

# MODEL BUILDER

MAY 1975

volume 5, number 41

\$1.25



# REALISM YOU CAN RUN WITH SCALE R/C POWER BOATS FROM DUMAS



Take your choice, these precisely scaled kits are built for R/C boating, free running or shelf display. Each an exacting replica of a popular ocean going prototype. Pretty enough to put on display, sturdy enough to run, they're just a few examples illustrating why Dumas' scale and semi-scale model kits lead in helping you get the most out of your

hobby. **Now available: Pre-packaged hardware kits with everything you need for running. A hardware kit for every model. Props available. See Your Local Dealer. If He Can't Help You Write Us.**

**dumas**  
**boats**

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

See your hobby dealer or send  
50¢ for our complete catalog



#### **NEW — TUNA CLIPPER TC-37**

Scale Model of the 220' Purse Seiner, built by Campbell Industries, San Diego. 37" long. 6-1/2" beam. Plywood construction with mahogany planking. Complete with deck hardware. A beautiful shelf model, yet rugged for R/C use with single or dual Dumas-Pittman motors. Lots of room for radio and specialty gear.



#### **NEW — THE LITTLE SHELLEY FOSS TU-24**

A 24" scale kit of this popular tug. Lots of room for R/C gear and electric motor power. Plywood construction. Deck hardware included. Also available in a 36" model . . . and as a 45" fiberglass hull model with die cut wood deck and super structure . . . for electric or steam power.



#### **TROJAN CRUISER TR-31**

Kit of 31' Trojan cabin cruiser. 1" = 1' scale. Rugged plywood construction for gas or electric power. All deck hardware included. Excellent for R/C.



#### **COAST GUARD LIFEBOAT S-200**

33" kit for exacting modeler. Includes deck hardware. Balsa construction . . . display it, run free, or R/C with Dumas-Pittman electric power. One of the most popular scale models ever kitted.

# New Sport Series Five Channel System

The KP-3/5 is a companion radio to the famous KP-5 Sport, combining top quality and high performance with many new features. It offers the security of flying Kraft at modest cost.

Compact, lightweight transmitter has excellent balance for better control.

Expanded battery voltage meter eliminates guessing battery life.

"Click-stop" trim positioning minimizes accidental changes.

New stick design is a composite of the open and closed gimbal types, combining the best features of both.

Control potentiometers are conductive plastic and have virtually unlimited life with excellent resolution and accuracy.

Complete receiver-servo package mounts quickly and easily; has throttle reversing link.

Aileron or rudder selector permits either channel to be operated off of the righthand control stick without transmitter modification.



## \$279.95

External block plug is provided for the addition of fourth and fifth servos (not included).

Wired charge receptacle is built into the bottom of the transmitter to provide instant conversion from the dry battery to our new KB-8D rechargeable transmitter pack.

Heavy-duty KB-4E battery pack is standard. Charge receptacle is wired into the switch harness. Available now on 72 MHz and 27 MHz.

WRITE FOR FREE CATALOG

**KRAFT**  
SYSTEMS, INC.  
®

450 WEST CALIFORNIA AVENUE  
P.O. BOX 1268 · VISTA, CALIFORNIA 92083

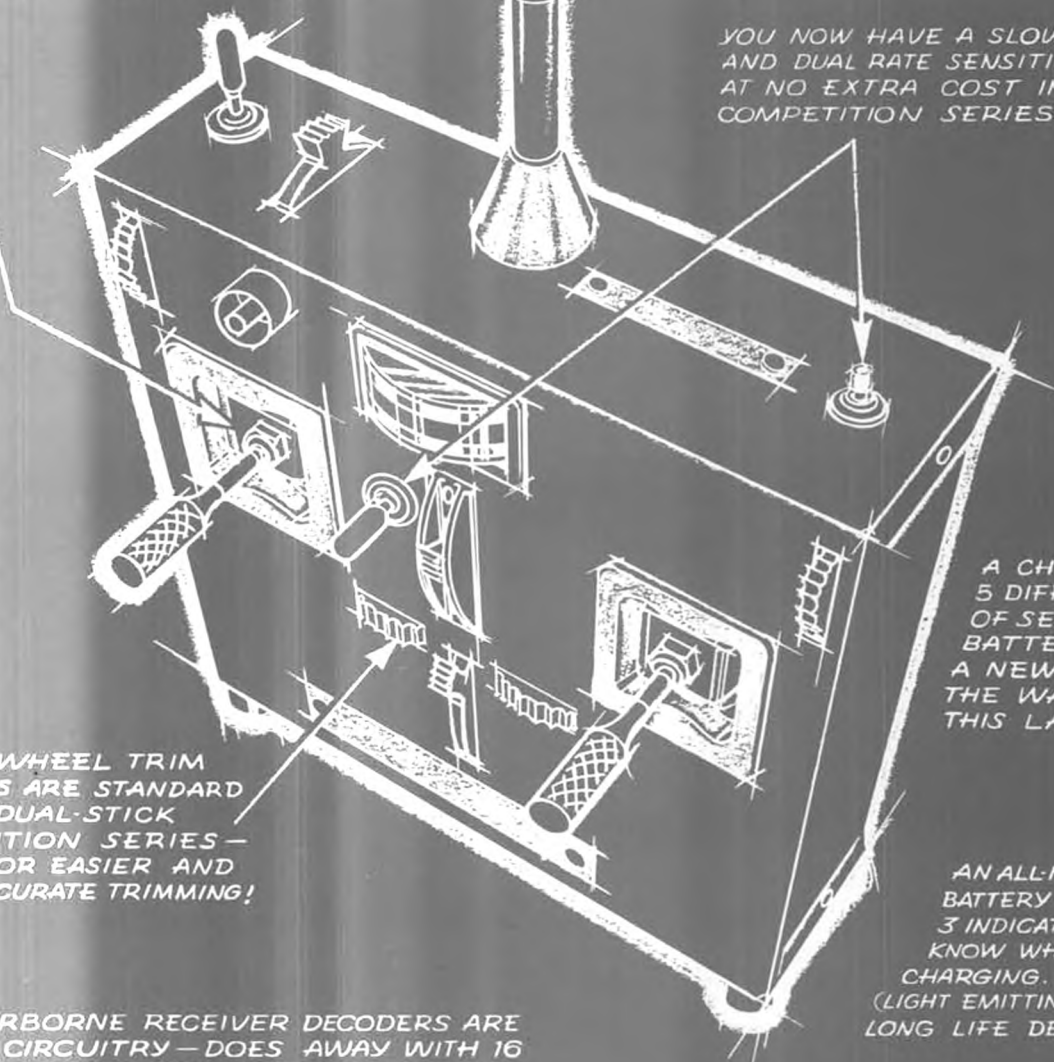
*World's Largest Manufacturer of Proportional R/C Equipment*

# MEMO TO ALL R/C ENTHUSIASTS

## HERE'S WHY OUR '75 LINE IS THE BEST EVER!

THE CHALLENGER SERIES NOW SPORTS A NEW HIGH-RESOLUTION SEMI-OPEN GIMBAL FOR SMOOTHER CONTROL —

YOU NOW HAVE A SLOW ROLL BUTTON AND DUAL RATE SENSITIVITY SWITCH AT NO EXTRA COST IN THE COMPETITION SERIES!



THUMB WHEEL TRIM CONTROLS ARE STANDARD ON ALL DUAL-STICK COMPETITION SERIES — MAKES FOR EASIER AND MORE ACCURATE TRIMMING!

A CHOICE BETWEEN 5 DIFFERENT TYPES OF SERVOS—PLUS 4 BATTERY OPTIONS—A NEW SERVO IS ON THE WAY — MORE ON THIS LATER!

ALL AIRBORNE RECEIVER DECODERS ARE CMOS CIRCUITRY — DOES AWAY WITH 16 SOLDER CONNECTIONS—EXTENDS BATTERY LIFE WITH A LOW-LOW 7ma DRAIN—MORE IN-FLIGHT RELIABILITY!

AN ALL-NEW STANDARD BATTERY CHARGER WITH 3 INDICATING LIGHTS—YOU KNOW WHICH BATTERY IS CHARGING. WE USE LEDs (LIGHT EMITTING DIODES) FOR LONG LIFE DEPENDABILITY!

7 VERSIONS TO CHOOSE FROM — THE MOST COMPLETE SELECTION OF CHANNELS/ MODES AND PRICES EVER. CHECK THIS — WE'RE SURE YOU WILL AGREE PRO LINE IS THE ONLY WAY TO GO IN '75!

CHANNELS →	3	5	7
COMPETITION (OPEN GIMBAL)	ONE 2-AXIS STICK	TWO 2-AXIS STICKS	TWO 2-AXIS STICKS
COMPETITION SINGLE STICK		ONE 3-AXIS STICK	ONE 3-AXIS STICK
CHALLENGER (SEMI-OPEN GIMBAL)	ONE 2-AXIS STICK	TWO 2-AXIS STICKS	

**Pro Line Electronics**  
 10632 N. 21st AVE • SUITE 10 • PHOENIX, AZ 85029  
 TELEPHONE (602) 944-4626

# **KAVAN** *-The No. 1 JetRanger*



FIRST AT  
NATIONALS  
1973 AND 1974

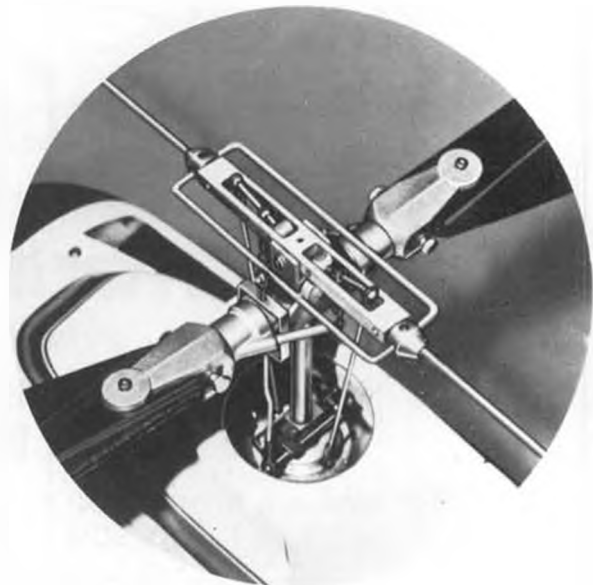
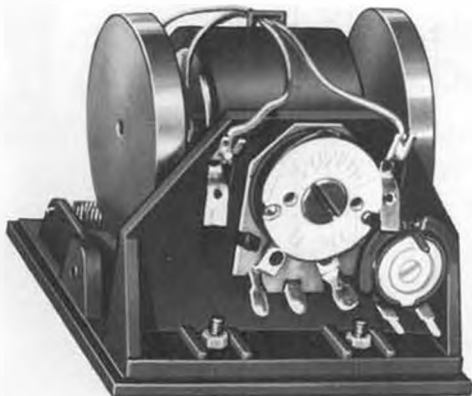
SUGGESTED PRICE \$460.00

## **THE QUALITY HELICOPTER PERFORMING LOOPS**

AVAILABLE AT BETTER DEALERS EVERYWHERE  
OR ORDER DIRECT  
DEALERS SEE YOUR KAVAN DISTRIBUTORS

### **DON'T LOSE YOUR TAIL!**

THE KAVAN GYROSCOPE PREVENTS  
UNWANTED TURNS BY AUTOMATICALLY  
ADJUSTING TAIL ROTOR



LATEST HEAD MODIFICATION TO JET RANGER  
INCREASES STABILITY BY CONTROLLING THE  
GYROSCOPIC FUNCTION OF THE FLIGHTWEIGHTS  
FREE OF CHARGE FOR YOUR FIRST JET RANGER  
WRITE FOR DETAILS

**KAVAN**

MODEL AIRCRAFT INC., 1424 E. BORCHARD AVE., SANTA ANA,  
CALIF. 92705 TELEPHONE 714-835-7788



# MACS '75

MODEL AND CRAFT SHOW

TWO BIG "Action" DAYS

MAY 3rd & 4th

OVER 200 EXHIBITORS

*Indoor and Outdoor Demonstrations  
Radio Controlled Planes, Cars, Boats,  
Helicopters Gliders, Rockets and Plastics*

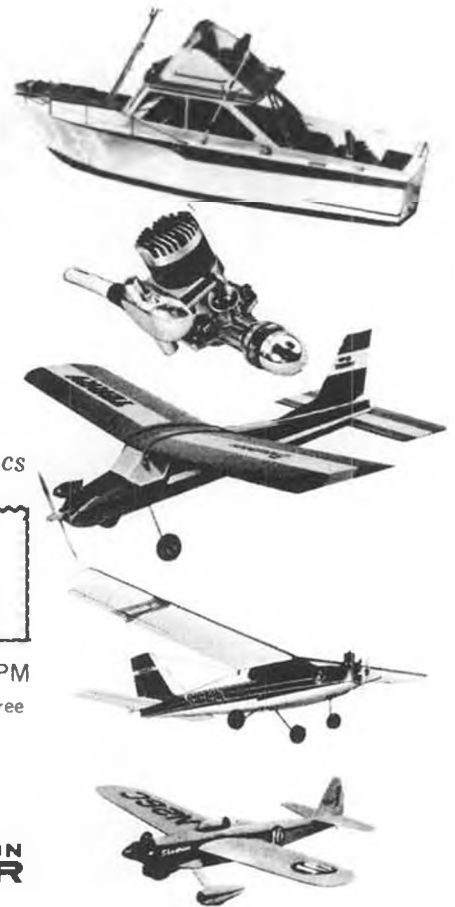
CONTEST OPEN TO THE PUBLIC

Over 57 Categories with trophies, awards and prizes in each category. NO ENTRY FEE. Check local hobby or craft shop for details.

HOURS: SAT 10 AM - 8 PM SUN 11 AM - 6 PM

Admission: 2.50 Adults 1.50 Jr. (under 18) Under 6 Free

SAVE 50% WITH FREE DISCOUNT TICKETS  
AVAILABLE AT ANY LOCAL HOBBY SHOP



**FLYING SITE:**  
HILL COUNTRY  
AIR MUSEUM,  
MORGAN HILL,  
CALIFORNIA



**TIME:**  
MAY 17 & 18,  
1975

## 1st Annual West Coast World War II SCRAMBLE

SPONSORED BY THE

**PIONEER R.C. CLUB of Sunnyvale, California  
and MODEL BUILDER MAGAZINE**

★ AMA and SPORT SCALE  
( NO BOM ) ★

★ AMA ENGINE  
and WEIGHT RULES ★

C.D. - LOUIS DELATEUR

INFO-PACKET and PRE-REGISTRATION FORM UPON REQUEST!!!  
Contest Manager- Eric Clapp, 6116 Castello Drive, San Jose, CA 95120  
Phone No. (408) 997-2298



# MODEL BUILDER

MAY

1975

volume 5, number 41

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

## STAFF

### EDITOR

Wm. C. Northrop, Jr.

### GENERAL MANAGER

Anita Northrop

### EDITORIAL ASSISTANT

Le Gray

### ASST. GEN. MANAGER

Dawn Garrott

### ART DIRECTOR

Paul Plecan

### SECRETARY

L. Gordon

### SUBSCRIPTION MANAGER

A. Valcarsel

## CONTRIBUTORS

Rod Carr

Chuck Hallum

Bill Hannan

Jed Kusik

Walt Mooney

John Pond

Fernando Ramos

Bob Stalick

John Tucker

## ADVERTISING REPRESENTATIVES

WEST: Bob Upton, 20626 Clarendon Ave.  
Woodland Hills, California 91364  
(213) 884-2294

EAST: Walt Moucha, 605 3rd Ave.,  
E. Northport, New York 11731  
(516) 266-3596

Subscriptions \$12.50 per year, \$23.00 for two years. Single copies \$1.25. Add \$2.00 for postage per year outside of U.S. (Except APO). Add 75 cents for Canada and Mexico.

Copyright 1975 The MODEL BUILDER. All rights reserved. Reproduction without permission prohibited.

Published monthly by MODEL BUILDER Magazine, 1105 Spurgeon, Box 4336, Santa Ana, Calif. 92702. Phone (714) 547-3963.

Second Class postage paid at Santa Ana, Ca.

## CONTENTS

### FEATURES

WORKBENCH, Bill Northrop .....	4
OVER THE COUNTER, Bill Northrop .....	5
REMOTELY SPEAKING, Bill Northrop .....	14
R/C SOARING, Le Gray .....	22
CHOPPER CHATTER, John Tucker .....	24
PRODUCT\$ IN U\$E, Ken Wolf .....	30
PRODUCT\$ IN U\$E, Charles Larkey .....	32
STRICTLY SAIL, Rod Carr .....	37
F/F SCALE, Fernando Ramos .....	40
HANNAN'S HANGAR, Bill Hannan .....	42
FREE FLIGHT, Bob Stalick .....	46
R/C AUTO NEWS, Chuck Hallum .....	50
PLUG SPARKS, John Pond .....	52
CONTROL LINE, Jed Kusik .....	56

### SCALE VIEWS

CASSUTT MODEL 2, Harold Osborne .....	29
---------------------------------------	----

### CONSTRUCTION

1930 FLEET, R/C SPORT SCALE, Romey Bukolt .....	8
SEA FURY, HALF-A PYLON RACER, Jerry Holcomb .....	21
GREMLIN, HALF-A C/L STUNT, Tom Dixon .....	34
BLERIOT IV PEANUT SCALE, Walt Mooney .....	43
SCIENTIFIC MERCURY OLD TIMER, Phil Bernhardt .....	54

Cover: Cliff Silva, Livermore, California, is an ardent Old Timer modeler. His interest, and the models he builds, covers the full scope of the great ignition powered designs of yesteryear; from the hot pylons, to the big, lumbering Texacos, to the colorful scale ships. This photo, taken by John Pond at the free flighter's Mecca, Taft, California, shows Cliff with his Page Navy Racer, built from Paul Lindberg plans which were published in POPULAR AVIATION "a few years ago."



"Good Grief! The next thing you know, AMA'll start its own insurance company!"

## from Bill Northrop's workbench . . .

● By the time you read this, you will have discovered that we are not alone in our concern for the future of AMA in the light of the recent decision by its leaders that the organization should attempt to publish its own, fully commercial magazine. Industry leaders, model magazine publishers, and most importantly, AMA members from all parts of the country, have issued letters strongly protesting the financial and moral feasibility of the action.

Recent Monthly Mailings and the latest Competition Newsletter are crammed with all kinds of "logic" to justify the magazine, and as expected, the model magazine publishers are the only ones being mentioned as objecting, with the "sour grapes" reaction being played to the hilt. In fact, the frenzied presentation of "logic" and finger-pointing at the magazines puts one in mind of a cat on a tin roof trying to cover you-know-what.

Rather than boring you with another long dissertation on the frailties of AMA's arguments in favor of publishing its own model magazine, we'd like to pose some questions for you to think about. Also, to help counteract the heavily one-sided presentations in AMA's CN and MM, we offer you a well written and carefully thought out letter by AMA member Dave Meier, of Middlesex, New Jersey.

If AMA is so convinced that it is doing the right thing, in spite of the many written and verbal objections, why is it taking so much time and energy arguing with, and sounding off at, other model magazines? Why bother trying to explain, since it's doing it anyhow?

Why is AMA polling its members about the Hutchinson deal, yet completely ignoring them on the magazine decision?

What specific by-law or section of

the constitution authorizes the Executive Council to make a decision (that AMA will publish its own commercial magazine) without approval of the membership?

Is it mandatory that a modeler take the magazine in order to join AMA? Does he still have the choice of a monthly mailing only, or is he forced to buy the magazine? Does this mean that, in

effect, if he doesn't buy Model Aviation, a commercial newsstand publication, that he cannot fly in AMA sanctioned contests? Isn't that against his Constitutional rights?

AMA says that most successful organizations and associations have their own major publications with advertising. How many of these journals are sold at news-  
*Continued on page 76*



### THE B.I.R.D. CLUB



PRESENTS

#### A CALIFORNIA FUN-FLY VACATION !

HOST: B.I.R.D. Cub, Carson, Calif.

WHERE: B.I.R.D. Field

SPONSOR: MODEL BUILDER Magazine

WHEN: June 28 - July 6

*FEATURING: Unique trophies, patches, decals, trained judges, three B.I.R.D. host parties, fun for the entire family, and a casual contest atmosphere for beginners and experts alike.*

*CONTEST EVENTS: Class A, B, Cn, Cx modified pattern. Also Quickie 500 Pylon Racing. (Flying on July 3, 4, and 5.)*

*SPECIAL EVENTS . . . are being planned for Family, Fliers, and Wives. Check the ones that interest you.*

#### FAMILY ACTIVITIES:

- Disneyland
- Knott's Berry Farm
- Busch Gardens
- Magic Mountain (children's day)
- Queen Mary
- Marineland
- Universal Studios
- Awards Banquet

#### LADIES' DAY:

- Ports O' Call
- Old Towne Mall

#### FLIERS' TOURS:

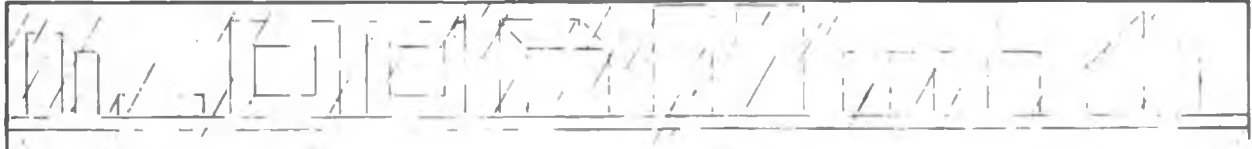
- Kraft Systems
- Bridi Hobby Enterprises
- K & B Manufacturing
- Orbit Electronics

#### IF YOU NEED:

Camping, Motel, Airline, or other information, please contact . . .  
Don Gutridge,  
2401 Gondar Ave.,  
Long Beach, Ca. 90815  
(213) 596-3567



# OVER THE COUNTER



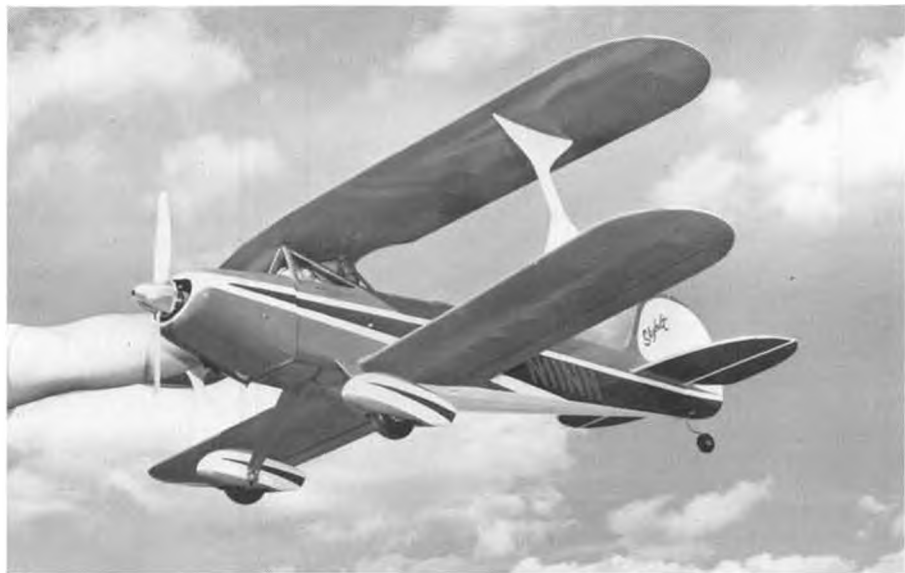
● The aerobatic biplane bandwagon has a new member in the form of a Steen Skybolt, just introduced by Sig Mfg. Co., Montezuma, Iowa. Designed by Claude McCullough, the Sig Steen Skybolt spans 51 inches and uses .45 to .61 displacement engines.

As expected from Sig, this sharp looking biplane kit features many prefabricated parts, including a full-length formed plastic fuselage top, molded plastic cowling and wheel pants, pre-bent aluminum landing gear, formed wire cabane struts, die-cut balsa ribs with integral alignment jigs, die-cut plywood parts, and printed fuselage sides for building directly on the wood. In addition to full-size plans, decals, step-by-step instruction booklet with isometric views, the kit also includes an exceptionally complete hardware package, with nylon control horns, bellcranks, hinges, tail wheel bracket, nylon wing hold-on screws, push-rod links, aluminum motor mounts, and all screws, bolts, and nuts. Price not available as this was written.

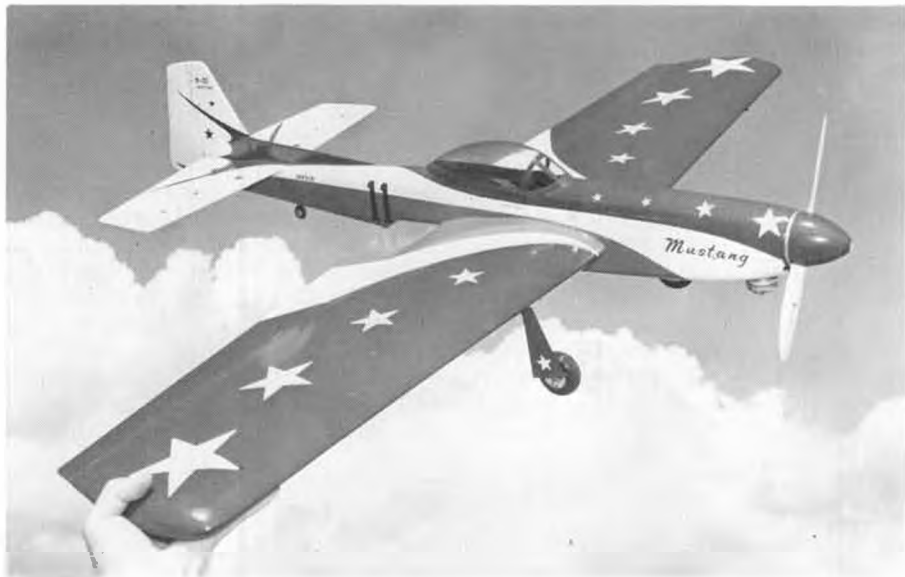
Many of the same pre-fab features in the Sig Skybolt are also found in Sig's new scale-like control line Mustang Stunter. Designed by Mike Gretz for sport and precision C/L aerobatics, the semi-scale P-51 spans 50 inches, weighs around 41 ounces, and can be powered with .29 to .40 cu. in. engines. The construction is based on pre-cut foam wing cores, and plastic moldings for fuselage top, lower air scoop, and cowling. Price is \$19.95.

\* \* \*

Something different for radio control is now being offered by MRC, Edison, New Jersey... a 1/16 scale Sherman M4 tank! Available in kit form for fast assembly, the tank is ruggedly constructed of metal and plastic, can be completed in about 15 hours, including radio installation. Powered by dual electric motors operating through an assembled clutch and transmission, the tank will climb obstacles, turn, move forward and reverse. The tread system is fully sprung, with independent wheel suspension, brass bearings, zinc die-cast sprocket wheels, combination metal and plastic tracks. Chassis is aluminum. A great item for relating the fascination of radio control to the youngsters in the family. Available with MRC radio for \$249.95 list,



R/C model of the Steen "Skybolt", by Sig Mfg. Co., for .45 to .61 engines.



Sig's Mustang Stunter, for C/L, .29 to .40 engines.

or without radio for \$109.95 list. Any-one for a back yard war?

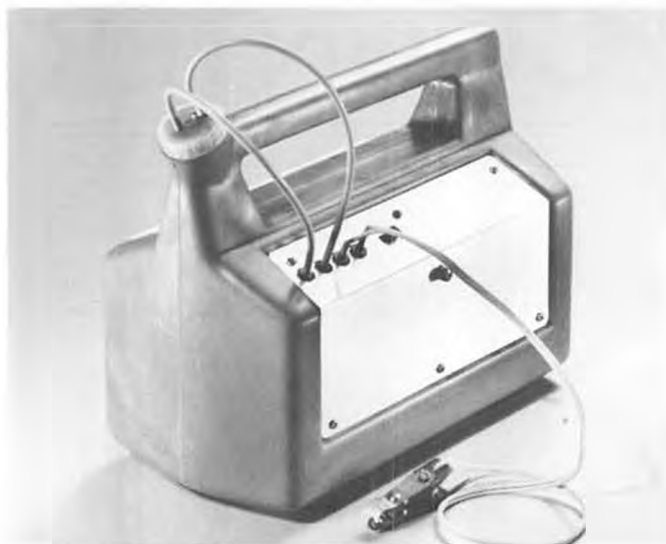
\* \* \*

Sonic-Tronics Inc., 2 South Sylvania Ave., Philadelphia, PA. 19111, phone (215) 379-2391, has a great new idea on frequency flags. These should be of particular interest to the hobby dealer, because each package contains all the flags required for a given band, i.e., 27, 72, or 6 meters. A complete package sells for 89 cents. The modeler simply

selects the 18 inch ribbon(s) for his frequency and gives the rest to his wife or daughter for hair ribbons. A dandy way to make points with the family and also keep your modeling pals off your frequency. The molded fitting clamps over the ball tip and yet allows the unit to swivel in the breeze. Altogether a clever idea.

\* \* \*

Marine Specialties, Saratoga, California, has introduced a new outdrive dou-



**PIT-PAK by RG's R/C. Combines fuel bottle, pump, glow plug power, storage, built-in charger.**

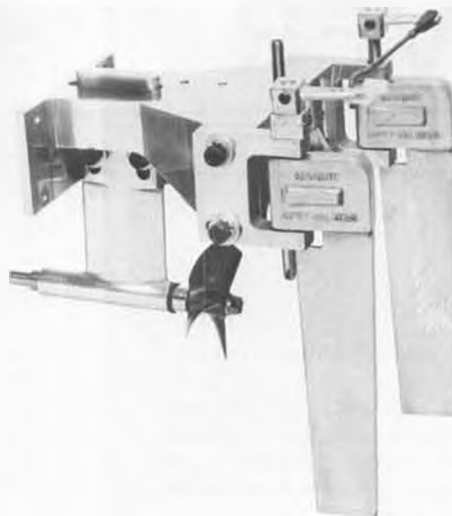
ble rudder unit which has applications on anything from outrigger hydroplanes to flat-bottom monoplanes, but is especially effective on Deep-Vee boats. For 40 to 60 class boats, the HBR-II offers twin rudders with adjustable pivot angles, and a power strut that is adjustable for both depth and angle. The twin rudder blades operate in *quiet water*, out of the way of the prop turbulence. The unit includes mounting plate, mounting screws, pivot bracket, two rudders, two pivot pins, three control arms, strut, water pick-up, and all hardware for complete installation. Price, \$34.95. Single ruddered Variable Outdrive Assembly, for 20 to 40 class boats, sells for \$29.95.

\* \* \*

Peerless Corporation, 3919 "M" Street, Philadelphia, Pa. 19124 has introduced two new Peerless/Kyosho items. First, an R/C glider for 2 or 3 channel radios, which is scaled after the Libelle and spans 106 inches. It is made of ABS plastic, with an injection molded front fuselage half and vacuum formed rear half. Wings are covered with Filcote plastic covering. A motor mount permits powering with an .09. Suggested retail is \$99.95.



**German torpedo boat, "Schnellboote", to 1/32 size by Accuscale.**



**Double rudder outdrive unit for 40 to 60 class power boats, by Marine Specialties.**

The second Peerless/Kyosho item is quite unusual . . . an amphibious buggy R/C kit. Designed by a Honda engineer, the water/land buggy is 19-3/4 inches long, 9-1/2 inches wide, and can be driven from land, into the water, and back on land again . . . just like the real one. A single pull on the starter turns the engine over 6 times, there are two mufflers, a heat sink, duct-fan type propeller, and it is water tight and self-lubricating. Suggested retail, less radio and .15 to .20 engine, is \$195. Send 50 cents to Peerless for catalog. Tell 'em we sent ya!

\* \* \*

Accuscale, 18801 Napa St., Northridge, California 91324 announces its 1/32 scale kit for the "Schnellboote," a German torpedo boat from late World War II. With its aluminum hull and 3 diesel engines, the Schnellboote could move along at close to 50 mph, and was the most successful torpedo boat to operate during WW II. The model kit features a 43 inch long fiberglass hull, along with fiberglass, wood, and metal fittings. A 3 by 4 foot plan sheet and an informative "Schnellboote Booklet" (with model and full scale photos) are also included. Separate metal casting de-

tail kits are also available. Boat kit price is \$69.95. See your dealer or write direct.

\* \* \*

A new company, K&W Enterprises, Box 18895, Philadelphia, Pa. 19119 (see ad in this issue), is introducing items of special interest to competition-minded modelers. Fiberglass props are offered in a variety of sizes, ranging from a 5-5 for Half-A Proto Speed for \$1.50, through Anderson, K&W, Hemmingway, Theobald and Cox Specials for F/F and C/L, to a Rev-up type, 11 x 7-1/2 R/C prop for \$4.25.

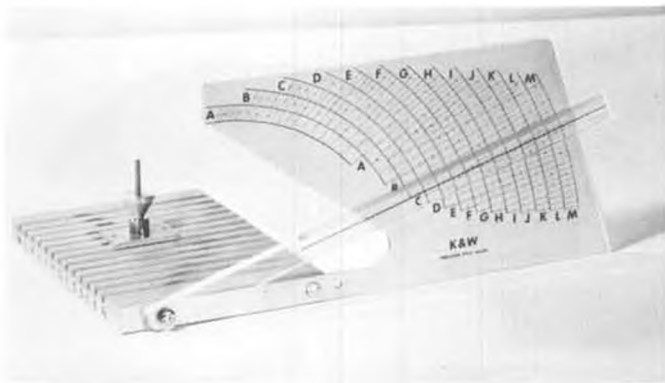
A prop pitch gauge is also available for \$19.95, and an engine brake called "Stop-A-Prop." The latter comes in 3 sizes, for 1/2A (TD) \$2.75, A-B (FAI) \$3.25, and B-C \$3.75. Weighing less than four grams (FAI version), it will not damage engines, and can be used with 1/2A squeeze-off timers.

\* \* \*

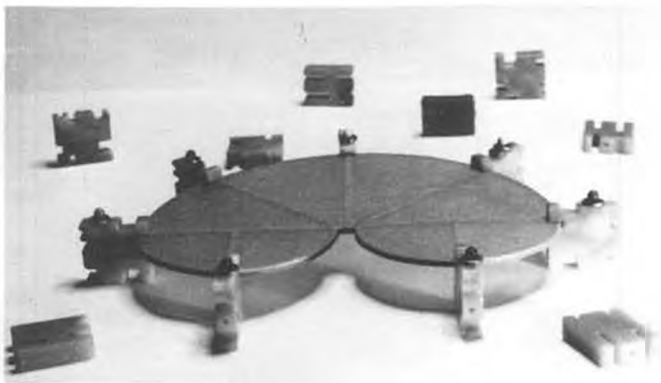
Vintage Aero, producers of model airplane kits and materials which date back to the pioneer days of modeling, has acquired K&K Products, of Allentown, Pa., manufacturers of "Pin-Downs," the great little molded gadgets for holding light balsa parts in place



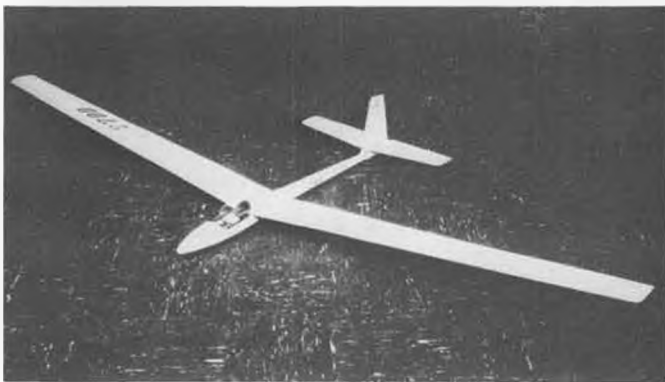
**Electric powered Sherman tank for R/C by MRC.**



Prop pitch gauge by K&W Enterprises.



Pindowns now marketed by Vintag Aero.



Libelle R/C glider by Peerless/Kyosho.



Peerless/Kyosho amphibious buggy for R/C and .15 to .20 engines.

over plans while gluing. To be marketed by Vintage Aero as "Big 'Uns" and "Little 'Uns," these building aids are packaged by the dozen for \$1.89, complete with metal washers.

\* \* \*

"Uncomplicate with RG's Pit Pak." This is the slogan that goes with a new item produced by RG's RC, P.O. Box 406, St. Joseph, Michigan 49085. The 'Pit Pak' is a sort of field or pit box with a different approach. Instead of being a field box that holds a fuel bottle, it's a fuel bottle that holds a field box...

and fuel pump... and glow plug clip with leads.

An indented area on each side of the 1.33 gallon, molded polyethylene bottle contains brushed aluminum compartments. One side holds two "D" size nickle-cadmium batteries complete with transformer charger, an electric reversible fuel pump, and jacks for a glow plug cord. The other side is a storage space for tools, plugs, props, etc. Not a kit, the Pit-Pak is complete and ready to use (well of *course* you have to put fuel in it, dummy!) in a choice of red, blue,

or green plastic, and the list price is \$49.95.

\* \* \*

CPM Products, 11054 Leolang Ave., Sunland, California, 91040, which markets that excellent nitrate dope, Flo-Kote, now offers "Band-Ades." These are triple packs of rubber bands designed for the F/F modeler in particular and all model builders in general. Each pack is sub-divided into 3 compartments and includes two sizes of wing and stab rubber bands, and a goodly supply of DT bands,

*Continued on page 85*



"Stop-A-Prop" engine brake for F/F, by K&W Enterprises.



Band-Ade assorted rubber band package by CPM Products.



Frequency flags by Sonic-Tronics.



# 1930 FLEET Sport Scale

By **ROMEY BUKOLT** . . . Sport scale version of a very popular biplane from the 1930's era. An easy model to scratch build, and even easier in the kit soon to be released. See the ad elsewhere in this issue.

● I consider myself fortunate to be old enough to remember an era before television, jet planes, and mini-skirts, when it was commonplace to spend a lazy summer afternoon out at the local air patch a mile or so east of town, watching a familiar red biplane performing an aerial ballet of loops, Immelmans, Cuban eights, and spins, in one continuous strand of imaginary yarn tossed freely across the deep blue sky. The plane was a 1930 Fleet Biplane, powered by a five cylinder radial engine, and dressed in bright red fabric which was accented by large white letters and numbers on the wings. It belonged to an old barnstormer who earned his wings during World War I. He flew every chance he could get, and spent his week-ends picking up enough money to pay for his gas and oil by giving the more carefree townfolk a \$3.00 birdseye view of the courthouse, river, and water tower. These are among my fondest childhood memories.

Now, all you biplane nuts, who cherish similar moments, and even you younger "Double winger" enthusiasts, whose only exposure to barnstorming comes from the current film, "The Great Waldo Pepper," have the opportunity to recount those memorable days. The National Sport Pattern Association was formed for you people. Its objective is to duplicate full scale aerobatics in a *realistic* manner with models which are realistic replicas of biplanes that have been built and flown. The idea is to get away from the slick, crisp, high speed, unreal pattern maneuvers of the preci-

sion hi-speed, hi-performance pattern ship, and recount the nostalgic days of the smooth, easy-going graceful airshow sequence.

In contrast to the racy Aeromasters, Pitts Specials, Acro-Sports and Acro-Stars, we bring you the "Barnstormer," a stand-off scale model of the vintage 1930 Fleet Biplane.

The Fleet, named after a Major Reuben Fleet, was an outgrowth of the Consolidated Aircraft Company, under the direction of Lawrence D. Bell, who later was to gain fame as the founder of Bell Aircraft. The first model was granted A.T.C. No. 122, in May 1929. Some instability was found in the earliest models, but was corrected with changes in



Romey Bukolt's daughter, Susie, holds the Fleet for a size comparison photo. At two inch scale, the span comes out to 49 inches. Performance is brisk with a 40 engine.

fin and rudder area. Several models were fitted with the five cylinder radial Kinner K5 engine. The Model 8 had a wide fuselage to accommodate three people. The model 10 carried a D.H. Gypsy Major engine for overseas use. A Fleet factory was built in Ontario, Canada and a winterized version was built there with an enclosed cockpit. The R.C.A.F. version was called the Fleet Fawn, and the civilian version was called the Fleet Finch.

In 1930, the famous movies stunt pilot Paul Mantz broke the record for consecutive outside loops by executing 49 in a Fleet, however, the judges discounted three because they claimed he lost heading on them.

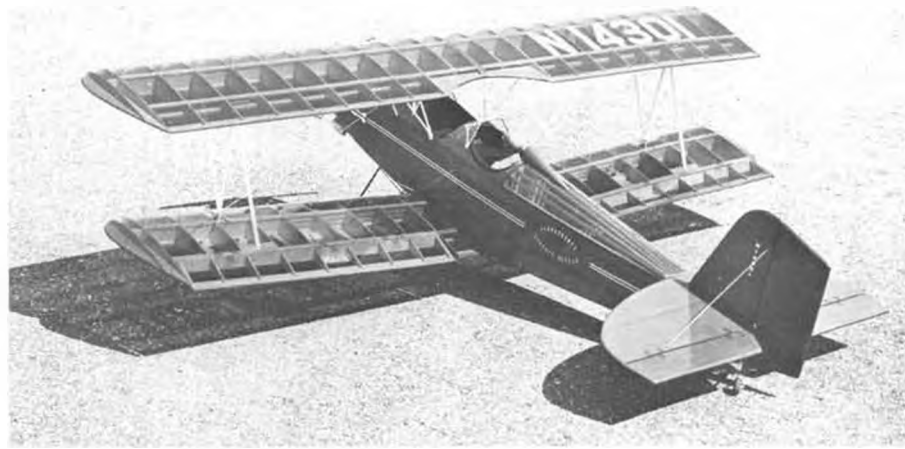
A number of Fleet Bipes are still in operation in the hands of collectors, and can sometimes be seen at Antique Fly-ins or perhaps at the big E.A.A. fly-in at Oshkosh each summer.

The Barnstormer has a number of features designed into it to make it an easy-to-build, easy-to-fly, nearly fool-proof aircraft. I say "nearly" because I know of modelers who can begin with an ARF airplane kit and end up with a locomotive. I do not claim credit for this design in its entirety. Many of the features are tried and proven, such as the Ugly Stick wing assembly and the Acro-Star cabane struts (which came from our *T'Winger*. wcn).

The fuselage is basically built around a box made up of two fuselage sides, the F-2 and F-3 formers, and the cockpit floor.

The tail surfaces are simple sheet construction, with no complicated compound curves at the base of the fin.

All four wing panels are basically identical in span and chord, and rib spacing, and are constructed in the same manner, with minor modifications made after the basic construction is complete. All the ribs are cut from one template,



Transparent covering may not be too scale-like, but it provides the opportunity of checking the open type construction used on this model. Tail surfaces are 1/4 inch soft sheet.

and the wing requires no bent sheeting or rib capstrips.

All four cabane struts are identical, simplifying installation, and wing alignment.

Tried and proven biplane design parameters are incorporated, insuring stability, performance, good stall characteristics, and ease of flight trimming.

#### PRIOR TO CONSTRUCTION

At the end of the text you will find a complete list of materials required for construction of the Barnstormer.

While every scratch builder has his own pet way of doing things, I'll suggest the sequence of steps I followed to get the model together quickly and easily, and you can take it for what it's worth.

First of all, I like to cut out all or nearly all the parts, so that in effect, I can then, begin with a "kit." A most valuable asset to transferring shapes from the drawing to the wood is a large sheet of acetate plastic (frosted on at least one side) of .005 to .10 thickness, found in most stationery or art supplies stores.

Lay the plastic over the part, trace the outline, scoring the sheet with a sharp Uber Skiver knife, bend on the score mark, and the plastic template will snap out of the sheet. Trace around the template on the wood, using a fineline ball-point pen such as the yellow-barreled "Bic" pen. Simple and quick, it saves the plan and provides a reusable template for duplication of pieces, should you need to replace damaged parts or want to build another model.

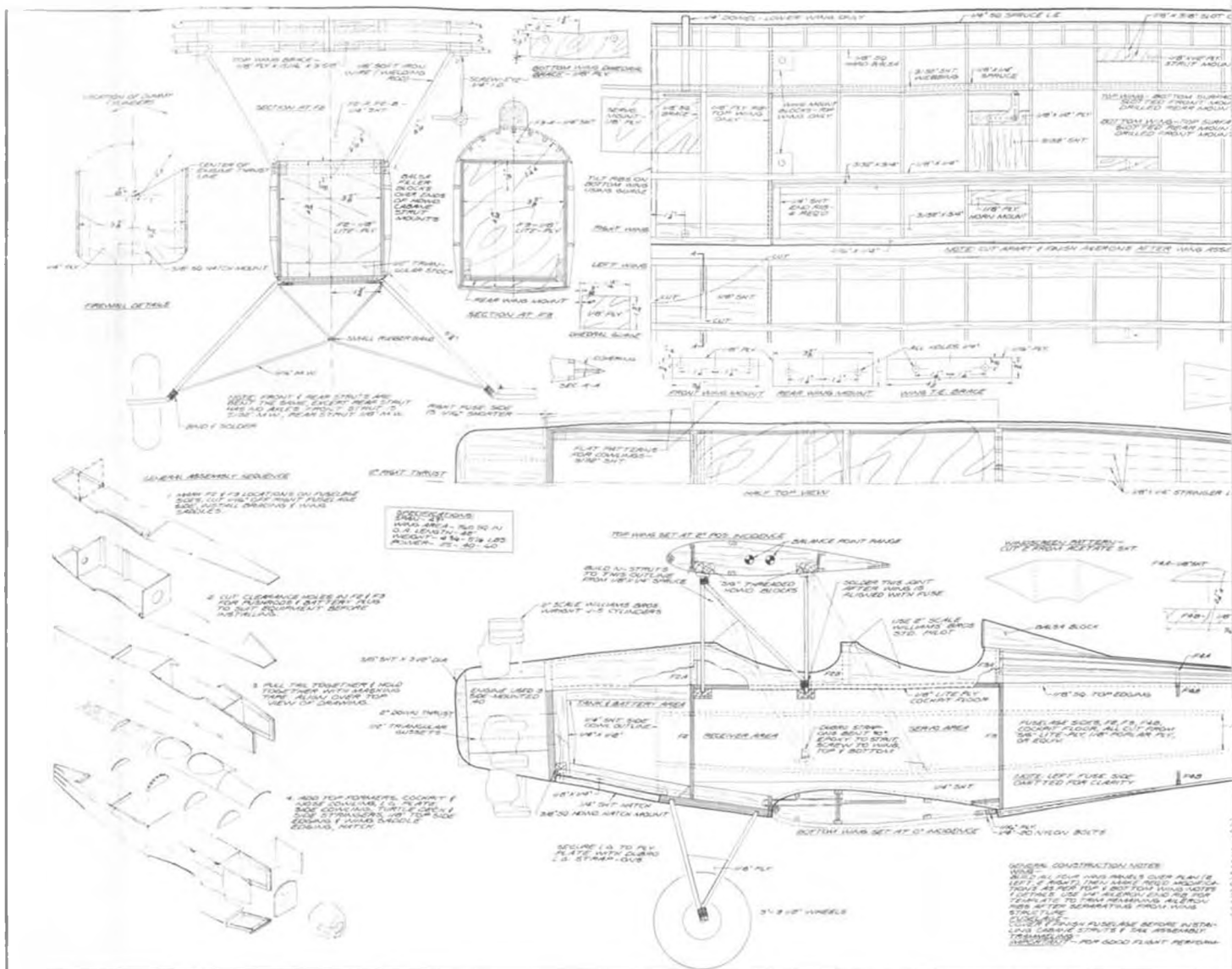
Some of the parts are cut from standard dimension stick stock and others, such as the formers, are dimensioned so that they can be drawn on the wood using a ruler, triangle, and a compass.

If you own a bandsaw or a Dremel saw you can stack cut a number of ribs at a time.

The model requires twenty 1/8 x 1/4 hard balsa or spruce sticks for wing spars and fuselage stringers. What you use is up to you, but balsa is generally cheaper and easier to come by, and with shear webbing between the main spars



Williams Brothers scale cylinders and pilot add a lot to the realistic appearance of the ship, both on the ground and in the air. Sig Lite-Ply fuselage sides are light in weight, but very strong. Note shadows from side stringers. A kit is about to be released on this model, put out by the author.



in the wing, balsa provides all the strength you need. But, before chopping up three turtle deck stringers from one stick, note that you can get one stringer and one wing spar from each stick. Also, the cutoffs from the remaining wing spars will provide the necessary material for the N-Struts.

#### FUSELAGE

Prior to beginning fuselage assembly,

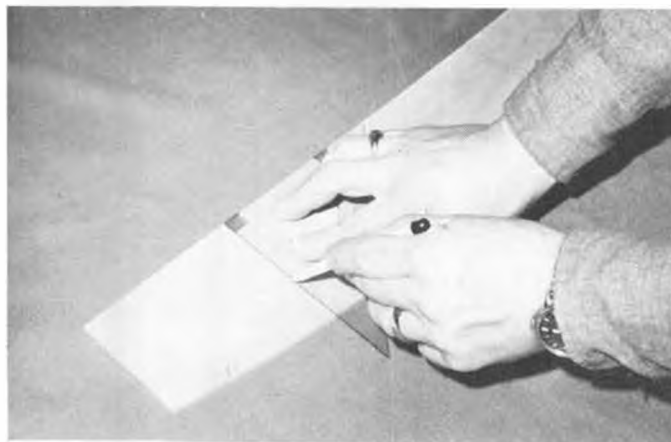
trim off 1/16th inch from the front edge of the right fuselage half. This will provide the 2° right thrust when the firewall is installed.

Using a triangle, draw a line at right angles to the top edge of the fuselage side, at the front of the front 1/2 x 5/8 inch cutout. This line defines the position of the rear surface of the F-2 former. Then, using the cockpit floor piece

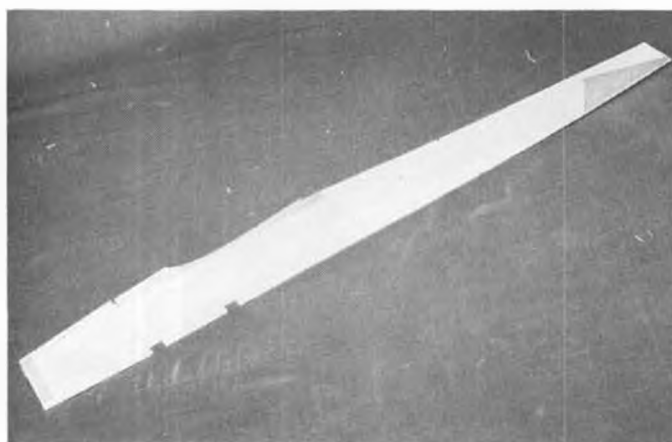
or the wing saddle as a gauge, mark the position of the front surface of the F-3 former.

Cut, fit, and cement the three nose area braces from 1/4 x 1/2 stock, and align and cement the wing saddle in place, allowing an 1/8 inch space for the F-2 former. Repeat this procedure on the opposite fuselage half.

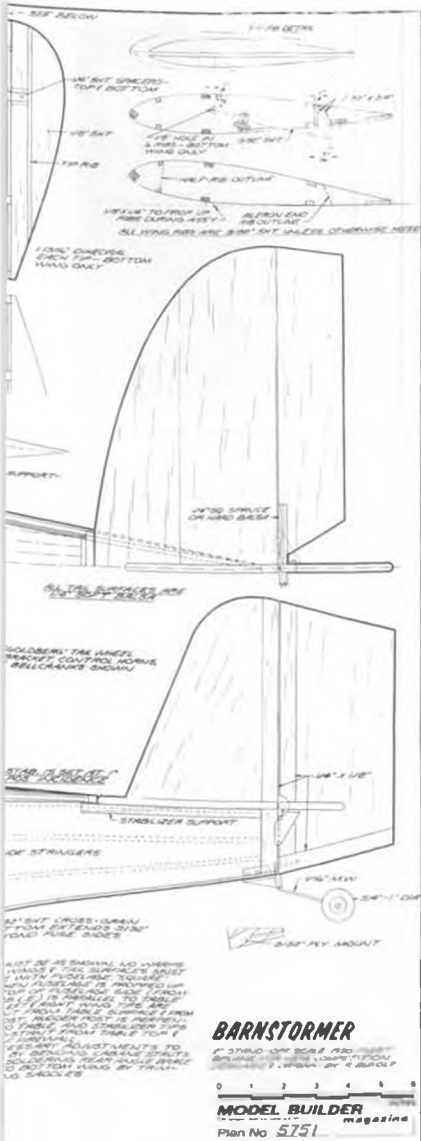
Cut battery plug and throttle push



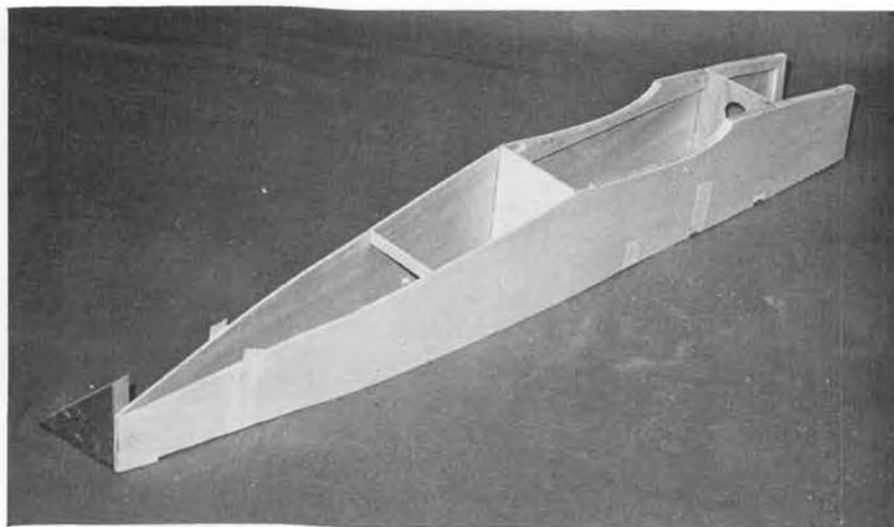
Marking the former positions directly on the fuselage sides helps to assure accuracy. Right fuse side is cut 1/16 short for right thrust.



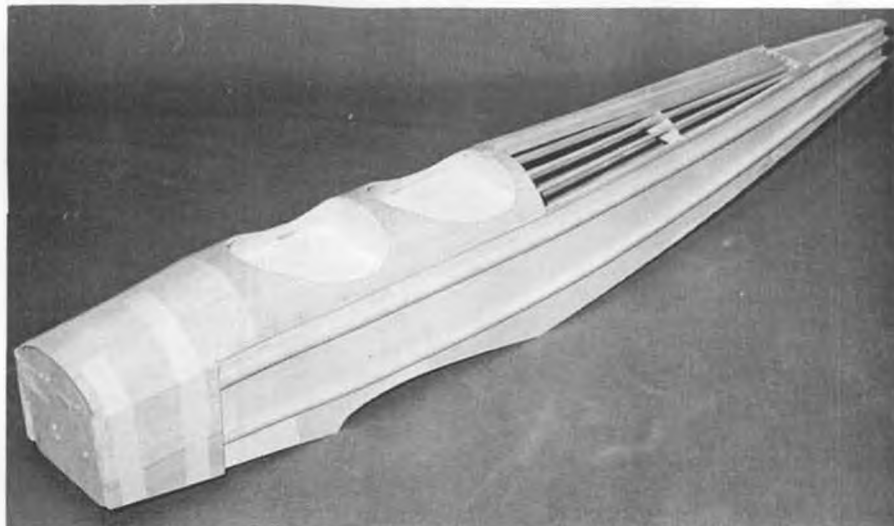
With sides marked, the next step is to add the 1/4 x 1/2 braces, wing saddles, and the stab platform. Notches are for cabane strut braces.



FULL SIZE PLANS AVAILABLE — SEE PAGE 88



When bulkheads and cross-pieces have been glued in place, hold everything together with masking tape and align fuelage over the plans or an appropriate guide line until the glue is cured.



The completed fuselage assembly, with stringers and sheeting in place. Note the masking tape still doing its thing around the nose.

rod holes in former F-2 to suit your equipment, and push rod holes in former F-3, then install the two formers and the cockpit floor on one fuselage side, using masking tape to hold everything together until the glue sets.

Install the second fuselage side and check to see that everything is square. Lay the fuselage on its back over the top view on the plan and pull the tail together, installing at this time the two F-4 braces and the 1/4 inch sheet triangular stabilizer support. Tape tail ends together while the glue sets, take your time, and align all the parts. Square alignment is very important throughout construction of the model.

Add the cabane strut mounts now, or they can be installed prior to adding the second fuselage side.

With the fuselage upright, install the cockpit cowl and turtle deck formers, F-2a, F-2b, F-3a, and F-4a.

Join the two cockpit cowl sheet halves with cement and hold with tape, then wrap over the cowl formers and hold with tape while the glue sets. Remember to leave half the thickness of the F-3a former exposed. See plan side

view.

The F-3a former notches are equally spaced and cut such that the 1/8 x 1/4 stringers are flush with the top surface of the cowling.

Plot the motor mount holes, fuel line hole, and throttle hole, and drill them prior to installation of the plywood firewall. If you're a purist and plan to have dummy cylinders placed on the engine cowl such that one cylinder will be in the twelve o'clock position as on the full scale aircraft, then you will probably have to mount your engine with the cylinder pointed approximately 30° below horizontal . . . that is if you wish to omit only one dummy cylinder.

Install the firewall, butting it up against, not in between, the fuselage sides.

Add the tank compartment top cowl, then the 1/4 inch sheet side cowl blocks. Notice that they extend to the front surface of the firewall.

Frame the fuselage sides along the top and bottom with 1/8 sq. strips, including the bottom wing cutout (none

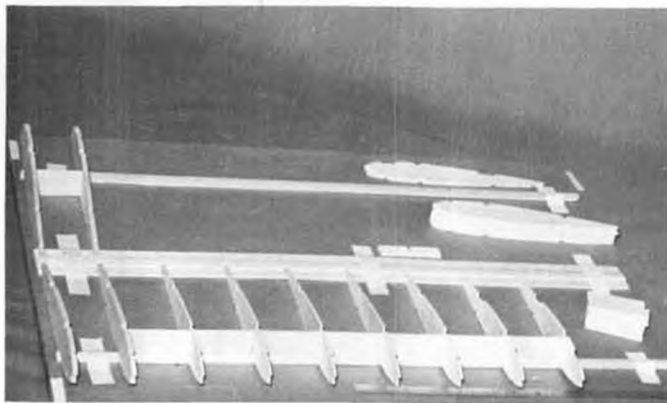
required aft of the bottom wing cutout). Use a piece of scrap sheet for the front curved portion of the wing cutout. See plan side view and sections for location of stripping.

Add the two side stringers. Plot the position of these pieces by measuring several points on the plan and marking the points on the fuselage side.

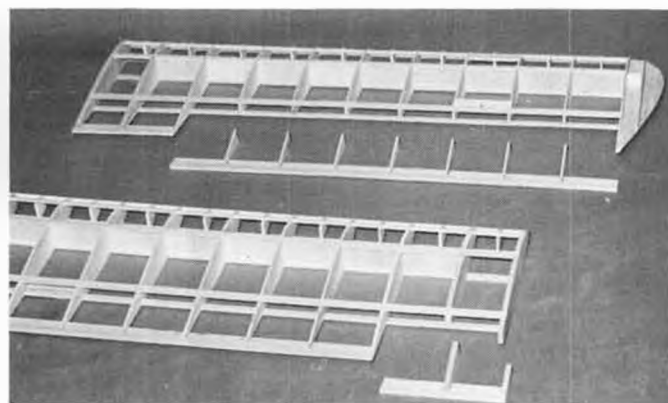
Before installing the ply landing gear plate, add the additional 1/2 inch triangle stock bracing to the fuselage assembly as shown on the plan.

If you do not have a means of cutting landing gear grooves in 1/4 inch ply, you can build up the plate by cementing 1/8 inch ply strips to a 1/8 inch ply base plate. Install the landing gear plate.

The battery compartment hatch is constructed of a 4 x 4 x 1/4 balsa sheet, with two 1/8 x 1/4 side rails and 1/16 ply front hatch brace. The side rails overhang a 1/4 inch at the rear so that they catch on to the L.G. plate, and the hatch is secured by one No. 4 x 1/2 inch s.m. screw through the 1/16 ply, into a 3/8 sq. x 1 inch block mounted on the back side of the firewall.



With all parts accurately cut out in advance, the wings can be assembled on a building board with only a few guide lines for alignment.



After basic assembly, ailerons are cut out of the bottom panels, and center section is cut out of the upper panels.

If you plan to use flexible push rods, such as Sullivan Golden Rod, now would be a good time to install them prior to covering the bottom rear portion of the fuselage.

When covering the fuselage bottom, install the sheet with the grain across the fuselage, and allow the sheet to overhang on each side by at least a 1/16 to keep the covering material from adhering to fuselage side surfaces (see the section views).

All the engine cowl blocks can be cut from a single piece of balsa 2x4, 6 inches long, if you have access to a bandsaw. Otherwise, the four sides can be made up from a 1 x 4 x 12 inch plank. The four cowl blocks are faced with a circular 3-1/2 inch dia. x 3/8 thick cowl face, however, this piece can be made from 1/4 inch stock if you don't have any 3/8 sheet handy. Prior to installation of the cowl blocks, mount your engine temporarily and make the necessary cut-outs.

Mount the rear wing nut plate but DO NOT mount the front wing dowel plate at this time.

#### WINGS

All four wing panels are basically the same in their initial assembly, with one exception. Note on the plan that the rib positions are numbered from 1 to 11 starting from the center rib. Rib No. 3

on the top wing only, is cut from 1/8 inch poplar plywood, whereas the same rib on the bottom wing is 3/32 balsa. Prior to starting assembly:

Score the No. 1 ribs (all four), cutting partially through on both sides for the eventual cut out of the 1/8 inch slot for the center brace. This would be the vertical slot centered between the top and bottom main spars.

Drill 1/8 inch push rod holes in ribs No. 1 through 6, bottom wing only. See section details for both these operations. You might also want to mark the location of the bellcrank mounts between ribs No. 6 and 7 prior to assembly.

Below the full wing panel view on the plan, is a partial view of the opposite wing so that both right and left wings can be assembled, back to back, at the same time.

Start by laminating the 1/16 x 1/4 strip to one edge of the 3/32 x 3/4 strip for each of the four wing panels, to form the trailing edge stock.

Mount the trailing edge on the plan and hold in place with masking tape.

Prop up the bottom main spar on top of another 1/8 x 1/4 strip and position it over the plan, using a rib as a gauge. Use masking tape to hold it in place.

Install rib No. 1 first, using the wing gauge to insure that the two top wing

center ribs are vertical to the plan surface and that the two bottom wing center ribs are tilted 4° from vertical.

Install the No. 2 ribs. Remember, there is no webbing between the No. 1 and 2 ribs.

For the balance of the ribs in each wing panel, install alternately the 3/32 inch vertical grain webbing and the adjacent rib. To assure a strong wing, it is important that the top edge of the webbing is even with the base of the top spar cutout.

Before the wing panel is removed from the plan, all three top surface spars can be installed.

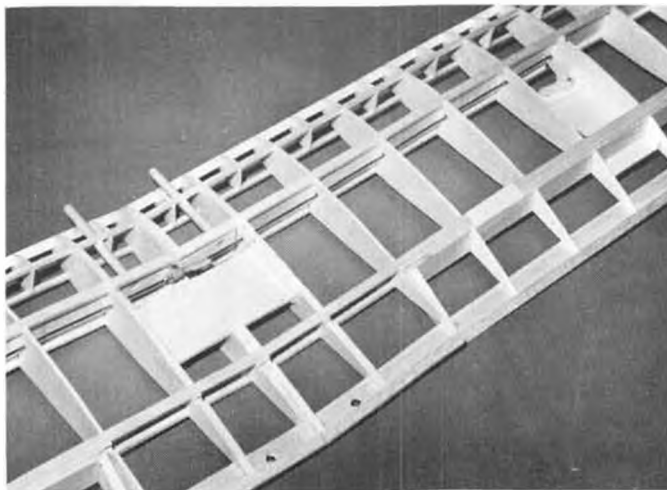
Remove the wing panel from plan, add the remaining two bottom surface spars, then install all the half ribs. Lastly, add the 1/4 inch square leading edge spars.

The wing tips can be added now. Use pieces of 1/4 x 1/2 strip for spacers between the No. 11 ribs and the smaller wing tip ribs. This completes the basic assembly of the four wing panels.

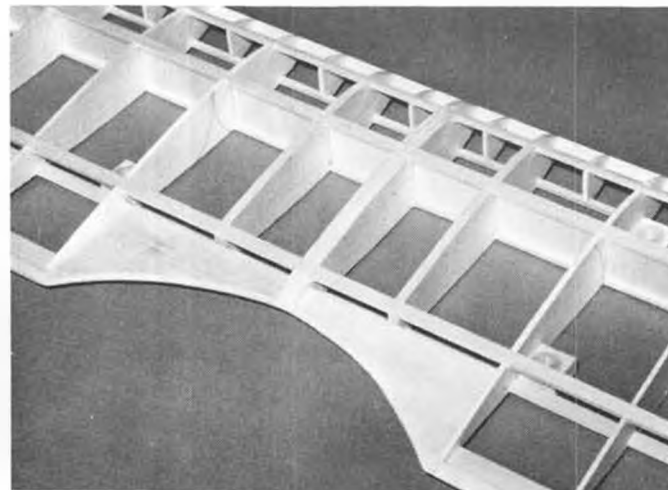
#### Top Wing Completion:

Install the four top wing mounting blocks flush with the bottom surface, in positions shown on the wing plan view and section view.

Cut out the center trailing edge portion of the wing and install the wing "cutout" pieces as shown on the plan.



After joining lower wing, the servo floor, aileron linkage, and mounting dowels are added. Note similarity to Ugly Stik wing construction.



Center section of top wing with mounting blocks and 1/8 inch sheet added. For extra strength, add webbing between spars at mounts.



Slot the previously scored center ribs, to accommodate the 1/8 inch ply center brace.

Install the "N" strut mounts flush with the bottom surface, in the positions shown between ribs No. 8 and 9. Notice that front mount has a 1/8 x 3/8 inch slot and the rear mount, a 1/16 inch drilled hole.

Sand the top surface of the trailing edge to a taper as shown in the wing section views, and finally, after carefully matching both panels together, join the two panels. The top wing has no dihedral.

#### Bottom Wing Completion:

Taper trailing edges with a sanding block.

With a razor saw, remove the aileron portions by cutting through the trailing edge along the outboard side of rib No. 3 and the inboard side of rib No. 11, then cut each rib along the back edge of the rear wing spars.

Using one of the 1/4 inch aileron end pieces as a template, mark and cut away, the front portion of each rib, then install the aileron ends.

Face both the front of the aileron ribs and the rear of the wing cutout ribs with 3/32 x 3/4 balsa.

Position and install the 1/8 x 1/2 ply bellcrank mounts between ribs No. 6 and 7 as shown on the plan and in section. Install the aileron horn mount, also between ribs No. 6 and 7, flush with the bottom surface of the aileron. Add 1/8 inch sq. bracing to each of the mounts.

Sheet in the area along the bottom surface between ribs No. 6 and 7 from the bellcrank mount to the aileron frame.

Cut prescored slots between main spars in No. 1 ribs, carefully match up both wings, insert dihedral brace and join wing halves. The proper dihedral is 40° per wing panel, which is equivalent to 1-13/16 inch under each No. 11 rib.

Install the wing dowels, inserting the end in the holes in the dihedral brace and notching the leading edge if necessary, so that the dowels are approximately parallel to the chord line. Before the cement sets, slip the plywood leading edge mounting plate over the dowels to insure correct alignment.

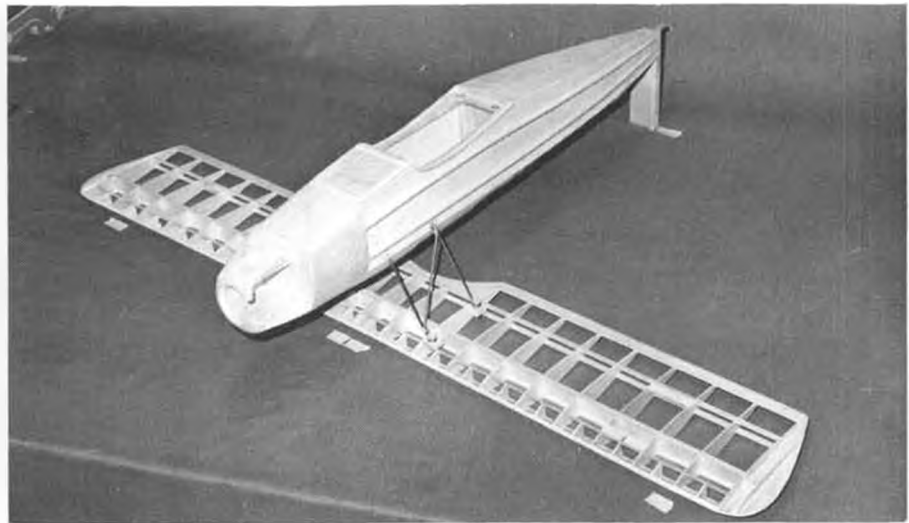
Notch out the center ribs as shown in section, to accommodate the aileron servo base. Add servo plate and 1/8 inch sq. bracing.

N strut mounts are positioned flush with the top surface between ribs No. 8 and 9 this time, with the slotted mount to the rear and the drilled mount forward.

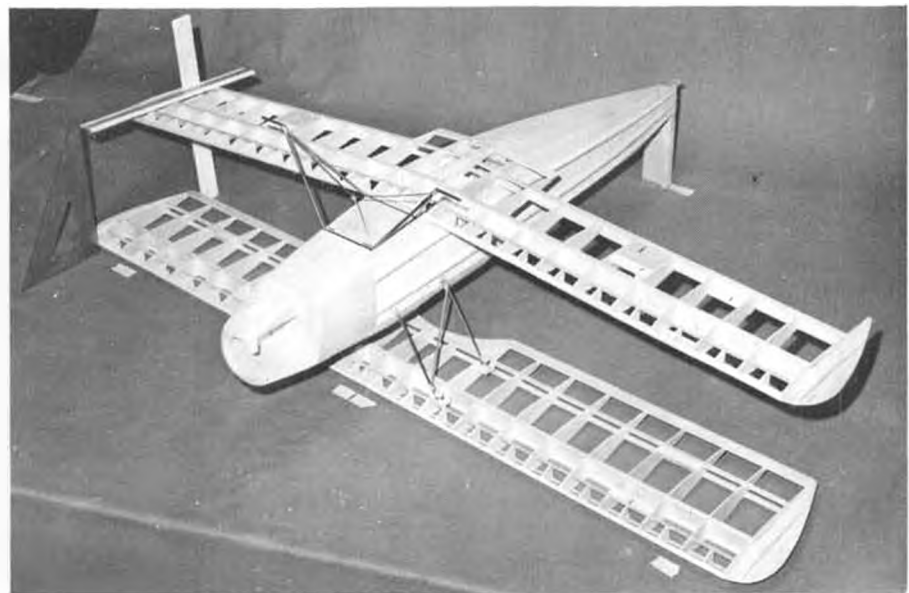
#### CABANE STRUT ASSEMBLY AND ALIGNMENT

Here's where you take your time and do a careful job, because the flight performance of the aircraft is very much affected by the alignment of all the flying surfaces.

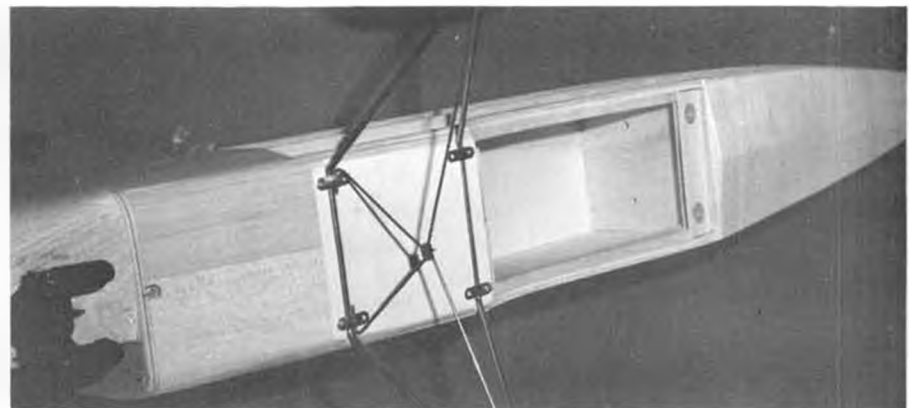
Soft iron welding rod is available through any welding supply store or auto



Top wing and fuselage are aligned on tape marks, as described in text, before soldering rear cabane strut brace joint. Careful alignment is the difference between a good flyer and a toad!



Bottom wing is aligned with top wing, fuselage, and table top. There's more to trimming an airplane than putting fancy stripes on the paint job! Note outer strut mounting slots.



Landing gear mounting detail. Note "V" in bottom just aft of wing opening to blend with dihedral. Screw retains battery/fuel tank hatch in forward bottom of fuselage.

repair shop. Cut four pieces 8 inches long and bend a 1/4 inch I.D. eye in one end, then make the other two bends per drawing.

Next, from two 6 inch pieces, bend the angle braces. Clean all areas to be soldered with steel wool or fine sand

paper. Insert, but do not cement, the four struts into the strut mounts. It may be necessary to clean out the holes with a 1/8 inch drill or small round file.

Attach the wire angle braces to the cabane strut by binding with fine copper

*Continued on page 60*



Pete Neilsen's Big John roars overhead, streamers flying. Pete's son, Chris, does all the piloting. Power is an OS 80. RS radio.



Tom Mahon, now from Carmichael, California, and his 10 year old Big John. Tom built new wings, and added ailerons to the top.

# 'REMOTELY SPEAKING...'

R/C News, by BILL NORTHROP

● The FCC has announced that as of March 1, 1975, the fee for a Citizen's Band radio station license has been reduced to \$4.00 (yes, *four* dollars!) This reduction is part of an overall revision of FCC fees started earlier this year and represents a substantial drop from the previous \$20. fee.

We now recommend that every R/Cer get his own station license, rather than depend on a club license. By this means, we can let the FCC know how many modelers in the country are using radio control equipment, and it will give us added weight when we file requests for additional, and safer, frequencies on which to legally operate.

The 27 band is practically useless for R/C in many areas now, particularly since many of the new CB transmitters are equipped with variable frequency oscillators instead of fixed frequency crystals. The selector dials include the five R/C frequencies, illegal for voice transmission, thus tempting the Cbers to use our relatively quiet channels. They



A Dumas "Shelley Foss" tug carrying the banner at the Pacific Science Center, Seattle, Wash. Good way to get publicity for a coming show. Photo by Dave Katagiri.



The "Pea Pod" continues to be one of the most popular construction projects ever published in MB (April '72). These two examples were

"Made in Japan." The photographs were taken and sent to us by Ritsuri Honda, now President of the Japan Model Yachting Society.



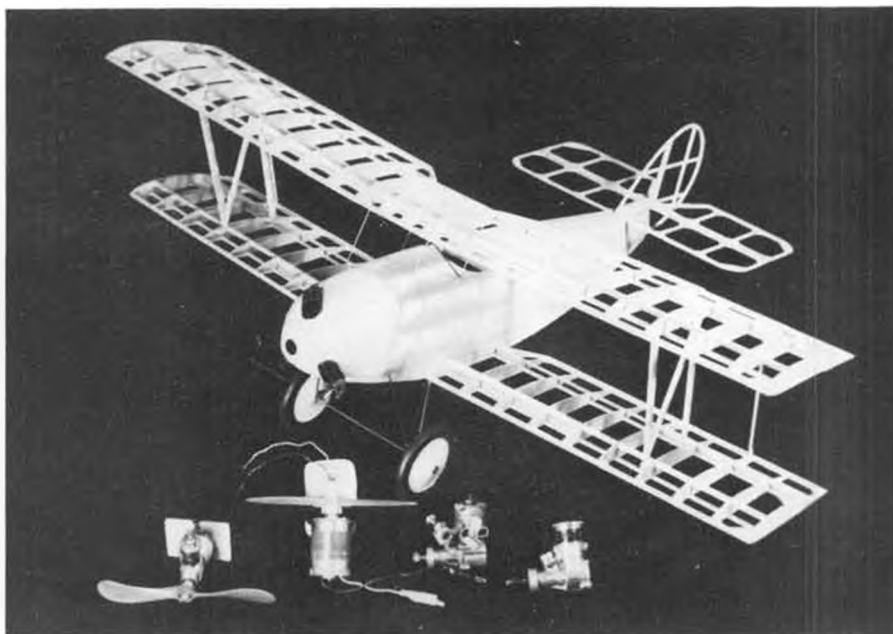
Two types of Half-A pylon racers coming out of the active Seattle, Washington area. This "Batman" by Gene Weaver. Note eyeballs.

don't have to be nearby either. Skip CB signals have nailed R/C models from hundreds of miles away, even a thousand or more. Many hobby dealers are aware of this problem, and if they are in an area that is noted for heavy CB interference, will not sell 27 MHz radio systems to their customers. If you are new to R/C, or have just moved to a new area, check with the local R/C fliers before flying, or purchasing new equipment. SAD NEWS

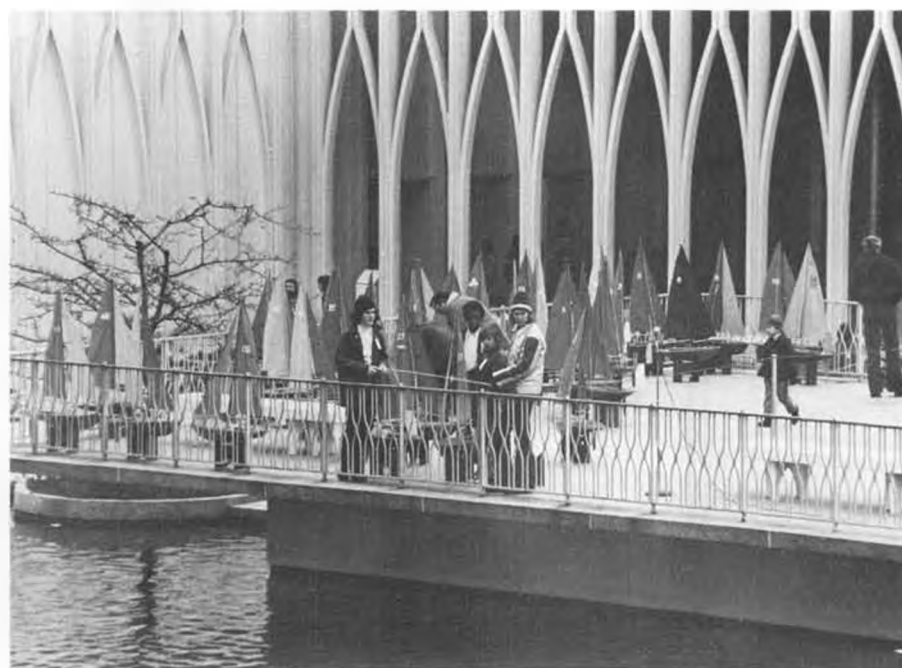
In a letter from Pete Waters, our R/C Contest Board member from Livonia, Michigan, he relates that on December 29, 1974, Tom Brett passed away. Tom was World Champion at the R/C Pattern competition, held at RAF Kenley, Great Britain (we believe that was in 1962). His pattern model designs were classics (Nimbus, Perigee, Appogee). He was a member of the Detroit R/C Club, and his pretty wife, Helen, was an active committee member. Tom had been out of modeling in recent years, having taken up full scale flying.



Bob Mikko's Half-A streamliner. Heat sink on head saves plugs. Pig-tail antenna is typical. Note two wheels in fuselage. Allowed by rules.



Bob Petro, Athol, Iowa, is building this neat little 30 inch span Sperry Messenger for Astro 05 electric power, and 4 channel radio. He's been having a ball with electric in the cold country!



A whole gaggle of "Pea Pods" at the Pacific Science Center pools. Built in a crafts program for young modelers, they are outfitted with vane steering, considerably less expensive than radios.



A serene site for model sailing. The Center was designed by Minoru Yamasaki, for Expo '62.



That father and son Mrlik team at it again! Jerry (father) launches for Jeff, Warren Tiahrt on the watch. Jeff went on to win Sno Fly.



Dave Leach launches his Esprit at the GDSHS Sno Fly. Note the winter clothing. All Sno Fly pictures by Charles "Bud" Pell.



Jack Malott, Don Lubahn, Jim Hansen, and Tom Kelley, of the Lansing, Mich. CARDS, on the "assembly line."



Warren Tiahrt does some plowing with his Esprit. His timer is Otto "Man in the Mask" Heithecker. Brrrrr!

#### MORE BIG JOHNS

Two more members of the Big John Owners Club of America have been heard from.

One of the earliest members, Tom Mahon, of Carmichael, California, has just recently restored his 10 year old OMT version, adding some wing area. The trusty O.S. 80 fired up the first time after an 8 year layoff. The ship now weighs in excess of 13 pounds, but with the added area, still has plenty of bounce. We had a look at it at Taft, California a few weeks ago.

The second B.J. is also an OMT version, built by Pete Neilson, Grand Junction, Colorado, and is powered by an O.S. 80. It was rebuilt in 1970 following a house fire (hard to keep a good model down!) and is now covered in transparent red Monokote. Son Chris does the flying, with an RS radio.

By the way, the original BJ OMT is still alive and well. It is in the hands of Fred Smith, Levittown, Pennsylvania. Saw him at the WRAMS show in White Plains, N.Y. a few weeks ago, and he is willing to let us have it back . . . which

*Continued on page 70*



Some of the Sno Fly winners with hand made plaques. Standing (l to r): Ray Hayes, Jeff Mrlik, Jim Steele, Bob Robinson, and Mike Gaishin. Kneeling (l to r): Chris Corven and Barb Robinson.



R/C's answer to the Wright brothers . . . the Good brothers; Walt (left) and Bill. Their famous "Guff" was borrowed from the Smithsonian for special ceremony at the WRAMS show.

## 1975 WRAMS SHOW

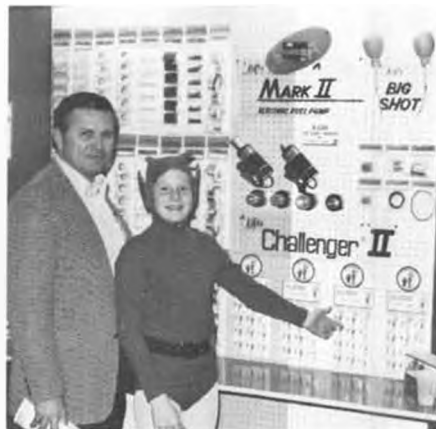
● The Westchester Radio Aero Modelers, Inc., (WRAMS), held its Seventh Annual Eastern States R/C Jamboree, in White Plains, New York, on March 1 and 2. This show, which has rapidly expanded into one of the three largest affairs of its kind in the U.S., occupied all three levels of the Westchester County Center, and officials are now faced with the prospect of finding a larger location for next year.

Just under 90 exhibitors occupied

display booths on the main floor of the building. The lower level, scene of the entire show just seven years ago, was the display area for hundreds of models brought in by hobbyists who were competing for prizes in more than a dozen categories. In a separate room on this level, continuous film shows were being offered to the thousands of spectators who were solidly packed into the building throughout all the available hours of each day.

The very popular Swap Shop ("My Junk is Your Bargain") was in full swing on the upper level, occupying the floor space over the entrance lobby of the building.

To us, the highlight of this year's WRAMS show was meeting a double image face to face. The Good brothers have always been to R/C modeling what the Wright brothers were to aviation, but until the Friday night cocktail party hosted by "Pops" Schroder, we had never met one half of the team. Bill Good has not attended any kind of modeling function for over 30 years, and when we first saw him at the party, unaware that he was to be present, we thought he was Walt, and that his stay in Germany for two years had altered his appearance just slightly! What a relief to have the confusion end when



Hank Hankinson (Sr. and Jr.) at the Sonic-Tronics booth pointing to Glo-Devil plugs.



George Hill holds the fiberglass fuselage for the new P-47N Sport Scale model by Airborne Associates. He'll pattern fly it too.



Ritchie Brooks and Long Island Hobbycrafts were showing a new Great Lakes for the NSPA pattern competition.



Bill Mazarack's big 1/4 size Sopwith Snipe placed third in World War One category. One of 3 huge scale jobs.



Guess we were judging the wrong things. Standard kit models won the Sport Biplane category prizes over this original design.



Many unusual glider designs were in evidence. The T.W.O. (The Wierd One), was a canard creation by Dick Sarpaulis and Andy Pederson.



In second place for gliders, directly behind the T.W.O., was "Henry Hawk" by Tom Wood, Bainbridge, N.Y. All foam.



Classy little Cape Cod Cat Boat, by Fred Noesner, Union, N. J., was one of our favorites in the boats and ships division.

Walt appeared along side. Thank Heavens they were wearing different suits!

To complete the Good story, WRAMS members requested permission and

brought from the Smithsonian Institution, the original "Guff" radio control model which Walt and Bill flew back in the late 30's and at the 1941 Nationals.

Through a juggling of dates, the WRAMS had the first show of the "Big Three" this year, and since it came close on the heels of the "Big Magazine Cap-er," there was a constant undercurrent of conversation among the exhibitors on the subject. In spite of headquarters literature claiming otherwise, the conversation was almost unanimously in opposition to the proposed (already decided?) publication.

There were quite a few new items on display... too many to cover all at once here. We'll be describing them from time to time. Heath Company's new radio has plug-in RF sections for both transmitter and receiver, permitting frequency switching across all three commonly used R/C bands... about 30 bucks per frequency set. Airborne Associates has a classy new Sport Scale "Jug" (P-47) that will fly pattern. Coverite finally has its pre-painted, iron on fabric, Perma-Gloss. And there are many more coming.

One old modeling friend estimated that probably 20% of the adult male spectators at the show were victims of the recession... out of work... but as

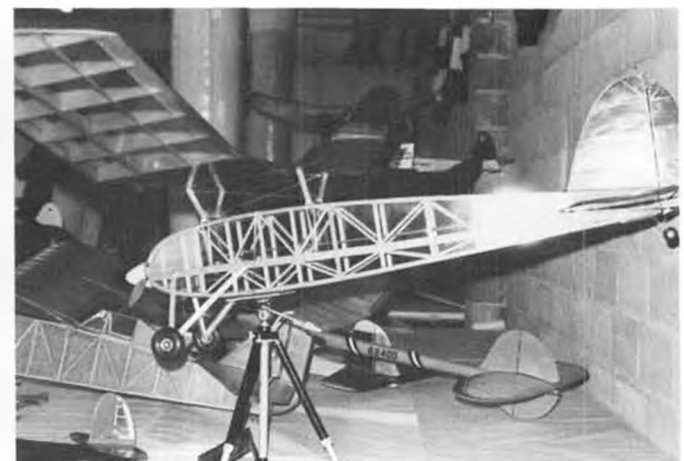


Jay "Dumas" Brandon fielding one of many questions on the renewed interest in boats.

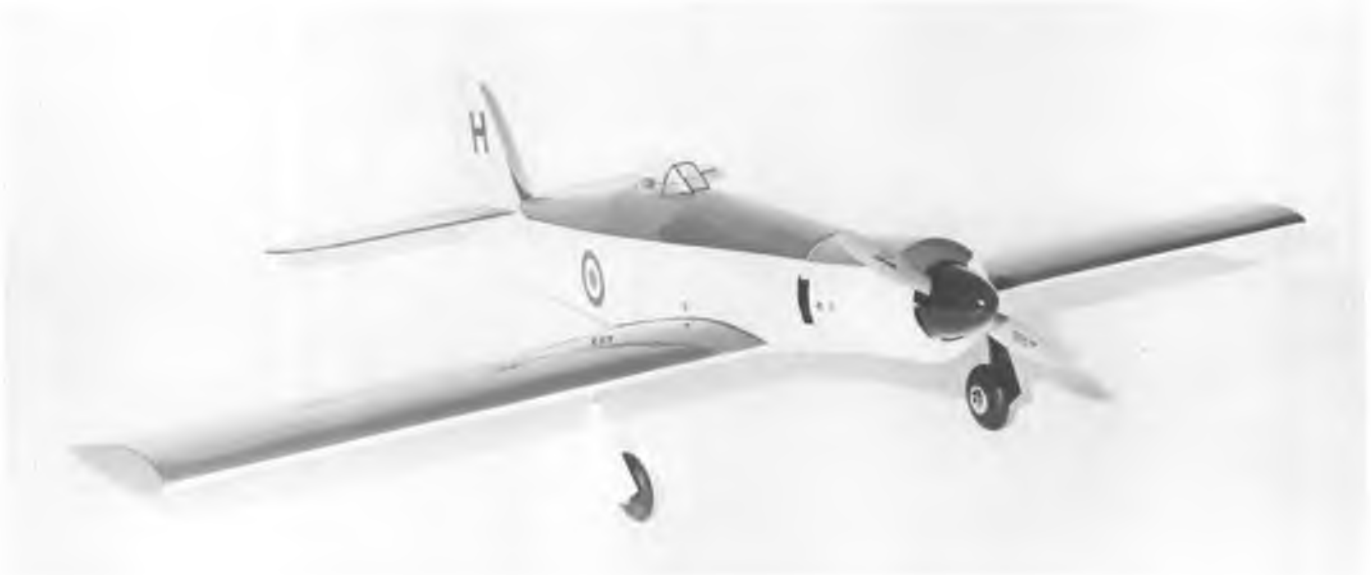
in his own case, modeling provides a relief from everyday worries, and we need it now more than ever. Show attendance would seem to bear him out. ●



Another original helicopter by Faye Peoples, again beat out by kit models. This one is called the Lone Ranger... Get it?



Sorry, we didn't record the name of the builder of this Miss Philadelphia, designed by Maxwell Bassett, and kitted by Scientific.



A little too polished for the rigors of Half-A pylon racing? Not really, when you consider the gleaming pieces of work that appear at most Formula I events. Perhaps this will tend to bring up the quality.

## SEA FURY PYLON RACER

By JERRY HOLCOMB . . . Modified Junior Falcon Half-A Pylon Racers are nice, but semi-scale pylon racers are nicer. The Sea Fury is both fancy . . . and fast.

● This model was designed to be as light weight a racer as could be built within the RAMS Half-A racing rules without ignoring the rules' scale intent. With an all up weight (including a 225 ma battery) of 20 oz, the original design objective was met. Design complexity is somewhat higher than a simple "box" type model, but the much better appearance of the finished model makes the extra work seem worth while. (Incidentally, the original won 2nd Place, 1/2A Pylon, at the 1974 Seattle RAMS Show.)

A fairly low aspect ratio wing planform was chosen to get a more favorable thickness/chord ratio than is possible

with the Ace foam wing that a lot of 1/2A designs use. This is not intended as a statement for or against the Ace wing, it is just that the rules require a minimum 7/8 inch thickness, and a wider chord seems to work better.

Simple, squared-off wing tips were used for lightness and simplicity, and because I get lazy sometimes. Aerodynamic tip-losses because of the squared off shape could probably be improved by using some sort of end plate, but I have no proof of this. I do feel that this wing planform and airfoil handles well with no unexpected nasties.

I have not experienced surprise snap-

rolls with the CG as shown on the plans, but be warned that a more rearward CG will indeed produce a nice rapid snap when you yank in the "up" for a hard turn. I discovered this when I installed a 500 ma battery in place of the usual 225 ma pack! The model normally stalls straight ahead power-off, but of course, P-factor (or torque, if you wish) will cause a roll off to the left in power-on stalls. If you do encounter a snap-roll tendency with the CG as shown, you have too much control movement. I used the horn lengths shown on the plan and the inside holes on my Kraft KP2B receiver/servo output arms.

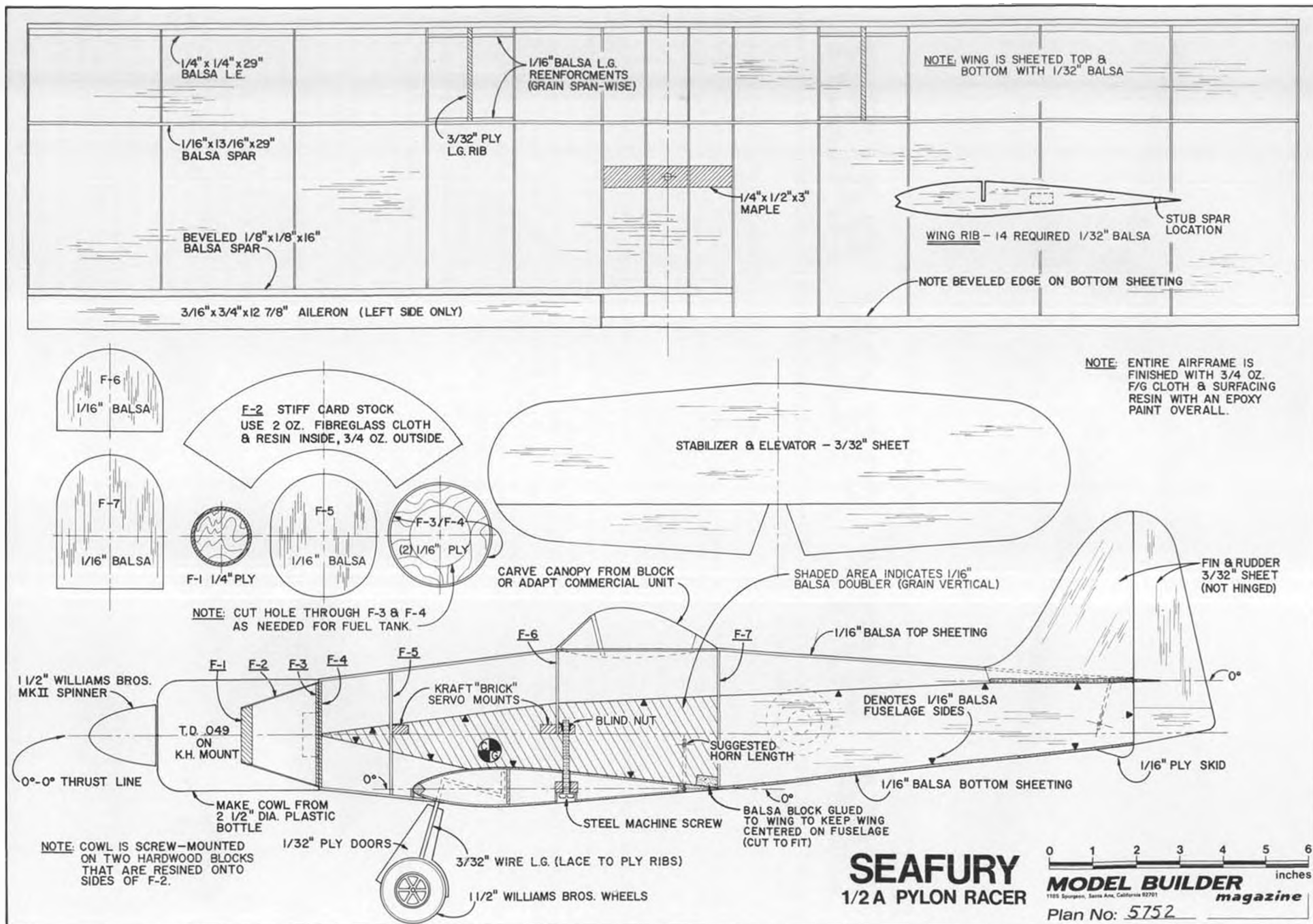
Wing construction is designed to be as light as possible. I would suggest that you use 1/16 sheeting for the wing if you can find some good light weight wood. I built the original during the last "balsa shortage" and had some trouble finding good 1/16 sheet, thus the 1/32 sheeting shown on the plans. Even using the 1/32 sheet will prove more than strong enough for any flight loads and most landings, provided you include the 3/4 oz fiberglass cloth in the finishing process. (Note that I said "landings" and not "controlled crashes." I try to build my models to fly, not to be crash-proof. If you are looking for an over-built design to compensate for your hard landings, this one isn't for you.)

Tail surfaces are just medium weight 3/32 balsa sheet with a surfacing resin finish. It does get a little tricky installing Klett hinges (which I recommend) in the edge of 3/32 stock, but it can be done if you are careful.

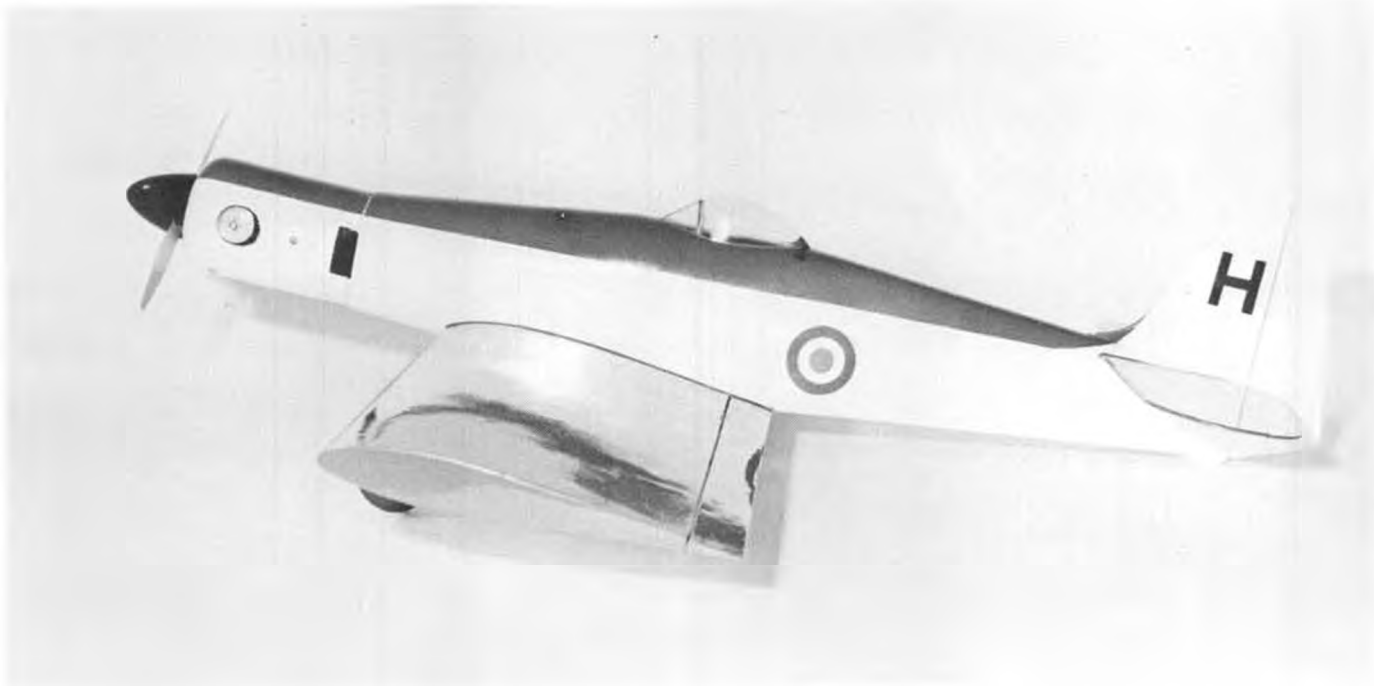
Fuselage construction starts with the two 1/16 balsa sides, with the doublers



Seattle RAMS rules for Half-A require a minimum of 200 squares of wing area. This one is covered with sheet balsa throughout, yet just meets the required weight.







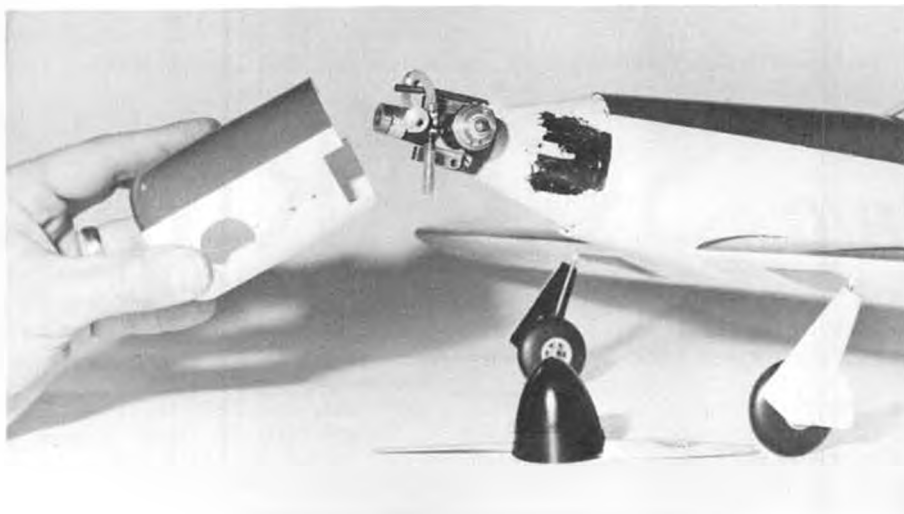
Rudder and elevator controls are internal. If you build 'em in, make sure they are going to last several seconds longer than the aircraft! Tail surfaces are of 3/32 sheet balsa. Note outlet for heated engine air. Important if you want the mill to keep running.

installed between formers as shown on the plans. Next, glue in F5, F6 and F7, making very sure that you get everything aligned and square. Now add the top sheeting between F6 and F7. Add F4 and sheet the top of the nose. Form the conical motor mount from F1, F2, and F3 . . . cut to fit these pieces. Add the fuel tank of your choice. A one ounce tank will work for suction and crankcase pressure, or cut a suitable opening in F2 if you intend to use a bladder type tank. Install this unit of F4 and then finish sheeting the forward fuselage. This conical motor mount is quite strong and has proven to be trouble free. Just be certain that it is well glassed in place.

Now you can finally bring the fuselage sides together at the tail and sheet the rear fuselage top. Add the horizontal stabilizer/elevator assembly (the original model had an internal horn and pushrod which must be installed at this point . . . if you decide to use this sort of arrangement, be certain that it will keep on working for the life of the model) and then sheet the fuselage bottom. Add the vertical fin, a couple of small balsa fillets on either side of the fin, fill any small dings with vinyl spackle, and sand the whole machine smooth. Finish the model with surfacing resin and 3/4 oz. fiberglass cloth. Top off the finish with an epoxy paint of a suitable shade . . . the original was dark blue-grey with white undersides. Markings were cut from Trim Monocote.

Oddly enough, you are almost done. You must still figure out where to put your radio gear and how to install the engine. A Kraft "brick" will fit between F5 and F6, while a 225 ma battery will fit quite nicely between F6 and F7. A

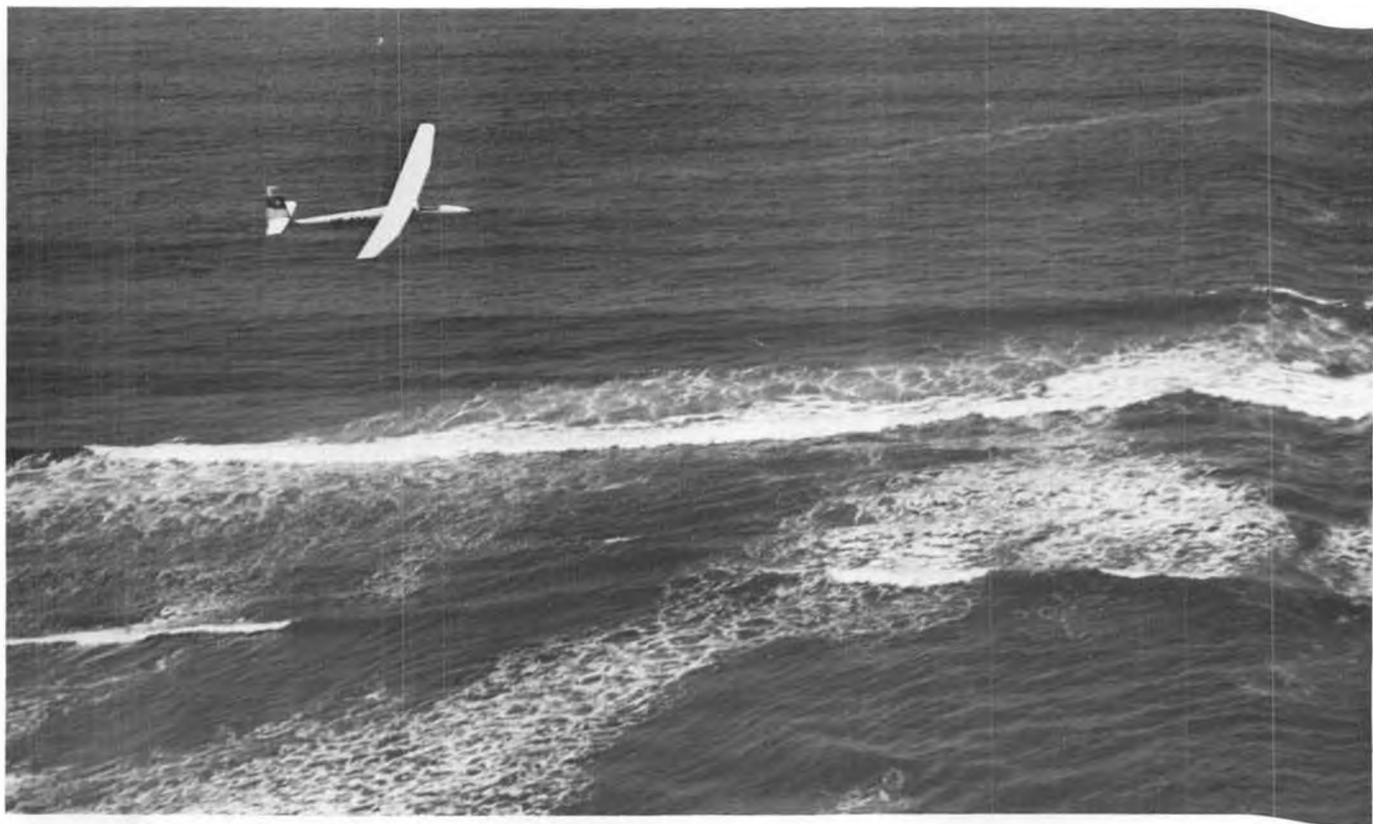
*Continued on page 85*



Cowl is made from a plastic bottle. Filler line extends almost to thrust washer for refueling without removing cowl. Note line filter.



RAMS rules permits Jerry to use a Kirn-Kraft TeeDee .051, also pen bladder pressure, if desired. Much of the fun of Half-A racing is due to the use of local club rules.



A semi-scale Elfe lazily feels its way along a Pacific Coast slope site in northern California. Photo by Whitey Pritchard.

# R/C SOARING

By LE GRAY

**The Standard Class Syndrome . . . a lively subject, this . . . and Soaring Editor may have suffered an acute attack of recurring foot-in-mouth disease. And those withdrawal pains are going to be murder. Fortunately, there's plenty of room for said foot in mouth. Who else can thermal on his own conversation?**

- Man, it's getting hot out there!

If you have yet to hear some of the proponents of various Standard Class R/C Sailplane rule concepts . . . you just haven't heard really torrid oratory. Sorta reminiscent of the hell-fire and brimstone bit that used to scare the devil outta me on Sunday mornings as a kid. Come to think of it, that must have been the idea . . . and it sure did work, though we have effected some recovery in the last 30 years. So what's that got to do with sailplanes? Not much . . . unless you want to compare the passion, the emotion, and the absolute conviction of the speaker/preacher.

Seems as if about everyone who has even the slightest interest in a standard competition class is up in arms either defending what is or attacking what ain't. And there aren't just two sides to the matter, but at least four that we're aware of . . . and there may be more. As with most debates, there are good strong points and some weakness in each camp. And . . . each representative of every position speaks with complete sincerity, honesty and personal integrity. He feels very strongly about the subject and the

appropriate solution . . . as he sees it.

Before things go much further, it might be worthwhile to throw out a rather tired cliché: like cool it, man. Some of the stuff that's starting to hit the streets . . . or fan, as the case may be . . . is unfair, unthinking, and at times, almost questions the heredity of the opposition. Let there be some basic ground rules of war among us gentlemen of the soaring sport. First, let it be assumed that each person in the melee has the exact same interest in the advancement and growth of the sport, and especially Standard Class competition, as every other person. Second, let it be assumed that everyone knows the identity of their father. Third: nobody's sister chased troop trains. Fourth: no soaring sportsman's mother wore tennis shoes to her Senior Prom.

Now, let's talk.

At this point in time, there are NO official, AMA Rules Book-identified classes of R/C sailplanes. There ain't no Open . . . there ain't no Standard . . . just sailplanes with size and weight limitations as set forth by the FAI for international competition. Check Section 39, para-

graph 3 that's on page 45 of the 1974-1975 book.

So where did Standard Class come from? There'll be those who may argue the point . . . and they're wrong . . . but the first public pronouncement "Hey, let's divide these gliders up into two classes like they do in full scale" was made atop a barbeque table at Hummingbird Haven, Livermore, California in the summer of 1968. The occasion was the founding fun-fly of the late National Radio Control Soaring Society (NRCSS). The speaker was Chief Foundee, Jerry Nelson, and about fifty or seventy-five guys seemed to think that some split ought to be made. After a bit of lively banter, 100 inch span fell out as a rather round and workable number. It definitely separated the Lil-T's from Nelson's fiberglass Ka-6's . . . and that was about all that was needed. The 100 inch dimension worked pretty well for those interested in scale configuration because most were built to 1/6 size which gave a model of a Standard sailplane a span of about 98 inches. Great. Besides, the important thing was to get back to the fun of flying. Wonder whatever happened to that

ridiculous idea. Fortunately, we've progressed.

Awhile later, and dates aren't important, some of the folks planning contests under the auspices of the old ECSS believed that the big sailplanes could whup the not-so-big sailplanes just dern near ever'time. The old story about a good, big man can most always beat a good, little man. They picked 100 inch span as the dividing point. It may have been coincidence or it may have been a direct tie back to the NRCSS classification. Who cares!?

The S.O.A.R. sponsored R/C Soaring Nationals provided a division for the unofficial but popular 100 inch Standard Class. This has been a big thing each year since inception, and has done much to promote the national interest in Standard sailplanes. West Coast activities have followed the pattern and most club and regional meets identify Standard and Open Class competition. The LSF 1974 R/C Soaring Tournament was the first of its series to recognize other than Open . . . wide open . . . competition.

That there is and undoubtedly always will be a Standard Class within R/C soaring competition is an irrefutable fact. Okey, so what do we have to work with, where do or can we go from here . . . and why?

As mentioned, there is no AMA class breakdown within the general category of R/C sailplanes. There is a proposal on the AMA docket to define a "Basic Sailplane Class" limited to a maximum wingspan of 100 inches and two controls, specifically rudder and elevator or V-tail ruddervator configurations. The proposal prohibits any other functions or features such as ailerons, flaps, spoilers . . . and most pointedly . . . does not allow thermal sensing devices. The idea behind the proposal is to provide a simple, economical machine suitable for the "average" flyer, but at the same time provide for "a competition class of sailplane that represents a more reasonable investment of time, effort, and monies than do the very large complicated sailplanes presently used by the top competitors." This two-control concept might be identified as the "classic" definition for Standard sailplanes, and represents the basic point of departure in this friendly, nationwide discussion.

A second or "cross" proposal submitted to the AMA R/C Contest Board agrees with the 100-inch wingspan limitation . . . but as the only restriction. This concept would permit any number of controls or functions. If you can lift it with 100 inches, you can fly it.

It seems that most of the current noise is generated around this variance: two-controls vs. unlimited functions. However, another cross-proposal specifies a wing area limitation in addition to the maximum span. Now that ought to really get things stirred up.

Let's back up now and look into



Even after the wind has calmed down, it's kinda nice just standing here and listening to the waves breaking on the shore.  
Photo by Whitey Pritchard.

some of these ideas.

The Basic or Standard Sailplane Class proposal and the several cross-proposals that have been presented to AMA all peg out a sub-classification from the AMA Section 39.3 requirements. This leaves a rather large void: no definition of what's left. That is, there is still no proposal that identifies an Open Class . . . either by title or specifications. The so-called Open Class will still be unofficial and merely that which is not Standard Class. Or is Open an absolutely anything goes, unlimited category which means a Standard Class vehicle could be registered and flown in Open Class? Don't knock it. There are numerous embarrassing incidents at major contests where Standard Class sailplanes have outpointed the Open Class behemoths and won top honors Overall! Haven't those guys heard the "good big man/good little man" bit? Perhaps the classes should be called Standard and Bigger.

But how about that 100 inch span limitation? It may be the perfect dimension. Listen to some of the arguments. There's talk about simplicity of construction, about transportability, and about the economics attributable to this one perfect length of wing. Wonder what an inch or two, one way or the other, would do?

There is no direct relationship between wing span and complexity . . . assuming reasonable limits, of course.

Look at some of the high-performance Nordic free-flight glider wings. The span may be only six or seven feet, but construction can be a practical exercise in toothpick-bridge building. On the other hand, few wing configurations are simpler or quicker to build than that of the 12-foot Yankee Gull. (MODEL BUILDER, March/April 1972)

Transportability? A two-piece, 12-foot wing can be loaded into a VW. Try  
*Continued on page 58*



"Come on fellas, there's plenty of room up here for all of us!" Pritchard photo.



Jerry "Sea Fury" Holcomb flying one of his original design single rotor choppers. Photo by Mark Freeman.



Our "Chopper Chatter" editor, John Tucker, with the completed Graupner 212 test ship. Orbit radio.

# CHOPPER CHATTER

By JOHN TUCKER



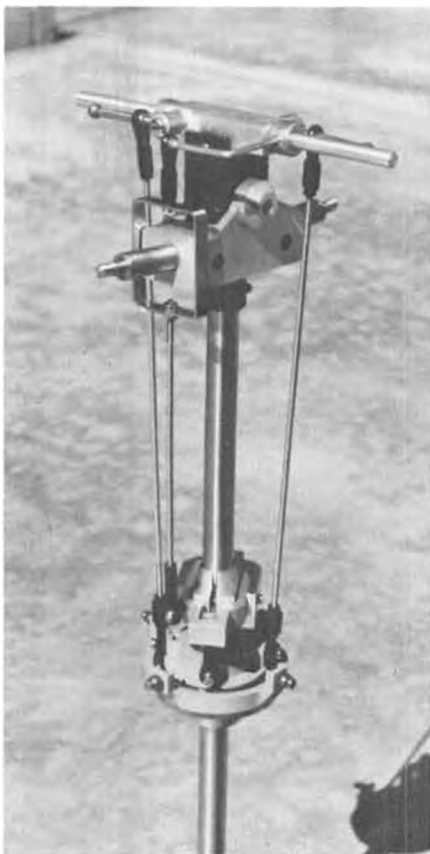
● As promised, I'll lift-off this month with the Graupner Bell 212 Twin Jet construction review, but first, let's clean the mail box and list the new chopper pilots who need help, or will share their knowledge with others:

Western New Yorkers, give Ed Grey a call if you need your interests sparked a bit! Ed writes that he has been trying to create an interest in helicopters in his

area and would like to meet up with those interested in scratch building. He offers a complete shop equipped with a Unimat and Atlas 6 inch metal lathe, plus numerous other facilities. He also indicates he has a complete collection of anything that has ever been published on model helicopters, and has an indexed anthology! You might remember Ed from the article "How a Helicopter

Flies" he wrote for Model Airplane News a few years ago. He has a number of ideas he'd like to develop and would like to team-up with a serious partner or two. He can be reached at Apt #1, 155 Denrose Drive, Tonawanda, N.Y. 14150, telephone 716-691-5924 evenings.

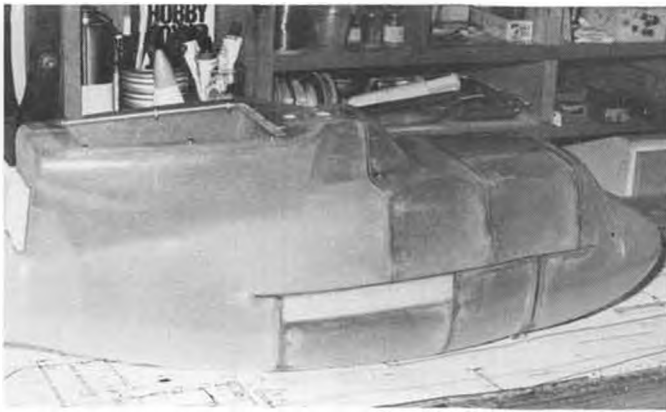
Here are some others, for the record: George Jablinski Jr., 21 Ferndale Ct., Battle Creek, Mich. 49015, wants advice



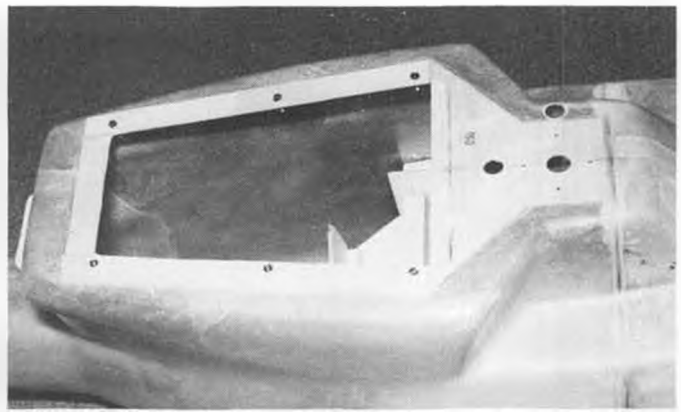
New rotor head and swash-out for the Kavan Jet Ranger. See text for more information.



Jerry Holcomb flies his experimental tandem twin rotor helicopter. It is not perfected yet, but test flights show steady improvement. Photo by Bob Yorkston.



Graupner 212 fuselage with ply formers installed.



Installation of cabin top reinforcement plates.



Bottom view shows tank mount (cut-out for gear) and clip for rubber band strap.



Bottom view from other side, also showing landing gear formers.

on how to start building, etc.

Jerry L. Holcomb, 1010 N.E. 122 Avenue, Seattle, Washington 98168, phone (206) 892-7732. Has built 8 choppers in past 2 years, including scratch-built tandem rotor designs! Will share his special talents in design and set-up.

Robert J. Fogg, 20 Orchard Lane, Springfield, Vermont 05156, phone (802) 885-4382. Kavan Jet Ranger. Will share basic set-up and hovering flight

experience, wants help on extended flight.

Thomas F. Diamond Sr., 1129 Allengrove St., Philadelphia, Pa. 19124, Kavan Jet Ranger, needs help in wiring gyro to tail rotor servo.

Carl W. Hickman, 3434 E. Valencia Ave., Lot #32, Tucson, Arizona 85732, phone (602) 327-3966. Graupner Bell 212, has training platform but needs help on trim and moral support for lift-

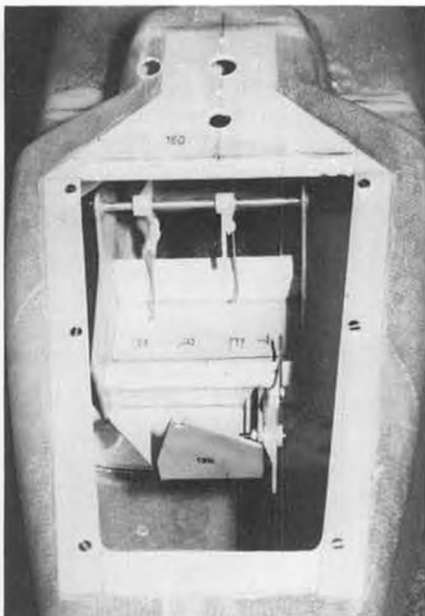
off.

There were lots more, but since space is limited and we have a long way to go, I'll save them for next time. Now, for the Graupner 212 kit review . . .

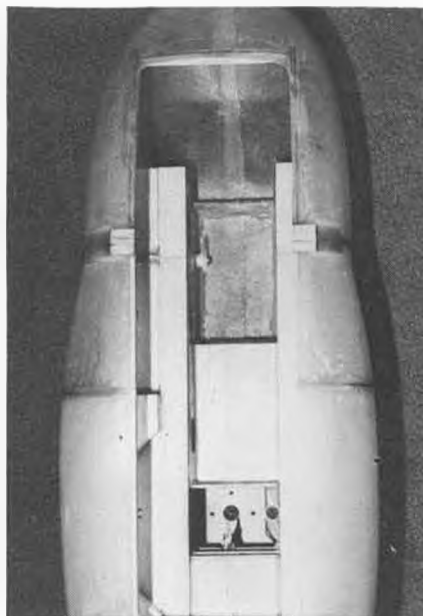
#### GRAUPNER BELL 212 TWIN JET HELICOPTER

Thanks to the very precise instructions and clear illustrations, a detailed report on how to construct this gem will not be necessary, even for the tyro builder. There are a few areas, however, that might be elaborated on, and that's what I intend to do in this report.

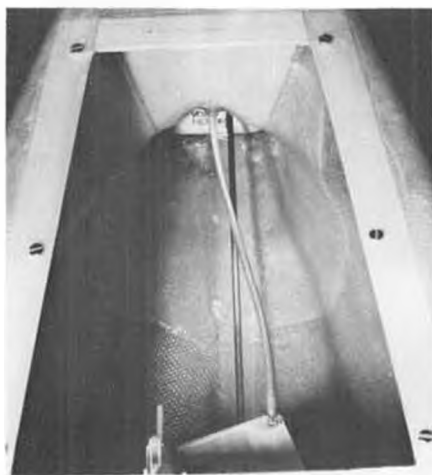
Last month we talked about reading and re-reading the instruction booklets, so now you should have a good idea of how to begin. Starting construction with the airframe kit, I found the engine mounting box was the first thing to tackle. Not surprisingly, the wood formers were die-cut to professional standards, and fit very well; only light trimming was necessary to get an excellent fit in the fuselage. Remember, the mechanical drive assembly is not mounted on the centerline of the fuselage, therefore the formers are not symmetrical and could throw you off if care is not taken! Each former is plainly marked as to which side is right "R" and how it faces. The "Endfest" cement is good for attaching the box to the epoxy fuselage, since it has a long-cure time at room temperature (several hours). This allows time to position formers and move them around to



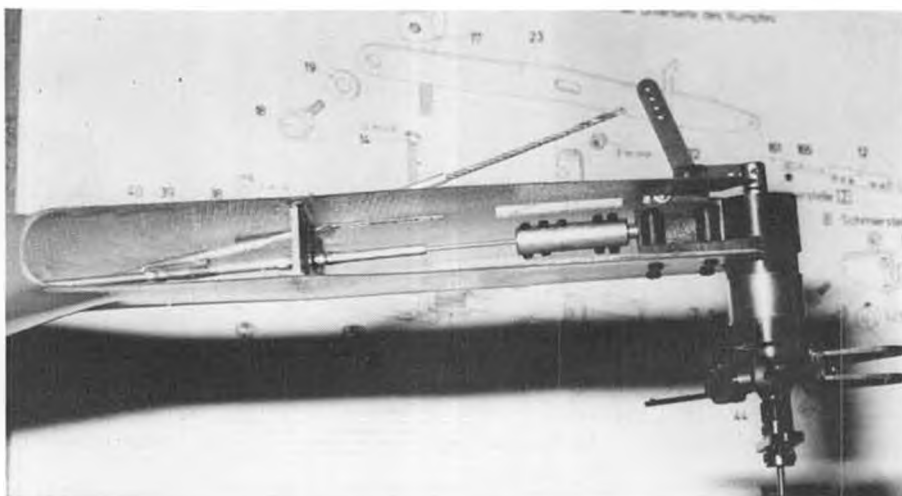
Radio servo box (looking toward front) and bellcrank rod assembly.



Another bottom view of formers in engine compartment.



Drive shaft and control tubes for tail rotor, looking toward tail boom.



Initial gearbox and drive shaft installation.



John is threading the tail rotor drive shaft into the coupling, with the aid of a pair of tweezers.

get the best fit. There is a disadvantage though, in that the Endfest tends to run down like syrup and forms puddles in the lower parts of the assembly. Careful use of a monokote heat gun will set-off the curing process much faster, but be careful you don't get it too hot or it will thin out like water and run even faster! Be sure to finish *all* surfaces of the formers and reinforcement plates with sealer or resin (except for gluing edges) prior to cementing into the fuselage.

After installation, you can't get to these surfaces and they will become oil soaked in time!

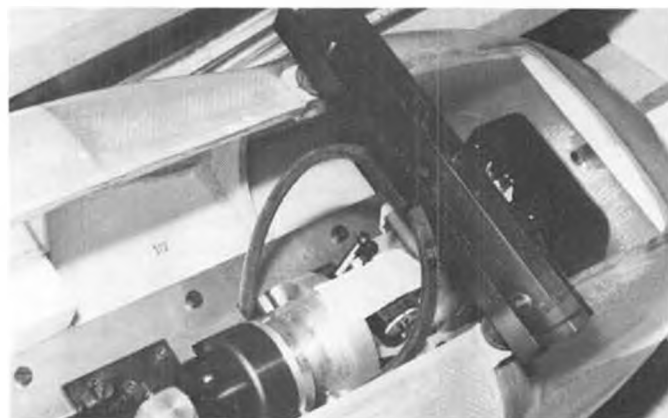
While the fuselage assembly was curing, I sanded and sealed the rotor blades per instructions. My personal preference is to resin finish and spray appropriate K&B Superpoxy color, rather than cover with paper. In this case, however, I did follow the instructions and used the covering material supplied with the kit. Be sure and work on a *clean* bench,



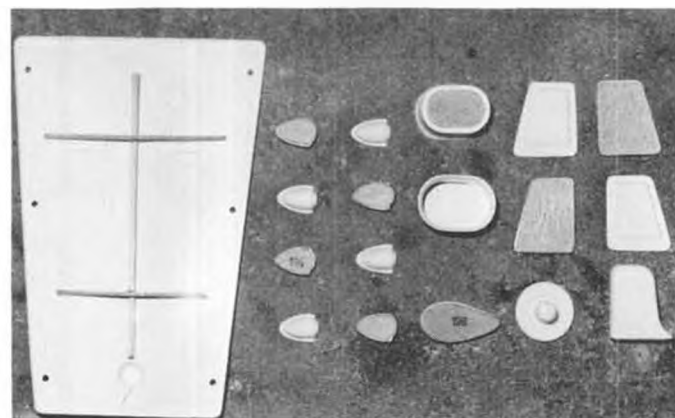
Fitting the main rotor shaft. Can that be a Tauri in the background?

since the adhesive on the back side of the paper picks up every little speck of airborne lint, which will definitely show through the thin paper covering when finished. The blades balanced perfectly when done; Graupner makes a point of matching the blades from identical wood. The metal straps for balancing the tail rotor blades are very handy and do a fine job . . . they could be used for other blades as well.

Back to the fuselage now, and making



Engine assembly installed. Starting belt rests in landing gear bracket when not in use.



Plastic parts with wood veneer cemented in place. See text.



Trainer modification upper bearing imbedded in epoxy.



All servos installed. Radio receiver on right side, battery on left.



Adjusting pitch arms.



Final installation of tail rotor gear box. Yup, sure is a Tauri!

the lower formers which support the landing gear. UHU-Coll cement was used to laminate the formers and Endfest for gluing in position to the fuselage. The only problems I had in this area were in locating Part 127 on the plans or instructions, and the instruction to cement former 115 in place did not appear to be in logical order. A little common sense and checking parts dimensions cleared up the problem and the rest of the assembly went along O.K.

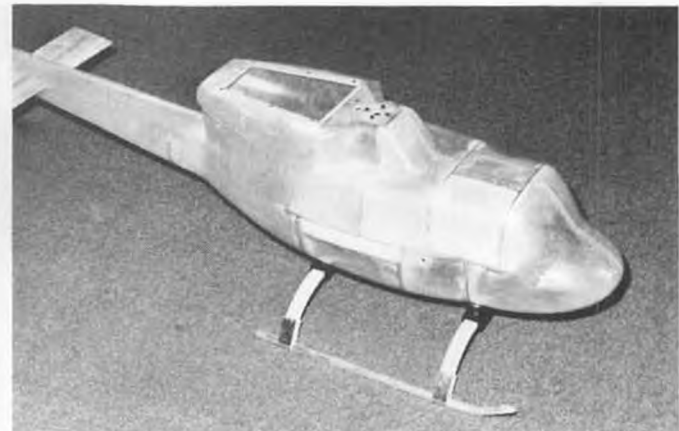
Some modifications were made to the servo box as the original drawing was for the mounting of different type servos

than those generally in use in the United States. Parts 133, 135 and 136 were discarded, and only Parts 134, 137 and 138 were used to make a basic frame which would accommodate my Orbit servos. Hardwood servo rails were glued between the two 137 formers so the servo output arms are positioned at exactly the same height as indicated on the plans. Incidentally, the plans show all servos in the neutral position and if you make the linkages and rods according to the exact measurements and position the servo output arms in the illustrated positions, you will save endless hours of

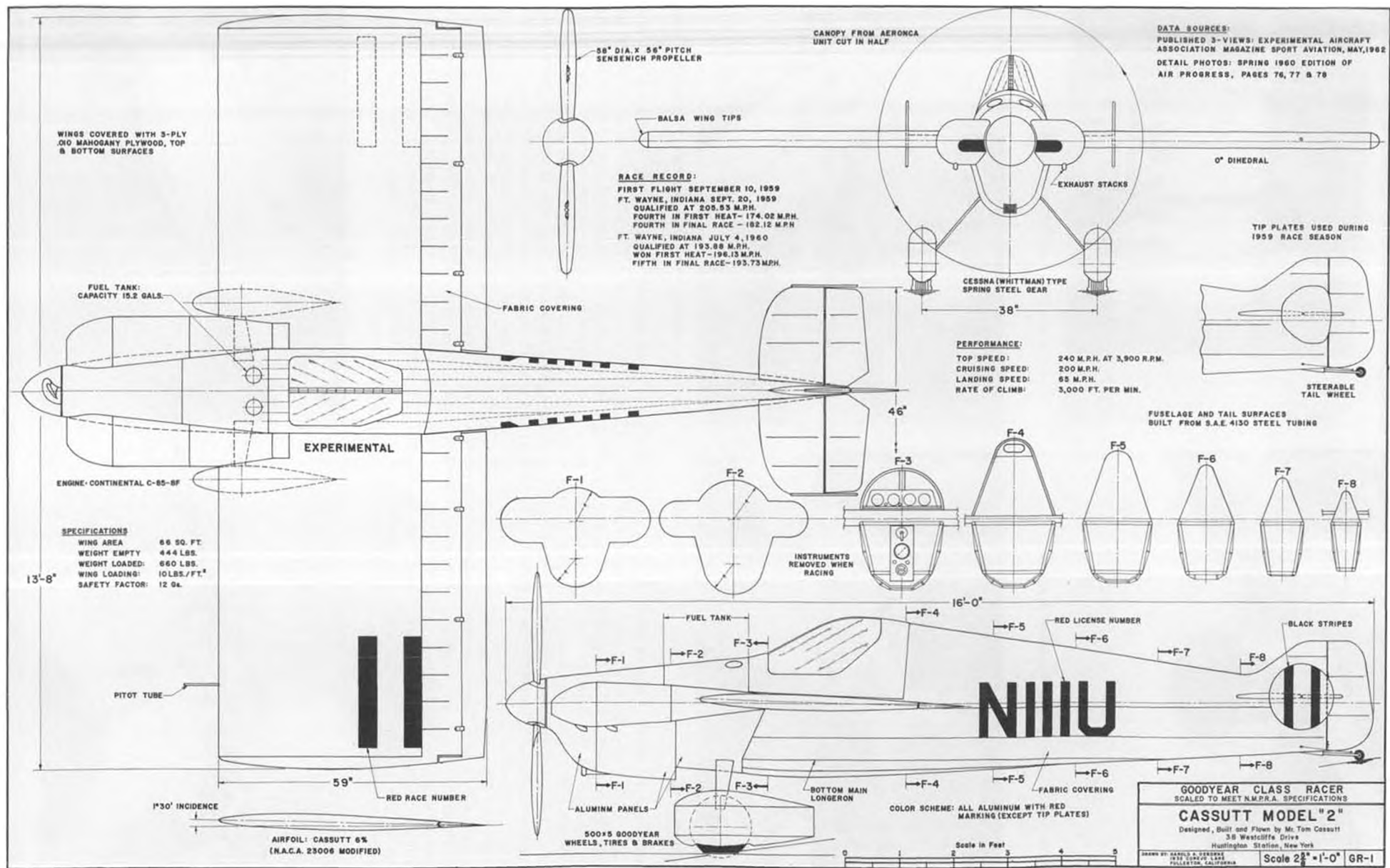
work in the final hook-up! A new Part 136 was made, slightly larger, to provide better support for bracket 138. The instructions were very inadequate for the installation of the bellcrank shaft assembly. The description in the instructions did not match the plans, parts were numbered incorrectly, and some parts were missing or different materials substituted. This is not a big deal since any R/C modeler can jury-rig his own bellcrank assembly, however, it was a disappointment in view of the excellent detail work on the rest of the kit. *Continued on page 80*



Clamping gear skid straps prior to to drilling for mounting bolts.



It's beginning to look like a helicopter! Preliminary assembly of landing gear.



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

At 2"=1'-0" scale, wing span 28", wing area 300 sq. in., plan size 3 x 5 feet, price \$2.00 (Includes First Class Postage).

At 2-5/8"=1'-0" scale, wing span 36", wing area 467 sq. in., plan size 3-1/2 x 6 feet, price \$3.00 (Includes First Class Postage).





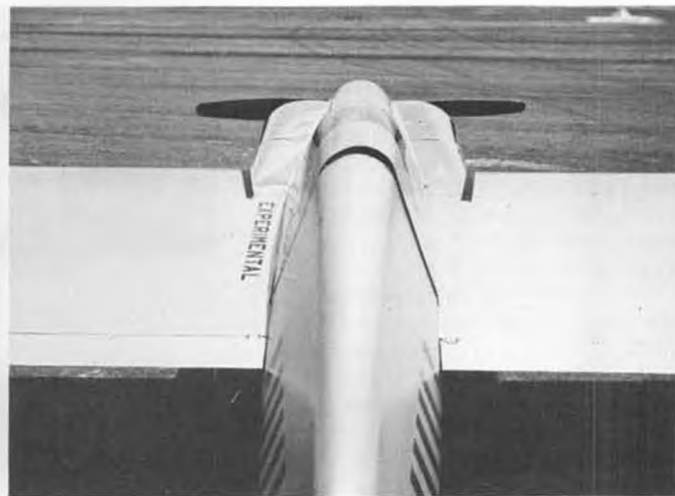
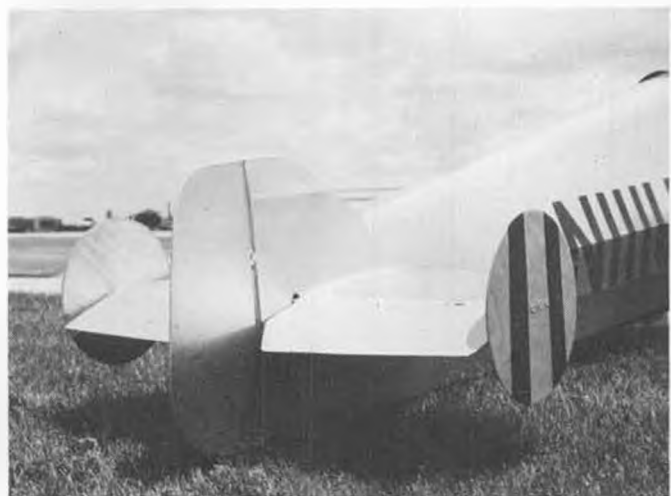
## CASSUTT MODEL 2

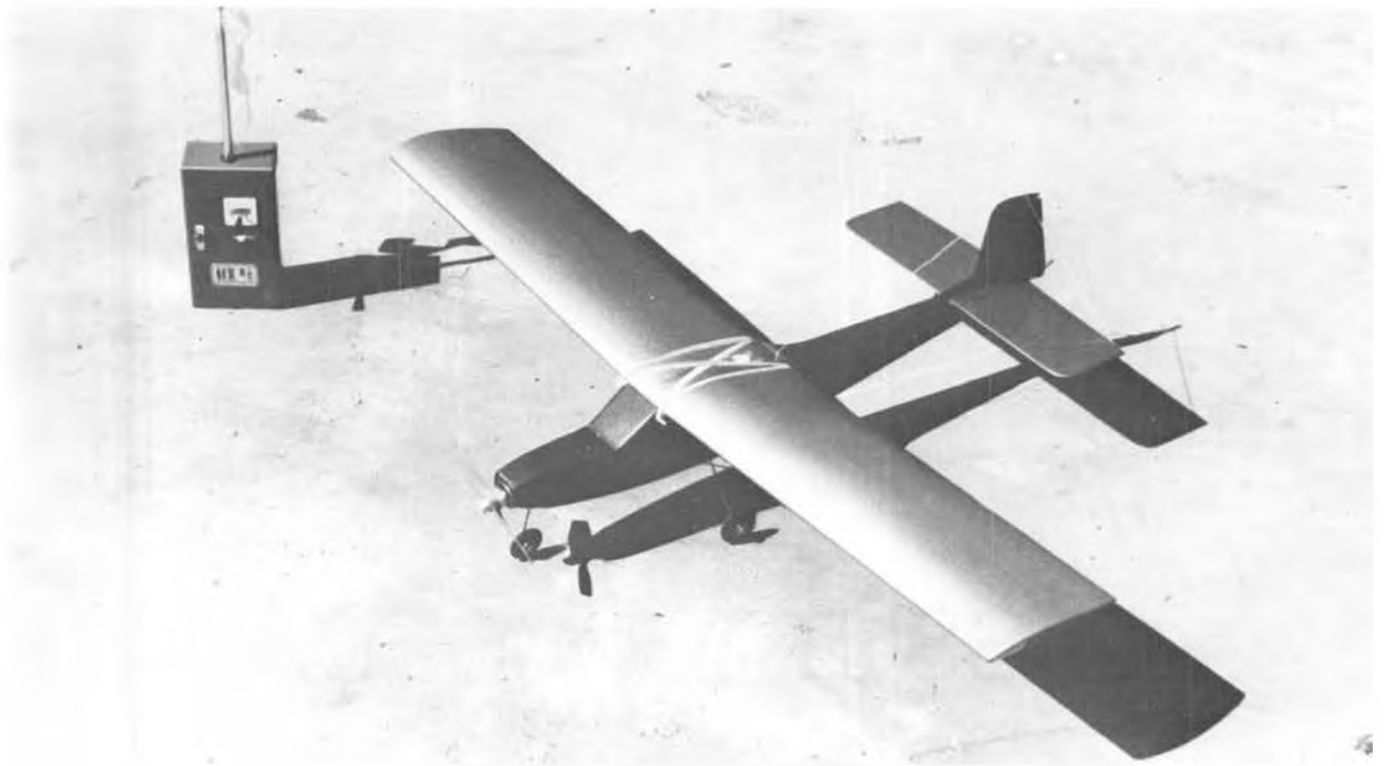
By HAROLD OSBORNE

- This is the earliest design by Tom Cassutt. It was raced by Cassutt in 1959 and 1960, and was then sold to Capt. Jan Christie, of Scandinavian Airlines. Unfortunately, the aircraft was later destroyed in a hangar fire.

The aircraft in the drawing was the basis for further Cassutt designs. The later Model II had more vertical tail area, and an 11% airfoil replaced the previous 6% "razor blade."

Plans were made available so that homebuilders could produce fast, safe, flyable private airplanes without spending years in design. •





A 17 ounce package of fun and relaxation; Ace Radio Control Dick's Dream with Ace Pulse Commander and Astro Flight 02 electric motor.

## PRODUCTS IN USE

Astro Flight's Astro 020 electric motor, plus Ace Radio Control Dick's Dream and Pulse Commander radio.

By KEN WOLF

● As one of the old timers who has been fascinated with electric R/C flying, I drop in periodically at the Astro Flight offices located near my own plant. On a recent visit, while talking to the Boucher's about my Astro 25 powered Bushmaster, I noticed a very small motor on the desk. I was told this was the prototype of their new 020. I asked if I might flight test it. They accepted and suggested that I try the motor in a proven single channel kit. I chose the "Dick's Dream," by Ace Radio Control.

We then called Paul Runge at Ace and told him what we had in mind. Within a week we had the "Dick's Dream" kit and a Pulse Commander radio unit.

The choice of the "Dick's Dream" proved to be excellent. About a week later I called the Boucher's to tell them that the model was ready and that they should meet me in the vacant lot near my plant for the test flight.

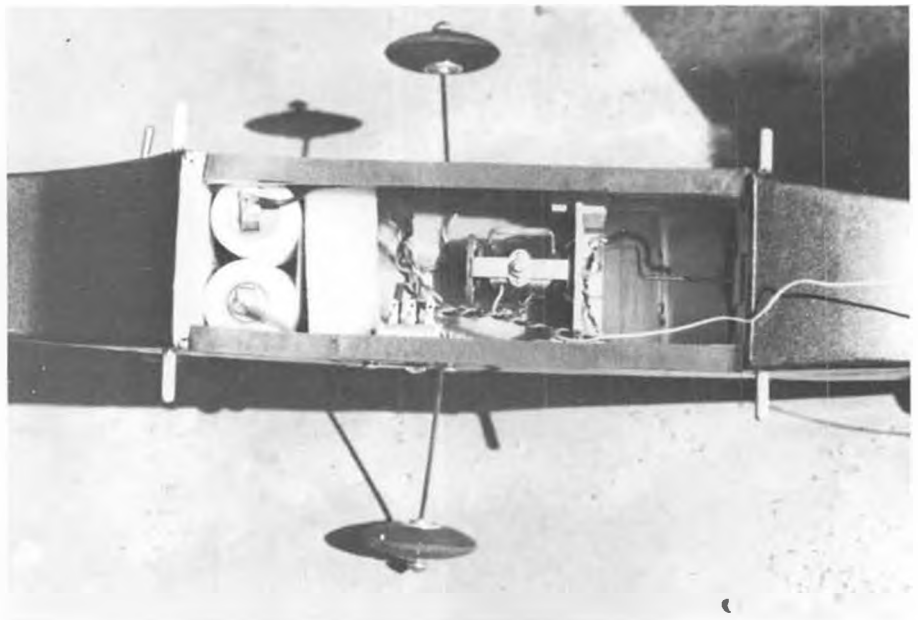
Since there had been much speculation about the performance of this combination, I had also invited another one of my old timer flying friends, Dean Kenney, whose experience goes back to Bonner Specialties, pioneers in radio control flying.

When we all gathered at the field, we were rather dismayed to find that we

were standing in mist hovering between a sprinkle and a rain. However, we were determined to test the "Dick's Dream" and sought the shelter of a large tree to protect ourselves while we were rigging the airplane and charging the battery. The four participants attending this

monumental test flight represented a hundred cumulative years of gas model flying.

As you can imagine, there were a number of suggestions and opinions as to how the first flight should be conducted, and also whether the airplane

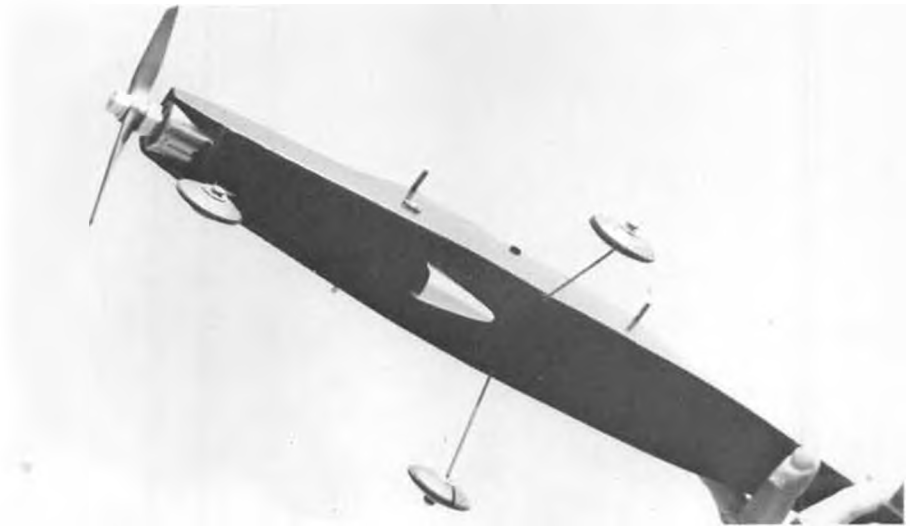


Electric everywhere! Two large cells in front (left) power the Astro 02 motor. Ace actuator is next, with foam wrapped receiver under. Receiver batteries servo taped next to rear bulkhead.



**Motor installation. It is cemented into hole in firewall. Air inlet and outlet holes important.**

would carry the water load which was sure to accumulate the moment we got out to launch. The two electric experts were chosen for the initial test flight, with Roland Boucher on the stick and Bob Boucher launching. The motor was turned on and the plane launched. The model headed for a group of tall trees about 200 feet away. Roland compensated with a left turn and immediately discovered that we had a nose heavy condition, because on turning, he lost altitude. After a hairy pass between two trees, he then went into a right turn to see if we had any better condition counteracting the torque. This turned out to be a saving maneuver, and on the return leg of the first circle, the model continued to gain altitude and we enjoyed about a three minute power run during which some maneuvers were attempted to get used to the Pulse Commander's reactions.



**Air scoop for cooling motor batteries. With proper cooling, batteries will last for thousands of flights. Air must also get out. Vent through wing over hatch handles this.**

After about a five minute flight, we were aligned for landing and discovered that we were coming in quite fast, which we attributed to the balance condition. However, there was no damage as the weeds in the field provided a nice landing cushion.

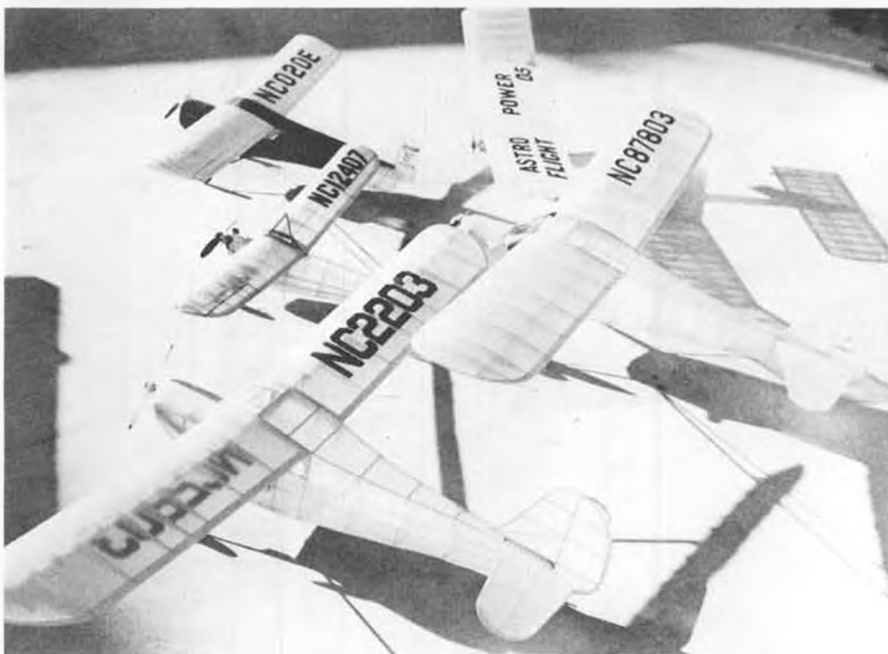
After a few moments of discussion . . . you can imagine, with a hundred years of expert opinion . . . it was decided that we needed a little incidence in the wing. There was also some discussion about the propeller being used, so we changed from the Top Flite 5x3 to a Cox grey plastic 5x3. This time the drizzle had stopped and we were ready for some serious evaluation, whereupon the author took the control box and the second launch was executed. We knew we had the trim right this time. It took only a minute to get about 800 feet altitude. After a couple of circles in either direction, Bob Boucher took the stick to

evaluate the performance characteristics in acrobatic maneuvers.

We found that the model rolled to the left best, but this, of course, we attributed to torque with no elevator control. This time we got about an extra minute of flying time due to the altitude we had acquired in the initial climb-out, where the maximum thrust occurs.

The landing this time was routine and uneventful. The following week we decided to take the model to the Oxnard Air Force Base, where we fly with the Camarillo Flying Circus. Sonny Myers, a well known Quarter Midget racer and scale builder, who built the prototype of Jack Stafford's B-24 Liberator, was

*Continued on page 84*



**Here is a gaggle of free flight electric powered models by Tony Naccarato. Most are Astro 02 or 05 powered. Awkward at first, electric power is becoming more and more refined.**



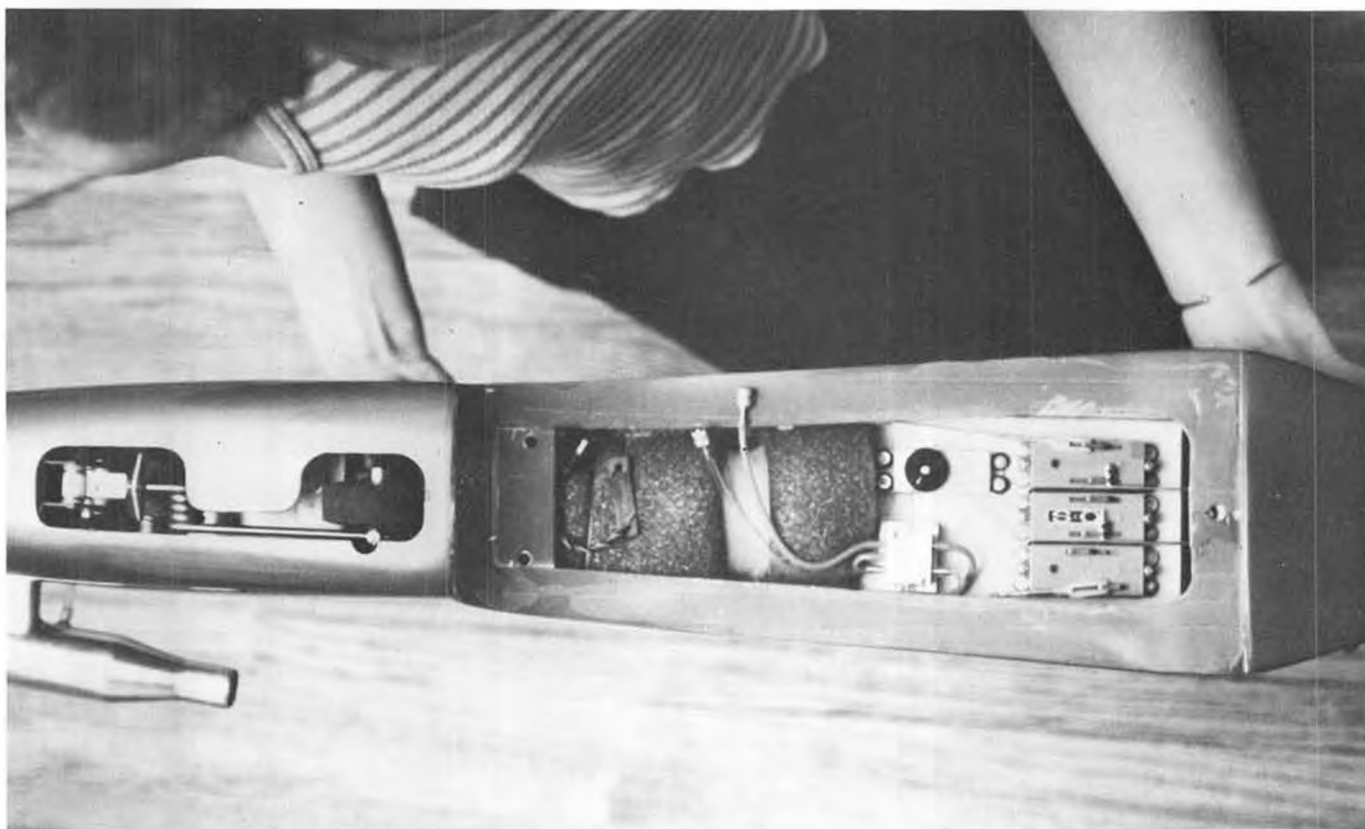
**The smiling author with the test set-up. A perfect combination for the young at heart.**



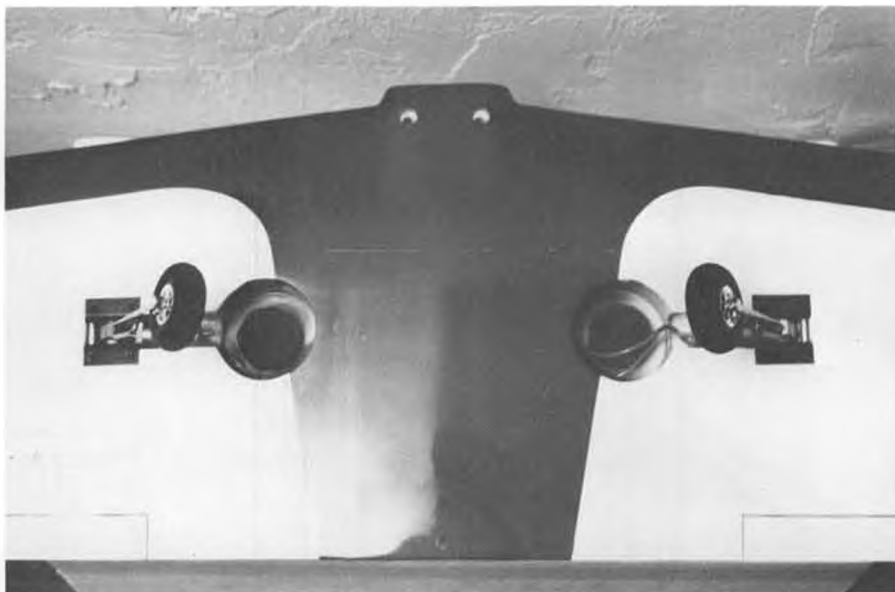
## PRODUCTS\$ IN USE

Bridi Hobby Enterprises "Dirty Birdy."

By CHARLES LARKEY



This very neat installation shows the Rhom retract air switch and the servo installation. Receiver and airborne batteries are wrapped in foam. Wide wing fillet gives odd shape to fiberglass fuselage in this view. Air lines lead to retracts in wing.



Underside of wing, showing main gear in partial retracted position. Note foam pad to absorb fast action of pressure retract system. Finish is K & B Superpoxy.



Fully retracted main gear in wing well.

● The "Dirty Birdy" is the new pattern airplane for 1975 from Bridi Hobby Enterprises, Fiberglass Division. Designed by Joe Bridi primarily for FAI competition, the Dirty Birdy is causing a lot of excitement in all pattern circles. At the first pattern contest of 1975, the Southwestern R/C Championships in Phoenix, Arizona, pre-production Dirty Birdys placed 2nd in D expert, 1st and 3rd in B, and 2nd in A pattern.

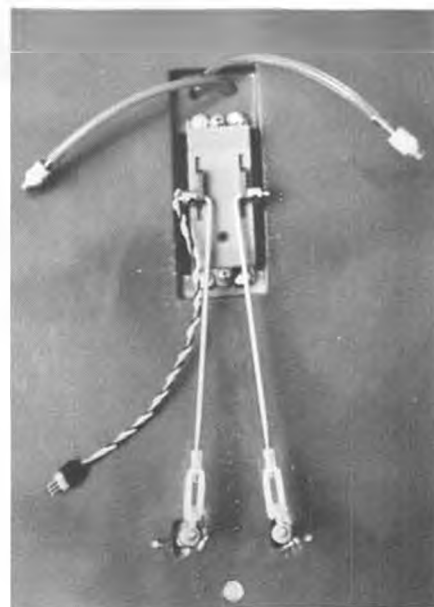
The kit contains an epoxy glass fuselage; foam wing with 3/32 inch balsa sheeting; foam stabilizer with 1/16 inch balsa sheeting; machined balsa and hardwood; hardware pack (including motor mount); plans; and written instructions. All the parts are of excellent quality.

Construction of the Dirty Birdy is similar to most fiberglass pattern air-

planes. These techniques have been published a number of times, so I won't go into them. For the modeler who has never built a fiberglass airplane before, a complete set of instructions are included.

My Dirty Birdy was built and finished in about three weeks. I used 3/4 oz. fiberglass cloth and resin to seal all balsa parts, then two coats of K&B Primer followed by K&B Superpoxy Paint. Power was supplied by a Supertigre G60 ABC. The radio I use is the S. and O. Mk II. Retracts are by Rhom.

The Dirty Birdy is a pattern ship, that in the hands of a good flyer, will be hard to beat. There is still time to build before the summer contests, so get going. ●



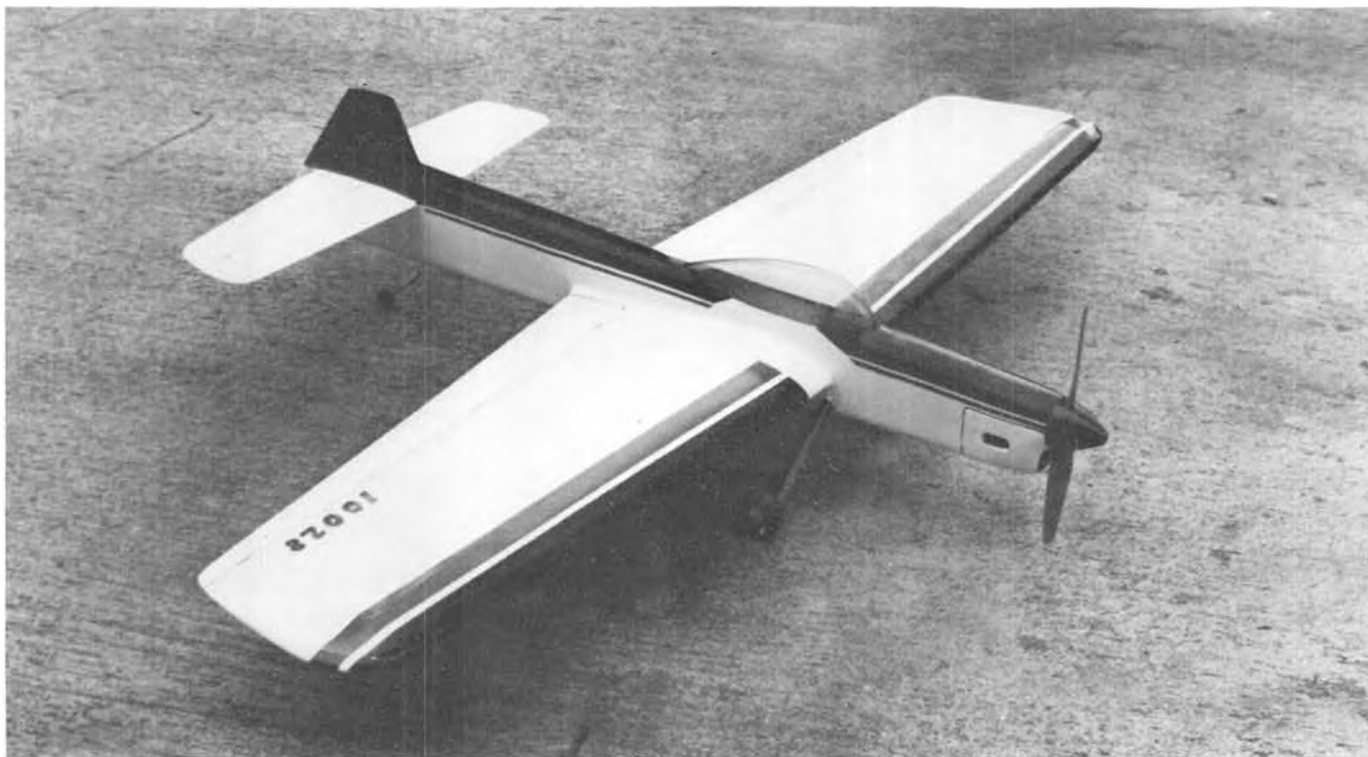
Top view of wing center section, shows aileron servo and air line connections to retracts.



Supertigre G60 ABC engine with venturi muffler and pressure take-off. Venturi mufflers have stupidly been ruled out by FAI.



Charles Larkey's Dirty Birdy in a moment of glory. It was mid-aired a short time later . . . snif!



# “GREMLIN” Half-A Stunt

By TOM DIXON . . . Build an economy size control line stunt model that need not make excuses to anyone. It will do the complete schedule in a clean manner . . . and at much less cost in materials and fuel.

● Last year, L.M. Cox sponsored an event for their ME-109 Super Stunter at the Nats. I had such a blast that I decided to see what could be done to make a Half-A “really” fly stunt.

When Dick Mathis published the “Pinto,” I built one and found it had potential, but suffered in the way as its big brother, the “Oriental.” It was too fast, and wobbled some in the squares, due to the straight wing. The Gremlin represents another step forward in Half-A stunt. It uses a thick tapered wing, long moments, and a Cox “stunt special” engine. The result is a small airplane which can be competitive in most local level contests.

Further work could still be done, possibly, and I’m not stopping with this model. I think one could go even larger, such as 40 inch span, if you run a double-port engine.

## WING

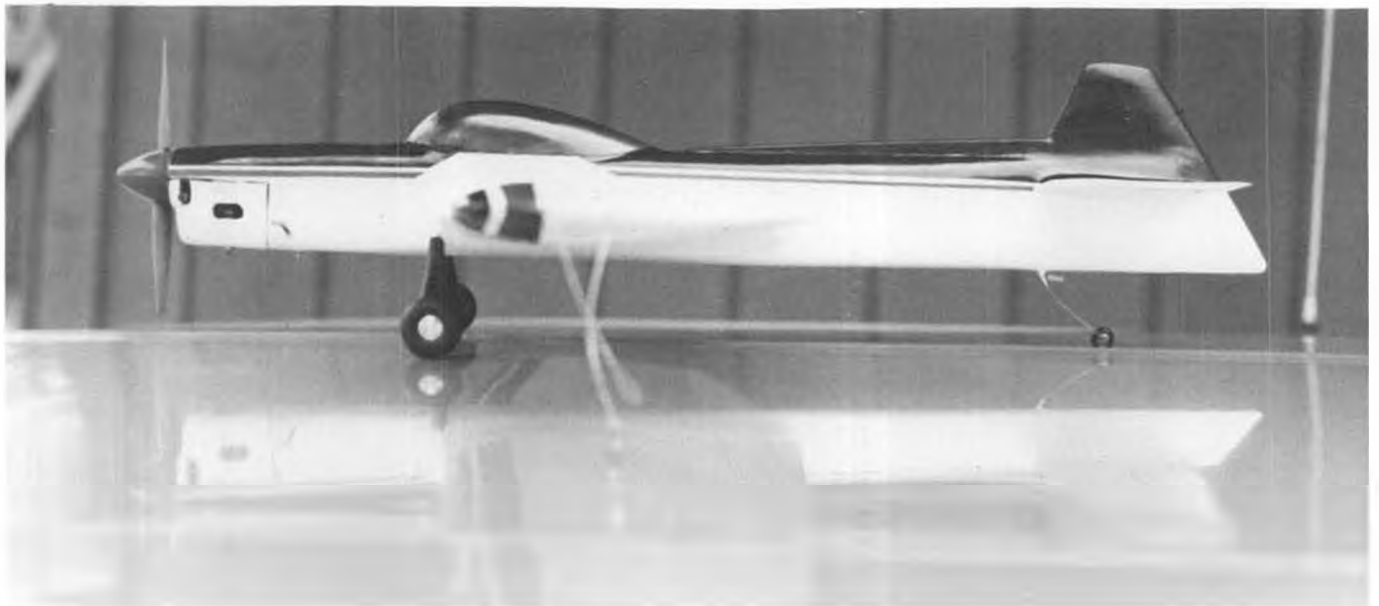
Construction is very conventional, being merely scaled down “big airplane” style. A few notes concerning some details are in order however.

Use light wood everywhere, except the leading and trailing edge sheeting. Medium weight, long grain wood is used here to avoid sagging under the covering. I would strongly recommend adjustable



At first glance, both in this photo and the one above, the Gremlin has all the looks of a “full” size C/L stunter. It will do the complete schedule, and is competitive in most local level contests.





Profile of the Gremlin again has that "air" of being a big stunt ship. One thing that's not big, is the cost of building it!

tip weight, and maybe adjustable lead-outs. I had to cut the covering on the original twice before I got the tip weight right.

Controls should be set up "slower" than for a large stunter. That is, requiring more handle movement for the same amount of control movement. Half-A models are much more sensitive than large models in this regard. Bushings are not necessary.

Sheet top and bottom of half the wing at a time to avoid warps as the glue dries. Be sure to round off the leading edge adequately.

#### TAIL

Ultra-light wood is mandatory here. If necessary, cut out center of stabilizer and elevator and use 1/32 ribs.

#### FUSELAGE

Note that the fuselage is very narrow. It will be necessary to notch out the motor mounts to fit the engine crankcase between them. The tank is made up from a 3/4 oz. Perfect tank with half of another one soldered to the end. This gives runs of seven to eight minutes. Vents are conventional type. Top and bottom blocks should be hollowed aft of the C.G. in order to eliminate as much tail weight as possible. Also, do not eliminate the Nobler style cut-outs in the fuselage sides.

Cover all surfaces with "00" silkspan or Japanese tissue. Use only a minimum (3 coats or so) of clear to tighten and seal the covering. Follow this with 1 filler coat and wet sand with 400 paper. Spray a light coat of silver overall to block ink marks and fillets. Spray a minimum amount of color and trim and seal with one coat of sprayed clear. This should give a finished weight of about 12 ounces, and require only a small amount of ballast in the nose.

#### TRIM AND FLYING

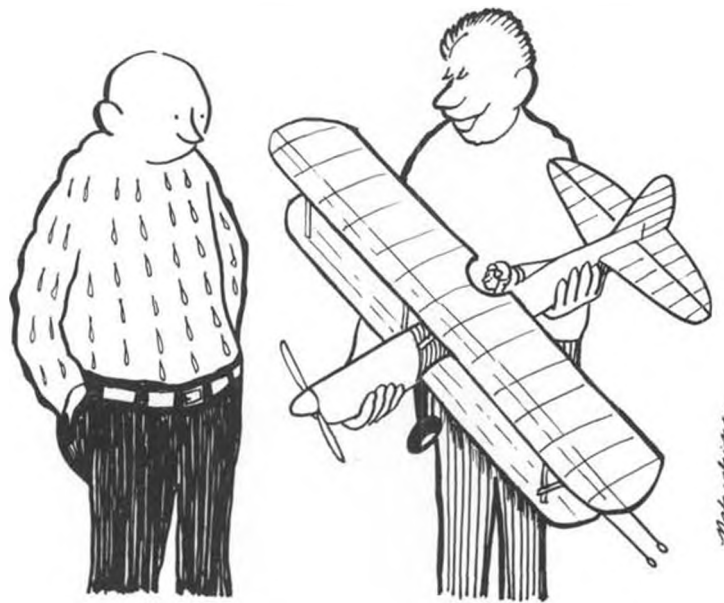
Start with the model balanced at the

point shown on the plans. This is critical. Any further aft and you will have a handful. I use a Cox plastic handle to which I've added .018 cable and a set screw for adjustment. Use the middle set of holes in the handle to avoid over control. With the engine I use, 42 ft. .008 lines are about right.

The "stunt special" engine is a TEE DEE .049 with Kirn-Kraft needle valve, single port Babe-Bee cylinder, and low compression glow head. On a 6-4 Cox prop, this set-up gives plenty of power and even sort of four cycles like a "real"

stunt engine. I run regular 5% Nitro Sig stunt fuel. More nitro only makes the engine hard to set.

You will find the Gremlin capable of doing everything a competition stunter should do. It squares especially well. Experiment with line spacing at the handle, C.G. position, line length, and props until you get the plane trimmed to suit you. I hope you enjoy it. If you have any comments or questions feel free to write me at 9025 Hurst Court, Jonesboro, Ga. 30236, or c/o MODEL BUILDER. ●

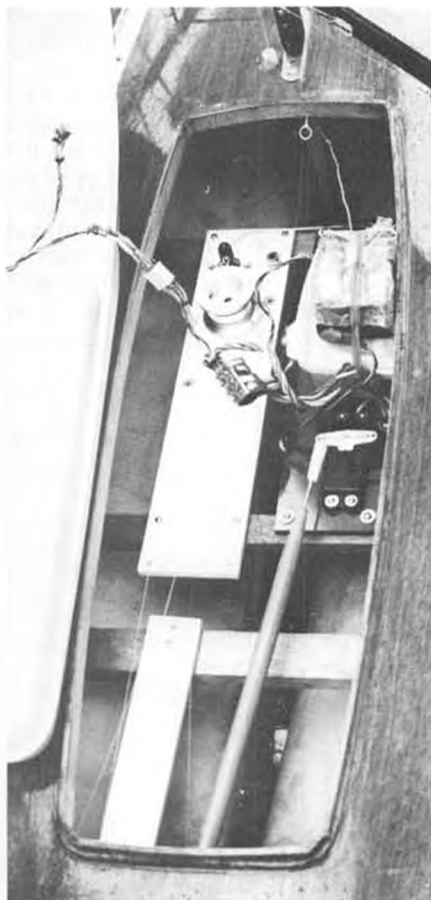


"You've heard of 'Old Timer' free flight haven't you? Well, this is an example of 'Old Timer' stunt."





Did someone say, "Let's have an R/C sailing regatta."? A whole flock of Marblehead boats gathered for a regatta at Sasayama, Japan. The photo was sent to us by Ritsuri Honda, President of the Japan Model Yachting Society.



Sheeting system in a Marblehead class boat as sold by Kobe R/C Center, in Japan.

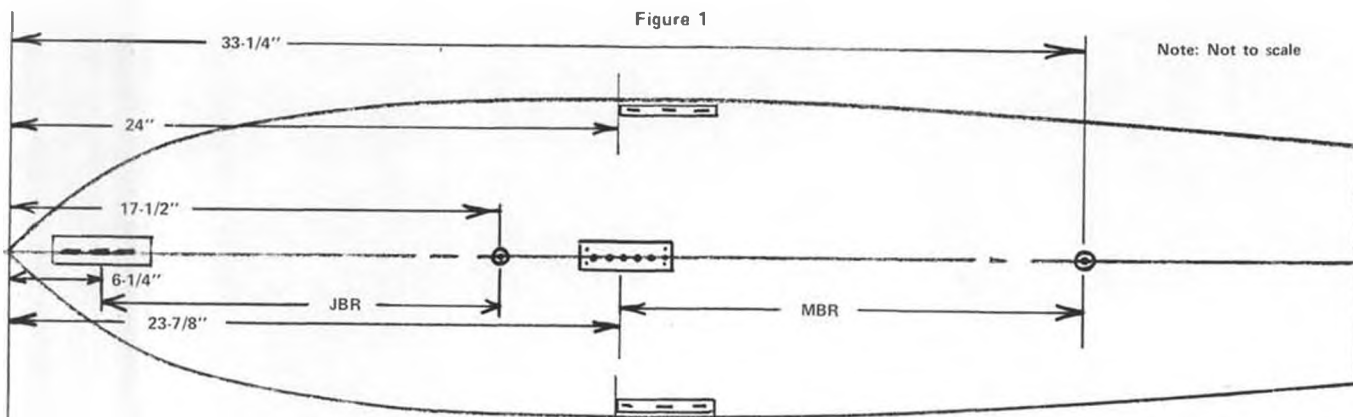
# STRICTLY SAIL

By ROD CARR

- To complete our YANKEE, we next mounted deck hardware as shown in Figure 1. In the interest of lightness, two departures were made from our previous fitting list. First, a three-eye shroud and stay plate was used instead of the jib rack on the centerline forward. Measurements are given to the center



Two Marbleheads at work in Sasayama Regatta, Japan.



loop of the stay plate. Secondly, a proper sized hole was drilled into the foot of the mast and a 6-32 bolt with the head removed was epoxied in the hole with about 3/16 inch protruding. After it cured, the threads were filed off, and the diameter of the stub measured. Then a 4 inch long brass plate was drilled to accept the stub as well as two flat head screws for mounting to the deck. (See Figure 2). Also, an aluminum chunk was shaped as in the figure to serve as the lower anchor for the main boom vang.

Mounting of the sheet exit guides poses some special problems. For a complete discussion of the winch/winch arm/sheet exit guide/boom attachment technique, intrepid AMYA President Bob Harris has available a monograph. Write to him at 7628 Dunston St., Springfield, Va. 22151. A stamped, self-addressed envelope is suggested. Here, we will abstract from his treatment to specifically cover our current installation. We have set up the Little Hercules winch in the prototype YANKEE to rotate 120° between the close-hauled and running-free positions. We also know that we wish both jib club and main boom to rotate about 85° between close-hauled and running-free. Additionally, we can measure the arm length which will fit easily inside the YANKEE, and discover that the radius of the winch arm which we can work with is about 4-1/8 inches.

Now, using the graphic calculator in Figure 3, we can enter the vertical axis with 4-1/8 (the length of the double purchase winch arm). Proceed horizontally to the right until we intercept the line labeled 120° (the angular swing of

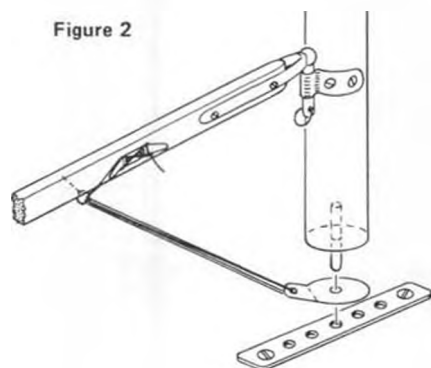


Figure 2

the winch arm). Drop vertically downward at that point to the horizontal axis and read off the amount of jib or main boom radius that you need (10-1/2"). From the point where the main boom swivels (the gooseneck) measure out the MBR (main boom radius) distance and put a small screw eye under the boom to receive the main sheet. In a like manner, measure from the jib swivel out JBR distance and put a screw eye under the club to receive the jib sheet. Directly under these positions on the centerline of the deck is the preferred location for the sheet exit guides. You can simply measure from the points indicated on Figure 1 to locate your sheet exit guides.

Remember, you need to know how many degrees your sail control unit arm swivels, and you need to know the length of the radius of the arms of the SCU. Then, enter the graph to find out where the boom attachment-points are for the sheets, as well as where to put the sheet exit guides.

Attachment of the sheets to the booms is easily accomplished by cleating the free end to a cleat after it has passed through the eye we previously fixed to each boom. Put the cleat about halfway down toward the gooseneck or swivel, and put it on the underside of the boom.

This will prevent it from snagging other boat's rigging when maneuvering in "close quarters." You can also easily change the close-hauled position of the sails by adjusting the cleated end without opening the boat to get to the bow-sers we put on the other end of the sheets. You can also put another screw eye into the main boom, about 4 inches out from the gooseneck, for the vang to pass through. A second cleat will go on the underside of the boom for securing the vang. A discussion of the role of the vang in mainsail control will be found in the Sept/Oct. 1974 issue of MODEL BUILDER.

Figure 4 shows the basic dimensions for the mast and rigging. The permissible location of the jib stay attachment point on the mast is given in the AMYA rules as 80% of the height of the main headboard bottom. On the prototype, we ended up with the main headboard 63.5 inches above the deck... 80% of that is 50.8 inches, but we dropped to 49.5 inches just to insure that a measurer would be easily satisfied. We used the jenny rack arrangement to support the jib head, however, remember that nothing which holds up the jib can extend beyond that 80% location. One wag has suggested that the test of legality in such a case is to cut the offending cable or

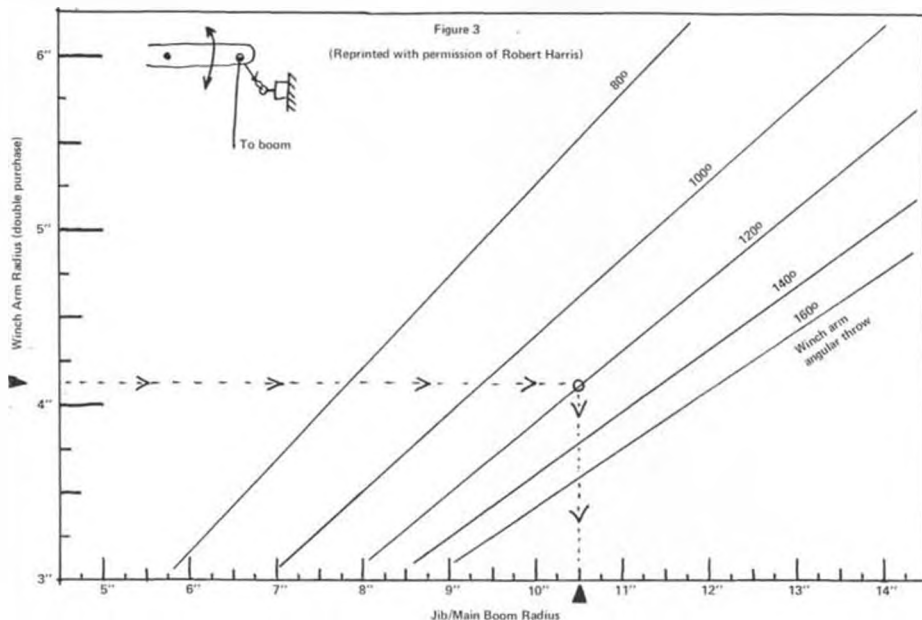


Figure 3

(Reprinted with permission of Robert Harris)

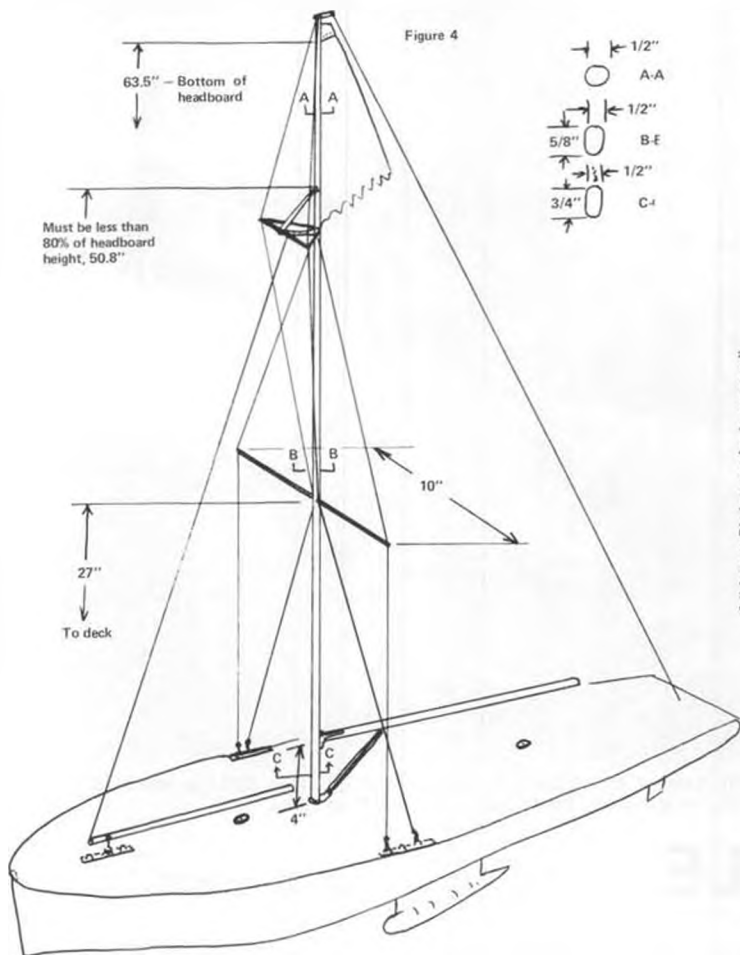
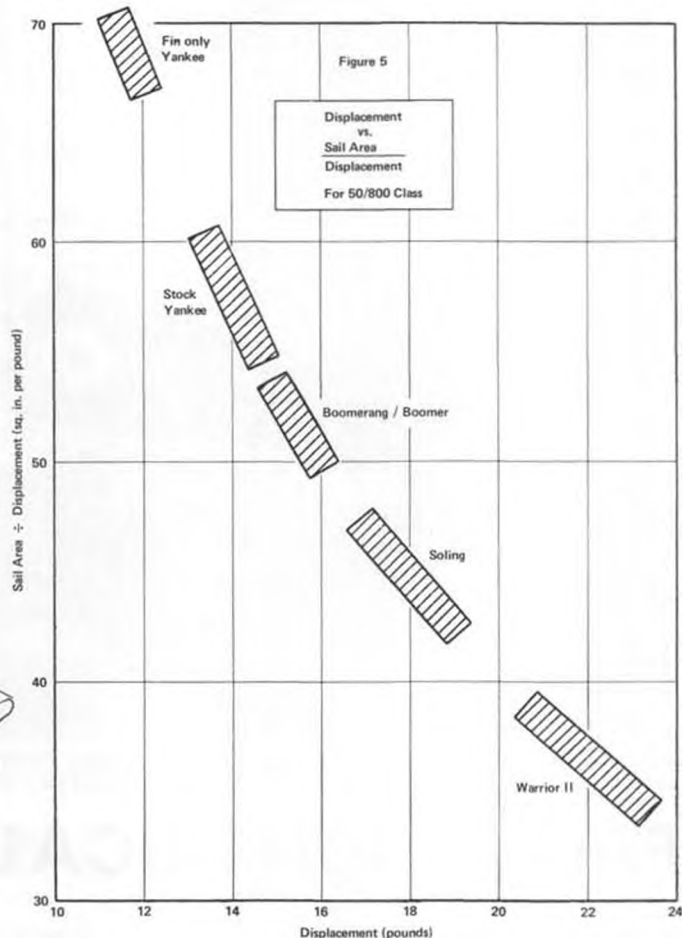
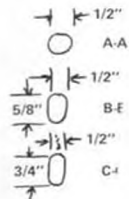


Figure 4



strut, and if the jib falls down the piece cut was illegal!! The jenny stays pass through arms of the jenny rack, but they are free to slide in the struts, and are not contributing to holding up the jib. The jenny rack was described more completely in the December 1974 MODEL BUILDER.

The mast cross sections shown on Figure 4 seem to be a good compromise between strength and lightness. In our case, the mast was originally slotted, but the slot was filled in with a pine sliver and some epoxy, then the mast was turned around and a line of round-head wood screws put in. A wire was tensioned in the lined up slots of the screws and soldered in place, becoming a "jackline." Our mainsail luff was treated to a series of dress hooks placed on alternate sides and now swivels nicely on its jackline when reaching.

Trim ballasting for sailing should be done with the winch batteries. Don't put any more weight aboard her than necessary in order that the acceleration of the boat remain at its potentially high level.

We'll have continuing comments about our YANKEE this season as we shake her down into competition trim. All trim and tuning discoveries will be passed right along to you.

We spent a morning with the lines from the YANKEE and thought that

some of the gathered technical data about the hull would be of interest to the budding naval architects among us.

Prismatic Coefficient,  $C_p = 0.52$

Wetted Surface:

As built stock, 574 sq. in.  
Bulb 4 lb., 5 in. fin, 479 sq. in.  
3 lb. lead in 5 in. fin only,  
442 sq. in.

Center of Effort of Sail plan:

On main luff, 22 inches above the deck.

Lead:

Sail plan Center of Effort is 2.5 inches forward of Center of Lateral Resistance of hull underbody.

Center of Lateral Resistance:

27-3/16 inches aft of bow.

Center of Buoyancy:

27.37 inches aft of bow, which undergoes an aftward movement of about 5/8 inch when heeled 20°.

Wetted surface change with heel:

Only about 40 sq. in. decrease with a 20 angle of heel. This is contrary to one's guess when looking at the hull.

Finally, I plotted the displacement of popular 50/800 class models against the sail area/displacement ratio (Fig. 5). This ratio is telling us how many square inches of sail area are pushing each pound of boat weight. Sort of a power factor. While this plot tells us nothing

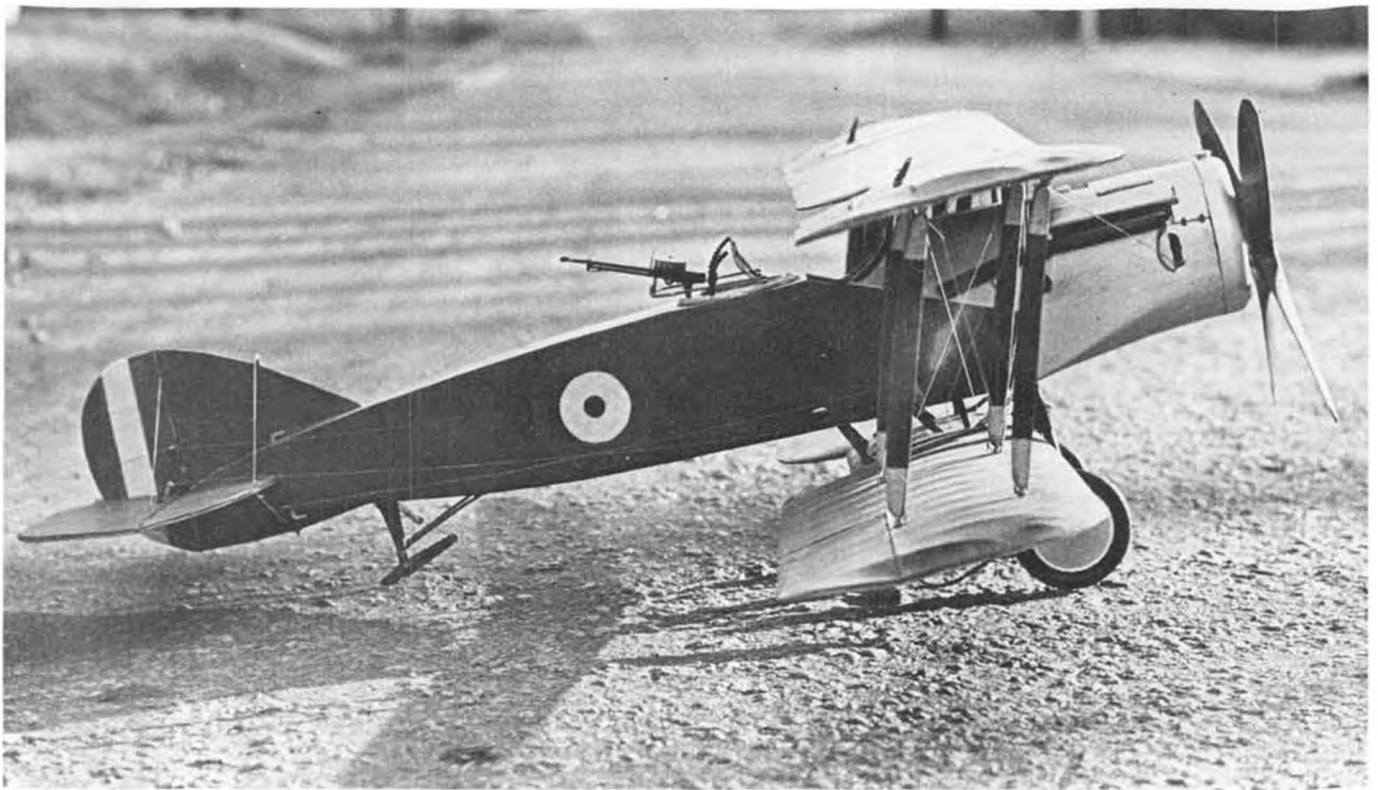
about top speeds, nor any of the other myriad factors which affect total boat performance, it does give us a good idea of acceleration potential. It is acceleration which will separate boats in a tacking duel, or in close work around buoys. It also will rank boats in the order in which we would expect them to begin planing.

This plot does not tell us any more than that a Warrior II has about 36 square inches of sail pushing each pound, while a Yankee has about 57 or so square inches pushing each of its pounds. 'Tis food for thought.

Our long awaited launching was completely uneventful. I'm happy to say that the boat floated right on her design waterline and needed no shifting of ballast to obtain fore and aft trim. Winds were gusty, in the 10-15 knot range, and we did see the first stages of planing developing on the reaches, but were more concerned with windward performance. The entire boat stayed dry as a bone, showing the benefits of preplanning the installation by utilizing ideas seen on previous vessels. April 27th will see her in the first out-of-town regatta, so we should have some relative comments on performance after that time.

Jim Gale, of J. G. Products, was nice enough to send us the latest version of his radial jib fitting. We can't resist swap-

*Continued on page 75*



Bristol F-2B fighter, scale 1"=1'-0", span 39-1/4", built by David Carroll, Raleigh, North Carolina. It's powered by a Cox .020 Pee Wee reed valve engine, and flies beautifully; power left - glide right. Scaled from Wylam drawings. Photo taken by John Paul Jones.

## FREE FLIGHT SCALE

By FERNANDO RAMOS

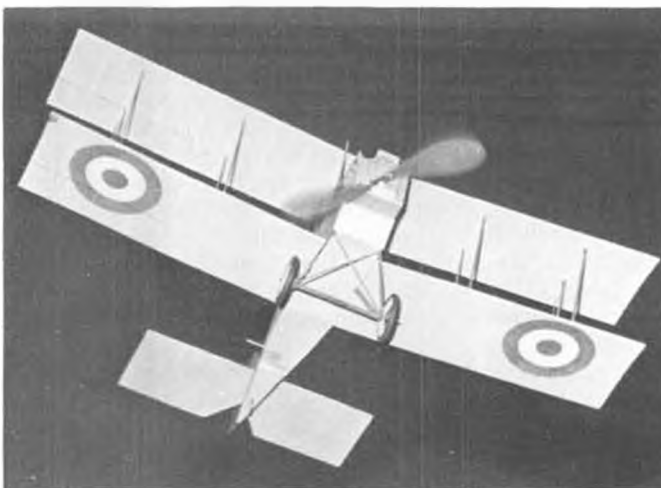
• The fuselage structure on most scale kits on the present day market use what is commonly called the half-shell method. This method for building fuselages has been around for a long, long time, and is particularly suited for airplanes that have round or elliptical cross-sections. However, in the many years that I have been modeling, I can count on one hand the number of fuselages I have built using this half-shell method. This ought to tell you what I think about this type of construction! I personally feel that there are more pitfalls with this system, and they can be very discouraging, especially for beginners. Yet, there

are many beautiful plans, such as the Cloudbuster's Racewings as well as "Flying Scale Models of WWII," published by MB.

It seems as though every time I would start a model with half-shells, the fuselage would only get partially finished. No matter how hard I would try to keep the bulkheads straight, there would be a couple that wouldn't cooperate. Stringers would never fit straight in the pre-cut notches, and on and on. Well, after going through MB's plan book, I wanted to build nearly all of the models within its cover, particularly a couple of Doug McHard's creations. The Hurricane and

the Messerschmitt had really appealed to me, and I wanted to build them both. But there I was, staring at my most unfavorite type of construction, and wondering whether it would be worth it or not.

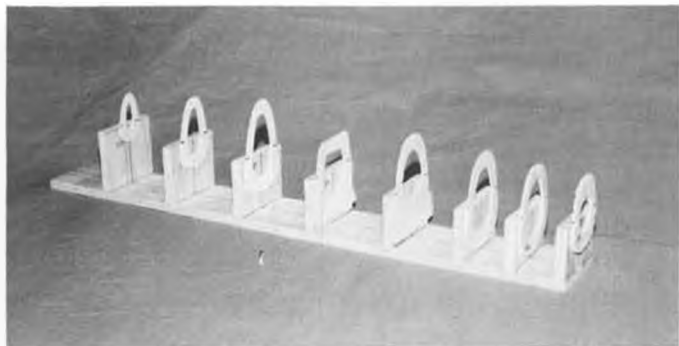
I decided to build the 109, but there had to be a way to handle the half-shells. I designed a jig that has eliminated all of the problems I have ever had with this type of construction. This holding jig is so simple, I wonder why I didn't think of it sooner. Look at the photo showing the jig. It is nothing more than a way to support each bulkhead in its proper location straight and true. The object then



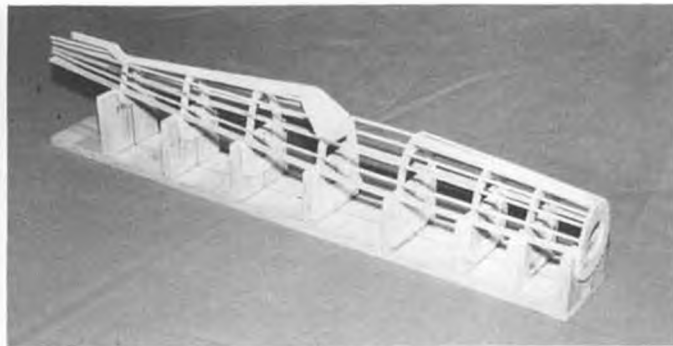
DH-6 by Don Stull, built from enlarged (to 20") Mooney Peanut plans. Won biplane class at Andrews AF Base contest. Preston photo.



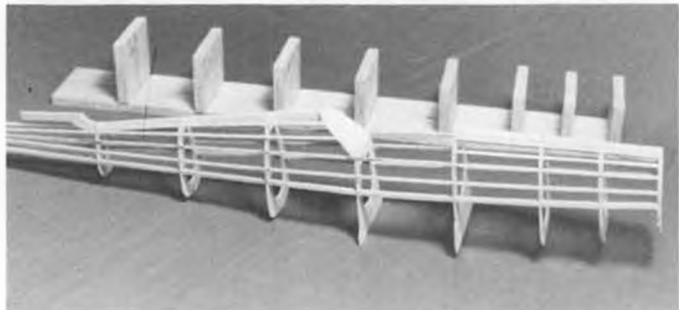
Bill Hunton's Boeing B-9, built from the old Cleveland plans. Seen at combined Metro Area Scale Soc. and D.C. Maxcutters contest.



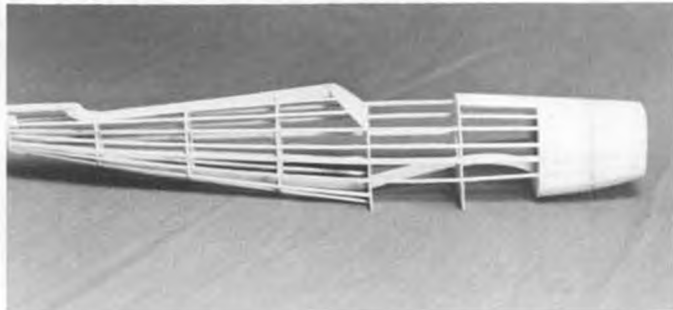
Bulkheads lightly rubber cemented to building jig in proper alignment



All stringers glued in place and allowed to dry.



Bulkheads are sliced loose from jig, and fuselage removed.



Lower stringers are added and fill-in sheeting inserted, ready to sand.

is to build the upper half of the fuselage, then when this is completed, the fuselage is removed from the fixture and the lower half is completed. Believe me, this really works and the end results will be most gratifying.

Let's see how this is accomplished. I used pine and planed it down to 1/4 inch in thickness. I realize that not everyone has access to a planer, but 1/4 inch plywood or even hard balsa, would do just as well. The width of the jig is determined by the widest fuselage bulkhead. Cut enough material for both the base and each vertical piece to this width. The height of each vertical member is determined one of two ways. Usually, the side keel is perfectly straight from the nose to the tail post, which means

that the vertical pieces of the jig will all be the same height. The actual height then is simply a little more than the deepest bulkhead from the side keel notch to the bottom of the fuselage. On the Messerschmitt, I wasn't as fortunate. The side keel was not straight, so I had to make each vertical jig piece a different height. To do this, I simply drew a pencil line about 1/8 inch below the bottom of the fuselage and parallel to the thrust line. Then I measured each bulkhead station from this line to the bottom edge of the side keel notch. I marked the base for bulkhead location, and lines were drawn at right angles to the center line. The vertical members were then glued to the base, making certain they were aligned on center and perfectly

square. This whole operation took only about twenty minutes to do.

Before going on to how the bulkheads are attached, and so on, let me cover some areas that can help with the making of the bulkheads, keels etc. Too often on a plan, the keel templates will not match the one shown on the fuselage drawing. Therefore I would suggest using the fuselage profile and top view for making the keels. If the keels are nothing more than curved graceful lines, laminate a couple of 1/16 inch square sticks over the respective drawings. Another problem that is often encountered is that the templates for the left and right bulkhead halves do not match when placed together. The way I handle this

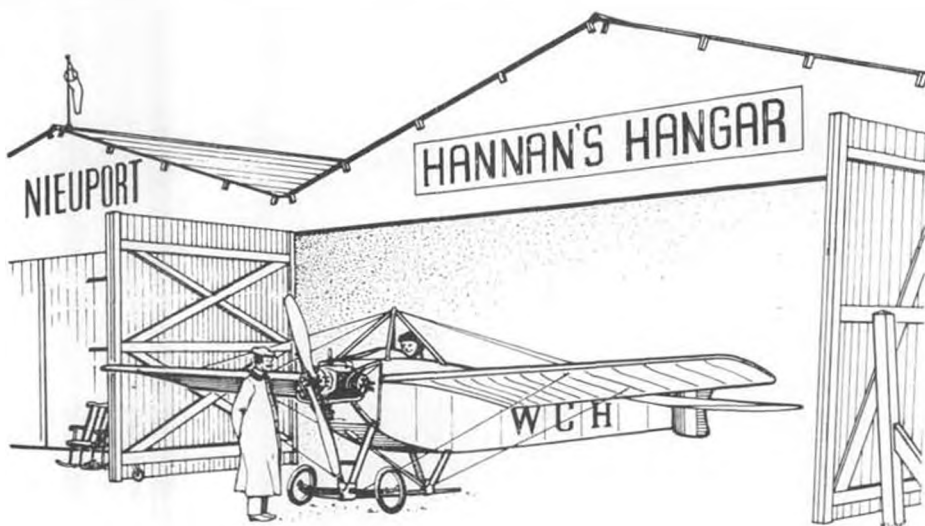
*Continued from page 87*



Don Srull launches his winning 24" Siemens Schuckert E-1 at Andrews AFB contest.



Close-up of highly detailed Bristol Fighter built by David Carroll, Raleigh, North Carolina. Photo by John Paul Jones.



... variety is the spice of flight ...

#### LINDBERGH IN RETROSPECT

● Many eulogies have been written since the passing of Charles A. Lindbergh, and certainly there is not much that can be added to the praise which has been bestowed upon this most deserving individual. Yet, the man remains much misunderstood. Within the past few months, we have had the opportunity to review a number of books devoted to Lindbergh and his deeds. These included some of his own writings, those of his wife, as well as works by other authors. It is important in undertaking such a study, to be aware that Lindbergh disagreed strongly with the majority of articles and books written about him by others, including those which glorified his deeds. He was subject to harassment by the press, probably to a greater degree than any other person, and yet, the power of the printed word was responsible, in a large measure, for his fame.

Lindbergh was a man of many facets. He was an ecologist long before it became "fashionable," and he had a particular aversion to land exploitation, and so-called "sport" hunting of animals. A measure of his consideration and thoughtfulness can be appreciated from noting that he even refrained from tossing a sandwich wrapper out of the "Spirit of St. Louis" when nearing the end of his first transatlantic flight. "I

don't want the litter from a sandwich to symbolize my first contact with France."

Lindbergh's first book, "WE," was copyrighted in 1927, and written in haste shortly after his epic flight. His "The Spirit of St. Louis," copyrighted in 1953, was his "revised" version of "We." It is doubtful if any other aviation related publication ever had more thought and research expended in preparation. Much of it was written during World War II, while Lindbergh was operating from various island outposts in



Model of Bleriot's Channel crosser, made by inventor's brother in 1910. Now on display in San Diego Aerospace Museum "Hall of Fame."

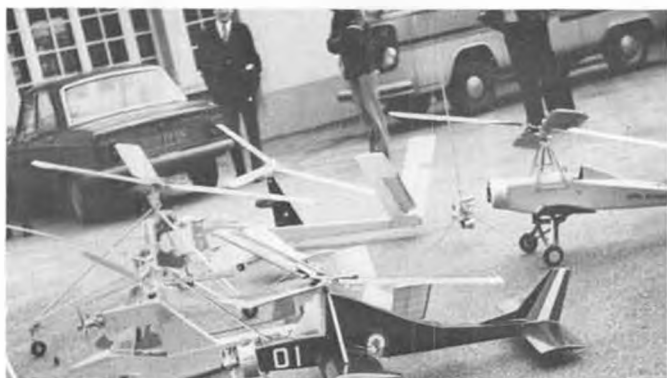
the South Pacific Theater, and this book is highly recommended to those who care to pursue his history further.

From a model builder's point of view, Lindbergh is almost unique, having virtually single-handedly been responsible for generating more interest in full size and model aviation than any other mortal. A spin-off from his famous flight was a virtual flood of newspaper and magazine articles, plus books, dealing with aviation in general and Lindbergh in particular.

*Continued on page 79*



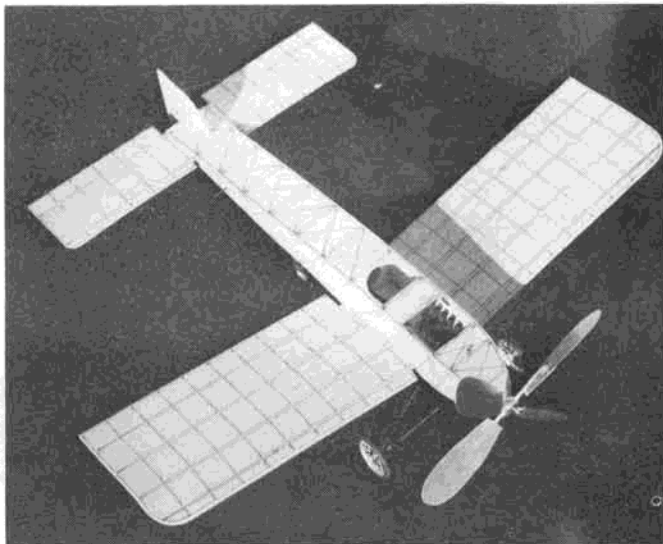
Parnell Pixie to one inch scale, by Bill Byshyn, Brooklyn, N.Y. Span is 17-1/2", length 18". It weighs 1.3 ounces.



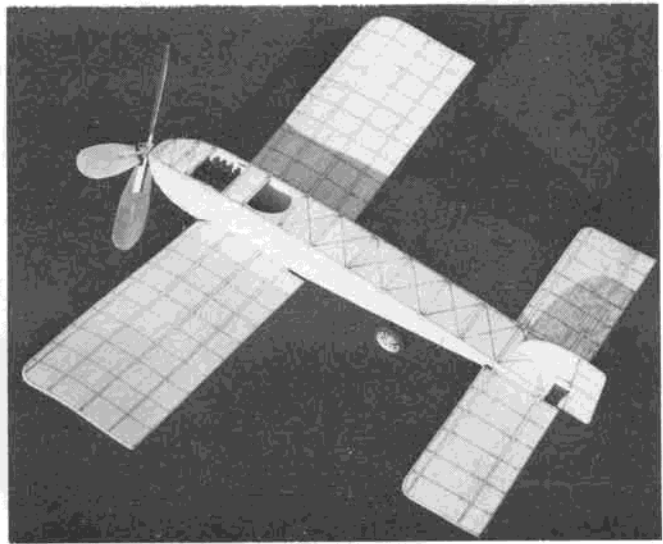
A collection of autogyros in France, both free flight and R/C. Photo by M.G. Chaulet. Rotorcraft in France are called marguerites (daisies).



Brown CO<sub>2</sub> powered Aeronca C3 by Daniel Walton. Ship is built to 3/4" scale and features realistic structure.



All sheet construction makes this an easy one to build. Detailing can be to either extreme, according to your choice.



Early Bleriot ship was not too successful in real life, but is an excellent flier as a model. Bleriot needed Mooney to trim it for him!

# 1908 BLERIOT IV

By WALT MOONEY . . . This model should get the fence-sitters into action . . . it's all sheet balsa construction, and turns in flights that can keep the stick-and-tissue set on their toes. Bleriot had a better idea . . .

• Did you ever want to build a model with a scale size tail? Well, here is your chance. This is an all-sheet model of an early Bleriot IV monoplane. Although the real plane was not too successful (1907-'08 was early enough that about the only successful airplanes were rights, er, ah, Wrights). It is just plain great as a model. The tail size is ideal, there is adequate dihedral, the landing gear is long enough to allow a large enough model propeller, the wing section is thin enough to be properly represented by sheet, and the fuselage structure has a square cross-section.

This model was designed to be built by the whole Mooney family to use at the 1974/75 Las Vegas New Years peanut scale competition. It was hoped that this sheet model would be competitive with the stick and tissue Peanuts. As it turned out, only two of them got built

in time for the contest. Best time for the model under a 25 foot ceiling, was an official 40 seconds and third place overall in the contest. The other model did 39.8 seconds, had a few more scale points, and would have placed second except that another entry by the same entrant (the author) had beat it out by a couple of points, and only one prize was allowed per entrant.

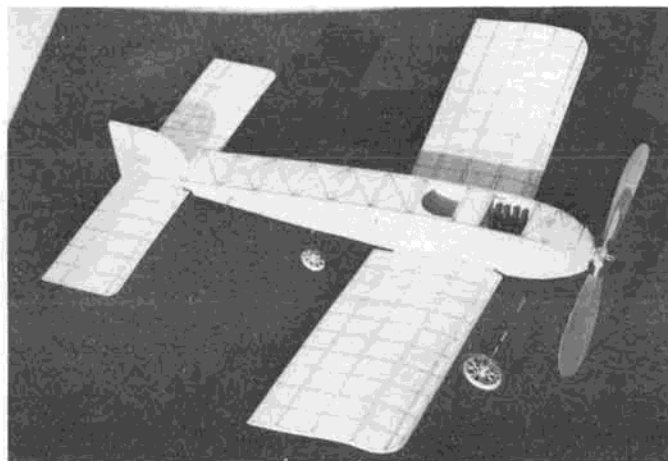
We'll have to admit that first place was taken by a stick and tissue model, and that several of the tissue covered models put up slightly better times. Nevertheless, this model is an excellent flyer and will give all but the really lightweight Peanuts a real run for their money.

Generally, all sheet balsa models are simpler to construct than the stick-and-tissue ones. This Bleriot IV is no exception to that rule as far as the basic wing,

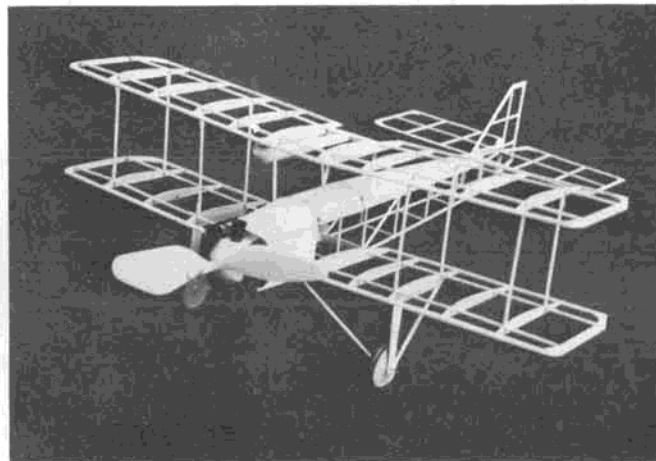
tail, and body structure are concerned, and the following article will touch on basic construction only lightly. (*How'd you mean that "lightly," Walt? wcn*) However, it is the details that "make" this model, and they are somewhat complex, and will be covered more thoroughly.

Start the model by looking at the plans and determining all the balsa parts that need to be made. The fuselage sides from the main landing gear aft, the top and bottom of the fuselage, the wings, the wing leading edge doubler, and the motor peg doublers, are cut out of 1/32nd sheet balsa. The horizontal and vertical tail is cut from 1/64th sheet. The fuselage formers and the top and bottom sheeting for the nose is cut from 1/16th sheet. The fuselage nose sides are carved from block balsa, or from

*Continued on page 86*



Hungerford wheels on such a model can do wonders! Four bladed paddle prop made from sheet plastic. Stab size is scale.

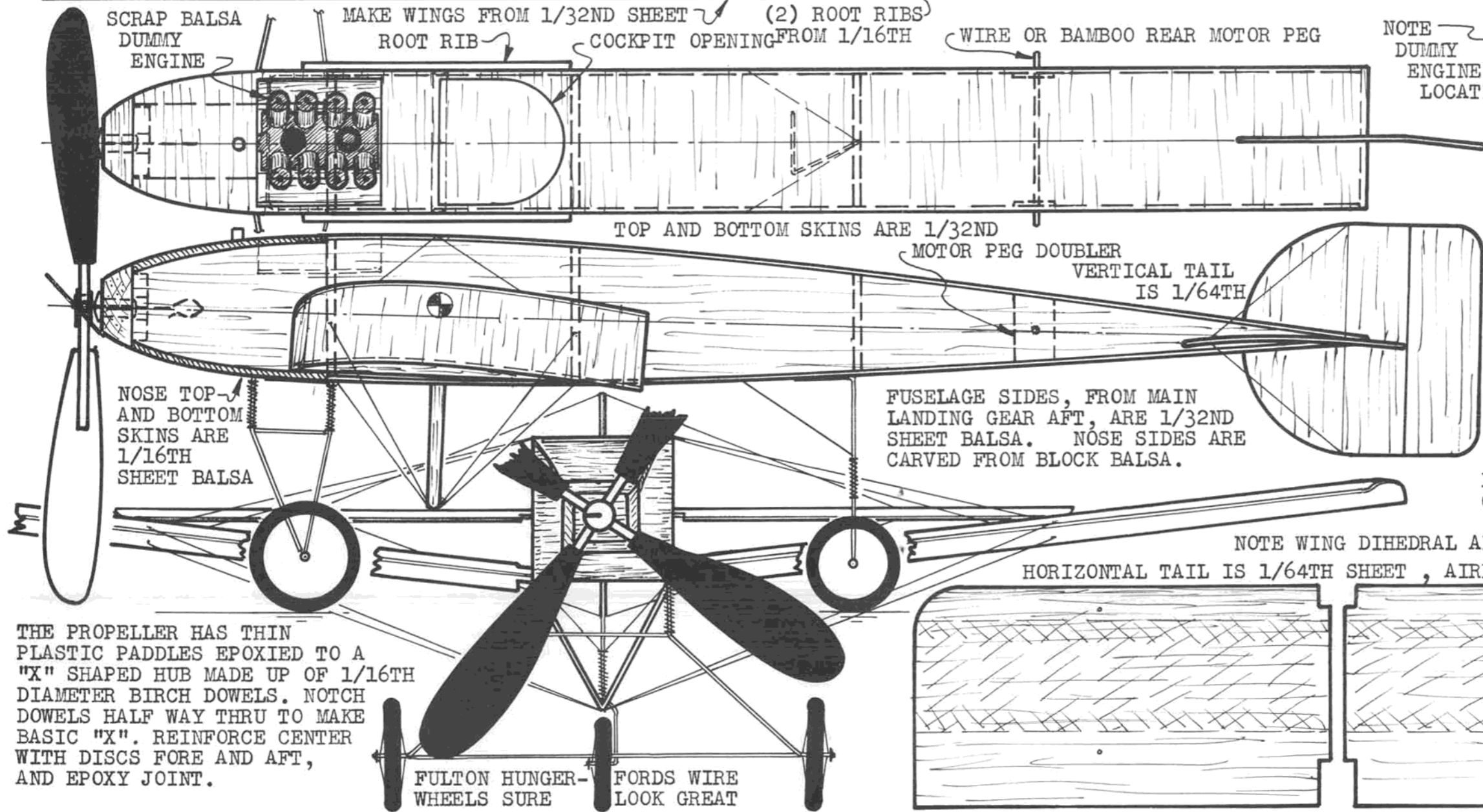
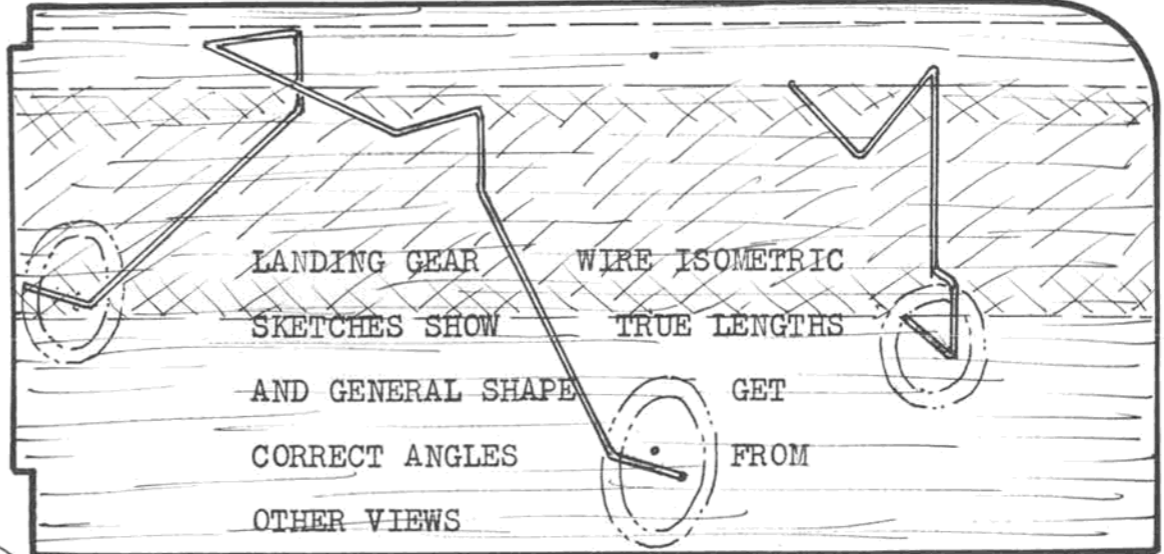


Somebody in the British Aerial Transport company had a sense of humor. This ship was named the BAT Baboon! Next month's plan.

1/32 X 1/8 LEADING • EDGE DOUBLER ON UNDERSIDE

DOPE THIS AREA ON BOTTOM SIDE OF WINGS, ONLY, TO HELP FORM AIRFOIL SECTION CURVE

SMALL CIRCLES INDICATE BRACE WIRE PENETRATION



THIS IS AN ALL SHEET BALS PEANUT SCALE MODEL OF THE 1907-'08 BLERIOT IV. A TWO VIEW CAN BE FOUND ON PAGE 99 OF THE 1909 JANE'S ALL THE WORLD'S AIRSHIPS. BEST TIME TO DATE: 40 SECONDS INDOORS, 1:10 OUTDOORS  
 01-02-75  
 Dick Morley





# FOX GLOW PLUGS

## Standard Series

Long  
R. C.  
40602



Short  
R. C.  
40502



Long  
Standard  
40201



Short  
Standard  
40101



## 2-Volt Series (Lead Acid Batt.)

Long  
R. C.  
40603



Long  
Standard  
40203



Short  
R. C.  
40503



Short  
Standard  
40103



## Racing Series

Long  
Idlebar  
40604



Long  
Racing  
40204



Short  
Racing  
40104



In less than ten years Fox Glow Plugs have become the World's largest selling glow plugs; primarily, we like to think, because we offer advanced design and quality products at moderate prices. Some of the features that have made Fox Glow Plugs more successful than others are as follows:

1. Gold plated core pieces: This has a double advantage of providing a superior weld between the electrode and the core piece and in addition, makes the best possible contact with the glow plug lead. You will have virtually no contact problems with Fox Glow Plugs.
2. The second feature, discovered and originated by Fox, although now used by some of our competitors, is the use of a Rhodium-platinum element material, rather than the iridium-platinum generally used in yesteryears. The Rhodium-platinum combination has the advantage of igniting the fuel at a substantially lower element temperature than the iridium-platinum alloy. This means that when you do a touch-and-go or a similar maneuver your engine is less likely to quit when you hit the throttle.
3. The third feature originated by Fox, and as far as we know still exclusive with Fox, is the use of a patented space-age insulating material. This material will withstand a higher temperature than glass but is not brittle and will not crack under stresses introduced by tightening the plug.
4. A fourth feature that has made Fox Plugs popular is our method of manufacturing the idle bar housing where the idle bar is an integrally machined portion of the housing. This virtually eliminates the risk of a weld failure and having a piece of the plug drop into and destroy the engine.
5. A fifth reason why Fox Glow Plugs have been successful is that most engines seem to run better with them. The way they got that way is that we have made thousands of plugs with varying dimensions and selected the ones that seemed to work best on a wide variety of engines.

The standard series of plugs are our best sellers. These are usually used with a hobby battery or in some cases a NI-Cad. The short standard and long standard are generally used in control line motors where idling is unimportant and the short and long

idle bar plugs are used in throttle motors, as these have a better capability of keeping the element warm during prolonged idle periods. The 2-volt series are similar to the 1.2-volt series except that the element is slightly smaller in diameter and longer in length and provides the resistance necessary for use in lead acid batteries. A lot of people use a motorcycle-type battery and tap off one cell to provide current for the glow plug. The racing series plugs are not for general use and are intended only for use in engines which have very close squish bands and seem to be unable to hold an element in a standard plug. Our racing series plugs have elements made of a different material which is much stronger at operating temperatures and can resist the shock waves which a close squish band will set off. This, unfortunately, makes it unsuited for use with a standard hobby battery or NI-Cad. Some sort of a rheostat controlled power source must be provided that will limit the input amperage between 5 and 6 amps. The benefit, however, is a virtual end to element failure.

## FOX FOUR WAY WRENCH



The Fox Four Way Wrench is a professional grade tool specifically designed for those who like the four way design but are not satisfied with the low grade die cast tools now on the market. The Fox Four Way Wrench is the finest you can buy. The beautiful chrome finish of the Fox Four Way Wrench doesn't work one bit better than if it were a dull, battle-ship gray, but it does a world of good for your morale and pride and isn't "pleasure" what modeling is all about?

Fox 4 Way Wrench .....70104

## FOX TWO WAY WRENCH



The Fox Two Way Wrench was originally developed in our own shops for the convenience of our own employees in working with Fox Engines. The small end of each of these wrenches are all broached to fit the Fox Glow Plug and are necked down so that they will reach inside of the fins. The length of the T-bar is enough greater than certain die cast wrenches that it often makes the difference between the propeller staying on or being thrown off in flight. Use a Fox Wrench and you will not be throwing propellers.

Fox 2 Way Wrench - Fits 3/16 shaft motors 70101  
 Fits 1/4 shaft motors ..70102  
 Fits 5/16 shaft motors 70103

## FOX 15BB

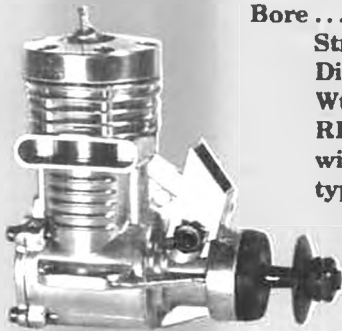


Bore .....590  
 Stroke .....550  
 Disp ..15 (.25 cc)  
 Wt. ....8 oz.  
 RPM .....26000  
 With big-throat  
 carburetion and  
 racing prop

The new Fox 15BB is an all new motor unlike any that you have seen before. It uses the basic Schnuerle porting concept. However, the motor has been put together in an altogether new fashion, which makes it possible to shape and contour the bypasses the way the motor wants them. Also, the structure is more rigid and warp free than most conventional design 15 engines. The flanged type carburetor mount makes possible a wide choice of carburetion. The Fox 15BB has probably the largest main bearing and crankshaft port of any 15 size engine available in the world. The main diameter is .450 and on the OD and racing enthusiasts can safely grind the ID out to 3/8ths diameter. Unlike conventional ball bearing motors, the new Fox 15 runs loose balls directly on the crankshaft in the highly loaded rear position and runs an SAE 660 cast bronze bushing in the front position. This loose ball arrangement completely bypasses the retainers failure problem. Another unique feature of the Fox 15BB is the unusual curvature in the two primary by-passes. This curvature directs the by-pass gas over the top of the piston and against the back wall directly and then as the piston lowers, sweeps upward, resulting in better piston cooling and a more complete cylinder fill than conventional straight bypass arrangements. It is rare that a motor will perform outstandingly in a medium RPM range; and with no change in port timing can be fitted with a small propeller and a big carburetor and will perform equally well in the racing range. The Fox 15BB is truly an exceptional motor

FOX 15BB with Suction N. V. Assem .....11600  
 with Needle Valve for Pressure .....11700  
 with Throttle for Sport Flying .....21600  
 with Throttle for Racing .....21700

## FOX COMBAT SPECIAL

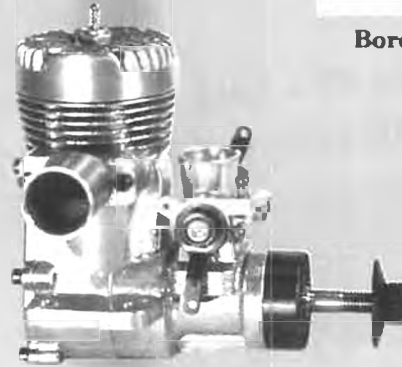


Bore .....800  
 Stroke .....715  
 Disp .....359  
 Wt .....7 1/4 oz.  
 RPM .....19,000  
 with an 8-7 combat  
 type prop

The Fox Combat Special is a specialized type of motor designed especially for Combat flying. Its needle valve assembly is designed to hold the pressure of bladders and to give reasonable adjustment with a pacifier or bladder tank. Construction of the engine itself follows normal double bearing practice except that the nose is very short to minimize turning radius inertia. The piston is lapped meehanite and the piston and cylinder thickness have been so matched that the cooling rate on both are nearly identical, which is what you need for superior hot restarts. In keeping with best construction practice, the crankshaft main is a full half inch diameter and made of alloy steel. The connecting rod has been machined from bar and is bushed on the lower end. The cylinder arrangement follows a proven Schnuerle porting arrangement. Considerable experimenting has been done with the porting to achieve a setup that will give an almost flat power curve over a fairly wide range of mixture. What this means, of course, is that if your bladder fails to maintain constant pressure your engine still doesn't sag on you in a match. The Combat Special is also suited for free-flight models and rat race type models. It should be clearly understood that the Combat Special is not a motor for beginners and it was not intended to function on a conventional suction type fuel system.

FOX 36BB Combat Special .....13700

## FOX 40 BB

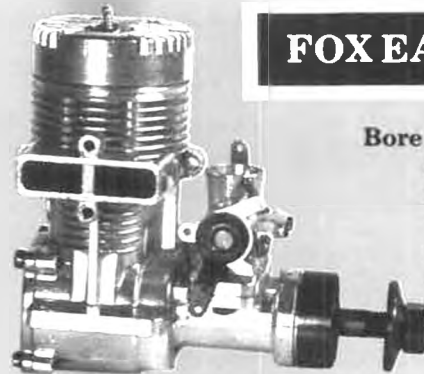


Bore .....800  
 Stroke .....790  
 Disp .....399  
 Wt .....11 oz.  
 RPM .....with  
 racing carbu-  
 retor and prop  
 with 60% nitro  
 fuel 28,000 RPM  
 with pattern  
 carb and 10-6  
 prop - 13,500

The Fox 40 BB offers many interesting possibilities. With a conventional small throat carburetor it makes an excellent pattern engine for the medium size radio control pattern type airplanes. For high speed work the same carburetor used on our Fox 78 will bolt right on and will provide enough flow for the engine to run quite smoothly in the 20,000 plus RPM range. The big .590 diameter crankshaft can be ground out on the inside to over 7/16th diameter, which is a bigger hole than you can get on any 40 size rear intake. The cylinder porting follows the most modern Schnuerle type thinking and the round exhaust stack provides excellent attachment possibilities for a carry away tube, standard concept muffler, or a tuned pipe. A variety of cylinder options are available. It is normally supplied with a single ring aluminum piston and a nitrided cylinder. However, soft steel or brass cylinders liners can be ordered. Also ABC type alum pistons can be ordered. With all of these options at your disposal you have a wider choice than is available from any other manufacturer. The Fox 40 BB was intended to be a competition engine but it has none of the crankiness often associated with competition engines. For average sport flying you will be amazed how it will run and run and run and give you no problems at all.

FOX 40 BB with suction type needle valve assem .....14100  
 with pressure type needle valve assem.....14200  
 with pattern type carburetor .....24100  
 with racing type carburetor .....24200

## FOX EAGLE 60



Bore .....907  
 Stroke ...937  
 Disp .....604  
 Wt .....14 oz.  
 RPM ...12,000  
 with 11-8 prop

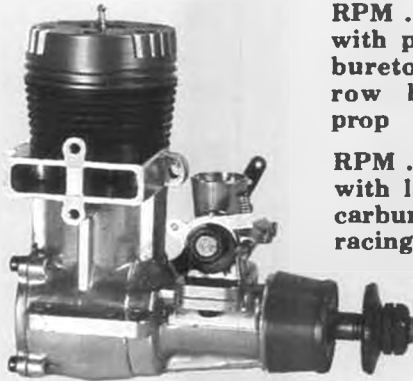
The Fox Eagle 60, first introduced in 1972, has now undergone several minor redesigns and has evolved into one of the World's most practical sport grade 60's. While it lacks a few hundred RPM of being the equal of our new Schnuerle ported Fox Hawk, it is undoubtedly one of the easiest starting motors on the market. It always starts, hot or cold, and no starter is necessary even for beginners. A simple straight-forward construction makes repairs easy to make if you should be so unfortunate as to have a vertical landing. The Fox Eagle has the remarkable capability of running as fast and reliably after 100 or 150 hour use as it does when it is brand new. Basically the loop scavenge arrangement on our Eagle is a more economical design to produce than the Schnuerle port arrangement of our new Hawk and we think that for a great percentage of sport flyers a few r.p.m. is of less significance than the dollars involved. Construction-wise the latest Eagle features a muffler mount that can be removed by means of two screws from the bypass side without removing the engine from the airplane. Like all larger Fox Throttle Motors, the throttle can be operated from either side and above or below the barrel. The cover over the front bearing protects it from dirt and grime. The con rod is now bushed on the lower end. The Fox Eagle has two conventional type rings with the result that cranking compression is probably better than any other 60 on the market. The Fox Eagle 60 is also lighter weight than most 60s and can often be used in airplanes planned for 45s without any balance problems. Furthermore, remember that when you fly with an American made Fox Eagle you have parts and service as near as your telephone.

FOX Eagle 60BB with Suction type needle valve assem. 16099  
 with standard pattern type carb .....26099

# FOX MOTORS with BALL BEARING MAIN BEARINGS

## FOX HAWK 60

Bore .....907  
Stroke .....937  
Disp .....604  
Wt .....15 oz.  
RPM .....13,500  
with pattern carburetor and narrow blade 11-7 prop  
RPM .....23,000  
with large throat carburetor and 9-7 racing type prop

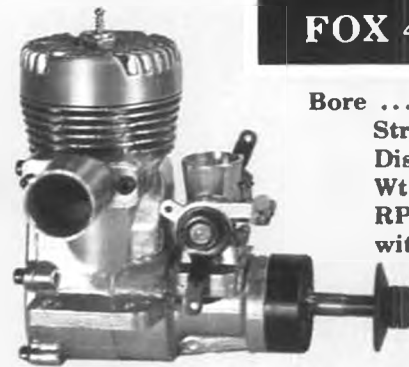


The new Fox Hawk 60 is undoubtedly America's finest pattern 60. In matters of power, fuel draw, smoothness and life, the new Fox Hawk 60 is equal or superior to the glamorous imports selling for \$150.00 or more. Every part has been made carefully and attention has been given to make it look attractive as well as function well. For instance, the cylinder head is made from bar stock and anodized an attractive red. The cylinder section is made with integral steel fins, which make the cylinder liner so stiff that there is very little likelihood the cylinder liner can warp out of round in compression areas. The cylinder liner itself has been nitrided and is file hard. The piston is made from a very special ultra-hard low expansion aluminum which is manufactured under patent protection. Each piston has more than twice the strength of ordinary aluminum pistons and has an expansion rate comparable to that of iron, which makes it possible to fit the piston itself much closer with no seizing problem should the motor go over lean. If the motor does go over lean about all that happens is that you lose power and perhaps burn out a glow plug. The connecting rod is machined from bar and is bushed on both ends with bearing bronze material. The wrist pin is retained with large aircraft style snap plugs. Another important feature of the Fox Hawk 60 is its remarkable capability to put out as much power on alcohol fuel as most ordinary engines do on nitro mixes. You will find that the Fox Hawk 60 will put out a good solid 1 1/4 horsepower on a FAI type fuel. If you do a lot of flying, the extra few dollars of a Fox Hawk 60 costs can quickly be repaid by the fuel cost savings in burning a lower priced fuel. Of course, if you do want to burn more expensive fuels such as Missile Mist, then you really do have a world beater.

**Fox Hawk 60 BB with needle valve assem for suction .16100  
with carburetor for pattern flying .. 26199  
with oversize carburetor for racing . 26198**

## FOX 45BB

Bore .....850  
Stroke ....790  
Disp .....45  
Wt .....12 oz.  
RPM ...14,000  
with 10-6 prop



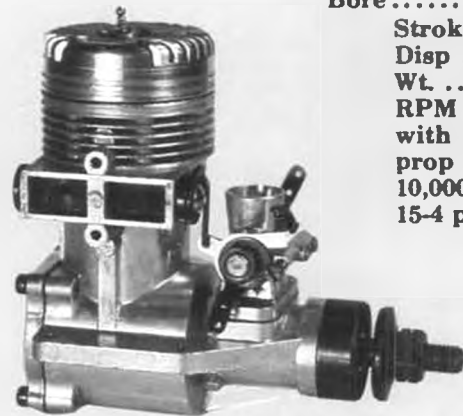
The Fox 45BB is brand new for 1975 and introduces a whole new bag of tricks for the enthusiast to explore. The exhaust stack is round and will accept a 5/8 diameter soft alum tubing extension so the exhaust can be routed at your convenience. The crankcase rear cover is extended upward to form a generous size rear by-pass and make possible a matching front by-pass. Note these are substantially wider than on most Schnuerle motors. All walls on the crankcase casting are 3/32 thick. The crankshaft is mounted on the same two ball bearings our Eagle and Hawk are and has a more generous gas passage than any shaft rotor 60 we have seen. The flanged carburetor mount, besides providing a more warp free than usual way of mounting the carb, also makes possible a better intake intersection design than possible with a drilled hole. The con rod is machined from alum bar and is bushed on the lower end. The cylinder has been carbonitrided and is virtually wear proof. The piston is cast aluminum and is fitted with a single Hi-tension ring that has been specially processed for a perfect cylinder fit.

The Fox 45BB will fly a plane about as fast as most loop scavenged 60's. It weighs less, is smoother running, burns less fuel, and costs less. The use of a 10" prop helps ground clearance problems. The Fox 45BB runs very nicely on FAI Fuel, yet will utilize nitro fuels to full advantage. We think our Fox 45 is the highest state of the art offered today.

**FOX 45BB - Suction Needle valve assem ..... 14600  
Needle valve assem. for pressure ..... 14700  
Throttle for pattern flying ..... 24600  
Throttle for racing ..... 24700**

## FOX 78

Bore .....1.00  
Stroke ..1.00  
Disp .....78  
Wt ....19 oz.  
RPM ..13,500  
with an 11-8 prop  
10,000 with a 15-4 prop



The Fox 78 started out as a 74, ten years ago. Over a period of years the stroke was increased to make it a 78. The by-pass was deepened. The 3 by-pass ports became 4. The piston was re-designed several times as was the crankshaft. The old 2 plug head was abandoned in view of today's reliable glow plugs. A great deal was learned about fits.

Today's Fox 78 has more torque and power over a wider RPM range than any comparable motor. It is light enough to fit in most airplanes calling for 60's - yet has the extra steam to fly hi-drag, power consuming scale models. Independent tester Peter Chinn rated the Fox 78 as top choice in its field.

**Fox 78 with suction type needle valve assem .....17800  
with RC type carburetor ..... 27800**

# FOX MOTORS with CAST

## FOX 15



Bore .....590  
Stroke .....540  
Disp ....15 (2.5 cc)  
Wt......4 oz  
RPM .....12,000  
with an 8-4 Prop

This outstanding little motor has been manufactured now over ten years with only minor modifications. Its success has been so great that a whole family of 15 sized profile model kits have been produced around it. The main bearing is a full 3/8ths inch in diameter and the engine is ported generously throughout. The piston is machined from meehanite bar and the cylinder is from leaded steel. The newest series features an improved needle valve assembly which can be readily replaced in the event one of your landings is less gentle than you had planned. The main bearing is cast SAE 660 bronze which wears longer and has less friction than powdered metal bearings.

**Fox 15 with Suction Type Needle Valve Assem..... 11500**

## FOX 19



Bore .....650  
Stroke .....600  
Disp .....19  
Wt .....5½ oz  
RPM .....15,000  
with an 8-4 prop

This is the third year of production for this new series Fox 19. During these three years of production it has been rated by independent testers as the most powerful of all bushing 19's and equalled only by a couple of double ball bearing 19's whose price is more than twice that of the Fox. However, remarkable power output is only one of the things that make it such a desirable motor. All the functioning parts are generously proportioned and with normal use you can expect well over 100 hours life. Under crash conditions it survives remarkably well. In the event you really give it a rough landing you will find it the easiest motor to disassemble and repair you have ever worked on. The carburetor flange mount is distortion free. The cylinder liner is thick and sturdy. The crankshaft main is a full 7/16th inch in diameter. The motor starts very easily. The weight is light enough so that it will fit readily in most airplanes designed for 15's and give you the extra power necessary to get it off grass or drag an overweight airplane around.

**Fox 19 with Suction Type Needle Valve Assem. ....11900**  
**Standard type R. C. Throttle .....21900**

## FOX 35 STUNT

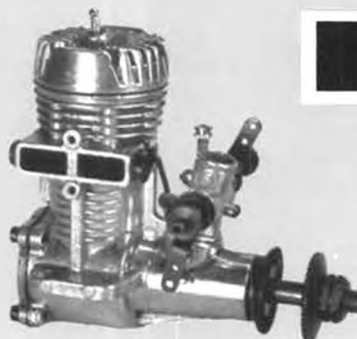


Bore .....800  
Stroke ...700  
Disp .....352  
Wt......6½ oz  
RPM ...9500  
with 10-6 prop

The Fox 35 Stunt is probably the most successful model airplane motor of all times. First introduced in the winter of 1948, it was skyrocketed into the limelight by winning first in the 1949 Stunt Nationals. In virtually unchanged form it has continued to win more control line stunt contests than all other makes combined. In the year 1974 the Fox 35 Stunt powered the World's Championship winning control line stunt model and powered the first place Open and Junior winners at the Nationals and also powered the Walker Flyoff trophy winner. These fantastic successes are not the result of any super promotional schemes or luck. This particular motor has running characteristics that make it uniquely adapted to control line stunt. The RPM change with airplane attitude in such a way as to anticipate what the model needs. The Fox 35 Stunt also makes a very excellent beginners engine because its low compression ratio makes for easy cranking. For 1975 the crankcase die has been completely rebuilt so that the castings are clean and accurately made and in addition two small lugs have been provided for an improved type muffler attachment. This muffler attachment is so arranged that the muffler can be installed or removed within a minute's time. The Fox 35 Stunt is offered in only one configuration and one carburetion arrangement. That is the same one that has won over 16,000 contests.

**Fox 35 Stunt Motor with standard needle valve assem 13500**

## FOX 36



Bore .....800  
Stroke .715  
Disp ...359  
Wt. .7½ oz.  
RPM 11,000  
with a 10-6 prop

The Fox 36 powerhead is a direct descendent of the Fox Blackhead Combat Special introduced in 1957. Through the years minor modifications have been made to each part as experience dictated. Today's 36 features a full half inch diameter main bearing, meehanite piston, leaded steel cylinder and of course a Fox one piece crankcase design. The normal carburetion model is ideally suited for sport flying in beginner type airplanes of the Ringmaster, Flight Streak, Magician category, as well as the built up types. For high performance applications, such as combat or free flight where a bladder or pressurized tank is planned, the open throat model is indicated. This is the same motor except the intake has been chopped and bored and the needle assembly has been replaced with our combat type needle assemblies. With the RC version you have a choice of two carburetors — a smaller carburetor is the one that should be used for normal sport type and pattern type flying. The larger type carburetor is useful only where the tank placement is very carefully controlled and the engine is intended to be used in racing type events. With these applications the propeller should be selected so that the engine will turn right at 15,000 RPM on the ground. With a larger propeller the carburetor does not function properly.

**Fox 36 With Suction Type Needle Valve Assem .....13600**  
**Fox 36 Large Intake with Combat type needle for**  
**pressure tank or bladder tank .....13800**  
**Fox 36 With pattern Type Throttle .....23600**  
**Fox 36 With optional oversize throttle .....23800**

# BRONZE MAIN BEARINGS



## FOX 25

Bore .....680  
Stroke ....680  
Disp .....25  
Wt .....6 oz  
RPM ...12,000  
with 9-4 Prop

The Fox 25's power output is far greater than you would expect from an engine of its size. It will easily fly most airplanes designed for 35 size engines and yet give you the lighter weight and fuel economy of the smaller displacement. On the other hand if you are visualizing a 15 size airplane going like a bomb, the Fox 25 fits right into this thinking, as its weight is identical with average 15's. The difference in power is remarkable. The Fox 25's construction is conventional but quite highly refined. The main bearing is a full 7/16ths of an inch in diameter and is generously ported. The piston is machined from cast meehanite bar and the cylinder is from leaded steel. The connecting rods are machined from bar. Under normal use you can reasonably expect the Fox 25 to give you over 100 hours running time. The flange type carburetor mount has proven to have less distortion than the types held in with set screws or clamps, and it makes it an easy switch from one type throttle to another.

Fox 25 with suction type needle valve assembly .....12500  
with pattern type RC carburetor ..... 22500

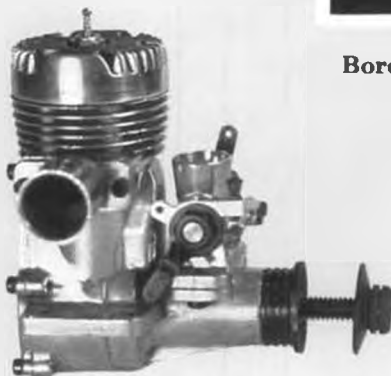


## FOX 29

Bore .....738  
Stroke ...700  
Disp .....29  
Wt ....7½ oz.  
RPM .. 12000  
with a 9-6  
prop

The Fox 29 has been in production since 1956, when it was first introduced as a racing engine. It was quite successful in dominating B speed and B proto for several years. As years have gone on we have shaped the Fox 29 into a sport type product which is more docile to handle and we have worked some of the temperament out that is characteristic of racing motors. In the Fox 29 the throttle version has a longer crankshaft than the control line version to provide the clearance the throttle needs. Therefore, on the Fox 29 there is more involved than just changing the throttle to get a throttle or non-throttle motor. The mechanics in the motors, however, are identical — the cylinder, the piston, the rod, wrist pin, head, crank throw, mounting lugs and power head dimensions.

Fox 29 with suction type needle valve assem. ....12900  
with large intake and combat type  
needle valve assem .....13000  
with pattern type RC throttle .....22900

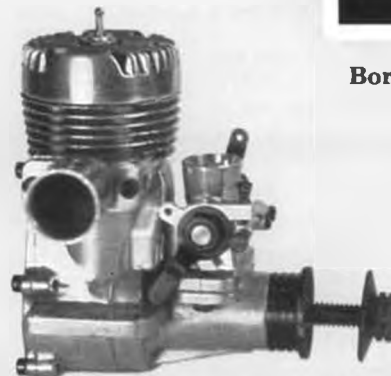


## FOX 40

Bore .....800  
Stroke ....790  
Disp .....399  
Wt .....11 oz  
RPM ...13,000  
with 10-6 prop

The Fox 40 Bushing Motor is brand new for 1975 and is chock full of interesting innovations. The cylinder porting follows the new Schnuerle layout. The crankshaft is a very generous 9/16ths diameter. The crank case is a very rigid one piece casting containing the cast bronze main bearing. The rear cover has been enlarged in a manner that makes it possible to make the three bypass cores to the dimensions dictated by best engine design, not by the manufacturing limitations. This arrangement has been patented and is not found on any other brand motors. The castings themselves are very thick and sturdy and will withstand a surprising amount of abuse. Performance-wise you can confidently say that your Fox 40 will easily outrun any other bushings 40's on the market today and most of the ball bearing 40's — all of this with no sacrifice of easy starting or docile performance. The piston is made from meehanite metal and has been ground, honed and lapped to the leaded steel cylinder. The flange carburetor mount provides a quick and easy method of varying the carburetion for a variety of specific applications. When fitted with a normal RC type carburetor this engine is ideal for the medium size pattern type RC airplanes. For control line use intake stacks are available in standard diameter, which would ordinarily be used on a control line sport model or a wide open throat model which could be fitted with a pen bladder type tank for the highest possible RPM.

Fox 40 with suction type needle valve assem ..... 14000  
pressure type needle valve assem ..... 13900  
pattern type carburetor ..... 24000  
racing type carburetor .....23900



## FOX 45

Bore .....850  
Stroke ....790  
Disp .....45  
Wt .....11 oz.  
RPM ...14,000  
with 10-6 Prop

The Fox 45 is a brand new engine for 1975. It is built in the same one piece triple bypass type casting as our new Fox 40 and it utilizes the same lower end parts. The additional displacement is gained by a larger bore. Its power output is about equal to the old loop scavenged 60's of three or four years ago. The advantages, of course, are that the 45 size engine weighs less, burns less fuel, has less vibration, is less sensitive to weather variations or fuel mixes. One rather unique feature of the Fox 45 RC is its round exhaust stack. This was designed with the thought in mind that a soft aluminum exhaust extension could be readily fitted into it and could be bent around in a manner most convenient for the airplane builder. The simple, sturdy, patented construction makes repair a simple matter if you happen to have a misfortune. A great deal of thought has been given to the design of the Fox 45 from a maintenance point of view. For instance, a moderately rough landing that might bend the crankshaft of some engines would only bend the prop stud on the Fox 45 and this could be unscrewed and replaced at a nominal charge. The patented Fox Crankcase is quite heavy walled and is highly resistant to crashes. The cylinder liner and piston both are of substantial proportions and moderate cost and can be replaced should the need arise. The Fox 45 Crankshaft has a very generous 9/16ths diameter main bearing which virtually eliminates the probability of a crankshaft failure or a bearing wearing out.

Fox 45 with suction type needle valve assem .....14500  
with pattern type carburetor .....24500

## FOX TAPS

Model airplane motors are assembled by means of screws in threaded holes and the nature of our hobby is such that from time to time the threaded hole gets burred over, jammed, cross threaded or otherwise damaged. A tap is the tool used to thread or re-thread a hole. Taps fall in two general categories — hardware grade, where the threads are cut; and precision, where the threads are ground. Hardware grades are unacceptable for model airplane use. A precision ground tap usually will cost several times as much as a hardware grade but you get a good thread from it. Through a special arrangement with Greenfield, one of the world's largest producers of precision ground taps, we are offering a selection of sizes and types used in model airplane motors. A lubricant should be used when tapping a hole — and it just happens that model airplane fuel is as good a tap lubricant as you can get.

Tap Size	Where Used	Order No.
#2-64	Fox 15-19-25 needle	71264
#2-56	Fox 40-45-60-78 Low speed needle Carb Plug Screws Idle Stud Screws	71256
#3-48	Sturt 35 needle	71348
#4-48	Head and rear cover screws for 15-19-25 Old 36X Needle valve High Speed Needle	71448
#4-40	Fox 29-36 RC Carb Fox 15-19-25 RC low speed needle Fox 29-35-36-40-45 head and rear cover screws Muffler Core Screws	71440
#6-40	H. S. Needles for all RC motors 29 and larger L. S. needle 29 and 36 RC	71640
#6-32	Fox Eagle 60, Hawk 60 78 RC Head and rear cover screws	71632
#8-32	Needle Body Nut For all suction N. V. bodies	71832
#10-32	Fox 15-19 Prop Shaft	71332
#¼-32	Glow Plug THDS. carb barrel nuts	71432
#¼-28	Prop Shaft Fox 25-29 35-36-40-45	71428
#5/16-24	Eagle-Hawk and 78 prop shaft	71524

Tap Holder	Use	Order No.
Starrett #162 C	#2-64 #2-56 #3-48 #4-48 #4-40 #6-40 #6-32	72101
Starrett #162 D	#8-32 #10-32	72103
Greenfield #333	#¼-32 #¼-28 #5/16-24	72105

## FOX PROP REAMERS

Quite often the propeller that you want to use will have a hole smaller than the shaft size on the motor you want to use it with. The Fox Reamers are designed to provide an easy, and accurate method of enlarging the hole to the next standard size shaft size without danger of splitting the propeller or getting the hole out of center. We offer two reamers - a standard reamer which would be used for 95% of applications and a KB Special, which makes a step from ¼ inch to ⅜ in the peculiar manner that that particular engine requires. All Fox Reamers are of standard four-flute design and are fitted with a T-bar. They can be carried right in your tool box and used on the field. These are a must for the tool box of every serious modeler. The standard model has progressive steps of from 3/16 to ¼ to 5/16 and finally ⅜. The KB model has a quarter inch pilot and cuts to ⅜.

Fox 4 Step Reamer ..... 70201  
Fox KB Reamer ..... 70202

## FOX PRESSURE REGULATOR

The general advantage of a fuel pressure regulator is that you can adjust your high-speed jet for maximum power for takeoff without the problem of the engine going over lean later in the flight or in a prolonged climbing-type maneuver. This results in more available power and better fuel mileage.

Diaphragm pressure regulators have been around many years and have been used for a variety of purposes. The Fox Fuel Pressure Regulator is an adaptation of these well known principles to model size.

The pressure regulator should be mounted as close to the carburetor as possible. A recommended installation on a standard RC Ship would be along the side of the engine and no further back than one inch from the carburetor center. For the pressure regulator to work, a special tank producing from ½ PSI to 2 PSI is required. Crankcase pressure will not do this reliably and neither will muffler pressure. We recommend some sort of a balloon or bladder-type tank which has rubber bands or springs around it. Later we plan to offer special tanks for this purpose. The Fox Regulator is assembled with screws and can be disassembled for cleaning or inspection or replacing the diaphragm. Also it has an external pressure tickle so that you can push a button for a second or two and prime your motor. We predict that once you discover how completely reliable your engine performs on regulated pressure you will never go back to the old way.

Fox Fuel Pressure Regulator ..... 90505

## FOX PRESSURE FITTING

The Fox Pressure fitting is machined from 3/16ths inch hex brass bar. It is probably the smallest and most compact pressure fitting on the market. We offer it with either 4-40 threads or 6-32 threads. Pressure fittings are normally used to pressurize the fuel tank. For pattern type RC models pressure is usually taken from the muffler housing. For Rat Race type models pressure is usually taken from the crankcase.

4-40 Thread Pressure Fitting ..... 90501  
6-32 Thread Pressure Fitting ..... 90502

## FOX CARBURETOR ADAPTERS

We believe that Fox Carburetors are as good as you can buy. They are more linear, simpler and more trouble-free than most. Nevertheless there are a host of other good carburetors on the market which you may prefer because of their color, shape, throttle response or because you just happen to have one. The Fox Carburetor adapters is a simple casting made with a flange that will mount on a Fox Motor and has a vertical hole and two set screws to take the round-type carburetor. Due to the wide variety of carburetors available and the varying number of sizes of stems, we have elected to offer an adapter which can be drilled or reamed out to whatever size you desire. Our A-base pattern fits our Fox 15. Our B-base pattern fits the Fox 19 and 25. The D-base pattern fits our Fox 40, 45, Eagle and Hawk 60's and 78's. Each adapter is supplied with two set screws threaded 6-40.

Fox Flanged Carburetor Adapter A size ..... 90601  
B size ..... 90602  
D size ..... 90604

## FOX FUEL FILTERS

We believe the Fox Fuel Filter is the finest that you can buy for several reasons:

1. Our filter element is an ultrafine stainless steel screen. The fact that the element is stainless steel makes it immune to the corrosive attacks of fuel itself. Many fuel filters use a brass screen or bronze powdered metal filter element that soon corrodes and restrains the flow of the fuel.

2. Our housing is a threaded two-piece assembly with a nylon gasket that can be taken apart for cleaning repeatedly. Many fuel filters cannot be disassembled at all and some filters that are assembled by pressing two halves together will become loose and leak after awhile.

3. Fox Fuel Filters have large diameter nipple fittings that are designed to hold tightly onto the relatively large diameter surgical tubing or silicone tubing that is popularly used today. Since no carburetor will function satisfactorily with fuel dust, dirt, or grass particles or solidified oil, we recommend using a filter on the line from your tank to your carburetor, and another filter in your filler line. The price is so modest everyone can readily afford the best.

Fox Fuel Filter - small ..... 90701  
Fox Fuel Filter - large ..... 90702

# FOX MOTOR MOUNTS MACHINED FROM BAR



The Fox Motor Mounts are lighter, stronger, and more rigid than cast mounts or ones made from fiberglass filled plastic. Since vibration is directly related to the rigidity of the motor mount, a Fox Mount is more desirable.

In the event that you make a crash landing, if a motor is supported by a good sturdy Fox Mount the crankcase is often saved; whereas a weaker mount that will give away first on one mount and then the other, twists the crankcase. An advantage of the Fox Mount over wood mounts is the ease in which thrust changes can be made. If the mount is attached to a fire wall with blind nuts in back all you have to do is to loosen the four screws from the front and insert a shim under the top or sides. In this way very precise thrust adjustments can be made.

MEDIUM SERIES			LARGE SERIES		
Width	Fits	Part No.	Width	Fits	Part No.
1.217	Fox .29 new	50401	1.475	Fox	50601
	Fox .36 new			Eagle 60	
	Fox .35 all			OS 60	
	OS .30			St 51	
1.281	Fox .36X all	50402	1.525	St 56	50602
	Fox .36 BB all			St 60	
	St .35 stunt			E nya 60	
1.320	K&B 35	50403	1.640	Merco 60	50603
	K&B 40			Fox	
	OS 35			Hawk 60	
	OS 40			Veco 60	
	McCoy 40			Webra 61	
1.385	Fox 40	50404	1.640	H. P. 61	50603
	S T 35 rc			Fox 74	
	S T 40 rc			Fox 78	
	Webra 40			ST G-60	

SMALL SERIES		
Width	Fits	Part No.
1.000	Fox .15 OS .15	50201
1.135	Fox .25	50203
	ST .19	
	ST .23	
	OS .19	
1.217	Special for Fox 35 Stunt	50204

# FOX SPINNERS — THE WORLD'S FINEST



Most modelers agree Fox Spinners are the world's finest. They are machined from solid aluminum bar with the wall thickness varying from the back plate to the nose piece according to the strength requirements. Since they are machined from bar they run true and have no balance problems. They were designed primarily with the thought in mind that more and more people are using electric starters, and most low cost spinners will not stand up to the beating they get from a starter.

For 1975 we have added a new contour which is similar to our conventional contour except that it is more conical shaped and it fits into wider fuselages better. All Fox Spinners, after they have been machined, are sanded and buffed to a high lustre. The conventional contour and slim-jim contour will both accept the same back plate but the conical contour requires its own back plate. The Fox method of retaining the spinner completely eliminates the possibility of spinning the assembly off with a starter, as the spinner is held on by a small diameter nose screw which ties into the special prop nut supplied.

We regularly stock a few spinners without cutouts so that if you have some special three or four blade propeller application or unusual application you could get a spinner without slots and put in your own.

DIA	CONVENTIONAL CONTOUR NO.	SLIM JIM CONTOUR	CONICAL CONTOUR	STANDARD SHAFT SIZE
1½	60106	60206	60306	10-32
1¾	60107	60207	60307	10-32
2	60108	60208	60308	¼-28
2¼	60109	60209	60309	¼-28
2½	60110	60210	60310	¼-28

ADAPTER NUTS AND MATING WASHERS			
10-32 Short	60401	¼-28 Long	60405
10-32 Medium	60402	5/16-24 Medium	60406
¼-28 Short	60403	5/16-24 Long	60407
¼-28 Medium	60404		

# PROP SHAFT EXTENSIONS



Fox has made a specialty of prop shaft extensions. We have evolved a light weight, compact spool design and a special nut and washer design that will fit right on your prop shaft and move the propeller either one half inch or three quarter inch forward. Also with Fox Extensions you can fit a Fox Spinner on your motor. In effect, this gives you three different possible front end lengths — stock, ½ inch overstock and ¾ inch overstock. Think how many times you have juggled a motor block outout or had badly fitting front ends when a little extra length on a propeller shaft would have made things come out smooth.

Prop Shaft	Extensions	
½ Long	10-32THD	No. 90410
¾ Long	10-32THD	No. 90411
½ Long	¼-28THD	No. 90412
¾ Long	¼-28THD	No. 90413
½ Long	5/16-24THD	No. 90414
¾ Long	5/16-24THD	No. 90415

## FOX 40-40



As its name indicates, Fox 40-40 is 40% nitro methane and 40% alcohol. The remaining 20% is a mixture of natural castor oil with a small percentage of Ucon type synthetic to keep the carbon deposits down to moderate level. Most people use 40-40 as an additive to a mild, low cost fuel mix when they need a little extra glow plug heat or a little extra oomph. However, straight 40-40 is an excellent competition fuel in itself where performance is the primary consideration and price is only secondary. We recommend that all serious modelers carry a can of 40-40 with them so they can give their regular fuel mix a little extra help on those off days. Of course if you are flying serious combat, it's wonderful to pull 40-40 out of the bag when you find yourself matched with a red-hot opponent.

QUARTS ..... No. 30403  
DRUMS ..... On special order

## FOX MISSILE MIST



Fox Missile Mist is our finest general purpose fuel. It contains 25% nitro and 22% oil. However, it far out-performs the normal 25% home brew. One reason is that the nitro is a mixture of nitroethane and nitro-methane, in a proportion that runs as well on a hot day as on a cool day. Furthermore, nitroethane is one of the most powerful solvents known and a motor run on Missile Mist will have very little carboning or gumming problems, even with an average type muffler. Another remarkable feature of Missile Mist is that your engine can be set quite rich and the r.p.m. will drop off a smaller amount than other fuels of comparable nitro content. A simple switch from a lesser fuel to Missile Mist has solved more engine running problems than you would ever imagine.

PINTS ..... 30302  
QUARTS ..... 30303  
GALLONS ..... 30305  
DRUMS .... On Special Order

## DUKE'S FUEL



10% Nitro 22% Oil Duke's Fuel is a popular middle of the road formula preferred by many for use for radio control flying as well as control line flying. The excellence of Duke's Fuel is not due to any secret formula but rather is due to the quality of the oils used and the fact that Fox fuels are consistently true to their formula. The oil used in Duke's Fuel is a blend of choice natural castor oil and what is probably the most expensive synthetic oil used in model fuel today. Duke's Fuel is backed with 36 years of flying and experimenting with model airplane fuels.

PINT ..... 30202  
QUART ..... 30203  
GALLON ..... 30205  
DRUM ..... Special Order

## FOX SUPERFUEL



Fox Superfuel formula is basically 5% nitro and 28% oil, which makes it the most oily fuel on the market today. This formula was first introduced in 1952 and has remained unchanged over the years. Fox Superfuel is unexcelled in its applications.

**BREAK IN** - Fox Superfuel, gives any new motor extra protection against galling and wear during those important first few runs.

**MOTORS WITH WORN CYLINDER AND PISTON FITS** - The extra viscosity of Fox Superfuel will often hold compression and extend the practical life of a motor long after it will not run satisfactorily on lesser fuels.

**EVERYDAY FLYING** - A great many motors just run better on Fox Superfuel.

PINTS ..... 30102  
QUARTS ..... 30103  
GALLONS ..... 30105  
DRUMS .... On Special Order

# FOX MANUFACTURING CO.

5305 TOWSON • FORT SMITH, ARK. 72901  
Phone 501-646-1656

## FOX SILENCERS



We are currently offering Fox Silencers in the open or closed front configuration in the A and B size and the closed front only in the C size. We have decided to not offer the flow through in the C size because the larger size motors really require the more effective muffler in order to keep the neighbors somewhat pacified. You will observe from the picture that our new series mufflers have studs so that the muffler can now be mounted from the by-pass side of the engine by means of two long screws, or from the exhaust side by means of two short screws in the studs above and below the stack. In this way you have two different options of how your muffler is mounted.

SIZE	WT.	FITS	STYLE	PART NO.			
A	1-1/8 oz.	Fox 15,	Open Front	90211			
			Closed Front	90212			
B	1-3/8 oz.	Fox 19 Fox 25, Fox 29 Fox 35 Stunt Fox 36	Open Front	90221			
			Closed Front	90222			
			C	1-5/8 oz.	Fox Eagle 60 Fox Hawk 60	Closed Front	90232

## FOX WHEEL COLLARS



Fox Wheel Collars are run in our own shop specifically for model airplanes. One feature of our 1975 Fox Wheel Collars is the set screw, which is a #6-40 thread. This is a finer thread than generally used and holds better. The cup on the set screw indents the piano wire and gives a firmer bite. Another feature of the Fox Wheel Collars is that the outer collar is closed and rounded off in an acorn nut type manner. This covers up the jagged wire end you so frequently see on an otherwise beautiful model. For those modelers who like to have wheel pants, Fox has a flanged wheel collar design, so rigged that a plastic wheel pant can be held onto the collar by means of a couple of small self-tapping screws supplied with the set. Wheel collars, of course, do have other uses also, such as positioning the height of nose wheels, retracting gear mechanisms, bomb-bay doors and the like.

TYPE	WIRE SIZE	PART NO.
2-wheel regular	3/32	90331
3-wheel regular	3/32	90332
2-wheel regular	1/8	90341
3-wheel regular	1/8	90342
2-wheel regular	5/32	90351
3-wheel regular	5/32	90352
2-wheel regular	3/16	90361
3-wheel regular	3/16	90362

FLANGED WHEEL COLLARS		
TYPE	WIRE SIZE	PART NO.
2-wheel	1/8	90343
3-wheel	1/8	90344
2-wheel	5/32	90353
3-wheel	5/32	90354

## FOX GARNET

Fox Garnet is a natural product and is a material we have found to be most successful for hand lapping mechanical pistons to steel cylinders. It should be mixed with oil into a paste form and rubbed over the piston and then the piston can be lapped into the cylinder.

**WARNING:** It should not be put into the intake of a running motor or else in a few seconds time your motor will be completely ruined.

Fox Garnet ..... 90812

## FOX LUSTROX

Lustrox actually is a super-fine polishing compound with flakes so small that they can float in between normal running bearing surfaces and not touch either side. It has a polishing effect when a high spot on a crankshaft, for instance, hits a high spot on the bearing. We regularly use a small quantity of Lustrox on all of our new motors with bushing mains and lapped pistons, as we have found that a motor which has been run in on Lustrox will last much longer. To use it, mix it with oil into a thin paste and dab a little bit into the intake of your motor while running. After a minute or two the residue coming out the exhaust should change from black to white. At this point Lustrox has done its work.

Fox Lustrox ..... 90811



an addition this year. A total of 178 trophies will be on the line, with the Chuck Broadhurst Memorial wheeled over to the Grand Champion (if you've seen pictures of this award, you'll know what I mean), and the Ocie Randall Memorial for High Time in Gas. Trophies will be awarded to fifth place.

The Events:

**Saturday, 8 A.M.—5 P.M.**

- A Gas\*
- C Gas
- A-2 Nordic
- Coupe d'Hiver
- .020 Old Timer
- 30 Second Antique

**6 P.M.—11 P.M.**

- Penny Plane
- Peanut Scale
- Hand Launch Glider\*
- Easy B

**Sunday 8 A.M.—5 P.M.**

- 1/2A Gas\*
- FAI Power
- Hand Launch Glider\*
- Unl. Rubber\*
- A Old Timer
- B Old Timer
- C Old Timer
- Gas F/F Scale
- Rubber F/F Scale
- Night AMA Gas

**Monday 8 A.M.—3 P.M.**

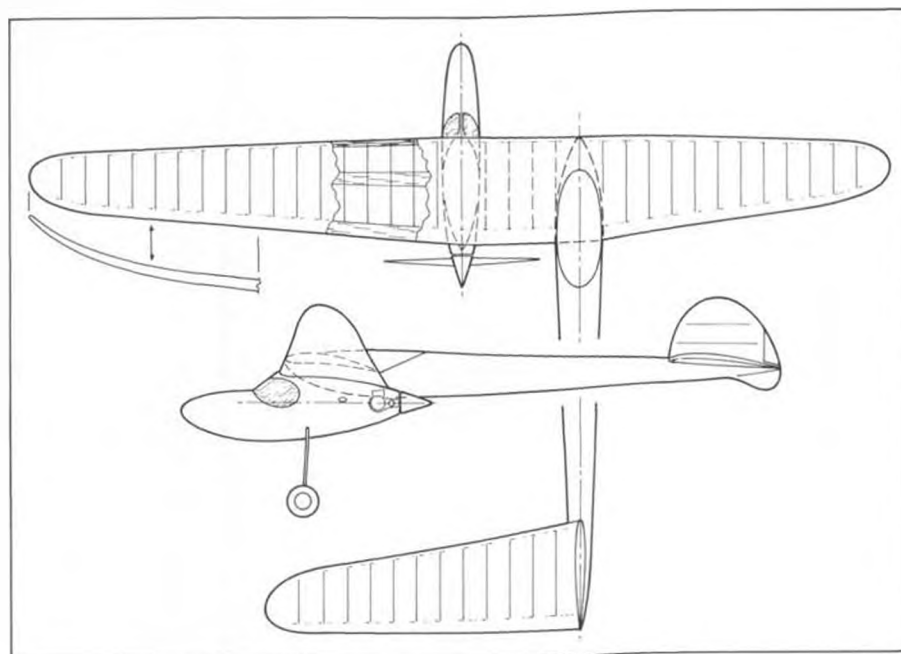
- B Gas
- Jr. B-C Gas\*
- A-1 Nordic
- Wakefield
- Rocket
- Payload
- D Gas (41-65)

\* Junior Events

Additional information can be obtained by contacting Jim Scarborough, Box 393, Lawndale, CA. 90260. He's serving as Business Manager this year. This is one event that all serious free flighters should try to attend. I hope this year is one that I can catch.

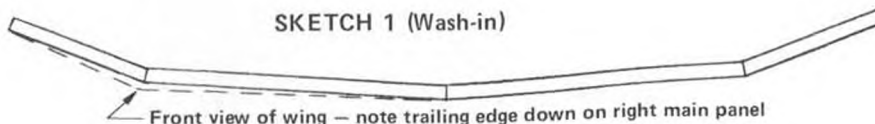
**HINTS AND TIPS**

I had the pleasure of speaking to Bob Hunter (of Satellite City fame) just a couple of days ago, and was informing him of my pleasure with Hot Stuff. I constructed a complete indoor scale old timer Miss America and most of an A/2 Nordic with one bottle of his super adhesive. So, he begins to inform me of other

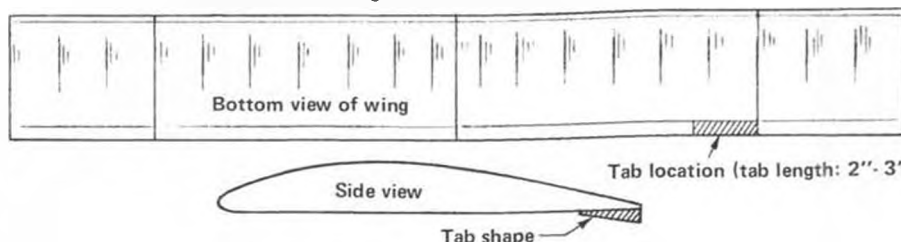


**MAY'S MYSTERY MODEL**

**SKETCH 1 (Wash-in)**



**SKETCH 2 (Adding a wash-out tab to a "flat" wing)**



similarly amazing stories, for instance:

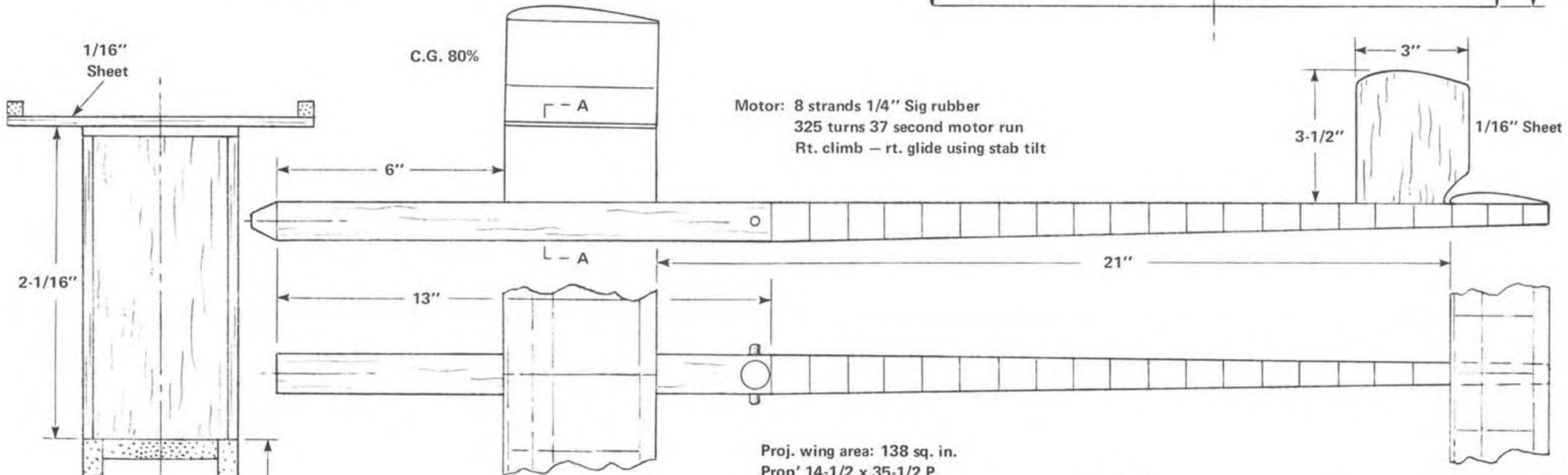
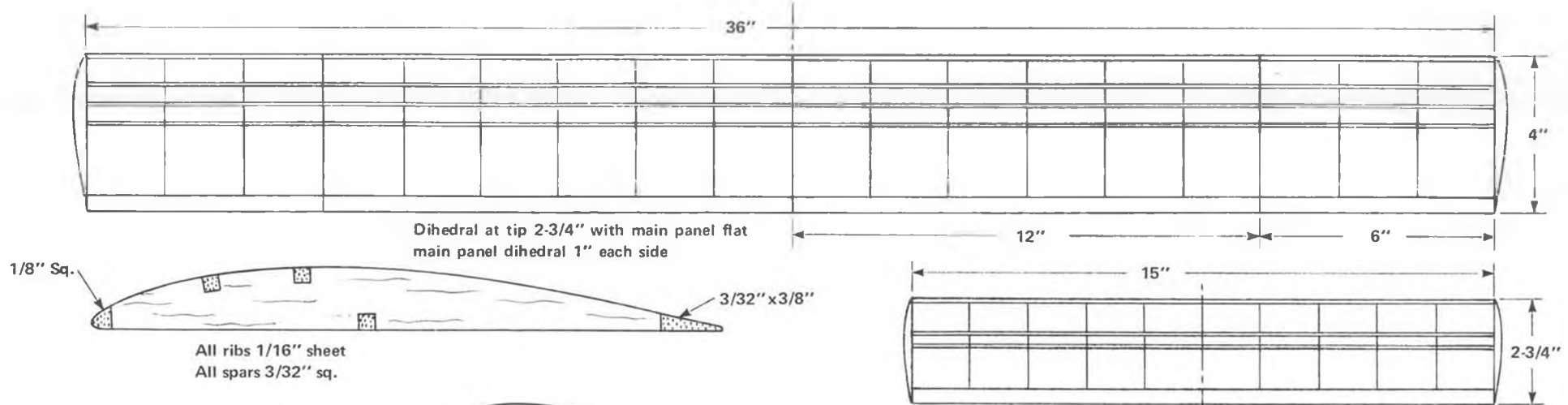
Did you ever try to build a model without using pins to hold leading edges, ribs, etc. to the plans? No, says I. Easy, sez he. Just unroll the plans and spray the back with a good quality contact cement . . . he recommends 3M No. 77. Press the plans onto the building board. Then spray a sheet of waxed paper and press this over the plans, then spray the top of the waxed paper and fit the parts onto the waxed paper. The contact cement holds the parts in place . . . with-

out pinning. After everything is in place, drop a drop of Hot Stuff on each joint and pick up the finished part. Sounds neat.

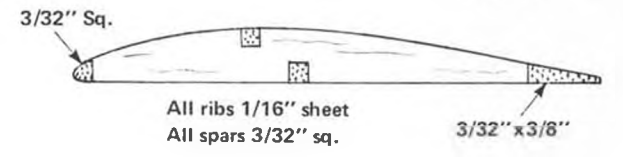
Howzabout this? When you cut the notches in the trailing edge so that the ribs can be firmly set into place, fill the notch with balsa dust (never seem to have a shortage of that) before shoving the rib into place. The dust will form around the rib t.e. and when you apply Hot Stuff to the joint, the dust "unifies" and forms a solid joint. That's

**DARNED GOOD AIRFOIL — CHEESMAN 20A-08**

STATION	0	1.25	2.5	5.0	7.5	10	15	20	30	40	50	60	70	80	90	95	100
UPPER			5.8	6.6	—	7.5	—	8.0	7.9	7.1	6.3	5.2	4.0	2.8	1.4	—	0
LOWER			.68	.30	—	.06	—	0	0	0	0	0	0	0	0	—	0



Proj. wing area: 138 sq. in.  
Prop' 14-1/2 x 35-1/2 P.  
Laminated from 3 1/32" blanks  
Montreal type stop.



DADSON COUPE  
by John Ferrer

Scale 1/4" = 1"

A-A

Cross-section is shown full size



Walt Johnson inspects the plastic film covering on his Orbiteer, during a recent Tacoma, Washington contest.



Bob Sifleet and his Centaur FAI Power model. Note wash-in tab on inner right wing panel.

neat, unless you're one of those precision types who cuts perfect notches.

Satellite City has now begun to market Teflon Applicator tubes in separate packages. An 18 inch length of the stuff is about 50¢. It's the only way to use Hot Stuff, and if you are like me, I usually end up with about a 1/4 inch of tubing left in the bottle by the time the bottle is gone. The additional tubing makes it easier to be less careful.

Even though at first glance Hot Stuff seems expensive, the cost is really very reasonable, since that small bottle does go a long way, and it will virtually glue anything to anything. Contact Bob Hunter at Satellite City, 9486 Sandusky Ave., Arleta, CA. 91331, for more good ideas . . . and good Hot Stuff.

Bob also passes on the word that Bob Scully just set a new Cat. I Senior AMA Record in C Gas (time 49:35) with a new prototype Satellite 788 powered by a stock K&B .40 R.R. (not even a Schnuerle). The ship features a 31% low volume stab similar to the Satellite 450 FAI (Does that use the Cheesman sec-

tion, Bob?). The covering method is interesting, and should be passed on. Bob covered his ship with Japanese tissue and 4 coats of 50/50 Nitrate dope, over-covered with silk and two more coats of Nitrate . . . finally, the whole shebang was sprayed with a light coat of K&B Super Poxy clear. The result was a super strong wing with a very good seal. In fact, the ship landed a 1/2 mile out in Lake Elsinore on the 7th flight and the covering didn't even wrinkle. Ship weighs in at 34 oz. Sounds like another winner for the Satellite Series.

#### OTHER TIPS

Don Zipoy passes along these tid-bits: Having troubles uncovering structures? Try this! Liberally brush on thinner over a small section of tissue at a time; then lay on some Saran Wrap over the area and let it set for a few minutes. Lift the Saran Wrap and the covering comes off with it, leaving a clean structure.

How about those little Cox .020 tank nipples. Ever have the fuel line come off, or more to the point . . . did you

ever have the fuel line stay on? Want to guarantee that it doesn't slip off again? Sure you do.

Take a piece of 1/8 diameter O.D. thick wall copper, brass or aluminum tubing. Cut off a short length and epoxy it over the tank outlet nipple. It's a good idea to use a small piece of balsa to shim the slop out of the fit and roughen the plastic in the glue joint area, but once done, you need not worry about the surgical tubing slipping off again.

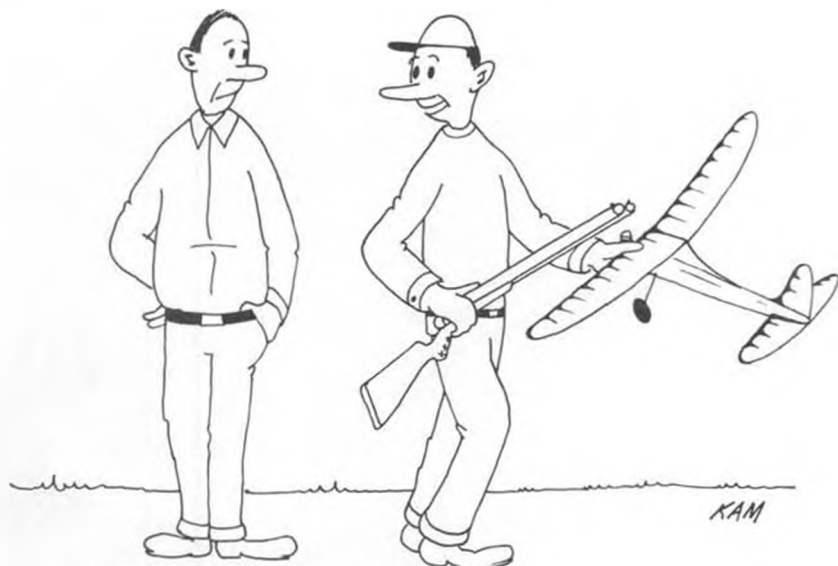
#### WARPS . . . ON PURPOSE

Warps are usually a dirty word in free flight circles, but most modelers build warps into their flying surfaces on purpose. Sometimes the purpose is not understood, so I would like to take a few paragraphs and attempt to explain why warps are needed in many ships and why they should be built in from the start . . . an unplanned warp is like a model that d.t.'s after one minute of flight, but a planned warp is as important as dihedral, stab tilt or the pylon.

*Continued on page 85*



Bill Vernon Challenge Trophy for high time in Unlim. rubber. Yes, bottle is full.



I'M GOING TO TEST MY NEW FOOLPROOF DETHERMALIZER.



Layout of the 1975 Winter Nationals, in San Jose, California.



Pit area had been moved to the left of the driver's stand, for the only change made since last year's event.

PHOTOS BY CHUCK

# R/C AUTO NEWS

The 1975 San Jose Winternationals.

By CHUCK HALLUM

• It seems to be very difficult, for me anyway, to participate in an event and cover all of the highlights. There just doesn't seem to be enough time. Between car preparation, taking pictures, talking to people, and trying to relax a little (and warm up too, it was cold) before my own races, many interesting occurrences are missed. So the best I can do is to report the things which attracted my attention.

Saturday was devoted to drag racing. When I arrived at the track, the drag strip and lights had been set up. Several cars were making practice runs. Three classes of cars were running, dragsters, funny cars, and stock. Some of the cars were running quite well. But I was interested in Ron Sheldon's dragster. Seems he has been turning 58+ mph and 3.02 sec. The rail didn't look unusual. It was

Taipan powered, had a rocking front end, 5.25 gear ratio, capped rear tires, and a flexy wing. When the car went, it screamed. For the acceleration and speed that it had, the directional stability seemed to be quite good. The engine just screamed all the way down to the lights. It had to be going at least 25,000-26,000 rpm. The caps are supposed to expand, just like on the real dragsters. That flexy wing may even help . . . bending down to give less down force and drag as speed picked up.

In the eliminations (2 out of 3), Ron put on a flying demonstration when he hit the center dividing strip about half way down and went about 6 feet in the air. Pieces went every which way, but Ron had it back together for the next heat.

Bev Newberger was the only gal en-

tered with her California Girl funny car. She had a good qualifying time, but was eliminated in the heat races. Bev had the second heat in the bag when her competitor spun off the line. However, she didn't back off the throttle and hit the wall herself about 3/4 of the way down the strip. The other driver had recovered by then, and tripped the lights.

Gary Buriani was consistent throughout the program. The car (which used three servos) was quite fast and went like an arrow every time. He just knocked the cars off in his class one by one until the final showdown, when Al Chuck beat him.

Mike Carone had rail and funny cars that looked impressive. The cars have run well in Southern California, but in the eliminations, both suffered from fuel starvation and engine problems. Mike's third servo brake systems have always given him a good jump off the line.

A summary of the finals is presented in Table I. Watching the drags is enough to make you want to build a drag car and get into the thick of the excitement . . . if you've got the time.

Easterners may not appreciate this, but it was cold . . . about 50-53° . . . with the wind blowing all the time. I ended up buying a wool cap and gloves to try to keep warm.

After the drag racing was completed, the road course was opened for practice. The track layout was identical to that of the 1974 Nationals. Most people seemed to like and enjoy that track. I personally like the high speed "esses" after the back straight. If you hit the entry correct, it's full throttle . . . hard right, hard left, hard right, all the way to the start/finish line. It's really exciting to watch the cars setting up and drifting through those corners at full throttle.

The only modification to the track was to locate the pits to the left of the driver's stand, rather than in front of the drivers and outside the start/finish line. That got rid of the track/pit separating wall and made pitting and driving much safer.



The concurs cars. Number 14 (second from top), a Steed-Lola, by Bill Bryant, was the winner.



Earl Campbell, winner of the trophy dash.

I don't recall too much about who was racing on Saturday because I was so busy with my own car. The traction of the road course was not too super, and most drivers were experiencing oversteer. I had the same problem, but didn't do anything about it because it would change by Sunday. Some oversteer is usually experienced on a dusty track, because rear traction with power delivery is affected more than front traction.

It seemed that the local racers were letting the out-of-towners have the most time on the track. Toward the end of the day, the traction was beginning to improve and everybody was going pretty rapidly. After the Saturday practice session, I had a list of about eight things to do to my car that night . . . Get out the midnight oil!

Sunday morning came pretty fast. Most of the racers were at the track by 8:40 AM, and official controlled practice started about 9 AM. Each contestant got two 10-minute and one 5-minute practice session. During practice, there seemed to be an unusual (?) amount of radio problems; batteries coming unplugged, crystals coming loose, interference, servos acting up etc. Then the race program was finally ready to begin.

Eight cars lined up for the Concours event. They looked great, and they also were required to compete in the racing schedule. After some scrutinizing, the judges pulled out two cars, Gary Kyes' Porsche Turbo Carrera, which ran in the drags, and Bill Bryant's Steed-Lola, which was to run in the Novice road race. Finally, the judges awarded first place to Bryant's sharp Steed-Lola.

The 15 lap heat races for the four driver classes got going quickly. Everybody wanted to get a good time, so they were blasting around the track. In the

Novice races, Bill Bryant who had just taken Concours, looked very smooth, running his engine in a fast 4-cycle. Fuel was pumping out of his tank, however, and his car died. But Bill did come back and win his next heat.

In the Amateur class it was quite something to watch 14 year old Willie Bennett. He drives extremely well and is the top amateur in the San Francisco bay area. Willie usually has a good line, but occasionally a missed corner fouls him up for a couple of laps. Experience will get rid of this then we'll all have to watch out!

In the Sportsman class, Steve Betts' car looked good and he drove like an expert (better than a lot of them). The car really acted like it drove well.

The ones that looked good in the Expert class were Gary Kyes and Earl Campbell with their super engines, then myself, Matt Azzara, and Bill Jianas. Campbell had quick time of 4:18 in his second heat, and I had 4:19 in the first round. Kyes would have had a good time (he was leading me) but had clutch and brake problems.

Right after the heat races, there was a 5 lap trophy dash for the four fastest cars. So it was Earl Campbell, myself, Steve Betts and Willie Bennett. A Sportsman and an Amateur driver had beaten out the other super-drivers! At the start, Campbell jumped out into the lead with his super-engine and 5.1 gear ratio, and I pulled in behind Betts and Bennett with my 4.67:1 geared car. Campbell established a good lead and Betts and Bennett were driving well. I don't remember where I passed Betts, but I got by Bennett on the inside of the corner just before the start/finish line at the beginning of the fourth lap. I was even with Campbell by the start of the long side and back straight, and he zapped

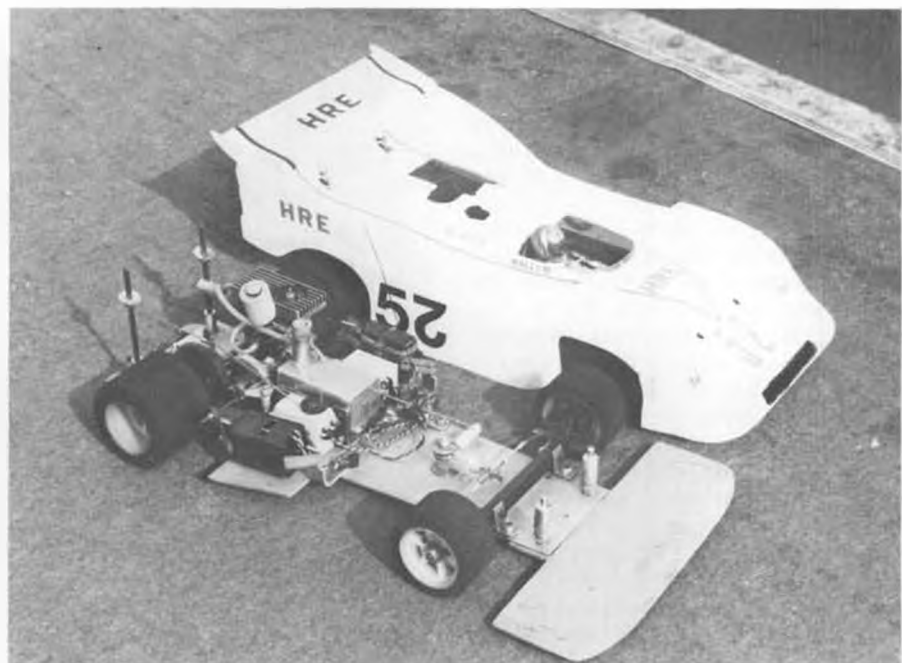


Our reporter getting ready for a heat race. The temperature was a little on the chilly side.

out to what looked like a 50 foot lead (probably 20 or 30 feet) at the end of the straight. Through the esses and in-field I caught Campbell again, only to have him pull away on the straight. I gave it all that I could through the esses, but Campbell beat me by about 6 feet across the finish line.

I can't tell you anything about the Novice and Amateur finals because I was working on my car, tipping the nitro can, relaxing and trying to warm up, so you'll have to just look at the tabulated final results. But in the Sportsman main event, Jim Cade did a good job and pulled out the win. He had to drive the semi-main, and won it, I think, to make

*Continued on page 75*



The author's Expert Main Event winner. The pressure fuel system and tank were described last month.



Red Barrows, probably the most prolific builder in Southern California, with his Fiske Hanley 10 footer. Ship is now fitted with a TV camera. How'd you like to have the Monokote concession on a job like that!?



# PLUG SPARKS

By JOHN POND

The way it works out, you can take in all the meets and not take over two weeks vacation! How about that?

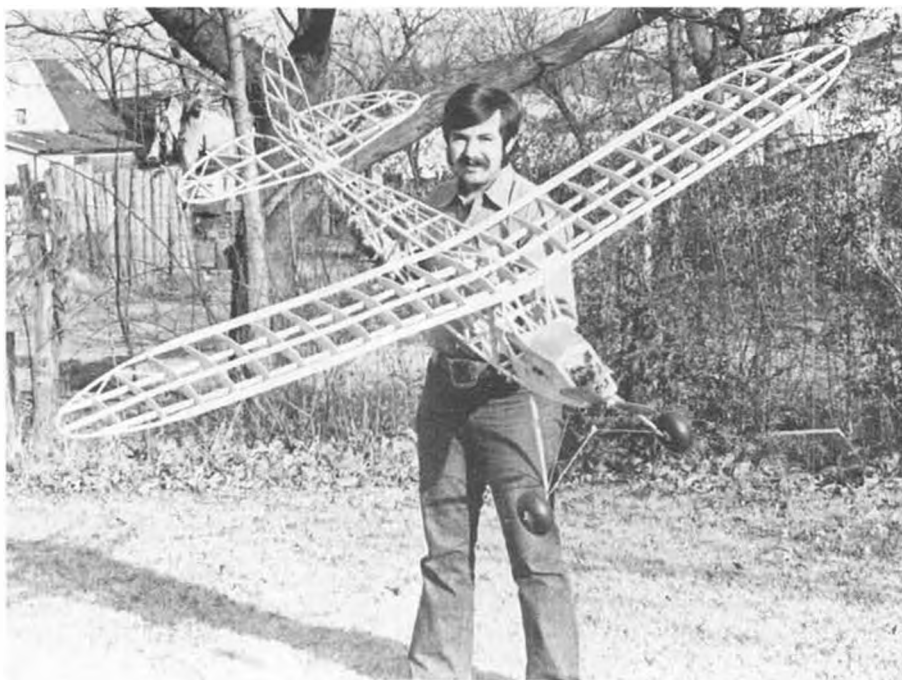
Before someone asks what the events are, here is what is hoped to be staged at Lake Charles:

● NOW HEAR THIS! There will be another Old Timer F/F radio assist contest held at the Lake Charles Nationals on Wednesday, Aug. 6, at the LARKS Field (just as soon as I can get the okay from "Bo" Hinch of the same club). Things will get going at 9:00 a.m. and knock off at 4:00 p.m.

Last year, the events suffered from the close proximity of the Lakehurst SAM Championships. Nobody from the East came to Louisiana! So, we are blowing our horns loud and strong this year for those who are in the mood to take in the Nationals in addition to the SAM O/T Champs.

This is not to detract from the free flight events to be held on Friday, Aug. 8. These old timer events will be held for the eleventh consecutive year! We're starting to grow some whiskers now!

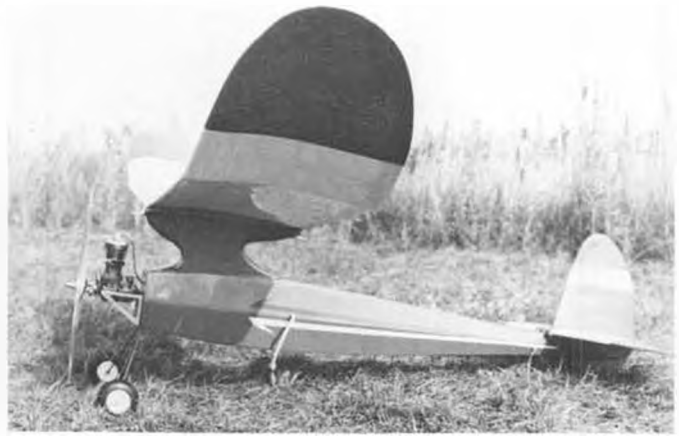
So, if you are going to the Denver SAM Championships on July 29, 30, and 31, right after the conclusion of this big meet, you should be able to find another week in your vacation schedule to take in Lake Charles. Honest Injun!



Arkansas' Kenny Caldwell and his latest creation, an excellently built Flying Quaker. Engine appears to be an OK 60.



When Danny Sheelds' Boehle Giant gets airborne, the weather changes from clear to cloudy!. Seen at Lakehurst last summer.



Beautiful Super Cyclone powered Playboy Senior, by Phil Peach. Flew at the 1974 King Orange Internats.

Wednesday, Aug. 6, All R/C assist.

1. Class A-B combined (20 sec)
2. Class C (20 sec)
3. Texaco (1/4 oz/lb.)

Friday, All F/F

1. Antique
2. .020 Replica
3. Class A
4. Class B
5. Class C
6. Rubber, Cabin
7. Rubber, Stick
8. Rubber, Jr.-Sr.

Of course, the 12th Annual O/T Reunion will be held following the Friday events. This banquet is used as the vehicle for awarding the trophies. This plus speakers, bum jokes, and O/T movies makes the evening an extremely memorable one. Once you've tried it, you won't miss one after that!

#### IGNITION TROUBLES

Just about the time this writer thought he was boring his readers to tears, several encouraging letters were received with comments that they appreciated the review of ignition setups and the problems thereof.

We were doing trouble shooting last month, so we might as well continue with the various things to look for in that "tough-to-start" engine. Okay, if you're not one of those heroes who place their finger on the plug to test the ignition while flipping the prop, do this:

Remove the spark plug, leaving the high tension lead connected. With the plug resting on the cylinder head (for ground) turn the propeller over and see if you are getting spark across the electrode gap. No spark, huh?

Now check to see if all ends are connected. If possible, run a continuity test with a meter to see if you have internal breaks in the wire. Condenser, connected and properly grounded? Don't laugh, the writer got caught without his condenser connected! In addition, if you are using a cut-off timer in the circuit, check, I mean *check* this little jewel. The writer tore his hair out at Denver (*What year was that, John? wcn*) until

he found dust between his copper timer contacts. One has to adopt Murphy's Law in cases of recalcitrant ignition engines; "If it can happen, it will."

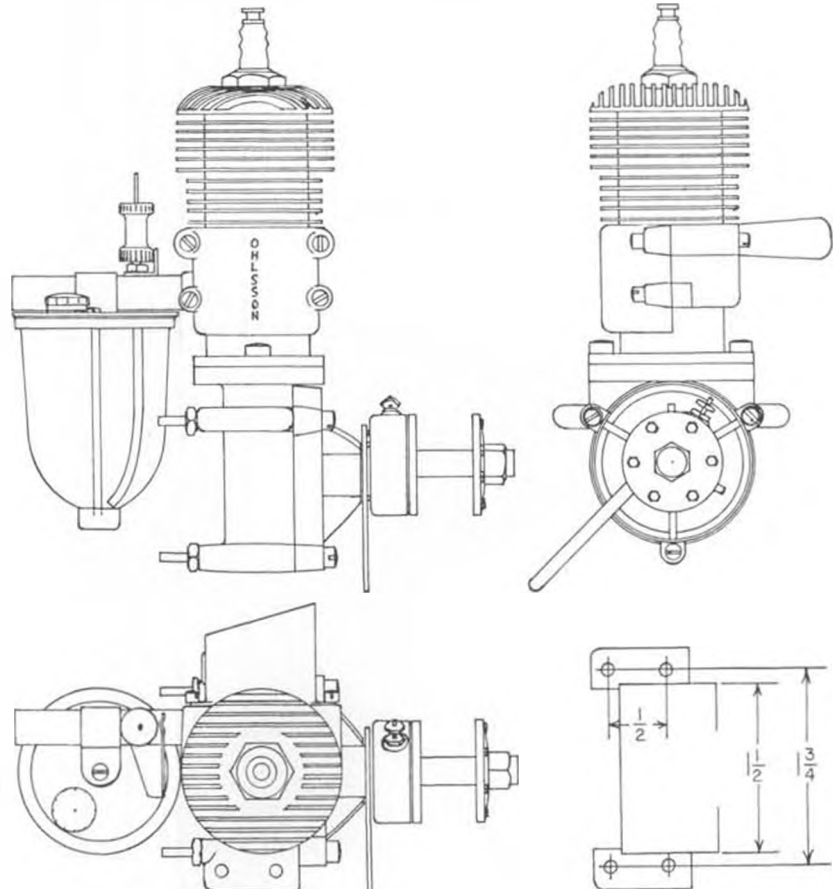
We have been talking about ignition, but did you check to see if you have gas in the tank? Is gas flowing? If not, is the needle valve clean? Make sure your fuel is clean (filtered) when you put it in the tank. Dirty fuel, can give you fits.

How is the compression . . . not only in the head but also the crankcase? If you have leaky gaskets in the crankcase, you'll crank all day and fuel won't come up the by-pass! Of course, it goes without saying, loose-fitting head gaskets make starting hard.

By now, the reader is thinking, "The heck with all this ignition and its attendant problems." The reason for all this writeup is to encourage pre-flying, that is to say, get the bugs out at home, not on the field! It will pay off!

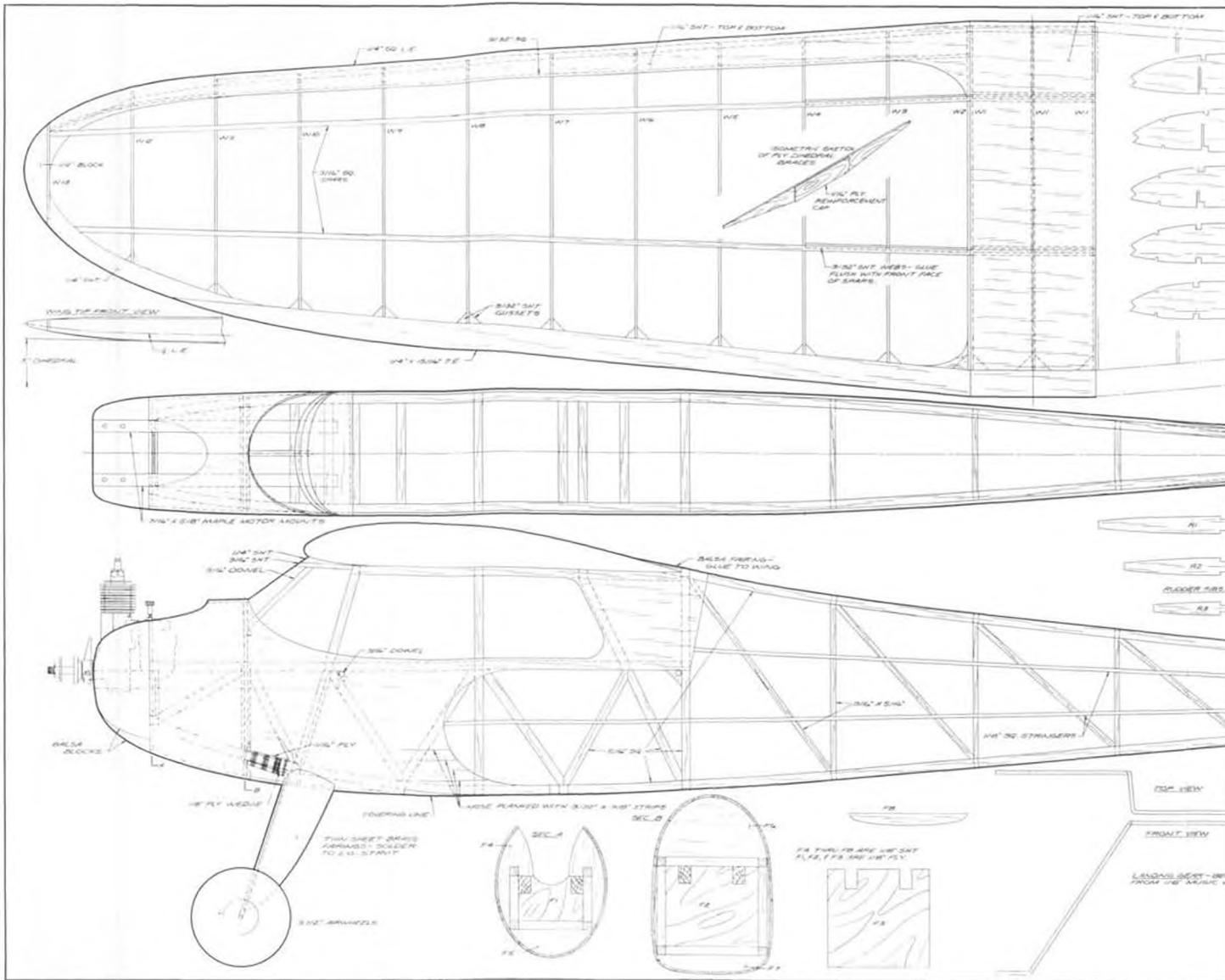
#### NATIONALS COMPRESSED AIR EVENT

It is just that! Despite rumors to the contrary, Tim Banaszak is putting up trophies for the best flying compressed air models at Lake Charles. The event will be flown after 5 p.m. on at least two or three nights. Thursday night will be the last chance. Here are the rules in a nutshell: →



OHLSSON GOLD SEAL

Drawn by TEX NEWMAN



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



## The MERCURY

Designed especially for you model builders who want a high performance contest gas model, that will also be able to "take it," the SCIENTIFIC MERCURY more than meets all expectations. The pound thrust of the average 1/2 H.P. engine exceeds the total weight of the ship and her flight characteristics make it possible for her to hang on her prop and climb straight up with no tendency to loop! A slow roll after the motor cuts brings her out on top as she starts her long flat glide to earth. The stress analyzed structure of this new model enables her to withstand excessive flight loads as well as those imposed by hard landings. A few of the many features to be found on the MERCURY are: staggered tail surface, as protection against spinning; a tapered wing, for greater flying efficiency; and a reinforced front end for the nose but also the impact of

of a successful gas model must be able to withstand not only severe motor vibration landing.

The full size illustrated plan of the MERCURY makes her easy to build too. What else could you ask for in a gas model?

Wingspan 6 ft., Over-All length 52". Weight complete with motor and ignition units 2 3/4 lbs. The kit is complete with all necessary materials including a pair of 3/16" in. streamline balsawh wheels and a full size plan with complete directions. Go to your dealer today to see this Scientifically designed airplane.

PRICED AT

**MERCURY DeLuxe**— MERCURY DELUXE KIT . . . for a little more, SCIENTIFIC offers everything the same as above, plus the addition of yellow, blue and gold SCIENTIFIC dope and a pair of 3/16" pneumatic rubber wheels (in place of balsawh wheels). A real big \$10.00 value for only

**\$4.95**  
Less  
Motor  
**\$6.95**  
Less  
Motor

# SCIENTIFIC MERCURY

OLD TIMER Model of the Month

Designed by: Ben Shereshaw  
Redrawn by: Phil Bernhardt  
Text by: Bill Northrop

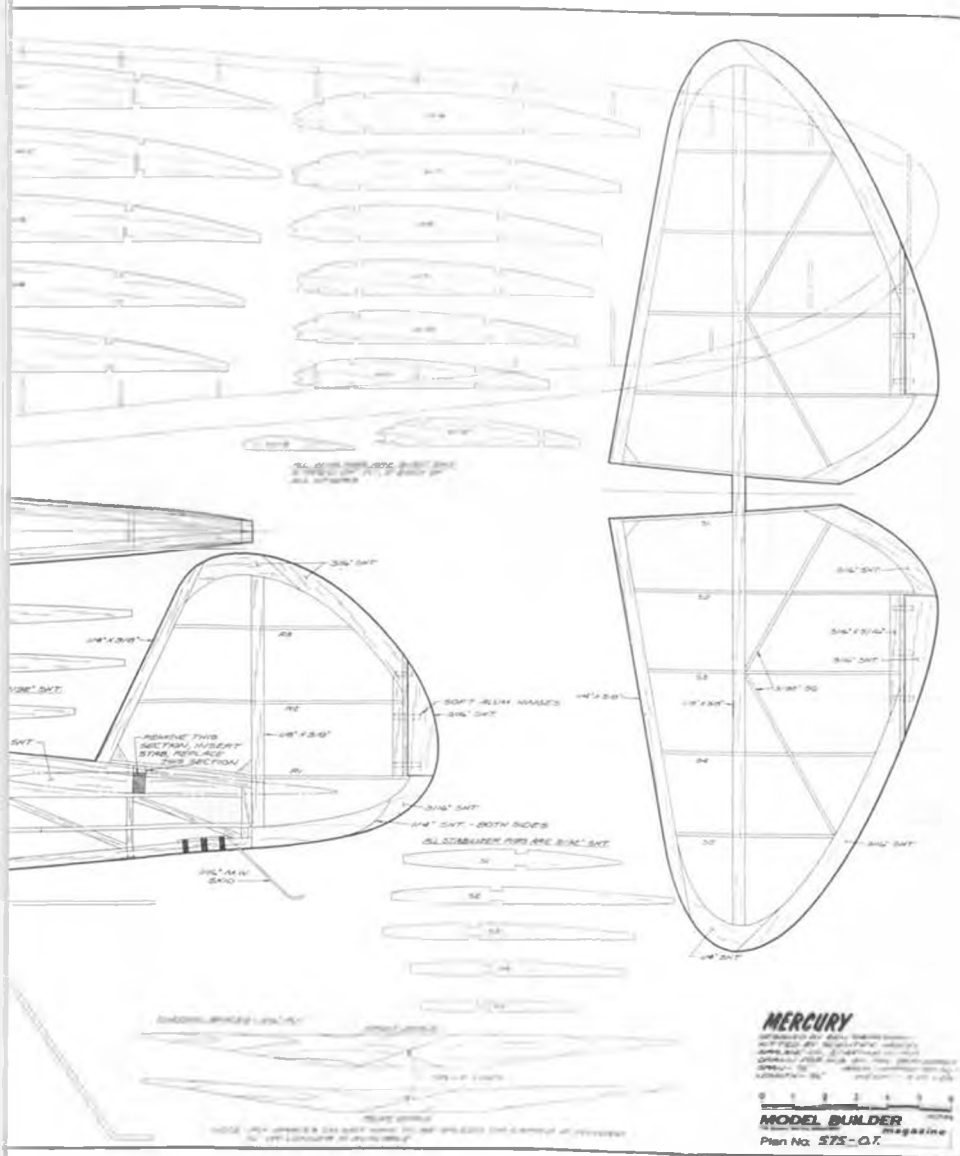
• The Mercury first appeared in Scientific Model Airplane Co. advertisements in mid-summer of 1939. Although he was never mentioned in the ads, Ben Shereshaw was the designer.

Typically Shereshaw in its clean, functional lines, it was unlike Shereshaw in its exceptionally easy construction. Most of his designs, such as the Custom Cavalier and the Nimbus, were nine and ten foot streamliners, and were also major building projects.

Close inspection of the incidence angles as shown on the original plans indicate a very small angular difference between wing and stab. However, the stab has a symmetrical section. Still, it is advisable to be very careful when installing the stab to avoid a 0-0 set-up. The climb would be great, but watch the transition!

The Mercury should make an excellent R/C design, and with the tail surface location, the installation could be well disguised. With a wing area of approximately 765 sq. in., the maximum glow engine size would be a .30. •





## MOTOR OF THE MONTH

In line with the policy of presenting an engine three-view each month (drawn by Tex Newman) no self respecting engine collector would be found dead without an Ohlsson Gold Seal. This excellent engine, despite its large production, it still regarded as a rare engine.

In sketching a little history, it must be recalled that winning the California State Fair meet was regarded as the big contest in the West. Fortunes were made from engines that won the prestigious gas event. Bill Atwood won in 1935, and the Baby Cyclone was successfully launched. But that's another story we will feature next month.

Winning the California State Fair Gas Event eluded Irwin Ohlsson until 1937. When he finally won first place, he was awarded the Gold Seal, indicating first place. From this, the engine inherited its name, Ohlsson Gold Seal. The rest is history. Success after success followed Ohlsson and Rice until they were the largest engine manufacturer in the game. With the advent of the glow plug, the partnership was terminated and another great company faded from the scene.

## CONTESTS

What, already? Yep, in California you can fly year 'round. Three small meets have been held consisting of two in Southern California . . . Scamps Kick-off and Thermal Thumbers O/T Wakefield . . . and the Northern Calif. AMPS.

Biggest competition developing is in .020 Replica. The boys are getting so good that if you drop one max flight in six, you have had it! Maybe if it were restricted to the first three flights there might be more dropouts?

The Wakefield boys are putting up such good times. This event is appealing to the modern rubber power modeler. Used to be a time when it was cheaper to fly rubber, but with the price of a

*Continued on page 82*

1. Flights may be made anytime during the Nats week before the O/T Reunion Banquet.

2. Engines will be limited to 150 psi working pressure (CO<sub>2</sub> engines not allowed).

3. Three officials, each flight limited to three minutes.

4. An attempt is any flight under 20 seconds (unless declared official by contestant).

5. All flights must rise-off-ground (R.O.G.).

6. Helium will not be permitted in tank.

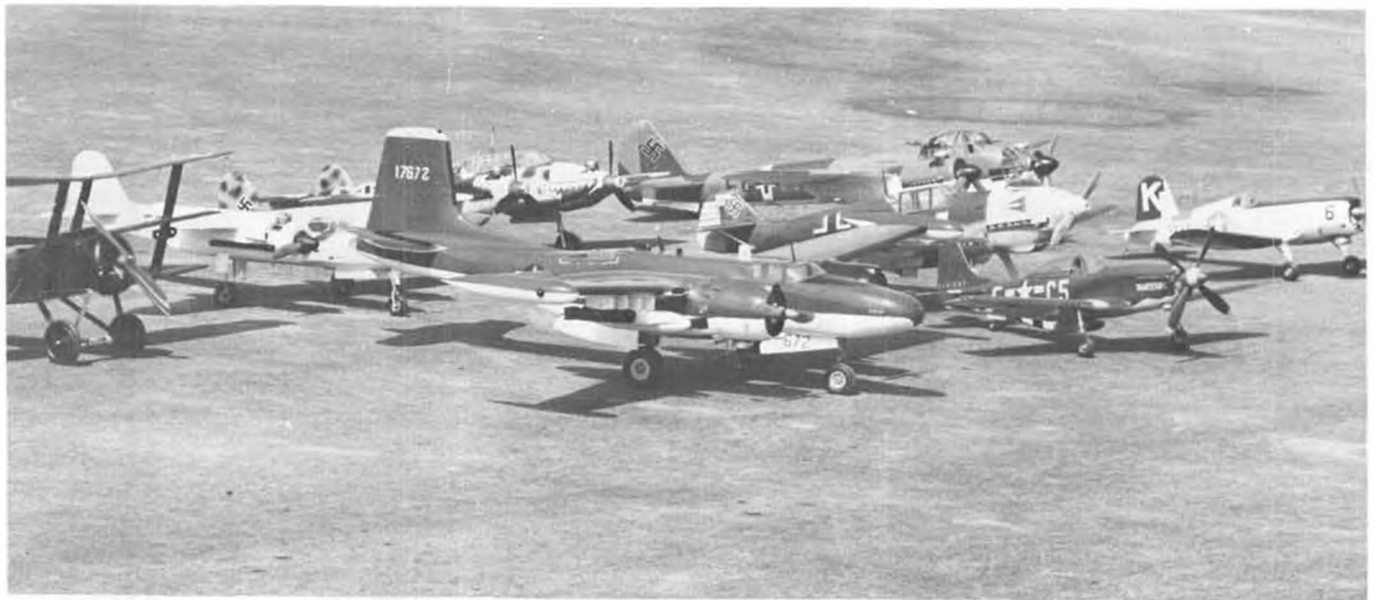
7. All models will be processed and timed under the direction of Tim Banaszak.

8. Entry fee will be \$1.50 (to help defray trophy costs).

Tim further states that if time permits, he will fly demonstration flights at the Denver SAM Champs.



Bob Shafer, Spokane, Washington, built this Brown powered Miss Philadelphia . . . 8-1/2 feet of majestic nostalgia . . . MB editor's first gas model . . . sigh . . .



A group of excellent C/L scale ships seen at last year's Flightmaster's Annual.

# Control line

"FROM THE HANDLE"  
By JED KUSIK

• "Start your two minute warm up . . . Now! . . .

Minus one-minute . . .

Minus 30 seconds, all engines stop!

Pilots . . . Handles on the ground.

Mechanics . . . stand by your model

5-4-3-2-1-GO!"

You have just memorized the exciting start procedure for F.A.I. team racing. This is just another of my clever and devious methods designed to spread the F.A.I. C.L.A.U.S. throughout the United States.

A THREE LETTER WORD ACROSS;  
MEANING GREASY KID STUFF,  
AFRO-SHEEN, FRENCH FRIES,  
AND MODEL AIRPLANES.

Answer: OIL

I could make a cheap pun here, such as, "This is a very sticky subject," but I will not do that.

One of the first questions asked of anyone who flies competition is about what oil they are using. Answers vary greatly and often times start arguments. There are so many new compounds being developed for lubrication that it is now really impossible to know what is actually the best.

In the February issue of MODEL BUILDER, I listed the results of testing done by Charlie Johnson, of San Diego, with his Slow Rat models. Of the several letters received on the subject, two in particular reminded me of a problem that exists everywhere except in Southern California . . . The problem of availability. It seems that most of the new oil

compounds are manufactured in Southern California!

Most of these new lubricants are manufactured for motorcycle racing. I realize that motorcycle racing takes place in all parts of the country, but in addition to the two dozen or more race tracks around Los Angeles and San Diego counties, we have the largest race course in the world; capable of starting 3,000 racers on one line (no exaggeration, it's been done)! We affectionately refer to it as the Great Mojave Desert Course.

The interest is just naturally here . . . and so are the oil manufacturers. I can

walk into any one of hundreds of local motorcycle shops and select, off the shelf, from as many as 35 different oils. That was the count made the last time I tried. It is probably larger now.

Last summer at the Nationals I was running out of my favorite oil, so we just trucked on down to the local motorcycle shop (singular, and hard to find), layed a bit of racer jive on them just for effect, and nonchalantly asked for a quart of Double Blast MX oil. The reply was similar to this. "You want what, boy? We got this here oil on the shelf." I counted three brands of crude oil,

*Continued on page 66*



# PRICES SLASHED ON HEATHKIT 8-CHANNEL R/C GEAR

## Big Savings on Single- and Dual-Stick Transmitters; Lightweight Receiver



Famous Heathkit R/C equipment at unbeatable sale prices. Exclusive Heath-designed IC's in the transmitters and receiver increase reliability while reducing size and weight. At these low prices, we don't think you can find a better buy.

**GDA-405-A Single-Stick Transmitter** — Provides one-hand, simultaneous control of three independent channels. The stick's gimbal coupling actuates two functions, while the third is controlled by the return-to-center knob on top of the stick.

**GDA-405-D Dual-Stick Transmitter** — Two-hand control of four independent channels. Friction adjustment removes tension from one function of each stick to maintain the control at any position you set.

Both transmitters have the same versatile features — trim-adjust tabs, relative power meter, two-position switch for landing gear, finger-adjust tabs for auxiliary functions, coin-switch selection of two adjacent channels (except when 75.640 is specified), trainer link, servo travel adjustments for each channel. Simultaneously recharges transmitter and receiver batteries.

The lightweight receiver weighs in at just 2.5 ounces. For convenience, it has a plug-in connector block to simplify battery and servo hookups, an external on/off switch and two-channel frequency selector.

And, like all Heathkit products, the transmitters and receiver are amazingly easy to assemble, following the illustrated, step-by-step instructions. Even a novice can enjoy building them — and everyone will enjoy the savings.

**Kit GDA-405-S, Single Stick Transmitter,**  
was 144.95 ..... **Sale 109.95\***

**Kit GDA-405-D, Dual Stick Transmitter,**  
was 124.95 ..... **Sale 99.95\***

**Kit GDA-405-2, Receiver, was 59.95 .. Sale 49.95\***

**SAVE \$25**  
**SAVE \$35**  
**SAVE AN EXTRA \$34.90**  
over separate items price

**Save Even More  
...When You Buy A System**



The systems include your choice of single-stick or dual-stick 8-channel transmitters, the GDA-405-2 receiver with the GDA-405-3 battery pack and your choice of 4 servos (GDA-505-44, sub-miniature or GDA-405-44, miniature). And all systems include all batteries — a retail value worth up to \$39.

**Complete Single-Stick System ..... 244.95\***

**Complete Dual-Stick System ..... 234.95\***

**HEATHKIT ELECTRONIC CENTERS —**  
Units of Schlumberger Products Corporation  
Retail prices slightly higher.

ARIZ.: Phoenix; CALIF.: Anaheim, El Cerrito, Los Angeles, Pomona, Redwood City, San Diego (La Mesa), Woodland Hills; COLO.: Denver; CONN.: Hartford (Avon); FLA.: Miami (Hialeah), Tampa; GA.: Atlanta; ILL.: Chicago, Downers Grove; IND.: Indianapolis; KANSAS: Kansas City (Mission); KY.: Louisville; LA.: New Orleans (Kenner); MD.: Baltimore, Rockville; MASS.: Boston (Wellesley); MICH.: Detroit; MINN.: Minneapolis (Hopkins); MO.: St. Louis (Bridgeton); NEB.: Omaha; N.J.: Fair Lawn; N.Y.: Buffalo (Amherst), New York City, Jericho (L.I.), Rochester, White Plains; OHIO: Cincinnati (Woodlawn), Cleveland, Columbus, Toledo; PA.: Philadelphia, Pittsburgh; R.I.: Providence (Warwick); TEXAS: Dallas, Houston; VA.: Norfolk (Va. Beach); WASH.: Seattle; WIS.: Milwaukee.

Send for your **FREE Heathkit Catalog** today — the world's largest selection of electronic kits!



Heath Company		HEATH	
Dept. 238-05		Schlumberger	
Benton Harbor, Michigan 49022			
Please send my free 1975 Heathkit Catalog.			
Name _____			
Address _____			
City _____	State _____	Zip _____	
PRICES & SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE			RC-110
SMALL ORDER PRICES; F.O.B. FACTORY.			

NFFS MEMBERSHIP AND RENEWAL APPLICATION			
(Make checks payable to; National Free Flight Society)			
Mail to;			
B.J. Kelch, R.R.4, Box 475,			
W. Terre Haute, Ind., 47885			
		FEES	
		1 yr	2 yrs
<b>RESIDENTS OF FOREIGN COUNTRIES</b>		<b>\$6.00</b>	<b>\$11.00</b>
<b>U.S. RESIDENTS</b>	Age 19 and up	AMA Members	6.00 11.00
		Non-AMA Members	7.00 13.00
	Age 15, 16, 17, and 18(Senior)		3.50 6.00
	Age 14 and under(Junior)		1.50 2.50
	Family membership*		1.00 2.00
All members receive NFFS Digest. Family membership fee includes all additional family members, but no additional copies of the Digest. Ages are as of July 1 of current year. Please circle applicable fees.		Name	AMA No.
		Address	
		City, State	Zip
New Member <input type="checkbox"/>		*Please list family members	
Renewal <input type="checkbox"/>		Name	
Address Change <input type="checkbox"/>			
Current expiration date		AMA No.	
Month	Year		

R/C Soaring . . . *Continued from page 23* that with even an 84-inch, one-piece wing. The 100-inch span can be transported only in a large automobile, a station wagon or van . . . unless built in two or more panels. And when multiple panels are considered, lengths up to six feet are about as easy to handle as 50-inch pieces.

Economy? One of the major justifications for the 100-inch wingspan model seems to be based on material utilization. The argument is that standard length sheet and strip can be used without waste. The new builder doesn't have to make splices. Right on . . . assuming 48-inch stock and V-dihedral. There may be a couple of fallacies here. Like 48-inch stock is very difficult to get . . . and it ain't goin' to get easier . . . and it is expensive. Ask any scratch builder . . . or manufacturer. How many Standard Class kits use 48-inch wood right now . . . in 48-inch kit boxes on hobby dealers' shelves? And how many Standard Class designs now in the field have V-dihedral? Most seem to feature polyhedral.

Realistically, 36-inch material stock modules could be used to define an economical configuration. That means that 6 or 9-foot spans would make more

sense . . . and less waste . . . than 100-inches. Granted, the 9-foot span would require some splicing . . . as does every 100-inch wing with polyhedral or a center dihedral joint. Those are splices, no matter what else they may be called.

Maybe Standard Class spans should be more like 108 (9 x 12) plus 2 inches for tips and a couple for fuselage width. Total: 112 inches. Certainly not a perfect dimension . . . maybe there is no optimum size . . . but anything between about 108 and 120 inches seems to make as much sense as 100 . . . using the arguments set forth for the 100-inch limitation. Some folks might fuss about all the extra covering material required for the larger size wings. Chances are the real difference in material required for an additional 10 or 12 inches of span would be lost in the waste factor.

Should serious consideration be given to sizes smaller than 100 inches? Why not 72-inch wingspan maximum for Standard Class? If the arguments forwarded for the 100-inch dimension are valid, they should be even more valid for something less than 100. Lots of happy hours have been flown around this country with Bob Hahn's Lil' T design . . . all six feet of it. Or was it 74 inches

with those 1-inch tip blocks? Surely this sub-standard size would please those enthusiasts who are all excited about a Two-Meter (78.74 inch) Class.

The hottest flames in this political bonfire called Standard Class seem to be fed by the number-of-controls disagreement. The basic proposal is very specific: control functions shall be two in number, rudder and elevator. Period. The proponents of this philosophy are quite concerned that without this limitation, the cost and complexity of basic R/C sailplanes would discourage the "average," the new, or the young flier. The counter position cries out for no, that's NO, restrictions.

It would be a tragedy if new starts in the sport were cut-off or even reduced to any significant degree. R/C soaring has enjoyed phenomenal growth from its very inception . . . and the rate keeps increasing. Wonder how that happens without protective legislation?

No one can build a valid argument against motherhood, apple pie, and economy . . . if the pregnancy is legitimate, the apples are fresh, and the savings real. But two controls . . . be they rudder and elevator or any other combination . . . do not necessarily effect true economy. And what about the guy who wants to obtain directional control of his sailplane by ailerons instead of rudder . . . or pitch control by CG weight shift or wing angle of incidence change? Sure, he's some kind of a nut cause he thinks "funny" . . . but he's only using two controls. No reason to fear new ideas, they're seldom any good . . . At first.

Then there's the problem of equipment limitations. A simple two-control R/C system usually will cost less than a similar quality three-control rig . . . by maybe \$30 or \$40 or so. To reduce confusion, it will be best to not compare the price of factory-built, two-control systems with buyer-assembled three-control kits. The hard part is that the guy who puts his money into a two-control system . . . consistent with the intent and reasoning of the Basic Sailplane Class proposal . . . may want to "grow" before too long. Maybe the idea of spoilers or flaps becomes appealing, or a bigger, more complex sailplane. Or maybe he gets a hankerin' for a bit of very basic (Rudder, Elevator, Throttle) power flying. His brand new, economy radio set sorta runs out of potential real quick. More new gear is called for . . . and maybe he doesn't want or need an investment in two sets. So he sells the two-control rig . . . and takes gas. Economy? Hmmm.

But he doesn't have to buy the two-control set, he can purchase up to eight . . . or whatever is available. It's just that by using only two, an economy status has been maintained. Sure it has . . .

There was once a racehorse tout who told his old betting buddy, "Sure hope we break even today. I need the money."

NATIONAL SOCIETY OF RADIO CONTROL AEROBATICS			
NEW MEMBERSHIP AND RENEWAL FORM		Please PRINT	
Name	_____	AMA No.	_____
Address	_____		
City	_____	State	_____ Zip _____
Competition Classification:	A <input type="checkbox"/>	B <input type="checkbox"/>	C/DN <input type="checkbox"/> C/DE <input type="checkbox"/>
NEW <input type="checkbox"/>	RENEWAL <input type="checkbox"/>	NSRCA No. _____	
Dues are \$4.00 for one year.			
Send check or Money Order to:			
NSRCA, c/o Sally Brown, 8534 Huddleston Drive, Cincinnati, Ohio 45236			

**SOCIETY OF ANTIQUE MODELERS  
MEMBERSHIP APPLICATION**

DATE REC'D. \_\_\_\_\_

NO. \_\_\_\_\_  
DO NOT WRITE IN THIS SPACE

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

NAME \_\_\_\_\_ BIRTH DATE \_\_\_\_\_ YEARS MODELING \_\_\_\_\_

ADDRESS \_\_\_\_\_ CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_

Please check if you belong to any of the following:

A. M. A. \_\_\_\_\_ NO. \_\_\_\_\_

M. E. C. A. \_\_\_\_\_ NO. \_\_\_\_\_

S. A. M. CHAPTER \_\_\_\_\_ NO. \_\_\_\_\_

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

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

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

Signed \_\_\_\_\_

Wonder why that story came to mind? Oh well.

If this altruism is real and economy is really the name of the game . . . if we really want to attract new flyers and maintain a competition class for the more casual pilots . . . why not offer a one-year, no-dues club membership and free contest entry for the first flying season? That would show real concern in cost reduction for the mythical "average" sportsman. Any takers?

And another point of interest. This rules proposal exercise is for national competition. The simple, inexpensive sailplane category is intended to attract new contestants to the excitement and exhilaration of contest flying. The logical result, of course, is participation in major events. There is no average, but a typical two-day soaring contest can require a cash outlay that approaches the retail value of a two-control radio system. Considering realistic transportation costs, one or two nights in a motel, meals, banquet ticket and entry fee . . . it can ruin a hundred dollar bill without even panting hard.

How about adding to the rules proposal that no Standard Class entry fee can exceed \$2.00 for any single contest, and that associated banquet tickets shall not be more than \$3.00 per plate for Standard Class contestants and their guests? That, too, would show real concern in cost reduction for the mythical "average" sportsman. Any takers?

Wonder how many club officers are thinking, "That is ridiculous. No dues? And we can't make profit for the club with a \$2.00 entry fee . . . or have a posh banquet at \$3.00 a plate." Oops. Sorry. The ideas were impertinent.

A couple of other quickies now and we'll move on.

It might be interesting to check the contests around the country and see how many folks are flying sailplanes with more than two controls . . . whatever size or class. Next thing is to find out how many winners had more than two controls . . . and then, how many winners were winners because of the additional control(s). Or in spite of 'em.

For what it's worth, few if any . . . like none . . . of the major contests on the West Coast have ever been won by a third function . . . including thermal sniffers. That's strong talk and can't be backed up, but if it ain't absolutely true, it's damned close.

There's a lot of talk about hot shot pilots that fly big, complex machines with spoilers, flaps, sniffers and everything else. These legendary characters take the hardware home with disgusting regularity. Anybody who claims it's the sailplane and all the fancy controls that's stealing the marbles has got to be kidding. The same guys would come out on top if they were flying a piano box lid. They're good . . . and, sure, there's a difference in sailplanes. But there's more difference in piloting skills.

I'm never so impressed with my own design genius as when Rick Walters or some other smart alec kid flies my sailplanes. Fantastic. Super ships every one. But somehow things kinda go stale when I've got the transmitter. Amazing how many kit manufacturers have discovered this fast path to success. Amazing.

The guy with extra controls or functions doesn't have it all going his way. He's got to lift the additional servos, linkages and the like. He's got to build and maintain a more complicated machine. If he can do all that and still out-fly everyone else, maybe he deserves the recognition. And since when are ruddervators so cotton-picking simple that they're specifically approved, yet ailerons are just too much?

Wonder when a proposal for Rudder-only Class Sailplane will arrive at AMA headquarters? Should proportional be allowed to compete with escapements?

The wing area limitation submitted as a cross proposal would seem to have some merit. If only span is regulated, Standard and Open Class could have similar areas in lots of cases. That doesn't seem right for some reason. But low aspect ratio Standard Class designs could easily have more lifting surface than many of the high aspect ratio Open biggies. By combining wing area limits and span maximums, wing chord dimensions

are going to get to looking a lot alike. So why wouldn't a wing area limitation only . . . no wing span regulations . . . make more sense? It's the only way to make a real separation between classes . . . ask any free-flyer . . . and who cares if a guy wants to build a long skinny wing or a short fat one? Both have advantages and drawbacks. Let each guy choose for himself. How much area for Standard? That's one for the rule makers to debate.

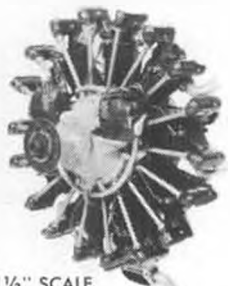
One other thing might be considered in this verbage . . . the size of contests. Experience has shown that about 100 contestants is optimum for a major con-flab. Has to do with frequency availability, launch equipment and such. Multiple classes double the on-field administrative chores lots of times, makes score-keeping more cumbersome, and double the cost of trophies. A small point? Not if you've got the paperwork duty. Besides, a 100-man contest sorta becomes a 50-man (Chauvinist pig! signed Barbara) contest for each of two classes. It's got to be more fun to place 12th out of a hundred than 6th of fifty. That's 88 instead of 44 that ya whupped . . . or is it 87 and 43?

We., by now we should have about everybody mad at us. It's either going to be awfully noisy or very quiet at the flying field. We may have to dye our hair and wear funny glasses at the next big contest. Been wanting to try some of Northrop's Grecian Formula 16, anyhow (*You still don't believe it, do you Le? wcn*). The next banquet really ought to be somethin' else. A bit of Ole Sauce is a great tongue lubricant, and, oh, how the words do flow after just a couple of transfusions. It won't be the first time we've been hit by flak and other substances. Them Texas crowds can get real ornery.

Let's make one thing perfectly clear . . . to use the Southern California vernacular. Everyone of us owes a debt of appreciation to every guy who has ever submitted a rules proposal to AMA. You and I can sit on our duffs, make smart remarks, gripe and take pot shots at those few who have the courage, interest

# GOLDEN AGE ACCESSORIES

## SCALE ENGINE KITS



1 1/2" SCALE  
WRIGHT J-5 "WHIRLWIND"



P & W "WASP"  
1", 1 1/2", & 2"

## ENGINE CYLINDERS



UNIVERSAL  
3/8", 1/2", 3/4"

## SPINNERS



1 1/2" THROUGH 3 1/2" DIA.

## VINTAGE WHEELS



3/4" THROUGH 5" DIA.

## SMOOTH CONTOUR WHEELS



3/4" THROUGH 5 1/4" DIA.

## SCALE PILOTS



RACING



STANDARD



SPORTSMAN

AVAILABLE IN 1"  
THROUGH 2 3/8" SCALE



SEND 25c FOR COMPLETE ILLUSTRATED CATALOG

DEPT. MB • 181 PAWNEE STREET  
SAN MARCOS, CALIFORNIA 92069

## REMCO 29

ALL NEW  
IGNITION  
ENGINE

PRICE \$42.50  
(engine only)

Plus \$1.25  
for postage  
and insurance.

\$51.00

Complete --  
with ignition  
package (coil,  
condenser, plug,  
high tension lead).  
Plus \$1.25 for postage  
and insurance.



REMCO MFG. CO.

P.O. Box 22414, Denver, Colo. 80222

## THE LARGEST PLANS COLLECTION!

O. T. F/F LIST - - - - - 75¢  
RUBBER/TOWLINE - - - - 75¢  
O. T. FLYING SCALE - - - 75¢

JOHN POND

Old Time Plan Service

P.O. Box 3113

San Jose, Calif. 95156

Phone (408) 292-3382

and vision to put it on paper and let it all hang out. It takes guts... 'cause Monday morning quarterbacks can flaunt their 20/20 hindsight for years after a controversy is dead and buried.

No one suggests that automatic agreement with any proposal is required, but intelligent analysis and logical response through recognized channels of communication is only reasonable. In the case of our sport, the AMA R/C Contest Board representative in your AMA district is the ONLY guy who has a direct vote on AMA R/C Soaring Rules... no matter what you may have heard. Anybody else or any organization only serves in an advisory capacity to the Contest Board. Keep that in mind, and don't let anybody give you any jazz about it.

If you have an interest in Standard Class R/C soaring, contact your R/C Contest Board representative. (Names and Addresses are listed at the end of this column.) Your guy may or may not have personal knowledge of soaring, and he depends on input from the membership to guide his voting. He better hear

from you... because the bad guys always make a lot of noise about their ideas. Sometimes they even get organized and really come on strong. How's the rep to know?

Now for the wrap-up and disclaimers. If we have been unkind, unfair, unthinking or even ruffled the feathers of any of the proposal writers, we apologize right here and right now. Most of them are personal friends and Old Flying Buddies, and any that aren't... we'd like to think... will be when the opportunity arises. (Well there goes the image... must be mellowing with age.)

The purpose here has been to open up some ideas and look inside. Any one or combination of the proposals submitted to date could make interesting and lively competition of Standard Class sailplanes. Sometimes the reasons for the particular concepts leave something to be desired. Or do they?

The 100-inch, two-control sailplane may be exactly what the world needs. It may be the ultimate solution to famine and pestilence... or it may be just one of an infinite variety of reasonable an-

swers to what some folks see as a problem.

The only really important thing is that whatever happens, it's what you want... for reasons that make sense to you.

Now this column isn't going to turn into a forum. If ya just gotta hurt me, go ahead and write. But if you want to do some good for soaring, write your R/C Contest Board person. NOW! The bad guys are... whomever they may be in your eyes.

Do we have a proposal... or an ax to grind? No way. Our ideas went down the tubes a couple of years ago. Just so happens that we're philosophically opposed to all restrictions and limitations... NO classes. There's enough of that statutory kind of stuff in this life without it being imposed on our sport. Guess we have a thing for free-enterprise, open competition, nickle beer, and let he who is best stand up and prove it against all comers in a clean, wide-open contest. It seems to us that imagination and challenge, like supply and demand, can be a powerful stabilizing force.

Well... maybe in the next world.

RADIO CONTROL CONTEST BOARD  
Dist. I: Doug Allredd, 38 Summit Rd.,  
Lexington, MA 02173  
Dist. II: George Buso, 11 Maple Ln.,  
Hyde Park, NY 12538  
Dist. III: Don Lowe, 2710 N. Kings  
Arms Cir., Centerville, OH 45440  
Dist. IV: George Hill, 4106 Breeze-  
wood Ln., Amandale, VA 22003  
Dist. V: Don Coleman, 527 Pecan  
St., Box 436, Citronelle, AL 36552  
Dist. VI: Bob Underwood, 4109 Con-  
cord Oaks Drive, St. Louis, MO 63128  
Dist. VII: Peter Waters, 31219 Ken-  
dall, Livonia, MI 48154  
Dist. VIII: David Hyde, 8823 Bound-  
brook Ct., Dallas, TX 75321  
Dist. IX: Loren Tregellas, 3003 S.  
Everett, Wichita, KS 67217  
Dist. X: Bill Northrop, Jr., 1105  
Spurgeon, Santa Ana, CA 92701  
Dist. XI: Ralph Brooke, 3431 S.  
194th, Seattle, WA 98188

Fleet... Continued from page 13  
wire. Solder only the upper front joint,  
not the lower rear connection.

Carefully draw a "T" shaped diagram on a large table or similar flat surface. Make sure the two lines are exactly perpendicular to each other. Place three pieces of masking tape on the upper side of the top line of the "T," about 20 inches apart, with the center piece located where the vertical line of the "T" meets the top. Place another piece of tape on the vertical line and 30 inches away from the tape at the intersection. Draw the vertical line on the two center tapes. Place top wing upside down on the table so that the leading edge lines up with the three front tapes and is centered on the middle tape mark.

Carefully place the fuselage upside

# pulse commander

A QUALITY PULSE PROPORTIONAL RUDDER-ONLY SYSTEM FOR THE NOVICE AND SPORT FLIER.

## Updated for '75!

- New LED charge indicator lamp!
- Improved circuitry for even greater dependability!
- New transmitter antenna mount system for a more attractive package!

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

Units are completely wired and tested with airborne nicads and charger.



BABY TWIN SHOWN

- 10G15-Baby System, \$69.95
- 10G15T-Baby Twin System, \$72.95
- 10G16-Standard System, \$71.95
- 10G17-Stomper System, \$74.95



13L100 DICK'S DREAM KIT \$8.95

## dick's dream

AN AIRPLANE FOR THE BEGINNER AND SPORT FLIER. DESIGNED FOR THE BABY OR BABY TWIN SYSTEM.

SPAN: 32 in.      WEIGHT: 12 - 14 oz.  
 AREA: 175 sq. in.      POWER: Pee Wee or  
 LENGTH: 25 in.      Tee Dee .020

BOX 511, 116 W. 19th ST., HIGGINSVILLE, MO., 64037

NAME \_\_\_\_\_  
 ADDRESS \_\_\_\_\_  
 CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_  
 BankAmericard/Mastercharge Number \_\_\_\_\_

USE THE COUPON TO GET OUR COMPLETE CATALOG. \$1.00  
 ADD \$.50 FOR 1ST CLASS MAIL RETURN.

QUAN	CAT. NO.	ITEM	PRICE

MB

ADD \$1.00 for handling on all orders except catalog.

# ACE R/C INC.

# KING FISH

KIT B24 **\$24.95**

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

**HEIGHT 43" LENGTH 34" BEAM 6 1/4"**

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

If no dealer available, direct orders accepted —with 10% additional charge for handling and shipping (60c 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. 50c enclosed.
- "Secrets of Model Airplane Building" including design, construction, covering, finishing, flying, adjusting, control systems, etc. 25c enclosed.
- "Secrets of Control Line and Carrier Flying" including preflight, soloing, stunting, Carrier rules and regulations, Carrier flying hints and control line installation instructions. 25c enclosed. No checks. Only U.S. money orders or currency accepted.

Name \_\_\_\_\_

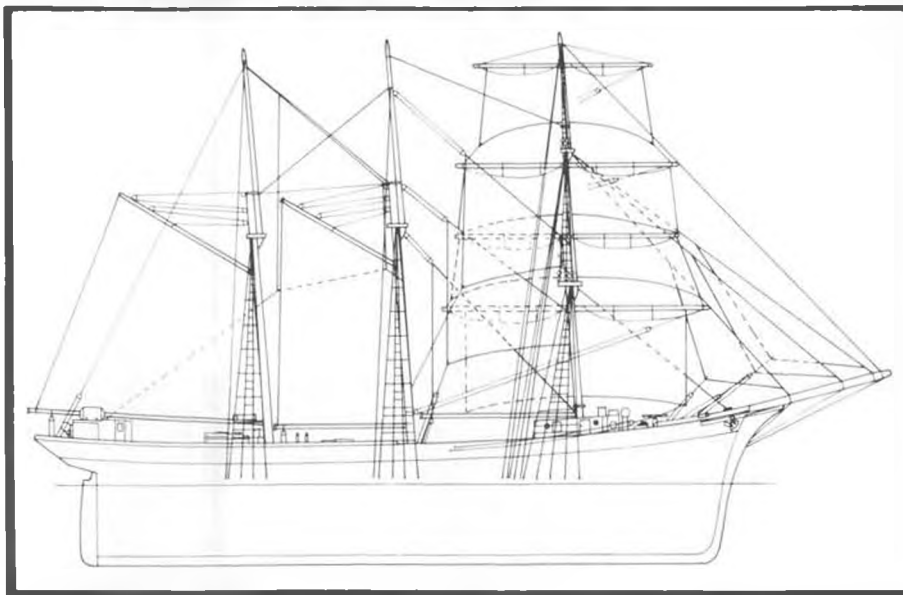
Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_



# GAZELA PRIMEIRO

KIT D10 **\$12.95**

6 pack — 10 lbs.



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

**HEIGHT 8" LENGTH 14"**





**S**terling  
MODELS  
INC.  
PHILA, PA 19134, U.S.A.

# BOEING B17 G FLYING FORTRESS

SUPER DETAILED "STICK MODEL" KIT



KIT E11

**\$15.95**

\*Dry Kit. Rubber Power Material supplied.  
Other power and equipment not included.

**SCALE: 3/8" = 1 FT. SPAN 39" LENGTH 28 1/2"**

**STERLING MODELS • 3620 "G" ST. PHILA., PA. 19134.**

If no dealer available, direct orders accepted —with 10% additional charge for handling and shipping (60c 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. 50c enclosed
- "Secrets of Model Airplane Building" including design, construction, covering, finishing, flying, adjusting, control systems, etc. 25c enclosed
- "Secrets of Control Line and Carrier Flying" including pretight, soloing, stunting, Carrier rules and regulations, Carrier flying hints and control line installation instructions. 25c enclosed. No checks. Only U.S. money orders or currency accepted

Name \_\_\_\_\_

Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Designed and built by Boeing Aircraft Company, the legendary B17 Flying Fortress was "the guts and backbone of our aerial offensive" as General Hap Arnold put it. The tremendous fire power of its thirteen 50 caliber Machine Guns and the special formation flying, enabled the Squadron to penetrate enemy territory without fighter escort. Our Model is a faithful and highly detailed replica of the Prototype. Frame members are accurately Die-Cut from finest quality Balsa and every part numbered to insure fast accurate assembly as shown on the Step-by-Step Plans and instruc-

tions. Many highly detailed and Plastic Parts simplify assembly. Included are Chin Turret, Nose Canopy, Top Canopy, Navigator's Bubble, Top Turret, Ball Turret, Tail Canopy, Tail Gunner Enclosure, Cowlings and Nacelles. Also included is Covering Material, Formed Wire Parts, Wheels, Authentic Decals, Hardware (that includes Control Line Parts) etc. etc. Kit can be built many ways: Rubber Powered (as supplied), Gas, CO<sub>2</sub> Engine, or Electric Motor. For Free Flight, Control Line or Radio Control or Static Scale.\* Any version makes a Museum-like Model.



**SPRAY or BRUSH/SATIN or GLOSS**

You have a **CHOICE** with  
**K&B SUPER POXY**




**PAINT & CATALYST**  
 The easiest to apply and most durable EPOXY PAINT AVAILABLE  
 The "Ultimate Finish"  
 A development of the space age, Super Poxy Paint is formulated exclusively for models... mix and use (NO WAITING TIME—NO HAND RUBBING). Fast curing. Quick drying. Sets up rapidly. Minimum dust adherence. Stays glossy longer. Least affected by ultra-violet sun rays or manufactured fuels.

**11 BASIC COLORS**  
 Red • Blue • Yellow • Orange • White • Black • Aluminum • Metallic Green • Metallic Blue • Metallic Red • our own K & B Purple • All above packed in 1/4 Pt. or 1/2 Pt. cans.  
 plus 22 ADDITIONAL COLORS available by mixing

<b>CATALYSTS</b>		
• <b>SPRAYING</b> —Satin or Gloss —1/4 Pt. or 1/2 Pt.	• <b>CLEAR and PRIMER</b>	• <b>THINNER</b>
• <b>BRUSHING</b> —Satin or Gloss —1/4 Pt. or 1/2 Pt.	• <b>PRIMER CATALYST</b> 1/2 Pt. only	For use with K & B SUPER POXY— Pints or Quarts



**K & B FIBERGLASS— for covering**  
 The highest quality, toughest weave—fiberglass available. For use with polyester or epoxy resin. Excellent contouring qualities make it easy to apply to compound curves.  
 Available in 3 weights—38" wide—  
**LIGHT 3/4 OZ. CLOTH.** For all wood airplanes—cover 100%.  
**MEDIUM 2 OZ. CLOTH.** For increasing structural strength around fillets, nose, or interior of plane.  
**HEAVY 6 OZ. CLOTH.** For joining wings or molding your own parts.



**K & B SUPER POXY RESIN— for sealing and applying glass cloth**  
 Created to include all the characteristics desirable in a resin and its application.  
**Easily workable:** Requires minimum sanding. Little, if any, clogging of sandpaper. Curing time adjustable by the amount of catalyst.  
**Durable:** Does not become brittle  
**1 QT. CAN** (including catalyst)



**K & B MEASURING/MIXING CUPS**  
 Twenty-four one ounce, unbreakable plastic cups. Epoxy resin and most model and craft cements will not adhere. Accurately graduated, from milliliters to fluid ounces.  
**24 to Package**



**K & B Micro-Balloons FILLER—**  
 Mixed with K & B Resin is perfect for fillets or filling in defects (or repairing later damage). Sands beautifully to a smooth, strong hard finish.  
**1 OZ. CARTON**



**aurora hobbycrafts**  
 DIVISION OF AURORA PRODUCTS CORP.  
 12152 WOODRUFF AVENUE, DOWNEY, CALIFORNIA 90241

down on the wing so that the cabane strut eyes line up with the wing mounting holes. Prop the tail up so that the fuselage is approximately parallel to the table surface.

With the wing centered and lined up with the tape marks, and the fuselage tail in line with the mark on the back tape, adjust the four struts so that they line up with each of the holes. Bend or twist the eyes, if needed, so that they all seat flatly on the wing blocks. If they don't, when you tighten the wing screws, the wing will warp. Cabane strut alignment can be accomplished by sliding the unsoldered rear brace joint up or down the strut.

When everything is in perfect align-

ment, and the wing screws snugged down, solder the remaining angle brace connections.

With the structure still in position, place the bottom wing in its saddle. Carefully align the bottom wing so that it is square with the top wing. This can be done by standing a large triangle on edge so that the vertical side touches the leading edge of the top wing at the tip. Then measure the distance from the triangle edge to the leading edge of the bottom wing, and compare with the same dimension on the other wing tip and adjust as needed. Compare, also, the distance from each bottom wing tip to the table surface.

Make corrections for a good fit by

sanding where needed from the wing saddles. When you can remove and re-seat the wing in the saddle and it lines up with the top wing, then you're ready to secure the bottom wing.

Apply cement to the rear edge of the landing gear plate, slip the Leading Edge Mounting Plate onto the dowels and re-seat the wing. Check the alignment once more and while holding the wing firmly in place, carefully slide the mounting plate up against the L.G. plate.

Estimate as closely as possible, the positions of the trailing edge screw holes over the holes in the mounting block and drill or cut out the holes in the trailing edge. With the wing in place and carefully aligned, cut away any material necessary from the holes, so that the bolts can be inserted without interference. The plywood wing reinforcement plate should be installed *after* the wing is covered.

With the wing and fuselage assembly still in place, assemble the two N struts over the plan. Bend four DuBro Gear Strap-on plates at right angles and screw into mounting plates on the wings, with the No. 2 x 3/8 s.m. screws.

Carefully insert the N strut assemblies and epoxy them to the strap-on plates.  
**LANDING GEAR ASSEMBLY**

Bend the music wire struts per the drawing. The 5/32 main strut is 18 inches long and the 1/8 inch rear strut is cut 14 inches long. The optional 1/16 undercarriage struts are 9 inches.

Check alignment of wheel axles so that they are in line with each other. An easy way to check this is to lay the strut on the table. It should come in contact with the table at all points. If you're pretty good at wire bending, you might improve ground tracking a bit by bending in a little "toe-in."

**TAIL ASSEMBLY**

Construction is simple and pretty self-explanatory. I find it easier to cover and/or finish all the tail components prior to mounting on the fuselage. Here again, it may be necessary to sand the surface of the stab support a bit so that when installed, the stabilizer will be absolutely parallel to the top wing. Needless to say, check vertical alignment when installing the fin.

**COVERING AND FINISHING**

Before covering the fuselage, carve or sand the engine cowl so that it transitions smoothly from the outline shown in the Firewall section, to the circular section at the cowl face piece.

I'm expert at finishing, so I always look for the fastest, easiest way, and to my knowledge this means the pre-colored iron-on plastics, or possibly the new Pergamagloss Coverite. This is where a biplane will cost ya! It takes a full sheet 26 x 72 to cover the wings, and most of a second sheet to finish the rest of the plane.

Cut the wing sheet into eight panels each 9 x 26. Cover the bottom tips, then the top tips, followed by the bottom

# "HOT STUFF"™

GETS IT TOGETHER

# FAST

AT YOUR HOBBY DEALERS NOW

DEALERS AND DISTRIBUTORS  
CALL (213) 899-2301

SATELLITE CITY, P.O. BOX 1935  
ARLETA, CALIF. 91331

panels, then the top panels, and finally the ailerons.

Cover the tail surfaces and the fuselage separately before assembly. The Fleet has no blending of the empennage into the fuselage, which simplifies the covering and is one of the reasons this model is easy to build.

When covering the fuselage, in order to get nice neat seams, I would suggest that the turtle deck and bottom be covered first, followed by the tank cowling, then the cockpit cowling, and finally, the fuselage sides. There are some compound curves on the fuselage sides, so be careful and do a good job of shrinking wrinkles.

I personally don't attempt to cover the engine cowl area. Instead, I prefer to seal the edges of the covering material with epoxy, and finish the cowl with several coats of wood filler and dope. INTO THE HOMESTRETCH

Cut the acetate windshield per the plan and install, using "Hot Stuff," plus one of the new trim tapes, such as Sig's Stripe Rite, or D J's Multi-Stripe.

These vintage pipes displayed their registration numbers on the upper right and lower left wings, and usually vertically on the fin. The wing numbers are readily available in 3 inch decals at Hobby Shops, Sporting Goods Stores, and Hardware Stores.

After the wheels, engine and tank are mounted, check the balance point to see approximately where the battery pack and servos should be mounted. For initial test flights, it is O.K. if the C.G. (balance point) is a little forward of the point shown on the plan, but even if you have to add a half pound of lead in the nose, do not take off with the C.G. back of the point shown at least until after the plane has been flight tested.

The tank should be wrapped in foam and installed such that the tank's centerline (half full) is level with, or slightly below the center of the carburetor. Use foam and balsa scraps to secure the tank. There should be enough room below the tank to stow the battery pack. Wrap it too, in rubber or plastic foam, plus a "baggie," in case the tank springs a



**NEW FREE FLIGHT HARDWARE**

Winding Hooks, Etc.



For complete catalog and FREE Peanut Pilot send \$1.00 to:  
**JIM CROCKET REPLICAS**  
1442 N. Fruit Ave., Fresno, Ca. 93728

leak!

Use 1/4 x 3/8 spruce for servo rails, installed with adequate bracing at the fuselage sides so that they cannot jar loose.

#### OPTIONAL SCALE DETAIL

Many of the different models showed no headrest, so it is optional. The Fleet Model F-10-G was powered by an inline engine, so a clean cowl is in scale. But what really decorates this model is the five cylinder radial. Williams Bros.' 2 inch scale Wright J-5 cylinders fill the bill just fine. After assembling the cylinders from the plastic kits, cut off the bottom 1/2 inch, and carve or sand the base to fit the cowl. Fill the cylinder with a balsa plug and epoxy to the cowl. Remember, you are simulating a five cylinder engine with one cylinder missing because of the engine, so position them in "star" form.

Of course, nothing looks more ridiculous than a beautiful scale-like model flying by with two empty open cockpits (*Amen! wcn*). A 2 inch Williams Standard Pilot, (leather helmet and goggles) will solve that problem. On the other hand, a Barbie doll head is in scale too, and she's a whole lot prettier.

An instrument panel or two would look nice too. Use the 1/2 inch instruments commercially available, or go down to the news stand and check the latest issue of Flying. More often than not, Piper Aircraft runs a beautiful full

**D.C. DART**  
DIESEL ENGINES  
.036 cu.in.



**\$15.85**  
postpaid

Other D.C. diesels

in stock

Know the wind speed

For more information write:



**DWYER**  
WIND METER

\$6.50 Postpaid

Dept.M

HOBBY HIDEAWAY, Delavan, Ill. 61734

color ad showing an instrument panel complete with switch panels and radios, and for a buck you get about 140 pages of good aviation reading too.

Finally, no biplane should be without wing and tail wires. The simplest solution here is to go to any place that sells sewing materials. They'll have silver elastic thread. Cut the necessary pieces to about two thirds of the length needed, tie a small loop at each end and install when assembling the wings and N struts. Use the thread also, for tail bracing. When the thread gets dirty or stretched out it takes only minutes and pennies to replace.

#### Material list—

- 7 — 3/32 x 3 x 36 balsa
- 2 — 1/4 x 4 x 36
- 1 — 1/8 x 3 x 36
- 1 — 3/16 x 3 x 36
- 20 — 1/8 x 1/4 x 36
- 12 — 1/8 x 1/8 x 36
- 10 — 3/32 x 3/4 x 36
- 2 — 1/4 x 1/2 x 36
- 1 — 1/4 x 1 x 36
- 4 — 1/16 x 1/4 x 36
- 1 — 1 x 4 x 12
- 1 — 1/2 x 36 triangle
- 2 — 1/8 x 1/4 x 36 spruce
- 4 — 1/4 x 1/4 x 36 spruce
- 1 — 1/8 x 12 x 48 Siglite (poplar ply)
- 1 — 1/16 x 6 x 12 ply
- 1 — 1/8 x 6 x 12 ply
- 1 — 1/4 x 6 x 12 ply



**\$84.95**  
(with silencer)

## METEOR 60

- Ultimate in reliable operation
- Double ball bearings
- Removable prop stud

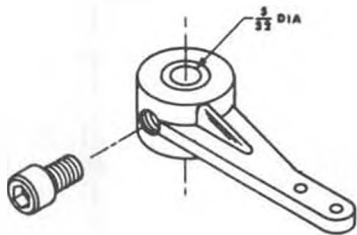
Bore .940 • Stroke .875  
Displacement .6072 • wt 16.30 ozs.  
Full Stock of Parts Available

AVAILABLE AT YOUR FAVORITE DEALER



A FULL LINE MODEL DISTRIBUTOR  
SERVICING DEALERS FOR OVER 30 YEARS

### STEERING ARM NEW DESIGN



We have redesigned our extended steering arm and it is now fully compatible with our nose gear bracket. The nylon arm is molded around the hard brass bushing to give a life time tight fit. Now furnished with a 6-32 socket hd. cap screw for good retention.

Stock No. 09 — .79¢

See your dealer or order direct  
add .25¢ for post. & handling.

**ROCKET CITY SPECIALTIES**  
103 Wholesale Ave., N.E.  
Huntsville, Ala. 35811

- 1 — 1/4 x 12 dowel
- 2 — 3/8 x 5/8 slotted gear mount blocks
- 6 — 1/4 - 20 thd. maple mount blocks
- 1 — 5/32 x 18 music wire
- 1 — 1/8 x 18 music wire
- 2 — 1/8 x 36 welding rod
- 2 — 1/16 x 36 music wire
- 1 — 36" fine copper wire
- 6 — 1/4 - 20 x 1 nylon bolts
- 1 — Goldberg tailwheel bracket
- 1 pr. — aileron bellcranks
- 1 pr. — long control horns
- 1 pr. — short control horns
- 8 — DuBro Gear Strap-on w/screws
- 4 — No. 2 x 3/8 s.m. screws
- 1 — No. 4 x 1/2 s.m. screw

- 1 — set, engine mount screws & nuts
- Throttle, elevator & rudder push rods 2/fittings
- 2 — aileron threaded rods w/ links
- 2 — rolls, 26 x 72 covering material
- 1 — sheet acetate, .0075—.015 thick
- 1 pr. — 3 or 3-1/2" wheels w/ 5/32" collars
- 1 — 1" tail wheel
- 1 — roll 3/4" masking tape
- 5 min. Epoxy, Wilhold or Titebond
- 2 — 2 inch scale pilots
- 4 — 2 inch scale cylinders

Control Line . . . Continued from page 56  
thanked them and walked out. I now appreciate the problem modelers in the rest of the country have obtaining good quality oils.

Dave Trabert, of Beverly, N.J., and Greg Holland, of Yardley, PA., both wrote and asked how to obtain NPG motor oil. This is one of the most popular oils in California, as used by the 'home brew' modelers. It is a pure synthetic, formulated for lean mixtures. Price is \$2.75 a quart from: NPG Lubricants, P.O. Box 2037, Mission Viejo, CA 92675.

Both Dave and Greg pointed out that for them, the Castrol Blue Synthetic oil works very well with good power and handling characteristics; exactly the opposite from C. Johnson's findings. Just proves that we must all do our own testing and then form an opinion.

Also mentioned is that Union Carbide has two oil compounds especially for model use other than the 1145 and 650 that has been available for some time. The two additions to the Ucon line are MA-2270 and MA-731. Both of these oils are available from Union Carbide sales offices, so check your local metropolitan area for a dealer.

Before dropping the subject this month, some more information is in order (oil engineers be kind to dumb animals . . . namely me). There are basically 3 types of oil: petroleum, synthetic, and vegetable/mineral. Before using a new oil check the label to determine the type.

Traditionally, the vegetable oils have been used for model fuel, such as Castor

oil and soybean oil. The problems with these oils come from the varnish residues that build up in the engine (marine spar varnish is made from vegetable oils) and the fact that nitro-methane has a limit to which it will mix with bean oils. Don't rule out bean oils. The new super-refined castors for motorcycles are much better than the old "Baker AAA." For instance, try Blendzall Green Label. It is very good, and fast.

Synthetics mix well with nitro and do not have the varnish residues. But, most synthetics do not have rust inhibitors. This causes problems in storage of engines.

Petroleum oils have not been used much because they do not mix with alcohol at all.

If you are one of the enlightened individuals who use diesel engines for sport or racing, you can run some of the better petroleum oils for two stroke motorcycles. Kerosene, the basic ingredient of diesel fuel, is a petroleum oil and therefore is compatible. I am presently using a petroleum oil in my F.A.I. Team Racer with good results. The brand name is my business, because I need the competitive edge . . . so there!

GLUE . . . \$4,000 PER GALLON, reads the sign at the hobby shop. Must be hot stuff, you say. That's exactly what it is. Hot Stuff is the most expensive glue ever made for model building. At \$8.00 for 30 grams it had better be good. It's not just good, it's fantastic, terrific, and great!

Hot Stuff is a clear, non-toxic, one part super-adhesive, with the viscosity of water and cured weight which is immeasurable, except with a scientific gram scale.

Hot Stuff is a cyanoacrylate solution that cures in ten to twenty seconds, by realigning its molecular structure, by its own heat generation, to that of the parts being joined. It will adhere practically all materials normally used in model construction, including metal and plastic. Parts must fit absolutely tight, with no gaps, as Hot Stuff does not build a fillet of its own. Because of its viscosity, it will penetrate up to a 1/2 inch of the tightest joint. Instant bonding occurs with the application of the smallest amount possible. Drops the size of a pin head are the order of the day. In fact, so little is used that it is difficult to convince yourself that it will really hold. But it does! I think I wasted most of my first bottle by over application. I am trying to find out how little can be applied and still maintain a bond. So far, I am still using too much!

This is the closest thing to bottled time you will ever find. Your building will speed up so much you will never want to be without it again. The only disadvantage is that now you find out how poorly you have been fitting parts. Joints must fit perfectly or bonding will not occur. Because of this quality, I

# WIN!

With AMERICAN BALSA CORPORATION'S proven winners:  
 Bill Chenault's 1/2A - A Mini Pearl and the A-B and FAI Midi Pearl.  
 In hand-launched gliders, we offer the U.S. Kid, Sweepette, Flash,  
 Texas Bo Weevil, Polly, and the Mini Flash.

COMING SOON: Two great new hand-launched gliders:  
 Grand National Champion Mark Valerius' Plane Jane, and  
 Ray Harper's outstanding Maxflyer.

LOOK FOR: Al Vela's fabulous Mexi-Boy C and D class ship, and  
 Al's new and successful FAI power La Mula. Both will be ready  
 for distribution this summer.

This contest season, fly one of these highly competitive designs.

AMERICAN BALSA CORPORATION  
 5250 GULFTON, BUILDING 3D  
 HOUSTON, TEXAS 77036

PHONE: (713)-668-3004

Dealer Inquiries Invited

Cable: AMBALSA

must still keep my Tite-Bond and epoxy near at hand to fill gaps when a part doesn't fit tight. (Save your sawdust, Jed. According to Bob Hunter, you can fill up a "loose connection" with sawdust, and the Hot Stuff will bind it all together. wcn)

Hot Stuff is available for \$8.00, plus \$.50 packing & postage U.S.A. Californians add 6% tax. Satellite City, 9486 Sandusky Ave., Arleta, CA. 91331. Ph. (213) 899-2301. (Check with your dealer first, it is now distributed nationally.) Tell 'em you saw it in MODEL BUILDER.

## MOUSE RACING

Alan Lovins, a Junior from Denver, Colo., writes that a very simple lapping process performed on the crankcase of his Cox engines increases performance. He uses a solution of Lava soap and water. Pour the soap into the case and

revolve the shaft while pointing it down so the solution will flow into the case bearing.

Changing from Dacron to wire lines also brings an immediate performance boost. Half-A wire of .008 to .012 is hard to find in some areas . . . and also very fussy to take care of. If your local dealer doesn't carry the stuff, you can obtain it from Sig Mfg. Co., or from Clary Corp., 2931 South Main St., Unit E, Santa Ana, CA. 92707. Clary now carries the complete line of Kirn-Kraft products, which it recently purchased. Among the Kirn Products is .008 solid lines. Sig carries .012 braided.

On my Half-FAI Mouse Racer plan last month, there is an error in prop size. The prop size should be 5x3, not 6x3.

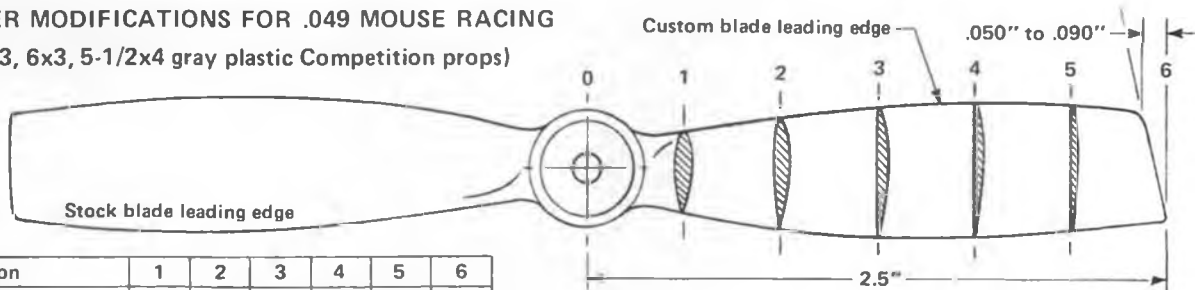
Prop modifications are a source of great performance increases. The Cox

grey competition props seem to work best, but they do break easily, so you might want to stay with nylon. I start with three sizes of Cox props . . . 5x3, 6x3, and 5-1/2x4. These props are too thick and must be thinned down by filing. Divide the blade into 1/2 inch sections and draw lines on the rear face of each blade. Stations are numbered from the hub out to the tip. The chart shows two sets of figures for blade thickness. The first row of figures represents the minimum stage of rework. You must thin the prop to this set of figures before a performance gain will be noted. The second row of figures indicate the maximum amount of thinning that should be attempted.

Additional gains will be achieved by raking the tips .050 to .090 of an inch. Leading and trailing edges should be sharp. Also, the first 1/3 of the blade

## PROPELLER MODIFICATIONS FOR .049 MOUSE RACING

(Cox 5x3, 6x3, 5-1/2x4 gray plastic Competition props)



Station	1	2	3	4	5	6
Minimum rework	.090	.075	.060	.050	.040	.025
Maximum rework	.090	.063	.045	.035	.025	.015

Not to scale

# Challenger II, second to none!

**F** -AND THE "ONLY" STARTER IN THE U.S.A. DESIGNED TOTALLY  
**I** AS A MODEL ENGINE STARTER. IT'S NOT TAKEN FROM ANY  
**R** OTHER PRODUCT, LIKE OTHERS ARE .....  
**S** -STARTER GOOD ENOUGH TO BE REQUESTED BY THE  
**T** U.S.A. INTERNATIONAL TEAM FOR THEIR OWN  
 OFFICIAL USE. TO DATE IT HAS BEEN TO R/C,  
 SCALE, FREE FLIGHT AND OTHER EVENTS, PLUS  
 NOW BEING USED BY THE A.M.A. SHOW TEAM ...  
 -STARTER "GOOD" ENOUGH TO CARRY A FULL 5 YEAR  
 WRITTEN GUARANTEE ON PARTS AND PERFORMANCE .....



**SONIC-TRONICS**

The World's Largest Manufacturer of Model Engine Electric Starters.

INC. 2 South SYLVANIA AVE. PHILA., PENNA. 19111

Do you really want anything less than the very best? .....

## Model Aeroplanes A Splendid Gift



Bill Hannan's Peanut version of the "Ideal" Nieuport. Basswood and balsa construction; tissue covered. Complete kit... white tyred simulated spoke wheels, plastic prop and thrust bearing, printwood, teed, rubber strip and detailed Instruction Manual \$4.49 (\$5.00 securely packed and post paid). N.J. buyers add 5% sales tax.

Peanut Plan Special... Five Peanut Size Kit Plans, WWI and Golden Age Biplanes. \$1.50 post paid. Scratch Builder Super Offer! Plan set and printwood for all five models \$5.00 post-paid. N.J. buyers add 5% sales tax.

VINTAGE AERO 20-page Catalog \$1.00

**VINTAGE AERO**

1 THE GLEN • TENAFLY, N. J. 07670

from the hub should be carved to a full symmetrical section. The outer 2/3 of blade will remain flat on the rear face, with the high point on the top at about 30%.

Propeller re-work is a slow and tedious task, but very necessary, as no other variable of speed and racing is so important.

### F.A.I. TR PLAN KIT

Would you like to build a model for the *best* event? The Kansas City team of Dunkin and Wright will provide you with a molded fiberglass fuselage and canopy, a complete set of model construction plans, also plans and instructions for building the tank, shutoff mechanism, and filler valves for pressure refueling... all of this for only \$20.00. I have seen the quality of their work and it is first class. Include an extra dollar to join the F.A.I. Controline Association and support stunt, speed, and team race organization in the U.S.A. Write to: Jim Dunkin, 10411 E. 39th Terr., Kansas City, MO. 64133.

### HOW TO PRACTICE FOR RACING

Go flying, you say? No, unfortunately it is not as easy as that. In fact, it is

quite complicated. Before I started flying F.A.I. I just "went flying," but team racing has so many variables, and performance changes are so subtle, that I had to develop a specific system for practice. I wanted to develop reliability, consistency, and top performance. My methods will obtain the same results for you in any event you fly, but you will have to change and learn some new habits.

First requirement is a correct flying circle marked according to the rules of the event. A box of chalk and a tape measure will accomplish this, if you cannot paint lines on someone's parking lot. Secondly, you must have the entire circle to yourself or performance changes will not be accurate due to the traffic congestion from other planes and pilots. You must fly alone also to be able to hear your motor accurately.

The next and most important item of all, is a log book. In it you will record everything... I mean everything! No one's memory is good enough to remember everything that is done. My team race log book goes back 5 years, and is a valuable research book to me.

Start by numbering your motors, and coding all the parts inside, so that when you do rework or part swapping, you can trace the origins and be aware of differences. Make diagrams of modifications and list specifications. This will prevent duplication of tests and experiments in later years.

Record the props you use and specifications for diameter, blade width, and thickness. If one works particularly well, you will want to duplicate it. Fuel formulas should be listed and variations in performance noted. I even work out simple charts and graphs to compare various mixes after testing, and to try to predict the outcome of possible variations.

Record the weather conditions and time of day while practicing. I use a desk-top weather station purchased at

"Sears and Sawbuck." It indicates, temperature, relative humidity, and barometric pressure. Record all three, several times each session, and always after a particularly good flight. After several months you will notice a pattern developing. Your best performance will occur at definite times of the day and under specific weather conditions. When you arrive at a contest and check the weather, you will know what to expect from your model, and how to adjust for the conditions.

Establish some standards or bases for comparison. Have a standard fuel mix that you can use for comparing fuel experiments. Have test props that you use for no other purpose. I have a set of test props that I use for comparing motors on the bench. For instance, if a new motor will turn a particular test prop a specific rpm, I know how fast it will go in the air. And it does! You will gain this knowledge only by keeping records.

Pilot technique is important for meaningful practice. Do not fly as you would in a real race. A false reading will result. The pilot must pivot in practice, not walk a circle. His arm must be out rigid. Not in to the chest or partially bent. No whipping or restraining force should be applied. The model will fly slower by about 3 miles per hour this way. Now you have an accurate simulation of what happens when two other pilots are slowing you down. If you purposely slow down the model in practice, then you will not slow down or lose anything in a race. Your race times will equal your practice times, and that is real consistency.

How to time: the most accurate stopwatch you can afford is a must. I started with a 60 second sweep, then switched to a 30 second sweep, and finally to a 10 second sweep. This will record accurately 1/10 of a second, and is easily readable at a glance.

# The Monokote<sup>®</sup> Squadron



**No plane goes through more grueling workouts and trials than the ones that belong to the AMA Show Team.**

These modelers are hard-driving experts and their planes are the Superstars of the flying world. They get put through countless public shows, often performing acrobatics and stunts that real aircraft couldn't begin to do. And, of course, they have to be kept in prime condition and appearance.

So, when we found out that the AMA team members individually chose SUPER MONOKOTE for their models, without any form of solicitation, we were a little flattered . . . But, we weren't surprised.

Because, for years, we've been telling modelers that SUPER MONOKOTE was the truly professional finish and this just proves our point.

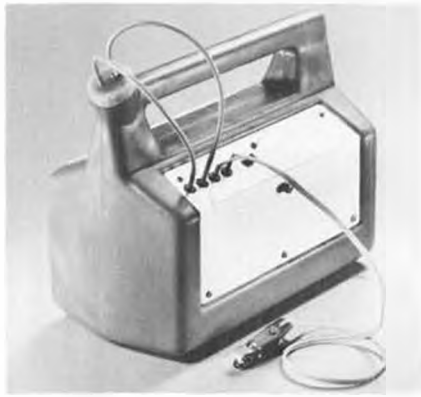
There's no other finish that goes on as fast and easy. It doesn't even require any special skills. And, best yet, it puts a welcome end to sealing, doping, sanding and polishing. Besides, it's moisture-proof, fuel-proof, stain-proof and fade-proof.

So, if you'd like to give a professional finish to your model, join the professionals of the AMA Show Team . . . SUPER MONOKOTE YOUR next plane.

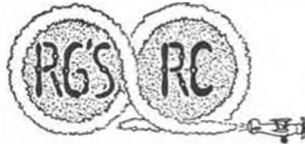


**Top Flite Models, Inc., 2635 S. Wabash Ave., Chicago, Ill.**

## UNCOMPLICATE WITH RG'S "Pit Pak"



and leave your more bulky box in the car. It's the total field box! Bottle molded of rugged high density polyethylene with brushed aluminum metal work. It fuels and defuels. It has a 1.33 gallon capacity and self-primers at any level. One side of the PIT PAK houses a built-in transformer charger for two D sized nicads (nicads included in price), reversible pump, jacks for glow plug cord, and clip. The power pack side is removable for off-field charging. The other side is a tool caddy with ample area for plugs, props, prop wrench and other tools.



P.O. BOX 406  
ST. JOSEPH, MICHIGAN 49085  
PHONE: (616)-429-3528

**\$49.95**

RED - BLUE - GREEN  
List color preference,  
if possible we will ship preferred color.

Michigan residents add 4% sales tax

**PROCTOR** HARDWARE

- WORKING TURNBUCKLES
- RIGGING & CONTROL CABLE
- CONTROL HORNS
- STRUT FITTINGS
- SHOCK CORD
- COCKPIT TRIM
- PULLEYS
- INSTRUMENT HOUSINGS

For additional information, brochure and catalogue send 0.50¢

PROCTOR ENTERPRISES INC.  
P.O. BOX 9641  
SAN DIEGO, CA. 92109  
**DEALER INQUIRIES INVITED**  
MFGD. AT 6821 CONVOY CT. SAN DIEGO CA.

Kit and Accessories  
for Creative  
Modeling  
At your local dealer

**MARLOW ENGINEERING**  
6830 Vineland  
North Hollywood, Ca. 91605

Time your model for the longest distance that your speed chart will read out. Don't be tempted to time a shorter period and then multiply the reading. The margin for error is too great. Time as many full sections of each flight as possible. You will quickly find out that the flying speed varies from beginning to end of the run. I start with the second lap after takeoff, and time a section. I then allow two laps for reading and clearing the watch, and then time again. Repeat until the engine quits.

Examples of typical results are:

a. Slow start, good mid-range speed, slow finish. Reason . . . the mixture is too lean or too rich as the tank empties, or the engine is overheating.

b. Fast start, then steady slow down. Reason . . . over compressed or too hot during warmup.

c. Slow start, speed increasing steadily throughout the flight. Reason . . . too much prop for the model to unload or the motor was too cold at start.

These are some examples of what you can learn by consistent timing procedures.

If there is a third member on your team, he can do some additional time studies that are very helpful, and nearly impossible for the pit man to accomplish accurately. Time the first lap from release. This will give a good indication of prop efficiency. How quickly the prop unloads and comes up to speed is

very important. With a diesel, if the first lap is exceptionally fast, 2 or 3 tenths quicker than your established normal, the engine is over-compressed. It is then possible to shut off before the engine becomes overheated and seizes.

Time the last lap from engine off to the catch. The pilot should be able to slow the model and land it for the pit man (without taking off his hand, Larry!), in about the same amount of time as the first . . . 2-1/2 to 3-1/2 seconds is about right. Landing should not take very much time. If it does, then possibly the model is too heavy.

Long landing times might be the fault of the pilot. Proper technique goes something like this: Rapid up and down elevator flutter for 1/4 lap, while descending to the ground. Apply down elevator immediately at touch down to keep model on ground and to raise the tail high. This really slows things down fast; like having brakes. Be careful not to tip over. After the model slows down to a catchable speed, neutralize the elevator and roll on in to the pit man. Sounds easy right? Shouldn't take more than a couple hundred flights to master the technique!

Time the pit stop. This sounds easy, but is usually done wrong. Most people time from the catch to the release and think 5 to 8 seconds is fantastic. It's not. For perfection, 2 to 4 seconds is your

goal. To really see how good you are, you must include the deceleration to landing and the first lap back to flying speed.

The correct procedure is to time the model and note the reading, then immediately start timing again, but now shut off and pit the model half-way in the timed section, and then finish timing. The difference between the straight timed run and the run with a pit stop is your real pit stop time. Now, 10 to 15 seconds is your goal.

If you have a camera nut around, get him to take pictures of your pit work. You will be surprised to see where your hands and feet really are!

Do two operations at the same time (unless you have only one hand). Set the prop position and open the shutoff or adjust the needle valve and fill the tank. In a race, you do not have time to listen to the motor while turning the needle. Make an adjustment before starting the motor, based on experience gained through practice. You can lose 15 to 30 seconds waiting to hear an engine adjustment. Time wasted is a race lost.

Practice entire races from start to finish. If you are flying properly with arm out, then the time you record is what you can expect to duplicate at a contest.

When the flying session is over, practice or contest, take time to sit down and write out the results, good and bad . . . everything that you did. That is valuable information that you will need some day.

See you all at the stadium parking lot next weekend, where we can all have a private practice circle!

**Remotely . . . . Continued from page 16** we'd dearly love. Problem is getting it from the Philadelphia area out to Los Angeles. Anybody out there have connections with a private or commercial pilot who might be able to give us a hand?

PEA POD PATTERN

Would you believe that the third most popular full-size plan we have is for the



Pea Pod, that 36 inch long R/C sailboat, designed by Tom Protheroe and featured as a construction article in the April 1973 issue of MB? As far as models actually built, it could be Number One, since it is possible to build it from the article without using the full size plans. Not only that, school districts in the Saginaw, Michigan and Seattle, Washington areas received permission to reproduce the plans and article material for their student shop programs, and have promoted the building of Pea Pods, en masse, by school kids! (Schools that are interested may drop us a note for further info).

Dave Katigiri, Seattle, Washington, has sent us photos of Pea Pods . . . using less expensive vane control instead of radio . . . built by his son Mike, and others in the Seattle area, which had the privilege of sailing in the exotic pools of the Pacific Science Center.

Other Pea Pod photos came from far-off Japan, sent to us by good friend Ritsuri Honda, a fellow pattern judge at the 1971 World Championships in Doylestown, Pa. Ritsuri is now President of the Japan Model Yachting Society, and reports that ten Japanese competitors are preparing for the World Championships of Radio Control Model Yachting, to be held in Gosport, England, this summer, and sponsored by the International Model Yacht Racing Union.

#### HALF-A PYLON

Dave Katigiri also reports from Seattle on their 2nd generation 1/2A racers. Deletion of the RCM conformance requirement allows some interesting designs. Dave says they tend to be "things," but fast!

Bob Mikko's fiberglass bodied model carries a heat sink on the head to save plugs, uses hi-nitro fuel . . . pen bladder tank. Straightaway speeds are estimated at 75 mph, based on race course speeds of up to 50 mph.

#### FLY . . . WEATHER OR NOT!

We have two examples to show that California style weather isn't absolutely a must in order to fly models . . . if you're nuts enough!

In the DCRC Newsletter for February, edited by Glenn Scillian, Mike Winter (very appropriate) reported the following incident:

"I heard that Jim Watson had gone to Columbia to fly Saturday, Jan. 18. He arrived just as it started to sprinkle. Not wanting to waste the gas for the trip, he quickly got his Eagle 60 powered Acrostar biplane out, fueled up, and airborne. After 5 minutes of maneuvers, and since it now was sleeting, he decided to come in closer and start shooting landings. The first tough-and-go was pretty routine, but then he noticed he was having to make each approach progressively steeper to keep from stalling, followed by progressively longer runs to get her off the ground. With his final

## R/C ELECTRIC FLIGHT SYSTEMS\*

\*Patent Pending



from  
Pioneers In Silent Flight

**AFI**

ASTRO FLIGHT, INC.  
13377 Beach Avenue  
Venice, California 90291

\* COMING SOON: ASTRO 020 R/C & F/F ELECTRIC MOTOR \*

## PEAPOD POWER

You'll pass by the fleet when your boat is powered by CARR SAILS. With more competition wins in more A.M.Y.A. classes than any other sailmaker, we know what an important part of success sails are!!!! Act now and this MODEL BUILDER Special will allow you to suit up your PEAPOD for only \$20.00, a saving of 1/3 from regular prices. Write for our off-season savings in other classes and for a copy of the 1974 brochure and price listing!!!

Specify color: white, gold, red, dark blue, light blue or green.

Specify main luff required: bolt-rope, dress hooks, double luff.

Give AMYA boat number and choose numeral color: black, white, red.



Make check or  
money order  
payable to:

## CARR SAILS

7607 GRESHAM ST., SPRINGFIELD, VA. 22151

landing, and the taxi back for refueling, Jim found his biplane absolutely covered with ice. Fuselage, wings, tail, everything! The plane had gained between 4 and 5 lbs. and had an eighth inch of ice.

"He refueled, scraped off the ice, and flew again . . . this time in a light rain. The same results. The third flight began just as it started to rain fairly hard. More landings and then, while coming around for a last approach, the engine quit. Jim says he never knew a biplane could land that hot! The engine had quit because the throttle had iced up, and she'd leaned out.

"Warren Sanders drove up during Jim's last flight and will verify Jim's icing. Warren said that I-95 had been closed because of the severe icing on the road and a rash of accidents. They sat in Warren's car until the radio announced the all clear on the highway. Jim is now looking for de-icing equipment and a carburetor heat control for his models!"

As if that isn't bad enough, the Greater Detroit Soaring and Hiking Society purposely plans an R/C soaring meet in the snow! Of course, with a club name like that, who would be surprised at anything they might do! Charles "Bud" Pell, reports on the GDSHS 1975 Sno Fly:

"In the fall of 1970, a few members of the Greater Detroit Soaring and Hiking Society were discussing the evils of

flying during the up and coming winter months. Winter flying would not be a new experience for us, but the thought of a soaring contest in mid-February seemed to arouse everyone's interest. We wondered just how many R/C soaring nuts we could attract to a contest with the thoughts of deep snow, icy winds, sub-zero temperatures, not to mention a scarcity of lift.

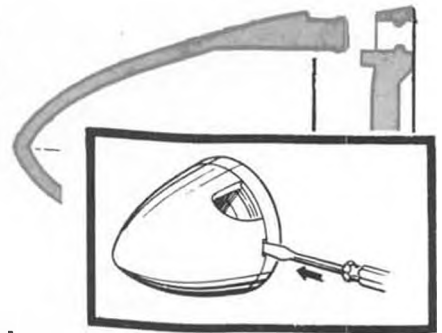
"Fourteen soaring buffs accepted the challenge of the first Sno Fly (1971), despite the four degrees below zero temperature. Since then, Sno Fly has steadily increased in size, with sixty-five eager pilots turning out for the 1975 event from five states (two from Texas) and Canada. This response gives reason to believe that the Sno Fly is becoming one of the most prestigious soaring events to attend in the country, save the Soaring Nats and the L.S.F. Tournament.

"Competition at the Sno Fly has always been as tough as any soaring contest during the year, and this time was no exception. Three national grand champions were present . . . John Neilson '71, Jeff Mrlik '73, and Otto Hiethacker '74 . . . plus a heap of talented flyers from around the midwest. Through the two rounds of seven minute duration and one round of three minute precision, it was a toss-up as to who would come out on top. 'Tough to beat' Jeff Mrlik took top honors in the open

# CARL GOLDBERG



**NEW!**  
**"SNAP-ON"**  
**SPINNERS!**



U.S. PATENT 3,822,138

## SIMPLE TO USE, NO SCREWS OR HARDWARE REQUIRED!

At last, a spinner that works like you've always wanted! Goes on like SNAP-SNAP-SNAP! Comes off 1-2-3! No screws to tighten, no extra hardware to buy. Built to take electric starters. Over 2 years in development. Study the features shown here, then ask your dealer for the CG Snap-On Spinner - the beautiful one that does the job like no spinner ever did before!

★ 5  
**COLORS**

- RED
- WHITE
- BLACK
- YELLOW
- BLUE

★ 5  
**SIZES**

- 1 1/2" - .90
- 1 3/4" - 1.00
- 2" - 1.25
- 2 1/4" - 1.50
- 2 1/2" - 1.75

# DJ 1/2 MULTI-STRIPE

- YELLOW
- WHITE

- BLACK
- GOLD

- BLUE
- RED

GEN. JIMMY DOOLITTLE, the famous flyer, with a model of the Gee Bee R1, one of the ships he raced and won with back before W.W. 2. The model was built by Steve Crowe and Tom Cone, and is a highly successful R/C ship. Took 600 hrs. to construct, weighs 5.3 lbs. complete, and uses black DJ Multi-Stripe tape around the red trim lines.



Modelers by the thousands now use Multi-Stripe to beautify their models. And that includes the best, such as Terry Prather, Walt Moucha, Don Dewey, etc. Main reason is the patented Multi-Stripe adhesive, which cures in sunlight. If YOU want the best, choose Multi-Stripe! See your dealer!

### WIDE MULTI-STRIPE

6" x 36", only \$3.95

And for wide designs, use new Wide Multi-Stripe. The package also contains patterns for 2 sizes of numerals and AMA letters. Plus various arrows and other special shapes to decorate your model!



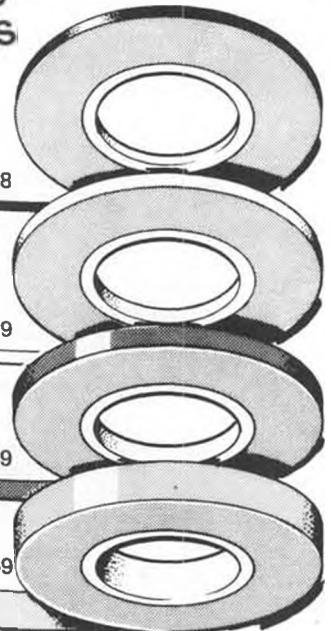
6 COLORS  
 4 WIDTHS

1/16" Wide,  
 36 Feet Long - \$1.98

3/32" Wide,  
 36 Feet Long - \$ 2.69

1/8" Wide,  
 36 Feet Long - \$2.69

1/4" Wide,  
 36 Feet Long - \$ 3.69



## RANGER 42 IS BACK!



The popular Ranger 42 is now back in stock! Ask your dealer for it.

Kit PRC1 \$23.95

## NEW! 4" AND 6" WIDE NYLON REINFORCING TAPE



Extremely tough when applied with epoxy.

8" wide x 5 ft	\$1.00	N6
4" wide x 5 ft	75¢	N4
2 1/2" wide x 5 ft	50¢	N2
3/4" wide x 5 ft	25¢	N1

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

MANUFACTURERS - All our accessories are available at excellent O.E.M. bulk prices.

ALL ITEMS AVAILABLE IN CANADA

# CARL GOLDBERG MODELS INC.

4736 WEST CHICAGO AVE. • CHICAGO, ILLINOIS 60651

Carl Goldberg Models Inc.  
 4736 W. Chicago Ave., Chicago, IL 60651  
 I am sending 25¢ for 8 pg illustrated Catalog with Basic Explanation of R/C Equipment and Radio Control Definitions

Name \_\_\_\_\_  
 Address \_\_\_\_\_  
 City \_\_\_\_\_  
 State, Zip \_\_\_\_\_

class and overall, nosing out Bob Robinson second, and Otto Hiethecker, third. Ted Strohm won the standard class, with Ray Hayes and Dave Yergins taking second and third. Young Chris Corven captured the Junior title, while Jim Steele took second.

"The Sno Fly has become more than a contest. It has become a gathering of the clan, a mid-winter meeting of warm weather friends who disappeared last October; a seminar on everything from the best airfoils to the proper foul weather wearing apparel. But most of all, it has become a day of flying R/C sailplanes with lots of really great people. That's what the Sno Fly is all about.

"Next February when you become blurry-eyed at the building table, grab any old sailplane and your snowmobile suit and head for southern Michigan, because Sno Fly '76 will be. It will be because we all enjoy this great get-together. We invite you and your friends to the hottest mid-winter contest in the country."

#### ABOUT THOSE CLASSES

... Standard and Open R/C gliders, that is. Le Gray has always purposely avoided getting into controversial subjects and/or editorializing on same. Even in this month's article on the "Great Standard Class Controversy," Le has remained amazingly neutral, trying to point out certain facts that seem to be overlooked... or avoided... by both sides of the argument.

However, he did manage to let his hair down (he finally let it grow out, you know... last fling and all that) in the closing paragraph, when he asked why it was necessary to have any division into classes at all. And if we may remove our R/C Contest Board Chairman's hat for a moment, we most heartily agree. If anything, divide the flying skills, as Pattern finally figured out was best, after more than 30 years of R/C maneuver competition. It *can* be done.

Take 5 identical Cumuli (Cumuluses?) and put them in the hands of 5 different flyers at a contest, and they'll end up as far apart in the final tally as Phineas Pinkham's front teeth.

Another very level head has suggested that we have as many classes as a reasonable number of people desire! It's the same idea as the choice of tasks. The hosting organization determines which classes and tasks will be flown... After all, they're the ones that gotta come up with the hardware!

Hat Back On...

HMMMM...

In looking over the FAI R/C pattern rules, we find the statement: "When jettisoning occurs the flight is cancelled." This brings up several interesting points.

Webster's dictionary defines jettisoning as a *voluntary* act, such as purposeful dumping of cargo when a ship is in trouble at sea. Thus, if a part *accidentally* comes off of a model in flight (and

## K & W ENTERPRISES PROUDLY PRESENTS

# THE STOP-A-PROP ENGINE BRAKE

#### FEATURES:

- VERY LIGHT WEIGHT - Less than four grams (FAI-A-B)
- CAN NOT DAMAGE ENGINE
- CAN BE USED WITH 1/8 SQUEEZE-OFF TIMERS
- RUGGED CONSTRUCTION

#### PITCH GAUGE... \$19.95



Postage...\$1.50

#### AVAILABLE IN 3 SIZES\*

1/8 (T.D.).....	\$2.75
A-B (FAI).....	\$3.25
B-C.....	\$3.75
3 Of FAI Size....	\$8.50
1 Of Each Size...	\$8.50

\* Fits most competition engines



Check or Money Order  
Dealer Inquiries Invited  
Pa. residents add 6% sales tax

K & W ENTERPRISES P.O. BOX 18895 PHILADELPHIA, PA. 19119

"flight" includes takeoff and landing maneuvers) it should *not* be considered as having been jettisoned. After all, the purpose of the rule is to prohibit *purposeful* dumping of parts that could in some way improve the contestant's score. Certainly there is no advantage to losing a battery hatch, wheel, canopy, half an elevator, the rudder, the prop nut, spinner, prop, thrust washer, etc. Why add insult to injury by canceling a contestant's flight if such an accident happens?

Before anyone gets too excited, the jettisoning statement applies only to FAI competitions and not to domestic contests in which the FAI maneuvers are being flown. And as of now, we have no anti-jettisoning rule of our own... in R/C events. However, we feel the FAI rule should be clarified. If jettisoning is *truly* meant, then the rule should specify that involuntary shedding of parts will not cancel a flight... it might shorten the flight, but so does running out of fuel... and the only penalty here is loss of further points... penalty enough.

#### THINGS TO DO

Don't forget that World War II Scramble at Morgan Hill, California, May 16 and 17, 1975. Co-Sponsored by the Pioneer R/C Club of Sunnyvale and MODEL BUILDER magazine, it is to be the West Coast Version of that very popular annual event that takes place at Lakehurst Naval Air Station, New Jersey. There are trophies to fifth place for "Museum" Scale and Sport Scale, plus merchandise awards. Contact Eric Clapp, (408) 997-2298 and come see it even if you don't plan to fly. You'll probably come away planning to build for next year!

\* \* \*

Rough River State Resort Park, Kentucky, scene of the annual "Mint Julep" meet to be held this year on May 17 and 18, will also be the site, on June 28 and 29 for the blown-out Master's Tournament. This tournament serves as the FAI R/C Pattern Team selection finals, and will determine who is to represent the United States for the World Championships in Berne, Switzerland, in Septem-

## Sailing Yachts For Radio Control



TAHOE 600

#### AMYA 36/600 CLASS

LENGTH 36 in  
BEAM 9 1/4 in  
SAIL AREA 600 sq in

**\$35.95**



#### VALKYRIE

#### AMYA 50/800 CLASS

LENGTH 50 in  
BEAM 11 1/2 in  
SAIL AREA 800 sq in

**\$74.95**

Complete kits include molded plastic hull and components, all rigging, finished sails and semi-finished wooden parts.

TAHOE SAIL SYSTEM \$24.95

VALKYRIE SAIL SYSTEM \$33.95

## VICTOR MODEL PRODUCTS

11715 Adenmoor Ave. Downey, Ca. 90241

Calif residents add 6% tax

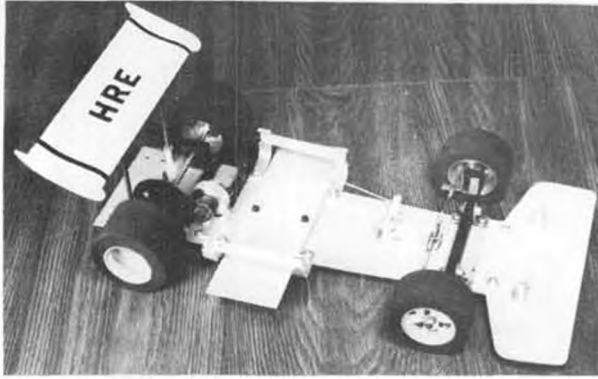
DEALERS WELCOME

ber of this year.

The site choice was made by the finalists themselves, in conjunction with the National Society of R/C Aerobatics. These finalists also voted in the majority to deny the right of qualified fliers, who did not show at Hutchinson, to compete in Kentucky. In our opinion, this is a very disturbing display of poor sportsmanship. In two specific cases that we know of, the individuals were unable to make the wasted trip to Hutchinson because of very real, personal circumstances. One of the individuals was a member of the 1973 U.S. FAI Team! We're sure that any of those who had voted for denial would feel the same

# HRE INC.

CUSTOM R/C CAR COMPONENTS



## HRE CHASSIS KIT . . . . . \$144.95

*The Hallum Racing Enterprises chassis kit is now available and includes: Chassis plate, engine mount, front end assembly, rear blocks and bearings, Kydex for bumper/radio mounts/roll bar, battery and receiver hangers, steering override, throttle override, flywheel and clutch assembly (12 teeth), integral gear and brake (56 teeth), brake band and liners, front and rear wheels and tires, 1/4 inch diameter rear axle, body mounts, wing tubes and mounts, and aerodynamic wing assembly. All related hardware (aircraft quality) included. Front and rear ends fully adjustable. All parts available separately. BODY NOT INCLUDED.*

**HRE** Engine mount available separately (\$9.95). Fits Veco, McCoy, and Taipan engines.

**HRE** Winner of Expert Road Race, 1975 Winter Nationals, San Jose, California.

HRE Inc., P.O. Box 4658, Irvine, California 92664

personal hurt experienced by these fliers if their contemporaries had treated them in the same manner. Even if some of the denied fliers had purposely avoided Hutchinson, because they thought it was a bummer, it was done so at their risk that the contest might not come off.

As for the 1975 Tournament, we're wondering how much industry support for officials accommodations and travel will be available in light of the current magazine caper. Many model industry leaders are turned off by the situation, and this could mean that donations from them for an AMA oriented function would be rather slim. We suggest that the NSRCA appeal directly to the manufacturers for support. After all, it may be well for all such organizations to get used to the idea of taking care of themselves . . .

\* \* \*

The Second Annual Jim Kirkland Memorial Pattern Competition will take place at Fort Walton Beach, Florida, on May 31 and June 1. Sponsored by the Eglin Aero Modellers, there will be trophies to 5th place in each of the 5 events (Class A, B, DN, DE, and Sport Scale) and a free banquet. Contact Dick McGraw, CD, 43 Wayne Circle, Ft. Walton Beach, Fla. 32548. (904) 244-5069. TO ALL R/Cers

*(The following letter is addressed to all R/C modelers and manufacturers, and was written by Bob Aberle, W2QPP.*

*Because of its dated importance, we're squeezing it into this month's issue, and for that reason, had to go to a smaller type size. We feel that it is important enough for all R/Cers to respond to the plea. wcn, W6MGK).*

At the present time the FCC is soliciting comments on a proposed rule change (reference Docket #20282) regarding some far reaching (major) changes to the Amateur Radio Service. This docket was released by the FCC on December 16, 1974. The February 1975 issue of QST Magazine (official publication of the American Radio Relay League) contains a complete reprint of the docket beginning on page 76.

Although this docket primarily concerns "HAMS," it also carries with it implications which could directly affect our present R/C fliers utilizing the six meter amateur band. In an indirect fashion all R/C fliers could ultimately be affected.

Apparently over the past couple of years, individuals as well as manufacturers of radio-telephone equipment have encouraged the FCC to liberalize certain portions of the Amateur Radio Service Regulations to increase participation and prompt greater usage of the amateur radio frequency allocations. Stated another way, citizenband operators would like to get authorization to use some of the lesser populated amateur frequencies.

At first glance it would appear that we don't have a problem. In fact as I will mention later, there may be some benefits to the R/C flyer. Unfortunately the FCC took the opportunity to include an entire list of proposed rule changes which they feel will improve overall amateur operations. One of these changes states that the existing Technician Class Amateur Radio License, will no longer be renewable, unless the examination was originally taken at an FCC office. Since the

current Technician Class License was almost exclusively given through the mail by another licensed amateur, it is safe to say that all those flyers (with a Technician Class License), using six meters at present, will sometime in the future be out of a license. That is, if the FCC makes this docket an official regulation later this year. All current holders of the Technician Class License would then be required to travel to a regional FCC office and take both a written test (covering intermediate level VHF theory) plus a five word per minute code test. Those failing to pass such a test (proctored by the FCC) would lose their license.

What does all this mean? Well, the determined R/C flyer (with a Technician Class License) will probably take the trouble to learn the new VHF theory, brush up on his code and pass the test. Unfortunately a good majority won't bother. Let's face it, some individuals may have to travel several hundred miles to an examining point and may possibly lose a day's pay in the process. A first time failure might even prompt a second trip. Then too, all the while you are learning the new theory and practicing code, your fellow R/C flyers on 27 and 72MHZ will be busy building and flying. With that possibility in mind, many fellows will simply pay the \$50 to \$60 fee and have their equipment converted from six meters to the 72MHZ band of frequencies. The result? You guessed it. A real big crowd on 72 and possibly 27 as well. This is why I say that adoption of this new rule has an indirect effect on every R/C flyer in the country.

What can you do about it? Well the first thing is to write the FCC and reference the Docket #20282. The important message to get across is that the R/C flyers, using the six meter amateur band, want their Technician Class License privileges renewable at the regular five year interval as in the past. Secondly, that the requirement for retesting be waived. Remember it was bad enough to learn the theory and code the first time around, why have to do it all over again because of a rule change. (And after all, we only want the license for R/C operation, not voice communication. wcn) Direct your comments to: Federal Communications Commission, 1919 M Street N.W., Washington D.C. 20554, Attention: Mr. Vincent J. Mullins, Secretary. Comments will only be accepted up 'till June 16, 1975. As usual, in dealing with a government agency, you must provide an original plus fourteen copies to the FCC Secretary.

While you are at it I would also address a copy of your comments to the: American Radio Relay League, 225 Main Street, Newington, Conn. 06111, Attention: Mr. Richard L. Baldwin, W1RU, General Manager. The ARRL (counterpart of the AMA in the "HAM" world) has just circulated a large, comprehensive questionnaire to all of its members. Based on the results of this survey, it will approach the FCC with specific comments which reflect the general feelings of the "HAMS." Unfortunately, our problems as "HAM" R/C fliers will be lost in the crowd unless our comments are made known.

It would also be advisable to send an additional copy of your comments to AMA Headquarters addressed to the attention of the Frequency Committee. Hopefully this committee will get involved with this situation and give us a helping hand.

Please note that these proposed changes will not affect a General Class or higher level "HAM" who has previously obtained his license by passing a test under the direct supervision of the FCC (not through the mail). I doubt if very many R/C flyer "HAMS" fall into this category.

There is one possible benefit from this proposed restructuring of the Amateur Service. A new type of license is being considered, called, "Communicator." To obtain this license one would only have to pass a basic VHF theory test without the need for Morse code. Frequency privileges would be permitted

above 144MHZ (the details of this are not clear at this time). Although six meter operation would not be permitted, it is possible that R/C flying might be permitted on either 144MHZ (two meter band) or the 220MHZ band. This would certainly give us the much needed relief that our AMA Frequency Committee has been looking for. Passing a simple VHF theory test would be well worth it. Something to think about!

At any rate please write. If you don't take an interest now, don't complain about what you lost in a couple of years.

**R/C Auto . . . . Continued from page 51**

the main. He did a lot of racing and overcame many problems to earn his win.

As expected, Kyes and Campbell jumped out at the start of the Expert main. I got through some traffic after Turn One, and was third or fourth. There was lots of racing and not too many tangles during the first part of the race. At 17 laps, everybody started pitting. I planned to stop at lap 21 and 41 for the 60 lap race, so I went into the lead. At lap 21 I had a clear field ahead and continued, since there was no indication of low fuel. I got in and out at lap 22, ahead of the leaders. Later I learned Kyes had broken a front steering cross-arm bolt after his first pit stop. Campbell seemed to be having problems with his car and I had to drive around him at the last corner as he spun out. Bob Donkels wasn't so fortunate, because he had a strong third place near the end, but went out when he hit Campbell during another spin out.

On lap 41, I heard the announcement, "9 laps to go," so I came in and fueled and got back out. Now I had a 2 lap lead, so I just motored around. Campbell did a series of cart wheels next to me and went over the wall on the back straight. It turned out his battery had been dragging on the ground, causing all sorts of problems. Bill Jianas was behind me so I told him to pass. Jianas said, "No way." I couldn't figure that out 'cause I know how Bill drives . . . but then I found out he had second place sewed up and was also motoring to the finish! The race had been shortened to 50 laps because of darkness, but I was unaware of the change. It's just as well, because I may have tried for one pit stop at 25 laps and been sorry.

In the road cars, the one technical thing of interest was that about 4 or 5 cars had "rocker" power pods. Jack Garcia had a "rocker" car about 3 years ago. The general idea is to let the rear end, and engine, rock, so that you get better rear traction . . . But then the problem becomes, how to get front traction. The cars which had a rocker rear end, that I know of, belonged to Steve Betts, Al Olseen and myself. There are still little problems to work out to get them to work right.

After the races, a bunch of the participants: drivers, officials, helpers, and observers, stopped off at a local pizza house to conclude the weekend of rac-

**at last!**

**NEW**

with **aluminum,**  
**stainless steel,**  
&  
**glass-filled Lexan®**  
**hardware!**

70" SANTA BARBARA

50" SOLING-M

*Assembly kits for r/c*

**VORTEX**  
MODEL  
ENGINEERING

210 EAST ORTEGA ST.  
SANTA BARBARA, CA 93101

*See your hobby retailer*

ing. Everybody really appreciated the fireplace and all congregated in that area to guzzle and munch. A lot of the exciting, outstanding, and funny things were refashed.

One group got into a discussion concerning how much time and money it takes to be competitive. Time seems to be more important than money. If a guy gets the best equipment today, and is good, he'll still be out of it next year. He has to spend all kinds of time to do those little things to get the car to handle the increased power that always seems to keep coming. That's really the only reason that car designs change.

I still feel that a limited carburetor and fuel class is the way to provide a more uniform class for competitors who have a limited amount of TIME as well money (TOOT-TOOT, that's my horn blowing again). If a fellow builds a limited class car today, it will still be competitive next year. Changes to the chassis and engine will not have to be made continually, which costs lots of time and money. Then the competitor will not have to be super-active all the time to be in the race. We'll start seeing again some of those faces we remember who had to drop out of competition because they didn't have the time to be away from their families, work, etc. for weeks to get ready for a big race.

So the proposed class, rules might be: limited carburetor bore (.156 in. dia.

to start); and 10% nitro. No other air bleeds to the engine would be allowed, such as free porting, where the piston opens the exhaust port, or other ports, when the piston is near TDC. It may be required to tech inspect the top finishers in the final race, but this would guarantee the honest guys that they weren't being cheated (I'll volunteer for the post race tech inspection, or a committee can be appointed). Fuel for the Nats heats and finals would be provided. In local races, fuel (K&B 1000, Eagle 1200 or equivalent) could be provided with a slightly increased entry fee.

Well, that's it for now. See you in two months. I'm taking the big step in a couple of weeks and I won't have time to write an article (or so my future wife says).

**Sailing . . . . . Continued from page 39**  
ping it onto the YANKEE to see just what effect it will have on pointing ability. I'll have a performance report at a later date, but can say now that I've held the fitting in my hand and that if it works as nicely as it is constructed, it will rate the 5 star treatment in our book. You can obtain information on the item from J. G. Products, 8030 Fordham Road, Los Angeles, CA. 90045.

While we are passing out kudos, we'd like to send one out to Ron Menet, editor of the MASTHEAD, a monthly newsletter of the El Dorado Yacht Club.



**A FINE LINE  
OF PRECISION  
PRODUCTS FOR  
RADIO CONTROL  
BOATS**

  
**MARINE  
SPECIALTIES**  
CUSTOM MODEL  
BOATING HARDWARE

**PO Box 588 Saratoga Ca 95070**  
send for catalog - 50¢      dealer inquires invited

His two or three page effort every month is keeping us really up to date on happenings in the Los Angeles area. Having run a similar effort during '69-'71, I can only sympathize with Ron, as it often turns into a one man operation. Nevertheless, it seems to reflect the seriousness with which the El Dorado Club is taking the challenges of new membership drives and so forth. If your club is lagging, or even if it has new members to burn, there is nothing like a club newsletter to keep all hands up on what's happening. Ron's effort is professional, and will benefit his fellow club members greatly, he's at: 12246 Yearling Place, Cerritos, CA. 90701.

Another new effort is being handled by Bob and Sue Chrysler, Box 32, Delray Beach, Florida 33444. Their WATERLINES is coming out on a monthly basis and concerns itself with the activities of the Florida skippers who we northerners all envy. A new sailing club, called the Gold Coast R/C Model Mariners, has sprouted under their care and feeding and is applying to AMYA for official sanction. WATERLINES is not only presenting news and schedules, but has taken a good deal of its pages to discuss the technical aspects of the sport. This is something that will certainly attract the newer skippers just getting into yachting.

Remember to get your dues into AMYA. Five dollars sent to the Secretary, Bud Salika at 3917 Sunnyside

Avenue, Brookfield, Ill. 60513 will get the Quarterly Newsletter, shoulder patch, rules and regulations, and most of all, a direct connection with the fastest growing head-to-head competition sport in the country.

In upcoming months we will address ourselves to the whole problem of sail control units. We'll take a look at that sailmakers dream . . . the spinnaker. And we'll interview the 1975 AMYA president, Bob Harris, to find out what the view looks like from the top of the heap. Keep those cards and letters coming, in care of MODEL BUILDER, or direct to 7607 Gresham St., Springfield, VA. 22151. ●

**Workbench . . . Continued from page 4**  
stands? Aren't most of them available only to members?

AMA says that, "MA is budgeted for 80 pages with minimal advertising, but if advertising support is greater, AMA members will benefit by having an improved magazine and staving off a dues increase." Does this mean that if the advertising support is *not* greater than minimum, that the dues will have to go up to support the magazine?

And now the open letter to John Worth from Dave Meier.

"Dear Mr. Worth,

"It is seldom that I write letters of this nature. It is also seldom that events rile me up enough to do so.

"The first event was that of a poll being taken to determine interest in a permanent headquarters and nationals site at Hutchinson, Kansas. I was not asked to participate in the poll because I don't subscribe to the Competition News. I am, however, a sometime competitor and president of my club, The West Jersey Radio Flyers. I am also an active Contest Director. Since you didn't ask me, I vote 'no' until *all* the members of the A.M.A. have been presented with *all* the facts regarding the proposed purchase.

"The second event was the rather limited (to say the least) forum provided academy members to ask questions of the A.M.A. at the special District II meeting at the WRAMS show on Mar. 2.

"Just so you don't think I'm venting my spleen on you and the Executive Council exclusively, I'll pass a salutary 21 Bronx cheer salute at those District II pylon flyers who, at the conclusion of their particular bit of business, rudely got up and left without so much as a wave bye-bye. (*We concur with this heartily. It was an outstanding display of bad manners; the worst we have seen in all our years of modeling. wcn*)

"Back to the business at hand.

"I learned from our new District II V.P., John Byrne, at Friday night's cocktail party that the Executive Council planned to publish an A.M.A. magazine. Correction: Not only planned, but had gone right ahead to do it, apparently hiring an editor, one William Winter, who I recall as being at the head of several now defunct publications.

"To refresh your memory, sir, I am the one who stood up and protested this action at the WRAMS show.

"It is now several days later. I've thought it over carefully, and discussed it with about sixty A.M.A. members so far. If anything, I now protest even louder.

"First, and possibly most important, a government that sets its own editorial policy gets the ability to tell those who are governed pretty much what it wants, when it wants, without all that fuss and bother of presenting dissenting opinions, unless it wants to. The amount of dissenting opinions presented is probably inversely proportional to the amount received.

"Second, the competitive atmosphere is rather cloudy.

"There are four existing model aircraft publications. Three more, not including yours, are planned. Two model aircraft publications have recently failed. I don't think the modeling public is clamoring for the three new publications, let alone yours.

"Let's say though, that in the next few months, we are treated to eight model aircraft publications. Here is what I see happening:

1. Subscription sales will fall off for the existing magazines. Sales for the new

ones will not meet forecasts, reason being that modelers will pick and choose those issues that interest them rather than subscribe to all. Blessed are those magazines that consistently appeal to the largest audience, for they shall be known as survivors to which advertisers and contributors will flock. If the A.M.A.'s magazine is not one of the chosen, a lot of money will have been wasted, not to mention the loss of potential new members through lack of exposure.

"What about advertisers and contributors; Let's take advertisers first. If I were an advertiser, would I:

- Put smaller ads in more magazines?
- Put larger ads in fewer magazines and hope I picked winners.
- Put smaller ads in few magazines, pulling in my horns, as it were?
- Put the same ads that I now buy in all the magazines?

"Answer: I don't know. 'a' could hurt me because my competition might choose 'b' and pick the winners. 'b' could hurt me if I didn't pick right or if that month's issue of 'RC Flying Model News' didn't sell. 'c' has the same pitfalls as 'b' and 'a' except my advertising budget would be reduced. 'd' would raise my advertising cost and I'd have to raise prices in a period that has seen more than enough price increases.

"I seriously doubt that you can publish an eighty page (your figure) competitive (for readership) magazine without advertising revenue.

"The other magazines are privately financed by people who have been informed of the risks and have chosen to take them. It seems that the council has decided to put the membership into the publishing business. You, sir, should go back three steps because you forgot to say 'May I.'

"I and many others remember 'Model Aviation' when A.M.A. was in the red, and, if we think about it, why 'Model Aviation' was discontinued.

"You forgot to ask us, sir, if we would like to go into the magazine business with you. I, for one, don't want to. Hell, I don't even know you!

"Considering the financial state the country is in, go back six giant steps.

"But I digress. Let's go back to contributors. I see competition for contributors. Other magazines do pay for articles, you know. It will take more than forty articles per month, and those are just the ones accepted for publication, to feed the appetite of eight magazines.

"The price for articles will go up (not bad for the contributor), the price of advertising will go up to cover the cost of articles, the price for model supplies will go up to cover the advertising. Ultimately, this will be bad for the reader and the contributor.

"You mentioned at the meeting that you signed up many new members at the WRAMS show and they were highly

**Greatest Book of FULL-SIZE RUBBER SCALE PLANS, plus building, trimming, and flying instructions ever published!**

**Twelve half-inch scale rubber powered flying models by some of the world's best modelers, including Doug McHard, Clarence Mather, Bill Hannan, Bill Warner, Bob Peck and others.**

**Compiled and produced by I.E. Coleman, edited and published by Model Builder Magazine.**

## FLYING SCALE MODELS

## FLYING SCALE MODELS OF WWII



### 12 FULL SIZE PLANS

• GRUMMAN F4F WILCOX  
• GRUMMAN P-51 HELLCAT  
• VOLKOVIC P-40 CORSAIR  
• MITSUBISHI ZERO  
• HARKER HURRICANE I  
• SUPERMARINE SPITFIRE  
• MESSERSCHMITT Bf 109  
• POKES WULF TA 152  
• BELL P-39 AIRACOBRA  
• CURTIS P-40C  
• P-47D THUNDERBOLT  
• P-51B MUSTANG  
• COVERING AND TRIMMING  
• MAKING IT FLY  
• BUILDING AND FINISHING



ALL 1/24 SCALE (1/2"=1")

**FEATURE ARTICLES ON BUILDING, FINISHING, AND FLIGHT ADJUSTMENTS.**

**AVAILABLE NOW - \$7.95**

SEE YOUR HOBBY DEALER, OR ORDER DIRECT. ADD \$1.25 FOR FIRST CLASS. CALIFORNIA RESIDENTS ADD 6% SALES TAX.

Box 4336,  
Santa Ana, Ca. 92702

enthusiastic about the new magazine. Sir, it is presumptuous to say the least, to use the opinion of a one minute member as a sign that you did the right thing?

"I was told by John Byrne that due to the demise of American Aircraft Modeler, something had to be done quickly. I submit that only stopping heavy bleeding and starting artificial respiration need be done quickly.

"A question should be asked somewhere along here. Will the other magazines continue to support A.M.A. by donating space to promote A.M.A.? The answer, sadly, is probably yes. Sadly, because they are being had. They know that they need the A.M.A. as much as the A.M.A. needs them. The council also knows this.

"Another question: What was the big hurry? Interim measures could have been taken, such as; combine the Monthly Mailing and Competition News until such time as all concerned could be notified, polled, and an intelligent decision made.

"An offer was made by MODEL BUILDER to service the remaining subscriptions for the balance of the year. While this step would naturally be all good for MODEL BUILDER (*Well, not all. wcn*), especially if it carried the A.M.A. news section for the full balance of the year, it would at least provide continuity for an interim period. This

offer, as I understand it, was not even discussed at the February council meeting.

"In view of the council's apparent disregard for the member's opinion on important issues, I hope there is a 'name the Magazine' contest for this new publication. I would like to submit 'THE CANARD' as having the right touch. It's short, catchy, aeronautical... and appropriate.

"Criticism is valueless without constructive suggestions. I submit:

a. Get out of the magazine business and leave it to those who know what they are doing and who pay for the risk.

b. Take MODEL BUILDER up on its kind offer to pick up the remaining subscriptions as an interim measure.

c. Combine the Monthly Mailing and the Competition News. It saves on postage.

d. In the future, make members aware of an issue before the fact, stating both pros and cons.

e. All of the above.

Respectfully,

David Meier  
A.M.A. #5555"

The above material is the last we plan to publish on this matter. It is unfortunate that this kind of distasteful business has to cloud up our hobby with its presence. There are much pleasanter

**Its here !**

The historic **BELLANCA "SKYROCKET"**

The 1929 **Vale Monocoupe**

The **Burtiss ROBIN** 41" WINGSPAN, 049 POWER, FOR RADIO CONTROL UP TO THREE CHANNELS. A MAGNIFICENT REPRODUCTION OF AN ALL-TIME FAVORITE AIRCRAFT. A TRUE CLASSIC FROM THE "GOLDEN ERA" AND COMING SOON. \$11.95

34 1/2" WINGSPAN, 020 POWER FOR PULSE AND SMALL MULTI-RADIO CONTROL UNITS CAN BE FLOWN FREE FLIGHT ON RUBBER. \$7.95

22 1/2" WINGSPAN FOR RUBBER, CO2, OR DIO POWER. A BIT OF NOSTALGIA AND A DELIGHT TO BUILD. \$4.95

34" WINGSPAN, 020 POWER. 77 cc RC. \$2.99

35" WINGSPAN, 049 POWER, FOR RADIO CONTROL UP TO THREE CHANNELS. A HISTORY MAKER BEFORE WORLD WAR II.

FLIGHT ONLY FOR "CLUB"

**FLYLINE MODELS**

10643 ASHBY PL. FAIRFAX, VA. 22030

SETS INCLUDE TOP QUALITY PRINTED Balsa, DECALS, AND SUPER DETAIL PLANS.

SEE YOUR LOCAL HOBBY DEALER

**MODEL SPECIALTIES**

# **SUPER GLUE**

DRIES INSTANTLY, BONDING ANYTHING TO ANYTHING WITH AN INVISIBLE JOINT.

1 Drop covers 3/4 sq. in. Tensile strength 4,000 P.S.I.

FAR GREATER PENETRATION THAN WHITE GLUE OR ALIPHATIC RESINS.

Ideal for light-weight models; Coupe, Peanut, Indoor, Wakefield, etc.

NEW MEXICO RESIDENTS ADD 3% ONE OUNCE BOTTLE \$7.95

**MODEL SPECIALTIES CO., 9117 LA BARRANCA N.E. ALBUQUERQUE, NEW MEXICO 87111**



things to think about and to occupy our editorial space.

We must, however, go on record as strongly opposed to the publication of a fully commercial magazine by our national organization. We will continue to serve AMA as an R/C judge and as chairman of the R/C Contest Board, but we will in no way lend support to the commercial publication. If this affects the amount of AMA activities reported in MODEL BUILDER, it is because of our refusal to support a business competitor, and for no other reason. **WE'RE GETTING HEAVY!**

In modern lingo, becoming "heavy" could have several connotations. In our case, we hope it applies only to the weight of our magazine. With this issue, we not only have an 8 page catalog insert by Duke Fox, but also a double cover and an additional 8 inside pages, for a total of 104.

We hope the Peanutters don't mind Duke's intrusion. Actually, if you intend to build this month's Peanut, you would, like any other time, carefully open up the staples and lift out the plan . . . only this month, you also lift out the Fox catalog. Simple. No?

#### DESIGN COMPETITION

Colbert Industries, manufacturers of the Pana-Vise line of swiveling bench vises and work-holding accessories, in conjunction with MODEL BUILDER

Magazine, will be sponsoring a monthly design competition for all types of models (aircraft, cars, boats, etc., but not including plastic scale models).

Winners of the monthly contest will be determined on the basis of photos and drawings submitted by modelers, and judging will be conducted by the model building staff of the magazine. Originality and/or craftsmanship and technical achievement will be the main factors in determining the winners.

The first contest deadline will be July 1, 1975 and winners will be announced in the September 1975 issue. Subsequent entries will be due the first of each month, and winners will be announced the second month following each closing. Complete information will be published in a formal announcement of the contest, to be found in the June issue of MODEL BUILDER.

#### "WINNER'S CIRCLE"

The Pettit Paint Company, Inc., manufacturers of Hobbyoxy Products, will shortly be announcing its "Winner's Circle" contest. Contestants will enter 35 mm or mounted color slides of their models, and obviously must verify that Hobbyoxy finishes were used. A statement in 50 words or less will be required to describe the use of Hobbyoxy products.

Models will be judged by Don Dewey, Bill Northrop, Walt Schroder, and Bill

Winter. Their decisions will be final.

In addition to \$100.00 merchandise certificates redeemable with World Engines, Royal Products, or Midwest Model Supply Co., contestants will be invited to display their winning entries at the 1976 Toledo or MACS hobby shows, or if this is not practical, a large color photograph will be produced for show purposes. Winners will also be produced for show purposes. Winners will also be presented with a plaque designating their participation in the "Winner's Circle" for 1976.

#### WHO'S CLARY?

The Kirn-Kraft mail order business has recently been purchased by Jim Clary, who also purchased the VECO line of accessories (tanks, wheels, spinners, etc.) from the A & L Manufacturing Company in Van Nuys, California. Both operations have been combined under the name Clary Corporation, 2931 So. Main St., Santa Ana, CA. 92701, (714) 549-2888.

Dale Kirn has been appointed Vice-President and General Manager of Clary Corporation and is now devoting his full time (really double time) to getting the operations moved and set up in Santa Ana.

The job of getting the old VECO tooling put back in operating condition, all the machines set up, and some of them rebuilt, has turned out to be a task far larger than anyone had anticipated; and Dale, being in full charge, really has his hands full!

Production and shipping will soon be in operation. Anyone interested in further information should contact Jim or Dale at the above location.

#### THINGS TO DO

A little close on timing, but the Eastern Control Line Championships are being hosted by the . . . honest . . . Flying Goombahs M.A.C., of Braintree, Mass., on May 18, 1975 at the Braintree High School Athletic Field, Braintree, Mass. (Just so happens, this is the MB editor's original home town). Events are Fast and Slow Combat, Stunt, and Balloon Burst. Trophies to 3rd place donated by Hobbytown Stores, Inc. Contact CD George Higgins (617) 479-6651 for any last-minute information.

The San Valeers (Los Angeles) Annual Free Flight contest, scheduled for June 28 and 29, will have an extra nice prize for the Sweepstakes competition (any 5 events selected prior to the contest), a 1975 Honda Trail 90 motorcycle. The vroom-vroom is being co-donated by the San Valeers club and Satellite City. Also, Roy Cruzan, of Taft Honda, is contributing by knocking a substantial amount off the \$600 retail cost of the bike. Really something worth shooting for!

The North Bay Soaring Society is sponsoring the Golden Gate Classic on May 31 and June 1. The contest is made



up of one day of thermal events (Saturday) and one day of slope events (Sunday). To make things more interesting, the same sailplane and wing combination must be used for both the thermal and slope tasks. Only change allowed will be variable ballast.

Slope flying will be on Mt. Tamalpais, and thermal competition will be at the Marin Cheese Factory (!). Deadline for preregistration (only) is May 15. Contact Bill Pearson, 25 Rudnick Ave., Novato, CA. 94947.

The High Plains Radio Control Association is a new organization made up of R/C clubs from Amarillo, Plainview, and Lubbock, Texas, and Clovis, Roswell, and Hobbs, New Mexico. The association's first endeavor will be a large scale Radio Control Championships, to be held on July 4, 5, 6, 1975, at the Hobbs Industrial Air Park, 5 miles northwest of Hobbs, New Mexico.

Four flight lines (two sites) will be in operation to handle contestants in class A, B, C Biplane, DN, DE, and Sport Scale. A special Class A-Novice event with shortened A Pattern will be offered to fliers who have never placed in any R/C competition (sounds like a good idea). An entry fee of \$8.00 covers all events entered.

Contact J. R. Cox, 1917 N. McKinley St., Hobbs, NM 88240, (505) 393-8063.

The Central Jersey R/C Club is holding a SAMCHAMPS Warm-Up contest for Old Timer R/C Free Flight, on June 29, at the Middlesex County Model Airport, Piscataway, New Jersey. Classes A, B, C, Antique, .020, and Texaco will be flown, under 1975 SAM rules. Mufflers will be required for .10 engines and larger. Contact Jim Clark (201) 756-1364, 1127 Denmark Rd., Plainfield, N.J. 07062.

College scholarships amounting to \$1750 are being awarded in the Sixth Annual Model Aeronautics Scholarship Contest sponsored by the Boeing Management Association. The contest will be at the Space Center, in Kent, Washington, on July 19 and 20, 1975. Eighteen events in three categories are being offered, open to any person 18 years of age or younger. Events cover free flight, control line, indoor, rocket, R/C, and design craftsmanship.

For further info, write to Boeing Management Association, P.O. Box 3707, Seattle, Washington 98124, Attention Ted Caputo, Mail Stop 84-92. RENO AIR RACES

For the 12th consecutive year, the Reno National Championship Air Races will take place, on Sept. 12 to 14, at Reno/Stead Airport. Qualifying events on Sept. 9 to 11 will precede the 3-day races, making it a 6-day affair. In addition to Unlimited, Formula I, Sport Biplane, and AT-6/SNJ races, there will

## ARE PEANUTS YOUR BAG??

WALT MOONEY OFFERS TWO OF 'EM NOW!

### PLANS BAG #1

14 PEANUTS PLUS 2 OTHERS  
ORD-HUME O-H7 • FOKKER V-23  
MEYERS O.T.W. • LAIRD LC-DE  
PHALZ PHOKKER • SLINGSBY DART  
PIPER VAGABOND • GEE BEE D  
PILATUS PORTER-ANDREASON BA-4B  
DH-6 • DRUINE TURBULENT  
HUNINGTON H-12 • MISTER MULLIGAN  
PIPER PAWNEE AND PIPER COLT

### PLANS BAG #2

14 PEANUTS PLUS STAHLWERK  
VP-2 • S.E.5 • MICROPLANO VELOZ  
FORD FLIVVER • SPEED SPITFIRE  
MILES M-5 SPARROWHAWK • DH-6  
WACO SRE • RENARD R-17  
BUCKER JUNGSMANN • CULVER DART  
WHITMAN'S VW POWERED RACER  
STAHLWERK MKR-III • MONOCOUE IIO  
FOSTER WICKNER WICO GM-1 •

ONLY \$5.00 EACH (POSTPAID) FROM: WALT MOONEY  
2912 CABRILLO MESA, SAN DIEGO, CA. • 92123 U.S.A.

be a supporting air show, complete with wing walkers and aerobatics. For further info, contact the Reno News Bureau, P.O. Box 3499, Reno, Nevada 89505, (702) 786-3030.

Hannan . . . . . Continued from page 42  
ticular. The "Spirit of St. Louis" aircraft appeared in plan and kit form from dozens of sources, including the Ideal Aeroplane & Supply Company's "New York-Paris Monoplane," which according to our mail, was the starting incentive to many a life-long interest in miniature aircraft.

We would like to see some more "Spirit" models in action, and offer the following information, selected from various sources, by way of helping to kindle your enthusiasm for such projects. The information concerning the real craft was selected from Lindbergh's own writings. Of particular interest is the fact that the machine proceeded from original concept to flight test in a mere 60 days. Many MODELS have taken more time than that!

Span: 46 feet

Airfoil: Clark Y

Wing incidence: 0°

C.G. range (aft of wing leading edge):  
28.4% - 29.6%

Maximum speed (clocked): 129 MPH  
Total engineering manhours expended  
in design: 850

Pilots other than Charles A. Lindbergh who flew the "Spirit of St. Louis":

Major Lanphir, Commanding Officer  
of Selfridge Field, Michigan

Lieutenant Phil R. Love

Passengers carried aboard the "Spirit"  
by C. A. Lindbergh:

Donald A. Hall (designer of the aircraft)

Major Erickson (photographer)

A. J. Edwards (sales manager)

Mr. McNeal (final assembly dept.)

Brice Goldsborough (instrument expert)

Kenneth Boedecker (Wright Whirlwind expert)

Edward Mulligan (Wright Whirlwind expert)

# FLY!



\$59.95

## The BARNSTORMER

DAZZLE THE CROWDS WITH A BRILLIANT ARRAY OF DARING AERIAL MANEUVERS!

NOW! YOU can own a beautiful Vintage 1930 Fleet Biplane

This stand-off scale model was designed for the novice, yet meets the critical demands of the expert. All balsa, spruce and ply construction, with precision cut parts for exact fit. Precut, one piece ply sides, preformed landing gear and cabane struts, complete hardware package, and bolt-on wings.

FAST and EASY to build.

A beauty to fly and it performs all the NSPA aerobatic sequences.

Wing span . . . 49" Engine . . . . . 40  
Wing area . . 760 sq. in. O.A. Length . . 42"  
Flying weight . . 4-3/4 to 5-1/2 lbs.

You saw it featured in the May 1975 MODEL BUILDER  
... now see it at your dealer or order direct

Send check or money order, plus \$1.55 for shipping  
Wisconsin residents add 4% sales tax.

Dealer inquiries invited.

CONCEPT MODELS  
2906 GRANDVIEW BLVD., WISCONSIN 53713 (608) 271-0355

Henry Ford I (his first-ever airplane ride!)

Edsel Ford

Mrs. Evangeline L. Lindbergh  
(Lindbergh's mother)

B. Franklin Mahoney

Donald E. Keyhoe (the noted author)

Earl C. Thompson

Harry F. Byrd

Harry F. Guggenheim (of foundation fame)

C. C. Maidment (Wright Whirlwind expert)

Milburn Kusterer

Three sacks of mail!

Total flights logged by aircraft: 174

# A FARMAN for all seasons

The French Farman firm seems to have modelers in mind when designing their products! We offer drawings for the following Farman aeroplanes:

H.F. 23                      F.170 JABIRU  
MOUSTIQUE                1910 MONO  
FARMAN/FARMAN MONOWHEEL RACER

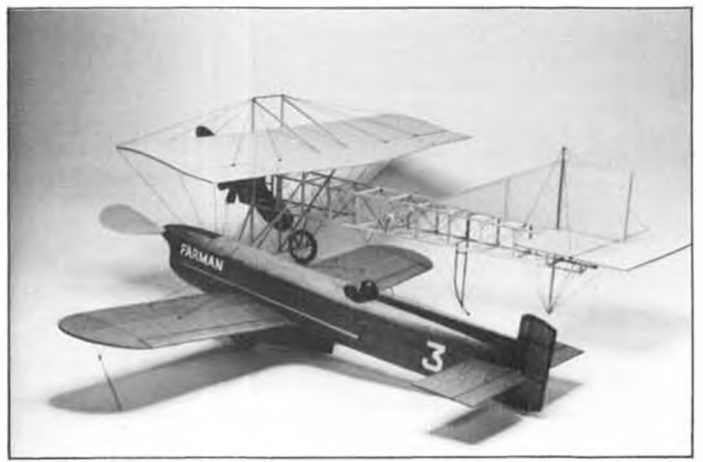


80 PLANS AND DRAWINGS FROM  
W. C. HANNAN GRAPHICS

HUNGERFORD SPOKE WHEELS  
KITS AND ACCESSORIES

**Peck-Polymers**

SEND 25c FOR ILLUSTRATED CATALOG  
P. O. BOX 2498 LA MESA, CALIF. 92041



**DO YOU REMEMBER**

... this beautiful Monocoupe by Megow?  
One of the four most super-detailed plans that Megow ever made.  
We have this, plus many others, printed in clean black line. For catalog, send .50c, refundable with first order.  
**GOLDEN AGE REPRODUCTIONS**  
P. O. Box 13, Braintree, Mass. 02184

**CLOUDBUSTER RACE WINGS**

RUBBER SCALE PLANS FOR SIX (6) FLIGHT-PROVEN, RARE & UNUSUAL RACING PLANES: CROSBY, FLOYD BEAN, TWO FOLKERTS, SMIRNOFF BEARCAT, and CHAMBERMAID.  
Complete set, postpaid, only \$4.00  
order from:  
**CLOUDBUSTER VENTURE**  
P. O. Box 2921, Livonia, Mich. 48154

Total flight time: 489 hrs. 28 min.  
Finally, the ship was presented to the Smithsonian Institution, minus the original spinner cap, which was given by Lindbergh to Hawley Bowlus.

Probably more models have been made of the "Spirit" than any other craft . . . and in a few cases, models have even been made of the "Spirit" reproductions, used in the filming of the movie.

The "Spirit" would not seem to lend itself to stable model flight (Lindbergh repeatedly asserted that the instability of the real machine was an important factor in keeping him awake). And yet, Ron Moulton reported that the Aeromodeller

free flight model design was a good flyer, even without dihedral increases.

Recommended published references:  
Lindy's "Spirit of St. Louis" by Henry Struck; FLYING ACES MAGAZINE, August 1937 (rubber powered model)  
RYAN N.Y.P. "Spirit of St. Louis" by R. G. Moulton; AEROMODELLER, June 1957 (diesel powered free flight model)

RYAN N.Y.P. Spirit of St. Louis by Bjorn Karlstrom; MODEL AIRPLANE NEWS, March 1959 (highly detailed scale drawings)

*(Though no 3-views of the "Spirit" are included, the "Ryan Broughams and Their Builders," by Wm. Wagner, published by Paul Matt, is a fascinating book on the Ryan planes of that time, with many photos. Also scale views of the B-5 Brougham. wcn)*

Who will be the first to build a "Peanut of St. Louis"? We'd be happy to publish a photo of it in this column!  
**SPEAKING OF PEANUTS**

We received a letter from Bill Dahlgren, Jr., an avid control-line model builder, who has recently taken up Peanut Scale: "... I was operating under the handicap of near-total ignorance of how to trim a rubber powered anything, much less a scale (type) model, much less inside a building! They bounce good, too. Most of my trimming (HAH!) flights ended up in the seats, as the thing simply refused to turn, but the only damage of the day was a cracked wing strut, sustained on the last flight I made. I was feeling pretty happy with a series of 25-30 second flights, until I timed Malinski's first 84 second effort. The mind boggles!

"With the (blankety-blank) temperature hovering around zero, there's no outdoor activity at all around here . . . the only flying is done indoors, hence the Peanuts . . . though I suspect that with more rubber and prop my Cougar would work better outdoors than in. I'll have to get busy on the control-liners again in the spring. Meanwhile I'll have a (flock, bunch, herd??) of Peanuts to start next winter's indoor session. Onward and Upward!"

## SUPERIOR BALSAWOOD SUPPLY COMPANY

Small model specialists should be particularly interested to learn of a new firm offering, in addition to standard sizes, specialty cuts intended to ease construction of lightweight structures. In addition to 1/20th square strips, which are rapidly becoming the accepted standard size members for Peanuts, this firm offers 1/20th x 2/20th, 1/20th by 3/20th and 1/20th x 1/8. Additionally available is 1/64 sheet, a size which has been too long absent from the modeling scene. And how about 1/40th sheet? Perfectly logical, and yet, to my knowledge, never commonly available before. For the complete list of sizes and prices, send a stamped pre-addressed envelope to: Superior Balsawood Supply Co., P.O. Box 8082, Long Beach, CA. 90808. ●

## Choppers . . . Continued from page 27

tion: make the above mentioned bell-crank assembly plenty stout, as it carries a fair load in flight. A little later, we'll talk about the installation of the servo box, so hold off for now.

About this time, the power pack assembly is installed in the fuselage. The instructions are adequate, if followed. A long shank drill is provided to drill the mounting holes, and blind nuts are epoxied in the holes under the bearers. After the power pack is bolted in position, the model is turned upright and the main rotor shaft is installed so that the upper bearing can be positioned correctly and blind nuts installed. This is a little tricky and should be approached with caution. The holes in the top of the cabin should be drilled prior to installing the power package so as not to contaminate the bearings with fiberglass chips! An accurate drawing is detailed in the instructions for drilling these holes and should be followed *very carefully!*

Now, with the main rotor shaft installed through the cabin hole and seated in the lower bearing, the upper bearing can be slid down the shaft and bedded in Endfest epoxy for an exact fit. Make sure the shaft is not angled to one side, and that it is completely free to turn

NEW...TEMPERATURE COMPENSATED

# NYROD®

**A ROD FOR ALL SEASONS**





NEW 8" METAL ROD IS PERFECT FOR THESE INSTALLATIONS - BEND AS NECESSARY

NYROD inner tubing

NYROD outer tubing

NEW 8" METAL ROD

SU-PR-KLEVIS

**SU-PR-LINE PRODUCTS**

PLAINFIELD, ILLINOIS 60344

without binding (important). The hole may be trimmed slightly if necessary in order to center the main shaft properly. The bedding-in process is to provide a firm base for the bearing housing in a self-aligning manner. Remember that epoxy will permanently cement the plastic bearing housing to the fuselage, and this is not desirable. To prevent sticking, you can use a small piece of Saran wrap between the cement and the housing until the cement has set-up. In lieu of this, you can use Stabilit Express, and lightly grease the bottom of the housing with petroleum jelly. This will still permit the Stabilit to cure without sticking to the housing. (Some epoxies will not set up in contact with grease or oils, so check this out with your favorite).

The cut-outs for the tail rotor gearbox are made easy by use of wood patterns supplied in the kit. I suggest the mounting holes be pre-drilled and spotted with red ink for easy location after being cemented to the vertical fin. When installing the aluminum and brass tubes, they should be bent exactly as shown in the plans, then add approximately a 1/4 inch to the forward end of the brass drive shaft tube to allow for any variations in the former 115 installation. It may be trimmed to correct length after it has been cemented in place. Note: the forward end of this brass tube has to be lubricated each 5 hours of flight, so I suggest you drill a small oil hole immediately adjacent to the bulkhead for this purpose, because the end of the tube will probably be covered by the large bevel gear at final assembly.

When cementing tail fin former 162 in place, I suggest you Scotch-tape the balsa strip 167 in place (don't cement yet) to maintain straightness of the fiberglass fin while the formers are cemented. Not shown on the plans, but I installed a scrap piece of balsa to fill in the top leading edge of the vertical fin to make a neater look. Allow enough room to install the gearbox. Drill the hole in former 115 (for the tail rotor stuffing box tube) quite a bit oversize so that later on you can align the tail drive shaft properly, then cement the stuffing box tube in place with epoxy.

At this point, the balance of the assembly process is pretty well defined and you should have no difficulty in any area. For this reason, I won't go into any further detail, except to pass on some observations I've come across while building this kit. The servo installation was accomplished easily, however, be careful of direction of rotation of the output arms. Most servos are equipped with output arms on either side, so connecting the linkages in the correct fashion should pose no problem, and should not require special-direction servos! After cementing in the servo box, it's a tight squeeze to make changes or relocate arms, etc. so it is wise to complete the entire servo assembly (including servos) prior to cementing in place. Be sure to use the same holes in *all* bell-cranks, as shown, to insure the correct amount of control input.

A word about UHU plus Endfest 300: this is an ideal epoxy for the glass fuselage and/or metal; it is very slow curing but is extremely tenacious and never gets brittle. It should be good for those tough to glue parts where vibration is a factor. I recommend you use it sparingly so as to have enough to do the whole job, and substitute a domestic epoxy for the non-critical pieces. The tubes are very small, and it's difficult to come by. Mix only small batches, as necessary, to gauge the correct amounts. It won't set-up before you mix another batch if necessary to complete the job. You can wait 10 to 15 minutes until it gets slightly "tacky" and the parts will hold together easier without clamps (it's very slippery when first mixed). When working on the fiberglass fuselage, it's extremely important to sand the surface lightly and degrease the area with acetone or denatured alcohol prior to applying cement, otherwise the joint will not hold properly.

When cutting out the plastic navigation lights and engine louvers, be sure to save as much depth as possible for trimming to fit the compound curves of the fuselage shell. Most of the plastic parts mount on compound curves, and if not carved to fit, will produce large ridges that will require filling to smooth

## FIBRE GLASS EPOXY PROPS

All types of racing props Sport Goodyear Rat FAI & B Team Racing Free Flight Quarter Midget

7x35		\$3.50
7x6	Thin Hub	3.50
7x6	Thick Hub	4.50
7x6	Thin Hub QM	3.50
7x6	Thick Hub QM	4.50
7x7.4	Russian Type	3.50
7x7.6	Russian Type	3.75
7x9	Speed	4.50
7x9.5	Speed	
8x8		
8x8.5		

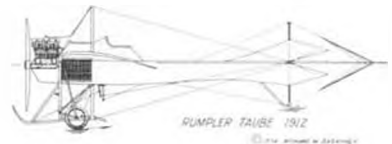
QM finished All others as moulded untrimmed  
We make props to special order Write for quote SASE

Illinois Residents add 5% Sales Tax

Kelly Products Inc. P.O. Box 38  
Western Springs, Illinois 60558

## Taube

1/72 Scale 3-Views  
send stamp for list



Richard M. Zasadney  
2664 Beck St. S.E.  
Warren, Ohio 44484

out the appearance (Endfest is excellent here—files down easily). Since the plastic parts cannot be cemented adequately to the glass surface of the body, a thin veneer sheet of wood is first cemented to the back-side of all such plastic parts with UHU Hart (or Duco cement), then the wood backing is cemented to the fuselage with Endfest. The latter is also used to fillet any gaps that may have developed. The engine louvers should be outlined with the wood veneer so as to allow warping to the curved shape of the fuselage, and held in place with Scotch tape while the cement sets-up. If you back the entire louver with veneer, you probably will not be able to warp

# AVATAR slope & thermal soaring sailplane 22

The "Hi-Performance Compact"

## FEATURES

contour-sanded wing ribs  
 machined balsa & plywood parts  
 plug-in wing panels & stabilizer  
 spruce spars  
 all flying stabilizer  
 8 hour building time



**SPECIFICATIONS**  
 wing span 72 inches  
 length 39 inches  
 weight 24 ounces

price \$27.50

if not at your dealer order direct  
 Calif Res add 5% tax dealer inquiries inv

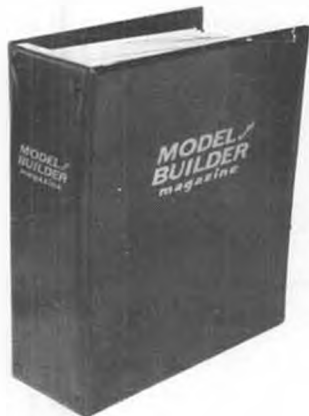


**M&S LIMITED**

box 397451 A Calif 90039

## COVERUP!

Sturdy, dark green vinyl covered binders for your valued copies of **MODEL BUILDER**. Gold logo.



Only \$4.95 each, two for \$8.95, or three for \$12.95, postpaid in the US. Canada and Mexico add 30 cents per binder. Overseas add 50 cents each. California residents add 6% sales tax.

NOTE: One binder will hold 1971 and 1972 issues. One each for 1973 and 1974.

**MODEL BUILDER**

Box 4336, Santa Ana, Calif. 92702

it to the desired curve.

Before final installation of the tail rotor gearbox, the brass tail rotor hub should be disassembled by unscrewing the two Allen set-screws and removing the hub. Flat spots should be filed on the tail rotor shaft where the set screws have made an indentation and the unit reassembled, using Loc-Tite. This is to prevent losing directional control in case the hubs slip on the shaft. It is not necessary to remove the adjustable yoke or other components when performing this modification.

Next month we'll conclude this report with data on other modifications which can or should be made, along with adjustment, trim, and flying tech-

niques. For those of you who can't wait, contact Bob Fish, Fisher R/C, 17 Salmi Road, Framingham, Mass. 01701, and send \$10.00 (if the price hasn't changed) for a neat bulletin "H-1" listing important modifications to the rotor head, fuel tank installation, exhaust stack change, and tail rotor shaft coupling. The greenbacks will insure delivery of the required hardware to make those mods (and well worth the money!).

One last thing before signing off . . . I have never, repeat never, been able to satisfactorily adjust or break-in any engine while installed in a helicopter, and this one is no exception. So, while you're building that dream-ship, take a bit of advice and put the engine on a test bench and break it in for a couple of hours. Find out specifically how to adjust the carb and needle valve setting under ideal conditions, before fighting it in an expensive chopper. *Always* remove the clutch assembly and clutch shoes when test running in this fashion!!

### FINAL APPROACH

More news from Kavan for you Jet Ranger owners: the first "Gadget" is a newly designed rotor head which does exactly the same job as the previous head, but much, much simpler in appearance and operation. It is expected to be available on special order for experienced fliers in about two more months, and is presently scheduled to be included in the newest kits in about 6 months. Another goodie is the new "Swash-out" attachment for eliminating the stabilizer paddle pitch changes with swashplate (collective pitch) motion. Should be available within another month as an accessory at about \$15.00 per copy. I mounted both of the above modifications on a shaft so you could get a basic idea of what they look like . . . see picture in this article. Also new is a scale size rubber "S" channel for installing your windows in the Jet Ranger, available now at approximately \$2.50 for 16 feet. New, profusely illustrated instruction manuals are expected to be available in another month, and will show several methods of modifying your servo plate

to permit use of a single servo for both throttle and pitch control, and many other nice things. I'd elaborate except this article is too long now and my writing hand won't be able to pilot my new Graupner 212 for another week! See you next month.

### Plug Sparks . . . Continued from page 55

hank of rubber now, one begins to doubt the old saw, especially in view of the rules that allow any amount of rubber to be used. Some of those models get sky high!

### BROWN JR. MOTORS

Is that old Brown completely shot? Or does it look like it is beyond repair? Don't give up, men! For ten years now, Herb Wahl, of Herb's Model Motors, P.O. Box 31, Crum Lynne, Pa. 19022, has been specializing in the restoration of Hurlleman and Brown Jr. motors. If he can't fix your Brown, then it is truly a basket case!

Also worth noting, besides the excellent Hurlleman .48 he manufactures, is the new and novel Hurlleman Twin Herb produces. This twin is based on a prototype conceived forty years ago and never completed. This .96 cu. in. displacement engine utilizes as many original parts as possible and is modestly priced at \$280.00 (have you heard what they are asking for Morton 5 engines now?). Orders are filled in strict sequence and as Herb says, he is slow because it is evening work only! Best idea is to send for Herb's excellent catalog. Include 50¢ for the catalog and postage. A real gem!

Finally heard from Paul Gilliam. Most modelers, particularly in Southern California, will remember Paul for his outstanding work and long line of "Civvy Boy" designs.

Paul dropped out of modeling to do film work in Arkansas and Missouri. While shooting film with the company on location, he contracted Rocky Mountain spotted fever, sometimes called "tick fever." Not too many survive this, but after being given up for lost several times, Paul finally managed to survive the dreaded disease.

"Lucky" Moody was the first to hear from Paul in the hospital. Gilliam is now located in Quincy, Florida, and has built about six models in his spare time. Look out you contest-minded Floridians! Paul will have your scalps yet!

(Note from Bob Hunter: Paul can be reached at Studio Martin, 209 W. Jefferson, Quincy, Fla. 32351.)

### SANDBAGGING THE SANDBAGGER

For years, Larry Boyer, of San Diego, has been coming to contests and entering during the closing minutes of the contest. Many times, the weather has developed beautifully and thermals are out like crazy. Of course, by that time, most contestants have completed their flights and Larry has been singularly successful in winning many contests at the very last minute.

At the Buckeye Southwest Regionals, the big meet for the Southwest at that time of year, Bob "Satellite City" Hunter decided to have a little fun. Happily, by "sheer coincidence," Bob was sitting in first place in the old timer events with some very good flights from his Zipper.

Bob advised Larry to wait a while as the weather was not just right for good thermals. This routine continued until in mock alarm, Bob said that Larry better fly as time was running out. Time did run out on Larry as he had waited too long. He was unable to complete all flights.

Sandbagged! (By an expert, no less.)  
NEW COVERING

With the price of silk covering going out of sight, good news comes from Harry Montgomery, of New Castle, Pa., who has been using a product called acetate sheath. This is a man-made, silk-like fabric that is used primarily for ladies dress lining. Best part of it all is the price, 99¢ a yard in 45 inch widths. The fabric is much stronger than silk, tightens like a drum, wet or dry, with one coat of dope. Harry says no one has ever made a better covering for models. To top off this news, the material is available in every color of the rainbow. Great day in the morning!

#### CHICAGO CAPERS

Just finished a half-hour talk with Tom Schoenau, proprietor of M-N-M Radio Models of Oak Forest, Illinois. Despite the terrific phone bill, Tom enthusiastically says that the building of big O/T F/F models with radio control is going over great in his area.

One of the first models was an 11 ft. scaled up Powerhouse. Tom estimates it took 60 dollars worth of Monokote to cover it. This model has been responsible for an avalanche of inquiries about which large model to build.

Under the rules of the event proposed by Tom's group, SOBBS, (Society of Big Bomber Builders), you can use any motor you want and run it any length of time. The gimmick in this case is that the flight must not last any longer than two minutes, and you must get into the spot landing circle. That kind of event ought to end all controversy about what you should have to use. Here the option is strictly up to the modeler. No confining rules to get in the way!

The models can be seen at the SAM booth at the Toledo Weak Signals Trade Show. Through the courtesy of Don Belote, a booth is being made available to SAM at no cost to help generate even more interest in Old Timers. We'll have a report on that!

Almost forgot, Tom further says the SOBBS group is sponsoring a real whopper of a contest in June. Understand Tim Banaszak will be on hand for the F/F type events. Should be the biggie O/T meet in the Midwest.



## MINI GLUE GUN

*Fits Ambroid, Wilhold, Bridi Super Stik, Titebond and others. Made of durable polypropelene (seals with a "T" pin). Please add 25 cents for postage and handling.*

CALIFORNIA RESIDENTS ADD 6% TAX  
Dealer and Distributor inquiries invited.

3 FOR 99¢

**PEYTON PRODUCTS** BOX 6423, ORANGE, CALIFORNIA 92667

#### IDENTIFIED!

In January, we ran a photo of the Zaic "Contestant," with builder unknown. Just got a letter from Jim Miller, of Cincinnati, Ohio, who sez he is the proud builder. Had tough luck at Lakehurst (who didn't in that wind!), but he has it really ticking now!

#### CONTEST ANNOUNCEMENTS

When this columnist said to send in your contest dates, you did! The writer is real pleased to announce the following meets:

**BARFS** (Butler Area Radio Flying Society) Annual Tri-State R/C Fun Fly, June 22, 1975. There will be \$200.00 cash prizes for the old timer events. SAM rules prevail. This is a real biggie! Write to Bill Henderson, 202 Williams Road, Butler, Pa. 16001, for entry blank and details.

**Midwest Doings:** Old Timers in the Chicago area will be pleased to hear the Chicago Aeronuts (sans Pete Sotich) are holding their 14th Annual O/T Contest on June 1 and their Fall O/T meet on Sept. 1. The Pelican Club is also staging a meet on July 13. All meets have been scheduled for Bong AFB. Don't miss 'em!

**SPOTS** First Annual O/T R/C Contest on August 24. According to Mrs. Randy Carmen, they will fly out of North Branch Park, Bridgewater, N.J. Excellent picnic grounds, so bring Momma along and let her enjoy the outing too!

**Intermountain O/T Championships:** Put on by the Salt Lake boys, this will be the "biggie" for Utah and the surrounding states. All O/T events and even Texaco, weather permitting. Mark Fechner is C.D. for this one. A card to 112 Clinton Ave., S.L.C., Utah 84103, will fetch the desired info.

#### SUPER CYCLONE ENGINE

Just received a beautiful reprint of the old Super Cyclone Manual. Faithfully reproduced even to the address for mailing (in the old days, natch!). Well worth the asking price of \$1.00. No self respecting Super Cyke owner should be without one! Get yours from Mark Fechner,

# YANKEE



**FROM THE BOARD OF AMERICAN DESIGNER, CHESTER PURDY, WE ARE PROUD TO OFFER THE NEW, THOROUGHbred RACING MACHINE FOR THE AMYA 50/800 CLASS. A 13-14lb PLANING HULL WITH DEEP BULB KEEL FOR ULTIMATE STABILITY AND ACCELERATION.**

**Hull/Keel/Rudder - \$55.00**

**LEISURE PRODUCTS**  
6920 Braddock Road  
Annandale, Va. 22003

**(Dealer Inquiry Invited)**

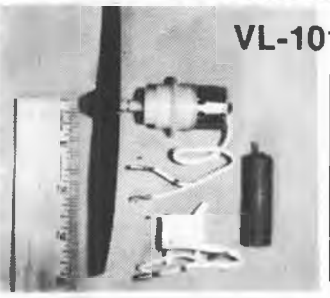
ner, address above. Also get his catalog sheet of parts. Has a real flock!

#### SAE 70 OIL

Many fellows have complained that they can't get SAE 70 wt. oil. I have recommended SAE 50 racing oil for fitted piston engines but some of those old Mighty Midget ring engines were pretty sloppy fits, and need the heavier oil. Ernie Faulkner has better than ten cases of the stuff. You can get same by writing him at 1024 Azalea, Alameda, CA. 94501.

#### SWEDISH SOUNDS

Just received a letter from Sven-Olov Linden, of Sweden, who is the editor of that excellent O/T newsletter type magazine. Their biggest problem is the lack



## VL-101 ELECTRIC FLIGHT SYSTEM

Featuring

HYTORK 48 MOTOR

&

Complete PLANETARY GEAR UNIT

Flying weight 2½ oz. will power 25 to 50" wingspan weighting up to 10 oz.

- VL-101 Electric Flight System **\$19.50**
- FC-66 Field Charger **\$29.50**
- Instruction Book Only **\$ 1.00**
- Catalog **25¢**

Add 10% for Postage & Handling  
Send Check or M.O., NO COD's  
Calif. add 6% Sales Tax

## PRODUCTS

DIVISION OF VISTA LABS  
7023-D Canoga Ave.  
Canoga Park, Ca. 91303

See Your **MODEL DEALER** or **ORDER DIRECT**  
Hobby Dealers send for Information



## "HOOKER"

**\$2.49** ADJUSTABLE  
TOW HOOK

- STRONG PIANO WIRE HOOK
- FLIGHT WEIGHT 5.5 GRAMS

## INTRODUCING "BALLAST-LOK"

**\$1.95**

- MOUNT FOR BALLAST
- SAFELY HOLDS 16oz  
OR MORE

DIECAST ALUMINUM BODIES

EASY FIELD ADJUSTMENT

INCLUDES MOUNTING HARDWARE

AVAILABLE AT FINE HOBBY SHOPS EVERYWHERE

ADD 35 POSTAGE AND HANDLING CA. RES. ADD 6% SALES TAX

SCOTT RESEARCH CO., P.O. BOX 22, COSTA MESA, CA. 92627

of old ignition engines, hence the reason for so many rubber contests. Bob Oslan already provided a good Super Cyclone. Any other help out there? Horstavagen 15, 703-63 Orebro, Sweden is the address.

### THE LAST WORD

Thank you for all those cards and letters (shades of Lawrence Welk) telling me how much you enjoy the column. Don't tell me, men, tell Bill Northrop. Otherwise, how do you expect us old timers to take over the mag? Lettun know who reads this stuff!

*(Just in case you Old Timers don't start your own magazine... Why not? Everybody else is... You'll always have a home in MODEL BUILDER! wcn).* ●

**Electric . . . . . Continued from page 31**  
asked to evaluate the Dick's Dream with the Astro 020.

This was not Sonny's first experience with an electric, since he had been flying our Bushmaster with the Astro 25. However, it had been a long time since he had flown anything with single channel, and he was altogether a little dubious about the 020 in the Dream. From the launch, his opinion changed. He was particularly impressed with the climb-out, and again, circling to the right, he gained altitude in preparation for maneuvers.

Turning to the left, he went into a

slight spiral dive to gain speed, and with a reversal to the right, the model went up into a loop from which he rolled out at the top. After several maneuvers and about four and a half minutes in the air, Sonny began to position for landing.

Even though it was quite windy, he made the landing about one hundred feet from his launch point.

The final evaluation by all of the flyers was that the model proved to have more than adequate power, that it was very stable and easy to fly, and we were particularly impressed by its windy weather flying characteristics for such a light weight model . . . 17 ozs. loaded.

As most builders know, the Ace System of construction is very simple and straightforward and the fuselage went together without any difficulty. In preliminary balance checking we established that the simplest way to install the motor was through the firewall. Since the diameter of the motor only leaves about an 1/8 inch of wood in the plywood firewall on either side, it was decided to simply center the motor in the firewall and the hole was drilled to accommodate the motor.

The motor case is slightly bell shaped, having the small diameter at the propeller end and enlarging slightly to the rear. The hole diameter was established to allow the motor to slide forward from the

rear, permitting the two ventilating holes in the top and bottom of the motor case to be in front of the firewall. With this location set, the motor was then cemented to the firewall, with no other attachments necessary.

Down thrust was established by installing the motor normal to the firewall in all directions and no compensation was made for torque.

The switch and charge harness were installed in front of the forward cabin bulkhead since the cabin was going to be very full with other equipment necessary for electric flying.

Motor batteries were installed against the forward cabin bulkhead as shown in the photographs. The Pulse Commander actuator was installed in the position prescribed in the plans. The radio batteries were mounted, with servo mounting tape, on the floor of the cabin in front of the rear cabin bulkhead.

The only other change in the kit was the installation of cooling scoops for the motor batteries. I used Astro Flight's Electra-Fly scoops by installing one on the bottom of the model, with an oblong hole about a half inch wide and an inch long, centered under the batteries. Then I took some three-quarter inch foam and made a bulkhead the width and height of the cabin area. I cut 3/4 inch off the top of this piece of foam, installing the large piece behind the batteries. Then I took the quarter-inch blue foam packing which comes in the top of the Astro Flight 020 motor box, cut a strip the length of the Pulse Commander radio receiver, and wrapped the receiver in this quarter inch foam. Then the receiver was placed on the floor of the cabin area between the foam bulkhead and the actuator bulkhead for a perfect fit. The piece of three-quarter inch foam removed from the foam bulkhead behind the motor batteries was then placed on top of the actuator bulkhead. When the wing was placed in the wing saddle, this created a closed compartment. Then a one-half by one inch hole was cut into the center of the foam wing so that it was located just ahead of the foam block on top of the actuator bulkhead, in this manner creating an exit for the air for the motor battery compartment.

Another Astro Flight air scoop was put on top of the wing, with the opening to the rear, to create a perfect flow-through ventilation system for cooling the motor batteries.

The entire kit, other than the modifications for the motor installations and battery cooling, was constructed in the manner prescribed in the instructions provided in the kit. Since the Dick's Dream is built with the Ace foam wing, we decided on Solarfilm for covering materials. Before covering, the wing was block-sanded with 240 sand paper to remove the slight mold marks and produced an excellent finish. Gold metallic Solarfilm was used on the wing and hori-

zontal tail surfaces, and maroon metallic Solarfilm was used on the fuselage and vertical surfaces.

All-in-all, we were quite pleased with the project. The results produced a good looking small model, more than adequately powered, and none of the construction processes were difficult or required unusual expertise in modeling. The airplane is very stable and easy to fly, and should be no problem for the beginner.

What I was particularly pleased with was the fact that it's an excellent small field airplane that can be flown in almost any populated area where there is sufficient clear space for a landing, without disturbing any of the local citizenry. I can't imagine any school yard that would not be adequate for flying this model... Silent flying is here to stay. ●

Counter . . . . Continued from page 7

all of high quality crepe rubber. Packs are 39 cents each, \$3.90 for a card of 10 packs.

You've heard the old saw "You must use *our* thinner with *our* paint." Well, in the case of Flo-Kote, it seems to ring true. Ordinary, run-of-the-mill lacquer thinner won't do the job. Try some CPM Flo-Kote thinner, at \$2.50 per quart, plus \$1.00 postage and handling, you'll see what we mean. Inkadently, inflation has hit Flo-Kote Nitrate too... it's now \$3.50 plus a \$1.00 P and H, however, its high quality makes it go farther than ordinary airport stuff. ●

Sea Fury . . . . Continued from page 21

500 ma battery will also fit, but watch that CG! The switch can be mounted on F7 with a pushrod to the outside, or you could just mount it in the fuselage side. Make sure that all the assorted wires and pushrods clear one another.

Your best engine choice is a Kirn Kraft TD .051. A pen-bladder/pacifier pressure system works well on TD's, but remember that, with or without pressure, you have to be able to consistently start on time, so use a system you can cope with during the tension of a race.

The cowling is from a 2-1/2 inch diameter plastic bottle I found at the local drug store. Look for one that is opaque (mine had Flowers of Sulphur in it... anybody need a lot of that stuff?) although I saw many translucent ones that could be used if you don't mind painting the entire cowling. Mount it onto the hardwood blocks on the sides of F2 using sheet metal screws... two No. 2 x 3/8 inch screws, about 1/2 inch apart, work well.

My canopy was heat-formed in the kitchen oven from acetate over a carved balsa mold, although you might be able to find a commercial unit you could adapt.

Some miscellaneous thoughts: Keep it light. An extra ounce or two can make

Write For **FREE BROCHURE**  
On Our Complete Line Of  
**R/C PROPORTIONAL EQUIPMENT**  
including  
**WORLD'S SMALLEST SUPERLIGHT  
DIGITAL CONTROL SYSTEMS**

**SMALLEST SIZES** **LOWEST PRICES**



13400-26 Saticoy Street  
North Hollywood, Calif. 91605  
Phone (213) 764-1488



\$3<sup>95</sup>  
4 oz.

**GENERAL PURPOSE ADHESIVE  
IN PASTE FORM FOR EASY USE.**

## TWIN-WELD EPOXY

**Ideal For Bonding The Following**

- HARDWOOD TO FIBERGLASS
- FIBERGLASS TO FIBERGLASS
- METAL TO FIBERGLASS
- HARDWOOD TO FOAM CORES

**FIBERGLASS REINFORCED  
REMAINS FLEXIBLE**

Available at your favorite dealer



411 W. 100th St. Chicago, Illinois 60628 (312) 346-7141

A FULL LINE MODEL DISTRIBUTOR  
SERVICING DEALERS FOR OVER 30 YEARS

the difference between a racer and a dog on these small planes. Make certain that your radio is in top condition and that your engine and fuel system will keep on working, since you have to go the whole ten laps in all the heats in order to win. If you have any questions or comments, write to me at 1010 N.E. 122nd Avenue, Vancouver, WA 98664, or c/o MODEL BUILDER.

Good luck. ●

F/F . . . . . Continued from page 49

Why warp? The need for warps in most pylon type AMA gas ships is to keep the ship from spiralling in to the right under power. The higher the power or the smaller the flying surfaces, the more the need exists for warping the wing. The warp I am speaking about is called wash-in. Wash-in is applied to the right main wing panel of a typical pylon style gas ship. Wash-in raises the leading edge of the wing some nominal amount (usually 1/16 to 1/4) over the trailing edge at the polyhedral joint (see sketch). The effect is to force the right wing to fly at a slightly higher angle of attack and to keep the right wing from dipping, causing a spiral dive. On a small model (Mini-Pearl, for example) such wash-in is critical.

Other warps may be considered, but for different purposes. Usually, on rectangular wing planforms, the tips may be washed-out (trailing edge up slightly) in

order to keep the tips from stalling out. This set of warps is used to increase the aerodynamic efficiency of the surface. Sometimes stabilizer tips are washed-out very slightly (1/32) for the same reason. Wayne Drake did so on his Nordics, and claimed that it made the ships significantly more sensitive to lift.

Wash-in may also be used as a glide trim, such as on A/2 gliders. One of the more frequent problems facing large gliders is a tendency to spin in under glide... particularly when flown in turbulent or very thermally conditions. A very slight (1/32 to 1/16) wash-in on the main wing panel which is on the inside of the glide will cure such a condition, and the effect on the performance of the ship under tow can usually be offset by a slight change in the auto-rudder setting during tow.

Warps are, for the most part, built in while the model is being constructed. Sometimes, more warp (wash-in) than is needed is built in, in which case it can sometimes be "dewarped" by heating the wing when completed and bending it in the opposite direction. If this doesn't work, usually some rudder offset or thrust offset will correct the excessive wash-in and make the model controllable, even though the excessive wash-in will tend to detract from the model's performance.

Less than enough wash-in can be corrected by the heat warp method men-



## VINTAGE R/C PLANS



### PLANES WORTH MODELING

R/C MODELS	WING SPAN	PLAN SHEETS	PRICE
B-25H "MITCHELL"	71"	4	\$ 13.50
" " PLASTIC ENGINE COWLS.....		PAIR	\$ 9.00
CONSOLIDATED PBV-5A "CATALINA"	108"	4	\$ 13.50
" " PLASTIC ENGINE COWLS.....		PAIR	\$ 9.00
" " GUN BLISTERS.....		PAIR	\$ 6.00
PIPER PA-8 "SKYCYCLE"	60"	3	\$ 10.50
" " PLASTIC CANOPY.....		EACH	\$ 8.50
" " PLASTIC ENGINE COWL.....		EACH	\$ 7.50

SEND 50 CENTS FOR CATALOG TODAY !! ADD \$1.00 POSTAGE PER PLAN

DISTRIBUTED IN CANADA-  
R&M SALES, 1027 CLARKE SIDE ROAD,  
LONDON, ONTARIO, N5Z 3B1

DEALERS & DISTRIBUTORS WRITE-  
SID MORGAN, 13157 ORMOND  
BELLEVILLE, MICH. 48111

# Graupner

## R/C HELICOPTER SUPPLY & SERVICE CENTER



You can't fly the Bell 212 Twin Jet R/C helicopter with a busted rotor blade, nor a broken collective pitch arm, or even a metric bolt missing that holds the engine down. But we can help... really... Our stock includes lots of metric nuts, bolts & washers, and most any other part that is broken, missing or lost for the Bell 212.... a complete stock to get your helicopter back into the air. And you can call DAY or NIGHT - Seven days a week - for our electronic phone answering machine will record your order (if we are elsewhere). Phone orders received by 3 pm are usually shipped within 8 hours unless the Post Office or United Parcel Service is closed. Mail orders are handled with the same speed. So when you need helicopter parts - RING US UP or MAIL YOUR ORDER - WE CAN SUPPLY - FLASH - New Bell 47G helicopter flown at Toledo scheduled for shipment about 15 July 1975.... SCRATCH BUILDERS - Use reliable collective pitch components in your own design - Proof of performance - Graupner Bell 212 Helicopter set 3 World Helicopter Records in 1974 - Send 25c for catalog.

**MODEL HELICOPTERS** 14695 CANDEDA PLACE, TUSTIN, CA. 92680  
24 Hour-7 days a week Phone (714) 838 9738

tioned above, or by glueing a triangular cross section strip of balsa (like trailing edge stock) on the back of the trailing edge, bottom of the wing main panel at the polyhedral joint (see sketch).

There are other ways to control power and glide, but warping is one of the easiest and most effective... as long as it is *planned* as part of the model. ●

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

3/8th sheet, if you have a small piece available. The extreme nose of the model fuselage consists of a plug made up of a piece of 1/4 and a piece of 1/8th balsa. If you don't have some of these sizes in your scrap box, laminating the thicker pieces out of layers of 1/16th sheet will work well.

Assembling the basic structure is quite simple. Note the direction of the grain in all the parts. Because the nose of the Bleriot IV tapers down quite rapidly in the plan view, and bending a full length sheet fuselage side that much would require a lot of nose formers and patience, we opted for thicker stronger

sides at the nose. Cut the blocks to match the side view. Cement them in place on the front face of the first former. Then cement the nose top and bottom skins in place. When all the rest of the fuselage has been assembled and its cement is thoroughly dry, the nose can be carefully carved to the shape shown in the top view. Note that the nose was of square cross-section all the way to the very front, so don't accidentally sand round corners on it.

Before assembling the wings and tail to the fuselage is the best time to add rib, spar, and structure indications on the model, if desired. The real airplane was completely covered with fabric, not left open on the aft end of the fuselage as on later Bleriotics. Therefore, the markings are not absolutely essential, but if done rather subtly, they look good on an old fashioned airplane. I used a light brown felt pen for the ribs, spars, longerons, and uprights. I used a light grey felt pen for the wire braces.

When developing the airfoil section of the wings and horizontal tail pieces,

use thin dope and only one coat. With this thin wood it is easy to get too much curvature if too much dope is used.

To locate the wings, two root ribs are cut out of 1/16th balsa and cemented to the sides of the fuselage. Be precise in their location because they locate the wings on the model. When dry, cement the wings in place against the sides of the fuselage and on top of the root ribs. Block up the tips for the proper dihedral and let dry.

The tail pieces are simply cemented in place on the fuselage, make sure they are properly aligned.

Add the two-piece, "V" shaped wing bracing post to the bottom of the fuselage and then add all the bracing wires. Two-pound test monofilament fishing leader was used on the model in the pictures. I like it because it is strong, light, somewhat resilient, and can be tightened by the application of a little heat. Thread also will work for the bracing.

The propeller on the original Bleriot was a four bladed paddle affair, so we decided the flying propeller could easily be scale-like in shape, although larger in diameter. Clear, .015 plastic was used for the paddles. A couple of large sequins provided the plastic discs for the front and back of the hub. Don't forget to put a propshaft hole in the birch dowel assembly before bonding it all with epoxy. A short length of prop shaft wire through the hole while the epoxy is setting up is required. Twisting it carefully with a pair of pliers while pulling it out will make removing it from the hub easy. Epoxy the paddles to the dowels at about a 35 or 40 degree blade angle. Paint the propeller silver with plastic model paint.

Cut the cockpit opening out of the top of the fuselage. The dummy engine can be made up out of scrap balsa, or it can simply be drawn onto the top of the fuselage with a fine black felt pen... or even just cut out of the plan and pasted on. If you elect to make it up out of balsa, a hole will have to be cut in the top of the fuselage to accept it. This will require a cut out of the first former as well as the top skin and nose side blocks. Make a 1/64th sheet balsa tray to fit in the engine opening and build the dummy engine in that.

The landing gear wires are a little complex to bend, but with a little care they are not hard to do. In the right wing panel are isometric sketches of the landing gear wires. All the lengths shown between the bends are true lengths. The angles, of course, are not true in the isometric, but are correct in the front and side views. The gear is bent so that it is attached to the outside of the bottom fuselage skin.

The main gear is much more complicated than the simple wire, and the rest of its members are made up of thin strips of model railroad basswood cemented in place. Let these pieces touch



the wire but do not cement them to the wire. This allows the wire to absorb a landing shock without putting any load on the wood parts of the main landing gear. Monofilament "wire" was used for the rear landing gear brace. Wrap thread around the uprights to simulate the springs. Paint the landing gear details black. I used Fulton Hungerford's wire wheels. F.H. Wheels, 1770 Lilac Circle, Titusville, Florida 32780. These wheels are not cheap but they are really quality products. Besides, they will outlast two or three Peanuts, so the price isn't too tough to take. I recommend them.

For a source of Peanut scale wood, in thicknesses of 1/32, 1/40, 1/20, and 1/64th, write to Mike Taibi, 4339 Conquista Ave., Lakewood, Calif. 90713 for a price list, send him a stamped, self-addressed envelope.

This model is easy to fly, but it has one characteristic that will surprise you. It wants to turn right under power. This right turning tendency is caused by the large sub-rudder. The rudder is shown in the top view as bent to turn the model left. With this amount of rudder adjustment, the model flies in large right turn circles and works very well indoors. Outdoors with more power, it works well as long as there is any power being developed by the rubber motor. It will spiral dive to the left in the glide, however. For outdoors, it might be better to use left thrust line adjustments rather than the left rudder to cure the right turning tendency. ●

**F/F Scale . . . . Continued from page 41**  
 problem is to make two copies of the templates, but one copy is made in reverse. I use a 3M Copier which is capable of making reverse images. (I'm sure that 3M didn't intend for this to be the normal procedure. However, when plans show only half of a stabilizer, etc., I copy the half in reverse and now I have the matching half.) By picking out the same bulkhead half from each sheet you'll have two identical halves. The other way of doing it is to rubber cement one bulkhead half onto a folded piece of paper then cut it out.

Once all of the bulkhead templates have been cut out, I mount them onto balsa using rubber cement (see photo). (Incidentally, another advantage to this jig set-up is that you can use 1/32 inch sheet for the bulkheads, since they are supported during the construction.) Each bulkhead is rough cut from the balsa sheet, leaving the centers still intact, then I sand them to final shape.

To facilitate accuracy in cutting the keel notches, perpendicular lines were drawn on a sheet of paper. The bulkheads are placed so that the notches intersect the lines, then the notches are cut out. You will note that only the front bulkhead has all of the stringer notches removed. I have found from past experience that the stringers do not

## CLASSIFIED ADS

Non-commercial: Rate is 25 cents per word with a minimum of \$3.00 worth. Commercial: Rate is 40 cents per word with a minimum of \$5.00 worth. No mail-order discount house ads knowingly accepted.

All ads are payable in advance and may be for any consecutive insertion period specified. Name and address free. Send ad and payment to: The MODEL BUILDER, Classified Ads, 1105 Spurgeon, Box 4336, Santa Ana, California 92702

**SPRUCE PLYWOOD:** Equal strength but 30% lighter. The best possible construction plywood. 1/8" - 1/4" sample sheets and data sheets, \$1.50 postpaid. Price list upon request. 1/20" dry veneer now available. David C. Fleming, 2392 Northtree Ct. N.E., Salem, Oregon 97303.

**GEORGE ALDRICH** custom fitted engines for satisfaction and top performance in R/C, U-Control, and Free Flight. Send S.A.S.E. for price list and information on new MAGNUM fuels. 3219 Shady Springs, San Antonio, Texas 78230.

**WANTED:** Any Pittman boat motors, accessories, catalog sheets, especially 7501, 9003, 20-341. No Dumas. Gregory Slivinski, 7282 Rogers Ave., Pennsauken, N. J. 08109.

**GOLDEN OLDIE KITS:** Pre-cut, \$7.50 plus \$1.00 postage. Plans \$2.50. Span 32 inch, 1/4A-1/2A, E387/Mod4, 10 airfoil 800 ft./min climb, beautiful glide. New design high wing cabin FF looks like an Old Timer Berkeley kit. Plans available: 6 ft. span version, 3 channel R/C \$6.50. Eric Lister, 953 Klockner Road, Trenton, N.J. 08619.

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

**R/C EXACT SCALE PLANS:** Curtiss Hawk P6E, 2" scale - \$8.50; Curtiss Hawk P6E, 1-1/2" scale - \$6.50; Curtiss Goshawk F11C-2, 2" scale - \$8.50; Stinson Reliant SR9, 2" scale - \$9.50. Add 65¢ for postage. Richard E. Barron, 1213 Holly Spring Lane, Grand Blanc, Mich. 48439.

Extensive collection magazines, old and new, and vintage plans. Lists. 50¢ stamps. L. M. Guerrieri 107 Alameda, Redwood City, California 94062.

**"BLACK KNIGHT"** Spark Ignition Engines. .10 - \$43.50, .15 - \$45.50, .25 - \$49.50. Prices include coil, condenser, plug, and lead clips. Postage \$1.25, Californians add 6%. Chandler Engineering, 7858 Farralone St., Canoga Park, Cal. 91304.

**HELICOPTER BLADES.** Machined Clark Y airfoil. You fit and finish. Matched sets of select hardwoods, 30" long, 2-1/8" chord. \$7.65 a pair, shipped Air postpaid. No COD. Rotor Ease, Box 1066, Ogden, Utah 84401.

**LIGHTWEIGHT SILKSPAN:** Red, yellow, blue, white. Ten sheets for \$2.50. Calif. add 6% sales tax. Jerry's Hobbies, Box 2122, Santa Ana, Ca. 92701.

**CUSTOM SAILPLANE WING COVERS:** Protect wings, ease carrying. Cloth, Velcro fastener, center divider. State model/span or send planform. Under 100": \$8.95, 100 - 120": \$10.95, over 120": \$12.95. No COD. Roell Models, Box 2351, Palos Verdes, Ca. 90274.

Speed Equipment: Cars, R/C, planes, boats, Hop-up, chrome, ultrasonic cleaners. SASE plus 50¢. Franny's Chrome, 513 Vesta Place, Reading, Pennsylvania 19605.

Model airplane plans. Peanut, rubber, CO<sub>2</sub>, gas. Free list. Send self addressed, stamped envelope to: Modernistic Models, Box 6932 Burbank, California 91510.

**TISSUE PAPER** for Rubber Scale Planes. 20 by 30 inch sheets, 10¢ per sheet. Stamped envelope brings free sample of all 19 colors. Bill Wilson, P.O. Drawer U, Kountze, Texas 77625.

**WANTED:** Original plans or preferably kit for Hal deBolt's Live Wire "Custom" Bipe, also other early deBolt kits. Contact Joe Nagy, 317 Sunset Dr., St. Thomas, Ontario, Canada N5R 3C6. Phone (519) 631-5940.

### INDEX TO ADVERTISERS

Ace R/C, Inc. . . . .	61	Model Helicopters . . . . .	86
American Balsa Corp. . . . .	67	Model Rectifier Corp. (MRC) . . . . .	8th Cover
Astro Flight, Inc. . . . .	71	Model Specialties Co. . . . .	78
Cannon Electronics, Inc. . . . .	85	Walt Mooney Peanuts . . . . .	79
Carr Sails . . . . .	71	Sid Morgan (Vintage Plans) . . . . .	86
Cloudbuster Venture . . . . .	80	M&S Ltd. . . . .	82
Concept Models . . . . .	79	Nelson Model Products . . . . .	66, 85
Jim Crockett Repticas . . . . .	65	Peyton Products . . . . .	83
Dumas Products, Inc. . . . .	2nd Cover	John Pond O.T. Plans . . . . .	60
Flying Scale Models . . . . .	77	Proctor Enterprises . . . . .	70
Flyline Models . . . . .	78	Pro-Line Electronics, Inc. . . . .	4th Cover
Fox Mfg. Co. . . . .	Center Spread	REMCO . . . . .	60
Carl Goldberg Models . . . . .	72	RG's R/C . . . . .	70
Golden Age Reproductions . . . . .	80	Rocket City Specialties . . . . .	66
W. C. Hannan . . . . .	80	RS Systems . . . . .	7th Cover
Heath Co. . . . .	57	Satellite City . . . . .	65
Hobby Hideaway . . . . .	65	Scott Research . . . . .	84
HRE, Inc. . . . .	74	Sig Mfg. Co. . . . .	6th Cover
Kavan Model Aircraft, Inc. . . . .	1	Sonic-Tronics, Inc. . . . .	68
K&B Mfg. . . . .	64	Sterling Models, Inc. . . . .	62, 63
K&W Enterprises . . . . .	73	Su-Pr-Line Products, Inc. . . . .	81
Kelly Products, Inc. . . . .	81	Top Flite Models, Inc. . . . .	69
Kraft Systems, Inc. . . . .	3rd Cover	Victor Model Products . . . . .	73
Leisure Products . . . . .	83	Vintage Aero . . . . .	68
Marine Specialties . . . . .	76	VL Products . . . . .	84
Marlow Engineering . . . . .	70	Vortex Model Engineering . . . . .	75
Model Builder Binders . . . . .	82	Williams Bros. . . . .	60
Model Builder Products . . . . .	5th Cover	Richard Zasadney . . . . .	81

## FULL-SIZE PLANS SERVICE

(with instructions)

- No. 5751 FLEET BIPLANE \$4.00  
Fast-building 2" Sport Scale R/C model of famous 1930 biplane. By Romey Bukolt.
- No. 5752 SEA FURY \$3.00  
Semi-scale model of WW II British fighter, for 1/2A R/C pylon. Jerry Holcomb.
- No. 5753 GREMLIN \$2.75  
Sharp little Half-A C/L Stunt model. Will do complete schedule. By Tom Dixon.
- No. 575-O.T. MERCURY \$4.00  
Designed by Ben Shereslaw, kitted by Scientific. 72" span. By Phil Bernhardt.

- No. 4751 R/C AUTOGYRO \$3.50  
Semi-scale twin rotor R/C autogyro for .35 engines. Very stable. By Skip Ruff.
- No. 4752 OKIE BIRD \$3.50  
Red hot Class A/B free flight. Plans show sub fin and rear fin types. By Jim Clem.
- No. 475-O.T. G.H.Q. SPORTSTER \$4.00  
From July 1936 M.A.N., also kitted by G.H.Q. By Louis Loutrel. Phil Bernhardt.
- No. 3751 CURTISS F9C-2 \$6.00  
Navy airship-based "Sparrow Hawk" biplane, 1-1/2" scale C/L. Charlie Smith.
- No. 3752 CALL-AIR SNOWCAR \$2.50  
Radio controlled, semi-scale prop-driven snow car, .30-.40 engines. Fred Sanford.
- No. 3753 GROOVY TUNA \$2.50  
Top-notch Wakefield design from 1973-1975 FAI U.S. team member. Jon Davis.
- No. 375-O.T. 1936 WAKE WINNER \$2.00  
Englishman Albert A. Judge's Wakefield Cup design. Redrawn by Phil Bernhardt.
- No. 2751 TOP SLIDER \$3.50  
R/C Slope Racing glider. Will sport fly in light winds without ballast. Ken Willard.
- No. 2752 CUT-LESS \$2.50  
Half-A R/C Pylon Racer for 2 ch. radio. Elevator and aileron. By Dave Katagiri.

- No. 2753 FORD TRI-MOTOR \$2.00  
Super-light rubber scale model of famous Tin Goose, 32 1/2" span. By Tex Newman.
- No. 275-O.T. MYSTERY MAN \$5.00  
Famous Elbert Weathers Class C gas job. Used takeoff dolly. By Phil Bernhardt.
- No. 1751 R/C TYRO TRAINER \$3.00  
Powered glider with removable .049 power pod/hatch. Span 74". By Hank Cohan.
- No. 1752 BEACH'S FLYER \$2.50  
Stagger-wing-biplane, canard-tractor for .049 Super-simple, but wild! By Kloth/Beach.
- No. 175-O.T. FLYING QUAKER \$5.00  
First gas model kit by Megow, 1937. Span 7 ft. Redrawn by Phil Bernhardt.
- No. 12741 85' HARBOR TUG \$8.00  
Complete plans (3 sheets) for R/C tug. All wood, 37" LOA. By Francis Smith.
- No. 12742 WACO SRE \$3.75  
Big (39" span) rubber powered scale cabin biplane. A classic! By George Clapp.
- No. 12743 MOON DUST \$2.75  
C/L Stunt ship for .35 engines. Foam or built-up wing. Span 50". By Jack Sheeks.
- No. 1274-O.T. THERM'L THUMBER \$3.00  
Hot Class A or B pylon type gas model. Span 48". Redrawn by Phil Bernhardt.
- No. 11741 CESSNA 150 \$2.00  
Small R/C semi-scale for 1 to 3 channels. Modified Ace foam wing. By Fred Reese.
- No. 11742 HUGHES "300" \$1.50  
Lightweight 22" rotor span, rubber powered in-or-outdoor 'copter. Roy Foote.
- No. 11743 "C-QUELL" \$4.00  
Class B/C power model, co-designed by MB's F/F Editor; 76" span. Bob Stalick.
- No. 1174-O.T. LANZO STICK \$3.50  
Rubber stick winner, '40 Nats. Span 4 1/2". Still good in Unlim. By Phil Bernhardt.
- No. 910741 LONE EAGLE \$2.00  
High performance rubber scale model of 1927 vintage monoplane. By Bob Oslan.
- No. 91074-O.T. BUHL PUP \$4.50  
Semi-scale 8 ft. span model published in 1936 MAN. Redrawn by Phil Bernhardt.

## STICK 'EM PATTERNS

"Stick 'em Pattern" numbers correspond to plan numbers. Order with plans and they'll be mailed together . . . 3rd Class. Add 50¢ per set to mail patterns 1st Class.

- CALIFORNIA RESIDENTS ADD 6% TAX.
- No. 575-O.T.SP MERCURY \$3.25  
No. 11743 SP "C-QUELL" \$3.95  
No. 1174-O.T.SP LANZO STICK \$1.95  
No. 91074-O.T.SP BUHL PUP \$4.95  
No. 8741SP WOODY PUSHER \$1.95  
No. 874-O.T.SP POWERHOUSE \$3.95  
No. 7741SP CURTISS A/12 SHRIKE \$3.95  
No. 774-O.T.SP OUT 'O SIGHT \$2.45  
No. 6741SP TRITEX BEAM \$2.95  
No. 674-O.T.SP RED ZEPHYR \$3.95  
No. 12711SP CURTISS-WRIGHT Jr. \$3.95  
No. 574-O.T.SP T-D COUPE \$2.95  
No. 11731SP BIG JOHN the FIRST \$5.95

Watch this space for more patterns to come.

- No. 8741 WOODY PUSHER \$3.00  
Easy to build & fly semi-scale R/C home-built, like C.W. Jr. .09-.15. Chris Moes.
- No. 8742 AMERICAN YANKEE \$2.00  
All sheet balsa 1/2A profile C/L scale. Sport or Proto Profile. By Bob Sargent.
- No. 8743 MACCHI MB 308 \$1.50  
Rubber scale ship for floats or trike gear. Great flier, 26" span. By Walt Mooney.
- No. 874-O.T. POWERHOUSE \$4.00  
Taibi's famous design for Forster 99 ign. Great for R/C O. T. By Phil Bernhardt.

Price includes 3rd Class postage and reprint of building instructions (if any). Add 45¢ PER PLAN for 1st Class postage. Add 50¢ for overseas orders (except APO's).

Send self-addressed, stamped business size envelope for free copy of complete plans list. CALIFORNIA RESIDENTS ADD 6% TAX.

SEND TO:  
MODEL BUILDER PLANS SERVICE  
1105 SPURGEON, BOX 4336,  
SANTA ANA, CALIFORNIA 92702

line up when the notches are cut out beforehand. I would just as soon do it after the keels are glued in position to assure accuracy. The center portion of each bulkhead is now removed along with the paper. If you leave the paper on the balsa too long you will find that it is not easily removed. Should this happen, you can use lighter fluid (naptha) and it will peel right off.

Each bulkhead is now mounted onto the jig. I use rubber cement to hold them temporarily in place. Each bulkhead is aligned with the bottom notch on the center line and the lower edge of the side keel notches even with the top of each vertical piece. The top and side keels are glued into place. Once these have dried, all of the top stringers are also glued into their exact position.

After this unit has thoroughly dried, it is removed from the jig. By using a single edge razor blade, the bulkheads are easily removed from the holding jig. The lower half can now be completed. When finished, you will be pleased at how straight and true every portion of the fuselage is, and I think you will

agree that it will be worth the slight amount of additional work. As soon as I finish the Messerschmitt, I plan to build the Hurricane next, and after that . . .

I just received a letter from Don Srull of McLean, Virginia. It seems as though he and Hurst Bowers (Flyline Models) have been instrumental in starting a new scale club in their area. It is called the Metropolitan Area Scale Society (MASS!). On March 2nd, they, along with the D.C. Maxcutters, held a joint indoor rubber scale contest. It was their second such venture (the first was a Peanut contest), and according to Don, it was a huge success. They are fortunate in being able to use one of the Navy transport hangars at Andrews Air Force Base, in Maryland. It was a little cold and drafty, but lots of room and a 50 foot ceiling made for good flying. There were about 30 models and over 50 spectators participating.

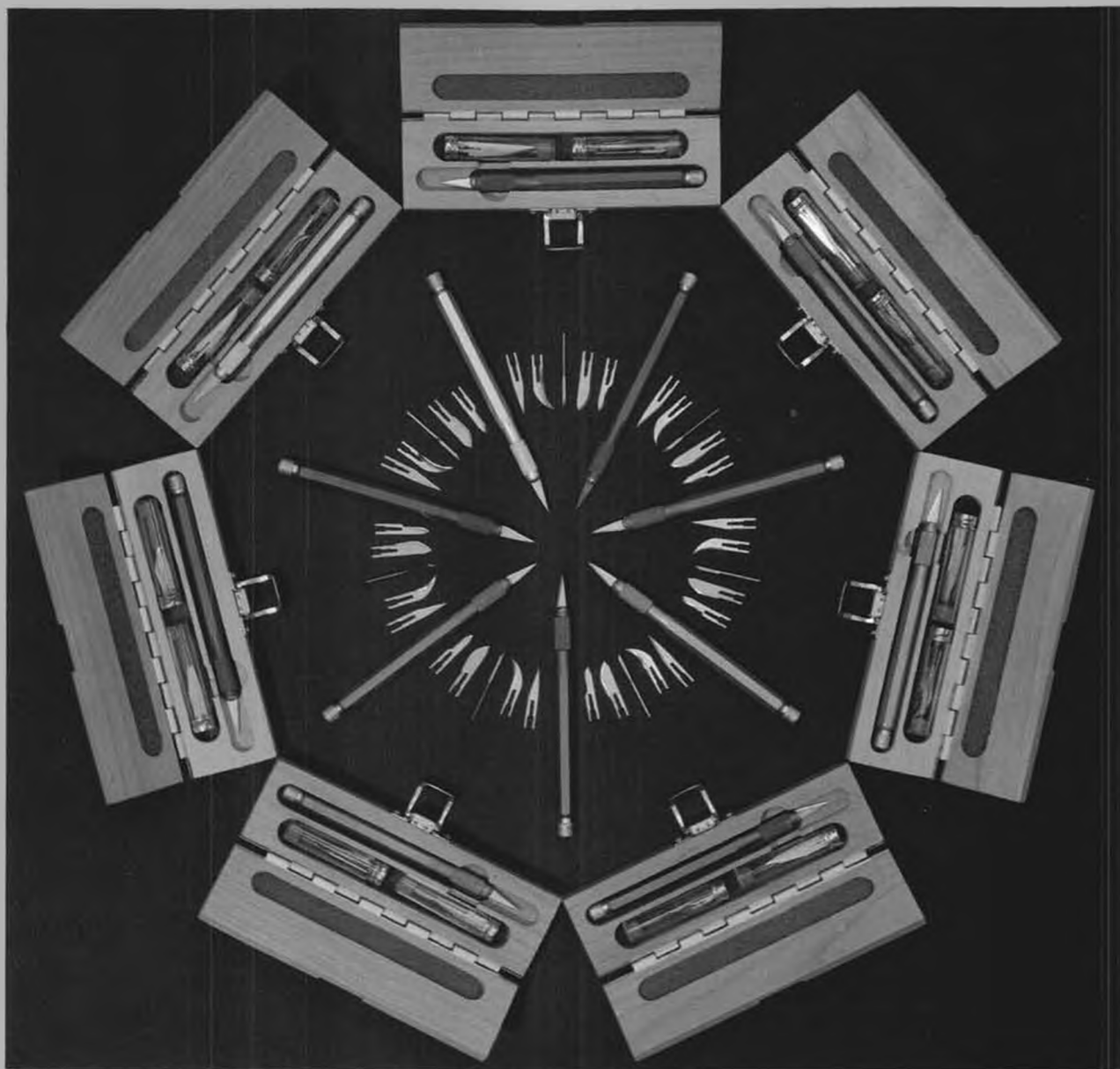
There were separate events for monoplanes and biplanes. Mooney rules were used for both static judging and flying. Anything over 5 seconds was an official flight; best of five officials was taken as the flight score.

As I have stated before, FLYING SCALE is on an up-swing, and it is always good to hear when another scale club has gotten off to a good start.

There have been a couple of new scale kits that have crossed my desk recently, and by the time you read this they will be on your hobby shop's shelves. Tern Aero has come out with two new kits for rubber scale. One is the venerable Aeronca C-3 and the other is the perennial favorite, the Curtiss Robin. Each has a wing span of 18 inches, and they both follow the Tern type of construction. The kits are complete in every way, including prop, rubber, wheels and tissue. I have the Aeronca about half finished and it will be powered with a Brown CO<sub>2</sub>. They are both welcome additions to the growing list of neat rubber scale models.

Another new product is being handled by Peck-Polymers. It is Roger Taylor's Contest Rubber Lube. It is a full 3 oz. in a handy dispensing bottle, and it does not contain any castor oil. Castor oil can often raise havoc with rubber, so no problem here. It sells for only \$1.49 a bottle.

# 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 über skiver, together with two vials containing six No. 11, six No. 15, one No. 12, and one No. 20 . . . A total of 14 blades **\$10.50**  
Individual handles (specify color) **\$3.95**  
Vial of 6 blades (No. 10, 11, 12, 15, or 20) **\$1.80**

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**  
1105 Spurgeon, Box 4336, Santa Ana, California 92702

# Introducing: **THE NEWEST IN BIPLANES**

Designed by CLAUDE McCULLOUGH



WING SPAN: 51"  
AREA: 790 Sq. In.  
LENGTH: 41-1/2"  
ENGINES: .45 - .60

FOR FOUR CHANNEL EQUIPMENT

# Skybolt



RC STUNT AND SPORT  
VERSION OF LA MAR  
STEEN'S HOME-BUILT  
SKYBOLT DESIGN.

- \* Competition-Proven Performance
- \* Builds Fast-Simplified Assembly Procedure
- \* Rugged Construction-Strongest In Its Field
- \* Choice Of Aileron Configuration
  - Single-For Sport Flying
  - Double-For Contest Work
- \* A Beauty For All Round Fun Flying
- \* Best Value On The Market
- \* Ideal For The New Biplane Stunt Event

#### SKYBOLT FEATURES:

- \* Full-Length Formed Plastic Fuselage Top
- \* Molded Plastic Cowling And Wheel Pants
- \* Molded Cockpit Trim Parts
- \* Strong Pre-Bent Aluminum Landing Gear
- \* Formed Wire Cabane Struts
- \* Die-Cut Balsa Ribs With Integral Jigs - Helps Assure True Alignment
- \* Die-Cut Plywood Parts
- \* Handy Printed Fuselage Sides Build Directly on the Wood
- \* Sig Quality Balsa and Plywood
- \* Colorful Decals
- \* Large Full-Size Plan
- \* Illustrated Booklet
- \* Photos of Full-Size Skybolts

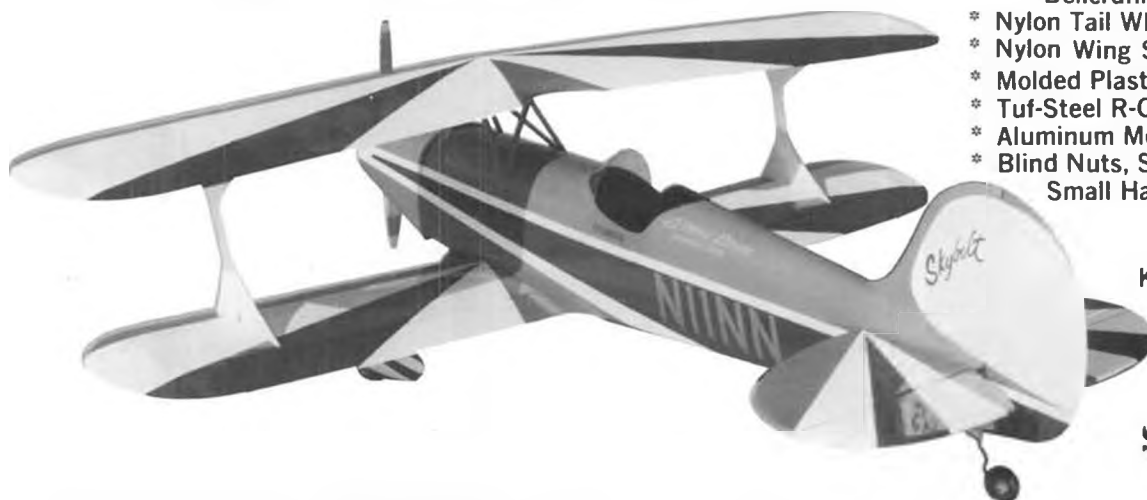
#### HARDWARE PACKAGE:

- \* Nylon Control Horns And Bellcranks
- \* Nylon Tail Wheel Bracket
- \* Nylon Wing Screws
- \* Molded Plastic Hinges
- \* Tuf-Steel R-C Links
- \* Aluminum Motor Mounts
- \* Blind Nuts, Screws and Other Small Hardware

KIT NO. RC-34

**ONLY**  
**\$49.95**

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



# Meet Our New Arrival

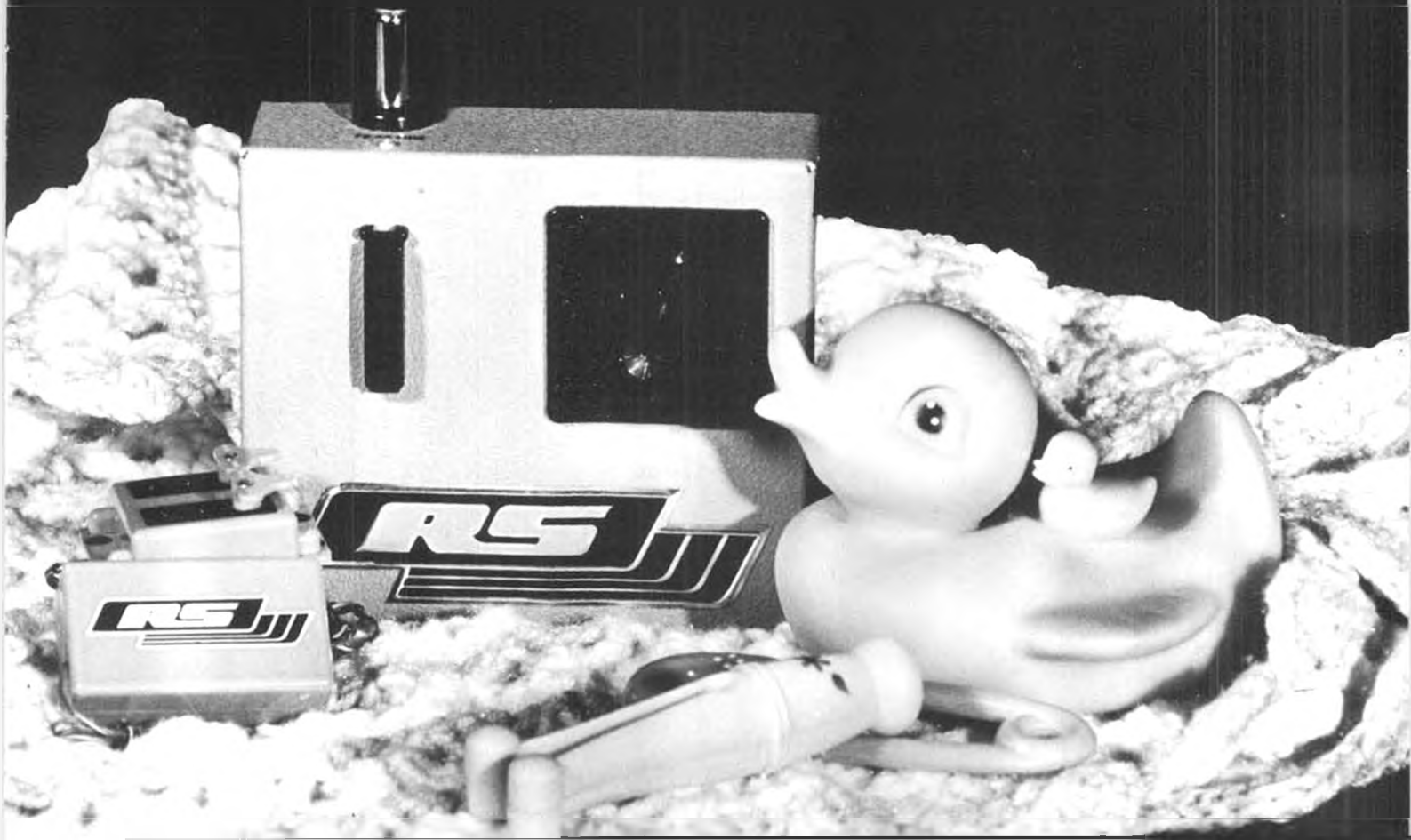
*The new RS20 is exactly what you want a two channel radio to be. It comes in a very compact case featuring a unique open gimbal that is completely sealed from the internal electronics. Rechargeable batteries are provided for both the transmitter and receiver at no additional cost. Utilizing the RS4 servos with heavy duty gears in an all new configuration, the RS20 delivers the same high performance that other RS units are so well known for – small size, light weight, equipped the right way, and performance. Four sound reasons why, when you check the price, it becomes the outstanding value for 1975.*

**\$169.95**

Special Introductory Price

**RS**  
**RS Systems**

850 West Barkley  
Orange, California 92667  
(714) 639-7261



# Airborne Superiority

## HISTORY OF SUCCESSFUL ENGINEERING

Twenty six years ago, MRC started to manufacture electronic control equipment. The company's uncompromising quality standards have made it today's largest diversified manufacturer of electronic products for the hobby industry. MRC grew because it made a better product and MRC's Mark V and Mark VI radio systems typically stand head and shoulders above the systems they compete with.



Mark V—Five Channels

## DEPENDABILITY . . . TESTED PERFORMANCE

Proven dependability is a goal all RC systems seek but few achieve. MRC's designs using state of the art American made integrated circuits rate high in performance and dependability. Combine this with precision assembly and thorough testing, and it results in reliability the MRC user can depend on. Every Mark V and Mark VI is bench tested twice after final assembly and then actually ground range tested twice. The MRC system you get has passed a test procedure so far advanced and so confident are we of its reliability, that we provide a written full year guarantee for each MRC set.

## SUPERIOR PRODUCT

It has been more than a year now since the Mark V first came to market, and the frequency of service required is less than 20 percent of our previous models.

The range of the Mark V and Mark VI is more than twice as great as our former set, and the servo resolution four times better. The new MRC systems offer range, reliability and precision control that exceeds many other so called sport systems and even challenge the higher priced "professional" sets. Ask your dealer. Ask the man who owns one. Fly a Mark V or Mark VI and enjoy MRC product superiority.

Mark V—5 channels, complete with 4 servos, nickel cadmium batteries in receiver and transmitter and charger. Recommended retail under \$300. . . . Mark VI—6 channels, features as above, and including field carrying case. Recommended retail under \$325. . . . Mark V Special "2"—5 channels with 2 servos, nickel cadmium battery in receiver only. The set to grow with. Under \$200 recommended retail.



Mark VI—Six Channels  
Complete with case.