



# MODEL BUILDER



volume 11, number 111

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APRIL 1981

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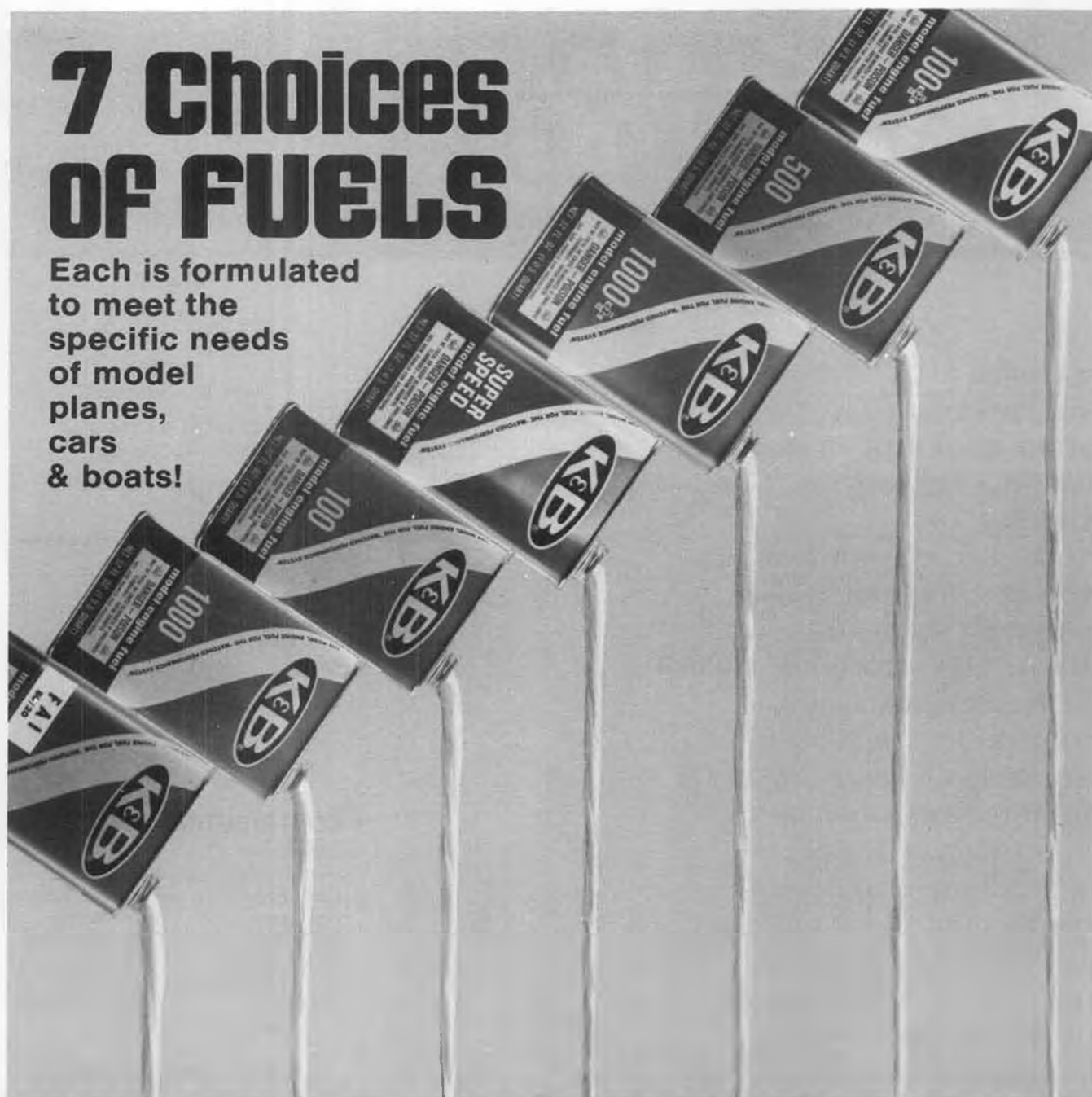
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KB-1L (long reach) and the KB-1S  
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# MODEL BUILDER

APRIL

1981

volume 11, number 111

Box 335, 621 West Nineteenth St., Costa Mesa, California 92627 Phone: (714) 645-8830

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Cover: Mitch Poling, RCMB's "Electric Power" columnist, test flying his indoor electric R/C scale Sopwith Tabloid before the opening of the IMS Pasadena Model Trade Show, Saturday, January 10, 1981. Models could not weigh over 24 ounces and could not exceed a wing loading of 3 oz. per square foot. The Sopwith is powered by an Astro 020 motor with belt reduction drive and is controlled by a Cannon radio. Larry Renger pic.

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R/C MODEL BUILDER





Authentic 1/5 Scale

P-51

## A Milestone in Model Engineering!

After years of intensive research, testing and refinements, Byron Originals proudly announces the release of its truly remarkable 1/5 scale P-51 Mustang. This deluxe, super-scale kit, complete with factory-installed Quadra engine and prop reduction system, is unquestionably the most sophisticated and realistic scale reproduction ever made of this famous WW II fighter. The list of standard features and assorted hardware alone is far too extensive to attempt even a partial description. So in order for you to better

appreciate this superb kit, we are offering a detailed information pack, complete with materials list, owners manual, parts price sheet and a miniaturized set of assembly plans and isometric drawings. Simply send us \$2.00 along with your name and address and we'll forward your pack immediately. Once you review it, you'll understand why the P-51 from Byron Originals is being heralded as the greatest engineering achievement in modeling history.

### COMPLETE KIT CONCEPT!

Kit includes detailed fiberglass fuselage, injection molded wings and control surfaces and all necessary hardware to complete model as shown. Four deluxe decal schemes, three view and detailed plans and isometric drawings also included. **NOTE:** Pilot, paint, covering material and radio gear not included.

Actual photo of model on final with operational flaps and scale retracts extending.

### SPECIFICATIONS

WING SPAN ..... 85"  
WING AREA ..... 1300 sq. in.  
LENGTH ..... 76"  
Ready-to-fly weight ..... 22 1/2 lbs.  
CHANNELS ..... 4  
(6 for flaps & opt. retracts)

### Complete Power Package Included in Kit!

#### Consists of:

- Complete drive unit & mounting
- Scale 24x15 four-bladed prop
- Quadra's latest Schnuerle ported engine
- 5 1/2" spinner

### P-51 Kit

Suggested Retail Value ..... \$699.95

Mail Order Price ..... \$559.96

plus \$13.00 shipping

### Optional Pneumatic Retract System!

(Includes all necessary hardware)

- Sequencing gear & wheel doors
- Operational scale Oleo struts
- Scale tires & wheels
- Single servo actuation

(Fully illustrated in plans)

### Retract System

Suggested Retail Value ..... \$169.94

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Size	Regular	Lite
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## MUSTANG P-51

Designed By MIKE STOTT

KIT KBRC-2

**\$74.95**

ENGINES: 60  
WING SPAN: 64in.  
WING AREA: 700 Sq. In.  
WEIGHT: 7 Lbs.

### KIT FEATURES OF CHIPMUNK & MUSTANG

Sig Quality Balsa and Plywood  
Formed Plastic Fuselage Halves  
Pre Cut Foam Wing Core  
Rugged Plastic Cowling  
Clear Canopy With Framing  
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Solid Balsa Internal Profile  
Sheet Balsa Tail Surfaces  
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Decorative Decal Sheet  
Step-By-Step Instructions  
HARDWARE PACK INCLUDES:  
Molded Control Hinges  
Molded Nylon Control Horns  
Tuf-Steel RC Links  
Double Coated Servo Mounting Tape

## SUPER CHIPMUNK

KIT KBRC-1

**\$76.95**

ENGINES: 61  
WING SPAN: 64"  
WING AREA: 690 Sq. In.  
WEIGHT: 7 Lbs.



Designed By MIKE STOTT

## CESSNA 150

Designed By HANK POHLMANN



ENGINES: 50 to 60  
WING SPAN: 65 In.  
WING AREA: 645 Sq. In.  
WEIGHT: 7 1/2 Lbs.

KIT KBRC-4

**\$89.95**

### KIT FEATURES

Molded Plastic Skin for Aileron  
And Flaps With Realistic Crimping  
Cessna Factory 3-View Drawing  
Formed Plastic Fuselage Halves  
Door And Window Detailing  
Molded Plastic Engine Cowling  
Molded Wheel Pants  
Pre-Cut Foam Wing Core  
Formed Plastic Wing Tips  
Solid Balsa Internal Fuselage Profile  
Sheet Balsa Tail Surfaces  
Formed Aluminum Main Gear  
Strong Coil-Spring Nose Gear

Decorative Decal Sheet  
Step-By-Step Instruction Booklet  
Die-Cut Plywood Parts  
Sig Quality Balsa  
Molded Nylon Control Horns  
Molded Plastic Hinges  
Tuf-Steel RC Links And Rods  
Double Coated Servo Tape  
Aluminum Engine Mounts  
Nylon Nose Gear Bearing  
And Steering Arm  
Nylon Wing Bolts  
Blind Nuts And Bolts  
Assorted Small Hardware



## CESSNA 172 SKYHAWK

### KIT FEATURES

Cessna Factory 3-View Drawing  
Formed Plastic Fuselage Halves  
Realistic Cessna Crimping For  
Ailerons, Flaps, And Elevators  
Formed Clear Windows  
Molded Plastic Engine Cowling  
Molded Wheel Pants  
Pre Cut Foam Wing Core  
Solid Balsa Internal Fuselage Profile  
Sheet Balsa Tail Surfaces  
Formed Aluminum Main Gear  
Strong Coil-Spring Nose Gear

### Decorative Decal Sheet

Step-By-Step Instruction Book  
Die-Cut Plywood Parts  
Sig Quality Balsa  
Molded Nylon Control Horns  
Molded Plastic Hinges  
Tuf-Steel RC Links And Rods  
Double Coated Servo Mounting Tape  
Aluminum Motor Mounts  
Nylon Nose Gear Bearing And Steering Arm  
Nylon Wing Screws  
Blind Nuts And Bolts  
Assorted Small Hardware

Designed By HANK POHLMANN

KIT KBRC-5



ENGINE SIZE: 60 CU. IN.  
WING SPAN: 65 IN.  
WING AREA: 645 SQ. IN.  
WEIGHT APPROX: 7-1/2 - 8 LBS

**\$89.95**



SEE YOUR DEALER FIRST! TO ORDER DIRECT, ADD \$1.00 POSTAGE FOR ORDERS UNDER \$10.00. POSTAGE FREE OVER \$10.00. NO C.O.D. ORDERS. SEND \$2.00 FOR THE LATEST CATALOG OF KITS, ACCESSORIES AND SUPPLIES BY SIG AND OTHER MAJOR COMPANIES.

**SIG MANUFACTURING CO., INC. . . Montezuma, Iowa 50171**



The Naccarato team wins again! Tony and his mom, Addie Mae, entered two models in the 1981 IMS Trade Show indoor R/C electric scale competition, and took first place with this "Guppy", a lightweight homebuilt designed by the Sorrell brothers. The model flew over the heads of exhibitors and spectators during the show. More about it beginning on page 11. Oh yes, the check is for \$200, just enough to buy one tank of gasoline!

from

## Bill Northrop's workbench

• Talk about a cliffhanger! We've been holding this column way past our normal deadline in order to publish the results of the runoff election between Earl Witt and John Grigg for president of AMA. In accordance with the schedule, the ballots were to be computer-counted on January 27 (yesterday). Earl called us in the late afternoon and told us the computer count came out so close, they would have to hand-count the rejects (ballots that had probably been marked incorrectly so the computer could not register them). That would take until today (January 28).

This is being written moments after Earl's call to say that the results were complete . . . and he just missed being reelected. Out of a total of 20,532 ballots

counted, John ended up with a narrow margin of victory, only 340 . . . 10,436 to 10,096. But, a narrow margin is as good as a mile, so congratulations to John Grigg, new president of AMA. And certainly, congratulations to Earl Witt for giving it one hell of a shot. His presidency has been controversial, but this election has proven beyond a doubt that 50 percent of the (voting) membership believed he was right.

We got quite a charge out of the John Grigg campaign letter that was circulated to promote him during the runoff election. As this letter is emphatically claimed to be complete factual, we can take encouragement here at **R/CMB**. The third paragraph of the letter read as follows:

"R/C Model Builder magazine has been the only hobby industry voice to come out in support of Witt, doing so with passion, and since it is the only direct head-to-head competitor of our own Model Aviation publication, we wonder what they have in mind?"

That for you, *Model Airplane News*, R/C Modeler, and all the rest! And a special thanks to the very factual Committee to Elect John Grigg President of AMA!

### GONE SOMEWHERE. . .

We don't have an "Electric Power" column this month, but could hardly blame Mitch Poling. Mitch was in the Los Angeles area before Christmas, and while there, accumulated data for several columns, along with photos of electric flying at Mile Square Park in Orange County, and at other sites in the area.

Returning home to Seattle, Mitch boarded a Pan Am plane at LAX (Los Angeles International) for a non-stop flight. Seated in the plane, he happened to see his travel bag, a custom-made unit of unusual color combinations, being loaded in the baggage compartment. Upon arrival at Sea-Tac Airport (Seattle-Tacoma), Pan Am was unable to come up with his bag, and could not explain how it was able to disappear on a non-stop flight. Of course, you've guessed it, all of the electric column material was packed in the errant bag. To date, it has not been found.

### SIG AWARDS

The following brief story by Frank Huffman, Fort Worth, Texas, is self-explanatory.

The 8th Annual December Dinner Meeting of the Fort Worth Planesmen club will live long in the memories of the 78 attending members and guests. . . One of our very active AMA Senior age group members, Mike Clem, of Dallas,



Hazel Sigafosse presents the GLEN SIGAFOOSE JUNIOR/SENIOR ACHIEVEMENT AWARD to Mike Clem. The perpetual trophy will be on continuous display at AMA headquarters.

Continued on page 100

R/C MODEL BUILDER



# OVER THE COUNTER

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

● Peck-Polymers has added three new items to its ever-growing list of quality model products. First, the Peanut Scale model that everyone uses as a comparison when saying that a particular model "flies as good as..." the Lacey M-10. This version was designed by top British modeler Butch Hadland, and is the one with which he won the English Peanut Scale Championships. It's a consistent contest winner with its abundant 47 square inch wing area and long rubber motor capacity. The Peck kit is complete except for glue and paint, includes decals, three-views, and step-by-step photo-instructions. Price is \$4.95.

Now you can extend the life of the blades in your favorite modeling knife. Peck-Polymer's "Sharpys" is a two-sided blade sharpener. One side is coarse enough to put a new edge on a damaged or badly dulled blade, while the other side will fine-hone the blade into a precision cutting instrument. As distributor and dealer for the Uber Skiver model knife, we at R/CMB grudgingly praise the merits of "Sharpys!" Price is \$1.95 each.

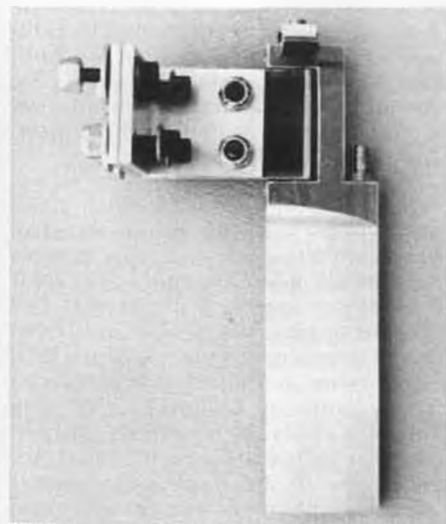
Finally, Peck-Polymers offers a new, lightweight, 5 to 1 ratio winder for Peanut Scale and other small rubber-powered models. It has a rugged nylon case, and features an anti-reverse lock to



Monocoupe 110 Clip-Wing, 2-inch scale, built from Vern Clements detailed plans.



Hobbypoxy Formula 4 Quick Fix epoxy glue now available in 4-ounce tube pairs.



Precision machined aluminum rudder unit from Steve Muck's R/C Boat Products.



Peck-Polymers 5 to 1 rubber winder for Peanuts and other small rubber models.



Two-sided model knife blade sharpener from Peck-Polymers.



The one-inch scale Culver Cadet, as built from Vern Clements' plans.

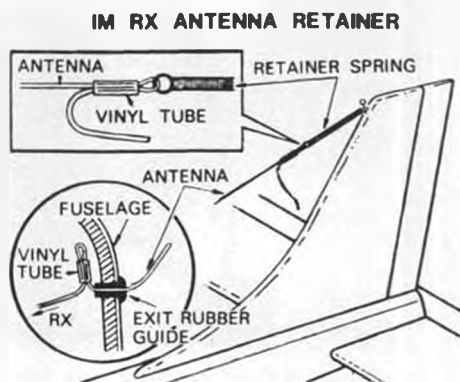


Peck-Polymers presents the perfect Peanut, the Lacey M-10, as designed by Butch Hadland.

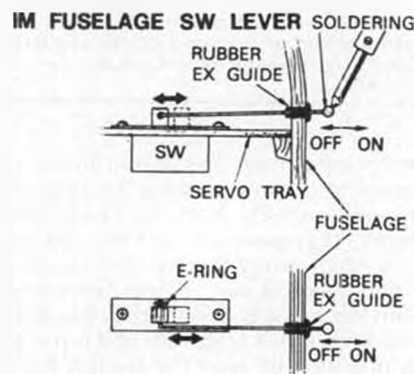
prevent winding in the wrong direction. In the event you lean toward pusher models, or like to allow a little backwind when you're transferring the rubber to the prop-hook, the reverse lock is easily removed or replaced by opening the gear case. The price is \$3.95, and like all Peck-Polymers' items, may be purchased at your dealer, or ordered direct from the company, at Box 2498, La Mesa, CA 92041.

★ ★ ★  
Hobbypoxy Quick Fix Formula 4 Epoxy Glue, favored for many years by modelers because it does not become brittle with age, a typical problem with most so-called "5-minute" epoxies, is now available in new, larger, see-thru, 4-ounce poly tubes. Marketed by Hobbypoxy Products, a division of Pettit Paint Company, Rockaway, New Jersey, each set contains a full 8 fluid ounces of glue, with a net weight of 9.7 ounces, and retails for \$8.95.

★ ★ ★  
Promising high rpm, cool running, and long engine life with its use, Bavarian Precision Products Co., Box 6, New Canaan, CT 06840, announces a new car muffler and adaptor for its H.B. 21 PDP race car engine. The muffler attaches to the adaptor without the use of any kind of hardware, permitting it to be placed in any position. An internal "O" ring actually holds the muffler tightly in position, allowing easy installation. Large size of the muffler can assure adequate cooling of exhaust gases and



Two new accessory items from I.M. Products, imported by Circus Hobbies.



eliminates back pressure.

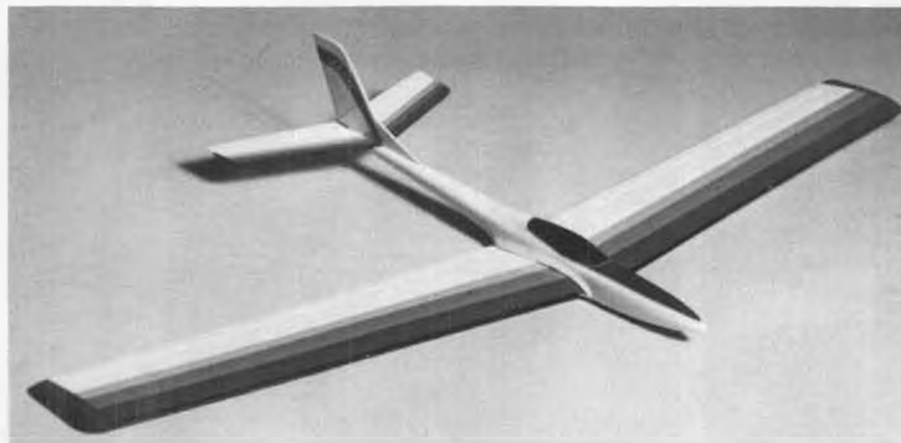
★ ★ ★  
Coverite announces an improved version of its Super Coverite covering material, to be identified as "Second Generation Super Coverite." Available in 47x38-inch and 47 inch by 15 foot rolls, the SGSC comes in red, white, blue, yellow, orange, hi-viz, and authentic "antique tan," which simulates old-time natural finished, fabric covering.

The second generation material is claimed to have a new Hi-Lo temperature range which allows the modeler "to fine-tune the amount of shrink, depending on the surface to be covered." For solid surfaces, including foam, a 250°F setting, producing minimum shrink, is said to do the job. At 300°F, it

will shrink tightly over open structures, and at 350°F, reaches maximum shrink capability. Its new adhesive is also claimed to stick better to balsa and hardwood, and once down, doesn't come loose.

Coverite is also introducing a new lightweight primer, called Primex, especially formulated for Coverite covering materials, but also well-suited for nylon, dacron, silk, tissue, and wood. Purpose of this transparent blue liquid is to provide a base with excellent adhesion for final paint finishes.

Primex is the fourth liquid product



"Coyote", 72-inch span aerobatic R/C sailplane by Bob Martin's R/C Models.



Molded pilots from I.M. Products, by way of Circus Hobbies, in medium and large sizes.





Swampscot Dory from The Laughing Whale, in one-inch scale.

from Coverite, which includes Balsarite, a surface primer for iron-on materials, Glaskote, a high-gloss final coat that does not leave brush marks, and Quik-Stik, an iron-on adhesive that can be applied to many fabrics and tissues, converting them to iron-on materials. All liquids and thinners come in 1/2-pint cans, and Balsarite is also available in pints. See your dealer or contact Coverite, 420 Babylon Rd., Horsham, PA 19044.

★ ★ ★  
Competition quality, precision machined rudders are now available from Steve Muck's R/C Boat Products. Each rudder is machined from bar stock aluminum and incorporates a water pickup in the rear of the blade. The rudder mounting pivot is designed for leading or trailing rudder angle. A 2-56 safety shear bolt is used so the rudder can breakaway if you should hit something submerged in the water while running. The rudders come in two sizes:

for 20-40 and for 40-60-90. The larger rudder is 3/4 inches longer for twin engine or 90-size hulls. Order direct, or send 50 cents for catalog, at 6003 Daven Oaks Dr., Dallas, TX 75248, or phone (214) 931-6597.

★ ★ ★  
The latest scale boat kit from the Laughing Whale is a 1"=1 foot model of a Swampscot Dory. Full scale Swampscot Dories were the most highly developed variant of dory ever built, particularly in reference to speed, ease of handling, and seaworthiness. New England Dories came into being when it was possible to acquire clear, wide pine boards cheaply. Having only four strokes per side, this saved labor costs and permitted rapid construction. These same qualities carried over into the model.

As with all Laughing Whale kits, the Dory uses quality materials, and is built from pre-cut basswood frames, bottom, and planks. Kit also includes brass fittings, wood blocks, stainless steel wire



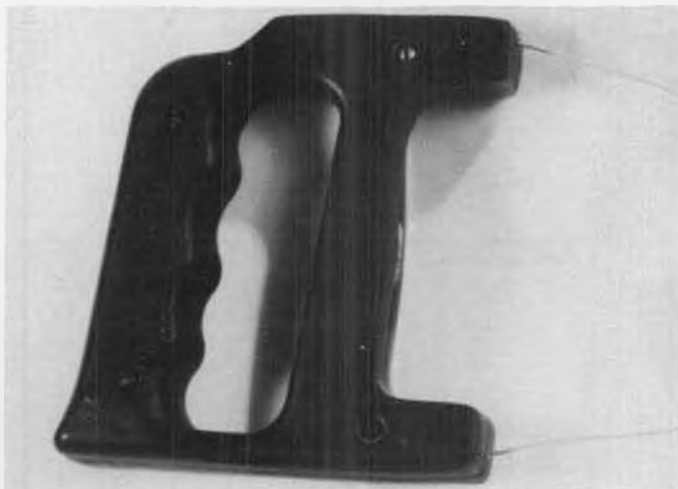
New car muffler for the HB .21 PDP engine, from Bavarian Precision Products Co.

rigging, first quality twisted rigging cord, sail cloth, rolled blue prints, and complete instructions, with photos. Price is \$39.50, at your hobby shop, or order direct, including \$2.50 postage and handling, from Laughing Whale Studio, Box 191, Wiscasset, ME 04578, phone (207) 882-7154.

★ ★ ★  
Quite possibly the best scale drawings ever created for the particular subjects selected have been produced by long-time scale modeler/competitor Vern Clements, P.O. Box 608, Caldwell, ID 83605. For the most recent well-known evidence of his work, refer to the many photos and descriptions in the model magazines of Granger Williams' Gee Bee R-1 and "Z" Precision and Sport Scale R/C models, which have been making their mark in regional and national contests.

The challenge to the modeler in building from Clements' plans is to try to

*Continued on page 99*



U-control handle from Sturdi-Built Model Mfg.



Graduated balancing weights and neoprene wheels from I.M. Products, by way of Circus Hobbies.





'Waitin' at the gate" for the show to open on Saturday morning at the Pasadena Center Exhibition Hall.



The Meyers brothers "Spruce Goose" was a stellar attraction in the static display, especially as it could boast of successful flight.



# WORLD



# PASADENA

Text and photos by Larry Renger and John Elliot

• Oh boy! Show time! I really enjoy the model shows that come to Southern California. It sure beats traveling to cold and sometimes snowy Toledo, or to the WRAMS show in White Plains, New York, to see "what's new" in the hobby industry. Here at the IMS show, we can also see some very unique R/C flying, indoors, that is. . . More on this later.

The 4th annual International Modeler Show, held in Pasadena, California, as it has been for the past two years, gives the manufacturers a chance to talk and listen to the West Coast R/C'er, and thaw out at the same time. . . Several booths sported portable TV sets, tuned to the football playoffs. That's one way to keep a captive audience in front of your booth!

Over 7,000 attended the show despite competition from two playoff games, a major auto expo, and an RV show. The manufacturers must certainly feel the



Tony Naccarato checks controls prior to giving signal for his mother, Addie Mae, to launch one of their two indoor R/C scale electric entries, a Farman Moustique.



Ray Forbes and Danny Lutz are happy with the reception given by modelers to the new line of Kraft radio systems.



Dean Copeland, with Byron Originals' prototype straight-drive, 60-powered Bonanza, complete with scale corrugations.





Tom and Donna Runge enjoyed their first participation in the IMS Show.

importance of this "early bird show," as there was over a 20% increase in new exhibitors this year.

Let's take a tour of the show and see what's new. Entering the large, well lighted area, we see the Byron Originals booth with its now famous "biggies." Bruce Godbersen, Dean Copeland, and crew were very busy explaining details of the sectioned Pitts and the P-51 (back orders have been shipped) and the new direct-drive .60-powered Beech Bonanza, complete with molded parts and material to simulate the corrugated skin of the control surfaces, as on the real bird. Super impressive. . . Watch for it! A large crowd was ever-present, viewing the videotape display of the flyability



Always smiling Duke Fox, holding the twin, also had several new mills to show.

and durability of the big birds.

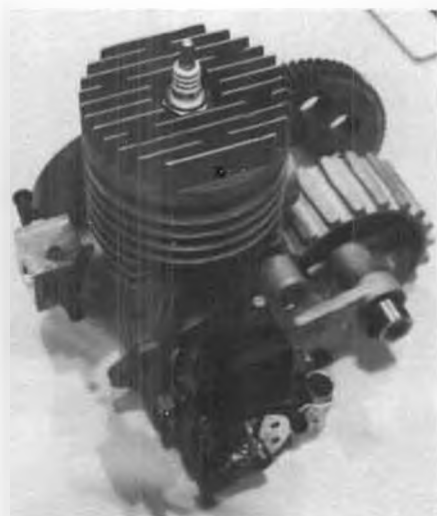
Tom and Marie Williams, of Craft-Air, displayed their line of accessories, sport and competition sailplane kits, and were busy answering many questions about their soon-to-be-released series of "Cowboys." This new line is designed to introduce the newcomer to building through simple construction techniques, ending up with a completed model that will enable him to learn to fly easily. Simply, a first airplane that is a basic trainer. . . a bit slower, easier to fly, and less responsive than most of the average "basic trainers." The "Cowboy 1 and Cowboy 2" will offer a progressive



John Brodbeck and Bobby Tom answered lots of questions from the K&B booth.

program of building and flying experiences. Additionally, wing kits with semi-symmetrical airfoils will be offered to yield more aerobatic performance, that are adaptable to the basic Cowboy designs. An excellent thought. . .

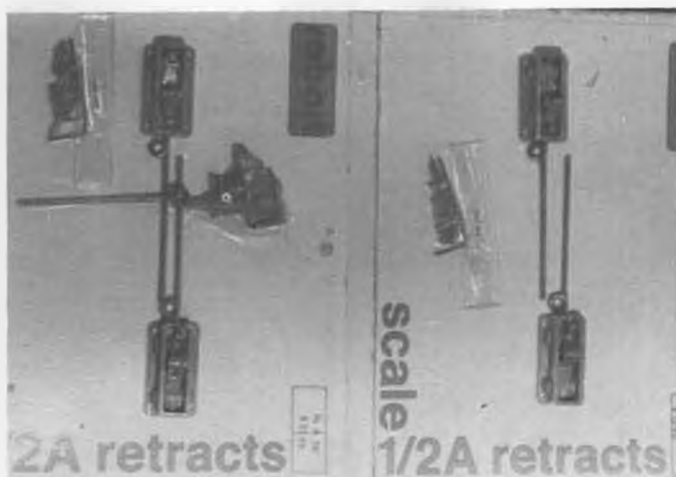
One of the pioneers in model helicopters, John Gorham, of Gorham Model Products, was showing his quality line of choppers, including the popular .25 powered Cricket. Watch for the forthcoming movie, "All Night Long," with Gene Hackman, for some neat drug store scenes involving the Cricket. John had an exact 1/5-scale, SA 315 LAMA, powered by a 20cc Kawasaki, weighing in at 22 pounds, ready to go. Listing at



Bicycle motor by Duke Fox, to be available in bike shops for about \$125. Hmmm . . . remove that side shaft and drive gears . . .



Bob Peck checks the prototype of his new blimp which will be kitted for modelers. Bag is puncture resistant vinyl, will lift 28 ounces when filled with helium.



Two and trike-gear retracts for 1/2 A scale models, by Robart. Many modelers looking for these.



A real "cutie-pie" from Sig, this Fly Baby is for .10 size engines. Very light, with semi-symmetrical airfoil for aerobatics.



Peck-Polymers Peanuts and Prairie Birds on display. Mrs. Bob (Sandy) Peck in background.



Clever installation of Rosie's R/C Power Pod bolted to reinforced Gentle Lady wing spar.



Very nice 1/4-scale Stearman by Chuck Fuller on display in CB Assoc. booth. Kawasaki.

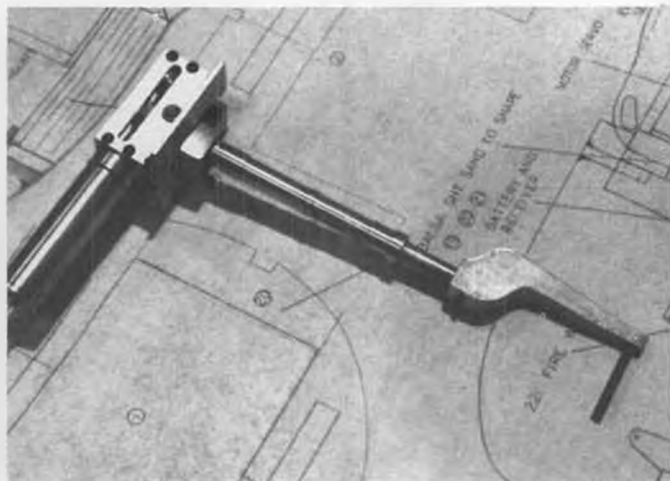
\$2,200, this will be a collector's item, limited production, call John about it.

West Coast R/C had a large display of the impressive line of HB engines. Condor Hobbies, importer of hobby and toy items, displayed some nifty rubber powered kits, and R/C cars. EMS had its line of electronic items and airborne packages for the 'aftermarket'

on display. Next door was genial Bill Cannon, with his "tiniest" of R/C systems, to amaze one and all. Bill has truly been a pioneer in the world of thinking small! Would you believe a 1/4-scale, electric powered, 3-channel airplane, with all up weight under 24 ounces? One such aircraft flew in the indoor R/C scale competition. Bill was also showing his

line of imported G-Mark engines, including a new .30 twin with special 2-into-1 muffler.

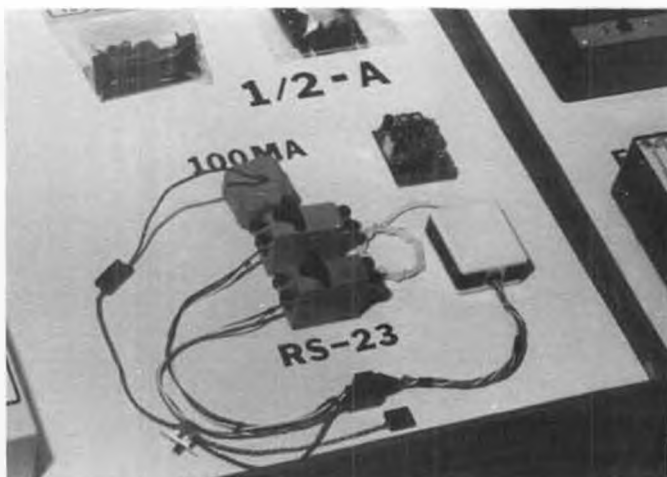
Ever smiling and perky "Charlie," of Charlie's R/C Goodies, held court next door with some very reasonably-priced systems, mini-servos, accessories, and kits. Tatone Products, with John and Terri Tatone (that's tay-toni, as in Spu-



Airways Scale Retractor unit for Bert Baker's Zero. Company specializes in air-driven custom sprung retracts.



Sid Gates, Royal Electronics, takes a moment to catch his breath while answering lots of radio system questions.



Royal Electronics 2-channel lightweight airborne system can be matched to your transmitter.



Airtronics' line-up of servos should take care of every need. Also note new glass-filled nylon motor mounts.

moni) in charge, were busy displaying their line of motor mounts, mufflers, and other specialty items.

Next was the IMS booth, headquarters of the show, displaying the multitude of trophies for the static displays and flight awards. It was also called "Pasadena Tower" when announcements for the indoor R/C flying began. . . Adjoining

the IMS, was the well staffed **R/CMB** booth, answering questions and taking subscriptions; passing out copies of **R/CMB**, selling T-shirts and Uber Skiver knives.

Moving right along folks, here's DaCa, with its very nice line of ground support equipment; airplane racks and flight boxes. John Pond Old Time Plans will

take you back to those golden days of yesteryear for sure. Browse through his catalogs of plans; rubber, F/F, C/L, and be prepared to reach for your check-book as the nostalgia bug bites. . . Hobby Horn was our next visitation with old time kits and models on display. Replica Engines had a variety of original and replica ignition engines going way back when. . . Their 2.4 cu. in. Fergusson Condor is a real beauty. Modelers Mansion featured an R/C revival of Jim Walker's "Fireball" as an ARF. Ah, yes. Sherline Products showed its line of precision machine tools in modelers sizes, Joe "Mahtin" presiding (Joe still hasn't lost his New England accent).

Sky Sports Unlimited presented a variety of aeronautica, from Sleek Streaks and wild kites to die-cast aircraft models for display. Dale Willoughby, of Scale Model Research, was busy talking about his packets of high quality color photos of full size aircraft, for scale documentation.

Making a left 180, to the next row of booths, our first stop was with Bart Furey, of Robart Mfg. Co., another of the new group of exhibitors coming to the California marketplace to display its wares. The fine line of treaded tires are "original equipment" on many winners in scale contests around the country. Robart has a nice selection of hinge systems and all kinds of special retract



Scale Flight Models "Zero" to about 1/5 scale, by Bert Baker and Denny Deweese. Features conventional construction . . . using wood!



Walt and Susan Schroder handling the sales of raffle tickets. Major items given away totaled almost \$4000 in value.

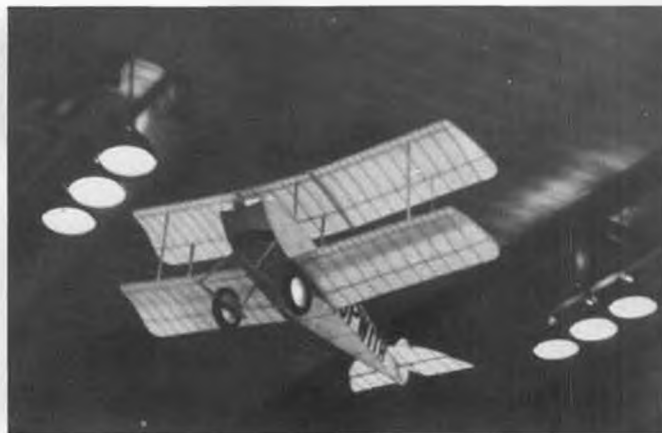


Col. Bob Thacker seems to be conceding a point to John Tatone, but then, the Colonel hardly ever concedes a point.





Tony Naccarato lands the Sorrell "Guppy" in the center demo area after an official flight over the spectators' heads.



Mitch Poling, "Electric Power" columnist, entered this classy looking Sopwith Tabloid in the IMS Indoor Electric R/C Scale competition.

gear set-ups. Interesting airplane con-  
ditions. . .

Next up was Bob and Sandy Peck, of Peck-Polymers, with a beautiful display of Peanuts under glass (take note, Jimmy). Overhead was a very large Peanut, er, Goodrich, er, Peck Blimp, soon to be kitted; all up weight with 4-channel radio, dropable ballast, and a full load of helium is about plus or minus nothing. . .!

Around the corner we find RAM Radio Controlled Models, Ralph Warner holding the fort with his many types of lighting systems, electronic speed controllers and warning devices, and boat kits. Interesting items to dress out your model. Next was Dave McAllister, MACS to you, with his fine line of diversified mufflers and pipes, very extensive. A local club, the Black Sheep Squadron, that specializes in indoor electric flying, was next on our tour. This group gave excellent demos of U/C electric flying, utilizing modified Guil-lows kits and ably assisted by Tony and Addie Naccarato of "Tony and Addies," a noted hobby emporium located in "beautiful downtown Burbank." Their booth, next on our list, included a display of hard-to-find rubber power kits and accessories. On display in their booth too, were their two indoor electric powered R/C scale model entries for the indoor competition.

The Airtronics booth was ably manned



Addie Mae and Tony Naccarato with their 1/4-scale Farman "Moustique", which weighs just under the 24-ounce limit specified for the competition. Plane was built in a week!

by Larry Jolly and Dave Shadel, with the XL radios and Saggita gliders on display. Then came Flight Line shirts, who were producing custom T-shirts while you wait.

Around the corner, facing our indoor flying field, we found K&B Mfg. Here, Bobby Tom, K&B's super service manager, Bill Wisniewski, and the Chief himself, John Brodbeck Sr., were busy talking engines, fuel, finishing materials, how to go faster, etc. . . . Their portable TV tuned to the playoff games, may have helped draw a few hobby types to their

display. . .

Midway Models, around the corner, had its very nice line of Replica old timers, all scaled down for .020 or electric power. Struck's "New Ruler" with 31-inch wingspan and the Cleveland Playboy Sr. with 38 inches of wing, and others too, were there to choose from.

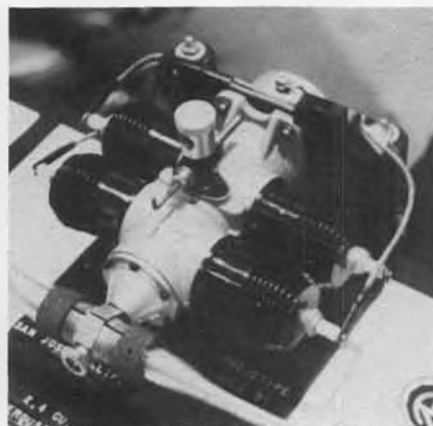
*Continued on page 91*



Tony Avak checks the zero balance of his competition winning R/C blimp. Flew series of specified maneuvers, won \$200.



Modeler's Mansion is kitting this R/C version of the famous American Junior "Fireball".



Fergusson "Condor", 4-cylinder ignition engine displayed in Replica Engines booth.

# FUEL LINES



JOE KLAUSE

P.O. Box 2699  
Laguna Hills, CA 92653

● Imprudent as it may be, let's begin this month with a few assumptions, such as you've:

1. Decided to do your own engine maintenance.
2. Assembled the basic tools discussed last month.
3. Vowed you'll succeed despite this author.

Just to prove how right you are on that last one, here's a major omission from my column last month. To do even routine maintenance it's essential to have a few inexpensive parts. The first photo illustrates these. Without going into lengthy explanations, you should never reuse a gasket, shim, or wrist pin clip. So, just pretend that I previously listed them with the necessary tools. Spare screws are also nice to have on hand.

Okay, let's disassemble an engine. Off with the prop nut and washer. Next, the prop drive plate. Ugh, it's usually stuck. At this point, all too often a modeler may try prying with a screw driver. Some have even been known to use vise grip pliers. All of this is guaranteed to damage parts, and may or may not loosen the drive plate. You can avoid such frustrations by using the basic technique shown in photos 2 and 3. In Number 2, a couple of short lengths of quarter-inch diameter music wire and scrap lumber make a very effective holding fixture for a Webra engine prop drive. In Number 3, a bearing puller is adapted to the task of supporting the

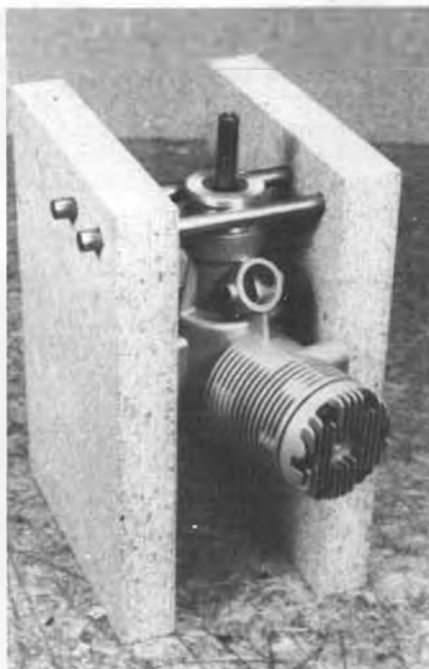


PHOTO 2

prop drive of a K&B .40. It works well with Super Tigre and other engines. In any case, once the prop drive plate is adequately supported, it only takes a mild rap with a plastic mallet to free it.

Next, remove the carburetor, glow plug, and then the head and backplate screws. If the front end detaches, remove those screws also. For further illus-



PHOTO 3

trative purposes, we'll consider a one-piece case and front end.

In order to take the connecting rod off the crank pin, it will be necessary to first remove the sleeve. On slug piston engines, this can often be accomplished by simply placing a copper glow plug gasket on top of the piston and part way out the exhaust. Rotating the crankshaft with a wrench and prop nut will usually drive the sleeve up and out of the

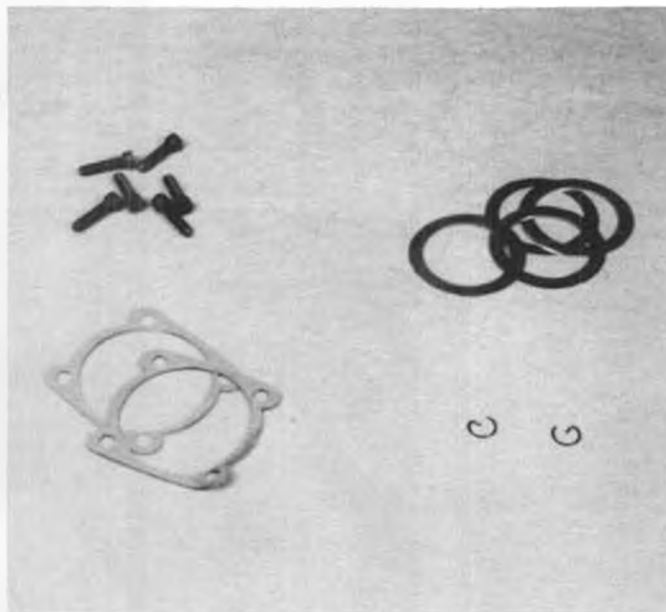


PHOTO 1

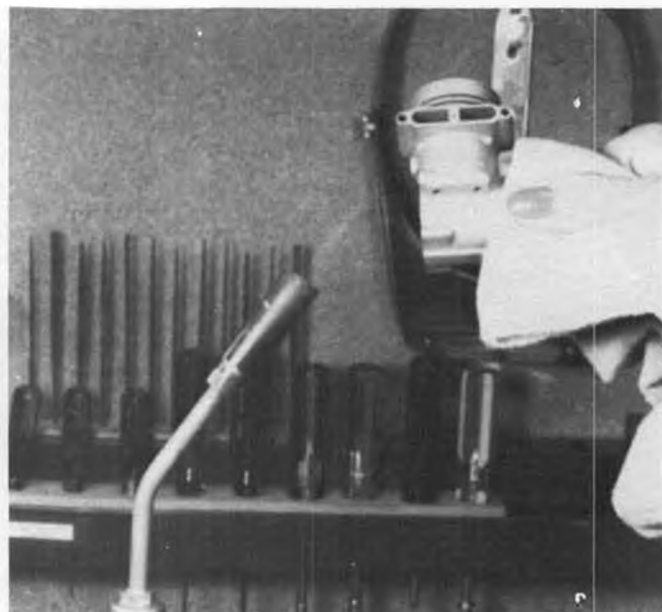


PHOTO 4



PHOTO 5

case. The soft copper gasket will prevent damage to the piston and exhaust port as long as you don't have to use too much pressure. If the sleeve does not slide out easily, you'll have to heat the case to loosen the fit. Do not use this copper gasket technique on a ringed piston. If you do, the chances are that you'll squash the ring groove . . . even if ever so slightly. If that happens you may as well throw away the piston because the ring will never again float properly.

As mentioned, heat can be used to loosen a sleeve. Photo Number 4, shows the heating of the upper portion of a case with a propane torch. Only about ten seconds of heating is necessary. This will cause the case to expand and loosen its grip on the sleeve. Then, tap the top edge of case against a stack of soft wooden blocks as shown in photo Number 5. The sleeve will slide out of the case an eighth-of-an-inch or so. You can then use one of those home-made "Z"-shaped pieces of music wire to pull the sleeve completely free of the case . . . photo 6. Under no circumstances should you ever use pliers, etc. to grab a

sleeve. If you do you'll surely ruin it. From a safety aspect, always use a protective cloth when heating or handling a heated case.

With the sleeve removed, you'll be able to slip the connecting rod from the crank pin. Again, one of those home-made hook wire tools will help . . . photo 7. There are some exceptions to this . . . notably the Webra speed .40 and .91. Even with the sleeve removed on these engines, the rod will not slide off the pin. This is because the wrist pin bosses of the piston prevent the rod from sliding rearward. On such engines, it is necessary to remove the wrist pin through an access hole in the sleeve and case.

First, remove the cover screw on the rear of the case, and then reach in with forceps and pull out the wrist pin retainer clip. The hollow of the wrist pin is threaded, and by using a head screw twisted into the pin, you can pull it out through the case. With the wrist pin out, the piston will be free of the rod, which will now slide off the crank pin.

The last procedure for this episode is



PHOTO 6

to remove the crankshaft from the case. On a plain bearing engine, the crank will slide out quite easily. On ball bearing engines some force is usually necessary. Hold the case in one hand with padding for protection . . . a pot holder works great. With your other hand, use a plastic mallet to strike the front of the shaft. A few moderate raps will free the shaft.

The engine is now disassembled to the state of the Super Tigre .40 shown in the last photograph. Further disassembly, such as bearing servicing, etc., will be the subject of individual articles. For now, carefully clean and inspect each and every part. Use a magnifying lens and a bright light. Now is the time to decide if any major parts need to be replaced or if they only needed a thorough cleaning. That's about all that space permits this month. Next time, it'll be complete servicing of ball bearings.

Hopefully, this has given you some confidence to service your own engines. After all guys, as you can see from the hands in some of the photographs, even a lady can do it. . . ●

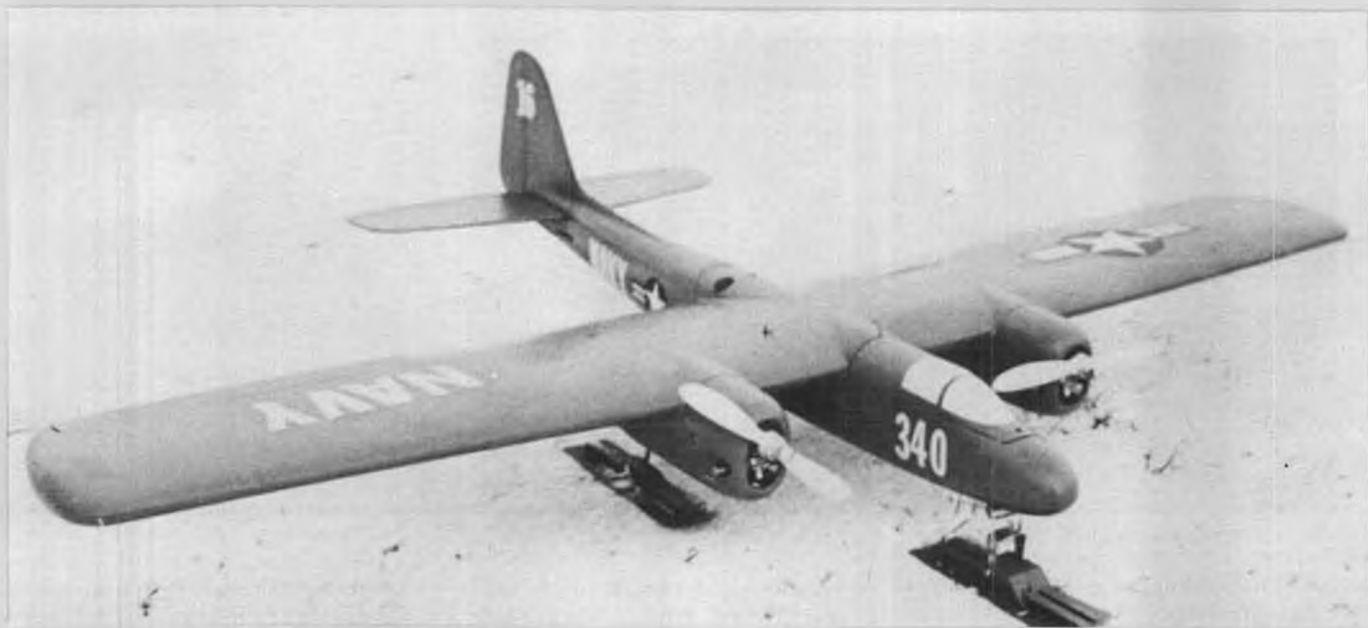


PHOTO 7



PHOTO 8





# NORTH STAR

By KAVELI SUNDQUIST . . . This interesting .15-powered sport twin was designed by a Finnish merchant marine radio operator. Dick Sarpolous wrote the article, and supplied Kaveli's plans and photos.

• This model was designed and built aboard a Finnish cargo ship travelling all over the world, moving timber, wheat, wood pulp, etc. The designer is the ship's radio operator, an ardent R/Cer named Kalevi Sundquist, and a friend of mine. I think he has come up with a good sport aircraft design here; Model Builder thought so too, so here I am writing an article about a plane I didn't even build.

Discussing the design, Kalevi has sized a twin for two .15 engines; he used the popular OS .15's. Wing span is 50 inches, wing area is just over 400 square inches, and the fuselage length is 37 inches . . . seems just right for two .15s. The design is conventional; a shoulder wing model

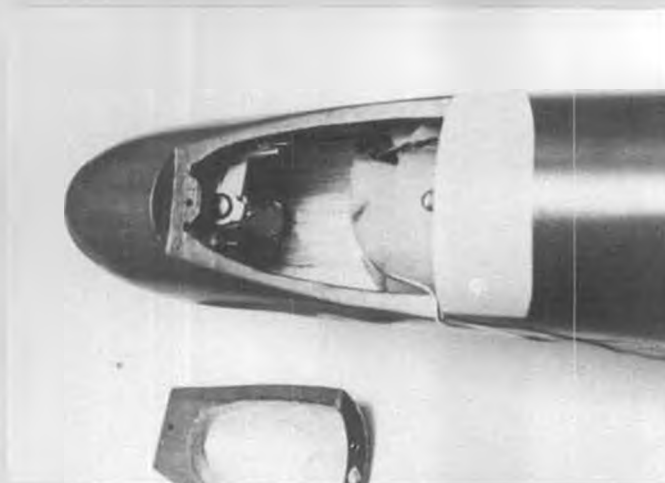
with tricycle landing gear, two engine nacelles slung under the wing, and a sort of scale appearance enhanced by a Navy-style paint job. Kalevi reports that it is an easy flying model, probably due to the extra thick, full symmetrical airfoil chosen. Engines are as close together as possible, and the vertical tail area is generous, so I would guess single-engine flying not to be critical. The designer says it performs like a pattern ship with the added enjoyment of that twin-engined sound. He has flown it with skis, and living in Finland, I'm sure there is plenty of snow around to suit his ski flying.

Construction is pretty much standard; wing is built-up, including several spars,

leading and trailing edge planking, and capstrips. Wing is flat on the top surface, with the dihedral taper in the bottom. Center section is constant chord, with tapered tips. Ailerons are tip types, not the usual strips. Fuselage features large sized triangle stock in the corners and thick sides, permitting shaping to an elliptical cross-section. The engine nacelles are built-up similar to the fuselage, with considerable shaping required. Although the nacelles use beam mounts, I believe I would simplify things with 1/4-inch plywood firewalls and the use of radial mounts. The engines are enclosed in carved balsa cowl, but molded fiberglass cowls would also work well.



Engine cowlings built up and carved from balsa. Could also be molded from fiberglass.



Front half of cockpit is removable to allow access to receiver and steerable nose gear.



North Star designer/builder Kalevi Sundquist aboard ship. Cockpit area not yet painted.



North Star is ruggedly built, has WW-II military appearance. Hand-carved, four-bladed props turned by two OS .15 R/C engines.

The wing is built upside-down on a flat work surface; all thickness taper is in the bottom surface, for dihedral. The ribs are held level with the building surface by a wood spacer strip under the rear portion of the ribs. After the leading and trailing edge planking is added, the wing can be removed from the bench and turned over for addition of the top planking. The ribs are spaced so the engine nacelles are added between them in the proper location. The ailerons are cut from the finished wing, the ribs cut and a leading edge added to the ailerons so they can be hinged in place. The throttle and aileron linkage should be installed before the center section planking is added to the wing.

The engine nacelles can be assembled and rough shaped before they are added to the wing; the large removable hatches provide access to the engine, fuel tanks, and throttle linkages. The lower wing leading edge planking is removed inside the nacelles to provide room for the fuel tanks. The horizontal stabilizer is 1/16 balsa sheeting over an 1/8-inch balsa framework. The fin and rudder are simply cut from 1/4-inch

sheet balsa.

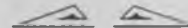
The 3/16-inch balsa fuselage sides are built up with 1/32 plywood doublers and 3/4-inch balsa triangle stock. When joined with the bulkheads, and the top and bottom are added, there is plenty of built-up wood stock to be shaped to a pleasing elliptical cross-section. With the battery pack located up forward for balance, there is room under the wing for the rudder and elevator servos. The wing is held in place with the usual 1/4-inch dowels and nylon bolts.

Covering and finishing can, of course, be done by the builder's preferred method. Apparently mufflers weren't used on the original model, but the cowlings could be carved out somewhat to provide for them. Interesting four-bladed props are shown in some of the photos; these were made by Kalevi of laminated hard maple, cut and hand-carved to shape. I know if I had hand-carved, four-bladed props like this, I would never fly with them!

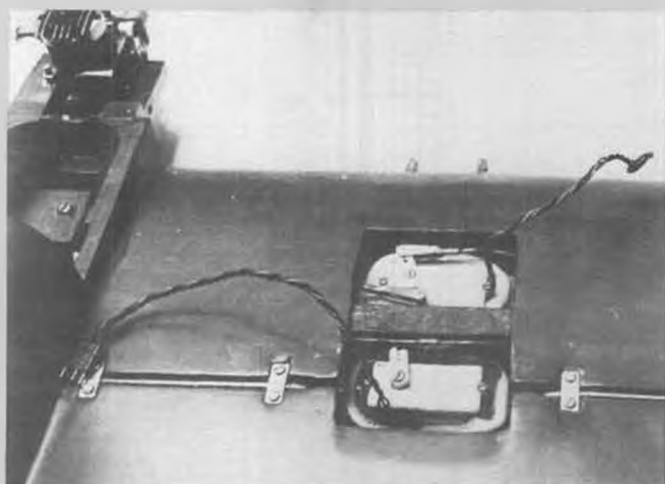
Photos of Kalevi's model on the snow show the use of three fairly small skis attached in place of the three wheels, which he reports work well. I also notice

he uses a cradle to support the model upside down for easier starting of the two inverted engines, a good idea.

I hope I have described Kalevi's model as he intended it; the North Star looks like a lot of fun to me, so try a twin for a change and enjoy it!



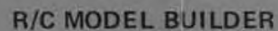
Battery is set well aft to counter-balance weight of two engines. Foam rubber strips seal and insulate radio compartment.



Throttle and aileron servos in center section of wing.

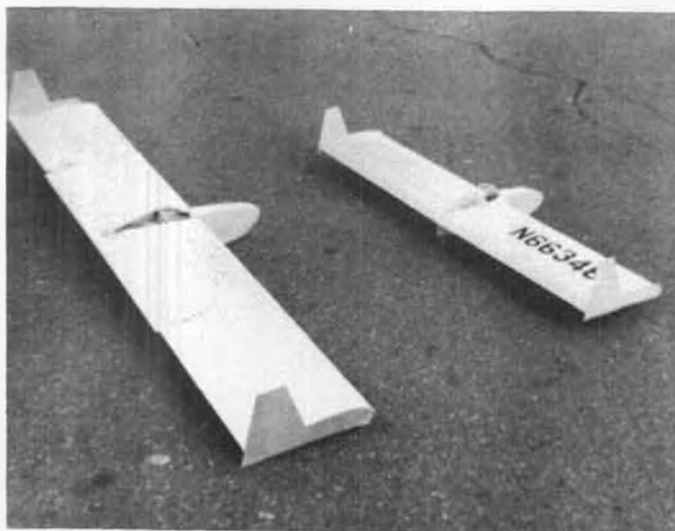


Back in cold Finland for some flying. Love that field box! Electric starter especially nice in these conditions.

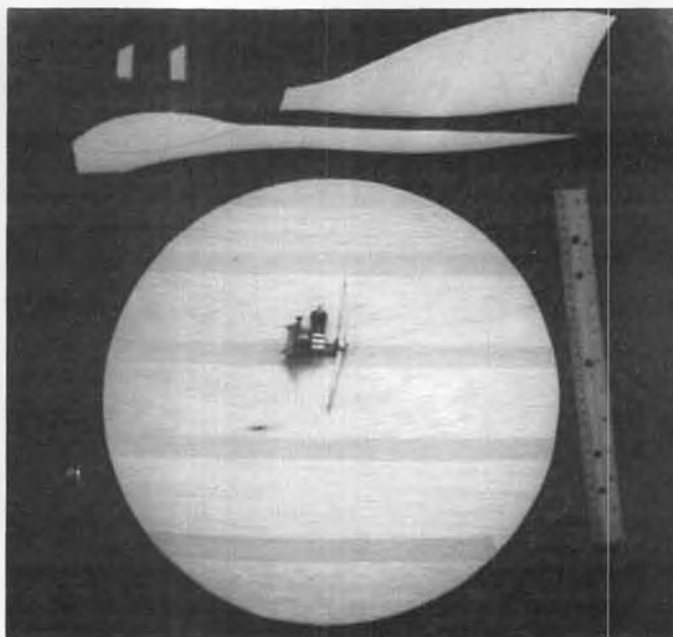








Above: Two of the author's Flying Plank models. Larger version is all foam, while the other is built up and sheeted. Both 2-Channel. Right: An .020 F/F flying saucer. Wing is 1/16 sheet. Needs forward C G and much patience in trimming.



## THORNBURG AT LARGE "Strange Fruit"

● I've said it before: the best-kept secret among model airplane designers is that *almost anything can be made to fly*. All you need is a lot of tall, green grass to test it over . . . Or a padded cell.

The magazines hint at this constantly, showing us pictures of flying doghouses and lawnmowers, witches-on-broomsticks, lifting bodies, radio controlled pizzas, etcetra. But you can see the principle at work even closer to home . . . right on your own flying field. Look carefully, if you dare, at the way Joe Schmozzle builds his Falcon 56 . . . wing-tips on backwards, square leading edges, upthrust in the engine. But still it flies. With Harley Hotstik at the controls, of course . . . Joe himself can't even control his own impulses, let alone a model. Still, it does fly.

I have a snapshot, taken years ago, of a

hybrid flying machine built right on the field. It's a canard (tail-first) configuration using the fuselage and motor from an .02 free flight, the wing of an A/1 towline glider, a set of absurdly large wheels from a WW-I SPAD RC model, used mostly for balance. The canard stabilizing surface is clearly the wing of a hand launched glider, complete with polyhedral. The creature was rubber-banded together from parts salvaged from that morning's crashes . . . and on its first power flight it flew away forever on a fat Sacramento Valley thermal!

After such a performance, who'd be afraid to tackle a simple flying wing? So the next project was a semi-scale model of the EPB-1 "Flying Plank." Designed in 1954, the full-scale Plank had a span of 25 feet and a four-foot chord. No sweep-back, no dihedral, no tailfeathers.

Now everyone who's ever dropped a wing accidentally knows that wings don't fly without stabs. They tumble. So what makes a creature like the EPB-1 fly? Simple. It has what's called a "reflexed" airfoil: it looks like a plain old Clark-Y or similar flat-bottomed airfoil, except that the last third of it is curved upwards, like a banana. It's as if the whole wing has a sort of permanent, built-in "up aileron." This keeps the center of pressure from shifting around as the angle of attack of the wing changes . . . and lets it fly without a stabilizer.

Don't take my word for it. Buy yourself a 3x36 inch sheet of Sig's airfoiled balsa, cut it in half at the 18 inch point and *presto*, you have not one, but two "flying planks!" Using a damp sponge, warp the trailing edge up about a 1/4-inch all the way across. Snap an ordinary



Half-A Volksplane built entirely of sheet balsa. With scale, all-flying tail surfaces it proved to be a handful to control.



"Staggerlee", a 36" biplane built with Mark's Models all-sheet wings. Reverse stagger gives excellent stall characteristics.

spring clothespin to the leading edge in the center of the wing, to serve as nose-weight. Now give the plank a gentle push into the sky, and it should reward you with a long, scalloping glide. If it dives, bend the trailing edge up; if it stalls, add some clay to the clothespin for noseweight. For turn adjustment, slide the clothespin off center.

I've amused myself for hours at slope sites with these simple planks, usually built with raw materials from the bottom of the field kit. They don't need rudders unless the air is gusty and unstable; for those near-calm mornings when you're just killing time waiting for the wind to come up, they're perfect.

But back to the R/C version of the plank. The first one was cut from Styrofoam wall insulation board and sheeted (I almost said planked) with . . . nothing. I still wasn't convinced that one of these boards would fly well enough to repay a big investment in time and effort. The "scale" fuselage, a simple pod, was strapped underneath with a couple of rubber bands. This pod carried only the battery pack; the receiver and two servos lay flat in the wing. For control surfaces, I just hinged the last 1 inch of the wing all the way across, then made two cuts through this flap to divide it roughly into thirds. The outer two-thirds I declared to be ailerons, and the inner one the elevator.

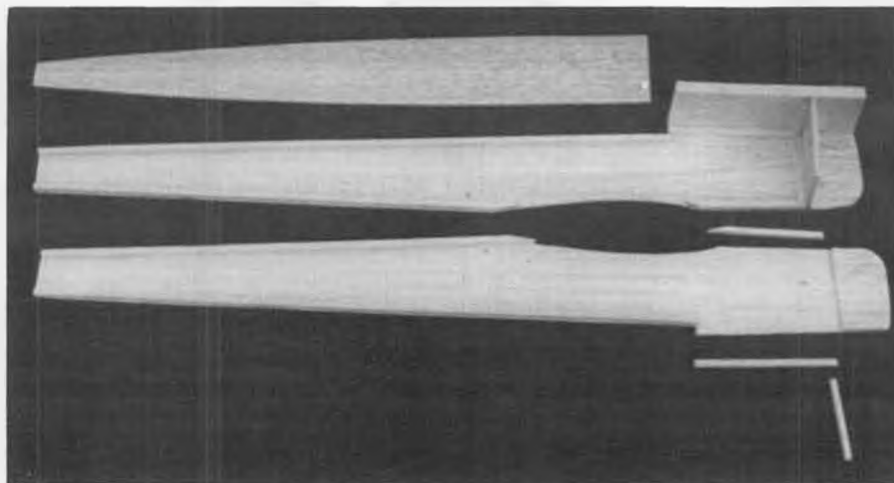
Early test glides showed that the center of gravity needed to be at about 22% of the wing chord, much further forward than a conventional design. And the first time I pitched it off the cliff, it flew! Hoorah! It was a bunch too sensitive to elevator control, but at least I could steer it around through the lift zones and keep it aloft. I managed to put in about five good minutes of this before a couple of kids showed up on bicycles, and crashed it for me.

. . . Well, I guess it wasn't all their fault. They watched the plank soar for maybe twelve seconds, became bored, and said, "Mister, make it do a loop." Hero pilot that I am, I put the nose straight down, let the airspeed build, and then honked back on the stick. The rubber bands exploded with a snap, the fuselage pod started off on its own trajectory, paused just long enough to disconnect the battery plug, then disappeared over the cliff, leaving the wing to tumble out of the sky like the last leaf of autumn.

"Wow, Mister, can you do that again?"

(The best medical advice I ever saw is printed right on the label of every pill bottle. It says, "Keep out of reach of children." I try, oh Lord, I certainly try.)

The second Flying Plank was a built-up structure sheeted with 1/16 balsa, using the same Clark-YH (reflexed) airfoil. The fuselage was built solidly onto the wing this time, the down-elevator throw reduced, and the little ship flew for years. Flying wings will probably never be competitive for speed or L/D events, because a reflex airfoil is so draggy. But they're easy to build, and they're sure to



Simple box construction used on the Volksplane. Half-A models like this often take far less time to build than to Monokote, especially if you get fancy!

stand out on the flying field. Personally, I wouldn't recommend 'em for thermal soaring, but if you happen to have access to a windy slope. . .

From the flying plank, it's only a simple step to that basic, all-purpose UFO, the flying saucer. The saucer, too, needs a reflexed airfoil for stability. In fact, it's just a sort of stubby-winged ("low aspect ratio," if you like tech talk) version of the flying plank. And how does it fly? Abominably. A big rudder in the center helps keep it aimed in the right direction, but it still needs small, rudder-like "stall fences" out near the wingtips to keep it from rocking from side to side during flight. These stall fences apparently help keep the oncoming breeze aimed more or less down the airfoil, preventing spanwise flow and a continual series of miniature tip stalls that cause the ship to rock. (For a good look at a full-scale stall fence, take a window-seat in the very front of the smoking section of the next 727 you ride, and study the wing leading edge.)

The next unorthodox design is a 36 inch R/C version of the Evans Volksplane. Whaat?! A Volksplane, among talk of flying planks and saucers? Everyone knows that the full-scale VP-1 is a real pussycat to fly; stable and forgiving, just a big, slow, overgrown model airplane. Then what went wrong with the 1/2A version shown in the photos? On

an average flight, it would take at least two good pilots to get it through a four-minute engine run and safely back onto the ground.

The problem turned out to be a bad aerodynamic mix; nothing big, just a lot of little gremlins that compounded one another. At that time I was running a small manufacturing operation called Southwestern Sailplanes, turning out a line of small power planes and gliders based on the "ribless Jedelsky" wing panel described in August 1979 *RCMB*. This 36 inch wing panel is built from two pieces of sheet balsa and works beautifully, not only for gliders, but for power models such as the Honker, Honker Bipe, and Li'l Gypsy. I planned to add the Volksplane to this series, as the company's first semi-scale kit.

But the undercambered airfoil of the Honker wing just wasn't compatible with the Volksplane's all-flying tail surfaces. Undercambered airfoils have a very shifty center-of-pressure; this is what makes the Honker such a hot airplane to fly when you move the CG back to about 35%. But with an all-flying stab, especially one made of flat-plate balsa, the Honker wing gets to be a real handful to fly, unless you're willing to run the CG at about 20%. And I wasn't, nose-heavy airplanes are not only bor-

*Continued on page 96*



Trike gear makes take-offs a cinch, for the Staggerlee. Uses Max .25 and 3 or 4 channels.



# Pattern Flying

By DICK HANSON . . . Part 12: Square Loop with Half Rolls, and the Vertical Roll

• In learning the maneuvers we have been describing during the past months, several general model types were built and flown. Among them were the following: Super Kaos 40, Phoenix 6, Curare, Das Box Fly 20, Haf-Fast, Quickee 500, Dirty Birdy, Aeromaster Biplane, Mach 1, plus many of my own designs and modifications of some of the afore mentioned models. Heavy, light, large, small, high drag, swept wing, straight wing, etc., etc. have been tried and they *all* would fly *all* the maneuvers if carefully flown.

Our favorite plane, which is used to experiment with different maneuvers and flying styles, is a .45 powered, much modified Gator-Flea. The plane has 550 sq. inch wing area, approx. 30% stabilizer, weighs 4 lbs. plus, and is a fixed-gear taildragger. Sounds awful, right? Not really, its wing loading of under 20 oz. per sq. ft. allows turns and tricks not possible with our big planes which have a loading of 24 oz. per sq. ft. We have one other .40-powered practice plane which has 500 sq. inches, and weighs exactly 3 lbs.

The point of all this is that flying radically different designs can give insight on problem solving. So far, I have steered clear of recommending pattern designs or kits, but a light-weight, .40-powered design is worth having as a practice model. Here is a set up that works nicely:

Take any of the Quickee 500 kits which are low wing designs and enlarge the stab to approximately 30% of the wing area. make a serious effort to keep the weight down by using slow-drying epoxy and Hot-Stuff for construction. We have built the Haf-Fast design at 22 oz., ready for finishing, without resorting to lightening holes or weak wood. The finished plane, using a standard flight pack (500 MA), can be completed at 3 to 3-1/4 lbs. with a muffler. Ask your racer friends for help if you have doubts on this. With this set up, you can learn a lot about flying with throttle and practice complex maneuvers without bashing your expensive birds.

The first maneuver to be reviewed this month is the Square Loop with 4 Half-Rolls. Note that the book only gives a very short description in the judges guide. Because there is no time or size limitation, other than the 60° frame requirement, we can fly this one as large or as small as desired for maximum points. The positioning is very important this time, because what happens on the first leg dictates the length and time for the following 3 legs, if the performance is to be perfect. Let's go through

a preliminary sequence.

Start at about 25 feet altitude and out approximately 175 feet, plant yourself firmly with shoulders parallel to the flight line and fly straight and level, through the center until the plane reaches a point approximately 30° to the side of center. Pull up abruptly but smoothly and proceed to approximately the 60° angle from vertical. Now proceed inverted until you are past center at again 30° to the other side of center. Pull up elevator again to a vertical dive and pull to level at the 25 foot altitude (starting height).

This exercise should be practiced over and over until the apparent size and time on each leg becomes very similar. You may have to turn tighter or looser, use low and high throttle on each leg plus re-position wings slightly after each corner, but don't even think of adding the rolls until the size of the square loop is an automatic reaction. The typical problems you will encounter here are the same ones that popped up on the Square 8 (See Feb. '81). The tendency to pick up excessive speed on the 3rd leg will probably be a source of concern, but the only cures we know of are; light weight, substantial parasitic drag, dive brakes, a low pitch prop at low R.P.M. or perhaps a variable pitch prop, although we have never tried one (but will!).

Now that we've got the square loop under control, let's try adding the rolls, as required. A new problem may now appear, and it can really be a toughie. If you fly while holding in a little up or down trim, the half-rolls can get a very snakey look. Further, if the rolls do not end with the wings exactly on line, the

heading of the next corner will change.

Another potential problem, is the roll rate to be used. The second roll is usually noticeably slower than the first, due to the two 90° turns and one half-roll that preceded it. The only way I know of handling this problem is a dual rate switch or a hell of a lot of talent . . . We use the switch.

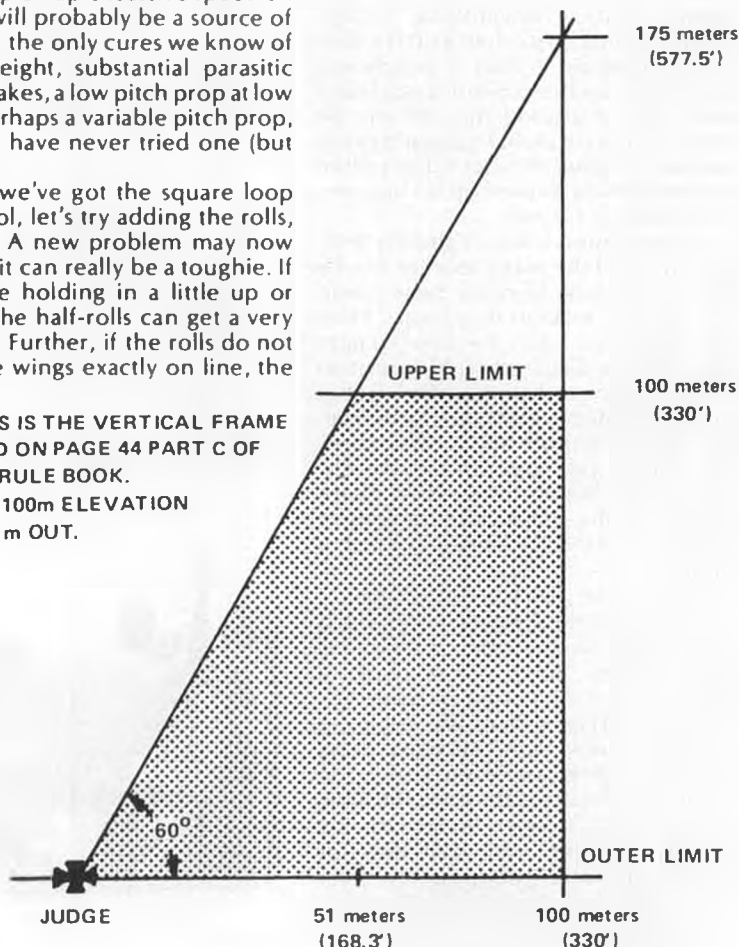
If you are flying a design which is either very light and/or powered by a strong engine, the afore-mentioned problems will be lessened. However, if you are flying a design which is very sleek and heavy, the only salvation will be an extremely large, fast maneuver which may be difficult to frame correctly.

## The Vertical Roll

This maneuver is a piece of cake if the model has all the characteristics of a Christen Eagle or Pitts Biplane. You need the strong vertical performance and positive aileron response to make the sequence look right.

*Continued on page 75*

NOTE: THIS IS THE VERTICAL FRAME DESCRIBED ON PAGE 44 PART C OF THE 80-81 RULE BOOK.  
NOTE THE 100m ELEVATION OCCURS 51m OUT.





Byron Pitts owned and flown by Jay Stargel at DCRC Bealeton scale contest in September. Pilot leaned over to tie shoelace at moment photo was taken by John Preston . . . sure he did! NASA members voted 4 to 1 for a pilot in cockpit. Good!

# 1 TO 1 SCALE

By BOB UNDERWOOD

• Aside from our supply of model magazines, the Underwood household receives issues of many kinds of journals, newsletters, stuff and things. There are, of course, several items dealing with education because of the household's bent toward that field. One publication that finds its way into our home six times a year is *Aviation Space — The Journal of Aerospace Education*. A recent issue contained two articles that tended to foster some musing on my part as I read them. The first was entitled "Hang Gliding, Powered Ultralights, and Federal Regulations." It was written by Les King, Region IX Director, United States Hang Gliding Association. It estimated that between 30,000 and 60,000 partici-

pants are active in the sport of hang gliding, and that, "the FAA is presently (Fall 1980) planning to issue regulations concerning hang gliders and the new powered hang gliders." The article goes on to explain that, "the new federal regulations will be fairly benign, although at this point no one outside of the FAA knows exactly what the wording and scope of the proposed regulations will be." People involved in the sport are awaiting the proposed federal regulations with mixed feelings. Some feel that federal regulation is needed so as to have official recognition, while others say that once this now self-regulated sport is controlled by the government more stifling regulations are sure to

follow.

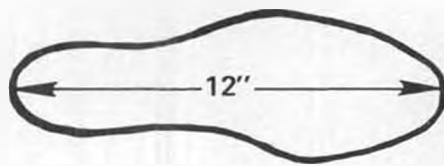
Just a few pages later there is an article entitled, "The Wright Brothers Wouldn't Get Off the Ground in 1980." I'd love to give you the article in its entirety but I do not have the express permission of the author, Clifton E. Meloan, and the editor. The gist of it is, however, that Orville and Wilbur would encounter a pack of pernicious problems if they tried their little experiment today. Little things like missing chain guards, catalytic converters, noise abatement, etc. were a few of the things Meloan suggested would need to be added to meet today's regulations. The sheer weight of many of these items may well have prevented the Wright plane from ever becoming airborne.

It is concluded, however, that they probably would not have even gotten to the flight stage because they lacked such items as, "an environmental impact statement on what they would do to the Kill Devil Hills and surrounding wildlife." Their wing fabric was not fire retardant, the piano wire could not be shown to meet uniform stress tests, and

*Continued on page 88*



Latest mods on Col. Bob Thacker's OMAC-1 (Dec. '80 R/CMB) include 30° tilt-in on winglets and electronic coupling of forward and main wing flaps. These mods have eliminated small dutch roll on takeoff and landing.



# WORLD WAR 1 Aeroplanes



The author, strapped into the cockpit of his Bristol Scout, ready to take off on a flight of imagination . . . which is slowly approaching reality!

By LEONARD OPDYKE . . . The publisher of *World War 1 Aeroplanes* points out some of the similarities in problems, and their solutions, between fractional scale models and full scale aircraft. Thought provoking.



● Way back in 1953, I came across William Wylam's detailed structural drawings of the Bristol F2b Fighter in *Model Airplane News*. This had always been one of my favorite aeroplanes, and the beautifully-drawn frame in the Wylam drawings cried out to be built with every strut and fitting. At the time, I was teaching in Shreveport, Louisiana, very far from home, and it seemed like a fine idea to get involved in something detailed and exacting . . . like a 7 foot R/C model. So I scaled up the plans, bought a Super Cyclone engine, got a lot of pine strip at the local lumberyard, and began.

It took a year to get it to the point of assembly shown in the accompanying photographs, and back in New England, I pinned and wired it together prior to fitting the rigging and turnbuckles. Except for the dihedral, not yet established in the pre-rigging photos, the frame was exactly as Wylam had drawn it, including the big wheels made from

layers of foam rubber cut and shaped from kneeling pads. And it was all wrong, as you can see from the photos. The cowl was too deep, the front oval too high, the rear fuselage too thick and too heavily curved, the fin and rudder the wrong shape, the upper wing too low, the wheels too high. Crushing disappointment; I checked and re-checked the drawings . . . and then went back and checked the drawings with the mass of photos I'd collected of the original machine. No doubt about it, Wylam had made a lot of mistakes, and very serious ones, too.

I thought that in order to rebuild the parts that needed it, I should try to get better drawings, and I wrote Bristols, in England, for help. They sent me several big drawings of details and pieces, and included several three-views. It didn't take much study to discover that all the three-views were different from each other . . . and these were company drawings! And it didn't take much more to realize that full-scale aeroplanes are not built from lofted three-views, like models, but developed in jigs built from the dimensions shown in the various

sub-assembly drawings. And at that time I didn't have enough subassembly drawings to be able to scale up a properly-proportioned three-view. So I took apart the most obviously wrong parts of my big model . . . the rear fuselage and fin and rudder . . . and rebuilt them the best I could from photographs. But the results were not satisfactory at all, since the troubles ran deeper than that, and I finally gave it away, still uncompleted. But I learned a lot from all this:

1. Even famous draftsmen make mistakes.
2. Factory three-views may not be much better.
3. Errors in shape and proportion may not show up clearly till the model is built and you can see it from some of the same perspective views that familiar photographs were taken.
4. It can be possible to get the actual dimensions and shapes from original drawings . . . if they have been preserved, and if there is a way of getting to them.
5. You can waste a lot of time over a scale model if you don't begin with accurate material . . . that is, if you care



This Bristol F2b Fighter was built exactly as per William Wylam's drawings presented in *M.A.N.* back in 1953, which unfortunately brought out many of the errors in these plans. Factory drawings can sometimes be just as bad!



about accurate scale.

6. There are a lot of connections between the building of scale models, whatever size, and full scale aircraft.

The next step, incidentally, was to get so excited over the few drawings I got from Bristols of the full scale fighter that I spent a year or so trying to add to the set with the idea of building a full scale reproduction . . . this back in the mid-'50s! I got a lot of drawings . . . a full set will be available shortly, see below, and then came to the problem of finding an engine. By now we were in Rochester, New York, and at that time there was a fine war-surplus outfit there which sold ball-turrets and fighters to small air forces all over the world, probably illegally, along with masses of aircraft parts, pieces, and parachutes. Among the parachutes were a couple of gigantic crates containing brand-new Ranger 440s, developed specially for the experimental Bell XP-77 wooden fighter of the WW-II period. They were cheap, too . . . I forget exactly how cheap . . . and would have served the purpose well. But I could see immediately that working with an engine that big and an airframe to go with it would have been impossible. So I gave up the Fighter project and looked around for something else.

Since I'd had such good luck with Bristols, I tried them again for drawings of the little WW-I Scout, a tiny LeRhône rotary-powered delight to fly; Bristols, bless them, came across with nearly a full set of drawings of the C and D models. By this time, I had become involved with a friend at the University of Rochester who wanted to put out a newsletter for people who were building or restoring WW-I aeroplanes: our first list showed 50 such projects anywhere in the world. In the course of developing this newsletter, I came across most of the people who were working then and have continued to work on WW-I aircraft. Jack Canary (killed during the filming of "Tora, Tora, Tora!") persuaded me to buy one of his rebuilt 80 hp LeRhône engines, complete with logbook (only \$500 in



Brand new Albatros DVa replica built by Jon and Zona Appleby, with Mercedes engine. Now in San Diego museum. Photo from Antique Aero, Flabob Airport, Riverside, California.

1958!), and I began cutting fuselage metal fittings for the Scout. I sent for spruce and ripped it into longerons, built a work table in the garage, but time and circumstances intervened, and I didn't get back to it again for 20 years. But in 1978 I was going to school again and had some extra time and built another table bigger than the first, got out the box of fittings, laid out the longerons, and got to work again. The accompanying photographs show the current state of the project; it is almost ready for cover, and I hope to fly it next spring. The engine ran two weeks ago, castor oil and all!

But nothing happens in a vacuum: what had been going on outside my basement in the meantime? Ed Brennan had built his reproduction Fokker D-VII, powered with an inverted Ranger, back in 1957 (he is now building 12 reproduction aircraft at once!), and Frank Tallman was building up his movie air force. Cole Palen was building up his collection and airshow in Rhinebeck,

New York; the film, *The Magnificent Men and Their Flying Machines*, had burst on an unsuspecting public; Snoopy flew Sunday sorties against the Red Baron, making the Sopwith Camel famous again. The Experimental Aircraft Association in Hales Corners, Wisconsin, had grown by leaps and bounds, encouraging people all over the world to build their own airplanes: home-designed, kits, plans, reproductions of all periods. Their magazine, *Sport Aviation*, and their assorted services are invaluable to a would-be builder . . . or to anyone interested in building museum-scale models with original construction and detail. And the little mimeographed newsletter begun in Rochester grew into a full-sized magazine for WW-I aeroplane buffs all over the world; *World War I Aeroplanes* carries lists of builders, projects, drawings, materials, engines, and sources of all kinds. The current list shows some 700 reproductions either finished or under

*Continued on page 88*



Throttle control detail in the author's Bristol Scout. Note wicker seat, very light in weight.



Now we're getting serious! Author runs up the 80 HP LeRhône rotary engine in his Bristol Scout. Nice way to cool off on a warm summer day!



Insignia on this P-12E indicates that it had been assigned to the Air Corps Technical School. Cusp in aft end of headrest is noticeable. From the Warren Shipp photo collection.



One-only Model 100F, a P-12E purchased by Pratt & Whitney, with F4B-4 headrest. Fate of this plane described in Part II.

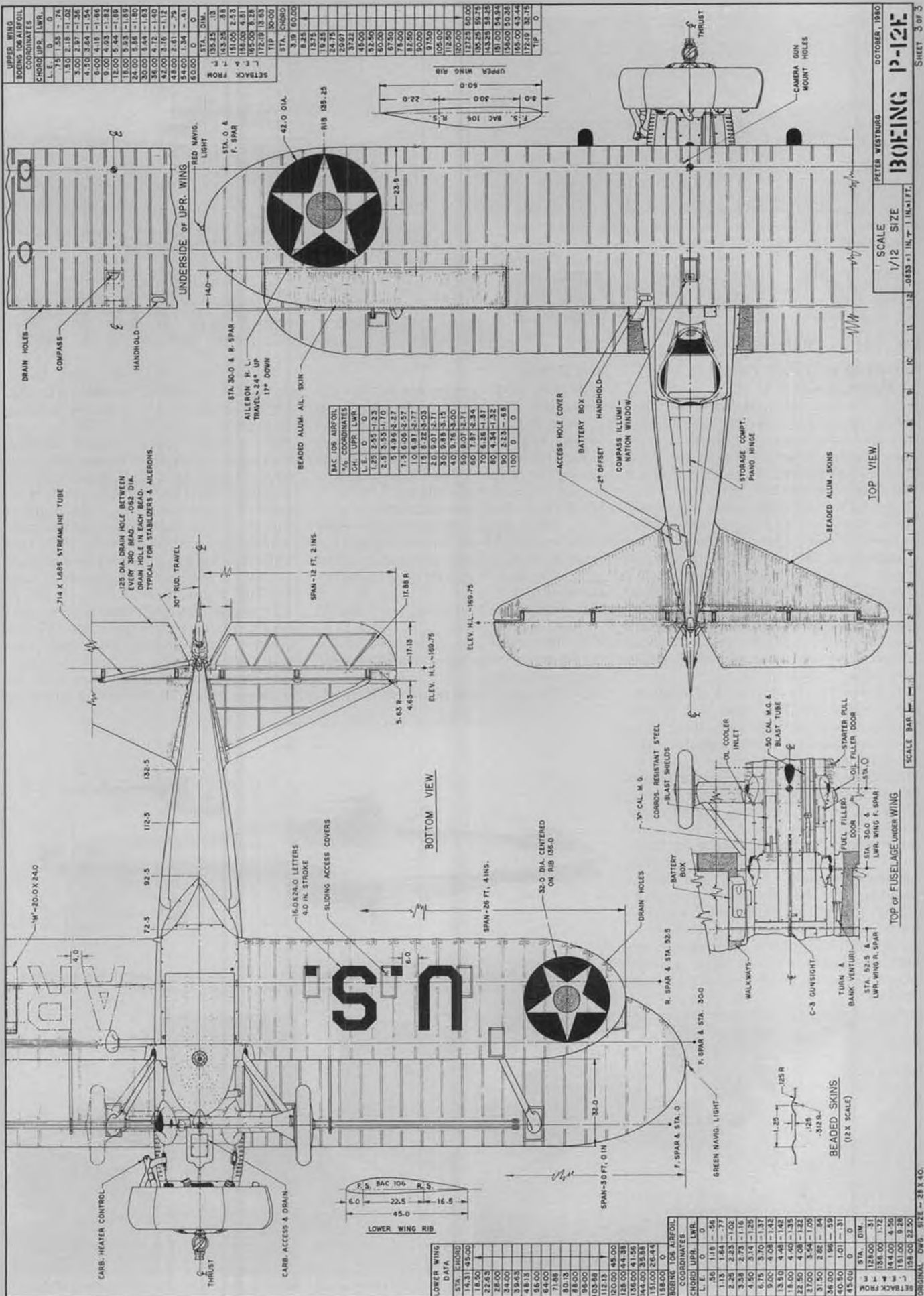
# BOEING

By PETER WESTBURG

# P-12E



Capt. Frank "Monk" Hunter piloted this P-12E out of March Field in 1932 while Lt. Col. Hap Arnold was C.O., commanding pursuit and bombardment squadrons. The identifying cocarde on upper wing was rare. (Nick Karstens photo).







Vic Drew's "Miss Circus Circus" won the District 8 Sport 40 class with the R/C Glass boat that he builds.



Steve Compton's "Squire Shop" has proven very competitive in District 8 Sport 40 class competition. Modified Dumas.

# R/C POWER BOATS

By JERRY DUNLAP

## SPORT 40 BECOMES OFFICIAL CLASS IN N.A.M.B.A.

After a few years of being an "unofficial class," Sport 40 has finally made it into the rulebook of the North American Model Boat Association. This column has carried information about the development of this class, and reviewed a boat suitable for use in the Sport 40 class. This columnist has been more than just slightly interested in the progress of this event. For better or worse, the Sport 40 guidelines appearing in the 1981 N.A.M.B.A. Rulebook were gathered and edited by the person responsible for what you are now reading. The final set of rules submitted and adopted by N.A.M.B.A. proved to be an interesting compromise.

It seemed that everyone was in agreement about the hull type and engine displacement limitations. There was, however, decided differences about the type of power source that could or should be allowed. Model boaters from my area, the Pacific Northwest, favored allowing the use of racing engines and tuned pipes. The folks from California were already racing the class using front intake engines and mufflers. It was obvious that neither group was willing to convert to the other's power source. Rather than throw the baby out with the bath water, the rules were written to provide districts the opportunity to decide for themselves what type of power plant will be allowed in their own district.

## THE RULES

Before getting into greater detail about this class, it might be helpful to present the rules.

### SPORT 40 HYDROPLANE CLASS

**PURPOSE:** "To race hydroplanes having the same configuration as past or present 3-point hydroplanes."

#### SECTION I: Boat Specifications

A. The boat may be purchased ready built, modified from an existing hull, or scratch built of any suitable material generally used in model boat construction.

B. Minimum hull length will be 35 inches.

C. The deck, cockpit, tail, or fin configuration may be changed to keep boats interesting.

D. Outrigger designs are not allowed.

E. The boat must be attractively painted in the spirit of unlimited racing. Each boat must have a sponsor's name or logo affixed to the hull. The sponsor may be of the builder's choice: a hobby shop, gas station, local business, fictitious sponsor, etc. Each boat must have the driver's NAMBA number on it preceded by the letter "U." The number can be on the hull, fin, or tail. In cases where the boat is painted like a real unlimited hydroplane, the number must appear somewhere in numbers at least 1/4 inch in height.

F. Engine compartment covers and fake engines are not mandatory. Driver's cockpit, cowls and tail fin sections are mandatory.

G. No outdrive assemblies will be allowed. Propeller drive dog must be



Gary Ginader, Portland, Oregon, used a Dumas U-76 kit for hull, made cowlings and engine to convert boat to Miss Budweiser. Boat was second in Dist. 8 Sport 40 for 1980.



Leo Dreith, Dist. 8's new NAMBA director races very scale appearing hydro. Boat named after the bank Leo works for.



Bill Brazzle, Tacoma, Washington, modified a Dumas Drag N' Fly 40 into a Sport 40. Boat named after his hobby shop.



Norm Nordby, Portland, made his R/C Glass hydro into "Miss Portland Rose". Note prop guard built onto starting stand.



Three Sport 40's taking the right turn during the District 8 Championship race held at Kent Lagoon in September.

under the transom of the boat. No twin rudders or twin props will be allowed.

#### SECTION II: Engine Specifications (A District Decision)

A. Division I: .35 to .45 C.I., front intake, loop scavenged, no tuned pipes. No Schnuerle or Perry ported engines and no rear rotors. Engine must have speed control "via" carburetor. No modifications of any kind to the carburetor. Engine must use stock carburetor that is supplied by manufacturer for the engine. Engine may be updated to current carburetor. Maximum carburetor bore shall be .312".

B. Division II: The engine must conform to NAMBA Class B specifications. Tuned pipes are allowed.

#### SECTION III: General Rules

A. Boats will be checked for appearance prior to racing.

B. In Division I, the carburetor will be physically and dimensionally checked. Winning boats may be checked at the completion of day's racing. In infractions are found, the boat will be disqualified and next boats moved up.

C. There are no restrictions on fuel or prop used.

D. Any boat not passing the technical inspection will be disqualified and forfeit the entry fee for that race.

E. A driver of scale-like appearance will be used. It must be at least shoulder height.

F. Boats will run on the standard NAMBA course/s.

G. Noise limits shall be the standard NAMBA level . . . 95 or less db's when running at full throttle 50 feet from the measuring device.



Dave Blacksten's beautiful "Miss U.S.", from an R/C Glass hydro. Had fastest time in Sport 40 event at the 1980 NAMBA Nationals.

The purpose and hull classification portions of the rules were taken from the District 9 Sport 40 rules. The 35-inch minimum hull length will create a few problems for some District 8 Sport 40 enthusiasts who converted Dumas DragN' Fly 40 kits into Sport 40 hulls. Seems like when the afore mentioned kit is pickle-forked it is only 33 inches long. But model boaters, being the creative individuals they are, will devise some creative ways to add two inches onto a short hull. The Division I engine rule follows the directions that District 9 took in powering boats in this class. The Division II engine rule is what District 8 has been using. Some might think it unusual and unwarranted to have a class with two engine divisions. For model boating, it is something new. However, it should be noted that the American Power Boat Association sanctions two divisions in the Seven Liter Class. One engine class allows blown motors and

certain engine modifications. The other engine class calls for natural aspired motors and restricts certain engine modifications. In that regard, Sport 40 is simply following what is being done in the full scale races.

#### WHICH WAY TO GO?

The question that I have been asked numerous times in the last few months is, "Which way do you think is the way to go?" I'm glad I didn't have to pay the phone bills of some of the folks who have called to discuss this question. Quite obviously, I'm more than slightly prejudiced about the type of engine that should be allowed. Since the district I race in has already decided that they want to be a Division II district, where I'm coming from isn't too hard to guess.

I will, however, attempt to present a brief rationale for each of the two engine classes. Both engine divisions have been used successfully in different areas of the country. Which is the better approach to engine type is a matter of personal preference. Actually, group preference would be a better way to state how the feelings are expressed. The areas where the Division I type engine is mandatory have some valid reasons for their decision. It is pointed out that front intake engines cost less when initially purchased. These engines tend to last longer and break parts less frequently than the racing type engines. Another reason for using the front intake engine with a muffler is to assure that the speeds obtained by boats in this class will not exceed a rate that makes the boats hard to control for beginning

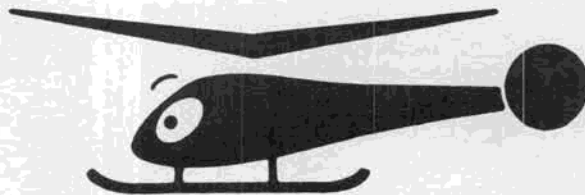
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Another Dumas Drag N' Fly 40 modified by its owner Tim Woods, Bellevue, Washington. Legality of owner mods adds spice to the Sport 40 category.

# CHOPPER CHATTER

By guest contributor JASON WOLFSON



• The radio-controlled model helicopter has progressed to a point where it can do more than its full-sized counterpart. One helicopter in particular that performs all the maneuvers easily is the Heli-boy by Schluter. I have flown the Heli-boy for a year, and now have two of them. It is fully aerobatic and easy to fly. The Heli-boy is superb for making intermediate pilots look like experts.

In my quest to fly the Heli-boy with minimal failure from the severe stresses incurred by aerobatics, I have found a few helpful modifications that enable the Heli-boy to absorb the stresses with considerably reduced chance of failure and resultant crash.

I have also learned to set up the Heli-boy for vibration-free flying and effortless aerobatics. First, it is necessary to install some replacement parts that are put out by Schluter and are in all the newest kits. If you don't have a new kit,

and are having some problems, get the new parts. The heavier ball links, although very expensive, and the blade axles with a dozen splines on them, are very important. The ball links are a tight fit and are difficult to get on and off. They are built heavier all around and don't crack, stretch, or wear out as fast. Very helpful! (This is particularly true on the tail rotor where I've found they have a tendency to split around the screws.)

The other necessary part is the new pair of blade axles. These are a welcome and needed fix, as the old pressed axles were good only for static displays. I tried soldering the old ones, only to have them come loose in a hover. I finally welded them and one broke in a loop. I tried to make a set with the control arm coming out of the blade block, but had too many problems with blade separation. In conclusion, the only way to go is with the splines. They are nearly indestructible. These two pieces make the Heli-boy fairly rugged. However, there are a couple of additional things that should be done for greater dependability and to resist damage in hard landings. The first thing I suggest is to modify the tail rotor drive train. The tail rotor drive in the Heli-boy has a tendency for the shaft to slip in the drive gears, even with the flats on the shafts and with the set screws locked down with Loc-tite. I found that a good solution is to drill a 1/8-inch hole on the inner hollow shaft opposite the set screw so that the shaft is forced into the hole and locked. Do this to both ends for a really indestructible tail rotor drive. See photo A.

A modification to help avoid damage to the tail blades and the main drive gear, which is lightweight, is to strengthen the wire skid on the tail rotor gear box. The best way to accomplish this is use the stock wire skid, and just bolt it to the tail fin with a small landing gear clamp and two 4/40 x 1/2-inch screws. This is very strong and doesn't weigh much. It is important for correct C.G. and easy aerobatics. See photo B.

The other modification that no Heli-boy should be without is a ground wire

on the tail rotor control shaft. If you do not have this and are getting radio glitches, then there is a good chance you need to ground the tail rotor to the rest of the ship. Solder a braided wire onto the tail rotor control shaft and then clamp the other end under the hose clamp holding the tail rotor gear box into the boom. See photo C.

These modifications will make the Heli-boy much stronger and better suited for the stresses of flying.

Some other things that you have to watch out for in building the Heli-boy . . . Make sure the starter shaft is lined up correctly as indicated in the instructions, or you will get a bad vibration. Also, be sure the tail shaft drive gear is meshing deeply with the main rotor gear or you will wipe the teeth off the gear when you crash. Another thing to check, is the tail shaft. Make sure the tail shaft is pulled tight so it can't whip in the boom and wear out the plastic bearings. When all

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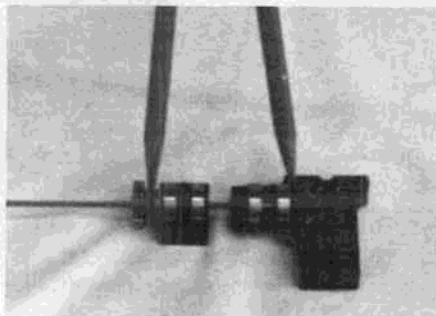


Photo A. Tail rotor drive modification.

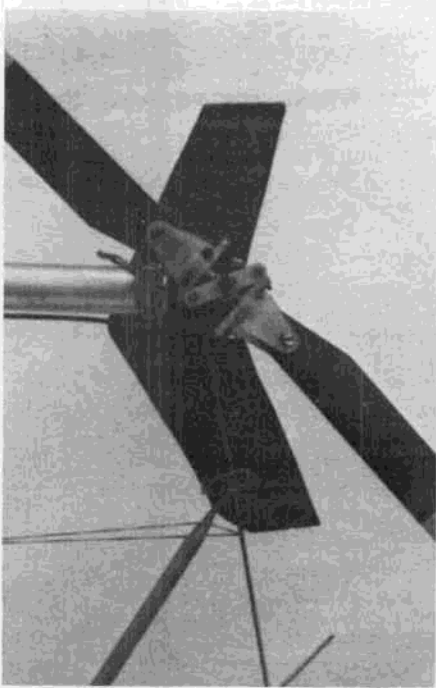


Photo B. Wire tail skid modification.

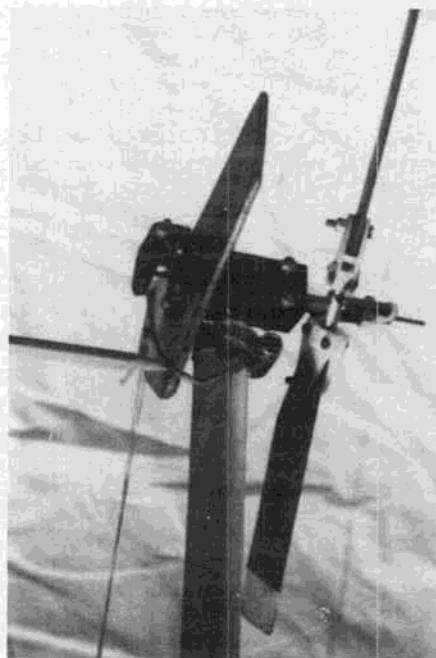


Photo C. Braided grounding wire from the tail rotor.



Photo D. Rig for balancing rotor blades.



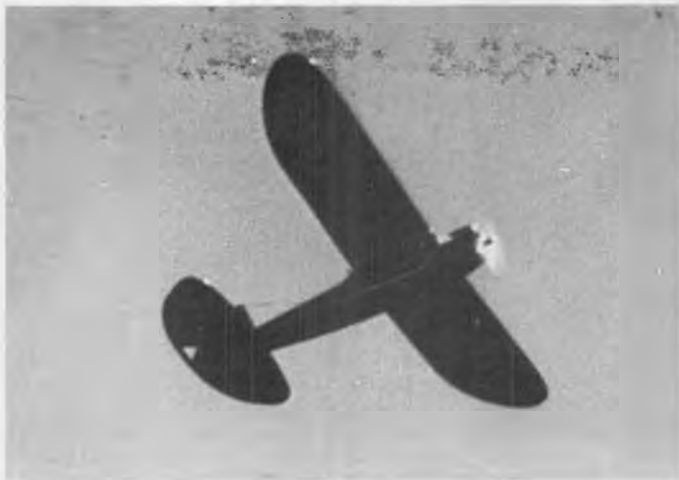


Photo No. 2. Trevor Dyer flies this Buccaneer C Special in New Zealand with a 3-channel radio.



Photo No. 1. New Zealand OT activities reporter Ivan Treen, with his E.D. Diesel powered Shulman Wedgy. It's cool in July!



# PLUG SPARKS

By JOHN POND

• The lead item in this month's column will feature the old timer activity in New Zealand. Thanks to Ivan Treen, 20 Konini St., Levin, New Zealand, we have an update on Anzac doings (last column on New Zealand was better than three years ago!).

Treen, who is the lead man in old timer activity in New Zealand, reports that old timer activity in local contests is not booming as well as he had hoped for. He points up the entries at the June contest at Fielding were low, and again, at the Scale Rally in Levin (what the heck does he expect at a Scale meet?), only a scattering showed up.

Photo No. 1 shows Ivan Treen with one of his numerous old timers, a Shulman "Wedgy," that seems to fly in any weather. This photo was taken in July (that is the height of their winter).

The Nationals are generally held over the New Year weekend. Seems strange to us northern hemisphere cousins, as we are generally hip deep in snow at that time.

Treen goes on to say the Nationals are the one bright spot of old timer modeling, as entries continue to increase every year. Interest is always quite high, but it is a chore to get the fellows out to fly.

One outstanding exception to this problem is John Dowling, a real keen modeler, who drove over 600 miles to attend the old timer events, both nationally, and locally. Man, that's real dedication!

Radio assist Old Timers is also starting to catch on, as New Zealand, like the rest of the modeling countries, has problems

obtaining (and keeping!) good free flight sites. Photo No. 2 shows Trevor Dyer's Buccaneer C Special circling overhead. Trev uses a three-channel setup to fly the model. He reports this is a real neat flyer. Everyone ought to build Buccaneers (Bill Effinger, please note!).

Also in R/C Assist, we don't have a photo to illustrate our point, but the "Leprechaun" (a British design) built by Bill Shannon, is truly a magnificent sight in the air with its slow stately flight. Bill runs a hobby shop in New Plymouth, and manages to import modeling goodies from the good old USA. This certainly is a relief to those modelers in New Zealand starved for the latest items (and also the available old timer stuff!).

Treen reports the New Zealand Nationals will be held (already staged) on the east coast of the North Island (remember your geography, New Zealand is comprised of two major islands) at



Photo No. 3. Gareth Newton's Comet Sailplane at Hastings, New Zealand. Neat cow!



Photo No. 4. Thracy Petrides blows up Trexler, Bruce Lester holds, at '36 Nats. Entered Stout International against rubber ships!



Photo No. 5. The Brown Bull trophy, created and donated by Clarence Bull, of SAM 8. Could be highly prized perpetual.



Photo sent in by Frank Huffman showing old timers still "talking a good flight" at Glen Sig-afoose Memorial Awards Dinner (see "Workbench"). (L to R): Fiske Hanley, Jack Russell, Gordon Bourland, and Joe Percy recalling the late '30's.

Hastings. Called the "Fruit Bowl of New Zealand," the weather is usually quite good in this area. Of course, dates were December 27 to January 2. Treen has promised to send a suitable write-up on this meet sometime later.

At the Nationals (as at the American Nats), there will be (was) the annual General Meeting of the NZMAA which will also include special interest groups. As one of the groups, the Vintage Group will probably have one rule change suggesting the cutoff date be flexible; i.e., the cutoff date for old timers would always be 25 years prior to that Nationals. (Not a bad idea, but who keeps track of what is eligible?)

Treen says he sees little point in extending the present deadline of 1950 as there are simply more than enough designs to pick from. Matter of fact, there is something for all interests in different types. Treen, as Chairman of the Vintage Sub-Committee, says he will be listening for reasonable arguments and justification for extending the present date. Ivan sez, as a Nursing Supervisor, he has to respect the beliefs of his staff and patients, so the above situation will be nothing new!

Among the photos submitted by Ivan, the shot of Gareth Newton's Comet Sailplane in Photo No. 3 shows how a cowl should be made. Of particular note is the engine installation and the correct line of thrust. Too many times, this columnist has seen Sailplanes sporting engines in a high-thrust configuration. This force setup is actually an advantage, as the line-of-thrust is generally above the c.g. and the C.L.A. Stricter enforcement on line-of-thrust locations in old timers should be more carefully watched by Contest Directors.

In closing off, Treen notes that a new R/C Assist O/T event, Vintage gliders, is starting to catch on. This is something that has not been tried in the United States. Actually, free flight towline glider events were staged at the first few SAM Champs. However, the attendance steadily fell off to the point there were more trophies available than contestants! This is a quick way for any organization to go broke.

Those interested in towline might take heart. If SAM 7 decides to run the 1982 SAM Champs, there will no doubt be towline glider and also hand launched glider events. How about that?

#### ENGINE OF THE MONTH

Every so often, an excellent product will come out only to fail because of the bad timing of the market demand. Such was the case of the Bungay "600," this month's engine of the month.

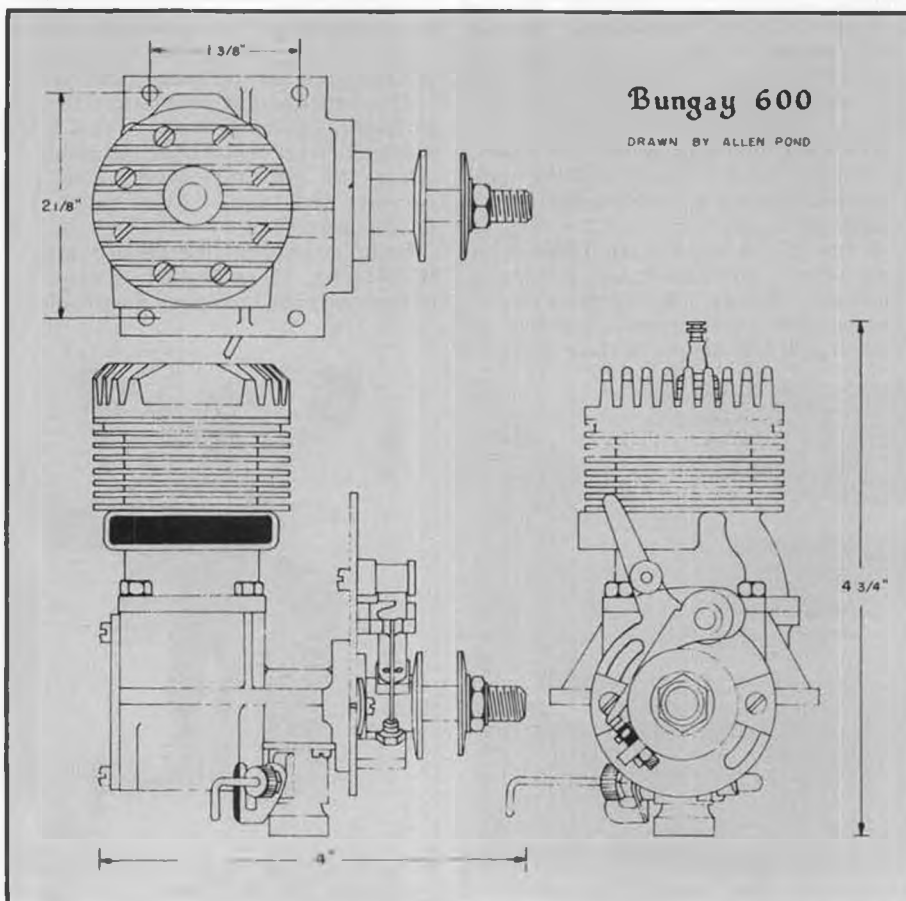
The Bungay 600, produced by the Bungay Brothers, located at 323 East 30th St., New York City, NY, was based on extensive research pointed at developing the best racing engine for high output. Advertisement appearing in the last four months of 1948 in *Model Airplane News* made the claim the

Bungay developed over 40% more power between 18,000 and 19,000 rpm than any other engine in its class. This was backed up with a money-back guarantee!

Ed Ingram, in an article in *Model Airplane News* describing the Bungay motor, stated he observed an aluminum 8-inch dia., 6-inch pitch propeller being driven at 19,400 rpm. Tests with flywheel showed results of 28,000 rpm. Best part of all was that the fuel employed was a straight menthanol-castor mixture. One often wonders what performance would have been obtained using heavily nitrated fuels.

The Bungay engine was different from the regular run of high speed motors such as the Hornet, McCoy, etc., which employed rear rotor induction disks. The Bungay, on the other hand, employed the old reliable rotary shaft induction with an updraft carburetor. To eliminate the end play so prevalent in this type crankshaft induction, the Bungay people provided a steel disk cast in the end of the aluminum alloy crankcase.

The size of the updraft venturi diameter was one that led to considerable experimentation. Like all tests of those days, the diameter was determined by "cut and try" methods. The Bungay Brothers found that too small a venturi opening severely restricted engine performance, while a large opening made for hard starting and critical needle valve settings. Of course, in those days, pressurization of the tanks was not considered (or even used!). This would have eliminated the problem of fuel draw



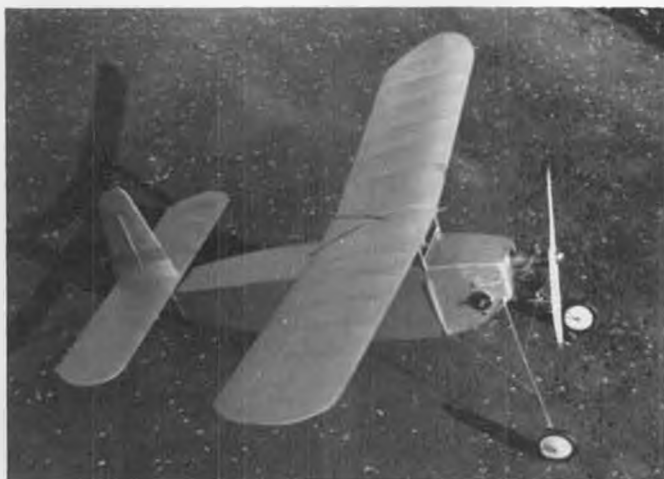


Photo No. 7. This L.S. Wigdor designed "Wasp" built by Alex Imrie from April 1938 Aeromodeller plans. Frog 1.75 cc power.



Photo No. 9. Kurt Sandberg, Sweden, with replica of his 1949 Swedish A/2 champion. Appeared in '51-'52 Zaic Yearbook. (Linden pic)

with a large venturi opening.

One notable fact that many modelers overlook in running their old time motors is the use of 4-1/2 volts rather than the prescribed three-volt input. Many old timers have found the added voltage makes engines much easier to start, run better at high speeds, dwell time on the points can be increased and point clearance setting reduced to as little as .004 inch. Now that's close!

The compression ratio is another favorite topic of modelers who like to "hop-up" their motors. Increasing the compression will, in some cases, increase performance. Again, there is a diminishing return of gain as compression is increased. So it was with the Bungay people as they went as high as 18 to 1 in compression ratio, only to find they had to settle on an optimum ratio of 9.80 for general all purpose racing.

For the technically minded, the Bungay motor featured a bore of .940 and a stroke of .875 inches, giving a displacement of .607 cu. in. Piston rings and cylinder liner were steel fitted with aluminum piston and drop forged 14ST aluminum connecting rod. The cylinder head and crankcase were cast aluminum alloy using a claimed special casting method to eliminate pin holes and rough finish. Weight of the engine was 16-1/2 ounces without coil, condenser, and battery (practically the same weight as all hot 60 engines of that period).



Photo No. 6. C.D. Buckle discusses the radio end of rules with Malcolm Taylor. Models are double-size Abzug S-4, Super Scorpion, and Buccaneer Standard.

The arrival of the Bungay engine on the market, when it was finally released after much experimentation, coincided with the arrival of the new Dooling .61 engine.

The Dooling Brothers were no newcomers to the speed circles, so a decided advantage went to their product. Then, too, most all the hot engines were being produced on the West Coast: Hornet, McCoy, Hassad, Cave, Atwood, to mention a few. The only other engines, the Howler and Ball, were being produced in the Midwest. Here was a newcomer in the East Coast, struggling for recognition

in a field of already plentiful, well recognized, red hot engines.

Only a few Bungay engines were actually sold and unfortunately, the top names in racing did not use this new engine. As usual, in the modeling circle, if a certain engine or kit does well, there is an implied guarantee that you, the purchaser, will have the same luck and possibly win. So it was with the Bungay engine. With no national records to claim, no big contest wins, and no outstanding big name in speed utilizing the engine, it was a foregone conclusion that the engine simply could not suc-



Photo No. 8. Monty Tyrrell's three-year-old Bellanca CH-200 modeled after Boardman-Polando "Cape Cod", never fails to place.



Photo No. 10 Lidgard Hi-Ho built by Bill Baker, Norman, Oklahoma. Did well with it at the SAM Champs. (Baker photo)



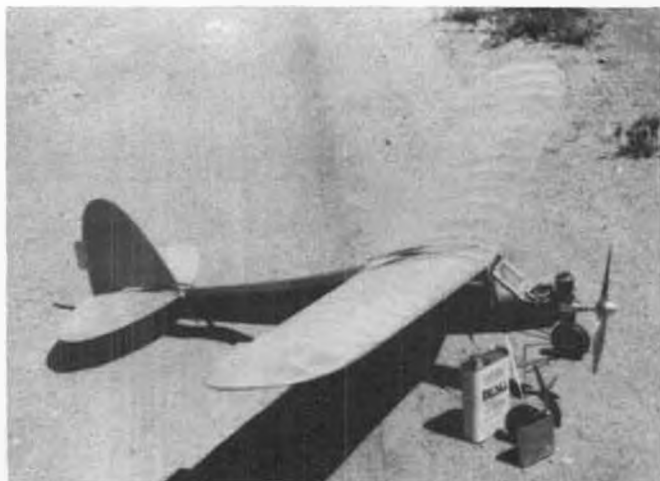


Photo No. 11. California Chief with ED 2.46 diesel, by Gordon Coding, Kingman, Arizona. How 'bout that Keil Kraft rubber prop!



Photo No. 13. Struck's Cabruler (MB April '76) by Clarence Bull of Oregon. Used McCoy 19 at SLC SAM Champs.



Photo No. 12. Turner Special built by Manny Gomez, S.A.F.F.S. Club, Reno, Nevada. Mighty skinny fuselage back there!



Photo No. 14. Pete Samuelson, SAM 21, is hooked on Foote's Westerner. He's had his problems, but they're excellent fliers.

ceed no matter how good it was. Another well made engine joined the ranks of model oblivion.

#### LESTER PHOTO

Again, this issue we feature another 1936 photo taken by Bruce Lester, of Toronto, Canada, when he used to attend all the early Nationals with his trusty Brownie camera.

This month's shot (Photo No. 4) shows Bruce Lester holding the "Cloud Kisser," as it was originally called, built by Thracy Petrides who is inflating a flat Trexler wheel. This model, featured in *Model Airplane News*, August 1938 issue entitled the "Flying Midget," was built to compete in the Stout International Event.

Through an error of omission, gas power was not prohibited in this event, feeling that most modelers would not consider building a gas model down to 300 sq. inches of wing area with the gas motors available then (mostly all .60 size). Imagine the judge's surprise when Thracy showed up with this gas version for the Stout Event.

The model was fast, alright, with a Brown Jr. This columnist built one and when it crashed, it burnt like a real airplane (metal gas tank split). Petrides had the same problem with this model, as it would blow a tire every time it came in for a hot landing.

Although the model failed to win, it

certainly did shake the troops up as the rubber boys had visions of another repeat of Maxwell Bassett's triumphs in the 1933 rubber events. Wouldn't that have been something!

#### 30 YEARS AGO, I WAS...

Any old timer who is worth his salt knows that Pete Dillon won the Payload Event in 1937, the only time it was even held at the Nationals. Using a modified Modelcraft Corben Ace, he was successful in lifting a whole telephone size 1-1/2 dry battery off the ground. This was later published in *Air Trails* as one of the featured Championship models.

However, for the story we are using, we are indebted to Karl Spielmaker, the spark plug of the new SAM Chapter #4. "Krazy karl" says that Dillon was a super nice guy who ran a hobby shop in Jackson, Michigan. Pete has since retired and has moved to Florida (who doesn't these days?).

As Pete tells the story, he was managing a corner gas station in Jackson in 1936, pumping gas and doing minor auto repairs. About this time, Pete became interested in building and flying model airplanes. Gas modeling was only three years old and Pete wanted to try his hand at one.

In the thirties, the heart of the depression, jobs were scarce and the pay very low. Pete was earning \$18.00 a week for a 48 hour week (no time-and-a-half in

those days). The only motors on the market sold for \$21.50 (Brown Jr.) or higher. This was a tremendous obstacle to overcome as this represented better than a week's pay.

Pete then noticed the GHQ people were putting out their version of the Loutrel engine. Of course, \$12.50 per motor seemed like an attractive price, but the kit price of \$8.50 was even better. After all, didn't the advertisement read, "Gee, it goes together like a piece of cake." Upon receipt of the motor and after assembling, came the rude awakening: The motor simply would not run. Pete sez, "I must have broken the damn thing in just by flipping the engine trying to get it to fire . . . just once!"

"Well, this motor kit business is no good, I will add another \$4.00, return this engine, and get an assembled one," reasoned Pete. Well, the new one ran but the GHQ vibrated so badly parts kept coming off. Pete actually had to use two screwdrivers to keep the by-pass and the carburetor from falling off. These GHQ motor are junk, concluded Pete. "I want my money back," to which the GHQ answered, "no refunds," but offered rubber kits instead of cash. Pete said, "I can always build and fly rubber models; send 'em!"

When GHQ started sending kits to his

*Continued on page 76*



KEN HAMILTON'S

# British "Pou"

## OLD TIMER Model of the Month

Designed by: Ken Hamilton

Redrawn by: Al Patterson

Text by: Bill Northrop

• For no less than 44 years, we have had a continuing fondness for one particular, little rubber-powered scale model. It was love at first sight when we purchased the October 1936 issue of *Flying Aces* magazine (15 cents) and turned to the construction article by Ken Hamilton, complete with five pages of full-size plans, for the "Pou du Ciel," Flying Flea (the not-so-glamorous literal translation being "Sky Louse"). Even by today's standards, Ken's drawings, and the model built from them, were extremely accurate, well detailed, and thoroughly

researched.

Over the course of four decades, we would occasionally dig into our old magazines and revisit the many-thumbed, dog-eared, and yellowing collection of familiar pages. And without fail, we would stop and study with care and admiration, the drawings and photos of the Flying Flea by Ken Hamilton. Several times, the most recent being about 12 years ago, we almost began construction of a Flea, but it never quite happened. That last attempt was in the form of a 2-1/2-times-up model for R/C (wouldn't you know). The inherent design problem, which you will read about further on, did have somewhat of a dampening effect on our enthusiasm.

Then, a couple of years ago, we heard

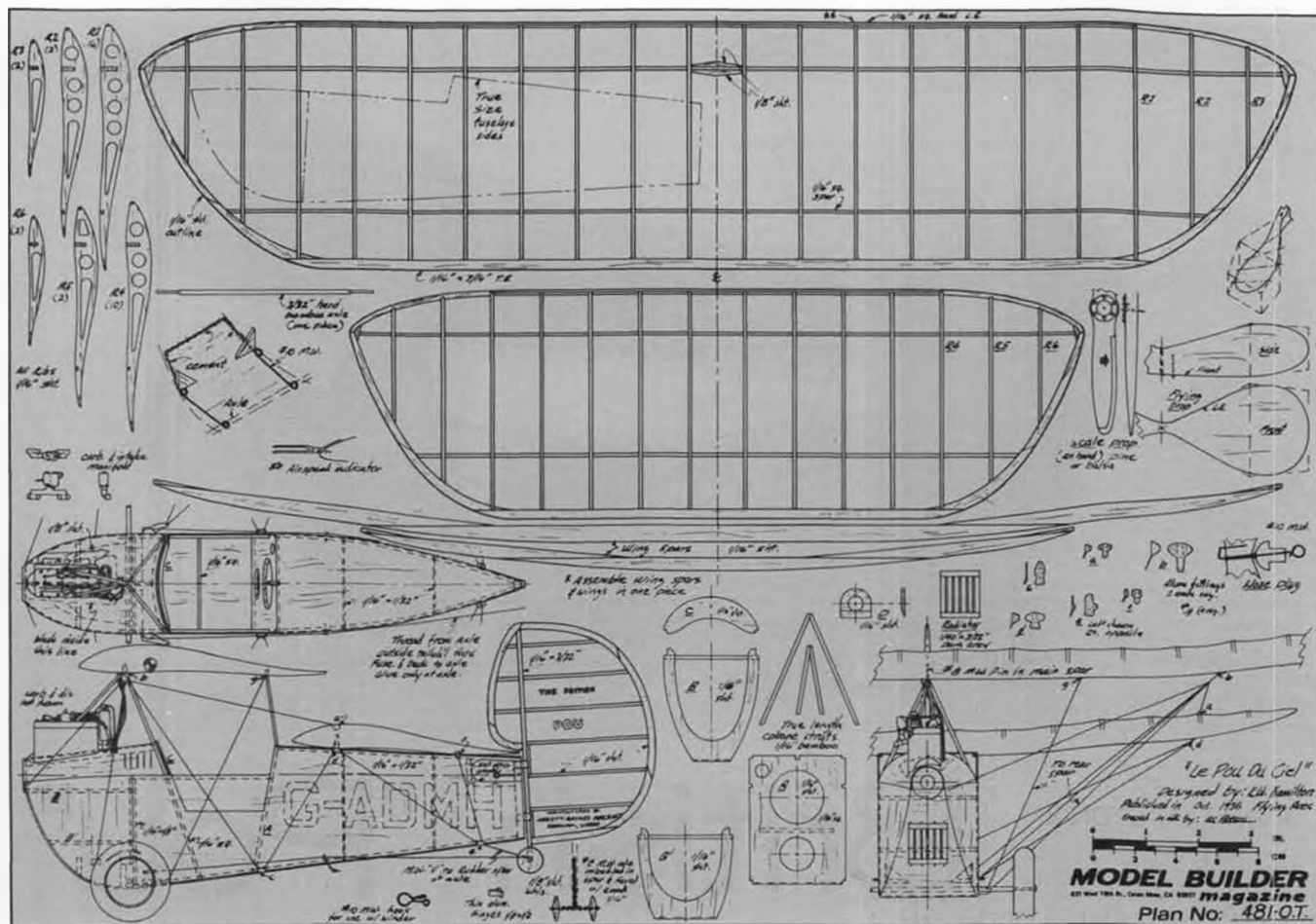
about a Ken Hamilton who had appeared at a Flightmasters' scale meet at Mile Square. We asked someone if this could possibly be the "Flying Flea" Hamilton, and were assured that it was. However, we didn't get around to following up the lead. But finally, the long letter came about a "Jimmie Allen" contest, which we published in "...Three if by Air" last month, and we made our contact with the person belonging to the name that we had known for 44 years! And not only that, the Flea is still alive and well and looking just as good as its photos (which we have reproduced herein from prints recently made from the original negatives!).

From here on, the italicized copy is new material about the Flea, sent to us by Ken Hamilton. and if we had the time, we'd build the Abbott-Baynes version, but with the newer double-convex airfoil, and moving the top wing up and forward. . .

Brainchild of Frenchman M. Henri Mignet, the "Pou du Ciel" first flew in late 1933. The simple, low cost, single seater was of unconventional tandem wing design relying upon generous dihedral and a low CG for lateral stability, there being no ailerons. The single control column surface control (no foot controls) pivoted fore and aft for pitch control, sideways for directional control. The forward wing was pivoted at its front spar attachment, and rearward movement of the control column pulled down on cables attached to the rear spar to increase the angle of incidence.



"And now for the 'inside story' . . ." said *Flying Aces* in its original caption for this photo in the October 1936 issue. We can hardly argue the point.



## FULL SIZE PLANS AVAILABLE – SEE PAGE 100

Moving the stick forward allowed the wing to float upward and decrease the incidence angle. Side-to-side movement of the stick turned the rudder, resulting in banked turns.

Widespread interest quickly developed among would-be private or sport fliers, and the first Pou built in Britain flew in mid-1935, being built by a S.V. Appleby. His machine utilized a more powerful Ford 10 water-cooled engine. The aircraft version of this four-cylinder auto engine was developed by Sir John Carden, who fitted it with a thrust bearing at the propeller shaft end, an aluminum cylinder head, and dual

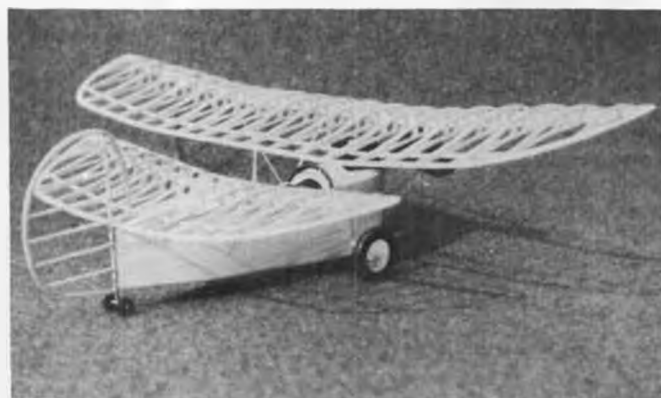
ignition, in which form it developed a maximum of 30 bhp.

Following minor damage in a crash landing, the Appleby Pou was redesigned to semi-enclose the engine, lower the radiator into the fuselage nose, and to increase the forward wing-span. Performance was substantially improved due to the lowered drag and improved aerodynamics, and this version was placed in production by Abbott-Baynes Aircraft of Farnham, Surrey, selling complete and flight tested in the late 1935 for £198!

Scores of Fleas were built, in Britain, not all of them flyable. After several fatal

accidents in which a pattern emerged, tests were initiated in France and Britain in late 1936. The Flying Flea was found to be unsafe, and Britain grounded them (the French action is not known by me). Although safe in the usual slow and level flight, a Flying Flea allowed to build up speed in a nose down attitude, would uncontrollably dive into the ground.

Although H. Mignet successfully redesigned the airplane to eliminate the problem, the Flying Flea movement never regained momentum. H. Mignet's redesigned Pou incorporated an entirely new airfoil in both wings in which the formerly undercambered wings had



Above 3/4-rear photo was not used in the F.A. article. Model still exists and is in excellent condition. Ken Hamilton brought it to our office and we actually held it!





These 3-views, reproduced from the September 1963 issue of *Aeromodeler*, are available from Model and Allied Publications Ltd., P.O. Box 35, Bridge Street, Hemel Hempstead, Herts HP1 1EE England.

convex lower surfaces, the cables to the forward wing rear spar were replaced by push-pull rods, and an elevator was provided in the rear wing trailing edge. In addition, the forward wing was moved up and forward to increase the gap and stagger.

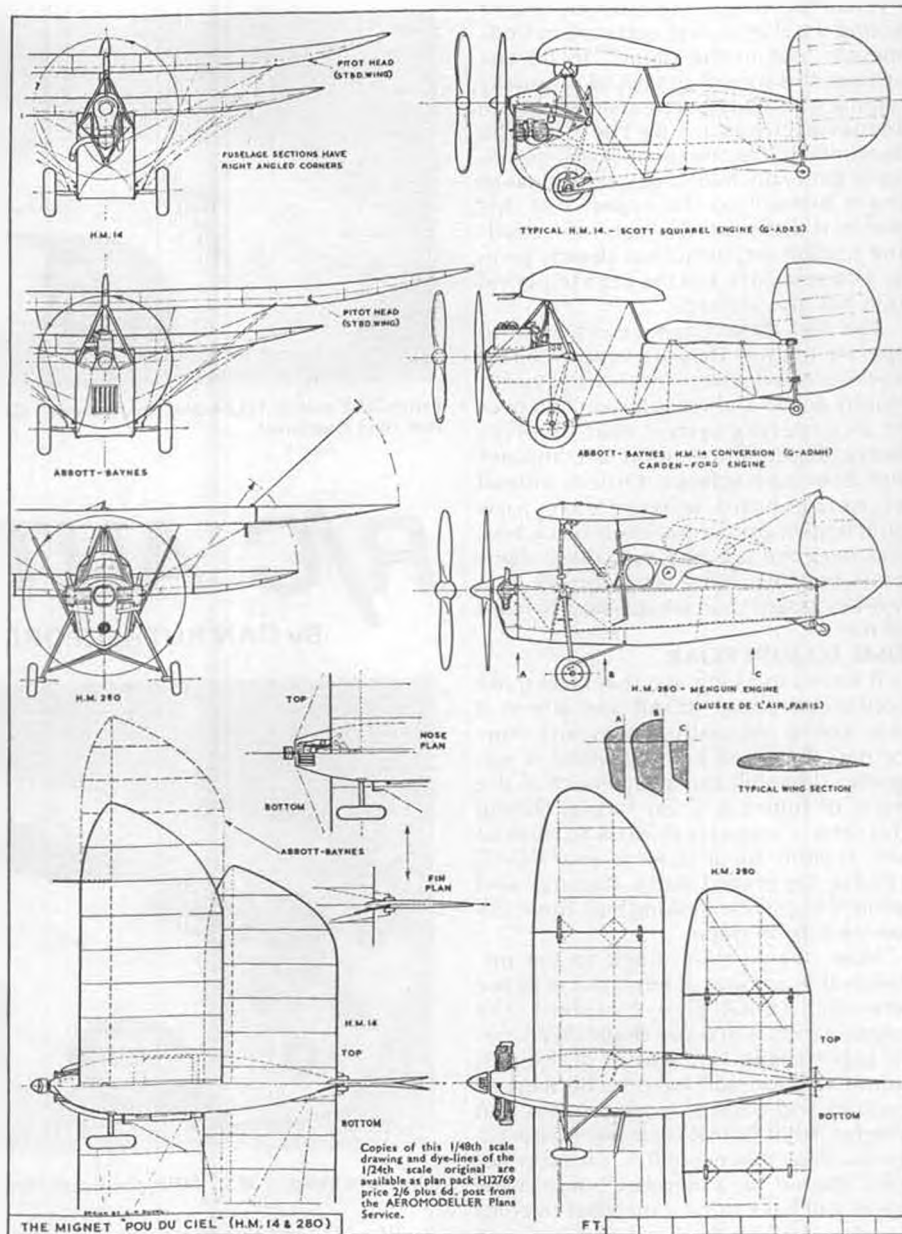
The Abbott-Baynes British Pou was selected as the prototype for the rubber powered model, as the semi-enclosed Ford engine and fuselage nose shape lent itself to an enclosed rubber motor. In flying the original 22-inch span model, the tucking tendency of the prototype was never encountered. Larger gas powered models of this prototype have flown in stable manner. One, however, following a whipstall, remained in the dive in prototypical manner, all the way down!

As I reexamine my references today, and study my drawing again, it still stands up to scrutiny. I would make only the following changes if I were to redo the drawing today. I list them for your reference, and you may wish to incorporate one or more of them in your drawing.

A. The rudder ribs should be tilted upwards at rear, to be at right angles to the rudder spar, which is correct as shown in its forward tilt. All lettering on the rudder should retain its relation to the ribs, thus becoming tilted too. In addition, move the words "The British" and "POU" up one rib bay each. This is per information I used at the time; the Abbott-Baynes catalog. I cannot explain why I made the drawing differently!

We made this change as the drawing was being prepared by Al Patterson.

*Continued on page 85*



Short, stubby, ugly, and cute. All of these adjectives fit the Flea, it's just a matter of how you feel at the moment. If we built one, we'd stay with this particular model, but use the double-convex airfoil that cured the one bad habit.

• When faced with the monthly task of writing a column, one quite often finds oneself "not in the mood" to do any writing; this mood, or lack of it, usually coming on slowly but persistently as the deadline closes in. By the time the deadline arrives, the situation can sometimes get really bad; a guy almost has to chain himself to the typer. But this month is different. Oh, sure, the deadline is upon me, in fact has already gone by a couple days, but the urge to pound keys has also arrived.

Too bad these fingers can't seem to operate the way they are supposed to. I work as a sales rep for Northwestern Hobby & Toy and we just switched over to an ordering system that involves heavy dependence upon a computer and assorted hardware. Orders, instead of being hand-written, are now punched-in on a mysterious black box, and over the last few days these digits have become more accustomed to a ten-key board than what is now in front of me.

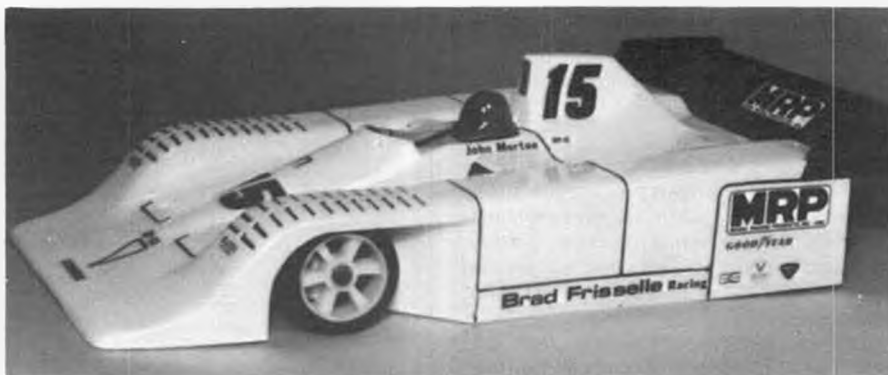
#### TIME TO JOIN ROAR

It wasn't too long ago that I was quite concerned about ROAR and where it was going. Actually, I was just concerned, I figured I knew where it was going; downhill and away, much to the harm of future R/C car racing. During this time, it was very difficult to think of any reasons for a racer to join ROAR (Radio Operated Auto Racing) and while things were looking bad, there still seemed to be hope.

Now, thanks very much to the unbelievable amount of effort put in by Joe Werner, ROAR Vice-President, the organization is in super shape. Well, not in super shape yet, actions of the past administration still have to be worked around and a lot of work remains. But the future of ROAR seems well assured, so much so that every R/C car racer not only should be a member but in many cases will have to be a member to enter local as well as Regional and National races.

Insurance is the big reason to join for many, and previously ROAR did not have any insurance at all to offer members, instead, sending them off to WAM for coverage. This was not bad, of course, but it did seem (to me, at least) to be an odd situation, having the national sanctioning body for R/C car racing not offering insurance. Anyway, Joe saw that ROAR needed an insurance package and lined up the St. Paul Insurance Company, represented by the Daseke Insurance Agency, to provide members with \$1,000,000.00 liability coverage. Seems so simple, took just a few lines to say that the job is finished, but Joe worked his tail off putting the insurance package together.

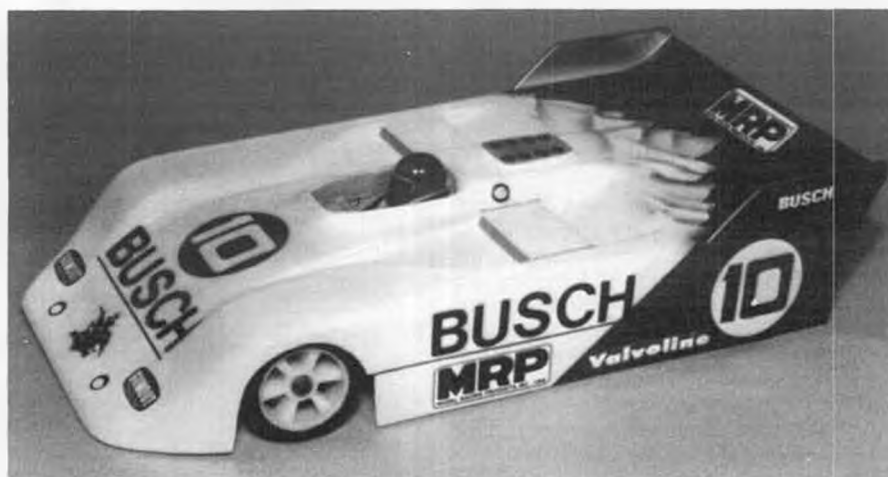
Another big thing that an organization such as ROAR can offer is a newsletter. Nothing like hearing what the rest of the country is doing, announcements of big races often appear, and it's always fun perusing the ads from the manufacturers, many of which are too small to advertise in a magazine such as *Model*



From MRP and in 1/12-scale, the "Frisbee" Can-Am car. Who says they all look alike? Love that road clearance!

# R/C AUTO NEWS

By DAN RUTHERFORD



Also from MRP...er...MRP, the Busch-Hogan Can-Am 1/12 car.

*Builder*. As long as a comparison is being drawn between MB and ROAR newsletter, "Rev-Up"; this column can only deal with certain topics, limited as it is by needing to be somewhat universal in appeal and the usual lead time required. However, in *Rev-Up* there are no such constraints to worry about, and so you can find in it information that you will never, ever run across in this column.

In the past, there have been some serious problems with the *Rev-Up*; I must be honest about it, this last year I think only two or three issues were published. But lovely Kitten Hess says that Bill Romine has agreed to take on the editing job of the *Rev-Up*, and not only is he willing to do it, he also has extensive experience in advertising and publication work.

Another situation to be aware of, and this is a change from previous practice for many clubs, is that ROAR affiliated clubs will be requiring *all* racers entered in club races to be ROAR members. This is an absolute must, as the insurance policy states that for all to be covered, all must also be ROAR members. Sounds

reasonable enough to me and with the really good safety record of R/C cars, even the beastly 1/8 Gas cars, we should not have any trouble with the insurer, nor they with us. (If larger AMA can live with it, so certainly can ROAR. wcn)

ROAR membership costs are quite reasonable, most of you need only send in \$15.00. Those under the age of 16 get a break in price, down to \$10.00, and a family membership can be had for only \$20.00, a real bargain for the many racing families out there. Along with the money, the usual name, address, etc. information is needed. Send the whole mess off to: ROAR, Inc., 12008 Welland, Cumberland, Indiana 46229. To make things a bit easier at the ROAR end, mark the envelope as containing a membership application.

#### AND IF YOU HAVE A QUESTION...

ROAR depends upon *volunteer* workers. There are no paid employees of ROAR, so with the membership money and stuff, please do not include a letter that requires an answer. Instead, check out the following list of ROAR Regional Directors, figure out which



Lots of numbers, in three different styles, are available from BoLink.



For the off-road folk, BoLink has this decal sheet, which is actually mylar. Also available in white.

one is closest to you, and direct your question to them. . .

Region 1, Richard Hunter, 92-32 222nd Street, Queens Village, NY 11428.

Region 2, Ray Hepner, 7081 Willow Wood Street, Orlando, FL 32802.

Region 3, Rick Davis, 20715 Moross, Detroit, MI 48224.

Region 4, Kitten Hess, 22434 Elsnore, Katy, TX 77450.

Region 5, Larry Flatt, 10205 Outlook Drive, Overland Park, KS 66204.

Region 6, Chuck August, Carmel Fire Dept., 6th and Carlos, Carmel, CA 93921.

Region 7, Dan Rutherford, 4705 237th Pl. S.E., Bothell, WA 98011.

Region 8, Dionicio Pascual, Jr., 94-241 Mahapili Street, Mililani Town, HI 96789.

#### HAPPY BIRTHDAY. . .

Stopped by Murp (otherwise known as MRP, and sometimes even referred to as Model Racing Products) the other day, just long enough to gulp down a few bites of its 10th anniversary cake. Yes, it's been ten years since Bob Welch and Marvin Lew first formed MRP, then run out of Bob's basement. I wasn't in R/C cars at the time, thank goodness; there were some really horrible radios, engines and chassis in use at the time, but as I recall, Bob and Marvin first made some trick aluminum wheels, examples of which can still be seen on some cars entered in Concourse Competition at National events, and these wheels are regarded as somewhat of a collector's item now. Soon followed a kit for a 1/8 Gas dragster; just goes to show how things have changed, most have never heard of 1/8 drags, let alone seen them

or heard of kits for the event.

Since then, Marvin has at times worked with MRP on various projects and rush jobs, while Bob works full-time as the head guy at Murp, an operation that has grown with the sport and now employs quite a few people. That Murp has done so well is due in very large part to Bob, who has stuck it out through thick and thin, and it is good to see Bob and the company he started still around and doing well. Here's to another good 10 years. . .

#### DRAGS. . .

Mentioning drag cars a minute ago reminded me of of the first (and last) time I saw 1/8 Drag cars competing, which was made much more memorable as it was also the first (but not the last) time I saw Bill Jianas in action as a driver.

Now you have to understand that at this point in time, summer of 1977, I had no real interest in R/C cars, other than having an MRP 1/12 Class B (TD .049 powered) car, as well as a Jerobee (JoMac) 1/12 electric car to play with. So when the '77 ROAR Nationals came to Seattle, I went to see almost all of the racing, even entered a couple of events, but what I was there for was the smoke, noise and crashes. I happen to be one of those people who likes the atmosphere of competition just about as much as the competition itself, so was there soaking it all in. . . and 1/8 Drags; both Funny Cars and the Rail class, provided all the SM&C one could stand. On second thought, the Rail cars, while really fast and generally running fairly

straight, were neat, but the Funnies were by the far the best. . . especially when Jianas was called to the line.

Before the Nationals, Don McKay and others had told me about the racers that were to show up, but most comments seemed to be about this man Jianas, and the picture painted was of a racer who knew only one way to run; to-the-wall, WFO, pedal-to-the-metal, and so on. Somebody to watch.

So when Jianas lined up his 1/8 Funny for a practice run, I was there, up on the timing tower for a superior view. When the Greek punched that sucker off the line, it went out about 30 feet, got real loose, squirted this way and that, finally jumped the center barricade that divided the lanes, hit in this other lane, again to swish and sway, almost clipping the car in this lane, and then once again jumped the center barricade, coming to rest upside down. What was really terrific about all of this was that from the time the car left the line until turning turtle, Bill had the throttle squeezed to wide open. There wasn't a chance in a hundred that he could get the car gathered back up, pointed straight and then finishing the run, but Bill was willing to take that chance, to hell with the body, chassis and engine. . . And this was only a practice run!

You bet I was back at my vantage point when Bill lined up for one of the final elimination heats. Car came off the line OK, just a little crooked was all, veering slightly to the left of his lane. Still, it was going in a straight line. Now off to the

*Continued on page 70*



Trick stuff for electric motors. On left, replacement brushes. On right, endbell with adjustable tension brushes. From BoLink.



Latest McCoy pipe for 1/8 cars features angled stinger. Set up to exhaust out top, but this is hard on pit men. Can be turned.





Breath-taking shot of Ken Merritt's Minimoa circling under billowing cumulus clouds in England. Note true scale structure. All linkages, horns, turnbuckles, etc., have been reproduced. Photos from England supplied by Keith Thomas.

# R/C SOARING

by Dr. LARRY FOGEL

• Some pictures speak for themselves. You're looking at Leo O'Reilly holding his new one-third scale SB-9. The balsa covered foam wings span 7-1/3 meters, and it weighs 7.5 kilograms. Evidently two-year-old Yolanda Murray is intent on learning to fly this bird. For information about this sailplane, write to L. O'Reilly Distributors, 42 Maple Ave., Keswick, S.A. 5035, Australia.

Keith Thomas of Frome, England, creates elegant trophies. The one shown is for the winner of the White Sheet Radio Flying Club Annual Aerobatic Contest. The clear resin encloses a glider performing a perfect four-point roll. The resin cylinder rests on a rosewood cradle affixed to the black nameplate/

base.

And there's further information from Keith: Cliff Charlesworth has designed an absolutely true quarter-scale ASK-13 for balsa/spruce/ply construction. It is very stable and realistic in flight. It's sensitive to the controls. If you'd like to try your hand at building this ship, the plans are available for £6 (and £1.25 for surface mail, £4.55 for airmail). Write to Cliff at 2A Central Ave., Ashingdon, Neas Rockford, Essex, England. A molded canopy is also available, but the price is not yet fixed.

Other scale ships seen on the British slopes include Dave Harrison's quarter-scale Jantar I (with built-up wings and a fiberglass fuselage). Mike Trew's 1/5-



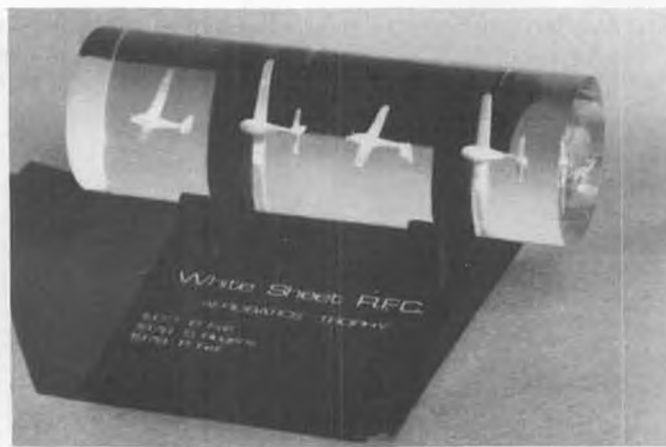
Rich Briggs', Long Beach, modified his Pilot "Tommy" with V-stab and ailerons.

scale Kirby Kite and Fauvette, which took top static honors at the 1980 Crook Peak Contest; and Ken Merritt's Minimoa and DFS-230, a German World War II troop carrying glider. For the record, here is what the winning pilots look like. From left to right: Ken Merritt, who placed third; Keith Thomas, first; and Mike Trew, second. Congratulations all around!

Back in the States, I'm happy to report that Jonathan Livingston Seagull remains



Winners at 1980 Crook Peak contest, England: (L to R) Ken Merritt 3rd, Keith Thomas 1st, and Mike Trew 2nd. Congrats to all!



Trophy made by Keith Thomas, Frome, England. Described in text.



Stuff this in your Volkswagen! Leo O'Reilly, Australia, holds world's largest production kit glider; a 1/3-scale SB-9, span 7.33 meters, weight 7.5 Kg., Epoxy-glass fuselage, wings of foam, epoxy, and balsa.



Dave Harrison holds his Jantar 1 for the static judges to scrutinize. Note top and bottom spoilers, and retract. Whatta flying site!

alive and well. Recently Mark Smith (who designed and flew this model for the film of the same name) took Jonathan out of mothballs. It's a handful in flight. Each elevon is controlled separately (right stick to right elevon, left stick to left). You can use one to turn on the drag. Think through a few maneuvers with this control set-up. By the way, the transparent tip plates toe-in 2° to provide drag and thus stability. Three servos operate this "bird" that weighs about 30 ounces and spans 60 inches. It's a joy to see it fly.

Rich Briggs, of Long Beach, California, gave the Pilot kit named "Tommy" a new twist. He replaced the conventional tail with a 45° V-tail that operates as an elevator. This dressed-up version is aerobatic at the slope, weighing in at only 20 ounces. Sometimes a little "mod" makes a big difference.

Squire Openshaw, Jr., of Hayward, California, has been exploring the wing wagger concept. Here the wings rotate to provide roll, eliminating the need for ailerons. Squire believes that Bob Boucher of Astro Flight deserves credit for the term, "wing-wagger." He and Dave Rader incorporated this concept into their Monterey, and claimed that it is

now fully aerobatic. Wing rotation is  $\pm 3.5^\circ$  around the main wing joiner wire. More recently, he has been experimenting with the Katie III (a wing wagging Katie II). Let's wish them many enjoyable flights!

I want to share some items from recent club newsletters. John Dalman provides good advice on learning how to land, in the *Marc's Sparks*, the newsletter of the Madison Area Radio Controlled Society (Wisconsin).

One indicator of a good sailplane pilot is his landings. Most pilots will agree that



Yolanda Murray, age 2, checks out the cockpit space in Leo O'Reilly's giant SB-9.

regardless of the flight, a smooth, controlled, accurate landing is a reward in itself.

Not too long ago, I was averaging about one landing in ten in the circle. Not surprising, since nobody can control where a sailplane stops as it cartwheels through the landing circle! So, how did I improve? Like everyone; by watching, listening, trying, and adapting. The "secrets" are few, and relatively simple. Keep them in mind come spring, and you will notice the improvement.

The most important lesson is to fly the airplane decisively. Not only does decisive flying help landings, but it will help all your flying, sailplane or powered.

Lesson two is to find a comfortable standard approach, either right or left. I use a straightforward rectangular ap-

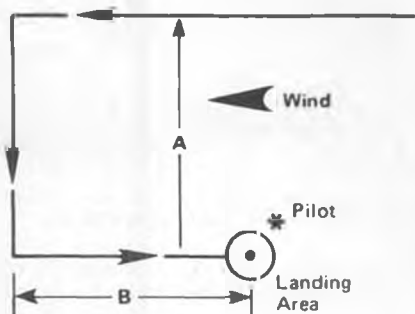


Mike Trew's Kirby "Kite", 1:5 scale placed second at Crook Peak 1980. He was winner in 1979.



Cliff Charlesworth 1:4 scale ASK 13 wheels overhead, displaying its characteristic swept-forward wing plan.

proach, much like full size aircraft fly, with downwind, crosswind, and upwind (final) legs.



The only changes ever needed will be to change distance "A" to suit your aircraft, and to adjust "B" to correct for wind velocity. If a calm day, downwind and upwind legs can be long, because it will be easy to get back upwind to the circle. On windy days, keep distance "B" short, so the sailplane won't have much ground to cover getting back to the spot. For me, distance "A" is usually about 50 to 100 yards, although I change that depending on trees, spectators, etc



Dave Harrison's quarter-scale Jantar 1 has built-up wings, a commercial glass fuselage. Exceptionally smooth in flight, as are most of the huge gliders.

The third and final step in a proper landing is altitude adjustment and flying to the spot. When your sailplane completes its upwind turn, judge its altitude and distance to the spot. Practice taking a quick look at the spot and back to your plane. For accuracy you need a sharp mental picture of your plane and the landing spot. This will help you decide whether you are too high or low, and if you are heading directly for the spot. If

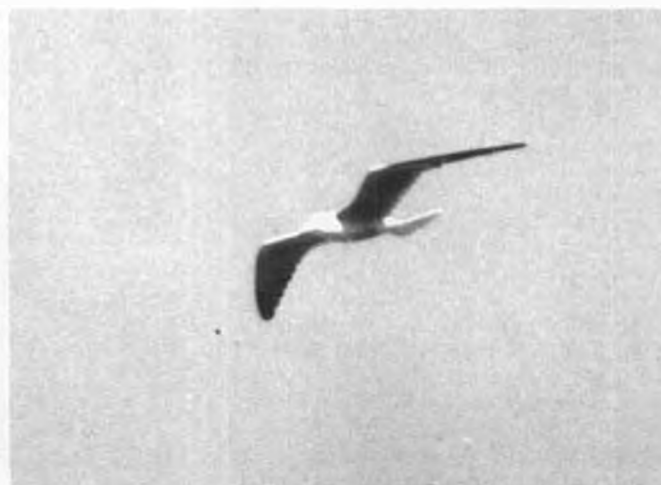
you decide you are too low, keep the nose down, your flying speed up, and concentrate on maintaining your heading directly to the spot. If you are too high, you have two options. You can S-turn to lose altitude, or by careful manipulation of your elevator, lose altitude.

With the S-turn method, simply make broad, gentle S-turns, keeping the nose

*Continued on page 64*



Mark Smith recently dusted off his model of Jonathan Livingston Seagull, which he designed, built, and flew for the movie of the same name. Not an easy 'bird' to fly, it is nevertheless very realistic in the air.





# FREE FLIGHT AND CONTROL LINE

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Rex Oldridge appears to be attempting to clear the fuel system in his Albatros. No further caption information available.

## FREE FLIGHT SCALE

By FERNANDO RAMOS

• This January of 1981 is the beginning of my 10th year doing this "F/F Scale" column for **R/CMB** magazine. It's hard to believe that this much time has passed! My duration is almost as long as **R/CMB's** existence. I hope throughout those years, that this column has proved informative and useful, and will continue to do so.

At this time, I would like to thank the many of you who have taken the time to write kind words regarding this effort, and an apology to those of you to whom I owe letters. This is the one area that I hope to improve in this coming year. It seems with my workload being the way it is, letter writing seldom gets the

attention it deserves. However, I know what will help speed this along. Please include a stamped, self-addressed envelope, and I'll guarantee a quick response.

One question that is frequently asked is, "Where can I get a set of drawings for such and such, one featured in this column?" Most scale modelers, I included, make only enough of a drawing to build a model from, and often on nothing more than good ol' butcher paper! So, unless a modeler shows desire to pass along his plans, I don't want to bother him.

Another question is really in the form of a request. That is, why don't I do a

construction article on a particular subject, usually one that is either very obscure or one that has absolutely no chance of flying well? There's no question that we scale modelers have some rather peculiar tastes! Well, the following will be for those of you who say you can't draw. Believe me, I'm one of them. I marvel at people such as Walt Mooney, who can come up with a plan about as fast as you can sign your name to a check. The only drafting I've ever had was in junior high school, and that was 100 years ago.

There are many different ways to make enlargements, and I will cover a few of these different ways. Without question, the easiest way is to take your three-view to a blueprint outfit which does this type of work (check the Yellow Pages). They can enlarge it to whatever size you want. The drawback is cost. It isn't cheap! For an average size model, you're looking at between \$25 to \$45. That, my friends, would buy enough to build several F/F scale models. If I had my choice this would be it. I was told recently that Xerox now has a copier that can enlarge to about any size you would like. Again, the cost is up there.

The next approach is probably the oldest method of all, and is still being used by many scale modelers. That is, the use of dividers and a scale ruler. Jack McCracken uses this method, and you know how beautiful his models are!

For those of you who may not be familiar with this method, I'd like to outline it for you. Take a three-view that you are interested in enlarging, (the sketches should help) and draw a datum line the entire length of the fuselage.



Judges Tricia Dennis and Tony Creedy examine Jack Jansen's Blackburn Monoplane at Odiham.

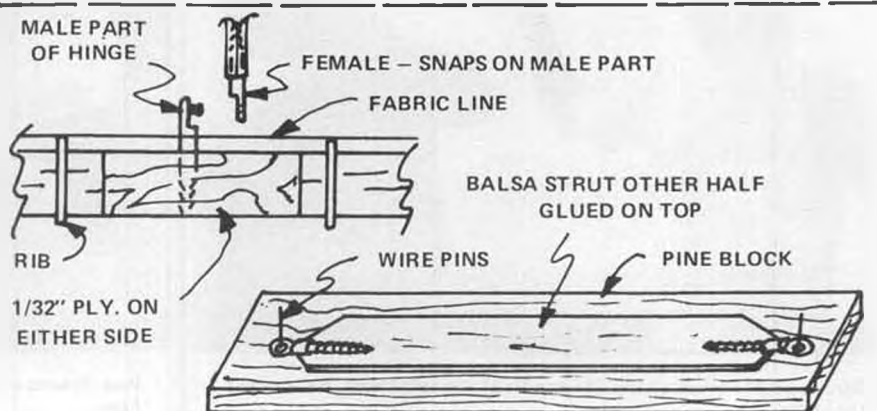
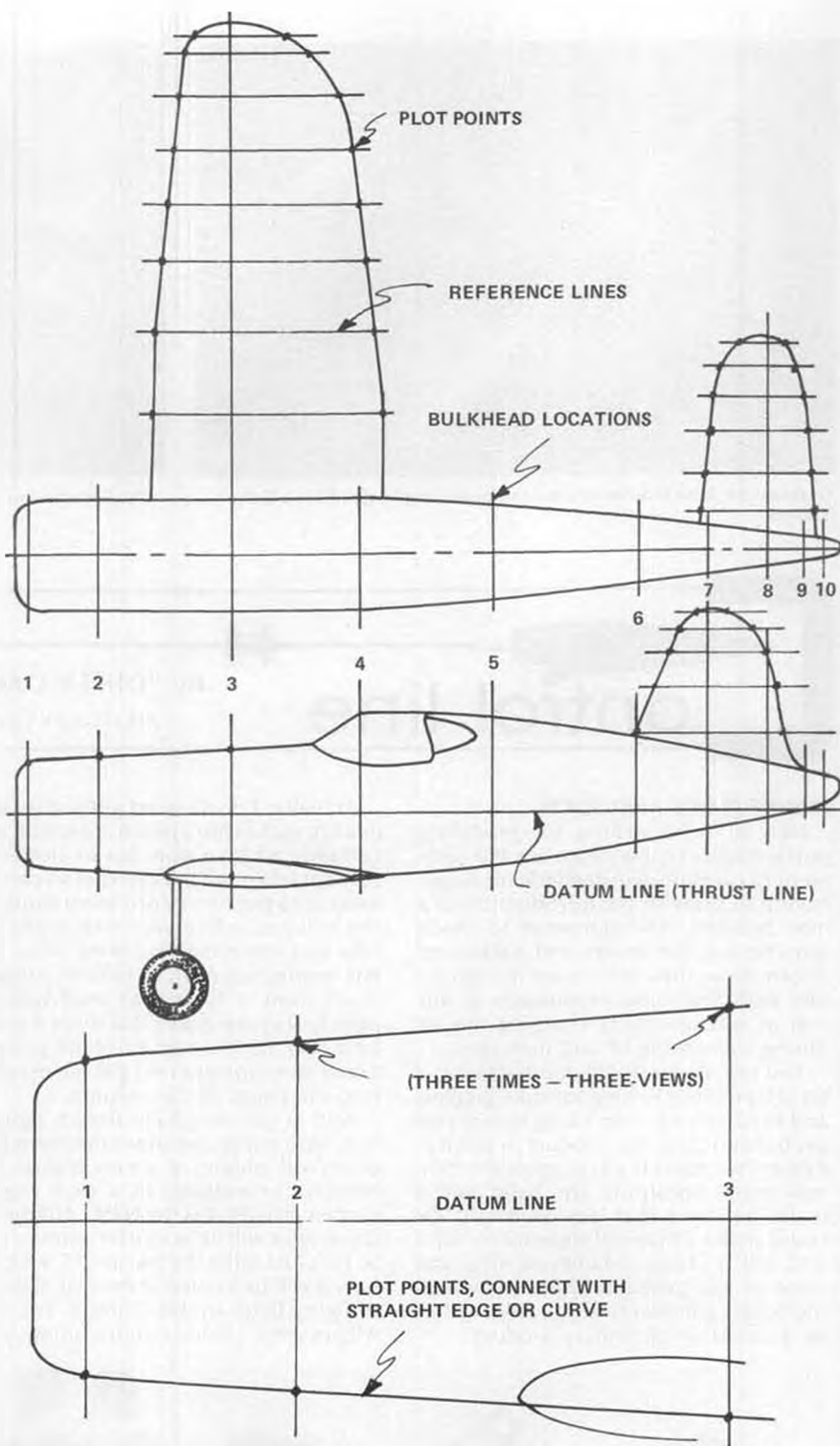
This should run right through the thrust line. Most good three-views have this drawn already. Next, mark on this datum line everywhere you want to put a bulkhead by simply making a dot. I would also locate on this datum where the wing spar or spars should be. You can determine this in several ways. If it is a cabin type airplane, the wing struts will be attached to the spars. If it's a parasol, you have the cabanes and wing struts to help locate spars, and on a biplane, you have cabanes and interplane struts. On low-wing designs, use the landing gear location. Wherever you placed a dot, draw a vertical line through it, which is perpendicular to the datum line.

Take the plan view and do the same with it. Draw a center line going from the front to the rear of the fuselage. Next draw a perpendicular line at the wing and stab spar location on this center line. These last two lines should run the span of the wing and stab. Since most three-views are drawn with the side and top views in line with each other, the vertical lines previously drawn on the side view can be extended right through the fuselage top view (see sketch). All we are doing is making a series of reference lines. Let's say for example, that you want to build a model three times the size of the three-view. On a separate sheet of paper (large enough to draw the plan on) draw a datum line, and at the beginning of this line draw a line perpendicular to it. This will be the first reference point. Measure from the three-view the distance from this same point to the first vertical line. Take this dimension and multiply it by three and transfer it to the datum line. Continue this for the rest of the points. Then draw perpendicular lines through each of those points. I hope you are still with me. This whole procedure takes but a few minutes. (*Proportional dividers, which can be set for the ratio you are enlarging, save lots of time spent multiplying dimensions. wcn*)

Now measure on the three-view the distance from the datum line up to the outline of the fuselage, and from the datum line down to the lower outline of the fuselage. Again, multiply these dimensions by three and transfer onto the drawing. Repeat the procedure. This whole thing is similar to plotting an airfoil. Just connect the dots using either a ship's curve or a French curve, and now you have an enlarged drawing of the fuselage. The same technique is done for the plan view.

Cross-sections can be done by drawing squares say, 1/8 or 1/4 inch (depending on size of three-view), over the different cross-sections. Then, on your working drawing, make the size of the squares (our example) three times larger. Transfer accordingly. You can do the same for wing tips, rudder outline, etc.

Putting in structure shouldn't be too much of a hassle. Some designs lend themselves better to a box-like struc-

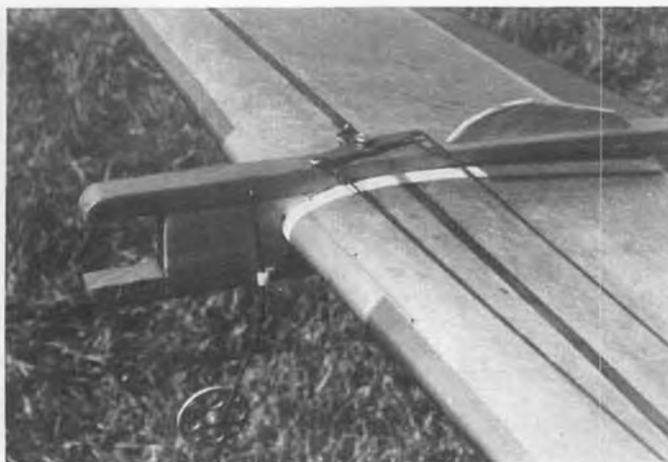


Continued on page 71





Overview of John Gladfelter's model, quite simple, good for a Dirty Trainer.



Close-up view of Gladfelter's creation. Note trick wheel and bellcrank.

## Control line

By "DIRTY DAN" RUTHERFORD

PHOTOS BY CHARLIE JOHNSON

### FREEBIE PLUGS AND SUCH...

Like all folks writing for modeling publications, I quite often am the recipient of carefully worded little messages having to do with the introduction of a new product. Unbeknownst to those sending out the letters and packets of information, their efforts are not always met with the same enthusiasm at this end as was obviously charging the air during the writing of said messages.

You see, if you do this kind of thing, a bit of free-lance writing for yuks, giggles, and Mad Money, it isn't long before you get burned on a new product or service. Remember Alsa? It was supposed to be a man-made substitute for balsa and I really believed that guy who said he could make a material superior to balsa and sell it cheap. I believed him, and some of you probably believed me and the others who wrote about what was to be another revolutionary product.

Actually, I don't mind getting sucked in a bit, makes life a touch more fun, and certainly adds to one's list of stories to tell. But I do mind it when I get so carried away as to pass the information along via this column, information that might just cost you some money. None of us lost any money on Alsa, of course, in fact I don't think I have ever inadvertently punched up a product that turned out to be a dud. But then many of the promotional announcements I get never make it to the pages of this column...

And as you may have already figured out, here comes an announcement (the drum roll, please) of a new engine, the Nelson Competition 15, a glow engine further classified as the N15G. Neither of these titles will be in much common use, so let's just call it the Nelson 15, which is how it will be known at the vast majority of flying fields in this country. Yes, that will, in some circles, confuse things with

the N15D, Henry's beautiful Team Race engine, but I ask you, how many Team Race fliers are there anyway? Do you know one? In all my C/L flying I have met only a handful, all of these at various AMA Nationals. Except for Tom Knoppi, a local flier, who is so nutso over TR that we worry a lot about him...

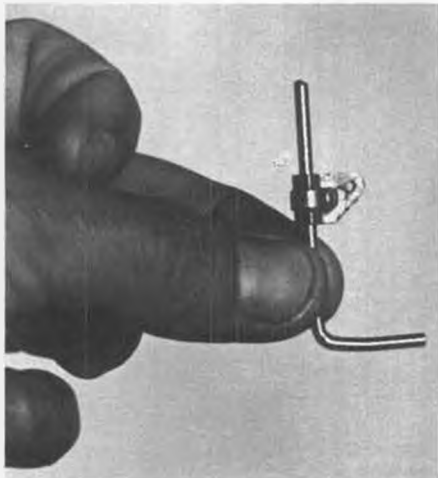
Speaking of Team Race, that is the event that Henry Nelson attacked several years ago, his idea being to make commercially available an engine that would be competitive, at World Champs level competition. Now, I am not a flier of Team Race, never will be, either, but I do follow it as closely as possible, and if a person were to pick an event from all those available in modeling competition, an event where you could design and produce a killer engine to make a name for your company, Team Race would be the very last event to choose. The top-notch TR fliers are absolutely



Jordan Segal dodges a king size handle at the 1980 Nats. He survived the attack.



Pete Athans watches while Tom Zon and Terry Kerger untie the lines.



Variable height elevator horn, an R/C aileron fitting. Epoxy foot to elevator.

wacko in their devotion to the event, many will, and have gone so far as to design and build their own engines (!) just to cut a few seconds off their race times. And you thought you were a devoted competition flier. Ever build your own engine? Ever design and construct several, pronounce them to be failures and go right back to the drawing board, all the while keeping up with other advancements being made in models, line groupers, props, flying tactics and so on? (How many racing category rules allow you to build your own engine? Maybe that's why there's "only a handful" of followers. wcn)

Being aware of what the TR guys will do to stay on top, I was very surprised, back a few years, when it was heard that Nelson was really going to market his own engine in the form of a diesel .15 and that the idea was not to just supply the masses (actually, "masses" is not the correct term when referring to TR fliers) with a manageable and reasonably fast diesel, he wanted to give everybody from world class fliers on down an engine that was better than anything else available, whether it was built from bar-stock or not. And he did it, the Nelson 15D is the motor in Team Race today. It is fast, reliable, and, most importantly of all, it is available. Only a twist of fate, prodded along by an indecisive FAI Jury, kept "The Gator" (Walt Perkins) from smokin' 'em in the Final at the most recent World Champs and Gator was running a Nelson 15D.

And so, against all odds, Henry Nelson did in fact come to rule the Engine Roost in a very hard-nosed event, FAI Team Race. Now with the glow motor, due to be released June 1, 1981, he and Joe Klaue, Joe being the distributor of the engines, look to supplying anybody coming up with \$160.00 an engine that will outperform any previously offered .15 glow engine. At this time, there is no way I can make that statement from first hand experience, as the motors are not available as I write this. But if Henry makes the claim, and Joe backs him up, that is good enough for me.

The engine itself is, of course, .15

cubic inches, bore and stroke being square at .575. Compressible and volatile materials go in the front door and out the back, so it is front intake, rear exhaust. Crank is a huge 12 millimeter piece, same size as used in the K&B 21, for instance. Sleeve and piston is of the proven ABC construction. Schnuerle porting, of course, although Joe tells me that the boost port is quite a bit wider than usual. The rod is bronze bushed, the motor weighs about six ounces, and is available with a number of head configurations to suit various applications, as well as being offered in an R/C version, again with different heads in addition to several different carburetors. Carb version will cost a bit more at \$169.95.

For full ordering information, as well as a brochure describing more fully the Nelson 15, contact Joe Klaue at Kustom Kraftsmanship, P.O. Box 2699, Laguna Hills, CA 92653. No money required, just include a stamped, self-addressed envelope, and if you don't want the contents folded a bunch of times, make that envelope a large one.

#### AN EVENT FOR THE NELSON 15

If the performance of the Nelson 15 is up to the claims made for it, and I see no reason to doubt these claims, the engine will see plenty of use in FAI Power (Free-Flight event, dummy) and FAI C/L Speed. Might even see the R/C guys turn to it for their Pylon event known as Two-Bits racing, more officially referred to as Quarter Midget, assuming Henry can soon crank out enough units to meet AMA requirements. (Especially as the R/C Contest Board has just thrown out two proposals to allow QM to use 3.5cc [.21 cu. in.] engines . . . even before knowing about the Nelson .15. wcn) But in the U.S. of A., when talking about 15's and C/L, the name of the event is Goodyear. And it is certain that Goodyear racing will mean .15 size engines for some time to come as the proposal to allow .21's went down to a sound defeat in the initial vote from the

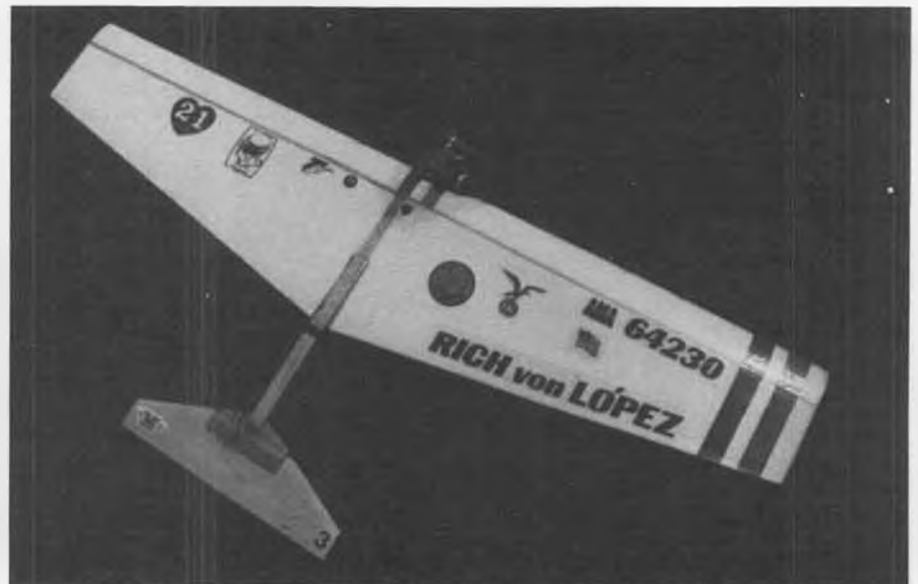


The new Fox case; taller venturi stack . . . use no bolts . . . epoxy in place.

CLCB. Only one of eleven, some guy from the Northwest area, voted for the proposal, so there is no sympathy at all from either the CLCB for the Racing Advisory Committee where a change in engine size is concerned. And as one of the big things prompting the proposal in the first place was lack of readily available motors and parts (same reason for the R/C proposals. wcn); if Nelson can keep up with the demand there will be little reason for the proposal to reappear.

Next event to consider is FAI Combat. I mean, wouldn't it be one of the great thrills of a lifetime to be in a match where your first model punches in and fills the crankcase with mud, worms and such, and then the second model gets cut loose to fly away? Over \$300.00 in powerplants, one jammed with crud and some duck trying to flip it over just to see if it really is loaded with muck and goo while you watch the other motor, bolted solidly to the front of the most stable flying F/F model known to man and fed by a bladder that is good for five minutes minimum, streak off to places unknown

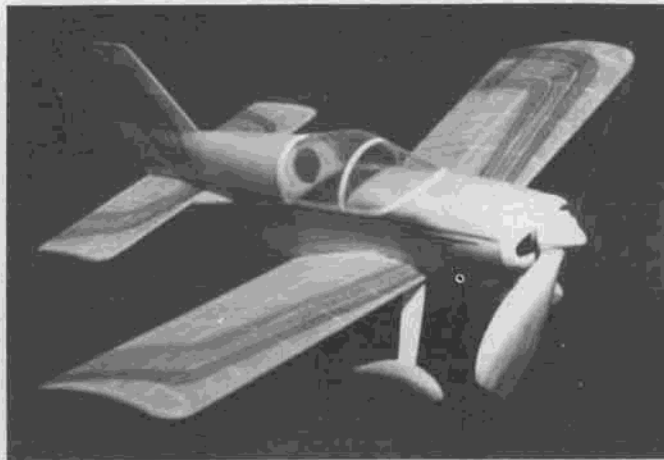
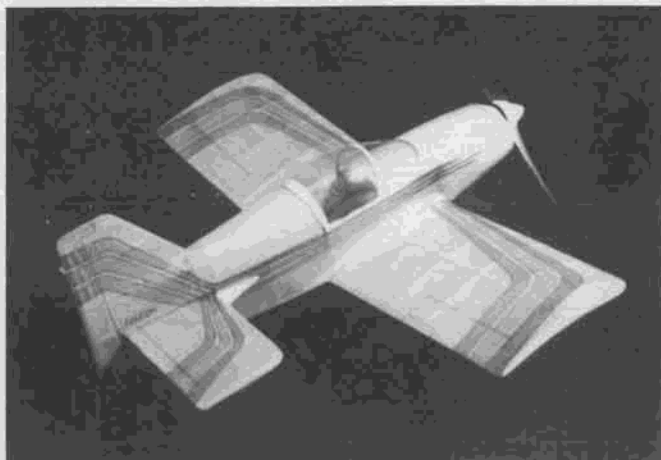
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This is the foam model that a lot of the southern California guys are using for Fast and FAI competition.







Lots of wing area within 13-inch span, but also very close coupled, this one is a challenge to trim and fly. Decorations are also a challenge in trimming of a different sort. Explained in text.

# BD-8



By WALT MOONEY

• Jim Bede is well known in homebuilt circles. While all his projects haven't been completely successful, they have all been extremely interesting. He has a creative, aeronautical brain. The BD-8 is a product of his fertile brain. It's a simple, all metal aerobatic airplane. The first homebuilt version has been completed, so a Peanut Scale model of the BD-8 needed to be built.

Now the original BD-8 was built with zero dihedral, so the model in the photo was also built with zero dihedral. Your first reaction is probably, "It'll never ever fly that way!" Not so, it flies just fine, after all, the Peanut Scale rules allow hand launching, and this is a stunt plane. So hand launch it and trim it to fly upside down, I did and it works great! (We must give the credit for these ideas to Dick Baxter, who first suggested, "So it won't

fly right side up... try it upside down.")

Although the model was built without dihedral, a concession to reality is the use of thick root ribs so at a later point in time the wings can be removed, the root ribs beveled, and dihedral installed.

During the testing period on this model, it was established that it would fly fine upside down from a hand launch. Will it R.O.G. and then roll over and fly inverted? Not likely, with a fixed horizontal tail. But, suppose it had a pendulum-controlled horizontal, could it then be trimmed longitudinally to fly either side up? Certainly, but whether it will survive the slow roll on takeoff is a question.

Well, it was tried. The tail was pivoted at its quarter chord point for zero aerodynamic moment and then statically overbalanced, so the leading edge moves

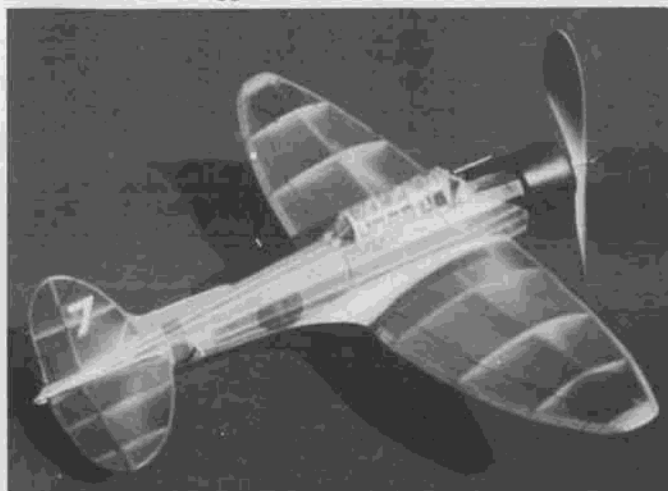
down regardless of what side up the model is flying. Trial and error located a couple of suitable tail motion stops. The model still flies fine upside down, and R.O.G.'s quite nicely. After taking off, it starts to roll to the left because of propeller torque and slipstream and crashes before it gets inverted. From a hand launch with the model pointed up at 30 degrees it will sometimes accomplish the roll, but from takeoff, no success.

The wings were removed and one inch of dihedral installed under each wing tip. The model now flies fine right side up, and does nice takeoffs and landings. It won't fly upside down any more though.

Because of the letters received after the comment was made that the prototype Fokker Triplane model was untrimmable, there will be no statement that the slow roll on takeoff followed by inverted flight can't be done by the BD-8 model, but the model in the photos wouldn't do it with a pendulum tail.

The BD-8 is an interesting and simple configuration that lends itself to becoming a good Peanut Scale subject. The aspect ratio of the wing is low enough to allow a lot of wing area. A lightweight model might even give the Lacey's and the Fikes a run for their money.

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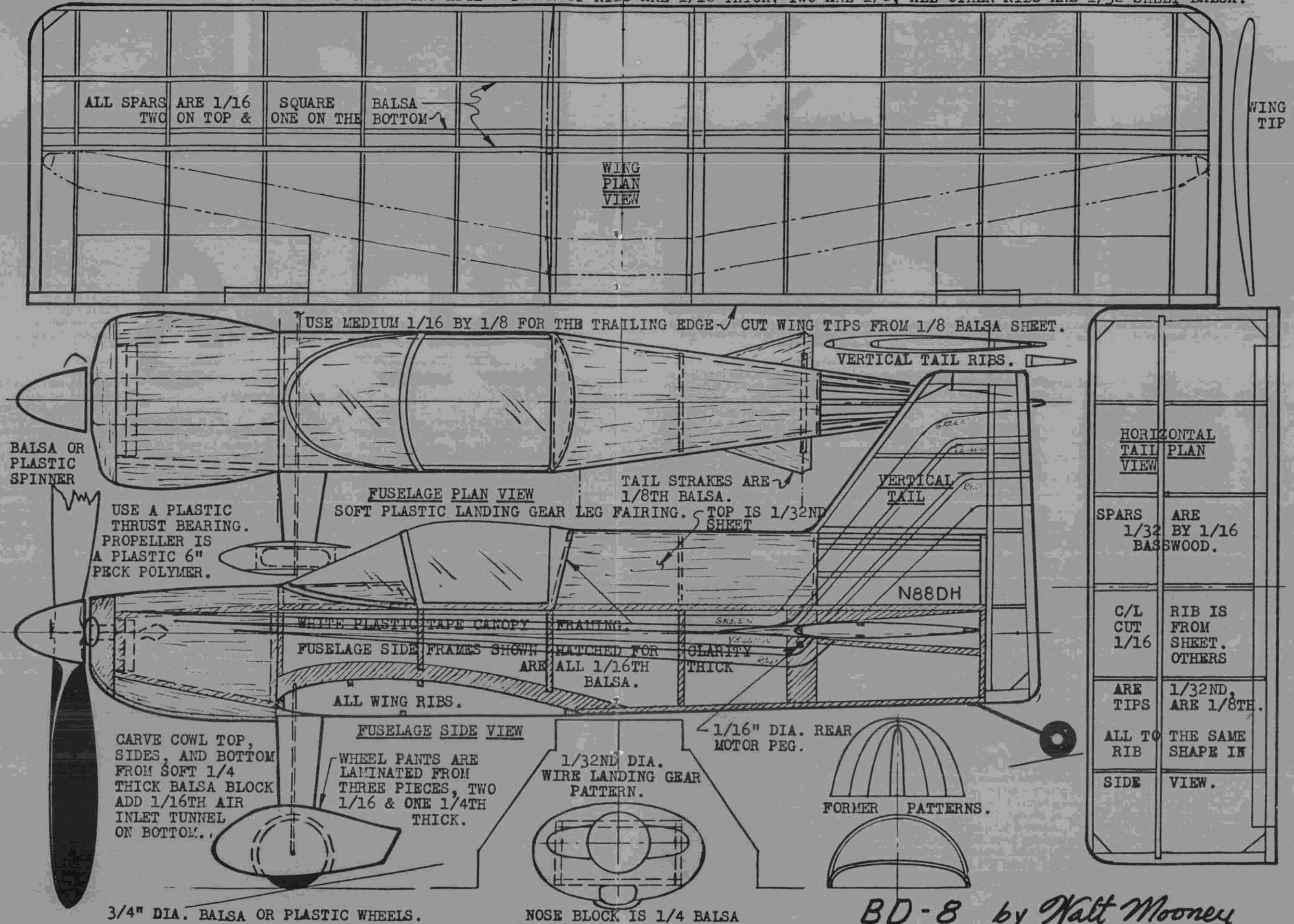


Walt's next Peanut is this Aichi A3D "Val", with authentic orange, red, and black warbird color scheme. Watch for it.



With zero dihedral per scale, the BD-8 model flew fine... upside down only! Read about it in text.

USE HARD 1/16 BY 1/8 Balsa FOR LEADING EDGE TWO ROOT RIBS ARE 1/16 THICK, TWO ARE 1/8, ALL OTHER RIBS ARE 1/32 SHEET Balsa.





Eddie Hardin preps his Perryman Mulvihill at H.O.D. F/F meet. His wife in background. Tom Hepler photo.



Stan Fink assembles his Easy B model. See text for supply source for indoor kits, materials, etc.



At Heart of Dixie, 1976, Huntsville, Alabama, Andy George, Xenia, Ohio, launches B gas. George Batiuk photo.

# FREE FLIGHT

by TOM HUTCHINSON

PHOTOS BY AUTHOR

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

• The past month's mail bag has included get-well cards (thanks out there!) and a few interesting letters I'd like to share.

## P-24 UPDATE

Since mentioning our WMC Indoor P-24 event, I've gotten a few definite signs that P-24 might be popular in other parts of the country. Here's what current World Indoor Champ Erv Rodemsky wrote:

"I like the P-24 event. As the 'inventor' of the Pennyplane event, I'm sorry to see it killed by the experts (I've only entered the event twice myself), but the Novice Pennyplane event goes a long way towards turning off the experts, so beginners can compete. But I think you are right, that a finished prop is what is needed. Perhaps someday we can produce a styrofoam 12-inch prop for Novice Penny and such models for those who want to move up from P-24."

Bob Stalick has received inquiries from several other clubs about our rules, etc. But the biggest indicator that P-24 might be on the right track might be a personal experience in almost my own back yard. Ralph Cooney, R/C flyer and head honcho of Fourmost Products in Forest Grove, lives in Hillsboro, and has a son in one of my Physics classes. Ralph built a copy of my P-24 from the January issue, tried flying it outdoors on a calm

day, then took it to the local R/C club meeting to fly it their gym. Next thing I knew, we were in contact with each other and he was asking for the whereabouts of the local indoor activity! Like I said, I think P-24 has potential. . . they're easy to build and will fly "right off the board" (as Ralph found out). (The above paragraph points out just another example of the reason R/CMB continues coverage of the basic category of all aircraft modeling . . . free flight. wcn)

## HELPING INDOOR BEGINNERS

Erv also had some interesting comments about attracting newcomers to indoor modeling:

"Really good kits and instructions, along with the right promotion can really get some activity going. As an example, Mr. Nonocka from Japan (would you believe, he's an ex-kamikaze pilot! TH) has indoor nearing the hula-hoop in popularity. One kit alone (novice Pennyplane) has sold 30,000 and is going strong!

"... Simon & Schuster will (soon) have Ron Williams' book, *Building and Flying Indoor Model Airplanes* finished. It's fantastic! About 275 pages, over 200 excellent drawings, it answers almost every question about indoor, from gliders to microfilm.

"I'm trying to put together a program for newcomers using his book as a basic

text. If what I have in mind works, it will give indoor, free flight, and all phases of modeling a real shot in the arm. I'll keep you informed as things progress."

Erv's comment about good kits and instructions really struck home. My wife works as an elementary school counselor, and has been trying model-building as therapy for some of the kids who teachers are having problems with in the classroom. The interest level is there, and the kids are willing to concentrate longer and harder on the models than they've ever done with



Bob White patches some tissue during 1979 World Champs. See text for his thoughts on calm-air Wake flying, Mulvihill, and his next Wakefield design. Will Nakashima photo.

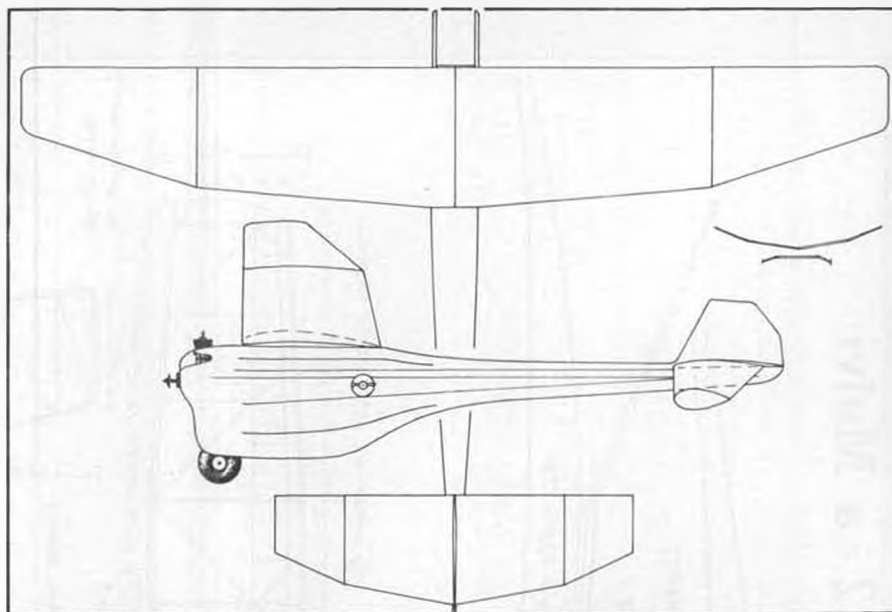




Bill McDow launches his record-holding P-24 model. Note plastic prop required for this new indoor event.

school work. (The only book one of the kids has read all the way through this year is *Hand Launch Gliders* by Kaufman). I've tried to help her by selecting appropriate kits, but even the simplest kits need an experienced modeler to interpret the plans and language for the kid. For example, to build the Sig Thermal Dart, you must know the meaning of terms such as *spar*, *leading edge*, *trailing edge*, *rib*, *dihedral*, *gusset*, etc. . . . and learning the language can be really frustrating to a 10-12 year old even if he doesn't have learning difficulties. (Cynthia Sabransky makes the same point in her 1979 NFFS Sympo article, *Building that First Model Airplane*.) Most kits are not capable of being completed by a newcomer, unless he has the close personal attention of an experienced builder. Even the AMA Delta Dart is not a "do-it-yourself" project for the uninitiated.

Most of us have achieved the status of experienced modelers by having some outside help, or, more rarely, through being extremely persistent in the face of adversity. It's difficult to revise kits currently in production, but conscientious manufacturers should make an effort to see that kits intended for beginners can be built with no outside assistance. Perhaps AMA could coordinate some field tests for beginners models in the hands of beginners, so that before designating a kit as AMA-approved, we would know how well-suited it would be for the raw novice. A well-prepared set of instructions for such a kit should include a glossary of terms, and should be at about the 5th



#### APRIL MYSTERY MODEL

grade reading level, with plenty of details or sketches to show how the hard parts are done.

A good introductory text to model building, such as the one Erv mentioned, might be an acceptable substitute. But how do you get them into the hands of interested beginners? The best place I can think of is through the school library. Most school librarians I've met are genuinely interested in providing books that kids are interested in reading. At the junior high or elementary level, model airplanes are a hot topic. If every modeler visited their local school library and made some suggestions to the librarians as to suitable books, chances are that they will end up on the shelves, and another modeler may join us at the flying field. If your librarian is short on funds, you might want to donate some volumes (or a magazine subscription), as your contribution to the future of free flight. It would be tax-deductible, too!

I'd like to compile a list of suitable books on model aviation, that could be used as a guide for librarians and publish it here a bit later. I have a fair amount of books on the subject, but if you've got a favorite to recommend, let me know about it so it can be listed.

#### MICRO DYNE PRODUCTS NOW AVAILABLE

One thing that might help introduce indoor models to newcomers is a good

line of kits, such as is now put out by Lew Gitlow. Lew used to make the Micro Dyne line of kits for indoor models in the early 1960's, but has been inactive for a few years. But now he's back, with Indoor Model Supply putting out a complete line of kits and accessories, including the famous Micro Dyne quality balsa. Kits include Pennyplane and Easy B designs for competition, plus some parlor designs (one's a helicopter, like the Jim Walker Ceiling Walker) for fun in your living room.

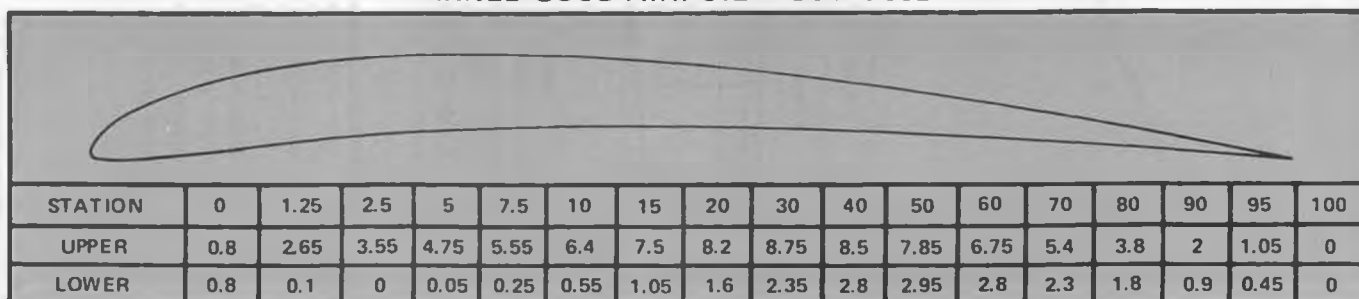
Dave Hagen came back from his successful foray to the FAI Indoor Semifinals (he made his first 30 minute flight) with some sample kits, which I plan to try out this season. Send an SASE to Indoor Model Supply, Box C, Garberville, CA 95440, for a copy of the catalog . . . if you hurry, you might be able to get a copy of Lew's book on Indoor . . . only \$2.95, but there are less than 40 copies left. If you miss out, you'll have to wait for Ron Williams' work.

#### THE GODFATHER CHECKS IN, TOO

I also received a tape cassette from Bob White, recorded before, during and after the WFFA contest, which took place during my hospital stay. Bob's got some interesting ideas about the next Wakefields he will build! He feels that the 3-minute Wakefield is now a reality

*Continued on page 94*

#### DARNED GOOD AIRFOIL – GOTT. 362



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"The Sierra Cup Ballet" as performed (L to R) by Ken Oliver, winner of the power champagne flyoff; Dave Sugden, Canada, 1st place in power; and Reid Simpson, 3rd in power.

# the 1980

By REID SIMPSON



# Sierra Cup

## INTRODUCTION

International meets within the United States have not been held in previous years except when hosting world championship meets, be it free flight, R/C, U-control, or scale.

The Sierra Cup, in Sacramento, California, and the Livotto Invitational, in

Taft, California, were FAI free flight meets started in 1977 and 1976, respectively. These meets were both included on the international contest schedule through FAI in Paris for the first time in 1979. The 1979 meets were scheduled to provide 3 solid weeks of free flight competition and fellowship. The 1979

Livotto meet was held the week prior to the '79 World Champs at Taft, and thus brought in a large entry who wanted to practice and experience the wonder of flying at Taft. The following days brought the practice and competition of the World Champs entry north 400 miles to Sacramento to participate in the Sierra Cup. Large it was, 58 entries in F1B (Wakefield), 46 entries in F1C (Power) and 78 entries in F1A (Glider).

This year both the Livotto meet and the Sierra Cup were on the international schedule again, and with them again slated for 2 consecutive weekends, they provided a call to the international community to come partake of the California sunshine, flying and fellowship.

Friday morning, October 17, came sunny, cool, and crisp. My wife, Lynn, and I left Stockton to journey our short



The Queen and her Court. A stunning array of very first class trophies for Sierra Cup winners. Fitting awards for a prestigious free flight event.





Juan Livotto, USA team member proudly displaying 1980 Sierra Cup T-shirt.



Mike Fantham, Great Britain, first in A/2 champagne flyoff with over 6 min. flight.



Chuck Dorsett, San Francisco, launches Wakefield.

distance, 50 miles, to the Northern California free flight council (NCFFC) flying field, where the 4th Sierra Cup Contest would take place. Lynn would head up the administrative task to process, score, and coordinate this large contest. As for myself, I was looking forward to competing in F1C power, a good banquet, and perhaps a beautiful trophy.

Proceeding up Interstate 5, we towed our travel trailer, which would be parked in the middle of the field, serving not only as our home for the weekend, but also as the contest control site and as the parking lot for 20 or 30 motorcycles for the next 2 nights.

Arriving at the site by 9:00 a.m., we once again nodded our heads in approval at the view of the field and what it offered. Having flown both here and abroad, from the forests of Cape Cod, Mass., to the cornfields of Chicago, to the swamps of Louisiana, we know a good flying field when we see one. A



USA wins Sierra Cup as country with best combined score of highest placers in each event. (L to R): Roger Simpson, power; Matt Gewain, A/2; and Walt Ghio, Wakefield.

clear view without trees for 5 miles in all directions, ankle-high grass and weeds, and accessibility to many fields by bike and to all fields by foot. As we leveled the trailer, unpacked the scoring tables and equipment, we looked over the early arrivals, some fliers out of New York State, some out of Detroit, and within an hour more were to arrive, including the Canadians.

Dave Sugden, of Canada, and his family, climbed out of their car, smiled at the warm air and no wind, and breathed in the scent of what they called beautiful, the scent of the small bush known as tar weed that would make life miserable for the A/2 fliers (truthfully, Dave says he just loves the smell of it).

As the afternoon passed, more and more fliers arrived, many from Southern California, many from out of state, some from Canada, England, and Denmark. Up went the test flights, circle towing, screaming climbs, quick DT's . . . some not quick enough. Later, as the sun set



Gail Gewain launches Matt's A/2 on winning flight.



Sandy Bjerre holding husband Finn's A/2. Couple is from Denmark.



Power winners (L to R): Russ Backer 5th, Reid Simpson 3rd, Dave Sugden 1st, Roger Simpson 2nd, and Doug Galbreath 4th.



A/2 winners (L to R): Jose Dona 4th, Gary Medley 3rd, Matt Gewain 1st, Lee Hines 2nd, and Mike Fantham 5th.



Wakefield winners (L to R): Joe Bilgri 5th, Bob White 3rd, Walt Ghio 1st, Joe Foster 2nd, and George Xenakis (in Photo at right) 4th.



George Xenakis, 4th in Wakefield. He also received NFFS award for its Model of the Year recognition.

and the air started to really cool, we could hear the same statements from many . . . "Boy, if tomorrow is just as calm, what a contest it will be!" As it was to be borne out, it was just as calm, just as warm, just as beautiful. . . what a contest!

At the crack of dawn Saturday, the cars rolled in, doors slammed, motorcycles

choked to life, and I decided that there was no sense to lay in the warm bed anymore. Now, where's the matches, where's the coffee?

Pre-processing had taken care of 95% of the registration and pole assignments, so Saturday morning was spent test flying by the contestants, and the brief-

ing of the timers and posting the pole assignments by the administrators. Roger Simpson was once again the Contest Director, and his careful attention to detail and the assignment of responsibilities allowed him, at contest time, to assume the role he wanted as a good ol' power contestant.

*Continued on page 97*



"See, Henry? I told you modeling was a bad influence on children. They're giving that kid a bottle of booze!" Hugo Sandroni, Jr. (age 15) took 2nd in the A/2 Champagne Flyoff. Here's to ya, Hugo!



"What would we do without . . ." the scorekeepers, Inky Davis (left) and Lynn (Mrs. Reid) Simpson kept things in order.



Piper PA-15 Vagabond by Ken Johnson. This 29" indoor scale model built for big hangar at Norton AFB. Bounced off every wall there. Bill Warner photo.

# INDOOR

By KEN JOHNSON

• The ornithopter plan featured in this column is unique for several reasons.

First, it is a biplane ornithopter, and all of the wing surfaces "flap." The wing moves in a see-saw fashion. That is, as one side goes up the other side goes down, i.e., the left tip of the top wing goes down (see sketch) as the left tip of the lower wing goes up.

The unique rear bellcrank driving system is located at the back of the motor stick. This arrangement necessitates the use of torque tubes at the center of each flapping wing. These tubes are essential to carry the twisting load from the bellcrank to the spar at the leading edge of each flapping wing. An arrangement of connecting rods carries the movement of the bellcrank to the upper wing and back down to drive the lower wing.

Mr. Baxter has built three other machines in this series, using front and rear bellcrank driving systems. This model uses a different shape outline on the flapping wings; more area at the wing tip and less at the center. I asked Dick if any difference was noted in either the flight pattern or in the flight time. His answer was in the negative.

The reason the flapper has a long boom at the front is to properly locate the center of gravity. Dick tells me that the motor stick could be made about 1 inch longer at the front and the boom could be eliminated. The longer motor stick would allow more rubber length and more turns in the model.

There are no airfoil shapes used in this model. The wings are flat and the stabilizer is flat, with no ribs. The airframe weight on this model is somewhat

heavy, but the important thing about it is the original concept.

This is the type of creative thinking that will lead to advancement in the state of the art in flapping wing aircraft. Unfortunately, the way the current AMA rule is written on ornithopters, there is little opportunity for experimentation with different planforms, linkages, concepts, etc. What's the difference where the stab is located, or how much fixed wing area is used; if the model is powered by flapping wings?

The linkage on Dick Baxter's Flapper is somewhat difficult to explain in the plan. The photo shows more graphically how the parts connect together.

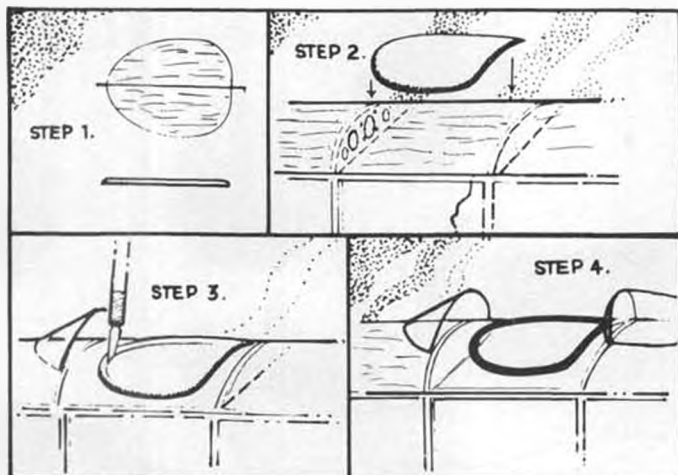
The covering used on the "See-Saw" model is condenser paper. The span is 11-3/4 inches. If blown up to about 15 inch span, this flapper would fly nicely outdoors.

## QUEST-FIFTEEN FLAPPER

Your indoor column editor has just finished and test-flown Ornithopter No. 101, dubbed "Quest-Fifteen" Series. The idea here is to throw away the rule-book on flappers and build a flapping wing indoor model of F.A.I. size that will fly for 15 minutes. Can it be done? Who can say? Indoor expert Bucky Servaites related to me in 1976, over lunch, that he believed that 15 or even 20 minutes was possible. The model would have to be very light (microfilm covered) and very efficient.

Bucky's offhand comment has stayed with me, and I decided to try for this "Impossible Dream." The longest indoor time to date, that is recorded, is 5 minutes and 15 seconds. This author had an unofficial time of 7 minutes, 30 seconds in 1975. The place was Santa Ana blimp hangar. The flapper arrangement and linkage on the QFF model just tested are the same as that on the Santa Ana model. The QFF is essentially an F.A.I. model, but it is powered by flapping wings. This first new ship is Micro-Lite covered, the flappers condenser paper covered.

The first flights look promising. It is stalling somewhat and modifications on the flapper areas are planned for model No. 2. Next column will carry a photo of



Making open cockpit padded rings. See text.



Florida's Dr. Martin with Martin MO-1 indoor rubber scale model. Flies 90 seconds on one loop of 1/8 FAI rubber. Linstrum photo.





Back view of Baxter flapper on holding stand. Note stab tilt for turn. Johnson photo.

this model.

## HOW TO MAKE OPEN COCKPIT PADDED RINGS

Open cockpit airplanes are fun to build and fly. However, one part on this type of model has always been a "pain in the cockpit." This is the black padded ring that encircles the open cockpit. Slitting a length of plastic tubing is one way. However, the glue never holds for very long and then it starts separating and coming off.

Here's a method that works very well for me. Sheet over the cockpit area completely, after detailing the interior (including the instrument panel).

Step 1. Cover the entire fuselage with Japanese tissue, condenser paper, etc. Cut a pattern of the outside shape of the ring from 1/16 sheet balsa. Sand the outside edge of the pattern to a rounded shape. Then soak the wood in warm water till soft.

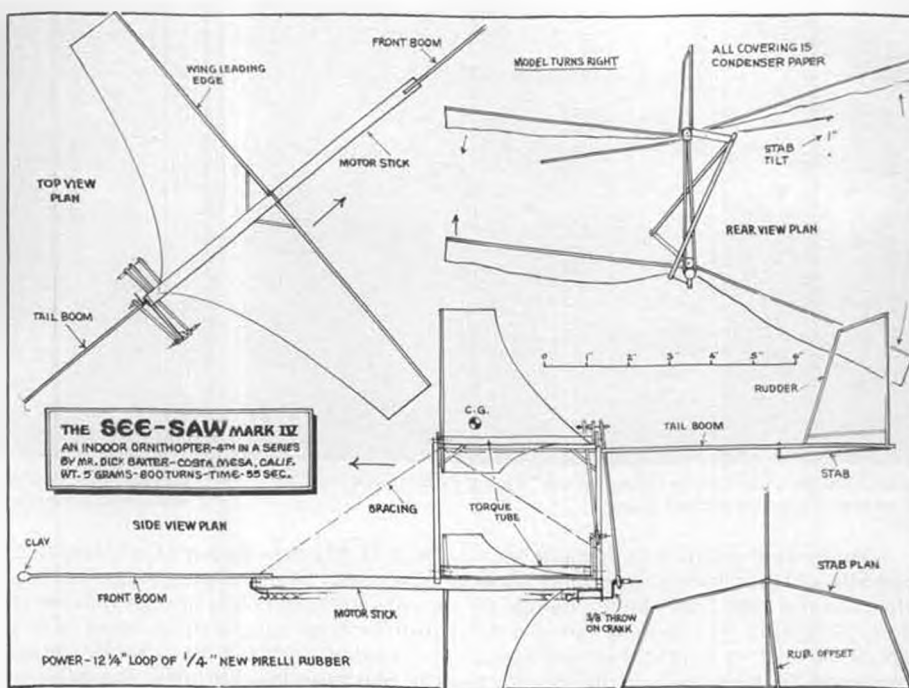
Step 2. Form the pattern over the curved area on the cowl. Tape it down until dry. Then cement the ring pattern down carefully in exactly the right position.

Step 3. Draw a line on the pattern for the inside edge of the ring. Using an Uber Skiver knife with a new, long pointed blade, cut down through the ring blank and cowl sheeting along this line. Tape a 3 inch length of fine sandpaper around a 4 inch length of 1/4 inch hardwood dowel, and sand the inside edge of the ring to a round. When completed, the ring should look like a half-round in cross section.

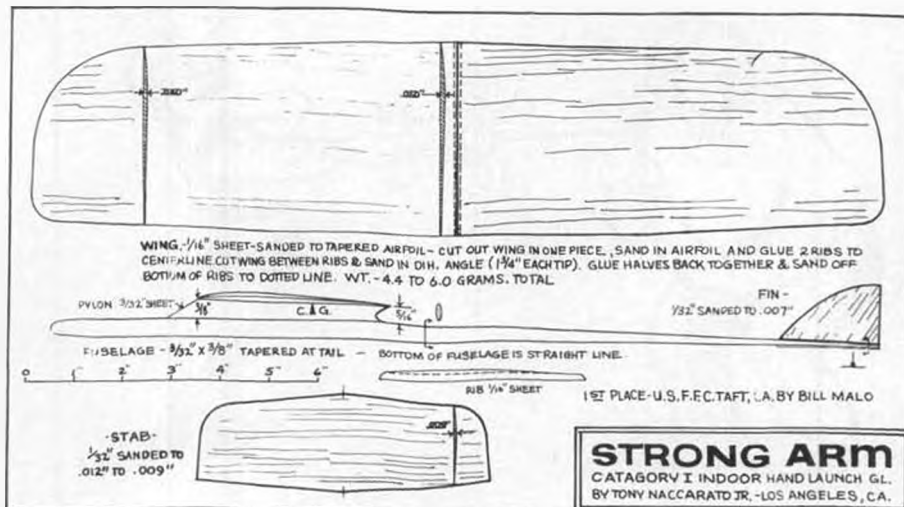
Step 4. The only thing left to do is paint the ring with black dope. Use a small brush and go slowly so that you do a neat job. You will need to blow air into the open cockpit to remove the balsa chips and dust.

## THE STRONG ARM HANDLAUNCH GLIDER

The second model presented this month is Tony Naccarato's category 1 glider. Tony and his mom, Addie Mae, build almost everything that flies in modeling. Whether it's Radio Control, Control Line, Free Flight, Scale or Indoor, the Naccaratos do it, and do it well. And the Strong Arm is no exception. Category 1 gliders usually climb left and glide left. This model does not. It flies right/right. I've seen this design fly many times at our club sessions and it is a good, consistent performer.

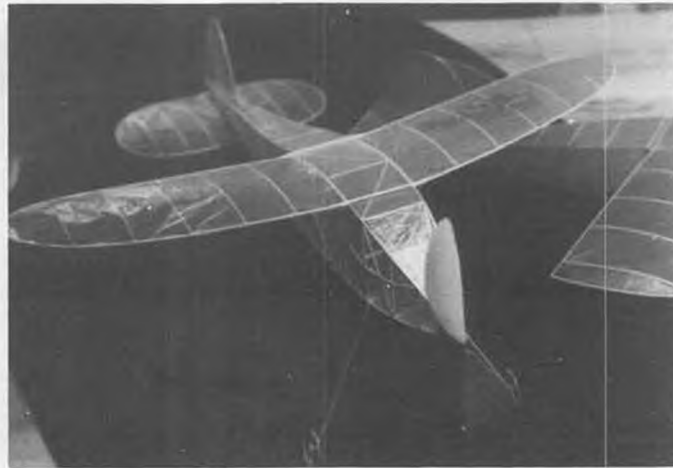


Indoor biplane designed and flown by 12-year-old Chris Johnson, Granada Hills, California. Phyllis Warner photo.





Ken Johnson's Manhattan Cabin model "Flying Fish". Built for Cat. 1 ceiling. Photo by Robert Yoha.



Boston cabin model "Boston Voyager" by Ken Johnson. This new event gaining popularity across the country. Built one yet? (Johnson)

Sixteen year old Bill Malo built four models of the Strong Arm and took them to the 1980 Free Flight Champs at Taft, California. The gym at Taft is only about 22 feet in height, but Bill Malo managed to turn in two flights of 22 seconds each. Good enough for 1st place. The combination of Tony's model design and Bill's building and flying expertise is a winner, all the way. Bill Malo's models weighed in at 4 grams each.

#### COLORING CONDENSER PAPER

Indoor Scale and Peanut Scale models fly best when covered with condenser paper. This material is very light, but it is not sold in colors. You must color it yourself. The natural color is a transparent off-white. The paper can be doped to a wood frame or the edges taped to the surface of white illustration board (from your art supply store). The latter is best, since flaws in spraying can be easily seen against the white background of the board.

There are two types of coloring dye you can use and two types of sprayers to spray the color on the condenser paper.

Some modelers have used McCormick's Food Coloring with moderate success. The preferred color seems to be

Dr. P.H. Martin's Radiant Concentrated Watercolor Dye. This product comes in a great variety of colors and is available at your local art supply store. Most of the 1/2-ounce bottles have a rubber bulb cap like nosedrops bottles. The price is around \$1 per bottle.

Do not use the dye full strength. It wants to be cut to about 50%, with either water or alcohol. Pre-mix the desired color in a small jar with a screw top.

For some time, I used a pump spray bottle, the type with an adjustable nozzle. The brand is Tru-Test, and the plastic bottle with sprayer top is 11 inches high. It sorta worked pretty well. Then I bought an airbrush. I still use the pump sprayer to mist water onto the covered model. The idea is to snug the covering up without making it drum tight. The framework of the model will warp badly if the covering is too tight.

If you want to use an airbrush to spray on the color, there are several brands to choose from. The most economical one is the Badger. It sells for under \$25 and works well enough. The Thayer & Chandler and Paashe are about \$50 and up.

You will also need a source of air to power the airbrush. The Badger kit

comes with a pressure bottle called Propel. This can also be purchased separately in a small can for \$3 or in a 17 ounce can for \$4. The alternative to this is an air compressor for about \$75 and up.

Spray the color on in light coats, allowing each coat to dry. Start at upper left on the paper and spray at a distance of about 6 inches from the paper. Move spray across to the right smoothly and stop. Drop down and back to the left edge for the next pass. If the paint spatters, stop and adjust and/or clean the airbrush.

Don't try to make the color too strong. Remember that you will be seeing the color in double thickness on the model. After the paper is smoothly colored and dry, cut the tape away at the corners and carefully draw the paper away from the illustration board.

Cover the model using dope as the adhesive. To snug up the covering, hold the parts 15 inches away and 12 inches below the water sprayer. Spray across and above the model parts, allowing only the "dust" of the water to settle on the covered model part.

#### NEW SUPPLY SOURCE FOR INDOOR KITS

Several years ago, indoor model supplier Lew Gitlow sold out his stock to Micro-X and rested for awhile. Now Lew is back in the indoor supply business again, and offering two new kits, along with various sizes of new Pirelli rubber and indoor sheet wood.

One kit contains two Parlor Copters, with very simple construction. Plans are printed on 11 x 17 inch paper and come with templates. The copters are 12 inch span and sell for \$3.95.

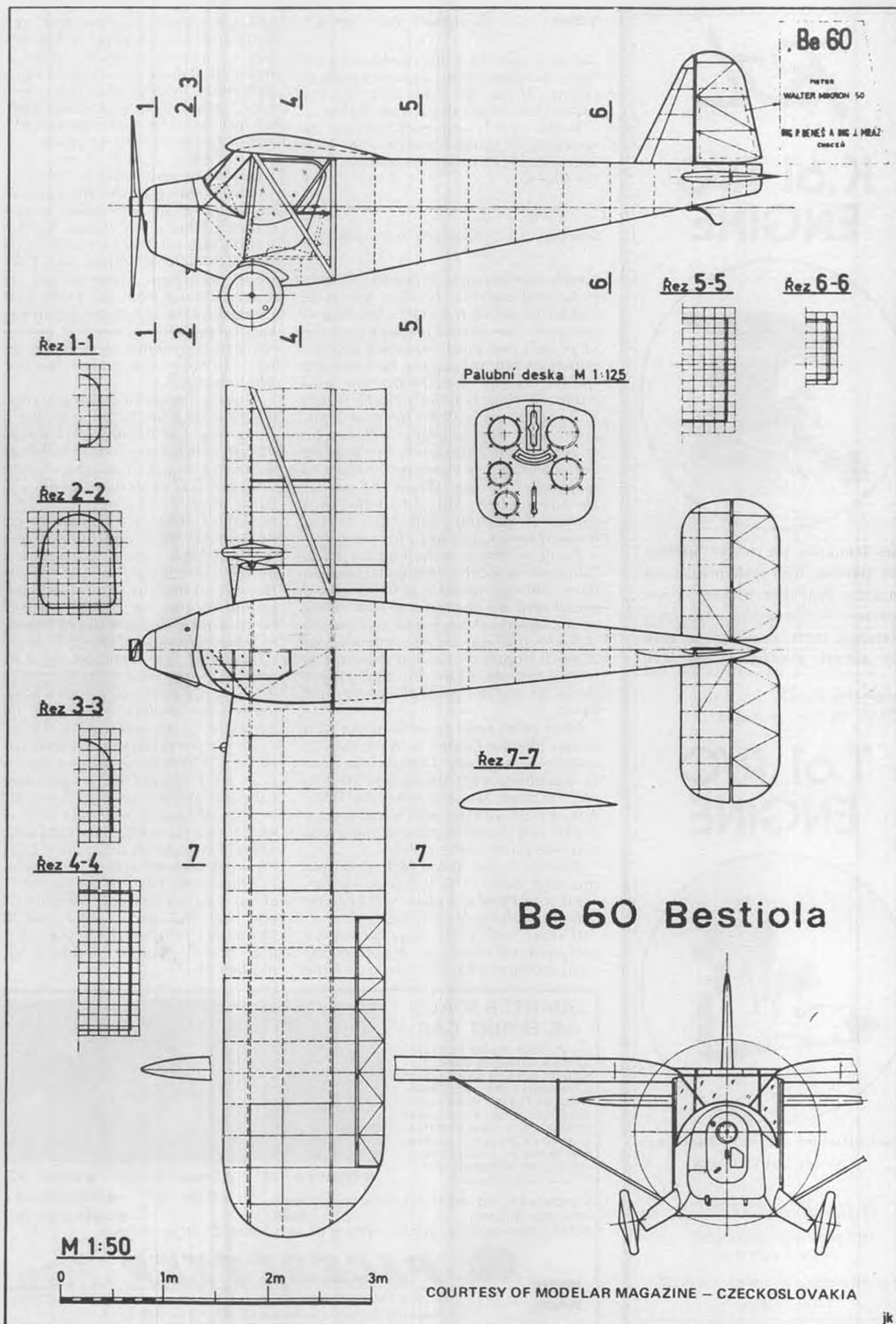
The other kit is a Pennyplane called the "Time Machine." It's a beginner's model with an 18 inch span and also goes for \$3.95. Lew claims 8-minute flights are possible with this model.

To order your goodies write to: Indoor Model Supply, Box C (Lew Gitlow), Garberville, CA 95440.

Next time we will discuss flying duration models on just the right power

*Continued on page 64*







# RJL™

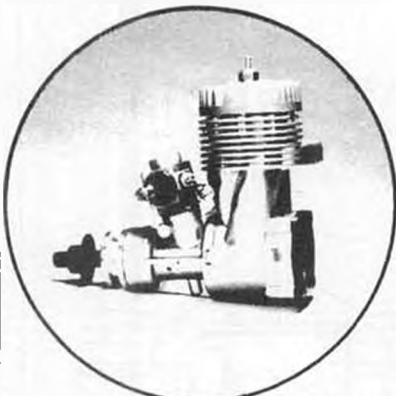
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Indoor . . . . .Continued from page 62

combination to achieve the longest flights possible under a given height of ceiling. There are a lot of tricks the experts use to get those long flights.

Write your comments, advice, or requests on indoor models to: Ken Johnson, 16052 Tulsa St., Granada Hills, CA 91344.

Soaring . . . . .Continued from page 44

mostly into the wind. When the altitude is judged correct, feed in opposite rudder to return the craft's heading to the spot. The second method uses the sailplane's two most important speeds: minimum sink speed, and best forward speed. As you feed in up trim and approach (but hopefully don't reach) stall speed, you will be flying at minimum sink. The sailplane will not be covering much ground, but will be losing altitude. Be ready with rudder to maintain heading. When the excess altitude has been lost, put a little down trim in to put the plane back to best forward speed, and head for the spot.

Don't try the trim method until you fully understand the difference between minimum sink speed and best forward speed, and are proficient at controlling your sailplane at both speeds. I usually make my final altitude adjustment about 25 yards from the spot, and shoot for 20 feet of altitude. Again, this depends on the wind and the particular plane I am flying.

Most pilots tend to undershoot with planes like the Drifter II, Wanderer 72, and the Gentle Lady. Overshooting can be a problem with Aquilas and SD-100s and the sleek, fast, and heavy FAI ships. A trick I use with the Aquila is to aim for the far side (from the pilot) of the circle, and overshoot to the center.

One last point: If too high, don't put the nose down. This will increase forward speed and the plane will keep on flying past the spot, and past you.

If done correctly, a sailplane on approach will make two smooth gentle turns at proper altitude, line up with the

spot, and make a controlled, gentle landing within a couple of feet of the spot . . . a thing of beauty, grace, and precision! If done incorrectly, it can be a nightmare. Despite what some people think, spearing the spot shows nothing but lack of talent, lack of practice, and lack of respect for the sailplane.

★ ★ ★

Dave Kalb asks, "Built It Light?"

Every building article I have ever read has included an admonition from the author to build his design light. He proudly tells you that his plane, ready to fly, only weighs 32 ounces. Now I'm not the skeptical type. I take this guy at his word. Although experience tells me that a model with a 12-foot wingspan has to weigh more than a mere 32 ounces, I believe this guy. After all, modelers don't lie . . . to their wives maybe, but not to other modelers.

Anyway, I buy a kit of this guy's dream machine, and take a good look at the plans. Boy, is this thing light! The wing ribs are 1/16 balsa spaced 12 inches apart with two 1/8 square balsa spars. Fuselage sides are 1/32 contest balsa with a 1/16 balsa doubler in the nose. The tail assembly is built up of 1/16 square sticks. At this time, there is this small worry in the back of my mind that maybe the design is a little light for a 12-foot span. However, I do note that the designer is careful to point out that this plane must be covered with super-duper Monorite to achieve the desired strength. Anyway, I build this bird meticulously; I even include the optional lightening holes in the wing ribs and fuselage sides. My glue joints were perfect; everything fitted perfectly . . . this was my finest hour.

Time to check the weight and balance. Hmm . . . 50 ounces, without the radio gear. But I thought the designer said 32 ounces! Where could I have gone wrong? Maybe it was a misprint. Oh well, time to check the center of gravity. There it is, right on the trailing edge of the wing. Let's see, with a 12 inch chord, I should only have to move the C.G. about 9 inches forward. With the radio gear installed, and a solid lead nose block, this thing weighs 74 ounces. Can it be that I've been misled by a fellow modeler?

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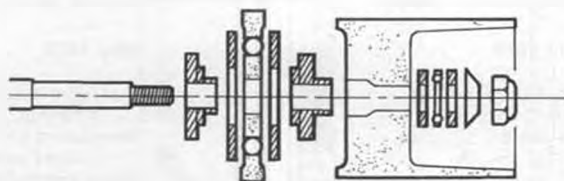
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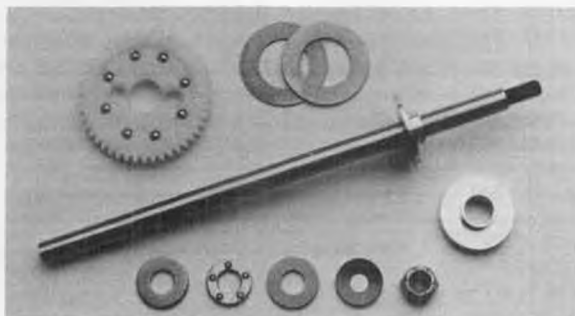


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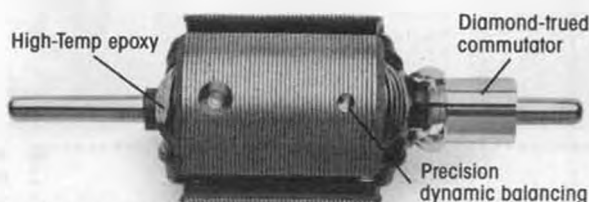
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	6 cell	RC12E	RC12E	RC12E
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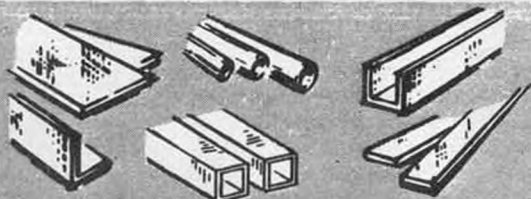
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126	3/32	.30
127	1/8	.30
128	5/32	.35
129	3/16	.45
130	7/32	.50
131	1/4	.55
132	9/32	.60
133	5/16	.65
134	11/32	.70
135	3/8	.75
136	13/32	.85
137	7/16	.90
138	15/32	.95
139	1/2	1.00
140	17/32	1.05
141	9/16	1.10
142	19/32	1.20
143	5/8	1.25
144	21/32	1.40

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STOCK NO.	SIZE	PRICE EACH
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118	3/32	.30
119	5/32	.40
120	1/8	.30

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121	1/8	.40

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STOCK NO.	SIZE	PRICE EACH
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264	1/8x1/4	1.20
266	5/32x5/16	1.30
268	3/16x3/8	1.40

BRASS STRIPS (12")		
STOCK NO.	SIZE	PRICE EACH
230	.016x1/4	.20
231	.016x1/2	.30
232	.016x1	.50
233	.016x3/4	.40
234	.016x2	.90
235	.025x1/4	.25
236	.025x1/2	.40
237	.025x1	.70
238	.025x3/4	.55
239	.025x2	1.30
240	.032x1/4	.30
241	.032x1/2	.50
242	.032x1	.85
243	.032x3/4	.65
244	.032x2	1.60
245	.064x1/4	.60
246	.064x1/2	1.00
247	.064x3/4	1.25
248	.064x1	1.70
249	.064x2	3.00

SQUARE BRASS TUBE (12")		
STOCK NO.	SIZE	PRICE EACH
149	1/16 Sq.	.45
150	3/32 Sq.	.50
151	1/8 Sq.	.55
152	5/32 Sq.	.65
153	3/16 Sq.	.75
154	7/32 Sq.	.85
155	1/4 Sq.	.95

BRASS STREAMLINE TUBE 12"		
STOCK NO.	SIZE	PRICE EACH
122	Small	.75

SHEET METAL (4" x 10")		
STOCK NO.	SIZE	PRICE EACH
250	.005 Brass	.70
251	.010 Brass	1.10
252	.015 Brass	1.50
253	.032 Brass	2.70
254	.008 Tin	.50
255	.016 Alum.	.50
256	.032 Alum.	.80
257	.064 Alum.	1.35
258	Asst. Brass	1.30
259	.025 Copp.	2.60

BRASS ANGLE (12")		
STOCK NO.	SIZE	PRICE EACH
171	1/8x1/8	.40
172	5/32x5/32	.45
173	3/16x3/16	.50
174	7/32x7/32	.55
175	1/4x1/4	.65

BRASS CHANNEL (12")		
STOCK NO.	SIZE	PRICE EACH
181	1/8	.50
182	5/32	.55
183	3/16	.60
184	7/32	.65
185	1/4	.75

SOLID BRASS ROD (12")		
STOCK NO.	SIZE	PRICE EACH
159	.020	.08
160	1/32	.08
161	3/64	.12
162	1/16	.20
163	3/32	.25
164	1/8	.40
165	5/32	.50

ROUND PLATED SPRING WIRE (12")		
STOCK NO.	SIZE	PRICE EACH
192	.032	.08
195	.047	.08
197	.055	.08
199	.063	.08



**ENGINEERING**

6917 West 59th St., Chicago, Ill. 60638

Oh, by the way, I met the designer last weekend at the local site. He was flying an Oly. I asked him for some advice on his design and he told me that some design changes were going to be included in later kits. He casually mentioned that on the first high start launch, the bird shed the wings and tail, and the fuselage continued down range for approximately 500 yards, where it impacted an 84-year-old lady riding a 10-speed. Although she has recovered almost completely, he said most of the royalties he is getting from the kit manufacturer, are going out in lawyer's fees.

Since this experience, I've built several kits and noted one thing peculiar to most of them. If you take the wood out

of the box and weigh it, allow 25% for scrap and sanding, you find that the wood weighs more than the finished plane, as advertised. I think it's time for the government to look into this matter! How 'bout, "this model will weigh 35 ounces city, 45 ounces country, of course your weight may vary depending on speed, weather, and how you build."

There's more to say, but it'll have to wait 'til next month. See you soon. •

**Choppers . . . Continued from page 32**

of the preceding modifications are installed, you are ready to set up the machine statically.

Setting up the main rotor head properly is the most important part of the set up process. First, everything must be balanced, particularly the main rotor blades. The easiest and fastest method is to bolt the two blades together, one with the leading edge up and the other with the leading edge down. Place two 4/40 x 1-inch bolts through the outer holes with a 1/2-inch shaft to pivot the blades through the center hole. To balance the blades, either add trim Monokote to the light blade, or drill material out of the tip of the heavy blade. Never add things like screws to the tip of the blade, especially on a high rpm machine like the Heli-boy. They like to fly off at times and can be very dangerous. See photo D.

The other piece requiring static balance is the flybar. To balance the flybar, screw the paddles onto the flybar. Be sure they are screwed in the same amount on each paddle. Now center the flybar in the head by measuring the distance from the paddle to the collective yoke, and making these two distances equal. Now let the bar teeter and either drill out a couple of 1/16 holes in the tip of the heavy paddle, or put a piece of tape on the light one. Set the blades up statically as described in the instruction book for collective pitch, amount of tail rotor compensation, etc. Finally your Heli-boy is set up statically, and it is time to fire up the engine and set the tracking of the main blades.

With the machine running, all major tracking adjustments should be done with the top links (collective yoke to mixing levers). The best way to spot the blades is to use two 1-inch wide strips of day-glow orange trim Monokote, one at the tip and the other 1 inch in from the tip. This is so when the blades are tracking properly it appears like just one 2-inch piece. When the blades start out together and as you add throttle/collective to lift off, they separate, then they are getting different amounts of control which says that either the swashplate isn't lined up with the head, or the control arms for the blades are not the same distance from the head. Measure from the mixing levers to the side plates, or the mixing levers are way out. They should all be about the same length with major adjustments done from the top links. If the swashplate has a tendency to move, it indicates that the follower is slipping on the shaft above the swashplate, which happens a lot. Drill a very small (1/16-inch) hole in the plastic and stick a coarse threaded wood screw in to secure the follower.

In this article I have only touched upon what I feel are the most common procedures and problems encountered in setting up and flying the Heli-boy. I haven't touched upon throttle/collective mixing, tail rotor compensation rates, rpm requirements, and the differences encountered when you vary the coning angle of the main blades. The modifications and adjustment procedures I suggest here were learned by flying and crashing my Heli-boys. I hope my suggestions will be helpful to others. •

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Tom Williams



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R/C Cars . . . Continued from page 41

side were several very strong, heavy boxes, constructed of 2x4's and filled with concrete blocks. These boxes were being used as tie-down anchors for a large tarp that covered the pit area and were heavy enough that to move them required first emptying them of the blocks. You guessed it . . . Bill's car was headed right at one of these immovable objects, that was clear enough, especially to Bill who was standing at the start line. Also quite clear was the fact that if

he backed off enough to get some steering, he was going to lose this very close race.

It was simply one of the neatest crashes I have ever seen in R/C car racing. Bill hammered that car, full throttle, of course, smack dead into the end of that box. You think you have destroyed some equipment, you should have seen this car. From the engine pod forward it was basically trash. As you would suspect, the Drag cars were built rather lightly in the front end, not usually being driven into things like Road cars are.

Still, The Greek wasn't done showing how competitive he is. Following an

interesting expletive or two, he had the car on the bench, tearing stuff off and bolting on new pieces, getting ready for a run-off for 3rd or 4th. He did get the car at least together enough to complete a run; evidently it didn't even crash, 'cause I would remember that . . .

## AND ANOTHER HIGH-ZOOT CHARGER

Leisure Electronics, a real pioneer in 1/12 electric cars, has released its new charger, this one featuring a digital readout, slow charging and an adjustable current level for tailoring charge rates to different packs. More on this charger later, as I just got it via MB's offices and have yet to use it much.

## AND ANOTHER CLASS OF RACING???

We now have 1/8 Gas cars, a very few 1/8 Electrics, 1/12 .049-powered Gas cars gathering dust, zillions of 1/12 electrics, quite a number of 1/12 off-road cars, and lots of interest in the 1/18 electric cars.

If this isn't enough for you, JoMac has decided to go ahead with release of its 1/12 scale Lightning 2000, powered by, get ready, a .10 size glow engine. As you may have noticed, ROAR revised the 1/12 Gas rules to allow this size of engine, the idea being that the .049's previously used are too unreliable for meaningful racing. In the .10 class, there are any number of engines fitted with carbs that really carburete, so the little mills ought to work pretty well in an R/C car.

How the combination will work on the track is just about anybody's guess. One thing for sure, the cars won't lack for power, as even a mediocre TD .049 was generally too much power for a properly sorted-out 1/12 chassis. But if you are interested in fast twelfths, check it out. One of these hummers will blow by the fastest electric you have ever seen . . . at least on the straight. The twisty bits might be another story, however.

## APOLOGIES. . .

Damn and double-damn; I was just checking back in my copies of these R/C car columns and couldn't believe it when I realized that two columns back-to-back were partially devoted to the new JoMac charger. Just goes to show you how messed up my office and memory have been of late. (Our fault too. We should have stopped you from going ape. wcn) Probably sent the folks at JoMac into spasms getting double coverage on their charger. In fact, I'll bet some of the other manufacturers also had a spasm or two. . .

## OFF-ROAD

Still waiting to hear from some of you guys who are into dirt. Pictures, rules, suggested courses, anything at all will be of interest to the many R/C racers still just thinking about off-road racing.

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ture, using formers on top and bottom. For more complex shapes, the half-shell method, ala Guillow, may be preferred. This would typically be used for WW-II aircraft.

Another method of enlarging three-views is by the use of a 35mm camera. If you photograph the three-view, make certain that when the picture is taken, the camera is at right angles to the three-view, so there is no chance of distortion. There are devices you can buy or build, which allow pictures to be taken from books, etc. with little difficulty. They even have lights!

Once you have received the picture back from the photo lab, just insert it into your projector, and project it to whatever dimension you desire. Keep the projector at right angles to the walls. Don't set it down on a table and project upward. (fernando is talking about slide film here, not color print or black and white. wcn)

One neat idea is used by George James. He found a small, older type of 35mm projector that is the single frame, handed type. He has it mounted on a unit that can be slid up and down, varying the size of drawing he wants. The pictures have every detail and the lines are all crisp and clear, making the enlargement of the three-view simplicity itself.

The last method I'll discuss, is the one I use, the opaque projector. Being a school teacher, I have access to them at work. This kind of projector will project nicely from books, photos, drawings or whatever. I also have one that was made from a booklet available from Edmond Scientific Company. This booklet contains information on how to make a variety of opaque projectors, what kinds of lenses to use, etc. Their catalog lists the lenses available, and their costs. I've looked high and low for the catalog so I could provide you with the address. If you have school kids, just have them ask their science teacher. Most schools have this catalog. . .

What I like about my particular unit is that I have it mounted on a rail above a drawing table. This allows me to move the projector up and down. I've only scratched the surface, but I hope you have been given some ideas.

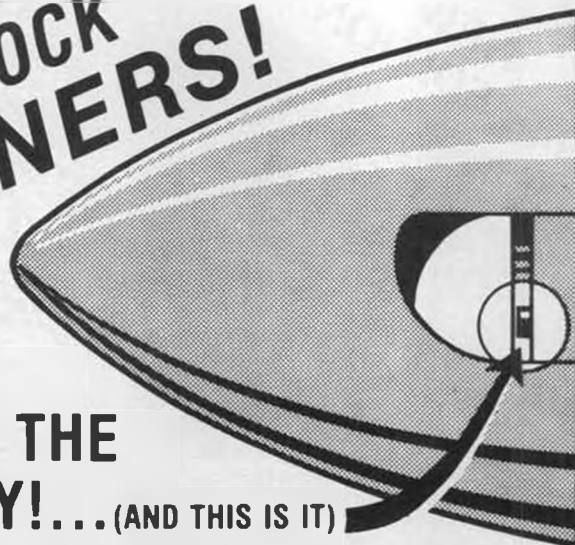
Several months ago, I mentioned a real neat CO<sub>2</sub> connector designed by Tom Sanders. This clever device makes it possible to interchange CO<sub>2</sub> engines without removing the tank and filler lines. These can be left intact in the model. One of the biggest drawbacks of CO<sub>2</sub> is the way the units have to be mounted. Everything is so permanent, that to use it in another model almost means total destruction of the first model.

This connector can be mounted in two different ways. On an engine like the TELCO, the unit can be soldered to the head, then the other part of the

# DU-BRO KWIK-LOCK SPINNERS!

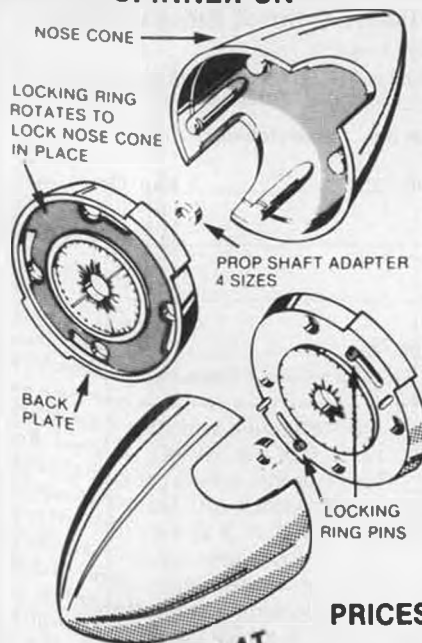
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connector is soldered to the gas line leading to the head. The other method is to solder the connector on the gas line anywhere between the head and the tank. This set-up is better suited for the Brown Jr.

To disconnect, simply unscrew one-half of the connector, that's all there is, quick, easy, and effective.

The connector can be made easily using parts from a Bic lighter (disposable type). Tom will provide you with a copy of the drawings for a buck (postage and handling). That, my friends, is a bargain! Tom's address is Tom Sanders, 2422 N. French St., Santa Ana, CA 92706.

Every time I build a gas-powered biplane, I make the strut attachment different. I do this in order to find the

most effective and easy way of installation. On my AVRO, I used Robart's hinge points, which provide disassembly and a "Knock-off" feature as well. I have to admit that of all the different systems I have used, these hinges have been my favorite. These hinges come in different sizes, providing some flexibility.

Here is a hint I want to pass along on how I attach these hinges to the wings and struts. Incidentally, many of you F/F'ers may not be familiar with these hinges since they are primarily used for R/C application. As the name implies, Robart hinges, they're hinges which can be snapped apart and snapped together (see sketch). The first thing I do is locate the exact position of the interplane on the wing spars. Then the spars are

drilled to take the male part of the hinge. The hole is reinforced with 1/32 plywood on either side of the spar.

After the wings have been constructed, the male part of the hinge is "Jettied" in place so that the "Knuckle" part is just above the fabric line.

When I made the struts, I had to first establish their actual length. After doing so, I made a small jig. This wasn't more than a piece of pine with two wire pins the correct distance apart. The female half of the hinges are installed over the pins (one at either end). The strut itself was made in two halves with the hinge sandwiched in between. This system has worked well, keeping the strut lengths the same.

If you have any questions, drop me a line. F. Ramos, 19361 Mesa Dr., Villa Park, CA 92667. •

*R/C Boats . . . Continued from page 31*

hydroplane racers. Areas favoring the Division I type engines view Sport 40 as an entry level to hydroplane racing.

As of the time this article was being written, the only area I know of that has officially adopted the Division II engine type is here in the Northwest. Those interested in Sport 40 in my area wanted an alternative to the very expensive and restrictive R/C Unlimited class. Because of the rules governing R/C Unlimited, a person wishing to build and race a certain hydroplane may not be able to do that. These model boaters wanted a class where the boats at least were required to look like something that could exist in full size and not be restricted in the area of speed by a limited type of engine requirement. The availability of quality racing engines is more than adequate with the K&B or OPS power plants in good supply. Compared to Division I engines, a Division II engine will cost more to purchase and it will probably cost more to operate and maintain. However, it will also produce more power and make the hydroplane a bit quicker in speed.

As was mentioned earlier, each individual N.A.M.B.A. District will decide the type of engine it will use. I have been contacted by a couple of people from districts that plan to race Sport 40 in 1981. If what these people say is true, the Division II type engine will be used in at least two districts where the class has not been run previously. It will be interesting to see which engine Division is officially adopted in the different districts.

### **WHAT ABOUT HULLS?**

Those interested in participating in the Sport 40 Class often ask my advice in selecting a hull. A person who enjoys building a wooden kit hydroplane should certainly give serious consideration to the "Atlas Van Line U-76" kit by Dumas Boats. I have seen this boat modified to resemble numerous unlimited hydroplanes besides the Atlas. Leonard Feeback, well known in the

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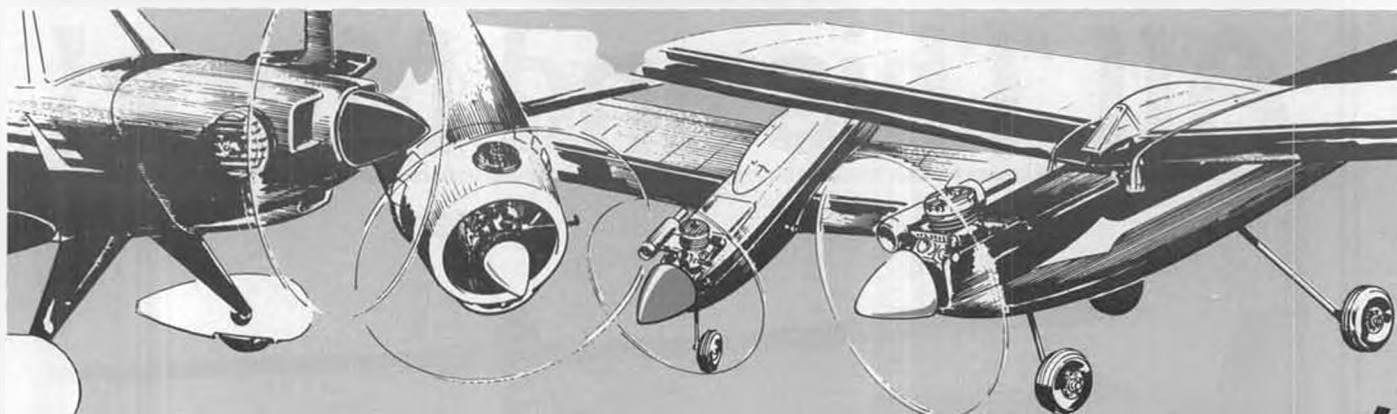
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Southern California R/C Unlimited class, is also kitting a limited number of wood Sport 40 kits. The Feedback Sport 40 is a conventional, round nose, hydro-plane similar to the very successful "Van's P.X." used by Joe Monohan in

Los Angeles area Sport 40 races. I've seen Joe's "Van P.X." Sport 40 running 55 mph with a front intake K&B 40 Marine engine. For information on the Feedback Sport 40, contact Leonard at 7906 Spinel Ave., Cucamonga, CA 91730. There are

two fiberglass hulls that I'm well acquainted with since I built and raced one of them, the Muck Sport 40... and was beaten a lot by the other one, the R/C Glass Sport 40. Steve Muck's R/C Boats, 6003 Daven Oaks, Dallas, TX 75248, can provide more information for those interested in a Sport 40 that looks like the Circus Circus or Squire Shop. This boat was the subject of a PRODUCT\$ IN U\$E column in November of 1980. The R/C Glass Sport 40 has proven to be very successful in Sport 40 events here in the Northwest. For more information on this boat, contact Vic Drew, 1628 Corona, Medford, OR 97501. As the popularity of this class increases, there are sure to be more manufacturers offering hulls suitable for use in Sport 40.

This column will attempt to keep information flowing on the Sport 40 class as it enters its first year of official N.A.M.B.A. competition. I hope to be doing a PRODUCT\$ IN U\$E article about another hull suitable for use in the event within the next few issues.

### I'M GLAD TO ANSWER QUESTIONS OVER THE TELEPHONE

It seems as though many modelers prefer picking up the telephone and supporting Ma Bell rather than using Uncle Sam's postal service. I've talked with model boaters from all over the states who have called to ask questions. Since it appears that model boaters are

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willing to pay for long distance phone calls, let me save you the trouble of getting my phone number from directory assistance. My home phone number is (206) 584-7131 and I'm generally home after 5:30 PST. I'll gladly attempt to answer questions you might have, since it's your nickle in the coin deposit. Letters, photos, contest results can be sent to: 119Crestwood Dr. S.W., Tacoma, WA 98498. •

**Pattern . . . . . Continued from page 24**

The standard method of doing the roll is to split-S, gather maximum speed, yank up elevator, roll 360°, and push over the top before you stall out. Not too pretty, plus this technique will get you in a lot of trouble if you miss the vertical pull-up by even a fraction of a degree. Remember the 60° frame rule? This means you establish a vertical heading, roll 360° and re-establish vertical, then push over to horizontal all within 60° elevation from the judges stand. To practice the maneuver, try this. . .

Start at about 30 ft. altitude and about 175 ft. out. Pull vertically in a tight quarter loop and maintain this heading until you reach 60° elevation. Now push over to level flight. Repeat this until it becomes fairly easy to predict the 60° angle. Now let's add the 360° roll.

The roll should be centered in the vertical climb, but as you may have already guessed, the roll rate tends to sag after the first half of the roll. This is minimized when the plane is light and the low-speed thrust is high. Strong aileron forces are also required. We prefer a high roll rate (approximately 500° per second) which can be slowed as necessary by the transmitter set up. Try counting the vertical leg to give you a feeling of relative time. For instance . . . one-two-roll 360°-one-two-push to horizontal. This sequence of course will take lots of practice to get into the 60° frame.

We really enjoy pattern flying because it offers so many variables and challenges both in building and flying. To you who haven't yet tried it, we can only say that you're missing an opportunity to develop skills you can use for flying anything from a slope soarer glider to a scale B-36. I read somewhere that a pattern flyer couldn't fly scale planes properly because he had not developed real flying skills . . . Mule Fritters! •

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

The model construction is conventional throughout. There are no spectacular new techniques used in building it. I note, looking at the photos, that I forgot the tail strakes. The engine cowl is carved from block balsa cemented over the basic balsa stick fuselage frame. Although this could be lighter in weight if the cowl blocks were

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hollowed, the extra weight is not a penalty unless you build the rest of the model very lightly, in which case you know enough about modeling that you don't need any building comments.

The top decking aft of the cockpit is 1/32 sheet balsa, back to the last former. Because the bend radius from there back to the rudder spar is pretty small, one centerline and two side stringers are used to maintain the aft fuselage shape. The area under the windshield is wrapped 1/32 sheet balsa. The nose block and its backing block is made from 1/4 thick balsa. The backing block should be made carefully to be a snug fit in the front opening in the fuselage framing. One problem most beginners experience is a loose backing block that allows the nose block to fall off as soon as the motor tension is gone. The dangling noseblock and propeller will work like a dethermalizer, but they really ruin the glide. Besides, a loose noseblock will not hold accurate thrust adjustments. A good-fitting, relatively thick backing block helps solve these problems.

Wing and tail structure uses the conventional multispar approach. The horizontal tail tips have the same airfoil shape (symmetrical) as the rest of the ribs. The rib shapes for the wing and horizontal tail are shown on the side view. The wing tip shape is different from the wing ribs and is shown at the right wing tip on the plans. The vertical tail ribs are shown above the top of the vertical tail on the plans.

In this article, as in several previous articles, I have called out several different thicknesses of sheet balsa. If necessary, and to reduce costs, a single sheet of 1/16 sheet balsa will suffice. The thick pieces can be laminated, cementing several layers of sheet together. The grain of the layers can be crossed for items, like the noseblock, for added strength. The sheet can also be sanded thinner using a flat supporting surface and a sanding block. Of course, if you intend to make several Peanut Scale models from the plans in *Model Builder*, having several thicknesses of sheet balsa will save time in construction.

The BD-8 model is covered with white tissue. After water shrinking and the first

coat of dope, the color trim can be cut out of tissue paper and doped in place. This turns out to be worthy of some technical discussion. Since only one BD-8 has been built so far, there is only one authentic color scheme. This is white overall with three color stripes, green, yellow, and red. The green stripe is uppermost. The stripes are separated by a thin white line. The stripes are thickest at the trailing edge of the rudder and taper to a disappearing point at the front end. The green stripe ends 1/16-inch aft of the noseblock separation line, the yellow a half-inch further aft, and the red another half-inch aft. Because of the long sinuous shape of the stripes, and their thin white

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separation, they are difficult to cut out of tissue without some sneaky techniques.

First, get an old magazine or catalog to use as a smooth cutting surface. Tape down sufficient layers of colored tissue to make all the stripes. That is, at least two layers of green, yellow, and red. Make sure all the layers of tissue are smooth and without wrinkles. Now, on vellum or tracing paper, lay out the stripes required with a sharp pencil. Use the side view of the plan as a guide. Tape this on top of the tissue that was taped on top of the magazine. Because all the stripes have to be separated by a constant amount, any error in cutting or placement will be immediately apparent.

therefore, we will cut out all the stripes at the same time. Using a sharp blade, cut along all the pencil lines. This will give us six tapered green, yellow, and red stripes, plus twelve thin parallel stripes of which only two green, two yellow, and two red tapered stripes are the correct ones for application. There is probably no easier way to obtain your close tolerance striping. Carefully select the correct stripes for application.

Start with the yellow stripe and dope it down on the rudder in the correct location, then dope it along the down-sweep onto the fuselage. Now stretch out the long tapering thin end and, holding the point on the nose of the

model, dope it down on the fuselage, working from the aft end to the front. The next stripe is placed adjacent to the first but separated by a sixteenth of an inch for its entire length, using a similar doping sequence. While the dope is wet, the stripe can be pushed around by the brush to make minute location adjustments. This procedure is continued for all three stripes on both sides of the airplane.

Control surface outlines and registration numbers, N88DH, are black ink. Wheels, back face of propeller blades, and engine air inlets are flat black paint. Front faces of the propeller blades are painted aluminum. Use thin white plastic tape to simulate the cockpit framing.

The model should be made to balance at a point half way between the two top spars.

If you feel the urge to be different, build your model without dihedral and fly it upside down (or else move to Australia to make your test flights). •

## Plug Sparks . . Continued from page 36

gas station (remember those 5 ft. rubber models for \$1.00?), it seemed that box after box came. These boxes were not small, being at least three feet by two feet and at the rate they were coming, Pete was running out of room. Pete had received his refund of \$12.50 at a wholesale rate from GHQ. Pete said, "There were literally hundreds of kits" as he pushed the auto material off the shelves to make room for the kits.

It didn't take long for the neighborhood kids to find out Pete Dillion had model airplane kits in stock. Sales got to the point where Pete was doing a better business selling kits than he was pumping gas (a lot cleaner, too!).

So fellows, that is now Pete Dillion quit the gasoline station business and started a successful hobby shop that lasted until the late seventies. Full credit should be given to that much maligned company, GHQ, for starting Pete off in a very happy and successful livelihood. Truth is stranger than fiction!!

## SAM REPORT

As we mentioned in the last column, we will try to catch up on some of the "goodies" found in the various newsletters received from the various chapters.

Before launching into the writeup. Al Hellman has announced the SAM Champs (scheduled for the West in 1981) will be held at Taft on June 30, July 1, and July 2. Al is presently acting as Contest Manager and West Coast Vice President, so making decisions should involve more than two people.

For the benefit of those who don't know where Taft is located, the town can be found 25 miles due west of I-5 roughly 25 miles south of Bakersfield, the closest city. Those flying into LA Airport should arrange for transportation, as it is 100 miles plus from the International to the field.

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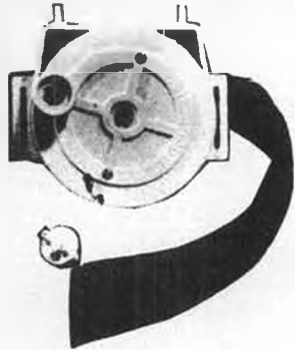
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At last reports, camping will be allowed on the field. However, there are no water facilities, you'll have to carry your own for cooking and washup. This is an extremely popular way to go to Taft, and many a good campfire meal has been served with good fellowship.

#### **SAM 1**

Preliminary inquiries to SAM 1 indicate there is a definite possibility the 1983 SAM Champs could be held in Denver, as SAM 1 has been quite fortunate in locating and leasing an excellent large site just barely south of Denver city limits. More on that later.

#### **SAM 3**

As usual, the SCIF (Southern Cali-

fornia Ignition Flyers) newsletter, "Flightplug," continues to be a newsy and entertaining bit of writing thanks to the editorship of Ken Sykora, sometimes known as "King Sugar." The newsletter is available to all and can be obtained for \$3.50/year by simply sending money to Ken Sykora, 6716 Noble Ave., Van Nuys, CA 91405.

The SCIFS have just concluded another successful flying season and have already worked up a schedule for 1981. Just as soon as Vice President Al Hellmann figures out how to allocate the dates, we will run the schedule in this column. Don't let your subscription to *Model Builder* lapse!

#### **SAM 4**

This number has been taken over by the Michigan Antique Modelers (MAM) through the courtesy of Woody Bartelt, former Midwest SAM Vice President. Woody is just delighted a successful club has emerged in Michigan as the club he has formed suffered from lack of membership.

The MAM group has staged at least two or three meets in 1980, ending up with a \$300.00 surplus in the Treasury from all activities, contests, dues, etc. Looks like "Krazy Karl" Spielmaker (the main Sparkplug) isn't so crazy after all!

#### **SAM 6**

John Peck writes to say the new proposal to restore glow engines for powering old timers may be just the thing to revive his club! John points out, glow engines, with proper handicap, are allowed in old timer competitions in the Midwest. As proof, he states they have been running meets like this before and after the ruling banning glow engines in free flight.

Regardless of how the vote turns out, this columnist is hopeful Peck will reorganize the club and start putting on some activities. O/T flying is once again emerging as the most popular contests in the Midwest, an extra push won't hurt one bit!

#### **SAM 7**

Correspondence from George Armstead indicates the "Yankee" Chapter may be willing to stage the 1982 SAM Champs at Wendover AFB. George says they would have to run it over the weekend. If they can get Friday, Saturday and Sunday, there is no problem as the SAM Champs have been run twice this way at Wright-Patterson AFB.

#### **SAM 8**

Tom Cope, editor of SAM 8 newsletter, has been quite faithful in his reports from the greater Northwest. As noted in the last column, Clarence Bull has made up a trophy just for an event featuring the use of Brown Jr. engines only.

Photo No. 5 shows the neat handiwork of Clarence Bull. Tom Cope says in a recent letter, that if there is not enough interest to keep a perpetual trophy alive, then the trophy will be "moved" to the SAM National Champs. At present, the trophy was intended for a Two Minute Time Target Event with models powered by Brown Jr. motors. As an added quirk, the particular model used must have been designed around a Brown Jr. back in those days.

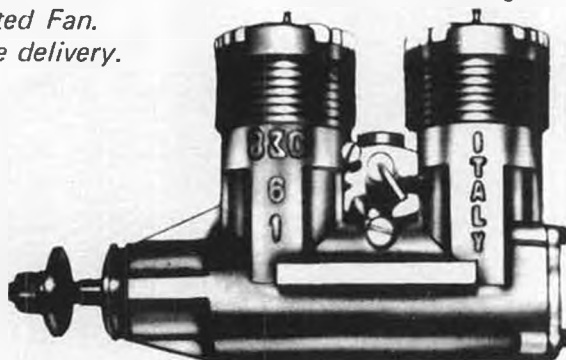
The Brown Jr. motor mounted at the top of the trophy is an authentic Brown Jr., Model C. To properly finish off the trophy, Bull has created a scale Miss Philly IV suspended on a wire from the spark plug. The trophy features brass plates and mahogany base that makes it very attractive. If SAM gets it, any ideas of what to award it for? Of should SAM perpetuate the 2-minute Event proposed and sponsored by Gene Lapansie at the Wright-Patterson Champs. Food for thought, men!

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Via Matteotti, 248-25063 - Gardone V.T. (Brescia) ITALY

## OBIT NOTICE

Tom Cope also writes to say Elmer Roth is dead. Anyone who used to drive up north towards the state of Washington would have to go through The Dalles.

Here is where Elmer Roth had his nationally known Cherry City Model Shop. Even after he had closed his doors, he had such a tremendous backlog of old engines and kits, that people would continue to drop in on him in the hopes of obtaining old timer material.

In some ways, Elmer was a crotchety old codger. If he liked you, you could make out like a bandit, but if you struck him the wrong way, you would pay hell trying to get something out of Roth. We're gonna miss that side trip!

## MORE SAM 8

Bob Shafer has always thought that lightweight silk was the ideal covering material in view of its lightness and strength. Shafer gave a small sample of the black silkspan and white silk from his Rambler to a Chevron research man to weigh the pieces on Metler Balance Scales. These scales are so accurate, they can sense the weight of a pencil mark on a piece of paper.

With Tom Cope and Ray Chalker adding other samples, a compilation has been made. Pieces were 2x2-1/2 inches, all the same size. The reduction of error is furthered by using material from an actual flying model. As Bob says, each material has its advantages and drawbacks, so he won't hazard any recommendations. You can decide for yourself from the chart below:

### COMPARISON OF COVERING MATERIALS

	Grams/ 5 sq. in.	Wt. % of Silkspan	Oz./ 10 sq. ft.
Lt. Red Japanese Tissue, 3 coats, very thin. Nitrate Dope. Typical rubber model.	.0955	53	.970
White Silk lightweight, 5 coats thin Nitrate Dope.	.1240	68	1.260
Orange Skysail, 4 coats 50/50 Butyrate Dope.	.1767	98	1.795
Black Silkspan, 5 coats thin Nitrate Dope.	.1811	100	1.840
White Japanese Tissue, 3 coats 50/50 Butyrate plus, 1 coat Fuel Proofer.	.2389	132	2.427
Nylon, Vari-color, 6 coats 50/50 Butyrate Dope.	.2395	132	2.433
Red Monokote as is.	.2432	134	2.471
Orange Coverite as is.	.3608	199	3.665

Well, we ran out of space again for the Chapter reports, but we will continue the good news in next month's issue. Be of good cheer, you'll get in the magazine yet!

## FOREIGN NEWS

### ENGLAND

Several recent telephone calls from Ben Buckle, of England, plus a liberally annotated Christmas card indicate that SAM 35 (the English Chapter) is now formally constituted. Dave Baker, who was the initial spark plug for O/T flying in England, has been made Honorary President.

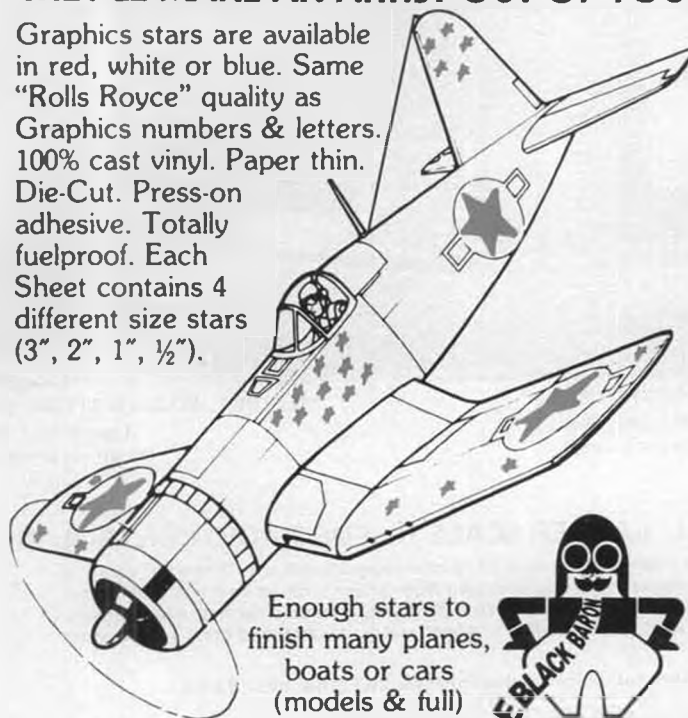
Buckle further states he is to be the

Editor of the English version of "SAM Speaks." In this case, Ben has proposed taking the existing issue of SAM Speaks, collating all the English activities and then printing the whole thing as one issue. This should keep all the modelers in England fully conversant with what is going on in the rest of the world.

Buckle will also be the P.R. man (he regards himself as "General Mouthpiece"). Ray Alban is now the Chairman of SAME (SAM 36) and his main job will be to stop public bickering over old timer rules and models (and the USA thinks they have problems). The English SAM Champs will be held this year in

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conjunction with the ASME Nationals. We will have further information on this in upcoming issues.

For those interested in joining the fun (SAM 36 to you), the present 150 members extend a welcome to you. To get into the act, write to Ben Buckle, 9 Islay Crescent, Highworth, Swindon, Wilts, England SN6 7HL.

Photo No. 6 is a shot taken at Sculthorpe AFB, site of the 1980 SAME Champs. Ben was Contest Director for this meet that unfortunately suffered from high winds. In this photo, Ben is thoroughly familiarizing himself with the new British R/C rules as promulgated by Malcolm Taylor.

Also from Alex Imrie, 66 Tuffnells Way, Harpenden, Herts, England AL5 3H6, comes photo No. 7, showing a

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little known L.S. Wigdor design known as the "Wasp." Alex has powered his Wasp with a Frog 1.75cc diesel, utilizing the Aeromodeler April 1938 issue to scale from. Imrie has further detailed the model in all silver with paper covering. It has since been recovered with nylon. No reports on how the Wasp flies, but knowing Alex, he will get it sorted out.

More news comes from England, this time bad! Ron Raddon, of 22 Byng Road, Barnet, Herts, England EN5 4NR, writes to say his workshop has been cleaned out of his precious old timer engines.

These stolen engines are worth some real money, so fellows in England should be very careful in making purchases of apparently "new finds" in old timer

engines. Fellows in the USA should also be alerted for any sales or trades with rare engines available in England.

We can't give you the complete rundown on all engines missing, but we would like to mention the more prominent ones: Morton M5, Ohlsson Gold Seal #3474, plus one unserialized, Ohlsson Miniature (N/S) and #1159, Elf Twin #505, Edco Sky Devil, Barker #362, Hurleman Aristocrat #748, and a flock of others adding up to a total of 45 engines. That's grand larceny men! Don't be a party to it!

Here's hoping Ron recovers the stolen merchandise. That is really a chilling setback to any engine collector.

AUSTRALIA

Latest word from David Anderson, 23 Godfrey, Leabrook, So. Australia 5068, is that the 1980-81 Australian Nationals were held at Albany, West Australia. That's about as far as you can get from the east side of Australia, where 80% of the population resides.

Dave says to be of good cheer because the 1981-82 Nationals are scheduled for Horsham, Victoria. This promises to rival the last Victorian meet staged in Camperdown in 1978. The local Victorians have started planning already to put on the biggest and best Nationals yet. If you are traveling to Australia at the end of the year, here is an excellent meet to take in. How about that?

Monty Tyrrell, of Mulgrave, Victoria,

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also reports he is a little put out about Horsham as he (as part of the Nats Steering Committee) had offered a field located 17 miles from him that would fit the requirements of all phases of competition. Horsham will be real hot, running at least 100° every day, but the town is fairly large and plenty of pubs are available to serve that great Australian beer.

Photo No. 8 shows the latest creation of Monty Tyrrell, which is now three years old. The Bellanca CH-200 "Cape Cod" is equipped with an OS60 Four-Cycle engine and Futaba 5-channel radio. Monty reports the model has never been out of the money when entered in the scale events.

When it is flying (for all the world like a real old timer), it looks just like Russell Boardman and John Polando heading for Turkey from New York on a non-stop flight, in July 1931, in the real "Cape Cod" Bellanca. Monty is presently contemplating an endurance flight to commemorate the 50th Anniversary of the original. We'll have more on that!

**SWEDEN**  
We are again indebted to Sven-Olav Linden, of Orebro, Sweden, for photo No. 9, taken at an old timer contest last July. Kurt Sandberg is shown with his replica of the 1949 A-2 Swedish Champion. This design appeared in the 1951-52 Zaic Year Book. It is no surprise the model is still an excellent glider.

#### THISSA AND THATTA

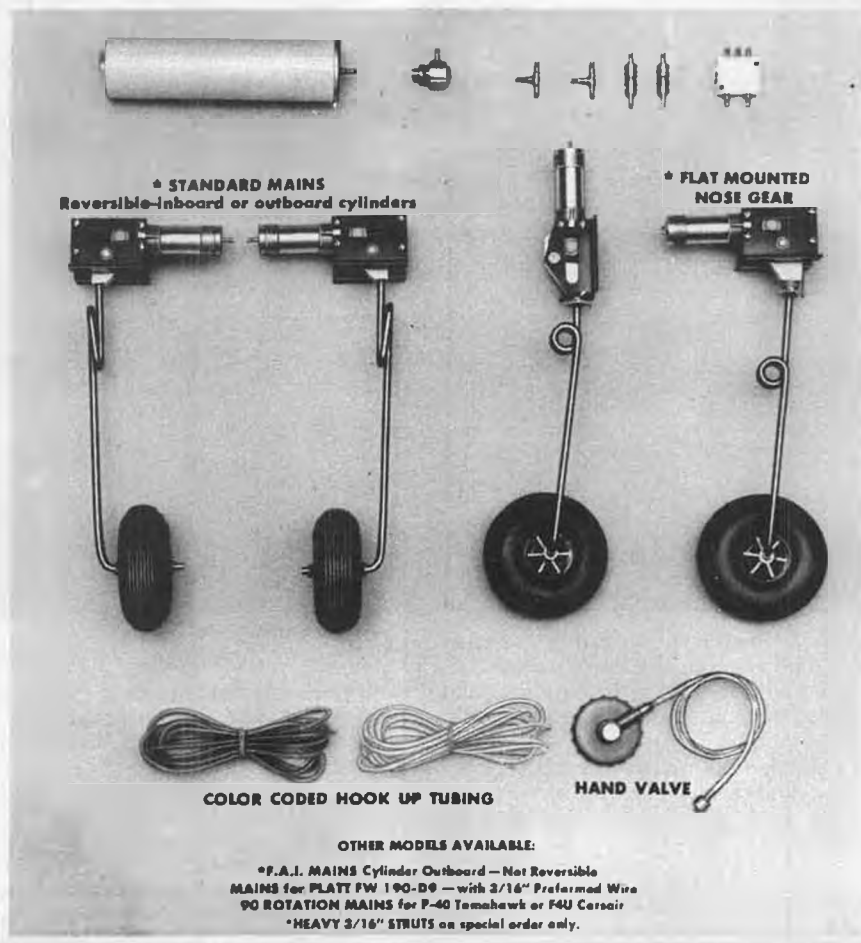
No column would be complete of late if we didn't have a picture of Bill Baker's handiwork. Photo No. 10 shows the good flying Lidgard (pronounced Lidyard) Hi-Ho that did so well at the 1980 SAM Champs. Bill also sent us some trimming tips on his twin pusher, which we will pass on to you next month. More goodies to come!

A lot of people have been asking what a California Chief looks like, so Gordon Coddington, of Kingman, Arizona, was kind enough to send us Photo No. 11, which shows a "California Cheese" (as we used to call them) powered by an ED2.46 diesel. In spite of the fact he did not have a Baby Cyclone to complete the authenticity of the model (designed specifically for that engine), Gordon used a British Kielkraft "True Flex" propeller to fly the model. That prop is a real collector's item. Takes real guts to risk a jewel like that!

Although we didn't have time to write up the SAFFS (Sierra Antique Free Flight Society) activities, we would like to feature a picture of Manny Gomez's Turner Special, as seen in Photo No. 12. As can be seen, the model is a radio controlled version, indicating the club has room for all phases of flying despite its title. Gomez is one of the original members of SAFFS and guarantees all interested modelers in the Reno area won't be disappointed if they join this club.

If interested, contact Phil McCary, 3283 Old US 395 North, Carson City, NV 89701. Phil is one of those great guys who everyone takes a liking to!

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While handing out the kudos for unselfish work, we missed showing a picture of Clarence Bull, who put up the trophy for SAM 8. Photo No. 13 shows Clarence with his good flying Cabruler model, a Henry Struck plan available at Model Builder (Plan 476-O.T., \$4.00). Flies real great according to Bull.

Finally, in Photo No. 14, we are again showing Pete Samuelson with his rebuilt Westerner C and his new 1/2A Texaco version (See, they do reproduce in captivity!). As mentioned previously, Pete has had the darndest luck with model adjustment, radio problems, and just plain pilot error (thumb glitches to you!). This is apparently past now, as Pete placed rather high at the PCC-SAM

21 meet at Half Moon Bay. Good going, Pete!

#### THE WRAP-UP

"Never give up hope!" is the caption of the latest newsletter of SAM 32 received from Jim Perssons, editor. Jim attended the 1978 SAM Champs at the Coyle Air Drop, in New Jersey. This flying site was surrounded by very formidable brush which, as it turned out, claimed many a model, as the brush was practically impenetrable.

Jim left a Comet Clipper with a brand new ignition Torpedo 29 in the brambles and figured tough luck. But wouldn't you know it, Bob Sifleet is out test flying in this area and stumbles upon Persson's Clipper. As he wrote Jim, "It appears to





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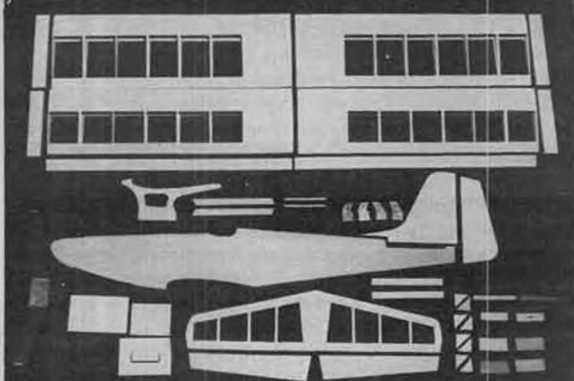
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be in fair shape, even possible to repair after two years in the Pine Barrens."

Jim had Bob send only the motor and timers, hoping to salvage some parts. The engine, as it turned up, was in pretty fair shape needing only prop washers and cylinder. Now to find some parts! Never give up hope!! Amen to that, brother.

C/L . . . . . Continued from page 49 (and probably uncharted) at speeds the model and motor were never able to even approach when attached to lines and handle.

Of such experiences are truly superb Combat Tales and Stories made, as well as converts to the less exciting, but lots cheaper, world of R/C . . .

**THAT REMINDS ME . . .**

As you should recall, I have probably mentioned it enough times, I fly some R/C on the side, generally during the winter when the nasty weather keeps the quackers (ducks) inside and about the only people out flying R/C are those who pretty much know which end is up and are out there to do some serious flying, not just hour after hour of socializ-



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ing from a lawn chair. I don't know what it is like in your area, but around here, during the nice summer months at least, a goodly percentage of the R/C guys bring chairs and stools and have been known to occupy them hours on end. I have actually seen some of these guys pull up, get a model out, arrange all of the support equipment just so and then spend the whole day quacking around, only to finally put the model and other stuff back in the car, never to have flown a lick. In between, they sometimes get up long enough to set somebody else's needle too lean, bend an antenna or two, possibly even get real ambitious and thwack in some new guys model for him ... "Gee kid, I don't know what

happened, musta got hit by interference." Doesn't take as much effort to fly OPM's (Other People Models), you know.

Anyway, if that's what they really enjoy, and it must be, then it's OK by me, just count me out of the picture is all. But when the crowds thin and the lawn chairs quit getting set up, count me in again.

This last weekend was one of those real thin days, not a piece of patio furniture for miles. At least as far as we could tell. You see, there was this ground fog, the kind that is supposed to burn off shortly after sunrise. Only this fog was not burning off, if anything it was getting thicker. The grass strip at Marymoor Park, where we fly both R/C and C/L, is none too long; a good Pattern model can get in and out OK, but you don't mess around any with long flares and like that, so it isn't a big strip. And the fog was thick enough that when standing in the middle of the strip, a model overflying either end of it was not visible ... not a shadow, a blurry trace, nothing.

Yet there was among us some who dared to actually fly in the soup, and not just foof type models either. Bob Hatch flew a medium size four-channel model, somebody flew an itty-bitty biplane that proved to disappear in the fog better than anything else that day, along with proving that the pilot could fly eyes off, if not hands off.

Anyway, what I actually started to tell you about was a model that I had out. Ended up not flying that particular one as it was not trimmed and I figured by the time I got it trimmed, assuming it was off a little, it would be out of sight and why waste the thing on a five-second flight? (Besides, he brought his wading pool and rubber duck, which is more fun to play with! wcn)

The model itself is just your standard kick-around thing, an S-Tee from Airtronics. Before building it, the last thing in the world I needed was a 1/2A sport model, know what I mean?

But what I did need was something simple to build. Something that wouldn't take any real work or thought. Something to sit down and sand for an hour or so before going to bed. After years of

building to deadlines (read contest dates) I wanted to just build a model for the fun of building it with no other goal in mind. Call it therapeutic building if you want. Call it getting old, I don't mind. . .

With plans laid out on the bench it didn't take much time to see that the S-Tee was too easy to build. So it was decided to drag out the building process and dig out a few of the tricks learned from F/F and C/L modeling. Went real crazy on it, sliced ribs for the wing, all tail surfaces were built up, wing spar was tapered and then light balsa used to replace what was cut from the spar so you can't see what was done, lightening holes were cut in all over, 1/64 ply was used where 1/16 was called for, bass for servo rails in place of the spruce; you get the idea. The framed structure came out so light that of course nothing would do but to cover it all up with Japanese tissue and clear dope.

Now I don't want you to get the wrong idea here, but I had hours of good times finishing that model. Do you remember how soft nice, light balsa is after three coats of full-strength clear and careful sanding? Soft isn't the word for it, it is almost a sensual experience to rub your hand over chunks of balsa that have been carved and then sanded into flowing compound curves, all sealed up with preliminary coats of clear. OK, so the S-Tee doesn't have a bunch of compound curves, but I did cowl in the TD .049, and spent as much time getting it just per as I ever did on a Rat.

Then covering the model was another experience. Had forgotten how weak damp tissue is and I'll be danged if I can get the stuff to cover the way I want it on wingtips. Had added some tips that are of a shape generally easy to cover but it didn't seem to help much. With the tissue dry there followed many, many coats of clear dope thinned 50/50, along with all of the sanding required.

Went for final assembly and even there had to do it the old way, dressing out the building time. Sewn hinges. Ever use those things? (We used to, but had trouble counting to 8. wcn) Neat, really neat. Light as can be, very free in action and all those little holes for the thread lined up straight as an arrow down the

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leading and trailing edges of the surfaces.

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Now the point of all this is that quite often all of us get so caught up in the rush that it is very difficult to step aside and let things just go by for awhile. In my case, I have spent years in the rushing flow of contests, going faster, turning tighter and so on. So fast was the flow that I had almost forgotten why I got involved in modeling in the first place. I got involved just like you did, I wanted to build a flying thing. That it would fly was almost assumed, that I could actually control it was a chance worth taking; the important thing was just to build it. Regardless of how well it flew or how big a hole I managed to make when flying it, the next model was built, not necessarily to construct a superior flying machine, just to build another, even if very ordinary.

Before long it was on to contests and then building took a different line. Unnecessary structure was eliminated, faster building techniques were used, for Combat flying dispos-a-models were cranked out by the dozens, and tissue and silk coverings were out of the question.

Nothing wrong with that, won't be too

long before I'm right back in the flow and goin' for it. But this past month I relearned what it can and should be all about at least once in awhile. Give it a try yourself, next time you feel the flow pulling you under. (And you know what? The hobby is a lot less expensive when enjoyed this way. wcn)

**Flea . . . . . Continued from page 39**

B. In this configuration, and with registration C-ADMH, the real POU was all silver, with registration lettering in the style shown, in black outlines only. Rudder lettering was black. In its original configuration as built by Appleby, and before Abbott-Baynes restyled the nose and extended the forward wing-span, the fuselage was dark, with lettering light and outlined, as it appears in photos of my models. In coloring my model red\* and putting red scallops on the rudder, I apparently chose to go the route of artistic license for my model rather than adhere strictly to the prototype scheme. \*(The fuselage, and rudder scallops, also the wing registration lettering, are red; the surfaces are silver, on my model.)

C. At the Flightmasters Meet at Mile Square on December 7, 1980, someone was introduced to me as planning to build a R/C Pou from a blowup of my drawing. He asked where the CG should be; it was not shown on the drawing. I told him he would have to find the proper place by experiment. Now I find

that in the Flying Aces article, page 94, I say it should balance about a 1/2-inch behind the main spar of the front wing. Perhaps an arrow upward against lower surface of the wing in the side view could convey this information on the drawing for the benefit of others. (It has been done. wcn)

Ken, along with his delightful wife, visited R/CMB's office recently, and brought the original Flea with him. We actually held it in our hands, after seeing it for the first time in that Flying Aces magazine, 44 years ago! It was an indescribable experience. . .



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Hannan . . . . Continued from page 50

driven by a ducted fan and incorporating many aeronautically inspired concepts. Constructed from aluminum and fiberglass, the two-door car is powered by a 1,000 cc air-cooled Kawasaki motor-cycle engine for primary use, but will also have a small electric motor for urban driving.

Aircraft design practice is clearly evident in the lines of the body which is unusually sleek and clean, with tightly shrouded wheels and a fully-faired underside. Reminiscent of Bede's airplanes are the NASA inlet ducts on each side.

Although Detroit and foreign auto

mobile manufacturers were invited to preview the vehicle, only the Japanese have sent representatives to view and photograph it.

### WORLD WAR 1 AEROPLANES

The October issue of this enthusiasts publication should be of particular interest to historically minded model builders, since it deals with the remarkable "Demoiselle" series of Santos-Dumont ultralights. Included is comprehensive text, scale drawings, details and beautiful perspective drawings . . . all by co-Editor Wally Batter, of Canada. Accompanying photographs show variations, spin-offs, reproductions, and model Demoiselles. Other departments of *World War 1 Aeroplanes*, edited by

Leo Opdkye, cover book reviews, museums, wants and disposals, plus the activities of reproduction builders in many parts of the world. If your interests include the pioneer era aircraft you should have this! Why not risk \$2.50 for a look-see, and tell 'em *R/C Model Builder* sent you? WW-1 Aero, 15 Cresnet Road, Poughkeepsie, NY 12601.

### THE SKY IS FALLING, CHICKEN LITTLE

Abstracted from Helen Darvassy's column in *Popular Rotorcraft Flying* was this bit of nostalgia from old-timer Bud Swanson: "... I think I was about fifteen, I had been building model airplanes with fair success, with rubber power. I had just finished a particularly difficult, long-flying model, and took it out in the back yard at my grandmother's place to launch on its maiden flight. She raised Plymouth Rock chickens and they were out in the back yard feeding. I wound up the propeller and pitched it into the air. It swooped low over the chickens and then settled into a large circle about two feet altitude. The old Plymouth Rock rooster took after it and chased it as fast as he could run. He was gaining on it, and I was gaining on him, but alas, he jumped up and caught it in mid-air. With his wings and spurs he reduced it to junk in seconds. If it hadn't been such a tragedy to me at the time, it would have been comical."

### PONDER THIS

"We are today at a cross-roads, where serious and thoughtful men are threatening us with a total breakdown of civilization as we know it." Sound familiar? Perhaps, but this particular quotation, by Edward P. Warner, was published in *AVIATION* magazine for November, 1931!

### GOODIES DEPARTMENT

Lots of new items for 1981 have arrived here at the Hangar including the following:

- Captain Ed Toner, of Buzzer Model Airplane Co. has released plans for a reduced size version of Leon Shulman's 1941 BANSHEE free flight model, specially adapted to the new "Turbotank" CO2 engine. A stamped, addressed envelope sent to Buzzer, P.O. Box 124, Howell, NJ 00731 will bring you details

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about both the plan and the engine.

• Hobby Hideaway, RR2, Box 19, Delavan, Illinois 61734, offers a combined catalog and model diesel engine handbook for \$3.50 postpaid. The catalog portion depicts a large variety of merchandise, such as Aeromodeler plans, imported flying model kits, aero theme T-shirts, vintage 1954 solid model and plastic kits, clocks, and kits for VERY young (4 to 7 years age) modelers.

Model diesel engines are the specialty of the house at Hobby Hideaway, including numerous types and sizes. The handbook section of the publication includes line drawings and a thorough discussion of the genre. Among the advantages claimed are: economy of operation, simplicity (no ignition or battery required), and ability to swing larger diameter props than equivalent size glow engines. And, unlike their automotive counterparts which generally sound like a jar full of loose marbles, model diesel engines tend to be quieter in operation. They do, though, require understanding, and this handbook provides the needed information in easy-to-understand form.

• Peck-Polymers has three additions to its extensive line of model kits, supplies and accessories: First is a Lacey M-10 Peanut Scale kit designed by famed British builder Butch Hadland. Included in our sample was top quality printwood and strip wood, detailed plans and instructions (with proof-of-scale 3-view and photos of the full-size aircraft), tissue, decals, rubber, plastic prop, and accessories.

Peck is also marketing a 5 to 1 ratio rubber motor winder with a durable nylon case, anti-reverse mechanism (removable), and instructions for use. This compact, low-cost tool is a natural for use with small rubber-driven models.

Finally, the SHARPY sharpening/honing unit, which has been out of production for quite some time, is again available. Suitable for use with almost any sort of blade (including our favorite Uber Skiver!) the Sharpy can pay for itself in short order. One dollar will bring you the Peck-Polymer catalog packed with information about these and other offerings in its diversified range. As usual, we appreciate your mentioning where you read about these new products.

#### REALLY BIG SHEW!


We thought the largest displays of models took place in this country, but evidently not. According to Benno Sabel of West Germany, a club sponsored event there incorporated approximately a THOUSAND models (aircraft, autos and ships). Sizes range from subminiature through a giant R/C Hercules transport, and the appreciative audience amounted to some 30,000 visitors.

#### TV FARE

In case you missed the initial screening of SKYWARD, try to catch it on rerun. Starring Bette Davis, Suzy Gilstrap, Howard Hesseman and Marion Ross, this movie was directed by Ron Howard, of "Happy Days" fame. The

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real stars, however, are the aircraft. Two-winger aficionados will appreciate the beautifully filmed aerobatic sequences, and glider-guiders are bound to be impressed with the lyrical formation flying. And even with a smattering of Hollywood hokum, the story itself is more than a little heartwarming. Put away your nitpicker's glasses and simply enjoy!

#### LOOKING BACK

It is customary during a change of years to reflect upon the passage of time. Here at the Hangar we feel fortunate for another good year, thanks to so many enthusiastic contributors and responsive readers. Our alert band of "stringers" (in the reporters' vernacular,

not fuselage usage!) is far-flung geographically, yet close-knit philosophically. Or, to put it more simply, model builders seem to share common interests and concerns regardless of their location in the world. Our grateful thanks to every one of you who took the time to send letters, clippings, cards, comments, corrections, and yes, even your chidings. And to Bill Northrop and the staff at RCMB, thank you for permitting such freedom of expression. All of you combined are the real producers of this column.

#### SIGN OFF

During a recent contest, Flightmaster Carl Hatrak was brandishing a Blimp Pilot's License. Noted on it was success-

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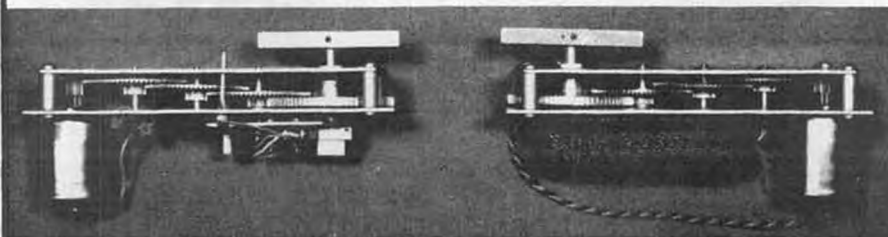
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ful completion of such requirements as gas-bag filling, instrument instruction, etc. Quite an achievement and a rare distinction these days. Or so we thought . . . until it was noticed that the "official-looking" document was authorized by General Helium von Dirigible, Commander of the B.F. Goodrich Blimp Brigade! (Aha! Did you see our comments beginning on page 11 of the July 1980 issue about Goodrich Blimps? wcn)

**12'-foot . . . . . Continued from page 27**

construction . . . and some 700 original aircraft, mostly in museums. The current list of available working drawings runs to five double-column pages, and the current Wants and Disposals list shows three Fokker Triplanes for sale, along with three 80 hp LeRhones and a 180 hp Mercedes, among much else. And a recent issue of *WW-I Aeroplanes* had an article on builders of working reproduction model engines of the period . . . a little Gnome and a little Anzani, for

instance. The sky, in every sense of the word, is clearly the limit!

As models become bigger . . . Monster Scale, quarter-scale, one-third scale . . . they approach the full scale reproductions in size, complexity, design considerations . . . and in cost. (And some builders prefer to build their flying reproductions only part-scale, for reasons of engine availability, size of garage, or cost of construction; there are 5/8 and 4/5 scale SE5s and Nieuports flying now, and a fine half-scale Jenny is in the EAA Museum.) But not only the biggest ones approach the Real Thing; some of the current crop of Peanut Scale and 1/2A models show the same loving attention to design and construction and scale proportion that is required for the bigger ones . . . and *World War I Aeroplanes* provides material for the detail . . . and museum-scale modeler as well as the reproduction-builder and restorer.

The first question is: how important to you is accuracy of scale, proportion, and balance? It makes no difference if the

model is of 13 inch span, 13 feet, or 30 feet. If you are satisfied with building something with two or three sets of wings, painting circles or crosses on them all and calling it a WW-I model, then all this is unnecessary for your work. But if you want a model that stands right, looks right, as well as flies right, then there are a lot of things you can do to make sure you don't end up with photos like mine of my Bristol Fighter. And if you want to think of an even larger project . . . well, nobody has built a reproduction Gotha yet (but there is a reproduction Vickers Vimy, and two projected AEG heavy bombers!). Start with a Peanut Gotha, and work up. . .

Some sources of interest to readers of this article:

1. Experimental Aircraft Association, Box 229, Hales Corners, WI 53130 (puts out *Sport Aviation* and sponsors activities of all kinds for homebuilders and designers . . . lobbies for private aviation in Washington).

2. American Aviation Historical Association, Box 99, Garden Grove, CA 92642 (puts out a journal on all aspects of American aviation, its times, places, people, and machines).

3. Cross & Cockade, 10443 S. Memphis Ave., Whittier, CA 90604 (puts out a journal on all aspects of WW-I aviation, frequently including invaluable data on specific aircraft and types of aircraft; includes a regular section ["Aerodrome Modeler"] on markings of particular aircraft and particular squadrons).

4. Cross and Cockade, 31 Holly Rd., Cove, Farnborough, Hants, UK (the British equivalent, usually with more emphasis on the aircraft themselves than the American version provides).

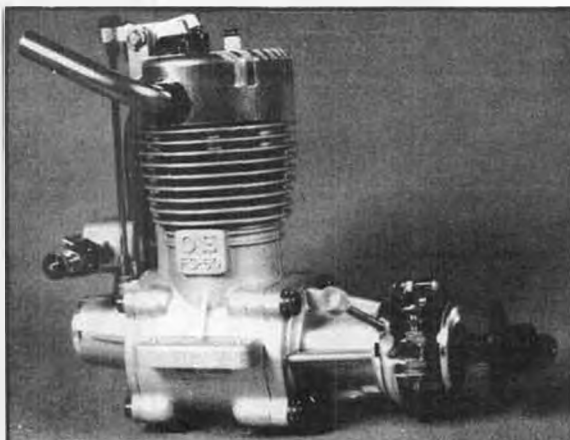
5. World War I Aeroplanes, 15 Crescent Rd., Poughkeepsie, NY 12601 (a service organization and journal meant for builders and restorers of all early aircraft, and scale model builders of these machines).

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

most importantly, since they were not recognized in the scientific community, where would they ever come up with permission to conduct experiments with human subjects?" Meloan's conclusion asks, "How many Wright brothers of the next decades will decide to simply repair bicycles?"

I recognize that the hobby/sport we participate in does not, at present, have to labor under the weight of governmental regulations. Indeed, following the safety scare perpetrated by several sources some years ago, the FAA appeared quite willing to simply suggest through the voice of the AMA, some "benign" regulations concerning our flying. In addition, of course, most metropolitan areas live with noise regulations, but serious, penetrating regulations have not been developed. I am assuming that the bulk of you out there will not be beating down the doors of government to suggest some.

There is another area which many of



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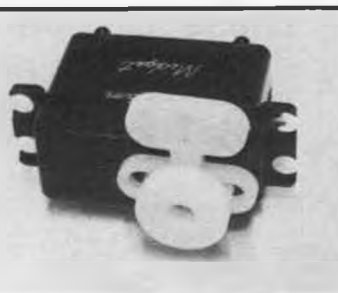
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us fail to consider or at least to take seriously. Those of us in the over-40 category can remember the days when most everyone assumed some degree of responsibility for their actions. This included both the "actionee" and the "actioner." If you fell on your neighbor's property he offered his sympathy and perhaps more and you scolded yourself for being a klutz if it was your fault. Now, of course, you sue for 200 thou and possibly collect because your neighbor's petunia bed constituted an "attractive nuisance."

Manufacturers in our hobby line have become painfully aware of the fact that producing a product which can be used safely does not mean that he will be protected if someone ignores published guidelines and common sense and does not use it safely. His liability seems to go far beyond product control and notification.

The modeler often does not realize that his share of responsibility is as great or greater. Certainly spraying a little exhaust on the spectator's clothing will generally be treated with humor, but spraying prop blades into the area is quite another matter. This writer is profoundly concerned over the direction that courts and regulatory agencies have gone in recent years. Generally, we feel that carrying insurance, being reasonably careful, and assuming that it will happen to the other guy, seems adequate, since after all, this is a hobby and we are in it primarily for a pleasure motive or to release creative talents. We have little desire to load ourselves down with ponderous sets of this and that making the hobby a regulatory nightmare. By and large we are responsible beings and are willing to accept the consequences of our actions.

Living by a few simple rules and operating our equipment in a manner that was intended by the manufacturer is a responsible approach, but a little nagging thought keeps creeping into my

mind. Modelers, especially scale modelers, are notorious improvisors. They prowl here and there gathering dodads and thingamabobs which ultimately wind up on a model. In addition, they alter things to serve their purpose, sometimes to the extent that the manufacturer, if he knows about it, must cry himself to sleep. The modeler also generates his own parts with file and drill and hammer and. . . . These, too, wind up somewhere on the model in a Wright Brothers fashion.

When he is through he has created a model that he assumes will fly because the real one did. But he often will admit that more than a little guessing went into construction techniques, materials, CG locations, airfoils, etc. Is he in a critical position if something goes wrong and he is forced to admit that a small dash of Wright and barnstormer went into his creation?

We'll not even begin to get into the area that has been written about recently concerning modeler use of materials that require special practices or equipment far beyond the average modelers capabilities. Types of paint mentioned in these articles are those that are highly



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toxic and dangerous unless used with special respiratory equipment. Incidentally, a paint store offered to sell me some of it long before I knew of any possible problems that I might encounter.

I'm certain that by now you must feel that Mom Underwood must surely have raised a worrier. You may well be correct, however, I sincerely hope that you will agree that we must exercise caution and concern, for most assuredly,

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if we don't, someone else will. Modeling, again especially scale modeling, has been lifted well beyond the "toy" stage. Granted, many persons outside the hobby still view it that way. In all candor, maybe it's just as well at times that some do view it that way. Historically, toys and the activities engendered by them seem to present little threat to anyone. It does behoove us to act in a responsible, mature manner in all phases of our hobby/sport. This includes not only the flying but building and maintenance as well. Our good friend, Steve Sauger, spoke of a contest last year that required each model to be safety checked before the competition began. Not just the

cursory external going over, but the insides as well. What a splendid idea.

The last consideration then, is to adequately protect yourself as much as possible from the peculiarities of the court, and in like manner, minimize regulations from infringing upon your activities. Hopefully you will not be required to take on the responsibilities that should be assigned to other individuals. When a spectator wanders into the area on your side of the safety line and is injured, or parks his car in the forbidden zones, remember, you may be required to bear the brunt of his failure to follow the rules. Was it just three years ago that a young man was paralyzed after diving into the shallow end of a motel swimming pool? As I understand it, he ignored a locked gate in the fence (he climbed over it). He ignored the sign saying "no swimming after 10 p.m." (it was after). He ignored the marking that said, "Shallow End." He did collect one very large sum of money from the motel.

### ODDS AND ENDS

And you say you need some gear doors for your latest Widget 10 and you are having a rough time matching the curve of the wing or nacelle? Tell you what to do! Take out the gear and cut yourself a block of sandable foam to fit the opening (that's not the beaded stuff but rather the beige colored material that many home builders are currently

using). Fit it into the opening tightly, letting enough hang out that you can sand it into the curved compound shape you desire. Pull the plug and reach for the fiberglass materials. If you wish to retain the plug for future use wrap it in Saran Wrap and lay the glass cloth over that. Be careful to make certain that the cloth is laying flat against the plug. Let the several layers harden, trim and hinge. If you do not wish to save the plug, just lay the cloth right over the foam. After it hardens, sand or cut away the foam and you are home free. This tends to give you a somewhat more flexible door, since the resin soaks into the foam and causes it to cling to the cloth.

Fitting spinners seems to cause some people problems at times. Once I get the front end about right as far as length is concerned (even with the rear thrust washer on the engine) I cut or sand off 3/16 to 1/4 inch more. I then prepare 1/8-inch plywood ring and several spacers (1/16, 1/32, etc.). Some epoxy is placed on the 1/8-inch ring and it is placed up against the cowl. The spacer rings are slipped on and finally the spinner backplate. Make certain that it seats firmly against the knurled engine thrust washer. Put on a prop and sit back and wait until the epoxy sets up.

Remove the nut, prop, and spacers, and see how nicely the 1/8-inch plywood ring is glued to the cowl. It's entirely possible that if you sanded accurately, the gap around the spinner backplate is even. But just in case, that's why I cut away a little extra at the beginning. Next I cut and glue a piece of 1/16 or 3/32 balsa to the plywood ring. Then I take a piece of 1/32 plywood and a piece of sandpaper and contact cement them to the back of the spinner backplate, with the sandpaper facing rearward. By placing them over the shaft I rotate them, removing the balsa material from the ring. When you are close to the proper gap put the prop on and pull it through until it rotates freely. Remove the plywood and sandpaper and you'll find that you have a nice even spacing between the backplate and the cowl.

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represented at the FAI CIAM meetings in Paris for scale concerns by Bob Wischer. In a letter to me, Bob mentioned that not a whole lot of importance happened. There are several items that need to be mentioned, however. The only country to put in a bid for the 1982 Scale World Championships was the USSR. They listed possible sites as Kiev for the primary site and as Bob relates, "A couple of unpronounceable names in the Black Sea area," as other choices. It is a kind of good news/bad news type of situation, however. The good news is that they would hold control line championships and evidently have at least seven countries that would participate. Probably many of these would be so-called Iron Curtain countries. This is, of course, great news to those control liners who have received short shrift in the last two championships. The bad news is that Russia would not hold Stand-Off scale. There is evidently a lack of interest in Stand-Off in those Curtain countries. This is a blow to the World Championship status of that event, since it was doing so well in stimulating scale interest.

The Scale Sub-committee chairmanship changed hands from Helmut Ziegler to Dennis Thumpston, of Great Britain. There were some minor rules changes, such as not having to stand in the center of the circle during the Figure Eight, the addition of the Chandelle as a maneuver for non-aerobatic types, and an additional three minutes of air time for non-aerobatic types.

Other discussion centered around items relating to the changing of the model between the static judging and flying. A proposal will probably be submitted for 1981 designed to help monitor this problem. Once again, a proposal to increase the single engine limit to 15cc was defeated. Bob suggests, "We'll just have to keep trying."

#### SOME PERSONAL NOTES

Christmas season has passed and Santa was good to the Underwood clan. Some of the items removed by "persons unknown," that I alluded to in a recent issue, were replaced. The senior Underwoods motored off to Florida to wait out any Midwest winter problems. Eldest daughter, Anne, headed back to her first year of college in Iowa, and eagerly awaits August '81, when a grand adventure with 11 months of school in Ger-

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many, and Vienna, Austria begins. Daughter No. Two, Cathy, looks toward graduation in '82 and tries to figure out what to do the rest of her life that will involve animals. If Rae and I seem a little preoccupied for a year or so please be patient, we'll get back to normal. Back to the balsa jungle.

One to One, Bob.

I.M.S. . . . . Continued from page 15

Astro Flight, pioneers in silent flight, with its many quality items for electrified flight; mini-starters, power panels, motors, etc., were kept busy answering questions, due in fact somewhat, to the electric powered, R/C scale models flying quietly over booths and spectators alike. . . Quiet flight is growing.

Bob Holman Plans was a busy booth, with the scale types looking through Bob's listing of plans and scale drawings, eyeballing the Complete-a-Pac kits like bees around honey. If it's scale info, Bob has it or has access to it. Across from Bob was Air Capital Models, J.T. Finley presiding (this man can boogie!), and very busy with his F.B. 100 ready-to-fly planes. Nicely built, painted, and ready for radio and engine. (Ours is ready to fly and review shortly.)

Tower Hobbies came to California with catalogs, to meet modelers, and that they did. Ed Devlin, a local modeler, was the lucky winner in the Tower Hobbies free raffle for a new Tower Hobbies 6-channel system. However, before the drawing, he agreed to give

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his wife the radio should he be lucky enough to win it. Well, Ed won the system, so R/CMB gave her a Sig Mark II Kadet kit that we had earmarked for a product review. This way, Ed and Mary Ann will have a kit to build, and we will have a product review. . . not a bad deal.

Parker planes had its big Cessna and Sorcerer on display. The 92-inch wingspan Sorcerer, an inverted gull-wing, twin-boom inverted "V" tailed, electric-powered soaring machine (whew!) reputedly had \$40 worth of Monokote on it! Are you listening, Sid?

Al Novotnik, spokesperson for MAN, escaped from Connecticut for several days to report on West Coast modeling activities, he says. . .

John Simone, Jr. and sister Kathy Davis, at American R/C Helicopters, had a very nice display of rotary winged craft. The .40 powered "Mantis" looked especially good (and only \$149!). A lot of interest in their impressive line. Windsor Propeller Co. had its assortment of nylon/glass composite props on display, but Fred Jamieson seemed more intent on producing quantities of balsa strips with his new balsa stripper. It was well designed to strip an infinite variety of stick sizes.

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--	---

Kraft systems was well represented, with ever-smiling Danny Lutz and Ray Forbes, the new marketing manager. Ray was seen talking and listening to many, many modelers, as were the rest of the Kraft crew. Between handing out buttons "R/C modelers do it with Kraft," taking entries for guessing how many servos in the fishbowl, and answering many questions about the new SPEC-TRUM series, not much time was left for viewing the playoffs on the tube in the K&B booth across the way. Would you believe that two lucky modelers guessed the exact number (573) of servos in the large glass container? Ray Forbes informed us that Kraft Systems is sending both Robert Crawford, of El Monte, and

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C. Partridge of La Mirada, California, a new KP5X system. Good shew. . .

Pacesetter Products had its 1/4-scale R/C sprint car on display. Shades of summers gone by, fairgrounds, cotton candy, Offys and flathead V-8s! Can you imagine driving one of these dirt trackers and getting sideways in the corners? Lovely!! Swank Models displayed a Quadra-powered, jet drive boat capable of speeds of over 30 mph. No more snagged props.

After pausing for refreshment, we headed for the Sig booth, where Hazel Sig, Maxey Hester, and the Paul Johnsons had set up shop facing the demo area. Hazel had "Perky," her pet cockatiel along, and the bird was as much a hit with the crowds as the models in the booth. Almost! A prototype of a .10 powered Fly Baby that will be released soon appealed to many. They probably wanted the modelers to notice their new line of iron-on coverings, updated trainers, and a neat 1/2A sport R/C job too, but quite a few were attracted to the Fly Baby.

Duke Fox was with us again, and had a couple of prototype engines on display. One, a rear-exhaust ball-bearing .19 looked very good, the other a quite large engine to propel your bike to hair-graying speeds. . . At bike shops this year, about \$125 list. Quarter-scalers, take note.

Carl and Beth Goldberg, almost native Californians by now, with assistance from Bob and Doris Rich, were showing

off the Gentle Lady, and in their spare time, were building neat things with Jet and Super Jet.

A relative newcomer to the hobby industry, and new to the show, was Circus Hobbies. Certainly not new to the hobby was Jerry Nelson, heading up this division of the Circus-Circus empire, which imports and distributes a wide variety of high quality model kits, accessories, and the famous JR line of R/C systems. Jerry, Don Weitz, and Marty Barry informed us that they will be handling distribution of the famous Webra line of engines very soon. This should ensure better availability of engines and spare parts in the future. A new ARF helicopter was seen, also a 1/2A Mirage kit and a P-51. Watch for the I.M. line of retracts and other accessories in the hobby shops soon.

Bob Novak and his charming wife, Jean, were on hand showing some of the fastest servos available anywhere. Small, lightweight flight packs, and various size servos, including high-power versions, highlight this line. Bob pointed out that all 24 of the top drivers at the 1980 ROAR nationals were using his equipment. If the reliability is that good in R/C cars, there is little question about its use in all types of aircraft. Bob, having flown a lot of Formula 1 and QM, designs and engineers from experience.


Fly by Night Models was next up, showing its new glider kit. Gliders, or sailplanes, and California . . . as California goes, so goes the. . .! Around the corner again and facing the flying arena is C.B. Associates, Bob Siegelkoff presiding, with help from Chuck Fuller and company. C.B.'s line of heavy-duty hinges, control horns, cable control systems, and sprung tailwheel assemblies for the modeler of large R/C aircraft needs little introduction; in the future, look for a few more good things. Bob's converted Kawasaki engines have a well earned reputation for supplying horsepower in some of the bigger-than-big birds. Also seen were some beautifully built boats featuring Bob's Kawis. . . The beautiful Stearman, with molded glass fuse and tail surfaces, and wings of rib strips over foam, was the work of Chuck Fuller.

If you make and/or modify small parts, fittings, etc., and need another vice, er, vise, Panavise has 'em. They swivel, tilt, lean; in other words, it's adjustable. The new 90-degree clamps should be a nice addition to the workbench. We now visit with Sid Gates, of Royal Electronics. Doing yeoman duty, Sid had to be hoarse by Sunday afternoon after answering a million questions about his line of kits and pre-built systems.

Bob Pettit and his new bride, Judy, were there for the Hobbypoxy Division of the Pettit Paint Co. along with Don Anderson, showing its extensive line of adhesives, resins, fillers, and finishing epoxy enamels, and passing out color chip samples like crazy. AMA and Model Aviation were represented by John Worth, Earl Witt, Betty Stream, Bev

# FLY ELECTRIC

- VL-101 Electric propulsion system shown—using Hytork 48 motor and planetary gear box, SJ-3 switch & charging jack, and B-33L fast charge ni-cad flight battery—total weight 2 1/2 oz.—will power models 25 to 50" wingspan weighing up to 10 oz.
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Wisniewski, Larry Bolich, and others, all busy disseminating information about the academy.

Tom and Donna Runge were proudly presenting the Ace R/C line; from the well accepted Silver Seven top-of-the-line series, which allows you to make a really custom transmitter; to servo kits, airborne system kits, custom chargers, accessories, packaged hookup wire, and you name it, they have it. Send Ace \$2 for its catalog of hard-to-find items, well worth it.

For fine scale accessories to really finish out that pet scale (or non-scale) project, whether WW-1, Golden Era, WW-II . . . or if you require wheels, machine guns, engine parts, pilots, whatever, the Williams Brothers, Granger and Larry, have it. Also for the specialist in plastic shelf models, subjects like the Caudron racer should not be overlooked.

Leisure Electronics' Roland Boucher was showing his specialty line of electronic goodies slanted toward the R/C car hobbyist. Motors, car chassis, power packs, and a nice digital readout auto charger, reading both current and voltage to better than 1% accuracy are available. Model Boat Yards' Ray Kathner had available for viewing various models and kits that should provide plenty of room for shipbuilders to exercise their talents. George Kileen, of Kraft Orange County, was offering his expertise in the area of care and feeding, opps, repair and maintenance of the many brands of radios. As an example, for a nominal \$10 extra, KOC will flight test your repaired or tuned up system. Very cheap insurance.

RJL Industries was showing the RJL K-61 engine, formerly the Kraft .61. Good to see this excellent engine back on the marketplace with parts and service available. Randy Linsalato is planning additions to the engine line, so stay tuned in.

The IMS raffle booth was ably manned

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(personed?) by Sue and Walt Schroder. Many R/C systems were raffled off along with lots of kits, engines, and choppers. Total value of this year's items was almost \$4,000.

C&D Enterprises, the glow driver people, had their electronic starters and glow drivers on display. Howard Danforth, the "D," was busy explaining how the glow driver minimizes flooded and damaged engines, bruised fingers, and lots of censored language at the flight line! The giant Spruce Goose seen in last month's issue and built by the Meyers brothers, has eight glow drivers installed in it to keep the plugs lit; all eight K&B 61's being started in less than two minutes. . .

Big Bert Baker, of Scale Flight Models, was showing a completed and a partially framed up "about 1/5 scale" Japanese Zero. The kit features molded tail cone, upper fuselage deck with gun troughs, machined balsa and ply parts, full-size detailed plans, and is a pussycat to fly. Bert was displaying some beautifully machined retracts, too, with detailed shock struts. Send him drawings of your "legs" for quotes.

This completes our tour of the manu-

facturers' display booths. Hopefully the photos will help to fill in the gaps. Possibly by next month, Mitch Poling will be giving a detailed account of the indoor, electric powered, R/C scale competition that took place while the show was going on.

Briefly, Tony Naccarato and his mother, Addie Mae, teamed up to win the event with an unusual biplane . . . the "Guppy." The full scale aircraft was designed and built by the Sorrel brothers, probably best known for their "Hyperbiplane." The team also entered a 1/4-scale Farman "Moustique," spanning 78 inches, yet weighing under the 24-ounce maximum allowed weight for the competition. Although the Farman flew better than the Guppy, the smaller, staggering biplane earned more scale points.

Incidentally for those who don't know the Naccaratos, they operate a very popular hobby shop in Burbank, and when we say that mother and son are a team, we're not kidding. Addie Mae Naccarato is a seasoned modeler. She actually designed and carried out most of the construction of their two models, while Tony's main contribution was a

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steady hand on the control sticks.

Our own Mitch Poling, "Electric Power" editor, entered a beautiful Sopwith Tabloid, which could have done much better if Mitch had had more opportunity to test it before the competition.

In the LTA (Lighter Than Air) event, Tony Avak, after two previous years of less than average success, did an excellent job of piloting his new design through the required maneuvers, failing only to make a mail pick-up and delivery. Tony has promised us an article on some of the fine points and design considerations relative to model blimp construction.

Bob Peck had the only other blimp entry, his new commercial product for the model hobby. The helium bag is a very realistic looking gray vinyl envelope which resists puncture and extreme heat. Control problems prevented better flight results, but this blimp really looks like it will become a popular kit in the near future.

And so, another season of trade shows has been launched. We look forward to bringing you information about new products as we travel to the other shows. It will be interesting to see what trends develop as the year progresses.

F/F . . . . . *Continued from page 55*

for most top class flyers, in early morning conditions. The recent emphasis on a 4-minute max/early round flight at the Finals has improved the still air capability of most US Wakes. Bob has concentrated on this performance area for the past 10-12 years, and had some interesting things to say about early morning Wakefield flying. His still-air models are the same design as those he flies later in the day. They're just trimmed a bit different . . . the CG is farther back, with carefully adjusted incidence and a wider glide circle. The problem to be avoided is a stall in the early round, which can be disastrous, since the rearward CG would not permit the stall to damp out. Bob does his "early morning" trimming at

sundown. The evening air requires less incidence than early morning, resulting in a "safer" glide trim for the early morning rounds. If Bob feels like "pushing" the glide to the ragged edge, he will add .005 inches of incidence to rear of stab from his evening air trim. The results of all this painstaking calm air testing are consistent 5-minute flights in evening air . . . Bob recently did 5:29 in an evening air flyoff at Taft, near sundown.

Bob doesn't fly the same model all day at a contest. He usually uses the model with the calm air adjustment for only the first couple of rounds. He now feels that perhaps a different type model is required for thermal flights at Taft, with its peculiar thermal patterns at different times of day. So Bob plans to build one, perhaps 2 new Wakes this winter, specifically for flying in the thermally part of the day. He will aim for more altitude in the climb, perhaps 50 feet or so, to enable a longer period of contact with thermal air. He will go to a shorter coupled layout, to enable tighter turns without spinning in, in the hopes of getting them to hang into thermals better. Wings will be lower aspect ratio, with a 5 inch chord, to give a stronger structure for flying in windy conditions.

Bob thinks they've got Wakefield props pretty well sorted out now, getting better performance since the emphasis on calm air flying. He has increased the diameter to 23-3/4 inches, with a little more pitch to give 30-35 sec. prop runs. Very thin blades with a turbulator seem to be standard for good performance. Props are carved from the hardest possible balsa; Bob has tried carving blades from hardwood, but doesn't like their performance. The hardwood blades end up too thin and flexible, and with not much of an airfoil.

Bob's calm air trimming has paid off in Unlimited Rubber, especially the unlimited early morning rubber event sponsored by Bob Meuser at the US F/F Champs, which he's won every time. Bob is really intrigued by this type of flying, says it's the way Unlimited Rubber ought to be flown. He describes it as similar to indoor flying, but done outdoors. The problem with using an in-

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door type approach is that there is a low, thick layer of air which must be penetrated before really long durations can be achieved. Bob's working on getting the "magic" 15 minutes in such conditions . . . his best is 13-1/2 minutes, so he's getting there, although, as he says, the more you progress, the slower it gets.

The model he uses for this type flying is the same size as his regular Twinfin design, but the airframe is 20 grams lighter. He matches the 80 grams of model with an equal amount of rubber. This model has a longer motor tube, with low aspect ratio wings. CG is pushed quite far back, since the model starts zeroing out during the first part of flight, before the power dies down. He gets a 90-second prop run from his 23-inch diameter prop, plans to go to 25 inches. With only one flight per contest, you don't need much rubber . . . Bob's only made up 3 motors, since he's flown it under full power only 3 times.

#### MODEL OF THE MONTH:

Mr. Goodcookie Mk. 2 by John O'Leary  
If all the above has inspired you to try an Unlimited Rubber (oops, Mulvihill) model, take a look at this month's 3-view. Here are some additional comments by designer O'Leary, from the *Minneapolis Modeler* newsletter:

"The nicest compliment paid me regarding this aircraft was a comment by an inactive club member who said, 'By God, John . . . that airplane flies so beautifully and majestically, it gives me the itch to get started again.' 'Mulvi,' a.k.a. Unlimited, has always been a favorite event of mine. It has been well documented that no other outdoor event has the duration potential of a full bore, 300 sq. in. 'Mulvi.'"

"The design elements of a successful Mulvi are well established and are reflected in Mr. Goodcookie, i.e., build it as light as you dare, utilize the maximum allowable wing area, stick a large, efficient prop up front, use a rubber/airframe weight ratio of at least 1:1 (but preferably more) and trim it right power/left glide with ample washin on the right wing panel. I opted for a somewhat larger-than-normal prop, and a long motor tube to minimize

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power burst effects and to provide a long, steady climb to altitude.

"Further improvements on the next Mr. Goodcookie will include decreasing the weight of the prop/noseblock unit, a light fuselage, and covering the stab, rudder, and wing tips with a Microlite-type film. I was really impressed with the amount of strength imparted to the wing's stress points through Hot-Stuffing carbon fibre to the dihedral breaks. Although the finished wing weighed only 29 grams, it has held up well even on damp, tissue-sagging days. The use of 1/32, contest grade C-grain ribs in the main wing panels was a mistake (curly ribs), and I'll substitute 1/16 in the next Mr. G."

#### DARNED GOOD AIRFOIL:

Gottingen 362

This is another of the early Gottingen sections I discovered while rummaging through old NACA reports. It has all the attributes of a good model airfoil; 6.5% thickness, a mean camber of 5.5%, and an upper camber drop-off of less than 5% between the 40% and 80% stations. This should make a nice Wakefield or Nordic airfoil . . . maybe a real "sleeper," since the only place I've seen the ordinates was in the NACA report.

However, FAI Supply's *Book of Airfoils* has the Gott. 362 drawn up in a variety of sizes to suit 3-1/2 inch to 8 inch chords. This book also has 77 other

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popular airfoils already drawn up for you . . . a handy addition to your bookshelf. It's reasonably priced at \$3.75, from FAI Supplies (P.O. Box 3957, Torrance, CA 90510). One minor gripe is that airfoils aren't drawn in 5, 5-3/4 or 7-1/2 inch chord lengths (which are quite common for current FAI designs), but a little work on a Xerox machine will blow them up a bit, since each copy is a little larger (about 3%) than the original.

#### MYSTERY MODEL

This is another of those immediate post-war designs that were too late to qualify for Old Timer status, but still have the "feel" of an Old Timer. Just

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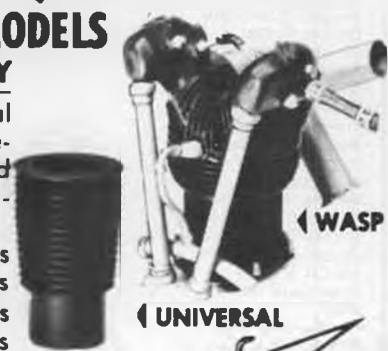
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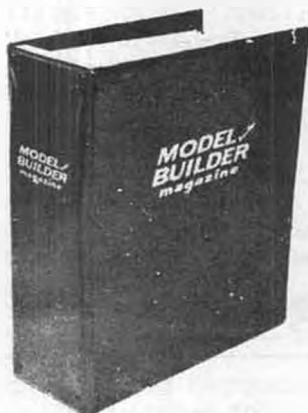
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look at the bulky cross-section on the fuselage and the stringer and planking construction, with an ignition .19 in the nose. The construction article was even written in the "Gee Whiz, I got a 25-minute flight on only a 19-second en-



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gine run, due to the excellent glide of the Ramos XX47 airfoil" style prevalent in the early 40's. (This is to be distinguished, of course, from the type article which carefully explains how all the side areas and moments were calculated to give a desired power pattern, while neglecting to give any indication of CG location.) The sharply tapered tips, and anhedral stab, along with the fuselage shape, should be identifiable features. If you recognize it, send you entry to the MB office (not to me) to see if you have won the free subscription.

Well, that's it for this month. I'm leaving off the 1/2A Spacer flying instructions to make room for Reid Simpson's Sierra Cup report, so you'll have to wait for the next issue. (I'll probably be out testing mine at the same time. If you're building one, be advised that a TD .049 on a Tatone Tankmount will make the Spacer balance about 1-1/2 inches nose-heavy, so plan to use a lighter mount, that puts the engine close to the firewall!)

Thornburg... Continued from page 23

ing, they're inefficient. Besides, who can build the tail that light?

Combine this kind of pitch instability with an all-flying rudder that's being blanked out by that huge windshield, and what you've got is... a beautiful display model. So the Volksplane was never kitted by Southwestern; when Mark's Models took over the production of the kits last fall, I didn't even pass on the drawings and specs.

Albuquerque modeler Dick Roberts, co-designer of the Honker Bipe, built one of the prototype Volksplane and used aileron control, rather than rudder, with much more success; his bird is still flyable, five years later. Incidentally, the Honker wing panel, a completely machine-shaped 36x6 inch flying surface, ready for Monokote or light fuel-proofing, is now available separately from the kit. See your dealer or order direct from Mark's Models, 1578 Osage, San Marcos, CA 92069.

To avoid ending this roundup of weirdies on a negative note, I've included a shot or two of Staggerlee, a little tricycle-geared biplane that was a thumping success from the very first flight. Overpowered by a Max .25, this creature is about the stablest biplane I've ever designed. The (Honker) wings are set in reverse stagger, like the old Staggerwing Beech, and this really does help the plane's stall characteristics... just like the formula predicts. The bottom wing is set at a slightly higher angle of attack than the top, so that it stalls first. At stall, the bottom wing "disappears" aerodynamically, leaving you with a high-wing monoplane that has a VERY forward center of gravity... just the ticket for stall recovery without the usual snap roll and death dive. And much as I hate to admit it, Staggerlee's ground handling is much better than the Honker Bipe's, thanks to the tricycle gear. Of course there are folk on every flying field who will tell you that you're not a real pilot unless you can handle a taildragger... but personally I enjoy an occasional hands-off takeoff, don't you?

And so much for the roundup of oddities. I haven't mentioned the torque-reaction "flying swastika" made with a Clorox bottle, or the lifting body free flight that looks like a Japanese-tissue-covered Goodyear blimp... both of these are lifted more or less intact from model magazines of the mid-fifties, so they're not original designs. And, yes... they do fly.

I hope you find some encouragement in all of this to experiment a bit with some of your own dreams. With patience and tall grass, you can make almost anything fly if you want to badly enough. And when you get it flying, how about bringing it around to my flying field? I'm sick and tired of looking at kit-birds. ●



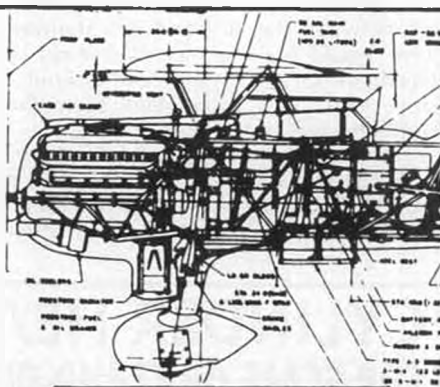
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The contest schedule called for 10 rounds; 5 on Saturday, 12 noon to 5 p.m.; a champagne flyoff at 5:15; a banquet at 8:00 p.m., and the last 5 flights from 8:00 a.m. to 1:00 p.m. on Sunday.

The first round started rather slowly, the timers were on the poles, but the fliers were slow to assemble. A lot of equipment was being moved and winding stooges were being staked in place. Finally 3 to 5 Nordics were airborne, then 3 or 4 more. Still no one seemed anxious to go up . . . a lot of power and Wakefield fliers were watching, waiting. As Mike Fantham, of England, started to zoom his model, it bounced and the wings bowed. If he didn't have air, who did! Quickly, 3, then 4 other Nordics popped up and off their zooms, slowly the gale drifted toward the poles; one motor then two came alive and within 30 to 45 seconds, the sky was full of models, all drifting downwind for an easy max. The weather, the wind, the lift, the models, continued this sensational act over and over as the afternoon wore on through the 5 rounds. At the end of 5 rounds nothing was settled in any event. Too many with full houses, too many rounds to go. But why worry, it was champagne flyoff time, the time for fun and truth . . . just how good were these designs. The rules are simple, all launch within 5 minutes, and a single high time flight.

The first off were the F1A (Nordics), 5 minutes of towing, no more. It was extremely calm, so the launch was in all directions. Most flyers, not knowing what the next few minutes would bring, zoomed their models at the slightest indication of lift. Early times of 4 minutes plus had some happy faces, but as the times were called for, two fliers were still up. Hugo Sandroni, Jr., age 15, was hanging on to a light bubble that finally gave him 5:40 plus, but the last model to be launched from far to the south was still holding. Finally, the only happy face to be seen was Mike Fantham of Great Britain, with his 6 minutes plus flight.

Timers were reassigned and the F1B (Wakefields) were wound; with a shout, a mass launch was off, good power bursts, good cruises, and then the wait for the glide, slowly they drifted off to the north and at 4 minutes plus begin to touch down. The happy face here belonged to Bob White and his "vol libre" design.

An agreement to start and launch the F1C (power) ships en masse brought a shrieking howl of 2, then 3, then 8 to 10 power ships, all being needed to their peaks. Their launches, while all not simultaneous, were still close enough to make one realize just how hard it is to time engine runs. The three highest ships held everyone's attention as they slowly drifted north towards the Wakefield touchdown area. Early reports were heard of 4 min., then 4:20, then a close 4:33, and a 4:37 were called out. Finally,



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with a chuckle, Ken Oliver and his timer came up with a 4:40 flight. Ken, it turned out, while not doing too hot in the regular contest, had taken the time to retrim his model and had opened up his glide circle to the point where it had only done 1-and-3/4 circles during the entire flight.

As smiling faces approved, the winners had a contest popping corks, then poured the champagne, tokens of a well deserved victory and a highlight of fellowship.

The banquet at the Cordova Lodge brought out a lot of smiling faces. Happy with the flying, happy with the sit-down buffet for over 100 people, excellent food, excellent service. The program for the evening included some fine wine provided by the Canadians for toasting, words of welcome by the Contest Director Roger Simpson on behalf of the sponsoring club, the Sierra Eagles, and

the awards presented to George Xenakis, and Doug Galbreath by NFFS, for their models of the year.

Early Sunday morning brought crystal blue skies, no wind, and low sixties. The air? For the power ships, fantastic . . . flights close to 4:30, Wakefields . . . 4:00 plus. But the glider boys had to hustle to find the air. And find it they did, with enough of them finding it to eventually send 6 men into the flyoffs.

All through the morning the weather just got better and better. At one point, a high bubble hung over the starting poles for better than 5 minutes, all a flier had to do was throw it up and stand around and gaze vertical along with his timer and presto . . . 180.

For the Wakefield flyers, the last two rounds threw the final standings up for grabs. Hugo Sandroni, who went into the 9th round as the only flier with all maxes, got off very late in the round and



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while not maxing, still recorded a high enough score to stay in first place. Meanwhile U.S. team members Walt Ghio and Joe Foster were wrestling around with Bob White for 2nd and 3rd places. The 10th round treated Hugo no better; damage to his number one model forced a reserve model into action and once again the max eluded him. Meanwhile Walt Ghio and Joe Foster both maxed to move them up into 1st and 2nd places respectively, with Bob White moving into third.

Final standings in Wakefield showed Walt Ghio in first with 1762, Joe Foster 2nd with 1754, Bob White 3rd with 1751, George Xenakis 4th with 1730 and 5th

place went to Joe Bilgri, who ventured out of retirement and open heart surgery to post a 1695.

Flyoffs for power started with 3 fliers, myself, U.S. team member Roger Simpson, and our old friend and guest from Canada, Dave Sugden. The 4:00-minute flight narrowed the field to 2 when my model, which had performed beautifully all weekend by making 10 straight 180's, responded to my thermal picking by giving me my 11th consecutive 180 flight, just what I needed. Both Roger and Dave were successful in the 5-minute round also. The 6-minute flight finally produced a winner. Both Roger and Dave missed their intended ther-

mal, and the contest was settled by Dave's model playing around better in some ground lift for a 214 second flight.

Final standings in power showed Dave Sugden 1st with 2554, Roger Simpson 2nd with 2533, Reid Simpson 3rd with 1980, Doug Galbreath, who had dropped some time way back in the 1st round and had then put 9 straight maxes up to put pressure on the rest of the field, was 4th with 1785. Fifth place went to Russ Backer, 1723.

The Nordic flyoff was a thing of beauty. Six fliers, all probing the field in search of lift. And as the times increased and models went further and higher, large posse's of bikes with riders trying to negotiate the terrain and keep one eye on the dot in the sky went roaring out and back once every 30 minutes until the 7-minute flight, where Matt Gewain and Lee Hines both hooked tremendous lifts but as will happen when you must rely on a mechanical timer wound to its limit, Lee dethermalized prior to the 7 minutes and was on the ground at 404 seconds (6 minutes and 44 secs) while Matt continued for his full seven minutes.

Final standings in Nordic were Matt Gewain 1st with 3120, Lee Hines 2nd with 3104, Gary Medley 3rd with 2680, Jose Dona 4th with 2610, and Mike Fantham, of Great Britain, 5th with 2387.

The trophies presented to the winners are reminiscent of the trophies of the old days, beautiful silver bowls on

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hardwood bases and beautiful inscriptions making sure that each trophy will be long cherished. These trophies are the result of the determination of a model club, the Sierra Eagles, to host one of the finest contests in the world and do it with class. Beautifully engraved glass stemware was given for 4th and 5th place. In addition to the 1st through 5th place for each event, there were the trophies presented to high time junior and high time senior. Hugo Sandroni, Jr. was the winner of the Jr. trophy for his efforts in Nordic, but the senior trophy went unrepresented. Maybe next year some young flier, encouraged by a parent or friend, will compete at the 5th annual Sierra Cup for these high time trophies.

The last trophy presented was the large perpetual Sierra Cup, presented to the country for combined time of its highest placers in the 3 events. This year the trophy was presented to the U.S.A. (Walt Ghio, Roger Simpson and Matt Gewain), second place went to Canada and third to Great Britain.

Amidst the goodbyes, celebrating and war stories, the Contest Director, Roger Simpson, thanked the contest administrators, Lynn Simpson and Inky Davis,

the poster of the scores on the large scoreboard, Kitrick Sorenson, and all of the timers who were the wives, children and friends of the Sierra Eagles, club members themselves who do not fly FAI, and other council flyers who came to town, (some from Oregon) just to time and observe. They did a great job.

On the way home, Lynn and I talked of how successful this meet has been, how we had been blessed with tremendous weather and how great the turnout had been. Tired, grimy and eyesore, we are looking forward to the 5th annual Sierra Cup in '81. See ya there.

(As of this writing, the trophies have been bought for the '81 contest. It's sanction has been applied for and approved, through AMA and FAI for the 17/18 of October, with the Livotto invitational approved and scheduled for the prior weekend in Taft.) ●

**Counter . . . Continued from page 9**

build as much of the scale detail available on the plans into the model without handicapping its ability to fly. There is more detail available on the plans than most modelers can cope with!

The Gee Bee R-1 is available in two

sizes: 2 inch scale and 1-1/2 inch scale, for \$16 and \$7 respectively (the 2 inch plans were used by Granger Williams, includes 8 sheets).

The Gee Bee "Z" is 2 inch scale, \$11 (also used by Granger Williams).

Other plans include the Monocoupe 110 Clip-Wing (2 inch scale), the 1940 Culver Cadet (1 inch scale), and the 1932 Hall Racer, at 1/2 inch scale, which makes a 13-inch Peanut. These retail for \$10, \$7, and \$3.50 respectively. Newest item is the Gee Bee R-2, at 1 inch scale, for \$10. All plans are available from Vern at the above address, postpaid. You add your own system for the form of flight desired: R/C, C/L, F/F gas or rubber.

★ ★ ★

Continuing with our write-up on the extensive line of I.M. Products being distributed by Circus Hobbies, which we started in the February '81 issue, our first item this month is neoprene rubber tired wheels, ranging in size from 2 inches to 2-1/2 inches. Mounted on 6-spoke black nylon hubs, these wheels are very sturdy, and the neoprene should resist the effect of most exotic fuels that might get on them.

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balance, but they can be used most anywhere. Each is identified by weight, and includes 6, 10, 15, 20, 25, 30, 40, and 50 grams.

Two more radio accessories include a fuselage switch lever and an antenna retainer. The switch lever consists of a 1/16 wire with a slot at one end for a retainer 'E'-ring (supplied) and a knob which is soldered on to the outside end after installation. A rubber fuselage guide is also supplied. Best part of the antenna retainer (for airborne antenna) is the fine 2-inch long spring for tensioning the antenna at the rear connection. Rubber bands dry out and break frequently. Also included is a rubber fuselage grommet and a piece of vinyl tubing which is used instead of a wire-breaking knot at each end of the hook-up. All items from your hobby dealer, or contact Circus Hobbies, 1241 E. Glendale Ave., Sparks, NV 89431. Phone (702) 331-5334.

Never did a 4-legged coyote look as pretty as this Coyote . . . unless the 4-legged coyote was being looked at by another 4-legged coyote! The one we're looking at happens to be a Bob Martin's R/C Models "Coyote," which is a 72-inch span aerobatic R/C sailplane. The

improved Coyote features a larger, roomier Dura-lene fuselage, which is also lighter. The new wing has more sweep to decrease tip stalls and allow lighter overall weight. In production and available now, the price is \$84.95, with full-size plans and photo-illustrated instructions. Contact Bob at 3058 N. Marengo Ave., Altadena, CA 91001.

A new, high impact plastic U-control handle is now available. It features an adjustable lead-out cable and is safer in that the wire lead does not come in contact with the fliers hand. It has a comfortable hand-grip and is slanted for a more natural feel. For more information, contact Sturdi-Built Model Mfg., 4203 S. Cloverdale, Rt. #9, Boise, ID 83705. Phone (208) 362-5205.

Workbench . . . Continued from page 6

had been selected to be the recipient of the FIRST presentation of the newly created annual "GLEN SIGAFOOSE MEMORIAL JUNIOR / SENIOR ACHIEVEMENT AWARD," through his outstanding achievements at the 1980 AMA National Model Airplane Championships!

This annual award was created and

funded by the "First-Lady of the Model Industry," Hazel Sigafoose, and will, henceforth, be administered by the AMA. Hazel, quite naturally, wished to personally make this first presentation, and to "unveil" the beautiful perpetual trophy that she had created for the occasion. Mike's name was engraved on first of the many blank nameplates adorning the trophy which will be on continuous display at AMA Headquarters. Each succeeding year's Achievement Award winner's name will be added in turn. Oh, yes, Mike's "take-home" goodies included a very excellent hand-executed Certificate of Award . . . plus a very generous cash award . . . these were for take-home evidence attesting to his demonstrated skills. Mike is the son of Jim Clem, of CL Speed fame. A few years back, the name "Beasley-Clem Team" struck terror in all hearts at the various speed circles across this nation . . . not many people remember that Jim is also a very capable free flier.

The Planesmen Club is indebted to AMA's Frank Ehling, who acted as the initial contact intermediary in making this personal presentation memorable. Frank is working very closely with Hazel in her efforts to recognize and aid the

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**No. 280-O.T. RED RIPPER \$5.00**  
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Very clean cabin design from Sept. '38 M.A.N., 87" span. By Thracy Petrides.

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younger model builders and fliers ... the aid in the form of a second and separate annual award(s) to wit: The "GLEN SIGAFOOSE MEMORIAL SCHOLARSHIP AWARD." I would suggest that inquiries concerning the Scholarship Award be directed to Frank Ehling of AMA Headquarters.

We, the modelers of the Fort Worth-

Dallas area, feel very privileged and honored to have been invited to share with Hazel in the spirit, respect and love involved in the creation and presentation of these memorial awards. Our hearty congratulations to Mike Clem, both for earning the award and for making this memorable gathering possible in our area.

## INDUSTRY NOTE

Cosmocon Ltd., R.R. No. 2, Uxbridge, Ontario, Canada L0C 1K0, is offering a \$15 rebate, plus a colored jacket emblem, to present and prospective owners of its Quadra-Charger unit. To qualify for the cash rebate and the emblem, owners must send photographs of their plane or boat, showing details of the Quadra-Charger installation, together with a performance description, including weight and prop size.

The main purpose of the rebate program is the building of an Information Data Bank to assist other modelers and to provide data for future developments. Send your photos and information to the attention of Klaus Nowak.

## MONSTER AIRPLANE RALLY

The C.A.R.D.S. (Capital Area Radio

Drone Squadron, Inc.) of Lansing, Michigan is sponsoring a "Monster Airplane Rally" on Saturday and Sunday, June 27 and 28, 1981, at the Michigan Trapshooters Association campgrounds, near Mason, Michigan. The site features camping facilities for up to 100 camper units, overnight hangar facility with electrical outlets for charging, concession stand, and outdoor commercial display area. Outside of minimum aircraft sizes specified (5-foot span for biplanes, 7-foot span for monoplanes) no details are given as to the activities planned.

Hmmm ... trapshooters. Better put armor plating around the radios. . .

## SOME VERY OLD BUSINESS

We had several comments from readers who noted in late 1979, when we published an article about our last Parcel Post Proxy Peanut contest, that the Grand Peanut, Sherman Gillespie's "Gadfly," appeared in our photos without a pilot. How come this plane could be the winner without meeting one of the most important rules of the contest, a pilot in the cockpit?

Recently, when discussing with Sherman some details of a future construction article, we asked him about the missing pilot. Had we really goofed by overlooking this pilot requirement, one which this editor has been strong about for all scale models for many years? Well, sighs of relief, the Gadfly *did* have a profile pilot in the cockpit (sufficient by the rules) during static judging, as revealed in photos taken by Bill Hannan during that period. Also, Sherman found the pilot in the bottom of the shipping container when the model was returned after the contest. Obviously, the pilot bailed out sometime during the rigors of the competition flying, and was "boxed" by the proxy flier.

The close-up photos which we published were taken after the Gadfly had come back to the office from the flying site, and were thus "sans pilot." •



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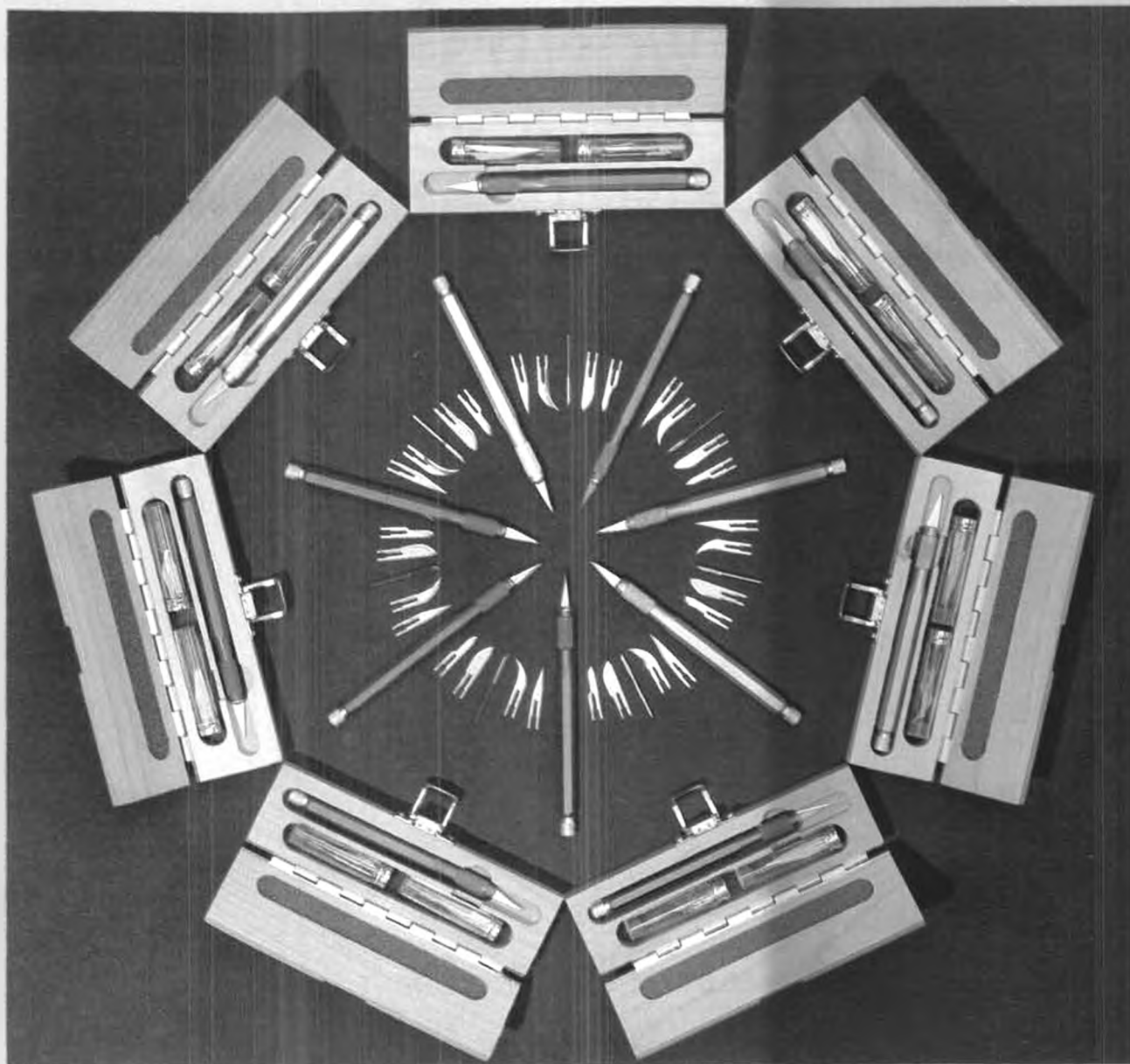


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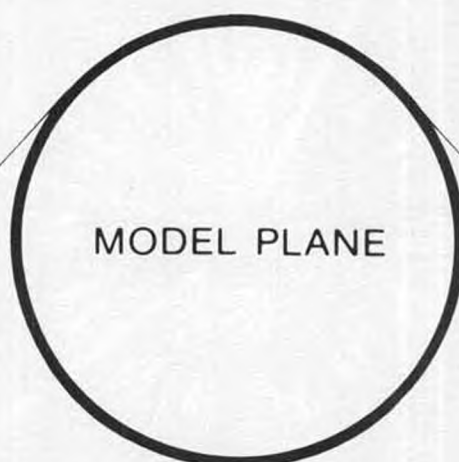


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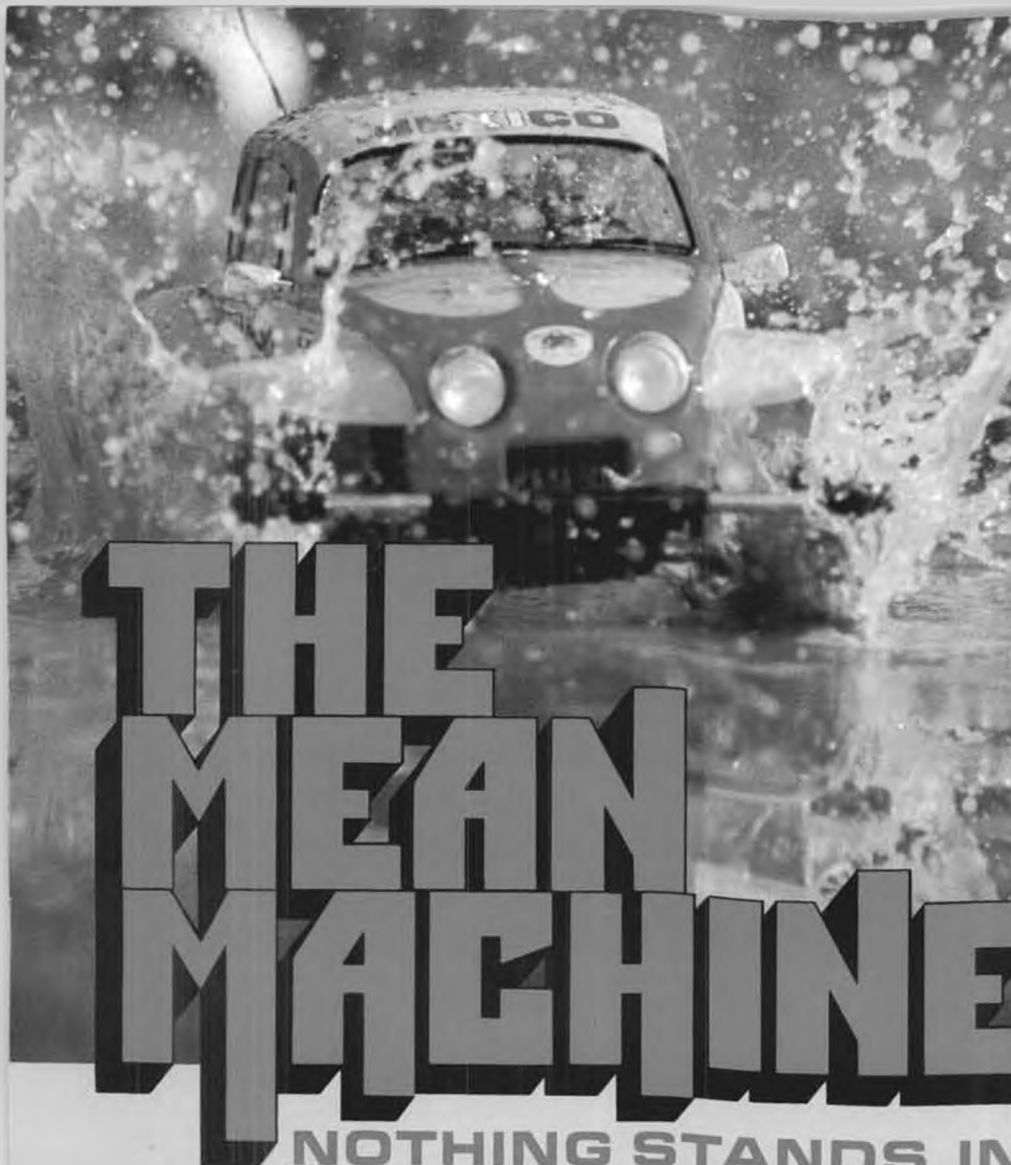
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