

MODEL BUILDER

NOVEMBER 1973

volume 3, number 24

ONE DOLLAR



NEW! DUMAS DEEP VEES

The new class that's got class... a great new way to enjoy RC boating

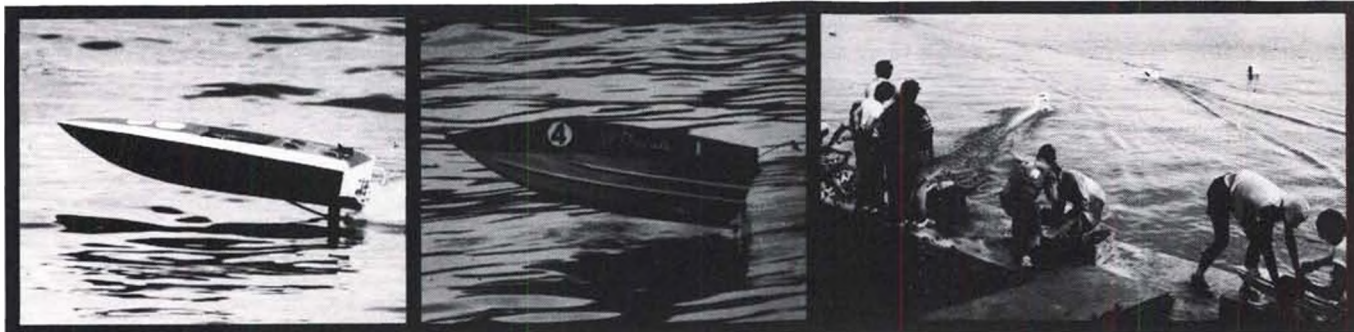


The three new Dumas Deep Vees are the fun answer for the new RC model boater. They're easy to build, easy to drive . . . and real easy riders when it comes to rough water.

It's easy to see why they're the fastest growing class with serious RC model boat competitors, too. In The First International Hennessy Cognac Miniature Grand Prix, Dumas boats swept to victory with 1st Place Overall, 1-2-3 in .20, 2-3-4 in .40, 1-2 in .60 and the .60 Scale Award.

Dumas Deep Vees are living up to their "for show or go" reputation. They win on speed, endurance and realism.

Dumas Deep Vee 60's
point the way in Hennessy Cognac
Miniature Grand Prix.



Dumas Deep Vee 40
Kit DV-40F \$49.95 (glass)
Kit DV-20F \$39.95 (glass)

Dumas Deep Vee 60
Kit DV-60 \$39.95 (wood)
Kit DV-60F \$59.95 (glass)

Pit crews are kept busy at Miniature Grand Prix with fixin', fuelin' and fun.

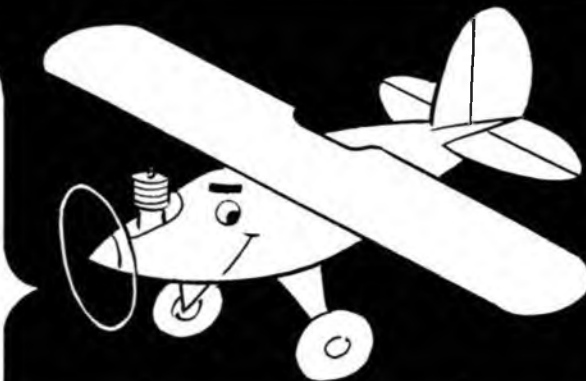
Be sure you're ready for the coming season of deep vee racing including the big Hennessy Races now being scheduled. See your hobby shop right away and get your Dumas 20, 40 or 60. If he can't get your boat, write direct to Dumas, adding 10% for postage and handling.

dumas
boats

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

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2-3 CHANNEL RECEIVER-SERVO

The receiver and 2 servos are integrated into a single case. A pigtail lead extends from the case and connects to a third servo. The third servo is actuated by a lever on the transmitter and can be used to actuate the throttle on simple aircraft, flaps or spoilers on gliders, and rudder or mixture control on boats.



- KP-2-3B (system with dual stick transmitter)
 Third servo not included in price . . \$129.95
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 Third servo not included in price . . \$139.95
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WRITE FOR FREE CATALOG
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WORLD'S LARGEST MANUFACTURER OF PROPORTIONAL R/C EQUIPMENT

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A FINE SPORT MODEL!

THEAILERON TRAINER THAT DOESN'T LOOK LIKE A TRAINER

Developed in an Actual Beginner's Training Program



BUILDS KWICK!

\$2995

ENGINE SIZE:
 .35 to .50 cu. in.

Designed by **CLAUDE McCULLOUGH**

The unique lines of the KOMANDER are a blend of practical construction features and an aerodynamic set-up especially selected to produce a model with a lot of built-in stability, yet retaining maneuvering and aerobatic capability.

Construction is simple, strong and assembles quickly. A removable fuselage top allows easy access to the fuel tank and battery storage area.

WINGSPAN: 62"
LENGTH: 44"
WEIGHT: 5-1/2 LBS.

**FOR 4 CHANNEL
 R-C EQUIPMENT**

- PRECISION CUT FOAM WING
- SLEEK BUBBLE CANOPY With Molded Framing
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- Nylon Control Horns
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- Tuf-Steel R/C Links
- Aluminum Motor Mounts
- Nylon Screws for Bolt-On Wing Attachment

SIG MANUFACTURING CO., INC

401 S. FRONT STREET

MONTEZUMA, IOWA 50171



THE CHOICE IS (almost)* YOURS IN 1974



* A statement in AMA's Monthly Mailing for August, 1973, is slightly misleading. It implies that a subscription to AAM, as part of 1974 dues for Open members, is only \$4.00 extra. **THIS IS NOT TRUE.** The subscription is actually \$6.00 extra... **EXACTLY THE SAME AS OUR SPECIAL CHRISTMAS OFFER TO AMA MEMBERS!**

In truth, the basic dues for Open membership is \$10.00, but then you are *required* to make a *mandatory choice* of paying \$2.00 extra for AMA News, or paying \$6.00 extra for AAM. In other words, you are *obligated* to pay at least \$12.00... the other \$4.00 is the *difference* to get the magazine, *not the special subscription rate implied.*

NOW YOU CAN RENEW YOUR MEMBERSHIP WITH AMA (or join for the first time) AND RECEIVE A ONE YEAR SUBSCRIPTION to MODEL BUILDER (Starting with the January, 1974 issue) for the SPECIAL, LOW, CHRISTMAS SEASON RATE of \$6.00, which is a 40% DISCOUNT off the new subscription rate.

Remember, starting in 1974, Open AMA members are *no longer required* to take AAM as part of their dues. So, as a SPECIAL CHRISTMAS OFFER to ALL new and renewing AMA members, MODEL BUILDER is making this convenient package deal available.

AND . . . "YOU AIN'T HEARD NUTHIN' YET" . . . as a SPECIAL CHRISTMAS BONUS, new and renewing members may purchase *additional subscriptions* (as many as you want) at the same special price (and until Jan. 14, 1974) for friends on your Christmas list. How's *that* for a good deal!? Use the extra address forms provided, and *please print* . . . some of you write worse than doctors!!

Simply fill out the form below (If you are renewing, use the form you are receiving from AMA), and attach a check for the total amount required. That amount will be \$6.00 plus whatever you have indicated on your AMA renewal form, or the one below. Send the whole ball of wax to us, NOT TO AMA. We'll enter your subscription, or if you're already a subscriber (Bless you!), we'll *add* it on to your existing one, and *immediately* forward your membership form and payment on to AMA. Be sure you mail it to us *on or before* January 14, 1974!

Now then . . . ya say ya don't want to join or renew with AMA? . . . come on now, ya really should . . . but, tell ya what we're gonna do, just to show there's no hard feelings. We'll *still* give you a CHRISTMAS SPECIAL DEAL! Through Jan. 14, 1974, you may purchase your own *and* gift subscriptions at 20% off of the regular rate, or only \$8.00 each. Just fill out the form below, bypassing the added information required only for AMA membership.

Paying dues through your AMA Chartered club? Include club Charter No. on form below, and enclose check for subscription only.

Name _____ Address _____ City _____ State _____ Zip _____	Name _____ Address _____ City _____ State _____ Zip _____
APPLICATION—1974 AMA MEMBERSHIP AMA, c/o MODEL BUILDER, 1900 East Edinger, Santa Ana, California 92705	
FOR THOSE 19 OR OVER BY JULY 1, 1974 Open Includes all membership and competition privileges—and <input type="checkbox"/> monthly AMA News (required) \$12.00 <input type="checkbox"/> Add difference for AAM 4.00 <input type="checkbox"/> Add extra for MODEL BUILDER 6.00 <input type="checkbox"/> New <input type="checkbox"/> Renewal (number _____) TOTAL \$.....	FOR THOSE NOT 19 BY JULY 1, 1974 FILL IN DATE OF BIRTH Mo _____ Day _____ Yr. _____ <input type="checkbox"/> JUNIOR OR SENIOR—No magazine \$ 3.00 <input type="checkbox"/> Add for monthly AMA News (OPTIONAL) \$ 2.00 <input type="checkbox"/> Add extra for MODEL BUILDER 6.00 <input type="checkbox"/> Add extra for AAM 6.00 TOTAL \$.....
MAIN INTEREST (Check only one): <input type="checkbox"/> CL <input type="checkbox"/> FF <input type="checkbox"/> RC <input type="checkbox"/> INDOOR <input type="checkbox"/> SCALE <input type="checkbox"/> ALL 1974 Membership expires Dec. 31, 1974	
Name _____ Address _____ City, State _____ Zip _____	HQ use only

THIS COMBINATION OFFER HAS FULL APPROVAL OF AMA HEADQUARTERS.
MAKE CHECKS PAYABLE TO MODEL BUILDER

MODEL BUILDER



NOVEMBER

1973

volume 3, number 24

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Cover: One sure way to improve your chances of being on the cover of a magazine is to start your own! We don't intend to abuse the privilege too often (only twice in two years ain't so bad). We don't remember who took this shot with our camera, but we do know that it was taken at Indiantown Gap Military Reservation, near Harrisburg, Pa., 1962 or 1963, scene of many Labor Day Weekend R/C gettogethers in the formative years of the hobby. The plane, of course, is the prototype Big John, which is a construction article in this issue... with some slight mods.



How's this for an inexpensive aerial sign?! Can't you just imagine, "Eat at Joe's," "Honest Sam's Used Cars," etc? It's one of Craig Stratton's airplane kites with a sign made from the same covering material and a can of spray paint. See Oct. issue for more info on kites.

MODEL BUILDER

from Bill Northrop's workbench . . .

STRAIGHT POOP ON CALIFORNIA NATS IN 1974

This is not speculation or second-hand information: Several responsible individuals, including a top AMA official, a major AMA Nats sponsor, and this editor, are part of a group which has been actively working on a plan to get the 1974 Nationals to Southern California. The group's primary target is Ontario Motor Speedway, Ontario, California . . . about 40 miles east of Los Angeles.

The Speedway consists primarily of

a 2-1/2 mile oval with main straightaways 3,300 feet long. There are many buildings, grandstands, meeting rooms, a deluxe restaurant, etc. in the vicinity of the start-finish straightaway, and 300 acres of paved and turf parking areas. Each major category of competition (F/F, C/L, and R/C) would have excellent flight facilities, and the blimp hangars in Santa Ana are about an hour and a half drive by freeway.

Personal contact has been made with top Speedway officials, the FAA at Ontario Airport, and several other re-

lated facility organizations. To date, all reactions are favorable. A complete report has been turned over to AMA Headquarters, and at this point (October 12th) it is up to Executive Director John Worth to continue negotiations. We'll keep you posted.

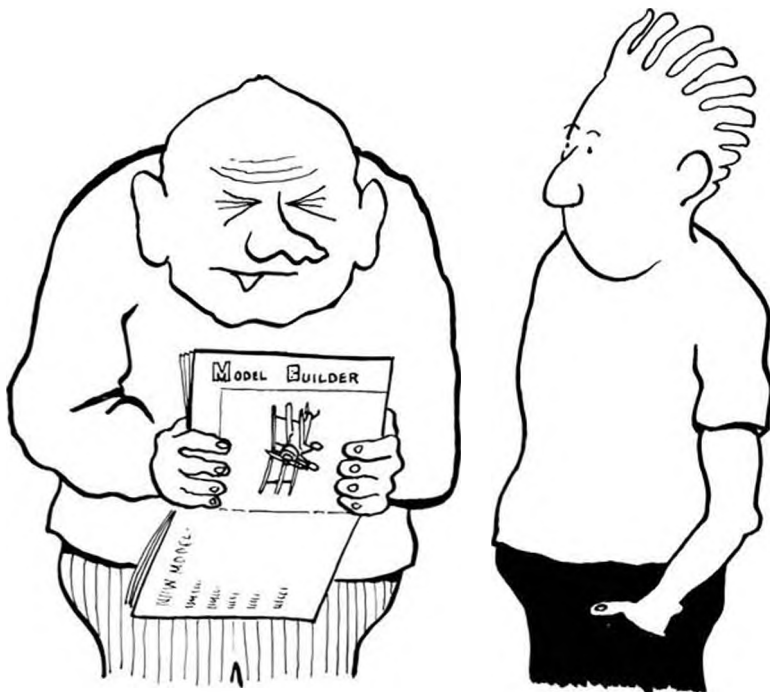
THE AMA/MODEL BUILDER PACKAGE DEAL

Considering the fact that, as of this writing, our October issue has only been out a week or two, it's surprising how many responses we've had to our advertisement (See Page 2) concerning the special combination offer of AMA membership along with a MODEL BUILDER subscription.

Unfortunately, it's a wordy advertisement, but necessary in order to clarify the dues situation for Open AMA members in 1974. The crux of the matter centers on these facts: (1) The base dues for Open members in 1974 is \$10.00, (2) AAM is no longer "required reading," but, (3) if you don't choose to subscribe to AAM for an additional \$6.00, then you *must* pay additional \$2.00 in order to receive a copy of the Monthly AMA News as excerpted from AAM! The *difference* between these choices is \$4.00, however some modelers have interpreted this as being the cost of an AAM subscription. T'ain't so! It's actually \$6.00, and we have decided to match that with MODEL BUILDER for a period extending through January 14, 1974!

By the way, this has all been approved by AMA Headquarters, and in order for us to handle your subscription and then forward your membership dues on to AMA, be sure your check or money order is made out to MODEL BUILDER.

And in case you hadn't noticed, that 6 bucks is a real bargain, as our yearly subscription rate is now \$10.00 . . . it's a 40% discount! *Continued on page 68*



"If this has really gone up to a dollar, it better have a centerfold!"

OVER THE COUNTER

● Terry Prather, one of the nation's top R/C pylon fliers, is now marketing a series of R/C oriented products, some of which will also be found useful in C/L and F/F.

Items now available from Prather Products, 1660 Ravenna Ave., Wilmington, California 90744, include a Transmitter Cover, Sunshield, Pattern Reminder, Flush Camlocs, Flat Head and Round Head Nylon Bolts, and an improved Prop Balancer.

The Transmitter Cover is a water resistant vinyl bag with a zipper top which sells for \$3.98.

The Sunshield and Pattern Reminders are items that can be clipped to a transmitter antenna. The shield protects your eyes from the sun while permitting you to keep tabs on your plane. Cost is \$2.98. The Pattern Reminders (A&B, C&D) are handy for all fliers. Even though you may not be interested in pattern competition, occasionally you may get tired of bombing aimlessly around the sky, and the reminder makes it easy to try practicing some AMA maneuvers. How many can *you* do? Price is \$1.69.

The Flush Camlocs are great for cheek cowl on Pylon racers, but are

also equally handy on F/F, C/L, and R/C hatches, providing quick access to fuel tanks, batteries, engines, etc. Cost is 98 cents each.

The 1/4 X 20 flat head nylon bolts are excellent for wing hold downs, and in addition, fit flush with the surface of the wing. Prices are 59 and 69 cents a pair for 1 and 1-1/2 inch lengths. Bolts are also available in round head style and 4-40 X 1 inch, 1/4 - 20 X 1, 1-1/2, and 2 inch lengths.

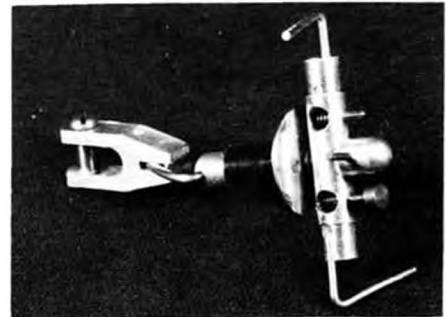
The improved Prop Balancer now fits 4 shaft hole sizes and so can be used to balance props, without a leveling device, for most engines from .15 to .60 displacement. Price is \$1.98.

Another item soon to come is a Prop Pitch Gauge. It will give you accurate pitch readings on most all sizes of gas model props. Great for the home carver and/or modifier!

* * *

Sig Mfg. will soon be offering a stand-off scale Mustang P-51D (couldn't spell *that* with a K!) built in the same Kwik-Bilt (AHA!) style as the Super Chipmunk, which was also designed by Sig's Mike Stott.

The fast-building fuselage employs an internal balsa profile to which the



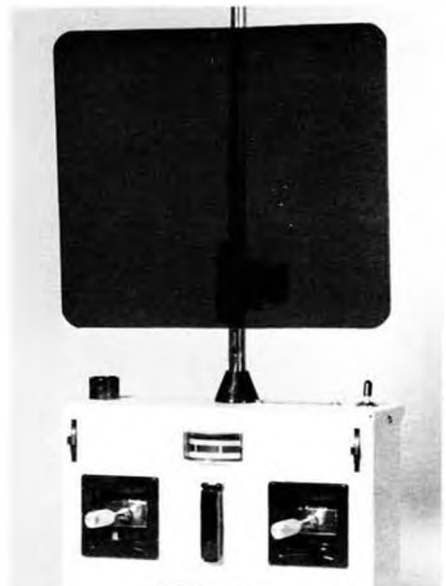
Murray Stringer front end for Coupe and Wakes. From Australia. Xenakis winding bobbin attached. Costs: \$12.00 & \$2.00.



Pattern Reminder by Prather Products, clips to antenna.



Wives! Here's one for that husband who seems to have everything . . . at least as far as modeling equipment is concerned. Vinyl transmitter cover (Tranny Bag?) by Prather Products.



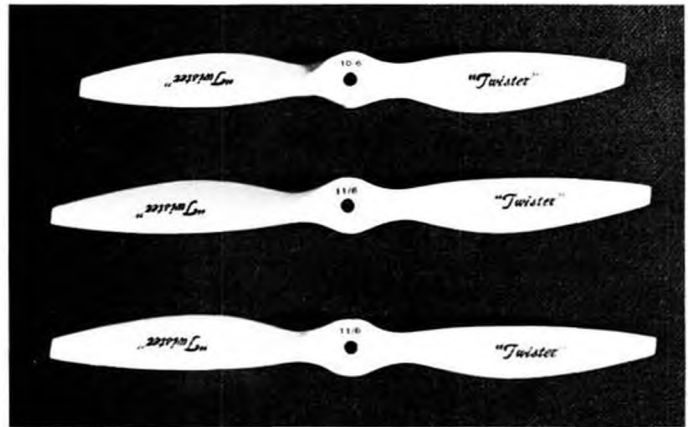
Sun Shield by Prather Products, clips to antenna. Extra nice for soaring.



Soon-to-be-released stand-off scale R/C ship by Sig features the Kwik-Bilt style of construction; a 1/2 inch balsa profile/backbone is covered by two molded plastic half-shells. Foam wing cores and sheet tail surfaces back up the rapid completion theme of the kit. Of course, it's a P-51!



Don't squeeze da balancer! The less pressure, the more sensitive this prop balancer by Prather Products . . . also the less it will hurt!



New hardrock maple "Twister" props by S & S Hobby Products Maple motor mount rails, landing gear and servo rails available too.

engine, radio, and flying surfaces are all hung. The profile is covered with two fully detailed molded plastic fuselage half-shells, which carry no loads, but just sit there looking pretty! Carrying out the fast construction theme, tail surfaces are sheet balsa and wings are balsa covered foam cores.

The P-51 spans 64 inches, weighs 7-1/4 pounds finished, and the kit will include formed plastic fuselage halves, plastic cowling, canopy with framing, precision-cut foam wing cores, formed plastic wing tips, solid balsa profile,

sheet balsa tail surfaces, pre-bent torsion-bar landing gear, decal sheet, step-by-step instructions with isometric drawings, and complete hardware package. Price to come later.

* * *

S & S Hobby Products, 150 Caldwell, Cloverdale, California 95425, is producing the "Twister" propeller. These are made of hardrock Eastern Maple, are finely balanced, and have a fuel-proof finish. First sizes available are 11-6 and 11-8 for \$1.00, and 10-6 for 85 cents.

S & S Hobby also offers related by-

products of the props; hardrock Eastern Maple grooved landing gear mounts, motor mount rails, and servo tray rails. The samples we have are cleanly and precisely cut and appear to be high quality products.

* * *

Top Flite Models is now offering a hot air gun which is primarily for shrinking Monokote. Appropriately named the "Monokote Heat Gun," it sells for \$24.95, and modelers will also find it quite handy for fast setting up of glues, resins, and paints, softening canopies for reshaping, inducing warps, heating up stale doughnuts, and flattening goose pimples.

By the way, it's great for shrinking Monokote too! Best of all, it doesn't leave scratch marks in the Monokote as an iron will if the surface is not protected with tissue.

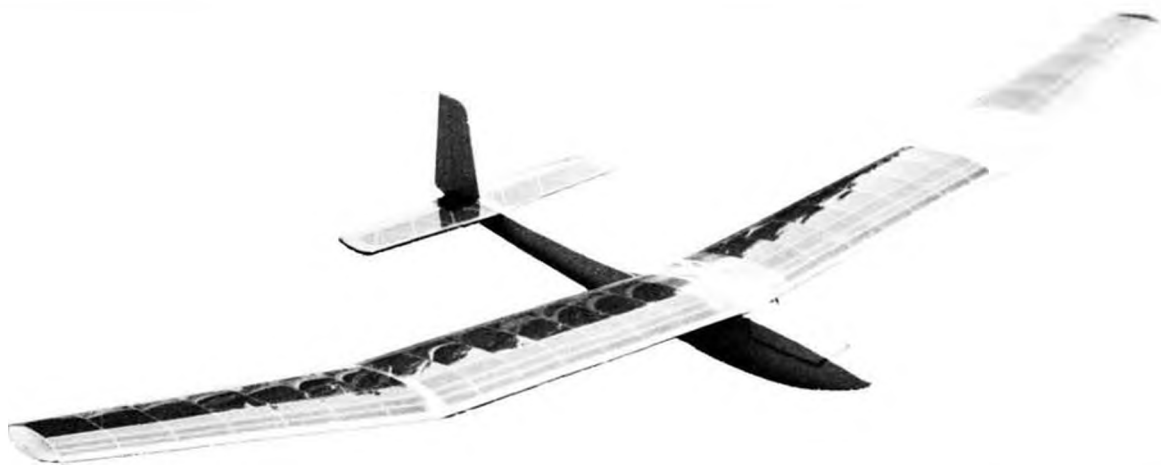
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It looks like an exercise cage for a squirrel or hamster, but actually, the device being produced and marketed by Alten Electronics, 3027 Pruneridge Ave., Santa Clara, California 95051, is a truly



MONOKOTE™ HEAT GUN





The Pierce Arrow R/C glider by Pierce Aero Company. Kit is deluxe, with all parts machine cut by P & W Model service. Includes everything but glue, covering, and radio. Ideal kit for new builder and for expert who's in a hurry to get a new glider together. Excellent performer.



11



12



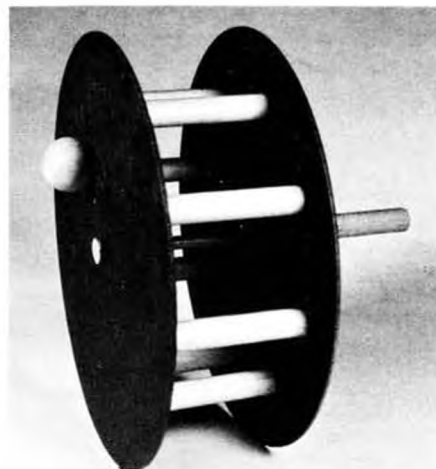
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15



20



Top quality modeling handle in 6 anodized colors, has knurled grip, rear collet control, will not roll when put down. Surgical quality stainless steel blades. Über skiver by Model Builder Prods.

Hi-Start reel by Alten Electronics. Large enough to hold shock cord and line.

high class Hi-Start Reel.

Sides of the reel are waterproofed with hand-rubbed varnish, while the knob and handle are stained and varnished maple. Nice thing is that the shock cord or surgical tubing *and* the nylon line can all be wound up on the reel . . . no need to dismantle the rig. Price is \$9.95 plus \$2.00 for handling and postage to anywhere in the U.S. For an additional \$3.00, the reel may

be personalized with owner's name and official LSF decal with LSF number.

* * *

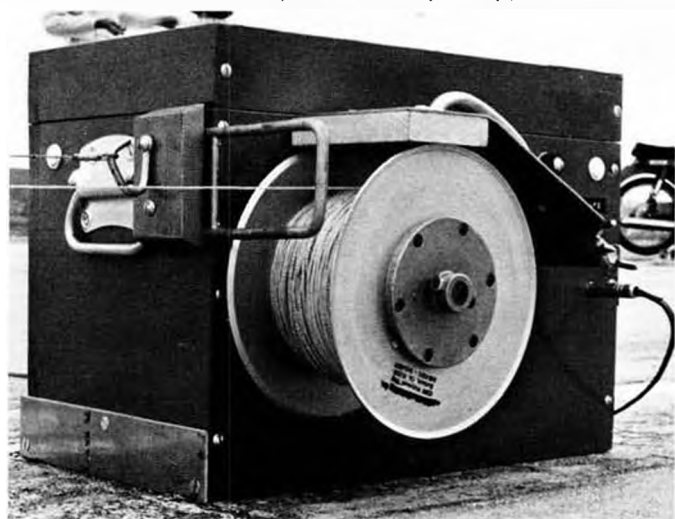
Speaking of Hi-Start, Ted Kafer, 18811 Loree Ave., Cupertino, California 94014, is producing and marketing a fine parachute for Hi-Start or electric winch. Larger than most, the open chute spans about 18 inches. Overall length, from the 1/2 inch steel split ring at the top, to the end of the 12 twisted nylon

shroud lines is about 29 inches. Gores are alternate red and yellow nylon fabric. Price is \$9.95.

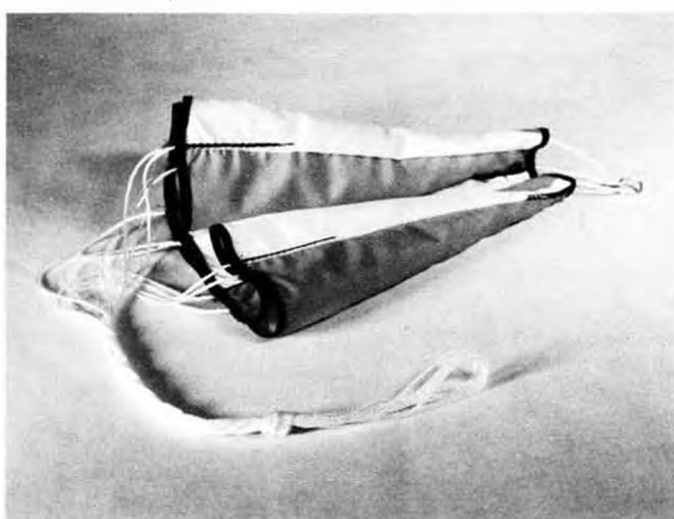
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F & D Hobby Supplies, 43 Gaybower Road, Monroe, Connecticut 06468, now imports the Murray Stringer line of rubber-powered model front end assemblies from New Zealand.

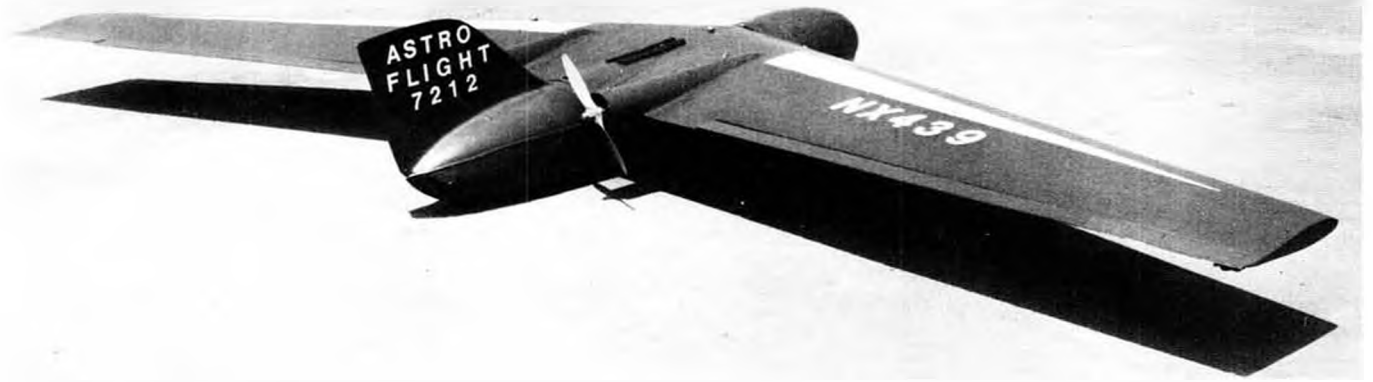
Available in three styles . . . Coupe,
Continued on page 55



Standard American Soaring Winch, by Buck's Soaring Supplies. Was used as the official winch for the 1973 LSF Soaring Tournament.



Hi-Start or electric winch tow chute by Ted Kafer.



One of several twin electric motor powered RPV's (Remote Piloted Vehicles) made by Astro Flight under contract with Northrop Aircraft.

Who is ASTRO FLIGHT?

By BILL NORTHROP. Beginning of a series in which we will acquaint you with the personalities behind the products advertised in our magazine. Let us know what you'd like to know.

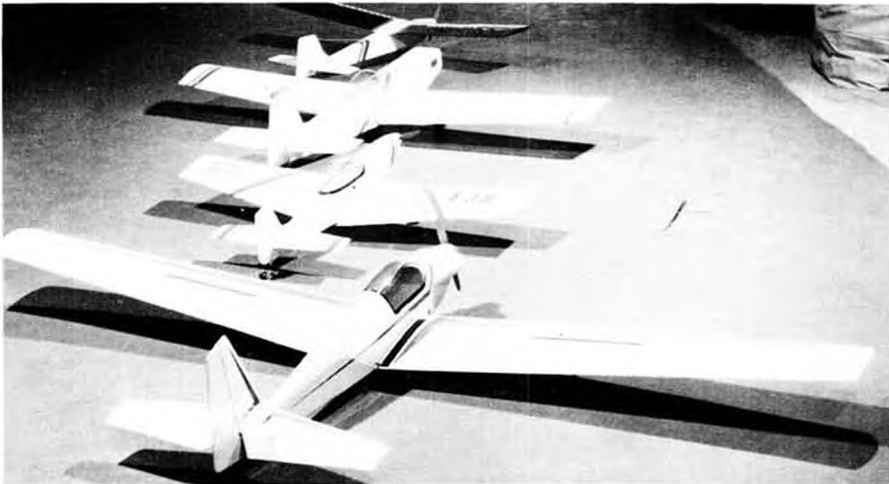
● Roland and Bob Boucher, twin brothers and graduate engineers from Yale University, established Astro Flight in 1969 to market Bob's Sandpiper, a beginners all sheet balsa A/I Nordic free flight. The company now produces and markets the A/1, an all balsa 1/2A

gas free flight, the Fournier RF4 powered sailplane for R/C, and three R/C sailplanes; the Malibu, Monterey, and AS-W17. In addition, Astro Flight has introduced and markets the first practical electric power units for R/C models, the Astro 10 and 25.

Both Bob and Roland have been involved in aerospace since 1955 and are registered professional engineers in the state of California. Most recently employed by Hughes Aircraft, the brothers were in charge of developing the electric power systems for the Convair F-102 and F-106 and also the McDonnell F-101. Bob holds patents in radar and computer design, while Roland's patents cover plasma propulsion (electric rockets). Roland also has awards for his work on communication and weather satellites. He designed and built the mobile TV station that was used to pick up the Pope's visit to Bogota, Columbia in 1970 and later, Nixon's visit to China. The entire mobile TV station could be carried, as a unit, in a C-130, and was packaged in, of all things, the tilt load unit from a garbage truck, which was purchased new for this purpose!

In March of this year, the Bouchers' developments in the RPV (Remote Piloted Vehicle) field brought them to

Continued on page 61



Electric powered prototypes for R/C modeling by Astro Flight. From rear: Fournier RF4, Stafford P-51 Quarter Midget racer, scratch-built Akromaster and Electra Fly.



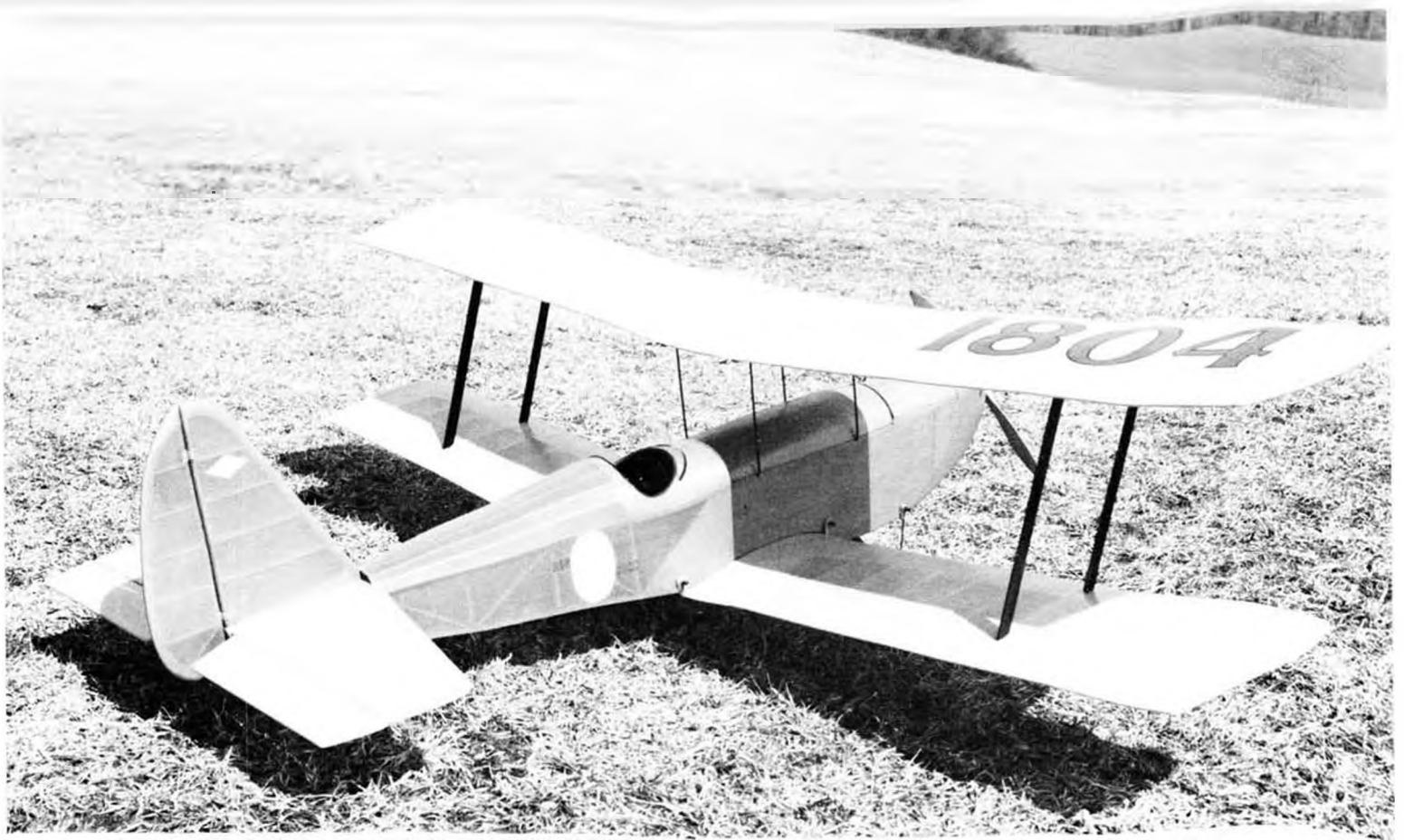
Astro Flight president, Roland Boucher.



Bob Boucher (Boo-shay), is vice president of Astro Flight. Flew electrics at 1973 Nats.



Dave Shadel, LSF level IV flier with AS-W17 by Astro Flight, is company employee.



Just out of the factory, the prototype Big John was powered (?) by a Forster .99 and was covered with blue and yellow parachute nylon, finished in clear butyrate. Struts are plug-in type. Sewn Figure 8 hinges a carryover from Galloping Ghost days.

BIG JOHN the First

The prototype Big John is still this editor's all-time favorite of his own designs. Perhaps you'd like to share the pleasure of flying a big, lazy biplane that will do just about any maneuver . . . if you don't mind waiting a little while for them to get completed. . . . A great exhibition airplane! By BILL NORTHROP.

● The prototype Big John (B.J. the First) came about, indirectly, as the result of our purchasing a set of English-made, 6 inch diameter, M & S Airwheels. This was in late 1957.

Being a typical, balsa dust-in-the-hair modeler (the ones who stick pieces of wood together, cover them with something, and then somehow make the whole assemblage stay in the air without visible means of support), we built a model just to suit the wheels, a 3 inch scale Gipsy Moth. We purchased the last completely assembled Forster .99, two speed ignition engine for power (Forster Bros. put it together for us from parts and said it would be the *last one* they'd sell complete). The finished plane weighed just a spec under 15 lbs. and had wing area that wouldn't quit! The combination turned out to be too much for the Forster, but by now, we were determined to get that engine airborne on *something*, so we drew up

and built the prototype Big John.

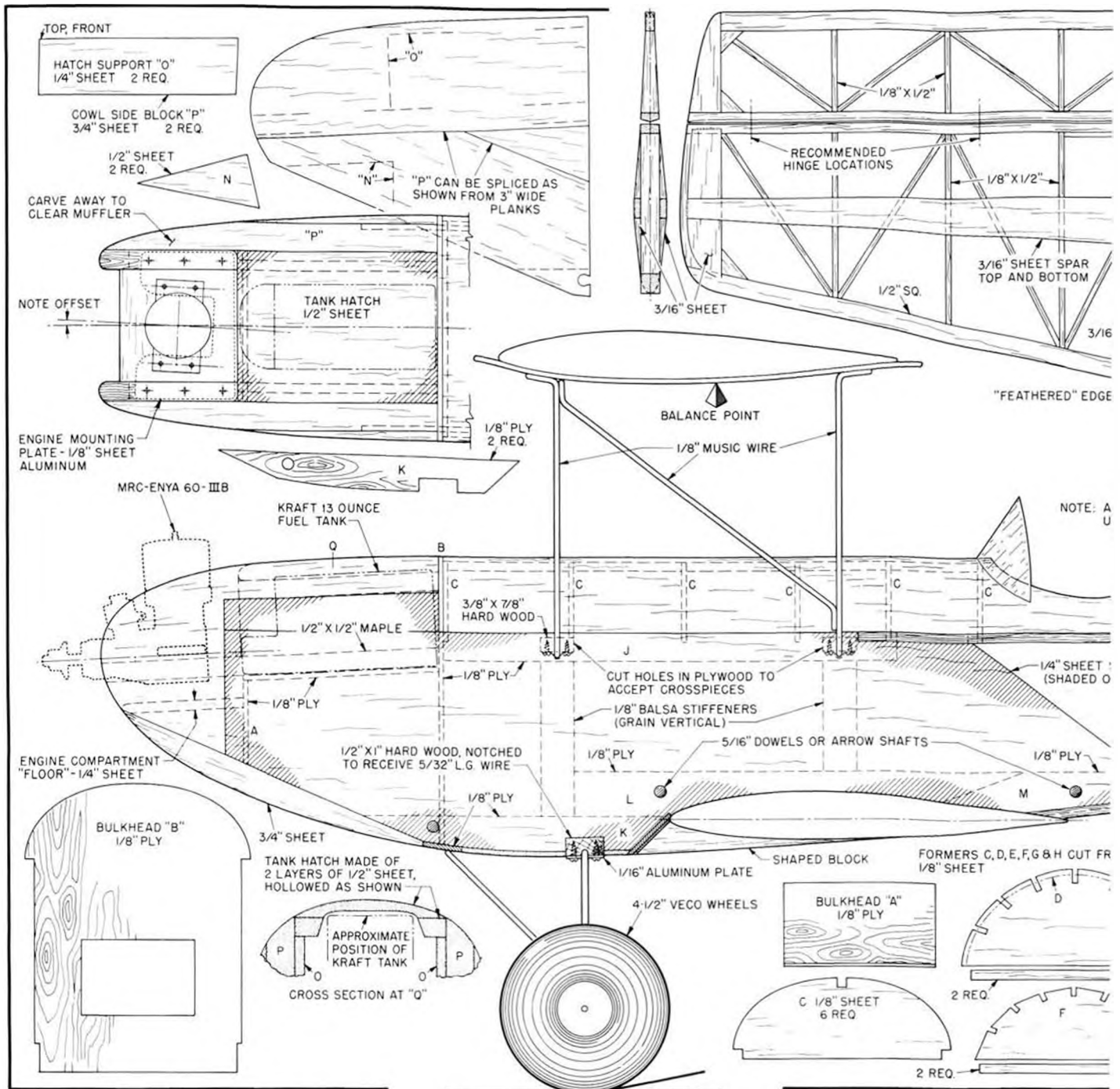
Even though it was 6 pounds lighter and much smaller (only 1500 sq. in!), the Forster *still* didn't seem to have the power, and so, as with the Gipsy, we went to a Fox 59 in order to fly.

By the summer of 1963, we had acquired a Quadruplex proportional system, and had a real ball flying Big John at various R/C meetings, where it attracted lots of attention. The most often heard comment; sort of a back-handed compliment, was, "Gee, that flies real great . . . for a biplane!"

Tell ya what . . . It's the kinda plane that makes you want to shoot touch-and-go's, tankfull after tankfull. It'll do 3-point or wheel-only landings with equal agility. Aileron rolls are a little slow . . . but oh . . . so majestic. Throw in a little rudder and they're a bit faster. Snaps and spins are easier with the enlarged rudder area . . . but still not quick and jumpy like a model . . . just



Model of Big John insignia, presented to us at a DCRC banquet. Similar to GI type (Enlisted men upstairs, officers below!).



slow, realistic, and pretty . . . like a real airplane!

On Labor Day Weekend, 1963, we joined some pretty noteworthy company at Dahlgren Naval Weapons Lab, Dahlgren, Virginia . . . namely Maynard Hill, Walt Good, and Howard McEntee. The occasion was the first of many World R/C Record Trials sponsored by the DC R/C Club, and the primary objective that year was to capture the R/C Altitude record, then held by Russia. We brought Big John along for the fun flying between trials, but were convinced by others that we should also shoot at the record. And whaddya know? Big John flew to 7,470 feet; enough to beat the Russians, but not as

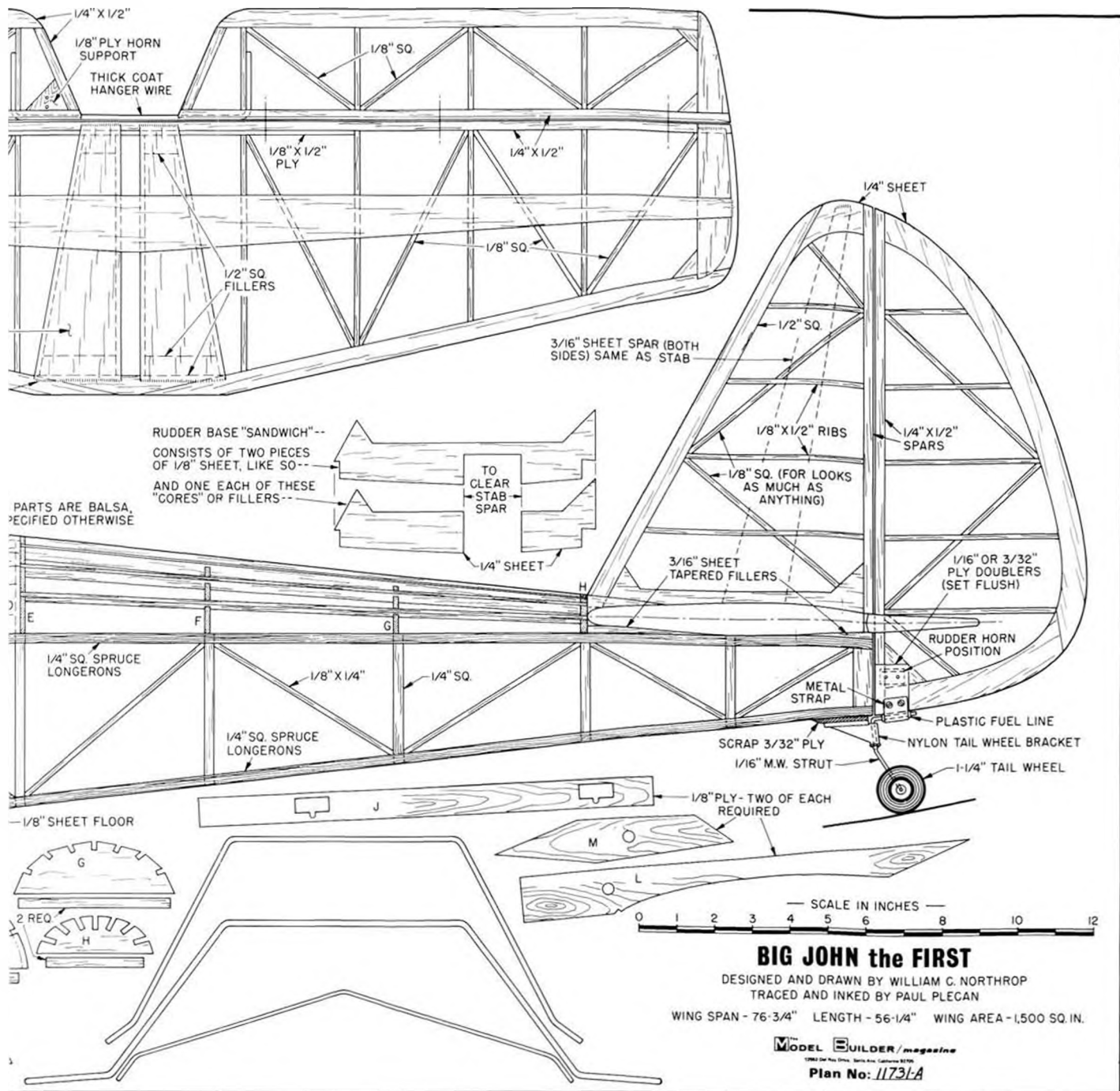
high as Maynard (13,320), Walt (10,080), or Howard (9,210). Hmm. Maybe we should have tried to convince the FAI to establish a record category for R/C biplanes. Don't think it's been beaten yet!

A year later we developed Big John O.M.T. (One More Time), which had numerous modifications, including many added construction details such as fairings stringers, full symmetrical tail surfaces, thicker wing section, wheel brakes, nylon bolt assembly, etc. This was published in RCM in 1965.

In retrospect however, we still sorta favor the simpler construction in the prototype. In the November 1971 issue of MODEL BUILDER, we printed a

picture of B.J. the First and promised to publish a construction article on it, someday.

So, in spite of numerous requests, we bring it to you now, our own all-time favorite design. Certain new modifications have been added without losing the basic simplicity of the prototype. Rudder area is increased, ailerons have been widened and shortened, and the original top-opening hatch has been replaced by the bottom wing opening. For reasons discussed in the building instructions, we also made a change in the stab and fin construction. After reading that portion, you can decide for yourself whether to follow it.



CONSTRUCTION

Our favorite method of building a model airplane is to start with the tail surfaces. It's purely a psychological thing . . . the stabilizer, elevator, fin and rudder are usually easy and fast building. Within a short time, therefore, we'll have these parts built and this inspires us to continue the project into, say, the wings. After all, why waste that perfectly good tail section we've just built! The wings are usually next, mostly because they (or it) are the most tedious and should be tackled at the height of enthusiasm. Finally, if we've been able to control ourselves, comes the fuselage. By this time, we're beginning to see the fruits of our labor take shape, and since

FULL SIZE PLANS AVAILABLE — SEE PAGE 72

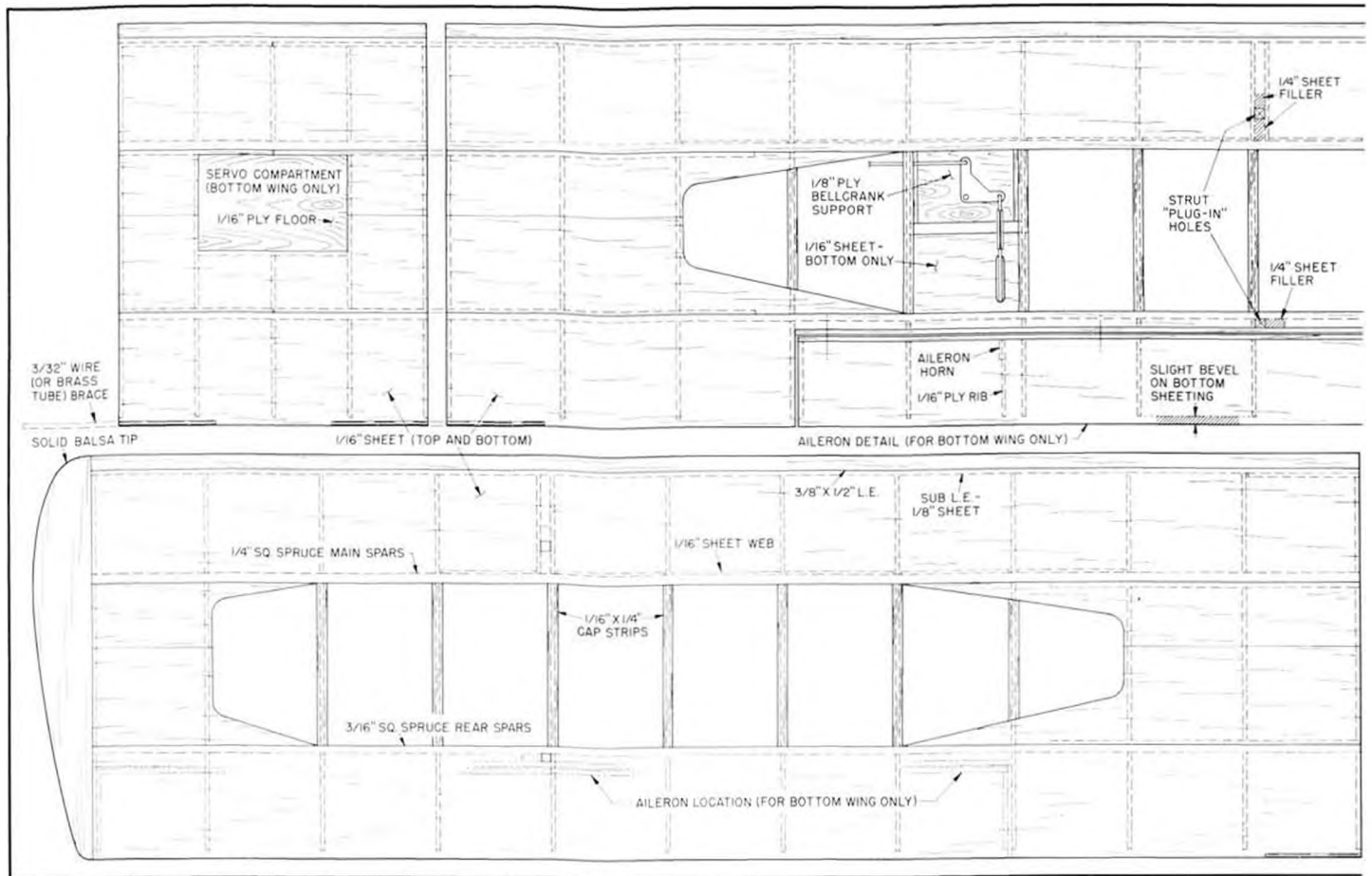
the fuselage is usually the most interesting part of the project, we've practically got it licked. In addition, having the flying surfaces completed, we are able to make the fuselage cut-outs exactly correct to accept them.

As we said earlier, B.J.-T.F. is large, but extremely easy to build. Our instructions will therefore skip certain elementary building techniques.

The fin and rudder are basic built-up structures which may be assembled right on the plans. Shim up the rudder trailing edge with 1/8 inch scraps. To simplify matters, drill 5/32 inch diameter holes through ribs . . . where the 1/8 square diagonals intersect . . . before

gluing them in place. Select fairly hard stock for the 1/4 X 1/2 fin spar, but keep all the remaining framework as light as possible. It is important to make the fin keel from a balsa lamination of 1/8 and 1/4 inch material. If you fly off grass and B.J. should happen to stub a toe and flip over, that hard fin spar and the fin keel must absorb the shock.

The stabilizer and elevators can also be built right on the plans. Again, use shims for the trailing edges. The 1/4 X 1/2 inch stabilizer spar should be of hard stock, even spruce (Everyone ground-loops sooner or later!), but all other parts must come from light stock.

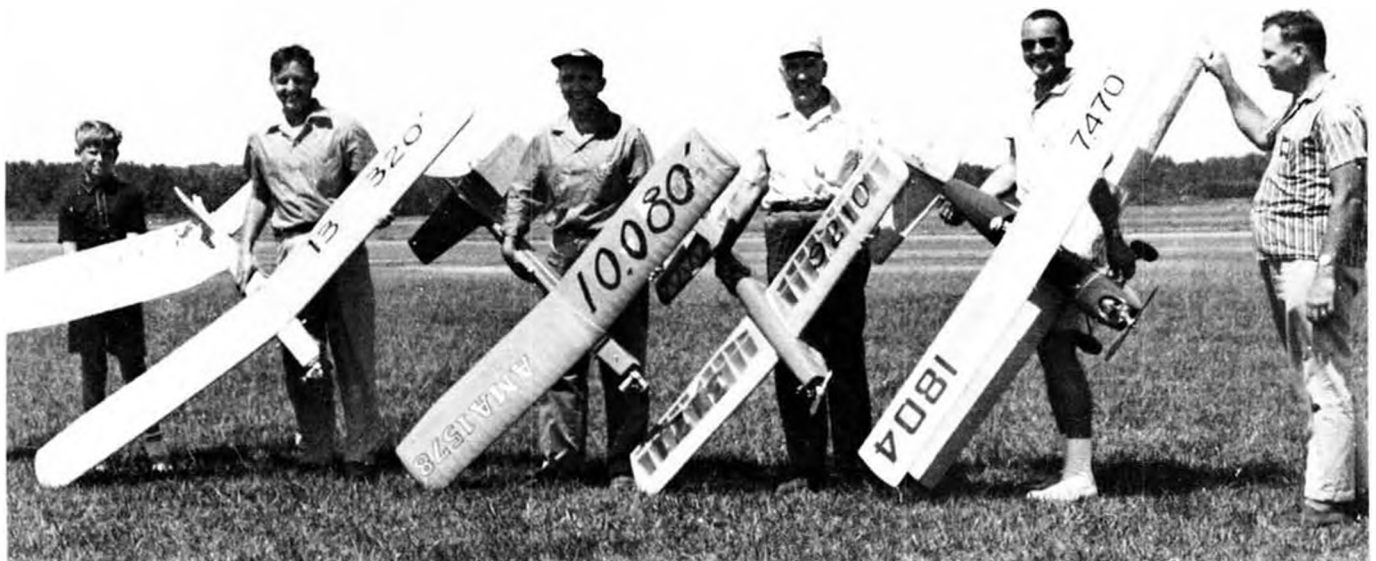


Without going into the aerodynamics of it (I couldn't if I wanted to), suffice it to say that the airplane tracks a lot groovier with the "diamond" stabilizer airfoil. This is a modification from the prototype, which was flat. The flat stabilizer tends to make the elevator over-sensitive. Incidentally, you might want to try the same thing on the fin. Occasionally, in dead air, you can notice

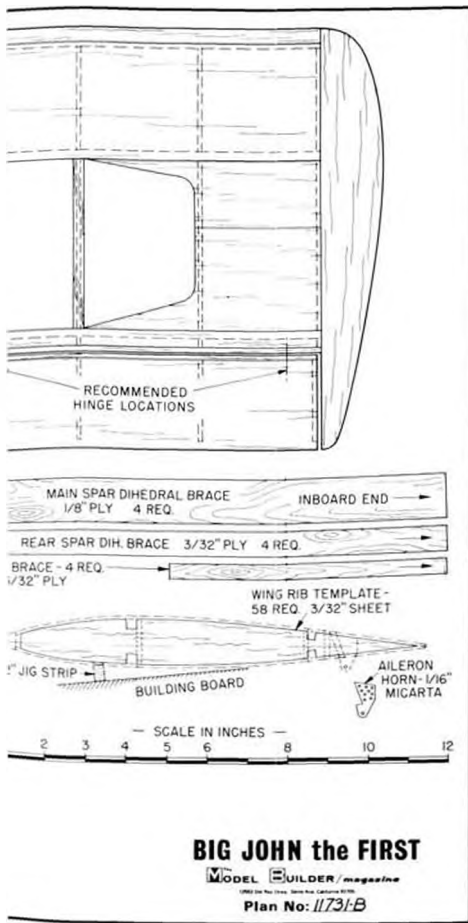
an ever-so-slight tendency for a ship with a flat fin and rudder to "swim" or oscillate. This was a noticeable characteristic on many Quick-Flys, particularly when inverted . . . Something about the flat surfaces performing a continuing series of high-speed stalls . . . Anyhow, we've indicated the modification with dotted lines if you want to try it. Don't let that coat hanger wire eleva-

tor joiner bother you. Just be sure to select some of the more sturdy stuff. Reason for using it is that it's easy to align the elevators after they're installed. This idea came from the late Doctor Bob Lien of New Orleans.

The most difficult thing about the wings is buying all that wood! However, remember that you're not building just an ordinary airplane (Sure, I'm pre-



At the end of a record-breaking weekend, in 1963, Dahlgren Naval Weapons Labs, Dahlgren, Va. All of us beat the Russian-held altitude mark. (l to r): Chris and Maynard Hill, Dr. Walt Good, Howard McEntee, this editor, and John Worth. Altitudes were grease pencilled on wings.



FULL SIZE PLANS AVAILABLE — SEE PAGE 72



After some changes from initial "rollout," B.J. was fitted with a Fox .59; fuselage, fin, and rudder were painted with blue Hobbypoxy; and a Quadruplex radio on 6 meters was installed.

such as a spruce 2x4, and punch two holes through it with a hammer and nail. The resulting jagged flash around the holes will grip the sheet rib stock when pressed into place while you slice out the ribs. By careful overlapping, you should be able to get quite a few ribs out of a 3/32 X 3 X 36 inch sheet without too much waste.

The other method is "baloney slicing," and requires the use of a good jig-saw or a band-saw with a fairly thin blade. With this method, you trace the rib pattern on a block of balsa, cut it out, and then, with the saw fence set for a 3/32 inch cut, start slicing off ribs. Fortunately, the ribs will be sheeted or capped, so the possibly "toothed" edge will not be exposed to covering. Note: Ribs are not fully symmetrical. Be sure to identify top from bottom during installation.

Wings are built (2 left and 2 right, please!) on the plan. First, pin down the bottom rear sheet. Second, glue and

pin the bottom rear spar in place. Third, set up the 1/4 X 1/2 jig strip and then glue in all ribs. Fourth, add both top spars and sub-leading edge. Fifth, install rear spar webbing. Sixth, add top rear sheeting (Bottom rear sheet should be beveled before starting construction, or, build wing with trailing edge at edge of building board, then bottom sheet can be beveled . . . more accurately . . . in place, after ribs are installed). Seventh, add top front sheeting. Eighth, add root and tip panel sheeting and cap all ribs. Ninth, when glue is dry, turn panel over, pin down and reposition jig strip. Tenth, add bottom front spar and install front spar webbing. Eleventh, add bottom front sheeting. Twelfth, add tip panel sheeting and cap 6 ribs. Let panel dry and then remove from board.

Repeat the above 12 steps . . . 3 more times! Note: Panels are exactly alike. Left or right is determined by installation of webbing, and upper root paneling. *Continued on page 54*

judiced!), and you're going to get lots of mileage and pleasure out of it!

There are two fast ways to cut out the 58 duplicate ribs. One way is to make a sheet metal template. Place it on a piece of medium hardwood scrap,



How's that for a beautiful flying field? And it's green grass, man! Note top hatch and old style cabane struts. Trexler airwheels.



"Flip her over, Boo-Boo, and I'll prove to you that I'm a better flier than the av-er-age bear!" Yogi has flown three of our biplanes.



The San Fernando Valley Flyers gather for a family portrait at their field in the Sepulveda Basin. Club roster includes many nationally known modelers. Note terrific camouflage job on fuselage of ship in lower lefthand corner of picture! Photo by Reed Packard.

RADIO CONTROL REPORT

FRANK
SCHWARTZ

● Now that summer is gone, I hope where you live that the weather is at least mild and pleasant. Winter will be on us soon and I've been saving some kits to get started on when it's too cold to fly. How about you?

Scale buffs will really like the fantastic ME 109E by Gas Model Products, 110 Valley View, Southgate, Ky. 41071. This plane is the end result of two years of research. The colors and detail markings are from an actual plane that fought in WWII. You can make this plane stand-off scale or go the whole bit and make it for regular scale. Fuselage is molded fiberglass with vertical fin also molded in. Firewall is already installed and the wing and stab are foam, pre-cut, of course. Decals are included, along with a clear molded canopy and screen for the oil cooler and radiators in the wings . . . plus molded exhaust stacks, and on and on. It's really complete, along with some fantastic scale drawings from which you can pick up all the

little scale details. Price is \$64.95 at your dealers, or contact Gas Model Products.

Same outfit, G.M. Products, also has a new epoxy called "six minute epoxy" and you get two six ounce bottles (part A and B) for \$4.95. This is a heck of a lot of quick-setting epoxy and the stuff they sent me for evaluation has plenty of "body" . . . it doesn't run all over the place . . . sticks great and sets up good and hard. Reports I've been getting on this stuff are very good and everyone who uses it, sticks with it (sorry about that pun). You'll like it, for sure.

Speaking of scale . . . at this years Nationals I was disappointed to find that there were no multi engined jobs . . . I really dig them. The planes in general, were up to the usual craftsmanship standards but mostly the run-of-the-mill types. There were one or two unusual jobs that I had never heard of, which certainly shows the ingenuity

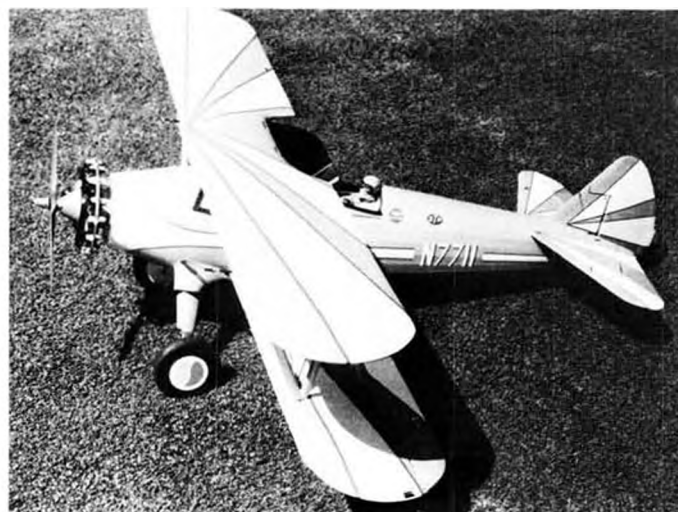
and research put in by the builder.

Mainly, as far as scale at the Nats goes, I can say that the workmanship far exceeded the flying . . . by a wide margin. Strange that so many scale modelers fly their planes so badly. Some really fine planes just lumbered or porpoised around and many landings were barely better than a controlled crash. A few approached at about forty-five degrees . . . and there they remained . . . no flare-out . . . until they contacted (ouch!) the runway. This editor's suggestion to a goodly portion of the scale flyers; get yourself a sport plane and leave the scale job on the bench on Sundays. Head for the flying field and get some practice in. On the other hand, Roth, Underwood, Karlson and Jackson, to mention a few, flew very well, and their flying did justice to the scale effort . . . But some of the others . . . hmmm.

My inquiries of the readers as to how best to finish the all foam planes



Helicopters just may be catching on in Japan! Kalt Cobras and Jet Rangers seem to dominate. Both are distributed by Aristo-Craft.



Jim Rogers, retired Western Airlines pilot living in Los Alamitos, built this Sterling kitted PT-17. Power is a Supertigre .71.



ME 109E built from Gas Model Products kit. Features molded fiberglass fuselage/fin. See text for further description.

brought a mail bag full of responses. I just can't answer them all. Some really showed that the writers had made extensive research . . . both by trial and error . . . as well as some really ingenious methods. A couple were just too

funny to try to relate . . . glad to see some of you have a sense of humor . . . Here is a resume' for your information:

John Wood of Arvada, Colo. wrote to say that Solarfilm works fine and is very quick. It doesn't have to be applied

with an iron hot enough to melt the foam, but flexing of the wings causes wrinkles. He also uses artist's acrylic polymer paints which are available from any artist's supply store. John says they are fuel proof and will not attack the foam, and they dry quickly. He says you can put talcum powder in the paint and use it as filler and it can be thinned with water. Still another method John uses is equal parts of Elmers white glue, water and Knox Unflavored Gelatin (and I always preferred raspberry), then he heats it and applies it over silkspan to the foam. Then you can dope it or use epoxy paints . . . or whatever. John belongs to the Colorado Air Tragedy Society of Denver (strange name . . . must mean something). Says

Continued on page 69



Valley Flyers have a Model of the Month competition at each meeting. September's winner was Ken Hall with this VK Corben Ace.



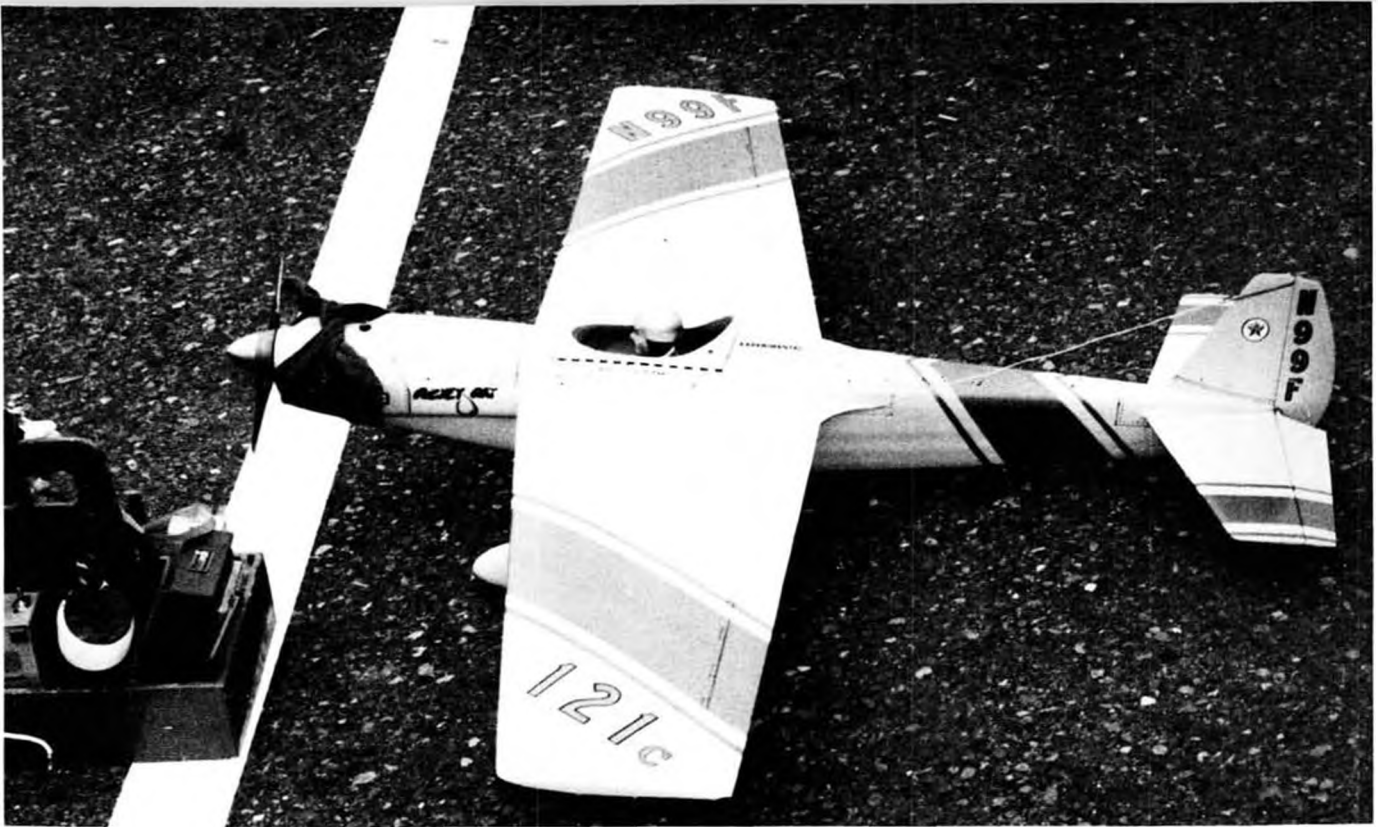
August winner of M.O.M. award was Bobby Williams, shown here with his Sterling Lancer. Nice job! V.F. photos by Reed Packard.



Walt Moucha at Rhinebeck with his 2" scale Sopwith Pup. ST .51 power, RS radio, natch. He's their Eastern rep!



Jan Levenstam, Sweden, landing his Kavan Jet Ranger. Engine is Veco, radio is English McGregor. Jan was on 1971 W/C team.



George Flynn's "Rickey Rat," built from Francis Products fiberglass fuselage. George's own design from there on. Wings cut by Lee Frey.

PYLON

By TOM CHRISTOPHER

PHOTOS BY TOM CHRISTOPHER

● The San Gabriel Valley Radio Control Society hosted the annual Pop White Memorial Race for Formula I aircraft August 18 and 19, Whittier Narrows, California. The race was a

tremendous success due to the efforts of a well organized club under the leadership of Lee Frey and Jerry Silverman. This particular race has been held at Mile Square in the past and was scheduled to be there this year. However, the Mile Square flying site was terminated to all RC flying due to so-called noise pollution complaints by surrounding residents in the area. This action called for a hasty change in plans, for the upcoming race! Jerry Silverman really took the bull by the



Marcel Davilla, Mexico, receives 1st place trophy for Standard Class at Pop White Memorial races, Whittier Narrows, Aug., '73.



Bob and Kathy Smith are renting another apartment . . . for his pile of trophies! He took 1st Expert, Fastest Time, and Pop White.



(l to r): Joaquin and Olivia Alba, and the Marcel Davillas, came up from Mexico for the Pop White Memorial Pylon Races. Nice bunch!



Gail Jacobson, Q.M. VP for S.E. District, placed second at Jacksonville, Florida races. CD Chuck Loftis with trophy.



Old flying buddy, Austin Leftwich, placed first at the Jacksonville races put on by the Gateway R/C Club. All photos by Ron Kirm.

horns, and did one heck of a job putting the race together. We know just how much work is involved to coordinate a race; everyone should try it at least once! These people put on two beautiful days of racing with eight rounds of racing for Standard and Expert classes.

It is very unfortunate that the Southern California area has lost Mile Square for RC flying. Good flying sites are really at a premium in this area. There are many circumstances that are involved in the closing of this fine flying field. All in all, a few residents banded together, put a good deal of pressure on selected individuals who control the usage of Mile Square and all of a sudden . . . the field is closed! No study of noise levels, no survey of all residents in the area, just BOOM! That's it! We can all learn from this action. There were about one thousand people affected with the closing of this field, if one considers the RC Fliers, U-Controllers and the Land Sailers who also used the field. A small group of about thirty residents who took the time to complain to the right people, really put it to us! We would suggest that if your present flying field is not using mufflers that you do so immediately! We think that if this rule had been implemented

at Mile Square, we would probably still have the use of the facility. *(The large Orange Coast R/C Club which is . . . er, was the major R/C organization to use this site steadfastly refused to adopt mufflers in spite of the efforts of certain foresighted members over the past three or four years! wcn)* The QMRC (Quarter Midget Racing Club) is considering the use of mufflers to be used even on 15 sized racing engines! At the present time, Whittier Narrows is the only flying site in the Southern California area that meets all NMPRA safety requirements. We predict that even this public facility will go to mandatory mufflers in the not to distant future. We would hate to see Formula I have to use mufflers, but it would be better than having an airplane and no place to fly it!!! *(Why is it that everyone involved can't realize this fact? wcn)*

Now for the race! Seems as though the Standard Class is growing, and the numbers in Expert are diminishing! The race drew 65 entries in Standard and 24 Experts. Overall winner of the Standard Class was Marcel Davilla of Mexico with Bob Smith of Panorama City, Calif. taking overall honors in the Expert Class.

Competition in both classes was close and the attrition rate was very high. The

weather was hot and windy, with a steady barometric reading for both days. We found it extremely hard to get a good needle setting for this race. We weren't the only one having trouble! Lean runs were quite common throughout the race.

Mexico was represented by Marcel Davilla and Joaquin Alba. Marcel was flying a Stafford Minnow powered by K & B, while Alba used a PB Products Miss Dara, also K & B powered. Davilla finished the eight official rounds of flying in a tie for first place in Standard Class with Loren McCray of Ventura, California. A fly-off was necessary between these two closely matched competitors, which caused an occurrence that was quite unique! For four laps in the race, these two were having a real dice for the lead! Then, McCrea lost his Dara coming off No. 3 pylon and crashed! This left Davilla all alone and looking as though he had the race won! Then there was silence! . . . Davilla had also crashed! How can this be!? Both winners have bought the farm! Davilla was declared the winner due to a faster heat time during the regular heats. Congratulations Marcel Davilla and crew. Alba didn't fare so well, as he was the victim of a mid-air in the seventh round

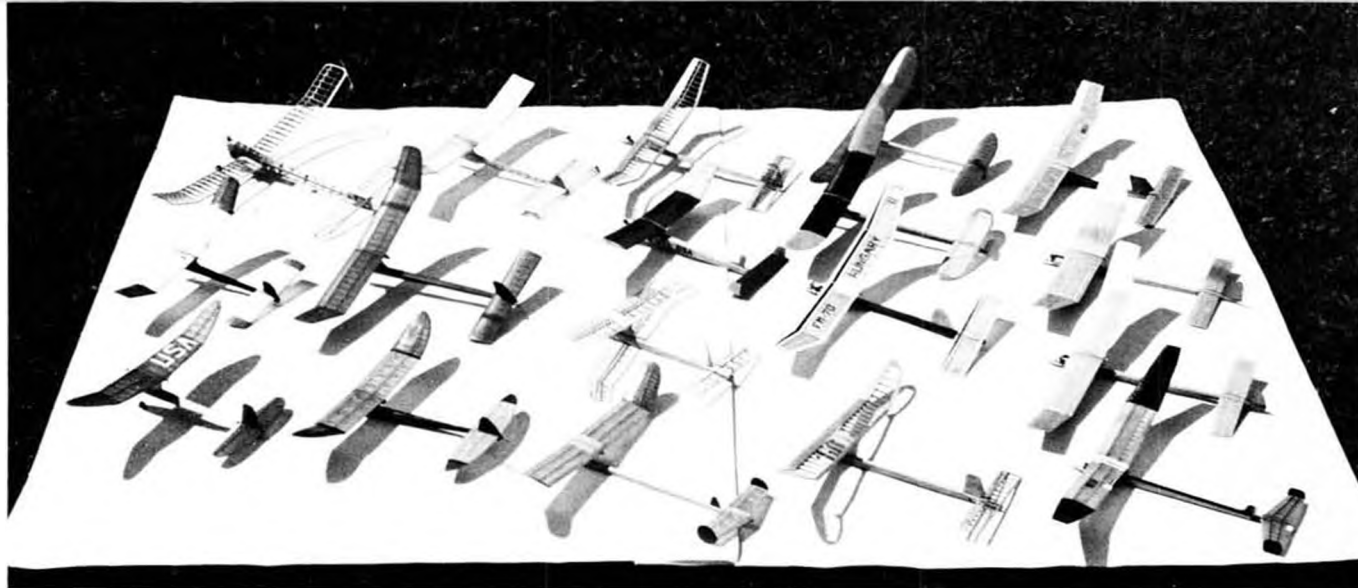
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Jacksonville R/C flyer Barry Connors was 3rd at Gateway Races. Dave Tuttle holds on while Barry lights the fire.



Austin's plane had the fastest time of 1:21. We don't know the race course size. If it's AMA provisional size, Austin was smokin'!



PHOTOS BY AUTHOR

A gaggle of Lillipution World Champions! All are 1/4 size scale models of FAI World Championship winners, right down to the original colors!

TIM'S 1/4 MUSEUM

An interesting way to preserve part of the history of international competition in modeling, and the author is asking your help in filling the voids. By TIM DANNELS.

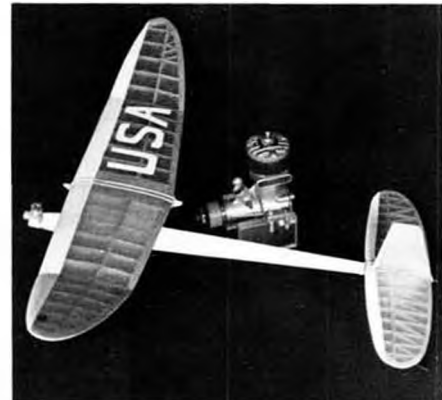
● Although I am not an FAI flyer, the models and history of the event are quite interesting. I thought it would be nice to be able to build each of the models that have won the World Championships Free Flight Power contests, but immediately forgot it because of the space it would take. Then I spotted the plans in *Aeromodeller* for Erno Frigyes 1963 winner, Taltos II. There was even a good color picture on the cover to let me know how to trim it. After studying the plans I decided that 1/4 scale would be ideal because I could even closely duplicate the wood sizes in the models. The 1/16 inch thick ribs were easy to make from 1/64 inch sheet.

I scaled the plans photographically and went to work, with the results seen in the picture. This also gave me the opportunity to collect .15 size engines, which I normally didn't collect. One added feature to this is that Larry

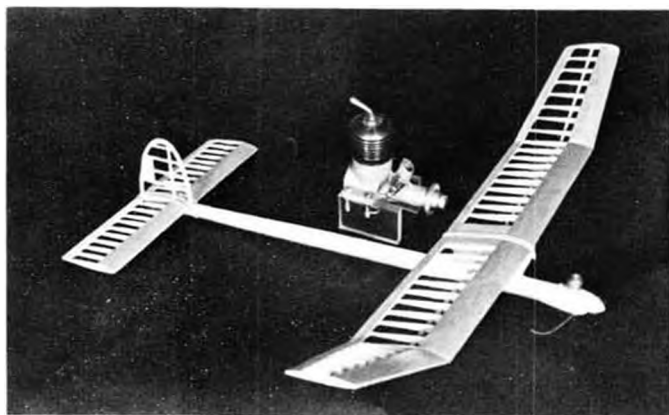
Connover has given me the actual engine from the Lucky Lindy that he was Co-Champion with in 1960. It is shown alongside the model. I have been unable to "liberate" any of the other original engines, however.

Some of these models, such as Schneeberger's "Pulteri," Schmidt's "Komet," Frigyes' FM-58, Seelig's "Gambrinus," and Baumann's "no-name" winner of '69 are uncolored and/or uncovered, because I have been unable to obtain any color pictures of the models. This phase of reproducing the winners is by far the hardest. Plans and drawings can be found for all of the 1st place models, but color pictures can't be found. To get as far as I have has taken some detective work and some much appreciated help from people all over the world: Jack Law, from England, sent me color slides he took of the 1960 "FIVE." I managed to contact Alberto Dal 'Oglio in Italy and he sent

me a drawing to which he had attached remnants of the actual covering material he used, and pointed out where each went. Steen Agner from Denmark furnished color pictures of last years winner, another "no-name" model by Sweden's Rolf Hagel.



U.S.A.'s Dave Kneeland won in 1953 with "Vapor Trails." Modified wing and tail from Goldberg "Cumulus" kit. K & B Torp .15.



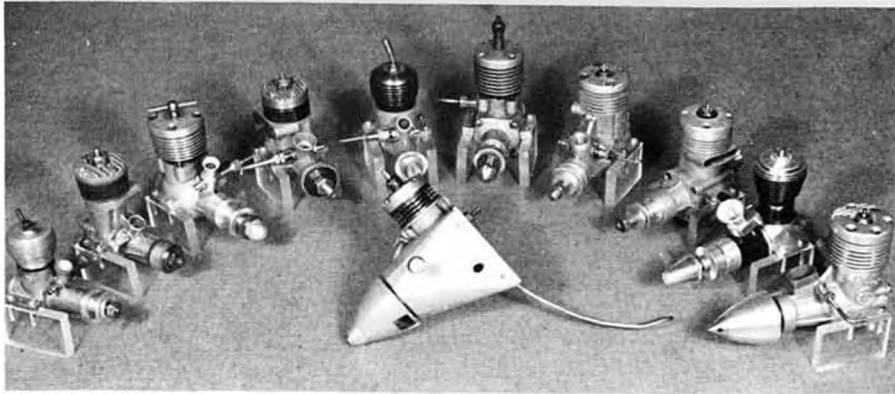
"FM-58", 1958 winner by Erno Frigyes, Hungary. Power was a Schlosser 2.5cc Diesel.



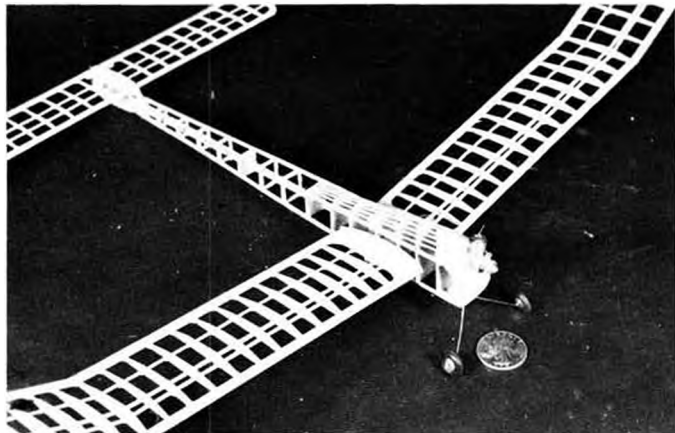
"FM-70", was winner in 1963. Powered by Moki - S2.



Tim's wife, Betty, holding Mike Gastor's "Gastove XVI" and Dal'Oglio's "A-17." Note egg-crate construction in A-17 wing.



Collection of engines used in W/C winners, not complete. Engine in foreground is actual OS Max II used by Larry Conover in his "Lucky Lindy," which won in 1960.



Gerhard Schmidt won the first W/C, in 1951 with this Castor 15D powered Komet. Really a powered glider, with plug-in wings!



Carl Wheeley, AMA Competition Newsletter editor, was the winner in 1954 with his "Senator." It was flown with a K & B Torp .15.

Another part of this project is a tabulation of all the F/F World Championships along with interesting little "Did you know's" about them. If we take the first four places of all contests and assign a reverse number to them, i.e; 4 points for 1st, 3 for 2nd, etc., the following data come out: The U.S. teams still lead everyone with 25 points. England is 2nd with 22, Hungary 3rd with 19 and Italy is 4th with 16 points.

Individually, Erno Frigyes is king with 12 points, which includes the only two-time individual wins. Rolf Hagel is 2nd with 8 points. His two individual wins include the 5 place tie in 1960. Third place goes to Larry Conover

with a 1st in 1960 and a 3rd in 1956. Fourth place with 5 points is shared by Italy's Dal 'Oglio, New Zealand's Sheppard and England's Dave Posner.

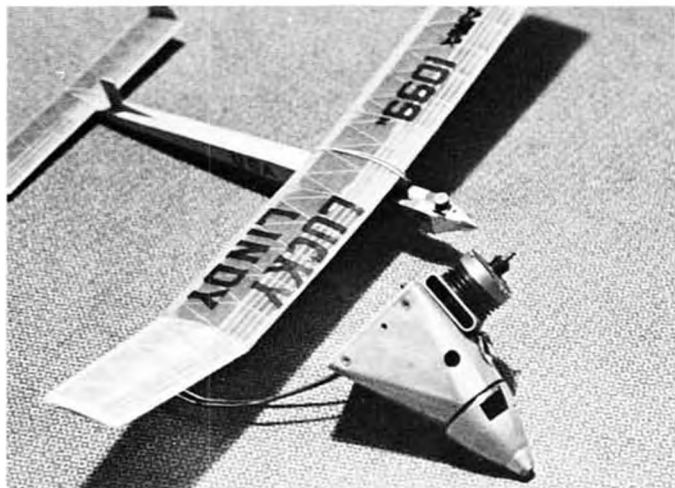
Again, using the first four places on an individual basis, here is how the various countries place: England 25, U.S.A. 19, Italy and Switzerland 15, West Germany 13 and Hungary 12.

While these data are interesting, they are not 100% correct. The complete results of several World Championships have evaded me and many of the early contests didn't give much more than name and place. In fact, aside from the fact that Gerhard Schmidt won the very first World Champs with a Castor .15

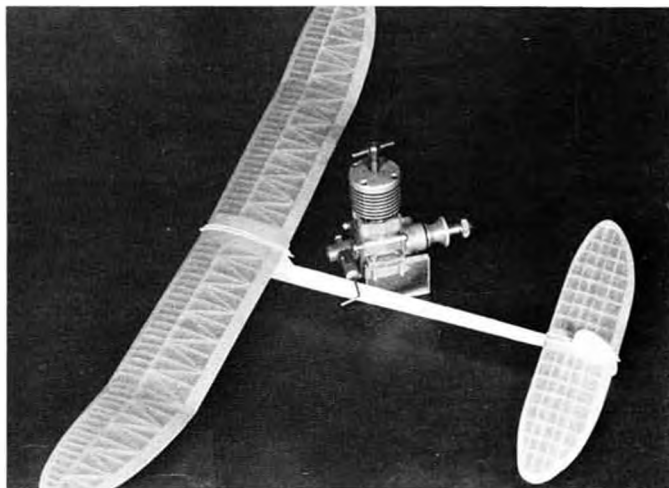
diesel powered Komet, nothing else in the way of information is available on the contest. I don't even know the dates or the place it was flown. A color picture of Schmidt's model would sure help finish this most interesting model.

The USA didn't send entries to either of the first two Championships, so very little was even mentioned in the U.S. magazines about it. The usually reliable *Aeromodeller* gave only very minor coverage to the first meet, and that was a year later when it made the plans to Komet available. The 3rd and 4th Championships, swept so convincingly by the U.S. fliers with the K & B

Continued on page 63



Larry Conover's Lucky Lindy miniature poses next to the actual OS that powered it for the winning flights in 1960!



Sandy Pimenoff of Finland, FAI's C.I.A.M. President, was co-winner in 1960 with Larry Conover, fling his "Ascender." Eta 15 - Mk. I.



A brand new O-38 for the National Guard, parked at Clover Field, Santa Monica, prior to delivery. December 23, 1930. (McDonnell Douglas photo.)

DOUGLAS O-38

By PETER WESTBURG. This is the first of a series of highly accurate scale drawings, combined with sharp photos, that should please all scale modelers. Copies of the original 1" scale plans are also available!

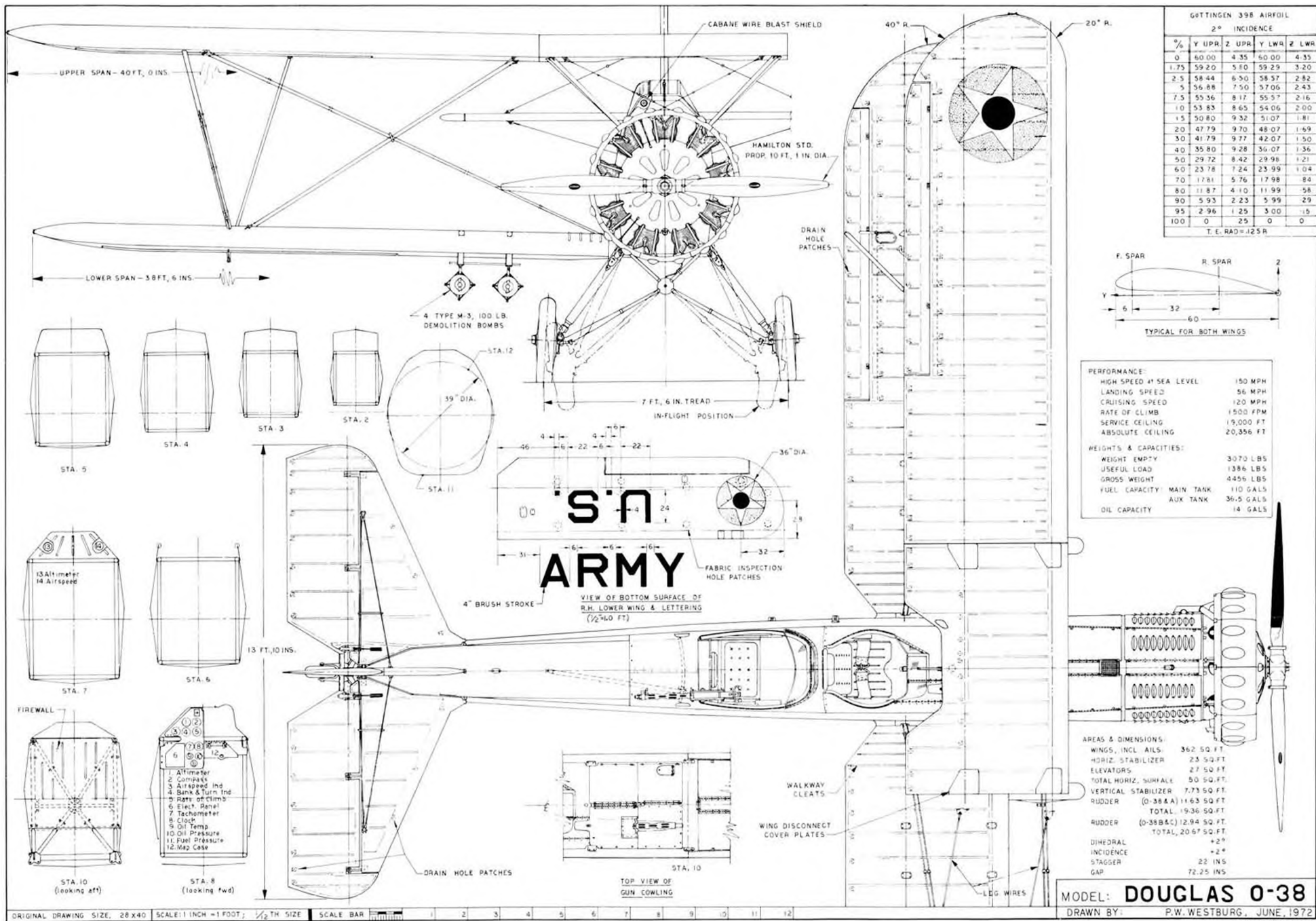
● When modelers get together and someone mentions Douglas, the response is usually DC-3! But long before the advent of the famous DC's, the Douglas Co. in Santa Monica, California, was well-known for its observation planes. Beginning with the XO-2 in 1924, Douglas manufactured nearly 600 observation biplanes for the Air Corps and foreign governments.

The best known of these workhorse airplanes are the O-38's and the O-38B's powered by the reliable Pratt & Whitney Hornet of 525 hp, uprated to 625 hp in the E and F models. Forty-five of the O-38's were delivered and 63 of the B model; the Militia Bureau (National Guard) got one O-38A and even the Coast Guard got one, the O-38C. The D, E and F models were quite different airplanes with fat fuselages and canopies, and were less well-known. (The Air Force Museum in Dayton, Ohio, is rebuilding an O-38F recently airlifted from a crash site in the remote Alaskan wilderness.)

The O-38's went to National Guard units because they were so easy to fly by week-end pilots, and needed a minimum of maintenance. Many remained in service until 1939, when they were replaced by the big all metal O-jobs, the Douglas O-46A's and North American O-47A's.



Tail surfaces of the O-38 and O-38A. The rudder chord on the B and C was 4 inches wider. The horizontal stabilizer was adjustable in flight from minus 3 to plus 4 degrees.





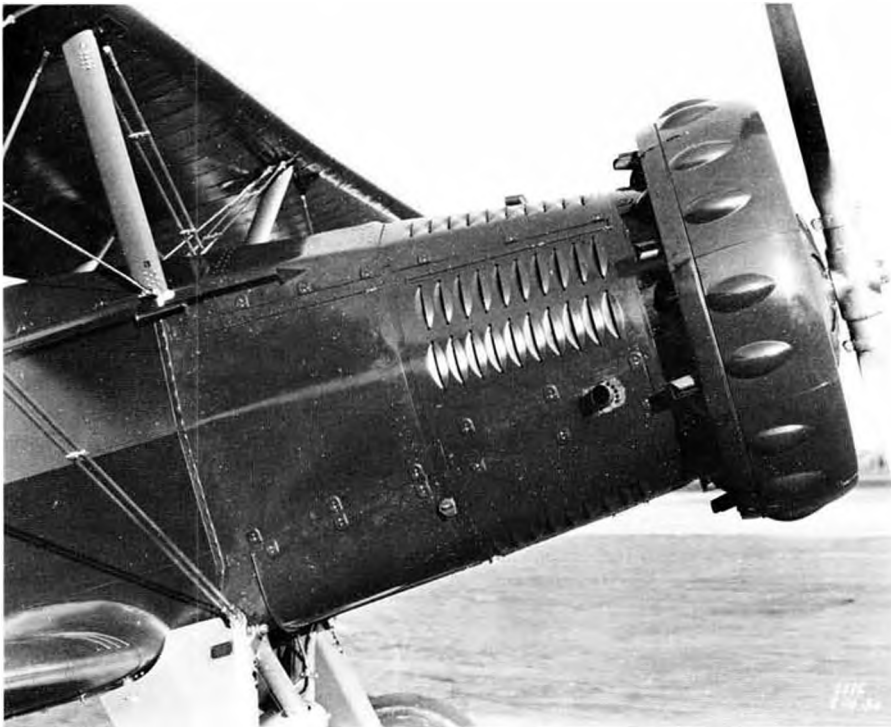
One and only O-38A was delivered to the Militia Bureau HQ of the National Guard. Dual controls, no armament.

O! Dobbin, as the O-38 was sometimes called, has all the requisites of an excellent flying model, free flight or radio control. Dihedral is 2 degrees, there is plenty of wing area and the tail surfaces have more than enough area for stability and control. It has a box fuselage and constant chord wings,

Detail on the right side of the engine section of the O-38A. Note louvre configuration.

making it a fairly easy airplane to model. As for coloring, the fuselage was the familiar olive drab until early in 1937 when all Air Corps non-metal airplanes had blue fuselages. The wings and tail surfaces were the usual chrome yellow and all markings and insignia were standard Air Corps.

Modelers should like this Coast Guard 38C! Dark blue fuselage, wings and stab yellow on top, silver underneath, vertical tail red, white, blue, USCG on both bottom wings!





Phil with his Satellite built from the review kit. The wing fits in his VW bug . . . just fits!

PRODUCTS IN USE

The SATELLITE 1000 PRO KIT, by Satellite City (Bill and Bob Hunter). Construction by Phil Bernhardt, text by Bill Northrop.

● The father and son team of Bob and Bill Hunter, operating as "Satellite City," 9486 Sandusky Ave., Arleta, California 91331, sent us a sample of their Satellite 1000 Pro-Kit for review. Turning it over to someone else to build was difficult, because it's the kind of kit you like to work on just for the sheer pleasure of seeing everything go together so methodically. Unfortunately we can't very often enjoy this privilege any more, and so, turned it over to our Old Timer draftsman, Phil Bernhardt.

In case you don't know, which among freeflighters is doubtful, the Satellite 1000 is a Class B-C-D design which spans 83-1/4 inches and carries 1021 projected square inches of wing area. As of March 1973, it held 8 AMA records, and was also selected as one of the NFFS 10 Best Designs for 1973.

The kit is actually a partial one, in that it consists of full size plans, including entire wing layout, and 132 pre-cut balsa and plywood parts. A complete bill of materials lists all of the strip, sheetwood, blocks, and hardware required. The kits costs \$24.00, plus \$2.00 postage. Phil spent \$12.00 on additional materials to complete the construction.

All of the clean, precise machine-cut parts are produced by P & W Model Service (Chuck Partch and Gene Wallock), the same company which produced partial Old Timer kits, and now

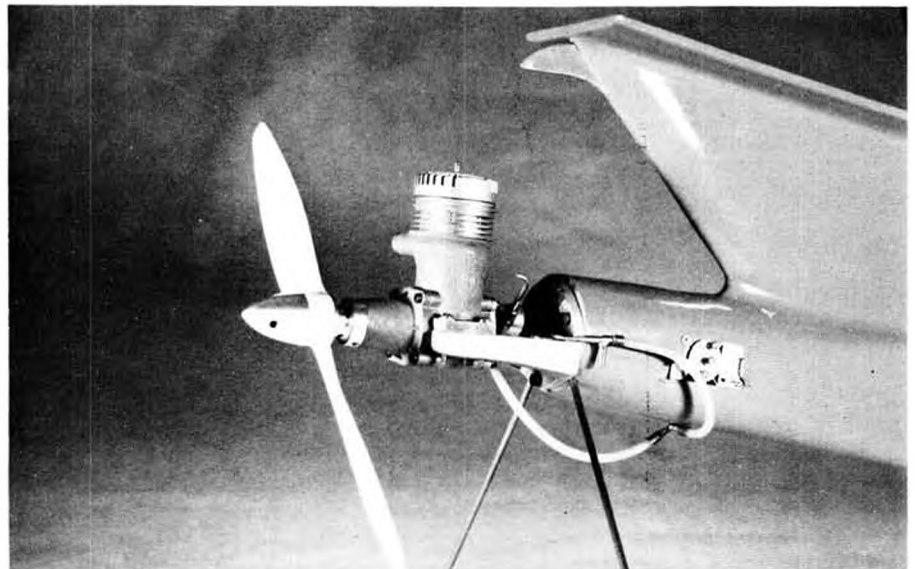
also cuts parts for Pierce Aero Company, manufacturers of the Pierce Arrow 2 meter R/C glider kit. The quality of P & W's work is simply above reproach.

The Satellite's wing and stab feature a beautiful elliptical planform, a departure from most contemporary free flight power designs. The curved trailing edges are pre-cut and the leading edges are a combination of solid and laminated balsa. Basic wing construction consists of 1/8 X 3/8 spruce main spars, 3/32 X 3/16 balsa turbulator spars, straight full ribs and diagonal half-ribs from the main spars to trailing edge. The wing and stab sections are flat bottomed.

Fuselage is a one inch wide box with diagonal bulkheads, and built mostly of 3/32 sheet balsa. Half inch balsa cheeks build the nose out to 2 inches wide, where it is shaped to a circular cross-section. The dual wire skid landing gear is sandwiched between ply bulkheads and the 3/16 inch ply firewall. On Phil's model, a K & B front rotor .40 is mounted at the specified 5 degrees down/2-1/2 degrees right thrust offset.

Phil first covered the fuselage and fin with tissue and nitrate dope to hide the grain. This was followed by a coat of K & B Super Poxy primer, and a final finish of light blue Super Poxy paint. The wing and stab were covered in 1 mil mylar which had first been sprayed on the interior side with Candy Apple Lime Gold. The bottom inside was sprayed black for improved visibility. The mylar is applied somewhat like Monokote or Solarfilm, except that the adhesive, spray contact cement (get it while you can), is applied to the wood framework. Incidentally, Satellite City markets the clear mylar in 1/4, 1/2, and 1 mil thicknesses. Cost for 50 sq. ft. is \$5.00, \$7.50, and \$10.00 respectively, plus \$1.00 postage. Also, might as well mention that the Hunters market "Hot Stuff," a 10 second curing glue that is especially great for field repairs, but can be used for regular construction work. It's 8 dollars an ounce, but a single drop of this thin liquid adhesive goes a long way.

Flight trim on the Satellite is relatively simple. The wing should have an 1/8 inch washout in each tip panel. Key the stab for 1/16 inch left turn in the fin. Tilt stab 1/2 inch high on left side for left turn. Adjust for a final trim that will give a 3/4 turn in 15 seconds of power and a 45 second glide circle. ●



Front end of Phil's Satellite. Go power is a Series 70 K & B .40 turning a nylon 10-6 prop. The Tatone Flood-Off timer releases pressure to flood engine and dump excess fuel.



This was the 1973 U. S. Free Flight Champs operating squad (l to r): Gene Spence (Procurer), Cheryl Hamilton (Trophy Girl), Al Vela (CD), Kellie Morris (T-Girl), Sandy Norton (Assist. CD), and Bonnie Woods (T-Girl). Ya better join the fun in 1974 . . . in spite of Gene, Al, and Sandy!

FREE FLIGHT

By JEAN ANDREWS

RUBBER SPEED

With the advent of an Unofficial Rubber speed event at this year's Nats, a lot of interest is being generated in this supposedly dead event.

Looking at the Mid-July issue of Competition News, from the AMA, there are two designs on page 3 which have a lot of good points. Neither of them makes any provision for the ROG requirement pasted onto the rules of the

NFFS event, though, and I can't help wonder why this requirement was added. The world record requirements list no such foolishness as ROG, or number of turns the model can make in the speed run, or anything. All it has to do is go from A to B . . . quickly!

In fact, Dave Linstrum's model looks like it would qualify as a helicopter, for purposes of World Record consideration, and I hope the flyer took note of this

fact.

World records as of the first of this year are: Rubber-powered airplane, 90.036 mph; rubber-powered helicopter, 89.619 mph; piston airplane, 105 mph; and piston helicopter, 72.15 mph. All speed records are currently held by USSR flyers.

Incidentally, the offer of a \$100 reward for the first flyer who exceeds 100 mph with a rubber-powered model



Lee Hunt was 1st in C Gas, Thunderbugs Annual, Sept. 8 and 9, with Condor 800, K & B .40, Monokote.



Red Johnson and Trophy Girl Kellie Morris at the 1973 USFF Championships. Are you lookin', Jo Ann?



Winners of Jr. HLG at the annual Thunderbugs contest, Taft, California (l to r): Eric Dyer 1st, age 9; Mike Kerzie 2nd, age 13; and Tom Scully 3rd, age 14.

conforming to the NFFS rules might spur some attempts, but why not a smaller cash offer to a U.S. flyer who manages to **BREAK AN EXISTING WORLD F/F SPEED RECORD?** Soviet flyers who break world records are given "Hero of the Soviet" status; why not some sort of incentive here as well?

General rules for world record attempts in free flight rubber and piston speed, are as follows:

Speed trap is fifty meters long, model must "Fly level" for twenty-five meters before entering trap.

Models are hand-launched; may land between attempts.

Flights are made in both directions through the trap, the second flight being within one-half hour of the first.

The general dimensions and wing loadings must be complied with; ' . . . must be no more than 50 grams per square decimeter,' or " . . . 16.38 ounces per square foot."

Maximum all-up weight must not exceed 11.023 pounds.

For piston speed, total displacement

of all engines must not exceed 10cc (.61 cubic inches).

For rubber power, there are no restrictions as to size or weight of motor. **MINI-PEARL . . . PLANS REVISION**

Read the other day where Bill Chenault's Mini-Pearl was chosen "Design of the Year" for small-size AMA gas. I built one of them when the kit first became available here on the coast, but couldn't get the dad-blasted thing to behave.

Now I read where Chenault, in the NFFS Digest, recommends the design be flown with zero degrees of down-thrust. Zingo, to the plans file go I, and lo and behold, seven degrees of down-thrust shown!

Wrote Chenault a quick note, regarding the plans error, and he admits he doesn't remember why the down-thrust was shown on the original plans. He says the machine will dive toward the ground if built that way, so he advises anyone building the ship to adjust the plans accordingly.



Jerry Dyer gets Sweeps award from Lee Norcross; A/1 1st, night flying 2nd, Unlim Rubber 3rd, D Gas 4th, B & C Gas, 5th. . . Wow!

MURPHY'S LAWS

Murphy's laws of inanimate objects have been mis-quoted so often, I feel a reportorial obligation to list them in their correct order herein. Please refer to the **CORRECT** axiom in the future . . .

- I. In any field of pseudo-scientific endeavor, anything that can go wrong will go wrong.
- II. Left to themselves, things always go from bad to worse.
- III. If there is a possibility of several things going wrong, the one that will go wrong is the one that will do the most damage.
- IV. Mother Nature always sides with the hidden flaw.
- V. If everything seems to be going well, you have obviously overlooked something or somebody.

ORBITEER STRIKES AGAIN

The salt flats of Salt Lake City, Utah, which has got to be about the best natural free-flight site in the world, has produced a new record in Half-A Open Category II for Keith L. Whitney, of the Utah State Aeromodelers. His airplane, Competition Models' "Orbiteer," was the subject of a product

Continued on page 63



Lee Norcross presents High Time of the Meet trophy to Bob Scully. His 1/2A Satellite recorded 29:33.



Joe Norcross presents 2nd place trophy in Unlimited Rubber to Nancy Ferrer, 271 sec. Flew an AMA Racer, tissue covered.

NATIONAL FREE FLIGHT SOCIETY NEWS



AMA RENEWAL

By the time this issue hits the street it will be about time to renew your AMA license. This year the National Free Flight Society is urging everyone who flies free flight aircraft of any kind, i.e. oldtimer, indoor, FAI power, etc., to mark in the preference column *Free Flight*. The reason for this is that if you put down anything but free flight your application is then put into the general category rather than the free flight category. In 1973, according to the AMA computer, there were only 1,753 free flight members of the AMA. That's ridiculous; we all know that there are at least five or six times that many of us. It is imperative that we let John Worth know we are out here.

CLUB MEMBERSHIPS

Last month I mentioned that there might be an incentive for clubs to join NFFS as a group. Well here it is: If club treasurers will have members fill out membership applications and pay their NFFS dues along with club dues this fall, the open members will only have to pay \$3.50 for a one year NFFS membership. Junior and Senior memberships must stay as they are. However if treasurers mail the check for the dues and the membership applications to me before December 31st everybody will save money, because effective January 1, 1974, the NFFS dues are going to increase. I don't have the exact figures yet but open memberships may go from \$4.00 to \$6.00 a year. Junior and Senior membership will probably increase a proportionate amount. This increase is due to substantially increased postage and printing costs and to help fund our new scholarship program.

Club members who are already NFFS members will not lose any money, their renewal dates will just be extended one year.

A letter with some membership applications has been mailed to all the clubs that I was aware of, but if you have not received one, write to me immediately and I will forward a package to you. Don't wait! Do it now! Time is running out!

Speaking of Clubs, The National Free Flight Society would like to com-

pile a list of all clubs that are actively involved in free flight. When compiled, the list would be added to the back of our membership list and be available to all members at a nominal charge. The current membership list is being printed now and will be available soon. The list includes all the members through June 1973 and will be updated in January 1974.

Any clubs wishing to be included in our list, please drop me a postcard listing: Club name, mailing address, number of members. My address is listed on



"Yeah, Sandy, we'll come back in '74, but make sure the trophies are big enough that they have to hold on to them with BOTH HANDS!"

the membership application at the bottom of this page.

FAMILY MEMBERSHIPS

I have noticed that occasionally a father will sign up his junior son as a NFFS member and then add himself as a family member. Total cost \$2.00!! Come on guys . . . that's not fair!! Effective immediately a family membership must include one open membership!

NATS SITE

It's too late . . . if you know of a site that might be suitable for the Nationals please write to AMA. I talked with Frank Ehling the other day and he said that Chanute was being considered, but no decision had been made. Free fliers complained all during the Nats that their home site was better, but no one has written to make an offer. (See *AMA's Monthly Mailing for September, 1973* . . . All basic Nats site requirements are listed. wcn) ●

NFFS MEMBERSHIP AND RENEWAL APPLICATION				
(Make checks payable to; National Free Flight Society)				
Mail to;				
B.J. Kelch, R.R.4, Box 475,				
W. Terre Haute, Ind., 47885				
			FEES	
			1 yr	2 yrs
RESIDENTS OF FOREIGN COUNTRIES			\$ 4	\$ 7
U.S. RESIDENTS	Age 19 and up	AMA Members	4	7
		Non-AMA Members	5	9
	Age 15, 16, 17, and 18(Senior)		2	4
	Age 14 and under(Junior)		1	2
	Family membership*		1	2
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.		Name	AMA No.	
		Address		
		City, State	Zip	
		*Please list family members Name		
		AMA No.		
New Member <input type="checkbox"/>				
Renewal <input type="checkbox"/>				
Address Change <input type="checkbox"/>				
Current expiration date:				
Month	Year			



Fred Collins, complete with derby, mustache, sideburns . . . and Flying Quaker, added color to Old Timer Nats.



Bill Warner shows his Puss Moth how to spread its wings for flight in the rubber cabin event. Flying scale ships can surprise you!



PLUG SPARKS

By JOHN POND

Continuing his 1973 Nats report, John describes the free flight portion of Old Timer activities in Oshkosh. Model aviation's newest (?) sport is growing like a weed !

● Did you ever hear of traffic control making a success of a meet? Well, that's exactly what happened when Carl Hatrak volunteered to keep the driving lanes and the parking row in order. With his ever present whistle, Carl would have put any traffic cop to shame. Matter of fact, Carl had things so well organized, the other traffic control people were coming over to ask his advice on how to handle people and cars.

No question about keeping the lanes clear, it did make for a beautiful contest as the model flying was completely unencumbered with people and vehicles. This all added to the general enjoyment and fun of the old timer events held at the Oshkosh, Wisc. National Model Airplane Championships on August 10.

Did I say FUN again? Maybe this writer is getting repetitious in selling the old timer "gospel," but honest injun, fellows, the real name of this most relaxing form of flying is FUN.

With the parking and traffic so well handled, it truly was a shame the weatherman failed to cooperate. Although the day was clear and sunny, the modelers were faced with winds of 15 to 25 mph. Two minute flights were the order of the day. Even then, the models were drifting very rapidly downwind. It was a day that required a stout heart and real desire to win a trophy.

Backing up a little, it must be pointed out that Friday was simply the culmination of the weeklong fun. When the author arrives, the Old Timer Booth is always set up immediately to act as the focal point. The booth not only acts as a media for an exchange of information, but serves to display the old time models, aids in promoting membership in S.A.M. and finally, serves as the processing and registration center for the events on Thursday evening.

Among the highlights of the booth

(manned primarily by Tim Banaszak and Bob Elman) was the display and demonstrations by Herb Wahl of his new Hurleman twin cylinder opposed engine. Smo-o-th runner! Also worth mentioning was processing night with all the help turning out with straw hats and mustaches. The Old Timer Eagle group was a great help, especially Art Thoms who was appropriately attired with a derby.

Another thing that made the meet a great success was the return of Vic



Daddy Warbucks is alive and well!!! His Imperial High Commander of the Old Timer movement, Uncle John Pond. His 12 year old Buzzard Bombshell is Torp .19 powered.



Sal and Nan Taibi process his .020 Replica Playboy Sr. A real switch from the big ones! One of modeling's most dedicated couples.



Can this be George Perryman? With a straight trailing edge? He's winding this one for O.T. Rubber Stick, so probably not his design.

Didelot. As Head Recorder, Vic sat uncomplainingly throughout the day on the field regardless of the weather. Wotta good man! A few more like him and we'll take over!

Flying? Well, in spite of the wind, what flying there was turned out to be excellent. Bill Bell just about stopped all the flying activity when his T-D Coupe flew down the runway and landed quite

smoothly among the R/C boys. Some of them should make such good landings!!

Popular joke around the flight line is that the boys are finally getting George Perryman's number. "Gorgeous Gawge" only won a first and second this year in the two rubber events. What the boys don't know is that if Gawge had taken his last flight, he would have won both first places! "Gawge" is a true southern gentlemen. Take some, leave some.

As mentioned before, the Old Time

R/C Eagles were out in force. Woody Woodman timed all day, while Art Thoms pulled the upset of the day by winning the .020 Replica gas event. With an unadjusted Ehling Request, Art worked like a Trojan to get the model to fly in the wind. Real perseverance! The "Armenian Air Force" (Joe Beshar) had an original model called the "Fox" which he flew. After seeing it go, ya should have left it in the henhouse, Joe! Ha, ha!

Slight bit of disturbance arose when



Bill Shaffer took 3rd in Class C with this Playboy Sr. Ralph Kuenz on the watch.



Ooh! That smarts! Bruno Markiewicz displays his unique method of carrying his Comet Sailplane back from a retrieval.



With a 20 inch prop, the Forster .99 in R. Smith's Powerhouse sounded like a sewing machine. Don Garafalow at right.



Ted Katsanis with a seldom seen Henry Struck desined Boomer Bus. This year it flew great! Francis Kastory is combo timer/helper.



John Hammond, A.C.C. Club, Baltimore, Maryland, and his Ohlsson .60 powered Scientific Mercury.



Mike Poorman, A.C.C. Club, and his Super Cyclone powered Buzzard Bombshell. Believe he also flies FAI Power.

Bill Shaffer reported all free flight boys were having a tough time getting their models back. Trouble shooter Frank Ehling was called from AMA Headquarters to straighten things out. Rumor

has it that Frank bought a field of oats. Who sez AMA doesn't give a darn about free flighters??

Talk about dedication to the old timer movement, Luis Rodriguez came

all the way from Puerto Rico to fly three models. He not only came prepared with good flying models, but had his own gang of helpers and retrievers . . . how about that?



Ed Goretzka, also from the Baltimore A.C.C. Club, and his R/C Clipper Mark II



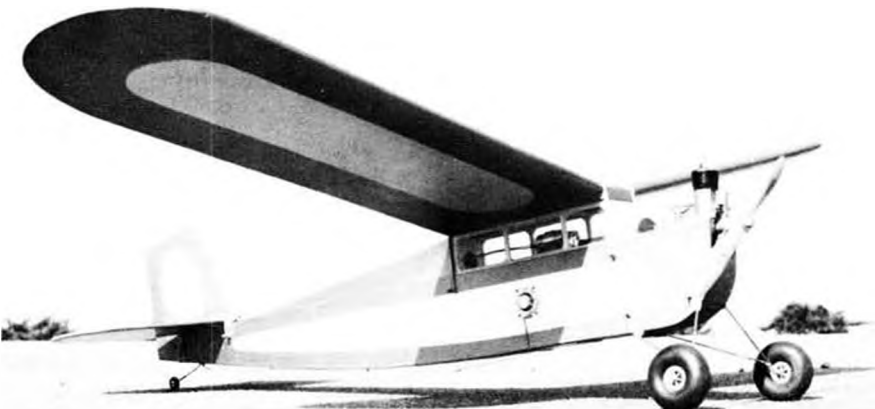
John Hammond and his Forster .29 powered Berkeley Buccaneer.

If you don't succeed the first time, "Try, try, and then try some more," seems to be the solution by Ted Katsanis. Despite the tricky wind gusts, Ted was able to fly his fragile Boomer Bus very successfully all day. About time! Talk about the original hard luck boy, those blasted gull wings were forever tearing off. True grit!

I guess this old man is getting senile, but to him the most devoted couple he has ever seen on the field are Nan and Sal Taibi. Shortly after Sal's retirement from the Naval Undersea Laboratory, the writer received a postcard from him, "John, I don't know how I ever found time to go to work." This seems to summarize their whole attitude toward life. Sal and Nan were simple delightful

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The "TRENTON TERROR"



Old Timer Model of the Month

Grab a large handful of 1/4 square balsa sticks and you have most of the materials required to build this model that was featured in the April, 1938 issue of "Flying Aces." Designed by Mickey DeAngelis, the fuselage longerons and cross pieces, the tail surface framework, and all wing spars were of this standard stock.

Though never a big contest winner, the design has long been popular because of its low building cost and simple, clean but squarish lines. The sample in the photo was built by Phil Bernhardt's mother, Marge, and it was only her second model! Easy to trim and fly, it makes an excellent beginner's OT ship. It's also a perfect subject for Old Timer R/C, using rudder, elevator, and throttle.



Mr. Smoothie, built by Granger Williams for the Scale Rubber Speed event. Fuselage carved and hollowed from a solid balsa block.



Rudy Calvo built this Ryan ST from a Tern kit. It turned 3:40 through the speed trap.

PHOTOS BY FERNANDO

FREE FLIGHT SCALE

● The Flightmasters staged their 3rd Annual Rubber Power Speed Event at Palomar College in San Marcos. There were two events; one for scale aircraft and the other for non-scale. The course is 88 feet long, and if a model can zing through the traps in one second, it would be doing 60 mph.

The past two speed contests saw very few models flying the course with any regularity. In fact, if a model could fly reasonably straight, regardless of the speed, one had a chance of winning or at least placing. Not any more. Both the scale and non-scale models were flying

extremely well. In non-scale, nearly everyone who entered a model, qualified. Bill Warner had a top time of .89 seconds, which is close to 73 mph. Bill Hannan was 2nd with a run of .99 seconds, and Jack McCracken (who won first in rubber speed at the Nats) came in 3rd with a time of 1.13 seconds. Jack launched his model from a bench and didn't take advantage of throwing it through.

It would appear that 88 feet for non-scale models is too short. Some contestants were throwing their models nearly that far. I personally feel for this part of the speed event that the course should be the same as used in the unofficial rubber speed event at the Nats. That is, 200 feet in length, plus a take-off from some sort of ramp. Two factors are eliminated by doing so. The contestant cannot throw his model for an advantage, and it gives the timers less room for error. With an 88 foot course, the models are flying through the traps so quickly that it is difficult for a timer to really differentiate from, say .89 and .99 seconds.

In the scale event, many contestants were getting their models through the course, but with more difficulty. Eighty-eight feet is still plenty rough on the

By FERNANDO RAMOS

scale airplanes. Hand launching remains a critical aspect of the scale event. Even if a model has been test flown repeatedly for straight and level flight, you can rest assured that if you don't let go of the model precisely, it will end up going straight up or straight down. For this reason, I would prefer to see them R.O.G. from some kind of ramp and leave the course length at 88 feet. Obviously, there is room for discussion on this last comment.

Bill Hannan had a very unusual model of a Farman/Farman. It flew very well once he took the turn out of the



Jack McCracken releases his speed ship that placed 1st in the Nats rubber speed event.



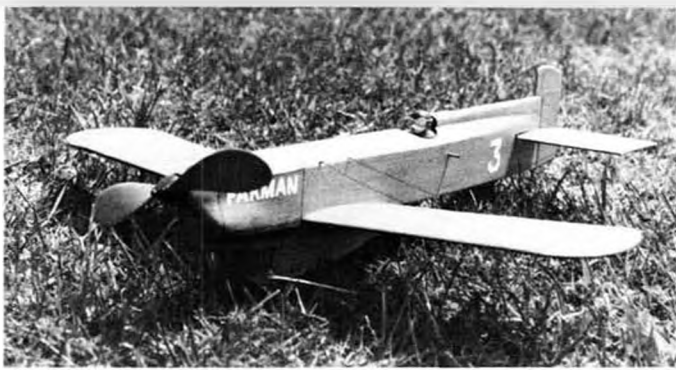
Granger Williams launches his Mr. Smoothie for a run through the speed trap.



Jack McCracken's beautiful Curtiss R3C Schneider Racer was built to be entered in a new event for this type model. Not yet trimmed out, it did not qualify. Bill Stroman's PC7 was winner.



Jack Elem, major source of Southern California's smog, launches his "El Tabasco."



Bill Hannan's Farman/Farman. Boonetown's WW I hero came out of retirement to fly it!



This Mr. Mulligan was built from the Sig kit by John Oldenkamp. It placed 5th in Scale Speed.

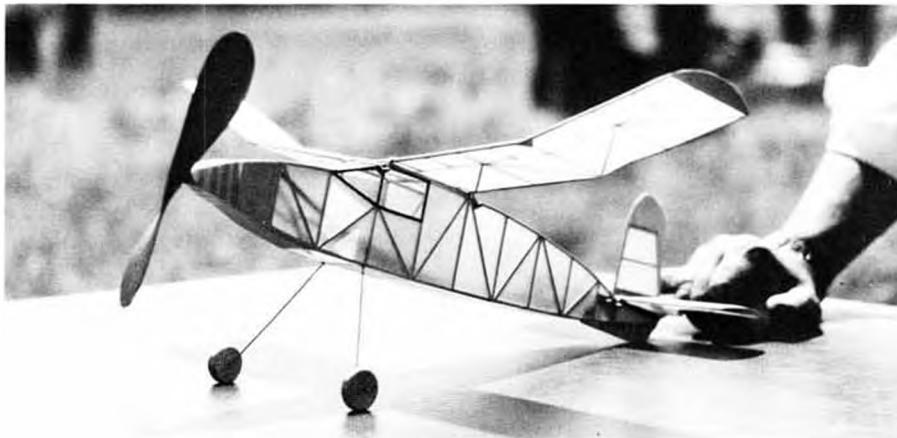
model. Bill's best time was 2.8 seconds. He also had top scale points. Granger Williams had a great flying Mr. Smoothie. Instead of the usual built-up fuselage, it was carved and hollowed from a balsa block. Granger's best time was 1.61 seconds, good for second place. Third place went to a joint effort of Bob Haight and Bob Mikelson of Las Vegas, with an unusual French design, Lignel 20. This model was considerably larger than any of the other scale models, and

it flew extremely well. Their time was 3.07 seconds. There were a couple of Sig Mr. Mulligan's, one by Bill Warner and the other by John Oldenkamp. They took 4th and 5th respectively with very fine flights.

In order to develop additional interest in the speed event another category was added. It was for Schneider Racer type models. The requirement for this special attraction was that the models had to R.O.G. (in this case rise-

off-grass). Unfortunately, there were only two entries in this super-specialized event. One was a beautiful Curtiss RC3, built by Jack McCracken, which did not qualify this first time out, and the other was a very unusual model of the PC7 built by Bill Stroman. Bill is noted for building anything that is definitely out of the ordinary. Bill was able to make half of the required distance after some trying experiences, and was therefore

Continued on page 56



Embryo Endurance design by "Peanuts" O'Dwyer looks like it might grow into being a Korda Wakefield some day. A Peanut Korda?



Insignia of the Flying Aces' Embryo Endurance event, the "Amiable Amoeba."

EMBRYO ENDURANCE . . . By Capt. Dave Stott. The Chief Cook and Bottle Washer at Flying Aces GHQ clues us on a new contest category!

● Embryo Endurance is a new, small-field rubber event that is climbing like a homesick angel in popularity since being introduced a few years ago by the Flying Aces Club. It is a swell chance

for daredevil designers to droodle over drafting boards as they conjure up cumulus cuddling crates to fit the simple specs.

The more scientific modeler, in favor

of cleaner lines, may pass up the bonus points given for a cabin or cockpit that is sure to attract the sport styler. The average span for these little sky cruisers is 18 inches. Weight? About an ounce without a butcher's thumb. The runway is a card table! Once the little job is

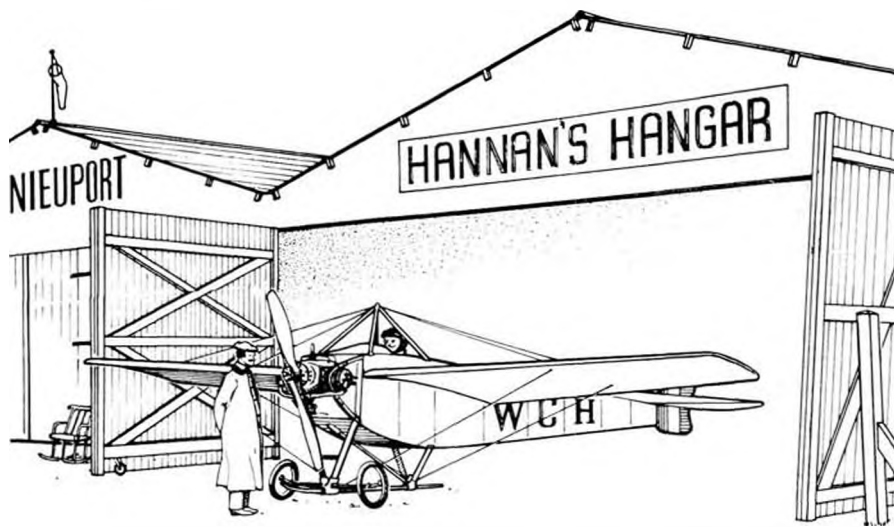
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The ultimate in simplicity can be seen in Ed Novak's model. A real floater. Note the lightened wheels . . . Really!



Can you see the profile pilot (worth 5 extra points) reading Bob Bender's palm as he awaits takeoff?



Granger William's large R/C Nieuport 28 fits easily in hatch-back Pinto. (See text.)

... being a collection of aero items which just don't quite fit elsewhere.

SLOVAK HORNS IN

Superdetail scale buffs have a new challenge! Now that retractible landing gear, flaps, operating lights, instruments, etc., are almost commonplace, everyone seems to be seeking fresh horizons to conquer. For a while, the weathered finish seemed to be the final touch, but that too has become almost a cliché, as have many flight operations, such as bomb dropping.

Enter Mira Slovak, the famous stunt

pilot and hydroplane racer, who has equipped his Bucker Jungmann with a musical horn adding yet another dimension to an already spectacular aerobatic routine. Picture, if you will, this beautiful biplane trailing air-show smoke and doing a Lomcevak, accompanied by musical notes loud enough to be heard above the din of the engine!

POND INTRODUCES NEW WRINKLE

John "Mr. Old Timer" Pond, famous for his model plan collection, now offers

accordion-type folding of plans, at no extra charge. Drop him 75 cents for his latest list, which includes many scale model as well as old-timer designs at: 139 "B" Street, San Marcos, Calif. 92069.

GESAVIN DER FINGIES

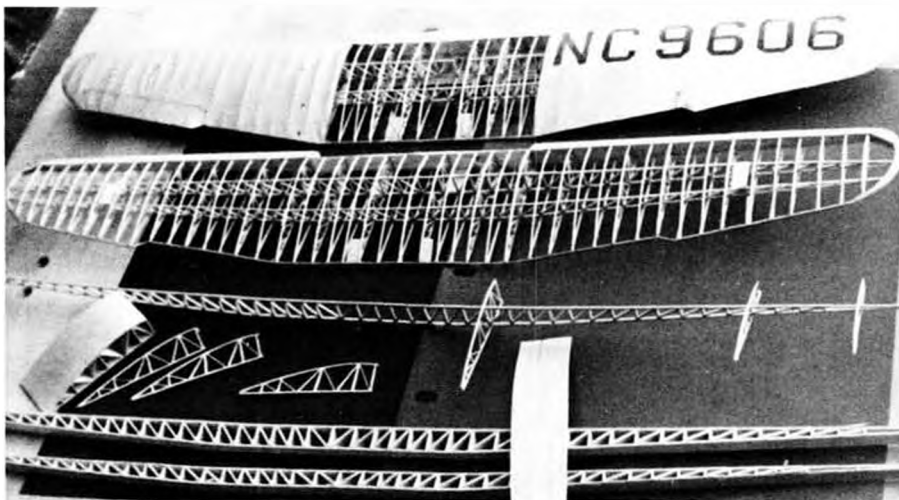
Abstracted from an instruction sheet to Bob Haight, of Las Vegas, authored by Bill Warner, are these handy hints for protecting your pinkies whilst operating model aero engines:

1. Wen gestarten der modellflugmotors, gepullen back der whole mitt after der flippen.
2. Nicht geschitcken der fingies back in der propen van modellflugmotor ist geschpinnen aroundt.
3. Uptaken der rubberfliegemodells.
4. Learnen to geflippen der propeller mit die toesies.
5. Haben der hausfrau flippen der propeller.
6. Gepurchasen ein chickenstick.
7. Schticken der needlevalven in der tailfeathers.

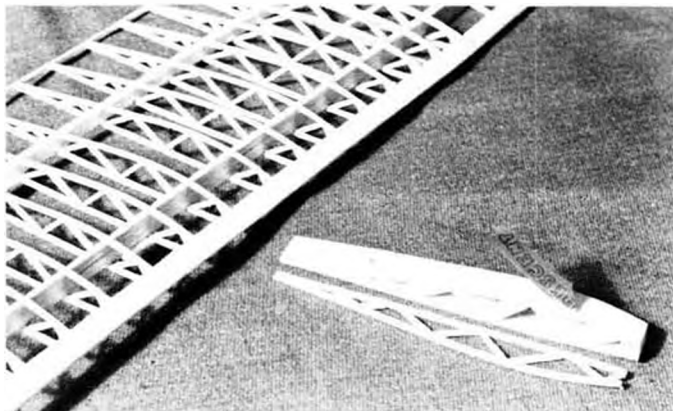
AVIATION FLICKS REVISITED

Although we have always considered "Those Magnificent Men in Their Flying Machines" as the greatest aero movie of all time, certainly "Hell's Angels" must rank closely behind. It was our pleasure recently to attend a screening of this

Continued on page 59



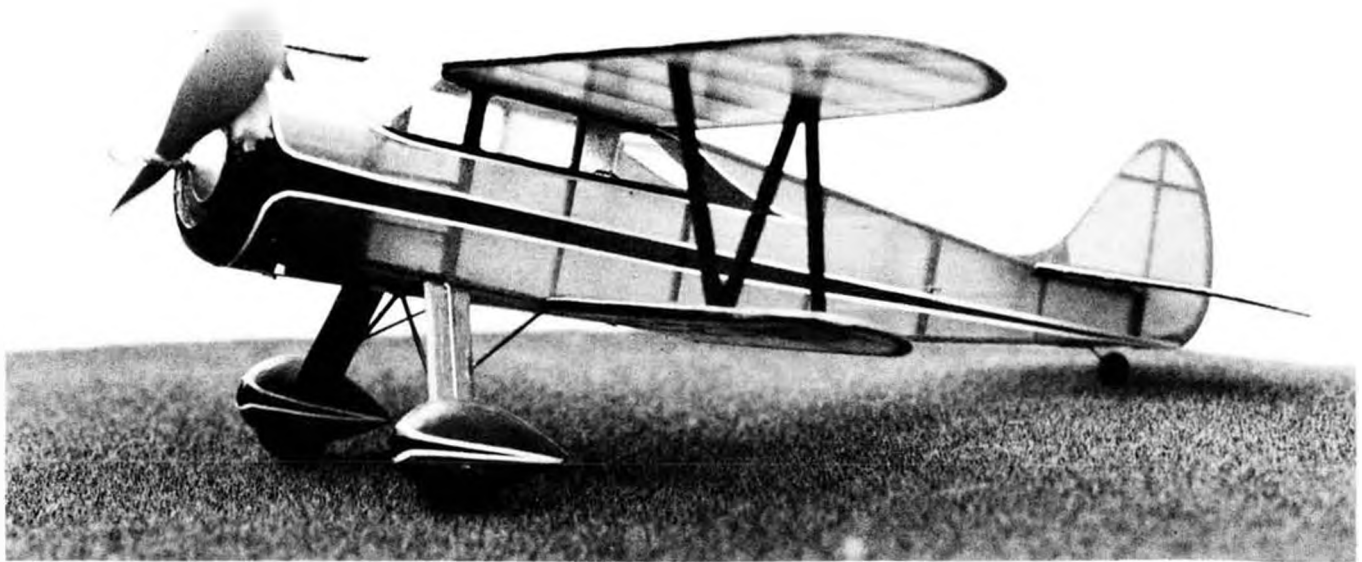
Fulton Hungerford (FH Spoke Wheels) has a production line of Ford Tri-Motor wings. Would you believe he has chronic hiccups? ... You wouldn't? ... He doesn't.



This close-up photo by Bill Warner gives away the secret of those "built up" ribs by Hungerford. You still better not have hiccups!



If Richard Miller keeps this up, he may get the 'hang' of it. This is the oldest, still flyable, "Jib-Sail Rogallo."



The SRE had the most pleasing lines of all Waco cabins. Model flies well.

Peanut WACO SRE

By WALT MOONEY. Our author seasoned this month's article with a discourse on how to choose an airplane to build a model . . . of.

● The final Waco biplane design and probably the ultimate in cabin biplane configurations was the graceful Model SRE. After a long series of Waco cabin biplanes that used a compression strut to take flight loads, Waco used flying wires on this model. Most of the older models had a multitude of formers and stringers that bulged out the fuselage, but this model was almost square in

cross section aft of the wing. This Waco was also longer than the earlier cabin models and therefore lends itself better to modeling.

The classic color scheme is also modeled in this peanut scale. The base color is red, the trim and number color is black and there is white pin striping between the black and the red. Other color schemes were used but the one

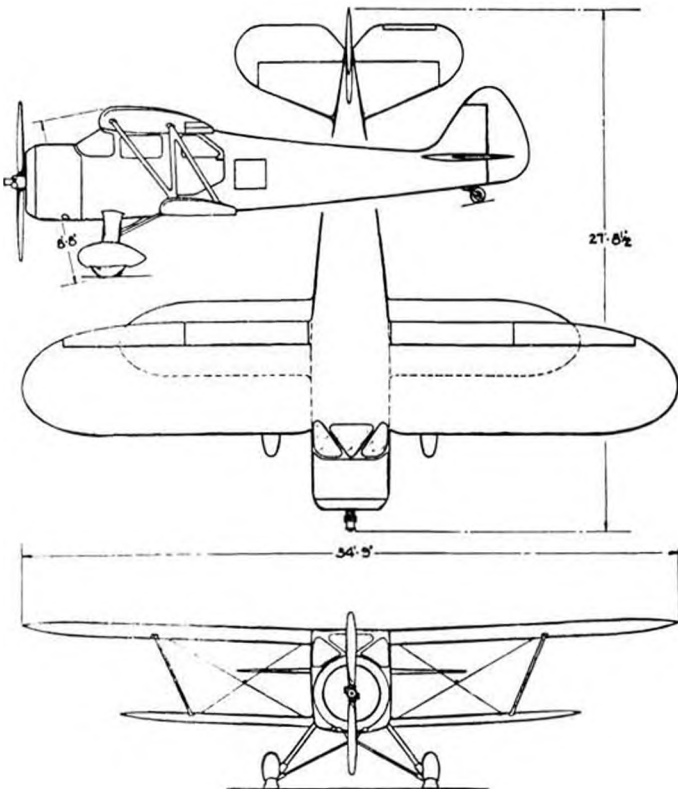
ACHTUNG ! ACHTUNG ! ACHTUNG !

If you build last month's Piper Vagabond from the magazine plans and try to enter a contest, you'll be in deep yogurt! Through a bunch of strange circumstances (goofs), the wingspan came out to be 13-3/8"! We've had the printer make up a batch to the correct size. Drop us a SASE if you want a free copy.

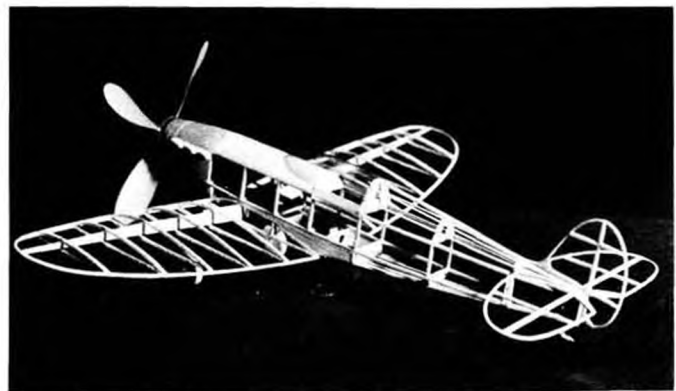
shown was the factory pattern.

Intentional deviations from exact scale include a larger propeller, more wing dihedral, and the omission of fuselage stringers aft of the cabin. The stringers were not very apparent on the real airplane so they are no loss on the model. The tail surfaces are scale. During the design stage it was hoped that

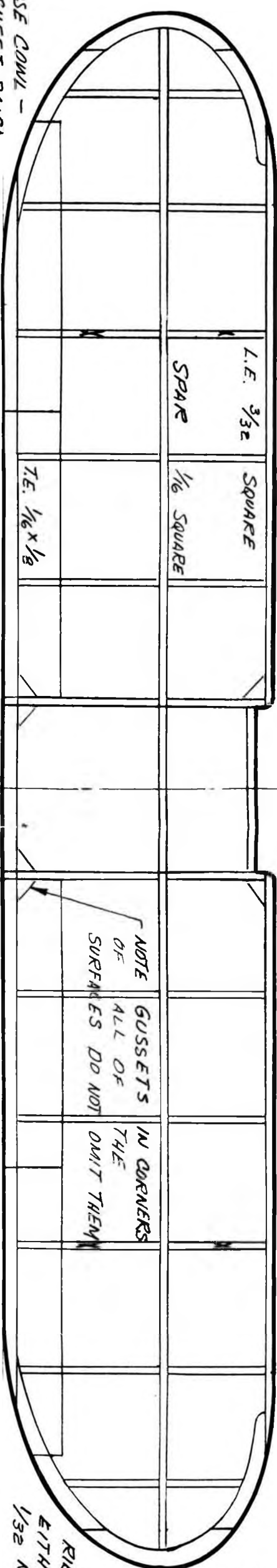
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Hard to believe this is only a 13" span model. Seems much bigger. Ship is red, with black trim and white pin striping.



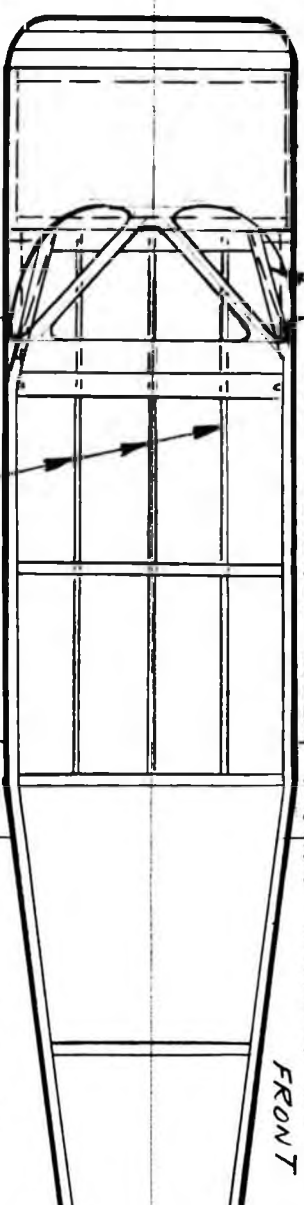
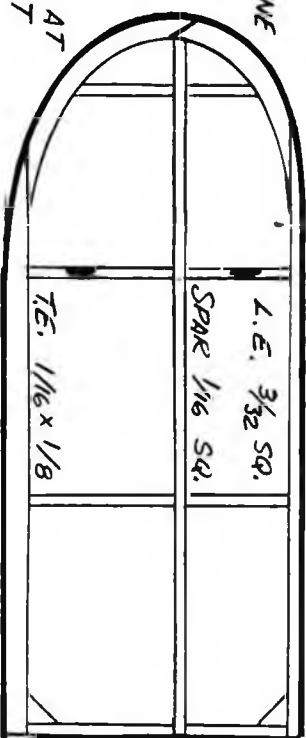
And here's our teaser for next month, the "bones for Henry Jones" of the Supermarine Speed Spitfire.



ALL SURFACE TIPS ARE CUT FROM 1/16 TH SHEET GRAIN GOES ALONG THE LENGTH OF EACH PIECE. RIBS CAN BE EITHER 1/16 TH OR 1/32 ND SHEET BALSA.

NOSE COWL - 1/8 SHEET BALSA WRAPPED AROUND FORMERS 1 & 2 WITH (3) LAMINATIONS ON 3/32 ND BALSA FOR ROUNDED FRONT END OF COWL

TRUE SIZE STRUT PATTERN - STREAMLINE SECTION BALSA - OR CUT FROM 1/8 TH PLYWOOD

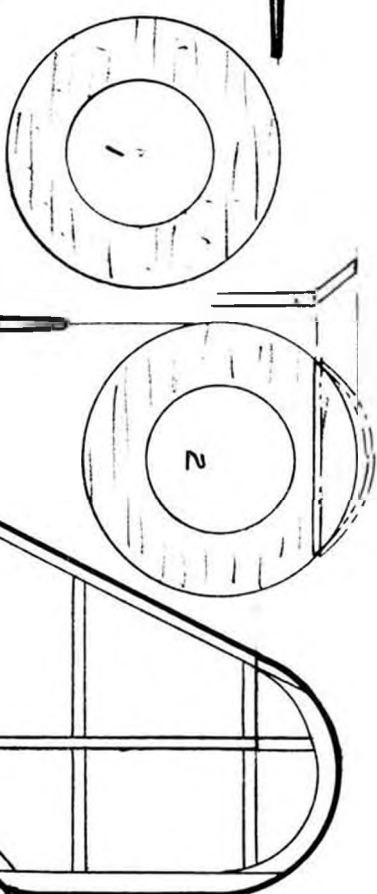
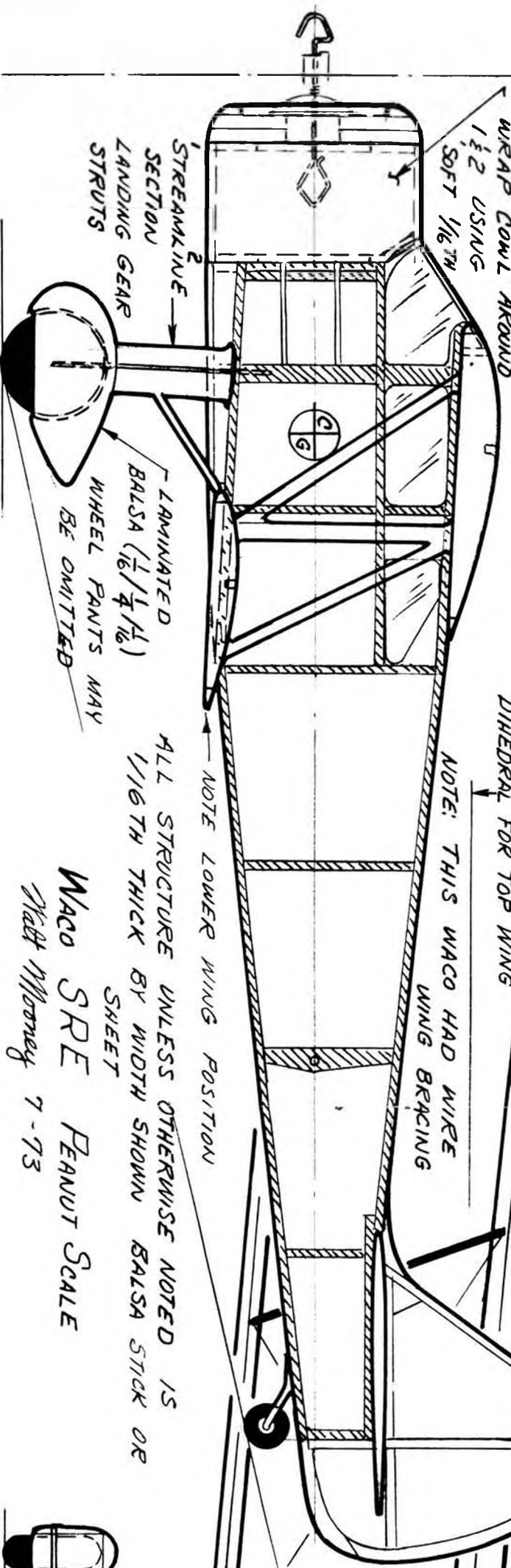


WINDSHIELD PATTERN

USE A PLASTIC PROPELLER CUT DOWN SLEEK STREAK OR YOUR CHOICE

DIHEDRAL FOR TOP WING

NOTE: THIS WACO HAD WIRE WING BRACING



STRUTS AND FAIRINGS ARE CEMENTED TO FUSELAGE BUT NOT TO WIRE OR WHEEL PANTS

LANDING GEAR WIRE 1/32 DIA.



PHOTOS BY EDITOR AND DAN PRUSS

Randy Warner launches his own-design "Bubble Dancer" (a future MB construction article) as Kelly Pike watches. Kelley swears that he takes that hat off before going to bed! Both are members of the Torrey Pines Gulls.

R/C SOARING

By LE GRAY

The R/C Soaring Nats CD switches to the contestant's side of the ledger for this review of the 1973 LSF Soaring Tournament. A couple of startling innovations by CD Le Gray set the pace for future meets.

By DAN PRUSS.

In early August, when the announcement of the 1973 LSF R/C Soaring Tournament was received, this would-be contestant had to read one section of the bold print several times to comprehend what Le Gray, the contest director, and the Western Soaring Council really had planned. Along with the established norm of pre-registration came a couple of bombs. Introducing:

- 1) Open task competition . . . pilot declares task *after* takeoff.
- 2) Open flight order . . . no formal

flight line schedule.

Now it must be realized that it has taken a couple of years to evolve flight line discipline, contest-timer coordination, winch usage . . . not to mention task programs . . . into a sort of regimentation that would make the old gestapo envious. Now here comes Le Gray telling 100 contestants to fly when they want and to fly what they want! Being somewhat perplexed, I left for the tournament less as a contestant and more as a consoler of the afflicted. Le Gray . . . you gotta be helped . . . if I can just

get to you before the lynching mob.

Friday night, August 24th. Pilot briefing:

The persistent rumor that the tar was at its melting point and a sack full of feathers was in the back room awaiting the arrival of the C.D. was just that . . . a rumor. No evidence was ever found. With all the aplomb of a lion tamer, Le conducted the briefing, discussing the ground rules, and answering some very unusual "what ifs." The open tasks and flight orders were further explained:

- 1) The tasks were to be flown; two



Overall Champion of the 1973 LSF Tournament, Andre "Buck" Faure, another member of the Torrey Pines Gulls. Ship is his own-design "Presbyterian," looks much like a stretched Windfree.



Last year's winner of the LSF Tournament, Barbara Henon, with her AS-W17.



John Donelson, R/C Sailplane Advisory Comm. member for Dist. X, placed 7th overall with his Windfree. Bob Hahn launches.



John Baxter launches Hugh Stock's Soarcraft Glasflugel 604 scale entry, as Hugh thumbs the sticks. Available from Windspiel Models.



Malcolm McDonald's HP-14 scale entry earned most static points, had excellent cockpit detail. Needed more trim flights. RS radio.



Static judge Tom Laurie surveys the situation in the scale "cage." Lion's Club had superior hamburgers at stand in background.

minute precision, with graduated runway, and a speed/distance task which would be in effect a mile cross-country.

- 2) Contestants, when they elected to fly, would enter one of seventeen flight lines (one line for each frequency). If the contestant was first in line he proceeded with a timer/contestant of his own choosing to the winch area. The C.D.'s and winch master's initialing of score cards would keep all lines orderly and legal.
- 3) Contestants would have the option within one minute after two



Scale winners (l to r): Col. Bob Thacker 3rd (Wik Kestrel), Dave Shadel 2nd (Astro Flight AS-17) and Hans Langer 1st (AS-W15). LSF President and Tournament CD Le Gray looks for next list.



"Heck with this noise. I'll have an invitational contest in my back yard and just invite the cats!" MB editor's Dart II with Micro radio.



The Ka-6 finally found a niche! It was a top contender in the One Mile Goal Distance task. This one is Jim Pike's. Used 12V winch.



Torrey Pines Gulls took the Team Trophy. (l to r): Buck Faure, Jim Haldy, Randy Warner, and Kelly Pike.



Overall Trophy winners (l to r): Jim Haldy 8th, John Donelson 7th, Ken Wagner 6th, Rick Walters 4th, Frank Finney 3rd, Kelly Pike 2nd, Buck Faure 1st. Wire sculptured trophies by George Poppa.



Winch meister Jim Harvey did not fly so he could devote full attention to the job. These standard winches made by Buck's (Faure) Soaring Supplies. See more in "Over The Counter."



One airplane for all jobs! Hans Langer's AS-W15 placed 1st in scale, also 7th in Goal Distance. Has rudder, elevator, ailerons, flaps, spoilers, retract gear, and kitchen sink. RS radio does it all.

line release to declare the task that would be flown.

- 4) Contestants would fly at least three rounds on Saturday to be eligible for competition on Sunday. Contestants may fly up to six rounds on Saturday.

Although the briefing was thorough it still wasn't convincing to all contestants that this new system would work. Saturday morning, August 25th:

The sun came up on schedule. This in itself should have been a good enough

omen to the skeptics that Someone was on Le Grays's side. After a short last-minute briefing and weather report the contestants took to the flight lines. Scott Allen, from Sacramento, California was first in the air and the contest was on. Soon, flyers were forming queues at each designated flight line. More and more took to the air. At approximately 8:00 A.M. someone thought they saw Le smile. Was he gaining confidence?
8:15 A.M.

This reporter, flying on 53.2 Mhz, had only two others on the same frequency, so no congestion was felt. For that matter, with a restriction of eight flyers per frequency, all flight lines began moving at a slick pace.

It should be pointed out that in selecting timers, no one contestant could act as a timer more than once for one

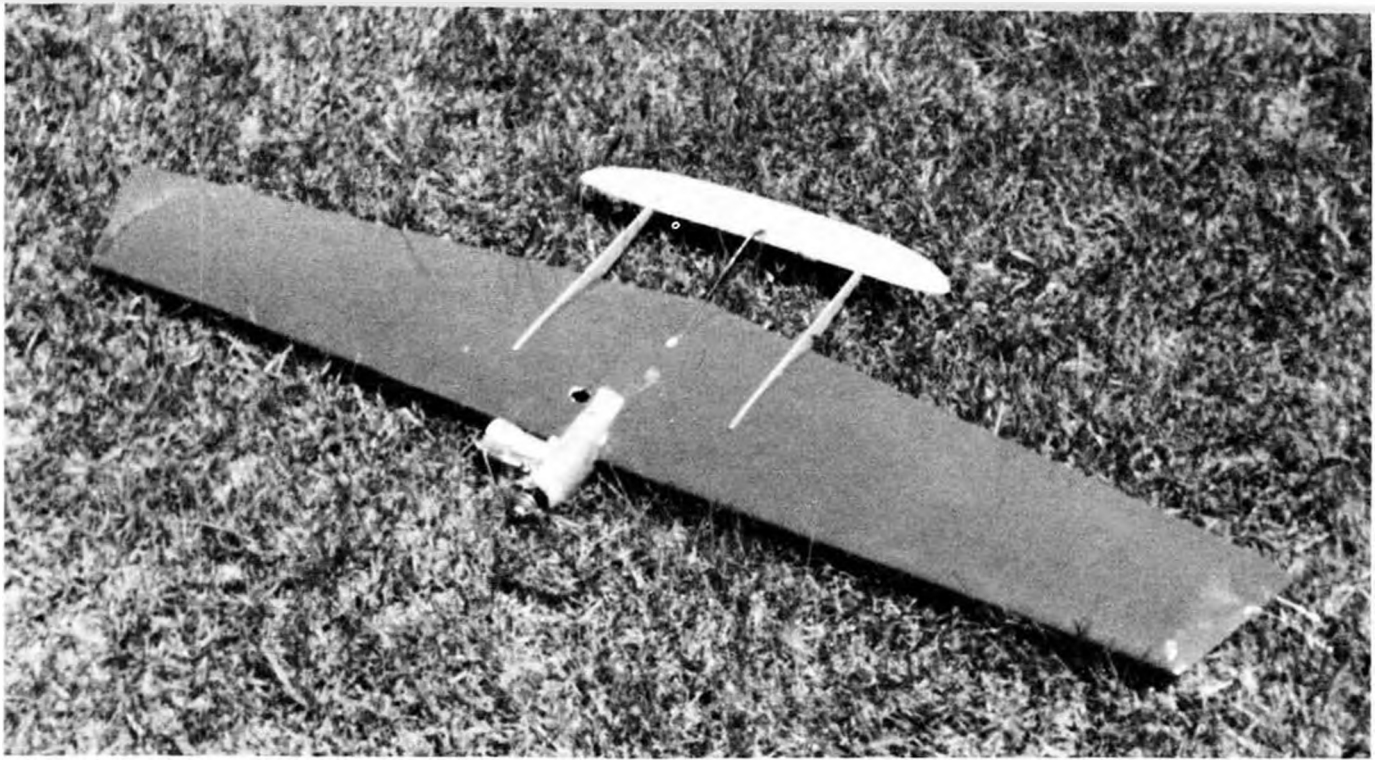
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Kirk Hansen's "Products in Use" (July '73 MB) Astro Flight AS-W17, with Orbit radio, slides up to the line for 100 points in Precision.



Scoremaster George Steiner moments after completing all tabulating. Drop the net, Max!



Not many individual parts to this combat ship, and once you are set up, the wings can come off like a production line.

BUMBLE BEE for COMBAT

This is one combat ship that will go down . . . up in history. At the Oshkosh Nats it got away from Phil and flew O.O.S. directly overhead! Aside from that, this foam wing ukie builds and flies fast! By PHIL CARTIER.

● This plane is not the ultimate combat ship, but it does have a few things going for it, such as speed, maneuverability, ease of building and light weight. The speed depends mostly on the engine-prop-fuel combination that is used, but speeds of over 110 mph with a streamer are easily obtainable. Of greater importance is the less than usual loss of speed in tight maneuvers, even when propped for a high level flight speed. The relatively high aspect ratio wing is used to decrease drag build up in the turns and is combined with an airfoil that has good drag characteristics. The foam wing provides easy building. There is less than half the usual number of pieces in a typical balsa combat plane. The foam also contributes to an extremely light but strong structure. The total airframe weight is usually 7 or 8 ounces. When combined with a Supertigre G21 .35 the final weight is about 17 ounces.

"Now, to the cellar, slave!" Speak thusly to your trusty helper and prepare to cut the wing cores. Our R/C brethren have developed some good techniques for this which I have freely adapted. The basic essentials are a low voltage, high amperage power source, a cutting bow, low table and foam. I use a model train transformer and .020 music wire in the

bow. If you don't like to fiddle around, buy a hot wire outfit. I can't afford to.

Begin by tracing the root and tip templates onto 1/8 inch ply; cut them out and sand smooth. Make them precisely symmetrical in outline by drawing around the template on a sheet of paper, flipping the template over and checking how well the outlines match. Sand where necessary and repeat until the outline of the template is symmetrical. Careful initial cutting will minimize the work necessary to get good, symmetrical templates. Apply the guide numbers and other markings to both sides of each template. Drill two holes on the centerlines for use in mounting the templates to the foam.

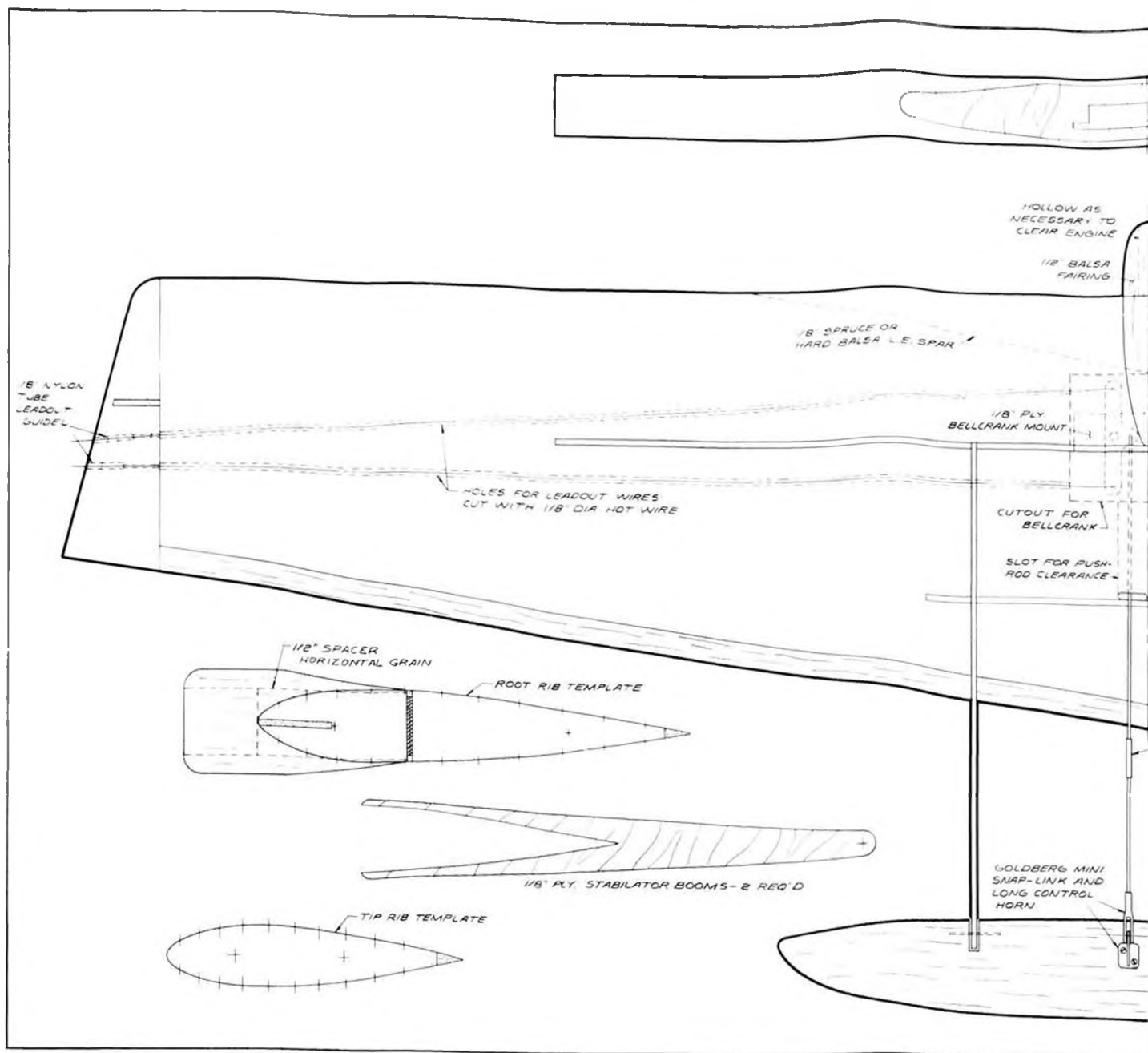
Square up one corner of the foam block. Most large lumber supply houses carry a bead type styrofoam of about 1.8 pounds per cubic foot which works well. Tape and block the foam to the work bench, taking care not to bend it. Add shims, if necessary . . . don't force it to lie flat. Most commercial blocks are warped. If the block is bent straight before cutting the core, the resulting wing will have a bend in the middle.

Pin the templates to the foam, using large finishing nails. Make sure centerlines are parallel to work bench top.

Line up the leading edges of the templates about 1/16 inch from one edge. Start cutting at the leading edge, going quite slowly and using the guide numbers to keep the wire lined up. Cutting speed should be about 1/10 inch per second. When cutting the matching core, pin the reverse sides of the templates to the foam. This will keep the



The author with some of his combat ships. Solarfilm will go on foam without damage.



same surface of the templates on the top of the wing, balancing out the effects of any slight irregularities between the surfaces of the templates.

Make up two spar slot cutting guides from 1/8 inch ply that will give a slot that is a tight fit on 1/8 inch balsa. Different hot wire apparatuses will require slightly different guide spacing for the correct width slot. Cut the spar slots in one core and use it as a guide for marking and cutting the other core.

Cut a hole for the penbladder compartment in the right panel by heating a piece of 1/8 inch music wire nearly red hot and melting out a six and one half inch deep hole about one and a quarter inches in diameter. Also saw off a 1/2 inch thick section at the root, back to the main spar, to make room for the motor mount.

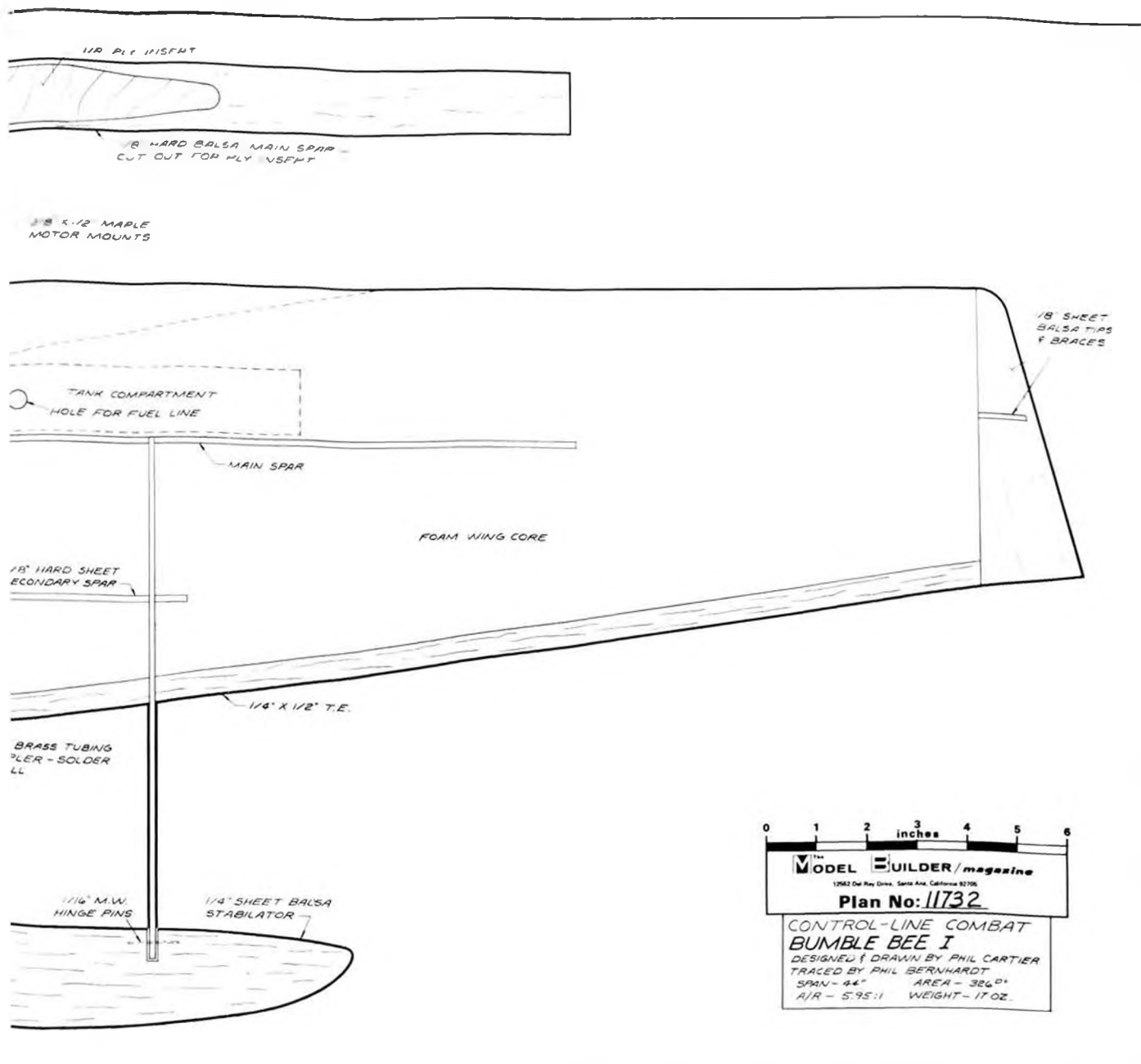
Make up two jig blocks for cutting the lead-out holes. Tape these about ten inches apart on the bench. Line up the core with them and tape down to the bench with a 3/16 inch block under the tip. Heat up the 1/8 inch wire again and run it through the wing, from tip to root, using the guides. It may require reheating to get all the way through. Use the same wire to cut out between the leadout holes at the root for the bellcrank. Now sand the cores thoroughly using 220 and then 360 paper.

Make up the motor mounts. The grain in the spacer must be horizontal, because the motormount-spar joint is subject to very substantial vertical forces which fracture the wood if the grain is vertical. Cut out the remaining pieces. Make up the bellcrank and epoxy to the spar joiner.

Trial fit all the pieces together, cutting and sanding if necessary to get tight joints.

Epoxy the main spars into the cores and use tape to hold the joints tightly together while the glue cures. Tight joints require less glue and mean less weight. Thread the leadouts through the inboard core and glue the spar joiner in place. Follow immediately with the outboard panel, tape the whole mess tightly together and block up on a flat table to make sure that it is straight while the glue cures.

While the epoxy is doing its thing to the wing, sand the booms and carve the stabilator. Attach the stabilator to the booms by epoxying the hinge pins in slots in the bottom of the stab. It is a good idea to reinforce the hinge with a u-shaped piece of 1/32 inch music wire



epoxied to the booms. Just running the hinge pin through a hole in the boom is not strong enough.

Getting back to the wing, epoxy in the penbladder compartment, the motor mount, leading edge spar, secondary spar and the trailing edges, again using tape to hold the joints tight. Add the tips, bracing, and nylon tube lead out guides. After allowing the epoxy to cure, sand everything smooth, taking off all the bumps and rough spots. Vacuum the wing thoroughly to remove all the dust from sanding. This allows the covering to adhere better. Cover the model with Solarfilm, Fascal or Mylar. I prefer Solarfilm because it shrinks at a low enough temperature that the foam is not melted. Fascal and Mylar require higher temperatures, so shrinking them after application to the

FULL SIZE PLANS AVAILABLE — SEE PAGE 72

foam is quite tricky.

Poke small holes through the covering where the booms go and epoxy the tail in place. Hook up the controls and adjust for about 15° of movement in each direction. Coat all wood surfaces with three coats of urethane varnish, sanding lightly between coats. Install the engine and check the balance point. If necessary, add weight to put it where it belongs. The point shown on the plans gives a stable airplane that does not jump around. Make one last check for warps before heading for the field. They can be removed by judicious use of the iron and a little pushing. Heat the offending spot and hold it in place while it cools.

It doesn't make much difference what kind of weather you test fly in.

Just be on your toes at the launch and through the first few maneuvers. If the plane flies with one wing high or low, or lightens on the lines when turning in one direction, find the warp and take it out with the iron. If it lightens in the turns in both directions, epoxy 1/4 to 1/2 ounce of weight to the outboard end of the spar. If more than 20° of stabilator travel is needed for satisfactorily small loops, add tail weight. Narrowing the line spacing at the handle will cure jumpiness and overcontrolling, but first make sure the balance point is not too far back. This is unlikely though, because the design tends to build nose heavy. When it is trimmed out, it won't require constant attention to keep track of it, yet it will turn with

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Two 1/2A Air Racers built according to WAM rules. This event being promoted by Aeromodelers of San Jose.

Control line

By DALE KIRN

● A couple of months ago we reported that the San Jose, California Control line contest was handled by WAM. Just didn't have all the facts. It was actually put on by the 70 members of the Aero Modelers of San Jose. They are a member club of WAM and use WAM rules for

all contests. There is no doubt about their ability to put on a successful control line meet. This was their 18th Annual 4th of July Contest!!

1/2A TEAM RACING

Several types of 1/2A team race events are being started by many model

clubs throughout the country. The rules vary a bit, and even the title of the event (1/2A Mouse Racing, 1/2A Air Racing, Formula I and V, etc.) Event seems to be built around the plentiful Cox reed valve type engines . . . Babe Bee, QZ, Golden Bee and the new Black



K. C. Kellog, Phoenix, Ariz., with Torky. Left hand crank and prop. Tee Dee .049.



This Akrobat built by Ted Fancher . . . like it says on the fuselage! He's a member of the San Mateo .049'ers. Power is a Fox 35 with muffler. Weighs 51 ounces.



Steve Fauble goes for the 1/2A models in C/L. Here he has built 6/10 size versions of the Nemesis II and the Mongoose. Both fly very similar to the big ones.



Ron Ivaldi and his Hoyt Sidewinder jet. Turned 183.92 at recent San Jose meet.



This 1/2A Proto (Profile) plane is equipped with pen bladder, Kirn-Kraft front needle valve and prop. The single blade prop (5.2" diameter) uses a one-piece brass counterweight.



Winner of 1st in 1/2A Proto Profile in San Jose, John Wentz. Original design.

Widow. Some clubs are having two classes; one for the reed valve engine, one for Tec Dee type engine.

There was an unofficial 1/2A racing event held at this year's Nationals. The Formula V "Half-A" control line scale team race rules drawn up by the Cleveland Aeromodel Society were used. This event was won by the team entry of Joseph Harris and Mike Streiter of Laurel, Maryland. Of special note was the engine they were using . . . the new Cox Black Widow .049. This team also won first place later in the month at the Cleveland Air Races, with a winning time of 4 minutes, 23 seconds for 100 laps.

Full size plans for the Formula V planes are available from: Control Line Committee, Cleveland Aeromodel Society, P.O. Box 16091, Cleveland, Ohio 44116. At the present time they have plans for Bonzo, Midget Mustang, Cassutt III, Boo-Ray, Sweet Pea, Shark, Shoe String and American Yankee.

WAM already has rules for this type of event. They call it 1/2A Air Racing. The Aeromodelers of San Jose have been promoting this event for some time. The club has four full size plans

available. (Buster, Owl Racer, Rivets and Sweet Pea and La Jollita). Price is \$1.50 P.P. for the complete set, or 50 cents each. Send remittance to: Dick Letrich, 3686 Kirk Road, San Jose, California 95124.

MUFFLER REQUIREMENT

The Anaheim Model Airplane Club has passed a ruling that all model airplane engines flown at the Anaheim Stadium parking lot will have a "noise limiting device." This club is not an AMA club, but they see the necessity of passing such a ruling if they expect to keep this flying site.

A large flying site (Mile Square, Fountain Valley, California) was closed down to all model airplane flying last month because of noise complaint. The modelers who were using this site (mostly R/C flyers) were not required to use mufflers.

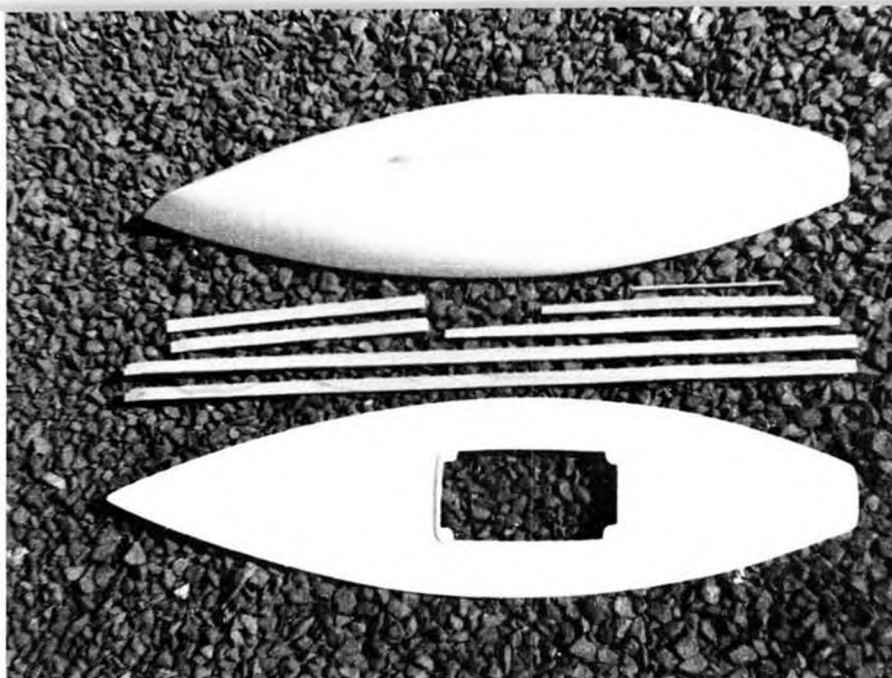
The necessity for using mufflers has been preached by a few dedicated modelers for several years. If you live in a large metropolitan area, you had better adjust your thinking to using a muffler if you want to continue flying. The only large national model airplane organization that requires its members



Rich Lopez and his Supertigre .35 powered Voo Doo.

to use mufflers (noise limiting devices) is WAM. The AMA has had this muffler controversy "under study" for several years, but so far, nothing has been done to require its members to use mufflers.

Continued on page 56



The hull and deck of the Tahoe 600 are molded in high impact polystyrene, as are the keel halves, hatch, and ribs. Properly joined, the parts are stronger than fiberglass.



Author, and AMYA President Don Prough with the completed test model Tahoe 600.

main sheet

By DON PROUGH

This month our sailing editor gives a product review on an interesting kit for a 36-600 R/C yacht, the Tahoe 600, by Victor Model Products. By DON PROUGH

● Are you tired of spending weeks getting your next project to the stage where you are ready to use it? If weeks of building is not what you want, and an R/C sailboat complete with winch and keel weight might be a good project, read on. For less than \$60.00 you can easily build a good handling 36 inch sailboat.

If that sounds near impossible, then you just haven't looked at the "Tahoe 600," produced by Victor Models. The kit for the hull comes complete, except for the keel weight, and if you have access to 5-1/2 pounds of lead shot, you can save yourself \$3.50. Including the lead shot, the price is still less than the previously mentioned total. The hull and deck are vacuum formed of high impact polystyrene. The keel halves, hatch, and ribs are also vacuum formed, while the rudder is laminated. The rudder is made by laminating two sheets of polystyrene together for the proper streamline shape.

OK, so the boat is inexpensive (not cheap), but how does it sail? From first hand experience, I can say that it sails as well as any 36-600 around. As with all model sailboats, it takes experience and tuning to get the ultimate performance. This model has no funny habits in either light or strong winds.

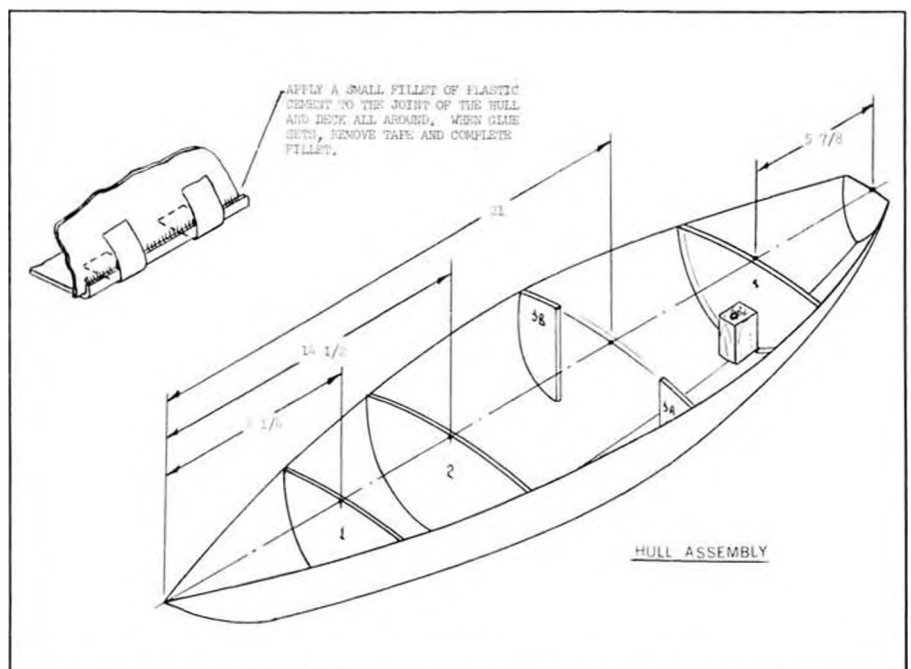
Enough of the general verbosity, let's get down to the specifics as to how

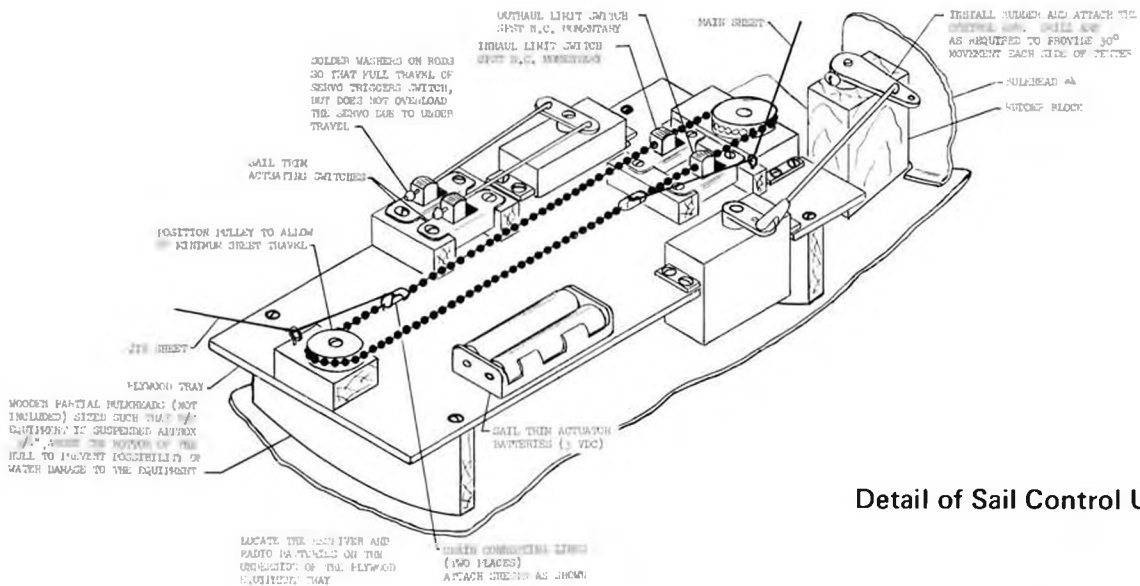
to build a model yacht from polystyrene, rather than wood or fiberglass.

First, a word of caution. You may NOT use polyester resins, acetone, dope, or lacquer in the construction or finishing of this kit! Epoxy, Methyl Ethyl Keytone and plastic model cement are the adhesives you may use in building. For painting the Tahoe 600, you may use enamels, epoxies and urethane paints.

From the time you open the kit

until you launch and sail the boat, there will be that nagging wonder about the plastic hull. If there is some doubt in your mind, you will probably not be the first. I teach fiberglass and plastics at the local Junior College and have seen wood and fiberglass projects subject to abuse that splits wood and cracks fiberglass. If there is a worry about this plastic hull, put it aside, for it can take as much or more abuse than wood or fiberglass.





Detail of Sail Control Unit

After looking at the kit and reading the instructions completely, to be familiar with the sequence of assembly, everything was done step by step as the instructions called out. The winch was built while waiting for the glue on other parts to dry. The mast was the first step completed, using four coats of urethane varnish. Reason for an extra coat of varnish on the mast and booms was the hope that the finish would last through the whole sailing season in San Diego's salty Mission Bay. The mast comes in four pieces, is laminated together with epoxy and tapered to a nice teardrop shape. The booms were already partially shaped to help reduce the construction time.

Mating the keel halves is the next step, and that was very easy to do. It just takes some sandpaper to rough up the surfaces where the halves are to be bonded, then apply glue and hold with masking tape. A word of caution: If you do not sand, the keel halves will come apart as easily as brownies come out of a greased cake pan!

The instructions suggest using white

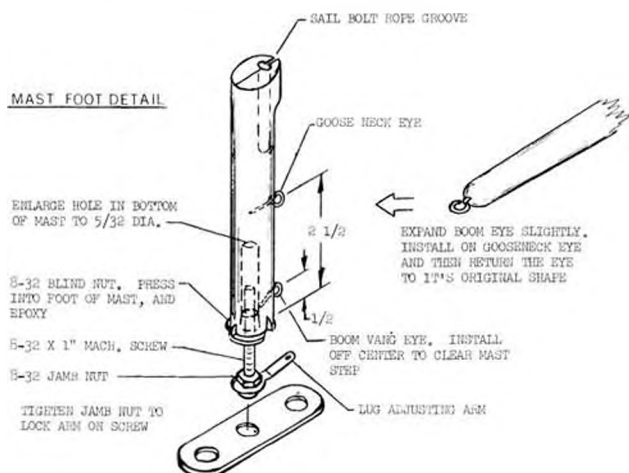
glue to hold the lead shot in place inside the keel. I chose not to use white glue, but rather epoxy glue. There is a reason that you were not told to use epoxy glue; if you just pour in epoxy glue, the heat generated in the cure will warp the keel halves. To avoid this, mix your lead shot with two tablespoons of Hobby epoxy Formula II in a one pound coffee can. After all of the little bits of lead shot have been coated just pour (if you can) into the keel and let it set upright. If you use more than that amount of epoxy, or some of the quick curing kinds, you will have a warped keel, and that is a guarantee. Now you may want to know the reason for not using white glue . . . I didn't have any!

Bonding the wood blocks to the deck is the next step, and that was done with Devcon 5 minute Epoxy. Again the surface was roughed up with 80 grit paper to insure a good bonding surface. To make sure that everything would stay in place after the glue was dry, I drilled clearance holes and attached the screw eyes for the rigging. The instructions suggest that you wait until after the

deck is bonded on to the hull . . . either way will work. The brass sheet exit guides that are provided work well, but in salt water they would have eventually looked green, so I replaced them with some black polystyrene round stock. These were bonded to the hull with methyl ethyl ketone. MEK is one of the best solvent bonding materials for polystyrene. I would suggest that you install the sheet exit guides in the deck before gluing it to the hull. This is so you can give the underside of the exit guide a good bonding with epoxy. I always believe in just a little bit of extra insurance, though it is probably not necessary.

The next step is to put the ribs in the hull and then glue the deck in place. The plans are very specific as to how and where the ribs are to be placed. To make sure that the ribs were in the proper position, they were tacked in place with liquid plastic cement. To do this a tooth pick was dipped in the liquid cement and spotted on only two surfaces, each about the size of a pin

Continued on page 66



Molded keel fits nicely into the bottom of the hull. Considerable care must be taken to be sure it is perpendicular to hull.



Start of the final Road Race of the 1973 Car Nationals. (l to r): cars belonging to John Thorp, Roger Curtis, Del Fisher, Mike Morrissey, and Arturo Carbonell. Mike Morrissey was Road Race winner.

R/C AUTO NEWS

By CHUCK HALLUM

● The 1973 R/C Car Nationals were held August 23-26 at Indianapolis, Indiana. Many records were set and some things happened that will be remembered a long while. Rain shortened practice on Thursday and Friday, so that most contestants got only one or two 5 minute sessions on the track to sort their cars before each event. The record number of contestants (121) and entries (285 actual race entries) caused all sorts of problems and headaches. The

1/8 scale oval racing event on Saturday consumed 11 hours to complete the two Amateur rounds and only the first Expert class round. This left the second round of Expert oval racing and both 1/12 and 1/8 scale road racing to be completed Sunday. So racing was started at 7:00 A.M. on Sunday and only one heat for the road racing events was conducted. Luckily, drag racing was completed on Friday between the rain storms and the practice sessions. Concours was judged Sunday, just before the 1/8 road race event.

After the rain, steam, and exhaust had cleared, Mike Morrissey was the 1973 Expert Grand National Champion, and Ken Morton the Amateur

Champion. Mike put together a 1st in 1/8 road racing, 2nd in the drags and a 3rd in the oval race. If Mike faltered in the final event, Arturo Carbonell, Tony Bellizzi, Gene Husting, and Del Fisher all had a chance. Final standings show Arturo Carbonell 2nd overall and Gene Husting, with a fine road performance, coming in 3rd.

In the Amateur Class, Ken Morton had a 2nd in oval racing, a 4th in the Sports formula drags and 5th in the 1/8 road race. George Lemke and Jerry Thompson were the 2nd and 3rd amateur overall finishers respectively.

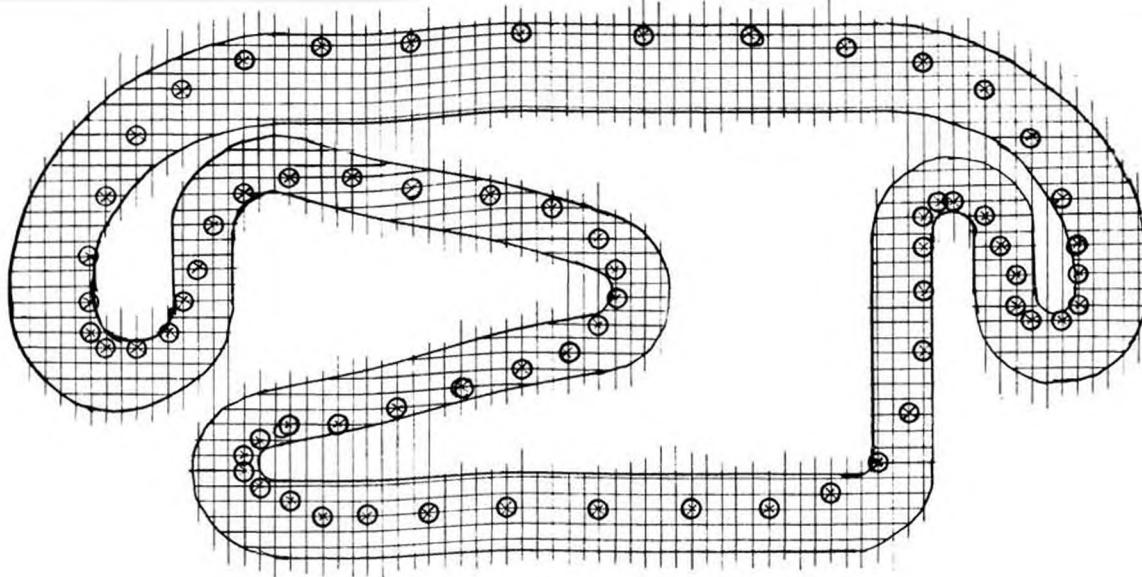
Rain during the practice days not only cut down on the amount of time that drivers could practice, but also did



Mike Morrissey accepts Expert Grand National Championship trophy, complete with certificate for one free hernia operation!



Partial line up of sports car class entries. Between the large turnout of contestants and the weather, officials were hard put to complete the whole program.



Driver's Platform

Correct (Pre-race) line around the road race course, as determined by using the "Road Race Game" described in the July 1973 issue of MODEL BUILDER. Several cars proved the theory to be correct.

not allow course traction to build up as it should have. The road cars didn't show the effects of the poor traction quite like the "roundy-round" (oval) cars. Road cars normally have much more aerodynamic force and don't show severe changes in handling when a little power is applied.

On Friday, after the rain and during road and oval practice, the drag races were run. This was on a separate race site on the opposite side of the shopping center. As with the rest of the cars, traction was a problem. Several fellows elected to go with a milder fuel, only to find that by the time they ran, the traction was improved. There are just too many classes to really go through the whole rundown. Two things mentioned by observers of the drags:

The fantastic engine of Tommy Fisher and the locked rear end starts of Tony Bellizzi. The RPMs generated by Fisher's engine left competitors wondering how it stayed together. I don't

think anybody got off the line any faster than Bellizzi, but a poor top end could not hold off competitors. The low E.T. of the day (3.40 seconds) was set by George Lemke in the Amateur Dragster class.

The traction was still poor when the first round of oval racing started. The best traction seemed to be on the inside half of each turn, about 5 feet wide. If you entered the turns wide or over shot 5 to 10 feet, you almost couldn't avoid going all the way to the wall.

During the first round of Amateur oval racing I thought Carl Petri, Ray Charbonneau, Jack Ulstad Jr. and Chuck Engle were taking the best lines. In the second amateur round the traction was picking up and the fellows with go power began to look great. Jim Cade was going like a bomb and went off like one when a wheel came off. Bill Steele, Ken Morton and George Lemke, with their power, also came on. But the lower power boys also pressed a little harder the second round. Ray Charbonneau, who blew an engine in

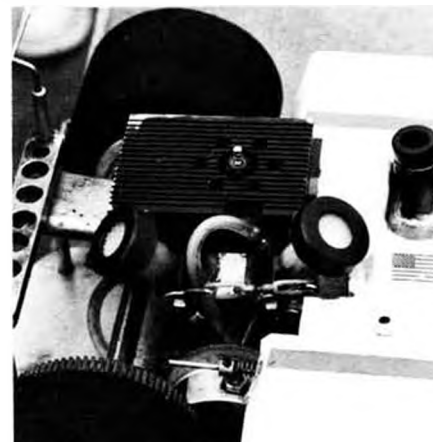
the first round came out and turned a fantastic 329 seconds. I really think Jack Ulstad Jr. would have taken second had he not flamed out. Engle knocked nine seconds off his time but Morton's 348 second time beat him by one second for 2nd place in the Amateur class.

In the Amateur oval racing, Ray Charbonneau always appeared to be the man to beat. During practice, his smooth driving and well handling car was impressive. Charbonneau's car used a differential on the rear end. When the car gets going fast enough to allow the inside wheel to lift, the differential lets the inside wheel slip, keeping the traction and cornering load on the outside rear wheel fixed (at least no increase in delivered torque to cut side force capability . . . I explained all this in last month's article on tires and cornering capability). Front end roll stiffness has to be quite important on cars with differentials, because it affects both front and rear traction considerably.

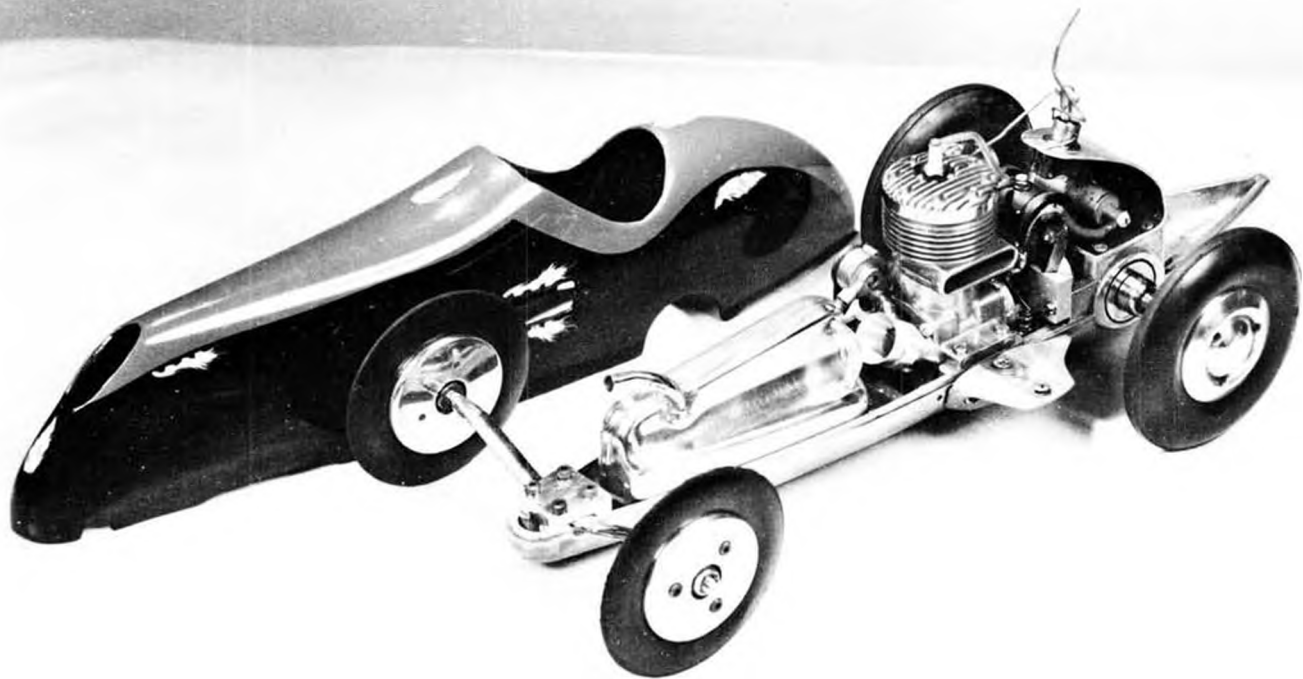
Continued on page 64



The well prepared contingent from Seattle, Washington, and their trailer "garage."



Del Fisher installed this dual carburetor set-up on his oval car.



Personal favorite of Franny Wolf is his Dooling .61 powered car which earned him World and AMRCA titles.

TETHERED RACERS!

By By TED MACIAG

● I feel that I have really arrived as an occasional writer of magazine articles. Just after the June issue appeared, I received my first irate telephone call from someone who felt that he had been slighted in these noble pages.

Bruce Underwood, who makes the Yellow Jacket engines, was unhappy

because I referred to all the engines that were patterned after the Dooling design as Doolings. Actually, since the Dooling hasn't been made in many years, several people have made copies of the Dooling parts in order to shore up the ever dwindling supplies of spares.

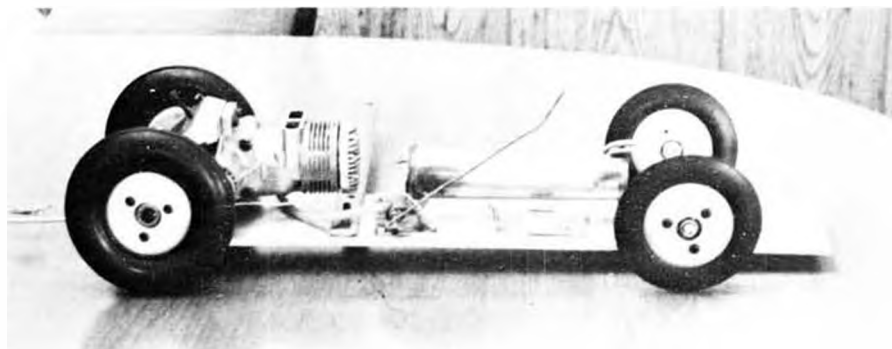
The most successful of these are the

Yellow Jackets. The Yellow case is a rugged, sand cast version of the lighter die cast Dooling. Externally it looks quite different, but all the Dooling parts fit inside. The extra heavy case helps to take the added horsepower that the Messrs. Dooling never dreamed of. Mr. Underwood makes all the parts necessary for a complete engine, and will sell an engine complete or any parts that may be needed. Since these parts are equal to, or better than the originals, most people running the Dooling use the heavy case and some of the other parts. Some use Underwood's complete engines.

The Yellow Jackets are also being used in boats, where they have proved



Unlike the usual dusty flying field, the atmosphere at the race track in Whittier Narrows, Cal. is very pleasing for the distaff side of the hobby.



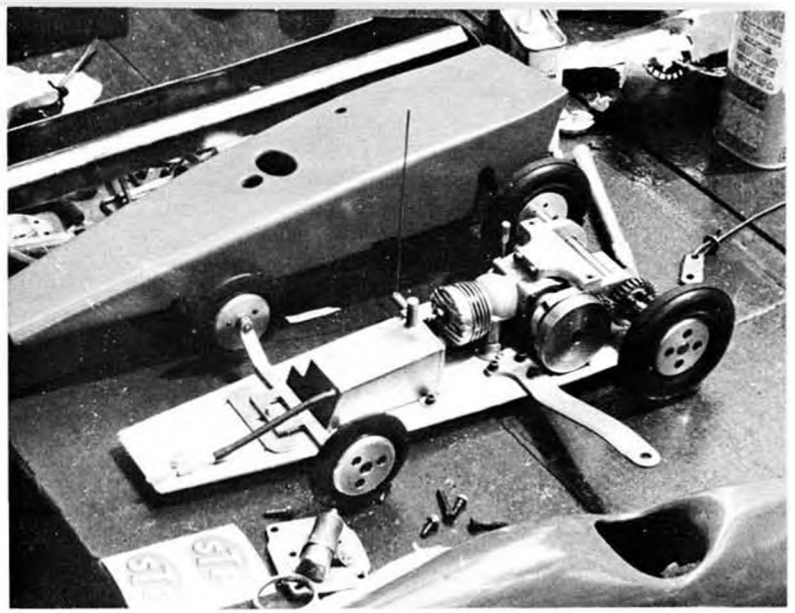
Bill Norton's "slab" type car is a new trend, so named for the heavy aluminum sheet chassis in place of the usual cast pans, which are more expensive. Super Tigre is mounted on McCoy



Norton's car with "wedge" type body installed. Note "dropped" front axle.



Lloyd Escontrias took this and the photo below at the 1946 International Race Car Association meet. Any one for identifications?



Another "slab car," this one powered by a Dooling on glow.

to be a tough competitor in any race.

Since the basic design is still Dooling I don't feel too remiss in my past oversight in not making more distinction between original and substitute.

Featured this month are pictures of the 1946 meet of the International Model Race Car Association. The race was held during the peak of interest in race cars just after the war . . . World War II, that is.

I would like to thank Lloyd Escontrias, one of the old timers who was there, for the photographs from this early meet. We found it hard to identify all of the people in the pictures so only a few of the well known names are mentioned in the captions.

At these early meets, competition was intense, with everyone guarding what they thought were the ultimate speed secrets. In most parts of the country, people were still running the

slower pre-war cars. However, at the big meets, all the hottest machinery would show up. Hornet powered "Dooling F" cars were popular in the proto class. The Mathews spur gear cars were big in their class. Even jet cars showed up. They weren't the fastest, but they made up for it in spectacular, noisy runs.

As with the modern races, all the big names would be at these meets. Even movie stars would appear for publicity.

These meets were not without the mishaps which occur at any race, either old or new. Lloyd recalls a spur gear car which broke the cable and seemed to just slide into the crash wall. The car looked to be not badly hurt, but when it was picked up, it was found that the only thing holding it together was the paint. The aluminum body underneath was completely destroyed.

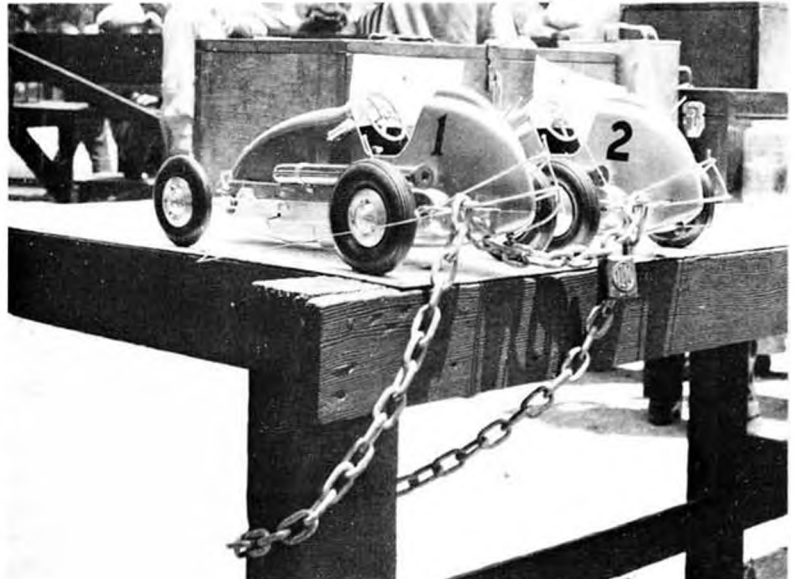
Another of Lloyd's memories was of Cliff Fox, who would check an engine

before he put a car on the track by running it up on a starter motor until it reached a terrible pitch. When asked whether it would hurt the engine he replied philosophically, "Well, if it blows it blows."

Just as with the old time airplanes, there is an interest in older cars that goes beyond nostalgia. In the late thirties and forties, getting a car to run was a challenge, and to see a car running around a track powered by its own gas engine was a thrill. I will never be convinced that all the modern improvements in engines and radio control adds more enjoyment to the hobby than in the days of gasoline engines and battery ignition. Progress in technology is inevitable, especially in a field where speed is paramount. Yet I question whether this progress brings more enjoyment of a hobby, and after all, enjoyment is what any hobby is about. ●



At the 1946 International meet, Dick McCoy, in the white smock was in attendance



With cars as pretty as those, could you blame the owner? Scale appearance is a grabber in any model hobby!

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R/C Soaring . . . Continued from page 40
contestant. While no one's integrity was
in question, this did eliminate any eye
brow raising.

8:30 A.M.

Saw Le smile again . . . this time
from both sides of his mouth.

After selecting a timer and proceeding to the winch area, I decided on a 12 volt system. The air was calm and I needed all the help that I could get. My Grand Esprit shot into the morning air and the launch proved to be most effective. Dick Shilling, acting as timer, called "Mark" as the tow line released, and the strategy suddenly became apparent. The release was high, so fly upwind to the first turn and go for the mile. At about 35 seconds a voice on the field intercom boomed "Grand Esprit . . . TURN." Haven't lost any altitude, it looks good for the mile; however, I still have about 20 seconds in which to make a decision. Downwind, 50 seconds into the flight, still as high as when released, 55 seconds, decision time. I tell Dick that I'll go for the mile. Now the plane is abeam of us, which means a half mile to go. Downwind for another quarter mile. Have to be careful; the calm air has now changed to light wind . . . will need

the altitude to make it back. Soon another voice calls "Grand Esprit . . . TURN." Quarter mile to go . . . have the altitude . . . push it over, here it comes. Neil Liptak, my second through all this, is analyzing the flight . . . along with me. Walking towards the finish line, I see the bird will make it. Just push it over a few more degrees to shave another second or two from the clock. The finish line, and Dick shows me the watch, 03:11. I acknowledge the time by signing the flight card. Realizing I'm not exactly a candidate for the "Mach Busters," the feeling is still exhilarating. It's 8:40 A.M.; I smile.

Back to the pit area and act as timer for a few flyers.

9:20 A.M.

Back into the air. This time the wind is at about eight knots. Selecting 12 volts again the Grand Esprit is up on another respectable tow. However, it's already apparent that I'll need additional lift to go for the mile. Still upwind for the quarter mile . . . took longer this time and the bird is in sink. Back downwind . . . 55 seconds, no way to cover the distance; declare the two minute precision task; land in about another minute and back to the flight line. It's 9:25 and I have two flights in.

Hey, this system is working!
9:35 A.M.

Le Gray questions any contestant who is seen walking around and carrying one inch diameter rope. He isn't convinced when they say it's in case the towline breaks. Le's peripheral vision increases by 40 degrees.

10:00 A.M.

More and more planes are seen in the air . . . a cross-section of the sailplane industry: ASW-17s, a Cirrus and a Cumulus, Darts, Grand Esprits and Kestrel 19s, a Miskeet, Olympics, Todis and Windfrees. Three year old, eleven pound KA-6s and J & R Kestrels that have laid dormant have suddenly found their element as they turn in times of under two minutes for the mile. The contest is taking on an exciting tempo.

11:00 A.M.

Nearly everyone has completed two rounds . . . some three . . . and a few have completed four rounds! A few contestants are seen smiling.

11:02 A.M.

Le Gray is seen with a sustained smile. He is now drifting from his cordoned area and mingling freely among the contestants . . . especially those with no rope.

12:00 Noon

Three rounds are completed by nearly all flyers. The contest is almost half over. I try for another mile flight and land twenty paces short of the goal. Should have carried more ballast. With the increase in wind I decide to wait until Sunday morning to complete my tasks.

2:00 P.M.

Some contestants log their sixth flight! Le looks relaxed and should be able to sleep tonight.

The contest is secured by mid-afternoon and all contestants admit that the first day was successful beyond any flyer's wildest optimism.

8:00 P.M.

Contestants, with their guests, attend the LSF banquet and hear a most interesting array of speakers. The M.C., Buck Faure, does an excellent job in keeping us entertained, and the verbal duel between Ken Willard and Le Gray keeps us all in good spirits.

Sunday, August 26th, 7:00 A.M.

Get to talk to winch master, Jim Harvey, and co-builder of the winches, Buck Faure. Complimented them on their fine efforts. These winches are among the finest ever built. Featuring an improved drum, foot brake (used during line retrieval to prevent backlash) and a quick 6 or 12 volt selector,

Continued on page 70



CARL GOLDBERG

"RELIABILITY... MADE CG RETRACTS
OUR STANDARD INSTALLATION"

CG RETRACTS



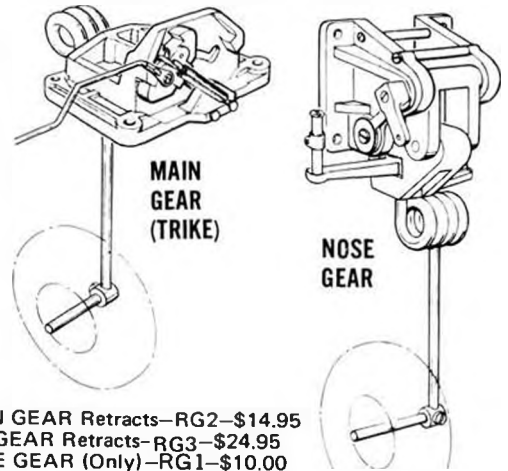
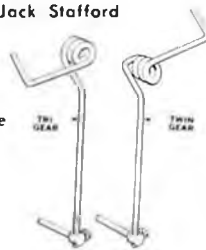
Jack Stafford, manufacturer of a fine line of racing and other models, proudly displays the CG Retracts installation in his stand-off scale Airacobra. Jack has been a constant user of CG Retracts in his pylon racing and scale flying models for over two years. In his own words: "Carl, based on overall system reliability, low maintenance and low cost, we have made CG Retracts the standard installation in our Mustang, Airacobra, Comanche and forthcoming B-24 kits."

Jack Stafford

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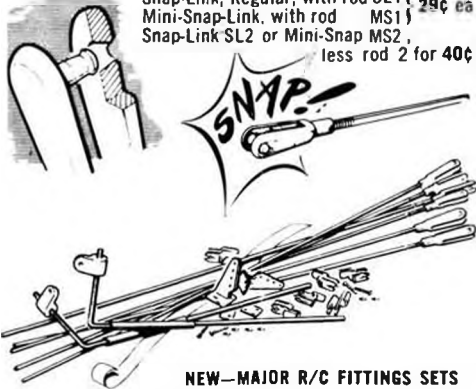


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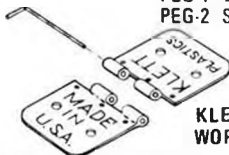
NEW—MAJOR R/C FITTINGS SETS

Here's the economical way to buy the major fittings for your multi-ship. In one set, you get all the horns, links, keepers, bellcranks, or strip aileron linkage, and hinge material—and at a saving. R/C Fittings Set No. 1 for ship with standard ailerons. RFS1 \$3.50
R/C Fittings Set No. 2 for ship with strip ailerons. RFS2 \$3.50

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PEG-2 SMALL 4 per pkg. 75¢



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Adjustable axle allows you to easily have the strut length you want. Both the axle and screw are hardened steel. Just file a flat on the strut, and tighten axle in place. AA1 75¢ ea.

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Versatile — steering arm can be to either side, or slightly up or down, or mounted on bottom with extra collar in slot. Steering arm is nylon, stiff enough for good control, yet can flex under shock to protect servo. Collar is hardened steel — won't strip like brass. Screw is hardened steel, too. You can really torque it and get good grip on music wire strut without a flat.

Complete steerable nose gear with nylon bearing, 5/32" plated music wire strut, extra collar, blind nuts, screws and washers G16N \$2.50.

NYLON STEERING ARM

Hardened steel collar and screw SA1 75¢.

NYLON BEARING

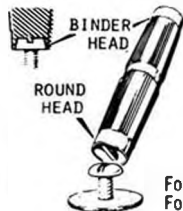
One-piece design mounts to firewall without alignment problems. Includes blind nuts, screws and washers NB1 75¢.

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Our new horns have the upright part rising from the center of the base for maximum stability. Holes are right size for 3/64" wire; nut plate for simplest mounting. Long horns CH1 or short horns CH2, with screws—50¢/2.

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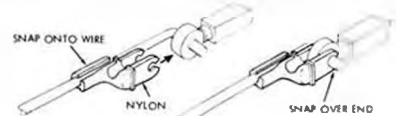
This nylon reinforcing tape is extremely tough when applied with epoxy around the center when joining wing halves. 2 1/2" wide x 5 ft. — N2 50¢. 3/4" wide x 5 ft. N1 25¢.



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Takes Round Head Screws and Binder Head.

KLETT SAFETY DRIVER

For 1/4" Nylon Screws SD1 } 98¢ ea
For #10 Nylon Screws SD2 }

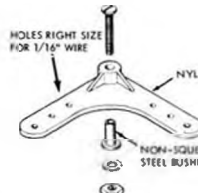


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- | | |
|-------------------|--------------------|
| 1st—Bobby Smith | 5th—Dan McCan |
| 2nd—Jeff Bertken | 6th—Harold Coleson |
| 3rd—Kent Nogey | 7th—D. C. May |
| 4th—Cliff Weirick | |

as well as

9th 10th, 11th, 13th, 14th, 15th, 16th, 17th, 18th, 19th.

* Proving their consistency, only 9 seconds separated 1st and 20th places in the qualifying trials.

F.A.I. R/C PYLON RACING 1st—Bob Violet

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Big John . . . Continued from page 13

The two center sections are built in the same manner. Again, don't cover bottom surfaces between front and rear spars as yet. However, there are two variations. First, it's obvious there are no cap strips, but also, leave out the webbing. The dihedral braces will take care of this. Second, just before adding the bottom leading edge sheeting, install the leading edge dihedral braces. Cut and remove 3/32 inch from the nose of each rib and epoxy the braces in position. Bottom front sheeting can then be added.

Match up your two center sections

and four panels into two wings and block-sand mating root ends for a snug fit with 1° (1 inch at tip) dihedral . . . Slanting the panel root ribs ever-so-slightly during construction would help here. Also, it will be necessary to cut away 3/32 inch from each panel root rib to clear the dihedral brace. When you're all set, simply butt-glue the wings together, making sure to slop epoxy onto the area where the L.E. braces make contact. Jig panels up for 1" dihedral in each until dry.

Main dihedral braces are installed by cutting away ribs at the spars and slipping the braces in place, with lots of

epoxy. After this, the bottom sheeting can be completed.

Up to now, the wings are still alike. Select the stronger (heavier) one to be the bottom wing (it takes more of a beating, and will also carry the ailerons). Measure off and mark each panel to cut out the ailerons.

The first cut should be 2-1/2 inches in from the trailing edge, top and bottom. Next, find the fourth rib out from the dihedral break by poking a pin through the sheeting, then mark and cut the sheeting just outboard of the rib. Finally, insert a piece of backless X-Acto saw blade through the long cut in the sheeting, and zip through the ribs . . . Catch the aileron in your lap.

By repeating the process, cut the aileron down to size, slanting the bottom back to allow for downward movement. Sand all exposed edges and cap with 1/8 inch sheet. Don't forget to install the 1/16 ply aileron horn rib and micarta horn assembly . . . and also whatever blocks may be necessary to hold your choice of hinges. Make cut-out for aileron servo and complete control installation in usual manner.

Complete wings by adding leading edges and tips. Note: If struts are desired for appearance, try the simple installation shown. The 1/4 square holes go all the way through the wing. Make struts from 1/4 or 3/8 sheet balsa and make the plug-in stubs about a half inch long. With extra long stubs, the struts are less apt to pop out when the wings flex during extreme maneuvers. Should a stub break off during some extra-vehicular action such as a ground loop, it can be removed easily before inserting a substitute strut.

The fuselage is a very simple box affair, with a round upper deck. The longerons key into the 1/4 inch front sheet sides, and a few stiffeners, no doublers, are used. After the duplicate sides are built, begin construction by installing bulkhead B and the 1/4 square cross pieces at station E. Align this first assembly very carefully and the rest of the fuselage should go together nice and straight.

The hardwood landing gear supports and cabane strut supports, which key into the 1/8 ply stiffeners, are best cut from maple or walnut. If this is difficult to accomplish, use ready-made landing gear blocks such as available from Sig, Top Flite, etc. and revise the 1/8 ply stiffener cut-outs to suit.

Install 5/32 inch O.D. brass tubing to receive the cabane struts before epoxying the strut braces in place. The cabane struts, which can be bent to shape and

assembled at any time during the construction . . . even after covering . . . are made of 1/8 inch music wire. Once the main "U" shaped pieces are bent to shape, cut them in half and slip into the fuselage tubing. Bend to shape and install the wing saddle and the diagonals. For maximum strength, bind all joints with copper wire and use silver solder. When the fuselage is totally completed, covered and painted, or Monokoted, the canes are installed for keeps by adding the 1/16 wire cross braces. This locks the assembly in place.

The nose is built "inward." The 3/4 inch balsa cheeks go inside the 1/4 inch sides, and then the maple motor bearers are epoxied inside the cheeks. After adding the ply tank floor and bulkhead "A," the chin block and remaining fillers may be added. Due to the wide nose, the right side of the cowl will have to be carved out to accept a muffler, but actually, this will look better than having the pipe sticking out in the breeze as with the usual skinny fuselage.

We took the simplest route for final assembly. Wings are rubber banded on, though the bottom one can be dowelled and bolted if you wish. The tail section is epoxied in place, but here again, if you have a storage or transportation problem, it's not too difficult to rubber band or bolt on. Main problem is that you have to give up that rudder hinge down near the horn and tail-wheel arm. This is pretty important for slop-free rudder control.

Well, that's it . . . in what turned out to be a pretty large nutshell. If you have any questions on construction of B.J., give a call or drop a note. We'll be glad to help. ●

Counter Continued from page 7 Wakefield, and Round Wakefield, these assemblies feature integral high-precision races for almost friction-free operation, and use the popular Montreal Stop for rubber motor tensioning. In addition, they have a "Tactical Flying" stop which allows locking a fully-wound motor while waiting for a good air. It also turns both hands free for lighting the D.T. Cost is \$12.00. Write for further details.

* * *

For the model builder who is a notch above the average hacker (or who wants to move out of that class) there is nothing more useful than a top quality modeling knife. The uber skiver is such a cutting tool. We've been using one for several years, and have just now found a way to make it available to all modelers.

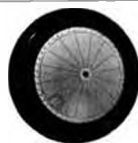
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3/4" THROUGH
5" DIAMETER



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The handle features a rear draw-bar clutch which keeps the blade tight during use and avoids possible injury to fingers when loading and unloading. The collet takes flat and round tools and will not freeze up. The grip is deeply knurled for positive handling control, and the anodized aluminum handle is of hexagonal cross section so it won't roll.

Handles are available in bright anodized colors; silver, blue, red, green, gold, copper and violet.

Best of all, the blades are long-life stainless steel, and honed to medical specifications far surpassing industrial requirements. They'll hold an edge up to 50 times longer than ordinary carbon-steel.

Quality doesn't come cheap, but the durability of the handle and blades make the uber skiver well worth the cost. Handles alone cost \$3.95; a package of blades (No. 10 curved, No. 11 straight, No. 12 hooked, No. 15 small curved, or No. 20 narrow chisel point for cutting discs) costs \$1.80 for 6, and a special kit (one handle, a package of 6 No. 11 blades, a package of 6 No. 15 blades, and one each No. 12 and No. 20, all in a fitted hardwood case with metal latch) sells for \$10.50. See your dealer, or order direct through

FIRST, 1/2 A & A Open, '73 Nats



OKIE BIRD
Free Flight - .049 - .051

wing area: 296 sq. in.

A quality kit . . . only \$5.95

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Model Builder Products, 1900 E. Edinger,
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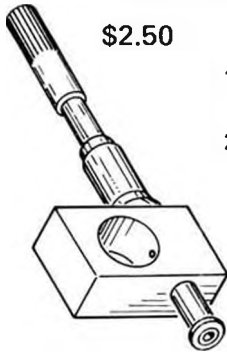
* * *

The electric R/C glider winch which was developed over a period of several years and appeared in its latest form as the standard unit for all launches at the 1973 LSF Soaring Tournament (see R/C Soaring this issue), is now available to all glider-guiders. Buck's Soaring Supplies, 1303 Rainbow Ridge, Encinitas, California 92024, is producing and marketing this high quality unit. Called the Standard American Soaring Winch,

FOR SERIOUS 1/2A FLYERS ONLY

Here are two items designed to keep your Cox Tee Dee .049 (or .051) in top running condition. Both have been thoroughly field tested and used by modelers to set several National AMA Records.

FRONT NEEDLE VALVE ASSEMBLY



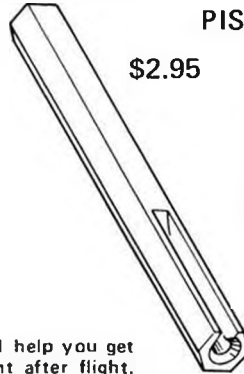
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This custom needle valve assembly will help you get more consistent engine runs . . . flight after flight.

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Tool made from hardened steel.

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the unit features a 90-day material and workmanship guarantee, complete operating instructions, single unit construction, 6 and 12 volt operation, tow rings and flags, foot switch, safety switch, line retrieval switch, high-speed motor, 2300 feet of 125 lb. line, line guide, aluminum reel, reel brake, and turn-around pulley. Price is \$139.00 less battery.

* * *

The Pierce Aero Company, 9626 Jellico Ave., Northridge, Calif. 91324, is producing and marketing the Pierce Arrow, a 2 meter class R/C glider. Span of the one piece wing is 76 inches, area 500 sq. in., and the flying weight is around 24 ounces. Because of the easy construction and inherent stability, it should make an excellent beginner's model, yet in the hands of an expert, its performance will meet all requirements.

Indicative of the quality of this \$29.95 kit (dealer inquiries invited), the precision cut plywood and balsa parts are produced for Pierce Aero by P & W

Model Service, which also cuts the Satellite 1000 kit parts, and produces its own partial kits for Old Timers. Most R/C'ers should know what is meant by saying that the kit matches Jensen for quality. A complete hardware set is also included so that literally, the only other items needed are glue, covering material, and radio equipment. Concerning the latter, the PA is ideally suited for "brick" type installations. A complete "Products in Use" article will be coming in a near-future issue.

C/L Continued from page 45

Why not create a new event in your club and give a worthwhile prize to the modeler(s) who comes up with the "QUIETEST ENGINE IN FLIGHT?" Do it now. Next year your present flying site may be closed due to noise
NEW SPEED RECORD

Mike Bussell warmed up the Texas sky on Labor Day by setting a new AMA Class B Proto (Junior) record at 155.44 MPH. This is within 2 MPH of the Open record (156.59 MPH).

This year has seen an abundance of Junior speed records. It is obvious that some experienced modelers are taking the time to pass some of their "secrets" along to these youngsters. But what about the Junior who doesn't have a speed flyer for a Dad or friend. Where can he get the kind of information that will enable him to be competitive? He had better find a source soon or he surely will get discouraged and quit. Now is the time for you dedicated speed flyers (no matter what your age) to write some informative articles on your favorite speed plane and engine. Helping a youngster to win can be a



very rewarding experience.
SCALE PROPELLERS

If you don't have the time, or technical know-how, to make a scale prop for your next scale plane, suggest you contact Ira Keeler, 407 Beelard Drive, Vacaville, California 95688. For a reasonable price he will make a quality scale propeller suitable for display and judging purposes.

CUSTOM SPEED ENGINES

Two engines (.049 and .29) are now in limited production for interested speed flyers. Both have tuned exhaust systems. The prototype .049 was flown by John Shannon and took first place at the 1973 Nationals. For further details, write to: DJS Enterprizes, Route 1, Box 390, Seagoville, Texas 75159. ●

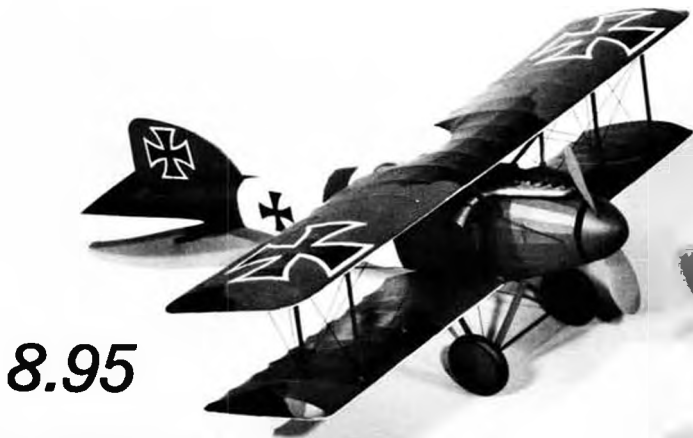
F/F Scale Continued from page 33

awarded the Schneider Trophy for the best effort. Only time will tell if there will be sufficient interest in the Schneider to keep it part of the Speed Contest.

After the trophies and prizes were

ANTIQUUE FLY-IN ?

No, these are actually our new Stick Model "6 Way Kits" . . .
But, they sure look real — because they're Authentic Scale.



8.95

ALBATROS DII-A

Kit E9 Span 27 $\frac{3}{4}$ " Scale: 1 in. = 1 ft.
Amazingly streamlined WWI Fighter. Flown
in combat by Richtofen, Boelke, etc.



9.95

BOEING P26-A PEASHOOTER

Kit E10 Span 28" Scale: 1 in. = 1 ft.
First U.S. Air Corps all metal monoplane. Held many
military speed and altitude records.



7.95

STINSON RELIANT SR-8 GULLWING

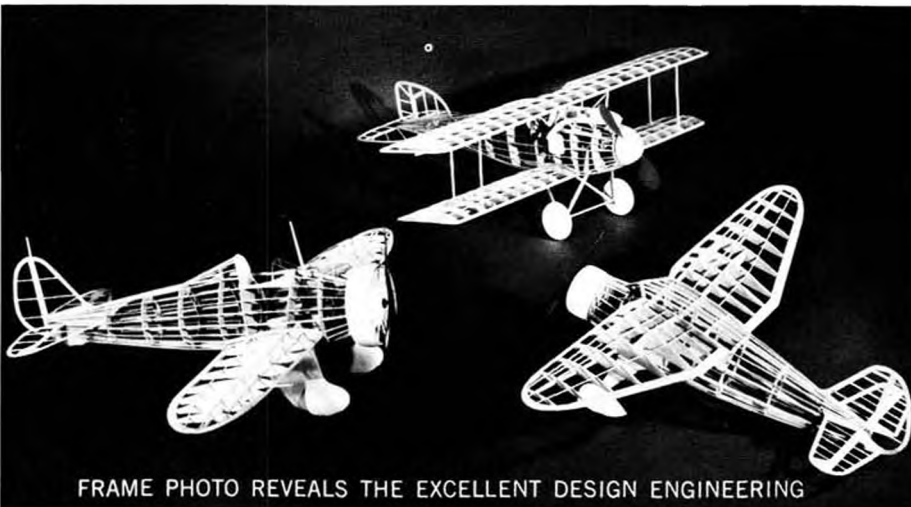
Kit E8 Span 31 $\frac{3}{8}$ " Scale: $\frac{3}{4}$ " = 1 ft.
Classic 4 place cabin aircraft of the Golden 30's.

These are unique because such amazing scale detail is achieved with these kits that are relatively easy to build. They can be built many ways, such as: Rubber Powered (as supplied), .020, .049 or CO2 Engine Power. For Free Flight, Control Line, R/C (pulse or Single Channel) or Static Scale. *Any version makes a museum-like model. Frame members are accurately Die Cut from the finest quality Balsa Wood, and every part is numbered to insure fast and accurate assembly as clearly shown on the easy step-by-step plan. Highly detailed Plastic Parts simplify assembly adding a touch of realism-in-miniature. Covering material, formed wire parts, Wheels, Decals, Hardware that includes control line parts is a partial list of the contents of these fine kits.

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*Dry Kit. Rubber power material supplied.
Other power and equipment not included.



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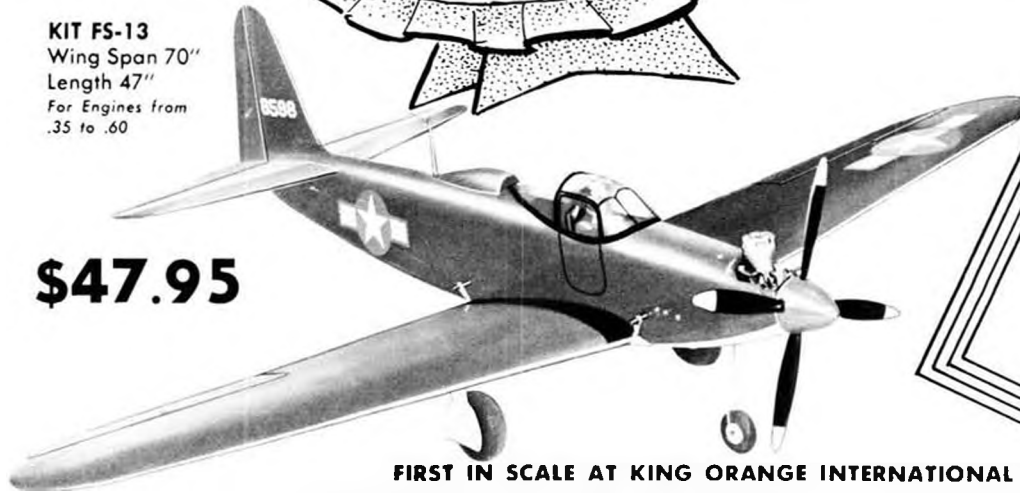
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Wing Span 70"
Length 47"
For Engines from
.35 to .60

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This unbelievably realistic championship model is the superb achievement of one of America's finest model designers! Already winner of many contests, the King Cobra has rolled up a tremendous record! The kit itself, a masterpiece of rugged simplicity, is a brilliant example of precision production engineering.

**MILITARY SCALE
MODEL WITH
A TRICYCLE
LANDING GEAR!**

Modelers will appreciate the beautifully die-cut structural plywood and balsa parts, including full-length fuselage sides; the many custom shapings including the upper and lower cowls, the air scoop, the motor mounts, the hardwood wing spar, the leading edges, etc.; giant crystal-clear plastic canopy; formed 5/64" dia. steel landing gear, permanently brass-bushed plywood bell cranks and horns; complete hardware package with almost 100 different parts (including those expensive blind nuts); tremendous Air Force decals; and much more, including beautifully-detailed step-by-step instructions and drawings. Plans also show how to build the KING COBRA into a striking control line model.

awarded, the majority of the contestants invaded a local Mexican restaurant for a great lunch. This was followed by a trip to Russ-Craft Model Museum for several more enjoyable hours of aeromodelling.

I feel fortunate that I am living where there is a tremendous amount of F/F scale activity. However, I would certainly like to hear from other modelers around the country, who might be interested in giving their club some magazine coverage by sending me photos, results of any contests held etc. Write to Fernando Ramos, 19361 S. Mesa Dr., Villa Park, Calif. 92667.

Calendar of events for the remainder of the year: November 4 . . . Indoor Flying Scale at the Marine Corps Air Facility, Santa Ana. There will be regular indoor scale, Peanut scale, and CO₂ powered scale. November 18 . . . San Diego Orbiters Annual Scale Contest for F/F rubber, gas and CO₂. This will be held at Lake Elsinore. December 9 . . . Flightmasters Jumbo and Peanut rubber scale at Lake Elsinore. ●

Mooney *Continued from page 35* the fuselage would allow the use of scale tail surfaces, and with the CG as shown on the plans, the model flies very well. Some nose ballast was re-

quired to get the CG this far forward . . . Test flights with it farther aft were erratic in pitch, so make sure your model balances as shown.

This model is built in the conventional manner, so no detailed, how-to-build-it article is presented here. However, a few points should be mentioned.

Note that the landing gear wire is designed to be on the outside of the leg rather than faired inside the leg. The landing gear leg and its side and rear struts are cemented rigidly to the fuselage. The wheel pants are cemented to the landing gear wire but not to the struts. This way the wheels are free to flex on a hard landing without putting a load onto the fairings. The penalty in looks of the model is very slight and the improvement in model durability is great.

The nose of the model is made to simulate the metal radial cowl. The forward part of the cowl is laminated from three pieces of 3/32 sheet balsa. Aft of these, the cylindrical part of the cowl is made by wrapping 1/16 sheet around Formers 1 and 2. Note that Former 2 has a break in it to match the bottom of the windshield. The sheet that is wrapped around will have to be

"A" cut and relatively soft. Two layers of 1/32 can also be used if you find it easier to bend.

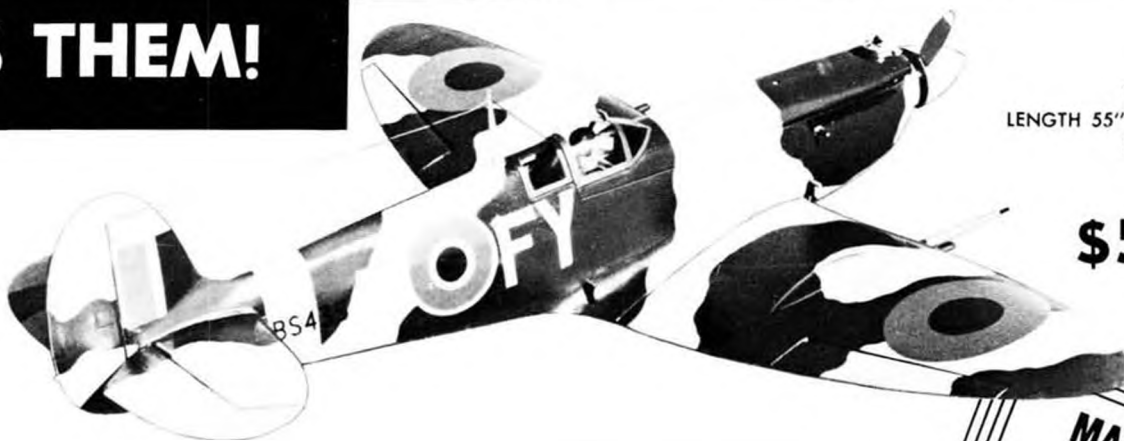
The lower wings are attached to the bottom longerons with the bottom of the wing about a 1/16 inch below the longeron. On the real plane, the root rib is thinned so the bottom of the wing faired into the bottom of the fuselage in a sort of reverse gulled effect. This thinning of the root rib was ignored on the model in the photos.

Since the model construction is so conventional our illustrations editor has given me permission to digress a little. One of the questions that both he and I have been asked from time to time is, "How do you go about selecting an airplane to design into a model?"

Well . . . first of all you have to like it for some reason. This is easy for our editor, he likes biplanes . . . any old biplane will do, I suspect. However, there are a lot more rational reasons for liking an airplane, as listed below:

1. It has a claim to fame.
2. It has nice lines and a graceful shape.
3. It is ugly enough to be interesting.
4. It is the most modern thing out.
5. It is an historical antique.
6. It is simple enough to be easy to make.
7. It is so complicated it will be a real challenge.
8. It

AS THEM!



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WING SPAN 64"
LENGTH 55" • FOR ENGINES
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The plane that defeated Hitler, and destroyed forever his dream of British conquest, comes to life once more in this fabulous man-size model of one of the most beautiful aircraft ever built! • Duplicated by Sterling with incredible attention to authenticity of appearance, and engineered to deliver the almost legendary flight performance of this World War II fighter, the Super-Marine Spitfire promises to be one of the most popular models of all time!

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looks like it will really fly. 9. No one has been able to make one fly before. 10. I, my father, brother, sister, uncle, aunt, or sister's boyfriend owned one.

Actually I have an easier time than ye olde editor, I like all of them!

Second, you almost have to have a three-view drawing available. It is also nice to have several photos handy so that contours and details not shown on the three-view can be determined.

Third, unless it is to be strictly a display model, it should be something that has a good chance of flying. If in your information about the airplane you find statements that it spun in on the first flight, or killed its test pilot, be wary, if the real ship wouldn't fly, a model of it may be a waste of time.

Fourth, you should have decided how it is going to be powered. Rubber power usually requires a rather large propeller for reasonable durations, so unless you are willing to compromise on scale, avoid modern tricycle landing geared lightplanes and pick an older tail dragger. Just the opposite can be your criteria if the power is to be a small glowplug engine.

Fifth, if it is to be a peanut, where the span is limited to 13 inches, pick an airplane with low aspect ratio wings

so as to have as much wing area as possible. The opposite approach can be used if your model is to be a Jumbo scale, where the span has to be at least 48 inches (monoplane) or 36 inches (biplane).

Sixth, since most models tend to be tail heavy and require nose ballast to fly, the selection of a design that has a long nose tends to help.

Seventh, high wing monoplanes generally are easier to make fly, but this need not discourage you from other configurations.

Being aware of the above requirements we can come up with the hypothetical ideal modeling subject.

It has a long nose and a long tail. It has generous tail surfaces and at least a little dihedral, quite a lot, in fact, if it's a low wing. If it is to be rubber powered it has a longish landing gear and is a tail dragger, and unless you delight in challenging construction, it has simple contours.

Within the bounds of the above there is an almost limitless selection.

If you like an airplane for whatever reason you will, and it fits within the general area I've been discussing, there is a good probability that it can be turned into a delightful model.

One nice thing about building models is the fact that other builders seldom notice the flaws that offend you because you know they are there. What they generally observe is the overall effect, and if you just get the shapes about right you've got the job mostly done.

This is not to say that the super scale model isn't a great thing to strive for. Everyone should be aiming for a Star or planning for some future masterpiece sometime. But about 95% of any artistic job can be accomplished in 5% of the time it takes to create the masterpiece by just about 95% of the people. It takes a genius to finish the last 5%. (How's that again? wcn) ●

Hannan Continued from page 34 classic World War One epic, during a meeting of the Cross & Cockade Society. In addition, an outstanding explanation of the film's production was presented by Mr. Barney Korn, who worked for more than two years on the project. Of particular interest, was the description of the enormous Zeppelin model used in the film, which was actually constructed in a manner quite similar to the real ones. Although it never actually flew except on wires, this 27 foot long monster was fully detailed in every

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NEW! Modernistic Plans Peanut Scale Series

P-	Description	13" span	\$
P-1	Fairchild KR-21	13"	1.00
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P-4	Avia B-534 Fighter	"	1.00
P-5	Waco 220 Taperwing	"	1.00
P-6	Beech Bonanza V-Tail	"	1.00
P-7	Curtiss AE-3 Page racer	"	1.00
P-8	Gray Ghost (pusher)	"	1.00
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P-11	P-51D Mustang	"	1.00
P-12	Stinson Reliant SA-8	"	1.00
P-13	Howard DGA-15P	"	1.00
P-14	Vought OS2U-3 Kipper	"	1.00
P-15	Stearman PT-17 Kaydet	"	1.00
P-16	Chester's Jeep	"	1.00
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NEW! Janick Peanut Scale Plans:

M-	Description	13" span	\$
M-100	Wittman Tallwind	13"	.75
M-101	Piper Cub, clipped	12 3/4"	.75
L-100	Fairchild P1-19	13"	.75
L-101	Jodel "D" 150	13"	.75

SPECIAL! All four plans for only \$2.00!

We carry cut-to-size clear plastic for Matel vac-u-Forms, 20 sheets per package: .005 \$1.00/pkg. .010 \$1.25/pkg.

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Plastic Scale Kits: Airfix, Airframe, Frog, Fujimi, Hasegawa, Hawk, Heller, L & S Labs, MPC, Czech KZP, Monogram, Nichimo, RARE-planes, Lindberg, Pyro, Revell, Tamiya.... badger Air-brushes, Imrey/Risley and Polly S paints, many decal lines & accessories. Regular, free bulletins to steady customers. Same-day shipment on all orders, via fast and safe U.P.S. to 43 states, others go the quickest and best. Servicemen, try us - we are experienced overseas packers.

respect. Mr. Korn described the agony felt by the technicians when they watched their creation deliberately destroyed for the film sequences.

The other models used in the film ranged from flimsy inflammable aircraft employed in the crash scenes, to robust cast-aluminum items designed to withstand severe handling. A revelation to many of us, was the fact that all of the German aircraft featured were painted black, whereas we had been led to believe from various commercial artist's prints that they had been red. (Research is a continuing detective story!) Of course the outstanding element to avid aviation buffs was the presence of a large number of genuine WW I aircraft. While some of the aircraft were fakes ("Wichita Fokker" Travel-Airs, etc.), sufficient numbers of the real McCoy items were employed to add greatly to the overall effect, and the flight scenes and mass take-offs have never been equalled since . . . Not to mention Jean Harlow, who need not take a back-seat to any of the contemporary actresses.

AUTOS FOR AEROMODELLERS

Ever notice the variety of transportation devices at your local model field? Everything from bicycles to buses have

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SNIPE TYPE
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Length 25 3/4 inches
 Beam 8 1/4 inches
 Ballast Included




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Length 36 inches
 Beam 9 1/2 inches
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- Sails fabricated from Nylon Spinnaker Sailcloth.
- Complete hardware package
- Step by step instructions include R/C details.

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 SAIL CONTROL UNIT (up to 36 in models) \$22.95 Complete
 SAIL CONTROL CONVERSION KIT USING YOUR ROTARY OUTPUT SERVO MECHANICS \$10.95 ppd

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appeared at our aerodrome. Campers are quite popular with those who like a virtual work-shop on wheels, while others seem content with mini-cars, especially in light of the accent on ecology. In a recent issue of "The Satellite," San Valleers' club newsletter, it was mentioned that Ralph Prey was transporting a 9 foot span class D model wing in his Volkswagen bug. Seems as though he simply removed the glove compartment and fed the wing in from the front trunk, upside down, through the glove box opening, up and over the front passenger seat, and let the tip rest on the rear seat!

An acquaintance of ours who goes in for huge R/C scale models, once bought a car he really disliked, simply because it was the only make that would accommodate his models!

Hal Cover and his charming cohort Marilyn showed up at a recent meet in a Ferrari, which is what we really call deluxe transportation.

RELIEF IS JUST A SPRAY-GUN AWAY

One of the emotional problems that seems to plague some R/C pattern flyers, is how to tell their look-alike models apart. Some of these fellows have actually been embarrassed into

taking up scale models, in an effort to regain spectator attention . . . but others still persist. To this latter "hard-core" group, we offer the following solution: Simply take a hint from the prominent Detroit automobile manufacturers who have long encountered difficulties in rendering their products distinguishable from those of their competitors. Their answer is to create truly distinctive paint schemes, such as the following; which might be suitable for your non-descript pattern machine:

- BIG BAD BLUE
- TIAJUANA TAN
- HI HO SILVER
- GANG GREEN
- THERE SHE BLUE
- HOME ON THE ORANGE
- ANTI-ESTABLISH MINT
- IN VIOLET
- LAST STAND CUSTARD
- BRING EM BACK OLIVE
- FREUDIAN GILT
- THREE PUTT GREEN
- GOOD CLEAN FAWN
- THANKS VERMILLION

Plug Sparks . . . Continued from page 31 with the small .020 Replica Playboy Senior model. Quite a switch from the usual large Powerhouse model.

The wrap up to the whole shebang was the Old Timers Reunion Banquet which is also used as the vehicle to award the trophies. Fun speakers are harder to find now that Bob Lutker (Dr. Cecil Poole . . . Cess Pool for short), Johnny Clemens, and Matty Sullivan are no longer available. However, Bert Pond did give an interesting discourse on how model aviation got started. Certainly was a far cry from what we know it as nowadays.

The modeling press was well represented with Art Shroeder and Ed Sweeney (Where were you, WCN?). (Show me their equivalent to our monthly Plug Sparks. Whaddyu want, egg in your beer? wcn) Some real old timers were seen, notably Leo Weiss who claimed he hadn't flown a model since 1936. We'll gettun all out of the woodwork yet! SAM Prexy, Woody Bartelt noted that SAM membership is now over 400 active modelers. Also interest in old timers is experiencing a tremendous revival on the east coast primarily due to the Old Timer Eagles. Looks like the SAM Championships will be held at Glastonbury next year. This is a private prediction, men.

Films of the 1939 Nationals were shown and thoroughly enjoyed by all despite three breakages. The trailer film by Comet Model Airplane Co. on how to build the 50 cent kit of the

Stinson Reliant was also shown in spite of the efforts of the writer to cut it short. Suggestion to that effect was promptly hooted down. The comments from the viewing audience during the showing were funnier than a Laurel and Hardy comedy.

That's it for this time. Looks like we'll have the Nats at Chanute A.F.B. next year. Don't miss the action! Maybe we can get WCN to print the results of the events. Here they are:

OLD TIMER RESULTS AT OSHKOSH

ANTIQUÉ GAS CLASS

- | | |
|--------------|-----|
| 1. Herb Wahl | 230 |
| 2. Ed Rangus | 217 |
| 3. R. Smith | 120 |

CLASS A GAS

- | | |
|--------------------|-----|
| 1. William Shaffer | 319 |
| 2. Merle Shammo | 267 |
| 3. Ted Katsanis | 228 |

CLASS B GAS

- | | |
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RUBBER CABIN

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Herb Wahl (Comet Clipper)

Astro Flight . . . Continued from page 8
the attention of Northrop Aircraft, and as a result, Astro Flight has been made into a California corporation and Roland (Pres.) and Bob (V.P.) are now totally in business for themselves, actively participating in the RPV program in a joint venture with Northrop.

The new expanded quarters, at 13377 Beach Ave., Venice, California 90291, house all of the company's business facilities, where full-time effort is also being put into production of the popular R/C sailplane kits and electric motors. Continued development of the RPV projects for aerospace also take a large portion of the company's skills.

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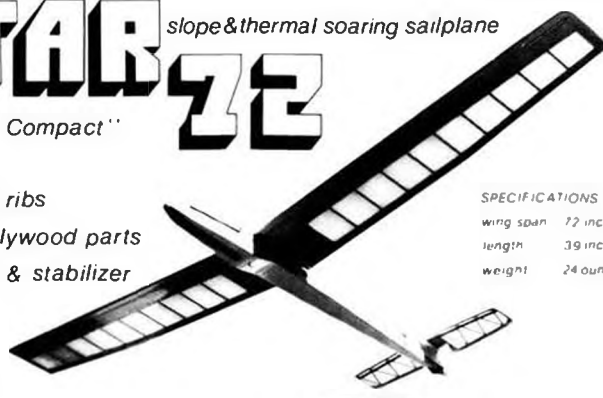
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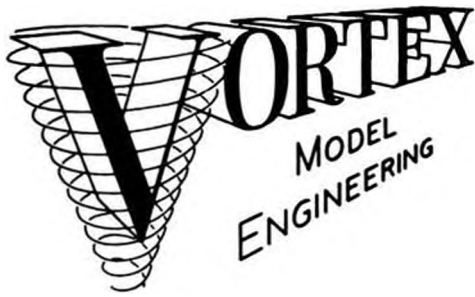
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Next to come in the model department is a 100 inch span AS-W15, which will feature a molded plastic fuselage tougher than any existing unit and to be available in 5 colors. Also in the works are two new electric power kits, one the Electra Fly and the other, a twin pusher sport/pattern ship.

With the growing problem of finding flying sites that will allow even muffled gas or glow engines, it would seem that the Boucher brothers' Astro Flight Company, featuring gliders and quiet electric power, are sitting on a profitable future.

Embryo Continued from page 33
higher than the card table the flight is automatically official. And fellas, we've seen 'em stagger off the end like some of Doolittle's raiders leaving Shangrila! Then again, some of 'em roar off like a lion with turpentine on his empennage, arc over, and plow into terra-firma hard enough to terrify earthworms! And having been higher than the card table, flights like the last one are official, ugh!

But it is all fun, from the drafting board, to the flying field . . . and sometimes back to the drafting board! Why not climb out of your cockpit a second



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and take a gander at the rules . . . ?

1. Not over 50 square inches of wing area.
2. Wing and tail to be built up and covered on both sides with tissue. (No silk or condenser paper.)
3. Fuselage to be built in such a manner as to have part of it consist of a cube measuring at least 1-1/4 X 1-1/2 X 3 inches.
4. Model must ROG from the top of a card table unassisted, and from a three point rest.
5. Landing gear must consist of two main legs with two main wheels of at least 3/4 inch diameter.
6. No folding props (purposely, that is).
7. Four attempts to make three official flights. Once the model leaves the table and reaches an altitude higher than the table top the flight is official.
8. Highest total score wins. Fly off to break any ties.
9. A bonus of five seconds on the total will be awarded to a model with pilot accommodations consisting of a raised cabin or open cockpit.

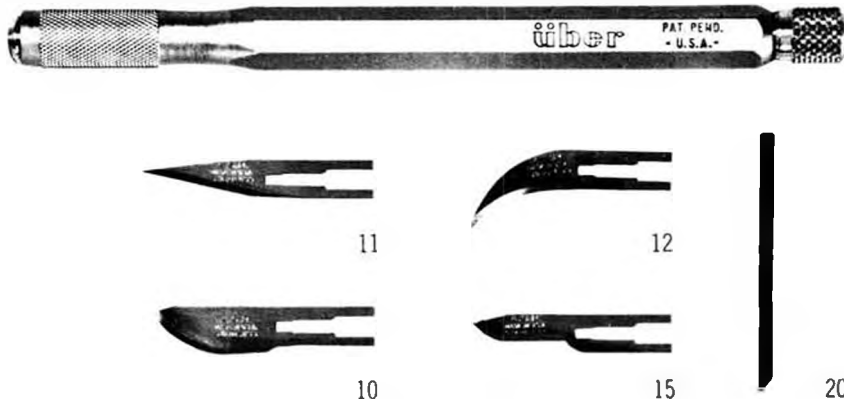
Simple enough, wot? A max flight time can be added to suit field and weather conditions. Quite a few of the existing models have been fitted with dethermalizers. Wishful thinking? Not at all. The performance of these little tykes is as astonishing as a snow storm in the Sahara! All of the dethermalizers are arranged to have the snuffer tube and fuse located at the center of gravity, popping the wing up at the leading edge or the tail up at the trailing edge by means of a thread and fairlead set up.

Official mascot of the new Embryo Endurance event is the lil' winged whatsis in figure No. 7. He lives in the model lab at Flying Aces Headquarters in a drop of swamp juice on a microscope slide with a couple million of his relatives. Because of that friendly physiognomy he has been dubbed the "Amiable Amoeba." His likeness is found on a number of Embryo Endurance models.

How many of you rib-slicin' modelers have felt you could use a pal in that swamp muck when you are sunk in it to your shins while reaching out to retrieve your pet model after a nimbus nudging max flight? Well, here he is! The Amiable Amoeba! Get to know him. Try an Embryo Endurance event at your next club contest and wear a contented little smile like his! ●

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Free Flight . . . Continued from page 26
test in September's MODEL BUILDER, and Whitney, who set the applied-for record of 27 minutes plus, says ". . . it seems to hang up there in the slightest lift."

Why Category II at the salt flats, you ask? They had been rained out the first day of a two-day meet, so had to fly everything in one day for their Annual. Went to Cat. II to facilitate it. **TOYS?**

TOY . . . An object, often a small imitation of some familiar thing, for children or others to play with; a plaything.

PLAY . . . exercise or action by way of amusement or recreation.

(Definitions from THE AMERICAN COLLEGE DICTIONARY, Random House.)

There has been a lot of perfectly good ink used up lately, both in newsletters and in trade magazines, concerning the "Toy Airplane" stigma. Everyone seems to think it is degrading to have our machines, over which we have expended so much money and energy, considered toys by the 'outside world.'

Well, by the definitions given above, my airplanes ARE toys, plain and simple, but I'm not afraid to admit it.

It matters not how many kilohours and megabucks have been devoted to their construction, or how carefully the warps, kinks, and various angles of dangle are built into them, or how good they do in competition, or whether I am lucky enough to trophy with them from time to time, or how furious I might get at them, or myself, when they don't perform to my expectations. They are still TOYS, built solely for recreation.

According to psychologists being published today, the main problem with the American public is that it doesn't know how to amuse itself. With the sudden huge amounts of free time available, we

simply don't know how to have fun.

Modellers have an advantage, then, in that they do have an outlet for their free time. They use all of it in the pursuit of their particular modeling specialty. What, then, is wrong with admitting that what we are doing is amusing ourselves?

I build model airplanes because I enjoy building them . . . it's fun. If the day ever comes when I don't look forward to a day at the flying field, or anticipate the performance of a ship while I am laying up the wing, then by golly I'll go find something else to do . . . just for fun!

AN OUCHY

That's what my kids call it anyway. I got a glob of hot solder in my eye the other day, and, while quietly swearing to myself on the way to have it removed, began to wonder at how little we modelers think about safety when we're involved in building.

For instance, I was melting the solder off an old joint, and pulling on the connection at the same time, and when the solder melted the spring tension on the joint whipped up one of the wires, sending a blob approximately the size of Mt. Rushmore into my eye.

Moral: ALWAYS wear glasses when soldering! Believe me, it's no fun navigating with a patch over one eye. No permanent damage; I was lucky. But I'm not going to trust to luck again!

Museum Continued from page 19
15, received plenty of coverage, but as our fliers slipped from contention, the coverage slipped from the magazines. Aeromodeller had not yet really begun their extensive coverage of the last 10 or 12 years, so there are holes in my data through the early years.

I would be most interested in hearing from anyone who can help me with information, pictures, stories, or anything else on any of the World Cham-



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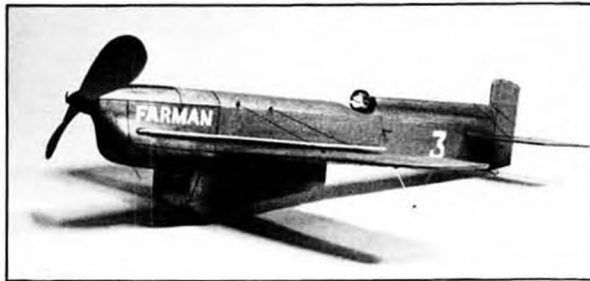
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colors and even taped small flashlights on them. But the round was halted because the lap counters couldn't tell which cars were coming by.

It now looked like disaster was really going to strike Sunday. Not only did the 1/8 road race have to be run, but also 1/12 road and the last Expert oval heat. The decision was made to start at 7:00 A.M., finish the last Expert oval heat and then only run one round of 1/12 and 1/8 road racing. It was the only decision that could have been made. It's a shame that the road cars, which everybody really supports throughout the year, could not have had more of a chance. But then again, the cars were more ready to race. Anyhow.

On Sunday the sky was clear and the sun out early. Some eyeballs looked something like the sun too! Racing started at 7:00 A.M. and somehow the traction was good . . . possibly because the track was idle for only a couple of hours. In the second round, Del Fisher ripped off a 303 second time without a pit stop that had everybody mumbling. Roger Curtis came through in the clutch and turned a respectable 310 seconds for 2nd place and Gene Husting got a 332 second time for 4th place. Morrissey's and Carbonell's first round times held in there for 3rd and 5th places respectively.

Del Fisher had his oval car working well all the time. The car had the greatest amount of angular caster that I have ever seen on an R/C car . . . probably at least 25 degrees (5 to 10 degrees is more normal). At lower angles I know that the increased angular caster would give better hands-off low speed directional stability and also improve inside front tire bite at higher speeds, for his very hard front tires. Del's other gimmick was a dual Perry 19 carburetor set up. The throat area is the same as a .40 carb but the 19's have a better venturi shape to give improved lower RPM en-

gine characteristics and more reliability.

Chronologically, the next event was 1/12 scale road racing. The impressive thing here was that the small cars (running on the big track) were turning in lap times of 24-26 seconds, only about 8 seconds slower than the big cars. There were 30 entries in the 1/12 road event, indicating reasonable interest. The cars seemed lost on the 1/8 scale track and emphasized top speed rather than driveability. The real strong points of the smaller cars and driver ability was not shown as much as it should. Tony Bellizzi won the expert 1/12 road race and showed that there is nothing like experience. I think the Seattle area has more 1/12 scale races, including full modified, than any other area. Tony's Cox .049 Tee Dee powered car really cranked on.

In the Amateur 1/12 road race, experience again showed. Steve Stallings, the winner, is from another hot bed of 1/12 scale racing right here in California (Bellflower). The equipment used by Stallings is modified Jerobee. Winning a national event with this type of equipment (though highly modified and bullet proofed) does show the potential of low cost cars. Interestingly, Steve's time was the third fastest time, including the experts.

During the break before the start of the 1/8 road race, the cars entered in concours were judged. All the road race cars and a few others were also lined up for a photo session. Several of the concours cars were very impressive . . . a roll-caged stock car, a fully independently suspended Chaparral, a very neat funny car, a sprint car (and several more). But the stand out car, which won, was a beautifully done L & M Porsche by Ted Gradt. The scale driver could shift gears and turn the steering wheel. The workmanship was neat and impressive.

Now all that was left was the 1/8

pionships Free Flight Power contests. Even the later ones, as I would like to get as much information together on them as I can. It is a fascinating pastime.

As this is being written before the results of the 1973 W/C are known, I will have only this year's model to build and another engine to locate in order to bring the set up to date. After that? Have you seen my 1/4 scale plans of Carl Goldberg's Valkyrie? Let's see, those ribs and spars scale down to 1/32 inch square, so I had better get out my balsa stripper!

R/C Cars . . . Continued from page 49

Actually the first round of Expert oval racing was held between the two Amateur heats and the traction was down a little. Again the high horsepower experts had a lot of trouble during the first round. Del Fisher and Dick Robson looked good but Mike Morrissey and Arturo Carbonell put on quite a show and ended up 1-2 the first round.

It was getting dark by the time the second Expert oval round was begun, and the round was halted part way through. Automobile lights around the track were turned on, some drivers painted their cars white or fluorescent

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road race event. There would only be one heat or chance to show your stuff because of the time problem. Hopefully, everything was about right on the cars and the drivers were going to have to let it all hang out. The traction was pretty good everywhere, even for the first heat, so you had to watch all the races to spot the good guys. The top finishers in the Amateur road event were E. Pennewill, Jerry Thompson, and Carl Petri in 1st, 2nd and 3rd place respectively. I have to admit I didn't get to see Pennewill run (which is one reason that I'd like to see national championships eliminated down to one final heat). However Carl Petri would have easily beaten the winning time had he stopped for fuel (a second time) rather than running out. Petri's lines were terrific and the car performed well. Thompson just ran a very reasonable and consistent race. The last Amateur road heat had three fellows to watch, Engle, Lemke and Morton. Engle's car had been taking corners full punched (with a good engine and proper line) where most of the experts were having trouble. Both Lemke and Morton had engines with a tad more power. At the start of the race, Engle had radio interference trouble and only Morton could manage a time good enough for a fifth place finish.

Now for the experts! Everybody was anxious, drivers and spectators alike. During each race, the pit side of the track was standing room only. Morrissey, Carbonell, Husting, Fisher, Curtis and Bellizzi and a couple more had a shot at the National Expert Champion if they could finish well. In an early heat J. Jacobs and Jerry Brady had


quite a race with the lead changing several times. Jacob's winning time was eventually good enough for 5th place. In the next-to-last expert road heat, Gene "Curly" Husting went out in the lead part way through the race and continued to stretch his lead to the end. His time was good enough to give him a 3rd place finish.

As usual, the last race of the day had all the hot dogs in it. Thorp, Curtis, Fisher, Carbonell and Morrissey. During the first laps Fisher was in the lead but Morrissey went past him on turn No. 1 (right after the start/finish line). Fisher stayed right on Morrissey's tail for a couple of laps but had to drop out because of radio interference problems. Morrissey's lines were beautiful (the ones he was taking on the track, that is). I think Mike was the only one who took turn No. 1 properly . . . the quickest and safest way. After the final flag fell Morrissey had taken 1st by 20 seconds over Carbonell who wrapped up 2nd place. Thorp had some radio problems and Curtis was having continuous minor problems.

After the race, Mike admitted to using tall gearing (4:1 I think) and a "dead" (mild) engine. He inferred that that he'd seen me win too many races that way. I also suspect he may have done what I did . . . learn the correct way around the track weeks ago with the road race game (see July '73 MB R/C Car News). By playing this game several times, it became apparent that the best line for turn No. 1 was not from the outside of the straight away, but rather, to the inside where you could brake hard and be ahead of your competitors. I had my basic driving

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line selected weeks before the race (circumstances prevented my entering). Changes would only be made to compensate for track conditions (surface, bumps, traction, course markers, etc.).

The '73 R/C Car Nationals ended on a rather good note. The awards dinner and ceremonies were impressive. By the end of the evening most drivers and mechanics were well lubricated and ready for their trip home.

Several things about the '73 Nats bugged me, however. First, rather than have one integrated drag class based on E.T. only for points toward the Overall Champion, there were three. If a guy really wants low E.T. he'll go out and build what he thinks is the fastest car. Otherwise he takes his chances to pick up a few points. As it was, a last place finisher in an eight car drag class got as many points as the 8th place finisher in a sports car class with more than 50 cars.

Second, ROAR rules specifically state hands-off starts. The Nationals (by

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ROAR) was not run this way. Why, I don't know.

Third, a protest against a car was lodged. The car was found illegal. The protest committee convened for 3 hours and then *disallowed the protest*. I heard the reasons . . . but still . . . why, I don't know.

After seeing the '72 and '73 R/C Car Nationals I believe that: 1) the national races must be specified and controlled by a ROAR committee for national competition, 2) the committee should establish a consistent course layout/marketing method, 3) the racing program should be scheduled and checked to assure enough time to complete events, 4) protests should be handled by the committee (with a judgement within 15 minutes while racing continues), and 5) National Champion points should be based on approximately equivalent events.

The large number of entries which caused most of the problems may necessitate a different racing format or an increase in the number of days for the Nationals. In any race program I would like to see the order of the individual qualifying heats selected randomly. Personally I would also like to see the field eliminated down, possibly to one race, so that conditions are more equivalent and you can identify the real winner . . . no ifs, ands or buts! It seems to me that nationals are for the best drivers and they may have to drive a couple more races than the first-time entrants. ●

Mainsheet . . . Continued from page 47
head. When all ribs were in place the deck was trial fitted, and showing no

ribs bowing out through the hull, the deck was removed and the rib placement marked with a pencil. The ribs were sanded on the bonding edge, as the hull had been, prior to the temporary tack. The partial bonding can be easily broken by pushing the ribs toward the center of the hull. Now that the trial fit was perfect, some 15-minute epoxy was used to bond the ribs in place. A nice solid bond resulted, and there was no chance of distortion in the hull.

The next step was to prepare the deck for gluing, and that involved sanding the inner lip that hooks over the shear of the hull. At this point, the edge of the deck was sanded round with some 600 wet-or-dry sand paper. The shear strip was sanded for truing and gluing, as were the tops of the ribs. While gluing in the ribs, the rudder post block was also installed as per directions.

Now comes the magic moment of zipping the deck to the hull. The edge of the deck turns under slightly, just enough that you have to flex the hull in place so that it will stay on. To make sure the epoxy (15-minute type) did not run down the hull, the epoxy was applied to the lip of the deck and the two were assembled and kept upside-down until the epoxy hardened. Masking tape, electrical tape and Scotch Magic Mending tape were all tried. There seemed to be little difference in the holding power of any of them on a polystyrene surface.

The little bit of area between the deck and the hull that did not get filled was refilled with epoxy and trimmed

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when almost cured. To avoid having this second bit of epoxy all over the hull, it was applied with a toothpick. By the way, if you do not already know, MEK is a super solvent for epoxy. It sure beats any other method I know of getting glue off your hands, which includes chewing it off!

The rudder is simple to make. According to the instructions, flatten a piece of brass tubing provided and glue up the two halves, using plastic cement. The gap at the top (if any) can be filled with plastic putty as used on model cars. Sand the edges of the rudder smooth and clean. Start sanding with 120 grit paper and finish sanding with 600 wet and dry. This sanding operation should take no more than 5 minutes from start to finish.

The next operation is to glue on the mast step and drill the holes for the hatch screws. The screw eyes for the rigging would normally be installed at this time, if they were not previously put in place.

The next operation is to attach the keel to the hull. It only requires that you roughen up the hull where the keel is to be glued on and then the inside of the keel where the flange is to be attached. At this point you can save yourself a lot of work if the keel flanges are tapered at the point where they attach to the hull. Using a liberal amount of epoxy, bond the keel to the hull. The only tricky part is to be sure that the keel is attached vertically. There are two methods to insure this. One is to turn the keel so the flange is facing down and the boat is resting on the deck. After applying epoxy to the hull and keel, set keel on hull and run masking tape from the bottom of the

keel to the deck and measure each side, making sure that each side is the same distance from the deck. By turning the keel upside-down you will insure a good bond by allowing all of the excess epoxy to fill in the area between the keel and hull. The other method would be to put the keel in a vise (with little pressure) and epoxy coat the flange and hull, then set the hull on top of the keel with a pound or two of weight inside of the hull to apply a little pressure on the flange. To insure that the keel is vertical, sight down the keel and line up the deck until it is square. Either method will work and it is up to the builder to select the one that is easiest for him.

After the keel is installed, drill the rudder post hole and install the rudder shaft log. While each of these steps was going on, the waiting periods were used to build the winch.

Building the winch was easy, as the tray that is to be used to install the radio gear is also the backbone for the winch system. All of the parts necessary to build the winch are provided, except the batteries and battery holder. Spring loaded slide switches are used to activate the winch and control its travel. Three of the four worked very well, but the fourth would wait momentarily before returning to the open position. Opening up the switch showed a burr on the slide track, probably a one-in-a-million punch press cutting error. Once deburred, this switch worked even easier than the other three.

The wooden tray that holds the sail control drive mechanics is cut to size and even notched properly to cut assembly time. The drilling of holes and cutting of slots for the R/C servos took only a few minutes, as the plans

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show just where everything is to go. The slots are not cut out for the radio gear, as servo sizes vary for different radios.

My choice (to keep weight to a minimum) was Kraft KPS 12's. Once the blocks were in place and the switches were installed, all that was needed was to solder up the wire provided to the proper terminals. The diagram was followed exactly, and the winch did not even hesitate to operate properly and completely.

The next step is to install the radio platform in the hull. Here (for the first time) you will need some parts from the hobby shop or your scrap box; a quick link to hook the tiller arm (provided) to the servo, also batteries and a battery holder. Once the radio platform and winch have been installed, connect the sheet lines to the swivels and hook them to the booms. Right now you are probably wondering how you managed to rig the boat without turnbuckles, a goose neck, and a whole bunch of tangs. Simple; you don't need them

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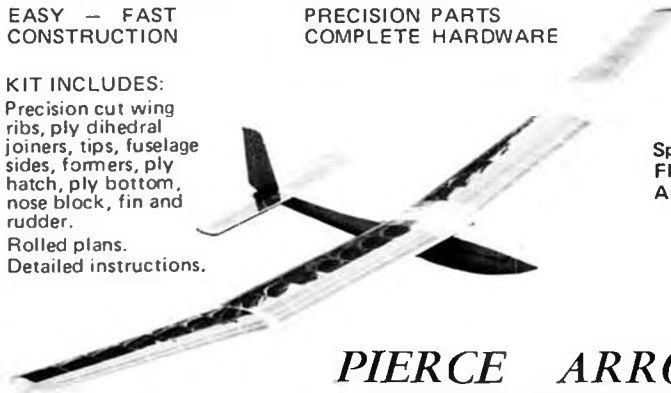
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when you use a mast jack as provided in the kit, and screw eyes replace the need for tangs and gooseneck fittings.

The shrouds are cut to length and wrapped over the top of some fishing swivels. Once the shrouds are secured to the mast, spreaders, and swivels, the mast is stepped on the deck and jacked up until the shrouds are tight. There is no way you can get the mast to tilt sideways unless the shrouds were cut to unequal lengths. Adjust the backstay for proper tension on the jib luff once the mast has been jacked up in place. Check to see that the servos, winch and rudder work properly, then it is off to the pond for a couple of hours of pure enjoyment.

The kit built according to plans should provide the builder with satisfactory results in all respects. There are some changes that I would recommend if you intend to race the boat in 36-600 competition. Replace the screw eyes with a conventional goose neck. This is to prevent a slight hesitation in the shifting of the boom from side to side while tacking rapidly. Make the out-hauls adjustable by the addition of a couple of bowsies. Use a cleat or bowsie to adjust the luff tension on the mainsail. If your radio will permit, use the receiver power supply to power the

winch, but be careful, some radios will be subject to a slight noise factor! The weight saved by using a common battery pack can be added to the keel for added stability.

Using my Kraft single stick radio and a 225 MA battery pack, I was able to sail for over an hour continuously with no problems. The boat was brought in and a 500MA pack was used to replace the smaller one, and for the next two and one half hours every one enjoyed sailing the Tahoe 600.

In assembling this kit, I tried to use all of the known methods of gluing and bonding. I would recommend using epoxy in most cases, being sure to use the one that gives enough working time to do the job correctly. Model airplane plastic cement and MEK should be used only where you need seconds, not minutes. Plastic model car putty should be used to fair in any bad looking joints. Remember, if you don't do it right the first time, no patch job will make it look right. The plastic Tahoe 600 is advertised elsewhere in this magazine. If you want to give it a try, I suggest that you do.

AMA MEMBERS ARE INSURED

Workbench . . . Continued from page 4
NSRCA . . . AT LAST!

As most R/C'ers who attended the Oshkosh Nats are aware, a national pattern flyer's organization has finally been formed. Rhett Miller Sr., father of this year's R/C Champion, was railroad . . . er, selected as temporary chairman. Rhett took it upon himself to unofficially name the organization the National Society of Radio Controlled Aerobatics, and has issued an initial report on progress to this point. Included in the report is the following statement:

"From the very outset let us state that at no time in the past nor at any time in the future will our organization be used to supplant, replace, or operate outside the framework of AMA. Our organizational structure will be patterned after the other groups such as NMPRA, League of Silent Flight, etc., and will be geared to promoting pattern flying within, not without, AMA."

The following have agreed to serve as District Coordinators:

Northwest: Ralph Brooke, 3431 S. 194th, Seattle, Wash. 98188 . . . Southwest: Joe Bridi, 23625 Pineforest Lane, Harbor City, Calif. 90710 . . . North Central: Don Lowe, 3491 Clar-Von Dr., Dayton, Ohio 45430 . . . South Central: Don Downing, Euless, Texas . . . Northeast: Ed Keck, 484 Pellet Rd., Webster, New York 14580 . . . Southeast: Ron Chidgey, 2613 Pompano Dr., Pensacola, Florida 32504.


NSRCA registration numbers will be assigned on a first-come basis. We will be running a membership application blank starting with the next issue, but in the meantime, you may get your name in by sending \$4.00 to Rhett Miller, NSRCA Chairman, 3039 Lakeshore Dr., Tallahassee, Florida 32303. You will receive a membership card with your assigned registration number included.

PAMPA

Not to be confused with a nationally advertised disposable diaper, PAMPA is the newly formed Precision Aerobatics Model Pilots Association for control line stunt enthusiasts. President is Keith Trostle, 10900 Phillips Dr., Upper Marlboro, Md. 20870; V.P. is Les McDonald, P.O. Box 1561, S. Miami, Florida 33143; Sec.-Treas. is Wynn Paul, 1640 Maywick Dr., Lexington, Kentucky 40504; Directors at large are Gene Schaffer, 32-15th St., Astoria, N.Y. 11106 and Al Rabe, 1904 Valley Oaks, Irving, Texas 75060.

The organization has a substantial newsletter "Stunt News," edited by

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Wynn Paul. In the 10 page September issue, we learn that Bob Gieseke, Gene Schaffer, and Bill Werwage will represent the U.S. in the 1974 FAI World Championships.

Membership in the organization is \$5.00, made payable to PAMPA, and sent to Wynn Paul, address above.

FUEL'S UP

Between our short lead time and the rising costs of most anything you can think of, Johnny Brodbeck of K & B Mfg. got caught with his prices down! His ad in our September issue was a repeat of an earlier one, and somewhere in between . . . well, you know what's been happening.

Anyhow, don't start shouting at your dealer if his prices don't agree with that September ad. Chances are, they'll be as follows:

- K & B 100 + . . . Pints \$1.25, K & B 1000 + . . . Pints \$1.75 . . . Qts. \$2.95
- K & B 100 . . . Pts. \$1.50 . . . Qts. \$2.60 . . . Gals. \$9.00
- K & B 1000 . . . Pts. \$2.00 . . . Qts. \$3.50
- K & B 500 with X2C . . . Gals. \$7.50.
- K & B Super Speed . . . Gals. \$15.00

MYSTERY MODELER

Col. Leon J. Friedman, USAF (Ret.), Amherst, Mass., correctly identified October's Mystery Modeler as Paul Plecan. Paul's history in modeling could fill a book, but as he only too well knows at this point (he's now MODEL BUILDER'S new Art Director), we don't have enough space! In any event, if any of his old buddies from the New York City area, or old customers of JASCO, or scale nuts from his Air Trails days, care to contact him, drop a note to the magazine or give him a call at our number (714) 547-3963.

MODEL BUILDER AUTHOR SCORES

John Penhallow's article on Formula

I racing (full size) in August '73 MB earned him Third Place (Check for \$25.00) in a writer's competition sponsored by the Formula I division of the Pylon Racing Pilots Association (P.R.P.A.). The prizes were awarded at a cocktail party for Form I fans which was held on Friday night during the Reno Air Races. John will have a full report, with photos, in a near-future issue.

Congratulations, John. Don't spend it all in one place!

HAPPY ANNIVERSARY!

Nov. 8, 1973 marks the Diamond (75th year) anniversary of the first radio control model patent. We're in the process of preparing an article for publication in the near future that will give you some highlights of this and of the unusual man who was behind it all.

KUDOS TO LYNN

In the September 24, 1973 issue of the Register, Santa Ana newspaper, there was an excellent article by Staff Writer Lynn O'Dell, concerning the plight of people involved in our hobby. The article covered half of an inside page of the newspaper, and included an 8 X 7 photo of Tony Catalano, Brea, California, in his garage workshop, holding an R/C glider (looks like a Fliteglass Phoebus).

Main theme of the article concerned the continued loss of flying fields in heavy populated areas because of homeowners objections to engine noise. Though Catalano is primarily a "glider guider," he has a great deal of interest in the whole hobby, and particularly its moral and educational value to youngsters, who are destined to suffer the most from the problem.

The article is sensitively written, and clearly shows that Lynn took enough interest in the matter to get her facts straight and use them that way. ●

R/C Continued from page 15

they are "Number 2" in the area. They fly harder.

Probably the method most suggested is along the lines of Bob Cousins, Putnam Valley, New York. Bob fills all the dings in the foam with DAP spackle, available at most hardware stores. He paints the plane (foam that is) with thinned GESSO (from the artist's supply store again). Then he uses Latex paint over the GESSO. Bob says the latex is thick so brush carefully. Now he takes india ink and marks the panels and all the little details to dress up the plane. Finish coat is Polyurethane clear coating, cut with 20% turpentine and sprayed on if possible. Bob writes that his finish is tough, matte and realistic. His Chipmunk gets raves at the field and nobody will believe it's a foamy.

Thanks, Bob!

Another new product that really is impossible to show properly in photographs is called "See Temp." This is a new template material that has a no-glare surface. You lay it over plans and trace out the ribs, bulkheads etc. It's fifteen thousandths of an inch thick and comes in 22 X 5-1/2 inch sheets. Enough to make the patterns for two planes. A pencil or ball point can be used to trace right over the parts or plans, and you cut it out with a model knife . . . or scissors. Price is \$3.95 postpaid from See Temp, P.O. Box 576, Menomonee Falls, Wisconsin 53051.

Received a long letter from old friend "Red" Scholefield, formerly of Huntsville, Alabama, now residing in Florida. Red works with GE, and sent along some very comprehensive manuals on GE's nickel cadmium cells. I'm still reading . . . and learning . . . Red says that what we modelers do to our nickel-cadmium packs in our planes, vibration-wise, is really a crime. If we

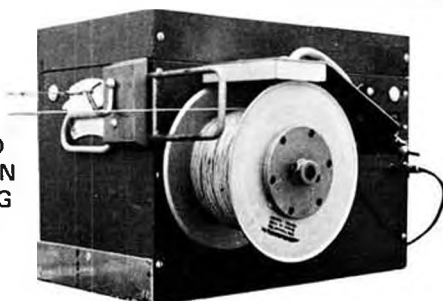
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and realize the three year trend toward building models of existing full scale planes still exists. Most are kits with an embellishment of the cockpit and other details provided by the modeler.

8:30 A.M.

Le Gray is now sitting up and taking nourishment.

9:30 A.M.

I finish my sixth round and continue to time for other contestants.

9:45 A.M.

The wind increases and an overcast sky excites all flight lines into quickening their pace. Le is confident that his bullwhip will not be necessary now.

10:00 A.M.

Meet a group from the Albuquerque Radio Soaring Enthusiasts (ARSE). Talked about co-sponsoring a contest with them but came to realize that the combined acronyms, S.O.A.R. and A.R.S.E. might confuse people into thinking that this was a description of our dispositions and not our modeling interests. Made no further plans.

12:34 P.M.!

Le Gray announces that all flights are complete; the 1973 LSF R/C Tournament is over. Everyone smiles.

It took about two hours to tabulate all scores and to announce the winners. This is not uncommon with contests of this type and magnitude. The fact that the last flight could be the winning one renders any pre-computing useless. The lull between the last flight and the awards presentation does usually afford an opportunity for relaxed conversation among fellow modelers. All agreed that a new avenue has been opened for R/C soaring contests, and that Le Gray and the clubs in the Western Soaring Council are to be commended for a fresh, new and gutsy approach to competition. Le's faith in this new system is sure to be realized in future contests.

3:00 P.M.

The Winners!

Goal Distance (One Mile): Rick Walters flying a MAHA-original design. Best Time: 01:39

Two Minute Precision: Dave Shadel flying a CUMULUS.

Scale: Hans Langer flying a Hegi ASW-15.

Overall Winner: Buck Faure with an original design; 12' span, 24: 1 aspect ratio! 61 ounces.

Team Award: Torrey Pine Gulls, Buck Faure, Jim Haldy, Ed Hoppe, Kelly Pike, Randy Warner.

(The Torrey Pine Gulls' record is incredible. This same club also won best team competition at the recent

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2 REF 447	7/8	3/8	female	steel	hardened steel	4-40	1.52	\$1.25
2 REM 256	1.0	3/8	male	steel	hardened steel	2-56	1.68	\$1.25
2 REM 348	1.0	3/8	male	steel	hardened steel	3-48	1.75	\$1.25
2 REM 440	1.3/8	9/16	male	steel	hardened steel	4-40	2.41	\$1.25

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would spend as much time insulating our batteries from vibration as we do our receivers and servos, the power supply would stand a good chance of outlasting the radio equipment.

Quarter midget racing as a sport event is still gaining strength around the country. This writer hopes it will stay a sport event and not end up like Formula 1, with just certain areas that are hot spots, and little or no interest in other (and most) places. Last contest for Quarter Midgets here in Nashville back in April brought in over fifty planes. I missed the "Nationals" in September at Rough River State Park in Kentucky, but think the October races here locally will bring an even bigger crowd.

Bumble Bee . . . Continued from page 43 the best of the opposition.

When picking fuels and props, most people tend to go for maximum level flight speed. This is fine for advertising, and a few people are psyched out by idle comments such as ". . . only a hundred twenty-five with a streamer . . .", but the real test is in the turns. Haul a stop watch out to the center of the circle and time your favorite weapon through five or ten consecutive full

control Figure Eights. Four seconds per Figure Eight is a good number to shoot for. Try different combinations of fuel and props to find the one that gives the highest top speed combined with the fastest time through the maneuvers and you will have a winning combination.

Good luck and good hunting! ●

R/C Soaring . . . Continued from page 52

these winches are being made available, complete with line and foot switch for \$139.00. The price is less battery but does include the turn around pulley. (See ad in this issue. wcn)

7:30 A.M.

Flight lines are on the move and the pace is as quick as when it ended Saturday.

7:32 A.M.

Considering the festivities of the night before, Le Gray's recuperative powers are graded "outstanding" by all who observe him. Le is already smiling. (What's to recuperate from gingerale? wcn)

7:35 A.M.

The air is calm and I finish the mile in three minutes flat.

7:40 A.M.

I notice the array of scale models

1973 R/C Soaring Nationals in Lockport, Ill., yet with different team representatives!)

Monday morning August 27th.

Quarterbacking at its best. While flying back to Chicago, Neil and I rate this as one of the best contests we ever attended. The elements of freedom and excitement can only be felt as a contestant. It is suggested to any club that dares to be different to add a new dimension to their contests . . . open flight lines and open tasks . . . provided the tasks are thermal AND precision in nature.

Tuesday morning, August 28th.

Classified ad: Modeler wishing to acquire R/C sailplane that will do a mile in 01:30. Will trade 10 gallons of tar and a set of feathers that fit a 42 regular. Contact Dan Pruss.

Pylon Continued from page 17 of racing. The Mexican group really go all out . . . Win or else!! Ha!

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Model airplane plans. Peanut, rubber, CO₂, gas. Free list. Send self addressed, stamped envelope to: Modernistic Models, Box 6932 Burbank, California 91510.

The PETE — Remember back in 1931, when Comet produced their first real flying scale model, complete with celluloid wheels? We have this plan and many others, beautifully off-set printed, black on white. Send SASE to: JOE FITZGIBBON, P. O. Box 13, Braintree, Massachusetts 02184

"DO-IT-YOURSELF AERODESIGN" — Sailplanes, FF, HLG, R/C Sport, Charts, instructions — \$4.95. Eric Lister, 953 Klockner Rd., Trenton, New Jersey 08619

Bob Smith continued his winning ways as he captured overall honors in the Expert Class with an almost perfect performance. Terry Prather beat Bob in round three with his GMA Supertigre powered Minnow, in a beautiful race that put the only dent in Bob's otherwise perfect score. Bob seems to have found the right combination, with this particular Dara and K & B Lee Custom Schnuerle. It was the first time this combination has been beaten! (The airplane was completed just before the NATS). This later proved to be the race of the meet, as Terry Prather took second overall.

Speaking of performances, the surprise contender of the meet was young Charlie Shaw. At the end of eight rounds, Charlie and his stablemate, Kent Nogy were tied for third place Expert. Charlie had shut Kent down in round four and would have to do it again to take the third spot. It's pretty hard to beat Nogy anytime, let alone twice in a row! Charlie pushed Kent all the way in the fly-off, but couldn't quite put it all together again as Kent evened the score and took the win for overall third place. Shaw had to settle for fourth with his best showing to date! We predict that young Mr. Shaw will definitely be a contender for any of the top spots from now on! He is here, NOW!! Not bad for only his second year in Formula I!

After the race, The San Gabriel Club held a raffle for all the club members who worked as judges, timers, scorers, etc. Aircraft kits, engines, fuel, props and accessories were given to everyone who helped in any way. It was like a big party! A good race was enjoyed by all. It was conducted beautifully, and we all enjoyed ourselves tremendously! Pop

White would have been proud!!

Our observations from this race only justify our previous ones. Look out for the Stafford "Rickey Rat" and the Foster "El Bandido." These two designs will arrive, we promise, before the NMPRA Nats. They look good to us and we can't help but believe that one of these two designs will hold the competition record at or near the season's end! We hear that Harley Condra is moving up to Expert with an "El Bandido" . . . He Will Be Tough!!

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(with instructions)

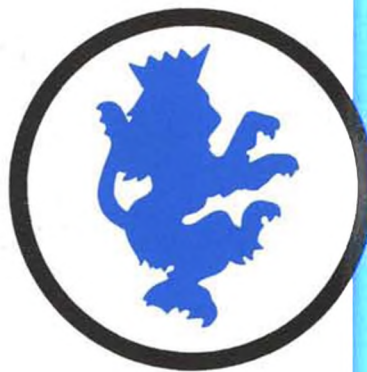
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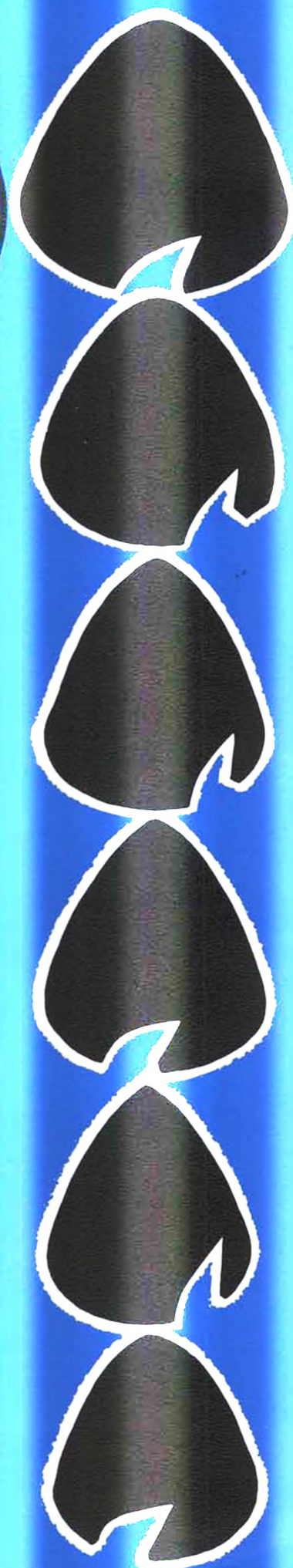
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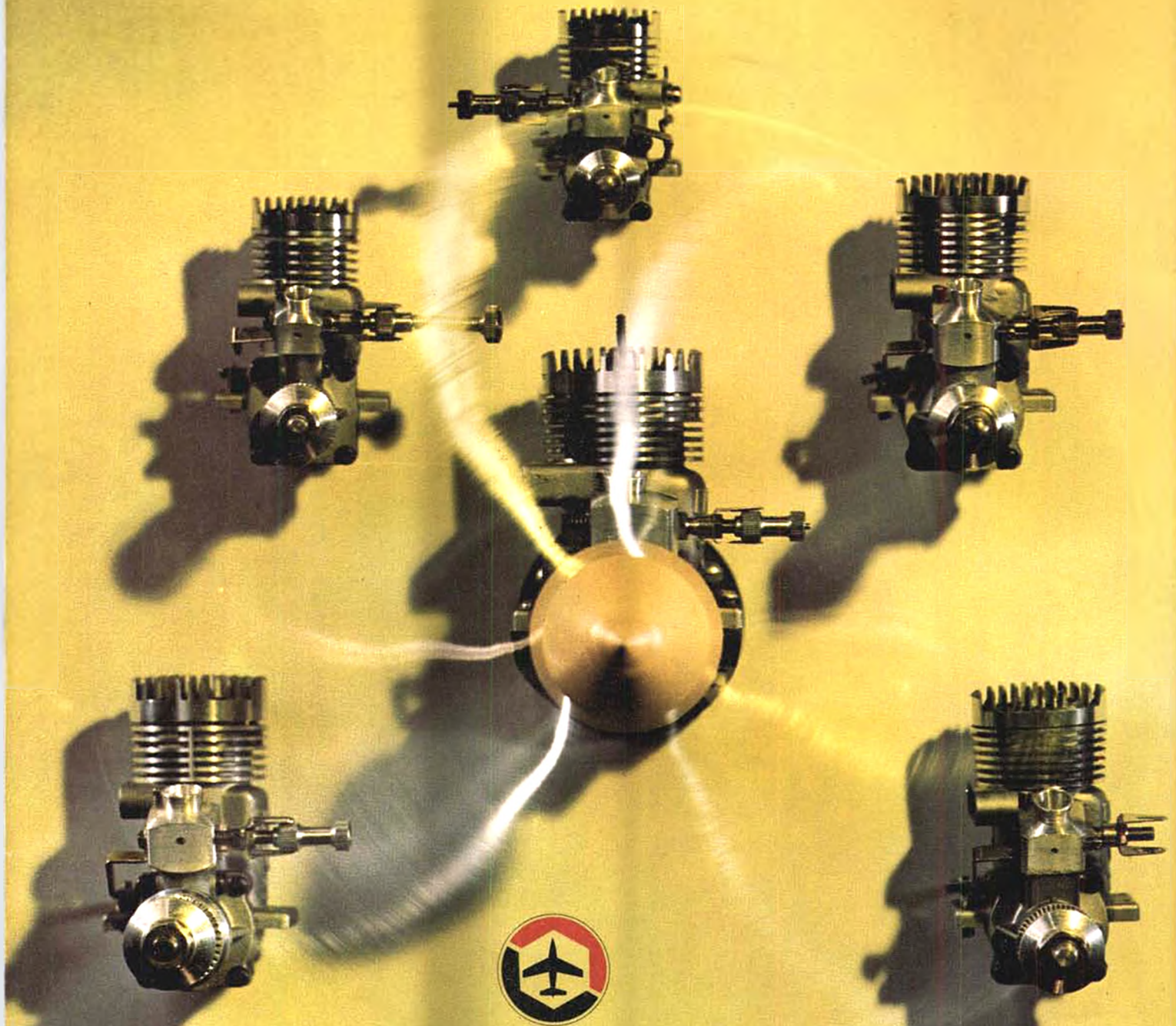
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