Thanks, Lindy!

MODEL BUILDER

MAY 1977

volume 7, number 65

$1.50

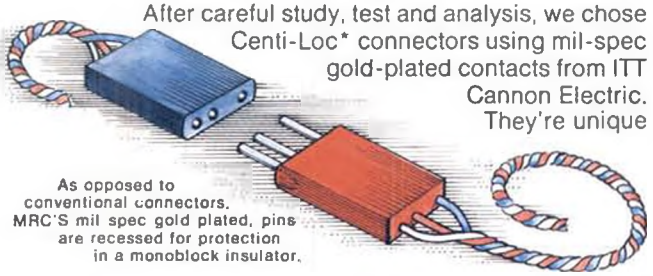
Because we don't save on pin money in the making... you won't get stuck in the buying.

You probably don't give much thought to your radio's pins and connectors . . . not until you've a problem aligning them, or vibration causes one to lose contact . . . and by that time it's sometimes too late.

Yet if you stop to think about it, you'll discover that few other components are so important to overall system performance, yet by nature so sensitive. The connectors are vital, yet unless given careful consideration in design, they can become the weak links in any R/C system. As electronics hobby manufacturing specialists for over 30 years we're well aware of the pitfalls in engineering and design. And so our engineers took great pains in selecting connectors which help put MRC systems one up on the competition.

AS GOOD AS GOLD

After careful study, test and analysis, we chose Centi-Loc* connectors using mil-spec gold-plated contacts from ITT Cannon Electric. They're unique



As opposed to conventional connectors, MRC'S mil spec gold plated, pins are recessed for protection in a monoblock insulator.

and have proven themselves in countless close tolerance commercial and military applications before we found them particularly suited to R/C.

To begin with, we all know gold is not only durable, but an excellent electrical conductor. At the same time, they're also more expensive than conventional connectors, but we chose them because we will not compromise quality anywhere in our systems . . . you can depend on it.

EASY TO ALIGN . . . CAM ACTION

But there's more to our selection of ITT Cannon's Centi-Loc connectors than gold's conductivity. If you look closely you'll see that as opposed to ordinary connectors, ours have a positive contact alignment design. It begins with flexible twisted wire pins (we call them spring action) which are recessed into a monoblock insulator. This leaves the more rugged sockets (female connector) exposed instead of the pin itself as you'll find on most other systems.

These recessed pins are terminated with a hemispherical weld of fine wires of a specific radius. When the pins are inserted into the lead in chamfers (ridges) on the female connector which aligns the pin and socket by positive cam action. This cam action assures trouble-free electrical continuity through even the worst vibration and roughest landing your plane can dish out. It's an added bit of flight insurance you get with every MRC system. It's a minor point for some manufacturers, but here this type of component design is the key to producing reliability you can turn to with confidence.

Twist pin contacts** mate and hold even under severe misalignment, providing excellent electrical continuity through even severe landing and rugged vibration.

TEST IT YOURSELF

The special chamfers which line the wall of the socket act to guide the pins during insertion, as well as to function as an anchor to firmly hold the pins once they're in. This means they're easy to connect yet offer maximum retention. (Try it yourself, take an MRC system and slip the connector together, note how easy they are to connect. Then apply gentle pressure to smoothly pull them apart . . . you'll find a firm grasp between male and female, a solid hold that imparts confidence and let's you fly carefree).

You'll find these advanced state of the art connectors not only on our popular Series 765 featured here, but on every system we make. It's part of MRC's no-compromise attitude toward design and engineering, which has resulted in systems that perform better, longer and under all types of ambient conditions. Our experience has made us quality conscious almost to a fault. We strive to perfect every inch of every system so that dollar for dollar you're getting the best you can buy. That's why, for instance, we field range test every system not once, but twice before it leaves our plant. We go to great lengths to provide the quality that offers you a unique advantage . . . the extra engineering that lets you perform with confidence, and spend more time in the air and less in the shop.

To some manufacturers saving on connectors is just pin money . . . at MRC these little extras mean you'll never get stuck with one of our systems.

7 outer and 3 inner twisted strands provide spring action for positive alignment and excellent electrical continuity.

Series 765 featuring 4 servos, receiver, nickel cadmium batteries for transmitter and receiver, charger, shock absorbing field carrying case.

*A Registered Trademark of International Telephone and Telegraph Corporation

**Licensed by New Twist

MODEL RECTIFIER CORPORATION 2500 WOODBRIDGE AVE., EDISON, N.J. 08817

CONTROL-LINE HEADQUARTERS

SIG®

ENGINE: .29-.40
WING SPAN: 50"

KIT CL-21

$24.50

MUSTANG STUNTER

Designed by MIKE GRETZ

ENGINE: .049
WING SPAN: 22-1/2"

KIT CL-15

$4.95

DEWEYBIRD

Designed by DAVE SHIPTON

ENGINE: .049
WING SPAN: 18"

KIT CL-17

$5.50

BEECHCRAFT STAGGERWING

Designed by MIKE STOTT

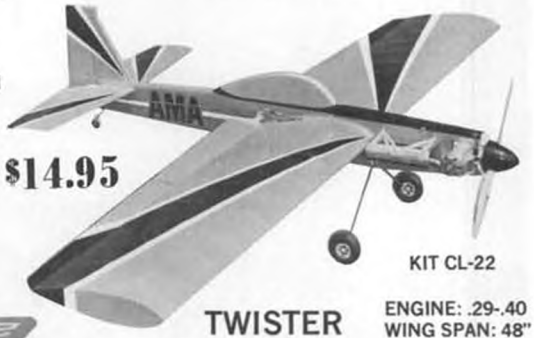
ENGINE: .010-.15
WING SPAN: 28"

$7.75

SHOESTRING

KIT CL-13

Designed by MIKE STOTT



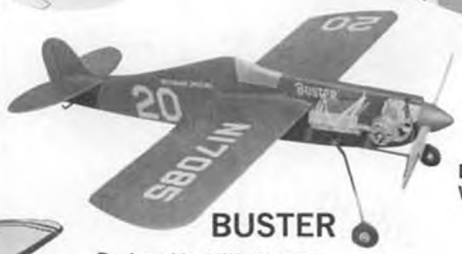
$14.95

KIT CL-22

TWISTER

ENGINE: .29-.40
WING SPAN: 48"

Designed by MIKE GRETZ



KIT CL-12

ENGINE: .010-.15
WING SPAN: 24"

BUSTER

Designed by MIKE STOTT

$7.75

AKROMASTER

ENGINE: .15-.19
WING SPAN: 34"

KIT CL-20

$10.50

Designed by MIKE GRETZ

KIT CL-16

$24.50

AKROBAT

ENGINE: .29-.40
WING SPAN: 51"

Designed by MIKE STOTT

BANSHEE

Designed by MIKE STOTT

ENGINE: .29-.40
WING SPAN: 49"

KIT CL-11 **$14.95**

ENGINE: .29-.40
WING SPAN: 53-1/2"

SUPER CHIPMUNK

Designed by MIKE STOTT

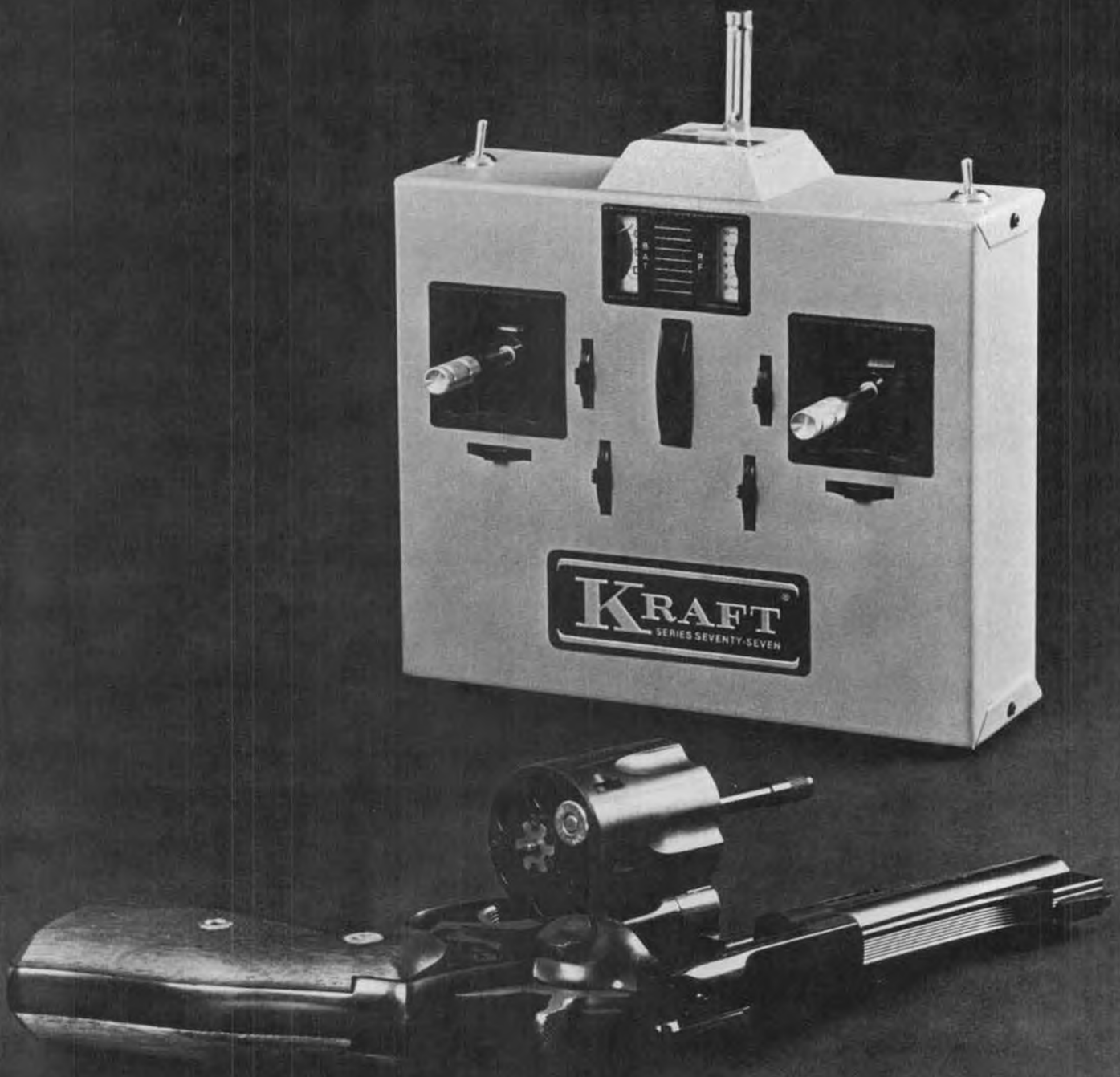
KIT CL-19 **$24.50**

SEE YOUR DEALER FIRST - TO ORDER DIRECT ADD $1.00 POSTAGE IN THE U.S., $1.50 IN CANADA. NO C.O.D. ORDERS

PLACE YOUR ORDER NOW FOR SIG'S LATEST CATALOG - NO. 36 - $1.50 POSTPAID

SIG MANUFACTURING CO. . . Montezuma, Iowa 50171

RUSSIAN ROULETTE...



...not when you fly with a KRAFT Radio Control System.

KRAFT SYSTEMS, INC.

Write for free catalog
450 W. California Ave., P.O. Box 1268
Vista, California 92083 (714) 724-7146

New! All 1977 Radio Control Systems now covered by a one year limited warranty.

PRICE BREAKTHROUGH!

JET THE QUALITY SUPER GLUE

Now at the lowest prices ever!

1/2 oz. JET

$2.95

1/4 oz. JET

$1.95

ASK YOUR DEALER FOR

JET

CARL GOLDBERG MODELS INC.

4736 WEST CHICAGO AVE. • CHICAGO, ILLINOIS 60651

MODEL BUILDER

MAY

1977

volume 7, number 65

621 West Nineteenth St., Costa Mesa, California 92627

Subscriptions $15.00 per year, $27.50 for two years. Single copies $1.50. Add $2.00 for postage per year outside of U.S. (Except APO). Add 75 cents for Canada and Mexico.

Published monthly by MODEL BUILDER Magazine, 621 West Nineteenth St., Costa Mesa, Calif. 92627. Phone (714) 645-8830.

Change of address notices must be received one month before date of issue that new address takes effect. Send old address with new; old label preferred. Post Office will not forward copies unless you pay extra postage. Duplicate issues cannot be sent.

Second Class postage paid at Costa Mesa, Calif., and additional offices.

CONTENTS

FEATURES

SCALE VIEWS

CONSTRUCTION

Cover: Three replicas were built for filming of the movie, "The Spirit of St. Louis". This one spent some time (and may be back there now) at the Experimental Aircraft Association Museum, in Franklin, Wisconsin. Three were built so that production would not be delayed in case of an accident. Charles Lindbergh flew this one, and said it handled like the original. The owner is Dave Jameson, of Oshkosh, Wisconsin. Ray Prucha took this excellent photo, using GAF Color Slide Film (Anscochrome, to you veteran shutter-snappers) in a 16 exposure back on his Hasselblad.

from Bill Northrop's workbench

• • •

THANKS LINDY!

Fifty years ago this May 20th, Charles A. Lindbergh culminated many months of planning with a single 33 hour solo flight across the Atlantic Ocean, and overnight, changed the public image of aviation. Before this history-making event, aviation was considered to be the ridiculous carryings-on of a bunch of kookie inventors, and pilots were identified as suicidal maniacs or foot-loose soldiers of fortune seeking hero worship at any cost.

With that one epic flight, Lindbergh made the whole world aware of the achievement, scope, and potential of aviation. Basking in the sudden limelight of its full-scale brother, model aviation also took on a new-found popularity.

And so it is that we must all look back for a moment and say thanks to the "Lone Eagle".

The photo at the head of this month's "Workbench" was sent to us by John Krekovich, Overland Park, Kansas. The model is his Peanut (yes, Peanut!) entry in MB's Parcel Post Proxy Peanut special event for Peanut Spirit of St. Louises only, and the bust of Lindbergh is an old "Lindy" penny bank (can you imagine what that is worth now?). The photo was taken by Ron Simons, of Shawnee, Kansas, and is in full color. Fortunately, we had already locked in and processed our special "Lindy" cover to commemorate the historic event of 50 years ago, for had we not, making a choice between the two photos would have been a difficult task.

NATIONAL SCALE ORGANIZATION

For some time now, dedicated scale modelers in all facets of competition . . . F/F, C/L, and R/C . . . have been feeling an increasing need for a national organization. Its primary purpose would be to operate within the framework of AMA for the mutual benefit of both parties. The organization could provide a variety of services for the scale modeler and AMA, including:

Technical help in areas such as subject selection, documentation, construction, and competition.

Sounding board for competition rules.

Listings of available materials.

Evaluations

Aid in team selection processes.

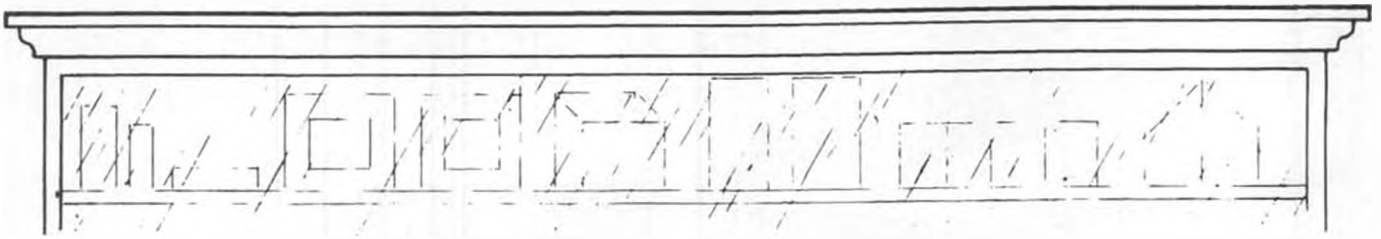
Bob Underwood, 4109 Concord Oaks Drive, St. Louis, Mo. 63128, a well-known modeler, R/C Contest Board member, and 1976 U.S. R/C Scale Team member, has volunteered his services as a focal point for getting a scale organization started. He asks that you drop him a card or letter, giving your complete name and address and specifying your particular scale interest(s): F/F, C/L, R/C, Competition, Sport.

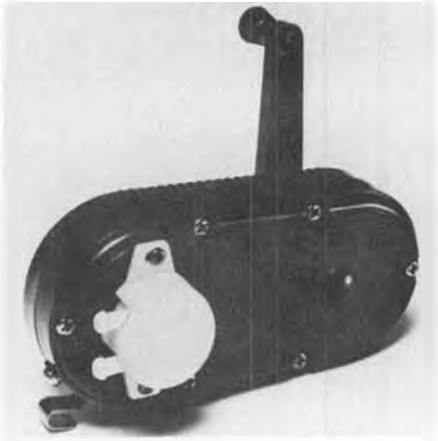
We would like to add that, as a long-time scaler, we're 100 percent in favor of such an organization, and hope that Bob will receive your support in getting it started.

In addition to the services listed

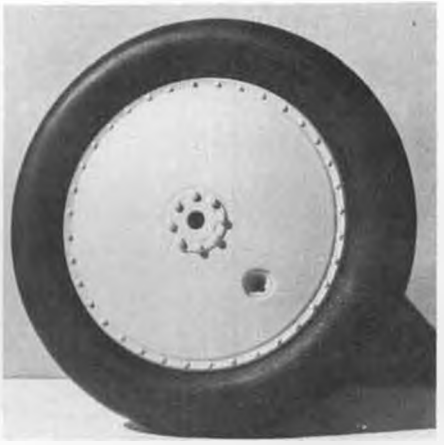
Continued on page 101

OVER THE COUNTER





Help the energy crisis! Use the MRC-IM manual fuel pump.



New series of Classic Era wheels from Williams Brothers, 3/4 to 5 inch diameter.

Ace transnmitter box for converting Mode I 2-channel Cox/Sanwa to Mode II.

• Ace R/C has once again succeeded in making life easier and more interesting for the 1/2A and smaller airplane fan. Not only have the folks at Ace introduced a Micro servo, available both assembled and in kit form, but they are making it available as an optional flight pack with their popular three channel Digital Commander kit. With the normal size components, this Commander is priced at $109.95; and only $124.95 with the Micro Flite pack, the airborne components of which weigh only 4.25 ounces.

The same servos, 100 mah batteries, and CMOS receiver are available in various combinations to be matched to existing transmitters. The airborne weights compare favorably with others available.

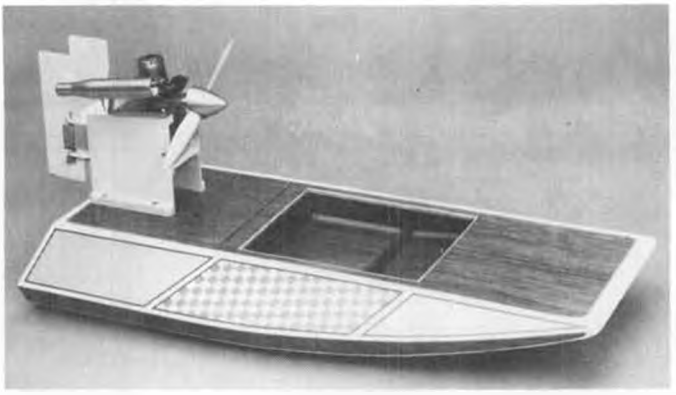
For the dedicated Mode Two (Elevator and Aileron/Rudder) on the same stick, Ace R/C has developed a conversion for the Cox/Sanwa two channel system, which is available only as a Mode One . . . elevator on the left, turn (ailerons or rudder) on the right. The conversion consists of an attractive vinyl clad case and a Dunham open-gimbal stick assembly, plus easy-to-follow instructions on how to transfer the electronics, all at an unbelieveably low price of $18.95. And if you don't think it is unbelievable, check on the price of the stick assembly alone.

IMPORTANT! As we know that most R/C manufacturers find it difficult to service and warranty modified equipment, we checked with Cox Hobbies about their policies on this matter. We

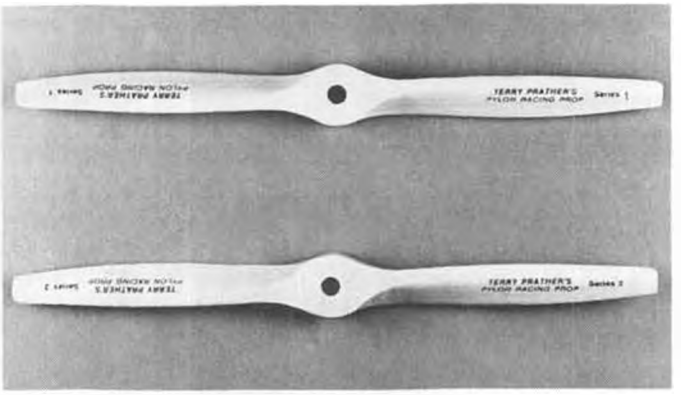
East Coast 12 Meter class boat, by Crump and Associates.

Large and small fuel line fittings from Fourmost Racing Products.

Diffraction Grating and Stick-On letters, numbers and tape, from Applied Design Corp.



Big Swamp Buggy, by Dumas, for .40 to .60 engines. Could also be powered by Astro Flight 25 electric.



New pylon racing props by Prather Products.

MRP's 1976 ROAR Nats winner is available ready-to-run, or as a chassis kit less radio and engine.

Ford Fancy Van in 1/12 scale electric R/C, by Bolink Industries. Unit also available with Porsche, Monza, Datsun and Ferrari bodies.

learned that such a conversion will completely void any warranty that might still be in effect, and that, warranty or not, they will not service such converted systems.

Ace R/C informed us that they are aware of this, and enclose a statement with every conversion to make the buyer aware of the possible problem, and in fact offer to accept it back for refund.

Thus, we unanimously agree that this is a worthwhile conversion only for those who have the experience to troubleshoot and service their own system. We ask that you not think unkind things about manufacturers who will not service modified products, as the same holds true outside the hobby industry. If it is a complex device, and it has been extensively changed, the manufacturer or dealer can not service it with ease, can not warranty any of it, and is one way or another, going to tell you to get lost. Amen!

* * *

You've got to have a way of getting it from the big container into the little container . . . fuel, that is . . . and the new MRC-IM Fuel Pump boasts efficient rugged design at moderate cost.

It is manufactured completely of high-impact fuel resistant plastic, and features an adjustable pump head for smooth operation. The knob on the end of the crank is free turning, for effortless pumping and easy start-up. A clip to hold the pump securely to the fuel can is included as an integral part.

Available at all hobby stores, only $8.98. From Model Rectifier Corp., 2500 Woodbridge Avenue, Edison, New Jersey 08817.

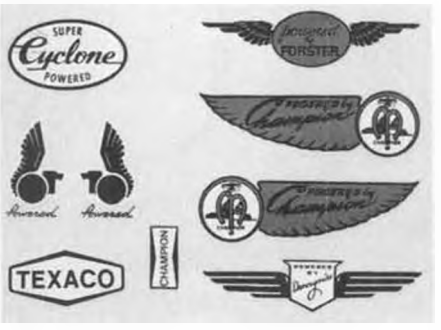
* * *

As most of the model power boating world already knows, K&B Manufacturing Company has acquired the excellent line of boat products previously manufactured by Marine Specialties, and currently has all of

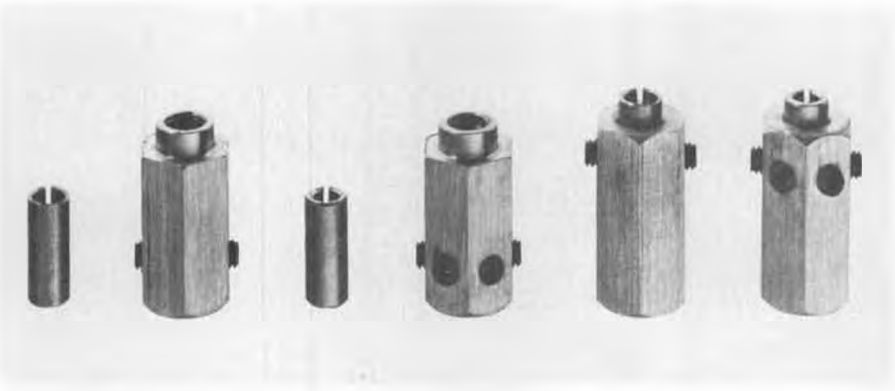
Vigilante II for .40 and .60 engines, by North American Model Enterprises (NAME).

Globee "Stinger" half-A starter, by Fusite Division, has built-in batteries.

BoLectric, a 6-cell electric car, four different bodies, by Bolink Industries.



"Old Timer" decals by Larry Vance.



Flywheel nuts and cable adapters by K&B Marine Specialties.

them available as K&B Marine Specialties. Some additions are starting to show, and more are planned.

The first to come to our attention is a selection of flywheel nuts and cable adapter assemblies. These are available for both 5/32 and 3/16 inch flex cable, and in a variety of thread designs: 1/4 x 28, 5/32 x 24, 5, 6 and 7mm, and special types for the K&B 3.5 and 6.5cc engines.

The Special Adapter Assemblies, are made in the standard version, using 2 set screws and priced at $6.00 each, and the super version, using 6 set screws, is $7.00 each.

The Super Adapter assemblies all use six set screws and are priced at $6.00.

For complete information, inquire at your nearest boating shop, or write K&B Marine Specialties, 12152 S. Woodruff Ave., Downey, CA 90241.

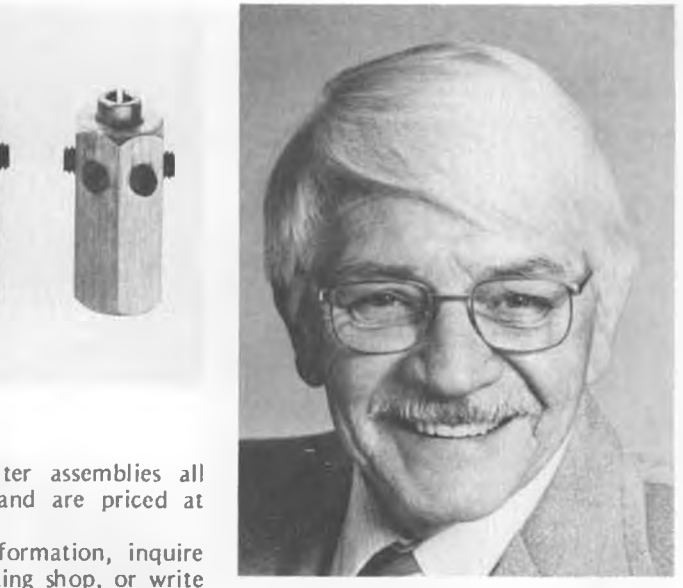
* * *

The Williams Brothers smooth contour and vintage type wheels have some new brothers. Or, if wheels are feminine, sisters . . . Persons, maybe? Anyway, there are now three types.

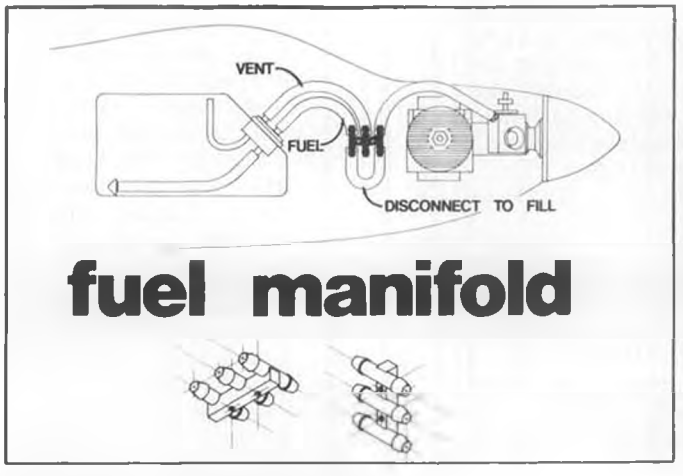
In addition to those mentioned, a complete new range of wheels as used by "Golden Age" aircraft of the 20's and the 30's are now available, in sizes all the way from 3/4 inch to giant 5 inch diameters. They are suitable for all types of scale models of this era; free flight, control-line, and R/C.

All three types are available from your local dealer; more information is available from Williams Bros., 181

Continued on page 64



John Hart, recently appointed V.P./Sales for Panavise Division of Colbert Industries.



Fuel manifold, by Fourmost Racing Products.

Half-hull plaque of Friendship Sloop by David Mainwaring.

Radio control books available from Polks.

Franz Kavan, Chris Blum, and Miss "Sigi" Kavan.

Tipsy Junior, built by Mike Proctor, York, England. Ship spans 54 inches, power is an OS .40, radio is 4-channel Skyleader, weight is 4-1/2 lbs. Built from 'Complete-A-Pac' Plan. Photo by Jim Moseley.

'REMOTELY SPEAKING...'

R/C News, by BILL NORTHROP

FCC or "FDD"?

In an almost unbelievable screw-up (or is it unbelievable?) it has been confirmed by quite a few modelers that the FCC has been issuing Class D licenses to numerous individuals who have applied for Class C licenses! In addition to being the wrong license, this is particularly ironic in that Class D radio activity is the number one scourge (pronounce that "pain in the butt"). to all radio control modelers operating on 27 mHz.

If you receive a Class D license, please let the AMA Frequency Committee know about it. Before sending it back to the FCC for correction, make a copy of it and send it to the Committee, care of AMA, 815 Fifteenth St. N.W., Washington, D.C. 20005, along with information as to when you applied, how long it took to get the license, and any other pertinent info. This will give the Committee proof of the trouble the R/Cers are having, and provide them with the ammunition needed for getting better service and consideration.

Remember, TFMF . . . Ten-Four My Foot!

LEGAL CARB?

John Kilsdonk has raised a question which brought about a recent ruling from the R/C Contest Board Chairman.

It seems that some QM Pylon racers have chosen to remove the Perry carburetor, a stock item on the Rossi .15 R/C engine, and replace it with an aluminum-bodied substitute which is being made and supplied for this purpose. It is claimed that the substitute unit has the same throttle bore and choke area as the Perry, but that it is less subject to damage from over-tightening the set screws that can come loose from vibration.

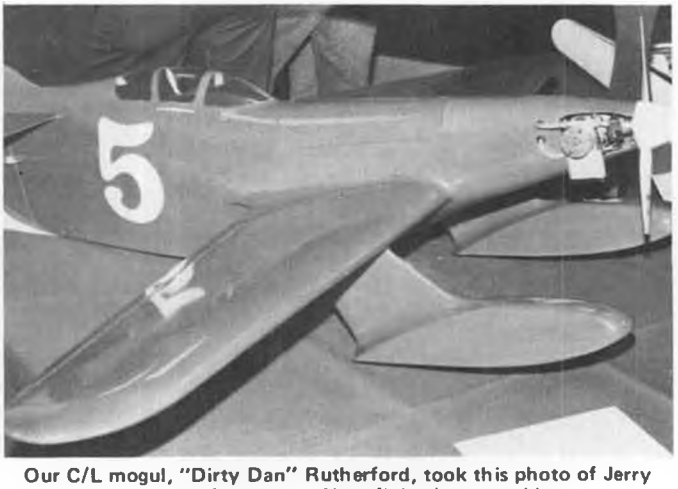
A check with NMPRA-QM President, George Zink, indicated that the aluminum-bodied substitute was legal as far as its specifications were concerned. However, we have ruled the unit illegal because the manufacturer has not submitted a statement to AMA declaring that (1) it is cataloged as a specific replacement for the Rossi .15 R/C, and (2) that there are more than 1000 of the units available through normal retail outlets.

THAT OLD PROBLEM

This anecdote may seem to be in the wrong department, at least until you read the last paragraph. So stick with it. The author is Frank McCune, Terrace, B.C., Canada, and we lifted it from a recent issue of the "Patty's Pinkie" newsletter, edited by Patty Sak, Escondido, California.

"I had just finished a Nobler last

Carl Vogt's first ever model airplane (he's 63!) is this Seasquare, built from MB plans. More information in text.



Our C/L mogul, "Dirty Dan" Rutherford, took this photo of Jerry Holcomb's unusual float plane. Note flying/water rudder.

Keith Buckham, York, England, built this Piper 'Cherokee' 180 from Veron kit. Span 56", 5 lbs., OS .35, Futaba. Moseley pic.

Peter Redman's Brewster "Buffalo" is scratch built, scaled from Profile book. Homebuilt retracts, 52 inch span. Moseley photo.

October, and, as expected, I was very eager to see how it would fly. Now since I fly by myself, I have rigged up a stooge to release my airplane when I pull on the little string. This is a very simple stooge that attaches via a length of string to a tailwheel or a hole in the tail of the airplane. Now mind you that this stooge has worked on hundreds of launches without fail, but that day last October was different.

"I started the engine as always, and began to walk out to the handle, when the plane began to taxi. I made a diving grab for the lines as they went by, but missed. All I could do was to watch the Nobler gain altitude at an alarmingly rapid rate. Naw, I said to myself, the lines will catch on some grass or something and the plane will come back to earth. After all, this type of an aircraft can't fly due to the lack of . . . well, you know it can't fly and that is that. As I was telling myself this, the Nobler was still gaining speed and altitude. I could see the control handle trailing out behind the plane.

"The plane was making giant circles about a quarter of a mile in diameter and was beginning to go OOS. I began to get very concerned whether I would ever see this aircraft again, when for no apparent reason, the thing began to make a power dive back towards the place where I was jumping up and down and muttering a few horrible words. Of course, when disaster strikes, there is always a crowd of onlookers there. As expected, the Nobler made a tremendous crash as it struck the ground at an 80 degree angle.

"As I came back to my car with an armload of scrap, one of the onlookers looked at me and said, "What happened?"

"I looked him in the eye and said, "I forgot to turn the receiver on." He knowingly nodded his head and we both turned and went our separate ways."

MODELING BEGINS AT 63

Just in case some of you guys, who have been around modeling since the Red Zephyr, might be entertaining the idea that its about time to hang up your

Big 2 inch scale Fairchild FC 2, scratch-built by Roy Hutchinson, Edmonton, Alberta, Canada. He's all for the 'low and slow' big classics. See text for his story.

glue tube . . . you better read through this letter to our Editorial Assistant, Eloy Marez, from Carl Vogt, of Callao, Virginia:

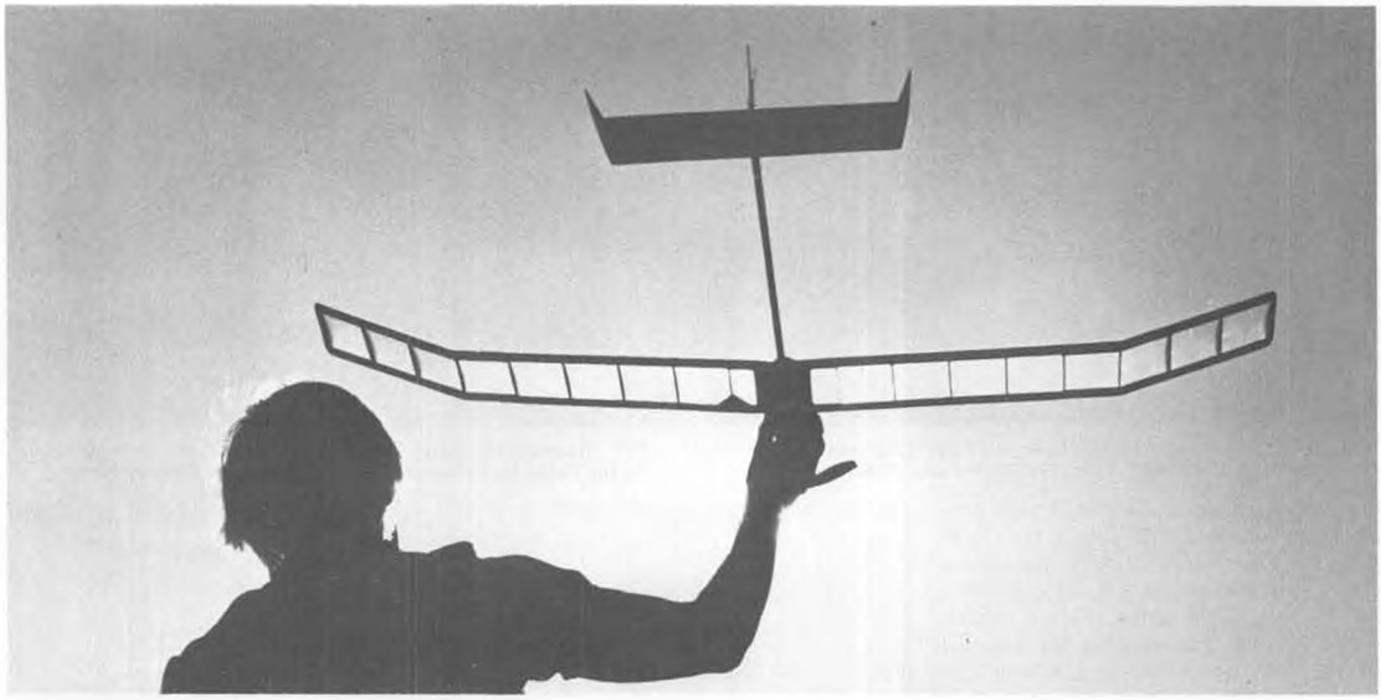
"Thanks for your note of last November concerning Seasquare's C.G. I finally got her together and have had 4 short flights, none since early December. Am awaiting decent weather to start again. Seasquare is the first model of any kind I ever attempted, scratch, R/C or otherwise. I knew very little about construction terminology, and less about techniques, but we made out.

"I found the bird tail heavy on the first two flights and almost lost her on a stall, but found water more forgiving than land! I placed a 3 oz. strip of lead sheet across the leading edge of the nose, which not only balances the plane, but acts as a protective shield if I bump into a pile or something!

"I am new at the game, and old enough to have known better than to start at my age (63), but fascinated none the less. I'll never be a hot shot, I know that, but look forward to many enjoyable hours putting around, with a little sport thrown in if reactions will allow. There are no clubs in my immediate area, but we do have a few

Continued on page 100

Another Peter Redman scratch-built, a 73 inch span Bristol "Bombay". The 9 lb. ship is a "floater" on two Enya .29 BB engines. Foam cored wing, flat dope over K&B resin. Moseley pic.



'Polliwog'

By JACK HEADLEY . . . Want to *really* relax with this hobby? Electric power assisted, single-channel R/C gliding is the way to go. It's also quite relaxing on the pocketbook. Try . . it . . . you'll . . . . . zzzzzzz.

• My interest in electric powered models actually started some (I won't say how many) years ago when one of the model magazines, I forget which, published the plans for an electric motor suitable for "round-the-pole" model flying. The main advantage here was, of course, that this permitted one to do a little indoor flying in winter (I used to live in a place that had a WINTER). Also, the power for the motor was run down the lines, hence the model didn't have to carry around any batteries, which was fortunate, as back in those days, batteries were batteries, and not the silver-plated M-and-M's we have today.

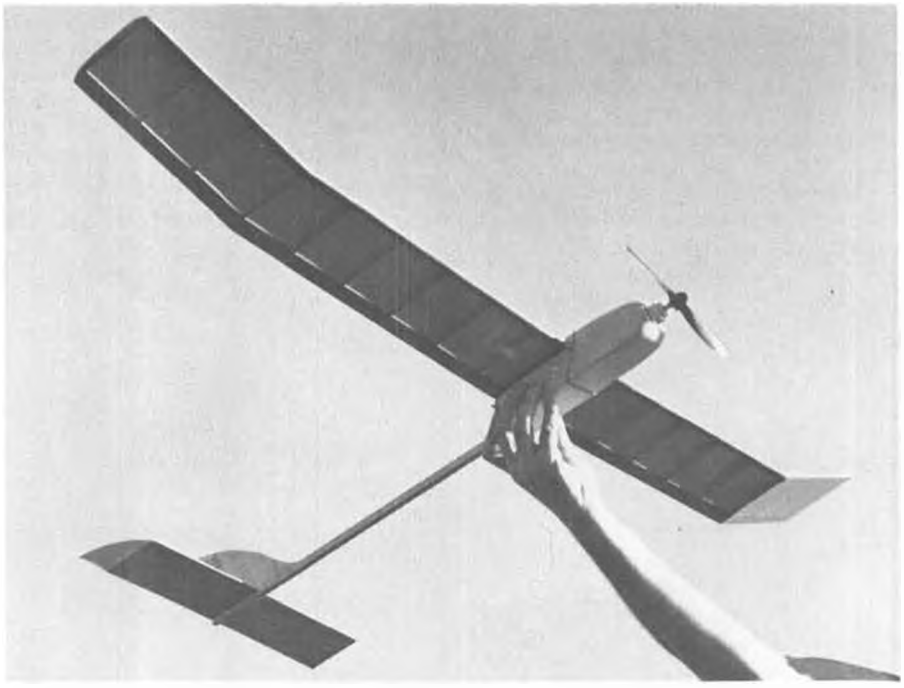
Needless to say, with all my skill, and despite having all the resources of a giant airplane factory behind me, the motor was never finished, and there I left electric models, and went on to making my own diesel engines, all of which, curiously enough, also seemed to be unfinishable.

My interest in electric power remained dormant for a long time after this. After all, with myriads of glow motors available for less than ten bucks, and with the then current reverse ideas about noise pollution (the noisier the better), there was little reason to even worry about an alternate power source. But times change, and ten dollars doesn't buy much of anything anymore . . . but it did buy me a Mattel Super Star Electric Free Flight model, and my interest in this type of flying instantly returned.

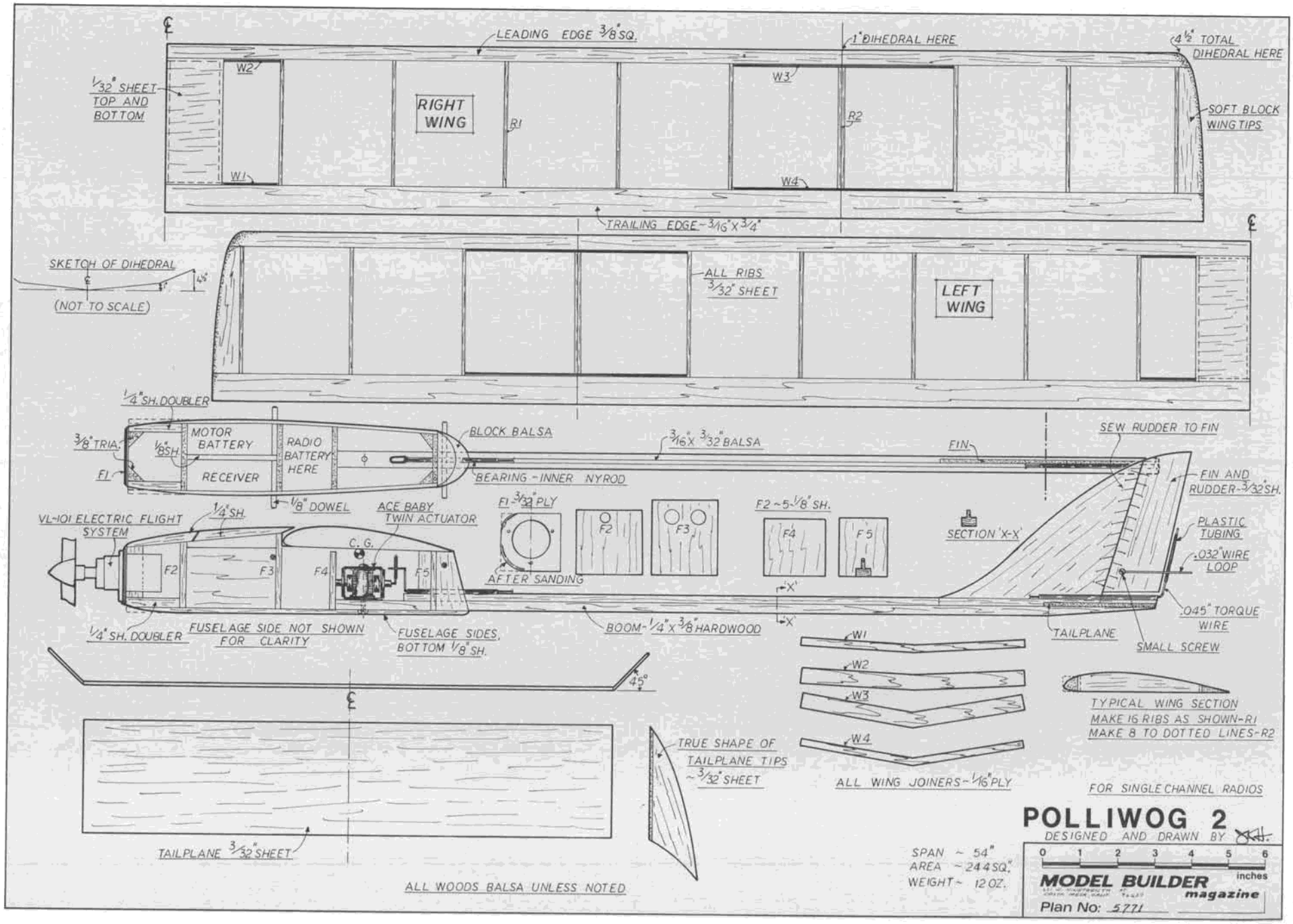
There's not much point in going over all the advantages electric power has in the present day modeling environment, as better authors than I have covered this topic in a much more interesting and thorough manner than I ever could. However, it does seem that these motors, with the added advantage of a plentiful supply of lightweight, rechargeable batteries, should be as much a part of the contemporary sport modeling scene as the .049 size glow engine.

I'm still not sure that the electric motor will ever replace the thoroughbred contest engines putting out 1 to 2 H.P., but who knows what lies ahead in battery design, maybe a nuclear power cell will appear!

But that's enough speculation for a while, let's get back to the Polliwog. After flying the Mattel unit for a few



Photos above, and at the top of the page, indicate the relative sizes of the "Polliwog", and its designer/builder, Jack Headley. VL Hytork electric motor and Ace single channel radio in pod.


LEADING EDGE 3/8" SQ.
1° DIHEDRAL HERE
4½° TOTAL DIHEDRAL HERE
1/32" SHEET TOP AND BOTTOM
W2
W1
RIGHT WING
R1
W3
R2
W4
SOFT BLOCK WING TIPS
TRAILING EDGE ~ 3/16" X 3/4"
SKETCH OF DIHEDRAL
4½°
(NOT TO SCALE)
ALL RIBS 3/32" SHEET
LEFT WING
1/4" SH. DOUBLER
3/8" TRIA.
1/8" SH.
MOTOR BATTERY
RADIO BATTERY HERE
RECEIVER
F1
1/8" DOWEL
BLOCK BALSA
3/16" X 3/32" BALSA
FIN
SEW RUDDER TO FIN
BEARING - INNER NYROD
FIN AND RUDDER - 3/32" SH.
VL-101 ELECTRIC FLIGHT SYSTEM
1/4" SH.
ACE BABY TWIN ACTUATOR
C.G.
F2
F3
F4
F5
F1 - 3/32" PLY
AFTER SANDING
F2 ~ 5 - 1/8" SH.
SECTION 'X-X'
PLASTIC TUBING
.032" WIRE LOOP
'X'
.045" TORQUE WIRE
1/4" SH. DOUBLER
FUSELAGE SIDE NOT SHOWN FOR CLARITY
FUSELAGE SIDES, BOTTOM 1/8" SH.
BOOM - 1/4" X 3/8" HARDWOOD
TAILPLANE
SMALL SCREW
45°
W1
W2
W3
W4
TYPICAL WING SECTION
MAKE 16 RIBS AS SHOWN - R1
MAKE 8 TO DOTTED LINES - R2
TRUE SHAPE OF TAILPLANE TIPS ~ 3/32" SHEET
ALL WING JOINERS ~ 1/16" PLY
FOR SINGLE CHANNEL RADIOS
TAILPLANE 3/32" SHEET
ALL WOODS BALSA UNLESS NOTED
SPAN ~ 54"
AREA ~ 244 SQ."
WEIGHT ~ 12 OZ.
POLLIWOG 2
DESIGNED AND DRAWN BY
0 1 2 3 4 5 6 inches
MODEL BUILDER magazine
Plan No: 5771

When the slope wind is up, save the batteries the batteries for the next calm period! If flat soaring, use power to get up for thermalling.

weeks, I tried to repackage it a little . . . anyone who's used one of these motors will know how bulky they are . . . but even with a drastic chopping and channeling job, it still came out quite large, so I began to look around for some other unit.

By a curious coincidence, the VL company had just placed its Hytork system on the market, and this seemed to be exactly what I wanted. And indeed it was, a small neatly packaged motor/gear-box assembly with separate battery pack and switch unit, ideal for the small type sport model that I could fly in my neighborhood area. I bought one quickly, then designed the smallest fuselage I could around this motor and battery, together with the Ace single-channel receiver/actuator. This resulted in a pod and boom design that was labelled "Polliwog", for rather obvious reasons. A simple wing and a "Vee" tail unit completed the design. This latter item was a BIG mistake, as the flapping frequency of the Ace actuator was almost the same as the torsional frequency of the tail boom, and the tail unit would occasionally go into violent oscillations. This did tend to make some flights more exciting than others, but it was obvious that it was just a matter of time before the tail end would part company with the rest of the model. So, it was back to the drawing board and on with "Polliwog II", which was fitted with a more conventional tail unit.

The basic idea behind both of these models was to produce a powered glider, something to take to the slope and switch on the motor if the wind failed. If the wind was OK, then the prop was removed and replaced with a big spinner to protect the engine. However, the VL company has recently introduced longer life batteries (4 minutes, rather than the original 40–60 second types), and this lets us fly the model mainly as a power model, with some thermal soaring capabilities.

By now you're probably wondering if I'll ever get around to discussing the construction, and I will, after this commercial message . . . Try electric flying, you'll like it! . . . Now, on with the "stick item A to flange B" bit.

WINGS

When I began to draw the final plans, I intended to show only the right wing, assuming that the other wing could be built on the back of the plan, but after a little sketching I could see that both wings could be included if I squashed thing up somewhat. This accounts for the rather cramped fuselage drawings, but I think that showing both wings will compensate for this.

As I've talked about the wings so much, we might as well begin the construction with these; and the first thing to do is to get good pieces of wood for the leading and trailing edges. With this kind of "sparless" construction, a little more time than usual should be spent selecting the wood; strong, straight grained balsa, not too heavy is ideal. The wings are made initially in two pieces, a left and right hand panel, so first pin down the trailing edges on the plan, then trim the upper side of the leading edge to shape, and pin down.

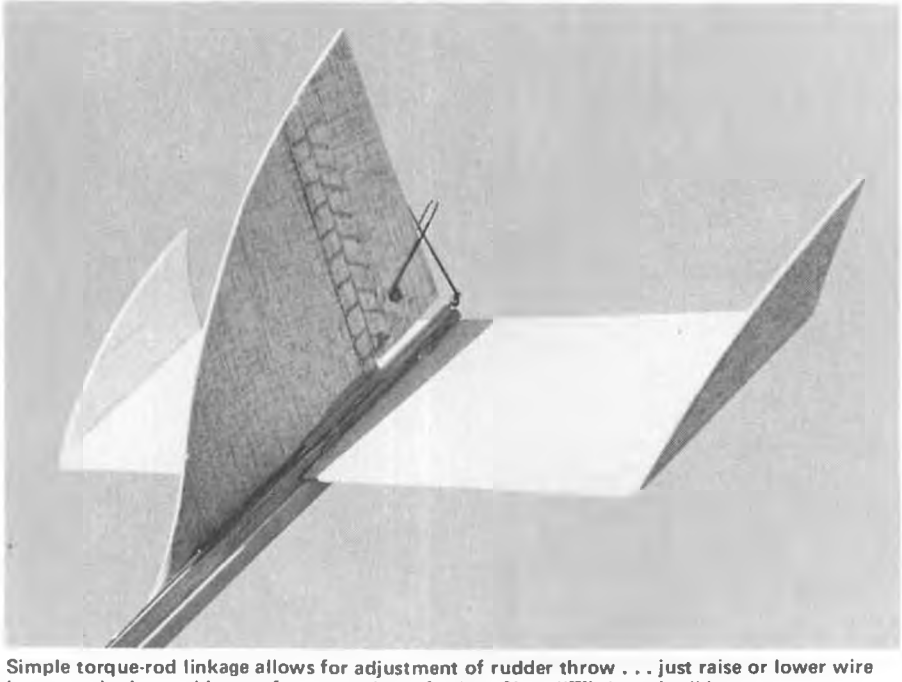
Cut out enough R1 ribs for the whole wing, slightly too long, then trim each individually, and cement into place at all the R1 stations. Cut all the wing joiners from 1/16 inch ply while this cement is setting up. Separate the wing tips from the inner panels now, and trim the edges of the wood to the correct bevel before cementing them back into place with the W3 and W4 joiners. Install the R2 ribs (which are cut down R1's) at the dihedral joint, then repeat the whole operation at the center-section, this time using the W1 and W2 joiners. The wing tips, cut from soft balsablock, can now be glued on, then the leading edge is shaped to the correct contour, and the whole wing is sanded. Adding the 1/32 sheeting at the center-section completes the wing construction. A final pass with the sanding block, and the wing is ready for covering.

Solarfilm was used on the original, transparent of course, and this gives a very durable covering. I have also used tissue on this type of wing. This comes out lighter, but you have to spend more pre-flight time sticking little patches all over the wing.

FUSELAGE AND TAIL UNIT

Construction of the fuselage/tail unit begins with making the tailplane. This is cut from a flat sheet of 3/32, as are the tailplane tips. Note the grain direction for the tip pieces. Bevel the ends of both of these tips, and the tailplane, before gluing them together at the 45° angle. Sand off all the rough edges now, then glue this unit to the 1/4 x 3/8 hardwood boom. Cemented to the top of this hardwood boom is a strip of 3/32 x 3/16 hard balsa, this being cut away at the back to run over the tail-plane. Be sure to glue this stiffener in the center of the boom, and make doubly sure that the boom is flat when doing this operation. Make the fin and rudder from 3/32 sheet, sand lightly all over, then round off the corners. The rudder is hinged to the fin by Figure "8" thread hinges, these being the lightest, free-est (and cheapest) type available. If you haven't done this before, the first thing to do is to drill a line of 1/16 dia. holes along both the fin and the rudder (see plan), then, using carpet thread, literally sew the rudder to the fin with a figure "8" pattern. Put a drop of cement on the thread at each of the holes and smear it around a little. This helps to keep the

Continued on page 69



Simple torque-rod linkage allows for adjustment of rudder throw . . . just raise or lower wire loop attached to rudder; up for more, down for less. Note "T" shaped tail boom.

Line-up of some of "The Tucker Boys'" choppers at San Diego flying site (l to r): Shrike conversion, Alouette, and two Jet Rangers.

CHOPPER CHATTER

By JOHN TUCKER

MORE ALOUETTE II HINTS

In the October '76 issue of MB, we spent a little time talking about how to "smooth-out" the vibration in the Alouette II helicopter by adding cross-braces to the fuselage and balancing the swash-plate. During the ensuing months and some three or four Alouettes later, we have found additional ways to clean up the little jewel to make its' reliability even better.

In spite of balancing the swash-plate with an added weight or extra arm, we find the inherent system of operation still produces a "vertical bounce" due to the one-sided connection to the stabilizer bar. This same characteristic is especially noticed in the Schluter Heli-Baby, where the swash-plate is secured only by a spring. The cure is very simply accomplished by adding another L-shaped lever arm to the stabilizer bar (on the opposite side of the stabilizer bar and pointing in the opposite direction), and connecting this lever arm to the other side of the swash-plate. Now, the entire control input to the stabilizer bar is symmetrically balanced and the swash-plate is literally held down by the pair of connecting push-rods attached to the stabilizer bar. The added expense of an additional lever arm and push-rod is more than justified by the smooth performance obtained, and is highly recommended for all control systems using the single push-rod connection.

Probably the greatest source of vibration in the Alouette is the cabin body pan. This plastic tray carries the entire weight of the servos, radio, battery, gyro, etc., and there is a long moment-arm at work which produces a strong low-frequency vibration. Our first efforts to stop the vibration were the addition of long struts or braces, running from the transmission box down to the front end of the cabin floorboard. The method worked well, however, we never found a suitable method of attaching the struts on each end, and they would come loose. Nor did they look very good, what with the canopy cut out to accommodate them!

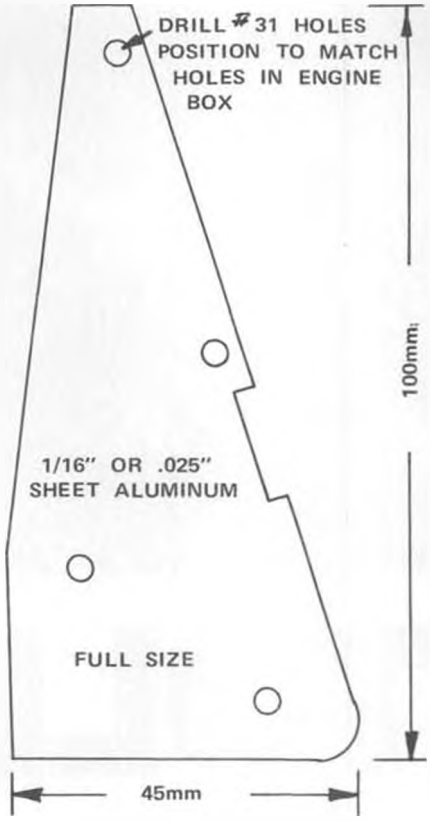
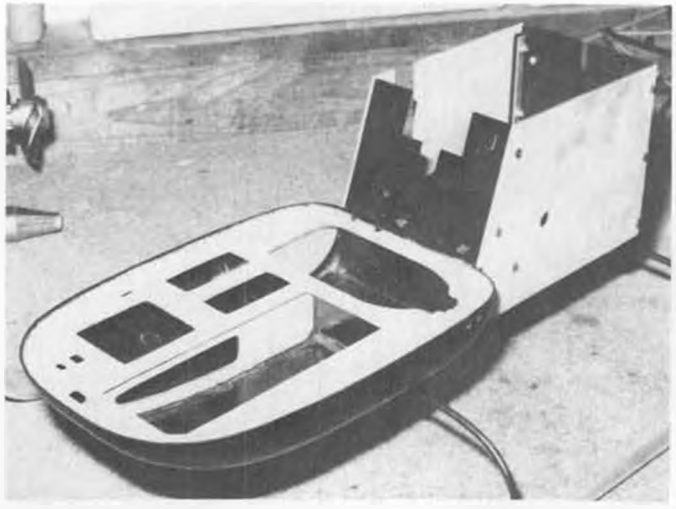


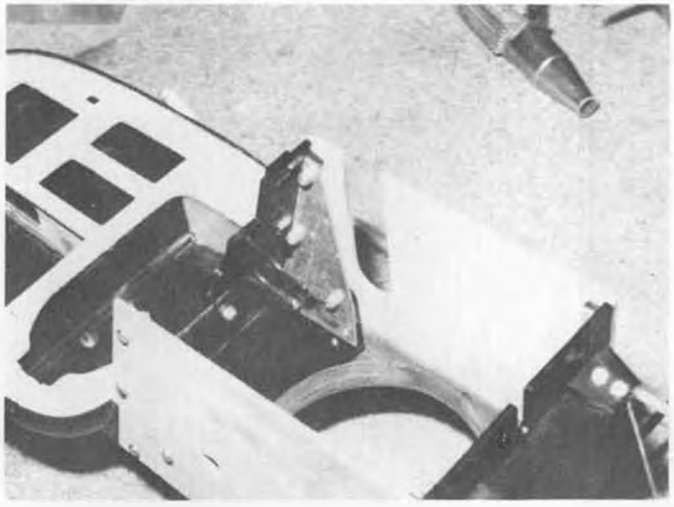
PLATE TO REINFORCE BODY PAN ATTACHMENT ON ALOUETTE II. (trim to fit)

The ultimate answer came when we examined the large photograph of the chopper which graces the top of the purple box in which the kit was packaged. A close look revealed that the original prototype was considerably different than the production model. Immediately apparent was the "full-length" cabin floorboard which must have added considerable strength. It was

Continued on page 93



New Allouette cabin floorboard described in text. Made full-length to strengthen body. Note formers added under floor.



New floorboard from another angle. This also shows one of two aluminum plates added to reinforce body pan attachment.

TOLEDO R/C EXPOSITION

• The Toledo R/C Exposition, in its 23rd consecutive year, easily maintained its status as the greatest model trade show on earth. Approximately 185 exhibitors, including around 12 special interest organizations, occupied 260 booths in the huge Toledo Sports Arena, and 21,000 paying spectators, an increase of about 20% over last year, poured through the building. At most any time during the 3-day show, there was a double row of spectators at nearly every booth in the two main exhibit areas.

Every year there seems to be some kind of a trend that makes itself known to those who care to make such an observation. We would have to say that this is the year of the extremist. On the one hand, there were many new small radios, with the new postage stamp size servos, and numerous scale, sport, and sport scale models in the .020 to .049 size bracket to use the tiny R/C units. On the other hand (shoulder would be a better word!), the numerous quarter-scale and larger models, if for no other reason than their enormous size, were quite obvious. Where helicopters and gliders dominated the static model exhibit areas in the past few years, huge scale models now seemed to have taken over . . . and not only in the static displays.

A company by the name of Midwest Industries, Inc. (another Midwest to confuse the issue, with Midwest Model Supply and Midwest Products Co.!) displayed beautiful big P-51's and a biplane (was it a Waco?), both to use its new belt-drive reduction unit with a .61 engine.

Ron Shettler was showing the fast-becoming-famous Quadra engine, and a fiberglas bodied "Could be Scale" sport model designed around it. A Pilatus Turbo Porter, made mostly of sheet aluminum and spanning 10 feet,

Pylon racers and gliders on display. Hard to select the best . . . they're all good.

Mouth-watering military scales from all ages. Not many in the kit rut here. Majority of display craft are scratch-built.

These BIG Pitts were two of many giant size scale ships on display. Sauger's big winning Fairchild 24 just visible in lower right corner.

And this is only half of it! This main arena portion of the Toledo Sports Arena contained less than half of all the exhibitor booths, but also included the tables for the fabulous static displays.

Cabin interior of Steve Sauger's "Best of Show" winning Faichild 24. Photo can't do it justice.

was displayed by Charles Paz, of Model Hob Enterprises, San Juan, Puerto Rico. And of course, Bud Nosen's large scale models, already well-known, were on display.

The major draw-back to the large models has been the power source. The belt-drive reduction units shown by Midwest Industries, DuBro, and even the electric motors of Astro Flight, provide power that is legal in AMA competition. While the 2 cubic inch Quadra, the 1.5 cubic inch four-cylinder inline D&B, and the 1.8 MRC-Suevia can only be used for sport flying at the present, there could be changes if the popularity of these biggies continues to grow.

Being an exhibitor ourselves (Uber Skiver precision stainless steel cutting tools and Baamco Ultimate Air Brushes . . . plus **Model Builder,** of course!), our time was pretty well taken during the show, and we couldn't closely study all of the new products. However, there were some items that stuck in our mind. Those not mentioned this month, will come up later as time and space permit. Our catalog and brochure collection is over 6 inches thick!

K&S Engineering has added 3/4 inch (long dimension) streamline aluminum tubing to the existing sizes ranging from 1/4 inch on up. This great strut material comes in 36 inch lengths. Incidentally, K&S also carries conventional round brass and aluminum tubing in 36 inch lengths.

Robart had several interesting items; a single stick mixer for use with Mode 1

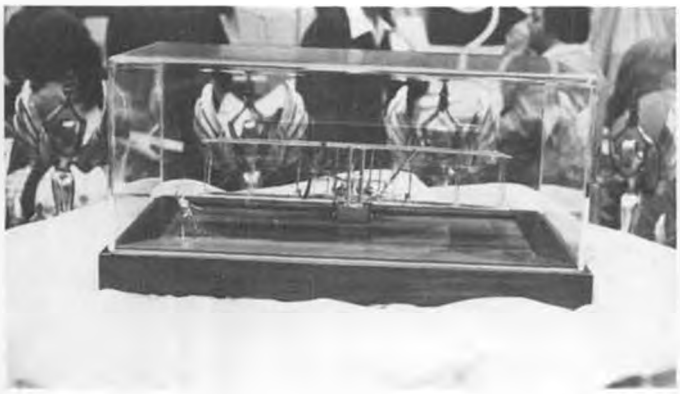
Mick Lasker, Livonia, Michigan, built this OS Max .30 powered 1937 Denny Jr. Tissue covered, 3 lbs.-12 oz.

Laddie Mikulasko, Hamilton, Ontario, Canada (Don Quixote, Dec. '76 MB), designed and built this unusual "Northern Star".

Bob Vail, Gates Mills, Ohio, built this excellently detailed Caudron G-3. Wish we had the turnbuckle consession!

Steve Sauger's secret . . . he doesn't build a model. He has discovered a way to shrink a full-size airplane down to whatever size he wants!

The trophies awarded at Toledo this year were among the best looking of the type that we have ever seen. They'll never see an attic!



The "Best of Show" award for the 1979, 25th Anniversary Toledo Exposition, will be this $750, 24 karat gold and silver Wright Biplane!

"Geez, Bill, how come no ailerons!?" S.E.5 has 3-channel Cannon Super-Mini radio.

"Dave Platt is back with Dave Platt Models, and I are him!"

"Not unless you give me one of yours!" Dick Tichenor hands out R/C Modeler magazines.

"Stick your finger in here, and find out for yourself!" John Hart explains Panavise.

type two-stick, two-channel transmitters, such as Futaba and Cox/Sanwa. How about Corsair, P-40, Hellcat style 90° rotating retracts for 40/60 size models? Also Half-A scale retracts and Half-A Super Pumper. And water-tight output bushings for waterproof radio compartment installations in boats.

House of Balsa could also be called "House of Half-A". The .049 powered kit line now includes; Pietenpol, ME-109E, Chipmunk, P-47 Thunderbolt, Bonanza, P-51D, P-39 Airacobra, and FW 190A. Kit and instruction quality is excellent.

The new Smith Miniplane kit by Sig, for .40 to .45 engines, should be one of the company's best sellers. Great for Sport Scale, IMAC Aerobatic competition, and just plain fun.

Lou Andrews has blown up his famous H-Ray . . . not into little pieces, but into

M.A.N.'s Art Schroeder photos Sauger's Fairchild 24, best of show winner.

Ignition version of the four cylinder D&B engine, 1.5 cu. in., 4-stroke, runs well.

Four-to-one belt reduction drive by Midwest Industries uses friction rather than tooth drive.

Canadian Quadra engine uses 20-1 gas and oil, magneto ignition, no radio interference.

Jerry Klouse and Jim Simpson (l to r), founders of North American Model Enterprises, Inc., down Texas way.

New small receiver and battery pack rest in Phil Kraft's palm, along with a KPS-14, for size comparison.

MB's Pylon Potentate, Jim Gager, takes a turn in the booth. Enjoyed fielding questions.

Bob Murphy, of Shamrock Imports, where the O.P.S.es come from.

"It's a bird . . it's a plane . . it's Hobby Lobby's Mr. Superkote!" He flies. MB's Anita N. walks.

a larger size, 56 inch span, for .19 to .45 engines. It features the well-known Aamco Box-Lok method of construction which keeps things in line during assembly. Ask for the Big-H.

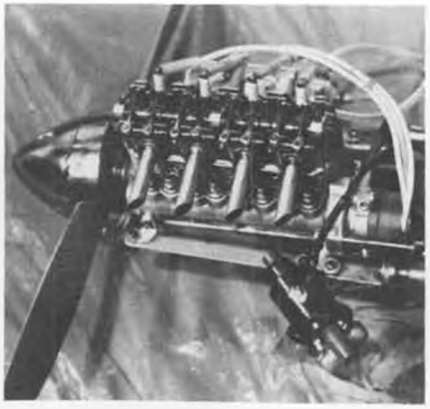
Another new Andrews design, and kitted by his Aamco company, is the "Quikray-500". Obviously, it can be used for Quickie 500 pylon racing, in addition to all around sport flying, and for pattern.

Tech Serv is adding two new radio systems to the RS line, aimed at the competition pylon and pattern flyer. The XRS Racing is a two-stick 5-channel system with a single rate switch on aileron and elevator. Allows additional control, if desired, after engine cuts, to compensate for diminished speed.

The XRS Pattern is a two-stick six-channel system with a rate switch for aileron (or your choice of alternate) and a roll button. Both systems feature cross-trimming (aileron and elevator trims are on left side of transmitter so you can trim without releasing aileron or elevator control). Top of transmitter case is sloped for better gadget switch access and antenna attitude. Sticks are new; feature smooth, accurate operation, two different size knurled knobs, and adjustable height. Mylar marking strips next to trims, allow you to mark trim settings for different aircraft.

A new 3-channel system for Half-A's, the RS-3-LW, has an airborne pack weighing less than 5-1/2 oz.

Sonic-Tronics has a new field box power panel that does everything but brew a cup of tea, including solid state glow-plug ignition circuit, glow-plug condition test, high-intensity "Fireball" indicators for system status, no adjustments required for various 1-1/2 volt plugs, heavy duty binding posts for electric starter connection, 3-position fuel pump control switch (locks "on" for emptying model tank, center "off",

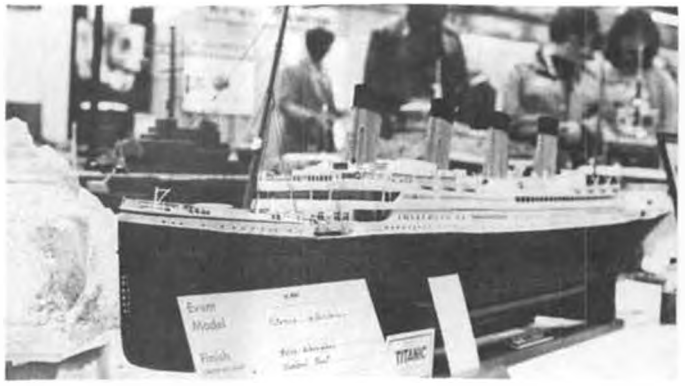


Another view of the D&B four-cylinder OHV ignition engine. Total disp. is 1.5 cu. in.

Ron Murray of Royal Products, Denver, Colorado.

"This guy asked me what you do with a model rectifier, so I said . . ." MRC's Roy Gelber.

"Miss Vernors" Unlimited hydro by Ronald Treichel (sp?), wood construction, with Hobbypoxy paint.



Bob Cline's "Titanic" was displayed complete with iceberg! Humbrol paint over balsa and fiberglas. No material info on the iceberg.

Vintage Aero's Phil Koopman, at the Polks booth. D.H. 6 model.

and "dead man" position for filling).

Royal Products' extensive line of scale R/C kits, about 30 at present, plans to add the following; ME-109, Beechcraft Baron, and . . . the B-17 Flying Fortress!

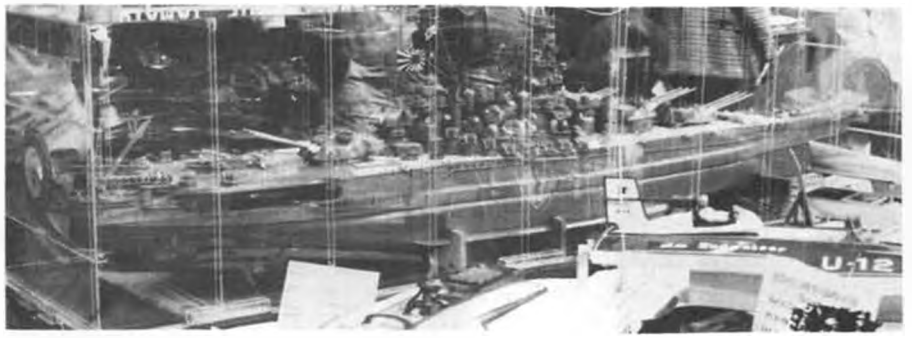
Bob Smith Aircraft will soon feature 3 pattern aircraft, all with epoxy fiberglas fuselages. Adding to the 90% fiberglas T2-A, and the Patricia, is a soon-available T2-40, a .40 powered version of the T2-A.

Due for delivery soon, is the new Super-Mini radio system by Cannon. Featuring the most recent super-small servos, the all-up flight pack weights run from 2.6 ounces for one channel, up to 5.0 ounces for four channels!

Having recently taken over the Marine Specialties line, K&B has already prepared a catalog of its marine items,

Great Lakes ore carrier, built by the yard, by George Lokinski, Saginaw, Michigan.

Bob Rothert, Toledo, Ohio, built the schooner from scratch.



Loren Zimpfer, Anna, Ohio, received special award for this fabulous model of Imperial Japanese Navy battleship "Yamato". Superbly detailed and documented.

Midwest Model Supply's Jerry Nelson , founder of pylon racing and IMAC.

Cox/Sanwa's radio man, Cliff Weirick, former AMA Prexy and National R/C Champ.

"Rubber power stick-n-tissue shall overcome!" Joe Fitzgibbon, Golden Age Reproductions.

Norm Cassella and Bud Atkinson discuss the forming of a national scale organization.

During show, word had come back that Skip Miller won R/C glider World Champs with Lee Renaud's "Aquila" design. Used Sanwa too!

The man behind Semco, Jim Semonian.

which includes motor mounts, rudder assemblies, outdrive assemblies, struts, Oilite bushings, Teflon bushings, drive shafts, flex-cable drivelines, water-cooling heads, water pick-ups, even a pair of folding scissors!

K&B's engine line shows 7 new models; .19 and .21 front rotors, a Schnuerle-type .29 for F/F and C/L, a Sport .35 R/C, a Schnuerle-type .35 for C/L Combat and F/F, .40 R/C front rotor for scale, pattern, and ducted fans, and finally, a .40 front rotor for F/F, C/L and pylon racing.

Don Goughnour offers a finely built glider winch, the Winchmaster, which is available as a complete unit, or in kit form, and/or in separate parts (kit, drum only; turn-around pulley). Unit

Continued on page 62

Charles Paz and the sheet aluminum Pilatus Turbo Porter, from Puerto Rico.

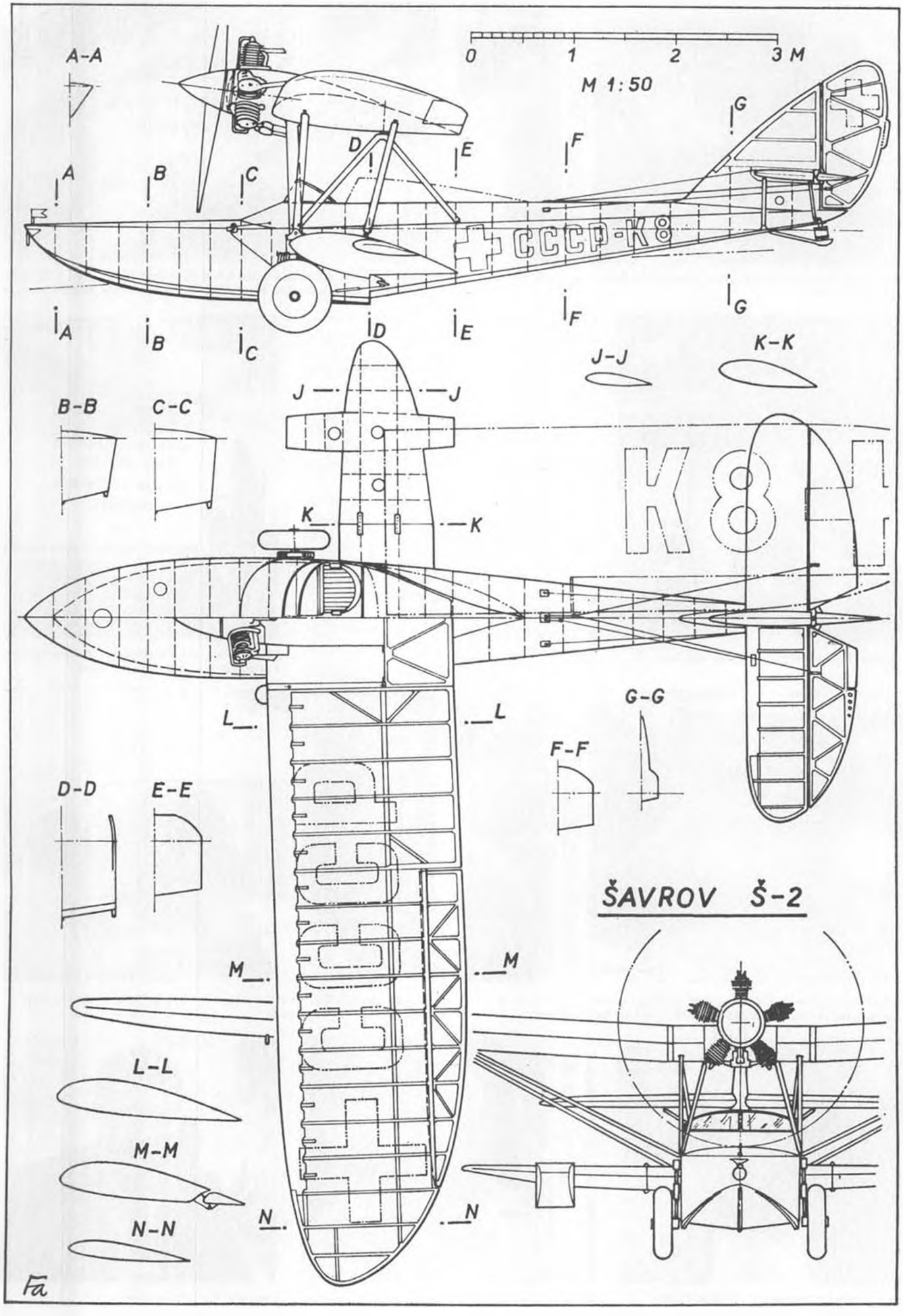
Pat Patton and Anita Northrop try to keep up with the mob as it streams past the Model Builder booth. Stickers everywhere!

Hobbypoxy's Bev Smith chats with Flying Models' (l to r) Bob Hoeckele and Jim Boyd.

Don Typond, representing Dumas Boats.

Gary Preusse, G and M Models, boating goods.

Octura's Tom Perzentka.


ŠAVROV Š-2
M 1:50
0 1 2 3 M
CCCP-K8
A-A
B-B
C-C
D-D
E-E
F-F
G-G
J-J
K-K
L-L
M-M
N-N

England's Noel Barker built these models lined up at Cranfield. The three American designs are; Maxwell Bassett's "Miss Philadelphia", Frank Zaic's "Miss America", and the Kovel and Grant KG-1. Name of English design escapes us. Photos by Alan England.

PLUG SPARKS

By JOHN POND

• Well, it's tough enough in this O/T game to get current news, but when you get scooped by your own magazine, things are coming to a pretty pass.

The columnist had intended to have the lead column on the All-Electric Contest at Mile Square, sponsored by Bob Boucher (AFI) and **Model Builder** Magazine. However, an excellent article appeared in the March issue, giving the results and photos. Interestingly enough, when the writer heard of this new contest for old timers, he immediately constructed two free flight (yes, I said free flight!) models for the meet. Here was a brand new old timer event, and would you believe it, the only old timer was Gene Wallock! What the heck is going on here, men? Everyone hollars because free flight is not being pushed, yet when something new and interesting comes along, no one shows. Only one comment, you missed some real fun!

Despite the report on the All-Electric Contest, all is not lost. The writer has just received a most interesting follow-up on electric flying from Frank McKay. Most readers will remember Frank from his introduction in the June 1976 **Model Builder** issue.

Frank starts off by saying that he finds that Top Flite 6-4 wood props work best on .020 Astro Motors. His test stand, a 24 inch Sig Cub using 4.8 volts at 100 ma and all up weight of 5-1/2 ounces, really moves out. Estimates put speed at 40 mph plus.

Seems like every time the columnist turns around, there is always something new in electric coming down the pike. Polks has an electric twin scheduled for release, Paul Bender is going to market several electric powered items, notably the Mabuchi line, with some neat airplanes. It will only be a matter of time until we see some real breakthroughs in electric power. The future indicates that DC power plants of about

Cliff McBaine, La Habra, Ca, considers Toft 1939 Stout Trophy Winner to be the best of all rubber powered flying models.

Another view of two of Noel Barker's models. Is that streamliner the Mercury IV?

Old photos always show interesting cars too. Look at that lovely Model A Ford! It's the spring of 1937, and Melvin Yates is about to fire up the Forster 99 in his 10 ft. cabin model.

the same size and weight of an Astro 05 will be swinging a 9 inch propeller at 18,000 rpm, developing a quarter horsepower on 4.8 volts, and fly a 50 inch wingspan model at 50 mph. Sounds fantastic? It's not far off. How about considering built-in gear boxes with three speeds plus reverse for short fast stops on hot landings? Doesn't that boggle the mind!?

McKay points out that the present state-of-the-art is fairly new to most modelers. A curious thing about electric power is that (like diesel power) as you go up in power so does the weight penalty of batteries. At present, the small models, like Hal Covers "Electrolite", using a VL Products Hytork 48 on 4.8 volts at 5 to 6 ounces, will actually V.T.O.

In experiments with electric power, Frank feels those who are just starting would do well to use the Astro .020 or the Astro 05. You can work your way up to the larger Astro 15. However, the new Astro 010 should be just the thing for those peanut scale models. Doesn't that small motor idea turn you on?

While on the subject of small power plants, one that seems to have been neglected is the Alpha II. This motor features direct drive and geared units. The direct drive unit weighs only a scant 1-1/2 ounces and will fly models from 18 to 40 inch span (How about that for 020 Replica size models?) Weights can vary from 4-1/2 ounces to 32 ounces. Usable voltages run from 2.4 volts (2 nicads) to 8.4 volts (seven cells).

These figures also apply to the geared unit as well. One can use 18 to 24 inch span models with this motor. To digress from old timers, the motors will turn 14,000 rpm with a Cox 4-1/2 black prop, which indicates a definite possible power plant for 1/2A pylon racers. McKay is presently building up an 020 size Diamond Demon using Ace R/C to keep from losing the model. Preliminary experiments with a 24 inch Sig Cub with all up weight of 4-1/2 ounces show very definite fly-away tendencies. As Frank sez, the fun is charge and fly, charge and fly . . .

Anyway, if you have waded through the column this far, we have an important announcement to make in connection with electric powered flying.

At the SAM Champs, Bob Boucher, of Astro Flight Inc. (AFI), will offer trophies and prizes for the following electric events:

(1) O/T Astro .020 power featuring 25 second motor runs and three minute flights (three flight total).

(2) O/T R/C with any electric power. Two minute motor run, ten minute flights. Best total of three wins.

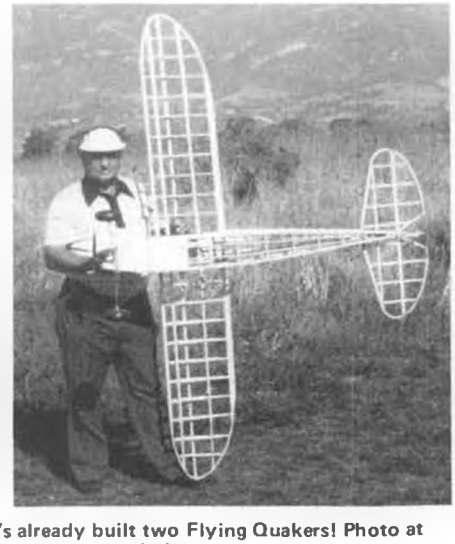
According to Tom Bristol, R/C C.D., the electric power event will be run on Thursday, along with the Texaco and .020 Replica events. Tom is hopeful the Texaco Events won't tie up the frequencies for long periods of time.

Gene Wallock, the Free Flight Director, has indicated he will announce the day for the electric powered .020 Event, before or at the Annual Bean Feed. So gettum ready, men!

ENGINE OF THE MONTH

Thanks to Bill Caldwell of Dallas, Texas, I am finally able to oblige my Czech friend, Bill Krecek, and provide a writeup on the Trojan engine as manufactured in the Los Angeles area by Hal Atkins.

The Trojan engine, although good for its day, was one of the engines that got swallowed up when the Ohlsson 23 made its appearance. As noted previously in the Ohlsson article, the 23 was such an easy starting small motor, it just naturally ran (a pun!) everyone off the market.



Leo Hopper is in a rut. Only forty years, and he's already built two Flying Quakers! Photo at left taken in Denver, May 1936, total cost with Brown Jr. was $29.89.

Leo's current Quaker, built from an M&P kit, Merco .49, Kraft radio, and Monokote covering. Trap door in fuselage opens and closes, permitting parachute drops, leaflets, etc.

Ed Lorenz, M.A.N.'s R/C Editor until 1965, built this Berliner-Joyce (MB Feb. '77) in the winter of'35-36, his first gas model. Power was a Brown Jr. that still runs today.

Very realistic crash after ticking a barbed wire fence. It flew again later.

However, in examining the Trojan engine, which had roller bearings, here was a neat little engine. Claims of one pound of thrust using a nine inch prop were not to be sneezed at. A 12 ounce flywheel (for boat operation) would assure a range of 500 to 15,000 rpm.

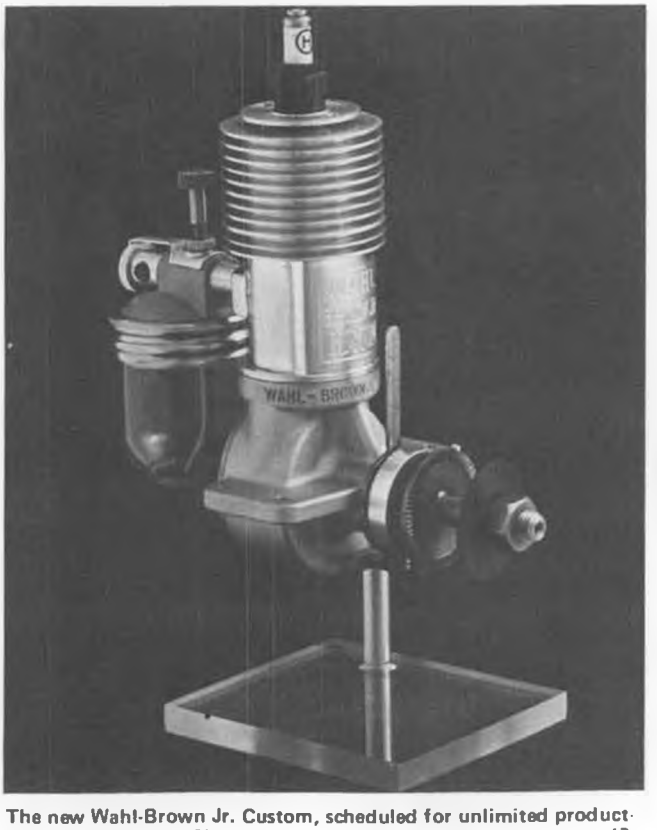
Like all the predecessor of the Ohlsson 23, models weighing from one to two pounds were the limit for this motor, if performance was to be expected. Of course, the Ohlsson 23 operated best with models in the 25 ounce range, but with proper care, the Trojan could be competitive.

Probably one of the very few things that most people don't know is that Hal Atkins produced a 90 size motor for experimental designs, radio control models, helicopters, generators, and you name it. However, the engine weighed 21 ounces bare, hence the problem of competition with the Forster 99 motor which was considerably lighter and gave better power.

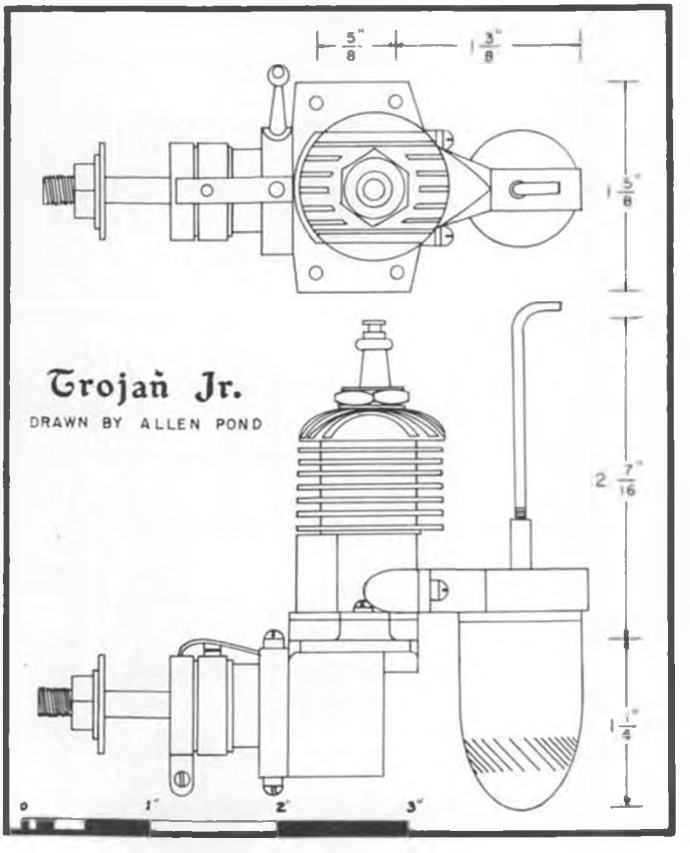
The Trojan Junior, as it was called, featured a 5/8 inch bore and 5/8 inch stroke, giving a rated 1/8 horsepower. The cylinder, made from cast iron and ground to .0001 tolerance, was attached to the crankcase with only two bolts. The fins were 17 ST dural. The cast iron piston came with a solid skirt and four oil grooves. It was claimed this prevented fouling when the motor was inverted.

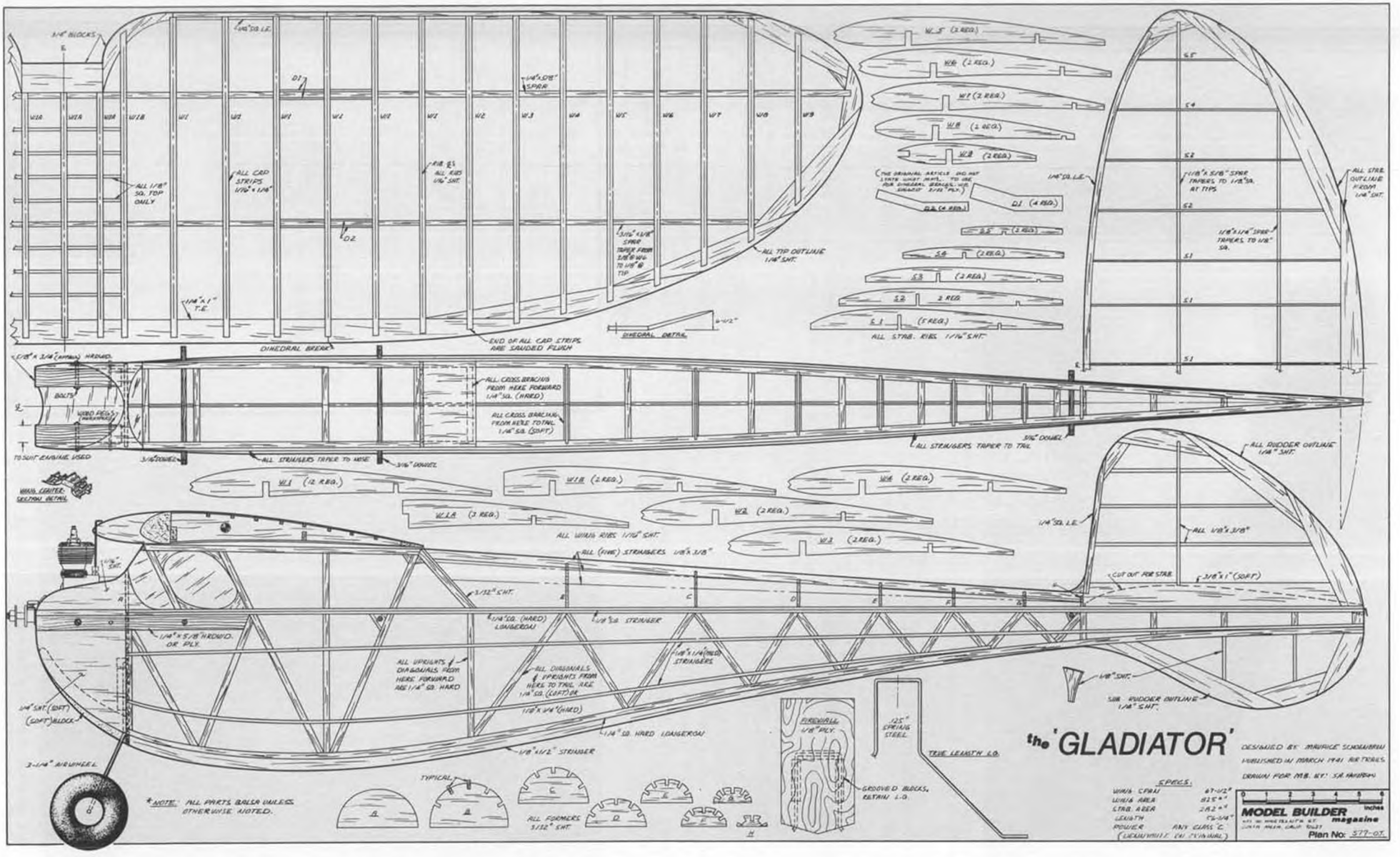
The wrist-pin was manufactured from tool steel allegedly locked in place by an exclusive method we have been unable to determine. Connecting rod was machined from solid stock Tobin bronze, while the crankshaft was standard heat-treated steel, ground to size.

In the aluminum sandcast crankcase, the precision roller bearings for the crankshaft were installed so as to give an exclusive method of sealing (Press fit would be the answer). Interesting

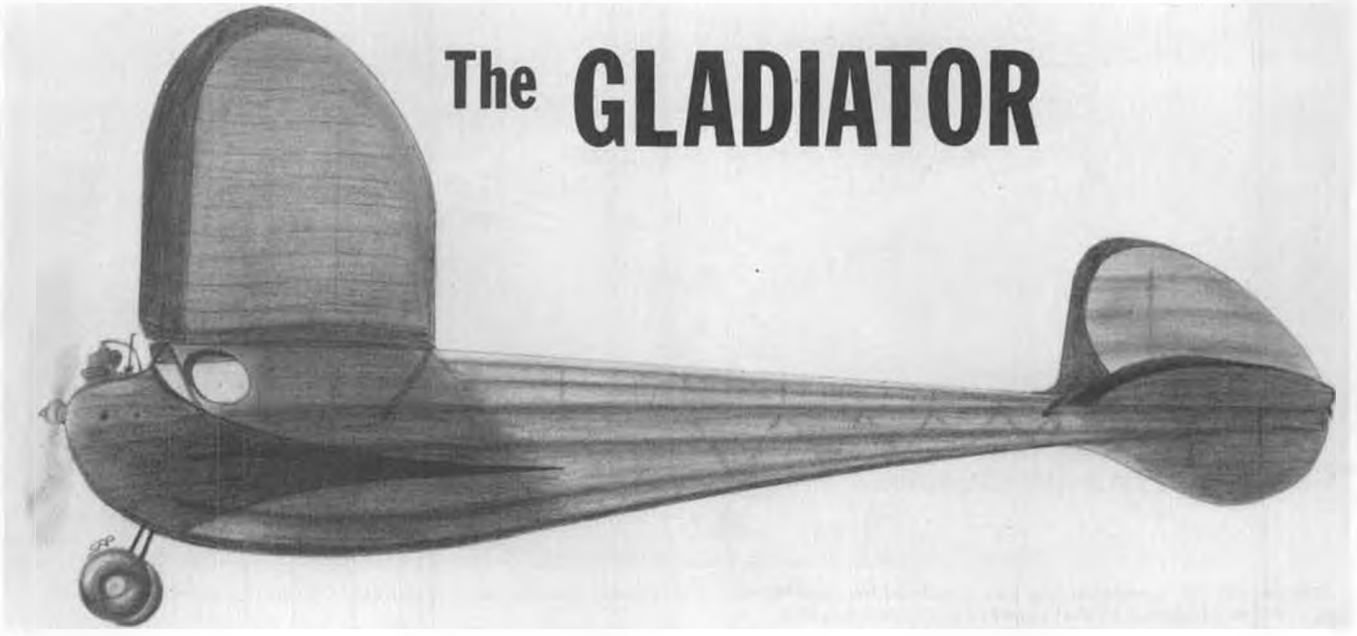


The new Wahl-Brown Jr. Custom, scheduled for unlimited production starting in May. New hassle, we suppose. Is it pre or post war!?




the 'GLADIATOR'
DESIGNED BY: MAURICE SCHOONBRUN
PUBLISHED IN: MARCH 1941 AIR TROPHIES
DRAWN FOR: M.B. BY: S.R. HAVERON
SPECS.
WING: CHORD 67-1/2"
WING AREA 825 sq"
STAB. AREA 242 sq"
LENGTH 54-3/4"
POWER ANY CLASS 'C'
MODEL BUILDER magazine
Plan No: 577-07.
NOTE: ALL PARTS BALSA UNLESS OTHERWISE NOTED.
3/16" BLOCKS
1/16" SQ. L.E.
1/16" SQ. T.E.
1/16" SQ. TOP ONLY
ALL CAP STRIPS 1/16" x 1/16"
1/16" SQ. RIBS 1/16" SHT.
1/16" x 5/8" SPAR
DIHEDRAL BREAK
END OF ALL CAP STRIPS ARE SANDED FLUSH
DIHEDRAL DETAIL
ALL TIP OUTLINE 1/16" SHT.
ALL STAB. RIBS 1/16" SHT.
1/16" x 1/16" SPARS TAPERS TO 1/16" SQ.
ALL STAB. OUTLINE FROM 1/16" SHT.
1/16" SQ. L.E.
1/16" x 3/16" (HARD) HARDWD.
BOLTS
HARDWD. PEGS (HARDWOOD)
TO SUIT ENGINE USED
3/16" DOWEL
ALL CROSS BRACING FROM HERE FORWARD 1/16" SQ. (HARD)
ALL CROSS BRACING FROM HERE TOTAL 1/16" SQ. (SOFT)
ALL STRINGERS TAPER TO NOSE
ALL STRINGERS TAPER TO TAIL
WING CENTER SECTION DETAIL
ALL WING RIBS 1/16" SHT.
ALL (WING) STRINGERS 1/8" x 3/8"
1/16" SHT.
3/32" SHT.
1/16" SQ. (HARD) LONGERON
1/8" SQ. STRINGER
1/16" x 3/8" HARDWD. OR PLY.
ALL UPRIGHTS DIAGONALS FROM HERE FORWARD ARE 1/16" SQ. HARD
ALL DIAGONALS & UPRIGHTS FROM HERE TO TAIL ARE 1/16" SQ. (SOFT) BR.
1/8" x 1/4" (HARD) STRINGERS
1/4" SQ. HARD LONGERON
1/8" x 1/2" STRINGER
1/4" SHT. (SOFT) (SOFT) BLOCK
3-1/4" AIRWHEEL
TYPICAL
ALL FORMERS 3/32" SHT.
FIREWALL 1/8" PLY.
.125" SPRING STEEL
TAIL LENGTH L.G.
GROOVED BLOCKS, RETAIN L.G.
ALL RUDDER OUTLINE 1/16" SHT.
CUT OUT FOR STAB.
3/8" x 1" (SOFT)
1/8" SHT.
SUB. RUDDER OUTLINE 1/16" SHT.
ALL 1/8" x 3/8"

The GLADIATOR



OLD TIMER Model of the Month

Designed by: Maurice Schoenbrun

Drawn by: Al Patterson

Text by: Bill Northrop

• One of the great mysteries to us in the last few years of Old Timer competition is the complete disregard for this classic C Gas design, originally published in the March, 1941 issue of Air Trails. With the exception of Hal Cover's Gladiator, which we last saw a couple of years ago at Taft, there just don't seem to be any of them around.

With almost six square feet of wing area, the airfoil was kept thin to reduce drag and aid the climb. The extremely long tail moment, while affecting the climb only slightly, provides control during the power-on portion of the flight, and guarantees a flat, time-consuming glide. Obtaining a balance point 40% of chord aft of the wing's leading edge can be a bit difficult with the long tail moment, but moving it back necessitates positive incidence in the stab, and that louses up the power pattern. The original ships were trimmed for a right glide turn with rudder deflection, and a left power turn with a small amount of left thrust. To control the left turn under power, a 1/4 inch of wash-in is called for in the left wing panel.

For those interested in adding radio control (who's kidding who with this radio *assist* stuff?), the two-wheel gear, coupled with that long tail moment, makes for excellent ground handling. Although the low-profile rudder would seem to be blanked by the large stab, a similar situation has never bothered rudder control on the Powerhouse, a very popular old-timer for radio control.

Incidentally, for those who are seriously considering building the Gladiator, **Model Builder** is reactivating the "Stick 'em Patterns", which provides you with a complete set of the pressure-sensitive patterns for all of the sheet-wood parts, and that means *every* rib, even though many are alike. A set for the Gladiator costs $4.75. See Workbench this month for more details, and page 104 for a complete listing of "Stick 'ems." •

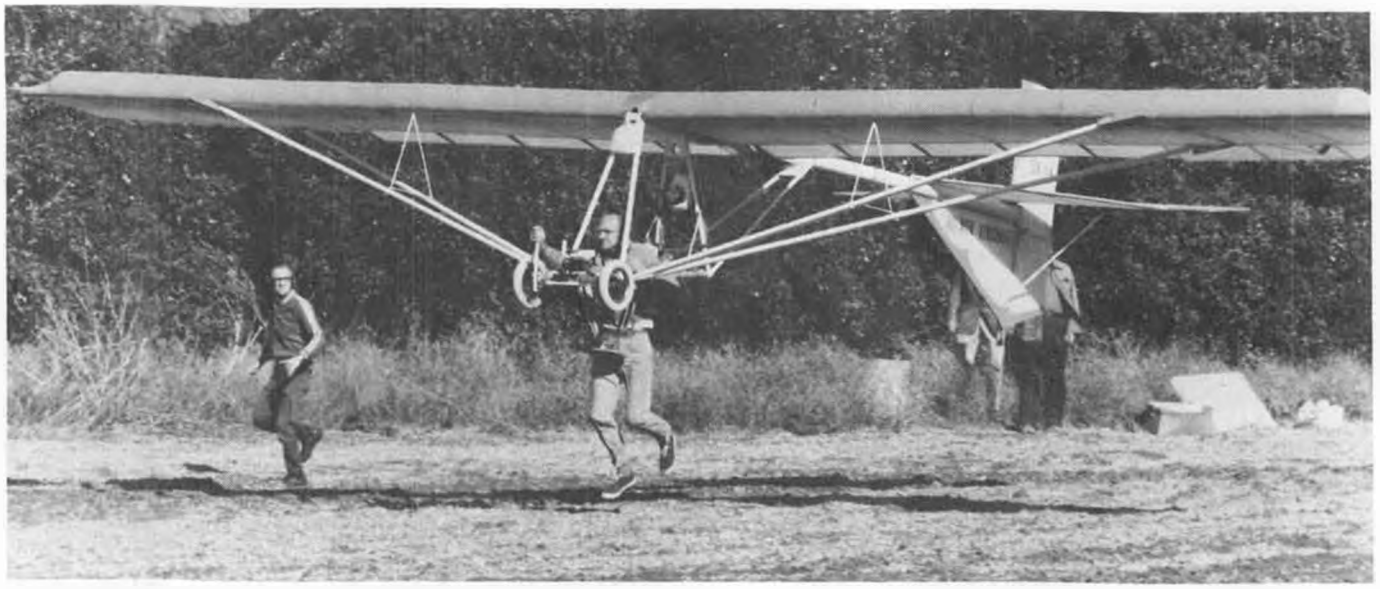
enough, the gas tank was made of Dural 17ST, threaded to the intake tube. This made for easy removal of the tank for cleaning and/or refill (no Gits filler cap).

The Trojan Jr. came ready to run, mounted on a hardwood block with coil, condenser, and hardwood propeller, ready to run for the princely sum of $18.50. Although Trojan motors were quite popular in the Los Angeles area, they are quite difficult to find now. The writer often wonders how many of these motors are still in someones attic

Continued on page 70

Ed Solenberger, Sam 27, with his scaled up, nine foot Advanced Challenger. Great flier with K&B .40.

Beautiful Tom Laurie Experimental, with Baby Cyclone, built by Jim Adams. Converted to radio. It's very smooth. We've flown it.



Volmer Jensen, at the controls, has just completed his takeoff "run" and is about to begin the "climb out". Four or five quick steps into an 8 mile-per-hour breeze is all that's needed to become airborne.

The VOLMER JENSEN VJ-24E 'SUNFUN'

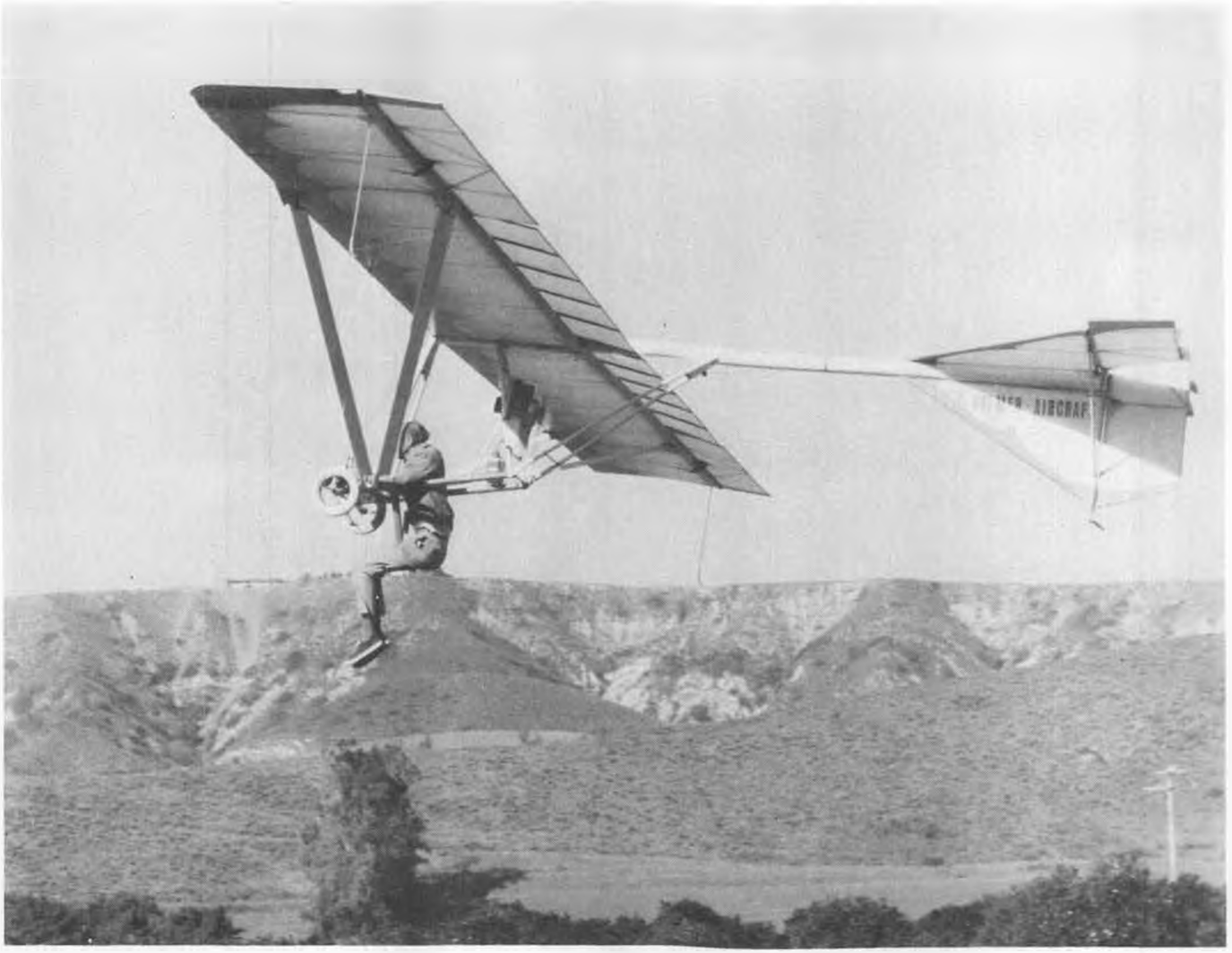
• After fourteen months of research and development, Volmer Aircraft is pleased to announce that the VJ-24E Sunfun has completed an extensive program of flight testing. Having studied performance characteristics with three different engines, expansion chambers, eight mufflers, two carburetor manifolds, four rubber shock mounts and eight propellers, they have perfected their power package to the point where it will perform with safety and reliability well beyond the average flier's wildest dreams.

Up 'till now, most hang-glider flights have been downhill. For the past year, however, they have been launching the VJ-24E from a perfectly flat stretch of farm land located at the base of their favorite soaring site, which is a 1/2-mile ridge ranging in height from 400 to 600 ft. Recently, Volmer Jensen took off in a few steps, climbed to 200 feet and made a 360-degree turn. He then headed toward the 600 foot peak at the far end of the ridge and gained another 400 feet on the downhill leg. This put him well above the normal hang-glider launching site, where he intended landing. On the approach, while still ten or twelve feet off the ground, he gunned the throttle a couple of times in order to make his touch-down as close to the windward edge of the ridge as possible. Everyone was down below waiting their turn to fly, and he had no one on top to help him get off again. The landing was uneventful. He cut the switch and trundled the glider by the tail a few feet further to a more advantageous position for launching. The engine caught on the first pull of the starter cord and he easily lifted the craft up in the launching position. He was off in four or five quick steps into an 8 mile/hour wind . . . again quite effortlessly.

Climbing steadily, the pilot has still not "retracted" the main gear. Engine developes 10 H.P. at 7200 rpm, and burns only 1-1/2 gallons-per-hour of fuel!

This was the first time Volmer Aircraft had demonstrated the practicability of launching a hang-glider from level ground and flying 'up-hill', as it were, to the normal point of departure. Obviously, being able to do this makes flying a whole lot simpler. Instead of disassembling the craft at the end of each flight and loading it on a trailer for the 3-mile trip by road to the top, one can simply fly back. This isn't a new idea, of course, but the successful application of motor-gliding to foot-launched craft is new.

Conditions being ideal for soaring, he followed the ridge until he had sufficient altitude to shut off the engine. He then "worked" the ridge for about 20 minutes before circling back for a landing on the farm below. Three other pilots were impatiently waiting their turn to fly. They made nine flights, with four pilots, during the afternoon, using only three quarts of fuel. A 100-hour private pilot, whose only previous hang-gliding experience had been a short downhill hop last summer on the beginner's slope, took off and quickly gained 100 feet. He was so enthused and confident that, instead of chopping power and landing straight ahead as recommended on first flights, he made



"In the seat" and cruising along comfortably. The "Sun Fun" is basically a hang glider. After learning to fly the glider without engine, it is easy to install the engine and fly with power.

a complete turn and landed back where he started from!

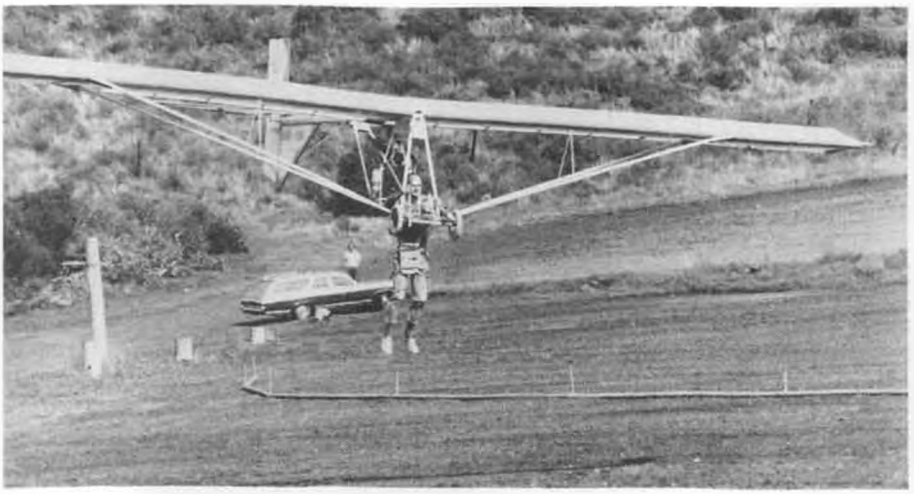
The Sunfun has been flown, both with and without the engine by its co-designer, Irv Culver. It should be noted that Irv tips the scales at a trifle over 200 pounds, which calculates to be the maximum useful load for safe flying. Irv, being an experienced pilot of sailplanes and conventional aircraft, is at an advantage in flying hang-gliders, whereas those of similar weight but little experience might have to have a little more wind to make a takeoff.

Landings are even easier. Touchdowns can be made, birdlike, some have been made with zero ground speed by just bending the knees.

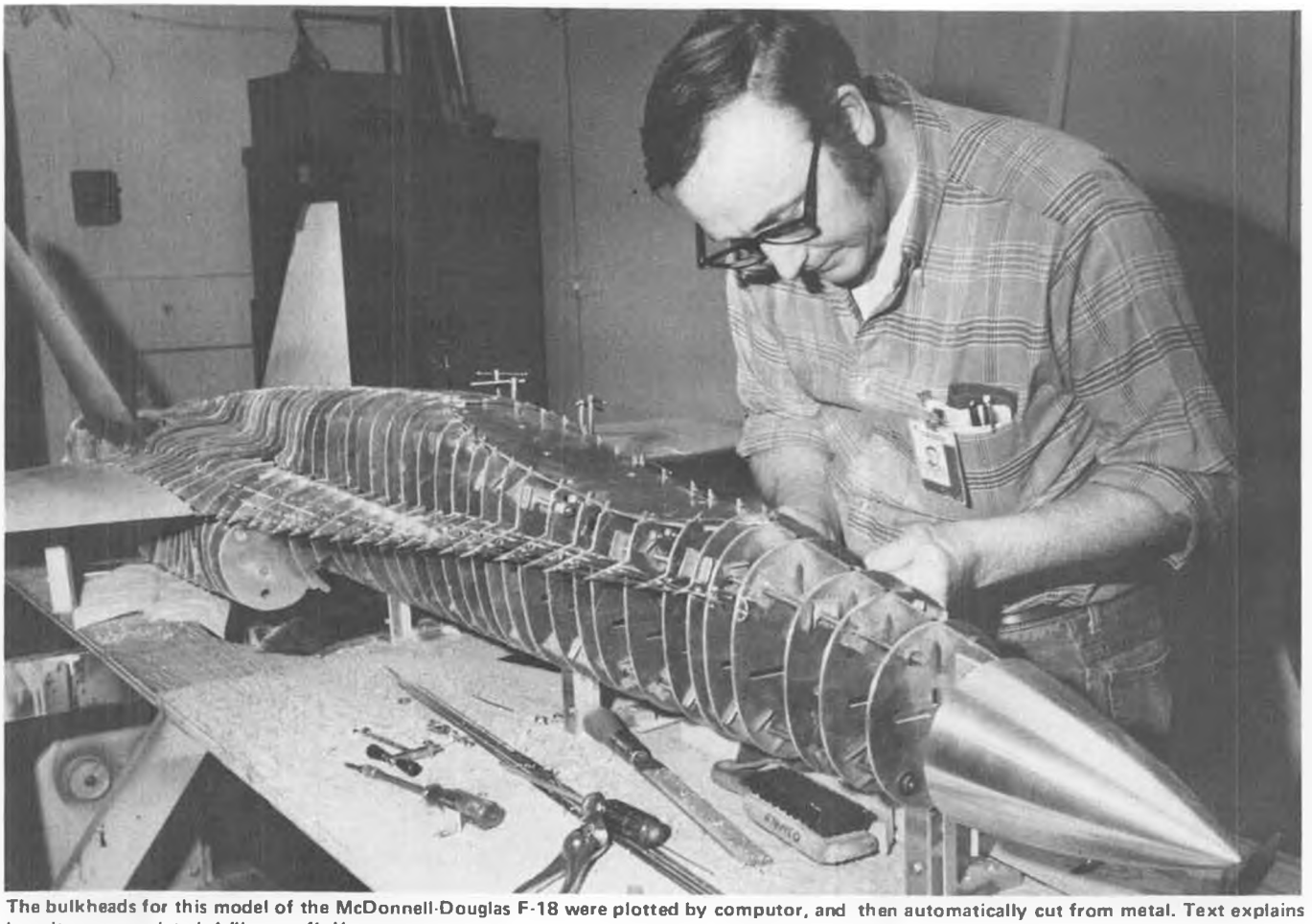
At the present time, the Sunfun is not licensed by the F.A.A. The craft is nearly always flown at established hang-glider sites and never from airports. However, some powered hang-gliders are known to be operating from airports and in such cases the craft can be licensed by the F.A.A. at no cost. The pilot must also hold a student permit, at least. Volmer Aircraft is inclined to advise against flying in the vicinity of airports, for obvious reasons. A lightly-loaded hang-glider is likely to become unmanageable in the wake of even a small, low-powered aircraft like a Piper Cub. Most hang-gliders are difficult to see at a distance head-on (or tail-on), and their slow speed makes them vulnerable.

After learning to fly the Sunfun glider without the engine, it is very easy for anyone to install the engine and fly with power. This engine is rated at 11-1/2 H.P. at 8500 rpm, but at operational speed of 7200, it develops 10 H.P. and burns only 1-1/2 gals. per hour!

For further information write to:
Volmer Aircraft
P.O. Box 5222
Glendale, Calif. 91201 •



On final approach for a landing. Touchdowns can be made birdlike, sometimes at zero ground speed, by just bending the knees. Wouldn't Icarus be jealous!



The bulkheads for this model of the McDonnell-Douglas F-18 were plotted by computor, and then automatically cut from metal. Text explains how it was completed. It'll never fly!!

R/C SOARING

by Dr. LARRY FOGEL.

PHOTOS BY AUTHOR

• The pilot welcomed us aboard our 737 for the short flight from San Fran to LA. He remarked, "This is the most difficult portion of the flight," as we groped our way through the fog-shrouded taxiways. We reached the runway, which was sufficiently clear for takeoff.

Climbing out, the aircraft remained at a high angle of attack, with flaps and landing gear down due to failure of the hydraulic system. Once before I had been through such a situation, with loss of nose wheel steering due to this failure. Soon the pilot confirmed my suspicion and told us that the drag was so great that we couldn't reach LA on the remaining fuel. It was impossible to go back to San Fran for obvious reasons, and so on to Fresno.

This time I listened to the stewardess as she went through the emergency procedures. The man in the middle seat of our row commented that he was to meet his attorney in Los Angeles for execution of his will. He asked if I would sign as a witness right then and there! After the signing, I observed the emergency

Grahame White, flying a "powered glider" Farman, in 1910. Photo is a postcard from Cole and Co., Asbury Park, New Jersey.

This autographed photo of Grahame White was also a postcard, from Bournemouth (G.B.?).

The Ryson ST-100 Cloudster, as described in th text.

vehicles arrayed along the runway while the pilot told us of the nose wheel steering problem. Appropriately, he made a long, smooth descent and balanced on the main gear for a long time before touching the nose wheel to the runway.

We were fortunate . . . there was no sharp veering off the runway. There was spontaneous applause throughout the aircraft, even though the pilot couldn't hear and appreciate it. Then there was the long wait before another flight could be arranged to take us to Los Angeles. During that time, I got to know my will-bearing neighbor, Col. J.B. Franklin, U.S. Army, Retired. He's now in the business of collecting and investing in stamps and some unusual antiques. I mentioned my hobby-interest and he pulled out some very interesting original photos of aviation, circa 1910. One of these showed the dapper Grahame White, with an original autograph. Another showed the "powered sailplane" Grahame was flying at that time. The Colonel suggested that you might also enjoy seeing these photos, and so I share them with you.

We sure have come a long way when you compare this aircraft to the newest powered glider, the Ryson ST-100 Cloudster. Here is a two-place, ultra-efficient aircraft which can be used power-on or off. It is all metal and is equipped with flaps that travel from -12° (up) to +72°, which also serve as powerful airbrakes for glide and dive control. For easy storage or trailering, the Cloudster's 57 ft., 8 inch wingspan shrinks to only 8 feet in the fully folded position. It is powered by a Continental 100 HP certificated engine. The airfoil is the new Wortman FX67-170/17. Cruising speed at 75% power is 135 mph, using just 6 gallons per hour for a range of 690 miles. It can maintain level flight in dead air at 20% power. The aspect ratio is 15.6 to 1. There are other statistics, but my point in bringing this aircraft to your attention is the hope that you might find it a worthwhile subject for scale modeling.

In this regard, may I call your attention to the VL-101 electric flight system, offered by VL Products (7023-D Canoga Ave., Canoga Park, California 91303). This system is most suitable for models which range from 25 to 50 inch wingspan, and weigh up to 10 oz. The battery recharges in less than 3 minutes and provides powered flight for some 30 to 45 seconds. During that time, you can easily reach a sufficient height for a long glide, and possibly some thermaling. Hank Fasola, of VI Products, also offers technical information on the use of the flight system; for example, on the technique of coupling the propeller to the motor by means of a rubber band, thus offering protection in hard landings. He also emphasizes the fact that electric power is clean, safe, and quiet. There is the special advantage in multi-engined configurations wherein both engines start and stop simultaneously. Hank foresees a surge of interest in aircraft powered by such electric motors, in view of the increasing difficulty of finding suitable, larger scale flying sites. It's hard to argue against such reasoning.

Several other new products have come to my attention. For example, Hi Johnson (11015 Glenoaks Blvd., Pacoima, California 91331) has designed airfoils especially suitable for sailplanes such as the Windrifter and Paragon. These airfoils should be fully planked on top and bottom in order to achieve uniformity of cross-section and thus the kind of efficiency needed for thermaling or high speed between thermals. Hi offers cores and complete wing kits with and without polyhedral. In one configuration, the aspect ratio is 15.4 to 1, offering 1165.5 square inches of wing; thus a loading of about 7 oz. per square foot for a 57 oz. sailplane with a span of 134 inches. The kits also come with spars and "greenskin" (a new covering plastic which can be used in place of the conventional balsa covering).

Hoyle Engineering, of Fillmore, California, offers an adjustable ship's curve in different length. This patented item is made from interlaced butyrate plastic. You can draw a smooth outline through the plotted points by bending these plastic interleaved strips to form the required curve. Here is an indispensable tool for the model aircraft designer. A way to make smooth airfoils and a modern configuration of the fuselage.

On the other hand, you might not need an adjustable ship's curve if you have a large scale computer at your disposal. For example, Al Oswald, of McDonnell-Douglas, has been putting together a scale model of their new F-18 fighter aircraft. That's no mean trick in view of the complex curved surfaces.

Continued on page 74

Yes, there really is a Dr. Larry Fogel. Here he is in an unposed shot while flying at T. Pines.

MAST TYPE	WOODEN (solid)	WOODEN slotted	FIBERGLAS (fishing rod)	ALUMINUM TUBE	ALUMINUM EXTRUSION
COST	Low	Low	Substantial	Medium	High
TOOLS TO MAKE	Hand tools, Table saw	Table saw Hand tools	None	None	None
TOOLS TO OUTFIT	Hand Tools	Hand tools	Hand tools	Hand tools Riveters, etc.	Hand tools, elec. drill, Bandsaw helpful for fittings
EASE IN OUTFITTING	Very easy	Easy	Requires care	Requires care, Handmade fittings	Some commercial; most home-made requires planning
WEIGHT	Low	Low to Med.	Heavy	Medium	Medium
TAPER	Yes, modifiable	Yes, modifiable	Yes, maybe too much	No	No
REGULARITY OF BEND	Depends on grain existing and cure history	Grain crossing will make for better regularity	Yes, same in both directions	Yes, same in both directions	Stiffer fore & aft springier athwartships
MAINS'L LUFF	Sleeve luff Jack-line & hooks	Bolt-rope	Sleeve luff Jack-line & hooks	Sleeve luff Jackline & hooks	Bolt-rope (Double-stitched tightly for maximum mobility in sail tunnel).
"SWIVELABIL-ITY" OF SAIL	Sleeve-fair to good Jackline-excellent	Good to excellent	Sleeve-fair to good Jackline-excellent	Sleeve - good Jackline-excellent	Excellent
REMARKS	Has the advantage of being modified	Crossed grains make a clear white pine or sitka spruce spar strong & stable.	Definitely for the experimenter	36/600-1/2" OD M - 1/2-5/8" OD 10R-5/8-3/4"OD A - 3/4-1" OD	Size to fit boat (see text)

STRICTLY SAIL

By ROD CARR

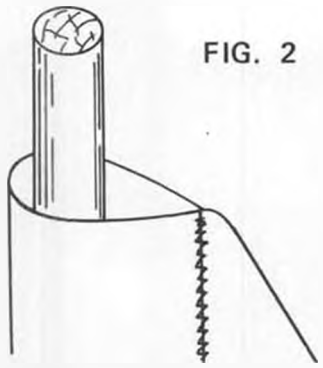
• Continuing our discussion of masts, I have prepared the grandiose text seen in Figure 1. It contains all of the information we will cover, but in a somewhat abbreviated format. I urge that skippers who have used some of the more exotic varieties communicate their experiences with me. This column is the only monthly source of R/C yachting information in the entire modeling press. Let us use it to share the knowledge we have gained from our own observations. Secrecy is the prime killer of competitive hobby activity. So in a sense, our continued well-being is tied to keeping the knowledge and expertise of our sport in circulation.

The simplest mast usually encountered has been the simple wooden spar. It is made of a single piece of wood and will attach a sail to itself either by a sleeve luff or a jack-line/dress hook arrangement (Figure 2). While this is an easy mast to make, it is also prone to taking on uncontrollable warps. The solution has been to laminate the mast of two strips of wood, and cross the grain so that they will counteract one another when warping starts. The one-piece has proven most useful in shorter lengths, on such boats as the famous PEA POD (April 1973 MB, plans, $3.25). The shorter length allows a slightly larger, heftier spar to be built without putting excess weight aloft on the longer lever arm experienced with the taller masts.

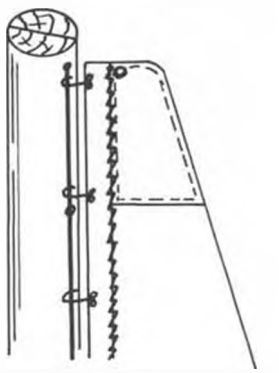
I recommend the lamination of a mast used for the jack-line arrangement. But be careful when putting in the roundhead screws that hold the jack-line. Drill the proper sized pilot holes, and put a dab of epoxy into each hole as the screws are driven in. Otherwise, your line of screws may well split the spar right down the center. Needless to say, the screw headslots need to line up, and then a wire can be soldered in place down the middle. Put just a firm tension on the wire, don't stress it severely, or it will blow your mast.

Next is the two-piece slotted mast. This spar accepts mainsails with a bolt-rope sewn in their luff hem. A look at the exploded view in Figure 3 reveals all the secrets. In order to allow for the required 1/32 mast slot, one can either trim the halves unsymmetrically, or

FIG. 2

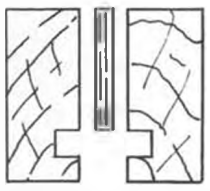


SLEEVE–LUFF ON SOLID WOODEN MAST

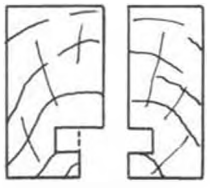


JACK–LINE ON CROSSED GRAIN WOOD MAST

FIG. 3

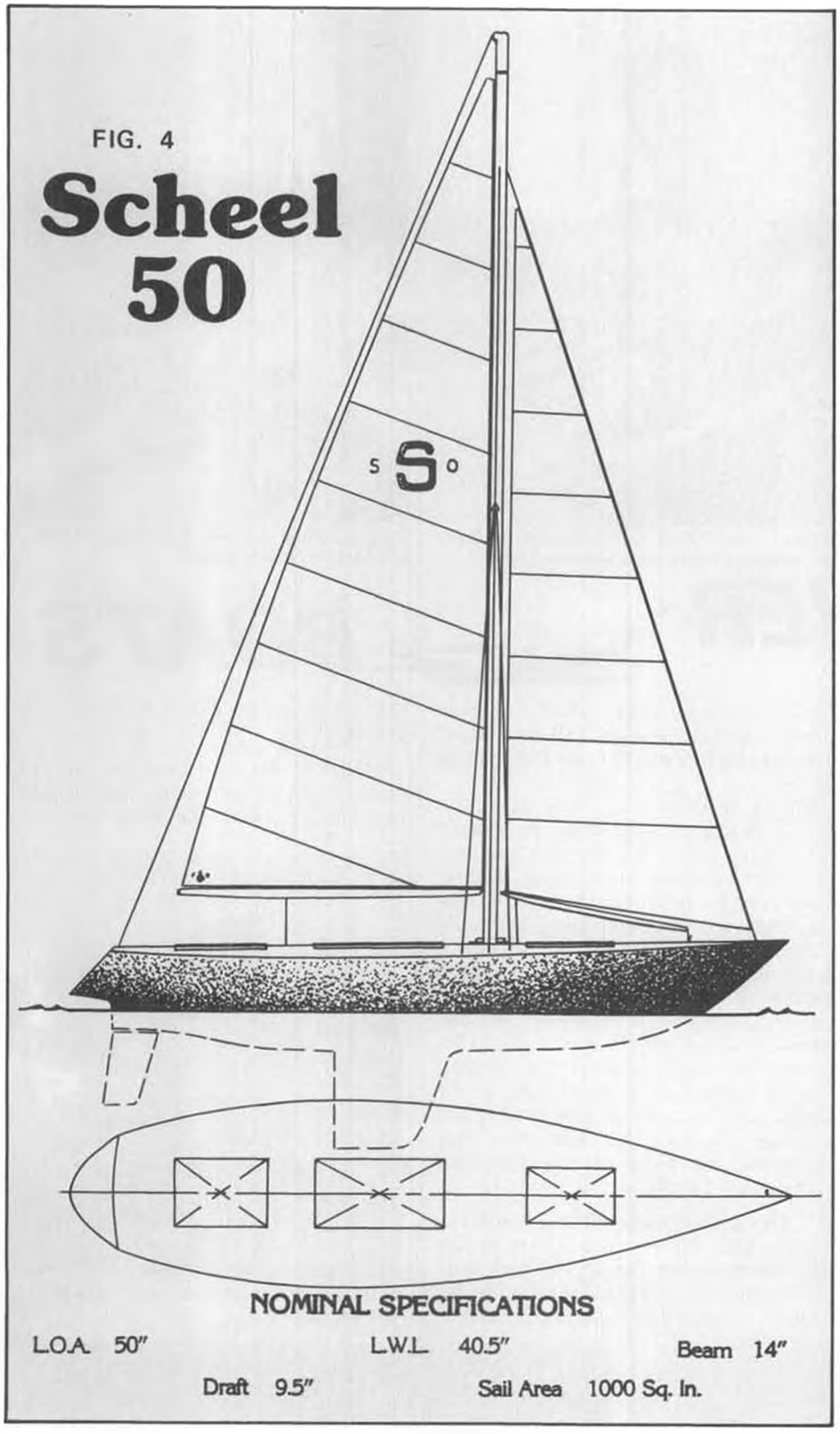


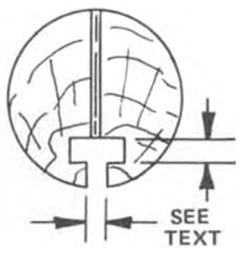
SLOTTED MAST WITH SPACER



NO SPACER

FIG. 4





utilize a spacer of aircraft plywood, with holes punched in it with a paper punch for the adhesive to pass through for a good bond. I have kept an absolutely die-straight 2 x 4 to use as a workbench when gluing these up. A half-dozen 5-pound lead weights and a 12 foot length of twine are needed too. Glue the spacer to one side, and after it drys, add the other. Remember to cross the grains of the mast halves. Before the final joining, slip the twine into the sail tunnel and pull it back and forth to keep the tunnel clear. Use a piece of cardboard to keep the slot clear (Remember to pull the twine out before the whole thing sets!!).

Some folks try to use a ball router to make a track in a solid wooden mast. Believe me it is not worth the effort. The slot turns out too big, and the problems with potential warping are still there.

It is desirable to get plenty of the adhesive (I prefer polyester resin) into the sail tunnel. This coats the sides and allows the sail's bolt-rope to slide easily in the tunnel. It prevents snagging on slivers which can let uneven tension exist up and down the luff.

I have heard of skippers who have built hollow masts. I have yet to see one, or hear how they work in company with solid or other masts of more common occurence. I would be happy to expand this discussion at a later date to include such masts, and await help from those skippers who have made them by this method.

All of the wooden masts should be made from fairly close-grained, and straight-grained wood. I have used both Sitka Spruce and clear White Pine. The price of the former has driven me to the latter, but for the skipper who wants strength and lightness, the spruce is ideal. I keep two or three 1x4's up in my loft rack at all times. They seem to need to have the time to dry a bit and cure some. On occasion, I've ripped a 3/8 inch side off of them, identified it, and watched what kind of a curve developed as the wood seasoned. Some stay straight . . . those are the ones I make masts out of. Others start to curl up like a dog's hind leg . . . those I use for other projects. A hint . . . leave the 1x4 (-3/8) whole until you are ready for a mast, then rip off only what you need. The stock stays happier and seems less prone to curl.

The finished cross-section in Figure 3 shows you some dimensions that you should provide to your sailmaker when he is outfitting your mast. With it, he can size the proper bolt-rope into the luff hem so that it slides easily, yet won't pull out through the slot. The ideal measurements are something to shoot for when making the mast. Note that the sail tunnel is really square. Making it round is not worth the effort, and will increase the drag on the luff when making tension changes. BE CAREFUL OF YOUR FINGERS WHEN USING THE TABLE SAW. ALWAYS USE A PUSH STICK, AND KEEP BYSTANDERS AWAY FROM THE PLANE OF THE BLADE!!

Next we come to the tapered fiberglas spar. These usually have been originally intended for use as fishing poles. I've seen 3 or 4 in use, all in high aspect rigs, and all on 50/800's. A number of things seem to mitigate

Continued on page 91

New "X" Class, Unlimited Hydro record of 72.50 mph, went to Jim Whitlach, Orinda, Ca. (left), and his twin OPS .60 powered Octura "Wing Ding". Engine work by Art Hammond (right).

Close-up of the twin, alternate firing OPS 60's in Whitlach's record breaker.

R/C POWER BOATS

By BOB PREUSSE

● Have you ever visited a model show and wondered how the builders achieve the super finishes? With a little preparation and the right products, all boaters can achieve a professional looking finish. There are two areas we must cover; building a dust-free spray booth and using a good quality paint, such as K&B Super Poxy or Hobbypoxy paint.

Larry Goddard set under 12-volt electric mark of 14.5 mph with twin coupled Astro 05's.

SPRAY BOOTH

A properly constructed, near dust-free spray booth is a necessity for your painting operation. It must be well lit, and ventilated so that harmful vapors are removed from the room. It should also be somewhat portable, so that it may be stored away when not in use. I made mine out of double-strength cardboard material from mattress cartons. Working for the No. 1 Van Line made for easy access to the mattress cartons which are ideal because of the large size. Just contact any moving and storage company for yours, as they normally use these cartons once and then discard them.

The general shape of the booth is a deep cube that funnels slightly in size to the ventilation fan on the back wall. The object of this shape is to move the vapors out the ventilation fan as efficiently as possible. Let's begin the construction.

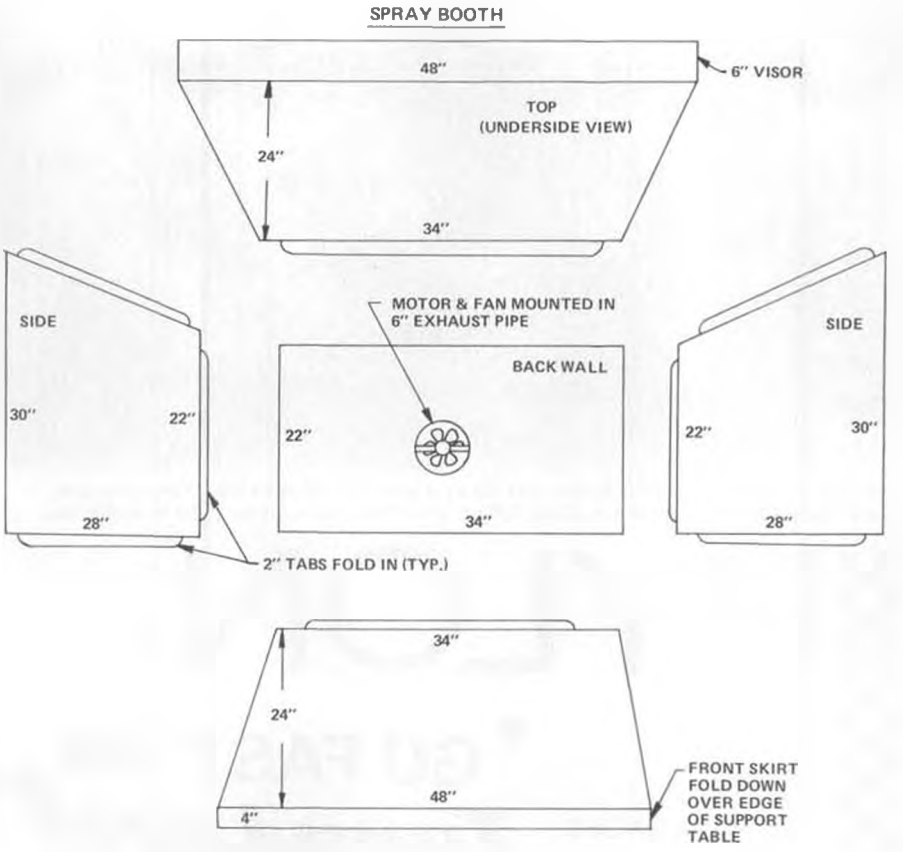
STEP 1: Measure and line off all pieces as shown in the diagram. I would recommend that the back wall be

K&B's John Brodbeck with one of his stable of racing boats.

JVS "Claim Jumper" 'C' Hydro, built by Mickey Kerkes, of Costa Mesa, California. All March 12-13 Legg Lake photos by Eloy Marez.

Glen Spickler's "Rascal", designed for the K&B 3.5cc outboard, and soon to be kitted by Glen.

John Brodbeck "lets one go".



approximately 34 inches long by 22 inches high, and the front opening have dimensions of at least 48 inches long by 30 inches high. With these dimensions, the booth will accommodate most large boats. If you build small boats only, then I would reduce these dimensions and increase your exhaust efficiency.

STEP 2: Cut out the base, two sides, back wall, and top. Note some pieces have tabs that fold over to make assembly easier and to reinforce the joints.

STEP 3: Crease the tabs on the pieces as shown.

STEP 4: Using 2 inch masking tape, attach the back wall to the base by taping the tab. In the same manner, attach the sides to the back wall and the base.

STEP 5: Attach the sloped top to the back and the sides. The front visor shields the glare from the light. The slanted top again helps funnel the fumes and paint towards the fan.

STEP 6: I used a 75 watt lightbulb and a standard electrical socket. Punch a hole large enough for the bulb to fit into snugly. The hole should be located about 10 inches from the visor and centered between the sides.

STEP 7: I installed a Daytona Synchronous Motor and Fan No. 4C467, from W.W. Grainger Inc., in a section of 6 inch galvanized pipe. The motor and fan exhausts 400 cu. ft. per min. I would not recommend any fan set-up that draws less volume. You may want to substitute a bigger motor and fan. In either case, *avoid any motor with brushes that spark; use a motor made for ventilation systems.*

STEP 8: The pipe is mounted through the wall in my garage. I have the paint booth set on a table. Adjust the height so that the pipe comes through the middle of the back wall. Be sure that the fumes are ventilated away from the furnace or any open flame!

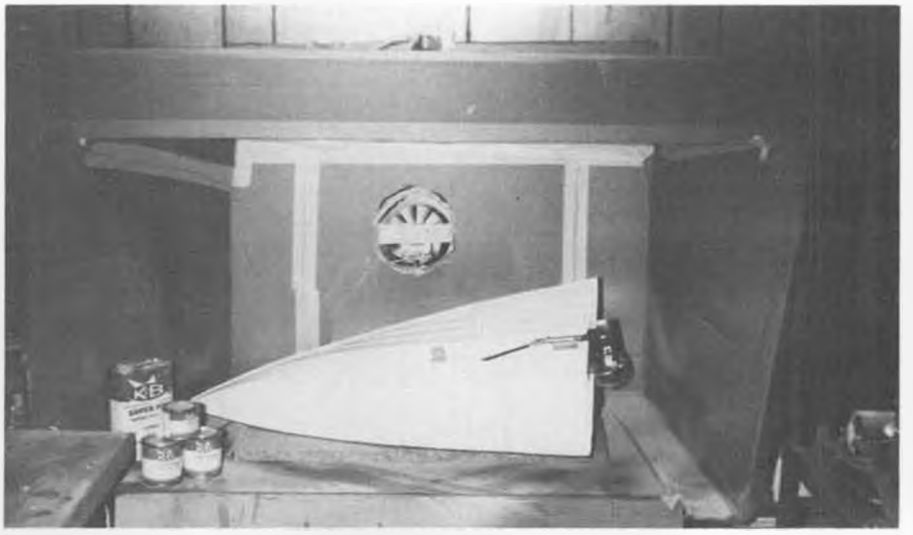
EPOXY PAINT

Both K&B Manufacturing, 12152 Woodruff Ave., P.O. Box 809, Downey, California 90241, and Hobbypoxy Products, Division of Petit Paint Co., Inc., 36 Pine St., Rockaway, N.J. 07866, make excellent assortments of epoxy paint for boats. Epoxy paints are two parts; paint and catalyst. The basic colors include red, yellow, blue, white, black, orange, purple, metallic red, metallic blue, and metallic green; and with color charts, you can mix other colors and shades. They also manufacture the necessary primers, catalyst, clears and thinners. The paint is sold in 1/4 pints and 1/2 pints, and the thinner can be purchased in pints and quarts.

For spraying I use 1 part paint, 1 part catalyst, and 1 part thinner. This seems to be the best ratio of thinner. The paint does not run unless you hit an area too heavily and yet the paint does not spatter (too thick). I find that 80° is the best room temperature for application and drying. The higher temperature will decrease curing time. It also seems to increase the gloss of the finish.

No matter how good the quality of the paint, you will not get a good finish without proper filling, sanding, and primer. All seams should be filled with glue or polyester resin and microballoons. The boat should be well sanded with progressively finer grades of finishing paper. I recommend Sig No.

Continued on page 76



The author's cardboard paint spray booth, with just-finished "Northwind" resting inside for size comparison. Note exhaust fan. This MUST be a non-sparking motor for ventilating.

Winners at the Ft. Wayne Air Races, July 10-11 (l to r): Bill Weesner 1st, Dave Keats 2nd, Gary Dabich 3rd, Bill Hager 4th, Gary DeWitt, 5th. The Q-Mers shared $250 in cash prizes.

PYLON

"GO FAST AND Turn Left!"

By JIM GAGER

• Let's start off with the rectification of a serious omission in our report on the Toledo Weak Signals 3rd Annual Silver Cup Races, as published in the February issue.

While we did fly at the Weak Signals flying field, we failed to credit the man responsible for creating this contest and sponsoring all the prizes that were handed out. That guy is Les Haddad, who owns the "Hobby Stop" hobby house at 4907 Summit, Toledo, Ohio, 43611. We knew at the time that Les was the glowplug behind this race, but failed to make a note of it, and when writing it up, our memory failed. We also failed to credit the "Flying Tigers" of Toledo, who cooperated with Les and the "Weak Signals" to put on this very fine contest. See you guys there in August!

We received the following letter from Richard Neveln of Berkeley, Calif., and it has some interesting points, so we'll reprint it verbatim:

"Dear Jim Gager,

"Like many modelers, I've often thought about getting into racing . . . but even in so-called "Beginner Events", the cost and the pace is all expert. New scams are out every so often; Q-500, 1/4-Midget, no pipes, etc. The fast get faster regardless of rules, and the beginner is left behind, often disillusioned.

"The solution is so simple I'm surprised nobody's done thought of it before. If you want the planes to fly slower . . . make that *the rule. Pick a time; pick a category; Cat. I, 2-minute min. heat time; Cat. II, 1:45 min. heat time; Cat III 1:30-minimum heat time; Cat IV, open . . . (for examples).*

"So, if in a Cat. II contest, a person comes across the finish line with a time of 1:40 (5 seconds under), there could be 2 options (a) zero score for that heat, or (b) add number of seconds under the minimum to the minimum i.e., 1:45 + .05 = 1:50 time; could also lose 1 point . . .

"Would put premium "points" on knowing exactly how fast your airplane flys. "The other *long-standing question I've always had is 'Why 2 cuts, and you're out?' To me, making a person fly an extra lap for each cut was salt enough. When 3 cross the finish line, the one left in the air* is *last and* does *get zero; so if two hot shots both cut 2 pylons, why not still have a race for that one-point?*

"Would make it easier on the judge calling cuts; close calls would not spell sudden death, pack-up-and-go-home, for any contestant.

"Would really like to see discussion of and/or results in **Model Builder** *on time category racing; no engine, cost, or pipe rules would be required. Clock on each plane, no way to cheat. Easy rule to enforce. Easy for practice flyer to know if he's going fast enough, if he's going to be 'in' the race.*

Looking to hear from you, etc."

I would like to thank Richard Neveln for taking the time to voice his suggestions. Rather than comment myself, how about you guys already involved in racing dropping a line to this column with your own comments or observations on these proposals?

(Speaking not as a racer, but as a rules official who has monitered many discussions on R/C pylon rules, we think that Richard Neveln's time-category proposal would make an interesting new event associated *with racing, but it would not, in essence, be racing . . . it would be* rallying.

Back in the early 50's, we used to compete in sports car road rallies. In these "races", the object was to follow written instructions for driving a predetermined course and distance along public roads. As you drove the course, you stopped at various "check points" along the way. According to your staggered starting times, you were to hit the check points at precise times, none of which forced you to drive faster than the posted speed limits (unless you were trying to make up time for taking a wrong turn . . . and even if you did, the extra mileage on the car's

Fomula I winners at the Ft. Wayne races in July (l to r): Bill Hager 1st, Dave Keats 2nd, Bob Onori 3rd, Allen Booth 4th, and chip-off-the-old-block Robbie Hager 5th.

odometer gave you away). The winner was the driver/navigator team with the least deviation from the pre-determined course and time. Fun and challenging competition with a sporting automobile (some even used their family sedan), but not real racing.

Time-category racing would be similar. Selecting the time-category that suites the capability of the pilot and his racer, the contestants would strive to cross the finish line at the minimum time allowed.

And since the staggered start in Formula I is at plus or minus one-second intervals, the finish could be just about the same . . . one second intervals. And if that isn't bad enough, imagine the finish of a QM race, where all planes could be in one category, and all start at the same time! Can't you see the plane that is 10 seconds ahead of schedule doing loops between Pylons 3 and 1 to eat up time!?

In effect, time category racing is against the clock only, an idea that has been rejected right down the line, since the beginning of multiple-plane racing, back in 1965. wcn)

Speaking of letters, we received the most correspondence and phone calls since starting this venture after our column about safety around Pylons 2 and 3. Seems that many fliers and clubs never realized just what a danger this could be. We suggest your club review its safety features prior to this year's racing season.

Still speaking of letters, we'd appreciate it if you'd send us the results of your contests and include some black-and-white photos along with pertinent information. (Jim's address is 3727 Shepherd Lane, Ft. Wayne, Ind. 46815.

NEW KITS

Back at the beginning of winter, we said we'd be bringing you some kit reviews during the doldrum months. Little did we know that the U.S. Parcel Post Service would throw those plans awry.

Big Art's Models, 20620 Emmett, Taylor, Michigan, 48180 sent us a couple of their newly designed Q-M and F-I LRIA "Pogo" kits via said Parcel Post. Unfortunately *(but not surprisingly, wcn)* the P.O. managed to either lose them or ship them overseas. Archie Adamisin, one of the guiding lights and hard workers at Big Art's, recently called to see how we liked them. Needless to say, he was somewhat upset to find we hadn't received them, eight weeks after sending them out. He'd had to ship PP, as United Parcel Service was on strike at that time, but since they were now back to work, he fired a couple more off to us.

About to start (l to r): Al Booth and Bill Weesner, Brent Bowen on the flag, Jim Gager (JIM GAGER??!!) and Ron Sell. All Ft. Wayne photos by Paul King.

We haven't even had time to take pictures for this column, but we immediately started building them, because we were so impressed with the kits. The fuselages are highly detailed (with simulated stringers and cloth covering, air scoops, etc.) and are of the highest quality. We could find no pinholes or flaws in them. One of the better features is that the kits go together so easily. I do believe that with some diligence, the airplanes could be put together in one weekend . . . a blessing when you wreck your last plane just days before a contest. We'll give you a flight report as soon as the weather warms up some, and we'll have pictures for the June issue. We're sure you couldn't go wrong with these kits though, as we've used Big Art's Model's kits before and the results were excellent. Check them out.

Allen Booth with his Best Finish trophy for Quarter Midget.

Another major pylon kit manufacturer is coming out with a new Q-M and **Model Builder** has been promised first crack at it for a review. It's got to be a good one, based on their Form I experience. Watch for it . . . thanks, Terry!

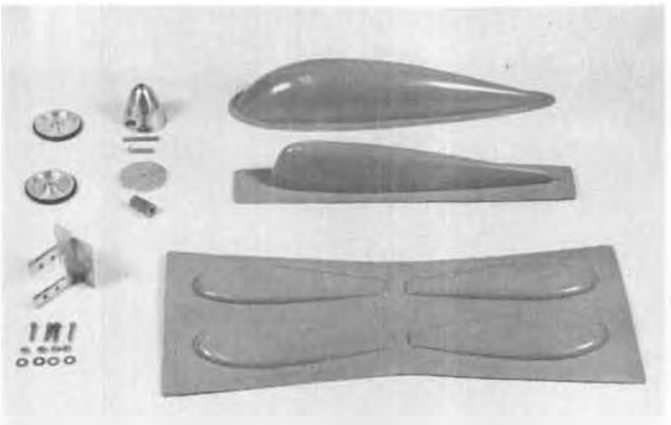
Just had a very interesting talk with John Brodbeck, Jr., from K&B Mfg.

Continued on page 77

Fifth placer in Form I, Robbie Hager, is 14 years old. Gotta watch these whippersnappers!

Form I winner, Bill Hager, collects his dough from C.D., Jim Gager.

CD Jim Gager hands over keys to winner of motor bike raffle, a very happy Billy Kempton.



Half-A goodies imported from Japan by Hobby Shack. Canopy, cheek cowls and wheel pants of ABS. Others of aluminum.

Clockwise from top left: Allied Hobbies landing skid material, Carl Goldberg C/L handle and Dacron line, Fourmost engine mount and shut-off, Pylon clunk tank, Goldberg mount for ready-to-fly engine, and self-adhesive ballast weights.

The 1/2-A SCENE

By LARRY RENGER

• Over these past months of column writing, I have been accumulating an interesting assortment of accessories which are aimed straight at the 1/2A enthusiast. I can't really classify the categories of the items because they are so varied.

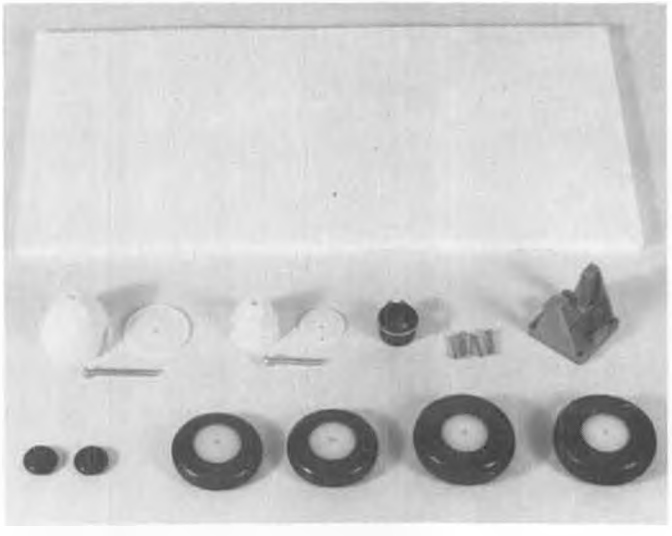
Some of the items, such as fuel tanks, are just the "1/2A size" of standard modeling items, others are unique to the 1/2A class. For example, we have Sullivan R/C clunk tanks and Perfect and Fox Control-line tanks which are "normal" stuff in small size. On the other hand, there is the Goldberg engine mount for the "190" Cox ready-to-fly engine, Bob Davis' new diesel conversion head, and Cox's tuneable mufflers, which are unique 1/2A items.

Rather than duplicate effort, I'll let the photo captions describe most of the items, and go on to talk about other things.

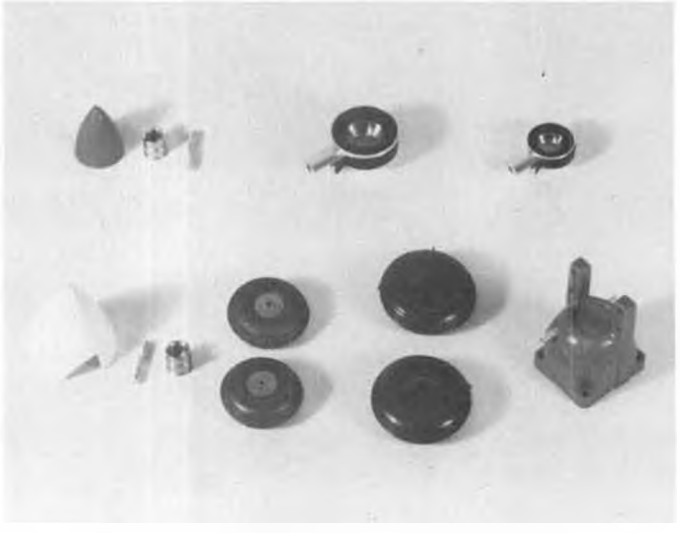
A few columns ago, I discussed light weight radios, and must blush to admit that I slighted the one closest to my heart! I mean, of course, the Cox/Sanwa 2 channel. As delivered, the airborne weight is 6.51 oz. But . . . by substituting the accessory 225 mah battery pack for the standard pencell dry batteries, the weight drops to 4.66 oz. Very interesting! When you consider that your total purchase price, including the extra batteries, is only $92.50, it becomes extremely attractive. The only drawback for most people is that the transmitter is Mode I. It took me only about 1 month to re-learn R/C flying in Mode I after 4 years experience, all in Mode II. Several fliers switch back and forth regularly from Mode II for racing to Mode I for aerobatics, because they feel Mode II is quicker, but less accurate than Mode I. I am too recently converted to be able to comment on increased accuracy of flying in Mode I, except that I haven't crashed while learning it.

One final word on the Cox/Sanwa unit . . . the servos are not only .10 oz. lighter than Bantams or KPS 12's, but they are significantly more compact. The receiver looks large, but since it houses all the connectors, it also contributes to a surprisingly small system.

Hey gang, I am finally building an airplane! You may recall mentioning of the outstanding wings cut, cored, and covered by Bob Hunt at Control Specialties. Well, I'm building a 1/2A C/L aerobatic model around the set I got from him. My plane will be powered by . . . get this . . . the engine from a Super Stunter ready-to-fly! Yep, since all-up weight will be in the 10 to 11 ounce range, and I am limited to 35 foot lines by my flying site, that's all the power I need. The reed-valve engine has more than enough power in stock form, and could easily be modified to give performance which approaches a stock Tee Dee if it were necessary. The advantages to a reed valved engine are instant starts, smooth running and easy

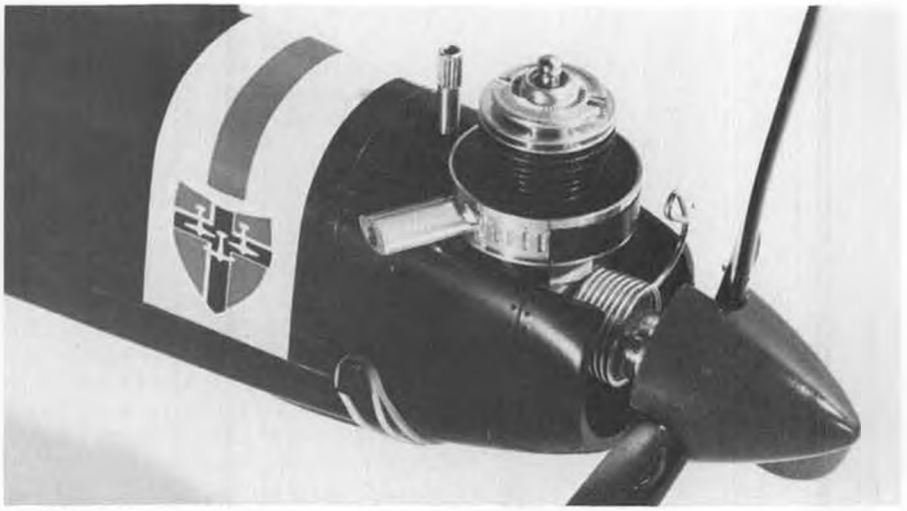


Ace has extensive line of spinners, wheels, a nylon engine mount, latex foam sheet for receiver, and many more 1/2A items.



Cox's assortment of spinners and wheels, also mufflers, and a Tee Dee free flight mount with integral tank.

Bob Davis makes diesel conversion heads for .010 to .15 Cox line. Change over in minutes.



Close-up of Cox muffler installed in an ME-109 Super Stunter.

needle setting, good fuel draw and economy, and a spring starter built right onto the engine. Since it uses the newer Cox ready-to-fly backplate, the engine mounts radially right on the firewall . . . no beams or accessory mount needed!

The new model is intended to do justice to the quality of Bob's wings, and will have adjustable rudder, tip-weight, leadout position, and control sensitivity. Details will be forthcoming as they develop. With luck, it'll be flying at the Nats this year in 1/2A Aerobatics.

A couple of weeks ago, I had the opportunity of staging a flying demonstration for the public at Universal Studios. The only R/C model I had was a borrowed O-Tee. With the controls set super–sensitive, all wing washout removed, and use of a Black Widow engine up front, I ended up with a very sporty show model. The crowd loves loops and rolls, but they really groove on snap-rolls and spins. As the day grew warm, I tried for duration and was timed at just over 16 minutes air time on one flight.

The engine was really a "cheater", since I not only drilled the venturi out to .070 diameter, but used a Kavan tank extender, and a high-compression head. The engine had about 2 hours of running and 1 each de-varnishing and rod-tightening before it would handle the high compression head and racing fuel. I haven't tached it, but on a 5 x 3 prop, the airplane can enter a snap roll from level flight and depart again with no altitude loss.

By the way, even stock Black Widows require quite a bit of break-in before they really haul the freight. Tee Dees receive a few expensive machine operations which allow them to run more easily at high speed. You have to substitute careful run-in on the reed valve engines, instead.

The moral of the above is that you should read my column in the September '76 issue of MB and/or an article I wrote for "that R/C special-interest girlie magazine" in February 1974. Both deal with proper run-in procedures for 1/2A engines.

While on the subject of engine care, I'd like to put in an extra word on two outstanding necessities for the serious 1/2A enthusiast. First is Dale Kirn's rod tightening tool, now made and sold by Joe Klause, of Kustom Kraftsmanship. This tool really works to prolong the life of engines used under unusually harsh (racing) conditions. In use, I prefer to give the piston several light blows with the hammer while rotating the piston between swings. Second, work directly on a very hard surface such as a bench vice or anvil . . . I destroyed a couple of pistons by padding them with rags when I first got my tightener.

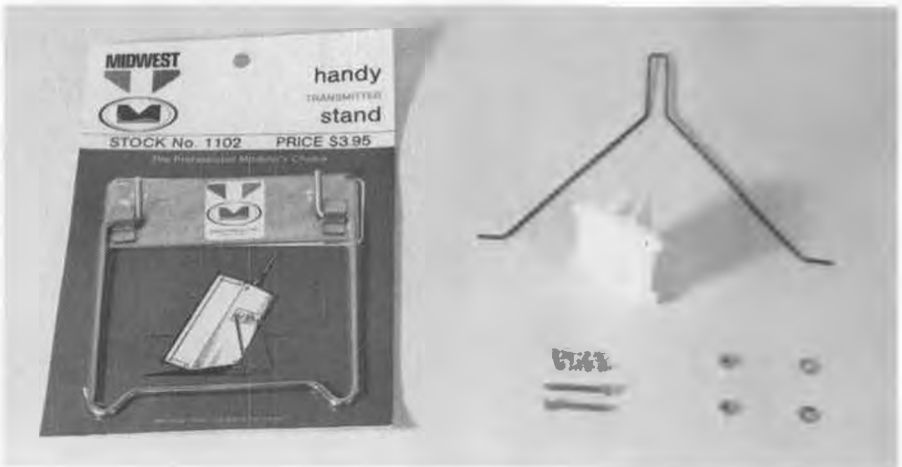
Second nifty tool is Bob Davis' new de-varnishing brush. It works! It works even at the field! It doesn't require that you clean the engine afterward, or even disassemble it to be de-varnished. Do, however, work gently. The brush bristles are harder than the cylinder walls, so you could remove some of the cylinder fit if you get rough.

Proceeding onward, I have recently done some testing of Bob Davis' new Diesel conversion heads. I have now run both .049 and .020 sizes. It took a while to re-learn diesel operation, as all the "sounds" (rich, lean, etc.) are pretty much the reverse of those made by a glow engine. Anyway, the upshot of my testing is about what you would expect. The Tee Dee .049 engines run very well as conversions, and the ability to handle large props is impressive. My Vibro-tach gave me the following readings.

	Racing Fuel	Diesel
6 x 3	19,200	18,000
5-1/2 x 4	16,500	16,200
7 x 3-1/2	12,000	12,000
8 x 4	8,500	9,000

The engine started about as easily, as a diesel, as it did on glow fuel, perhaps even easier. The performance on the large props was enhanced by extremely broad needle range. So far, I only have had time to check one prop on the .020, that was a 6 x 3, which turned 9000 rpm very smoothly.

These units are really worth a close look for scale flying, and even as glider power pod engines, where raw pulling power is needed. ●



Midwest Products has self-adhesive transmitter stand (even if it's to be used for a 60 powered airplane!) and 1/2A C/L engine mount with pre-bent landing gear wire.

MODEL ROCKETRY

By DOUGLAS PRATT . . .

• Well, the competition season is just getting underway, unless you happen to be one of those lucky blankety-blanks who live in Florida or California. We have two major competitions to discuss this month. Meanwhile, don't forget the other events we've mentioned in preceeding columns; these general descriptions of events apply to them, too.

The most important event of the contest year is the NARAM, NARAM-19 this year. It's scheduled for July 31 through August 5, which is the week before the AMA Nats. The site this year is Kansas City, Missouri, so you folks on the East Coast can take two weeks off work and compete in both Nats this year! You can expect to be reading a lot about the NARAM in this column since your humble author has been appointed Contest Director, a sterling example of the blind leading the blind.

The NARAM-19 launch site is Johnson County Community College, south of Kansas City, The college has several excellent athletic fields, and beautiful convention and dining facilities. All lectures and convention activities will be held at the college, rather than at the hotel. This year's non-contest attractions include lecturers from NASA and LTV Aerospace, a NAR Trustees Open Forum, the usual Manufacturer's Rap Session, and the First Annual Liars Contest, to be judged by a team of experts.

As at every NARAM, Scale, and Research and Development will be flown. Points will be awarded for R&D. Check the U.S. Model Rocket Sporting Code (the Pink Book, available from NAR HQ) for precise details on the rules for these events.

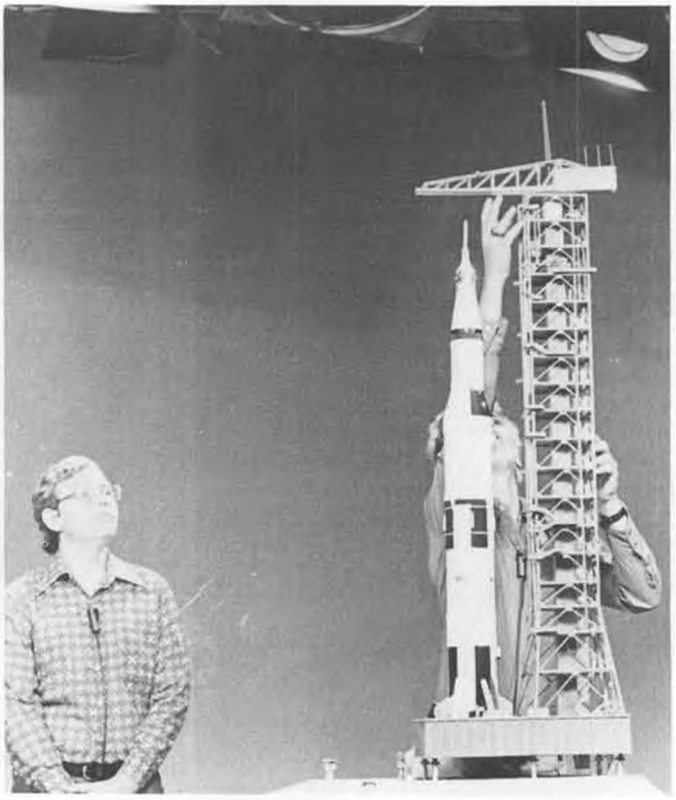
Parachute duration is being flown, in Class 1 (A engines). The same day's flying will see Class 3 Streamer Duration, in which C engines are used. In both duration events, the models are timed from first motion on the pad to the moment of touchdown.

For glider freaks, Class 0 (1/2A) Boost Glide and Class 3 (C) Rocket Glide are being flown. Yes, there is a difference between the two; parasite gliders and models that convert to glide trim by ejecting parts are allowed in Boost Glide, while Rocket Gliders are not allowed to separate; everything that goes up under power must come back down in a glide. R/G's are obviously the more complicated, and the C engines used will allow more exotic designs to appear, hopefully.

Two payload events are scheduled: Dual Payload, in which two standard 1-ounce lead weights are enclosed in the model, and power is limited to E engines; and Pigeon Eggloft, in which the payload is a single raw hen's egg and power is limited to D engines. I'd probably be shot on sight if at least one eggloft event wasn't included; it's probably the most popular competition in rocketry.

Finally, two of the more esoteric events are tentatively included in the schedule: Predicted Altitude, and Titan Superroc. Predicted Altitude is self-explanatory; you predict the performance of your bird before the flight, and your score is the percentage error between your prediction and the tracked altitude. Any model of any description is eligible. Supperoc is a provisional event, which has proven enormously popular. In it, the model is measured,

Large humanoid and small rocket! Unidentified rocketeer prepares scale Falcon air-to-air interceptor at BCMRA, Ft. Lauderdale.



Another shot from Ft. Lauderdale. This time it's Larry Shenosky and Mark Lavigne (behind rocket), about to explain hobby on local TV.

Some members of the Dallas Area Rocket Society at Southwest Modeler Show (l to r): Alan Wilcox, non-member Lonnie Reese (FSI), Scott Hunsicker, Bob Turner, Carl Feldhaus, Calvin Wilson, and John Dyer. They, and others, manned the National Association of Rocketry booth.

and the length of the model in centimeters is added to the altitude it achieves in meters to obtain the total points. There is a minimum length regulation, and Titan class means that power is limited to E engines. Because of the provisional nature of this event, the rules are not printed in the Pink Book, but they will be reproduced in full in the Model Rocketeer before July. The Sporting Code provides that after initial acceptance, provisional events must be flown for two years, and then reconsidered for permanent inclusion. They are not supposed to be flown at a NARAM until they are permanently approved; but judging from the popularity of Superroc, and considering the fact that it comes up for consideration two months before NARAM, we decided to risk putting it on the schedule. In the event that the Contest Board should decide otherwise, another event will be announced.

Speaking of the Contest Board, this seems an appropriate time to introduce you to the general rules under which all sanctioned competition in rocketry is held. Each of the 20-odd events in the Pink Book has a Weighting Factor, indicating its relative difficulty. Each of the five different types of sanctioned competitions is assigned a Contest Factor, depending on its attendance; Section Meets (meets within one club) have a Contest Factor of 1, Area Meets (two clubs) have a CF of 2, and so on up to the NARAM, which has a CF of 5. Points are awarded for places in any event; first place is worth five points, second is worth three, third is worth two, and fourth is worth one. These points are multiplied by the Weighting Factor for the particular event, and this total is multiplied by the Contest Factor for the meet in which it was flown. Therefore, if you took Second in Scale at a NARAM, you would get 3x8 (weighting factor for Scale) x 5 (CF for NARAM), or 120 points. The national Contest Board is under the capable chairmanship of Terry Lee, known for his mild Southern accent and his disgusting tendency to cream everyone else in glider events. In fact, he may well have been appointed to the post to keep him from winning so many competitions.

Second on the list of competitions under discussion is a regional being planned by the Dallas Area Rocket Society of Texas. Grabbing my Pink Book, I find that a regional meet is defined as one in which contestants from at least two states compete, and no more than half the competitors are from the same section. Regionals have a Contest Factor of 3, second only to the NARAM, so they are popular events for those accumulating points. This regional is scheduled for June 4 through 5, so it's bound to be attended by people honing for the NARAM.

The event is called Megalaunch-1, and the title seems to derive from the fact that they plan such high-powered events. Starting with Condor (F engine) Rocket-Glide, they proceed to Roc Eggloft (F engine), and follow this with Class 5 Altitude (F engine)! Also included are Gnat Rocket-Glide (1/4A engine, of all things), Class 1 Boost-Glide, Class 2 Altitude, Robin Eggloft (C engine), Class 3 Streamer Duration, Scale, and Design Efficiency. If you are interested in partaking of this extremely varied bill of fare, and I highly recommend it, contact the Dallas Area Rocket Society, 4633 Fordham Dr., Garland, Texas 75042.

Moving on to this month's Howzat-Grabya Department, we have some pleasant correspondence to report. Our

Swoosh! Parks and Rec. Dept. rocket class gets Superroc demonstration by MB's rocket editor and class instructor, Doug Pratt.

man on the West Coast, Chas Russell, dropped us a line a while ago, in which he describes the search for a hobby shop that doesn't immediately sell out of **Model Builder.** Chas is a veteran of many years of rocketry in the wilds of Columbus, Ohio, and fondly remembers when there was a magazine devoted exclusively to model rocketry. Well, we're trying; but as I've mentioned many a time, people tend to get too involved in their specific hobby, to the exclusion of others, and they never find out what they're missing! Chas also writes that he is searching high and low for an Airfix plastic Saturn 1B kit to convert to flight. The last one I saw was at the Smithsonian shop in Washington, and I bought it; in fact, I have an article ready on the flight conversion, but have been waiting until the kits become generally available again. There is a firm importing Airfix in Texas now, and all

Continued on page 79

"GUS"

By JOHN WALKER . . . This is what Stick-N-Tissue rubber powered modeling was all about just a "few" years ago.

A modeler's favorite view of his just-launched aircraft, as it climbs away in a graceful, banked turn, propeller "whupping" the air and rubber knots thumping loose in the first burst of power.

• GUS is patterned after models that were built and flown in the late 1930's. While going through some old magazines we noted a photo of an English contest winner. Not knowing its dimensions, our model was designed for small field flying.

The guys in the 30's lived dangerously. They didn't use dethermalizers, but took their chances. Flight time was what counted. It was determined by how long the model remained in sight of the timer. It was to your advantage to persuade the timer to get into a car and follow the model. These guys went for broke.

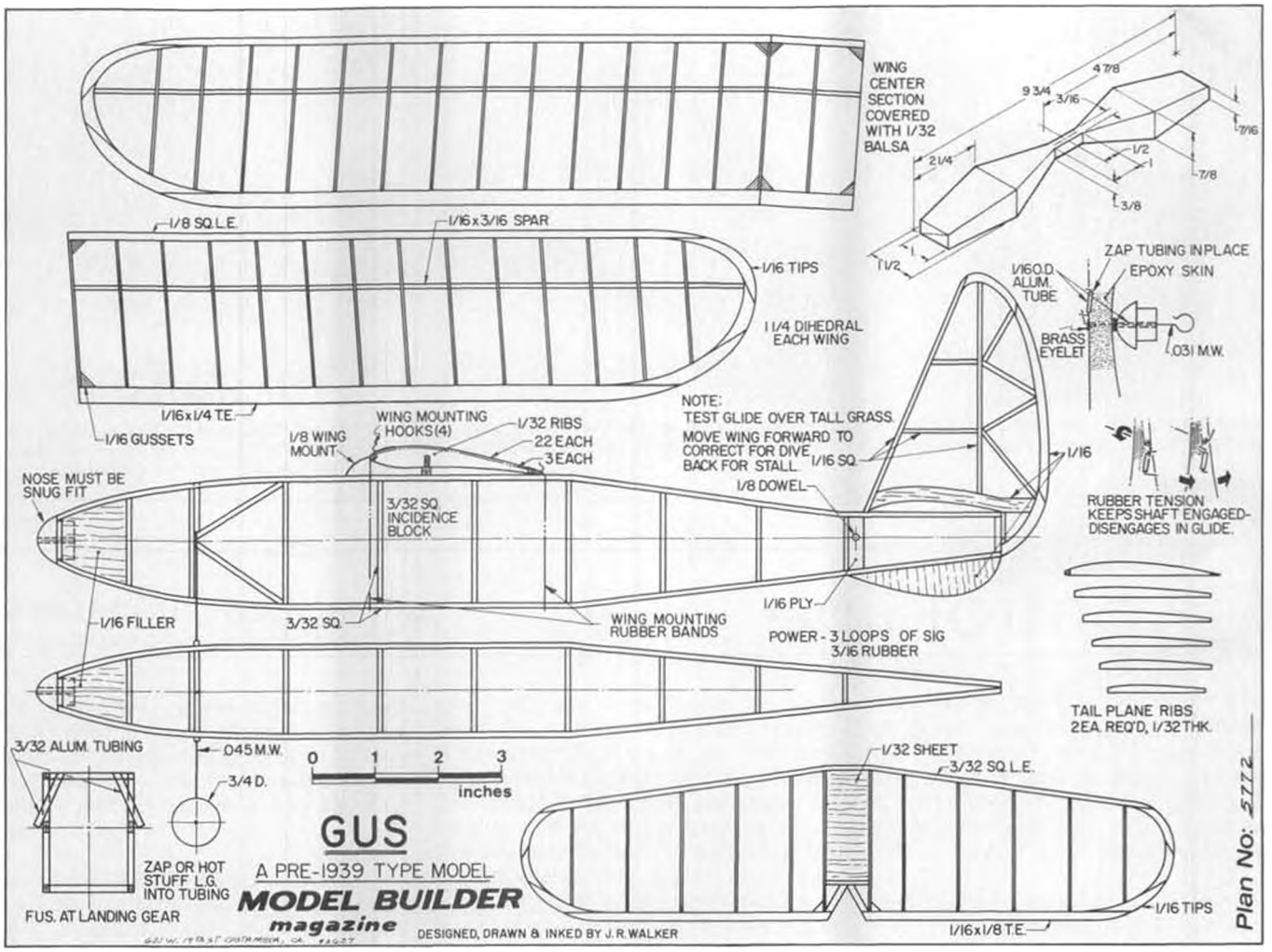
The model is simple to construct. Select the wood for weight and strength. A little time spent selecting wood will pay in performance. Use one of the new cyanoacrylate adhesives to save time.

The fuselage on our model was covered with light weight silkspan, while the tail and wing were covered with tissue. After the covering was shrunk with water, two coats of thinned nitrate dope were applied to the model.

The nose block must fit snugly into the fuselage. If it doesn't, or it becomes

A very traditional '30's style sport rubber model, Gus has not one innovation in structural design. It's about as straight forward as the much-used "straight forward" can get.

If you have forgotten, or never experienced the esthetic pleasure of turning out a model ➜



FULL SIZE PLANS AVAILABLE — SEE PAGE 104

loose from wear, cut a small notch around the top of the block and hook a light rubber band onto the landing gear. This will hold the nose in place.

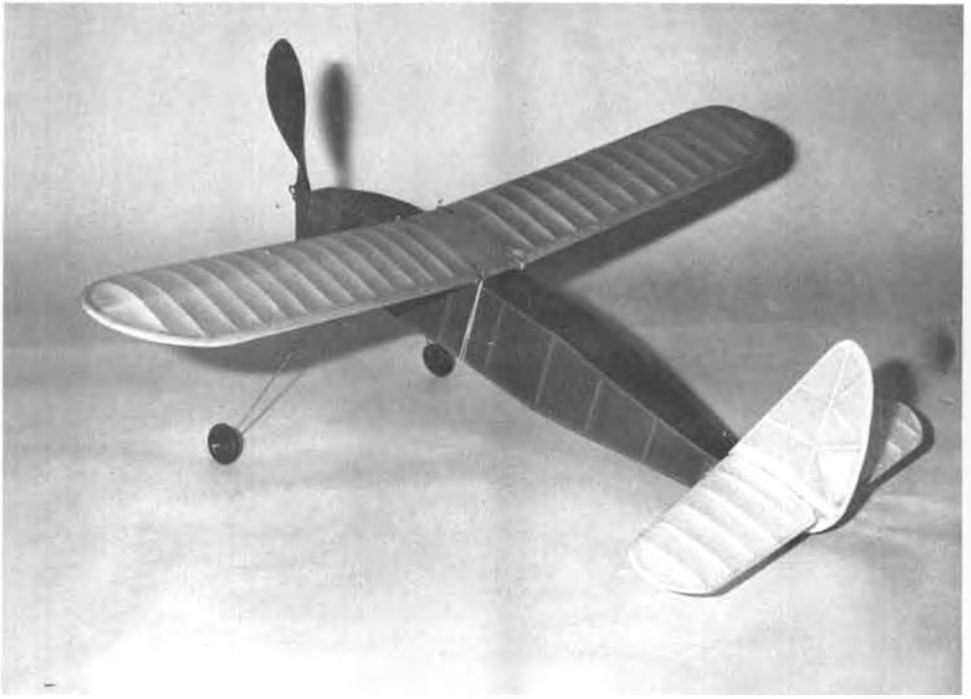
Power consists of 2 to 3 loops (4 to 6 strands) of Sig 3/16 rubber, well lubricated. Your model might require more or less, depending upon its weight.

You can carve your own prop (easier than you think), or use one of the commercial propellers available.

Test-glide the model over tall grass. Move the wing forward to counteract diving. Move it to the rear to prevent stalling. Make power adjustments by adding down and/or side thrust to the nose block.

Have a good day. ●

of this type, all stick-and-tissue, here is your chance to recall . . . or have a first try.



Well . . . maybe one little innovation. The wire hooks on the wing eliminate the old wrap-around rubber band attachment that could get nasty to install. This allows sliding wing. Dowels don't.

Henry Nelson, maker of the Nelson 15 for FAI TR. Also builds many custom motors.

Dick Stubblefield, one of them mean, nasty Texas Combat fliers (so says Dirty Dan).

Bill "Moose" Allen at the '76 Nats, chats with Combat CD, Pat Willcox. You're wrong, Dan, we can see a thumb, and all four fingers!

control line

By "DIRTY DAN" RUTHERFORD

PHOTOS BY AUTHOR UNLESS NOTED

• One of my weak points in doing this column is promising one month to feature a certain item the next . . . and then to completely forget about it. Most recent example of this happening was in the March column when I said we would hear more from Walt Perkins on TR stuff.

So, a month or so late, here is Walt:

THE WEIGHT PROBLEM

"If 450 to 500 gms is the optimum weight for today's 'modern' racers, why isn't everyone building to that specifications? I suspect it's because most guys build the way I used to; by the good old seat-of-the-pants method You know, go down to the hobby shop and select (by feel) the 'correct' weight balsa and then build the whole plane by hit-or-miss. No one knows what the final weight is going to be until it's done (and can't be changed). This method is great if you like mysteries, but it's not the way to get a competitive plane.

"In my old age, I got wise (always was a slow learner). Now I keep track of component weight, from sheets of balsa to a finished part, of all the parts of the plane. Now I can predict exactly what the final weight is going to be, and can control it as I go along. But, by far the biggest benefit of this approach is that you can undertake an analytical program of weight reduction and component strengthening, part-by-part. Remember I once mentioned keeping a log of all your activities? You should include in this log, all your component weights, model-by-model, for reference. Then you won't have to guess about changing from a wire gear to a sheet gear. You will be able to tell, before building an entire model, what effect this change will have on the Big Three; weight, strength, and function.

"This approach will work, regardless of the type of model (flying wing, pod and boom, tunnel fuselage, high or low aspect ratio) or the construction method and materials (fiberglas fuselage shell, built up, or block construction). And I can't imagine any better way to compare materials or methods If you develop one design (heard that before?), and keep track of the changes from model to model, you can't help but get better.

"Our latest plane, 'Shadow IIb',

Marvin Denny holds plane inverted while Greg Hissem primes. Marvin a "good ol' boy". Never did find out which was DD and which was Rich Lopez. Hissem one of best prepared Combaters.

This portrait of Nitroholic Dirty Dan Rutherford (A.K.A. "Fidel Barnsmell") was sent to us by Steve Helmick, editor of The 'Monthly' Bat Sheet, out of Seattle, Washington.

breaks down as follows (and I think it's pretty typical);

Wing: Untapered balsa and hardwood blank, no airfoil	3 oz.
Wing: Tapered, airfoiled, less wire tubes or tissue and dope	2 oz.
Wing: Tissued, ready for finish.	2.4 oz.
Fuselage: Shell, untrimmed from mold	1.8 oz.
Fuselage: Trimmed, with crutch attached	2 oz.
Stab: Balsa blank, untapered, no airfoil	1.5 oz.
Stab: Hinges, horn, tapered, airfoiled, tissued, ready for finish	1 oz.
Engine, mount, tank, shut-off, tubing, prop, spinner bolts.	8.4 oz.
Landing gear, wheel and mounting plate	1 oz.
Controls	.5 oz.
Finish and reinforcement	2.5 oz.
Total weight (509.9 gm)	17.8 oz.

"You can probably see some areas in the above breakdown to save some weight, can't you? Well, so can I . . . and only because I know what the component weights are. As a result, the target weight for 'Shadow III' is 15.5 oz., without sacrificing any strength.

"Hey, this works! So buy a good postal scale and start logging your component weights. And if you discover a trick material or construction method, write a column for this rag so I can benefit from your knowledge!

Signed, Walt Perkins

"P.S: Look for a good gram balance scale at flea markets or pawn shops. A new one at a photographic store costs $27.00. Sounds high, but it's all part of 'doing it right'. Walt."

Walt has made a very good case for keeping track of the weights of components. I'll admit to never having built this way, but a couple of my Badyears are heavier than I would like, so . . .

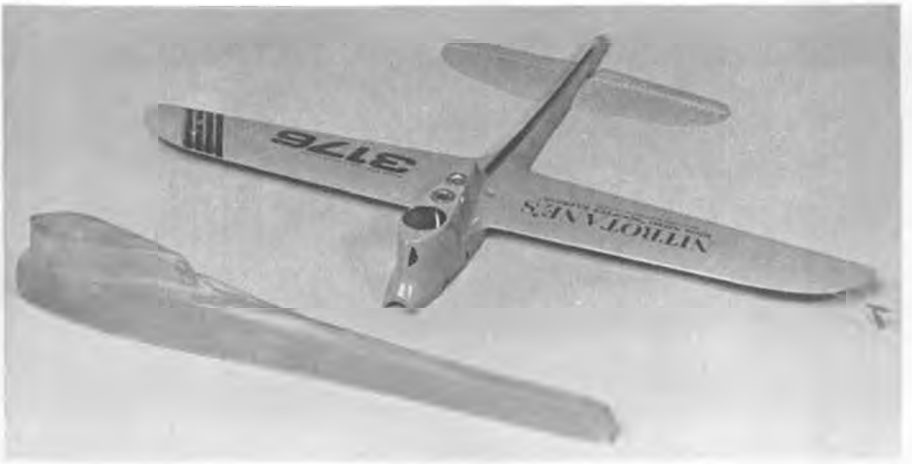
'77 N.W. REGIONALS

This year's N.W. Regionals, always one of the best two-day C/L contests held anywhere in the world, is coming up again . . . and looks to be better than ever. All of us here in the N.W. will be there, of course, and each year sees more and more people coming up from California, so the action will be hot 'n heavy, for sure. Most all C/L events are offered, the field is really nice, and you can camp right next to it. In fact, the action in "Tent City" at each Regional's is well worth the drive up!

All events offered feature good competition, but Combat is always the big event in draw and competition offered. In years past, both Fast and Slow have been run on Sunday, but that meant a very long day, due to the number of matches flown. This year, Slow will be run on Saturday, as it is our "second-class" Combat event and doesn't receive near the number of entries (usually about 20 enter slow) as does Fast. As usual, Fast will be flown to Condor Legion double-elimination rules . . . the only way to fly!

If you prefer to fly in (and each year a few do), then this is your kinda contest, as the contest site is next to Mahlon Sweet Airport.

For entry forms and more info on the N.W. Regionals, to be held May 29 and 30, in Eugene, Ore., write to Mike Hazel, 738 West M St., Springfield, Ore. 97477, or Gene Pape, 175 Greenacres Rd. -77, Eugene, Ore. 97401.



"Moose" Allen's 'glass Rat top in foreground, with a completed model in back. Design is the "Hooptee Express", by John Kilsdonk.

I REFUSE TO TAKE IT ANYMORE

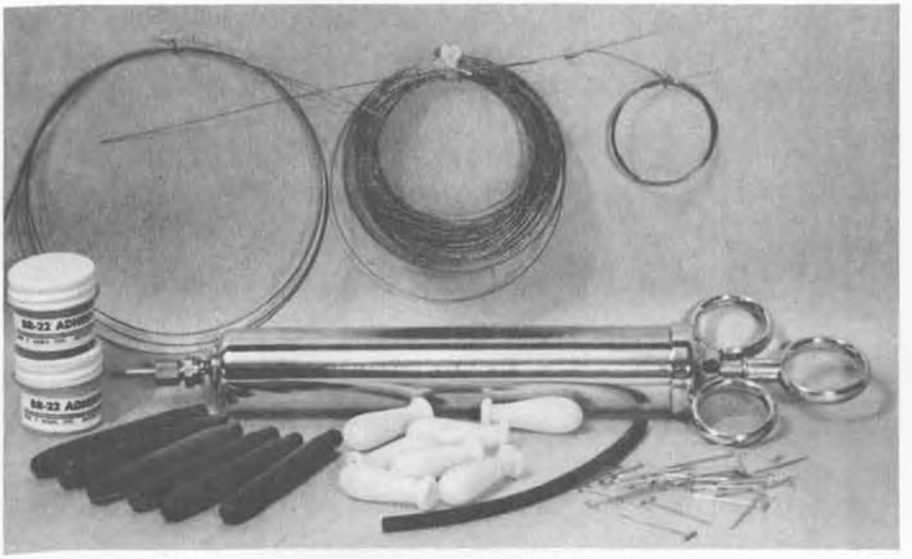
Each year about this time (early March), it seems as if the magazines are always talking about the weather in So Cal. You know, "this contest was held in Dec. and it was 60 degrees . . . a bit chilly", or "Where else but here in beautiful So Cal could one fly in the winter". And on and on . . . You wanta know why they concentrate on their winter flying? Because it is so crummy the rest of the year! Brown grass at the field, brown air to breathe, long drives to contests, flying in 100 plus degree heat, etc.

I have to go to So Cal once or twice a year, and every time I get there, I'm ready to leave. What is so attractive about that part of the country, I'll never know. I guess I'm spoiled by our beautiful N.W., and I would imagine that many of you also wouldn't trade your home area for the imaginary fantastic conditions in So Cal. So the next time you read, "There we were, in the middle of Jan., flying in shirt-sleeve weather while the rest of the country was . . .", be advised that, for nine months out of the year, the guy probably wishes he could live someplace else. Please disregard any parenthetical comments that are bound to be inserted by WCN! *(. . . . . wcn).*

COMBAT EQUIPMENT FROM THE "MOOSE"

Back a few pages, there ought to be a couple of pics of some of the stuff offered by Bill "Moose" Allen through his company, Combat Specialties, 418 Fairmont Drive, DeKalb, Illinois 60115. That long, shiny thing is a super-zoot, 4 ounce syringe that is just right for filling bladders, pacifiers or just hosing down your buddy. The syringe goes for $10.50, which sounds quite reasonable to me.

Continued on page 80



Assortment of Combat goodies available from "Moose". Four oz. syringe, lines, bladders, pacifiers, pins, etc.

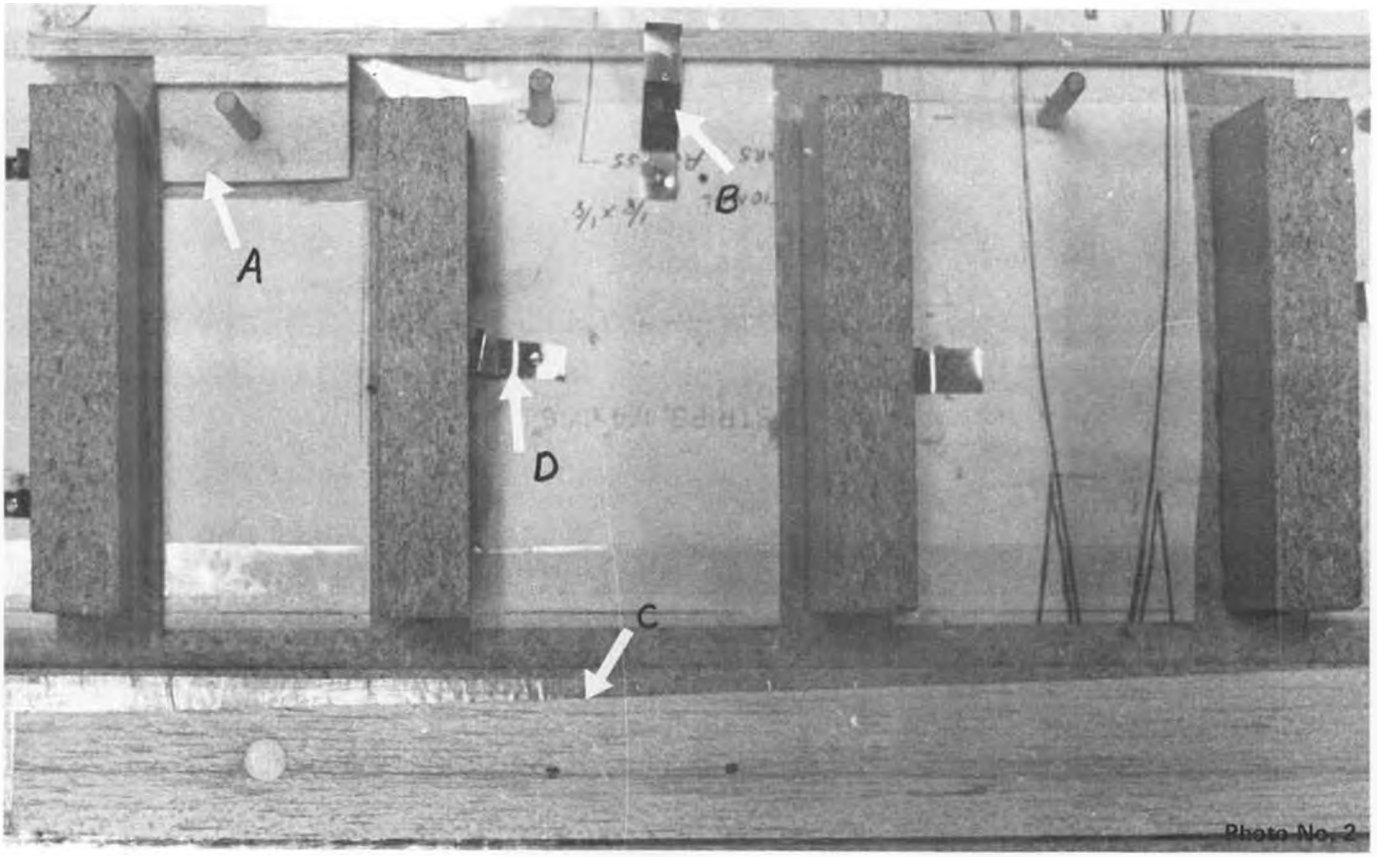


Photo No. 2

COMBAT ✦ JIG ✦

By GARY FROST . . . Here's an easily made jig that will help your combat wings to be easily made too, and they'll be straight, to boot!

• Did you ever get caught unprepared for an oncoming combat bash and have to gang-build a bunch of airplanes? Did you ever think there ought to be an easier way than to have to use a ruler and pen to mark rib locations each time, or to have to make sure the ribs are parallel each time? Did you ever curse the warps that somehow appeared out of nowhere, or did you ever build three planes at once and have them all fly differently and wonder why? I believe I have an answer, and that is to build a jig for your favorite combat plane.

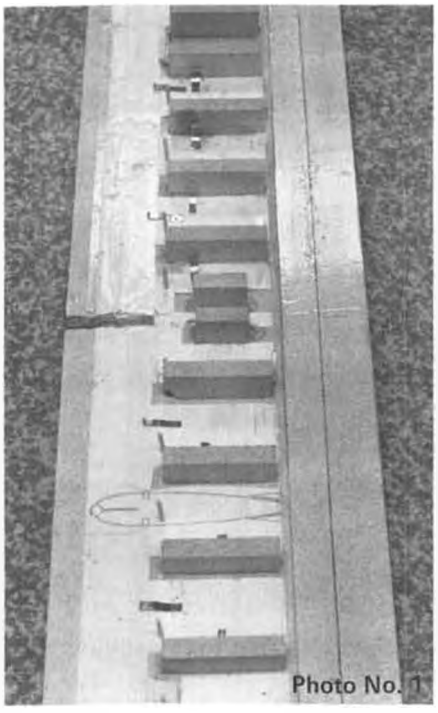


Photo No. 1

The concept of building a jig is not new, but perhaps using one for a combat plane is. If you can say 'yes' to any of the opening questions, and you do have a favorite design which you use all the time, then this jig ought to save you a lot of future grief. The basic requirements of low cost and simplicity are met, and the time spent for construction of the jig itself is regained by time saved in construction, not to mention improved quality. If you will note the number 53 on the center rib in one of the photos, that indicates you are looking at the 53rd plane that has gone through the jig. And since there is no wear, plane number 1053 will still be identical. Convinced?

The jig is constructed with press board (flake board or particle board) about 3/4" thick, available at your hardware store. I use a table saw to size the base, cut strips for the rib locators, and to cut the trailing edge locator. Cutting the trailing edge locator is pretty tricky, so you might cut more than one locator for future use while you have the set-up. My jig is set up to construct the Nemisis II, and it has the trailing edge angle at 9 degrees to the horizontal, and the height (thickness) at the front edge of the locator (to the plane) is .410 inch. Rather close for carpenter work isn't it? The 9 degree angle is fairly critical, the .410 height is not, as all the height does is affect the engine thrust line, which can be controlled at the front of the jig.

Now that all the pieces are cut, the trailing edge locator is glued to the top surface of the base. I use Weldwood glue. Make sure you do this on a flat surface and weight it down well. This lamination makes the base more rigid so that it won't bow in the future due to moisture,

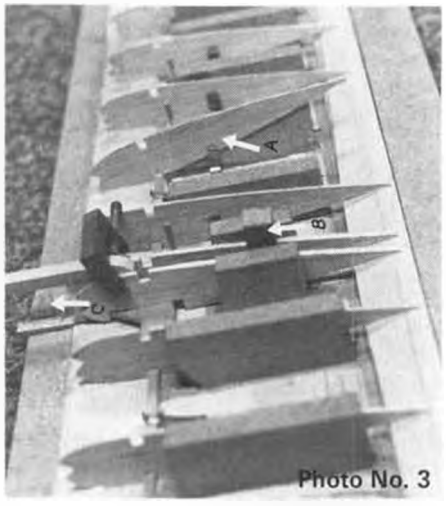


Photo No. 3

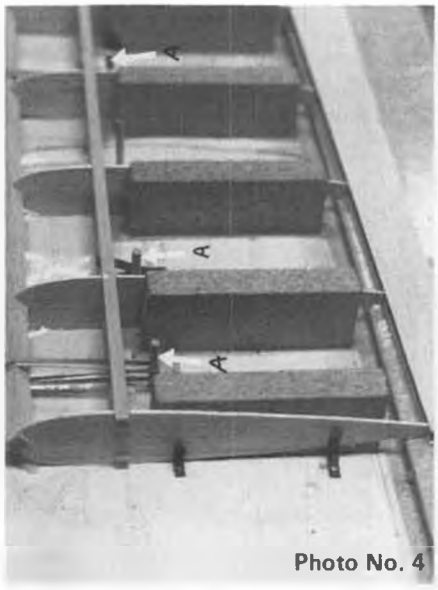


Photo No. 4

etc. Next glue a set of plans to the base. Then carefully cut out areas for rib and spar locators. Glue the locators directly to the base, using the plans for exact position. Absolute length or height of the rib locators is not important; you need them long enough to fully support the rigs, and yet small enough to allow removal of the plane. Note that the two center rib locators are shorter to allow for the bellcrank platform. My rib locators are 4-1/8 by 1-5/8 inches.

Next ink a line across the top of the trailing edge locator, to use in the fore/aft positioning of the trailing edge. Then drill holes in the base for 3/16 dowels, behind the spar. These dowels are used to anchor rubber bands for the leading edge. Next, add the clips for rib locators, and across the base to hold the lower spar flat. For the rib clips, I use the spring steel from the plastic dispensers of Gem single edge razor blades. Since the ribs are thicker in the center, the clips are spaced accordingly. For the lower spar clips, I cut up guides from storm window frames, also available at a hardware store. I nailed and glued the clips down.

Finally, cut a notch 90 degrees to the spar line on the plans, to allow for the lower motor mount. If you like engine offset, you can control it here by cutting the notch at a slight angle. To keep glue from adhering to the plans, or the board, I suggest covering the top of the jig with Fascal wing covering. Since it has its own adhesive, just lay it down.

To check for thrust line alignment, draw a horizontal center line across a center rib, and across a motor mount sub-assembly, and position them in the jig. Carefully align the 'V' notch in front of the motor mount sub-assembly with the 'V' notch in front of the rib, and also align center line marks on each. Then check the relationship of the lower motor mount with the jig base. You can then add or remove material, and use the base as a reference when you build your planes. When you finish you should have something that looks like Picture Number 1.

Now that the jig is complete, let's talk about how to use it. First, glue together the two motor mounts, the center block, and bellcrank mount that make up the sub-assembly and have that unit dry and complete, which means you have to radius the back corner of the mounts now.

Reference Picture 2. The spar is placed against both outer stops, and underneath the spring clips. The spar line of the plans is used to keep the spar in a straight line between the two stops. Next, the lower half of the trailing edge is placed on the jig. The ink line shows fore/aft position and insures that the back edge of the trailing edge is parallel with the spar. The trailing edge is held in place with thumb tacks. Shown in Picture 2 is (A) left outer spar stop, (B) spar spring clip, (C) trailing edge ink line, and (D) rib clip.

Reference Picture 3. Next the ribs are slipped in place and glued to the trailing edge and spar. The left center rib is notched to accept the bellcrank platform, and the motor mount sub-assembly is glued in place between the ribs, again aligning to the reference point in front. A C-clamp is used to hold the ribs tight against the motor mount in front, and a tapered wedge is placed in-between the rear area of the center ribs to hold both tight against the inside of the locators until the glue at the trailing edge is dried. Shown in Picture

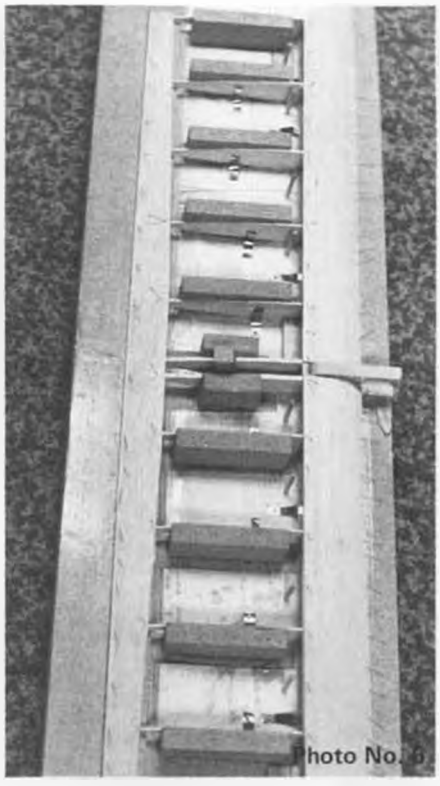


Photo No. 6

3 is (A) method ribs are slid into place, (B) tapered wedge to hold back of center ribs against locators, and (C) reference point for engine thrust alignment.

Reference Picture 4. Now the leading edge is placed in 'V' notches of the ribs, and is held in place by rubber bands anchored to the dowels. The top rib spar is added and is merely held by friction in the rib cut outs. Everything up to now can be done in one step, now we must pause for the motor mounts and leading edge to dry. A big advantage of the jig board now is that it can be removed from the work bench so you can work on something else in the meantime. I have found the new cyanoacrylate glues very helpful to hold parts in place for speed of assembly, and then I use a slower drying and stronger glue over it. Shown in picture 4 is (A) anchor dowels for rubber bands.

Reference Picture 5. Credit Howard Rush for coming up with the original jig from which my jig was designed.

Continued on page 84

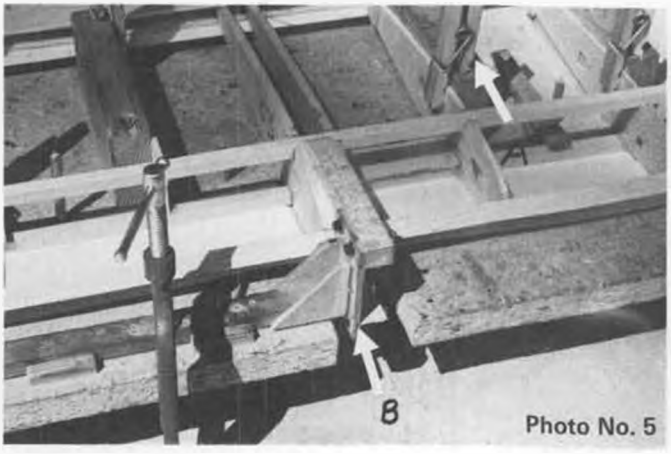


Photo No. 5

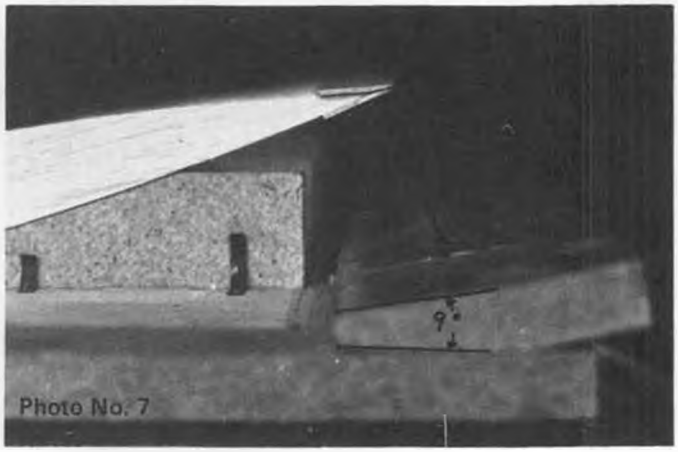
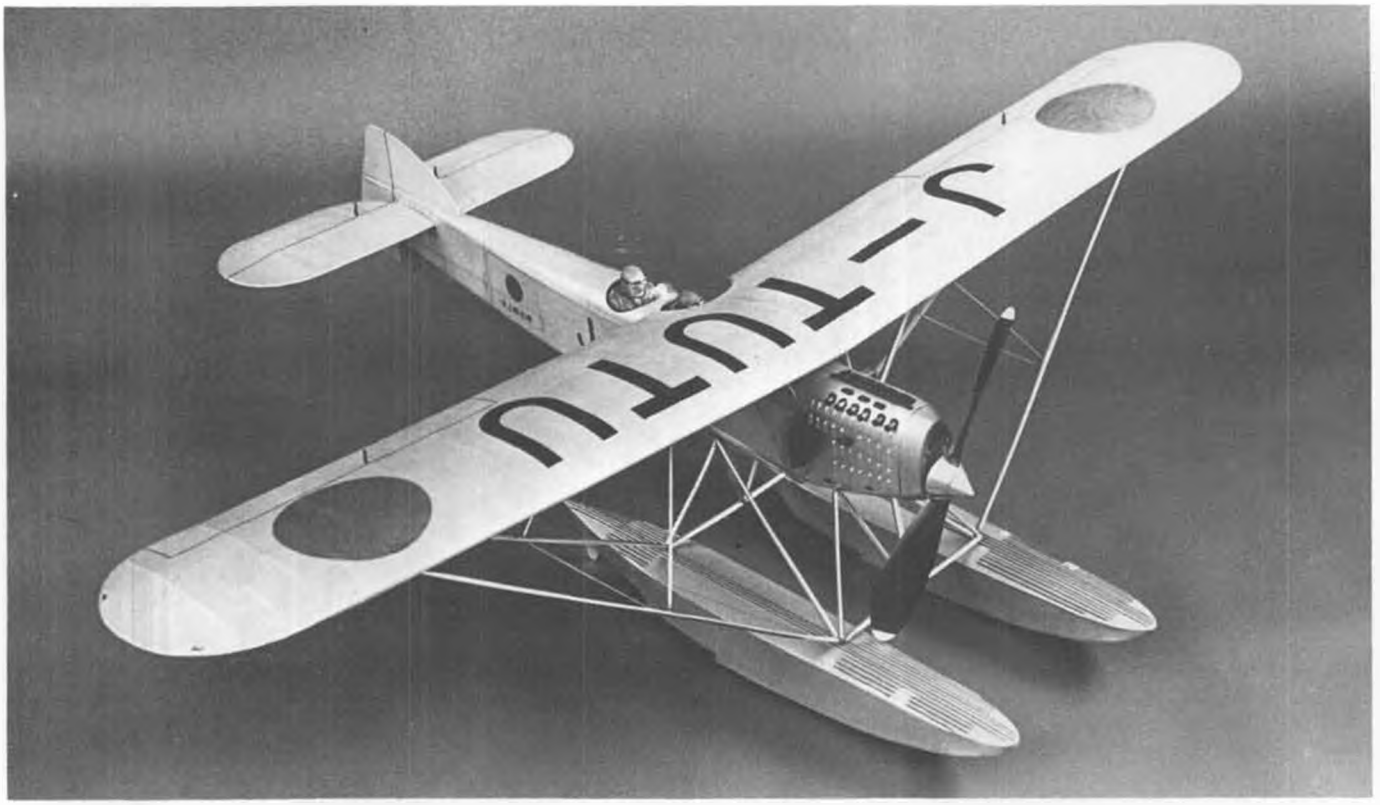


Photo No. 7



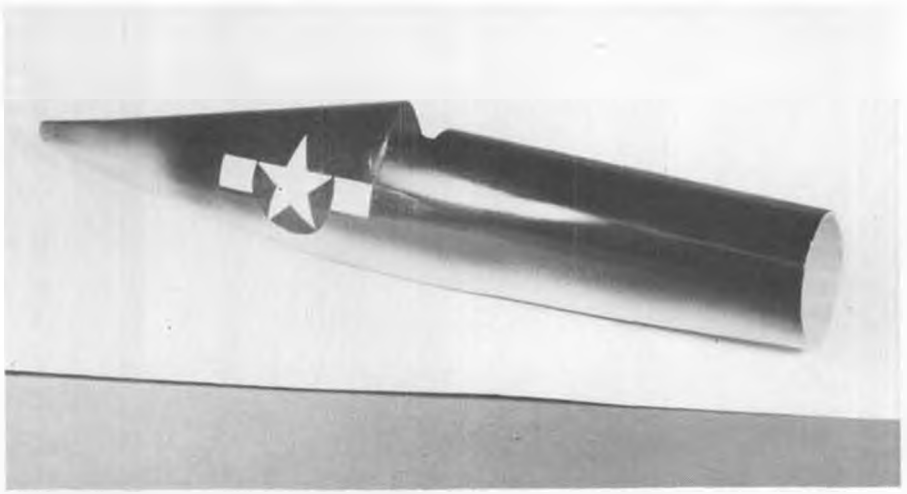
A Kawanishi K-8B, built to 3/4 inch scale by Bill Noonan (Messerschmitt M23b, Oct. '76 MB) for the Flightmaster's Annual at Lake Elsinore, California, this June. Plans were scaled from a Japanese publication, and fortunately, the dimensions were in English metric. Span is 39-3/4".

FREE FLIGHT SCALE

By FERNANDO RAMOS

• For starters this month, I want to mention several newsworthy items that I believe you will find interesting. A month or so ago, I mentioned that I had found all kinds of useful items in an all-shipmodel shop. At that time there was a possibility that this ship shop would be handling 36 inch basswood in popular sizes. Well, it is no longer a possibility, but a reality. Seaport Models Ltd, 364 S. Tustin Ave., Orange, Ca. 92666 has come through with 36 inch lengths of basswood in the following sizes: 1/32 x 1/16 @ 11¢, 1/32 x 3/32 @ 13¢, 1/32 x 1/8 @ 14¢, 1/32 x 3/16 @ 15¢, and 1/16 square @ 9¢. The wood is cleanly cut, and is ideally suited for laminating tail and wing outlines of larger models. Many of you are aware that basswood used for model railroading is too short for many scale jobs, and instead of increasing the price, they cut the length. Needless to say, I was very excited about obtaining these different sizes.

Seaport Models will take mail orders, but for obvious reasons, there is a $5.00 minimum. As mentioned in an earlier column, they also handle many other woods which are suitable for our type of modeling. Soon they will have a catalog of all the different kind of materials they will be handling, but at least for now the basswood is available.



F4U Corsair fuselage of thin balsa sheet, wet-molded over a form, dried, and then glued. One slit cut to remove from form. Idea from Fulton Hungerford, described in text.

Certainly the next product needs no introduction, and that's Fulton Hungerford's Spoke Wheels. He has just sent me his 1976 catalog, which also applies for 1977, with the following additions and deletions. He had added two more sizes of silk spoke wheels to his already long list. These are 9/16 x 1/16 and 7/8 x 3/16. Apparently all nylon spoke wheels have been deleted. His stainless steel spoked wheels are the ones which really dazzle me, and are a true work of art. Fulton has developed a silicone rubber tire for these wheels, which has excellent physical properties, with good bonding and resistance to aging and abrasion. He now has stainless spoked wheels from 1-1/2 to 5 inch diameter. Send a stamped, addressed envelope to F.H. Wheels, 1770 Lilac Circle, Titusville, Florida 32780, for his catalog and price list.

How would you like to beat the high cost of balsa sticks? Every once in a while, I get a shock at the cost of balsa sticks, particularly 1/16 square. I can remember the days of three for a penny, and many of you probably remember at least 1¢ each. Of course, those days are long gone, but there is a way to bring the cost of sticks from 1/64 square to 1/8 square to a very reasonable figure. Jim Jones, 36631 Ledgestone, Mt. Clemens, Michigan 48043, has developed a true, Adjustable Balsa Stripper (ABS). It has a micrometer readout which is fully adjustable from 1/64 to 1/8. Each

division on the scale is .005". It incorporates a small leaf spring which automatically adjusts to the stock thickness from 1/64 to 1/8. The ABS is held in one hand while the other hand feeds the stock through. Each strip is parallel and square, strip after strip, either short or long. It shows up "hard" spots in the sheet that helps eliminate unusuable pieces. The stripper itself is 6-1/4 inches long, 3 inches high, and uses a standard double-edge razor blade. It is made from hardwood and plexiglas. I have stripped several different thicknessess of balsa with equal facility and accuracy. This is the best stripper I have ever used. Jim sells them for a very reasonable $10.80, which includes insurance and postage.

Another name that needs no introduction to scale modelers is that of Gene Thomas. Many of you are familiar with Gene's Peanut plans and his semi-kits, and in particular, the Heath Baby Bullet. When the Bullet was first released, a booklet of the Heath was also available. This booklet has the complete history and many incredible photographs, constructional drawings of the real Bullet, including 3-views. Also available is a drawing of the Bullet suitable for framing. Gene's concept is to have the same documentation for each plan he is offering. The amount of work and effort that goes into these booklets is staggering. The second and third booklets are now ready, those of the Heath Parasol and the Church Midwing. Even though none of these airplanes may be your particular favorites, these extraordinary booklets will eventually be a collector's item, and will enhance any scale modeler's reference library. Color prints of these two aircraft are available also. A similar booklet on the 1911 Cessna will hopefully be out by the time you read this column.

Gene has changed his product name to Classic Models. Soon you will be seeing these kits on the dealer's shelves in very fancy boxes, to match the contents.

One last product I want to mention is a fabric cement for full-size aircraft, called Poly-Tak. This material has an adhesion you won't believe! It is used for attaching aircraft fabric to a structure. It has twice the strength of nitrocellulose fabric cement, and will adhere to most surfaces, such as aluminum, steel, glass, and wood. So what, you say? This is the material I used for covering my full-size airplane, and if it works so good for "biggies" it ought to be just as good for models.

I tried some the other day on a project I've had around for quite some time. I was covering a wing with silkspan (This is the first time in at least ten years I've used silkspan . . . heavy!). I tried the Poly-Tak, and it proved to be a very efficient way to attach the covering.

This Poly-Tak can be used for nearly all types of covering, including silk and nylon. It can be applied in two different ways. One would be to wet the outer edges of a surface than lay the covering over it dry . . . like I did the silkspan . . . or brush on a coat or two on the outer edges and let dry. When dry, place the covering over the structure and activate the Poly-Tak with M.E.K. (methyl ethyl ketone) or acetone. This latter way would be recommended for wet covering.

Polish Lublin R-XIV advanced trainer, which dates back to 1927-32 era. Bill Noonan placed third at the Annual Flightmaster's Jumbo/Peanut contest with this one.

Poly-Tak isn't cheap, at nearly $6.00 a quart, but it is very viscous for full-size covering, and for modeling purposes it needs to be thinned out, which increases the volume considerably. It sure is an easy way to attach covering, "big" or small. Poly-Tak is available from Stitts Aircraft Coating, P.O. Box 3084, Riverside, CA 92509. Incidently, Stitt's products are sold widely throughout the U.S., so it could be that your local airport parts dealer handles it.

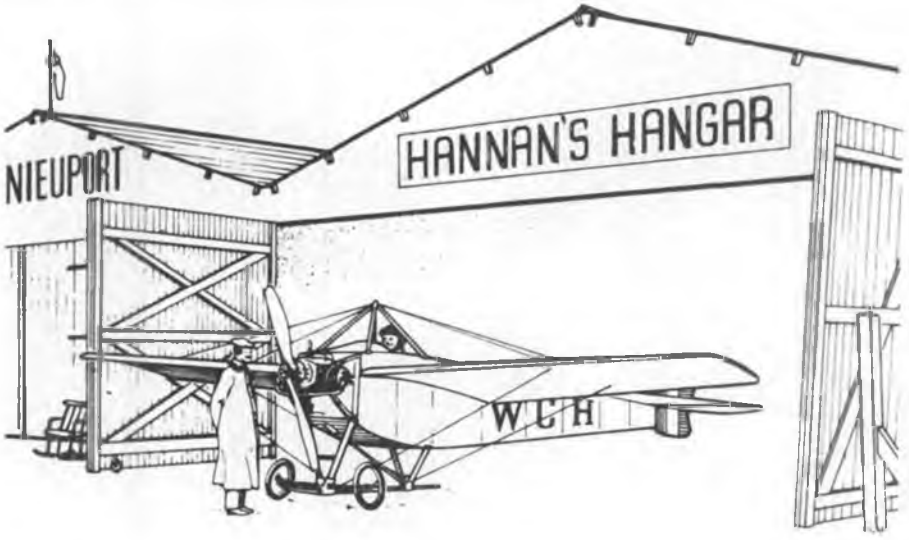
So much for the new products. Now for some handy hints. George James has passed along an additional use for white glue, in the finishing of any kind of rubber model. After a model has been covered and water shrunk, George sprays a light but even coat of thinned-out white glue over the entire model. When dry, this leaves a kind of opaque look to the entire model, but it also leaves a very smooth finish to the surface. George is a real enthusiast for Dr. Martin Dyes, so his next step is to spray on an even coat of dye of the appropriate color. When this dries, he puts on a single coat of clear dope, for a light weight, but effective finish. I would prefer to see a couple of more coats of clear dope for a stronger covering than George uses.

While briefly on the subject of dyes, George brought a model to one of our club meetings that was finished in silver. At first glance, it appeared to be finished in a silver paint. Not so. It was actually finished with a water soluble dye, and it looked great. The name of this product is Windsor Newton silver ink, and out here it costs 89¢ a bottle. It should be available at any good art store. It is applied just like any of the other dyes.

In 1967, the Nationals were held out West, at the Los Alamitos Naval Air Station, and it was the first time that

Continued on page 84

The Lublin in flight over San Diego countryside.



Sufficient research will tend to support your conclusions . . .

• The writer of the above opinion prefers to remain anonymous, but evidently speaks from personal experience!

NOTHING NEW UNDER THE SUN

When the tire manufacturers introduced tubeless tires not so many years ago, they acted like it was an entirely new concept. Not so. Seems the General Tire and Rubber Company advanced and demonstrated the idea for tubeless aircraft tires, with a resulting weight savings of some three pounds, and this was back during 1931!

BON JOUR

Extract from a recent French model magazine indoor scale contest report: "This good humor is found in all Peanut meetings, and that is without doubt why they have so much success."

BOOMERANGS RETURN

Well, if you throw them right they will! Actually, these may be the world's oldest form of hand-launched gliders, and are quite fascinating, both to fly, and as interesting conversation pieces. Various types are offered for sale by:

Boomerang
Box 7324
Benjamin Franklin Station
Washington, D.C. 20044

Your name, address, and return postage will bring you a list, and please tell 'em **Model Builder** sent you!

A quote from the Boomerang brochure assures us that "The boomerang fits the temper of our time; partly silly, partly sporting, mildly eccentric, very good exercise. Best of all, it's fun." Sounds to be an equally accurate description of model aeroplane flying. An interesting approach here. Perhaps we should take better advantage of our "mildly eccentric" image . . . it COULD be turned into a publicity plus, maybe?

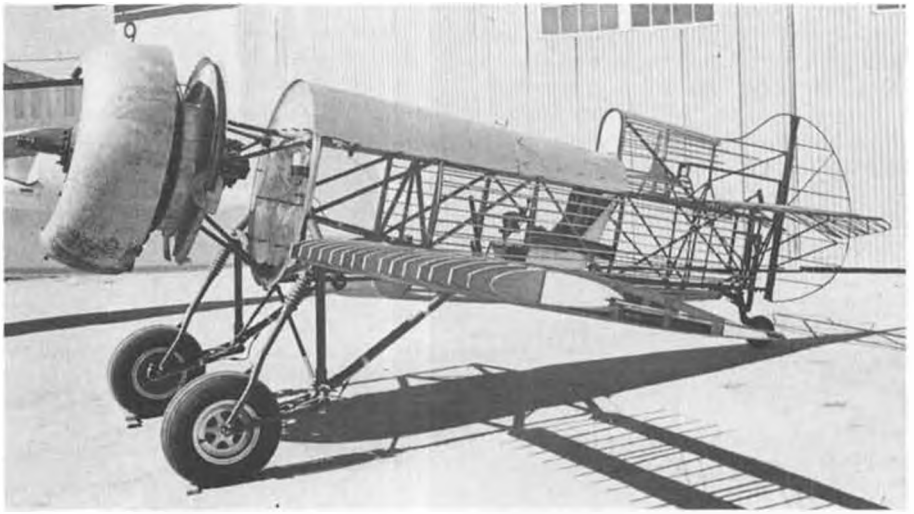
THE "CHEAP AIRPLANE"

Doug Gillies sent us an article originally published in a 1935 *Aero Digest* magazine, written by William B. Stout. Stout, it may be recalled, was once president of the Society of Automotive Engineers, participant in the design of a number of aircraft, including the Ford trimotor, and long-time supporter of model building. For years, he wrote a modeling column, and later

Continued on page 86

BILL WARNER PHOTO

Popular Marilyn Cover with two of her models at Taft; Arrow Sport and Pietenpol Peanut. SCIFS newsletter editor, Ken Sykora in back.



Gee Bee "Z" reproduction rapidly taking shape at Flabob Airport, near Riverside, Ca., expected to fly this summer. Granger Williams has R/C version at about same stage of completion.

Demoiselle Peanut, by Graham Davitt, age 15, of Leeds, England. Built from Hannan plan. Photo by Jim Moseley, Yorkshire, Eng.

Nate Rambo snapped Nick Johnen, launching his Peanut 1911 Caudron, during recent contest in Camarillo, California.

AVIATIK + BERG C-1 +

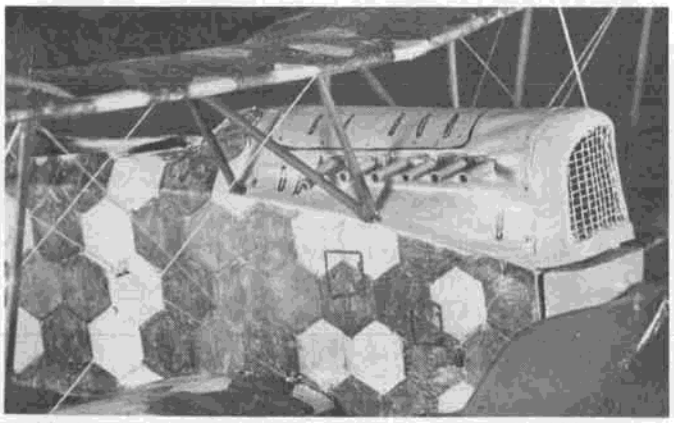
By MAJOR EDWARD F. HEYN (Ret) . . . A biplane Peanut that flies well is always welcome here, and one that has character is even better. Ya gotta build this one, if only to try out the camouflage method.

• Those modelers who have done any amount of research into bombing and reconnaissance aircraft of WW-I may have found, as I have, that in general, the majority of these aircraft make rather poor subjects for free flight rubber scale development. With the low powered, relatively heavy engines then available, many aircraft required large span wings for lift and rather short fuselages to concentrate the weight of the extra crew member and bomb load close to the C.G. Fortunately, there are a few suitable exceptions to this generality, and the Austrian Berg C-1 was one. Although a two seater, it was only slightly larger than the Berg D-1 single seat fighter, both of these aircraft having been designed by Dipl. Ing. Julius von Berg.

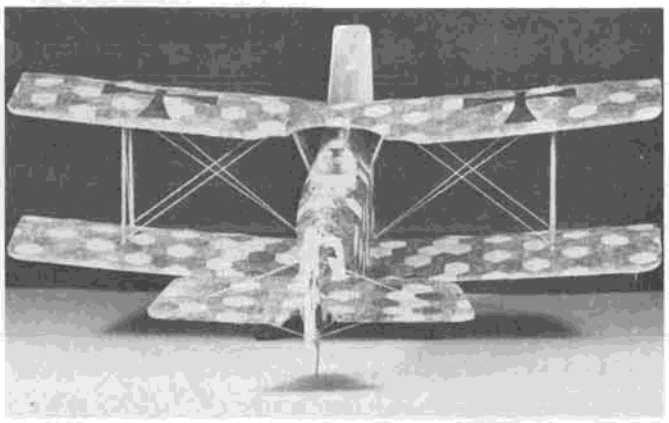
Series 35 Berg C-1's were constructed by the parent Aviatik company (Oesterreichische and Ungarishe Flugzeugfabrik), while four other companies built C-1's under sub-contract. These were Series 45 by Lloyd (Ungarische Lloyd Flugzeug and Moterenfabrik), Series 83 by WKF (Weiner Karosserie und Flugzeugfabrik), Series 91 by MAG (Ungarische Allgemeine Maschinenfabrik), and Series 114 by Lohner (Lohnerwerke Ges.m.b.h.). The Series number precedes the individual aircraft number on the fuselage sides, so in this case you may select from many authentic markings. The C-1 was powered with a 185 or 200 hp. Austro-Daimler six-cylinder, in-line, water-cooled engine. Scale documentation may be found in the Harleyford book "Reconnaissance and Bomber Aircraft of the 1914-1918 War". I highly recommend the British Harleyford series of aircraft books for scale aircraft data, although some of the earlier volumes are long out of print. This author, incidentally, has co-authored two volumes in this series.

Construction of the C-1 is no more difficult than of any other bipe, but unless you can build exceptionally light, it will not be a "sort of scale" 5 gram ghost. Mine weighed in at 18-1/2 gr. less motor. Try to keep yours lighter.

Continued on page 98



A little bit of engine detailing can go a long way toward adding realism to any model. Aluminum tube exhaust stacks.



Camouflage is applied to covering prior to its being adhered to the frame. It's a fairly simple process, explained in the text.

1/16 sq.

1/20 sq.

1/16 x 1/8

SCALE WING STRUCTURE

NO DIHEDRAL ON PROTOTYPE

BALSA BLOCK

BOND PAPER DECKING

RIBS AT STRUTS, CENTER SECTION, AND BOTTOM WING ROOTS ARE 1/16, ALL OTHERS ARE 1/32.

PUNCH OUT HOLES

B

C

D

1/32 SHEET FORMERS

E

F

G

H

EPOXY

6" TERN AERO PROP

A

B

C

D

E

F

OPTIONAL GUN RING

G

H

2 LAMS. 1/32 x 1/16

WHITE TISSUE

37.41

1/64 PLY

A

DRILL 1/16 HOLE

ALL STRUTS 1/16 DOWEL

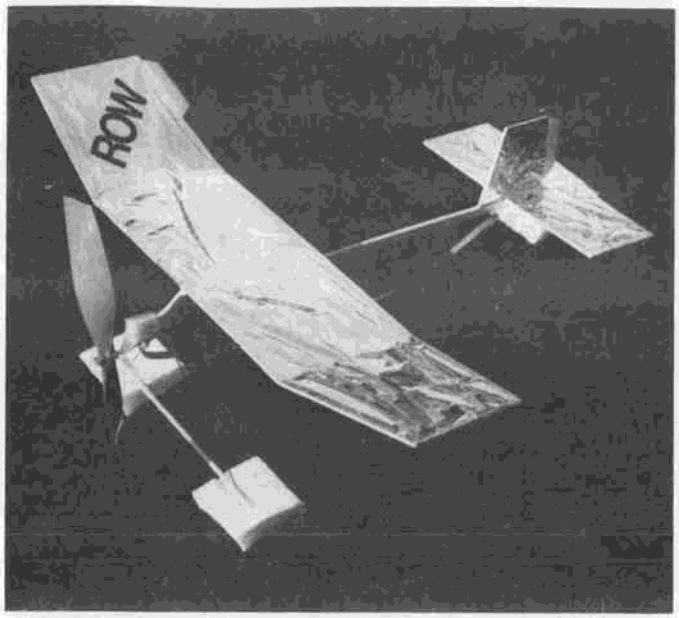
3/32 TUBING

1/16 SHEET

BAMBOO

PEANUT SCALE
AVIATIK BERG C-1

BY E.J. Heyn 3/77



VTO's Dave Whatsistrum put this Peck R.O.G. on foam floats . . . which changed it to R.O.W. Covering is NFFS mylar.

Promising newcomer to free flight. Name is Hank something-or-other. Struck this pose for Bob Guylas at Galeville, New York.

FREE FLIGHT

By BOB STALICK

• Some interesting events have occured in the world of free flight recently. One is that the postponed A/2 finals are now ready to go. The program now allows 3 sites for the finals, which are to be held Memorial Day Weekend, 1977. As of the writing of this article, the three sites will be Taft, CA., Bong Field, WI., and Galeville, NY. Since the entire U.S. team will be leaving at the end of June, a solution to the A/2 question has been long overdue.

Hopefully the 1979 FAI F.F. program will not face the same kinds of difficulties that existed in the 1977 program. All of the 1977 program participants had the opportunity to vote upon the format for the new program recently, and it was adopted by a wide majority. So, even though we haven't completed our 1977 program, the 1979 program is already underway. Additional details about how you can enter this interesting and challenging aspect of free flight competition can be found later on in this column.

Now, let's get on to our regular features.

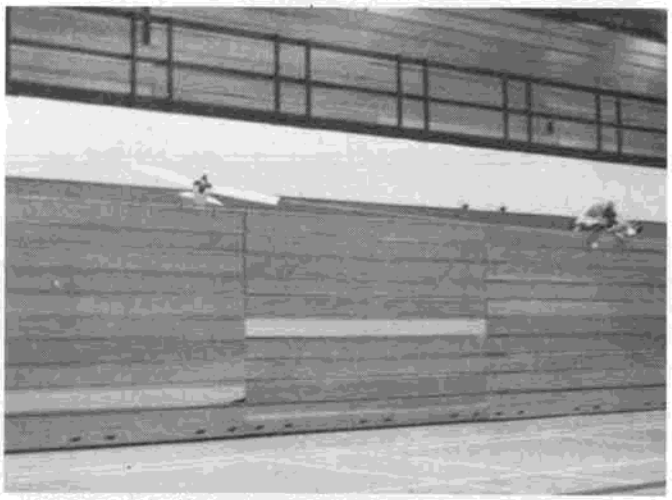
DARNED GOOD AIRFOIL . . . HA-12

Max Hacklinger has been recognized as one of the prime developers and innovators in the early days of FAI Nordic competition. The airfoil, which he calls the HA-12, was originally intended for maximum calm air performance in conjunction with a cord turbulator placed 10% of the chord ahead of the leading edge. This allowed the use of a relatively rearward C.G. location in conjunction with a high aspect ratio to give maximum glide in calm to light thermal situations.

Through extensive flight experiences with the section, it has been determined that optimum all-around performance can be gained from the section through elimination of the drag caused by the turbulator, slight thinning of the nose entry, and a forward C.G. to give an adequate static margin. Duration under test conditions, with the above modifications, ranged from 2:40 to 2:50 under the best of conditions, while retaining fairly good rough air stability. Maximum performance with the turbulator is similar under turbulent conditions, but still-air performance consistency has been unobtainable.

Construction of the section required some type of sheeting for adequate strength. Hacklinger used a method whereby the rear 1.25 inch of the section is an extension of the 1/16th inch sheet over the main wing structure. This has proven satisfactory with the exception of warping problems as the structure ages. Experimentation with laminated trailing edges may alleviate this problem. (The above information

Bill McDow prepares his Astro Flight electric powered Caudron for takeoff from gym floor. You guessed right . . . it's a Ukie!



Bill McDow's U/C Caudron in flight, humming along realistically. No mention if batteries are in plane or handle.

obtained from Free Flight, November, 1968, by the late Mike DesJardins.)

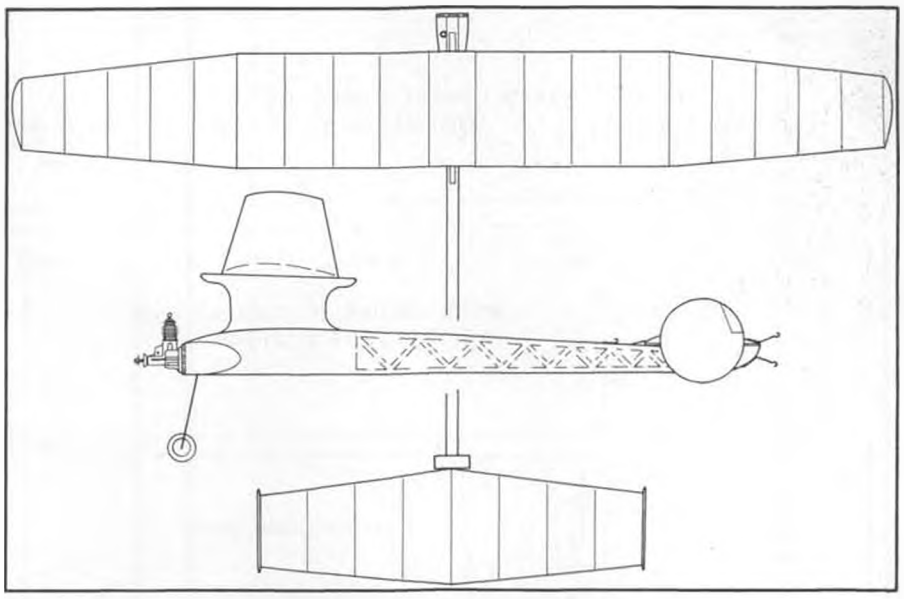
MAY MYSTERY MODEL

With the advent of the 1/2A engine, many new models were constructed to compete in the new event. Since the power of these early engines was not enough to cause a breeze in a still room, models of the type represented by this month's feature were small and built very lightly. So, your task is to look it over and if you think you know the name of the design, drop Bill Northrop a line and he'll see to it that you get a nice prize . . . provided you're the first postmarked entry with the correct response.

MAY THREE VIEW . . .

Herno FAI Power

Another design from the Scandanavian school of FAI Power models, the Herno features triple fins and a long tail moment arm. With all-sheet balsa covered surfaces and 2-piece wing, it has many of the same features of Olofsson's "Korla Plankton" design featured in **Model Builder** several months ago. The stab is covered with 1mm balsa and the wing is covered with 1.5mm balsa. It represents a good state-of-the-art FAI Power model, and is worthwhile for consideration as a model to build for the 1979 FAI Program. (3-view furnished by Lars Olofsson and Modellflygnytt Magazine)



MAY'S MYSTERY MODEL

THE 1979 FAI F.F. PROGRAM . . .
HOW TO GET YOURSELF INTO IT

So, you're interested in flying in the FAI Free Flight program? You've read your AMA rule book and have found the event that interests you. You've even begun to build that Wakefield, A/2, or Power model. Here's how to go about entering yourself in the team selection program . . . a program that will end up selecting the best three fliers in each of these three events in the United States, and sending them to Europe to compete against the best in the world during the summer of 1979.

But first, you have to have a current AMA license, and it must have an FAI stamp. The stamps cost $5.00. If you have a license, but no stamp, a check to AMA for $5.00, along with a note asking for an FAI stamp, will take care of that problem. Second, you must enter the program. To do so, pick the event or events you wish to fly and for each one, send $5.00 to AMA with a note saying you wish to enter the 1979 FAI F.F. program in Wakefield, Power or A/2. If you are a Junior flier, there is no cost to enter the program, but you still must send a note to AMA for entry (and you must have an AMA license and FAI stamp). Soon, you'll receive some materials from AMA. These will include some "vouchers", which are small sheets of tissue-like paper, and a Qualification Performance Affidavit. The Affidavit proves you've entered the program. The vouchers must be filled out and signed by an AMA Contest Director and then fastened to the wings and stabilizer of your model, as they "vouch for" the size of these flying surfaces as meeting FAI specifications.

Ed Carroll launching his Moonraker at Galeville. He's now back in SoCal.

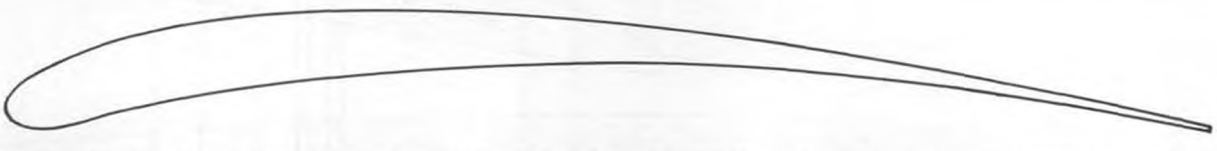
STAGE 1 . . . QUALIFYING TRIALS

The next step is to locate a Qualifying Trials or AMA F.F. Contest in your area. Qualifying is permitted anytime during 1977 between March 1 and August 14. In order to qualify, you must score at least 14 minutes of flight time in 7 flight attempts. If you don't score 14 minutes at your first Qualifying Trials, your voucher can be used again and again at different trials . . . until you do. When you've scored the necessary 14 minutes, you must have the Contest Director at the site sign your affidavit, and then you must mail the second page of the affidavit to AMA H.Q. no later than August 20, 1977. You keep the first page of the affidavit as proof that you've qualified.

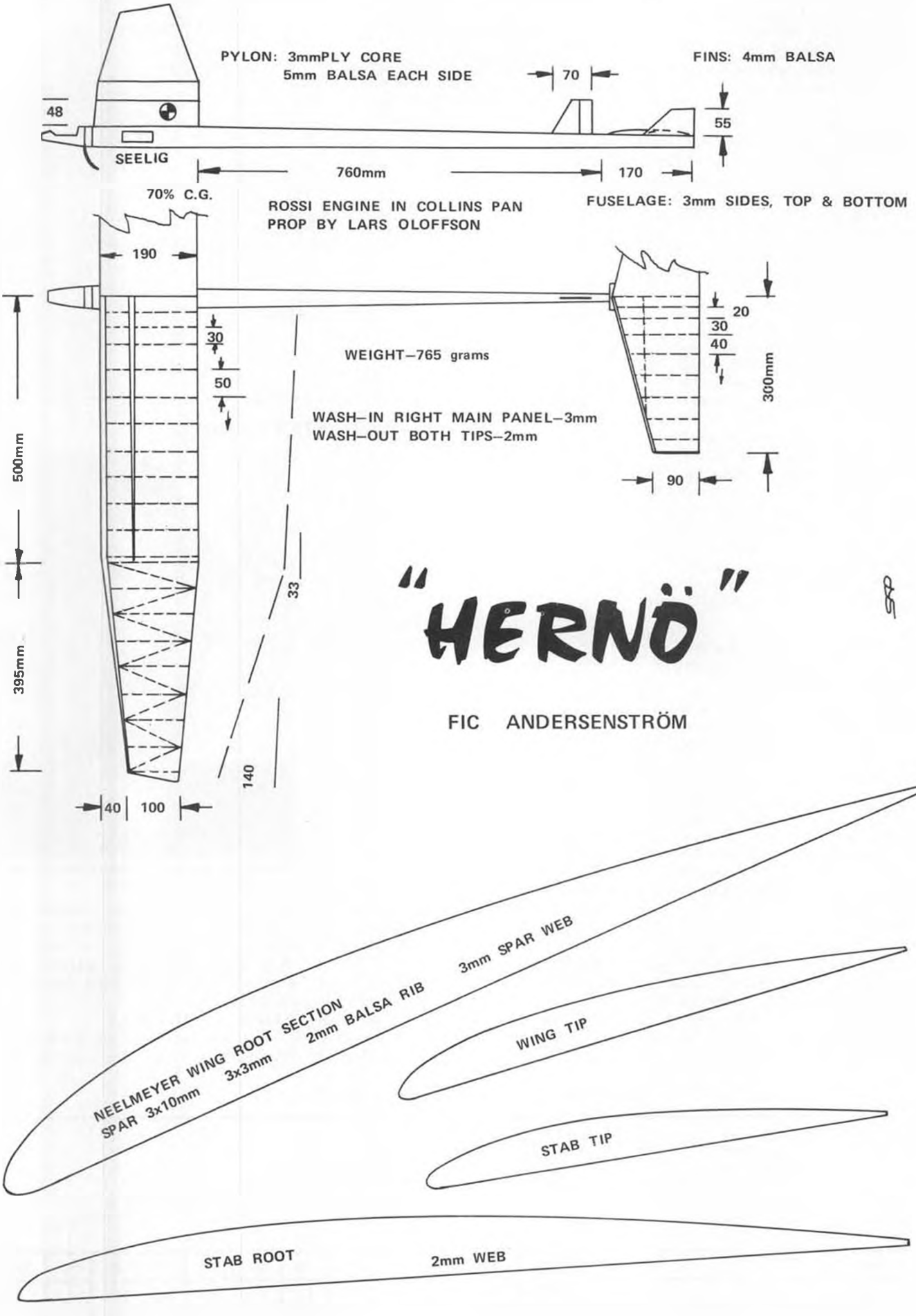
STAGE 2 SEMI-FINALS

The next step is to attend one of the regional semi-finals which will be held

DARNED GOOD AIRFOIL — HA-12



STATION	0	1.25	2.5	5	7.5	10	15	20	30	40	50	60	70	80	90	100
UPPER	1.3	3.7	4.6	5.6	6.7	7.5	8.5	9.2	9.6	9.5	8.8	7.7	6.4	4.6	2.7	.4
LOWER	1.3	.2	.15	.5	.95	1.5	2.4	3.1	4.2	5.0	5.4	5.2	4.4	3.3	1.8	0


PYLON: 3mmPLY CORE
5mm BALSA EACH SIDE
70
FINS: 4mm BALSA
48
55
SEELIG
760mm
170
70% C.G.
ROSSI ENGINE IN COLLINS PAN
PROP BY LARS OLOFFSON
FUSELAGE: 3mm SIDES, TOP & BOTTOM
190
20
30
40
30
50
WEIGHT–765 grams
300mm
WASH–IN RIGHT MAIN PANEL–3mm
WASH–OUT BOTH TIPS–2mm
500mm
90
33
395mm
140
40
100
"HERNÖ"
FIC ANDERSENSTRÖM
NEELMEYER WING ROOT SECTION
SPAR 3x10mm
3x3mm
2mm BALSA RIB
3mm SPAR WEB
WING TIP
STAB TIP
STAB ROOT
2mm WEB

Vince Groghan tosses out some free flight lift finder, cattail fluff. All photos on this page by Bob Guylas.

Ed Carroll and Bob Hatschek discuss the vagaries of the Seelig timer in Ed's Moonraker.

on Labor Day Weekend, 1977. Semi-Finals sites are normally located geographically in about 6 or 8 locations throughout the country. In 1975, there were Semi-Finals in the following places: Bong Field, Wisc.; Galeville, N.Y.; Fresno, CA.; Denver, CO.; Tacoma, WA.; Tulsa, OK.; Courtland, ALA.; and Pensacola, FL.

At the Semi-Finals, you will be competing against all of the others in your area who qualified. At this stage, the competition is tougher. The events are flown in rounds, which means that all contestants are given a certain amount of time (1-1/2 hours) to fly their first official flight, then, when the time is over, the second flight round begins for another 1-1/2 hours, etc., until a total of 8 rounds is completed. The flier in each event with the best time for the 8 rounds from each Semi-Finals is then qualified for the finals. In addition, any other flier whose flight time is equal to 95% or more of the winning time in that event, also qualifies for the finals. Other top-placing semi-finalists are qualified for the finals via a formula which will allow around 33 contestants per event at the finals.

STAGE 3 . . . THE FINALS

The finals will be held during the late summer of 1978 at a single location in the U.S.A. This site will be selected on the basis of its suitability for flying a finals . . . including weather conditions, terrain and other factors. Here, all of the finals contestants will gather and fly 18 rounds in their event over 3 days of competition. The 3 fliers in each event who score the highest flight times will be our 1979 team.

INTERESTED?
HERE'S HOW TO GET GOING!

If you are interested in getting into the 1979 Team Selection Program for Free Flight, it all starts now. So send your check for $5.00 to AMA along with the note that specifies the event you wish to enter. Also ask for a copy of the 1979 Team Selection Program, which spells out the details of each step along the way to selection.

For a real challenge in Free Flight competition, FAI flying cannot be beat. Join in today.

SOME HINTS AND KINKS

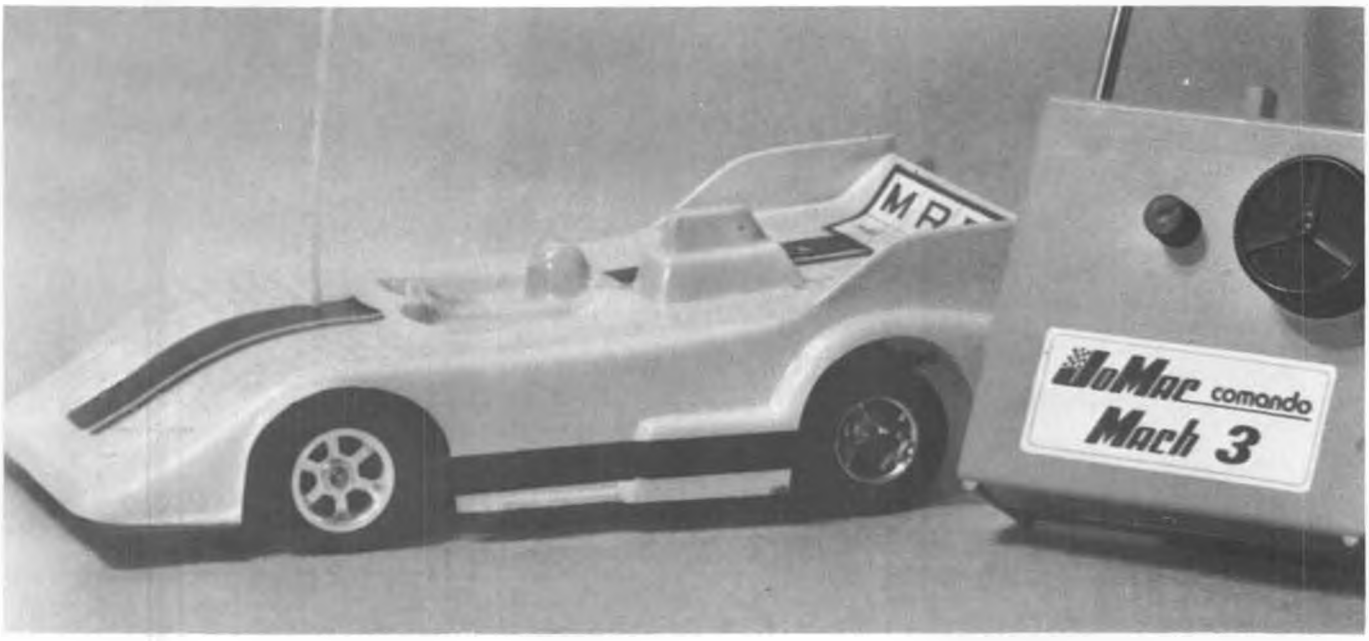
Ever have some difficulty on the field trying to locate the lid to that rubber lube container? Well, there's an easy way around that little difficulty. For years, Al Grell has been using a container which was at one time used for contact lens fluid. What he does is fill the little squeeze bottle with rubber lube and a little onto the rubber right before loading the motor into the model. Other bottles would work fine too. Old Elmer's glue or TiteBond bottles, with the twist lock top cleaned out and filled with lube, would be just as satisfactory. Just remember to lock the top closed after using the lube.

Epoxy Thinner: Some time ago, I suggested that thinning epoxy is easily done if you use regular dope thinner or the like. Now comes a reminder from the Thermal Thumber's Bulletin that any thinning agent which use MEK is to be avoided as it weakens the epoxy. They

Continued on page 94

Dave Lacey, holding Wakefield, looks for the evasive thermal. Bob Sifleet adjusts his glasses.

Bob Sifleet at the weigh-in table. Maximum rubber weight of 40 grams being checked before official Wakefield flight.



The 1/12 scale MRP race car, with JoMac Mach 3 radio. Trim knob is easy to reach and has plenty of travel . . . in fact, you can drive car with trim knob. Quick-change crystal is at the top of case.

PRODUCT$ IN U$E

The MRP 1/12 SCALE RACE CAR and JOMAC MACH 3 RADIO SYSTEM, by Dan Rutherford

• The name of this magazine is **Model Builder,** right? A title that indicates it is for those who enjoy model *building.* And I regard myself as a model builder . . . one who has always had a bit of disdain for both Ready-To-Fly (or Ready-To-Run) products and for those who get all giggly over the plastic and foof that goes into said products.

So when faced with the chance to do a test of the new MRP 1/12th R/C car, I took it, but the product itself already had two strikes against it. My already-mentioned dislike for an R-T-R, and a belief that something like an R/C car, designed for heads-up racing, in addition to scaring hell out of the dogs in the neighborhood, just couldn't possibly be mass-produced. Racing machinery of any kind is a rather personal thing, ask anybody who has been involved in any serious racing event, whether it is full-size or in miniature.

With that as a background, here is what happened one day when I went by to see Don McKay, president of Jomac, and a friend from back when he was the terror of N.W. Combat circles.

DD: Hey, Don, you ol' sack. What's new and exciting in the world of burning rubber?

Don: Hi, Dirty, you lousy creep. Any of you Combat fliers good enough to beat me yet? If you are, I'll come back out of retirement.

DD: Right, Don, but we are appearing in a highly regarded national modeling magazine and are supposed to be doing a bit on the thrill of banging into curbs and the agony of running a Kydex bumper into one's own foot.

Don: Oops, forgot. Think WCN will mind the reference to Combat?

DD: No doubt. He's a little slow, ya know.

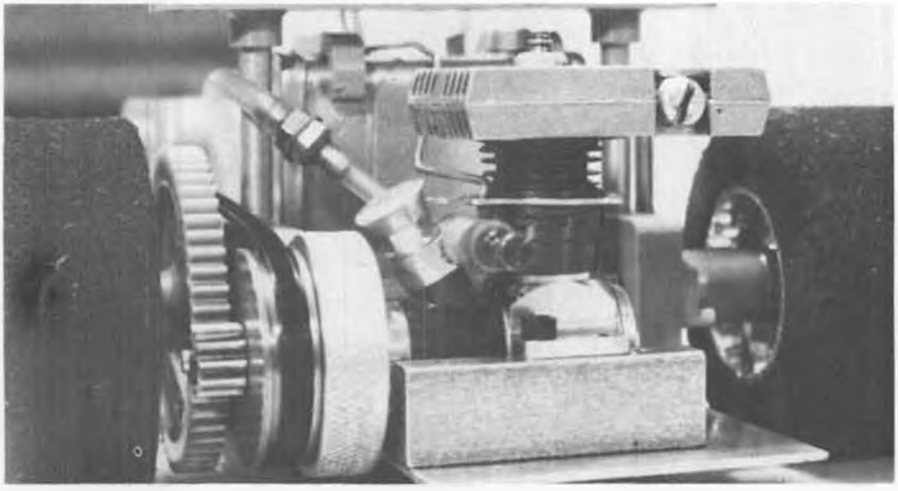
Don: Yah, I know. Nice guy, though.

DD: I suppose so, he puts up with me a lot *(To wit, this crummy dialogue! wcn)* Now let's get going on this, so we can tell the folks what's good and bad about the new MRP car.

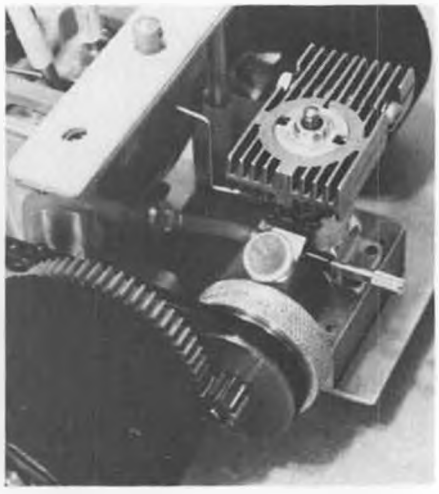
Don: OK, come on into the manufacturing facility / drafting room/ design shop/warehouse/radio room/ studio-for-publicity-shots part of the plane.

DD: Great. That sounds more comfortable than your office that is cluttered with outrageously large trophies.

Don: You noticed! Did I tell you about how I won this one over here? It was a hot day back in . . .



Car with stock engine. Fuel tubing on needle valve cures loose fit of stock Cox set-up. Black band around clutch bell is brake. Very effective. Steel 10-tooth drive, 55-tooth Delrin main.



Kustom Kraftsmanship engine installed. Drops right in place. Note KK needle valve, line filter.

The reader is spared the rest of the conversation for obvious reasons. As we re-open, Don and I are returning to his office/trophy room (gag, barf, etc., etc.), after having gone over Jomac's new stuff, including their own radio which they are very proud of (and rightfully so, incidentally), and the MRP line which Jomac has taken over as far as marketing, distribution, and quality control.

Don is looking around a bit nervously, and I've got a branny-new, super-zoot MRP 1/12th R/C car, complete with Jomac radio, tucked under my arm.

DD: This car looks like a neat thing, but what are the tricks to it?

Don: Whaddayamean?

DD: You know, what do I do to make it rip 'n snort . . . tear out chunks of pavement when I punch it . . . turn tighter than tight?

Don: Nothing. It's ready to race . . . and win.

DD: C'mon, Don, you can tell me.

Don: Hey, this beauty is *ready*, right out of the box. In Class B Road and Oval at the '76 ROAR Nats, a car just like you've got there under your arm won, and you wouldn't believe how stock it was.

DD: Really?

Don: Really. Look, you're going to have to get out of here. If Bob Welch sees me giving you a car, he'll kill me. Just take it out, run it, and see what you think. And I dare you to break it. We've done everything to these cars in testing them and they just won't break, no matter what you do to it.

DD: My wife can break it, she'll run into everything, for sure.

Don: She won't break it, believe me.

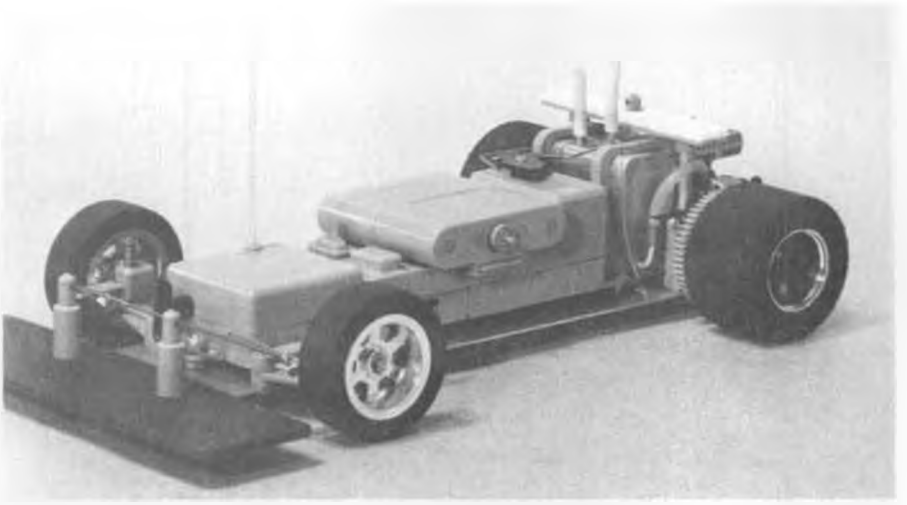
DD: OK, but will it do wheelies?

Don: No, it won't do wheelies.

DD: Damn. I really like wheelies, ya know.

Don: Yeh, I know.

DD: Maybe if I move the radio back a bunch, it'll wheelie?



Completely stock MRP chassis, except as mentioned in text. Note center-mounted tank, aluminum pan chassis, unbreakable "A" arm spindles on front, and Racin' Rubber all the way 'round.

Don: It might.

DD: Well, time to go. Thanks a bunch for letting me test the car. Sure wish it would wheelie, though.

Don's next remark can't be published, so let's see what the car looks like in it's still-new condition.

The body is of Lexan, which is very tough stuff, and comes already painted in a couple of colors. The basic chassis is an aluminum plate, and everything (radio, engine, running gear, etc.) mounts to this plate. A Kydex bumper hangs off the front, keeping the body from getting bent. A Cox TD .049, fitted with a left-hand crank and a Cox throttle sleeve, is hung out back, and gives more power than the novice car racer (like me) can handle.

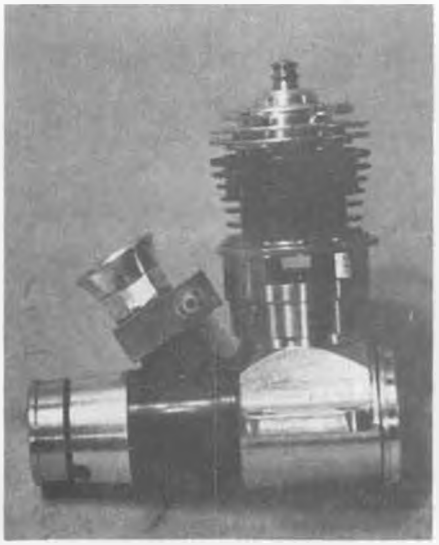
A center-mounted 1-1/3 ounce tank, modified by MRP for what is basically uni-flo suction feed, sits directly in front of the rear axle. Full-blown racing-rubber is hung at all for corners. Yes, those narrow-looking front tires are in the class of racing-rubber. Power from the TD goes through a Jomac clutch, driving a 10-tooth steel drive gear, which in turn drives a 55-tooth molded nylon main gear. The main gear, as well as the rear wheels, are hung on an axle that looks as if it simply cannot be bent.

Occupying all of the space between the bumper and the tank is the all-new Jomac Mach 3 radio. In the past, Jomac (Jerobee to some of you) had somebody else build their radios. No more. A tremendous amount of time and money went into developing Jomac's new radio, and it is built entirely by Jomac.

I feel somewhat obligated to go into a technical description of the radio, but will have to pass. I'd come out looking like a fool talking about something I know next to nothing about.

What I do know about the radio is that it works just super in an R/C car. Lots of power in the servos, yet they are very quick. Turn the steering wheel as fast as you can and the front wheels on the car just keep right up with you. It's just like turning the wheels by hand, without this complex radio

Continued on page 96



KK reworked TD .049 used in car. More power than you can handle at first.

DD's son Joshua handles the car well and certainly appears to be enjoying it!

Wife Cheri (How'd he get such a nice looking family?)really loves driving the MRP car.

Annual McCoy race was held in Pomona, California, at Thorp Raceway. A total of 102 entries set a new race entry record.

R/C AUTO NEWS

By CHUCK HALLUM

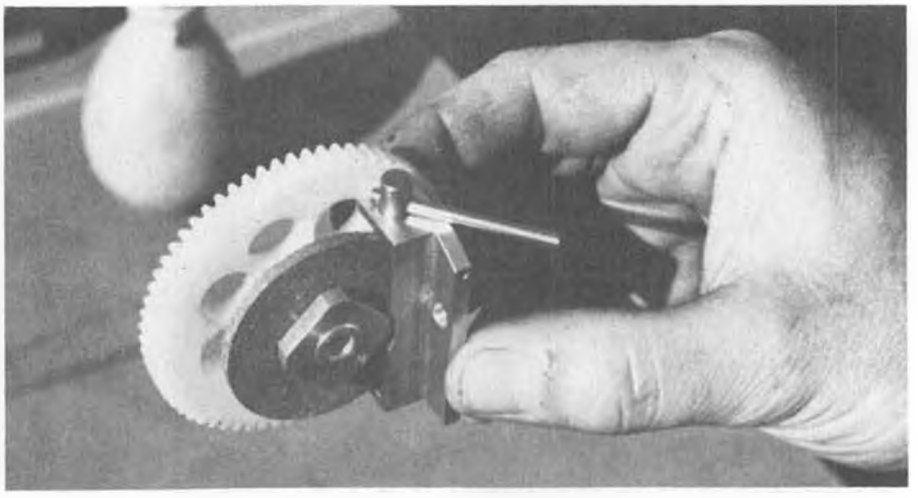
A quick report on the first World R/C Car Championship race, to be hosted by the Orange County R/C Auto Racers club, the first R/C car club in the world.

All arrangements for the race site, motels, banquet and awards in Pomona, California, have been made. Right now, we have about 20 U.S. entries and a couple of foreign entries, but we're expecting over 30 from Britain and Europe at latest word from Ted Longshaw. Several manufacturers have also provided sponsorship funds to help make this a race to be remembered: Dick McCoy, Associated, Delta Mfg., Racing Circuits, HRE, Parma., RPM, Delta Systems and G.B. Models. Let these manufacturers know you appreciate their assistance as much as we, the host club, do.

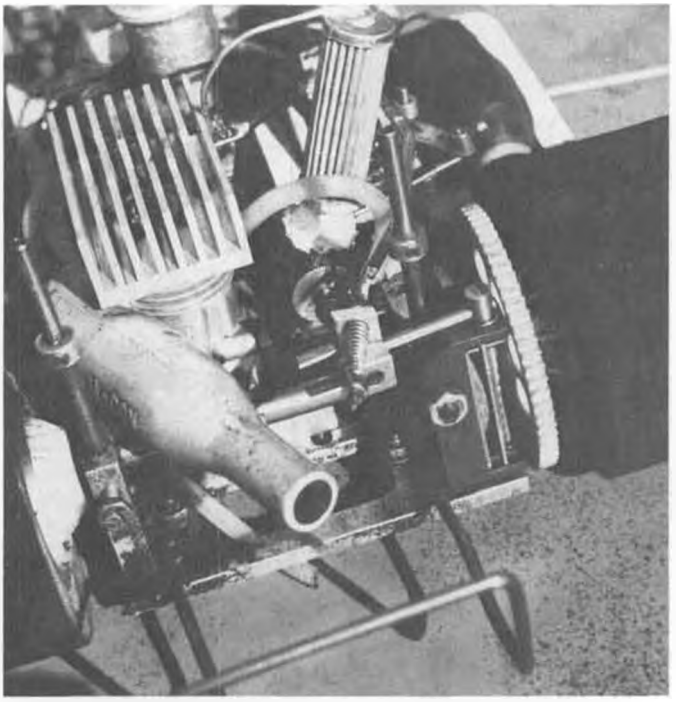
The biggest regional race in the Southern California area is usually the McCoy Race. This year was no different, as there were 102 entries in the four driver classes (Beginner, Novice, Amateur, and Expert). There were numerous drivers from Northern California, the San Diego area, several from Phoenix, and quite a contingent from Seattle, Washington. The race was held at Thorp Raceway,in Pomona, on March 13, 1977. Sometimes this race occurs after Daylight Savings time has started, and we have a little longer to race . . . somehow the racing never really gets started earlier . . . and the sun is up longer. The weather was cool, about 60°F, some clouds in the morning and early afternoon, and some wind most of the time.

In general, I felt the race went very well, and this year it was run by the Pomona PROCAR club. There were several small things which led to some tempers flairing, but the racing was usually terrific. Some of the things which caused the little problems have really happened before, and it just means that rules that are currently in existence should be enforced (without any bias, if that is possible). I was strictly an observer, as I really have had a hectic schedule recently at my job (aerospace junk), and trying to get stuff (and new products) out for R/C cars at night and weekends.

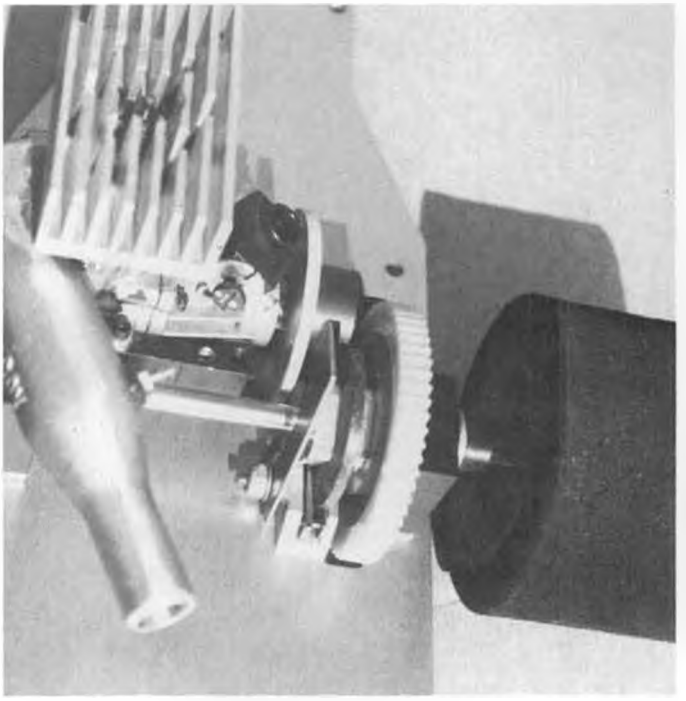
Two things really impressed me from a technical aspect on this super-traction track. First, disc brakes showed up for the first time at this track, where there should be a noticeable difference. Lo and behold, there really was a definite improvement! The cars with disc brakes did not seem to experience the fade of the normal Southern California rear axle band brakes. At many tracks, traction never improves enough to really use a lot of brakes . . . so there is no real heat problem . . . and the regular old brakes work as well as the discs. At Pomona, the old band and drum brakes begin experiencing fade at about 10 laps or so, just long enough for a heat race. The new disc brakes did not seem to experience any brake fade, even in the 60 lap main. At the end of the back straight at Pomona, there is a 180° switch-back, and all the cars with disc brakes were using the same line and



The big hit at the McCoy race was disc brakes! RPM-Associated Unit shown here.



Disc brake caliper mount attaches to right bearing block on Bill Jianas' Associated car.



Prototype HRE disc brake was seen at the McCoy race also . . . mounts directly to the chassis.

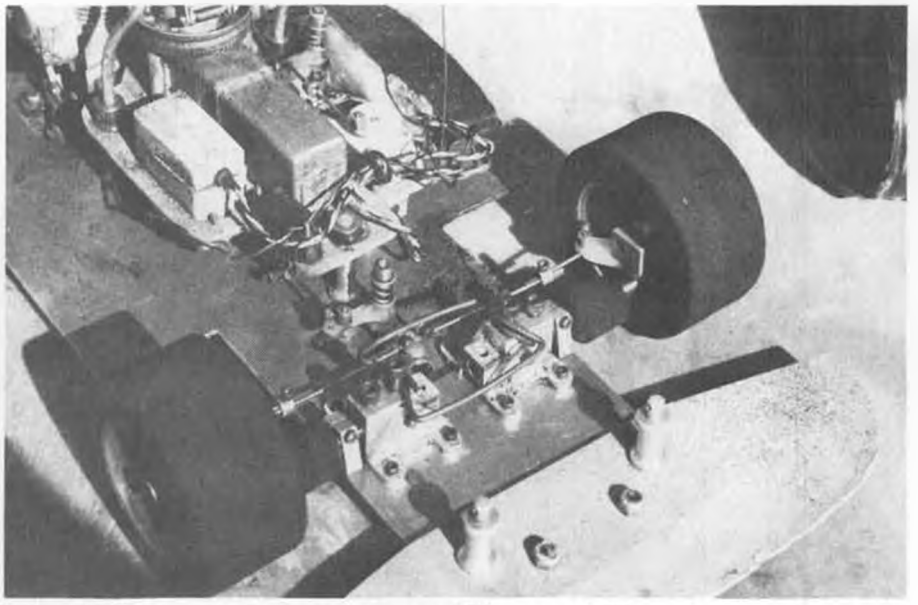
brake points here through the complete main event. Normally in the past, I have started braking about 20 feet before the corner at the beginning of a race, but was braking 30 to 40 ft. before the corner at the end of a race. The disc brakes really look like they will let you keep a consistent line throughout any race at any track.

The second thing I noted may seem contradictory, but it really happened. Several fellows in the lower classes were running either super-stock (Veco-McCoy) engines or K&B 3.5cc engines with 19 carbs, and even 10% nitro fuel These guys won heat races and placed right near the top in qualifying . . . better than they had done with 60 and 61 pumper carbs and lots of nitro. All this happened on a high traction track. I would have expected this to happen on a normal traction track, but I was a little surprised to see it happen here. I guess what is being said here is that the drivers may still not quite have the experience and ability to handle the super power (and speed) that the super engines can put out . . . even on a high traction track. One either thing I can say is that these guys seemed to be really happy, because their cars were competitive and they were having fun doing their darndest to drive better.

In the heat races, there was lots of good racing and driving. In one novice class heat race, Cal Roe was in the lead with a couple of other guys right behind. Cal drove a near perfect race to the end, taking the corners consistently, and winning the race. Cal has gone back to the 19 carb and now really looks great, and even wins. Dick Rold has also dropped back to a 19 carb . . . and guess what . . . he too won one of his heat races. Dick also looks like a new driver. But I was really impressed by Dean Brown. With a ROAR Superstock engine and 10% nitro fuel, Dean had fourth fastest qualifying time in his class. Anyway, this does show that even with slower cars, many drivers can still get around the track as quickly as the fast cars . . . and look better doing it. Guess I can get down off the soapbox now

The amateur and expert drivers really put on a show. Cars were faster than ever, with blazing speed down the back straight, super braking, and then the acceleration was something else. In qualifying, Bill "The Greek" Jianas was fast qualifier at 3:02.9 for 10 laps, or a 18.29 sec/lap average. Bill appeared to be one of the smoothest of the drivers on the track. Afterwards, Bill told me his engine was a little sick and did not seem to have the bottom end he felt was normal. So you can see, even a little less power for experts might be OK sometimes. Gene Husting was running as good as usual and was the second fast expert qualifier, and a main sit out. "Fast Earl" Campbell came out of retirement for this race, driving Butch Kroell's car Earl's car seemed to have the greatest acceleration off the line of any of the cars. In fact, the car reminded me of real dragsters, and almost appeared to be geared directly to the track. When Earl was off the normal line a little, he was a lot more squirrelly than Jianas, but was third

Continued on page 89



Independent front suspension was seen on several Thorp cars. Rubber pads stop steering motion.

The Sport Biplane section was a popular portion of the static display with the spectators.

Frank Massa, Plainville, Conn., with his soon-to-be-available Hiper-bipe.

more TOLEDO . . .

Continued from page 21

features two-speed availability and electric dynamic braking.

Eastcraft Specialty Products offers the Eastcraft Lectra-Start, a complete electric self-starter for your aircraft engine, which you activate from your transmitter. The unit weighs a minimum of 13 ounces, complete with battery, for up to .45 engines or low-compression .60's. Other units weigh up to 16 oz. for aircraft, with boat units going up to 40 oz.

Another Eastcraft item is an almost 1/4 size Corvette automobile, which can use the self-starter, and also has 3 and 5-speed transmissions available! Base price starts at $345.

Another aircraft designed around the Scozzi or Johnson/40 Schnuerle fan-jet power unit, is the C-101, single engine jet trainer by Model Jets Inc., out of Dayton, Ohio. The $180 kit includes fiberglas fuselage, foam wing cores, shaped ply and balsa parts, balsa wing skins, canopy, all hardware and landing gear, plans, and instructions. Radio, fan, engine, wheels and collars not included.

Cass Engineering, manufacturers of the popular Pulsar biplane, now has a full scale P-39 Bel Airacobra in the contemporary fiberglas, foam, and pre-cut balsa tradition. Of special interest, is the announcement that an 86 inch span P-38 Lockheed "Lightning" is in the works for release later this year.

MC Bob Hisey at the mike, while trophy gal Angie Cholewinski, hands 1st place in Scale award to Steve Sauger, for his Fairchild 24.

Don Sturgill, Weak Signals' president is big, but not *that* much bigger than Bob Hisey! It's the camera angle. We'll *still* do what he says!

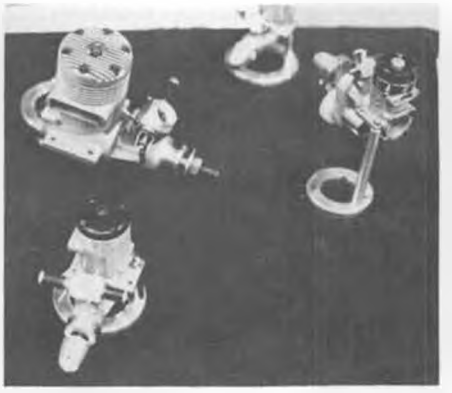
Chet Lanzo is STILL winning! First Place for his own Old Timer, the 1937 Lanzo Stick.

When it came to awarding 1st Place in Monokoting to Mona Schultz, Bob Hisey took things into his own hands . . . LITERALLY!

Second Place Old Timer winner, Joe Beshar, thinks that's a pretty good idea, and decides to take trophy AND the trophy girl, Angie.

The glow version of the D&B four-cylinder in-line engine.

The 1.8 cu. in. MRC -Suevia glow engine.



Several Webra engines in the MRC booth, including the new .90 at upper left.

Some wild ones were seen in the Original Design area, such as the Concord. Nobody objected to it being there!

Coincidentally similar to Canadian Mikulasko's design, was this original by Norris Boyer, of Johnstown, Ohio.

Joe Fitzgibbon, of Golden Age Reproductions, had a pleasant surprise. He is now producing kits of some of the golden oldies in traditional stick-and-tissue rubber powered style . . . turned balsa wheels and the whole bit. Coming to the Toledo Radio Control Show with rubber free flight models made him a little apprehensive, even though the show has broadened its coverage in recent years to include all types. He brought along about 50 kits, just in case there might be some interest . . . and was sold out by Friday afternoon!

For the airplane modeler who would like to take a shot at R/C power boating with the least amount of transitional effort, Dumas offers the Big Swamp Buggy. This is a 31 inch long, 17-1/2 inch beam (width, dummy!) tunnel-hulled air boat. It's built entirely of die-cut birch and may-ho-gonny plywood. All you do is bolt on your favorite sport .40 or .60, add prop and spinner for easy starting, and a muffler for the fish with delicate ears, and you're in business. Two-channel radio controls the throttle and the twin air rudders, which should be quite sensitive, as the prop is only about 8 inches ahead of them!

Top Flite, the plastic covering king, now offers Econokote. Yes, it is less expensive. It is a thinner, softer material than Monokote, and is intended primarily for covering foam surfaces and basically strong structures, as it offers almost no skin strength. It is *not* recommended for open-structured glider wings! Its weight is 1/5 ounce per square foot.

Former EKers, Jerry Krouse and Jim Simpson have teamed up to form North American Enterprises, Inc. (NAME), and their first offerings include

Fred Reese talks up Half-A scale in the House-of-Balsa booth.

Doug Pratt (in vest) and Pat Patton taking a stint at the Model Builder booth while the boss was out somewhere taking pictures!

a glider towhook release, a mechanical control mixer, and two airplane kits. The Vigilante II is a completely built model, ready to cover and/or paint. The military jet-looking, .40 to .60 powered, sport and pattern type ship sells for $130. The El Gringito (the name and appearance suggest a Ted White design) is a 40 powered precision pattern ship, which comes in the same condition of completion and for the same price.

The Specialist radio by Millcott Corporation, of Santa Ana, California, exemplifies the infinitely high quality of this relatively new company's radio control systems. The 6 and 8 channel units have a list of features that sound like a pipe dream; all-metal open gimbals and sealed conductive plastic pots, crossed electronic trims, front panel controls, dual or exponential adjustable rates, servo reverse and travel adjust, three pre-set adjustable maneuver buttons, electronic mixer option, airborne system check without RF operation, double-tuned front end receiver, three IF stages, half-frequency crystal, servos custom-matched for throw, linearity, dead band and resolution . . . and these are just the highlights!

M.E.N. makes use of a very practical structural material, Lite Ply, in all of its kits, which include the M.E.N. Trainer, Buzzard Bombshell, J3 Cub, and the latest intermediate M.E.N. Trainer "40". The J3 Cub is a great beginner airplane for the guy who wants scale-like realism with his first model, without sacrificing the slow flying, inherent stability of a trainer. Spanning 6 feet, the Cub features an undercambered airfoil and just enough dihedral to avoid the necessity for ailerons.

All of the M.E.N. models feature "Tri-Square-Loc" construction, which just about guarantees proper alignment during assembly.

As we said earlier, this wasn't all of the many items seen at Toledo. An overall glance at the whole show is mind-boggling, and we'll have to give you some more details in future issues, as we pour through the brochures that we brought back with us.

Incidentally, while on the subject of trade shows, the first annual International Modeler Show, scheduled for the last weekend in April of 1978, in the Los Angeles Convention Center, is already completely sold out of exhibitor booths. This will be the first all-modeling trade show in the Southern California area in quite a few years, and already shows signs of becoming one of the largest in the country, with plans being made now for expansion in 1979. We'll have more information on the Los Angeles show in later issues. •

Counter . . . . . *Continued from page 9*

Pawnee St., San Marcos, CA 92069.

* * *

Fusite Division has just released news of its new portable Globee "Stinger", a compact 1/2A starter with built-in batteries. This self-contained starter, completely free of external batteries and dangling cords, delivers over 100 starts from its two 2-volt rechargeable cells. It is complete with a resilient drive cup that adapts to most .010 to .051 engines, turning them at approximately 5,000 rpm.

It is housed in a sturdy high-impact black fuel proof plastic case, fluted for a firm grip, and provided with an anti-roll flange that also serves as a finger stop. An integral flywheel shroud protects the motor shaft and bearings from side thrust damage.

A coaxial type recharge jack prevents improper terminal connections which can damage batteries, and mates with the special charger provided. The "Stinger" is 11-1/2 inches long, 1-3/4 inches in diameter and weighs 28 ounces. It will be initially priced at an introductory price of $39.95, watch for it at your favorite hobby store. For additional info, write Fusite Division, 6000 Fernview Ave., Cincinnati, OH 45212.

* * *

No it isn't a device to cut down the amount of arguing over the racing rules, though it could probably do that if you can provide a large enough funnel.

Actually, the "Crap Trap" is Sullivan Products' answer to the fuel pollution problem. This device is claimed to be a patented filter to keep your engine truly clean, and a must for the newer more sophisticated carburetors and pumps that are more sensitive to physical impurities in the fuel.

Some of the features include double filtration, accomplished with two separate filters, one with .007, and the other with .004 openings. More filter area is provided, by the use of cup shaped elements. It is color coded, so it can be easily installed in the proper position in relation to the flow, a must for proper operation. You can watch it do it's thing; the filter elements are encased in clear plastic. The extruded Teflon casing can stand temperatures up to 600°F.

Two sizes are available, one of the proper diameter for the tubing usually used in aircraft installations, and a larger one for the fuel can/pump assembly.

At your dealers, or available to him from Sullivan Products Inc., 535 Davisville Rd., Willow Grove, Pa. 19090.

* * *

For all competition machines, it is required. For all others it can make the difference between a so-so paint job, and one that really strikes the eye.

What? Numbers, letters, and striping, of course. You can do it the hard way, and paint them on, or the easy, and for those of us who are not artists with a brush or spray gun, the best way, by using the Self-Adhesive Diffraction Grating Peel and Stick-On letters numbers and tape now available from ADC, Applied Design Corp., 738 Penn Street, El Segundo, Ca. 90245.

These are made from the light-reflecting material that you must have seen somewhere by now, that breaks up light into a dazzling rainbow of color. Numbers and letters in a commonly required 3 inch size are available, as well as tape in widths from 1/16th to 3/8th inch, stars, and 6 x 12 sheets for custom designs. Colors are silver, gold, blue, orange, green and red, so it is possible to complement or contrast with any paint scheme you have in mind.

The individual numbers are 39¢ each, the tape is from $1.98 to $3.98 per 15 foot roll, depending on width. The 6 x 12 sheets are $2.39 for silver and gold, $2.98 for the other colors, and the stars are 49¢ per package.

Look for the ADC display racks at your local dealer's, address inquiries direct to ADC.

* * *

This particular "Early Bird" does not claim any great ability at gathering worms, but it has a way of gathering thermals. It is the latest design from Earl Wolsleger; 72 inch wingspan and 525 square inches of area. The kit is complete with polyglass fuselage, all necessary wood, hardware and plans.

Priced at only $39.95, and available from Earl Wolsleger, P.O. Box 287, Mira Loma, Ca. 91752.

* * *

Those of you who have never been to the great state of Arizona, and think of it only as miles and miles of sand, must be hard pressed to understand how it can be the home of as many fine model boats as are available from Dumas Products. They must know something you don't know, as they have again added to what was already an extensive line.

The latest offerings include a Big Swamp Buggy, for .40 to .60 R/C airplane engines, and any inexpensive two channel radio. This mahogany and birch plywood kit is 31 inches long, 17-1/2 inches wide, and is easy and fun to build. It is rugged and stable, and can be run on water, snow, ice, and even up on the shore or on damp grass.

For the sail boat fan, Dumas offers its new model of the East Coast 12 Meter Racing Sailboat. This Buddy Black design has been chosen as the official display model for the Mini-America's Cup regatta to be held in September in Newport, Rhode Island.

This 58 inch fiberglas hull-and-deck kit comes complete with dacron sails and hardware, and requires a Dumas-

Probar sail control unit and any two-channel system for control.

Contact your local hobby dealer first; if not yet available there, write Dumas Products Inc., 909 East 17th St., Tucson, Arizona 85719.

* * *

Model sailboaters now have another high quality source of East Coast 12 Meter Class Boats. Crump and Associates, Inc., has opened a plant in Michigan where they are building kits of this popular and graceful design. All are one-piece hulls, light weight, and conforming to AMYA class rules.

Four kits are offered. The short kit, consisting of hull, deck and rudder, is available also in a semi-finished state with all interior blocks, rudder tube, and deck installed. The Standard kit, including hull, deck, rudder, fittings, lines, spar materials, hatch cover and sails, is available in the semi-finished state also. The semi-finished kits are recommended as a fast way for the sailor who is short on time to get in the water.

Mr. William Crump, the owner, is a registered professional engineer and one-time wood pattern maker who believes that every modeler deserves the highest quality in both dimension and surface finish.

Crump and Associates may be addressed at 1301 U.S. 131 South, Petoskey, MI 49770.

* * *

Morrison Repla-Tech, 48500 McKenzie Hwy, Vida, Oregon 97488, has introduced a new series of sportplane drawings, featuring some of the greatest sportplanes ever built. These drawings, adaptable for designing R/C or any other flying scale, are black-and-white, 17 x 22, shipped rolled. Plenty of cross section information is included.

Available are the Zlin Z-50L, the latest in the long line from this famous Czechoslavakian manufacturer. This drawing depicts the configuration as it appeared at the World Aerobatic Championships in Kiev.

Also as it appeared at Kiev, the Modified Stephens "Akro", as flown by Leo Loundenslager. The SAAB "Safari" made famous by Count Carl von Rosen in Africa is also on the list. All these are $1.50 each.

The "Starduster Too", a favorite homebuilt bipe is available in two versions, two sheets, at $1.85 per set.

Add 10% for 3rd Class Postage; 20% for domestic and Canada 1st Class, and 30% for foreign air mail postage.

* * *

Fans of sailboats, big and little, will be interested in the Friendship Sloop Half-Hull Model Plaques, available from David Mainwaring, P.O. Box 554, Needham, Ma. 02192.

Two basic half-hull Friendship Sloop models are offered, both as stock and as custom finished models. A 15 inch half-hull of the 25 foot Pemaquid style Friendship Sloop, mounted on an 8 x 10 inch mahogany backboard, complete with cutwater and rudder and a brass nameplate, is designated HM-15 and is priced at $43.00.

A 1-1/2 inch scale hull of the 25 foot Friendship sloop Pemaquid ex-Florida, 42 inches long from transom to tip of the cutwater, is mounted on a teakwood backboard. The brass name plate for this model, HM-37, is finished to your specifications. Basic price is $225.

Models are constructed of hand-crafted fiberglas, and a number of different customizing features are available. Write direct for complete information.

* * *

The first thing that crosses your mind upon seeing any of the new, small, but very handy items coming from Fourmost Racing Products, is: "Now, why didn't I think of that". Seems they believe their "Innovative Model Products" byline.

Latest from their Forest Grove, Oregon home are some 3/32 ID Fuel Fittings, similar to the original well received 1/16 ID fittings. Obviously designed for larger engines, these double the flow rate, and are available in a set that includes an elbow, tee, union, and plug.

Also, a late addition is a new leak-

proof fuel manifold, which is mounted between the tank and engine and provides a convenient point for all fuel operations, such as filling, draining, and priming. No worries about vibration, bubbles, or leakage. All of these are molded from lightweight fuelproof polyethylene.

The Fuel Fitting set is $1.50, the Manifold is $.95, from your dealers, or write Fourmost at 4040 24th Ave., Forest Grove, Oregon 97116.

* * *

The 1/12th scale, Class B R/C Race Car that was winner of both Class B Expert Road and Oval events at the 1976 ROAR Nats is now available from MRP (Model Racing Products).

Two versions of the Abarth Class B car are available, the RTR (Ready to Run), which comes complete with Cox TeeDee .049 engine, with throttle and clutch assembly, and also a two-channel, two-servo Jomac Mach 3 radio control system. A completely painted Lexan body is included, as is everything required except fuel and batteries. This is designated as No. 901.

The same car, designated as model No. 902, is also available without engine and radio, and is priced at $72.05. Features of both models include a guaranteed nylon molded front end, Kydex shock absorbing bumper, chrome front and rear wheels, high-traction rear tires, Lexan bodies, and multi-color Mylar decals.

For your complete catalog of Jerobee and MRP R/C cars, send 50¢ to JoMac Products, Inc. 12702 NE 124th., Kirkland, Wa. 98033.

* * *

Shockingly Quiet! Thus the manufacturer, Bolink Industries, describes its BoLectric, a 6-cell electric car for 1977.

It is powered by an .05 motor with sub-C rechargeable nickel-cadmium batteries and a ribbon-wound speed resistor for full proportional control. It features a Lexan chassis, wide racing slicks, detailed Lexan body in your choice of four styles: Porsche, Monza, Datsun 280-Z, and Can Am Ferrari 312-P, and a full length Kydex plate for full protection of the chassis and running gear. Also available is a 1977 Ford Fancy Van, modeled after custom van featured in Hot Rod Magazine. It's complete with side pipes, Trans Am fender flares, oval port holes, and full interior.

The car is easy to operate, and can be recharged in 30 minutes, from an automobile cigarette lighter receptacle. A charge cord is furnished with the car. Running time will exceed 25-30 minutes of continuous operation.

Three versions are available. The power train only, to which you can add your own wheels, body, etc; complete car to which you can add your radio; or ready to run, with Futaba steering wheel R/C system installed

Now available at your local hobby shop, or send 50¢ for a complete catalog. Write Bolink Industries, Kieve Enterprises, P.O. Box 80653, Atlanta, Ga. 30341, and tell them MB sent you.

* * *

We've got it through the grapevine, Grapevine Highway, in Fort Worth, Texas, that is, that North American Model Enterprises, Inc. (NAME, Inc.) has set up housekeeping at Number 7639. And it has just announced the first of many products for the R/C flyer, the Vigilante II.

This aircraft, designed for a .40 to .60 engine, has a wingspan of 56 inches and a length of 46 inches. Total weight, Monokoted and with engine and radio, is 6-1/2 pounds.

It is offered in a ready-to-cover or paint version, with balsa covered foam wings, and all major components assembled and shaped. The Vigilante II is claimed to be very stable and easy to fly, but is not recommended for beginners. It is intended primarily as a fun airplane, but is capable of most pattern manuevers in the hands of an experienced flyer.

It will be available in late spring, orders are being taken now. Priced at $130, it will be available at your dealer or may be ordered direct. NAME, Inc., 7639 Grapevine Highway, Fort Worth, Texas 76118 Phone (817) 282-1381. By the way, if Mr. NAME isn't in, ask for Jerry Krouse or Jim Simpson.

* * *

PEOPLE. This month we have some news about people in the industry to share with you.

First, in the Rocket world, Centuri Engineering, manufacturer and national distributor of model rockets and accessories, has announced the addition of three new territories to its marketing roster. Mazo and Miller, Atlanta, Georgia, will be servicing Virginia, West Virginia, the Carolinas, Tennessee, Mississippi, Alabama, Georgia, and Florida.

Walter Perlmutter and Associates,

Skokie, Illinois, will represent their state, as well as Wisconsin. And John Browder, of Initex Sales, Dallas, Texas, will handle Texas, Oklahoma, Louisiana and Arkansas.

And the guy who goes around telling us that we ought to have at least one little vise, John Hart, has been appointed as Vice President/Sales for Panavise Division of Colbert Industries, manufacturers of positioning vises for hobby and industry.

Tatone Products, manufacturer of modeling accessories for 22 years, announces a merger with Thunder Road Automotive, a manufacturer of R/C cars and accessories. This step was taken to broaden the product line into more areas of the R/C hobby.

And for rotor-wingers, Kavan Model Aircraft has expanded its facilities at 1424 E. Borchard Ave., Santa Ana, Ca. More warehousing space is available, to assure that all required items are on hand, and shipping has been streamlined to get things enroute to you or your dealer in the quickest possible time. A display counter chock full of all the Kavan goodies has been set up, and you are always welcome to browse or inspect the latest in Jet Rangers or Alouettes.

* * *

Prather Products, the home of so many fine products for pylon and sport flyers, has just unveiled its latest . . . Pylon Racing Props, available in two types, both developed by careful testing and through experience in competition. And who can deny Terry's experience in competition?

Designed especially for the popular racing .40 engines, two series are available. Series 2 Props are designed to run 500 to 800 rpm more than Series 1. Complete instructions are included for those desiring to closer match these props to their particular airplane and engine combination.

These props are priced at $2.25 each. It is claimed that a much lower rejection rate than normally experienced with other props will actually result in more economy.

These fast props should now be at your dealer's. If not, remind him that they come from Prather Products, 1660 Ravenna Ave., Wilmington, Ca. 90744.

* * *

What better way to dress up your Old Timer than with vintage "Old Timer" decals, just like you got when you purchased your new Super Cyke back in the old days!

Such decals are now available, in the exact size and colors of the originals, from Larry Vance, 5066 Cindy Way, Las Vegas, NV 89102. The first of what will hopefully be an expanding line is a 5-1/4 x 7-1/4 inch sheet containing nine decals for O&R, Super Cyclone, Texaco, Forster, Dennymite, and two types of Champion markings. These sheets are priced at three for $5.00, postpaid. Larry is hoping for enough demand to allow for a lower price on succeeding issues, so get in your orders, and suggestions for future inclusions as soon as possible.

* * *

Polk's Model Craft Hobbies' ever increasing line of model products has been increased again with the addition of 2 new R/C books, one for the glider fan, and one for the power flyer.

The former, 260 pages at $8.95 by Dave Hughes is entitled "Radio Control Soaring", and is divided into three sections, consisting of Slope Soaring, Thermal Soaring, and Soaring Aerodynamics.

The latter book is entitled "Radio Control Guide", is priced at $9.95, and consists of 250 pages by Norman Butcher, with contributions by other well known R/C writers such as Peter Chinn. This is a primer on R/C flying, dealing in everything from explanations of how the model is controlled, to chapters on learning to fly. Also covered are R/C boats and cars, and much material basic to all types of R/C models.

Also new in the Polk's lineup are two new electric powered models for R/C, a Mistral Ferryboat, and a Leopard II Tank. The Ferryboat is 30 inches long, and requires a three-channel system for left, right, forward and reverse. The tank measures 14 inches long, and also

requires a three-channel radio for left, right, forward and stop operations.

The price of the Ferryboat is $139.95, the Tank is $89.95. Both are available from Polk's Model-Craft Hobbies, Inc., 314 Fifth Ave., New York, NY 10001. Tell them MB sent you. •

Polliwog . . . . . ***Continued from page 14***

hinges in place. Cement the fin to the boom and to the right side of the stiffener. Before this dries, re-check that the fin is truly at right angles to the tailplane.

Now it's time to install the actuator, and connect up the rudder. My own favorite system for this is to bolt the actuator down to the structure (first replacing the bolt supplied by Ace with a longer one), so begin by drilling a 1/8 dia., hole in the boom for this bolt. This installation is shown on the plans far better than I can describe it, so spend a moment looking over the installation drawing. With the actuator in place, bend up the loop on the front end of the torque wire, then slip on a couple of lengths of inner Nyrod, each about 3 inches long, then bend up the aft end of the wire. The inner Nyrod pieces act as guide/bearings for the torque wire, and these can now be epoxied to the top of the boom stiffener. Don't let the epoxy run over the ends of the bearings, as the torque wire must be very free in order to operate satisfactorily.

We now build up the fuselage pod around the actuator, starting with the 1/8 sheet bottom, and the forward 1/4 sheet doubler. Cut out these items, and cement them together, then on to the boom, after which the frames F2, 3, 4, and 5, can be made and installed. Note the various cutouts in the frames for the wiring runs, and in F5, so that it fits around the boom.

The 1/8 sheet separator between F2 and 3 comes next, don't omit this piece, as it isolates the receiver from the motor battery. Make the fuselage sides from 1/8 inch sheet, and cement onto these the 1/4 inch sheet forward doublers. When dry, glue the fuselage sides to the bottom and the frames, then add the various 3/8 inch triangular gussets.

While all this is drying, make the F1 frame from 3/32 ply. An oversize 1 inch dia. hole is cut in this for the motor . . . do this before the frame is installed. F1 is initially cut to a rectangular shape, then sanded to the final outline after the fuselage is completed, as indicated on the plan. Cement F1 into place now, and install the motor, which will entail a little chopping on the 3/8 triangular gussets in the nose. Temporarily install the motor batteries, and check all the wire runs to the switch, which should be installed in a convenient location. Remove all the equipment now, add the upper 1/4 inch sheet between F1 and 2, not forgetting to bevel the aft end of this slightly. A small balsa block aft of F5 completes the basic fuselage construction. Sand all over, round off the nose a little, then drill the 1/8 dia. holes for the wing dowels, and cement these into place. A 1/4 inch sheet hatch is required to cover up, and provide access to, the motor battery and receiver compartment, and this is sanded to the local fuselage contours. The cover is held in place by a small rubber band.

COVERING

Finishing is no problem. As there's no fuel around, there's not much reason to put on many coats of dope. The model shown in the photographs had a Solarfilm covered wing, as mentioned previously, and the rest of the structure was given a couple of coats of clear dope, mainly to stop my grimy fingers from marking the wood too much.

One of the other models in this series had a red Solarfilm front fuselage, transparent yellow wings, and a natural boom and tail unit. So take your pick, but whatever you choose, just remember, the more weight you add the more the model is attracted to the earth!

FLYING

Most of my flying is usually on the slope, and with a wing loading of less than 8 oz. per square foot (this includes the motor and batteries), the Polliwog makes a good slope soarer. Using the shorter duration batteries on the slope provides instant lift, ideal for those

changeable days.

Trimming for single-channel flying is basically getting two things right. The first is to make sure that the control is satisfactory, and that the model will turn well in both directions. Do this by adjusting the rudder loop up or down, up for more rudder, and bending the torque rod left or right, to get even control in both directions. The other item is to get the model to turn without stalling, by moving the C.G. around a little.

Most of these adjustments will vary from model to model, but after a couple of flights, you should be able to establish your own settings, after which it's all fun.

Happy flying. •

Plug Sparks . . . *Continued from page 27*

or basement. Just a question of rooting them out.

SAM CHAMPS PREVIEW

The columnist just returned from a SAM Champs Planning meeting held at Las Vegas, at Bob Chamber's residence. The main purpose of this pre-contest get-together was to assure that everything was in order. The field was visited and inspected for contest area, parking spaces, etc. In short, no effort is being spared to assure the contestant a great SAM Champs.

Headed up by Al Hellman, the SAM '77 Contest Manager, the meeting was comprised of the Western SAM V-P (Pond), the Free Flight CD (Wallock), the R/C CD (Bristol), and various members of the Vegas Antique Model Plane Society (VAMPS). Among the subjects discussed such as tents, water and sanitary facilities, Hellman noted that of the original 100 rooms available for reservation, almost 70% are from the east! This does not count the 45 or so that Joe Beshar has in his trip package. That, incidentally, is still open, so if you want the time of your life at the price of your life, contact Joe Beshar for a flight reservation to Las Vegas. The whole package of rooms and transportation is all neatly wrapped up in one neat tidy deal.

Inasmuch as most of the room reservations were gone, Hellman announced he had secured an additional fifty rooms. So if you want to see and meet fellows like Joe Konefes, Chet Lanzo, etc., you still can get a room. All you have to do is to write Al Hellman, 22607 Hatteras, Woodland Hills, Ca. 91364, enclosing ten dollars advance payment per room.

One of the highlights of the SAM Champs will be a long distance try by Bob Longstreet. Starting from Long Beach, Bob proposes to fly to Las Vegas with his Dallaire Sportster, utilizing the new O.S. Four-cycle engine. These startling new engines, when converted to ignition, get better than 25 minutes on two ounces of gas and oil! Wotta natural way to go for a distance tryout! We'll keep you clued on this one.

SCIF SIGNALS

Just received the latest SCIF "Flight Plug", now edited by Ken Sykora, who is himself no stranger to newsletters. Many of the FAI competitors will remember Ken's excellent editorship of the SCAT newsletter that set the style in newsletters for years.

Sykora reports on the SCAMP annual at Lake Elsinore, with the comments that it was an absolutely beautiful day, Feb. 6, with no, or little wind. Models were flying straight up and drifting so little the motorbikes didn't even get warmed up.

Surprisingly, the most popular event of the day was the commercial rubber, which enjoyed twelve entries (outstripped the .020 Replica Event!). Quite a few interesting rubber designs showed up, like Hal Cover with a Stahl Hurricane, Heinrich's Korda Victory, and Maurice Smith with a Jimmy Allen "Yellow Jacket" that performed like no Jimmy Allen model seen. The winner, Hugo Lung, employed a Whitman Albatross, closely followed by Wade Wiley (Douglas Space Conquerer) and Jim Quinn (Stahl Hi-Climber).

In the other events, Hal Cover copped the O&R 23 Event, using a Modelcraft Commando. The normally very popular .020 Replica was headed up by Abe Galles, who won with a Strato Streak, over Wallock's Ranger, by the flip of a coin. Wallock gained some measure of revenge by winning the 30-Sec. Antique Event over Larry Boyer and Sal Taibi.

According to Sykora's writeup, Sal Taibi's new midnight maroon, silk covered Powerhouse was equipped with a new Forster 99 right out of the box. Reports have it that a friend sent the motor to Sal. I've been telling you, Ken, there really is a Santa Claus!

One other item of interest was the recent vote the SCIF Club had for preference of O/T Events. Surprisingly,

the 30-second Antique Event was voted tops, with all gas classes following closely. The very popular .020 Replica Event only enjoyed a lukewarm vote. How about that? And at the home of the .020 Replica Event, too!!

WAHL-BROWN JR. ENGINES

Most of the engine collectors and many of the O/T flyers were well aware of the Anniversary Brown Jr. made by Herb Wahl. Of course, this was a specialty, as only 400 were made and Herb sez there will be no more of these.

However, in recent correspondence with Wahl, Herb indicates that he is about to embark on another engine project. Bill Brown was so pleased at the reception the Anniversary Brown received, that he has prevailed on Herb to build a Brown Jr. which would incorporate the features he wanted to put into the standard Brown Jr. at the time he was working for Junior Motors Co.

Bill Brown states this is the way he wanted the engine to be; basically the same lapped piston model (instead of what the Brown degenerated to in the C and D models), improved cooling, ports as Bill intended, together with some ideas by Herb, consisting of different scavenging, cooler Hurleman plugs, etc. Bill has prevailed on Herb to call this new improved product the "Wahl-Brown Jr. Custom". How about that!

Herb sez this engine will be more attractive, having the classic intake choke and other features. In spite of rising costs, (we still don't know how he produced the 400 units at the price he set) the new engine will sell for $139.50 (lower than the first run!)

In this new production run, Wahl will not limit the number of engines to be produced. In addition, there will be no "cut-off" date wherein orders will not be taken. This 1977 engine will be built as the demand warrants. The engine will be a good flying engine and perhaps, a collectors item. However, good performance will be its main attribute.

So, don't say we didn't tell you! To get in line for the motors, write Herb Wahl at his new address, Herbs Model Motors, P.O. Box 61, Forksville, Pa. 18616. The best part about this whole deal is that Herb (always a most generous man) is putting up a motor to be given at the Nationals at Riverside for the high time in Class C. Herb does not intend that the Class C event be only ignition. However, the motor cannot be won under prevailing rules that allow any motor (glow, diesel, ignition). The engine will be won by that model having original type ignition power that scores the highest time. Now, don't tell me you weren't told about that either!!

FUN TIME

We have reported on the SCAMP Annual elsewhere, but the report from C.D. Marc Tackett was too good to let go. The contest did enjoy good weather except for the weak cold front that came through that had everyone wearing overcoats and gloves.

When the front disappeared, and the day settled down to one of those typical lovely Lake Elsinore days, Jim Adams finally showed. Jim found out that Marc had only been charging $1.50 per event, and promptly screamed it should have been $2.00. So, when Jim entered the contest, guess what he paid! We could hear the screams of anguish clear up here in San Jose!

EARLY BIRD R/C WORK

Despite the complaints of some of the hard core free flighters, some of the correspondence received by the writer is too good to pass up. Such is the case of Gordon Codding, another purveyor of Old Time plans, located at 3724 John L. Avenue, Kingman, Az. 86401.

Codding sent in photos (unfortunately too dark for reprinting) of his Fokker F-VII "America", as used by Admiral Byrd at the South Pole in his explorations. The model went to Modelcraft where it hung until sold, sometime before Barney Synder retired. The radio gear was most unusual in that it employed a stepping relay of 20 contacts. This ground control station, keyed by a telephone dial, and illuminating a set of colored lights on the control console, indicated which control was being used (the two lights in center edges confirming upper or lower contacts). With the twenty-step relay in the model, you had to have some way of keeping track! The model employed three Arden .19 motors with individual and/or collective throttles. Controls, which handled all surfaces, throttles, and brakes, were electric motor type servos driving threaded shafts having "rider" type nuts hooked to the push rods.

As Gordon says, he could taxi the model on the runway in full scale fashion, rev-up each engine for simulated magneto check, align model into wind, release brake, and then try to work the dial system. The model's actions were just too fast for dialing. So, sad story, the model was retired in 1949. And the guys think they have it tough nowadays!

MALONEY MEANDERINGS

Ever since the last MAC Show at Santa Ana in 1976, John Maloney, of World Engines, has been carrying on a lively correspondence with this columnist regarding the possibility of old timer kits and parts.

After getting numerous plans, John has decided to work up the Scientific Eaglet, his original love. As he sez, his thinking is to try to reclaim some of the nostalgia of the models from the thirties and put them in R/C models for the Sunday Flyer.

As he points out, he is the first to appreciate that it is not what the old timer movement is all about, as the old timer movement (in many respects) is a serious duration competition movement. What he is doing is for his own enjoyment.

His Eaglet will have a fiberglas fuselage (I can hear the purists screaming now) with a semi-symmetrical airfoil (he is up to his nose with this type of wing rib in inventory). Maloney feels this will make a better sport flyer (remember this fellows, SPORT!) than a flat bottom airfoil. The model will also feature a single strut landing gear, as a scale Eaglet landing gear would be inadequate. As John puts it, "Model Aviation is made up of all colors of the spectrum, from little indoor models to Bud Nosen's giants, from new designs to designs of antiquity. I think the magic word in model aviation has to be 'FUN'. Fun for the operator, fun for the builder, and, IF IT IS NOT FUN, then what is it?"

PARTIAL KITS & KITS

We have mentioned it before, but this columnist is constantly amazed at the activity of Gene Wallock, the "W" of P&W Products. Now that Gene is for the time being, unemployed (unfortunately for him), the modelers are really going to benefit, as Wallock figures on going into the kit fabrication business full time.

To show his latest efforts, Gene will now provide partial kits of the Dallaire Sportster (previously announced), the original Buccaneer, Trenton Terror, and Miss America. These are all full size, as per the original plans which are still available from John Pond. In short, when you buy one of his partial kits, you must obtain the plan from Pond or Model Builder.

Just received the latest in the 50 inch series being developed by Bob Oslan, of Cal Aero. It's the Shereshaw Sportster. This kit leaves very little to be desired. Although it has been reviewed elsewhere, the writer would like to take

this opportunity to commend Oslan for the fine line of kits he is making available to the old timer enthusiast.

Also worth noting in this kit (as compared to his Powerhouse), Bob has maintained an excellent O/T scale profile. With the flat bottom airfoil (which was in the original design), the model is admirably suited to R/C. Of course, it goes without saying it would make an excellent free flight sport model, but unfortunately, "scaled" models cannot be entered in the F/F O/T events.

SPRUCE, SPRUCE,
WHO'S GOT THE SPRUCE?

Well, got nailed again! This time, Sal Taibi writes to say our March column was in error, wherein we stated that extra long strips of spruce for the Dallaire Sportster were available from Superior Aircraft (Mike Taibi, owner) No such thing! The spruce is available from Premier Co., P.O. Box 8264, Long Beach, Ca., 90808 (Sal Taibi, owner). And here I thought all the time it was all in the family. Mama mia!

RUBBER WINDINGS

As a follow-up to the article on rubber featured under our "Engine of the Month" section, Fran Kastory writes to berate me for my public statements (fortunately, not in print!) about the problems of rubber and the attendant miseries.

He claims he has used the same motor over three seasons, wound it 32 times before a strand broke. Of course, like Phil McCary, Francis says to wash and re-lubricate the motor after each contest. He then stores it in a "Glad Bag", placed in a cardboard crate, together with the disassembled model.

To prove his contention that today's rubber is not as bad as it is painted, Fran made up a motor for his scaled jumbo Stahl Skyfarer that employed 12 strands of Sig 3/16 black contest rubber, 36 inches long, and braided it a la Korda Wakefield style, ending up with a 20 inch long motor. The rubber was purchased in 1974. It was used for two test flights and six contest flights in 1974; 15 contest flights in 1975; and nine flights in 1976; total 32. He finally admitted the last flight showed one broken strand. Interesting to note is that the motor has been wound 450 turns twice (test flights), last three flights at 750 turns, and balance at 600 turns. His jumbo flying scale averages 50 to 52 seconds R.O.G., looking simply majestic flying overhead. You guys might think of giving rubber a chance again!

HOT LEADS

Jim Dean, Editor of the SCAMPS newsletter, "Hot Leads", announces that he has completed a modification on a batch of V-3 spark plugs. On the test, 19 ran satisfactorily out of the 22 produced, the three being faulty with too little or too much gap. No big deal there! Jim thinks he can now produce V-3 plugs in about the same batch amounts and will make only the V-3 spark plugs at present. Charge will be $3.00 per plug (where else are you going to find V-3 plugs?) So write for particulars to Jim Dean, 2218 South Ross St., Santa Ana, Ca. 92707. If enough fellows buy, maybe Jim may reduce the price.

TEXACO TWIST

With the O/T R/C clubs proliferating like mad in Northern California (first SAM 21, then SAM 27, and now a new club in the Sacramento Valley), it was only a matter of time that the columnist's prediction of a round-robin of contests will start. The opening shot on this is the announcement of a team contest to be held on April 17 at Loren Schmidt's Ranch, Elk Grove.

The Sacramento group has come up with some experimental rules, inasmuch as they feel the converted ignition engines are running away with every prize in sight. Fuel allotments will be as follows:

Converted ignition	3-1/2 cc per lb. (21cc max fuel)
Glow powered	5cc per lb. (30cc max)

Pre 1950 ignition	7cc per lb. (42cc max)

With Don Bekins winning like crazy with his Anderson Spitfire powered Lanzo Record Breaker, the fuel allotment gives him an even better advantage. As Don sez, he is going to have trouble keeping the model in sight!

Another gimmick to be tried in a special event will be the lifting of the seven pound limit. Some fellows, like Bob VonKonsky and his 10 lb. KG-2, will benefit from this, receiving fuel allotments based on total weight. We'll have a report on how this works out. We'll try anything!

.020 REPLICA R/C SWEEPSTAKES

With all the clubs now participating in .020 R/C Replica, it was only a matter of time before one of the clubs would propose an inter-club prize. Such has been done with the popular .020 event. Of the seven "official" meets (as designated by the clubs), five of these can be selected by the contestant, to count as top accumulated score. The high point winner of these meets will receive a suitable trophy, plus one of the new Mini-Cannon sets just perfect for .020 flying! SAM 21 President, Don Bekins, is spearheading all the action on this. A goodly representation should be on hand for the SAM Champs .020 Event.

VAMPS SPRING ANNUAL

Larry Vance, secretary of the Vegas Antique Plane Society (VAMPS), sent in the results of their annual held at the Dry Lake, site of the SAM Champs.

The columnist had to agree with Gene Wallock, the weather was fantastic. Matter of fact, the drift was so slight, the contestants constantly had to move to avoid the descending models! As Gene said, "I hope we can bottle some of this weather for the SAM Champs."

As usual, the SCAMPS and SCIFS dominated the meet, with Wallock taking two firsts and two seconds, Taibi with one first and three seconds, and Al Hellman with one second and two thirds. Didn't leave much for the other boys! And this includes people from Utah, Northern California, and other parts. If this is any indication, the SAM Champs will be first rate competition.

As Larry Vance put it, Sal Taibi didn't fly his Green Hornet, Larry didn't fly his green Guff, the club made lots of greenbacks, and people are green with envy over the field. They forgot to hold the meet on St. Patrick's Day!

THE WRAPUP

In several telephone conversations, and finally a most interesting letter from Fran Kastory, of Pittsburgh, it turns out there was actually going to be an unofficial twin pusher event on the last of the 1976 SAM Champs at Wright-Patterson AFB. With a start of four, Fran Kastory, brother Paul, Joe Scuso, and Danny Shields, here is the nucleus of the unofficial at the *1978* Champs (It'll take those old gaffers that long to get one built and flying, ha!)

As Fran sez, can't you picture a simultaneous launching of this most venerable of all old timer powered events? Can't you see the sky at Lakehurst filled with those bygone models? As Kastory facetiously notes, models will be launched upon the clarion call of "Gentlemen, up your A-Frames!". Double haw!

Now all we need is to have the modelers dressed in the correct garb of the day (where are we going to get all those knickerbockers?). The first guy who sez for me to look in my closet, get's shot! Keep the faith! •

Soaring . . . . . *Continued from page 31*

Ted Leistner, their tool design supervisor, came up with the idea of using a computer to help. He devised a way to translate the computer-stored dimensions of the F-18 into highly accurate 15 percent scale cross-sections. These were automatically cut from metal and became the frames when assembled on a central spine. The volume between these was filled with a liquid plastic foam and the entire structure was covered with a sheet of glass fiber, then lacquered. The wings and stabilizers were cut from solid aluminum, also with the aid of the

THE TALL SHIPS ARE COMING!

THEY'RE EASY TO BUILD

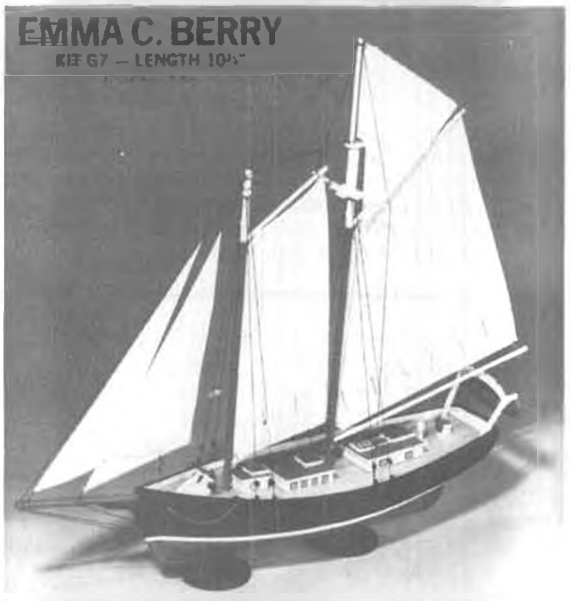
We know it seems unbelievable, but its's true. New techniques in the heretofore difficult rigging installation and ratline making, are simplified so that almost anyone can produce a craftsman-like job. Density selected prime balsa wood is a real pleasure to work with, and the step-by-step plan is clear, simple and complete.

- **CARVED WOOD HULLS**

THEY'RE COMPLETE*

With machine carved hulls, that require only a little trimming and sanding. Kits include many finely detailed cast metal fittings (as required for each kit) such as Life Boats, Windlass, Anchors, Steering Wheel, Water Cask, Lights, Screw (propeller), Ladders, Compass, etc. Black and Tan rigging line, Printed CLOTH Sails, Decals, Display Pedestals and much more . . .

*Dry Kits paint and cement not included



THEY'RE HISTORIC

Sailing out of her home Port of New Bedford Mass., the square rigger Charles W. Morgan sailed further and killed & processed more Whales than any other Whaling Ships of her time. Today it is for ever enshrined in all its glory at Mystic Seaport Conn., were it can be boarded and its history relived. The Emma C. Berry is one of the oldest commercial sailing ships in American Documentation. Preserved in excellent condition it can be visited and enjoyed at Mystic Seaport Conn. Emma was launched in June 1866, Slooped Rigged. Further details can be obtained from Mystic. Originally the U.S.C.G. Sailing Bark Eagle was built for the German Navy. It was acquired by the U.S. Coast Guard in 1946 and has been used as a training ship since then for Future Officers; Carrying 200 cadets. For further details write to the U.S. Coast Guard.

- **CLOTH SAILS**
- **CAST METAL FITTINGS, ETC.**

THEY'RE UNIQUE

Because such amazing detail and authenticity is achieved in kits that are relatively easy to build. Plans include full size drawings, as well as assembly drawings for each step of the way. Authentic color scheme shows on full color kit box lid.

THEY'RE ONLY

6.95 ea.

Sterling MODELS INC.
PHILA. PA. 19134 U.S.A.

AND THEY'RE AT YOUR DEALERS NOW

GET OVER AND SEE THEM . . . START YOUR ENTIRE KIT!

STERLING MODELS • 3620 'G' ST. PHILA. PA. 19134

If no dealer available, direct orders accepted — with 10% additional charge for handling and shipping (60¢ minimum in U.S., $1.25 minimum outside U.S.)

- ☐ Catalog of entire line of airplane control line model kits, R/C scale and Trainer kits, boat model kits, accessories, etc. 50¢ enclosed.
- ☐ "Secrets of Model Airplane Building" including design, construction covering, finishing, flying, adjusting, control systems, etc. 25¢ enclosed
- ☐ "Secrets of Control Line and Carrier Flying" including preflight, soloing, stunting, Carrier rules and regulations, Carrier flying hints and control line installation instructions 25¢ enclosed.

No checks. Only U.S. money orders or currency accepted.

Name _____

Address _____ City _____ State _____ Zip _____

computer. The entire task was completed at one-third the cost of a similar model carved from wood, and in much less time. By the way, production of the first F-18 is scheduled to be completed early next year.

Pacer Industries, of Campbell, California, now offers a new adhesive called X-30 . . . having a 30-second setup time. In some situations, 5 seconds setup is too short, and 5 minutes too long. For example, it's difficult to laminate with adhesive that sets up too fast. You fail to get an even distribution of the glue before "it's all over." On the other hand, 5-minute epoxies are too thick to smear evenly and they add weight. Still longer-term adhesives such as white glues do a fine job, but they require that you maintain a smooth pressure distribution on the lamination for at least 24 hours in order to ensure against warping in the drying process. In contrast, the 30-second glue soaks in evenly and sets up while you hold the lamination in place. Voila, it's done, and lightweight to boot.

Viking Supplies, a division of Techni-Models (Glendale, California) announces the availability of imported fiberglas fuselages including the 120 inch Cirrus and Cumulus, a 150 inch Super Cirrus, the 120 inch Orlice and ASW-15, and other popular models, such as the Todi and Kestrel 19. In most cases, these fuselages can be purchased with plans, canopy, and wing dowels.

Then too, there's a new opportunity to buy R/C sailplanes ready-to-fly or ready-to-cover from Gliders (6130 Roy St., Los Angeles, California 90042). They offer the Olympic II, Hobie Hawk, Albatross, Aquila, Wanderer, Windfree, Windrifter, and even the Ridge Racer. Here's an opportunity to save some hours, if you'd rather fly than build.

And for those who wonder what I look like, we've included a picture of me on the stick at Torrey Pines. This is no posed photo. I was really flying when a friend froze the action. ■

Power Boats . . *Continued from page 35*

360 finishing paper for the final preparation before applying primer. Be careful not to round any sharp corners that are critical to the running surface performance. It is also recommended that you sand in a circular motion over deck areas, and with a back and forth motion over corners where fillets were added. Before painting be sure to use a tack-rag *(We agree with recent findings that indicate tack-rags can leave "waxey" areas, causing paint adhesion problems. A lintless cloth and Prep-Sol or equal seems to be the way to go. wcn)* to remove any dust left from sanding.

Both companies have a good primer and primer catalyst. It has a thicker consistency than the finish colors. The thick consistency helps fill the grain of the wood and provides a good base. I recommend applying the primer coats by brush. You should give the boat 2 or 3 coats, allowing the paint to dry thoroughly (24 to 48 hrs.) before applying the next coat. Sand with No. 360 paper between coats. After the third coat of primer, again sand carefully.

When applying your colors, be sure to spray light coats. It's better to shoot several light coats, and let the paint build up gradually, than to shoot 2 or 3 heavy coats which can result in runs in the finish. Again, as with the primer, you must sand with No. 360 paper between coats. Before the final coat, I recommend wet-sanding with very fine wet sand paper from Sig. Also, by spraying lighter coats, the fan in your spray booth will be able to remove the vapors more efficiently.

If you are trying to get your boat in the water fast, there is a short-cut application I have tried. After a thorough sanding, spray three coats of primer, about a 1/2 hour apart. This avoids the need to sand in between coats, because the epoxy has not completed curing.

Then sand the primer coat and repeat the process with colors. The result is a good finish in less time than if you sand between each coat. However, if you have the time, it is still best to sand in between coats.

When spraying clear epoxy over decals, be sure to apply very thin coats. Epoxy tends to dissolve decals unless caution is used. Because you cannot sand in between coats with decals, it is best to shoot about six light coats (about 30 min. apart). Just be sure you do not wait too long, so that the paint does not completely cure.

K&B Super Poxy has one advantage in that it can be used immediately after mixing in the catalyst. Others require a 30-minute wait before using. I have also found that mixed K&B paint can be stored in a sealed jar in the refrigerator for up to 2 weeks without hardening. Thus you can save that extra paint when you mix too much. Be sure to allow the paint to come up to room temperature before using.

The Modeleers of San Fernando Valley staged some R/C Boat Record Trials at Legg Lake, El Monte, Ca., on March 12 and 13, 1977. The event was CD'ed by George Campbell, of Sylmar Ca, and 156 runs were made. The following record runs were made, and have been submitted for approval.

"X" Class, Unlimited Hydro, 72.58 mph. The previous record of 66.76 mph was broken by Jim Whitlach, of Orinda, Ca. Jim's boat, an Octura "Wing Ding", is powered by twin alternate firing OPS-60's, geared to drive a single prop with a 20% overdrive. The radio system is by Kraft, and all the engine work is through the expertise of Art Hammond, of Dublin, Ca.

Electric, less than 12 volts: The previous 13.7 mph time was improved upon by Larry Goddard, of Pacific Palisades, Ca, with a new time of 14.5 mph. The power plants in this case were two Astro .05's belt-coupled, on nickel cadmium batteries.

And last, but certainly not least, an outboard record was established, naturally using the K&B 3.5cc, mounted in Steve Muck's Lil' Lightning". The owner/driver in this case was Mike Wisniewski, of Lakewood, Ca.

The latter record for this new class did not last long; since then we've received word that Jerry Dunlap, of Marysville, Wa, bettered this on March 20 with 35.9 mph.

MB also received word that Frank Ward's Formula Vee .40 record of 52.14 mph has been confirmed and is now official.

Anybody for 55? •

Pylon . . . . . *Continued from page 37*

John mentioned they're in the process of coming out with a new racing engine for Form I. It's a front intake 6.5 Schnuerle, along the same lines of their very potent 6.5 Schnuerle rear intake engine. When I questioned John on the reasoning for going to the front intake, he ticked off some major benefits, namely . . . better reliability, and possibly an increase in power. John acknowledged that they've had some problems with rod breakage, rear rotor wear, etc., on the rear rotor version, and tests on the prototype front intake engines indicate that these problems have been eliminated, without a loss of power. I personally own two of the rear intake 6.5's, and they are as strong as my reworked Tigres. So, if what John says works out, the new engine should be very competitive.

The only drawback to a front intake that I can see is some difficulty in making the removable cheek cowl fit right. John feels, and I agree, that typical modeler ingenuity will solve this small problem. Besides, all you really need is a venturi intake, and you could mount the needle valve and shut-off remotely, so there may not be any problems at all. This design seemed contrary to current racing design, and I pointed this out to John. His simple reply, in the form of a question, was, "What about the Rossi 15?" Well, he had me there, as I think this has to be the most potent .15 size engine around. And following this line further, how about the Cox 15, also a front intake engine. Must be something to it.

(PRESS FLASH!

Word has just been received from Rossi importer, Bill McGraw, that he now has over 1000 new Rossi .15 ABC

R/C engines available for sale, making *it the newest QM engine to become legal. wcn)*

RACING SEASON'S HERE!!

May 14, 15	Bloomington, Ill . . . Sport pylon Q-500, Q-M	
May 14, 15	Oklahoma City, Okla . . . Q-M F-1	
May 21	Dayton, Ohio . . . Q-500	
May 22	Dayton, Ohio . . . Q-M, F-1	
May 21, 22	Charlotte, N.C. . . . 1/2A, Q-M, Q-500	
May 22	Ontario, Canada . . . F-1, Sport	
May 28	Platte City, Mo. . . . Q-500	
May 29	Chatsworth, Ill. . . . Q-M, F-1	
June 5	Colo. Springs, Co. . . . Q-M	
June 12	Jamestown, N.Y . . . Q-M Sport	
June 11	Dayton, Ohio . . . 1/2A, Q-500	
June 12	Dayton, Ohio . . . Q-M, F-1	
June 18, 19	Benbrook, Tex . . . Q-500	
June 18	Hamburg, N.Y. . . . Q-M	
June 19	Hamburg, N.Y. . . . F-1, Sport	
June 18	Detroit, Mich. . . . 1/2A, Q-500	
June 19	Detroit, Mich. . . . Q-M, F-1	
June 25	Atlanta, GA . . . 1/2A, Q-500	
June 25	Rochester, NY . . . Q-M	
June 26	Rochester, NY . . . F-1, Sport	
June 26	W. Suffield, CT . . . Q-500	
June 26	Atlanta, Ga . . . F-1	
July 9	Lockport, NY . . . Q-M	
July 10	Lockport, NY . . . F-1, Sport	
July 9	New Haven (Ft. Wayne), Ind. . . . Q-M	
July 10	New Haven, (Ft. Wayne), Ind. . . . F-1	
July 17	Charlotte, NC . . . 1/2A, Q-500	
July 31	Ann Arbor, Mich. . . Q-M	
Aug. 21	Toledo, Ohio . . . Q-M	
Aug. 21	Chicago Ill. (tentative) . . . Q-M	
Sept. 11	Toledo, Ohio . . . F-1	
Sept. 24	Dayton, Ohio . . . 1/2A, Q-500	
Sept. 25	Dayton, Ohio . . . Q-M, F-1	
Oct. 1	Forest City, Canada . . Q-M	

We received a very kind note from Al Grove, Wayne, Pa., about the race that the Valley Forge Signal Seekers, the Central Pennsylvania Pylon Racing Association, and the Metropolitan Air Racing Association are co-hosting on July 8th and 9th at Willow Grove, Pa. Looks like it's shaping up as a good one.

We'll polish off this column with one of the last race reports of last year. Namely, the one my club, the Fort Wayne Flying Circuits, puts on.

This race has come to be one of the major contests here in the Midwest, both in contestants and spectators. The number of spectators is large, because we tie the races in with the city of Fort Wayne's Annual Three Rivers Festival. The city of Fort Wayne is the site of the confluence of three rivers; the Maumee, St. Joe, and St. Mary's, which caused the area to be of major significance during the pioneer days. Festival Days were originally intended to revive this historical significance and were basically limited to pioneer activities. Over the past several years, this has changed, and many modern activities have been added. So, along with the parades, games, carnivals, dances, full scale airshows, antique and homebuilt fly-in, parties, beer bashes, etc., a large part of the local populace (and some not so local . . . the Chamber of Commerce says over 200,000 out-of-towners come to visit through the week) gets to see what radio control is all about. In addition to the races, the Flying Circuits also puts on a demonstration of different types of modeling interests through the week.

The reason I go into so much detail on our race is that ever since we've become a part of the community, it's made model airplanes more acceptable to the general "who-cares-about grown-ups-who-fly-toy-airplanes" citizens, and in particular, our local government officials. It also helps sell hot dogs, raffle tickets, and popcorn when you draw 5,000 to 7,000 spectators over a two day period.

So, getting back to the races . . .

Thirty Q-M racers showed up to do battle for the $250 in cash prizes on Saturday. At this point in the racing season, this was the largest turn-out of the season. The weather co-operated by being warm and sunny with light breezes straight down the course to assist on take-offs. Perennial winner, Crazy Bill Weesner, walked off with first place which was worth $100 in prize money. Bill had 5 firsts to be the undisputed winner. Both Dave Keats and

Gary Dabich tied for second with 19 points each, and in the rough fly-off, Keats came out slightly ahead of Dabich to cop the $60 second place and Dabich took the $40 third place. Bill Hager wound up in 4th place to pocket $30. Fifth place was a tie at 16 pts., between Russ DeWitt and Harry Slone. DeWitt really poured on the juice and walked away from Slone with $20 and fifth place. Allen Booth won the Best Finish Trophy for his nicely rendered LRIA Q-M. The trophy was donated by the Three Rivers Festival.

A Saturday night banquet brought most of the fliers together with the pylon workers, and many friendships were continued and some new ones developed. The free beer provided by the Flying Circuits helped wash away the tired feet and parched throats of workers and competitors alike.

Sunday morning dawned a carbon copy of the previous day. After Form I judging, the Best Finish Award (again provided by the Three Rivers Festival) was awarded to Big Frank Morosky, of Chicago, for his very well done Miss Dara. Frank was also presented with a color photo of his airplane and himself while holding the trophy. It was just as well that he received the photo, as during his first heat, he had radio problems and buried his beautiful aircraft about six inches below ground level.

The perennial Form I winner from Dayton, Bill Hager, did it again and walked off with first place and $100. Dave Keats followed up his 2nd place win in Q-M by doing the same in Form I, and didn't mind another $60 in prize loot after beating Bob Onori out in the required fly-off. Onori won $40 for his efforts. Al Booth came in 4th for $30 and young Robbie Hager, truly his father's son, took home $20 for fifth.

Hope all of you contestants, plus more, come back for our 1977 races this July 9th and 10th. This year it's $500 cash, plus some very valuable merchandise prizes.

Hope this didn't sound too prejudiced, as I was CD and will be again this year.

P.S. . . . You DID join the NMPRA . . . didn't you!?!?!? •

Rocketry . . . . *Continued from page 41*

of the fine Airfix plastic kits should be readily available soon.

Chas also asks about publishing scale rocket plans. Well, oddly enough, the elusive WCN, who appears only when surrounded by parentheses, has just expressed interest in publishing plans for the LTV satellite booster Scout as part of MB's Full Size Plans Service. It is now up to your humble author to put up or shut up. LTV has been very kind in providing me with blueprints of Scout,

so the project is definitely underway; however, I make no promises until after the NARAM. I expect to be run progressively ragged as August looms nearer.

In the picture department this month, we have a shot of the aforementioned Dallas Area Rocket Society, manning their booth at the Southwest Modeler's Show. I'm sort of amazed that they had a chance to take a picture; every time I looked, that booth was mobbed! Left to right, Alan Wilcox, Lonnie Reese (not a club member, but a helper), Scott Hunsicker, Bob Turner, Carl Feldhaus, Calvin Wilson, and John Dyer. This is just part of the club; most of the members turned out at one time or another during the show. A more enthusiastic group you will not find.

Next are a couple of shots from the BCMRA in Fort Lauderdale, regular contributors of pictures. The first shows Larry Shenosky and Marc Lavigne (hidden by model) getting ready to explain their hobby on a local TV talk show. Look solemn, don't they? The large face in the other pic belongs to the small rocket, which is a scale Falcon air-to-air interceptor. Neat detail, especially considering the size of the bird.

Going from one extreme to the other, we have a shot of a launch involving members of one of my rocketry classes, taught under the auspices of a local Parks and Recreation Department. The rocket under consideration (and under power) is nine feet, five inches tall. That's an example of a Superroc entry. It worked, by the way.

And finally, since WCN reported on his antique car project a few month's back, I'm going to take this chance to describe a non-modeling activity of mine. For a couple of months now, I've been using local flying fields to throw boomerangs, and I've found that the aborigines weren't so dumb after all. Yes, they really do come back to you, or at you! Actually, they are an absolutely fascinating activity; a self-awareness pastime, like golf, but beating the heck out of pasture pool for fun. The boomerang is undoubtedly the oldest flying machine in use today, having been dated over 10,000 years, at least. And, since they are very wind-sensitive, they can even be used to hunt thermals! Hear that, glider freaks? ●

C/L . . . . . *Continued from page 45*

In back are samples of line; the hunk on the left is leadout material, sold at 7¢ a foot; in the middle is .018 stranded line, and on the right is .012 line for FBI Combat. The .018 line is $2.50 a set, or $20.00 for a 1,000 foot spool (enough for 8 sets of lines). The .012 line is $2.25 a set and is also sold bulk, the 1,000 foot spool going for $20.00 and being good for 9 sets of lines. Not shown, but available, are sets of 1/2A lines (.012) for $1.50 each.

To the left of the syringe is BR-22 Ceramic Plug Post Sealant. I'm not sure that long name is at all necessary, but this stuff is the hot tip for Fireball plugs. These plugs have a very good all-around element, but are prone to spitting out seals like crazy in honkin' motors. The BR-22 ends this problem. I've used it and had very good results with BR-22 treated plugs in Combat, Rat and Badyear motors. If you prefer to not roll-your-own, then Bill sells plugs that are already treated for $1.15 each. The BR-22 itself goes for $3.75. Bill says this is enough to do at least 30 plugs, but I treated almost 50 of them with one batch.

The bladders on the left have worked fine for me and sell for .24¢ each. It is suggested that these bladders be used in doubles for best results, so you might want to order quite a few. The pacifiers are the best I've ever used (although I only use them on F/F Gas ships, anymore) and are highly recommended. They're 35¢ each, so the price is right. The hunk of fuel tubing is neoprene, and Bill says it won't get stiff, rot, develop pin holes, or split. Could be, I haven't tried it. I do know that it is quite stiff, so wouldn't suggest using it on a bladder system where you must pinch off the line with your fingers.

Laying in a pile are a bunch of T-Pins. Bill sells these in bulk only, with a 1/4 lb. going for $5.00 and 1/2 lb. for $9.50.

Also offered is a "genoowine" MACA T-shirt in blazing yellow, with the MACA logo on the front. Would have taken a picture of the shirt, but I was wearing it at the time! If you are interested in any of the above, plus some items not mentioned, get in touch with Moose.

AND NOW, FOR THE RACERS . . .

Moose also has a few things for the spin-like-a-top, whip-if-ya-can guys, and pictured is his new "Hooptee" Rat Race/Formula 40 glass top. This top looks real nice and goes for $15.00

post paid. According to Moose, the top features: cowl area redesigned to fit current Rat engines, mates to the Midwest pan, new body-to-pan dimensions give extra room for tank/controls/shut-off, will accept legal pipe for Formula 40, will take any finish (with epoxy recommended), comes with complete instructions, and Moose says that he will answer questions upon request.

For those wanting to get into Rat, this looks like a good way to go. Glass-topped Rats build quickly, tend to be quite durable, and give lots of room inside. Tell Moose that Dirty and MB sent ya!

MORE RACER STUFF

The most significant "happening" in C/L Racing has just happened, and I hope you got in on it. What could that possibly be? Introduction of a new motor? Development of a blow-proof plug? Legalized whipping?

None of the above, quacker; it was the publication of the first n/l from CL-RPM (Control Line Racing Pilots and Mechanics), the CL-RPM Racing News. Russ Sandusky and Dave Tisdale are the guys behind the effort and their first n/l was quite good.

MACA, PAMPA and FAI-CLS have done tremendous things for their respective events. I look for CL-RPM to do the same for the Racing events. Jump on this opportunity to be in on the ground floor by joining. Send your $5.00 to: CL-RPM, 725 Bauernschmidt Dr., Baltimore, MD 21221.

AND FOR ANOTHER MERE $5.00 . . .

You can pick up a neato book that goes into the many tuning aspects of two-stroke engines. The "Two-stroke Tuner's Handbook", written by Gordon Jennings and published by H.P. Books, is a very complete look at "ring-ding" engines, and is worth looking through . . . if you're interested in the mysterious ways our motors run. Anybody in the least bit familiar with motorcycles is aware of Jennings' credentials, and that he can write in a manner which is clear and easily understood. Anybody interested in improving their motor's output, or in just understanding them a bit better, ought to have this book. The explanation of pipes (expansion chambers) alone is worth the money. From this, you will even understand how a plain megaphone works and how crude it really is, in comparison to a full pipe.

I picked up my copy of the Handbook in a *good* motorcycle shop (not a Honda or Yamaha to be seen anywhere), but a plain ol' book store ought to be able to at least get it for you.

HOW ABOUT A FLYING DILL PICKLE . . . UNDER GLASS?

Many Stunt fliers who have been around for awhile will remember Joe Dill. Joe now lives in Spokane, Wa. , and has gotten back into doing some flying. The fact that he associated with Don Shultz at many contests last year should not be held against him, as Joe is OK (Shultz is definitely *not* OK!). Anyway, Joe is seriously considering kitting one of his designs and one of the features would be a glass fuselage. Sound interesting? If you want to hear more about it, write to me and I'll put you in touch with Joe.

FAI COMBAT TEAM TRIALS

The next C/L W/C's will have FAI Combat as an official event for the first time in the history. Why it has taken so long for the best C/L event there is (that ought to draw a couple of letters!) to receive this deserved recognition is hard to understand, but now that we've got it, the next order of business is to select our U.S. FAI Combat Team. Mucho work towards this end has already been done by MACA (with Gary Frost as the primary driving force) and by the time you read this, most everything ought to be about ready to go.

The dates will be July 2 and 3, and it'll all happen at Buder Park, in St. Louis, Missouri, At this point in time, there are quite a few things unsettled. Entry fee, how MACA will raise money for the Team Fund, elimination system, how the sanction fees, plus other contest expenses will be paid for, and a few

other things, are up in the air. It's really a lot of work putting this show together, especially the first time around, but MACA has people who can handle it.

What is definite about the FAI Combat Team Trials is that you could have been involved in several decisions concerning the Trials, or at the very least, had up-to-date information about it, if you were a MACA member. Combat's where it's at, and MACA is where it's at in Combat. Where are you?

Personally, I'm really looking forward to this FAI Combat thing, even though it is doubtful that I'll be able to be at the Team Trials. Those English have been telling everybody they're the best for way too long. Their attitude has been especially annoying the last couple of years. You see, they used to fly airplanes that were real hunks . . . heavy as hell, bulletproof to the point of over-kill, exciting as roasting marshmallows and powered with *diesels!* Can you imagine that!?

Not only that, but the matches were as boring as the planes themselves. They called is skill; being able to follow without ever breaking off. I call it flying in slow-motion. Any turkey can follow a slug with another slug, and it adds up to ho-hum with a British accent. But that was a couple years ago. Since then, they have discovered that glow engines are superior to diesels (surprise, surprise, right?), and that Combat planes really can be exciting things that go fast and still turn.

I correspond with a couple of guys in England, and one instance will show you what I mean about them and their attitude. Dave Clarkson sent me pictures of his Tamerlane FAI Combat design (an MB plan), and told me of it's virtues, then went on to mention that U.S. Fliers should follow their lead in model design, pointing out that turn performance was all-important and that flat-out speed was of little importance. I gasped in disbelief! Well, maybe I didn't gasp, but I sure did choke a little, as another look at the pics of the Tamerlane showed the salient features to be a glow engine hung on the front, plastic film covering, single boom, pacifier pressure feed, and a stab/elevator that was not attached to the TE of the wing, which is almost universal British practice. I wrote back to Dave and told him that I didn't regard *any* of those items as particularly innovative, as they have been standard practice over here for sometime. And how about that glow engine? I told Dave that if speed really was unimportant, why not keep on using the diesels (which are quite reliable and start quickly), or if a glow motor had some magic to it, why not use an O.S. Max 15 cause it's light, which ought to help the all-mighty turn performance? Of course, an O.S. 15 doesn't make much horsepower, does it? Which is probably why they don't use them. Don't be fooled, folks, the British are out for as much speed as they can get and still have consistent runs. Which is just what we've been doing in AMA Combat for years.

Even if I make the above points stick, they're sure to come back with something about Wilkie's foamies, the Super Star II in particular. Big deal, anybody who has been around Combat for very long knows that foamies are kinda ancient history in the U.S. In fact, Wilkie didn't build foamies until he attended the '75 U.S. Nats and had some discussions with Phil Cartier and Gary James, pioneers in the use of foam. After the '75 Nats he goes home and comes up with a "revolution" in construction techniques, amazing the folks back home with ideas that he imported, more than anything else.

Before anybody sends in (more) hate mail, I'll quickly admit that Wilkie did come up with some really neat tricks in the Super Star II, and that many of his ideas deserve adapting (copying) to our AMA planes. In fact, my latest airplanes (Humongous, Popcorn Airplane, Plastic Nasty and the Ultra Slow . . . never at a loss for names!) are in a number of ways very similar to the Super Star II, although I developed them independent of Wilkie influence.

But let's also note that it wasn't British fliers as a group that came up with their "new breed" of Combat planes. It was Wilkie doing the planes and Gurt Frogg (Chuck Thomas) turning them on to glow engines and how to use them. If it weren't for Gurt and Wilkie, they'd still be flying junk and it would hardly be worth giving an "us" vs. "them" contest, world championship in caliber or not, a second thought.

Also please note that Gurt is an accomplished AMA Combat flier from the N.W. He was stationed with the Air Force in England for four years, and certainly did a lot for the advancement of Combat equipment "across the pond". It is quite possible that had Gurt decided against enlisting, the British would still be back in the Dark Ages.

But they are not in the Dark Ages now. Indeed, they have very good Combat equipment, although their philosophies still differ from ours, as a rule. Oh, hell, I'll go ahead and say it. The British Super Star II's (there are other deisgns, but they so closely resemble SS II's, it's not worth reciting names), may be the *best* FAI Combat plane in current use, bar none. Actually, that probably shouldn't be too surprising. After all, they only have *one* Combat event and all their development work goes into this one event, of course. Here in the States, we have *four* Combat events, if we count .049 Combat, and I do. As our heavy participation is in AMA (Fast) and Slow Combat, FAI Combat actually gets little more than a passing glance from most, and outright ridicule from some.

And where does that leave us? In a bind, partner . . . a real bind. We are going to be asked to compete in the W/C's Combat event with a class of airplane that isn't even very popular here. If the W/C's featured AMA Fast

Combat, who do you suppose would win? It'd be a clean sweep, with names like Buckstaff, Rush, Stubblefield, Brasher, Stevens, Burch, and Johnson heading the list. But it won't be AMA Combat, it'll be FAI Combat, the only Combat event "they" fly. If we are to be competitive, development of FAI planes, tactics and flying skill (we already have the skill, but our skills are not developed along FAI lines) will definitely have to be accelerated.

Even there we have a problem. I might not get many to agree with me on this, but I feel that a flier/plane combination that will win a place on the U.S. Team at the FAI Trials *will not* be an effective combination at the next W/C's. Following on this theory, a flier/plane combination that could win at the W/C's will not do well at our Trials in St. Louis. Put differently, it will take one type of plane to win a spot on the U.S. Team and then another type of plane to take to the W/C's, once the spot on the Team is gained. If I were trying for the Team, that is what my philosophy would be, but it is doubtful that anybody else feels that way. Most anybody (myself included, probably) would be quite reluctant to make a radical change in equipment, especially after having had it together enough to make the Team. Reluctant or not, that is just exactly what our Team should consider doing, and anybody having a good reason to think otherwise is invited to let me know what it is.

I just mentioned that we need to accelerate development of our FAI planes, and I can give a few people one way in which to give their plane's much better turn performance, all for the effort involved in changing props. You people who are using 7x6's are going to have to quit doing things like that, and start paying attention to what your plane/engine combo is trying desperately to tell you. A 7x6 prop on an FAI plane is absolutely terrible. Slip on a 7x4 and see the improvement in the turns. At the '76 Nats, I was amazed at the number of people using the wrong props in FAI. Go fast level and then bog like crazy in the turns, is not neat at all.

The problem stems from the fact that these puny 15's have a quite narrow power band. In AMA Combat, using 35's, one can get away with propping for level flight top-end. The plane will work OK (not real well, but OK) in the turns, propped this way, unless you get real radical on the prop, due to the fairly wide power band that most 36's have. Not so with a 15.

Unfortunately, I can't suggest the ultimate FAI Combat prop. Using 'tigre 15's, the Jive Combat Team has had a lot of success using the glass-filled nylon Taipan 7x4's, but Taipan has sold the prop molds to somebody else and they are getting hard to find now. They weren't easy to find before (many at the Nats had never heard of them), so that prop can be forgotten, unless they are reintroduced soon. And even if they are again available, it could be that Cox, Rossi, Fox and the new ST X-15's will blow the blades off of them.

Nylon 7x4's from Grish (Tornado) and Top Flite work for awhile . . . until the high rpm stretches the blades at the hub. You can believe that or not, a prop gaining diameter in the air, but it has and will happen.

In the next few months, the JCT will be working with wood props from Rev-Up and Top Flite. If we come up with something significant, I'll pass it along. Just be aware of the limitations of the 15's, and that wood props may be the only way to go, like it or not.

Back to the problem of the 15's having a narrow power band, I think we will have to be open to different thoughts than we are used to as far as an effective FAI Combat engine is concerned. I personally see the Rossi 15 FV as a poor choice, due to initial expense, a lack of consistency, parts problems, availability and (here it is again) a very narrow power band. Same for the ST X-15. The Cox 15 also has problems. Sure enough, it is available, parts are easy to get and it makes power. The price is high, but we're stuck with it, I guess, and just being easy to get

makes up for that somewhat. The real problem with the Cox is that same old thing, a narrow power band. I've done some work with them on FAI planes, and once the prop is right for maximum turn performance, the engine literally screams its guts out in level flight, and a trashed-out rear bearing is the usual result.

I'm going to get together with Bruce Tunberg at Cox on this, and will see if a motor made up with the milder R/C crank, head, and liner, won't have a decent power band, plus the necessary power to make it all worthwhile. And it'll have to be *very* worthwhile to be practical, as the total cost of the engine, plus the necessary parts, would be almost $100. Of course, one could just buy a Cox 15 R/C and then toss the Perry carb, but that would be stooping a bit low, wouldn't it?

It could be that the new Fox 15, in either plain-bearing or ball-bearing versions, will be the way to go. Going on what I've heard from others, the Fox doesn't equal the others in peak power output, but the wider power band may more than make up for this.

Whatever the outcome of the next W/C's, it will all be quite interesting.

•

Combat Jig . . . *Continued from page 47*

Here we see that instead of spring clips, clothespins are used to hold the ribs in place. One side of the clothespins are rounded and the pins are slipped into a hole drilled in each rib locator. The clothespins must be removed to remove the plane from the jig.

The variable left in my construction is CG location, and that is due to varying balsawood densities. Howard goes to the trouble of weighing and labeling all of his wood himself, and he uses exactly the same weight wood in the same place all the time. Therefore he knows in advance where his CG will be on each plane. He can now go ahead and drill engine mounting holes, before the mount is glued in place on the plane. He then locates the entire mount by these holes, and C-clamps the sub-assembly to the base. Shown in Picture 5 is (A) clothespin to hold rib, and (B) engine mount locator detail.

The rubber bands and clamps are now removed and the top half of the trailing edge is added. The pins that hold the trailing edge down keep the entire structure from rocking forward when the top half, both sides, of the leading edge sheeting is pulled forward over the leading edge and pinned down. The sheeting is the last operation in the jig. If necessary, the structure can remain in the jig indefinitely. Picture 6 shows the maximum amount of completion in the jig.

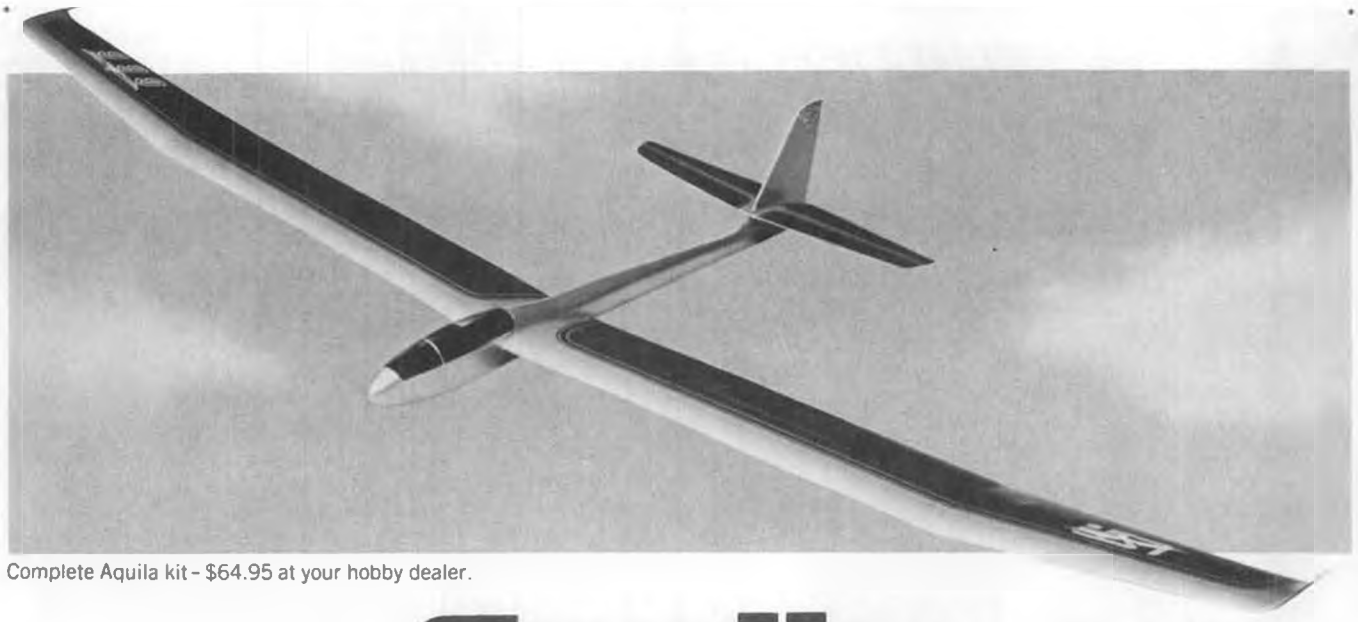
Finally, the tapered center block and pins are removed, and the entire structure is lifted up from the back, so the trailing edge clears top of the rib locators, and then pushed forward and out from underneath the bottom spar clips. The structure is now free from the jig, as shown in Picture 7.

There is sufficient room to install the bellcrank under the top sheeting. After the structure is removed from the jig, I like to get the bottom sheeting on as soon as possible to prevent a bow from occuring. The rest of the plane construction is per plan.

Take a little care in building your jig, if you build in an error, it will be around forever to haunt you. •

F/F Scale . . . *Continued from page 49*

Indoor scale was held at any Nats. I remember it well, because the Flightmasters were responsible for running the event. Even more so, I had a chance to meet Fulton Hungerford for the first time. This highly talented modeler was flying an F4U Corsair in this event. No one, many of us thought, in their right mind, would ever tackle such a totally unconventional design for rubber. Particularly tens years ago. Well, nobody told Fulton that. He was consistently putting up flights of 35 seconds. You may scoff at that time, but in those days,



Complete Aquila kit - $64.95 at your hobby dealer.

Aquila
#1 in the world!

Skip Miller of Boulder, Colorado proves that the Airtronics Aquila is the best sailplane in the world. Flying against the top pilots from 12 countries, Skip captured first place overall and led the U.S. team to victory at the World R/C Soaring Championships in South Africa, March 28-April 2, 1977.

The combination of Skip's flying skill, the flawless operation of the Cox/Sanwa radio he used throughout the six-day contest, and the performance of his Aquila all helped to win the gold medal.

Dale Nutter flew his Airtronics Grand Esprit to eighth place overall with LeMon Payne placing eleventh with his Legionair. Our congratulations to team manager Dan Pruss, the team members, and to Dave Thornburg, who hand-towed the winning team.

COX

COX/SANWA RADIOS,
AIRTRONICS KITS, COX ENGINES.
WHEN YOU FLY WITH COX,
YOU FLY WITH THE BEST.

Cox Hobbies Inc. /A subsidiary of Leisure Dynamics, Inc 1505 East Warner Avenue, Santa Ana, Calif 92702

it was pretty respectable, especially when you consider the design he was flying.

Not only was the subject unusual, but so was the method of construction. The entire Corsair fuselage was fully monocoque in construction . . . light in weight, yet very strong. There were no bulkheads . . . only an occasional reinforcing strip at the wing saddle, and where the rear motor peg slips through. Fulton kindly passed along his method for accomplishing this mode of construction.

"Monocoque Fuselage: I've built a few that way. The old Corsair I had out there in '67 or so has long ago 'bit the dust'. The fuselage was built of 1/64 sheet. The one I've sent you is 1/32 sheet. Both thicknesses have their own shortcomings. The 1/64 sheet was so flimsy that I worried about it collapsing, when you picked up the model . . . it felt like bond paper. On the fuselage I sent you, I made the error of using balsa fillercoat and painting the bare wood, so it got heavy and warped a bit. The best formula seems to be to cover the monocoque fuselage with wet Japanese tissue (carefully). If you rip holes in the tissue, just cut patches and lay them over the mess with water only. As it dries, use a little thinned dope to make the tissue stick to the wood. It is much lighter weight than the three coats of fillercoat, and the tissue inhibits the cracks you may notice in this fuselage where the pieces of balsa are glued together.

"To make the monocoque shell, you must first carve out a mold (I use balsawood) exactly as if you were building a scale solid model, but make the templates smaller by the thickness of the sheet you are going to use. Cut gores of the softest balsa you can get. Usually four gores for a normal fuselage is enough, but many compound curves may require more than that. Cut the gores slightly larger than the area they should cover, soak for 5 to 15 minutes in *boiling* water, and they become as flexible as a dishrag. Immediately lay them on the form, and smooth out over the compound curves. Wrap with about 3 inch wide gauze or strips of old linen sheets. I usually let them dry about 24 hours, sitting on top of the water heater. I find that oven-drying is too unpredictable. Carefully peel these gores from the mold. You will find that they adhere almost as if they were lightly glued!

"I forgot. You *must* put only the alternate gores on the mold, let dry and the next time place the remaining gores in place to dry. When all gores are dry, reassemble over the mold so that they overlap and cut a line through the two layers so that the seams match. Throw out the trimmed edges and refit over the mold. If everything fits O.K., then take the mold and place strips of mylar or polyethylene where the seams will be (so the glued seams will not adhere to the mold). I've heard that candle wax or beeswax will do that, but my experience is that either of those will blister the glue.

"Preglue the edges of each gore, wiping the excess glue off with your fingers. Pin the gores onto the mold so that everything is lined up and touching on all seams, and either wipe in or brush in a little glue on each seam. Depending on the shape of the mold, you'll usually end up with a perfect shape that won't slide off the mold. Don't worry. Go ahead and cover the outside with paper and color or dope as desired. Let it dry and shrink all it's going to. In California, that may be overnight. Here (in Florida), it means a couple of days or weeks depending on how much it rains.

"There is usually an area which almost won't show if you split the shell only enough to remove the shell from the mold. The only example I have to send is a horrible example of splitting along the top, and it will show. I will never use this shell, because it is too heavy and is out of shape, but you may be able to get the idea by looking at it. To use the Corsair fuselage, a nose plug must be added to hold the forward end more or less circular. Doublers should be added where the wing/landing gear or rear rubber peg is attached. The cut-out for the cockpit must be covered with a bubble canopy to keep the center section from twisting, and it will be as rigid as an eggshell.

"Properly made, I think the monocoque construction is the lightest and best for strength. Witness the torque tube used on the microfilm models, and the many airplanes with booms (a la Lightening) which don't have compound curves."

To aid the rest of you in this method of construction, I will take on a project using Fulton's method and I will report back any additional hints that I may encounter. Certainly this method lends itself to many models that would not look good with a stringer type of construction.

In closing, I want to point out that the Flightmasters Annual R.O.W. contest will be held on June 12 at Lake Elsinore. On December 4, the Jumbo/Peanut contest will have an added attraction . . . that of a multi-engine SCALE RALLY for any type of power, be it gas, rubber, electric, or CO_2. We are really looking forward to this one. The rules haven't been finalized, but for the first time out, the emphasis will probably be on flying. So plan a project and be prepared to have a great time. ●

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

donated the still highly-esteemed Nats awards, the Stout Commercial Trophy,

and Stout Indoor Trophy.

Back in 1935, automobiles were selling new for about $700. This led many people to assume that, since they apparently contained fewer parts, airplanes should have been available for about the same amount or less. The idea was frequently advanced, as it still is today, of using car engines in aircraft to lower the cost. Stout's comments on the subject included the following extracts: "Airplanes will be built equally well and equally low-priced when they are made and sold in equal quantities (as automobiles). Under any circumstances, broadcasting the statement that one can 'build' a 'cheap' airplane and sell it for $700 or anything near that price indicates a pathetic ignorance of the problem at hand.

"Technical problems never will be solved by other than technical men who know that two and two can never make five. We do not *make* scientific laws in this world . . . we *discover* them. One cannot pass a law in Congress to make an engine run without spark plugs. We may discover a law (and in fact have already done so) by which an engine can run without spark plugs. The law was not passed by any legislative body in order to make the Diesel engine run. Man's scientific mind and knowledge of his subject, together with millions of dollars spent on research, finally obtained the object.

"If our friends in the Department of Commerce had a thousand airplanes today, in a hangar where they were kept without having to pay rent, and these airplanes had been presented to them free of charge to offer to the public at $700 apiece, it would cost these learned and distinguished gentlemen more than $700 per plane to find a customer and sell the product on the dotted line. And the present regulations on private flying put on by that same department would restrict the sale of the first item it attempted to dispose of for $700.

". . . Right now there is great talk in Washington of automobile engines being put into airplanes, and no doubt before long there will be a great hullabaloo about an airplane flying powered with an automobile engine. This will be called a great achievement for the master minds.

"It must be remembered, however, that airplanes were flown fifteen years ago with Model T Ford engines, just as one might drive a five-ton truck with a motorcycle engine, and get a lot of publicity.

". . . An automobile engine as we know it today will never be made into an airplane engine, so cross that off your list. Very shortly, however, as the automobile man begins to get smart enough to know what has been going on in the airplane business, he will start to build airplane engines for automobiles. And when Henry Ford or Walter Chrysler or Mr. General Motors starts turning out these engines for a thousand motorcars per day and can sidetrack a few of them to be put into airplanes, then we may see a $200 engine for our private-owner craft, but that will be in the day when the automobile industry has solved its problems, after the Government has ceased to tell it how to run its own affairs.

"Let me repeat again, automobile engines will never be used for practical aircraft of any type until aircraft engines become standard for automobiles.

"I trust I make myself clear."

Wonder what Bill Stout would have to say today? The Volkswagen very nearly amounted to an aircraft engine in a car, and is flying in fairly large numbers in different parts of the world. As to the $200 aircraft engine, well some of the R/C model powerplants are now up in that neighborhood! It makes one take pause . . .

MORE ON SCALE JUDGING

From "Buzzard Droppings", newsletter of the Ohio Buzzin' Buzzards Model Airplane Club, we have abstracted these words of wisdom to scale and stand-off scale contest entrants: "One

of the essential parts of scale modeling is the scale presentation. Unfortunately, this seems to be a badly misunderstood item, and many an excellent model has missed out on the trophies, only because of a poor presentation. Worse, most of the presentations this judge has seen would have to be rated as poor. Why, you may ask? Because the majority of presentations have obviously been assembled in haste, and as a consequence, tend to be a vast, helter-skelter array of irrelevant materials.

"Let's see what the presentation is supposed to be: It is the only basis the judge has upon which to score your pride and joy. If you don't include a certain item, he can't judge it. At the same time, judges are working in a definite time constraint, so including extraneous material will hurt just as much as omitting a pertinent point; perhaps even worse, because his attention may be drawn away from vital data. Therefore it well behooves you to be thorough, but concise. Be sure to include a three-view from an approved source, or photos that will establish the airplane's outlines (in the case of stand-off rules, 3-views may not be required). Use a three-view that is applicable to your model: If you have a P-51B, don't submit a three-view for a P-51H. Sure they are both Mustangs, but they don't look very much alike; don't confuse the judge. Don't submit several three-views; they are often contradictory and one good one will serve admirably.

"Be able to back up your paint job; this is especially important if there is something unusual about your subject.

"Now that you have accumulated the desired materials, take care in preparing them for the judge. Stuffing it all into a re-cycled manilla envelope will meet the requirements of the rule book, to be sure, but it will make a poor impression . . . especially if it's windy, and your papers blow around. Therefore, it is a good investment to use a loose-leaf binder. Buy heavy plastic page protectors, and mount your photos, etc. inside these. Then, because it is likely to be windy, carefully seal the edges with clear tape, and install them in your binder.

"Now, if you have planned properly, you may have a brief introduction, an index perhaps, a three-view (or outline establishing photos), and proof of color and markings. All of which should take *not more* than six pages.

"Incidentally, don't include photos of the model, as so many do; heck, the judge can see that in front of him! Also, don't wait until the night before the contest to get your papers in order, it may be difficult to find everything in a hurry. In fact, your best bet is to prepare your complete scale presentation before you build the airplane! In this way, there should be no discrepancies whatever, between the model and its own proof of scale."

"INDOOR SCALE MODEL FLYING"

This is the title of a booklet authored by Fred Hall, who was among the winners in last year's **Model Builder** Postal Peanut Contest. This publication fills a special need, since the majority of published plans and marketed kits are aimed at outdoor Peanuts, while the indoor versions are a rather different proposition. Fred has put together a very clear and concise presentation, with line drawings, photos and charts along, with pleasant-to-read text. In addition to the "nuts-and-bolts" aspect of indoor Peanuts, he rounds out the discussion with the frequently overlooked areas of philosophy, and even a bit of gamesmanship. Also covered are materials, accessories and tools for the indoor builder, with the accent on simplicity and effectiveness.

Especially well presented is the information on propellers, and how to make them, always an area surrounded by either an excess of theory, or mysticism. Rubber motors, lubricants, flight trimming, and contest flying are treated with equal care, and even Peanuters of long experience are almost bound to gain some helpful tips.

Check the classified adverts in **Model Builder** for ordering details.

A WEATHER WORD

All of you who have suffered from the cold spell, might take some solice from this quote via "THE WEST COASTER": "Winter is what you'd get if government politicians planned Summer." On the other hand, what better excuse to stay home and build models?

AN END TO THE HO-HUMS?

Bob Clemens, of Rochester, New York, has submitted a cross-proposal to the AMA calling for a 3-1/2 inch chord limit on Peanuts with constant-chord wing platforms, Thus, to fit this rule (if passed), a Fike "E" would be dropped down to a mere 35 square inches of wing area. Bob opines that the profusion of Fikes this season will make the Lacey plague seem like a drop in the bucket!

HANDY HINT

From the "PROP WASH" newsletter of the Minneapolis Piston Poppers club, we read this offering by Ed Hagstrom: (from an idea by Skip Luick) "One trick Skip uses to clean Mom's iron off (after using it for Monokote, etc) is salt. Sprinkle some on paper and run the hot iron over it; the salt will remove any old glue or color from the iron, and you will be ready for a fresh start."

PARTING SHOT

It is an unwritten rule of Model Building, according to Jack McCracken, that whenever you are in the mood to

build, something else needs to be done first! *(And usually, if it isn't a household chore, it's cleaning off the workbench. wcn)* •

R/C Auto . . . . *Continued from page 61*

fast expert.

I was really relaxed and having a great time running around watching everybody else scramble. It's really fun to watch a big race. I must admit I concentrated on the expert cars mostly . . . but that's really where you see what's going on most of the time. I also had plenty of time to talk to "old" acquaintances and make some new ones. I had a long talk with Dave Richardson, from the S.F. bay area, who is primarily responsible for the rash of disc brakes on the West Coast. His approach of the floating disc and stationary pads has jogged everyone's imagination. Disc brakes on most cars that had them were copies of his basic idea. However, if one really looked around a bit, he would find that Glen Stone has been running a disc brake on his car in the novice class for about a year. Glen's disc brake is quite similar to the newer one by Dave, but Glen's has smaller pads and a fixed disc, which possibly just deflects a little to compensate for disc and pad wear. The floating disc makes the new brake attractive, because the caliper can be mounted directly on the chassis or bearing block to get the heat out of the pads and keep the brake cool. Most of the expert Associated cars had the new RPM-Associated disc brake unit on them. Bob Titerington and Bill Watson had homebuilt disc brakes on their MRP cars and HRE had a production prototype unit there. Look at the pictures of these units and see what will fit on your cars. But do realize that these units may only show a definite advantage on super traction tracks where brake heating is a problem.

There were two distinct car "lines" which I saw on race day. The differences in car handling are more or less what cause the two "lines" through several of the corners. One line is for the solid rear axle cars and the other for the cars with differentials (and possibly more front weight bias). The solid-axle cars can use braking much better, but experience some understeer at low speed light throttle conditions when the front wheels have trouble pulling the rear end around. The differential cars, on the other hand, have trouble using very much rear wheel brake, because when one wheel lifts, or loses ground contact, the other tire loses braking ability. But then the cars can turn quite well at low speed because the rear end doesn't resist turning quite so much. So, the solid rear axle car line is from the outside of a corner at entry, to the inside at the middle, and back toward the outside going out of a corner.

The differential cars come into a corner more to the inside, crank the front wheels over so the little bit of brakes and front tire drag slow the car, which then turns quite rapidly. But car speed reduces drastically . . . and if a tire lifts, the brakes reduce so they might overshoot the corner . . . then the differential cars re-accelerate down the next chute. As you can imagine, these two different lines interfere with one-another at least once on a given corner. This interference happened in the races quite often, and led to many heated words. As in big car racing, the guy to the common point first has the right of way . . . the trailing car should back off. If a driver does not back off and plasters or 'T-bones' another car more than once or twice in a 10 lap race, he should be "black-flagged" and told to cool it or he will be disqualified. If 'black-flagged', the driver must come into the pits and have his car held by his pit man while the judges, or flag man, discuss his intentional, *or unintentional*, driving conduct. After this happens a few times, things will clean up in a hurry.

The final 1977 McCoy Race results in the four driver classes were:

BEGINNER
1. Joe Ferrara
2. Bob Brown
3. John Keltz (Top Qualifier)

NOVICE
1. Danny Discenza
2. Jay Spere
3. Brisn Iso

Top Qualifier, Joe Tentschert

AMATEUR
1. Bill Newlin (Top Qualifier)
2. Jim Cade
3. Jack Barton

EXPERT
1. Earl Campbell
2. Jeff Rold
3. Gene Husting

Top Qualifier, Bill Jianas

Danny Discenza drove a good race and won the Novice class. As usual, Bill Newlin had his car working quite well and led for about half the Amateur race, but Jim Cade was close behind and was in position if Newlin made any big mistakes.

The expert main had numerous delays which caused the start of the race to be on-again, off-again for about 10 to 15 minutes. During this time, there was lots of idling at the start line, then wave offs for several laps. Engines were getting hotter and hotter and so were the tempers and words. Finally the race got started. Earl Campbell jumped right out in the lead and started putting distance on the rest of the field. Within a couple of laps, Bill Jianas' engine died . . . possibly going lean because of overheating. Bill restarted and was on the track pretty quickly, but the car died again in a few laps and Bill packed it up. In the meantime, Campbell was just motoring away out in front of the rest of the field. Gene Husting was now in a solid second place, but Jeff Rold came through the pack, only to pull a boo-boo and have to start all over again. Soon Jeff was right back behind Husting, and there was a race for second. Campbell had first place cinched up, but it was getting dark (I think the sun went down just after the start of the 60 lap main). Campbell had some trouble occasionally, either with concentration or vision, and got twitchy during acceleration for several laps . . . but then he settled down again. Now Rold was right on Husting's tail, with only two or three laps to go. With about one lap to go, Rold got by Husting and there was quite a race down the back straight. Jeff got through the 180° corner first, with Gene right on his exhaust pipe. Husting punched it and his car spun out, allowing Rold to get home second behind Campbell, and then Gene came across for third. I was concentrating so hard on that race for second place that I really didn't see much else of what went on in the rest of the pack.

Well, that's it everybody. While I was visiting with everybody and shooting

pictures, I got a bunch of good ones on K&B 3.5cc engine parts and mods (The K&B 3.5 is still No. 1, ahead of S.T., O.P.S. and Webra). That will be our subject next month. Drop me a note on what you'd like to be reading about . . . send to: Chuck Hallum, c/o HRE, P.O. Box 4658, Irvine, CA 92716. 'Till next month, accept the things you cannot change (other people's driving), change the things you can (your driving), and attempt to learn the difference. BYE! •

Sailing . . . . . *Continued from page 33*

against their widespread use. First they are quite heavy. They have a severe taper over their length. The butts are usually in excess of 1 inch, and within 7 to 8 feet, they are down to the "whippy" 1/4 inch or so that makes for good lure action when fly-fishing.

One spectacular application of the fishing pole mast was by Neil Goodrich, of the Central Park MYC. He loaded all 800 square inches onto the mast and proceeded to step it on the keel, wedged at the deck . . . no stays at all. Mast shape became a balance between sail power loading and the main sheet tension. He made his own sail, which worked rather well over the wide range of mast shapes encountered. Maybe we can get him to share his experiences with us. For a rig like his, the sleeve luff worked just fine.

Another experiment was done by Joe Schoonover, of my club, who put a 84 inch monster on a Victor VALKYRIE. He drilled holes, and then epoxied sheet metal screws into the spar for a jack-line. Standard spreaders and so on were installed. Try though we did, the thing was just too limber in its upper sections to be controllable. I will not rule fiberglas spars out entirely, but unless somebody has found a good compromise between taper and flexibility, the spars that I have seen just don't cut the mustard.

Very popular with the Europeans and vane sailors who have switched to R/C, are aluminum tube masts. They are often used in conjunction with sleeve luff sails, but are adaptable to any style with the input of a certain amount of labor. I refer you to Griffin's excellent book, *"Model Racing Yacht Construction"*, from Model Allied Press in England. The vagaries of sleeve luff sails are something we can leave for later, but suffice it to say that not many are used in this country, and there are good reasons for avoiding them.

The aluminum tube mast certainly fits the criteria we set up last month for the mast standing straight, and

taking on a controlled bend. However, the bend that the mast takes on is completely symmetrical around it. What I mean is, that it is just as stiff fore-and-aft as it is athwartships (perpendicular to the centerline of the hull!!). Up to a certain point this is good, but as one becomes more experienced, we find the need for the mast to be stiffer fore-and-aft than it is athwartships. The reason is that the luff curve in the sail must fit the mast in the fore-and-aft plane. But under heavy wind pressure, we would like the upper part of the mast to bend off to leeward, this releases the leach and reduces heel and weather helm. At the same time, the lower part of the mast will be levered to weather, pivoting at the point of jibstay attachment. This has the effect of opening the slot between the main and jib, and allowing the air to pass more freely. All the while this is going on in the athwartships plane, we would prefer that the fore-and-aft shape of the mast stay as constant as possible. This will keep the draft from moving around in the sail and also keep the camber we required when we set up the boat on the beach. The aluminum tube mast will not be able to do the sideways bending and not do a similar amount in the fore-and-aft direction. As a result, we can expect a boat with an aluminum tube mast to tend to react more violently to puffs and varying wind speeds. It does not have the cushioning ability that a mast has with a little bit of sideways give.

Last on the list are the aluminum extruded masts on the market. I know of three: 1) Vortex Model Engineering's, 2) Reynolds Mfg. Large, and 3) Reynolds Mfg. Small. The first is used on Santa Barbaras and Solings (I'm ashamed to say that if they are different, I've not checked). For 50/800's, the section is just about right, and for a 36/600 it is excellent. It has the smallest frontal area of all, and will present a very clean entry to the bolt-rope mains'l which sets on it. How the spar does on an S/B I don't know from personal experience, as all the boats in my area that have been raced are older and sported wooden spars (We even had boat No. 95 here for a while.). I have helped put an EC/12 rig up on one and would have to say that in that application, the spar proved much too limber in both planes.

The Reynolds Large has been used almost exclusively on the big J-boats. In this role, it performed admirably. It even withstood the total dismasting that a waterspout visited upon Bob Harris at the 1976 ACCR. Don't ask him about it, as it is horrible to see a grown man cry so. The spar is not light, but has the capacity to carry as much sail as one needs, also on a bolt-rope main luff.

The Reynolds Small "GOLDSPAR" seems to be having the widest impact, with its use extending from 50/800's all the way up to my new A-Class monster, which packs 1600 square inches. This spar shows the differential flexibility between fore-and-aft and athwartships bending that we spoke of as lacking in the aluminum tube mast. The section is somewhat larger than the Vortex spar, and the increased wall thickness increases the weight somewhat. For my applications, it has fit my needs to a T, even though the retail price of $3.79 per foot in lengths up to 9 feet is kind of steep. However, if you figure the time and effort you put into a wooden one, I think you just about come out even.

For price information contact the manufacturers directly:

VORTEX MODEL ENGINEERING
210 East Ortega
Santa Barbara, California 93101

REYNOLDS MFG. CO.
3010 Chris Lane
Orlando, Florida 32806

At the present time, VORTEX has fittings available for its extrusions. REYNOLDS is in the design and development stage, so you may have to make up your own. I've got some ideas together and will toss them in next month. Elimination of holes to be drilled in the mast was my criteria, and from the shapes I've measured (as we discussed last month) it has worked out well.

Well, there you have it; many spars and spar materials to choose from. Good reasons exist for each one, be it cost, shape, weight, sail luff or what have you. I guess that is one of the reasons this hobby is so much fun. There are as many ways to get a job done as there are ingenious skippers to puzzle it out.

Under the heading of new products, we have gotten an announcement of the introduction of the new SCHEEL 50. Not a new 50/800, but a scale-like ocean racer of 50 inch overall length, a 40.5 inch waterline, 14 inch beam and 1000 square inch sail area. I don't have a displacement figure, but with that beam she must be in the 22 to 24 pound range at least. Get further details from:

HERITAGE MARINE
Post Office Box 554
Needham, Mass. 02192

I understand that the design was done specifically for R/C by naval architect Henry Scheel, and that he has incorporated his SCHEEL KEEL into the boat. You may have read about the SCHEEL KEEL in a recent issue of YACHTING Magazine. I've put my bid in for a hull, as it sounds like we might have the starting of a true one-design class of the same calibre and reliability as the Santa Barbara and SOLING. If you write to HERITAGE, tell them you read about it in **Model Builder.** An outboard profile appears in Figure 4.

Tantalizing ain't it??? I think that the size of the hull is going to provide a roomy platform for some of the additional gear with which skippers have started to experiment.

I've heard some rumors of the testing of a new trimming winch by one of the winch manufacturers. The unit is supposed to be a little more than twice as big as an R/C servo, and would provide a 10 pound tug on whatever you wanted to snug down. More information when I get it.

Remember to send in your $5.00 annual dues to the AMYA Secretary, 2709 South Federal Highway, Delray Beach, Fla. 33444. He likes to get the mail. I will continue to field questions when accompanied by a stamped, self-addressed envelope to **Model Builder** or direct to me: Rod Carr, 7608 Gresham St., Springfield, Va. 22151. •

Choppers . . . . *Continued on page 15*

also presumed that the production model came out with a shorter floorboard in order to more easily install the fuel tank. To test the strength and perhaps find the problem area, I mounted a new body pan (without floorboards) on the chopper and deliberately pushed and twisted . . . sure enough, all the stresses were seen to occur at the rear of the pan where the floorboards had been eliminated!

A new plywood floor was cut out of 1/8 inch 5-ply (for strength), and carefully trimmed to fit the entire body pan, all the way back to the transmission box former. It should be noted that a ledge for gluing is molded into the plastic pan for its entire length. New cut-outs were made for the fuel tank and radio equipment. Extra care went into the area where the fuel tank vent lines exit the body . . . their location requires cutting the floorboard and thus weakens the structure. So we went ahead and cut the floor for the vent lines, but added a sub-floor below the cuts to bring its strength back to normal.

While we were at it, a couple of additional formers were installed underneath the floor to more closely tie the assembly together. One of the formers runs lengthwise down the center of the body pan and butts against the molded cross-body former. The former should be opened enough to permit the passage of servo and radio cables from one side to the other. The remaining plywood former is fitted at the rear curve of the body pan, close to the fuel tank end. See accompanying photos for additional details of installation.

After the body pan was completed and installed, it was solid as a rock, except now, the attach points of the body needed strengthening to prevent the plastic from splitting and cracking under the stress of flying. Two sheet aluminum plates were trimmed to fit inside the engine box for the purpose of tieing-in the body pan to the sides of the engine box. See photos and drawing for details. All in all, it should take about two or three hours to do the entire job. Since making these mods, the Alouette has flown about 50 flights without a trace of vibration . . . and most important, not a single crack has developed in the plastic body, not even around the landing gear! And that's a great improvement on an otherwise great chopper!

NATIONAL SOCIETY OF RADIO CONTROL AEROBATICS

NEW MEMBERSHIP AND RENEWAL FORM Please PRINT

Name _____ AMA No. _____

Address _____

City _____ State _____ Zip _____

Competition Classification: A ☐ B ☐ C/DN ☐ C/DE ☐

NEW ☐ RENEWAL ☐ NSRCA No. _____

Dues are $6.00 for one year.
Send check or Money Order to:
NSRCA, c/o Sally Brown, 8534 Huddleston Drive, Cincinnati, Ohio 45236

FUTURE ISSUES

The latest project on my workbench is the construction of the MRC Hughes 500 helicopter. I acquired this machine through a series of complicated swaps with a fellow modeler and have always been impressed with the fantastic workmanship of the fiberglas body. Should be an enjoyable experience building it! Maybe I'll finish it in time to make the next issue, but if I don't, I'll have to do some desperate "scrounging" to come up with interesting data for you readers. It's very difficult to report (or invent) new ideas every month, and take the pictures, etc. without your inputs! This little soap-box lecture is to solicite more letters and interesting experiences which the readers will enjoy. Particularly, we need clear, sharp, black-and-white photographs for inclusion in the magazine. Color photos are acceptable provided they are "in focus" and well lighted. Take a little time out and get that material off to us, otherwise this "Chopper Chatter" column "of going on 4 years" may be forced into early retirement, and we don't want that to happen . . . we need increased growth to keep the hobby alive!

FINAL APPROACH

I have been toying with the idea of supplementing this column with occasional reviews of the R/C model helicopter builder (himself) and his workshop. It might be interesting to feature an individual's background, occupation, special awards or activities, special skills and interests, along with photos of his models and workshop, tools, flying sites, etc. Of course, the inputs must come from the modeler . . . I propose to mail out a form showing the data we need and photos desired, to those modelers who might be interested. What do you think? Do you have any other areas you'd like to see covered? Let me know and I'll take it from there. In the meantime, keep burning the midnight oil and get that chopper in shape for the weekend's flyin! BCNU next month! ●

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

suggest using denatured alcohol as an epoxy thinner. Works and doesn't weaken.

UNCONFIRMED RUMOR DEPARTMENT

In several recent newsletters, I have read that the K-Mart timer, which showed up so well in a recent test reported in **Model Builder** Free Flight, will be made available by K-Mart in an engine shut-off version for a cost of around $6.00. If anyone out there is aware of these little jewels being on sale in your area, drop a line to me c/o **Model Builder.**

Along the same line, Silk Sullivan informs me that he is no longer making and selling the K-Mart Timer faceplate reported in **Model Builder.** *(You can still refer to Bill Hunter's article on adapting the K-Mart Timer, as published in the March 1975 issue. wcn)*

P–30 EVENT GROWS AND GROWS

In fact, if it grows much more, it might become known as the P31 or even the P-40 event! No, seriously, if you don't know what the P-30 event is, here are the rules: Airplane, including propeller and D.T. fixings, must not exceed 30 inches in any dimension. Must have unaltered, free-wheeling, 9-1/2 inch diameter commercial plastic prop. Must be rubber powered by no more than 10 grams of rubber. Three-minute, Cat II rules apply, 20 second minimums.

So, where can you fly this event . . . try these: At the USFFC at Taft, CA. A special P-30 rubber event will be held. Trophies through fifth place and Junior High Time award as well. Also, a ladies cup . . . determined from overall high time. At the Nationals: same event and prizes . . . with Junior and Ladies cup, too. And even a Postal. At the present time, Mr. V.T.O. himself, Dave Linstrum, is proposing a P-30 Postal International Proxy Meet. More information on this will be covered later in this column, or you can read about it in Mr. V.T.O.'s June Column. Or, if you can't wait, write directly to P-30 promoter, John Oldenkamp, 654 India Street, San Diego, CA 92101.

"MONTHLY BAT SHEET" RETURNS

For the last several years, the Kent (Washington) Strat-O-Bats (S.O.B.'s for short) F.F. Club has been publishing a very informative and excellent free flight newsletter, called, appropriately, "The Bat Sheet." Unfortunately, the "monthly" Bat Sheet was typically published on a once or twice a year basis. Editor Don Zipoy had just worn himself down with this chore, his job, C.D.ing duties, and the like, so he set out to find a

suitable replacement. Enter Steve Helmick. Sure enough, Steve came forward and "volunteered" for the job. Roger Michael came forth as the official printer. Kevin Collins became the official Art Director. And the first issue came complete with features, 3-views and pictures.

If you want to be in on one of the best free flight newsletters on the scene today, drop Steve Helmick a line; 14804 Corliss Ave. N., Seattle, WA. 98133. $2.00 will get you twelve issues . . . no matter how long it takes.

Even has some humor in it . . . example:

Q. Does Dirty Dan Rutherford really exist?

A. The entire editorial staff helped research your question and found that the answer is without any shadow of a doubt: NO (or Negatory!). Dirty Dan is one of the most UN-REAL people we've ever met!

IT HAD TO HAPPEN DEPT.

On January 30, the Williamette Modelers Club sponsored another one of its indoor contests. Who should show up but Bill McDow, from Portland. Had a really nice scale model Caudron Monoplane, too. Electric motor and lines that came out of the wing tip . . . yep, it was a Ukie. When all of the other fliers stopped to gather round the model, Bill proceeded to hook up the control handle, 3 lines and all. Sure enough, he laid them out to the middle of the gym floor and proceeded to takeoff . . . slowly at first, and then gradually picking up speed. Then off the floor and in the air for over 2 minutes. Maybe indoor ukie is just around the corner. How's about that, Dirty Dan?

Charlie Learoyd called to tell me that at a recent indoor meet in his area, about 7 or 8 contestants showed up with Indoor Scale Old Timer Rubber models, and most of them were the "Mini-Miss America" from **Model Builder** (Plan No. 9763, $1.50) Geez! Talking about indoor

in May. Must be time to shut up for another month. In the meantime, think FAI. ●

Products . . . . . ***Continued from page 59***

system plugged into the "chain of command", so to speak. If you've ever tried controlling any kind of high performance R/C model with a radio system that is always a step or two behind you, you'll really appreciate the speed of these servos.

Centering is also important . . . it sure helps you shoot down the straights in something other than a zig-zag pattern. I'm not really set up to measure the centering of servos, but field testing of the car showed centering to be right-on. Trim the car to go straight "hands-off" and sure enough it goes straight. What else could you ask for?

With the battering that an R/C car normally goes through, you can imagine that the assembly work which will be OK in an airplane system just will not cut it in an R/C car. The people at Jomac know this, of course, and from design to finished product, the radio is made with an "It's got to be bullet-proof" attitude. This attitude paid off in a radio that will survive crashin' and bashin' like you've never seen before! I was to try to break this car, remember?

Guess that wraps up an initial look at the car, except for a simple (read trouble-free), yet effective brake that is a strap running in a groove on the clutch bell. The brake is just like the rest of the car, as simple as possible and yet still able to do the job.

With the body off of the car, I started looking for areas to "improve" upon. After all, these R-T-R's never are truly ready-to-run, right? And with my extensive background in C/L competition, slot car racing, full-size stock car and motorcycle racing, I ought to be able to come up with a few tricks, right? Wrong. I almost struck out. What I came up with was trashing the fuel feed line for some small surgical tubing, adding a Hi Johnson fuel filter, and cutting an extra hole in the top of the body so that both vent lines for the fuel tank were easy to get at. Big deal!

No problem . . . we'll take it out and run it a bit. That'll show up a weak point or two.

Before running the car, you'll need a couple of items. Fuel is pretty obvious, but what is not obvious, is that an R/C car runs pretty hot, so use of a fuel with castor oil as a base is suggested, one without a slug of nitro. Fox Missile Mist works very well, and is recommended by McKay. I tried some Missile Mist and it worked just fine. However, I also had some of George Aldrich's Magnum 15% fuel around. This fuel from GMA has impressed me with really good power, excellent mileage, very clean burning, and lower head temperatures. Also, the GMA fuel doesn't varnish the motor's internals, which can really slow an .049 down a bunch. The Magnum 15% fuel worked just great in the car. I keep trying other fuels, but always go back to the Magnum 15%.

Also needed, is an electric starter of some kind, as the TD .049 doesn't have a recoil starter mounted to it. Several starters work fine, but I chose the new Astro Flight .049 starter. And it works great. Plenty of torque, lots of rpm,

easy to hold and operate. A rubber boot is supplied with the AFI starter, making it usable on either airplane motors or the flywheel of the R/C cars. For $15.00, I doubt that you will be able to find a better electric starter for either cars or airplanes.

With the fuel, starter, 12 volt battery, 1-1/2 volt battery for lighting the plug, and a few miscellaneous odds and ends, we're ready to run.

RREEEEEE . . . WHAPPO!
RREEEEEE . . . SMACK!
RREEEEEE . . . TUMBLE, TUMBLE!
RREEEEEEEEE . . . SMACK, TUMBLE, TUMBLE, WHAPPO!!

You guessed it, we're out running this car and are trying in earnest to break it. Rather aggravating, too. We're running it into rocks, curbs, people's feet, the tires on my car, and anything else we can find. The car not only won't break, but doesn't even show scratches, due to the bumper protecting the front end, and the fact that the super-tough Lexan body is painted on the inside, so the Lexan itself protects it from scratches.

After almost three hours of running, we discovered the only weak point in the car. The clutch runs dry on the drive shaft coming out the nose of the engine. I hadn't noticed that, and we ruined a drive-shaft from lack of lubrication.

A check with Don confirmed that this is indeed regarded as a weak point in the car (they're working on a solution to the problem, but haven't come up with a fool-proof fix yet). Don says to simply disassemble the clutch and put it together with some STP smeared around, inside, and on the drive shaft. Then, when running the car, hit the drive shaft with more STP every time you put fuel in the tank. If you're in a hurry (as in a race), simply slop a bunch of fuel on the clutch bell. The fuel will run into the clutch through the crack between the clutch bell and the flywheel.

Next time out, I had a clutch full of STP to begin with and at pit-stops, I squirted LPS (it's like WD-40) on the end of the driveshaft, using an LPS spray-can fitted with a small nylon tube. The tube allows you to get the LPS where you want it, instead of all over the car. That worked fine and we haven't had any kind of trouble with the clutch since.

Operation of the clutch is *not* affected by STP, oil, fuel, etc. You'd think it would slip some, but it doesn't.

At this point, we decided that the car wouldn't break and had really enjoyed running it around. But I felt that we had reached a plateau in our driving abilities, and weren't learning much from just tearing around. Cheri, my wife, had decided that she would like to race the car in sanctioned, ROAR races in the coming year, so we needed to put in some serious practicing, and we weren't getting it by terrorizing dogs and cats that happened along.

So the next time out, we took along a bunch of empty bleach bottles and set up a simple course. That's the trick to getting good with one of these cars. Our driving skills jumped a bunch in just an hour or so of running a marked course. Cheri is becoming a pretty fair R/C car driver, and I'm getting lots of practice as a pit-man and bleach bottle setter-upper!

After putting a whole bunch of running time on this car, I'm convinced that not only is it truly ready to run, but it is also ready to win in stock condition. And I verified this by sneaking into Jomac one day and casually asking Bob Welch (designer of the car and one of the best R/C car drivers around) if I could look at the car he used at the '76 ROAR Nats. He pulls this rather ordinary-looking car off a shelf and I look for "tricks". Other than a strange looking exhaust throttle he is experimenting with, the car looked stock! I couldn't believe it, but it just goes to show that MRP puts all of the "tricks" into production equipment. You may not realize it, but that sure saves you a bunch of money in super-zoot, bucks-up accessories. Anybody with memories of slot-car racing knows what I'm talking about here.

The only thing that bothered me for a while, is that after we had learned to drive the car fairly well, I wanted to get more power out of the motor. With a TD .049, this means playing with piston/cylinder sets. I have some rather viscious TD .049's, so wanted to try them in the car. But the car uses a left-hand motor, so all I could do was to swap piston/cylinder sets. This is OK, but the throttle sleeve used on the car won't work on standard cylinders unless they are machined down some. A note to Paul Runge at Ace R/C netted us a couple of Ace's own throttle sleeves that work on standard cylinders without the problem of machining. The Ace parts required, if you want throttle your TD, is Stock No. TDTS, and they sell for $2.95.

Using the Ace sleeves, I have been trying different motor combinations, and the results are encouraging enough to continue. The Ace sleeves I'm using throttle every bit as well as the stock units, plus being usable on standard cylinders. Check 'em out.

In closing, I'll definitely recommend the MRP 1/12th R/C car to anybody interested in R/C car racing. It is fast, handles well, won't break, and maintenance is minimal. My total main-

tenance efforts have been in replacing the one drive shaft we ruined, slipping on a new set of rear tires and cleaning the car once in awhile. Other than that, the car is still stock and going like gangbusters.

It still kinda bothers me that the car won't do a wheelie, though. I just love wheelies. Did I ever tell ya about the time I was on the hind wheel, just reaching for 3rd gear, and then . . . *(No ya didn't. Why don't you tell us about the time you were on the hind wheel, just reaching for 3rd gear . . . wcn)*

A BIT LATER . . .

My friend and owner of Kustom Kraftmanship, Joe Klause, heard that I was testing this car. As Joe knows that I love tricked-out motors that rip 'n snort, and he is in the engine rework business, here comes a completely customized Cox TD .049 in the mail one day.

We were just beginning to be able to use most of the power offered by the stocker, so use of a KK custom motor was the next logical step anyway, and we slipped it into the car. The engine came with three head gaskets, which we left in for the first 15 minutes of running. After this break-in, the needle was screwed in a bit, the extra gaskets removed, and both Cheri and I felt like we were starting all over in learning to drive the car. Spent more time spinning out than we did going in a straight line!

After spending some time practicing with the KK engine and it's super power, we can pretty much get the car to go where we want, although the car is still definitely a handful with this kind of power on tap. In fact, I have de-tuned the engine by running an extra (two total) head gasket and may even try a standard, low compression plug.

Even though the KK motor has more power than one can easily get to the ground, it is the hot set-up. If the power is too much for you, it is easy enough to back off by using extra head gaskets, a richer needle setting, or low-compression heads. This is much easier to do than trying to get that extra bit of power from a stock motor. Running a motor with too much power is a real luxury, and can be very handy come race day!

Other than raw power, the KK motor offers a superior throttle sleeve. Joe evidently turns these brass numbers out himself, and they work very well, I tried the KK sleeve on the engine that came with the car and the throttle response was much better.

Although many Kustom Kraftsmanship items are available in local hobby shops, the custom motors must be ordered direct from Joe. Contact: Joe Klause, c/o Kustom Kraftsmanship, P.O. Box 2699, Laguna Hills, Calif. 92653, and he'll send you an up-to-date price sheet listing all of his products and services. Tell him Dirty sent ya . . . he'll understand . . . and probably won't hold it against you! ●

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

Soak the fuselage longerons well and pin in place to the upper and lower curves. When dry, add the vertical bracing and fill-ins. Before separating, drill through for the lower leading edge holes and for the rear peg. Separate and add crossbracing. Add the front lower nose piece, which has a 3/4 x 5/8 cut-out to accept a matching rear piece of the nose block. Add the 1/64 ply nose former and the others of 1/32 balsa.

The dashboard former may be covered with cigar wrapper veneer, with paper instruments added. Drill six equally-spaced 3/32 holes in the exhaust stack backup piece and paint black before installing. Cover top of engine cowl, cockpit area and rear deck with bond paper. Cut away over exhaust area and lower cabane strut locations. Install stacks of 3/32 o.d. alum tube. The rear stack will have to be bent slightly to clear right rear cabane strut. Stacks were later painted with Floquil Rust.

Rough cut nose block and hold in place with double-stick tape for final shaping. Remove and cut out area for radiator, then install aluminum window screening. Cut off lower portion of nose piece, as this will become the removable nose block. Paint front of ply nose former and rear of radiator piece flat black, and glue block in place. After covering the fuselage with prepared hexagonal finish tissue . . . to be described later . . . paint the nose block and engine cowl forward of cockpit with a thin coat of Pla Silver and when dry, add a thin coat of Pactra Flat Battleship Grey. Allow a few tiny spots and streaks of silver to show through, and by Hung, you have instant weathering and chipped paint effect. Add panel

lines and louvres with your Sharpie felt marker.

The stab and rudder are straight forward and should present no problems.

Preparation of the covering tissue is basically the same as used on my Roland D-XVI. Best paper I have found is SIG's Super Lite, which has a harder surface than regular tissue. After pre-shrinking with alcohol, remove tissue from the frame and tape to a piece of glass which has at least one square edge. You will also need a T-Square, a plastic template with a 1/2 in. hexagonal hole, and a selection of various colors of felt marking pens. After drawing in each hexagon move the template along the T-Square to the next color and then to the next row. The best source of data on the proper colors to use is Profile Publication Nr. 151, the Berg D-1, as photos indicate that the same system of camouflage was used on the C-1. Sure the procedure is tedious, but the results will be worth it, so make enough to cover the plane, with some extra for patching.

Because of the thin, undercambered wing, I found it most convenient to make a jig of soft pine or balsa, 5x15x1 inch thick, with the top surface carved and sanded to the bottom curve of the wing rib. Draw the wing outlines on the board and build the wings right over the Saran-wrapped form. The four wingtips may be molded on the same form. Allow the leading and trailing edges of the lower wings to extend 1/16 in from the butt rib. The L.E. fits in the prepared hole in the fuselage, while the T.E. fits under the bottom longeron to give the proper incidence. On a biplane, I find the assembly easier without the landing gear installed so that the proper lower wing dihedral may be blocked in place. Cut spacers of scrap to fit vertically between the wings, then with squares or cigar boxes at each wingtip, line up the whole shebang and add the cabane struts of well-sanded 1/16 dowel. When set, add the outer wing struts. Complete the assembly by installing the tail surfaces, landing gear and rigging. The struts and landing gear were painted Floquil Dark Green. The wing and rudder crosses may be cut from black tissue or SIG's black decal sheet.

Best performance so far has been with a dark brown painted 6 inch Tern Aero plastic prop. The C-1 has been happiest

with a right-right flight pattern, and powered with one loop of 4 mm. or 3/16 rubber. Shim stabilizer at front of enlarged slot until optimum glide is obtained, then glue in place. Although basically an outdoor plane, I have flown it successfully indoors with times of 30 to 35 sec. Outdoors, of course, you are at the tender mercies of Hung, the great God of the Skies. The C-1 may not compete in total time with say, a Lacy, however, it makes a great entrant for WW-I combat and I hope, like myself, that you will become all goosey and puckered up in the right places when you see it floating overhead with old Sol stabbing his hot rays through that nice camouflage covering job that you are going to take the time to do. Aren't you?

•

Remotely . . . . *Continued from page 11*

occasional flyers and a small private airport to fly from . . . although almost any farm would do in a pinch.

"Thanks again for your quick response."

Carl had written about the balance point, because it had been mistakenly omitted from the drawing. In case you're interested, the point occurs on the back edge of the main wing spar, though designer George Wilson advises in the text that real stable and groovey flying is assured the beginner if he keeps the balance point about a half-inch further forward.

Anyway, we must comment, that from the looks of the workmanship in the original photo which Carl sent us, he has already advanced beyond the skills of some modelers who have been at the game for several years.

ABOUT THAT QUADRA

Through a total coincidence, both MB (April '77) and RCM (May '77) carried stories by Dick Phillips, of Prince George, B.C., Canada, entitled "Big is Beautiful". Ours was a reprint of an article originally published in the MAAC (Canada's AMA) magazine, and because of our different publishing schedule (based on our shorter lead time), both articles appeared simultaneously.

Dick's comments about the Quadra engine have brought lots of inquiries from modelers, and anticipating this interest, we have tracked down the source. This 2 cubic inch, magneto ignition engine, which weighs about 3 pounds ready to go, is available from Ron Shettler Enterprises, Pottery Rd., R.R. 3, Vernon, B.C., Canada V1T 6L6. The phone number is (604) 542-4151. Ron estimates the price in the U.S.A. to come out around $115, which compared to some the contemporary competition glow .60's, is quite a bargain.

For more info on the Quadra, plus a photo, see our Toledo report in this issue.

MAMMOTH CLASSIC SCALE

It appears that we have been far from alone in our enthusiasm for large scale modeling. Though our own quarter-scale modeling dates back to 1958 with the beginning of the Gipsy Moth project, and there has always been scattered interest in the "biggies", it seems that a strong movement has been developing simultaneously throughout the country over the past 6 months to a year.

Much of the increased interest in large scale has come about as the result of availability of suitable power sources, either through belt and gear reduction systems for .60 engines, or simply larger engines, period. Power alone is not the problem. The Quadra engine develops 2 horsepower, but so do several of the exotic competition .60's. The difference is in the ability to turn big props. Where the 8 pound pattern-type competition model requires a high-reving 11 inch prop for its straight-up climbing capability, a 15 pound quarter-scaler wants a slow-reving 18 to 24 inch prop that won't quit in the torque department. While the 3 or 4-to-1 reduction drive .60 can do the job, esthetically, it's the patucka-patucka-patucka (don't say that with a mouthful of Saltines!) of the big, easy-going engine that is more satisfying.

Again, the choice of flying thrust relates to the type of scale aircraft. A big P-51 would be more prototypical (that's another Saltine word) with a 60 turning 16,000 rpm's and cranking a big four-bladed fan at 4,000 rpm through a reduction drive. Samples of this were shown at Toledo.

Of course, staying with our concept of the big, lightweight, classic-era type scale model, special power sources are not apt to be needed. Meet Roy Hutchinson, another Canadian reader, from Edmonton, Alberta, Canada.

"Reading your column in the March issue of MB spurred me to contribute the enclosed snaps taken in England in 1970. You're all fired up about flight characteristics of big, light, Classic Scale, and they are all you say . . . PLUS! "The pictures are of a 1929 Vintage

Fairchild F.C. 2 Razorback I built from scratch from photos and basic dimensions. Span was around 90 inches, I think. I used the scale Gottingen deep wing section. Wings were in 2 panels and functionally braced with aluminum tubes bolted on as per full size. Scale was only 2"–1', as it was a BIG bushplane, compared with, say a J3, or similar light plane.

"I got lazy when finishing it, so I put a dummy 6-cylinder engine on it (Challenger "Six" Radial) rather than the original Canadian registered nine-cylinder job. The undercarriage I made fully sprung (oleo). I bolted it on as per full-size (steel tube/springs/silver-solder). Wheels were 4-1/2 inch Trexlers, with my own valves installed.

"It weighed approximately 10-1/2 lbs. with a tired old Merco 61 MK I engine, and 1967 Kraft KPS-6 radio with KP-7 servos (which I still possess and am very fond of . . . in fact I'm installing this gear in my 1935 KG-1, which I'm just finishing off for some FUN flying this year!)

"The Fairchild flew low and slow most of the time, but I did manage now and then to gain some altitude when the engine was in the mood. At such times, I'd put in a couple of loops and a very slow roll before going 'round for an approach. Landings and takeoffs were a sheer pleasure, the undercarriage really worked and took in every little bump in the grass without snagging a wing tip! One time . . . I landed short of the mowed grass strip in the rough, and on giving full bore to taxi out of it, she became airborne in about a 3 foot roll (10 mph breeze blowing!) right out of 18 inch high grass!

"All in all . . . the big Fairchild was a heck of a lot of fun! As far as I know, it's still in one piece back in England. I sold it, undamaged, before coming to Canada, complete with a pair of 4 ft. long pontoons I made for it but never tried out. Construction was mainly spruce and ply, laced with balsa. Covering was HEAVY nylon, household polyurethane paint, with hand painted lettering . . . BIG letters, I tell you!!

"Anyway . . . from the above, you can see I've already enjoyed the "BIG-UNS" . . . they ARE a lot of FUN too, and they seem to LAST longer than your average run-of-the-mill job. "Bolt 'em together" seems to be the way to go; sprung undercarriages really pay off, too! Around 10 to 11 lbs. is quite within reach, unless you tend to build heavy. A good .60 with a fine pitch, large diameter prop, seems to be the power required, as they are airborne around 15 mph or so . . . put 'em in "low" gear for "low and slow"! "

OFB CLUB DOES IT IN SCALE

Our club affiliation, before moving to California, was the Delaware R/C Club, where we used to fly more in one weekend than we have flown in the past two years!

Bob Karlsson, who blames us for getting him into scale, and who is now the District IV R/C Contest Board member, writes to tell us that the whole club is very strong in scale, particularly the sport type. His own successes in scale have probably been a strong influence.

Since 1970, the club has been holding an annual, club-members-only, non-AMA Sport Scale contest. It usually brings out 15 to 20 aircraft, and has inspired about 6 members to get into regular scale competition.

This year, on September 18, the club will hold an AMA sanctioned Sport Scale contest, and will introduce an idea well worth considering for official AMA rules . . . the aircraft will be split into 3 different classes, based on the time period of the aircraft's origin:

1. *Any* man-carrying aircraft that first flew before 1920 (WW-I in reality).
2. Same for military aircraft that first flew in 1920, or up to the present.
3. Same for non-military aircraft that first flew in 1920, or up to the present.

In addition, there will be a Grand Champ Award (probably for highest points regardless of class division) and a special, $100 cash award for the most unusual entry that flies. As to the latter, there will be no need to enter or pay fees, all you need do is get it in the air and prove it'll fly!

One more interesting point; a contestant may enter an aircraft in each period category (gets to make as many as 9 flights!), plus another for the "most unusual". This should encourage the appearance of lots of scale aircraft.

Bob sees Sport Scale expanding faster than any other event, and feels that establishing time period classes will be a great help in equalizing competition and encouraging the use of a wider variety of aircraft types. It will also simplify judging to a certain extent. We completely agree with Bob's idea, and hope that he will follow it up with an official proposal for the next rules period.

For more information on the Delaware R/C Sport Scale contest, write to Bob Karlsson, C.D., at 2643 Marsh Rd., Wilmington, Delaware 19810. •

Workbench . . . *Continued from page 6*

above, we would like to see this organization include three advisory committees, one each for F/F, C/L, and R/C. These committees would report directly to the Contest Board relating to their particular category, and the Boards would be required to recognize all of the committee's recommendations not contrary to AMA's basic policies

on safety and contest operations.

This, of course, presupposes that the existing Scale Contest Board would be disbanded. We wrote a letter to the Executive Council several months ago suggesting that all of the above steps be taken. The Scale Board has done much to improve scale rules, but with so many different interests involved, it is impossible for a general scale board to properly determine rules in such a wide variety of scale categories as now exist.

Whether the three scale advisory board members are selected for each AMA district by its V.P., and an association is formed from this 33 man nucleus, or the association is formed first, and the 33 advisor members are named by the association, is pretty much academic (the former method would probably bring faster results), but the main thing is that is should be done, and soon.

In order for the Executive Council to take action on this matter, it must have a specific proposal, backed with enough evidence to prove, beyond reasonable doubt, that this is the best course of action to take. We'll prepare and submit the proposal if you'll provide the proof. While you're dropping a card or letter to Bob Underwood on the association matter, include a comment about the advisory committee idea, or better yet, send your comments to us directly so we can forward copies to the Executive Council.

By the way, don't call the association the American Scale Society. How about USSMA, U.S. Scale Modelers Association?

STICK 'EM PATTERNS RETURN

Through a more practical (but not less expensive) arrangement for stocking supplies, we are again able to offer the popular "Stick 'em Patterns" for selected construction projects published in **Model Builder.**

In case you're not familiar with the Stick 'ems, these are complete sets of full-size patterns for all of the sheet balsa and plywood parts to build a particular model. The patterns are reproduced by a non-shrinking, non-expanding, non–distorting printing method onto pressure sensitive paper sheets, either 8-1/2 x 11 or 11 x 17, depending on the model and/or part sizes. The modeler roughly snips out the pattern parts and then juggles them about on the appropriate thickness of balsa or ply until the most economical layout is obtained, keeping in mind the grain direction (if balsa) as marked on the patterns. Once this is determined, each pattern is peeled from its backing paper and then applied to the balsa. When completed, the modeler has a complete set of printwood sheets for the plane he is about to build. All he has to do is whip out his trusty Uber Skiver and start slicing away. There's a pattern for every sheet part, too, even though there may be many alike, such as ribs for a constant-chord wing.

Beginning this month, we are reactivating all of the previous Stick 'em Patterns, and have added sets for the Gladiator O.T. Next, we will go back and develop pattern sets for some of the most likely construction projects, such as the Waco UPF-7 and Travelair 2000. Keep an eye on the full-size plans listing page for additions as they come along. We'll probably do the quarter-scale Gipsy Moth which is tentatively set for publication in the June issue.

THINGS TO DO

The 14th Annual Reno National Championship Air Races are scheduled for September 16 through 18, at Stead airfield, located nine miles north of Reno's famous "casino row". Features this year include a record total purse of $130,000 and appearance of the "Snowbirds", the Canadian Air Force Demonstration Team. Their show includes precision aerobatics by seven and nine Canadair Tudor jets.

Three days of air racing and specialty aviation acts will be preceded by three days of free qualifying events. For more information, contact the Greater Reno

CLASSIFIED ADS

Non-commercial (personal items) Rate is 25 cents per word, with a minimum of $3.00. Commercial Rate is 40 cents per word, with a minimum of $5.00. No mail-order discount house ads knowingly accepted. No advertising agency discounts allowed.
All ads are payable with order, and may be for any consecutive insertion period specified. Name and address free, phone number counts as two words. Send ad and payment to MODEL BUILDER Magazine, Classified Ads, 621 West 19th St., Costa Mesa, Ca. 92627.

RARE PLANS: Original Sturdi-Built kit plans from the 30's. SE-5 14" span, Hawk-Moth Racer 14", Fokker D-7 15", Ant. 25 1st Soviet Trans-Polar Plane 36", Monocoupe 90A 15", Heath Parasol 16", and Douglas Corrigan's Trans-Atlantic Curtis Robin 18". 75¢ per plan or any 5 for $3. Tony's Crafts & Hobbies, 4454 N.E. Cully Blvd. Portland, Oregon 97218.

COMBAT FLYERS — NEED A PLANE? Bumblebee II - fast combat, $8.75 p. pd. SC 1 - S1. com. trainer, $8.75 p. pd. GOTCHA - A.R.F. fast combat, $19.95 Send S.A.S.E. for complete information The CORE HOUSE Box 300A R.D. No. 2 Palmyra, PA 17078.

Best '76 and '77 FAI rubber, Filati, WAKE/COUPE Aluminum Tubes, Fiberglas Nordic tail booms, Torquemeters, silk, Japanese tissue, Silkspan, Airfoils books, Engines. "CHE" HOBBIES, 10900 Eastwood Ave., Inglewood, Ca. 90046.

MODEL AIRPLANES PLANS. Peanut, Walnut, Hazelnut, Rubber, CO_2, Gas. S.A.S.E. for list. Modernistic Models, P.O. Box 6974, Albuquerque, New Mexico 87107

IGNITION ENGINE DECALS: Reproductions of O&R, Forster and others. Three sheets, P.P. for $5.00. Larry Vance 5066 Cindy Way, Las Vegas, Nevada 89102.

FLYING PEANUT SCALE: Vought "Vindicator", Smith "Miniplane". Plans $1.50 each. The best. R. L. Stearns, 514 Holden St. Raleigh, N.C. 27604.

OLD TIMER Rib, Former and Outline Kits for the SAILPLANE, ZIPPER, MK I CLIPPER, POWERHOUSE, KORDA, RANGER, SO-LONG, PLAYBOY JR, PLAYBOY SR, and MERCURY. All parts machine cut. Send for free brochure. P&W Model Service, P.O. Box 925, Monrovia, CA 91016.

WANTED FOR CASH: Old spark-ignition engines, parts and plane kits. Russell Stokes, Rt. 1, Box 73J, Keller, Texas 76248.

AERO ERA Rubber Scale. 17 printed Peanut plans. Illustrated catalog and sample plan $1.00. Aero Era, 11333 North Lake Shore Drive, Meguon, Wisc. 53092.

IGNITION ENGINES: The entire O.S. Max line of fine engines is available converted to ignition engine operation. These engines are eligible for OLD TIMER competition and are the very finest obtainable anywhere. We also offer a complete line of ignition accessories, i.e., coils, timers, condensers, etc. Send for free 1977 price list. 77 Products (Otto Bernhardt), 17119 So. Harvard Blvd., Gardena, California 90247.

NEW BOOK "Flying Paper Aircraft", 18 scale replicas WW-I through 747. Send $1.98 plus .75¢ postage/handling. Little Brown Jug Enterprises, P.O. Box 180, Getzville, New York 14068.

New Line of PEANUT SCALE flying models. The Gere Sport, P-47D, PT-19 and others. Catalog 35¢. Gene Dubois Models, P.O. Box C, Acushnet, Mass. 02743.

Chamber of Commerce News Bureau, P.O. Box 3499, Reno, Nevada 89505, phone (702) 786-3030. Tell 'em this little old model magazine sent ya!

* * *

The 11th Annual Northrop Flying Wing Contest for 1977 will be held at the 1977 Nationals, as an unofficial event. Rubber, Jetex, Gas (Electric ok), and Tow Line (164 ft. line) free flight events will take place on Monday, August 8, from 8 am to 2 pm. R/C Sailplane (wing), using Task II A, 1000 ft. winch launch, hand release, is scheduled for Saturday, August 13, from 8 am to 2 pm (tentatively). CD's are Dave Jones (R/C) and Carl Hatrak (F/F). Contact Carl at 3825 West 144th St., Hawthorne, Ca. 90250. Jr. Sr., and Open are combined in all events and entry fee is $3.00.

* * *

Another unofficial event to be held at the 1977 Nationals in Riverside, California, will be R/C Sport Biplane.

IMAC's President (that's me!) contacted the R/C Bees Club, generally located in Northern Orange County, Southern California, through its president, Bill Bell who has agreed to commit the club to putting on the event. Further details will be released as soon as they are firmed up. IMAC itself will sponsor the event and furnish the trophies.

* * *

The third annual UKIAH (California) Prop Busters Sport Scale contest has been changed to the First Annual Dan Sullivan Memorial Contest. The name has been changed in memory of Dan, who made national notice last December in an unfortunate manner. He was one of two men crushed to death while working on the San Francisco cable car pulleys when something suddenly went wrong. Dan was an enthusiastic and skilled scale flier who regularly competed in the World War I and II competitions at Morgan Hill.

This years Dan Sullivan Memorial will be held on June 4 and 5. For more information, contact Dave Lovitt, 479 Nokomis Dr., Ukiah, Ca. 95482, phone (707) 462-9255.

* * *

Another event for Reno, Nevada, this year, is the NAMBA Nationals for 1977. Unfortunately, for those modelers with divided interest, the races are scheduled for August 6 through 13, the same

INDEX TO ADVERTISERS

week as the AMA Nationals.

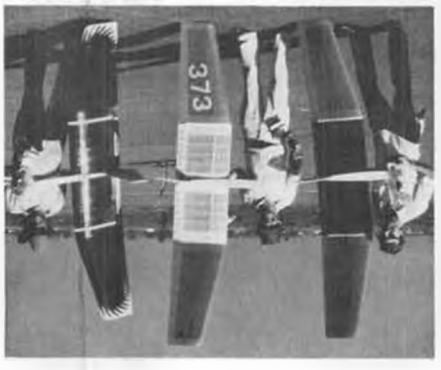
There are 20 classes of competition being offered, and contestants from Canada, Hawaii, and Japan, the East Coast, Florida, and many other parts of the United States, are expected to enter over 500 boats. There'll be an award for every 5 entries in each class. First, Second, and Third place awards to be given in all classes meeting the 5-boat requirement.

Contact Co-Contest Director Gary Johnson, 3414 El Camino Real, Santa Clara, Ca. 95051, phone (408) 244-6267 for additional information.

SPECIAL AWARD

Model Builder's coveted Carbon Steel Wire-Haired Cookie Pusher award goes to Dave Jones for his photo which has been most reproduced by the modeling press, here and abroad. In recognition of this stunning feat, we are giving this photo our special "Upside-Down and Sideways" treatment, just in case you have somehow missed seeing it.

Oh, and by the way . . . for those of you who may have not noticed, Dave Jones designed the airplane shown in the photo. It is called the Raven, and if you want to build one . . . from any angle . . . write to his Western Plan Service, 5621 Michelle Drive, Torrance, Ca. 90503 and order a plans catalog . . . printed right-side up.



YOU SAID IT, ARTIE!

Artie Shaw, well known clarinetist and orchestra leader of the late 30's and early 40's era (and not too bad at marrying glamorous movie stars of the period), also blossomed forth as a talented author and T.V. conversationalist in more recent years.

Our fellow Gipsy Moth enthusiast, Milt Shepperd, sent us a xeroxed excerpt from Artie Shaw's 1952 book "The Trouble with Cinderella", and we sincerely feel that anyone who is a true modeler at heart will agree totally with what Artie had to say.

"The $ucce$$ful man is almost never secure . . . for, having climbed to a high pinnacle of $ucce$$, he is for the most part far more worried about falling and breaking his neck than the guy who was never able to climb that high to begin with. And so forth and so on.

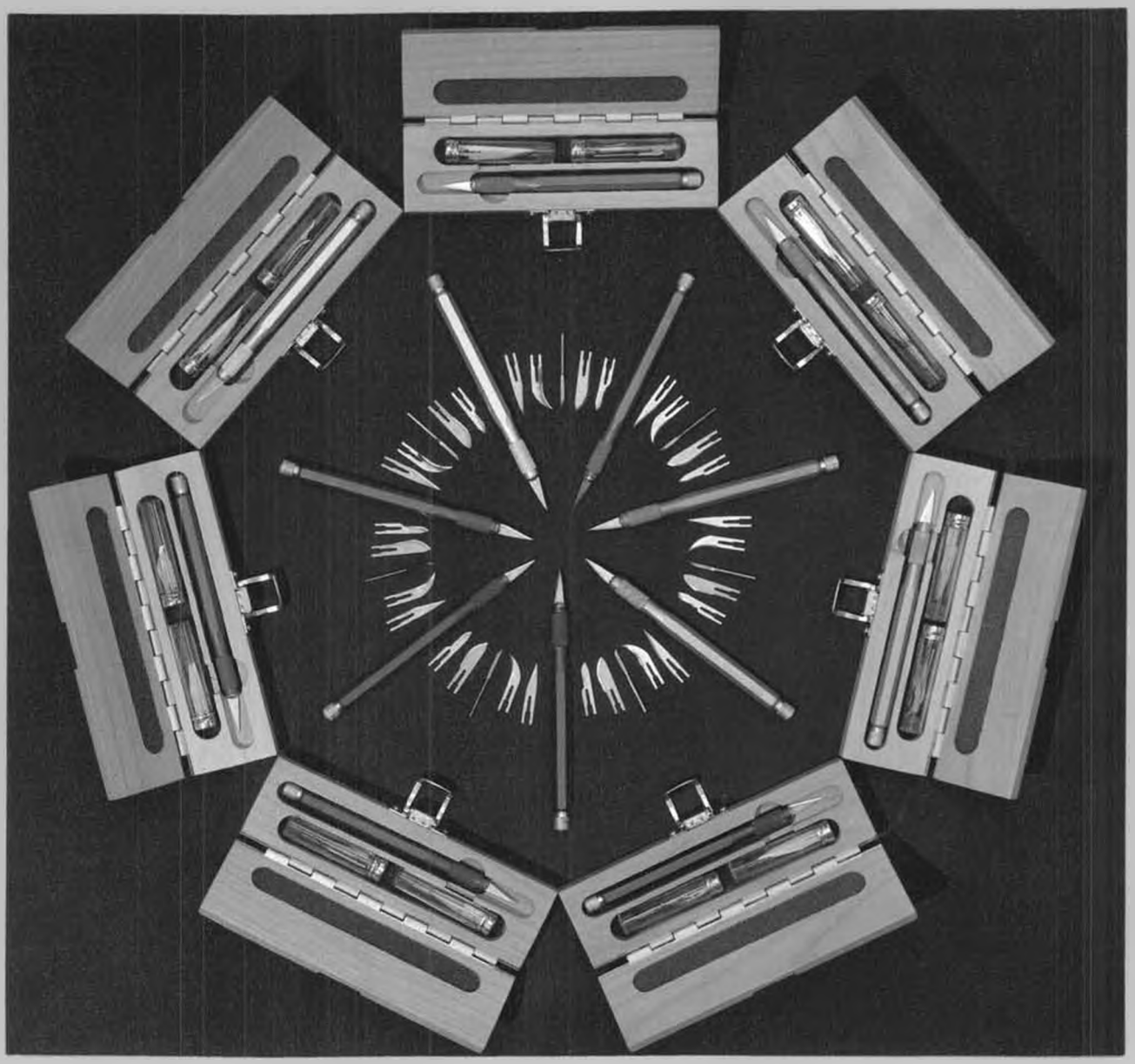
"Well, then . . . what kind of goal is left? What is there to aim at that does make sense?

"Just this:

"Anything at all, providing it gives you a chance to go on growing and developing as a human being. Anything at all that interests you and absorbs you creatively . . . whether it is writing a book or building a better mousetrap, whether it is painting pictures or constructing model airplanes . . . anything at all, **just so it does not have an end.** *Just so it doesn't lead to a final stop. Just so you can keep on with it, keep on working at it, keep on perfecting yourself in whatever you're doing. Just so you can never arrive at the place* **where you have to stop developing,** *growing, working, being absorbed, learning, planning, thinking about it, trying to get better at it. In short, anything that doesn't bring you to a point where you have to stop and say, "Well, that's finished."*

"For if you ever do have to stop and tell yourself you're finished . . . well, at that point you may as well lie down, because, whether you know it or not, you'll have stopped living." ●

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



A PRECISION INSTRUMENT FOR THE DISCRIMINATING MODELER

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

Available in seven anodized handle colors: silver, blue, red, green, gold, copper, violet.

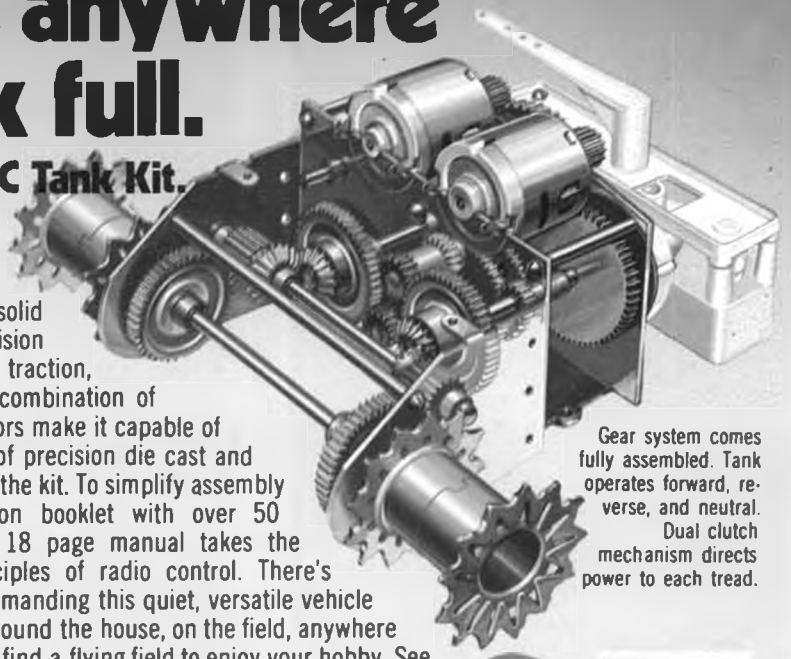
Complete set in fitted hardwood case; includes uber Skiver, together with two vials containing six No. 11, six No. 15, one No. 12, and one No. 20 . . . A total of 14 blades $12.95
Individual handles (specify color) $5.10
Vial of 6 blades (No. 10, 11, 12, 15, or 20) $2.10

See your dealer, or order direct.
Dealer inquiries are invited.
All direct orders sent postpaid in U.S.
California residents add 6% sales tax.

MODEL BUILDER PRODUCTS
621 West Nineteenth St., Costa Mesa, California 92627

It'll run almost anywhere without a tank full.

MRC Tamiya Electric Powered R/C Tank Kit.



Gear system comes fully assembled. Tank operates forward, reverse, and neutral. Dual clutch mechanism directs power to each tread.

Arm yourself with this 1/16 scale Sherman M4 and you'll be adding hours of enjoyment to your R/C hobby . . . 12 months a year. Run it indoors, outdoors, on any solid terrain. Get the whole family involved with this precision engineered model. Plastic and metal treads provide the traction, workable coil spring suspension for a smooth ride, a combination of lightweight aluminum chassis and powerful electric motors make it capable of taking on 40 degree inclines. . . with ease. Hundreds of precision die cast and stamped metal parts make up the kit. To simplify assembly there's a complete instruction booklet with over 50 diagrams. In addition, an 18 page manual takes the modeler through the principles of radio control. There's nothing like the fun of commanding this quiet, versatile vehicle around the neighborhood, around the house, on the field, anywhere at all. You no longer have to find a flying field to enjoy your hobby. See this precision engineered, MRC—Tamiya kit at your hobby dealer . . . and make sure your next R/C addition is built like a tank. Available with or without MRC radio control system.

TAMIYA

MODEL RECTIFIER CORPORATION • 2500 WOODBRIDGE AVENUE • EDISON, NEW JERSEY 08817

Take it outside or run it in the living room, no gas no noise, no fuss.

Metal and plastic treads for gripping traction on rough terrain

Dual electric motors for clean, quiet running . . . indoors or out

Coil spring suspension, solid rubber wheels absorb shock

Try it in the backyard, on the driveway, sidewalk, almost anywhere.