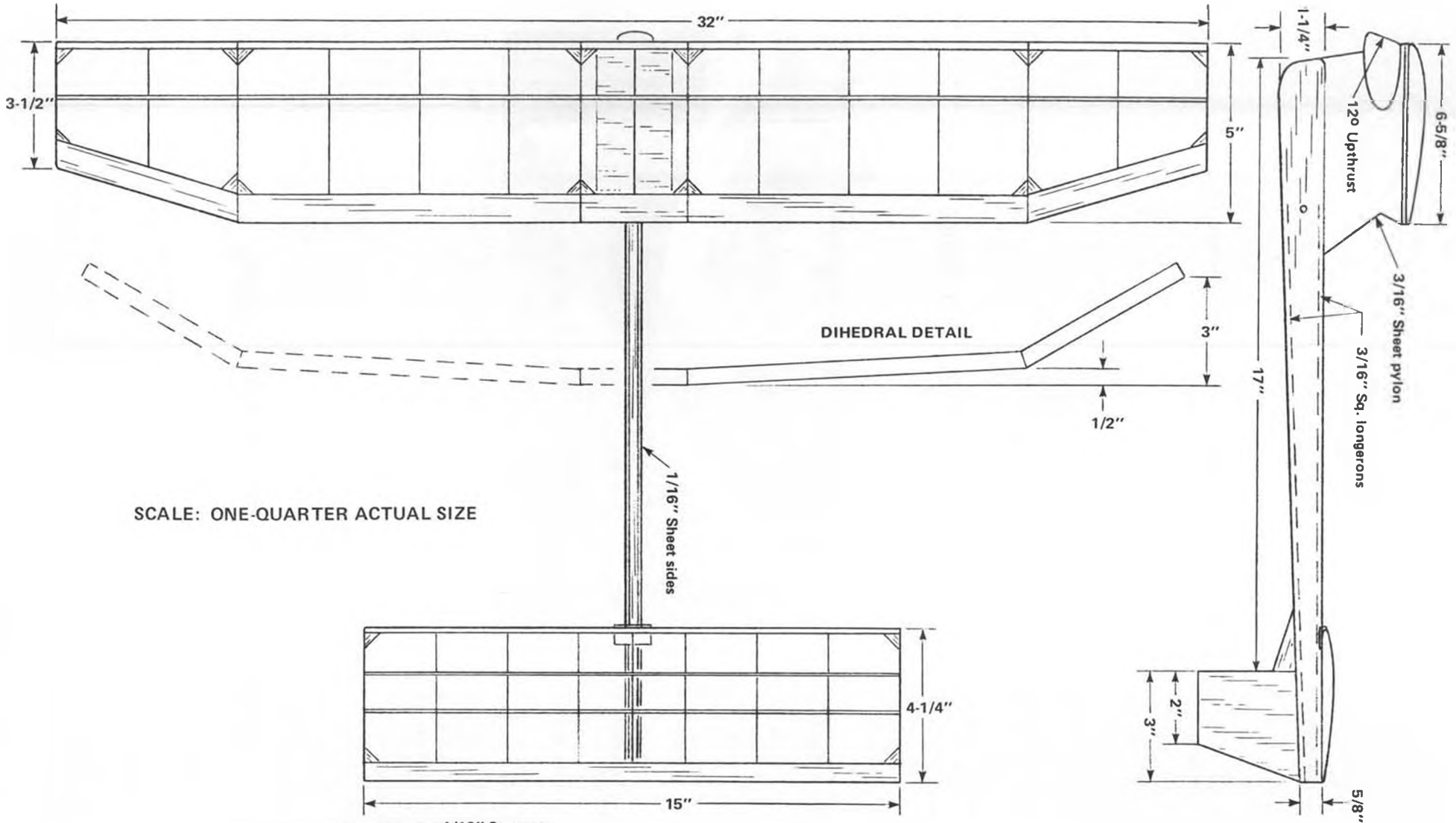
JULY'S MYSTERY MODEL



Midi and Maxi Pearls, with their owners, Bill (lt) and Alan Lovins, at Colfax Air Park, Denver, Colorado. This is the site for the 1975 SAMCHAMPS and 10th annual RMFF Champs.

DARNED GOOD AIRFOIL – BENEDEK B-7457d$_2$

STATION	0	1.25	2.5	5	7.5	10	15	20	30	40	50	60	70	80	90	95	100
UPPER	0.9	2.5	3.5	5.2	6.3	7.2	8.4	9.2	10.0	9.8	9.2	8.1	5.5	4.9	2.8	1.7	0.5
LOWER	0.9	0	0.1	0.3	0.6	0.9	1.5	2.1	3.2	4.2	4.9	4.9	4.3	3.1	1.9	0.9	0



"INTERN"

1/4A POWER SCALE

BY NIGEL TARVIN

Stephanie Perryman with her Sig Mini-Maxer, designed by Grandpa George. Ship is very similar to his Model of the Year, Little Daddy.

is appealing! Sounds like a fun event, but I don't think my scrapbox is as full as Dave's. With some Hot Stuff and odds and ends, though, it might be possible to whip one out in a week of evenings . . . worth a try.

NFFS MODELS OF THE YEAR

As has become an annual feature of the National Free Flight Society's Symposium, the Ten Models of the Year will be presented and featured in this year's publication. There were 27 active free flighters involved in the selection for the 1975 Models of the Year and all selections were reviewed by Ten Models Editor, Bob Stalick; 1975 Symposium Editor, Hewitt Phillips; and NFFS Executive Director, Hardy Brodersen. Models and designs will be presented at the Lake Charles Nationals this coming August, and full size plans will be available shortly after from NFFS Supplies and Service, Publications and Plans Division.

To whet your appetite, the following designs have won the distinction of Model of the Year for 1975.

Half-A Gas: "Satellite 226," by Bill and Bob Hunter.

A, B, C, Gas: "Tartar 800," by Raymond (Red) Johnson.

FAI Power: The development of the flapper concept as exemplified by the Siren-Dippity by Bill Gieskieng. Worthy of note is that Bill has presented not only a very lucid text, but many sketches and drawings which should, once and for all, explain the current state of the art in explicit detail. This excellent presentation is, in itself, worth the price of the Symposium Report.

Wakefield: "Monarch," by John Gard.

Coupe d'Hiver: "Garricoupe," by Roger and Jean Louis Garrigou.

Indoor Duration: "The Monster," by Erv Rodemsky.

FLASH! UNITED STATES FREE-FLIGHT CHAMIONSHIPS RESULTS

Results, to third place, of the 34 events held at Taft, California, on Memorial Day weekend. Figure in ( ) after event is number of entries. Full story and photos to come next month.

WAKEFIELD (22)

1.	Walt Ghio	900 secs
2.	Jim Parker	892 "
3.	Ed Wogulis	858 "

COUPE D'HIVER (21)

1.	Tom Medley	930 secs
2.	P. G. Aker	734 "
3.	Bob Tymchek	659 "

PAYLOAD (6)

1.	Scott Valentine	7:18
2.	Jim Haught	7:04
3.	Dave Sbur Jr.	5:51

ROCKET (10)

1.	Jim Crocket	10:41
2.	John Jennings	9:44
3.	Ron Wittman	8:56

RUBBER SCALE (5)

1.	Hal Cover	
2.	Brick Brickner	
3.	Mike Mulligan	

GAS SCALE (8)

1.	Bill Stroman	
2.	Bill Warner	
3.	Hal Cover	

A OLD TIMER (16)

1.	Bruce Norman	11:58
2.	Jack Jella	11:30
3.	Bruce Hannah	8:28

B OLD TIMER (14)

1.	Bruce Norman	19:11
2.	Greg Rasmussen	13:56
3.	Al Rasmussen	12:16

C OLD TIMER (16)

1.	Bob Oslan	13:23
2.	Ron Martin	12:05
3.	Bruce Norman	11:57

30 SEC. ANTIQUE (10)

1.	Al Hellman	13:18
2.	Marc Tackett	13:05
3.	Bruce Norman	12:08

020 REPLICA (32)

1.	Wade Wiley	15:00
2.	Bruce Hannah Jr.	14:20
3.	Jim Farmer	14:09

O.T. RUBBER (19)

1.	Jim Persson	22:00
2.	Bob Oslan	19:48
3.	Gene Wallock	15:03

INDOOR H.L.G. (16)

1.	Lee Hines	:60.5
2.	Ron Whittman	:59.2
3.	Bob DeShields	:56.6

INDOOR H.L.G. – Jr. (14)

1.	Steve Whittman	:45.4
2.	Dan Sbur	:40.9
3.	Walt Armstrong	:38.3

PENNY PLANE (9)

1.	Clarence Mather	6:02
2.	Earl Hoffman	6:01
3.	Hal Cover	5:39

PEANUT SCALE (12)

1.	C. Mather, Cougar	3
2.	Fudo Takagi, Volksplane	8
3.	Mike Mulligan, J-3	8

E-Z B (5)

1.	Clarence Mather	6:41
2.	Fudo Takagi	6:31
3.	Earl Hoffman	6:28

1/2A GAS (66)

1.	Debbie Beron	31:26
2.	Randy Secor	23:31
3.	Jim Kelley	19:49

1/2A GAS – Jr. (14)

1.	Eric Dyer	16:21
2.	G. Voss	15:00
3.	Bart Delbridge	13:14

A GAS (85!)

1.	Guy Kirkwood	43:30
2.	Mel Schmidt	30:00
3.	Jack Moreland	27:51

A GAS – Jr. (16)

1.	Scott Valentine	16:42
2.	Robert Langenberg	13:27
3.	Jack Moreland Jr.	13:22

B GAS (47)

1.	Ken Bauer	25:00
2.	Glenn Schneider	25:00
3.	Al Hotard	22:05

C GAS (51)

1.	Bob Scully	38:57
2.	Jon James	35:00
3.	Bill Hunter	33:23

B/C – Jr. (7)

1.	Tim Young	15:58
2.	Mark Kerzi	12:19
3.	Scott Valentine	11:16

D GAS (19)

1.	Bill Hunter	22:40
2.	Scotty Harte	22:08
3.	Bill Moore	18:25

FAI POWER (21)

1.	Ed Carroll	18:00
2.	Reid Simpson	17:13
3.	Dave Parsons	8:94

NIGHT FLYING (33)

1.	Bob DeShields	19:26
2.	Hulan Mathies	19:10
3.	Jon James	18:54

A/2 NORDIC (40)

1.	Jim Parker	1500 secs
2.	Jose Ramirez	1322 "
3.	Bob Isaacson	1319 "

A/1 (28)

1.	Randy Secor	25:47
2.	Jim Haught	23:42
3.	Jim Farmer	21:51

A/1 – Jr. (16)

1.	Bill Xenakis	12:29
2.	Steve Kaiser	10:51
3.	Jeff Livotto	10:46

OUTDOOR H.L.G. (34)

1.	Dan Bragg	8:28
2.	Bob DeShields	8:00
3.	Ray Harper	7:37

OUTDOOR H.L.G. – Jr. (23)

1.	Eric Dyer	6:17
2.	Steve Wittman	5:33
3.	Marvin Miller	4:34

UNLIMITED RUBBER (18)

1.	Bob Tymcheck	1680 secs
2.	Del Adam	902 "
3.	Jim Quinn	900 "

UNLIMITED RUBBER – Jr. (7)

1.	Tim Young	647 secs
2.	Eric Dyer	620 "
3.	Robert Langenberg	489 "

Hand Launch Glider: "Driftwould," by Steve Geraghty.

Unlimited Rubber: "Little Daddy," by George Perryman.

Rocket: "Canned Heat," by Don Chancey.

Special Award: The Seelig Multi-Function Timer by Hans Seelig.

HINTS AND TIPS

Computing pitch of rubber model propellers: I have always known that there must be some way of computing the pitch of the propeller before you cut the darned thing out, but since I am not one of those mathematics/engineer-types, I could never figure it out for myself. In fact, I've been accused of thinking that the square of the hypotenuse was the name of a park in the center of Haight-Ashbury. However, during some reading I was doing lately in a book entitled, "Beginning to Fly," published in 1928, I ran across the following:

"For model work, the pitch of a propeller may be determined from the block from which it is carved by use of the formula: pitch = π D/W x T, Where π = 3.1416, D = diameter of propeller or length of block, W = width of block, and T = thickness of block.

"Example: Given a block 11/16 by 1-1/4 by 10 inches find the pitch of a propeller carved from this block.

D = 10 inches, W = 1-1/4 or 1.250 inches, T = 11/16 or .687 inches, and P = 10 x 3.1416/ 1.250 x .687 = 17.243 . . . Then the pitch equals 17.243 or for practical purposes it could be called 17.25."

There, it seems as simple as apple pie. Now, with the use of a simple calculator, even I can figure it out.

Fiberglass Cloth and Epoxy Covering: I have always marvelled at the neat and light covering jobs that Charlie Martin has achieved on his FAI Power Models. Never could get mine to come out the same way. So, I talked to him and found that he uses some kind of imported epoxy and mixes it with methanol until it is a 50/50 solution that has the consistency of water. Flows it on with a brush right through the covering laid over the surface to be covered. Puts on one coat and then sprays over the cured covering with clear K&B epoxy paint to fill the pores.

Dave Whatsistrum flits from one publisher's office to another. Here he is with Britain's best proxy flier and part-time managing editor, Ron Moulton.

Not having the imported epoxy to work with, I guessed that Hobbypoxy Glue Formula II (in the big plastic bottles) couldn't be too much different, so I tried it. Mixed mine with acrylic lacquer thinner (or regular dope thinner) in a 50/50 solution until it was the consistency of water. Applied it through the fine K&B cloth right onto the surface to be covered. Twelve hours later, it was cured, light and strong. Just like that.

I haven't experimented with methanol yet . . . since all of mine has 20% castor oil mixed with it . . . but see no reason why that can't work. Epoxy has the virtue of being stronger and, I think, easier to work, than polyester. I use the very fine and lightweight cloth from K&B for all applications. Charlie uses a heavier cloth on his fuselages and says that a slightly thicker solution is needed with the heavier cloth (60 to 65% epoxy to 35 to 40% thinning agent) in order to get a good bond.

It's a worthwhile experiment.

ROUND TUIT ONE MORE TIME

Way back in 1974, I featured an article about "The King Who Wouldn't Build Models." In this humorous (?) feature, the ending provided a slogan for use on your old Dewey *(Tom, not Don. wcn)* button. The slogan had to do with "Getting Around TUIT." Since then, it has been brought to my attention that some commercial organization is manufacturing TUIT buttons, keychains and what have you in plastic, metal and sterling silver. Just think, you read about such a revolutionary development right here in the pages of MODEL BUILDER . . . and you knew about it first.

HUMOR SECTION

Throughout the ages of history, people have derived scientific principles and

Continued on page 58

Lee Hunt took 1st and high time in Class D at the SHOC annual. Ship is Condor "800". K&B .41 power and Monokote. Miller photo.

Ted Rogers, who gave F/F editor a plastic, key chain TUIT button, and his patriotic 1/2A Mini Pearl. Do you fly it or salute it?

Carl, the better flyer in the Linstrum family, holds the fully wound Ultra Dart over his head for our inspection. By the looks of it, the prop should run long enough for a max even if the U.D. has a vertical glide!

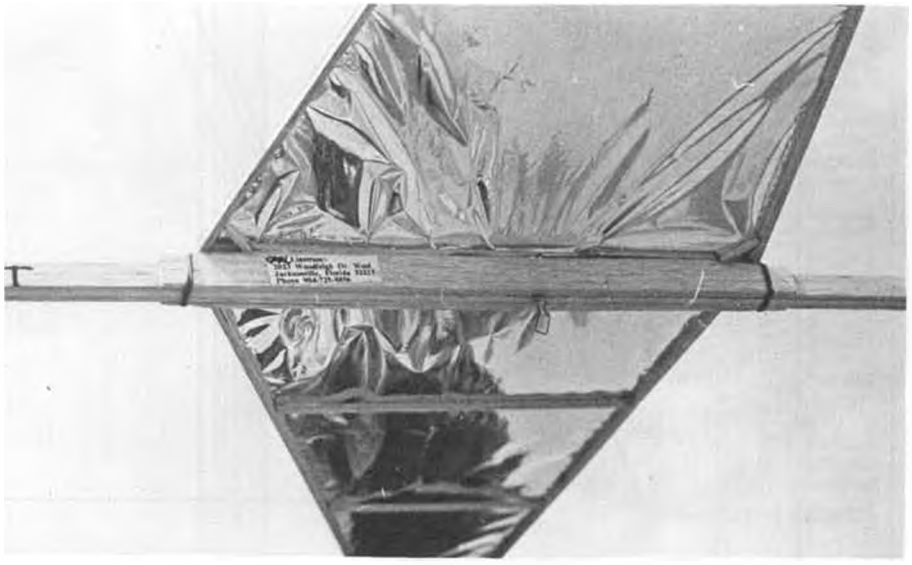
Ultra Dart

By DAVE LINSTRUM

When Frank Ehling designed the Delta Dart some years ago, he undoubtedly never envisioned that it would grow into such a monster. Wonder if Dave and Erv Rodemsky drank from the same cup?

• The race is over, AMA Racer (you remember the Racer . . . the original Delta Dart by Frank Ehling), and you can go back to Mama Bear, AMA Cub. Even the Thermal Dart is in a big downdraft, now that the Ultra-Dart is here. Super is not the word for it, even though it is able to leap tall buildings (the nemisis of the small field flyer) in a single flight, and spectators have been heard to shout "Look, up in the sky . . . it's a bird, it's a plane, it's the Ultra-Dart!"

Very simply stated, this ship is the largest Delta Dart anyone would ever care to build *(Bet you started something with* that *comment! wcn)*. The flying surfaces are proportioned similarly to the original AMA Racer and the Thermal Dart, but the motor stick has been elongated tremendously to accomodate a long motor. This gives very long prop



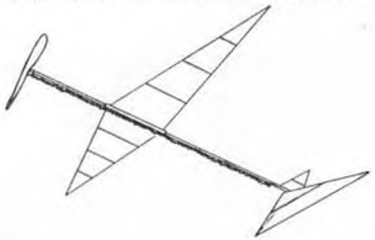
Inverted 'U' shaped wing saddle slides along stick fuselage for easy adjustment. Light weight aluminized mylar covering is available from NFFS Supply (see plans).

FULL SIZE PLANS AVAILABLE — SEE PAGE 88

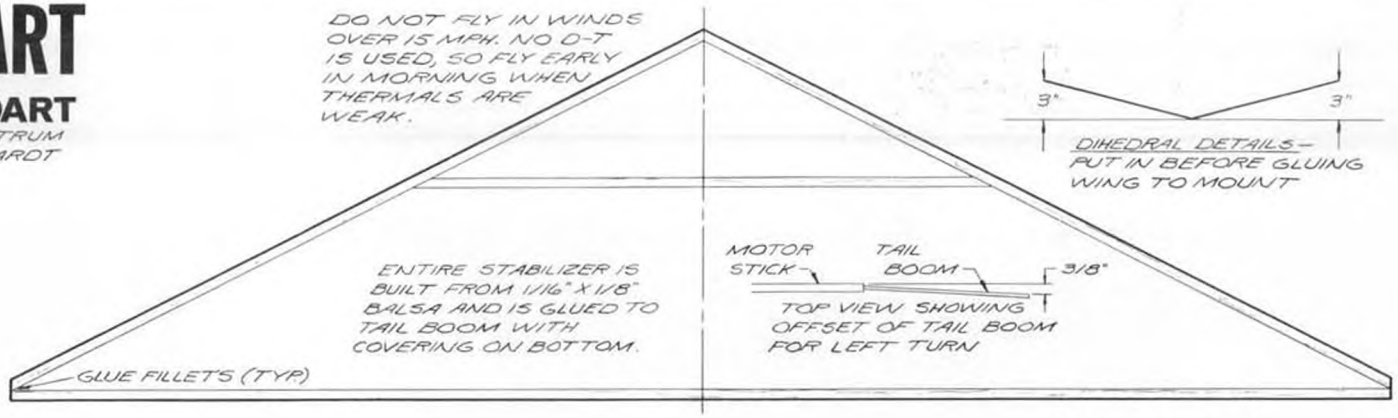
THE ULTRA-DART

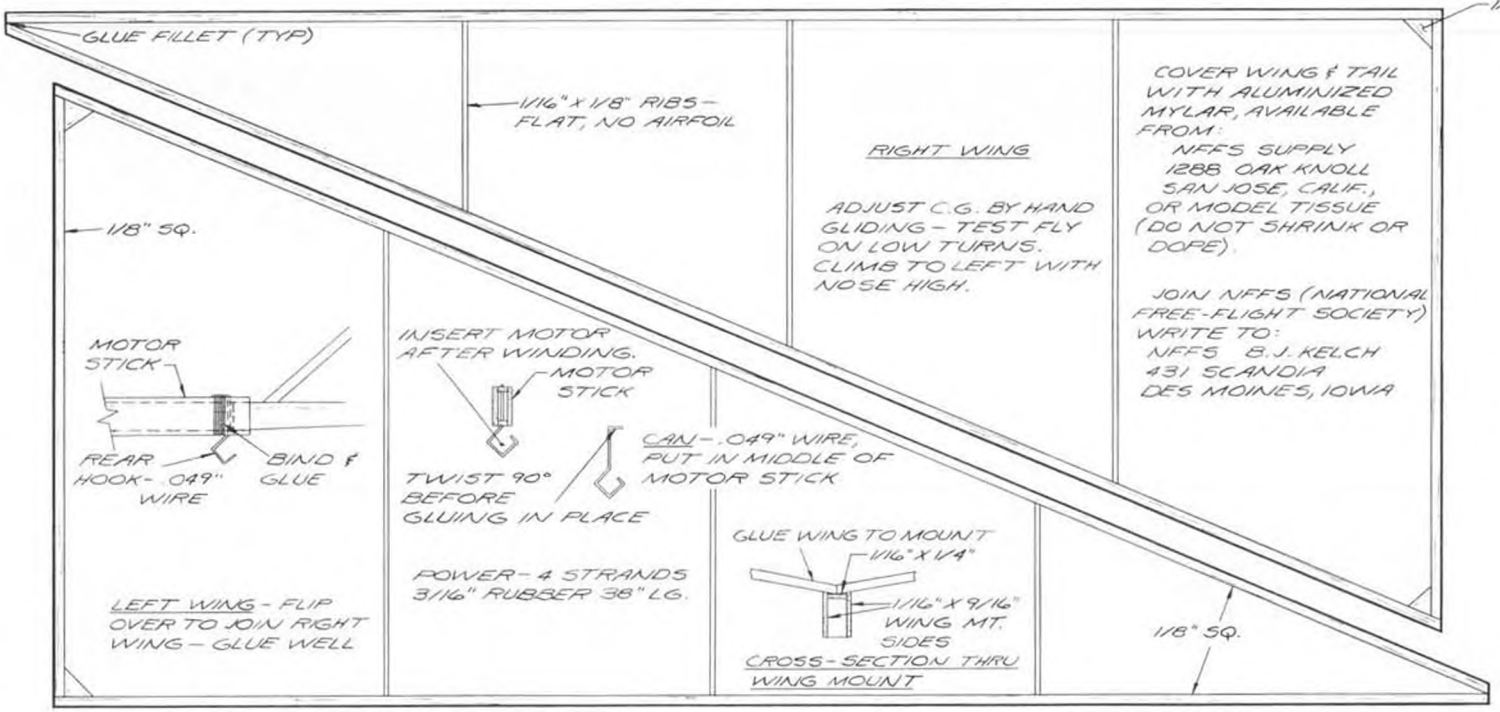
THE ULTIMATE DELTA DART

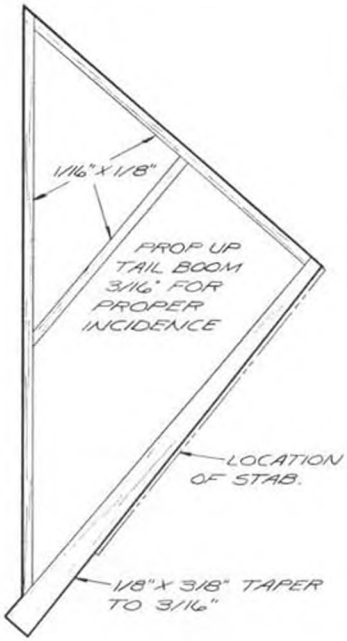
DESIGNED & DRAWN BY DAVE LINSTRUM
TRACED FOR M.B. BY PHIL BERNHARDT

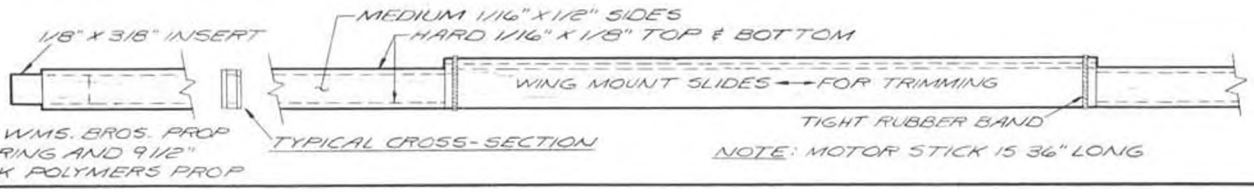


DO NOT FLY IN WINDS OVER 15 MPH. NO D-T IS USED, SO FLY EARLY IN MORNING WHEN THERMALS ARE WEAK.









NOTE: MOTOR STICK IS 36" LONG

0 1 2 3 4 5 6 inches

MODEL BUILDER magazine
1105 Spurgeon, Santa Ana, California 92701

Plan No: 7753

runs, making the model a competitive Unlimited rubber design for the neophyte Junior flyer. However, due to its light weight, it is not suitable for windy weather flying. The idea was not to make a plane for all seasons, but a special model good for early morning contest flying before the wind is up, or for gentle evening sport flying. It is not fitted with a dethermaliser, since it is considered so simple to build that it is expendable. Also, early morning ground risers and weak thermals are seldom strong enough to carry the model far (Famous last words!).

The prototypes were constructed by my son, Carl, as his entries in the Unlimited event at the 1974 Lake Charles Nationals. He simply did not have time to attempt anything more time-consuming to build. Making two models at once was a fast-track technique and allowed for the loss or damage of one in the contest. We chose silvery mylar covering because it is humidity-proof (Louisiana was expected to be wet) and easily applied with aerosol rubber cement. No watershrink or doping processing makes quick completion possible. This is a technique picked up building Pennyplanes and covering them with Microlite polycarbonate plastic film. Normal modeling tissue, such as Marlow, or one of the plastics such as Monokote or Crystal Cover could also be used, but they should not be shrunk in any way. No finish is used on the model (for lightness and anti-warp reasons), but the fins of the prototypes were given a quick spurt from a Pactra Dayglo can to aid in recovery . . . the glowing fin is easy to spot in tall grass or Louisiana underbrush.

If the idea of building the largest Delta Dart (at least until Erv Rodemsky builds a Class D Indoor version to fly in Cardington Airship Shed) within sight turns you on, then send off to MODEL BUILDER for a set of full size plans and gather a few strips of Ecuador Gold (balsa in today's economy) needed to fabricate the airframe. A Williams Brothers nylon prop bearing and Peck Polymers 9-1/2 red plastic prop are also required, although you could adapt a North Pacific bearing and a KeilKraft plastic or Paulownia wood (from Old Timer Models) for propulsion. A carved balsa prop can also be used (fit with free wheeler), but this defeats the purpose of having a quick-bilt, expendable model. Read these building instructions and study plans thoroughly before commencing construction.

The "motor can" makes a come-back! It's a small wire loop which prevents excessive rubber motor sag.

As Carl Linstrum launches the Ultra Dart, you can see that the Mylar covering has assumed an airfoil shape. It's an "MN" section . . . Mother Nature, that is!

FLYING SURFACES

We always start here, so glue joints can dry while the motor stick is being built. However, if you choose to use one of the cyanoacrylate adhesives, waiting time is nil. We feel these are too dangerous for a youngster to handle, so Carl used Tite-Bond on the joints. Tape the plans down to your building board after sweeping away the debris from the last model you built (how many modelers have cluttered workbenches like that in Northrop's editorial column?) and then stretch a sheet of Saran Wrap or drycleaner bag over them to prevent glue adhesion.

Wing: Cut the LE and TE to length from medium weight 1/8 squares, beveling the joint at center for later dihedral glue joining. Then cut and fit all the 1/16 x 1/8 ribs, gluing in place after pregluing the end grain. This is a trick to make stronger joints . . . just apply glue to ends of ribs, wipe off excess and then apply more glue before inserting in place. Deep penetration of glue into balsa without depleting glue at joint is the result.

Stab: Cut the LE, TE and spar from

Continued on page 62

Sportsman Class winners at San Jose Winternationals (l to r): Jim Wells 3rd, Steve Betts 2nd, and Jim Cade 1st.

Amateur class winners at the Winternats (l to r): Don Newberger 3rd, Ed Kramar 2nd, and Troy Adams 1st.

R/C AUTO NEWS

By CHUCK HALLUM

• For those of you still looking for the tabulated results of the 1975 ROAR Winternationals, they are presented this month. There wasn't enough room to get them in, along with the pictures, in the May Winternationals article.

Last weekend I attended the MAC Hobby and Craft show at the Anaheim Convention Center. I thought the public turn-out was better this year than in previous years. But more important was that the interest in the R/C cars was higher than ever.

The R/C cars were featured in three booths; ROAR, Jeri Products, and JoMac/MRP. Several other booths had small electric R/C cars (about 1/16 scale) and off-road Buggies. During the R/C car demonstrations, the spectators crowded around the track to watch the 1/8 and 1/12 scale cars. At the end of the car demonstrations, the crowd thinned noticeably, returning to the show inside.

Of greatest interest to me were the off road dune buggies, in about 1/8 scale, by Futaba and Kyosho. This type of car can bring variety to R/C cars that has been lacking. The Kyosho is currently being nationally advertised and Futaba expects to start marketing its car in a few months. In Japan they say they are selling about 1000 of these per month.

Novice winners at the Winternationals (l to r): Jim Belfiore 2nd, Phil Santacruz 1st, and Jon Quaid 3rd.

Both Buggies had pneumatic type tires all around, and front suspension. The Futaba had rear suspension also, while the Kyosho was amphibious.

The suspension system of the Futaba was very interesting. The front suspension had upper and lower arms with ball joints, rubber bushings, and torsion bar suspension. Front motion was about a 1/2 inch, plus tire deflection. In the rear, the engine was axial, with power drive going back to a gear box. The output faced forward under the input, and went to a solid rear axle with pinion gear through a U-joint. The axial output allows rear axle roll, and the U-joint allows some up and down motion. Vertical axle motion is relatively limited, about 1/8 inch, but roll stiffness appears reasonable, and the pneumatic tires increase relative rear springing. Besides all this the machine looks great. The hand test guess on weight is about 9 lb., which is probably pretty good for this type vehicle and the terrain it is to be driven over.

The Kyosho front suspension has upper and lower leaf springs with a travel of about 3/8 inch. The rear axle is solid, but the pneumatic tires make everything feel pretty soft. A round drive belt on a couple of pulleys operates the propeller for propulsion in the water. The front suspension is external, and the rear axle goes through packings to seal the tub. This one looks pretty sharp too. The Kyosho seems to weigh a little less than the Futaba. A recoil starter is enclosed, since it is difficult to get to the flywheel.

All I can say is I'll bet it would be a

ball to drive one of these cars. Here in the U.S., we've been concentrating only on the flat-track competition cars. It's great to see that other countries are making progress in other R/C car categories.

Also hear that Ronnie Ton, a Dutch fellow, is running a full suspension car in Europe. Won both heats at the last race in Germany. Don't know whether the tracks in Europe are rougher than ours, but it seems that most people over there are pretty interested in suspension. I think it's probably a little more than just an interest in details and complexity. Hope I get a chance to run over there some time. I plan to have an article on suspension systems . . . what they will do, why they are used, and how they should be set up, in the near future.

Meanwhile, here in the U.S., all the talk is about means of getting more horsepower out of engines. Lap times do seem to be improving all the time, so the efforts are not wasted. But I feel this approach is a dead end kind of a thing, because the current U.S. chassis approach really hasn't changed in the last 4 or 5 years. The horsepower race eventually will end up requiring chassis changes to be able to effectively use the delivered power. The things that are being done to the old work horse Veco engine include; the McCoy conversion, larger carburetors (up to .60 size units now) and trick Schnuerle porting around the liner. Most of these changes have been giving more top end to the engines so that the bottom end torque can still be handled by the current chassis approach.

A couple of new 1/8 scale formula bodies are out . . . the 313 B3 Ferrari by Associated and the Foyt Coyote by Parma. Both new bodies look very good. The Ferrari looks like it will have a little better front aerodynamic downforce and the Coyote has a very low side pan profile like the real car. Parma will have the UOP Shadow Can-Am car out shortly, with some more new sportscars on the way. I'll give you a rundown on them as soon as I've seen them.

Haven't heard any news yet on the events to be run at the 1975 ROAR Nationals. Still hoping it will be Stock cars on the oval or a semi-oval track. Out here in Southern California, we haven't run an event like this, but I think it would be great . . . lots of fun and a challenge. Besides, a little bumping wouldn't have the disasterous effects on the open wheel cars! The racing would be more competitive and more enjoyable for the spectators (me too!).

Next month, I'll have the results of the Indy 500 Festival 1/8 R/C Oval race, held May 2, 3 and 4, as well as the Oakland (California) Spinouts 1/12 scale race held May 10 and 11, 1975. The 1/12 scale race had a great turnout for the $1500 worth of trophies and merchandise. Also heard that there was a lot of great racing. ●

ROAD RACE FINALS

Place	Driver	Car	Radio
	NOVICE		
1	Phil Santacruz	Delta	Futaba
2	Jim Belfiore	RARE	Futaba
3	Jon Quaid	MRP	Delta
4	Chuck Glidewell	Delta	Orbit
5	Dave Laubauch	Thorp	Futaba
6	Bill Bryant	Assoc.	Kraft
	AMATEUR		
1	Troy Adams	Thorp	Kraft
2	Ed Kramar	Taurus	Delta
3	Don Newberger	HRE	Orbit
4	Jay Bunten	Thorp	Apollo
5	Willie Bennett	Thorp	Orbit
6	Ron Bernardino	Delta	Futaba
	SPORTSMAN		
1	Jim Cade	Cade	RS
2	Steve Betts	Scorpion	Kraft
3	Jim Wells	Delta	Delta
4	Bill Steele	Cade	MRC
5	Jack Ulstad Jr.	Thorp	Kraft
6	Al Olseen	Scorpion	Futaba
	EXPERT		
1	Chuck Hallum	HRE	Deans
2	Bill Jianas	Cade	MRC
3	Matt Azzara	Assoc.	MRC
4	Earl Campbell	Assoc.	Deans
5	Bob Donkels	HRE	Deans
6	Gary Kyes	Delta	Delta

DRAG RACE FINALS

Event	Place	Driver	Car
RAIL	1	Ron Sheldon	MRP
	2	John Rouse	MRP
FUNNY	1	Al Chuck	Assoc.
	2	Gary Buriani	Thorp
STOCK	1	Steve Betts	Scorpion
	2	Gary Kyes	RARE

Event	Low ET	Top Time
RAIL	Ron Sheldon	Ron Sheldon
FUNNY	Mike Carone	Gary Buriani
STOCK	Steve Betts	Gary Kyes

Drag winners (l to r): Funny Cars; Buriani 2nd, Chuck 1st, Stock Cars; Betts 1st, Kyes 2nd, and in front, Rail Cars; Sheldon 1st, and Rouse 2nd.

Peanut . . . . . *Continued from page 43*

entirely too heavy. The second version used silver tissue. This, of course, is almost impossible to find, but finishing the model in all white or with a very lightly sprayed coat of silver Floquil should give a light, but pleasing result.

A number of articles and pamphlets have been prepared on the Thunderbolt, but I found the "Aircram Aviation Series" Booklet No. 2, "Profile Publication" No. 7, and "Camouflage and Markings" No. 15, contain a wealth of color scheme ideas.

I am particularly attracted to invasion stripes as a way of "dressing up" the model. The black stripes are easily done with tissue, but the white is a problem. I use white tissue strips which are lightly coated with Polly-S latex paint to highlight them. The insignias are traced onto dark blue tissue and then doped to the model. The "stars and bars" are then painted with Polly-S. The antenna is cut from 1/64 plastic card, painted and positioned after the model is covered.

I believe that a flying scale model should have a pilot and this model is no exception. Here the pilot is carved from styrofoam (it can not only be carved, but also molded with the head of a pin) purchased from Micro X Products, P.O. Box 1063, Lorain, Ohio 44055.

The cockpit floor is filled in with bond paper, which is sprayed black prior to installation. The cockpit canopy is vacu-formed. The canopy frames are cut from tissue strips and adhered with clear dope after the canopy is joined to the model, using contact cement. The cooling flaps are cut from bond paper, spray painted, and attached. All panel lines and control surface separations are made with thin strips of black tissue.

FLYING

For indoor flying, use one loop of 1/16 Pirelli, 15 inches long. For outdoor flights, two loops are probably best (I fudge a bit here because the model shown has not yet been flown outdoors). Make the normal flight adjustments with elevator, rudder, and thrust line, then find those guys with the Piper Cubs and give them a run for their money! •

C/L . . . . . *Continued from page 34*

mer than before, and several new sizes and styles are offered to meet new competition requirements.

For stunt, the new 11/6 EW (extra wide) for the longer .45 and .46 powered models . . . speed, a complete new 400B series . . . for 1/2A, A, B, C free flight, a new Pro Series 2B . . . for scale racing, the new quarter midget R/C props give extra rpm in 7/5, 7/6 and the 7/6 N (narrow).

The 7/6 N is also well suited for FAI combat. If your dealer doesn't have the new series props, pester him to order them, or do it yourself, direct (see ad).

MORE FIBERGLASS

A new manufacturer, Kelly Products, is making available fiberglass/epoxy props in many sizes. I have received several examples and they are well made, molded with a distinctive green color. Sizes are available for Scale Racing, FAI Combat, Fast Combat, Slow Rat and FAI Team Race. Do not confuse Kelly with K&W props. You will find the Kelly Products ad listed in MODEL BUILDER.

ZAP – YOU'RE IT!

More Cyano what's its face glue. Many people are starting to package this new adhesive and the price is starting to come down. Hurray for market competition. "Zap" is as good as any brand and comes with a packet of micro balloons for filling spaces in joints. It's a few cents cheaper than the competition, plus the filler makes this a good deal.

SOLID!

In the April issue of Stunt News, the Pampa newsletter, a comment was made about experimenting with solid wires for stunt flying. I have been using solids for several years and appreciate the advantages. There is less drag in the same size solid wire as stranded, but then you don't have to use the same size. The rule book allows the use of solid wire sizes .003 to .004 less than stranded. This gives far less drag and weight, and improves model performance.

In a one-only event like stunt there shouldn't be any worry about tangles or kinks. Solid wire being smooth, provides easier control when twisted after consecutive maneuvers. Special maintenance is required of solid lines, however. After 8 or 10 flights, solids accumulate oil and dirt from your own exhaust and become sticky, thus negating their original smoothness.

To properly clean the solid wire, first wipe with a rag (normal for stranded wire). Second, polish with fine steel wool or Scotchbrite pads. I prefer the Scotchbrite as it does not wear out as fast as steel wool. A helper is needed to hold one end of the lines tight while you polish the lines. Finally, wipe the lines with a clean rag that has been dusted liberally with talcum powder. Those wires will shine and be as slick as a baby's a . . . uh, arm.

ENGINE TIMING FOR .40's

Phil Shew, of Albuquerque, N.M., (the proud owner of a new Jed Kusik custom Super Tiger .15 for FAI team racing) has worked out a table for comparing the timing of various .40's suitable for Slow Rat racing. Good work Phil. Now how about comparing the case volumes? That would be helpful in working with fuel economy in Slow Rat.

The following table shows engine timing for various 40's that are suitable for Slow Rat.

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IN BRIEF

Foam wings are "in" right now. They are not new or particularly fancy, but it is just the current rage to use foam. You don't have to fly, just show up with a "foamer" to be socially acceptable.

HIGH POINT MAN OR WOMAN OF THE YEAR

Want to add a real fiasco to your local combat flying (worthless but interesting)? Institute a points program for rating the top flyers and keep records and make a fuss about it like we are doing in So. Cal. You might see some individuals get so hung up that semi-private contests are held to gain personal points (ridiculous!).

NEW STUNT KIT FROM SIG

Just received the new Mustang Stunter from Sig. It has a foam wing ("in" again!) and molded plastic parts. This kit is *really* nice. I should have it put together by next month and can tell you more about it. I plan to use the Les McDonald method of finishing as detailed in Stunt News, so that should take an additional month after construction. I don't know if I can wait that long, this kit looks so good! •

F/F . . . . . *Continued from page 50*

formulated natural laws which govern the lives of man and their endeavors. Some are directly applicable to modelers and their pursuit of the elusive model-of-models and max-of-maxes. Herewith, MODEL BUILDER Free Flight derives great pleasure in presenting for your understanding, some of those little known but very important scientific principles which are related to certain peculiar laws of inexactitude, perversity and whimsey in pursuit of the more complete understanding of our modeling universe. Let's start out with one which is familiar to all of us:

1. Murphy's Law: If anything can possibly go wrong . . . it will.
2. Cahn's Axiom: When all else fails . . . read the instructions.
3. Horner's Five Thumb Postulate: Experience varies directly with the amount of equipment ruined.
4. The Spare Parts Principle: The accessibility, during recovery, of small parts which fall from the workbench, varies directly with the size of the part . . . and inversely with its importance to the completion of the work underway.
5. Gumperson's Law: The probability of a given event occurring is inversely proportional to its desirability.
6. Chisholm's Law of Human Interaction: Any time that things appear to be getting better, it follows that something has been overlooked.
7. Theory of International Society of Philosophic Engineering: In any calculation, any error which can creep in . . . will.
8. Rule of Accuracy: When working toward the solution of a problem, it always helps if you know the answer.
9. Advanced's Corollary: Provided, of course, that you even know there is a problem. (The problem assumed in "Rule of Accuracy.")

Being of sound mind and body (which is probably debatable, I have utilized two of the above principles and have arrived at the following conclusion:

1. I understand Advanced's Corollary and deduce that the problem is that I have rambled enough for this month's column, and
2. I have applied to Rule of Accuracy and have discovered the answer to the above problem. Consequently, herewith and forthwith, I shall stop until next month. •

Little Bomb . . . *Continued from page 9*

sides, rub glue (I like 5 min. Epoxy) into the inside surfaces from the engine compartment to aft of the firewall, and from just ahead of the last former back to the aft end at the rudder post. The engine mount should be secured BEFORE planking the nose, and pushrod clearance and alignment checked before planking the top. Don't neglect the doublers, as they are all of importance. You should have no trouble picking these out on the plan.

The empennage, that is, vertical fin and rudder, stabilizer and elevator, are cut from medium soft 1/8 or medium 3/32 sheet balsa, with surfaces sanded

pulse commander

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—New LED charge indicator lamp!
—Improved circuitry for even greater dependability!
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Due to its small size, lightweight, simplicity, and low cost the Pulse Commander offers an ideal system for someone on a budget wanting to get into R/C flying or needing a second system for fun flying. Flight pack weights start at 2.5 oz. for the Baby System which is small enough to go into .010 powered planes.
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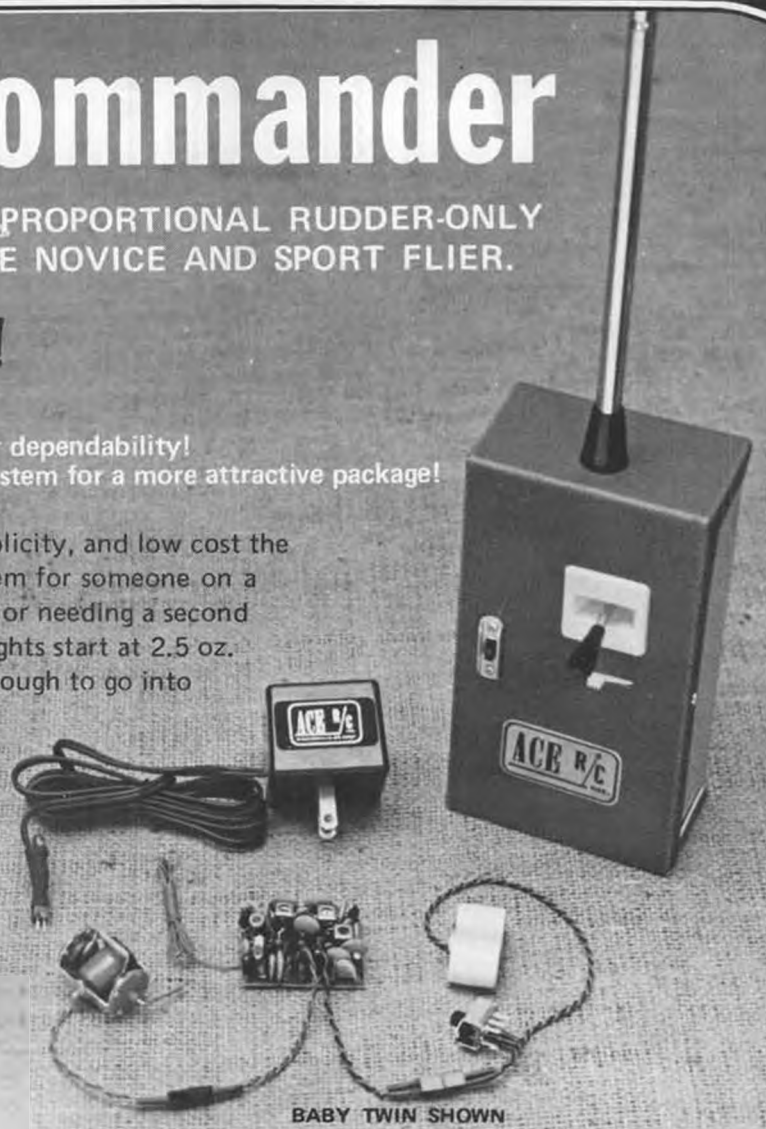

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to the typical cross-section shown. Note that the leading edges of rudder and elevator are half-round, trailing edges 1/32 inch thick. If trailing edges are left thicker, you will really slow the thing down, while if thinner, they will want to warp or curl.

The wing is of typical built-up construction, pretty much the same as we used forty years ago. A shim of 3/32 by 3/16 is used under the lower spar. A 1/20 shim is used under the tail-end of the three center ribs ONLY, and the other ribs and trailing edge are hard against the building board. With the exception of sheeting the underside of the leading edge, the entire wing is built on the board.

When sheeting the underside, it is especially important that great care is taken to avoid warping. It is a good idea to wash out, or warp the tips EVER SO SLIGHTLY so they have just a bit less angle of attack than the center section, but only two or so degrees. This will make the ship settle down and "hang in the groove," but if excessive will really slow her down.

Another important point is dihedral. Now if a little bit is good, more is not. Fact is, more is bad and will cause Dutch Roll and an airplane that is lousy on the turns. DON'T INCREASE THE DIHEDRAL.

Radio installation will vary with the equipment. Many radios are suitable, but then many are not. Servos must be small (KPS-15) but need not be the smallest. Small receivers are required, but again, many standard receivers fit this description. I am certain all of the "Bricks" will be suitable, but battery packs are a problem. I just don't like 225 ma packs, as flying time is marginal for racing. The new 450 ma. packs are great and exactly what is needed. Lightweight, they are flat and narrow and easy to install. They have enough flying time to suit all racing conditions, and most fun flying days, especially when using only two small servos.

Early ships used the smallest radio commercially available, but this proved to be trouble prone. The model shown has the ACE 1-8 Rcvr., ACE BANTAM SERVOS, and ACE 450 ma Battery pack. Ready to go, dry, she weighs 16 ounces. With other heavier radios, she still need not weigh more than 18-20 ounces.

When hooking up controls, in most cases the INSIDE of the servo arm should be used, and the outside hole of the horn. Things can be speeded up later, but it's doubtful that many will want to do this.

Control surface deflection should be about 1/8 inch up and 1/8 inch down, and certainly not over 3/16. The rudder may be ever so slightly more than the elevator, if desired. Trim the model to be slightly nose heavy, that is, just a bit of down elevator. With most of us it is far easier to hold a bit of up rather than a bit of down, and final trim comes AFTER we begin flying, so make the start as easy as possible. DON'T START TAIL HEAVY!

For the first flight, you can put the prop on backwards, run her rich, or use a 6-3 prop and a slightly rich setting. Any and all of these will tame things down a bit. Make the takeoff straight, very shallow climb, and NO TURNS until a safe altitude is reached. After getting good height, trim to extent required, then feel her out with minor maneuvers, progressing to more severe ones so that you get the feel of the ship.

When the engine quits, keep the nose down SLIGHTLY, at all times, and especially in the turns. Round out smoothly on the approach, bringing the nose up more as you near touch down. The ship glides well, but fast, so be prepared to overshoot. AVOID OBSTRUCTIONS at both ends of the field.

If you are a novice, I suggest you get a Formula One or a Quarter Midget flyer to test hop and trim her for you. If you are a RANK novice, I suggest you hang her up until you have more skill. After all, the fun is in the building and the flying, not the breaking and repairing. After about three "nose jobs" I lose interest in a ship, and would rather start over, and I detest wing repairs. Play it cool and have good fun flying . . . ●

Choppers . . . . . *Continued from page 17*

for the call was to pass on a few goodies which he thought should be incorporated into the machine. As this story develops, I'll pass on his words of wisdom. Actually, the Lark is a tinkerer's dream . . . it is perfectly suited for minor personal modifications, which every builder wants to add on to his dream machine. For example, John said the tail boom was too flimsy and bounced up and down while in flight. The neat solution is to add a short brace from the floorboard to the boom, 'ala shark. This brace can be aluminum tubing or rod . . . just strong enough to eliminate the bounce. Flight characteristics are vastly improved with this mod.

The finished chopper flew right off the drawing board, so to speak! Only a minor tail rotor adjustment was necessary to keep it in straight flight from the start. After about 30 minutes of ups and downs, we discovered the tail rotor gear assembly was getting very sloppy and probably would have become useless within another hour or two because the rotating gear shafts were running in plastic housings! The next modification took about one hour, during which time we disassembled the rear gear frame, drilled oversize holes in the plastic, and slipped in brass tubing bushings. Standard hobby shop brass tubing fits the shafts perfectly and is held in place with "Hot Stuff" or "Zap." Lubricate occasionally with a drop of oil, and you'll have no trouble in this area.

Another modification which John thought was important, was the substitution of a more conventional swash-plate rather than the plastic ball and socket assembly supplied with the kit! This swash-plate is held together by spring tension working on one side against the servo rods on the other side. I don't think it's too good an idea to preload your servos like this, and besides, main rotor loads could easily lift the swash-plate up to the degree where you could lose cyclic control. We just happened to have a Kalt swash-plate (or Schluter) which adapted perfectly to the main rotor shaft by changing the brass tube size. Again, standard tubing does the job. I might add that the swash-plate movement needs to be as great as you can make it! This little gem is so stable, it needs lots and lots of control input to the main rotor to make it respond properly.

The tail rotor movement is just about right as shown in the instructions, and we didn't notice any difference in performance between the two tail rotor blade dimensions recommended.

Initial flights were very smooth and stable except it did exhibit the slow rate pitching up and down, so often encountered with rigid rotor systems. We attempted to cure this by installing the Kalt "teetering" rotor head, but that made it all the more unstable. We next tried the Schluter "Cardon" head but it did no better, so back to the original head. (Sometimes the designer knows what is best!). After a few more flights, the oscillations stopped completely and it flew like a dream. We were so surprised at the sudden "about-face" we examined the head carefully and found a set screw had worked loose (no Loctite?) and permitted the head to do a little teetering on its own. Subsequent tightening of the set screw put it right back into the pitching mode of flight, so we deliberately took it out and it's been perfect ever since!

The following week-end was pretty hot and the Lark didn't lift off much better than a foot from the ground. Kim told me of a "hot" modification to the Veco 19 engine that the race car drivers were installing. I promptly purchased the McCoy kit for the Veco 19, put it together, and tried the new combination the following day. Wow! What a little bomb! That bit of horsepower increase really made a difference in its flying. It now gets up with the big boys and scats around the sky like the spirited bird it's named after.

Now available at about $25.00 are small, specially designed floats for the Lark, which make it about as pretty a chopper as you can get. The floats are made from a transparent colored plastic material and could open up a new realm of sport flying if you haven't tried it yet.

I should point out at this time that training gear really isn't needed on the Lark since the standard skids are set far enough apart. You'd have to be a pretty lousy flier to turn it over, or "get-a-blade."

All in all, the Lark helicopter is an excellent buy for the money, representing a compromise between the "toy" type helicopter and the larger, more precision machines. It flys and maneuvers exactly like the larger ones . . . is an easy machine to build and to learn on . . . and it's easy to repair with hobby shop materials readily available. It's just right for suitcase portability in case you drive an economy car too, ha!

M.A.C. TRADE SHOW

Earlier this month, I made arrangements to visit the M.A.C. Trade Show which is an annual event held at the Anaheim Convention Center. There had originally been plans to hold an R/C helicopter symposium and instruction/learning sessions, but at the last minute, they were called off for some unknown reason. However, there was no lack of R/C helicopter demonstrations at the show . . . every two or three hours each day, Ernie Huber and Mike Bosch (from Germany) put on fantastic demonstrations with their Kavan Bell Jet Ranger choppers. Individual free-style flying preceded their formation dog-fights, much to the pleasure of all.

Ernie also flew the prototype Kavan Alouette "2" helicopter which is due to make the scene very shortly. The Alouette "2" is a scale model of the famous French helicopter used by the military, police and customs officers throughout Europe. The kit features an amazing one piece main rotor blade with a diameter of 42 inches, weight about 5 lbs. with a .40 cu. inch engine, and standard 4 channel radio installation. The most outstanding feature (to my way of thinking) is the unusual and simple way that the Kavan control system has been adapted to this model, giving it the capability of all maneuvers now possible with the Jet Rangers.

Anyway, back to the demonstrations, Both Ernie and Mike really showed off their champion caliber R/C flying, with pirouette take-offs, extreme quick-stops, loops, vertical wing-overs, backward take-offs, and a fast paced low altitude routine which included leap-frog formation flying.

Have you ever seen an R/C chopper stand on its tail at a 75 degree angle and make high speed circular flights (sideways) at constant altitude? It's an amazing demo which happened daily at the show!

John Simone Jr. also demonstrated his beautiful Lockheed L-286 helicopter with Schluter "Gazelle" mechanics, until an unfortunate engine failure retired the machine for the remainder of the show.

There was a host of scale helicopters entered for the static display judging. First place went to Don Harris, of Huntington Beach, Calif. for his outstanding L-286, fiberglass project. Bill Natera, of Montebello, Calif., took second place with his Jet Ranger, and Lt. Commander Graham Hicks, of N.A.S. Lemore, Calif., finished in third *(Recent Chicago Nats fliers and officials should remember Graham. wcn)*, also with a Kavan Jet Ranger. The paint schemes and finishes this year were utterly dazzling in their brilliance, and use of high-visibility colors. Kinda makes one want to go to an artist's school to learn how!!

There ya go for another month fellas . . . you might watch for the Micro Mold DB Autogyro kit which is now on dealer's shelves. It would be an interesting (and inexpensive) way to diversify your rotary wing activities. B.C.N.U. next month. ●

Ultra Dart . . . . *Continued from page 53*

medium 1/16 x 1/8 and lay them flatwise for assembly. Note that the stab has no ribs . . . the boom serves as the center rib.

Fin: Cut the boom from light to medium 1/8 x 3/8 and taper before pinning to plans, then build the fin on to it. The fin is pinned flat against the plans. Rather than pin through the wood, we prefer to use "Pin-Downs" or "Pin Clamps" to hold the fragile members in place. Cover all surfaces on one side only after adding dihedral and gussets to wings as shown in detail on plans. Let joint dry thoroughly.

MOTOR STICK AND PROP

The motor stick is simply a hollow box, terminated at the front by an insert of 1/8 x 3/8 from which the bearing hangs, and at the rear by the boom, with a few strip formers in between at stress points. Pin down one side on your board (due to the length, it is not shown full length on the plans) and add the top and bottom strips, gluing well. Then add formers and nose insert, gluing latter very well, as nose takes a beating. Add boom with fin attached, propping up rear with a 3/8 wide strip so that a built-in left turn is achieved. Then cap the whole mess with the left side, pinning lightly or taping down with a few strips of masking tape. Let this assembly dry at least two hours to avoid warps. Then lift from board and build up wing mount on the stick, to get a precise fit. Do not glue it to stick . . . pin it in place (with Saran separator) while glue sets.

Bend a shaft from music wire, insert in bearing, add a couple of brass washers (or teflon if you can find them at Bahrman Studios) and the plastic prop. Make a 90 degree bend in front of free-wheeler hub and snip off the wire. No winding hook is needed . . . this model is wound from the rear like an indoor model.

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presents the

MASTER MODEL BUILDER of the month CONTEST

COLBERT INDUSTRIES, manufacturers of PANA-VISE, the unique hobby vise which turns and tilts to any position, in conjunction with MODEL BUILDER magazine, is sponsoring a design competition for MODEL BUILDER readers.

This monthly contest will be judged for originality and/or craftsmanship for all types of models (excluding plastic static scale). Entries will be judged purely on the basis of photographs and drawings supplied by the builder of the model. Emphasis in judging will be on originality, technical achievement, and craftsmanship, as found in the submitted material.

A MODEL 301 PANA-VISE WILL BE AWARDED EACH MONTH TO THE WINNING ENTRY

Requirements for entries:

1. Any type model may be entered (aircraft, cars, boats, etc.). Kits may be entered if significant modifications have been made to the stock kit.

2. Do not send the actual model. Send only black and white photos, showing at least three views of the model. Include some familiar object in at least one photo to indicate the size of the model. Try to include photos of any significant details.

3. If photos cannot offer sufficient information about the model, the construction drawings may also be submitted. Drawings should be clean, pencil drawings with all pertinent dimensions indicated. A print of the drawing is acceptable.

4. A written description should be included with photos and drawings, explaining in fair detail any unusual features of the design, and explaining any unique technical difficulties that the model may have achieved.

5. Please do not submit any designs that have been accepted for use in another publication. MODEL BUILDER requests first option on publishing any submitted design. Payment for published designs will be at our regular rates. Any prizes awarded do not represent an agreement to publish any design.

6. Entries will be judged by the modelers on MODEL BUILDER's editorial and art staff, and all decisions of the judges will be final.

7. Postage must be furnished if return of submitted entries is desired.

8. Deadline for entries in the first contest of the series is July 1, 1975, and winners will be announced in the September 1975 issue. Subsequent entries will be due the first of each month and winners will be announced the second month following each closing.

Send all entries to:

MODEL BUILDER/PANA-VISE CONTEST

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KING FISH

KIT B24 **$24.95**

Patterned after the sleek Ocean going Sailing Yachts, the King Fish is a beautiful sight on the water or on your mantlepiece. Fine performance is the keynote when operating Free Sailing or Radio Control. Construction is unbelievably simple. Inter-notched Die-Cut Frame features Plywood for strength and long life. Printed-planked Deck is die-cut and ready to slip into the Rub Rail molded into the sleek Plastic Hull which is finished except for minor trimming. Kit is unusually complete and features Mahogany Deck Cabins and trim, Brass Chain, Cast Metal Fittings, Cloth Sails, Rigging Cordage, Mast and Boom Material, Metal Rudder. Metal Keel comes with Lead Ballast cast in place. Step-by-Step Plans show simple assembly as well as operating instructions. Base shown not included.

HEIGHT 43" LENGTH 34" BEAM 6¼"

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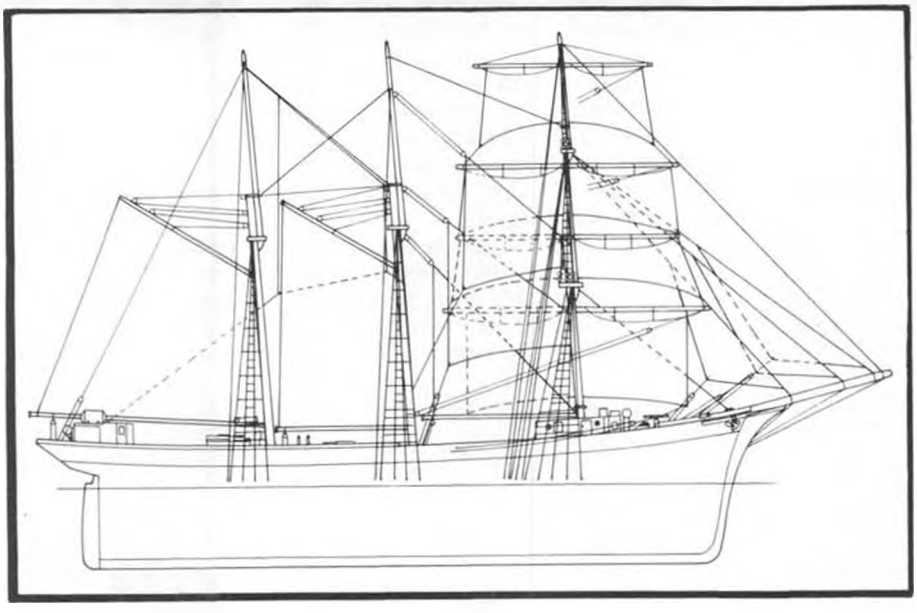

This 1883 Barkentine is the last Square Rigged Ship of the Portuguese Fishing Fleet, which yearly sailed to the Grand Banks. It is now a part of the Philadelphia Maritime Museum, and is permanently moored at its own Dock, Pier 15 North, Delaware River. Our Kit is relatively easy to build and features 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.

HEIGHT 8" LENGTH 14"

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Bend the rear rubber hook and "can" (simply a device to contain the motor and prevent stick bowing) from music wire, insert them through stick, bend ends and glue in place. The rear hook should be bound with thread and glued well. Glue stab to boom bottom. Note that the covering should be on underside, to allow balsa-to-balsa glue joints. Add the prop assembly to nose, make up a motor from 4 strands of 3/16 rubber strip (tie the ends in a square knot, tightly). Now add the motor and balance the whole assembly on your extended finger, marking the point on the bottom of body. Note the balance point on plans and mark the point for LE and TE of wing on body. This will give you a reference point for later adjustments. Now glue wing to top of mount, keeping it level to stab.

After this is dry, unpin the mount sides from motorstick and slide it off (here is where you will see if you were successful in not gluing it to stick) so you can add the mount bands. Remove the bearing and double up two short rubber bands so that they are a fairly tight fit on stick. Then slide them along until they bracket the wing mount markings. Slip the mount on and slide the bands over the mount, thus clasping it tightly to stick. It should be loose enough to slip forward and back for adjusting, but not so loose as to allow unintentional shifting. Now spray the fin with a light mist of dayglo orange and you are ready to fly.

FLYING

After all, this is what it is all about, so grab your winder and bring a friend along to hold the model during winding. If you do not have an outdoor type winder, make one from a small hand drill with a screw eye or heavy cup hook firmly anchored in the chuck. Solder or epoxy it in place. The screw eye should be opened up slightly so the loop of motor can be attached.

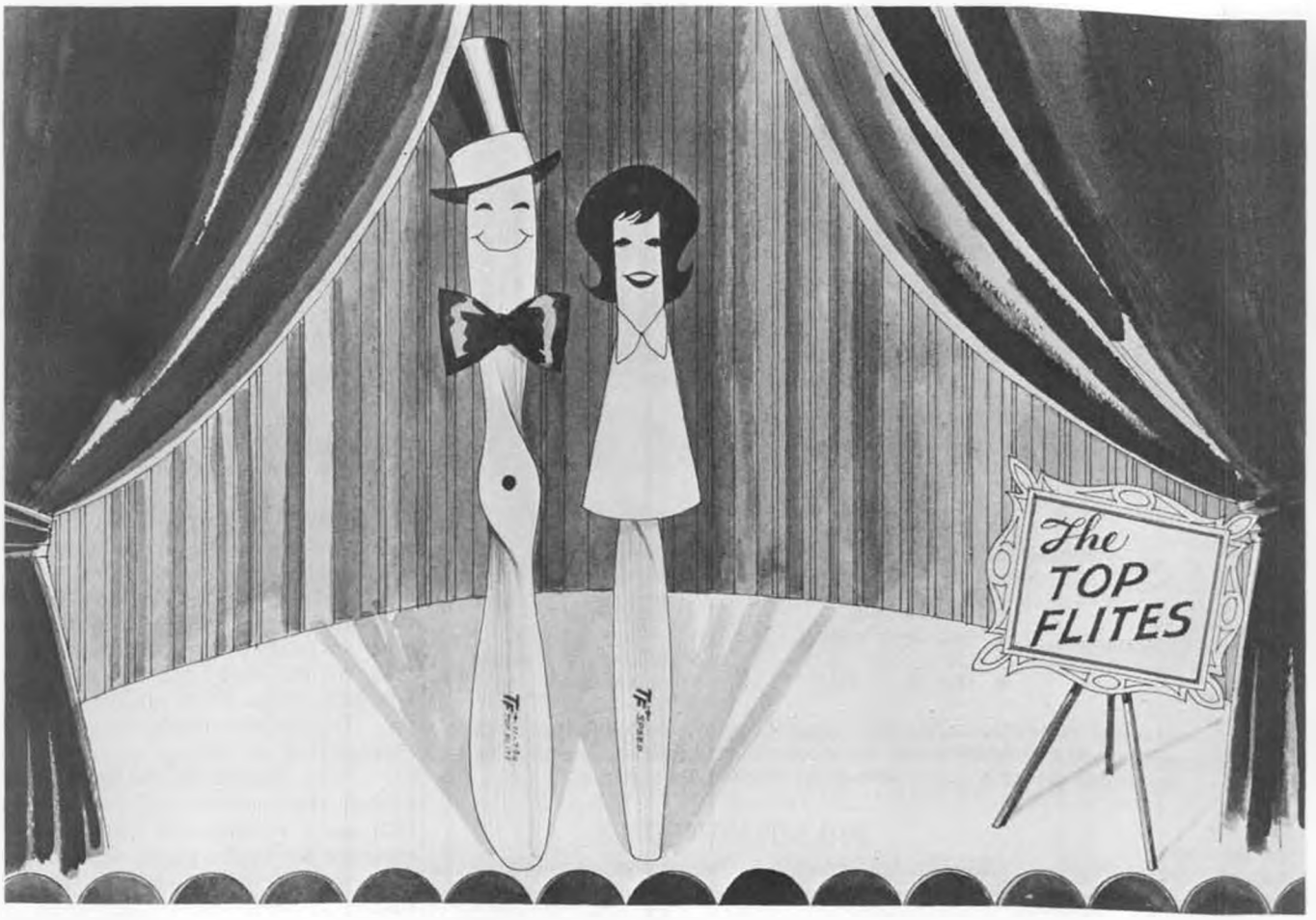
Have your helper firmly grip the prop shaft between his index finger and thumb, holding body up at about a 30 degree angle. Then remove motor from rear hook and can. Motors should be lubed in advance with Sig rubber lube or Johnson's Baby shampoo. Keep lube away from knot. Attach the motor to winder hook, then stretch it out horizontally about 3 to 4 times slack length. Begin winding, moving in as you wind. Only put in 50 to 75 turns on the winder (3.75 to 1) for test flight. When your winder hook approaches the rear hook, stop winding, grasp the motor just in front of winder, and let off a few turns. Like magic, a small loop will appear which can be easily removed from winder and attached to rear hook. Now you are ready for your first power flight (test gliding is pointless with this design, since it flies so much like an indoor model), so grasp model under wing (make sure motor is inside can) and release prop a moment before you let model go. Climb will be very slow and majestic, with nose high. If model stalls, try moving wing back a bit at a time, or bending the bearing for side thrust. The built in left turn and stab incidence should not be changed. Once climb is smooth, you can pack in the turns for long motor runs. Rotate motors for longer llife.

Since this model is so different in appearance and flight (it sort of floats in the air like a 747) from most large rubber models, it is a real crowd pleaser. We hope you get as many startled looks as we did when we brought Ultra-Dart out to fly. For the next Nats, we might even try one built to the Unlimited area limit of 300 square inches. That would be enough to lift Carl right off the ground, making it the first man-carrying Dart. Frank Ehling, what have you started with this madness of enlarging Delta Darts? ●

Products . . . . . *Continued from page 19*

able crystals. From the time you open the distinctive green and black box, and lift the lid off the molded styrofoam packaging, one message comes through loud and clear . . . Quality! The Futaba system, manufactured in Japan, and marketed in this country by Futaba Industries, U.S.A., in Compton, California, is a well thought out, versatile unit. Most all components are interchangeable throughout the line, from the two channel through the six channel. There are four servo configurations available. The FPS6 and FPS6L are identical except for direction of rotation on a given command (clockwise and counter-clockwise). The FPS7 is the same size as the others (all are miniature) but is a heavy duty version and is completely waterproof (Boaters! Pay attention . . . class is in session!). The FPS8 unit is a slower but stronger servo for retract landing gear or flaps.

All of the new series of transmitters (three or more channels) feature the slant type case, which puts the antenna up in the air in front of the flier when



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7	3 - 4 - 6	.60	6	3 - 4	.50	7	7½-8-9½-10-10½	.90	10	6	1.05	6	3 - 4	.40
8	3½ - 5 - 6 - 8	.65	7	4 - 5 - 6	.60	8	7½ - 8 - 8½ - 9	.95	11	6 - 7 - 8	1.20	7	4 - 6	.60
9	4 - 5 - 6 - 7 - 8	.75	8	4 - 5 - 6	.65	9	7-12½-13-13½	1.00	12	6	1.30	8	4 - 6	.75
10	3½ - 5 - 6 - 8	.85	9	6 - 8	.75	10	8 - 8½ - 9	1.15	14	6	1.65	9	4 - 6 - 7	.95
11	4-5-6-7-7½-8-8½	.95	10	6 - 8	.85				POWER PROP			10	3½ - 6	1.00
12	4 - 5 - 6 - 8	1.10	11	4 - 6 - 8	.95	7	5 - 6	.85	9	6	.95	11	4 - 6 - 7 - 8	1.20
13	5½	1.15	12	4 - 5 - 6 - 8	1.10	8½	8 - 8½ - 9	.95	10	6	1.05	12	6	1.50
14	4 - 6	1.35				9	7-7½-8-8½-9	1.00	11	6-7-7½-7¾-8	1.20			
						9½	8 - 8½ - 9	1.10	12	6	1.30			

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the transmitter case is horizontal (This keeps you from poking your flying buddy in the bellybutton . . . or elsewhere!). These transmitters also feature a trap door on the side of the case, allowing access to the interchangeable crystal without removing the back of the transmitter. All of the multi-channel units (more than two channel) also have a buddy box switch, allowing two similar transmitters to be used in an instructor-student type application. Futaba is one of the first of the radio manufacturers to realize that a newcomer to R/C, who is likely to start out with a three channel radio, is the guy who really needs the buddy-box set-up . . . Not the expert who will buy the six or seven channel units that presently come with the trainer line.

The receivers have a strong molded plastic case with a molded-in connector block which eliminates that "spider's nightmare" of wires common to many radios. The plugs are a three pin, gold plated, molded type, with a molded rim around each wire to eliminate breakage from heavy handling. Alongside the connector block is a plug-in socket for the receiver crystal. One nice feature of the connector block is that each output socket is plainly labeled. There is no hunting to find where the elevator signal comes outa da little box.

The people at Futaba pride themselves on the accuracy of their transmitter's emitted signal. Sales manager York Daimon told me that they reject over 80% of the crystals they receive. This is borne out by an informal experiment I witnessed. Recently in Albuquerque, we took out two Futaba transmitters on the same frequency and launched a sailplane carrying a receiver tuned to one of them. After setting the trims on the two transmitters as close to the same as possible, we were able to transfer control from one to the other by turning off one and turning the other on . . . with no visible effect on the airplane. While I certainly don't recommend that you do this on a regular basis, it does give you some idea of how close Futaba holds their tolerances on frequency output and reception.

The Futaba system uses molded servo trays which feature a "snap-in" mount. The servo is cushioned on rubber grommets, and is held in with a hooked plastic fitting. To change the servo from one plane to another, all you need to do is press on the hooks and the servo lifts out, to be pressed into place in another tray. The switch harness has a separate charging plug and the high quality switch has a hole molded in the toggle. This enables the modeler to insert a 1/16 inch wire, allowing the switch to be mounted inside the plane, with only a wire protruding through the fuselage side.

The overall performance of the Futaba has been excellent. Range is far greater than necessary, and control has proven to be very smooth and reliable. From the silky smooth sticks, to the ratcheted trim levers, through the rugged receiver and servos, the system has performed flawlessly. Priced at $319.95 for the six channel system, with all nickel cadmium batteries, and charger, I would recommend the system to anyone.

The Futaba FP-6EN System is available from Futaba Industries U.S.A., 630 West Carob Street, Compton, California 90220. Retail price of the six channel system with four servos and all nickel cadmium batteries is $319.95.

The Aquila sailplane kit is available from Airtronics, 45 East Joseph St., Arcadia, California 91006. The wood fuselage version retails for $59.95 and the fiberglass version is $79.95. •

Plug Sparks . . *Continued from page 32*

miums, on the other hand, exhibit the startling flat plateau that lasts 70% of the life of the charge. Keith uses 2.4 volts (2 batteries @ 1.2 V), but the writer finds three batteries, 3.6 V, is much superior. Matter of fact, you don't need boosters this way! (The writer often wonders if glow plug operation would have become popular if nickel-cadmiums were available 30 years ago).

Thirdly, modern, multi-grade, detergent oils have additives that build up on

the plug and short out in as little time as five minutes. Use mineral oil, non-detergent type, generally available at hardware or auto supply stores. As has been claimed by the writer for a long time, the arbitrary use of SAE 70 wt. oil is bunk. Unless an engine is in very bad shape for compression, 40 wt. oil is perfectly adequate. Keith claims he is still running his brown Jr on it! Interestingly enough, Dan Calkins recommended 40 wt. oil for his Elf engines; a delicate gem, that we all will agree to.

The argument for SAE 40/50 wt. oil is that the surface speeds and loads in a model engine are so low that any halfway sort of keeping things clean should prolong the life of the engine indefinitely. As a side note, the red hot FAI engines with 25,000 rpm values still have piston and shaft speeds far below critical values for proper lubrication.

To summarize (and we will be doing this again!), a properly wired ignition system with good battery contacts, clean and properly adjusted points, and good solder joints, is a necessity. Really, fellows, it is not as complicated as building a model. Properly done, ignition systems are reliable for years.

FREE-FLIGHT PROPOSALS

Just in case SAM SPEAKS doesn't carry the results of the recent SAM Free Flight Rule proposals (and to keep the boys off my back), here is a quick rundown on how the SAM membership reacted:

Prop. 1. Change O/T date to 1947; Yes–49, No–61.

Prop. 2. "Rare Bird" Event; Yes–44, No–64.

Prop. 3. Authentication Committee; Yes–82, No–19.

Prop. 4(a). .020 to be a basic event; Yes–65, No–44.

Prop. 4(b). .020 class division; Yes–54, No–55.

Prop. 4(c). Rename to SCIF .020; Yes–56, No–58.

Prop. 5. Menthanol Fuel; Yes–22, No–88.

Prop. 6. Engines, post 1950 classification; Yes–37, No–72.

Prop. 7. Antique engine limitation; Yes–63, No–47.

Prop. 8. .024 & .035 engines for .020; Yes–50, No–60.

That's it fellows. All that has to be determined now is when to make the new rules effective. The writer favors after the SAM Business Meeting, as the Authentication Committee can be set up then.

JIMMY ALLEN CONTEST

The writer is feeling pretty chipper, having heckled the Kansas City, Mo. boys into staging a Jimmy Allen Contest. Just received a letter from Bryan Wheeler stating that the club has set a date of Sunday, August 17, at the Shawnee Mission Park, in Johnson County, Kansas. The meet will officially start at 12 noon. This will give you late risers and church goers a chance to come to the contest well prepared. In all probability, either darkness or general fatigue will signal the end of the contest.

To help things out, Bryan Wheeler, 7604 Appleton, Raytown, Mo., 64138, will have kits available for the Thunderbolt for $6.95 postpaid. He sez maybe later he will have the Sky Raider and the Spartan Bomber available. These kits are the same as those manufactured by Pop Schreiber of the Country Club Aero Shop.

The original rules were printed on the Blue Bird drawings (The Blue Bird had to be scaled up). Under Jimmy Allen rules, you had to build one of the Jimmy Allen designs: Bluebird, Skyraider, Thunderbolt, Yellow Jacket, or Silver Streak (Blue Flash qualifies, but is real light for those Kansas winds, being built out of 1/16 sq. balsa). However, for this contest, John Pond plans will be good enough, as will be the subsequent kits from Wheeler.

Talking about the rules, the K.C. Mo. boys will allow laminated rudder, elevator, and wing tip outlines, since bamboo seems to be a problem to the newer fellows (hmph!). That will be the only variation allowed. Such things as folding props, extended wingspans, oversize props, etc., etc., are definitely out!

This will be a Jimmy Allen contest in every sense of the word. All are invited, but please, don't mail any models to be proxy flown! There simply isn't that large enough membership to handle this kind of stuff. The idea is to get you or someone to show up with a model at this meet!

VAMP THE SAM CHAMPS?

Leave it to those Las Vegas boys to come up with the latest name . . . VAMPS. Vegas Antique Model Plane Society. Robert Chambers is the president and has rounded up 14 members already.

To show the interest generated by Chambers, several of the Vegas night clubs have evinced an interest in sponsoring the next SAM Champs. Now how about that? Two very successful radio control meets, the NMPRA Finals and the International Invitational Pattern Championships, have been held at Vegas. What's to stop us from holding the SAM Champs there?

Chambers has been in contact with Joe Beshar, SAM Pres., about the possibility of staging the Champs in '76 at Vegas. One thing for sure, when Las Vegas puts it on, they go whole hog! Best part about the deal would be the extremely liberal housing accommodations for contestants and their wives. Worth thinking about, men!

PAUL BUNYAN – MOVE OVER!

Swedes have always been good for stories, and the tale re-told by Sven Olav Lenden, President of the large Swedish O/T Club, is well worth repeating.

When Sven first became acquainted with Lars Wentzel, son of Sven Wentzel, the real aeromodelling pioneer of Sweden and founder of the famous "Vingarna" (WINGS) club in Stockholm, Lars would tell this story about his father.

In the early days of Wakefield, the rubber weight was not limited like its modern counterpart. This led to many schemes to increase power duration, among which was Sven's idea of two motors with a clever clutch system that would allow the motors to run in series. One day, Sven Wentzel was testing his model under full power conditions. This one flight was a fairly long flight that came to rest on a concrete area. The exhausted father had no sooner reached the model when he heard the clutch go "click!" The prop began to revolve, the model took off unassisted and Sven had two shags for the price of one flight!

The model, incidentally, is still in excellent condition with two skeins of rubber motor still inside the fuselage. The model has been dubbed, "SW-39," as it was used in the Coupe de Belgique at Antwerp, in 1939. The clutch, without gears, is protected by a patent granted to its originator, Rolf Bergwik. Truly a shame the rules have been changed so drastically as to make it prohibitive to use a gearing system (or for that matter, any ingenious ideas for prolonging flight time).

Well, the old Georgia Fox, "Gorgeous George" Perryman is again offering trophies in conjunction with the Lake Charles Nationals O/T Events for a combined rubber stick and cabin event strictly for Juniors. Of course, the "sleeper" in this case is his very talented five year old grand-daughter, Stephanie, who is a real tough competitor to beat (Just like grandpaw).

Anyway, fellows, let's get out all fellows under sixteen and see if we can beat Perryman's pride and joy. If you're going to the Lake Charles Nationals, bring along that boy of yours. Here is another event to take a whack at winning some nice trophies.

As noted in this column previously, all Old Timer Free Flight events will be held on Friday, August 8, from 8 a.m. to 5 p.m. Come join the fun!

CLEANUP FUN

When the Bong Eagles make cleaning up FUN, that is news! On May 4, the Eagles held a so-called "Clean-up and Funfest" meet. As they put it, "This is the one time to repay (tax free!) for the use of Bong Field, by romping down the runway in the spring and collecting all of last year's debris. Ecology, here we come."

In conjunction with the Dept. of Natural Resources (DNR), which provided a truck, all contestants lined up at the head of the runway and made a clean sweep of the area. It was amazing how quickly a bag filled up!

Thereafter, a Fun Fly ensued with all sorts of merchandise prizes and even a spring raffle. There were darn few fellows who went home empty handed. Now, that's the way to keep a field!

"NEW" O/T PRODUCTS

While wandering around the MAC Trade Show at Anaheim, the writer was struck by the increase in old timer equipment, kits, etc. This is simply great!

Foremost among the new items was the C.P.M. (C.P. "Lucky" Moody Model) Co. production of Barney Snyder's bread and butter rubber kit, the Pacific Ace. What a great old flyer that one was! The kit is excellently done, so if you

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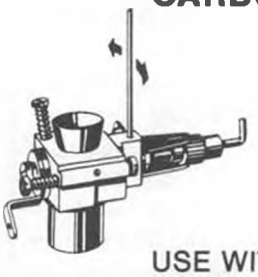

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Talked with Bob Oslan, of Cal-Aero and looked over his 50 inch R/C Powerhouse. Real nice! (Oslan is one of those meticulous builders all of us slobs hate). He just had finished the model to display. No kits ready yet, but it won't be long. Bob is also contemplating several other 50 inch size R/C models for the ever-growing O/T F/F with radio assist. About time someone put out a design for the smaller engines!

Ed Kelly, over at California Distributors, is also talking about his Korda rubber kit which will augment the 4 K's Buzzard Bombshell. Another winner for the rubber boys!

Think I mentioned Herb Wahl last issue, but Herb is putting out a 40th Anniversary Brown Jr that will be every bit worth the initial asking price of $150.00. Did you notice I said initial? No question about it, prices will go up as production gets started and good old inflation takes over on costs. Herb Wahl runs his biz under Herb's Model Motors, P.O. Box 31, Crum Lynne, Pa. 19022. Gettum while they're hot!

TOWLINE GLIDER (O.T., that is!)

Great news! Just talked to Lee Renaud, of Airtronics, during the recent MACS Show at Anaheim, May 3 and 4th in regards to the sponsorship of an old timer towline event. Best part of it all is that it can be either free flight or radio control!

The writer has assured Lee that this will be brought up at the next annual SAM Business Meeting to be held July 30 at Denver. At that time, the amount of interest will determine which way the trophy(s) will be offered. If there is enough interest both ways, who knows? Maybe Lee will go both ways too!

So, you glider boys who have been bemoaning the lack of interest in old time gliders have an excellent chance to put this event up as a permanent feature of the SAM Champs. Let's see some interest and turnout now, men!

PARTING SHOT

Al Hellman hit the nail on the head when he said that winning is nice, but the sheer enjoyment of flying with friends having the same interest is better. That's the magnetism of old timer flying! Who ever heard of taking your Schnuerle powered Starduster or Satellite 225 miles for fun flying? Go where the spectators congregate and where the real fun is . . . at the Old Timer's area. Amen to that brother! ●

F/F Scale . . . . . *Continued from page 39*

theless charming and effective in their own right. Rubber Scale is an art form that can stand on its own merits, the translucent appearance of colored tissue over light structures is so pretty that, to my way of thinking, there is no need to attempt to make it opaque. Maybe rubber scale isn't 'true scale' in that sense, but why should it have to be? If you want to build that kind of model, fine, but paint isn't (and shouldn't be) considered a basis for greater scale scores than tissue. Besides, you can always use gas, CO_2, or electric, and these would never be duration events for scale. But rubber is different. I use paint myself, but not to make the model opaque, just to get colors that aren't available in tissue.

"There's another point I have strong feeling on, but there seems to be some difference of opinion around the country. That is, regarding R.O.G. Rise off ground is fine for other power sources, but is a real pain for rubber. If there's anything I can't stand, it's an otherwise pretty rubber scale model whose appearance is ruined by an out-of-scale extra long landing gear. Rubber models need big props for decent performance. That doesn't apply to gas, CO_2, or electric. We hand launch ours, and it saves a lot of busted models. Besides, doesn't a Mustang or Spitfire look ridiculous flying around with the gear down? Dave had a good point. If you follow that rationale, then you should have flaps down and canopy open and be consistent entirely in 'landing configuration.' On a full size aircraft, the landing gear is a

WANT TO WIN?

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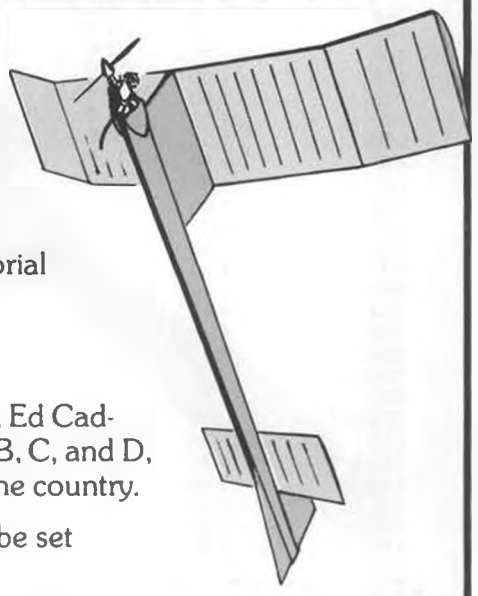

Pearl Team #2 won the prestigious team honors at the U.S. Freeflight Championships at Taft, California, over the Memorial Day Weekend. In addition, Guy Kirkwood set a new Class A record of 43:31, using his FAI Midi-Pearl to make four flyoff flights after he damaged his own "A" ship.

Pearl team members were Gene Simpson, Ed Cadwell, and Bill Moore. Flying Pearls in ½ A, A, B, C, and D, they outscored the toughest competition in the country.

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necessary evil. The airplane is in its real element when the gear is up . . . flying. My SK-2 looks very pretty in flight without an unsightly gear that only adds weight, drag, complexity, and vulnerability.

"R/C, C/L, and even F/F gas scale can use retracts. They don't have to go for ultimate light weight anyway, and besides, they get points for 'realism' in flight. Duration would be an impractical way to measure their performance, but to reiterate, rubber scale is fundamentally different. I don't think it should be made like the other scale events. Maybe if the issue really came to a head, the different models could fly against each other by using a bonus for R.O.G.

"We have another point of view somewhat different from what I usually see in the magazines. The way we see it, as far as rubber is concerned, scale rib and stringer spacing, tail areas, and dihedral do not make a scale model. What does make a model look scale are those details and color and markings. This is a real advantage. If your Howard Ike looks like the Howard Ike, you don't get zonked for an enlarged stab and increased dihedral. So, if you hate the Lacey M-10 and the Nesmith Cougar, and you would prefer to build the Ike, then build the Ike and don't feel disadvantaged. However, don't leave off the rigging or racing numbers or you will get zonked!

"Another thing we do which probably would not fit into National competition is to give a fairly low value to workmanship. This is done to encourage beginner and Junior participation. They don't feel so overshadowed by the experienced builders, because even if they make sloppy numbers or loose rigging, they at least get credit for having them.

"Our flight scores are on a diminishing returns basis . . . the first 60 seconds at one point per second, next 30 seconds at 1/2 point per second, next 30 seconds at 1/4 point per second. Over two minutes, nothing more. So two minutes or more gets 82-1/2 points.

"The Flying Aces Handicap Representative Rubber Scale Rules are a very well thought out and good working set of rules. They encourage people to build whatever airplane that turns them on, and they encourage beginners. They result in tremendous variety and interest, and you can enter two models to take advantage of both ends of the scheme.

"The scale racing events are a spectacular, colorful, and thrilling contest to participate in. Seeing 8 or 10 scale racers

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DUES STRUCTURE – 1975

1975

Article V – Dues and Fees

Section 1: "Membership dues and number of subscriptions to the Journal of this organization shall be in accordance with the following achedule:

	Dues	Subscription
a) Individual	$10.00	1
b) Club	20.00	2
c) Family	15.00	1

(Any Senior or Open AMA member and any of his immediate family who are also AMA members.)

d) Junior	5.00	1

(Any Junior AMA member.)

Each subscription to the society publication SAILPLANE starts with the first issue published after payment of dues and continues thereafter through the membership year.

Dues are payable prior to December 31 of each year for the ensuing year. Subscriptions commence with the first issue after payment of dues through the membership year.

In the event a member joins during the dues year, he shall submit dues as follows: between December 1 and June 30, full annual fee, between July 1 and November 31, one-half the annual fee. Members joining during December of a year shall also be members of the ensuing year.

go off in a mass launch is an unforgettable sight. Probably more spectator appeal than R/C pattern. It's immediately obvious who is winning, but maybe he blows a motor and is out! Now will the Caudron beat the Laird? Can the Goon outlast the Ike? Any rubber scale fan who hasn't seen one of these contests is really missing some fun. That's why I want to spread the gospel.

"Glastonbury flies WW I peanut dogfight the same way as F.A.C. Racing. It's been done both indoors and outdoors. So we have loads of fun with these events. What are you other Rubber Scale fans doing?"

As you can readily see, Tom has a great deal to say and has some rather interesting opinions regarding rubber scale. Admittedly, I don't agree with everything, but there is plenty of food for thought. I would like to receive comments from other scale modelers and perhaps we can compare ideas and concepts that will further our scale cause.

On Saturday, August 30, the Flightmasters are holding their annual Speed Contest in San Marcos at Palomar Jr. College. This special event is for both scale and non-scale models. The non-scale models must fly 200 feet in a closed course, while the scale models have to fly only 88 feet (88 feet in one second equals 60 mph.). However, this year they will add the Thompson Trophy Race. It will be open to any aircraft that flew in the Thompson, and this encompasses quite a variety from bipes to WW II aircraft. (I would personally rather see pre-WW II racers, but for this first time it is probably a good idea to have it as wide open as possible.) The span will be restricted to 24 inches or less. At first glance this may seem like quite a restriction, but a pre-war racer with its low aspect ratio can have an unusually long fuselage. The wings *must not* have under camber, and no parasols or high wing cabin configurations are allowed. All models will be hand-launched at the same time. The first model down is eliminated from that particular heat. There will be additional heats until there is only one model still flying.

At least for this time around, the judging will be Mooney style with a 3-view required.

I would hope that many of you will be interested enough to build for this new (for us on the West Coast) and exciting rubber scale event! •

Race and Win . *Continued from page 11*

the line. You must be able to move quickly without a lot of hunting through a lot of unnecessary stuff.

Technical Tip No. 5: A hot (temperature) engine idles slower and longer than a cold one. Start as soon as you can and run at high speed until you have to idle. The extra heat from running fast as long as possible gives you your best chance to get through the idle.

The next problem is to get off without mishap. If your ground handling is poor or you know the next guy has trouble, delay your start for half a second so they can get out of your way. You want ten laps outside safely. The rest will come.

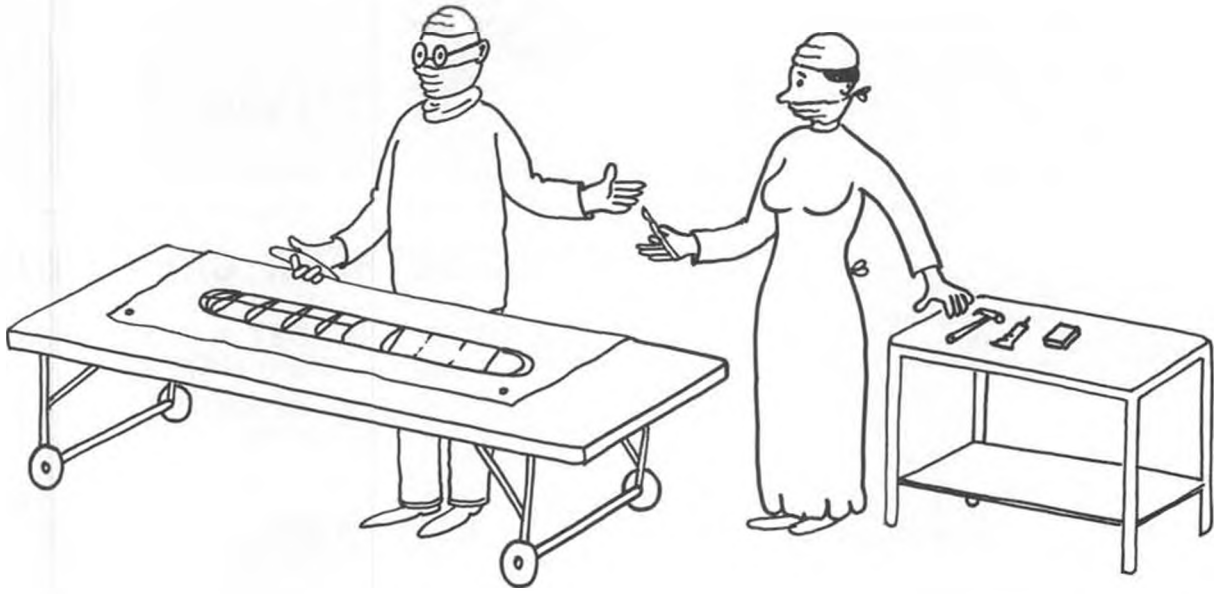
Rule No. 4: Do not cut . . . Let the hotdogs work themselves into cut positions. A one lap lead is a bunch and you will have it when they cut. I am not saying you should not race. You are there to race . . . but keep your cool.

Technical Tip No. 6: Smooth is fast. Every control deflection is drag. Trim your plane to fly itself on the straights. The ideal lap is made with 6 control movements only. Roll, up elevator, roll out and wait is ideal. Soon it becomes rhythmical.

Technical Tip No. 7: The only place to judge a prop's quality is in a race. If you have determined what size and pitch is best for you, then sort them at contests where you have a "freebie." Take off that prop you know is good and mark it for a difficult race. Try new props when you have very weak competition. Your time will tell you which to save, but allow for the fact that when you are pushed you fly tighter. This system assures a ready supply of good props for big races or for that fella who you want to beat really bad. I had four proved good props saved for the Nationals. Fly to save the prop when you land. Do this and the airplane will take care of itself.

When you are finished, check your plane over carefully. Do not tinker, just check. Get it ready for the next race *now*. Change the plug and clean it. Retighten the prop nut. The wood compresses as the day goes on. This will save losing your prop when a loaded engine backfires on the line. You can also run a pin through the drive washer, spinner backplate and 1/16 inch into the prop if your engine loses props often. A 4-40 screw tapped into the drive washer with the head cut off works fine.

I have presented very few tips for going faster. Consistency wins races, not just speed. Slow planes and flyers win



races if they are consistent and avoid mistakes. Agreed, this does not sound like a very exciting way to race. After trying the "go fast" method and then the "go sure" method, I discovered I enjoyed winning. That *is* exciting! •

Valencia . . . . . *Continued from page 15*

Less expensive, easier to build, and still very fast is the 1/2A Stick from GMC. Certainly not to be outdone, Ace's Upstart II made a creditable showing, though the fastest one was modified with swept wings.

Racing ended in an exciting way . . . a four-way tie for first! There was still time and no frequency problems, so they decided to fly it off. Although to my eye, Robert Janiger's Upstart was a shade faster, Tony Naccarato outflew him with tight, quick turns to take the overall win. The first 10 finishers were:

Tony Naccarato	1st	Original #38
Robert Janiger	2nd	Upstart modified
Ben Strasser	3rd	1/2A Stick
Dene Jones	4th	1/2A Stick
Cal Barnes	5th	1/2A Stick
Bobby Baker	6th	Quickie 200
Ed Noulin	6th	1/2A Stick
George Baker	6th	Quickie 200
Ron Clem	7th	Tigercat
Niel Sweeney	8th	1/2A Stick

The Valencia Valley Headwinds and Tom Schmactenberger are to be complimented for the race; it was an outstanding way for both the competitors and the spectators to spend their day. They proved that 1/2A racing has everything. These planes look fast, sound fast, and turn fast! All they lost by not flying the bigger sizes of racers was the expense!

Try it yourself. •

Sailing . . . . . . *Continued from page 27*

in a future issue. Other changes include the installation of the JG Products radial jib fitting. I'm quite pleased with this device, and will replace my wooden jib club with a fiberglass arrow shaft of equal strength, but lighter weight. This will allow the jib to lift better on reaches and runs. Figure 1 makes an important point. For proper operation, the jibstay and the axis of the jib club swivel must be parallel. On the prototype YANKEE, this required that the entire fitting be mounted on a shim block as shown.

The most interesting modification has been the installation of a SAIL ENGINEERING Proportional Sail Control System. This winch is so constructed that the position of the winch arm follows the position of the non-neutralizing winch lever on your transmitter. While it took some getting used to, the longer I sail with it, the better I like it. I find myself using the winch much more than the other type, and I expect with a light boat like the YANKEE, this is going to show up in increased boat speed. Ad-

NFFS MEMBERSHIP AND RENEWAL APPLICATION

(Make checks payable to; National Free Flight Society)

Mail to;
B.J. Kelch, R.R.4, Box 475,
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			FEES 1 yr	2 yrs
RESIDENTS OF FOREIGN COUNTRIES			$6.00	$11.00
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All members receive NFFS Digest. Family membership fee includes all additional family members, but no additional copies of the Digest. Ages are as of July 1 of current year. Please circle applicable fees.

New Member ☐
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Current expiration date:
Month Year

Name AMA No.
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City, State Zip
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AMA No.

vertised in the spring Quarterly Newsletter of the AMYA, the SAIL ENGINEERING unit is not cheap, however, it plugs directly into your receiver and so frees a servo for duty as a spare. Deducting the cost of the servo from the winch price makes it seem a little less painful. I'm tempted to say that this unit is not for the beginner, since it makes the proper setting of sails so easy. A beginner will never experience the wonderful frustration of having his winch switch jam, or all the other gremlins that one runs across. I would say that it is not necessary to have one to win races, at the present time. The skipper is still more important than all his equipment, as long as the equipment is working properly. But it sure is neat to be able to trim out and in under fine control. Inquiries should be directed to Sail Engineering, P.O. Box 8439, Richmond, VA. 23226.

One of the continuing problems we have had in keeping model boating activities in the model press is the lack of support from the modelers themselves. This is especially true among the sailing types, who seem even more reticent and easily spooked than most. Luckily, among this bed of pansies now and then a tiger-lily blooms. Such is Fred Noesner of Union, New Jersey. Fred builds and sails for fun, and says that he is glad that nobody has a boat just like his. Fred, I'm going to prove your undoing, 'cause now I want one too!

Ray Gefken, of Newark, N.J., designed the catboat, and her vital statistics are as follows:

LOA . . . 30 inches
Beam . . . 15 inches
Draft . . . 6 inches
Disp. . . . 15 pounds
Keel bulb . . . 4 pounds
Frames . . . 1/4 inch ply
Skin . . . 3/32 inch ply
Auxiliary power . . . Mabuchi No. 56, 8:1 gearing 3 v., 1/2 amp
Drum winch . . . 1.5v., 1/3 amp
R/C . . . Heathkit GD-19, with three frequency option

As the photos show, Fred has done a good deal of original work on the machinery in this little gem. By giving up on the auxiliary power, and used commercially available winches, you might be able to drop the weight to 12 pounds or so and put a good deal more of it in the keel. Wouldn't a herd of these be a nifty sight with all the wash hung out to one side on a downwind run? Fred, that gaff-rigged main with the mast hoops is going to generate a lot of interest. Anyone wanting more information can write direct to this column.

I'd like to tender my thanks to Fred and Ray for their cooperation in providing the photos and data on the cat-boat. I wish there were more like them . . . boats and men!!! *(As a judge for the WRAMS show in White Plains, Fred's "Cat" was one of our selections for a prize in the boat division, though it did not place. wcn)*

Since our reporting of the prototype HUSON 36, the project has culminated in a fine production 36/600. I've heard of a couple of them in the Richmond area that will be skippered by gals this season!! The photo shows one of a pair that is now on duty in the tanks at East Coast boat shows. They certainly perform well under fan power in a 30 x 40 tank. If you haven't tried sailing indoors you don't know what you are missing. Shirt sleeve and bright lights while the snow falls outside!!!

The East Coast 12-meter picture should provide you with plenty to think about. The boat belongs to the author, who put the stripes on 1974's sails and set out to purposely produce instructive pictures. (This is not to say that these things don't happen at other times!!!!) The most important lesson is found in the main leach. The leach is too loose, and excess twist is found in the sail. Compare the angles of the dotted chord lines which have been drawn in. To cure this, one should add some backstay tension, but tighten the jennys to keep the mast head in place. The lower half of the mast would then bend forward, with lowers slackened, and take some of the fullness out of the lower body of the sail. Increased sheet tension would help in tight-

ening the leach, and could be set somewhat closer to the centerline of the boat. A traveler would be a distinct help. The problem is one inherent in the class rules. A 3 inch roach is allowed, yet the battens are limited to 5 inches. If we agree that the roach measurement should be about 40 percent of the batten length, we see that 7-1/2 inch battens should be allowed. Alternately, the 5 inch batten could be retained, and a maximum 2 inch roach could be allowed. Considering the general overcanvassing of the EC/12, the latter might be better from a stability viewpoint.

Take a ruler and lay it along the jibstay. Look at the tremendous amount of sag that exists. This is responsible for the extra draft which has crept into the sail. The halyard is too tight and has pulled the draft far forward of the 40 percent optimum location in the upper three sections. A jib traveler, though fitted on this boat, is misadjusted and should be providing more downward pull to remove some of the twist out of the jib. The increased backstay mentioned in the preceding paragraph would help to remove the jibstay sag and provide more leach tension in the jib, by pulling up on the jib swivel.

Take some quarter or half inch masking tape, and spray it a dark color. Then attach it to your sails and see if you don't learn some interesting things. Photos are really worth the time, and let you sit back and study your boat free from the distractions of wind and wave.

Next month we hope to feature an interview with AMYA President Bob Harris, and a report on the Colonial 50/800 Regatta (this is the new name for the Garden State Regatta.) If everything proceeds according to plan, you will see a new "formula" class prototype which has been under construction for some time in our shop.

ATTENTION MANUFACTURERS

If you want people to read about your products in MODEL BUILDER, you have to take the initiative. Send in a product announcement to Bill Northrop for his use, and let me borrow a unit for testing and photography. Right now it is MODEL BUILDER that is attracting new skippers into sailing, and you should, if you'll pardon the expression, expose your product within its pages. If nobody knows about it, you can't sell it.

No column would be complete without a plea for you to join the AMERICAN MODEL YACHTING ASSOCIATION. Annual dues of $5.00 are payable to Bud Salika, 3917 Sunnyside Ave., Brookfield, Ill. 60513. •

Counter . . . . . *Continued from page 7*

tion for R/C, the size for which they are scaled.

The nine aircraft plans presently available include the Grumman F6F-5, Ryan FR-1, Grumman TBF-1C, Grumman

MODEL R/C HELICOPTER DATA CARD

Complete and return to: MODEL BUILDER/CHOPPER CHATTER
1105 Spurgeon Street, Box 4336,
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Name: _____ **Phone:** _____

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R/C Helicopters: Interest only ☐ **Building** ☐ **Completed** ☐

Type model or kit: _____

Areas where help is needed: _____

List special skills you might share: _____

Remarks: _____

XF5F-1 "Skyrocket," Boeing B-17G, Lee Mahoney's "Sorceress," Gee Bee R-1, Boeing F4B-4, and Curtiss Sparrow Hawk F9C-2. Scales vary from 3/4 to 2-1/2 inches to the foot, and spans are from 40 to 77-3/4 inches. Price range is from $5.50 to $9.50 per set.

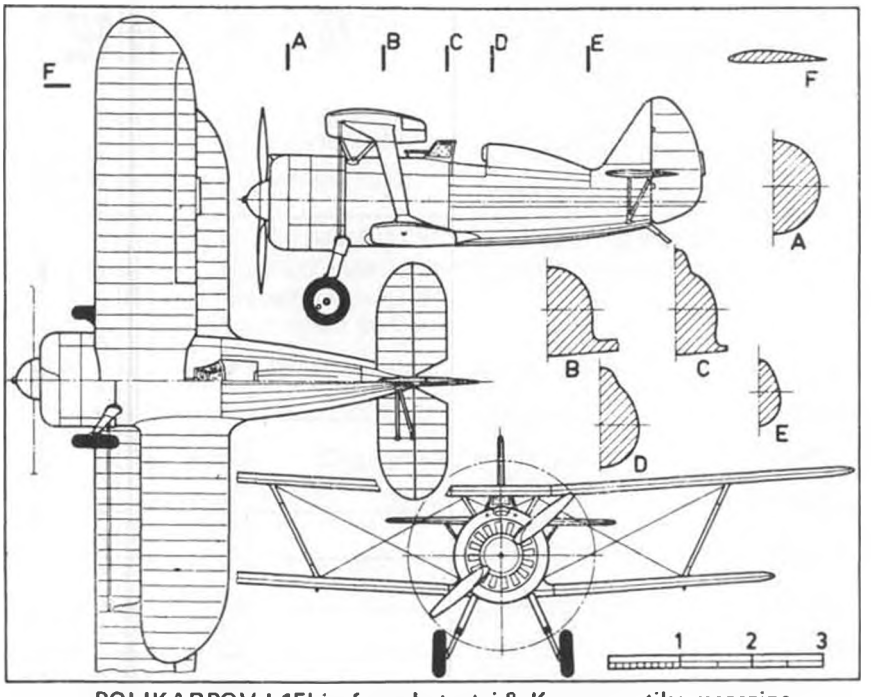
* * *

A very tempting little morsel from the early days of modeling has now been recreated by C.P.M. Products, 11054 Leolang Ave., Sunland, Calif. 91040. How many long-time modelers remember the "Pacific Ace," a 30 inch span rubber model formerly produced by Barney Snyder of Modelcraft? If anyone cares to refresh their memory . . . first hand, C.P.M. is producing a kit of this little gem. In the box, which itself is a sturdy near-replica of the original, you will find selected strip wood, printed(!) sheet stock, *real* Japanese tissue, landing gear wire, drilled nose block, and hardwood wheels and thrust button. Prop is not included. Carve your own from the block dimensions given, or use a plastic ready-made. Kit retails for $4.95 in selected So. California hobby shops, or order direct by adding $1.50 for postage and packing.

* * *

Custom Craft Products, 19 Florgate Rd., Farmingdale, N.Y. 11735 introduced its Miter Sanders at the WRAMS and Toledo trade shows this year. These units are both designed for sanding precise beveled edges at any angle from 0 to 50 degrees. The smaller model (Standard, $14.95), will handle materials up to 10-1/2 inches wide and 1-1/2 inches deep, while the larger (Deluxe, $24.95) will handle 14-1/2 by 3 inch material. The latter is especially useful for precisely sanding dihedral angles into the center section of built up or foam cored wings.

Each sander comes in a simplified kit form, with all parts pre-cut and pre-drilled. A complete hardware package, along with pre-assembled and pre-lubricated slide track unit, is also included. The Miter Sander is available through



POLIKARPOV I-15bis, from Letectvi & Kosmonautika magazine.

hobby shops, or direct from Custom Craft Products.

* * *

A complete catalog of current (ha, ha!) items for electric propulsion systems of model airplanes, is now available for 25 cents from VL Products Division of Vista Labs, 7023-D Canoga Ave., Canoga Park, CA. 91303. The catalog lists the VL-101 flight system, several field charger and flight battery pack options, as well as secondary accessory items such as charging plug and cord sets, timer switches, rheostats, test meters, and plans for both a sport and scale model that are suitable airframes for the VL power unit. Also listed are other model aircraft kits that would work well with this system.

* * *

Crystal Products, Box 256, Newell, North Carolina 28216, is offering several items for the active R/Cer.

The "Field Mate" is a very complete field box which comes as a finished unit. Features include: storage compartment for 12-volt motorcycle battery (not furnished), optional built-in charger, supplied with amp meter to monitor plug and battery, three-way terminals for easy starter connection, fold-up foam lined plane caddy, ten drawers to hold small and large spare parts and repair equipment, top compartment for starter, transmitter compartment, holds gallon fuel can, three foot glow plug connector. Price without charger is $65.00, with charger $75.00. Unit can also be supplied with battery, fuel pump, and starter, all hooked up and ready for use. Write for prices.

Another Crystal Products item is the "Servo Master." This unit is handy on the home bench and at the field for running 3-wire servos without using your radio. Operates on 3 pen cell batteries. Specify your type of servos. Price is $18.95.

The "Power Check II" is an expanded scale volt meter with a built in vibration detector. This unit has an electronic circuit which can detect and indicate a drop or interruption of voltage, from bad connections or whatever. Price is $18.95.

* * *

Craft-Air, 5901 Oakdale Ave., Woodland Hills, Calif. 91364, has added two hi-start glider launching systems to its line of R/C soaring glider kits and accessories. Both sets feature one-piece lengths of surgical rubber tubing wrapped on a specially designed, convenient plastic storage reel. Reel and nylon line are white, for good visibility. Craft-Air's Hi-Start parachute, along with a steel two ring, and steel stake, are also included.

The Deluxe Standard Class Hi-Start, for sailplanes weighing less than 45 oun-

ces (generally those of less than 100 inch span), sells for $34.95. The Deluxe Heavy Duty Hi-Start, for sailplanes weighing over 35 ounces (generally those with 90 inch or more wingspan), sells for $37.95. See your dealer, or order direct. •

Workbench . . . *Continued from page 4*

Also, the report announced, "The second contest for the Mulvihill Trophy will be held at Dayton, Ohio, on October 3." (This would be during the 1924 International Air Races.)

To the best of our knowledge, these facts have never been published, at least not in any model magazine this editor had read in the past 45 years. Of course, to most readers, this astounding tid-bit is about as exciting as a mashed potato sandwich on fresh enriched white bread, however, one *does* wonder why the Ancient Modeling Academy chooses to ignore the Nationals that took place in 1923, 1924, 1925, 1926, and 1927 . . .

Care to take a guess?

HURRAY FOR JOE SCHLITZ!

For the first time in many years, a major manufacturer will be sponsoring a model meet. Let's hope it's the beginning of a trend.

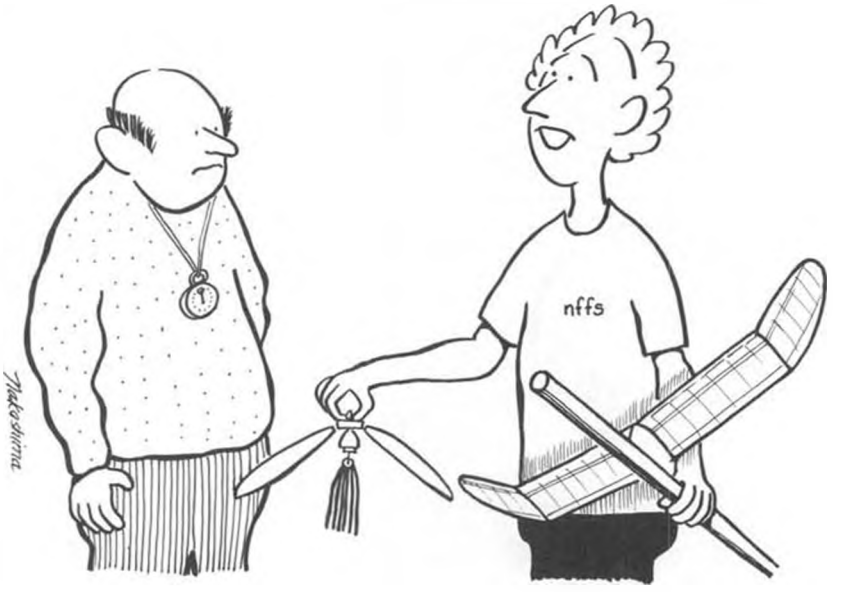
The Milwaukee Flying Electrons, Inc. will be co-sponsoring their Third Annual Sailplane Contest at Menomonee Falls, Wisconsin, on August 2 and 3, 1975. The other co-sponsor is Old Milwaukee Beer, a product of the Jos. Schlitz Brewing Co., which recently went into national distribution, after being sold in some thirty states for a number of years. Appropriately, the contest has been named the "Suds City Soar-In," and Old Milwaukee will be providing trophies, T-shirts, and posters to help promote the event.

The contest is open to all R/C glider pilots, and there will be separate classes for Standard and Open classes. Contact Ron Kopp, 8010 W. Waterford Ave., Milwaukee, Wisc. 53220, (414) 321-3465 for further info.

HERE, HERE, NORTHEASTERNERS!

Ed Whitten, editor and publisher of the excellent "Star Skippers" newsletter for the younger F/F set, is gluttening for more punishment! In an attempt to get more cooperation among clubs in the Northeast, Ed has begun the publishing of another newsletter, "Flashback," which will feature contest results and photos, plus comment.

Ed says, "This is a co-operative effort, meaning . . . CD's send in results, completely typed ready to Xerox. Subscriptions are *only* available by sending in as many self-addressed and 10 cent stamped envelopes as you want. Sub-



"I do have a positive attitude.....but my rubber doesn't"

scription runs out with the last envelope. No charge for subs . . . you just do the work of addressing. Send typed contest results, photos, commentary . . . and those SASE envelopes . . . to Ed Whitten, Box 176, Wall St. Station, N.Y., NY 10005.

THINGS TO DO

The Fourth Annual International Scale Model Show will be held August 1, 2, 3, 1975 in the Las Vegas Convention Center, South Hall, Las Vegas, Nevada. For further info and entry blanks, contact chairman Phillip T. Henderson, 3841 Syracuse Dr., Las Vegas, Nevada 89121.

In addition to 65 classes in the Model Categories(!), there are 68 in Crafts, 73 in Ceramics, and 15 in Photography. Top honors in flying models will be for Sport Scale.

* * *

The Orange Coast R/C Club, Orange County, California (Santa Ana, Costa Mesa, Newport Beach area) will have a Sport and Static Scale contest on August 24, 1975. The Sport Scale event will be in accordance with AMA (Amorous Modelers Amalgamation) rules, while Static Scale models will be judged statically, but may earn 20 extra points if flown . . . proxy fliers allowed . . . Hmmm! Contact Bert Baker (714) 548-8500 for more information.

* * *

Way up in North Idaho, at the Cedar Mountain Sky Ranch, the Second Annual Sport Scale Rally will be held on August 17, 1975. The location is 20 miles north of Coeur D'Alene.

Sponsored by the Intermountain Scale Builders, the rally will be open to all interested individuals, i.e., membership in Amusing Modelers Annonymous will not be required. This year, in addition to R/C events, there will also be scale control line and free flight rubber and gas (combined) categories.

For further info, contact Bob Petro, Cedar Mountain Sky Ranch, Route No. 1, Box 93-B, Athol, Idaho 83801.

The following run-down of free flight at the Nationals comes from Hardy Broderson, Executive Director of the National Free Flight Society:

Come to the 1975 NATS at Lake Charles, Louisiana! How do you get your models there? Ship them. If I could do it in 1940, you can do it in 1975 (Wow! That's thirty-five years!)

Shipping Address is: National Model Airplane Meet, *Models* [Hold for (Individual's Name)], c/o Iowa Stevens, Calcasieu Parish School Board, Chennault A.F.B. Vocational Bldg. #8, Lake Charles, Louisiana 70603.

Prepay your freight and ship via Air, Common Carrier Truck or REA. Get *yourself* there any way you can.

Land clearing for a golf course will directly benefit free flight flying. An air recon photo, in hand at this writing, shows significant progress toward land clearing in areas which will lengthen on-field flights by at least two minutes in a 10 to 15 mph breeze, with a total chase distance of 8800 feet at the most favorable angle.

It will take two of us to replace Pete Sotich: Homer Smith and I will be Joint Category Directors. This curious arrangement is a result of our both having said "I will if he won't," . . . and he didn't. He, being Floyd Miller, everyone's first choice. Next year, Floyd!

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Dues are $4.00 for one year.
Send check or Money Order to:
NSRCA, c/o Sally Brown, 8534 Huddleston Drive, Cincinnati, Ohio 45236

New procedures approved at the February Nats Executive Committee Meeting: Processing for all but FAI events (including Indoor) will be at the site on the morning of the event from 7:00 A.M. until Noon. Processing for FAI events will be in the hangar the evening before the event, as previously, though · treated in a more thorough-going fashion this year. (Scale processing is directed by the Scale Category Director).

Non-FAI events will be flown with strict rule-book discipline. We probably will focus on some of the rough spots, such as; the Builder of the Model rule, help in starting and launching for juniors, and unassisted VTO launches . . . in order to get these controversial areas sorted out and provide experience for Contest Board action.

There will be every consideration given to making this a Category I Nats (5 minute maxes), but if wind and site conditions are the same as last year, it will probably be a Category II contest (three minute maxes). The Category Directors will make the determination for the events of the day each morning before the start of flying at 8:00 A.M., based on the best data available.

The objective of this contest management is to present each event in its best possible format. The Nats planning meeting gave careful consideration to schedule matching with control line events, to provide good opportunities for those competing for Grand Championship points.

The FAI events are given a new format this year in an effort to attract more of the top FAI flyers in the country, and ultimately, to place the Nats FAI events on the International FAI calender as an open International event, and thereby attract entrants from other nations. This year's rounds format follows some of the contest management ideas being discussed at CIAM Subcommittee level. A further concern is the problem of timing the seven second FAI power engine run, including the prop run-down. Procedures at the launch site will include; three pair of assigned engine timers to work the whole contest, thus providing a degree of consistency, with

SOCIETY OF ANTIQUE MODELERS

MEMBERSHIP APPLICATION

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DO NOT WRITE IN THIS SPACE

I hereby make application for individual membership in the Society of Antique Modelers.

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Please check if you belong to any of the following:

A. M. A. _____ NO. _____

M. E. C. A. _____ NO. _____

S. A. M. CHAPTER _____ NO. _____

Note: Membership includes 15% discount on one year MODEL BUILDER Magazine subscription. Give S. A. M. No. when subscribing.

Enclose Membership Dues of $3.00 and send to:
Society of Antique Modelers
1947 Superior Avenue
Whiting, Indiana 46394

In making this application for membership to the Society of Antique Modelers, I agree to abide by the rules set by the Society and realize that the goals of S. A. M. and the Old Timers movement are to encourage participation above competition and is dedicated to the preservation and reproduction of vintage model aircraft.

Signed _____

two watches on each engine run and the *lowest* watch taken as the score; spacing of launch points to prevent the engine noise of one flight from interfering with another; rotation of launch points for successive flights. These areas are being given study to help make the task of timing the engine run manageable and less of a farce.

The FAI events will be flown in rounds as follows:

Round 1: 6:30 to 8:00 A.M.
Round 2: 7:30 to 9:00 A.M.
Round 3: 8:30 to 10:00 A.M.
Round 4: 9:30 to 11:00 A.M.
Round 5: 4:30 to 6:00 P.M.
Round 6: 5:30 to 7:00 P.M.
Round 7: 6:30 to 8:00 P.M.

Flyoff rounds are flown the following morning in a schedule specified by the Event Director.

This interruption of rounds during the heat of the day conforms to the fine old Southern custom of the "Siesta." It is also in conformance with discussions at the International FAI levels to avoid the "thermal" part of the day so as to reduce the likelihood of excessively long flights.

The half hour overlap is novel for some, perhaps, but not without precedent. The extra time allows for the guy in the swamp to wrestle the alligator for his model, make the first aid tent, Hot-Stuff his pylon back in place, and still make the next round.

Indoor (no alligators here) is in the 55 foot Lake Charles Civic Center site. There is *no* high ceiling indoor event at Houston this year. No rounds for FAI stick.

FAI Team Program Participants may fly in the Nats FAI events to qualify for FIA, FIB and FIC.

An Indoor FAI Regional Trials will be flown from 9:00 P.M. to midnight on Sunday and Monday; six one hour rounds (These plans are tentative at this writing . . . get confirmation from Bud Tenny, Richardson, Texas).

In addition to a full card of official Free Flight events, these are the known *unofficial events* being offered this year:

NFFS managed: Payload, Cargo, Gas helicopter, and R.O.W. Gas.

NFFS managed, (trophies by NFFS or other sponsoring groups): R.O.W. Rubber (Geo. Perryman), Electric, (Mattel only), Electric, (Open, 20 second engine run), Rubber Helicopter, Rubber Speed, D Gas (Satellite City), and Flying Wing (trophy by Frank Ehling). Other groups (Chicago Aeronuts, Cloudbusters, Flightmasters, Miami Indoor group) are presenting various Scale, Peanut Scale and Penny Plane events. Look for further notification. *(The Free Flight Model Aircraft Association of Southern California . . . . FFMAASC . . . . will be sponsoring a night flying contest on Wednesday night, managed by Red Johnson. Chemical lights, as mentioned in MB [page 25, June issue] will be on sale at the site. wcn)*

Bring your motor bikes, compass and pith helmet . . . see you at the Nats.

Homer Smith, AM 398
Hardy Brodersen, AM 304
Joint Freeflight
Category Directors •

Travel Air . . . . *Continued from page 23*

pennage, landing gear and wing struts was Travel Air Blue, a color which is best described as a medium blue. The wings were aluminum doped, with black letters and numbers, while markings on the fin and rudder were white. Other color schemes were red and yellow, or black and gold, and on many airplanes, the aluminum cowling, spinner and wheel discs were burnished or damascened. •

Hannan . . . . . . *Continued from page 40*

ducted, this time indoors, in a former balloon hangar near Versailles. As is usual in Peanut events everywhere, the turnout was notable for the great variety of designs, which seems to have a great deal to do with the appeal of this class. Witness this partial run-down of entries: Peyret-Taupin, 1909 Cessna, Fokker Triplane, Pilatus Porter, Farman 231, Leduc RL 21, Andreasson bipe, Cougar, Avia 122, Fokker Eindecker, Pou du Ciel

(Flying Flea), Nieuport 11, Dornier 335 (the pusher-puller job), Focke-Wulfe 190D, Waterman Racer, Acronca, Piper Cub, Volksplane, Potez 60, and even a Mirage F1 fighter, featuring a pusher prop at the jet orifice!

Evidently, the concours was well received by all, as another meet is scheduled for November in Paris, according to Guy Cognet, writing in LE MODELE REDUIT D'AVION magazine.

AND SPEAKING OF CONTESTS

We note what we consider a healthy trend toward more complete reports. Contest Director Pete Paterson, of the Boeing Hawks, included not only a complete list of entrants, and names of their aircraft, but also scale points, flight times, and model weights, presented in both grams and decimal ounces. With such information, one can draw more meaningful conclusions, than simply the usual list of winner's names, which mean little except to the winners themselves. We heartily encourage such reports, which can contribute a great deal toward improvement of the art/science of aeromodeling. Since this particular meet was conducted indoors, under a 35 foot plus ceiling (but hampered by a hanging room-divider), the following table makes for interesting conjecture. Note that weight alone is not the deciding factor:

See contest results, above, next column:

SPORT OR HOBBY?

Frankly, we've never been able to see what difference a label makes, but for those of you who do, it may be of interest to note that the Canadian publication "SPORTS, RECREATION & FITNESS," lists flying model aircraft, including controline (sic), free-flight, radio control, rubber, gas, helicopters and seaplanes as, "Sport, recreation for all ages."

THE FADING SYNDROME

John Oldenkamp has been experimenting with aniline dyes for model use, and shares the following conclusions with us:

"The only sunfast colors are those that dissolve in water. The alcohol-soluble ones fade in a matter of weeks. The most stable dyes around right now seem to be the ones used in the various Magic Marker spray cans. I have one handlaunch wing and a rubber job that I deliberately hung in a full-sun window for over six months, and they have faded not one-percent.

"The most visible colors in flight are the dark, saturated ones, like cobalt blue, ultramarine, violet (purple), etc. The lighter reds and yellows are mostly useless for visibility in the air, so I usually spray the wing bottom surfaces the dark color, then put yellow or red on the upper, so they are easier to find after D/T-ing.

"These Magic Marker sprays can be put over paper or wood, but a thin coat of Flo-Cote should be applied first. Unfortunately, it is very difficult to brush *over* the spray dye, so the second coat should be applied by spray. I usually use Aerogloss clear spray, but since it

OPEN CLASS

PLACE	NAME	AIRCRAFT	SCALE PTS.	WEIGHT GR	WEIGHT OZ.	BEST TIME
1.	J. Kamla	Peck Cougar	14	11.9	.420	36.0
2.	P. Paterson	Peck Cougar	11	12.4	.437	35.0
3.	J. Morgan	Vagabond	5	9.8	.346	38.5
4.	G. King	Vagabond	11	11.5	.406	25.4
5.	G. King	Miles M-5	14	11.6	.409	36.5
		JUNIOR CLASS				
1.	G. Lindsey	Peck Andreason	9	17.7	.624	24.2
2.	S. Zopfi	Peck Cub	10	13.6	.480	19.5
3.	J. Tinoco	Ord Hume	-4	18.9	.687	24.3

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R/C RACE CARS AND ACCESSORIES CATALOG. 1/8 scale U.S. Nationals Champion. Delta Manufacturing, Box 27, Lorimor, Iowa 50149, (515) 763-2220.

PRIVATE COLLECTION SALE: Berkeley, Cleveland, Comet, etc. kits. S.A.S.E. plus 25 cents brings list. Thomas F. Brownawell, R.D. 3, Harrisburg, PA. 17112.

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SAILPLANE DESIGNER'S HANDBOOK: Design instructions, 180 airfoils, 63 designs, 3rd printing, $4.96. Eric Lister, 953 Klockner Rd., Trenton, N.J. 08619.

1936 – JIMMIE ALLEN "THUNDERBOLT": A few original complete kits while they last – $6.95 pp. Bryan Wheeler, 7604 Appleton, Raytown, MO 64138.

is not plasticised, care must be taken.

"Thus, I use one coat Flo-Cote, one coat Magic Marker spray, one coat sprayed Aerogloss, then two or three coats of Flo-Cote. Sanding has to be done gingerly." *(Flo-Cote is a high quality nitrate dope formulated specifically for modeling by CPM Products, 11054 Leolang Ave., Sunland, CA. 91040. wcn)*

PUT YOURSELF IN YOUR MODEL

Don Typond sent in the accompanying photograph, showing his three-dimensional "self-portrait," to be installed in his R/C glider. It was created as follows: A Williams Brothers sportsman pilot was used as the basis, and alterations were made using a tube of plastic model putty. The eyeglasses are acetate with gold-painted rims, while the shoulder straps are modified shoe-laces with card stock buckles. The ripcord is fine iron wire wrapped around a core of heavier wire. The "hair" texture was achieved by brushing putty with a stiff bristled brush before it hardens. Don adds: "Yes, I've heard all the comments about voodoo. Has anybody got a pin? . . . What'll happen to me if the model crashes? . . . etc."

PEANUTS DOWN UNDER

The Australian magazine "AIRBORNE & R/C MODELS," volume 2, No. 1, features an article and a full-size Peanut plan, by B.H. Kennewell. We pulled a few items out of context, which seemed pertinent:

"Some of the reasons for the continued existence of Peanut Scale are:

"a. It is inexpensive. If one is building from plans, then $5.00 will buy just about everything necessary for a couple of aircraft.

"b. The working area can be small. I build all my models on a piece of 1/2 inch plywood about eighteen inches wide by thirty inches long, which sits on the kitchen table. All my tools and suchlike are kept in a small wooden box, while balsa and tissue is stored behind the sideboard! Small parts and fittings reside in an empty shoe box.

"c. The completed aircraft are both easy to store and transport. At the moment I have two sitting on the sideboard and the back seat of the car will hold several when driving to the flying site.

"d. Peanuts, and any rubber powered models are clean. No worries about fuel

INDEX TO ADVERTISERS

spillage or wiping greasy exhaust deposits away. No fuel proofing worries either. About the only messy thing is rubber lubrication and that wipes off one's hands with a moist cloth.

"e. Rubber models are QUIET. That is an ever increasing point of importance these days, especially to the person who cannot get out of the city area to fly. With Peanuts, one can fly in the local park without worrying anyone.

"So you can see that to a person on a limited budget, and with a limited working area, Peanut Scale is one way to be involved in aeromodelling."

So there you have it, the "kangaroo view."

"CELANESE D/T'S?"

Ralph Scott, of Sacramento, California, has an interesting idea for a lightweight and simple D/T device, which involves no fire hazards. During his work at drycleaning plants during the 30's, Ralph became aware of the fact that early synthetic fabrics were inclined to dissolve when exposed to certain cleaning solvents. In particular, Du Pont's "Celanese" fabric, made up in both monofilament and spun yarns, would be particularly subject to such action. Ralph feels that a short strip of this material, tensioned with a rubber band could provide the key to extremely simple D/T triggers for hand-launched gliders. Different strength solvents could be used, in order to adjust reaction time. The problem, however, is that the particular type of fabric has long been out of production. Extensive searches of rummage sales have failed to yield the proper samples to be used for experimental purposes. (Perhaps the Poynter Sisters bought up all those old garbs?). At any rate, if any reader knows the whereabouts of such material, we'd be happy to put him in touch with Ralph.

PARTING SHOTS DEPT.

Keith Donaldson, submitted the following gems, abstracted from the pages of THE CURTISS STANDARD JN4-D MILITARY TRACTOR HAND BOOK, 1918, which is available in reprint form from: Aviation Publications, P.O. Box 123, Milwaukee, Wisconsin 53201. Price is believed to be about $3.00, but it might be best to inquire:

"Avoid that destructive disease known as 'tinkeritis;' when the motor is working satisfactorily, leave it alone."

"Never forget that the engine may stop, and at all times keep this in mind and plan on a safe landing place within gliding distance of wherever you may be . . ." ●

Remotely . . . . *Continued from page 13*

National Sport Pattern Association, capably edited by Floyd Lawrence, Willowick, Ohio, indicates that it is no longer the N.S.P.A.! A recent vote of the membership was just completed, in which the decision was made to change the name of the organization to Miniature Aerobatic Biplane Association . . . MABA. This move, of course, solidifies the members' desire to keep the biplane as the primary aircraft used in all competition under the rules, a move with which we heartily agree.

In recent months, there were quite a few modelers interested in expanding the former NSPA into all types of scale or scale-like aircraft, provided the prototype had stunting capabilities . . . and whether or not it had two wings. Like the modeler whose mother-in-law drove off a cliff in the car that had all of his models and radios in the trunk, we viewed this with mixed emotions (apologies to model-minded M.I.L.'s). While we lean strongly toward the come one-come all side, we feel just as strongly for the biplane side . . . and anyone who has known this editor since he began R/Cing over 20 years ago, is well aware of this feeling.

Anyway, we totally agree with MABA newsletter editor Floyd in one respect . . . all clubs holding MABA contests should strive to follow the MABA rules. This is the only way (and now we don our R/C Contest Board Chmn's cap) the rules can be properly tested in order to find out what needs to be done to improve them . . . if necessary. Try 'em according to the book first, then, if you want to suggest some variations, at least they will come from first hand experience, rather than conjecture only. ●

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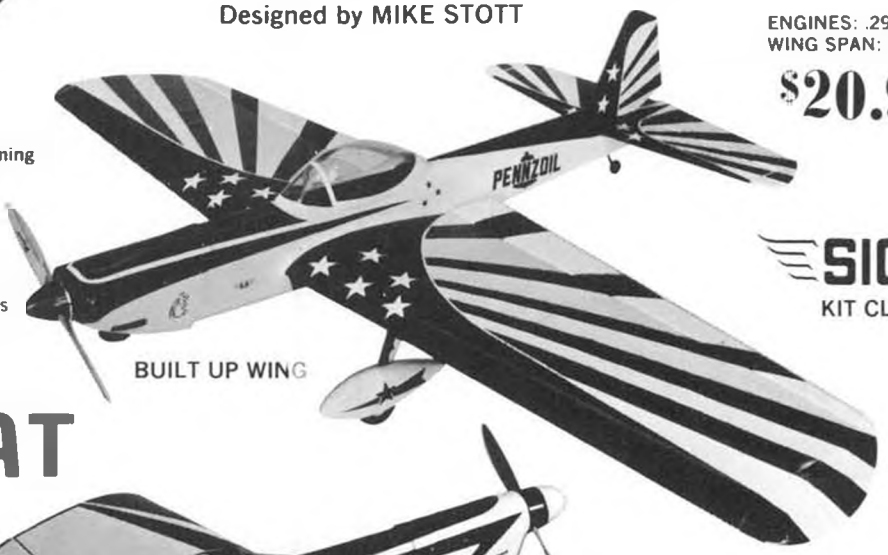

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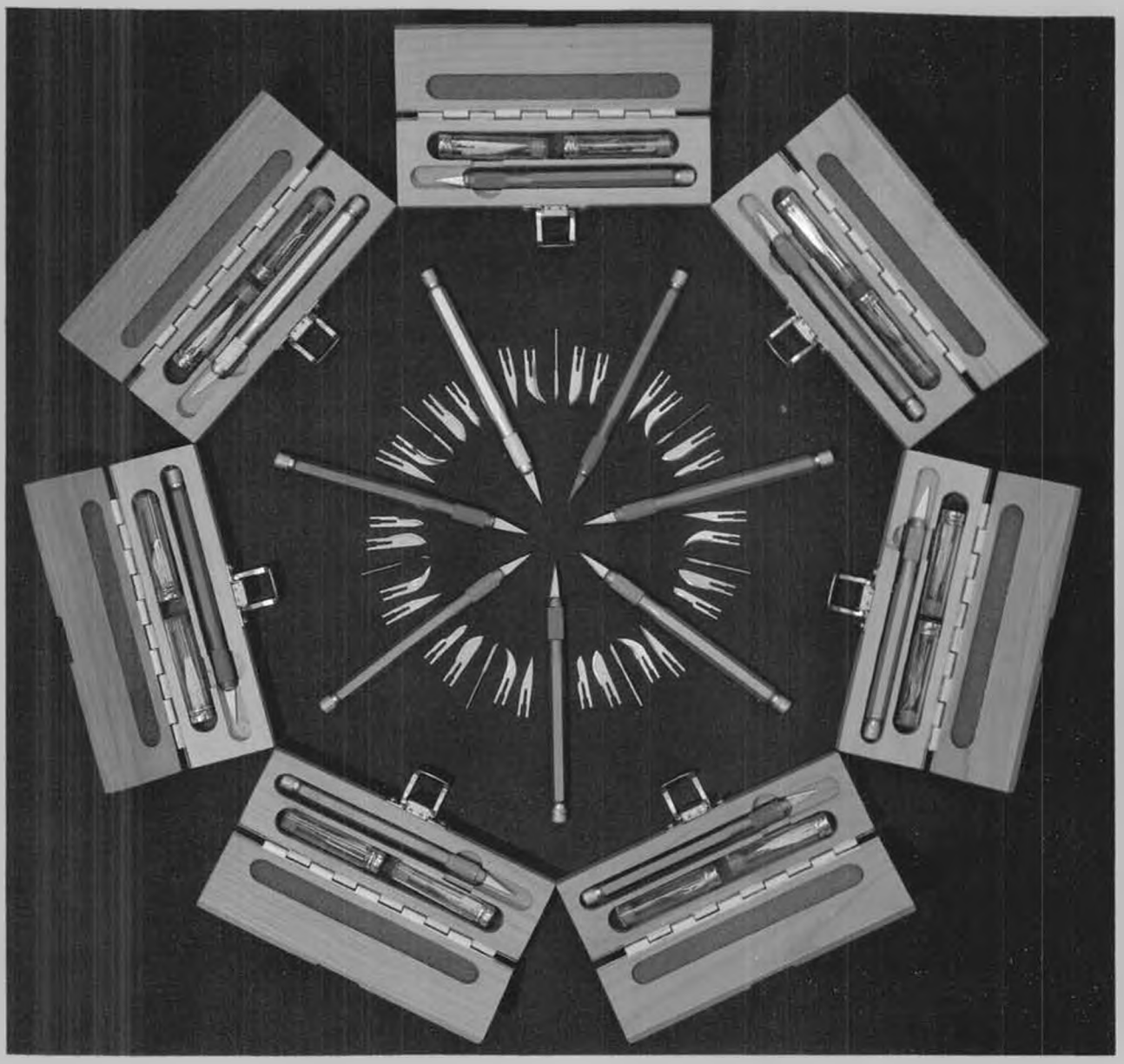

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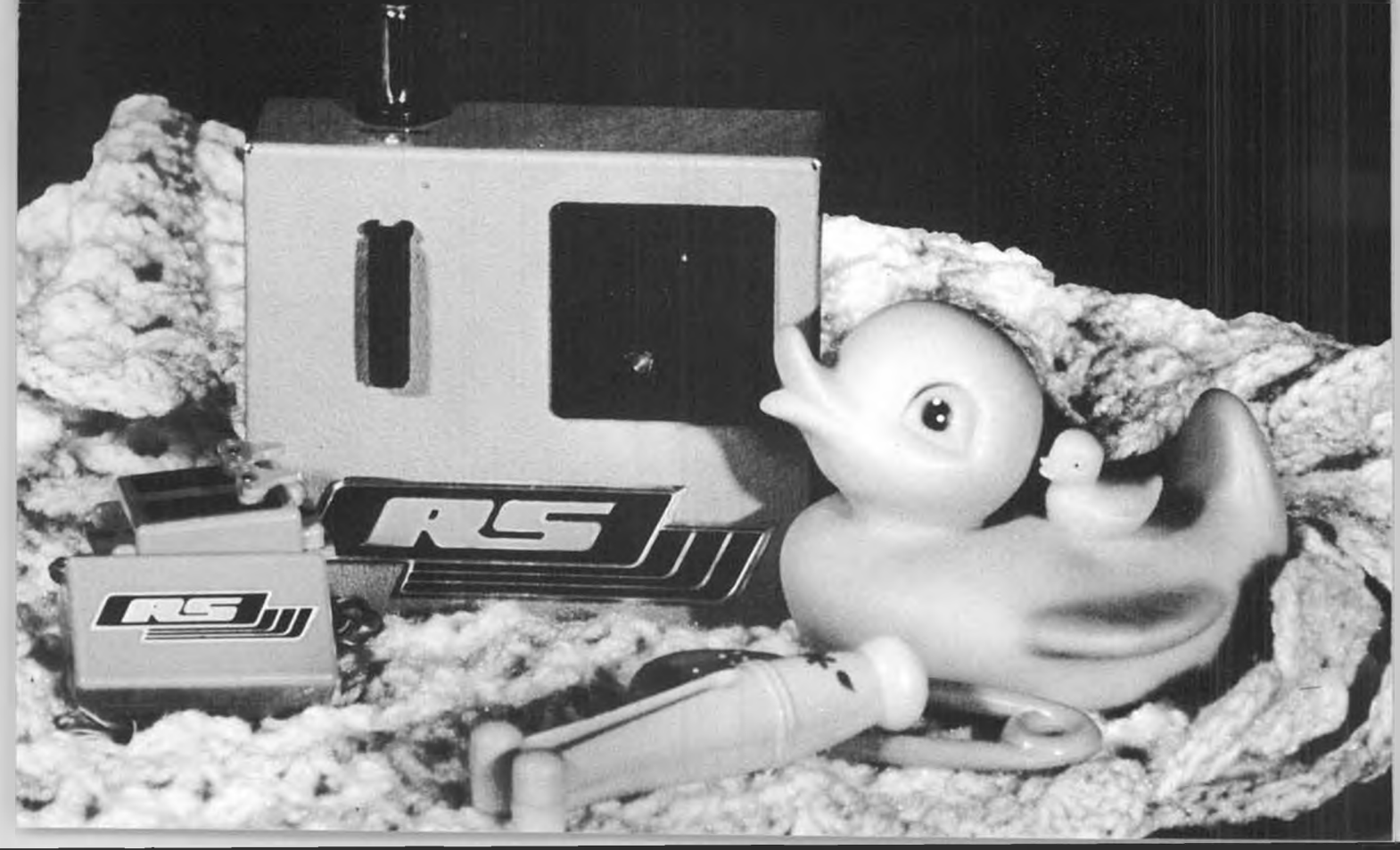

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